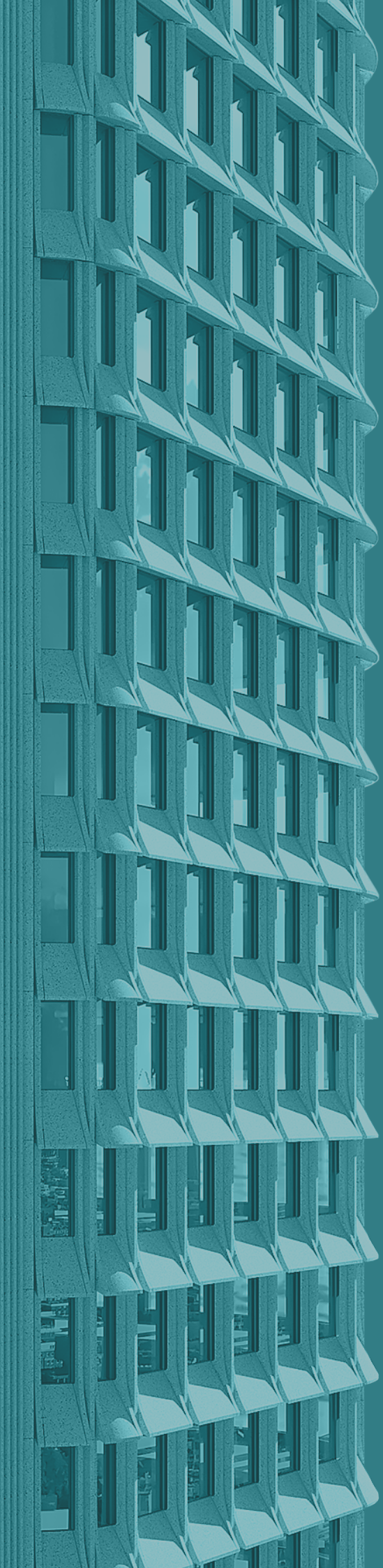


EUSTON TOWER

Sustainability Statement

December 2024

British Land

Revision	Issued for	Date	Prepared by	Checked by
A	Planning Submission	05.12.2023	GXN	AOZ
B	Planning Submission	06.12.2023	GXN	AOZ
C	Planning Revisions	12.12.2024	GXN	AOZ

Issue: 12 December 2024
Rev: C

Contents

Revision C | December 2024

This Sustainability Statement supersedes Revision B submitted December 2023. It was updated in December 2024 to include:

- Revisions responding to consultation comments from LBC and GLA
- Improvements to the Whole Life-cycle Carbon Assessment modelling
- Improvements to the energy performance (Part L and CIBSE TM 54)
- Improvements to Biodiversity Net Gain
- More information on actions carried out to advance concrete reuse and glass recycling in the existing tower
- Various updates impacted by changes in areas.

Executive Summary

This Sustainability Statement has been prepared by GXN, on behalf of British Land Property Management Limited (hereafter British Land), in support of an application for planning permission for the redevelopment of Euston Tower. It summarises the overall sustainability strategy proposed for the development in response to the Greater London Authority's and London Borough of Camden's planning polices and guidance.

The application seeks permission for the redevelopment of Euston Tower comprising retention of parts of the existing building (including central core, basement and foundations) and erection of a new building incorporating these retained elements, to provide a 32 storey mixed-use building providing offices and research and development floorspace (Class E(g)) and office, retail, cafe and restaurant space (Class E) and Enterprise space (Class E/F) at ground and first floors, and associated external terraces; public realm enhancements, including new landscaping and provision of new publicly accessible steps and ramp; short and long stay cycle storage; servicing; refuse storage; plant and other ancillary and associated work.

The proposed development creates a GIA of 79,825 m^2, comprising the following:

- Workspace (Class E(g)) 77,223 m^2
- Retail (Class E) 997 m^2
- Enterprise Space (Class E/F) 1,605 m^2.

Sustainability lies at the centre of the proposed development, and it represents an opportunity to deliver a reimagined Euston Tower that is at the forefront of sustainability, net zero carbon in construction and operation, and fit for today and the future.

Special attention has been paid to the opportunities for the retention of the existing building through a detailed feasibility study, and the reuse/recycling/upcycling of any materials from the deconstruction.

The proposed development includes a range of sustainable strategies and approaches, as detailed in this statement and its supporting documents, including:

- **Targeting high quality certifications**
  - BREEAM "Outstanding" NC 2018 for offices with research and development areas, and BREEAM "Excellent" NC 2018 retail areas
  - Registered for WELL v2 Core Certification targeting WELL "Gold" certification, with aspiration for "Platinum"
  - Aspiring to NABERS 5* in operation.
- **Net zero carbon in construction and operation**
  - Upfront embodied carbon of 725 $kgCO_2e/m^2$ GIA [A1-A5] (including demolition), outperforming the GLA benchmark for offices of 950 $kgCO_2e/m^2$
  - Whole life-cycle embodied carbon estimated as 1,225 $kgCO_2e/m^2$ GIA (including sequestration) [A-C excl. B6&B7], outperforming the GLA benchmark for offices of 1,400 $kgCO_2e/m^2$
  - Good embodied carbon performance taking into account Levels 03-11 are lab-enabled storeys which come with increased embodied carbon intensity not reflected in the GLA benchmarks
  - Residual embodied carbon offset through payment into British Land's transition fund
  - Residual regulated operational carbon emissions offset through payment into the Camden Climate Fund.
- **Fabric first and low energy**
  - An all-electric heating and cooling energy strategy is proposed to benefit from future electrical grid decarbonisation
  - Regulated operational carbon emissions are reduced by 8% due to energy efficiency measures alone compared to the GLA's Part L 2021 baseline ("Be Lean")
  - Through the use of renewable energy technologies, the regulated operational carbon emissions are reduced by 16% overall, compared to the GLA's Part L 2021 baseline ("Be Green")
  - Whole building energy demand estimated using a CIBSE TM54 approach as 158 kWh/m^2 for office and lab-enabled split ("Be Seen")
  - For comparison, the office-only performance is estimated as 106 kWh/m^2
  - Base build provided by 100% Renewable Energy Guarantee of Origin backed (REGO) electricity, in line with British Land's net zero pathway.

- **Circular economy pioneer and waste minimisation**
  - Retention of 31% of the existing structure, the opportunities for which have been the subject of a thorough feasibility study which is submitted in support of the application (satisfying the GLA requirements for a pre-redevelopment audit)
  - A pioneering material strategy and detailed assessment of opportunities for deconstruction waste reuse/upcycling/recycling
  - Prototyping innovative approaches for structural reuse of concrete, not done previously at scale, with testing already conducted at the University of Surrey demonstrating promising results
  - Investigating recycling of building glass at scale, with chemical analyses and methodology testing already undertaken
  - Embedding circular economy principles in the design, to deliver a long-lasting structure that is flexible and adaptable to the changing needs of the future, with elements designed for non-destructive disassembly where possible
  - Using reused and/or high recycled content materials where possible, targeting 24% recycled content by value
  - Committing to capture useful data for key building elements in material passports to improve end of life reusability
  - Meeting or exceeding the GLA's waste targets:
    - Zero biodegradable waste to landfill
    - 98% of demolition waste to be diverted from landfill
    - 96% of construction waste to be diverted from landfill
    - 95% of excavation waste to beneficial use
    - Contributing to achieving the GLA's target of 65% municipal waste recycling by 2030
    - Contributing to achieving the London Environmental Strategy target of 75% business waste recycling by 2030.
- **Climate resilience, greening, and biodiversity**
  - Use of green roofs in addition to vegetated areas and bio-retention features in the landscaping, as part of a Sustainable Drainage System (SuDS) that manages surface water runoff and filters rainwater
  - Surface water runoff rates of 39.0l/s, and a 68% reduction in surface water discharge compared to the pre-development condition (1-in-100 year)
  - Mitigation of urban heat island effect through green roofs and biodiverse planting, achieving:
    - Urban Greening Factor (UGF) 0.332
    - Biodiversity Net Gain (BNG) 35.39% (0.86HU)
  - Microclimate studies resulting in improved wind conditions compared to the existing situation, through the building and landscaping design.
- **Water conservation**
  - Non-potable water use reduction through use of rainwater and greywater harvesting for WC flushing
  - Innovative StoFlow system designed to passively store rainwater for WC flushing
  - A minimum 40% potable water reduction compared to BREEAM NC 2018 baseline, exceeding the GLA requirement of BREEAM "Excellent" standards for water.
- **Air quality impacts**
  - Air quality neutral achieved through an all-electric infrastructure with no on-site combustion for heating and cooling, and car-free development except for accessible bays (space provision only for back-up tenant generator).
- **Active travel and car-free**
  - A car-free development except two blue-badge parking spaces
  - Provision of end of trip facilities complete with a total of 990 cycle parking spaces (890 long-stay spaces located in a secure basement, 100 short-stay within the public realm), in line with London Plan minimum cycle parking standards
  - To further promote the cycle mode share, end of trip facilities includes changing rooms, lockers, showers, WCs, maintenance facilities, and water dispensers.
- **Sustainable management**
  - A thorough co-design and consultation process, integrating the community and other relevant stakeholders in the design process
  - Commitment to managing the construction site in an environmentally sound manner, adhering to the Considerate Constructors Scheme, and considering its impacts during construction in a Construction Management Plan.

To ensure successful implementation, the key initiatives and commitments detailed in this statement, and its supporting documents, will be implemented, monitored, and/or reviewed as the design develops, and subsequently during the operational phase of the proposed development.

1

Euston Tower

Introduction

1.1 Introduction

1.1.1 General

Euston Tower is a 36 storey tall building standing on the northern edge of central London, situated in the south-west of the London Borough of Camden (LBC). The proposed development at Euston Tower aims to create a world leading science, technology and innovation building and public realm for Camden and the Knowledge Quarter that inspires, connects, and creates opportunities for local people and businesses.

This will vision be achieved by:

- Transforming the largely vacant Euston Tower ensuring it is fit for the future by adopting world leading sustainability targets and reusing, recycling, and offsetting where necessary, to reach net zero at completion and in operation.
- Putting social impact at the heart of the project from the start and ensuring that communities play a key role in shaping new spaces which meet local needs.
- Creating pioneering workspaces in the Knowledge Quarter for businesses of all sizes to prosper, including flexible incubator space to support start-ups, scale-ups and knowledge sharing.
- Ensuring that the future use of Euston Tower is built upon identified needs and contributes to a thriving local, regional and national economy for our ever-changing world.
- Reimagining the public spaces of Regent's Place, creating safe, inclusive, connected and sustainable spaces for Camden's communities.
- Contributing to meeting Camden's housing needs.

1.1.2 The applicant

British Land Property Management Limited (hereafter British Land).

1.1.3 Purpose of this document

This document is the Sustainability Statement that has been prepared in support of an application for planning permission for the redevelopment of Euston Tower, 286 Euston Road, London, NW1 3DP. This updated version is Revision C which includes revisions to the original Sustainability Statement, Revision B dated December 2023. It summarises the overall sustainability strategies for the proposed development, in response to the Greater London Authority's (GLA's) and London Borough of Camden's planning polices and guidance.

The proposed development aims to meet the requirements of current planning policies, and go beyond these wherever it is technically, practically, and economically feasible.

This Sustainability Statement supersedes Revision B submitted in December 2023. It was updated in December 2024 to include:

- Revisions responding to consultation comments from LBC and GLA
- Improvements to the Whole Life-cycle Carbon Assessment modelling
- Improvements to the energy performance (Part L and CIBSE TM 54)
- Improvements to Biodiversity Net Gain
- More information on actions carried out to advance concrete reuse and glass recycling in the existing tower
- Various updates impacted by changes in areas.

The document has been prepared by GXN on behalf of British Land.

Figure 1.1 Render of the proposed development as seen from Tottenham Court Road

1.1.4 The site

The site is situated within LBC, and the ward of Regent's Park. The site is bounded by Euston Road (south), Hampstead Road (east), Brock Street (north) and Regent's Place Plaza (west). The site covers an area of 7,963 m^2, comprising a single, ground plus an existing 36 storey tower. Comprising predominantly office uses on the upper floors, the tower has been fully vacant since April 2021, however there are still retail units currently in operation at ground floor level.

1.1.5 Summary of the proposed development

The application seeks permission for the redevelopment of Euston Tower comprising retention of parts of the existing building (including central core, basement and foundations) and erection of a new building incorporating these retained elements, to provide a 32 storey mixed-use building providing offices and research and development floorspace (Class E(g)) and office, retail, cafe and restaurant space (Class E) and Enterprise space (Class E/F) at ground and first floors, and associated external terraces; public realm enhancements, including new landscaping and provision of new publicly accessible steps and ramp; short and long stay cycle storage; servicing; refuse storage; plant and other ancillary and associated work.

The proposed development creates a GIA of 79,825 m^2, comprising the following:

- Workspace (Class E(g)) 77,223 m^2
- Retail (Class E) 997 m^2
- Enterprise Space (Class E/F) 1,605 m^2.

British Land has undertaken extensive consultation during both the pre-application and determination stages of the proposed development and has sought to respond positively to the responses received. The scheme has been revised in response to feedback from Officers, local stakeholders and residents, the Regents Park Conservation Area Advisory Committee, and statutory consultees, including Historic England and The Greater London Authority.

1.1.6 Revisions to the pending strategic application

The principal components of the 2024 revisions comprise:

- Massing
  - Tower
    - Tower massing adjusted to create a simpler, rectangular form
    - Tower is rounded at the corners to help the tower appear slimmer in long distance views
    - Breathing spines are pushed inwards to separate the tower into four quadrants.
  - Podium
    - Podium massing is adjusted along with tower massing to be rectilinear with rounded corners, creating an increase in ground floor open space along Hampstead Road
    - Enterprise Space (hybrid affordable workspace/neighbourhood lab) entrance along Hampstead Road adjusted from triple height to double height
    - Number of podium levels increased from four to six (L00-L05).
- Height
  - No change to tower height
  - Podium height has increased by two levels.
- Tower
  - Facade design incorporates up-stand into horizontal elements that wrap the rounded massing corners. Vertical elements span the tower top to bottom through which natural ventilation could occur
  - Minor adjustment to vertical transportation strategy via level change for switch from mid- to high-rise lift banks
  - Four double height amenities have been relocated relative to their previous quadrants/levels. All four double height amenities provide external terraces in various depths/heights, ensuring a wide range of amenity diversity
  - Column grid adjusted to 9m bays and offset from facade by 2m. Mega-bracing strategy adjusted to Z arrangement

  - The crown of the building has a double height amenity facade treatment such that the building is perceived the same from all angles. This is created by a combination of the facade treatment and the internal arrangement of central plant space at L30 and a “bathtub” of plant space at L31 that sets back from the tower facade.
- Podium
  - Escalator and stair layout of lobby space has been adjusted to be more space efficient
  - Layout of public space in Enterprise Space (hybrid affordable workspace/neighbourhood lab) has been adjusted following feedback from public consultation.
- Land Uses
  - Publicly accessible space adjusted to L00 and L01 only except for the Class E area at the top of the cafe staircase on L02.
- Public Realm
  - Main entrances to lobby space remain as originally submitted planning application in December 2023 submission: on the southwest and southeast corners of the ground floor
  - Main public entrance to Enterprise Space (hybrid affordable workspace/neighbourhood lab) remains at the northeast corner. Public entrance to restaurant space at L01 Regent‘s Place Plaza also remains on north-west corner
  - Minor updates have been made to the design and location of planters and trees in the public realm.
- Transport
  - End of trip facilities entrance and access has been adjusted to a bicycle stair and lift. External access remains from the southwest corner of the ground floor.

1.1.7 Outline of this document

Section 1.2 summarises the relevant requirements and targets from planning policy.

BREEAM and WELL pre-assessments have been conducted by Sweco to demonstrate the environmental and well-being credentials of the proposed development. The pre-assessments are summarised in the certifications overview in Section 2.2.

The remainder of Section 2 outlines the sustainable design and construction strategies, the circular economy approach, and the anticipated energy and carbon emissions reduction achieved through the design measures adopted by the proposed development.

The Whole Life-cycle Carbon Assessment (WLCA) has been prepared by Sweco following GLA's Whole Life-cycle Carbon Assessment Guidance (WLCAG) (March 2022). A summary of the assessment is included in this document, and the full WLCA is submitted in the GLA spreadsheet template which forms part of this planning application.

The energy assessment has been prepared by Arup following GLA's Energy Assessment Guidance (EAG) (June 2022), and is also compared against the previous guidance (April 2020). A short summary of the energy performance is included in this document, and fully detailed in the Energy Statement which forms part of this planning application.

1.1.8 Team

3XN is the architect and lead designer for the proposed development, and is supported by a team of key consultants:

Executive Architect & Principal Designer:	Adamson Associates
Landscape Architect:	DSDHA
Planning Consultant:	Gerald Eve
Services Engineer:	Arup
Structural Engineer:	Arup
Sustainability Consultant:	GXN & SWECO
Transport & Logistics:	Velocity
Visual Impact Assessment:	Cityscape Digital
Townscape Consultant:	Tavernor Consultancy
Public Use Consultant:	Forth
EIA Co-ordinator:	Trium Environmental
Ecological Consultant:	Greengage
Daylight Consultant:	Point2
Rights to Light Consultant:	Point2
Fire Engineering:	Arup
Access Consultant:	David Bonnett Assoc.
Security Consultant:	QCIC
Acoustic Consultant:	Hann Tucker
Wind Analysis:	Arup
Facade & Access & Maintenance Consultant:	Thornton Tomasetti
Cost Consultant:	Gardiner & Theobald
Planning Legal Advisors:	Herbert Smith Freehills
Community Consultation:	LCA
Project Manager:	Gardiner & Theobald
Construction & Logistics Consultant:	Lendlease
Employment & Training and Regeneration Advisor:	Volterra
Community Engagement & Social Impact Consultant:	Beyond The Box
Community Engagement Consultant:	Something Collective

Figure 1.2 Render of the proposed development as seen from Regent's Place Plaza

1.2 Planning Policy

1.2.1 General

The relevant documents setting out current and emerging planning policy on environmental sustainability are the following:

- The National Planning Policy Framework, December 2023 (NPPF)
- The London Plan, March 2021 (LP)
- Energy Assessment Guidance, June 2022 (EAG)
- Whole Life-cycle Carbon Assessment Guidance, March 2022 (WLCAG)
- Circular Economy Statement Guidance, March 2022 (CESG)
- Camden Local Plan, 2017 (CLP)
- Camden Planning Guidance, Energy Efficiency and Adaptation, January 2021 (CPG)
- Draft New Camden Local Plan, January 2024 (DNCLP).

1.2.2 National planning policy

National Planning Policy Framework (NPPF)
The National Planning Policy Framework (NPPF) sets out Government's planning policies for England and how these are expected to be applied to achieve "sustainable development".

The NPPF replaced the previous suite of national Planning Policy Statements, Planning Policy Guidance Notes and some Circulars in 2012. The December 2023 revision replaces the previous NPPF last revised in September 2023, and before that July 2021.

The NPPF Chapter 14 states how the planning system should support the transition to a low carbon future in a changing climate. It does not contain specific targets for sustainability or energy.

1.2.3 Regional planning policy

The London Plan (LP)
The London Plan (LP) (March 2021) sets out the spatial development strategy for Greater London. It is the overall strategic plan for London, setting out an integrated economic, environmental, transport and social framework for how London will develop over the next 20 - 25 years.

London Borough planning authorities' local plans need to be in general conformity with the LP, and its policies guide decisions on planning applications by the Borough Council's and the Mayor.

The LP contains several specific sustainability and energy targets, these are summarised below:

- Policy SI 1 Improving air quality
  - Requires all new developments to be air quality neutral, aiming positive.

- Policy SI 2 Minimising greenhouse gas emissions
  - Requires all new non-domestic buildings to achieve net zero carbon
  - On-site reduction of at least 35% beyond the baseline of Part L of the Building Regulations 2021
  - Developments should achieve at least 15% carbon reduction beyond Part L from energy efficiency measures alone
  - Any remaining regulated emissions must be offset by payment into the borough's carbon offset fund
  - Report whole life cycle carbon emissions and demonstrate how these have been reduced including comparison with the benchmarks (contained within the Whole Life-cycle Carbon Assessment Guidance).

- Policy SI 3 Energy infrastructure
  - Prioritises the use of waste heat and connection to district heating networks.

- Policy SI 4 Managing heat risk
  - Minimise adverse impacts on the urban heat island
  - Requires demonstrating through an energy strategy how the potential for internal overheating and reliance on air conditioning systems will be reduced
  - Requires carrying out overheating analyses for new developments (referred to in the energy assessment guidance).

- Policy SI 5 Water infrastructure
  - Requires commercial developments to achieve:
    - C (1) achieving mains water consumption of 105 litres or less per head per day
    - C (2) BREEAM "Excellent" performance for water consumption, i.e. a 12.5% improvement over BREEAM UK New Construction 2018 baseline
    - C (3) incorporate measures such as smart metering, water saving and recycling measures, including retrofitting, to help to achieve lower water consumption rates and to maximise future-proofing.

- Policy SI 7 Reducing waste and supporting the circular economy
  - Requires meeting the target of zero biodegradable or recyclable waste to landfill by 2026
  - 95% reduction of construction and demolition waste to be reused/recycled/recovered
  - 95% of excavation waste to be put to beneficial use
  - Circular Economy Statement demonstrating how circular economy outcomes are promoted and waste is minimised (aimed to be net-zero waste) including how performance will be monitored and reported.

- Policy SI 13 Sustainable drainage
  - Requires development proposals to aim to achieve greenfield runoff rates
  - Aim to ensure that surface water runoff is managed as close to source as possible.

- Policy G 5 Urban greening
  - Requires all new developments to calculate an Urban Greening Factor (UGF)
  - New predominantly-commercial developments should achieve an UGF of at least 0.3.

- Policy G 6 Biodiversity and Access to Nature
  - Protect Sites of Importance for Nature Conservation (SINCs)
  - Identify ecological networks, areas with limited access to nature, and promote conservation of species and habitats
  - Mitigate harm to SINCs through a hierarchy of measures
  - Aim for net biodiversity gain in development proposals
  - Consider proposals positively if they reduce deficiencies in access to nature.

Other policies in the London Plan which relate to sustainability but do not have specific sustainability / energy targets include:

- Policy D 8 Public Realm
- Policy G 1 Green infrastructure
- Policy G 7 Trees and Woodlands
- Policy GG 6 Increasing efficiency and resilience
- Policy SI 10 Aggregates
- Policy SI 12 Flood Risk Management.

Energy Assessment Guidance (EAG)
The Energy Assessment Guidance (EAG) provides guidance on preparing energy assessments and complying with the energy policies in the London Plan.

All energy assessments are expected to comply with the carbon reduction targets in LP Policy SI 2 including achieving a minimum 35% on-site carbon reduction under Part L 2021 and making net-zero offset payments to the local borough as a cash-in-lieu contribution.

Non-domestic buildings should follow CIBSE TM52 for demonstrating compliance with the overheating requirements of LP Policy SI 4.

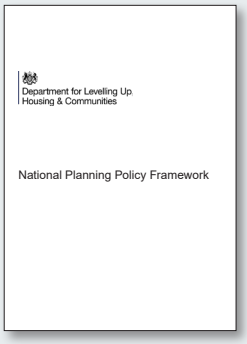
Whole Life-cycle Carbon Assessment Guidance (WLCAG)
The Whole Life-cycle Assessment Guidance (WLCAG) provides guidance on how to prepare a WLCA and demonstrate compliance with the requirements of LP Policy SI 2.

All referable applications are required to submit a WLCA, though the guidance encourages even non-referable applications to do so. Developments should compare WLCA performance with the GLA's benchmark figures contained within the guidance.

Circular Economy Statement Guidance (CESG)
The Circular Economy Statement Guidance (CESG) provides guidance on how to prepare a CE Statement and demonstrate compliance with LP Policy SI 7.

All referable applications are required to submit a CE Statement demonstrating how the principles of the circular economy are being applied and how performance will be monitored and reported.

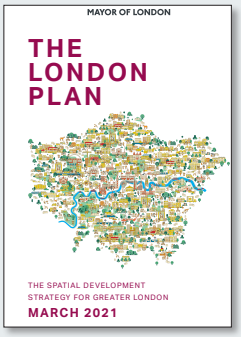
NATIONAL PLANNING POLICY



National Planning Policy Framework

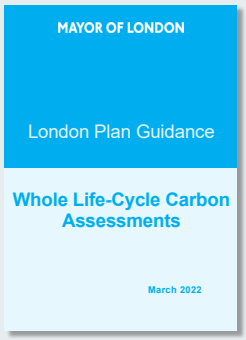
Sets out Government's planning policies for England and how these are expected to be applied.

REGIONAL PLANNING POLICY



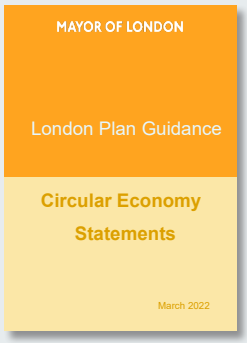
The London Plan

Sets out the spatial development strategy for Greater London



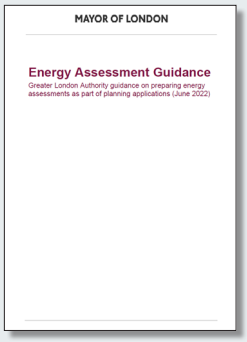
Whole Life-cycle Carbon Assessment Guidance

Provides guidance on how to prepare a WLCA and demonstrate compliance with the requirements of LP Policy SI 2



Circular Economy Statement Guidance

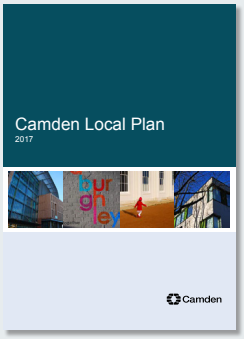
Provides guidance on how to prepare a CE Statement and demonstrate compliance with LP Policy SI 7



Energy Assessment Guidance

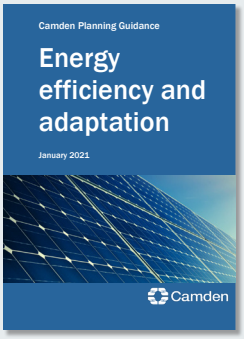
Provides guidance on preparing energy assessments and complying with the energy policies in the London Plan 2021

LOCAL PLANNING POLICY



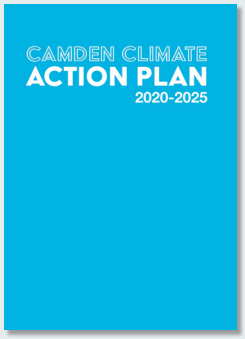
The Camden Local Plan 2017

Sets out Camden's planning policies, ensuring Camden has robust planning policies that contribute to delivering the Camden Plan



Camden Planning Guidance Energy Efficiency and Adaptation

Supports the policies in the Camden Local Plan 2017 (CLP)



Camden's Climate Action Plan

Creates a framework for action across all aspects of the borough with the aim of achieving zero carbon by 2030

Figure 1.3 Overview of key planning documents and guidance relating to sustainability

1.2.4 Local planning policy

The Camden Local Plan 2017 (CLP)
The Camden Local Plan 2017 (CLP) set's out Camden's planning policies, ensuring Camden has robust planning policies that contribute to delivering the Camden Plan. The CLP covers the period from 2016 – 2031. The CLP focusses on creating the conditions for harnessing the benefits of economic growth, reducing inequality, and securing sustainable neighbourhoods.

Pre-dating the London Plan 2021, the CLP is less well harmonised with the LP on sustainability, but this has been improved with the publication of Camden Planning Guidance Energy Efficiency and Adaptation in January 2021 with the CPG on energy efficiency and adaptation.

The CLP contains several specific sustainability and energy targets, these are summarised below:

- Policy D1 Design
  - Requires that development is sustainable in design and construction, incorporating best practice in resource management, and climate change mitigation and adaptation
  - Requires that development is of sustainable and durable construction and adaptable to different activities and land uses (no specific detail is provided in Policy D1, but specific detail is contained in the CC suite of policies and the CPG)
  - Requires that development incorporates high quality landscape design (including public art, where appropriate) and maximises opportunities for greening (e.g. through planting of trees and other soft landscaping).

- Policy CC1 Climate change mitigation
  - Requires developments to minimise CO_2 emissions by following the steps in the energy hierarchy and demonstrate how this has been applied within the Energy Statement
  - Requires development to meet the London Plan targets for CO_2 emissions (15% at be lean, 35% overall).
  - Requires a financial contribution where these targets cannot be met on-site
  - Requires developments that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building, and proposals for substantial demolition should be fully justified in terms of the optimisation of resources and energy use
  - 85% construction, demolition, and excavation waste diversion from landfill
  - Expects developments to optimise resource efficiency by reducing waste, reducing energy and water use in construction and operation, minimising materials required, using low embodied carbon materials
  - Encourages all developments above 500m2 to assess embodied carbon and report it with in the Sustainability Statement.

- Policy CC2 Adapting to climate change
  - Developments above 500m2 are required to adopt appropriate climate change adaptation measures and demonstrate how these have been adopted in the sustainability statement (e.g. protecting green space and promoting green infrastructure, reducing surface water runoff though Sustainable Drainage Systems (SuDS), incorporating green/blue/bio-diverse roofs, reducing urban overheating)
  - Requires BREEAM "Excellent" rating for non-residential developments above 500m^2, and encourages zero carbon in new development
  - Requires a statement demonstrating application of the LP "cooling hierarchy" to the development's design.
- Policy CC3 Water and flooding
  - Requires developments to incorporate water efficiency measures, major developments should include grey and/or rainwater harvesting
  - Requires developments to use Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield runoff rate where feasible
  - Non-domestic development is expected to meet BREEAM water efficiency credits.

Other policies in the CLP which relate to sustainability but do not have specific sustainability / energy targets include:

- Policy C1 Health and welling
- Policy A1 Managing the impact of development
- Policy A3 Biodiversity
- Policy CC4 Air quality
- Policy CC5 Waste
- Policy T1 Prioritising walking, cycling, and public transport
- Policy T2 Parking and car-free development
- Policy T4 Sustainable movement of goods and materials.

Camden Planning Guidance Energy Efficiency and Adaptation (CPG)

The Camden Planning Guidance Energy Efficiency and Adaptation (CPG) supports the policies in the Camden Local Plan 2017 (CLP). It is a Supplementary Planning Document (SPD) which is a "material consideration" in planning decisions.

The January 2021 version of the CPG replaces the Energy Efficiency and Adaptation CPG (March 2019), which itself replaced the CPG3 Sustainability (July 2015).

The CPG contains several specific sustainability and energy targets that build on the policies in the CLP, these are summarised below:

- (3) Making buildings more energy efficient
  - Major non-residential developments are required to achieve at least a15% reduction (beyond Part L (2021) of the Building Regulations) through on-site energy efficient measures ("Be Lean" stage), in accordance with the London Plan 2021.
- (5) Renewable energy technologies
  - Developments of 500m^2 or larger are required to target a 20% reduction in carbon dioxide emissions from on-site renewable energy technologies ("Be Green" stage)
  - For developments that require a BREEAM certification, a BREEAM-compliant Low and Zero Carbon Feasibility Report is required alongside the Energy and Sustainability Statements. This is provided within the Energy Statement prepared by Arup dated December 2023.
- (6) Energy statements
  - Developments of 500m^2 or larger are required to submit an Energy Statement demonstrating how the development has been designed following the energy hierarchy
- (7) Energy reduction
  - All new build major developments are required to demonstrate compliance with London Plan 2021 targets for carbon dioxide emissions (overall 35% reduction below Part L with 15% reduction through on-site energy efficiency measures)
  - Developments of 500m^2 or larger are required to target a 20% reduction in carbon dioxide emissions from on-site renewable energy technologies ("Be Green" stage).
- (9) Reuse and optimising resource efficiency
  - Any developments proposing substantial demolition are required to submit an existing building condition and feasibility study, as well as an options appraisal with the aim of optimising resource efficiency
  - Any developments, where the chosen option is substantial demolition, are required to submit a Whole Life-cycle Carbon Assessment (WLCA) submitted as Appendix D to this statement and a Pre-demolition Audit (PDA) submitted as Appendix A to the Circular Economy Statement
  - Developments should meet the London Plan 2021 targets for construction and demolition waste diversion from landfill (95% reused/recycled/recovered), and 95% of excavation waste to be put to beneficial use
  - All major applications and new buildings are required to submit a Resource Efficiency Plan showing how resource efficiency has been optimised. The Circular Economy Statement prepared by GXN dated December 2023 and Sustainability Statement (this document) satisfy this requirement.
- (10) Sustainable design and construction measures
  - Developments of 500m^2 or larger are required to address sustainable design and construction measures in a Sustainability Statement
  - Developments are required to reduce overheating risk by following the cooling hierarchy.
- (11) Sustainable Assessment Tools
  - Non-residential developments of 500m^2 or larger are required to achieve BREEAM "Excellent", achieving 60% of all available Energy and Water credits and 40% of available Materials credits.

Camden's Climate Action Plan
In June 2020, Camden approved a 5 year "Climate Action Plan" which creates a framework for action across all aspects of the borough with the aim of achieving zero carbon by 2030.

Objectives and actions that affect the proposed development include:

- From 2020, all major developments in Camden are required to be zero carbon (as per the London Plan 2021 definition)
- From 2020, all major developments in Camden are required to calculate whole life-cycle carbon emissions to include all operational and embodied carbon.
- Public spaces will encourage and enable healthy and sustainable travel choices and promote biodiversity.
- Enable electric transport with infrastructure and incentives.

Health and wellness are critical social issues and the Camden Health and Wellbeing Strategy 2022-30 is one of the Council's initiatives to improve the health and wellbeing of Camden residents and reduce health inequalities across the borough.

The Draft New Camden Local Plan (DNCLP)
The Draft New Camden Local Plan (DNCLP) (Regulation 18 Consultation Version January 2024), sets out Camden's vision for future development in the Borough for the next 15 years. The DNCLP would cover the period from 2026 to 2041.

The policies in the DNCLP generally bring it in line with similar policies in the London Plan 2021. The DNCLP does not supersede the Energy Efficiency and Adaptation CPG, as it is referenced as a supporting document in Section 1.16 of the DNCLP.

The DNCLP contains several specific sustainability and energy targets, these are summarised below:

- Policy D1 Achieving Design Excellence
  - Requires that all development responds to the climate change emergency
  - Requires developments to use high quality, durable and sustainable materials
  - Requires that development is sustainable in design and construction, incorporating best practice in resource efficiency, energy reduction and climate resilience measures
  - Requires developments to be designed to be flexible and adaptable

- Policy CC1 Responding to the climate emergency
  - Sets the framework for the other policies on climate change mitigation
  - Requires all development to follow circular economy principles, prioritising retrofitting and repurposing over demolition minimising waste and increasing re-use
  - Requires all development to reduce whole life carbon emissions, by taking a whole life carbon approach, considering both embodied carbon and operational carbon
  - Requires all development to be designed to be net zero carbon in operation
  - Expects all development to minimise overheating risk and flooding risk
  - Expects all development to improve water efficiency
  - Requires all development to submit a Sustainability Statement at the planning stage

- Policy CC2 Repurposing, Refurbishment and Re-use of Existing Buildings
  - Where existing buildings are present, requires a condition and feasibility assessment, to understand the re-use potential of the existing buildings and explore the best use of the site
  - Requires demonstration that alternative development options (refit, re-use, refurbish, substantial refurbishment and extension) have been fully explored
  - Where demolition is justified, requires a pre-demolition audit

- Policy CC3 Circular economy and reduction of waste
  - Requires all development to optimise resource efficiency including materials, water, and carbon emissions
  - Requires all development to be designed according to the circular economy design principles
  - Requires a Sustainability Statement documenting how the above has been achieved
  - Requires major applications which involve substantial demolition and rebuild, to submit a Circular Economy Statement following the GLA guidance
  - Requires development that is submitting a Circular Economy Statement to include a Material Circularity index

- Policy CC4 Minimising carbon emissions
  - Requires all applications for new build or comprising substantial demolition to submit a Whole Life-cycle Carbon Assessment following the GLA guidance
  - Requires new build non-residential developments to meet embodied carbon limits of less than 600 $kgCO_2/m^2$

- Policy CC5 Energy reduction in existing buildings
  - Sets out requirements and targets for energy performance as they relate to adaptations and improvements to existing buildings (not applicable to the proposed development)

- Policy CC6 Energy reduction in new buildings
  - Requires all new buildings to be net zero carbon in operation
  - Requires all new buildings to be fossil fuel free
  - Limits space heating demand to all new buildings to 15 kWh/m^2/year
  - Limits Energy Use Intensity (EUI) for offices to no more than 70 kWh/m^2/year
  - Requires on-site renewable energy generation to match or exceed the EUI
  - Requires a payment in lieu where on-site renewable energy generation is short of the EUI
  - Requires monitoring of the total energy use for five years with submission of figures to the Local Planning Authority
  - Requires applicants to demonstrate how the policies are addressed in a detailed Energy Statement

- Policy CC9 Water efficiency
  - Requires all new development to be water efficient
  - Requires all new build non-residential development to achieve BREEAM Wat 01 "Excellent" performance
  - Require all new buildings to incorporate rain water harvesting
  - Requires major developments to incorporate grey water harvesting

- Policy CC10 Sustainable design and construction
  - Requires BREEAM "Excellent" rating for non-residential developments above 500m^2
  - Requires sub-targets for Energy, Water, and Materials of 60%, 60%, and 40% respectively

- Policy CC12 Sustainable drainage
  - Requires all development to incorporate permeable surfaces, green and blue roofs, and replace impermeable surfaces where feasible
  - Requires all development to address this in a Sustainably Statement or Drainage report
  - Requires all major developments to reduce surface water run-off to greenfield rates through the appliaction of Sustainable Drainage Systems
  - Requires major applications to submit a Drainage report.

Other policies in the DNCLP which relate to sustainability but do not have specific sustainability / energy targets include:

- Policy CC7 Heat networks
- Policy CC8 Overheating and cooling
- Policy CC11 Flood risk.
- Policy SC2 Social and community infrastructure
- Policy SC3 Open space
- Policy SC4 Food growing
- Policy NE1 The natural environment
- Policy D2 Tall buildings
- Policy T1 Safe, healthy and sustainable transport
- Policy T2 Prioritising walking, wheeling, and cycling
- Policy T5 Parking and car-free development
- Policy T6 Sustainable movement of goods and materials.

1.3 British Land Sustainability Brief

British Land is committed to sustainability leadership across the development and operation of its buildings. The British Land Sustainability Brief for our Places sets out its ambitions across a range of topics that impact environmental sustainability, many of which go beyond standard practice and/or policy requirements.

British Land is committed to continuous improvement, and the brief was updated in April 2024. It outlines how the 2030 sustainability strategy is put into practice and provides clear guidance to project teams and suppliers for meeting the sustainability ambitions, throughout the property life cycle, from design and construction to operation.

The brief is formed by three key tiers (see Figure 1.4).

Thriving Places is about creating long-lasting positive social impact by collaboratively addressing local priorities with key targets relating to direct social and economic value, people benefiting from impactful education and employment, and affordable space at each priority place.

Responsible Choices is about making responsible choices across all areas of the business and encouraging customers, partners and suppliers to do the same through the following key focus areas:

- Diversity, equality and inclusion
- Real Living Wages
- Health and safety
- Responsible employment
- Responsible procurement.

Greener Spaces describes how British Land is focussed, amongst other environmental sustainably measures, on making the whole portfolio net zero carbon by 2030. This starts with reducing embodied and operational carbon in design by:

- Prioritising retrofit above new build
- Employing circular economy principles in design and construction
- Being innovative in the use of sustainable materials
- Prioritising energy efficiency and renewable energy sources.

Recognising that there will be some residual emissions that cannot be eliminated, British Land offsets these emissions, as a last resort, through payment into its Transition Vehicle. The Transition Vehicle charges projects an internal levy of £60 per tonne of residual embodied carbon. A portion of this levy is used to fund certified carbon offsets, that focus on true carbon absorption, and comply with the BBP and UKGBC guidance on offsetting. The remainder of the levy is used to finance retrofit projects to improve energy efficiency and reduce carbon emissions from the standing portfolio.

Additional environmental priorities include:

- Future-proofing for climate resilience
- Adopting circular economy principles, working towards zero waste
- Delivering significant net biodiversity gains
- Minimising water use
- Adopting leading industry certification.

British Land 2030 Sustainability Strategy

Greener Spaces
Net zero carbon portfolio

Thriving Places
Long-lasting positive social impact

Responsible Choices
Real Living Wage

Pathway to net zero

Local charter

Supplier code of conduct

Sustainability Brief

Figure 1.4 The three tiers of the British Land Sustainability Brief

1.4 Response to Planning Requirements

In relation to the planning policy and the strategic objectives of the London Borough of Camden and the Greater London Authority, the following is how the proposed development responds to these environmental sustainability requirements.

1.4.1 Certification

- High-quality certification to validate sustainability claims:
  - The proposed development is targeting BREEAM NC 2018 "Outstanding" for offices with research and development areas
  - Retail areas in the proposed development are targeting BREEAM NC 2018 "Excellent"
  - Registered for WELL v2 Core Certification aiming for "Gold" with aspiration for “Platinum” certification
  - Aspiring to NABERS 5* in operation.

1.4.2 Energy and carbon

- Net zero embodied carbon:
  - Achieved through embodied carbon design optimisation and carbon-considered procurement
  - Current upfront embodied carbon of 725 $kgCO_2e/m^2$ GIA [A1-A5] including demolition
  - Current whole life-cycle embodied carbon of 1,225 $kgCO_2e/m^2$ GIA [A-C excl. B6&B7] including sequestration
  - Levels 03-11 are lab-enabled storeys which come with increased embodied carbon intensity not reflected in the GLA benchmarks
  - Residual embodied carbon offset through payment into the British Land transition fund, going beyond the requirements of planning policy
- Net zero operational carbon:
  - Through energy efficiency measures, the development is anticipated to achieve 8% emissions reduction compared to the baseline Part L 2021 building ("Be Lean" stage)
  - The development is anticipated to achieve a further 8% emissions reduction at the “Be Green” stage, bringing the total on-site carbon emissions reduction to 16%
  - Residual regulated operational carbon offset though a cash in lieu payment of £716,023 into the Camden Climate Fund
  - Current whole building energy demand estimated using a CIBSE TM54 approach as 158 kWh/m^2 for office and lab-enabled split ("Be Seen")
  - For comparison, the office-only performance is estimated as 106 kWh/m^2.

1.4.3 Circular economy, materials, and waste

- An exemplar of circular economy, material use, and waste management strategy:
  - Achieved by retaining as much as possible of the existing building, reducing waste and the need for new materials
  - A thorough and transparent Feasibility Study studying the condition of the existing building, and assessing options for redevelopment has been undertaken and is submitted in support of the application for planning permission
  - A pre-demolition audit has been undertaken which is submitted as part of the application for planning permission
  - A detailed assessment of opportunities for on-site and off-site deconstruction waste reuse/ upcycling/recycling are considered and captured in the Strategy for Material Recovery submitted as Appendix B to the Circular Economy Statement
  - Prototyping innovative approaches for structural reuse of concrete with testing already undertaken with the University of Surrey, and commitment to publishing the findings
  - Investigating recycling of building glass at scale, with chemical analyses and methodology testing already conducted
  - Designing a structure that is long-lasting and adaptable, with elements designed to be disassembled and recovered for reuse
  - Considering the different building elements in layers to enable maintenance and replacement that minimises destructive impacts on other building elements (especially structure)
  - Designing a modular facade with the intention of utilising off-site manufacturing to reduce waste

Carbon and Energy

01 **Net zero carbon in construction and operation** with embodied carbon offsetting into British Land's Transition Vehicle, and regulated operational carbon offsetting into the Camden Climate Fund

02 **Carbon-driven system design** following "use less stuff" hierarchy

03 **Low-carbon material specification** and procurement

04 **Fabric-first passive design approach** (optimised glazing ratios and passive solar shading) to reduce energy demand and operational carbon emissions

05 **Decentralised ventilation strategy** for closer matching of systems to building demand

06 Photovoltaic panels located at roof for **on-site renewable electricity generation.**

Circular Economy

01 **Retention of existing foundation and core** structures to avoid new carbon emissions and waste

02 Innovative strategy for **prototyping reuse of existing in-situ concrete elements,** the first of its kind

03 Pioneering approach to **building glass recovery** to facilitate closed loop recycling

04 Unique material strategies aiming to **minimise downcycling and maximise reuse / upcycling**

05 Clear floorplates with **regular grids designed for flexibility** in use

06 Primary structure designed to be **adaptable and disassemblable**

07 **Soft core structural principle** enables further adaptability by enabling flexibility in core elements.

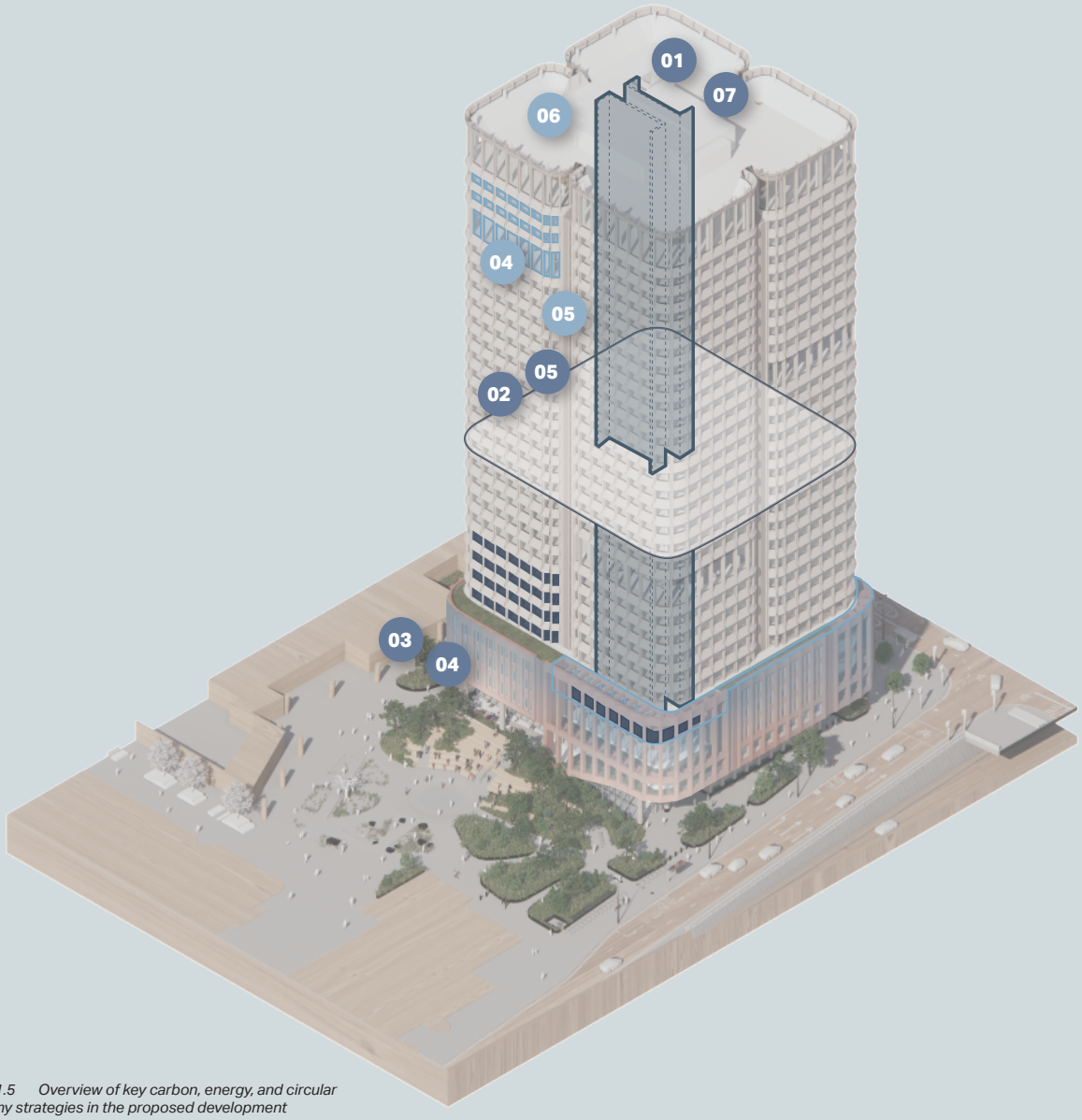


Figure 1.5 Overview of key carbon, energy, and circular economy strategies in the proposed development

- Using reused and/or high recycled content materials where possible, targeting 24% recycled content by value
- Improving end of life reusability by committing to capturing useful data for key building elements in material passports
- Landfill diversion and waste management, targeting:
  - Zero biodegradable waste to landfill
  - 98% of demolition waste diverted from landfill
  - 96% of construction waste diverted from landfill
  - 95% of excavation waste to beneficial use.

1.4.4 Climate resilience, greening, and biodiversity

- Climate resilient, green, and future-proofed:
  - Use of green roofs, in addition to vegetated areas and bio-retention features in the landscaping, as part of a Sustainable Drainage System (SuDS) that manages surface water runoff and filters rainwater
  - Achieve surface water runoff rates 39.0l/s, and a 68% reduction in surface water discharge compared to the pre-development condition (1-in-100 year)
  - Mitigation of urban heat island effect through green roofs and biodiverse planting, achieving:
    - Urban Greening Factor (UGF) 0.332
    - Biodiversity Net Gain (BNG) 35.39% (0.86HU)
  - Microclimate studies resulting in improved wind conditions compared to the existing situation, through the building and landscaping design
  - Extensive passive design measures and facade design to limit solar heat gain and admit daylight as a means of future proofing the proposed development and managing overheating risk
  - Potential strategic integration of openable vents as a means of passive ventilation and cooling
  - Mechanical system design and stormwater drainage designs with allowances for future climate change.

1.4.5 Water conservation

- Responsible water use and reuse:
  - Targeting a minimum 40% potable water reduction compared to BREEAM NC 2018 baseline, exceeding the London Plan requirement of BREEAM "Excellent" standards for Wat 01 water category
  - Specification of low-flow fittings and fixtures wherever possible
  - Innovative StoFlow system designed to passively store rainwater for WC flushing
  - Non-potable water use reduction through use of rainwater and greywater harvesting.

1.4.6 Local impacts and pollution

- Air quality neutral:
  - Achieved through an all-electric infrastructure with no on-site combustion for heating and cooling, and car-free development except for accessible bays (space provision only for back-up tenant generator).

1.4.7 Sustainable transport and active travel

- Incentivising low carbon transport:
  - Provision of end of trip facilities complete with 990 cycle parking spaces (890 long-stay spaces located in a secure basement, 100 short-stay within the public realm), in line with London Plan minimum cycle parking standards
  - To further promote the cycle mode share, end of trip facilities includes changing rooms, lockers, showers, WCs, maintenance facilities, and water dispensers
  - A car-free development with car parking only for accessibility needs (two blue-badge bays).

Green and Blue

01 External planting targeting **0.3 urban greening factor (UGF) currently achieving UGF 0.332**

02 Improved biodiversity targeting at least **10% biodiversity net gain (BNG) currently achieving 35.39% (0.86HU)**

03 External and internal environments designed to incorporate **direct and abstract biophilia,** potential for incorporation of planted terraces / amenity areas

04 Investigation of **biodiversity enhancing measures** as identified in the preliminary ecological assessment

05 **Water efficient fixtures and fittings** as standard

06 **Greywater and rainwater harvesting** to reduce potable water demand

07 **Innovative StoFlow system** to passively store rainwater for WC flushing and reduce potable water demand

08 **Green links** connecting into green corridors of biodiversity within Camden.

Wellbeing and Social Sustainability

01 Co-design for publicly-accessible space and programming with **extensive community engagement**

02 **Activated public realm** that invites users up and into the podium

03 Design guidelines developed considering a **broader view of diversity and inclusivity** (experience, comfort, and health and addition to accessibility)

04 Innovation pushed to the facade to let **the building attract and showcase** what's happening inside

05 Inclusion of **restorative spaces** to allow people to relax and regenerate

06 Opportunities for **mixed-mode ventilation** for direct environmental control and improved well-being

07 **Underfloor air supply** with 100% fresh air for improved indoor air quality and low-energy cooling.

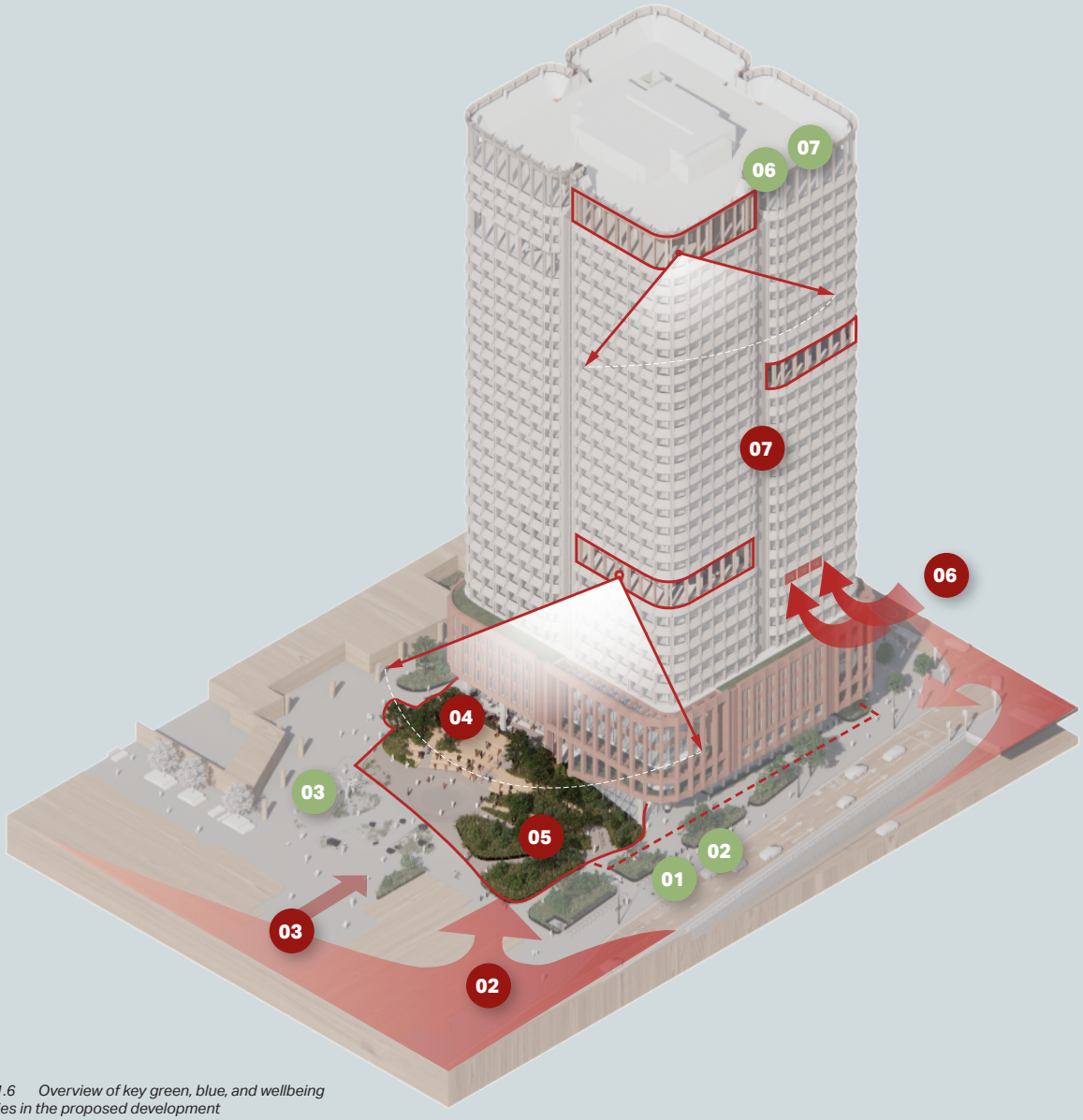


Figure 1.6 Overview of key green, blue, and wellbeing strategies in the proposed development

1.5 Supporting Information

This Sustainability Statement should be read in conjunction with the documentation forming the full planning application, and in particular:

- Design & Access Statement prepared by 3XN dated December 2024
- Planning Statement prepared by Gerald Eve dated December 2024
- Feasibility Study[1] Volumes One and Two prepared by GXN dated December 2023 (not impacted by the revisions to the planning application)
- Feasibility Study[1] Volumes Zero and Three prepared by GXN dated December 2024
- Circular Economy Statement prepared by GXN dated December 2024
- GLA Whole Life-cycle Carbon Assessment Template prepared by Sweco dated December 2024
- Energy Statement prepared by Arup dated December 2024
- Noise Impact Assessment prepared by Hann Tucker Associates dated December 2023, , updated December 2024
- Operational Waste Management Plan prepared by Velocity Transport Planning dated December 2023, updated December 2024
- Arboricultural Impact Assessment prepared by SJ Stephens Associates dated December 2023, updated December 2024
- Drainage and SuDS Strategy prepared by Arup dated December 2023, updated December 2024
- Flood Risk Assessment prepared by Arup dated December 2023, updated December 2024
- Statement of Community Involvement and Social Impact prepared by LCA dated December 2023, updated December 2024
- Public Realm and Landscape Design Statement prepared by DSDHA dated December 2023, updated December 2024
- Biodiversity Net Gain Assessment prepared by Greengage dated December 2024
- Urban Greening Factor Assessment prepared by Greengage dated December 2024
- Environmental Statement prepared by Trium Environmental Consulting dated December 2023, updated December 2024.

[1] In response to London Plan Policies D 3 and SI 7 for a pre-redevelopment audit and Camden Local Plan Policy CC1 to justify proposals with significant demolition

Figure 1.7 Model of the proposed development

2

Euston Tower

Environmental Design and Sustainability

2.1 Approach

The proposed development takes a holistic approach to sustainability, using GXN's three-tier methodology. This approach ensures that sustainability and wellbeing are considered in a systematic manner, and integrated within the design process. It also facilitates continuous innovation and the exploration of ideas that go beyond planning policy and best-practice.

Together with regional and local planning policy, the approach is founded on third-party, verified certifications, and the British Land Sustainability Brief. The proposed development is targeting BREEAM "Outstanding" for offices, BREEAM "Excellent" for retail areas, and is registered for WELL v2 Core Certification with sufficient features to enable WELL "Gold" certification with aspiration for "Platinum". As a measure of its in-use energy performance, the proposed development is aspiring to achieve NABERS 5* in operation.

Beyond certification, the proposed development employs a series of best-in-class design strategies across all major areas of building design, construction, and operation: carbon, energy, water, materials, waste, biodiversity, circularity, and wellbeing.

As a marker of the scheme's ambitions, the proposed development seeks opportunities to challenge business as usual, and deliver innovative and inspirational sustainability solutions for key areas, such as the approach to deconstruction and material reuse, building glass recycling, and in-situ concrete reuse in structural applications. The latter has potential for wide-reaching impact across the industry, and has not been conducted at scale, to our knowledge.

The proposed development intends to be an exemplar of how to work with existing buildings at scale: conducting a detailed and forensic feasibility study to understand the potential of the existing building, and aspiring to be a Net Zero Carbon Frontrunner with certified offsetting used only as last resort.

The proposed development aims to be a Circular Economy Pioneer, by prototyping innovative approaches for reuse/recycling of difficult-to-handle materials like concrete and glass from the deconstruction, and by ensuring that key elements of the redevelopment can be disassembled non-destructively and recovered for reuse at end of life.

Finally, the proposed development is designed to support eudaimonia and delight for its users, both those within the building and those experiencing it from the enhanced public realm.

Following this approach, the proposed development aims to set a new standard for how to transform existing buildings, and be an exemplar sustainable science, technology, and an innovation building that other developments can aspire to, as well as one with which the local community can identify and be proud.

The approach is shown diagrammatically in Figure 2.1.

Approach to Sustainable Design

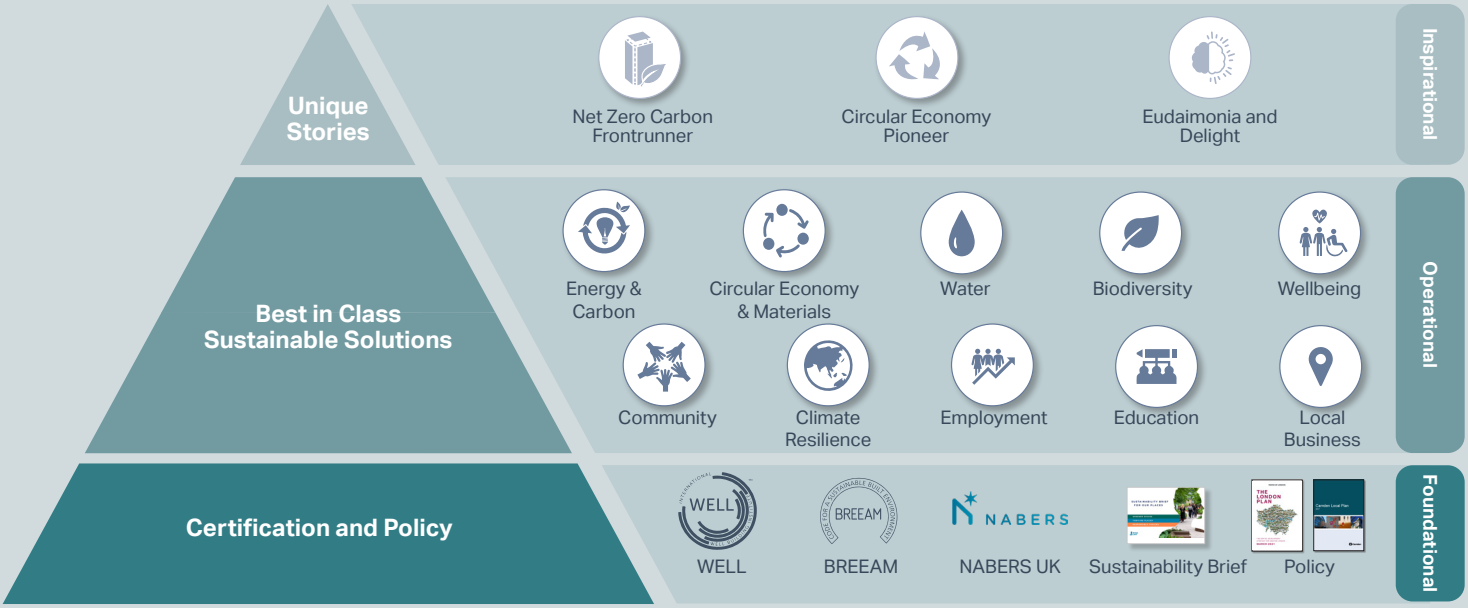


Figure 2.1 The proposed development's approach to delivering a sustainable building for now and the future

2.2 Certification

BREEAM and WELL pre-assessments have been conducted by Sweco to demonstrate the environmental and well-being credibility of the proposed development. These pre-assessments are summarised in this section.

2.2.1 BREEAM

The Camden Local Plan (2017) in Policy CC2 expects all non-residential development of at least 500 m^2 to achieve BREEAM "Excellent" certification. CPG Energy efficiency and adaptation (2021), requires achieving the following sub-targets in the BREEAM rating:

- 60% of all available Energy credits
- 60% of all available Water credits
- 40% of all available Materials credits.

The proposed development is targeting BREEAM "Outstanding" certification for Office with Research and Development Areas, exceeding local planning policy requirements. It will also achieve the minimum sub-targets as identified above. The retail portions of the proposed development are targeting BREEAM "Excellent". The proposed development will be assessed under the BREEAM New Construction (NC) 2018 scheme for shell & core.

To be awarded an "Outstanding" rating, the proposed development will need to achieve a score of at least 85% at both Design Stage (DS) and Post Construction Stage (PCS) assessments under the appropriate scheme.

The pre-assessment for the offices with research and development areas, conducted during RIBA Stage 2, indicates that the targeted credits result in a score of 87.90%. This exceeds the threshold of 85% required for "Outstanding" certification.

The results of the current pre-assessment are shown in Figure 2.2.

A pre-assessment outlines a possible route for achieving the targeted BREEAM rating. The individual credits identified at this stage may vary as the design develops and during construction, although the overall target rating will still be tracked. In addition to the targeted credits, the pre-assessment identifies several potential credits that are continually monitored for possible adoption. These potential credits are intended to protect the "Outstanding" rating against future changes in design. The potential credits take the BREEAM score for the offices with research and development areas to 94.32%.

The pre-assessment for retail areas indicates that the targeted and potential credits result in a score of 71.61%. This exceeds the threshold of 70% required for "Excellent" certification.

Beyond exceeding the minimum score threshold of 85%, the proposed development needs to meet a set of pre-requisites for "Outstanding" certification:

- Man 03 Responsible construction practices: 2 credits
- Man 04 Commissioning and hand over: 1 credit and Criterion 11
- Ene 01 Reduction of energy use and carbon emissions: 6 credits
- Ene 02 Energy Monitoring: 1 credit
- Wat 01 Water consumption: 2 credits
- Wat 02 Water monitoring: Criterion 1 only
- Mat 03 Responsible sourcing of construction products: Criterion 1 only
- Wst 01 Construction waste management: 1 credit
- Wst 03 Operational waste: 1 credit.

The full pre-assessments are included in Appendix A.

BREEAM Pre-Assessment Results

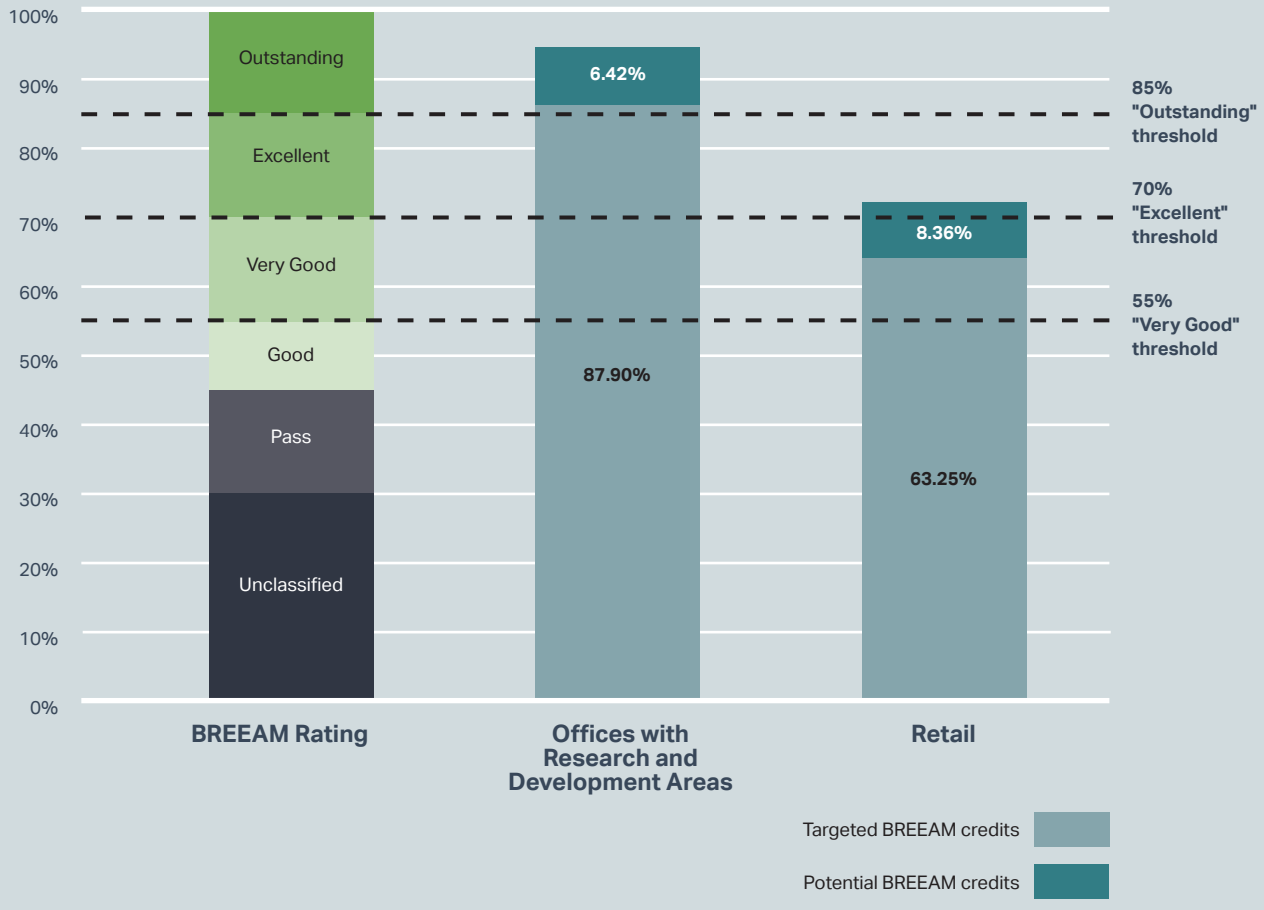


Figure 2.2 Figure: Chart illustrating the estimated project score comparison against BREEAM rating requirements for the offices with research and development areas, and retail areas.

2.2.2 WELL Building Standard

The WELL Building Standard is a relatively new building certification scheme that was launched in the United States in 2014. While BREEAM focuses on setting targets towards improving the environmental sustainability credentials and energy efficiency of the building itself, WELL is focused upon the health and wellbeing impacts of the building on its occupants.

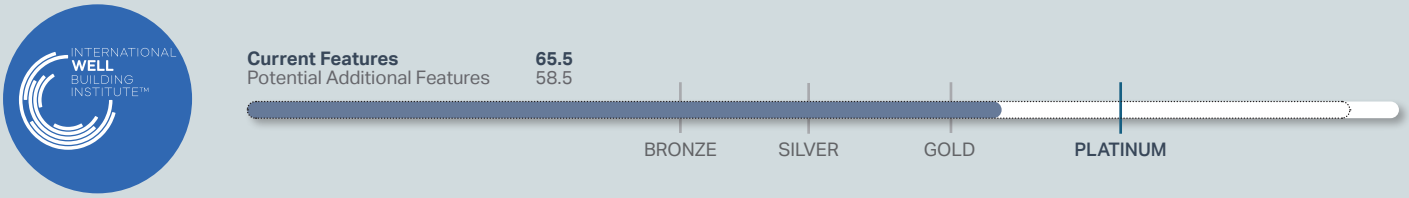
While there is no planning policy requirement for WELL certification, British Land is committed to developing a scheme that is aligned to WELL, as part of its holistic sustainability ambitions.

The proposed development is registered for WELL v2 Core Certification. It is targeting features to enable WELL “Gold” certification with aspiration for “Platinum”. A full pre-assessment of the WELL Building Standard has been conducted by Sweco under the WELL v2 Core Q4 2022 framework for Core & Shell buildings. The pre-assessment anticipates a score of 65.5 (sufficient for "Gold"), with a further potential of 58.5 points which would be sufficient for "Platinum".

The results of the current pre-assessment are shown in Figure 2.3.

The full pre-assessment is included in Appendix B.

WELL Pre-Assessment Results



Feature Summary

WELL v2 Core Q4 2022

Totals by concept
by response

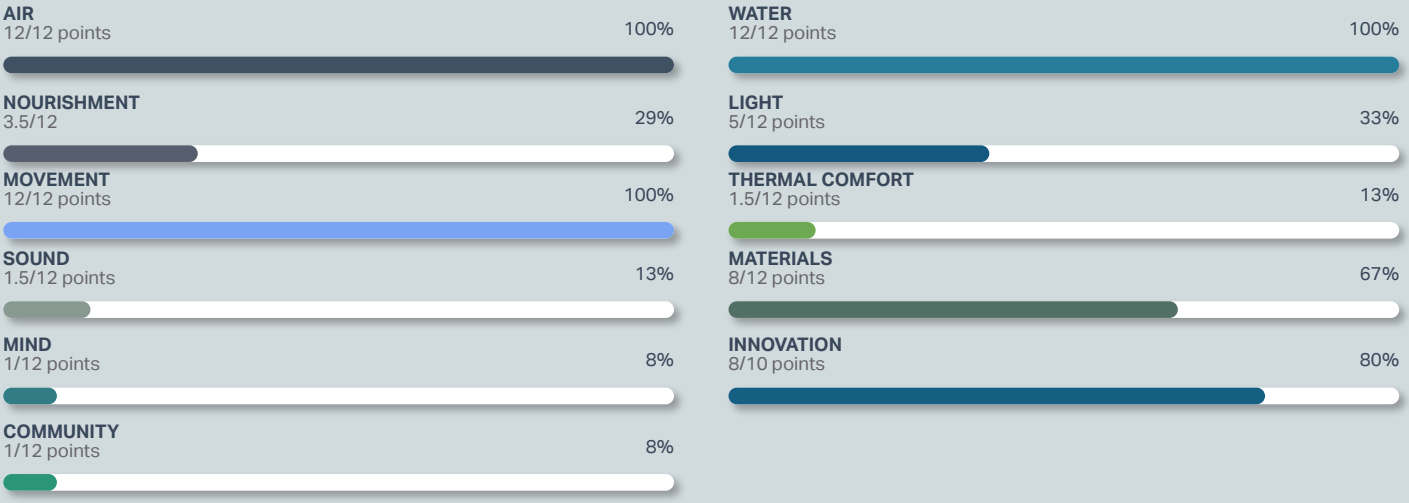


Figure 2.3 Current WELL scorecard based on the pre-assessment

2.3 Circular Economy

2.3.1 General

The proposed development supports London and Camden's ambition to transition from a linear to a circular economy. The circular economy refers to the concept of keeping materials/products in use at their highest value for as long as possible.

The proposed development aims to be an exemplar of the circular economy by:

- Conducting a detailed feasibility study to understand the potential of the existing building for reuse
- Prototyping approaches for reuse/recycling of difficult-to-handle materials from the deconstruction
- Driving innovation by upcycling/transforming materials from the deconstruction to reduce waste and the reliance on raw materials
- Ensuring that the proposed development is designed for longevity with an ability to flex and adapt to changing needs
- Enabling disassembly and reuse at end of life to minimise future waste.

2.3.2 Targets

The proposed development has ambitious aspirations for the circular economy and is targeting the following:

- Construction and demolition waste
  98% diversion from landfill*
- Construction waste
  96% diversion from landfill*
- Excavation waste
  95% to beneficial use
- Municipal waste
  Contributing to achieving 65% recycling by 2030
- Business waste
  Contributing to achieving 75% recycling by 2030.

2.3.3 Circular Economy Approach for Existing Building

The circular economy approach for the proposed development is to first maximise reuse of the existing building in accordance with London Plan Policies D3 and SI 7 and Camden Local Plan Policy CC1.

A considered and rigorous investigation into the condition of the existing Euston Tower was conducted, exploring opportunities for retention, reuse, and recycling while transforming the building into a building fit for the future. The detailed feasibility study was prepared in response to London Plan Policies D 3 and SI 7 for a pre-redevelopment audit and Camden Local Plan Policy CC1 to justify proposals with substantial demolition. It concluded that a scenario that retains the foundation, basement, and central core (31% of the existing structure) was the optimal proposal, as it enabled the best balance of retention, carbon, quality, future-proofing, and health & safety.

The full feasibility study is included as part of this planning application (refer to the Feasibility Study Volumes One and Two prepared by GXN dated December 2023 (not impacted by the revisions to the proposed development), and Volumes Zero and Three prepared by GXN dated December 2024.

Where retention is not feasible, opportunities for the best use of deconstruction waste have been considered. A pre-demolition audit has been conducted to assess the quantity and quality of the materials that are not retained in the proposed development.

A guiding hierarchy, based on the waste hierarchy, has been developed to approach the end of life routes for the material generated in the deconstruction. The hierarchy is shown in Figure 2.4. The proposed development aims to keep elements as high up the hierarchy as possible, with downcycling as a last resort.

Special attention is given to difficult-to-handle materials like concrete and glass, and the proposed development is prototyping approaches for reusing in-situ concrete in structural applications, and returning disused facade glass to the float lines for recycling into high-quality flat glass.

Following this approach, at least 98% of the demolition waste will be diverted from landfill, 96% of the construction waste will be diverted from landfill and 95% of excavation waste will be put to beneficial use. This satisfies the requirements of London Plan Policy SI 7 and Camden Local Plan Policy CC1.

More details on the strategies for specific materials are detailed in the Circular Economy Statement which forms part of this planning application. Refer to the Circular Economy Statement prepared by GXN dated December 2024.

**Exceeding the Camden Local Plan Policy CC1 requirement for 95% diversion from landfill*

Material Reuse and Recycling Hierarchy

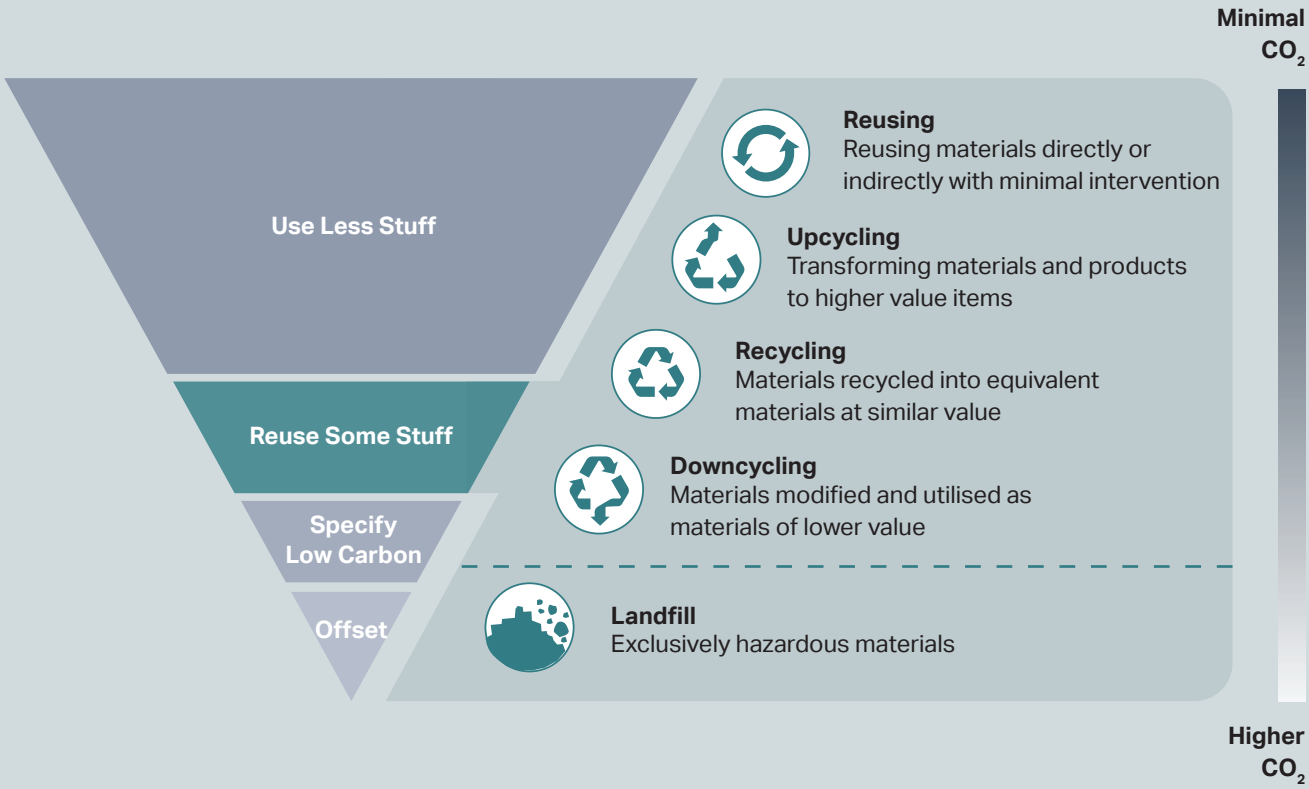


Figure 2.4 The guiding hierarchy used to approach end of life routes for all deconstruction materials as per of wider net zero carbon design hierarchy

2.3.4 Feasibility Study Summary

The feasibility study into the condition of the existing Euston Tower and opportunities for retention was prepared in response to London Plan Policies D3 and SI 7 and Camden Local Plan Policy CC1.

In the context of London Plan Policy SI 7, it satisfies the requirement for a pre-redevelopment audit that demonstrates that options for retention are fully explored before considering any demolition. In the context of Camden Local Plan Policy CC1, it satisfies the requirement for a condition and feasibility study, and options appraisal for any development proposing substantial demolition.

The full feasibility study comprises three volumes (in addition to a summary known as Volume Zero), and has been third-party, independently reviewed on behalf of London Borough of Camden. The process is shown in Figure 2.2. The full feasibility study forms part of this planning application. The feasibility study has been updated to reflect revisions to the proposed development, noting that the principles of the Feasibility Study are unchanged. Principally, these updates include:

- Massing updates to reflect the revised massing
- Rationalisation of the podium assumptions between options in the Feasibility Study
- Updates to the floor areas and facade areas for all options in the Feasibility Study
- Assumption of composite metal deck as the baseline floor system in the Feasibility Study
- The inclusion of detailed breakdowns and curves for WLCAs for the lab-enabled options
- Updates to all WLCAs in the Feasibility Study to reflect the changes above.

Only those volumes that are impacted by the revisions to the pending planning application are superseded. Accordingly, the full feasibility study comprises:

- **Volume Zero - Summary (superseded by submission dated December 2024)**
- Volume One - Assessing the Existing Building (unchanged from submission dated December 2023)
- Volume Two - Pathways for Alternative Uses (unchanged from submission dated December 2023)
- **Volume Three - Options for Retention and Extension (superseded by submission dated December 2024).**

The following section provides a summary for reference.

Feasibility Study Process

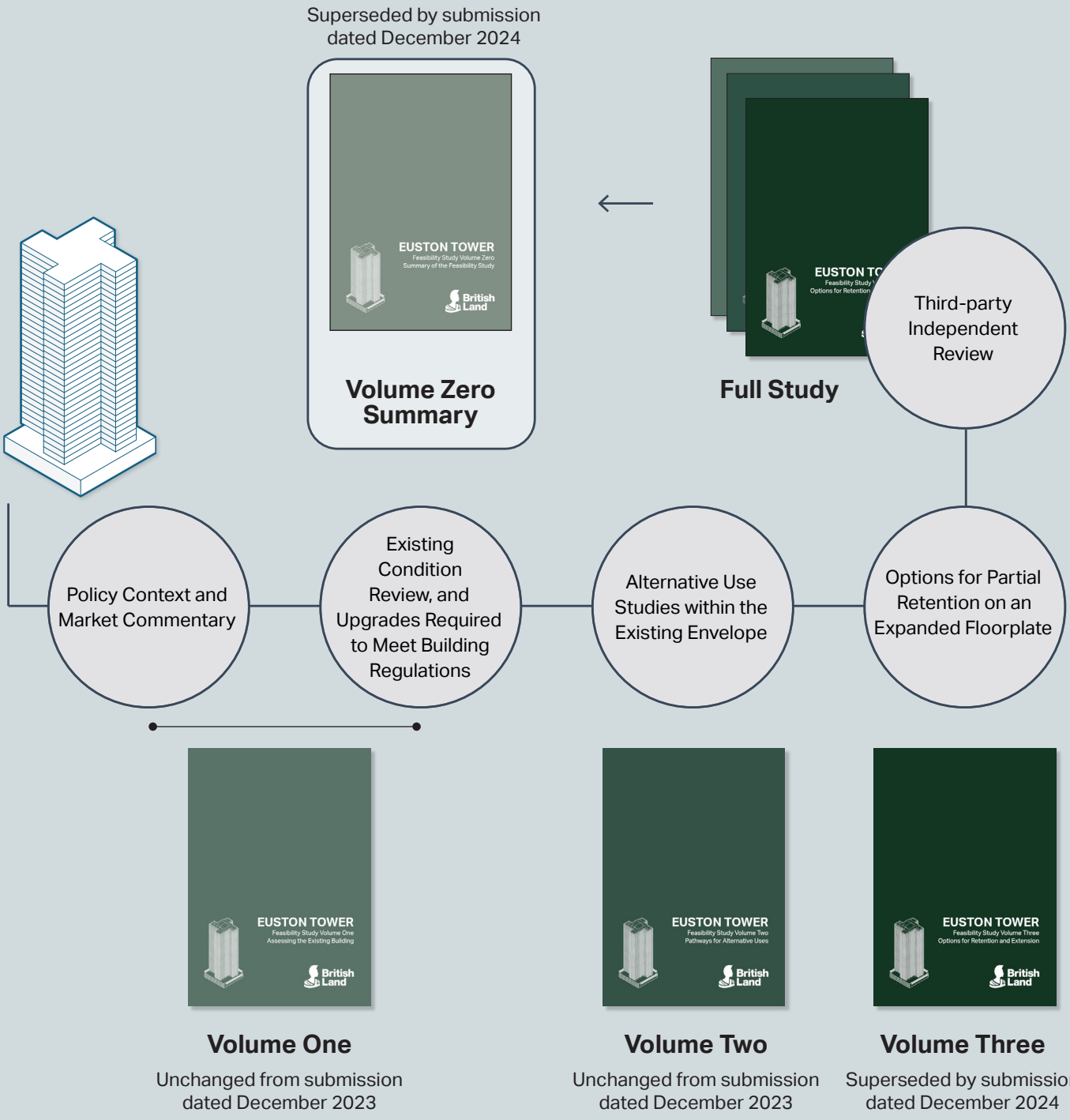


Figure 2.5 Overview of the feasibility study process

Third-party Independent Review
Throughout the pre-application process, which began in February 2022, there has been constant dialogue and review with the London Borough of Camden.

In April 2023, Camden Council appointed third-party experts to conduct a technical review on their behalf.

The review process was conducted through a structured and iterative collaboration. The role of the reviewers is to assess the Feasibility Study against relevant Camden planning documents, in particular Local Plan Policy CC15 and Camden Planning Guidance (CPG) Energy, efficiency and adaptation, January 2021. The reviewers acknowledge that, as the Feasibility Study has been produced at an early stage in the design process, it would not be expected to address all aspects of Policy CC1 and the CPG in detail.

As part of an on-going collaborative process during pre-application, two formal meetings were held between the project team, the London Borough of Camden, and the third-party reviewers. These meetings occurred on 09.06.2023 and 23.08.2023. The third-party reviewers shared preliminary findings on draft versions of the Feasibility Study, and sought key clarifications during these meetings.

Additional engagement has occurred between the London Borough of Camden, and the third-party reviewers. The project team has not been privy to those discussions.

Formal comments were issued in July 2023 and November 2023. These included:

- Suggestion of an additional scenario in between those presented to better cover the range of possible scenarios
- Request to add full whole life-cycle carbon assessments for the options assessed, as these were not included in the initial drafts (noting that it is not required by the policy wording of the CPG)
- Additional detail on the assumptions used in the whole life-cycle carbon assessments
- Consideration of daylight performance and how it is impacted by floor to floor height.

The design team responded to these comments with revised draft versions of the Feasibility Study which were reassessed. Additional information has been provided where requested.

The full Feasibility Study was included as part of the pending planning application in December 2023. Following this, the third-party reviewers issued a final report on these documents in October 2024. The reviewers recognised the design team's detailed approach, noting that the Feasibility Study exceeded industry norms at this stage of design. While continuing to have some comments on the assumptions, they acknowledge that an acceptable range of options has been studied, and the project team has come to a justifiable conclusion with regards to the proposed development option.

Alongside the revisions to proposed development, as noted in Section 1.1.3, the Feasibility Study documents have been updated where they are impacted by said revisions. While the principles of the study remain unchanged, it is anticipated that these updated documents will be reassessed by the third-party reviewers.

Figure 2.6 Euston Tower in 1970 as seen from the BT Tower

Volume One - Assessing the Existing Building (unchanged from submission dated December 2023)
Volume One explored, in detail, the condition of the existing tower. It considered the planning policy relating to the future use of Euston Tower, as well as market requirements for continued commercial use of the tower. It presented an appraisal of the operation of the existing building, including an assessment of the building services. Finally, it sets out the upgrades required to comply with current legislation, based on a technical review looking at the condition of the architecture, structures, and facade.

The assessment identified the following primary points about the existing building:

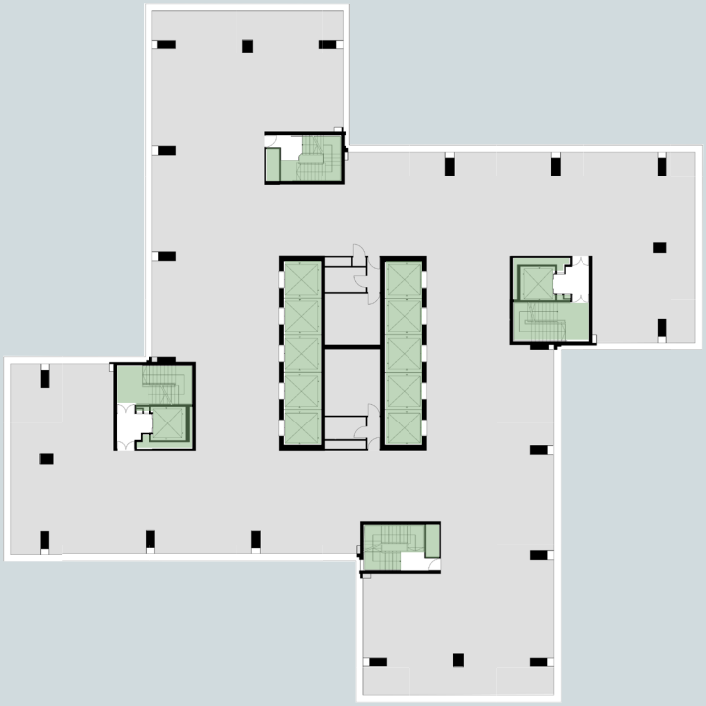
- Concrete structure is generally in a reasonable condition and able to support the current building loads
- The layout of the floorplates is disconnected meaning that the existing space hard to navigate for modern open-plan offices
- Uninviting and closed-off building with a reflective glass facade
- A facade that does not meet modern fire or energy performance requirements
- No current connection or use to local residents or the wider community
- A challenging structure to adapt and improve through minor refurbishment, due to the ribbed slab structure resulting in service penetrations being larger than they need (see Figure 2.7)
- Unattractive and undesirable to modern occupiers, and has been challenging to let since the early 2010s, and vacant since 2021
- Low floor to ceiling heights (2.38 – 2.48m depending on the upgrade strategy pursued), meaning that it would be challenging to accommodate modern occupiers' needs and servicing requirements (floor to ceiling heights of 2.6m and above) and lab-enabled commercial space fit for the future
- Services equipment is beyond its serviceable life
- Building doesn't comply with current Building Regulations and would need significant changes to make it safe and suitable for modern occupiers including fire safety measures such as sprinklers, mechanical smoke ventilation and dedicated fire fighting lifts.

Options were studied for how to address the Building Regulation non-compliances, and bring the building back into use. Where structural interventions would be required, the resulting impact on the structure is exaggerated because entire slab zones need to be removed if any portion of the existing ribbed system is overlapped by new vertical penetrations. Refer to Figure 2.7.

Ultimately, the building does not support the level of services required for a modern commercial development, particularly with regards to fire, ventilation and energy performance (Approved Documents B, F, and L respectively).

Volume One concluded that the extent of upgrades for continued office use, and the quality and quantum of compromised space delivered, would make the resulting product challenging in the leasing market and confirmed that the refurbishment of the existing Euston Tower for commercial use was not a feasible option.

Existing Floorplate



Upgraded Floorplate

Figure 2.7 Diagram showing erosion of floor slab and exaggerated penetrations due to upgrades to meet current Building Regulations

Volume Two - Pathways for Alternative Uses (unchanged from submission dated December 2023)
Notwithstanding the strong policy position which protects against losing existing office space, the following alternative uses were studied for the existing building, refer to Figure 2.8:

- **Commercial developments**
  - Commercial office only (Volume One)
  - Commercial office with laboratory (life sciences / innovation)
- **Residential-led mixed use**
  - Residential with commercial office
  - Residential with laboratory
  - Residential with hotel
- **Hotel/Student Housing developments**
  - Hotel only
  - Hotel with student housing.

For each use a thorough technical assessment was undertaken, and regardless of use, the same primary issues identified in the existing building assessment (building regulations, fire safety, performance) need to be addressed before the building can be brought back to life.

As for offices, the existing structural loading capacity was shown to be sufficient for any of the alternative uses, with the exception of laboratories which require more extensive structure. However, the dynamic response of the structure (how much it vibrates at a microscopic scale) was shown to be more challenging, especially for uses with bedrooms where users are more likely to be sensitive to vibrations.

Fire safety was identified as a challenge for mixed-uses. In addition to providing dual fire escapes, each separate use requires independent firefighting provisions and fire escape routes. Practically this precludes combining more than two distinct uses, as the efficiency of the floor layout would be severely eroded with the additional space required for the independent fire safety requirements.

The ceiling zone required to accommodate modern, energy-efficient building services for residential use was challenging to fit within the height between the existing storeys of 3.2m, while delivering the clear ceiling heights recommended by The London Plan Policy D6, and the Mayor of London's Housing Design Standards published in June 2023.

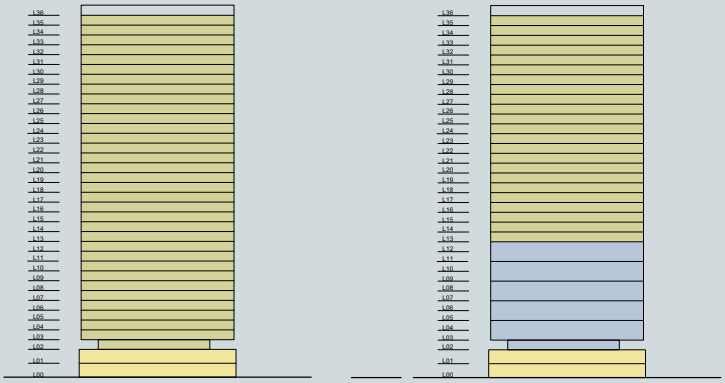
It was shown that this junction of Euston Road and Hampstead Road is also not ideal for residential accommodation, due to the relatively poor air quality and the noisy environment on the junction. An Air Quality Assessment was undertaken and recommended against having openable windows in the lower portion of the tower, which further makes delivering good quality residential apartments in this area difficult. Similarly, the noisy environment due to the 24-hour road noise and the nearby A&E department are not ideal for noise sensitive uses like residential, hotel, and student accommodation.

In addition to the issues outlined above, the resulting floor layouts for residential, hotel, and student accommodation are compromised due to the following:

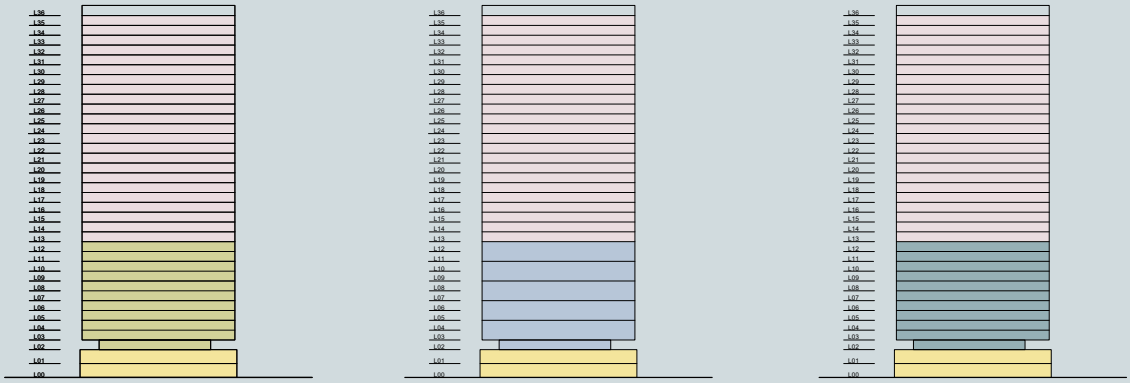
- Several single-aspect units (and some north-only facing meaning they never get direct sun)
- Some self-shaded units due to overshadowing from the shape of the existing building
- Several narrow inefficient units with lots of wasteful circulation space
- In some cases, long corridors with no daylight
- No outdoor private amenity due to wind conditions.

Notwithstanding the policy protection for commercial land use within the Central Activities Zone and the Knowledge Quarter, none of these options were ideal, and if pursued, would generally result in low quality, compromised accommodation that doesn't meet current GLA guidelines, and would be challenging to deliver cost-effectively.

Commercial-led Developments



Residential-led Developments



Hotal/ Student Housing Developments

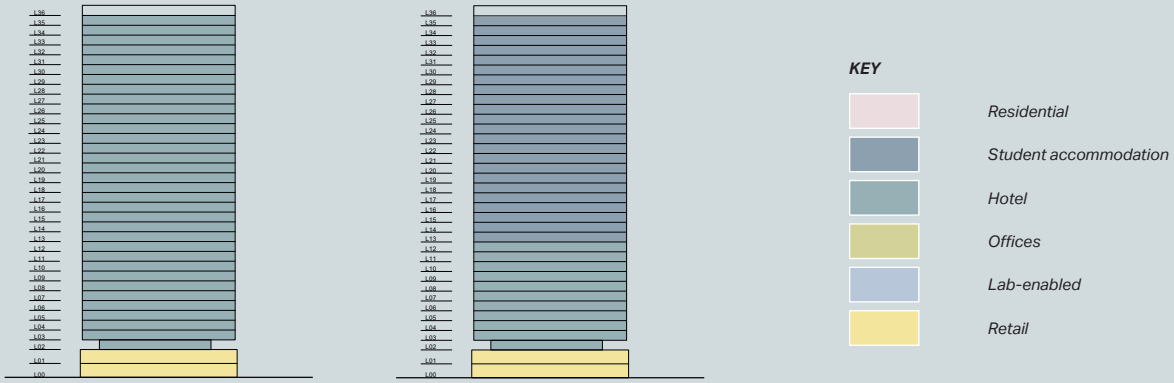


Figure 2.8 Stacking diagrams for use cases explored in Volume Two of the feasibility study

Volume Three - Options for Retention and Extension (superseded by submission dated December 2024)
It was agreed that the best use of the existing building was continued commercial use, based on the findings of Volume Two of the Feasibility Study.

The following options were studied for delivering the project vision and generating additional value, while retaining as much of the existing building as possible (refer to Figure 2.9):

- **Major Refurbishment**
- **Retention and Partial Extension (Max Retention)**
- **Retention and Extension ("Full" Retention)**
- **Partial Retention and Extension (Disassemble and Reuse)**
  - Retain consecutive slabs (office)
  - Retain consecutive slabs (office and lab-enabled)
  - Retain interstitial slabs (office)
  - Retain interstitial slabs (office and lab-enabled)
  - Retain the core
- **New Build.**

For each option a thorough technical and design assessment was undertaken. The assessments considered: how much of the existing building could be retained (in terms of material and carbon emissions), the quality of the resulting floor layouts (to be attractive to a modern user), future flexibility and adaptability (the tower must be fit for the future), and health & safety (it must be buildable in the safest way possible).

Daylighting levels were assessed, and it was shown that the areas of well-daylit space reduce materially when the size of the floor is extended, even by a small amount. The reduction in well-daylit space is alleviated by increasing the floor to floor height. Increasing the existing floor to floor height to deliver more well-daylit space is necessary to create the high quality spaces that are attractive to large tenants, who are essential to a successful letting strategy for a building of this scale, and to deliver on the environment the Knowledge Quarter is seeking to foster.

Whole Life-cycle Carbon Assessments (WLCAs) were conducted for selected options with varying degrees of existing building retention. For each option, these assessments estimated the total carbon emissions (considering deconstruction, construction, and operation of the buildings) anticipated to be emitted over the building's lifetime, assuming all office use so as to provide a clear comparative assessment. The Retain the Core option has the lowest estimated whole life-cycle carbon emissions when compared with the other options that resolve the floor to floor height issues previously described. This is in spite of the Retain the Core Option retaining 31% (by volume) of the existing structure compared to 42% (by volume) for the Retain Interstitial Slabs option.

On balance, the Retain the Core option is identified to be preferable. This is because it offers the best balance of structural retention, quality, flexibility (it does not inherit many of the limitations of the existing building risking premature obsolescence), and adaptability (enabling the building to be more easily changed for different users and uses over time). And it does so with a whole life-cycle carbon position that is the lowest of the options that deliver the quality of space which is necessary for the redevelopment of Euston Tower to be successful.

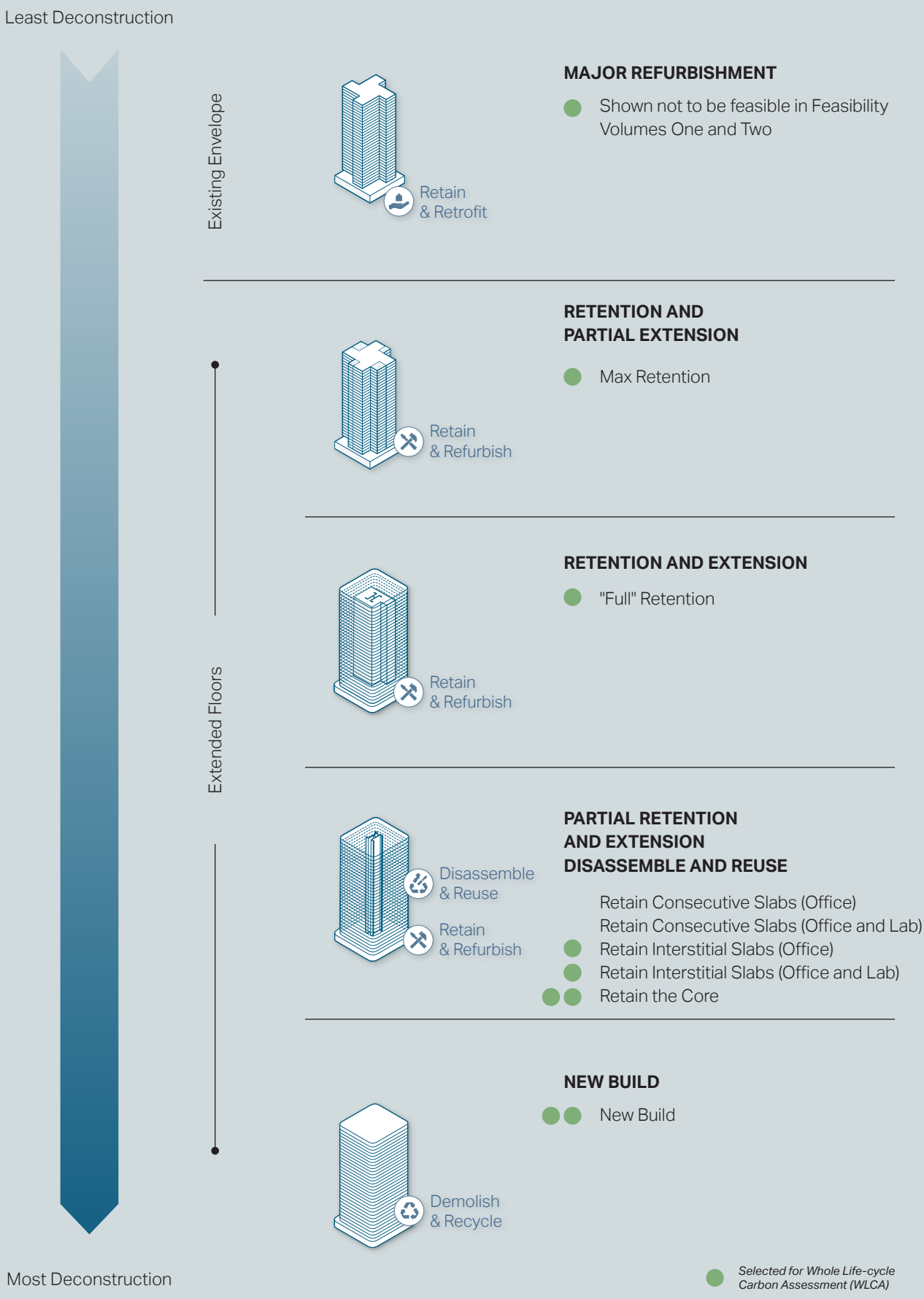


Figure 2.9 Overview of options studied

2.3.5 Circular Economy Approach for New Building

The decision tree for design approaches for new buildings provided in the GLA Circular Economy Statement Guidance has been used for determining the most appropriate circular economy approach for the proposed development. This is shown in Figure 2.10.

The proposed development will be designed for longevity, flexibility, and adaptability, aiming to prevent the premature obsolescence exhibited by the existing tower. The overall recycled content (by value) target is 24%.

The design principles to enable this are considered across all layers of the building, with special focus applied to the structure as it is the most carbon-intensive element, and is seen as foundational for achieving meaningful long-term adaptability.

The principles adopted in the proposed development include:

- A structure designed for adaptability, disassembly, and recoverability at end of life where possible
- Other building layers designed to be independent from the primary structure as far as possible
- A "soft core" that enables expansion of the core elements with minimised intrusion and waste
- A modular facade on a regular grid that makes it flexible to changing internal layouts
- Internal flexibility through a rational grid, central core and generous floor to floor height
- Decentralised ventilation systems with minimal on-floor services enabling easier reconfiguration and accessibility for maintenance and replacement
- Space plans that can accommodate single or multi-tenant layouts, with certain storeys (Levels 03 - 11) accommodating lab spaces or typical office.

The proposed development applies all six principles and maximises their implementation across the different building layers.

The principles are:

1. Building in Layers
2. Designing out Waste
3. Designing for Longevity
4. Designing for Adaptability or Flexibility
5. Design for Disassembly
6. Using systems, elements or materials that can be reused and recycled.

The approaches have been developed collaboratively through regular workshops during RIBA Stages 1 & 2. The key aim is to deliver a tower that has low whole life-cycle carbon emissions, and one that can be easily adapted to flex to the changing needs of the future.

Full details are included in the Circular Economy Statement which forms part of this planning application. Refer to the *Circular Economy Statement prepared by GXN dated December 2024*.

2.3.6 Waste in Operation

An Operational Waste Management Plan (OWMP) has been prepared by Velocity Transport Planning. The OWMP sets out how waste will be managed in accordance with waste hierarchy to improve recycling rates.

The proposed development will contribute to achieving the London Plan Policy SI 7 target of 65% municipal waste recycling by 2030, and the London Environment Strategy target of 75% business waste recycling by 2003.

To facilitate this, dedicated areas will be provided on-site for the following segregated waste streams:

- Residual waste
- Dry mixed recycling
- Food waste
- Glass waste.

The OWMP is included as part of this planning application. Refer to the *Operational Waste Management Strategy prepared by Velocity Transport Planning dated December 2023, updated December 2024*.

GLA Circular Economy Decision Tree for New Buildings

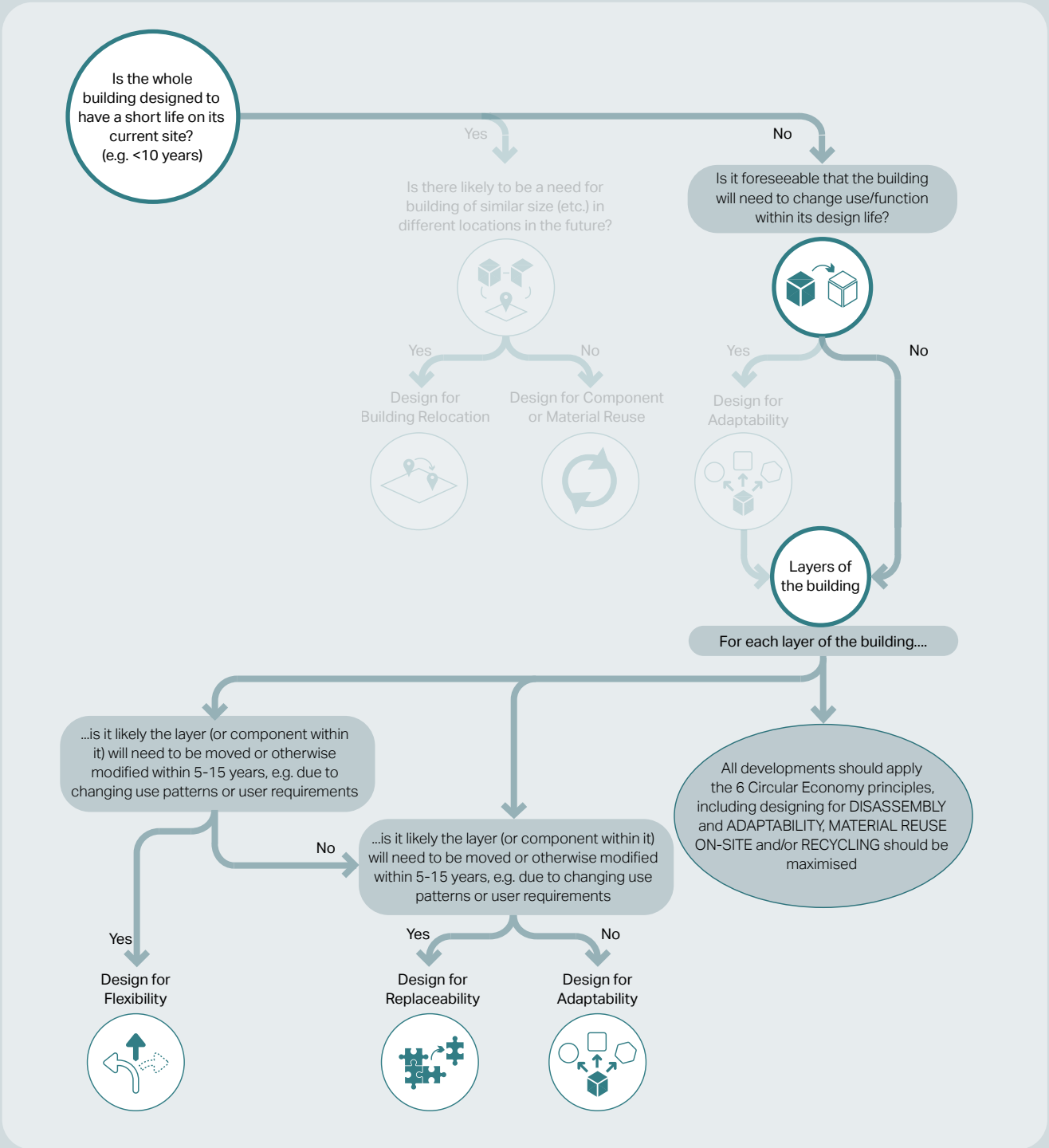


Figure 2.10 The circular economy decision approach decision tree for new buildings from the GLA Circular Economy Guidance

2.4 Carbon Emissions

2.4.1 General

As the operational energy use and associated carbon emissions of new buildings declines, the relative importance of the embodied carbon emitted during their construction increases. For contemporary high performance buildings in London, embodied carbon emitted up until their practical completion can be greater than the operational carbon emissions due to their energy use throughout their life time.

Emitted during an intense period of manufacture and construction even before the building is occupied , this embodied carbon can also lead to a more immediate and greater damage than the operational carbon emitted gradually over long periods.

In response to this emerging challenge, and in line with the GLA's policies, the potential whole life-cycle carbon emission impact of the proposed development has been assessed.

2.4.2 Benchmarks

The GLA benchmarks for upfront and whole life-cycle carbon are:

- Upfront carbon [A1-A5]
  950 $kgCO_2e/m^2$ GIA
- Whole life-cycle carbon [A-C excl. B6&B7]
  1,400 $kgCO_2e/m^2$ GIA.

The GLA aspirational benchmarks are:

- Upfront carbon [A1-A5]
  600 $kgCO_2e/m^2$ GIA
- Whole life-cycle carbon [A-C excl. B6&B7]
  970 $kgCO_2e/m^2$ GIA.

It is acknowledged that these benchmarks are intended for typical office uses of all typologies, and they do not differentiate for the increased embodied carbon in tall buildings. They also do not take account for the increased embodied carbon in laboratory uses, the impact of which is explored in Section 2.4.4.

2.4.3 Approach

The approach to embodied carbon for the proposed development is to use as little as possible. This starts with existing building retention (refer to Section 2.3), and then focuses on designing the key building elements (structure, facades, MEP, etc.) to minimise material intensity.

To further reduce embodied carbon, low carbon materials and/or those containing high proportions of recycled content will be specified, where it is practical and feasibility possible to do so.

After minimising carbon emissions so far as possible, the proposed development will employ certified offsets as a last resort through payment into British Land's transition fund, so that it will be net zero carbon in construction.

The approach is summarised in the "use less stuff" hierarchy shown in Figure 2.11. Any deconstruction will generate waste materials which should be reused/recycled/upcycled, and links directly to the proposed development's circular economy approach (see Section 2.3.3).

Approach to Low Carbon Design

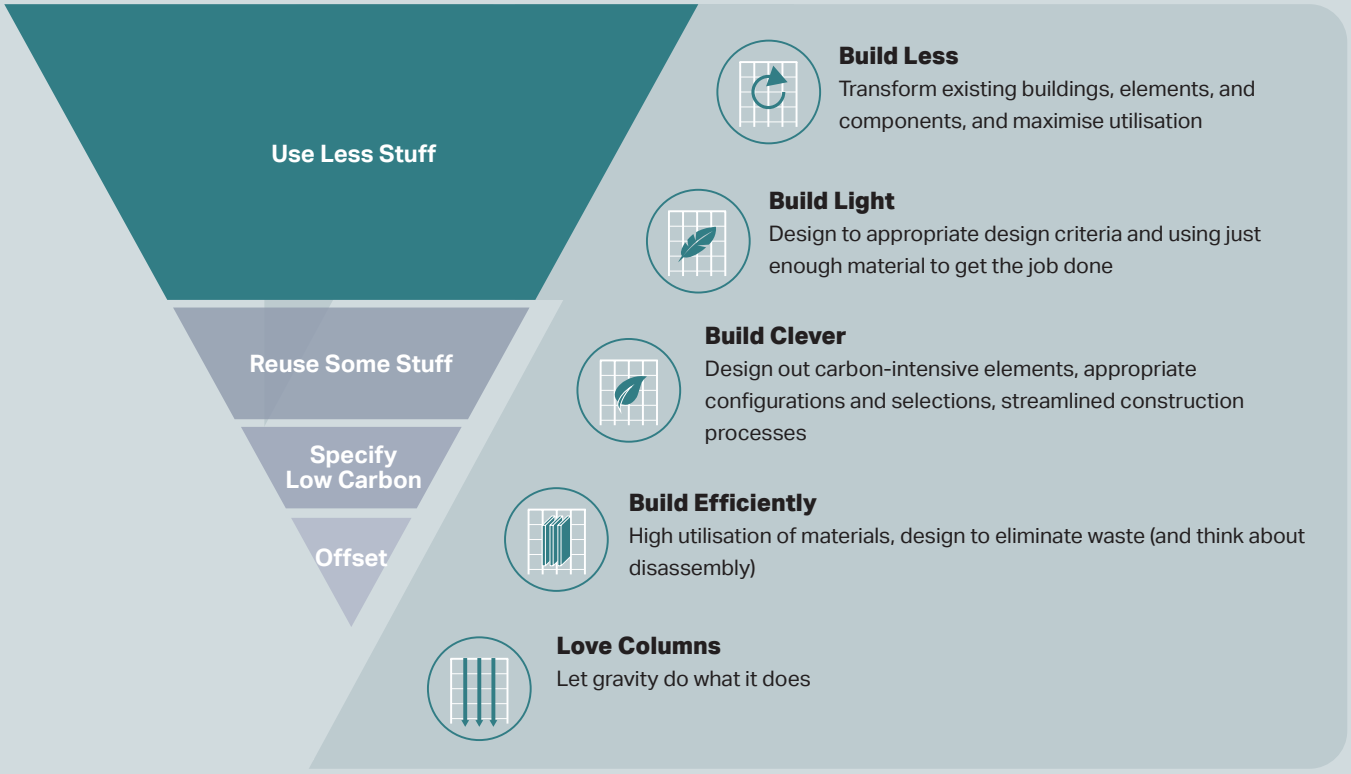


Figure 2.11 "Use less stuff" hierarchy has informed the approach to low carbon design, and an integrated approach to carbon and circularity

2.4.4 Impact of Labs

As described in the *Design & Access Statement prepared by 3XN dated December 2024*, the proposed development includes lab-enabled workspaces. These spaces, from Levels 03-11, offer the potential for a specialised environment for science, innovation, and research.

These levels feature a dual functionality, with dedicated labs on the northern portion of the floor plate, and write up space on the southern portion of the floor plate. This write up space is similar to typical office space. Refer to Figure 2.12.

The lab-enabled levels are designed for flexibility, accommodating one or two tenants, ensuring adaptability to the evolving needs of scientific research and collaborative exploration. These levels have a tighter column grid in the northern portion of the floorplate, which is designed to minimise vibrations in sensitive work environments. The grid opens up elsewhere on the floorplate, to match the typical grid of the office spaces.

The lab-enabled levels result in increased embodied and operational carbon by comparison to office use, due to the additional structure, MEP equipment, and energy demand for these spaces.

The following section outlines the drivers for this, and how this is anticipated to impact the embodied carbon and energy performance of the proposed development.

Overview of Provision of Lab-enabled Spaces

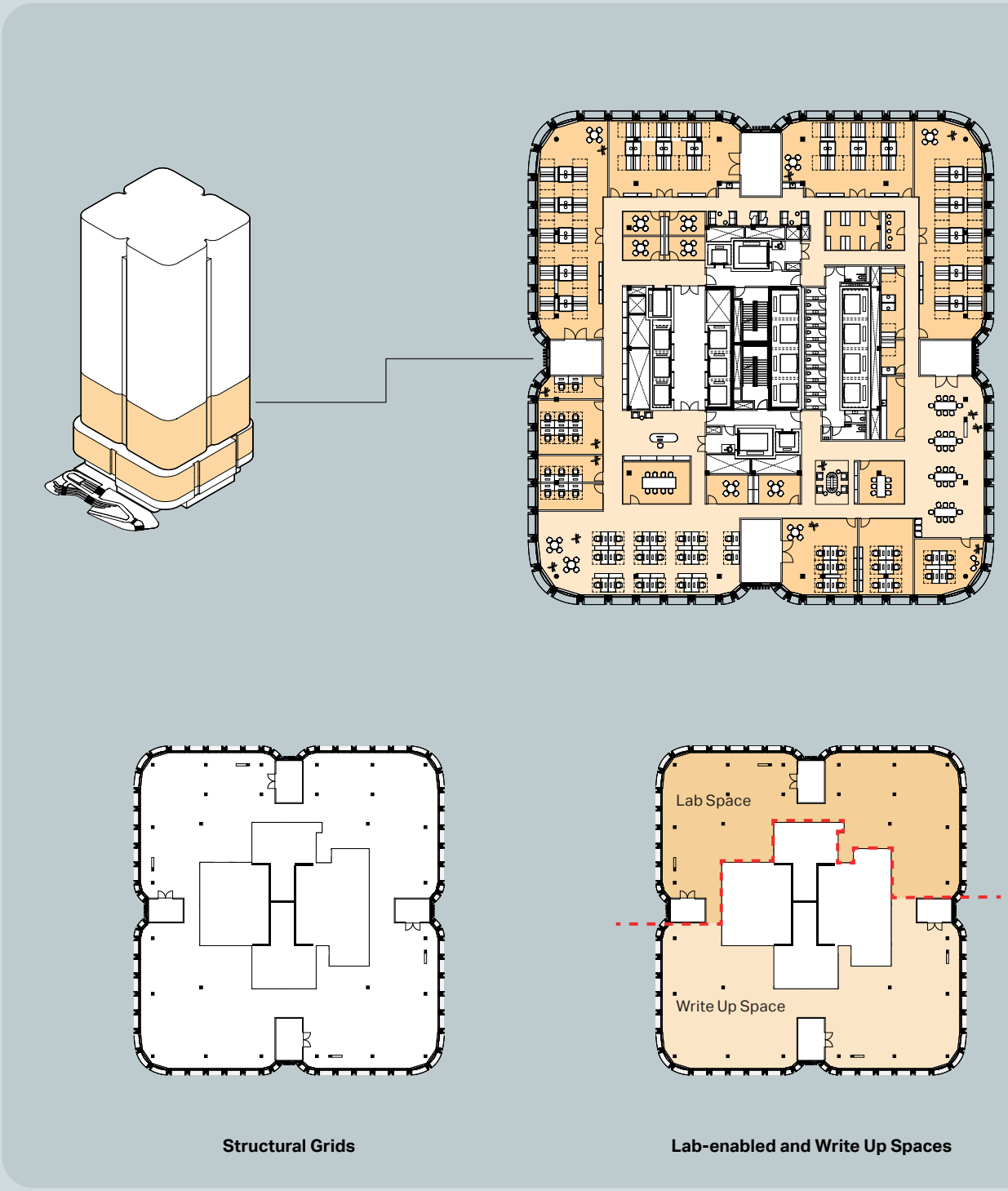


Figure 2.12 Indicative floor plan for lab-enabled levels (above) and structural grids and lab-enabled and write up split (below)

Floor to floor heights

The typical office levels in the proposed development have a floor to floor height of 3,800 mm. The lab-enabled levels have an increased floor to floor height of 4,080 mm. This is to accommodate the larger services zone required (locally to the lab-fitted areas, and located at high level) compared to the office levels. The increased floor to floor height results in a larger facade area requirement, with consequent impact on embodied and operational carbon.

A diagram showing the different floor to floor heights is shown in Figure 2.13.

Comparison of Floor to Floor Heights for Offices and Lab-enabled Spaces

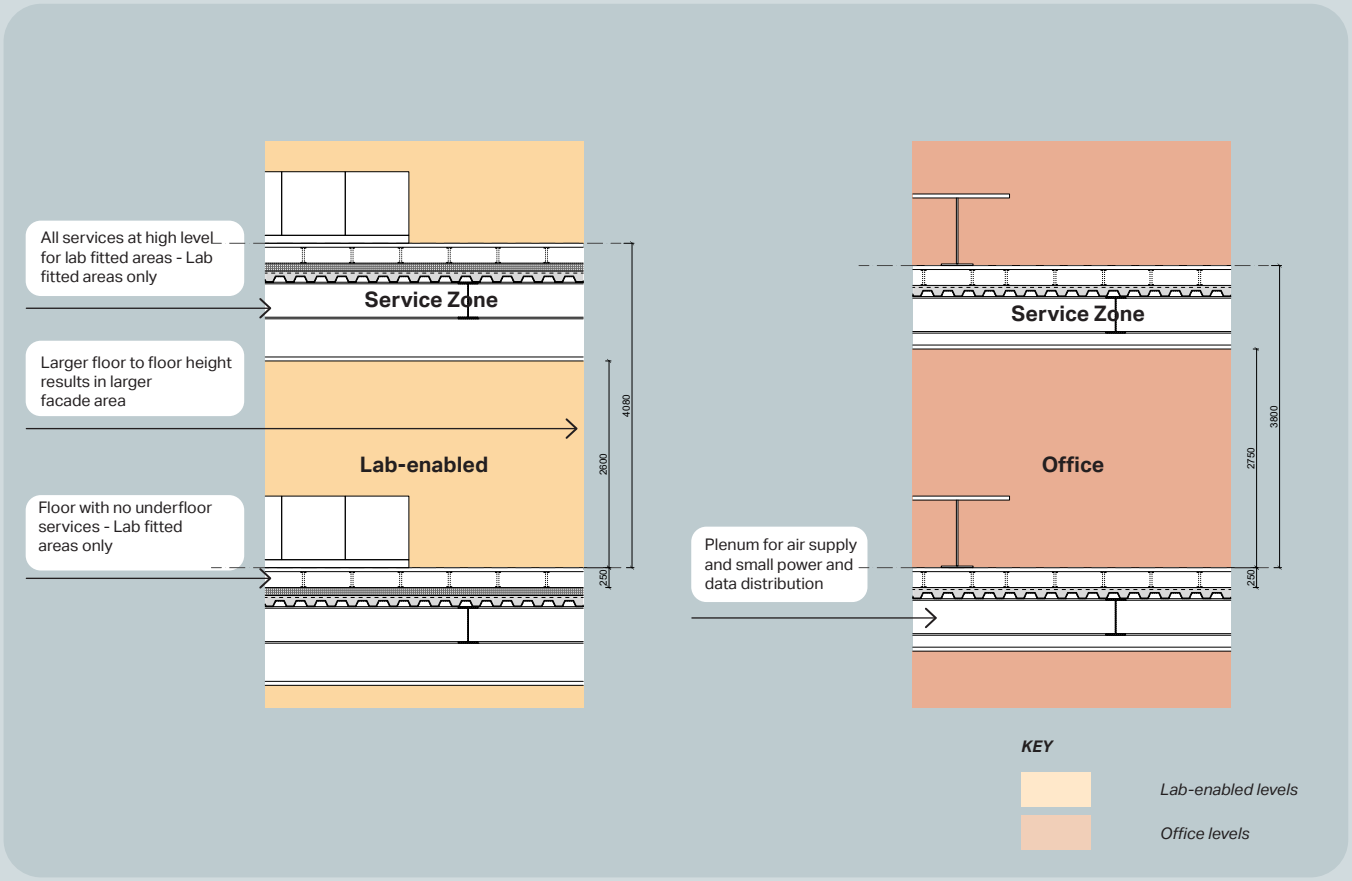


Figure 2.13 Indicative sections comparing floor to floor heights for lab-enabled and office levels

Structural loading and vibration

The layout of the lab-enabled levels are considered in separate areas. A zone north of the core is the "lab area" with distinct requirements compared to offices, and the remainder of the floorplate is considered "write up area" with requirements as per offices.

The structural loading requirements for the lab areas is larger than that for offices (67% increase in live load and partition loading allowance). This is summarised in Figure 2.14. Together with more onerous vibration requirements for the lab areas, this results in requiring a thicker slab and denser column grid.

To mitigate this impact, the lab-enabled floorplate is zoned, with the enhanced lab load provision localised to the northern portion of the floorplate as indicated in Figure 2.14.

STRUCTURAL DESIGN CRITERIA COMPARISON		
	Lab Area	**Write Up / Office Areas**
Live loading (+ partitions)	4kN/m² + 1kN/m²	2.5kN/m² + 0.5kN/m²
Response factor	R < 1 over technical lab areas. *In order to minimise upfront material use, the proposed development is built to a higher vibration response than would be typical in a lab. Should a user require R < 1, then the structure has been designed to accommodate "dynamic hangers" which couple the slab to the floor above.*	R < 6 to 8.

Structural Build Ups for Lab-enabled Floors

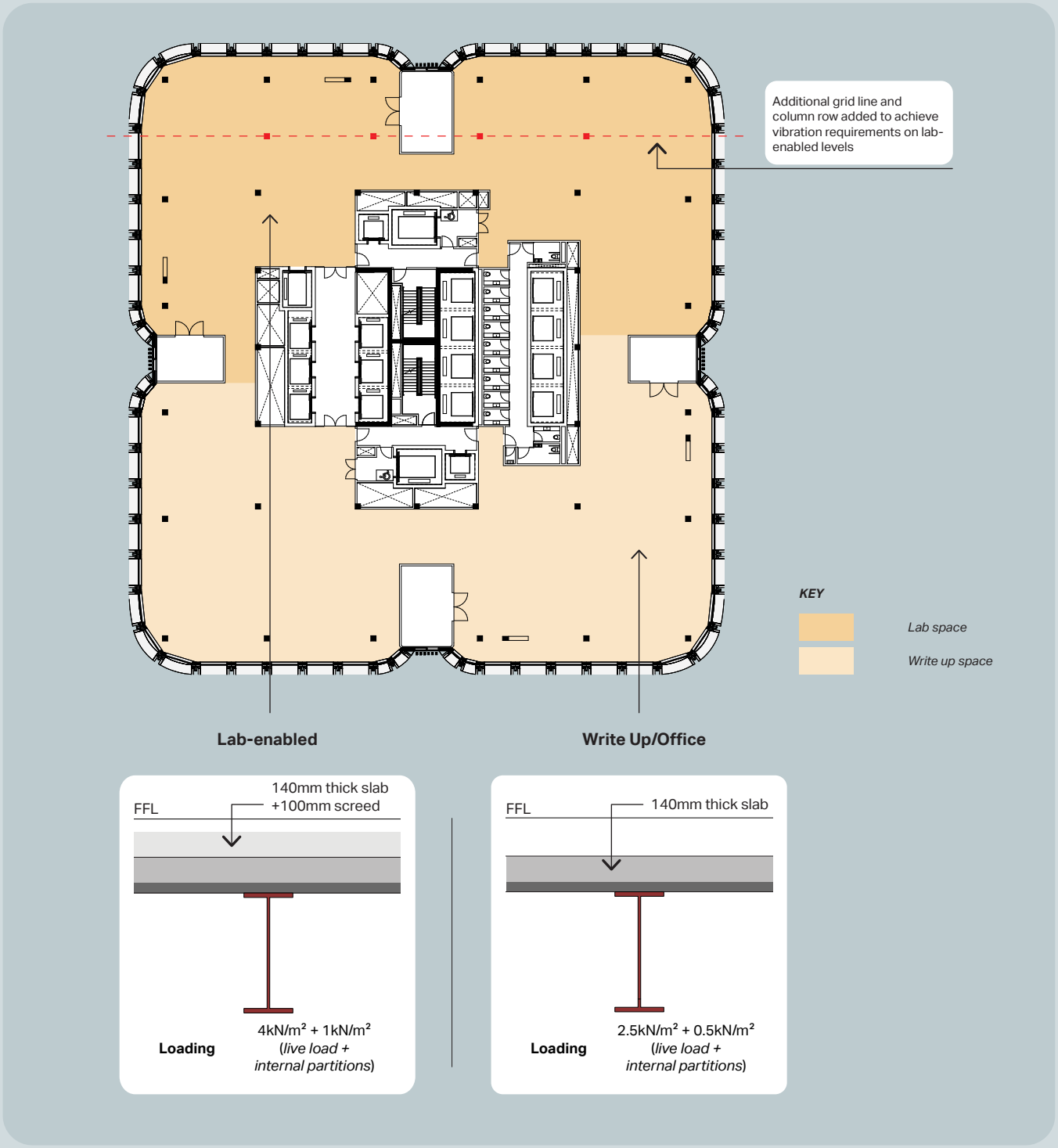


Figure 2.14 Indicative lab-enabled floorplate structural build up and loading

Ventilation, cooling, and power

Lab-enabled spaces generally have higher operational energy demands for several operational reasons, these are outlined below.

The substantial equipment required within these areas necessitates supplementary cooling to handle the additional heat gains from equipment to maintain a comfortable internal environment. These also usually require fan coil units (FCUs) or similar to provide cooling, which leads to increased fan power.

Ventilation is provided via high level ductwork, as lab activities and tenants do not typically allow floor voids within the space. This not only increases embodied carbon for the additional ductwork and supports required, but also increases operational energy, owing to the increased fan power required to overcome the additional ductwork, and supply air into the space effectively. This is exacerbated by the higher levels of ventilation required to maintain air quality and ensure the safety of users, compared to a typical office space.

Fume cupboards are used to exhaust potentially harmful fumes and chemicals, necessitating a continuous supply of fresh air. To balance the increased levels of extract air from these units, additional ventilation air must be supplied and the energy required to heat, cool, filter, and supply this air also increases proportionally.

There is an increased power supply requirement between the lab areas and the write-up areas, as well as typical office areas. The lab-enabled levels are therefore significantly more energy intensive than the office levels. These allowances are summarised in Figure 2.15.

Unlike many office spaces that operate during regular business hours, laboratories often need to run experiments or maintain specific conditions for longer periods or even 24/7. These increased hours of operation also contribute to higher energy usage.

MEP DESIGN CRITERIA COMPARISON		
	Lab Area	**Write Up / Office Areas**
Occupancy density (m^2/person)	1:12	1:8
Small power allowance (W/m^2)	80	20
Lighting power density (W/m^2)	10	6
Ventilation rate	6 air changes per hour	Min of 16l/s/person Max of 3l/s/m^2
Fume extraction	Yes	No

Comparison of Ventilation and Power Allowances

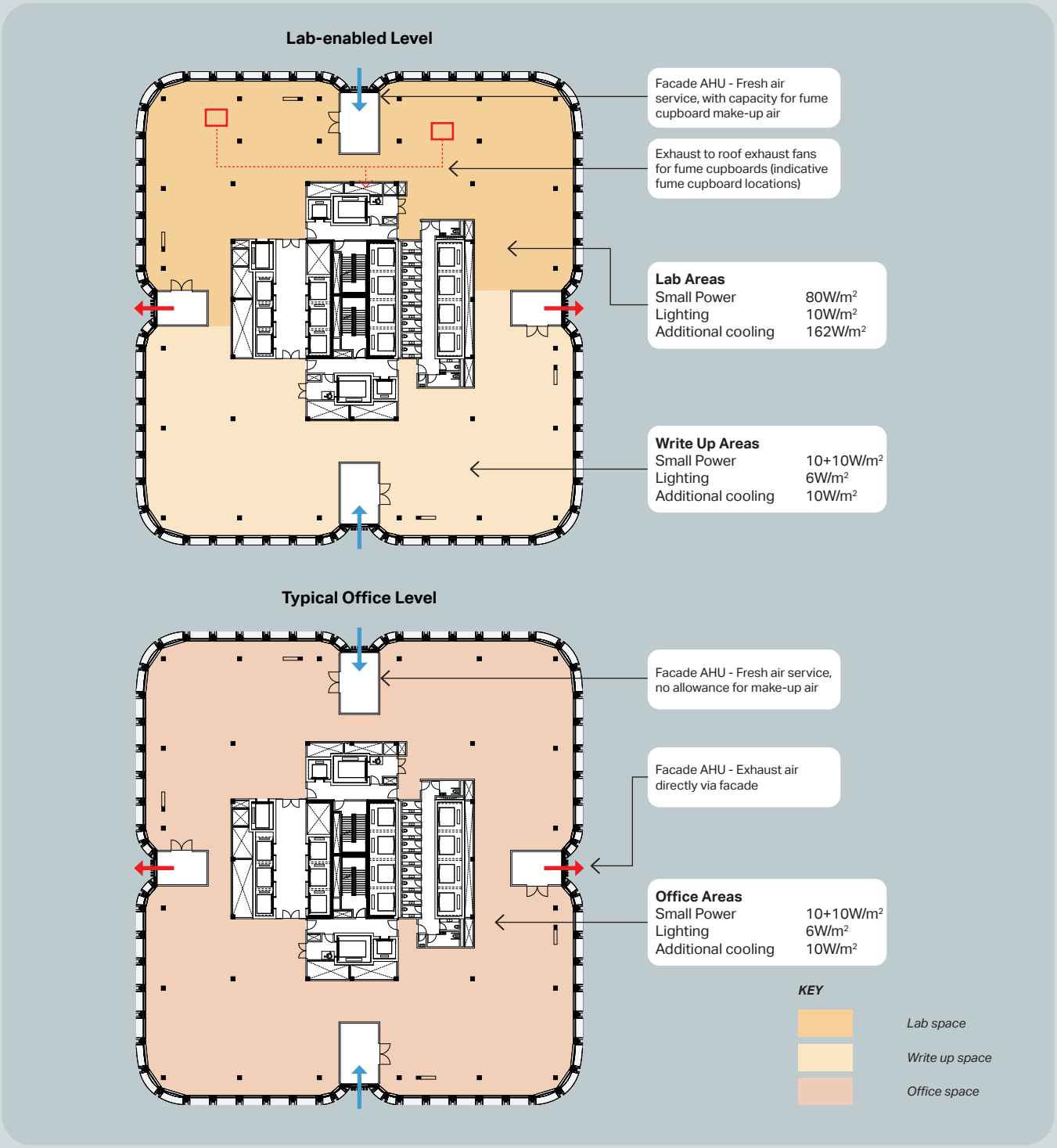


Figure 2.15 Comparison of indicative lab-enabled and office floorplates ventilation and power allowances

Impact on embodied carbon

The result of the more onerous structural and MEP requirements for the lab-enabled spaces is a consequent increase in embodied carbon. As a significant driver for the carbon increase is due to the extent of the MEP installation, it manifests both in upfront [A1-A5] carbon and operational [B1-B5] carbon emissions.

In the context of the proposed development, this increase is lessened over the full GIA, as the lab-enabled areas are limited to Levels 03-11, and particularly the area north of the core, as indicated in Figure 2.14.

The lab-enabled spaces comprise approximately 30% of the overall GIA (79,825 m^2), and this amount is even less when considering the proportion of the lab-enabled floors which are to accommodate labs (as distinct from write-up area) within the enhanced area north of the core. Using the same assumptions as those in the Feasibility Study Volume Three, when considering the full GIA, the embodied carbon uplift due to the lab-enabled areas was estimated as follows:

- Upfront carbon [A1-A5]
  Approx. +6% uplift
- Whole life-cycle embodied carbon [A-C excl. B6&B7]
  Approx. +11% uplift.

These increases are not reflected in the GLA benchmarks for office buildings.

Impact on energy use intensity

Like embodied carbon emissions, the nature of the lab-enabled use results in significantly higher energy demand than a typical office.

This increased energy use intensity (EUI) is not reflected in the energy targets for office buildings.

An estimate of the annual energy use (kWh/m^2/year) was prepared using the CIBSE TM54 methodology, as per the London Plan "Be Seen" requirements. This covers both regulated and unregulated energy use. As a means of comparison, estimates were prepared considering the lab-enabled spaces fit out and operated as lab spaces (as per the proposed development), and also has office-only.

Areas in Figure 2.16 uses CIBSE TM54 Treated Floor Area (TFA) of 71,809 m^2.

A summary of the energy performance is shown in Figure 2.16. The impact of the lab-enabled spaces is clear, resulting in a significant uplift in EUI compared to the office-only scenario. Like embodied carbon, the scale of this uplift is mitigated by the limited lab-enabled areas in the proposed development.

Full details on the operational energy modelling and assumptions are detailed in the *Energy Statement prepared by Arup dated December 2024*.

Impact of Labs on Energy Use Intensity

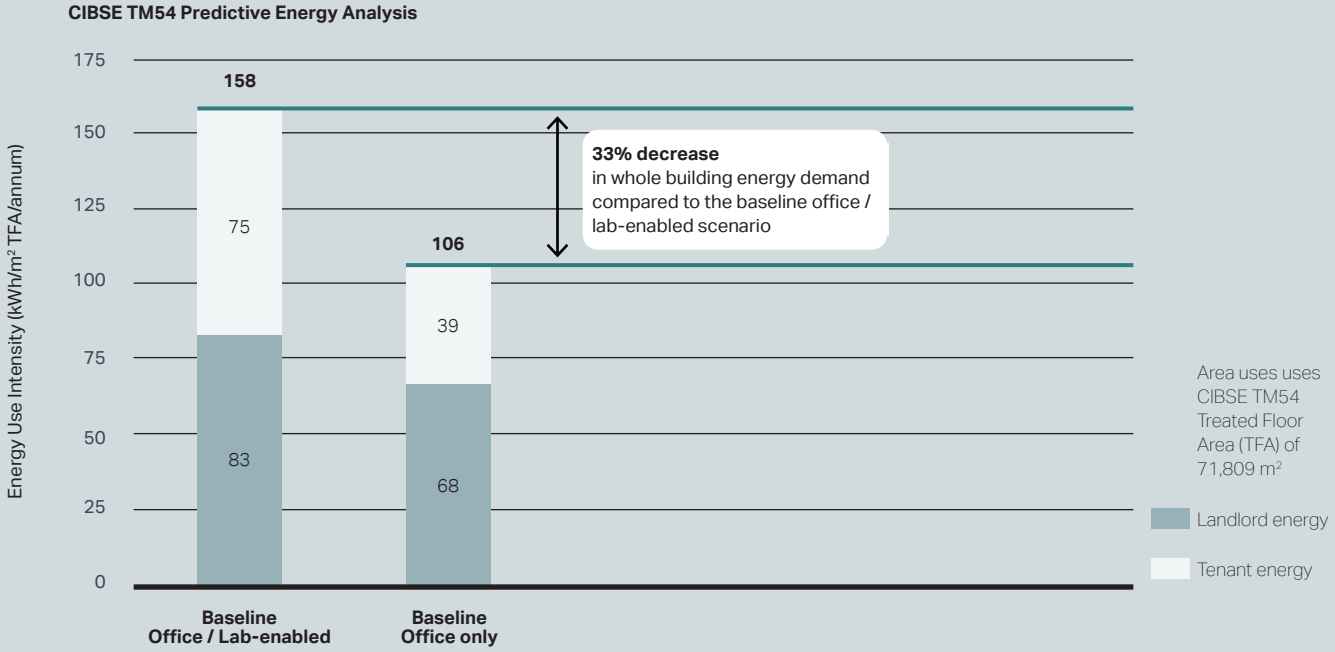


Figure 2.16 Impact of lab-enabled spaces on whole building energy demand

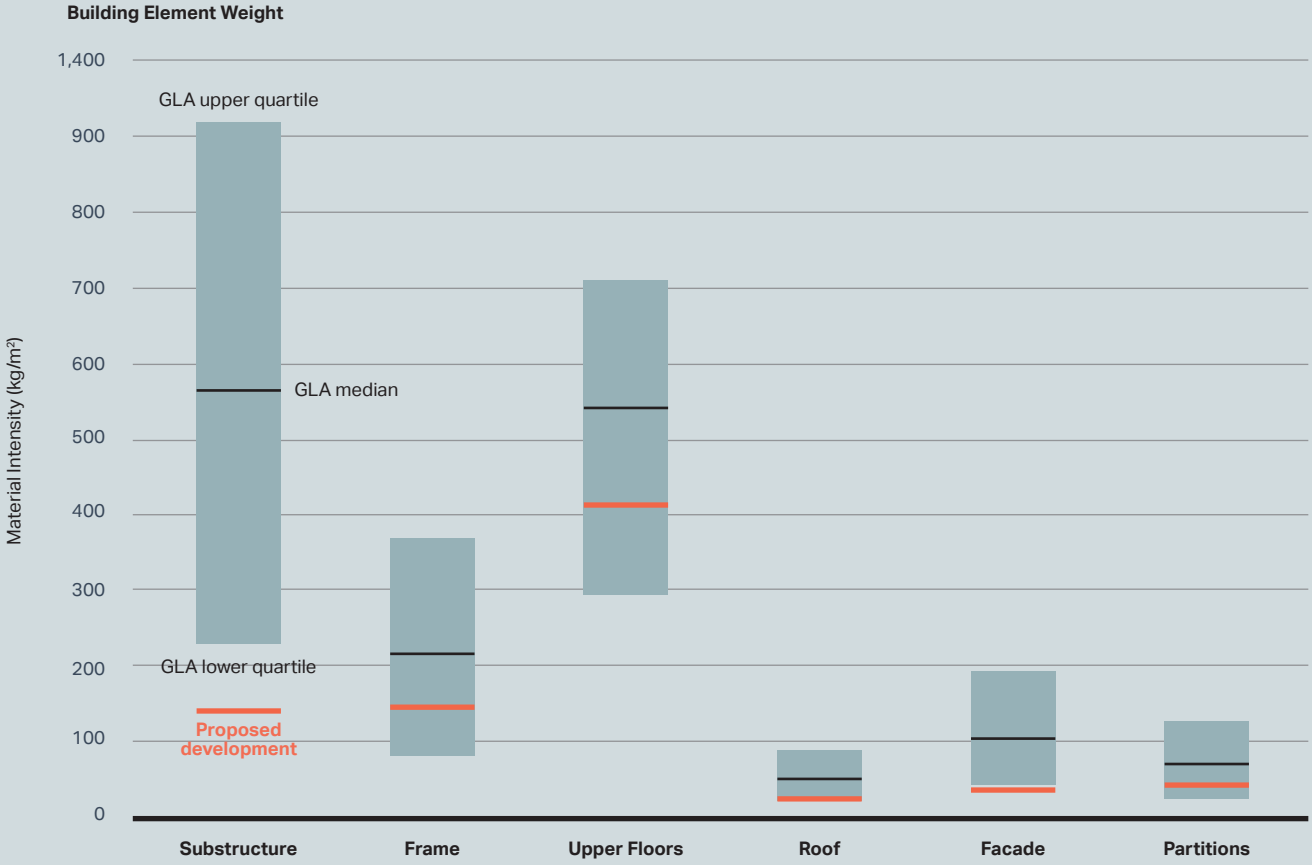
2.4.5 Material intensity

As outlined in Section 2.4.3, the approach to embodied carbon for the proposed development is to use as little as possible to minimise material intensity. Good material intensity performance is a means of safeguarding carbon performance as well as mitigating raw material and resource use.

As a means of measuring this, the material intensity (mass of material per m^2) for the primary building elements is shown in Figure 2.17, and compared with the GLA's quartile data. The material quantities are commensurate with those in the Bill of Materials for the Circular Economy Statement and the Whole Life-cycle Carbon Assessment.

In its Circular Economy Guidance, the GLA notes that "it is expected that applications will tend towards the median and lower quartile figures in the future". By comparison in Figure 2.17, the proposed development significantly outperforms the GLA's expectations performance across all elements.

Material Intensity for Building Elements



	Material Intensity (Module A) (kg/m² GIA)	Performance Indicator
Substructure	141	1st Quartile*
Frame	146	2nd Quartile*
Upper Floors	411	2nd Quartile*
Roof	25	2nd Quartile*
Fabric	37	1st Quartile*
Internal Walls and Partitions	44	2nd Quartile*

** Evaluated based on GLA CE Statement Appendix 4. The values do not align with the CE Statement template which appears to be categorising incorrectly*

Figure 2.17 Material intensity for building elements compared with GLA quartiles

2.4.6 Whole Life-cycle Carbon Assessment (WLCA)

A Whole Life-cycle Carbon Assessment (WLCA) has been conducted by Sweco as part of this planning application.

Interim WLCAs have been produced during RIBA Stage 2 with the aim of establishing the proposed development's baseline embodied carbon performance, as well as investigating design and specification alternatives to reducing the carbon intensity of the main contributing elements.

The assessment was carried out in accordance with British Standard BS EN 15978:2011 and following guidance from the RICS PS (September 2023) and the GLA Whole Life-cycle Carbon Assessment Guidance.

Reasonable assumptions were made and where information was not available or with sufficient detail, benchmarks were used.

The current analysis results in the following estimates:

- Upfront carbon [A1-A5]
  725 $kgCO_2e/m^2$ GIA incl. demolition
- Whole life-cycle embodied carbon [A-C excl. B6&B7]
  1,225 $kgCO_2e/m^2$ GIA incl. sequestration
- Whole life-cycle carbon [A-C incl. B6&B7]
  2,397 $kgCO_2e/m^2$ GIA.

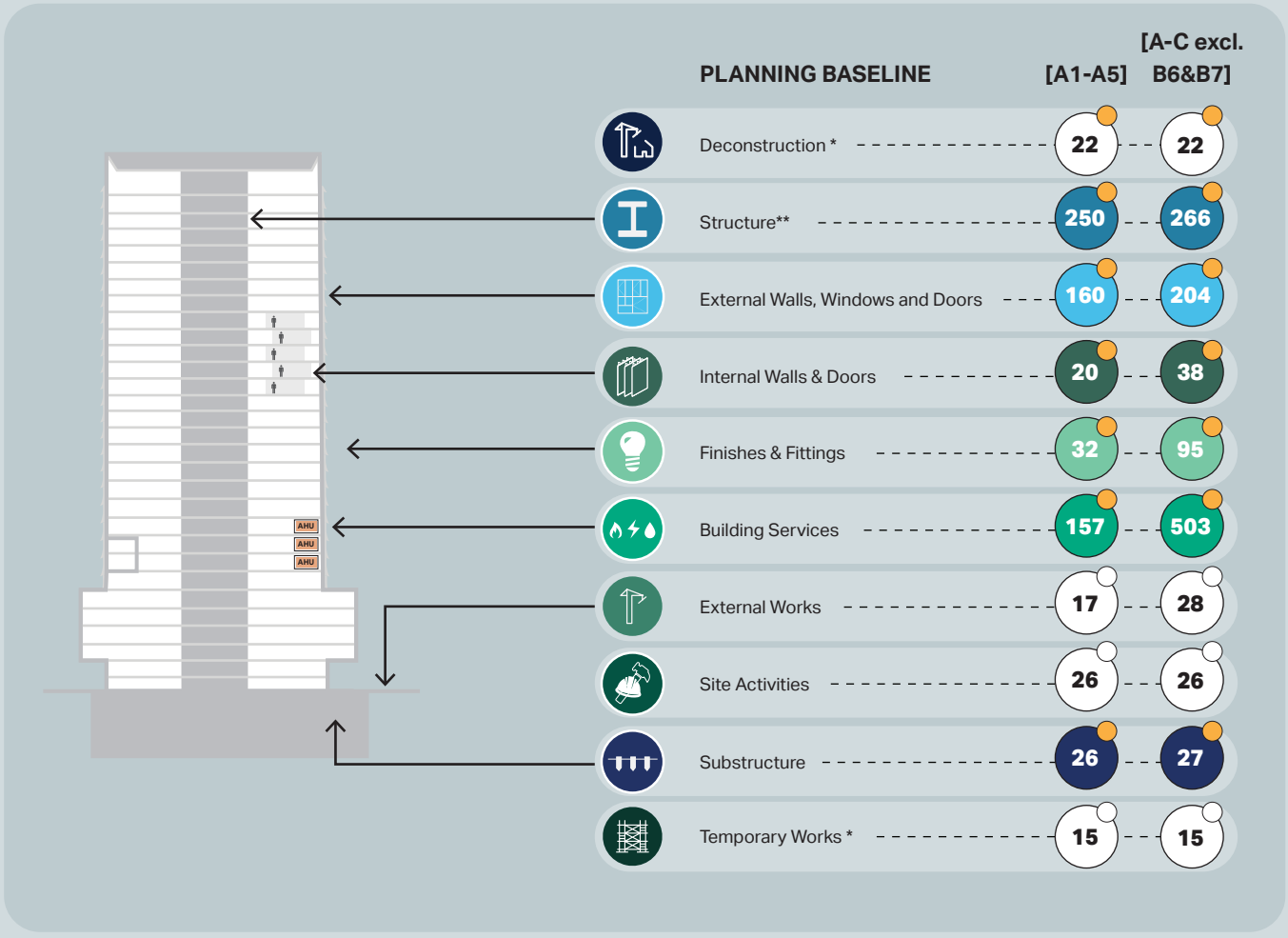
All figures include emissions due to demolition in the totals, which is not included in the upfront totals [A1-A5] in the GLA reporting spreadsheet. When reported separately, upfront [A1-A5], in-use [B1-B5], and end of life [C1-C4] carbon emissions are reported excluding sequestered carbon emissions. However, when reported together as whole life-cycle embodied carbon emissions [A-C excluding B6&B7], they are reported including sequestered carbon emissions, as per the GLA reporting spreadsheet. The benefit of sequestration is reported as -15 $kgCO_2e/m^2$.

Figure 2.18 shows the upfront [A1-A5] and whole life-cycle [A-C excl. B6&B7] embodied carbon results broken down by building element.

Key assumptions in the analysis include the following:

- Retention of the existing foundation, substructure, and central concrete core
- Material specification based on project proposed specification and market "typical" specification where these are not yet agreed
- Product-specific EPDs are not used at this stage to maintain flexible procurement routes, unless indicated otherwise
- Transport emissions are based on RICS PS default modes and distances, unless indicated otherwise
- Facade emissions calculated according to CWCT guidance
- Cost plan coverage is applied on quantified building elements to account for known unknowns
- Contingency is applied to accommodate design development and unknown unknowns
- Reference service period is 60 years.

Upfront and Whole Life-cycle Embodied Carbon Results



Calculated

Benchmarked

* Not included in upfront benchmarks but accounted for in overall WLCA in line with GLA guidance

** Includes frame, upper floors, roof, stairs and ramps

Coverage	Incl. above	Incl. above
Contingency	Incl. above	Incl. above
Sequestration (-15 $kgCO_2e/m^2$)	Excl. above	Incl. above
TOTAL ($kgCO_2e/m^2$ GIA)	**725**	**1,225**

Figure 2.18 Preliminary upfront [A1-A5] and whole life-cycle [A-C excl. B6&B7] embodied carbon results broken down by building element

Comparison with benchmarks

LP Policy SI 2 requires comparison of the WLCA results with the benchmarks published in the Whole Life Carbon Assessment Guidance. Refer to Figure 2.20. The benchmarks are set out by basic typology, but do not account for the tower typology or the lab-enabled areas in the proposed development, especially the additional MEP equipment.

The current upfront embodied carbon [A1-A5] estimate of 725 $kgCO_2e/m^2$ GIA [A1-A5] (including demolition) is below the GLA upfront benchmark of 950 $kgCO_2e/m^2$ GIA for offices. Though above the GLA aspirational benchmark of 600 $kgCO_2e/m^2$ GIA, it is closer to the aspirational figure than the benchmark figure. Refer to the "Estimated WLC emissions" Table in the GLA WLCA reporting template (Appendix D) for the direct comparison.

The in-use WLCA results [B-C excl. B6&7] of 515 $kgCO_2e/m^2$ GIA, fall above the GLA standard benchmark of 450 $kgCO_2e/m^2$ GIA. Refer to the "Estimated WLC emissions" Table in the GLA WLCA reporting template (Appendix D) for the direct comparison. This is due to the maintenance assumptions associated with the MEP emissions, noting that 75% of the MEP emissions are quantified at this stage (the remainder is uplifted using coverage factors). The assumptions for maintenance are taken from CIBSE Guide M, as recommended in the LPG. This is likely to be a conservative approach, as the major plant items are quantified, and it is these items that are likely to require ongoing maintenance and periodic replacement. This compares with unquantified items like distribution, cable trays, pipework, and the like, which require less frequent maintenance or replacement. This uplift process for the MEP is shown in Figure 2.19.

The total WLCA results [A-C excl. B6&7] of 1,225 $kgCO_2e/m^2$ GIA incl. sequestration, fall below the GLA standard benchmark of 1,400 $kgCO_2e/m^2$ GIA. Refer to the "Estimated WLC emissions" Table in the GLA WLCA reporting template (Appendix D) for the direct comparison

The aim will be to further reduce embodied carbon as the design develops, materials are specified, and procurement strategies are explored.

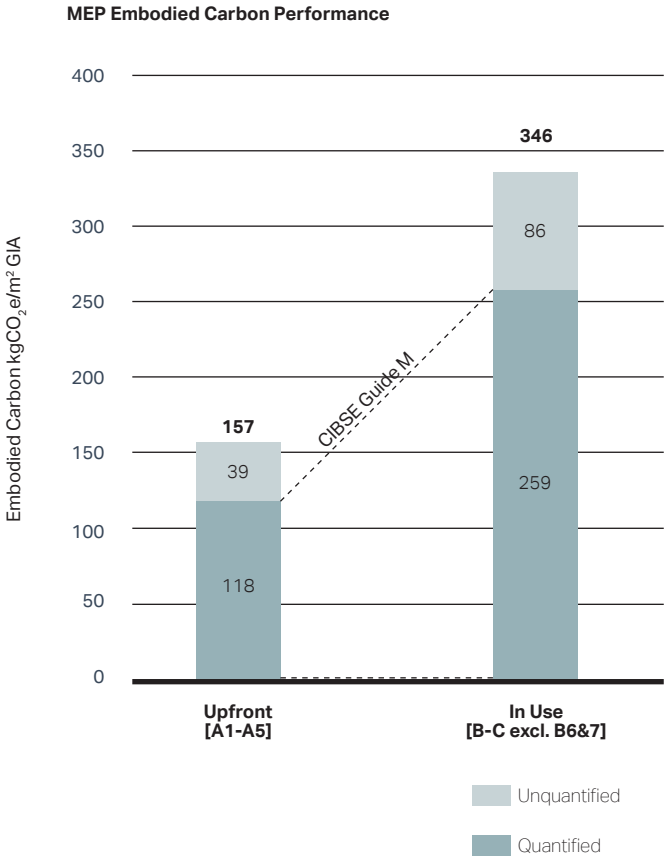
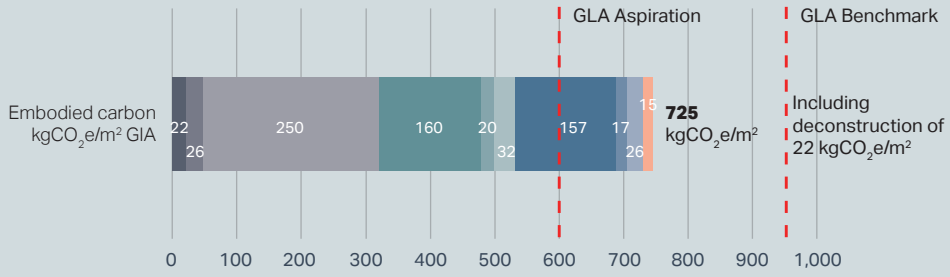


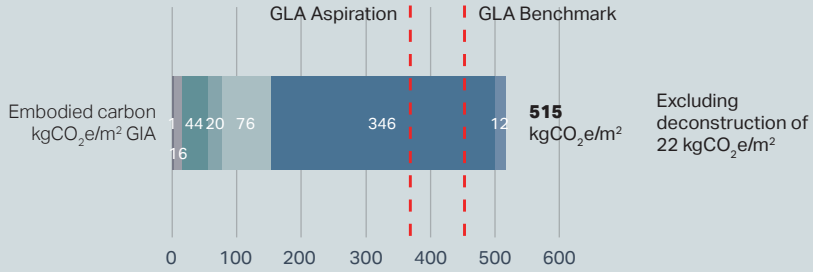
Figure 2.19 MEP WLCA performance uplift

WLCA Comparison with Benchmarks

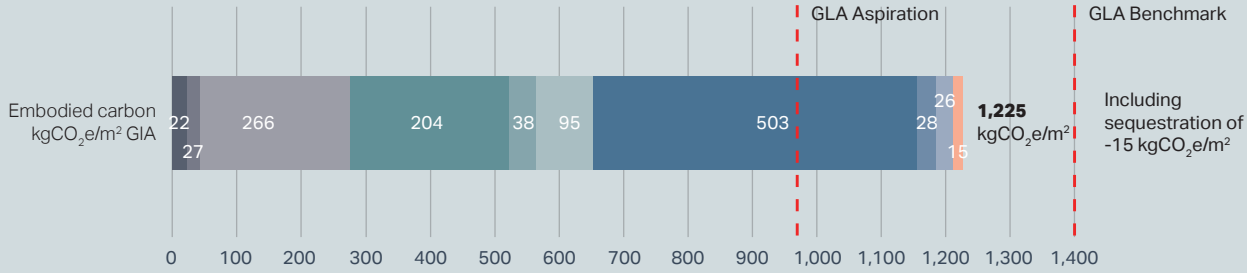
Upfront [A1-A5] excl. sequestration



In Use [B-C excl. B6&B7] excl. sequestration



Total [A-C excl. B6&B7] incl. sequestration



NOTES ON GLA REPORTING

All figures include emissions due to demolition in the totals, which is not included in the upfront totals [A1-A5] in the GLA reporting spreadsheet. When reported separately, upfront [A1-A5], in-use [B1-B5], and end of life [C1-C4] carbon emissions are reported excluding sequestered carbon emissions. However, when reported together as whole life-cycle embodied carbon emissions [A-C excluding B6&B7], they are reported including sequestered carbon emissions, as per the GLA reporting spreadsheet.

KEY

- *Deconstruction*
- *Substructure*
- *Structure*
- *Facade*
- *Internal Walls & Doors*
- *Finishes & Fittings*
- *Building Services*
- *External Works*
- *Site Activities*
- *Temporary Works*

Figure 2.20 WLCA performance comparison with GLA benchmarks

Opportunities for further reduction
Several opportunities for further reducing embodied carbon have been identified for further exploration as the proposed design is developed. These opportunities are summarised in the waterfall chart in Figure 2.21, and the embodied carbon reductions are relative to the baseline performance in Figure 2.18.

The primary levers to reducing embodied carbon are the following:

- Optimisation of structural, facade, and MEP designs to reduce material intensity
- Improved concrete specification and higher quantities of cement replacements
- High recycled content aluminium and glass in facades
- Reduction of emissions associated with transport (e.g. electric vehicles, consolidation centres, local sourcing)
- Reduction of emissions associated with site operations (e.g. electric site plant, HVO fuel for site plant, REGO-backed renewable energy).

The following briefly describes the individual reduction opportunities. The embodied carbon saving estimates are shown for modules [A1-A5], and each of these opportunities needs to be considered for its cost, programme, risk, performance, and architectural implications:

- **High cement replacement in substructure elements**
  Piles with 70% GGBS and other elements with 50% GGBS
- **High cement replacement in superstructure elements**
  Use of 50% GGBS
- **Optimised column grids**
  Investigation of smaller structural grids in lieu of 10x12m as per the baseline design
- **Cantilever reduction**
  Investigation of reducing the span of the cantilever
- **Residual moment connection**
  Incorporating residual moment connections would result in a reduction in steel tonnage
- **Floor to ceiling heights**
  Putting services below the beams results in reduced penetrations through structural beams, and possibly reduced steel tonnage
- **Column design**
  Use of concrete filled tube (CFT) columns in lieu of S460 steel as per the baseline design
- **Steel design optimisation**
  Optimise structural design to reduce steel tonnage in primary frame
- **Reused steel**
  Use of reused steel elements
- **Metal deck specification**
  Use of 100% XCARB and Magnelis coating for the metal deck in the office areas
- **Metal decking optimisation**
  Optimisation of the concrete and rebar quantities in the composite metal deck
- **High recycled content aluminium in facades**
  Use of aluminium extrusion billets with high recycled content for fabricated facade mullions and transoms
- **Raised access floor specification**
  Specification of low carbon raised access flooring products
- **Electrified construction site**
  Maximised use of electric plant on-site (excepting concrete pumps), with an option to use a renewable electricity tariff to further reduce carbon emissions.

For more details on the assessment assumptions and reduction opportunities, refer to the WLCA Method Statement in Appendix C. The detailed WLCA is included as part of this planning application, and appended in Appendix D.

Indicative Upfront Carbon Reduction Opportunities

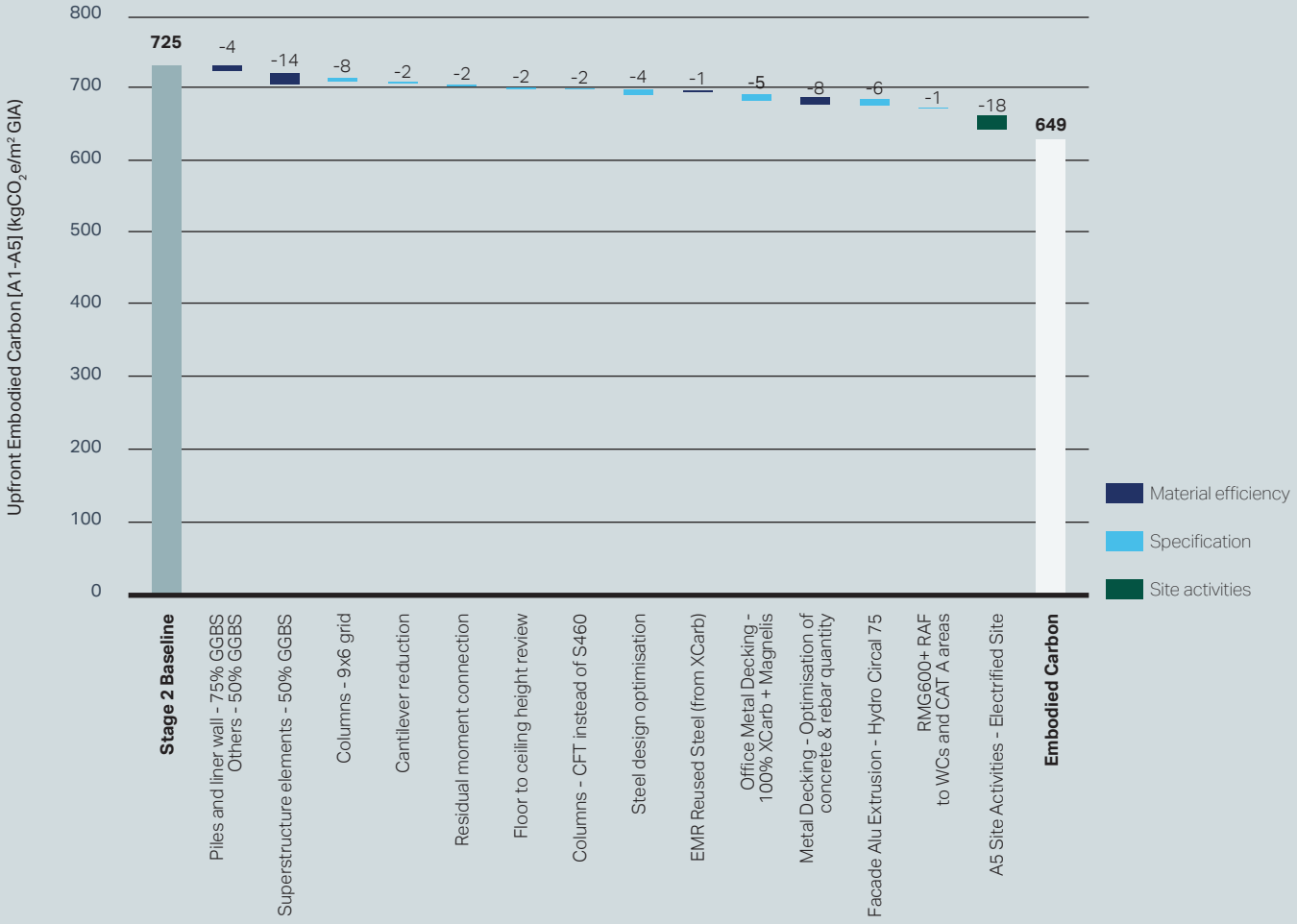


Figure 2.21 Waterfall chart showing impact of indicative carbon reduction opportunities on upfront embodied carbon [A1-A5]

2.5 Energy

2.5.1 General

The proposed development has an ambitious energy demand and carbon emissions reduction strategy. This Section summarises the energy strategy which is described in full in the Energy Statement prepared by Arup as part of this planning application (refer to the *Energy Statement prepared by Arup dated December 2024*).

2.5.2 Targets

The planning policy targets are represented as reductions relative to Part L:

- 15% reduction below Part L 2021 due to energy efficiency measures alone ("Be Lean")
- Overall 35% reduction below Part L 2021.

2.5.3 The Energy Hierarchy

To minimise energy demand and carbon emissions, the proposed development follows the energy hierarchy included in GLA's technical guidance on preparing energy assessments. This prioritises passive energy efficiency and demand reduction measures in combination with energy efficient active design systems served by clean and/or low carbon technologies.

In order of priority, the steps are:

1. **Be Lean** - reduce energy demand through passive and active design measures.
2. **Be Clean** - exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly by connecting to district heating networks.
3. **Be Green** - maximise energy generation from on-site low or zero carbon technologies.
4. **Be Seen** - monitor, verify and report on energy performance.

2.5.4 Energy Strategy and Performance

To meet the policy requirements of London Plan Policy SI 2 and Camden Local Plan Policy CC1, the proposed development adopts the following measures at each stage of the energy hierarchy.

The passive and active strategies employed to reduce energy demand are summarised in Figure 2.22.

Be Lean

The proposed energy strategy is all-electric and no on-site combustion will be allowed in order to protect local air quality and to align with net zero carbon building requirements. The proposed development may include a life-safety generator, however backup plant installed for emergency and life-safety power supply is excluded from the consideration of air quality neutral.

The proposed energy strategy will result in a 8% reduction in energy demand at the "Be Lean" stage through implementing the following measures:

- Optimised glazing percentages to maximise daylight penetration but minimising overheating.
- g-value limits specified for glazing elements aims to limit excessive solar gain on to the floor plate (max. 35W/m^2).
- Facade elements that project horizontally and vertically adjacent to glazing are optimised to provide solar shading during peak scenarios but also allows for beneficial solar gain during winter months.
- An underfloor ventilation system avoids the need for active cooling for large periods of the year through free cooling provided by largely untempered fresh air supplied by the on-floor AHUs, with cooling done by the high efficiency heat exchanger. The underfloor system also avoids the need for additional high-level mechanical services, significantly reducing embodied carbon.
- A high-performance curtain wall facade has been specified to reduce space heating demand in winter and minimise the risk of summertime overheating.

Energy Strategies - Active & Passive Design

Active Design

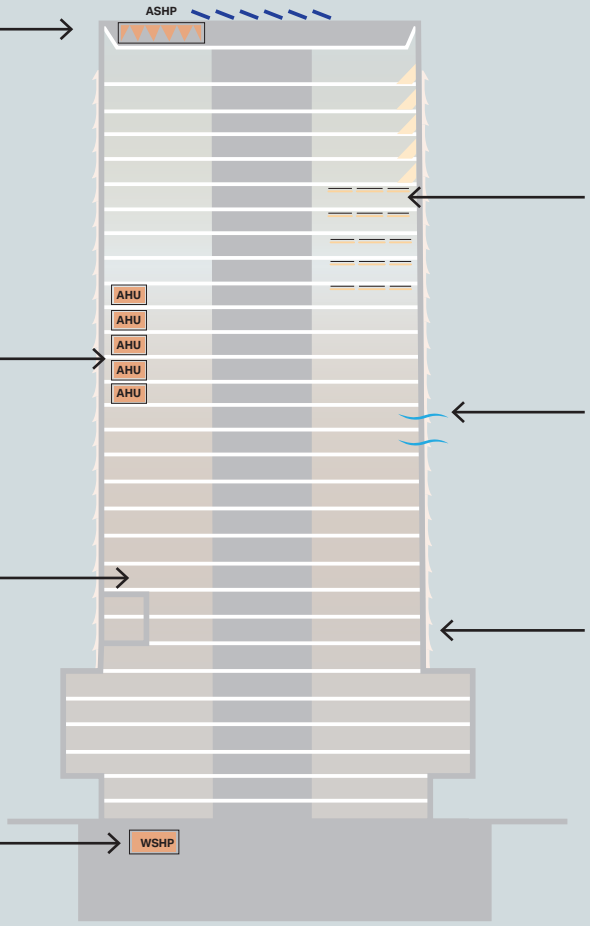
All-electric systems
Simultaneous Air Source Heat Pumps are used to produce chilled water for cooling, with waste heat used for heating where required and for domestic hot water pre-heat.

Minimising energy, maximising flexibility
On-floor AHUs minimising embodied carbon and operational energy through the ability to turn down and shut-off unoccupied floors.

Limiting internal gains
All-air space conditioning used with internal gains limited as far as possible, including reducing small power. Maximising free cooling.

Waste heat to hot water
Water-source Heat Pump, drawing heat from ASHPs, providing domestic hot water generation for showers.

All-electric building
An essential component in realising a net zero carbon building. The UK grid will continue to decarbonise over time. An all- electric building is therefore imperative.



Passive Design

Maximise daylight
Glazing areas which maximise daylight and desirable views from office floors while limiting solar gains.

Low-energy lighting
Energy-efficient lighting proposed throughout.

Natural ventilation
A potential strategy for mixed-mode ventilation which would provide high levels of occupant satisfaction while taking advantage of free cooling when external temperatures allow.

Passive solar protection
Limiting solar gains into floorplate through solar shading and g-value glazing, targeting perimeter SHG of 35 W/m^2.

Fabric losses
Limiting conduction losses through optimised U-value building elements.

Figure 2.22 Passive and active design strategies employed in the proposed development to reduce energy demand

Be Clean
No reduction is estimated at the "Be Clean" stage as proposed development is not intending to connect into any district heating or cooling networks as there are no existing local networks, though the proposed development will be enabled for future connection to said networks.

Be Green
A further 8% reduction in energy demand is estimated at the "Be Green" stage by incorporating:

- Heating and cooling will be provided to the development by central heating and cooling plant consisting of air source heat pumps (ASHPs) and air-cooled to maximise the ability to share heat between spaces within the building.
- Simultaneous heating and cooling heat pumps can utilise free cooling to maximise efficiency through mid-seasons.
- The installation of photovoltaic (PV) panels is included within the scheme to contribute to the reduction of the on-site carbon emissions. Approximately 100 m^2 (active area) is planned to be included at roof level.

Be Seen
The energy demand for the proposed development has been estimated using the CIBSE TM54 analysis process to accompany the Building Regulations Part L methodology. The CIBSE TM54 methodology provides an assessment of both regulated and unregulated energy consumption.

Current whole building energy demand based on a baseline CIBSE TM54 assessment (including office and lab use) is anticipated to achieve 158 kWh/m^2 (comprising landlord 84 kWh/m^2 + tenant 75 kWh/m^2).

As a means of understanding the impact of the lab areas, estimates were prepared an office-only development. The whole building energy demand based on a baseline assessment (office-only) is anticipated to achieve 106 kWh/m^2 (comprising base build 68 kWh/m^2 + tenant 39 kWh/m^2).

The "Be Seen" analysis uses CIBSE TM54 Treated Floor Area (TFA) of 71,809 m^2.

The full CIBSE TM54 report and the assumptions are contained within the *Energy Statement prepared by Arup dated* December 2024.

Overall
The overall reduction in regulated carbon dioxide emissions is estimated to be 16% below the GLA baseline following Part L 2021 of the Building Regulations.

The results at each stage of the energy hierarchy are shown in Figure 2.23 following Part L 2021 and the GLA's June 2022 Energy Assessment Guidance.

2.5.5 Carbon Emissions Offset

As required by the London Plan, any shortfall against the net zero carbon requirements of the London Plan, must be offset through a cash-in-lieu contribution, or off-site emissions reduction provided that an alternative proposal is identified and delivery is certain.

The results shown in Figure 2.24 are used to calculate the carbon shortfall, which is in turn multiplied by the lifetime of the development's services (assumed 30 years as per GLA guidance) to give the cumulative carbon shortfall.

This cumulative carbon shortfall is multiplied by the carbon dioxide offset price (£95/tonne) to determine the required cash-in-lieu contribution.

The net zero carbon cash in lieu contribution is estimated to be £716,023. This calculation is shown in Figure 2.24.

Non-domestic Part L 2021 Carbon Emissions

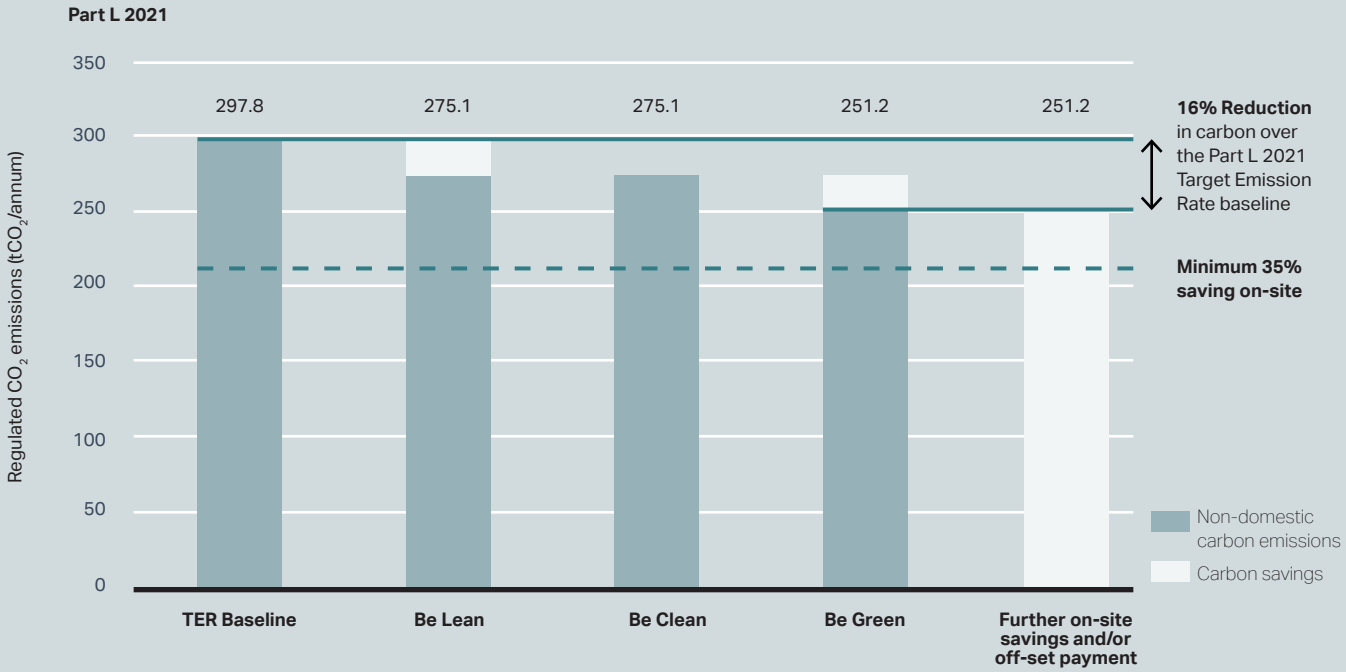


Figure 2.23 Regulated CO_2 emissions savings from each stage of the Energy Hierarchy: non-domestic (Part L 2021)

Regulated CO_2 Savings and Cash-in-lieu Payment for the Proposed Development

	Total Regulated Emissions (Tonnes CO_2/year)	**CO_2 Savings** (Tonnes CO_2/year)	**Percentage Savings** (%)
Baseline: Part L 2021	297.8		
Be Lean: Savings from Energy Demand Reduction	275.1	22.7	8%
Be Clean: Savings from Heat Network	275.1	0.0	0%
Be Green: Savings from Renewable Energy	251.2	23.9	8%
Cumulative On-site Savings		46.5	16%
Annual Savings from Off-set Payment		251.2	-
Cumulative Savings for Off-set Payment (tCO_2)		7,537	
Cash in-lieu Contribution (£)		£716,023	

Figure 2.24 Total regulated carbon emissions results for the proposed development

2.5.6 Energy performance benchmarking

The GLA acknowledges that the 35% Part L reduction target will be challenging to meet for non-residential developments in its "Note to accompany GLA Energy Assessment Guidance 2022".

Accordingly, the graphs in Figure 2.25 contextualise the energy performance of the proposed development with the Part L energy performance of other recent commercial, tall building applications in London. It is clear from Figure 2.25, that the Part L energy performance for the proposed development is comparable with the performance of other tall commercial buildings in London.

The energy performance figures in Figure 2.25 are taken from the documents submitted as part of the respective planning applications.

Non-domestic Part L Reduction Benchmarking for Tall Buildings

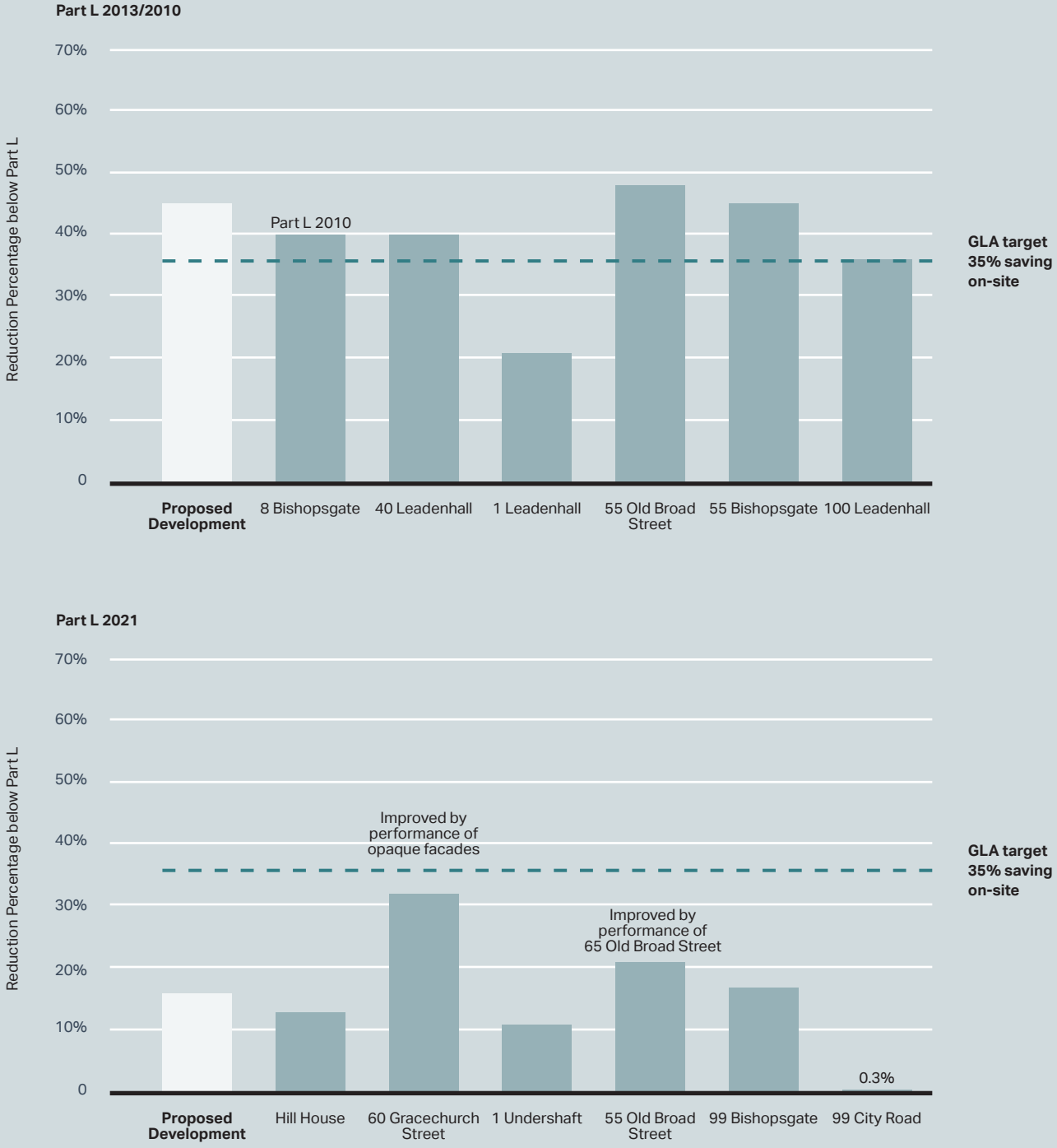


Figure 2.25 Benchmarking tall building Part L performance in London

2.5.7 Facade passive design

As described in Section 2.5.4, the performance of the building fabric has been designed to balance reducing heat loss, minimising unwanted solar heat gains, and providing access to daylight.

A number of solar studies have informed the design of the proposed facade, aiming to achieve a peak solar gain limit of 35W/m^2, noting that this is a parameter for the overall energy demand so can be periodically exceeded. The solar studies considered the extent of glazing, shading, and glazing performance.

The resulting facade design is approximately 50% glazed, with a horizontal projection providing shading. Glazing performance is optimised to mediate solar performance and daylight transmission.

Uncontrolled heat transfer through the fabric is mitigated using high levels of thermal insulation and airtightness. The fabric will go well beyond the limiting U-values contained in Part L of the Building Regulations. These targets will be upheld for the entire development, with local variations adopted as necessary to eliminate undue design complexity.

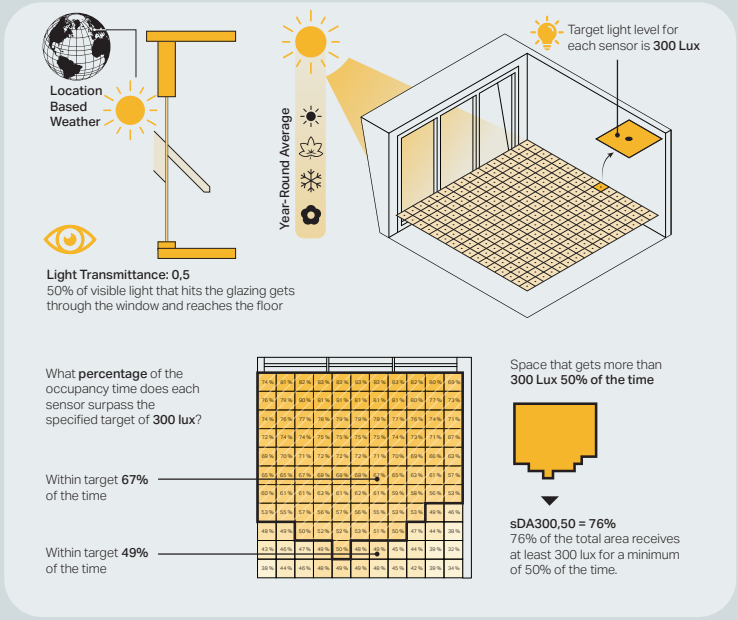
The curtain wall system was chosen as it is lightweight, and balances performance and buildability. However, due to the aluminium framing on every module, the fabric U-value is limited by the choice of curtain wall system. Other facade types were investigated during the design of the proposed development, including precast concrete systems and ultra high performance concrete (UHPC) systems. While both alternatives may have delivered relatively improved thermal performance, they were discounted due to buildability as both system types require face-sealing of external joints from the outside. This would require external access resulting in additional health and safety risks that could be mitigated by selecting a different facade system. The precast concrete system also introduces significant additional loads, due to its self-weight, with impacts on the retained foundations. Other system types (masonry, SFS, etc.) are generally not suitable for a tower construction or for the quality required at the proposed development.

The proposed facade design has a potential for incorporating operable panels for natural ventilation, forming part of the proposed development's mixed-mode strategy. This would allow occupants to better control their local environments, contribute to a sense of comfort, and take advantage of free cooling when external temperatures allow. The energy results assume a conservative approach, where the proposed development is mechanically ventilated at all relevant times (no mixed-mode ventilation), while the associated embodied carbon is included in the WLCA results. The incorporation of mixed-mode ventilation needs to consider whole life-cycle carbon, efficacy, complexity, etc., which will continue to be appraised.

The position of the glazing is proposed to maximise useful daylight and views out, effectively making the most of the vision glazing area by having more glazing in the daylight zone. A low-level insulated spandrel is therefore proposed to approximately 0.4m above finished floor level.

Indicative Parameters used in the Facade Passive Design Analysis

Daylight



Solar heat gain

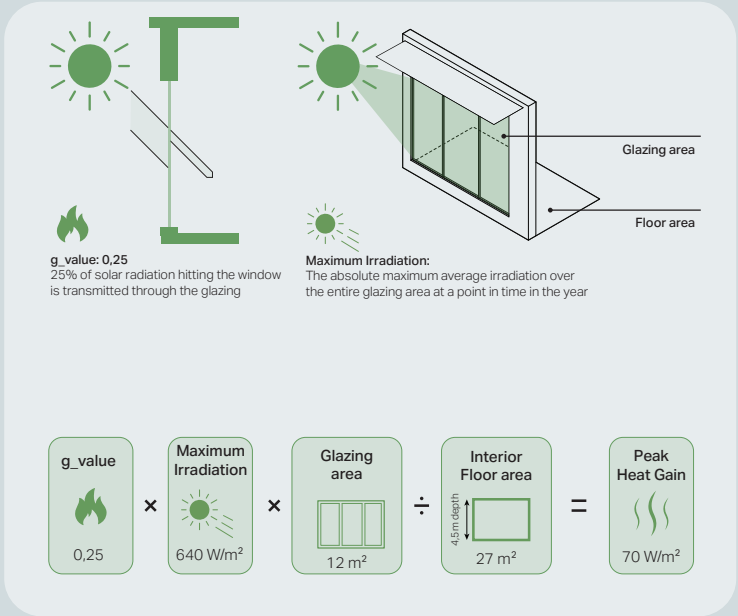


Figure 2.26 Indicative parameters used in the facade passive design analysis

2.5.8 Rooftop PV

As described in Section 2.5.4, rooftop photovoltaic (PV) panels are included in the proposed development for on-site renewable electricity generation. The rooftop PV array comprises approximately 100 m^2 (active area) at roof level, including spacing for access and maintenance.

The PV system is anticipated to generate 17.5 MWh/year (based on Part L calculations), representing approximately 1% of the development's regulated energy demand.

As the proposed development's electricity demand is expected to be significantly larger than the PV generated electricity, all electricity will consumed on-site, with no grid export required.

The area for PV on the roof has been maximised considering the other demands and requirements for rooftop space, with the area indicated in Figure 2.27. The roof also accommodates the building maintenance unit (BMU) and tracks, and the heat rejection plant. It is not feasible to install PV above heat rejection plant without impacting the performance of the plant and the PV efficiencies.

Transparent PV glazing technology is not yet suitable to be used as vision glazing in a building of this type. Other types of facade-integrated PV (e.g. rainscreen construction PV), notwithstanding the implications for townscape, are not available with Euroclass A2 (BS EN 13501-1) or better certifications, and are therefore avoided in the facades of highrise buildings. Regardless of current technology, facade-integrated PV is unlikely to be net-positive carbon over the lifetime of the proposed development.

Rooftop PV Constraints

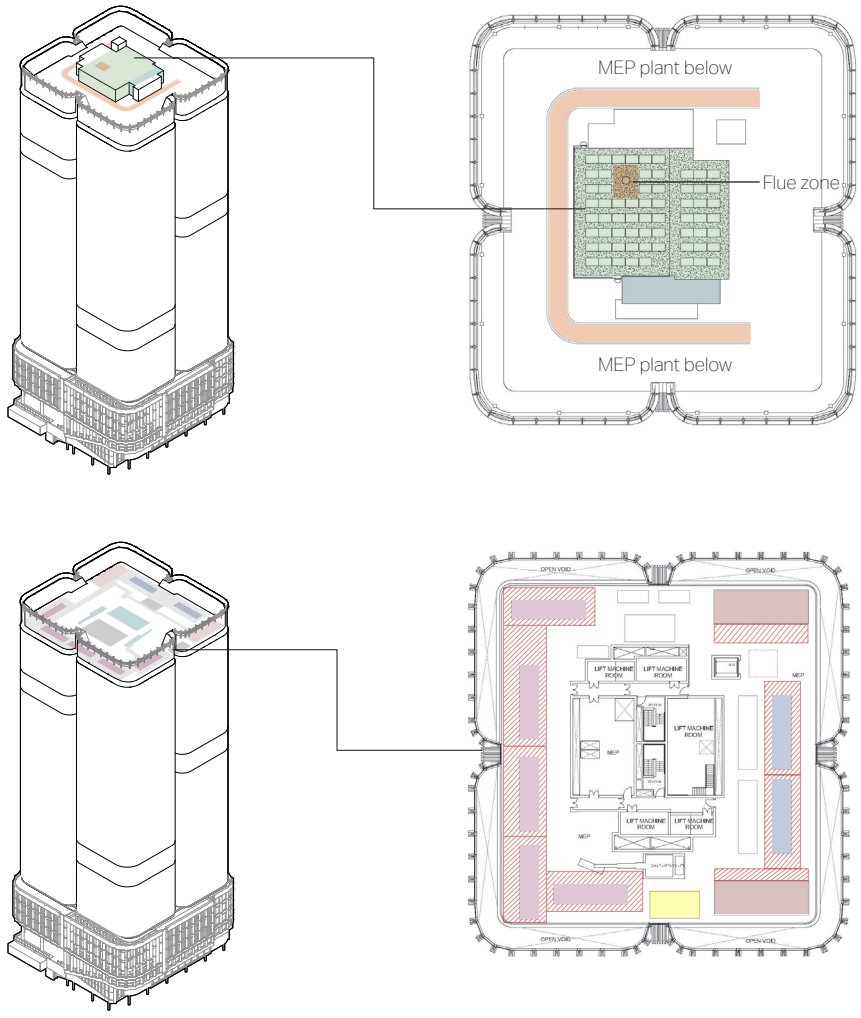


Figure 2.27 Diagram showing how rooftop PV area has been maximised

2.6 Water Use and Sustainable Drainage

2.6.1 Potable water use reduction

The proposed development will minimise the consumption of potable water in sanitary applications and landscape irrigation. The strategies are summarised in Figure 2.28.

Water-efficient fixtures and fittings, such as dual flush WCs and low flow wash hand basins and kitchen taps, will be installed in the proposed WCs, shower rooms, etc. The flow rates proposed at this stage are commensurate with the requirements to achieve BREEAM "Outstanding".

Greywater and rainwater harvesting systems are proposed as a further means of reclaiming non-potable water and reducing potable water demand. Greywater will be collected from showers in the basement, and used for WC flushing on the lower 13 storeys. Rainwater will be harvested from the roof and other external areas, and stored in the basement tanks for WC flushing. As a further potable water use reduction strategy, rainwater will be harvested and passively stored in oversized pipework for WC flushing for the upper 5 storeys, as part of a FlowStow system. In all scenarios, if there is no supply of harvested greywater or rainwater, the system will switch to mains cold water supply.

Water use for irrigation will also be minimised. An efficient irrigation system will be adopted to deliver water only where and when it is needed.

A water meter with pulsed or other open protocol communication output to enable connection to an appropriate utility monitoring and management system, e.g. a building management system (BMS), will be proposed on the mains water supplies to the proposed development. This strategy ensures water consumption can be monitored and managed, therefore encouraging reductions.

A leak detection system capable of detecting leaks on the mains water supply within and to the building is proposed to reduce the impact of major water leaks that may otherwise go undetected.

Flow control devices will be fitted to minimise water leaks and wastage from sanitary fittings.

2.6.2 Sustainable stormwater drainage

The Environment Agency's Indicative Floodplain Map shows that the site lies in Zone 1, and therefore is at negligible risk of fluvial or tidal flooding. However, under the requirements of the NPPF a detailed Flood Risk Assessment is still required as the site is within a Critical Drainage Area (CDA) as highlighted within the London Borough of Camden (LBC) Strategic Flood Risk Assessment (SFRA).

Accordingly, a Flood Risk Assessment has been conducted by Arup, showing a low risk of flooding for all flood sources assessed. Refer to the *Flood Risk Assessment prepared by Arup dated December 2023, updated December 2024*.

A Sustainable Drainage System (SuDS) strategy has been prepared by Arup in accordance with the drainage hierarchy from London Plan Policy SI 13 and Camden Local Plan Policy CC3.

The proposed discharge rate will be limited to 39.0l/s for all storm events up to and including the 1-in-100 year event, including a 40% allowance for climate change. The SuDS comprises the following strategies to reduce the discharge rate from the existing 123.0l/s (based on the 1-in-100 year event):

- Rain water harvesting
- Bio-retention features in the public realm
- Subsurface stormwater storage (380 m^3 attenuation located in the basement).

The proposed peak runoff rate has been reduced to 2.0l/s, which represents a 92% reduction on the 1-in-1 year return period storm event compared to the existing condition.

An allowance of 40% has been made for climate change in all calculations in line with the Environment Agency's guidance.

The Flood Risk Assessment and Drainage Report are included as part of the full planning application. Refer to the *Flood Risk Assessment prepared by Arup dated December 2023, updated December 2024*, and the *Drainage and SuDS Strategy prepared by Arup dated December 2023, updated December 2024* respectively.

Water Use Reduction Strategies

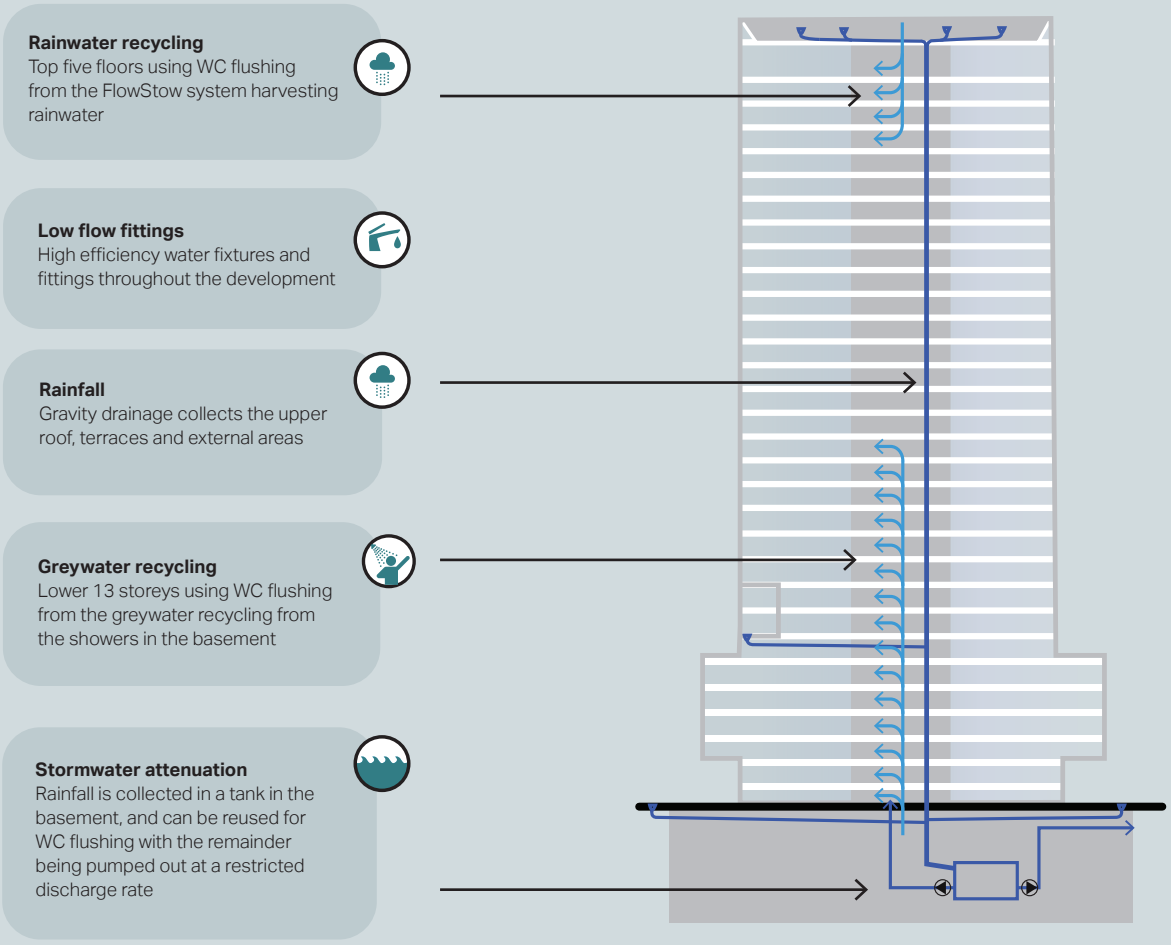


Figure 2.28 Water use demand reduction strategies employed in the proposed development

2.7 Ecology and Land Use

2.7.1 General

The proposed development's footprint is on an area of land which has previously been developed, and includes the existing tower and public realm.

There are opportunities to improve the ecology, biodiversity, and local greening of the development site, and the proposed development aims to enhance this.

2.7.2 Targets

The proposed development is targeting at least the following:

- Urban Greening Factor (UGF) 0.3
- Biodiversity Net Gain (BNG) 10%
- Greenfield runoff rates.

2.7.3 Local greening

The proposed development improves on the local greening with several interventions in the public realm and at various locations on the tower. The following are proposed, refer to *Public Realm and Landscape Design Statement prepared by DSDHA dated December 2023, updated December 2024*, as well as the *Urban Greening Factor Assessment prepared by Greengage dated December 2024*:

- Semi natural wetland to the north-west of the public realm in front of 10 Brock Street
- A series of planters with semi-natural vegetation throughout the public realm, including the open stairs, up the ramp, and terrace at Levels 01 and 02
- Intensive green roofs on terrace at Level 03, Level 11, Level 20, Level 23, Level 26, and the podium roof at Level 06
- Standard trees in connected pits throughout the public realm
- Intensive green roof on the rooftop.

Together these green interventions will increase the quality and quantity of urban greening, resulting in a UGF of 0.332. This is shown in Figure 2.29.

2.7.4 Mitigating urban heat islands

In urban areas, intensifying climate change will result in increased rainfall intensity and risk of flash flooding in a largely impermeable environment, while increasing temperatures will exaggerate the urban heat island effect.

Not only will these proposals improve UGF and biodiversity, but they are also adept at enhancing the climate resilience of the built environment, mitigating risks such as flooding and overheating, while providing a wider range of co-benefits.

2.7.5 Sustainable drainage

These green interventions form part of the Sustainable Urban Drainage Systems (SuDS) employed to reduce and mitigate the impacts of flood events. The proposed development is targeting 2.0l/s runoff rate (1-in-1 year event) through such measures, in combination with stormwater attenuation in the basement. Refer to Section 2.6.2.

2.7.6 Biodiversity net gain

A Preliminary Ecological Appraisal and a Biodiversity Net Gain Assessment have been conducted by Greengage, refer to *Biodiversity Net Gain Assessment prepared by Greengage dated December 2024*.

The assessment shows that the proposed development is predicted to provide a net gain of 0.86 HU (35.39%) associated with area-based habitats compared with the pre-development value. This will be achieved through the following measures:

- A pond (non-priority habitat) will be created and planted with wetland plants
- Urban trees will be planted throughout the site
- A biodiverse roof will be created on the rooftop. It will be planted with a variety of native species and species listed on the RHS Plants for Pollinators list
- Intensive green roof will be created in perimeter planters on the tower. They will be planted with a large variety of native and non-native heathland/upland species.

Proposed Landscape Design

Urban Greening Factor

Surface Cover Type	Factor	Area (m²)	Contribution
Semi natural vegetation	1.0	1,001	1,001
Wetland or open water	1.0	388	388
Intensive green roof	0.8	986	788.8
Standard trees in connective tree pits	0.8	576	460.8
Urban greening factor			0.332

Figure 2.29 Landscape design for the proposed development and UGF calculation. Drawings and calculations from Public Realm and Landscape Design Statement prepared by DSDHA dated December 2023, updated December 2024

2.8 Health and Wellbeing

2.8.1 Daylight, views, and access to nature

The proposed development has the health and wellbeing of building users at its core.

The building envelope has been designed using a "fabric-first" approach, to ensure good access to daylight and maximise the unique 360° views out. This is balanced with controlling solar heat gains and its associated energy demand, through optimised glazing ratios, external shading, and highly-selective solar control glazing.

Direct and indirect access to nature and greening is provided throughout the proposed development. The public realm provides access to the outdoors, and is complemented by planting to significantly improve local greening and biodiversity.

Within the tower, greening is provided at the terrace edges and in front of any double-height amenity cuts, providing more localised contact with nature for occupiers on those floors.

2.8.2 The indoor environment

The indoor environment will be of the highest quality. The mechanical ventilation systems are designed to provide 100% filtered fresh air at rates well above statutory requirements. This results in improved indoor air quality and the provides an opportunity for low-energy cooling.

Additionally, the facade design will potentially incorporate openable panels for natural ventilation at appropriate times, providing occupants with improved control over the indoor environment, and a direct connection with outdoors.

To ensure a thermally comfortable environment, an overheating assessment has been conducted by Arup. The assessment has been undertaken according to CIBSE TM52, and in line with GLA and BREEAM requirements. The results of the assessment showed that all areas analysed exhibited less than 3% of the proposed development's occupied hours are above an operative temperature of 26°C, and therefore the proposed development is not considered to be at risk of overheating.

To test the strategy's readiness for future climate change, the assessment was also conducted using future weather data (DSY2 and DSY3). Again, the proposed development was not considered to be at risk of overheating.

The results of the overheating assessment are detailed in the Energy Statement that forms part of this planning application, refer to the *Energy Statement prepared by Arup dated December 2024*.

Material specifications will explicitly avoid products that contain Volatile Organic Compounds (VOCs) wherever possible, to minimise the effect on internal air quality. Typical VOC sources include paints, lacquers, some pressed timber products (including some hardboard, particle boards, hardwood plywood wall panelling), glues and adhesives, furniture made from pressed wood products and foamed insulation.

The proposed development will be designed to achieve exemplary indoor ambient noise levels and appropriate sound insulation levels.

2.8.3 Certification

The proposed development is registered for WELL v2 Core Certification. It is targeting features to enable WELL "Gold" certification with aspiration for "Platinum".

For more detail on the WELL pre-assessment, refer to Section 2.2.

2.9 Sustainable Transport

The proposed development is in close proximity to an excellent public transport network. London Underground, Overground, National Rail, and buses are all available within 2 km walking distance of the site, which will help to reduce transport-related emissions and traffic congestion.

The Site has a PTAL rating of 6b, indicating "excellent" transport connectivity. The Site is mainly served by Warren Street Underground Station (south), Euston Square Underground Station (east) and Great Portland Street Underground Station (west). There are also several bus routes that serve the site along Euston Road (south) and Hampstead Road (east).

A site-specific Transport Assessment has been prepared by Velocity Transport Planning in accordance with TfL's Healthy Streets Approach, and forms part of this planning application. Refer to *Transport Assessment prepared by Velocity Transport Planning dated December 2023, updated December 2024*. In addition, an Outline Travel Plan has been prepared which looks to introduce and promote sustainable travel measures throughout the development's life. Refer to *Outline Travel Plan prepared by Velocity Transport Planning dated December 2023, updated December 2024*.

The Healthy Streets Travel Assessment has been developed to accommodate a range of travel options for building users, encouraging reduced reliance on the forms of travel that have an injurious environmental impact. The provision of cycle parking, and the restricted car parking at the site will further discourage the use of private vehicles travelling to / from the site, and will promote travel by non-car modes, especially walking and cycling.

The proposed development will be car-free except two blue-badge parking spaces.

A variety of cycle parking will be provided to encourage active and sustainable travel. 890 long-stay cycle parking spaces will be provided in the secure basement. This will be complete with end of trip facilities including changing rooms, lockers, showers, WCs, maintenance facilities, and water dispensers.

100 short-stay spaces will be located in the public realm, making the total cycle parking provision for the proposed development 990 spaces, in line with London Plan cycle parking standards.

2.10 Local Impacts

2.10.1 Local air pollution

The energy strategy for the proposed development comprises all-electric heating and cooling, eliminating on-site combustion of fossil fuel, and therefore has no adverse impact on local air pollution. The proposed development may include a life-safety generator, however backup plant installed for emergency and life-safety power supply is excluded from the consideration for building emissions. The proposed development is considered better than air quality neutral in terms of building emissions.

The proposed development will be car-free except for two blue-badge parking spaces. As per the GLA's Air Quality Neutral Guidance, the proposed development is considered air quality neutral with regards to transport emissions.

Considering both building and transport emissions, accordingly the proposed development is considered air quality neutral. More detail is contained within the *Environmental Statement prepared by Trium dated December 2023, updated December 2024*.

The proposed air source heat pumps (ASHPs) and chillers will use refrigerants with low global warming potential (GWP), where commercially available and technically feasible based on other performance requirements.

Insulating materials are recommended to use substances that have global warming potential (GWP) of less than 5. This will contribute to reducing blowing agent emissions associated with the manufacture, installation, use and disposal of foamed thermal and acoustic insulating materials.

2.10.2 Local light pollution

Night-time light pollution will be minimised by carefully selecting equipment with appropriate optics and baffles and positioned to ensure that light pollution is kept to a minimum as not to disturb residents in the neighbouring properties.

All external lighting, including that in the public realm, will be specified to BREEAM Ene 03 requirements. It will endeavour to meet best practice efficacy with automatic lighting control to prevent operation during daylight hours. For areas of intermittent pedestrian traffic, presence detection will be considered where appropriate.

Night-time light pollution will be minimised through the appropriate location and selection of external luminaires and light controls.

2.10.3 Local noise pollution

Noise from the proposed development affecting nearby noise-sensitive buildings will be reduced by adopting noise attenuation measures, where required.

A Noise Impact Assessment was conducted by Hann Tucker Associates. The assessment establishes baseline noise conditions by means of a detailed noise survey. These findings are used to assess the suitability of the site for commercial use, and to set noise emission limits from the development to minimise the possibility of noise nuisance to neighbours. The Noise Impact Assessment is included as part of the planning application. Refer to *Noise Impact Assessment Report prepared by Hann Tucker Associates dated December 2023, updated December 2024*.

2.10.4 Construction impacts

A Construction Management Plan has been developed by Velocity Transport Planning to help manage noise, dust, and pollution impacts during construction.

The CMP is included as part of the planning application. Refer to *Construction Management Plan prepared by Velocity Transport Planning dated December 2024.*

2.11 Management

Sustainable management practices relating to design, construction, commissioning, and handover will be sought in order to ensure robust sustainability objectives are set and then followed from design through to operation.

The proposed development has engaged in a thorough co-design and consultation process, integrating the community and other relevant stakeholders in the design process. This included sessions on inclusivity in the public realm, interior spaces and programming, and exterior spaces and programming, as well as events focused on environmental sustainability, and a youth engagement workstream. The process is documented in the Statement of Community Involvement (SCI) that forms part of the planning application Refer to *Statement of Community Involvement and Social Impact prepared by LCA dated December 2023, updated December 2024.*

Building services commissioning will be carried out in a coordinated and comprehensive manner with regard to the scope of services being specified/installed, ensuring optimised performance under actual occupancy and usage conditions. The proposed development is targeting a NABERS rating which will require at least a year's worth of building monitoring and tuning, to deliver the targeted rating.

A Building Users' Guide (BUG) will be provided to the relevant Facilities Management (FM) teams to enable them to understand and operate their premises efficiently and make the best use of local facilities. This non-technical users' guide will cover information on the operation and environmental performance of the building, and provide information relating to the site and its surroundings.

The construction site will be managed in an environmentally sound manner in terms of resource use (including construction materials and waste), energy and water consumption, and air and water pollution. The site will be managed adhering to the Considerate Constructors Scheme, and the project will endeavour to achieve a high score of 40/45 or higher.

Management of noise, dust, and pollution impacts during construction is addressed in the Construction Management Plan. Refer to *Construction Management Plan prepared by Velocity Transport Planning dated December 2024.*

3

Euston Tower

Summary and Conclusions

3.1 Conclusion

This Sustainability Statement demonstrates British Land's commitment to delivering a world leading science, technology and innovation building and public realm for Camden and the Knowledge Quarter that inspires, connects, and creates opportunities for local people and businesses.

Sustainability is a cornerstone of this vision. As outlined in this statement, the proposed development adopts a sustainable approach across all areas of design, construction, and operation. This will ensure that it delivers world leading sustainability performance that is fit for today and the future.

Wherever technically, practically, and economically feasible, the proposed development meets and exceeds the sustainability requirements of planning policy and the Building Regulations.

The proposed development includes a range of sustainable strategies and approaches, as detailed in this statement and its supporting documents, including:

- **High quality certification**
  - Targeting BREEAM "Outstanding" NC 2018 for offices with research and development areas, and BREEAM "Excellent" NC 2018 retail areas
  - Registered for WELL v2 Core Certification targeting WELL “Gold” certification, with aspiration for “Platinum”
  - Aspiring to NABERS 5* in operation.
- **Net zero carbon in construction and operation**
  - Embodied carbon design optimisation and carbon-considered procurement
  - Upfront embodied carbon currently estimated as 725 $kgCO_2e/m^2$ GIA [A1-A5] (including demolition), outperforming the GLA benchmark for offices
  - Whole life-cycle embodied carbon currently estimated as 1,225 $kgCO_2e/m^2$ GIA [A-C excl. B6&B7] (including sequestration), outperforming the GLA benchmark for offices
  - Residual embodied carbon emissions will be offset through payment into British Land's transition fund
  - Residual regulated operational carbon emissions offset through payment into the Camden Climate Fund.
- **Fabric first and low energy**
  - Limiting internal heat gains by challenging design criteria to reduce space cooling demand and maximise free cooling potential
  - Facade designed to significantly limit solar heat gain (LETI-compatible 35 W/m^2) with rationalised glazing ratios, external shading, and solar control glass
  - Potential integration of openable vents as a means of passive ventilation and cooling
  - Regulated operational carbon emissions are reduced by 8% due to energy efficiency measures alone compared to the GLA's Part L 2021 baseline ("Be Lean")
  - An all-electric heating and cooling energy strategy is proposed to benefit from future electrical grid decarbonisation, using air source heat pumps (ASHPs) and chillers for all heating and cooling
  - Through the use of ASHPs and rooftop photovoltaic (PV) panels, the regulated operational carbon emissions are reduced by 16% overall, compared to the GLA's Part L 2021 baseline ("Be Green")
  - Whole building energy demand estimated using a CIBSE TM54 approach as 158 kWh/m^2 for office and lab-enabled split ("Be Seen")
  - For comparison, the office-only performance is estimated as 106 kWh/m^2
  - Base build energy demand will be provided by 100% Renewable Energy Guarantee of Origin backed (REGO) electricity, in line with British Land's net zero pathway[1].

[1] In addition to, and distinct from, the Mayor of London's net zero operational carbon requirement

- **Circular economy pioneer and waste minimisation**
  - Carbon and waste has been minimised by retaining 31% of the existing structure, following a detailed feasibility study (pre-redevelopment audit), which has been independently reviewed by a third-party assessor, and their report has been issued to Camden
  - A pioneering strategy for material recovery and detailed assessment of opportunities for deconstruction waste reuse/upcycling/recycling submitted as Appendix B to the Circular Economy Statement
  - Prototyping innovative approaches for structural reuse of concrete, not done previously at scale, with testing already conducted at the University of Surrey demonstrating promising results
  - Investigating recycling of building glass at scale, with chemical analyses and methodology testing already undertaken
  - Designing a structure that is long-lasting and adaptable, with elements designed to be disassembled and recovered for reuse where possible
  - Considering the different building elements in layers to enable maintenance and replacement that minimises destructive impacts on other building elements (especially structure)
  - Designing a modular facade with the intention of utilising off-site manufacturing to reduce waste
  - Using reused and/or high recycled content materials where possible, targeting 24% recycled content by value
  - Improving end of life reusability by committing to capture useful data for key building elements in material passports
  - Meeting or exceeding the GLA diversion from landfill targets:
    - Zero biodegradable waste to landfill
    - 98% of demolition waste to be diverted from landfill
    - 96% of construction waste to be diverted from landfill
    - 95% of excavation waste to beneficial use
  - Contributing to achieving the GLA's target of 65% municipal waste recycling by 2030, and the London Environmental Strategy target of 75% business waste recycling by 2030.
- **Climate resilience, greening, and biodiversity**
  - Use of green roofs, in addition to vegetated areas and bio-retention features in the landscaping, as part of a Sustainable Drainage System (SuDS) that manages surface water runoff and filters rainwater
  - Surface water runoff rates of 39.0l/s, and a 68% reduction in surface water discharge compared to the pre-development condition (1-in-100 year)
  - Mitigation of urban heat island effect through green roofs and biodiverse planting, achieving:
    - Urban Greening Factor (UGF) 0.332
    - Biodiversity Net Gain (BNG) 35.39% (0.86HU)
  - Improved wind conditions compared to the existing situation, achieved through the building and landscaping design.
- **Water conservation**
  - Non-potable water use reduction through use of rainwater and greywater harvesting for WC flushing
  - Innovative StoFlow system designed to passively store rainwater for WC flushing
  - Targeting a minimum 40% potable water reduction compared to BREEAM NC 2018 baseline, exceeding the London Plan requirement of BREEAM "Excellent" standards for Wat 01 water category.

- **Air quality impacts**
  - Air quality neutral achieved through an all-electric infrastructure with no on-site combustion for heating and cooling, and car-free development except for accessible bays (space provision only for back-up tenant generator)
- **Active travel and car-free**
  - A car-free development except two blue-badge parking spaces
  - Provision of end of trip facilities complete with 990 cycle parking spaces (890 long-stay spaces located in a secure basement, 100 short-stay within the public realm), in line with London Plan minimum cycle parking standards
  - To further promote the cycle mode share, end of trip facilities includes changing rooms, lockers, showers, WCs, maintenance facilities, and water dispensers
- **Sustainable management**
  - A thorough co-design and consultation process, integrating the community and other relevant stakeholders in the design process
  - Commitment to managing the construction site in an environmentally sound manner, adhering to the Considerate Constructors Scheme, and considering its impacts during construction in a Construction Management Plan.

To ensure successful implementation, the key initiatives and commitments detailed in this statement, and its supporting documents, will be implemented, monitored, and/or reviewed as the design develops, and subsequently during the operational phase of the proposed development.

A

Euston Tower

Appendices

Appendices

List of Appendices


Euston
Tower
3xn.com

BREEAM NC (Non-Domestic)

Design Stage Assessment (DSA)

Euston Tower Office

65206043-SWE-XX-XX-T-O-001-P013

18/10/2024
P013

Issue	Date	Reason for Issue	Prepared		Checked		Approved	
1	05-Oct-22	Pre-assessment	RC	05-Oct-22	MP	05-Oct-22	KA	05-Oct-22
2	16-Dec-22	For information	RC	16-Dec-22	MP	16-Dec-22	KA	16-Dec-22
3	04-Feb-23	For information	RC	04-Feb-23	MP	04-Feb-23	KA	04-Feb-23
4	10-Apr-23	For information	RC	10-Apr-23	MP	10-Apr-23	KA	10-Apr-23
5	25-Jun-23	For information	RC	25-Jun-23	MP	25-Jun-23	KA	25-Jun-23
6	03-Aug-23	For information	RC	03-Aug-23	MP	03-Aug-23	KA	03-Aug-23
7	15-Sep-23	For information	RC	15-Sep-23	MP	15-Sep-23	KA	15-Sep-23
8	23-Nov-23	For information	RC	23-Nov-23	MP	23-Nov-23	KA	23-Nov-23
9	15-Dec-23	For information	RC	15-Dec-23	MP	15-Dec-23	KA	15-Dec-23
10	04-Jan-24	For information	RC	04-Jan-24	MP	04-Jan-24	KA	04-Jan-24
11	25-Mar-24	Stage 2 Close Out	RC	25-Mar-24	MP	25-Mar-24	KA	25-Mar-24
12	17-Oct-24	Stage 2 Extension	MJ	17-Oct-24	KC	1710/2024	KA	17-Oct-24
13	18-Oct-24	Stage 2 Extension	MJ	18-Oct-24	KC	18-Oct-24	KA	18-Oct-24

BREEAM NC (Non-Domestic) - Design Stage Assessment (DSA)
Euston Tower Office
18/10/2024
P013

Sweco
1 Bath Road
Maidenhead
Berkshire
SL6 4AQ

+44 (0)1628 623 423
building.services@sweco.co.uk
sweco.co.uk/buildingservices

What by When

Project Name:	**Euston Tower Office**
BREEAM Scheme:	**BREEAM NC 2018**
Stage:	**Design Stage Assessment (DSA)**
Target Score:	**87.90%**

Whilst it is important for the client and project team to consider sustainability and the BREEAM criteria at an early stage of design, several specialist appointments and the generation of subsequent reports are very important as they will affect the ability to award these credits in the future if these do not happen. Hence, we have listed here these credits and the necessary actions that the client needs to be aware of.

- Targeted
- Credit awarded
- N/A not targeted
- Potential

Issue	Name	RIBA 1	RIBA 2	RIBA 3	RIBA 4	RIBA 5	RIBA 6
MAN 01	Appointment of BREEAM AP						
TRA 01	Travel Plan						
TRA 02	Travel consultation with local authority						
MAT 06	Materials efficiency analysis						
LE 01	Appointment of contaminated land specialist						
LE 02 - 05	Appointment of suitably qualified ecologist						
LE 02	Survey and evaluation & determining the site wide outcomes						
MAN 01	Have a schedule of responsibilities						
MAN 01	Agreement of BREEAM target						
MAN 01	Start public consultation						
MAN 02	Life cycle costing analysis - elemental						
HEA 05	Appointment of suitably qualified acoustician						
HEA 06	Security Need Assessment						
ENE 04	Passive design analysis with energy specialist						
ENE 04	Appointment of energy specialist for LZC study						
MAT 01	Life cycle Assessment (LCA) submission before planning						
WST 01	Production of pre-demolition audit						
WST 05	Conduct a climate change adaptability report for fabric						
WST 06	Disassembly and functional adaptation study						
MAN 03	Appointment of site based BREEAM AP						
MAN 01	Provide consultation feedback						
MAN 02	Life cycle costing analysis - component level						
MAN 04	Appointment of commissioning manager						
DS	**BREEAM DESIGN STAGE CERTIFICATION**						
LE 05	Landscape Management Plan						
PCR	**BREEAM FINAL CERTIFICATION**						

Early Action

Project Name: **Euston Tower Office**
BREEAM Scheme: **BREEAM NC 2018**
Stage: **Design Stage Assessment (DSA)**
Target score: **87.90%**

Whilst it is important for the client and project team to consider sustainability and the BREEAM criteria at an early stage of design, several specialist appointments and the generation of subsequent reports are very important as they will affect the ability to award these credits in the future if these do not happen. Hence, we have listed here these credits and the necessary actions that the client needs to be aware of.

Ecological Consultant Appointment at RIBA Stage 1

Code	Credits	Title	Credit Criteria / Early Action Required
LE 02	2	Ecological risks and opportunities	New 2018 Criteria: Route 2 - SQE A suitably qualified Ecologist (SQE) needs to be appointed to survey/assess the site for its current ecological value prior to any demolition etc. The ecologist will need to provide recommendations on any existing ecology which will need protection during the demolition and construction phases.
LE 03	3	Managing impacts on ecology	
LE 04	4	Ecological change and enhancement	
LE 05	2	Long term ecological management and maintenance	

Client consideration at RIBA Stage 1 & 2

Code	Credits	Title	Credit Criteria / Early Action Required
Man 01	1	BREEAM AP	BREEAM AP is appointed prior to RIBA Stage 2 and BREEAM target formally agreed with design team.
Man 01	1	Project delivery planning	At RIBA Stage 2 or equivalent the client, building occupier, design team and contractor are involved in contributing to the decision making process for the project. Roles, responsibilities and contributions are defined during each RIBA Stage.
Man 01	1	Stakeholder consultation (interested parties)	During preparation of the brief, all relevant parties and relevant bodies are identified and consulted with by the design team. (Relevant bodies are - Actual intended building users, representative consultation group from the existing community, existing partnerships and networks that have knowledge and experience from existing buildings of the same type, potential users of any shared facilities e.g. operators of clubs and community groups). A consultation plan should have been prepared and includes a timescale and methods of consultation for all relevant parties/bodies and how the relevant parties will be kept informed about progress. Consultation feedback has been given with suggestions made, including how the results of the consultation process have influenced the proposed design. Through consultation and the resulting measures taken any areas of features of historic/heritage value are protected.
Ene 07	1	Energy Efficient Laboratory Systems (Design specification)	Engage with the client during the preparation of the initial project brief to determine occupant requirements and define laboratory performance criteria.
Wst 01	1	Pre-demolition audit	Pre-demolition audit must carried out at RIBA Stage 2 and be referenced in Resource Management Plan (RMP).

Transport Consultant Appointment at RIBA Stage 2

Code	Credits	Title	Credit Criteria / Early Action Required
Tra 01	2	Travel Assessment and Travel Plan	Travel Plan to be commissioned for the development clearly considering the impact onto the surrounding infrastructure etc. due to the site specific travel survey / assessment having been developed.
Tra 02	1	Sustainable Transport Measures (Option 6) - RIBA Stage 1	Consultation with local authority (LA) on the state of the local cycling network and public accessible pedestrian routes, to focus on whichever the LA deems most relevant to the project, and how to improve it. Agree and implement one proposition chosen with the local authority.

Specialists / Others at RIBA Stage 2

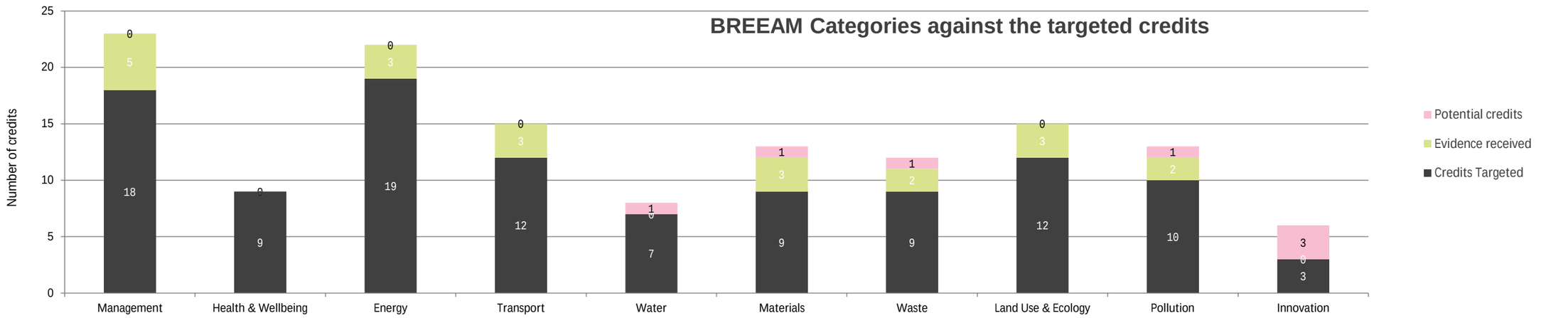
Code	Credits	Title	Credit Criteria / Early Action Required
Man 02	2	Life Cycle Cost & Service Life Planning	An Elemental Life Cycle Cost analysis should be undertaken at Stage 2. A Component Life Cycle Cost analysis should be undertaken at Stage 4..
Hea 02	1	Indoor Air Quality	Appointment of a specialist to carry out an 'Indoor Air Quality Plan' assessment for the development considering neighbouring pollutants, any flue gases etc. proposed and the locations of air intakes and exhausts
Hea 04	1	Thermal modelling & Design for future thermal comfort	Appointment of a specialist to carry out thermal modelling in accordance with CIBSE AM11 and the analysis for the projected climate change scenario.
Hea 06	1	Safety and Security	Consultation with a suitably qualified security consultant (SQSS) should have taken place at RIBA Stage 2. Security Needs Assessment (SNA) to be provided with recommendations from the SQSS. The final design should reflect the recommendations/solutions and implemented in the as-built development.
Ene 04	2	Passive Design	Appointment of a specialist to carry out the analysis for the passive design and energy strategy.
Mat 01	1	Building Life Cycle Assessment (LCA)	A building LCA on of the superstructure design to be carried out by a LCA specialist using an IMPACT Compliant LCA tool according to the methodology. Submit the Mat 01/02 results Submission Tool to BRE at the end of Concept Design, and before planning permission is applied for.
Pol 03	2	Flood and surface water management	The commission of a 'Flood Risk Assessment' for the site. This should include an analysis for the 1 in 100 year storm event and attenuation measure recommendations to adhere to adequate discharge flow rates and SUDS techniques.

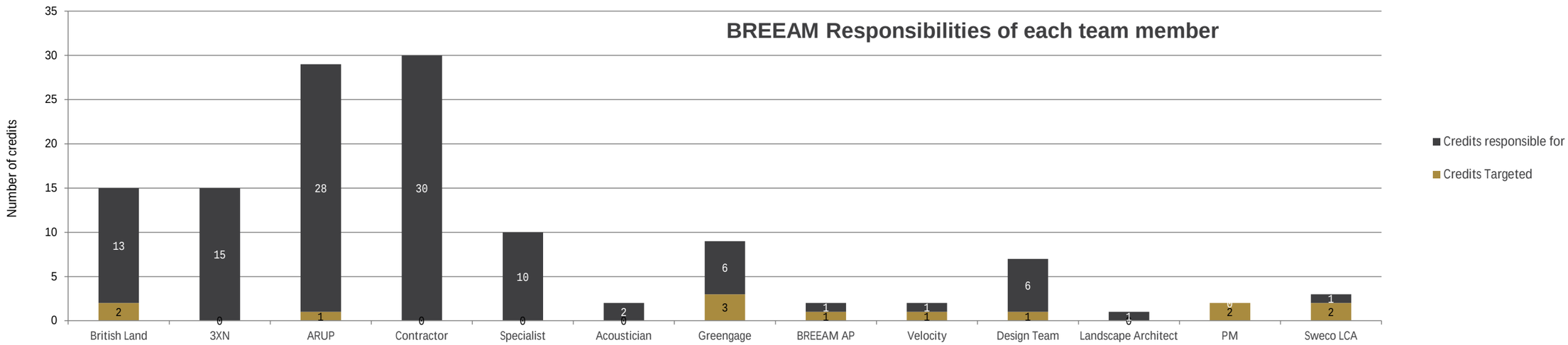
Design team considerations at RIBA Stage 2

Code	Credits	Title	Credit Criteria / Early Action Required
Mat 06	1	Material Efficiency	Pre-fabrication & WRAP compliance to be shown in minutes of meetings and/or drawings mark-ups at each RIBA stage.
Wst 05	1	Adaptation to Climate Change	Assessment of new & existing fabric and it's durability to deal with extremes in weather.
Wst 06	1	Design for disassembly and adaptability	Additional capacities & a well considered plant & fabric replacement strategy to be developed.

Score Summary

Project Name:	**Euston Tower Office**	
BREEAM Scheme:	**BREEAM NC 2018**	
Project Type	**Shell and Core**	
Target Score:	**87.90%**	**Outstanding**
Achieved score:	**17.82%**	**Unclassified**

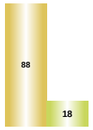




BREEAM NC 2018 Credit Review

18/10/2024	Rev.13
Project Name	**Euston Tower Office**
Building Type	**Office**
Project Type	**Shell and Core**
Assessment Stage	**Design Stage Assessment (DSA)**

Targeted BREEAM rating %	**87.90**	**Outstanding**
Potential BREEAM rating %	**94.32**	**Outstanding**
Achieved scoring %	**17.82**	**Unclassified**



Credit awarded
Credit not targeted
Potential additional credit
Further information required

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
MANAGEMENT		0.61%									
Man 01	**Project brief and design**	Project Delivery Planning	1	1		1		British Land*PM*	2		Design team meetings, scope of work & formal agreements on performance targets with project team members. Evidence Required: - Initial Project Brief - Project Exaction Plan - Communication Strategy - Roles and Responsibilities Matrix - Construction programme - Meeting minutes & the contributions from the team
		Stakeholder Consultation (Interested Parties)	1	1		1		British Land*PM*	2		All relevant third parties (e.g. planning consultation with local authority, local residents, FM staff, representative consultation group from existing community, and any input from end user, etc) been consulted by the design team. Evidence Required: - Stakeholder Consultation covering minimum content - Statement of Community Involvement - Design Access Statement - Planning boards and other content used - Consultation plan / schedule - Consultation feedback to influence the design
		Have project team, including the client, formally agree strategic performance targets?					Yes	British Land*Design Team*			Pre-requisite requirement for AP credits (Concept & Developed Design) Evidence Required: - BREEAM contract including target or letter on signed headed paper confirming BREEAM rating.
		BREEAM AP (Concept Design)	1	1		1		BREEAM AP*	2		BREEAM AP is appointed prior to RIBA Stage 2 and BREEAM target formally agreed with design team.
		BREEAM AP (Developed Design)	1	1		0		BREEAM AP*	3		BREEAM AP is appointed and monitor progress against target throughout the project up to PC Stage. Evidence Required: - BREEAM AP is appointment - BREEAM AP Greenbook Live confirmation - BREEAM AP Stage 3 report - Stage 3 Meeting minutes
Man 02	**Life cycle cost and service life planning**	Elemental LCC	2	2		2		G&T LCC*	2		An Elemental LCC analysis is required to be carried out at RIBA Stage 2 for 20, 30, 50 or 60 years LCC analysis. Evidence Required: - Stage 2 Elemental LCC analysis (20, 30, 50 or 60 years LCC analysis) - Professional CV of LCC consultant
		Component Level LCC options appraisal	1	1		0		G&T LCC*	4		A Component LCC analysis at RIBA Stage 4 including Envelope, e.g. cladding, window, roof. Services, Finishes, e.g. floors or ceilings. External spaces, e.g. landscaping. Evidence Required: - Stage 4 Component LCC analysis (covering Envelope, Services Finished and External Spaces) - Professional CV of LCC consultant - Confirmation with supporting evidence recommendation are included in the final design. Where not justification as to why provided.
		Capital Cost Reporting	1	1		0		British Land*QS*	4		Report a capital cost in £/m2 for BRE purpose only. Evidence Required: - Signed better of confirmation, on letter headed paper, confirming the capital cost in £/m2 GIA.

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
Man 03	Responsible construction practices	**Legal and sustainable timber**					Yes/No?	Contractor*			This is a minimum requirement for achieving any BREEAM rating. Evidence Required: - Signed better of confirmation, on letter headed paper, confirming all timber is FSC or PEFC sourced and certificates, delivery notes and full chain of custardy documents will be provided at PC.
		Environmental Management	1	1		0		Contractor*	4		Contractor operates EMS: certificate of ISO 14001 /EMAS and implement best practice pollution prevention policies and procedures on site in accordance with working at construction and demolition sites: PPG6, Pollution Prevention Guidelines. Evidence Required: - Demolition and Principle Contractor EMS certified (ISO 14001) - Letter of commitment form Demolition and Principle contract to adhere to PPG6 Pollution Prevention Guidelines.
		Have the client & the contractor formally agreed performance targets?					Yes/No?	British Land*Contractor*			Pre-requisite requirement for AP credits (Site) - BREEAM contract including target or letter on signed headed paper confirming BREEAM rating.
		BREEAM AP (Site)	1	1		0		Contractor*	4		A Site Sustainability Manager / BREEAM AP should be appointed to monitor targets during the RIBA Stages 5 & 6. Evidence Required: - BREEAM Site AP is appointment letter (including number) - Letter of commitment for BREEAM Site AP reporting for Stage 5&6.
		Responsible Construction Management **(Minimum Standard: 1 credit for Excellent, 2 for Outstanding)**	2	2		0	Yes/No?	Contractor*	4		Minimum Standard: E-1; O-2. The principal contractor evaluates the risks (on site and off site), plans and implements actions to minimise the identified risks i.e. Considerate Constructors Scheme, Fleet Operator Recognition Scheme. For one credit: Achieve all items listed in Table 4.1 as "Required for one credit". For two credits: As per one credit, plus any six additional items. Evidence Required: - Letter of commitment the principle contractor will sign up to Considerate Constructors Scheme and achieve a minimum score of 39 with 13 in each section. - Letter of commitment the principle contractor will sign up to CLOC's and FORS - Letter of commitment the principle contractor will demonstrate compliance with items g, p and q of the BREEAM table.
		Monitoring of Construction Site Impacts - Utility Consumption	1	1		0		Contractor*	4		Site-based energy and water usage to be monitored. Display figures on site. Evidence Required: - Letter of commitment the AP or site manager will set targets and monitor the energy and water usage on site
		Monitoring of Construction Site Impacts - Transport of Construction Materials & Waste	1	1		0		Contractor*	4		Vehicle monitoring of materials deliveries from point of supply and vehicle monitoring of waste to establish carbon figures. Evidence Required: - Letter of commitment the AP or site manager will set targets and monitor vehicles delivering materials from point of supply and vehicle monitoring of waste to establish carbon figures
Man 04	Commissioning & Handover	Commissioning - Testing Schedule & Responsibilities **(Minimum Standard: 1 credit for Very Good / Excellent / Outstanding)**	1	1		0	Yes/No?	Contractor*Specialist*	4		Minimum Standard: VG/E/O - 1. Third party commissioning manager to be appointed. Testing schedule and responsibilities to be provided. Evidence Required: - Letter of commitment that a Third party commissioning manager will be appointed and will produce a testing schedule
		Commissioning - design and preparation	1	1		0		Contractor*Specialist*	4		Appointment of an appropriate project team member, provided they are not involved in the general installation works provide commissioning management. Evidence Required: - Appointment of an specialist commissioning manager at the design stage - Letter of commitment that the commissioning manager will monitor, review and provide design advise for commissioning in accordance with Building Regulations, BSRIA and CIBSE guidelines and/or other appropriate standards - Commissioning schedule & commissioning programme
		Testing & Inspecting Building Fabric	1	1		0		Contractor*Specialist*	4		Thermographic survey as well as an airtightness test and inspection required. Evidence Required: - Letter of confirmation the contractor will a complete a Thermographic survey as well as an airtightness test with any defect fixed.
		Building User Guide					Yes/No?	British Land*Contractor*			Minimum Standard: VG/E/O - 1. A technical and non-technical building user guides to be developed. Evidence Required: - Letter of confirmation the contractor will produce 2 separate building user guides: A technical and non-technical.
		Handover	1	1		0		Contractor*	4		Building User Guides as above and a non-technical training schedule for the building occupiers. A technical training schedule for the premises facilities managers. Evidence Required: - Letter of confirmation the contractor will conduct 2 separate training scheduled: A technical and non-technical
Man		**TOTAL:**	**18**	**18**	**0**	**5**					
		% of total score:	**11.00%**	**11.00%**	**0.00%**	**3.06%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
HEALTH & WELLBEING		0.73%									
Hea 01	**Visual comfort**	Daylighting	2	0		0		3XN*Specialist*	3		Not Targeted
		View Out	1	1		0		3XN*	3		95% of the floor area in 95% of spaces for each relevant building area is within 8m of an external wall. The window or opening must be ≥ 20% of the surrounding wall area. Or compliance is sought via BS 8206: part 2. Evidence Required: - Provide design drawings demonstrating appropriate view-out in relevant areas (with area information) - Window schedule
		External Lighting Levels & Controls	1	1		0		ARUP*	4		All external lighting located within the construction zone is specified in accordance with BS 5489-1:2013 Code for the practice for the design of road lighting. Lighting of roads and public amenity areas(34) and BS EN 12464-2:2014(35) Light and lighting - Lighting of work places - Part 2: Outdoor work places. External lighting should provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. Evidence Required: - Provide design drawings, and either relevant specification clauses or a formal letter confirming compliance with all standards in relevant areas. - External lighting schedules with luminaire information.
Hea 02	**Indoor air quality**	**Indoor Air Quality Plan**					Yes/No?	Specialist*			Prerequisite requirement when VOC credits are pursued. IAQ Plan to be developed in line with the relevant local authority plans or policies. Evidence Required: - Provide a copy of Indoor Air Quality Plan
		Ventilation	1	1		0		ARUP*	4		Consideration of the ventilation strategy provides adequate ventilation rates in accordance with BS ISO17772-1:2017, providing 14L/p/second. Occupied spaces have carbon dioxide (CO_2) or air quality sensors specified.
Hea 04	**Thermal comfort**	Thermal modelling	1	1		0		ARUP*	3		Carry out dynamic thermal modelling using CIBSE AM11 compliant software. The building shall be designed to be adaptable for a projected climate change scenario. PMV and PPD to be reported. Temperature control strategy for the building is design in line with thermal model. Evidence Required: - Letter of confirmation from the M&E consultants - Relevant clauses of the building specification/contract or correspondence from the team - Thermal modelling report - Drawings/schematics showing thermal zoning
		Design for future thermal comfort	1	1		0		ARUP*	3		Carry out dynamic thermal modelling using CIBSE AM11 compliant software. The building shall be designed to be adaptable for a projected climate change scenario. PMV and PPD to be reported. Temperature control strategy for the building is design in line with thermal model. Evidence Required: - Letter of confirmation from the M&E consultants - Relevant clauses of the building specification/contract or correspondence from the team - Thermal modelling report - Drawings/schematics showing thermal zoning
Hea 05	**Acoustic performance**	Acoustic performance	1	1		0		Acoustician*	3		Appointment of suitably qualified acoustician to undertake calculation & testing requirements. The contractor to confirm that they will remediate any non-conformation. Evidence Required: - Professional CV of SQA - Provide a professional report from the appointed SQA confirming that the building meets the appropriate acoustic performance standards and testing requirements for all relevant areas for the acoustic principles of: A. Sound insulation B. Indoor ambient noise level C. Room acoustics - Letter of confirmation the contractor will remediate any non-conformation.
Hea 06	**Security**	Security of Site & Building	1	1		0		QCIC*	4		Euston Tower Crime Impact Assessment was conducted by QCIC. The SQSS recommendations to be followed and incorporate into design. Any deviation needs to be approved by the SQSS. - Letter of confirmation the contractor will implement the recommendations or solutions proposed by the SQSS.
Hea 07	**Safe and healthy surroundings**	Safe Access	1	1		0		3XN*	4		Dedicated and safe cycle paths are provided from the site entrance to any cycle storage, and connect to off-site cycle paths where applicable. Suitable lighting also required. Evidence Required: - Provide a design landscape drawing - Relevant clauses of the building specification/contract - A letter/report explaining the safe access measures
		Outside Space	1	1		0		3XN*	4		There is an outside space providing building users with an external amenity area. Evidence Required: - Provide a marked up landscape drawing demonstrates the following: A. be an outdoor landscaped area B. have appropriate seating areas and be non-smoking C. be located to ensure it is accessible to all building users and avoids areas that will have disturbances from sources of noise.
Hea		**TOTAL:**	**11**	**9**	**0**	**0**					
		% of total score:	**8.00%**	**6.55%**	**0.00%**	**0.00%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
ENERGY		0.64%									
Ene 01	**Reduction of Energy Use & Carbon Emissions**	Energy Performance Commissioning - implementation **(Minimum Standard: 4 credits for Excellent / 6 credits for Outstanding)**	9	7		0	Yes/No?	ARUP*	4		Minimum Standard: E-4; O-6 Credits achieved through IES Modelling Tool and reduction in regulated CO_2 emissions, in accordance with 2013 building regulations. Evidence Required: - BRUKL listing energy assessor - BRUKL inp.file - Energy Assessor CIBSE Low Carbon Design Confirmation - Output document from design model.
		Prediction of operational energy consumption **(Minimum Standard: 4 credits for Outstanding)**	4	4		0	Yes/No?	ARUP*	4		Minimum Standard: O-4 Undertake additional energy modelling during the design and post-construction stage to generate predicted operational energy consumption figures. Evidence Required: - NABERS or TM54 report including tag 2/3 workshops with the team - Energy Modeller confirmation (degree, experience and member of CIBSE).
Ene 02	**Energy Monitoring**	Sub-Metering of End-use Categories	1	1		0	Yes/No?	ARUP*Contractor*	4		Minimum Standard: VG/E/O-1. Energy metering systems of at least 90% of the estimated annual energy consumption of each fuel is assigned to the end-use categories. Evidence Required: - Confirmation or completed tool confirming end use categories metered, connected to the BMS and estimated percentage load - Schematics showing energy (gas and/or electric) connected to end us. - Specification confirming meters connected to BMS.
		Sub-Metering of High Energy Load & Tenancy Areas	1	1		0		ARUP*Contractor*	4		Sub-metering on a floor by floor basis and tenancy areas. Evidence Required: - Schematics showing meter per tenancy and per floor plate. - Specification confirming meters connected to BMS.
Ene 03	**External Lighting**	External Lighting	1	1		0		ARUP*Specialist*	4		Average initial luminous efficacy of not less than 70 luminaire lumens per circuit Watt. Automatic control to prevent operation during daylight hours and presence detection in areas of intermittent pedestrian traffic. Evidence Required: - Data collection tool showing all external lighting types, quantities and locations. - Datasheets confirming LL/cW entered into the tool - External lighting drawings showing location of lighting type - Luminaire schedule.
Ene 04	**Low Carbon Design**	Passive Design Analysis	1	1		0		ARUP*	2		Thermal modelling to be achieved first. Implement passive design measures to reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the passive design analysis findings. Evidence Required: - Passive Design Analysis completed at Stage 2 - Implement passive design measures to reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption. The result should be quantified and presented as a percentage reduction in CO2 emissions.
		Free Cooling	1	0		0		ARUP*	4		Not Targeted
		Low Zero Carbon Feasibility Study	1	1		0		ARUP*	2		LZC Study to establish the most appropriate low or zero carbon energy sources and report the reduction on regulated CO_2 emissions. Evidence Required: - LZC report listing LZC assessor - Energy Assessor CIBSE Low Carbon Design Confirmation - Specification confirming LZC - Drawings / Schematics confirming LZC - The result should be quantified and demonstrate a percentage saving in CO2 emissions in the report.
Ene 06	**Energy Efficient Transportation Systems**	Energy Consumption	1	1		1		Sweco Lift Specialist*	4		Lift analysis to determine transportation demand and usage patterns in compliance with BS EN ISO 25745 Part 2 and 3. Sweco VT Stage 2 Report provided, credit awarded.
		Lifts	1	1		1		Sweco Lift Specialist*	4		Energy-efficient features offering the greatest potential energy savings will be part of the system. Sweco VT Stage 2 Report provided, credit awarded.
		Escalators or moving walks	1	1		1		Sweco Lift Specialist*	4		To specify the energy-efficient features for each escalator or moving walk. Sweco VT Stage 2 Report provided, credit awarded.
Ene		**TOTAL:**	**22**	**19**	**0**	**3**					
		% of total score:	**14.00%**	**12.09%**	**0.00%**	**1.91%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
TRANSPORT		0.96%									
Tra 01	**Transport assessment and travel plan**	Transport assessment and travel plan **(The existing AI needs to be calculated and be in the Travel Assessment)**	2	2		2	**AI >= 40**	Velocity*	2		Outline Travel Plan provided. Credits awarded. TfL's online WebCAT tool shows access index is 85.4, indicating a PTAL of 6b (Excellent).
Tra 02	**Sustainable transport measures**	**Prerequisite: Achieve criteria 3-5 in the Tra 01**					Yes	Velocity*			To identify the sustainable transport measures, according to the Accessible Index (AI) of the site and the active measures implemented.
		1. The existing AI calculated in Tra 01 **(The existing AI ≥ 8 for all other building types;** **AI ≥ 4 for prison/MOD sites, rural location sensitive buildings)**	10	10		1	**1**	Velocity*			Velocity Transport Plan confirms the AI=85.4. Credit awarded.
		7. Install compliant cycle storage spaces to meet the minimum levels set out in Table 7.5					**13**	Velocity* British Land*3XN*			Evidence Required: - Provide specification clauses, design drawing or details as appropriate confirming that a compliant cycle storage will be specified to meeting the minimum levels set out in Table 7.5.
		8. Provide at least two compliant cyclists' facilities for the building users, (including pupils where appropriate to the building type) – Showers; – Changing facilities; – Lockers; – Drying spaces.					**14-15**	Velocity* British Land*3XN*			Evidence Required: - Provide specification clauses, design drawing or details as appropriate confirming that at least two compliant cyclists' facilities for the building users to be provided.
		9. At least three existing accessible amenities are present, see Table 7.6.					**16**	Velocity*British Land*			Evidence Required: - Provide specification clauses, design drawing or details as appropriate confirming that at least three existing accessible amenities are present in accordance with Table 7.6.
		10. Enhanced amenities					**18**	Velocity*British Land*			Evidence Required: - Provide specification clauses, design drawing or details as appropriate confirming that a minimum of one or more than one new accessible amenity, in accordance with Table 7.6.
Tra		**TOTAL:**	**12**	**12**	**0**	**3**					
		% of total score:	**11.50%**	**11.50%**	**0.00%**	**2.88%**					
WATER		0.78%									
Wat 01	**Water Consumption**	Water Consumption	5	3	1	0	Yes/No?	ARUP* 3XN*Contractor*	4		Minimum Standard: VG/E-1; O-2 To reduce the consumption of potable water for sanitary use in new buildings through the use of water efficient components and water recycling systems. Evidence Required: - Sanitaryware schedule - Manufacturer's technical data sheets - Completed Wat01 calculator
Wat 02	**Water Monitoring**	Water Monitoring	1	1		0	Yes/No?	ARUP*	4		Minimum Standard: G/VG/E/O- Criterion 1 only - water meter on mains. Install water meters: - On the mains water supply. - On water-consuming plant or building areas consuming 10% or more of the building's total water demand. Each water meter is - Installed with a pulsed or other open protocol communication output and - Connected to BMS. Evidence Required: - Domestic water schematic drawings - Manufacturer's technical data sheets - Documents/reports/letters explaining pulsed or other open protocol communication output and BMS connection.
Wat 03	**Water Leak Detection**	Leak Detection System	1	1		0		ARUP*	4		Install a leak detection system - On the utilities water supply within the buildings, to detect any major leaks within the building and - Between the buildings and the utilities water supply, to detect any major leaks between the utilities supply and the buildings under assessment Evidence Required: - Domestic water schematic drawings - Manufacturer's technical data sheets - Documents/reports/letters explaining leak detection system
		Flow Control Devices	1	1		0		ARUP*	4		Install sanitary supply shut-off valves specified for each toilet area. Evidence Required: - Domestic water schematic drawings - Specification on flow control devices on WCs.
Wat 04	**Water Efficient Equipment**	Water Efficient Equipment	1	1		0		ARUP*	4		Mitigate 'unregulated water usage' (water consumption for uses not assessed under Wat 01) – Swimming pools – Recreational hot tubs and hydrotherapy pools – Equipment used for irrigation – Vehicle wash equipment – Project-specific industrial processes – Water filtration and treatment processes – Building services (e.g. cooling towers and humidification systems) Evidence Required: - Schematic drawings. - Specification on unregulated water usage. - Documents/reports/letters explaining unregulated water usage.
Wat		**TOTAL:**	**9**	**7**	**1**	**0**					
		% of total score:	**7.00%**	**5.44%**	**0.78%**	**0.00%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
MATERIALS		1.25%									
Mat 01	**Environmental impacts from construction products - Building life cycle assessment (LCA)**	Superstructure (all building types)	4	2		2	Yes	Sweco LCA*	2		Stage 2 Whole Life Cycle Assessment (WLCA) has been carried out at Stage 2 to demonstrate how the LCA options appraisal has affected the design. 2.67 credits awarded achieved based on the LCA output. Credits awarded.
		Superstructure - Technical Design	2	1		0		Sweco LCA*	4		Carry out a building LCA on of the superstructure design using either the BREEAM Simplified Building LCA tool or an IMPACT Compliant LCA tool Identify opportunities for reducing environmental impact. Evidence Required: - Life cycle assessment report - Mat 01/02 Results Submission Tool
		Substructure and hard landscaping options appraisal during Concept Design	1	1		1		Sweco LCA*	2		The LCA options appraisal summary document includes substructure and hard landscaping at Stage 2. Credit awarded.
Mat 02	**Environmental impacts from construction products - Environmental Product Declarations (EPD)**	Specification of products with a recognised environmental product declaration (EPD)	1	1		0		Landscape Architect* Sweco LCA*	4		Specify construction products with EPD that achieve a total EPD points score of at least 20, according to BREEAM technical manual. Evidence Required: - Mat 01/02 Results Submission Tool - Material specifications - EPDs of the materials specified.
Mat 03	**Responsible Sourcing of construction products**	**Pre-requisite: Legal and sustainable timber**					Yes/No?	British Land*Contractor*	4		Minimum Standard 100% of timber and timber-based products used on the project are 'Legal' and 'Sustainable' as per the UK Government's Timber Procurement Policy (TPP). Evidence Required: - Commitment/confirmation letter. - List of the timber and timber-based products used on the project. - Certificates & chain of custody documentation. - Delivery notes/tickets/PO no.
		Enabling Sustainable Procurement	1	1		0		British Land*Contractor*	2		A sustainable procurement plan to be issued (before concept design) and used by the design team to guide specification towards sustainable construction products. Evidence Required: - Sustainable procurement plan
		Measuring Responsible Sourcing	3	1	1	0		3XN*Contractor*	4		Materials specified and procured from manufacturers who can provide EMS Certification (ISO 14001 etc.). Evidence Required: - Mat 03 Calculator Tool. - Certificates & chain of custody documentation. - Delivery notes/tickets/PO no.
Mat 05	**Designing for Durability & Resilience**	Designing for Durability & Resilience	1	1		0		3XN*	4		Protecting vulnerable parts of the building from damage and exposed parts of the building from material degradation. Evidence Required: - Mat05 matrix - Specification of measures specified to protect the building from damage and material degradation. - Design drawings of measures to protect against high pedestrian traffic / internal trolley movement / external protection against potential vehicular collision / service yard robustness measures.
Mat 06	**Material Efficiency**	Preparation and Brief	1	1		0	Yes	Design Team*	1		Set targets and report on opportunities and methods to optimize the use of materials for each of the project stages. Develop and record the implementation of material efficiency during developed design, technical design, and construction. Report the targets and actual material efficiencies achieved. Evidence Required: - Mat06 matrix - Technical drawings - Report/letter explaining how the material efficiency measures have been implemented during the developed design, technical design, and construction - Report/letter explaining the material efficiency targets and the actual material efficiencies achieved. - Commitment letter
		Concept Design					Yes		2		
		Developed Design					Yes/No?		3		
		Technical Design					Yes/No?		4		
		Construction					Yes/No?		5		
Mat		**TOTAL:**	**14**	**9**	**1**	**3**					
		% of total score:	**17.50%**	**11.25%**	**1.25%**	**3.75%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
WASTE		0.64%									
Wst 01	**Construction Waste Management**	Pre-demolition audit	1	1		1		Demolition Contractor*	2		Minimum Standard: O-1 Pre-demolition audit report was carried out by Reusefully on 24.08.2022. To be included in Resource Management Plan (RMP). Credit awarded.
		Construction Resource Efficiency	3	2	1	0	Yes/No?	Contractor*	4		RMP to be prepared covering the targets of non-hazardous waste arising from site construction . Contractor to limit waste to less than 6.5tonnes per 100m² gross internal area. Evidence Required: - Letter of confirmation the contractor will prepare a Resource Management Plan confirming the number of credits they are targeted.
		Diversion of Resources from Landfill	1	1		0		Contractor*	4		Contractor to limit waste to landfill. 90% (tonnes) of demolition and 80% non-demolition waste to be diverted from landfill. Evidence Required: - Letter of confirmation the contractor will prepare a Resource Management Plan confirming the number of credits they are targeted.
Wst 02	**Recycled Aggregates**	Project Sustainable Aggregate Points	1	0		0		Structural Engineer*	4		Not Targeted
Wst 03	**Operational Waste**	Operational Waste	1	1		0	Yes/No?	3XN*British Land*	4		Minimum Standard: E/O-1 At least 2 sqm per 1000m² of NIA for recycling bins is required for building <5000m². Additional 2 sqm per 1000m² of NIA when catering is provided. A minimum of 10m² for buildings ≥ 5000m². Evidence Required: - Provide specification clauses/contract/Letter of commitment confirming that dedicated space is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit. - Provide drawings indicating the location of external waste & recycling storage areas to be accessible and clearly labelled.
Wst 04	**Speculative Finishes (Offices only)**	Speculative Floor and Ceiling Finishes	1	1		0		3XN*	4		To install floor and ceiling finishes selected by the known occupant or if occupant not known in show area only. Evidence Required: - Letter of confirmation the client to confirm the future occupant/tenants - Relevant clauses of the building specification/drawings or correspondence from the team
Wst 05	**Adaptation to Climate Change**	Resilience of structure, fabric, building services and renewables installation	1	1		0		Design Team*	4		Conduct a climate change adaptation strategy of new & existing fabric and it's durability to deal with extremes in weather condition. Develop recommendations/ solutions at RIBA Stage 2. To provide an update at RIBA Stage 4.
Wst 06	**Design for disassembly and adaptability**	Design for disassembly and functional adaptability - recommendations	1	1		1		Design Team*	2		Conduct study by the end of RIBA Stage 2 and develop recommendations prior to RIBA Stage 2. (i.e. alternative building uses, functions, major plant replacement, ventilation strategy to adapt to future building occupant needs, adaptability to changes of in-use etc. Credit awarded.
		Disassembly and functional adaptability – implementation	1	1		0		Design Team*	4		Provide an update during RIBA Stage 4, how the recommendations have been implemented - horizontally or vertically expandability, refurbishment potential, local plant and service distribution routes etc. Evidence Required: - Provide an update during RIBA Stage 4, how the recommendations or solutions have been implemented.
Wst		**TOTAL:**	**11**	**9**	**1**	**2**					
		% of total score:	**7.00%**	**5.73%**	**0.64%**	**1.27%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
LAND USE & ECOLOGY	1.15%										
LE 01	**Site Selection**	Previously Occupied Land	1	1		0		3XN*	4		At least 75% of the proposed development is on previously occupied land. Evidence Required: - Site plan showing the previously occupied part of the land and the assessed building's footprint.
		Contaminated Land	1	0		0		Specialist*	4		Not Targeted
LE 02	Comprehensive Route	**Prerequisite - Statutory obligations**					Yes/No?	British Land*Contractor*			Prerequisite: The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site. Evidence Required: - Commitment/confirmation letter
	Ecological risks and opportunities	Survey and evaluation	1	1		1		Greengage*	1		The Preliminary Ecological Apprraisal was undertaken by Greengage in January 2023.
		Determining ecological outcomes of the site	1	1		1		Greengage*	2		The project team liaises and collaborates with representative stakeholders early enough to influence key planning decisions to Identify the optimal ecological outcomes for the site and Identify, appraise and select measures to meet the optimal ecological outcomes for the site. Evidence Required: - Ecology report. - SQE resume. - Letters/meeting minutes/reports/correspondence.
LE 03	**Managing impacts on ecology**	**Prerequisite - Ecological risks and measures on-site**					Yes/No?	British Land*Contractor*			Prerequisite: LE 02 has been achieved.
		Planning and measures on-site	1	1		1		Greengage*	2		Further planning to avoid and manage negative ecological impacts on-site is carried out and on-site measures for managing negative ecological impacts during site preparation and construction are implemented in-practice. Evidence Required: - Ecology report - SQE resume - Letters/meeting minutes/reports/correspondence
		Managing negative impacts	2	2		0		Greengage*	4		The SQE provided recommendation on avoidance of negative impact of the site preparation and construction works according to the hierarchy and no net impact has resulted. According to the Defra Metric 4.0 used to calculate change in biodiversity units, a net gain of 26.9% in biodiversity units on site, 2 credits can be awarded.
LE 04	**Ecological change and enhancement**	**Prerequisite - Managing negative impacts on ecology**					Yes/No?	British Land*Contractor*			Prerequisite: - The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site. - Criterion 6 (for Foundation route) or 8 (for Comprehensive route) in LE 03 has been achieved
		Ecological enhancement	1	1		0		Greengage*	4		Measures have been implemented that enhance ecological value, which are based on input from the project team and SQE in collaboration with representative stakeholders. Evidence Required: - Ecology report - SQE resume - Letters/meeting minutes/reports/correspondence - Drawings/schematics - Technical specification.
		Change and enhancement of ecology (Route 2)	3	3		0		Greengage*	4		SQE to provide calculations of the change in ecological value. Evidence Required: - GN40 - Letters/meeting minutes/reports/correspondence - Drawings/schematics - Technical specification - Completed BREEAM Change in Ecological Value Calculator.
LE 05	**Long Term ecology management and maintenance**	**Prerequisite - Statutory obligations, planning and site implementation**					Yes/No?	British Land*Contractor*	4		Prerequisite: - The client or contractor has confirmed that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site. - Foundation route (Route 1) - Criterion 6 in LE 03 has been achieved. - Comprehensive route (Route 2) - Criterion 8 in LE 03 has been achieved, and at least one credit under LE 04 for 'Change and Enhancement of Ecology' has been awarded
		Management and maintenance throughout the project	1	1		0		Greengage*Contractor*	4		Measures have been implemented to manage and maintain ecology throughout the project. A section on Ecology and Biodiversity has been included as part of the tenant or building owner information supplied. Evidence Required: -Confirmation letter/appointment letter explaining arrangements for the ongoing management of landscape and habitat connected to the project. - Ecology section at the BUG (Building user guide).
		Landscape and ecology management plan	1	1		0		Greengage* Landscape architect*	4		Landscape and ecology management plan, or similar, is developed in accordance with BS 42020:2013 covering as a minimum the first five years after project completion. Evidence Required: - A copy of the Landscape Habitat Management plan.
LE		**TOTAL:**	**13**	**12**	**0**	**3**					
		% of total score:	**15.00%**	**13.85%**	**0.00%**	**3.46%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
POLLUTION		0.75%									
Pol 01	**Impact of Refrigerants**	**Pre-Requisite: systems with electric compressors**					Yes/No?	ARUP*	4		Prerequisite: All systems with electric compressors comply with the requirements of BS EN 378:2016 (parts 2 and 3). Refrigeration systems containing ammonia comply with the Institute of Refrigeration Ammonia Refrigeration Systems code of practice. Evidence Required: - Confirmation no refrigerants or Manufacture confirmation of BS EN378:2016 part 2 and installer confirmation of BS N378: 2016 part 3. - Confirmation no ammonia or ammonia comply with the Institute of Refrigeration Ammonia Refrigeration Systems code of practice.
		Impact of Refrigerants	2	1	1	0		ARUP*	4		1 credit - Refrigerant's Direct Effect Life Cycle CO_2 equivalent emissions (DELC CO_2e) of ≤ 1000 kgCO_2e/kW cooling/heating capacity. 2 credits - ≤ 100 kgCO_2e/kW. Evidence Required: - Completed POL01 tool, with supporting technical datasheets to confirm chain of custardy for information. - Mechanical schedule that aligns with the above.
		Leak Detection	1	1		0		ARUP*	4		All systems are hermetically sealed or only use environmentally benign refrigerants or a permanent automated refrigerant leak detection system is required. Evidence Required: - Specification confirming system is hermetically sealed OR - Specification confirming automated refrigerant leak detection system, capable of continuously monitoring and capable of automatically responding to limit refrigerant leaks.
Pol 02	**Local air quality**	**Pre-Requisite:**					Yes/No?	ARUP*	4		Is the project required to connect to a District Heating system, that is outside the control of the design team? Evidence Required: - Confirmation of how all heating and hot water is supplied, e.g. all electric or gas boilers.
		Local air quality	2	2		0		ARUP*	4		Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels as set in BREEAM manual i.e. gas boilers NOx = 24mg/kWh. Evidence Required: - Specification & schedule of space heating system with supporting datasheet of the system. This should confirm NOx and Particulate matter and VOCs measured at 10% & 13% O_2 dry basis
Pol 03	**Flood and surface water management**	Flood Resilience	2	2		2		ARUP*	4		Site specific Flood Risk Assessment prepared by specialist to confirm that if the site is a low, medium or high probability of flooding. Evidence Required: - Flood Risk Assessment covering all sources of flooding (Fluvial, Tidal, Surface water, Groundwater, Sewers & Artificial sources) - Flood Risk Assessor CV
		Surface Water Run Off	2	2		0		ARUP*	4		Prerequisite - Surface water run-off design solutions must be bespoke. Specialist hydrologist to provide calculation and confirm the proposed attenuation measures, i.e. SUDs. Evidence Required: - Site specific Suds report confirming [RATE] peak run off is no great her the natural site (greenfield) or rate 30% improvement for the developed site compared with the pre-developed (brownfield) site at the 1-year and 100-year return period event. Suds report calculations to allow for climate change scenario. - Site specific Suds report confirming [VOLUME] Flooding of property will not occur in the event of local drainage system failure. - SUDS Assessor CV - Confirmation letter Suds management & LT ownership in O&M's.
		Minimising Watercourse Pollution	1	0	0	0		Flood Risk Consultant*	4		Not Targeted
Pol 04	**Reduction of Night Time Light Pollution**	Reduction of Night Time Light Pollution	1	1		0		ARUP*	4		External lighting design is in line with ILP guidance of obtrusive light and can be automatically switched off. Illuminated advertisements are designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements. Evidence Required: - Data collection tool showing all external lighting types, quantities and locations. - External lighting drawings showing location of lighting type. - Luminaire schedule. - Specification confirming compliance to ILP guidance including security lighting where present. - Specification confirming all lighting can be automatically switched off 23:00-7:00. - Specification confirming Illuminated advertisements are designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisement.
Pol 05	**Reduction of Noise Pollution**	Reduction of Noise Pollution	1	1		0		Acoustician*	4		A BS 4142:2014 compliant noise impact assessment to be carried out by Acoustician. Evidence Required: - Plant noise impact assessment compliant with BS 4142:2014 confirming existing background noise and noise rating from the assessed building - Noise impact of proposed plant confirmed at least 5 dB lower than the background noise throughout the day and night or attenuation measures are fitted to reduce this. - SQA CV confirming 3 yrs. experience within the last 5 yr & member of Institute of Acoustics.
Pol		**TOTAL:**	**12**	**10**	**1**	**2**					
		% of total score:	**9.00%**	**7.50%**	**0.75%**	**1.50%**					
INNOVATION		1.00%									
Inn 01	**Man 03**	Responsible construction practices	1	1		0		Contractor*			Achieve all items in Table 4.1 on the commitment letter.
Inn 04	**Hea 06**	Security of Site & Building	1	0	1	0		QCIC*			TBC_Potential credit if a SABRE assessment is conducted.
Inn 05	**Ene 01**	Exemplary level criteria	5	2		0		ARUP*			The client commits funds to pay for the post-occupancy evaluation. Confirmation of reporting the actual building energy consumption for the first 12 months of normal occupancy for all relevant end users.
Inn 11	**Wst 05**	Responding to Climate Change	1	0	1	0		Team*			TBC_Need to achieve Hea 04 crit. 6, Ene 01 (6 credits), Ene 04 (passive design credit), Wat01 (3 credits), Mat 05 (Crit. 2-4), Pol 03 (1 credit for Flood resilience and 2 credits for surface water run-off).
Inn		**TOTAL:**	**10**	**3**	**3**	**0**					
		% of total score:	**10.00%**	**3.00%**	**3.00%**	**0.00%**					

BREEAM NC (Non-Domestic)

Design Stage Assessment (DSA)

Euston Tower Retail

65206043-SWE-XX-XX-T-O-002-P02

25/11/2024
P02

Issue	Date	Reason for Issue	Prepared	Checked	Approved
1	05-Oct-22	Pre-assessment	RC	MP	KA
2	25-Nov-24	For information	MJ	KC	KA

BREEAM NC (Non-Domestic) - Design Stage Assessment (DSA)
Euston Tower Retail
25/11/2024
P02

Registered Office: Sweco UK Ltd, Grove House, Mansion Gate Drive, Leeds, LS7 4DN. Company Registration No 2888385

What by When

Project Name:	**Euston Tower Retail**
BREEAM Scheme:	**BREEAM NC Version 6.1**
Stage:	**Design Stage Assessment (DSA)**
Target Score:	**63.25%**

Whilst it is important for the client and project team to consider sustainability and the BREEAM criteria at an early stage of design, several specialist appointments and the generation of subsequent reports are very important as they will affect the ability to award these credits in the future if these do not happen. Hence, we have listed here these credits and the necessary actions that the client needs to be aware of.

Targeted
Credit awarded
N/A not targeted
Potential

Issue	Name	RIBA 1	RIBA 2	RIBA 3	RIBA 4	RIBA 5	RIBA 6
MAN 01	Appointment of BREEAM AP						
TRA 01	Travel Plan						
TRA 02	Travel consultation with local authority						
MAT 06	Materials efficiency analysis						
LE 01	Appointment of contaminated land specialist						
LE 02 - 05	Appointment of suitably qualified ecologist						
LE 02	Survey and evaluation & determining the site wide outcomes						
MAN 01	Have a schedule of responsibilities						
MAN 01	Agreement of BREEAM target						
MAN 01	Start public consultation						
MAN 02	Life cycle costing analysis - elemental						
HEA 05	Appointment of suitably qualified acoustician						
HEA 06	Security Need Assessment						
ENE 04	Passive design analysis with energy specialist						
ENE 04	Appointment of energy specialist for LZC study						
MAT 01	Life cycle Assessment (LCA) submission before planning						
WST 01	Production of pre-demolition audit						
WST 05	Conduct a climate change adaptability report for fabric						
WST 06	Disassembly and functional adaptation study						
MAN 03	Appointment of site based BREEAM AP						
MAN 01	Provide consultation feedback						
MAN 02	Life cycle costing analysis - component level						
MAN 04	Appointment of commissioning manager						
DS	**BREEAM DESIGN STAGE CERTIFICATION**						
LE 05	Landscape Management Plan						
PCR	**BREEAM FINAL CERTIFICATION**						

Early Action

Project Name: **Euston Tower Retail**
BREEAM Scheme: **BREEAM New Construction V6.1**
Stage: **Design Stage Assessment (DSA)**
Target score: **63.25%**

Whilst it is important for the client and project team to consider sustainability and the BREEAM criteria at an early stage of design, several specialist appointments and the generation of subsequent reports are very important as they will affect the ability to award these credits in the future if these do not happen. Hence, we have listed here these credits and the necessary actions that the client needs to be aware of.

Ecological Consultant Appointment At RIBA Stage 1

Code	Credits	Title	Credit Criteria / Early Action Required
LE 02	2	Ecological risks and opportunities	New 2018 Criteria: Route 2 - SQE A suitably qualified Ecologist (SQE) needs to be appointed to survey/assess the site for its current ecological value prior to any demolition etc. The ecologist will need to provide recommendations on any existing ecology which will need protection during the demolition and construction phases.
LE 03	3	Managing impacts on ecology	
LE 04	4	Ecological change and enhancement	
LE 05	2	Long term ecological management and maintenance	

Client Consideration At RIBA Stage 1 & 2

Code	Credits	Title	Credit Criteria / Early Action Required
Man 01	1	BREEAM AP	BREEAM AP is appointed prior to RIBA Stage 2 and BREEAM target formally agreed with design team.
Man 01	1	Project delivery planning	At RIBA Stage 2 or equivalent the client, building occupier, design team and contractor are involved in contributing to the decision making process for the project. Roles, responsibilities and contributions are defined during each RIBA Stage.
Man 01	1	Stakeholder consultation (interested parties)	During preparation of the brief, all relevant parties and relevant bodies are identified and consulted with by the design team. (Relevant bodies are - Actual intended building users, representative consultation group from the existing community, existing partnerships and networks that have knowledge and experience from existing buildings of the same type, potential users of any shared facilities e.g. operators of clubs and community groups). A consultation plan should have been prepared and includes a timescale and methods of consultation for all relevant parties/bodies and how the relevant parties will be kept informed about progress. Consultation feedback has been given with suggestions made, including how the results of the consultation process have influenced the proposed design. Through consultation and the resulting measures taken any areas of features of historic/heritage value are protected.
Ene 07	1	Energy Efficient Laboratory Systems (Design specification)	Engage with the client during the preparation of the initial project brief to determine occupant requirements and define laboratory performance criteria.
Wst 01	1	Pre-demolition audit	Pre-demolition audit must carried out at RIBA Stage 2 and be referenced in Resource Management Plan (RMP).

Transport Consultant Appointment At RIBA Stage 2

Code	Credits	Title	Credit Criteria / Early Action Required
Tra 01	2	Travel Assessment and Travel Plan	Travel Plan to be commissioned for the development clearly considering the impact onto the surrounding infrastructure etc. due to the site specific travel survey / assessment having been developed.
Tra 02	1	Sustainable Transport Measures (Option 6) - RIBA Stage 1	Consultation with local authority (LA) on the state of the local cycling network and public accessible pedestrian routes, to focus on whichever the LA deems most relevant to the project, and how to improve it. Agree and implement one proposition chosen with the local authority.

Specialists / Others At RIBA Stage 2

Code	Credits	Title	Credit Criteria / Early Action Required
Man 02	2	Life Cycle Cost & Service Life Planning	An Elemental Life Cycle Cost analysis should be undertaken at Stage 2. A Component Life Cycle Cost analysis should be undertaken at Stage 4..
Hea 02	1	Indoor Air Quality	Appointment of a specialist to carry out an 'Indoor Air Quality Plan' assessment for the development considering neighbouring pollutants, any flue gases etc. proposed and the locations of air intakes and exhausts
Hea 04	1	Thermal modelling & Design for future thermal comfort	Appointment of a specialist to carry out thermal modelling in accordance with CIBSE AM11 and the analysis for the projected climate change scenario.
Hea 06	1	Safety and Security	Consultation with a suitably qualified security consultant (SQSS) should have taken place at RIBA Stage 2. Security Needs Assessment (SNA) to be provided with recommendations from the SQSS. The final design should reflect the recommendations/solutions and implemented in the as-built development.
Ene 04	2	Passive Design	Appointment of a specialist to carry out the analysis for the passive design and energy strategy.
Mat 01	1	Building Life Cycle Assessment (LCA)	A building LCA on of the superstructure design to be carried out by a LCA specialist using an IMPACT Compliant LCA tool according to the methodology. Submit the Mat 01/02 results Submission Tool to BRE at the end of Concept Design, and before planning permission is applied for.
Pol 03	2	Flood and surface water management	The commission of a 'Flood Risk Assessment' for the site. This should include an analysis for the 1 in 100 year storm event and attenuation measure recommendations to adhere to adequate discharge flow rates and SUDS techniques.

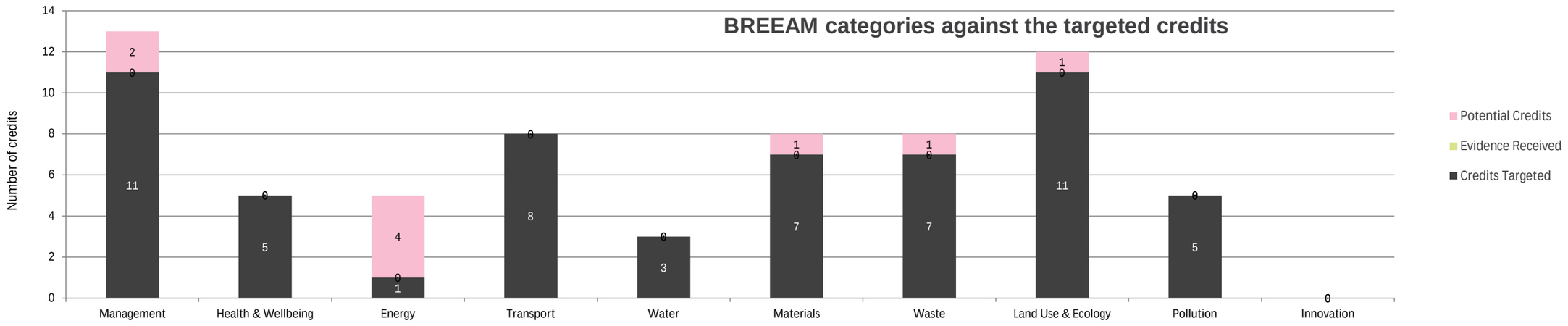
Design Team Considerations At RIBA Stage 2

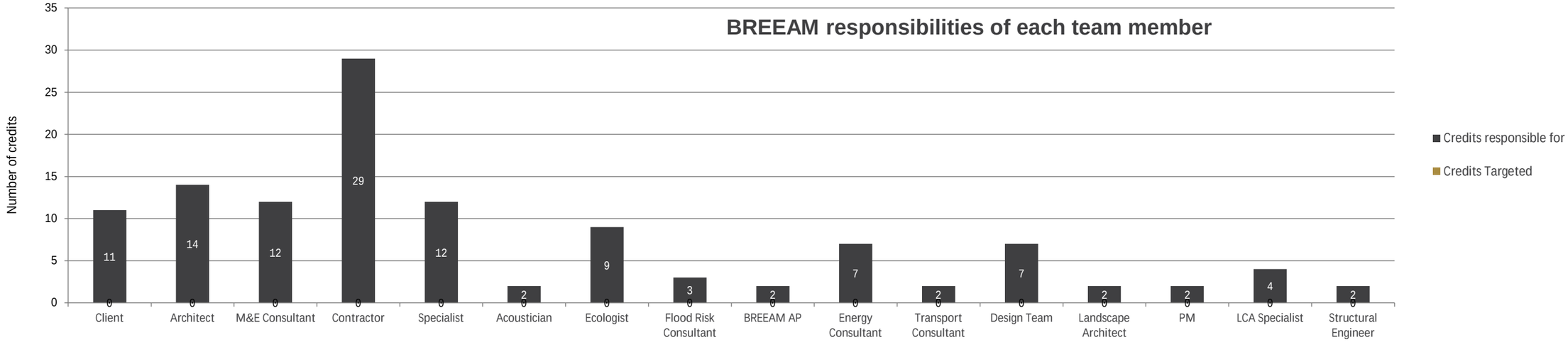
Code	Credits	Title	Credit Criteria / Early Action Required
Mat 06	1	Material Efficiency	Pre-fabrication & WRAP compliance to be shown in minutes of meetings and/or drawings mark-ups at each RIBA stage.
Wst 05	1	Adaptation to Climate Change	Assessment of new & existing fabric and it's durability to deal with extremes in weather.
Wst 06	1	Design for disassembly and adaptability	Additional capacities & a well considered plant & fabric replacement strategy to be developed.

Score Summary

Project Name:	**Euston Tower Retail**	
BREEAM Scheme:	**BREEAM NC Version 6.1**	
Project Type	**Shell Only**	
Target Score:	**63.25%**	**Very Good**
Achieved score:	**0.00%**	**Unclassified**

Target % for each stage			
Stage 1	Stage 2	Stage 3	Stage 4
1.46	24.55	1.68	35.56
Target % achieved for each of stage			
0.00	0.00	0.00	0.00





BREEAM NC V6.1 Credit Review

25/11/2024 Rev.2

Project Name **Euston Tower Retail**

Building Type **Retail**

Project Type **Shell Only**

Assessment Stage **Design Stage Assessment (DSA)**

Targeted BREEAM rating %	**63.25**	**Very Good**
Potential BREEAM rating %	**71.61**	**Excellent**
Achieved scoring %	**0.00**	**Unclassified**

Credit awarded
Credit not targeted
Potential additional credit
Further information required

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
MANAGEMENT		0.80%									
Man 01	**Project brief and design**	Project Delivery Planning	1	1		0		Client*PM*	2		Design team meetings, scope of work & formal agreements on performance targets with project team members. Evidence Required: - Initial Project Brief - Project Exaction Plan - Communication Strategy - Roles and Responsibilities Matrix - Construction programme - Meeting minutes & the contributions from the team
		Stakeholder Consultation (Interested Parties)	1	1		0		Client*PM*	2		All relevant third parties (e.g. planning consultation with local authority, local residents, FM staff, representative consultation group from existing community, and any input from end user, etc) been consulted by the design team. Evidence Required: - Stakeholder Consultation covering minimum content - Statement of Community Involvement - Design Access Statement - Planning boards and other content used - Consultation plan / schedule - Consultation feedback to influence the design
		Have project team, including the client, formally agree strategic performance targets?					Yes/No?	Client*Design Team*			Pre-requisite requirement for AP credits (Concept & Developed Design) Evidence Required: - BREEAM contract including target or letter on signed headed paper confirming BREEAM rating.
		BREEAM AP (Concept Design)	1	1		0		BREEAM AP*	2		BREEAM AP is appointed prior to RIBA Stage 2 and BREEAM target formally agreed with design team.
		BREEAM AP (Developed Design)	1	1		0		BREEAM AP*	3		BREEAM AP is appointed and monitor progress against target throughout the project up to PC Stage. Evidence Required: - BREEAM AP is appointment - BREEAM AP Greenbook Live confirmation - BREEAM AP Stage 3 report - Stage 3 Meeting minutes
Man 02	**Life cycle cost and service life planning**	Elemental LCC	2	0	1	0		LCC Specialist*	2		An Elemental LCC analysis is required to be carried out at RIBA Stage 2 for 20, 30, 50 or 60 years LCC analysis. Evidence Required: - Stage 2 Elemental LCC analysis (20, 30, 50 or 60 years LCC analysis) - Professional CV of LCC consultant
		Component Level LCC options appraisal	1	0	1	0		LCC Specialist*	4		A Component LCC analysis at RIBA Stage 4 including Envelope, e.g. cladding, window, roof. Services, Finishes, e.g. floors or ceilings. External spaces, e.g. landscaping. Evidence Required: - Stage 4 Component LCC analysis (covering Envelope, Services Finished and External Spaces) - Professional CV of LCC consultant - Confirmation with supporting evidence recommendation are included in the final design. Where not justification as to why provided.
		Capital Cost Reporting	1	1		0		Client*QS*	4		Report a capital cost in £/m2 for BRE purpose only. Evidence Required: - Signed better of confirmation, on letter headed paper, confirming the capital cost in £/m2 GIA.

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
Man 03	**Responsible construction practices**	**Legal and sustainable timber**					Yes/No?	Contractor*			This is a minimum requirement for achieving any BREEAM rating. Evidence Required: - Signed better of confirmation, on letter headed paper, confirming all timber is FSC or PEFC sourced and certificates, delivery notes and full chain of custardy documents will be provided at PC.
		Environmental Management	1	1		0		Contractor*	4		Contractor operates EMS: certificate of ISO 14001 /EMAS and implement best practice pollution prevention policies and procedures on site in accordance with working at construction and demolition sites: PPG6, Pollution Prevention Guidelines. Evidence Required: - Demolition and Principle Contractor EMS certified (ISO 14001) - Letter of commitment form Demolition and Principle contract to adhere to PPG6 Pollution Prevention Guidelines.
		Have the client & the contractor formally agreed performance targets?					Yes/No?	Client*Contractor*			Pre-requisite requirement for AP credits (Site) - BREEAM contract including target or letter on signed headed paper confirming BREEAM rating.
		BREEAM AP (Site)	1	1		0		Contractor*	4		A Site Sustainability Manager / BREEAM AP should be appointed to monitor targets during the RIBA Stages 5 & 6. Evidence Required: - BREEAM Site AP is appointment letter (including number) - Letter of commitment for BREEAM Site AP reporting for Stage 5&6
		Responsible Construction Management **(Minimum Standard: 1 credit for Excellent, 2 for Outstanding)**	2	2		0	Yes/No?	Contractor*	4		Minimum Standard: E-1; O-2. The principal contractor evaluates the risks (on site and off site), plans and implements actions to minimise the identified risks i.e. Considerate Constructors Scheme, Fleet Operator Recognition Scheme. For one credit: Achieve all items listed in Table 4.1 as "Required for one credit". For two credits: As per one credit, plus any six additional items. Evidence Required: - Letter of commitment the principle contractor will sign up to Considerate Constructors Scheme and achieve a minimum score of 39 with 13 in each section. - Letter of commitment the principle contractor will sign up to CLOC's and FORS - Letter of commitment the principle contractor will demonstrate compliance with items g, p and q of the BREEAM table.
		Monitoring of Construction Site Impacts - Utility Consumption	1	1		0		Contractor*	4		Site-based energy and water usage to be monitored. Display figures on site. Evidence Required: - Letter of commitment the AP or site manager will set targets and monitor the energy and water usage on site
		Monitoring of Construction Site Impacts - Transport of Construction Materials & Waste	1	1		0		Contractor*	4		Vehicle monitoring of materials deliveries from point of supply and vehicle monitoring of waste to establish carbon figures. Evidence Required: - Letter of commitment the AP or site manager will set targets and monitor vehicles delivering materials from point of supply and vehicle monitoring of waste to establish carbon figures
Man 04	**Commissioning & Handover**	Testing & Inspecting Building Fabric	1	0		0		Contractor*Specialist*	4		Not Targeted
Man		**TOTAL:**	**15**	**11**	**2**	**0**					
		% of total score:	**12.00%**	**8.80%**	**1.60%**	**0.00%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
HEALTH & WELLBEING 0.88%											
Hea 01	**Visual comfort**	Daylighting	2	0		0		Architect*Specialist*	3		Not Targeted
		View Out	1	0		0		Architect*	3		Not Targeted
		External Lighting Levels & Controls	1	1		0		M&E Consultant*	4		All external lighting located within the construction zone is specified in accordance with BS 5489-1:2013 Code for the practice for the design of road lighting. Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places. External lighting should provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. Evidence Required: - Provide design drawings, and either relevant specification clauses or a formal letter confirming compliance with all standards in relevant areas. - External lighting schedules with luminaire information.
Hea 05	**Acoustic performance**	Acoustic performance	1	1		0		Acoustician*	3		Appointment of suitably qualified acoustician to undertake calculation & testing requirements. The contractor to confirm that they will remediate any non-conformation. Evidence Required: - Professional CV of SQA - Provide a professional report from the appointed SQA confirming that the building meets the appropriate acoustic performance standards regarding indoor ambient noise level and testing requirements for the relevant areas. - Letter of confirmation the contractor will remediate any non-conformation.
Hea 06	**Security**	Security of Site & Building	1	1		0		Security Specialist*	2		A suitably qualified security specialist (SQSS) is required to conduct an evidence-based Security Needs Assessment at RIBA Stage 2. Evidence Required: - Appointment of a SQSS at Stage 2 - Professional CV of SQSS - Provide a copy of the recommendations or solutions set out by the Suitably Qualified Security Specialist (SQSS). These recommendations or solutions must aim to ensure that the design of buildings, public and private car parks and public or amenity space are planned, designed and specified to address the issues identified in the preceding Security Needs Assessment (SNA). - Letter of confirmation the contractor will implement the recommendations or solutions proposed by the SQSS.
Hea 07	**Safe and healthy surroundings**	Safe Access	1	1		0		Architect*	4		Dedicated and safe cycle paths are provided from the site entrance to any cycle storage, and connect to off-site cycle paths where applicable. Suitable lighting also required. Evidence Required: - Provide a design landscape drawing - Relevant clauses of the building specification/contract - A letter/report explaining the safe access measures
		Outside Space	1	1		0		Architect*	4		There is an outside space providing building users with an external amenity area. Evidence Required: - Provide a marked up landscape drawing demonstrates the following: A. be an outdoor landscaped area B. have appropriate seating areas and be non-smoking C. be located to ensure it is accessible to all building users and avoids areas that will have disturbances from sources of noise.
Hea		**TOTAL:**	**8**	**5**	**0**	**0**					
		% of total score:	**7.00%**	**4.38%**	**0.00%**	**0.00%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
ENERGY		0.73%									
Ene 01	**Reduction of Energy Use & Carbon Emissions**	Energy Performance Commissioning - implementation **(Minimum Standard: 4 credits for Excellent / 6 credits for Outstanding)**	9	0	4	0	Yes/No?	Energy Consultant*	4		Minimum Standard: E-4; O-6 Credits achieved through IES Modelling Tool and reduction in regulated CO_2 emissions, in accordance with 2021 building regulations. Evidence Required: - BRUKL listing energy assessor - BRUKL inp.file - Energy Assessor CIBSE Low Carbon Design Confirmation - Output document from design model.
Ene 03	**External Lighting**	External Lighting	1	1		0		M&E Consultant*Specialist*	4		Average initial luminous efficacy of not less than 70 luminaire lumens per circuit Watt. Automatic control to prevent operation during daylight hours and presence detection in areas of intermittent pedestrian traffic. Evidence Required: - Data collection tool showing all external lighting types, quantities and locations. - Datasheets confirming LL/cW entered into the tool - External lighting drawings showing location of lighting type - Luminaire schedule.
Ene 04	**Low Carbon Design**	Passive Design Analysis	1	0		0		Energy Consultant*	2		Not Targeted
		Free Cooling	1	0		0		M&E Consultant*	4		Not Targeted
		Low Zero Carbon Feasibility Study	1	0		0		Energy Consultant*	2		Not Targeted
Ene		**TOTAL:**	**13**	**1**	**4**	**0**					
		% of total score:	**9.50%**	**0.73%**	**2.92%**	**0.00%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
TRANSPORT		1.21%									
Tra 01	**Transport assessment and travel plan**	Transport assessment and travel plan **(The existing AI needs to be calculated and be in the Travel Assessment)**	2	2		0	**AI >= 40**	Transport Consultant*	2		Travel Plan to be commissioned for the development clearly considering the impact onto the surrounding infrastructure etc. due to the site specific travel survey / assessment having been developed. To assess availability of transport links, frequency and amenities in proximity to the site. Evidence Required: - Appointment of a transport consultant at Stage 2. - Provide a copy of the site-specific Transport Survey/Assessment. - Provide a copy of Travel Plan.
Tra 02	**Sustainable transport measures**	**Prerequisite: Achieve criteria 3-5 in the Tra 01**					Yes/No?	Transport Consultant*	2		To identify the sustainable transport measures, according to the Accessible Index (AI) of the site and the active measures implemented.
		1. The existing AI calculated in Tra 01 **(The existing AI ≥ 8 for all other building types; AI ≥ 4 for prison/MOD sites, rural location sensitive buildings)**	10	6			**1**	Transport Consultant*	2		Evidence Required: - To identify the sustainable transport measures, according to the Accessible Index (AI) of the site and the active measures implemented.
		2. Demonstrate an increase over the existing Accessibility Index.					**Transport Measures?**	Transport Consultant*Client*			Evidence Required: - Evidence of negotiation with local bus, train or tram companies to increase the frequency of the local services for the development. i.e. Meeting minutes, email correspondence, etc.
		3. Provide a public transport information system in a publicly accessible area, to allow building users access to up-to-date information on the available public transport and transport infrastructure.					**Transport Measures?**	Transport Consultant*Client*			Evidence Required: - Provide specification clauses, design drawing or details as appropriate confirming that a public transport information system located in a publicly accessible area - This may include signposting to public transport, cycling, walking infrastructure or local amenities.
		4. Provide electric recharging stations of a minimum of 3kw for at least 10% of the total car parking capacity for the development.					**Transport Measures?**	Transport Consultant*Client*			Evidence Required: - Provide specification clauses, design drawing or details as appropriate confirming that electric recharging stations of a minimum of 3kw provided for at least 10% of the total car parking capacity for the development.
		5. Set up a car sharing group or facility to facilitate and encourage building users to car share. Raise awareness of the sharing scheme.					**Transport Measures?**	Transport Consultant*Client*			Evidence Required: - Provide specification clauses/documents as appropriate confirming that there is a car sharing scheme to encourage building users to share car.
		6. During preparation of the brief, the design team consults with the local authority (LA) on the state of the local cycling network and public accessible pedestrian routes, to focus on whichever the LA deems most relevant to the project, and how to improve it.					**Transport Measures?**	Transport Consultant *Client*Architect*	1		Evidence Required: - Evidence of consolation with the local authority (LA) that one proposition chosen with the local authority. The proposition supported by the development is additional to existing local plans and has a significant impact on the local cycling network or on pedestrian routes open to the public. i.e. Meeting minutes, email correspondence, etc.
		7. Install compliant cycle storage spaces to meet the minimum levels set out in Table 7.5					**13**	Transport Consultant *Client*Architect*			Evidence Required: - Provide specification clauses, design drawing or details as appropriate confirming that a compliant cycle storage will be specified to meeting the minimum levels set out in Table 7.5.
		8. Provide at least two compliant cyclists' facilities for the building users, (including pupils where appropriate to the building type) – Showers; – Changing facilities; – Lockers; – Drying spaces.					**Transport Measures?**	Transport Consultant*Client*			Evidence Required: - Provide specification clauses, design drawing or details as appropriate confirming that at least two compliant cyclists' facilities for the building users to be provided.
		9. At least three existing accessible amenities are present, see Table 7.6.					**16**	Transport Consultant*Client*			Evidence Required: - Provide specification clauses, design drawing or details as appropriate confirming that at least three existing accessible amenities are present in accordance with Table 7.6.
		10. Enhanced amenities					**Transport Measures?**	Transport Consultant*Client*			Evidence Required: - Provide specification clauses, design drawing or details as appropriate confirming that a minimum of one or more than one new accessible amenity, in accordance with Table 7.6.
		11. Implement one site-specific improvement measure, not covered by the options already listed in this issue, in line with the recommendations of the travel plan.					**Transport Measures?**	Transport Consultant*Client*	4		Evidence Required: - Evidence of implement one site-specific improvement measure in line with the recommendations of the travel plan.
Tra		**TOTAL:**	**12**	**8**	**0**	**0**					
		% of total score:	**14.50%**	**9.67%**	**0.00%**	**0.00%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
WATER		0.67%									
Wat 02	**Water Monitoring**	Water Monitoring	1	1		0	Yes/No?	M&E Consultant*	4		Minimum Standard: G/VG/E/O- Criterion 1 only - water meter on mains. Install water meters: - On the mains water supply. - On water-consuming plant or building areas consuming 10% or more of the building's total water demand. Each water meter is - Installed with a pulsed or other open protocol communication output and - Connected to BMS. Evidence Required: - Domestic water schematic drawings - Manufacturer's technical data sheets - Documents/reports/letters explaining pulsed or other open protocol communication output and BMS connection.
Wat 03	**Water Leak Detection**	Leak Detection System	1	1		0		M&E Consultant*	4		Install a leak detection system - On the utilities water supply within the buildings, to detect any major leaks within the building and - Between the buildings and the utilities water supply, to detect any major leaks between the utilities supply and the buildings under assessment Evidence Required: - Domestic water schematic drawings - Manufacturer's technical data sheets - Documents/reports/letters explaining leak detection system
Wat 04	**Water Efficient Equipment**	Water Efficient Equipment	1	1		0		M&E Consultant*	4		Mitigate 'unregulated water usage' (water consumption for uses not assessed under Wat 01) – Swimming pools – Recreational hot tubs and hydrotherapy pools – Equipment used for irrigation – Vehicle wash equipment – Project-specific industrial processes – Water filtration and treatment processes – Building services (e.g. cooling towers and humidification systems) Evidence Required: - Schematic drawings. - Specification on unregulated water usage. - Documents/reports/letters explaining unregulated water usage.
Wat		**TOTAL:**	**3**	**3**	**0**	**0**					
		% of total score:	**2.00%**	**2.00%**	**0.00%**	**0.00%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
MATERIALS		1.57%									
Mat 01	**Environmental impacts from construction products - Building life cycle assessment (LCA)**	Superstructure (all building types)	4	2		0	Yes/No?	LCA Specialist*	2		Carry out a building LCA on of the superstructure design using either the BREEAM Simplified Building LCA tool or an IMPACT Compliant LCA tool. Identify opportunities for reducing environmental impact. Evidence Required: - Life cycle assessment report - Mat 01/02 Results Submission Tool
		Superstructure - Technical Design	2	1		0		LCA Specialist*	4		Carry out a building LCA on of the superstructure design using either the BREEAM Simplified Building LCA tool or an IMPACT Compliant LCA tool Identify opportunities for reducing environmental impact. Evidence Required: - Life cycle assessment report - Mat 01/02 Results Submission Tool
		Substructure and hard landscaping options appraisal during Concept Design	1	1		0		LCA Specialist*	2		Carry out building LCA options appraisal of a combined total of at least six significantly different substructure or hard landscaping design options. Evidence Required: - Life cycle assessment report - Mat 01/02 Results Submission Tool
Mat 02	**Environmental impacts from construction products - Environmental Product Declarations (EPD)**	Specification of products with a recognised environmental product declaration (EPD)	1	0		0		Landscape Architect* LCA Specialist*	4		Not Targeted
Mat 03	**Responsible Sourcing of construction products**	**Pre-requisite: Legal and sustainable timber**					Yes/No?	Client*Contractor*	4		Minimum Standard 100% of timber and timber-based products used on the project are 'Legal' and 'Sustainable' as per the UK Government's Timber Procurement Policy (TPP). Evidence Required: - Commitment/confirmation letter. - List of the timber and timber-based products used on the project. - Certificates & chain of custody documentation. - Delivery notes/tickets/PO no.
		Enabling Sustainable Procurement	1	1		0		Client*Contractor*	2		A sustainable procurement plan to be issued (before concept design) and used by the design team to guide specification towards sustainable construction products. Evidence Required: - Sustainable procurement plan
		Measuring Responsible Sourcing	3	1	1	0		Architect*Contractor*	4		Materials specified and procured from manufacturers who can provide EMS Certification (ISO 14001 etc.). Evidence Required: - Mat 03 Calculator Tool. - Certificates & chain of custody documentation. - Delivery notes/tickets/PO no.
Mat 05	**Designing for Durability & Resilience**	Designing for Durability & Resilience	1	1		0		Architect*	4		Protecting vulnerable parts of the building from damage and exposed parts of the building from material degradation. Evidence Required: - Mat05 matrix - Specification of measures specified to protect the building from damage and material degradation. - Design drawings of measures to protect against high pedestrian traffic / internal trolley movement / external protection against potential vehicular collision / service yard robustness measures.
Mat		**TOTAL:**	**14**	**7**	**1**	**0**					
		% of total score:	**22.00%**	**11.00%**	**1.57%**	**0.00%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
WASTE		0.80%									
Wst 01	**Construction Waste Management**	Pre-demolition audit	1	1		0		Demolition Contractor*	2		Minimum Standard: O-1 Pre-demolition audit must carried out at RIBA Stage 2 and included in Resource Management Plan (RMP). Evidence Required: - Provide a copy of pre-demolition audit report
		Construction Resource Efficiency	3	1	1	0	Yes/No?	Contractor*	4		RMP to be prepared covering the targets of non-hazardous waste arising from site construction . Contractor to limit waste to less than 6.5tonnes per 100m² gross internal area. Evidence Required: - Letter of confirmation the contractor will prepare a Resource Management Plan confirming the number of credits they are targeted.
		Diversion of Resources from Landfill	1	1		0		Contractor*	4		Contractor to limit waste to landfill. 90% (tonnes) of demolition and 80% non-demolition waste to be diverted from landfill. Evidence Required: - Letter of confirmation the contractor will prepare a Resource Management Plan confirming the number of credits they are targeted.
Wst 02	**Recycled Aggregates**	Project Sustainable Aggregate Points	1	0		0		Structural Engineer*	4		Not Targeted
Wst 03	**Operational Waste**	Operational Waste	1	1		0	Yes/No?	Architect*Client*	4		Minimum Standard: E/O-1 At least 2 sqm per 1000m² of NIA for recycling bins is required for building <5000m². Additional 2 sqm per 1000m² of NIA when catering is provided. A minimum of 10m² for buildings ≥ 5000m². Evidence Required: - Provide specification clauses/contract/Letter of commitment confirming that dedicated space is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit. - Provide drawings indicating the location of external waste & recycling storage areas to be accessible and clearly labelled.
Wst 05	**Adaptation to Climate Change**	Resilience of structure, fabric, building services and renewables installation	1	1		0		Design Team*Specialist*	2		Conduct a climate change adaptation strategy of new & existing fabric and it's durability to deal with extremes in weather condition. Develop recommendations/ solutions at RIBA Stage 2. Provide an update at RIBA Stage 4. Evidence Required: - Provide a climate change adaptation strategy
Wst 06	**Design for disassembly and adaptability**	Design for disassembly and functional adaptability - recommendations	1	1		0		Design Team*	2		Conduct study by the end of RIBA Stage 2 and develop recommendations prior to RIBA Stage 2. (i.e. alternative building uses, functions, major plant replacement, ventilation strategy to adapt to future building occupant needs, adaptability to changes of in-use etc. Evidence Required: - A copy of study to explore the ease of disassembly and the functional adaptation potential of different design scenarios by the end of Concept Design.
		Disassembly and functional adaptability – implementation	1	1		0		Design Team*	4		Provide an update during RIBA Stage 4, how the recommendations have been implemented - horizontally or vertically expandability, refurbishment potential, local plant and service distribution routes etc. Evidence Required: - Provide an update during RIBA Stage 4, how the recommendations or solutions have been implemented.
Wst		**TOTAL:**	**10**	**7**	**1**	**0**					
		% of total score:	**8.00%**	**5.60%**	**0.80%**	**0.00%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
LAND USE & ECOLOGY 1.46%											
LE 01	**Site Selection**	Previously Occupied Land	1	1		0		Architect*	4		At least 75% of the proposed development is on previously occupied land. Evidence Required: - Site plan showing the previously occupied part of the land and the assessed building's footprint.
		Contaminated Land	1	0		0		Specialist*	4		Not Targeted
LE 02	Comprehensive Route	**Prerequisite - Statutory obligations**					Yes/No?	Client*Contractor*			Prerequisite: The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site. Evidence Required: - Commitment/confirmation letter
	Ecological risks and opportunities	Survey and evaluation	1	1		0		Ecologist*	1		A Suitably Qualified Ecologist (SQE) carries out a survey and evaluation for the site early enough to influence site preparation works, layout, and, strategic planning decisions. Evidence Required: - Ecology report - SQE resume - Letters/meeting minutes/reports/correspondence.
		Determining ecological outcomes of the site	1	1		0		Ecologist*	2		The project team liaises and collaborates with representative stakeholders early enough to influence key planning decisions to Identify the optimal ecological outcomes for the site and Identify, appraise and select measures to meet the optimal ecological outcomes for the site. Evidence Required: - Ecology report. - SQE resume. - Letters/meeting minutes/reports/correspondence.
LE 03	**Managing impacts on ecology**	**Prerequisite - Ecological risks and measures on-site**					Yes/No?	Client*Contractor*			Prerequisite: LE 02 has been achieved.
		Planning and measures on-site	1	1		0		Ecologist*	2		Further planning to avoid and manage negative ecological impacts on-site is carried out and on-site measures for managing negative ecological impacts during site preparation and construction are implemented in-practice. Evidence Required: - Ecology report - SQE resume - Letters/meeting minutes/reports/correspondence
		Managing negative impacts	2	1	1	0		Ecologist*	4		SQE to provide recommendation on avoidance of negative impact of the site preparation and construction works according to the hierarchy and no net impact has resulted (1 or 2 credits). Evidence Required: Ecology report and letters/meeting minutes/reports/correspondence.
LE 04	**Ecological change and enhancement**	**Prerequisite - Managing negative impacts on ecology**					Yes/No?	Client*Contractor*			Prerequisite: - The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site. - Criterion 6 (for Foundation route) or 8 (for Comprehensive route) in LE 03 has been achieved.
		Ecological enhancement	1	1		0		Ecologist*	4		Measures have been implemented that enhance ecological value, which are based on input from the project team and SQE in collaboration with representative stakeholders. Evidence Required: - Ecology report - SQE resume - Letters/meeting minutes/reports/correspondence - Drawings/schematics - Technical specification.
		Change and enhancement of ecology (Route 2)	3	3		0		Ecologist*	4		SQE to provide calculations of the change in ecological value. Evidence Required: - GN40 - Letters/meeting minutes/reports/correspondence - Drawings/schematics - Technical specification - Completed BREEAM Change in Ecological Value Calculator.

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
LE 05	**Long Term ecology management and maintenance**	**Prerequisite - Statutory obligations, planning and site implementation**					Yes/No?	Client*Contractor*	4		Prerequisite: - The client or contractor has confirmed that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site. - Foundation route (Route 1) - Criterion 6 in LE 03 has been achieved. - Comprehensive route (Route 2) - Criterion 8 in LE 03 has been achieved, and at least one credit under LE 04 for 'Change and Enhancement of Ecology' has been awarded.
		Management and maintenance throughout the project	1	1		0		Ecologist*	4		Measures have been implemented to manage and maintain ecology throughout the project. A section on Ecology and Biodiversity has been included as part of the tenant or building owner information supplied. Evidence Required: -Confirmation letter/appointment letter explaining arrangements for the ongoing management of landscape and habitat connected to the project. - Ecology section at the BUG (Building user guide).
		Landscape and ecology management plan	1	1		0		Landscape Architect*Ecologist*	4		Landscape and ecology management plan, or similar, is developed in accordance with BS 42020:2013 covering as a minimum the first five years after project completion. Evidence Required: - A copy of the Landscape Habitat Management plan.
LE		**TOTAL:**	**13**	**11**	**1**	**0**					
		% of total score:	**19.00%**	**16.08%**	**1.46%**	**0.00%**					
POLLUTION		1.00%									
Pol 03	**Flood and surface water management**	Flood Resilience	2	2		0		Flood Risk Consultant*	4		Site specific Flood Risk Assessment prepared by specialist to confirm that if the site is a low, medium or high probability of flooding. Evidence Required: - Flood Risk Assessment covering all sources of flooding (Fluvial, Tidal, Surface water, Groundwater, Sewers & Artificial sources) - Flood Risk Assessor CV
		Surface Water Run Off	2	2		0		Flood Risk Consultant*	4		Prerequisite - Surface water run-off design solutions must be bespoke. Specialist hydrologist to provide calculation and confirm the proposed attenuation measures, i.e. SUDs. Evidence Required: - Site specific Suds report confirming [RATE] peak run off is no great her the natural site (greenfield) or rate 30% improvement for the developed site compared with the pre-developed (brownfield) site at the 1-year and 100-year return period event. Suds report calculations to allow for climate change scenario. - Site specific Suds report confirming [VOLUME] Flooding of property will not occur in the event of local drainage system failure. - SUDS Assessor CV - Confirmation letter Suds management & LT ownership in O&M's.
		Minimising Watercourse Pollution	1	0		0		Flood Risk Consultant*	4		Not Targeted
Pol 04	**Reduction of Night Time Light Pollution**	Reduction of Night Time Light Pollution	1	1		0		M&E Consultant*	4		External lighting design is in line with ILP guidance of obtrusive light and can be automatically switched off. Illuminated advertisements are designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements. Evidence Required: - Data collection tool showing all external lighting types, quantities and locations. - External lighting drawings showing location of lighting type. - Luminaire schedule. - Specification confirming compliance to ILP guidance including security lighting where present. - Specification confirming all lighting can be automatically switched off 23:00-7:00. - Specification confirming Illuminated advertisements are designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisement.
Pol		**TOTAL:**	**6**	**5**	**0**	**0**					
		% of total score:	**6.00%**	**5.00%**	**0.00%**	**0.00%**					

Credit Ref.	Credit Title	Credit Name	Credits Available	Credits Targeted	Potential Additional	Credits Achieved	Mandatory Elements	Responsibilities	Deadline / RIBA Stage	Status	Evidence Required
EXEMPLARY		1.00%									
Inn 01	**Man 03**	Responsible construction practices	1	0		0		Contractor*			Not Targeted
Inn 03	**Hea 01**	Visual Comfort	1	0		0		Architect*			Not Targeted
Inn 03	**Hea 02**	Emissions by construction products	0	0		0		Architect*Contractor*			Not Targeted
Inn 04	**Hea 06**	Security of Site & Building	1	0		0		Specialist*			Not Targeted
Inn 05	**Ene 01**	Exemplary level criteria	0			0		Energy Consultant*			Not Targeted
Inn 06	**Wat 01**	Water consumption	0	0		0		Architect*			Not Targeted
Inn 07	**Mat 01**	Environmental impacts from construction products - Building life cycle assessment (LCA)	3	0		0		LCA Specialist*			Not Targeted
Inn 08	**Mat 03**	Responsible Sourcing of construction products	1	0		0		Architect*Contractor*			Not Targeted
Inn 09	**Wst 01**	Construction waste management	1	0		0		Contractor*			Not Targeted
Inn 10	**Wst 02**	Use of recycled and sustainably sourced aggregates	1	0		0		Structural Engineer*			Not Targeted
Inn 12	**LE 02**	Ecological value of site and protection of ecological features	1	0		0		Ecologist*Contractor*			Not Targeted
Inn 13	**LE 04**	Ecological change and enhancement	1	0		0		Ecologist*			Not Targeted
Inn		**TOTAL:**	**10**	**0**	**0**	**0**					
		% of total score:	**10.00%**	**0.00%**	**0.00%**	**0.00%**					

WELL v2 Core Certification Q4 2022 - Scorecard

EUSTON TOWER

65204023
06/12/2024
Revision7

SWECO

Issue	Date	Reason for Issue	Prepared		Checked		Approved	
1	24-Nov-22	Preassessment	DB	06-Nov-22	DB	07-Nov-22	DB	08-Nov-22
2	13-Jan-23	Preassment Workshop	DB	13-Jan-23	DB	13-Jan-23	DB	13-Jan-23
3	13-Mar-23	Route to Platinum (8.5 uplift)	DB	13-Mar-23	DB	13-Mar-23	DB	13-Mar-23
4	28-Jun-23	Sound Concept review-Hann	DB	28-Jun-23	DB	28-Jun-23	DB	28-Jun-23
5	10-Jul-23	Architect Workshop	KT	30-Jun-23	DB	10-Jul-23	DB	10-Jul-23
6	07-Sep-23	Evidence Trackers update	KT	07-Sep-23	DB	07-Sep-23	DB	07-Sep-23
7	06-Dec-24	Planning Update	DB	06-Dec-24	DB	06-Dec-24	DB	06-Dec-24

EUSTON TOWER - WELL v2 Core Certification Q4 2022 - Scorecard
65204023
06/12/2024
Revision7

Sweco
1 Bath Road
Maidenhead
Berkshire
SL6 4AQ

+44 (0)1628 623 423
building.services@sweco.co.uk
sweco.co.uk/buildingservices

EUSTON TOWER

Architect Evidence Tracker Rev00

WELL v2 Core Certification Q4 2022- GOLD
Revision7
06/12/2024

		Score	Rating	
Targeted		**65.5**	GOLD	(60 - 79 Points)
Potential		**58.5**	PLATINUM	(80 - 100 Points)

Targeted
Potential to achieve Platinum
Not targeted
Evidence

		Feature	Part	Scope	Points Available	Targeted	Potential to Achieve Platinum	Mandatory	Evidence	Responsibility	Comments
AIR	P	A01. Air Quality	A01.1 Meet Thresholds for Particulate Matter	Non-Leased Spaces	Mandatory			Yes	**Performance Test**	**ALL**	Air quality tests will be carried out by the WELL Performance testing Agent (independent from the project team) in the common areas of the building (entrance lobby, staircases, etc.). Air flush is highly advised prior to the air quality tests if undergoing certification. **PLATINUM Target: PM2.5:** 15 µg/m3 / **PM10**: 50 µg/m3 or lower. **GOLD Target**: **PM2.5:** 25 µg/m3 / **PM10:** 50 µg/m3 or lower. **PM2.5: 14 -16 ug/m3** **PM10: 25 -28 ug/m3** **Website: https://www.londonair.org.uk/london/asp/annualmaps.asp?species=O3&LayerStrength=95&lat=51.5008010864&lon=-0.124632000923&zoom=19**
			A01.2 Meet Thresholds for Organic Gases	Non-Leased Spaces				Yes	**Performance Test**	**ALL**	**Benzene :** 10 µg/m³ or lower. **Formaldehyde :** 50 µg/m³ or lower. **Toluene :** 300 µg/m³ or lower.
			A01.3 Meet Thresholds for Inorganic Gases	Non-Leased Spaces				Yes	**Performance Test**	**ALL** **CNTR**	**Carbon monoxide:** 10 mg/m³ or lower. **Ozone:** 100 µg/m³ or lower. **O3: 32 -34 ug/m3** **Option 2: Mechanical Ventilation - All regularly occupied spaces at or below grade meet Feature A03, Part 1,** **Radon is less than 1% in the area** as per https://www.ukradon.org/information/ukmaps
			A01.4 Meet Radon Threshold	Non-Leased Spaces				Yes	**LOA M&E**	**M&E**	
			A01.5 Monitor Air Parameters	Non-Leased Spaces				Yes	**On-going Data Report**	**FM** **CLNT**	Air pollutant concentrations in non-leased spaces must be monitored/tested at least once a year and results sent to IWBI (certification body). ****Annual Air Quality Testing via WELL Performance testing organisation OR** **** Indoor Air Quality Monitors can be installed as per feature A08**
	P	A02. Smoke-Free Environment	A02.1 Prohibit Indoor Smoking	Whole Building	Mandatory			Yes	**Policy/Operations Schedule**	**FM**	**Smoking and use of e-cigarettes should be banned inside the building, Confirm via Operations Schedule or Policy Document.**
			A02.2 Prohibit Outdoor Smoking	Whole Building				Yes	**On-site Photographs LOA Owner**	**CLNT** **ARCH**	Smoking to be banned within **7.5 m** of all entrances, openable windows, building air intakes and outdoors (including the roof terraces). Signage to communicate vaping and cigarette smoking ban . (If the project has no outdoor spaces, you can demonstrate compliance by providing a Letter of Assurance that states the project has no outdoor spaces.) ****No Smoking/No Vaping Signs.**
	P	A03. Ventilation Design	A03.1 Ensure Adequate Ventilation	Whole Building	Mandatory			Yes	**LOA M&E**	**M&E**	**M&E confirmed compliance with CIBSE guide A:2007 for mechanical ventilation**
	P	A04. Construction Pollution Management	A04.1 Mitigate Construction Pollution	Extent of Developer Buildout	Mandatory			Yes	**LOA Contractor**	**CNTR**	Ducts to be cleaned post construction If ventilation system operating, MERV 8 filters to be be used and filters to be replaced. Moisture and dust management in place. (carpets, insulation etc to be stored seperately, Sealed doorways etc, matt, dust guards)
	O	A05. Enhanced Air Quality	A05.1 / 2 Points Meet Enhanced Thresholds for Particulate Matter	Whole Building	2	2		T	**Performance Test**	**ALL**	**Organic and inorganic gases such as Benxene Caprolactam Formaldehyde Carbon Monoxide, Nitrogen Dioxide etc to be tested by the Performance testing agent.**
			A05.2 / 1 Points Meet Enhanced Thresholds for Organic Gases	Whole Building	1	INN		T	**Performance Test**	**ALL**	**Specification of low** VOC, E1 class materials.
			A05.3 / 1 Points Meet Enhanced Thresholds for Inorganic Gases	Whole Building	1	INN		T	**Performance Test**	**ALL**	**Carbon monoxide:** 7 mg/m³ or lower. **Nitrogen dioxide**: 40 µg/m³ or lower. **NO2: 43 -46ug/m3** **NOTE: Risk to lost this point, NOx quite high in the area as per 2016 data (PreCovid).**
	O	A06. Enhanced Ventilation	A06.1 / 3 Points Increase Outdoor Air Supply	Whole Building	2	2		T	**LOA M&E**	**M&E**	**13.01.2023 - M&E to confirm ventialtion rate in all occupiable spaces XX l/s/per/person.** **Ventilation strategy under review.**
	O	A07. Operable Windows	A07.1 / 2 Points Provide Operable Windows	Whole Building	2		2	T/NT?	**On-site Photographs LOA Architect**	**ARCH**	**10.07.2023 - To be confirmed at a later stage**
			A07.2 / 2 Points Manage Window Use	Whole Building	2		2	T/NT?	**Professional Narrative On-site Photographs LOA Engineer**	**M&E**	
	O	A08. Air Quality Monitoring & Awareness	A08.1 / 0.5 Points Install Indoor Air Monitors	Non-Leased Spaces	0.5	INN		T	**On-site Photographs LOA M&E On-going Data Report**	**M&E**	**10.07.2023 - To be discussed with QS and Arup.** **Air quality monitors to be installed only in the non leased spaces regularly occupied spaces. Any RESET B certified air quality monitors will comply.** ****Air Quality Monitors** to be confirmed by the client.
			A08.2 / 1 Points Promote Air Quality Awareness	Non-Leased Spaces	1	INN		T	**On-site Photographs, LOA Client**	**CLNT**	**Dependent on meeting A08.Part 1.** ***Signs directing occupants to the phone app where air quality data can be accessed at a density of at least one sign per 325m2 of regularly occupied space (tenant accessible areas)**
	O	A09. Pollution Infiltration Management	A09.1 / 2 Points Design Healthy Entryways	Whole Building	2		2	T/NT?	**Photographs, LOA Architect Policy/Operations Schedule**	**FM** **ARCH**	**10.07.2023 - To be reviewed later.** For all r**egularly used entrances** that have pedestrian traffic to the building surroundings (not including balconies or terraces),The building includes an **entryway system composed of grilles, grates, slots or rollout mats or removable carpet tiles that are at least the width of the entrance and 3m long in the primary direction of travel (sum of indoor and outdoor length).** **ONE** of the below is in place to slow the movement of air from outdoors to indoors: **a. Building entry vestibule with two typically closed doorways. OR**

		Feature	Part	Scope	Points Available	Targeted	Potential to Achieve Platinum	Mandatory	Evidence	Responsibility	Comments
			A09.2 / 2 Points Perform Envelope Commissioning	Whole Building	2	2		T	**Technical Document**	**CNTR**	**Equivalent to Man04 Commissioning and Handover and Hea 02 IAQ** **Air Leakage testing to be undertaken post completion.**
	O	A10. Combustion Minimization	A10.1 / 2 Points Manage Combustion	Whole Building	2	2		T	**Photographs** **LOA Client** **LOA M&E**	**CLNT** **ARCH**	**Low emission** combustion sources. **Generators to meet requirement if used for more than 200 hrs per year.** **No Idling Signage** at pick up and drop off points.
	O	A11. Source Separation	A11.1 / 0.5 Points Manage Pollution and Exhaust	Non-Leased Spaces	0.5	INN		T	**Technical Document**	**M&E**	**M&E to confirm all bathrooms, toilets, cleaner cupboards to be negatively pressurised and exhaust fans to be installed.** **Or ARCH to confirm self closing doors and exhaust fans.**
	O	A12. Air Filtration	A12.1 / 2 Points Implement Particle Filtration	Whole Building	2	2		T	**Photographs** **LOA M&E** **On-going Maintenance report**	**FM** **M&E**	**M&E to confirm media filter specification** **FM: Filters to be maintained as per manufacturer recommendations and records submitted on WELL digital platform.**
	O	A13. Enhanced Supply Air	A13.1 / 2 Points Improve Supply Air	Whole Building	2	2		T	**Photographs** **LOA M&E** **On-going Maintenance report**	**FM** **M&E**	**M&E to confirm 100% outdoor air (local recirculation in fan coil units acceptable)** **FM:** Filters to be maintained as per manufacturer recommendations and records submitted on WELL digi platform.
					Total Available Points	Total Targeted	Total Potential				
		AIR 12 Point can reached			25	12	6				
WATER	P	W01. Water Quality Indicators	W01.1 Verify Water Quality Indicators	Whole Building	Mandatory			Yes	**Performance Test**	**M&E**	Water delivered to the project and intended for HUMAN CONTACT (e.g.: Drinking, cooking, dishwashing, handwashing, showering or bathing to meet the thresholds for Turbidity and Coliform) **Water quality to be tested as soon as there is a connection on site.**
	P	W02. Drinking Water Quality	W02.1 Meet Chemical Thresholds	Whole Building	Mandatory			Yes	**Performance Test**	**ARCH**	Water quality to be tested once there is a connection onsite. All drinking water dispensers (in non leased spaces) to meet the parameters for Chlorine, TTHM and Haloacetic Acids. **Water quality to be tested as soon as there is a connection on site.** **10.07.2023 - ONE water dispenser to be provided should be accessible to all occupants (including tenants)**
			W02.2 Meet Thresholds for Organics and Pesticides	Whole Building				Yes	**Technical Document**	**M&E**	As above
	P	W03. Basic Water Management	W03.1 Monitor Chemical and Biological Water Quality	Non-Leased Spaces	Mandatory			Yes	**On-going Data Report**	**FM**	The following water parameters are sampled at intervals of no less than once per year: Turbidity / pH./ Residual (free) chlorine/ Total coliforms, only if residual chlorine is below detection limits. Any other water parameter found at 80% or above its threshold listed in W02 Part 1, as stated in the Final WELL Report or in subsequent annual sampling. Testing occurs only at the locations where parameters were found to be at 80% or above its threshold and testing takes place at least annually until the sample is below 80% of the threshold. The number and location of sampling points for on-going monitoring complies with the requirements outlined in the Performance Verification Guidebook. ****Water Quality to be tested once a year and results submitted annually through the WELL digital platform.**
			W03.2 Implement Legionella Management Plan	Whole Building				Yes	**Technical Document**	**FM** **M&E**	**Requirements close to standard practice.** **To be confirmed by Sweco M&E.**
	O	W04. Enhanced Water Quality	W04.1 / 2 Points Meet Thresholds for Drinking Water Taste	Whole Building	2	2		T	**Performance Test**	**M&E / CNTR**	**Water quality to be tested as soon as there is a connection on site.**
	O	W05. Drinking Water Quality Management	W05.1 / 2 Points Assess and Maintain Drinking Water Quality	Whole Building	2	2		T	**Technical Document** **On-going Data Report**	**CNTR** **M&E**	**Water quality to be tested as soon as there is a connection on site.** **Pre-test of water quality one month before PV.** Sampling occurs at the following locations (with filters or other water treatment devices removed, if present): The water dispenser that is closest to the pipe that delivers water into the project.For projects with more than two floors, a drinking water dispenser on the highest floor and the drinking water dispenser located farthest from the location in requirement b(1) above to which the project has access.For projects of 12 or more floors, one additional drinking water dispenser for every 10 floors. AND Water is tested quarterly in drinking water dispensers and meets the following thresholds. If any sample exceeds these thresholds, remediation and re-testing occur within a month:
			W05.2 / 1 Point Promote Drinking Water Transparency	Non-Leased Spaces	1	INN		T	**Policy/Operations Schedule**	**FM**	The following information is prominently displayed near sources of drinking water (or on a website available to occupants): Water quality results from the most recent sampling, including date of testing and compliance with WELL thresholds. If filters or other treatment units are in use, information about the treatment technologies and most recent date of device maintenance and/or filter cartridge replacement.
	O	W06. Drinking Water Promotion	W06.1 / 1 Points Ensure Drinking Water Access	Whole Building	1	1		T	**Technical Document** **Policy/Operations Schedule**	**ARCH / M&E**	**M&E to review and confirm** **1: Dispenser availability:** One wa**ter supply and drainage point that can be connected to a drinking water dispenser within each 930 m² of leased space.**
	O	W07. Moisture Management	W07.1 / 2 Points Design Envelope for Moisture Protection	Whole Building	2	2		T	**Professional Narrative**	**ARCH / M&E**	**Sweco WELL AP to provide template to collate evidence.**
			W07.2 / 2 Points Design Interiors for Moisture Management	Whole Building	2	2		T	**Professional Narrative** **On-site Photographs** **LOA M&E**	**ARCH / M&E**	**Sweco WELL AP to provide template to collate evidence.** **Architect to address:** a. Protection of moisture-sensitive building materials and selection of moisture-resistant materials or finishes in surfaces likely to be exposed to liquid water (e.g., finished floors) or that may absorb moisture such as interior sheathing in basements, areas at or below grade, bathrooms, janitorial rooms or kitchens. b. Condensation on cold surfaces such as basements, slab-on-grade floors, the inside of exterior walls and glazing.
			W07.3 / 2 Points Implement Mold and Moisture Management Plan	Whole Building	2	2		T	**Policy /Operations Schedule** **On-going Maintenance Report**	**FM**	**Operational Moisture Management for building operations**: Schedule of periodic inspections
	O	W08. Hygiene Support *WELL H&S Rating Feature	W08.2 / 1 Points Enhance Bathroom Accommodations	Extent of Developer Buildout	1		1	T/NT?	**On-site Photographs** **LOA Architect**	**ARCH**	**10.07.2023 - To be reviewed by ARUP SMART BUILDINGS** **All bathrooms meet the following:** **a. Toilets are equipped with hands-free flushing.**
			W08.3 / 1 Point Support Effective Handwashing	Extent of Developer Buildout	1		1	T/NT?	**On-site Photographs** **LOA Architect**	**ARCH**	**10.07.2023 - Architects to review and confirm** ***One of the WELL H&S rating features.** All sinks where handwashing is expected (e.g., kitchens, bathrooms, break rooms and wellness rooms), meet the following requirements: a. The faucet design prevents the water column from flowing directly into the drain or a **sink drain stopper is installed.** b. Water does not splash outside the sink when the faucet is fully open. c. Newly installed sinks meet the following design parameters:
			W08.4.1/1 Point Provide Handwashing Supplies and Signage	Extent of Developer Buildout	1	1		T	**Policy /Operations Schedule**	**FM** **ARCH**	**10.07.2023 - confirmed achievable** a. **Fragrance-free liquid hand soap dispensed** through **one** of the following: 1. Sealed dispensers equipped with disposable soap cartridges. 2. **Dispensers with detachable and closed containers for soap refill. Soap containers must be washed and disinfected when emptied, before refilling.** b. **One** of the following methods for hand drying: **1. Paper towels. (Size of the bins to be discussed with the architects)** 2. Hand dryers equipped with a HEPA filter. Filter replacement and equipment maintenance are carried out permanufacturer's instructions. (not recommended due to energy uplift) 3. Fabric hand towel rolls with dispensers, with rolls replaced before reaching their end of service. c. **Signage displaying steps for proper hand washing**
					Total Available Points	Total Tageted	Total Potential				
					18	12	2				
NOU	P	N01. Fruits and Vegetables	N01.1 Provide Fruits and Vegetables	Non-Leased Spaces	Mandatory			Yes	**LOA Client**	**CLNT**	**Option 1 applicable to the café.**

		Feature	Part	Scope	Points Available	Targeted	Potential to Achieve Platinum	Mandatory	Evidence	Responsibility	Comments
NOURISHMENT		Fruits and Vegetables	N01.2 Promote Fruit and Vegetable Visibility	Non-Leased Spaces					On-site Photographs, LOA Client	CLNT	
	P	N02. Nutritional Transparency	N02.1 Provide Nutritional Information	Non-Leased Spaces	Mandatory			Yes	On-site Photographs LOA Client	CLNT	Option 1 applicable to the café.
			N02.2 Address Food Allergens	Non-Leased Spaces					Policy/Operations Schedule	CLNT	Not applicable
			N02.3 Label Sugar Content	Non-Leased Spaces					On-site Photographs LOA Client	CLNT	Not applicable
	O	N07. Nutrition Education	N07.1 / 1 Points Provide Nutrition Education	Whole Building	1		1	T/NT?	Policy/Operations Schedule	FM	*Quaterly cooking demos OR Nutrition/dietary education workshops
	O	N08. Mindful Eating	N08.1 / 1 Points Support Mindful Eating	Non-Leased Spaces	1	1		T	Technical Document Policy/Operations Schedule	FM ARCH	10.07.2023 - Designated eating space. * Designated eating space for at least 25% of regular building occupants (FM staff) that has tables and chairs, should be protected from environment or should be in a climate controlled space.
	O	N10. Food Preparation	N10.1 / 0.5 Points Provide Meal Support	Non-Leased Spaces	0.5	0.5		T	On-site Photographs LOA Client	ARCH / CLNT	10.07.2023 - Part of the designated eating space **Applies to communal spaces only (i.e. kitchenette with fridge, microwave, etc, for employees working at the reception and facility mangement teams)
	O	N12. Food Production	N12.1 / 1 Points Provide Gardening Space	Non-Leased Spaces	1		1	T/NT?	Technical Document	ARCH	13.03.2023 - Gardening space to be reviewed and confirmed. Permanent and accessible space for food production within 800 m of the project boundary. To be provided for FM team members only. If the area of the gardening space is 70m2 or more then the additional point will be awarded. **Gardening space and gardening support (plants, soil, water, tools)
	O	N13. Local Food Environment	N13.1 / 2 Points Ensure Food Access	Whole Building	2	2		T	Technical Document	SWECO	Supermarket or store with a fresh fruit and vegetable section at 200m walking distance from the project boundary. Sainsbury's Local, 21 Hampstead Rd, London NW1 3JA at 16m from the project boundary
					Total Available Points	Total Targeted	Total Potential				
					14.5	3.5	2				
LIGHT	P	L01. Light Exposure and Education	L01.1 Provide Indoor Light	Whole Building	Mandatory			Yes	Technical Document	ARCH	Architects to confirm. Option 2: At least 30% of the regularly occupied area is within a 6 m horizontal distance of envelope glazing in each floor 10.07.2023 - Option1 daylight simulation under review with lighting consultants.
	P	L02. Visual Lighting Design	L02.1 Provide Visual Acuity	Non-Leased Spaces	Mandatory	1		Yes	Technical Document Performance Test	M&E	M&E confirmed the specifications will comply with EN 12464- 2021 Requirements to be addressed in the specifications. 1 Core Point to meet requirements in the whole building.
	O	L04. Electric Light Glare Control	L04.1 / 1 Points Manage Glare from Electric Lighting	Non-Leased Spaces	1		1	T/NT?	Technical Document	M&E	M&E to review and discuss with Lighiting Manufacturers. The following requirement is met in all regularly occupied spaces:
	O	L05. Daylight Design Strategies	L05.1 / 3 Points Implement Daylight Plan	Whole Building	3	2	1	T	Technical Document	ARCH	10.07.2023 - Calculation to be undertaken to confirm any one of the below 3 Points - Envelope glazing is no less than 25% of the regularly occupied floor area or individual unit. Visible light transmittance (VLT) of windows is greater than 40%. 2 Points - Envelope glazing is no less than 15% of the regularly occupied floor area or individual unit. Visible light transmittance (VLT) of windows is greater than 40%.
	O	L06. Daylight Simulation	L06.1 / 3 Points Conduct Daylight Simulation	Whole Building	3		3	T/NT?	Technical Document	ARCH / M&E	The entire floorplate, except circulation areas in non-leased spaces, is to be considered regularly occupied.
	O	L07. Visual Balance	L07.1 / 0.5 Points Balance Visual Lighting	Non-Leased Spaces	0.5	0.5		T	Professional Narrative	M&E	Horizontal and vertical luminance contrast ratios for an ambient light system is no more than 10 between adjacent independently controlled zones. Illuminance uniformity ratio of at least 0.4 or 1:2.5 (minimum light level: average light level) is achieved on any horizontal task plane within a space. Automatic changes in lighting characteristics, such as light levels, changes in color and distribution take place over a period of at least 10 minutes.
	O	L08. Electric Light Quality	L08.1 / 0.5 Points Enhance Color Rendering Quality	Non-Leased Spaces	0.5		0.5	T/NT?	Technical Document	M&E	M&E currently reviewing it in terms of cost effectiveness
			L08.2 / 1 Points Manage Flicker	Non-Leased Spaces	1	1		T	Technical Document	M&E CNTR	M&E to confirm with Manufacturer LED lights compliant with IEEE or NEMA standards.
	O	L09. Occupant Lighting Control	L09.1 / 1 Points Enhance Occupant Controllability	Non-Leased Spaces	1		1	T/NT?	Technical Document	M&E	M&E to review and confirm if requirements can be met.
			L09.2 / 0.5 Points Provide Supplemental Lighting	Non-Leased Spaces	0.5	0.5		T	Performance Test Policy/Operations Schedule	FM M&E	Occupants are provided supplemental lighting, the light fixtures provided increase the light level on the task surface to at least twice the recommended light levels based on the reference used to meet Feature L02: Visual Lighting Design, Part 1. *Task lights to be provided for the reception desk, FM office and additional task light to be made avaiable on request within eight weeks.
					Total Available Points	Total Targeted	Total Potential				
					17.5	5	6.5				
MO	P	V01. Active Buildings and Communities	V01.1 Design Active Buildings and Communities	Whole Building	Mandatory			Yes		CLNT	Feature 04 Facilities for Active Occupants and Feature V05: Site Planning and Selection targeted.

		Feature	Part	Scope	Points Available	Targeted	Potential to Achieve Platinum	Mandatory	Evidence	Responsibility	Comments
MOVEMENT	P	V02. Ergonomic Workstation Design	V02.1 Support Visual Ergonomics	Non-Leased Spaces	Mandatory			Yes	**Photographs LOA Client**	**CLNT**	****Monitors with flexible height and angle adjustment or Monitor stands**
			V02.2 Provide Height-Adjustable Work Surfaces	Non-Leased Spaces				Yes	**On-site Photographs LOA Client**	**CLNT**	25% of the workstation in non leased spaces to meet the requirement. ****Manual or Electric height adjustable workstation or Supplemental solutions, such as stand, that can be raised or lowered.**
			V02.3 Provide Chair Adjustability	Non-Leased Spaces				Yes	**On-site Photographs LOA Client**	**CLNT**	****Adjustable ergonomically designed chair at reception and Facility Management office.**
			V02.4 Provide Support at Standing Workstations	Non-Leased Spaces				Yes	**On-site Photographs LOA Client**	**CLNT**	**Option 1 Support for Standing Workers** - Any desks for security staff who are required to stand for more than 50% or more of their working hours, A footrest or Footrail under the desk, recessed toe space at least 4inches in depth and height. **Option 2 No standing workers** - There are no workstations in which users are regularly required to stand for 50% or more of their working hours. ****Foot rest or footrail under the desk**
			V02.5 Provide Workstation Orientation	Non-Leased Spaces				Yes	**Policy/Operations Schedule**	**FM**	****Ergonomic education via video, smart phone app or in person training: FM organisation to address.**
	O	V03. Circulation Network	V03.1 / 2 Points Design Aesthetic Staircases	Whole Building	2	2		T	**Technical Document**	**M&E** **ARCH**	10.07.2023 - Strategy to be confirmed ONE staircase, connecting all floors to have **any two** of the following, Music/**Artwork/ Light levels 215lux/ Natural design elements**, plants water features.
	O	V04. Facilities for Active Occupants	V04.1 / 3 Points Provide Cycling Infrastructure	Whole Building	3	2		T	**Technical Document LOA Architect**	**FM** **CNTR** **ARCH**	**Assuming occupants for Gross Floor Area(GEA) of m2** **1. Cycling Network: Project located right by Cycle Super Highway 7.** **2. Cycling Infrastructure: 193 Long term parking spaces to be provided.** **13Short term spaces (1:7 approx, can be changed to suit project)** **Bicycling Maintenance tools to be provided.**
			V04.2 / 2 Points Provide Showers, Lockers and Changing Facilities	Whole Building	2	2		T	**Technical Document**	**ARCH**	**15 showers and 75 Lockers to be provided. Showers and lockers to be co-located.**
	O	V05. Site Planning and Selection	V05.1 / 3 Points Select Sites with Pedestrian-friendly Streets	Whole Building	3	3		T	**Technical Document**	**Transport Consul**	**1: Pedestrian-friendly streets**: Within a 400 m distance of the project boundary, 90% of the total street length has continuous sidewalks on both sides and two of the following are met: At least eight existing use types (as defined in Appendix V1) are present. Speed limits of 40 kmh or less and street has buffer protections along sidewalks (e.g., curb extension, bioswales, bike lane, parked cars, benches, trees, planters). Street segments intersect one another (excluding alleys) at least every 80-100 m. **2: Pedestrian-friendly environment** Exterior building walls facing the pedestrian network incorporate one or more of the following on the first floor or first 5.5 vertical m (whichever is less): Windows or glazing that provide transparency into the space. Overhangs such as canopies, awnings, eaves or shades. Murals or other artistic installations. Biophilic design elements (e.g., plants, water features, nature patterns, natural building materials). Mixed building textures, colors and/or other design elements.
			V05.2 / 3 Points Select Sites with Access to Mass Transit	Whole Building	3	3		T	**Technical Document**	**SWECO**	**PTAL Score of 5 and above.** **Will be achieved as PTAL Score is 6b.**
	O	V06. Physical Activity Opportunities	V06.1 / 1 Point Offer Physical Activity Opportunities	Building Management Staff	1		1	T/NT?	**Policy/Operations Schedule**	**FM**	**Physical activity programs to be offered to regular occupants.**
	O	V08. Physical Activity Spaces and Equipment	V08.2 / 2 Points Provide Outdoor Physical Activity Space	Whole Building	2	INN		T	**Technical Document**	**SWECO**	Targeted as INNOVATION POINT Option 1: The project provides regular occupants access to a physical activity within a 400 m walk distance of the project boundary at no cost. **The Regent's Park, London at 400m walking distance from project boundary**
					Total Available Points	Total Targeted	Total Potential				
		MOVEMENT 12 point cap reached			25.5	12	1				
THERMAL COMFORT	P	T01. Thermal Performance	T01.1 Provide Acceptable Thermal Environment	Whole Building	Mandatory			Yes	**Technical Document Performance Test LOA M&E**	**M&E**	(Option 1) Range of PMV of +/- 0.5 for at least 90% occupied hours and at least in 90% of regularly occupied spaces.
			T01.2 Monitor Thermal Parameters	Non-Leased Spaces				Yes	**On-going Data Report**	**FM**	***Indoor thermal parameters to be measured twice a year or via T06. Thermal monitors**
	O	T04. Individual Thermal Control	T04.1 / 0.5 Points Provide Personal Cooling Options	Non-Leased Spaces	0.5	0.5		T	**On-site Photographs LOA M&E**	**FM**	****Desk fan or ceiling fan that doesn not increase air speed for other occupants or chairs with mechanical cooling system .**
			T04.2 / 0.5 Points Provide Personal Heating Options	Non-Leased Spaces	0.5	0.5		T	**On-site Photographs LOA Client**	**FM**	****Adjustable thermostat, Electric parabolic space heater, Heated chair or footwarmers.**
	O	T06. Thermal Comfort Monitoring	T06.1 / 0.5 Points Monitor Thermal Environment	Non-Leased Spaces	0.5	0.5		T	**On-site Photographs LOA M&E On-going Report**	**M&E**	****Additional monitors and displays would be required (at least 1 per core per floor)**
	O	T09. β Outdoor Thermal Comfort	T09.2/ 2 Points Avoid Excessive Wind	Whole Building	2		2	T/NT?	**Technical Document**	**M&E**	**A computational fluid dynamic model of the building and any adjacent buildings that takes into account at least one day per season (i.e., per quarter) demonstrates the following:** **Winds are not expected to exceed 5 m/s for more than 5% of hours in the year in seating areas or 10% of hours on paths and parking lots.** **Winds are not expected to exceed 15 m/s on paths, parking lots or seating areas for more than 0.05% of hours in the year.**
					Total Available Points	Total Targeted	Total Potential				
					21	1.5	2				
SOUND	P	S01. Sound Mapping	S01.1 Label Acoustic Zones	Whole Building	Mandatory			Yes	**Technical Document**	**ARCH / ACOUT**	To be met in the whole building based on any knowledge of anticipated use. An annotated document avaiable to all occupants showing labeled zones throughout the project: Loud, Quiet, Mixed and circulation. Mitigation for loud zones that border quiet zones. **28.06.2023 - Architect to provide speculative floor plans to the Acoustician.**
			S01.2 Provide Acoustic Design Plan					Yes	**Professional Narrative**		
	O	S02. Maximum Noise Levels	S02.1 / 1.5 Points Limit Background Noise Levels	Non-Leased Spaces	1.5	1.5		T	**Technical Document**	**ACOUT**	**28.06.2023 - Confirmed achievable by Hann Tucker. To be included within the first draft report.**
	O	S06. Minimum Background Sound	S06.1 / 2 Points Provide Minimum Background Sound	Whole Building	2		2	T/NT?	**Technical Document**	**ACOUT**	**28.06.2023 - Sweco WELL AP to query if requirements can be achieved via ventilation design.**

		Feature	Part	Scope	Points Available	Targeted	Potential to Achieve Platinum	Mandatory	Evidence	Responsibility	Comments
					Total Available Points	Total Targeted	Total Potential				
					16.5	1.5	2				
MATERIALS	P	X01. Material Restrictions	X01.1 Restrict Asbestos	Extent of Developer Buildout	Mandatory			Yes	**Technical Document LOA Contractor**	**CNTR**	No use of products containing asbestos
			X01.2 Restrict Mercury	Extent of Developer Buildout				Yes	**Technical Document LOA Architect LOA M&E**	**M&E**	**M&E to confirm:** Limiting mercury content in illuminated signs, thermostats, switches, etc. Mercury free technology
			X01.3 Restrict Lead	Extent of Developer Buildout				Yes	**Technical Document LOA Architect**	**CNTR**	**M&E to confirm:** Restriction on lead in plumbing systems. Products to meet **EU Council Directive 98/83/EC** as verified by the **KIWA** mark **Architects to confirm:** Restrictions on lead in paint.
										M&E	
										ARCH	
	P	X02. Interior Hazardous Materials Management	X02.1 Manage Asbestos Hazards	Extent of Developer Buildout	Mandatory			Yes	**LOA Client**	**CLNT**	**Option 2: New spaces** - Project was built after the enactment of an asbestos ban in construction products.
			X02.2 Manage Lead Hazards	Extent of Developer Buildout				Yes	**LOA Client**	**CLNT**	**Option 2: New spaces** - Project was built after the enactment of lead paint ban. Lead Paint banned in 1992.
			X02.3 Manage Polychlorinated Biphenyl (PCB) Hazards	Extent of Developer Buildout				Yes	**LOA Client**	**CLNT**	**Option 2: No PCB remediation** - Project is in a building constructed or last renovated after the institution of any applicable laws banning or restricting PCBs. PCBs Banned in 1981 and exsisting equipment containing in excess of 5 litres of PCBs were stopped in dec 2000.
	P	X03. CCA and Lead Management	X03.1 Manage Exterior CCA Hazards	Extent of Developer Buildout	Mandatory			Yes	**LOA Client**	**CLNT**	**Option 2: CCA assessment not required - Meet <u>one</u> of the following.** a. All existing wood structures that lie outside the building envelope but within the project boundary where human presence is expected (e.g., wooden decks, fences near walkways, playgrounds and outdoor furniture) were installed after the enactment of laws banning chromated copper arsenate (CCA). b. The project does not have wood structures that lie outside the building envelope but within the project boundary. c. The project does not have spaces outside the building envelope but within the project boundary.
			X03.2 Manage Lead Hazards	Extent of Developer Buildout				Yes	**Professional Narrative LOA Client**	**CLNT**	**Option 2: Lead assessment not applicable** a. Project does not have existing post-construction outdoor bare soil (e.g., not covered by grass, vegetation or mulch). b. Project does not have artificial turf. c. Project does not have loose-fill rubber from recycled tires. d. Paint applied to existing playground equipment was installed and painted after the enactment of banning laws, or no playground equipment is present.
	O	X05. Enhanced Material Restrictions	X05.1 / 1 Points Select Compliant Interior Furnishings	Extent of Developer Buildout	1	1		T	**Technical Document LOA Architect**	**ARCH**	**Architects to review and confirm if achievable**
									Technical Document LOA Contractor	**CNTR**	
			X05.2 / 1 Points Select Compliant Architectural and Interior Products	Extent of Developer Buildout	1	1		T	**Technical Document LOA Contractor**	**ARCH / CNTR**	**Architects to review and confirm if achievable**
	O	X06. VOC Restrictions	X06.1 / 2 Points Limit VOCs from Wet-Applied Products	Extent of Developer Buildout	2	2		T	**LOA Contractor**	**CNTR**	**Architects to review and confirm if achievable** Interior Wet applied paints , coatings, adhesives, sealants and finished poured floorings used inside the builidng envelope meet EU **Ecolabel for indoor and outdoor paints and varnishes** and **75% of products** are tested by a third party lab to meet testing methods and thresholds established by **EU LCI VOC Thresholds** following **EN16516-1:2018 testing methods.**
										ARCH	
			X06.2 / 2 Points Restrict VOC Emissions from Furniture, Architectural and Interior Products	Extent of Developer Buildout	2	2		T	**LOA Contractor**	**CNTR**	**Architects to review and confirm if achievable**
										ARCH	
	O	X09. Waste Management	X09.1 / 2 Points Implement a Waste Management Plan	Whole Building	2	2		T	**Policy/Operations Schedule**	**CLNT**	**To be reviewed by waste consultants.** **Waste management plan**. For batteries pesticides, lamps that may contain mercury
	O	X10. Pest Management and Pesticide Use	X10.1 / 2 Points Manage Pests	Whole Building	2		2	T/NT?	**Policy/Operations Schedule**	**FM**	Pest management plan for pest control based on integrated pest management (IPM) principles is implemented for all indoor and outdoor spaces,
	O	X11. Cleaning Products and Protocols *WELL H&S Rating Feature	X11.1 / 0.5 Points Improve Cleaning Practices *WELL H&S Rating Feature	Non-Leased Spaces	0.5		0.5	T/NT?	**Policy/Operations Schedule**	**FM**	**Cleaning protocol** to be followed by FM team. **FM Organisation to review and confirm**
			X11.2 / 0.5 Points Select Preferred Cleaning Products *WELL H&S Rating Feature	Non-Leased Spaces	0.5		0.5	T/NT?	**Policy/Operations Schedule**	**FM**	**Low Hazard or Ecolabel or Third party certification** recognised by the local government where the project is located. Safety datasheet disclosed ingredieants as per EU regulations 2015/230 (CLP) **FM Organisation to review and confirm**
	O	X12. β Contact Reduction *WELL H&S Rating Feature	X12.1 / 1 Point Reduce Respiratory Particle Exposure	Non-Leased Spaces	1		1	T/NT?	**Professional Narrative**	**FM**	One of the features in the **WELL Health and Safety rating.** **FM Organisation to review and confirm**
			X12.2 / 1 Point Address Surface Hand Touch	Non-Leased Spaces	1		1	T/NT?	**Policy/Operations Schedule**	**FM**	To be reviewed if it can be achieved.
					Total Available Points	Total Targeted	Total Potential				
					20	8	7				

		Feature	Part	Scope	Points Available	Targeted	Potential to Achieve Platinum	Mandatory	Evidence	Responsibility	Comments
MIND	P	M01. Mental Health Promotion	M01.1 Promote Mental Health and Well-being	Direct Staff	Mandatory			Yes	**Policy/Operations Schedule**	**FM**	****FM Staff to be provided Education or awareness on mental health and well being quarterly in person or online.** Email with helpful material sleep habits etc. and Healthy working house policy outlining max hours in 24 hour and 7 day period.
	P	M02. Nature and Place	M02.1 Provide Connection to Nature	Non-Leased Spaces	Mandatory			Yes	**Professional Narrative**	**ARCH**	Integrate natural materials, patterns shapes colours images or sounds, along with any one of the following: Plants Water, Nature Views. In Non leased spaces.
			M02.1 / 1 Points Provide Connection to Place	Non-Leased Spaces				Yes	**Professional Narrative**	**ARCH**	Provide a narrative that explains how the design elements address celebration of culture, place, integration of art and human delight.
	O	M03. Mental Health Services	M03.1 / 0.5 Points Offer Mental Health Screening	Direct Staff	0.5	0.5		T	**Policy/Operations Schedule**	**FM**	Offered by NHS compliant with WELL requirments.
			M03.2 / 0.5 Points Offer Mental Health Services	Direct Staff	0.5	0.5		T	**Policy/Operations Schedule**	**FM**	Offered by NHS compliant with WELL requirements Look up the nearest GP .
			M03.3 / 0.5 Points Offer Workplace Support	Direct Staff	0.5		0.5	T/NT?	**Policy/Operations Schedule**	**FM**	**FM Org to review the requirements and confirm** **Support employees with sick leaves for mental health needs, short or long term leaves, interpersonal support, works sch adjustments, adjustment of physical environment etc.**
			M03.4 / 0.5 Points β Support Mental Health Recovery WELL H&S Rating	Direct Staff	0.5		0.5	T/NT?	**Policy/Operations Schedule**	**FM**	**FM Org to review the requirements and confirm**
	O	M04. Mental Health Education	M04.1 / 1 Points Offer Mental Health Education	Direct Staff	0.5		0.5	T/NT?	**Policy/Operations Schedule**	**FM**	**FM Org to review the requirements and confirm**
			M04.2 / 1 Points Offer Mental Health Education for Managers	Direct Staff	0.5		0.5	T/NT?	**Policy/Operations Schedule**	**FM**	**FM Org to review the requirements and confirm**
	O	M05. Stress Management	M05.1 / 1 Points Develop Stress Management Plan	Direct Staff	1		1	T/NT?	**Professional Narrative**	**FM**	**FM Org to review the requirements and confirm**
		M06. Restorative Opportunities	M06.1 / 0.5 Points Support Healthy Working Hours	Direct Staff	0.5		0.5	T/NT?	**Policy/Operations Schedule**	**FM**	**FM Org to review the requirements and confirm**
	O	M07. Restorative Spaces	M07.1 / 2 Points Provide Restorative Space	Whole Building	2		2	T/NT?	**Technical Document**	**ARCH**	**10.07.023 - To be reviewed and confirmed if achievable** **3784 Occupants Hence 385m2 . MAX space of 186m2 to be provided.** **a. Is designated for relaxation and restoration. Space may be multi-purpose but is not to be used for work.** **b. Totals at least 7 m² plus 0.1 m² per regular occupant, up to a maximum of 186 m².** **c. Provides a restorative environment that considers at least five of the following:** **Lighting (e.g., dimmable light levels for indoor spaces).**
	O	M08. Restorative Programming	M08.1 / 0.5 Points Provide Restorative Programming	Direct Staff	0.5		0.5	T/NT?	**Policy/Operations Schedule**	**FM**	**FM Org to review the requirements and confirm** **Free or subsidized by 50% mindfulness programming such as guided meditation, yoga etc offered live in person or virtually once a week in a quiet zone. Digital Mindfullness offereings (Mindfulness apps such as calm, headspace etc)**
	O	M09. Enhanced Access to Nature	M09.2 / 2 Points Provide Nature Access Outdoors	Whole Building	2		1	T/NT?	**Technical Document**	**ARCH**	**10.07.023 - To be reviewed and confirmed by Landscape.** **1: Outdoor nature: Nearby nature access facilitated by the conditions below:** **1. At least one green space or blue space is within a 200 m walk distance from the project boundary and available to all regular occupants during open hours of the space(s).** **2. Total combined green space must be at least 0.5 hectare** **2: Outdoor nature access: The following requirement is met:** **a. Occupants are encouraged to access outdoor nature (e.g., presence of signage or maps to outdoor nature, availability of breaks during the workday to go visit outdoor nature).**
	O	M11. Substance Use Services	M11.1 / 0.5 Points Offer Substance Use Education	Direct Staff	0.5		0.5	T/NT?	**Policy/Operations Schedule**	**FM**	**FM Org to review the requirements and confirm**
			M11.2 / 0.5 Points Provide Substance Use and Addiction Services	Direct Staff	0.5		0.5	T/NT?	**Policy/Operations Schedule**	**FM**	**FM Org to review the requirements and confirm**
					Total Available Points	Total Targeted	Total Potential				
					13.5	1	8				
COMMUNITY	P	C01. Health and Wellness Promotion	C01.1 Provide WELL Feature Guide	Whole Building	Mandatory			Yes	**Policy/Operations Schedule**	**CLNT / SWECO**	Digital or physical guide describing all the WELL features achieved on the project prominently displayes or widely made avaibale to all the occupants. Quaterly communications, part of on boarding package.
	P	C02. Integrative Design	C02.1 Facilitate Stakeholder Charrette	Whole Building	Mandatory			Yes	**Professional Narrative**	**ALL**	Early consideration of all WELL features, environmental and sustainaility goals. Mins of the meeting to be shared with WELL AP.
			C02.2 Promote Health-Oriented Mission	Whole Building				Yes	**Policy/Operations Schedule**	**CLNT**	Outline objectives for health promotion, incorporate relecvant project goals or strategeies, incorporates the ten WELL concepts. Health orented mission is made avaiable to all occupants and is detailed in the WELL guide CO1.1.
	P	C03. Emergency Preparedness *WELL H&S Rating	C03.1 Develop Emergency Preparedness Plan	Direct Staff	Mandatory			Yes	**Policy/Operations Schedule**	**CLNT**	Develop a emergency preparedness plan *** Emergency preparedness plan.**
	P	C04. Occupant Survey	C04.1 Select Project Survey	Direct Staff	Mandatory			Yes	**Professional Narrative LOA Client**	**FM**	**Option 1:** Third party survey to be adopted such as BUS wellbeing survey, SHE **OR** **Option 2:** Create a custom survey **OR** **Option 3:** If there are fewer than 10 eligible employees in the project, a letter of assurance to be signed to confirm the same.
			C04.2 Administer Survey and Report Results	Direct Staff	Mandatory			Yes	**Technical Document On-going Data Report**	**FM**	Survey to be administered to all direct staff, maintaining privacy, and analysis to be undertaken by qualified survey professional. Results of the survey to be reported annually through the WELL platform.
			C06.1 / 1 Point Promote Health Benefits	Direct Staff	0.5	0.5		T	**Policy/Operations Schedule**	**FM**	A health benefits plan is available to all eligible employees and their designated dependents (e.g., spouse, domestic partner, child, parent, parent-in-law, grandparent, grandchild, sibling) at no cost or subsidized **Can be achieved via NHS** - Confidential benefits consultations are available with clearly identified and qualified support staff (e.g., benefits counselor, human resources representative).
			C06.2 / 0.5 Points Offer On-Demand Health Services	Direct Staff	0.5	0.5		T	**Technical Document Policy/Operations Schedule**	**FM**	**FM Org to review the requirements and confirm** **Access to in person health services are provided alternatively, access to a health app.**

		Feature	Part	Scope	Points Available	Targeted	Potential to Achieve Platinum	Mandatory	Evidence	Responsibility	Comments
	O	C06. Health Services and Benefits	C06.3 / 0.5 Points Offer Sick Leave	Direct Staff	0.5		0.5	T/NT?	Policy/Operations Schedule	FM	FM Org to review the requirements and confirm
			C06.4 / 0.5 Points Support Community Immunity	Direct Staff	0.5		0.5	T/NT?	Policy/Operations Schedule	FM	FM Org to review the requirements and confirm
	O	C07. Enhanced Health and Wellness Promotion	C07.1 / 0.5 Points Promote Culture of Health	Direct Staff	0.5		0.5	T/NT?	Policy/Operations Schedule	FM	FM Org to review the requirements and confirm
			C07.2 / 0.5 Points Establish Health Promotion Leader	Direct Staff	0.5		0.5	T/NT?	Policy/Operations Schedule	FM	FM Org to review the requirements and confirm
	O	C08. New Parent Support	C08.1 / 1.5 Points Offer New Parent Leave	Direct Staff	1.5		1.5	T/NT?	Policy/Operations Schedule	FM	FM Org to review the requirements and confirm
	O	C09. New Mother Support	C09.1 / 0.5 Points Offer Workplace Breastfeeding Support	Direct Staff	0.5		0.5	T/NT?	Policy/Operations Schedule	FM	FM Org to review the requirements and confirm
			C09.2 / 1 Points Design Lactation Room	Direct Staff	1		1	T/NT?	Technical Document	ARCH	FM Org to review the requirements and confirm
	O	C10. Family Support	C10.1 / 0.5 Points Offer Childcare Support	Direct Staff	0.5		0.5	T/NT?	Policy/Operations Schedule	FM	FM Org to review the requirements and confirm
			C10.2 / 0.5 Points Offer Family Leave	Direct Staff	0.5		0.5	T/NT?	Policy/Operations Schedule	FM	FM Org to review the requirements and confirm
			C10.3 / 0.5 Points Offer Bereavement Support	Direct Staff	0.5		0.5	T/NT?	Policy/Operations Schedule	FM	FM Org to review the requirements and confirm
	O	C11. Civic Engagement	C11.1 / 0.5 Points Promote Community Engagement	Direct Staff	0.5		0.5	T/NT?	Policy/Operations Schedule	FM	FM Org to review the requirements and confirm
			C11.2 / 1 Points Provide Community Space	Whole Building	1		1	T/NT?	Technical Document Professional Narrative	FM ARCH	Option 2: Access to one or more indoor or outdoor spaces within the project boundary is provided to the public, such as local community groups, student clubs or non-profit organizations, at no cost that meets the following requirements: a. Has the capacity to hold to least 10 people. b. Is available for meetings and events on a weekly basis at minimum.
	O	C13. Accessibility and Universal Design	C13.1 / 3 Points Integrate Universal Design	Whole Building	3		3	T/NT?	Professional Narrative	ARCH	10.07.2023 - Requirements to be reviewed by Architect Best practices in Univeral design are considered. To include any one strategy from the following categories: Physical Access. Developmental and intellectual health, wayfinding, operations, technology and safety, information of emergency procedures avaiable to all occupants/visitor on entering building(via app). Emergency Training and personnel: Security or crist response team.Annual CPR/First aid course. Training to promote indivual and family ermergy prepareness avaible to all occupants.
	O	C14. Emergency Resources *WELL H&S Rating	C14.1 / 2 Points Promote Emergency Resources	Whole Building	2		2	T/NT?	Professional Narrative Policy /Operations Schedule	ARCH FM	10.07.2023 - Client to review and confirm Any three emergency response support services are in place, such Notification system with auditory or visual indicators, One first aid kit per floor,
	O	C15. β Emergency Resilience and Recovery *WELL H&S Rating	C15.1 / 1 Points Promote Business Continuity	Non-Leased Spaces	1		1	T/NT?	Policy/Operations Schedule	CLNT	FM Org to review the requirements and confirm
			C15.2 / 1 Points Support Emergency Resilience	Non-Leased Spaces	1		1	T/NT?	Policy/Operations Schedule	FM	FM Organisation to review and confirm Designated outdoor or indoor space is made available to emergency responders, relief organizations or other equivalent institutions at no cost for alternative use in case of emergency (e.g., shelter during a natural disaster, treatment area during a pandemic).
			C15.3 / 1 Points Facilitate Healthy Re-entry	Whole Building	1		1	T/NT?	Professional Narrative	FM	FM Organisation to review and confirm Projects establish a plan for re-entry into the project after an emergency event
			C15.4 / 1 Points Establish Health Entry Requirements	Whole Building	1		1	T/NT?	Professional Narrative	FM	
					Total Available Points	Total Targeted	Total Potential				
					30	1	17				
INNOVATIONS	O	I01. Innovate WELL	I01.1 / 10 Points Propose Innovations	Whole Building	10	7		T	Technical Document	ALL	Innovative design solutions or target optimizations beyond shell and core scope. 1. A05.2 / Meet Enhanced Thresholds for Organic Gases 2. A05.3 / Meet Enhanced Thresholds for Inorganic Gases 3. A08.1 / Install Indoor Air Monitors 4. A08.2/ Air quality awareness 5. A11.1 / Manage Pollution and Exhaust 6. W05.2 / Promote Drinking Water Transparency 7. V08.2 / Provide Outdoor Physical Activity Space
	O	I02. WELL Accredited Professional	I02.1 / 1 Points Achieve WELL AP	Whole Building	1	1		T	Technical Document	CLNT	WELL AP Diaa Bahopia Appointed.
	O	I05. Green Building Rating Systems	I05.1 / 5 Points Achieve Sustainable Building Certification	Whole Building	5		5	T/NT?	Technical Document	CLNT	5 points will be awarded if the project achieves BREEAM certification (PC certificate)
					Total Available Points	Total Targeted	Total Potential				
					18	8	5				

WLCA – Method Statement

10th December 2024
RIBA 2

Euston Tower

RIBA Stage 2 Whole Life Carbon assessment note.

This Whole Life Carbon Assessment (WLCA) update summarises the revisions made to the pending strategic application for Full Planning Permission (ref. 23/5240/P), submitted in December 2023 for the Proposed Development at Euston Tower (286 Euston Road, London).

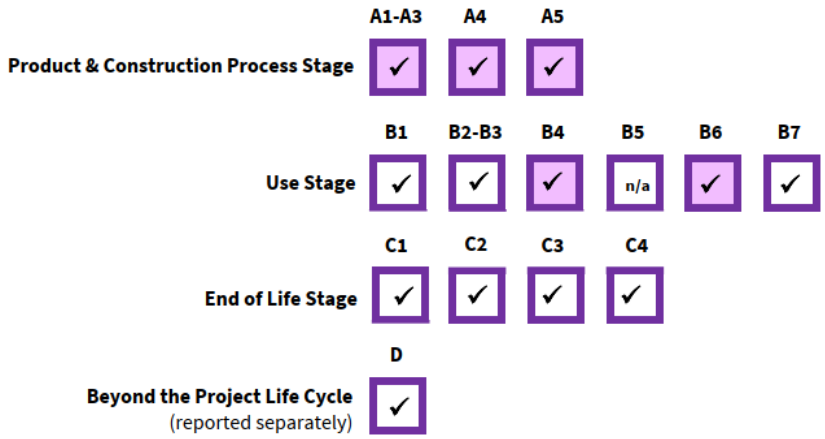
The Applicant has undertaken extensive consultation during both the pre-application and determination stages of the Proposed Development and has sought to respond positively to the responses received. The scheme has been revised in response to feedback from Officers, local stakeholders and residents, including the Regents Park Conservation Area Advisory Committee and statutory consultees, including Historic England and the Greater London Authority.

This WLCA has been prepared detailing the revisions to the pending scheme (the "Proposed Development"). For the avoidance of doubt, the WLCA which accompanied the December 2023 Submission is considered superseded by this WLCA which considers the revised Proposed Development. This report also clarifies and provides further details responding to consultation responses received since the submission of the application for Full Planning Permission in December 2023.

This Method Statement is constructed to accord with the methodological requirements of the RICS Professional Statement Whole life carbon analysis for the built environment (2017) publication.

EN 15978 Module Coverage

As per the requirements of the RICS PS 1st Edition Table 2, a WLCA must cover core modules of EN 15978:2011, typically representing where the majority of WLC impacts fall. As an absolute minimum, a Sweco WLCA assessment will cover these modules in full. Sweco look to include all possible EN 15978:2011 modules, subject to the limitations of the One Click LCA tool, the RIBA stage/timing of the assessment and the availability of data/scenario information from the industry at the time of writing. The below demonstrates which modules have been included in this study.



Reference Study Period

The RICS Professional Statement has set requirements for the reference study period (RSP) which must be used for the WLC assessment process. For domestic and non-domestic projects, the RSP is **60 years**. The RSPs are fixed to provide a level of comparability between WLC results for different projects, and to enable better future interrogation and interpretation of results.

Building Elements Coverage

The table presented below shows the percentage of costs covered by the G&T Cost Plan for each elemental category. In cases where the coverage is less than 100%, an adjustment factor was applied to provide an allowance for the carbon impacts of the missing elements or components as per the RICS WLCA PS 1st Edition recommendation. For instance, if the coverage is 95%, then the adjustment factor for carbon of those elements quantified in that category would be 1.05.

For certain building element categories, based on the current stage in design and availability of information, benchmarked carbon values were used on a per m^2 basis. These categories are indicated below.

Table 1.0: Building elements coverage for ET at RIBA 2.

	Building parts/ Element groups	Building Elements	Coverage (%)
0	Facilitating works	0.1 Temporary/Enabling works/ Preliminaries	Benchmarked Value
		0.2 Specialist groundworks	N/A
1	Substructure	1.1 Substructure	95%
2	Superstructure	2.1 Frame 2.2 Upper floors incl. balconies 2.3 Roof 2.4 Stairs and ramps	99%
	Superstructure	2.5 External Walls 2.6 Windows and External Doors	100% (Contingency factors added separately as part of CWCT process)
	Superstructure	2.7 Internal Walls and Partitions 2.8 Internal Doors	100%
3	Finishes	3.1 Wall finishes 3.2 Floor finishes 3.3 Ceiling finishes	97%
4	Fittings, furnishings, and equipment (FF&E)	Building-related Non-building-related	59%
5	Building services / MEP	5.1 - 5.14 Building-related services	75%
		Non-building-related	N/A
6	Prefabricated Buildings and Building Units	6.1 Prefabricated Buildings and Building Units	N/A
7	Work to Existing Building	7.1 Minor Demolition and Alteration Works	Benchmarked Value

	Building parts/ Element groups	Building Elements	Coverage (%)
8	External works	8.1 Site preparation works 8.2 Roads, Paths, Paving and Surfacing 8.3 Soft landscaping, Planting, and Irrigation Systems 8.4 Fencing, Railings and Walls 8.5 External fixtures 8.6 External drainage 8.7 External Services 8.8 Minor Building Works and Ancillary Buildings	Benchmarked Value

Measurement Source References

Table 2.0: Key material quantities data sources (non-exhaustive).

Data Source	Data Source Type	Comments
Euston Tower - Cost Plan (29.10.24)	Cost Plan	Source for majority of quantities.
241018 Material Quantities - Arup	Structural Material Quantity Breakdown and carbon factors	Informed carbon factors where not already confirmed
Euston Tower Planning Area Schedule (16.10.24)	Area Schedule	Latest area schedule provided by G&T.
ARUP Structures correspondence	Emails	Further clarifications on structural material carbon factors and reduction opportunities.
CWCT Façade Calculations	Excel data sheet	CWCT compliance calculations for façades provided by 3XN.
WLCA Main Mech Plant Weights – 24.10.2410.24	Excel data sheet.	Arup MEP provided a provisional/high level equipment schedule that formed the basis of their initial Stage 2 Design.
Arup Operational Energy Prediction Figures – 25.11.24	Email	Used to inform B6 module. Aligned with the submitted Energy Statement Be Seen TM54 results for the Baseline Office/Lab scenario.
65206043_VT_Equipment_Summary_Schedule_Rev02WIP Euston Tower, Lifting Strategy Diagrammatic, Rev P04	Schedule and diagrammatic	Informed the number of lifts, escalators and travel heights.
241024 Euston Tower - WLCA - B1 Refrigerant Calc	Excel data sheet.	Arup MEP filled in refrigerant schedule based on initial Stage 2 Design.

Product and Construction Process Stage

At Stage 2, there was insufficient design information in certain categories to derive reliable quantities from the cost plan of material specifications from other reference material. In these cases, an overall carbon rate per m² GIA, that was established earlier in the design, was applied as a placeholder allowance. This is relevant to the following elemental categories:

- Demolition impacts of existing building: **20 $kgCO_2e/m^2$ GIA.**
- Temporary works (which included Works to Existing Building): **15 $kgCO_2e/m^2$GIA.**
- Site activities: **26 $kgCO_2e/m^2$ GIA.**
- External works: **20 $kgCO_2e/m^2$ GIA.** For this elemental category specifically, a combined approach was used. The materials that could be quantified from the cost plan were included in the assessment, however due to uncertainties at this stage as to sufficient detail for external works, the carbon reporting still uplifted the overall impact to this benchmarked rate.

Carbon factors used (A1-A3)

Structural Components

The baseline carbon factors for structural materials were confirmed to Sweco as follows:

- **Structural steel:** steel truss, bracing, columns, floors, bolt on podium structure and roof – a blended rate of 30:70 electric arc furnace (EAF): ArcelorMittal's (AM) XCarb product with the respective A1-A3 carbon factors of **0.84: 0.33 $kgCO_2e/kg$.**
- **Specials allowance** – Blended rate of 56:44 basic oxygen furnace (BOF): EAF – combined factor of **1.74 $kgCO_2e/kg$.**
- **Structural steel:** Connections– **2.45 $kgCO_2e/kg$ –** BOF UK typical.
- **Steel reinforcement**: 0.3 $kgCO_2e/kg$ – AM XCarb Rebar product.
- **Piles, concrete liner wall to sheet wall concrete carbon factor:** RC 32/40 50% GGBS - 0.0888 $kgCO_2e/kg$.
- **Basement slabs, pile caps, concrete encasement to steel columns, RC Walls, columns, upper floors concrete carbon factor:** RC 32/40 25% GGBS – 0.12 $kgCO_2e/kg$.
- **Composite steel decking concrete carbon factor:** RC 32/40 25% GGBS – 0.12 $kgCO_2e/kg$.
- **Composite steel decking steel carbon factor**
    - **Labs:** 31.7 $kgCO_2e/m^2$ Kingspan Multideck 50
    - **Offices:** 23.1 $kgCO_2e/m^2$ blended rate of 80: 20 AM XCarb + magnelis coating: BOF.
- Arup structures provided structural steel intumescent paint rate of 9.22 m^2/tonne of steel at 1mm thick.
- **Basement slab waterproofing**: Sweco material library default input polyethene membrane.
- **Basement slab:** Sweco material library default input **150mm EPS.**
- **Precast stair reinforcement** rate assumed at **130 kg/m^3.**

Facades

- **BMU** – only 'number of' highlighted in Cost Plan – generic Sweco input used for this with material weights. BMU track materials measured from roof plan.
- **Internal lining of external wall** assumed as 2 x 15mm plasterboard with steel studwork at 1.3kg/m². Applied to opaque area of external façades.

CWCT calculations provided by 3XN. Some key notes and assumptions from these calculations:

- The carbon performance of the **Podium Façade** was modelled as per the same impact of the Typical Bay at this stage in design.
- A **5% material scale up** factor was applied to all material components, then a separate **façade scale up factor of 5%** was also applied.
- The facades were assumed to be assembled **offsite in European factory.**
- **The aluminium extrusions** were based on the **Hydro Reduxa EPD** value for billet only at **4 $kgCO_2e/kg$** plus a placeholder allowance for extruding (**0.5 $kgCO_2e/kg$**), pre anodisation (**2.24 $kgCO_2e/kg$**) and PPC coating (**0.13 $kgCO_2e/kg$**).
- An allowance of **263 $kgCO_2e/m^2$ FSA (A1-A5)** was assumed for the **soffits** with the area for this element being taken from the Cost Plan.

The performance of the other façade types, including all contingencies (i.e., material and overall façade scale up) for modules A1-A5:

- **Typical Bay:** 477 $kgCO_2e/m^2$ FSA
- **Spine:** 705 $kgCO_2e/m^2$ FSA
- **Podium Façade:** 447$kgCO_2e/m^2$ FSA (as per Typical Bay)
- **Amenity:** 527 $kgCO_2e/m^2$ FSA

Internal Walls, Finishes & Fittings

- Sweco material library defaults for **drylining build-ups** in model i.e., **plasterboard, acoustic insulation and metal studwork.**
- Sweco material library defaults for **bike racks and lockers.** Number of units taken from Cost Plan.
- **Internal doors:** allowance in cost plan on a cost per m² GIA basis rather than the number of doors itemised. Therefore, Sweco looked at the number of internal doors per m² GIA on other office developments and used this as a means to estimate the number of doors in Euston Tower.
- **Reused RAF for S&C areas** (excluding the WC's) – input based on RMF e-coated (0.71 $kgCO_2e/m^2$) with pedestals assumed 4kg/m² of material.
- **RAF for WC's and office CAT A** - input based on Kingspan RMG 600 (40.56 $kgCO_2e/m^2$) in first instance (worst case) with pedestals assumed 4kg/m² of material.
- **Screed**
    - Basement Areas: 50mm thick.
    - 80mm thick to terraces.

    - 80mm thick to podium floor.
    - 80mm thick to proportion of laboratory upper floor plate where equipment could be allocated.
- **Metal decking edge trim**: assumed 400mm high, 2mm thick, drawings used to measure perimeter on each floor plate.
- **Metal decking shear studs:** assumed 1.2kg per m^2 of upper floor.

Where not directly provided in architectural responses following assumptions made to finishes:

- **Void formers** at 100mm.
- **Ceramic floor tiles** at 10mm thick and associated adhesive at 10mm thick.
- **0.4mm epoxy resin** finish to **plant and bike store areas.**
- **Natural stone** 10mm thick and associated adhesive at 10mm thick for enhanced finishes to **lifts.**
- **Raised access Floor pedestals:** 4 kg/m^2.

Building Services

Main plant items as per the basis of design in ARUP indicative MEP schedule.

- **Distribution MEP materials** in base build areas based on per m^2 inputs i.e. pipework, ductwork and containment.
- **Rule of thumb inputs** informed by Stage 4 level information (scaled on GIA) from another commercial project in Sweco's portfolio with a similar HVAC strategy used for buffer vessels, water treatment, pump systems, water treatment, thermal stores and busbars.
- **200 m^2 of PV** confirmed in cost plan.

CAT A fit out assumptions:

- CAT A office areas: **floor area** from latest cost plan **(4 floors).**
- CAT A for office and Lab **specific equipment** based on **per m^2 inputs** for areas above e.g., **ductwork, cabling, lighting, sprinklers, containment**.
- **No localised building services** materials assumed in Office or lab enabled tenant areas that are to be fitted to **shell and core** specification.
- No level of fitout beyond base build has been assumed for the lab enabled floors (3-11)

Assumptions for Transportation Distances (A4)

For the vast majority of modelling inputs, the transport distances have been based on the RICS WLCA PS defaults. A summary of these assumptions are provided in the table below.

Table 3.0: RICS WLCA PS (2017) Default transport distances.

Assumed Transport Distance (km)	Product group/material in project WLC analysis
50 (local)	Concrete, screed, aggregates
300 (UK)	Formwork, steel deck, timber terrace decking, pavers, balustrades & handrails, stone pavers, resin-bonded gravel, internal timber doors, blockwork, cement mortar, plasterboard, acrylic paint, carpet, vinyl flooring, RAF, suspended metal ceiling, baffle ceiling, ceramic tiles, concrete sealant, terrazzo.
1500 (EU)	Insulation, bitumen membranes, pedestals, sanitaryware, steel studwork, pipe/duct insulation, lighting, waterproofing membranes for structure, rebar, riser doors, revolving door sets, aluminium/glass internal doors, stair core doors, glazed internal screens, cycle racks & lockers, ductwork & pipework, all other building services items not assumed in UK (300km) list above.

An exception to this is the precast concrete elements (i.e. stairs), where two transport distances have been applied (300 km x2 concrete and 1500 km + 300 km for rebar). These additional distances provide an allowance for to account for upstream transportation movements prior to leaving the factory to site i.e., it avoids the underestimation of transport impacts where A2 impacts are lacking from the EPD used.

In a similar vein, any building services product or system that has been built up by Sweco from individual materials, and not taken directly from a product EPD, two transport distances have again been provided to make an allowance for movements of raw materials/products to the factory, and then from factory to site (1500 km x 2).

As noted in previous sections, some elemental categories at this stage have been based on benchmarked A1-A5 carbon intensity values. Therefore, the transport impacts are included within this benchmarked figure. However, as the majority of the data that underpins the intensity allocations came from internal portfolios (particularly from Sweco), based on design information from other projects, it is reasonable to state that all values for transport are in accordance with the design values set out within the RICS PS WLCA (2017) methodology.

Predicted Construction Site Energy Use and Waste (A5)

This section can be separated into two parts: construction site emissions (A5s) and construction site waste (A5w). The methodology for each is set out below.

The emission rate of 26 $kgCO_2e/m^2$ GIA for A5s it was suggested by Sweco based on a target rate for a 100% new build and the modification was made based on the difference in construction program length between the 'Retain the Core' option being proposed for planning and a hypothetical new build. It's important to note that this emission rate only takes into account site emissions and doesn't include waste.

The A5w data uses default WRAP waste values as applied within software such as One Click and is included within reported A1-A5 values. Again, for those elements based on benchmarked values the same default rates are included in the A1-A5 value in the sense that the same methodology was used in the projects that provided these benchmarked values.

Use Stage

Assumption for Refrigerants (B1)

The refrigerant information was provided by ARUP, while the annual and end-of-life leakage rates have been taken from the CIBSE TM65 Table 4.13 values for the relevant systems, as set out below.

Table 4.0: Systems & refrigerants used in WLCA Stage 2 baseline.

System	Refrigerant Type	GWP ($kgCO_2e/kg$)	Service Life (yrs.)	Total Charge (kg)	Annual Leakage Rate (%)	EoL Leakage Rate (%)
ASHP	R513A	656.45	15	2,760	2	1
Chillers	R513A	656.45	15	1,000	2	1
DX Units	R-32	675	15	315	6	3

Assumptions for Maintenance and Repair (B2 & B3)

Modules B2 and B3 includes the embodied carbon associated with maintenance and repairs over the duration of the building's RSP. Greater London Authority (GLA) updated "London Plan Guidance – Whole Life-Carbon Assessments" publication, released in March 2022 provides some guidance on assumptions for Modules B2 and B3 when they are unknown at an early stage within section 2.5.15, and to encourage some assessment of the impact of these modules provides the following guidance:

"…for module B2 emissions, a total figure of 10 kgCO2e/m2 gross internal area (GIA) may be used to cover all building element categories, or 1 per cent of modules A1-A5, whichever is greater. For module B3 emissions, these may be estimated as 25 per cent of module B2, as per the RICS PS (item 3.5.3.3). "

These additions are not added between all buildings parts as some will require either minor maintenance and repairs only during its life span, or no maintenance/repairs at all. The following categories are used for the additions as stated in RICS PS section 3.5.3.2; roof, façade and external doors, finishes, and services.

Assumptions for Lifecycles of materials (B4)

The assumptions for life cycle replacement of materials have been made in accordance with RICS PS, except for building services, which adheres to CIBSE Guide M, and for the facade, which follows the CWCT methodology.

Assumption for Operational Energy and Water (B6 & B7)

The predicted energy consumption for Euston Tower was provided by ARUP, and are provided in Table 5.0 below.

Table 5.0: Predicted Energy Consumption for ET.

Baseline Office/Lab	Predicted Energy Consumption (MWh/year)		
	Base Build	Tenant	Total
	6,001,507	5,364,385	11,365,891

For the baseline water consumption calculation, Sweco have used the Better Building Partnership's 2020 Real Estate Energy Benchmarking (REEB) publication, released in August 2021. The 'Typical Practice' water use intensity (WUI) for offices of 636 (litres/m2 NLA/year) was used, in the absence of more specific data. The emissions factors associated with water use and treatment are derived from Thames Water, and the consequent emissions factors, published in 2023/2024, are 0.199 $kgCO_2e/m^3$ for water supply, and 0.212 $kgCO_2e/m^3$ for water treatment (assuming 90% of potable water ends up going to sewer).

End of Life Stage

Assumption for End of Life (C1-C4)

The end-of-life waste streams, and their associated C1-C4 impact, is based on the pre-set typical practice UK scenarios for each material type.

Results

The A1-A3 section summarises the key assumptions made within each building element category. However, prior to presenting the results it is worth reiterating the specific carbon reducing intervention measures that are included in these results as it relates to material specifications. These specifications have been committed to by the client for inclusion in the Baseline position. These specific intervention measures are listed as follows:

- The rolled or standard steel sections (6,887 tonnes) comprising: steel truss, bracing, columns, floors, bolt on podium structure and roof – have been modelled as 30:70 electric arc furnace (EAF): ArcelorMittal's (AM) XCarb product with the respective A1-A3 carbon factors of 0.84: 0.33 $kgCO_2e/kg$.
- AM XCarb rebar has also been included for steel reinforcement within the associate concrete elements within the substructure and superstructure.
- The base build raised access flooring (RAF) (19,808 m^2), which excludes WC areas, is based on the RMF Eco range tiles.
- Concrete elements are based on the GGBS proportions, and associated carbon factors, as confirmed to Sweco and set out in the A1-A3 inputs section earlier in this note.

Table 6.0 below shows the performance, provided at three levels – whole life carbon (A-C including B6 & B7), life cycle embodied carbon (A-C excluding B6 & B7) and upfront embodied carbon (A1-A5).

Table 6.0: Summary of Baseline RIBA Stage 2 WLC performance of ET at the three levels of detail, with all values as intensity ($kgCO_2e/m^2$ GIA) according to GLA.

EN 15978:2011 Modules	Whole Building (inc. contingencies) $kgCO_2e/m^2$ GIA
Whole Life Carbon (A-C inc. B6 & B7) **Including sequestration**	**2,397**
Life Cycle Embodied (A-C ex. B6 & B7) **Including sequestration**	**1,225**
Upfront Carbon (A1-A5)	**703**

Contingencies

As this assessment is still at an early design stage, suitable contingencies have been allowed for in the results. However, there are different types of contingencies applied, and these contingencies are only applicable to specific elements. For transparency, Table 7.0 below sets out the results across the various building elements, in intensity terms, and segregates the various contingencies applied. All of these contingencies then culminate in the total A1-A5 figures.

The façade scale-up factors are in line with CWCT guidance. The cost coverage factors reflect the coverage of building elements, as stated at the start of this note. Additionally, a 15% contingency is applied to account for early-stage design, which is deemed by the assessor an appropriate contingency to use at this stage.

This last contingency applies to all elements except for those elements where either separate contingencies have been applied (e.g. CWCT approach for façades), benchmarked data (e.g. external works, site activities and temporary works) and finally demolition of the existing building materials where a 10% contingency has been applied. This slightly reduced contingency applied to demolition is deemed appropriate as a thorough Pre-Refurbishment/Demolition Audit has been carried out during the initial design stages.

Table 7.0: A1-A5 results intensity ($kgCO_2e/m^2$ GIA) segregated out to highlight the various contingencies including in the reporting.

Building Element	Stage 2 - A1-A5 ($kgCO_2e/m^2$)					
	Results Intensity	Façade Scale up Factors (CWCT)		Cost Plan Coverage Factors	15% Contingency *	Total Intensity with Contingencies
Demolition	20			0	2	22
Substructure	22			1	3	26
Superstructure	216			2	33	250
External walls, windows & doors	145	7	7	0	0.6	160
Internal Walls & Doors	18			0	3	20
Finishes	23			1	4	28
Fittings	3			1	0	4
Building Services	109			27	20	157
External Works	17			0	0	17
Site Activities	26			0	0	26
Temporary Works	15			0	0	15
Total	**613**	**7**	**7**	**32**	**66**	**725**

*excludes: demolition, CWCT façade, external works, site activities and temporary works.

Reduction Opportunities

Further opportunities to reduce the upfront embodied carbon impact of the Proposed Development have been presented in the waterfall below. They cover modules A1-A5 only at this stage, given the current industry focus on upfront embodied carbon. All reductions are in intensity ($kgCO_2e/m^2$ GIA) and are measured against the base specification material.

The table below provides an estimated quantification of these further reductions in A1-A5 intensity terms. They are also illustrated in the subsequent waterfall chart. It should be noted that in a number of cases these reductions reported are cumulative i.e., the quantified reduction cannot be taken separately from the other associated reductions before it.

Material use efficiencies.

Material specification.

Site activities.

Table 8.0: Cumulative reduction opportunities for upfront carbon with estimated reduction quantities provided in A1-A5 intensity.

Item	Reduction Measure (Description)	Intensity Reduction $kgCO_2e$ A1-A5
1	High recycle content for substructures elements - in-situ concrete - Piles 70% GGBS (137.3 $kgCO_2e/m^3$ A1-A5). Other elements - 50% GGBS (206 $kgCO_2e/m^3$).	**-4.3**
2	High recycled content superstructure - in-situ concrete-50% GGBS (206 $kgCO_2e/m^3$).	**-13.8**
3	Optimise column grid - Reduce to a 9x6 Grid instead of 9x12	**-8.4**
4	Cantilever reduction	**-1.7**
5	Residual moment connection - this would allow a reduction in steel weight	**-1.7**
6	Review of the floor to ceiling height - cable trays under the beam implies no rectangular openings into beams	**-1.7**
7	Columns - CFT columns instead of S460	**-1.7**
8	Steel design optimisation (omit 10%) from the new tonnage excluding connections and specials allowances	**-3.6**
9	10% of steel tonnage as per reused steel specification (e.g. EMR Steel)	**-1.2**
10	Office Metal Decking 100% XCarb + Magnelis	**-5.2**
11	Metal Decking - Optimisation of concrete and rebar quantity	**-8.0**

Item	Reduction Measure (Description)	Intensity Reduction $kgCO_2e$ A1-A5
12	Extrusions made with high recycled content (Hydro Circal75 billet)	-5.6
13	RAF - RMG600+ at WC'S and CAT A areas	-1.3
14	Lendlease Data - electrified site apart from HVO concrete pumps	-17.9

- **Items 3,4,5,6 and 7** – provided by ARUP.
- **Item 14**– provided by Lendlease.
- Other items calculated by Sweco.

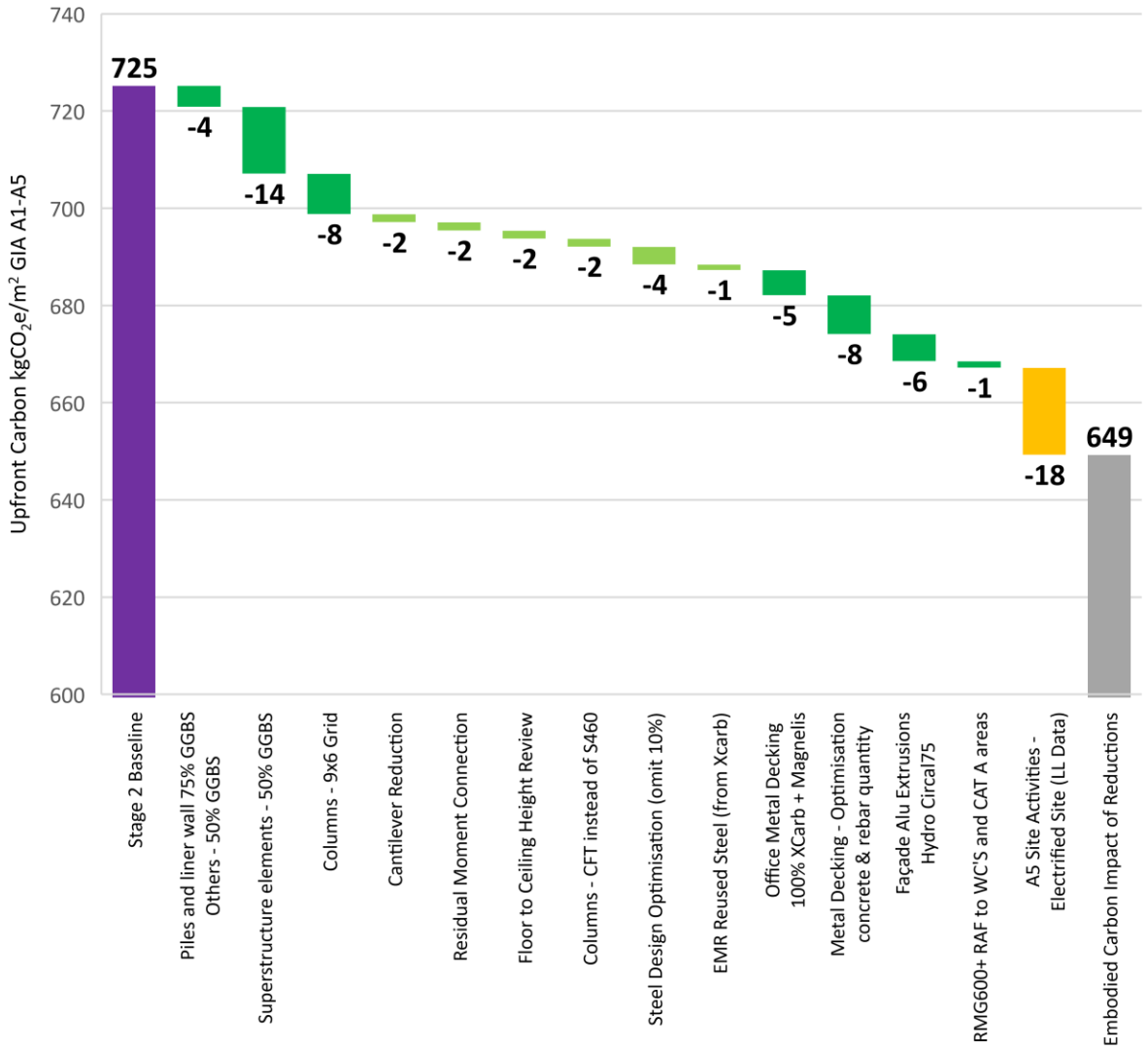


Figure 1.0: Cumulative waterfall chart with further reduction opportunities for upfront carbon with estimated reduction quantities provided in A1-A5 intensity. Y axis starts at 600 $kgCO_2e/m^2$ GIA to make reductions easier for the reader to view.

All of the reduction opportunities above are based on information available at this stage in the design. However, is worth noting that they will need to be re validated with updated information as the design progresses and more detail is known for certain elements i.e., there is no guarantee that these quantified reductions will remain static throughout the design stages. They should instead be seen as indicative opportunities to be reviewed and revisited as the project moves through the design stages and a greater granularity in detail is available. It is also worth reiterating that the reductions shown in Table 8 and Figure 1 are cumulative, and in some instances the specific reduction figure calculated is dependent upon, or influenced by, the reduction measures that precede it in the list. For example, item 9 would change if items 4-8 were not realised, as this would impact on the resulting steel tonnage where the 10% reduction is then calculated.

It is worth highlighting current industry shifts in relation to the use of GGBS as a means to reduce carbon emissions in concrete. Firstly, Sweco has been made aware of forthcoming increase to the carbon content of GGBS, based on a reallocation of its status as a coproduct, rather than a biproduct, in the steel manufacturing process.

Secondly there is a general understanding that, as a constrained or limited resource, the over specification of GGBS in one project may limit its availability in others. Hence a question is raised over its effectiveness to reduce greenhouse gas (GHG) emissions at a global scale. This is all to say that the reductions above, which are based on GGBS percentages currently, may be better understood in terms of their respective carbon factors rather than stated GGBS percentages. That way emerging cement replacement technologies i.e., alternatives to GGBS, can be considered in the context of delivering the same carbon factor. This is an aspect that would be closely monitored throughout progressed design stages.

This chapter has reported on the WLCA for the Proposed Development as part of the Applicant's planning submission. Monitoring, predicting, and striving to optimise operational and embodied carbon has been a key part of the clients brief for the Proposed Development from the outset, and this has therefore underpinned the design of the development up until this application submission. This statement is evidenced by the significant number of low carbon material optimisation measures that are described and reported in this chapter. This same impetus will continue to be the focus for the scheme moving forwards into more progressed stages in design.

Project details	
Project name	Euston Tower
Planning application reference number / if available	ref: 23/5242/F
Principal building function	Workspace (Class E(g)), Retail (Class E) and Enterprise Space (Class E/F)
Brief description of the project	Redevelopment of Euston Tower comprising retention of parts of the existing building (including central core, basement and foundations) and erection of a new building incorporating these retained elements, to provide a 32-storey mixed-use building providing offices and research and development floorspace (Class E(g)) and office, retail, café and restaurant space (Class E) and Enterprise space (Class E/ F) at ground and first, and associated external terraces; public realm enhancements, including new landscaping and provision of new publicly accessible steps and ramp; short and long stay cycle storage; servicing; refuse storage; plant and other ancillary and associated work.
GIA (m²)	79,825

Assessment details	
Assessor Organisation (if applicable)	Steve Down, Sweco UK
Date of assessment	15 November 2024
Operational modelling methodology for Module B6 results	TM54
Reference study period (if not 60 years)	[This cell should only be filled in if the reference study period, i.e. the assumed building life expectancy, exceeds or is less than 60 years. Applicants should state the reference study period in this cell. While the assessment should still be done to 60 years, applicants may, if they choose to, submit an additional assessment of the modules B, C and D for the actual reference study period by copying and pasting an additional 'GWP potential for all life-cycle modules' table, see below].
Software tool used	One Click LCA
Types of EPDs and carbon database used	Gabi, Ecoinvent
Please confirm if 95% of the cost allocated to each building element category has been accounted for in the assessment	Yes
Explanation of mechanisms which have been adopted to quality assure the submission	Internal QA from Sweco Head of Buildings Whole Life Carbon Matthew Mapp, review of all quantities with QS Gardiner & Theobald, wider review of material quantities and base inputs from the whole design team, third party review of feasibility studies, findings of which informed some of the approaches in the WLCA.
Please confirm whether you have submitted this assessment to the Built Environment Carbon Database (https://www.becd.co.uk/) or if you give permission for the GLA to do this on your behalf by checking one of the following boxes	I have submitted this assessment to the BECD ☐ I give permission for the GLA to submit this assessment to the BECD on my behalf ☐

Key	
	Data automatically calculated - no direct input required
	Cells that require information / data inputting
	N/A

Estimated WLC emissions
N.B. This forms the WLC baseline for the development. The green cells will automatically populate from the tables below

	Module A1-A5 (excluding sequestered carbon)	Modules B-C (excl B6 & B7)	Modules A-C (excl B6 & B7, including sequestered carbon)	Module B1-B5	Module B6-B7	Module C1-C4	Module D
TOTAL kg CO_2e	56,131,519 kg CO2e	42,834,125 kg CO2e	97,779,940 kg CO2e	37,822,438 kg CO2e	93,522,015 kg CO2e	5,011,687 kg CO2e	-24,969,985 kg CO2e
TOTAL kg CO_2e/m² GIA	703	537	1,225	474	1,172	63	-313
Please select most appropriate benchmark from drop-down menu	Offices						
WLC Benchmark	<950	<450	<1400				
Aspirational WLC Benchmark	<600	<370	<970				
Comparison with WLC benchmarks (see Appendix 2 of the guidance)	The WLCA results presented during the application stage all fall below the GLA WLCA Guidance targets for both upfront and total whole life cycle (WLC) carbon. Notably, the upfront embodied carbon is well below the GLA WLC benchmark. The planning documentation outlines opportunities to further reduce carbon emissions and move closer to the GLA's 'aspirational' performance benchmarks. However, it's important to note that the targets are not directly comparable due to the lab-enabled requirements for some floors; this increases the emissions associated with MEP equipment in particular, which skews the B1-C4 values in a fairly significant way due to the inclusion of this use type. This is why there is a disparity between the reported value and the benchmark in this area only.						

Retention of existing buildings and structures	
Confirmation that options for retaining existing buildings and structures have been fully explored before considering substantial demolition	The carbon figures presented on this document represent the 'partial retention and extension (retain the core)' option represented within the feasibility studies that have been prepared for the planning application submission. Please refer to this document and the Sustainability and Circular Economy Statements for further details on this key point.
Carbon emissions associated with pre-construction demolition (kgCO2)	1,756,149
Estimate of the percentage of the new build development which will be made up of existing elements	10%

Summary of key actions to reduce whole life-cycle carbon emissions that have informed this assessment, including the WLC reductions	Actions included in WLC assessment results reported	WLC reduction (kg CO_2e/m² GIA)
	XO70 EAF/Xcarb structural steel	-171
	Xcarb rebar	-16
	Clouted RAF for landlord areas (excluding WCs)	-9
	High recycled content in substructures elements (50%GGBS)	-2

Specify further opportunities to reduce the development's whole life-cycle carbon emissions, including the WLC reduction potential	Further potential opportunities	WLC reduction potential (kg CO_2e/m² GIA)
	High recycled content in substructures elements	-4
	Office Metal Decking: 150% XCarb + Magnetis	-5
	Metal Decking - Optimisation concrete and rebar quantity	-8
	Steel Design Optimisation (omit 10%)	-4
	Structural Steel Reuse - 10%	-1
	Optimise Column Grid - Module to a 9x9 Grid instead of 9x12	-9
	Optimise Column Grid - Grid of 5400	-2
	Cantilever Reduction	-2
	Residual Moment Connection - Residual Moment Connections would allow to reduce steel weights	-2
	Storeye of the Floor to Ceiling Height - Cable Trays under the beam implies no rectangular openings into beams	-2
	High recycled content in superstructures elements	-14
	Extrusions made with high recycled content (Hydro Circal75 billet)	-6
	DAF - RMG650+ for WCS and CAT A areas	-1

MATERIAL QUANTITY AND END OF LIFE SCENARIOS		Product and Construction Stage (Module A)		Assumptions made with respect to maintenance, repair and replacement cycles (Module B)	Material 'end of life' scenarios (Module C)	Benefits and loads beyond the system boundary (Module D)	
Building element category		Material type	Material quantity (kg)			Estimated reusable materials (kg)	Estimated recyclable materials (kg)
Note/example		Breakdown of material type in each category (insert more lines if needed) E.g. Concrete a e.g. Reinforcement e.g. Formwork	65000 kg 5000 kg 250 kg	For all primary building systems (structure, substructure, envelope, MEP services, internal finishes) including assumed material/product lifespans and annual maintenance/repair %	Declare 'end of life' scenario as per project's Circular Economy Statement, and used in the WLC assesement to produce Module C results	0 kg 2 kg 0 kg	25 kg 8 kg 0 kg
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment	None - Category not required	0		n/a	0 kg	0 kg
0.2	Major Demolition Works	Based on benchmarks - insufficient detail to quantify	0		n/a	0 kg	0 kg
0.3	Temporary Support to Adjacent Structures	Based on benchmarks - insufficient detail to quantify	0		n/a	0 kg	0 kg
0.4	Specialist Ground Works	None - Category not required	0		n/a	0 kg	0 kg
1	Substructure	Concrete - C32/40	10,408,042	60 years	Concrete crushed to aggregate	0 kg	10,147,841 kg
		EPS	10,126	60 years	Plastic based material incineration	0 kg	0 kg
		Excavation	10,324,160	n/a	Beneficial use of excavated materials	0 kg	0 kg
		Rebar	641,672	60 years	Steel recycling	0 kg	628,838 kg
		Steel	174,215	60 years	Steel recycling	12,195 kg	162,020 kg
		Waterproof Membrane	814	60 years	Plastic based material incineration	0 kg	0 kg
2.1	Superstructure: Frame	Concrete - C32/40	2,860,416	60 years	Concrete crushed to aggregate	0 kg	2,788,906 kg
		Intumescent Paint	123,200	60 years	Inert material - landfilling	0 kg	0 kg
		Rebar	209,081	60 years	Steel recycling	0 kg	362,020 kg
		Structural Steel	8,492,644	60 years	Steel recycling	594,485 kg	7,898,159 kg
2.2	Superstructure: Upper Floors	Concrete - C32/40	28,137,408	60 years	Concrete crushed to aggregate	0 kg	28,675,157 kg
		EPS	12,408	60 years	Plastic based material incineration	0 kg	0 kg
		Galvanized steel	83,822	60 years	Steel recycling	0 kg	86,469 kg
		Hot-dip galvanized steel sheets	25,752	60 years	Steel recycling	0 kg	25,237 kg
		Laminated high density polyethylene membrane	740	60 years	Plastic based material incineration	0 kg	0 kg
		Metal deck	1,110,720	60 years	Steel recycling	0 kg	1,227,138 kg
		Rebar	1,178,252	60 years	Steel recycling	0 kg	1,037,045 kg
		Screed	2,267,132	60 years	Cement/mortar use in a backfill	0 kg	2,267,132 kg
2.3	Superstructure: Roof	Concrete - C32/40	1,053,911	60 years	Concrete crushed to aggregate	0 kg	1,027,563 kg
		Galvanized steel	3,426	60 years	Steel recycling	0 kg	3,358 kg
		Gravel	307,392	30 years	Do nothing	0 kg	0 kg
		Hot-dip galvanized steel sheets	1,776	60 years	Steel recycling	0 kg	1,740 kg
		Metal deck	48,625	60 years	Steel recycling	0 kg	47,653 kg
		Precast concrete paving	93,295	30 years	Rebar separated (2 %), concrete to aggregate	0 kg	88,630 kg
		Rebar	33,206	60 years	Steel recycling	0 kg	32,542 kg
		Sand	19,238	30 years	Do nothing	0 kg	0 kg
		Screed	366,379	60 years	Cement/mortar use in a backfill	0 kg	348,060 kg
		Steel Pedestals	6,450	30 years	Steel recycling	323 kg	5,999 kg
		Storange tank	832	30 years	Do nothing	0 kg	0 kg
		Waterproof Membrane	15,087	30 years	Plastic based material incineration	0 kg	0 kg
		XPS Insulation	34,852	30 years	Plastic based material incineration	0 kg	0 kg
2.4	Superstructure: Stairs and Ramps	Concrete - C32/40	13,478	60 years	Concrete crushed to aggregate	0 kg	13,141 kg
		Rebar	739	60 years	Steel recycling	0 kg	724 kg
		Steel Stair	240,753	60 years	Steel recycling	16,853 kg	223,900 kg
		Wood handrail	4,579	30 years	Wood incineration	0 kg	0 kg
2.5	Superstructure: External Walls	Actuators	8,995	30 years	Glass Recycling / Aluminium Recycling	0 kg	8,545 kg
		Aluminium	289,676	60 years	Aluminium recycling	0 kg	278,089 kg
		Aluminium profiles glass railings	2,050	60 years	Aluminium recycling	0 kg	1,968 kg
		BMU (cable, eletric motor	23,598	60 years	Metal-containing product recycling (90 % metal)	0 kg	21,238 kg
		Brackets	42,763	60 years	Steel recycling	2,138 kg	39,769 kg
		Galvanised Steel	172,473	60 years	Steel recycling	8,624 kg	160,400 kg
		GRC	1,117,954	60 years	Concrete crushed to aggregate	0 kg	1,078,826 kg
		Mineral wool	6,054	60 years	Landfilling (for inert materials)	0 kg	0 kg
		Plasterboard	360,705	30 years	Gypsum recycling	0 kg	61,320 kg
		Rockwool	170,786	60 years	Landfilling (for inert materials)	0 kg	0 kg
		Steel	21,150	60 years	Steel recycling	1,057 kg	19,669 kg
		Steel Studwork	17,200	30 years	Steel recycling	860 kg	15,996 kg
		Ventilation louvres	21,911	60 years	Steel recycling	1,096 kg	20,377 kg
2.6	Superstructure: Windows and External Doors	Aluminium & Glass Door	11,033	30 years	Glass Recycling / Aluminium Recycling	0 kg	10,481 kg
		Aluminium Profile	178,151	60 years	Aluminium recycling	0 kg	171,025 kg
		Laminated Glass	511,086	30 years	Glass recycling	0 kg	311,762 kg
2.7	Superstructure: Internal Walls and Partitions	Aluminium and Glass partitioning	48,546	30 years	Glass Recycling / Aluminium Recycling	0 kg	46,119 kg
		Cement Mortar	146,344	60 years	Cement/mortar use in a backfill	0 kg	139,027 kg
		Insulation	113,151	30 years	Landfilling (for inert materials)	0 kg	0 kg
		Plasterboard	1,505,225	30 years	Gypsum recycling	0 kg	255,888 kg
		Precast Blockwork	1,431,384	60 years	Concrete crushed to aggregate	0 kg	1,395,599 kg
		Stainless steel	4,922	30 years	Steel recycling	246 kg	4,577 kg
		Steel Studwork	220,375	30 years	Steel recycling	11,019 kg	204,949 kg
2.8	Superstructure: Internal Doors	Aluminium Doors	1,226	30 years	Glass Recycling / Aluminium Recycling	0 kg	1,164 kg
		Timber Doors	106,010	30 years	Wood incineration	0 kg	0 kg
3	Finishes	Adhesive	136,012	10 years	Inert material - landfilling	0 kg	0 kg
		Carpet	23,194	10 years	Plastic-based material incineration	0 kg	0 kg
		Ceramic Tile	95,150	10 years	Brick/stone crushed to aggregate	0 kg	90,393 kg
		Dust Sealant	39	10 years	Inert material - landfilling	0 kg	0 kg
		Epoxy Paint	5,688	10 years	Inert material - landfilling	0 kg	0 kg
		HDPE	1,007	10 years	Plastic based material incineration	0 kg	0 kg
		Insulation	12,202	30 years	Plastic based material incineration	0 kg	0 kg
		Natural Stone	310,548	20 years	Brick/stone crushed to aggregate	0 kg	295,021 kg
		Paint (general)	11,762	10 years	Inert material - landfilling	0 kg	0 kg
		Plasterboard	221,188	20 years	Gypsum recycling	0 kg	37,602 kg
		RAF	646,938	30 years	Steel recycling, plastic-based material incineration & chipboard incineration (various)	0 kg	614,591 kg
		Screed	463,023	30 years	Cement/mortar use in a backfill	0 kg	439,872 kg
		Steel Studwork	26,553	20 years	Steel recycling	1,328 kg	24,694 kg
4	Fittings, furnishings & equipment (FFE)	Lockers	8,835 kg	30 years	Various - constituent material dependant.	0 kg	0 kg
		Galvanised Steel - Bike racks	30,960 kg	20 years	Steel recycling	1,548 kg	28,793 kg
		Turnstile	5,166 kg	30 years	Metal-containing product recycling (90 % metal)	0 kg	4,649 kg
5	Services (MEP)	AHU	191,772	20 years	Metal-containing product recycling	0 kg	76,709 kg
		ASHP	68,700	15 years	Metal-containing product recycling	0 kg	48,090 kg
		Buffer storage (stainless steel)	34,116	15 years	Metal-containing product recycling	0 kg	23,881 kg
		Busbar	28,788	35 years	Various - constituent material dependant.	0 kg	0 kg
		Cable tray	40,630	40 years	Steel recycling	0 kg	38,599 kg
		Cast Iron Pipes	58,605	35 years	Steel recycling	0 kg	52,744 kg
		Ceiling heating and cooling system	80,475	25 years	Metal-containing product recycling (90 % metal)	0 kg	72,428 kg
		Chillers	17,320	15 years	Metal-containing product recycling (90 % metal)	0 kg	15,588 kg
		Circulating Pump	18,615	20 years	Metal-containing product recycling (90 % metal)	0 kg	16,753 kg
		Copper Pipe	5,309	45 years	Copper recycling	0 kg	4,778 kg
		Diffusers	10,687	25 years	Aluminium recycling	0 kg	4,275 kg
		Electric water heater	6,944	25 years	Metal-containing product recycling (90 % metal)	0 kg	6,250 kg
		Electricity Cabling	139,974	35 years	Metal-containing product recycling	0 kg	69,987 kg
		Electronic soap	2,333	25 years	Metal-containing product recycling (90 % metal)	0 kg	2,100 kg
		Escalator	13,440	20 years	Metal-containing product recycling (90 % metal)	0 kg	12,096 kg
		Fan	809	20 years	Metal-containing product recycling (90 % metal)	0 kg	728 kg
		Fire and lightning protection system	17,371	30 years	Various - constituent material dependant.	0 kg	0 kg
		GFRP	838	60 years	Metal-containing product recycling (90 % metal)	0 kg	754 kg
		Glass Wool Insulation	33,659	30 years	Landfilling - inert	0 kg	0 kg
		HDPE Pipe	4,917	25 years	Plastic based material incineration	0 kg	0 kg
		Hot water radiator	5,025	10 years	Metal-containing product recycling (90 % metal)	0 kg	4,522 kg
		Lifts	423,622	20 years	Metal-containing product recycling (90 % metal)	0 kg	381,260 kg
		Lighting	43,151	20 years	Landfilling (for inert materials)	0 kg	19,418 kg
		Lighting control	45,154	20 years	Landfilling (for inert materials)	0 kg	20,319 kg
		MVHR	3,872	20 years	Metal-containing product recycling (90 % metal)	0 kg	3,485 kg
		PV system	6,317	25 years	Metal-containing product recycling (90 % metal)	0 kg	5,685 kg
		PVC Pipe	11,304	35 years	Plastic based material incineration	0 kg	0 kg
		Security system	2,484	30 years	Various - constituent material dependant.	0 kg	0 kg
		Shower Screen	4,579	25 years	Glass-containing product recycling (80 % glass)	0 kg	3,663 kg
		Shower Trays	2,160	25 years	Landfilling (for inert materials)	0 kg	0 kg
		Stainless steel	1,005	25 years	Metal-containing product recycling (90 % metal)	0 kg	953 kg
		Standby Generator Flue	276	35 years	Metal-containing product recycling (90 % metal)	0 kg	248 kg
		Steel Duct	96,448	40 years	Steel recycling	0 kg	38,579 kg
		Steel Pipe	88,728	30 years	Steel recycling	0 kg	79,855 kg
		Steel sinks	173	25 years	Steel recycling	0 kg	164 kg
		Stone wool/mineral wool insulation	14,444	30 years	Landfilling - inert	0 kg	0 kg
		Taps	1,709	25 years	Metal-containing product recycling (90 % metal)	0 kg	1,538 kg
		Transformer	24,636	30 years	Various - constituent material dependant.	0 kg	0 kg
		Trench Heaters	51,968	15 years	Various - constituent material dependant.	0 kg	0 kg
		Underfloor heating system	1,451	30 years	Metal-containing product recycling (90 % metal)	0 kg	1,306 kg
		Washbasins	5,000	25 years	Landfilling (for inert materials)	0 kg	0 kg
		Water tanks (Cat 1, Cat 5 etc.)	7,104	35 years	Plastic based material incineration	0 kg	0 kg
		WCs	13,464	25 years	Landfilling (for inert materials)	0 kg	0 kg
6	Prefabricated Buildings and Building Units	None - Category not required	0	0	n/a	0 kg	0 kg
7	Work to Existing Building	None - Category not required	0	0	n/a	0 kg	0 kg
8	External works	Kerbs/Edging	52,536	30	Brick/stone crushed to aggregate (for sub-base layers)	0 kg	52,536 kg
		Drainage Piping	2730.29	30	Plastic-based material incineration	0 kg	0 kg
		Waterproof membrane	5976.52	30	Landfilling (for inert materials)	0 kg	0 kg
		Bedding for paving - aggregate	1194240	30	Back filling for inert material	0 kg	1,164,384 kg
		Natural Sone Pavers	811187.52	30	Brick/stone crushed to aggregate (for sub-base layers)	0 kg	790,908 kg
		Hot dip galvanised steel sheet	21265.65	30	Steel recycling	1,063 kg	19,777 kg
		Precast seating/edging - stainless steel	22997.71	30	Stainless steel recycling	1,150 kg	21,388 kg
		Precast seating/edging - concrete	38301.12	30	Concrete crushed to aggregate (for sub-base layers), Portland Cement 200 kg / m3	0 kg	37,344 kg
		Precast seating/edging - timber	16120.47	30	Wood incineration	0 kg	0 kg
		Precast seating/edging - powder coating	40.17	30	Landfilling (for inert materials)	0 kg	0 kg
		Timber decking	2424.4	30	Wood incineration	0 kg	0 kg
		LED strip lighting	198.47	30	Metal-containing product recycling (90 % metal)	0 kg	89 kg
Refrigerants		**Refrigerant name**	**Initial Charge(kg)**	**Annual leakage rate %**	**Refrigerant GWP (kgCO_2e/kg)**	**End of Life recovery rate %**	
a	Refrigerants Type 1 (if applicable) - please see CIBSE TM65 for methodology	R513A	2,760 kg	2%	656.45	99%	
b	Refrigerants Type 2 (if applicable) - please see CIBSE TM65 for methodology	R513A	1,000 kg	2%	656.45	99%	
c	Refrigerants Type 3 (if applicable) - please see CIBSE TM65 for methodology	R-32	315 kg	6%	675	97%	
		TOTAL	80,637.120 kg			653,984 kg	65,974,857 kg
		Material intensity (kg/m2 GIA)	1,010 kg/m2 GIA			8 kg/m2 GIA	826 kg/m2 GIA

Please add rows where more than 1 material type exists per building element category

Please add rows if required

GWP POTENTIAL FOR ALL LIFE-CYCLE MODULES ($kgCO_2e$) [See Note 1 below if you entered a reference study period in cell C12]		Sequestered (or biogenic) carbon (negative value) ($kgCO_2e$)	Product stage ($kgCO_2e$)	Construction process stage ($kgCO_2e$)		Use stage ($kgCO_2e$)							End of Life (EoL) stage ($kgCO_2e$)				TOTAL Modules A-C $kgCO_2e$	Benefits and loads beyond the system boundary ($kgCO_2e$)
			Module A			Module B							Module C					Module D
Building element category			[A1] to [A3]	[A4]	[A5]	[B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]	[C1]	[C2]	[C3]	[C4]		
0.1	Demolition: Toxic/Hazardous/Contaminated Material Treatment												0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.2	Major Demolition Works												1,756,149 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,756,149 kg CO2e	0 kg CO2e
0.3	Temporary Support to Adjacent Structures	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,197,374 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,197,374 kg CO2e	0 kg CO2e
0.4	Specialist Ground Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
0.5	Temporary Diversion Works	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
1	**Substructure**	0 kg CO2e	1,700,843 kg CO2e	297,249 kg CO2e	83,472 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			9,767 kg CO2e	71,375 kg CO2e	32,342 kg CO2e	0 kg CO2e	2,195,048 kg CO2e	-334,662 kg CO2e
2.1	Superstructure: Frame	0 kg CO2e	8,420,846 kg CO2e	1,604,006 kg CO2e	381,338 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			48,356 kg CO2e	384,255 kg CO2e	22,384 kg CO2e	338 kg CO2e	10,861,524 kg CO2e	-3,949,708 kg CO2e
2.2	Superstructure: Upper Floors	0 kg CO2e	7,106,399 kg CO2e	652,277 kg CO2e	306,290 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			40,808 kg CO2e	202,863 kg CO2e	47,840 kg CO2e	0 kg CO2e	8,356,476 kg CO2e	-3,839,672 kg CO2e
2.3	Superstructure: Roof	0 kg CO2e	569,829 kg CO2e	47,376 kg CO2e	31,543 kg CO2e	0 kg CO2e	17,265 kg CO2e	4,316 kg CO2e	310,065 kg CO2e	0 kg CO2e			3,272 kg CO2e	8,645 kg CO2e	97,926 kg CO2e	23 kg CO2e	1,090,261 kg CO2e	-295,253 kg CO2e
2.4	Superstructure: Stairs and Ramps	-7,424 kg CO2e	746,431 kg CO2e	41,812 kg CO2e	75,389 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	64,288 kg CO2e	0 kg CO2e			4,286 kg CO2e	9,863 kg CO2e	9,167 kg CO2e	0 kg CO2e	943,813 kg CO2e	-655,542 kg CO2e
2.5	Superstructure: External Walls	0 kg CO2e	11,964,947 kg CO2e	650,630 kg CO2e	22,139 kg CO2e	0 kg CO2e	385,797 kg CO2e	96,449 kg CO2e	2,654,690 kg CO2e	0 kg CO2e			68,708 kg CO2e	37,710 kg CO2e	502 kg CO2e	63,561 kg CO2e	15,945,133 kg CO2e	-189,075 kg CO2e
2.6	Superstructure: Windows and External Doors	0 kg CO2e	104,764 kg CO2e	2,027 kg CO2e	0 kg CO2e	0 kg CO2e	2,842 kg CO2e	711 kg CO2e	200,823 kg CO2e	0 kg CO2e			602 kg CO2e	486 kg CO2e	3 kg CO2e	7 kg CO2e	312,262 kg CO2e	-370 kg CO2e
2.7	Superstructure: Internal Walls and Partitions	0 kg CO2e	1,260,043 kg CO2e	124,018 kg CO2e	122,379 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	1,210,582 kg CO2e	0 kg CO2e			7,236 kg CO2e	48,438 kg CO2e	2,196 kg CO2e	458 kg CO2e	2,775,350 kg CO2e	-1,140,089 kg CO3e
2.8	Superstructure: Internal Doors	-182,624 kg CO2e	117,305 kg CO2e	4,120 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	123,264 kg CO2e	0 kg CO2e			674 kg CO2e	521 kg CO2e	211,272 kg CO2e	64 kg CO2e	274,595 kg CO2e	-27 kg CO2e
3	**Finishes**	-980,416 kg CO2e	1,905,060 kg CO2e	129,719 kg CO2e	175,177 kg CO2e	0 kg CO2e	58,815 kg CO2e	14,704 kg CO2e	4,217,663 kg CO2e	0 kg CO2e			10,940 kg CO2e	37,340 kg CO2e	1,212,185 kg CO2e	53 kg CO2e	6,781,241 kg CO2e	-2,526,131 kg CO2e
4	**Fittings, furnishings & equipment**	-11,957 kg CO2e	317,607 kg CO2e	10,831 kg CO2e	18,100 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	469,871 kg CO2e	0 kg CO2e			1,824 kg CO2e	2,317 kg CO2e	13,988 kg CO2e	4 kg CO2e	822,585 kg CO2e	-341,928 kg CO2e
5	**Services (MEP)**	-53 kg CO2e	12,074,216 kg CO2e	371,107 kg CO2e	87,031 kg CO2e	3,852,000 kg CO2e	333,530 kg CO2e	83,383 kg CO2e	23,093,873 kg CO2e	0 kg CO2e	48,972,293 kg CO2e	43,773,378 kg CO2e	776,345 kg CO2e	69,336 kg CO2e	77,630 kg CO2e	102,326 kg CO2e	1,084 kg CO2e	133,667,477 kg CO2e
6	**Prefabricated Buildings and Building Units**	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
7	**Work to Existing Building**	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e			0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e
8	**External works**	-3,230 kg CO2e	974,586 kg CO2e	325,345 kg CO2e	32,444 kg CO2e	0 kg CO2e	0 kg CO2e	0 kg CO2e	627,506 kg CO2e	0 kg CO2e			5,597 kg CO2e	204,462 kg CO2e	80,257 kg CO2e	250 kg CO2e	2,247,217 kg CO2e	-272,935 kg CO2e
Other site construction impacts or overall construction stage (A5) carbon emissions not specific to individual building element category					2,075,449 kg CO2e												2,075,449 kg CO2e	
TOTAL kg CO_2e		**-1,185,705 kg CO2e**	**47,262,876 kg CO2e**	**4,260,518 kg CO2e**	**4,608,125 kg CO2e**	**3,852,000 kg CO2e**	**798,250 kg CO2e**	**199,562 kg CO2e**	**32,972,626 kg CO2e**	**0 kg CO2e**	**92,745,671 kg CO2e**	**776,345 kg CO2e**	**2,027,554 kg CO2e**	**1,085,905 kg CO2e**	**1,832,386 kg CO2e**	**65,842 kg CO2e**	**191,301,955 kg CO2e**	**-24,960,985 kg CO2e**
TOTAL - kg CO_2e/m² GIA		**-15 kg CO2e/m2 GIA**	**592 kg CO2e/m2 GIA**	**53 kg CO2e/m2 GIA**	**58 kg CO2e/m2 GIA**	**48 kg CO2e/m2 GIA**	**10 kg CO2e/m2 GIA**	**3 kg CO2e/m2 GIA**	**413 kg CO2e/m2 GIA**	**0 kg CO2e/m2 GIA**	**1,162 kg CO2e/m2 GIA**	**10 kg CO2e/m2 GIA**	**25 kg CO2e/m2 GIA**	**14 kg CO2e/m2 GIA**	**23 kg CO2e/m2 GIA**	**1 kg CO2e/m2 GIA**	**2,397 kg CO2e/m2 GIA**	**-313 kg CO2e/m2 GIA**

Notes:
1 If you have entered a reference study period in cell C12 because the assumed building life expectancy is greater or less than 60 years, then you will need to fill in this table using a 60 year building life expectancy. If you choose to, you may create a second table below and complete it using the actual assumed life expectancy. This should be clearly labelled.