Appendix 4.2 K
Energy Efficiency and Climate Change Adaptation Design Statement

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Energy Efficiency and Climate Change Adaptation Design Statement

Herbata Data Centre Campus

Naas, County Kildare

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Contents

Tables

Figures

Appendices

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1 Executive Summary

On behalf of Herbata Ltd, HDR have developed this Energy Efficiency and Climate Change Adaptation Design Statement for the proposed data centre campus in Naas, County Kildare in the Republic of Ireland as required by the local planning authority for commercial developments in excess of 1,000m^2.

This Statement details the assessment process and estimated CO_2 savings achieved through the integration of passive design, energy efficiency measures and Low and Zero Carbon (LZC) technologies. It also sets out how the Irish Building Regulations' Technical Guidance Document (TGD) L 2022, the Kildare County Development Plan 2023-2029 planning policies, and the DECLG guidance document 'Towards nearly Zero Energy Buildings in Ireland - Planning for 2020 and Beyond' policies regarding energy and CO_2 emissions have been addressed.

The approach taken for the energy strategy aligns with the new Kildare County Development Plan 2023-2029, with notable considerations made (in 7.12.1 of Chapter 7 of the Plan) specifically to data centres:

- Calculate baseline CO_2 emissions
- **Energy efficiency** - (Policy EC O61 of the Plan)
- **Distributed Heat** - (Chapter 7.12.1 of the Plan)
- **Use of renewable energy sources** – meet 20% TGD - L 2022 minimum requirement of energy met my renewables.
- Calculate overall CO_2 savings and final development CO_2 emissions.

The summary of outcomes at this stage of design are as follows:

1. **NATIONAL: Building Regulations**: Compliance with TGD - L 2022
   a. CPC (Carbon Performance Coefficient) for CO_2 associated with primary energy consumption is adhered to:
   Predicted site wide CPC of 0.79 = PASS
   (below the maximum permitted of 1.15)

   EPC (Energy Performance Coefficient) for primary energy consumption is adhered to:
   Predicted site wide EPC of 0.78 = PASS
   (below the maximum permitted of 1.00)

   RER (Renewable Energy Ratio) for fraction of primary energy supplied by renewable energy is adhered to:
   Predicted site wide RER of 0.11 = PASS
   (above the minimum of 0.20*)
2. **LOCAL: Kildare County Development Plan 2023-2029**: in addition to TGD - L 2022, the Plan requires these considerations specific for data centres need to be made.

- District heating systems are encouraged to be developed for adjoining residential, community and/or commercial developments (paragraph 7.12.1 of Chapter 7)
- Engagement with power purchase agreements (PPA) In Ireland to be provided.
- Promote the delivery of EV charging facilities, compatible with Sustainable Energy Authority of Ireland's Triple E Register
- Align with the Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy, July 2022
- Operation – Building design: This Energy Efficiency and Climate Change Adaptation Design Statement outlines how the building design addresses energy consumption and the associated CO_2 emissions and reduces both against the criteria of the Building Regulations Part L 2022. In terms of total operational energy, the development is targeting up to 30% to be met from installation of roof PV and electricity purchased via CPPAs (Commercial Power Purchase Agreements) with solar and/or wind providers within the Republic of Ireland. The inclusion of a biomethane injection point in the AGI (Above Ground Installation) will allow biomethane to be used in the future as a non-fossil fuel source and provide additional means for meeting the operational energy target.

This energy strategy has been modelled using a SBEMie analysis tool called IES-VE (a TGD-L compliant application). It should be noted that the Sustainable Energy Authority of Ireland (SEAI) are soon to update the SBEMie compliance version from v5.5.h.2 to v5.6.a for TGD-L 2022. The launch date of the final version of the new compliance engine is not yet available. Please note that the results detailed in this report use the currently available SBEMie v5.5.h.2.

A District Heating Network Feasibility Assessment (HDR, May 2023) has been undertaken by HDR to assess opportunities for harnessing and distributing waste heat from the proposed data centre campus. Recovery of waste heat generated from the power generation turbines is proposed to be taken to heat exchangers in the district heating plantroom for potential future use by other local buildings/developments. At this stage, possible recipients of the waste heat have been identified to use the available heat, however, further discussions and studies will need to be had to determine the technical and commercial viability of a heat network.

The requirement of 30% renewables to offset the operational energy of the site will be met via installation of roof PV and electricity purchased via CPPAs (Commercial Power Purchase Agreements).

The table below summarises the main TGD-L 2022 compliance criteria at each stage of Energy Strategy.

Table 1-1. Results against the mandatory criteria of TGD-L 2022

Stage of Energy Strategy	Carbon Performance Coefficient (CPC)	Energy Performance Coefficient (EPC)	Renewable Energy Ratio (RER)
ENERGY EFFICIENCY	0.79	0.78	-
DISTRIBUTED HEAT	0.79	0.78	-
USE OF RENEWABLE ENERGY SOURCES	0.79	0.78	0.11
TARGETS	(MAX. permitted = 1.15)	(MAX. permitted = 1.00)	(MIN. required = 0.20*)

Referring to the table above, it should be noted that the RER minimum target of 0.20 (20% of Primary energy consumption as calculated by TGD-L to be provided by on-site renewables), is

a separate target from the Kildare County Development Plan 2023-2029 operational energy target (RE 072), which is understood to require 30% “of sustainable renewable sources of energy to fuel their operations in whole”, which is proposed to be met by a combination of roof-mounted PVs and electricity purchased via CPPAs.

* if EPC ≤ 0.9 and CPC ≤ 1.04, then RER ≥ 0.1 i.e. 10%.

2 Introduction

On behalf of Herbata Ltd, HDR have developed this Energy Efficiency and Climate Change Adaptation Design Statement for the proposed data centre campus in Naas, County Kildare in the Republic of Ireland.

This statement details the assessment process and estimated CO_2 savings achieved through the integration of passive design, energy efficiency measures and Low and Zero Carbon (LZC) technologies. It sets out how the Irish Building Regulations' Technical Guidance Document (TGD) L 2022 and the Kildare County Development Plan 2023-2029 planning policies regarding energy and CO_2 emissions have been addressed.

The approach taken for the energy strategy is in line with the new Kildare County Development Plan 2023-2029.

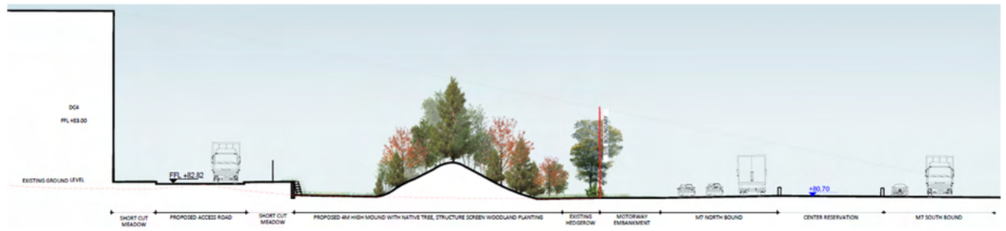
2.1 Project Background

The proposed site is situated on the outskirts to the West of the town of Naas in County Kildare in the east of Ireland, located along the M7 motorway to the north of the M7 Business Park.

The existing site contains 3 no. dwellings which are located along the northern boundary of site which will be demolished. There will also be the removal of internal hedgerows and provision of site-wide landscaping, including 30m mounded landscape buffer along the M7 motorway.

The buildings have been positioned on the site to fully respect the ecological and environmental constraints and will be screened by the introduction of new landscaping and woodland.

Figure 2-1. Sketch of proposed mounding and native woodland screen planting



The proposal for the overall development of the site which sits within the red-line boundary (shown in Figure 2-3), excluding the SID application, consists of the following:

- 6 no. Data Centres
- Admin & Workshop building
- Security Hub
- Water Treatment Plant
- AGI (Above Ground Installation) building to connect to high pressure gas main
- DH (District heating) plantroom
- Total of 210 no. car parking spaces (21 no. EV charging points; 14 no. disabled parking spaces)

Overall, the Data Centre buildings will create circa 165,750m^2 of development excluding the compounds required for the other buildings and substation within the development.

Figure 2-2. Location of the proposed development

Figure 2-3. Proposed site layout

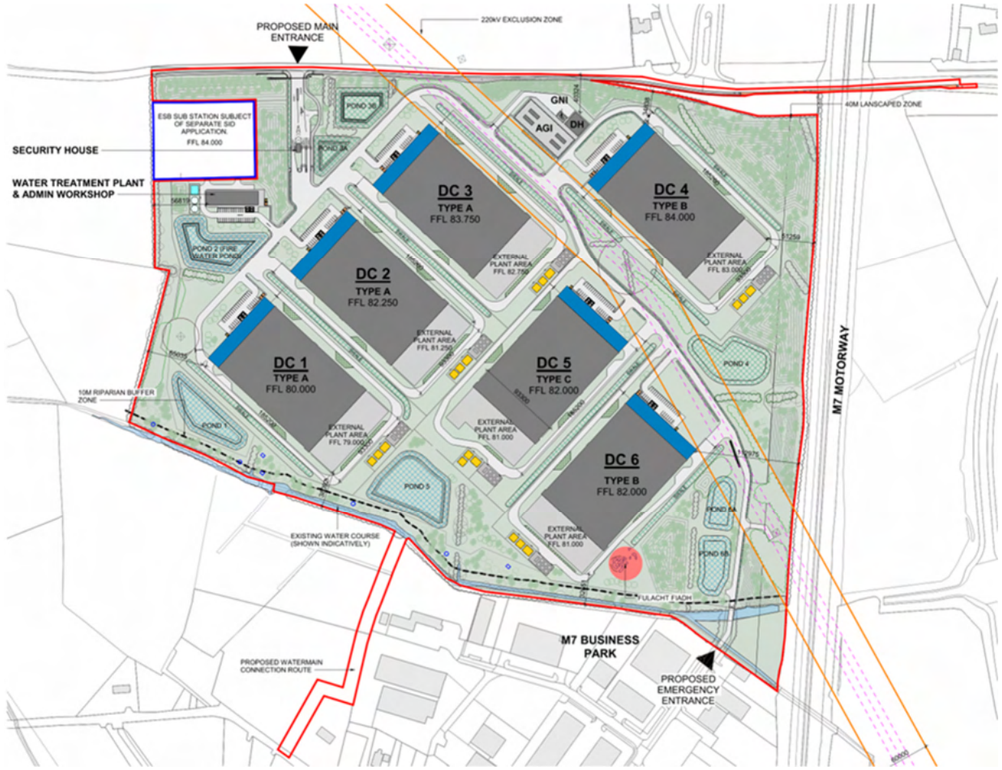


Figure 2-3 shows the data centres (DC1-6), Admin & Workshop (orange), Security Hub (pink), Water treatment plant (green), AGI [Above-Ground Installation] (blue), District Heating Plantroom (yellow).

The calculations in this Energy Efficiency and Climate Change Adaptation Design Statement are based on the drawings (Rev P03, 10/03/2023) issued by RKD.

It should be noted that the ESB Substation and GIS building falls outside the red-line boundary and is subject of a separate SID application.

3 Building Regulations & Planning Policy

The development has been designed to meet sustainability and energy targets at both a National and Local level, as detailed in the following sections:

3.1 NATIONAL: Building Regulations – Technical Guidance Document (TGD) L 2022

The development will comply with the current Building Regulations Technical Guidance Document (TGD) L 2022 - Conservation of Fuel and Energy – Buildings other than Dwellings.

The following criteria are the main requirements of the aforementioned Technical Guidance Document.

1. **EPC** (Maximum Permitted Energy Performance Coefficient)
   Primary Energy Consumption
   Actual building / Reference building **≤ 1.00**
2. **CPC** (Maximum Permitted Carbon Performance Coefficient)
   CO_2 associated with Primary Energy Consumption
   Actual building / Reference building **≤ 1.15**
3. **RER** (Renewable Energy Ratio)
   Percentage of Primary Energy provided by Renewables onsite or near ≥ 20%* of primary energy demand is renewables.
   *if EPC ≤ 0.9 and CPC ≤ 1.04, then RER ≥ 0.1 i.e. 10%.
4. **Limiting U values** – Worst case allowed U values are listed in Table 1 of Part L 2022
5. **Limiting Solar Gains** – Limit ingress of solar gains compared to Reference building whether side lit, top lit, rooflights, (see 1.3.5.3 of Part L)
6. **Area of openings** – Should be in line with BS8206-2:2008 and CIBSE Lighting Guide (LG10) (see 1.3.2.4 of Part L)
7. **Thermal bridging** – The NEAP calculation of primary energy use and CO_2 emissions takes account of thermal bridging effects. In general, this is undertaken by including an allowance for additional heat loss due to thermal bridging (see 1.3.3.3 of Part L and the NEAP manual).
8. **HVAC Minimum** – Efficiency values, controls, SFP's, in Tables 2 to 7 of Part L
9. **Lighting** – Minimum performance defined in Table 8 of Part L

3.2 NATIONAL: Planning Policy and guidance

The following documents have set out guidance relating to sustainable design in the built environment and data centres on a national level:

- Project Ireland 2040 - National Planning Framework sets out the sets out the strategic importance of data centres in Irelands' Enterprise Strategy.
- National Climate Change Adaptation Framework (DECLG, 2012).
- Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy (July 2022) .
- The National Climate Action Plan (CAP) 2019-2024.
- Climate Action Plan 2023 (including March 2023 Annex of Actions).
- IS 399:2014 'Energy Efficient Design Management – Requirements with Guidance for Use' as written by the Sustainable Energy Authority of Ireland (SEAI) and the National Standards Authority of Ireland (NSAI). It is a tool to demonstrate achievement of exemplary energy efficient design and to ensure consideration of energy from the start of new investment projects, minimising energy consumption through their lifecycle.

3.3 LOCAL: Kildare County Development Plan 2023-2029

The Kildare County Development Plan 2023 – 2029 has recently been adopted on 28th January 2023, referred to as 'The Plan' for the remainder of this document.

The Plan is divided into 17 chapters and is the key strategy document which structures the proper planning and sustainable development of land-use across County Kildare over the next six years, addressing the physical, economic, social, and environmental needs of the community. Chapters 4 and 7 are of particular relevance to energy use within a building:

- Chapter 4. Resilient Economy Job Creation (RE)
- Chapter 6 Infrastructure and environmental services (IN)
- Chapter 7. Energy Communications (EC)

The preparation of the Plan has regard to key recent development trends and national, regional, and local policy documents, in particular, the National Planning Framework (NPF) and the Regional Spatial and Economic Strategy for the Eastern Midland Region (RSES).

The key policies and objectives of the plan which are relate to energy and sustainability are:

- Energy within a building
- Data centres
- Electric Vehicles (EV)
- Pollution

3.3.1 Energy within a building

Ireland's 'Climate Action Plan 2021 – Securing Our Future' sets out the Irish Government's roadmap for taking actions that aim to halve emissions by 2030 and reach net zero no later than 2050.

Kildare County Council adopted a Climate Change Adaptation Strategy for the county in 2019 to implement related actions at a local level.

Due to increased energy requirements and the Irish government's target of 80% of national electricity to originate from renewable sources by 2030, it is acknowledged that County Kildare's electricity supply must move away from fossil fuel sources to renewable and sustainable forms of generation.

The County Kildare Development Plan 2023-2029 acknowledges that the design, construction and operation of new and existing buildings, have a significant role to play in reducing energy demand and increasing energy efficiency into the future. The energy efficiency and renewable energy requirements for the construction of new residential and non-residential buildings are primarily addressed in the current Irish Building Regulations Technical Guidance Document (TGD) - L. The regulations prescribe that a reasonable proportion of the energy consumption to meet the energy performance of a building is provided by renewable energy sources.

Notable objectives and policies regarding energy included within the Plan are as follows:

Policy	Description
EC P2*	Promote renewable energy use generation and associated electricity grid infrastructure at appropriate locations within the built environment and open countryside
EC 03	Support initiatives for limiting emissions of greenhouse gases through energy efficiency and the development of renewable energy sources
EC 010	Support energy efficient lighting at appropriate locations in both urban and rural areas.
EC 018*	Encourage and support the use of appropriately scaled solar energy in residential, commercial and industrial developments.
EC 019	Promote the development of solar energy infrastructure for on-site energy use, including solar PV and solar thermal technologies.
EC O36	Promote and encourage the use of district heating systems in new residential and commercial developments where such development does not have a negative impact on the surrounding environment, landscape, biodiversity or local amenities.
EC O37	Facilitate the use of heat mapping or other appropriate analysis to support developments which deliver energy efficiency and the recovery of energy that would otherwise be wasted.
EC P13*	Promote the appropriate development of waste heat technologies and the utilisation and sharing of waste heat in areas where feasibility is demonstrated for its use in the delivery of low carbon district heating technology.
EC P14*	Require high levels of energy conservation, energy efficiency and the use of sustainable and renewable energy sources in new and existing buildings.
EC O44	Require all new development to be designed to take account of the impacts of climate change, and that energy conservation, energy efficiency and energy renewable measures are incorporated in new and existing buildings through the appropriate design and location of new development, in accordance with relevant building regulations and guidelines.

*Compliance with these EC policies are demonstrated in section 5.2 of the "Energy Policy Compliance Report 120623" (HDR, June 2023). All remaining EC policies are responded to in this Energy Efficiency and Climate Change Adaptation Design Statement.

3.3.2 Industry, Warehousing, Business and Technology Parks

Development proposals for Industrial, Warehousing, Business and Technology Park developments in excess of 1,000m² of commercial floor space should be accompanied by an Energy Efficiency and Climate Change Adaptation Design Statement. The statement should detail how any on-site demolition, construction and long-term management of the development will be catered for and how energy and climate change adaptation considerations have been inherently addressed in the design and planning of the scheme.

Such developments shall have regard to:

- The requirements of the current Building Regulations Part L – Conservation of Fuel and Energy (2008 and 2011), and any other supplementary or superseding Regulations or guidance documents
- The DECLG guidance document 'Towards nearly Zero Energy Buildings in Ireland - Planning for 2020 and Beyond', which promotes the increase of near Zero Energy Buildings (nZEB)

New development proposals shall show how energy efficiency is achieved through siting, layout, design and incorporate best practice in energy technologies, conservation, and smart technology. The author of an Energy Efficiency and Climate Change Adaptation Design Statement should be appropriately qualified or competent and shall provide details of their qualifications and experience along with the statement."

3.3.3 Data centres

Kildare County Council acknowledges that data centres contribute to job creation during construction, maintenance and from associated areas such as research and development, data analytics, customer service, technical support, marketing, and sales. Data centres generally need to be located in areas where there exists a significant and sustainable electricity supply, high powered fibre optic cables, good accessibility and on large land banks that are easily developable with future expansion possibilities. In addition, the Council is mindful that Data Centres should avoid sensitive landscapes and environments.

The Council encourages proposals to align with Irish government's statement on data centres July 2022 which published 'Agreed Principles' to appraise data centres planning consent and favour sites which can increase renewables capacity for EirGrid.

- https://enterprise.gov.ie/en/news-and-events/department-news/2022/july/new-statement-on-the-role-of-data-centres-in-irelands-enterprise-strategy-published.html

The Plan states (in 7.12.1 in Chapter 7) that where data centre developments are approved in the County, the Council will expect district heating systems to be developed for adjoining residential, community and/or commercial developments.

At this stage, possible targets have been identified to use the available heat, however, further discussions and studies will need to be had to determine the technical and commercial viability of the heat network.

It is proposed that recovery of the waste heat generated from the power generation turbines will be taken to heat exchangers located in the District Heating plantroom for potential future use by other local buildings/developments.

Notable objectives and policies regarding data centres included within the Plan are as follows:

Policy	Description
7.12.1	Where data centre developments are approved in the County, the Council will expect district heating systems to be developed for adjoining residential, community and/or commercial developments.
RE P11	Support the development of data centres in appropriate locations
RE O71	Require environmental and visual impact assessments for data centre proposals
RE O72	Require data centres to consider the use of sustainable renewable sources of energy to fuel their operations in whole in the first instance or in part (minimum of 30%) where this is not possible and where it has been satisfactorily demonstrated not to be possible, subject to all relevant and cumulative environmental assessments and planning conditions.*
RE O73	Align with Kildare County Council Climate Change Adaptation Strategy (2019 – 2024)
EC P18	Support the accommodation of Data Centres at appropriate locations in line with the objectives of the National Planning Framework and the principles for Sustainable Data Centre Development of the Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy (July 2022)
EC O59	Consider applications for data centres having regard to the following criteria: • Accessibility/ease of connection to power • Availability of renewable energy to power any proposed data centre. • Availability of high-powered fibre optic infrastructure • Transport/road accessibility • Compatibility of surrounding land uses/zoning • Avoidance of designated sites including specifically avoidance of development of data centres where they would adversely affect the integrity of a European Site • Availability of significant landbanks • Noise • Visual impact • Flood risk Such developments shall be subject to an AA Screening Report, and where applicable, Stage 2 AA. They shall have a regard for any hydrological connection shared with a European Site and shall account for any potential likely significant effects and provide mitigation and monitoring where appropriate.
EC O60	Require that any application for a data centre shall take account of the cumulative visual impact of the proposed connections of the data centre with electricity transmission, renewable energy and broadband infrastructure in the area.
EC O61	Require data centres to include strong energy efficiency measures to reduce their carbon footprint in support of national targets towards a net zero carbon economy, through the use of sustainable sources of energy generation in the first instance and then the use of renewable sources of energy to power their operations, where on site demand cannot be met in this way, to provide evidence of engagement with power purchase agreements (PPA) In Ireland. All data centre developments shall provide evidence of sign up to the Climate Neutral Data Centre Pact**.
EC O62	All data centre development applications shall have regard to the DECLG guidance document 'Towards nearly Zero Energy Buildings in Ireland – Planning for 2020 and Beyond', which promotes the increase of near Zero Energy Buildings (nZEB).
EC O63	Ensure that all significant development proposals for Data Centres are accompanied by an Energy Analysis that explores the potential for the development of low carbon district heating networks.

* This target will be met from installation of on-site PV panels and purchased electricity via CPPAs (Commercial Power Purchase Agreements) with solar and/or wind providers within the Republic of Ireland.

**This is a self-signatory initiative for data centres to commit to certain PUE, WUE and circular economy targets, amongst others. https://www.climateneutraldatacentre.net/self-regulatory-initiative/

3.3.4 Electric Vehicles (EV)

The Council will promote and support the development of the necessary infrastructure required by Government to accommodate electric vehicles and as outlined in the "Electric Vehicle Charging Infrastructure Strategy 2022-2025" published by the Irish Department of Transport.

Electric Vehicles (EV) refer to both Battery Electric Vehicles (BEV) and Plug-in Hybrid Electric Vehicles (PHEV).

This is notable as the current proposals consider a large number of car parking spaces (as referred to earlier in Section 2.0 of this report.

Policy	Description
EC O45	Promote the delivery of EV charging facilities across the County where demand is proven, both on sites owned and occupied by Kildare County Council and private sites and ensure that EV charging points are installed in such a way that they do not cause significant obstruction to footpaths, cycle lanes, access to Train stations, or bus lanes/stops. The EV charger should be compatible with the Sustainable Energy Authority of Ireland's Triple E Register.

3.3.5 Pollution

The importance of a clean environment for the economic and social life of the county is well recognised. In relation to water, air, noise and light pollution, continuous effective monitoring,

and enforcement in relation to pollution control measures is imperative and will continue over the period of the Plan.

Surface water drainage

Management of surface and storm water is important to avoid increased flood or pollution risk in the storm water network, rivers, and streams throughout Kildare. Compliance with best practice guidance for the collection, reuse, treatment, and disposal of surface waters for all future development proposals is therefore imperative.

Policy	Description
IN O20	Maintain, protect and enhance capacity of the existing surface water drainage systems in the county.
IN O21	Facilitate the development of nature based Sustainable Urban Drainage Systems, including the retrofitting of SuDS in established urban areas. Culverting entire drains and streams will generally be prohibited; interference with natural drainage systems is to be minimised and the Council will explore opportunities to remove culverted drainage systems in favour of open, natural drainage systems.
IN O22	Require the implementation of Sustainable Urban Drainage Systems (SuDS) and other nature-based surface water drainage as an integral part of all new development proposals.
IN O23	Require new developments to reduce the generation of storm water run- off and ensure all storm water generated is disposed of on-site OR attenuated and treated prior to discharge to an approved water system, with consideration for the following: • The infiltration into the ground through the provision of porous pavement such as permeable paving, swales, and detention basins. • The holding of water in storage areas through the construction of green roofs, rainwater harvesting, detention basins, ponds, and wetlands. • The slow-down in the movement of water
IN O24	Only consider underground retention solutions when all other options have been exhausted. Underground tanks and storage systems will not be accepted under public open space, as part of a SuDS solution.
IN O25	Promote the use of green infrastructure (e.g., green roofs, green walls, planting, and green spaces) as natural water retention measures.
IN O26	Ensure as far as practical that the design of SuDS enhances the quality of open spaces. SuDS do not form part of the public open space provision, except where it contributes in a significant and positive way to the design and quality of open space. In instances where the Council determines that SuDS make a significant and positive contribution to open space, a maximum of 10% of open space provision shall be taken up by SuDS. The Council will consider the provision of SuDS on existing open space, where appropriate. The 'Sustainable Urban Drainage Systems Guidance Document' prepared as an action of this plan shall supersede this standard.
IN O27	Ensure that all development, including rural one-off residential developments will maintain existing surface water drainage systems, particularly at access points to the development.
IN O28	Ensure development proposals in rural areas demonstrate compliance with the following: • The ability of a site in an un-serviced area to accommodate an on- site wastewater disposal system in accordance with the County Kildare Groundwater Protection Scheme, and any other relevant documents and legislation as may be introduced during the Plan period. • The ability of a site in an un-serviced area to accommodate an appropriate on-site surface water management system in accordance with the policies of the Greater Dublin Strategic Drainage Study (2005), in particular those of Sustainable Urban Drainage Systems (SuDS). • The need to comply with the requirements of the Planning Systems and Flood Risk Management Guidelines for Planning Authorities, published by the Minister for the Environment, Heritage, and Local Government (2009).
IN O29	Support the conservation, protection and enhancement of Natural Water Retention Measures (NWRM), as appropriate to the individual catchment.
IN O30	Require all plans and projects to comply with the Best Practice Interim Guidance Document 'Nature-based solutions to the management of rainwater and surface water runoff in Urban Areas (2021)' published by the Department of Housing, Local Government and Heritage, or any subsequent updates to same

Flood risk management

Impacts arising from flooding can be minimised with proactive land use planning and sustainable management of catchments, identifying areas vulnerable to flooding and by taking measures to ensure development does not individually or cumulatively contribute to an increase in flood risk. Flood risk must be considered at all stages of the land use planning process and managed in an environmentally sensitive way.

Policy	Description
IN O31	Support and co-operate with the Office of Public Works (OPW) in delivering the Flood Relief/Alleviation schemes and measures contained in the Flood Risk Management Plans adopted by the Council in July 2018, and in other flood management works and schemes, as may arise, through the OPW Non-Coastal Minor Works Programme.
IN O32	Support the implementation of the EU Flood Risk Directive (2007/60/EC) on the assessment and management of flood risks and the Flood Risk Regulations (SI No 122 of 2010).

IN O33	Manage flood risk in the county in accordance with the sequential approach and requirements of the Planning System and Flood Risk Management Guidelines for Planning Authorities, DECLG and OPW (2009) and circular PL02/2014 (August 2014), when preparing plans, programmes, and assessing development proposals. To require, for lands identified in the Strategic Flood Risk Assessment, a site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk, demonstrating compliance with the Guidelines or any updated version of these guidelines, paying particular attention to avoidance of known flood risk, residual flood risks and any proposed site-specific flood management measures.
IN O34	Recognise the important role of boglands, rehabilitated peatlands and other wetland areas in filtering water and contributing to sound ecological status in rivers as well as flooding patterns. Development in these areas shall be subject to a Flood Risk Assessment in accordance with the relevant guidelines.
IN O35	Require development proposals which may affect canals and their associated infrastructure to prepare a Flood Risk Assessment in accordance with the relevant guidance.
IN O36	Require that development along urban watercourses comply with the Inland Fisheries Ireland Guidance: Planning for Watercourses in the Urban Environment (2020), including the maintenance of a minimum riparian zone of 35 metres for river channels greater than 10 meters in width, and 20 meters for river channels less than 10 metres in width. Development within this zone will only be considered for water compatible developments as defined in the OPW Planning System and Flood Risk Management Guidelines for Planning Authorities (2009).
IN O37	Protect any implemented/constructed flood relief schemes from inappropriate development or otherwise.
IN O38	Support Inland Fisheries Irelands' pilot projects to investigate the incorporation of habitat restoration measures into flood management schemes on the upper Barrow and its tributaries for native species such as salmon and to address invasive fish species, subject to all necessary planning and environmental assessments.

Noise

Continuous, repeated, and / or loud noise can have significant impacts on our quality of life. The Kildare Noise Action Plan 2019-2023, and subsequent next edition, Round 4, seeks to avoid, prevent, and reduce where necessary the harmful effects of long-term exposure to environmental noise. It primarily considers the long- term environmental noise impact from 'Major Road' and 'Major Rail' traffic noise sources (which are mapped) and sets out an approach to review noise impact levels. Environmental noise from major infrastructure (i.e., roads, railways, and airports) is governed by the EU's Environmental Noise Directive as transposed into Irish Law as S.I. No. 549/2018 – European Communities (Environmental Noise) Regulations 2018.

Policy	Description
IN O63	Implement the relevant spatial planning recommendations and actions of the Kildare Noise Action Plan 2019-2023 (and any subsequent update).
IN O64	Ensure that future developments are designed and constructed to minimise noise disturbance and consider the multi-functional uses of streets including movement and recreation, as detailed in the Urban Design Manual (2009) and the Design Manual for Urban Roads and Streets (2013).
IN O65	Ensure that noise levels caused by new and existing developments throughout the county do not exceed normally accepted standards.
IN O66	Enforce and comply with European Communities (Environmental Noise) Regulations 2018 by: • Regulating and controlling activities likely to give rise to excessive noise (other than those activities which require regulation by the EPA) Requiring new developments and / or activities likely to give rise to excessive noise to install noise mitigation measures and monitors.
IN O67	Ensure noise sensitive development in proximity to national and other roads provides a noise impact assessment / Acoustic Design Statement to the requirements set out in the Noise Action Plan and Local Planning Advice Notes as may issue and includes appropriate spatial consideration in the design phase and, where necessary physical mitigation measures, such as noise barriers, set back landscaping and / or buffer zones between areas of land where development is proposed and existing / proposed national or other roads.

Lighting

The control of light pollution is important in the interests of nature conservation, residential amenity, and energy efficiency. Light spillage is increasingly recognised as a potential nuisance to surrounding properties and a threat to light-sensitive wildlife with river corridors being particularly sensitive to light pollution. Urban and rural locations can suffer equally from this problem.

In this regard, continuous effective monitoring, and enforcement in relation to pollution control measures is imperative and will continue over the period of the Plan in addition to the promotion of environmental protection through education.

Policy	Description
IN O68	Require the design of external lighting schemes to minimise the incidence of light spillage or pollution into the surrounding environment having regard to the residential amenity of surrounding areas and the need to mitigate adverse impacts on sensitive fauna and protected species.
IN O69	Investigate measures to improve the approach to street lighting and ensure new developments are lit appropriately protecting environmentally sensitive areas.

3.4 LOCAL: Naas Local Area Plan 2021-2027

The Naas Local Area Plan 2021 - 2027 came into effect on 1st December 2021. The Plan sets out an overall strategy for the proper planning and sustainable development of Naas in the context of the Kildare County Development Plan 2017-2023 (current version at the time), the National Planning Framework (2018), the Regional Spatial and Economic Strategy for the Eastern and Midland Region, and the Kildare County Council Climate Change Adaptation Strategy 2019-2024.

The Plan is committed to ensuring sustainable and compact settlement patterns and the development of further residential, employment, educational, community, leisure, and recreational facilities. The sustainable growth of Naas should be carefully managed to influence positive behavioural changes for a successful transition to a low carbon and climate resilient society, by promoting the concept of a compact town by encouraging appropriate densities in suitable locations and by resisting sporadic isolated developments which do not integrate with the surrounding urban fabric or maximise the efficient use of land.

‘Section 4.4.2. Low Energy Buildings’ states that the design construction and operation of new buildings has a significant role to play in reducing energy demand and increasing energy efficiency into the future, and this document responds to this statement.

‘Policy MT4 – Parking’ and ‘Policy I5 – Pollution and Environmental Services‘ require that all new proposed developments make provision for the use of electric vehicles through a significant increase in the provision of clearly and exclusively designated electric car charging points on public and private land. As noted earlier within this report, the proposed development will include 21 no. EV charging points.

‘Objective NE 3.1’ encourages the use of SuDS within public and private developments and within the public realm to minimise and limit the extent of hard surfacing and paving, in order to reduce the potential impact of existing and predicted flooding risks. The proposed development will include extensive SuDS in the form of rainwater harvesting tanks, attenuation ponds, and blue roofs. See Section 5.3 and 5.4 of this report for further details.

‘Policy WH1 – Waste Heat’ promotes the development of the waste heat technologies. A District Heating Network Feasibility Assessment (HDR, May 2023) has been undertaken by HDR to assess opportunities for harnessing and distributing waste heat from the proposed data centre campus. The study looks at the potential uses for ideally between 5 and 20 MW of medium to high grade waste heat recovered from the exhaust stacks from two of the gas turbines used to power the data centres. This study concludes that a waste heat load of 20MW (or smaller) provides a number of significant opportunities to decarbonise the heating of public buildings, businesses, new homes in the local area close to the site. It is expected that the data centre will be developed with a phased approach, and therefore the heat load will be smaller than 20MW initially; the actual phasing and development is to be determined. In order to provide heat to these heat loads, extensive flow and return pipework will be required to be laid throughout the west of Naas, it is estimated that the total length of pipework could be as much as 10km and would need roads and paved areas to be used for trenching. All of this will be subject to further studies and more detailed proposals.

'Policy I4 – Energy and Communications' encourages the use of renewable technologies, and the proposed development includes a significant quantum of PV allocated to both the admin wings of the data centres, and the data halls themselves, responding directly to EDO1.12b) of Policy ED 1 – Enterprise and Economic Development’.

4 Energy Strategy

4.1 Energy and CO_2 assessment methodology

4.1.1 Non-Domestic Energy Assessment Procedure (NEAP)

The Non-Domestic Energy Assessment Procedure (NEAP) is the methodology for demonstrating compliance with specific aspects of the Technical Guidance Document L of the Building Regulations. NEAP is also used to generate the Building Energy Rating (BER) and advisory report for new and existing non-domestic buildings.

NEAP calculates the energy consumption and CO_2 emissions associated with a standardised use of a building. The energy consumption is expressed as kilowatt hours per square metre floor area per year (kWh/m^2.annum) and the CO_2 emissions expressed in terms of kilograms of CO_2 per square metre floor area per year (kgCO_2/m^2.annum).

NEAP allows the calculation to be carried out using approved software via either of the following methods:

- **SBEMie:** (Simplified Building Energy Model for Ireland) which is based on CEN standards and has been developed by BRE on behalf of the UK's Ministry of Housing, Communities, and Local Government (MHCLG).

  However, SBEMie is accompanied by only a basic user interface, iSBEMie, calculates monthly energy use and CO_2 emissions based on building geometry, construction, use, and HVAC and lighting equipment.

- **DSM:** (Dynamic Simulation Modelling) As an alternative, a dynamic simulation model can be created which uses detailed weather files and assess energy consumption and CO_2 emissions at hourly intervals throughout the year, thereby providing a more accurate representation of the building.

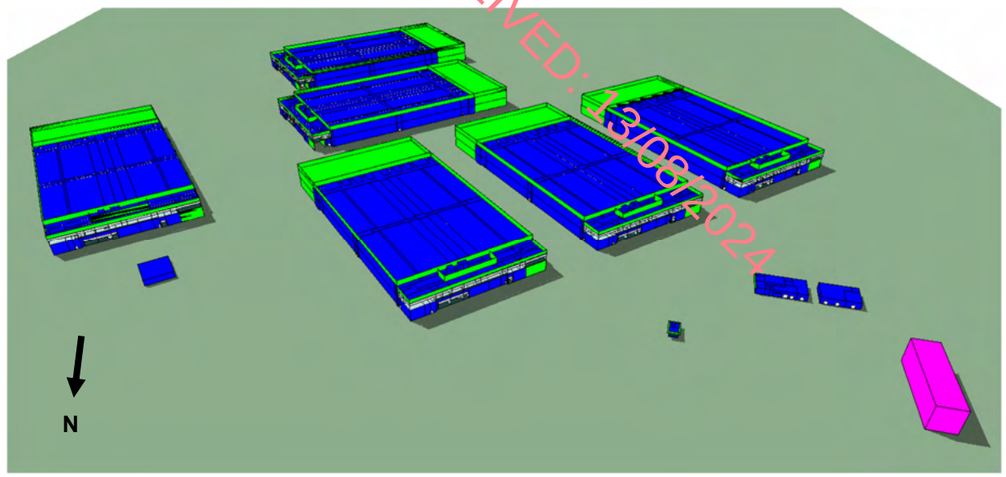
The purpose of both SBEMie and dynamic simulation modelling (DSM) methods is to produce consistent and reliable evaluations of energy use in non-domestic buildings for Building Regulations compliance.

It should be noted that the Sustainable Energy Authority of Ireland (SEAI) have updated the SBEMie compliance version from v5.5.h.2 to v5.6. for TGD-L 2022. The launch date of the final version of the new compliance engine is not yet available. Please note that the results detailed in this report use the currently available SBEMie v5.5.h.2. and thus the results using the v5.6 SBEMie may differ from the results quoted in this report.

4.1.2 Energy Model

This energy strategy has been modelled using a SBEMie analysis tool called IES-VE (a TGD-L Compliance application). An IES model was created for all spaces to run an energy and CO_2 analysis for all applicable areas, represent heat transfer to non-heated spaces and overshading of adjacent buildings and estimate the energy consumption and associated carbon emissions using NEAP templates.

Figure 4-1. IES model showing DC 1 to 6, Admin & Workshop building, Security Hub Water treatment plant, District Heating Plantroom.



4.1.3 Modelling of data centres

It should be noted that the Technical Guidance Document L 2022 seeks to compare primary energy consumption, CO_2 performance and renewable energy provision of Non-Domestic buildings. Only certain areas that are found in most buildings (e.g. office areas, toilets, reception areas, meeting rooms) that are 'typical conditioned spaces intended for human occupancy' are compared, and HVAC serving specialist areas (such as furnace rooms in steel production facilities, walk-in fridges) are ignored.

In this instance, the data storage halls and adjacent LV switchrooms constitute a specialist area, whereas the office, reception, WC, circulation areas, and security rooms are 'typical conditioned spaces intended for human occupancy'.

Therefore, the energy consumption associated with HVAC used to condition these specialist data storage halls and LV switchroom spaces are not taken into account in the energy modelling.

TGD L 2022 states:

> *"… 0.1.1.5 The guidance provided in this document for space heating, cooling, lighting and ventilation systems are appropriate for typical conditioned spaces intended for human occupancy.*
>
> *Where a building has specialist processes, alternative operational procedures or ventilation requirements other than those required for human occupancy different performance specifications may be appropriate…"*

and therefore adherence to the heating, cooling, and ventilation systems criteria stated within TGD Part L 2022 is not required for the areas where specialist processes exist.

LOW OR NO HEATING AREAS

Furthermore, TGD - L 2022 also states:

> *"…0.1.1.4 The guidance given in this Technical Guidance Document [TGD L 2022] applies to buildings designed to be heated to temperatures appropriate for human occupancy. Less demanding standards could represent reasonable provision in those buildings or parts of buildings with a low level of heating or where heating provision is not intended. Low level of heating is considered to be where there is an installed heating capacity of less than 10W/m^2 and zones are not designed to be heated to temperatures appropriate for human occupancy."*

The data halls will not be heated and therefore clause 0.1.1.5 within TGD L 2022 further confirms that the data halls are not areas to which the TGD requirements should be applied.

BUILDING FABRIC AND SERVICES CRITERIA

However, *"…in these situations [where some areas are unheated, such as the data halls] all fixed building services should meet the guidance for heating systems in section 1.4 or 2.2. Fabric should have a U value appropriate for the heating system provided and in no case greater than 0.7 W/(m^{2}K) for opaque fabric. If a part of a building with low energy demand is partitioned off e.g. a heated office in an unheated warehouse then the fabric of the heated partitioned area should meet the guidance for fabric from sections 1.3 or 2.1…"* of TGD - L 2022.

NEAP Survey Guide v2.0

Further guidance was provided in the NEAP Survey Guide v2.0 (August 2019), which stated in Appendix A2.2, that in cases where the conditioning of a space

> *"… is designed/provided for the goods and not for the thermal comfort of the occupants in the space and is, therefore, outside the scope of the energy uses which can be accessed via iSBEMie. As such, this zone should be defined as a "Zone without HVAC system" in the iSBEMie model."*

which further confirms the modelling procedure of excluding the HVAC systems for specialist areas.

In conclusion, the HVAC systems serving the data halls and heavy electrical equipment rooms (e.g. LV/MV panel rooms and electrical rooms) within the proposed development are not considered in terms of the EPC, CPC and RER, and the building envelope of these areas should not be worse than 0.7 W/m^{2}K for opaque areas.

4.2 Technical Guidance Document L 2022 Targets

The current issue of the Technical Guidance Document L 2022 requires buildings to achieve Near Zero Energy Buildings status as defined below:

> ***0.1.2 New buildings other than dwellings***
>
> ***0.1.2.1*** *In accordance with the EU Energy Performance of Buildings Directive Recast (EPBD Recast) 2010/31/EU of 19th May 2010 definition for Nearly Zero Energy Buildings (NZEB) Part L of the Second Schedule to the Building Regulations provides for buildings with a very high energy performance as determined in accordance with Annex I of the Directive. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby.*

As noted in section 3.1 of this Statement, the key targets to be met in order to show compliance with Part L 2022 and thus a NZEB status are as follows:

1. **CPC** (Maximum Permitted Carbon Performance Coefficient
   CO_2 associated with Primary Energy Consumption
   Actual building / Reference building **≤ 1.15**
2. **EPC** (Maximum Permitted Energy Performance Coefficient)
   Primary Energy Consumption
   Actual building / Reference building **≤ 1.00**
3. **RER** (Renewable Energy Ratio)
   Percentage of Primary Energy provided by Renewables onsite or near ≥ 20 %* of primary energy demand is renewables
   *if EPC ≤ 0.9 and CPC ≤ 1.04, then RER ≥ 0.1 i.e. 10%.

The Primary Energy Consumption and CO_2 emissions calculation is based on the energy balance taking into account a range of factors that contribute to annual energy usage and associated CO_2 emissions for the provision of space heating, cooling, water heating, ventilation and lighting of buildings.

4.3 BASELINE – Results

The table below demonstrates the estimated CO_2 emissions, primary energy consumption and renewable energy contribution for all modelled buildings (see Figure 4-1), according to the Reference Building which is the benchmark to which the Actual (proposed design) building will be compared in subsequent stages of the Energy Strategy.

Table 4-1. Results for Baseline ('Reference Building')

Stage of Energy Strategy	CO_2 emission rate ($kgCO_2/m^2$/annum)	Primary energy consumption (kWh/m^2/annum)	Primary energy contributions to the RER (kWh/m^2/annum)
BASELINE (Reference)	18.6	96.1	-

4.4 Energy Efficiency

A key element of the energy strategy has been to maximise the energy efficiency of the building through passive design and efficient servicing. The measures included within the design are described in detail below.

4.4.1 Form and Façade

The data centres are to be constructed as six separate buildings, with each data centre housing 8 no. data halls with associated office, reception, WC, staff rooms and circulation routes.

- External facades will comprise of a high-quality metal composite panel cladding.

- Admin areas housing office spaces and reception areas will be north-west and north-east facing to minimise unwanted solar gains whilst providing good levels of natural daylight.

4.4.2 Optimise Criteria

The design team has looked for opportunities within the design to reduce the heating and cooling loads within the building. Examples of where this has had an impact on the design include the following:

- The data halls will be primarily cooled using external air, utilising Ireland's cooler climate.
- Optimisation of the lighting strategy has meant that sizable heat loads are removed from the building, negating the requirement for unnecessary cooling. Please refer to Appendix A.
- Maximising fabric performance will reduce the space heating loads in winter and cooling loads in summer through opaque spandrel panels behind larger areas of glazing on the office and glazing g-value of 0.28.

4.4.3 Building Fabric and Passive Design

The following table shows the key fabric performance parameters of the thermal envelope of the data centres and energy centre.

Table 4-2. Reference and Actual Fabric Performance

Element		Reference and Actual Fabric Performance			
		Reference		Actual	
External Wall	U-value	**0.21**	W/m^2.K	**0.20**	W/m^2.K
Ground Floor**	U-value	**0.15**	W/m^2.K	**0.15**	W/m^2.K
Roof**	U-value	**0.15**	W/m^2.K	**0.15**	W/m^2.K
Curtain walling Windows*	U-value	**1.80**	W/m^2.K	**1.80**	W/m^2.K
	g-value	**0.68**	EN 410	**0.35**	EN 410
Curtain walling Spandrels	U-value	**1.80**	W/m^2.K	**1.80**	W/m^2.K
	g-value	**-**	EN 410	**0.00**	EN 410
Air tightness		**4.00**	m^3/m^2/hr @ 50Pa	**5.00**	m^3/m^2/hr @ 50Pa
Thermal bridging allowance		Calculated (thermal bridge lengths x psi values in Table C2 of TGD L 2022)		10% of U-value	

*Please note that the automatic U-value check by the SBEMie tool does not apply to curtain walls as stated on the BRIRL output document in Appendix C.

** Please note that as unheated areas that are wholly within the building structure and considered as within the insulated fabric have no requirement for insulation between heated and unheated areas (see 1.3.1.2 of TGD L 2022). However, the SBEMie methodology cannot distinguish this and thus these values appear in red in the BRIRL document (Appendix C).

4.4.4 Energy Efficient Building Services

The following energy efficiency measures within the building services are proposed for the development:

- Heating to admin areas will be provided through electric heat pumps (Variable Refrigerant Flow) and electric panel radiators in the stairwells.
- The evaporative cooling system will take advantage of free cooling to condition serving the data halls.
- Highly efficient LED lighting to be specified to all data halls and office areas.
- Lighting to all other areas of the buildings will be highly efficient and incorporate occupancy sensors where applicable.
- 'Metering' and 'out-of-range error' reporting is included to enhance the Energy Management System.
- Recovery of waste heat generated from the power generation turbines will be taken to heat exchangers in the DH plantroom for potential use by other local buildings/developments.
- Lighting and light spill will be minimised by use of PIR motion sensors, internal blinds and we will be deploying low intensity infrared cameras for security purposes. This will be predominantly a dark site at times of both peak and off-peak occupation.

Whilst these are the conceptual design standards currently targeted, their achievability will be reviewed through detailed design stages to ensure the overall CO_2 reduction targets are maintained, and to consider any design, procurement, and construction changes.

4.4.5 ENERGY EFFICIENCY – Results

The IES model has been run to calculate the resulting energy consumption and CO_2 emissions considering the passive design and energy efficiency measures detailed within the previous section.

The table below demonstrates the estimated CO_2 emissions, primary energy consumption and renewable energy contribution for all modelled buildings (see Figure 4-1).

Table 4-3. Results for the Energy Efficiency stage

Stage of Energy Strategy	CO_2 emission rate (kgCO_2 /m^2/annum)	Primary energy consumption (kWh/m^2/annum)	Primary energy contributions to the RER (kWh/m^2/annum)
BASELINE (Reference)	18.6	96.1	-
ENERGY EFFICIENCY	14.8	75.1	-

4.5 Solar Gains and Overheating

4.5.1 Limiting the Effects of Solar Gains in Summer

Although solar gains in winter or mid seasons can be beneficial to reduce the space heating demand of a building, summertime solar gains can be excessive and cause discomfort to building occupants.

Therefore, TGD - L 2022 assesses summertime solar gains for spaces with windows with the intention to limit these gains to either:

- **Occupied space:** reduce the need for air-conditioning; or
- **Mechanically cooled space:** reduce the installed capacity of any air conditioning system that is installed.

For the purposes of TGD - L, reasonable provision for limiting solar gain through the building fabric is demonstrated by showing that for each space in the building that **has windows**, and is **either occupied or mechanically cooled**, the solar gains through the glazing aggregated over the period from April to September inclusive are no greater than would occur through one of the following pre-defined glazing designs (see 1.3.5.3 of TGD - L 2022).

An occupied space is defined as a space that is intended to be occupied by the same person for a substantial part of the day. This excludes circulation spaces and other areas of transient occupancy such as toilets and storage.

The results of the energy model are shown in the BRIRL document in Appendix C and show that currently, all applicable space (i.e. either occupied or mechanically cooled) has solar gains that are LESS than the solar gains for the relevant pre-defined glazing designs included within Part L 2022.

Therefore, all applicable spaces currently comply with the 'Limiting Solar Gains' criterion of L 2022.

4.5.2 Limiting Overheating

In order to provide a consistent assessment of the building's energy performance, the calculation procedure must always control the internal temperature to the set-point defined for the relevant activity area in the NEAP Activity Database, irrespective of the control temperature prevailing in the building as it actually operates in reality.

In the case of naturally ventilated spaces within buildings, NEAP recommends a detailed overheating analysis is undertaken in line with CIBSE TM52 for occupied spaces.

The results of the energy model are shown in the BRIRL document in Appendix C and show that currently, all applicable spaces which highlight a Moderate, Significant or High Risk of overheating, are in spaces that have 'transient occupancy', such as toilets, corridors or specialist spaces such as data halls and associated electrical rooms.

Therefore, there is no requirement to undertake a further detailed overheating analysis using the CIBSE TM52 methodology for these spaces, as none of these spaces are 'normally occupied'.

All 'normally occupied' spaces, such as office areas, are mechanically cooled and thus have no overheating risk as the air conditioning system can control to a desired set point temperature.

The criteria for overheating risk are summarised in the following table.

Table 4-4. Overheating criteria within NEAP Modelling Guide (July 2019)

Table 16 Definition of overheating criteria		
Criterion	**(a) SBEMie**	**(b) DSM**
	Ratio (R_k) of cooling demand with temperature of 27°C to that with cooling set-point from the NEAP Activity Database	% occupied hours (β) exceeding 27°C operative temperature (occupied hours are where occupancy is greater than 20%)
Low risk	$R_k < 0.15$	$\beta < 0.5\%$
Moderate risk	$0.15 \leq R_k < 0.30$	$0.5\% \leq \beta < 1$
Significant risk	$0.30 \leq R_k < 0.50$	$1\% \leq \beta < 1.5\%$
High risk	$R_k \geq 0.50$	$\beta \geq 1.5\%$

CIBSE TM52 Overheating Methodology

The CIBSE TM52 'The limits of thermal comfort: avoiding overheating in European buildings' outlines a methodology for undertaking detailed overheating analysis for both naturally and mechanically ventilated buildings. Weather files are used for specific geographic locations and for different current and projected climate scenarios to take into the more frequent, hotter temperatures experienced across Europe due to climate change.

As noted earlier, there is no requirement to undertake a CIBSE TM52 analysis as none of the spaces identified as having an overheating risk by the Part L assessment are 'normally occupied'.

4.6 Distributed Heat

The Kildare County Development Plan 2023-2029 states that where data centre developments are approved in the Kildare County, the Council will expect district heating systems to be developed for adjoining residential, community and/or commercial developments.

A District Heating Network Feasibility Assessment (May 2023) has been undertaken by HDR to assess opportunities for harnessing and distributing waste heat from the proposed data centre campus. At this stage, possible recipients of the waste heat have been identified to use the available heat, however, further discussions and studies will need to be had to determine the technical and commercial viability of a heat network.

The proposed design is to include heat recovery from 2no. power generation turbines which will transport heat to heat exchangers in the District Heating (DH) plantroom for use by others (e.g. a district heating network operator). The distribution of heat to local developments via the district heating network would be managed and maintained by the network operator.

The decision paper "CRU Direction to the System Operators related to Data Centre grid connection processing" (Ref: CRU/21/124, 23 November 2021) points out that onsite generation

"…installations should be futureproofed to ensure that they have the ability to run on non-fossil fuel sources such as hydrogen and biomethane or blends of fossil and non-fossil fuels (e.g. natural gas (NG) and hydrogen blend)."

In addition, GNI (Gas Networks Ireland) Vision 2050 publication hopes to decarbonise their gas network by 2050 by injecting renewables gas (biomethane), abated natural gas, and hydrogen into the gas network over time. By 2050, it is anticipated the volume of renewable gas and hydrogen in the gas network will increase over time to 50%.

In response to the above, a biomethane injection point will be included as part of the AGI (Above Ground Installation) plant, which will allow biomethane to be used in the future as a non-fossil fuel source.

It is noted that Kildare County Council are a key stakeholder in actively delivering district heating and reviewing proposals once possible district heating operators have been engaged to assess interest and viability.

4.6.1 Combined Heat and Power (CHP)

Combined Heat and Power ("CHP") or Combined Cooling Heat and Power ("CCHP") systems have been considered as not viable for this development due to several limiting reasons:

- Limited hot water demand to offices and some ancillary areas only.
- Limited space heating demand to offices and some ancillary areas only.
- Distribution distances between offices and ancillary buildings resulting in proportionally high heat losses and pumping power.
- Unwanted internal distribution heat losses to a predominantly cooled development.
- CCHP inefficiencies, capacity restrictions and costs of absorption chillers verses alternative technologies.

4.6.2 Connection to an area wide heat network

Due to the energy intensity of the data halls in the proposed scheme it is a cooling dominated site. This means there is very little heating load and subsequently limited requirement to receive heat from a District Heat Network ("DHN") or local network.

Given that there are no known exact locations selected for future district heating networks in the vicinity of the proposed development, and the limited heat demand on-site in the data centres, a connection to a district heat network has not been included in the final proposals.

4.6.3 DISTRIBUTED HEAT – Results

The table below demonstrates the estimated CO2 emissions, primary energy consumption and renewable energy contribution for all modelled buildings (see Figure 4-1).

As the feasibility assessment of a district heat network is in its early stages, and possible recipients of the waste heat have only been identified but not confirmed, potential savings in energy and carbon as a result of distributed heat have not been accounted for at this stage. Therefore, results are the same as for the Energy Efficiency stage.

Table 4-5. Results for the Distributed Heat stage

Stage of Energy Strategy	CO_2 emission rate ($kgCO_2/m^2/annum$)	Primary energy consumption ($kWh/m^2/annum$)	Primary energy contributions to the RER ($kWh/m^2/annum$)
BASELINE (Reference)	18.6	96.1	-
ENERGY EFFICIENCY	14.8	75.1	-
DISTRIBUTED HEAT	14.8	75.1	-

4.7 Use of Renewable Energy Sources

The following localised renewable energy generation technologies have been considered as viable for the site:

- Electric heat pumps
- Photovoltaics

The following localised renewable energy technologies have been considered as non-viable for the site:

- Solar thermal
- Wind turbines
- Biomass heating scheme
- Biofuel Combined Heat and Power (CHP)
- Fuel Cells

4.7.1 Feasibility of Renewable Technologies

An initial assessment has been carried out to determine which technologies are technically feasible on the site. For technologies which are identified as feasible, factors such as the following have been considered to determine which technologies are appropriate in terms of economic and local planning feasibility:

- Energy generated from each LZC energy source per year
- Payback
- Land Use
- Local Planning Criteria
- Noise
- Life cycle cost/lifecycle impact of the potential specification in terms of carbon emissions
- Any available grants

4.7.2 Solar Panels

The data centres offer flat roof and therefore, solar panels have been deemed viable for this development.

The table below summarises the desktop study undertaken to determine the feasibility of solar thermal and photovoltaic (PV) panels at the site:

Table 4-6. Key considerations of solar technology

Technology	Criteria	Requirement Met?
Photovoltaic and solar thermal panels		
Roof orientation	Are available roofs facing south-west to south-east (through south), or flat?	✓
Roof space	Is there enough un-shaded roof area?	✓
Electrical demand	Is there electrical demand on site?	✓
Thermal demand	Is there consist thermal demand on site?	Low, infrequent demand

Given that the building has a much greater electrical load compared to domestic hot water load, installation of a PV array would be more suitable for this development. As a result, solar thermal technology has been deemed not viable for this project as it would conflict with roof mounted PV arrays and the low, infrequent thermal demand of the data centres.

The flat roof above the data halls offers a large unobstructed area suitable for PV installation. An indicative roof plan markup showing the location and extent of PV installed on the 6no. data centre roofs are provided in Appendix B. The installed PV across the 6no. data centre roofs is proposed to provide an overall peak output of up to 120kWp to the Admin wing of all data centres, and equates up to 0.45kWh/m^2/yr electrical energy generation (71,571kWh/annum in total across the 6 no data centres). Note that whilst the PV panels are physically located on the data centre roof, they will be serving the admin block of the building. A total PV output of 500kWp is being considered on each data centre roof to serve each building entirely, which is intended to serve areas not considered in the energy model.

4.7.3 Heat Pumps

The table below summarises the desktop study undertaken to determine the feasibility of heat pumps at the site:

Table 4-7. Key considerations of heat pump technology

Technology	Criteria	Requirement Met?
Heat distribution system	Is it possible to have a low-grade distribution system e.g. under floor heating?	✓
Heat distribution system	Is it compatible with the proposed cooling system?	✓
Ground-source Heat Pump		
Ground conditions	Has a basic ground study concluded that the site is suitable for GSHP?	-
Horizontal piping	Is there a large area of open land where horizontal piping could be installed?	x
Vertical piping	Is the ground suitable for vertical piping? Can underground obstacles be avoided?	x
Plant room	Is there space allowed for a GSHP and associated auxiliary equipment?	x
Water-source Heat Pump (River or Lake)		
Resource	Is there an available, large water source close to the site?	x
Access	Can the available water source be accessed?	x
Air Source Heat Pump		
Roof space	Is there available roof space for air-source heat pumps?	✓
Electrical Capacity	Is there sufficient electrical capacity for air-sourced heat pumps	✓

The final proposals include standard VRF heat pumps with a Cooling SEER of 5.5 serving the data centres' offices.

4.7.4 Wind Turbines

The table below summarises the desktop study undertaken to determine the feasibility of either roof mounted or standalone wind turbines at the site. Nearby buildings and the majority of the site's open land is dedicated to preserving biodiversity.

Table 4-8. Key considerations of wind technology

Technology	Criteria	Requirement Met?
Stand-alone Wind Turbine		
Wind speed	Non-urban environment to achieve suitable wind speeds	✓
Clear air flow to turbine	Is the area free from obstructions that could cause turbulence?	-
Open land around proposed site	Is there sufficient open land for a turbine to be installed?	x
Distance to nearest property	Are surrounding properties far away enough to avoid noise disturbance?	x

4.7.5 Biomass Heating Scheme

Wood chips / pellets would require many deliveries and storage, which could be feasible with this location. However, the low, infrequent thermal demand makes this technology unviable.

The table below summarises the desktop study undertaken to determine the feasibility of a biofuel heating scheme at the site:

Table 4-9. Key considerations of a biomass heating scheme

Technology	Criteria	Requirement Met?
Biomass		
Heat demand	Is there a year-round heat demand?	x
Supply chain	Is there an established supply chain in the local area?	-
Delivery logistics	Is the site accessible for deliveries? Is there sufficient space for a supply vehicle to access a biomass storage tank?	✓
Storage	Is there sufficient space for fuel storage to allow a reasonable number of deliveries?	✓
Plant room	Is there sufficient space for a biofuel boiler and associated auxiliary equipment?	✓
Flue	Can the flue be designed to meet planning authority requirements?	-

4.7.6 Biofuel Combined Heat and Power (CHP)

A CHP system has been considered and found to be not viable for this development and as such is not recommended for the site as there is no constant hot water baseload demand.

It should be noted that a biomethane injection point will be included as part of the AGI (Above Ground Installation) plant, which will allow biomethane to be used in the future as a non-fossil fuel source. This is in response to the GNI (Gas Networks Ireland) Vision 2050 publication which hopes to decarbonise their gas network by 2050 by injecting renewables gas (biomethane), abated natural gas, and hydrogen into the gas network over time.

4.7.7 Fuel Cells

The primary fuel source for fuel cells is hydrogen. This can be obtained (using a reformer) from a wide range of fuel supplies including natural gas, coal gas, methanol, landfill gas and other fuels containing hydrogen.

Hydrogen production is typically characterised by one of three conceptual colours.

- Grey hydrogen is currently the most prevalent, produced from processes that utilise natural gas while generating significant CO_2 emissions.
- Blue hydrogen signifies that the carbon emissions from production are subject to capture, utilisation and storage, which incurs significant additional costs.
- Green hydrogen is generated through electrolysis by renewable energy sources that have negligible CO_2 emissions.

Fuel cells produce zero emissions (at the point of use) when running on pure hydrogen. However, most building applications to date have involved the use of carbon-based fuels (primarily natural gas) requiring the use of a reformer. A consequence of the reforming process is the emission of carbon dioxide, although emissions are still lower than conventional combustion processes due to the higher operating efficiency of the fuel cell.

Table 4-10. Key considerations of fuel cell technology

Technology	Criteria	Requirement Met?
Fuel Cells		
Fuel Supply	Is there a source of hydrogen available?	x
Fuel Supply	Is there an alternate fuel source available?	x
Plant room	Is there space allowed for a fuel cell and associated auxiliary equipment?	x

4.7.8 USE OF RENEWABLE ENERGY SOURCES – Results

The table below demonstrates the estimated CO_2 emissions, primary energy consumption and renewable energy contribution for all modelled buildings (see Figure 4-1).

Table 4-11. Results for the Use of Renewable Energy Sources stage

Stage of Energy Strategy	CO_2 emission rate ($kgCO_2/m^2/annum$)	Primary energy consumption ($kWh/m^2/annum$)	Primary energy contributions to the RER ($kWh/m^2/annum$)
Baseline (Reference)	18.6	96.1	
Energy Efficiency	14.8	75.1	-
Distributed Heat	14.8	75.1	-
Use Of Renewable Energy Sources	14.8	75.1	9.4

In addition to the on-site renewable energy sources considered as a result of the above feasibility study i.e. PV and ASHP, it has also been agreed that the remaining renewables required to meet the targeted offset of 30% operational energy of the site, as per Kildare County Development Plan 2023-2029, will be achieved from CPPAs (Commercial Power Purchase Agreements) with solar and/or wind providers within the Republic of Ireland.

5 Wider Sustainability Considerations

This section the sustainable credentials of the proposed development, beyond energy and CO_2 emissions, highlighting the opportunities to reduce the environmental impact of the development in line with the planning policies of Kildare County Council.

A key approach to the wider sustainability aspects of the development include water harvesting and flood protection measures proposed which include the following:

- Permeable paving within car park areas.
- Blue roofs on admin wings of data centre buildings, capturing up to two-thirds of data hall roof rainfall run-off.
- Green roofs are being considered on the Security Hub.
- Significant attenuation ponds.
- Extensive rainwater harvesting tanks associated with each data centre.

5.1 Transport

In terms of traffic generation, data centres, whilst in operation, typically create low levels of vehicular traffic. Deliveries and / or collections by HGV vehicles will be limited to 3-5 vehicle movements per day.

Furthermore, the provision of electric vehicle (EV) charging points in the car parking areas to promote the use of zero emission vehicles are being considered.

It is proposed that 210 car park spaces will be provided:

- 196 car park spaces
- 14 accessible car park spaces

The Kildare County Development Plan requires a provision of up to 10% of the total car parking spaces for battery-operated cars. A total of 14 no. EV charging points are proposed, with ducting provided for future spaces.

Parking bays with permeable paving are also included within the landscape and civils design.

5.2 Materials

At design stage, materials will aim to reflect local sustainable manufacturing sources and support low carbon and green initiatives such as the following:

- All construction timber and wood-based products will be responsibly sourced by third party, independent forest certification schemes – Category A (e.g. FSC or PEFC).
- Insulation materials for building elements and building services will be specified with low embodied environmental impact (minimal global warming potential and zero ozone depleting properties).
- The opportunity to source construction materials from a factory/plant, quarry, railhead or recycling centre close to the site will be investigated, with priority given to use of prefabricated elements, where feasible.
- Appropriately sourced aggregates and durable materials will be emphasised in the hard landscaping.
- The specification of recycled and reused materials will be a main design consideration, wherever feasible.
- The development will aim to maximise the proportion of materials and components that can be re-used at the end of the building's life.
- 'Design for robustness' will ensure that damage to the building due to wear and tear, for example in areas of heavy usage, is minimised and can be repaired with minimal environmental or cost impact.

Concrete for certain types of foundations and preparatory foundations works (blinding/ lean mix concrete) can be specified with recycled aggregates. Hardscaped areas can be specified also with recycled aggregates. The maximum recycled aggregate content is 30% which is to be confirmed with local suppliers and verified to be within the limits imposed by local codes.

Reinforcement for concrete is to be specified with 95% recycled content. Similarly, steelwork is to be specified with a 95% recycled content. This is to be confirmed with local fabricators to verify if they can supply steelwork with the specified content of recycled material.

All materials intended to be procured with recycled content are to have a detailed specification provided to the structural engineer for review. The structural engineer is to comment, approve the specifications prior to procurement or installation.

5.3 Flood Risk

As per the Flood Risk Assessment that has been undertaken (HDR, April 2023) for the site, stormwater attenuation and run off has been considered in detail for the proposed development given that impermeable surfaces (buildings and roadways) are increased compared with the existing site. Attenuation ponds volumes of approximately 13,025m³ are designed as part of the proposed development. Stormwater will be attenuated on site for the 1:100 yr. flood event.

5.4 Rainwater Harvesting

Rainwater harvesting will be integral to the operational nature of the facilities, with extensive harvesting tanks installed of approximately 100m3 per data centre to avoid reliance on Irish Water to supply water for mechanical cooling plant.

Furthermore, blue roofs are also included on the admin wings of each data centre block. It is estimated that up to two-thirds of precipitation on each data centre building roof will drain onto the Admin wings, thus increasing the amount of water that can be captured on the blue roofs on each Admin wing. Blue or green roofs are also under consideration for inclusion on the Admin & Workshop building, Water Treatment Plant, and Security Hubs.

5.5 Noise Pollution

A noise impact assessment report (EIAR Volume I, Chapter 9 Noise and Vibration) will be submitted by RPS as part of the project's EIAR. Further noise monitoring will be undertaken during the summer 2023 at the request of Kildare County Council.

External buildings services plant will be attenuated as necessary based on product data and background noise surveys in line with local authority planning requirements.

5.6 Light Pollution

The site will operate as a '' site with minimal and controlled lighting at the entrance / parking areas, together with low level lighting around the site only used for emergency.

It is proposed that external lighting to the data centre campus is to provide functional lighting and to ensure safe movement and security inside the site boundary while minimising the light pollution and its impact on the surrounding rural areas containing bat colonies. The light pollution is minimised by implanting luminaires with good optical distribution, use of glare shields, selecting suitable luminaire height, dimmable light source, good lighting control and by switching the light off for a period (post curfew).

5.7 Climate Change Adaptation

An environmental impact assessment report (EIAR) concerning the potential environmental effects of the proposed development from climate change has been conducted. For full details on the matter of climate change, please refer to document EIAR Chapter 16 Climate Change (RPS, May 2023).

Relevant mitigation measures are identified, followed by the assessment of residual effects (accounting for such mitigation measures).

The impact of greenhouse gas (GHG) emissions occurring due to the proposed development on the global atmospheric concentration of the relevant GHGs, expressed in CO_2-equivalents (CO_{2e}), was considered within the assessment.

The magnitude of the impact due to greenhouse gas emissions is reported numerically by a climate risk score. This is based on severity and probability of climatic parameter changes, as well as the influence that the design of the proposed development can affect the severity and probability of these impacts.

5.7.1 Demolition

The demolished materials will be of insubstantial amount and potential asbestos will further reduce this quantity of materials than can be reused/recycled.

5.7.2 Impact Assessment – Construction Effects

Due to the relatively short construction programme, variations in climatic parameters would be minimal. Potential changes in climatic conditions are likely to occur gradually, and it is considered that construction contractors will be able to adapt working methods over time to address such changes, if necessary. For example, warmer winter conditions may extend the time certain construction activities, such as concrete pouring, can be carried out. A greater chance of summer heatwave conditions may require adaptations, such as shading work areas or increased attention to construction dust control measures.

Overall, the direct short-term impact of the construction phase as a result of climate change is deemed not significant.

5.7.3 Impact Assessment – Operational Effects

A summary of the potential climatic changes in the coming decades and the potential consequences for the operation of the proposed development in a risk assessment format is presented in the EIAR.

The potentially significant risks that have potential to be mitigated through the development's design are mainly those associated with flooding, high ambient and extreme temperatures, and extreme weather.

With the exception of flood risks, the greatest risks to the Proposed Development due to climate change have been identified as those arising from high temperatures affecting operation, public health and energy demand for cooling, and storms or extreme weather events causing building damage.

These risks were identified as significant, prior to resilience or adaptation measures to mitigate the risks, which would result in a significant adverse effect.

The nature and significance of climate change has been characterised by contextualising the proposed development's operational GHG impacts within Ireland's carbon budget, and with its compliance with Ireland's net zero trajectory, local and national climate-related policy, legislation and guidance.

Mitigation methods to reduce GHG emissions include:

- Energy efficiency measures to reduce energy demand:
  - Heat pumps to be installed to serve the data centres' admin areas.
  - Admin areas housing office spaces and reception areas to face north-west and north-east to minimise solar gains and reduce cooling demand within such areas.
  - Fabric performance of the buildings to be maximised to reduce the space heating loads in winter and cooling loads in the summer; and
  - Highly efficient LED lighting to be specified to all data halls and office areas. Lighting to all other areas of the buildings to be highly efficient and incorporate occupancy sensors where applicable.
- Renewables required to meet the targeted offset of 30% operational energy of the site via sustainable renewable sources will be met by the following:
  - 120kWp onsite generation capacity of solar PV serving the Admin wings of each data centre, with up to 500kWp being considered to serve other areas of the building; and
  - Renewable energy purchased through CPPAs (Commercial Power Purchase Agreements) with solar and/or wind providers within the Republic of Ireland.

6 Conclusion

This Statement details the assessment process and estimated CO_2 savings achieved through the integration of passive design, energy efficiency measures and Low and Zero Carbon (LZC) technologies. It also sets out how the Irish Building Regulations' Technical Guidance Document L 2022 and the Kildare County Development Plan (January 2023) planning policies regarding energy and CO_2 emissions have been addressed.

The approach taken for the energy strategy is in line with the new Kildare County Development Plan 2023-2029, with notable considerations made (in 7.12.1 in Chapter 7 of the Plan) specifically to data centres:

- Calculate baseline CO_2 emissions
- **Energy efficiency** - (Policy EC O61 of the Plan)
- **Distributed Heat** - (Chapter 7.12.1 of the Plan)
- **Use of renewable energy sources** – meet 20% Part-L minimum requirement of energy met my renewables
- Calculate overall CO_2 savings and final development CO_2 emissions

The summary of outcomes at this stage of design are as follows:

1. **NATIONAL: Building Regulations:** Compliance with TGD Part L 2022
   a. **CPC** (Carbon Performance Coefficient) for CO_2 associated with primary energy consumption is adhered to:
   Predicted site wide CPC of 0.79 = PASS
   (below the maximum permitted of 1.15)
   b. **EPC** (Energy Performance Coefficient) for primary energy consumption to adhered to:
   Predicted site wide EPC of 0.78 = PASS
   (below the maximum permitted of 1.00)
   c. **RER** (Renewable Energy Ratio) for fraction of primary energy supplied by renewable energy is adhered to:
   Predicted site wide RER of 0.11 = PASS
   (above the minimum of 0.20*)
2. **LOCAL: Kildare County Development Plan 2023-2029:** in addition to TGD - L 2022, the Plan requires these considerations specific for data centres need to be made.
   a. District heating systems are encouraged to be developed for adjoining residential, community and/or commercial developments (paragraph 7.12.1 of Chapter 7)
   b. Engagement with power purchase agreements (PPA) In Ireland to be provided
   c. Promote the delivery of EV charging facilities, compatible with Sustainable Energy Authority of Ireland's Triple E Register
   d. Align with the Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy, July 2022
   e. Operation – Building design: This Energy Efficiency and Climate Change Adaptation Design Statement outlines how the building design addresses energy consumption and the associated CO_2 emissions and reduces both against the criteria of the Building Regulations Part L 2022. In terms of total operational energy, the development is targeting up to 30% to be met from installation of roof PV and electricity purchased via CPPAs (Commercial Power Purchase Agreements) with solar and/or wind providers within the Republic of Ireland. The inclusion of a biomethane injection point in the AGI (Above Ground Installation) will allow biomethane to be used in the future as a non-fossil fuel source and provide additional means for meeting the operational energy target

The analysis covers Data Centre 1 to 6, the Admin & Workshop building, and Security Hub, Water Treatment Plant, and District Heating Plant.

The table below summarises the main TGD-L 2022 compliance criteria at each stage of Energy Strategy.

Table 6-1. Results against the mandatory criteria of TGD-L 2022

Stage of Energy Strategy	Carbon Performance Coefficient (CPC)	Energy Performance Coefficient (EPC)	Renewable Energy Ratio (RER)
ENERGY EFFICIENCY	0.79	0.78	-
DISTRIBUTED HEAT	0.79	0.78	-
USE OF RENEWABLE ENERGY SOURCES	0.79	0.78	0.11
TARGETS	(MAX. permitted = 1.15)	(MAX. permitted = 1.00)	(MIN. required = 0.20*)

* if EPC ≤ 0.9 and CPC ≤ 1.04, then RER ≥ 0.1 i.e. 10%.

Appendix A. Modelling Inputs

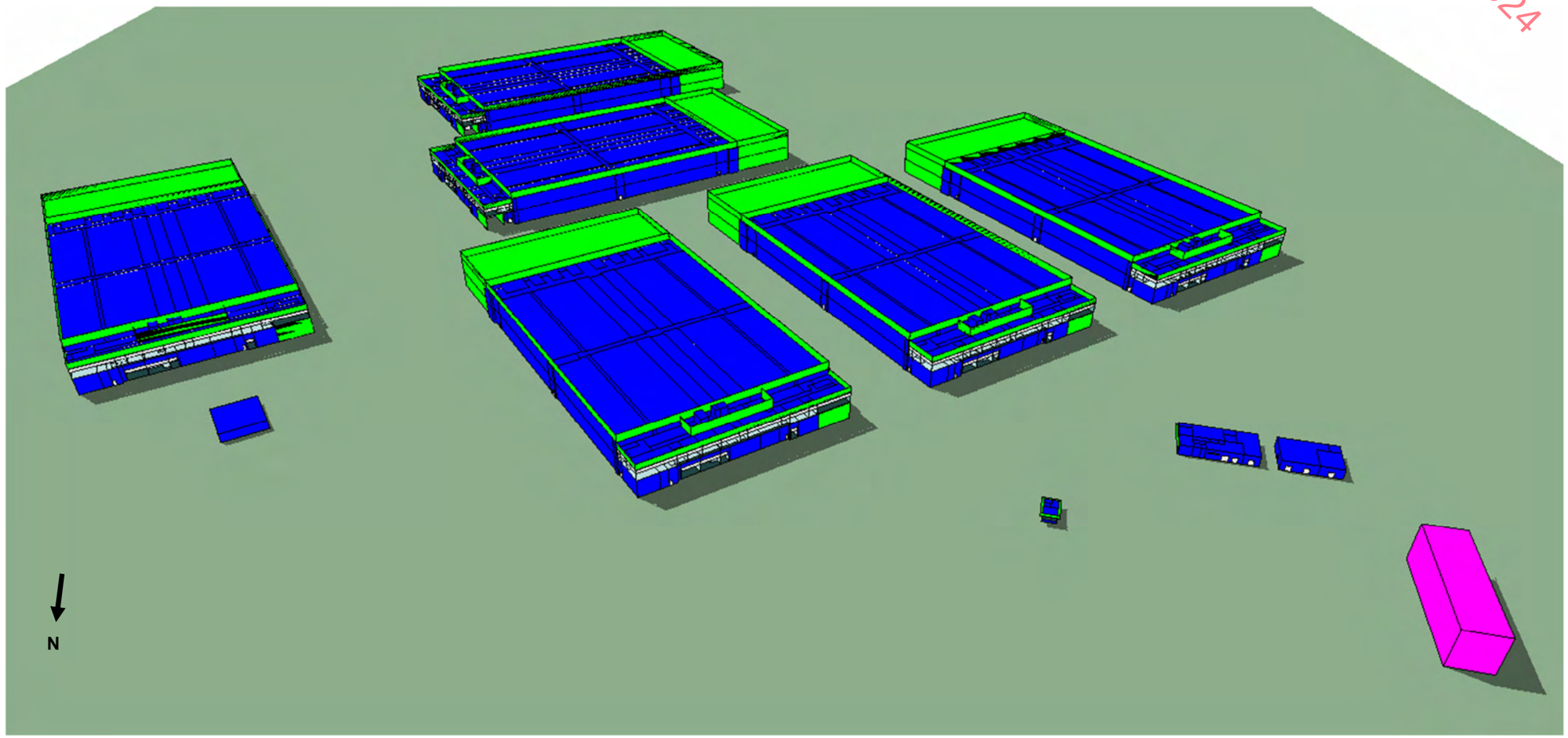
Modelling Approach

An accredited dynamic thermal model has been created from architectural drawings (Rev P03, 10/03/2023) issued by RKD. Using the IES-VE software tool (version 2022.3.0.0) and SBEMie v5.5.h.2 to represent the development and enable an evaluation of external and internal conditions for all spaces. It is noted that SBEMie v5.6 is due for final release later in 2023.

Geometry

All spaces for DC1-6, the Admin & Workshop, Water Treatment Plant, Security Hub, and District Heating building have been modelled to capture their thermal mass and shading effects.

Figure V-1. IES-VE model 3D view



Constructions

Please refer to *Table 4-2* of the main report.

Internal gains

Internal gains were set using NEAP templates, in the proposed building the following lighting has been applied:

Lighting

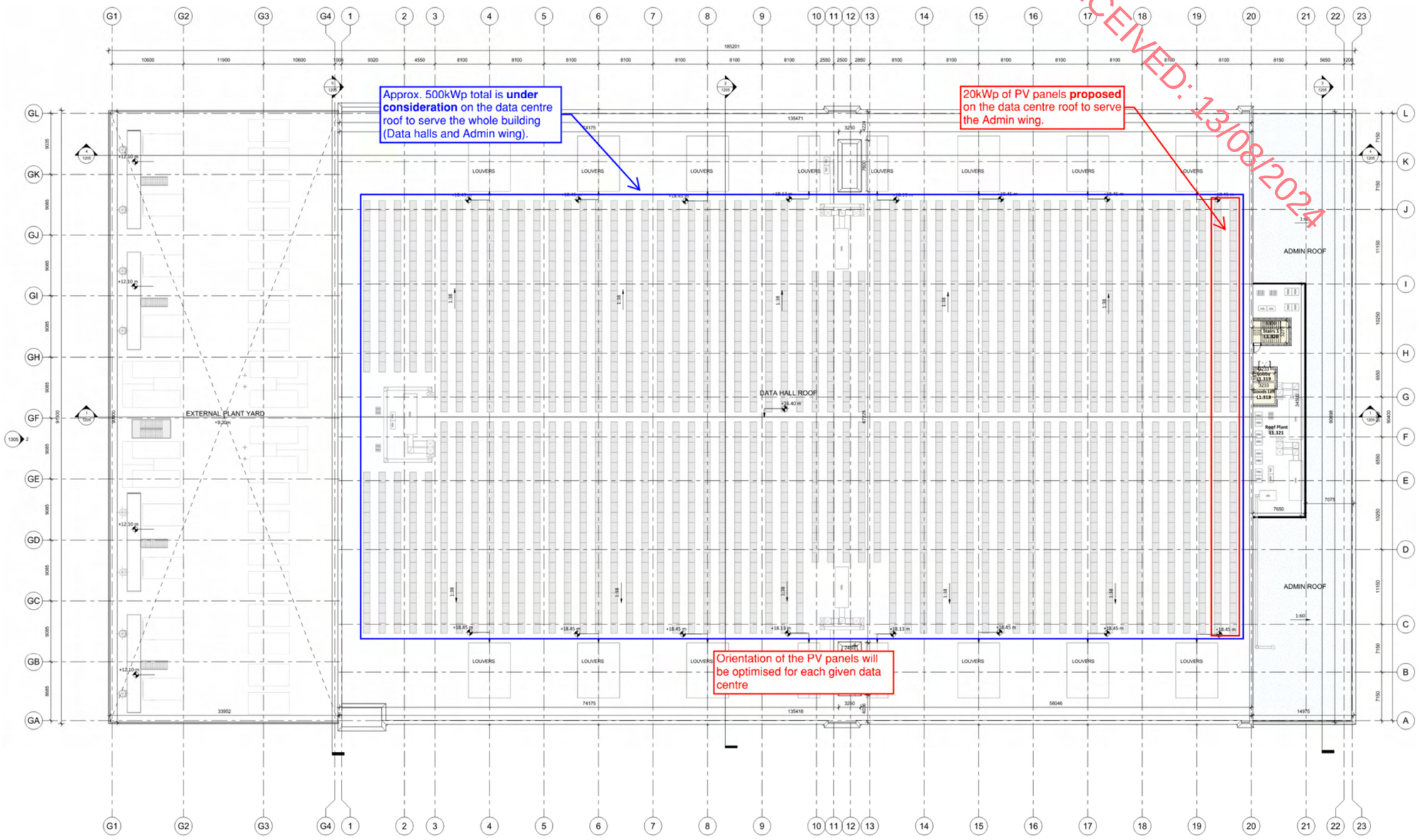
Usage Type	Averaged lighting power density lm/W	Display Lighting efficacy lm/W	Light output ratio (LED = 1.0)	Local Manual Switching	Constant illuminance control * [Y/N]	Occupancy Sensor Type / Controls	Automatic Daylighting Control [Y/N]	Daylight Control Type (Switching/Dimming)	Daylight Sensor Type (Standalone / Addressable)	Parasitic power W/m2
Data Hall	120	-	1.0	PIR	Y	Auto-On-Dimmed (0.95)	N	N/A	N/A	0.1
Mechanical Corridor	120	-	1.0	Yes	Y	Manual-OnAuto-Off (0.82)	N	N/A	N/A	0.1
LV panel room / MV panel / Fibre intake / Electical room / General switchroom	120	-	1.0	Yes	Y	Manual-OnAuto-Off (0.82)	N	N/A	N/A	0.1
Loading / Unpacking	145	-	1.0	PIR (with key switch over-ride to hold lighting on if required).	Y	Auto-On-Off (0.9)	N	N/A	N/A	0.1
Mechanical plant	120	-	1.0	Yes	Y	Manual-OnAuto-Off (0.82)	N	N/A	N/A	0.1
Office Accommodation (Asset management / Workshop / Meeting room / Security / Manager / Canteen / Meeting room / Janitor / Welfare room / Facilities / Phone booth / Printer room	118	-	1.0	Manual switching with absense detection	Y	Manual-OnAuto-Off (0.82)	N	N/A	N/A	0.1
Gym	118	-	1.0	Manual switching with absense detection	Y	Manual-OnAuto-Off (0.82)	N	N/A	N/A	0.1
Reception lobby	118	-	1.0	PIR	Y	Auto-On-Dimmed (0.95)	N	N/A	N/A	0.1
Circulation	120	-	1.0	PIR	Y	Auto-On-Dimmed (0.95)	N	N/A	N/A	0.1
Stair	110	-	1.0	PIR	Y	Auto-On-Dimmed (0.95)	N	N/A	N/A	0.1
Shower / WC	110	-	1.0	PIR	Y	Auto-On-Off (0.9)	N	N/A	N/A	0.1
Storage	120	-	1.0	PIR	Y	Manual-OnAuto-Off (0.82)	N	N/A	N/A	0.1
Security House Office / Kitchenette / Panels area	118	-	1.0	Manual switching with absense detection	Y	Manual-OnAuto-Off (0.82)	N	N/A	N/A	0.1
Acc WC	110	-	1.0	PIR	Y	Auto-On-Off (0.9)	N	N/A	N/A	0.1
Open Plan Office / Conference room / Managers office / Workshop	118	-	1.0	Manual switching with absense detection	Y	Manual-OnAuto-Off (0.82)	N	N/A	N/A	0.1
Entrance lobby	118	-	1.0	PIR	Y	Auto-On-Dimmed (0.95)	N	N/A	N/A	0.1
Storage	110	-	1.0	Yes	Y	Manual-OnAuto-Off (0.82)	N	N/A	N/A	0.1
WC / Shower	110	-	1.0	PIR	Y	Auto-On-Off (0.9)	N	N/A	N/A	0.1
Corridor	120	-	1.0	PIR	Y	Auto-On-Dimmed (0.95)	N	N/A	N/A	0.1

Heating and cooling strategy

			Data Centre [DC 1-6]												
Thermal Template		**Units**	**Data Hall** Evaporative cooling	**Mechanical corridor (external space only louvred) / Plenum** None	**LV panel room (CFD to confirm if extra fans are needed)** Evaporative cooling	**Corridor** AHU-DX	**Fibre intake** Mech vent (AHU-DX)	**MV panel / Electical room / General switchroom (Vest wing)** DX + Free cooling	**Loading / Unpacking Admin Office area Reception Lobby** VRF-1	**Type: Store General store Misc. store Secure store Store** VRF-1	**Plant** Mech vent (VRF-1)	**MMR / Security server / SER MER** DX-1	**Stairs** Panel radiator	**Riser** None	**Shower / WC** Extract (VRF-1)
System Description															
Outdoor air delivery (Ventilation)			AHU	None	AHU	AHU-Vest	AHU-Vest	AHU-Vest	AHU-Office	AHU-Office	AHU-Office	AHU-Office	None	None	AHU
Central Plant			-	-	-	-	-	-	-	-	-	-	-	-	-
Room Conditioning Heating			None	None	None	None	AHU-DX INDIRECTLY CONDITIONED	None	VRF	VRF	VRF-1 INDIRECTLY CONDITIONED	None	Electric Panel heater	None	VRF-1 INDIRECTLY CONDITIONED
Room Conditioning Cooling			Evaporative cooling	None	Evaporative cooling	DX	None	DX	VRF	VRF	VRF-1 INDIRECTLY CONDITIONED	DX	None	None	VRF-1 INDIRECTLY CONDITIONED
Plant Heating Details															
Heating system type (assumed system in model)		Description	Notional Elec radiator	None	Notional Elec radiator	DX	None	DX	DX	DX	None	DX	Electric Panel heater	None	None
Heat Fuel Type		Elec/gas	Electricity	-	Electricity	Electricity	-	Electricity	Electricity	Electricity	-	Electricity	-	-	-
Heat generator seasonal efficiency		SCOP/%	1	-	1	3.5	-	3.5	3.5	3.5	-	3.5	1	-	
Is there provision for metering?		Yes/No	Y	-	Y	Y	-	Y	Y	Y	-	Y	Y	-	
Does the metering warn "out of range" values?		Yes/No	n/a	-	n/a	n/a	-	n/a	n/a	n/a	-	n/a	n/a	-	
Pump		List	N/A	-	N/A	N/A	-	N/A	-	-	-	-	-	-	-
Plant Heating/Cooling Details															
Cooling system type (assumed system in model)		Description	Evaporative cooling	None	Evaporative cooling	DX	None	DX	DX	DX	None	DX	None	None	None
Nominal EER		EER	11.5	-	11.5	3.71	-	3.71	3.5	3.5	-	3.5	-	-	-
Seasonal EER		SEER	11.5	-	11.5	6.6	-	6.6	5.5	5.5	-	5.5	-	-	-
Power		kW	-	-	-	-	-	-	-	-	-	-	-	-	-
Does it Qualify for ECA? (tax credits)		Yes/No	No	-	No	No	-	No	-	-	-	-	-	-	-
Mixed mode? (CMM)		Description	n/a	-	n/a	n/a	-	n/a	-	-	-	-	-	-	-
Ventilation / AHU															
Specific Fan power for AHU 1		W/l/s	Included in SEER	None	Included in SEER	1.74	1.74	1.74	1.74	1.74	1.74	1.74	None	None	1.74 Extract 0.5 6ACH
Specific Fan power for AHU 2		W/l/s	-	-	-	-	-	-	-	-	-	-	-	-	-
Extract only		W/l/s	-	-	-	-	-	-	-	-	-	-	-	-	-
Demand controlled ventilation?		List	-	-	No demand control ventilation	No demand control ventilation	No demand control ventilation	No demand control ventilation	No demand control ventilation	No demand control ventilation	No demand control ventilation	No demand control ventilation	-	-	No demand control ventilation
Ductwork Leakage Classification		Type	Class B	-	Class B	Class B	Class B	Class B	Class B	Class B	Class B	Class B	-	-	Class B
AHU Leakage Classification		Type	Class L2	-	Class L2	Class L2	Class L2	Class L2	Class L2	Class L2	Class L2	Class L2	-	-	Class L2
Heat recovery		Type	-	-	-	Thermal wheel	Thermal wheel	Thermal wheel	Thermal wheel	Thermal wheel	Thermal wheel	Thermal wheel	-	-	Thermal wheel
		% efficiency	-	-	-	73.0%	73.0%	73.0%	73.0%	73.0%	73.0%	73.0%	-	-	73.0%
DHW															
DHW system type		Description	Electric POU	Electric POU	Electric POU	Electric POU	Electric POU	Electric POU	Electric POU	Electric POU	Electric POU	Electric POU	Electric POU	Electric POU	Electric POU
DHW plant efficiency		%	-	-	-	-	-	-	-	-	-	-	-	-	-
DHW system delivery efficiency		%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DHW Fuel Type		Elec/gas	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity
Is the system a storage system?		Yes/No	no	no	no	no	no	no	no	no	no	no	no	no	no
Storage Volume		litres	no	no	no	no	no	no	no	no	no	no	no	no	no
Insulation		mm													
Loop length		m													
Does the system have secondary circulation?		Yes/No	-	-	-	-	-	-	-	-	-	-	-	-	-
Building Management															
Electric Power Factor of the building		Power	0.90 - 0.95												
Lighting systems have provision for metering?		Yes/No	Yes												
Lighting systems metering warns of 'out of range' values?		Yes/No	Yes												
LZC technologies															
Low carbon technologies		Description	Heat pumps												
Renewable technologies		Description	Photovoltaic panels												

			Security Hub		Admin Workshop			
Thermal Template		**Units**	**Security House Office Kitchenette Panels area**	**Acc WC**	**Type: Office Open Plan Office Conference room Managers office Workshop Entrance lobby**	**Storage**	**WC / Shower**	**Corridor WC Lobby**
			DX-1	Extract + Panel heater	DX-1	Supply + Extract (DX-1)	DX-2 Htg only	None (DX-1)
System Description								
Outdoor air delivery (Ventilation)			MVHR	MVHR	Admin AHU	Admin AHU	AHU	None
Central Plant			-	-	-	-	-	-
Room Conditioning Heating			DX	Panel heater	DX	DX-1 INDIRECTLY CONDITIONED	DX	DX-1 INDIRECTLY CONDITIONED
Room Conditioning Cooling			DX	None	DX	DX-1 INDIRECTLY CONDITIONED	None	DX-1 INDIRECTLY CONDITIONED
Plant Heating Details								
Heating system type (assumed system in model)		Description	DX	Electric Panel heater	DX	None	DX	None
Heat Fuel Type		Elec/gas	Electricity	-	Electricity	-	Electricity	-
Heat generator seasonal efficiency		SCOP/%	3.5	1	3.5	-	3.5	-
Is there provision for metering?		Yes/No	Y	Y	Y	-	Y	-
Does the metering warn "out of range" values?		Yes/No	n/a	n/a	n/a	-	n/a	-
Pump		List	-	-	-	-	-	-
Plant Heating/Cooling Details								
Cooling system type (assumed system in model)		Description	DX	None	DX	None	None	None
Nominal EER		EER	3.5	-	3.5	-	-	-
Seasonal EER		SEER	5.5	-	5.5	-	-	-
Power		kW	-	-	-	-	-	-
Does it Qualify for ECA? (tax credits)		Yes/No	-	-	-	-	-	-
Mixed mode? (CMM)		Description	-	-	-	-	-	-
Ventilation / AHU								
Specific Fan power for AHU 1		W/l/s	1.9 based on Union	Extract 0.5 6ACH	1.74	1.74	1.74	1.735 Indirectly conditoned
Specific Fan power for AHU 2		W/l/s	-	-	-	-	-	-
Extract only		W/l/s	-	-	-	-	-	-
Demand controlled ventilation?		List	No demand control ventilation	No demand control ventilation	No demand control ventilation	No demand control ventilation	No demand control ventilation	No demand control ventilation
Ductwork Leakage Classification		Type	Class B	Class B	Class B	Class B	Class B	Class B
AHU Leakage Classification		Type	Class L2	Class L2	Class L2	Class L2	Class L2	Class L2
Heat recovery		Type	Thermal wheel	Thermal wheel	Thermal wheel	Thermal wheel	Thermal wheel	Thermal wheel
		% efficiency	65.0%	73.0%	73%	73%	73%	73%
DHW								
DHW system type		Description	Electric POU	Electric POU	Electric POU	Electric POU	Electric POU	Electric POU
DHW plant efficiency		%	-	-	-	-	-	-
DHW system delivery efficiency		%	100%	100%	100%	100%	100%	100%
DHW Fuel Type		Elec/gas	Electricriy	Electricriy	Electricriy	Electricriy	Electricriy	Electricriy
Is the system a storage system?		Yes/No	no	no	no	no	no	no
Storage Volume		litres	no	no	no	no	no	no
Insulation		mm						
Loop length		m						
Does the system have secondary circulation?		Yes/No	-	-	-	-	-	-
Building Management								
Electric Power Factor of the building		Power						
Lighting systems have provision for metering?		Yes/No						
Lighting systems metering warns of 'out of range' values?		Yes/No						
LZC technologies								
Low carbon technologies		Description						
Renewable technologies		Description						

Appendix B. Indicative Data Centre Roof PV Layout



Appendix C. Results – Part L 2022 BRIRL

BRIRL Output Document

Compliance Assessment with the Building Regulations (Ireland) TGD-Part L 2017

This report demonstrates compliance with specific aspects of Part L of the Building Regulations. Compliance with all aspects of Part L is a legal requirement. Demonstration of how compliance with every aspect is achieved may be sought from the Building Control Authority.

Herbata Jigginstown run18

Date: Mon May 15 12:34:02 2023

Administrative information

Building Details

Address: Address 1, Address 2, Address 3, Address 4, Co. Carlow, Eircode

NEAP

Calculation engine: SBEMIE

Calculation engine version: v5.5.h.2

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: 7.0.19

BRIRL compliance check version: v5.5.h.2

Client Details

Name: Name

Telephone number: Phone

Address: Street Address, Co. Carlow, Eircode

Energy Assessor Details

Name: Name

Telephone number: Phone

Email: you@yourISP

Address: Street Address, Co. Carlow, Eircode

Primary Energy Consumption, CO2 Emissions, and Renewable Energy Ratio

The compliance criteria in the TGD-L have been met.

Calculated CO2 emission rate from Reference building	18.6 kgCO2/m2.annum
Calculated CO2 emission rate from Actual building	14.8 kgCO2/m2.annum
Carbon Performance Coefficient (CPC)	**0.79**
Maximum Permitted Carbon Performance Coefficient (MPCPC)	**1.15**
Calculated primary energy consumption rate from Reference building	96.1 kWh/m2.annum
Calculated primary energy consumption rate from Actual building	75.1 kWh/m2.annum
Energy Performance Coefficient (EPC)	**0.78**
Maximum Permitted Energy Performance Coefficient (MPEPC)	**1**
Renewable Energy Ratio (RER)	**0.11**
Minimum Renewable Energy Ratio	**0.1**

Heat Transmission through Building Fabric

Element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Limit}$	$U_{i\text{-}Calc}$	Surface with maximum U-value*
Walls**	0.21	0.33	0.6	1.8	DC000006_W1_O0
Floors (ground and exposed)	0.21	0.15	0.6	0.15	DC000005_F
Pitched roofs	0.16	-	0.3	-	"No heat loss pitched roofs"
Flat roofs	0.2	0.28	0.3	1.09	DC000014_C_A3
Windows, roof windows, and rooflights	1.6	1.8	3	1.8	DC000006_W1_O1
Personnel doors	1.6	1.4	3	1.4	DC000086_W3_O0
Vehicle access & similar large doors	1.5	1.4	3	1.4	DC000002_W3_O0
High usage entrance doors	3	-	3	-	"No ext. high usage entrance doors"

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [W/(m2K)]
$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [W/(m2K)]
$U_{i\text{-}Limit}$ = Limiting individual element U-values [W/(m2K)]
$U_{i\text{-}Calc}$ = Calculated individual element U-values [W/(m2K)]

* There might be more than one surface with the maximum U-value. ** Automatic U-value check by the tool does not apply to curtain walls whose area-weighted average and individual limiting standards are 1.8 and 3 W/m2K, respectively.

Air Permeability	Upper Limit	This Building's Value
m3/(h.m2) at 50 Pa	5	5

Building Services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Building Regulations documents for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	0.9 to 0.95

1- 03_VRF-1 [Admin Wing/Store/Gym]

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	5.5	-	-	-
Standard value	2.75	4.14**	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

** Standard shown is for split and multi-split air conditioners <6 kW. For systems 6-12 kW, limiting efficiency is 3.87.

2- 02_AHU DX [Corridor/West Wing electrical rooms]

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	6.6	-	-	-
Standard value	2.75	4.14**	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

** Standard shown is for split and multi-split air conditioners <6 kW. For systems 6-12 kW, limiting efficiency is 3.87.

3- 04_Electric Panel Heater [Stair/SH1-WC]

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

** No automatic check on chiller efficiency has been performed by the tool in this case. Refer to Building Regulations documents for limiting efficiency.

4- 05_DX-1 [MMR/Security Server/Security Hub/Admin Workshop]

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	5.5	-	-	-
Standard value	2.75	4.14**	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

** Standard shown is for split and multi-split air conditioners <6 kW. For systems 6-12 kW, limiting efficiency is 3.87.

5- 06_DX-2 Htg Only [Admin Worshop WC]

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	-	-	1.74	0.73
Standard value	2.75	N/A**	N/A	1.5^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

** No automatic check on chiller efficiency has been performed by the tool in this case. Refer to Building Regulations documents for limiting efficiency.

^ Limiting SFP may be extended by the amounts specified in the Building Regulations documents if the system includes additional components as listed in those documents.

1- SYST0003-DHW

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

Local mechanical ventilation, exhaust, and terminal units

ID	System type in Building Regulations documents
A	Local supply or extract ventilation units serving a single area
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 supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

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	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
DC1-L00-Acc WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Asset Management 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Bin Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Circulation 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Janitor Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Lift Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Loading 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Lobby (Reception) 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Manager 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Meeting Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Misc Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-PH Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Secure Check In 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Secure Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Security 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Telco Intake 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Telco Intake 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Telecom Duct Intake 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Telecom Duct Intake 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Unpacking 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Water Treatment Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-WC 02	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Workshop 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Canteen 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Circulation 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Circulation 03	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Circulation 04	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Facilities Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Facilities Office 02	-	-	-	1.7	-	-	-	-	-	0.73	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	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
DC1-L01-Hot Water Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Janitor Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Lift Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Meeting Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Meeting Room 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Office 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Phone Booth 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Phone Booth 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Secure Check In 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Shower 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Welfare Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L02-Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Acc WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Asset Management 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Bin Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Circulation 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Janitor Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Lift Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Loading 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Lobby (Reception) 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Manager 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Meeting Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Misc Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-PH Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Secure Check In 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Secure Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Security 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Telco Intake 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Telco Intake 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Telecom Duct Intake 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Telecom Duct Intake 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Unpacking 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Water Treatment Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-WC 02	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Workshop 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Canteen 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Circulation 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Circulation 03	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Circulation 04	-	-	-	1.7	-	-	-	-	-	0.73	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	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
DC2-L01-Facilities Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Facilities Office 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Hot Water Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Janitor Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Lift Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Meeting Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Meeting Room 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Office 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Phone Booth 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Phone Booth 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Secure Check In 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Shower 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Welfare Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L02-Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Acc WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Asset Management 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Bin Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Circulation 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Janitor Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Lift Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Loading 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Lobby (Reception) 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Manager 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Meeting Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Misc Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-PH Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Secure Check In 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Secure Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Security 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Telco Intake 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Telco Intake 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Telecom Duct Intake 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Telecom Duct Intake 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Unpacking 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Water Treatment Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-WC 02	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Workshop 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Canteen 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Circulation 02	-	-	-	1.7	-	-	-	-	-	0.73	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	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
DC3-L01-Circulation 03	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Circulation 04	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Facilities Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Facilities Office 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Hot Water Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Janitor Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Lift Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Meeting Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Meeting Room 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Office 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Phone Booth 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Phone Booth 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Secure Check In 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Shower 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Welfare Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L02-Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Acc WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Asset Management 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Bin Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Circulation 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Janitor Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Lift Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Loading 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Lobby (Reception) 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Manager 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Meeting Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Misc Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-PH Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Secure Check In 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Secure Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Security 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Telco Intake 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Telco Intake 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Telecom Duct Intake 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Telecom Duct Intake 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Unpacking 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Water Treatment Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-WC 02	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Workshop 01	-	-	-	1.7	-	-	-	-	-	0.73	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	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
DC4-L01-Canteen 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Circulation 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Circulation 03	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Circulation 04	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Facilities Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Facilities Office 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Hot Water Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Janitor Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Lift Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Meeting Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Meeting Room 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Office 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Phone Booth 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Phone Booth 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Secure Check In 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Shower 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Welfare Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L02-Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Acc WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Asset Management 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Bin Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Circulation 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Janitor Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Lift Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Loading 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Lobby (Reception) 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Manager 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Meeting Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Misc Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-PH Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Secure Check In 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Secure Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Security 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Telco Intake 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Telco Intake 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Telecom Duct Intake 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Telecom Duct Intake 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Unpacking 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Water Treatment Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	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	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
DC5-L00-WC 02	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Workshop 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Canteen 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Circulation 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Circulation 03	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Circulation 04	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Facilities Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Facilities Office 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Hot Water Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Janitor Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Lift Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Meeting Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Meeting Room 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Office 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Phone Booth 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Phone Booth 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Secure Check In 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Shower 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Welfare Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L02-Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Acc WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Asset Management 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Bin Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Circulation 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Janitor Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Lift Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Loading 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Lobby (Reception) 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Manager 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Meeting Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Misc Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-PH Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Secure Check In 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Secure Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Security 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Store 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Telco Intake 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Telco Intake 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Telecom Duct Intake 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Telecom Duct Intake 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Unpacking 01	-	-	-	1.7	-	-	-	-	-	0.73	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	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
DC6-L00-Water Treatment Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-WC 02	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Workshop 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Canteen 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Circulation 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Circulation 03	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Circulation 04	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Facilities Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Facilities Office 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Hot Water Plant 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Janitor Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Lift Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Meeting Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Meeting Room 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Office 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Phone Booth 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Phone Booth 02	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Secure Check In 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Shower 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-WC 01	-	-	0.5	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Welfare Room 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L02-Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Circulation 03	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Circulation 04	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Circulation 05	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L00-Circulation 06	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Circulation 05	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Circulation 06	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Circulation 07	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC1-L01-Circulation 08	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Circulation 03	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Circulation 04	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Circulation 05	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L00-Circulation 06	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Circulation 05	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Circulation 06	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Circulation 07	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC2-L01-Circulation 08	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Circulation 03	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Circulation 04	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L00-Circulation 05	-	-	-	1.7	-	-	-	-	-	0.73	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	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
DC3-L00-Circulation 06	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Circulation 05	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Circulation 06	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Circulation 07	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC3-L01-Circulation 08	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Circulation 03	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Circulation 04	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Circulation 05	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L00-Circulation 06	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Circulation 05	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Circulation 06	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Circulation 07	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC4-L01-Circulation 08	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Circulation 03	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Circulation 04	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Circulation 05	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L00-Circulation 06	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Circulation 05	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Circulation 06	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Circulation 07	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC5-L01-Circulation 08	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Circulation 03	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Circulation 04	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Circulation 05	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L00-Circulation 06	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Circulation 05	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Circulation 06	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Circulation 07	-	-	-	1.7	-	-	-	-	-	0.73	N/A
DC6-L01-Circulation 08	-	-	-	1.7	-	-	-	-	-	0.73	N/A
SH1-L01-Acc WC 01	0.5	-	-	-	-	-	-	-	-	-	N/A
SH1-L01-Kitchenette 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
SH1-L01-Panels Area 01	-	-	-	1.9	-	-	-	-	-	0.73	N/A
SH1-L01-Security House Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
AW1-L00-Conference Room	-	-	-	1.7	-	-	-	-	-	0.73	N/A
AW1-L00-Lobby	-	-	-	1.7	-	-	-	-	-	0.73	N/A
AW1-L00-Campus Control Panel 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
AW1-L00-Managers Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
AW1-L00-Open Plan Office 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
AW1-L00-Kitchenette 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
AW1-L00-Storage 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
AW1-L00-Storage 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A
AW1-L00-SE Room	-	-	-	1.7	-	-	-	-	-	0.73	N/A
AW1-L00-WC Lobby 01	-	-	-	1.7	-	-	-	-	-	0.73	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	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
AW1-L00-Workshop 01	-	-	-	1.7	-	-	-	-		0.73	N/A
AW1-L00-Corridor 01	-	-	-	1.7	-	-	-	-	-	0.73	N/A

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	Luminaire	Lamp	Display lamp	General lighting [W]
Standard value	60	60	22	
DC1-L00-Acc WC 01	-	110	-	34
DC1-L00-Asset Management 01	118	-	-	268
DC1-L00-Bin Store 01	120	-	-	28
DC1-L00-Circulation 01	-	120	-	232
DC1-L00-Janitor Room 01	120	-	-	25
DC1-L00-Lift Lobby 01	-	120	-	24
DC1-L00-Loading 01	145	-	-	74
DC1-L00-Lobby (Reception) 01	-	118	118	165
DC1-L00-Manager 01	118	-	-	166
DC1-L00-Meeting Room 01	118	-	-	242
DC1-L00-Misc Store 01	120	-	-	45
DC1-L00-PH Plant 01	120	-	-	180
DC1-L00-Secure Check In 01	-	120	-	150
DC1-L00-Secure Store 01	120	-	-	63
DC1-L00-Security 01	118	-	-	352
DC1-L00-Store 01	120	-	-	16
DC1-L00-Telco Intake 01	120	-	-	102
DC1-L00-Telco Intake 02	120	-	-	109
DC1-L00-Telecom Duct Intake 01	120	-	-	109
DC1-L00-Telecom Duct Intake 02	120	-	-	125
DC1-L00-Unpacking 01	120	-	-	80
DC1-L00-Water Treatment Plant 01	120	-	-	336
DC1-L00-WC 01	-	110	-	35
DC1-L00-WC 02	-	110	-	41
DC1-L00-Workshop 01	118	-	-	273
DC1-L01-Canteen 01	-	118	-	522
DC1-L01-Circulation 02	-	120	-	49
DC1-L01-Circulation 03	-	120	-	277
DC1-L01-Circulation 04	-	120	-	27
DC1-L01-Facilities Office 01	118	-	-	301
DC1-L01-Facilities Office 02	118	-	-	301
DC1-L01-Hot Water Plant 01	120	-	-	24
DC1-L01-Janitor Room 01	120	-	-	8
DC1-L01-Lift Lobby 01	-	120	-	20
DC1-L01-Meeting Room 01	118	-	-	315
DC1-L01-Meeting Room 02	118	-	-	252
DC1-L01-Office 01	118	-	-	553

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC1-L01-Office 02	118	-	-	584
DC1-L01-Phone Booth 01	118	-	-	117
DC1-L01-Phone Booth 02	118	-	-	117
DC1-L01-Secure Check In 01	-	120	-	40
DC1-L01-Shower 01	-	110	-	95
DC1-L01-WC 01	-	110	-	93
DC1-L01-Welfare Room 01	118	-	-	163
DC1-L02-Lobby 01	-	120	-	18
DC2-L00-Acc WC 01	-	110	-	34
DC2-L00-Asset Management 01	118	-	-	268
DC2-L00-Bin Store 01	120	-	-	28
DC2-L00-Circulation 01	-	120	-	232
DC2-L00-Janitor Room 01	120	-	-	25
DC2-L00-Lift Lobby 01	-	120	-	24
DC2-L00-Loading 01	145	-	-	74
DC2-L00-Lobby (Reception) 01	-	118	118	165
DC2-L00-Manager 01	118	-	-	166
DC2-L00-Meeting Room 01	118	-	-	242
DC2-L00-Misc Store 01	120	-	-	45
DC2-L00-PH Plant 01	120	-	-	180
DC2-L00-Secure Check In 01	-	120	-	150
DC2-L00-Secure Store 01	120	-	-	63
DC2-L00-Security 01	118	-	-	352
DC2-L00-Store 01	120	-	-	16
DC2-L00-Telco Intake 01	120	-	-	102
DC2-L00-Telco Intake 02	120	-	-	109
DC2-L00-Telecom Duct Intake 01	120	-	-	109
DC2-L00-Telecom Duct Intake 02	120	-	-	125
DC2-L00-Unpacking 01	120	-	-	80
DC2-L00-Water Treatment Plant 01	120	-	-	336
DC2-L00-WC 01	-	110	-	35
DC2-L00-WC 02	-	110	-	41
DC2-L00-Workshop 01	118	-	-	273
DC2-L01-Canteen 01	-	118	-	522
DC2-L01-Circulation 02	-	120	-	49
DC2-L01-Circulation 03	-	120	-	277
DC2-L01-Circulation 04	-	120	-	27
DC2-L01-Facilities Office 01	118	-	-	301
DC2-L01-Facilities Office 02	118	-	-	301
DC2-L01-Hot Water Plant 01	120	-	-	24
DC2-L01-Janitor Room 01	120	-	-	8
DC2-L01-Lift Lobby 01	-	120	-	20
DC2-L01-Meeting Room 01	118	-	-	315

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC2-L01-Meeting Room 02	118	-	-	252
DC2-L01-Office 01	118	-	-	553
DC2-L01-Office 02	118	-	-	584
DC2-L01-Phone Booth 01	118	-	-	117
DC2-L01-Phone Booth 02	118	-	-	117
DC2-L01-Secure Check In 01	-	120	-	40
DC2-L01-Shower 01	-	110	-	95
DC2-L01-WC 01	-	110	-	93
DC2-L01-Welfare Room 01	118	-	-	163
DC2-L02-Lobby 01	-	120	-	18
DC3-L00-Acc WC 01	-	110	-	34
DC3-L00-Asset Management 01	118	-	-	268
DC3-L00-Bin Store 01	120	-	-	28
DC3-L00-Circulation 01	-	120	-	232
DC3-L00-Janitor Room 01	120	-	-	25
DC3-L00-Lift Lobby 01	-	120	-	24
DC3-L00-Loading 01	145	-	-	74
DC3-L00-Lobby (Reception) 01	-	118	118	165
DC3-L00-Manager 01	118	-	-	166
DC3-L00-Meeting Room 01	118	-	-	242
DC3-L00-Misc Store 01	120	-	-	45
DC3-L00-PH Plant 01	120	-	-	180
DC3-L00-Secure Check In 01	-	120	-	150
DC3-L00-Secure Store 01	120	-	-	63
DC3-L00-Security 01	118	-	-	352
DC3-L00-Store 01	120	-	-	16
DC3-L00-Telco Intake 01	120	-	-	102
DC3-L00-Telco Intake 02	120	-	-	109
DC3-L00-Telecom Duct Intake 01	120	-	-	109
DC3-L00-Telecom Duct Intake 02	120	-	-	125
DC3-L00-Unpacking 01	120	-	-	80
DC3-L00-Water Treatment Plant 01	120	-	-	336
DC3-L00-WC 01	-	110	-	35
DC3-L00-WC 02	-	110	-	41
DC3-L00-Workshop 01	118	-	-	273
DC3-L01-Canteen 01	-	118	-	522
DC3-L01-Circulation 02	-	120	-	49
DC3-L01-Circulation 03	-	120	-	277
DC3-L01-Circulation 04	-	120	-	27
DC3-L01-Facilities Office 01	118	-	-	301
DC3-L01-Facilities Office 02	118	-	-	301
DC3-L01-Hot Water Plant 01	120	-	-	24
DC3-L01-Janitor Room 01	120	-	-	8

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC3-L01-Lift Lobby 01	-	120	-	20
DC3-L01-Meeting Room 01	118	-	-	315
DC3-L01-Meeting Room 02	118	-	-	252
DC3-L01-Office 01	118	-	-	553
DC3-L01-Office 02	118	-	-	584
DC3-L01-Phone Booth 01	118	-	-	117
DC3-L01-Phone Booth 02	118	-	-	117
DC3-L01-Secure Check In 01	-	120	-	40
DC3-L01-Shower 01	-	110	-	95
DC3-L01-WC 01	-	110	-	93
DC3-L01-Welfare Room 01	118	-	-	163
DC3-L02-Lobby 01	-	120	-	18
DC4-L00-Acc WC 01	-	110	-	34
DC4-L00-Asset Management 01	118	-	-	268
DC4-L00-Bin Store 01	120	-	-	28
DC4-L00-Circulation 01	-	120	-	232
DC4-L00-Janitor Room 01	120	-	-	25
DC4-L00-Lift Lobby 01	-	120	-	24
DC4-L00-Loading 01	145	-	-	74
DC4-L00-Lobby (Reception) 01	-	118	118	165
DC4-L00-Manager 01	118	-	-	166
DC4-L00-Meeting Room 01	118	-	-	242
DC4-L00-Misc Store 01	120	-	-	45
DC4-L00-PH Plant 01	120	-	-	180
DC4-L00-Secure Check In 01	-	120	-	150
DC4-L00-Secure Store 01	120	-	-	63
DC4-L00-Security 01	118	-	-	352
DC4-L00-Store 01	120	-	-	16
DC4-L00-Telco Intake 01	120	-	-	102
DC4-L00-Telco Intake 02	120	-	-	109
DC4-L00-Telecom Duct Intake 01	120	-	-	109
DC4-L00-Telecom Duct Intake 02	120	-	-	125
DC4-L00-Unpacking 01	120	-	-	80
DC4-L00-Water Treatment Plant 01	120	-	-	336
DC4-L00-WC 01	-	110	-	35
DC4-L00-WC 02	-	110	-	41
DC4-L00-Workshop 01	118	-	-	273
DC4-L01-Canteen 01	-	118	-	522
DC4-L01-Circulation 02	-	120	-	49
DC4-L01-Circulation 03	-	120	-	277
DC4-L01-Circulation 04	-	120	-	27
DC4-L01-Facilities Office 01	118	-	-	301
DC4-L01-Facilities Office 02	118	-	-	301

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC4-L01-Hot Water Plant 01	120	-	-	24
DC4-L01-Janitor Room 01	120	-	-	8
DC4-L01-Lift Lobby 01	-	120	-	20
DC4-L01-Meeting Room 01	118	-	-	315
DC4-L01-Meeting Room 02	118	-	-	252
DC4-L01-Office 01	118	-	-	553
DC4-L01-Office 02	118	-	-	584
DC4-L01-Phone Booth 01	118	-	-	117
DC4-L01-Phone Booth 02	118	-	-	117
DC4-L01-Secure Check In 01	-	120	-	40
DC4-L01-Shower 01	-	110	-	95
DC4-L01-WC 01	-	110	-	93
DC4-L01-Welfare Room 01	118	-	-	163
DC4-L02-Lobby 01	-	120	-	18
DC5-L00-Acc WC 01	-	110	-	34
DC5-L00-Asset Management 01	118	-	-	268
DC5-L00-Bin Store 01	120	-	-	28
DC5-L00-Circulation 01	-	120	-	232
DC5-L00-Janitor Room 01	120	-	-	25
DC5-L00-Lift Lobby 01	-	120	-	24
DC5-L00-Loading 01	145	-	-	74
DC5-L00-Lobby (Reception) 01	-	118	118	165
DC5-L00-Manager 01	118	-	-	166
DC5-L00-Meeting Room 01	118	-	-	242
DC5-L00-Misc Store 01	120	-	-	45
DC5-L00-PH Plant 01	120	-	-	180
DC5-L00-Secure Check In 01	-	120	-	150
DC5-L00-Secure Store 01	120	-	-	63
DC5-L00-Security 01	118	-	-	352
DC5-L00-Store 01	120	-	-	16
DC5-L00-Telco Intake 01	120	-	-	102
DC5-L00-Telco Intake 02	120	-	-	109
DC5-L00-Telecom Duct Intake 01	120	-	-	109
DC5-L00-Telecom Duct Intake 02	120	-	-	125
DC5-L00-Unpacking 01	120	-	-	80
DC5-L00-Water Treatment Plant 01	120	-	-	336
DC5-L00-WC 01	-	110	-	35
DC5-L00-WC 02	-	110	-	41
DC5-L00-Workshop 01	118	-	-	273
DC5-L01-Canteen 01	-	118	-	522
DC5-L01-Circulation 02	-	120	-	49
DC5-L01-Circulation 03	-	120	-	277
DC5-L01-Circulation 04	-	120	-	27

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC5-L01-Facilities Office 01	118	-	-	301
DC5-L01-Facilities Office 02	118	-	-	301
DC5-L01-Hot Water Plant 01	120	-	-	24
DC5-L01-Janitor Room 01	120	-	-	8
DC5-L01-Lift Lobby 01	-	120	-	20
DC5-L01-Meeting Room 01	118	-	-	315
DC5-L01-Meeting Room 02	118	-	-	252
DC5-L01-Office 01	118	-	-	553
DC5-L01-Office 02	118	-	-	584
DC5-L01-Phone Booth 01	118	-	-	117
DC5-L01-Phone Booth 02	118	-	-	117
DC5-L01-Secure Check In 01	-	120	-	40
DC5-L01-Shower 01	-	110	-	95
DC5-L01-WC 01	-	110	-	93
DC5-L01-Welfare Room 01	118	-	-	163
DC5-L02-Lobby 01	-	120	-	18
DC6-L00-Acc WC 01	-	110	-	34
DC6-L00-Asset Management 01	118	-	-	268
DC6-L00-Bin Store 01	120	-	-	28
DC6-L00-Circulation 01	-	120	-	232
DC6-L00-Janitor Room 01	120	-	-	25
DC6-L00-Lift Lobby 01	-	120	-	24
DC6-L00-Loading 01	145	-	-	74
DC6-L00-Lobby (Reception) 01	-	118	118	165
DC6-L00-Manager 01	118	-	-	166
DC6-L00-Meeting Room 01	118	-	-	242
DC6-L00-Misc Store 01	120	-	-	45
DC6-L00-PH Plant 01	120	-	-	180
DC6-L00-Secure Check In 01	-	120	-	150
DC6-L00-Secure Store 01	120	-	-	63
DC6-L00-Security 01	118	-	-	352
DC6-L00-Store 01	120	-	-	16
DC6-L00-Telco Intake 01	120	-	-	102
DC6-L00-Telco Intake 02	120	-	-	109
DC6-L00-Telecom Duct Intake 01	120	-	-	109
DC6-L00-Telecom Duct Intake 02	120	-	-	125
DC6-L00-Unpacking 01	120	-	-	80
DC6-L00-Water Treatment Plant 01	120	-	-	336
DC6-L00-WC 01	-	110	-	35
DC6-L00-WC 02	-	110	-	41
DC6-L00-Workshop 01	118	-	-	273
DC6-L01-Canteen 01	-	118	-	522
DC6-L01-Circulation 02	-	120	-	49

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC6-L01-Circulation 03	-	120	-	277
DC6-L01-Circulation 04	-	120	-	27
DC6-L01-Facilities Office 01	118	-	-	301
DC6-L01-Facilities Office 02	118	-	-	301
DC6-L01-Hot Water Plant 01	120	-	-	24
DC6-L01-Janitor Room 01	120	-	-	8
DC6-L01-Lift Lobby 01	-	120	-	20
DC6-L01-Meeting Room 01	118	-	-	315
DC6-L01-Meeting Room 02	118	-	-	252
DC6-L01-Office 01	118	-	-	553
DC6-L01-Office 02	118	-	-	584
DC6-L01-Phone Booth 01	118	-	-	117
DC6-L01-Phone Booth 02	118	-	-	117
DC6-L01-Secure Check In 01	-	120	-	40
DC6-L01-Shower 01	-	110	-	95
DC6-L01-WC 01	-	110	-	93
DC6-L01-Welfare Room 01	118	-	-	163
DC6-L02-Lobby 01	-	120	-	18
DC1-L00-Circulation 03	-	120	-	550
DC1-L00-Circulation 04	-	120	-	468
DC1-L00-Circulation 05	-	120	-	458
DC1-L00-Circulation 06	-	120	-	959
DC1-L01-Circulation 05	-	120	-	534
DC1-L01-Circulation 06	-	120	-	439
DC1-L01-Circulation 07	-	120	-	458
DC1-L01-Circulation 08	-	120	-	946
DC2-L00-Circulation 03	-	120	-	550
DC2-L00-Circulation 04	-	120	-	468
DC2-L00-Circulation 05	-	120	-	458
DC2-L00-Circulation 06	-	120	-	959
DC2-L01-Circulation 05	-	120	-	534
DC2-L01-Circulation 06	-	120	-	439
DC2-L01-Circulation 07	-	120	-	458
DC2-L01-Circulation 08	-	120	-	946
DC3-L00-Circulation 03	-	120	-	550
DC3-L00-Circulation 04	-	120	-	468
DC3-L00-Circulation 05	-	120	-	458
DC3-L00-Circulation 06	-	120	-	959
DC3-L01-Circulation 05	-	120	-	534
DC3-L01-Circulation 06	-	120	-	439
DC3-L01-Circulation 07	-	120	-	458
DC3-L01-Circulation 08	-	120	-	946
DC4-L00-Circulation 03	-	120	-	550

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC4-L00-Circulation 04	-	120	-	468
DC4-L00-Circulation 05	-	120	-	458
DC4-L00-Circulation 06	-	120	-	959
DC4-L01-Circulation 05	-	120	-	534
DC4-L01-Circulation 06	-	120	-	439
DC4-L01-Circulation 07	-	120	-	458
DC4-L01-Circulation 08	-	120	-	946
DC5-L00-Circulation 03	-	120	-	550
DC5-L00-Circulation 04	-	120	-	468
DC5-L00-Circulation 05	-	120	-	458
DC5-L00-Circulation 06	-	120	-	959
DC5-L01-Circulation 05	-	120	-	534
DC5-L01-Circulation 06	-	120	-	439
DC5-L01-Circulation 07	-	120	-	458
DC5-L01-Circulation 08	-	120	-	946
DC6-L00-Circulation 03	-	120	-	550
DC6-L00-Circulation 04	-	120	-	468
DC6-L00-Circulation 05	-	120	-	458
DC6-L00-Circulation 06	-	120	-	959
DC6-L01-Circulation 05	-	120	-	534
DC6-L01-Circulation 06	-	120	-	439
DC6-L01-Circulation 07	-	120	-	458
DC6-L01-Circulation 08	-	120	-	946
DC1-L00-Data Hall 01	120	-	-	6641
DC1-L00-Data Hall 02	120	-	-	6688
DC1-L00-Data Hall 03	120	-	-	6641
DC1-L00-Data Hall 04	120	-	-	6688
DC1-L00-Elec Room 01	120	-	-	43
DC1-L00-Elec Room 02	120	-	-	43
DC1-L00-General Switchroom 01	120	-	-	56
DC1-L00-General Switchroom 02	120	-	-	56
DC1-L00-LV Panel 01	120	-	-	526
DC1-L00-LV Panel 02	120	-	-	512
DC1-L00-LV Panel 03	120	-	-	526
DC1-L00-LV Panel 04	120	-	-	512
DC1-L00-Mechanical Corridor 01	120	-	-	1936
DC1-L00-Mechanical Corridor 02	120	-	-	1956
DC1-L00-Mechanical Corridor 03	120	-	-	1936
DC1-L00-Mechanical Corridor 04	120	-	-	1956
DC1-L00-MV Panel 01	120	-	-	92
DC1-L00-MV Panel 03	120	-	-	92
DC1-L00-MV Panel 04	120	-	-	145
DC1-L00-MV Panel 05	120	-	-	145

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC1-L00-MV Panel 06	120	-	-	92
DC1-L00-MV Panel 08	120	-	-	92
DC1-L00-Plantroom 01	120	-	-	257
DC1-L00-Plantroom 02	120	-	-	245
DC1-L00-SER 01	120	-	-	51
DC1-L00-SER 02	120	-	-	56
DC1-L00-SER 03	120	-	-	45
DC1-L00-SER 04	120	-	-	47
DC1-L00-Telco Duct Intake 01	120	-	-	126
DC1-L00-Telco Duct Intake 02	120	-	-	122
DC1-L00-Telecom Intake 01	120	-	-	125
DC1-L00-Telecom Intake 02	120	-	-	126
DC1-L01-Data Hall 01	120	-	-	6612
DC1-L01-Data Hall 02	120	-	-	6659
DC1-L01-Data Hall 03	120	-	-	6612
DC1-L01-Data Hall 04	120	-	-	6659
DC1-L01-Elec Room 01	120	-	-	45
DC1-L01-Elec Room 02	120	-	-	44
DC1-L01-Elec Room 03	120	-	-	47
DC1-L01-Electrical Room 01	120	-	-	51
DC1-L01-LV Panel 01	120	-	-	515
DC1-L01-LV Panel 02	120	-	-	501
DC1-L01-LV Panel 03	120	-	-	515
DC1-L01-LV Panel 04	120	-	-	501
DC1-L01-LV Panel 05	120	-	-	89
DC1-L01-LV Panel 06	120	-	-	89
DC1-L01-Mechanical Corridor 01	120	-	-	1922
DC1-L01-Mechanical Corridor 02	120	-	-	1942
DC1-L01-Mechanical Corridor 03	120	-	-	1922
DC1-L01-Mechanical Corridor 04	120	-	-	1942
DC1-L01-MER 01	120	-	-	69
DC1-L01-MMR 01	120	-	-	115
DC1-L01-MMR 02	120	-	-	116
DC1-L01-MV Panel 01	120	-	-	141
DC1-L01-MV Panel 03	120	-	-	88
DC1-L01-MV Panel 04	120	-	-	87
DC1-L01-MV Panel 05	120	-	-	87
DC1-L01-MV Panel 06	120	-	-	87
DC1-L01-MV Panel 07	120	-	-	141
DC1-L01-SER 01	120	-	-	28
DC1-L01-SER 02	120	-	-	28
DC1-L01-SER 03	120	-	-	40
DC1-L01-SER 04	120	-	-	42

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DHN-Disctrict Heating Plant	120	-	-	764
WTP-L00-Electrical Room 01	120	-	-	212
WTP-L00-Water Treatment 01	120	-	-	486
WTP-Storage 01	110	-	-	17
DC2-L00-Data Hall 01	120	-	-	6641
DC2-L00-Data Hall 02	120	-	-	6688
DC2-L00-Data Hall 03	120	-	-	6641
DC2-L00-Data Hall 04	120	-	-	6688
DC2-L00-Elec Room 01	120	-	-	43
DC2-L00-Elec Room 02	120	-	-	43
DC2-L00-General Switchroom 01	120	-	-	56
DC2-L00-General Switchroom 02	120	-	-	56
DC2-L00-LV Panel 01	120	-	-	526
DC2-L00-LV Panel 02	120	-	-	512
DC2-L00-LV Panel 03	120	-	-	526
DC2-L00-LV Panel 04	120	-	-	512
DC2-L00-Mechanical Corridor 01	120	-	-	1936
DC2-L00-Mechanical Corridor 02	120	-	-	1956
DC2-L00-Mechanical Corridor 03	120	-	-	1936
DC2-L00-Mechanical Corridor 04	120	-	-	1956
DC2-L00-MV Panel 01	120	-	-	92
DC2-L00-MV Panel 03	120	-	-	92
DC2-L00-MV Panel 04	120	-	-	145
DC2-L00-MV Panel 05	120	-	-	145
DC2-L00-MV Panel 06	120	-	-	92
DC2-L00-MV Panel 08	120	-	-	92
DC2-L00-Plantroom 01	120	-	-	257
DC2-L00-Plantroom 02	120	-	-	245
DC2-L00-SER 01	120	-	-	51
DC2-L00-SER 02	120	-	-	56
DC2-L00-SER 03	120	-	-	45
DC2-L00-SER 04	120	-	-	47
DC2-L00-Telco Duct Intake 01	120	-	-	126
DC2-L00-Telco Duct Intake 02	120	-	-	122
DC2-L00-Telecom Intake 01	120	-	-	125
DC2-L00-Telecom Intake 02	120	-	-	126
DC2-L01-Data Hall 01	120	-	-	6612
DC2-L01-Data Hall 02	120	-	-	6659
DC2-L01-Data Hall 03	120	-	-	6612
DC2-L01-Data Hall 04	120	-	-	6659
DC2-L01-Elec Room 01	120	-	-	45
DC2-L01-Elec Room 02	120	-	-	44
DC2-L01-Elec Room 03	120	-	-	47

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC2-L01-Electrical Room 01	120	-	-	51
DC2-L01-LV Panel 01	120	-	-	515
DC2-L01-LV Panel 02	120	-	-	501
DC2-L01-LV Panel 03	120	-	-	515
DC2-L01-LV Panel 04	120	-	-	501
DC2-L01-LV Panel 05	120	-	-	89
DC2-L01-LV Panel 06	120	-	-	89
DC2-L01-Mechanical Corridor 01	120	-	-	1922
DC2-L01-Mechanical Corridor 02	120	-	-	1942
DC2-L01-Mechanical Corridor 03	120	-	-	1922
DC2-L01-Mechanical Corridor 04	120	-	-	1942
DC2-L01-MER 01	120	-	-	69
DC2-L01-MMR 01	120	-	-	115
DC2-L01-MMR 02	120	-	-	116
DC2-L01-MV Panel 01	120	-	-	141
DC2-L01-MV Panel 03	120	-	-	88
DC2-L01-MV Panel 04	120	-	-	87
DC2-L01-MV Panel 05	120	-	-	87
DC2-L01-MV Panel 06	120	-	-	87
DC2-L01-MV Panel 07	120	-	-	141
DC2-L01-SER 01	120	-	-	28
DC2-L01-SER 02	120	-	-	28
DC2-L01-SER 03	120	-	-	40
DC2-L01-SER 04	120	-	-	42
DC3-L00-Data Hall 01	120	-	-	6641
DC3-L00-Data Hall 02	120	-	-	6688
DC3-L00-Data Hall 03	120	-	-	6641
DC3-L00-Data Hall 04	120	-	-	6688
DC3-L00-Elec Room 01	120	-	-	43
DC3-L00-Elec Room 02	120	-	-	43
DC3-L00-General Switchroom 01	120	-	-	56
DC3-L00-General Switchroom 02	120	-	-	56
DC3-L00-LV Panel 01	120	-	-	526
DC3-L00-LV Panel 02	120	-	-	512
DC3-L00-LV Panel 03	120	-	-	526
DC3-L00-LV Panel 04	120	-	-	512
DC3-L00-Mechanical Corridor 01	120	-	-	1936
DC3-L00-Mechanical Corridor 02	120	-	-	1956
DC3-L00-Mechanical Corridor 03	120	-	-	1936
DC3-L00-Mechanical Corridor 04	120	-	-	1956
DC3-L00-MV Panel 01	120	-	-	92
DC3-L00-MV Panel 03	120	-	-	92
DC3-L00-MV Panel 04	120	-	-	145

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC3-L00-MV Panel 05	120	-	-	145
DC3-L00-MV Panel 06	120	-	-	92
DC3-L00-MV Panel 08	120	-	-	92
DC3-L00-Plantroom 01	120	-	-	257
DC3-L00-Plantroom 02	120	-	-	245
DC3-L00-SER 01	120	-	-	51
DC3-L00-SER 02	120	-	-	56
DC3-L00-SER 03	120	-	-	45
DC3-L00-SER 04	120	-	-	47
DC3-L00-Telco Duct Intake 01	120	-	-	126
DC3-L00-Telco Duct Intake 02	120	-	-	122
DC3-L00-Telecom Intake 01	120	-	-	125
DC3-L00-Telecom Intake 02	120	-	-	126
DC3-L01-Data Hall 01	120	-	-	6612
DC3-L01-Data Hall 02	120	-	-	6659
DC3-L01-Data Hall 03	120	-	-	6612
DC3-L01-Data Hall 04	120	-	-	6659
DC3-L01-Elec Room 01	120	-	-	45
DC3-L01-Elec Room 02	120	-	-	44
DC3-L01-Elec Room 03	120	-	-	47
DC3-L01-Electrical Room 01	120	-	-	51
DC3-L01-LV Panel 01	120	-	-	515
DC3-L01-LV Panel 02	120	-	-	501
DC3-L01-LV Panel 03	120	-	-	515
DC3-L01-LV Panel 04	120	-	-	501
DC3-L01-LV Panel 05	120	-	-	89
DC3-L01-LV Panel 06	120	-	-	89
DC3-L01-Mechanical Corridor 01	120	-	-	1922
DC3-L01-Mechanical Corridor 02	120	-	-	1942
DC3-L01-Mechanical Corridor 03	120	-	-	1922
DC3-L01-Mechanical Corridor 04	120	-	-	1942
DC3-L01-MER 01	120	-	-	69
DC3-L01-MMR 01	120	-	-	115
DC3-L01-MMR 02	120	-	-	116
DC3-L01-MV Panel 01	120	-	-	141
DC3-L01-MV Panel 03	120	-	-	88
DC3-L01-MV Panel 04	120	-	-	87
DC3-L01-MV Panel 05	120	-	-	87
DC3-L01-MV Panel 06	120	-	-	87
DC3-L01-MV Panel 07	120	-	-	141
DC3-L01-SER 01	120	-	-	28
DC3-L01-SER 02	120	-	-	28
DC3-L01-SER 03	120	-	-	40

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC3-L01-SER 04	120	-	-	42
DC4-L00-Data Hall 01	120	-	-	6641
DC4-L00-Data Hall 02	120	-	-	6688
DC4-L00-Data Hall 03	120	-	-	6641
DC4-L00-Data Hall 04	120	-	-	6688
DC4-L00-Elec Room 01	120	-	-	43
DC4-L00-Elec Room 02	120	-	-	43
DC4-L00-General Switchroom 01	120	-	-	56
DC4-L00-General Switchroom 02	120	-	-	56
DC4-L00-LV Panel 01	120	-	-	526
DC4-L00-LV Panel 02	120	-	-	512
DC4-L00-LV Panel 03	120	-	-	526
DC4-L00-LV Panel 04	120	-	-	512
DC4-L00-Mechanical Corridor 01	120	-	-	1936
DC4-L00-Mechanical Corridor 02	120	-	-	1956
DC4-L00-Mechanical Corridor 03	120	-	-	1936
DC4-L00-Mechanical Corridor 04	120	-	-	1956
DC4-L00-MV Panel 01	120	-	-	92
DC4-L00-MV Panel 03	120	-	-	92
DC4-L00-MV Panel 04	120	-	-	145
DC4-L00-MV Panel 05	120	-	-	145
DC4-L00-MV Panel 06	120	-	-	92
DC4-L00-MV Panel 08	120	-	-	92
DC4-L00-Plantroom 01	120	-	-	257
DC4-L00-Plantroom 02	120	-	-	245
DC4-L00-SER 01	120	-	-	51
DC4-L00-SER 02	120	-	-	56
DC4-L00-SER 03	120	-	-	45
DC4-L00-SER 04	120	-	-	47
DC4-L00-Telco Duct Intake 01	120	-	-	126
DC4-L00-Telco Duct Intake 02	120	-	-	122
DC4-L00-Telecom Intake 01	120	-	-	125
DC4-L00-Telecom Intake 02	120	-	-	126
DC4-L01-Data Hall 01	120	-	-	6612
DC4-L01-Data Hall 02	120	-	-	6659
DC4-L01-Data Hall 03	120	-	-	6612
DC4-L01-Data Hall 04	120	-	-	6659
DC4-L01-Elec Room 01	120	-	-	45
DC4-L01-Elec Room 02	120	-	-	44
DC4-L01-Elec Room 03	120	-	-	47
DC4-L01-Electrical Room 01	120	-	-	51
DC4-L01-LV Panel 01	120	-	-	515
DC4-L01-LV Panel 02	120	-	-	501

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC4-L01-LV Panel 03	120	-	-	515
DC4-L01-LV Panel 04	120	-	-	501
DC4-L01-LV Panel 05	120	-	-	89
DC4-L01-LV Panel 06	120	-	-	89
DC4-L01-Mechanical Corridor 01	120	-	-	1922
DC4-L01-Mechanical Corridor 02	120	-	-	1942
DC4-L01-Mechanical Corridor 03	120	-	-	1922
DC4-L01-Mechanical Corridor 04	120	-	-	1942
DC4-L01-MER 01	120	-	-	69
DC4-L01-MMR 01	120	-	-	115
DC4-L01-MMR 02	120	-	-	116
DC4-L01-MV Panel 01	120	-	-	141
DC4-L01-MV Panel 03	120	-	-	88
DC4-L01-MV Panel 04	120	-	-	87
DC4-L01-MV Panel 05	120	-	-	87
DC4-L01-MV Panel 06	120	-	-	87
DC4-L01-MV Panel 07	120	-	-	141
DC4-L01-SER 01	120	-	-	28
DC4-L01-SER 02	120	-	-	28
DC4-L01-SER 03	120	-	-	40
DC4-L01-SER 04	120	-	-	42
DC5-L00-Data Hall 01	120	-	-	6641
DC5-L00-Data Hall 02	120	-	-	6688
DC5-L00-Data Hall 03	120	-	-	6641
DC5-L00-Data Hall 04	120	-	-	6688
DC5-L00-Elec Room 01	120	-	-	43
DC5-L00-Elec Room 02	120	-	-	43
DC5-L00-General Switchroom 01	120	-	-	56
DC5-L00-General Switchroom 02	120	-	-	56
DC5-L00-LV Panel 01	120	-	-	526
DC5-L00-LV Panel 02	120	-	-	512
DC5-L00-LV Panel 03	120	-	-	526
DC5-L00-LV Panel 04	120	-	-	512
DC5-L00-Mechanical Corridor 01	120	-	-	1936
DC5-L00-Mechanical Corridor 02	120	-	-	1956
DC5-L00-Mechanical Corridor 03	120	-	-	1936
DC5-L00-Mechanical Corridor 04	120	-	-	1956
DC5-L00-MV Panel 01	120	-	-	92
DC5-L00-MV Panel 03	120	-	-	92
DC5-L00-MV Panel 04	120	-	-	145
DC5-L00-MV Panel 05	120	-	-	145
DC5-L00-MV Panel 06	120	-	-	92
DC5-L00-MV Panel 08	120	-	-	92

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC5-L00-Plantroom 01	120	-	-	257
DC5-L00-Plantroom 02	120	-	-	245
DC5-L00-SER 01	120	-	-	51
DC5-L00-SER 02	120	-	-	56
DC5-L00-SER 03	120	-	-	45
DC5-L00-SER 04	120	-	-	47
DC5-L00-Telco Duct Intake 01	120	-	-	126
DC5-L00-Telco Duct Intake 02	120	-	-	122
DC5-L00-Telecom Intake 01	120	-	-	125
DC5-L00-Telecom Intake 02	120	-	-	126
DC5-L01-Data Hall 01	120	-	-	6612
DC5-L01-Data Hall 02	120	-	-	6659
DC5-L01-Data Hall 03	120	-	-	6612
DC5-L01-Data Hall 04	120	-	-	6659
DC5-L01-Elec Room 01	120	-	-	45
DC5-L01-Elec Room 02	120	-	-	44
DC5-L01-Elec Room 03	120	-	-	47
DC5-L01-Electrical Room 01	120	-	-	51
DC5-L01-LV Panel 01	120	-	-	515
DC5-L01-LV Panel 02	120	-	-	501
DC5-L01-LV Panel 03	120	-	-	515
DC5-L01-LV Panel 04	120	-	-	501
DC5-L01-LV Panel 05	120	-	-	89
DC5-L01-LV Panel 06	120	-	-	89
DC5-L01-Mechanical Corridor 01	120	-	-	1922
DC5-L01-Mechanical Corridor 02	120	-	-	1942
DC5-L01-Mechanical Corridor 03	120	-	-	1922
DC5-L01-Mechanical Corridor 04	120	-	-	1942
DC5-L01-MER 01	120	-	-	69
DC5-L01-MMR 01	120	-	-	115
DC5-L01-MMR 02	120	-	-	116
DC5-L01-MV Panel 01	120	-	-	141
DC5-L01-MV Panel 03	120	-	-	88
DC5-L01-MV Panel 04	120	-	-	87
DC5-L01-MV Panel 05	120	-	-	87
DC5-L01-MV Panel 06	120	-	-	87
DC5-L01-MV Panel 07	120	-	-	141
DC5-L01-SER 01	120	-	-	28
DC5-L01-SER 02	120	-	-	28
DC5-L01-SER 03	120	-	-	40
DC5-L01-SER 04	120	-	-	42
DC6-L00-Data Hall 01	120	-	-	6641
DC6-L00-Data Hall 02	120	-	-	6688

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC6-L00-Data Hall 03	120	-	-	6641
DC6-L00-Data Hall 04	120	-	-	6688
DC6-L00-Elec Room 01	120	-	-	43
DC6-L00-Elec Room 02	120	-	-	43
DC6-L00-General Switchroom 01	120	-	-	56
DC6-L00-General Switchroom 02	120	-	-	56
DC6-L00-LV Panel 01	120	-	-	526
DC6-L00-LV Panel 02	120	-	-	512
DC6-L00-LV Panel 03	120	-	-	526
DC6-L00-LV Panel 04	120	-	-	512
DC6-L00-Mechanical Corridor 01	120	-	-	1936
DC6-L00-Mechanical Corridor 02	120	-	-	1956
DC6-L00-Mechanical Corridor 03	120	-	-	1936
DC6-L00-Mechanical Corridor 04	120	-	-	1956
DC6-L00-MV Panel 01	120	-	-	92
DC6-L00-MV Panel 03	120	-	-	92
DC6-L00-MV Panel 04	120	-	-	145
DC6-L00-MV Panel 05	120	-	-	145
DC6-L00-MV Panel 06	120	-	-	92
DC6-L00-MV Panel 08	120	-	-	92
DC6-L00-Plantroom 01	120	-	-	257
DC6-L00-Plantroom 02	120	-	-	245
DC6-L00-SER 01	120	-	-	51
DC6-L00-SER 02	120	-	-	56
DC6-L00-SER 03	120	-	-	45
DC6-L00-SER 04	120	-	-	47
DC6-L00-Telco Duct Intake 01	120	-	-	126
DC6-L00-Telco Duct Intake 02	120	-	-	122
DC6-L00-Telecom Intake 01	120	-	-	125
DC6-L00-Telecom Intake 02	120	-	-	126
DC6-L01-Data Hall 01	120	-	-	6612
DC6-L01-Data Hall 02	120	-	-	6659
DC6-L01-Data Hall 03	120	-	-	6612
DC6-L01-Data Hall 04	120	-	-	6659
DC6-L01-Elec Room 01	120	-	-	45
DC6-L01-Elec Room 02	120	-	-	44
DC6-L01-Elec Room 03	120	-	-	47
DC6-L01-Electrical Room 01	120	-	-	51
DC6-L01-LV Panel 01	120	-	-	515
DC6-L01-LV Panel 02	120	-	-	501
DC6-L01-LV Panel 03	120	-	-	515
DC6-L01-LV Panel 04	120	-	-	501
DC6-L01-LV Panel 05	120	-	-	89

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC6-L01-LV Panel 06	120	-	-	89
DC6-L01-Mechanical Corridor 01	120	-	-	1922
DC6-L01-Mechanical Corridor 02	120	-	-	1942
DC6-L01-Mechanical Corridor 03	120	-	-	1922
DC6-L01-Mechanical Corridor 04	120	-	-	1942
DC6-L01-MER 01	120	-	-	69
DC6-L01-MMR 01	120	-	-	115
DC6-L01-MMR 02	120	-	-	116
DC6-L01-MV Panel 01	120	-	-	141
DC6-L01-MV Panel 03	120	-	-	88
DC6-L01-MV Panel 04	120	-	-	87
DC6-L01-MV Panel 05	120	-	-	87
DC6-L01-MV Panel 06	120	-	-	87
DC6-L01-MV Panel 07	120	-	-	141
DC6-L01-SER 01	120	-	-	28
DC6-L01-SER 02	120	-	-	28
DC6-L01-SER 03	120	-	-	40
DC6-L01-SER 04	120	-	-	42
DC1-L00-Stairs 01	-	110	-	60
DC1-L00-Stairs 02	-	110	-	65
DC1-L00-Stairs 03	-	110	-	58
DC1-L00-Stairs 04	-	110	-	69
DC1-L00-Stairs 05	-	110	-	114
DC1-L00-Stairs 06	-	110	-	113
DC1-L00-Stairs 07	-	110	-	117
DC1-L00-Stairs 08	-	110	-	117
DC1-L01-Stairs 01	-	110	-	37
DC1-L01-Stairs 02	-	110	-	48
DC1-L01-Stairs 03	-	110	-	67
DC1-L01-Stairs 04	-	110	-	41
DC1-L01-Stairs 06	-	110	-	108
DC1-L01-Stairs 07	-	110	-	108
DC1-L01-Stairs 08	-	110	-	108
DC1-L01-Stairs 09	-	110	-	108
DC1-L02-Stairs 01	-	110	-	34
SH1-L01-Acc WC 01	-	110	-	28
DC2-L00-Stairs 01	-	110	-	60
DC2-L00-Stairs 02	-	110	-	65
DC2-L00-Stairs 03	-	110	-	58
DC2-L00-Stairs 04	-	110	-	69
DC2-L00-Stairs 05	-	110	-	114
DC2-L00-Stairs 06	-	110	-	113
DC2-L00-Stairs 07	-	110	-	117

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC2-L00-Stairs 08	-	110	-	117
DC2-L01-Stairs 01	-	110	-	37
DC2-L01-Stairs 02	-	110	-	48
DC2-L01-Stairs 03	-	110	-	67
DC2-L01-Stairs 04	-	110	-	41
DC2-L01-Stairs 06	-	110	-	108
DC2-L01-Stairs 07	-	110	-	108
DC2-L01-Stairs 08	-	110	-	108
DC2-L01-Stairs 09	-	110	-	108
DC2-L02-Stairs 01	-	110	-	34
DC3-L00-Stairs 01	-	110	-	60
DC3-L00-Stairs 02	-	110	-	65
DC3-L00-Stairs 03	-	110	-	58
DC3-L00-Stairs 04	-	110	-	69
DC3-L00-Stairs 05	-	110	-	114
DC3-L00-Stairs 06	-	110	-	113
DC3-L00-Stairs 07	-	110	-	117
DC3-L00-Stairs 08	-	110	-	117
DC3-L01-Stairs 01	-	110	-	37
DC3-L01-Stairs 02	-	110	-	48
DC3-L01-Stairs 03	-	110	-	67
DC3-L01-Stairs 04	-	110	-	41
DC3-L01-Stairs 06	-	110	-	108
DC3-L01-Stairs 07	-	110	-	108
DC3-L01-Stairs 08	-	110	-	108
DC3-L01-Stairs 09	-	110	-	108
DC3-L02-Stairs 01	-	110	-	34
DC4-L00-Stairs 01	-	110	-	60
DC4-L00-Stairs 02	-	110	-	65
DC4-L00-Stairs 03	-	110	-	58
DC4-L00-Stairs 04	-	110	-	69
DC4-L00-Stairs 05	-	110	-	114
DC4-L00-Stairs 06	-	110	-	113
DC4-L00-Stairs 07	-	110	-	117
DC4-L00-Stairs 08	-	110	-	117
DC4-L01-Stairs 01	-	110	-	37
DC4-L01-Stairs 02	-	110	-	48
DC4-L01-Stairs 03	-	110	-	67
DC4-L01-Stairs 04	-	110	-	41
DC4-L01-Stairs 06	-	110	-	108
DC4-L01-Stairs 07	-	110	-	108
DC4-L01-Stairs 08	-	110	-	108
DC4-L01-Stairs 09	-	110	-	108

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
DC4-L02-Stairs 01	-	110	-	34
DC5-L00-Stairs 01	-	110	-	60
DC5-L00-Stairs 02	-	110	-	65
DC5-L00-Stairs 03	-	110	-	58
DC5-L00-Stairs 04	-	110	-	69
DC5-L00-Stairs 05	-	110	-	114
DC5-L00-Stairs 06	-	110	-	113
DC5-L00-Stairs 07	-	110	-	117
DC5-L00-Stairs 08	-	110	-	117
DC5-L01-Stairs 01	-	110	-	37
DC5-L01-Stairs 02	-	110	-	48
DC5-L01-Stairs 03	-	110	-	67
DC5-L01-Stairs 04	-	110	-	41
DC5-L01-Stairs 06	-	110	-	108
DC5-L01-Stairs 07	-	110	-	108
DC5-L01-Stairs 08	-	110	-	108
DC5-L01-Stairs 09	-	110	-	108
DC5-L02-Stairs 01	-	110	-	34
DC6-L00-Stairs 01	-	110	-	60
DC6-L00-Stairs 02	-	110	-	65
DC6-L00-Stairs 03	-	110	-	58
DC6-L00-Stairs 04	-	110	-	69
DC6-L00-Stairs 05	-	110	-	114
DC6-L00-Stairs 06	-	110	-	113
DC6-L00-Stairs 07	-	110	-	117
DC6-L00-Stairs 08	-	110	-	117
DC6-L01-Stairs 01	-	110	-	37
DC6-L01-Stairs 02	-	110	-	48
DC6-L01-Stairs 03	-	110	-	67
DC6-L01-Stairs 04	-	110	-	41
DC6-L01-Stairs 06	-	110	-	108
DC6-L01-Stairs 07	-	110	-	108
DC6-L01-Stairs 08	-	110	-	108
DC6-L01-Stairs 09	-	110	-	108
DC6-L02-Stairs 01	-	110	-	34
SH1-L01-Kitchenette 01	118	-	-	38
SH1-L01-Panels Area 01	-	118	-	17
SH1-L01-Security House Office 01	118	-	-	108
AW1-L00-Conference Room	118	-	-	163
AW1-L00-Lobby	-	110	-	54
AW1-L00-Campus Control Panel 01	118	-	-	130
AW1-L00-Managers Office 01	118	-	-	112
AW1-L00-Open Plan Office 01	118	-	-	435

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
AW1-L00-Kitchenette 01	118	-	-	193
AW1-L00-Storage 01	110	-	-	69
AW1-L00-Storage 01	110	-	-	9
AW1-L00-SE Room	110	-	-	10
AW1-L00-WC Lobby 01	-	110	-	48
AW1-L00-Workshop 01	118	-	-	49
AW1-L00-Corridor 01	-	110	-	59
AW1-L00-Shower 01	-	110	-	40
AW1-L00-WC 01	-	110	-	33

Solar Gain in Summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC1-L00-Acc WC 01	N/A	N/A
DC1-L00-Asset Management 01	NO (-38.4%)	NO
DC1-L00-Bin Store 01	N/A	N/A
DC1-L00-Circulation 01	N/A	N/A
DC1-L00-Janitor Room 01	N/A	N/A
DC1-L00-Lift Lobby 01	N/A	N/A
DC1-L00-Loading 01	N/A	N/A
DC1-L00-Lobby (Reception) 01	NO (-17.2%)	NO
DC1-L00-Manager 01	N/A	N/A
DC1-L00-Meeting Room 01	NO (-24.3%)	NO
DC1-L00-Misc Store 01	N/A	N/A
DC1-L00-PH Plant 01	N/A	N/A
DC1-L00-Secure Check In 01	N/A	N/A
DC1-L00-Secure Store 01	N/A	N/A
DC1-L00-Security 01	NO (-18.4%)	NO
DC1-L00-Store 01	N/A	N/A
DC1-L00-Telco Intake 01	N/A	N/A
DC1-L00-Telco Intake 02	N/A	N/A
DC1-L00-Telecom Duct Intake 01	N/A	N/A
DC1-L00-Telecom Duct Intake 02	N/A	N/A
DC1-L00-Unpacking 01	N/A	N/A
DC1-L00-Water Treatment Plant 01	N/A	N/A
DC1-L00-WC 01	N/A	N/A
DC1-L00-WC 02	N/A	N/A
DC1-L00-Workshop 01	N/A	N/A
DC1-L01-Canteen 01	NO (-19.2%)	NO
DC1-L01-Circulation 02	N/A	N/A
DC1-L01-Circulation 03	N/A	N/A
DC1-L01-Circulation 04	NO (-20.2%)	NO
DC1-L01-Facilities Office 01	NO (-19.2%)	NO
DC1-L01-Facilities Office 02	NO (-19.2%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC1-L01-Hot Water Plant 01	N/A	N/A
DC1-L01-Janitor Room 01	N/A	N/A
DC1-L01-Lift Lobby 01	N/A	N/A
DC1-L01-Meeting Room 01	NO (-19.2%)	NO
DC1-L01-Meeting Room 02	NO (-19.2%)	NO
DC1-L01-Office 01	NO (-14.9%)	NO
DC1-L01-Office 02	NO (-19.6%)	NO
DC1-L01-Phone Booth 01	NO (-19.2%)	NO
DC1-L01-Phone Booth 02	NO (-19.2%)	NO
DC1-L01-Secure Check In 01	N/A	N/A
DC1-L01-Shower 01	N/A	N/A
DC1-L01-WC 01	N/A	N/A
DC1-L01-Welfare Room 01	NO (-19.2%)	NO
DC1-L02-Lobby 01	N/A	N/A
DC2-L00-Acc WC 01	N/A	N/A
DC2-L00-Asset Management 01	NO (-38.4%)	NO
DC2-L00-Bin Store 01	N/A	N/A
DC2-L00-Circulation 01	N/A	N/A
DC2-L00-Janitor Room 01	N/A	N/A
DC2-L00-Lift Lobby 01	N/A	N/A
DC2-L00-Loading 01	N/A	N/A
DC2-L00-Lobby (Reception) 01	NO (-17.2%)	NO
DC2-L00-Manager 01	N/A	N/A
DC2-L00-Meeting Room 01	NO (-24.3%)	NO
DC2-L00-Misc Store 01	N/A	N/A
DC2-L00-PH Plant 01	N/A	N/A
DC2-L00-Secure Check In 01	N/A	N/A
DC2-L00-Secure Store 01	N/A	N/A
DC2-L00-Security 01	NO (-18.4%)	NO
DC2-L00-Store 01	N/A	N/A
DC2-L00-Telco Intake 01	N/A	N/A
DC2-L00-Telco Intake 02	N/A	N/A
DC2-L00-Telecom Duct Intake 01	N/A	N/A
DC2-L00-Telecom Duct Intake 02	N/A	N/A
DC2-L00-Unpacking 01	N/A	N/A
DC2-L00-Water Treatment Plant 01	N/A	N/A
DC2-L00-WC 01	N/A	N/A
DC2-L00-WC 02	N/A	N/A
DC2-L00-Workshop 01	N/A	N/A
DC2-L01-Canteen 01	NO (-19.2%)	NO
DC2-L01-Circulation 02	N/A	N/A
DC2-L01-Circulation 03	N/A	N/A
DC2-L01-Circulation 04	NO (-20.2%)	NO
DC2-L01-Facilities Office 01	NO (-19.2%)	NO
DC2-L01-Facilities Office 02	NO (-19.2%)	NO
DC2-L01-Hot Water Plant 01	N/A	N/A
DC2-L01-Janitor Room 01	N/A	N/A
DC2-L01-Lift Lobby 01	N/A	N/A
DC2-L01-Meeting Room 01	NO (-19.2%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC2-L01-Meeting Room 02	NO (-19.2%)	NO
DC2-L01-Office 01	NO (-14.9%)	NO
DC2-L01-Office 02	NO (-19.6%)	NO
DC2-L01-Phone Booth 01	NO (-19.2%)	NO
DC2-L01-Phone Booth 02	NO (-19.2%)	NO
DC2-L01-Secure Check In 01	N/A	N/A
DC2-L01-Shower 01	N/A	N/A
DC2-L01-WC 01	N/A	N/A
DC2-L01-Welfare Room 01	NO (-19.2%)	NO
DC2-L02-Lobby 01	N/A	N/A
DC3-L00-Acc WC 01	N/A	N/A
DC3-L00-Asset Management 01	NO (-38.4%)	NO
DC3-L00-Bin Store 01	N/A	N/A
DC3-L00-Circulation 01	N/A	N/A
DC3-L00-Janitor Room 01	N/A	N/A
DC3-L00-Lift Lobby 01	N/A	N/A
DC3-L00-Loading 01	N/A	N/A
DC3-L00-Lobby (Reception) 01	NO (-17.2%)	NO
DC3-L00-Manager 01	N/A	N/A
DC3-L00-Meeting Room 01	NO (-24.3%)	NO
DC3-L00-Misc Store 01	N/A	N/A
DC3-L00-PH Plant 01	N/A	N/A
DC3-L00-Secure Check In 01	N/A	N/A
DC3-L00-Secure Store 01	N/A	N/A
DC3-L00-Security 01	NO (-18.4%)	NO
DC3-L00-Store 01	N/A	N/A
DC3-L00-Telco Intake 01	N/A	N/A
DC3-L00-Telco Intake 02	N/A	N/A
DC3-L00-Telecom Duct Intake 01	N/A	N/A
DC3-L00-Telecom Duct Intake 02	N/A	N/A
DC3-L00-Unpacking 01	N/A	N/A
DC3-L00-Water Treatment Plant 01	N/A	N/A
DC3-L00-WC 01	N/A	N/A
DC3-L00-WC 02	N/A	N/A
DC3-L00-Workshop 01	N/A	N/A
DC3-L01-Canteen 01	NO (-19.2%)	NO
DC3-L01-Circulation 02	N/A	N/A
DC3-L01-Circulation 03	N/A	N/A
DC3-L01-Circulation 04	NO (-20.2%)	NO
DC3-L01-Facilities Office 01	NO (-19.2%)	NO
DC3-L01-Facilities Office 02	NO (-19.2%)	NO
DC3-L01-Hot Water Plant 01	N/A	N/A
DC3-L01-Janitor Room 01	N/A	N/A
DC3-L01-Lift Lobby 01	N/A	N/A
DC3-L01-Meeting Room 01	NO (-19.2%)	NO
DC3-L01-Meeting Room 02	NO (-19.2%)	NO
DC3-L01-Office 01	NO (-14.9%)	NO
DC3-L01-Office 02	NO (-19.6%)	NO
DC3-L01-Phone Booth 01	NO (-19.2%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC3-L01-Phone Booth 02	NO (-19.2%)	NO
DC3-L01-Secure Check In 01	N/A	N/A
DC3-L01-Shower 01	N/A	N/A
DC3-L01-WC 01	N/A	N/A
DC3-L01-Welfare Room 01	NO (-19.2%)	NO
DC3-L02-Lobby 01	N/A	N/A
DC4-L00-Acc WC 01	N/A	N/A
DC4-L00-Asset Management 01	NO (-38.4%)	NO
DC4-L00-Bin Store 01	N/A	N/A
DC4-L00-Circulation 01	N/A	N/A
DC4-L00-Janitor Room 01	N/A	N/A
DC4-L00-Lift Lobby 01	N/A	N/A
DC4-L00-Loading 01	N/A	N/A
DC4-L00-Lobby (Reception) 01	NO (-17.2%)	NO
DC4-L00-Manager 01	N/A	N/A
DC4-L00-Meeting Room 01	NO (-24.3%)	NO
DC4-L00-Misc Store 01	N/A	N/A
DC4-L00-PH Plant 01	N/A	N/A
DC4-L00-Secure Check In 01	N/A	N/A
DC4-L00-Secure Store 01	N/A	N/A
DC4-L00-Security 01	NO (-18.4%)	NO
DC4-L00-Store 01	N/A	N/A
DC4-L00-Telco Intake 01	N/A	N/A
DC4-L00-Telco Intake 02	N/A	N/A
DC4-L00-Telecom Duct Intake 01	N/A	N/A
DC4-L00-Telecom Duct Intake 02	N/A	N/A
DC4-L00-Unpacking 01	N/A	N/A
DC4-L00-Water Treatment Plant 01	N/A	N/A
DC4-L00-WC 01	N/A	N/A
DC4-L00-WC 02	N/A	N/A
DC4-L00-Workshop 01	N/A	N/A
DC4-L01-Canteen 01	NO (-19.2%)	NO
DC4-L01-Circulation 02	N/A	N/A
DC4-L01-Circulation 03	N/A	N/A
DC4-L01-Circulation 04	NO (-20.2%)	NO
DC4-L01-Facilities Office 01	NO (-19.2%)	NO
DC4-L01-Facilities Office 02	NO (-19.2%)	NO
DC4-L01-Hot Water Plant 01	N/A	N/A
DC4-L01-Janitor Room 01	N/A	N/A
DC4-L01-Lift Lobby 01	N/A	N/A
DC4-L01-Meeting Room 01	NO (-19.2%)	NO
DC4-L01-Meeting Room 02	NO (-19.2%)	NO
DC4-L01-Office 01	NO (-14.9%)	NO
DC4-L01-Office 02	NO (-19.6%)	NO
DC4-L01-Phone Booth 01	NO (-19.2%)	NO
DC4-L01-Phone Booth 02	NO (-19.2%)	NO
DC4-L01-Secure Check In 01	N/A	N/A
DC4-L01-Shower 01	N/A	N/A
DC4-L01-WC 01	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC4-L01-Welfare Room 01	NO (-19.2%)	NO
DC4-L02-Lobby 01	N/A	N/A
DC5-L00-Acc WC 01	N/A	N/A
DC5-L00-Asset Management 01	NO (-39.2%)	NO
DC5-L00-Bin Store 01	N/A	N/A
DC5-L00-Circulation 01	N/A	N/A
DC5-L00-Janitor Room 01	N/A	N/A
DC5-L00-Lift Lobby 01	N/A	N/A
DC5-L00-Loading 01	N/A	N/A
DC5-L00-Lobby (Reception) 01	NO (-18.2%)	NO
DC5-L00-Manager 01	N/A	N/A
DC5-L00-Meeting Room 01	NO (-25.2%)	NO
DC5-L00-Misc Store 01	N/A	N/A
DC5-L00-PH Plant 01	N/A	N/A
DC5-L00-Secure Check In 01	N/A	N/A
DC5-L00-Secure Store 01	N/A	N/A
DC5-L00-Security 01	NO (-19.4%)	NO
DC5-L00-Store 01	N/A	N/A
DC5-L00-Telco Intake 01	N/A	N/A
DC5-L00-Telco Intake 02	N/A	N/A
DC5-L00-Telecom Duct Intake 01	N/A	N/A
DC5-L00-Telecom Duct Intake 02	N/A	N/A
DC5-L00-Unpacking 01	N/A	N/A
DC5-L00-Water Treatment Plant 01	N/A	N/A
DC5-L00-WC 01	N/A	N/A
DC5-L00-WC 02	N/A	N/A
DC5-L00-Workshop 01	N/A	N/A
DC5-L01-Canteen 01	NO (-20.2%)	NO
DC5-L01-Circulation 02	N/A	N/A
DC5-L01-Circulation 03	N/A	N/A
DC5-L01-Circulation 04	NO (-2.9%)	NO
DC5-L01-Facilities Office 01	NO (-20.2%)	NO
DC5-L01-Facilities Office 02	NO (-20.2%)	NO
DC5-L01-Hot Water Plant 01	N/A	N/A
DC5-L01-Janitor Room 01	N/A	N/A
DC5-L01-Lift Lobby 01	N/A	N/A
DC5-L01-Meeting Room 01	NO (-20.2%)	NO
DC5-L01-Meeting Room 02	NO (-20.2%)	NO
DC5-L01-Office 01	NO (-20.2%)	NO
DC5-L01-Office 02	NO (-14.9%)	NO
DC5-L01-Phone Booth 01	NO (-20.2%)	NO
DC5-L01-Phone Booth 02	NO (-20.2%)	NO
DC5-L01-Secure Check In 01	N/A	N/A
DC5-L01-Shower 01	N/A	N/A
DC5-L01-WC 01	N/A	N/A
DC5-L01-Welfare Room 01	NO (-20.2%)	NO
DC5-L02-Lobby 01	N/A	N/A
DC6-L00-Acc WC 01	N/A	N/A
DC6-L00-Asset Management 01	NO (-39.2%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC6-L00-Bin Store 01	N/A	N/A
DC6-L00-Circulation 01	N/A	N/A
DC6-L00-Janitor Room 01	N/A	N/A
DC6-L00-Lift Lobby 01	N/A	N/A
DC6-L00-Loading 01	N/A	N/A
DC6-L00-Lobby (Reception) 01	NO (-18.2%)	NO
DC6-L00-Manager 01	N/A	N/A
DC6-L00-Meeting Room 01	NO (-25.2%)	NO
DC6-L00-Misc Store 01	N/A	N/A
DC6-L00-PH Plant 01	N/A	N/A
DC6-L00-Secure Check In 01	N/A	N/A
DC6-L00-Secure Store 01	N/A	N/A
DC6-L00-Security 01	NO (-19.4%)	NO
DC6-L00-Store 01	N/A	N/A
DC6-L00-Telco Intake 01	N/A	N/A
DC6-L00-Telco Intake 02	N/A	N/A
DC6-L00-Telecom Duct Intake 01	N/A	N/A
DC6-L00-Telecom Duct Intake 02	N/A	N/A
DC6-L00-Unpacking 01	N/A	N/A
DC6-L00-Water Treatment Plant 01	N/A	N/A
DC6-L00-WC 01	N/A	N/A
DC6-L00-WC 02	N/A	N/A
DC6-L00-Workshop 01	N/A	N/A
DC6-L01-Canteen 01	NO (-20.2%)	NO
DC6-L01-Circulation 02	N/A	N/A
DC6-L01-Circulation 03	N/A	N/A
DC6-L01-Circulation 04	NO (-2.9%)	NO
DC6-L01-Facilities Office 01	NO (-20.2%)	NO
DC6-L01-Facilities Office 02	NO (-20.2%)	NO
DC6-L01-Hot Water Plant 01	N/A	N/A
DC6-L01-Janitor Room 01	N/A	N/A
DC6-L01-Lift Lobby 01	N/A	N/A
DC6-L01-Meeting Room 01	NO (-20.2%)	NO
DC6-L01-Meeting Room 02	NO (-20.2%)	NO
DC6-L01-Office 01	NO (-20.2%)	NO
DC6-L01-Office 02	NO (-14.9%)	NO
DC6-L01-Phone Booth 01	NO (-20.2%)	NO
DC6-L01-Phone Booth 02	NO (-20.2%)	NO
DC6-L01-Secure Check In 01	N/A	N/A
DC6-L01-Shower 01	N/A	N/A
DC6-L01-WC 01	N/A	N/A
DC6-L01-Welfare Room 01	NO (-20.2%)	NO
DC6-L02-Lobby 01	N/A	N/A
DC1-L00-Circulation 03	N/A	N/A
DC1-L00-Circulation 04	N/A	N/A
DC1-L00-Circulation 05	N/A	N/A
DC1-L00-Circulation 06	N/A	N/A
DC1-L01-Circulation 05	N/A	N/A
DC1-L01-Circulation 06	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC1-L01-Circulation 07	N/A	N/A
DC1-L01-Circulation 08	N/A	N/A
DC2-L00-Circulation 03	N/A	N/A
DC2-L00-Circulation 04	N/A	N/A
DC2-L00-Circulation 05	N/A	N/A
DC2-L00-Circulation 06	N/A	N/A
DC2-L01-Circulation 05	N/A	N/A
DC2-L01-Circulation 06	N/A	N/A
DC2-L01-Circulation 07	N/A	N/A
DC2-L01-Circulation 08	N/A	N/A
DC3-L00-Circulation 03	N/A	N/A
DC3-L00-Circulation 04	N/A	N/A
DC3-L00-Circulation 05	N/A	N/A
DC3-L00-Circulation 06	N/A	N/A
DC3-L01-Circulation 05	N/A	N/A
DC3-L01-Circulation 06	N/A	N/A
DC3-L01-Circulation 07	N/A	N/A
DC3-L01-Circulation 08	N/A	N/A
DC4-L00-Circulation 03	N/A	N/A
DC4-L00-Circulation 04	N/A	N/A
DC4-L00-Circulation 05	N/A	N/A
DC4-L00-Circulation 06	N/A	N/A
DC4-L01-Circulation 05	N/A	N/A
DC4-L01-Circulation 06	N/A	N/A
DC4-L01-Circulation 07	N/A	N/A
DC4-L01-Circulation 08	N/A	N/A
DC5-L00-Circulation 03	N/A	N/A
DC5-L00-Circulation 04	N/A	N/A
DC5-L00-Circulation 05	N/A	N/A
DC5-L00-Circulation 06	N/A	N/A
DC5-L01-Circulation 05	N/A	N/A
DC5-L01-Circulation 06	N/A	N/A
DC5-L01-Circulation 07	N/A	N/A
DC5-L01-Circulation 08	N/A	N/A
DC6-L00-Circulation 03	N/A	N/A
DC6-L00-Circulation 04	N/A	N/A
DC6-L00-Circulation 05	N/A	N/A
DC6-L00-Circulation 06	N/A	N/A
DC6-L01-Circulation 05	N/A	N/A
DC6-L01-Circulation 06	N/A	N/A
DC6-L01-Circulation 07	N/A	N/A
DC6-L01-Circulation 08	N/A	N/A
DC1-L00-Data Hall 01	N/A	N/A
DC1-L00-Data Hall 02	N/A	N/A
DC1-L00-Data Hall 03	N/A	N/A
DC1-L00-Data Hall 04	N/A	N/A
DC1-L00-Elec Room 01	N/A	N/A
DC1-L00-Elec Room 02	N/A	N/A
DC1-L00-General Switchroom 01	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC1-L00-General Switchroom 02	N/A	N/A
DC1-L00-LV Panel 01	N/A	N/A
DC1-L00-LV Panel 02	N/A	N/A
DC1-L00-LV Panel 03	N/A	N/A
DC1-L00-LV Panel 04	N/A	N/A
DC1-L00-Mechanical Corridor 01	N/A	N/A
DC1-L00-Mechanical Corridor 02	N/A	N/A
DC1-L00-Mechanical Corridor 03	N/A	N/A
DC1-L00-Mechanical Corridor 04	N/A	N/A
DC1-L00-MV Panel 01	N/A	N/A
DC1-L00-MV Panel 03	N/A	N/A
DC1-L00-MV Panel 04	N/A	N/A
DC1-L00-MV Panel 05	N/A	N/A
DC1-L00-MV Panel 06	N/A	N/A
DC1-L00-MV Panel 08	N/A	N/A
DC1-L00-Plantroom 01	N/A	N/A
DC1-L00-Plantroom 02	N/A	N/A
DC1-L00-SER 01	N/A	N/A
DC1-L00-SER 02	N/A	N/A
DC1-L00-SER 03	N/A	N/A
DC1-L00-SER 04	N/A	N/A
DC1-L00-Telco Duct Intake 01	N/A	N/A
DC1-L00-Telco Duct Intake 02	N/A	N/A
DC1-L00-Telecom Intake 01	N/A	N/A
DC1-L00-Telecom Intake 02	N/A	N/A
DC1-L01-Data Hall 01	N/A	N/A
DC1-L01-Data Hall 02	N/A	N/A
DC1-L01-Data Hall 03	N/A	N/A
DC1-L01-Data Hall 04	N/A	N/A
DC1-L01-Elec Room 01	N/A	N/A
DC1-L01-Elec Room 02	N/A	N/A
DC1-L01-Elec Room 03	N/A	N/A
DC1-L01-Electrical Room 01	N/A	N/A
DC1-L01-LV Panel 01	N/A	N/A
DC1-L01-LV Panel 02	N/A	N/A
DC1-L01-LV Panel 03	N/A	N/A
DC1-L01-LV Panel 04	N/A	N/A
DC1-L01-LV Panel 05	N/A	N/A
DC1-L01-LV Panel 06	N/A	N/A
DC1-L01-Mechanical Corridor 01	N/A	N/A
DC1-L01-Mechanical Corridor 02	N/A	N/A
DC1-L01-Mechanical Corridor 03	N/A	N/A
DC1-L01-Mechanical Corridor 04	N/A	N/A
DC1-L01-MER 01	N/A	N/A
DC1-L01-MMR 01	N/A	N/A
DC1-L01-MMR 02	N/A	N/A
DC1-L01-MV Panel 01	N/A	N/A
DC1-L01-MV Panel 03	N/A	N/A
DC1-L01-MV Panel 04	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC1-L01-MV Panel 05	N/A	N/A
DC1-L01-MV Panel 06	N/A	N/A
DC1-L01-MV Panel 07	N/A	N/A
DC1-L01-SER 01	N/A	N/A
DC1-L01-SER 02	N/A	N/A
DC1-L01-SER 03	N/A	N/A
DC1-L01-SER 04	N/A	N/A
DHN-Disctrict Heating Plant	N/A	N/A
WTP-L00-Electrical Room 01	N/A	N/A
WTP-L00-Water Treatment 01	N/A	N/A
WTP-Storage 01	N/A	N/A
DC2-L00-Data Hall 01	N/A	N/A
DC2-L00-Data Hall 02	N/A	N/A
DC2-L00-Data Hall 03	N/A	N/A
DC2-L00-Data Hall 04	N/A	N/A
DC2-L00-Elec Room 01	N/A	N/A
DC2-L00-Elec Room 02	N/A	N/A
DC2-L00-General Switchroom 01	N/A	N/A
DC2-L00-General Switchroom 02	N/A	N/A
DC2-L00-LV Panel 01	N/A	N/A
DC2-L00-LV Panel 02	N/A	N/A
DC2-L00-LV Panel 03	N/A	N/A
DC2-L00-LV Panel 04	N/A	N/A
DC2-L00-Mechanical Corridor 01	N/A	N/A
DC2-L00-Mechanical Corridor 02	N/A	N/A
DC2-L00-Mechanical Corridor 03	N/A	N/A
DC2-L00-Mechanical Corridor 04	N/A	N/A
DC2-L00-MV Panel 01	N/A	N/A
DC2-L00-MV Panel 03	N/A	N/A
DC2-L00-MV Panel 04	N/A	N/A
DC2-L00-MV Panel 05	N/A	N/A
DC2-L00-MV Panel 06	N/A	N/A
DC2-L00-MV Panel 08	N/A	N/A
DC2-L00-Plantroom 01	N/A	N/A
DC2-L00-Plantroom 02	N/A	N/A
DC2-L00-SER 01	N/A	N/A
DC2-L00-SER 02	N/A	N/A
DC2-L00-SER 03	N/A	N/A
DC2-L00-SER 04	N/A	N/A
DC2-L00-Telco Duct Intake 01	N/A	N/A
DC2-L00-Telco Duct Intake 02	N/A	N/A
DC2-L00-Telecom Intake 01	N/A	N/A
DC2-L00-Telecom Intake 02	N/A	N/A
DC2-L01-Data Hall 01	N/A	N/A
DC2-L01-Data Hall 02	N/A	N/A
DC2-L01-Data Hall 03	N/A	N/A
DC2-L01-Data Hall 04	N/A	N/A
DC2-L01-Elec Room 01	N/A	N/A
DC2-L01-Elec Room 02	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC2-L01-Elec Room 03	N/A	N/A
DC2-L01-Electrical Room 01	N/A	N/A
DC2-L01-LV Panel 01	N/A	N/A
DC2-L01-LV Panel 02	N/A	N/A
DC2-L01-LV Panel 03	N/A	N/A
DC2-L01-LV Panel 04	N/A	N/A
DC2-L01-LV Panel 05	N/A	N/A
DC2-L01-LV Panel 06	N/A	N/A
DC2-L01-Mechanical Corridor 01	N/A	N/A
DC2-L01-Mechanical Corridor 02	N/A	N/A
DC2-L01-Mechanical Corridor 03	N/A	N/A
DC2-L01-Mechanical Corridor 04	N/A	N/A
DC2-L01-MER 01	N/A	N/A
DC2-L01-MMR 01	N/A	N/A
DC2-L01-MMR 02	N/A	N/A
DC2-L01-MV Panel 01	N/A	N/A
DC2-L01-MV Panel 03	N/A	N/A
DC2-L01-MV Panel 04	N/A	N/A
DC2-L01-MV Panel 05	N/A	N/A
DC2-L01-MV Panel 06	N/A	N/A
DC2-L01-MV Panel 07	N/A	N/A
DC2-L01-SER 01	N/A	N/A
DC2-L01-SER 02	N/A	N/A
DC2-L01-SER 03	N/A	N/A
DC2-L01-SER 04	N/A	N/A
DC3-L00-Data Hall 01	N/A	N/A
DC3-L00-Data Hall 02	N/A	N/A
DC3-L00-Data Hall 03	N/A	N/A
DC3-L00-Data Hall 04	N/A	N/A
DC3-L00-Elec Room 01	N/A	N/A
DC3-L00-Elec Room 02	N/A	N/A
DC3-L00-General Switchroom 01	N/A	N/A
DC3-L00-General Switchroom 02	N/A	N/A
DC3-L00-LV Panel 01	N/A	N/A
DC3-L00-LV Panel 02	N/A	N/A
DC3-L00-LV Panel 03	N/A	N/A
DC3-L00-LV Panel 04	N/A	N/A
DC3-L00-Mechanical Corridor 01	N/A	N/A
DC3-L00-Mechanical Corridor 02	N/A	N/A
DC3-L00-Mechanical Corridor 03	N/A	N/A
DC3-L00-Mechanical Corridor 04	N/A	N/A
DC3-L00-MV Panel 01	N/A	N/A
DC3-L00-MV Panel 03	N/A	N/A
DC3-L00-MV Panel 04	N/A	N/A
DC3-L00-MV Panel 05	N/A	N/A
DC3-L00-MV Panel 06	N/A	N/A
DC3-L00-MV Panel 08	N/A	N/A
DC3-L00-Plantroom 01	N/A	N/A
DC3-L00-Plantroom 02	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC3-L00-SER 01	N/A	N/A
DC3-L00-SER 02	N/A	N/A
DC3-L00-SER 03	N/A	N/A
DC3-L00-SER 04	N/A	N/A
DC3-L00-Telco Duct Intake 01	N/A	N/A
DC3-L00-Telco Duct Intake 02	N/A	N/A
DC3-L00-Telecom Intake 01	N/A	N/A
DC3-L00-Telecom Intake 02	N/A	N/A
DC3-L01-Data Hall 01	N/A	N/A
DC3-L01-Data Hall 02	N/A	N/A
DC3-L01-Data Hall 03	N/A	N/A
DC3-L01-Data Hall 04	N/A	N/A
DC3-L01-Elec Room 01	N/A	N/A
DC3-L01-Elec Room 02	N/A	N/A
DC3-L01-Elec Room 03	N/A	N/A
DC3-L01-Electrical Room 01	N/A	N/A
DC3-L01-LV Panel 01	N/A	N/A
DC3-L01-LV Panel 02	N/A	N/A
DC3-L01-LV Panel 03	N/A	N/A
DC3-L01-LV Panel 04	N/A	N/A
DC3-L01-LV Panel 05	N/A	N/A
DC3-L01-LV Panel 06	N/A	N/A
DC3-L01-Mechanical Corridor 01	N/A	N/A
DC3-L01-Mechanical Corridor 02	N/A	N/A
DC3-L01-Mechanical Corridor 03	N/A	N/A
DC3-L01-Mechanical Corridor 04	N/A	N/A
DC3-L01-MER 01	N/A	N/A
DC3-L01-MMR 01	N/A	N/A
DC3-L01-MMR 02	N/A	N/A
DC3-L01-MV Panel 01	N/A	N/A
DC3-L01-MV Panel 03	N/A	N/A
DC3-L01-MV Panel 04	N/A	N/A
DC3-L01-MV Panel 05	N/A	N/A
DC3-L01-MV Panel 06	N/A	N/A
DC3-L01-MV Panel 07	N/A	N/A
DC3-L01-SER 01	N/A	N/A
DC3-L01-SER 02	N/A	N/A
DC3-L01-SER 03	N/A	N/A
DC3-L01-SER 04	N/A	N/A
DC4-L00-Data Hall 01	N/A	N/A
DC4-L00-Data Hall 02	N/A	N/A
DC4-L00-Data Hall 03	N/A	N/A
DC4-L00-Data Hall 04	N/A	N/A
DC4-L00-Elec Room 01	N/A	N/A
DC4-L00-Elec Room 02	N/A	N/A
DC4-L00-General Switchroom 01	N/A	N/A
DC4-L00-General Switchroom 02	N/A	N/A
DC4-L00-LV Panel 01	N/A	N/A
DC4-L00-LV Panel 02	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC4-L00-LV Panel 03	N/A	N/A
DC4-L00-LV Panel 04	N/A	N/A
DC4-L00-Mechanical Corridor 01	N/A	N/A
DC4-L00-Mechanical Corridor 02	N/A	N/A
DC4-L00-Mechanical Corridor 03	N/A	N/A
DC4-L00-Mechanical Corridor 04	N/A	N/A
DC4-L00-MV Panel 01	N/A	N/A
DC4-L00-MV Panel 03	N/A	N/A
DC4-L00-MV Panel 04	N/A	N/A
DC4-L00-MV Panel 05	N/A	N/A
DC4-L00-MV Panel 06	N/A	N/A
DC4-L00-MV Panel 08	N/A	N/A
DC4-L00-Plantroom 01	N/A	N/A
DC4-L00-Plantroom 02	N/A	N/A
DC4-L00-SER 01	N/A	N/A
DC4-L00-SER 02	N/A	N/A
DC4-L00-SER 03	N/A	N/A
DC4-L00-SER 04	N/A	N/A
DC4-L00-Telco Duct Intake 01	N/A	N/A
DC4-L00-Telco Duct Intake 02	N/A	N/A
DC4-L00-Telecom Intake 01	N/A	N/A
DC4-L00-Telecom Intake 02	N/A	N/A
DC4-L01-Data Hall 01	N/A	N/A
DC4-L01-Data Hall 02	N/A	N/A
DC4-L01-Data Hall 03	N/A	N/A
DC4-L01-Data Hall 04	N/A	N/A
DC4-L01-Elec Room 01	N/A	N/A
DC4-L01-Elec Room 02	N/A	N/A
DC4-L01-Elec Room 03	N/A	N/A
DC4-L01-Electrical Room 01	N/A	N/A
DC4-L01-LV Panel 01	N/A	N/A
DC4-L01-LV Panel 02	N/A	N/A
DC4-L01-LV Panel 03	N/A	N/A
DC4-L01-LV Panel 04	N/A	N/A
DC4-L01-LV Panel 05	N/A	N/A
DC4-L01-LV Panel 06	N/A	N/A
DC4-L01-Mechanical Corridor 01	N/A	N/A
DC4-L01-Mechanical Corridor 02	N/A	N/A
DC4-L01-Mechanical Corridor 03	N/A	N/A
DC4-L01-Mechanical Corridor 04	N/A	N/A
DC4-L01-MER 01	N/A	N/A
DC4-L01-MMR 01	N/A	N/A
DC4-L01-MMR 02	N/A	N/A
DC4-L01-MV Panel 01	N/A	N/A
DC4-L01-MV Panel 03	N/A	N/A
DC4-L01-MV Panel 04	N/A	N/A
DC4-L01-MV Panel 05	N/A	N/A
DC4-L01-MV Panel 06	N/A	N/A
DC4-L01-MV Panel 07	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC4-L01-SER 01	N/A	N/A
DC4-L01-SER 02	N/A	N/A
DC4-L01-SER 03	N/A	N/A
DC4-L01-SER 04	N/A	N/A
DC5-L00-Data Hall 01	N/A	N/A
DC5-L00-Data Hall 02	N/A	N/A
DC5-L00-Data Hall 03	N/A	N/A
DC5-L00-Data Hall 04	N/A	N/A
DC5-L00-Elec Room 01	N/A	N/A
DC5-L00-Elec Room 02	N/A	N/A
DC5-L00-General Switchroom 01	N/A	N/A
DC5-L00-General Switchroom 02	N/A	N/A
DC5-L00-LV Panel 01	N/A	N/A
DC5-L00-LV Panel 02	N/A	N/A
DC5-L00-LV Panel 03	N/A	N/A
DC5-L00-LV Panel 04	N/A	N/A
DC5-L00-Mechanical Corridor 01	N/A	N/A
DC5-L00-Mechanical Corridor 02	N/A	N/A
DC5-L00-Mechanical Corridor 03	N/A	N/A
DC5-L00-Mechanical Corridor 04	N/A	N/A
DC5-L00-MV Panel 01	N/A	N/A
DC5-L00-MV Panel 03	N/A	N/A
DC5-L00-MV Panel 04	N/A	N/A
DC5-L00-MV Panel 05	N/A	N/A
DC5-L00-MV Panel 06	N/A	N/A
DC5-L00-MV Panel 08	N/A	N/A
DC5-L00-Plantroom 01	N/A	N/A
DC5-L00-Plantroom 02	N/A	N/A
DC5-L00-SER 01	N/A	N/A
DC5-L00-SER 02	N/A	N/A
DC5-L00-SER 03	N/A	N/A
DC5-L00-SER 04	N/A	N/A
DC5-L00-Telco Duct Intake 01	N/A	N/A
DC5-L00-Telco Duct Intake 02	N/A	N/A
DC5-L00-Telecom Intake 01	N/A	N/A
DC5-L00-Telecom Intake 02	N/A	N/A
DC5-L01-Data Hall 01	N/A	N/A
DC5-L01-Data Hall 02	N/A	N/A
DC5-L01-Data Hall 03	N/A	N/A
DC5-L01-Data Hall 04	N/A	N/A
DC5-L01-Elec Room 01	N/A	N/A
DC5-L01-Elec Room 02	N/A	N/A
DC5-L01-Elec Room 03	N/A	N/A
DC5-L01-Electrical Room 01	N/A	N/A
DC5-L01-LV Panel 01	N/A	N/A
DC5-L01-LV Panel 02	N/A	N/A
DC5-L01-LV Panel 03	N/A	N/A
DC5-L01-LV Panel 04	N/A	N/A
DC5-L01-LV Panel 05	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC5-L01-LV Panel 06	N/A	N/A
DC5-L01-Mechanical Corridor 01	N/A	N/A
DC5-L01-Mechanical Corridor 02	N/A	N/A
DC5-L01-Mechanical Corridor 03	N/A	N/A
DC5-L01-Mechanical Corridor 04	N/A	N/A
DC5-L01-MER 01	N/A	N/A
DC5-L01-MMR 01	N/A	N/A
DC5-L01-MMR 02	N/A	N/A
DC5-L01-MV Panel 01	N/A	N/A
DC5-L01-MV Panel 03	N/A	N/A
DC5-L01-MV Panel 04	N/A	N/A
DC5-L01-MV Panel 05	N/A	N/A
DC5-L01-MV Panel 06	N/A	N/A
DC5-L01-MV Panel 07	N/A	N/A
DC5-L01-SER 01	N/A	N/A
DC5-L01-SER 02	N/A	N/A
DC5-L01-SER 03	N/A	N/A
DC5-L01-SER 04	N/A	N/A
DC6-L00-Data Hall 01	N/A	N/A
DC6-L00-Data Hall 02	N/A	N/A
DC6-L00-Data Hall 03	N/A	N/A
DC6-L00-Data Hall 04	N/A	N/A
DC6-L00-Elec Room 01	N/A	N/A
DC6-L00-Elec Room 02	N/A	N/A
DC6-L00-General Switchroom 01	N/A	N/A
DC6-L00-General Switchroom 02	N/A	N/A
DC6-L00-LV Panel 01	N/A	N/A
DC6-L00-LV Panel 02	N/A	N/A
DC6-L00-LV Panel 03	N/A	N/A
DC6-L00-LV Panel 04	N/A	N/A
DC6-L00-Mechanical Corridor 01	N/A	N/A
DC6-L00-Mechanical Corridor 02	N/A	N/A
DC6-L00-Mechanical Corridor 03	N/A	N/A
DC6-L00-Mechanical Corridor 04	N/A	N/A
DC6-L00-MV Panel 01	N/A	N/A
DC6-L00-MV Panel 03	N/A	N/A
DC6-L00-MV Panel 04	N/A	N/A
DC6-L00-MV Panel 05	N/A	N/A
DC6-L00-MV Panel 06	N/A	N/A
DC6-L00-MV Panel 08	N/A	N/A
DC6-L00-Plantroom 01	N/A	N/A
DC6-L00-Plantroom 02	N/A	N/A
DC6-L00-SER 01	N/A	N/A
DC6-L00-SER 02	N/A	N/A
DC6-L00-SER 03	N/A	N/A
DC6-L00-SER 04	N/A	N/A
DC6-L00-Telco Duct Intake 01	N/A	N/A
DC6-L00-Telco Duct Intake 02	N/A	N/A
DC6-L00-Telecom Intake 01	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC6-L00-Telecom Intake 02	N/A	N/A
DC6-L01-Data Hall 01	N/A	N/A
DC6-L01-Data Hall 02	N/A	N/A
DC6-L01-Data Hall 03	N/A	N/A
DC6-L01-Data Hall 04	N/A	N/A
DC6-L01-Elec Room 01	N/A	N/A
DC6-L01-Elec Room 02	N/A	N/A
DC6-L01-Elec Room 03	N/A	N/A
DC6-L01-Electrical Room 01	N/A	N/A
DC6-L01-LV Panel 01	N/A	N/A
DC6-L01-LV Panel 02	N/A	N/A
DC6-L01-LV Panel 03	N/A	N/A
DC6-L01-LV Panel 04	N/A	N/A
DC6-L01-LV Panel 05	N/A	N/A
DC6-L01-LV Panel 06	N/A	N/A
DC6-L01-Mechanical Corridor 01	N/A	N/A
DC6-L01-Mechanical Corridor 02	N/A	N/A
DC6-L01-Mechanical Corridor 03	N/A	N/A
DC6-L01-Mechanical Corridor 04	N/A	N/A
DC6-L01-MER 01	N/A	N/A
DC6-L01-MMR 01	N/A	N/A
DC6-L01-MMR 02	N/A	N/A
DC6-L01-MV Panel 01	N/A	N/A
DC6-L01-MV Panel 03	N/A	N/A
DC6-L01-MV Panel 04	N/A	N/A
DC6-L01-MV Panel 05	N/A	N/A
DC6-L01-MV Panel 06	N/A	N/A
DC6-L01-MV Panel 07	N/A	N/A
DC6-L01-SER 01	N/A	N/A
DC6-L01-SER 02	N/A	N/A
DC6-L01-SER 03	N/A	N/A
DC6-L01-SER 04	N/A	N/A
DC1-L00-Stairs 01	N/A	N/A
DC1-L00-Stairs 02	N/A	N/A
DC1-L00-Stairs 03	N/A	N/A
DC1-L00-Stairs 04	N/A	N/A
DC1-L00-Stairs 05	N/A	N/A
DC1-L00-Stairs 06	N/A	N/A
DC1-L00-Stairs 07	N/A	N/A
DC1-L00-Stairs 08	N/A	N/A
DC1-L01-Stairs 01	N/A	N/A
DC1-L01-Stairs 02	N/A	N/A
DC1-L01-Stairs 03	N/A	N/A
DC1-L01-Stairs 04	N/A	N/A
DC1-L01-Stairs 06	N/A	N/A
DC1-L01-Stairs 07	N/A	N/A
DC1-L01-Stairs 08	N/A	N/A
DC1-L01-Stairs 09	N/A	N/A
DC1-L02-Stairs 01	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
SH1-L01-Acc WC 01	N/A	N/A
DC2-L00-Stairs 01	N/A	N/A
DC2-L00-Stairs 02	N/A	N/A
DC2-L00-Stairs 03	N/A	N/A
DC2-L00-Stairs 04	N/A	N/A
DC2-L00-Stairs 05	N/A	N/A
DC2-L00-Stairs 06	N/A	N/A
DC2-L00-Stairs 07	N/A	N/A
DC2-L00-Stairs 08	N/A	N/A
DC2-L01-Stairs 01	N/A	N/A
DC2-L01-Stairs 02	N/A	N/A
DC2-L01-Stairs 03	N/A	N/A
DC2-L01-Stairs 04	N/A	N/A
DC2-L01-Stairs 06	N/A	N/A
DC2-L01-Stairs 07	N/A	N/A
DC2-L01-Stairs 08	N/A	N/A
DC2-L01-Stairs 09	N/A	N/A
DC2-L02-Stairs 01	N/A	N/A
DC3-L00-Stairs 01	N/A	N/A
DC3-L00-Stairs 02	N/A	N/A
DC3-L00-Stairs 03	N/A	N/A
DC3-L00-Stairs 04	N/A	N/A
DC3-L00-Stairs 05	N/A	N/A
DC3-L00-Stairs 06	N/A	N/A
DC3-L00-Stairs 07	N/A	N/A
DC3-L00-Stairs 08	N/A	N/A
DC3-L01-Stairs 01	N/A	N/A
DC3-L01-Stairs 02	N/A	N/A
DC3-L01-Stairs 03	N/A	N/A
DC3-L01-Stairs 04	N/A	N/A
DC3-L01-Stairs 06	N/A	N/A
DC3-L01-Stairs 07	N/A	N/A
DC3-L01-Stairs 08	N/A	N/A
DC3-L01-Stairs 09	N/A	N/A
DC3-L02-Stairs 01	N/A	N/A
DC4-L00-Stairs 01	N/A	N/A
DC4-L00-Stairs 02	N/A	N/A
DC4-L00-Stairs 03	N/A	N/A
DC4-L00-Stairs 04	N/A	N/A
DC4-L00-Stairs 05	N/A	N/A
DC4-L00-Stairs 06	N/A	N/A
DC4-L00-Stairs 07	N/A	N/A
DC4-L00-Stairs 08	N/A	N/A
DC4-L01-Stairs 01	N/A	N/A
DC4-L01-Stairs 02	N/A	N/A
DC4-L01-Stairs 03	N/A	N/A
DC4-L01-Stairs 04	N/A	N/A
DC4-L01-Stairs 06	N/A	N/A
DC4-L01-Stairs 07	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
DC4-L01-Stairs 08	N/A	N/A
DC4-L01-Stairs 09	N/A	N/A
DC4-L02-Stairs 01	N/A	N/A
DC5-L00-Stairs 01	N/A	N/A
DC5-L00-Stairs 02	N/A	N/A
DC5-L00-Stairs 03	N/A	N/A
DC5-L00-Stairs 04	N/A	N/A
DC5-L00-Stairs 05	N/A	N/A
DC5-L00-Stairs 06	N/A	N/A
DC5-L00-Stairs 07	N/A	N/A
DC5-L00-Stairs 08	N/A	N/A
DC5-L01-Stairs 01	N/A	N/A
DC5-L01-Stairs 02	N/A	N/A
DC5-L01-Stairs 03	N/A	N/A
DC5-L01-Stairs 04	N/A	N/A
DC5-L01-Stairs 06	N/A	N/A
DC5-L01-Stairs 07	N/A	N/A
DC5-L01-Stairs 08	N/A	N/A
DC5-L01-Stairs 09	N/A	N/A
DC5-L02-Stairs 01	N/A	N/A
DC6-L00-Stairs 01	N/A	N/A
DC6-L00-Stairs 02	N/A	N/A
DC6-L00-Stairs 03	N/A	N/A
DC6-L00-Stairs 04	N/A	N/A
DC6-L00-Stairs 05	N/A	N/A
DC6-L00-Stairs 06	N/A	N/A
DC6-L00-Stairs 07	N/A	N/A
DC6-L00-Stairs 08	N/A	N/A
DC6-L01-Stairs 01	N/A	N/A
DC6-L01-Stairs 02	N/A	N/A
DC6-L01-Stairs 03	N/A	N/A
DC6-L01-Stairs 04	N/A	N/A
DC6-L01-Stairs 06	N/A	N/A
DC6-L01-Stairs 07	N/A	N/A
DC6-L01-Stairs 08	N/A	N/A
DC6-L01-Stairs 09	N/A	N/A
DC6-L02-Stairs 01	N/A	N/A
SH1-L01-Kitchenette 01	NO (-50.7%)	NO
SH1-L01-Panels Area 01	NO (-53%)	NO
SH1-L01-Security House Office 01	NO (-49.1%)	NO
AW1-L00-Conference Room	NO (-6.1%)	NO
AW1-L00-Lobby	NO (-27%)	NO
AW1-L00-Campus Control Panel 01	N/A	N/A
AW1-L00-Managers Office 01	NO (-25.5%)	NO
AW1-L00-Open Plan Office 01	YES (+23.4%)	NO
AW1-L00-Kitchenette 01	NO (-42.3%)	NO
AW1-L00-Storage 01	N/A	N/A
AW1-L00-Storage 01	N/A	N/A
AW1-L00-SE Room	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
AW1-L00-WC Lobby 01	N/A	N/A
AW1-L00-Workshop 01	NO (-94.8%)	NO
AW1-L00-Corridor 01	N/A	N/A
AW1-L00-Shower 01	N/A	N/A
AW1-L00-WC 01	N/A	N/A

Overheating

Zone	Risk of overheating
DC1-L00-Acc WC 01	N/A
DC1-L00-Asset Management 01	N/A
DC1-L00-Bin Store 01	N/A
DC1-L00-Circulation 01	N/A
DC1-L00-Janitor Room 01	N/A
DC1-L00-Lift Lobby 01	N/A
DC1-L00-Loading 01	N/A
DC1-L00-Lobby (Reception) 01	N/A
DC1-L00-Manager 01	N/A
DC1-L00-Meeting Room 01	N/A
DC1-L00-Misc Store 01	N/A
DC1-L00-PH Plant 01	N/A
DC1-L00-Secure Check In 01	N/A
DC1-L00-Secure Store 01	N/A
DC1-L00-Security 01	N/A
DC1-L00-Store 01	N/A
DC1-L00-Telco Intake 01	N/A
DC1-L00-Telco Intake 02	N/A
DC1-L00-Telecom Duct Intake 01	N/A
DC1-L00-Telecom Duct Intake 02	N/A
DC1-L00-Unpacking 01	N/A
DC1-L00-Water Treatment Plant 01	N/A
DC1-L00-WC 01	N/A
DC1-L00-WC 02	N/A
DC1-L00-Workshop 01	N/A
DC1-L01-Canteen 01	N/A
DC1-L01-Circulation 02	N/A
DC1-L01-Circulation 03	N/A
DC1-L01-Circulation 04	N/A
DC1-L01-Facilities Office 01	N/A
DC1-L01-Facilities Office 02	N/A
DC1-L01-Hot Water Plant 01	N/A
DC1-L01-Janitor Room 01	N/A
DC1-L01-Lift Lobby 01	N/A
DC1-L01-Meeting Room 01	N/A
DC1-L01-Meeting Room 02	N/A
DC1-L01-Office 01	N/A
DC1-L01-Office 02	N/A
DC1-L01-Phone Booth 01	N/A

Zone	Risk of overheating
DC1-L01-Phone Booth 02	N/A
DC1-L01-Secure Check In 01	N/A
DC1-L01-Shower 01	N/A
DC1-L01-WC 01	N/A
DC1-L01-Welfare Room 01	N/A
DC1-L02-Lobby 01	N/A
DC2-L00-Acc WC 01	N/A
DC2-L00-Asset Management 01	N/A
DC2-L00-Bin Store 01	N/A
DC2-L00-Circulation 01	N/A
DC2-L00-Janitor Room 01	N/A
DC2-L00-Lift Lobby 01	N/A
DC2-L00-Loading 01	N/A
DC2-L00-Lobby (Reception) 01	N/A
DC2-L00-Manager 01	N/A
DC2-L00-Meeting Room 01	N/A
DC2-L00-Misc Store 01	N/A
DC2-L00-PH Plant 01	N/A
DC2-L00-Secure Check In 01	N/A
DC2-L00-Secure Store 01	N/A
DC2-L00-Security 01	N/A
DC2-L00-Store 01	N/A
DC2-L00-Telco Intake 01	N/A
DC2-L00-Telco Intake 02	N/A
DC2-L00-Telecom Duct Intake 01	N/A
DC2-L00-Telecom Duct Intake 02	N/A
DC2-L00-Unpacking 01	N/A
DC2-L00-Water Treatment Plant 01	N/A
DC2-L00-WC 01	N/A
DC2-L00-WC 02	N/A
DC2-L00-Workshop 01	N/A
DC2-L01-Canteen 01	N/A
DC2-L01-Circulation 02	N/A
DC2-L01-Circulation 03	N/A
DC2-L01-Circulation 04	N/A
DC2-L01-Facilities Office 01	N/A
DC2-L01-Facilities Office 02	N/A
DC2-L01-Hot Water Plant 01	N/A
DC2-L01-Janitor Room 01	N/A
DC2-L01-Lift Lobby 01	N/A
DC2-L01-Meeting Room 01	N/A
DC2-L01-Meeting Room 02	N/A
DC2-L01-Office 01	N/A
DC2-L01-Office 02	N/A
DC2-L01-Phone Booth 01	N/A
DC2-L01-Phone Booth 02	N/A
DC2-L01-Secure Check In 01	N/A
DC2-L01-Shower 01	N/A
DC2-L01-WC 01	N/A

Zone	Risk of overheating
DC2-L01-Welfare Room 01	N/A
DC2-L02-Lobby 01	N/A
DC3-L00-Acc WC 01	N/A
DC3-L00-Asset Management 01	N/A
DC3-L00-Bin Store 01	N/A
DC3-L00-Circulation 01	N/A
DC3-L00-Janitor Room 01	N/A
DC3-L00-Lift Lobby 01	N/A
DC3-L00-Loading 01	N/A
DC3-L00-Lobby (Reception) 01	N/A
DC3-L00-Manager 01	N/A
DC3-L00-Meeting Room 01	N/A
DC3-L00-Misc Store 01	N/A
DC3-L00-PH Plant 01	N/A
DC3-L00-Secure Check In 01	N/A
DC3-L00-Secure Store 01	N/A
DC3-L00-Security 01	N/A
DC3-L00-Store 01	N/A
DC3-L00-Telco Intake 01	N/A
DC3-L00-Telco Intake 02	N/A
DC3-L00-Telecom Duct Intake 01	N/A
DC3-L00-Telecom Duct Intake 02	N/A
DC3-L00-Unpacking 01	N/A
DC3-L00-Water Treatment Plant 01	N/A
DC3-L00-WC 01	N/A
DC3-L00-WC 02	N/A
DC3-L00-Workshop 01	N/A
DC3-L01-Canteen 01	N/A
DC3-L01-Circulation 02	N/A
DC3-L01-Circulation 03	N/A
DC3-L01-Circulation 04	N/A
DC3-L01-Facilities Office 01	N/A
DC3-L01-Facilities Office 02	N/A
DC3-L01-Hot Water Plant 01	N/A
DC3-L01-Janitor Room 01	N/A
DC3-L01-Lift Lobby 01	N/A
DC3-L01-Meeting Room 01	N/A
DC3-L01-Meeting Room 02	N/A
DC3-L01-Office 01	N/A
DC3-L01-Office 02	N/A
DC3-L01-Phone Booth 01	N/A
DC3-L01-Phone Booth 02	N/A
DC3-L01-Secure Check In 01	N/A
DC3-L01-Shower 01	N/A
DC3-L01-WC 01	N/A
DC3-L01-Welfare Room 01	N/A
DC3-L02-Lobby 01	N/A
DC4-L00-Acc WC 01	N/A
DC4-L00-Asset Management 01	N/A

Zone	Risk of overheating
DC4-L00-Bin Store 01	N/A
DC4-L00-Circulation 01	N/A
DC4-L00-Janitor Room 01	N/A
DC4-L00-Lift Lobby 01	N/A
DC4-L00-Loading 01	N/A
DC4-L00-Lobby (Reception) 01	N/A
DC4-L00-Manager 01	N/A
DC4-L00-Meeting Room 01	N/A
DC4-L00-Misc Store 01	N/A
DC4-L00-PH Plant 01	N/A
DC4-L00-Secure Check In 01	N/A
DC4-L00-Secure Store 01	N/A
DC4-L00-Security 01	N/A
DC4-L00-Store 01	N/A
DC4-L00-Telco Intake 01	N/A
DC4-L00-Telco Intake 02	N/A
DC4-L00-Telecom Duct Intake 01	N/A
DC4-L00-Telecom Duct Intake 02	N/A
DC4-L00-Unpacking 01	N/A
DC4-L00-Water Treatment Plant 01	N/A
DC4-L00-WC 01	N/A
DC4-L00-WC 02	N/A
DC4-L00-Workshop 01	N/A
DC4-L01-Canteen 01	N/A
DC4-L01-Circulation 02	N/A
DC4-L01-Circulation 03	N/A
DC4-L01-Circulation 04	N/A
DC4-L01-Facilities Office 01	N/A
DC4-L01-Facilities Office 02	N/A
DC4-L01-Hot Water Plant 01	N/A
DC4-L01-Janitor Room 01	N/A
DC4-L01-Lift Lobby 01	N/A
DC4-L01-Meeting Room 01	N/A
DC4-L01-Meeting Room 02	N/A
DC4-L01-Office 01	N/A
DC4-L01-Office 02	N/A
DC4-L01-Phone Booth 01	N/A
DC4-L01-Phone Booth 02	N/A
DC4-L01-Secure Check In 01	N/A
DC4-L01-Shower 01	N/A
DC4-L01-WC 01	N/A
DC4-L01-Welfare Room 01	N/A
DC4-L02-Lobby 01	N/A
DC5-L00-Acc WC 01	N/A
DC5-L00-Asset Management 01	N/A
DC5-L00-Bin Store 01	N/A
DC5-L00-Circulation 01	N/A
DC5-L00-Janitor Room 01	N/A
DC5-L00-Lift Lobby 01	N/A

Zone	Risk of overheating
DC5-L00-Loading 01	N/A
DC5-L00-Lobby (Reception) 01	N/A
DC5-L00-Manager 01	N/A
DC5-L00-Meeting Room 01	N/A
DC5-L00-Misc Store 01	N/A
DC5-L00-PH Plant 01	N/A
DC5-L00-Secure Check In 01	N/A
DC5-L00-Secure Store 01	N/A
DC5-L00-Security 01	N/A
DC5-L00-Store 01	N/A
DC5-L00-Telco Intake 01	N/A
DC5-L00-Telco Intake 02	N/A
DC5-L00-Telecom Duct Intake 01	N/A
DC5-L00-Telecom Duct Intake 02	N/A
DC5-L00-Unpacking 01	N/A
DC5-L00-Water Treatment Plant 01	N/A
DC5-L00-WC 01	N/A
DC5-L00-WC 02	N/A
DC5-L00-Workshop 01	N/A
DC5-L01-Canteen 01	N/A
DC5-L01-Circulation 02	N/A
DC5-L01-Circulation 03	N/A
DC5-L01-Circulation 04	N/A
DC5-L01-Facilities Office 01	N/A
DC5-L01-Facilities Office 02	N/A
DC5-L01-Hot Water Plant 01	N/A
DC5-L01-Janitor Room 01	N/A
DC5-L01-Lift Lobby 01	N/A
DC5-L01-Meeting Room 01	N/A
DC5-L01-Meeting Room 02	N/A
DC5-L01-Office 01	N/A
DC5-L01-Office 02	N/A
DC5-L01-Phone Booth 01	N/A
DC5-L01-Phone Booth 02	N/A
DC5-L01-Secure Check In 01	N/A
DC5-L01-Shower 01	N/A
DC5-L01-WC 01	N/A
DC5-L01-Welfare Room 01	N/A
DC5-L02-Lobby 01	N/A
DC6-L00-Acc WC 01	N/A
DC6-L00-Asset Management 01	N/A
DC6-L00-Bin Store 01	N/A
DC6-L00-Circulation 01	N/A
DC6-L00-Janitor Room 01	N/A
DC6-L00-Lift Lobby 01	N/A
DC6-L00-Loading 01	N/A
DC6-L00-Lobby (Reception) 01	N/A
DC6-L00-Manager 01	N/A
DC6-L00-Meeting Room 01	N/A

Zone	Risk of overheating
DC6-L00-Misc Store 01	N/A
DC6-L00-PH Plant 01	N/A
DC6-L00-Secure Check In 01	N/A
DC6-L00-Secure Store 01	N/A
DC6-L00-Security 01	N/A
DC6-L00-Store 01	N/A
DC6-L00-Telco Intake 01	N/A
DC6-L00-Telco Intake 02	N/A
DC6-L00-Telecom Duct Intake 01	N/A
DC6-L00-Telecom Duct Intake 02	N/A
DC6-L00-Unpacking 01	N/A
DC6-L00-Water Treatment Plant 01	N/A
DC6-L00-WC 01	N/A
DC6-L00-WC 02	N/A
DC6-L00-Workshop 01	N/A
DC6-L01-Canteen 01	N/A
DC6-L01-Circulation 02	N/A
DC6-L01-Circulation 03	N/A
DC6-L01-Circulation 04	N/A
DC6-L01-Facilities Office 01	N/A
DC6-L01-Facilities Office 02	N/A
DC6-L01-Hot Water Plant 01	N/A
DC6-L01-Janitor Room 01	N/A
DC6-L01-Lift Lobby 01	N/A
DC6-L01-Meeting Room 01	N/A
DC6-L01-Meeting Room 02	N/A
DC6-L01-Office 01	N/A
DC6-L01-Office 02	N/A
DC6-L01-Phone Booth 01	N/A
DC6-L01-Phone Booth 02	N/A
DC6-L01-Secure Check In 01	N/A
DC6-L01-Shower 01	N/A
DC6-L01-WC 01	N/A
DC6-L01-Welfare Room 01	N/A
DC6-L02-Lobby 01	N/A
DC1-L00-Circulation 03	N/A
DC1-L00-Circulation 04	N/A
DC1-L00-Circulation 05	N/A
DC1-L00-Circulation 06	N/A
DC1-L01-Circulation 05	N/A
DC1-L01-Circulation 06	N/A
DC1-L01-Circulation 07	N/A
DC1-L01-Circulation 08	N/A
DC2-L00-Circulation 03	N/A
DC2-L00-Circulation 04	N/A
DC2-L00-Circulation 05	N/A
DC2-L00-Circulation 06	N/A
DC2-L01-Circulation 05	N/A
DC2-L01-Circulation 06	N/A

Zone	Risk of overheating
DC2-L01-Circulation 07	N/A
DC2-L01-Circulation 08	N/A
DC3-L00-Circulation 03	N/A
DC3-L00-Circulation 04	N/A
DC3-L00-Circulation 05	N/A
DC3-L00-Circulation 06	N/A
DC3-L01-Circulation 05	N/A
DC3-L01-Circulation 06	N/A
DC3-L01-Circulation 07	N/A
DC3-L01-Circulation 08	N/A
DC4-L00-Circulation 03	N/A
DC4-L00-Circulation 04	N/A
DC4-L00-Circulation 05	N/A
DC4-L00-Circulation 06	N/A
DC4-L01-Circulation 05	N/A
DC4-L01-Circulation 06	N/A
DC4-L01-Circulation 07	N/A
DC4-L01-Circulation 08	N/A
DC5-L00-Circulation 03	N/A
DC5-L00-Circulation 04	N/A
DC5-L00-Circulation 05	N/A
DC5-L00-Circulation 06	N/A
DC5-L01-Circulation 05	N/A
DC5-L01-Circulation 06	N/A
DC5-L01-Circulation 07	N/A
DC5-L01-Circulation 08	N/A
DC6-L00-Circulation 03	N/A
DC6-L00-Circulation 04	N/A
DC6-L00-Circulation 05	N/A
DC6-L00-Circulation 06	N/A
DC6-L01-Circulation 05	N/A
DC6-L01-Circulation 06	N/A
DC6-L01-Circulation 07	N/A
DC6-L01-Circulation 08	N/A
DC1-L00-Data Hall 01	High risk
DC1-L00-Data Hall 02	High risk
DC1-L00-Data Hall 03	High risk
DC1-L00-Data Hall 04	High risk
DC1-L00-Elec Room 01	High risk
DC1-L00-Elec Room 02	High risk
DC1-L00-General Switchroom 01	High risk
DC1-L00-General Switchroom 02	High risk
DC1-L00-LV Panel 01	High risk
DC1-L00-LV Panel 02	High risk
DC1-L00-LV Panel 03	High risk
DC1-L00-LV Panel 04	High risk
DC1-L00-Mechanical Corridor 01	Low risk
DC1-L00-Mechanical Corridor 02	Low risk
DC1-L00-Mechanical Corridor 03	Low risk

Zone	Risk of overheating
DC1-L00-Mechanical Corridor 04	Low risk
DC1-L00-MV Panel 01	High risk
DC1-L00-MV Panel 03	High risk
DC1-L00-MV Panel 04	High risk
DC1-L00-MV Panel 05	High risk
DC1-L00-MV Panel 06	High risk
DC1-L00-MV Panel 08	High risk
DC1-L00-Plantroom 01	Low risk
DC1-L00-Plantroom 02	Low risk
DC1-L00-SER 01	High risk
DC1-L00-SER 02	High risk
DC1-L00-SER 03	High risk
DC1-L00-SER 04	High risk
DC1-L00-Telco Duct Intake 01	Low risk
DC1-L00-Telco Duct Intake 02	Low risk
DC1-L00-Telecom Intake 01	Low risk
DC1-L00-Telecom Intake 02	Low risk
DC1-L01-Data Hall 01	High risk
DC1-L01-Data Hall 02	High risk
DC1-L01-Data Hall 03	High risk
DC1-L01-Data Hall 04	High risk
DC1-L01-Elec Room 01	High risk
DC1-L01-Elec Room 02	High risk
DC1-L01-Elec Room 03	High risk
DC1-L01-Electrical Room 01	High risk
DC1-L01-LV Panel 01	High risk
DC1-L01-LV Panel 02	High risk
DC1-L01-LV Panel 03	High risk
DC1-L01-LV Panel 04	High risk
DC1-L01-LV Panel 05	High risk
DC1-L01-LV Panel 06	High risk
DC1-L01-Mechanical Corridor 01	Low risk
DC1-L01-Mechanical Corridor 02	Low risk
DC1-L01-Mechanical Corridor 03	Low risk
DC1-L01-Mechanical Corridor 04	Low risk
DC1-L01-MER 01	High risk
DC1-L01-MMR 01	High risk
DC1-L01-MMR 02	High risk
DC1-L01-MV Panel 01	High risk
DC1-L01-MV Panel 03	High risk
DC1-L01-MV Panel 04	High risk
DC1-L01-MV Panel 05	High risk
DC1-L01-MV Panel 06	High risk
DC1-L01-MV Panel 07	High risk
DC1-L01-SER 01	High risk
DC1-L01-SER 02	High risk
DC1-L01-SER 03	High risk
DC1-L01-SER 04	High risk
DHN-Disctrict Heating Plant	Low risk

Zone	Risk of overheating
WTP-L00-Electrical Room 01	Low risk
WTP-L00-Water Treatment 01	Low risk
WTP-Storage 01	Low risk
DC2-L00-Data Hall 01	High risk
DC2-L00-Data Hall 02	High risk
DC2-L00-Data Hall 03	High risk
DC2-L00-Data Hall 04	High risk
DC2-L00-Elec Room 01	High risk
DC2-L00-Elec Room 02	High risk
DC2-L00-General Switchroom 01	High risk
DC2-L00-General Switchroom 02	High risk
DC2-L00-LV Panel 01	High risk
DC2-L00-LV Panel 02	High risk
DC2-L00-LV Panel 03	High risk
DC2-L00-LV Panel 04	High risk
DC2-L00-Mechanical Corridor 01	Low risk
DC2-L00-Mechanical Corridor 02	Low risk
DC2-L00-Mechanical Corridor 03	Low risk
DC2-L00-Mechanical Corridor 04	Low risk
DC2-L00-MV Panel 01	High risk
DC2-L00-MV Panel 03	High risk
DC2-L00-MV Panel 04	High risk
DC2-L00-MV Panel 05	High risk
DC2-L00-MV Panel 06	High risk
DC2-L00-MV Panel 08	High risk
DC2-L00-Plantroom 01	Low risk
DC2-L00-Plantroom 02	Low risk
DC2-L00-SER 01	High risk
DC2-L00-SER 02	High risk
DC2-L00-SER 03	High risk
DC2-L00-SER 04	High risk
DC2-L00-Telco Duct Intake 01	Low risk
DC2-L00-Telco Duct Intake 02	Low risk
DC2-L00-Telecom Intake 01	Low risk
DC2-L00-Telecom Intake 02	Low risk
DC2-L01-Data Hall 01	High risk
DC2-L01-Data Hall 02	High risk
DC2-L01-Data Hall 03	High risk
DC2-L01-Data Hall 04	High risk
DC2-L01-Elec Room 01	High risk
DC2-L01-Elec Room 02	High risk
DC2-L01-Elec Room 03	High risk
DC2-L01-Electrical Room 01	High risk
DC2-L01-LV Panel 01	High risk
DC2-L01-LV Panel 02	High risk
DC2-L01-LV Panel 03	High risk
DC2-L01-LV Panel 04	High risk
DC2-L01-LV Panel 05	High risk
DC2-L01-LV Panel 06	High risk

Zone	Risk of overheating
DC2-L01-Mechanical Corridor 01	Low risk
DC2-L01-Mechanical Corridor 02	Low risk
DC2-L01-Mechanical Corridor 03	Low risk
DC2-L01-Mechanical Corridor 04	Low risk
DC2-L01-MER 01	High risk
DC2-L01-MMR 01	High risk
DC2-L01-MMR 02	High risk
DC2-L01-MV Panel 01	High risk
DC2-L01-MV Panel 03	High risk
DC2-L01-MV Panel 04	High risk
DC2-L01-MV Panel 05	High risk
DC2-L01-MV Panel 06	High risk
DC2-L01-MV Panel 07	High risk
DC2-L01-SER 01	High risk
DC2-L01-SER 02	High risk
DC2-L01-SER 03	High risk
DC2-L01-SER 04	High risk
DC3-L00-Data Hall 01	High risk
DC3-L00-Data Hall 02	High risk
DC3-L00-Data Hall 03	High risk
DC3-L00-Data Hall 04	High risk
DC3-L00-Elec Room 01	High risk
DC3-L00-Elec Room 02	High risk
DC3-L00-General Switchroom 01	High risk
DC3-L00-General Switchroom 02	High risk
DC3-L00-LV Panel 01	High risk
DC3-L00-LV Panel 02	High risk
DC3-L00-LV Panel 03	High risk
DC3-L00-LV Panel 04	High risk
DC3-L00-Mechanical Corridor 01	Low risk
DC3-L00-Mechanical Corridor 02	Low risk
DC3-L00-Mechanical Corridor 03	Low risk
DC3-L00-Mechanical Corridor 04	Low risk
DC3-L00-MV Panel 01	High risk
DC3-L00-MV Panel 03	High risk
DC3-L00-MV Panel 04	High risk
DC3-L00-MV Panel 05	High risk
DC3-L00-MV Panel 06	High risk
DC3-L00-MV Panel 08	High risk
DC3-L00-Plantroom 01	Low risk
DC3-L00-Plantroom 02	Low risk
DC3-L00-SER 01	High risk
DC3-L00-SER 02	High risk
DC3-L00-SER 03	High risk
DC3-L00-SER 04	High risk
DC3-L00-Telco Duct Intake 01	Low risk
DC3-L00-Telco Duct Intake 02	Low risk
DC3-L00-Telecom Intake 01	Low risk
DC3-L00-Telecom Intake 02	Low risk

Zone	Risk of overheating
DC3-L01-Data Hall 01	High risk
DC3-L01-Data Hall 02	High risk
DC3-L01-Data Hall 03	High risk
DC3-L01-Data Hall 04	High risk
DC3-L01-Elec Room 01	High risk
DC3-L01-Elec Room 02	High risk
DC3-L01-Elec Room 03	High risk
DC3-L01-Electrical Room 01	High risk
DC3-L01-LV Panel 01	High risk
DC3-L01-LV Panel 02	High risk
DC3-L01-LV Panel 03	High risk
DC3-L01-LV Panel 04	High risk
DC3-L01-LV Panel 05	High risk
DC3-L01-LV Panel 06	High risk
DC3-L01-Mechanical Corridor 01	Low risk
DC3-L01-Mechanical Corridor 02	Low risk
DC3-L01-Mechanical Corridor 03	Low risk
DC3-L01-Mechanical Corridor 04	Low risk
DC3-L01-MER 01	High risk
DC3-L01-MMR 01	High risk
DC3-L01-MMR 02	High risk
DC3-L01-MV Panel 01	High risk
DC3-L01-MV Panel 03	High risk
DC3-L01-MV Panel 04	High risk
DC3-L01-MV Panel 05	High risk
DC3-L01-MV Panel 06	High risk
DC3-L01-MV Panel 07	High risk
DC3-L01-SER 01	High risk
DC3-L01-SER 02	High risk
DC3-L01-SER 03	High risk
DC3-L01-SER 04	High risk
DC4-L00-Data Hall 01	High risk
DC4-L00-Data Hall 02	High risk
DC4-L00-Data Hall 03	High risk
DC4-L00-Data Hall 04	High risk
DC4-L00-Elec Room 01	High risk
DC4-L00-Elec Room 02	High risk
DC4-L00-General Switchroom 01	High risk
DC4-L00-General Switchroom 02	High risk
DC4-L00-LV Panel 01	High risk
DC4-L00-LV Panel 02	High risk
DC4-L00-LV Panel 03	High risk
DC4-L00-LV Panel 04	High risk
DC4-L00-Mechanical Corridor 01	Low risk
DC4-L00-Mechanical Corridor 02	Low risk
DC4-L00-Mechanical Corridor 03	Low risk
DC4-L00-Mechanical Corridor 04	Low risk
DC4-L00-MV Panel 01	High risk
DC4-L00-MV Panel 03	High risk

Zone	Risk of overheating
DC4-L00-MV Panel 04	High risk
DC4-L00-MV Panel 05	High risk
DC4-L00-MV Panel 06	High risk
DC4-L00-MV Panel 08	High risk
DC4-L00-Plantroom 01	Low risk
DC4-L00-Plantroom 02	Low risk
DC4-L00-SER 01	High risk
DC4-L00-SER 02	High risk
DC4-L00-SER 03	High risk
DC4-L00-SER 04	High risk
DC4-L00-Telco Duct Intake 01	Low risk
DC4-L00-Telco Duct Intake 02	Low risk
DC4-L00-Telecom Intake 01	Low risk
DC4-L00-Telecom Intake 02	Low risk
DC4-L01-Data Hall 01	High risk
DC4-L01-Data Hall 02	High risk
DC4-L01-Data Hall 03	High risk
DC4-L01-Data Hall 04	High risk
DC4-L01-Elec Room 01	High risk
DC4-L01-Elec Room 02	High risk
DC4-L01-Elec Room 03	High risk
DC4-L01-Electrical Room 01	High risk
DC4-L01-LV Panel 01	High risk
DC4-L01-LV Panel 02	High risk
DC4-L01-LV Panel 03	High risk
DC4-L01-LV Panel 04	High risk
DC4-L01-LV Panel 05	High risk
DC4-L01-LV Panel 06	High risk
DC4-L01-Mechanical Corridor 01	Low risk
DC4-L01-Mechanical Corridor 02	Low risk
DC4-L01-Mechanical Corridor 03	Low risk
DC4-L01-Mechanical Corridor 04	Low risk
DC4-L01-MER 01	High risk
DC4-L01-MMR 01	High risk
DC4-L01-MMR 02	High risk
DC4-L01-MV Panel 01	High risk
DC4-L01-MV Panel 03	High risk
DC4-L01-MV Panel 04	High risk
DC4-L01-MV Panel 05	High risk
DC4-L01-MV Panel 06	High risk
DC4-L01-MV Panel 07	High risk
DC4-L01-SER 01	High risk
DC4-L01-SER 02	High risk
DC4-L01-SER 03	High risk
DC4-L01-SER 04	High risk
DC5-L00-Data Hall 01	High risk
DC5-L00-Data Hall 02	High risk
DC5-L00-Data Hall 03	High risk
DC5-L00-Data Hall 04	High risk

Zone	Risk of overheating
DC5-L00-Elec Room 01	High risk
DC5-L00-Elec Room 02	High risk
DC5-L00-General Switchroom 01	High risk
DC5-L00-General Switchroom 02	High risk
DC5-L00-LV Panel 01	High risk
DC5-L00-LV Panel 02	High risk
DC5-L00-LV Panel 03	High risk
DC5-L00-LV Panel 04	High risk
DC5-L00-Mechanical Corridor 01	Low risk
DC5-L00-Mechanical Corridor 02	Low risk
DC5-L00-Mechanical Corridor 03	Low risk
DC5-L00-Mechanical Corridor 04	Low risk
DC5-L00-MV Panel 01	High risk
DC5-L00-MV Panel 03	High risk
DC5-L00-MV Panel 04	High risk
DC5-L00-MV Panel 05	High risk
DC5-L00-MV Panel 06	High risk
DC5-L00-MV Panel 08	High risk
DC5-L00-Plantroom 01	Low risk
DC5-L00-Plantroom 02	Low risk
DC5-L00-SER 01	High risk
DC5-L00-SER 02	High risk
DC5-L00-SER 03	High risk
DC5-L00-SER 04	High risk
DC5-L00-Telco Duct Intake 01	Low risk
DC5-L00-Telco Duct Intake 02	Low risk
DC5-L00-Telecom Intake 01	Low risk
DC5-L00-Telecom Intake 02	Low risk
DC5-L01-Data Hall 01	High risk
DC5-L01-Data Hall 02	High risk
DC5-L01-Data Hall 03	High risk
DC5-L01-Data Hall 04	High risk
DC5-L01-Elec Room 01	High risk
DC5-L01-Elec Room 02	High risk
DC5-L01-Elec Room 03	High risk
DC5-L01-Electrical Room 01	High risk
DC5-L01-LV Panel 01	High risk
DC5-L01-LV Panel 02	High risk
DC5-L01-LV Panel 03	High risk
DC5-L01-LV Panel 04	High risk
DC5-L01-LV Panel 05	High risk
DC5-L01-LV Panel 06	High risk
DC5-L01-Mechanical Corridor 01	Low risk
DC5-L01-Mechanical Corridor 02	Low risk
DC5-L01-Mechanical Corridor 03	Low risk
DC5-L01-Mechanical Corridor 04	Low risk
DC5-L01-MER 01	High risk
DC5-L01-MMR 01	High risk
DC5-L01-MMR 02	High risk

Zone	Risk of overheating
DC5-L01-MV Panel 01	High risk
DC5-L01-MV Panel 03	High risk
DC5-L01-MV Panel 04	High risk
DC5-L01-MV Panel 05	High risk
DC5-L01-MV Panel 06	High risk
DC5-L01-MV Panel 07	High risk
DC5-L01-SER 01	High risk
DC5-L01-SER 02	High risk
DC5-L01-SER 03	High risk
DC5-L01-SER 04	High risk
DC6-L00-Data Hall 01	High risk
DC6-L00-Data Hall 02	High risk
DC6-L00-Data Hall 03	High risk
DC6-L00-Data Hall 04	High risk
DC6-L00-Elec Room 01	High risk
DC6-L00-Elec Room 02	High risk
DC6-L00-General Switchroom 01	High risk
DC6-L00-General Switchroom 02	High risk
DC6-L00-LV Panel 01	High risk
DC6-L00-LV Panel 02	High risk
DC6-L00-LV Panel 03	High risk
DC6-L00-LV Panel 04	High risk
DC6-L00-Mechanical Corridor 01	Low risk
DC6-L00-Mechanical Corridor 02	Low risk
DC6-L00-Mechanical Corridor 03	Low risk
DC6-L00-Mechanical Corridor 04	Low risk
DC6-L00-MV Panel 01	High risk
DC6-L00-MV Panel 03	High risk
DC6-L00-MV Panel 04	High risk
DC6-L00-MV Panel 05	High risk
DC6-L00-MV Panel 06	High risk
DC6-L00-MV Panel 08	High risk
DC6-L00-Plantroom 01	Low risk
DC6-L00-Plantroom 02	Low risk
DC6-L00-SER 01	High risk
DC6-L00-SER 02	High risk
DC6-L00-SER 03	High risk
DC6-L00-SER 04	High risk
DC6-L00-Telco Duct Intake 01	Low risk
DC6-L00-Telco Duct Intake 02	Low risk
DC6-L00-Telecom Intake 01	Low risk
DC6-L00-Telecom Intake 02	Low risk
DC6-L01-Data Hall 01	High risk
DC6-L01-Data Hall 02	High risk
DC6-L01-Data Hall 03	High risk
DC6-L01-Data Hall 04	High risk
DC6-L01-Elec Room 01	High risk
DC6-L01-Elec Room 02	High risk
DC6-L01-Elec Room 03	High risk

Zone	Risk of overheating
DC6-L01-Electrical Room 01	High risk
DC6-L01-LV Panel 01	High risk
DC6-L01-LV Panel 02	High risk
DC6-L01-LV Panel 03	High risk
DC6-L01-LV Panel 04	High risk
DC6-L01-LV Panel 05	High risk
DC6-L01-LV Panel 06	High risk
DC6-L01-Mechanical Corridor 01	Low risk
DC6-L01-Mechanical Corridor 02	Low risk
DC6-L01-Mechanical Corridor 03	Low risk
DC6-L01-Mechanical Corridor 04	Low risk
DC6-L01-MER 01	High risk
DC6-L01-MMR 01	High risk
DC6-L01-MMR 02	High risk
DC6-L01-MV Panel 01	High risk
DC6-L01-MV Panel 03	High risk
DC6-L01-MV Panel 04	High risk
DC6-L01-MV Panel 05	High risk
DC6-L01-MV Panel 06	High risk
DC6-L01-MV Panel 07	High risk
DC6-L01-SER 01	High risk
DC6-L01-SER 02	High risk
DC6-L01-SER 03	High risk
DC6-L01-SER 04	High risk
DC1-L00-Stairs 01	Significant risk
DC1-L00-Stairs 02	Significant risk
DC1-L00-Stairs 03	Moderate risk
DC1-L00-Stairs 04	Significant risk
DC1-L00-Stairs 05	Significant risk
DC1-L00-Stairs 06	Significant risk
DC1-L00-Stairs 07	Low risk
DC1-L00-Stairs 08	Low risk
DC1-L01-Stairs 01	Significant risk
DC1-L01-Stairs 02	High risk
DC1-L01-Stairs 03	High risk
DC1-L01-Stairs 04	Low risk
DC1-L01-Stairs 06	Moderate risk
DC1-L01-Stairs 07	Moderate risk
DC1-L01-Stairs 08	Moderate risk
DC1-L01-Stairs 09	Significant risk
DC1-L02-Stairs 01	Significant risk
SH1-L01-Acc WC 01	High risk
DC2-L00-Stairs 01	Significant risk
DC2-L00-Stairs 02	Significant risk
DC2-L00-Stairs 03	Moderate risk
DC2-L00-Stairs 04	Significant risk
DC2-L00-Stairs 05	Significant risk
DC2-L00-Stairs 06	Significant risk
DC2-L00-Stairs 07	Low risk

Zone	Risk of overheating
DC2-L00-Stairs 08	Low risk
DC2-L01-Stairs 01	Significant risk
DC2-L01-Stairs 02	High risk
DC2-L01-Stairs 03	High risk
DC2-L01-Stairs 04	Low risk
DC2-L01-Stairs 06	Moderate risk
DC2-L01-Stairs 07	Moderate risk
DC2-L01-Stairs 08	Moderate risk
DC2-L01-Stairs 09	Significant risk
DC2-L02-Stairs 01	Significant risk
DC3-L00-Stairs 01	Significant risk
DC3-L00-Stairs 02	Significant risk
DC3-L00-Stairs 03	Moderate risk
DC3-L00-Stairs 04	Significant risk
DC3-L00-Stairs 05	Significant risk
DC3-L00-Stairs 06	Significant risk
DC3-L00-Stairs 07	Low risk
DC3-L00-Stairs 08	Low risk
DC3-L01-Stairs 01	Significant risk
DC3-L01-Stairs 02	High risk
DC3-L01-Stairs 03	High risk
DC3-L01-Stairs 04	Low risk
DC3-L01-Stairs 06	Moderate risk
DC3-L01-Stairs 07	Moderate risk
DC3-L01-Stairs 08	Moderate risk
DC3-L01-Stairs 09	Significant risk
DC3-L02-Stairs 01	Significant risk
DC4-L00-Stairs 01	Significant risk
DC4-L00-Stairs 02	Significant risk
DC4-L00-Stairs 03	Moderate risk
DC4-L00-Stairs 04	Significant risk
DC4-L00-Stairs 05	Significant risk
DC4-L00-Stairs 06	Significant risk
DC4-L00-Stairs 07	Low risk
DC4-L00-Stairs 08	Low risk
DC4-L01-Stairs 01	Significant risk
DC4-L01-Stairs 02	High risk
DC4-L01-Stairs 03	High risk
DC4-L01-Stairs 04	Low risk
DC4-L01-Stairs 06	Moderate risk
DC4-L01-Stairs 07	Moderate risk
DC4-L01-Stairs 08	Moderate risk
DC4-L01-Stairs 09	Significant risk
DC4-L02-Stairs 01	Significant risk
DC5-L00-Stairs 01	Significant risk
DC5-L00-Stairs 02	Significant risk
DC5-L00-Stairs 03	Moderate risk
DC5-L00-Stairs 04	Significant risk
DC5-L00-Stairs 05	Significant risk

Zone	Risk of overheating
DC5-L00-Stairs 06	Significant risk
DC5-L00-Stairs 07	Low risk
DC5-L00-Stairs 08	Low risk
DC5-L01-Stairs 01	Significant risk
DC5-L01-Stairs 02	High risk
DC5-L01-Stairs 03	High risk
DC5-L01-Stairs 04	Low risk
DC5-L01-Stairs 06	Moderate risk
DC5-L01-Stairs 07	Significant risk
DC5-L01-Stairs 08	Significant risk
DC5-L01-Stairs 09	Significant risk
DC5-L02-Stairs 01	Significant risk
DC6-L00-Stairs 01	Significant risk
DC6-L00-Stairs 02	Significant risk
DC6-L00-Stairs 03	Moderate risk
DC6-L00-Stairs 04	Significant risk
DC6-L00-Stairs 05	Significant risk
DC6-L00-Stairs 06	Significant risk
DC6-L00-Stairs 07	Low risk
DC6-L00-Stairs 08	Low risk
DC6-L01-Stairs 01	Significant risk
DC6-L01-Stairs 02	High risk
DC6-L01-Stairs 03	High risk
DC6-L01-Stairs 04	Low risk
DC6-L01-Stairs 06	Moderate risk
DC6-L01-Stairs 07	Significant risk
DC6-L01-Stairs 08	Significant risk
DC6-L01-Stairs 09	Significant risk
DC6-L02-Stairs 01	Significant risk
SH1-L01-Kitchenette 01	N/A
SH1-L01-Panels Area 01	N/A
SH1-L01-Security House Office 01	N/A
AW1-L00-Conference Room	N/A
AW1-L00-Lobby	N/A
AW1-L00-Campus Control Panel 01	N/A
AW1-L00-Managers Office 01	N/A
AW1-L00-Open Plan Office 01	N/A
AW1-L00-Kitchenette 01	N/A
AW1-L00-Storage 01	N/A
AW1-L00-Storage 01	N/A
AW1-L00-SE Room	N/A
AW1-L00-WC Lobby 01	N/A
AW1-L00-Workshop 01	N/A
AW1-L00-Corridor 01	N/A
AW1-L00-Shower 01	High risk
AW1-L00-WC 01	High risk

Primary Energy Contributions to RER

Technology	kWh/annum
Photovoltaic systems	148868
Wind turbines	0
Solar thermal for water heating	0
Biomass for space and/or water heating	0
Biogas for space and/or water heating	0
Heat pumps for space and/or water heating	1.35819e+006
CHP generators for space and/or water heating	0
District heating for space and/or water heating	0
Process energy	0
Total for renewables	**1507058.0**
Total for renewables & non-renewables	**13566654.4**

Technical Data Sheet (Actual vs. Reference Building)

Building Global Parameters

	Actual	Reference
Area (m2)	160607	160607
External area (m2)	422686	422685
Weather	DUB	DUB
Infiltration (m3/hm2 @ 50Pa)	5	3
Average conductance (W/K)	103059	72355.4
Average U-value (W/m2K)	0.24	0.17
Alpha value* (%)	2.23	2.86

* 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 Est./Takeaways
30	**Offices and Workshop businesses**
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
	Residential Inst.: Hospitals and Care Homes
	Residential Inst.: Residential Primary schools
	Residential Inst.: Universities and colleges
	Secure Residential Inst.
	Residential spaces
	Non-residential Inst.: Community/Day Centre
	Non-residential Inst.: Libraries, Museums, and Galleries
	Non-residential Inst.: Primary Education
	Non-residential Inst.: Primary Health Care Building
	Non-residential Inst.: Law Courts
	General Assembly and Leisure, Night Clubs and Theatres
	Others: Passenger terminals
	Others: Emergency services
70	**Others: Miscellaneous 24hr activities**
	Others: Car Parks 24 hrs
	Others - Stand alone utility block
	Non-residential Inst.: Post-primary Education
	Residential Inst.: Residential Post-primary schools

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] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	309.5	88.8	26.4	6.3	10.5	3.26	3.91	3.5	5.5
	Reference	133.4	142.4	45.2	11	10.6	0.82	3.6	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	148.9	48.5	12.7	2.9	14.4	3.26	4.69	3.5	6.6
	Reference	276.5	60.9	93.8	4.7	15.3	0.82	3.6	----	----
[ST] No Heating or Cooling										
	Actual	0.4	7296.5	0	0	0	0	0	0	0
	Reference	0.1	7372.7	0	0	0	0	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity										
	Actual	869.8	44	302	0	0	0.8	0	1	0
	Reference	577.1	121.8	195.7	0	0	0.82	0	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	171.2	35.9	14.6	2.6	4.5	3.26	3.91	3.5	5.5
	Reference	127.3	55.2	43.2	4.3	4.8	0.82	3.6	----	----
[ST] Central heating using air distribution, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	141.4	8.9	10.4	0	40	3.79	0	3.5	0
	Reference	190.9	28.8	64.8	0	17.5	0.82	0	----	----

Key to terms

Alpha value (%)	= percentage of the building's average heat transfer coefficient which is due to thermal bridging
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
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