125 Shaftesbury Avenue

Pre-Demolition Audit

Prepared by Material Index

Submitted on behalf of VREF Shaftesbury SCS

November 2024

Material Index

125 Shaftesbury Avenue

Pre-Demolition Audit

125 Shaftesbury Avenue. Source: Google Earth

Site Address:	125 Shaftesbury Ave, London WC2H 8HR
Site Name:	125 Shaftesbury Avenue
Report Number:	2406_2706_/A
Issued:	28/11/2024
Revision:	C
Prepared for:	VREF Shaftesbury SCS
Prepared by:	Olivia Daw - Associate / Material Index
Checked by:	Rob Smith - Director / Material Index
Status:	**Final**

Revision Record

Date	Revision	Description	Comments
17/07/24	A	Pre-demolition Audit	Pathways set by Material Index **for review** by the project team.
15/08/24	B	Pre-demolition Audit	Pathways reviewed by project team, report and data updated to include: - Carpet tiles for reuse off-site - 30% raised access flooring to waste - Brick facade panels set to recycling off-site (waste) - Detail on MEP m2 allowances - Allocation of solid bricks to reuse on-site
28/11/24	C	Pre-demolition Audit	Updated with feedback from Gerald Eve

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1. Executive Summary

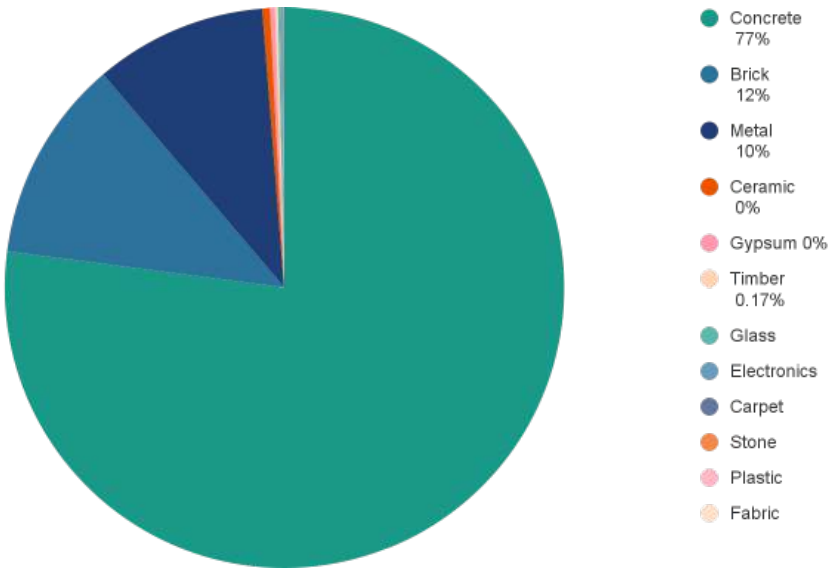


Chart 1. *Material distribution by weight (kg) as percentage.*
Note: see Table 1. in Section 5.1. for material weight distributions in kg.

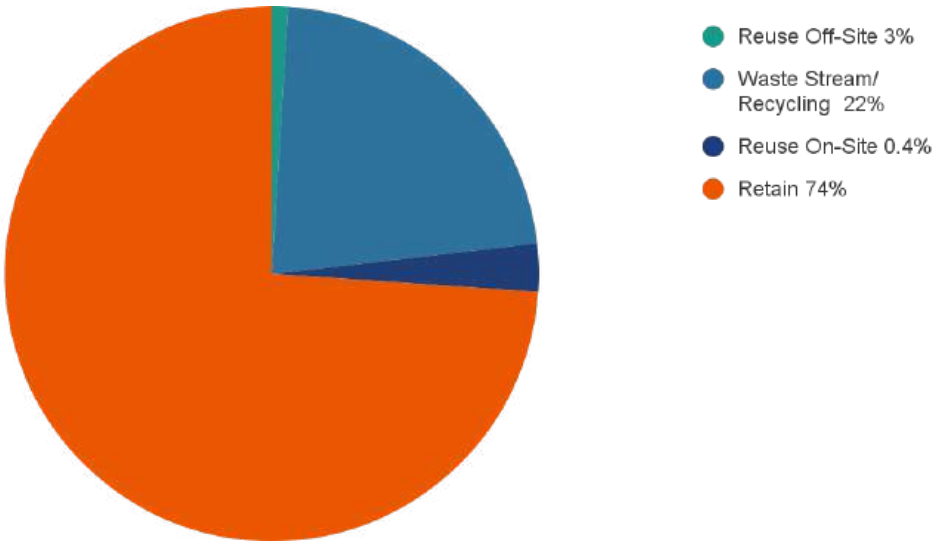


Chart 2. *Material pathway distribution by weight (kg) as percentage.*

1.1. Estimated Waste Arisings

125 Shaftesbury Avenue is an existing building within the borough of Camden. The proposal aims to retain and extend upon the structural frame (with c.75% of the existing structure proposed to be retained in situ, renew the external envelope to target 238,000 sq ft of use class B1 office space on the upper levels.

An estimated total of **24,970 tonnes** of material has been captured in the pre-demolition audit of **125 Shaftesbury Avenue.** This includes estimations for all structure, hard surfaces, FF&E and MEP. For the purpose of this audit, high-level weight estimations using square metre rates have been made for MEP weights, including data and cabling, HVAC and plumbing.

Of the items identified in the audit currently **74%** (by weight) is to be retained in-situ, <**1%** (by weight) is designated for on-site reuse, **3%** (by weight) for off-site reuse, and **22%** (by weight) designated to the waste stream/off-site recycling.

1.2. Assumptions and Exclusions

Material Index were given full access by the site manager to inspect all spaces across **125 Shaftesbury Avenue.** Information and photographs of the materials and components in accessible spaces were collected and recorded within the Material Index online platform as part of the audit. On occasions, certain rooms in tenanted spaces were occupied and there were instances where rooms were locked.

Assumptions for unknown dimensions have been made based on experience or standard material and product standards. Assumptions on materials and finishes were also made for inaccessible spaces, based on similar or adjacent spaces.

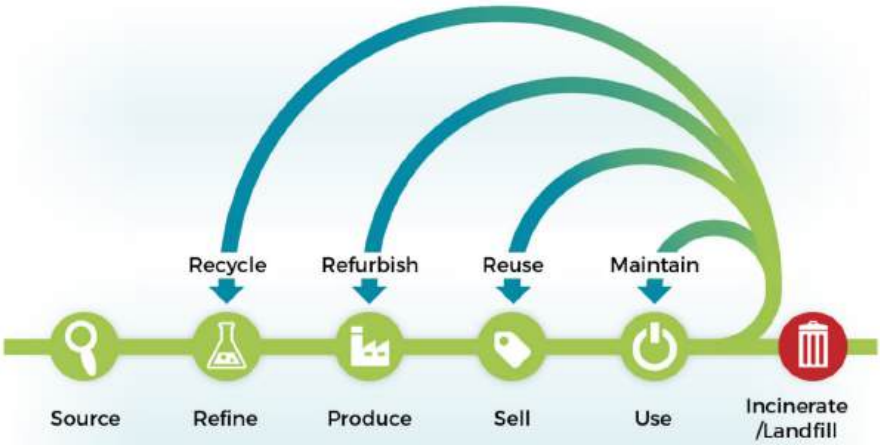
Material Index have reviewed the Stage 1 Design information and existing and proposed architectural drawings to understand current scope for demolition.

1.3. Targets

The current reuse target of **4%** (on and off-site) in isolation, is considered low-average, where similar projects of this type and scale may typically target 15-20% reuse (on and off-site). However, this lower reuse percentage can be attributed to the high percentage of retention **(74%)** and low percentage of waste **(22%)**. Retention is higher than reuse in the waste hierarchy.

Where on-site reuse for items is not available, resale or donation schemes for off-site reuse should be prioritised. Material Index can support brokerage of these items as a follow-on service.

The London Plan Policy targets a minimum of **95%** reuse, recycling or recovery of construction and demolition waste and this project is looking to meet or exceed this target. See Section 5.4.



Reuse Hierarchy Diagram: Diverting material from end of life scenario: BS 8001

2. Audit Overview

2.1. Purpose

This report is a **pre-demolition audit** to produce an asset register of materials that will be removed during the deconstruction phase. It is primarily focused on components which are suitable for reuse and recycling, within the client portfolio, or off-site via the resale market or donation schemes.

The written report will focus on these elements, and an asset register (catalogue) of all materials and components that will be removed during the deconstruction phase will accompany the report (Appendices). The asset register will be primarily focused on components which are suitable for reuse and recycling, within the client portfolio or off-site via the resale market or donation schemes.

In addition to the PDF report, the project team will have access to the Material Index online platform, a material management tool used to designate project pathways in line with the waste hierarchy. This is a live resource and can be updated across the project stages to track project sustainability data and targets. This **pre-demolition audit** report should be read in conjunction with the wider project sustainability strategy, and the **pre-redevelopment audit** prepared by Material Index.

The report also recommends recycling pathways within the waste stream. The intention is to maximise the management of material in line with the principles of the circular economy waste hierarchy.

This report also meets the requirements listed in the GLA's Circular Economy Statement Supplementary Planning Guidance (March 2022) and has been guided by Camden Planning Guidance (9. Reuse and optimising resource efficiency).

The report should assist in the contractor's Site Waste Management Plan. Material Index can assist the contractor/client if there is a desire to divert materials from the waste-stream to value stream. This report could be used to help with the development of a client waste management plan or internal carbon reporting.

2.2. Audit Details

Site visit date:	Three site visits; 27/06/24, 28/06/24, 16/07/24; walkthrough of all buildings and levels where access was available.
Site visit undertaken by:	Olivia Daw (MI), Justina Braskute (MI), Russon John (MI), Oliver Lawson (MI)
Inspection:	Visual inspection. No invasive surveys have been undertaken.
Project stage:	RIBA Stage 2
Project information available:	Stage 1 Report Sustainability_V3.pdf BREEAM Kick Off Presentation - 125SA 20.06.2024.pdf 65211871-SWE-XX-XXT-O-001-P01 125 SA Pre Assessment for comment.pdf 125SA_Stage 1 Report with Appendix Rev A.pdf 125 Shaftesbury Avenue - Vendor Technical DD Report 18.07.23 (1).pdf 125 SA BREEAM V6.1_Outstanding Gap Analysis.pdf 19.3.1.2.24 180314 LONDON 125 SHAFTESBURY - ISSUE FOR TENDER - A-4 Finishes.pdf Revit Model: 361-DSDHA-XX-XX-M3-A-2024_Stage 2.rvt

2.3. Report Scope

This report is intended to satisfy:

BREEAM BRE Wst 01 Construction waste management: Pre-demolition Audit requirement in its entirety.

Additional Wst 01 credits are available relating to:
Reuse and direct recycling of materials: currently 75% of waste generated by refurbishment is either used on-site or off-site or sent back to the manufacturer (dependent on material type).

This report may also be able to contribute to BREEAM:
Wst02 Recycled and sustainably sourced aggregates.
Man 06 Material efficiency around reducing the use of materials at each RIBA Stage.
Mat 03 Responsible sourcing.

Targets for recycled content to be used (% by value) in the next phase of work have not been set as part of this audit.

This report also meets the requirements listed in the GLA's Circular Economy Statement Supplementary Planning Guidance (March 2022) and has been guided by Camden Planning Guidance (9. Reuse and optimising resource efficiency)

2.4. Material Index Methodology

The BRE Green Guide has been consulted in preparation of this report.

The volume of different materials has been estimated, based on visual inspection, drawings, Revit files and cross-referencing manufacturers' data from schedules of materials, where possible.

The weight of the different materials has then been estimated using commonly accepted densities, or from manufacturers' and material suppliers, where possible.

Building Services (MEP) have been estimated at a high level using m^2 rates from the BSIRA Rule of Thumb Guidelines for Building Services (5th Edition). MEP is understood to be:

- HVAC: Heating, ventilation, and air conditioning
- Power distribution: Including conduit and wiring
- Water supply and drainage systems
- Including fire suppression, alarms, data systems, and surveillance systems

2.5. Persons

The 'competent person' lead on this project is Rob Smith. Rob is a chartered Mechanical Engineer with extensive experience of construction, decommissioning and deconstruction. Rob's largest project to date was overseeing the dismantling of the Brent Alpha oil & gas platform in the North Sea.

Rob has been supported by Olivia Daw, Architect (BoAQ) who has extensive professional experience in design, construction and material reuse across all project stages, and Morgan Lewis (ARB Architect) who has extensive experience in material supply chains.

2.6. Disclaimers

Companies who may be able to provide services, or sale, are given for information, but do not constitute an endorsement or recommendation. The Environment Agency website provides a certification directory to confirm if a waste management facility has the appropriate permit in place. This audit does not constitute a report on potential hazardous material on site. On-site reuse of non-hazardous materials is highly recommended in-line with the hierarchy of reuse laid out in circular construction guidance. Items sent off site as waste shall be delivered to a suitably licensed (or exempt) facility.

3. Project Description

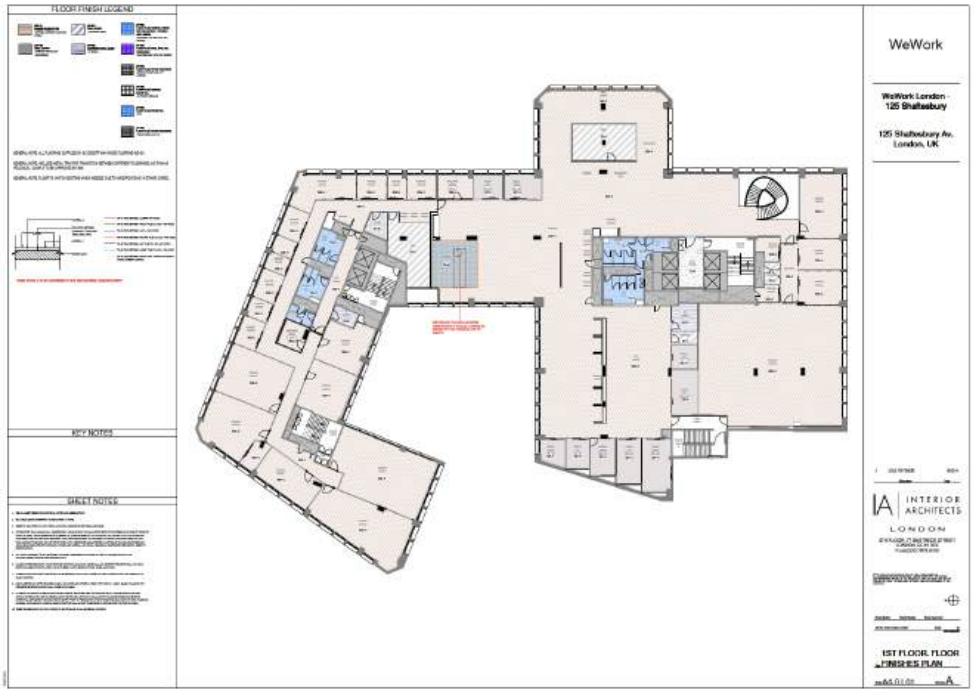
3.1. Existing Building

125 Shaftesbury Avenue is a commercial building located in London's West End within the Borough of Camden. The existing building was originally constructed in the early 1980s, hosting 10 storeys with ground and basement floors. The building is a concrete framed structure with reinforced columns, lift and stair cores and lightweight internal walls. A uniform brick modular facade system encapsulates each elevation of the existing building.

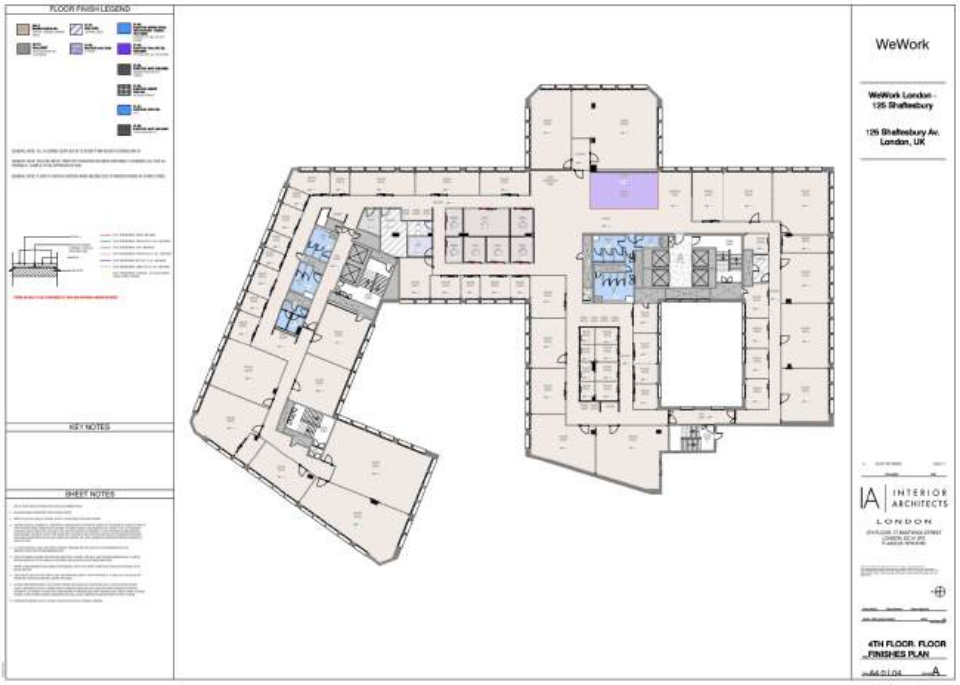
The ground floor and a section of the basement floor is utilised by retail spaces. The internal office space throughout the building is consistent with the internal fit outs allowing flexibility and functionality. Plant equipment servicing the building is located in the basement and Level 10.

Exterior: Street View of 125 Shaftesbury. Credit: Google Maps

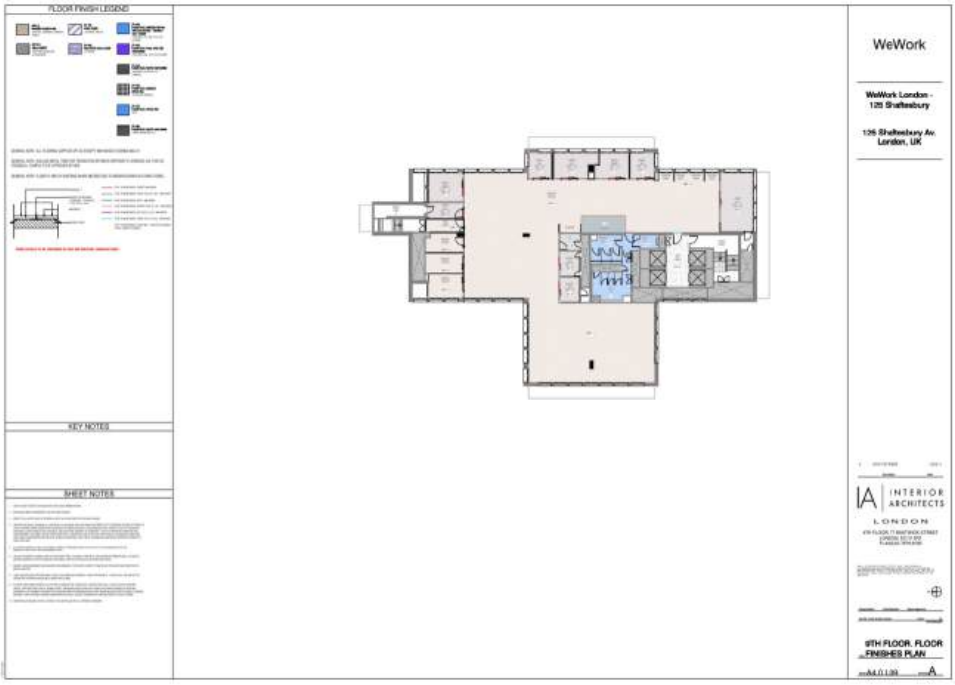
Existing Basement Plan, Credit: Plowman Craven



Existing First Floor Plan (offices), Credit: Interior Architects



Existing Fourth Floor Plan (offices), Credit: Interior Architects



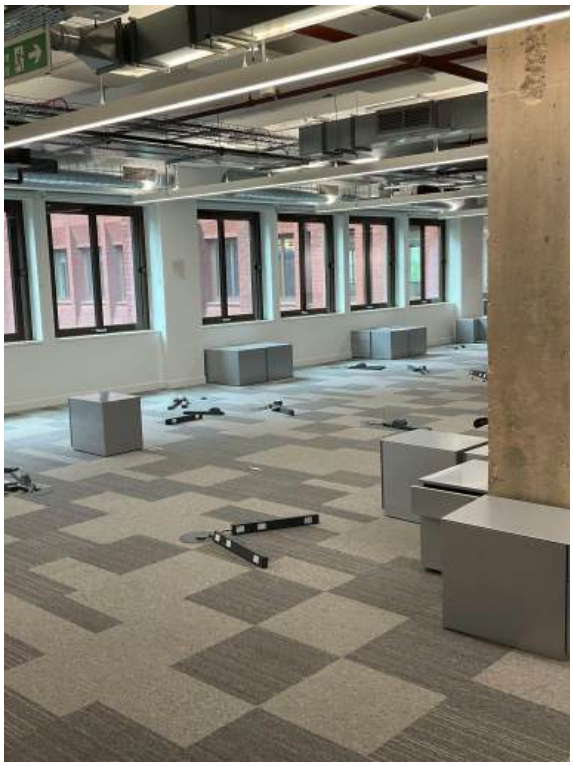
Existing Ninth Floor Plan (offices), Credit: Interior Architects

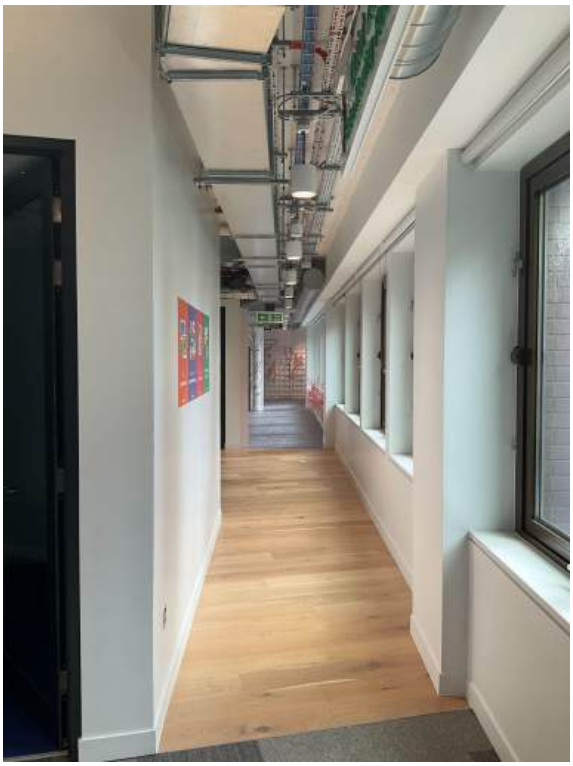
3.2. Site Photos

Interior: Ground floor lobby, Credit: Material Index

Interior: Typical office space, Credit: Material Index

Interior: Typical office space, Credit: Material Index





Interior: Typical office space and circulation, Credit: Material Index

Interior: Top level and roof plant areas

Exterior: Top level and roof plant areas

3.3. Proposed Scheme

125 Shaftesbury Avenue is an existing building within the borough of Camden. The proposal aims to retain and extend upon the structural frame (c.75% of the existing the structure is proposed to be retained in situ), renew the external envelope to target 238,000 sq ft of use class B1 office space on the upper levels. On the ground floor, it hosts several retail units including Nisbets and Salsa Bar. The previous Planning Permission was Consented in 2026 (2016/5202/P) and has since lapsed.

125 Shaftesbury Avenue Render Image, Source: Stage 1 Report, DSDHA

4. Key Items by Pathway Status

4.1. Retain In-situ

Retain In-situ: Concrete Frame

Review of Existing Floor Structure, Source: AKT II.

Description: Analysis of the existing building structure by AKT II identifies a concrete framed building consisting of slabs and columns. Ribbed concrete slabs with band beams and typical reinforced concrete slabs of various thicknesses are present throughout the building. The ground floor and basement slabs have an increased thickness of 425mm to compensate for additional load. The concrete columns are distributed on a 7.8m X 7.8m grid within the floor plate. Preliminary drawings from DSDHA rationalises the demolition of cantilever slabs from Level 6 to Level 10.

4.2. Reuse On-Site

Reuse On-site: Metal Raised Access Floor Panels

Raised access floor panels underneath various flooring types including carpet tiles.

Description:	Raised access flooring panels were exposed on some levels, however there were no opportunities on site to remove individual metal tiles to inspect for pedestal type. Typically panels are 600mm x 600mm on metal pedestals, the cavity is described to be around 125mm.
Comments:	Reuse of raised access flooring should be prioritised to reduce embodied carbon impact. To guarantee secondary raised access flooring stock for the proposed project, storage for this existing system should be explored.
Removal & Storage	When removing the modular office flooring, each module (including the pedestals and floor panel) should be deconstructed carefully ensuring minimal damage and breakage; they should be stored on-site, arranging them in pallets for reuse on-site or off-site. If the product is not to be reused on site there are multiple opportunities for off-site reuse through take back schemes. Kingspan was identified as the manufacturer, and advertises a take back scheme on their website. In general, there is a strong secondary market for RMF and MI would be willing to broker these components.

4.3. Reuse Off-Site

Reuse off-site: Facade Windows (2019)

Punched window system (2019), within prefabricated brick facade.

Description: The facade is made up of a prefabricated brick cladding system with punched thermally broken windows with horizontally pivoting mechanisms (0.7m x 1.5m). Each window includes one centre mullion with internally beaded glass replacement from inside the building. Each frame is polyester powder coated, includes aluminium sills and includes internal window restrictors.

Comments: There isn't typically an established reuse market for secondary windows, however, as the window system was replaced in 2019 there could be opportunity for off-site reuse which should be explored to keep these items higher up in the waste hierarchy.
Failing reuse opportunities, the Stage 1 Facade report states that: the punched windows featured all around the building facade offer a great opportunity for recycling and upcycling the materials and the following actions can be taken:

- Recycling of the glazing and aluminium - the outer glazing that is currently part of the punched present a unique opportunity to be recycled. Further assessment shall be made to understand if the component can be recycled as Class A cullet. The window frame can be fully recycled in collaboration with the supply chain.

Reuse Off-site: Carpet Tiles (High Quality)

Various coloured carpets.

Description: There are large quantities of office carpet flooring that can be reused on or off-site. The grey and patterned carpet is generally good quality, standard sizing and commonly used across office projects. Manufacturers such as interfaces have been identified.

This is currently designated for off-site reuse, where office have a strong secondary market..

Comments: When removing the modular carpet, each module should be removed carefully ensuring minimal damage and breakage. Once removed, they should be palletised and stored on the ground floor when due to be collected. Material Index has an approved trade partner for carpet panel resale. When removing the modular carpet, each module should be removed carefully ensuring minimal damage and breakage. Once removed, they should be palletised on 1 x 1.2m pallets, 500 per pallet, wrapped and stored on the ground floor when due to be collected.

Reuse off-site: Commercial Kitchen Equipment

Commercial kitchen equipment across Level 2.

Description: On Level 2, there is a large-scale commercial kitchen and front facing service area. Equipment in these spaces has been well maintained, cleaned and left in excellent condition. Examples of equipment include: refrigerators, freezers, gas cooktops, extraction fans, serving benches and other specialist items.

Comments: Commercial stainless steel kitchen equipment is durable, corrosion-resistant, and hygienic, making it highly suitable for reuse in various contexts.

There could be an opportunity to find a reuse pathway for these items as a full set, to fit out a similar kitchen in another commercial property.

In general, there is a market for these specialised goods and Material Index can make brokering enquiries.

Reuse off-site: Appliances & Fixtures

Various domestic appliances across the building.

Description:	Within the kitchenette areas on various levels were stand-alone and integrated domestic appliances such as microwaves, bar fridges and zip taps. The items were generally in good condition and can be reused off-site.
Comments:	Appliances such as these can often easily be resold to reclaim value. There is a strong marketplace for these secondary items and MI is willing to broker upon request by distributing the catalogue of items to the MI trade partner network to maximise reuse. Failing resale, charities and non-profits organisations often accept donated appliances as do schools, community centres or local institutions.
Removal & Storage	Appliances should be safely disconnected and transported carefully. Any accessories or hardware should be kept together and wrapped for protection where necessary.

Reuse off-site: Ceiling Tiles

Examples of ceiling grid systems with integrated lighting and detectors.

Description:	Square ceiling tiles were identified across some of the levels with integrated ventilation and lighting systems distributed throughout the panel setout.
Comments:	Material Index can explore resale opportunities for these items via their reseller and charity network.
Removal & Storage	When removing the ceiling tiles, each module should be deconstructed carefully ensuring minimal damage and breakage; they should be stored on-site where possible, stacking them vertically, on their edges to prevent bending/damage caused by stacking.

Reuse Off-site: Sanitaryware - WC Pans and Basins

Various sanitaryware types across 125 Shaftesbury Avenue.

Description:	In general, the sanitary fixtures and fittings across the site appeared to be in good condition and can be considered for reuse off-site.
Removal & Storage	Attention should be given to the careful dismantling and storage of these items.
Comments:	Material Index has a network of trade partners who may be interested in these items and would be willing to broker these components to secure off-site reuse pathways. For on or off-site reuse, a commercial washroom deep cleaning service should be used to sanitise the sanitaryware for use in the proposed scheme.

Reuse Off-site: Internal Glazed Partitions

Glazed partitions with doors across 125 Shaftesbury Avenue.

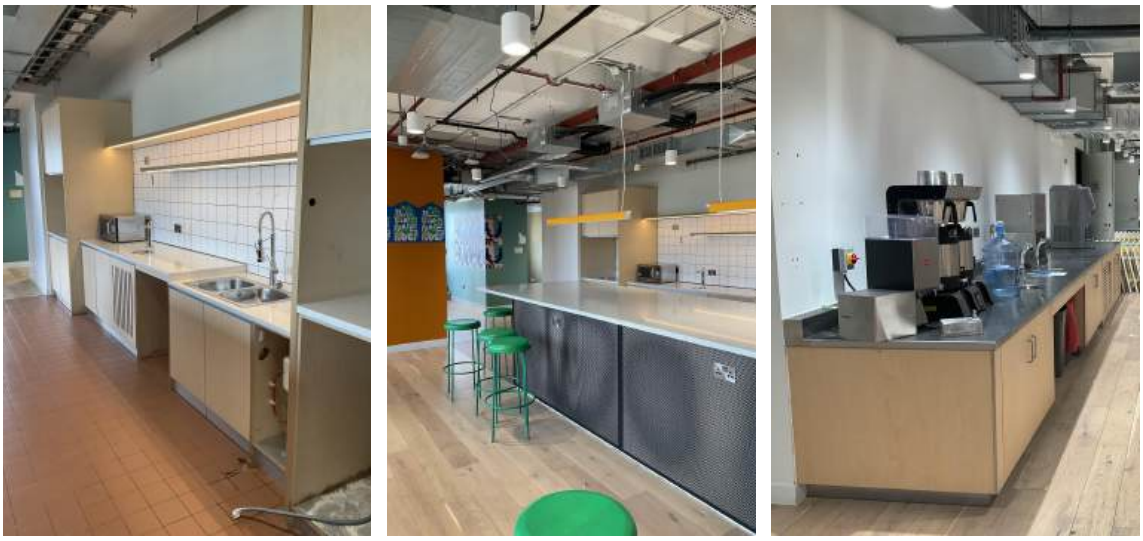
Description: There are various types of fixed and swing glazed partition panel type in the project. The panels are generally a standard width and height with associated head and sill hardware.

Comments: There is no reseller market for internal glazed partitions, but in some cases, reuse can be achieved where there is a direct use case. The limiting factor is typically the height of the recipient location and technical specification. Glazed partitions are difficult items to remove and transport without breakage.

When removing the glass panels, each pane should be deconstructed carefully ensuring minimal damage and breakage. A specialist contractor is advised for this. Material Index has a network of such contractors that can be utilised. Once removed, materials should be labelled and stored on-site, arranging them on A-frame trolleys with protective measures in place between glass layers to prevent scratching and breakage. Material Index can advise on specialist deconstruction contractors for on-site reuse.

Where there is no reuse pathway for glazed partitions the glass can be readily recycled. Saint Gobain offers a take back recycling service for this.

Reuse Off-site: Joinery & Kitchenettes/Bars



Kitchenettes throughout 125 Shaftesbury Avenue

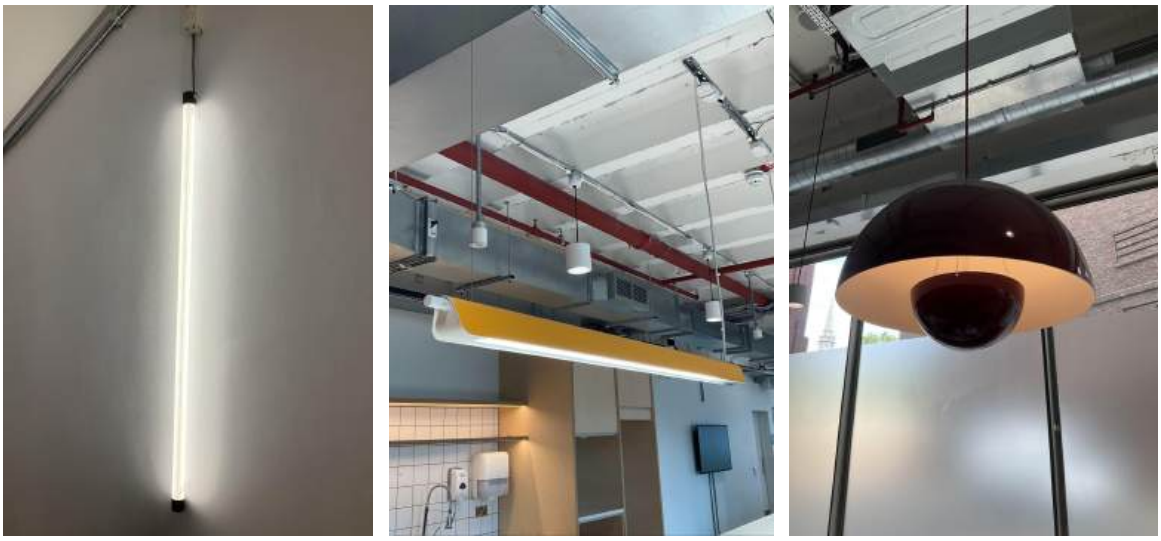
Description: There are a number of kitchenette units, breakfast bars, shelving units installed on-site, some with high quality finishes. In most cases they have been well maintained meaning the quality of the items can be regarded as very good. In some instances, dimensions are tailored to fit the respective spaces.

Comments: Material Index can explore resale opportunities for these items via their reseller and charity networks.

Removal of built in units in a manner that allows for reuse is difficult, but can be achieved. If care is taken to dismantle these units for reuse offsite, each set should be marked or labelled with information related to the corresponding modules. Fixtures and fittings should be stored with the corresponding units.

Appliances can be offered to the secondary resale market and can typically be found reuse pathways easily. Material Index has an approved trade partner for the resale of white goods. They can be contacted if required.

Reuse Off-site: Lighting (Specialty)



Various lighting types across 125 Shaftesbury Avenue.

Description:	Some specialty lighting types were recorded as part of the audit, including pendant shades and high-quality office lighting. Opportunities for exploring off-site reuse should be maximised.
Comments:	Recolight, a hub for recycling and reusing lighting offers options for remanufacture of lighting to move towards a circular economy. See: https://www.recolight.co.uk/reuse-hub/about-the-resue-hub/ Lights should be labelled, dismantled, and stored on-site until confirmation of their non-requirement or resale. If lighting is to be donated to a reuse hub, the product should be in storage prior to donation. Lighting retention will require an architectural review and coordination with electrical consultants to ensure lighting is up to current specification and safety standards.

Reuse off-site: MEP and Plant Equipment



Various MEP plant equipment

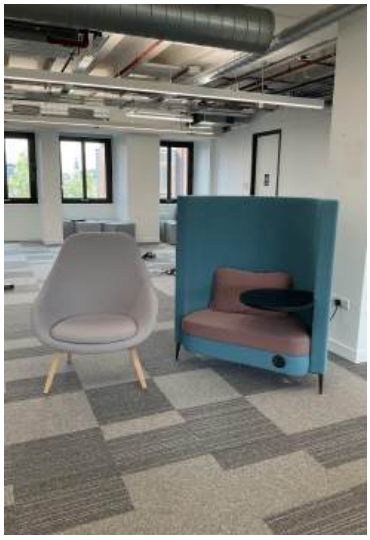
Description: New Mechanical and electrical systems will be designed and installed for the new scheme.

Comments: An MEP consultant engaged by Material Index visit the site to assess the current systems. It was suggested that ductwork, cable trays, and some fan core units and the respective refrigerant may be valuable for reuse.

While information on the MEP strategy has been provided and an overview of the systems has been made, accurate status of the heating system remains unknown until the completion of an MEP condition survey. Upon completion, Material Index can provide recommendations, including potential involvement in manufacturer take-back schemes.

Reuse off-site: Furniture (sample included in audit)





Description:	In this audit, furniture has not been captured across all levels, however, as a sample was captured to present the quality of items remaining in the space. The furniture in this space was high spec and in good condition and presents an easy opportunity to achieve reuse off-site within this project if left behind by the tenant.
Comments:	These items are likely the property of the leaseholder, however, at the date of the site visit it appeared the leaseholder had vacated. As there is a market for these high quality goods, the client is welcome to share this survey with leaseholders. Failing this, Material Index has confirmation that these items can be reused off-site through reseller and donation pathways. Material Index has established partners for these items.

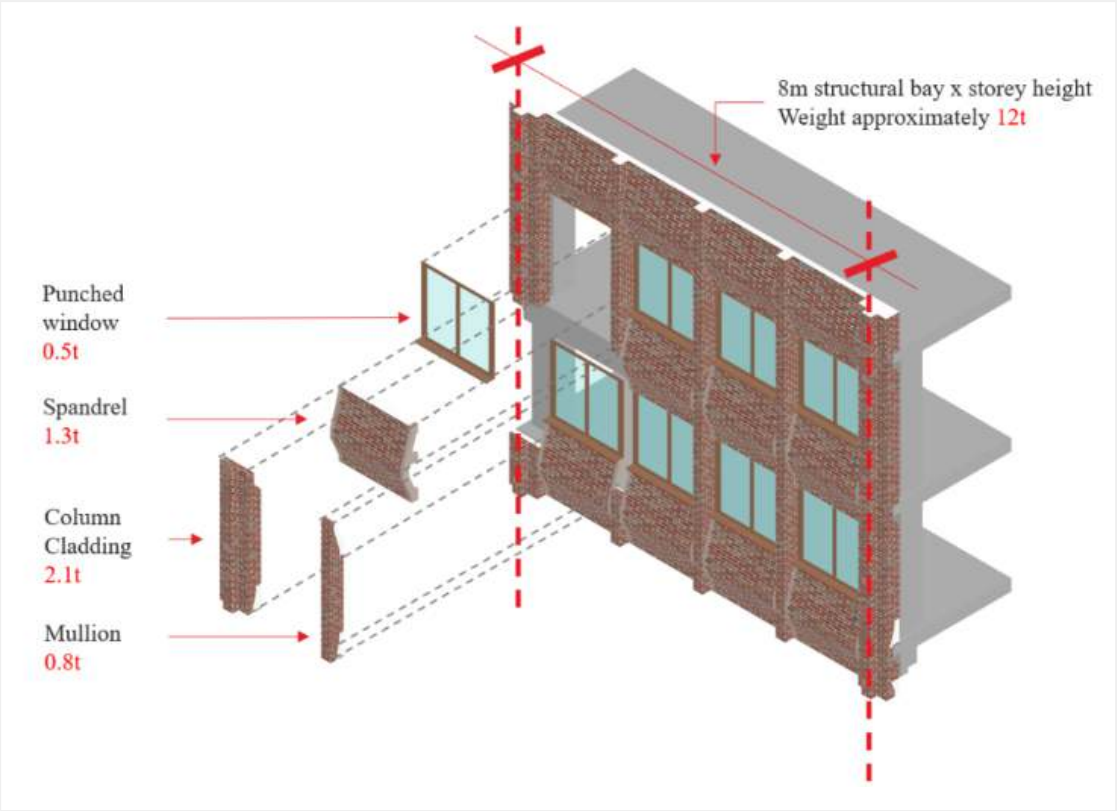
4.4. Waste Stream / Recycling

Waste/Recycling: MEP and Plant Equipment (end of life or not suitable for reuse)

Various MEP plant equipment

Description:	The existing services which cannot be retained or reused should be directed to the recycling stream.
Comments:	Materials should be segregated and disposed of or recycled in the appropriate stream.

Waste/Recycling: Prefabricated Brick Facade Panels



8m Structural Bay, Facade Module at 125 Shaftesbury. Source: Arup Stage 1 Report.

Description: The Arup Structural report outlines that the existing façade is 'predominantly composed of the same façade module across all elevations'. This module consists of brick faced precast concrete cladding panels made up of the following elements: spandrels, column cladding at column locations and mullions fixed between spandrels.

Comments: Preliminary discussions have been held between Arup and the Client team to understand options to reuse or recycle existing façade components either within the same building, or through repurposing/reusing off-site or recycling. Currently these items are set to recycling off-site, where the brick tiles can be crushed and recycled as aggregate or fill.

5. Conclusions

5.1. Current End-of-Life Designations by Material

125 Shaftesbury Avenue is a building that has been fit-out with generally good-quality and spec fixtures, fittings, finishes and equipment across all the tenancies and landlord areas.

The benchmark retain and reuse rate of **77%** (total weight of retain, reuse on-site and reuse off-site) currently designated with the results of this audit is considered 'good', and the project should focus on seeing this through during the construction works.

To promote the highest rate of reuse, Material Index can assist in brokerage of any secondary components and materials, including tenant owned items.

Designated Pathway - by Material

MATERIAL		RETAIN	REUSE-ONSITE	REUSE-OFFSITE	RECYCLE-ONSITE	WASTE	GRAND TOTAL	RETAIN %	REUSE-ONSITE %	REUSE-OFFSITE %	RECYCLE-ONSITE %	WASTE %
Concrete	8	18,254,157.67	0	0	0	981,011.72	19,235,169.39	95 %	0	0	0	5 %
Brick	3	0	18,781.76	0	0	2,928,224.76	2,947,006.52	0	1 %	0	0	99 %
Metal	84	224,017.5	224,756	565,734.5	0	1,472,989.5	2,487,497.5	9 %	9 %	23 %	0	59 %
Ceramic	32	0	0	4,410.84	0	117,025	121,435.84	0	0	4 %	0	96 %
Gypsum	7	0	0	36,083.64	0	35,699.89	71,783.53	0	0	50 %	0	50 %
Timber	72	0	0	37,925.08	0	4,316	42,241.08	0	0	90 %	0	10 %
Glass	28	0	0	35,643	0	205	35,848	0	0	99 %	0	1 %
Electronics	89	0	0	23,930.78	0	3,452	27,382.78	0	0	87 %	0	13 %
Carpet	28	0	0	20,407.46	0	1,020	21,427.46	0	0	95 %	0	5 %
Stone	3	0	0	5,483.33	0	0	5,483.33	0	0	100 %	0	0
Plastic	27	0	0	1,240.67	0	1,938.79	3,179.46	0	0	39 %	0	61 %
Fabric	3	0	0	916	0	0	916	0	0	100 %	0	0
TOTAL												

Table 1: *Designated Pathway - by Material*

Embodied Carbon - by Material

MATERIAL	EMBODIED CARBON FACTOR	TOTAL WEIGHT	EMBODIED CARBON (KGCO2E)	RETAIN %	REUSE-ONSITE %	REUSE-OFFSITE %	RECYCLE-ONSITE %	WASTE %
Metal 84	345.24	2,487,497.5	10,223,614.73	920711.925	9 %	23 %	0	59 %
Concrete 8	0.96	19,235,169.39	2,315,914.39	2197800.583468	0	0	0	5 %
Brick 3	0.62	2,947,006.52	612,682.66	0	1 %	0	0	99 %
Ceramic 32	36.48	121,435.84	138,436.86	0	0	4 %	0	96 %
Electronics 89	294.59	27,382.78	90,636.99	0	0	87 %	0	13 %
Carpet 28	82.96	21,427.46	63,489.58	0	0	95 %	0	5 %
Glass 28	40.24	35,848	51,513.58	0	0	99 %	0	1 %
Timber 72	35.48	42,241.08	20,816.41	0	0	90 %	0	10 %
Plastic 27	89.37	3,179.46	10,524.01	0	0	39 %	0	61 %
Gypsum 7	0.91	71,783.53	9,331.86	0	0	50 %	0	50 %
Fabric 3	20.34	916	6,210.48	0	0	100 %	0	0
Stone 3	0.24	5,483.33	433.18	0	0	100 %	0	0

Table 2 : *Embodied Carbon - by Material*

5.2. Recycling/Reuse targets

The estimated percentage (by weight) of materials leaving for the recycling/waste stream is currently **22%**, with **3%** designated for reuse off-site, <**1%** to be reused on site and **74%** to be retained in-situ.

The total volume of waste arising (recycle off-site/waste stream) is estimated to be approximately **2,533 tonnes** (pending review). A few factors may have a considerable impact on these figures; both whether reuse and retained pathways can be secured for many items.

In the appendix to this report items that are currently designated for reuse on-site, recycling on-site and reuse off-site have been itemised on a component basis. The status of these items may change following further discussions with the client, the demolition contractor and the manufacturing industry.

5.3. Diversion From Landfill

In order to be 'compliant' with GLA Circular Economy guidance, Detailed Circular Economy Statements must include a Recycling and Waste Reporting Form with clearly defined activities and targets relating to the following London Plan policy targets of 95% reuse/recycling/recovery of construction and demolition waste.

BREEAM New Construction and Refurbishment and Fitout sets the following benchmark diversion from landfill targets:

BREEAM credits	Source of waste	Volume	Tonnage
One credit	Refurbishment/fit-out	85%	90%
	Demolition	90%	95%
Exemplary level	Refurbishment/fit-out	95%	97%
	Demolition	95%	97%

Figure 1: BREEAM Diversion From Landfill Benchmarks, Refurbishment and Fitout

Table 19.2 Diversion from landfill benchmarks

BREEAM credits	Type of waste	Volume	Tonnage
One credit	Non-demolition	70%	80%
	Demolition	80%	90%
	Excavation	N/A	N/A
Exemplary level	Non-demolition	85%	90%
	Demolition	85%	95%
	Excavation	95%	95%

Figure 2: BREEAM Diversion From Landfill Benchmarks, New Construction

Of the **2,533 tonnes** of material designated to recycling/waste stream, the key materials entering the recycling/waste stream are stone, metal, concrete, metal, timber. There are well established methods for recycling these materials and they rarely end up directly in landfill if managed correctly, therefore it can be estimated that the contractor can realistically aim to divert 95-98% of material designated to the recycling/waste stream from landfill through appropriate recycling and waste sorting.

5.4. Comparison of Actual/Forecast Rates

If requested, Material Index can record how much waste is diverted from waste during the deconstruction operation, and this report can be re-issued As-Deconstructed. In accordance with the BRE Code of Practice Pre-redevelopment Audit (2017) MI seeks to measure actual performance versus estimated. Following project completion Material Index can issue recommendations for improvements to diversion to reuse procedure.

6. Recommendations

6.1. Reuse Off-site - Material Index Brokering

Material Index offers a follow-on service to execute the brokering of materials for items designated for off-site reuse in the asset register to individual businesses looking for these items and can support with testing, storage and logistics.

Well known brokerage networks also include:
Salvoweb
https://www.salvoweb.com/
Salvoweb provides a directory of UK salvage yards

For Metal:
European Metal Recycling
https://uk.emrgroup.com/what-we-do/circular-steel
ukinfo@emrgroup.com

For office furniture and appliances:
Recorra
www.recorra.co.uk

For miscellaneous items:
Yes Make
www.yesmake.co.uk
www.yesmake.co.uk/contact

For lighting:
Revitalite offer existing lighting repurposing for on-site use
www.revitalite.co.uk

Egg lighting offer lighting remanufacturing for off-site reuse
https://egglighting.com/lighting-remanufacture-service/

6.2. Recycling and Waste

If items cannot be reused and during the deconstruction process partition walls are demolished then recommended options for specialist companies include:

Glass	A specialist glass recycler should be contacted to see whether any of the glass is suitable for recycling into new flat glass, or if the glass can be collected for recycling into lower grade applications such as glass bottles. The glass should be separated on site and sent to a licensed waste management contractor for recycling. URM offer a glass collection service for all types of glass. www.urm.co.uk/
Metal	Metal should be segregated on site. Any non ferrous metals (e.g. stainless steel) should be separated from other metals as they have a higher resale value. The metal should be removed by a licensed waste management company for recycling. Horn Lane Metals http://www.hornlanemetals.co.uk/index.html 02089 924609
Carpet	All carpets and carpet tiles should be recycled. Countrystyle Recycling Members of Carpet Recycling UK and collect, recycle and recover all types of mixed carpet. http://www.countrystylerecycling.co.uk 0344 880 7700 Carpet Tile Recycling Provide a nationwide collections service but are based in Nottingham but. Carpet tiles are cleaned, graded and sold for reuse. http://www.carpettilerecycling.co.uk 0115 940 4454

Ceramics	Ceramics from bathrooms and tiles are intended to be removed. They should be separated on site and taken to a specialist waste contractor and crushed and used as Recycled Aggregates (RA). Hintons https://www.hintonswaste.co.uk/waste-management/construction-waste-recycling/ Reston Waste Management http://www.restonwaste.co.uk/
Timber	Powerday provides wood recycling across London. They can create wood chips for remanufacturing into composite boards, or for energy recovery producing a high quality renewable biomass fuel. Contact: info@powerday.co.uk Timber should be segregated on site by timber-based manufactured boards or solid timber, as MDF and other manufactured boards are harder to recycle due to the adhesives. Solid timber unable to be reused can be recycled for chipboard, and the manufactured boards can be sent for energy recovery. Most solid timber can be recycled, usually into chipboard. Following new guidance from the Construction Demolition Waste Forum new guidance has been produced on hazardous wood waste where timber coated with preservatives prior to 2007 in large quantities should be tested.
Furniture	Where the existing furniture is deemed sufficient quality for commercial resale MI can get in touch with commercial resellers.
Plasterboard	Recommendations: Waste must be segregated (either onsite or offsite) and either recycled by a licensed waste company or sent to landfill where it must be deposited in a separate cell where no biodegradable waste has been accepted. Further guidance on the disposal of plasterboard waste is available from the Environment Agency and CIWM.
Insulation	No insulation items within wall or ceiling or ceiling panels are currently deemed suitable for reuse. The difficulty of extraction plus the limited secondary market for ‘non-natural’ insulation

materials makes it unlikely they could be re-used off-site. A licensed waste management company should be used during demolition to assess if insulation should go to energy recovery or to landfill. The determining factor is often the presence of foam insulation which is typically a hazardous waste and requires high temperature incineration.

Hazardous Materials

Fluorescent tubes and CFL bulbs: These should be separated on site, collected and disposed of by a licensed hazardous waste carrier.

Asbestos: If an asbestos survey has not been undertaken it is recommended. All asbestos materials should be managed according to the Control of Asbestos Regulations 2012. Detailed information is available from the Health and Safety Executive (www.hse.gov.uk) about how to manage asbestos including when licensed contractors must be used, training of operatives and how to dispose of the waste material.

6.3. Specific Advice - Reuse and Challenges

Elemental Approach	The elemental approach to breaking the existing structures on the site shows the best approach to ensuring reuse.
Dismantling of Structures for Reuse	Challenges include making sure the careful dismantling of building structures for reuse, which is often technically possible but difficult, does not add additional or insurmountable cost to the project. The recent Alliance for Sustainable Building Products DISRUPT project (Delivering Innovative Steel ReUse ProjecT) has shown that it is possible to reuse steel within projects at cost-neutral or cost benefit. The best way of ensuring this is to engage the demolition contractors on the project early on in the project. Challenges that are often faced in careful deconstruction, such as the storage of components, or access by grab lorries, or on-site storage, are not such in this scenario.

6.4. General Advice for Increasing Retention and Reuse

Longer sales time:	If it is possible to enter a property earlier to conduct a PDA, the longer sales time would allow a greater chance of a buyer being found. In this scenario we have placed many of the components in a single batch so they could be sold quickly prior to the contractor entering the building.
Portfolio index:	Often there are possibilities for reuse within the portfolios of building owners, or within the portfolios of the designated design teams on projects. The advantages of this approach is that it provides traceability and accountability on components, thereby lowering risk. Typically the more of a client's portfolio is indexed the greater the percentage of materials that can be reused. Material Index can advise on storage and certification options.
Deconstruction care:	Material Index are more than willing to consult the client on the findings of this report and consider any options for closed loop reuse in a similar project. If there is a chance materials can be reused but their status is indeterminate, the recommendation is

	to ensure that items are removed and stored in such a way that all components remain together, e.g. windows in their frames.
Information on deconstruction	Decisions on future pathways for materials within a space are always client prerogative.

6.5. Storage and Site Separation

All items designated for retain, reuse on-site or reuse off-site should be protected during works. Separate areas should be established on site during works for this purpose.

Given the nature of the work (not full demolition) it is presumed on site storage **may be possible** where items are designed for on or off-site reuse.

It is recommended that items to be reused off-site are protected during site deconstruction. Items set aside for reuse through resale should be prepared for pick-up: ie. labelled, palletted and on ground floor level.

For other items in the recycling/waste stream the following items should be site separated: timber; ferrous metals (steel); non-ferrous metals (stainless steel, copper); plasterboard; ceramic items and /porcelain tiles. Hazardous waste should be segregated and must be removed by a licensed hazardous waste contractor.

6.6. Deconstruction Tendering and Training

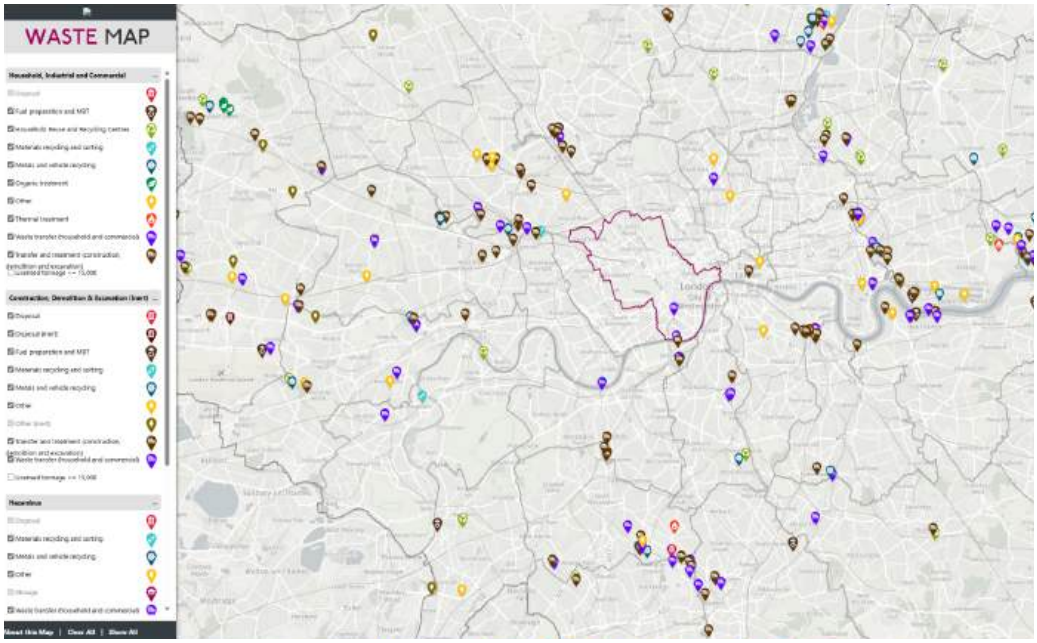
Skips and waste vans should be loaded with one designated waste stream at a time. The deconstruction training on Environmental Issues, or Monitoring and Record Keeping of waste transfer during construction. Induction training carried out to site shall include Environmental issues. Inductions will specifically include a reminder to all staff on the expected levels of recycling and waste control and the standard of segregation required for acceptable disposal. Material Index can also report on any lessons learned in relation to waste management.

6.7. Waste and Recycling Destinations

Transfer
Site Name: Walbrook Wharf
Borough: City of London
Licence Number: 80359
Operator: Cory Environmental Limited

Transfer and treatment (construction, demolition and excavation)
Site Name: Wandsworth Transfer Station
Borough: Wandsworth
Licence Number: 83393
Operator: Suez Recycling and Recovery South East LTD

Waste Transfer (Household and Commercial)
Site Name: Hornsey Street Waste & Recycling Centre
Borough: Islington
Licence Number: 80577
Operator: London Energy Ltd



London Waste Map: waste processing facilities in vicinity of the site.
https://apps.london.gov.uk/waste

End of Report