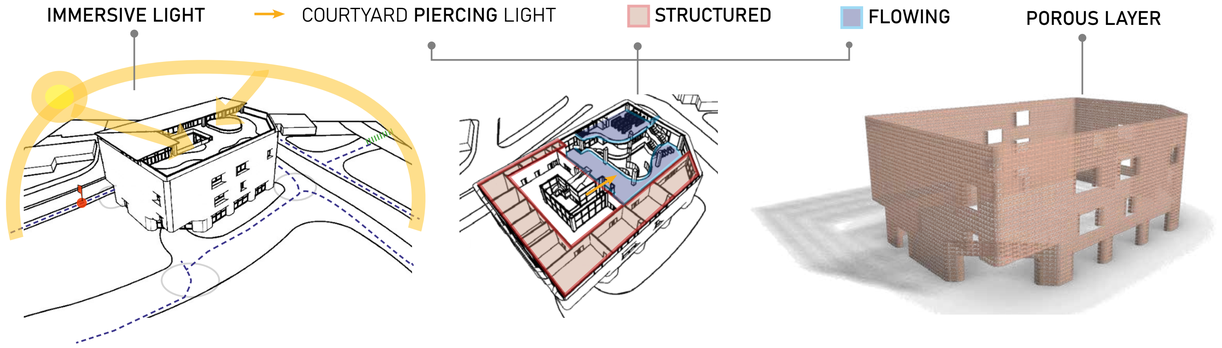
HUDDERSFIELD **FOOD** AND **STUDY** CENTRE

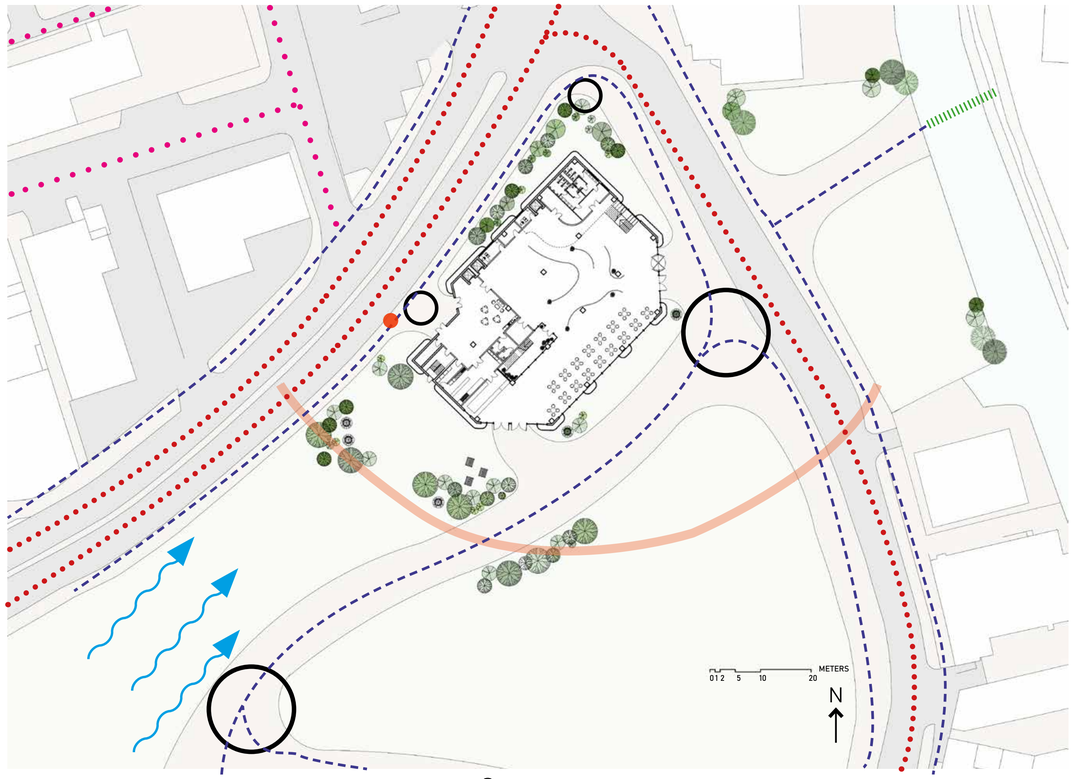
BY AMY GALEA

KEY CONCEPT WORDS

Setting an example for the future, and educating the following generations, both in food and architecture. Thinking about the necessities food, plants and animals need and translating it into an architectural language. Connecting to the heart of our planet, grasping influence from the site and food research, to create a unique, inspirational food research centre.

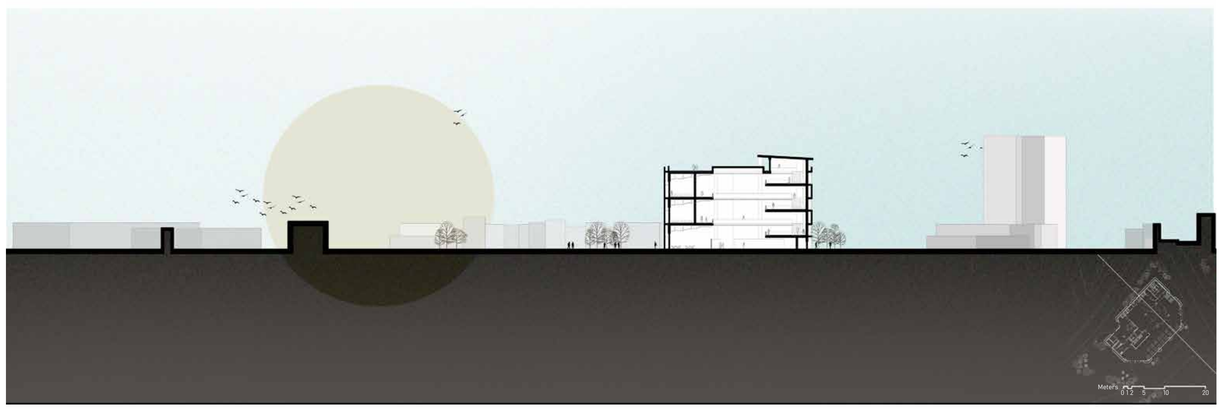


DESIGN STRATEGY PLAN



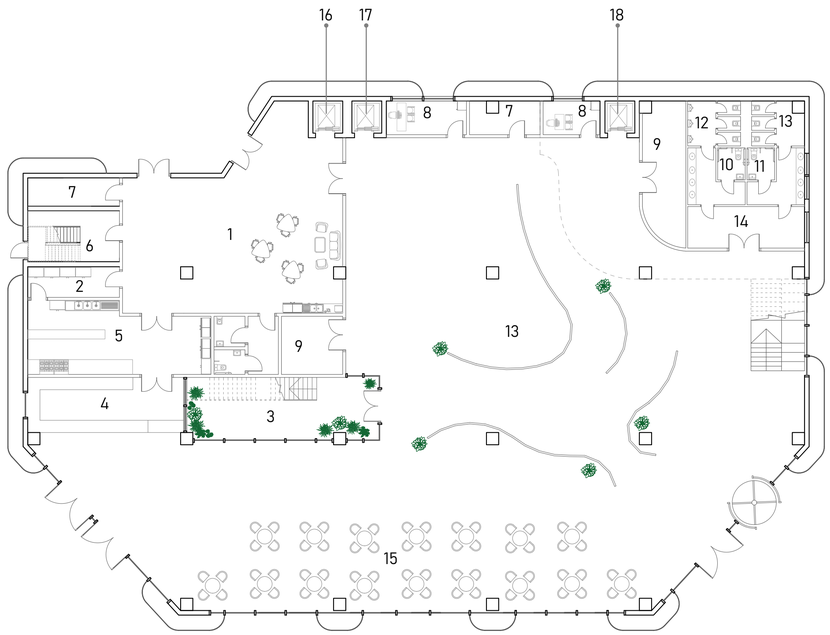
LOCATION PLAN
1:750

SITE PLAN

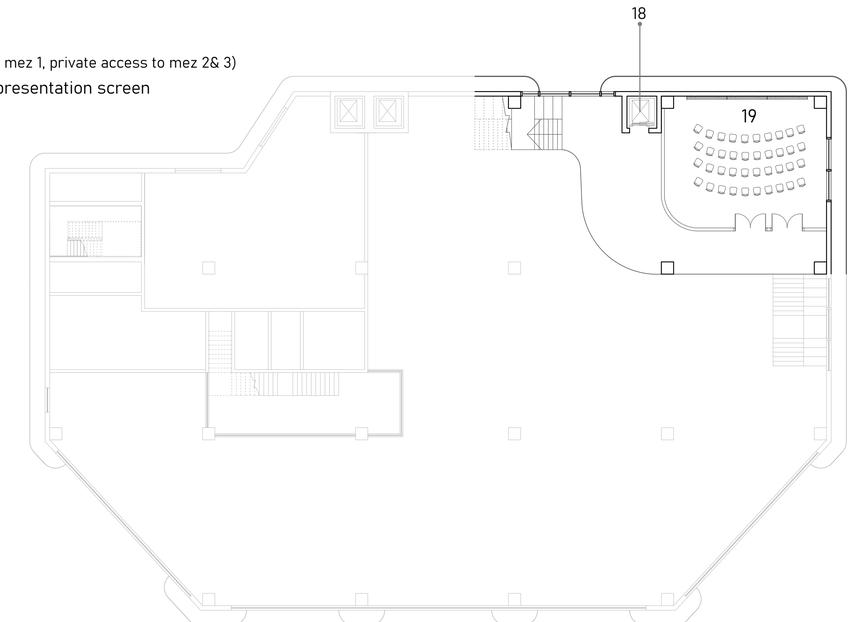


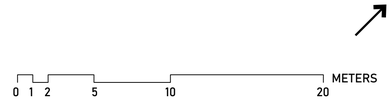
SITE SECTION
1:750

1. Private reception area with staff break space
2. Kitchen storage room
3. Stacked courtyards Ground Level
4. Coffee counter
5. Large Kitchen
6. Fire exit
7. General storage
8. Small offices
9. Exhibition Storage



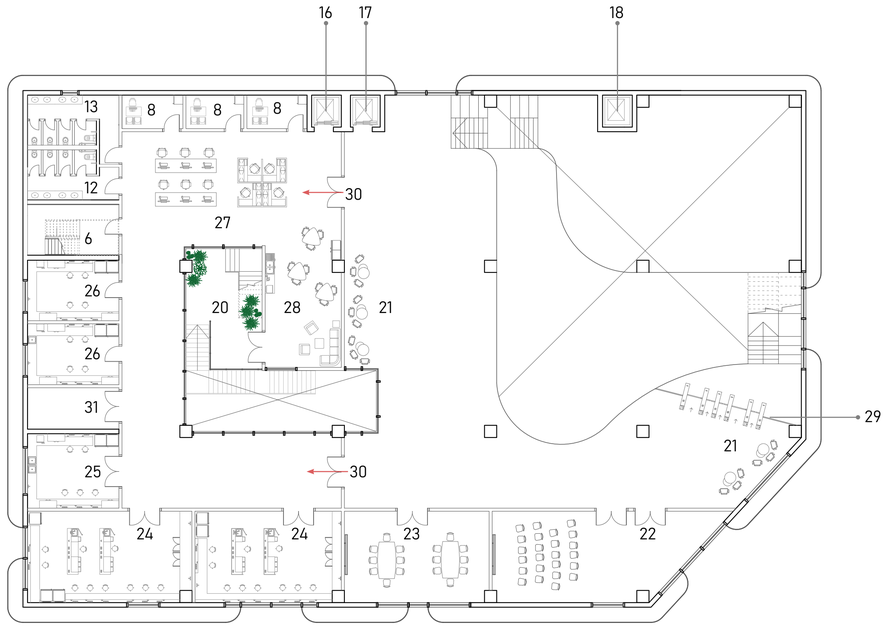
10. Male accessible toilet
11. Female accessible toilet
12. Male toilets
13. Female toilets
14. Bathroom break out space
15. Cafe seating
16. Private lift (Staff card activated)
17. Public lift
18. Mezzanine Lift (Public access to mez 1, private access to mez 2& 3)
19. Large conference room, with presentation screen



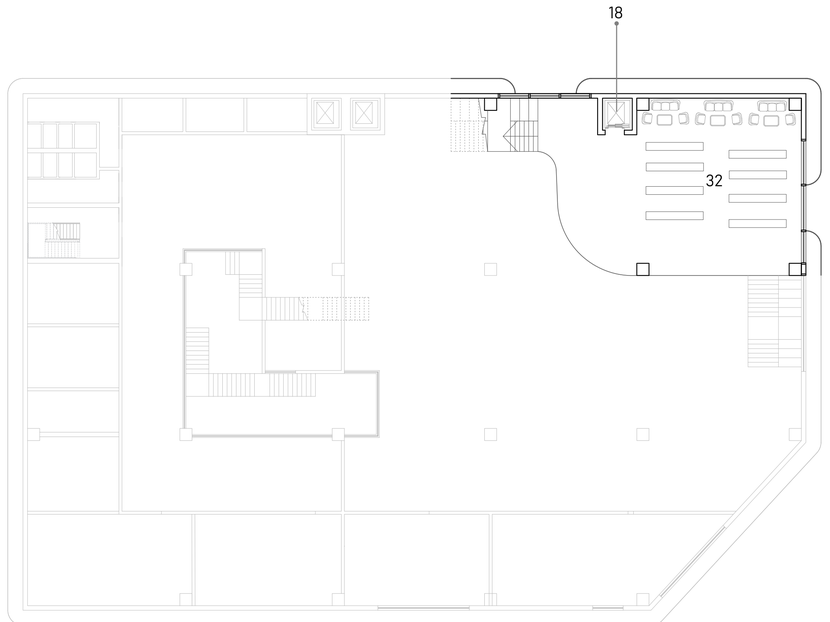


FLOOR PLANS

6. Fire exit
8. Small offices
12. Male toilets
13. Female toilets
16. Private lift (Staff card activated)
17. Public lift
18. Mezzanine Lift (Public access to mez 1, private access to mez 2& 3)



20. Stacked courtyards Level 1
21. Break out seating
22. Public access: Medium conference space with presentation screens
23. Public access: Flexible meeting room
24. 10 person laboratory
25. 4- 5 person laboratory
26. 4 person laboratory
27. Open pan office space
28. Kitchenette and break space
29. Private access barriers
30. Private access doors
31. Laboratory storage
32. Specialised Library



FLOOR PLANS

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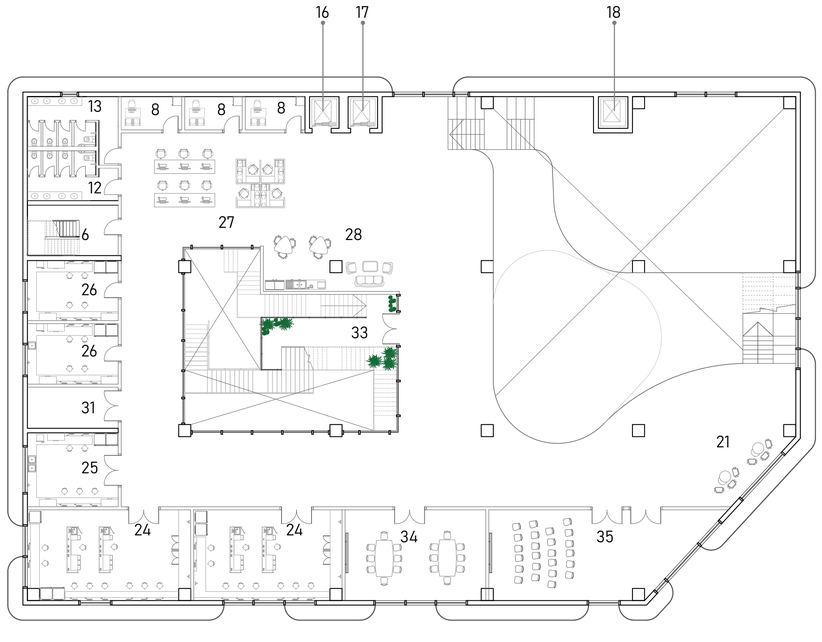

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27. Open pan office space
28. Kitchenette and break space
31. Laboratory storage
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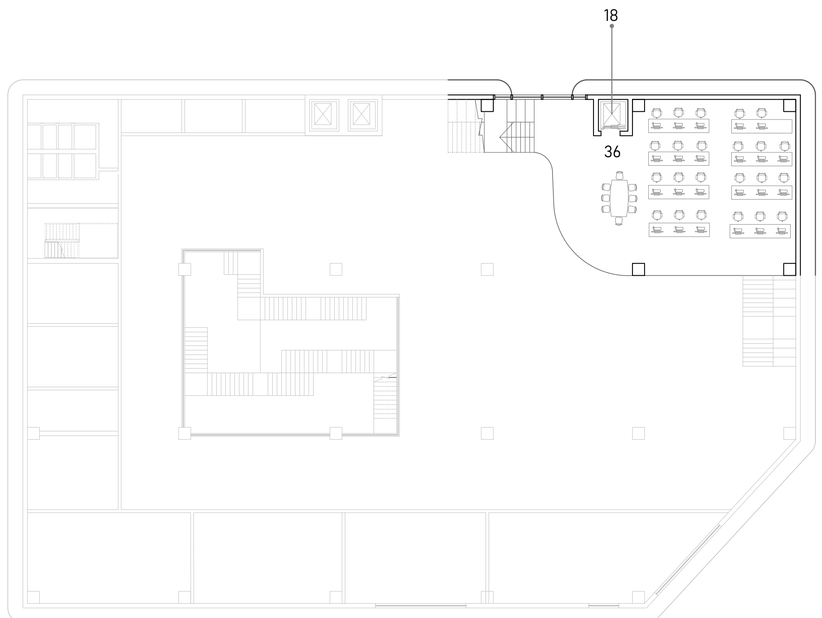
34. Private access: Flexible meeting room
35. Private access: Medium conference space with presentation screens
36. IT computer floor



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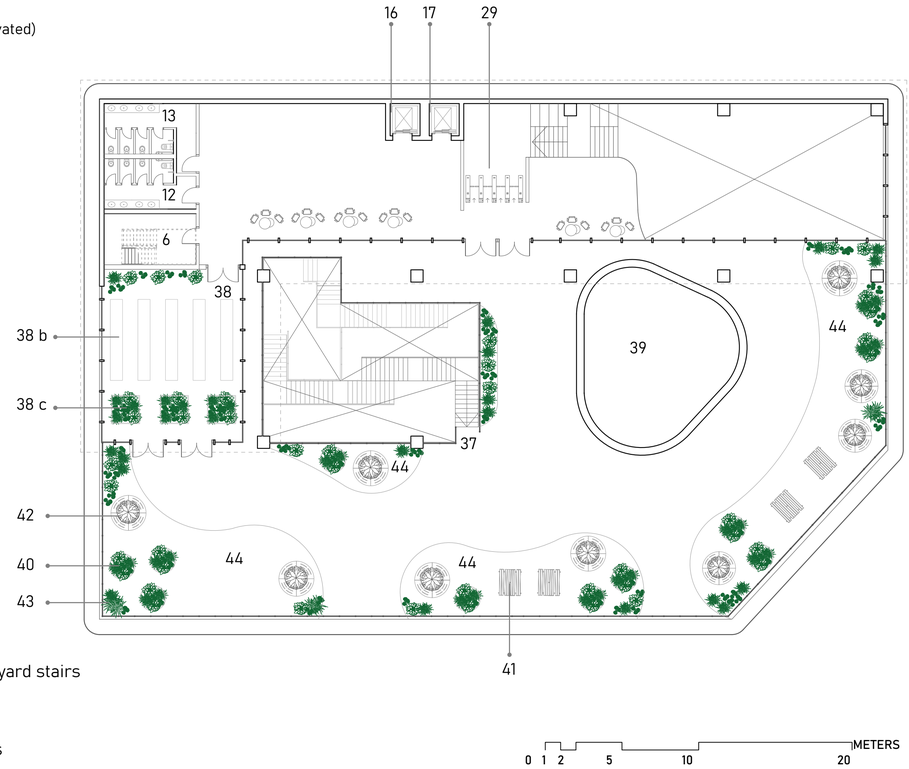
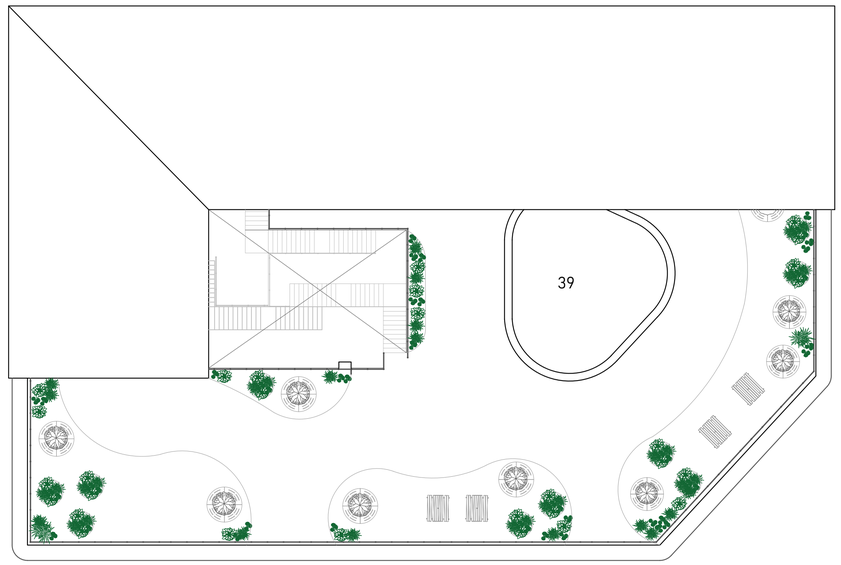
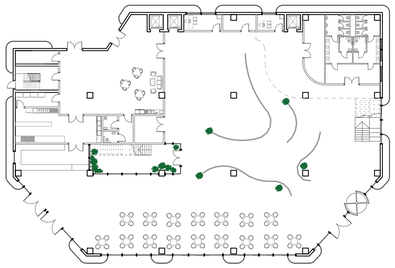


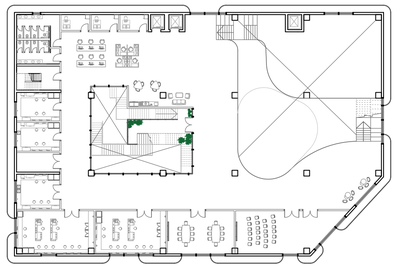
37. Access to roof via courtyard stairs
38. Indoor greenhouse
38 b. Shelved planting
38 c. Squared planting beds
39. Skylight
40. Circular planting beds
41. Outside picnic benches
42. Circular benches
43. Potted plants
44. Grassed areas



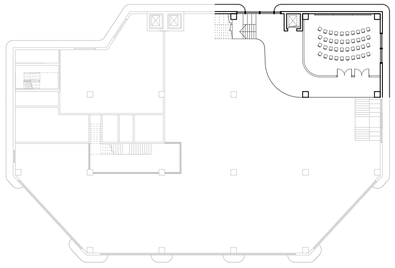
GROUND FLOOR



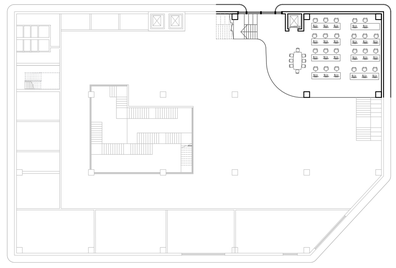
2nd FLOOR



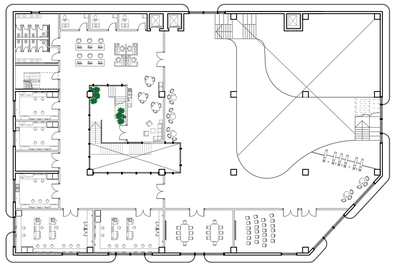
MEZZANINE 1



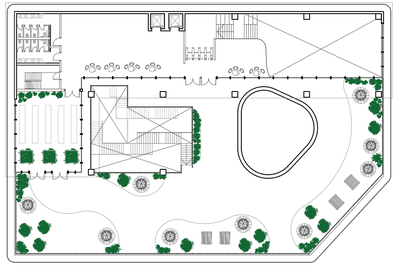
MEZZANINE 3



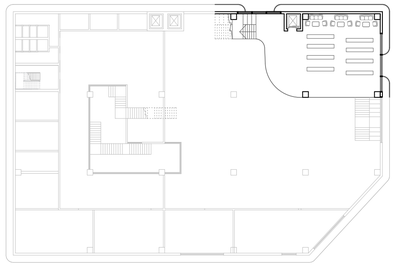
1st FLOOR



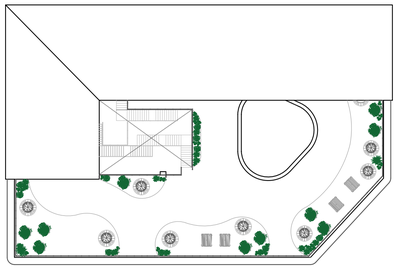
3rd FLOOR

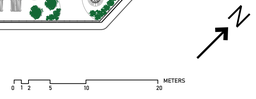


MEZZANINE 2

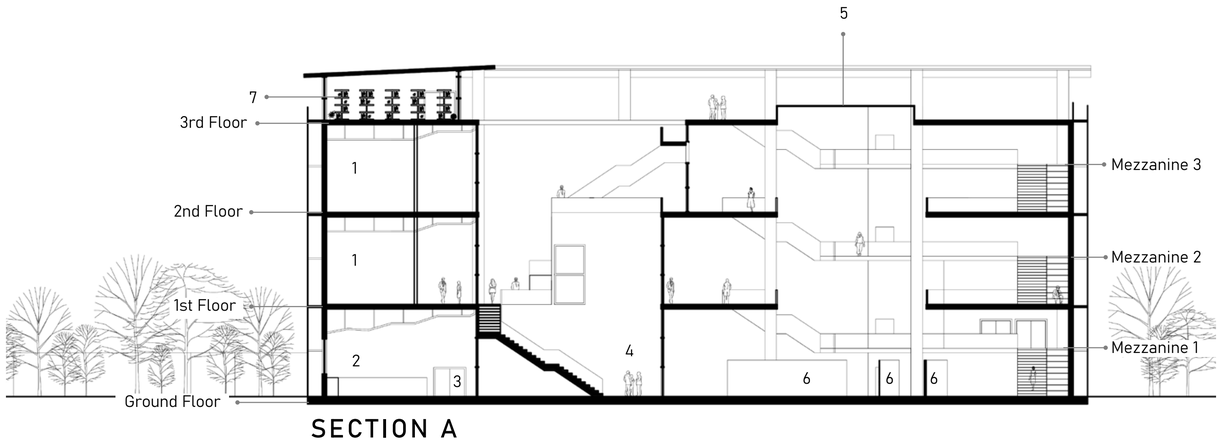


ROOF PLAN



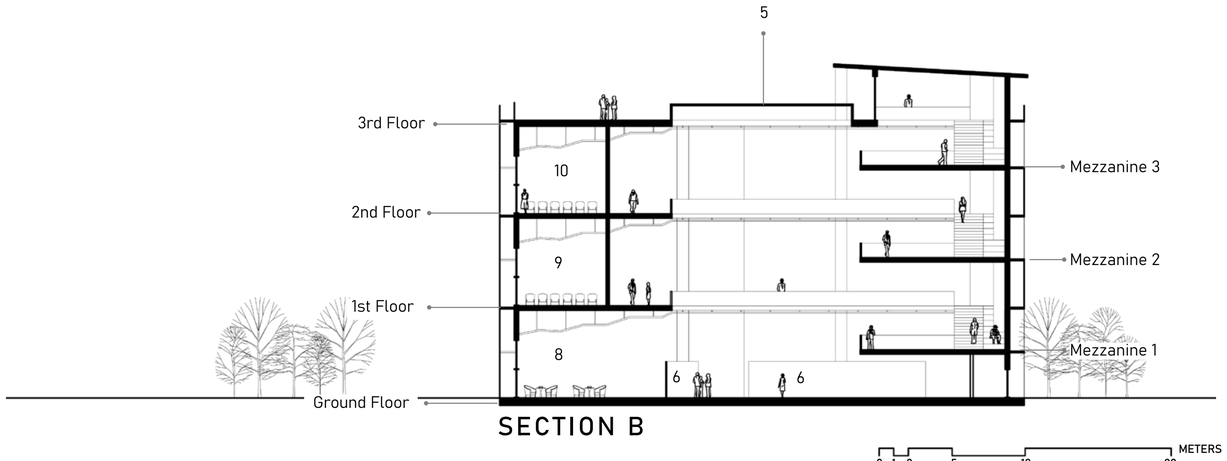


GROUND FLOOR PLAN TO ROOF PLAN

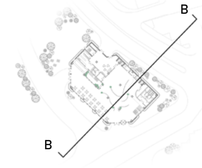


SECTION A

1. Laboratory storage room
2. Coffee counter
3. Door to the Kitchen
4. Stacked courtyards
5. Atrium Skylight
6. Exhibition stands
7. Shelved planting



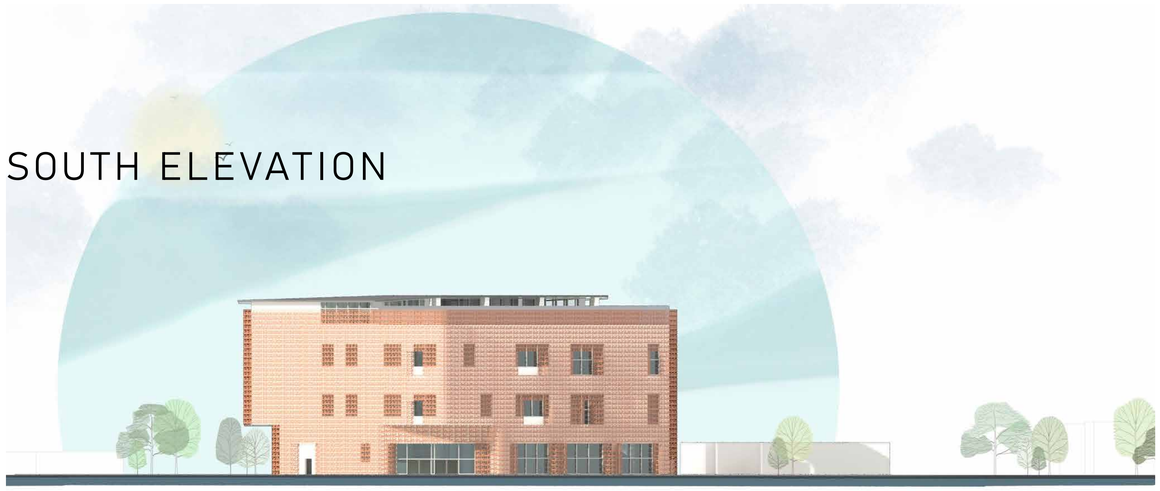
SECTION B

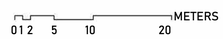


5. Atrium Skylight
6. Exhibition stands
8. Cafe seating
9. Public access: Medium conference space with presentation
10. Private access: Medium conference space with presentation

SECTIONS

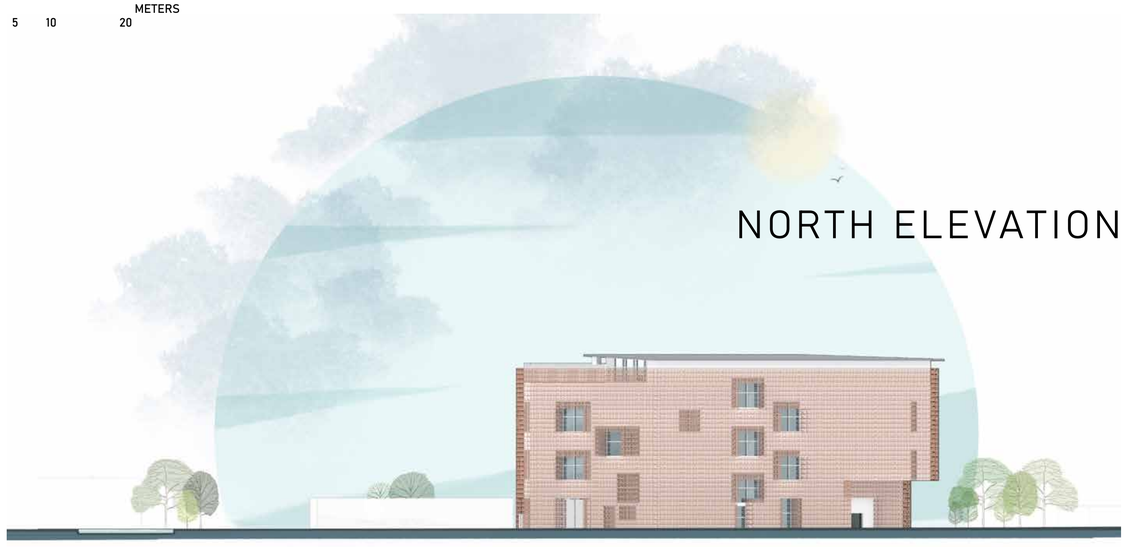
SOUTH ELEVATION

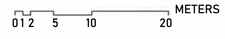




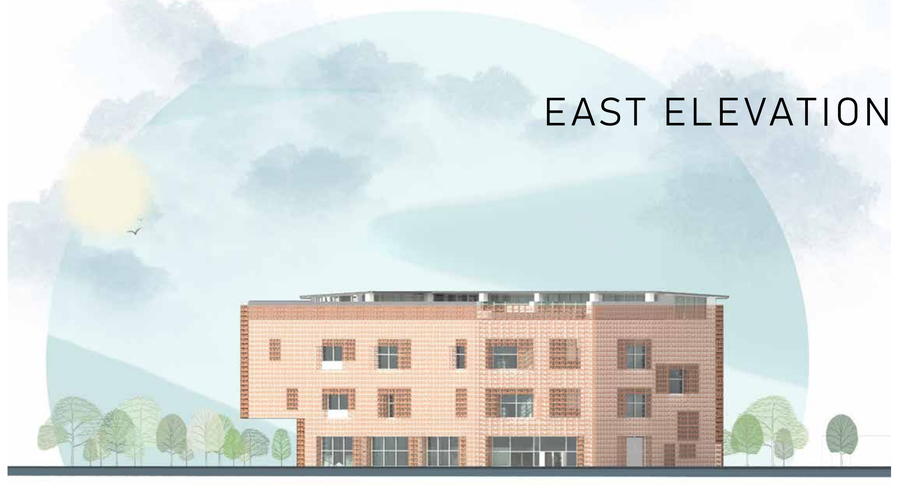
WEST ELEVATION

NORTH ELEVATION





EAST ELEVATION



HUDDERSFIELD **FOOD** AND **STUDY** CENTRE

EXTERIOR VIEW

GROUND FLOOR CAFE SEATING

2nd FLOOR CORRIDOR

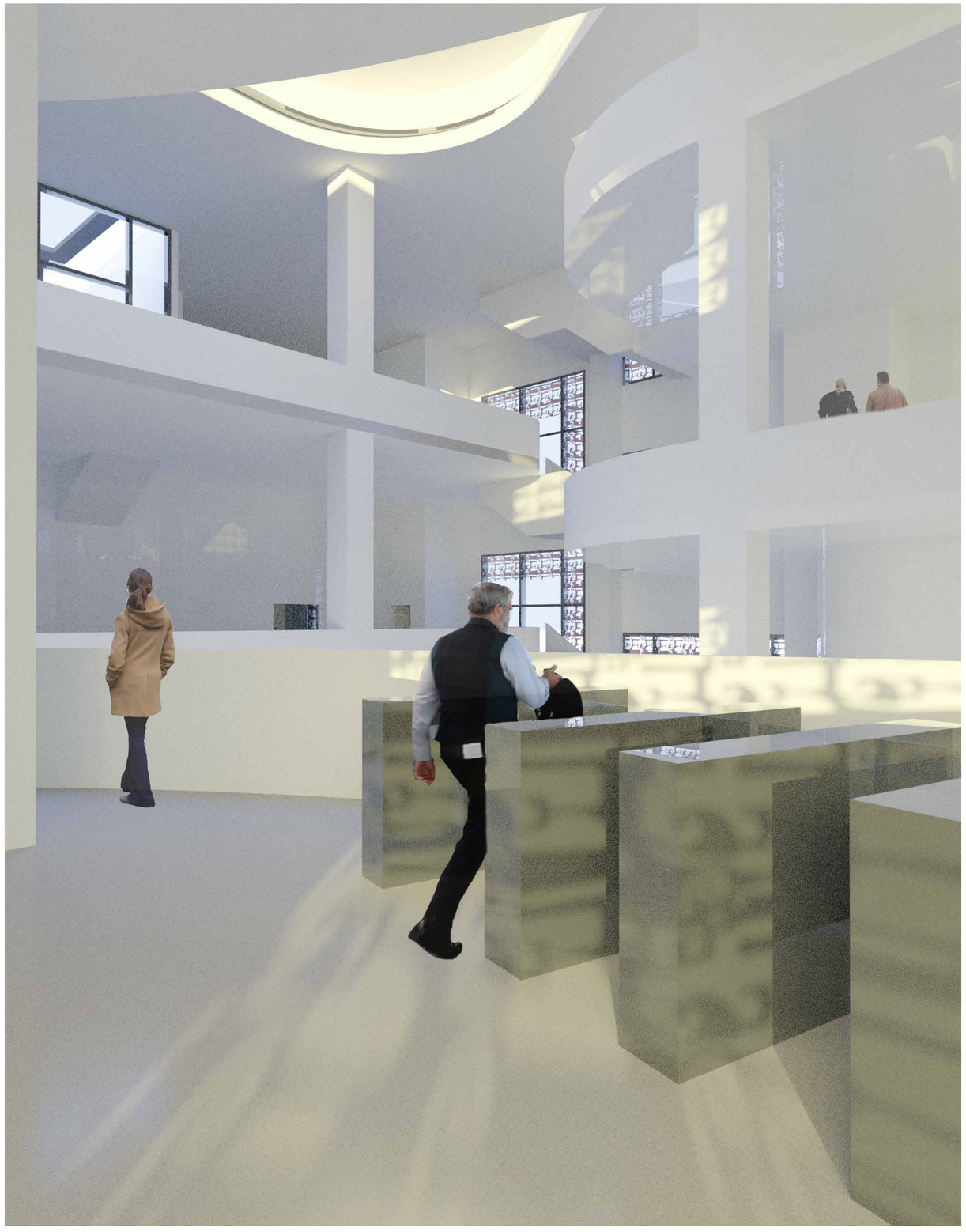
1st FLOOR COURTYARD

STAIRS TO MEZZANINE 1 : ATRIUM VIEW

LARGE LABORATORY

VIEW FROM OPEN PLAN OFFICES

URBAN ROOF



DIFFUSION OF LIGHT : ATRIUM VIEW

1. Atrium sky light: The atrium skylight is raised by 1 meter from the urban roof to allow for the placement of vents creating a way for the heat to rise and escape through the atrium skylight.

2. Slightly slanted roof: Slightly slanted roof to allow for correct drainage, as well as opening up the glazed wall to the sun.

3. Glazed wall: Open glazed ribbon wall, open and airy interaction with the inside 4th floor and the urban roof.

4. Urban roof: Organically organised roof layout, creating a journey in order for the interaction with nature, and social interaction. Carefully placed circular plant beds, large potted plants and a range of outdoor furniture. This decision was made in order to reduce maintenance and the load larger trees would create whist keeping the important interaction with vegetation and nature.

5,5b,5c. Stacked courtyards: The stacked courtyards pierce through the floor planes creating a light-well infiltrating the organised private laboratories and office spaces. This created lots of connectivity with light and airiness throughout the floors. Ground floor has public access to the courtyard system that brings them up to the urban roof, on floors 1 and 2 they courtyards have private access for the staff to access the courtyards via card operated doors.

6,6b. Organised facilities: 6 and 6b highlight how the private facilities where arranged in a controlled organised way, influenced by my concept inspired by the controlled organised floors system we see within the food cycle from harvesting to consumption. The laboratories also required clear circulation around to allow for movement of equipment.

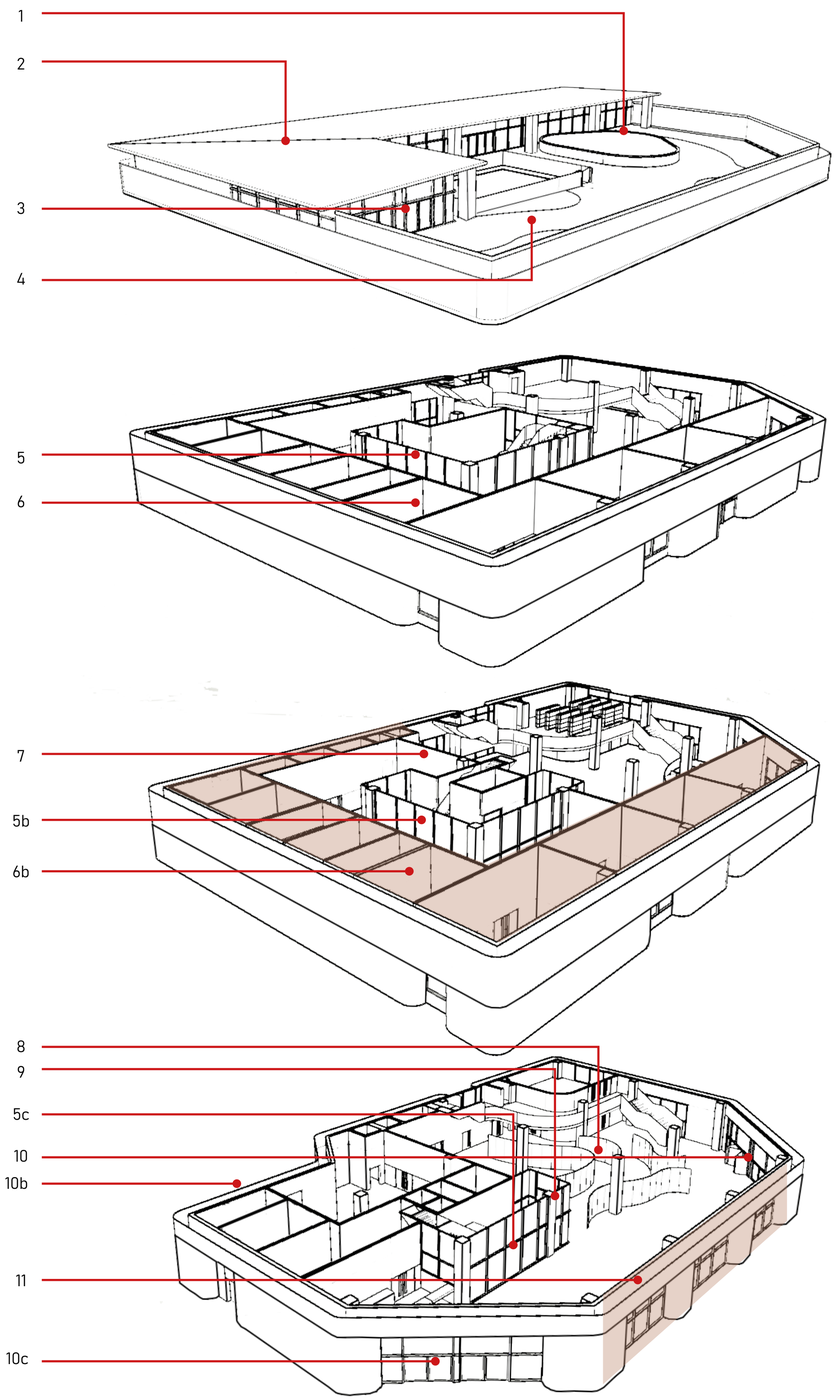
7. Separating wall: This separating wall allows for 40% of the 1st floor to be accessed by the public and the other 60% to be private spaces, controlled by card operated doors.

8. Organic shaped atrium and exhibition space: As part of my concept as well as developing the organised structured side there was also the interpretation of how food and nature brings flowing and organic shapes, I developed this into the public spaces, creating an organic exhibition journey, and atrium.

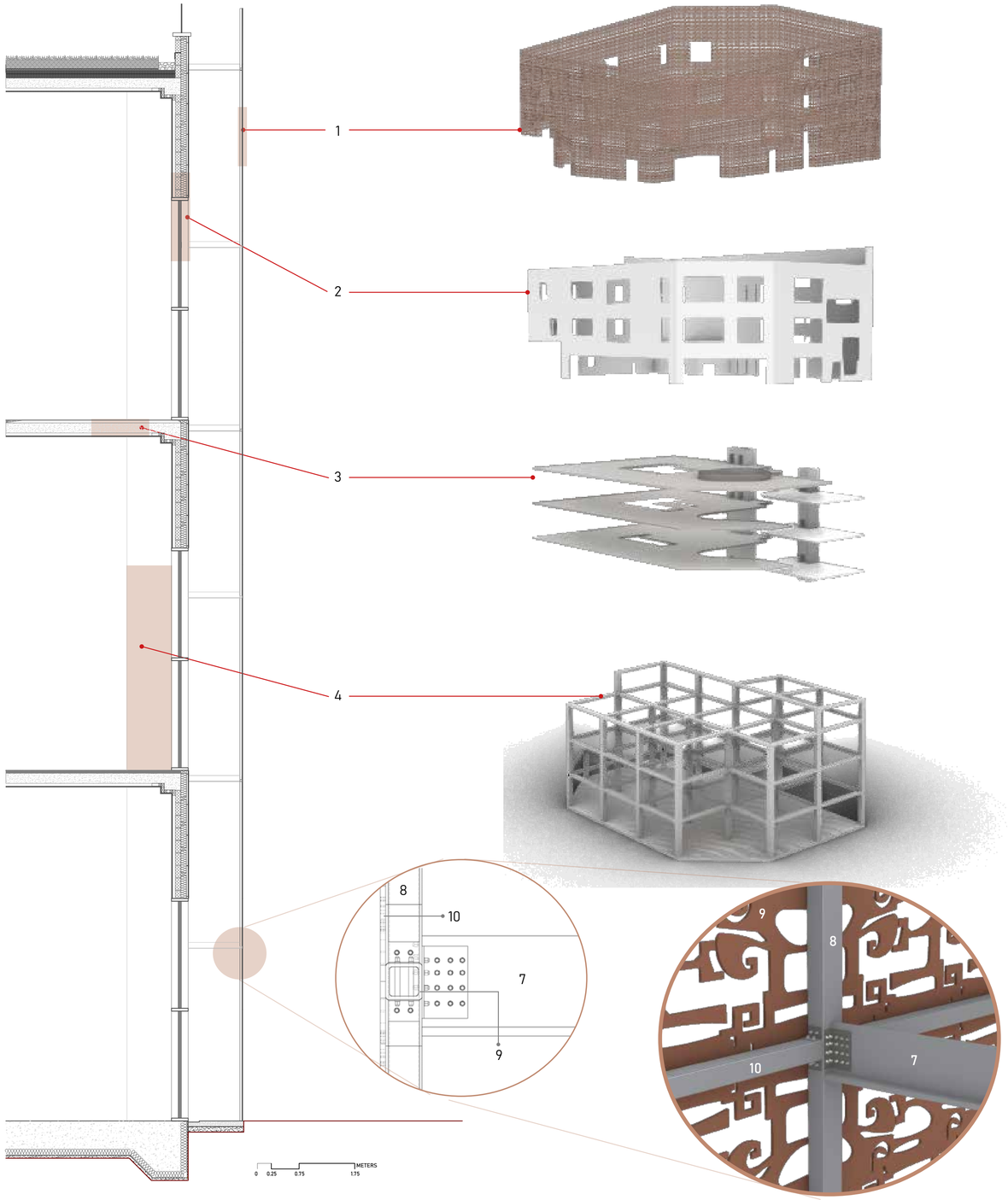
9. Load bearing columns: Within the public ground floor, the floor is largely open-plan, supported by large 800mm load-bearing columns placed in a 10m grid, this created an open airy ground floor, with large open space for social interaction.

10, 10b, 10c. Main entrances: 10 and 10c act as the two public main entrances which are both located at major nodes within the site, in order to create a flow between exterior and interior circulation. 10b the private entrance is located carefully next to the bus stop encouraging the use of public transport.

11. Repetitive wall, large glazing: 11 highlights the large amount of glazing that wraps the ground floor, this decision was to create an open connection between the interior and exterior on the ground floor, through connecting views, social interaction as-well as preventing crime around this area which during the urban study group project we discovered was a large issue.

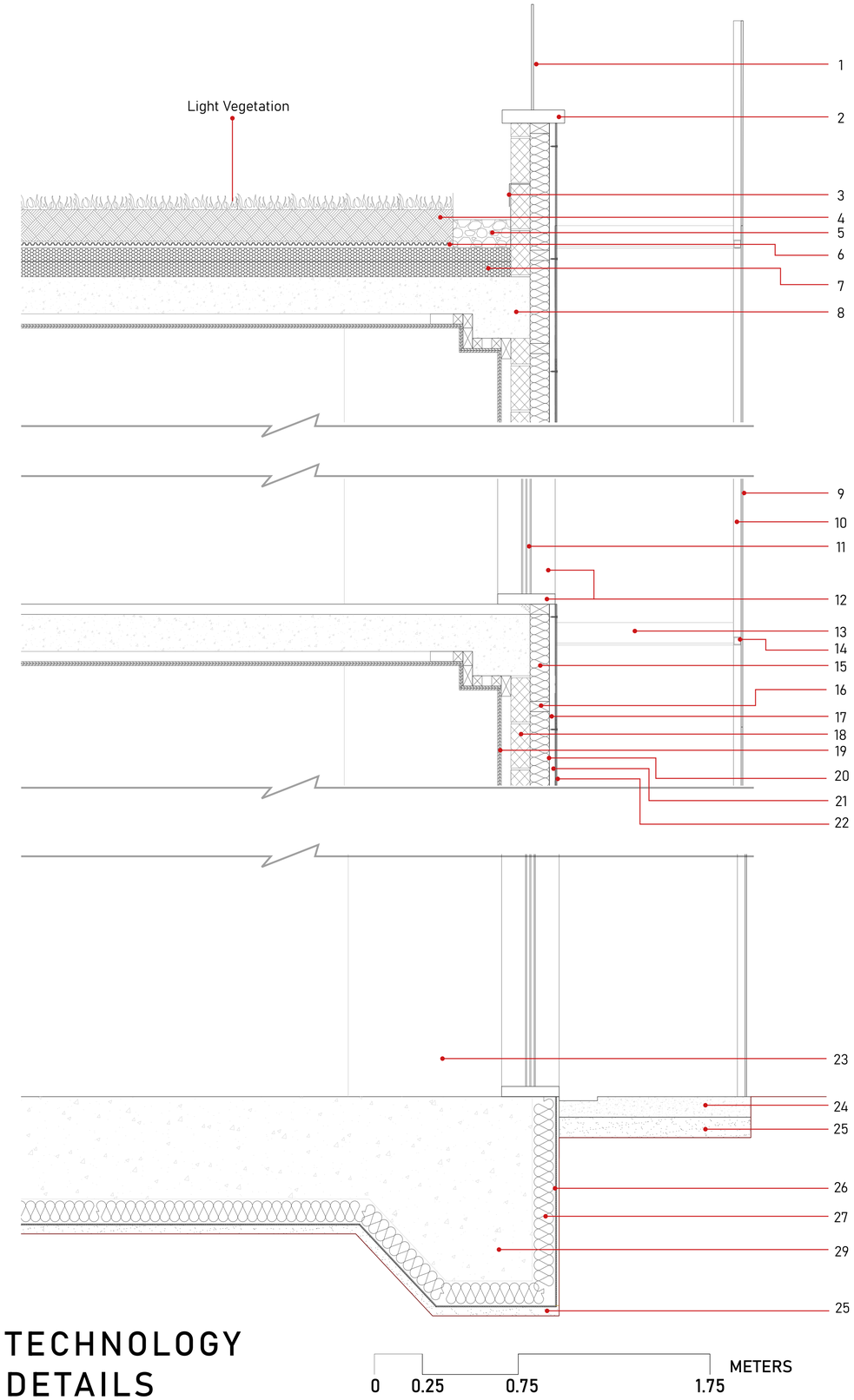


EXPLODED DIAGRAM



1. Secondary facade structure
2. Exterior load bearing walls
3. Concrete floors
4. Load bearing column structure
5. Atrium Skylight
6. Lifts
7. T-Section
8. Steel RHS
9. Steel SHS
10. Perferated panels

TECHNOLOGY DETAILS



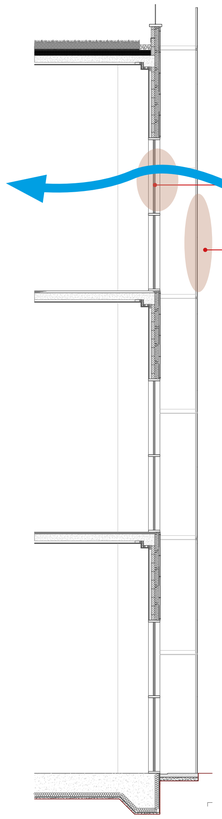
1. Glazing railing
2. Preformed coping
3 Flashing lapped over water proof membrane
4. Growing medium
5. Smooth gravel edge channel min 300mm
6.Drainage membrane
7. Insulation board
8. Concrete deck

9. Perforated panels
10. Steel RHS
11. Triple glazing
12. Window frame
13. Steel T Section
14. Steel SHS
15. Insulation board
16. Vertically fixed timber beams
17. Vertically fixed timber batten minimum thickness 28mm
18. Solid lightweight block-work
19. Plasterboard with internal paint finish
20. Breathable membrane
21. 6/8mm White thick Rock panel Rock-clad
22. EPDM Gasket

23. Structural Columns
24. Outside concrete
25. Sand
26. DPM
27. Insulation
28. 500mm Concrete slab with polished finish

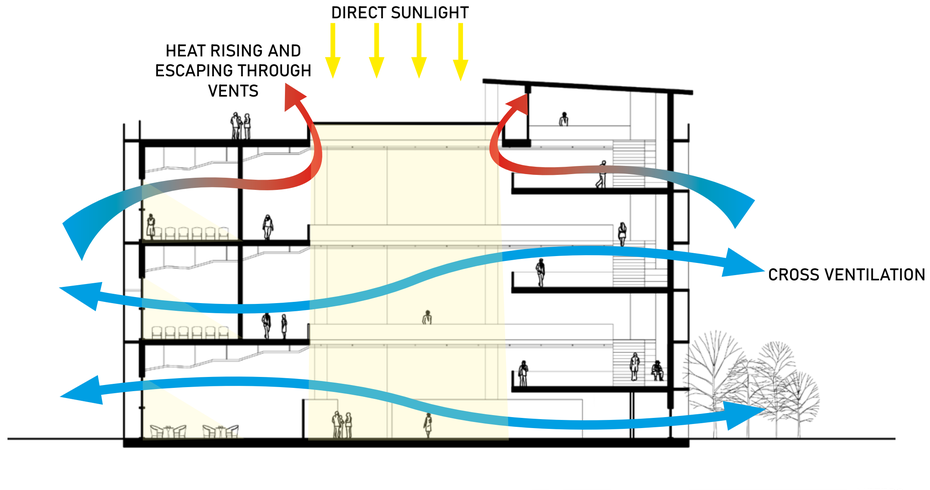
TECHNOLOGY DETAILS

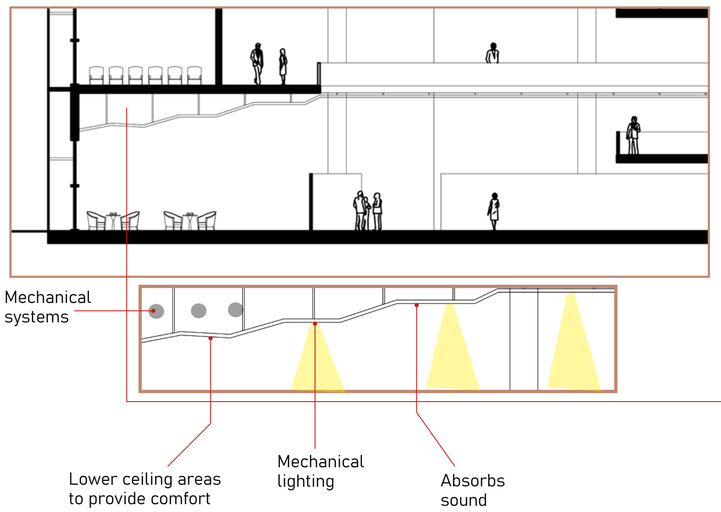
NATURAL VENTILATION AND MECHANICAL, DAYLIGHTING, + ACOUSTICS



The occasional mechanically open able window: to allow for controlled cross ventilation, reducing the energy cost.

The Porous second facade: This structure was thoughtfully designed with areas which create shading, as well as diffusing light. To increase the ability to shade the spaces within areas such as conference , meeting room as and labs, there could be additional shading systems places such as blinds.





Suspended ceiling panels ventilation and lighting features: Due to the function of the laboratories and in order to incorporate service space the roof height across the building was 6m in height. For the facilities such as laboratories, there would be systems in such as fume cupboards, systems to reduce odour of chemicals as well as mechanical ventilation HVAC systems to create the best comfort. The suspended ceiling will also allow for the interoperation of mechanical lighting into the panels, this could be censer and solar controlled to allow for energy reduction.

Suspended ceiling panels acoustic features: The design consist of some large open spaces, this allows for controlled acoustic considerations. I was Inspired by the integrated ceiling panels within the Bloomberg HQ based in London, which work together to created cooling , lighting, and acoustic features. The ceiling panels within the bloom berg where designed by a team of specialists within each area cooperating to create the best comfort outcome.

ENVIRONMENTAL RESPONSE

CONNECTIVITY WITH TRANSPORT

LARGE Public footpaths, as well as parallel cycle routes, encouraging cycling.

Connection between exterior and interior circulation you flow into the building.

A widened footpath and cycle route of 6-7m to allow for pedestrian safety.

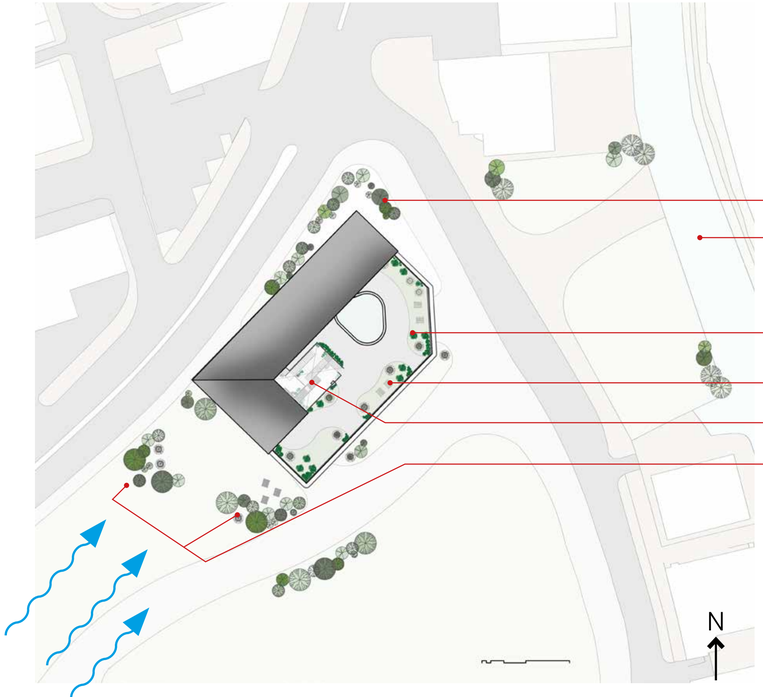
Potential future canal crossing, taken from current Huddersfield re-generation plans.

Private Entrance

Main public entrances, large focal points due to pedestrian connectivity.

Bus stop, Private pedestrian circulation flows from the bus stop to the private entrance, encouraging public transport.

SUSTAINABILITY LAND USE & ECOLOGY



1. Adding to existing vegetation: This placement of vegetation creates a natural buffer between the main road and the food and study centre, this helps with controlling the transfer of noise, more pleasant views and the carbon pollution from the road.

2. Canal: Within the group urban study we looked at current project on re generating Huddersfield and one of the plans we found showed the demolition of an existing abandoned building, opening up a connection point with the canal. I worked on this landscape we created in the urban study project, creating view and a connection with the canal that runs through Huddersfield.

3. Planing beds: Planting beds placed around the urban roof, where the staff can grow, plants, vegetables, either as part of a research project or just of the enjoyment of watching the growth of nature.

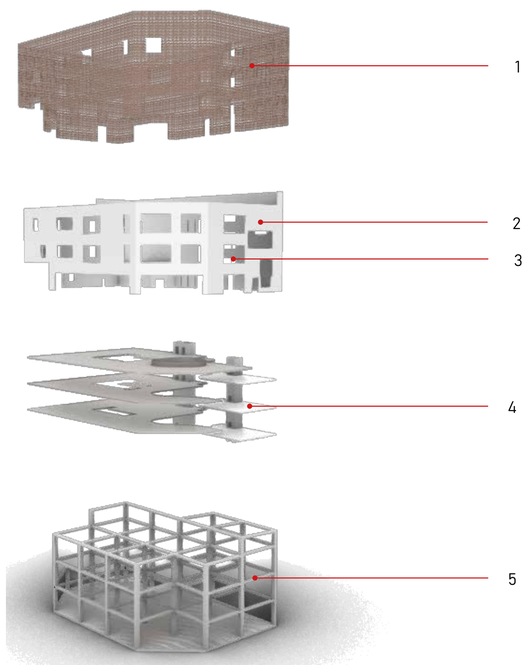
4. Outdoor furniture: The urban study has carefully placed out door furniture in order to link with the best views , for example the canal view and the natural landscape facing south framing castle hill.

5. Courtyard system: The courtyard system will bring greenery through potted plants, into the interior, centre of the private circulation, improving the well-being connection between nature throughout the day.

6. Vegetation placed as a wind buffer: This vegetation was placed to create a natural diffusion of wind, allowing the west side to have an outdoor area with nature.

POST DESIGN ANALYSIS

MATERIAL PROPERTIES



1. Colour coated steel perforated panels : The steel perforated panels are coated in a colour of chose to meet the concept of the design, I have gone for a bronze looking colour, as a response to the surrounding colours within the landscape. I chose these panels and material because of its effective option to punch customised patterns creating the porous second skin design I was aiming for.

2. Masonry block-work walls: I chose to use masonry block work within the exterior walls with a white rock-clad facade creating a contrast between the two facade layers. The masonry construction is long-lasting, resistant to fire, as well as been largely accessible and durable.

3. Triple glazing: Due to the large area of glazing used within my design I have chosen triple gazing, this improves the levels of heat loss throughout the building creating an enhanced comfort across the interior. The triple glazing has an excellent insulation values of Ug to 0.4w/m2k, as-well as optimised solar energy yield and hight light transmission.

4. Concrete flooring: The floors are made up of concrete, I made this decision due to the following factors: fire resistance, durable withstanding wear, and the resistance of odour and bacteria which is crucial within areas and facilities such as laboratories.

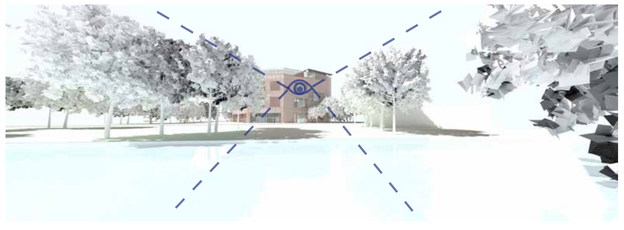
5. Concrete encased steel (CES) composite columns : I chose this option due to the large span of 10m grid columns, this construction allows for large distributions of load. The only disadvantage was the difficulty when it comes to the construction method.

GOOD HEALTH AND WELL-BEING, SUSTAINABLE COMMUNITIES & SOCIAL VALUE

Large areas for social interaction: There is lots of space interior and exterior for social interaction.

Connecting views: Carefully placed views to create framed views of the canal and natural landscape.

VIEWS OF THE CANALS FROM THE THIRD FLOOR CONFERENCE ROOM



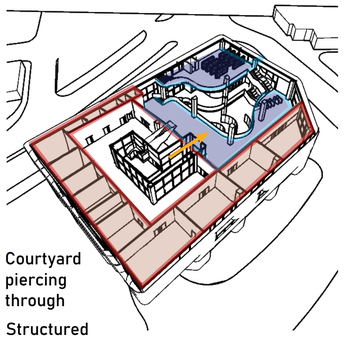
POST DESIGN ANALYSIS

CONCEPT PARAGRAPH

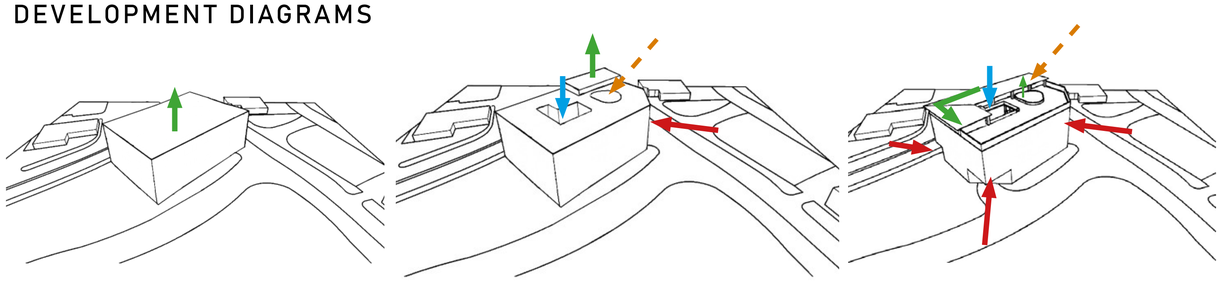
The main concept was developed during the research and brief development process that was all influenced by the precedent studies as well as my research and understanding of the function within a Food Study Centre. My concept was broken down into the following three main keywords/ phrases: organised and structured to organic and flowing, Immersive light, porous layering. The phrase organised and structured to organic and flowing, came from my understanding of food and its fundamental importance to life, the communication it creates between communities and cultures, as well as its natural interaction between humans, non-human animals, and plants. The organised and structured keywords were taken from the structure cycle of food, and how it goes from harvesting to consumption as well as the natural cycle of food and growth. Flowing and organic were taken from the natural shapes we find within food, plants, animals, and nature.

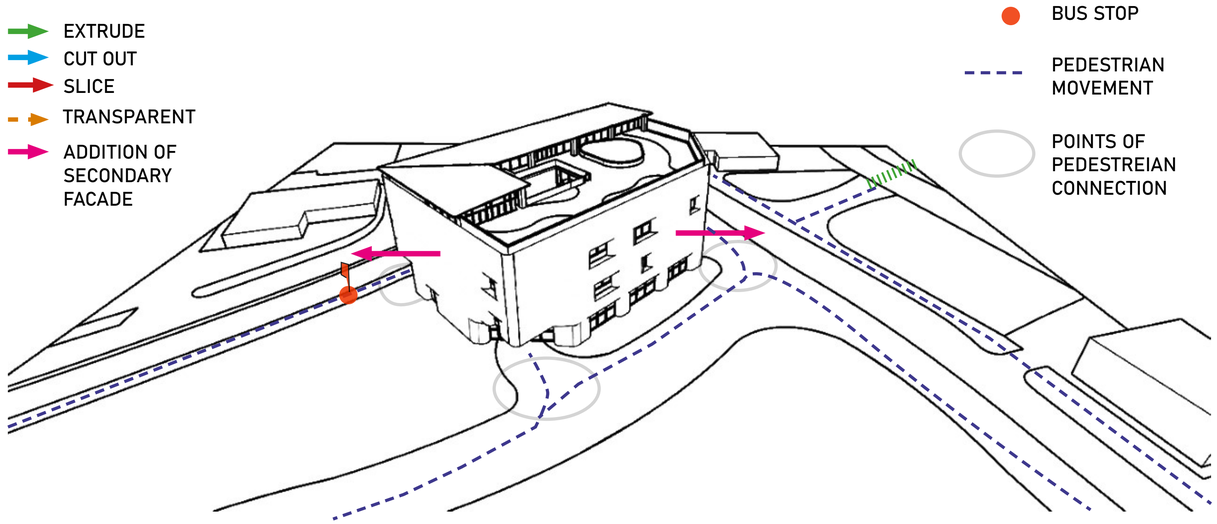
To create this interpretation of Structure and organisation within my interior spaces, I organised the private facilities around a central courtyard system, which is made up of very regular rectangular shapes. This simple organisation of rooms, placed radially around this central courtyard system created an interesting interaction between the interior spaces and the visual connection with the exterior and vegetation. The transition into more flowing, curved smooth interior shapes was created within the atrium and spaces with the most interaction with the public.

The placement of the windows was carefully designed in order to meet the light immersive experience I wanted the second skin to create, without losing the organisation within the facade. I considered many factors when placing the windows, for example, views, noise transmission, shading, interior room equipment, and their reaction to glare. All these factors were very important and controlled my decisions. The connection between the site and the design was largely used when creating the form of the design, using the main nodes to place the positioning of entrances allowing for the flow of circulation between the exterior and interior.



DEVELOPMENT DIAGRAMS





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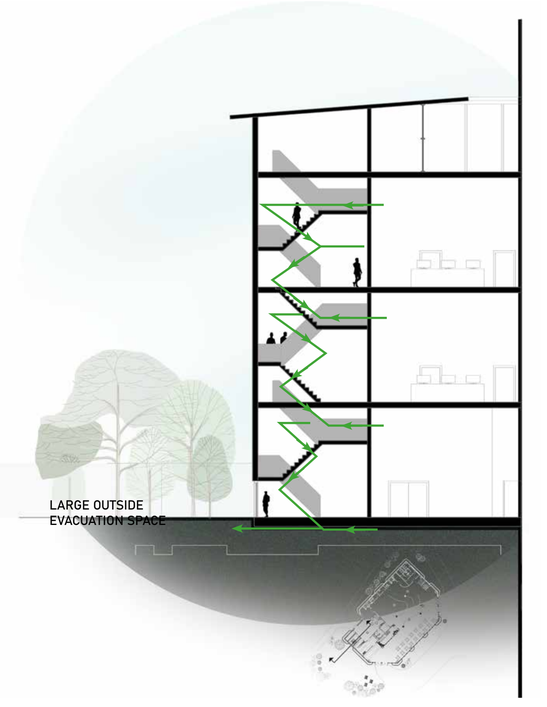
FIRE SAFETY



ACCESSIBILITY

ACCESSIBILITY ROUTES

ACCESSIBLE TOILETS

MAIN ACCESSIBILITY DOORS

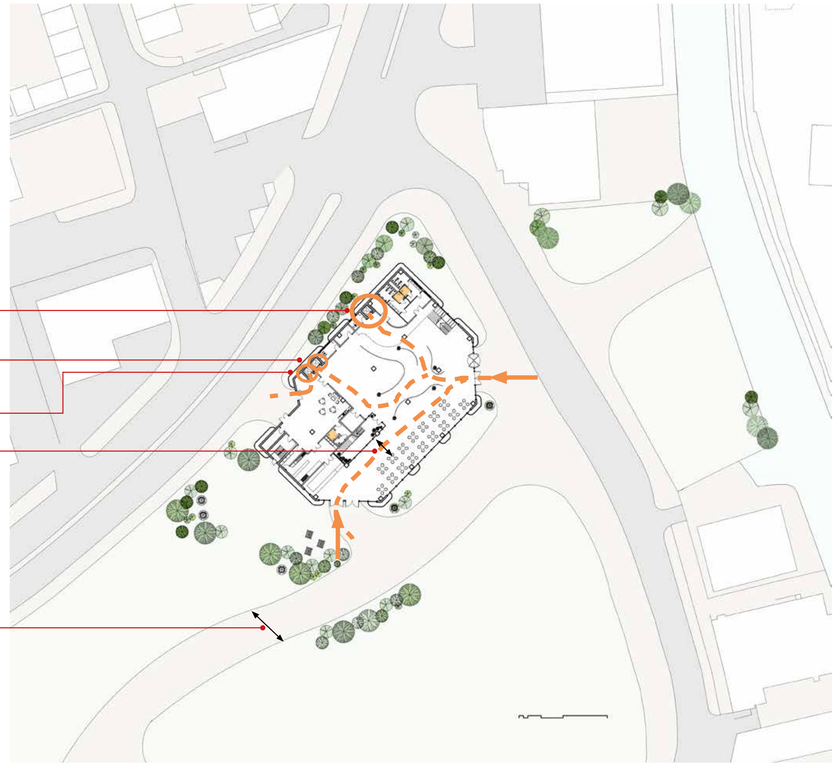
LIFT 1: public access to Mezzanine level 1, private access to mezzanine level2 and 3

LIFT 2: public access to 1st floor, 2nd floor and urban roof, private access to 3rd floor.

LIFT 3: private access to 1st floor, 2nd floor, third floor and urban roof.

INTERIOR CIRCULATION: Wide interior circulation , allowing lots of space for accessibility and social interaction.

EXTERIOR CIRCULATION: Wide spaces for pedestrian movement, allowing lots of space for accessibility friendly.



POST DESIGN ANALYSIS