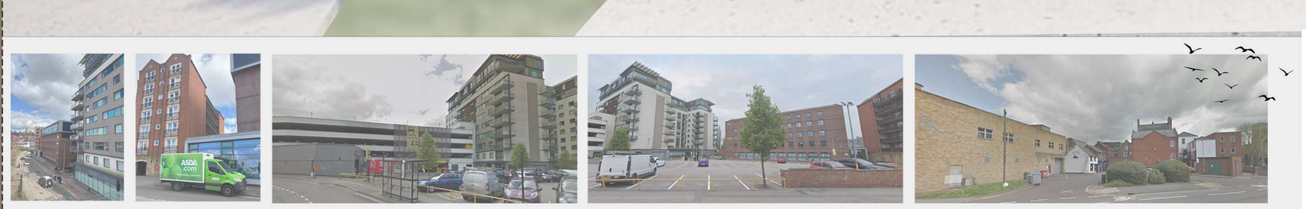
# ELEVATE LINCOLN

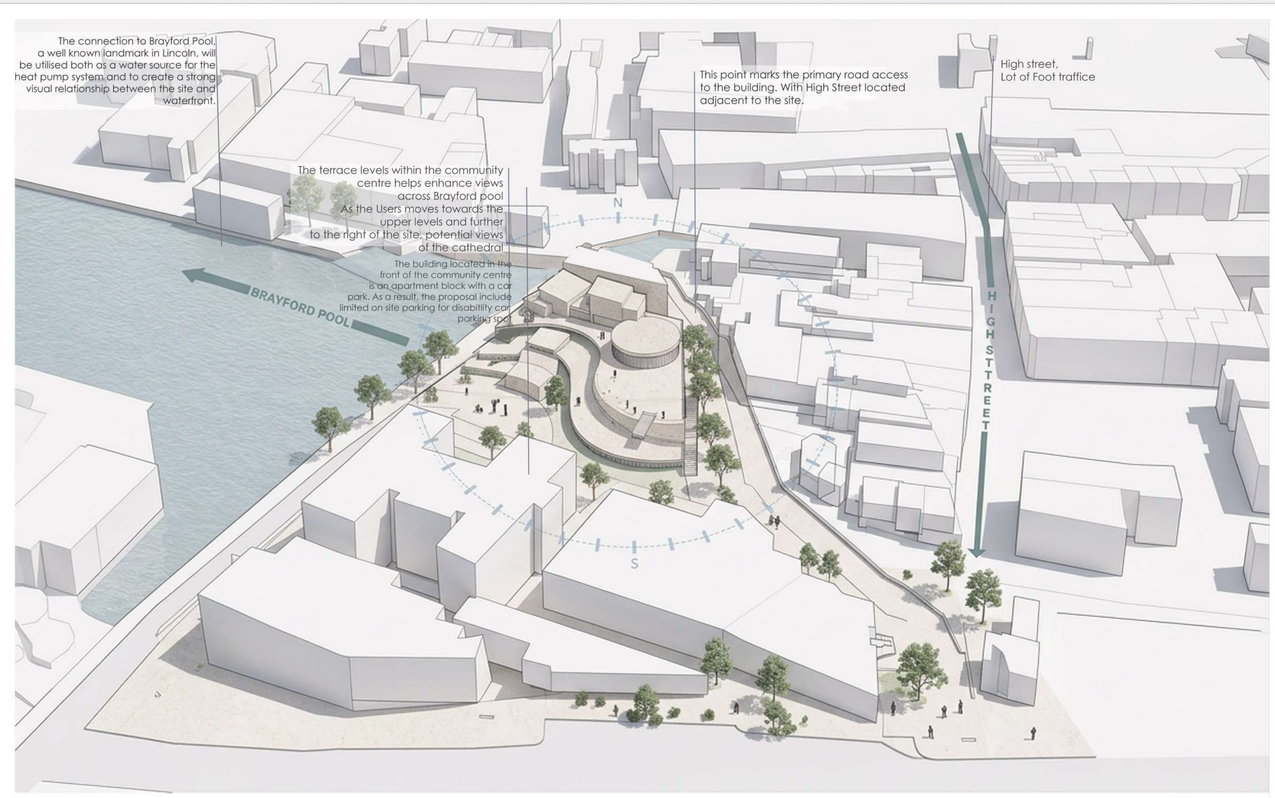
Multipurpose Community centre
Lincoln, Brayford, LN5 7AY



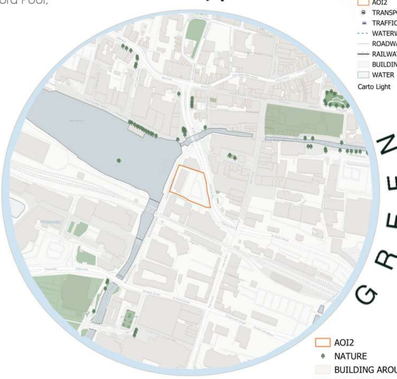
The multipurpose community centre located in the heart of Lincoln,
beside the Brayford Pool, is named Elevate Lincoln. The name reflects the centre's purpose:
to uplift and strengthen the local community through inclusive spaces and sustainable design.
Designed with sustainability at its core, the building aims to achieve net-zero goals by incorporating
environmentally conscious strategies throughout its architecture. The shape and form of the building are i
nspired by the concept of a mountain, creating a distinctive sloping structure that responds to its surroundings.

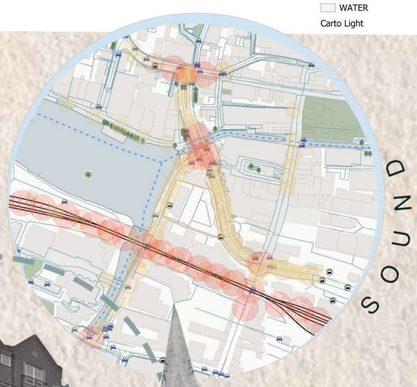
This form is carefully oriented towards the south-east to maximise solar gain and
improve energy efficiency. In addition, large west-facing windows provide expansive views across the Brayford Pool,
creating a strong visual connection between the interior spaces and the waterfront setting.










## FIRE ESCAPE PLAN

LEGEND:

- Escape route
- Emergency exit
- Emergency telephone
- Assembly point
- First aid
- Defibrillator
- Fire alarm call point
- Fire hose reel
- Fire extinguisher
- Fire emergency telephone

FIRE WALLS:

- 30 Mn.Fire resistant walls (Internal)
- 60 Mn.Fire resistant walls (Internal)

HORIZONTAL AND VERTICAL ESCAPE

- 1200 Minimum clear opening width for escape
- Maximum Travel distance to nearest exit

- Break glass point
- Electronic sounder and beacon
- Emergency escape Luminaries
- DS Smoke Detector
- DH Hear Detector


## FIRE ESCAPE PLAN

LEGEND:

- Escape route
- Emergency exit
- Emergency telephone
- Addibility point
- First aid
- Defibrillator
- Fire alarm call point
- Fire hose reel
- Fire extinguisher
- Fire emergency telephone

FIRE WALLS:

- 30 Mn.Fire resistant walls (Internal)
- 60 Mn.Fire resistant walls (Internal)

HORIZONTAL AND VERTICAL ESCAPE

- 1200 Minimum clear opening width for escape
- Maximum Travel distance to nearest exit

- Break glass point
- Electronic sounder and beacon
- Emergency escape Luminaries
- DS Smoke Detector
- DH Hear Detector

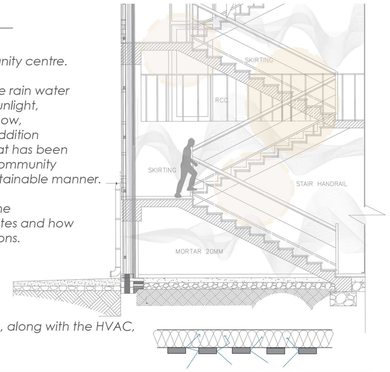

## S south elevation 1:200

*Elevate Lincoln is designed with the intentions of developing a sustainable building that serves as a community centre. Through integration of well throughout structural systems, ventilation systems, water pump, permeable paving for the rain water harvesting, green roof and walls, orientation for optimal sunlight, solar panels, change of materials from the first project to now, integrating new landscape and adding trees for shade, addition of a façade to stop too much sunlight and much more that has been considered, but In general this will help with designing a community centre that will make a change and be designed in a sustainable manner.*

*This board shows the south elevation as the front view of the building, along with two fire plans showing the escape routes and how the design complies with the necessary fire safety regulations.*

*On the right, it shows the acoustic performance of the community centre, with the main spaces being insulated, especially the auditorium/lecture room.*

*The diagram below shows the rainwater harvesting system, along with the HVAC, water pump, and solar systems, showing how sustainable the community centre can be.*

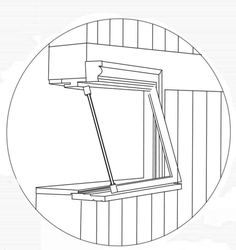


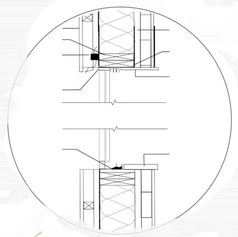

*The general idea is to obtain a sustainable design, this will mainly be done by choosing the correct materials when, especially when the building heavily relays on concrete with reinforced steel as its foundations. The building will be constructed with 40 to 50 % GGBS cement replacement*

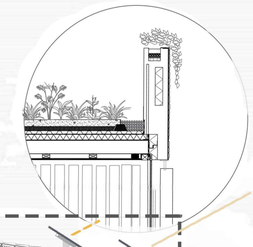
*The idea is to fill the terraced levels with a green wall/ roof in order to create a man-made landscape. A green roof generally great for thermal performance, as it acts as an insulation barrier to the building. But It can keep the heat throughout the winter and reduce the amount of heat entering the building. This also complies with Building regulation approved document b.*

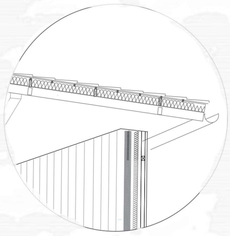
*By the Energy Act 2011, the community centre will want to be an energy efficient building, that is also sustainable. Solar panels are a sustainable and reliable way energy source in the UK. This will help the Elevate Lincoln Community centre to be less reliant on the national grid*

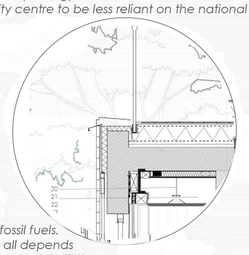
*BREEAM is a way to measure of the many variables but more specifically for energy, water, materials and ecology. This is a good way to understand the right measurement that will help the community centre to be designed with the right variables. Leading into the conversation of water management. As Elevate Lincoln community strives on being sustainable and meet the RIBA 2030 climate challenge goals, there will be an addition of a heat pump system which will help provide low carbon heating which is far better than relying on fossil fuels. Heat pumps are pretty reliable however, it all depends the temperature of external temperatures especially if it's connected to the Brayford, there might be some uncertainty if the building is not well insulated.*



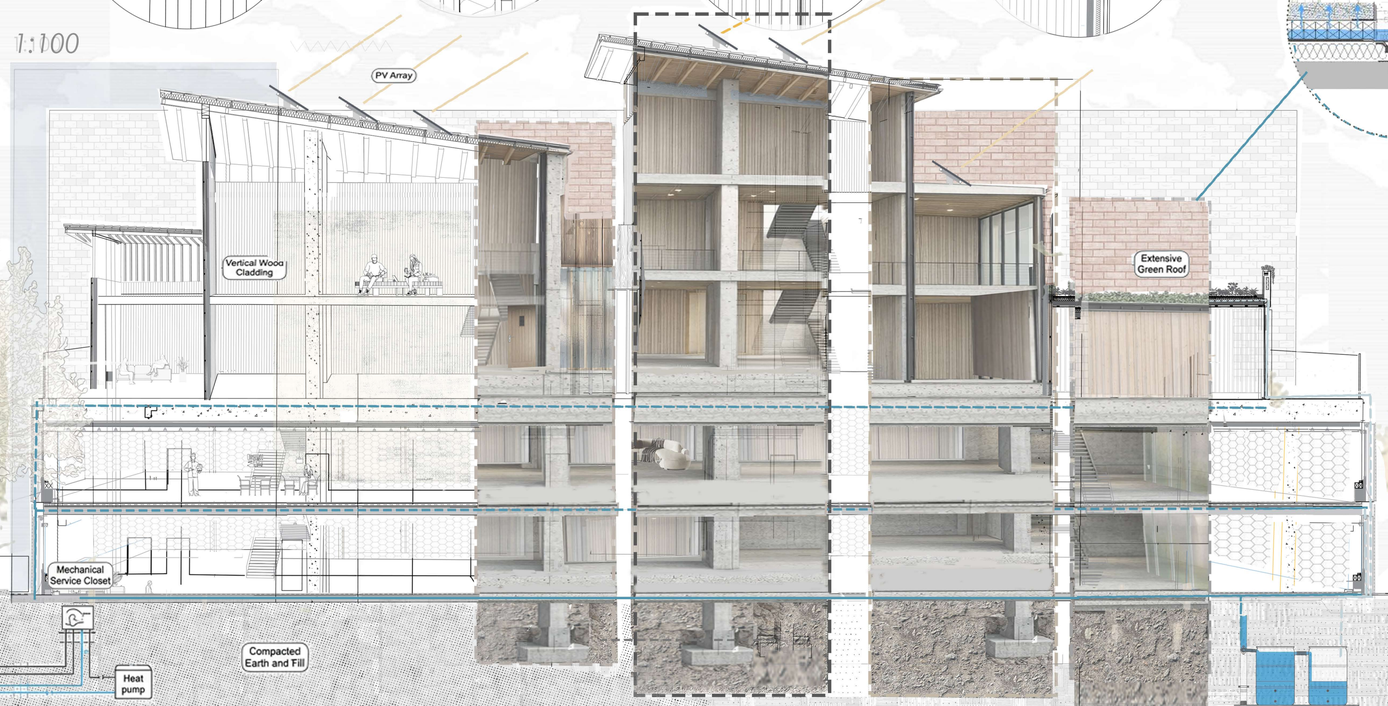


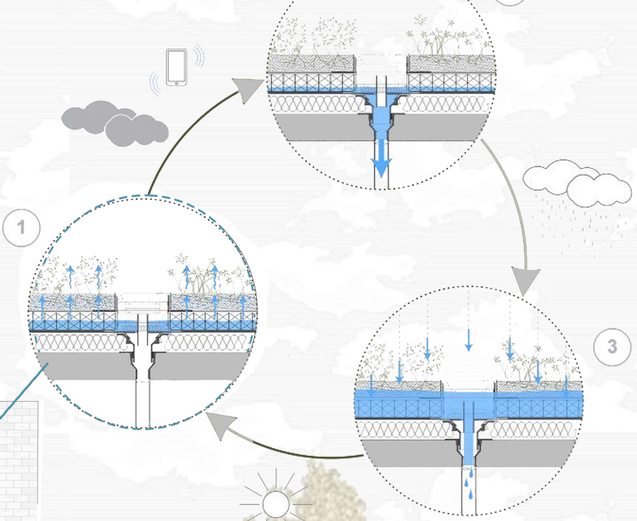




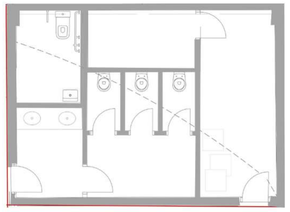


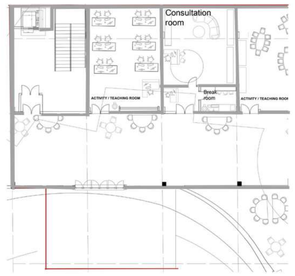
1:100

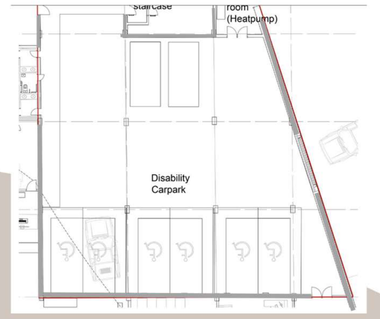


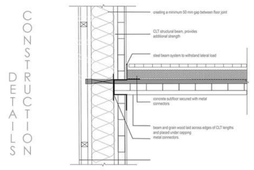
ACCESSIBILITY

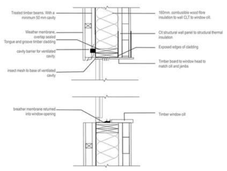


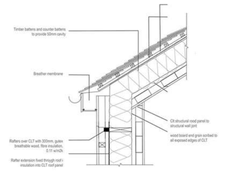


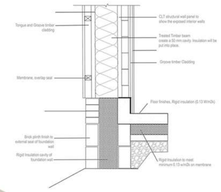



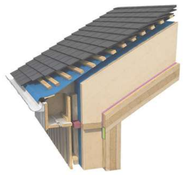

CONSTRUCTION DETAILS



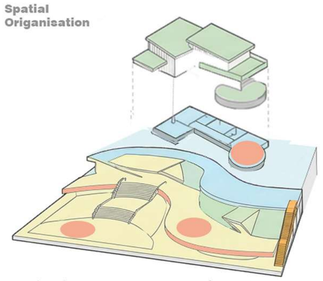


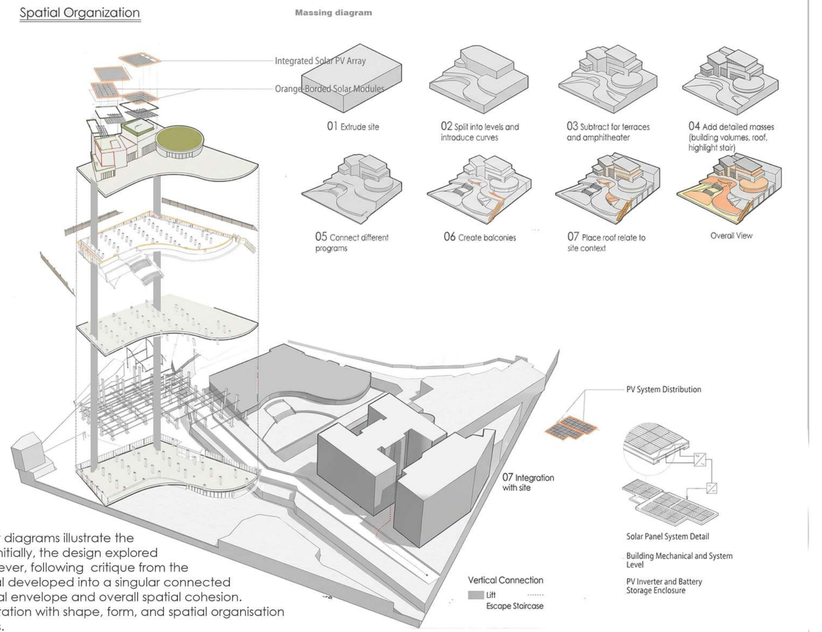




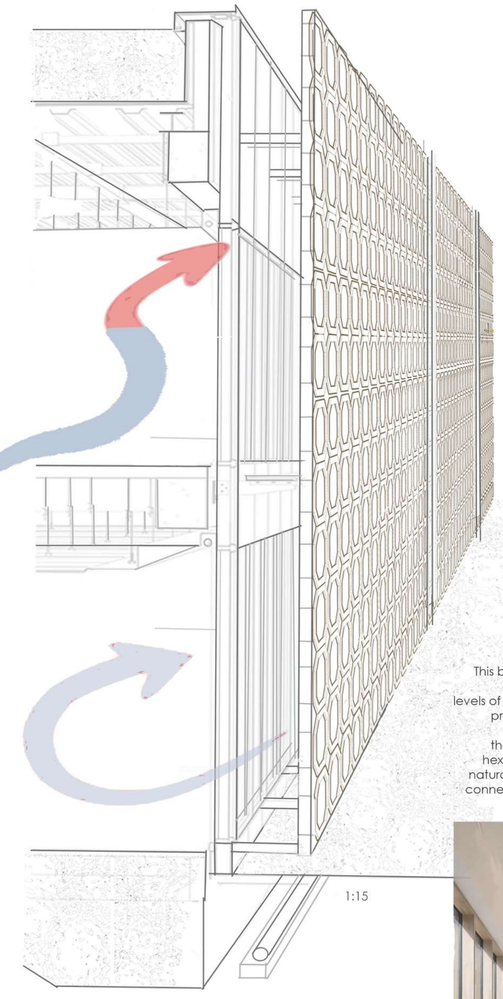


MASSING




DOUBLE SKIN FACADE




Double skin façade that wraps around the bottom two layers of The community centre, which will consist of a double skin glass frame , 300m cavity, and a timber hexagonal façade that prevents too much light and allow controlled air ventilation through the gaps. The double skin facade will Improve the acoustic comfortability which is perfect for users such as elderly. It roughly covers approx. 575m^2 across the bottom two storeys of the community centre. This board demonstrates the double-skin façade used on the lower two levels of the community centre. The façade provides shading, natural ventilation, and contributes to the visual identity of the building. The hexagonal timber structure references natural forms and reinforces the project's connection to the surrounding landscape

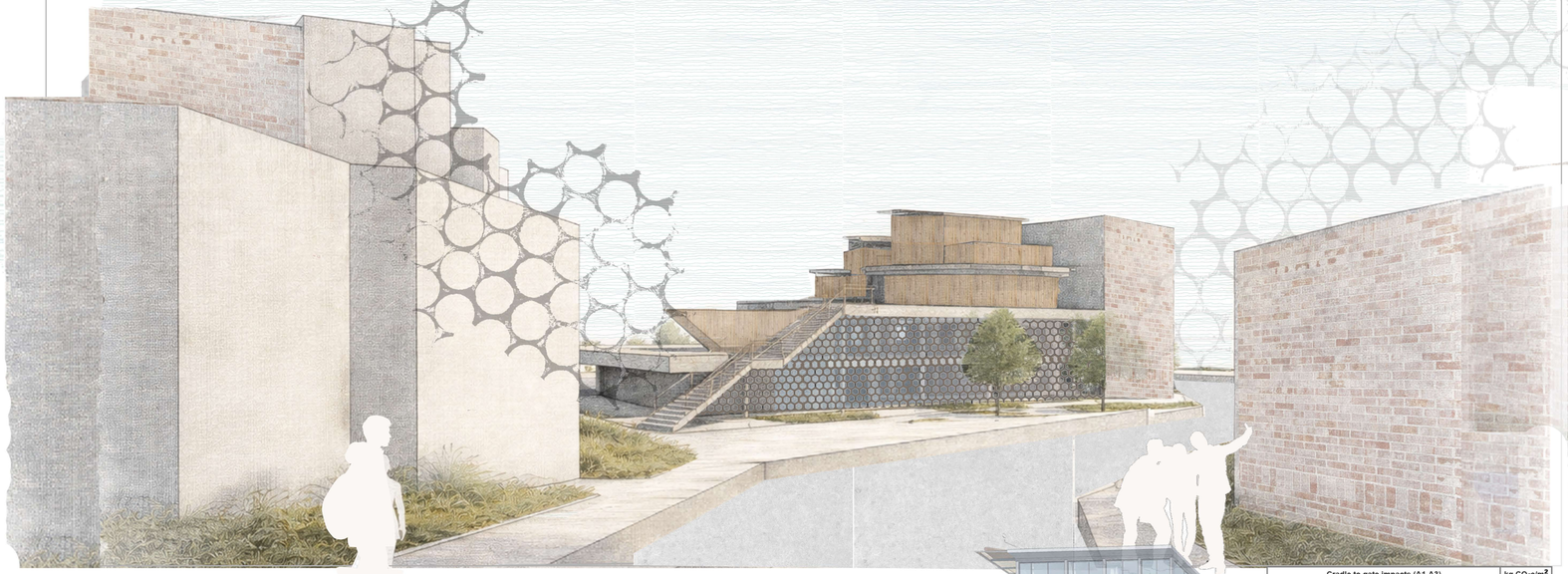
'Today 38% of global energy-related greenhouse gas emissions are attributable to the built environment' (Riba Statement). Sustainability is key when developing this project, to reduce greenhouse gas emissions there must be plenty of planning necessarily done to align with UK Net Zero strategy. This will be done via passive environmental design attempts, choosing the appropriate sustainable material choices perhaps locally sourced and green building solutions that are efficient, like heat pumps. This building attempts to obtain The climate change act 2008 that announces the UK legal commitment to comply with net zero goals by 2050.

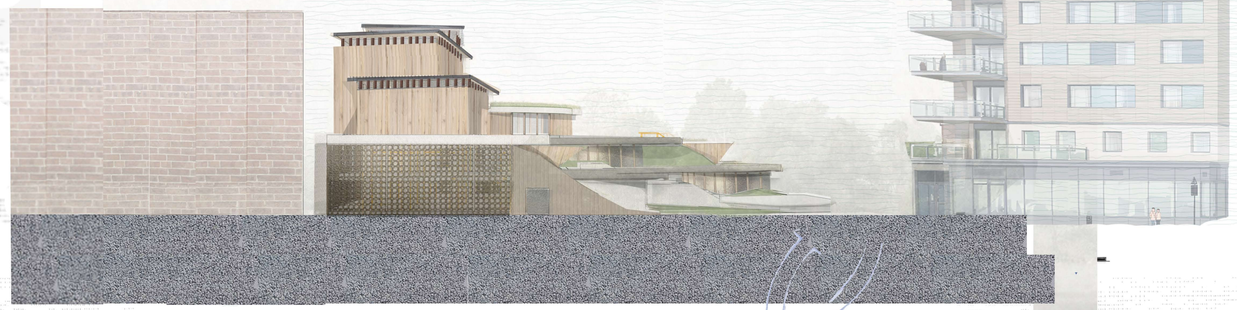
Adjacent to this is the timber detailing from the upper buildings, showing how the structure is assembled, the materials used, and the overall construction approach. The floor plan included on this board provides an overview of the internal layout and arrangement of rooms. Accessibility considerations are integrated throughout the design to ensure the community centre is inclusive and functional for all users. interior renders are included to visualise the atmosphere, materiality, and quality of the internal spaces within the community centre. The inspiration board explores precedents related to the mountain concept, focusing on tiered housing, repetition, and layered architectural forms. These references informed the overall massing and spatial language of the project.

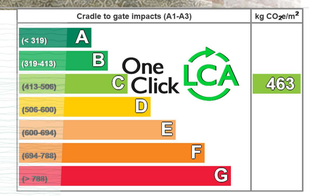
The massing and development diagrams illustrate the evolution of the project form. Initially, the design explored separated building forms; however, following critique from the previous semester, the proposal developed into a singular connected building to improve the thermal envelope and overall spatial cohesion. The diagrams show experimentation with shape, form, and spatial organisation throughout the design process.

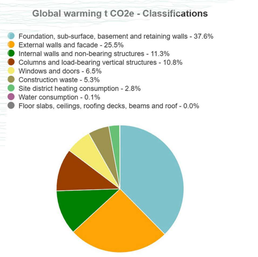

Inspiration board

## Materiality








*With the Integrated landscaping throughout the building using green roof strategies, it also helps support the rain water harvesting collection system, through water filtration and the intentional permeable paving. The landscaping made by the same method of a green roof will absorb a lot of the water drainage this help with the flooding situation specifically in this site (next to the Brayford). Building regulation approved document B.*
*This method will help reduce the overall the urban heat island effect.*

*Due to the structural integrity of the building, the upper levels of the community centre must be lighter weight, therefore the roof strategy will consist of fibre cement slates with interior beams being timber to stay with the CLT exterior of the upper building.*
*'Replacing traditional walls with CLT, including finishes, alternatives resulted in an average reduction of –35% in environmental impact. According to the standardized and weighted process, cellulose and glass wool are the most environmentally friendly alternatives.' (Shin, B, Wi. S. and Kim, S., 2023)*

| Material used for project Exterior wall (the upper building) | Thickness av. (mm) Approx. | K-Value (W/mK) Approx. | R-value (m^2K/W) Approx. |
|---|---|---|---|
| Timber Cladding | 20 | 0.14 | 0.14 |
| Ventilated air gap | 40 | 0.026 | 0.54 |
| Breather membrane | 5 | 0.20 | 0.02 |
| Cit structural panel | 120 | 0.13 | 0.96 |
| Wool insulation | 100 | 0.022 | 4.55 |
| plasterboard | 12.5 | 0.16 | 0.02<br>U=0.13 |

The value 0.17 /m2K, shows a solid efficient thermal envelope.

| Material used for project Landscape construction | Thickness av. (mm) Approx. | K-Value (W/mK) | R-value (m^2K/W) |
|---|---|---|---|
| Soil layer | 200 | 0.40 | 0.50 |
| Drainage layer | 50 | 0.40 | 0.13 |
| Filter layer | 5 | 0.30 | 0.02 |
| Waterproof membrane | 10 | 0.17 | 0.06 |
| Aerated concrete | 150 | 0.16 | 0.94 |
| Structural mesh support | 20 | 50 | 0.0004<br>U= 0.55 W/m^2k |

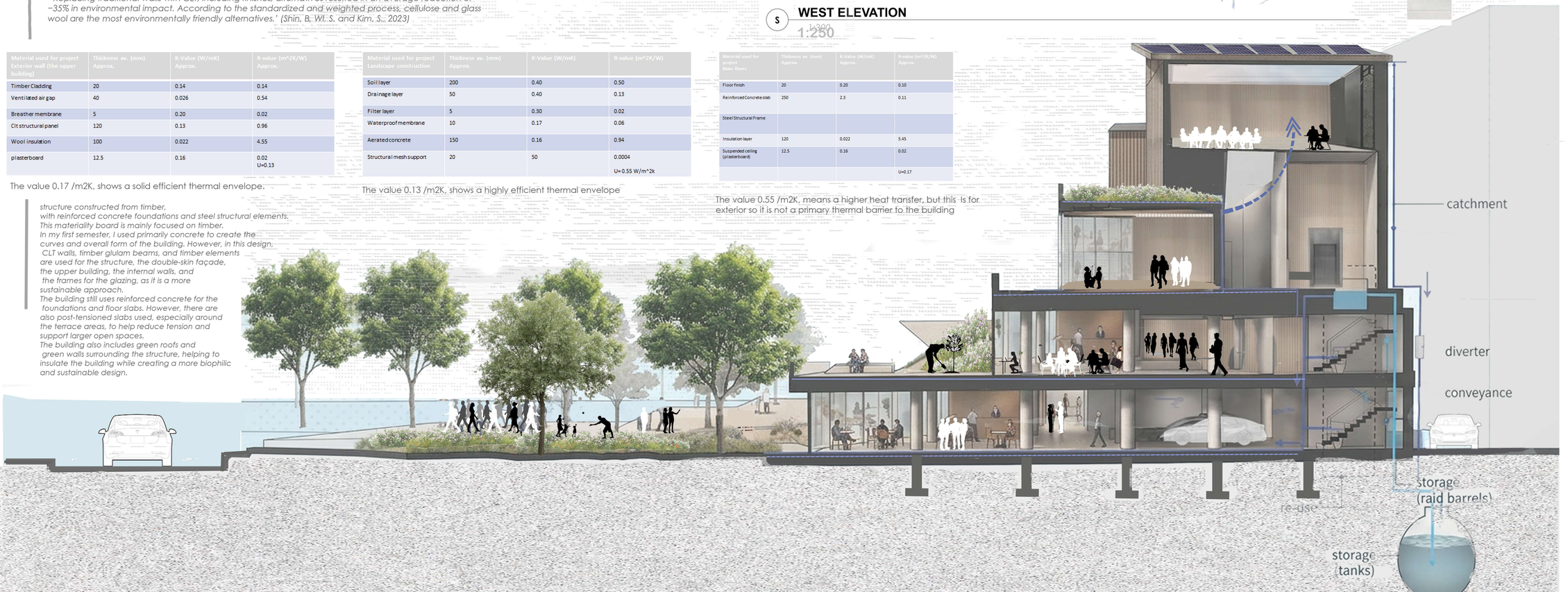
The value 0.13 /m2K, shows a highly efficient thermal envelope

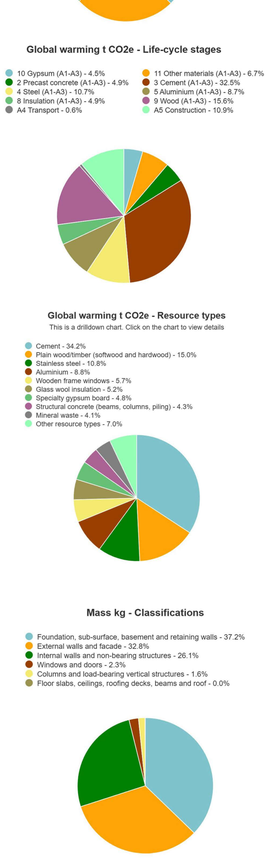
| Material used for project Main floors | Thickness av. (mm) Approx. | K-Value (W/mK) Approx. | R-value (m^2K/W) Approx. |
|---|---|---|---|
| Floor finish | 20 | 0.20 | 0.10 |
| Reinforced Concrete slab | 250 | 2.3 | 0.11 |
| Steel Structural Frame | | | |
| Insulation layer | 120 | 0.022 | 5.45 |
| Suspended ceiling (plasterboard) | 12.5 | 0.16 | 0.02<br>U=0.17 |

The value 0.55 /m2K, means a higher heat transfer, but this is for exterior so it is not a primary thermal barrier to the building

*structure constructed from timber, with reinforced concrete foundations and steel structural elements.*
*This materiality board is mainly focused on timber.*
*In my first semester, I used primarily concrete to create the curves and overall form of the building. However, in this design, CLT walls, timber glulam beams, and timber elements are used for the structure, the double-skin façade, the upper building, the internal walls, and the frames for the glazing, as it is a more sustainable approach.*
*The building still uses reinforced concrete for the foundations and floor slabs. However, there are also post-tensioned slabs used, especially around the terrace areas, to help reduce tension and support larger open spaces.*
*The building also includes green roofs and green walls surrounding the structure, helping to insulate the building while creating a more biophilic and sustainable design.*

### S WEST ELEVATION
1:250



## structural Axo

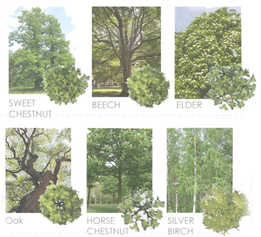

The axonometric drawing illustrates both the structural system and the materiality of the community centre. It highlights how the building is constructed, showing the relationship between the primary structural elements and the architectural form.

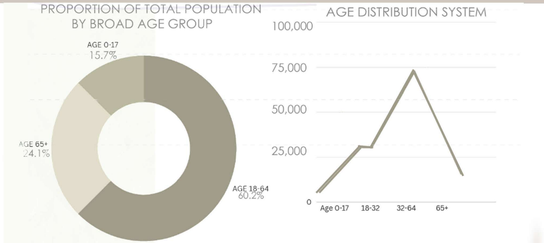
The structural system is designed to support the mountain-inspired shape of the building while maintaining open and flexible interior spaces for community use. The material palette reflects the project's sustainable approach, incorporating environmentally conscious materials that contribute towards the building's net-zero goals.

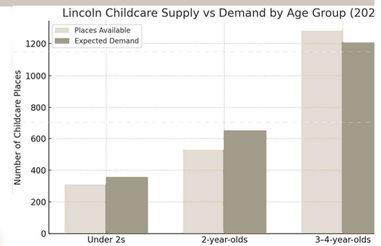
Elevate Lincoln community centre has a 6m by 6m structural grid which is consistent throughout the building, and goes through all floors to continue the load path from the foundations all the way to the roofing systems. The column choice is a mixture of reinforced concrete with steel frame structure, however some frame structure consist of glulam beams. The columns will be aligned with the structural grid to support all the layers above 500mm x 300m.

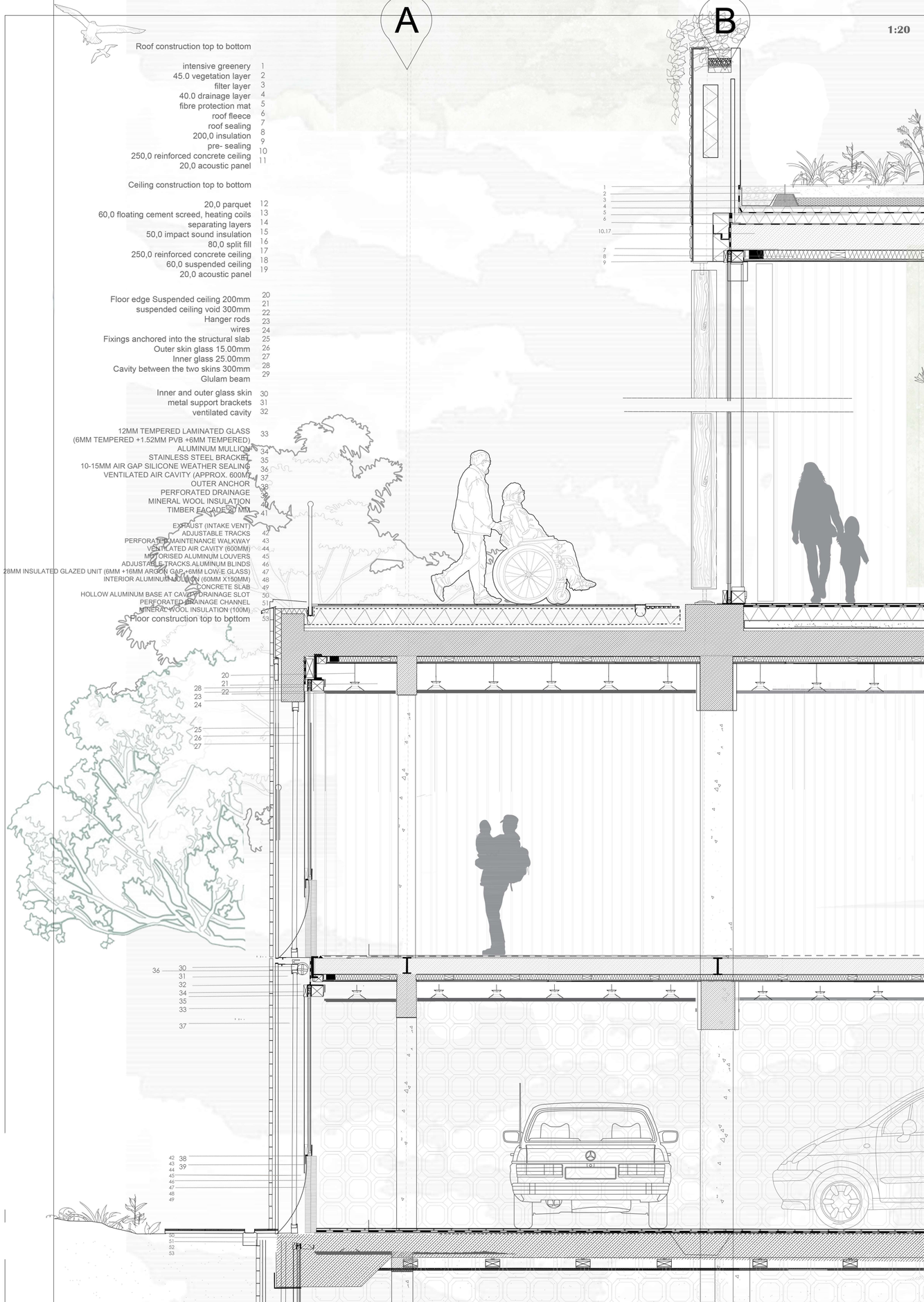


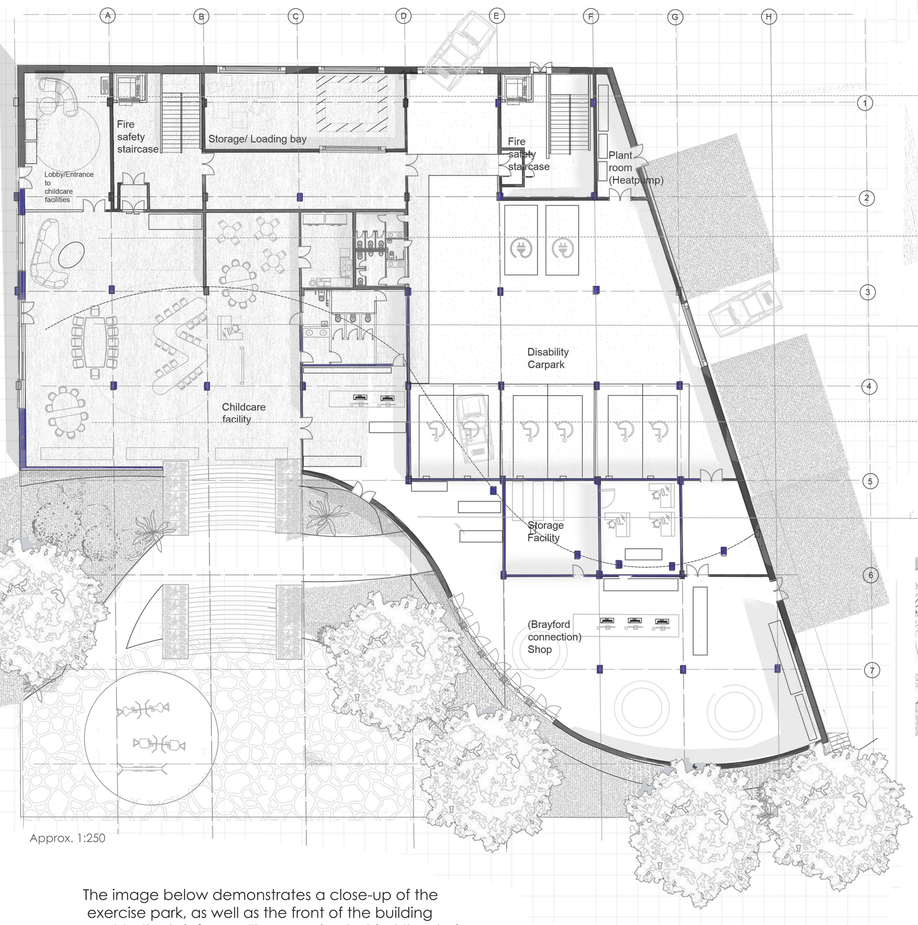

The circular diagrams shows key environmental and movement factors across the site, including pedestrian foot traffic, daylight conditions, solar intake, and opportunities for solar energy generation. These analyses help inform the orientation and environmental performance of the community centre.The lower section of the board highlights the existing biodiversity surrounding the site, including native and established tree species such as oak, sweet chestnut, beech, elder, horse chestnut, and silver birch. This strong ecological context heavily influences the design approach and landscape strategy of the proposal. Demographic analysis, includes the territorial population by age and age distribution data, demonstrates the range of users within the surrounding community. In particular, the childcare supply versus demand study identifies a shortage of provision for children under two, two-year-olds, and three-year-olds within the area. In response to this, the community centre proposal incorporates facilities that support early years childcare and wider community wellbeing. The project is intended to operate alongside charitable and community-led organisations, such as Green Synergy, helping generate funding and long-term community support. As a result, the scheme places a strong emphasis on biodiversity, green spaces, and environmental engagement, creating a community-focused environment that responds directly to both the ecological character of the site and the social needs of the local population.



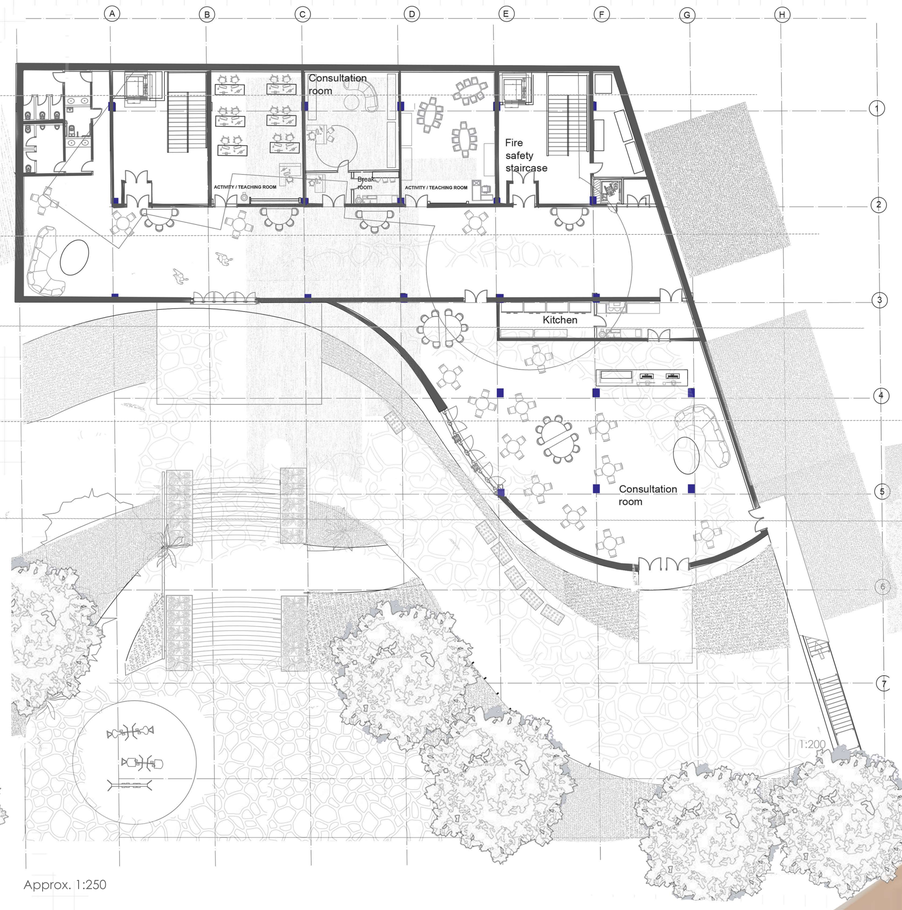






Approx. 1:250




Approx. 1:250


1:300

The image below demonstrates a close-up of the exercise park, as well as the front of the building next to the brief area. The meaning behind the design was to make it as green as possible, with lots of foliage a nd biodiversity. It has outdoor spaces for people to connect with the outside environment, along with biophilic design that enhances biodiversity and improves the atmosphere. The green walls and well-insulated rooms also provide good acoustic performance throughout the community center.

This final board presents the lower ground, ground, and 4first floor plans, which have significantly developed from Semester One. The plans are now more detailed and place greater emphasis on accessibility, fire escape strategy, and spatial planning.
The community centre programme has also evolved, introducing new spaces such as plant rooms, a loading bay, and a ground-floor shop. The addition of the shop improves the building's relationship with the neighbourhood, directly responding to feedback from the previous semester.