Ministry of Housing, Communities & Local Government

THE UNITED KINGDOM HOLOCAUST MEMORIAL AND LEARNING CENTRE

Circular Economy Statement

2024UK358076-CES
FEBRUARY 2026

[redacted]

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PROJECT NO. 2024UK358076

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WSP

WSP House
70 Chancery Lane
London
WC2A 1AF

Phone: +44 20 7314 5000

WSP.com

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1 EXECUTIVE SUMMARY

This Circular Economy Statement (CES) has been prepared by WSP on behalf of The Ministry of Housing, Communities & Local Government ('the Applicant') in support of a planning application for the United Kingdom Holocaust Memorial and Learning Centre (UKHMLC), situated within Victoria Tower Gardens ('the Site') in Westminster.

The development description is:

Installation of the United Kingdom Holocaust Memorial and Learning Centre including excavation to provide a basement and basement mezzanine for the learning centre (Class D1); erection of a single storey entrance pavilion; re-provision of the Horseferry Playground and refreshments kiosk (Class A1); repositioning of the Spicer Memorial; new hard and soft landscaping and lighting around the site; and all ancillary and associated works.

Full details and scope of the planning application are described in the Planning Statement provided by DP9 and the Design & Access Statement provided by Adjaye Associates, together with their addenda. The planning application is now due to be redetermined following its initial approval in 2021 and subsequent quashing.

Victoria Tower Gardens is a Grade II listed public park beside the Houses of Parliament, containing open space, trees, and memorials but no buildings within the proposed footprint. The UK Holocaust Memorial and Learning Centre can therefore be integrated into the landscape without any need for pre-demolition works.

This statement provides a written summary and supporting evidence to the GLA Circular Economy Template Spreadsheet also submitted in support of this application. The following information has been used to compile this report:

- Bill of Materials
- End of Life Strategy
- Operational Waste Management Plan
- Site Waste Management Plan

The calculations presented in this report are derived from the drawings and Revit models provided by the architectural and structural teams, supported by the Cost Plan. The assessment has been carried out using One Click LCA using relevant EPDs, with supplementary use of One Click LCA's generic datasets where specific information was not available.

The Proposed Development applies the GLA Decision Tree for Circular Economy design, embedding adaptability, flexibility, and replaceability across the structure, services, and interiors. It is designed for a long lifespan, with circular principles that allow for future interior changes of use if required. All six GLA Circular Economy Principles have been fully incorporated into the design.

CIRCULAR ECONOMY TARGETS

The Proposed Development is committed to achieve and exceed the following policy requirements

- Excavation waste materials: Minimum of 95% diverted from landfill for beneficial reuse
- Construction waste materials: Minimum of 95% diverted from landfill for reuse, recycling or recovery.

- Municipal waste: Minimum 65% recycling rate by 2030.
- Recycled content: Minimum 20% of the building material elements to be comprised of recycled or reused content.
- Post-Construction Report: A CE Statement is required at post-construction (i.e. upon commencement of RIBA Stage 6 and prior to the building being handed over, if applicable. Generally, it would be expected that the assessment would be received no more than three months post-construction)

SUMMARY OF CIRCULAR ECONOMY COMMITMENTS FOR THE PROPOSED DEVELOPMENT

- Whilst originally submitted ahead of Circular Economy planning policy being adopted, the design has been reviewed to capture the embedded circular economy strategies, with a focus on:
  - Adaptability
  - Flexibility
  - Materials with recycled content
  - Longevity

- The Bill of Materials, prepared using information from the design team, estimates the Proposed Development's total raw material used during construction (A1–A3) at 29,313tonnes, or 7,802 kg/m².
- The recycled and reused content of the Proposed Development has been calculated in line with GLA Circular Economy Guidance. The overall recycled content is estimated at 26% by weight and 26% by value.
- A predicted End-of-Life Strategy has been developed for the materials in the Bill of Materials. Waste will be managed in line with the Waste Hierarchy, prioritising re-use, then recycling and energy recovery, with landfill considered only as a last resort.
- The Recycling and Waste Reporting table has been completed in accordance with the GLA Circular Economy Statement Guidance. A Site Management Plan and Operational Waste Management Plan have also been prepared to ensure compliance with policy requirements.
- To ensure delivery of the Circular Economy ambitions, a Tracker is produced, categorising key opportunities and targets which will be monitored for recording progress in later stages with evidence. A Circular Economy workshops was also held with the Design Team in October 2025 (see Appendix B).
- The Applicant will provide a post-construction report, in line with GLA Circular Economy Statement Guidance, detailing as-built performance against the commitments and predicted metrics set out in this document and the GLA Spreadsheet.

The table below, which is adapted from the GLA Circular Economy Statement Guidance, summarises the information required at each planning stage and the recommended approaches. The red-boxed column highlights the stage relevant to this submission (Full Application) and signposts where each requirement is addressed in this report (sections/appendices and the CES template spreadsheet).

Table 1-1 - Adapted table from London Plan Guidance: Circular Economy (CE) Statement with summary of Proposed Development actions

REQUIREMENT BY APPLICATION STAGE	PRE-APPLICATION (SUGGESTED)	OUTLINE APPLICATION	FULL APPLICATION / RESERVED MATTERS	POST-CONSTRUCTION	EVIDENCE IS CES TEMPLATE SPREADSHEET
RIBA Stage	0 to 2	0 to 2	2 to 3	4 to 7	N/A
CE Targets	Encouraged	YES	**YES** Summary in Executive summary & Table 2-1 - GLA's Circular Economy Targets	YES (Performance reported)	Yes
CE design approaches	YES	YES	**YES** Under Section 3.1	N/A	YES
CE design principles	YES	NO	**NO**	NO	YES
CE design principles by building layer	NO	YES	**YES** Under Section 0	NO	YES
Pre - Redevelopment Audit	Encouraged	YES	**YES** Not applicable	N/A	NO
Pre-Demolition Audit	Encouraged	YES	**YES** Not applicable	N/A	NO
Bill of Materials (including calculations)	NO	YES (Estimated)	**YES** See GLA spreadsheet and Appendix A	YES (Actual)	YES
End of Life Strategy	NO	NO	**YES** See GLA spreadsheet and Appendix A	Encouraged	NO
Operational Waste Management Plan	NO	NO	**YES** Operational Waste Management Plan	Encouraged	NO
Recycling and waste report	NO	YES (Estimated)	**YES (Estimated)** Under Section 5	YES (Actual)	YES
Lessons learnt and key achievements	N/A	N/A	**N/A** Relevant in Post Development	YES	YES

Table 1-2 provides document references and evidence for the commitments, targets and metrics contained within this CES.

Table 1-2 - Evidence of commitments

Evidence of Commitments	Document Reference Number/Title
Bill of Materials	Attached as part of this report in Appendix A
Pre-Demolition Audit	N/A -- no existing building
Pre-Redevelopment Audit	N/A -- no existing building
Operational Waste and Recycling Management Strategy	Waste Management Strategy Addendum 05 April 2019 *and* Waste Management Strategy December 2018
Site Management Plan	Environmental Statement (Volume 5) Appendix C Revised Construction Management Plan April 2019
Circular Economy Workshop Slides	Attached as part of this report in Appendix B

2 INTRODUCTION

This Circular Economy Statement (CES) has been prepared by WSP on behalf of The Ministry of Housing, Communities & Local Government ('the Applicant') in support of a planning application for the United Kingdom Holocaust Memorial and Learning Centre (UKHMLC), situated within Victoria Tower Gardens ('the Site') in Westminster.

This statement responds to the circular economy policy in the London Plan (2021) and associated Circular Economy Statements London Plan Guidance (March 2022), which supplements the London Plan by outlining how to meet the relevant London Plan policies and prepare a circular economy statement. The polices referenced include Policy D3 'Optimising Site Capacity Through the Design-led Approach' and Policy SI 7 'Reducing Waste and Supporting the Circular Economy.

Therefore, it is expected that following this report, issued for the planning submission, an additional Circular Economy Statement will be produced at the post-construction stage, approximately 3 months after the completion of the Proposed Development, to outline how the principles explored here have been implemented within the Proposed Development in operation.

2.1 THE DEVELOPMENT DESCRIPTION

The United Kingdom Holocaust Memorial and Learning Centre in Victoria Tower Gardens is conceived as an enduring reminder for generations, crafted as a landmark of national significance that highlights the importance and relevance of the Holocaust within UK history. The design is sensitive to the park and its world-heritage setting, guiding visitors through an entrance pavilion and contemplative courtyard, with Parliament present as a beacon of tolerance and democracy. The scheme unites the park's memorials into a coherent Garden of our Nation's Conscience, preserving green space and retaining and enhancing existing uses. In doing so, it provides a cultural monument and a powerful place for reflection and learning, strengthens the civic presence of Victoria Tower Gardens.

The development description is:

Installation of the United Kingdom Holocaust Memorial and Learning Centre including excavation to provide a basement and basement mezzanine for the learning centre (Class D1); erection of a single storey entrance pavilion; re-provision of the Horseferry Playground and refreshments kiosk (Class A1); repositioning of the Spicer Memorial; new hard and soft landscaping and lighting around the site; and all ancillary and associated works.

Figure 2-1 –View of the Buxton and Holocaust Memorials together with the Houses of Parliament

The site is located in in Victoria Tower Gardens, a public park situated beside the Houses of Parliament in Westminster, London. Victoria Tower Gardens is adjacent to the River Thames and sits directly to the south of the Palace of Westminster, a UNESCO World Heritage Site.

Figure 2-2 – UK Holocaust Memorial and Learning Centre Site Plan

BUILDING

The building is designed to be a memorial to those who lost their lives in the Holocaust, providing exhibition and educational space for this purpose, as well as supporting office and learning space. It is comprised of two basement levels, carefully integrated into a constrained and historically sensitive site. and includes a sculptural bronze entrance, indicative of the building's high-profile status and cultural significance.

The total Gross Internal Area (GIA) of the building is approximately 3,757m², with an additional external space created as part of the public realm, blending into the surrounding landscape of Victoria Tower Gardens. This is a highly bespoke building. both in use and in form and is tailored to accommodate a unique blend of memorial, educational, and contemplative spaces

The development is predominantly subterranean, arranged as a two-storey concrete basement box formed using a boundary secant pile wall with central piles. Intermediate floors are reinforced-concrete slabs supported by RC walls, columns and beams, with precast hollow-core planks forming the B3 slab. Various structural typologies, including in situ flat slabs, precast slabs and metal deck slabs, have been used for most appropriate and efficient solution in each area of the building

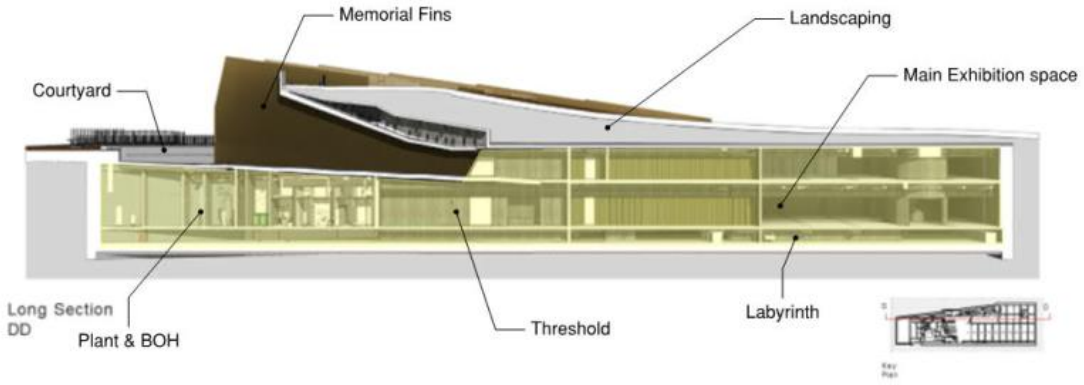


Figure 2-3 –Structural section of the building

The entrance pavilion leads visitors through to a memorial courtyard which features 23 bronze fins. The 22 spaces created between the fins represent the number of countries in which Jewish communities were devastated during the Holocaust. All these paths lead to the Threshold - a large hall which acts as a contemplation space and transition into the learning centre. The learning centre consists of a hall of testimonies and a contemplation court for visitors to experience and be educated about the Holocaust. Departing the learning centre takes visitors once again through the Memorial and out towards the outdoor light.

The main building areas included in the assessment are:

- The Learning Centre
- The Entrance Pavilion
- The café kiosk
- Memorial courtyard and associated landscaping, and

- Horseferry Playground

The memorial itself is set below ground level, with only the entrance pavilion and a small café kiosk visible at street level. The building extends two levels beneath the ground floor. The GIA of the project is 3,757 m^2.

For further information relating to the project background, see the Design and Access Statement by Adjaye Associates, Ron Arad Architects and Gustafson Poerter + Bowman.

Figure 2-4 –View of proposed Cafe/ Kiosk

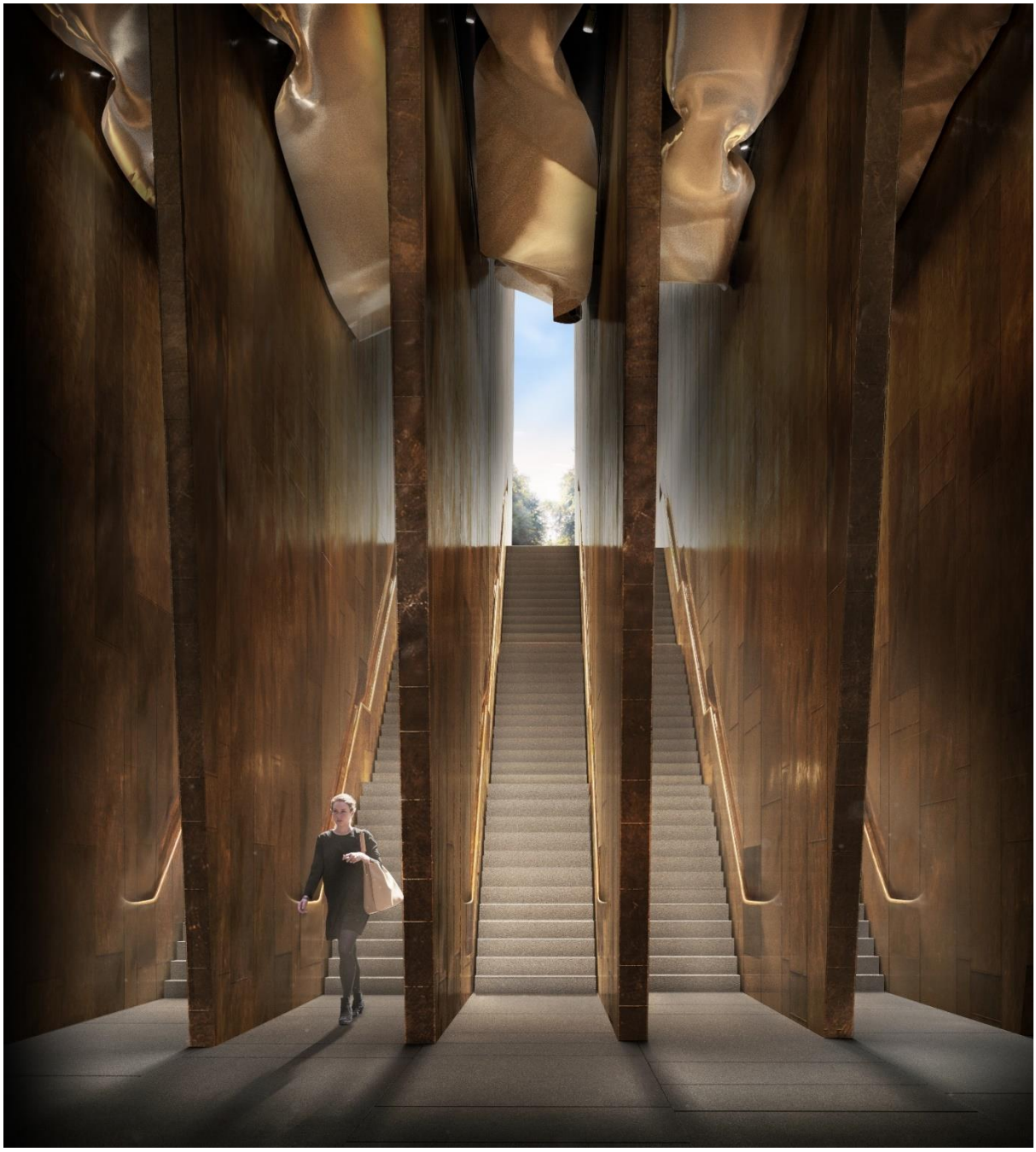


Figure 2-5 –View of the entrance stairs between Memorial fins

2.2 CIRCULAR ECONOMY BACKGROUND

According to London Plan Policy SI 7, a circular economy (CE) is defined as "… one where materials are retained in use at their highest value for as long as possible and are then reused or recycled, leaving a minimum of residual waste.' It is a move away from the current linear economic model, where materials are mined, manufactured, used and thrown away, as shown in Figure 2-6.

This report sets out how the CE design principles are met in this Proposed Development at stage 2.

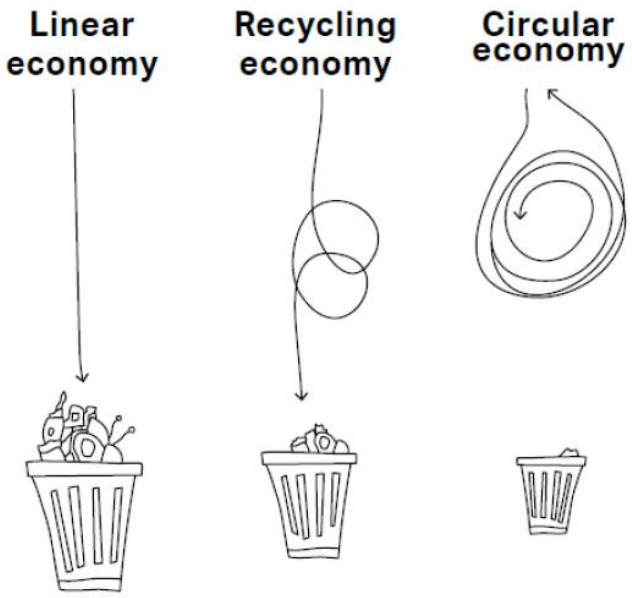


Figure 2-6 - Circular Economy vs Linear and Recycling Economy

In the pursuit of sustainable construction practices, it is essential to establish a systematic approach that optimizes the utilization of existing materials. Figure 2-7 delineates a structured hierarchy for building approaches that underscores the principle of maximising the efficiency and sustainability of materials within the construction industry. As we progress outward through this hierarchy, we encounter diminishing returns, thereby emphasising the importance of beginning with the most sustainable options and reserving recycling for a last resort. This hierarchy serves as a comprehensive strategy for the redevelopment of buildings, positioning retention as the foundational starting point. In the following sections, we will delve deeper into each stage of this hierarchy, examining the benefits and considerations associated with refurbishment, reuse, and recycling, all to promote environmentally responsible construction practices.

The GLA's CE Principles, which should be a fundamental part of the building design process, should be considered in all circular economy approaches as shown in Figure 2-7. The six CE principles include:

- Building in layers-ensuring that different parts of the building are accessible and can be maintained and replaced where necessary;
- Design out waste-ensuring that waste reduction is incorporated from project inception to completion, including consideration of standardised components, modular build, and reuse of secondary products and materials;
- Design for longevity;
- Design for adaptability & flexibility;
- Design for disassembly; and

- Use systems, elements & materials that can be reused and recycled.

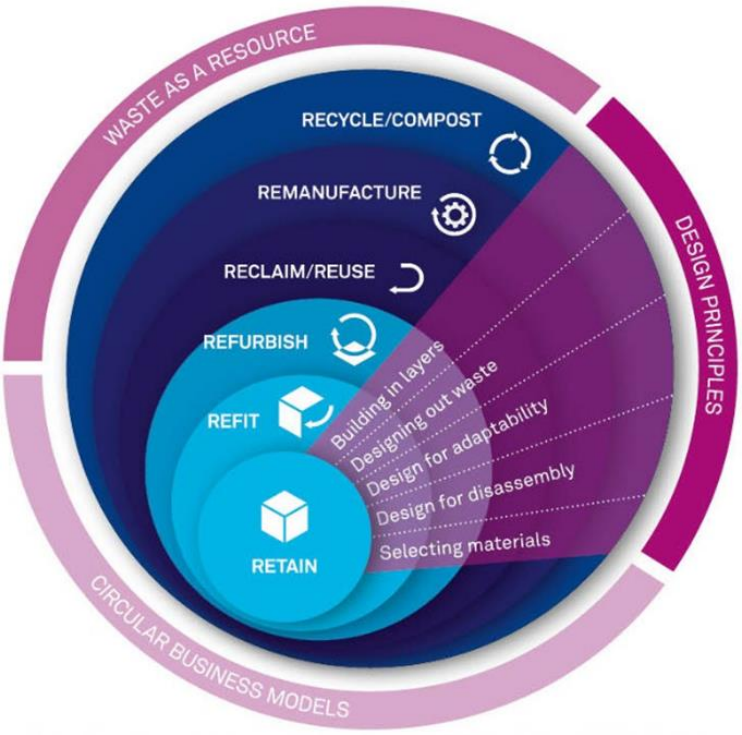


Figure 2-7 - Circular Economy Principles and Approaches

2.3 CIRCULAR ECONOMY POLICY

This Circular Economy report follows the following guidance and policies:

- National Planning Policy
- The London Plan 2021, GLA CE Guidance – *note this post-dates the original submission*
- Department for Environment, Food and Rural Affairs (DEFRA), Our Waste, Our Resources: A Strategy for England (2018); and
- HM Government, A Green Future: Our 25 Year Plan to Improve the Environment (2018).
- Westminster City Plan (April 2021) – *note this post-dates the original submission*

Please refer to Appendix C for a summary of each policy and guidance.

2.4 REFERENCE DOCUMENTS

This report should be read in conjunction with the following reports:

- Whole life carbon assessment
- Energy statement
- Design and access statement
- Planning statement

2.5 SUMMARY OF THE GLA'S CIRCULAR ECONOMY TARGETS

A summary of the Circular Economy targets set out by GLA and their relevance to the project has been set out in Table 2-1.

Table 2-1 - GLA's Circular Economy Targets

Circular economy targets for existing and new development	Policy Requirement	Target Aiming For (%)	Policy Met?	Explanation (How will performance against this metric be secured through design, implementation and monitoring?)
Demolition waste materials (non-hazardous)	Minimum of 95% diverted from landfill for reuse, recycling or recovery.	95%	N/A	Considering that there is no existing building on site, this target is not applicable to the Proposed Development.
Excavation waste materials	Minimum of 95% diverted from landfill for beneficial reuse.	95%	Yes	The appointed contractor will be advised of the targets to be achieved & excavation waste monitored.
Construction waste materials	Minimum of 95% diverted from landfill for reuse, recycling or recovery.	95%	Yes	The appointed contractor will be advised of the targets to be achieved & construction waste monitored. It is recommended that the appointed waste contractor should use an environmental reporting tool to provide evidence that the majority of non-hazardous waste generated by site activities will be reused and recycled.
Municipal waste	Minimum 65% recycling rate by 2030.	65%	Yes	The contractor will be advised of the targets to be achieved & municipal waste monitored. The different types of waste will be segregated into refuse, recycling and food waste with strategies and Reuse Collection Vehicle (RCVs) routes planned with the tracking swept analysis to manage municipal waste. The appointed contractor will ensure that this is taken into account.
Recycled content	Minimum 20% of the building material elements to be comprised of recycled or reused content.	20%	Yes	The Proposed Development is currently aiming to target an approximate recycled content by value of 20% by value for the primary structure and elements, this will be scrutinised throughout the design stages. It is recommended that a Sustainable Procurement Plan is produced to ensure the most environmentally friendly materials are used within the Proposed Development. The environmental impact of the proposed materials will be minimised by selecting components that score well under BRE's The Green Guide to Specification, and it is recommended, where feasible, recycled content.
Post-Construction Report	A CE Statement is required at post-construction (i.e. upon commencement of RIBA Stage 6 and prior to the building being handed over, if applicable. Generally, it would be expected that the assessment would be received no more than three months post-construction)	It is accepted that the Post Construction Reporting will be conditioned		A CE Statement is anticipated to be submitted during RIBA 5/6 approximately 3 months post-completion.

2.6 IMPLEMENTATION APPROACH

The Applicant's approach to sustainable development is underpinned by policies from the London Plan and the Westminster City Plan. Together, these documents set out spatial policies, development management policies, and site allocations to guide and manage development within the City of Westminster.

The CES will be reviewed throughout all design stages of the project, alongside the following reports to achieve and exceed the GLA's Circular Economy targets:

- Chapter 5 of the EIA (Demolition and Construction) /Waste Management Plan (construction waste) – Sustainability
- Manager/Waste Champion– RIBA 4-6
- Bill of Materials (see Appendix A) – Design Team
- Waste Management Strategy–Sustainability Manager/ Waste Champion–RIBA 5/6.

Moreover, 'as built' figures will be reported at practical completion, as requested by the GLA against each of the key commitments outlined in this document.

This CES reflects the structure and content of the Greater London Authority (GLA) London Plan Guidance on Circular Economy Statements (March 2022) which offers a robust framework to collate and present circular practices throughout the design of the Proposed Development. National and local requirements have also been adopted, where identified, to ensure compliance with local planning requirements, see Appendix C. Early engagement will be sought with contractors to assist in refining the sustainability strategy for delivery. As per the GLA policy, the Circular Economy report will be reviewed in full and updated with the 'as built' information if required at post completion stage.

Table 2-2 – Disciplines/Consultants Involved

Disciplines/ people	Provided in / Relevant section(s)
Architect	Adjaye Associates
Façade	Ron Arad Architects
MEP Engineer	WSP
Structural Engineer	WSP
Sustainability Consultant	WSP
Operational Waste Consultant	WSP
BREEAM assessor	WSP
Client	Ministry of Housing, Communities & Local Government
Cost Consultant	AECOM

3 THE CIRCULAR ECONOMY/METHODOLOGY STATEMENT

The Circular Economy Statement is the result of a multidisciplinary collaboration across all disciplines part of the design team to identify the optimal scenario for the site and the new development in line with the GLA Circular Economy Principles.

There have been a series of meetings between the design team and the CE team to discuss how the proposed development performs against CE principles and incorporating further CE principles into the design. The six GLA CE principles were discussed, and targets set for the commitments made, such as: building in layers, designing out waste throughout all stages of the process, designing for longevity through material efficiency and durability, designing for adaptability & flexibility by ensuring the building can be made fit for multiple purposes, designing for disassembly, the use of low-carbon systems and the use of reused/recycled materials and components. During the workshops an introduction was also given to the design team explaining the principles of circular economies and whole life carbon so to interactively brainstorm ideas how these concepts can be further incorporated into the Proposed Development. Workshops were also held specifically with the Structures and MEP teams to review the discipline specific design decisions made to incorporate circular economy principles.

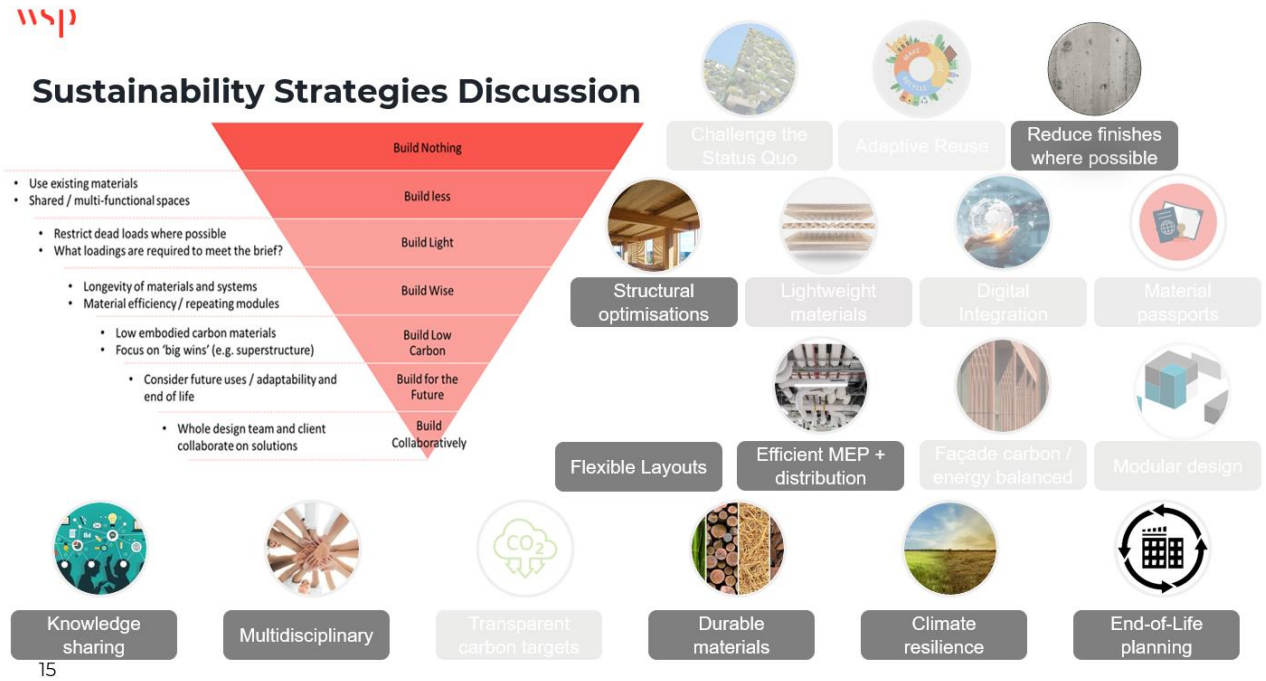


Figure 3-1 – An example slide from the CES workshop

3.1 CIRCULAR ECONOMY DESIGN APPROACH

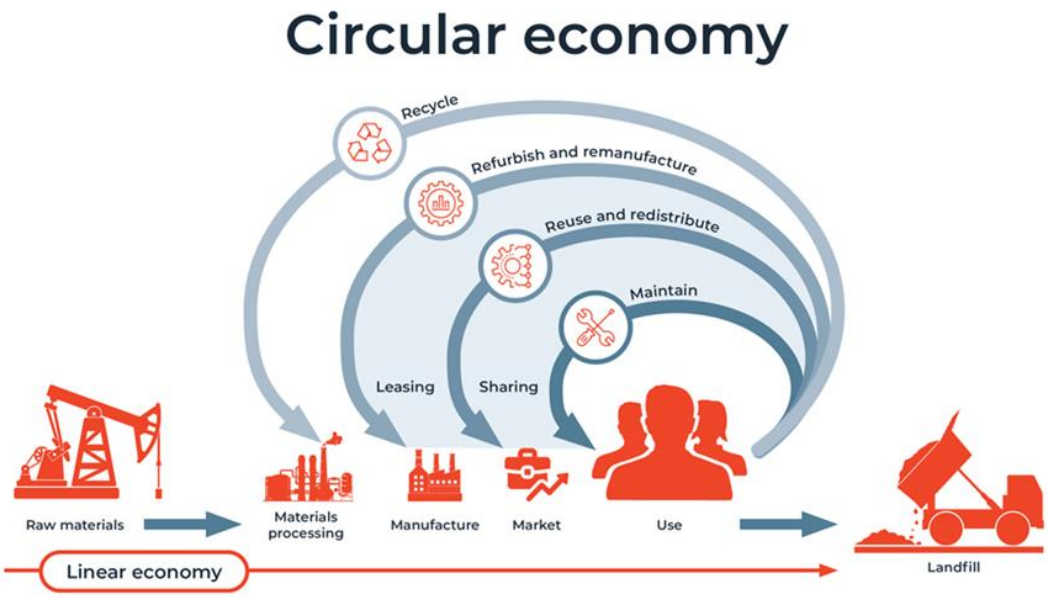


Figure 3-2 – Difference Between Linear Economy vs Circular Economy

This section of the report provides detailed information on how the GLA decision tree for new building has been implemented for the Proposed Development. This includes specific measures in relation to building in layers, designing out waste, designing for longevity, adaptability, flexibility, disassembly, and using systems, elements and materials that can be reused and recycled.

Circular economy consideration is a key element to the project's sustainability strategy. The principles in Figure 3-2, have been incorporated into the Proposed Development building design process to date, to incorporate strategies which provide a holistic approach throughout the areas of new build within the Proposed Development. Each principle aligns with the Operational Waste Management Plan which aligns with the Waste Hierarchy (whereby avoiding or reducing waste is prioritised) and sustainable resource management good practice.

DESIGN APPROACH: NEW BUILD

The Decision Tree for Design Approached for New Buildings in the GLA CE guidance has also informed the design decisions for the Proposed Development.

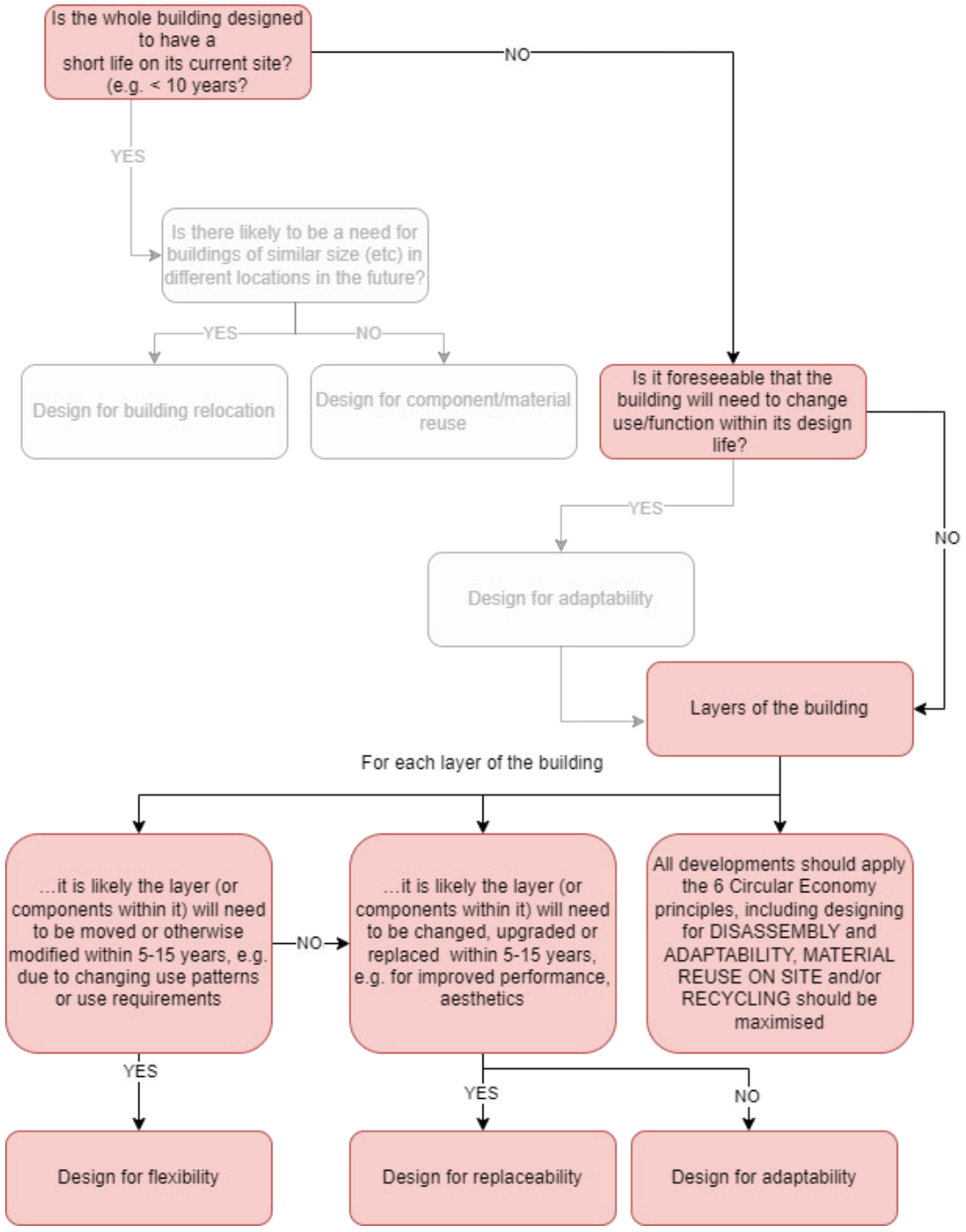


Figure 3-3 – Design Approaches for New Buildings, Infrastructures and Layers Over the Lifetime of a Development Decision Tree [Source: Adapted from London Plan CES Guidance, March 2022]

The following design measures/principles were integrated into the design of the Proposed Development, in no order of importance:

- Material efficiency and minimising energy demand
- Responsible sourcing and specification
- Designing for longevity
- Designing for adaptability and flexibility
- Minimising waste
- Building in layers

An imperative part of the design of the Proposed Development is to minimise its impact on the park and surrounding townscape, maintaining the public realm for future generations. Massing is placed predominantly below ground so that the openness of the park is retained, key sightlines are preserved, and the character of the landscape remains legible. The layout, foundations, and service runs are designed to avoid Root Protection Areas to limit damage to existing mature trees.

The Proposed Development is designed to have a long lifespan with its unique function, however flexibility of use has been built-in as much as possible. The proposal follows the principle of designing and constructing a building in 'layers', where each layer has its own lifecycle and circular economy approaches tailored to its function and lifespan. Each layer is designed to be independent, accessible, removable, and adaptable, while preserving its inherent value wherever feasible. This approach facilitates the reuse and recycling of each layer.

Wherever feasible, existing soils will be retained, and excavated material is reused on site for landscaping and level changes, thereby reducing off-site disposal and haulage. Specified products favour low-impact choices such as high recycled content, verified EPDs, and modern methods of construction with off-site prefabrication, to cut waste.

Figure 3-4 – The Proposed Development and minimal impact on site

3.2 MATERIAL EFFICIENCY

Material efficiency is a priority for the Design Team and one of the key considerations during detailed design. Potential measures for reducing the material demand and for designing out waste have been and will be further explored by all key design team disciplines at each design stage. Material efficiency seeks to optimise the use of materials within building design, procurement, construction, maintenance, and end of life; with the aim being to reduce the quantities of new materials used in the development.

Moreover, a Whole Life Carbon (WLC) Assessment has been carried out to help identify and manage the carbon emissions arising from the material specification of the development, it is anticipated that currently the Proposed Development is achieving 26% of the new material used by value and 26% by mass for the primary elements of the building will contain reused and/or recycled content which exceeds the GLA target of at least 20% by value.

3.3 MINIMISING ENERGY DEMAND

As can be observed in the Energy Strategy (WSP, 2018) and the Addendum to Energy Statement (WSP, 2019), the energy demand of the Proposed Development has followed the London Plan Energy Hierarchy (BE LEAN – BE CLEAN – BE GREEN - BE SEEN). Moreover, a 'fabric first' approach was considered to reduce energy demand and carbon emissions, with the aim of meeting the GLA's carbon reduction targets as per the regional planning policy. As stated previously a WLC assessment has been carried out for the development which includes the impact of material replacement and repair.

3.4 RESPONSIBLE SOURCING AND SPECIFICATION

The responsible sourcing of materials will be a key consideration in the selection of suppliers. A Sustainable Procurement Strategy should be produced for the Proposed Development prior to commencement of construction to control this aspect. Materials from suppliers who participate in

responsible sourcing schemes such as the BRE's BES 6001:2008 Responsible Sourcing Standard should be prioritised.

All timber will be certified sustainable in line with the UK government's timber procurement policy. This is in line with BREEAM Mat 03 Prerequisite.

Additionally, any steel, aluminium and copper will be sourced using BES 6001 Excellent/Very Good and CARES Sustainable Construction Steel Scheme. The plasterboard, blockwork, in situ and pre-cast concrete and Terrazzo stone and gravel sourcing should all also meet the BES 6001 Excellent/Very Good as outlined in the Mat 03.

Consideration will be given to locally sourcing materials where possible, to reduce site related transport emissions. This will be implemented through procurement routes with contractors. This is in line with Mat 03 – Measuring responsible sourcing.

Natural resource depletion will be minimised throughout the development. The WLC assessment has been undertaken and used to guide the material selection of products.

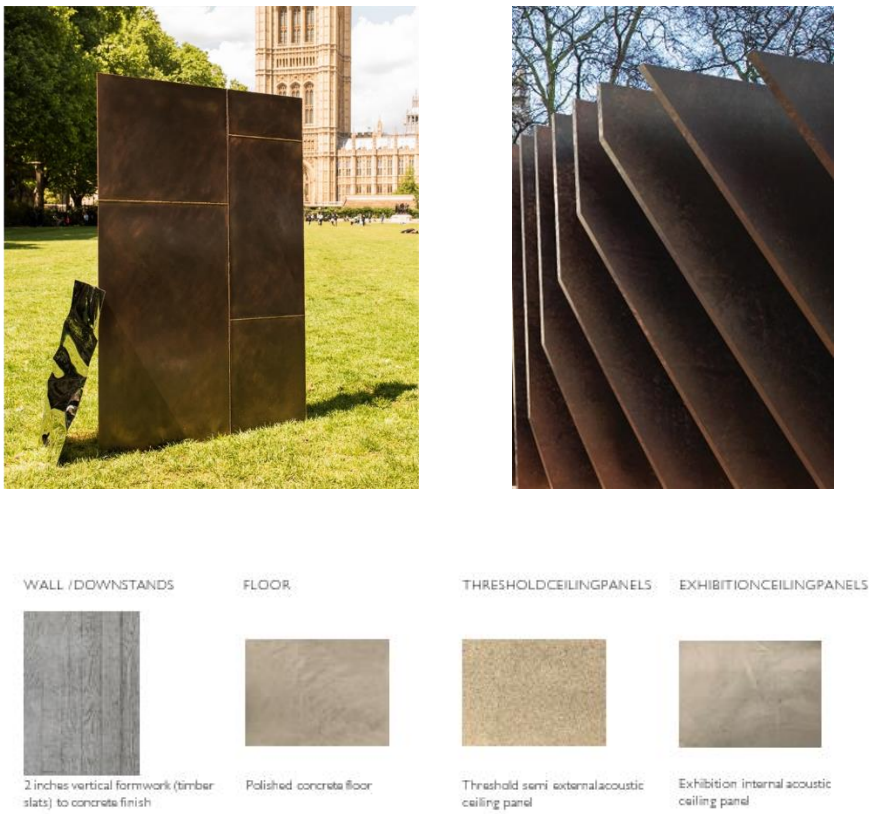


Figure 3-5 – The UKHMLC material selection

3.5 DESIGNING FOR LONGEVITY

Due to the unique purpose of the building, prioritising longevity is a key principle throughout the design. The building serves as both a monument as well as educational facility to important historical events in an extraordinary setting and therefore is intended to be maintained in perpetuity.

3.6 DESIGNING FOR ADAPTABILITY AND FLEXIBILITY

Although the identity of the building as a monument is to be maintained, to make the most use of the building and maximise the impact all the materials and energy used in its construction, some flexibility has already been designed into the space. The double height space allows for various potential differing uses but has also been designed to be services in sections so it can be sub-divided if required without major intervention required.

3.7 MINIMISING WASTE

The building is minimising waste by

- Material standardisation and modular design for elements such as the fins which reduce offcuts and make future disassembly easier;
- Offsite and modular construction of elements such as the fins which reduces construction waste;
- Setting construction waste targets in line with GLA expectations, including ≥95% diversion of non-hazardous construction waste and ≥95% diversion of excavation waste from landfill through beneficial reuse;

A Circular Economy (CE) workshop has informed opportunities to embed these principles as design progresses. For more information, please refer to Section 5.

3.8 CIRCULAR ECONOMY AND BREEAM SYNERGIES

BREEAM Assessment looks at holistic design approach and integrates design circularity aspects within various criteria. The project requires a minimum BREEAM rating of ‘Excellent’ against the BREEAM New Construction 2014, Other: Non-residential institution - Museum (Fully Fitted)

BREEAM provides solutions in circularity and resilience by:

- Encouraging durable design for resilient and longer lasting asset;
- Ensuring materials are sourced responsibly;
- Reducing water and energy consumption; and
- Providing methods of waste reduction.

The key BREEAM credits that have a direct impact on the circular economy aspects are as follows:

- Wst 05: Adaptation to climate change;
- Mat 01: Life Cycle analysis/ Environmental Impact of Materials;
- Mat 03: Sustainable Procurement Plan;
- Mat 06: Material efficiency; and
- Man 02: Life Cycle Costing.

Mat 01, Mat03 and Wst 01 credits are targeted for this project.

3.9 BUILDING IN LAYERS

A building should be designed and constructed in 'layers'. This involves each layer having its own lifecycle and approaches to circular economy which will be dependent on their function and life expectancy. Each layer should be independent, accessible, removable, and adaptable whilst, where possible, upholding their value. This will support each layer's reuse and recycling.

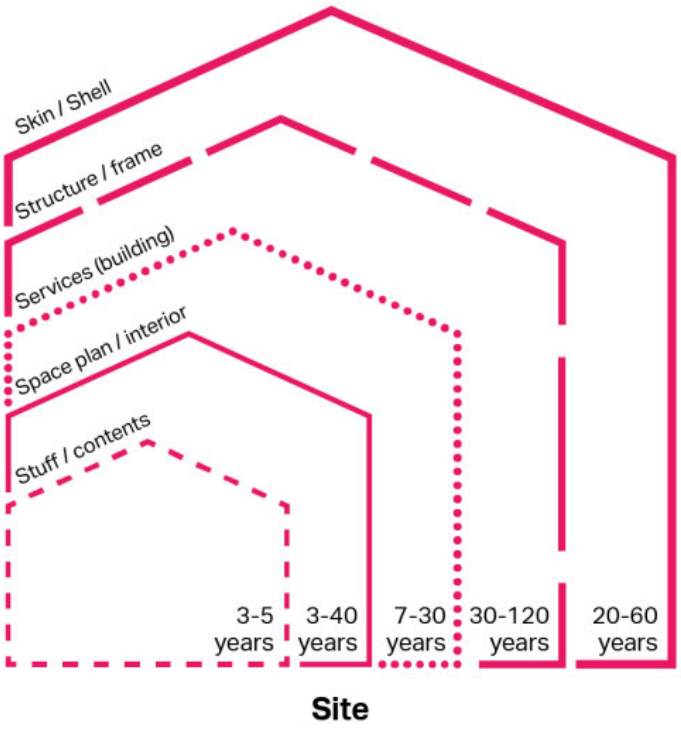


Figure 3-6 - Building in Layers & Lifespans (Source: Adapted from London Plan CES Guidance, March 2022)

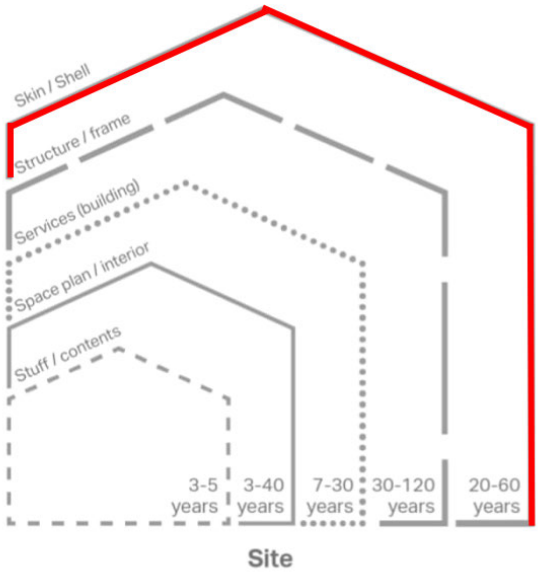
Figure 3-6 shows each building layer and their lifespans. This includes the site, skin/shell (façade), structure/frame/superstructure, substructure, building services, interior space, stuff/contents, and construction materials. The layered design of the building has ensured that it enables independent layers to be upgraded or replaced. This technique involves breaking down a larger structure into individual layers, with each layer representing a different height level or part of the overall design. Through design by visualizing and constructing one layer at a time, the construction can be carefully planned and executed on Proposed Developments to allow for ease in maintenance, replacement and disassembly at the end of life.

The building layers of the Proposed Development stand independently, especially when components have different lifespans.

4 PRINCIPLES BY LAYER

The following sections describe in further detail the design decisions that have been made to incorporate Circular Economy principles into the Proposed Development within each layer.

4.1 ENVELOPE/ SKIN



The envelope/skin is the environmental enclosure—roof, cladding/siding, sheathing, windows, and the building façade—forms the barrier against water, wind, heat, cold, direct sun, and noise. This layer has the greatest influence on long-term durability, occupant comfort, and overall energy performance.

The following circular strategies for the envelope/skin have been incorporated into the design:

Minimise the quantities of materials used

- The entrance façade is made of Bronze with 100% recycled content to minimise requirements for virgin material.

Responsible Sourcing and Recycled Content

- Plastic-free components and building materials are targeted where possible, to avoid specifying plastic components which cannot be recycled at the end of their service life.
- Mineral wool insulation rather than insulation made from oil-based polymers will be specified. Any plastics specified will be recyclable where possible, e.g., polypropylene in lieu of PVC.
- Preference will be given to local suppliers and sub-contractors where practicable, unless specialist skill level is required and cannot be sourced locally then this may have to be sourced nationally.

Longevity

- The façade materials such as Bronze and stone columns have a long lifespan to minimise replacement over time lifespan of the building.

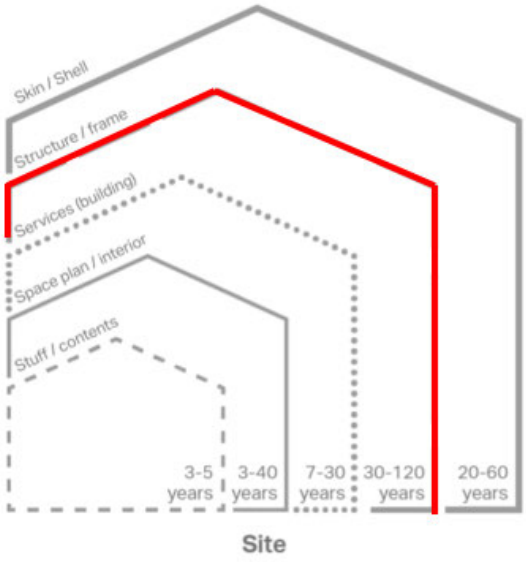
Design for disassembly

- Facades on entrance pavilion and café kiosk are also to use mechanical systems for demountability.

Waste Reduction

- Unitised fin panels and sub-frames are to have mechanical fixings only (no continuous adhesive beds) so single elements can be removed, refurbished, or recast without dismantling adjacent fins or requiring wholescale replacement, with an aim for 30-40% fins to be prefabricated.

4.2 STRUCTURE



The structure comprises of columns, beams, slabs, and load-bearing walls above the plinth, including the roof-supporting frame and is typically the building's longest-lived element.

The following circular strategies for the structure have been incorporated into the design:

Minimise the quantities of materials used

- Structural elements have been designed to avoid over-specification and to minimise concrete volumes wherever practicable. Member sizes have been rationalised by maximising utilisation ratios to reduce unnecessary material use.
- A raft foundation has been adopted across the building to reduce pile numbers and eliminate pile caps where possible, cutting both concrete and reinforcement demand.
- Foundations and primary load-bearing elements (including reinforced concrete columns) are designed for a life that matches the building's intended design life, avoiding premature replacement.
- Due to the project's highly irregular geometry, standardising the structural grid was not feasible; material efficiency has therefore been achieved through scheme optimisation rather than grid repetition.

Responsible Sourcing and Recycled Content

- The project will aspire to use GGBS (subject to availability and performance criteria) in concrete mixes, and to procure reinforcement with high recycled content (typically 90–100%, subject to mill source). This will be discussed by contractor/supply chain.
- Suppliers will be required to provide embodied-carbon data for all concrete mixes in line with good practice (e.g., BS EN 15978 reporting boundaries), enabling transparent carbon accounting and verification during procurement.

- Concrete and constituent materials will be specified to meet BES 6001 “Very Good” (or equivalent) to promote responsible supply chains. This will be discussed by contractor/supply chain.
- Logistics efficiency Just-in-Time deliveries will be pursued to reduce surplus, handling damage and site wastage. This will be discussed by contractor/supply chain.

Longevity

- Most of structural finishes are exposed. Where exposed concrete wearing surfaces are specified, they are designed for durability with planned inspection and maintenance to ensure a service life of ≥50 years.
- Superstructure elements in hard-to-access locations are to receive an enhanced corrosion protection to minimise maintenance required.
- Elements cast against ground are designed for a working life >50 years, aligned with the project’s overall design life.

Figure 4-1 – Interior of the Proposed Development showing exposed structural finishes.

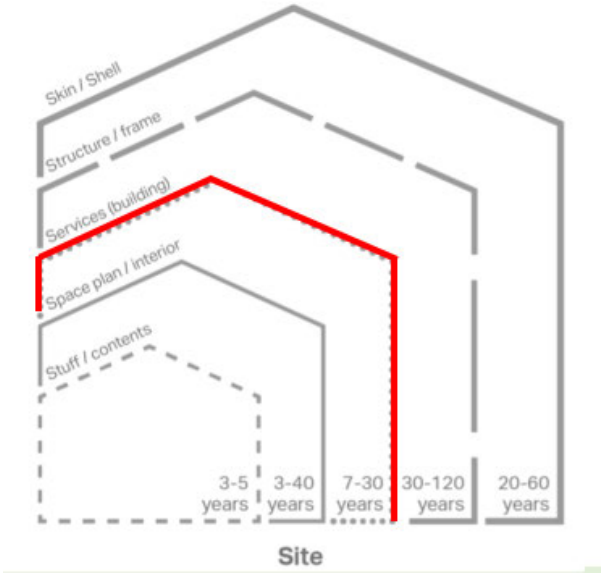
Adaptability and Flexibility

- A flat slab system is used to provide flexibility for future services re-routing without invasive structural alterations.
- The reinforced concrete frame and concrete floor plates enable internal reconfiguration; future partitions can subdivide bays and support changes in use patterns without major structural interventions.

Waste Reduction

- Subject to testing and suitability, crushed and graded demolition arisings will be prioritised for the temporary piling mat and for backfill where specification allows. This will be discussed by contractor/supply chain.
- Material handling, storage and Just in Time deliveries will be used to minimise off-cuts, damage and over-ordering. This will be reviewed by the contractor/supply chain.

4.3 SERVICES



The building services layer includes systems that provide comfort, functionality, accessibility, and safety—such as plumbing, heating, cooling, ventilation, power, and lighting.

The following circular strategies for the MEP services have been incorporated into the design:

Minimise the quantities of materials used

- Dual purpose smoke extract and ventilation systems are specified to reduce the amount of ductwork required.
- Oversizing has been avoided; service runs, diameters and depths are sized to duty, reducing unnecessary material use and insulation volumes.
- Service dimensions and clearances have been coordinated to limit cut-offs and off-cuts during installation, reducing wastage from ducts, pipework and cable containment.
- Where practicable, systems favouring recyclable metals (e.g., copper or steel pipework) over high-impact plastics have been specified, supporting end-of-life recovery.

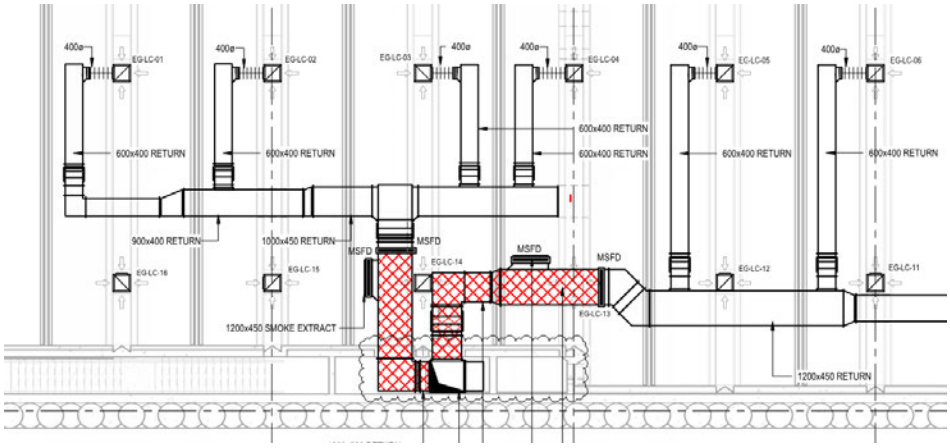


Figure 4-2 - Combined General and Smoke Ventilation System, Fire rated ductwork and motorised dampers

Operational Efficiency

- Heating, hot water and cooling are provided via heat-pump technology on a central loop serving the development. This delivers high seasonal efficiency and positions the scheme to benefit from ongoing grid decarbonisation (assessed on a conservative basis).
- Efficient heating, cooling and ventilation plant is specified to minimise energy demand; the preferred solution is an open-loop ground-source heat pump system (subject to detailed design and approvals).

Adaptability and Flexibility

- Layouts are being developed to accommodate future reconfiguration and maintenance with minimal waste generation; detailed provisions will be confirmed at later design stages.
- Trunk distribution and plant selections allow future expansion/adaptation, enabling internal fit-out changes without major replacement of primary services.

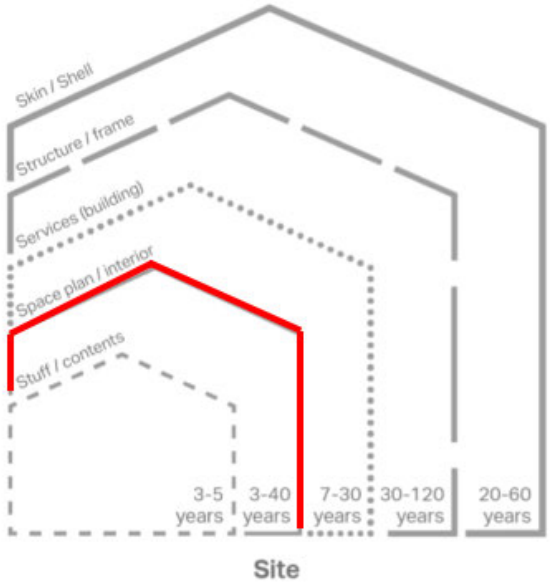
Replaceability and Disassembly

- Services are independently fixed to the structure (except where coordinated service voids are cast into the frame), enabling replacement, removal and upgrade without structural intervention and supporting circular outcomes at end-of-life.

Waste reduction

- Waste minimisation measures (segregation, back-loading of packaging, and take-back where offered) will be implemented through the contractor's procurement and logistics plans.
- Construction phase targets anticipate **≥95% diversion of excavation waste from landfill**, with services packaging and off-cuts managed through the contractor's SWMP.
- Rainwater attenuation will be provided via SuDS measures to cap discharge to agreed rates. Additionally, internal attenuation had been combined with rainwater reuse systems, reducing water use and associated operational waste, as well as minimising materials required to create water storage.

4.4 SPACE / INTERIOR



This layer includes layout, non-structural walls and partitions, ceilings, floor finishes, surface treatments, doors, fixtures, and fitted furniture. Designed to be reconfigurable without altering the primary structure, building services, or external envelope. The following circular strategies for the space/interior have been incorporated into the design:

Minimise the quantities of materials used

- Freestanding fin fragments are designed for multi-use for bench and wall, reducing additional material demand.
- Exposed finishes to reduce the need for additional materials.

Figure 4-3 – The Proposed Development internal spaces.

Adaptability and Flexibility

- The learning centre exhibition space can be stripped back to shell for alternate use in future.
- Large floor-ceiling height allows a variety of potential future use.
- Linear divisions of space planning allow flexibility for future division of space – including ventilation strategy.
- House lighting and emergency lighting are on separate systems to also contribute to future adaptability.
- Multiple uses are possible in the spaces at different times to get the most from the space created, aided by the building management strategy.

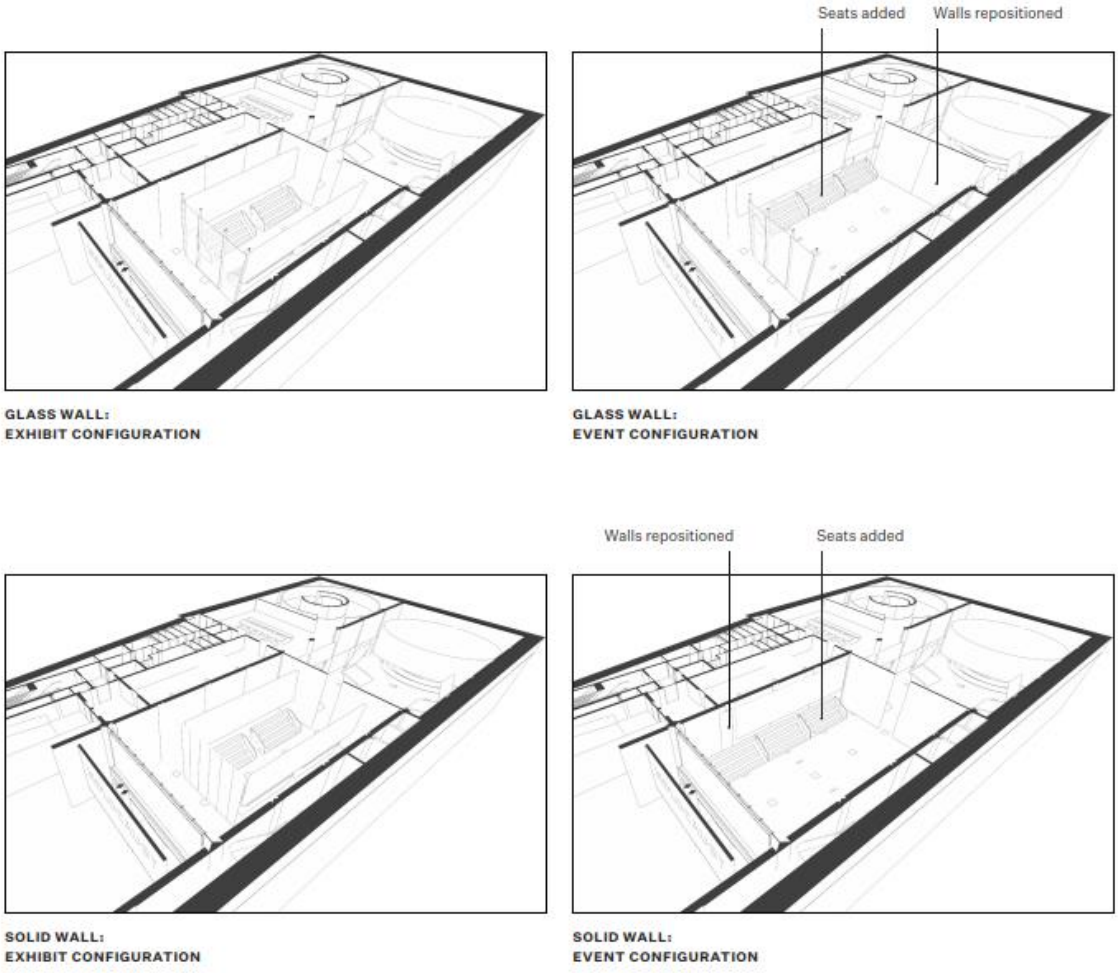
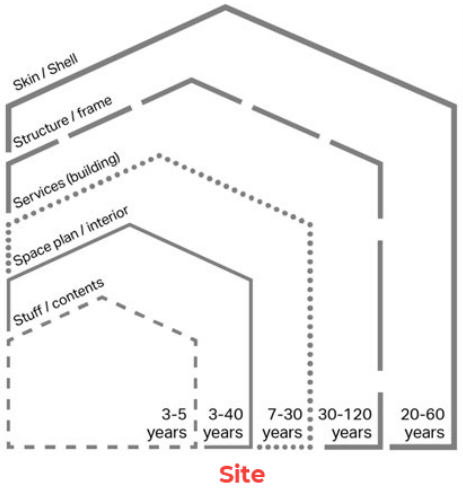


Figure 4-4 – Flexible internal layout adaptable to exhibition or event requirements

4.5 THE SITE INCL. LANDSCAPING



The site is the geographical location, context, external works, earth works, and landscaping are categorised in site layer.

Additionally to the above main layers, The following circular strategies for the landscaping have also been incorporated into the design:

- Opportunity to use recycled fill to form landscaping levels
- Potential for re-use of topsoil
- Railings and boardwalks to inside of river wall to use mechanical systems for demountability

4.6 SUMMARY OF DESIGN PRINCIPLES IN LAYERS

The summary of Circular Economy considerations for the Proposed Development is presented in 5.

Figure 4-5 – Circular Economy Considerations for the Proposed Development

5 MANAGING WASTE SUSTAINABLY

5.1 DESIGN OUT CONSTRUCTION, DEMOLITION, EXCAVATION AND MUNICIPAL WASTE ARISING

It has been acknowledged in the wider industry that the best way to design out waste (both construction and demolition waste) is for developments to use '***material standardisation and modularity***' of building components and '***offsite construction***'. This will help to minimise waste of materials during construction and elements can easily be dissembled at the buildings end of life and the materials and components reused or repurposed depending on their lifespan.

Opportunities to use supplier take-back schemes will be investigated with the contractor as the project progresses. This method will reduce municipal waste and encourage waste to be diverted from landfill. This will also help the supplier to reduce the use of raw materials for manufacturing new products as they can easily dismantle and reuse elements that are still in good condition from the element/product collected from the development.

As the design progresses, these methods will be investigated further for incorporation into the buildings design to help reduce construction waste generation. A Site Waste Management Plan (SWMP) has been prepared for the project by McGee (March 2024) which will be updated as the design progresses, in accordance with the local plan and BREEAM requirements.

5.2 CONSTRUCTION WASTE

Construction waste is an important element to consider during the erection of a building. Construction activities will be delivered in two phases (enabling works and main works), with the appointed contractor(s) preparing a Site Environmental Management Plan (SEMP) for each phase. The SEMP will set out how construction waste is prevented, segregated, and tracked in line with Westminster's Code of Construction Practice and the project methodology.

Consistent with current GLA Circular Economy expectations, the project adopts the following minimum diversion targets:

- ≥95% of construction (non-hazardous) waste diverted from landfill through reuse, recycling or recovery.
- ≥95% of excavation waste diverted from landfill for beneficial reuse.

These targets will be embedded in contractor requirements and reporting.

Waste quantities estimation

Construction waste quantities are derived from the Whole Life Carbon material take-offs/Bill of Materials (BoM), applying typical waste factors by material. This produces stream-specific tonnages (e.g., concrete, metals, timber, packaging) against which diversion performance will be measured.

Excavation waste quantity is derived from the cost plan and excavation design volumes for the basement works; beneficial-reuse routes will be explored early (e.g., engineering fill, restoration sites), with duty-of-care evidence retained.

Waste hierarchy, prevention, and design measures

According to Revised Construction Management Plan submitted by Turner & Townsend, (April 2019) in Volume 5 of the Environmental Statement, prevention remains the priority: design coordination, prefabrication where practical, just-in-time delivery, standardised element sizing, and packaging take-back schemes. The contractor will implement Good Housekeeping (clean site, controlled storage, protection of materials) to avoid damage and double handling. These requirements will be detailed in the SEMP and aligned with the CMP logistics framework (site access, hoarding, storage and welfare locations).

A Site Waste Management Plan will be prepared by the contractor, including the following:

- Setting of a target benchmark for construction site waste management (in line with BREEAM Wst 01);
- Procedures and commitments for minimising non-hazardous waste in line with the benchmark;
- Procedures for minimising hazardous waste;
- Procedures for monitoring, measuring, and reporting hazardous and non-hazardous site waste;
- Procedures for sorting, reusing, and recycling construction waste into defined waste groups; and
- 80% per volume or 90% by tonnage of non-hazardous construction waste generated by the development will be diverted from landfill and reused or recycled (in line with BREEAM Wst 01 -Diversion from landfill).

The SWMP will be used to ensure to ensure compliance with Duty of Care and ensure use of authorised waste contractors. This should be updated throughout the construction of the Proposed Development. A high-quality controlled waste management system will be implemented, aiming for cost-effective and sustainable practices. Priority is given to waste reduction, reuse, recycling, and recovery, following the waste hierarchy. Protocols are adopted for waste prevention, reduction, reuse, and recycling during all project stages.

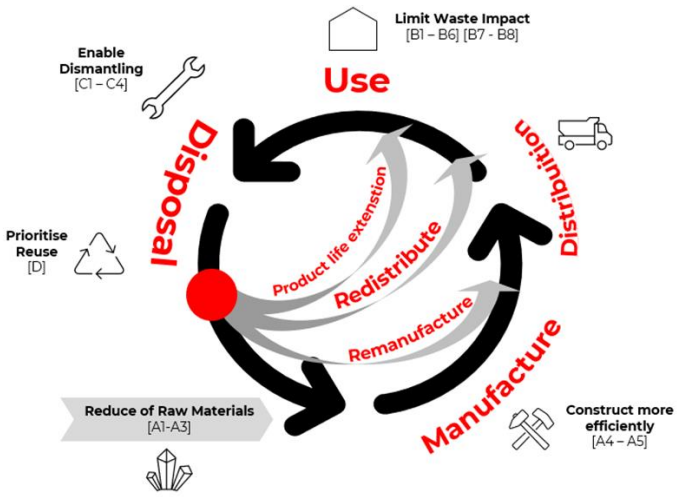


Figure 5-1 – Benefits of Offsite and Modular Construction

The Proposed Development will incorporate best practice waste reduction measures developed in line with the waste hierarchy to reduce, reuse, and recycle. These include the development of the Site Waste Management Plan and Operational Waste Management Plan.

5.3 OPERATIONAL WASTE

An Operational Waste Management Strategy has been produced by WSP to support the planning application of the Proposed Development, please refer to the report for full information.

Please note that a 2019 addendum confirms later design amendments do not change the Waste Management Strategy, so the operational approach below remains valid.

Operational Waste forecast

Operational waste has been sized using BS 5906:2005 (Leisure centres) at 5 L/m²/week applied to identified waste-generating areas, as agreed previously with Westminster City Council as an appropriate benchmark. The development's principal waste sources are café kiosk/retail, WCs and office/support spaces associated with the memorial and learning centre uses.

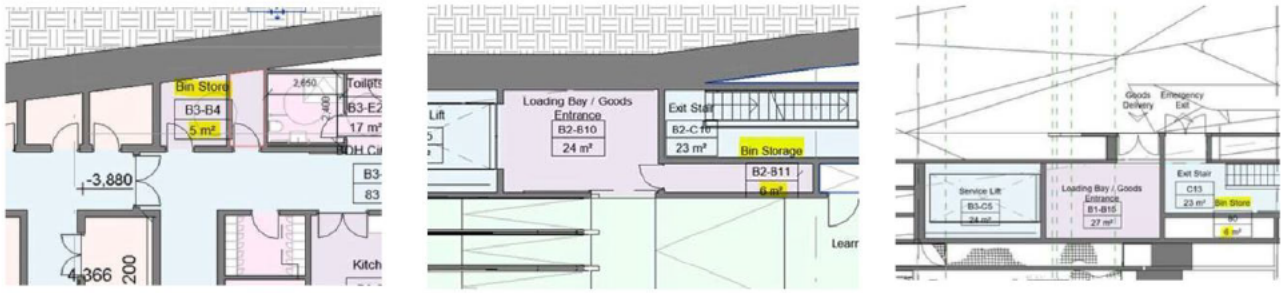
Forecast combined weekly arisings = 8,130 L/week, with storage sized below weekly totals because private collections occur more than once per week.

Table 5-1 - Estimated weekly waste generation

Floor level	Total waste-generating area (sqm)	Weekly waste metric	Waste generation (litres/week)
Ground	68	5 litres per 1 sqm	340
Basement 2	200	5 litres per 1 sqm	1,000
Basement 3	1,358	5 litres per 1 sqm	6,790
Total	1,626	–	8,130

Internal storage & segregation

Each floor includes segregated bin stores for refuse and recycling in line with WCC guidance. The Facilities Management (FM) team undertakes daily internal collections and places materials into wheeled Eurobins within designated internal stores at basement, mezzanine and ground levels (Figure 5-2).



Basement Mezzanine Ground floor

Figure 5-2 – Bin store location in each floor

Collections & vehicles

Waste is collected by a private contractor using a 7.9 m Refuse Collection Vehicle (RCV), tracked to enter and exit in forward gear via Gate 3. Servicing is off-street, with collections between 19:00–20:00 outside public opening hours to minimise conflicts. Security bollards control access and protect adjacent footways.

RCV entering RCV exiting

Figure 5-3 – The tracking of RCVs entering and exiting the Proposed Development

External Storage

FM moves bins from internal stores via the service lift to the loading bay for temporary holding before collection. The loading bay location is shown in Figure 5-4.

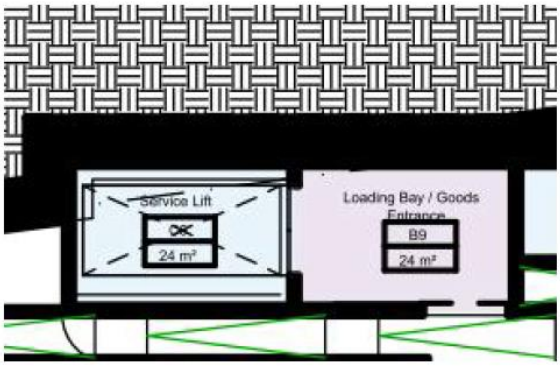


Figure 5-4 – Loading Bay location

Compliance and policy

The strategy aligns with the Waste Hierarchy, London Plan policies on waste and recycling design, and WCC storage/servicing guidance. Duty of Care obligations and source segregation requirements (paper/card, plastics/metals, glass, food where applicable) will be implemented through the FM plan and contractor arrangements.

The proposed waste strategy and future developments of this strategy will be based on the 'WCC Recycling and Waste Storage Requirements' April 2023 guidance, which requires new developments to achieve a minimum of 70% of waste as recycling. Thus, it is expected that the site should exceed the GLA target of 'Minimum 65% recycling rate and 75% target for business waste by 2030'. Details on Operational Management are reserved via planning condition, where these details will be reviewed.

Bin Sizing, Streams & Frequencies

Exact bin sizes and counts by stream (e.g., number of 660 L/1100 L for residual, mixed recycling, glass and food) and collection frequencies by stream will be confirmed at the next detailed design stage and set out in the FM plan. Contractors will be formally briefed through the Employer's Requirements and pre-start inductions. Detailed food-waste arrangements (container specification, storage room provisions and servicing approach) will be developed as the design progresses and confirmed alongside the final kitchen/cafe layouts; contractors will be briefed to accommodate these requirements.

6 END OF LIFE STRATEGY

The One Click LCA Building Circularity tool was used to estimate the opportunity for returning the material at the end of life of the Proposed Development. The results presented here are for the Proposed Development based on the inputs used for the whole life carbon analysis of the Proposed Development. The material quantity and specification inputs are in alignment with the Cost Plan with supplemental information (BIM models) from the design team.

This assessment was conducted assuming a 60-year lifecycle. It is accepted that many structures will have a longer useful life, however a cut-off value has been assumed in accordance with the RICS Guidance on whole life carbon assessment for the built environment to ensure that End of Life (EoL) scenarios and their associated emissions are accounted for in the assessment. Though, it is impossible to predict construction processes and minimum recycling rates in 60 years times, a reasonable estimation can be made based on current practices and industry benchmarks applied by default by the One Click tool.

The building circularity is being mainly evaluated in terms of the mass of the recovered building material as compared to virgin material likely to be used in the building construction and the percentage of the material that can be returned to building construction at the end of life of the Proposed Development. In this manner, the building circularity score is the average of the materials recovered, and the materials returned.

This information is reported separately and does not influence the LCA results but is used to document material circularity. Some products have the recycled, renewable, or reused percentage defined with a default value, which can be based either on the product or the type of product.

Material Recovered

The materials recovered include any materials that are sourced into a project which are not virgin e.g. recycled or reused materials are recovered materials. In line with the circular economy goal, the higher number of materials recovered, the better. The calculation takes into account the reused, recycled and renewable materials to ascertain the mass of the recovered material as compared to virgin material.

Material Returned

As mentioned earlier, it is impossible to predict the recycling rates in 60 years' time. However, it has been considered that at least current rates of recycling will be achievable in some cases e.g. steel. The rest of the inputs are based on industry benchmarks applied by the OneClick software.

It is estimated that GLA 20% recycled content by value is planned to be targeted based on the primary building elements and the material building circularity score based on the One Click LCA software is 26%. This includes the recycled content within the specified concrete GGBS (25%), structural steel (20%) and steel rebar (97%). The End of Life (EoL) scenarios are noted within the Bill of Material which was originally produced during the Whole Life Carbon Assessment.

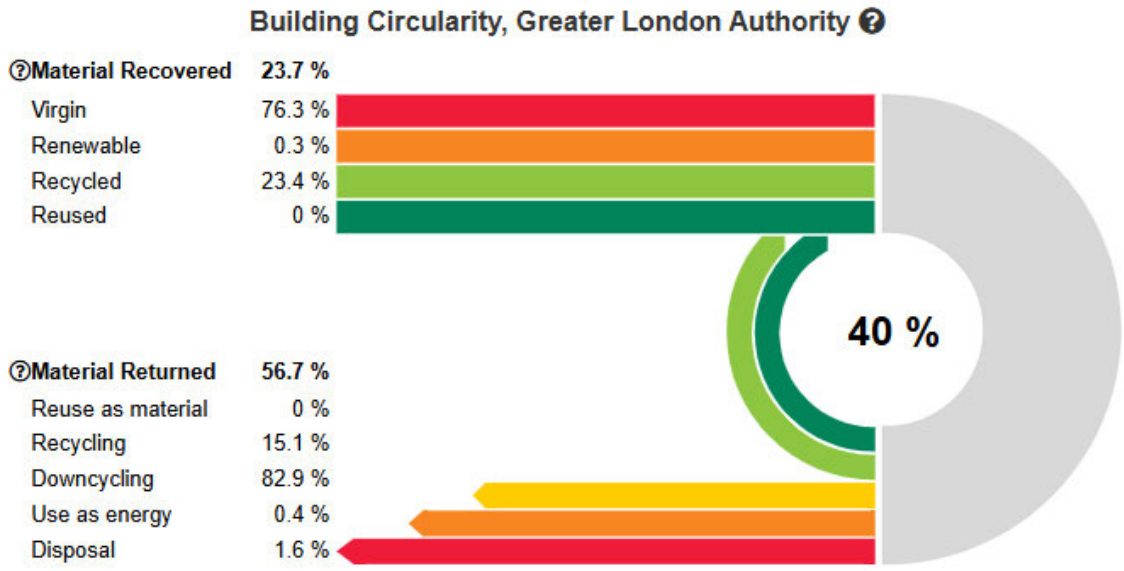


Figure 6-1 - Material Building Circularity score calculated using OneClick LCA Software

WESTMINSTER CITY COUNCIL- MATERIAL RETENTION VALUE

In line with GLA Circular Economy Guidance, the recycled content by value and mass has been estimated for the Proposed Development as 26%.

It should be noted that this calculation is limited by the material quantities predicted at the stage of writing for this report. For the details of the calculation please refer to Appendix D

6.1 POST OCCUPANCY ASSESSMENT

The Applicant confirms that a Post Completion Circular Economy Report would be provided to the GLA. The report will be provided within three months from project completion.

7 CONCLUSION

This Circular Economy Statement (CES) has been prepared by WSP on behalf of The Ministry of Housing, Communities & Local Government ('the Applicant') in support of a planning application for the UK Holocaust Memorial and Learning Centre within the City of Westminster.

This CES was produced to demonstrate how the design and construction of the Proposed Development addresses the challenges of the climate emergency by prompting resource efficiency and adopting a circular economy approach that contributes to a sustainable development and has followed the Circular Economy Statement Guidance (updated in March 2022) in the following areas:

- Building in layers
- Designing out waste by:
  - Minimising the quantities of materials and resources used
  - Specifying and sourcing materials and other resources sustainably
  - Design out construction, excavation, and municipal waste arising
  - Managing construction, excavation, and municipal waste
- Designing for longevity
- Designing for adaptability & flexibility
- Using systems, elements or materials that can be reused and recycled

An assessment of the primary components used for the structure and façade has been completed as part of this report development. When considering all the wider categories discussed in the report, the recycled content by total value is aimed to be at least 20% of material used on site, in accordance with the GLA target. Procurement strategy during the later phases of design will prioritise use of recycled material to ensure that the Proposed Development aligns with the target.

Due to the unique nature of the project, the strategies of longevity and flexibility have been key in forming a long-lasting building that serves an educational purpose as a monument, as well as creating an adaptable space in an extraordinary location. This is emphasized when the design decisions are reviewed by layer to show all the circular strategies that have been implemented within the project.

Appendix A

BILL OF MATERIAL

RICS category	Resource type	User input	Unit	Total kg	Waste factor	Service life	EOL Process	EoL
0.1.Toxic/Hazardous/Contaminated Material Treatment	Plywood	2279.83	m2	25413.14	0.1	30	Wood panel products waste treatment (BAU)	30% recycled 69% incineration 1% landfill
Subtotal for RICS category = 0.1.Toxic/Hazardous/Contaminated Material Treatment:				25413.14	0.1			
1.Substructure	Bitumen and other roofing	4769		20258.71	0.05	As building	Bitumen membrane recycling	100% landfill
1.Substructure	Concrete admixtures	6678.98	kg	3168.98	0.05	As building	Cast in situ concrete (BAU)	100% landfill
1.Substructure	Concrete masonry units (CMU)	92448.49	kg	92448.49	0.05	As building	Blockwork recycling (BAU)	97.5% recycled, 2.5 % landfill
1.Substructure	Pipes (water, heating, sewage)	2.53	m2	0.4	0.06	As building	Pipes recycling (BAU)	75% recycled, 20% reused, 5% incinerated
1.Substructure	Plain wood/timber (softwood and hardwood)	1	m3	1040	0.02	As building	Untreated solid timber waste (BAU)	30% recycled 69% incineration 1% landfill
1.Substructure	Plywood	4065.63	m2	20396.35	0.1	As building	Wood panel products waste treatment (BAU)	30% recycled 69% incineration 1% landfill
1.Substructure	Ready-mix concrete for external walls and floors	5677.17	m3	13625208	0.05	As building	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
1.Substructure	Ready-mix concrete for foundations and internal walls	9.8	m3	23480.8	0.05	As building	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
1.Substructure	Ready-mix concrete for structures (beams, columns, piling	877.5	m3	2106000	0.05	As building	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
1.Substructure	Reinforcement for concrete (rebar)	989.77	ton	989770	0.05	As building	Steel rebar recycling (BAU)	98 % recycled, 2% landfill
1.Substructure	Sand, soil and gravel	325	m3	520000	0.1	As building	Soil waste treatment (BAU)	97.5% recycled, 2.5 % landfill
Subtotal for RICS category = 1.Substructure:				17430257.8	0.052			
2.1. Frame	Concrete admixtures	3591.72	kg	3591.72	0.05	As building	Cast in situ concrete (BAU)	100% landfill
2.1. Frame	Ready-mix concrete for structures (beams, columns, piling	765.13	m3	1836312	0.05	As building	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
2.1. Frame	Reinforcement for concrete (rebar)	194.27	ton	194270	0.05	As building	Steel rebar recycling (BAU)	98 % recycled, 2% landfill
2.1. Frame	Stone wool insulation	354	m2	1770	0.07	As building	Mineral insulation treatment (BAU)	<1% recycled, 99% landfill
2.1. Frame	Structural steel and steel profiles	12.17	m3	95534.5	0.01	As building	Structural steel recycling (BAU)	93 % recycled, 7% reused
Subtotal for RICS category = 2.1. Frame:				2131478.22	0.048			
2.2.Upper floor	Cellular glass insulation	0.56	m3	112.52	0.07	As building	Mineral insulation treatment (BAU)	95% incinerated 5% landfill
2.2.Upper floor	PUR (polyurethane foam) insulation	16	m3	479.86	0.07	As building	PUR insulation incineration (BAU)	95% incinerated 5% landfill
2.2.Upper floor	Plastic membranes	1690	m2	116.61	0.1	30	Plastics incineration (BAU)	100% incinerated
2.2.Upper floor	Ready-mix concrete for external walls and floors	318.35	m3	764040	0.05	60	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
2.2.Upper floor	Ready-mix concrete for structures (beams, columns, piling	398.86	m3	957264	0.05	60	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
2.2.Upper floor	Reinforcement for concrete (rebar)	97.29	ton	97290	0.05	As building	Steel rebar recycling (BAU)	98 % recycled, 2% landfill
2.2.Upper floor	Stone wool insulation	50.48	m3	2524.01	0.07	As building	Mineral insulation treatment (BAU)	<1% recycled, 99% landfill
2.2.Upper floor	Structural steel and steel profiles	0.61	m3	4764.88	0.01	As building	Structural steel recycling (BAU)	93 % recycled, 7% reused
2.2.Upper floor	Wall and floor tiles	4.75	m3	44412.5	0.06	60	Brickwork recycling (BAU)	97.5% recycled, 2.5 % landfill
Subtotal for RICS category = 2.2.Upper floor:				1871004.38	0.05			
2.3.Roofs	Asphalt binders and bitumens	2.94	m3	2940	0.06	35	Asphalt recycling (BAU)	100% landfill
2.3.Roofs	Bitumen and other roofing	2692	m2	9568.95	0.05	30	Bitumen membrane recycling	100% landfill
2.3.Roofs	Cellular glass insulation	481	m2	26936	0.07	As building	Mineral insulation treatment (BAU)	<1% recycled, 99% landfill
2.3.Roofs	Concrete admixtures	3021.26	kg	3021.26	0.05	As building	Cast in situ concrete (BAU)	100% landfill
2.3.Roofs	Hot-dip galvanized/zinc coated steel	0.12	m3	940.19	0.01	As building	Galvanized steel recycling (BAU)	93 % recycled, 5% reused, 2% landfill
2.3.Roofs	Mortar (masonry/bricklaying)	7.89	m3	15780	0.04	30	Cement/mortar use in a backfill	100% landfill
2.3.Roofs	Other insulation	21.65	m3	2288.39	0.07	As building	Mineral insulation treatment (BAU)	<1% recycled, 99% landfill
2.3.Roofs	Other steel/iron	192	kg	192	0.01	As building	Structural steel recycling (BAU)	93 % recycled, 7% reused
2.3.Roofs	PIR (polyisocyanurate foam) insulation	148.45	m2	5042.25	0.07	As building	PUR insulation incineration (BAU)	95% incinerated 5% landfill
2.3.Roofs	Plastic membranes	4337	m2	1275.08	0.1	30	Plastics incineration (BAU)	100% incinerated
2.3.Roofs	Plastic profiles and products	189	kg	189	0.1	30	Plastics incineration (BAU)	100% incinerated
2.3.Roofs	Ready-mix concrete for structures (beams, columns, piling	755.32	m3	1812768	0.05	60	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
2.3.Roofs	Reinforcement for concrete (rebar)	83.08	ton	83080	0.05	As building	Steel rebar recycling (BAU)	98 % recycled, 2% landfill
2.3.Roofs	Specialty gypsum board	246	m2	2509.2	0.04	30	Plasterboard waste (BAU)	96% recycled, 4% landfill
2.3.Roofs	XPS (extruded polystyrene) insulation	405.64	m3	15414.32	0.07	As building	Plastics incineration (BAU)	100% incinerated
Subtotal for RICS category = 2.3.Roofs:				1981944.63	0.05			
2.4.Stairs and ramps	Concrete admixtures	146.08	kg	146.08	0.05	As building	Cast in situ concrete (BAU)	93 % recycled, 5% reused, 2% landfill
2.4.Stairs and ramps	Hot-dip galvanized/zinc coated steel	0.066	m3	518.1	0.01	As building	Galvanized steel recycling (BAU)	93 % recycled, 5% reused, 2% landfill
2.4.Stairs and ramps	Other metals	0.17	m3	1506.2	0.01	As building	Other metals recycling (BAU)	75% recycled, 20% reused, 5% incinerated
2.4.Stairs and ramps	Ready-mix concrete for external walls and floors	36.52	m3	87648	0.05	60	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
2.4.Stairs and ramps	Ready-mix concrete for structures (beams, columns, piling	40.76	m3	97824	0.05	60	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
2.4.Stairs and ramps	Reinforcement for concrete (rebar)	7.92	ton	7920	0.05	As building	Steel rebar recycling (BAU)	98 % recycled, 2% landfill
Subtotal for RICS category = 2.4.Stairs and ramps:				195562.38	0.05			
2.5.External walls	Cement; Microcement	0.39	m3	682.5	0.05	As building	Cast in situ concrete (BAU)	95% recycled, 5% landfill
2.5.External walls	Copper	31.069	m3	274335.07	0.01	As building	Copper recycling (BAU)	95% recycled, 5% landfill
2.5.External walls	Fibre cement products	3	m2	58.5	0.01	60	Cast in situ concrete (BAU)	95% recycled, 5% landfill
2.5.External walls	Gypsum plaster (interior applications)	0.08	m3	100	0.04	30	Plasterboard waste (BAU)	96% recycled, 4% landfill
2.5.External walls	Hot-dip galvanized/zinc coated steel	0.3	m3	2355	0.01	As building	Galvanized steel recycling (BAU)	93 % recycled, 5% reused, 2% landfill
2.5.External walls	Natural stone	0.03	m3	75.93	0.1	60	Unbound aggregates (BAU)	96% recycled, 4% landfill
2.5.External walls	PIR (polyisocyanurate foam) insulation	556.12	m2	2339.64	0.07	As building	PUR insulation incineration (BAU)	95% incinerated 5% landfill
2.5.External walls	Plastic membranes	555	m2	75.48	0.1	60	Plastics incineration (BAU)	100% incinerated
2.5.External walls	Specialty gypsum board	2725.12	m2	58685.9	0.04	30	Plasterboard waste (BAU)	96% recycled, 4% landfill
2.5.External walls	Stainless steel	6	m2	189.6	0.01	As building	Structural steel recycling (BAU)	75% recycled, 20% reused, 5% incinerated
2.5.External walls	Stone wool insulation	35	m2	41.03	0.07	As building	Mineral insulation treatment (BAU)	<1% recycled, 99% landfill
2.5.External walls	Structural steel and steel profiles	6	ton	6000	0.01	As building	Structural steel recycling (BAU)	93 % recycled, 7% reused
2.5.External walls	Wall and floor tiles	28.11	m3	262828.5	0.06	60	Brickwork recycling (BAU)	97.5% recycled, 2.5 % landfill
2.5.External walls	XPS (extruded polystyrene) insulation	232	m2	1057.92	0.07	As building	Plastics incineration (BAU)	95% incinerated 5% landfill
Subtotal for RICS category = 2.5.External walls:				608825.08	0.035			
2.6.Windows and external doors	Aluminium	0.8787	m3	4345.78	0.01	30	Aluminium recycling (BAU)	75% recycled, 20% reused, 5% incinerated
2.6.Windows and external doors	Natural stone	0.173	m3	429.64	0.1	60	Unbound aggregates (BAU)	95% recycled, 5% landfill
2.6.Windows and external doors	Other steel/iron	0.14	m3	1130.08	0.01	30	Structural steel recycling (BAU)	75% recycled, 20% reused, 5% incinerated
2.6.Windows and external doors	Plain wood/timber (softwood and hardwood)	0.3	m3	212.37	0.02	30	Untreated solid timber waste (BAU)	30% recycled 69% incineration 1% landfill
2.6.Windows and external doors	Ready-mix concrete for external walls and floors	3.16	m3	7579.71	0.05	60	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
2.6.Windows and external doors	Regular glass panes	5.99	m3	14979.55	0.01	30	Glass recycling (BAU)	80% recycled, 5% reused, 15% landfill
2.6.Windows and external doors	Stainless steel	4.16	m3	32678.01	0.01	As building	Structural steel recycling (BAU)	75% recycled, 20% reused, 5% incinerated
2.6.Windows and external doors	Treated or coated timber	15.06	m3	7904.87	0.02	30	Treated/coated solid timber waste (BAU)	30% recycled 69% incineration 1% landfill
2.6.Windows and external doors	Wall and floor tiles	0.39	m3	3597.76	0.06	10	Brickwork recycling (BAU)	97.5% recycled, 2.5 % landfill
Subtotal for RICS category = 2.6.Windows and external doors:				72857.78	0.018			
2.7.Internal walls and partitions	Concrete masonry units (CMU)	61448	kg	61448	0.05	60	Blockwork recycling (BAU)	97.5% recycled, 2.5 % landfill
2.7.Internal walls and partitions	Gypsum plaster (interior applications)	7.13	m3	8912.5	0.04	30	Plasterboard waste (BAU)	96% recycled, 4% landfill
2.7.Internal walls and partitions	Hot-dip galvanized/zinc coated steel	474.15	ton	47415.95	0.01	As building	Galvanized steel recycling (BAU)	93 % recycled, 5% reused, 2% landfill
2.7.Internal walls and partitions	Laminate flooring	72	m2	108	0.06	7	Biobased material incineration (BAU)	95% incinerated 5% landfill
2.7.Internal walls and partitions	Other precast concrete products	11.62	m2	755.3	0.01	60	Precast concrete recycling (BAU)	97.5% recycled, 2.5 % landfill
2.7.Internal walls and partitions	Ready-mix concrete for external walls and floors	689.64	m3	1655136	0.05	60	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
2.7.Internal walls and partitions	Regular glass panes	7350	kg	7350	0.01	35	Glass recycling (BAU)	80 % recycled, 5% reused, 15% landfill
2.7.Internal walls and partitions	Reinforcement for concrete (rebar)	68.96	ton	68960	0.05	As building	Steel rebar recycling (BAU)	98 % recycled, 2% landfill
2.7.Internal walls and partitions	Specialty gypsum board	1976.5	m2	22817.17	0.04	30	Plasterboard waste (BAU)	96% recycled, 4% landfill
2.7.Internal walls and partitions	Stone wool insulation	54	m2	55.8	0.07	As building	Mineral insulation treatment (BAU)	<1% recycled, 99% landfill
Subtotal for RICS category = 2.7.Internal walls and partitions:				1872958.72	0.049			
3.1.Wall finishes	Cement; microcement	3.06	m3	5355	0.05	As building	Cast in situ concrete (BAU)	95% recycled, 5% landfill
3.1.Wall finishes	Explosives and other chemicals; liquid for removing dirt	0.12	m3	132	0.06	As building	Landfilling (for inert materials)	100% landfill
3.1.Wall finishes	Paints, coatings and lacquers	1.52	m3	1900	0.06	5	Incineration of paint	100% landfill
3.1.Wall finishes	Plain wood/timber (softwood and hardwood)	196	m2	1310.06	0.02	As building	Untreated solid timber waste (BAU)	30% recycled 69% incineration 1% landfill
3.1.Wall finishes	Plastic profiles and products	0.34	kg	0.34	0.1	30	Plastics incineration (BAU)	100% incinerated
3.1.Wall finishes	Stainless steel	0.079	m3	607.72	0.01	As building	Structural steel recycling (BAU)	75% recycled, 20% reused, 5% incinerated
3.1.Wall finishes	Wall and floor tiles	0.031	m3	286.31	0.06	60	Brickwork recycling (BAU)	97.5% recycled, 2.5 % landfill
Subtotal for RICS category = 3.1.Wall finishes:				9591.44	0.048			
3.2.Floor finishes	Hot-dip galvanized/zinc coated steel	0.84	m3	6608.54	0.01	As building	Galvanized steel recycling (BAU)	93 % recycled, 5% reused, 2% landfill
3.2.Floor finishes	Leveling screeds (for floors)	231.79	m3	516427.73	0.08	60	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
3.2.Floor finishes	Mortar (masonry/bricklaying)	7.37	m3	16219.7	0.04	60	Cement/mortar use in a backfill	85% recycled,15 % landfill
3.2.Floor finishes	Natural stone	106.52	m3	274143.46	0.1	60	Unbound aggregates (BAU)	96% recycled, 4% landfill
3.2.Floor finishes	Paints, coatings and lacquers	0.524	m3	658.48	0.06	5	Incineration of paint	100% landfill
3.2.Floor finishes	Resilient flooring	2896.36	kg	2896.36	0.06	7	Plastics incineration (BAU)	100% incinerated
3.2.Floor finishes	Sand, soil and gravel	36.01	m3	57620.53	0.1	60	Soil waste treatment (BAU)	96% recycled, 4% landfill
3.2.Floor finishes	Wall and floor tiles	17.46	m3	163012.81	0.06	60	Brickwork recycling (BAU)	97.5% recycled, 2.5 % landfill
Subtotal for RICS category = 3.2.Floor finishes:				1037587.58	0.082			
3.3.Ceiling finishes	Acoustic insulation panels	27.89	m3	7280.3	0.07	As building	Mineral insulation treatment (BAU)	<1% recycled, 99% landfill
3.3.Ceiling finishes	Aluminium	2.76	m3	7457.54	0.01	As building	Aluminium recycling (BAU)	75% recycled, 20% reused, 5% incinerated
3.3.Ceiling finishes	Hot-dip galvanized/zinc coated steel	0.004	m3	31.4	0.01	As building	Galvanized steel recycling (BAU)	93 % recycled, 5% reused, 2% landfill
3.3.Ceiling finishes	Paints, coatings and lacquers	0.97	m3	1212.5	0.06	5	Incineration of paint	100% landfill
3.3.Ceiling finishes	Ready-mix concrete for external walls and floors	0.8	m3	1920	0.05	60	Cast in situ concrete (BAU)	97.5% recycled, 2.5 % landfill
3.3.Ceiling finishes	Specialty gypsum board	1.351	m3	1102.1	0.04	30	Plasterboard waste (BAU)	96% recycled, 4% landfill
3.3.Ceiling finishes	Suspended ceiling systems	0.032	m3	305.96	0.01	60	Galvanized steel recycling (BAU)	93 % recycled, 5% reused, 2% landfill
3.3.Ceiling finishes	Treated or coated timber	0.25	m3	131.25	0.02	30	Treated/coated solid timber waste (BAU)	30% recycled 69% incineration 1% landfill
Subtotal for RICS category = 3.3.Ceiling finishes:				19441.05	0.041			
8.External Works	Hot-dip galvanized/zinc coated steel	0.57	m3	4474.5	0.01	As building	Galvanized steel recycling (BAU)	93 % recycled, 5% reused, 2% landfill
8.External Works	Mortar (masonry/bricklaying)	48.84	m3	97680	0.04	60	Cement/mortar use in a backfill	85% recycled,15 % landfill
8.External Works	Natural stone	95.49	m3	241685.19	0.1	60	Unbound aggregates (BAU)	96% recycled, 4% landfill
8.External Works	Plain wood/timber (softwood and hardwood)	26.64	m3	13724.93	0.02	As building	Untreated solid timber waste (BAU)	30% recycled 69% incineration 1% landfill
8.External Works	Resilient flooring	555	m2	5008.88	0.06	7	Plastics incineration (BAU)	100% incinerated
8.External Works	Sand, soil and gravel	1650652	kg	1650652	0.1	60	Soil waste treatment (BAU)	96% recycled, 4% landfill
8.External Works	Stainless steel	183.68	m2	5804.29	0.01	As building	Structural steel recycling (BAU)	75% recycled, 20% reused, 5% incinerated
8.External Works	Structural concrete (beams, columns, piling)	220	m	37180	0.01	60	Precast concrete recycling (BAU)	97.5% recycled, 2.5 % landfill
Subtotal for RICS category = 8.External Works:				2056209.78	0.094			
Total:				29313140.1	0.055			

Appendix B

CIRCULAR ECONOMY WORKSHOPS

THE UNITED KINGDOM HOLOCAUST MEMORIAL AND LEARNING CENTRE
Project No.: 2024UK358076 | Our Ref No.: 2024UK358076-CES
Ministry of Housing, Communities & Local Government

WSP
February 2026

Circular Economy

The UK Holocaust Memorial and Learning Centre

Emma Francois | Associate Director – Decarbonisation, Building Structures

Sharareh Azar| Energy and Sustainability Engineer

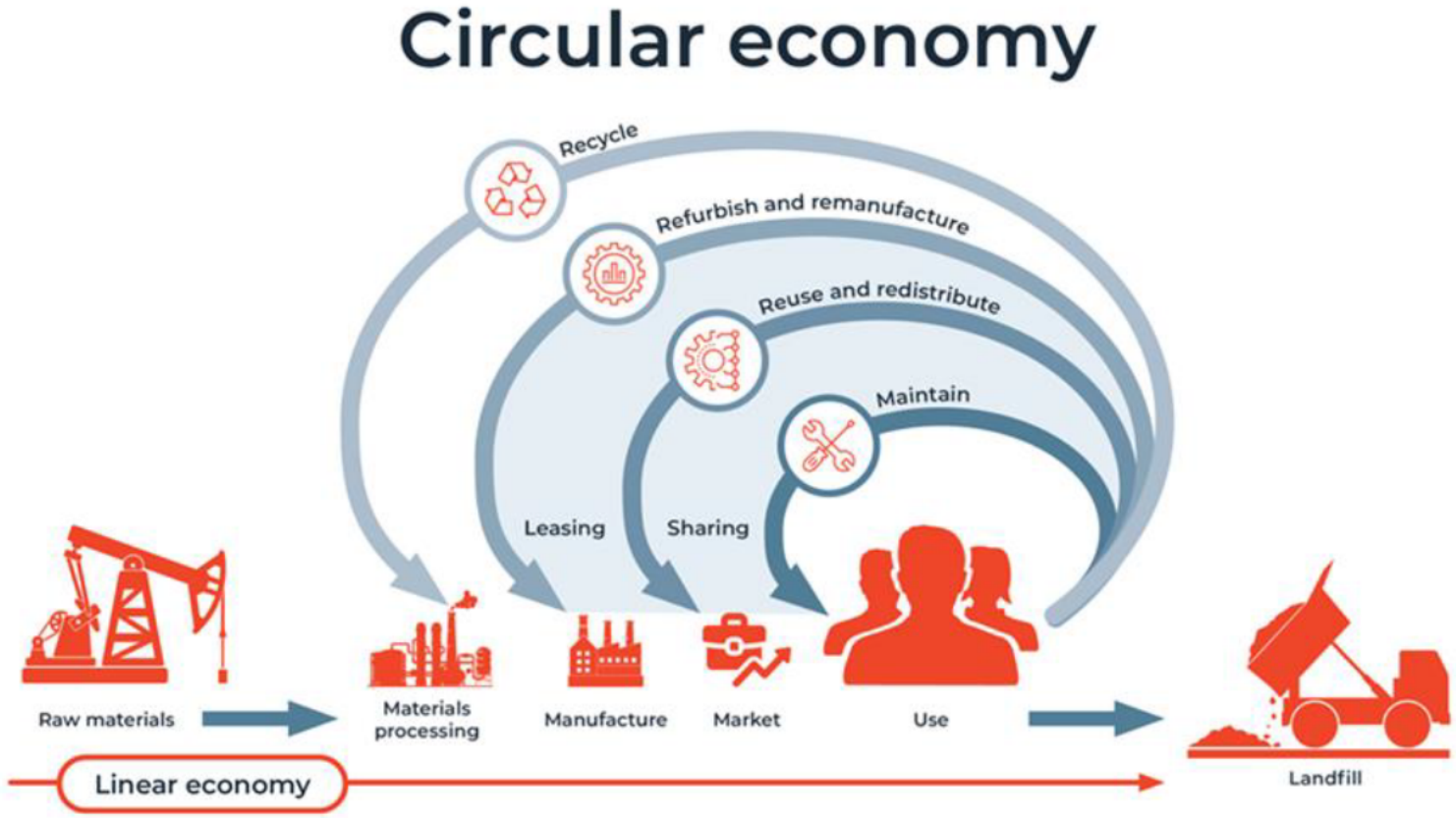
October 2025

Agenda

1. Circular Economy Introduction
2. Targets
3. Capturing Design Stage Decisions
4. Next Steps & Questions

1. CIRCULAR ECONOMY

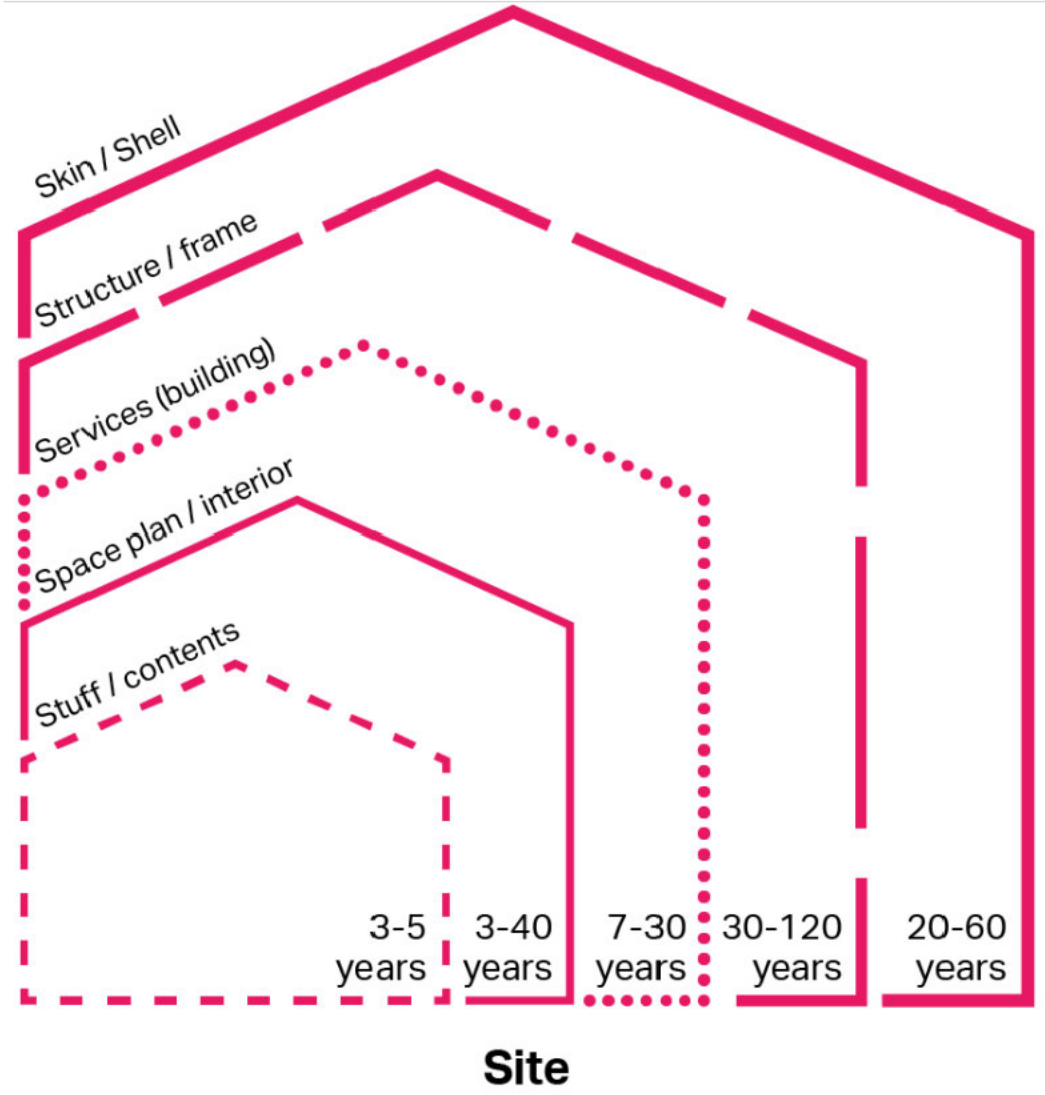
Introduction


Circular economy
Recycle
Refurbish and remanufacture
Reuse and redistribute
Maintain
Leasing
Sharing
Raw materials
Materials processing
Manufacture
Market
Use
Landfill
Linear economy

Waste hierarchy

GLA Circular Economy Principles

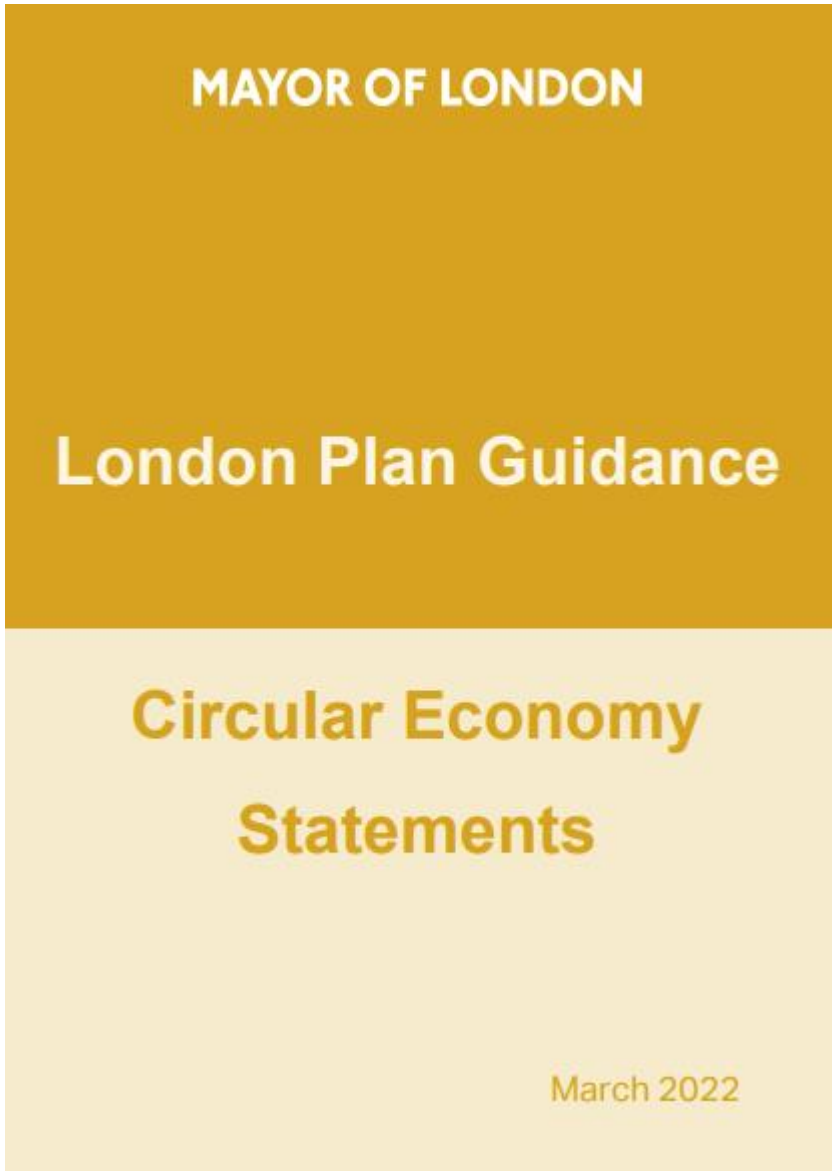
1. Building in layers
2. Design out waste
3. Design for longevity
4. Design for adaptability and flexibility
5. Design for disassembly
6. Use of systems, elements & materials that can be reused and recycled



Building in layers and their lifespans (GLA)

The London Plan Circular Economy Guidance

The London Plan Guidance Circular Economy Statements puts circular economy principles at the heart of designing new buildings, requiring buildings that can more easily be dismantled and adapted over their lifetime. It treats building materials as resources rather than waste, and puts in place a clear hierarchy, prioritising the retention of existing structures above demolition, where this is the more sustainable and appropriate approach.



Circular Economy Statements

Based on **GLA guidance**, a typical circular economy statement would need to include:

- Circular economy targets, design approaches and principles, including principles by building layer
- Bill of materials
- End of life strategy
- Operational waste management plan
- Site waste management plan
- Recycling and waste reporting
- ~~Pre-redevelopment and pre-demolition audit (if applicable)~~

3. CIRCULAR ECONOMY

Targets

CE Targets

Can we exceed any of these GLA Targets?

95%	of excavation waste should have a beneficial use	Site Waste Management Plan
95%	of demolition and construction waste should be diverted from landfill	
20%	recycled content by value in materials	Cost Plan
65%	of municipal waste recycled by 2030 (retail/café space only)	Operational Waste Management Plan
75%	of business waste recycled by 2030 (applicable to all commercial space)	

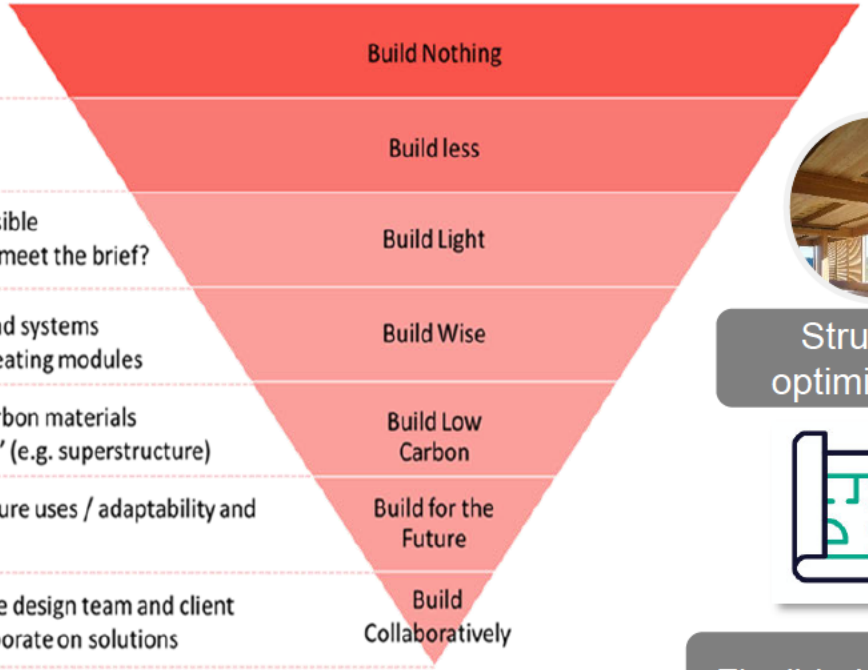
GLA Requirement

Circular economy targets for existing and new development	Policy Requirement	Target Aiming For (%)	Policy Met?
Demolition waste materials (non-hazardous)	Minimum of 95% diverted from landfill for reuse, recycling or recovery.	**95%**	NA
Excavation waste materials	Minimum of 95% diverted from landfill for beneficial reuse.	**95%**	Yes
Construction waste materials	Minimum of 95% diverted from landfill for reuse, recycling or recovery.	**95%**	Yes
Municipal waste	Minimum 65% recycling rate by 2030.	**65%**	Yes
Recycled content	Minimum 20% of the building material elements to be comprised of recycled or reused content.	**20%**	Yes
Post-Construction Report	A CE Statement is required at post-construction (i.e. upon commencement of RIBA Stage 6 and prior to the building being handed over, if applicable. Generally, it would be expected that the assessment would be received no more than three months post-construction)	It is expected that the Post Construction Reporting will be conditioned	

3. CIRCULAR ECONOMY

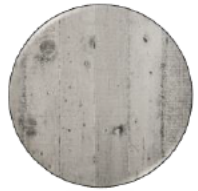
Design Stage Decisions

Sustainability Strategies Discussion

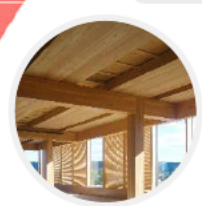


- Use existing materials
- Shared / multi-functional spaces
- Restrict dead loads where possible
- What loadings are required to meet the brief?
- Longevity of materials and systems
- Material efficiency / repeating modules
- Low embodied carbon materials
- Focus on 'big wins' (e.g. superstructure)
- Consider future uses / adaptability and end of life
- Whole design team and client collaborate on solutions

Challenge the Status Quo



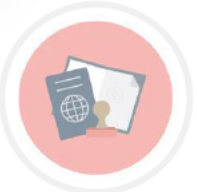
Reduce finishes where possible



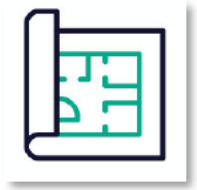
Structural optimisations

Lightweight materials

Digital Integration



Material passports



Flexible Layouts

Efficient MEP + distribution

Façade carbon / energy balanced

Modular design

Knowledge sharing

Multidisciplinary

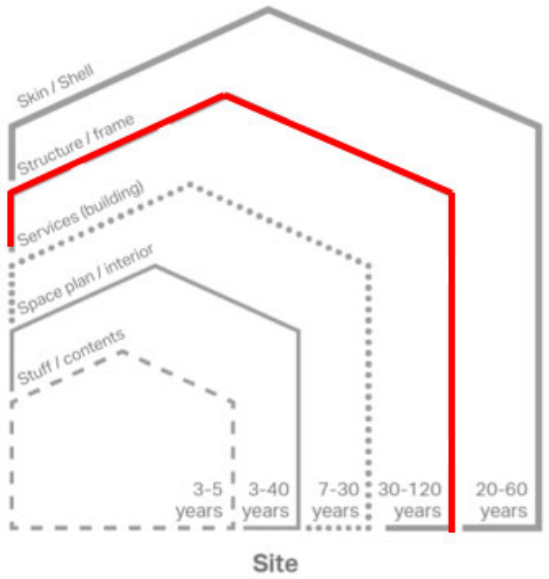
Transparent carbon targets

Durable materials

Climate resilience

End-of-Life planning

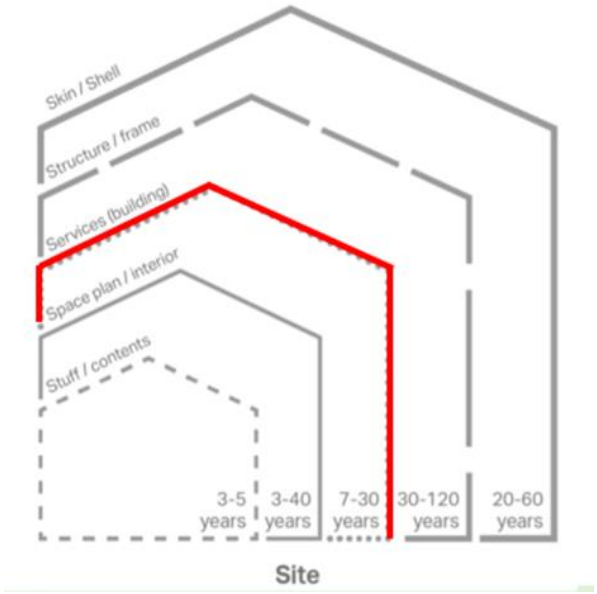
Structural



- Efficiency and **avoiding overspecification**
- Raft foundation to **reduce pile numbers**
- Concrete with GGBS for **lower carbon materials**
- Responsible supply chain
- Just in time deliveries
- Structural finishes to be exposed, **limiting additional finishes/materials required**
- Superstructure elements in hard-to-access locations receive enhanced corrosion protection to **minimise maintenance required**
- A flat slab system is used to provide **flexibility for future services** re-routing without invasive structural alterations.
- Subject to testing and suitability, crushed and graded demolition arisings will be prioritised for the temporary piling mat and for backfill where specification allows, **reusing existing materials**

NB all notes in purple are additions from the workshop on 3/10/25

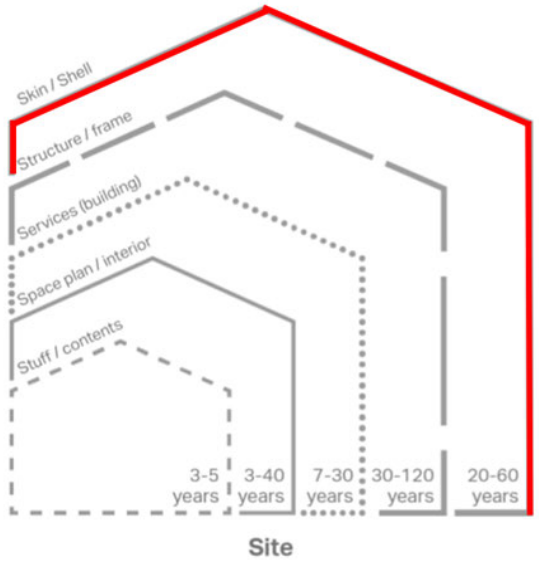
MEP Services



- **Oversizing avoided**
- Service dimensions and clearances coordinated to **limit cut offs and off cuts (waste)**
- Where possible, systems **favour recyclable metals** (e.g., copper or steel pipework) over high-impact plastics
- Load reduction via envelope performance **lowers required plant capacities** and service sizes, cutting embodied materials in the MEP scope.
- Efficient heating, cooling and ventilation plant is specified to **minimise energy demand**
- Layouts are being developed to **accommodate future reconfiguration** and maintenance with minimal waste generation
- Trunk distribution and plant selections **allow future expansion/adaptation**, enabling internal fit-out changes without major replacement of primary services
- Services **are independently fixed to the structure** (except where coordinated service voids are cast into the frame), enabling replacement, removal and upgrade without structural intervention and supporting circular outcomes at end-of-life.
- Update – dual purpose smoke extract and ventilation systems reduce amount of ductwork required

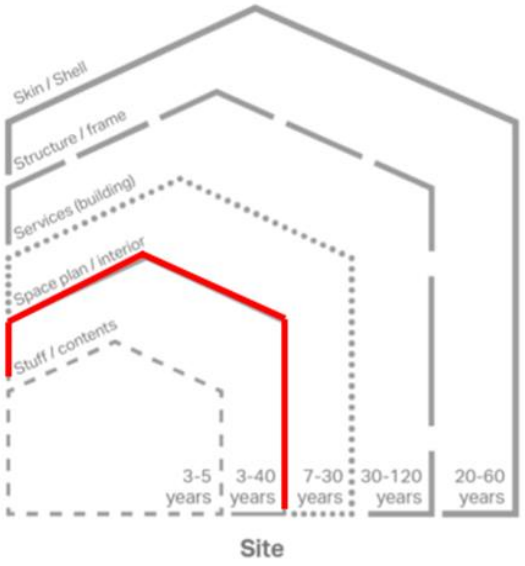
NB all notes in purple are additions from the workshop on 3/10/25

Façade



- Bronze with 100% recycled content
- The façade materials such as Bronze and stone columns have a long lifespan.
- Plastic-free components and building materials
- Mineral wool insulation rather than insulation made from oil-based polymers
- Local suppliers and sub-contractors where practicable
- Unitised fin panels + sub-frames with mechanical fixings only (no continuous adhesive beds) so single elements can be removed, refurbished, or recast without dismantling adjacent fins – aiming for 30-40% fin to be pre-fabricated
- Facades on entrance pavilion and café kiosk to use mechanical systems for demountability
- Railings and boardwalks to inside of river wall to use mechanical systems for demountability

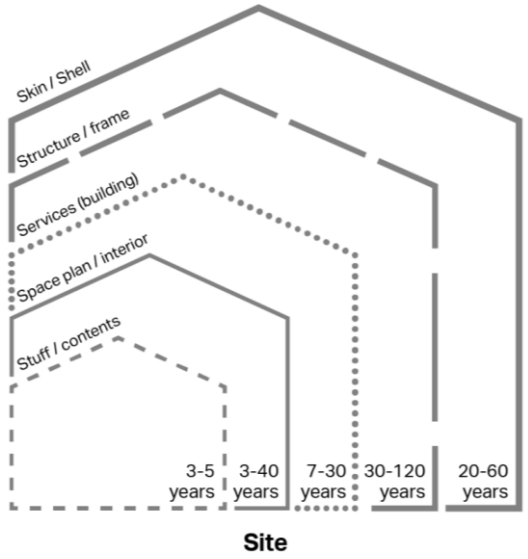
Space/ Interior



- Make use of versatile/flexible/movable internal walls for the space layout to support multi-use.
- Learning centre exhibition space can be stripped back to shell for alternate use
- Large floor-ceiling height allows a variety of potential future use
- Linear divisions of space planning allow flexibility for future division of space – including ventilation strategy
- House lighting and emergency lighting on separate systems also contributes to future adaptability
- Multiple uses are possible in the spaces at different times to get the most from the space created, aided by the building management strategy

Other

- Opportunity to use recycled fill to form landscaping levels
- Rainwater attenuation
- Rainwater reuse
- Potential for re-use of top soil



Next steps

Next steps

Required Documents / Report - Responsibility

Operational Waste Management Plan	Operational Waste Consultant
Construction Waste Calculations	Site Waste Management Consultant
Circular Economy decisions to date by Architect	Designing for disassembly report/audit? Also discussion now
Total cost/costs per elements which have recycled/reused content	Cost Plan

Thank you

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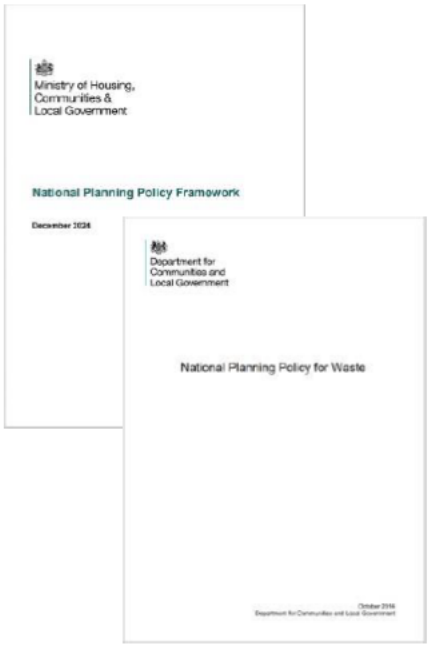
Appendix C

POLICY

CIRCULAR ECONOMY POLICIES

NATIONAL PLANNING POLICY



The National Planning Policy Framework (NPPF) was updated in December 2024 and replaces the previous versions. Plans and decisions should apply a presumption in favour of sustainable development.

The National Planning Policy Framework (NPPF) sets the planning context for sustainable design and construction. It is this that Local Planning Policies are based on and adapted to account for regionally specific requirements.

The relevant NPPF policies are as follows:

- Ministry of Housing, Communities and Local Government (MHCLG), National Planning Policy Framework (2024);
- Ministry of Housing, Communities & Local Government (MHCLG), National Planning Policy for Waste (2014);

THE LONDON PLAN 2021

The Greater London Authority (GLA) Circular Economy Guidance (March 2022) forms part of the London Plan Guidance. The London Plan Guidance provides information to developers, boroughs, and others to inform how policies in the London Plan 2021 and local plans should be applied.

For example, Policy SI7 *'Reducing waste and supporting the circular economy*,' includes specific requirements and targets for integrating circular economy principles into all stages of referrable developments. To make this a reality, waste planning authorities and industry are expected to collaborate to achieve the following goals:

- Promote a more circular economy that improves resource efficiency and innovation to keep products and materials at their highest use for as long as possible;
- Encourage waste minimisation and waste prevention through the reuse of materials and using fewer resources in the production and distribution of products:
- Ensure that there is zero biodegradable or recyclable waste to landfill by 2026;

- Design developments with adequate, flexible, and easily accessible storage space and collection systems that support, as a minimum, the separate collection of dry recyclables (at least card, paper, mixed plastics, metals, glass) and food; and
- To promote circular economy outcomes and achieve net zero-waste, any applicable applications should include a CES.

Other relevant national waste policies which have relevance to this CES, include:

- Department for Environment, Food and Rural Affairs (DEFRA), Our Waste, Our Resources: A Strategy for England (2018); and
- HM Government, A Green Future: Our 25 Year Plan to Improve the Environment (2018).

In combination with the GLA's Circular Economy targets and principles (Section 2.2), these policies underpin the targets which should be implemented across selected developments:

- 20% of new materials used should contain reused/recycled content;
- 95% of construction & demolition waste should be reused/recycled/diverted from landfill;
- 95% of excavation waste should have beneficial use; and
- 65% of municipal waste should be recycled by 2030.

The CES has been produced in response to the planning requirement and guidelines outlined in the table below. As an exemplary project, it aims to exceed the following requirements where possible.

Table 1-1 – London Plan (March 2021) - Relevant to CES

THE LONDON PLAN (MARCH 2021)	
Policy D3 Optimising Site Capacity Through the Design-led Approach	A) All developments must make the best use of land by following a design-led approach that optimises the capacity of sites, including site allocations. The design-led approach requires consideration of design options to determine the most appropriate form of development that responds to a site's context and capacity for growth, existing and planned supporting infrastructure capacity (as set out in Policy D2 Infrastructure Requirements for Sustainable Densities), and best delivers the requirements set out in Part B. B) Development proposals should: 12) Be of high quality, with architecture that pays attention to detail, and thoroughly considers the practicality of use, flexibility, safety and building lifespan through appropriate construction methods and the use of attractive, robust materials that weather and age well. 13) Aim for high sustainability standards (with reference to the policies within London Plan Chapter's 8 and 9) and take into account the principles of circular economy.
Policy SI7 Reducing Waste and Supporting Circular Economy	A) Resource conservation, waste reduction, increases in material re-use and recycling, and reductions in waste will be achieved by the Mayor, waste planning authorities, and industry working in collaboration to: 1) Promote a more circular economy that improves resource efficiency and innovation to keep products and materials at their highest quality for as long as possible 2) Encourage waste minimisation and waste prevention through the reuse of materials and use fewer resources in the production and distribution of products 3) Ensure that there is zero biodegradable or recyclable waste sent to landfill by 2026 4) Meet or exceed the municipal waste recycling target of 65% by 2030 5) Meet or exceed the targets for each of the following waste and material streams: a) Construction and demolition – 95% reuse/recycling/recovery b) Excavation waste–95% beneficial use 6) Design developments with adequate, flexible, and easily accessible storage spaces and collection systems that support, as a minimum, the separate collection of dry recyclables (at least card, paper, mixed plastics, metals, glass) and food. B) Referable applications should promote circular economy outcomes and aim to be net zero-waste. A Circular Economy Statement should be submitted to demonstrate: 1) How all materials arising from demolition and remediation works will be re-used and/or recycled 2) How the proposal's design and construction will reduce material demands and enable building materials, components, and products to be disassembled and re-used at the end of their useful life 3) Opportunities for managing as much waste as possible on site 4) Adequate and easily accessible storage space and collection systems to support recycling and re-use 5) How much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy 6) How performance will be monitored and reported C) Development plans that apply circular economy principles and set local lower thresholds for the application of Circular Economy Statements for development proposals are supported

LOCAL POLICY: WESTMINSTER CITY PLAN

The City of Westminster local plan was adopted in April 2021 and is the City Plan for Westminster to 2040. Along with the Mayor of London's London Plan and any neighbourhood plans which may be made in future, it is the statutory development plan setting out our vision and strategy for the development of the city and contains policies that will be used in determining planning applications. The table below details the key policies in the Westminster City Plan relevant to circular economy.

Table 1-2 – Westminster City Plan (April 2021) – Relevant to CES

WESTMINSTER CITY PLAN 2019-2040 (APRIL 2021)	
Policy 37. Waste Management	The council will promote Circular Economy and contribute to the London Plan targets for recycling and for London's net self-sufficiency by 2026. All new development must provide appropriate storage for waste separation streams. Developers are required to demonstrate through a Circular Economy Statement, Site Environmental Management Plan, the recycling, re-use, and responsible disposal of Construction, Demolition and Excavation waste in accordance with the London Plan targets. Existing waste management facilities will be protected by the Council. The Council will continue to collaborate with other Waste Planning Authorities in its management of waste and waste export monitoring.

The City of Westminster local plan was adopted in April 2021 and is the City Plan for Westminster to 2040. Along with the Mayor of London's London Plan and any neighbourhood plans which may be made in future, it is the statutory development plan setting out our vision and strategy for the development of the city and contains policies that will be used in determining planning applications.

Westminster City Council has defined new proposed planning policies to make Westminster a 'retrofit first' city. New rules set out by the local authority will mean developers must explore options to retrofit before demolishing buildings. The proposed policy forms part of a partial review of Westminster's City Plan, of which the consultation started on 14th March 2024 and is due to conclude on 9th May 2024. Key changes within this review include an update to embodied carbon targets in line with London Energy Transformation Initiative (LETI) benchmarks. Also, an update to the methodology for carbon offsetting which sets the prices of carbon at £330/CO2t for electric-based schemes as opposed to the current price of £95/CO2t as set out in the London Plan.

Policy 43, "Retrofit First," emphasises prioritising retrofitting existing buildings over demolition in development projects. It suggests that demolition should only occur after thorough consideration of retrofitting options, with full justification provided for any proposed demolition. Demolition of multi-storey buildings will generally be opposed unless the development can demonstrate specific public benefits, comparable carbon footprint to retrofitting, bespoke operational needs, or structural constraints preventing retrofitting. To decrease embodied carbon emissions, all new non-residential

building projects involving significant demolition or major development must submit a Whole Life-Cycle Carbon assessment demonstrating how the development will achieve a target upfront embodied carbon equivalent, based on the LETI band "A" with an absolute minimum rating of “B”. Proposals for responsible retrofitting will be supported. When considering extensions or alterations, priority will be given to retaining and retrofitting buildings for improved environmental performance.

Appendix D

RECYCLED CONTENT CALCULATION

Recycled / Reused Content Calculation

Materials	Quantity (kg)	Quantity (tonnes)	Recycled Content	Unit	Rate per unit	Rate per tonnes	rate of recycled content
Concrete, cast in situ	22951700	22951.69971	25%	m3	200	83.33333333	478160.4106
Concrete, precast	153896.49	153.89649	25%	m3	170	70.83333333	2725.250344
Concrete reinforcement	1441290	1441.29	96%	tonne	1350	1350	1867911.84
Aluminium extrusions	4345.78	4.34578	31%	tonne	1280	1280	1724.405504
Bronze 3mm	274335.07	274	100%	m2	1365.8537	51,742	14,194,645
Galvanised Steel/ stud work	62343.68	62.34368	15%	tonne	1200	1200	11221.8624
Structural steel	106299.38	106.29938	50%	tonne	5500	5500	292323.295
Plasterboard	94026.87	94.02687	10%	tonne	503	503	4729.551561
Glass mineral wool	27048.52	27.04852	0.5	tonne	950	950	12848.047
Stone wool/ rock wool insulation	4390.84	4.39084	0.2	m2	50	113636.3636	99791.81818
Terrazzo	474137.88	474.13788	0.1	m	565.2	2686.631016	127383.3534
recyled content (kg)							7569439.857
Total mass of materials (kg)							29313140.13
Recycled content by weight %				**26%**			
Total value of recycled contents (£)							17,093,465
Total cost from cost plan (£)							65,321,671
Recycled Content by Value %				**26%**			

*Please not that the recycled content percentages are provided based on cost plan, structural engineer specification and RICS 2.0 baseline wherever no information was available.

WSP House
70 Chancery Lane
London
WC2A 1AF

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