



# Verte

## Camden Works Sustainability Narrative

For QOB

July 2024

01

Executive  
Summary

02

Energy  
Efficiency

03

Green  
Infrastructure

04

Water  
Conservation

05

Material  
Selection

06

Waste  
Management

07

Climate Change  
Adaptation

08

Health and  
Wellbeing

# Project Overview

**Project Name:** Camden Works

**Client:** QOB

**Date:** July 2024

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**Project Name:**

Camden Works

**Location:**

42-43 Gloucester Crescent, London, UK.

**Area:**

2,600 sqm

**Type of Building:**

General Office Building.

**Project Description:**

This project comprises the refurbishment of an existing office building. The proposed development of the Rotunda and the Annex Building have five storey levels comprising of lower ground, ground, and three upper floors, providing office areas, common space and staff facilities.



# Executive Summary

01

# Executive Summary

This document outlines the sustainability strategy and key targets for the Camden Works project, which aims to achieve a BREEAM 'Excellent' rating under the UK Refurbishment and Fit-Out (RFO) 2014 scheme. The project involves refurbishing the Lower Ground and Third Floors of the Rotunda and Annex buildings, with a strong focus on integrating sustainability across all design and construction aspects.

The document details how the project aligns with the sustainability requirements of BREEAM RFO 2014, Camden Council's policies, and S106 obligations. Key areas of focus include:

- **Energy Efficiency:** Incorporation of energy-efficient systems and technologies.
- **Water Conservation:** Implementation of water-saving measures and systems.
- **Material Selection:** Use of sustainable and responsibly sourced materials.
- **Waste Management:** Adoption of strategies to reduce waste and promote a circular economy.
- **Health and Wellbeing:** Enhancements to daylighting, indoor air quality, and thermal comfort.

# Executive Summary

The redevelopment plans include office spaces, common areas, and staff facilities in the Rotunda and Annex buildings. The design adheres to Camden's Local Plan and Energy Efficiency and Adaptation Planning Guidance, integrating key sustainability measures within the scope of a refurbishment project. Given the nature of the refurbishment, interventions will be practical and focused on achievable sustainable outcomes. These measures ensure that the project not only complies with regulatory requirements but also promotes long-term sustainability and enhances the quality of the built environment for occupants.

## Specific Measures Include:

- **Double-Glazed Units:** To improve insulation and reduce energy consumption.
- **Insulation:** Installation in floors and external walls (Annex building) to enhance thermal efficiency.
- **Air Source Heat Pump:** Efficient heating and cooling solution.
- **Mechanical Ventilation with Heat Recovery:** High-efficiency systems to improve air quality.
- **LED Lighting:** High-efficiency lighting with occupancy sensors to reduce energy use.
- **Water Efficiency:** Measures targeting BREEAM water consumption standards.
- **Sustainable Materials Procurement:** Ensuring materials are responsibly sourced.
- **Waste Management:** Strategies to minimize construction waste.
- **Health and Wellbeing:** Design features to enhance daylight, indoor air quality, and thermal comfort.

# Energy Efficiency

02

# Energy Efficiency

The Camden Works project is designed to minimize energy use in line with the energy hierarchy, aiming for a BREEAM 'Excellent' rating and an improvement in the EPC rating from D to C or B. Key enhancements include the installation of energy-efficient HVAC systems, specifically heat pumps for heating, cooling, and hot water provision.

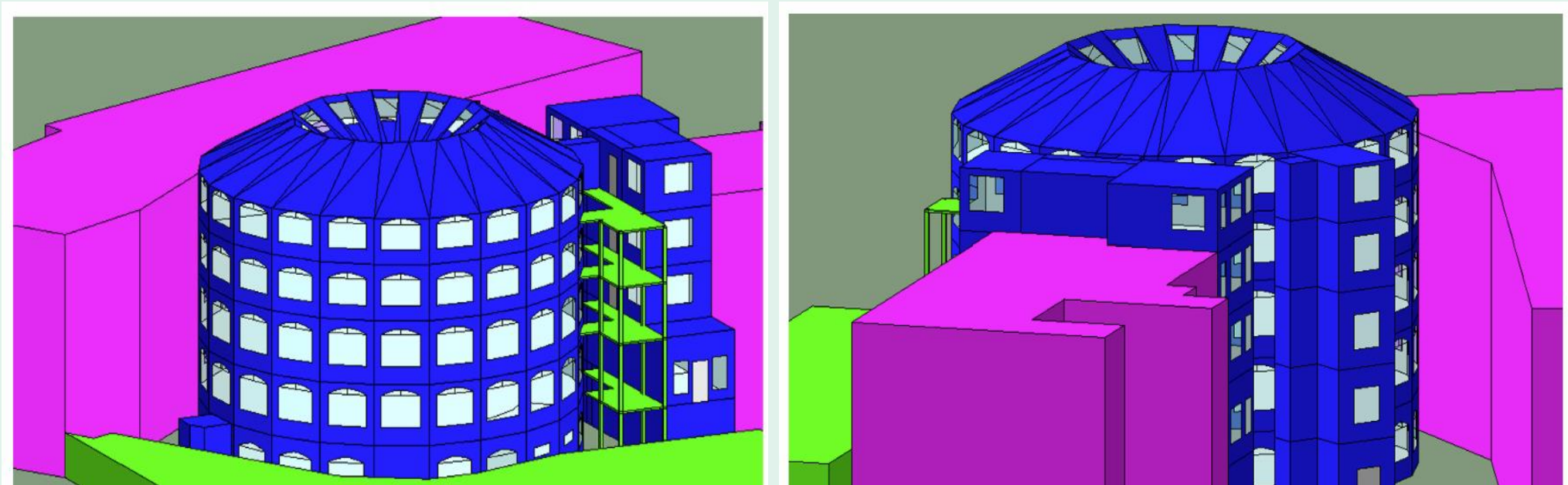


Figure 1: IESVE 3D model renditions from Verte's Thermal Comfort Study.



# Energy Hierarchy

## Be Lean:

The building's design minimizes heat loss and overheating. Thick walls provide high thermal mass, absorbing and storing heat during the day and releasing it in the evening, which helps maintain a stable indoor temperature. Enhancements include new windows, wall and floor insulation, and high-efficiency lighting with controls. Mechanical ventilation with heat recovery further reduces energy demand, while perimeter placement of occupied spaces maximizes daylight use, reducing reliance on artificial lighting.

## Be Clean:

While connecting to a district heating network was considered, the nearest existing network is approximately 920 meters away, with no current plans for extension. Consequently, an electric heating system has been chosen, aligning with the anticipated decarbonization of the electrical grid, predicted to reach 41 grams CO<sub>2</sub>e/kWh by 2035. This transition supports the move away from gas-fired heating systems, enhancing air quality and sustainability.

## Be Green:

The project incorporates an efficient air source heat pump for heating and cooling, classified as a renewable energy technology. Passive design strategies include utilizing the building's thermal mass, high-quality insulation for external walls and floors, and upgrading to double-glazed windows, all of which contribute to energy conservation and reduced emissions.

# Heat Map

The project adheres to the energy efficiency standards of Camden's Local Plan Policy CC1, despite the refurbishment context limiting full compliance with Part L1 Building Regulation requirements. The integration of renewable technologies and energy-saving measures underscores the project's commitment to sustainability and supports Camden's broader environmental goals.

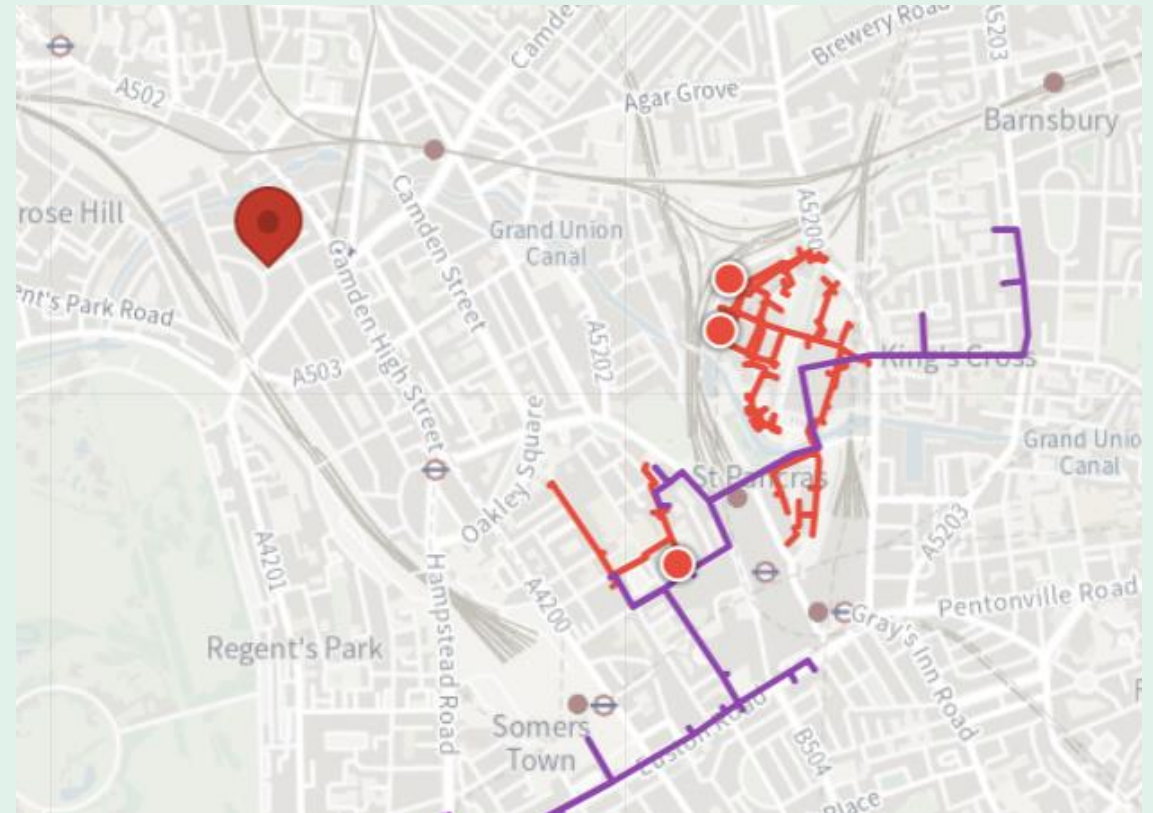


Figure 2: Heat map confirming existing and proposed heat networks (Mayor of London, 2022).

# Overheating Mitigation

**Strategy:** The Camden Works project applies the cooling hierarchy and integrates passive design measures to mitigate overheating, following Policy SI 4 of the London Plan. The design aims to reduce internal heat gains and manage temperatures through a combination of architectural and mechanical strategies such as:

- **Reducing Heat Entry:** The building design minimizes heat entry through the use of shading measures such as deep window reveals, and the natural shading provided by surrounding structures. High-performance solar control glass and reflective internal roller blinds are specified to limit solar heat gains, balancing daylight penetration with thermal comfort.
- **Minimizing Internal Heat Generation:** Efficient design choices, including thermally insulated distribution pipework and minimized pipe lengths, reduce heat generation within the building. The use of energy-efficient lighting further contributes to lowering internal heat gains.
- **Thermal Mass and Ventilation:** The thick external walls provide significant thermal mass, helping to stabilize indoor temperatures by absorbing and gradually releasing heat. The design allows for passive ventilation, enabling tenants to open windows to facilitate natural air circulation.
- **Mechanical Ventilation:** Ventilation systems are designed with low pressure ductwork, variable speed drives, and high-efficiency heat recovery systems. These features ensure efficient air exchange while maintaining low energy consumption and specific fan powers.
- **Active Cooling:** Active cooling is necessary to manage high internal temperatures during summer. The project includes an efficient air source heat pump, chosen to meet the cooling needs while maintaining energy efficiency. This system ensures that cooling demand is kept lower than that of a notional building, minimizing energy use and associated emissions.

# Active Cooling

## Overheating Assessment and Active Cooling:

While a full dynamic thermal modelling assessment for overheating has not been conducted, a thermal comfort assessment was completed. Active cooling measures, specifically the air source heat pump, are integral to maintaining acceptable indoor temperatures, particularly during peak summer periods. This proactive approach ensures occupant comfort and aligns with sustainable building practices.

# Green Infrastructure

03

# Green Infrastructure

## Green Infrastructure:

The current design documents for the Camden Works project do not include plans for green roofs, blue roofs, or other green infrastructure elements such as rain gardens or tree pits. It would be anticipated that increased weight of green or blue roofs would mean strengthening to the structure and therefore increased embodied carbon. The inclusion of a green or blue roof would not decrease operational energy and carbon.

# Water Conservation

04

# Water Conservation Strategy

## Strategy:

The Camden Works project is dedicated to surpassing Camden Council's sustainable water use guidelines by adhering to BREEAM's stringent water efficiency criteria.

The project aims to implement advanced water conservation measures, including the installation of water-saving fixtures and systems, to significantly reduce water consumption. By targeting BREEAM Excellent standards, the building is expected to achieve a water usage rate in line with BREEAM requirements which tend to exceed the Camden Council requirement of 105 litres per person per day.

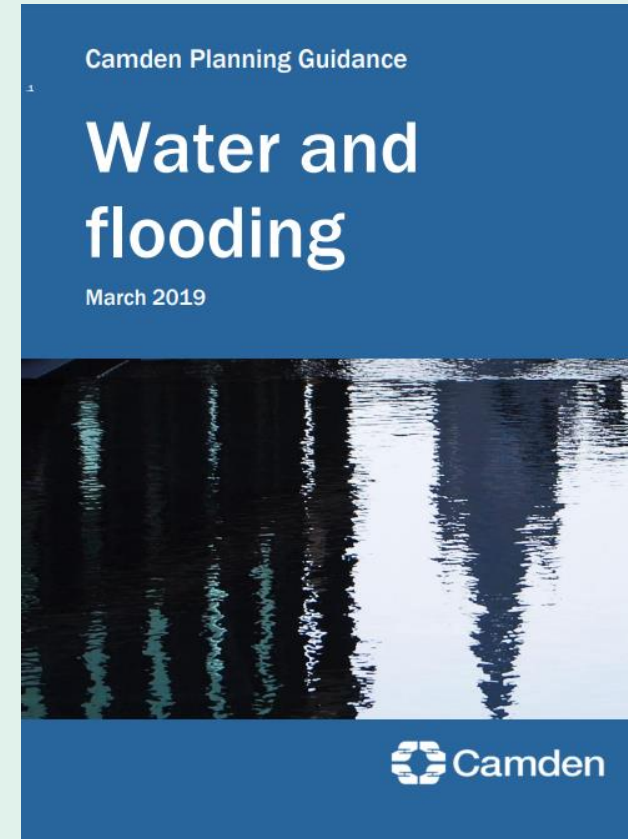


Figure 3: Camden Council Water and Flooding Planning Guidance Report 2019



# Water Conservation and Management

## Key Water Conservation Measures:

- **Low-Flow Taps:** The project will install taps with a maximum flow rate of 4.5 litres per minute, meeting BREEAM targets and providing a more efficient standard than the Camden Council guideline of 5 Litres per minute, enhancing water conservation while maintaining functionality.
- **Dual-Flush Toilets:** Toilets will be equipped with dual-flush systems with a maximum flush volume of 4 litres, directly aligning with BREEAM's target. This significantly reduces typical flush volumes, supporting water conservation and operational efficiency.
- **Efficient Showerheads:** Showerheads will have a flow rate of 6 litres per minute, in line with BREEAM's stringent standards. This represents a considerable improvement over standard practices, showcasing a strong commitment to reducing water consumption.
- **Urinals:** Urinals will feature a maximum flush volume of 1.5 litres per use, fully complying with both BREEAM and Camden Council standards, ensuring efficient water use.

The project will install water meters for real-time monitoring and sub-metering in high water usage areas. This system will facilitate detailed tracking and management of water consumption, allowing for proactive identification and mitigation of inefficiencies.

# Material Selection

05

# Sustainable Material Use

The Camden Works project places a strong emphasis on sustainable material use, prioritizing materials with low environmental impact, including those that are sustainably sourced and certified. This commitment to responsible sourcing aligns with BREEAM's life cycle impact criteria and local mandates aimed at reducing embodied carbon in construction materials. The project aims to achieve BREEAM Excellent by implementing sustainable material sourcing and waste management practices to minimize its environmental footprint.

The project will make efforts to reuse materials where feasible, ensuring that new materials are responsibly sourced and selected for their low environmental impact. When new materials are necessary, they will preferably come from recycled or reused sources. Additionally, efforts will be made to reduce on-site waste production, and materials will be procured locally when possible to minimize transportation-related carbon emissions.

Under BREEAM's Mat 01 criteria, the project will prioritize the use of sustainable materials, supported by a Life Cycle Assessment (LCA), ensuring that the majority of materials are sustainably sourced and certified. Additionally, under Mat 03, materials will be chosen based on certifications such as BES 6001 or ISO 14001, further reinforcing the project's commitment to responsible sourcing and sustainability.

# Waste Management

06

# Waste Minimisation and Management

During the construction phase, the project will implement several measures to promote resource efficiency and minimize environmental impact. These measures include using reclaimed materials, selecting materials with higher recycled content, and responsibly sourcing new materials. A Site Waste Management Plan (SWMP) will be developed to set best practice benchmarks and include the following key practices:

- **Contractor Development of a Construction Management Plan (CMP):** If required by the Council, this plan will be tailored specifically to the site.
- **Training and Induction:** All site operatives will receive training and induction on best practices for waste management and environmental stewardship.
- **Monitoring and Management:** The project will monitor energy, water, and transport usage to and from the site, manage on-site waste, and follow best practice pollution guidance.
- **Timber Sourcing:** All timber used on-site will be responsibly sourced in line with the UK Government's Timber Procurement Policy.
- **Emission and Dust Control:** Measures will include using catalytic converters on vehicles, regular vehicle maintenance, dust suppression techniques, and shielding dust-generating activities. Vehicles carrying dry soil and other wastes will be covered, and material stockpiles will be properly oriented and shielded.

# Waste Minimisation and Management

The Camden Works project is committed to minimising waste through comprehensive waste management strategies, in alignment with both BREEAM Excellent targets and Camden Council's waste reduction policies. A key component of this strategy is conducting a pre-refurbishment audit to identify materials suitable for reuse and recycling, which is crucial for minimizing waste and diverting it from landfill. The project aims to meet a diversion from landfill requirement of at least 85%, as mandated by both BREEAM and Camden Council.

For construction waste management (Wst 01), the project aims to keep waste generation to less than 1.2 tonnes per 100 square meters of floor area. Operational waste (Wst 03) will be managed by providing adequate facilities for the segregation and recycling of recyclable materials, including dedicated storage areas.

This integrated approach not only meets the stringent requirements of the BREEAM RFO 2014 scheme but also reinforces Camden Council's broader sustainability objectives. By implementing these sustainable design measures, the Camden Works project contributes positively to environmental stewardship and community well-being.

# Climate Change Adaptation

07

# Climate Change Adaptation

The Camden Works project incorporates a comprehensive climate change adaptation strategy, designed to ensure long-term resilience and sustainability. The approach focuses on maintaining thermal comfort, adapting to future climate scenarios, and providing functional adaptability.

To maintain appropriate thermal comfort throughout the year, the project includes dynamic thermal modelling. This modelling informs the design, which includes systems adaptable to future climate changes. The building's envelope will feature increased insulation in walls, roofs, and floors, alongside high-performance, low-E glazing. These enhancements help regulate internal temperatures, reducing the need for heating and cooling and adapting to both warmer summers and colder winters.

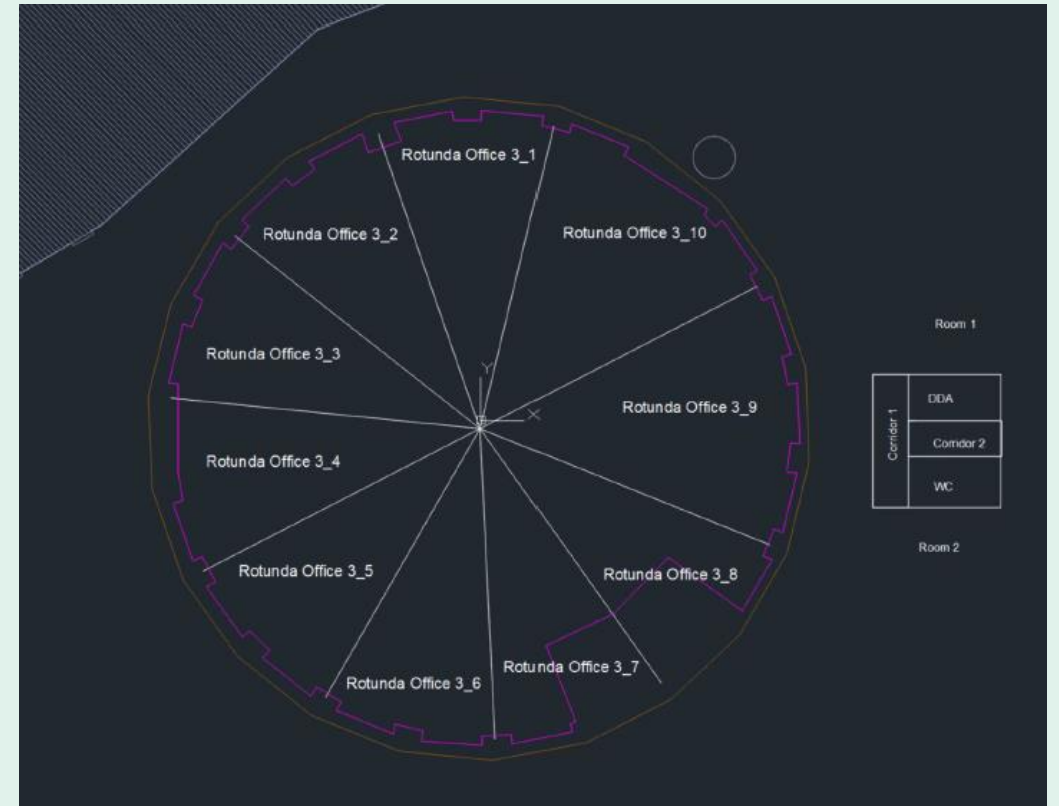


Figure 5: Thermal zones of a typical office floor in Camden Works development taken from the Thermal Comfort Study produced by Verte.



# Climate Change Adaptation

Internal shading devices have been proposed to minimize solar gain, particularly during peak summer months. Although the project does not include brise soleil, the internal shading measures effectively mitigate heat buildup, which is increasingly important given the rising frequency of heatwaves. Additionally, natural ventilation and passive cooling strategies are integral to the design. Operable windows and ventilation systems will enhance airflow, promoting passive cooling and reducing reliance on mechanical systems, especially in warmer and more humid conditions.

The project emphasizes the use of resilient building materials. Durable materials, including fire-resistant cladding and flood-resistant coatings, are selected to enhance the building's durability under various climate scenarios. To ensure safety and preparedness, the development of emergency response plans is recommended. These plans should cover extreme weather events, such as heatwaves, storms, or flooding, and include provisions for evacuation routes and backup power systems.

Functional adaptability is also a key consideration. While the building primarily features open-plan office spaces, the design includes provisions for future-proofing, ensuring spaces can be adapted to new uses with minimal waste and disruption. By implementing these measures, the Camden Works project not only aligns with sustainability standards but also ensures readiness for future climate challenges, promoting long-term environmental stewardship and occupant well-being.

# Health and Wellbeing

08

# Occupant Wellbeing

The Camden Works project has been meticulously designed to prioritize the wellbeing of its occupants by ensuring optimal levels of fresh air, thermal comfort, access to natural light, appropriate lighting levels both internally and externally, acoustic performance, and access to safe drinking water. The design team is committed to using only low volatile organic compounds (VOC) finishing products, including sealants and paints, to further enhance indoor air quality.

The building layout maximizes the use of daylight, with strategies implemented to control glare and achieve good practice daylight factors, targeting a minimum average daylight factor of 2% across 40-60% of the applicable spaces. This ensures that 95% of the floor area in relevant building sections is within 7 meters of an external window or opening, providing adequate views out, thus enhancing visual comfort.



Figure 6: Evidence of daylighting levels at Camden Works.

# Occupant Wellbeing

An Indoor Air Quality Plan is being developed to address the removal and control of contaminant sources, pre-occupancy flush-out procedures, and protection of HVAC systems. The ventilation design aims to minimize pollutant concentrations while ensuring an adequate fresh air supply and incorporating high-quality filtration systems. This is complemented by the commitment to using products that meet low VOC emissions criteria, further supporting healthier indoor environments.

The project also meets specified standards for sound insulation and ambient noise levels, particularly in workspaces and shared areas, as part of its acoustic performance targets. These comprehensive measures not only fulfil BREEAM requirements but also align with local policies promoting healthy living spaces, underscoring the project's dedication to creating a comfortable and sustainable environment for all occupants.

# Conclusion

09

# Conclusion

The Camden Works project exemplifies a comprehensive commitment to sustainability, integrating a range of features that align with BREEAM standards and Camden Council's sustainability policies. The development will feature double-glazed units for all new windows and doors, significantly improving thermal performance and energy efficiency. Additionally, the project includes low-energy lighting systems equipped with occupancy sensors and daylight dimming controls, alongside the use of high-efficiency heat pumps for heating and cooling, thus reducing overall energy consumption.

A robust site waste management plan will be implemented, with stringent resource efficiency targets to minimize waste and embodied carbon. The project aims to source materials locally or those with high recycled content, emphasizing sustainable procurement practices. The contractor will be registered under the Considerate Constructors Scheme, ensuring adherence to best practices in construction site management, community engagement, and environmental protection.

Water conservation is a critical component of the project, achieving a water consumption target significantly below Camden Council's standard of 105 litres per person per day as the project aims to achieve the much more stringent BREEAM targets through incorporating low water-consuming fittings. Furthermore, all materials used will be responsibly sourced and selected for their low environmental impact wherever feasible.

# Conclusion

The design and operational procedures of Camden Works prioritize occupant health and wellbeing, ensuring optimal indoor air quality, adequate daylight, and thermal comfort throughout the building. The project is targeting a BREEAM 'Excellent' rating, with an overall score of 75.11% (Enhanced). It aims to meet 65% of the credits for energy, 80% for water, and 76% for materials under the BREEAM Excellent criteria.

In summary, the Camden Works project not only meets but exceeds local and national sustainability standards, setting a high benchmark for environmental stewardship and resource efficiency. Through careful planning and the implementation of sustainable practices, the project promises to provide a comfortable, healthy, and environmentally responsible space for its occupants, contributing positively to the broader goals of sustainable development in the region.

Verte

The background of the image is a solid teal color. Overlaid on this are several diagonal stripes in a lighter, mint green shade. These stripes are arranged to form a large, stylized 'V' shape that points downwards, centered on the right side of the image. The stripes have rounded ends and are layered, creating a sense of depth and movement.