CAMDEN TOWN HALL

LENDLEASE CONSULTING (EUROPE) LTD ON BEHALF OF LONDON BOROUGH OF CAMDEN

SUSTAINABILITY STATEMENT

18 APRIL 2019

Camden

lendlease

Lendlease

Camden Town Hall

Sustainability Statement

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Contents

1 Introduction

This Sustainability Statement has been prepared for Lendlease, on behalf of the London Borough of Camden, in their role as project manager for the refurbishment of the Camden Town Hall. It has been prepared in support of the planning and listed building consent application for the part change of use and refurbishment of the Grade II listed building.

1.1 Existing Building

The Camden Town Hall (CTH), formerly St Pancras Town Hall, was built between 1934-37 to designs by AJ Thomas. It is a Grade II listed building, bounded by Judd Street, Euston Road, Tonbridge Walk and Bidborough Street. It is located within the King's Cross Conservation Area, and on the boundary of the Bloomsbury Conservation Area. It has been the primary public building and focus of the civic and democratic functions of the London Borough of Camden.

The building has 3 main storeys with a basement. The main entrance is from Judd Street. The former Assembly Room, now known as the Camden Centre, lies at the east end of the building with its foyer currently accessed from Bidborough Street.

The site has been used as Camden's Town Hall, though many of the Council workers have moved to new offices at 5 Pancras Square. The Council's registry and civic and democratic services have remained in the building up until its closure in August 2018 for the refurbishment project. These council services have been temporarily relocated to alternative locations in Camden while the refurbishment project is carried out. The whole building has a Sui Generis Town Hall use.

The site has a PTAL rating of 6b (excellent) which is the highest level of public transport accessibility. The site is well located close to Kings Cross and St Pancras International railway stations, as well the underground and numerous bus routes.

1.2 Local Surroundings

The site is bounded to the north by Euston Road, a major road with fast flowing traffic. Directly to the north of the site is St Pancras Station and Chambers and the St Pancras Renaissance Hotel. Adjacent to this, on either side, are the Grade I listed British Library and Kings Cross Station. To the west of the site, on Judd Street, are office buildings and student accommodation, the offices of the Royal National Institute for the Blind are located to the south west of the site. Directly south of the site on Bidborough Street are the Queen Alexandra Manson Block, a 5-7 storey residential block. At the end of Bidborough Street is the Argyle Primary School. Directly to the east of the site, on Tonbridge Walk is the old Town Hall Annex, which is being converted into a hotel.

1.3 Project Proposal

The proposals seek to improve and upgrade the Grade II listed building, while finding new uses to operate alongside the remaining Town Hall functions. The application seeks a part change of use from Sui Generis Town Hall to B1 office space (Basement, Second and Third floor), retention of the civic and democratic uses at Ground and First floor and the change of use of the Camden Centre from Sui Generis Town Hall to Events use.

The proposals include works to improve the Judd Street entrance and reception, reorganisation of the registry and marriage suites, technological improvements to the Council Chamber alongside sensitive conservation repairs to the most historically significant spaces.

A new commercial office entrance is proposed on the Bidborough Street elevation to provide access to the Second and Third floors which will be converted to commercial office and the Basement which will be converted to an affordable SME workspace for small and medium sized companies. A new lift will be located in the south east lightwell to provide dedicated access to these floors. New plant is also proposed across the building.

The Camden Centre will be let commercially to a new events company who will continue to operate the space putting on a range of commercial events. Two new entrances are proposed on Tonbridge Walk, alongside a new lift and dumbwaiter. The preferred new tenant, Il Bottaccio, has proposed a package of measures to enable community groups to continue to use the space, further details are included in the Planning Statement.

1.4 BREEAM Rating

Based upon the project scope, the project is predominately a major refurbishment. The building will contain several different functions, but with a single dominant use considered as ‘Other Buildings/Non-residential institutions/Civic’.

The project will be assessed using the BREEAM Refurbishment and Fit-out (RFO) 2014 Scheme The project has been registered with the BRE, registration number BREEAM-0066-7139.

The project is targeting a BREEAM Excellent Rating under the RFO 2014 scheme.

This report outlines the sustainability strategy that is being developed for Camden Town Hall project to address the requirements of the Mayor of London’s ‘Adopted London Plan (2016)’ and more explicitly, the applicable policies of the London Borough of Camden Local Plan (2017) and Camden Planning Guidance.

Sustainability has been core to the design of the building to ensure that the development will have minimum impact both during construction and operation.

2 Planning Policies – Project Response

This section will cover the associated planning requirements related to the Camden Town Hall project. For reference, these have been summarised below, with a detailed narrative of the project response to each policy also included.

- Adopted London Plan – March 2016
    - Policies 5.1 ‘Climate Change Mitigation’; 5.2 ‘Minimising Carbon Dioxide Emissions’; 5.3 ‘Sustainable Design and Construction’; 5.10 ‘Urban Greening’; 5.11 ‘Green Roofs and Development Site Environs’.
    - Relevant policies 5.6 ‘Decentralised Energy in Development Proposals’; 5.7 ‘Renewable Energy’; 5.8 ‘Innovative Energy Technologies’; 5.9 ‘Overheating and Cooling’ Quality’ have been addressed in the project Energy Statement.
- London Borough of Camden – Camden Local Plan 2017 - Section 8 Sustainability and Climate Change
    - Policies CC1 ‘Climate Change Mitigation’; CC2 ‘Adapting to Climate Change’; CC3 ‘Water and Flooding’; CC4 ‘Air Quality’ and CC5 ‘Waste’.
- Mayor’s Climate Change Adaptation and Climate Change Mitigation and Energy Strategies
- Mayor’s Sustainable Design and Construction Supplementary Planning Guidance (SPG)

The project aligns with policies 5.1 ‘Climate Change Mitigation’; 5.2 ‘Minimising Carbon Dioxide Emissions’ and CC1 ‘Climate Change Mitigation’, by utilising the Energy Hierarchy to evaluate and determine the most suitable and efficient system. Air Source Heat Pumps have been selected as the primary heating and cooling equipment. This significantly reduces the carbon dioxide emissions associated with the building’s operation, and also is a significant energy efficiency improvement to the existing heritage building – for carbon dioxide reduction figures see project Energy Statement. The project also prioritises the re-use of existing materials and structures to avoid substantial demolition, and to maximise resource efficiency.

To address policies 5.3 ‘Sustainable Design and Construction’; 5.10 ‘Urban Greening’; 5.11 ‘Green Roofs and Development Site Environs’ and CC2 ‘Adapting to Climate Change’, the Camden Town Hall project will incorporate biodiverse planting & green/sedum roof space to terraced areas; utilise blue roofs to reduce surface water run-off, and appropriately sized attenuation tanks which will store rainwater to meet potable water demands within the building. Urban greening interventions to the terraced areas will help to provide an enhancement of biodiversity, reduction of localised temperatures and promote health and wellbeing for occupants. The current project design of contributes to Water and

Land Use and Ecology credits which form part of the project target BREEAM Excellent Score.

Policies 5.3 ‘Sustainable Design and Construction’ and CC3 ‘Water and Flooding’ have been considered through utilising blue roof systems and attenuation tanks to collect and manage surface water. This will offset more than 50% of potable water demand within the building, and when combined with the highly efficient sanitaryware, the project will achieve four of five credit available under Wat 01 Water Consumption. The project is situated within a low risk flood zone (as determined by Environmental Agency Maps) and is not expected to be vulnerable from flooding. However, the blue roof intervention, re-use of rainwater within the building, incorporation of green/sedum roof space and biodiverse planting, will help to reduce surface water run-off when compared to the existing building.

Design interventions relating to policies 5.3 ‘Sustainable Design and Construction’ and CC4 ‘Air Quality’ are particularly important due to the proximity of the project to Euston Road. The project utilises Air Source Heat Pumps, avoiding the emissions associated with gas-fired boilers. Air Handling Equipment will utilise high efficiency filters (F7 class), to remove pollutants from the incoming air, and building air intakes and exhausts have been designed to be separated sufficiently to mitigate mixing of exhaust and incoming air. Although significant demolition is not perceived within the project scope, during the construction process, the main contractor will be required to produce, manage and monitor works in line with a Construction Indoor Air Quality Management Plan.

Policy 5.3 ‘Sustainable Design and Construction’ also places a focus on occupant comfort, the avoidance of overheating and sustainable material procurement. The project will undertake a full thermal dynamic analysis to provide a comfortable environment within the building. In addition, the main contractor will be required to develop a sustainable procurement plan, identifying materials from suppliers certified to BES6001, FSC and ISO14001 (as applicable). The project will also utilise the BRE Green Book to evaluate the life cycle impacts of materials used, informing decision making.

To align with policies 5.3 ‘Sustainable Design and Construction’ and CC5 ‘Waste’, the project has targeted a number of waste specific BREEAM credits. A Pre-refurbishment audit shall be undertaken by the main contractor or an appointed specialist to determine the materials which can be re-used or recycled as part of the refurbishment works. In addition, meet the main contractor will be required to deliver 95% diversion from landfill for construction and demolition waste, with a stretch target of 97%. To manage waste during building operation there will be an appropriately sized dedicated waste facility provision for the building’s recyclable waste, to minimise waste to landfill and maximise recycling behaviours.

Project design as summarised above and within the accompanying project Energy Statement align with the key themes from both the Mayor’s Climate Change Adaptation and Climate Change Mitigation and Energy Strategies. This is delivered through providing a highly energy efficient project, which manages resources responsibly and helps to provide a retrofitted historical building with enhanced ecological, environmental and social benefits.

2.1 Response to London Borough of Camden – Camden Planning Guidance Energy Efficiency and Adaptation

Energy Efficiency and Adaptation (Draft November 2018) states in Section 11 Sustainability Assessment Tool that 'BREEAM Excellent is required for all non-residential development of 500m^2 or more floorspace'. As the project's refurbishment area is larger than 500m^2, this sets the minimum target rating for the project.

In addition to the overall score, CPG Energy Efficiency and Adaptation Section 11.3 references that the minimum standards for specific BREEAM categories (% of un-weighted credits) are the following:

• Energy 60%

• Water 60%

• Materials 40%

As such, the Camden Town Hall project BREEAM strategy has been developed to meet these individual targets and the target BREEAM score.

Section 5.5 stipulates that 'Schemes which require BREEAM assessment…we expect the full 'BREEAM Low and Zero Carbon Feasibility Report' to be submitted alongside the Energy and Sustainability Statements. The BREEAM Low and Zero Carbon Feasibility Report can also be submitted for any scheme as a way to demonstrate feasibility'.

As this project is a refurbishment of an existing historical building, the process of developing the project energy statement has been used to investigate Low and Zero Carbon Feasibility. As part of the project we are utilising Air Source Heat Pumps to meet the building's heating and cooling demands, contributing to the Low and Zero Carbon technology agenda. Further feasibility has been reviewed and summarised by the project Energy Statement.

3 How the design of Camden Town Hall addresses sustainability

The aspiration for the building is to achieve BREEAM Excellent, and the design has been assessed under BREEAM RFO 2014.

Arup sustainability team presented and reviewed the proposed energy and sustainability strategies with LBC's Planning Sustainability Officer to establish to high level principles and targets for the project. Responses to queries were obtained and addressed further guiding the project process. In particular, the benchmarking of energy model outcomes was discussed, and the project energy model updated to reflect London Borough of Camden's recommendations.

The team, guided by a BREEAM Assessor, has considered the opportunities that are best suited to the project and integrated them into a robust sustainability approach to the project.

The design team has participated in a number of separate workshops around the subjects of BREEAM, Materials and Energy and key design strategies have been set during those workshops to align all the project stakeholders towards delivering the most sustainable building possible.

There are various documents in support of this planning application, including but not limited to the Energy Statement, Transport Statement and the Design and Access Statement. Please refer to these and other documents for a more detailed account where necessary.

BREEAM has been used as the framework to assess the achievements of the design and the sections below highlight the main strategies adopted.

4 BREEAM Refurbishment and Fit-out Pre-assessment

The minimum score for an 'Excellent' rating is 70%. At this early stage, it is critical to target an additional 'buffer' of approximately 10%, in order to protect the final score against the potential loss of credits during design, construction, and auditing by the BRE. Therefore the project should target approximately 77% for an 'Excellent' rating.

A pre-assessment workshop was previously held on 18th November 2016, which highlighted three scenarios for a 'Very Good' score of 63.57%, an 'Excellent' scenario of 76.5%, and 'Outstanding' score of 79.9% (below the threshold). Since this workshop and further design development, the viability of some credits have been revised, giving a target Excellent Score of 75.67%.

Due to the Camden Planning Requirement of BREEAM 'Excellent', and the project team's desire to make progressive sustainability interventions, a number of 'potential' credits have been identified to enhance the Excellent score. The potential credits represent 6.56% and the additional contribution of these credits will be finalised during the next design stages.

The current 5.67% buffer is lower than recommended, however still deliverable. As discussed above the team intend to utilise 'Potential' credits and incorporate these into the target score to enhance the buffer.

To address the CPG3 guidelines in relation to the percentage of credits achieved within Energy, Water and Material categories, the BREEAM pre-assessment was developed to achieve above the minimum category scores. The proposed BREEAM target scenario achieves the thresholds as follows:

• Energy: CPG3 requires minimum 60%; project target 62.5%

• Water: CPG3 requires minimum 60%; project target 89%

• Materials CPG3 requires minimum 40%; project target 69%

4.1 Management

The building will target 95% of the credits available in the Management category.

The credits targeted are mainly those related to responsible construction practices, commissioning activities and handover, with a proportion of the project brief and design credits also being targeted.

The intent of the strategy targeted is to:

- Encourage construction sites which are managed in an environmentally and socially considerate, responsible and accountable manner.
- Utilise Life Cycle Costing methodologies at elemental and component level to appraise basic building envelope, structural and servicing options.

- Encourage construction sites which are managed in such a way as to minimise resource use, energy consumption and pollution.
- Ensure delivery and commissioning of a sustainable asset designed and built in accordance with performance expectations.
- Providing building specific guidance and training to building occupiers.

4.2 Health and Wellbeing

The building will target 54% of the credits in this section.

The credits targeted focus on delivering a comfortable indoor environment through providing high levels of indoor air quality, thermal comfort and security.

The intent of the strategy targeted is to:

- Recognise and encourage a healthy internal environment through the specification and installation of appropriate lighting control, ventilation, equipment and finishes.
- Ensure that appropriate thermal comfort levels are achieved through design, and controls are selected to maintain a thermally comfortable environment for occupants within the building.
- Recognise and encourage effective design measures that promote building security to mitigate potential security risks.

4.3 Energy

The building will target 62.5% of the credits in this section.

The credits targeted focus on improving the building energy consumption, which is a significant challenge due to the listed nature of the building. The design will also provide extensive energy monitoring, Air Source Heat Pumps, efficient external lighting and lifts.

The intent of the strategy targeted is to:

- Minimise operational energy demand, consumption and carbon dioxide (the building is targeting a 3% improvement over Part L 2013). This will be achieved through passive measures, energy efficient systems and renewable energy. The improvement over Part L is relatively low as the Part L comparison assesses the proposed building against a modern building baseline. The improvement demonstrates the efficiency of the systems installed as part of the project, as interventions to the fabric of the building are constrained due to the heritage nature of the building. Below is a selection of the project interventions currently considered to enhanced the improvement above Part L:
    - Enhancing mechanical and electrical system zoning efficiency
    - Glazing enhancements where possible (restrictions due to listed status)

  - Highly efficient mechanical ventilation systems with heat recovery
  - Daylight sensor lighting control
  - Utilising pavement level glazing to bring light into the basement areas.
  - Utilising Air Source Heat Pumps to generate energy used for space heating and cooling

- Install energy sub-metering that facilitates the monitoring of operational energy consumption.
- Incorporate energy-efficient light fittings and control for the external lighting to avoid waste and light pollution.
- Generate a significant proportion of the energy demand from renewable resources.
- Incorporate energy-efficient transportation systems.

4.4 Transport

100% of the credits in this section are expected to be achieved, reflecting the project's excellent access to public transport and local amenities.

The intent of the strategy targeted is to:

- Encourage building users to cycle by ensuring adequate provision of cyclist's facilities.
- Encourage the use of alternative means of transport to the building, other than the private car, thereby helping to reduce public transport related emissions and traffic congestion associated with the building's operation. This is also a pertinent issue in the local area from Euston Road, so ensuring the building promotes alternative transport is reflected in the approach to the transport section.
- Accommodate a range of travel options for building users, thereby encouraging the reduction of user reliance on forms of travel that have the highest environmental impact.
- A travel plan will be developed by Tyrens to assess the future impact of Camden Town Hall occupants on the local area. Due to the location it is perceived that a significant majority of occupants will utilise public transport.

4.5 Water

89% of the credits in this section are targeted, which will result in the efficient use of water resources.

The credits targeted focus on the reduction of potable water in the building, monitoring water consumption in the building and avoiding water wastage through leak detection systems.

The project design incorporates a combined greywater and rainwater harvesting system. Greywater is recovered from cycle facility showers and basins in the western portion of the building, and when combined with rainwater addition (also from western side), the project is targeting a minimum of 50% of the flushing demand met by alternative water sources, and thus offsetting potable water use. Rainwater is being collected from the Western portion of the roof to feed these systems to offset potable water demand.

4.6 Materials

69% of the credits are being targeted in this category, A conservative estimate of the credits which can be achieved in this section has been made as materials selection will be subject to further design development.

However, there is an inherent approach to design and procurement which will be incorporated into the project. For example, materials will be selected which hold an approved level of responsible sourcing certification and will be selected through a review of life cycle impact. The use of materials with higher Green Guide to Specification ratings will be guide the selection of materials.

In addition, consideration of future climate change resilience impacts, internal durability measures (such as wall protection features in high pedestrian areas) and using materials efficiently will further guide the design to reduce consumption of raw materials.

4.7 Waste

50% of the available credits are targeted in this category, which addressed both construction stage and operational waste issues.

The credits targeted focus on ensuring the structure and fabric of the building has considered future climate conditions, considered future adaptation of the building for differing uses, and the management of construction and operational waste streams.

During the construction, the main contractor will be required to deliver 95% diversion from landfill for construction and demolition waste, with a stretch target of 97%. In addition, to manage waste during building operation there will be an appropriately sized dedicated waste facility provision for the building's recyclable waste, so that this waste is diverted from landfill or incineration.

4.8 Land Use and Ecology

Credits in the Land Use and Ecology section depend heavily on improvements to the biodiversity of the site as a result of the new development. As the project is predominately a refurbishment and fit-out, some credits are filtered out from the assessment and are thus not achievable.

At this stage the incorporation of biodiverse soft landscaping to terraces is being considered, to contribute to a biodiversity improvement as part of the project. Furthermore, the main contractor will need to ensure existing features of ecological value are protected, develop of a 5-year habitat management plan, and deliver the ecological enhancements recommended. A project ecologist has provided a set of recommendations to enhance project ecology, which is based upon site survey information.

The building will target 100% of the applicable credits in this section.

4.9 Pollution

69% of the credits in the Pollution section are considered to be achievable for this project.

The credits targeted focus on minimising the direct effect life cycle carbon dioxide emissions of refrigerants, NOx emissions, not having a negative impact on surface water run-off and not contributing to night time light or acoustic pollution.

4.10 Innovation

Currently 1 of the available Innovation credits has been identified for inclusion into the BREEAM assessment at this stage. Due to the proximity of the project to other nearby buildings and the community focus of the project, the contractor will need to demonstrate above the best practice construction guidelines. As such the innovation credit for Man03 Responsible Construction Practices has been included which requires the Contractor to attain a Considerate Construction Scheme score of 40 or more (with a minimum of 7 score in each category).

As the design develops further the viability of additional Innovation credits will be reassessed through the next design stages.

5 Summary

The aim for the Camden Town Hall building is to reinvigorate a historical and community asset to be as sustainable as possible, through meticulous attention to architectural detail and excellence in engineering design.

The aspiration for the building is to achieve BREEAM Excellent, and the design has been assessed under BREEAM RFO 2014 to set out a path to achieve it.

The building will provide high quality facilities and will be low energy in operation. Energy and thermal performance has been fully addressed within the constraints of the building's heritage. This will provide reduced space heating and cooling demands, during the building's operation.

It is proposed to provide soft biodiverse landscaping to existing terrace areas, to improve local biodiversity, whilst still maintaining occupant use of these spaces to maximise occupant wellbeing.

The building will include materials from responsible sources, and investigate the life cycle impacts of products to inform the design. Flexibility for a number of different building uses and building services have been considered, enabling the building to extend its useful life.

When the building comes to be built, contractors will meet and exceed the highest standards through the Considerate Constructors Scheme.

Appendix A

BREEAM Pre-assessment

A1 BREEAM Refurbishment and Fit-out 2014 Pre-assessment

The following table details the BREEAM Refurbishment and Fit-out for Camden Town Hall

		Available	Targeted	Potential	Awarded
Management					
Man 01	Project brief and design	4	3	0	0
Man 02	Life cycle cost and service life planning	4	4	0	0
Man 03	Responsible construction practices	6	6	0	0
Man 04	Commissioning and handover	4	4	0	0
Man 05	Aftercare	3	2	1	0
		21	**20**	**1**	**0**
Health & Wellbeing					
Hea 01	Visual Comfort	6	1	1	0
Hea 02	Indoor Air Quality	3	2	0	0
Hea 04	Thermal comfort	3	3	0	0
Hea 06	Safety and Security	1	1	0	0
		13	**7**	**1**	**0**
Energy					
Ene 01	Reduction of energy use and carbon emissions	15	7	5	0
Ene 02	Energy Monitoring	2	2	0	0
Ene 03	External Lighting	1	1	0	0
Ene 04	Low carbon design	3	2	1	0
Ene 06	Energy Efficient Transportation Systems	3	3	0	0
		24	**15**	**6**	**0**
Transport					
Tra 01	Public Transport Accessibility	5	5	0	5
Tra 02	Proximity to amenities	1	1	0	0
Tra 03	Cyclist facilities	2	2	0	0
Tra 05	Travel Plan	1	1	0	0
		9	**9**	**0**	**5**
Water					
Wat 01	Water Consumption	5	4	0	0
Wat 02	Water Monitoring	1	1	0	0
Wat 03	Leak Detection	2	2	0	0
Wat 04	Water Efficient Equipment	1	1	0	0
		9	**8**	**0**	**0**
Materials					
Mat 01	Life Cycle Impacts	6	4	0	0
Mat 03	Responsible Sourcing of Materials	4	2	0	0
Mat 04	Insulation	1	1	0	0
Mat 05	Designing for durability and resilience	1	1	0	0
Mat 06	Material efficiency	1	1	0	0
		13	**9**	**0**	**0**
Waste					
Wst 01	Construction Waste Management	7	2	0	0

Wst 03	Operational Waste	1	1	0	0
Wst 05	Adaptation to climate change	1	1	0	0
Wst 06	Functional adaptability	1	1	0	0
		10	**5**	**0**	**0**
Land Use & Ecology					
LE 02	Ecological Value of Site and Protection of Ecological Features	1	1	0	0
LE 04	Enhancing site ecology	1	1	0	0
LE 05	Long Term Impact on Biodiversity	2	2	0	0
		4	**4**	**0**	**0**
Pollution					
Pol 01	Impact of Refrigerants	3	1	1	0
Pol 02	NOx emissions	3	3	0	0
Pol 03	Surface Water Run Off	5	3	0	2
Pol 04	Reduction of Night Time Light Pollution	1	1	0	0
Pol 05	Noise Attenuation	1	1	0	0
		13	**9**	**1**	**2**
Innovation					
Man 03	Responsible construction practices	1	1	0	0
Hea 01	Visual Comfort	1	0	0	0
Ene 01	Reduction of energy use and carbon emissions	5	0	0	0
Wat 01	Water Consumption	1	0	0	0
Mat 01	Life Cycle Impacts	3	0	0	0
Mat 03	Responsible Sourcing of Materials	1	0	0	0
Wst 01	Construction Waste Management	1	0	0	0
Wst 02	Recycled Aggregates	1	0	0	0
Wst 05	Adaptation to climate change	1	0	0	0
AI	Approved Innovation	1	0	0	0
		16	**1**	**0**	**0**
TOTAL (weighted)		**100%**	**75.67%**	**6.56%**	

Appendix B

BRUKL Report

B1 BRUKL Report

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

Camden Town Hall

As designed

Date: Thu Mar 07 12:06:08 2019

Administrative information

Building Details

Address: Address 1, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.9

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.9

BRUKL compliance check version: v5.4.a.1

Owner Details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Criterion 1: The calculated CO_2 emission rate for the building must not exceed the target

CO_2 emission rate from the notional building, $kgCO_2/m^2.annum$	21.5
Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	21.5
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	19.4
Are emissions from the building less than or equal to the target?	BER =< TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Values which do not achieve the standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	0.81	1.2	0000002C:Surf[3]
Floor	0.25	0.26	0.62	SP000002:Surf[0]
Roof	0.25	0.13	0.13	03000000:Surf[0]
Windows***, roof windows, and rooflights	2.2	2.1	2.2	00000002:Surf[0]
Personnel doors	2.2	2.2	2.2	00000001:Surf[0]
Vehicle access & similar large doors	1.5	-	-	No Vehicle access doors in building
High usage entrance doors	3.5	-	-	No High usage entrance doors in building

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

* There might be more than one surface where the maximum U-value occurs.
** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.
*** Display windows and similar glazing are excluded from the U-value check.
N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air Permeability	Worst acceptable standard	This building
$m^3/(h.m^2)$ at 50 Pa	10	10

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide 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	>0.95

1- Building

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.52	2.43	0	1.9	0.65
Standard value	2.5*	3.2	N/A	1.6^	0.65
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.

^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.

2- Circulation and WCs

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.52	-	0.01	0	0.65
Standard value	2.5*	N/A	N/A	N/A	0.65
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.

3- Kitchen

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.52	2.43	0	1.9	0.65
Standard value	2.5*	3.2	N/A	1.6^	0.65
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.

^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.

4- Assembly Hall

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.52	2.43	0	1.9	0.65
Standard value	2.5*	3.2	N/A	1.6^	0.65
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.

^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.

1- DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	0.9*	N/A

* Standard shown is for gas boilers >30 kW output. For boilers <=30 kW output, limiting efficiency is 0.73.

Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
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
-01 Incubator Centre Office Space	-	-	-	-	-	-	-	0.5	-	-	N/A
-01 Camden centre admin offices	-	-	-	-	-	-	-	0.5	-	-	N/A
-01 Camden council	-	-	-	-	-	-	-	0.5	-	-	N/A
-01 Incubator centre	-	-	-	-	-	-	-	0.5	-	-	N/A
-01 Incubator space	-	-	-	-	-	-	-	0.5	-	-	N/A
-01 Camden Council	-	-	-	-	-	-	-	0.5	-	-	N/A
00 Council office layout	-	-	-	-	-	-	-	0.5	-	-	N/A
00 Council office layout	-	-	-	-	-	-	-	0.5	-	-	N/A
00 Incubator centre	-	-	-	-	-	-	-	0.5	-	-	N/A
00 Marriage Suite 1 and prep room	-	-	-	-	-	-	-	0.5	-	-	N/A
00 Marriage Suite 2 and prep room	-	-	-	-	-	-	-	0.5	-	-	N/A
00 Council flex meeting area	-	-	-	-	-	-	-	0.5	-	-	N/A
00 Council flex meeting area	-	-	-	-	-	-	-	0.5	-	-	N/A
00 Council office	-	-	-	-	-	-	-	0.5	-	-	N/A
00 Council office	-	-	-	-	-	-	-	0.5	-	-	N/A
00 Security	-	-	-	-	-	-	-	0.5	-	-	N/A
01 Council spaces	-	-	-	-	-	-	-	0.5	-	-	N/A
01 Council spaces	-	-	-	-	-	-	-	0.5	-	-	N/A
01 Mayor's parlour	-	-	-	-	-	-	-	0.8	-	-	N/A
01 Council spaces	-	-	-	-	-	-	-	0.5	-	-	N/A
01 Council spaces	-	-	-	-	-	-	-	0.5	-	-	N/A
01 Council spaces	-	-	-	-	-	-	-	0.5	-	-	N/A
01 Council spaces	-	-	-	-	-	-	-	0.5	-	-	N/A
01 Council chamber	-	-	-	-	-	-	-	0.5	-	-	N/A
01 Chamber members gallery	-	-	-	-	-	-	-	0.8	-	-	N/A
01 Chamber public gallery	-	-	-	-	-	-	-	0.8	-	-	N/A
01 Chamber misc	-	-	-	-	-	-	-	0.8	-	-	N/A
01 Chamber misc	-	-	-	-	-	-	-	0.8	-	-	N/A
01 Chamber misc	-	-	-	-	-	-	-	0.8	-	-	N/A
01 Chamber misc	-	-	-	-	-	-	-	0.8	-	-	N/A
02 Office	-	-	-	-	-	-	-	0.5	-	-	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
02 Office	-	-	-	-	-	-	-	0.5	-	-	N/A
02 Office	-	-	-	-	-	-	-	0.5	-	-	N/A
02 Office internal	-	-	-	-	-	-	-	0.5	-	-	N/A
03 Office internal	-	-	-	-	-	-	-	0.5	-	-	N/A
03 Office	-	-	-	-	-	-	-	0.5	-	-	N/A
03 Office	-	-	-	-	-	-	-	0.5	-	-	N/A
03 WCs	-	-	-	0.5	-	-	-	-	-	-	N/A
03 Office	-	-	-	-	-	-	-	0.3	-	-	N/A
03 WCs	-	-	-	-	-	-	-	0.5	-	-	N/A
03 Office	-	-	-	-	-	-	-	0.5	-	-	N/A
02 WCs	-	-	-	0.5	-	-	-	-	-	-	N/A
02 Office	-	-	-	-	-	-	-	0.5	-	-	N/A
02 Office	-	-	-	-	-	-	-	0.8	-	-	N/A
02 Office	-	-	-	-	-	-	-	0.5	-	-	N/A
02 WCs	-	-	-	0.5	-	-	-	-	-	-	N/A
02 Office	-	-	-	-	-	-	-	0.8	-	-	N/A
03 Office	-	-	-	-	-	-	-	0.5	-	-	N/A
03 Lobby	-	-	-	0.5	-	-	-	-	-	-	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	
-01 Incubator Centre Office Space	75	-	-	8831
-01 Camden Centre Store	12	-	-	394
-01 Generator / Building Services	47	-	-	635
-01 Camden centre admin offices	86	-	-	947
-01 Store	30	-	-	25
-01 WC	-	175	-	100
-01 Camden council	177	-	-	107
-01 Stair	-	95	-	108
-01 Incubator centre	97	-	-	464
-01 Mains Water	69	-	-	188
-01 Stair	-	107	-	97
-01 Catering kitchen	-	64	-	1285
-01 Lift Lobby	-	138	-	95
-01 Male WCs	-	94	-	353
-01 Bike Store	13	-	-	285
-01 WCs / showers	-	105	-	282
-01 Incubator space	89	-	-	714
-01 Stair	-	97	-	102
-01 Council / office / incubator / refuse & recycling store	21	-	-	577
-01 WCs	-	134	-	135
-01 Camden Council	167	-	-	119

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
-01 Council archive	11	-	-	1961
-01 Ventilation plant	43	-	-	1250
-01 Female WCs	-	94	-	429
-01 Cloakroom	12	-	-	416
-01 Escape Stair	-	106	-	82
-01 Store	30	-	-	28
-01 Accessible WC	-	226	-	30
-01 Stair	-	127	-	64
00 Escape Stair	-	88	-	111
00 Office Stair	-	82	-	126
00 Stair	-	75	-	184
00 Stair	-	68	-	217
00 Stair	-	82	-	146
00 Stair	-	75	-	178
00 Office Lobby	-	78	-	309
-01 Circulation	-	115	-	567
-01 Circulation	-	81	-	1128
00 Office reception	-	84	15	862
00 Bike store access	-	120	-	70
00 Council office layout	85	-	-	714
00 Council office layout	80	-	-	1677
00 WCs	-	105	-	214
00 WCs	-	108	-	198
-01 Boiler / CHP room	44	-	-	1883
-01 Stair	-	146	-	59
00 Stair	-	76	-	212
00 Furniture store	17	-	-	106
-01 Circulation	-	81	-	1727
00 Office lift lobby	-	120	-	144
00 Incubator centre	80	-	-	1791
00 Incubator store	23	-	-	53
00 Marriage Suite 1 and prep room	84	-	-	1118
00 Marriage Suite 2 and prep room	84	-	-	1275
00 Furniture store	16	-	-	113
00 Council flex meeting area	93	-	-	421
00 Council flex meeting area	93	-	-	425
00 Marriage suite lobby	-	72	-	799
00 Circulation link	-	78	-	206
00 Council office	77	-	-	2709
00 Council office	79	-	-	1917
00 Security	101	-	-	312
00 Circulation	-	87	-	205
00 Camden centre entrance lobby	-	70	-	415

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
00 Camden centre BOH	13	-	-	268
00 Camden centre BOH	14	-	-	179
00 Camden centre BOH	16	-	-	125
01 Camden centre BOH	14	-	-	268
01 Camden centre BOH	15	-	-	179
01 Camden centre BOH	17	-	-	125
00 Lobby / circulation	-	64	-	2607
01 WCs	-	113	-	214
01 WCs	-	117	-	198
01 Stair	-	88	-	116
01 Stair WCs	-	147	-	96
01 Stair	-	86	-	127
01 Stair WCs	-	155	-	87
01 Stair	-	92	-	111
01 Stair	-	93	-	109
01 Stair	-	95	-	102
01 Office Stair	-	92	-	110
01 Escape Stair WCs	-	174	-	70
01 Escape Stair	-	112	-	65
01 Council spaces	81	-	-	2176
01 Council spaces	88	-	-	731
01 Mayor's parlour	88	-	-	732
01 Council spaces	95	-	-	487
01 Accessible WC	-	176	-	69
01 Council spaces	147	-	-	144
01 Council spaces	79	-	-	4286
01 Council spaces	88	-	-	713
01 Circulation	-	61	-	2032
01 Council chamber	42	-	-	2675
01 Chamber members gallery	109	-	-	111
01 Chamber public gallery	111	-	-	103
01 Chamber misc	18	-	-	169
01 Chamber misc	19	-	-	155
01 Chamber misc	19	-	-	150
01 Chamber misc	18	-	-	170
01 Circulation	-	79	-	2656
02 WCs	-	96	-	214
02 WCs	-	98	-	198
02 Stair	-	77	-	111
02 Stair	-	77	-	109
02 Stair	-	79	-	102
02 Office Stair	-	77	-	110
02 Office	76	-	-	2103

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
02 Office	76	-	-	2049
02 Office	75	-	-	5892
02 Office internal	76	-	-	3047
02 Store	56	-	-	178
03 WCs	-	94	-	214
03 WCs	-	96	-	198
03 Stair	-	75	-	111
03 Stair	-	76	-	109
03 Stair	-	77	-	102
03 Office Stair	-	75	-	110
03 Office internal	76	-	-	3047
03 Kitchen Area	-	103	-	415
03 Stair Lobby	-	82	-	133
03 Office	74	-	-	5988
03 Office Store	13	-	-	166
03 Kitchen Area	-	27	-	436
00 Camden centre assembly hall	-	64	15	6180
03 Lightwell	120	-	-	843
03 Lightwell	120	-	-	789
03 Circulation	-	70	-	268
03 Office	77	-	-	1713
03 WCs	-	154	-	464
03 Lobby	-	100	-	405
03 Office	42	-	-	720
03 WCs	-	154	-	468
03 Office	77	-	-	1730
03 Circulation	-	69	-	131
03 Circulation	-	69	-	491
03 Circulation	-	69	-	302
02 WCs	-	155	-	390
02 Office	77	-	-	1808
02 Office	34	-	-	513
02 Circulation	-	69	-	302
02 Circulation	-	69	-	268
02 Office	77	-	-	1790
02 WCs	-	155	-	386
02 Office	34	-	-	751
02 Circulation	-	69	-	911
03 Office	77	-	-	2007
03 Lobby	-	155	-	70
03 Lightwell	-	174	-	164

Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
-01 Incubator Centre Office Space	NO (-98.6%)	NO
-01 Camden centre admin offices	N/A	N/A
-01 Camden council	N/A	N/A
-01 Incubator centre	N/A	N/A
-01 Catering kitchen	N/A	N/A
-01 Incubator space	N/A	N/A
-01 Camden Council	N/A	N/A
00 Office reception	N/A	N/A
00 Council office layout	NO (-14.4%)	NO
00 Council office layout	NO (-23.8%)	NO
00 Incubator centre	NO (-65%)	NO
00 Marriage Suite 1 and prep room	N/A	N/A
00 Marriage Suite 2 and prep room	N/A	N/A
00 Council flex meeting area	NO (-94%)	NO
00 Council flex meeting area	NO (-93.4%)	NO
00 Council office	NO (-32.3%)	NO
00 Council office	NO (-33.5%)	NO
00 Security	N/A	N/A
01 Council spaces	YES (+14.7%)	NO
01 Council spaces	NO (-10.5%)	NO
01 Mayor's parlour	NO (-14%)	NO
01 Council spaces	NO (-15.3%)	NO
01 Council spaces	N/A	N/A
01 Council spaces	YES (+14.8%)	NO
01 Council spaces	NO (-5.4%)	NO
01 Council chamber	N/A	N/A
01 Chamber members gallery	N/A	N/A
01 Chamber public gallery	N/A	N/A
01 Chamber misc	N/A	N/A
01 Chamber misc	N/A	N/A
01 Chamber misc	N/A	N/A
01 Chamber misc	N/A	N/A
02 Office	NO (-70.3%)	NO
02 Office	NO (-35.6%)	NO
02 Office	NO (-33.2%)	NO
02 Office internal	NO (-25.1%)	NO
03 Office internal	NO (-72%)	NO
03 Kitchen Area	NO (-58.5%)	NO
03 Office	NO (-86.6%)	NO
03 Kitchen Area	NO (-55.7%)	NO
00 Camden centre assembly hall	YES (+14.7%)	NO
03 Lightwell	YES (+631.1%)	NO
03 Lightwell	YES (+641.4%)	NO
03 Office	NO (-45.2%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
03 Office	NO (-82.9%)	NO
03 WCs	NO (-76.6%)	NO
03 Office	NO (-67.9%)	NO
02 Office	NO (-48.8%)	NO
02 Office	NO (-26.9%)	NO
02 Office	NO (-35.3%)	NO
02 Office	NO (-46.4%)	NO
03 Office	NO (-75.5%)	NO

Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

EPBD (Recast): Consideration of alternative energy systems

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

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m^2]	11124.7	11124.7
External area [m^2]	11601.5	11601.5
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	10	3
Average conductance [W/K]	6893.94	4587.01
Average U-value [W/m^2K]	0.59	0.4
Alpha value* [%]	9.96	10

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

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services
7	**A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways**
93	**B1 Offices and Workshop businesses**
	B2 to B7 General Industrial and Special Industrial Groups
	B8 Storage or Distribution
	C1 Hotels
	C2 Residential Institutions: Hospitals and Care Homes
	C2 Residential Institutions: Residential schools
	C2 Residential Institutions: Universities and colleges
	C2A Secure Residential Institutions
	Residential spaces
	D1 Non-residential Institutions: Community/Day Centre
	D1 Non-residential Institutions: Libraries, Museums, and Galleries
	D1 Non-residential Institutions: Education
	D1 Non-residential Institutions: Primary Health Care Building
	D1 Non-residential Institutions: Crown and County Courts
	D2 General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger terminals
	Others: Emergency services
	Others: Miscellaneous 24hr activities
	Others: Car Parks 24 hrs
	Others: Stand alone utility block

Energy Consumption by End Use [kWh/m^2]

	Actual	Notional
Heating	5.88	2.65
Cooling	3.56	5.61
Auxiliary	17.56	9.13
Lighting	5.99	19.44
Hot water	12.4	13.22
Equipment*	41.29	41.29
TOTAL**	**45.39**	**50.06**

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

Energy Production by Technology [kWh/m^2]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	117.44	100.94
Primary energy* [kWh/m^2]	131.46	134.31
Total emissions [kg/m^2]	19.4	21.5

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

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] Constant volume system (fixed fresh air rate), [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	83.7	181.6	6.8	14.3	98.1	3.42	3.52	3.52	3.62
	Notional	0	0	0	0	0	0	0	----	----
[ST] Fan coil systems, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	84.4	57	6.9	4.5	20.2	3.42	3.52	3.52	3.62
	Notional	30.9	205.6	3.4	15.1	29.4	2.56	3.79	----	----
[ST] Constant volume system (fixed fresh air rate), [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	26	339.7	2.1	26.8	69.6	3.42	3.52	3.52	3.62
	Notional	20.5	107.3	2.2	7.9	12.5	2.56	3.79	----	----
[ST] Central heating using water: radiators, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	56.4	0	4.6	0	1	3.42	0	3.52	0
	Notional	18.2	590.2	2	43.3	31.1	2.56	3.79	----	----
[ST] No Heating or Cooling										
	Actual	0	0	0	0	0	0	0	0	0
	Notional	29.1	0	3.2	0	1	2.56	0	----	----

Key to terms

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

Key Features

The Building Control Body is advised to give particular attention to items whose specifications are better than typically expected.

Building fabric

Element	$U_{i\text{-}Typ}$	$U_{i\text{-}Min}$	Surface where the minimum value occurs*
Wall	0.23	0.7	01000010:Surf[1]
Floor	0.2	0.25	XT000000:Surf[0]
Roof	0.15	0.13	XT000000:Surf[1]
Windows, roof windows, and rooflights	1.5	1.51	MT000004:Surf[1]
Personnel doors	1.5	2.2	00000001:Surf[0]
Vehicle access & similar large doors	1.5	-	No Vehicle access doors in building
High usage entrance doors	1.5	-	No High usage entrance doors in building

$U_{i\text{-}Typ}$ = Typical individual element U-values [W/(m²K)] $U_{i\text{-}Min}$ = Minimum individual element U-values [W/(m²K)]

* There might be more than one surface where the minimum U-value occurs.

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	10