

MERSEYSIDE REGIONAL ASSEMBLY

BA Architecture - 3rd Year (2015 -2016)

University of Liverpool

Project Type - Public & Administrative

Location - Albert Docks, Liverpool



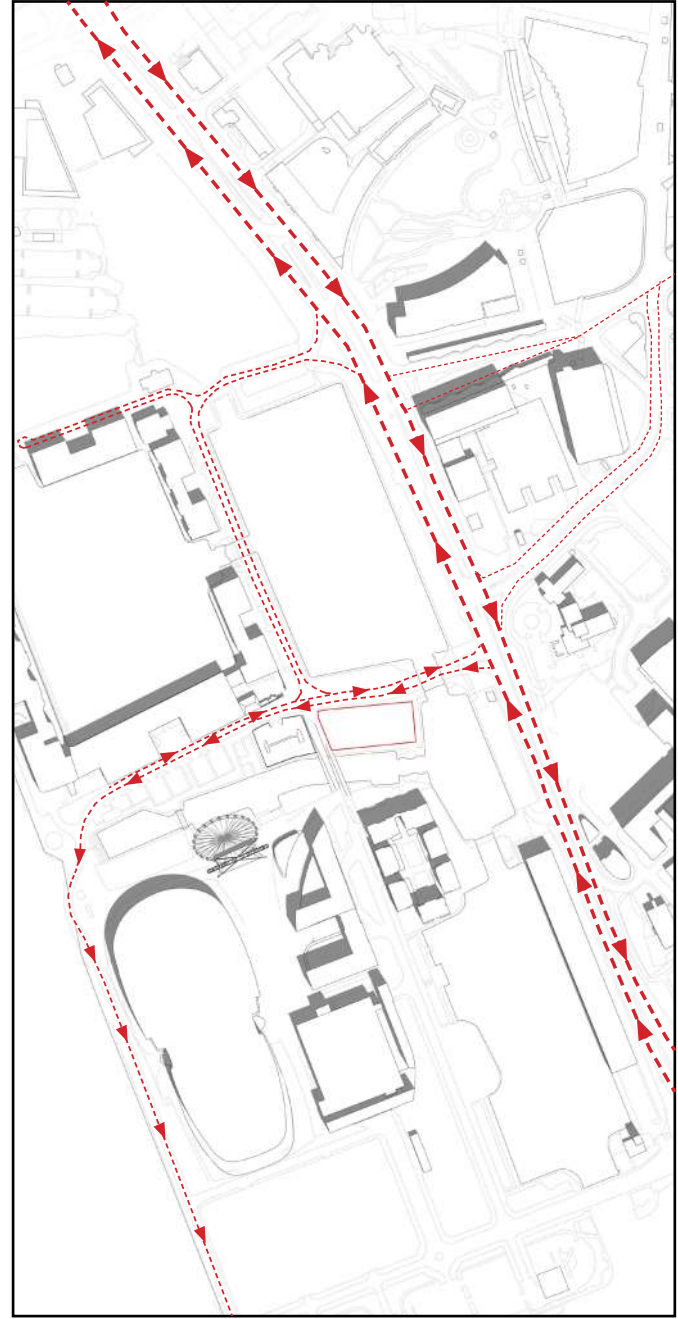
MERSEYSIDE REGIONAL ASSEMBLY

The brief specified a Regional Assembly to support the affairs of the Merseyside County. Located at the Liverpool Waterfront, the project involved a thorough investigation of the relationships between, space, typology, program and geometry.

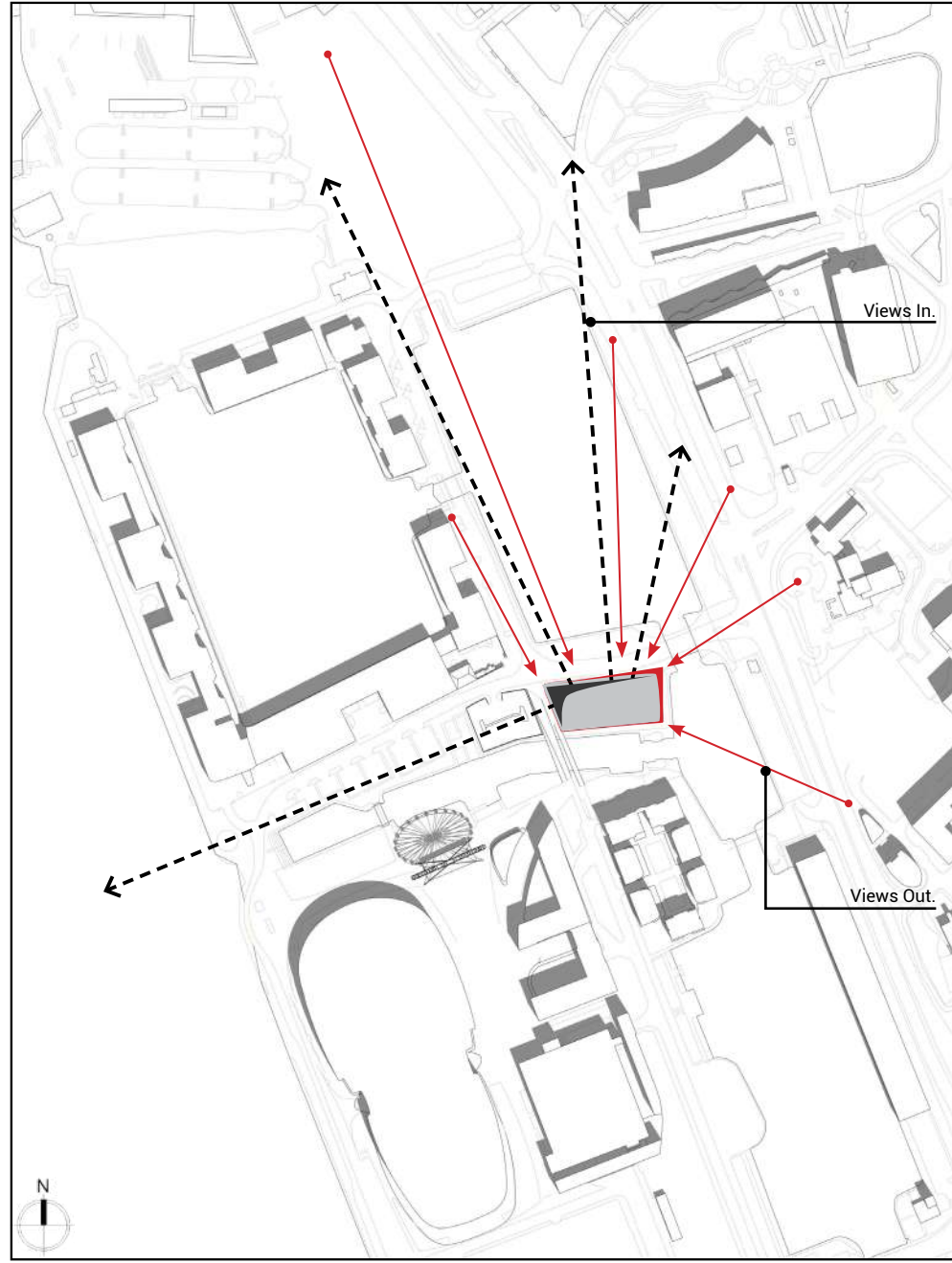
The brief also required a high level of transparency on public areas and ease of access. The building was to cover 2000m² gross floor area, thereby including an extensive schedule of accommodation and spatial requirements. The assembly was to support 70 Members of Parliament, and also enhance a dialogue between the public spaces and administrative offices.



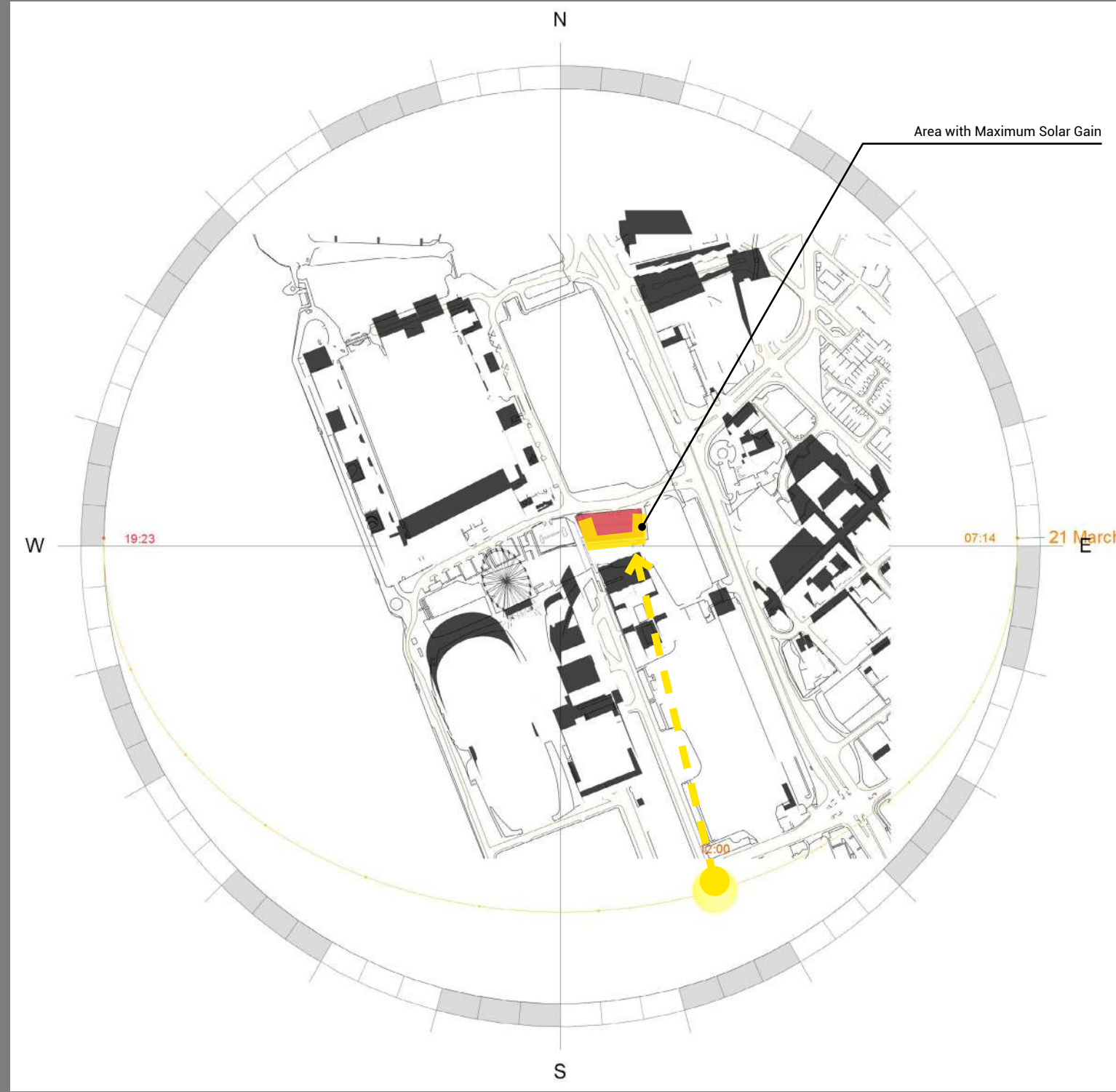
THE SITE.



Transportation Route.
Pedestrian/Transport Flow to inform design on public and private entrance points.



Views & Space Allocation.
The red area on site should be designed to introduce the public and draw attention/views. The dark area should offer public views out at high heights off ground.

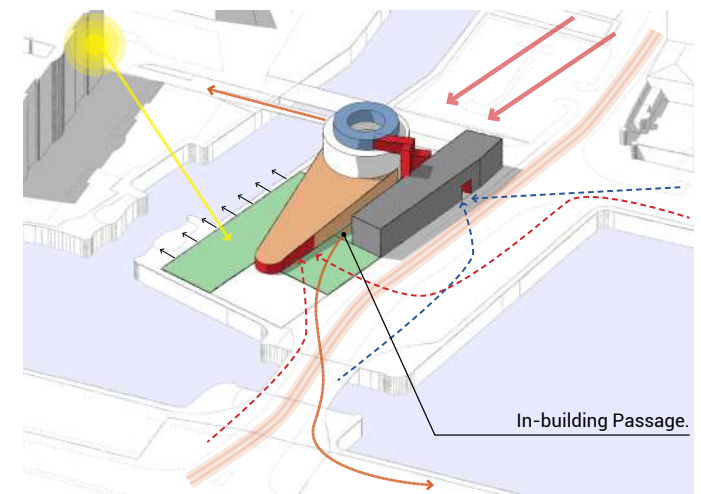
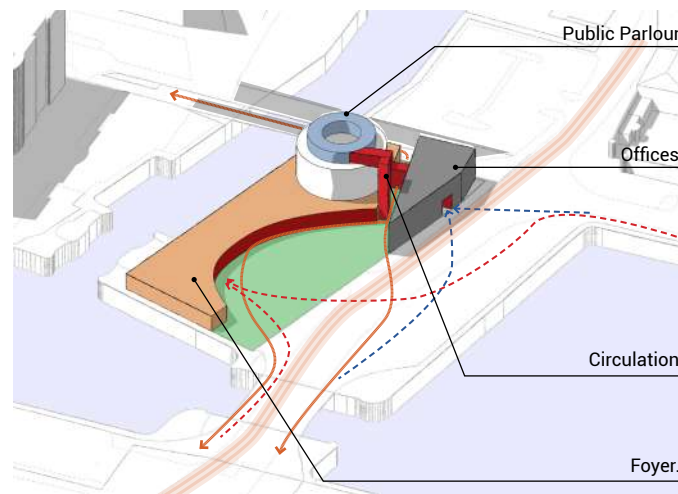
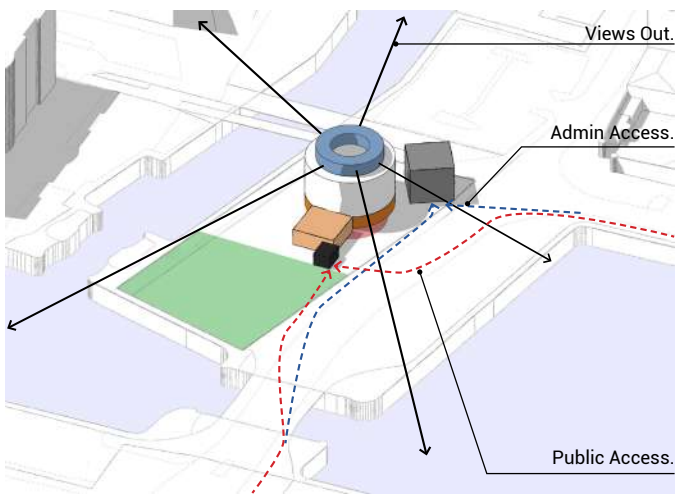
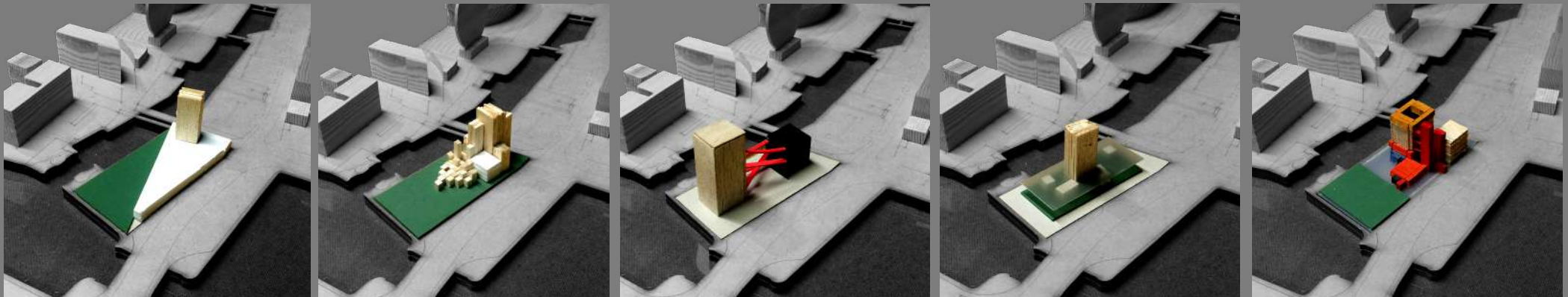


The most predominant feature of the site was the city skyline, encompassing some of the best/tallest buildings in Liverpool. On approach, the site can be spotted from long distances apart. However, views out from the site can only be appreciated at high levels off ground as a result of vehicles, people and trees obstructing lines of sight. Other observed influences included the materiality, the surrounding buildings (types & heights), site weather analysis, site neighboring functions & activities and most significantly; circulation, public transportation and access points.

Although Albert Docks is a public area in Liverpool often flooded with tourists, vegetation which often attracts to public and identifies free space is rare in this area. Perhaps it is because land is expensive in this region of Liverpool. Use of vegetation in the design could help identify the building as public and also allow a variety of activities in the building. In addition, seasonal change in sunlight conditions might require for a change in use of space. Passive heating and cooling techniques were also introduced in the design process.

MASSING

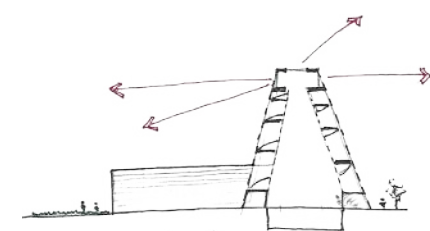
CONCEPTUAL EXPLORATION



By using very primitive forms to represent spaces, I explored a variety of program and design options on the site. The sketches on the left show the basic concepts integrated into the design. The first challenge was the need to provide an astonishing view of the city to the public. The second was to represent the

building as gathering of individual elements, thereby expressing my view of the city as a group of people functioning in unity and harmony. The third sketch expresses the concept of a distinct, but close relationship between the private and public space. The last sketch expresses the idea of a free sheltered space; somewhere

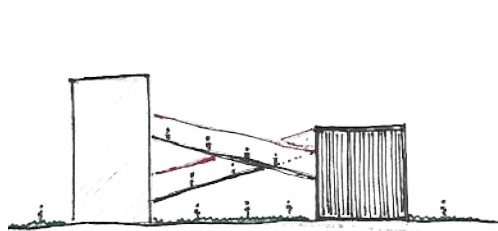
people can walk into and explore with ease. The diagrams show progressive alterations on programmatic models in response to site conditions, urban context, circulation, views and materiality.



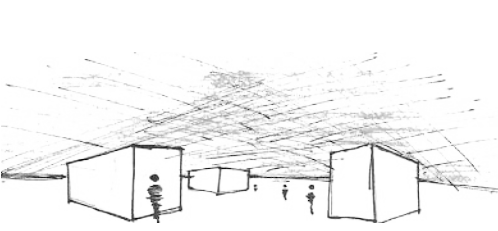
Public Viewing Gallery



Modular Gathering

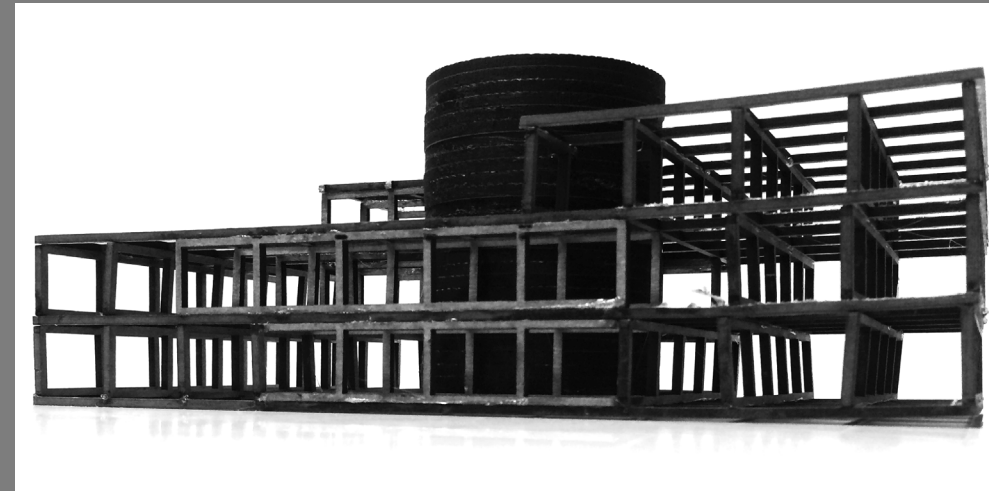
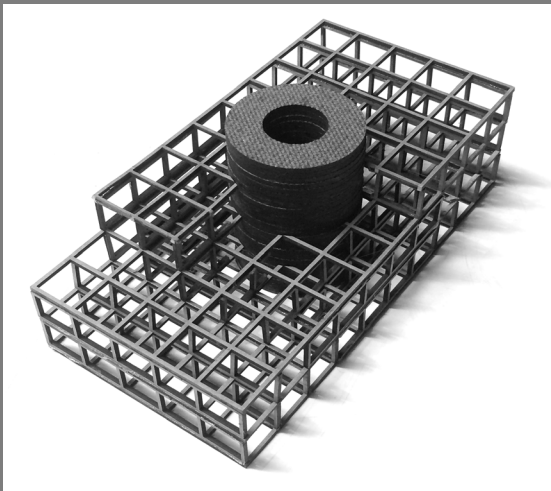
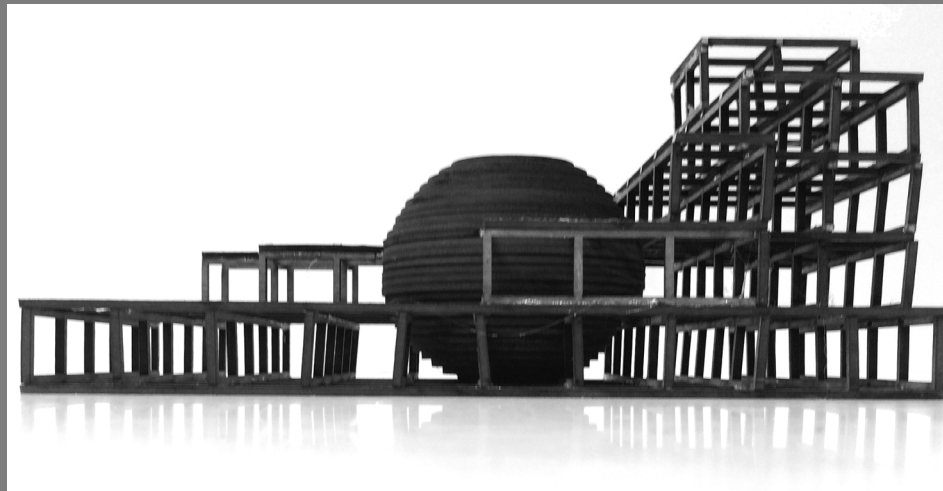
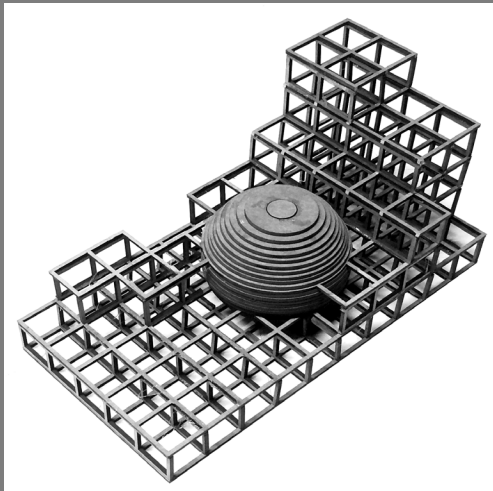


Public/ Private Division



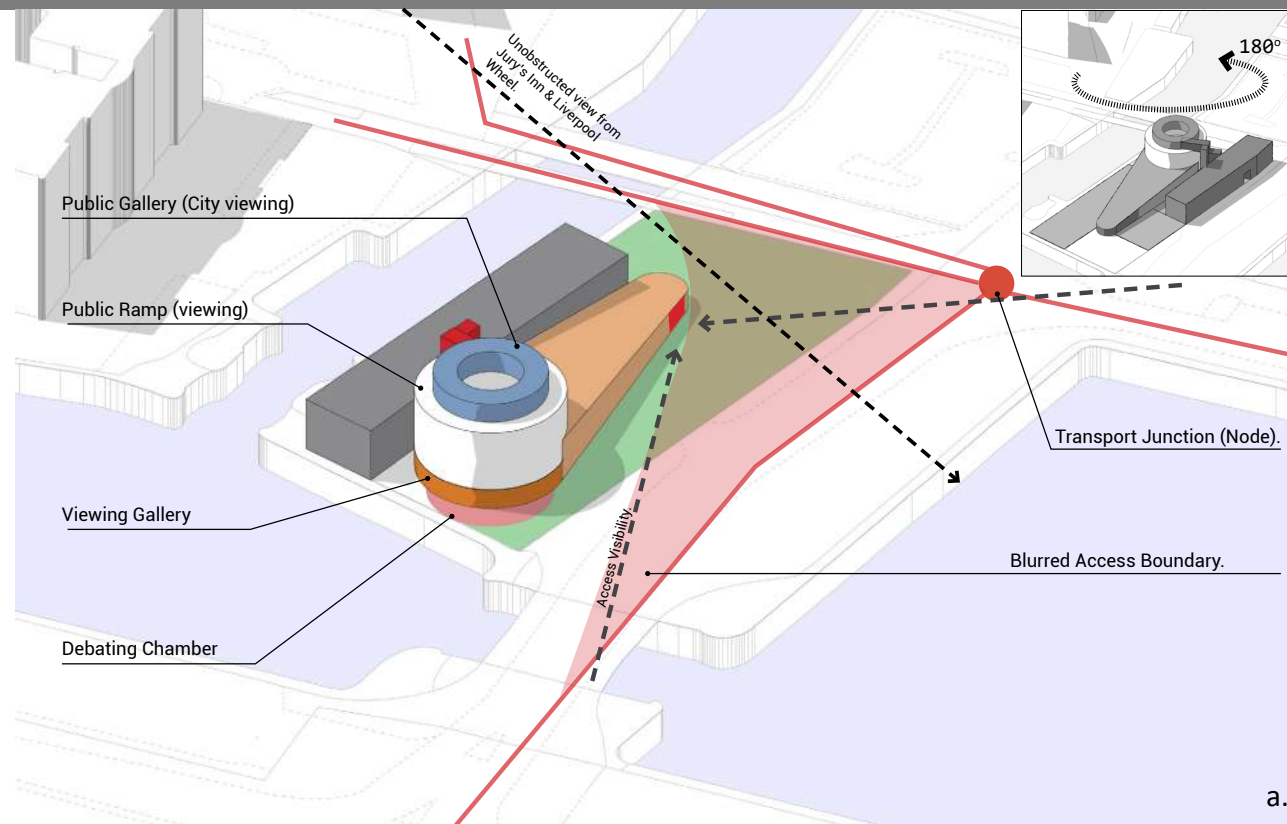
Blurred Entrance Boundaries

MASSING

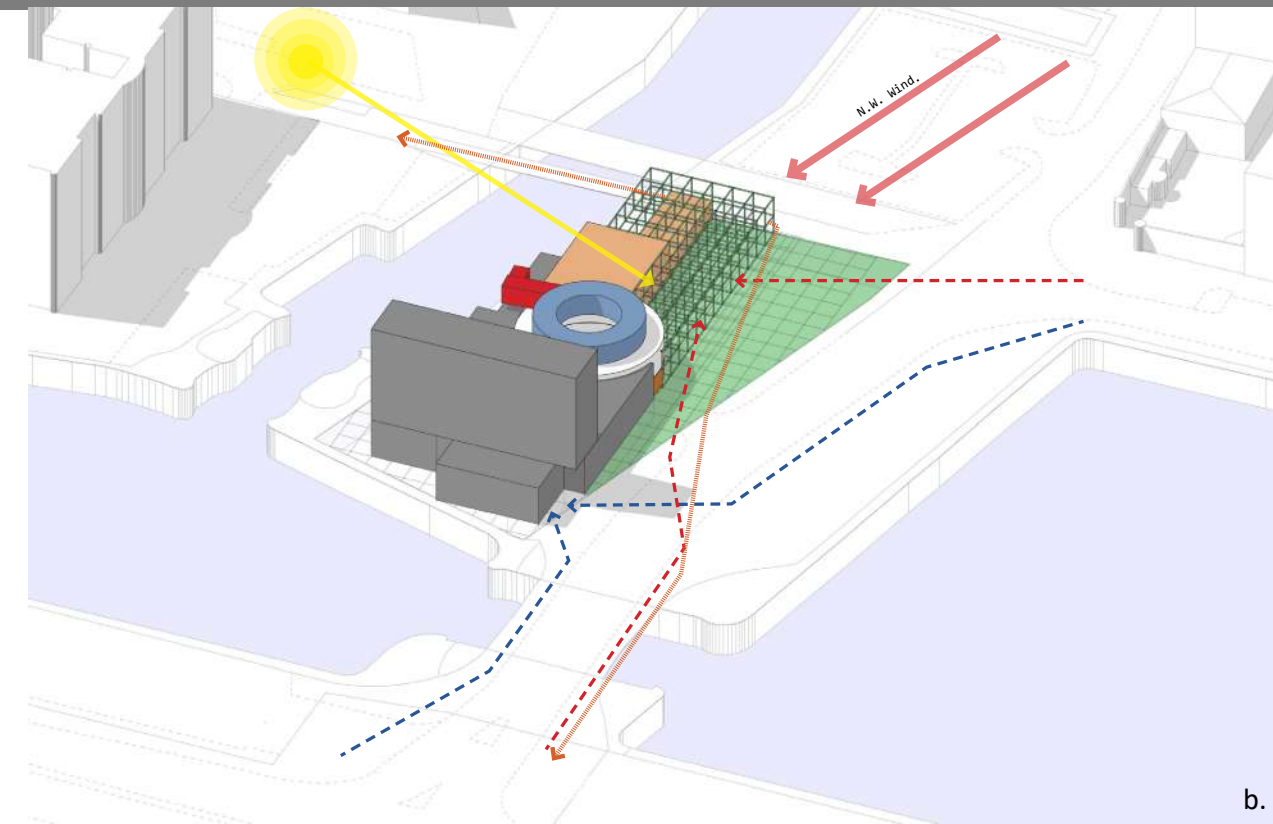


Enhancing the expression of a gathering, as well as internal transparency, the primary structure (steel coated with intumescent paint) is exposed. Exposed to sunlight and supported by vegetation, the atrium serves as a buffer zone between the public and administrative offices.

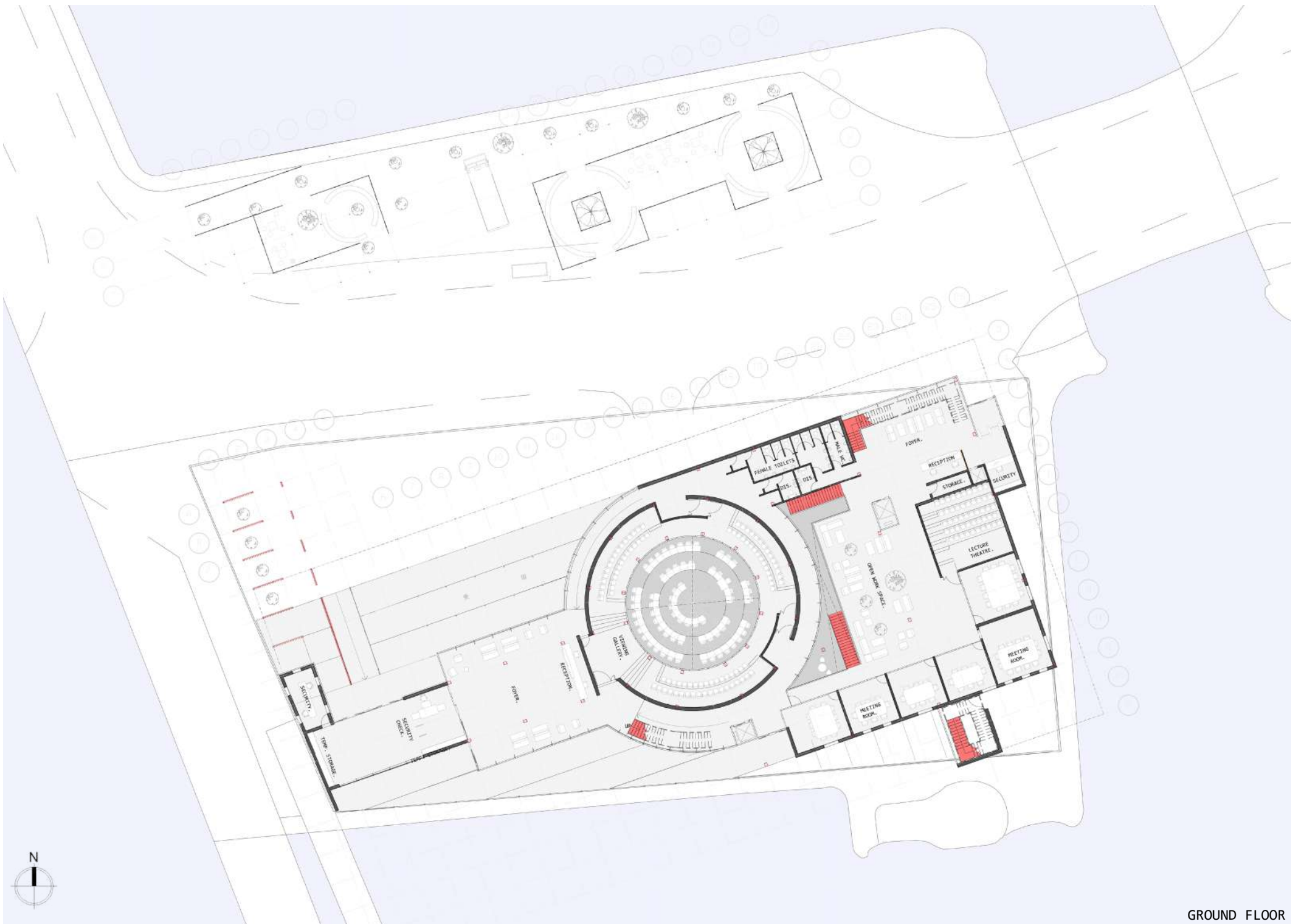
Img(b). on the right illustrates the consideration of materiality, movement and activities for passers-by. The diagram is a projection of fully resolved program sketches. This basic form represents the building as a harmonic combination, enhanced by the cylindrical assembly core



Access made clear by rotating the building on site. A node is being formed where the pedestrian footpath, Gower Street and Salthouse Quay Meet, as such this area is already been identified as a public junction. Re-orientating the building identifies the outdoor area as a passage, an entrance and a public space.



Metabolism. Design of the outdoor space has been inspired by Japanese Metabolism otherwise known as The Living Architecture, which comprises of a structure that can be reconfigured based on environmental/ economic requirements.

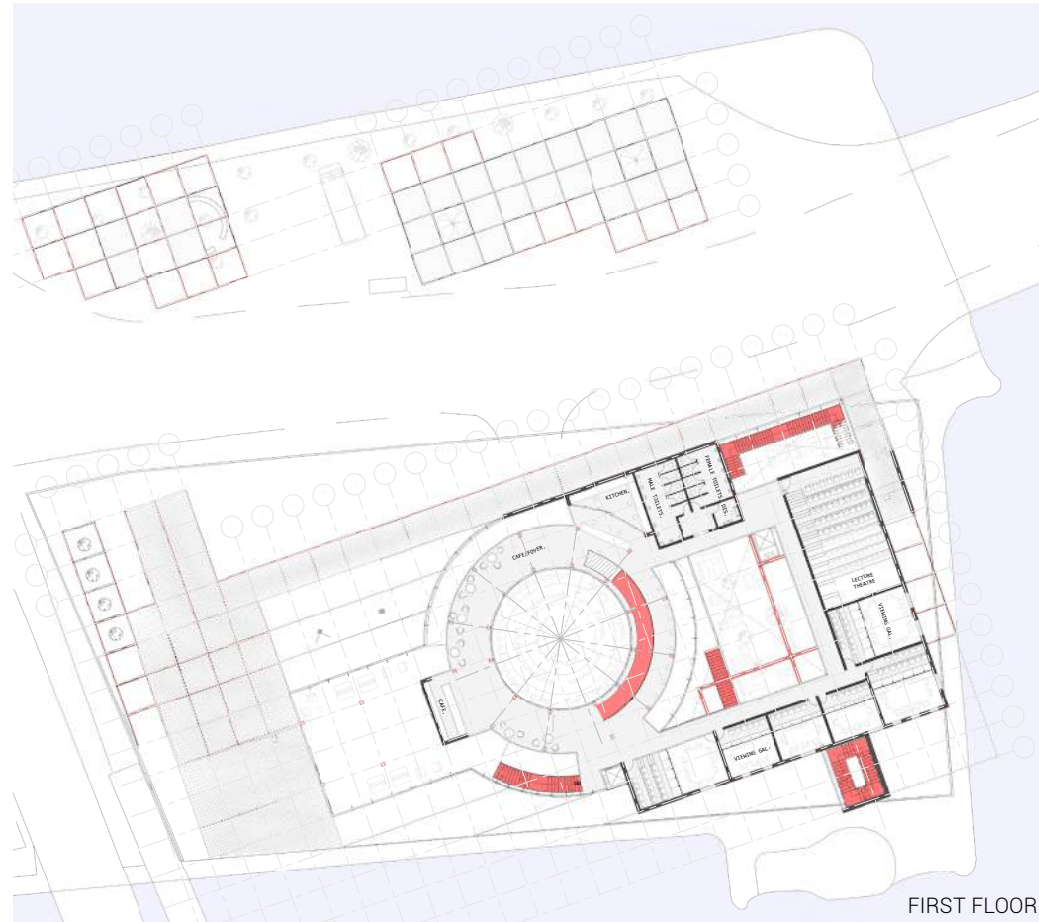


GROUND FLOOR

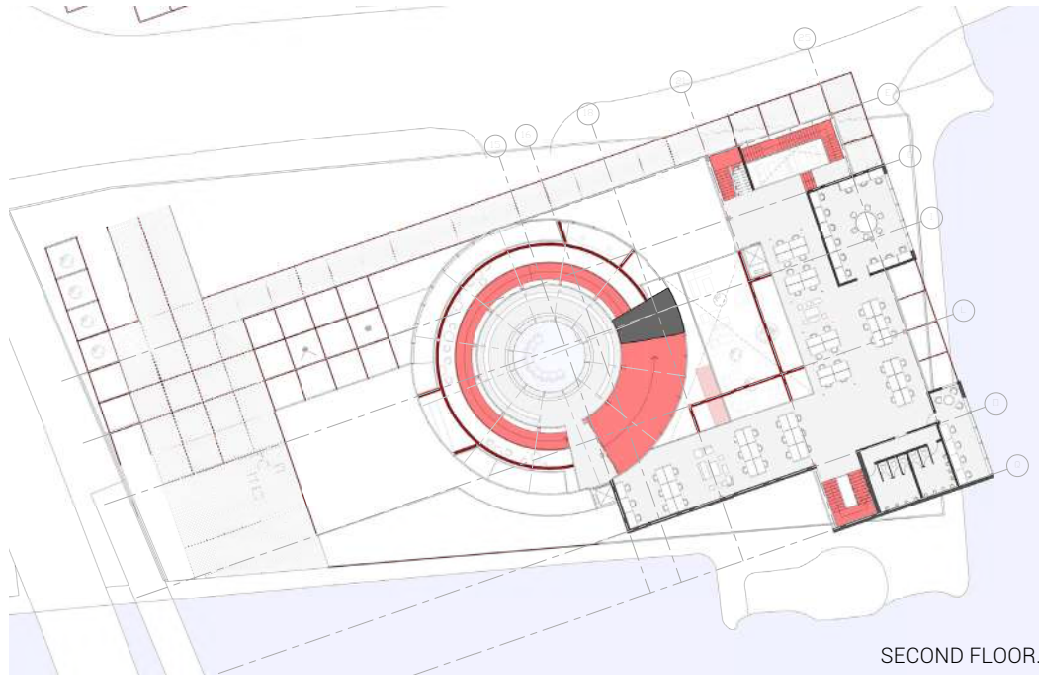


The resulting design is one that provides a clear journey around the debating chamber/viewing gallery(cylindrical form) for public circulation. The journey starts from the outdoor space, which encompasses a temporary polycarbonate system, supported by SHS steel grid, unto the foyer and the viewing gallery on ground floor and then upwards to the public parlour and roof space, where they can continue to monitor activities of the assembly hall, simply relax and grab a coffee or enjoy distorted views of the city via the lenscape system. The atrium serves as a platform for interaction between the public and the private. And the offices are offset from the facade so that they still feel like part of the atrium.

PLANS



FIRST FLOOR



SECOND FLOOR.



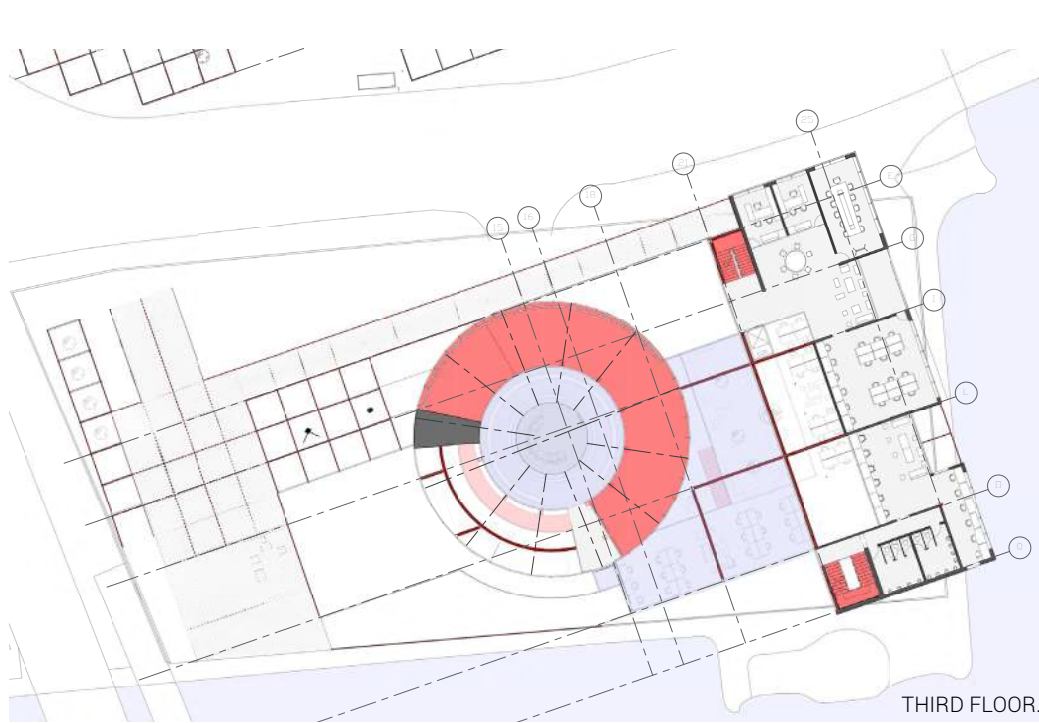
SIXTH FLOOR.



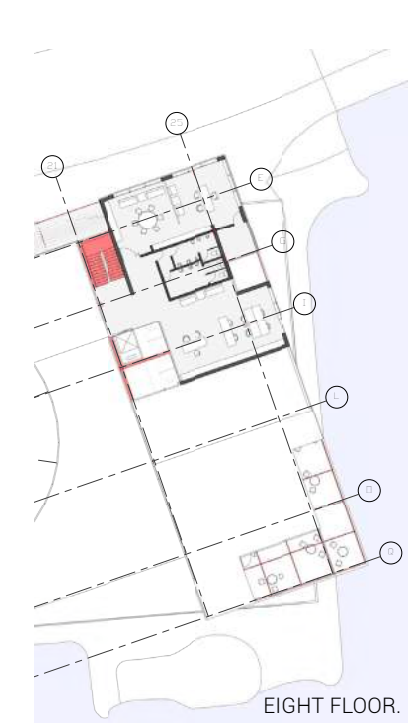
FIFTH FLOOR.



BASEMENT



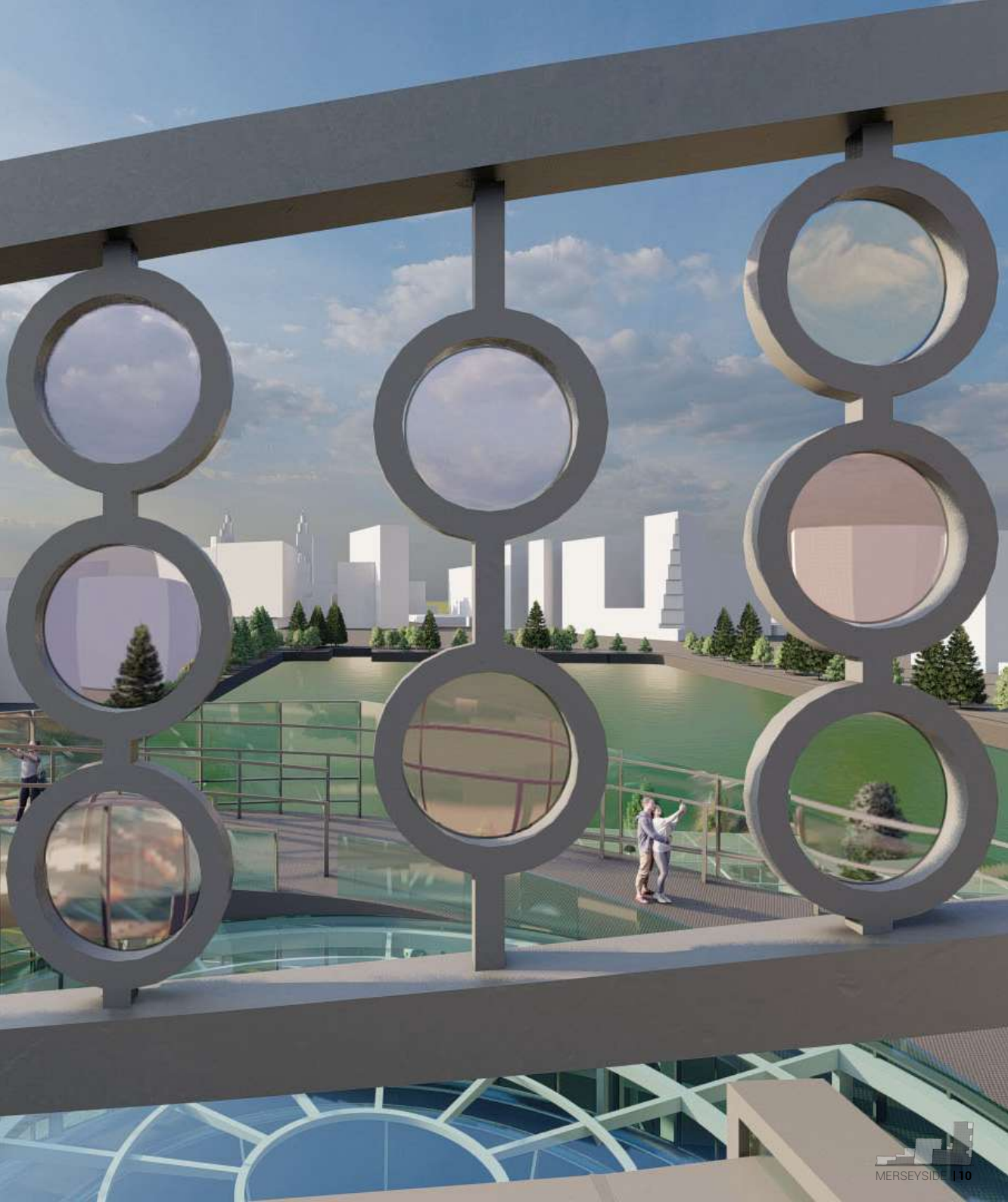
THIRD FLOOR.

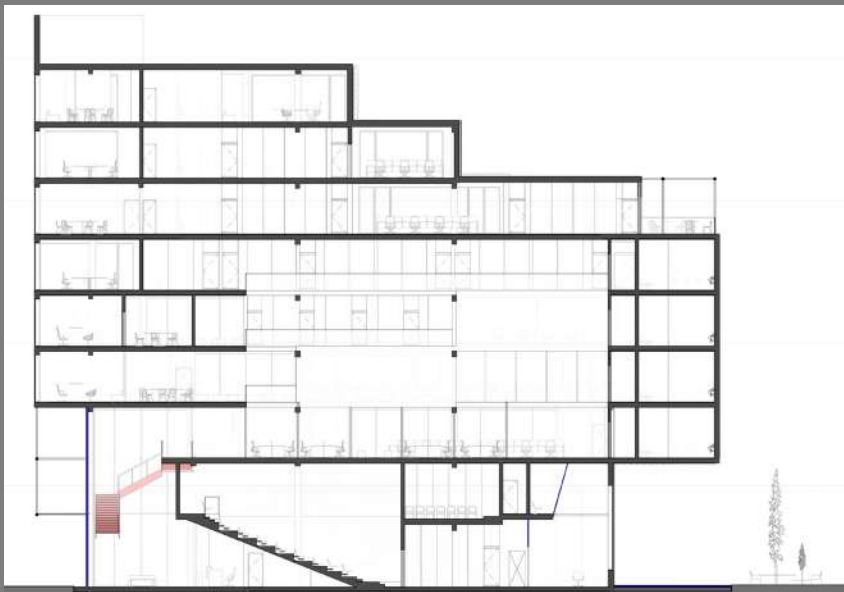


EIGHT FLOOR.

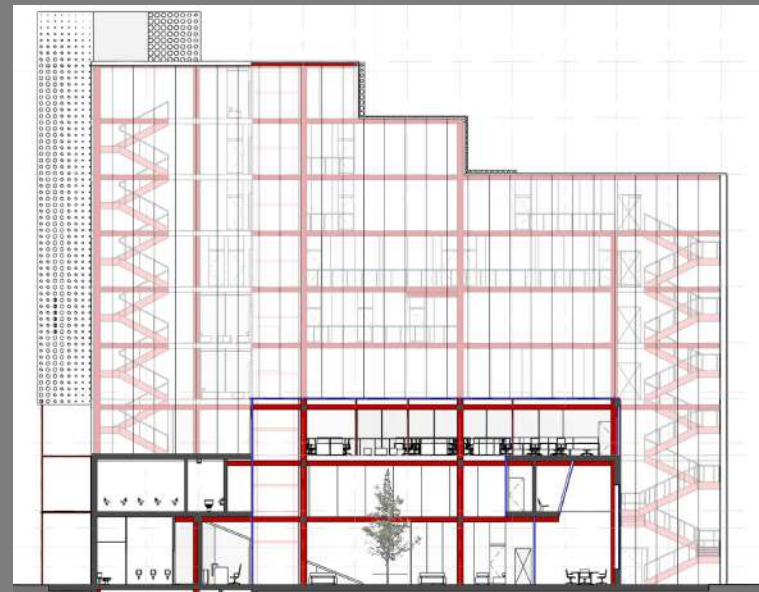


SEVENTH FLOOR.

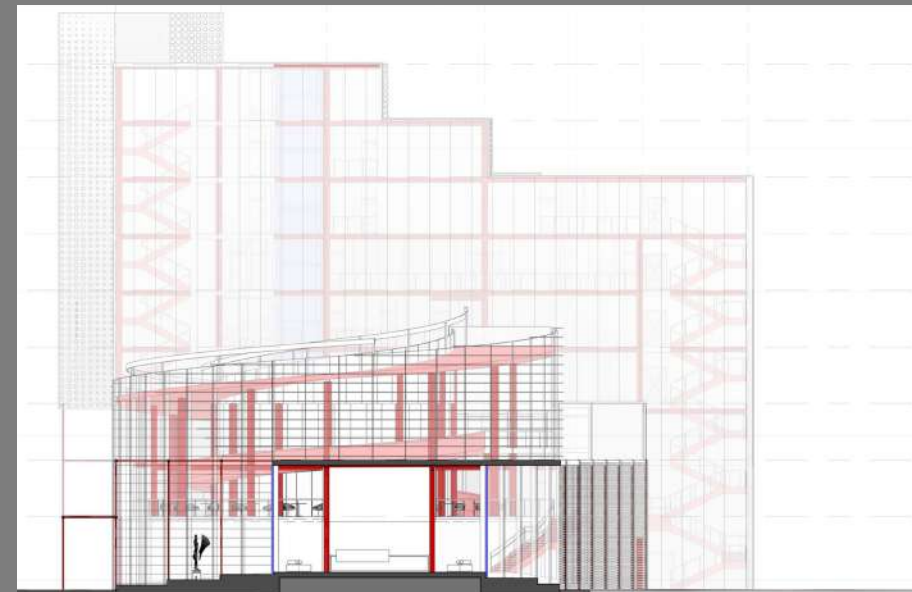




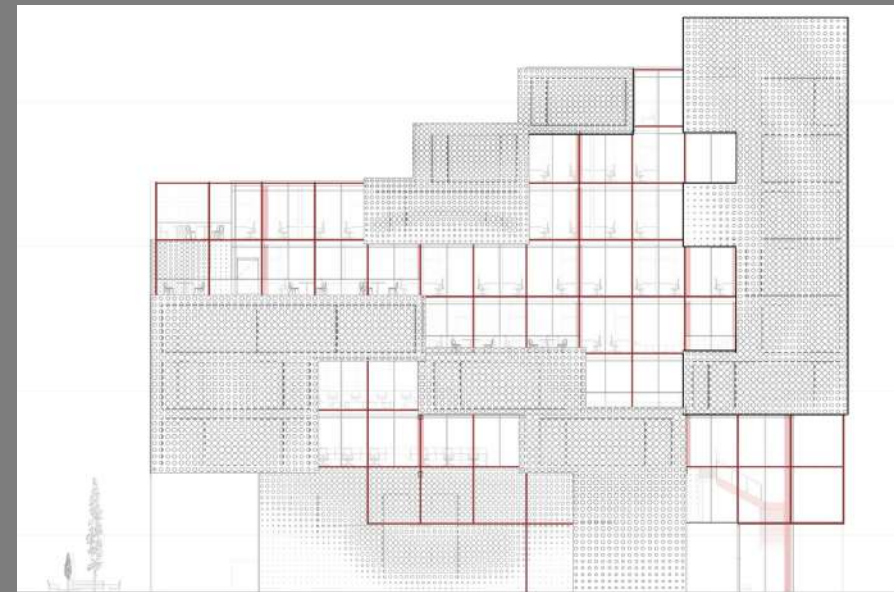
SECTION 02



SECTION 03



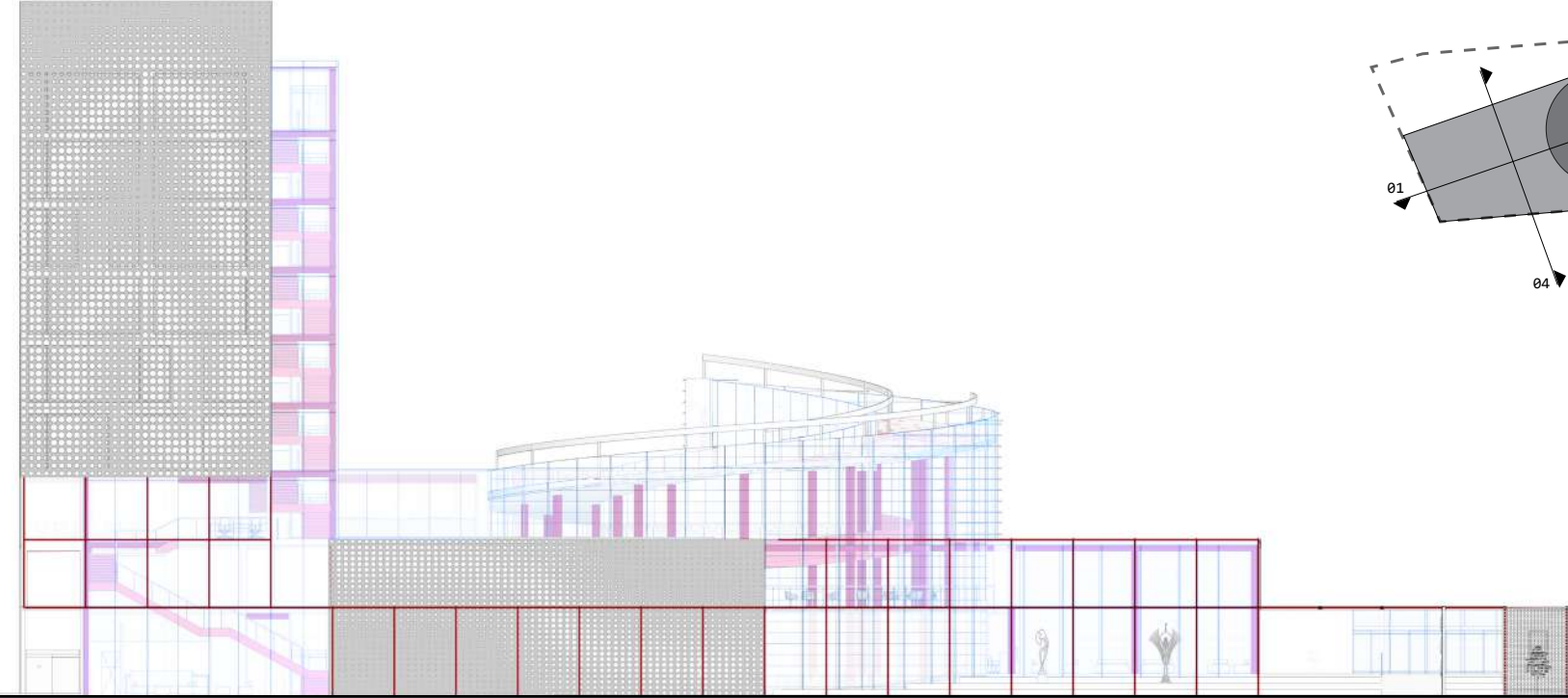
SECTION 04



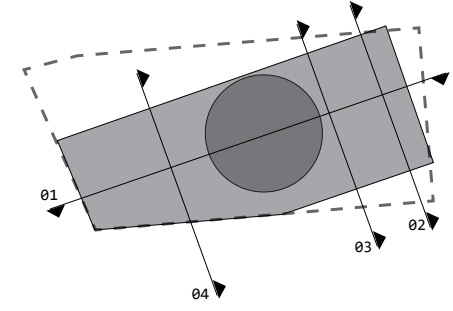
EAST ELEVATION



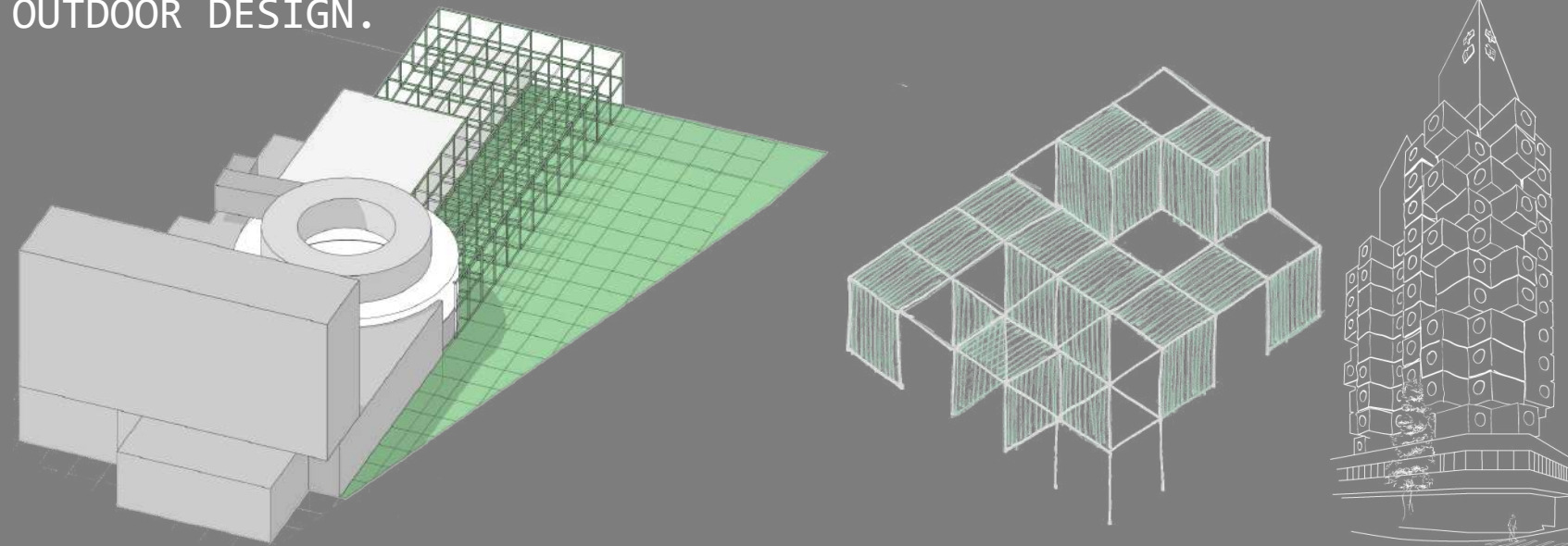
SECTION 01



NORTH ELEVATION



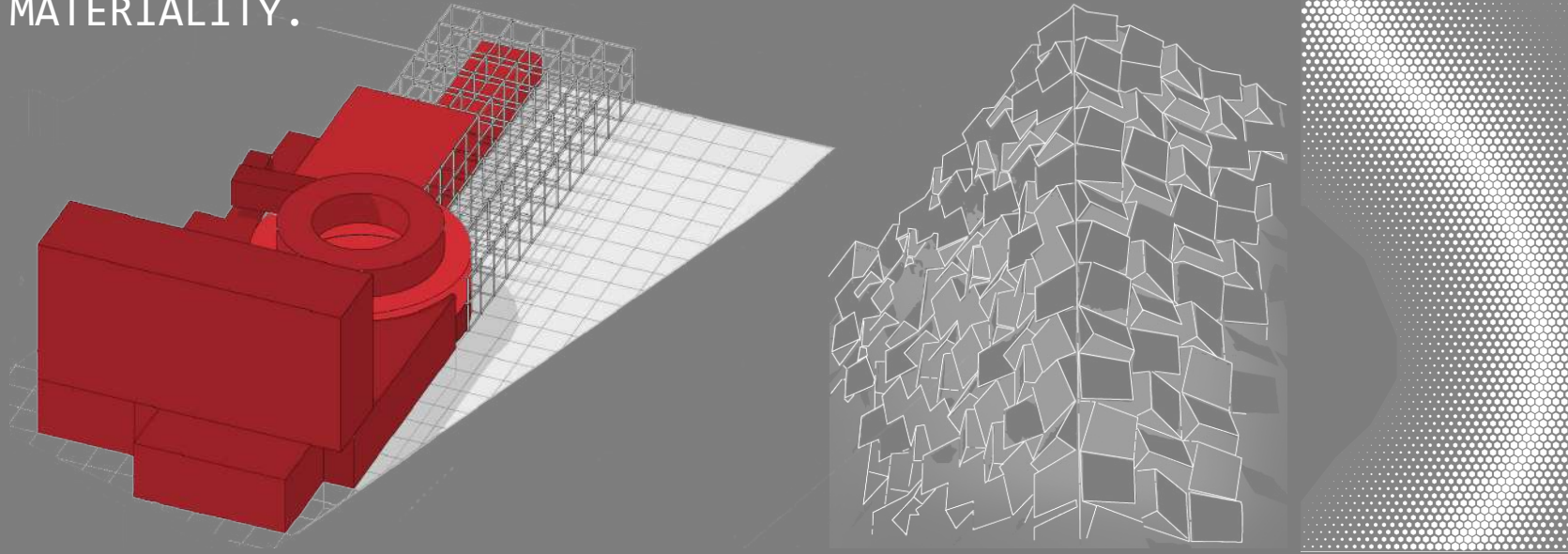
OUTDOOR DESIGN.



The Outdoor Plaza.

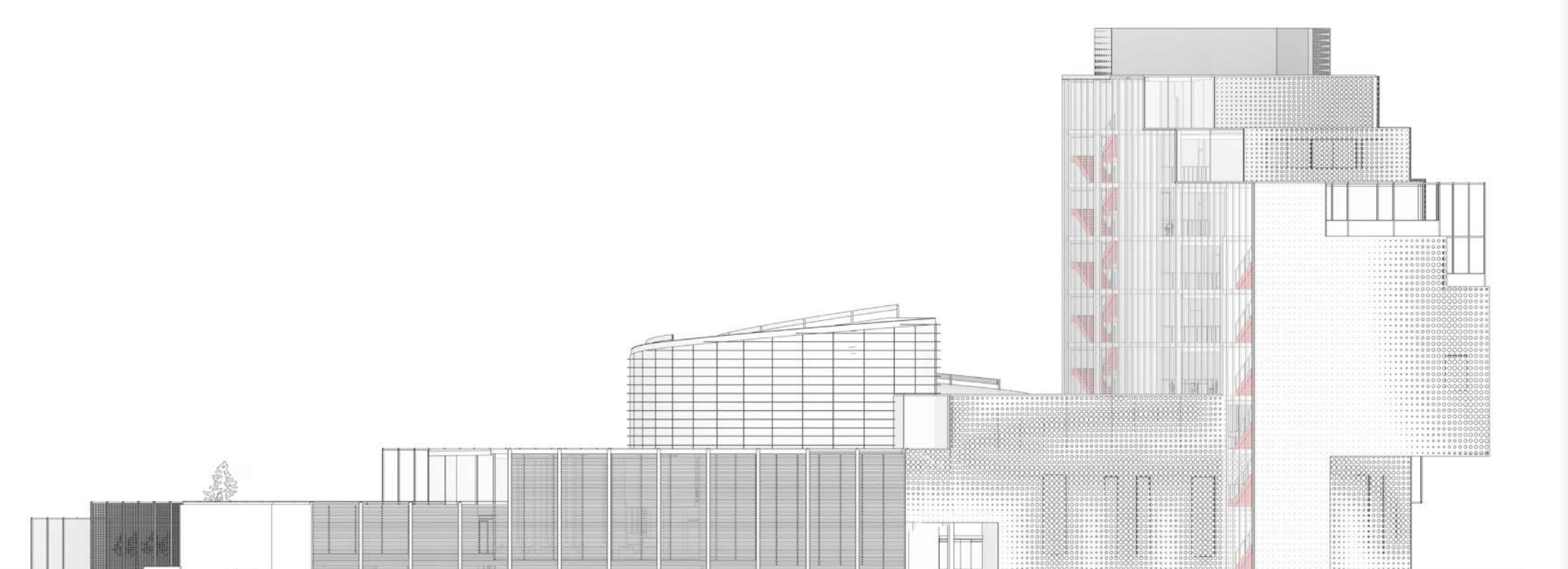
The Plaza is designed to function as an entrance, shelter and a passage. A permanent steel structure is built in space so that the infill panels can be alternated as the seasons demand. The grid which becomes more rigid (forming the building) represents the gathering of modular elements. Promoting the idea that a city is only realised by gathering of people.

MATERIALITY.

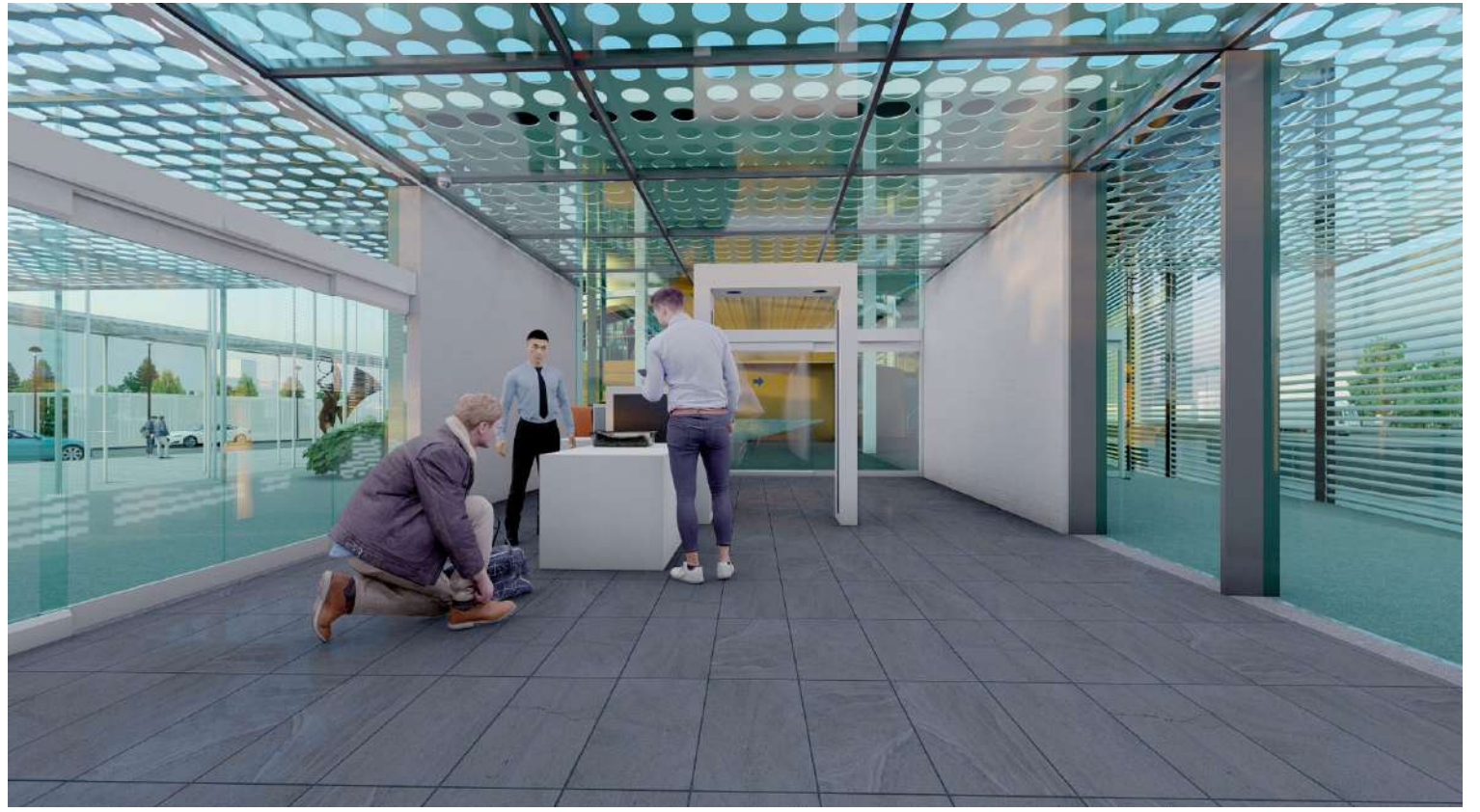


Materiality.

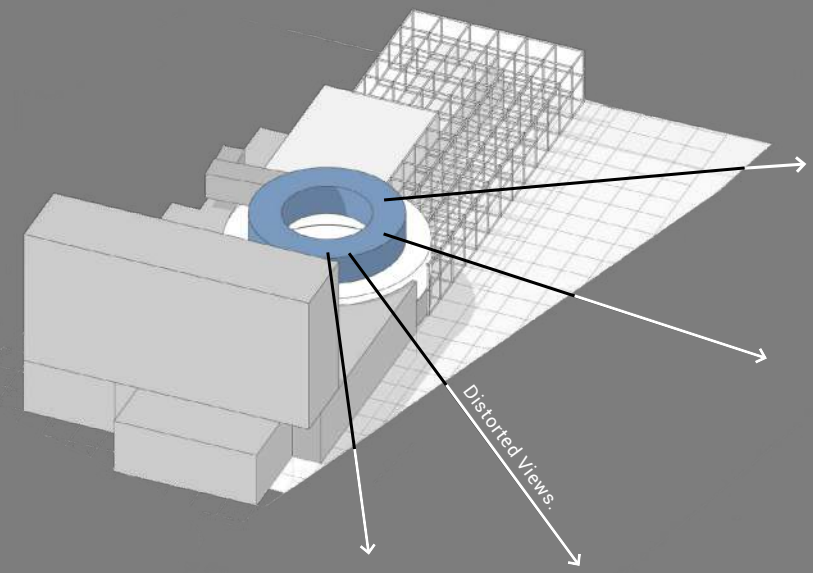
In consideration of materiality, I also considered the representation of units and how a harmonic relation between individual elements tend to form a magnificent whole. Transparency has been a major driving concept in this design, blurring the boundaries between the public spaces and the administrative offices is simultaneously essential as identifying the distinct regions. The steel frame structure also enhanced the possibility on building transparency.



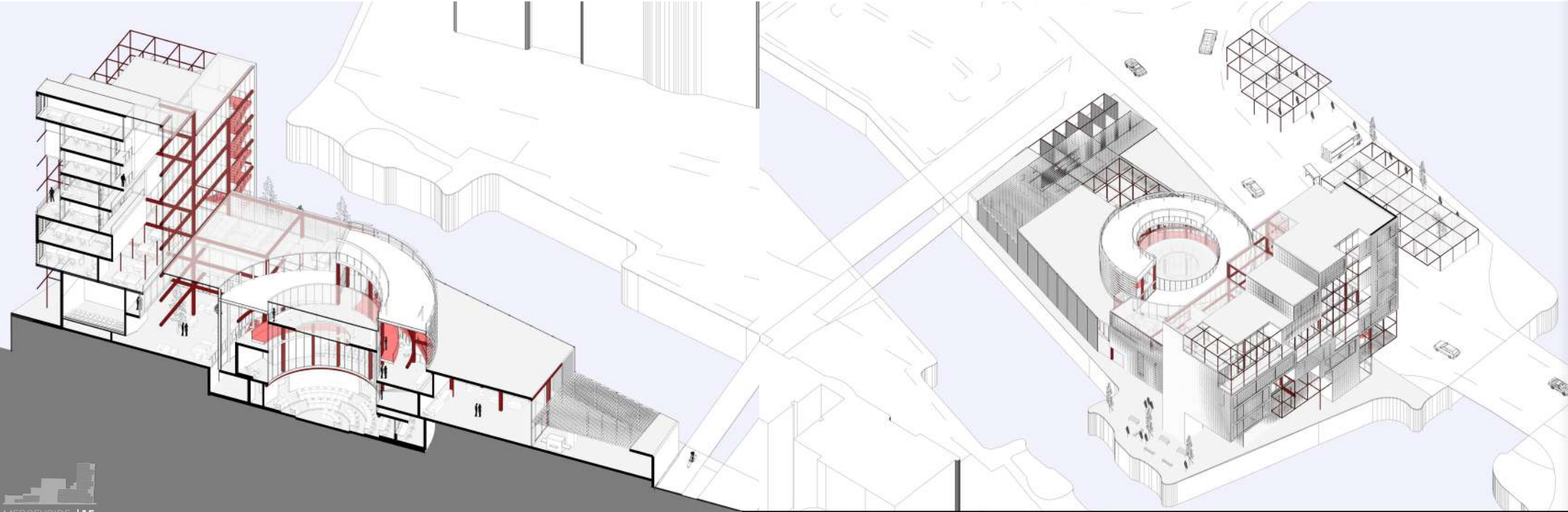
SOUTH ELEVATION

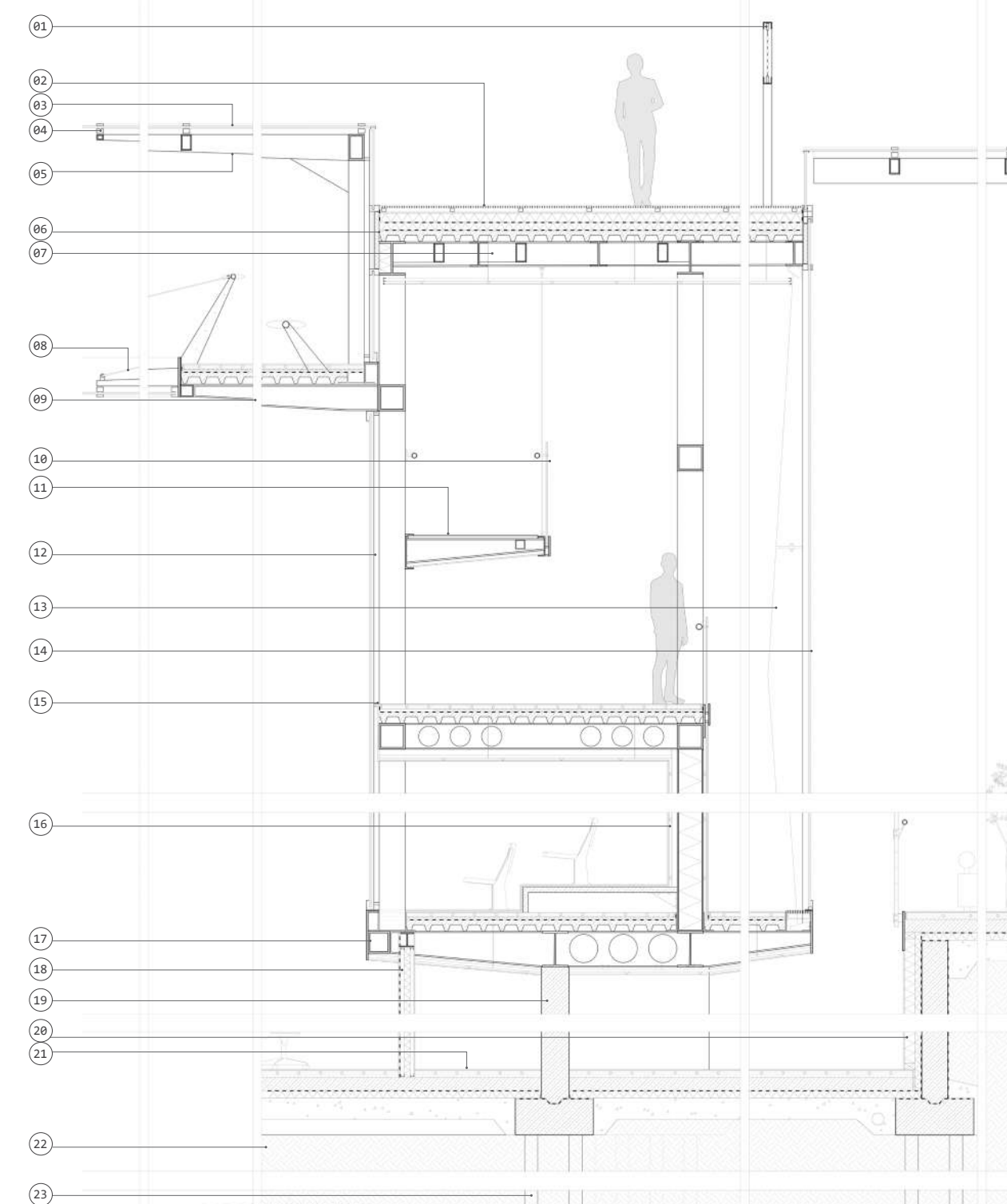
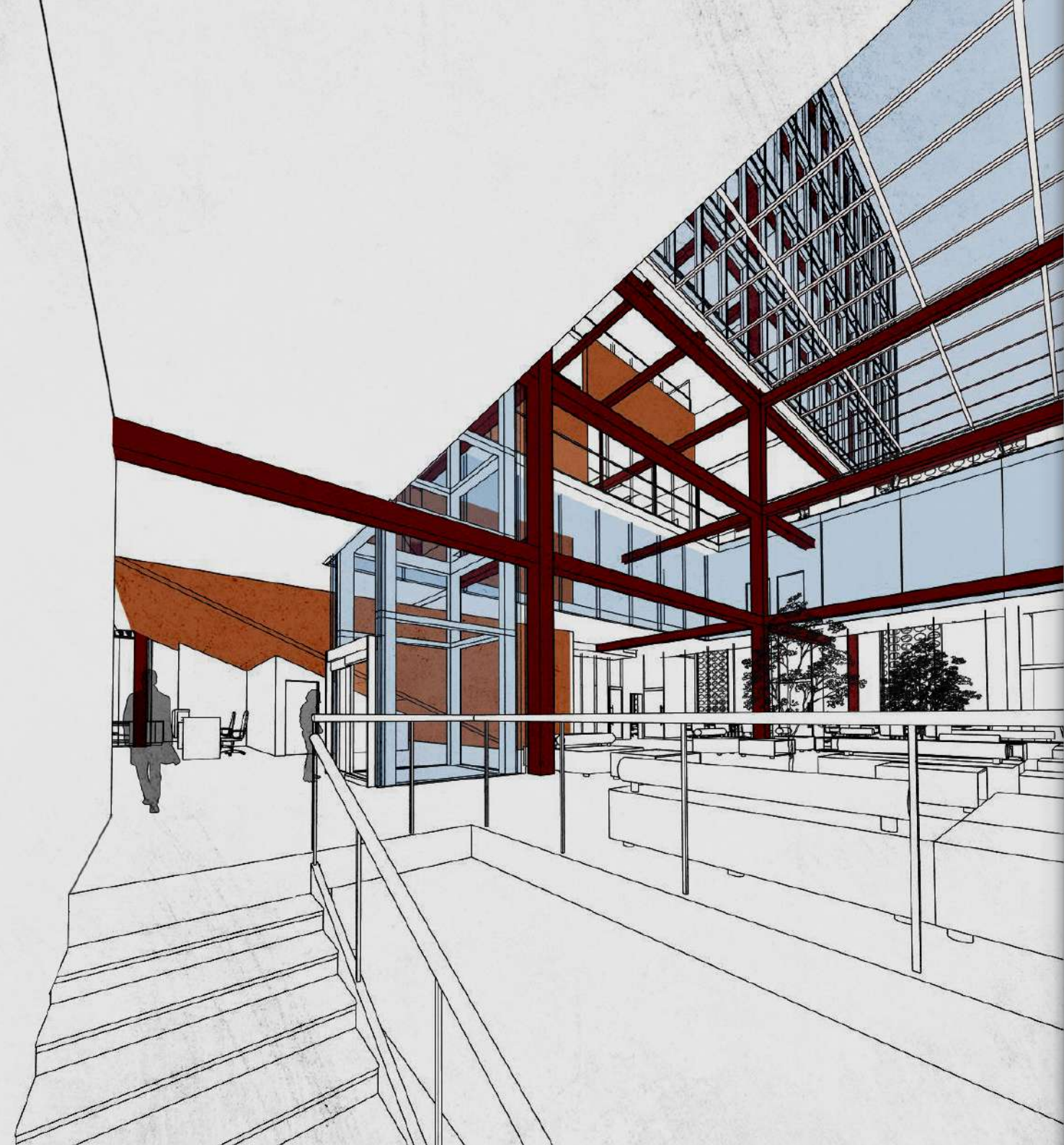
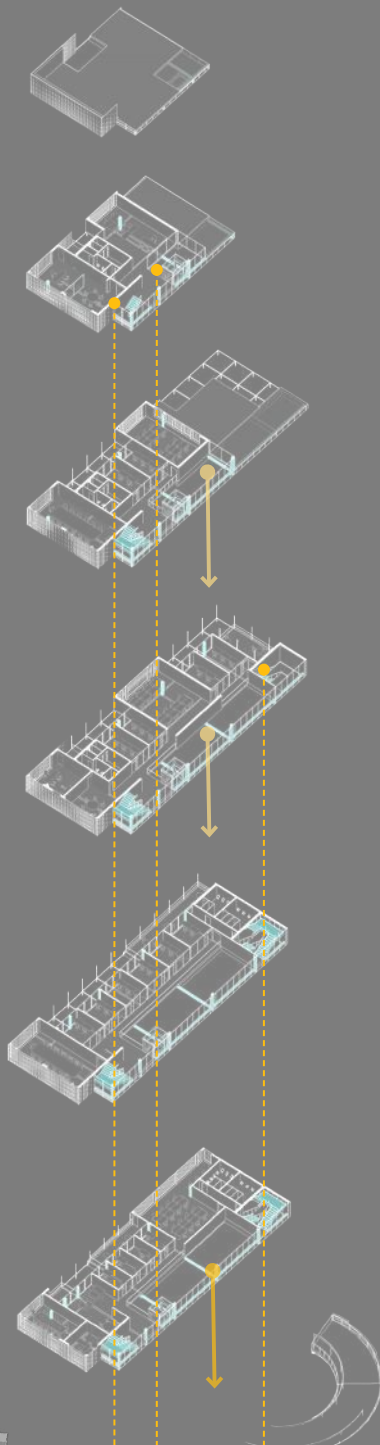


PUBLIC VIEWING

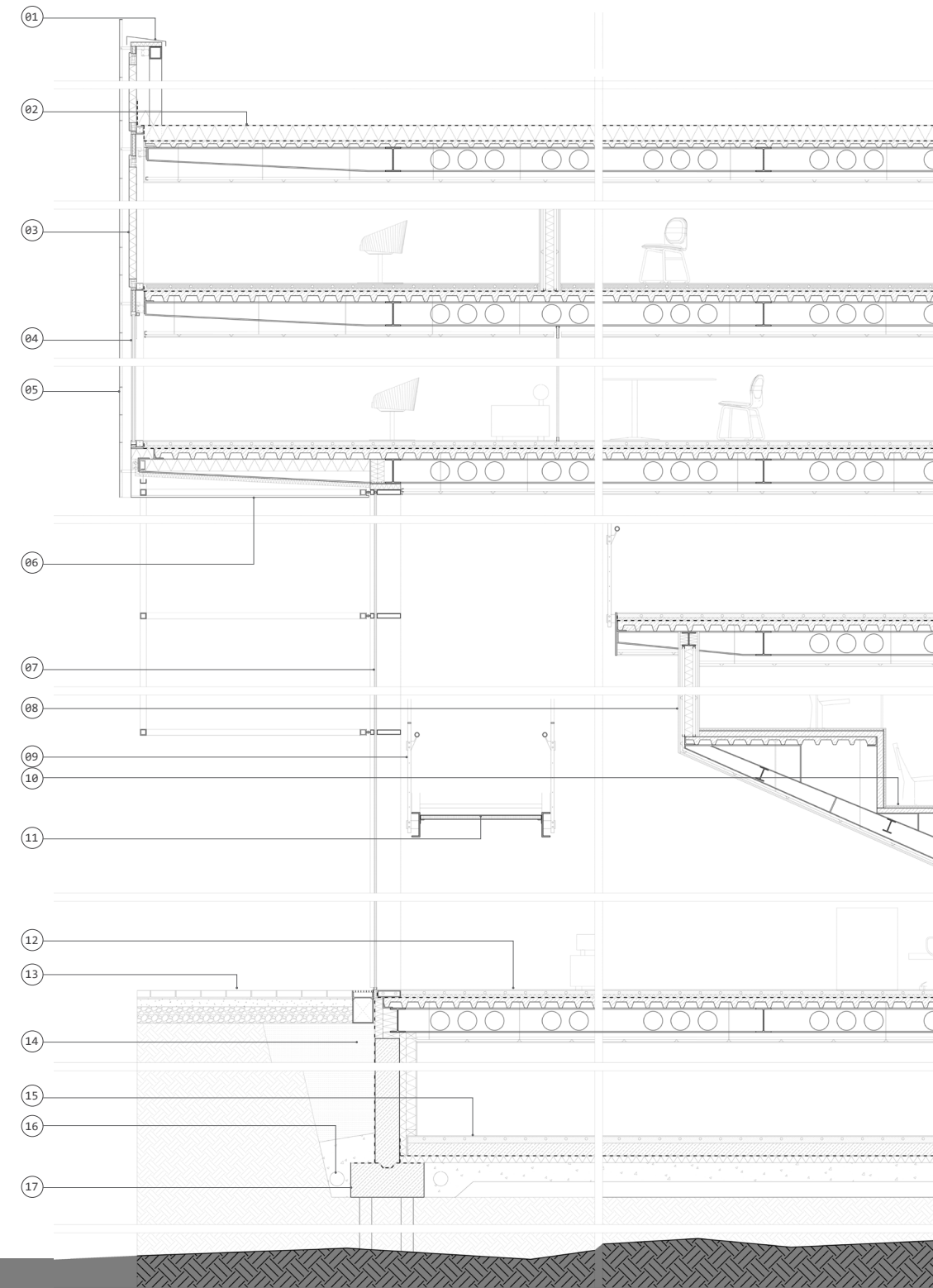
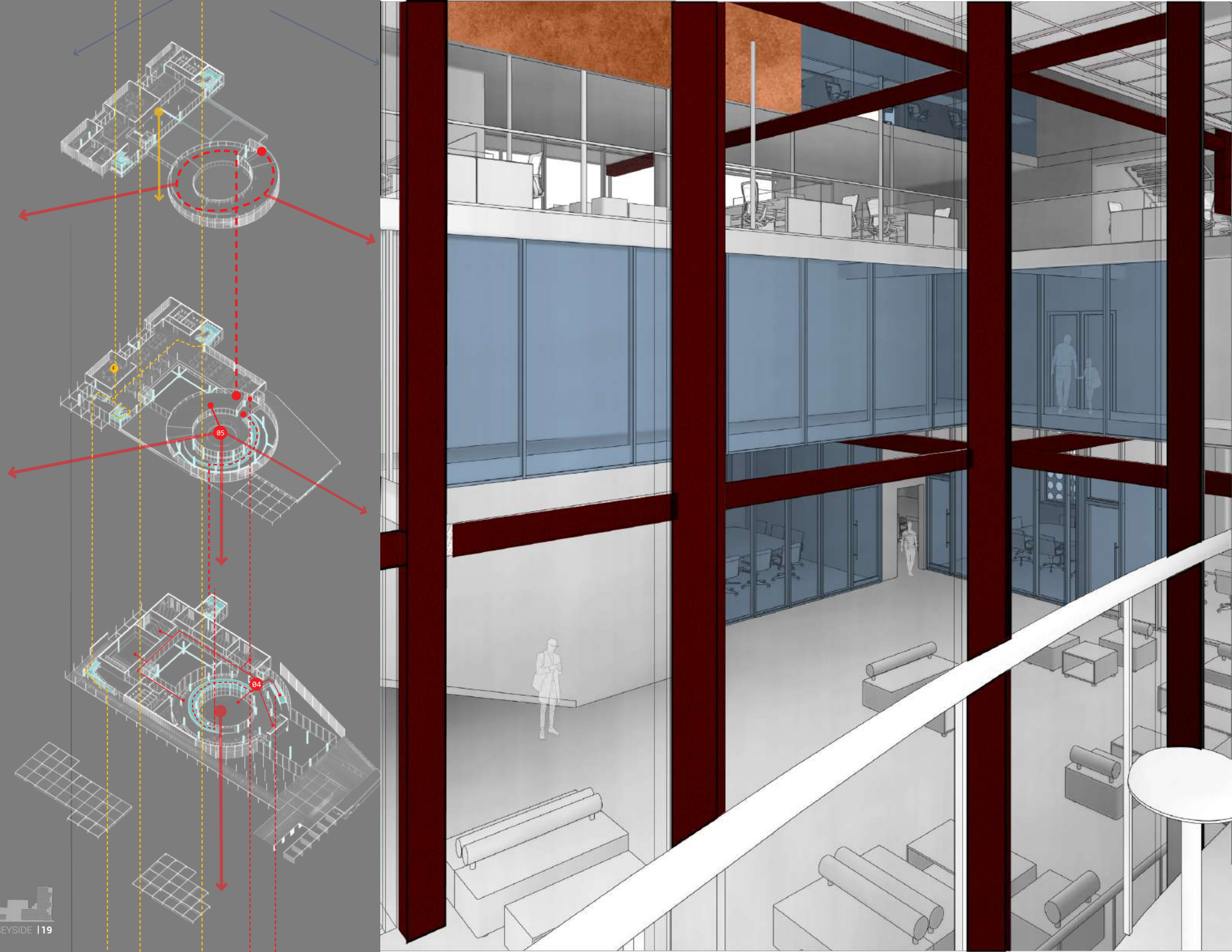


The Public Gallery
The Gallery is designed to offer special views of the city to the public. The idea is to distort the view of the city so that one can see something different every time they look. Inspired by Kine Solberg's Lenscape Series. This idea also falls in alignment with the function of the building (parliament).

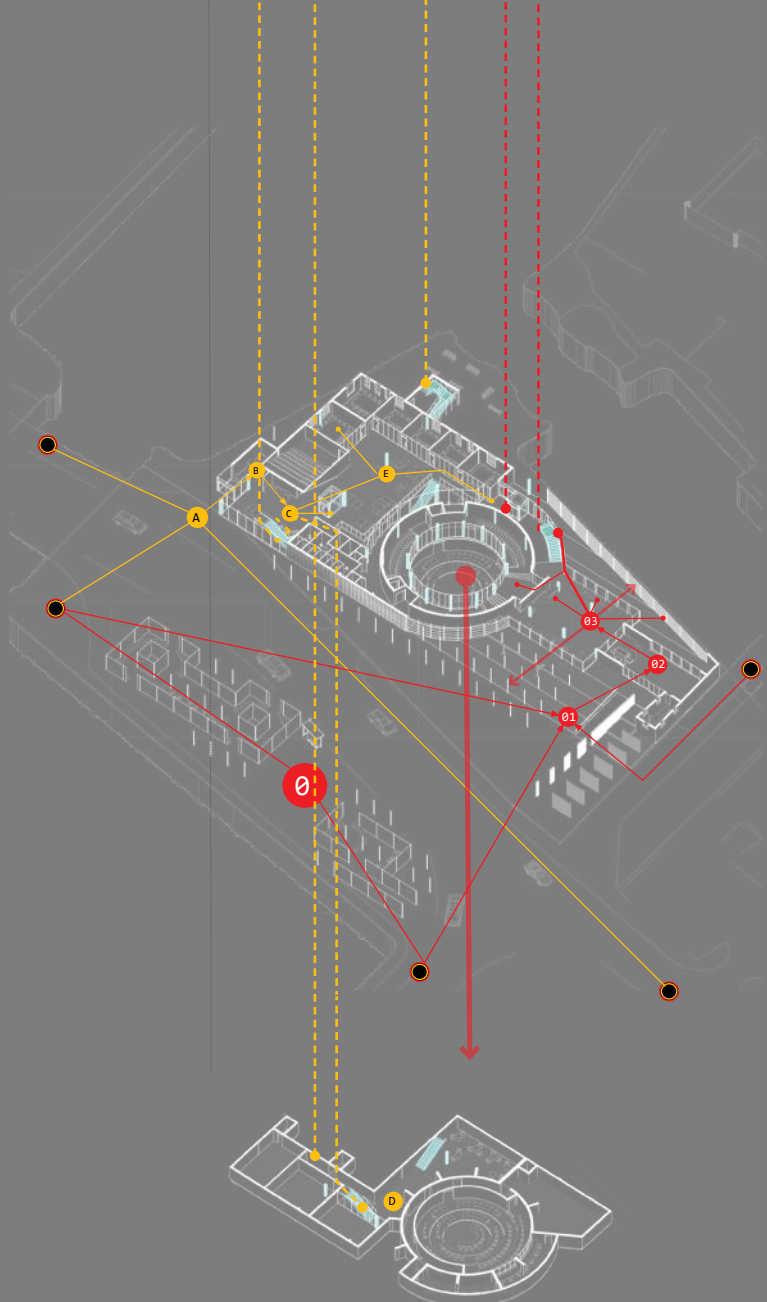




1. 75*75mm steel channel frame supporting lenscape series.
2. Roof Construction.
 - 20mm metal grating
 - 50*50mm battens.
 - 10mm protection board; sealant layer.
 - 100mm expanded polystyrene thermal insulation with drainage grooves.
 - two-layer bituminous seal.
 - 80mm expanded polystyrene insulation.
 - vapour barrier.
 - 125mm reinforced corrugated steel deck.
 - 375mm deep planar steel grid system (coated in intumescent paint (fire resistance)).
 - steel purlin (cold rolled channel).
 - resilient bars.
 - 12mm acoustic ceiling board.
3. 2*12mm laminated safety glass.
4. Mullion (aluminium).
5. Tapered Steel Frame.
6. 50mm sandwich panel (3mm powder-coated aluminium wall).
7. Resilient floor ties.
8. Wire cable.
9. Tapered I-section steel beam.
10. 20mm toughened glass.
11. Ramp Construction.
 - 4mm steel sheeting with non-slip coating.
 - Tapered steel frame support.
 - 12mm gypsum board.
12. 12mm double laminated safety glass. 7600 high.
13. Glass fin, 3*12mm laminated safety glass.
14. 2*12mm laminated safety glass.
15. Glass retainer 30mm steel bar.
16. - 2*12mm gypsum board
 - Resilient Bars.
 - light C-channel steel studs in 30mm dense mineral wool boards.
 - I-section steel column in mineral wool packing.
17. Welded unconventional steel section.
18. Internal Wall.
 - 12mm gypsum board.
 - Noise Barrier.
 - Metal stud.
 - Mineral Wool Insulation.
19. 300mm exposed reinforced concrete foundation wall
20. Foundation Wall.
 - 12mm gypsum board.
 - stud wall with fibrous insulation.
 - 80mm rigid insulation
 - Vapour Barrier
 - 300mm concrete foundation wall
 - mastic asphalt tanking.
21. Basement Floor.
 - 12mm natural rubber flooring.
 - 80mm screed with underfloor heating pipes.
 - 150mm reinforced concrete slab
 - Vapour Retarder.
 - 80mm rigid insulation.
 - Gravel/Hardcore/Granular Fill (with exterior perimeter drainage embedded).
22. Uncompacted subsoil.
23. Foundation Pile.



- | | | |
|-----|---|--|
| 1. | -6mm sandwich element aluminium sheet with polyethene core. | -cement bonded chipboard. |
| | -Mineral wool packing. | -4mm galvanized steel sheet. |
| 2. | -2 layers of bituminous sealing. | 12. Floor Construction. |
| | -150mm SHS steel support beam. | 13. Pavement. |
| | -180mm mineral wool insulation. | -80mm concrete pavers. |
| | -vapour barrier | -Sand-asphalt (bitumen) (bedding course) 20mm thick. |
| | -80mm reinforced steel deck. | -100mm open graded concrete base |
| | -300*150 castellated steel beam(+ intumescent coating). | -compacted soil subgrade. |
| | -steel purlin (cold rolled channel). | -uncompacted subsoil. |
| | -resilient bars. | 14. Gravel/Hardcore/Granular Fill. |
| | -12mm acoustic ceiling board. | 15. -12mm natural rubber flooring. |
| 3. | 100mm sandwich panel (3mm powder-coated sheet aluminium). | -80mm screed with underfloor heating pipes. |
| | Fixed glazing in aluminium frame (8mm glass, 20mm cavity, 11mm glass) | -150mm reinforced concrete slab. |
| | Perforated aluminium facade panel. | -Vapour Retarder. |
| 4. | -15mm aluminium soffit cladding panel. | -80mm rigid insulation. |
| | -50mm rigid polystyrene insulation | -Gravel/Hardcore/Granular Fill. |
| | -mineral wool insulation. | 16. Exterior perimeter drainage system. |
| | -125mm reinforced steel deck | 17. Pile cap. |
| | -Polyethylene foil separation layer. | |
| | -30mm impact sound insulation. | |
| | -50mm screed with underfloor heating pipes | |
| | 12mm natural rubber flooring. | |
| 7. | Double glazing with low-e coating: 9mm toughened glass + 12mm cavity + 6mm toughened glass. | |
| 8. | -Double gypsum board | |
| | -Resilient rods. | |
| | -Metal studs (cold rolled steel section) | |
| | -100mm mineral wool insulation. | |
| 9. | Steel flats (with steel cables fixed through bored holes) | |
| 10. | -12mm rubber flooring. | |
| | -20mm floating floor acoustic treatment. | |
| | -80mm reinforced precast concrete element. | |
| | -10mm steel sheet bearer. | |
| | -Steel I-section main beam (tapering in length). | |
| | -cold rolled steel channel. | |
| | -resilient metal channels. | |
| | -2*gypsum board. | |
| 11. | Tread. | |
| | -5mm sheet stainless steel tread. | |



EXPLODED AXONOMETRIC
(Walkthrough Process).

PUBLIC.
The building has two main entrances (public and administrative) which can be approached from any direction as shown in axonometric.

0. The grid is extended beyond site boundaries, allocating dynamic space for outdoor public activities.

01. - Public Access/Plaza.
- Blurred Site Boundary.

02. - Security Check Area
- Outdoor feel maintained via perforated roof design.

03. - The foyer area forms a dialogue with the both the city and the residential apartments.
- Aesthetic display of renewable energy source on south facade via evacuated tubes.

04. - Lounge/Receptionist Area
- Access Viewing Gallery.

04. Cafe Area (Intermediate Lounge).
- View unto debating chamber
- Access to public parlour, viewing galleries & lecture theatre.

05. The public gallery offers views down into the assembly, out unto the city and back into the building. City viewing continues unto outdoor roof space.

06. The public roof space hosts a system of concave lenses that provide multiple distorted views of the city.

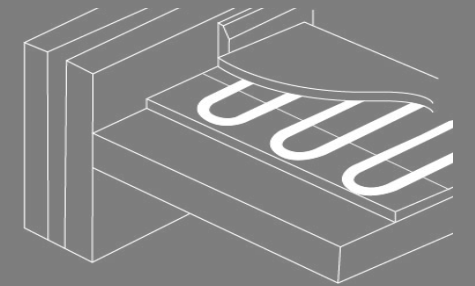
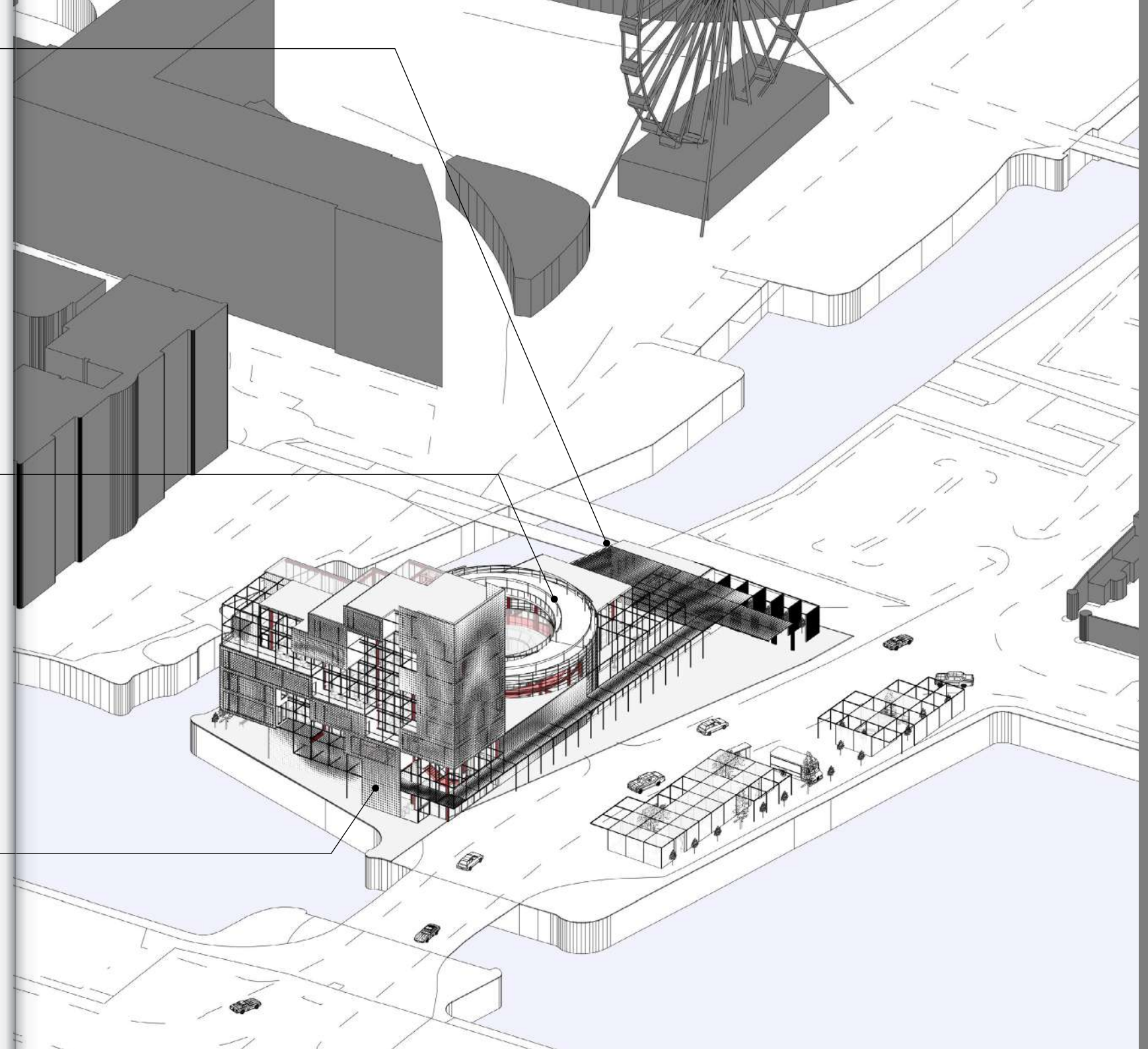
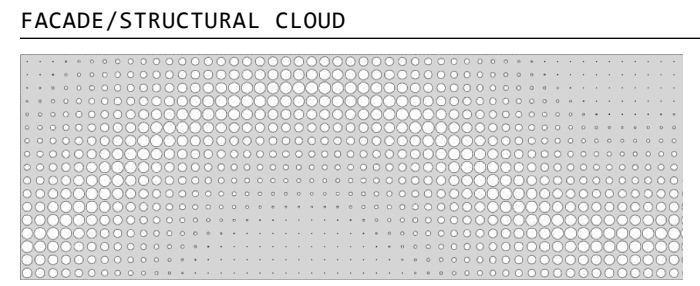
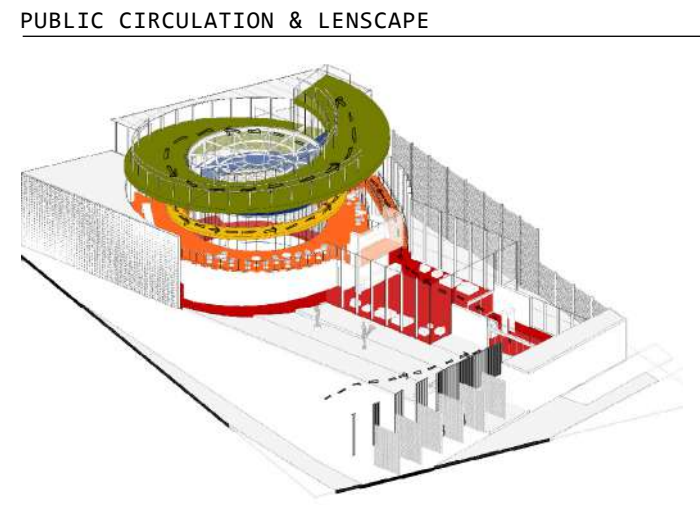
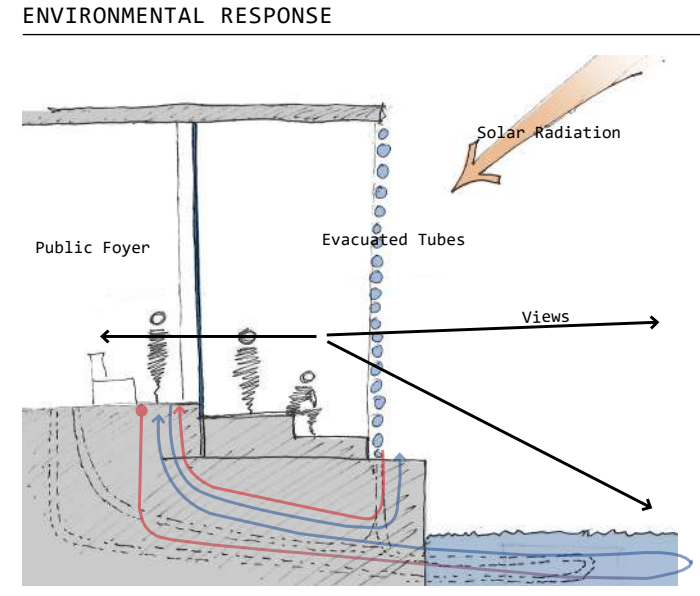
ADMINISTRATIVE.

A. The Admin. Access - Identified by the overhang and entrance scale

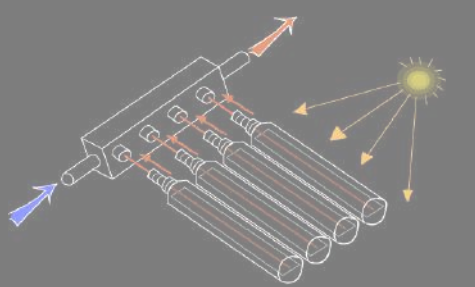
B. Access security gate on entrance.

C. - Reception/ Foyer Area/ Open work space (Atrium).
- Intermediate space (work/play area).
- Access to meeting rooms.
- View into milling space (basement).
- Access to basement(debating chamber).

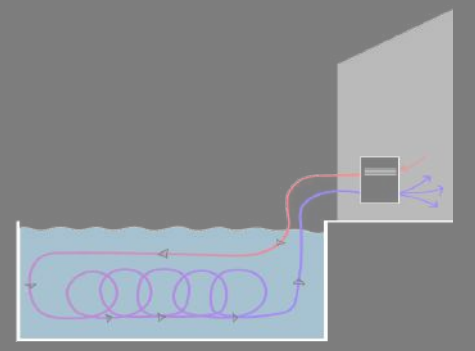
F. The Offices combined with the atrium offers an interconnected/dynamic workspace.



DISTRIBUTION - Underfloor Heating.



HEATING - Evacuated Tubes.

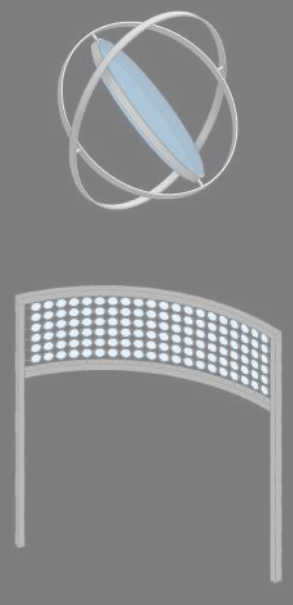


COOLING - Lake Source Cooling.

Heat is collected through the evacuated tubes and then distributed throughout the building. Similarly, heat is released into the river allowing cool water distribution in the building via under floor heating pipes. In response to the site, a system of evacuated tubes is integrated into the south facing facade, enabling heating and cooling. The system is displayed to the public via the foyer, reiterating the simplicity of sustainable design.



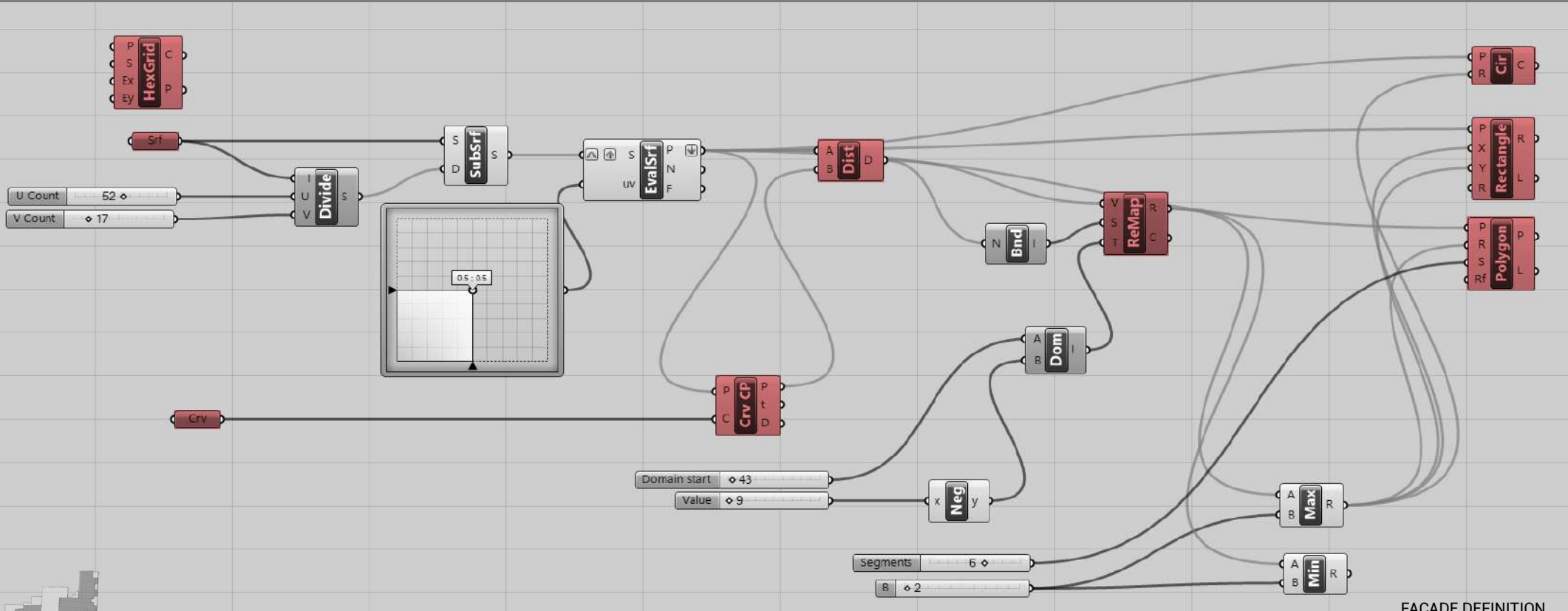
CORE STRATEGY



GYROSCOPIC LENSE SYSTEM

Lenscape - The gyrosopic lens system allows for 360° rotation/view. Each lens displays a different distorted image of the city giving people different impressions every-time they look. The system continues to demonstrate the concept of modularity and a harmonic gathering. The public parlour forms the core and top of the assembly. It is supported by an internal ramp below and external ramp above signifying its level of importance. With height, the public is identified to be of more importance than the government.

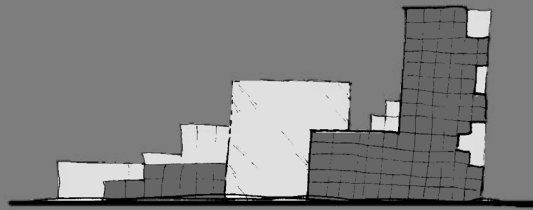
Facade - I used a grasshopper definition to design the perforated facade in variety of patterns. This also allows the aluminium skin to respond parametrically to the position of the windows. The definition allows for variation in scale, patterns and order. The perforated facade allows each surface to be identified as one continuous unblemished surface free from windows. In addition the perforations tend to represent the harmonious combination of modules which has always been the driving concept.



FACADE DEFINITION



The journey through the debating chambers and meeting rooms (where government activities are observed) to the public parlour which provides multiple distorted views of the city, causes one to reflect on the government and how their decisions after the city and the people in it.



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