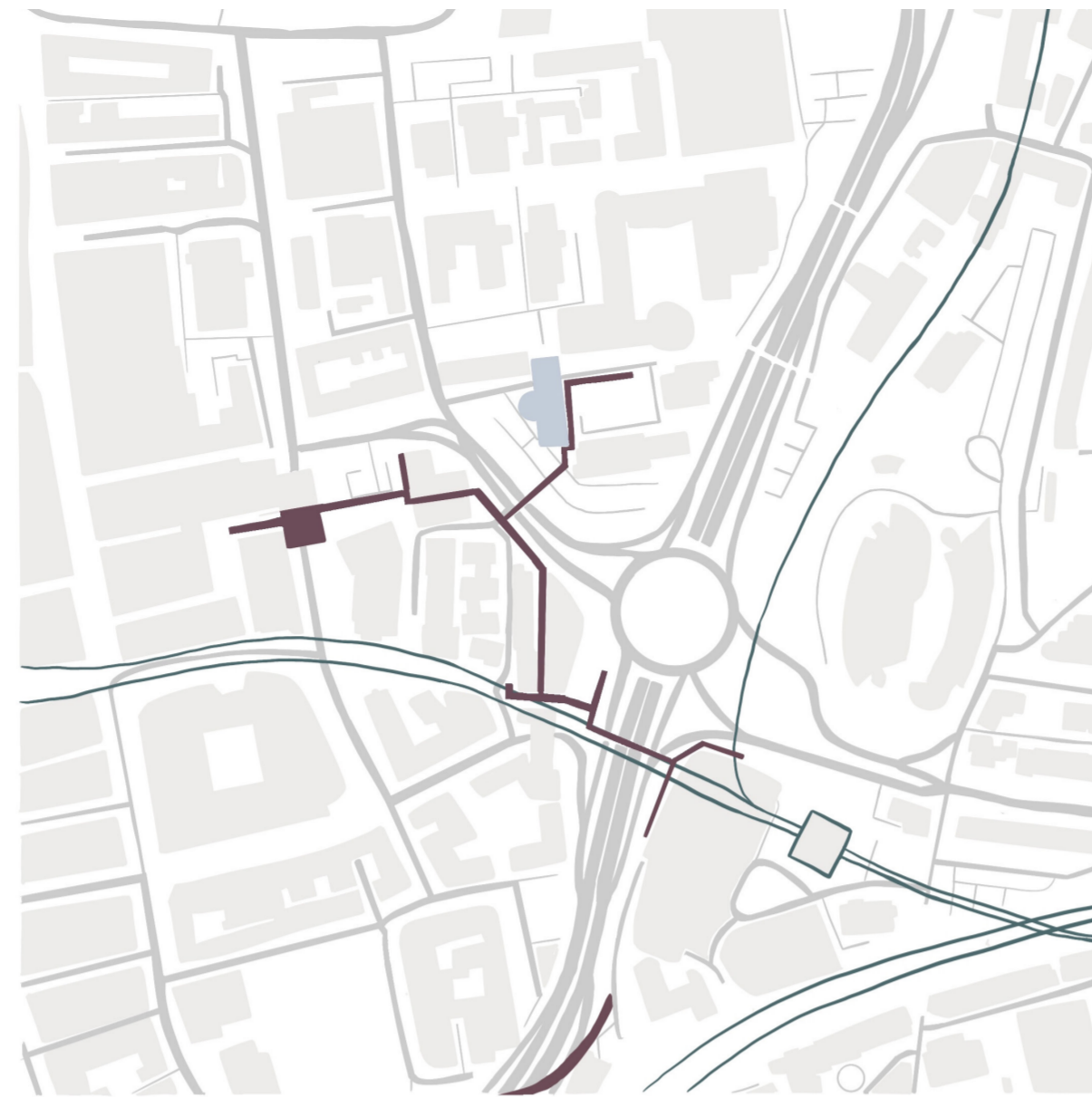


# MEA HOUSE STUDIOS

MEA House was the first purpose-built office accommodation building designed specifically for a collection of charities, formally owned by the MEA trust.

MEA House Studio introduces the concept of the 'inner city' through an Artist-in-Residence Unit taking place within a larger residential building. The concept derives from MVRDV's co-living study which discusses new ways of living by emphasising shared facilities and community. Alongside the residential unit, the brief proposes a rich 'Vibrant Heart' where users can interact with other residents to create connections as well as provide a space away from their own.

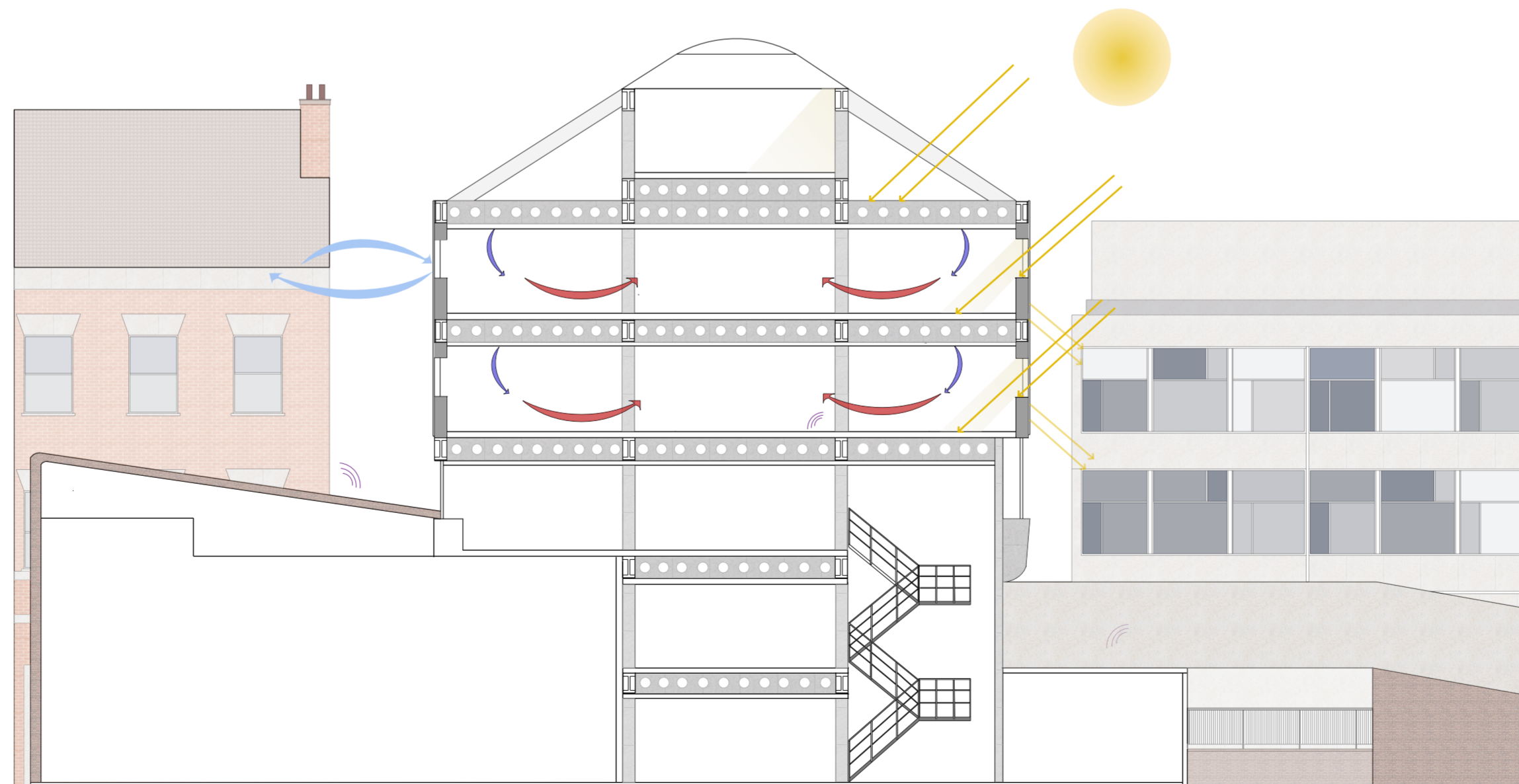
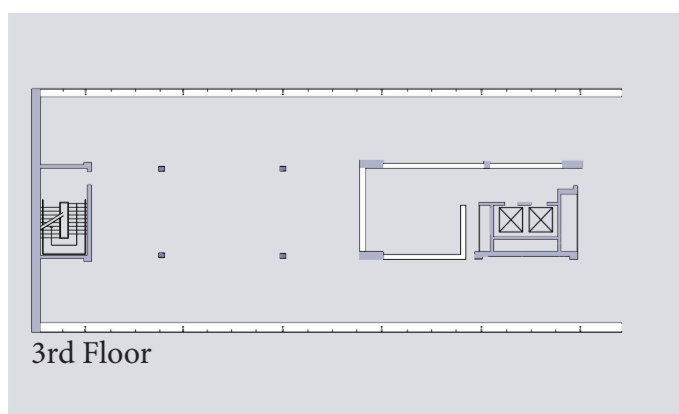
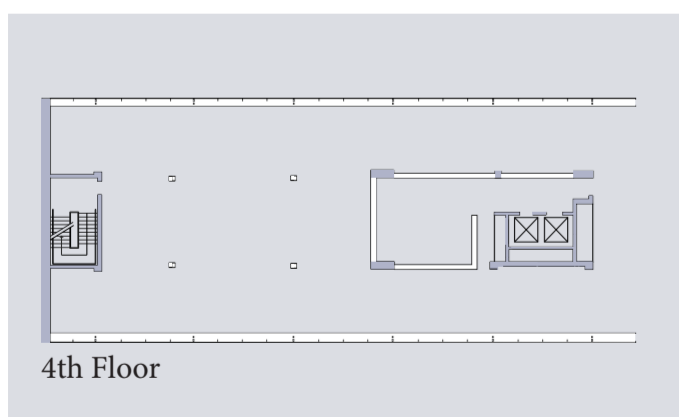
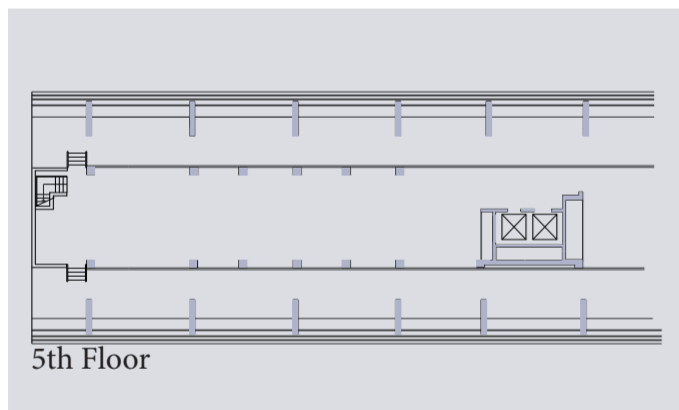
The studio is designed for two residents: a set designer and a theatre director. A metaphorical concept is created, playing with the theatrical moving walls and doors. By playing on this narrative, the studio is an extension of a set design. By using the existing structure of MEA House, the design looks to create voids and connecting walkways to subvert the typical expectations of living conditions.



- Elevated Walkways
- Road and Path Networks
- Transport Links



## Existing Floor Plans



## Existing Environmental Conditions

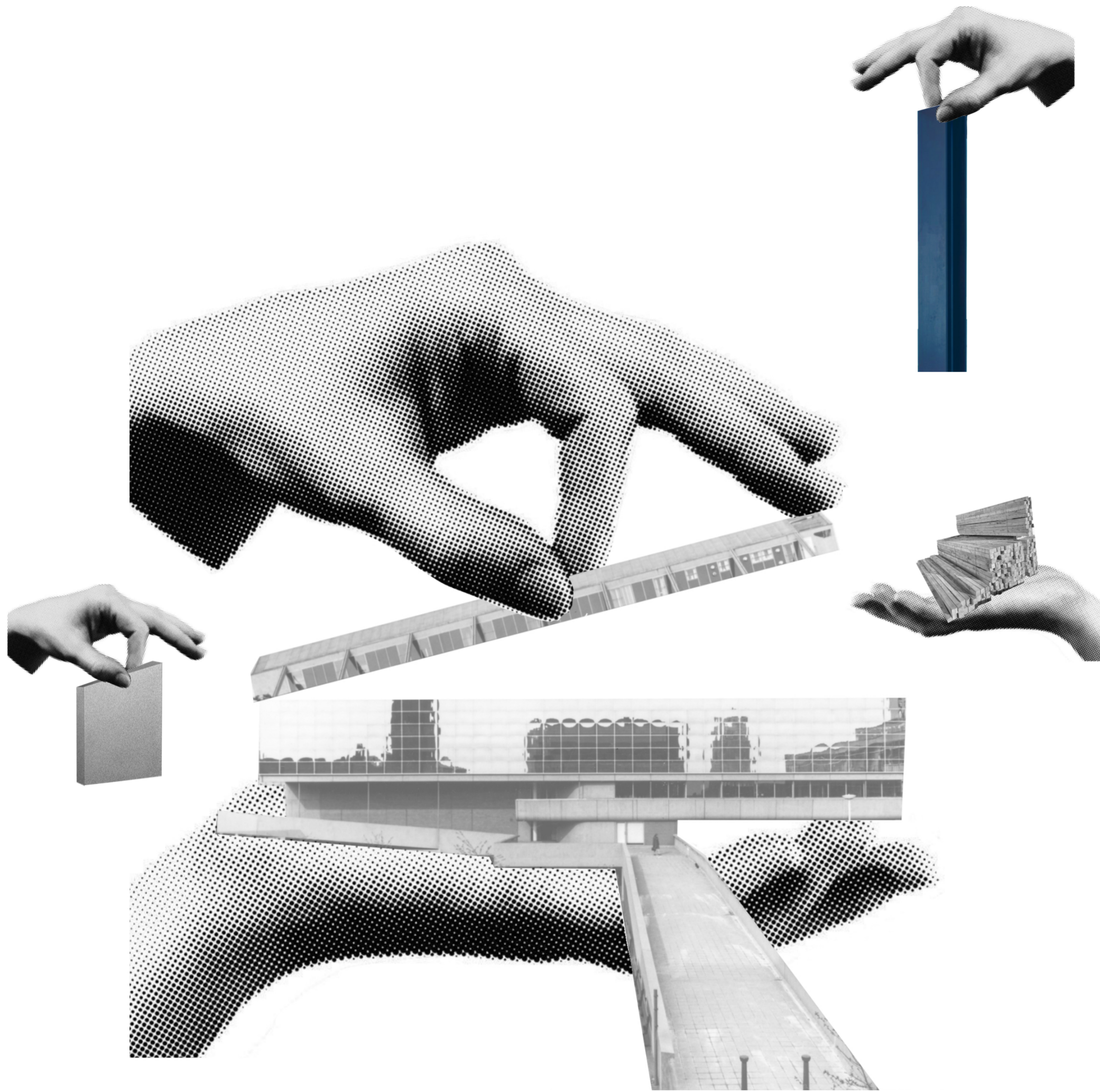
**Daylighting** - Due to the window sill height(910mm) the natural daylight access is limited  
 Close proximity to Ellison Terrace(building to the left) daylight into this section is minimal

**Ventilation**- The site lacks good indoor air quality due to the lack of openable windows throughout. Which means the site relies on mechanical ventilation

**Thermal Mass**- The site already provides insulation within the window build up

**Acoustic Challenges**- Lack of acoustic properties due to hard surfaces such as concrete materials and steel beams and columns

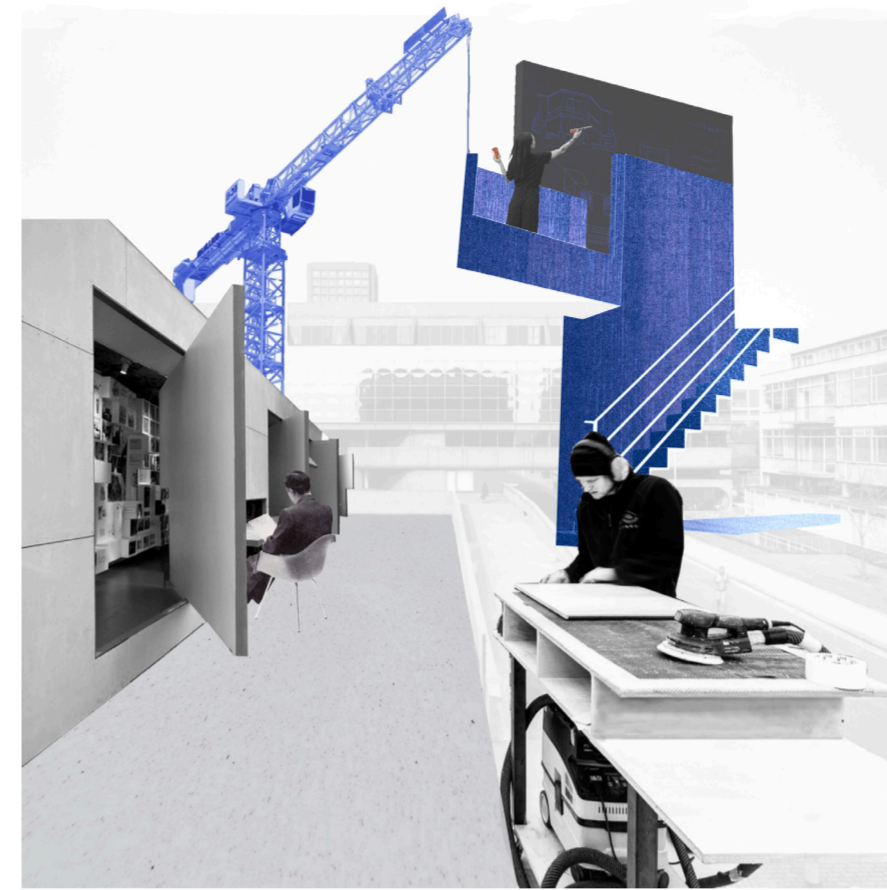
# THE PROPOSAL



## PROJECT AIM

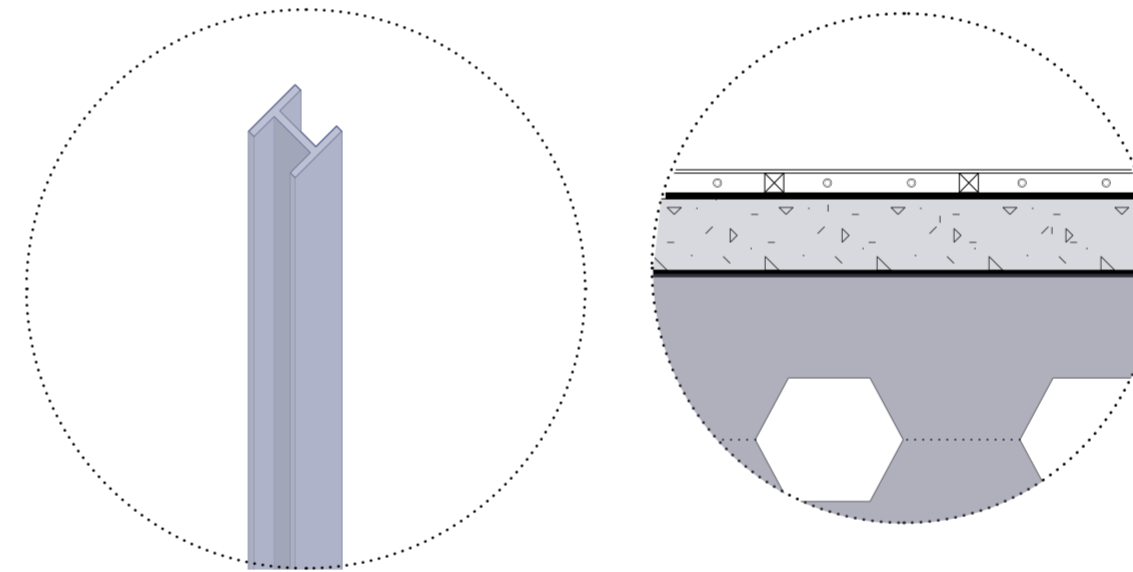
At the core of the design proposal are the principles of reuse, recycle and repurpose which underpin the environmental and material strategies explored. The adaptive reuse of MEA House, effectively responds to the UK's housing crisis whilst preserving the architectural identity. The reuse of the existing concrete structure and steel elements significantly reduces carbon emissions associated to demolition. Material exploration played a key role in creating an identity within the space, the architectural signage of the Valchromat creates a focal point. The project identifies with a holistic approach due to its application to environmental strategies such as greywater systems and improving human comfort within the site.

## REUSE



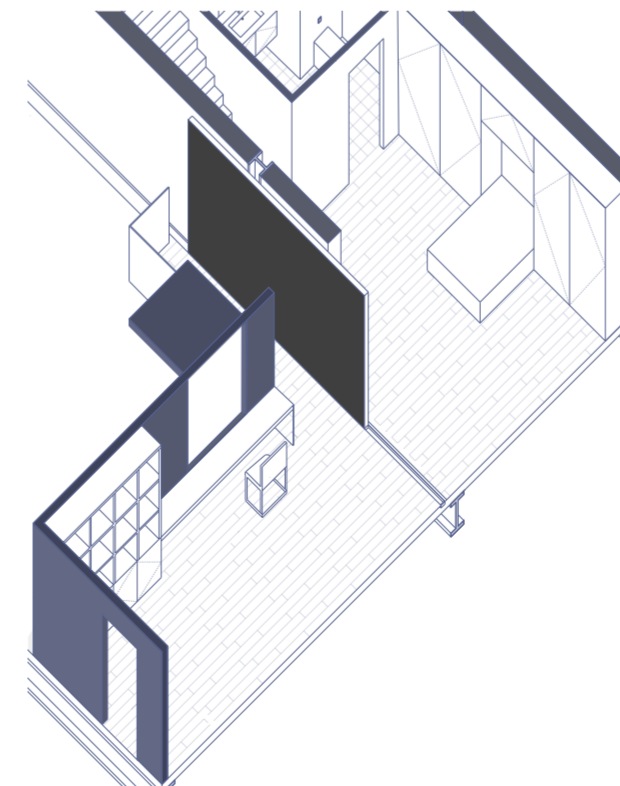
Adaptive Reuse forms one of the three core values underpinning this project, which seeks to retain MEA House's existing fabric and structural framework. By preserving this, it significantly reduces embodied carbon emissions by avoiding the environmental costs associated with construction and demolition. The reuse of this building ensures that it maintains the architectural history and character within the urban context of Newcastle Upon Tyne.

## REPURPOSE



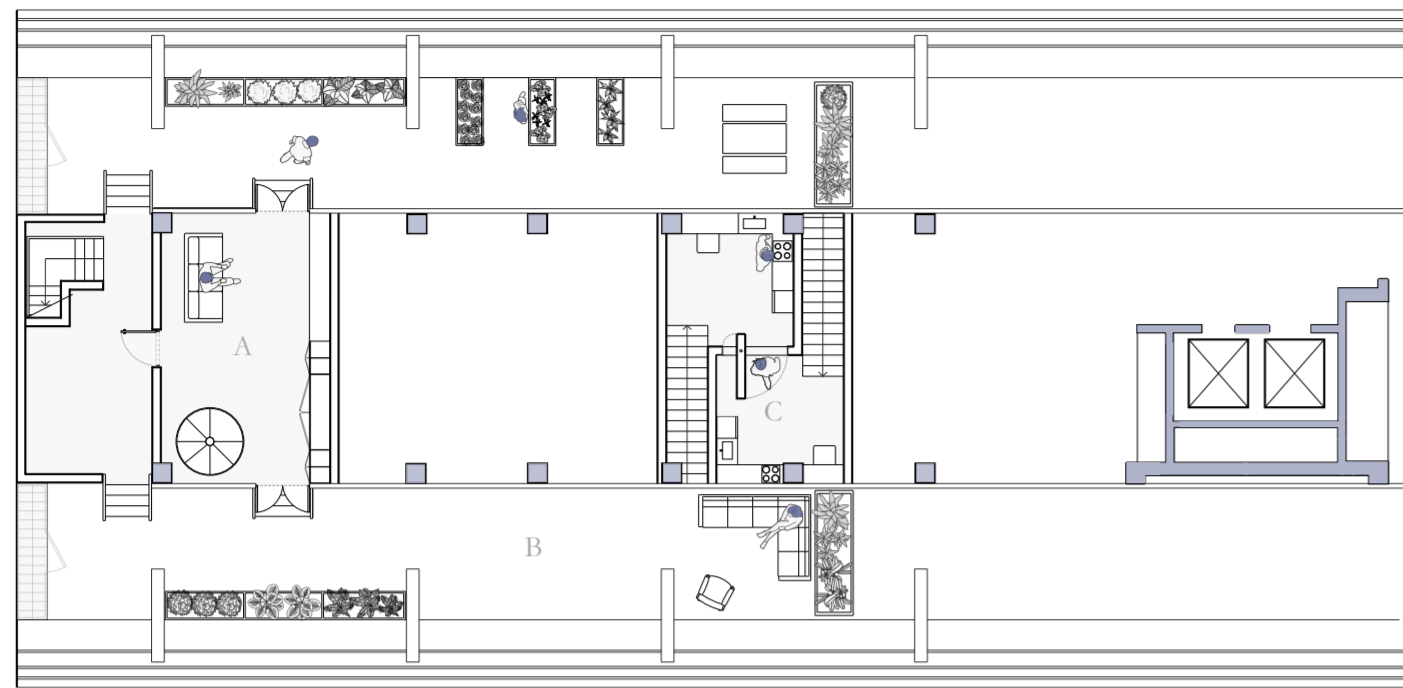
Repurposing the existing structure and materials were a fundamental aspect in representing the heritage of the site. The deliberate exposure of the existing I beams will add to the atmosphere of the space enforcing the repurposing of the structure. The repurposing of the hexagonal castellated beams preserves the building's structural identity. In addition, we reused the 150mm concrete slab for the floor build up throughout the site. This was then adapted by applying underfloor heating to improve human comfort. New reclaimed timber flooring was used to reflect the residential interior and to enhance the existing fabric.

## RECYCLE



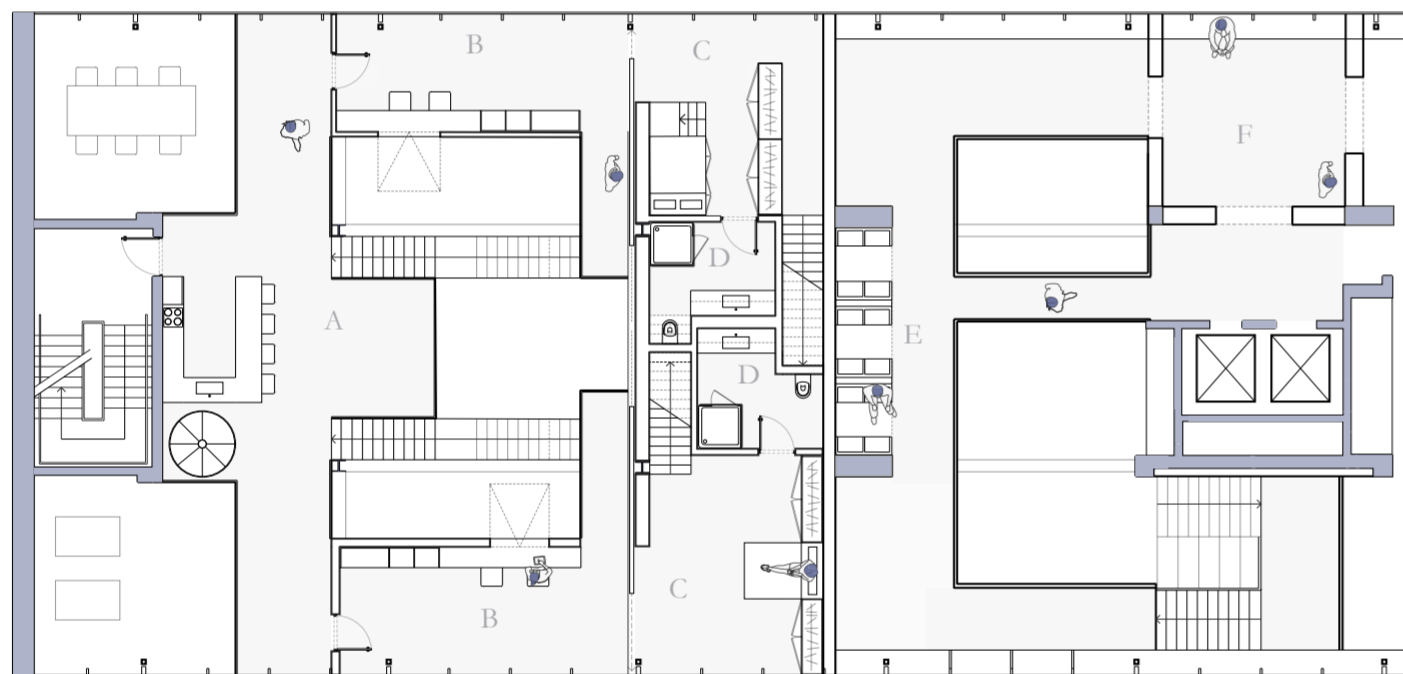
A focus of the project was on the typology of materials used. Where possible, the project aimed for recyclable materials such as reclaimed timber to extend its life cycle which reduces the environmental impacts. For bespoke built-in elements, we opted for softwood birch plywood due to its comparatively low embodied carbon. In addition, the plywood has potential for future reuse and recycling which contributes to the circular economy and in turn reduces waste in landfill. Through these strategies, the project ultimately seeks to reduce construction waste and promote a regenerative approach through material selection.

# INTERVENTION



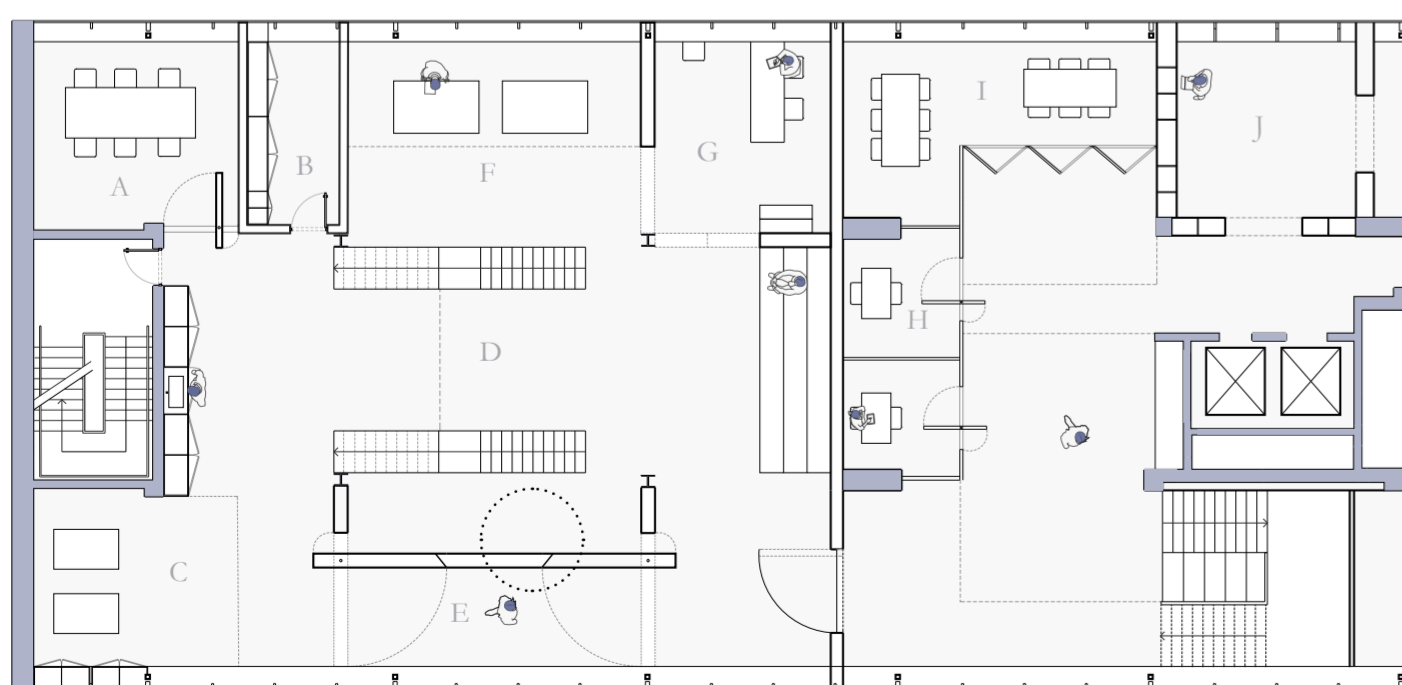
Proposed 5th Floor

- A- Living Room
- B- Outdoor Garden
- C- Kitchenette



Proposed 4th Floor

- A- Kitchen
- B- Studio Space
- C- Bedroom
- D- Bathroom
- E- Seating
- F- Enclosed Library Pod



Proposed 3rd Floor

- A- Meeting Room
- B- Storage Room
- C- Machinery
- D- Workshop Space
- E- Exhibition Space
- F- Work Station
- G- Drawing Room
- H- Enclosed Study Spaces
- I- Communal Study Space
- J- Enclosed Library Pod

The intervention works with the existing concrete elements, highlighted with blue, to create a response that aligns with the structure.

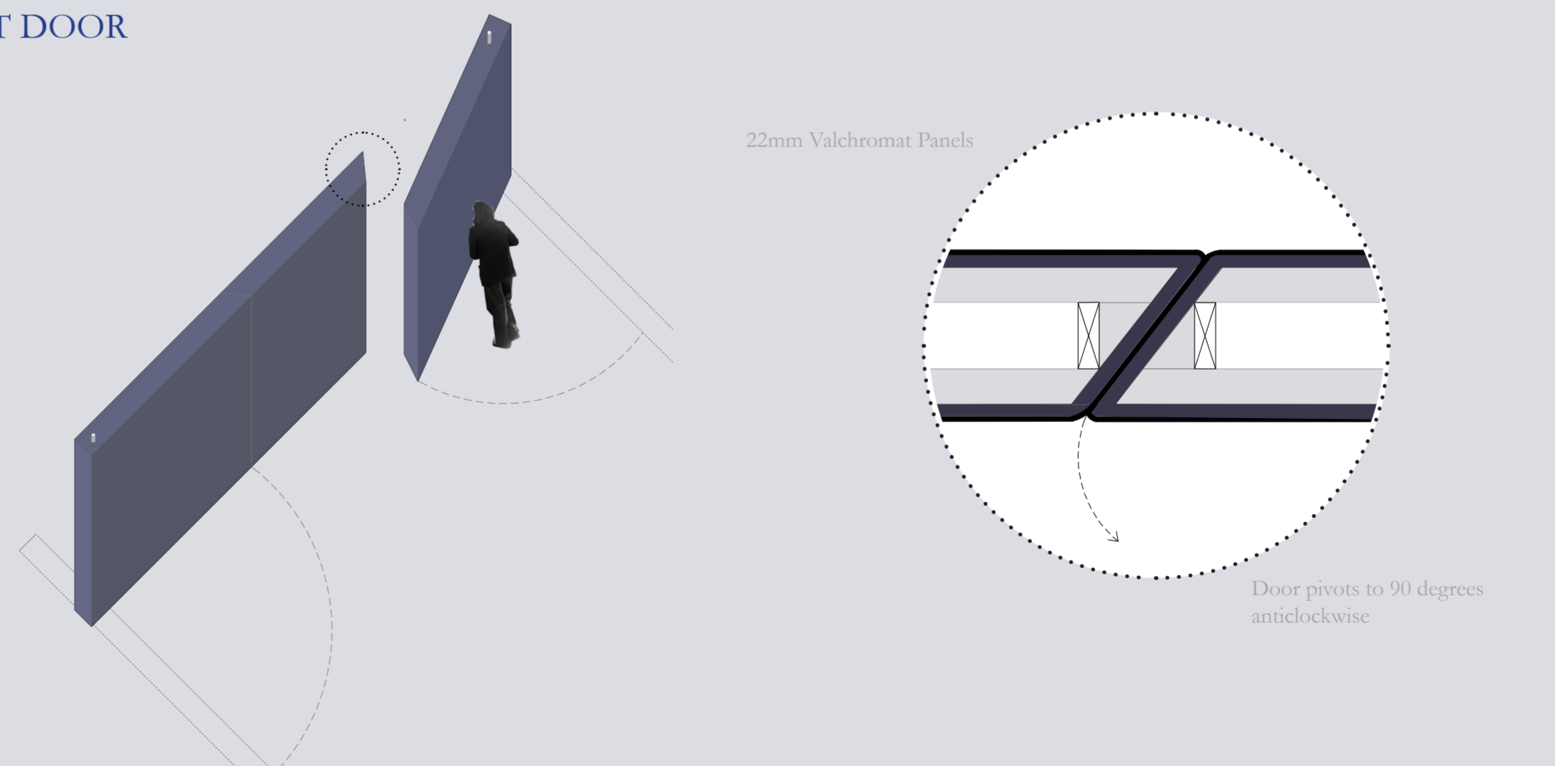
 Existing Concrete Elements

## Pivot Door

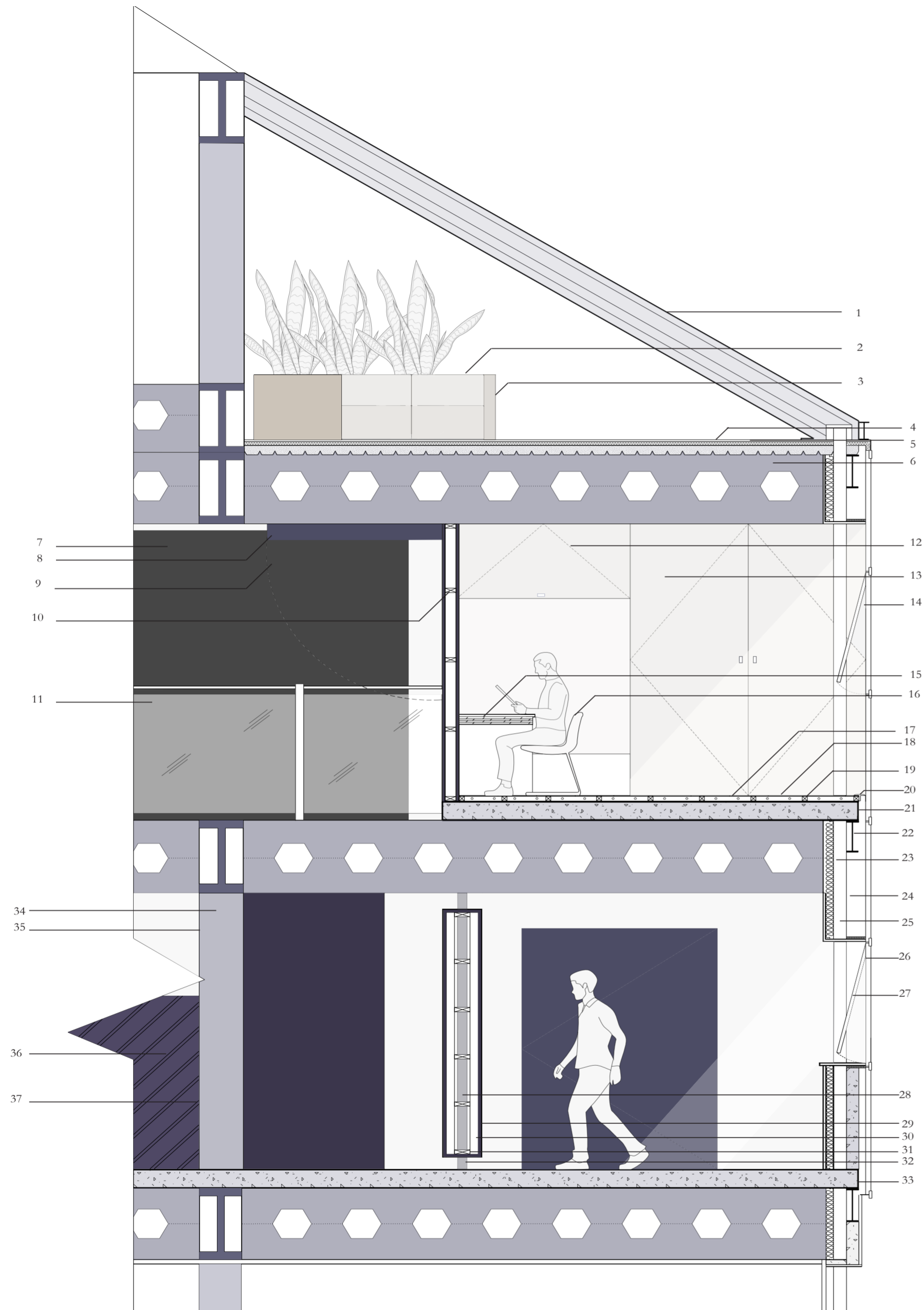
A main design feature are these large pivoting doors. The adaptable feature allows residents to create a multitude of configurations to support their workshop. Made of Valchromat, the material is not only a sustainable option but serves to provide a tactile experience for the users, creating a focal point within the space. Valchromat is a through dyed MDF that uses waste wood fibres and organic non-toxic dyes. The material has a relatively low embodied carbon due to its timber origins. Valchromat is also more durable and long lasting in comparison to typical MDF panels.



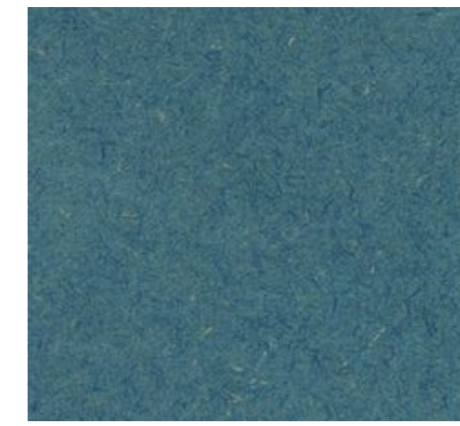
## PIVOT DOOR



# MATERIALITY



EXISTING CONCRETE



VALCHROMAT

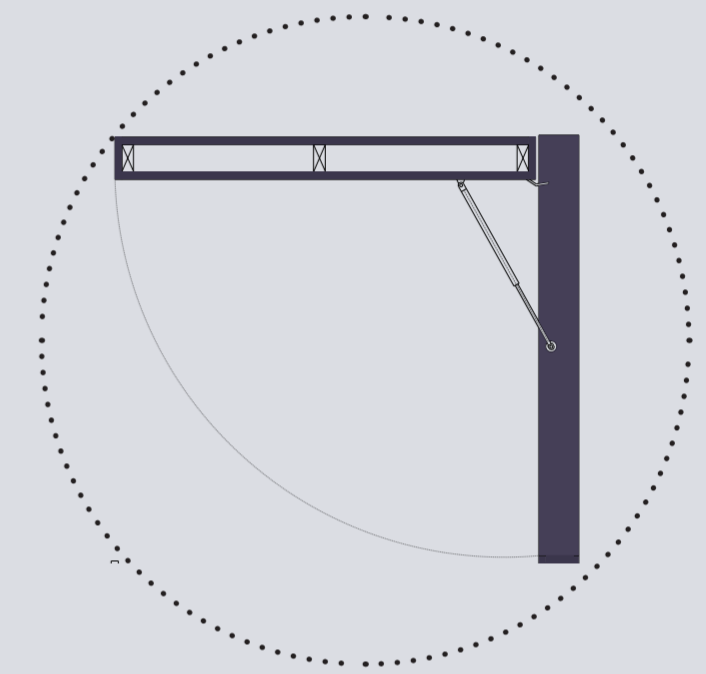
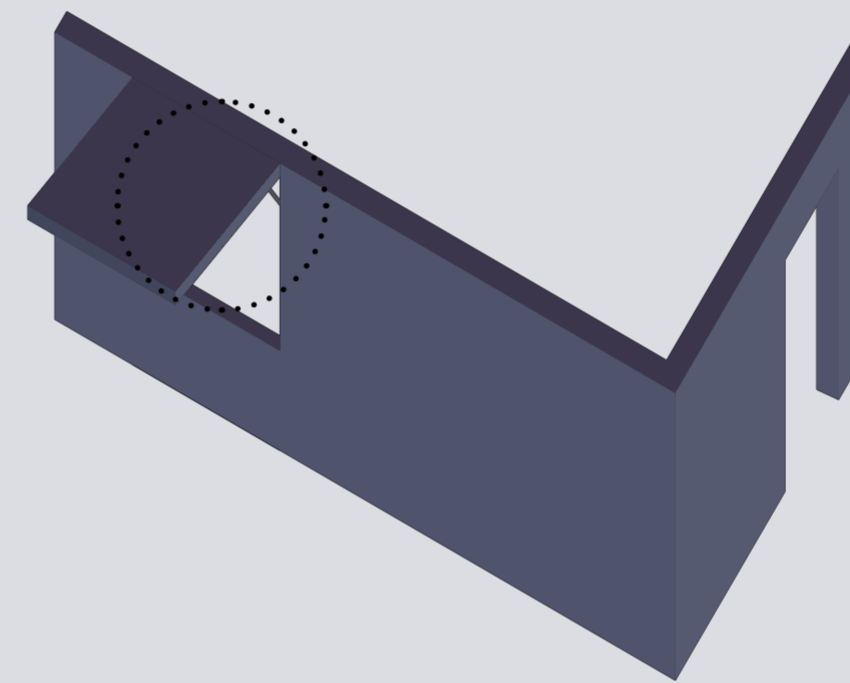


BIRCH PLYWOOD



WOOD FIBRE INSULATION

## INSERTION



Hafele Gas Strut- creates a 90 degree folding internal window

- 1. Vierendeel Truss
- 2. Garden Planters
- 3. Outdoor Seating
- 4. 20mm Decking
- 5. Existing Insulation
- 6. Hexagonal Castellated Beams

- 7. 18mm Plywood Lining w/ ChalkBoard Paint Finish
- 8. 22mm Valchromat
- 9. Folding Element from Hafele Gas Strut
- 10. 38mm Timber Joists
- 11. 12mm Glass Balustrade

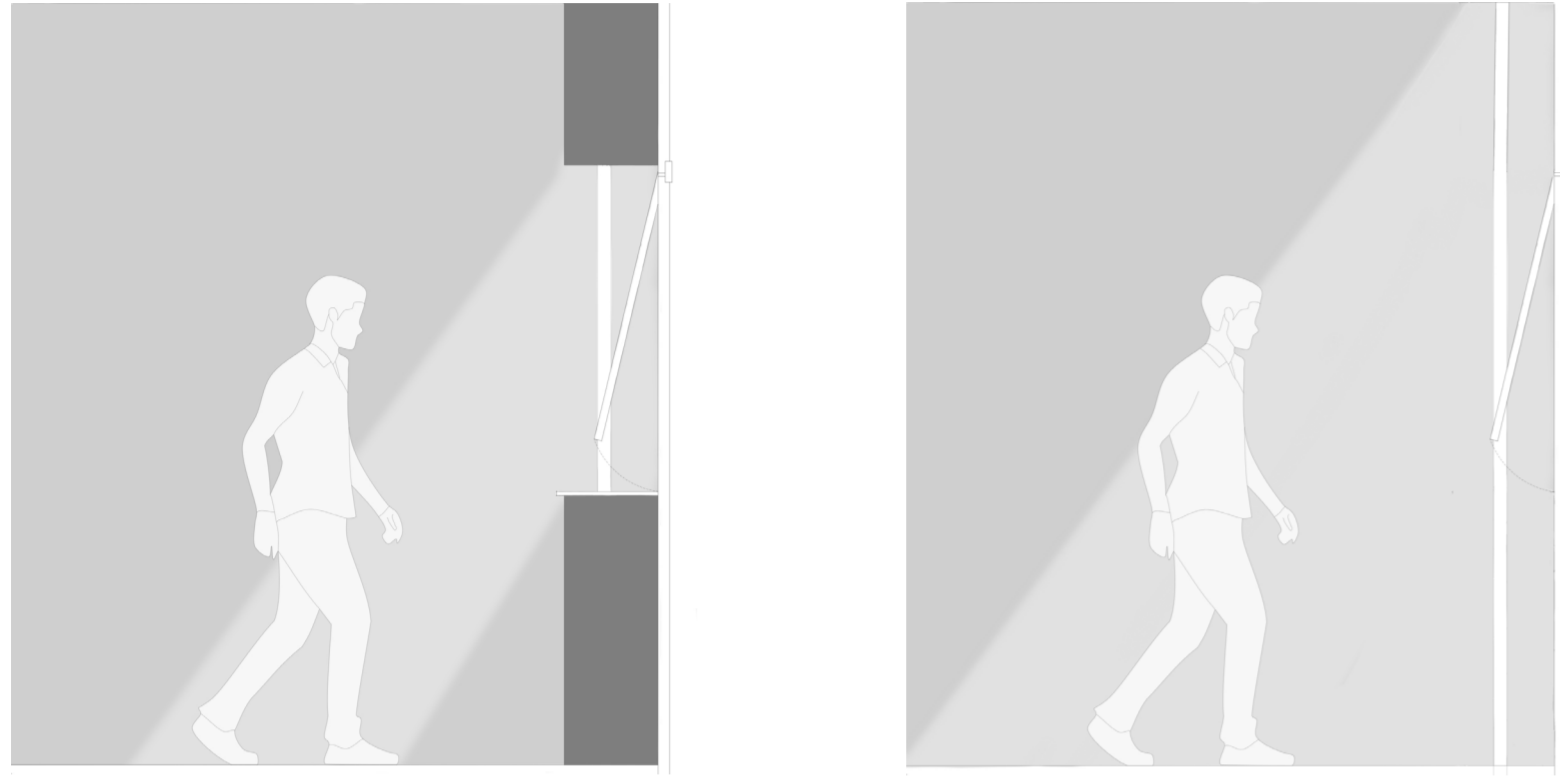
- 12. 18mm Birch Plywood Faced Cabinet
- 13. 18mm Birch Plywood Built in wardrobe
- 14. Openable Window
- 15. 18mm Birch Plywood desk
- 16. Chair
- 17. 12mm Reclaimed Timber Flooring
- 18. Under Floor Heating
- 19. 38mm Timber Battens
- 20. T Bar Theshold
- 21. Existing 150mm Concrete Slab

- 22. Existing I Beam
- 23. Existing Insulation
- 24. Existing Window Sill
- 25. Vertical Hangers
- 26. Glass Facade
- 27. Openable Window

- 28. 75mm diam. CHS- Stainless Steel
- 29. 22mm Valchromat
- 30. Steel Frame 90mm
- 31. 38mm Timber Joists
- 32. 140mm gap between wall and floor
- 33. Exposed Existing Concrete

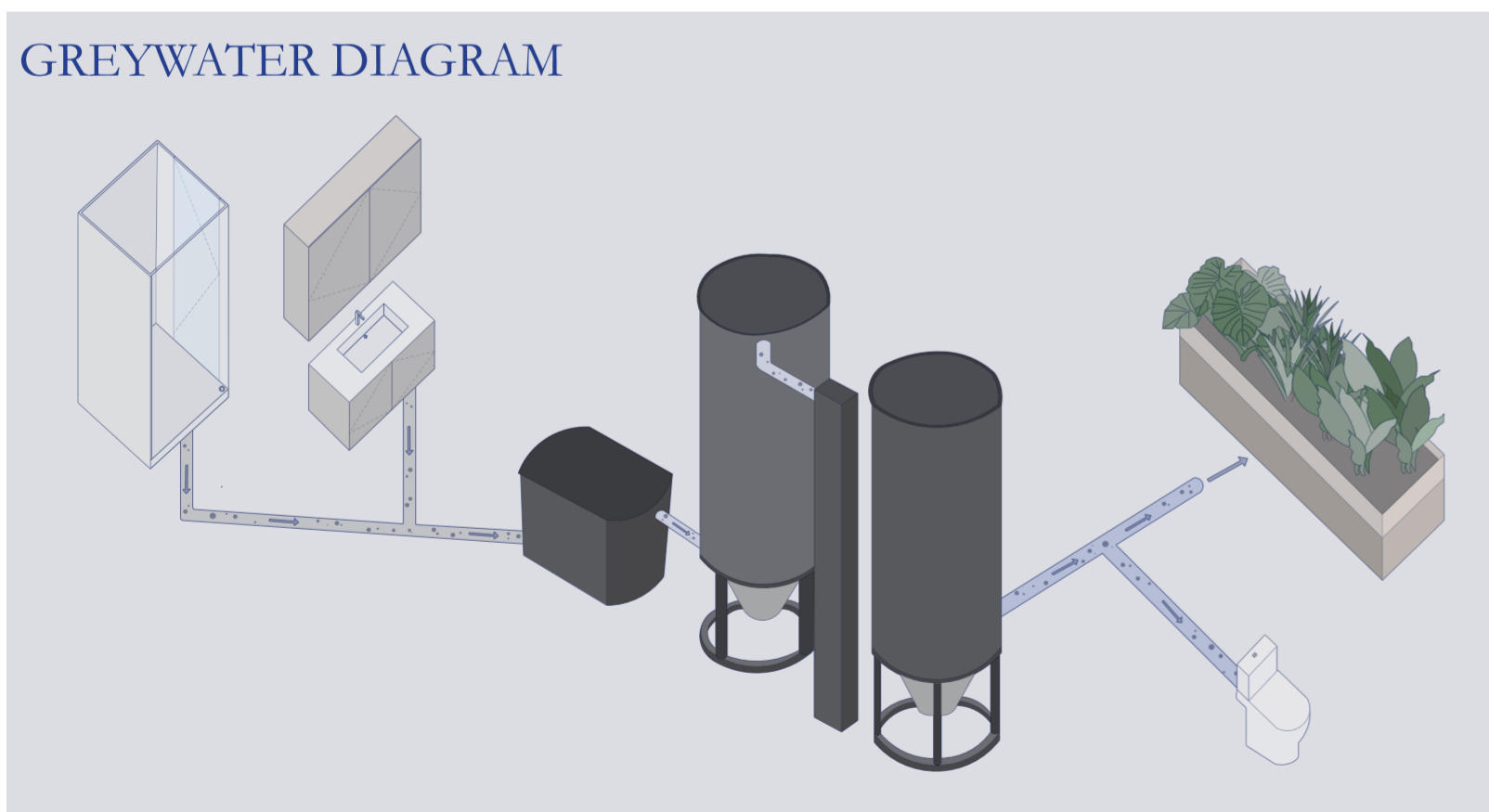
- 34. Exposed I Beams
- 35. Intumescent Paint Coating
- 36. Steel Staircase
- 37. 3mm Perforated Steel Balustrade

# ENVIRONMENTAL

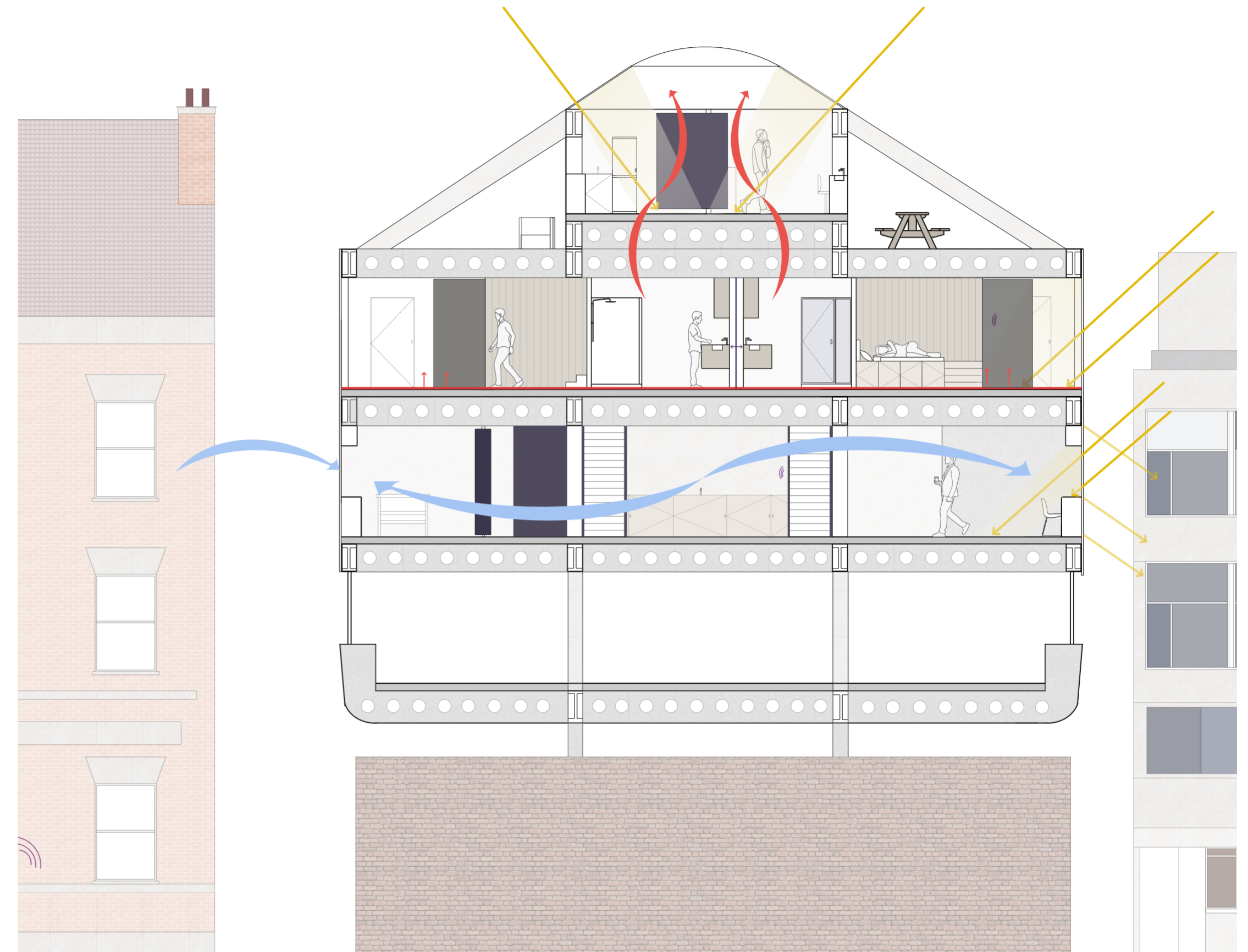


To adapt the site to this project, the removing of the windowsills will increase the level of natural sunlight into the building to reduce the need for artificial methods of heating the site. To provide good wellbeing, we are implementing openable windows throughout the site which creates visual connections to the outside. In addition, this will create a space with good indoor air quality for thermal comfort in comparison to the current state of the site. To further this, there will be increased sunlight into the site from the larger windows from the removing of the preexisting windowsills and the skylight in the centre of the site which travels down the triple height void.

## GREYWATER DIAGRAM



Due to the site being a large residential building, the use of greywater recycling can significantly reduce mains-water usage. So, it can be used for toilet flushing which repurposes wastewater from showers. This is particularly sustainable for the irrigation of the outdoor garden which spans the rooftop of the 5th floor. Which will significantly lower costs.



## Environmental Strategies

Daylighting- Removing the window sill where possible to maximise the natural sunlight into the site

- Skylight added into central location of the Artist-in-Residence for natural sunlight to enter through all levels due to triple height void

Thermal Strategies- Wood Fibre insulation added throughout the site for insulation and a more sustainable alternative

Ventilation- Natural Cross Ventilation through the new openable windows

- Mechanical Ventilation added through a HVAC System for improved ventilation and particularly for machinery in the workshop space

Acoustic Strategies- Wood Fibre Insulation provides acoustic properties,

- The rooftop garden provides some acoustic properties from the noise pollution due to the close proximity to the road

- Valchromat Material- Denser MDF panels which provide sound absorption and diffusion

Comfort- Under Floor Heating provides further thermal comfort for residents in their private residential spaces

Water Supply- Low Flow Fittings are applied to the sinks, taps and showerheads.

- Where possible greywater recycling takes place to supply the outdoor garden