marks barfield architects

From Demolition to Deconstruction - ASBP

# Reuse in Reality:
## Moving towards a circular economy

13th March 2024

**Darcy Arnold-Jones**

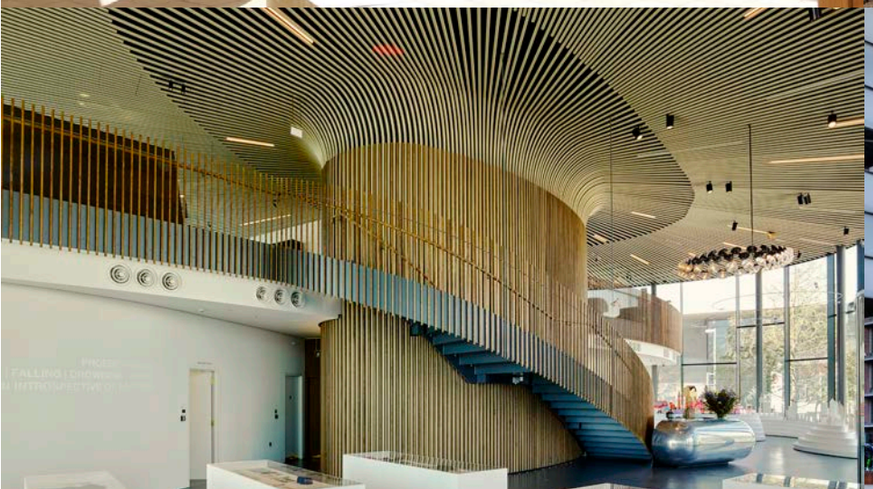
# Who Are We?

- Established 1989
- Over 130 awards for design, innovation and sustainability
- An entrepreneurial spirit
- Experts at gaining complex planning consents
- Maintaining technical edge
- 50:50 gender ratio from day one
- Commitment to climate and social justice
- Focus on retrofit
- Passive House accredited designers









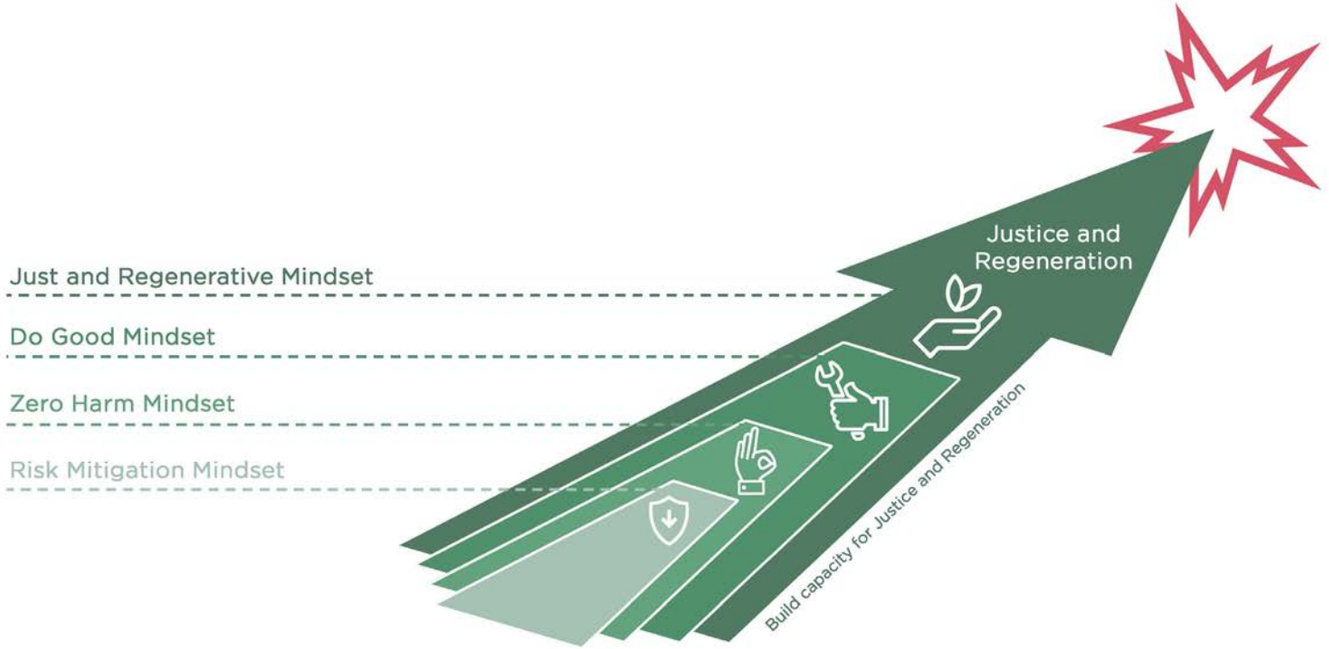
# The Climate Crisis - Our Response

**42%** Of UK total Carbon Emissions are attributed to built environment (according to the UK Green Building Council)

**60%** Of UK waste is generated by the Construction Industry - a massive 120 million tonnes

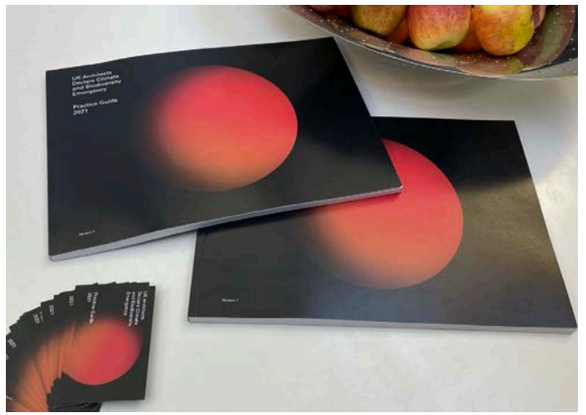
**50%** Of all raw materials mined and harvested annually are consumed by the construction sector

## Becoming a Regenerative Practice




*Forum for the Future: Just and Regenerative diagram*



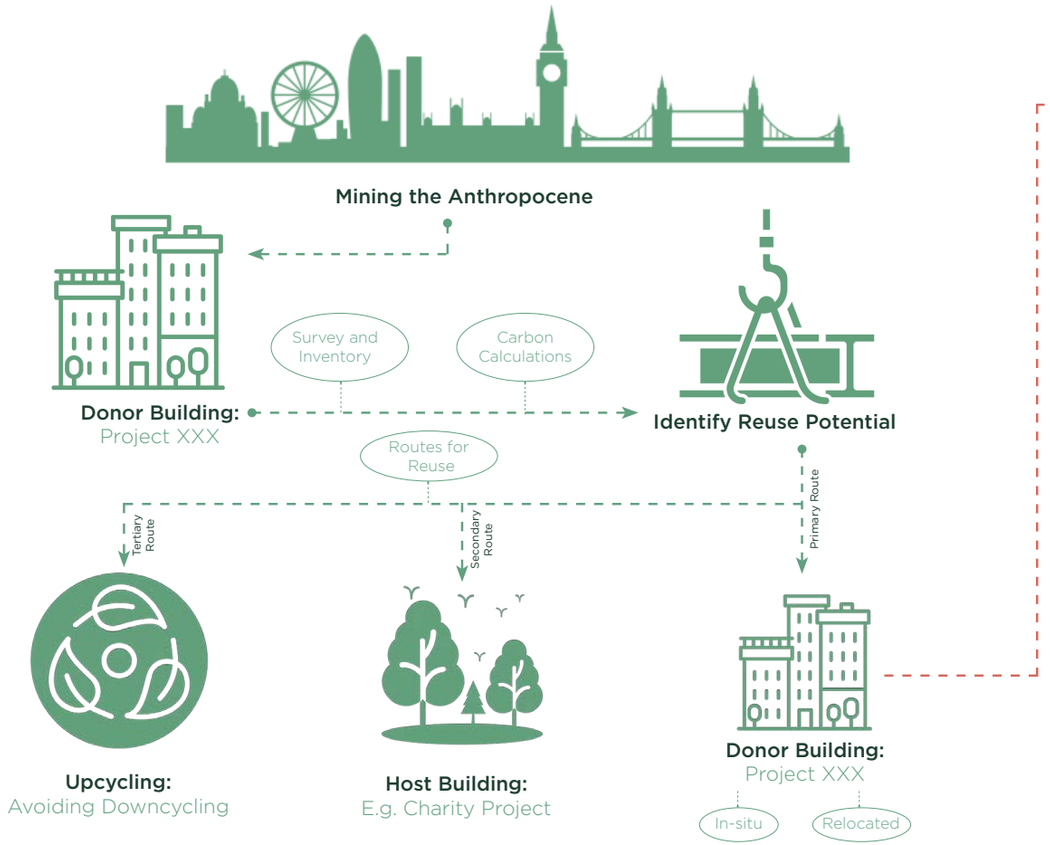





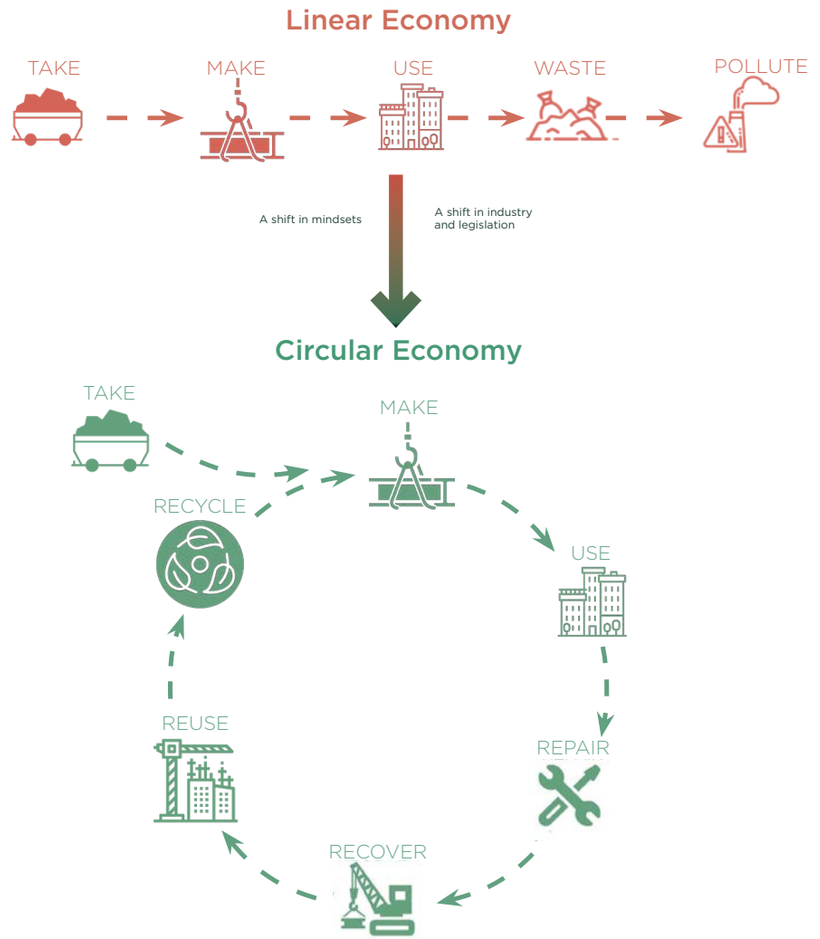
marks barfield architects

# The strategy for retrofit and reuse

## The Circular Economy within MBA

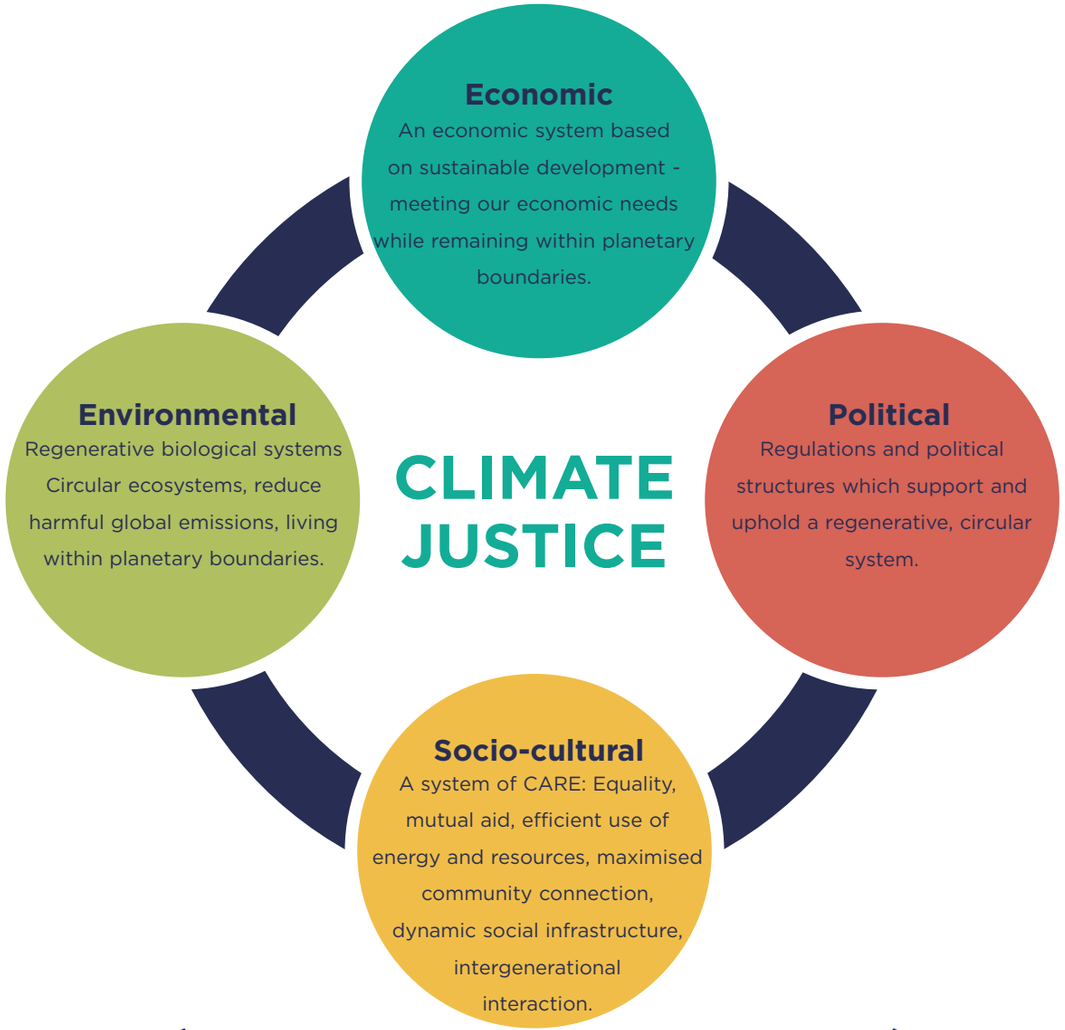



## Moving from a Linear to a Circular Economy




RETROFIT

# What does *CIRCULAR* mean to us?




Underpinned by a regenerative built environment, with circular infrastructure

marks barfield architects

# Donor Building: 22 Baker Street

**Client:** Lazari Investments Ltd

**Architect:** Marks Barfield Architects

**Structural Engineer:** The Morton Partnership

**MEP Engineer:** GLP

**Project Manager:** Hambury Hird Design

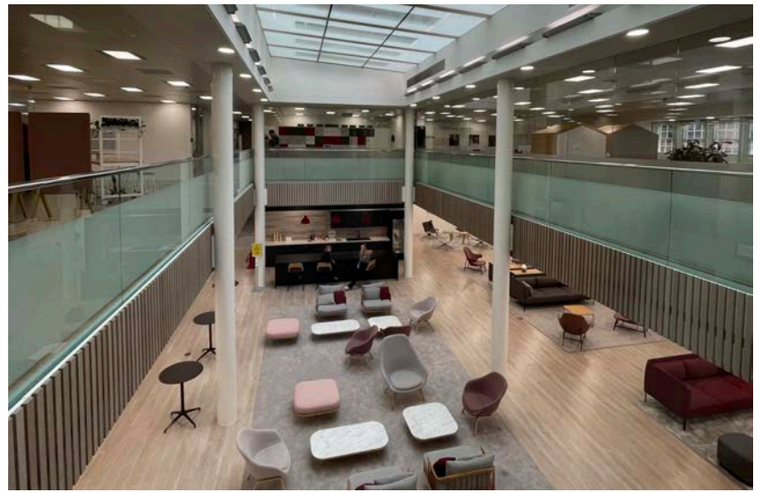
**Quantity Surveyor:** Album Consulting

**Contractor:** Faithdean

**Demolition Contractor:** Lawmans

# 22 Baker Street Overview

Existing External View of Office Building



Existing Internal View of Atrium

Existing Internal View of Upper Floor Office Space

# Project Overview

## *Reuse of materials has helped to contribute to low carbon figures*

**Biophilic Design**

Encouraging connection to nature.

**Biodiversity**

Using native plants on the third floor roof terrace.

**Enhanced Natural Daylight**

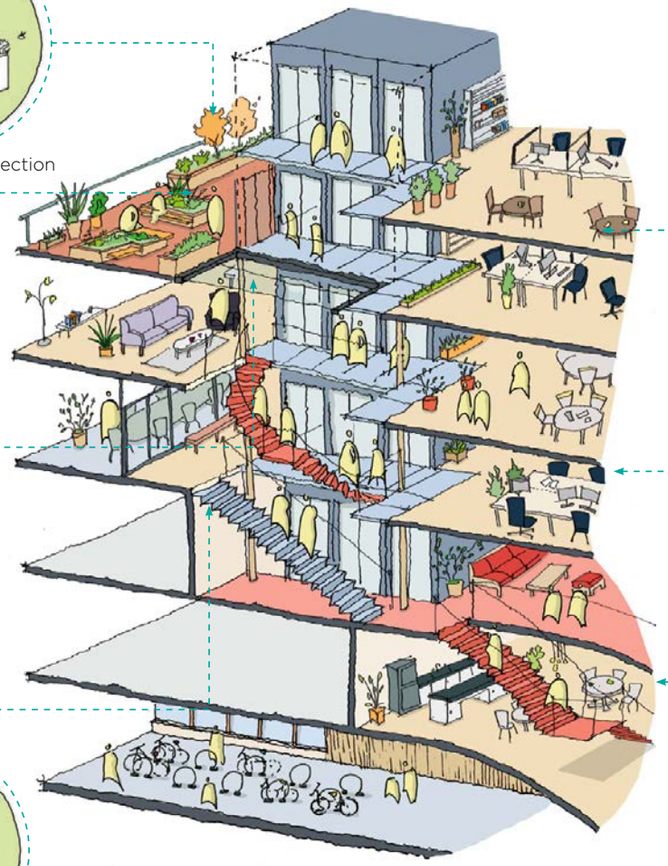
Increased clear glazing rooflights to 4th floor, and retention of atrium

**Material Reuse**

Retaining and reusing existing materials wherever possible.

**Wellness**

New feature stairs to LGF and 01. Increased cycle store and end of journey facilities.



**Renewable Energy**

Maximise PVs on roof.

**Low Carbon Materials**

Using timber and similar biophilic materials where possible.

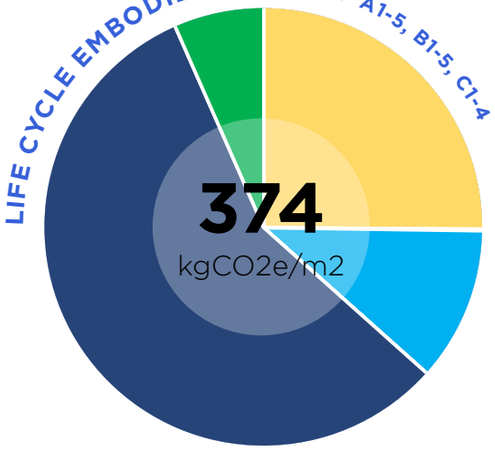
**Responsible Demolition**

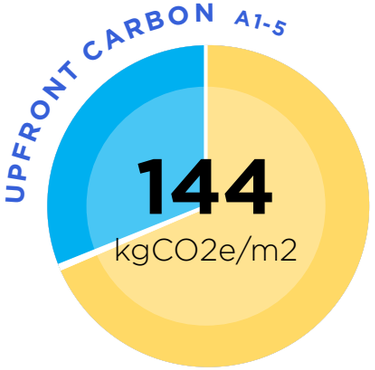
Where removing existing materials, recycle and demolish responsibly.

**Climate Resilient**

Ensuring design is environmentally and socially climate resilient.

**Low Embodied Carbon**




Key of RICS Lifecycle Stages:

A1-3 A4 A5 B1 B2
B3 B4 B5 C1-4

Regenerative Design Principles

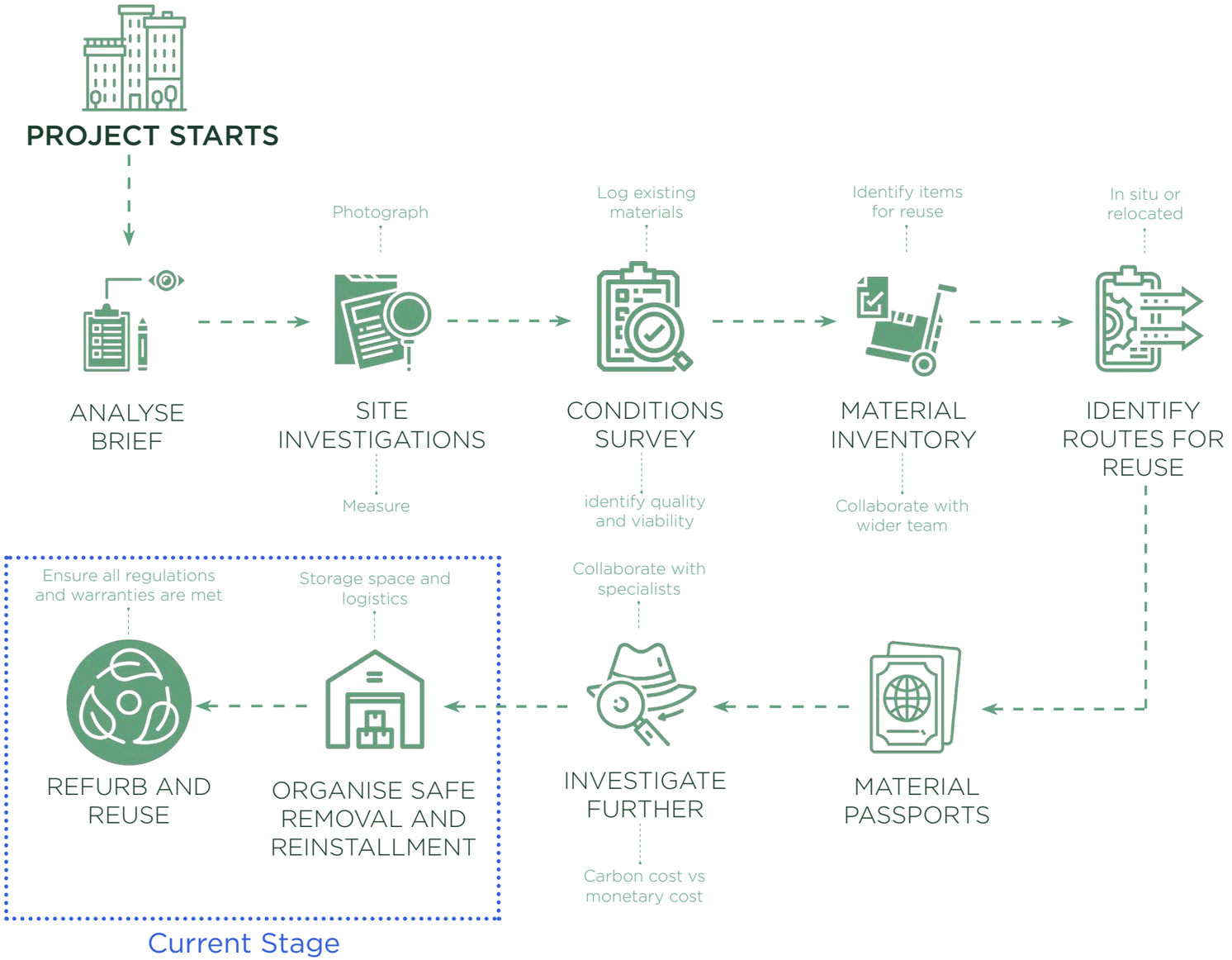


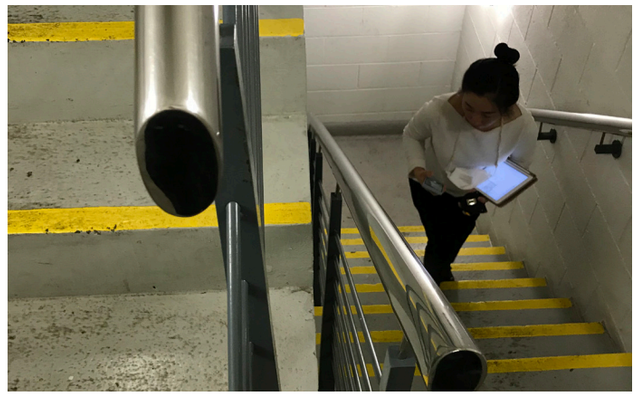
marks barfield architects

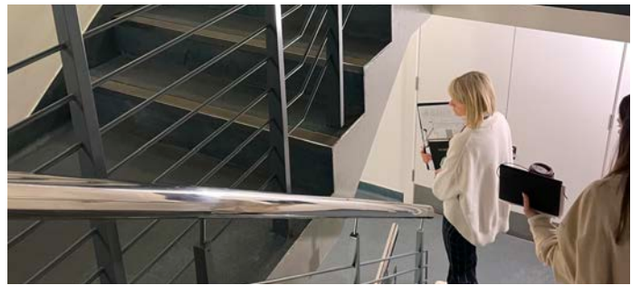
marks barfield architects

# Methodology

# Reuse Methodology



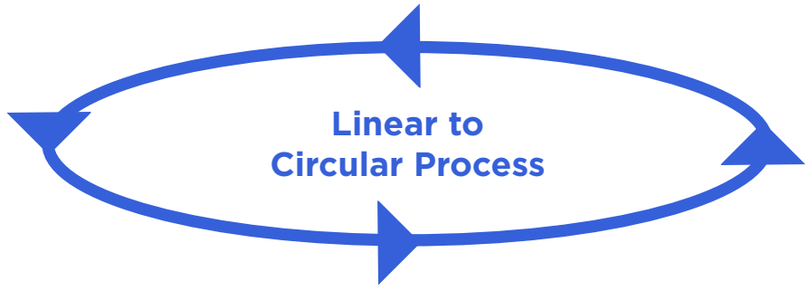





# Impact on Design Process

**RIBA Stage 7?**
**of other Donors**

Consider timescales, logistics and availability of materials coming to the ends of their building cycles for reuse in building.




**RIBA Stage 7?**

Consider timescales, logistics and routes for reuse at end of donor building lifecycle, advertising to prospective hosts.

**RIBA Stage 0-1**

Undertake a material audit of the existing buildings and, coupled with the condition survey, identify opportunities for material re-use.

**20%**
**Extra Time**

WLCA

**RIBA Stage 2**

Produce embodied carbon analysis of the existing structures and any proposed new additions. Identify highest carbon elements to be targetted for reduction in future phases

**20%**
**Extra Time**

**RIBA Stage 3**

Quantify materials for re-use and conduct strip out audit with early engagement of demolition contractor to identify viability of re-use. Assess material choices and details against ability to deconstruct. Provide deconstruction principles for key elements as part of Stage 3 report to maximise circular economy potential.

**20%**
**Extra Time**

WLCA

**RIBA Stage 4**

Develop material passports with suppliers for key material elements. Engage specialist contractors to facilitate reuse. Organise safe removal and storage of reuse items. Specify for reuse and embed circular economy principles within specifications.

**Circa 30%**
**Saved time**

WLCA

**RIBA Stage 5+6**

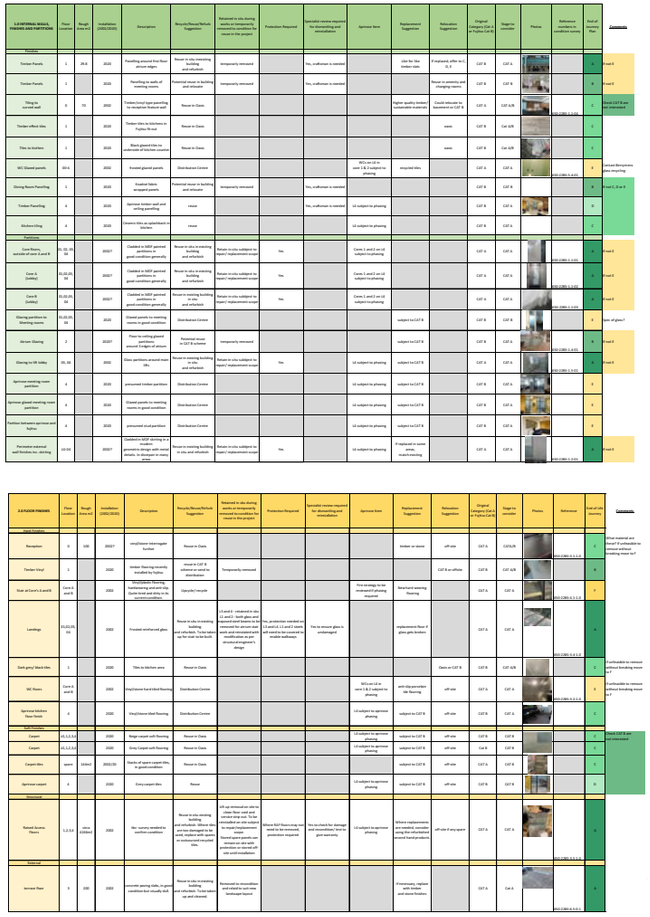
Capture material passports during construction stage to form part of the O&Ms for future asset management. Create deconstruction manual, demonstrating method to retain maximum value in the materials. Target all regulations and warranties, refurbish and reuse of materials.

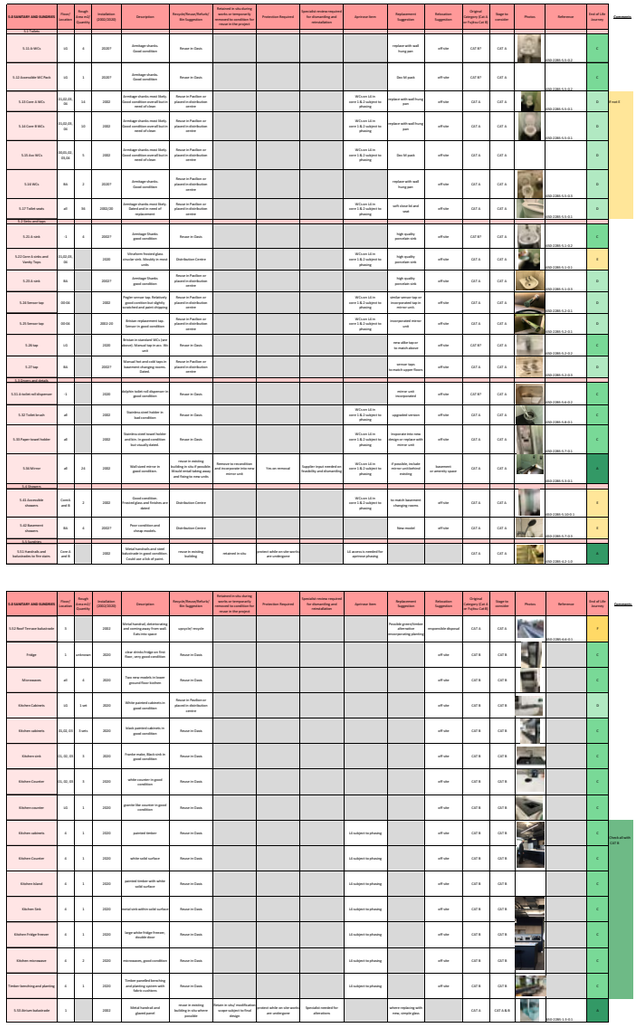
**Circa 30%**
**Saved time**

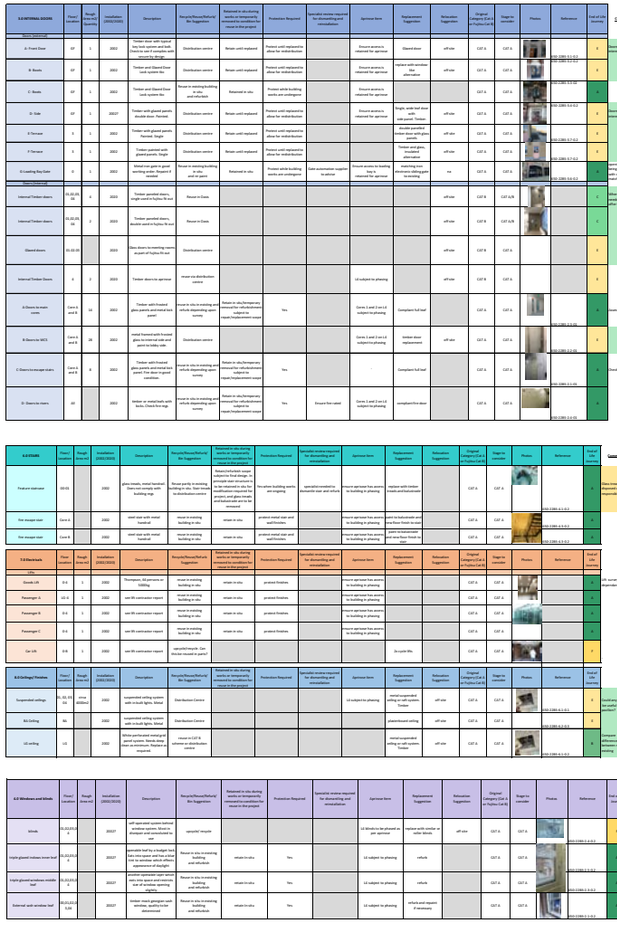
# Existing Material Inventory

Key:

- (A) 22 BS - Cat A
- (B) 22 BS - CAT B Potential
- (C) Oasis Play
- (D) Other reuse opportunity
- (E) Upcycle
- (F) Recycle





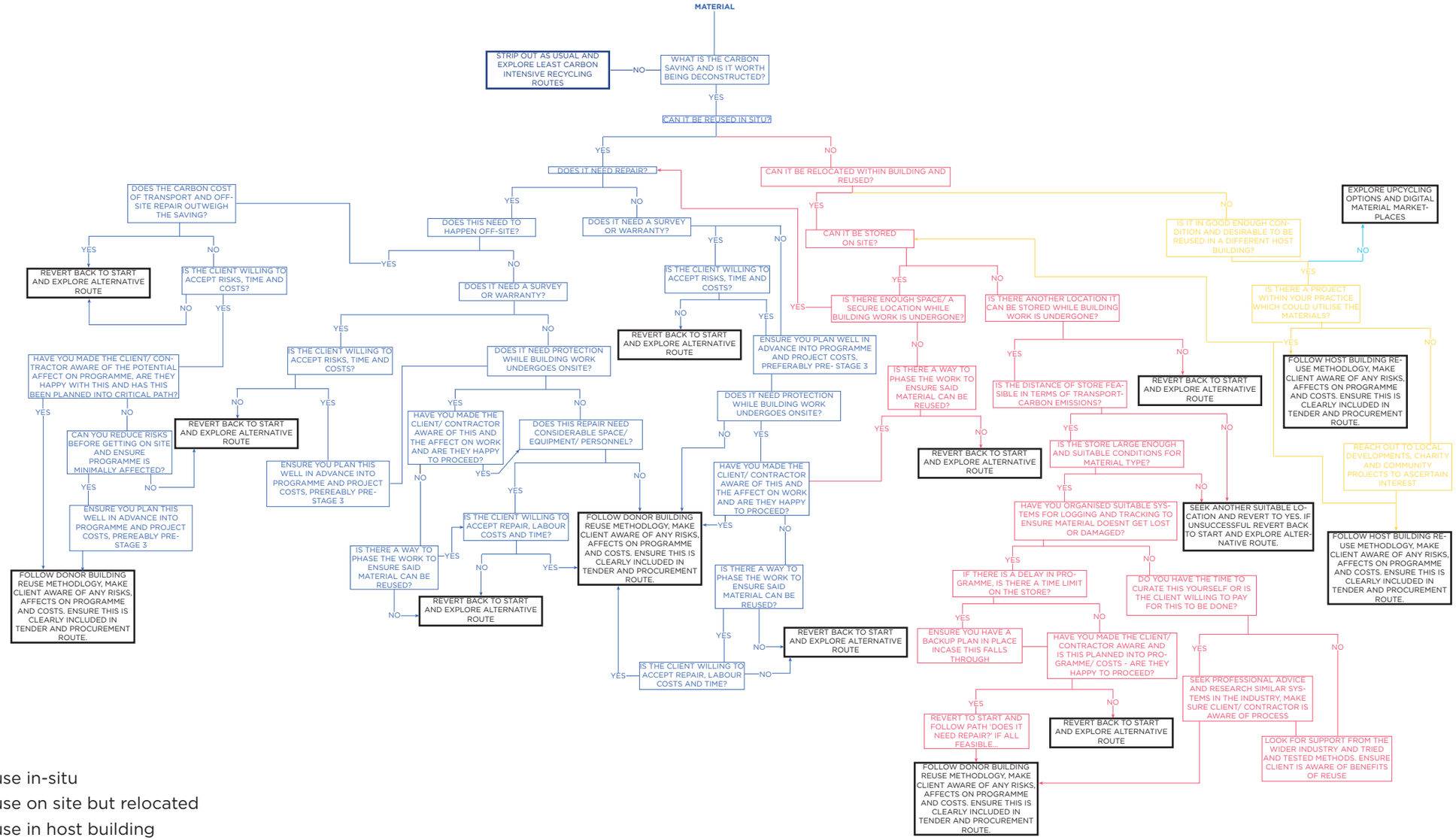


As issued to the Contractor Faithdean at RIBA Stage 3/4



marks barfield architects

# Material Reuse Pathway

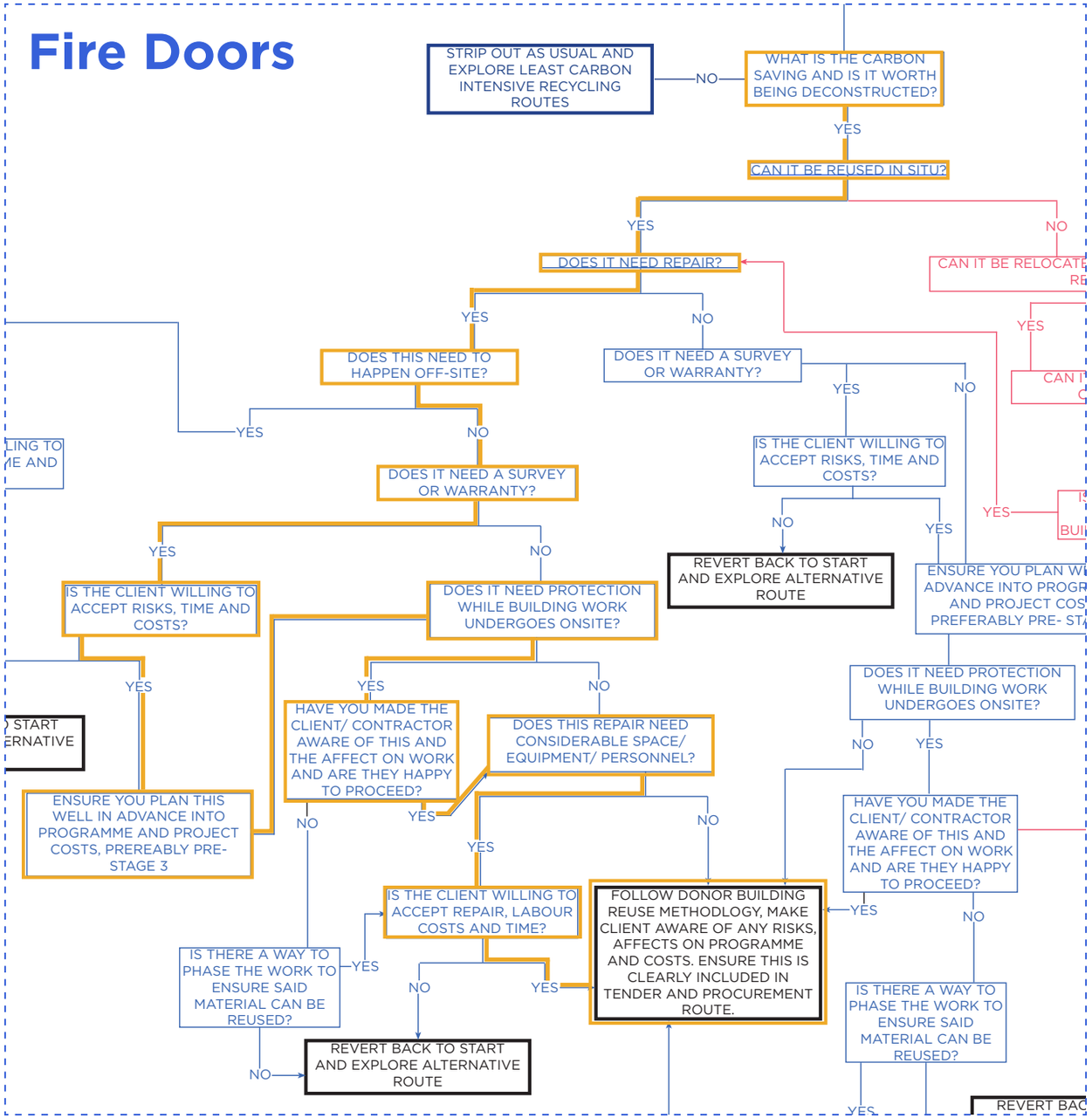



= Reuse in-situ
= Reuse on site but relocated
= Reuse in host building
= Upcycled or reformed
= Recycled



marks barfield architects

# Fire Doors


STRIP OUT AS USUAL AND EXPLORE LEAST CARBON INTENSIVE RECYCLING ROUTES
NO
WHAT IS THE CARBON SAVING AND IS IT WORTH BEING DECONSTRUCTED?
YES
CAN IT BE REUSED IN SITU?
YES
NO
DOES IT NEED REPAIR?
YES
NO
DOES THIS NEED TO HAPPEN OFF-SITE?
DOES IT NEED A SURVEY OR WARRANTY?
YES
NO
DOES IT NEED A SURVEY OR WARRANTY?
YES
NO
IS THE CLIENT WILLING TO ACCEPT RISKS, TIME AND COSTS?
YES
NO
IS THE CLIENT WILLING TO ACCEPT RISKS, TIME AND COSTS?
REVERT BACK TO START AND EXPLORE ALTERNATIVE ROUTE
DOES IT NEED PROTECTION WHILE BUILDING WORK UNDERGOES ONSITE?
YES
NO
HAVE YOU MADE THE CLIENT/ CONTRACTOR AWARE OF THIS AND THE AFFECT ON WORK AND ARE THEY HAPPY TO PROCEED?
DOES THIS REPAIR NEED CONSIDERABLE SPACE/ EQUIPMENT/ PERSONNEL?
ENSURE YOU PLAN THIS WELL IN ADVANCE INTO PROGRAMME AND PROJECT COSTS, PREREABLY PRE-STAGE 3
NO
YES
YES
NO
IS THE CLIENT WILLING TO ACCEPT REPAIR, LABOUR COSTS AND TIME?
IS THERE A WAY TO PHASE THE WORK TO ENSURE SAID MATERIAL CAN BE REUSED?
YES
NO
NO
YES
REVERT BACK TO START AND EXPLORE ALTERNATIVE ROUTE
FOLLOW DONOR BUILDING REUSE METHODLOGY, MAKE CLIENT AWARE OF ANY RISKS, AFFECTS ON PROGRAMME AND COSTS. ENSURE THIS IS CLEARLY INCLUDED IN TENDER AND PROCUREMENT ROUTE.
DOES IT NEED PROTECTION WHILE BUILDING WORK UNDERGOES ONSITE?
NO
YES
HAVE YOU MADE THE CLIENT/ CONTRACTOR AWARE OF THIS AND THE AFFECT ON WORK AND ARE THEY HAPPY TO PROCEED?
YES
NO
IS THERE A WAY TO PHASE THE WORK TO ENSURE SAID MATERIAL CAN BE REUSED?
YES
REVERT BAC

# Material Passport development

*In collaboration with the Material Passport Working Group*

**Material Passport - *Raised Access Floors***
***Ss_30_20_70_70-00001***

| | |
|---|---|
| **Current Author** | Marks Barfield Architects |

| Revision | Revision Date | Author | Project |
|---|---|---|---|
| P01 | 02/11/2023 | Marks Barfield Architects | W1U 3BW |

*DISCLAIMER:*
*This material passport has been prepared as an aid for future reuse only and is to be read in conjunction with the O&M manuals, including but not limited to the as-built drawings, supplier and manufacturer's literature, structural engineer's drawings, specifications and schedules for all structural design, sizes and performance criteria. This is not to be relied upon for certification, warranties or construction details. All dimensions and information provided is to be checked and verified by the intersted party. The author is not responsible for any discrepancies or inconsistencies found in this passport. Marks Barfield Architects accepts no liability for the information nor does it warrant that informationprovided is either accurate or complete. © Marks Barfield Architects 2023*

**Summary**

P01 Images - 2023



| | |
|---|---|
| Unique Number | 1ba8f332-44b9-4002-a95e-4840398bef38 |
| Classification | Ss_30_20_70_70-00001 |
| Name | Raised Access Floors |
| Unit Type | 1m2 |
| Material/s | Chipboard core encased in steel, acoustic pads provided where necessary. Reused steel tiles from original building, new second-hand pedestals from new manufacturer. |
| Dimensions of a unit | 600x600mm panels<br>generic maximum height 1000mm, generic minimum height 65mm. |
| Weight of a unit | |
| Number of units | 4245.5 |
| Gross Area | 4245.5m2 |
| Gross Volume | na |
| Density | na |
| Gross Weight | #VALUE! |
| Method of Fixing | Adhesive |
| Date of Original Manufacture | unknown |
| Supplier/ Manufacturer Details | unknown |
| Current Installation Date | 2023 |
| Life Expectancy | 60 |

| | |
|---|---|
| Building Layer | Space Plan |
| Building Element | 2.2 Upper Floors |

| | |
|---|---|
| Description | Second user recycled raised access floor system that consists of reused panels from existing building, refurbished panels from another source, and new pedestals. New pedestals to be compatible with re-used panels from existing building. |

**Material Passport - *Internal Double Riser Door Fire Rated***
***EF_25_30_25-00002***

| | |
|---|---|
| **Current Author** | Marks Barfield Architects |

| Revision | Revision Date | Author | Project |
|---|---|---|---|
| P01 | 02/11/2023 | Marks Barfield Architects | W1U 3BW |

*DISCLAIMER:*
*This material passport has been prepared as an aid for future reuse only and is to be read in conjunction with the O&M manuals, including but not limited to the as-built drawings, supplier and manufacturer's literature, structural engineer's drawings, specifications and schedules for all structural design, sizes and performance criteria. This is not to be relied upon for certification, warranties or construction details. All dimensions and information provided is to be checked and verified by the intersted party. The author is not responsible for any discrepancies or inconsistencies found in this passport. Marks Barfield Architects accepts no liability for the information nor does it warrant that informationprovided is either accurate or complete. © Marks Barfield Architects 2023*

**Summary**

P01 Images - 2023



| | |
|---|---|
| Unique Number | 45757278-0444-46ee-8842-ec863b4bcfc7 |
| Classification | EF_25_30_25-00002 |
| Name | Internal Double Riser Door Fire Rated |
| Unit Type | One doorset |
| Material/s | 30min and 60min fire rated MDF laminated doors with paint finish. |
| Dimensions of a unit | 1110mm x 2780mm. Varies, refer to drawings |
| Weight of a unit | Varies |
| Number of units | 28 |
| Gross Area | 3.1 |
| Gross Volume | 0.124 |
| Density | 600 |
| Gross Weight | 74.4 |
| Method of Fixing | Mechanical, pivot hinge. |
| Date of Original Manufacture | 2002 |
| Supplier/ Manufacturer Details | unknown |
| Current Installation Date | 2023 |
| Life Expectancy | |

| | |
|---|---|
| Building Layer | Space Plan |
| Building Element | 2.8 Internal Doors |

| | |
|---|---|
| Description | 30min and 60min fire rated MDF laminated doors with paint finish. Pivot hinge. Aluminium skirting detail to base of doors. |
| Upfront Embodied Carbon A1-5 per unit | 37 |

**Material Passport - *Internal Stair Structure***
***EF_35_10_40-00001***

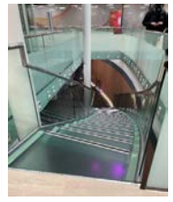
| | |
|---|---|
| **Current Author** | Marks Barfield Architects |

| Revision | Revision Date | Author | Project |
|---|---|---|---|
| P01 | 02/11/2023 | Marks Barfield Architects | W1U 3BW |

*DISCLAIMER:*
*This material passport has been prepared as an aid for future reuse only and is to be read in conjunction with the O&M manuals, including but not limited to the as-built drawings, supplier and manufacturer's literature, structural engineer's drawings, specifications and schedules for all structural design, sizes and performance criteria. This is not to be relied upon for certification, warranties or construction details. All dimensions and information provided is to be checked and verified by the intersted party. The author is not responsible for any discrepancies or inconsistencies found in this passport. Marks Barfield Architects accepts no liability for the information nor does it warrant that informationprovided is either accurate or complete. © Marks Barfield Architects 2023*

**Summary**

P01 Images - 2023

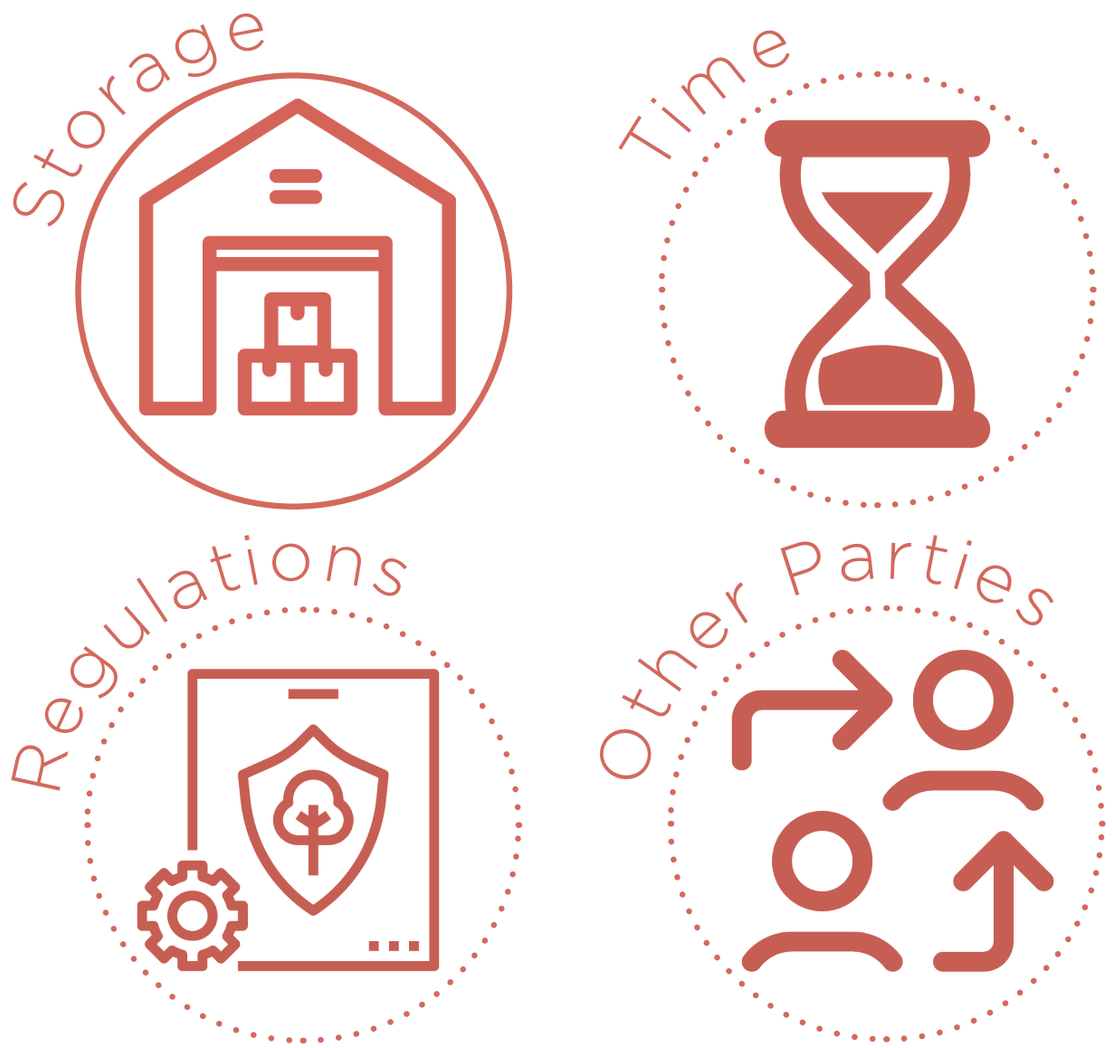




| | |
|---|---|
| Unique Number | df391abf-e137-4756-b387-176cb84c9e43 |
| Classification | EF_35_10_40-00001 |
| Name | Internal Stair Structure |
| Unit Type | One stair structure |
| Material/s | Steel |
| Dimensions of a unit | 20 risers, spans FFL to FFL height of 3530mm, riser height 177.5mm, run depth varies, width of stair 1150mm |
| Weight of a unit | unknown |
| Number of units | 1 |
| Gross Area | na |
| Gross Volume | 0.205 |
| Density | 7750 |
| Gross Weight | 1588.75 |
| Method of Fixing | Mechanical, bolted utilising exising tread support brackets. New timber treads bonded to existing steel stair structure. |
| Date of Original Manufacture | presumed 2002 |
| Original supplier/ Manufacturer Details | Spiral stairs, Lewes Design Contracts Ltd.<br>The Mill, Glynde, Lewes<br>East Sussex BN8 6SS<br>United Kingdom<br>01273 858341<br>https://www.spiralstairs.co.uk/contact-us/ |
| Current Installation Date | 2023 |
| Life Expectancy | 60 |

| | |
|---|---|
| Building Layer | Space Plan |
| Building Element | 2.4 Stairs and Ramps |

| | |
|---|---|
| | Curved steel staircase for one office sized floor with glass treads, painted steel stringers |

# Immediate Barriers to Reuse

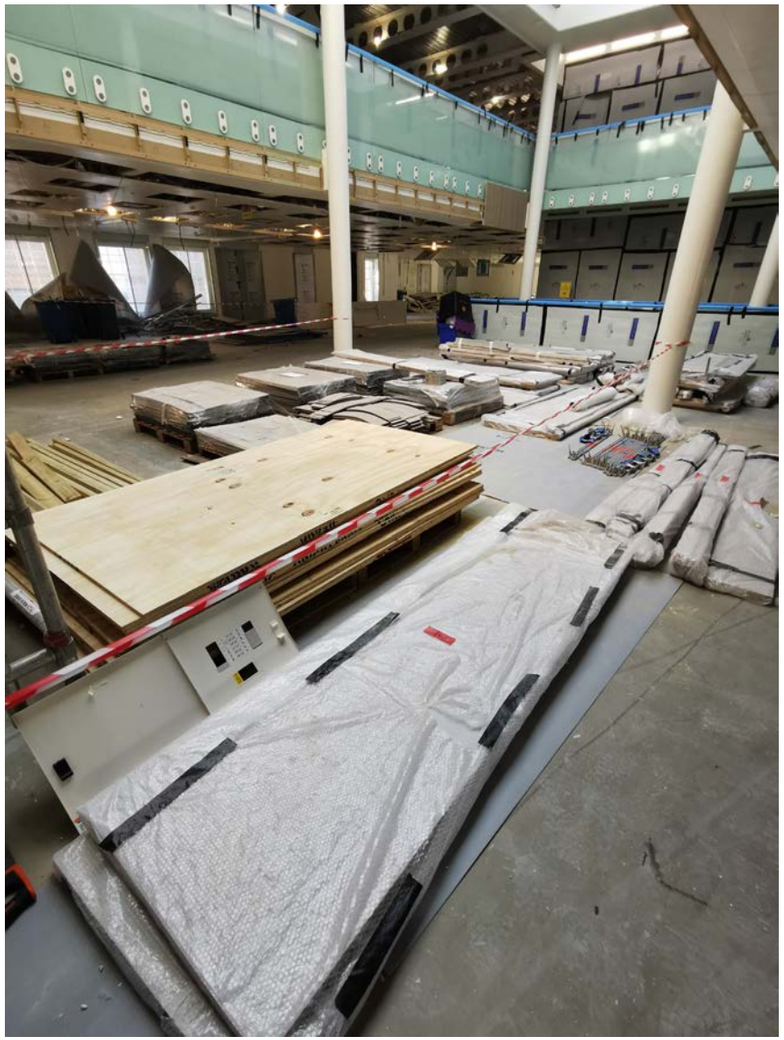


marks barfield architects

# The Reality of Reuse: Deconstruction Stage

# From desk to site

## *Collaborated with Lazari, Lawmens and Faithdean*



Reuse in situ material collected, sorted, protected and referenced for reconditioning and reinstallation.

Ceiling Tiles

Raised access floor tiles deconstructed and grouped to be sent for reconditioning before being reinstalled in office building.

Soft strip out of ceilings

Removal of reuse material via electric vans

Removal of reuse material to be sorted

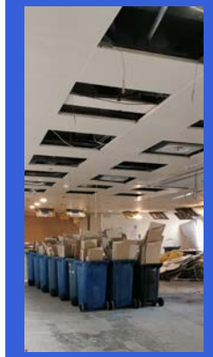
# Research in process - Deconstruction Handbook

**Raised Access Floors**
Category: **Floors**

1. Pedestals sheer number means time taken is too long for reward. They are covered in glue and would need carefully cleaning one by one.
2. Mechanically fixed pedestals are much better where possible.
3. Tiles easy to reuse and clean, even with glue.
4. Unable to reuse those with screed on top.

## 1. Reuse in Reality

The nuts and bolts of deconstruction



**Suspended Ceilings**
Category: **Ceilings**

1. Standard and simple metal ceilings easily removed for reuse
2. Soft ceiling tiles easy to damage at edges but could be upcycled in other ways
3. Ceiling frames take time and money to take apart but can be fully upcycled in parts
4. Bespoke designs, hidden fixings, complex interconnecting nut and bolt construction difficult for reuse.

## 2. Reuse in Reality

The nuts and bolts of deconstruction

**Partitions**
Category: **Internal Walls**

1. Timber studs are generally better for reuse and upcycling than metal.
2. Metal is hard to reuse in form as they tend to warp and bend over life and when deconstructed.
3. Metal studs are ordinarily melted down and recycled which results in more carbon production.

## 3. Reuse in Reality

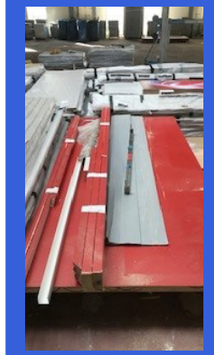
The nuts and bolts of deconstruction

**General Finishes**
Category: **Finishes**

1. Floor finishes like vinyl/ carpet are better in tile form rather than sheet. Sheet is much harder to take up neatly if glued etc.
2. Carpet tiles can be reused if glued properly, letting the glue set for 15mins. If placed down wet with too much glue, they are difficult to remove carefully.
3. Stainless steel is hard to reuse as it is a precious metal and difficult to cut.

## 8. Reuse in Reality

The nuts and bolts of deconstruction



**Doors**
Category: **XXX**

1. Generally successful for reuse as they could be demounted, protected, and stacked for later use
2. Exposed rather than hidden fixings are better where possible - means a change in aesthetic
3. Sizes of doors effect reuse - Large , heavy doors are a risk to health and safety if have to manually remove.
4. Note door reuse has complications with fire and accessibility regs.

## 4. Reuse in Reality

The nuts and bolts of deconstruction

**Glass**
Category: **Finishes**

1. Tricky to manually remove due to risk of breakage and compromises health and safety of staff
2. Easier to reuse in smaller modules. Difficult to get out of building due to size. **Depends on the building itself and how things may be removed.**
3. Ordinarily likely to be crushed down and recycled
4. Engage tenant team earlier to reuse glazed partitions in situ.

## 5. Reuse in Reality

The nuts and bolts of deconstruction

**Coatings**
Category: **Finishes**

1. Painted metal not an issue for recycling as melted and paint separates. However, it is better to reuse steel in form.
2. Intumescently coated steel would have to be burned off; taking steels from site, de-coating and returning them to site.
3. Ensure good records are kept of FR paint used and certification.
4. Mastic is very difficult to remove - don't use unless necessary.

## 6. Reuse in Reality

The nuts and bolts of deconstruction

**Joinery & Furniture**
Category: **Finishes**

1. Timber panels easier to remove with glue than screw - dependant on amount of glue used.
2. Corian desk - likely built on site due to size. Too large and heavy to be removed as is so plan is to neatly slice down the middle into two parts and the joint could be an architectural feature.

## 7. Reuse in Reality

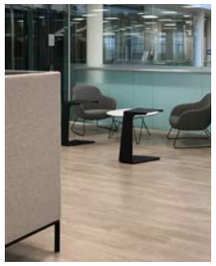
The nuts and bolts of deconstruction

# Success Stories

## Raised Access Floors

Existing Material Passport 01

| | |
|---|---|
| **Floor Location:** | 01,02,03,04 |
| **Area (Estimate):** | 4245.5m² |
| **Installment:** | 2002 |
| **Recycle/Reuse/Refurb:** | Keep and refurb |
| **Replacement:** | NA |
| **Stage to Consider:** | CAT A |
| **Monetary Saving:** | Circa £85,000 |
| **Carbon Saving:** | 121,633.6 kg CO2e |

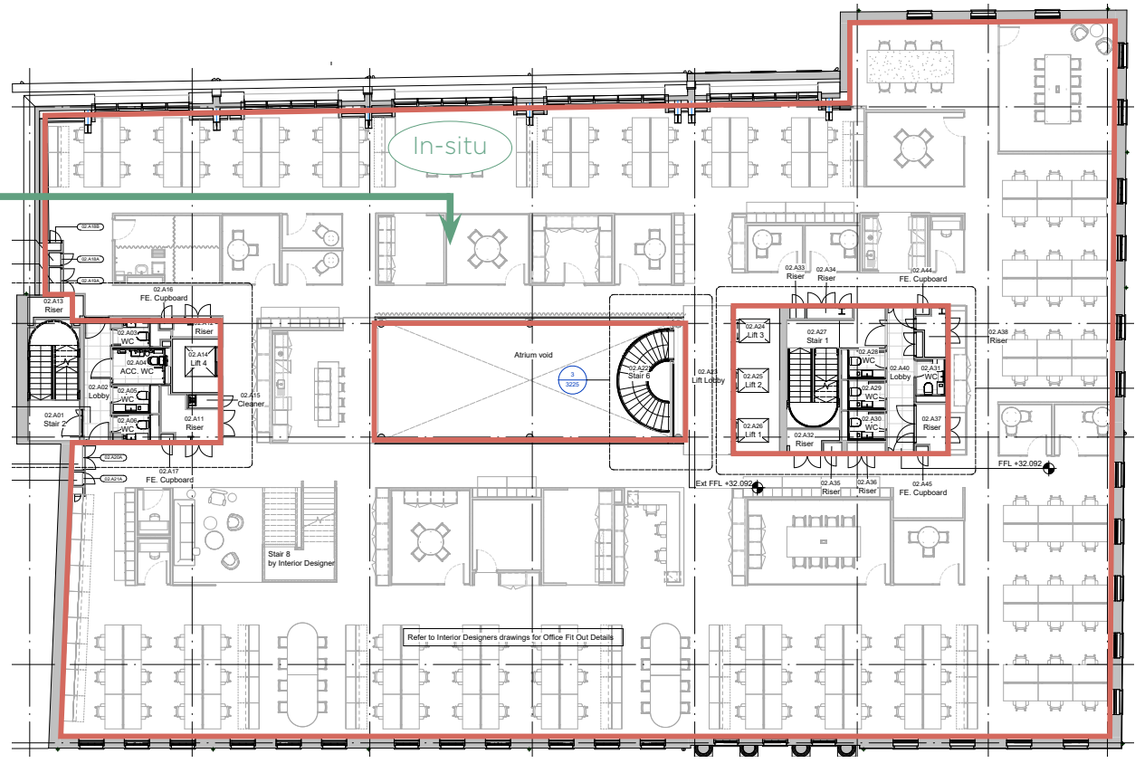


**Description:**
Metal raised access floor plates and pedestals across office floorplates. Refurb and reuse as much as possible, replacing with upcycled tiles where need.

**Potential Areas for Reuse:**
In-situ

Material Name: **Raised Access Floors**

*Capital Saving: circa £85,000*
*Carbon Saving: 121,633.6 kg $CO_2e$*




Typical Existing Office Floor Plan

# Key Savings:

**Raised Access Floors**

Area = 4872 m2

Cost saving = **£146,160**

Carbon saving = **121,634 kg CO2e**

**Internal Fire Doors**

Number = 133 units

Cost saving = **£199,500**

Carbon saving = **3900 kg CO2e**

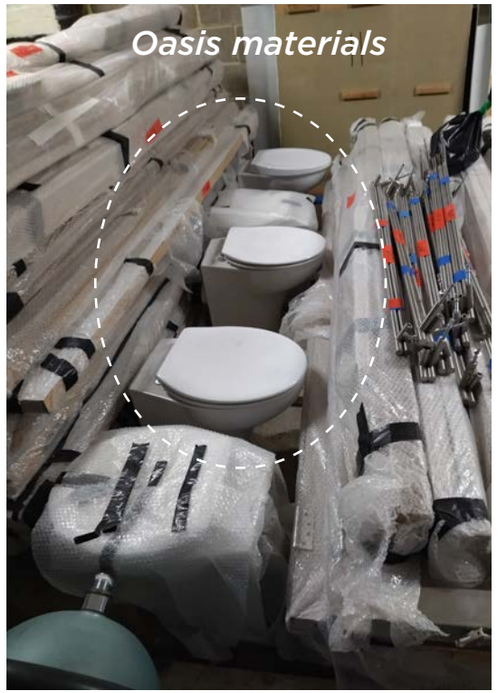
**Reused items:**

1. **Raised access floors**
2. **Internal doors**
3. **Riser doors**
4. **External doors**
5. **Concrete pavers**
6. **Feature stair structure**
7. **MDF cladding panels**
8. **Perimeter plasterboard and skirting**
9. **Atrium timber fascia**
10. **Glazed atrium balustrade**

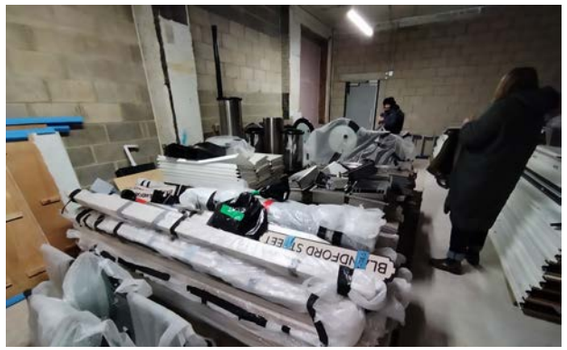
marks barfield architects

# Storage and Coordination

# Storage and Coordination

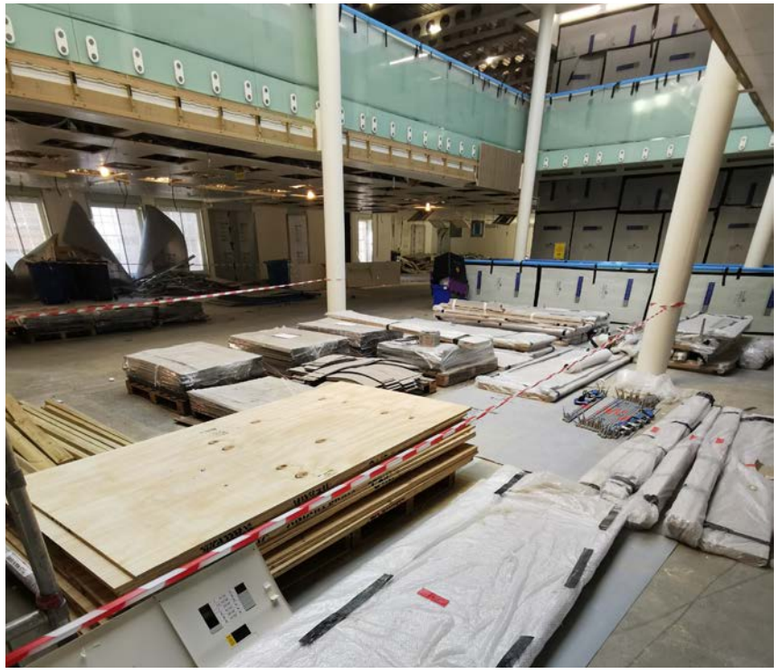



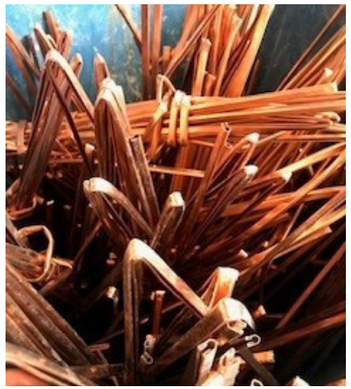





# 10 Key Lessons Learnt

1. **Reuse in-situ** where possible
2. In **early design stages, get all relevant parties involved** earlier including a **de-construction contractor** to find a clear path for reuse.
3. Clearly **plan out risks**, address them ASAP and get as much **surveying and auditing** done at early stage.
4. Recycle/ **warranty life** of some materials make them **difficult to reuse**. Such as insulation and M&E ducts.
5. Key practicality is **storage and standardisation of reuse inventory and system**.
6. Ensure **good records through material passporting** of manufacture, supplier and certification are kept. Particularly with respect to fire rated items.
7. **Currently good reuse Hosts** are usually **small community/ charity projects**.
8. Reuse items will **need a demand** – otherwise will sit in a warehouse.
9. Some of the easier reuse wins are the hidden more standardised items such as **Pattressing** – particularly with rising costs of plywood.
10. **Note the waste from onsite works, temporary works and temporary protection is not to be ignored**.





marks barfield architects

# Host Building: Oasis Nature Garden

**Client:** Oasis

**Architect:** Marks Barfield Architects

**Cost Consultant:** Gardiner and Theobald

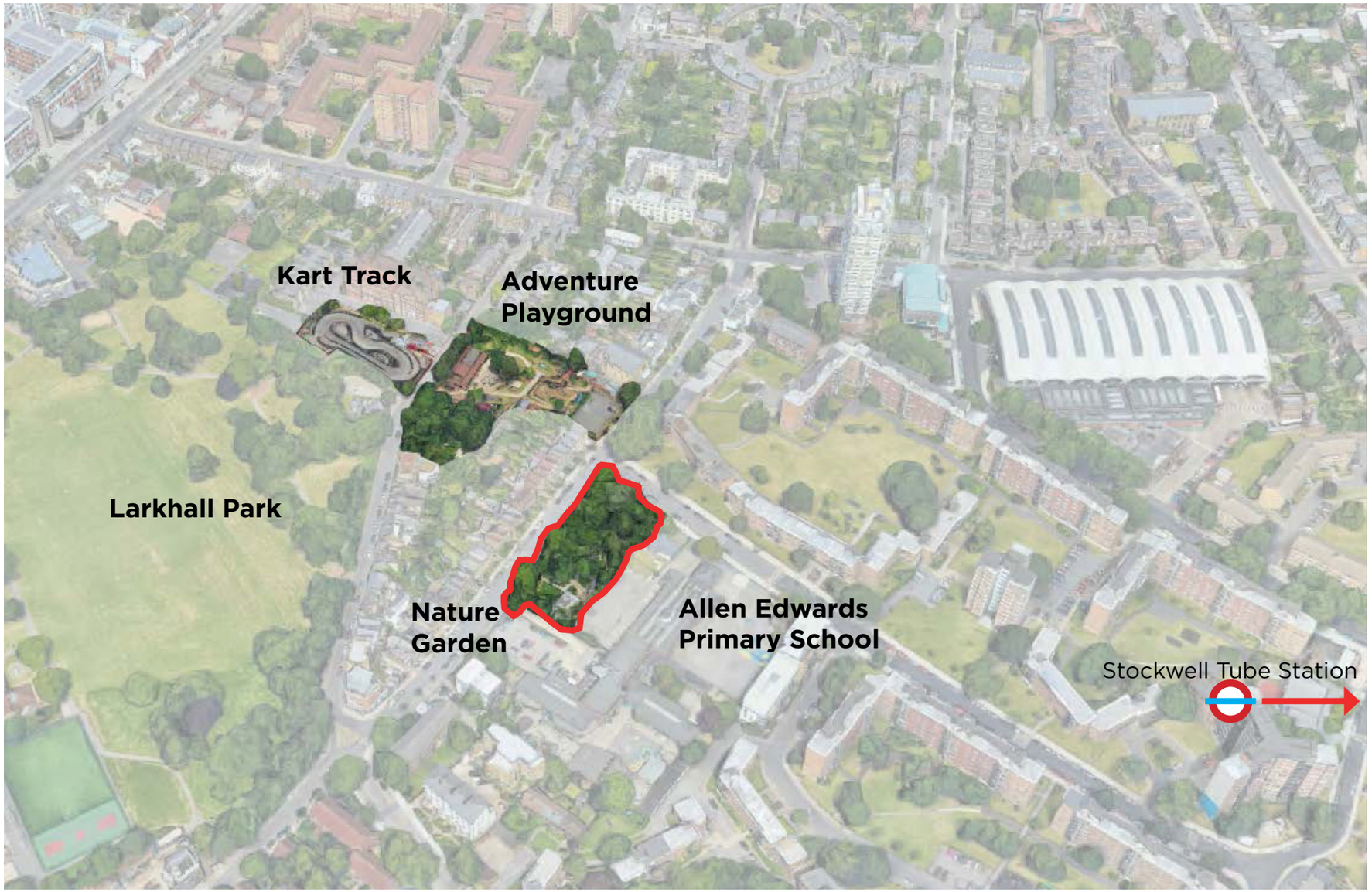
**Structural Engineer:** Term Engineering

# Site Location

Adventure Playground

Kart Track

Nature Garden

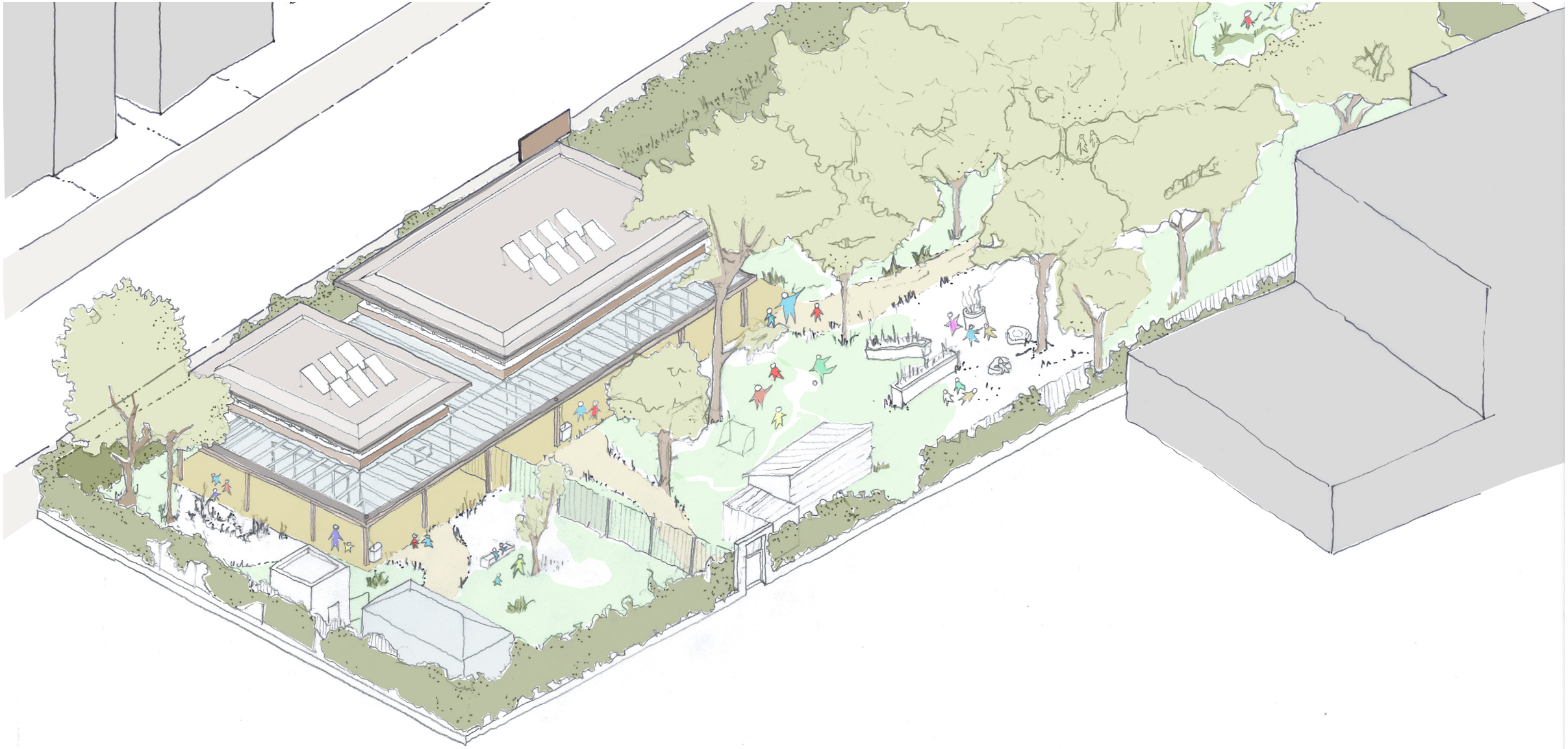


# The Nature Garden Brief

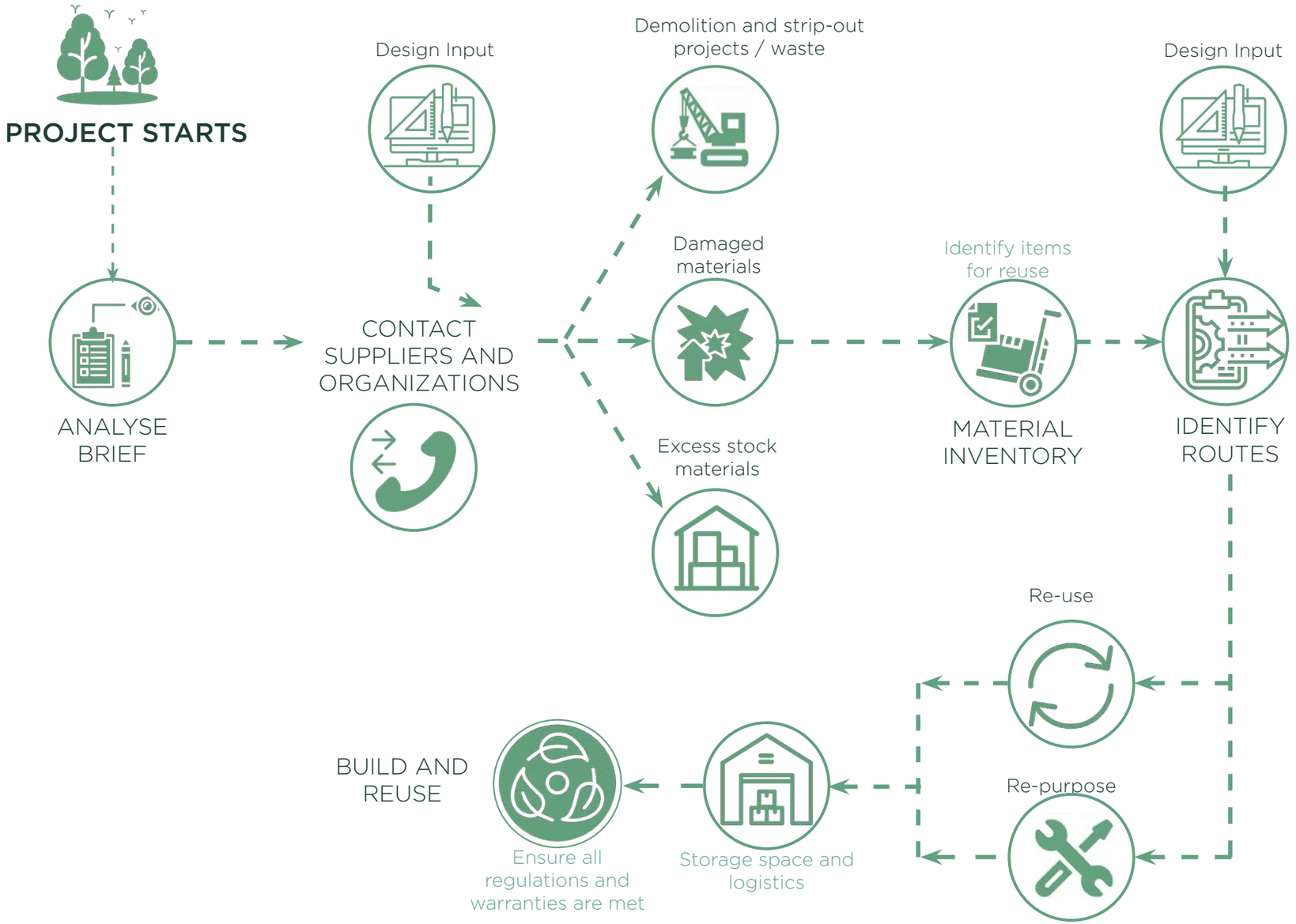
1. **New building for nature garden for educational play, a forest school nursery, a staff office and communal space.**
2. **Nature garden classroom for 30 children**
3. Forest School Nursery Classroom for 15 children with direct level access to a dedicated outdoor area.
4. Staff office and kitchen
5. WCs - 1 standard and 1 accessible
6. Reception area
7. Childrens kitchen in both classrooms
8. Storage and draws for learning materials
9. Buggy store
10. Cloakroom area
11. Covered outdoor space

***Importance of a clear brief to start analysing mateial needs***

# 3D View



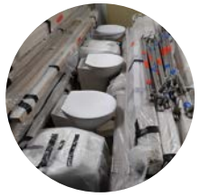
# Oasis Methodology for Reuse

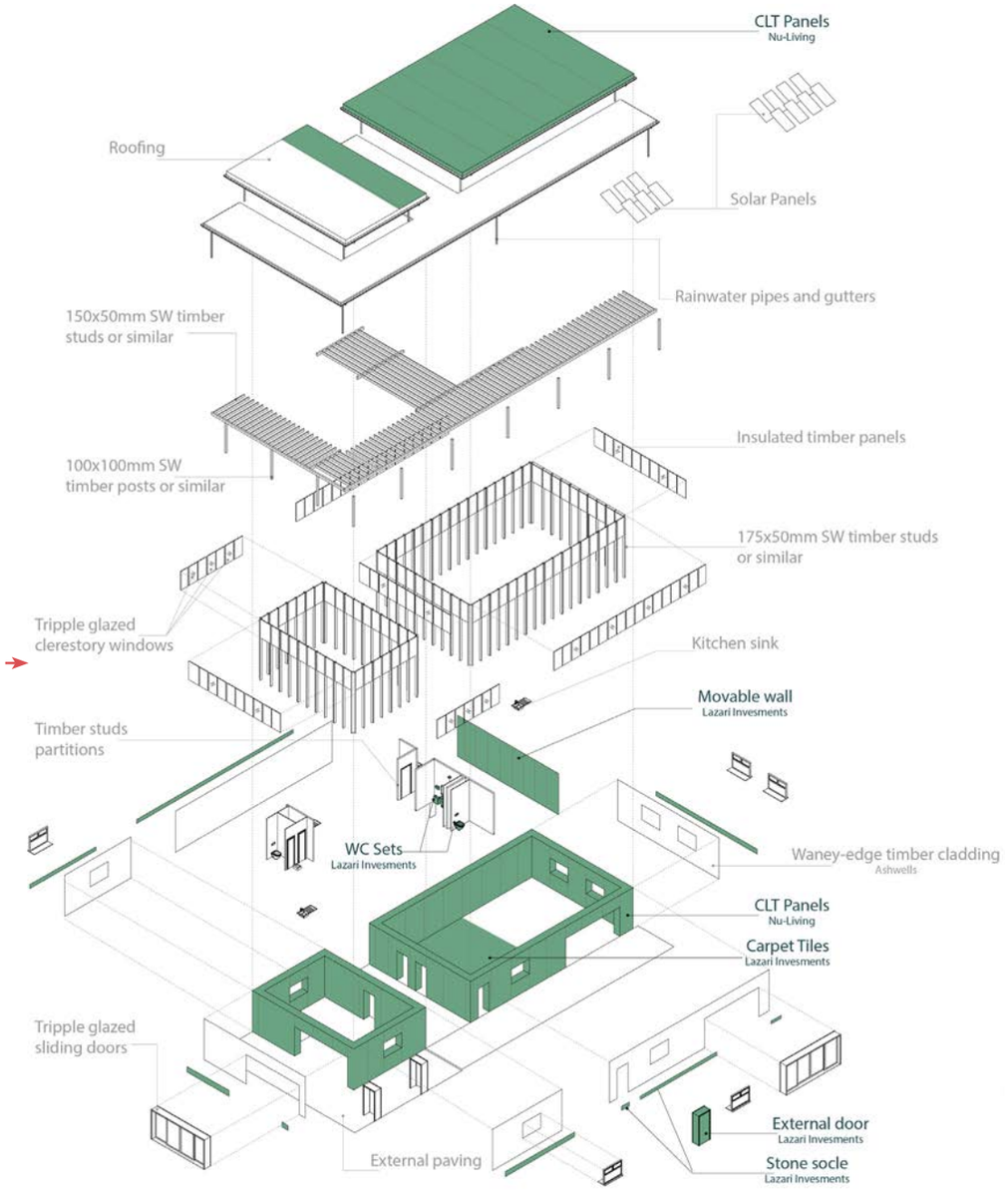



# Reuse of materials - Inventory

## Reuse from 22 Baker Street:

| 1.0 INTERNAL WALLS, FINISHES AND PARTITIONS | Floor Location | Rough Area m2/ Quantity | Installation (2002/2020) | Description | Recycle/Reuse/Refurb Suggestion | Quantity needed | Relocation Suggestion | Original Category (Cat A or Fujitsu Cat B) | Photos | Reference numbers in condition survey |
|---|---|---|---|---|---|---|---|---|---|---|
| Panelling to curved wall | 0 | 70m2 | 2002 | Timber/vinyl type panelling to reception feature wall | Reuse in Oasis | 130m2 | off site | CAT A | | 650-2285-1.1-04 |
| Timber effect tiles | 1 | | 2020 | Timber tiles to kitchens in Fujitsu fit out | Reuse in Oasis | 130m2 | off site | CAT B | | |
| Tiles to kicthen | 1 | | 2020 | Black glazed tiles to underside of kitchen counter | Reuse in Oasis | 130m2 | off site | CAT B | | |
| **2.0 FLOOR FINISHES** | **Floor Location** | **Rough Area m2/ Quantity** | **Installation (2002/2020)** | **Description** | **Recycle/Reuse/Refurb Suggestion** | **Quantity needed** | **Relocation Suggestion** | **Original Category (Cat A or Fujitsu Cat B)** | **Photos** | **Reference** |
| Hard Finishes | | | | | | | | | | |
| Reception | 0 | 100 | 20027 | vinyl/stone-interrogate further | Reuse in Oasis | 130m2 | off-site | CAT A | | 650-2285-3.1-1.0 |
| Dark grey/ black tiles | 1 | | 2020 | Tiles to kitchen area | Reuse in Oasis | 130m2 | off site | CAT B | | |
| Carpet | LG,1,2,3,4 | | 2020 | Beige carpet soft flooring | Reuse in Oasis | 130m2 | off-site | CAT B | | |
| Carpet | LG,1,2,3,4 | | 2020 | Grey Carpet soft flooring | Reuse in Oasis | 130m2 | off-site | Cat B | | |
| Carpet tiles | spare | 144m2 | 2002/20 | Stacks of spare carpet tiles, in good condition | Reuse in Oasis | 130m2 | off-site | CAT A | | |
| **3.0 INTERNAL DOORS** | **Floor/ Location** | **Rough Area m2/ Quantity** | **Installation (2002/2020)** | **Description** | **Recycle/Reuse/Refurb/ Bin Suggestion** | **Quantity needed** | **Relocation Suggestion** | **Original Category (Cat A or Fujitsu Cat B)** | **Photos** | **Reference** |
| Internal Timber doors | 01,02,03, 04 | | 2020 | Timber paneled doors, double used in fujitsu fit out | Reuse in Oasis | 1x double, 4x single | off-site | CAT B | | |
| **5.0 SANITARY AND SUNDRIES** | **Floor/ Location** | **Rough Area m2/ Quantity** | **Installation (2002/2020)** | **Description** | **Recycle/Reuse/Refurb/ Bin Suggestion** | **Quantity needed** | **Relocation Suggestion** | **Original Category (Cat A or Fujitsu Cat B)** | **Photos** | **Reference** |
| 5.1 Toilets | | | | | | | | | | |
| 5.11 A-WCs | LG | 4 | 20207 | Armitage shanks. Good condition | Reuse in Oasis | 1 inc toilet seat | off site | CAT B? | | 650-2285-5.5-0.2 |
| 5.12 Accessible WC | LG | 1 | 20207 | Armitage shanks, Good condition | Reuse in Oasis | 1, inc grabrails, sink, tap and all accessories | off-site | CAT B? | | 650-2285-5.5-0.2 |
| 5.2 Sinks and taps | | | | | | | | | | |
| 5.21 A-sink | LG | 4 | 20027 | Armitage Shanks good condition | Reuse in Oasis | 3 | off site | CAT B? | | 650-2285-5.1-0.2 |
| 5.26 tap | All | 36 | 2020 | Bristan in standard WCs (see above). Manual tap in acc. Wc unit | Reuse in Oasis | 3 | off site | CAT B? | | 650-2285-5.2-0.2 |
| 5.3 Dryers and details | | | | | | | | | | |
| 5.31 A-toilet roll dispenser | -1 | 36 | 2020 | dolphin toilet roll dispenser in good condition | Reuse in Oasis | 3 | off site | CAT B? | | 650-2285-5.6-0.2 |
| 5.32 Toilet brush | all | 36 | 2002 | Stainless steel holder in bad condition | Reuse in Oasis | 3 | off site | CAT A | | 650-2285-5.8-0.1 |
| 5.33 Paper towel holder | all | 36 | 2002 | Stainless steel towel holder and bin. In good condition but visually dated. | Reuse in Oasis | 3 | off site | CAT A | | 650-2285-5.7-0.1 |
| 5.5 Sundries | | | | | | | | | | |
| Fridge | all | unknown | 2020 | clear drinks fridge on first floor, very good condition | Reuse in Oasis | all | off site | CAT B | | |
| Microwaves | all | 4 | 2020 | Two new models in lower ground floor kicthen | Reuse in Oasis | 3 | off site | CAT B | | |
| Kitchen cabinets | 01_02,03 | 3 sets | 2020 | black painted cabinets in good condition | Reuse in Oasis | all | off site | CAT B | | |
| Kitchen sink | 01, 02, 03 | 3 | 2020 | Franke make, Black sink in good condition | Reuse in Oasis | all | off site | CAT B | | |
| Kitchen Counter | 01,02,03 | 3 | 2020 | white counter in good condition | Reuse in Oasis | all | off site | CAT B | | |
| Kitchen counter | LG | 1 | 2020 | granite like counter in good condition | Reuse in Oasis | 1 | off site | CAT B | | |





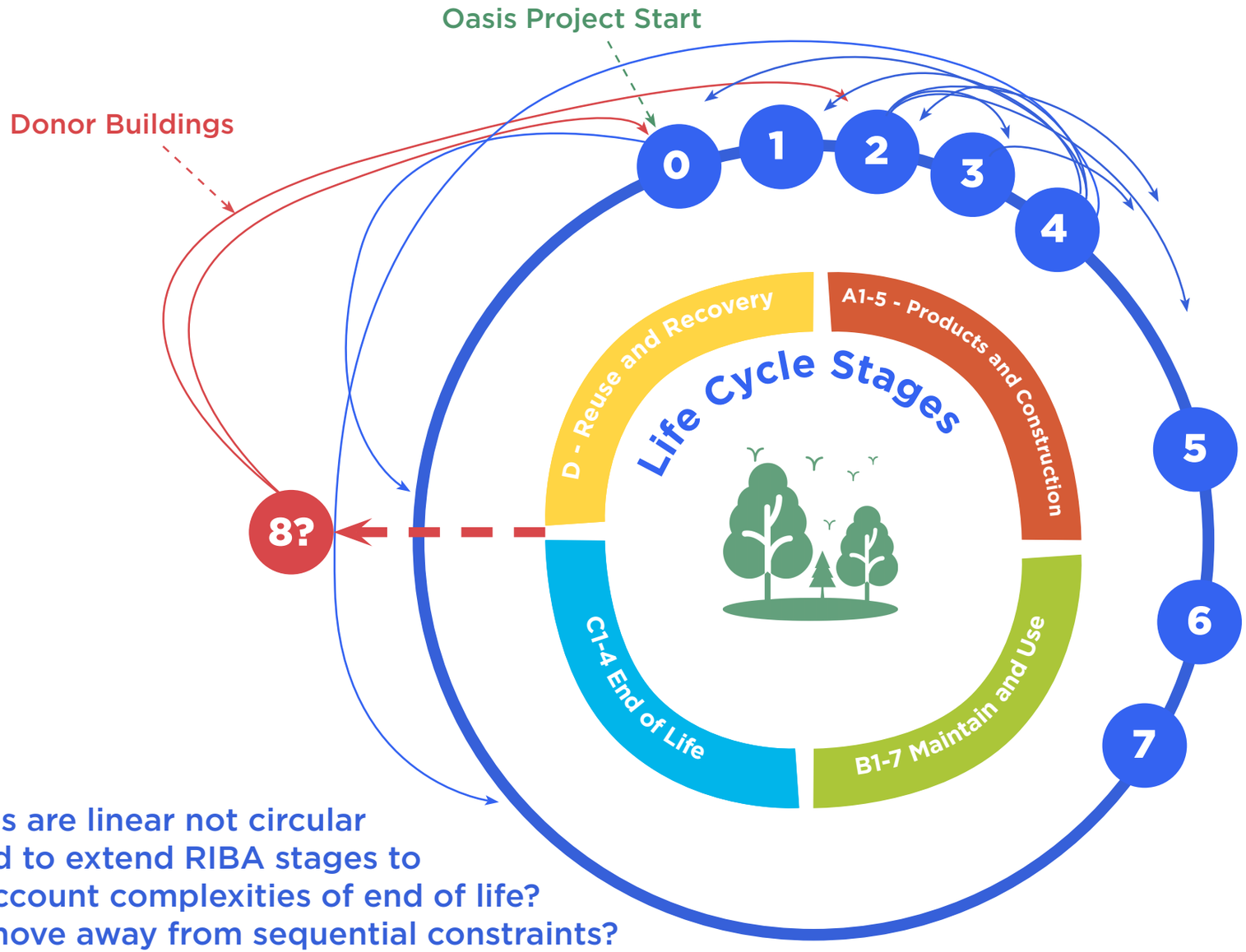
# Reuse of materials - Other Donors

## Nu-Living CLT Panels

## Ashwells Timber Yard

## One Exchange Square

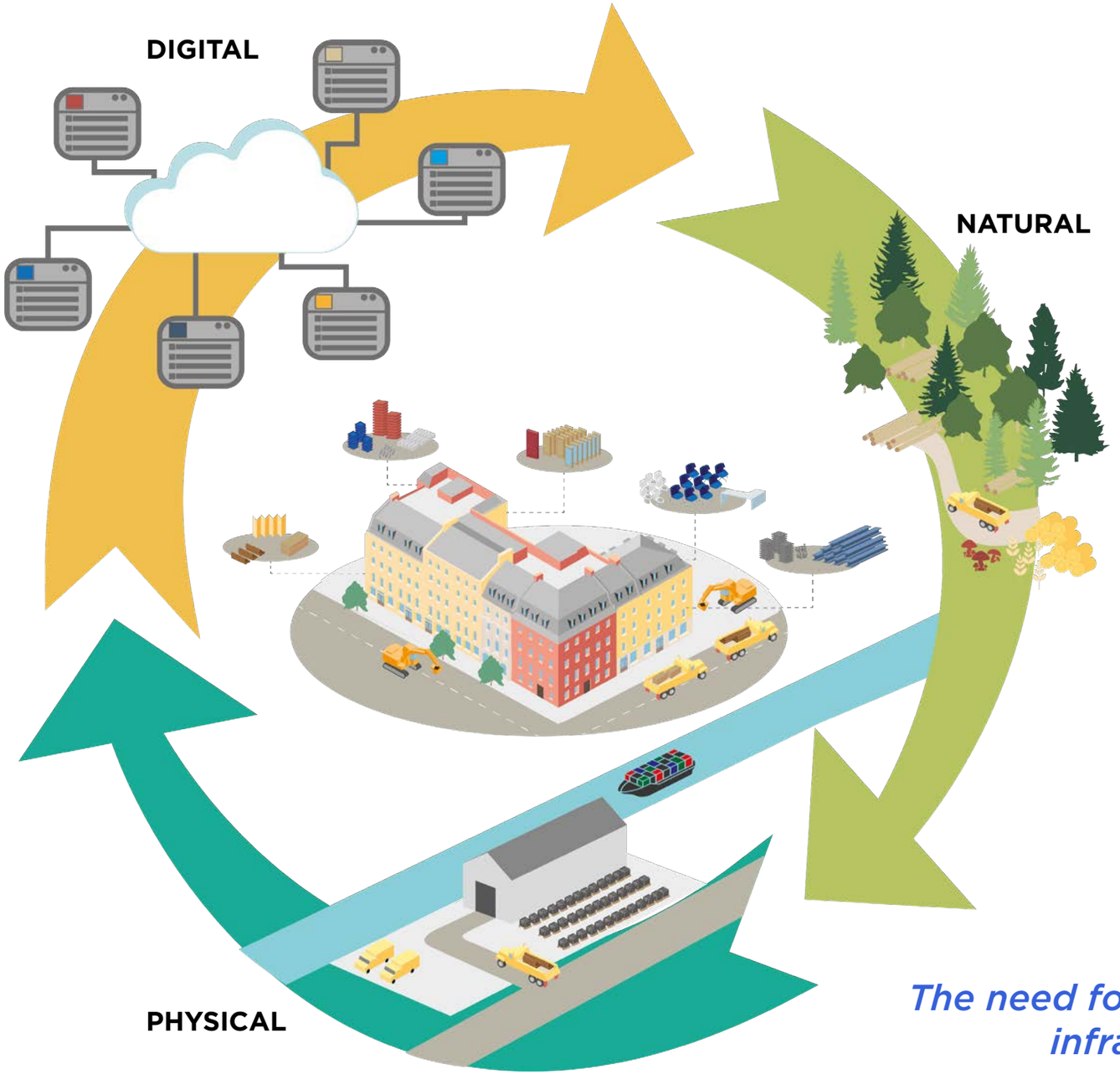

# RIBA Stages vs Lifecycle Stages




RIBA stages are linear not circular
Do we need to extend RIBA stages to
take into account complexities of end of life?
Or do we move away from sequential constraints?

# Reclaimed Material Bank

*Research and Development*

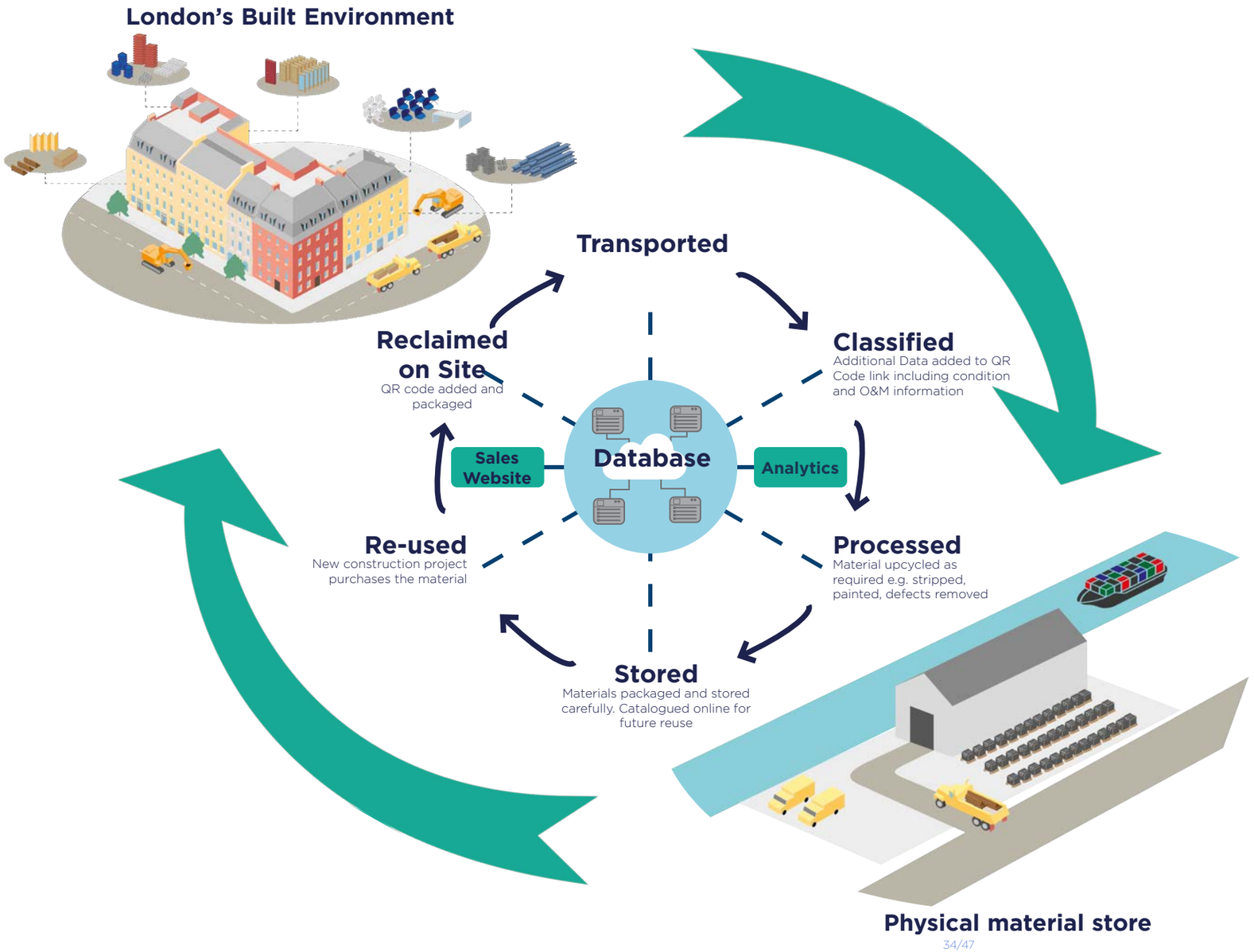



*The need for physical infrastructure*



marks barfield architects

# What could this model look like?




## Factors to consider:

1. Will the space store all materials or focus on specific types? Such as high turnover fit our materials.
2. What will the reuse business model look like? Will the materials be re-sold, stored for specific clients, space charged as a rent?
3. What is the extent of works done to the materials? Such as repair, rework, re-warranty/ certify, upcycle?
4. What is the current/ predicted supply/ demand of these materials? How long are they likely to be stored before being redistributed?
5. How are items transported to/ from the site?

Case Study:

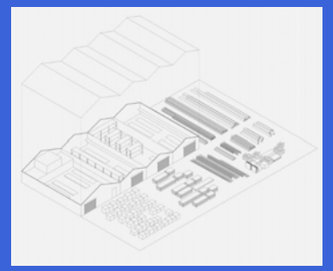
# Material Cultures

- **Client: LB Newham, in collaboration with Arup 2022**

- **Creation of a Circular Economy Construction Hub (CECH) that can serve the whole of London and set an example internationally.**

- **Significant culutural and environmental benefits.**

- Could support over 250 direct jobs (gross), and opportunities for engagement with over 10,000 students per year while generating over £6.5 in new local spend, and additional investment of up to £137m over the next 10 years.



Case Study:

# Manchester Renew Hub


- ***Renew is an ambitious and unique project which aims to create value from waste to benefit Greater Manchester.***
-
- It's a joint initiative between R4GM & SUEZ UK. They take items donated at recycling centres across Greater Manchester, then repair and renew them at their Renew Hub, ready to be resold to a new home.

Case Study:

## RotorDC
Deconstruction & Consulting

https://rotordc.com/

- **A Co-operative setup in 2016, based in Brussels**
- **Dismantle, Process and Trade Materials**
- **7-12 staff (organised into 4 teams: Acquisition, Process, HR and IT Support)**

Their specialisations include

– repair and transformation of lighting equipment,
– a state of the art method for removing mortar from ceramic tiles
– the reprocessing of high quality ‘urban’ wood
– cleaning and preparing for reuse of furniture and building hardware, sanitary equipment
– planning and organising of salvage operations in large and complicated buildings

Case Study:

# Brussels Material Hubs

- ***Stadsatelier de Ville* is a circular hub planned fo the port of brussels**
- **Aims to be a circular hub for building materials, focusing on production, distribution, training and innovation.**
- Founders are BC Materials (earth building company) and Herk&Red (investment company of Democo)
- Will also rent spaces and stimulate collaboration on the site with other partners from the circular economy
- BC Materials already holds classes and workshops where they have practical applications tested by students, engineers and potential builders

***The Material village aims to create a wider circular materials store at the port.***

# Huge benefits to be had!

marks barfield architects

1. **Carbon**
   Reduced embodied carbon in manufacturing, processing and transport of materials.
2. **Cost/ Programme**
   Cost savings on existing materials and potential advantages to programme due to no lead in times/ material delay.
3. **Waste**
   Reduced waste and energy/costs associated with waste processing.
4. **Social**
   Social benefits through apprenticeships in the new circular industry - material deconstruction and repurposing.
4. **Environmental**
   Urban mining allows landscapes which are traditionally intensively mined for materials to heal.