



Designing a Vertiport
A speculative Mobility Hub connecting
Peckham to Central London in 2035



Site



● <15m ● >15m ● >30m ● >45m ● >60m



Distance

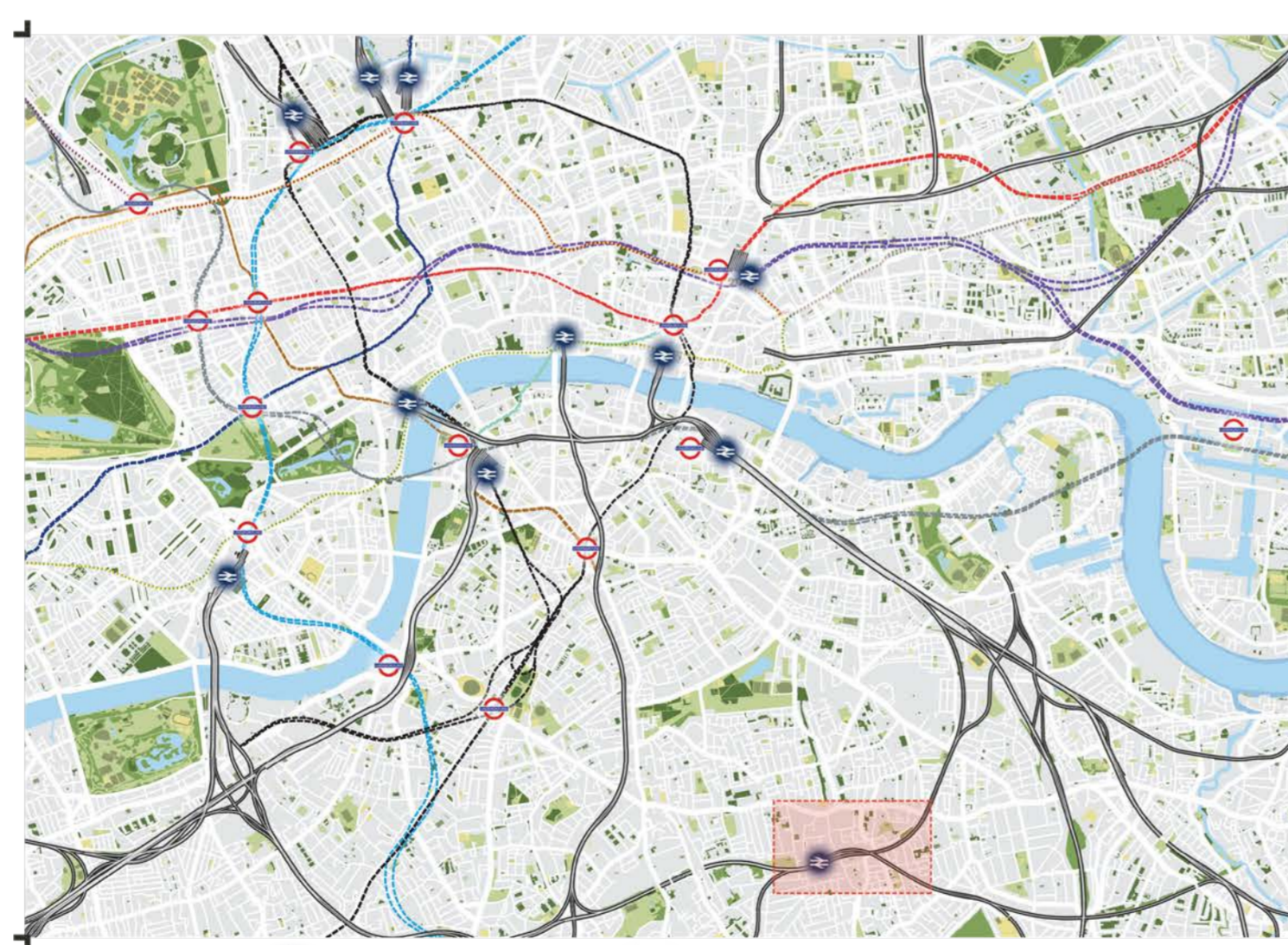
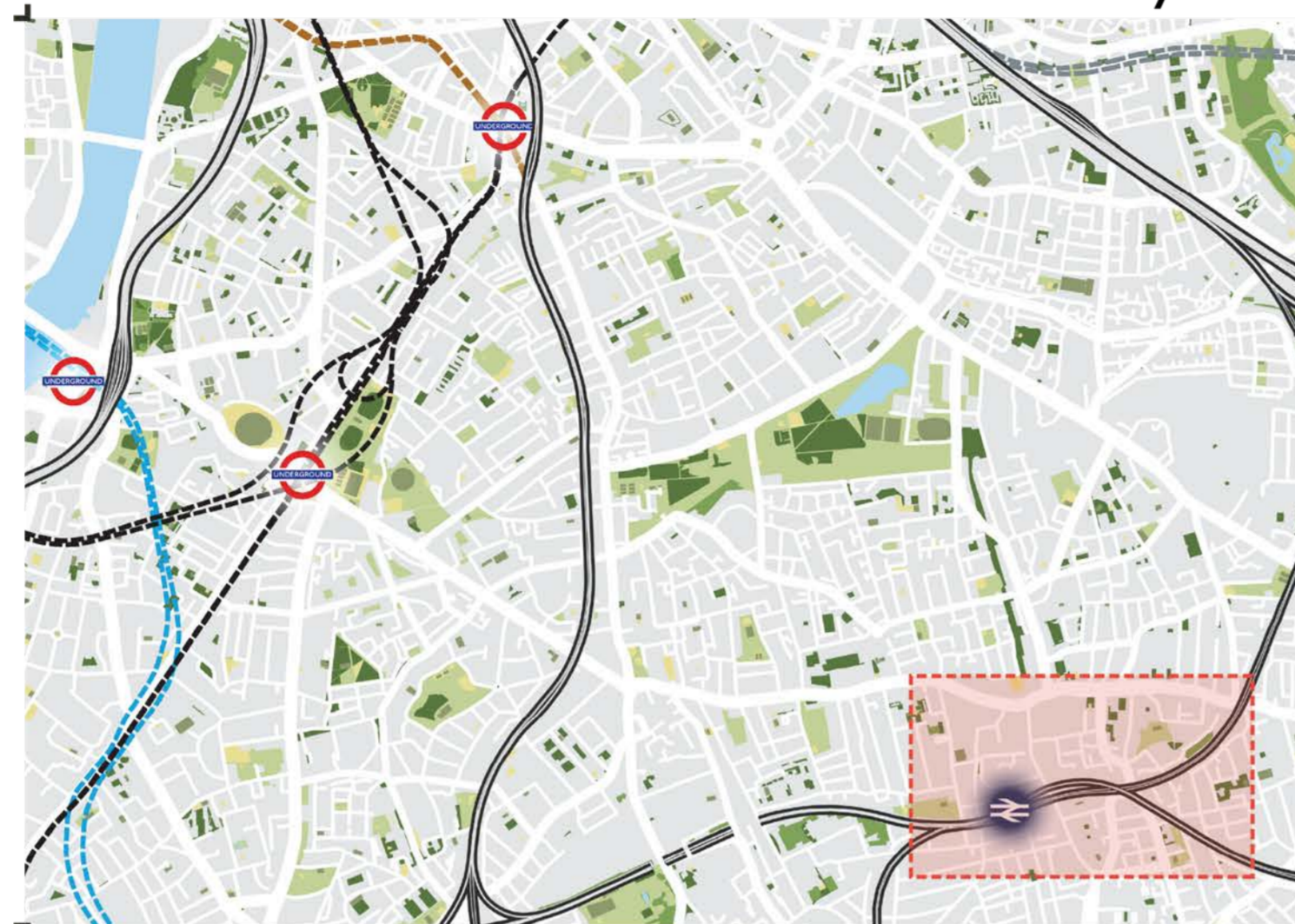
Peckham is located over 5km from Central London, the central hub for jobs and activities.

Time

Poor transport connections in Peckham despite its location, result in an average 40-minute commute to Central London.

Connectivity

Peckham Rye Station connects to London Victoria and London Bridge. The nearest Tube stations—Oval, Elephant & Castle, and Vauxhall—are at least 15–20 minutes away.



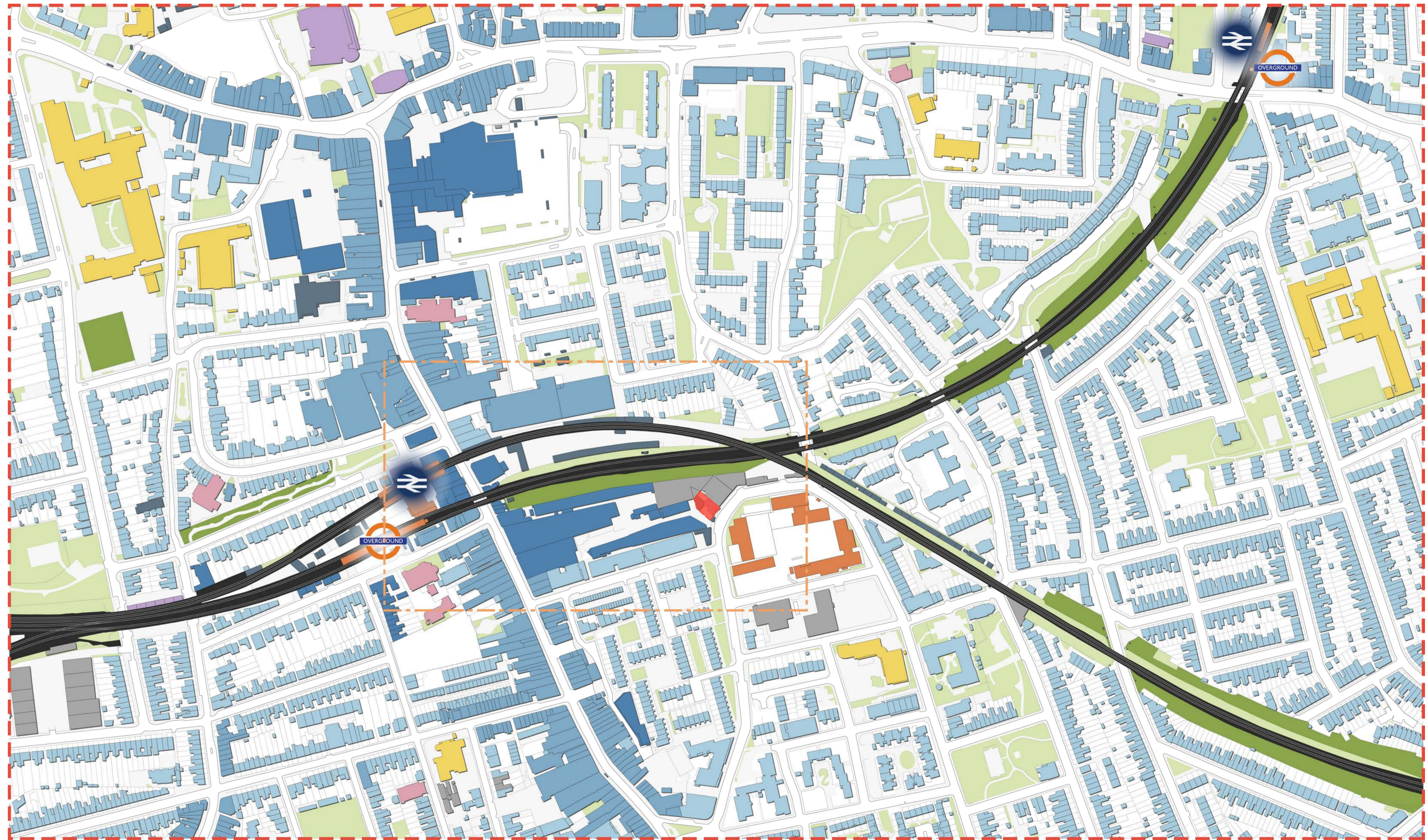
🚆 National Rail 🚇 London Underground

Location

Peckham's location in relation to Greater London.



Zoning



Site
Residential Education Leisure Mixed-use Religious Industrial Transport Green Spaces Other



SCALE 1:2500
0 20 40 80 120 200m

Accessibility and Weather

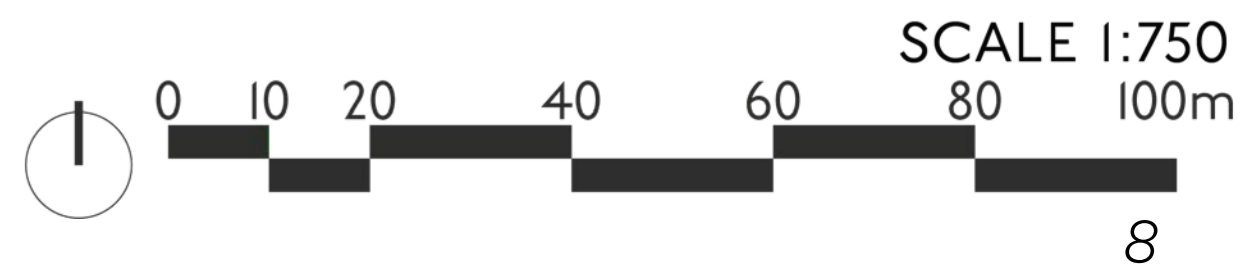


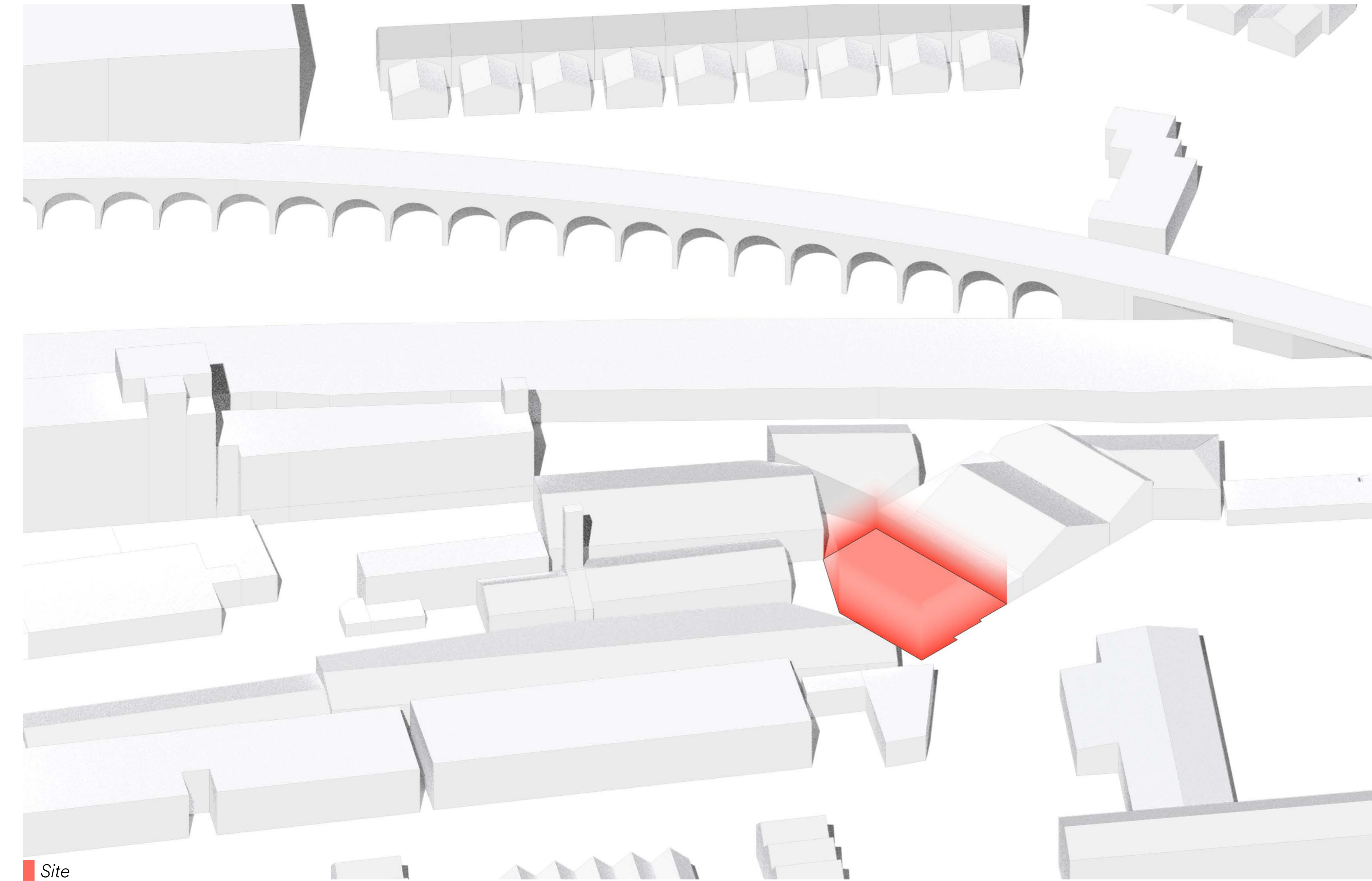
Site

Roof + Height Plan



■ Site
■ Deeper shadows represent taller buildings





Site



Site



Existing Structure

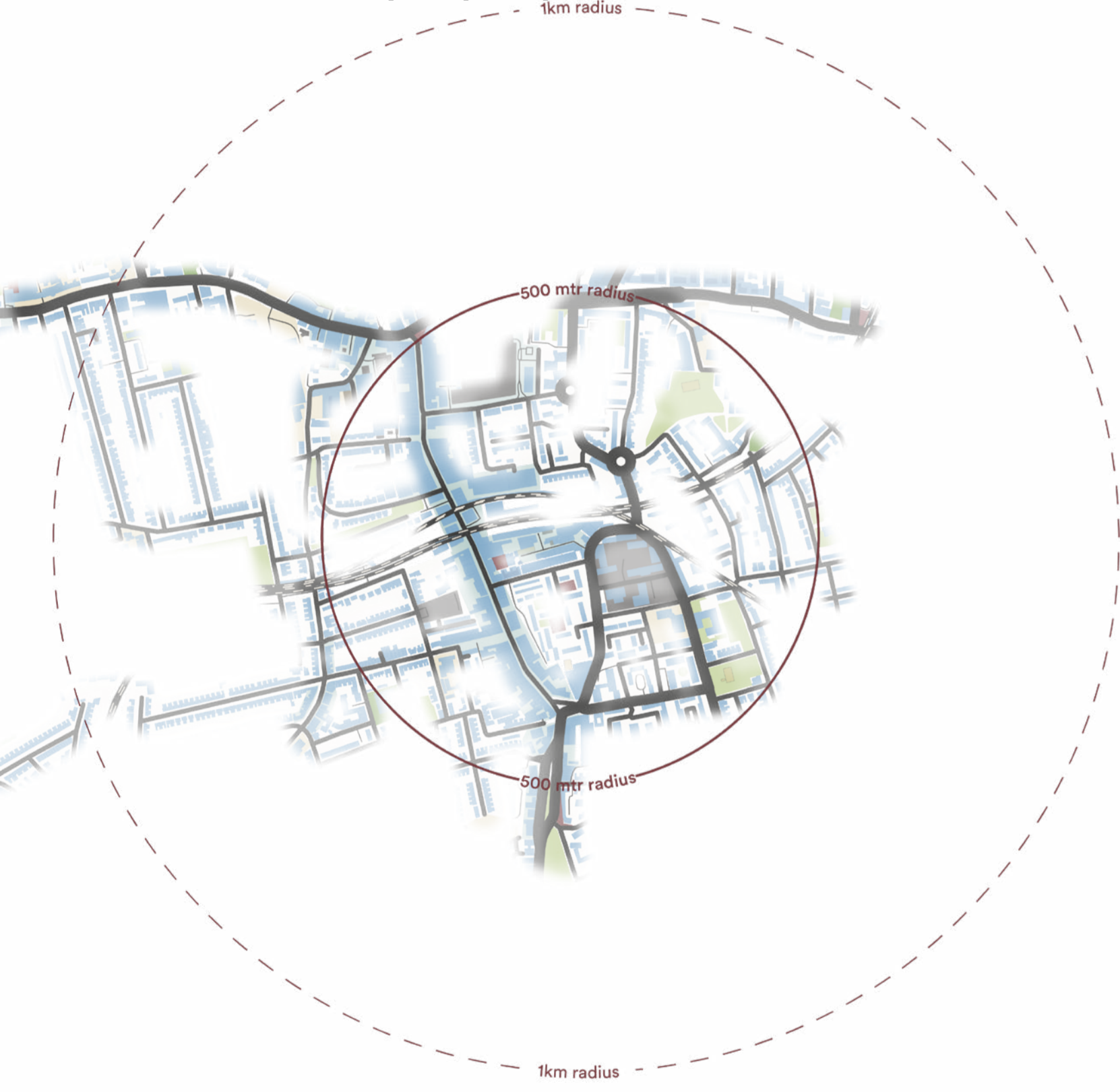


Proposed Structure

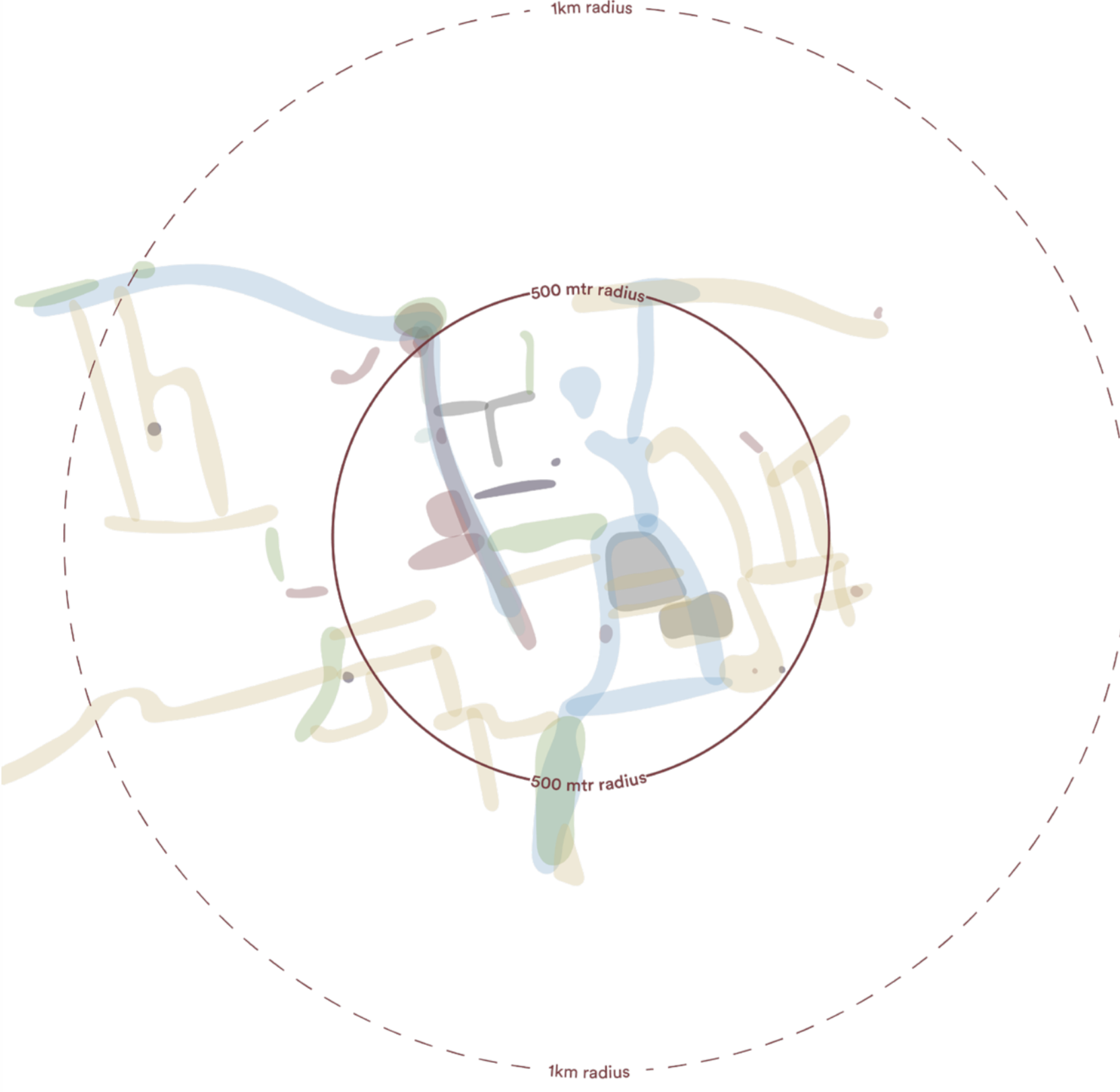


Navigating Peckham

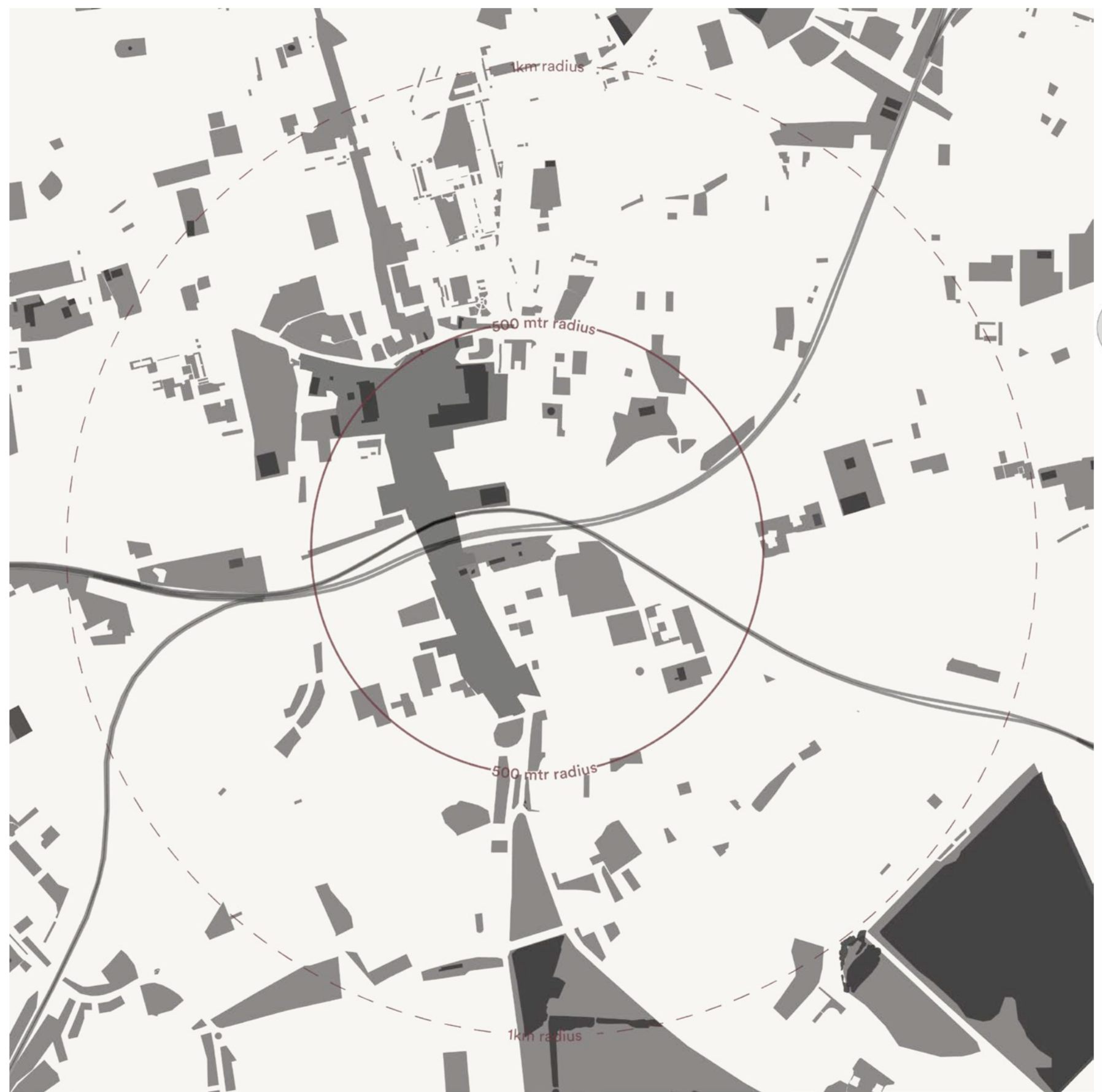
I engaged with Peckham in different ways, mapping my movements through the area to better understand its spatial character and everyday rhythms.



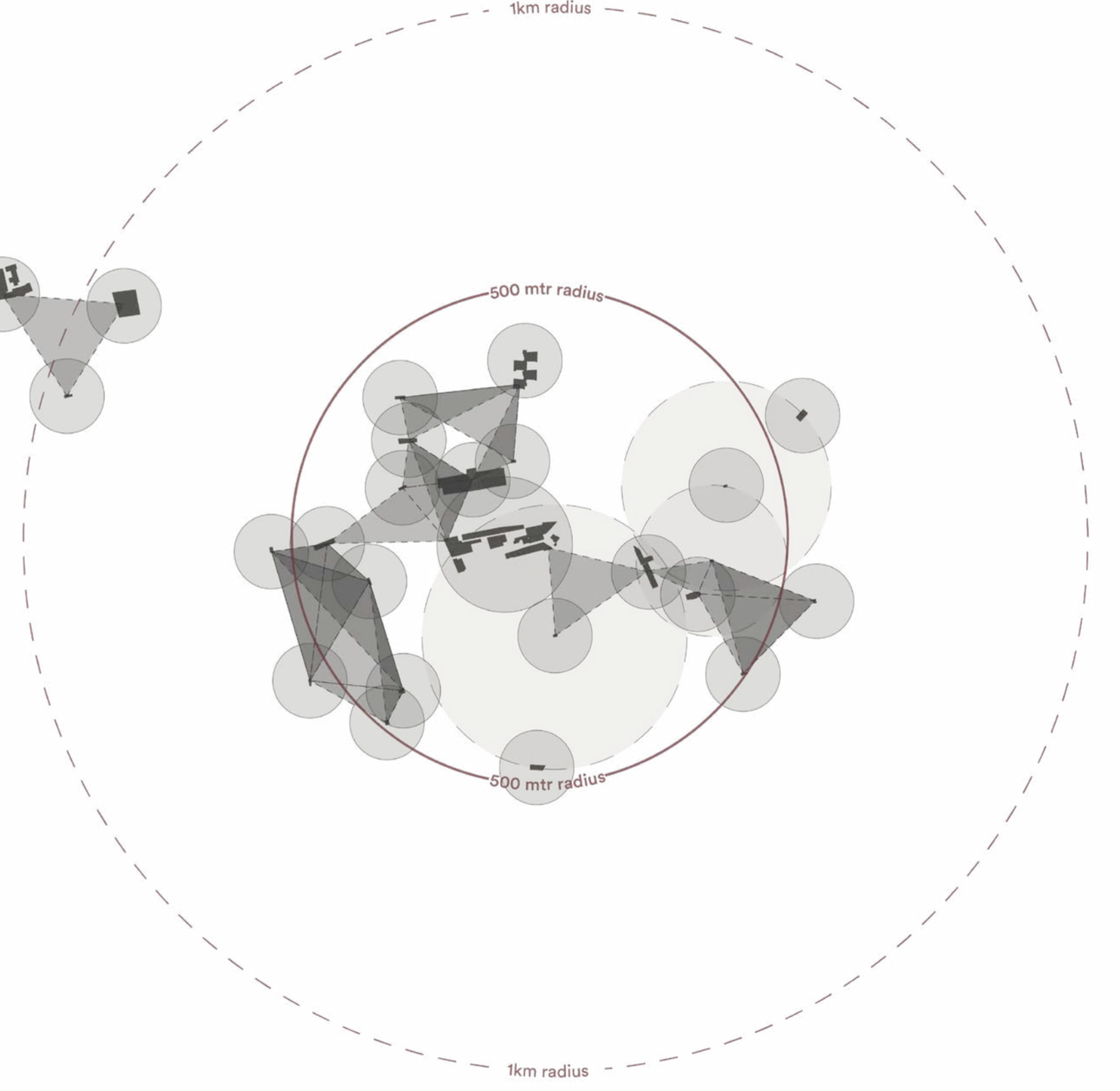
Site Exploration



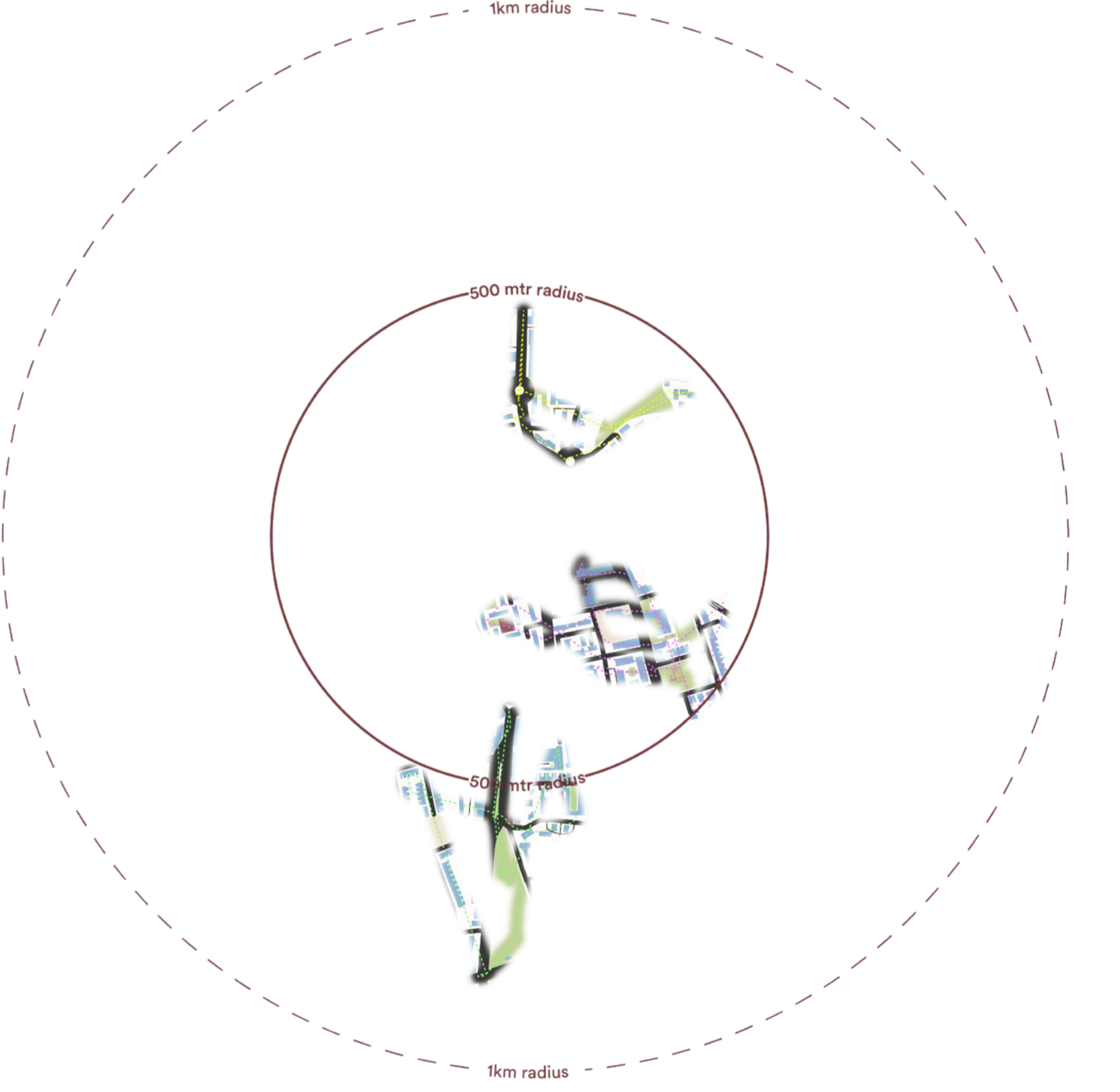
Psychogeographic Exploration



Exploration through Edges

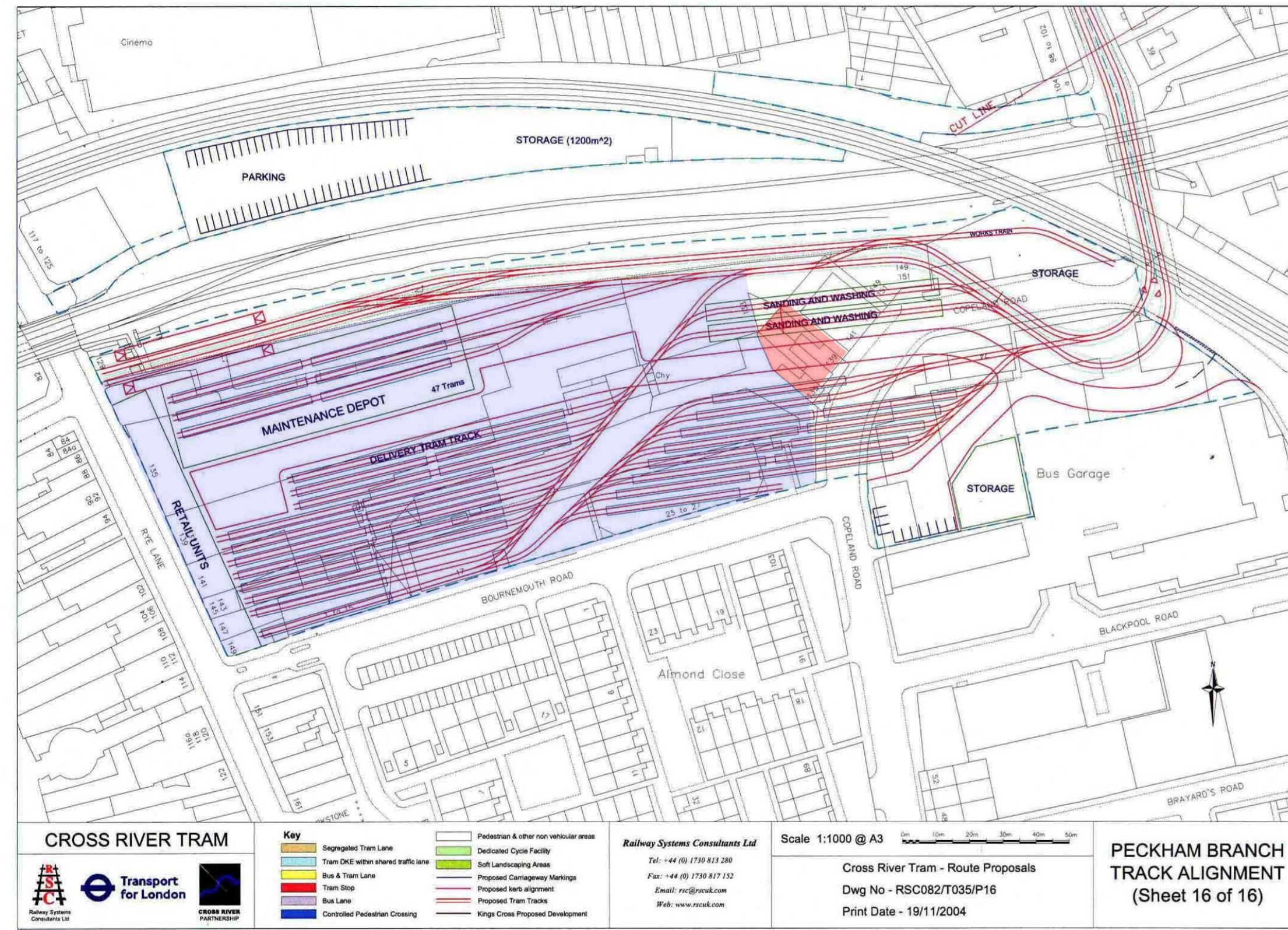


Exploration through Landmarks



Exploration with a Drone

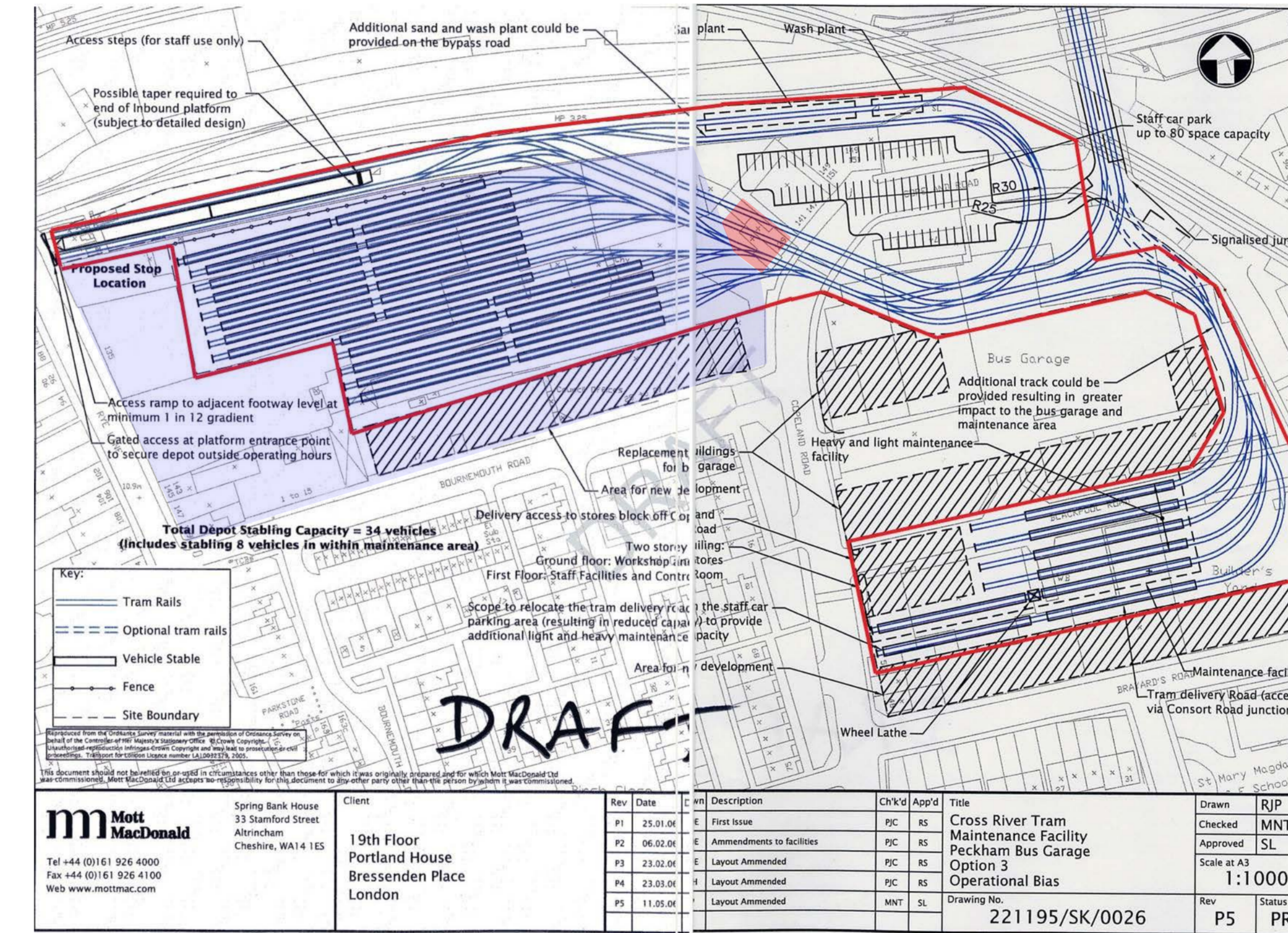
Transport Proposal in Peckham



(Original Single-Site Depot Plans., 2008)

The proposed Peckham Tram Depot by Transport for London threatened to demolish key parts of Peckham's town centre, including Copeland Park and the Bussey Building.

The development risked displacing over 600 jobs, more than 40 small businesses, 60+ artist studios, and 9 churches—posing a major disruption to a vibrant, diverse, and economically active community. It also raised concerns about restricting future development potential in the area.



(Version 1 of the new split-site plan., 2008)

In response, the community-led group Peckham Vision organized successful opposition to the plan. As a result, the site was preserved and has since flourished into a thriving centre for creativity, enterprise, and culture. The outcome highlights the powerful role of grassroots urban planning in protecting and enhancing local identity and opportunity.

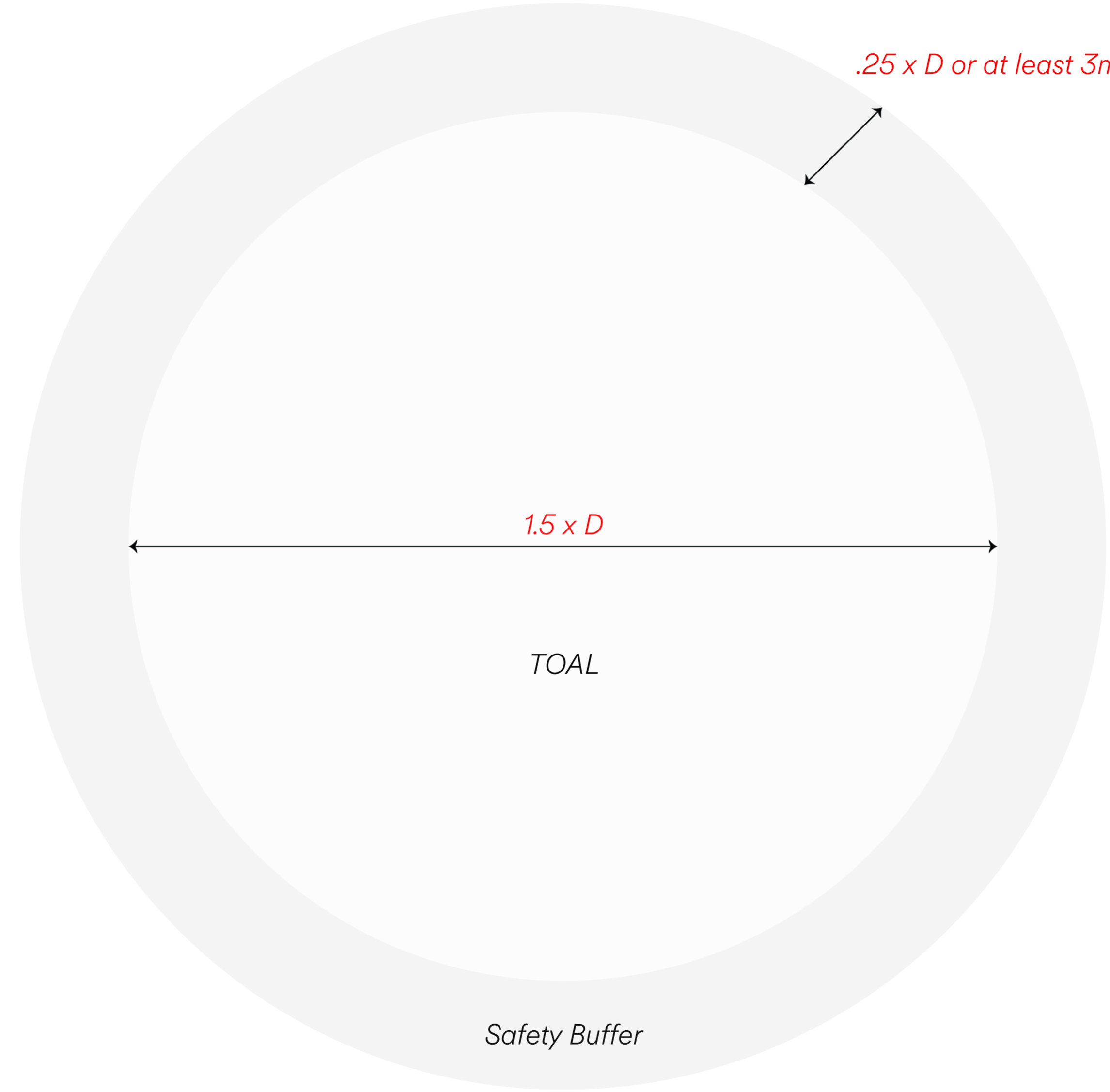
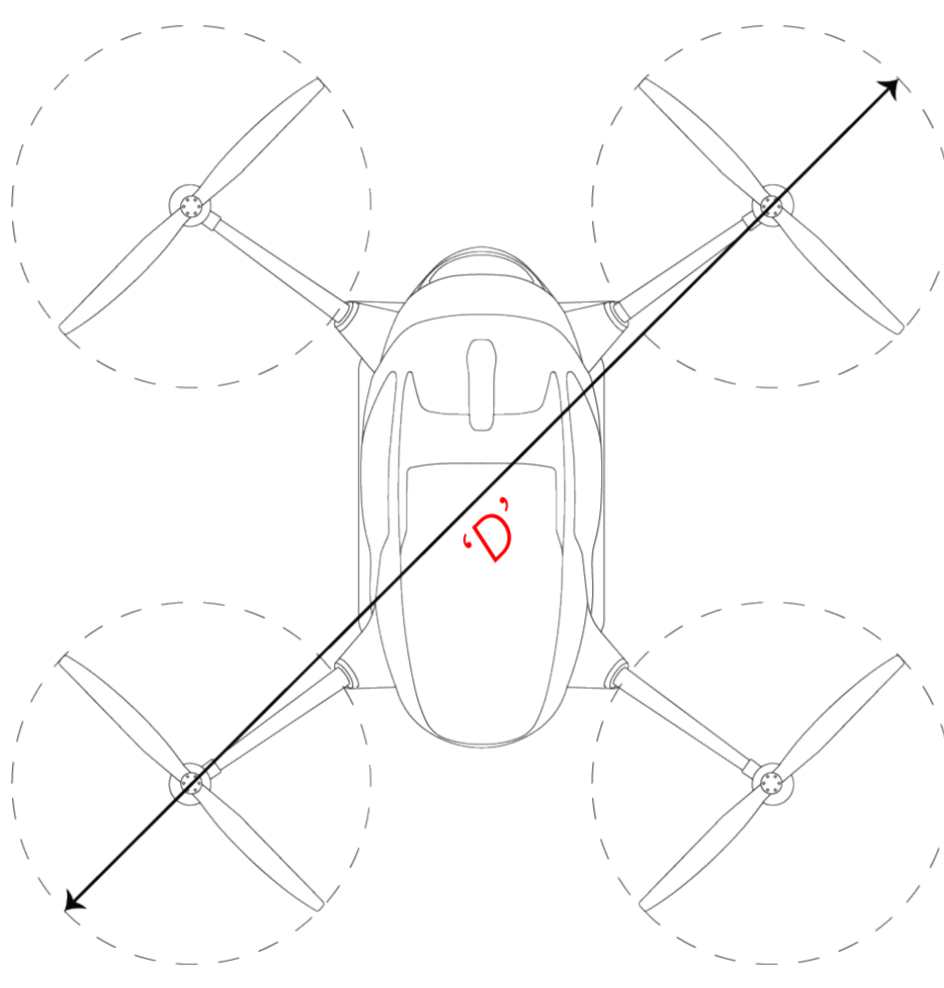
VTOL Requirements

[Vertical Take-off and Landing (aircraft)]

Requirements for a VTOL compatible design as per the European Union Aviation Safety Agency (EASA).

“Prototype Technical Specifications for the Design of VFR Vertiports for operation with Manned VTOL-Capable Aircraft Certified in the Enhanced Category.”

(PTS-VPT-DSN) March 2022



Glossary:

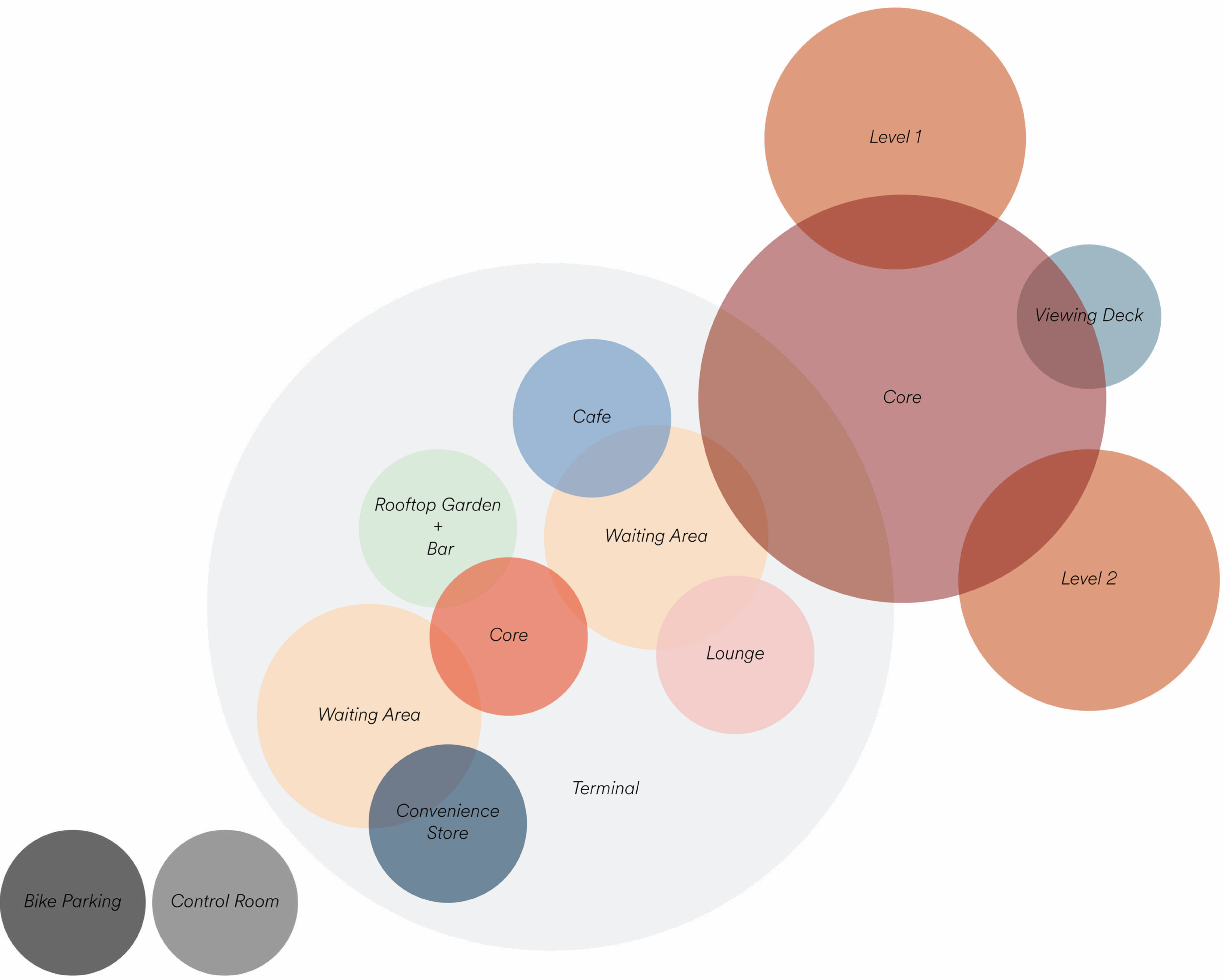
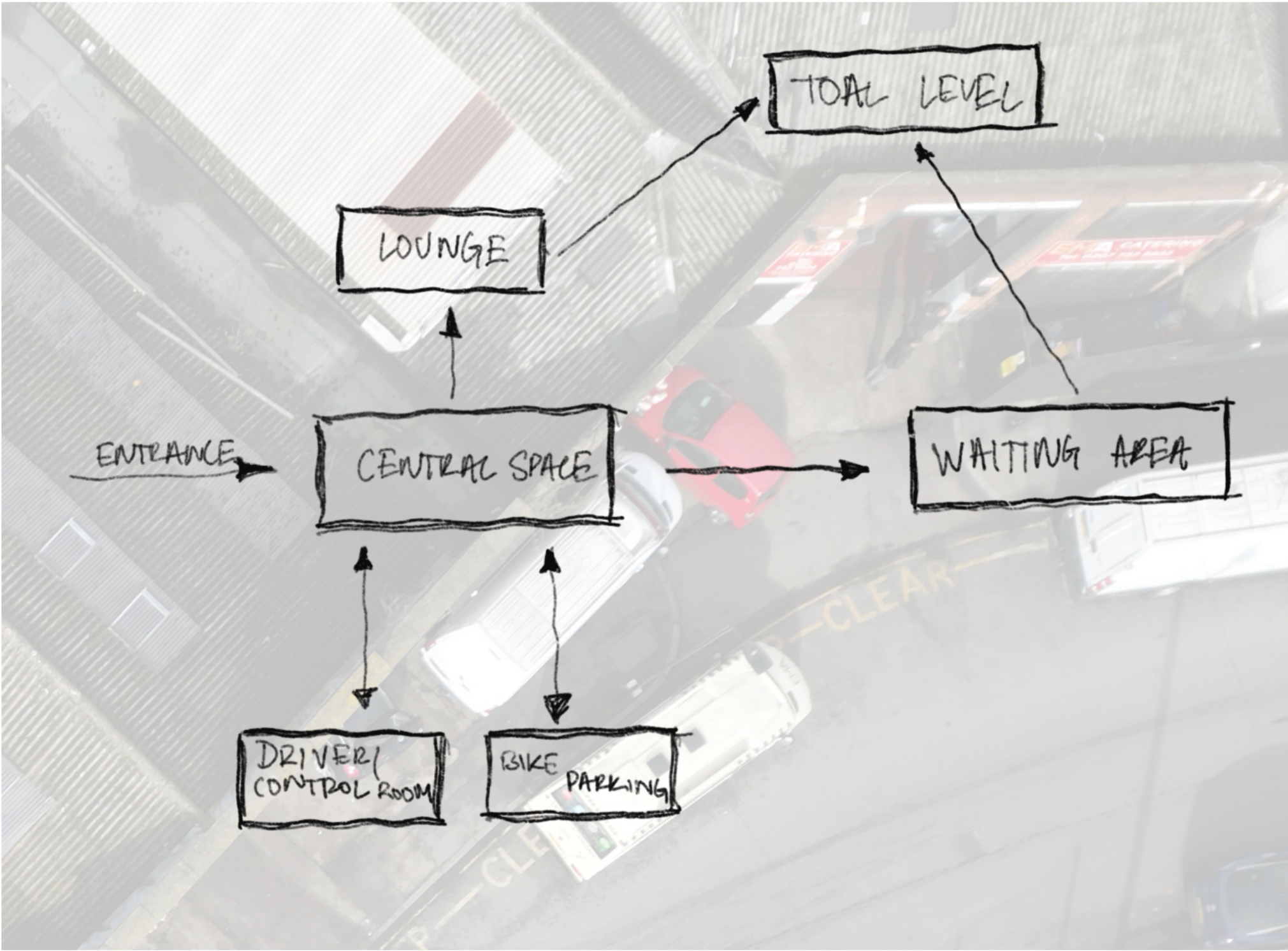
Vertiport: means an area of land, water, or structure that is used or intended to be used for the landing, take-off, and movement of VTOL - capable aircraft.

VTOL: Vertical Take-off and Landing

TOAL: Take-off and Landing (Area)

D: Distance / Diameter

Defining Programme

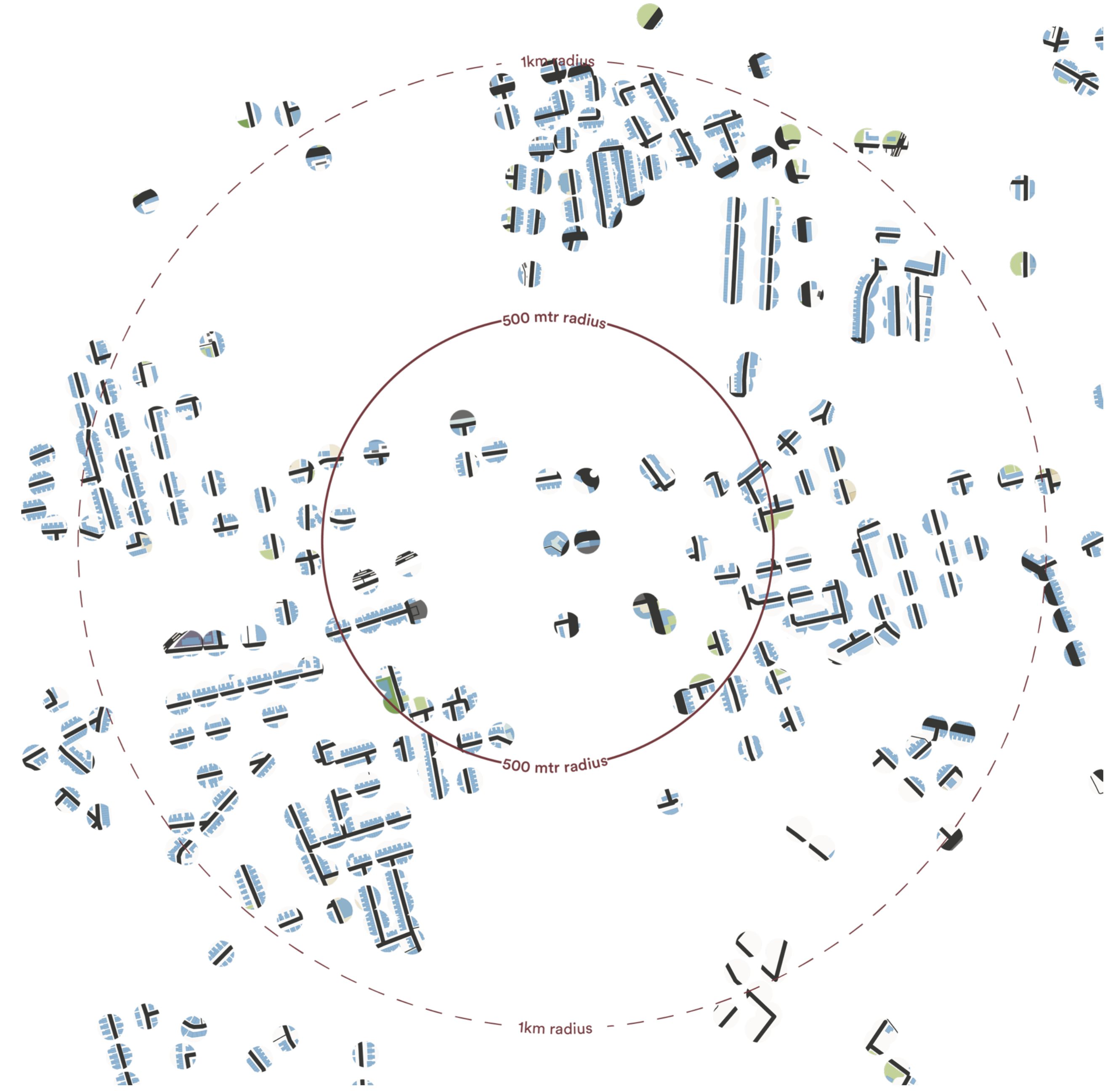
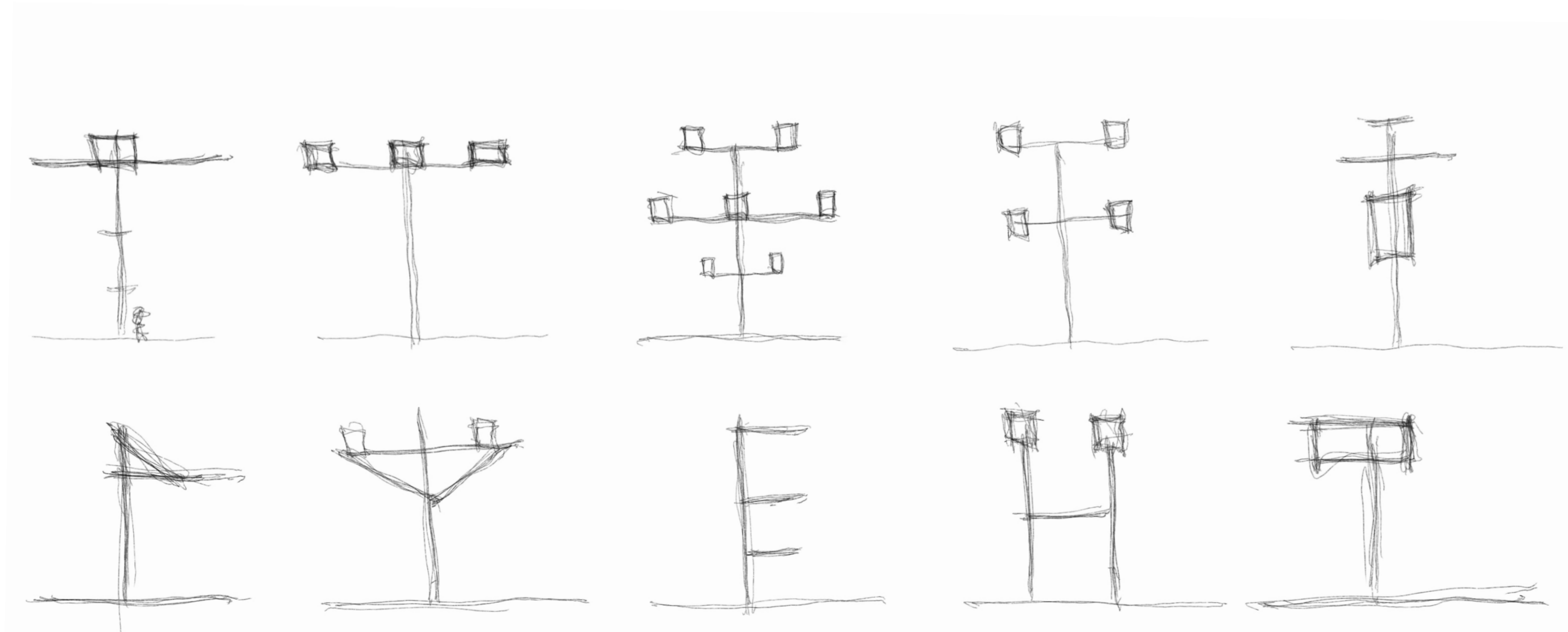


Inspiration from The Local Context

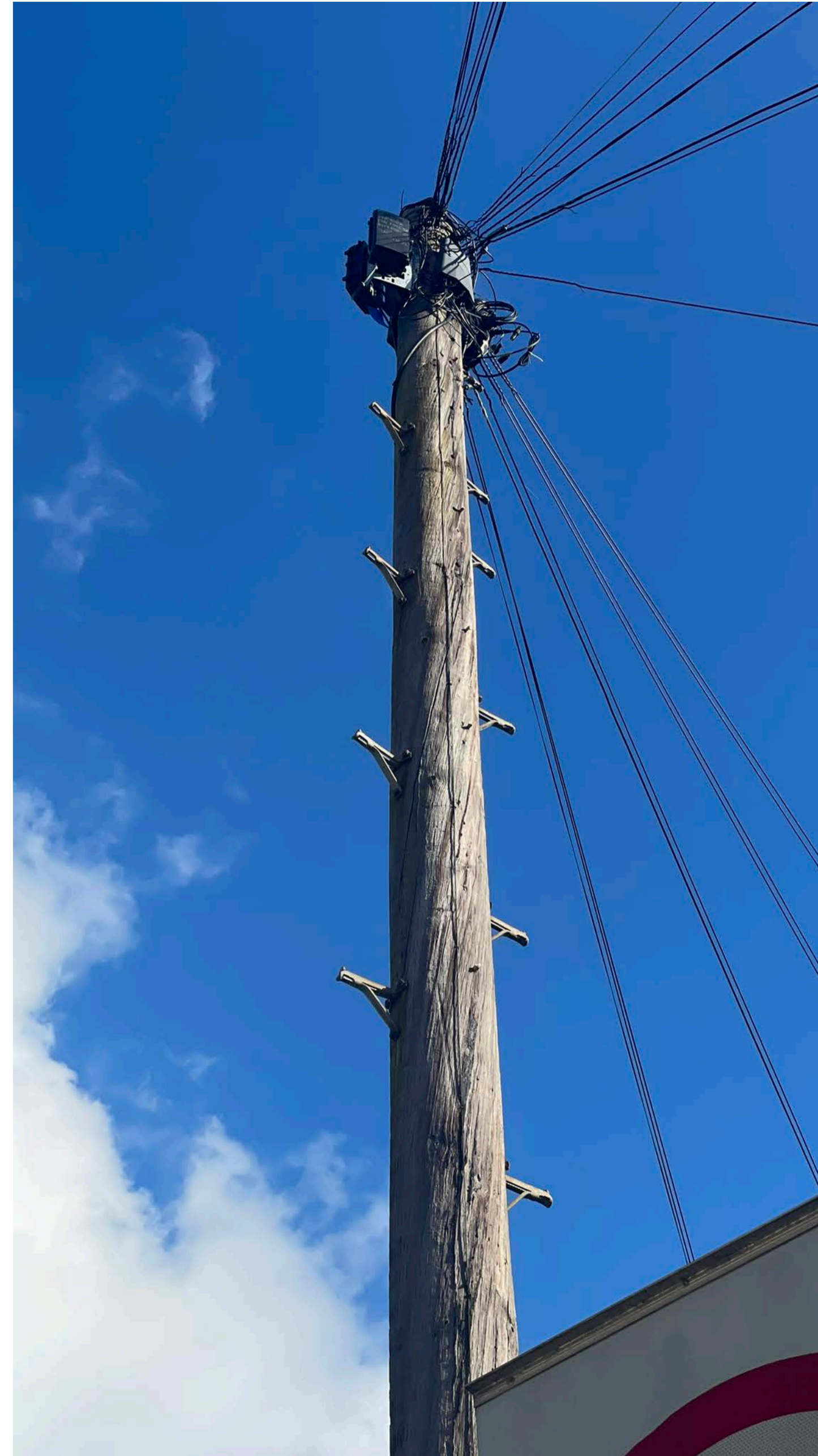
I found the old wooden electric pole fascinating - it was my first time noticing them in London.

Their quiet presence in Peckham's urban landscape began to serve as visual anchors, subtly reflecting the area's layered history shaped by industry and ongoing gentrification.

They became a starting point for my design, grounding the project in both memory and place.



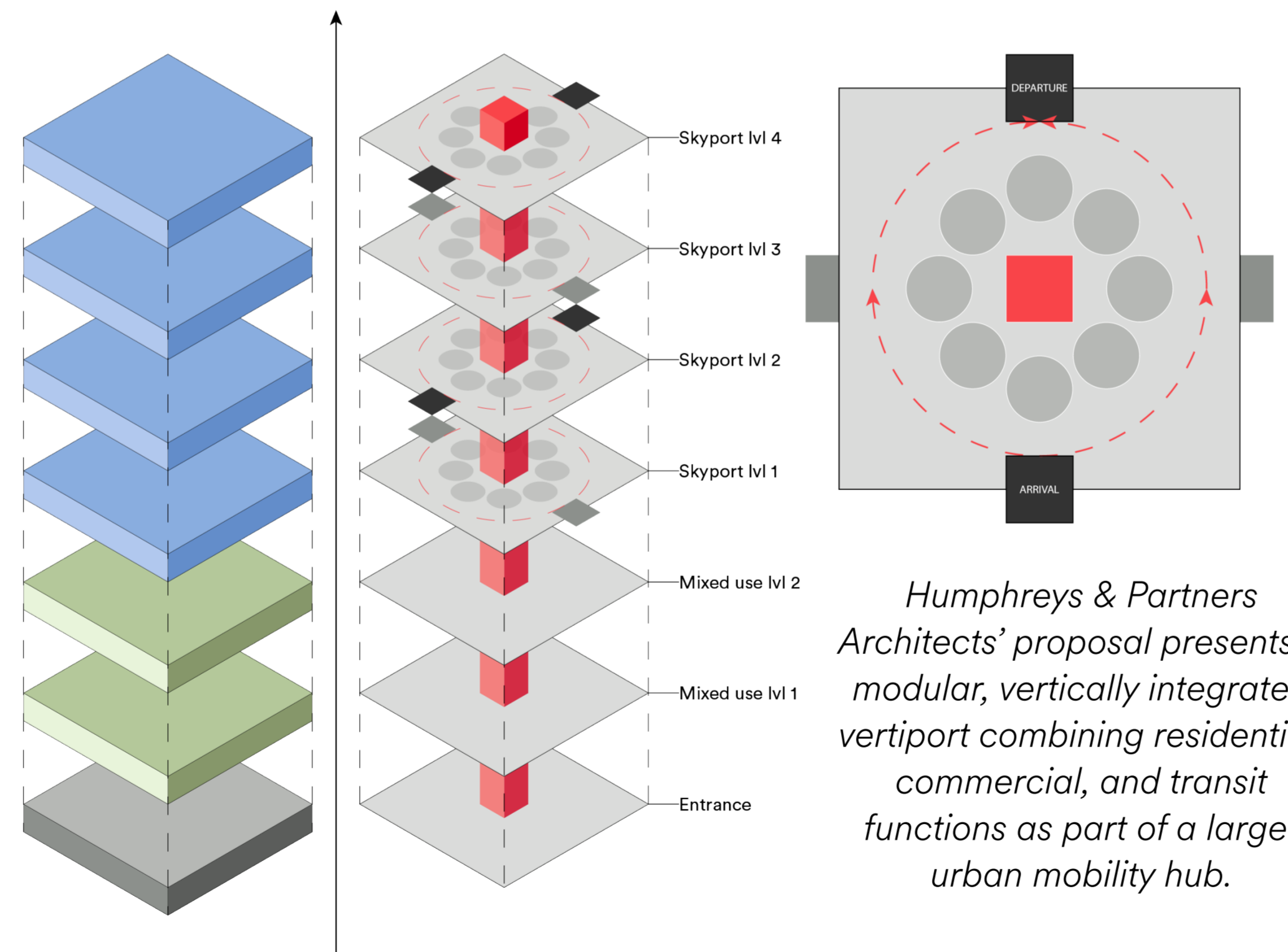
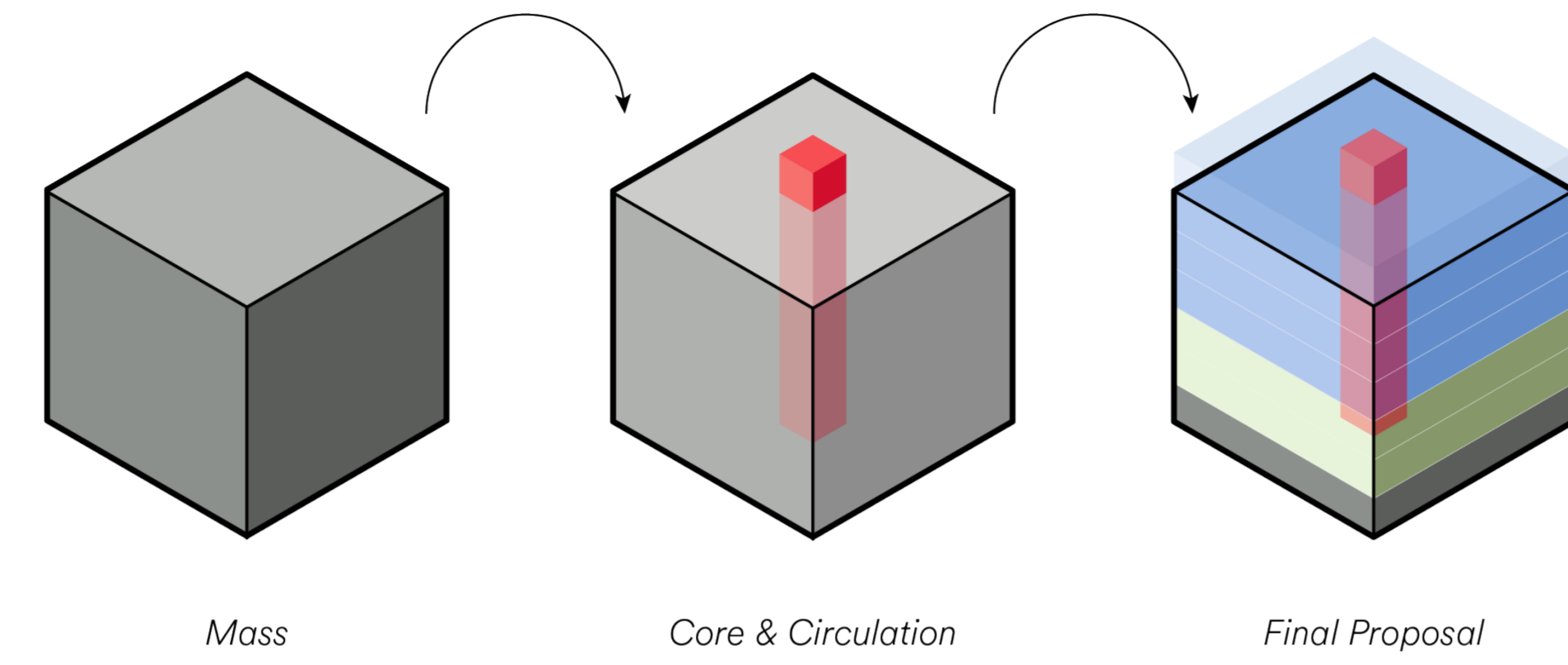
Mapping all visible wooden electric posts in Peckham



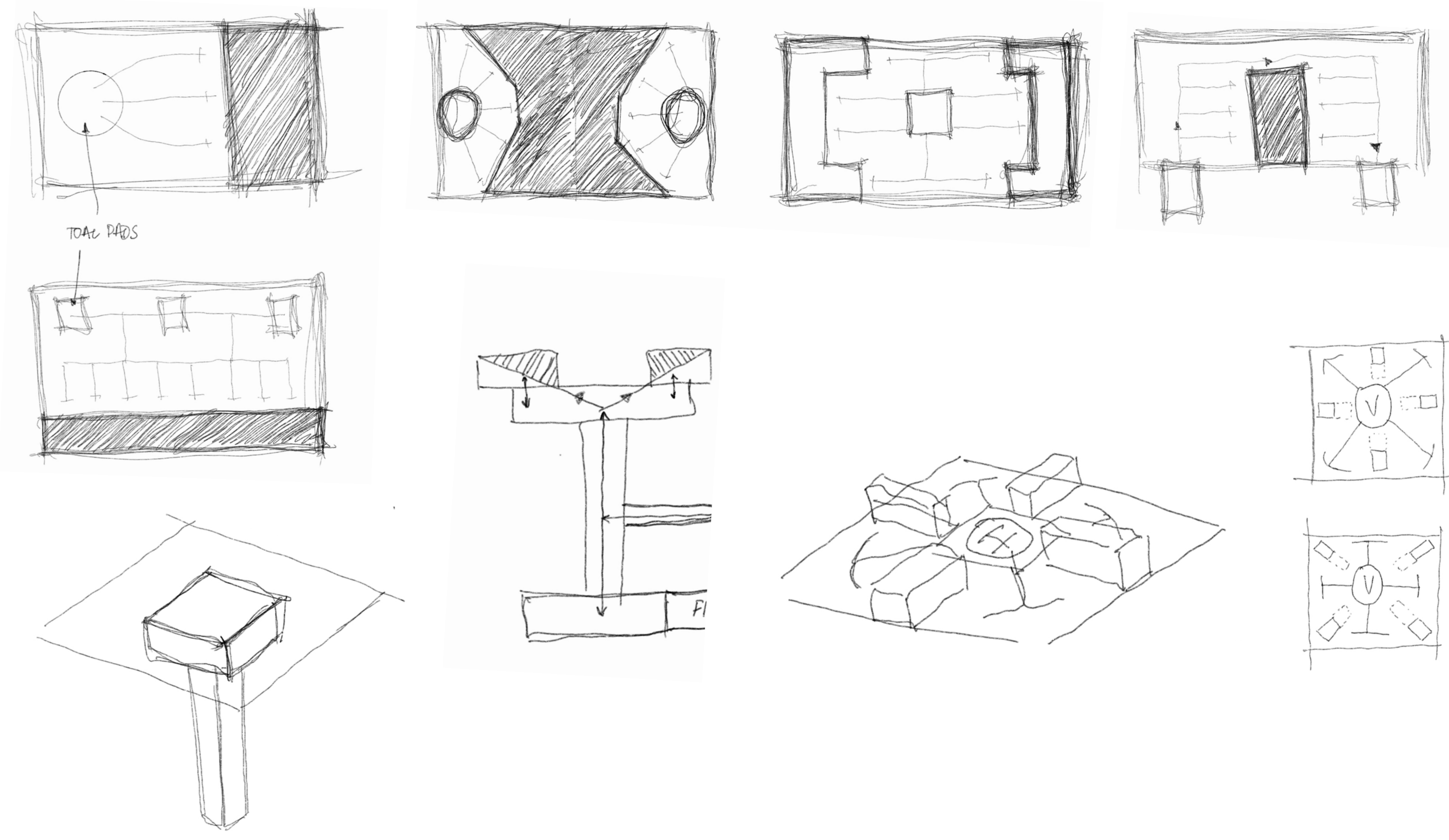
VTOL Mobility Hub Concepts

I explored design concepts developed under the Uber Elevate programme, which envisioned vertiports as multi-modal mobility hubs integrating various forms of transport and urban functions.

I studied the design and layout strategies from various Uber Elevate proposals. The following sketches capture key design elements that emphasise modular planning and efficient circulation.



Humphreys & Partners Architects' proposal presents a modular, vertically integrated vertiport combining residential, commercial, and transit functions as part of a larger urban mobility hub.



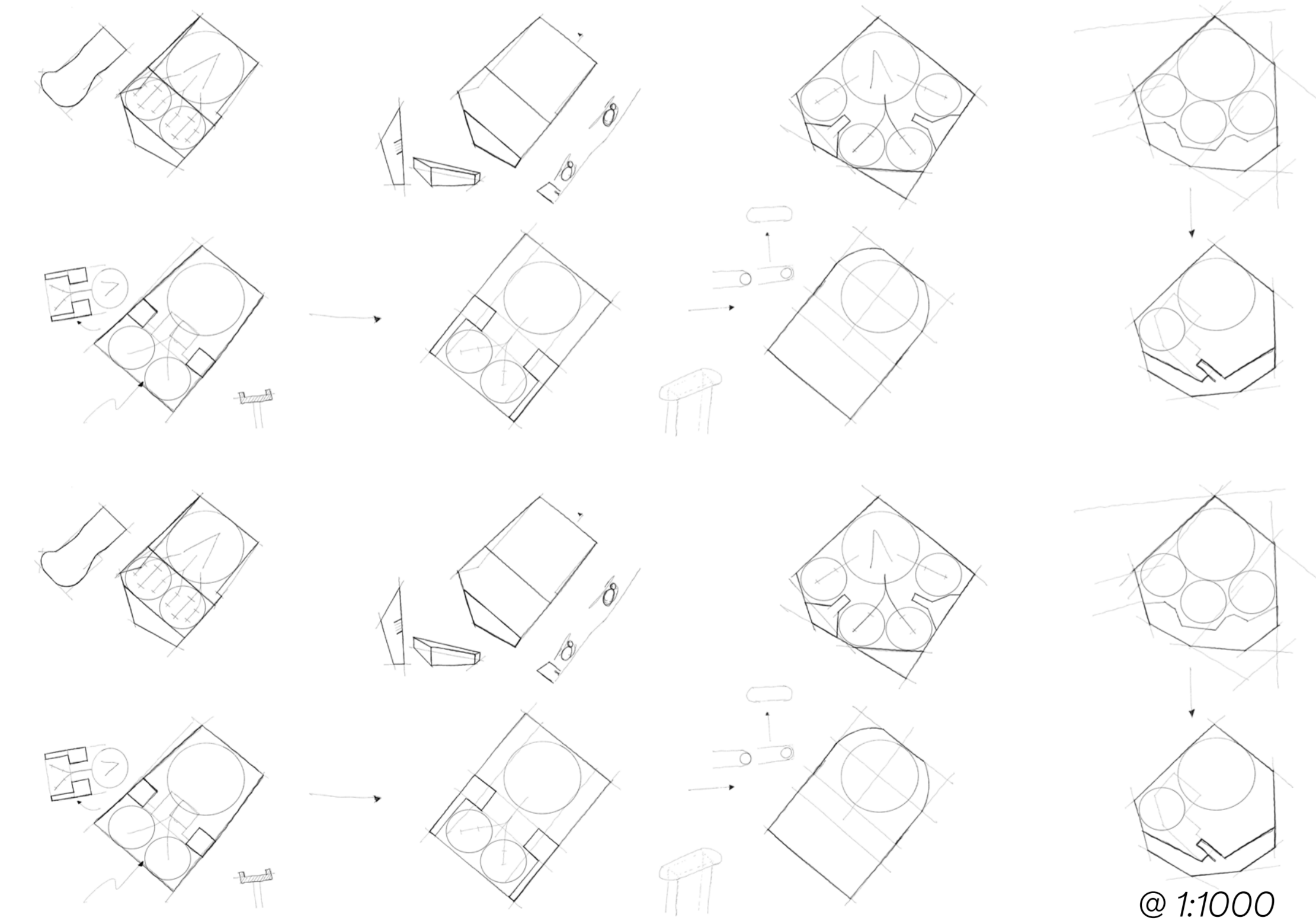
Proposal by Humphreys & Partners Architects - Los Angeles (Uber Elevate 2018, n.d.)

Iterations

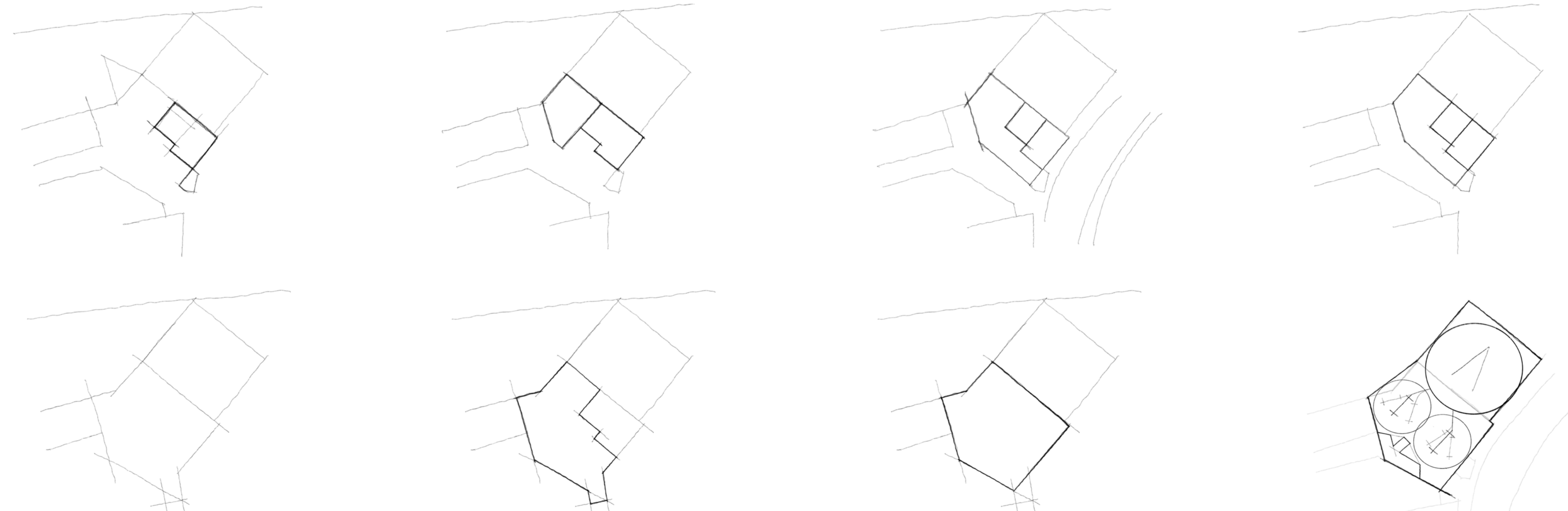
Spatial Iterations

At its conception, I aimed to work with the site's existing boundaries as the foundation for design.

Ground-level context, including access points and surrounding buildings, informed the form, guiding an iterative process rooted in responsiveness to the site.



@ 1:1000



Initial iterations shaped by the existing site conditions

@ 1:500





While visually appealing, the form felt intrusive and overpowered the ground-level space.



Precedent Study

Developed by autonomous air vehicle company EHang in collaboration with the Giancarlo Zema Design Group, 'Baobab' is Europe's inaugural eco-sustainable vertiport.

Inspired by the African Baobab tree, this 30-meter-high structure integrates green design and construction materials,



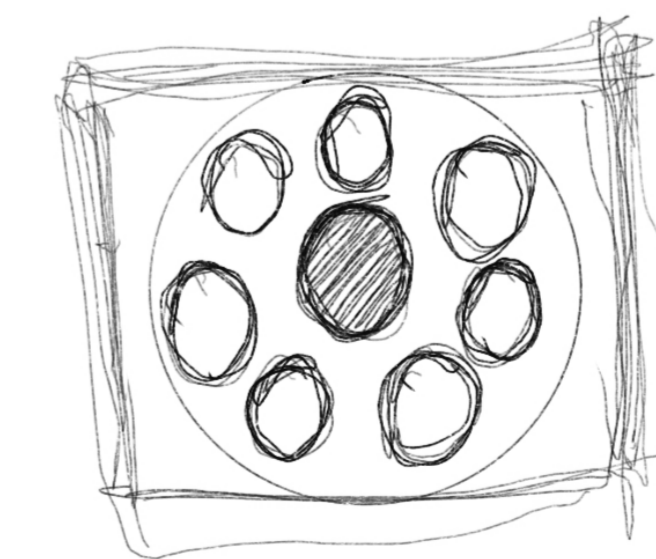
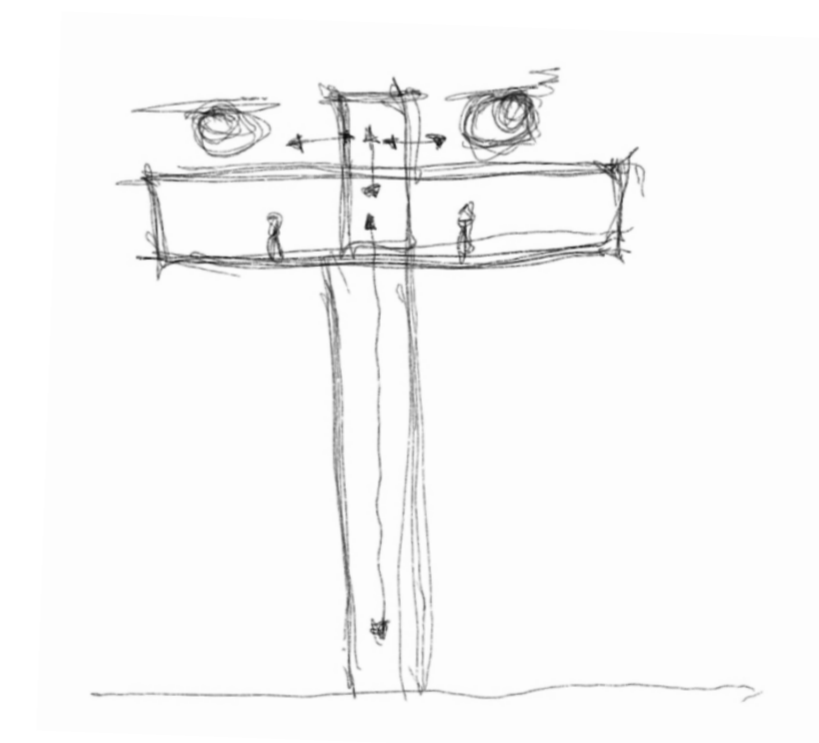
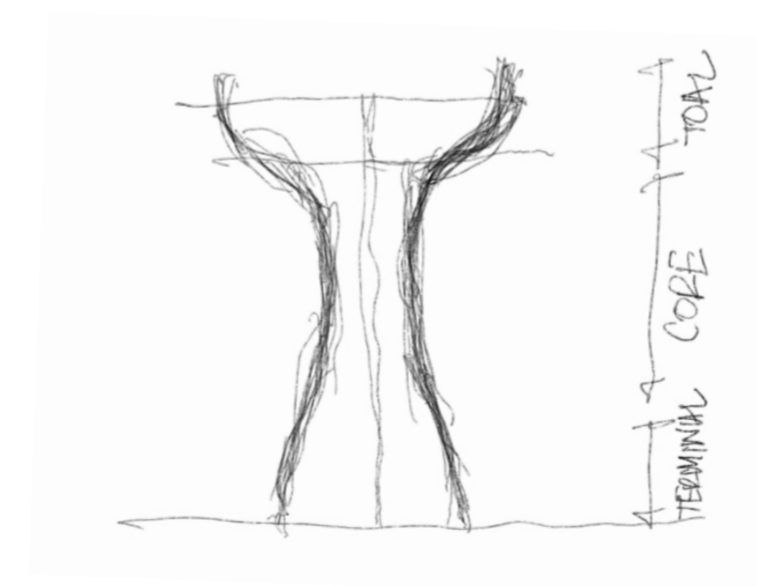
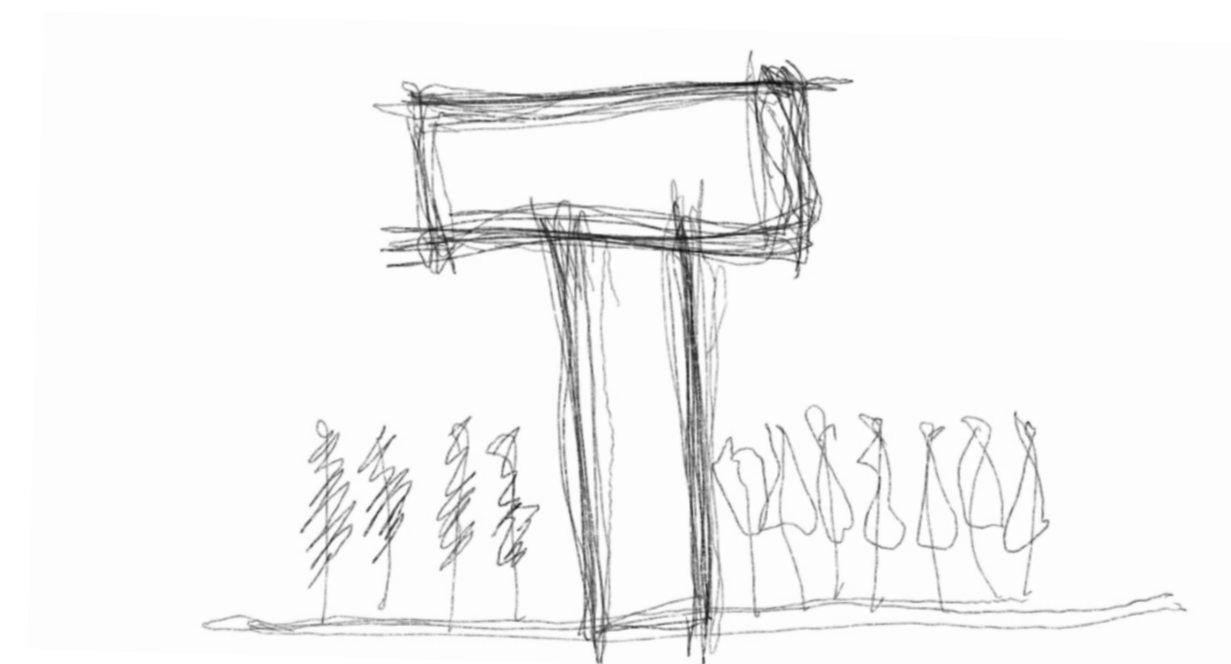
(GZDG, 2021)



(GZDG, 2021)



(GZDG, 2021)



This design stood apart from earlier precedents for two main reasons:

Primary Function as Transport Infrastructure:

Unlike the mixed-use, commercially integrated proposals from the Uber Elevate programme, this project is dedicated solely to transport infrastructure.

Given the site's proximity to the high street, introducing a mixed-use component would have been counterproductive.

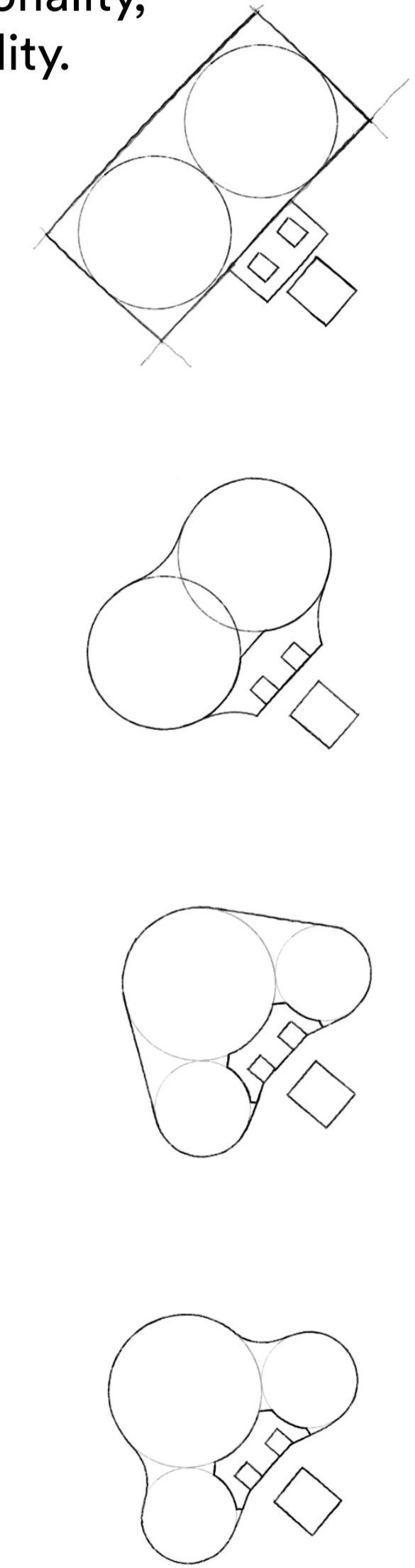
Vertical Form with Minimal Footprint:

The design adopts a compact, vertical structure, in contrast to the expansive, horizontally spread precedents.

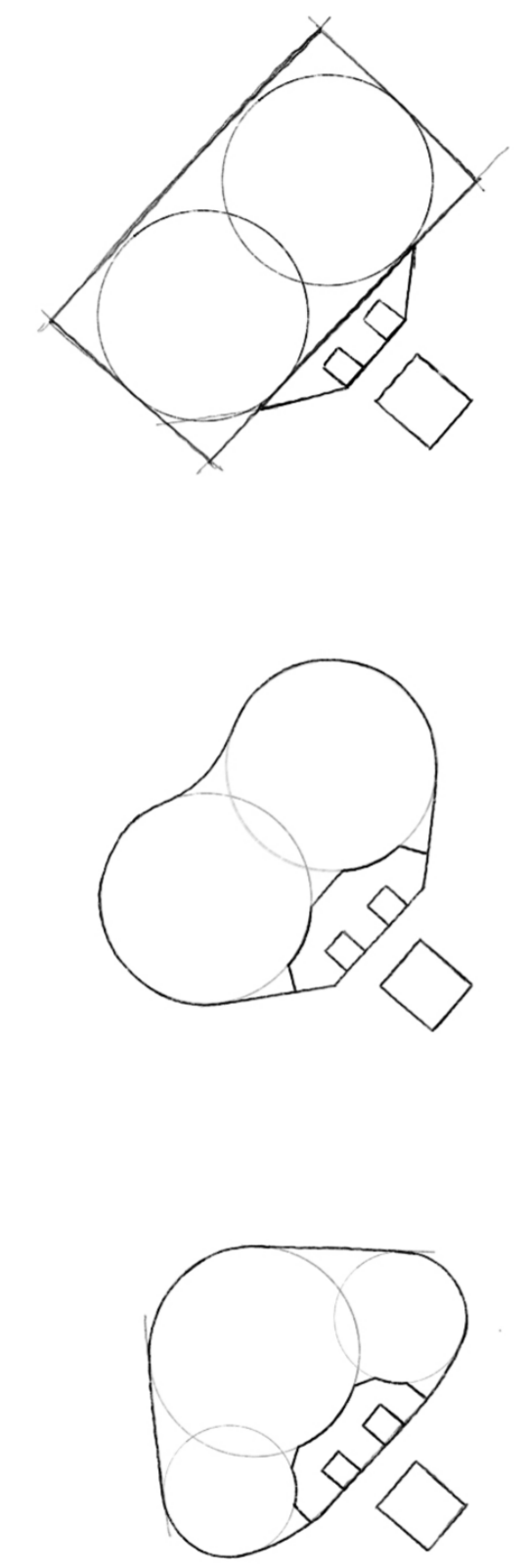
This approach was crucial, as the site had previously faced public opposition to a large-scale transport project that threatened to occupy significant land.

Exploring Different Forms @ 1:500

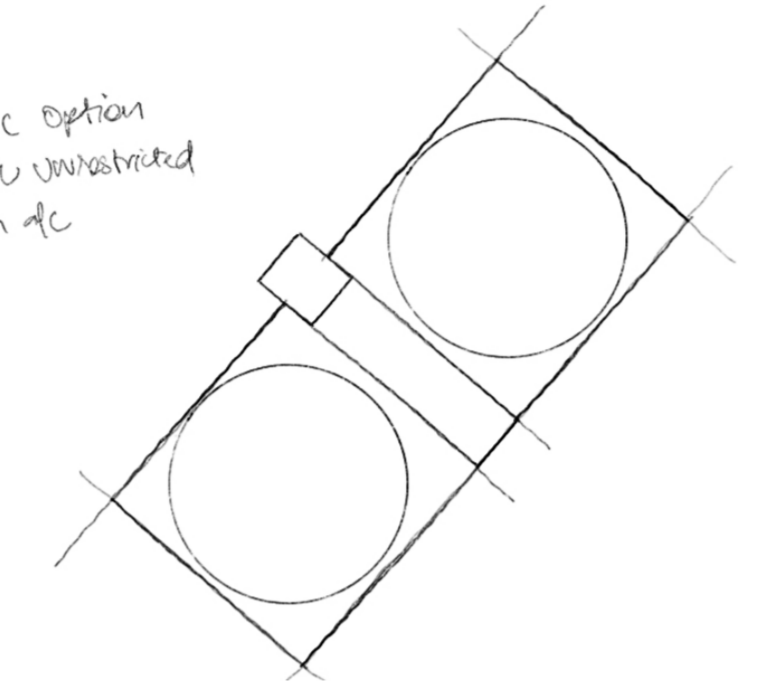
The initial box-shaped form was refined into a more concise and efficient design, with a focus on functionality, usability, and practicality.



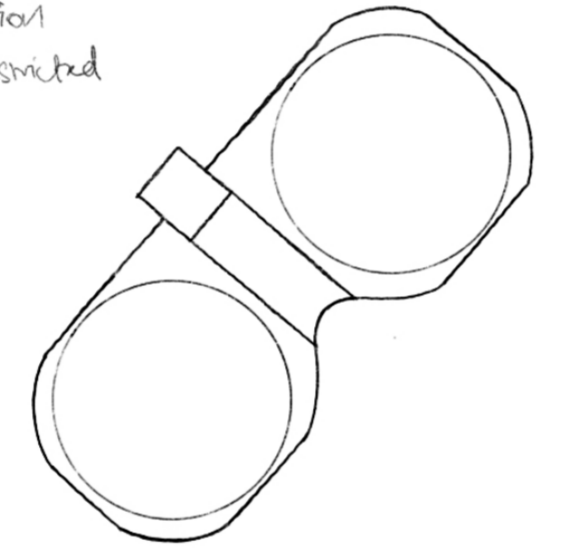
3 n/c option
Total unrestricted
9m dc



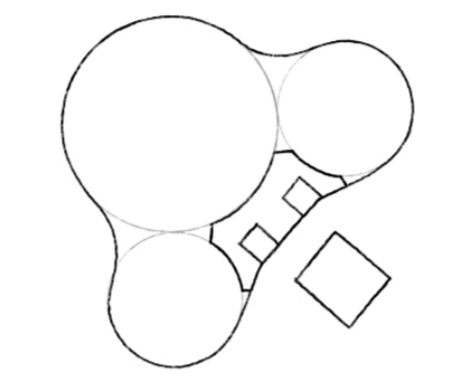
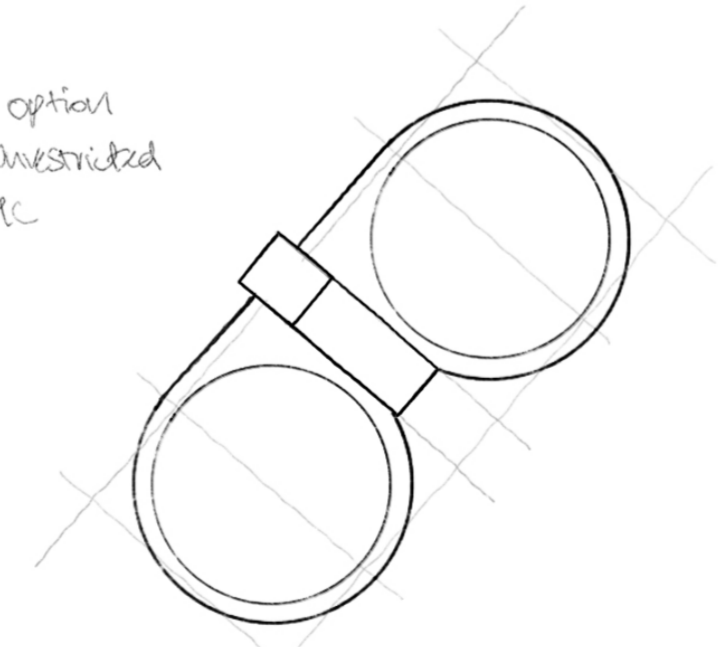
2 d/c option
Total unrestricted
12m dc



2 d/c option
Total unrestricted
12m dc

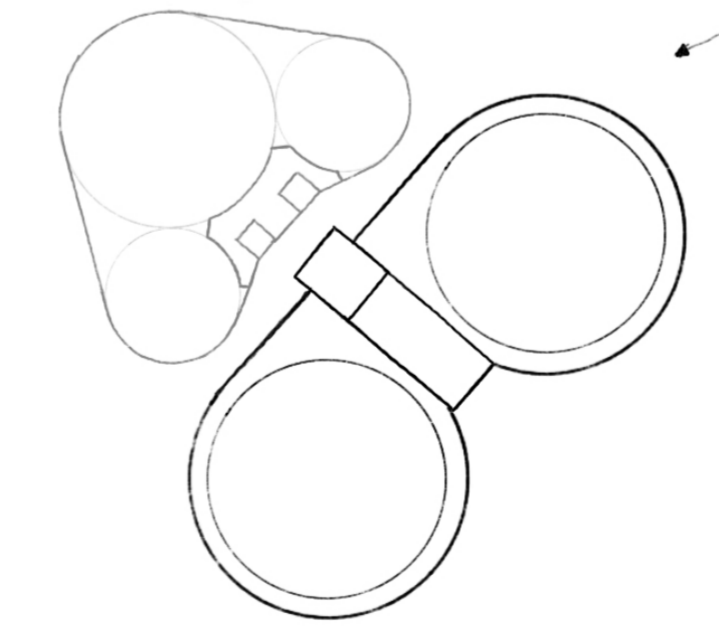
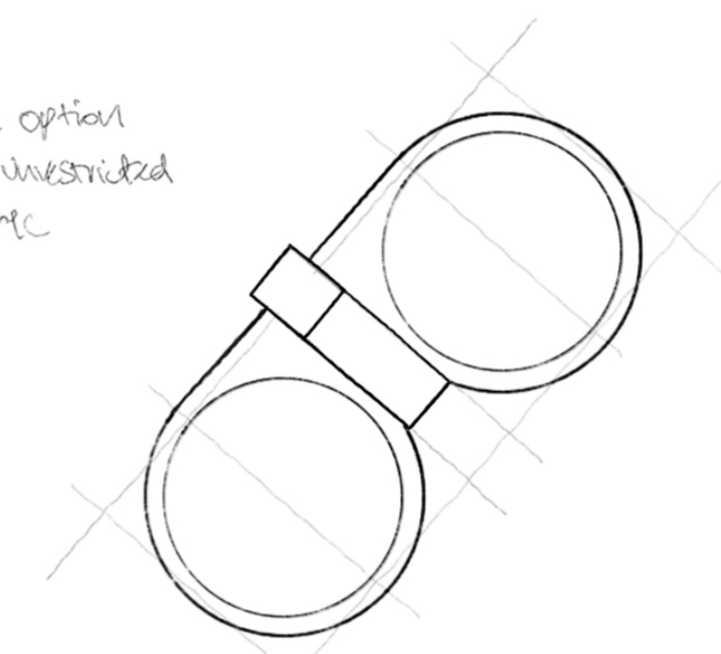


2 d/c option
Total unrestricted
12m dc

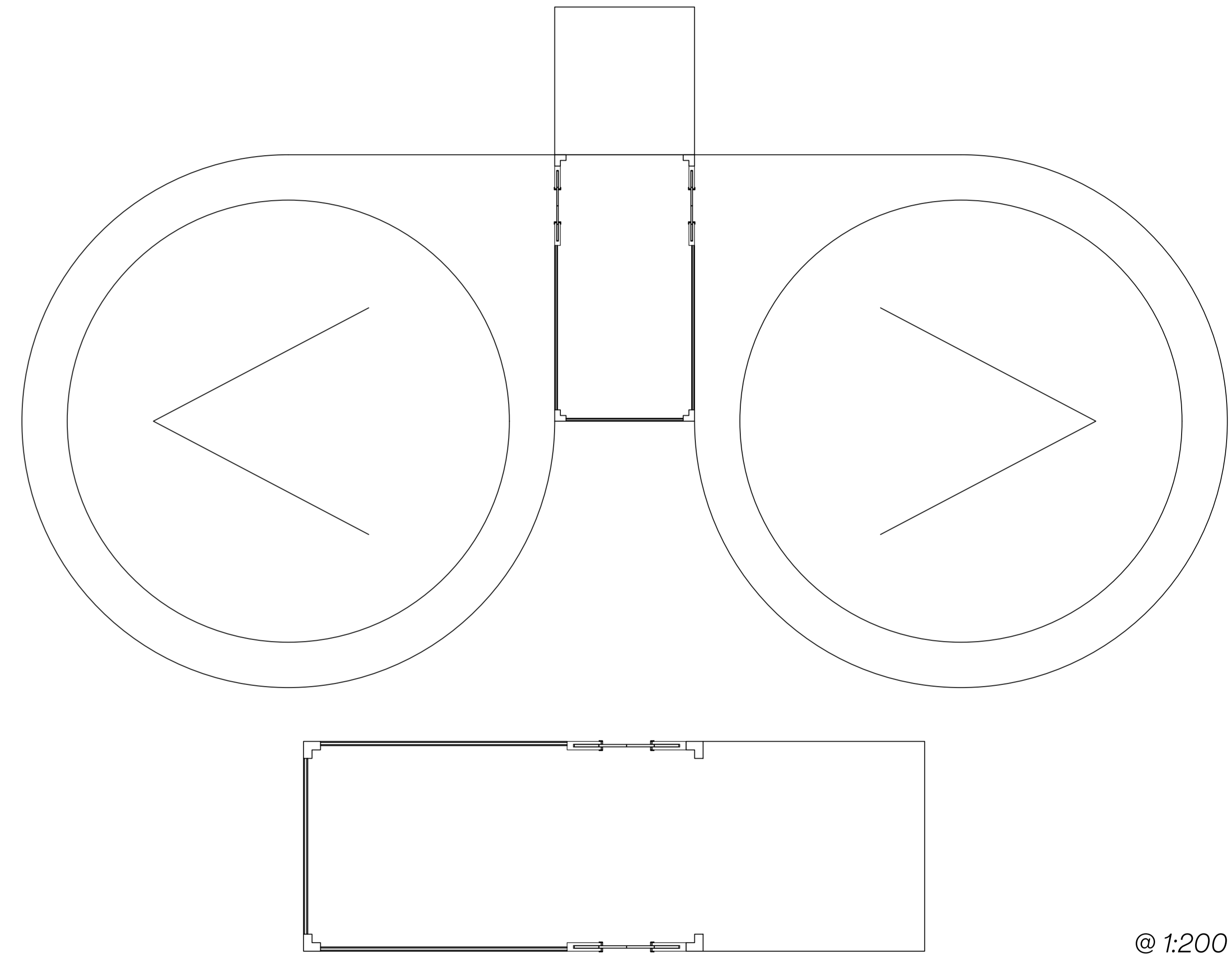
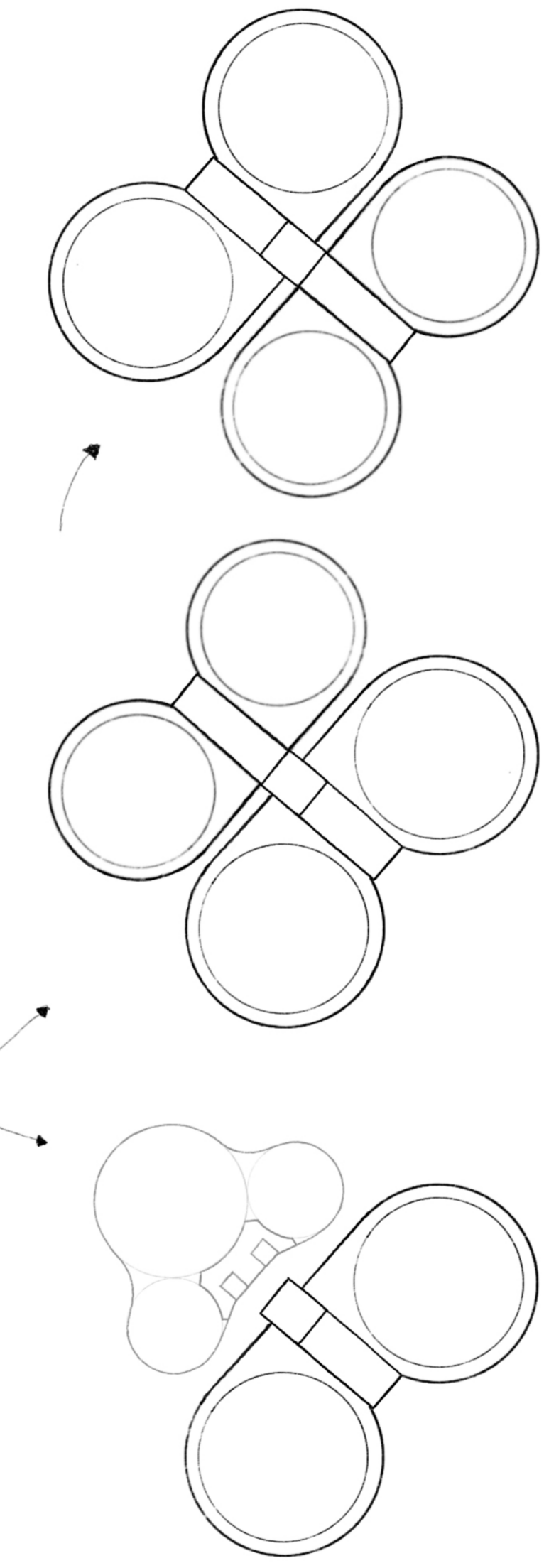


2 d/c option
Total unrestricted
9m dc

c option
unrestricted
etc



Stage 3 Total



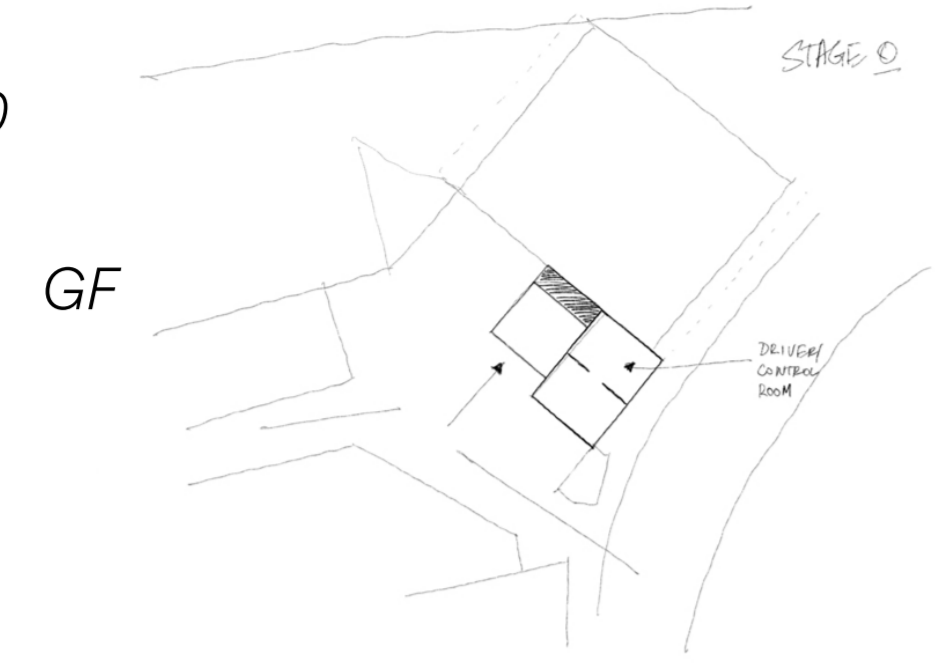
@ 1:200

Defining Concept Stages @ 1:500

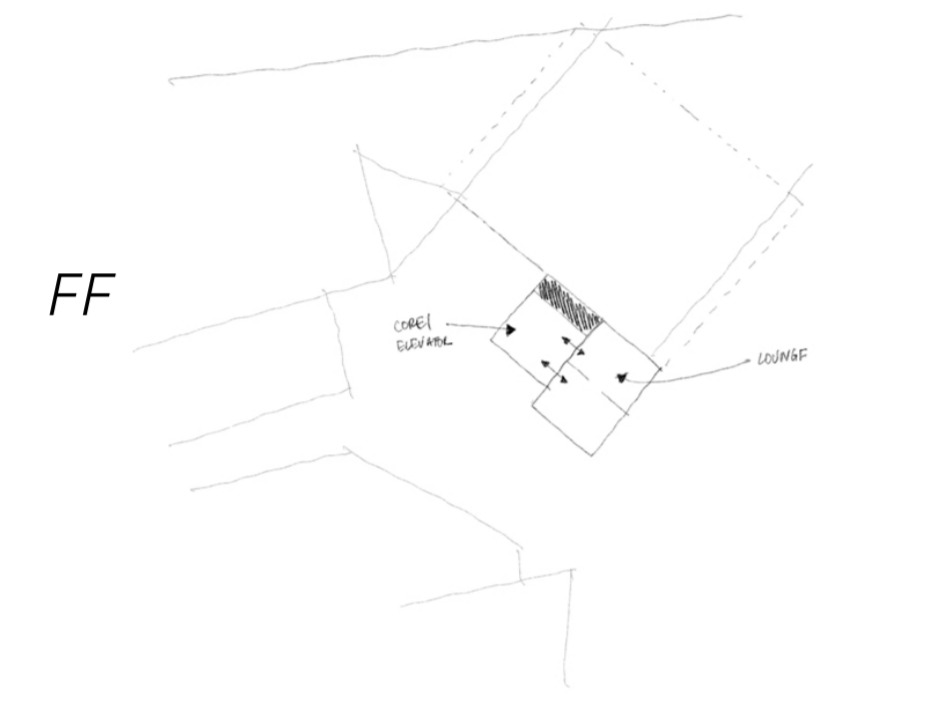
The project is designed to evolve in four defined stages, growing with future demand.

After testing multiple iterations, I established concept stages based on projected passenger volumes to determine spatial needs. This approach helped shape the overall design and supported later decisions.

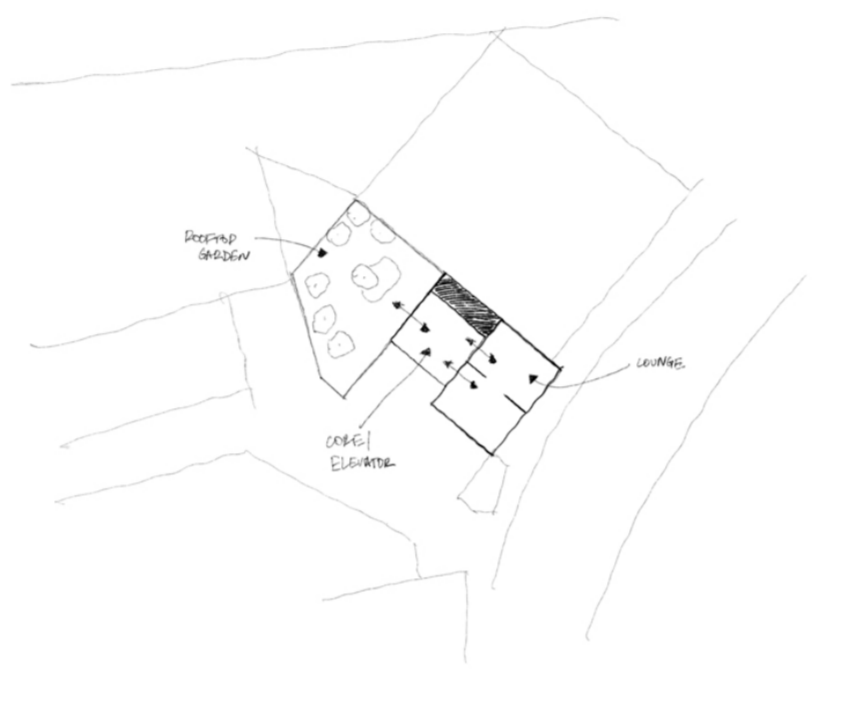
The current design represents Stage 1/2 - accommodating up to four aircraft, with terminal facilities sized below the projected peak capacity of Stage 2, allowing for scalable future expansion.



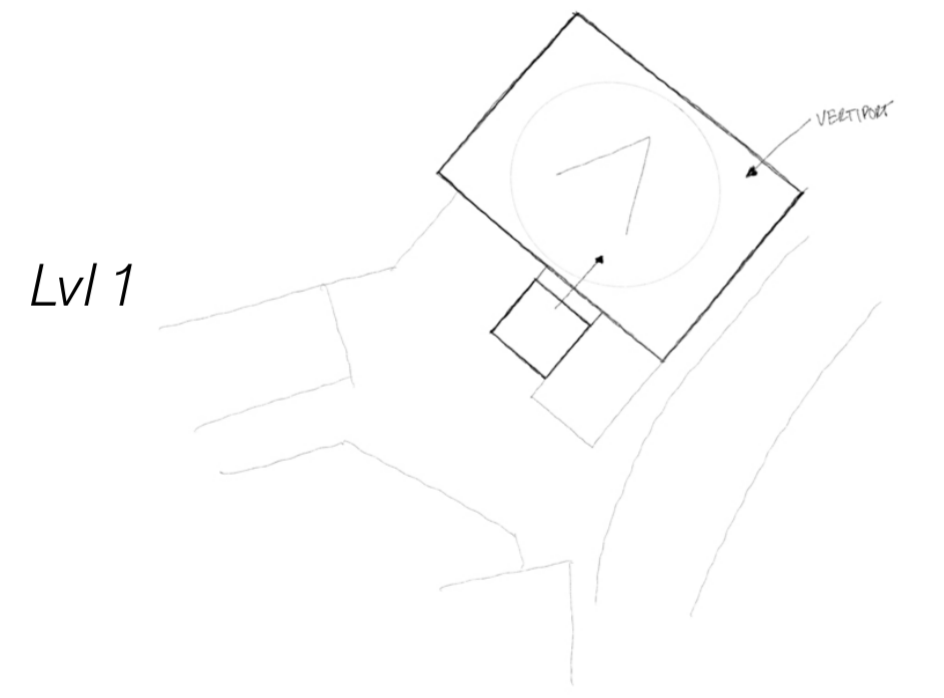
Stage 0
 Type: Private Terminal
 Peak Capacity: 12
 VTOL Aircraft Pads: 1



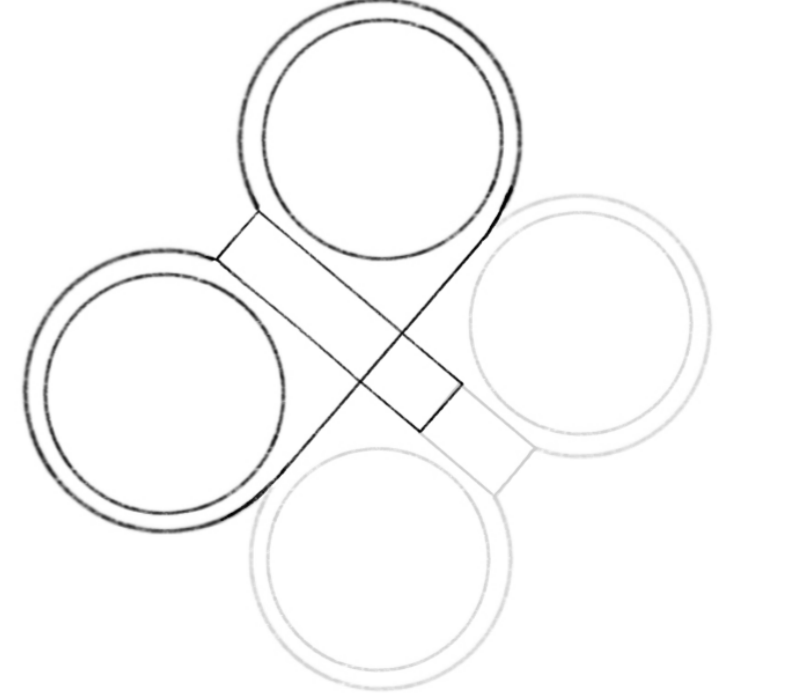
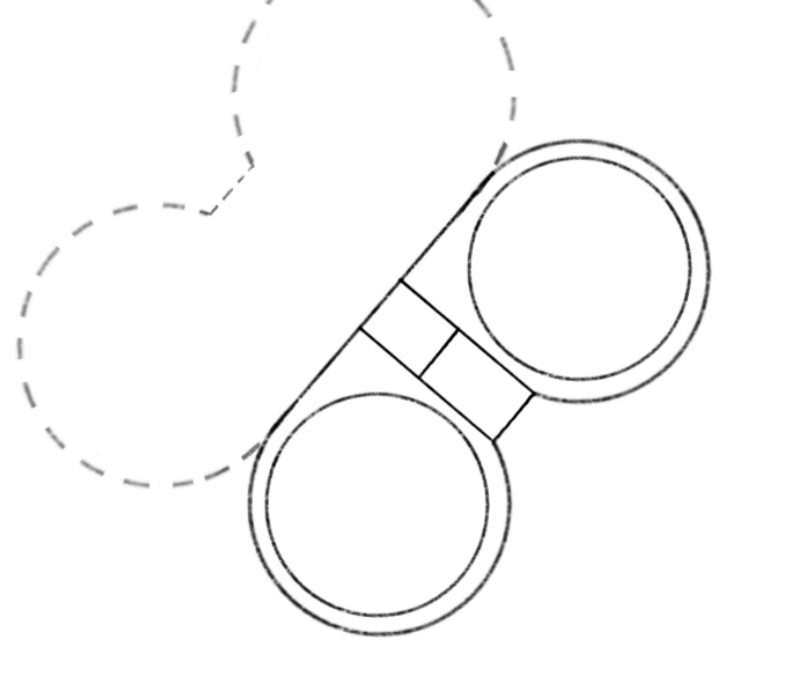
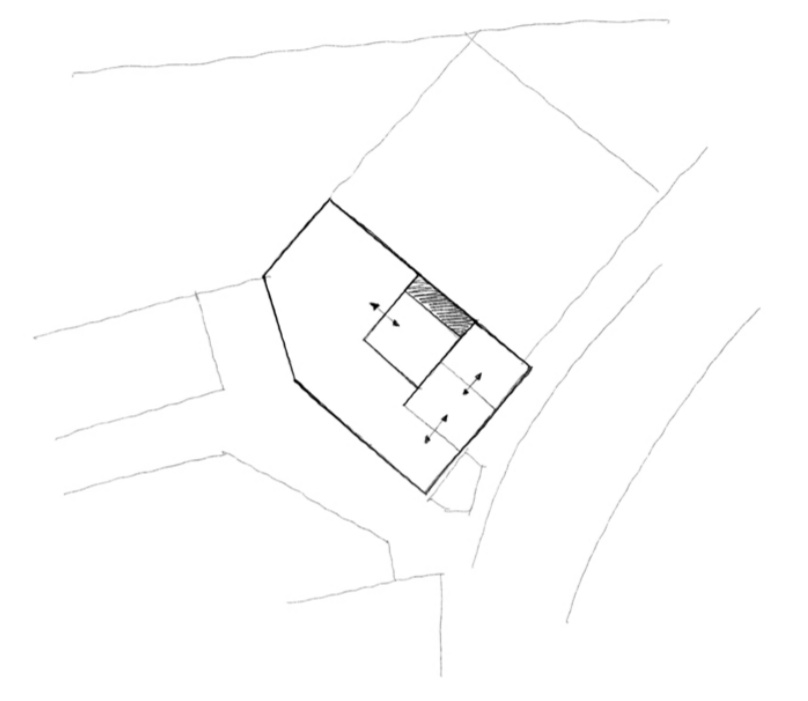
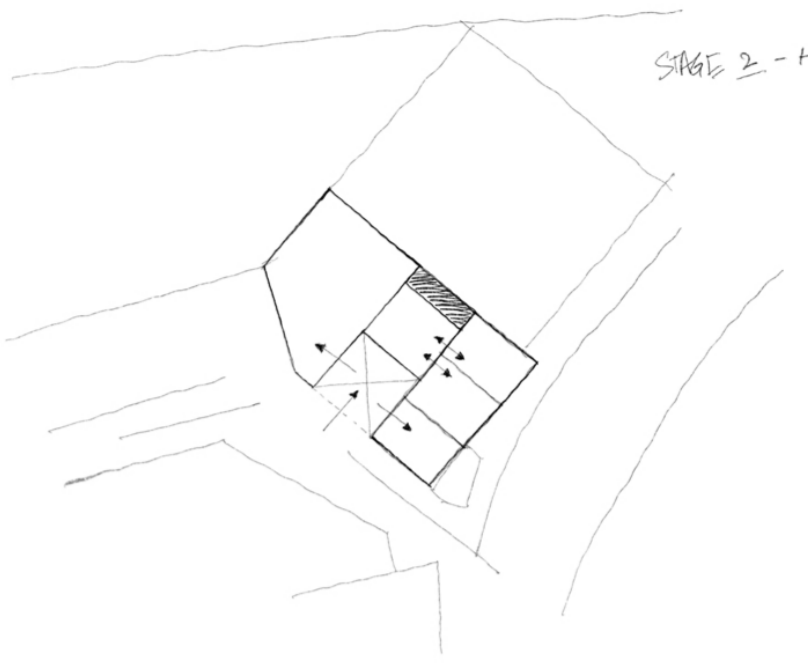
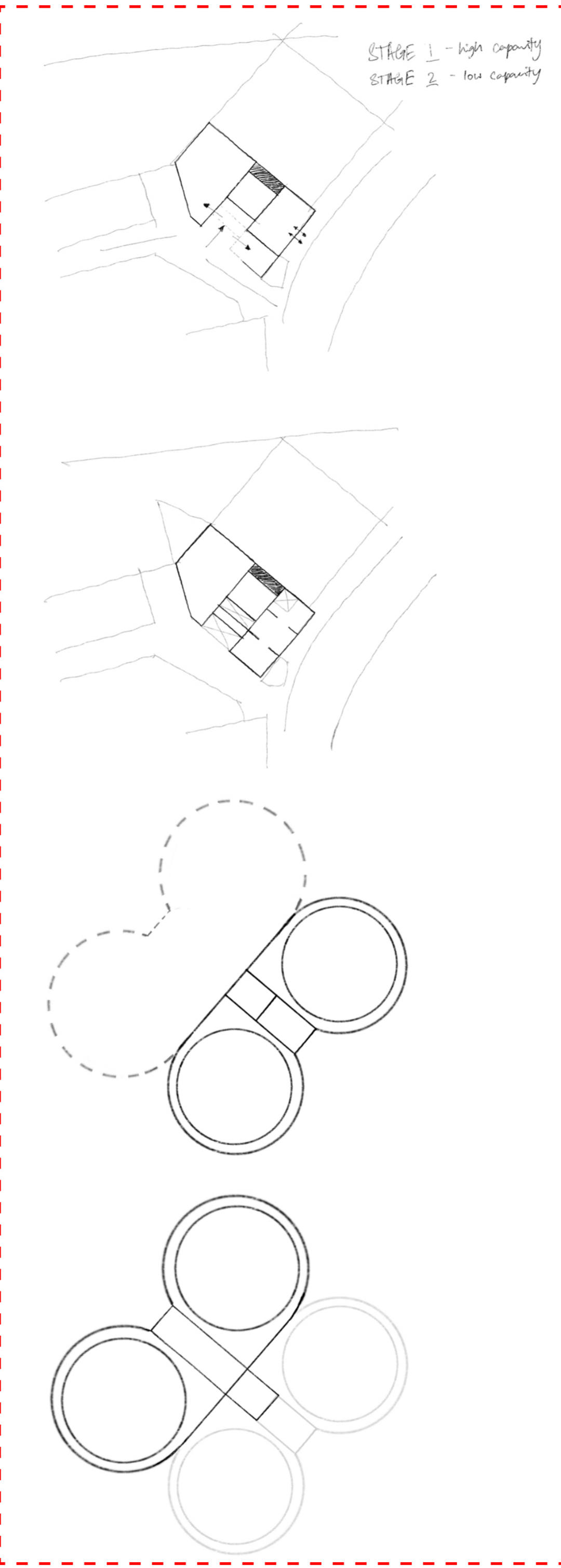
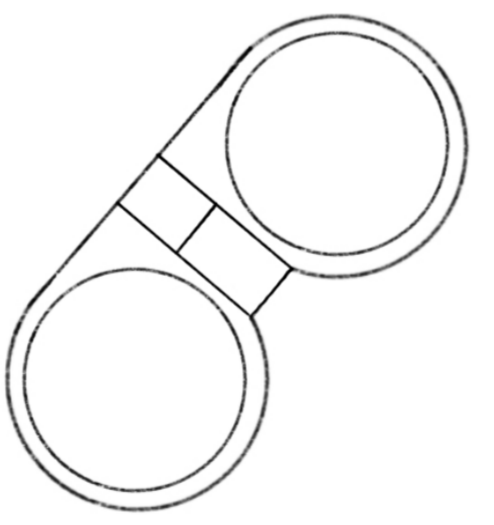
Stage 1
 Type: Public Terminal
 Peak Capacity: 40
 VTOL Aircraft Pads: 2

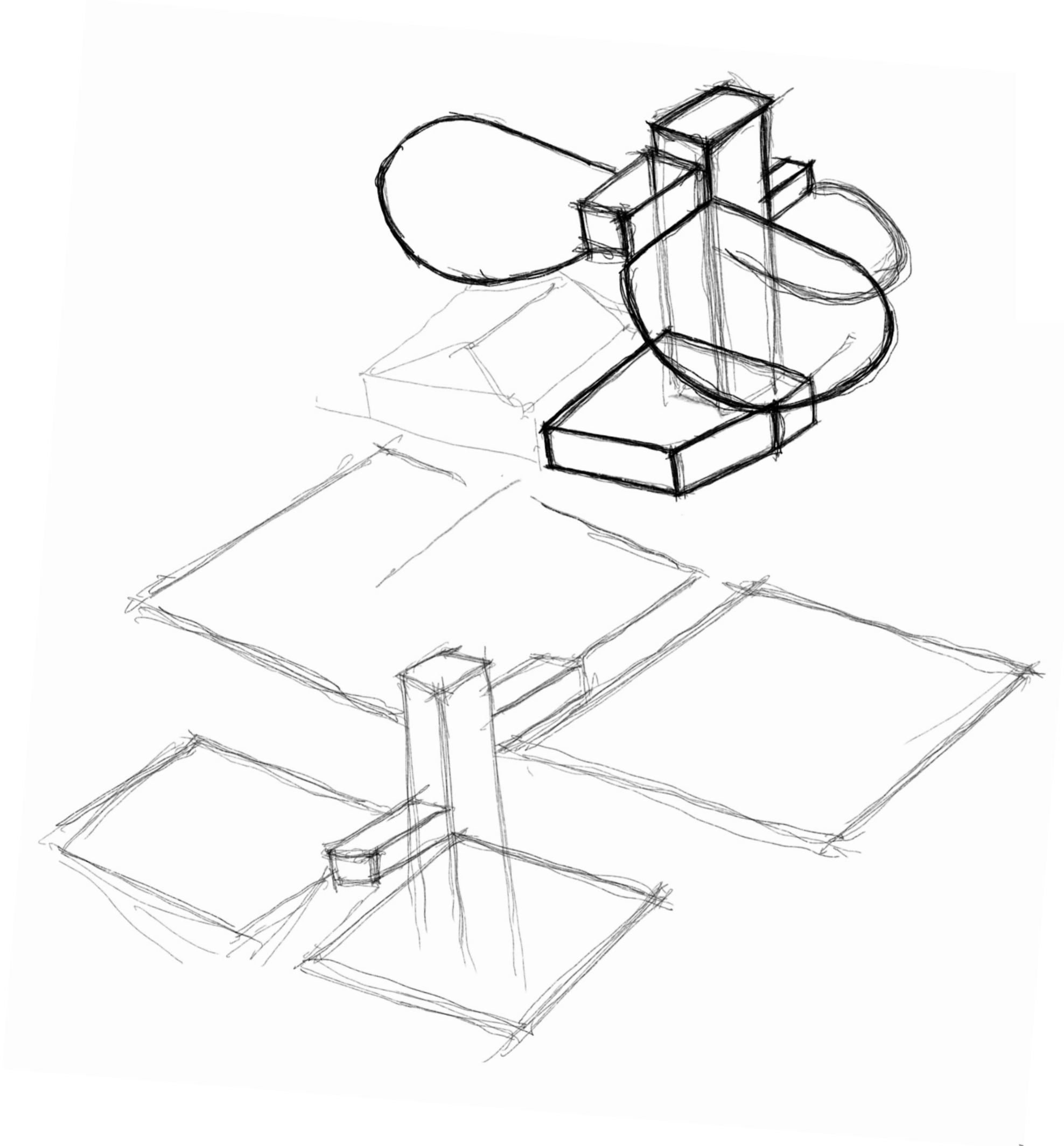


Stage 1/2
 Type: Public Terminal
 Peak Capacity: 60
 VTOL Aircraft Pads: 4



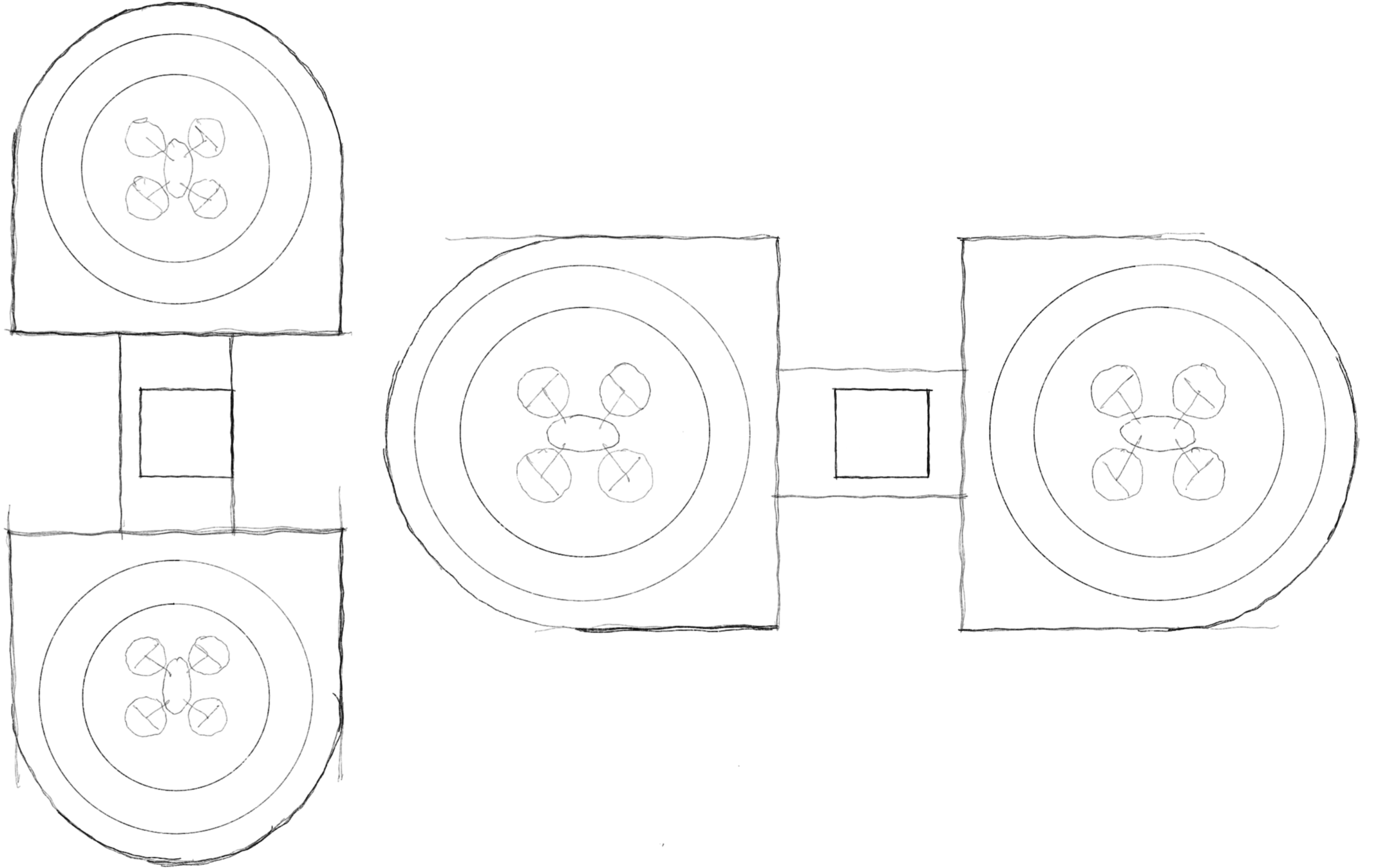
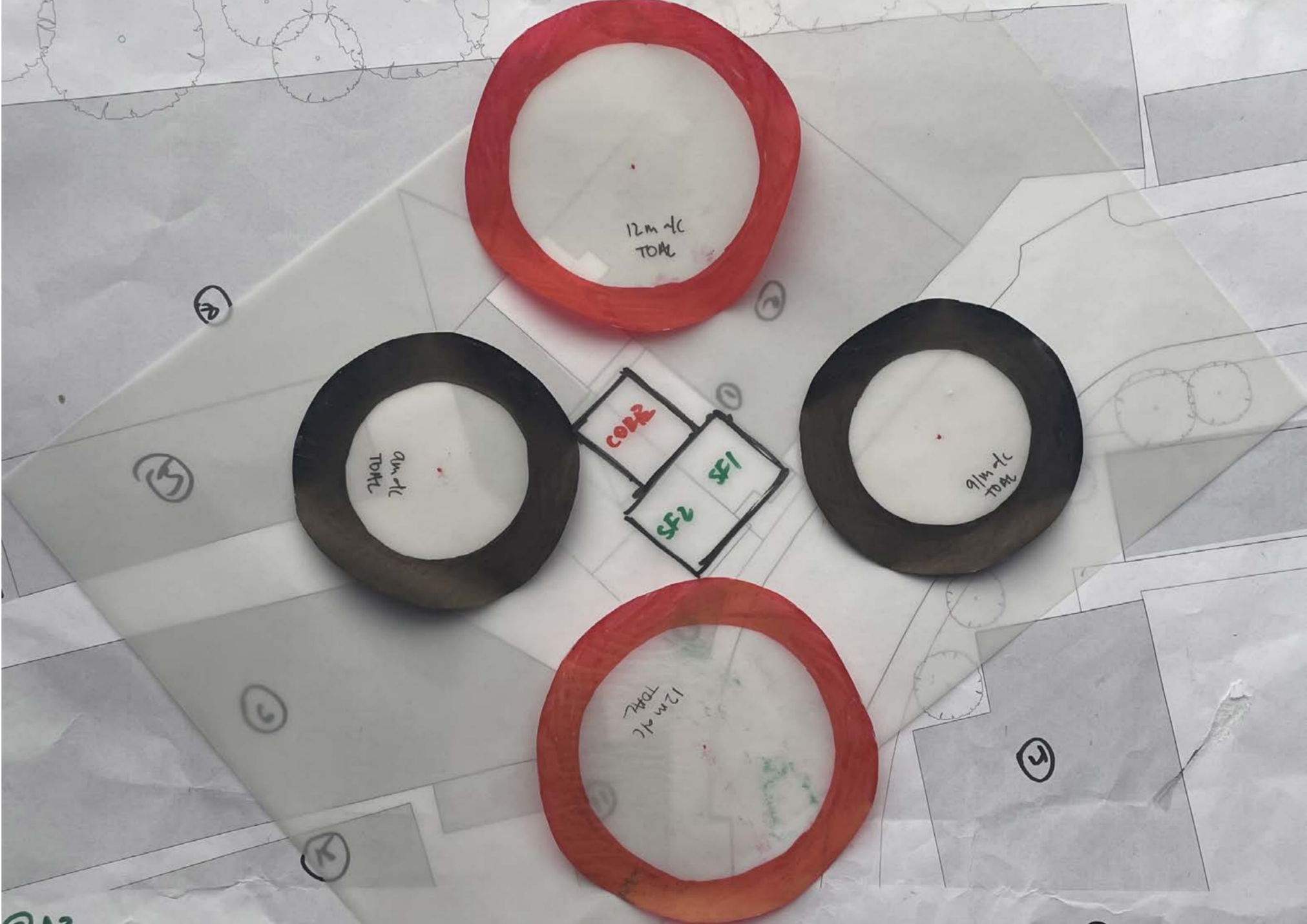
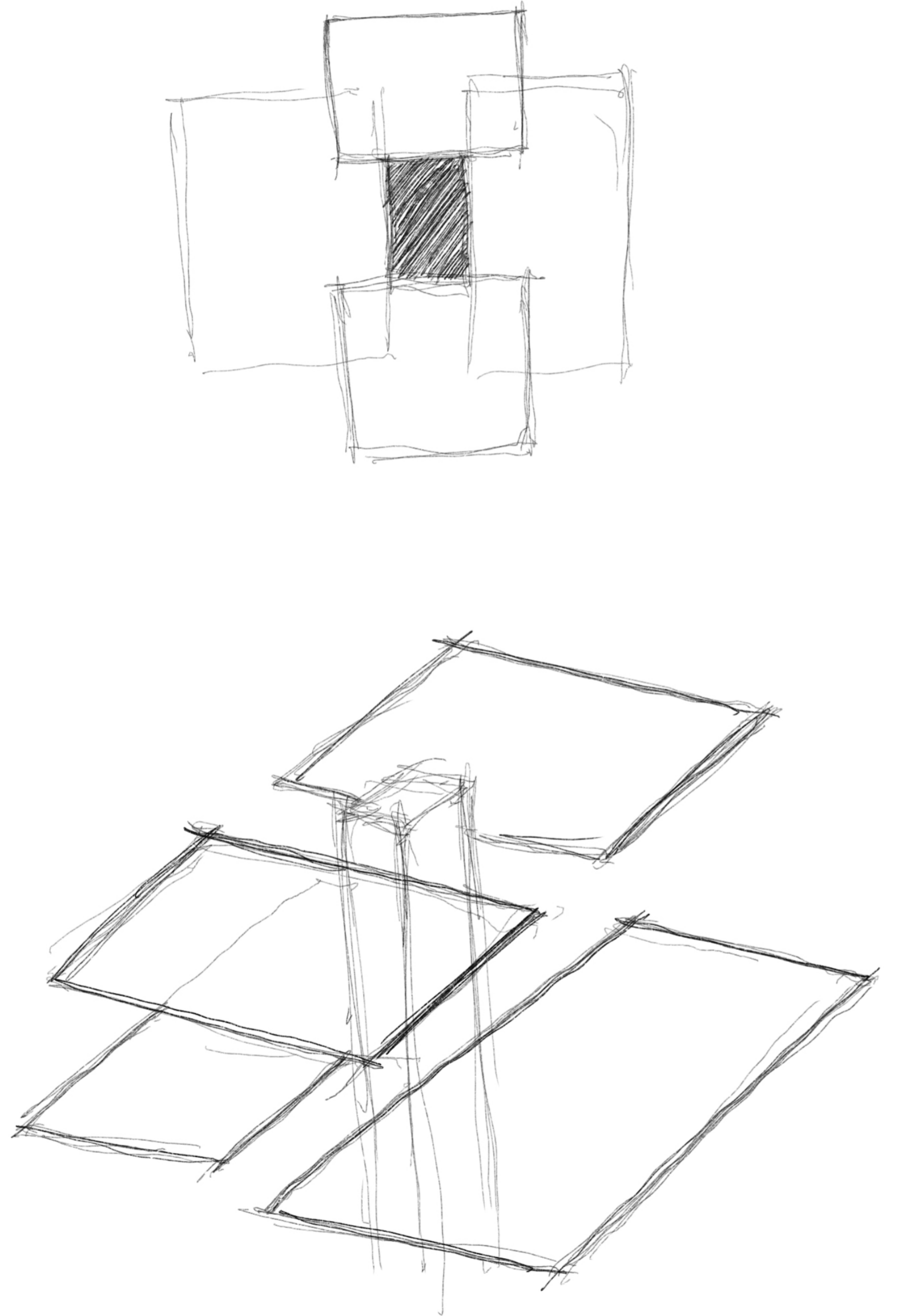
Stage 2
 Type: Public Terminal
 Peak Capacity: 80
 VTOL Aircraft Pads: 4





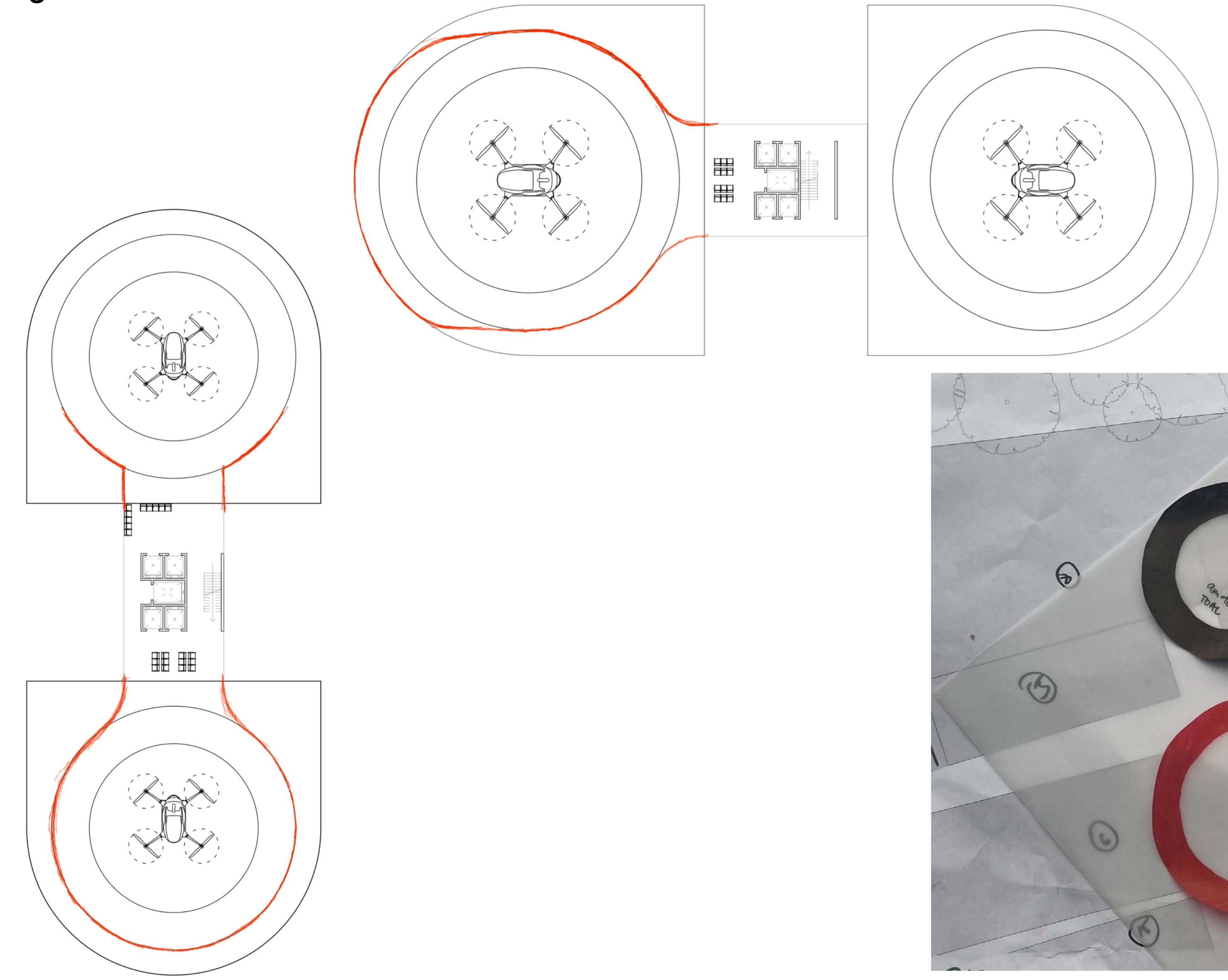
The form felt monotonous and lacked visual appeal, prompting further iteration to improve its spatial quality and character.





Testing Iterations

@ 1:250

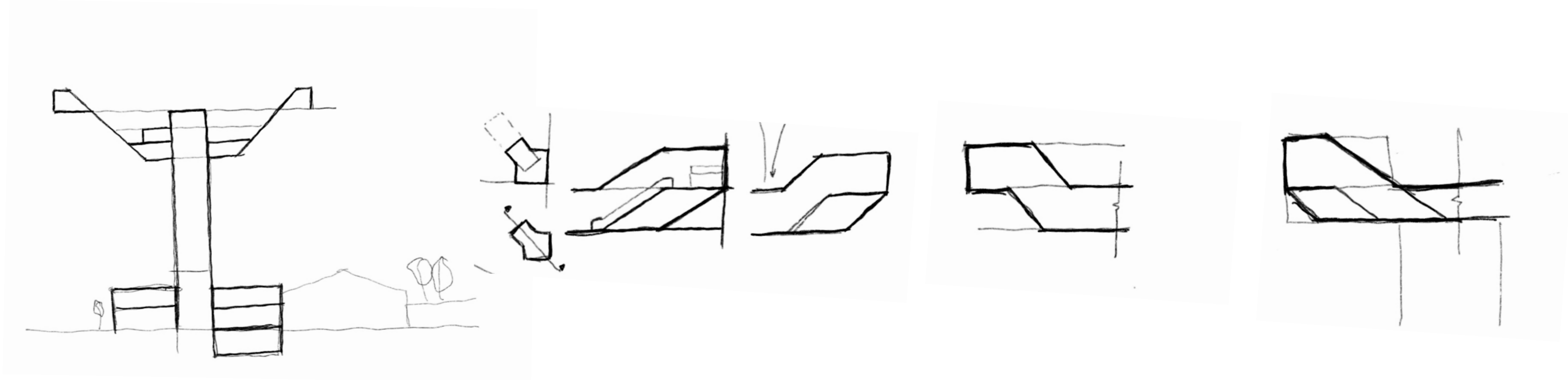
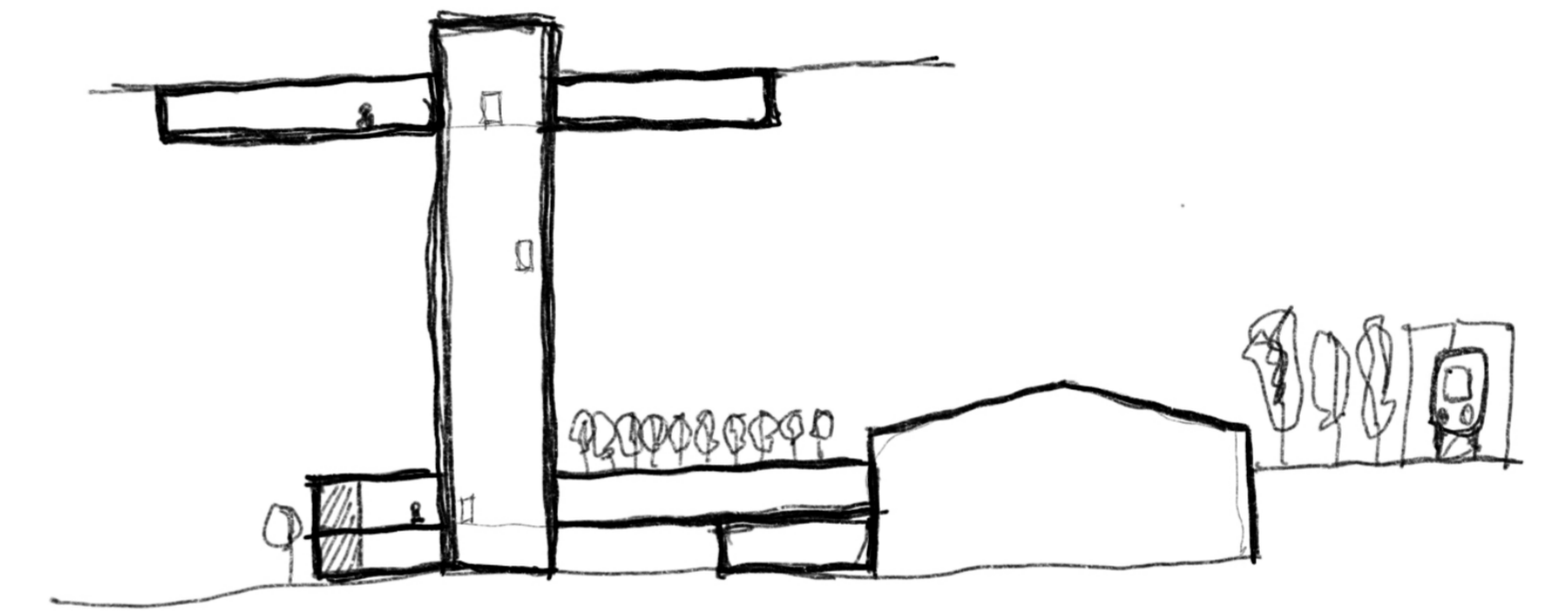
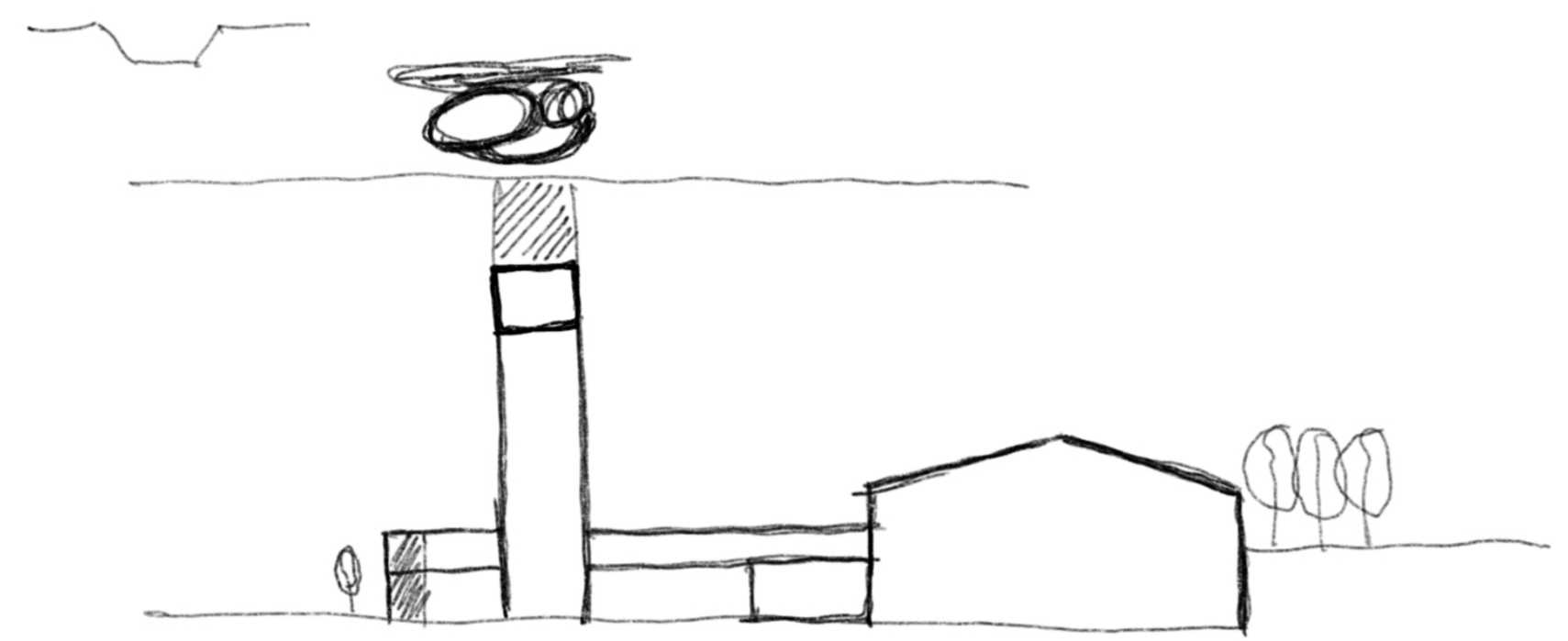
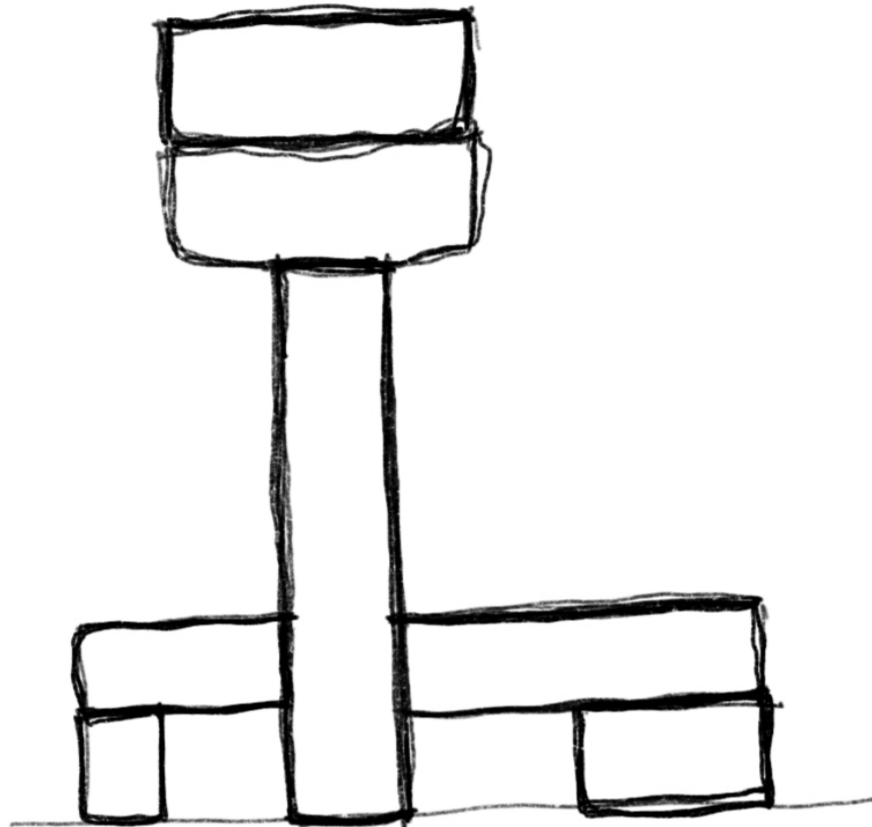
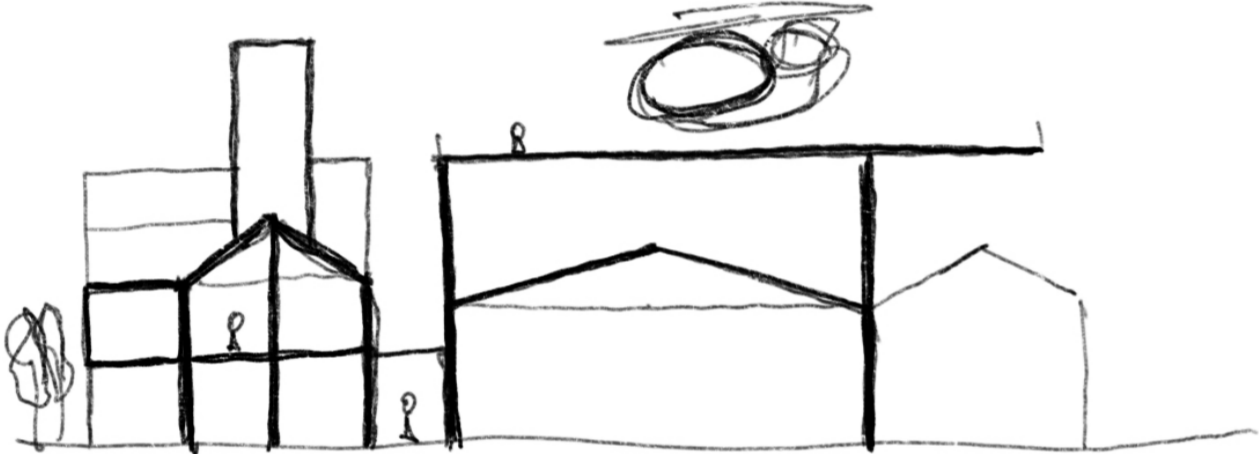


● 12m a/c TOAL ○ 9m a/c TOAL

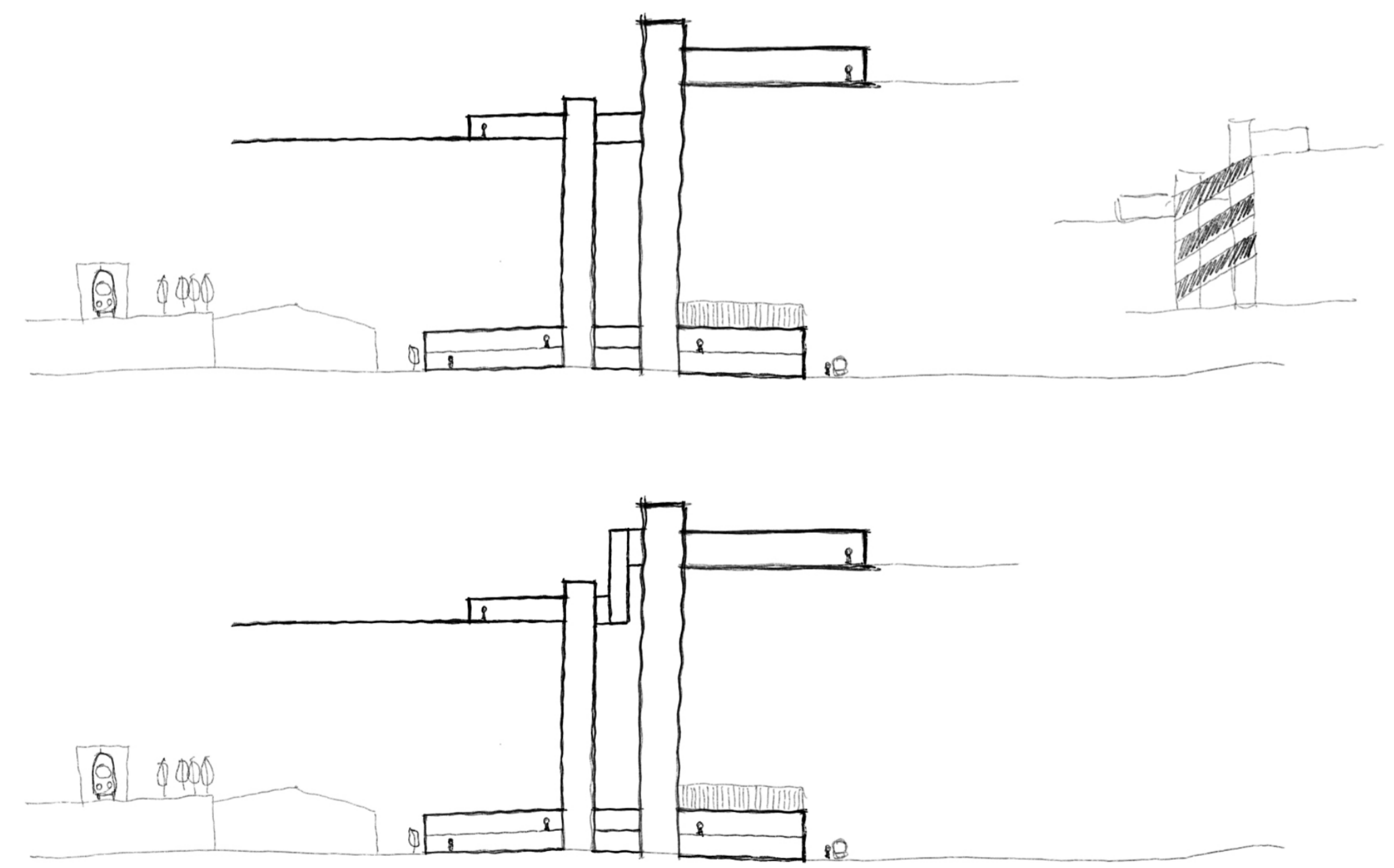
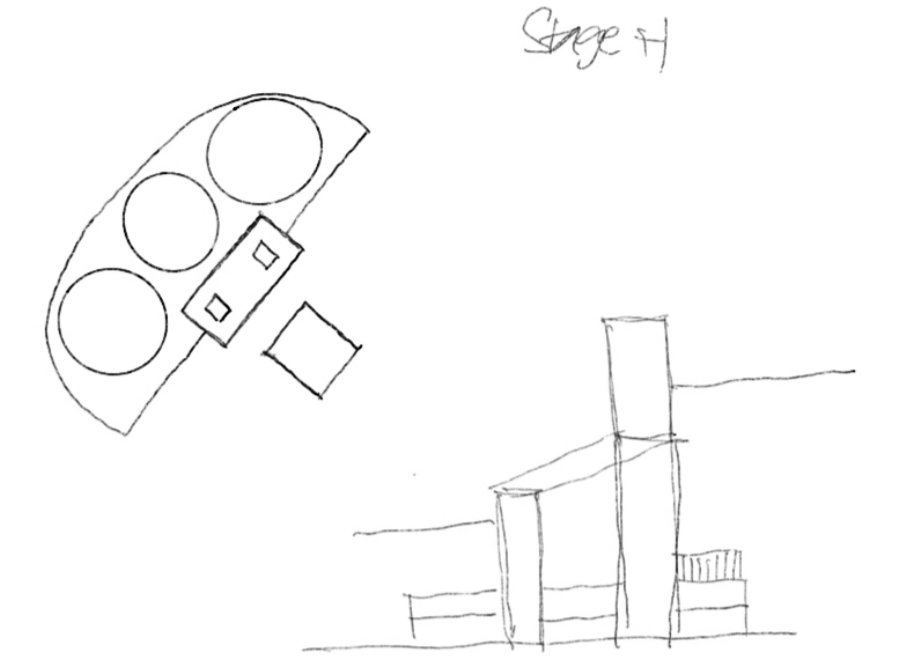
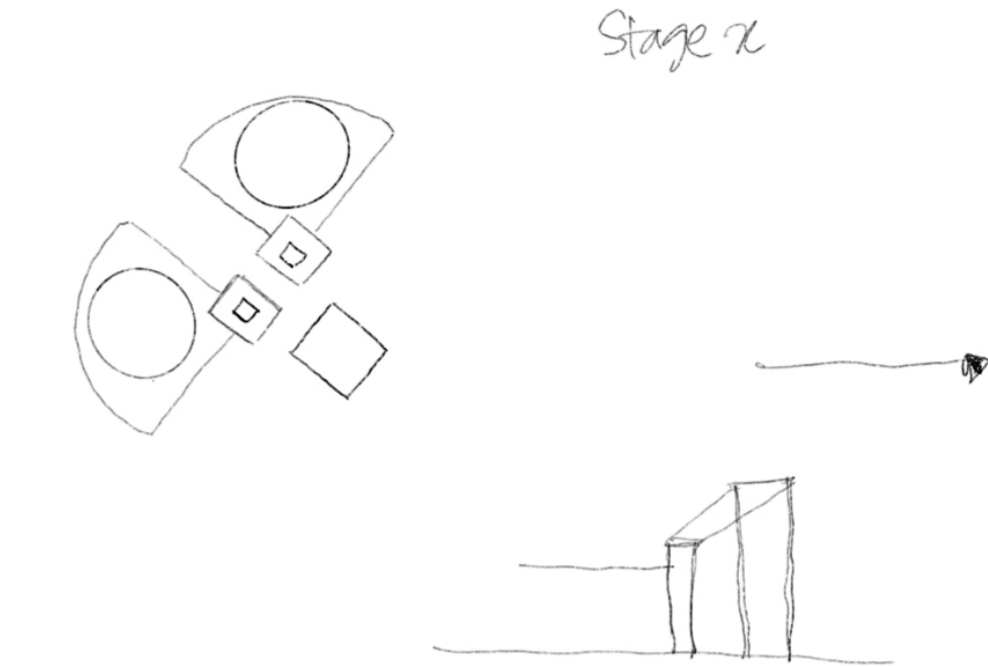
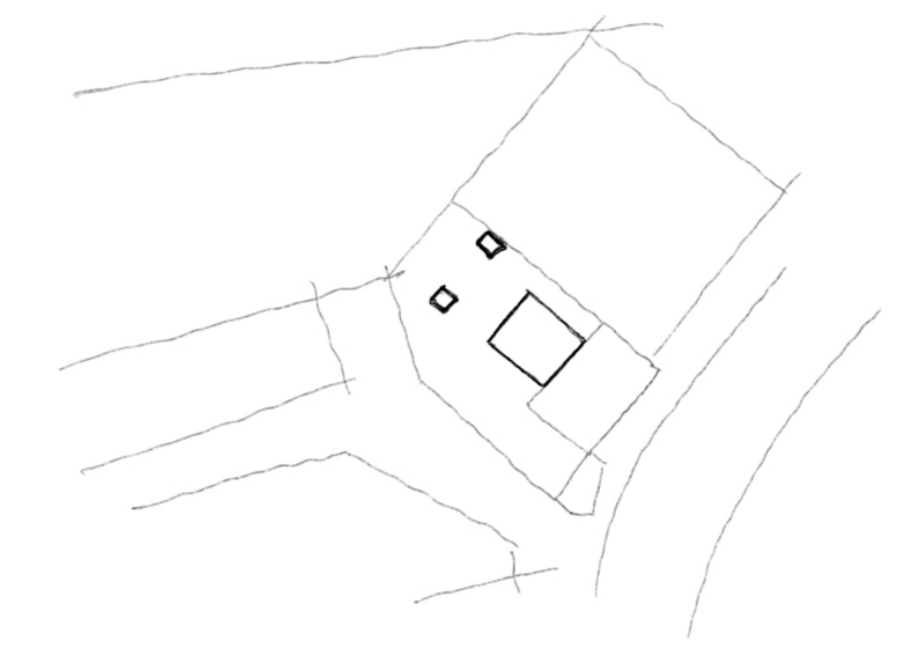
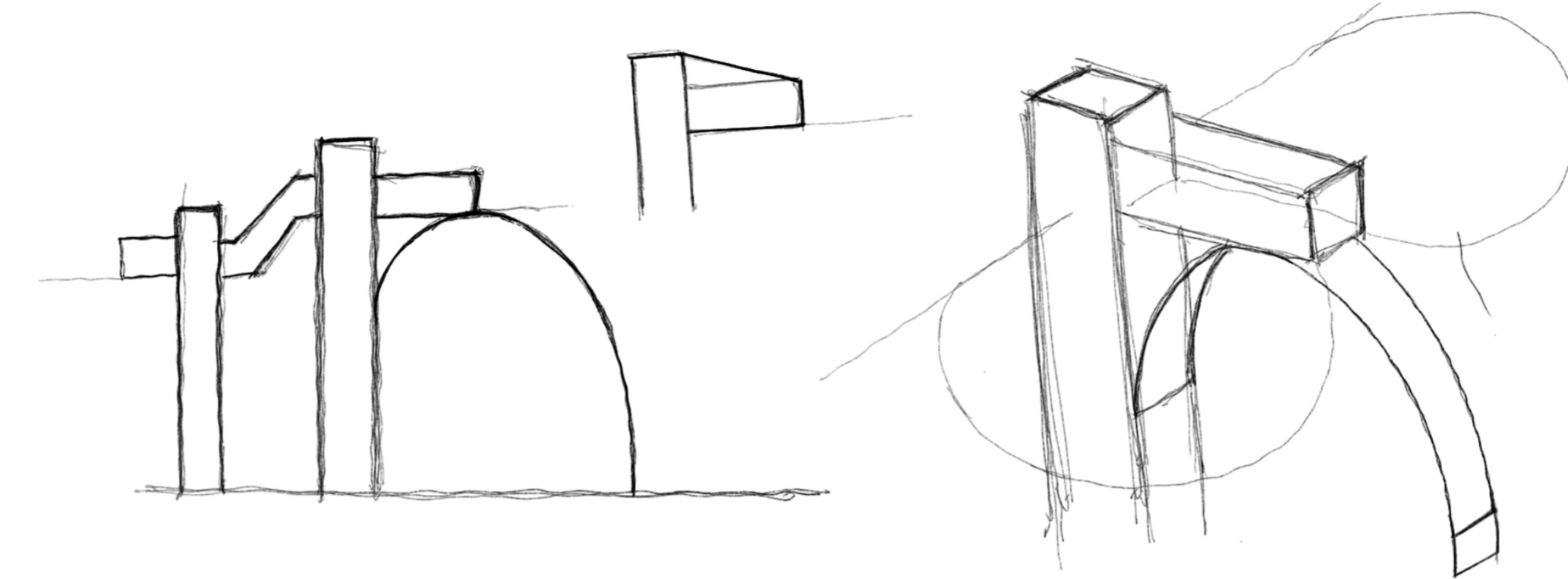
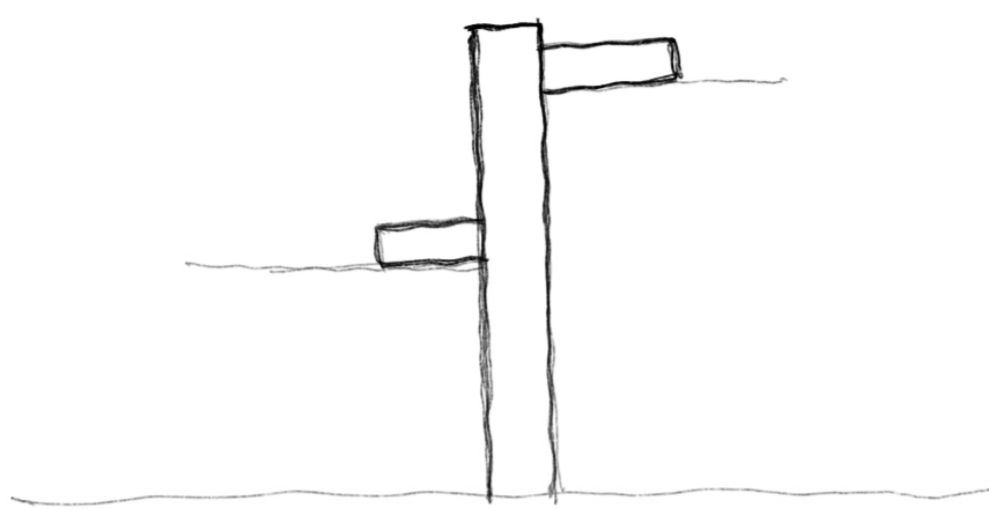
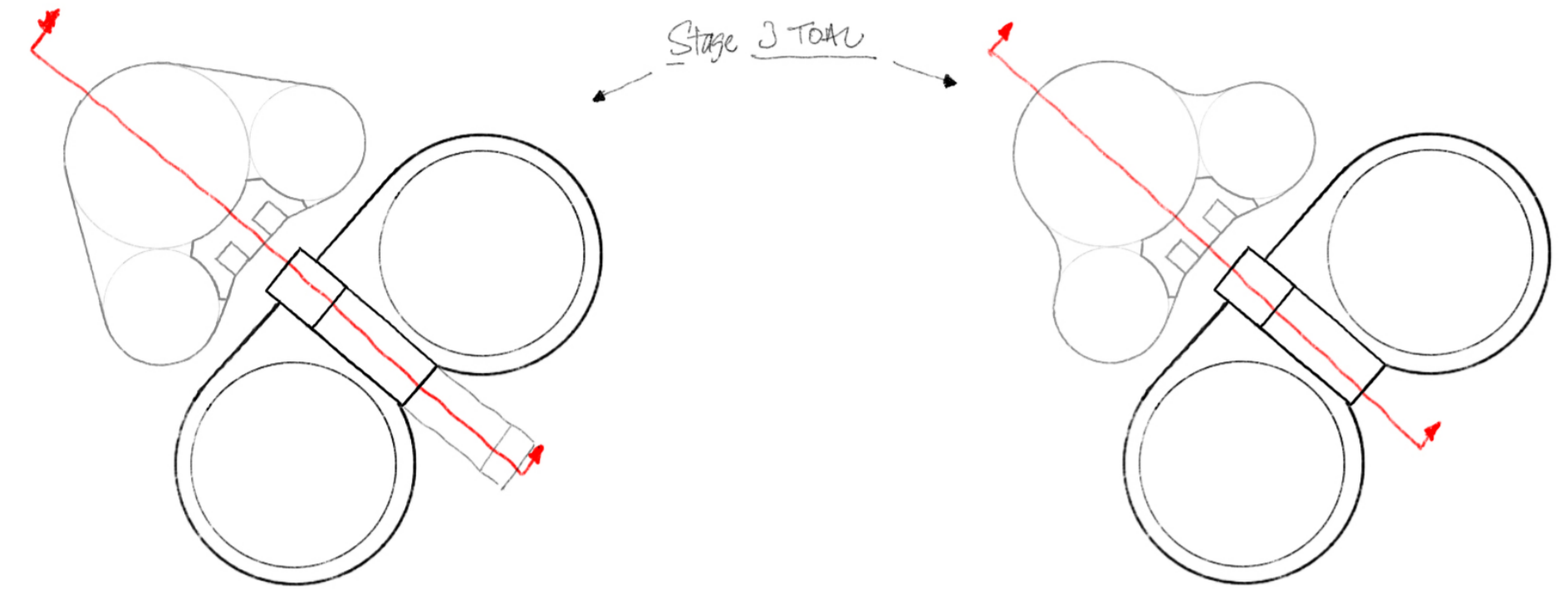
Striking a balance:
Visually engaging without feeling
intrusive in the site context.



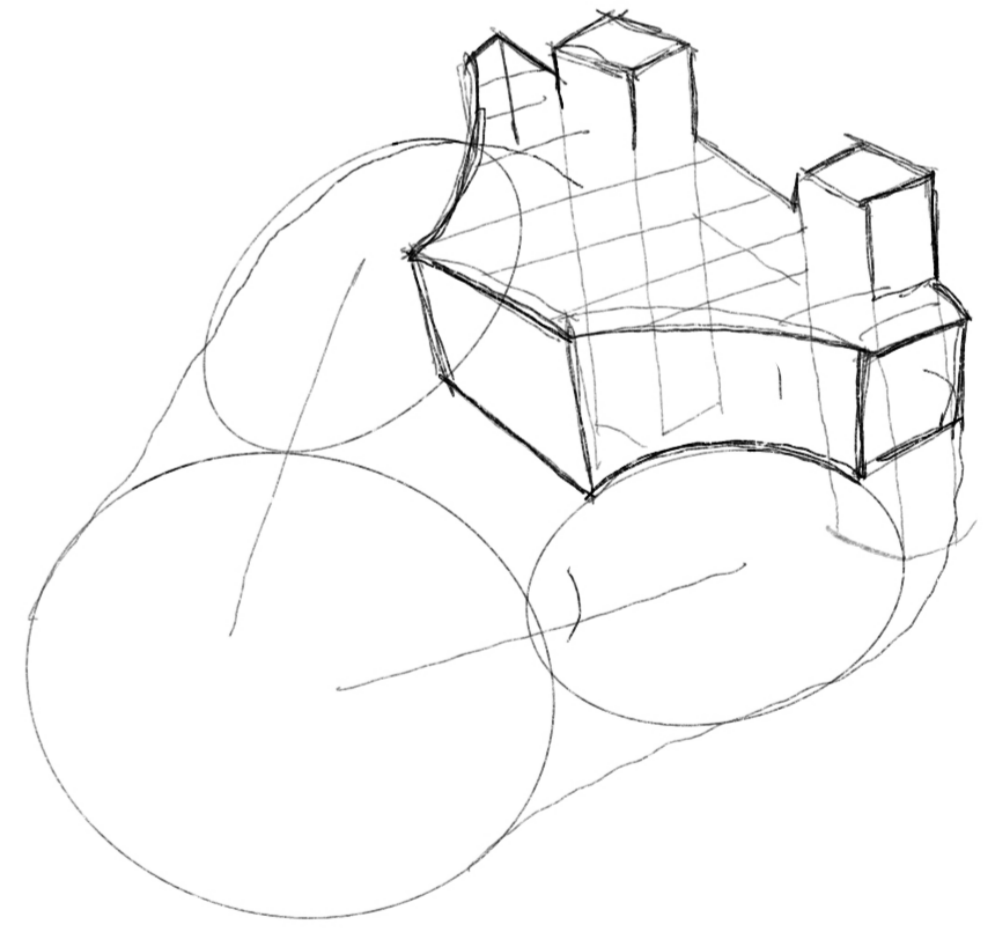
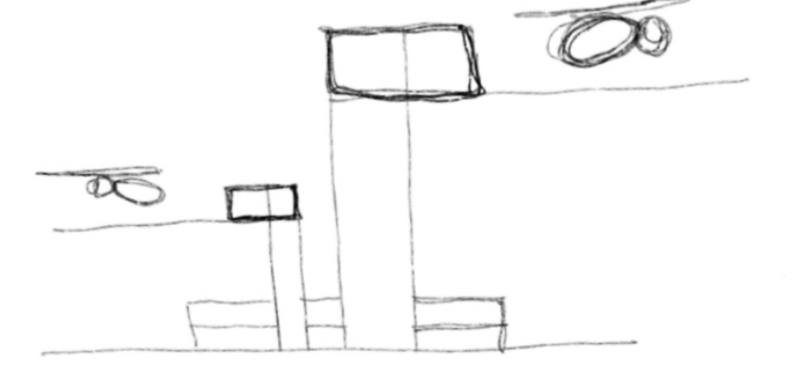
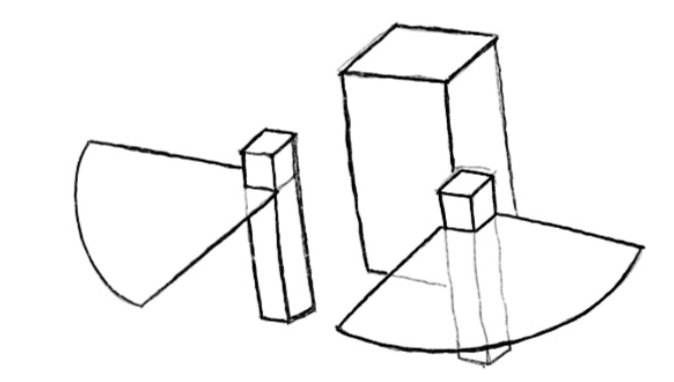
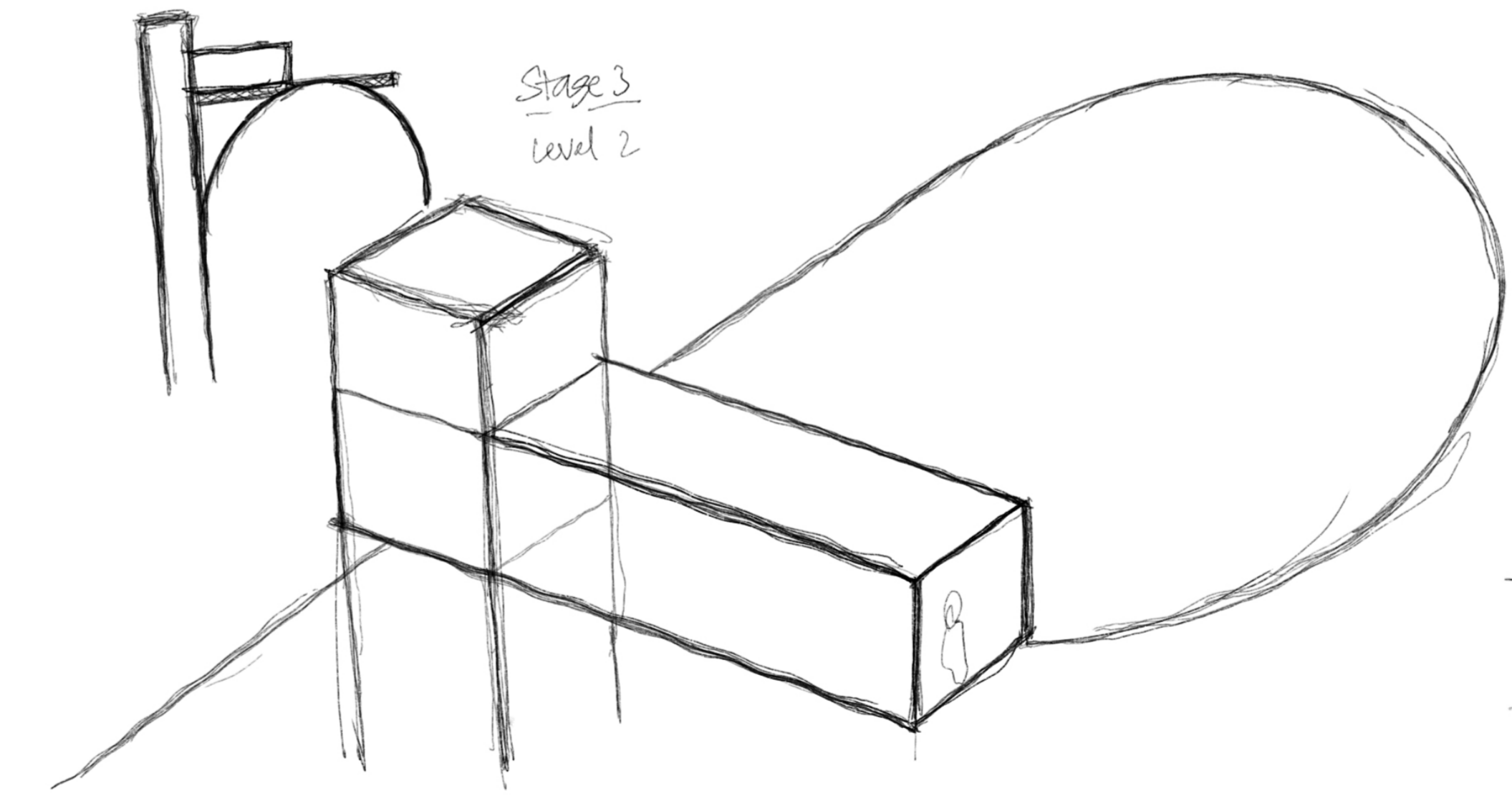
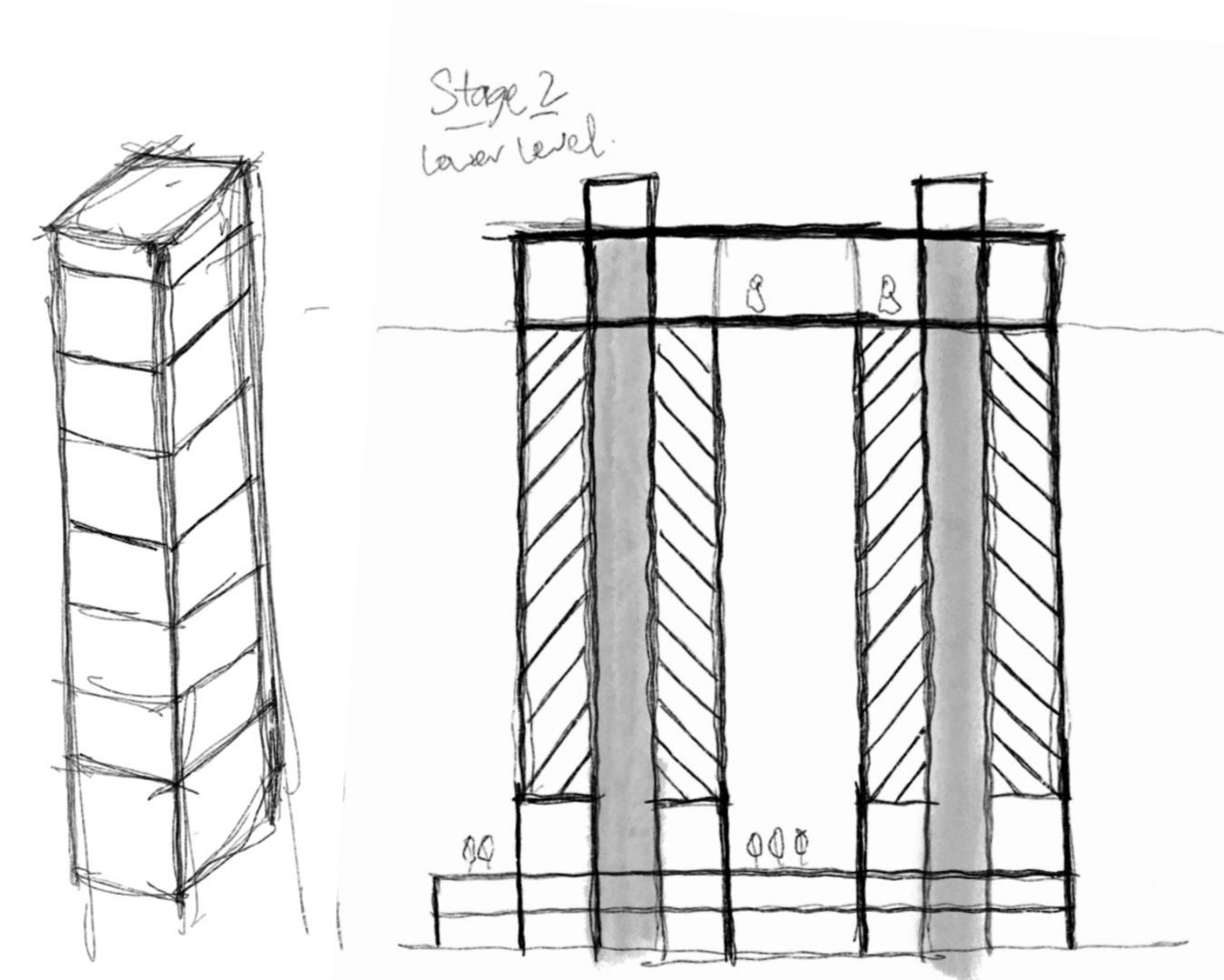
Structure



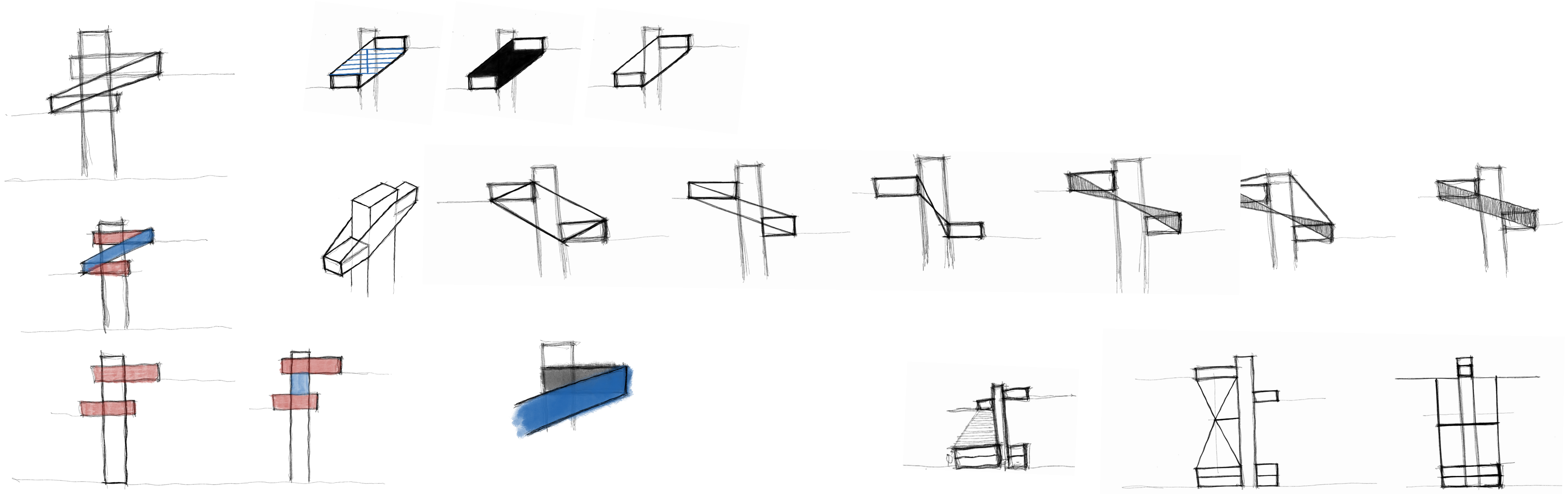
Exploring 'Two' Cores



CCTV Headquarters
by Rem Koolhaas and Ole Scheeren
(CCTV, n.d.)



Connecting 'Two' Levels

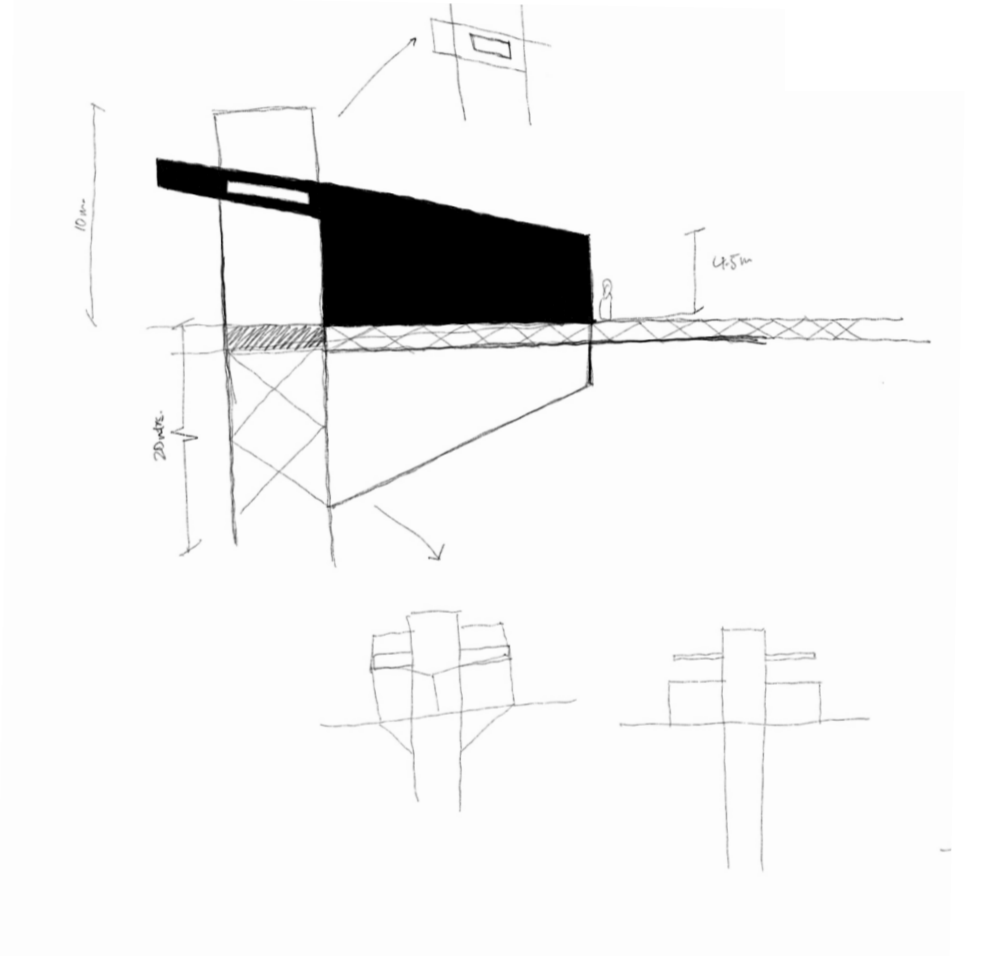
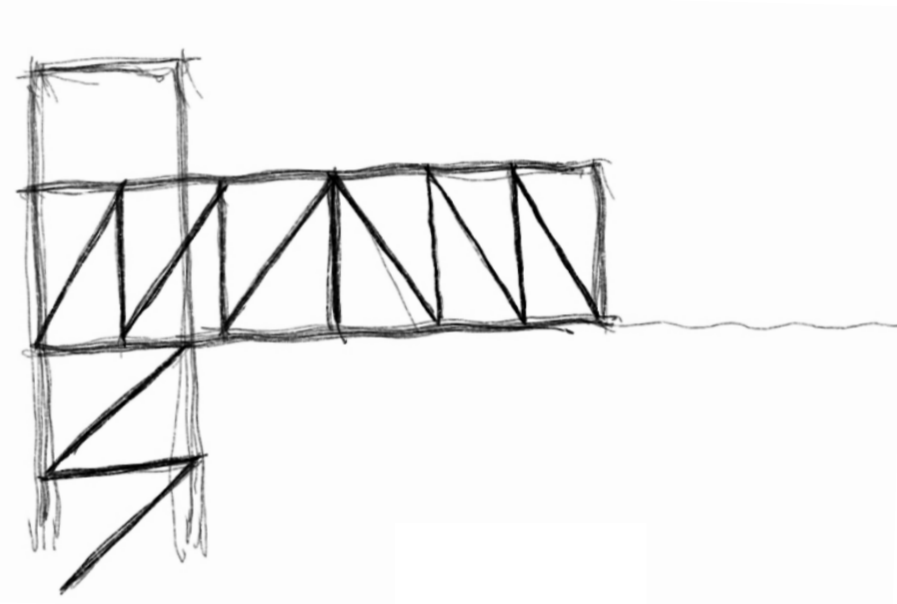
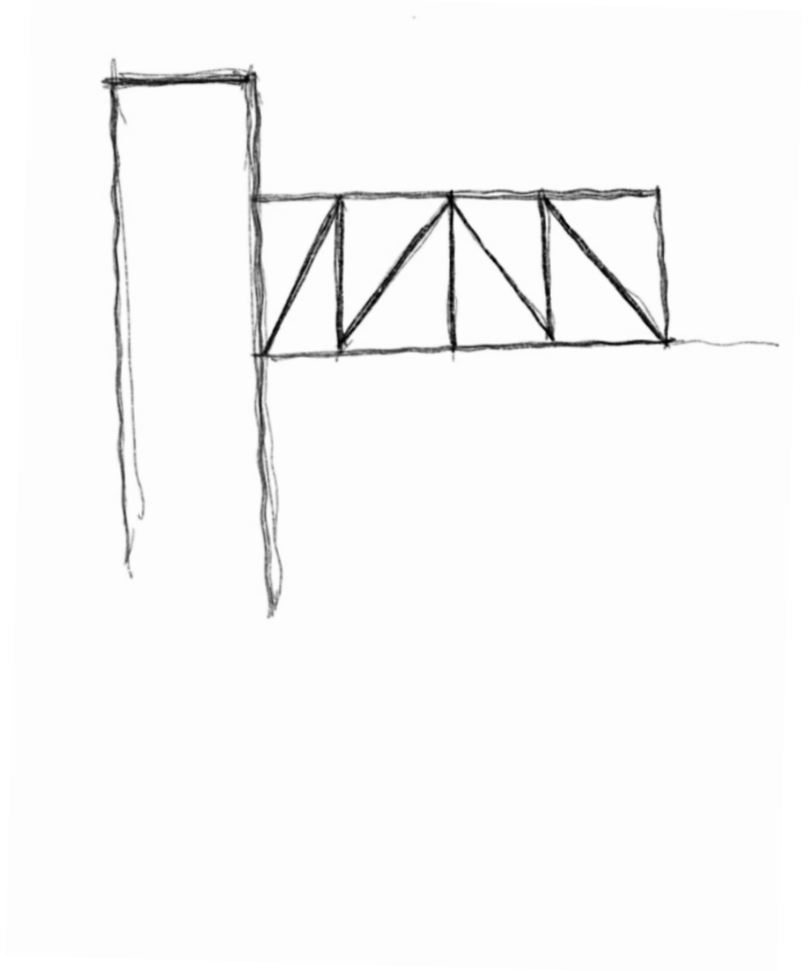
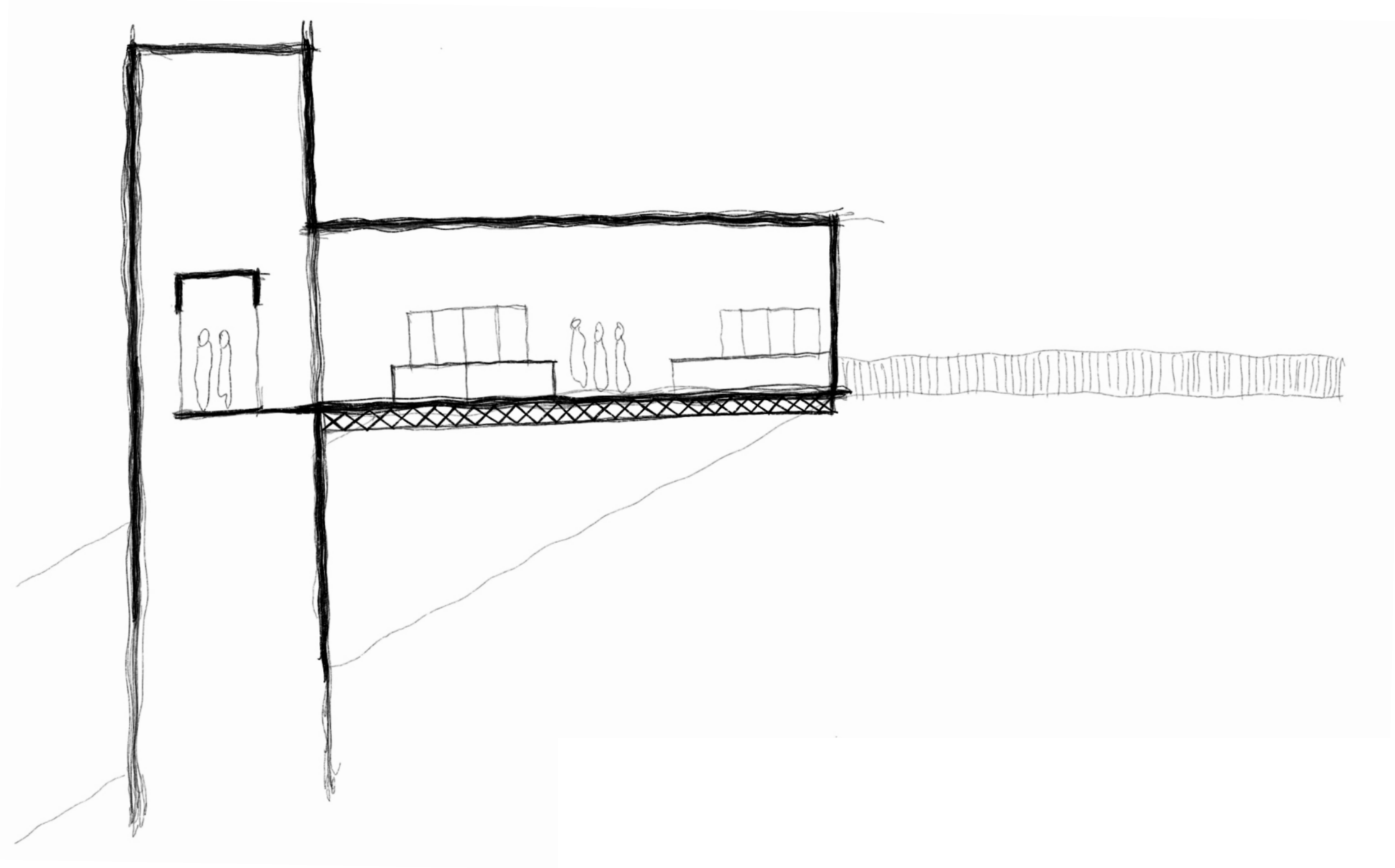


Vierendeel Architecture

Initially, I looked to Vierendeel architecture for inspiration. However, I realised it wasn't ideal for this design, as Vierendeel systems are better suited to cantilevered structures, which didn't align with the vertical nature of the project.

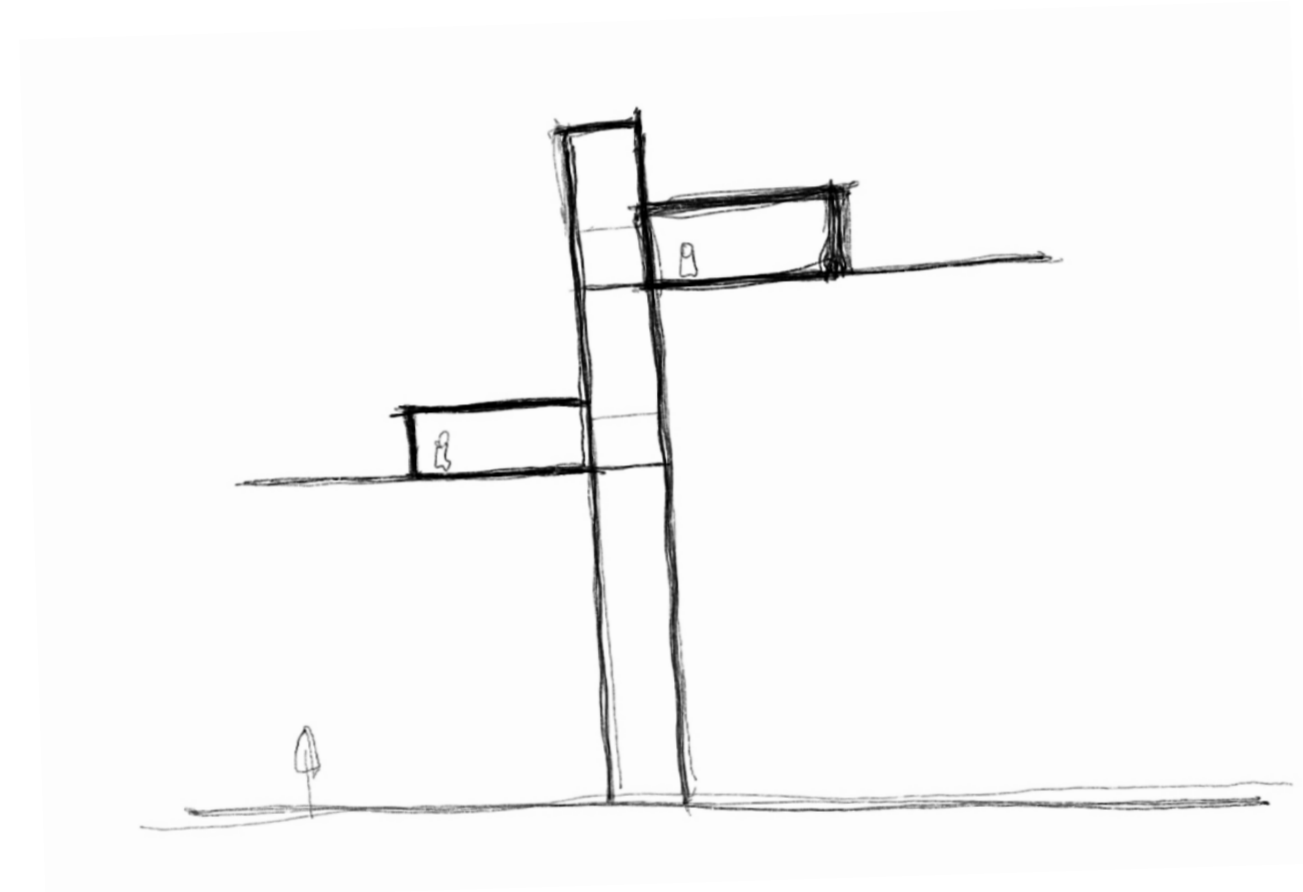
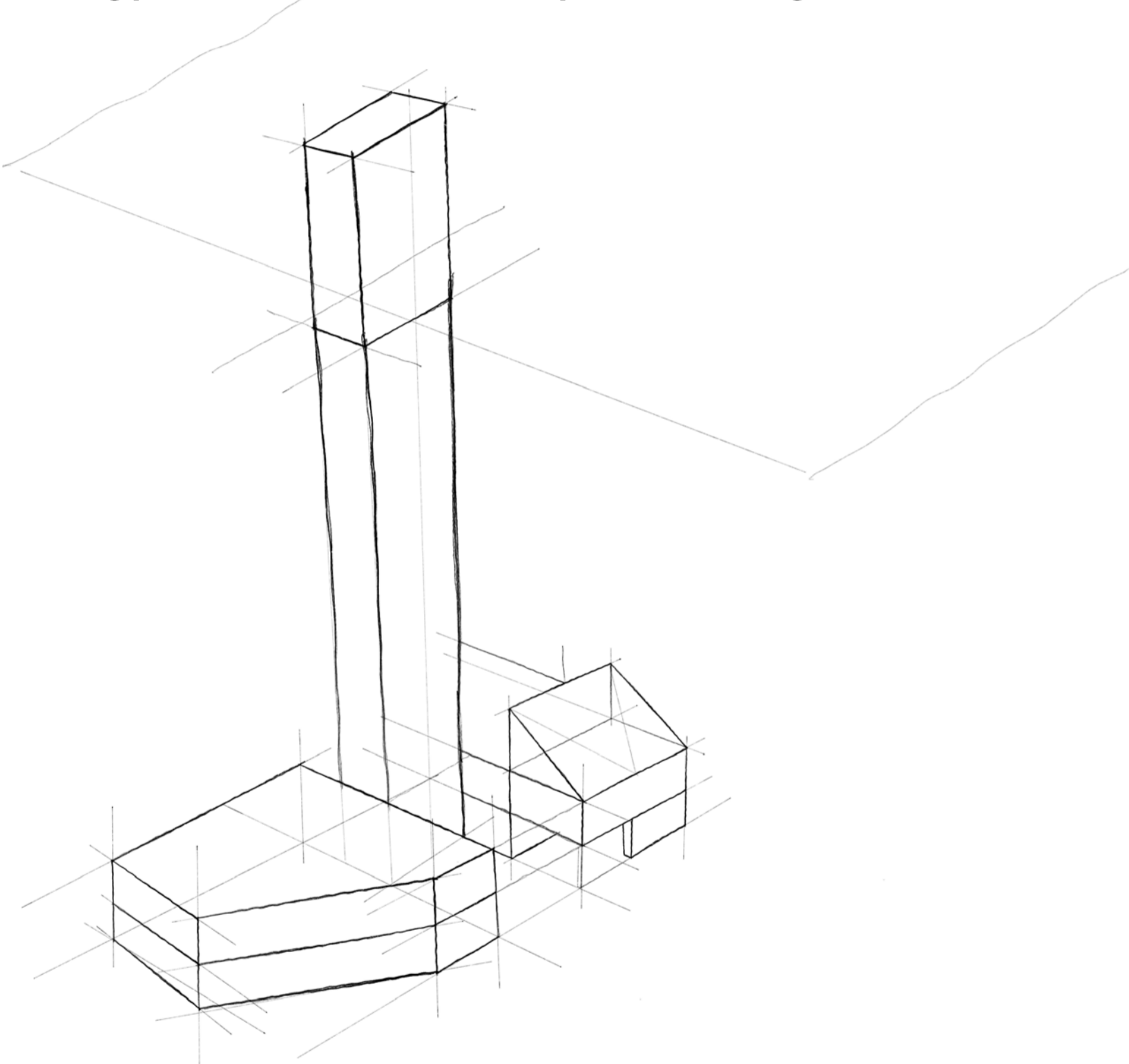


*Cinepolis Headquarters by KMD Architects
(Calderwood, n.d.)*

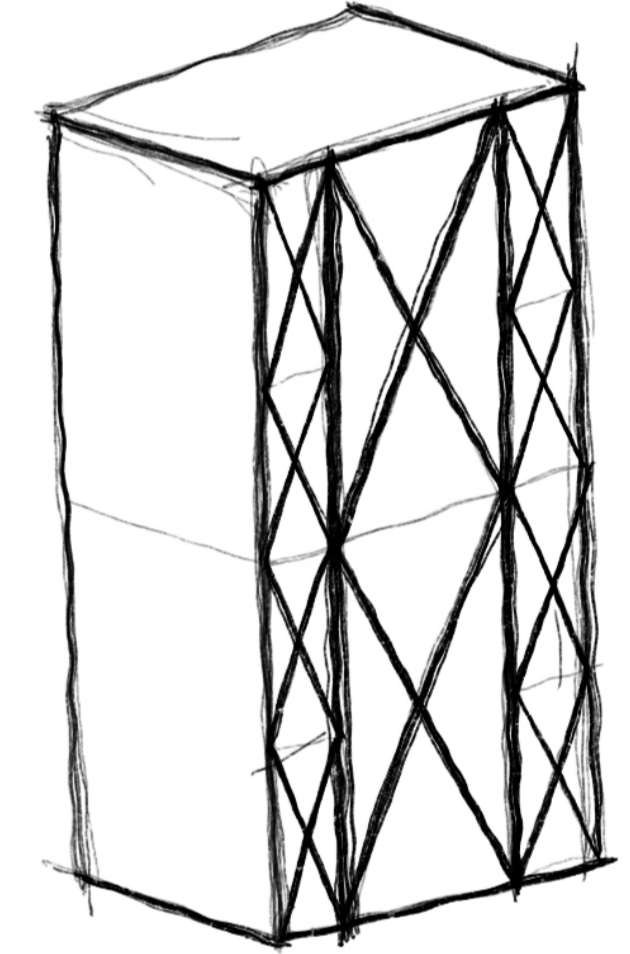
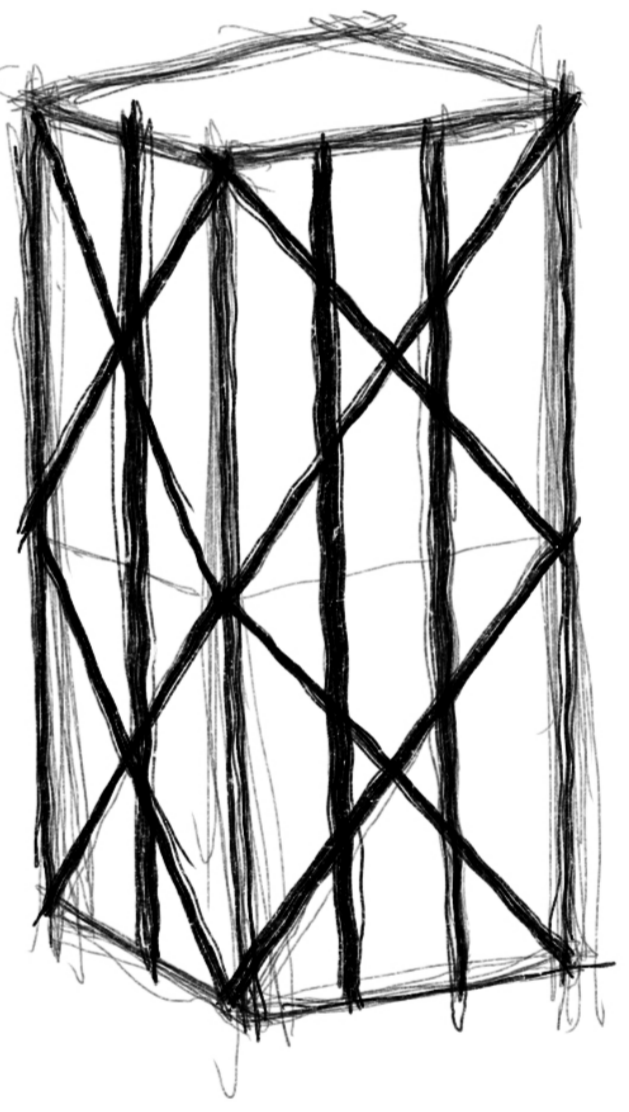
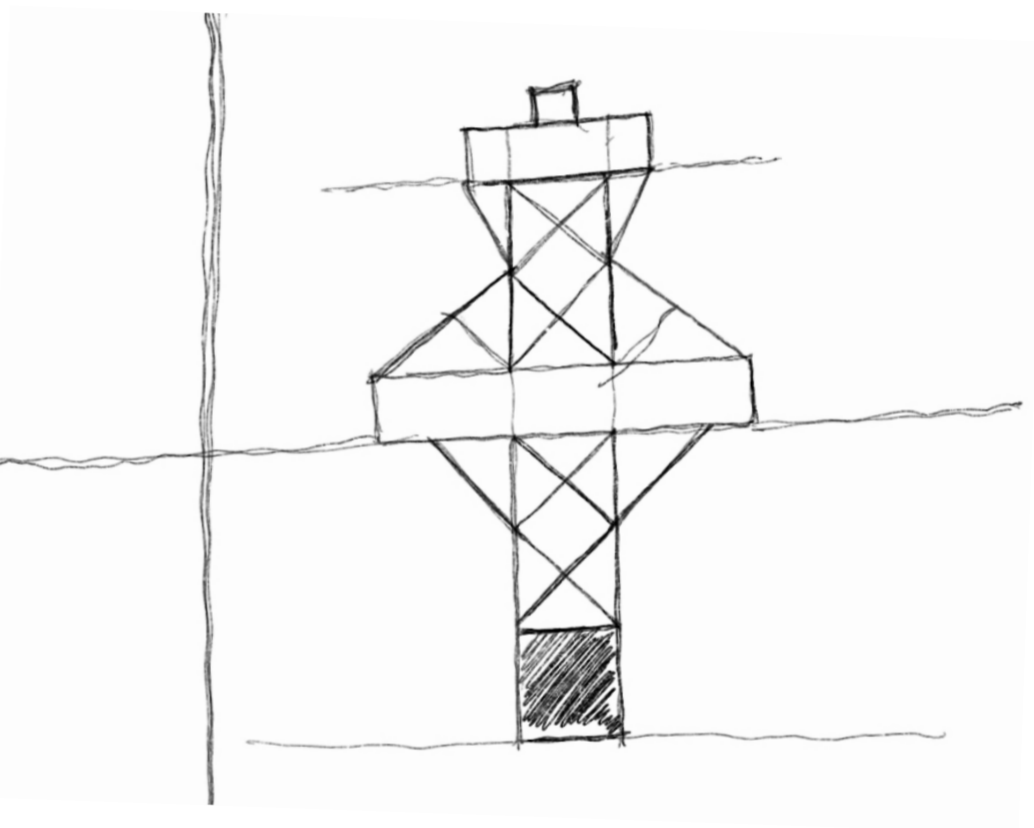


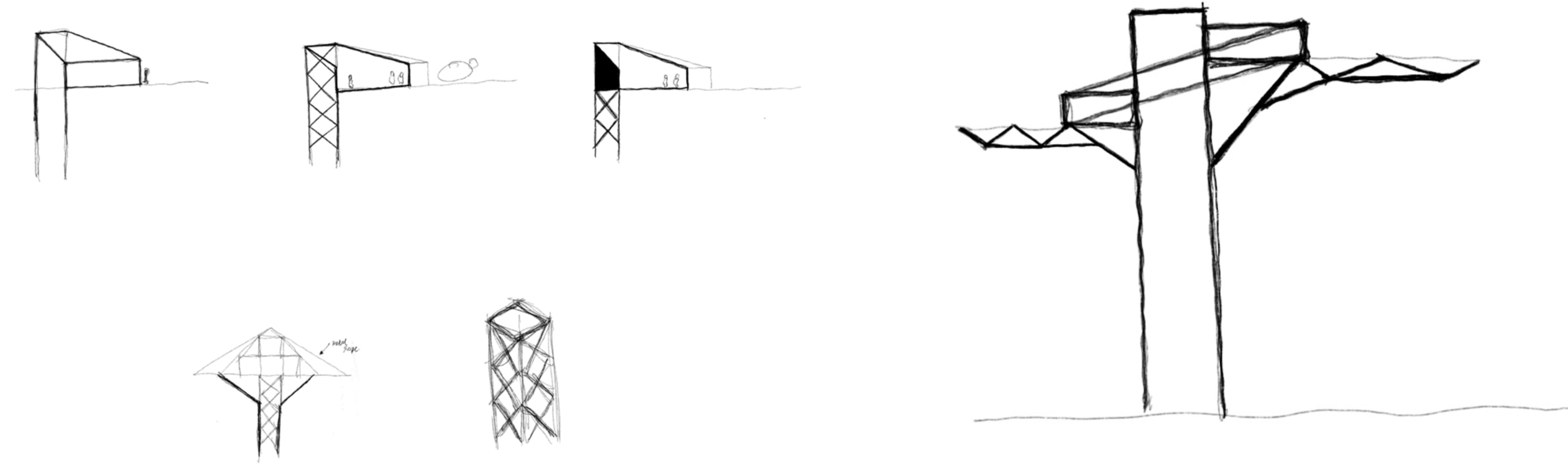
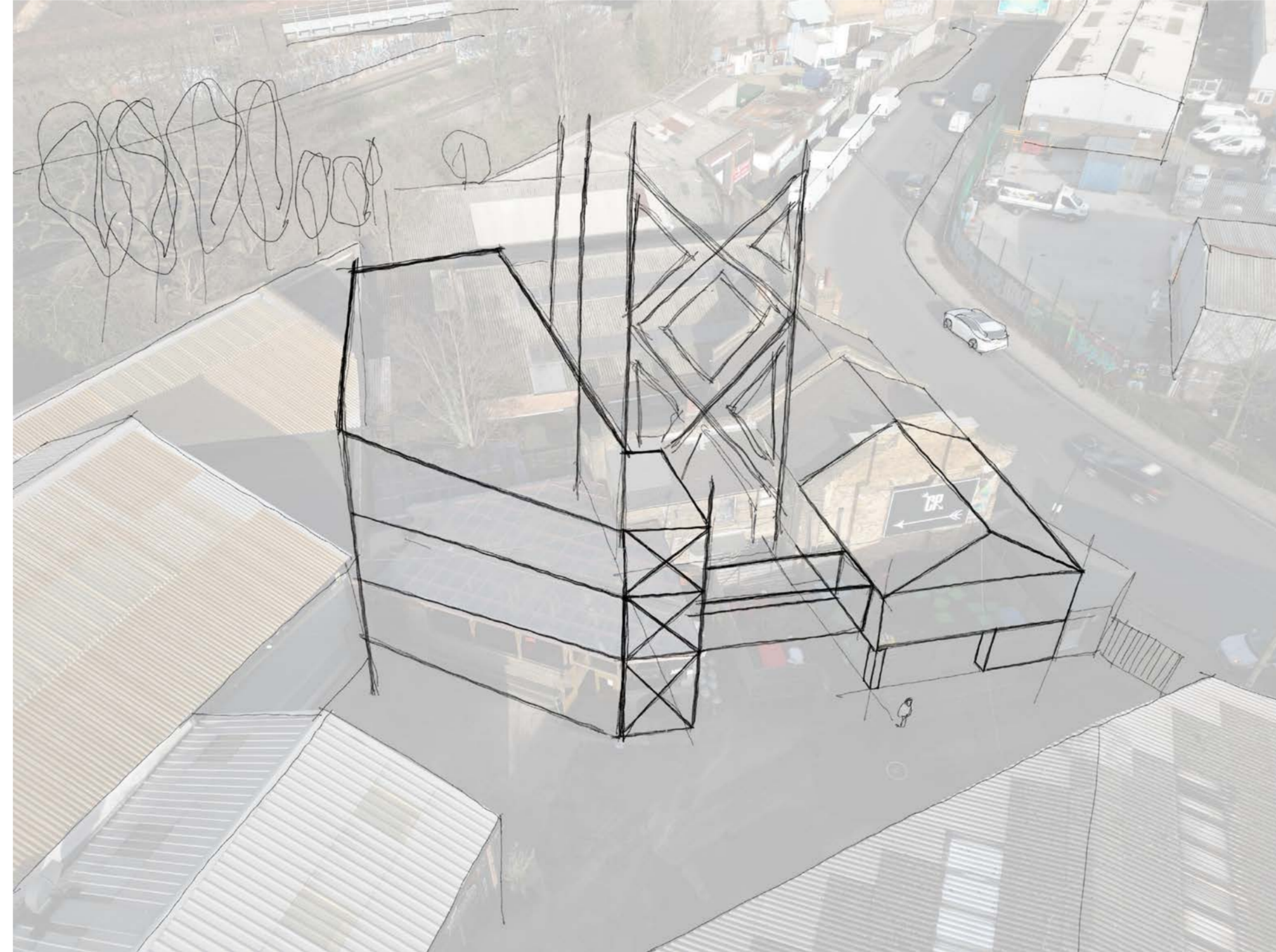
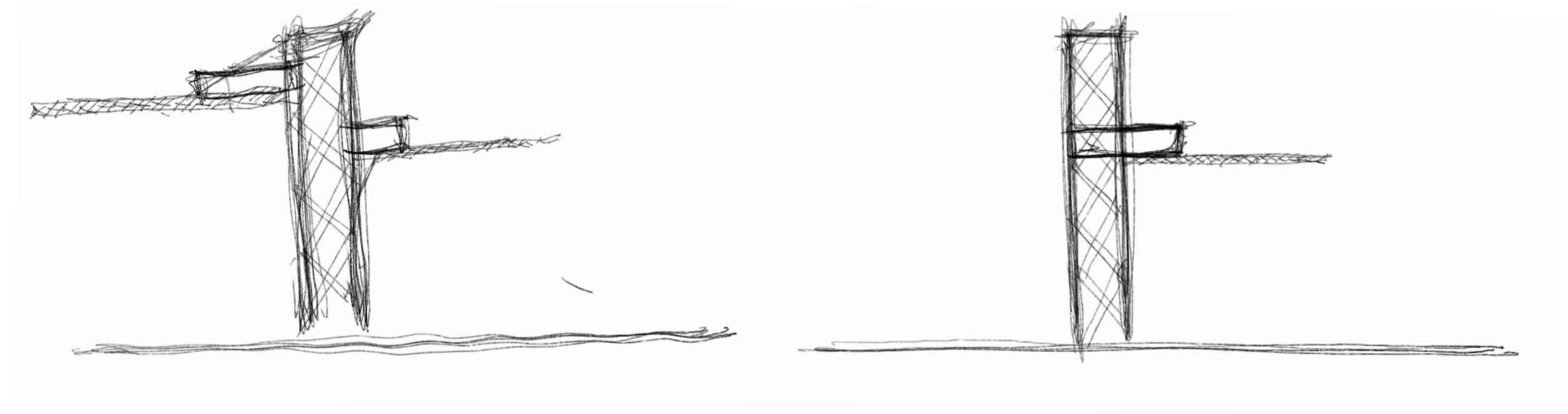
Exoskeleton

I found the exoskeleton approach used by RSHP in Neo Bankside quite interesting. Instead of concealing the framework, the structure is expressed externally and integrated into the architectural language - a strategy I considered for my own design.



*Neo Bankside by RSHP
(Neo Bankside, n.d.)*

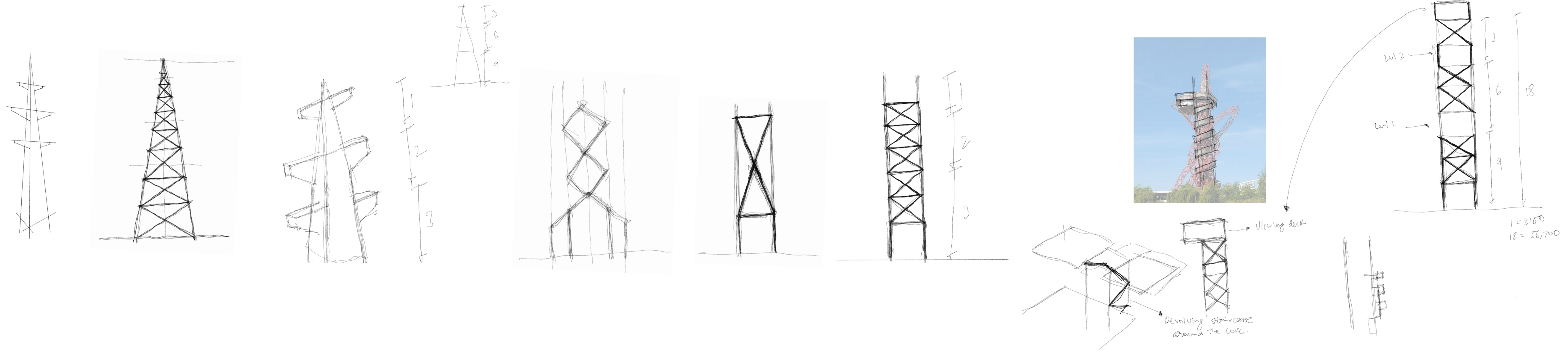


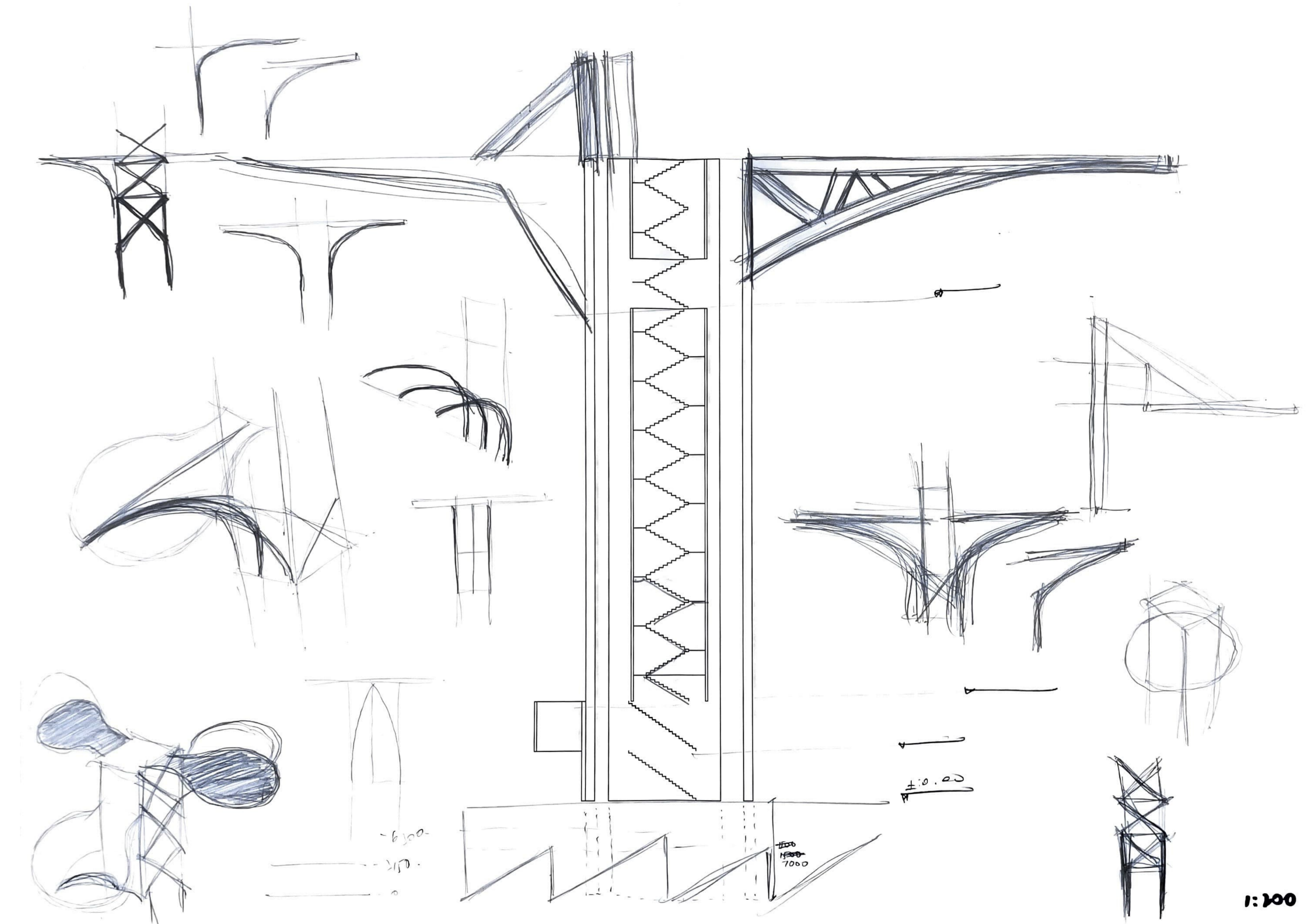
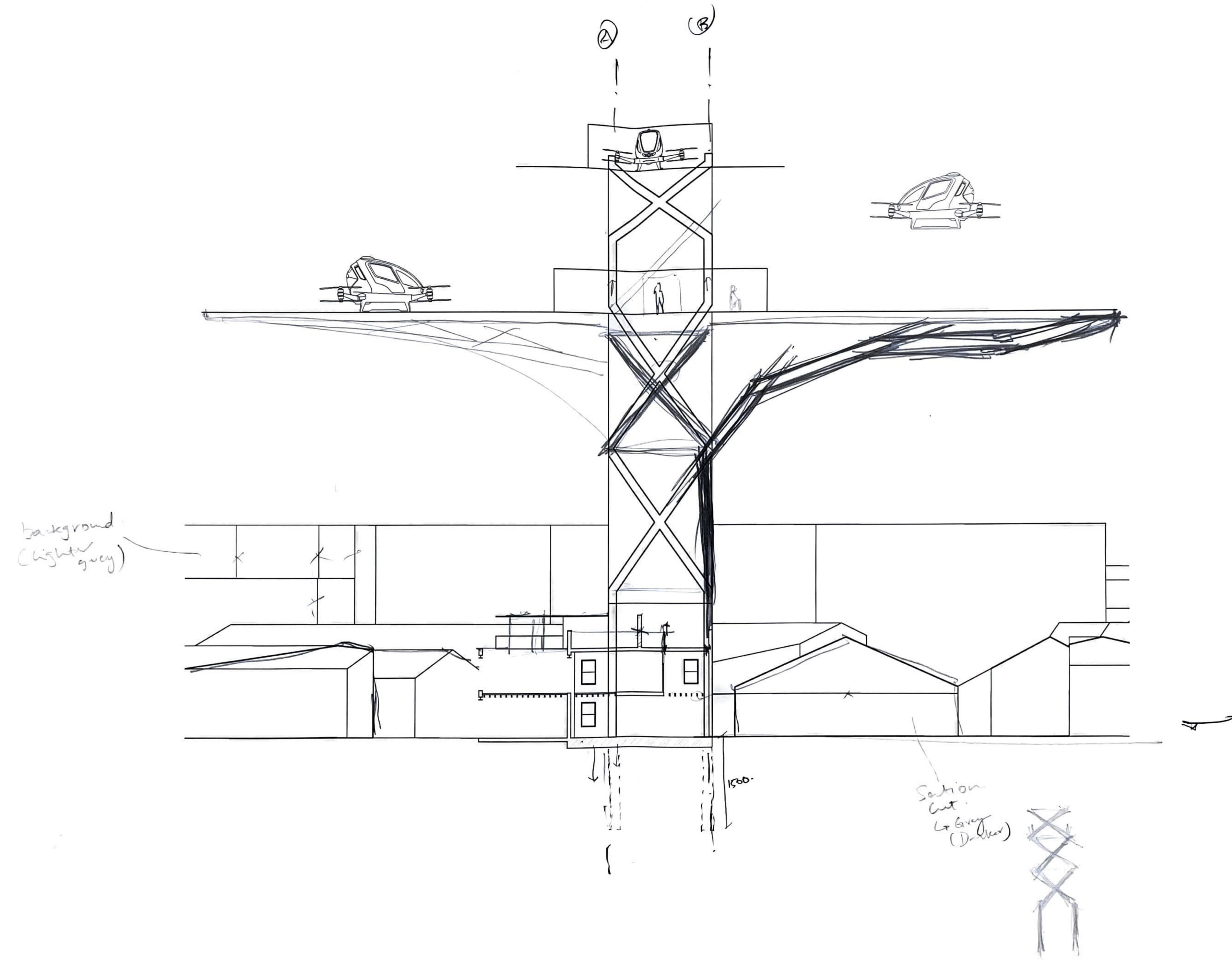


Structure Inspiration

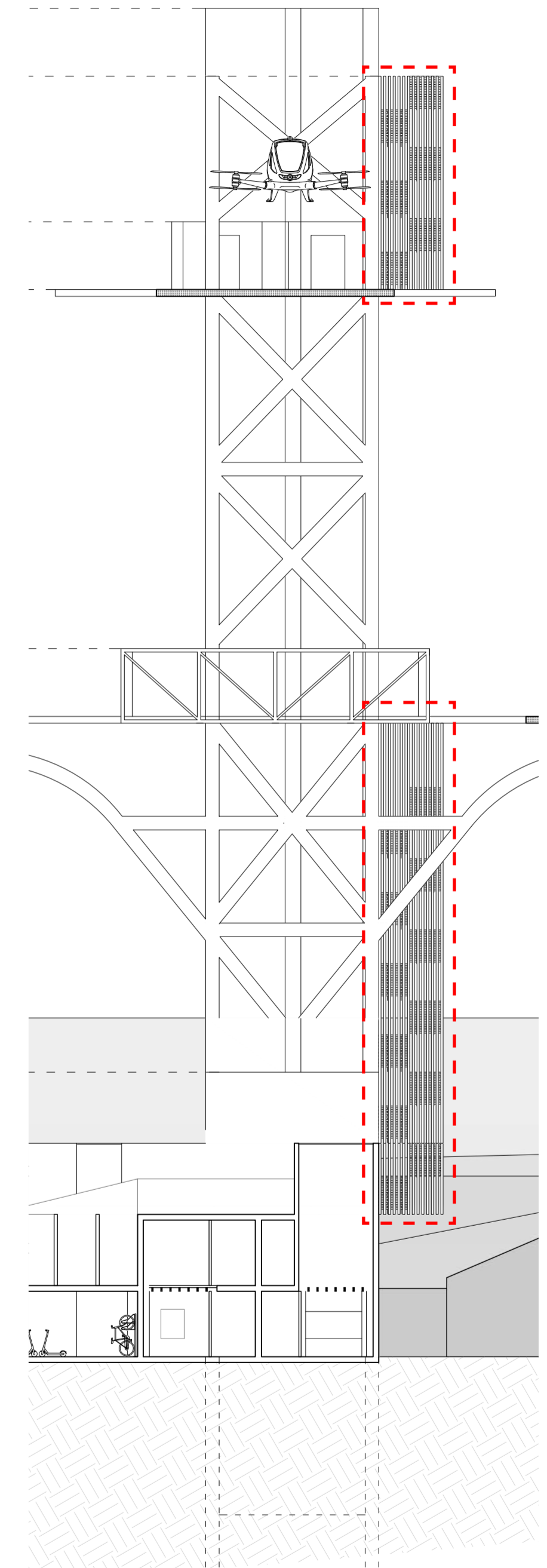
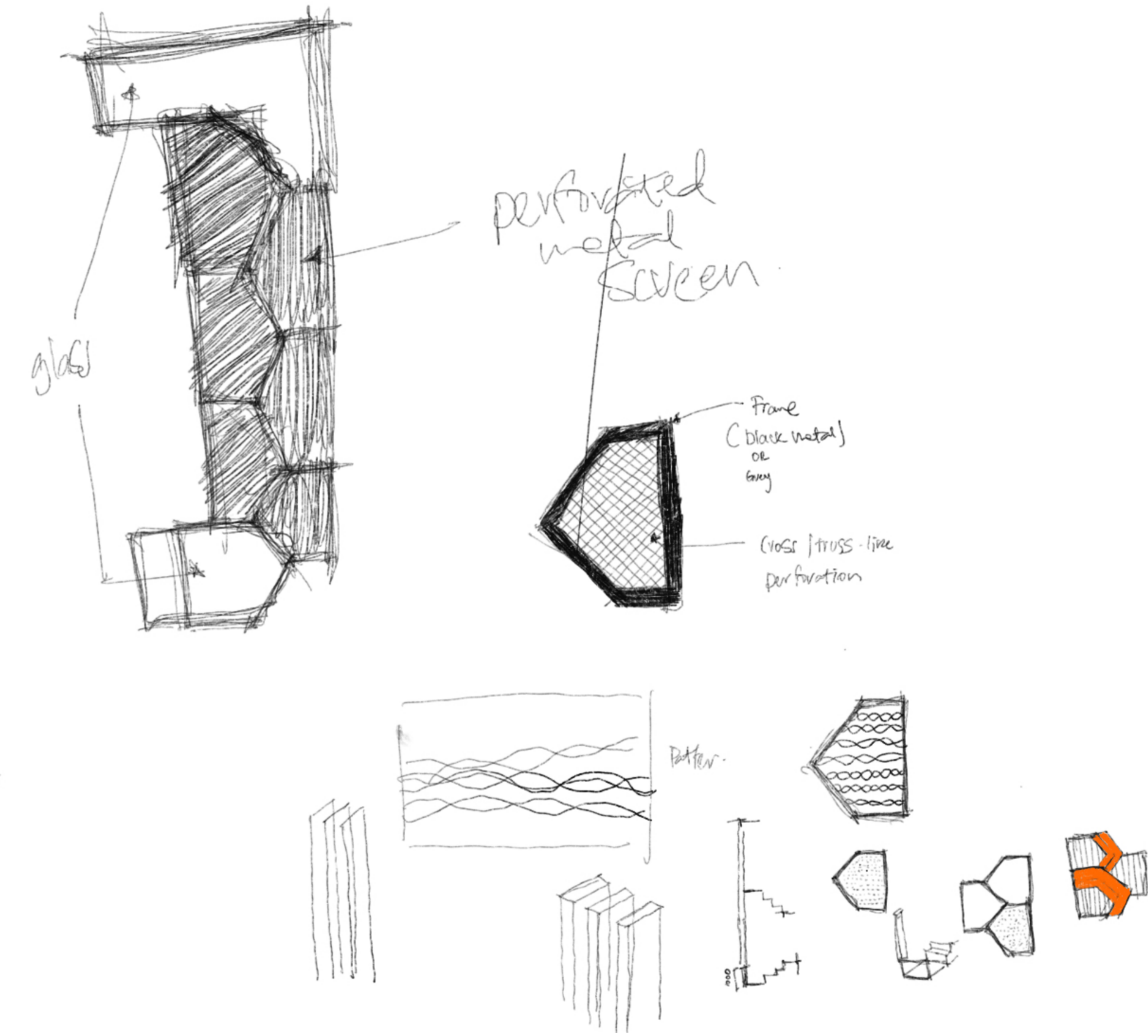
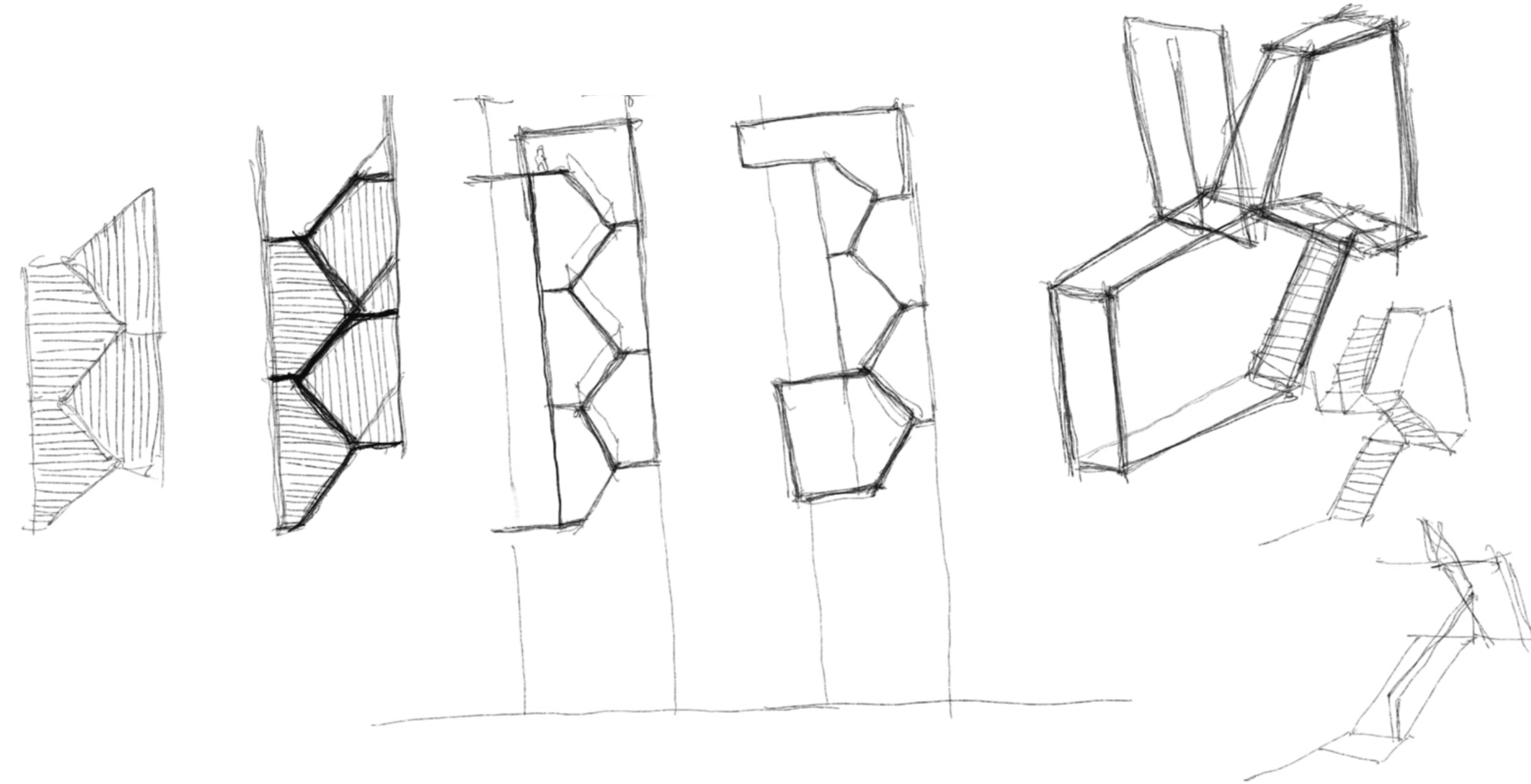
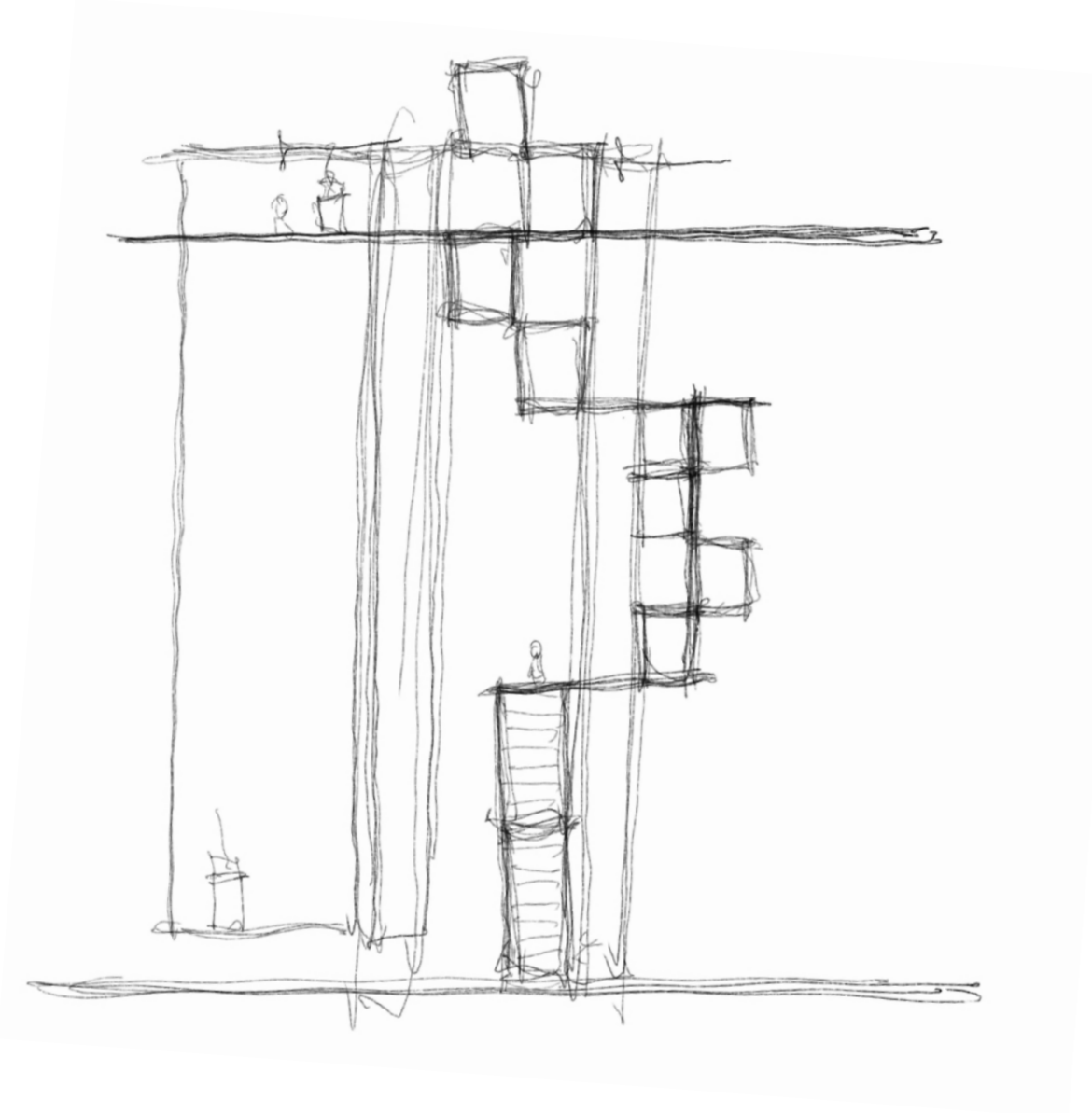
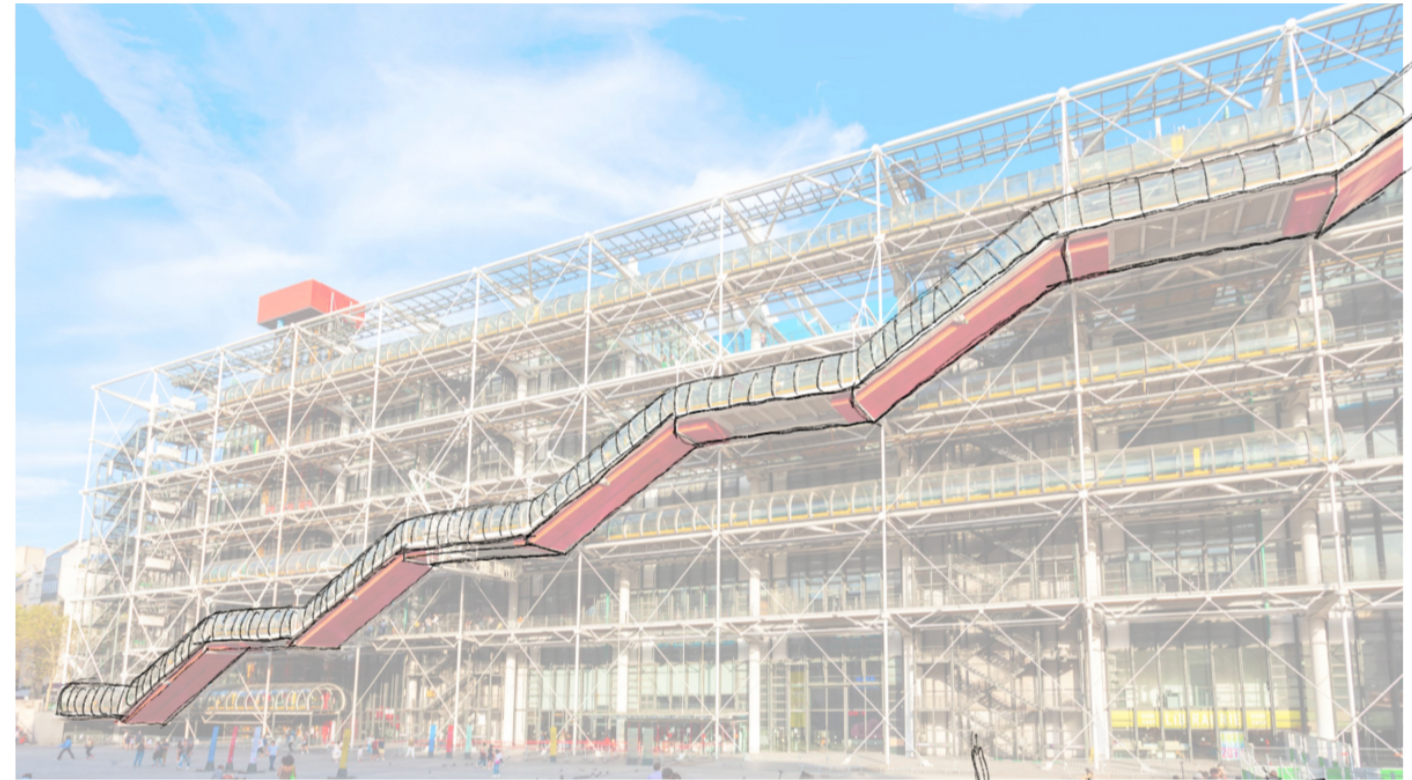


Transmission sculpture shortlisted for Olympic Park (Klettner, 2009)



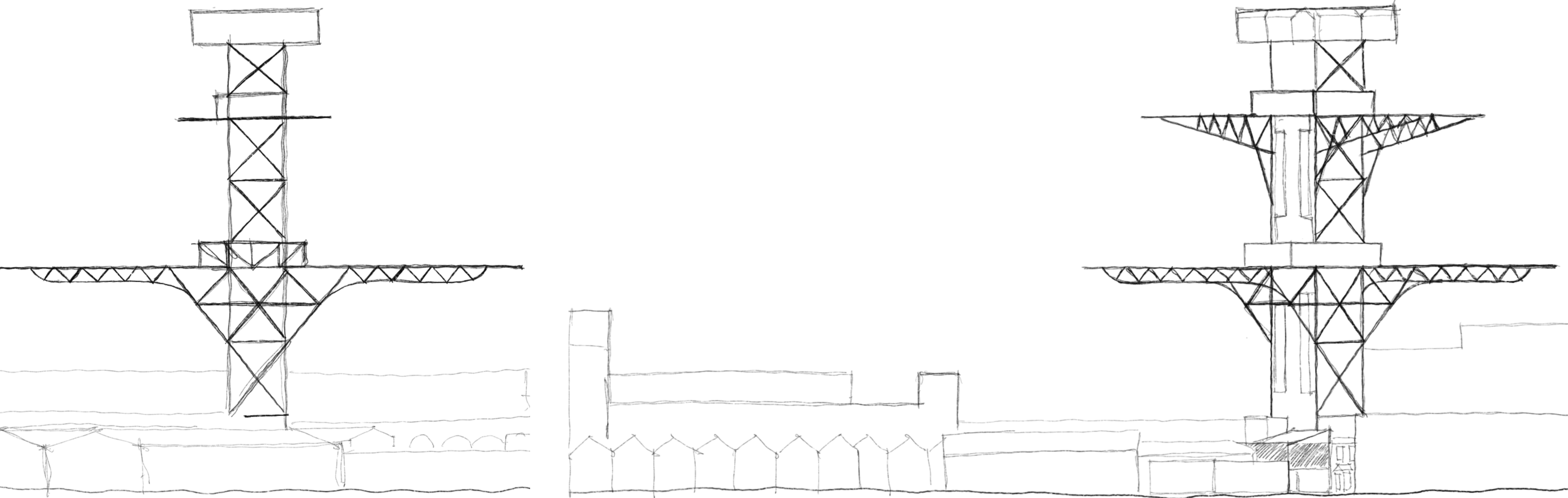


A Rotating Staircase; Design Exploration



Staircase moving outside the Core

Final Design Iteration



Spatial Planning

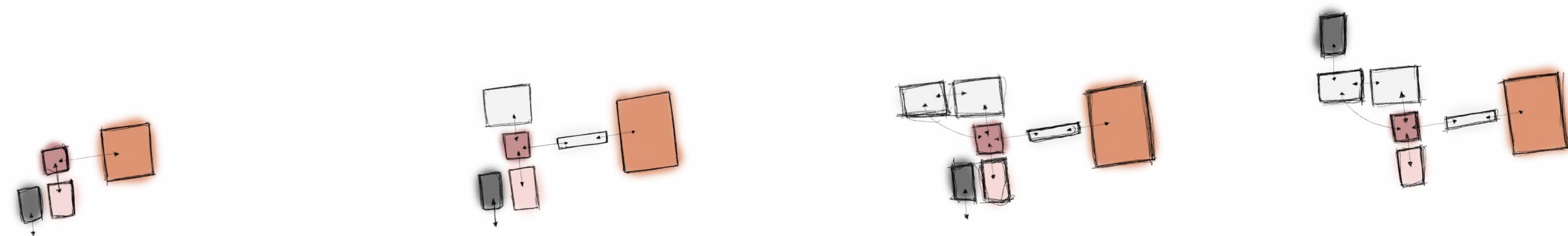
Site Access

@ 1:500

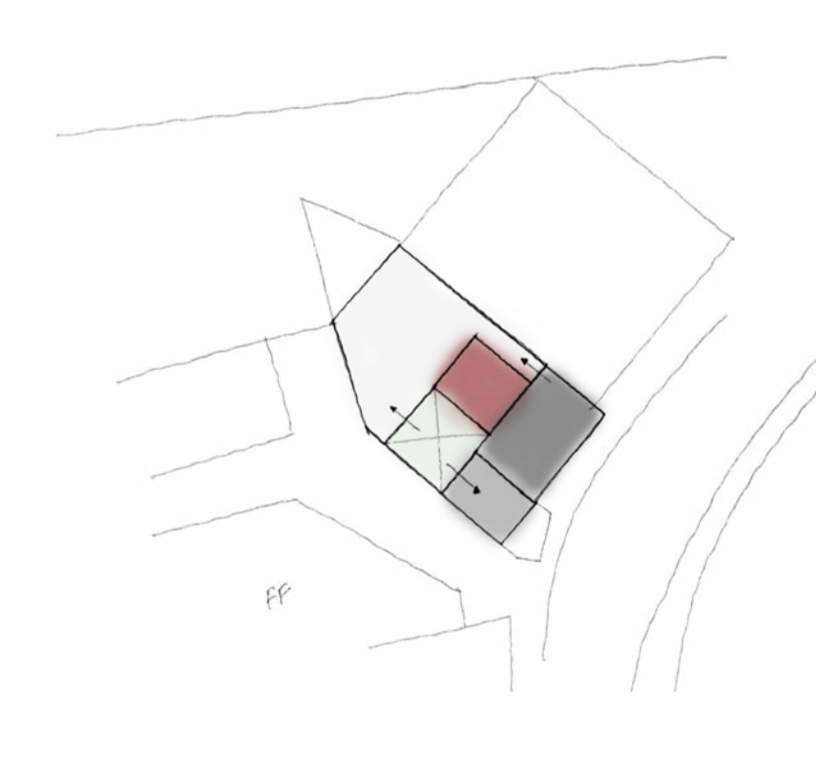
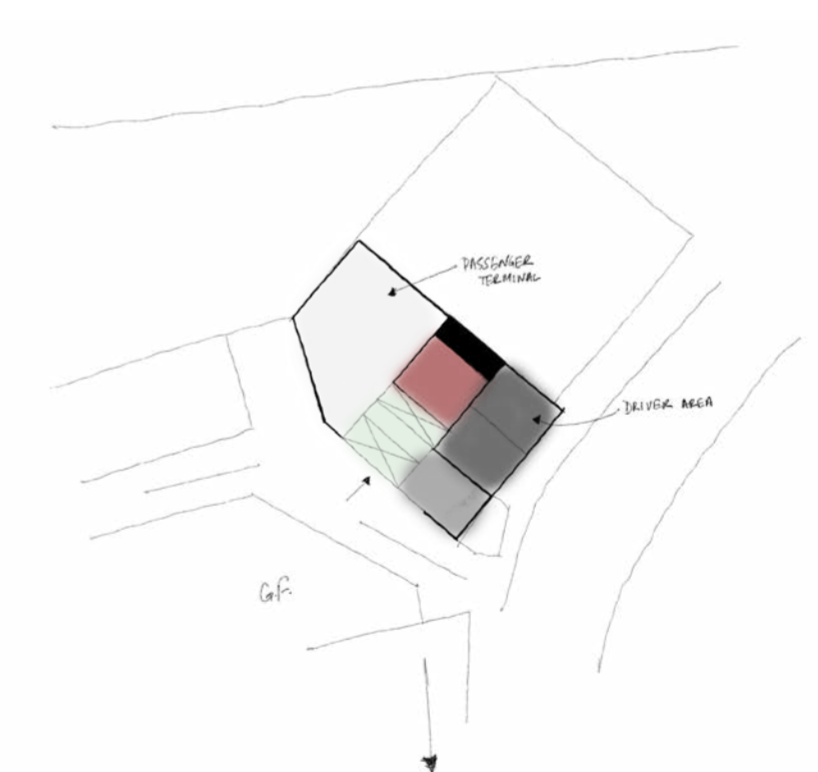
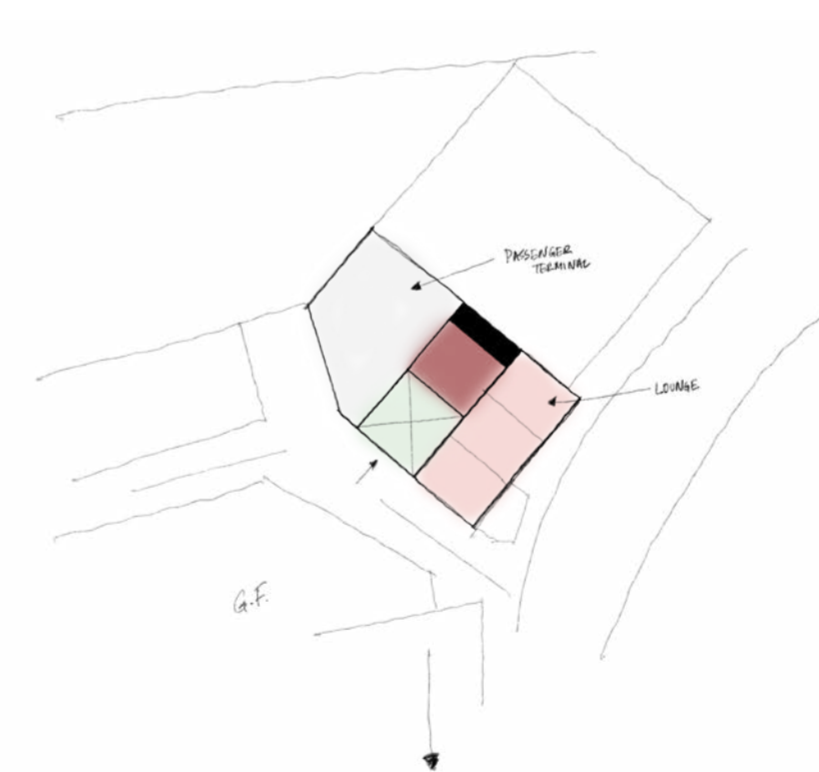


Zoning

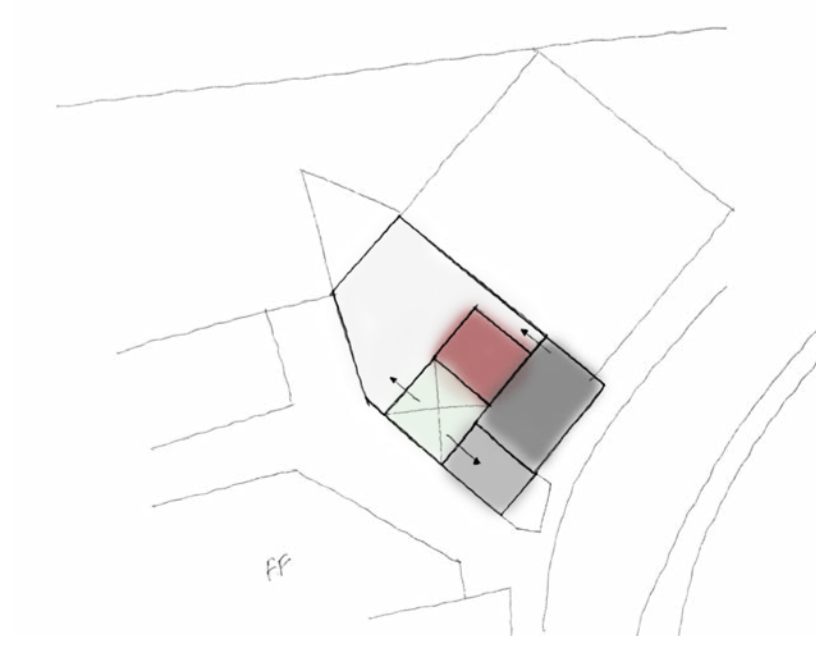
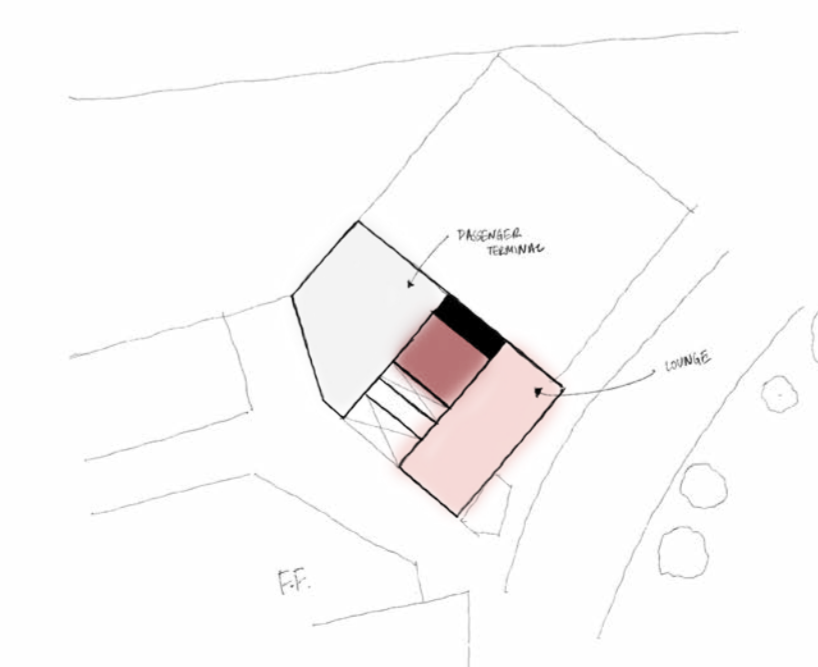
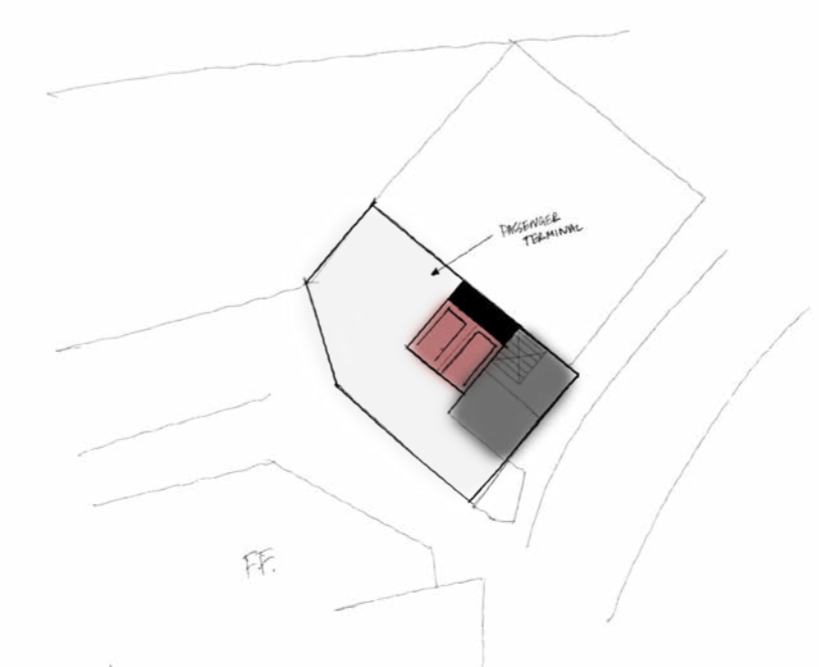
@ 1:500



GF



FF



Testing different spatial occupations

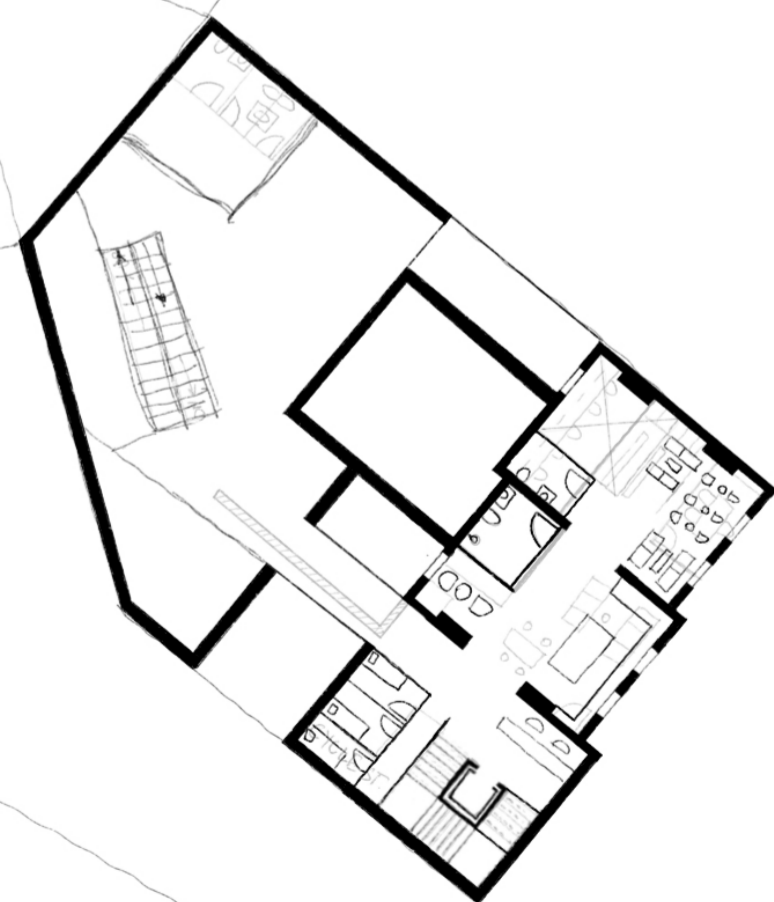
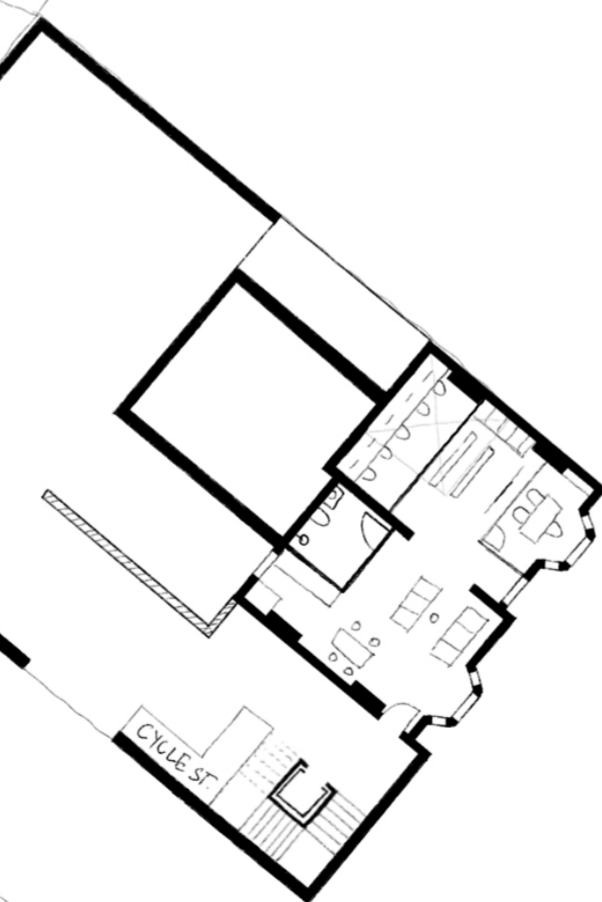
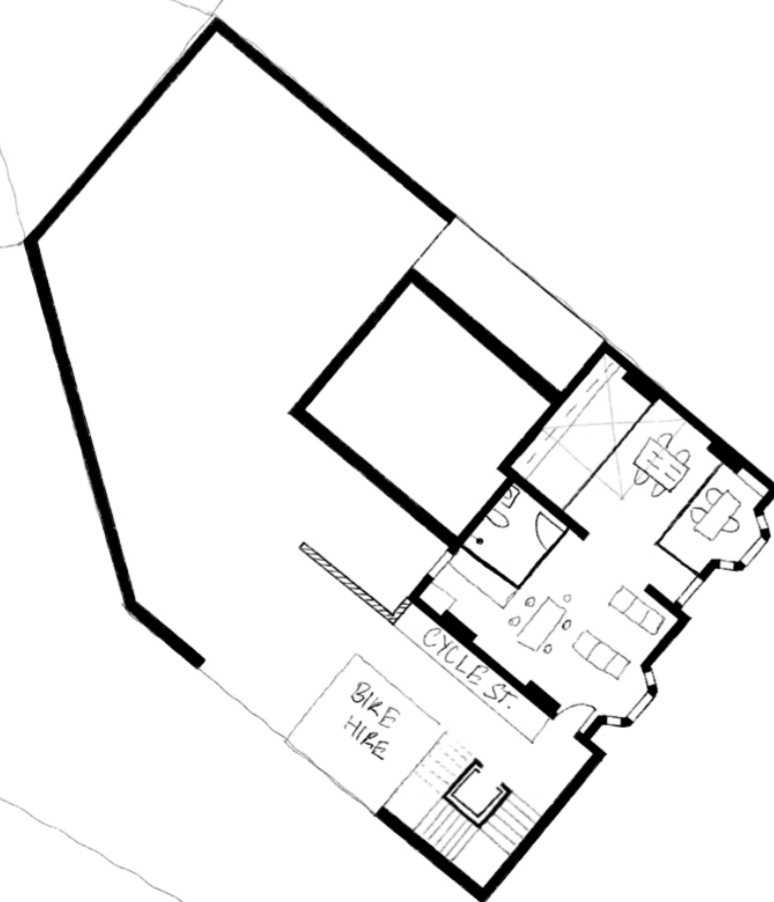
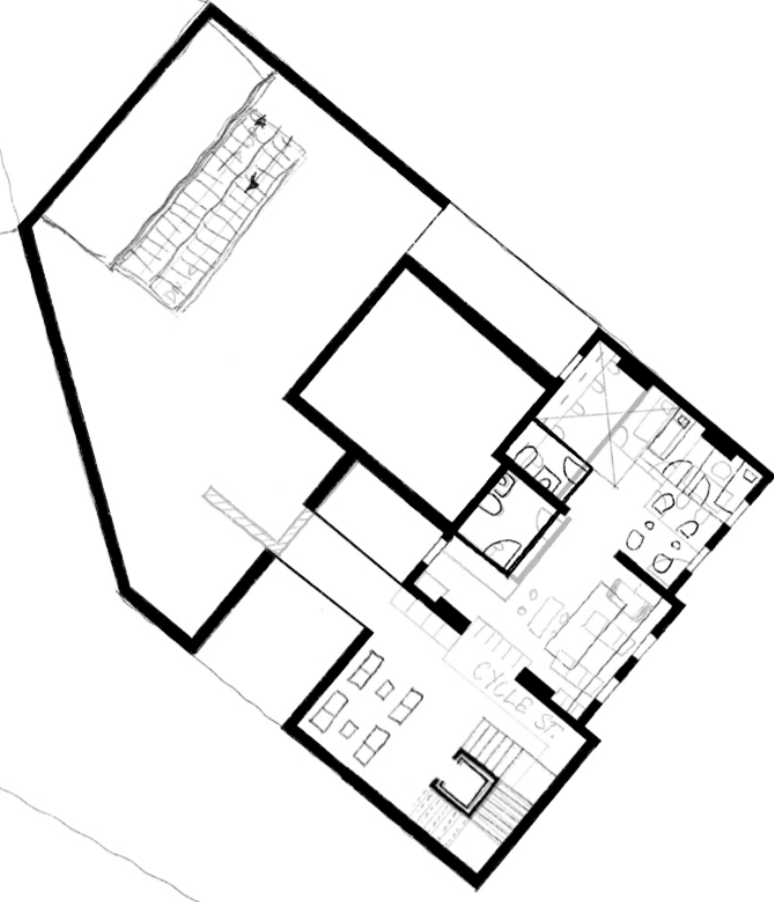
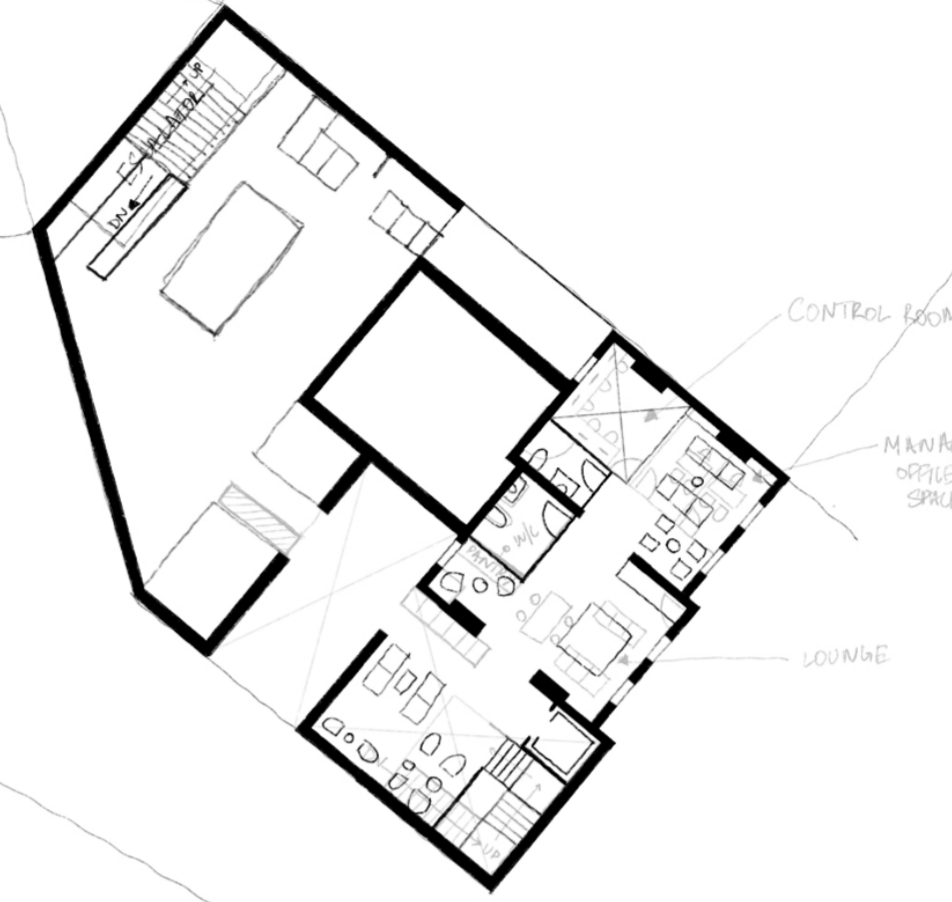
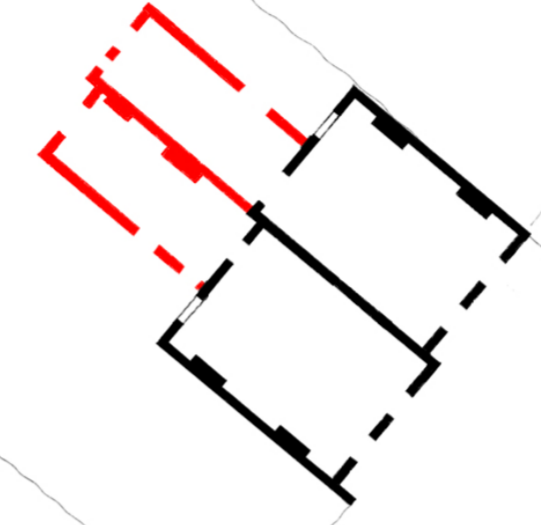
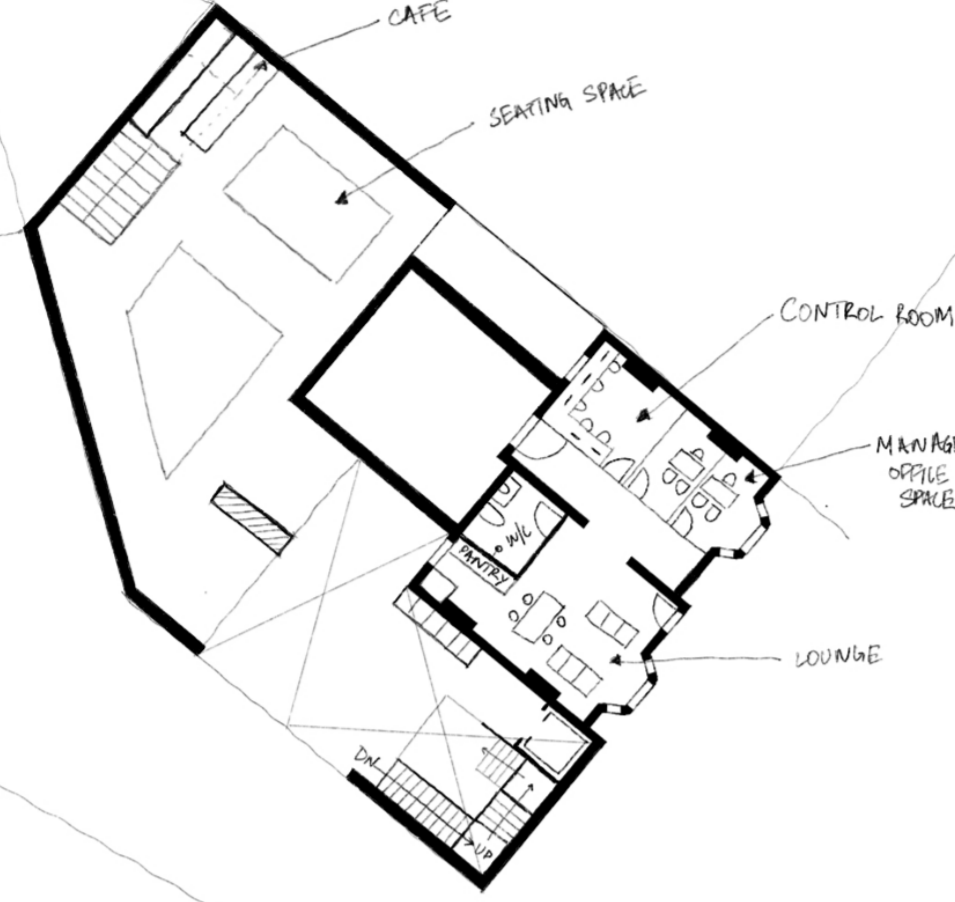
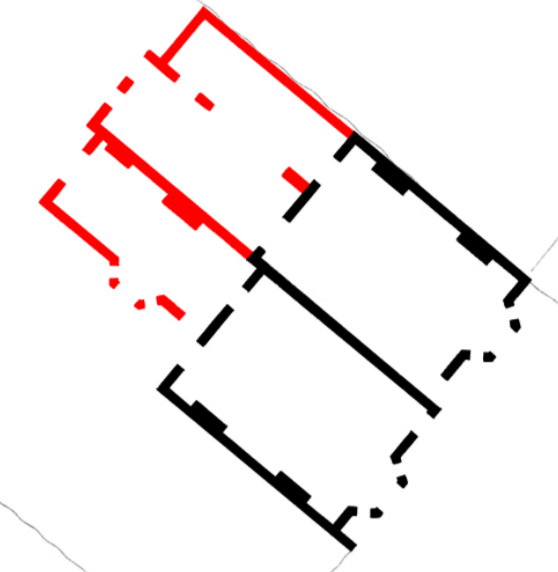
Terminal Waiting Area Mini 'Core' Core Bike Parking Control Room Convenience Store Cafe Lounge Garden Bar Viewing Deck

Layouts - Terminal

@ 1:250

GF

FF



CAFE

SEATING SPACE

CONTROL ROOM

MANAGER OFFICE SPACE

LOUNGE

CAFE

WC

SEATING SPACE

SHOP

CONTROL ROOM

MANAGER OFFICE SPACE

LOUNGE

CAFE

Seating

Restroom

BIKE HIRE

CHILDS

CHILDS

CHILDS

CHILDS

CHILDS

CHILDS

CHILDS

CHILDS

CHILDS

CHILDS

CHILDS

CHILDS

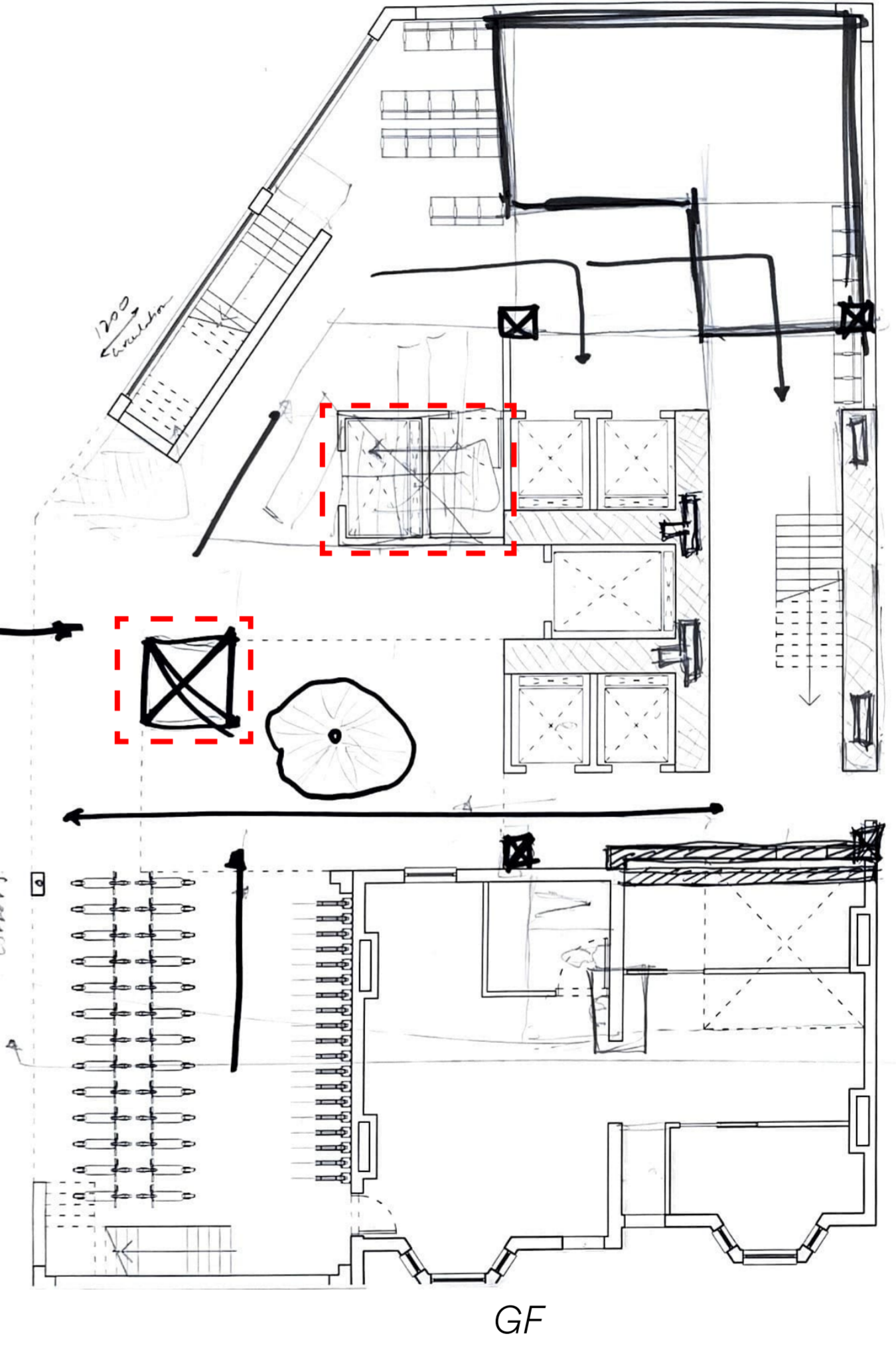
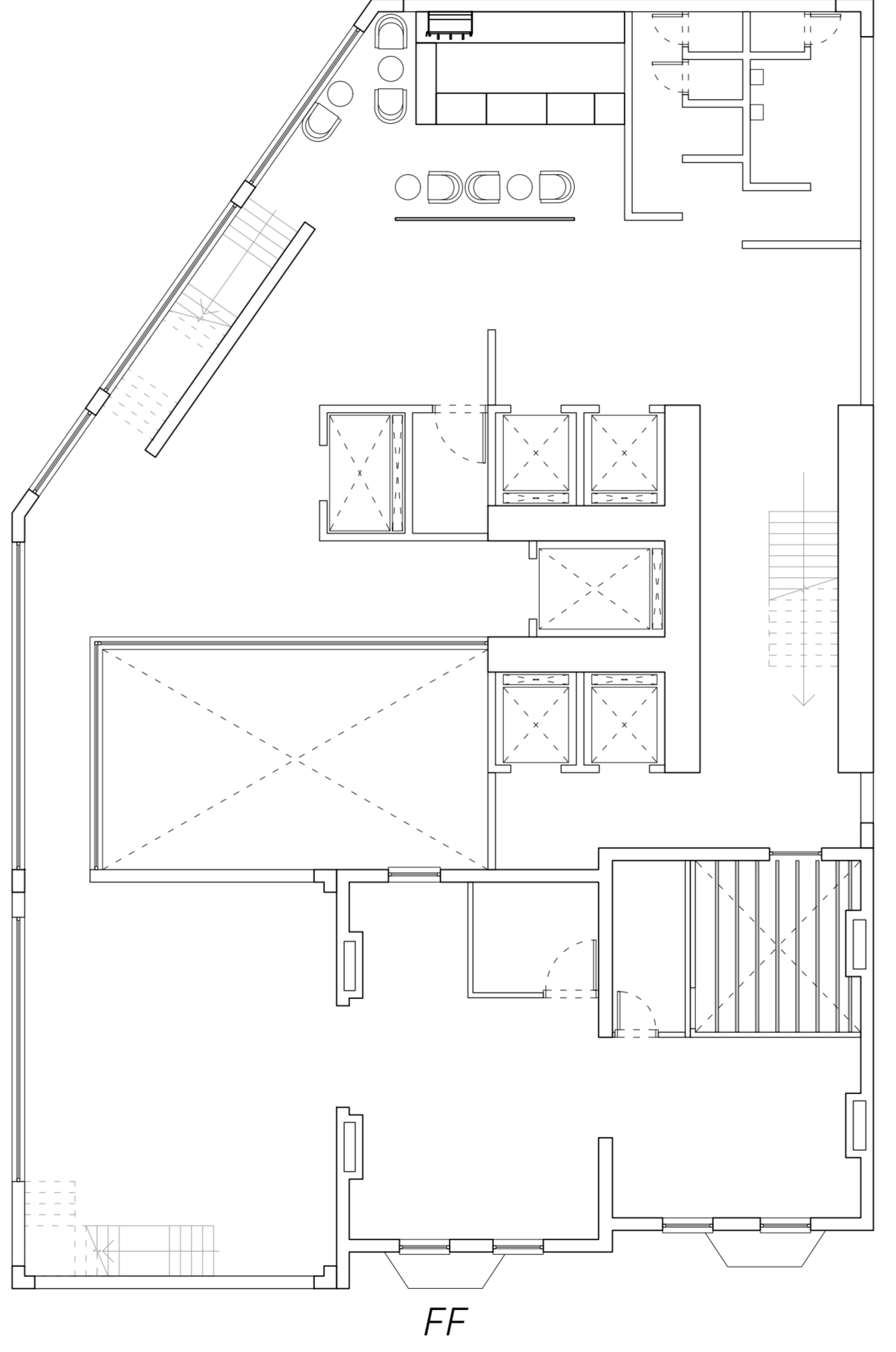
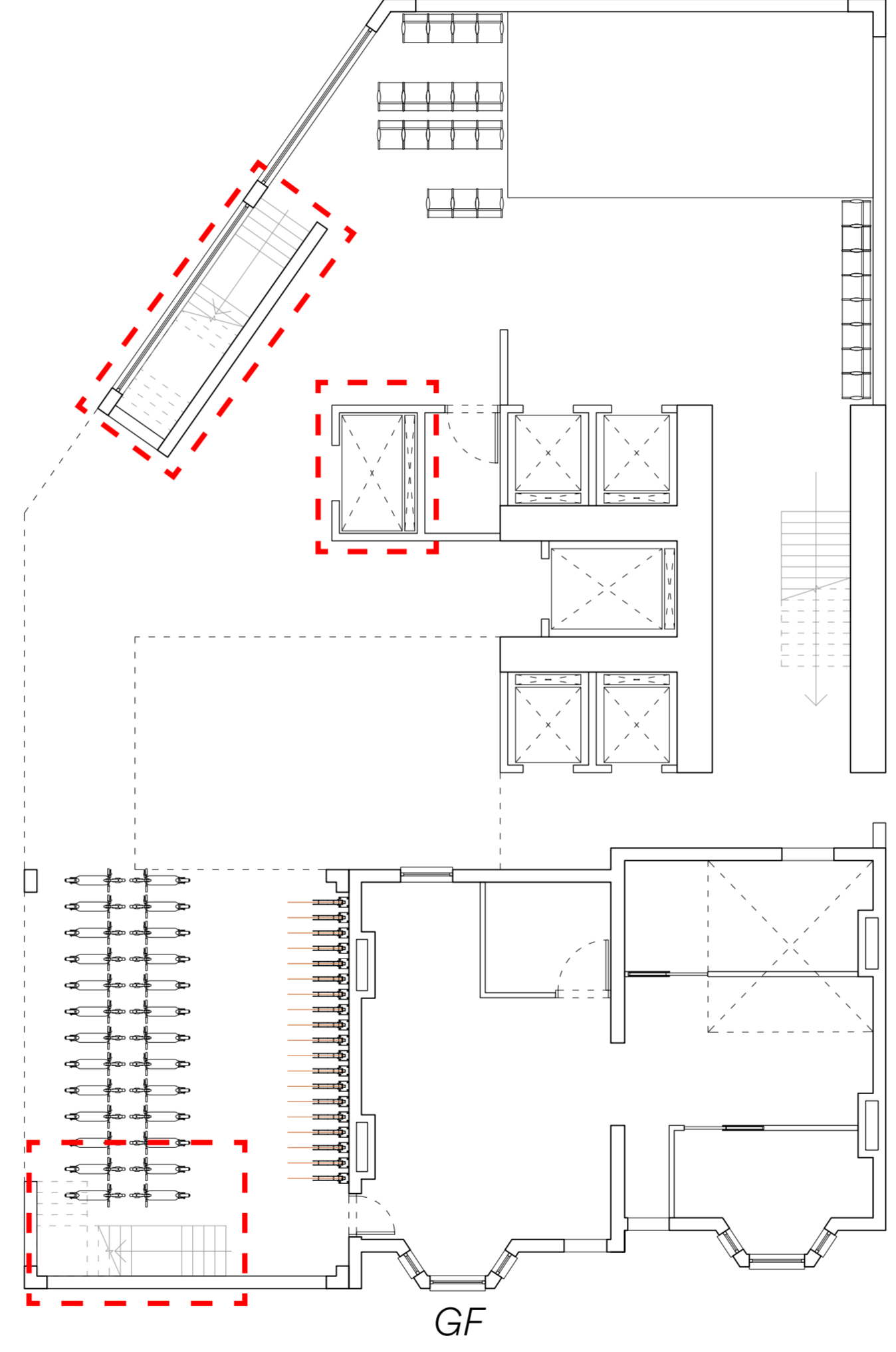
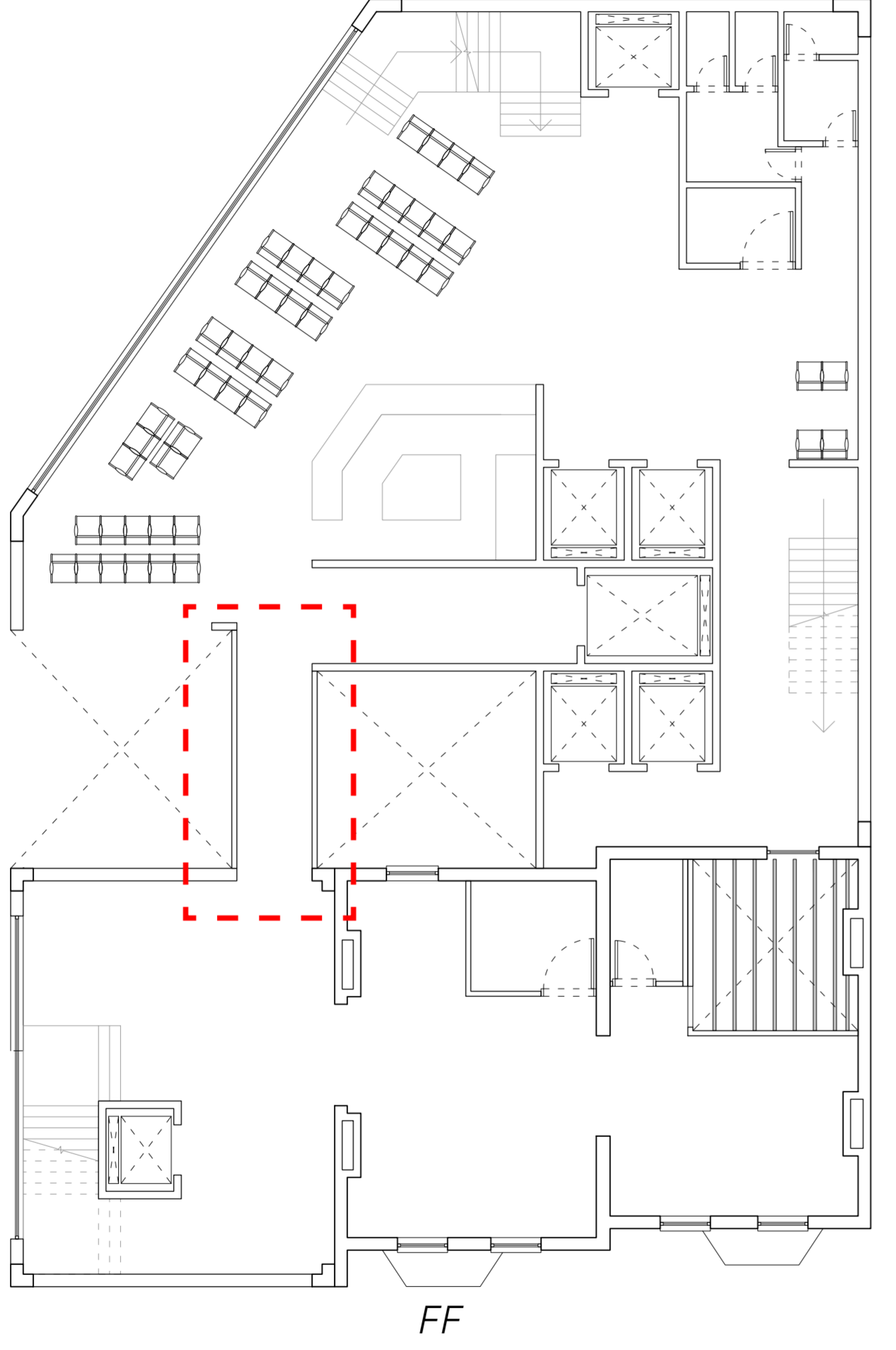
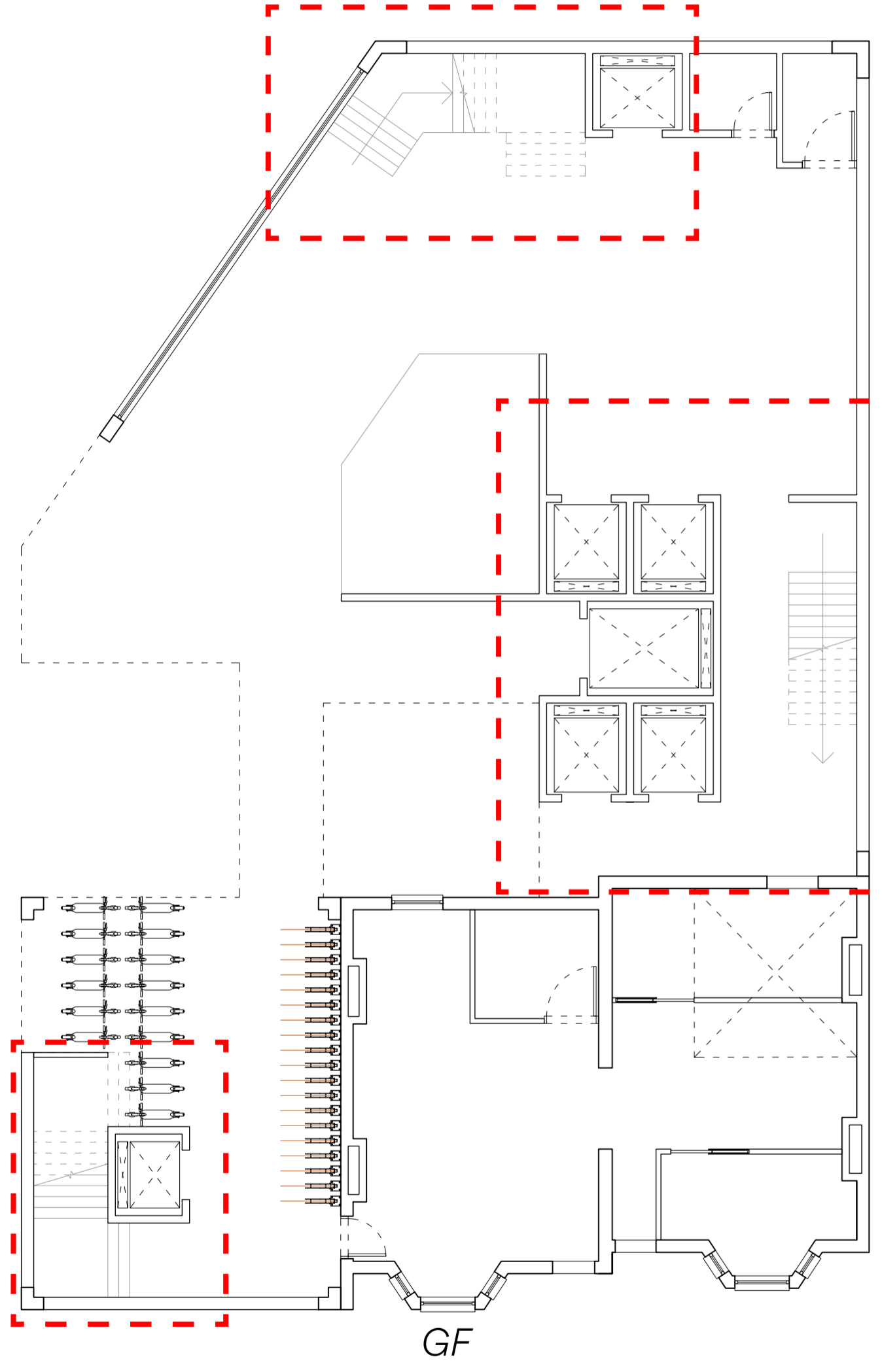
CHILDS

CHILDS

CHILDS

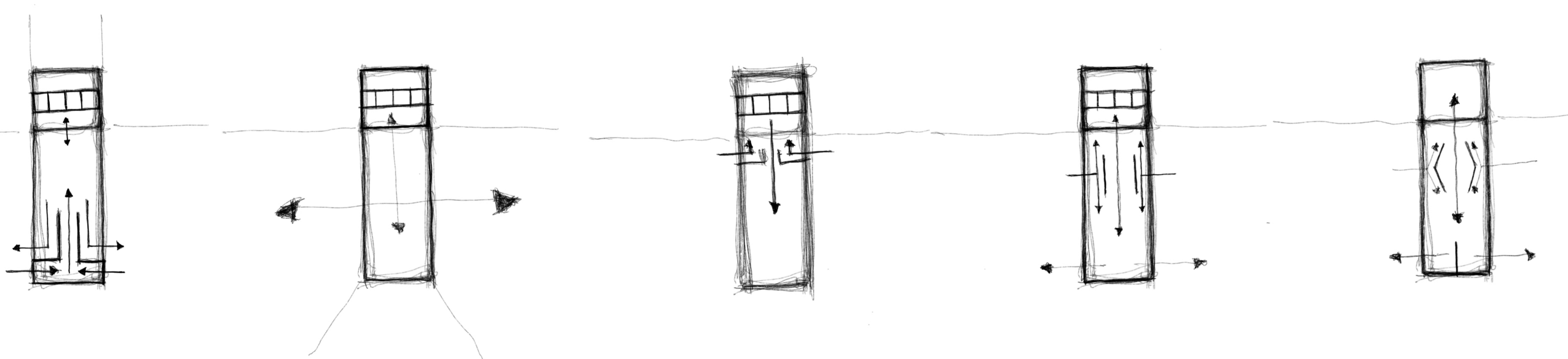
Testing Layouts

@ 1:100

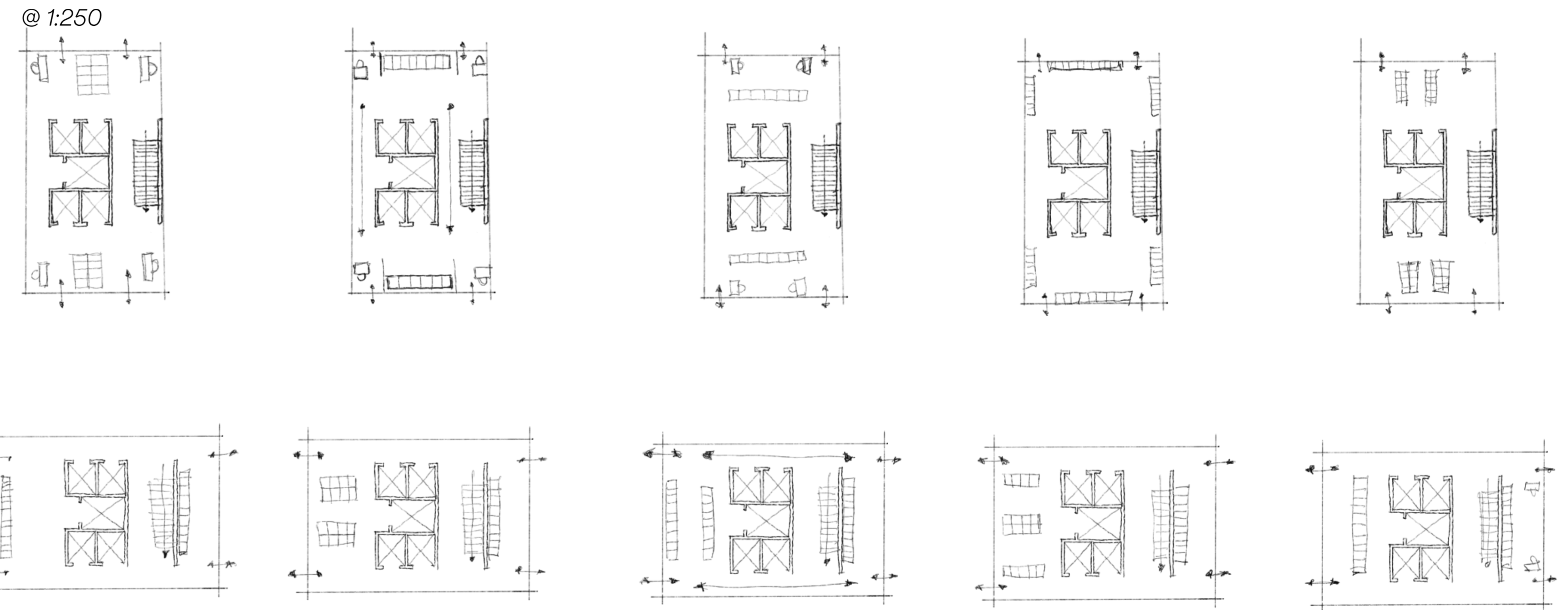


 Key changes in the layout

Layouts - Arrival/Departure

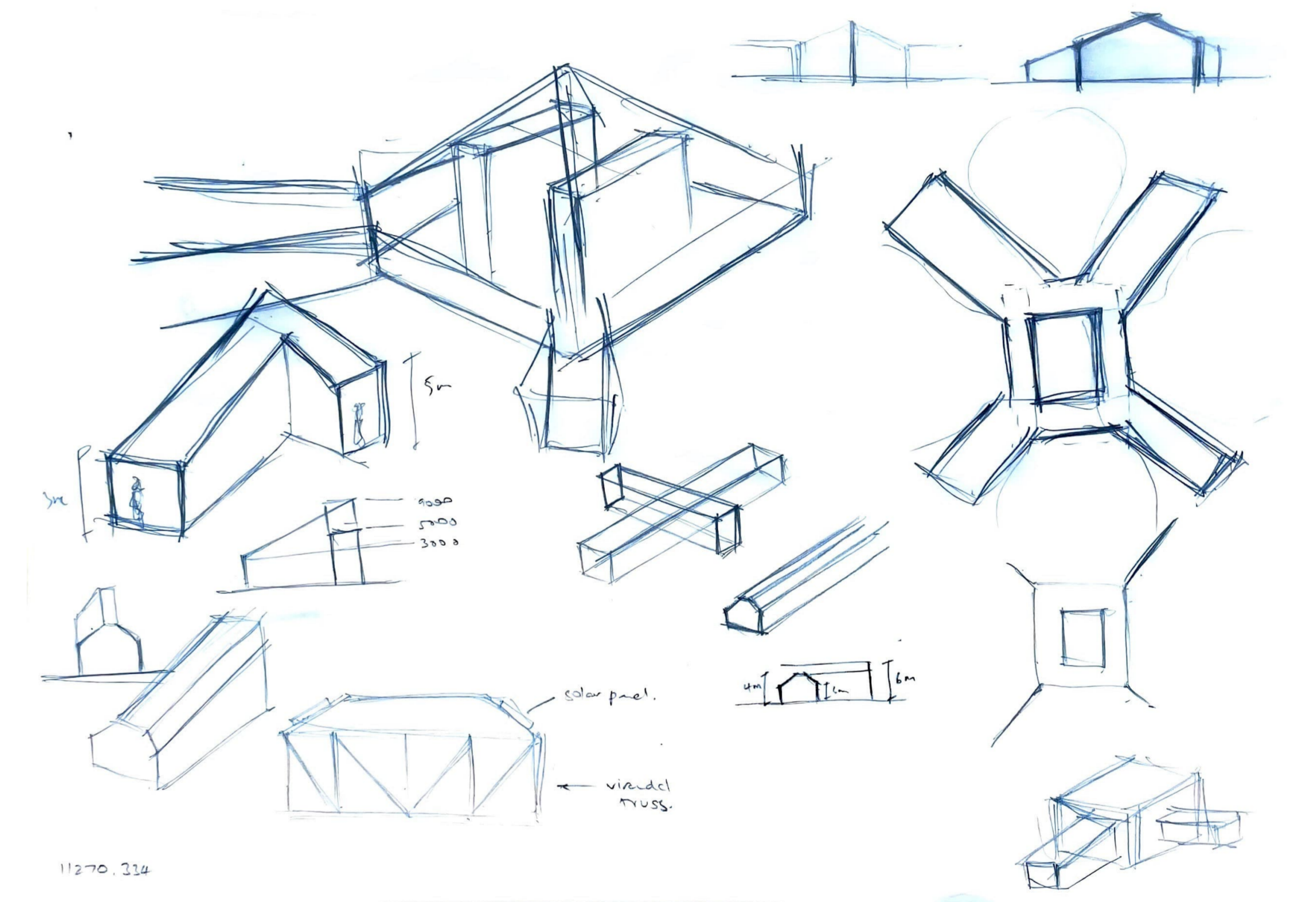
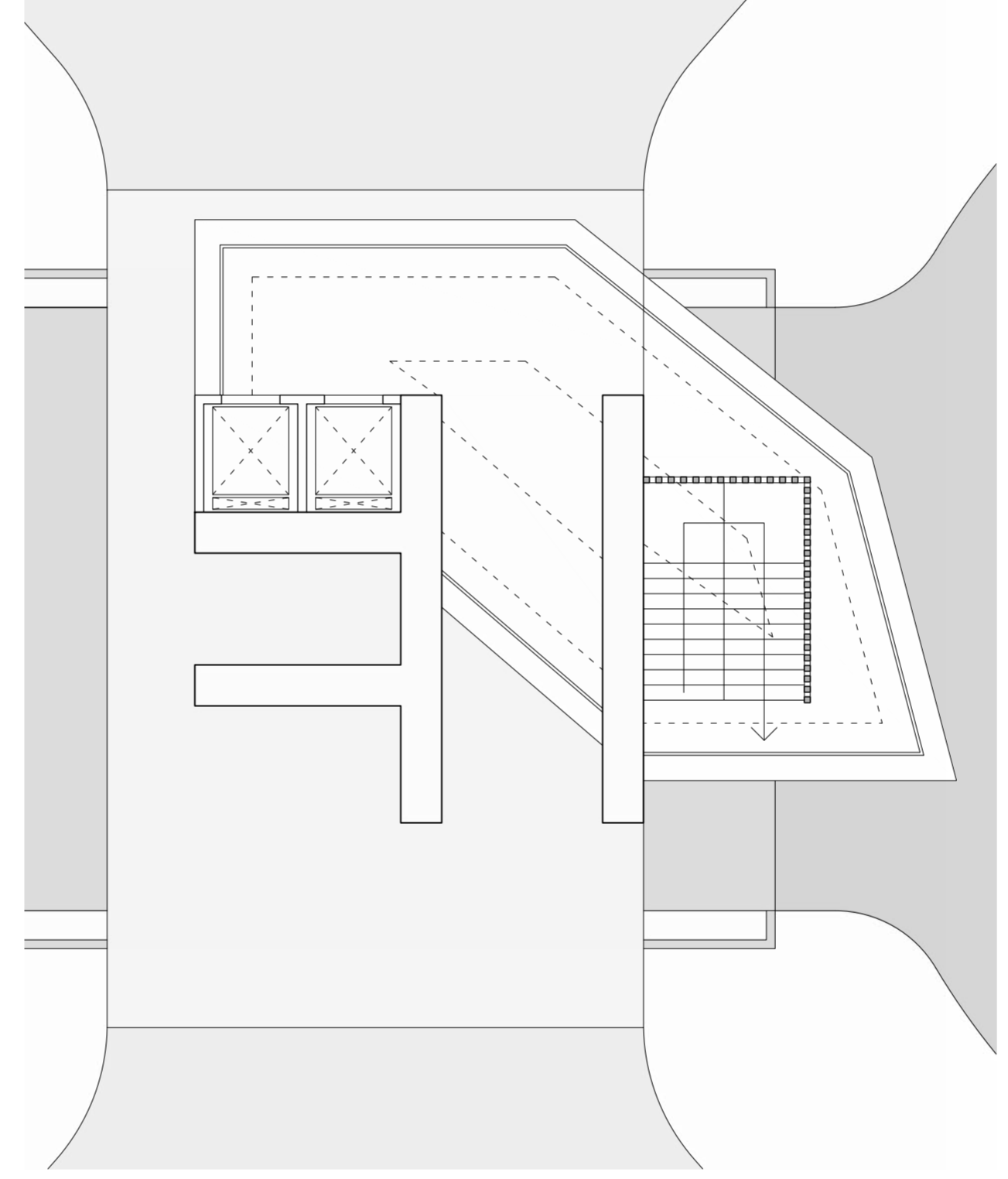
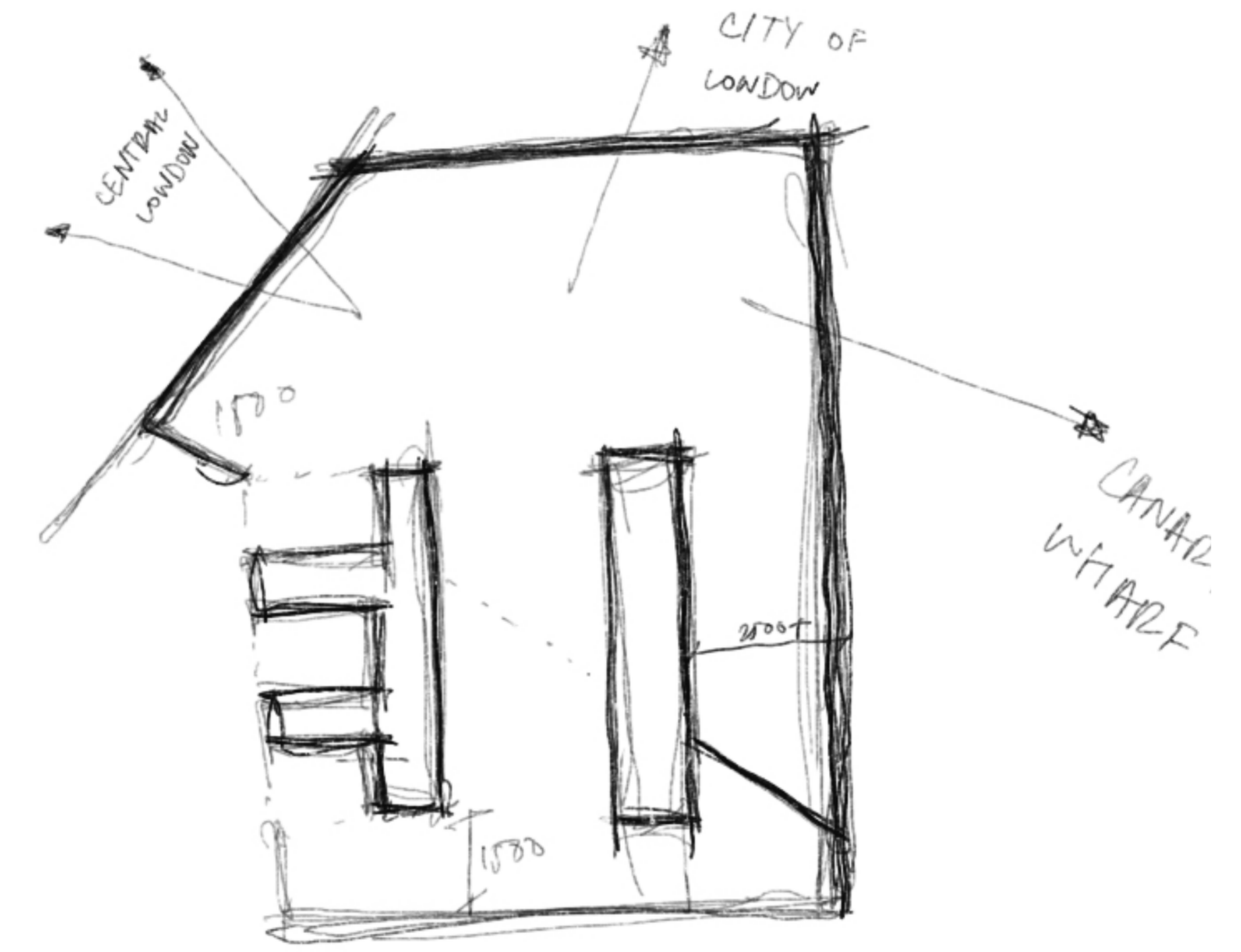
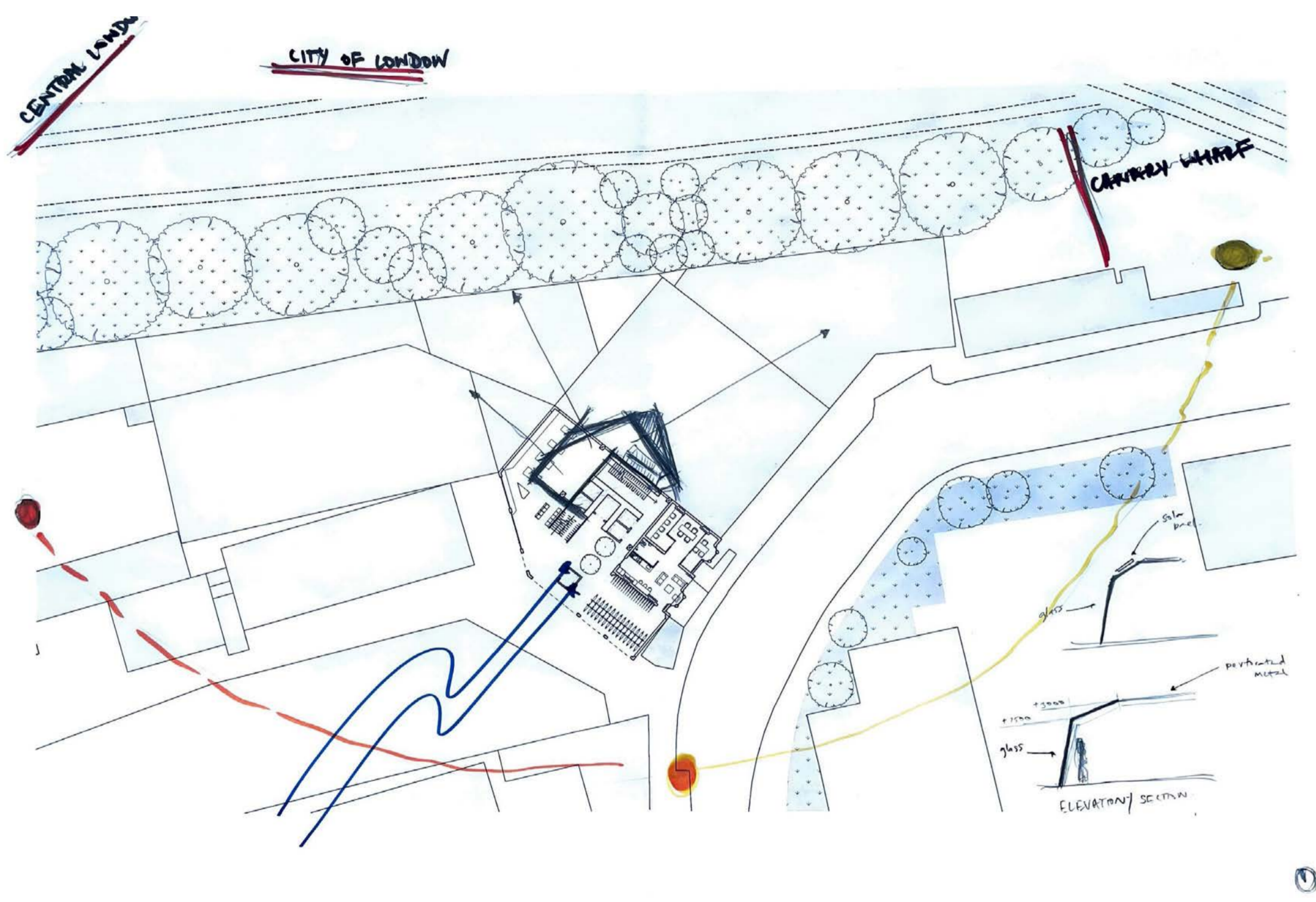


During the development of the structure's design, simple iterations were carried out to explore the spatial layout as per the current design.

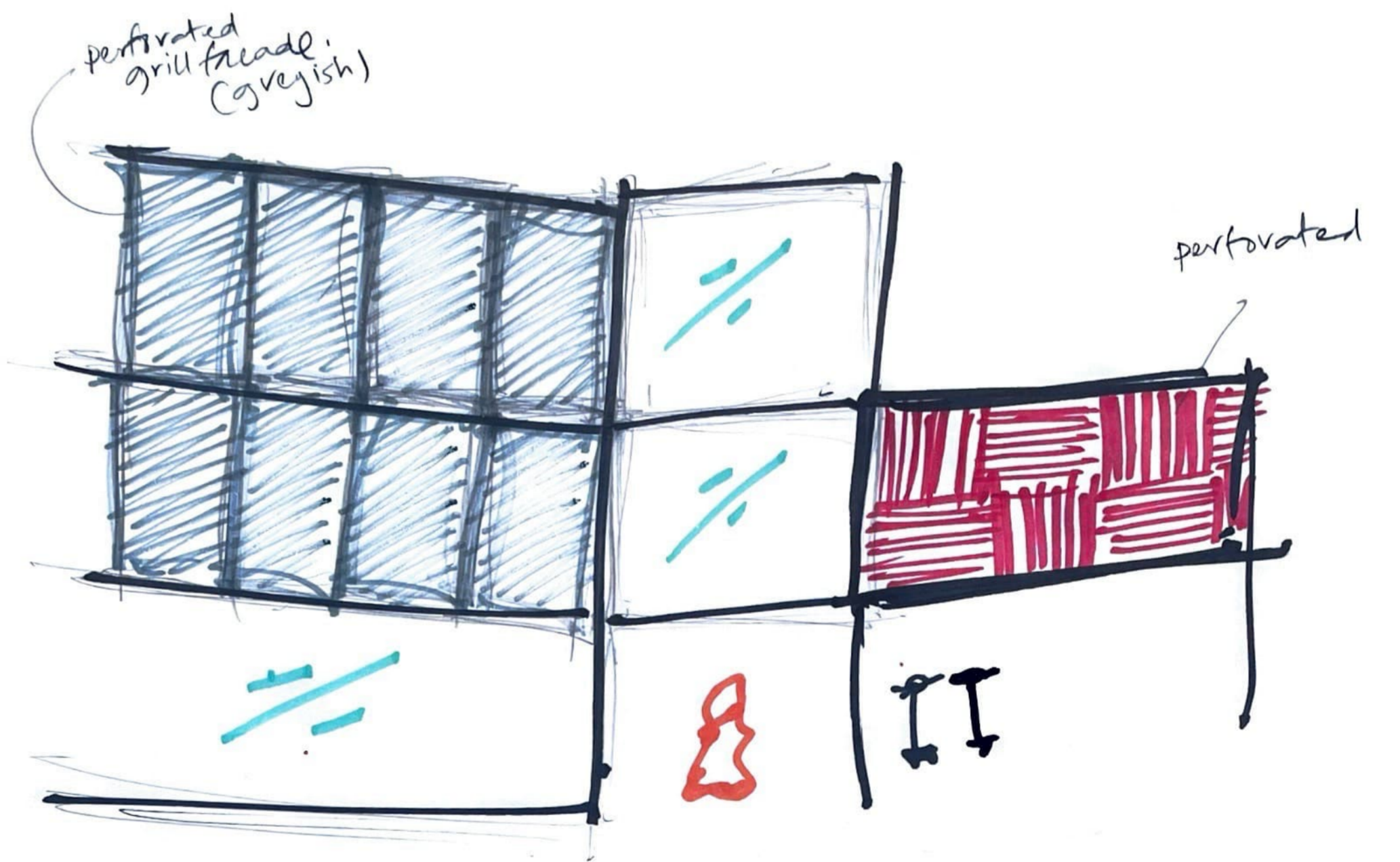
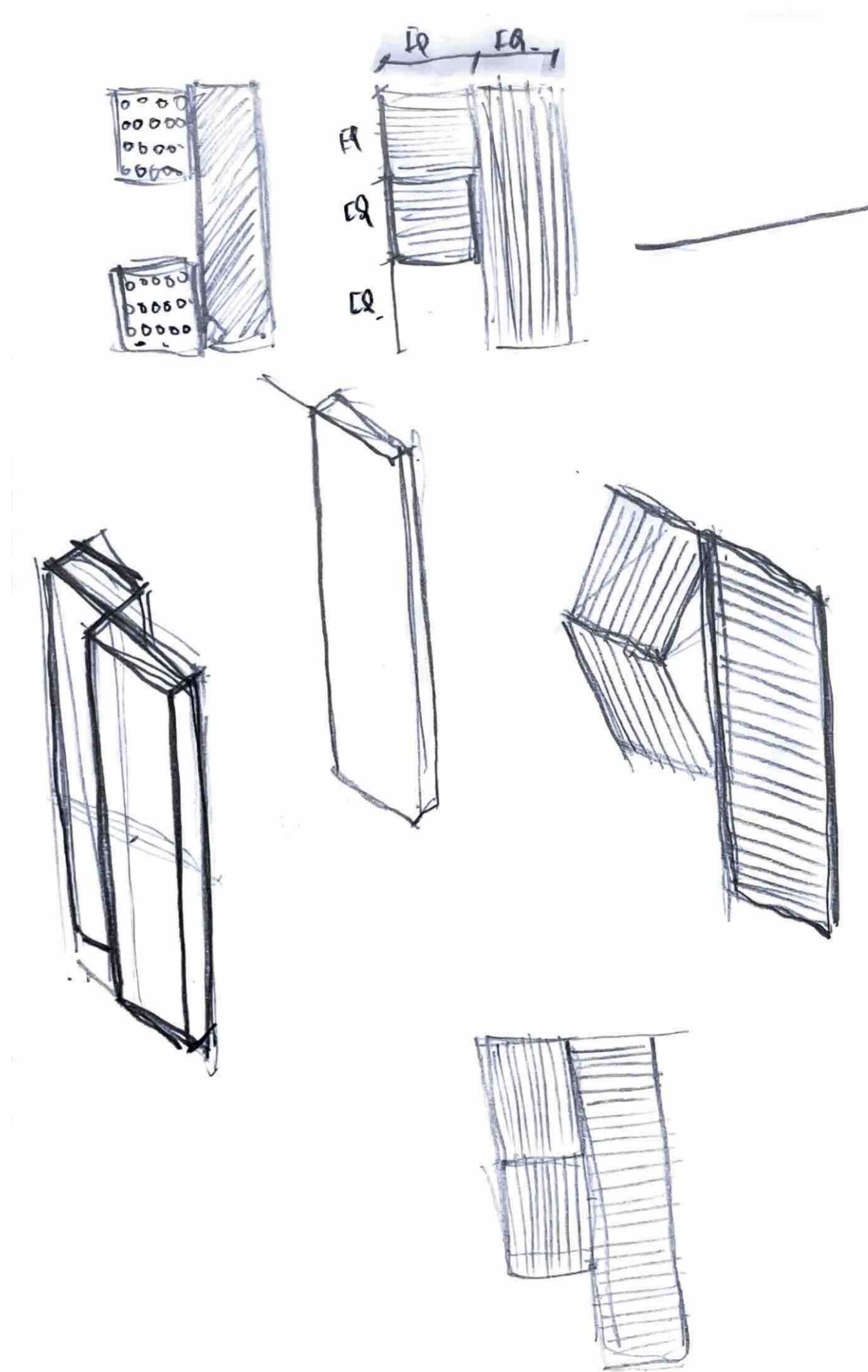
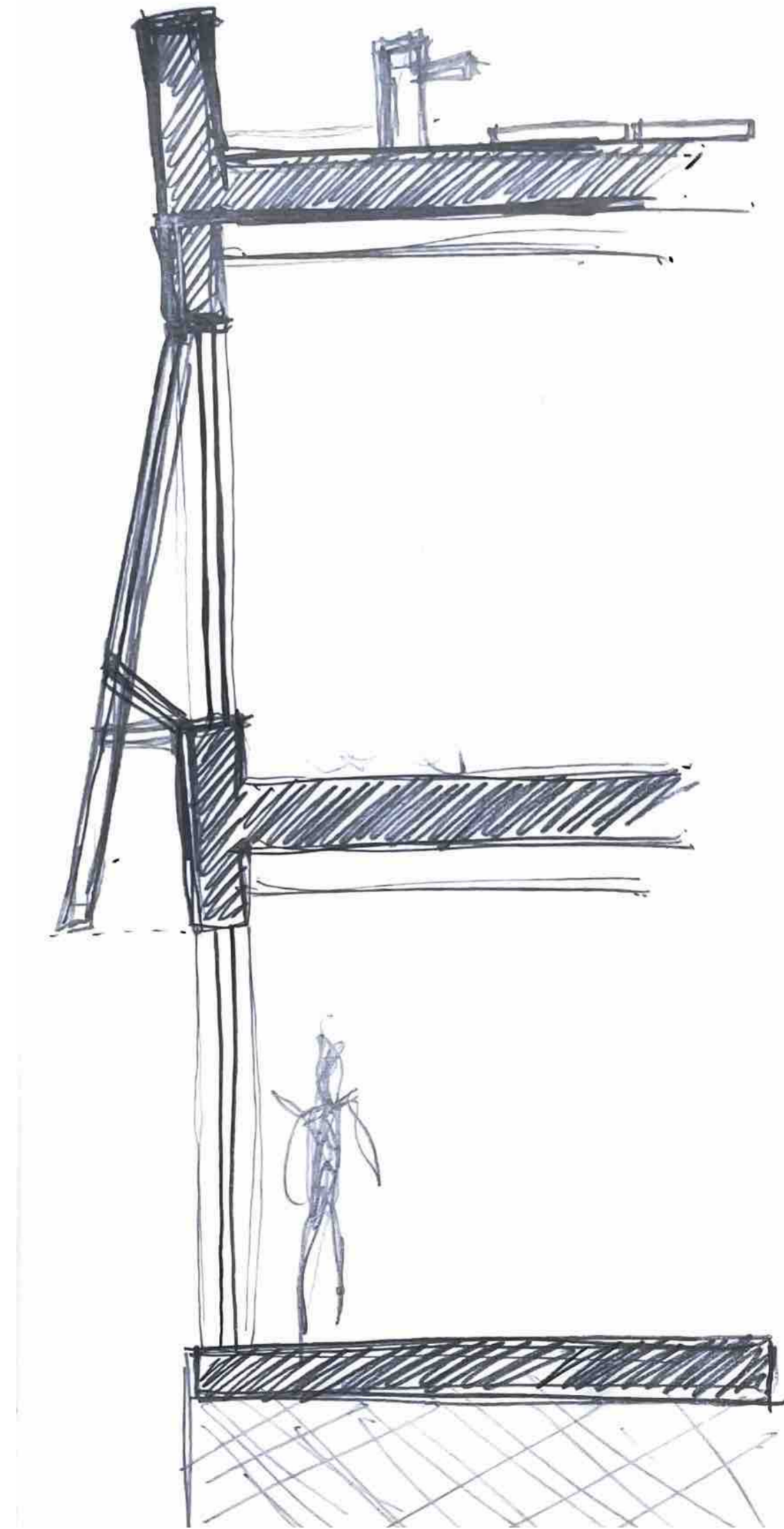


As the structural design became more resolved and a scaled plan was introduced, more developed iterations were produced to refine the concept.

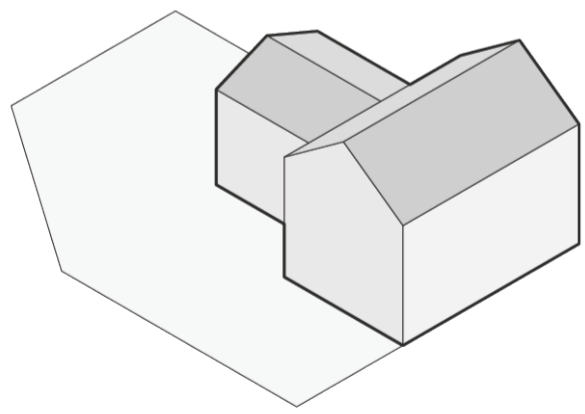
Layouts - Viewing Deck



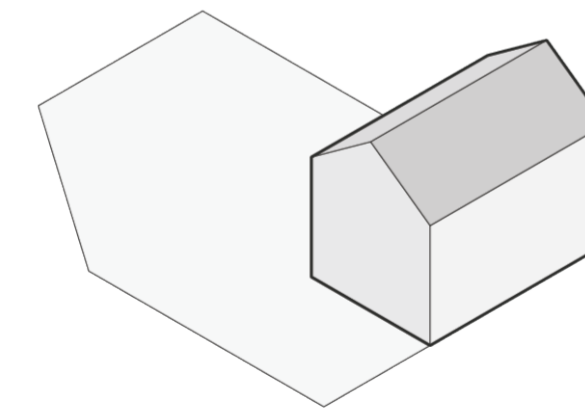
Facade Design



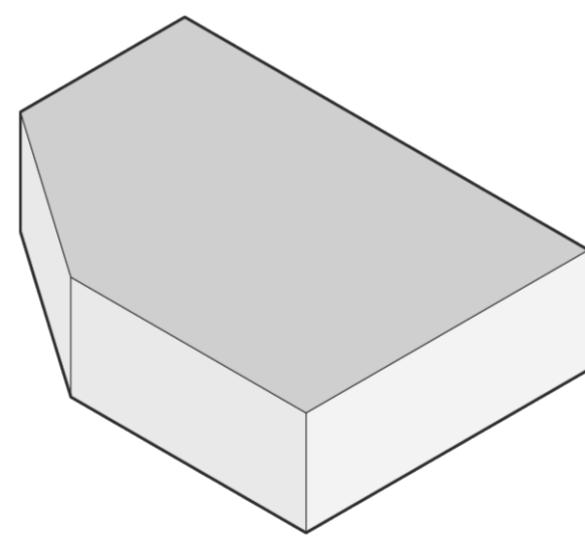
Massing



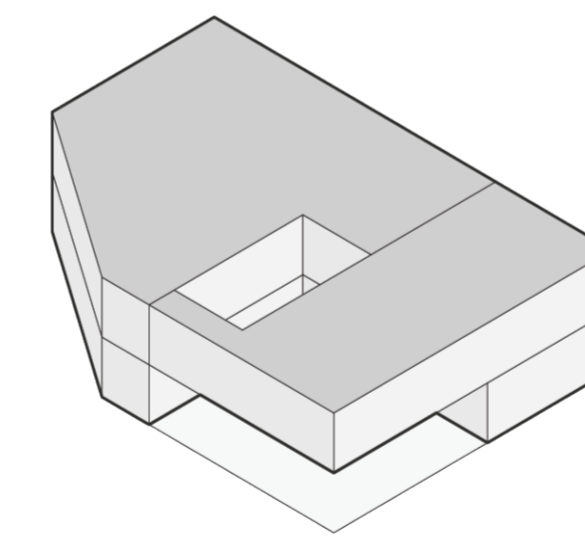
Original Structure



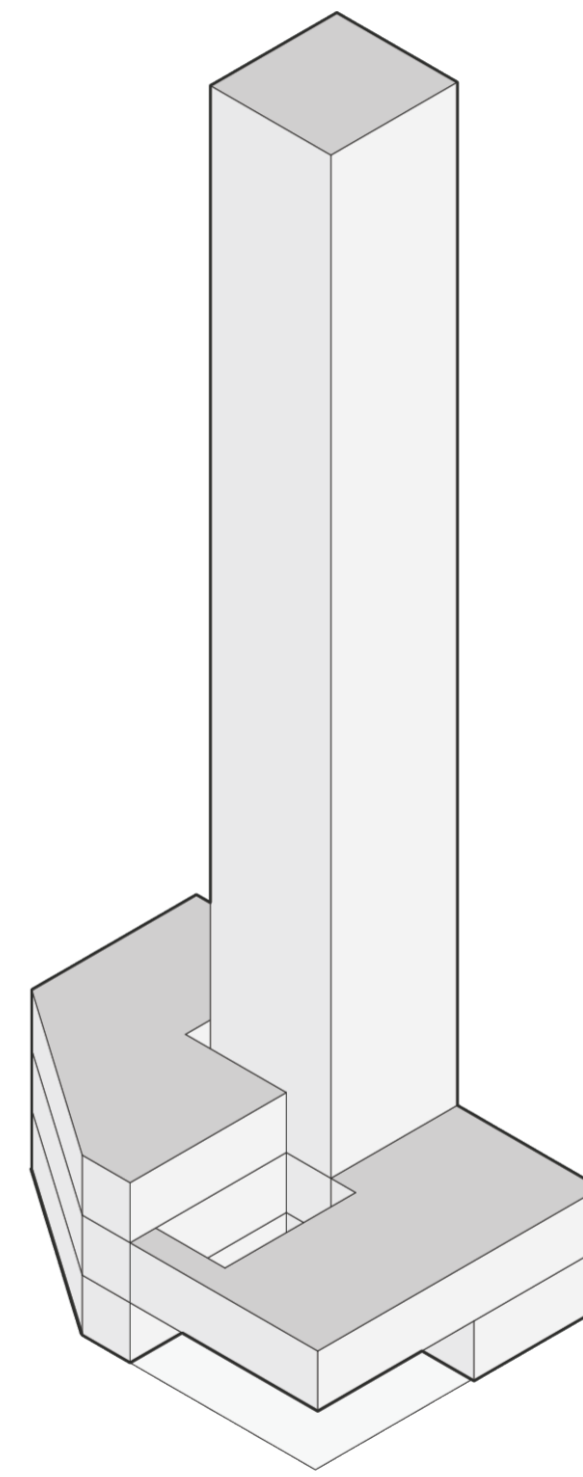
Demolition



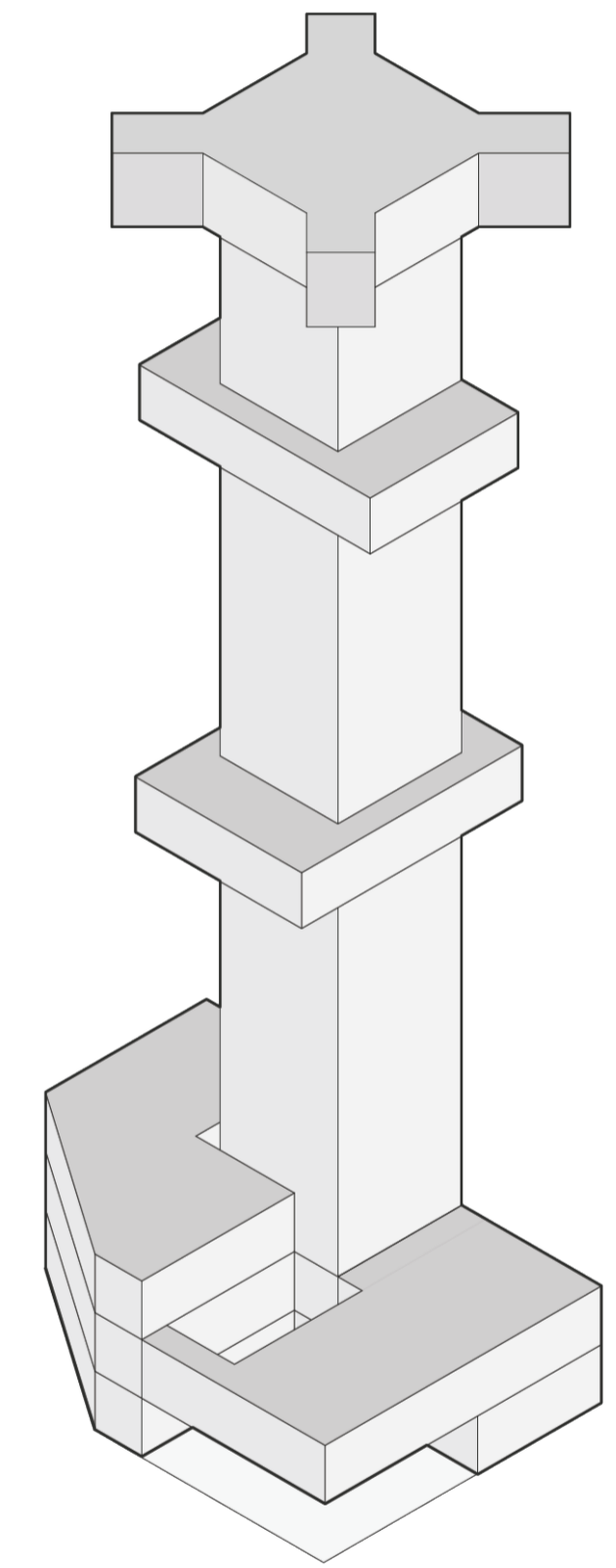
Mass



Voids

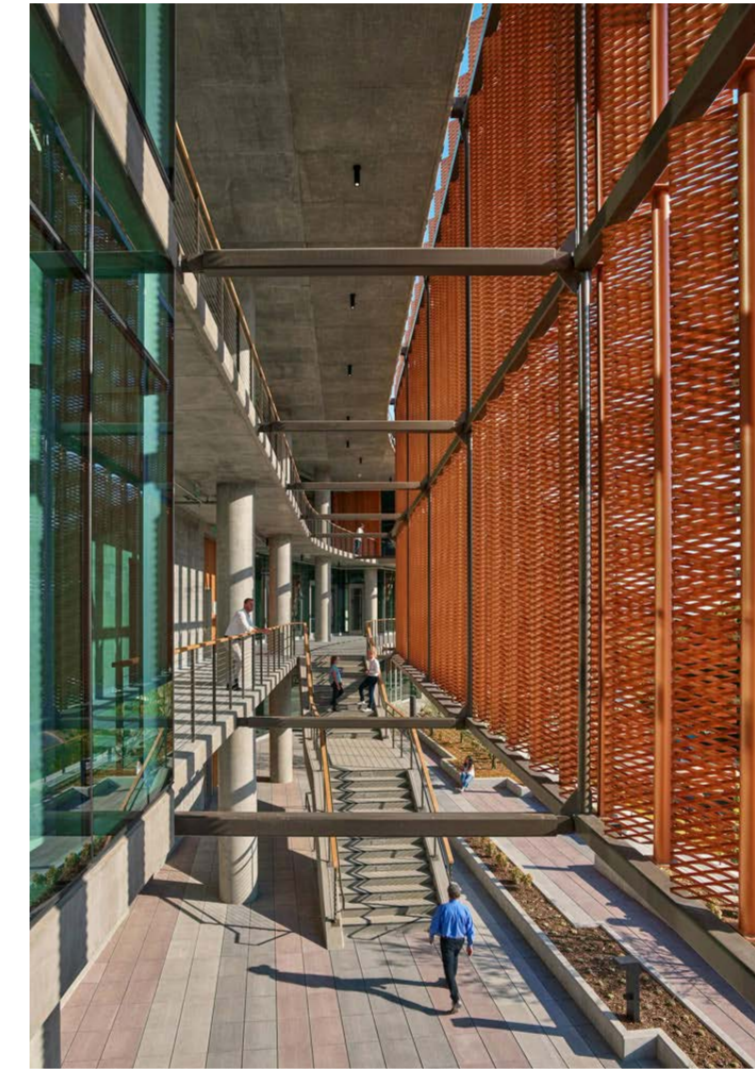
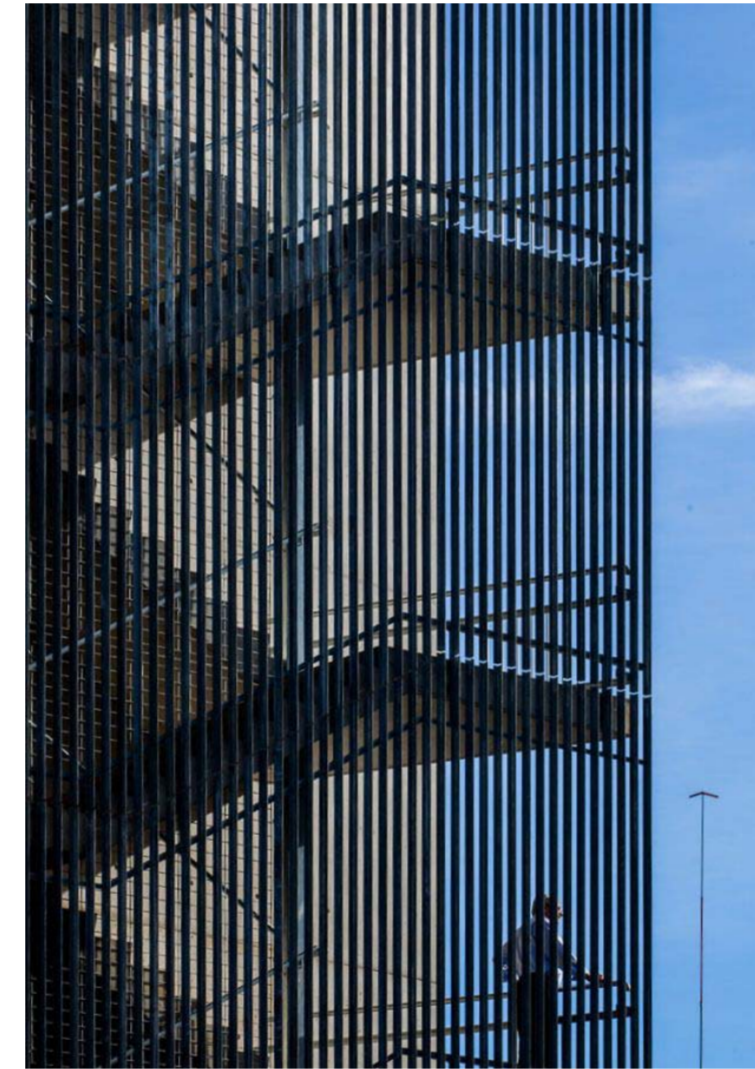


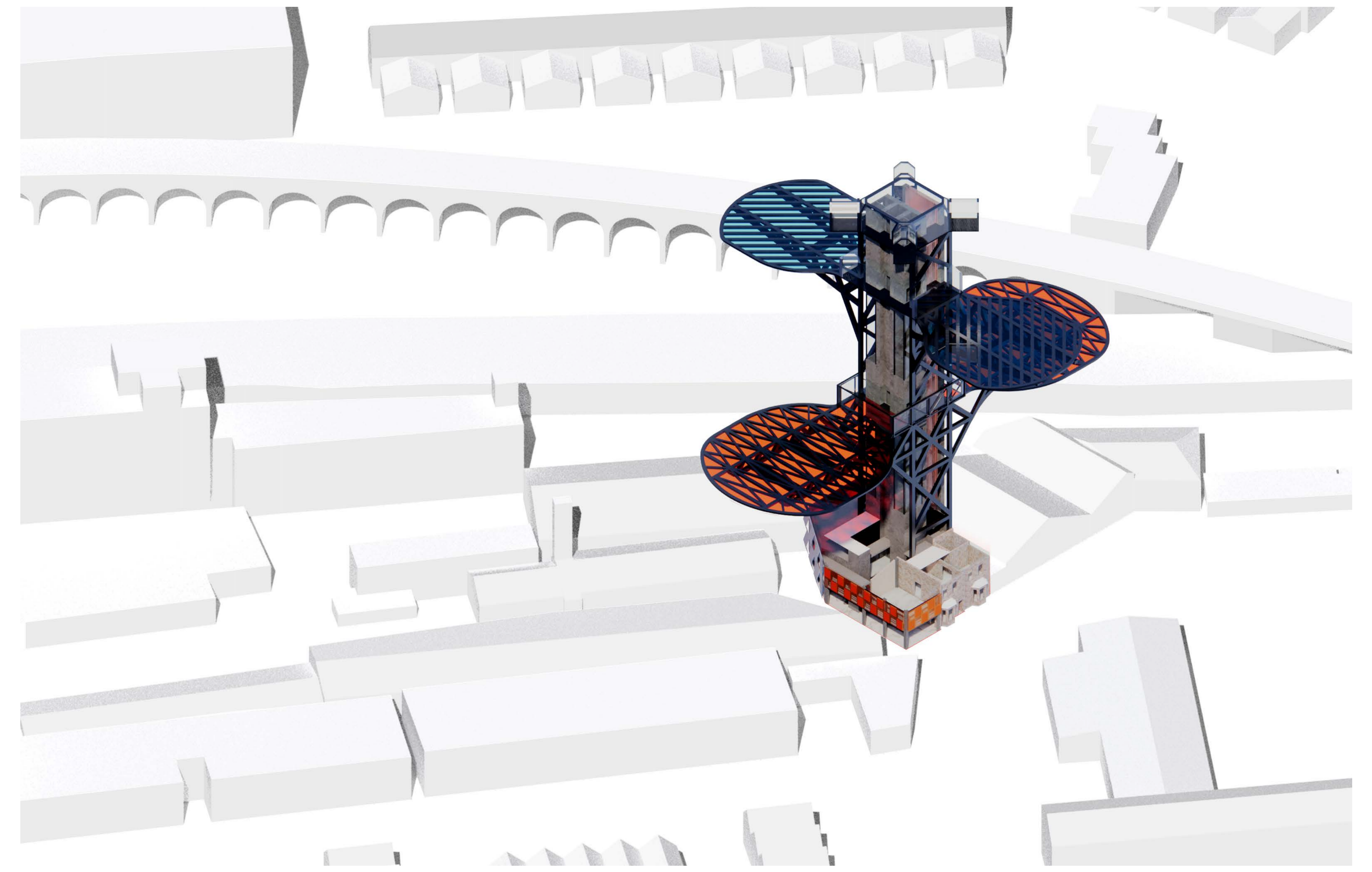
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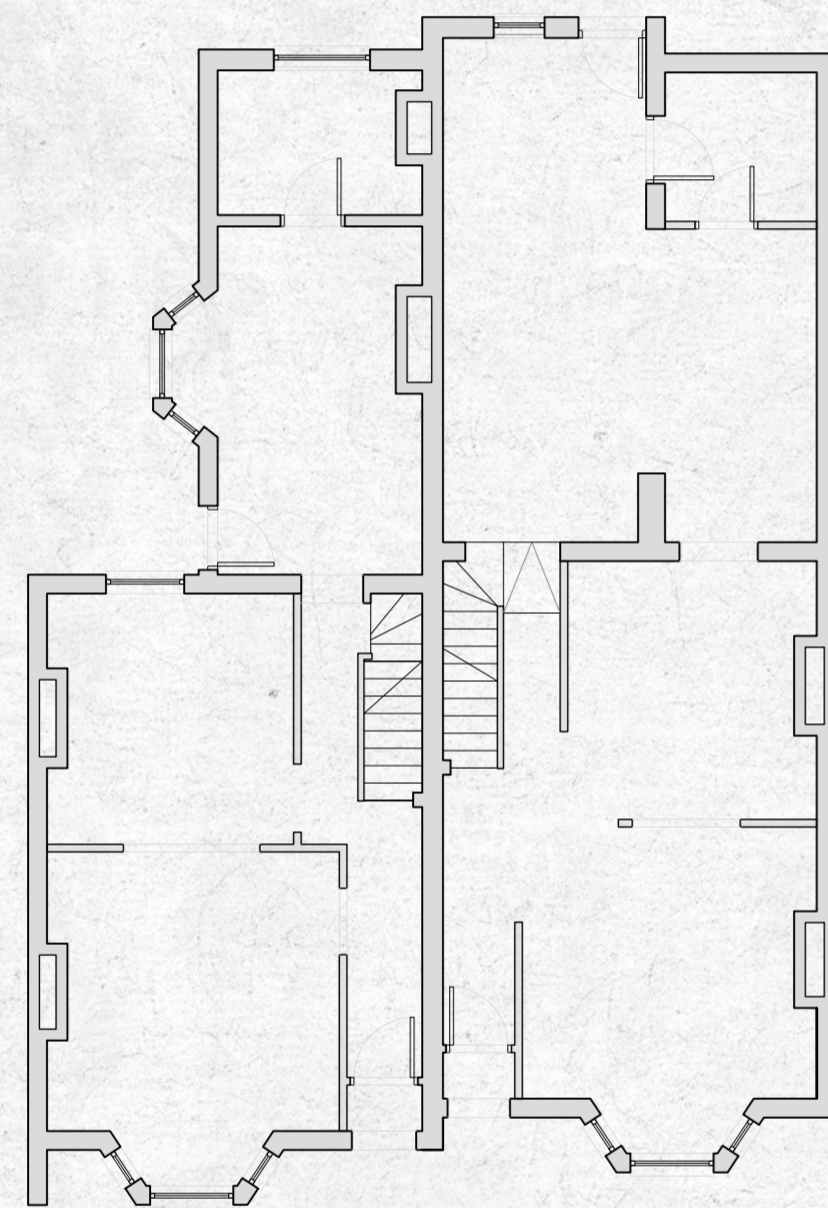
Levels

Moodboard

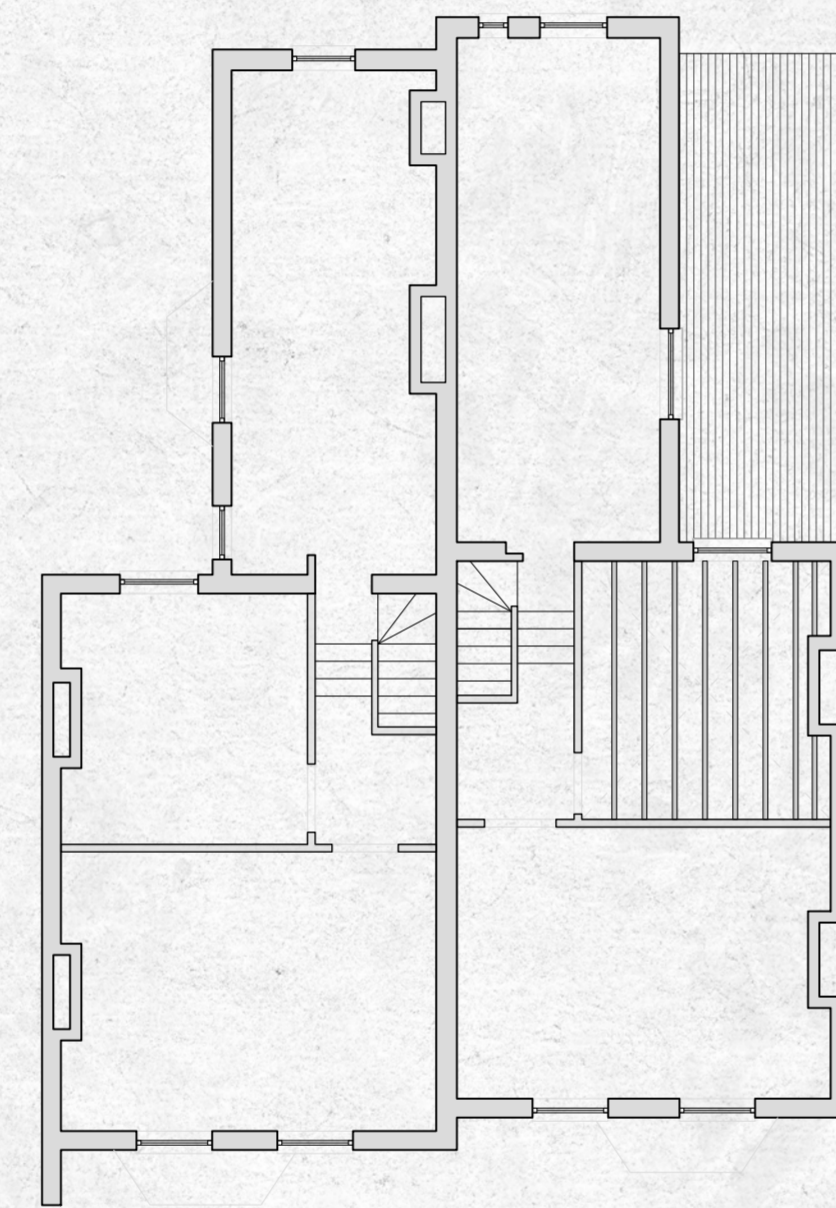




Plan - Existing Structure

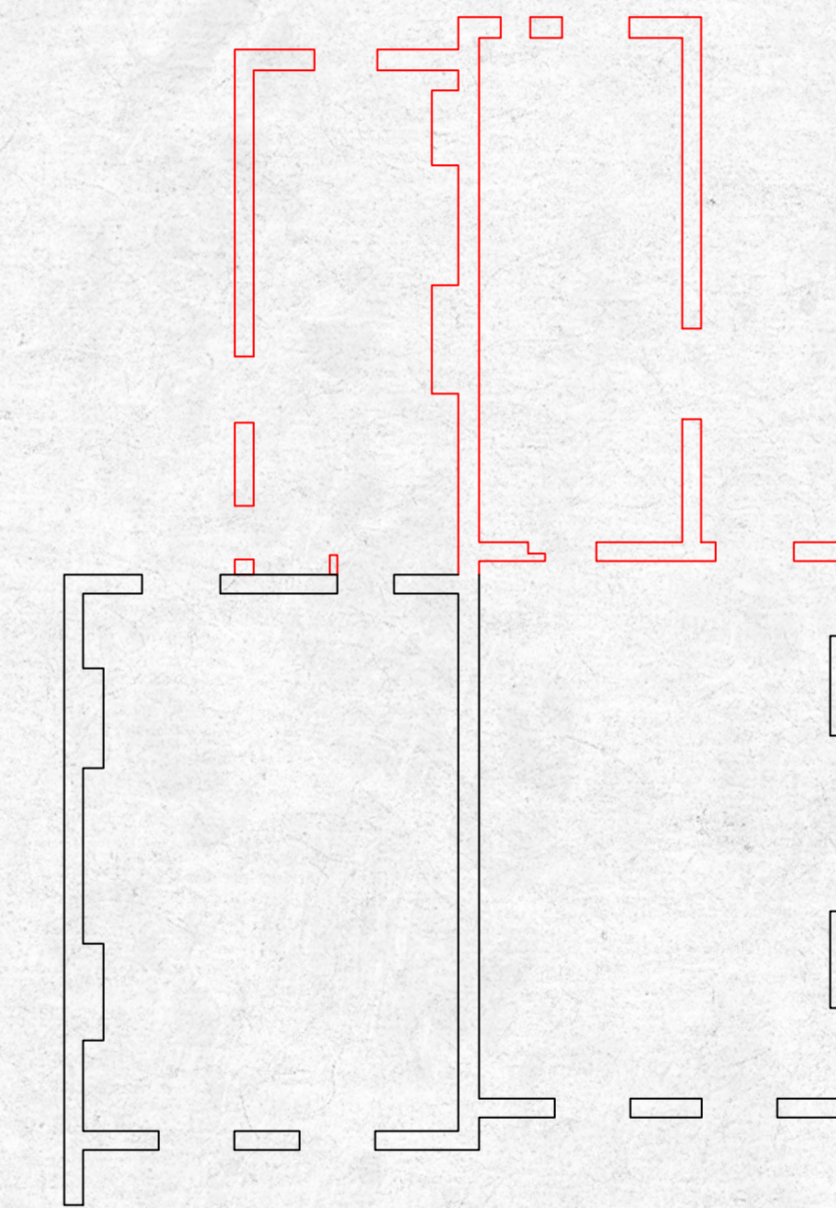


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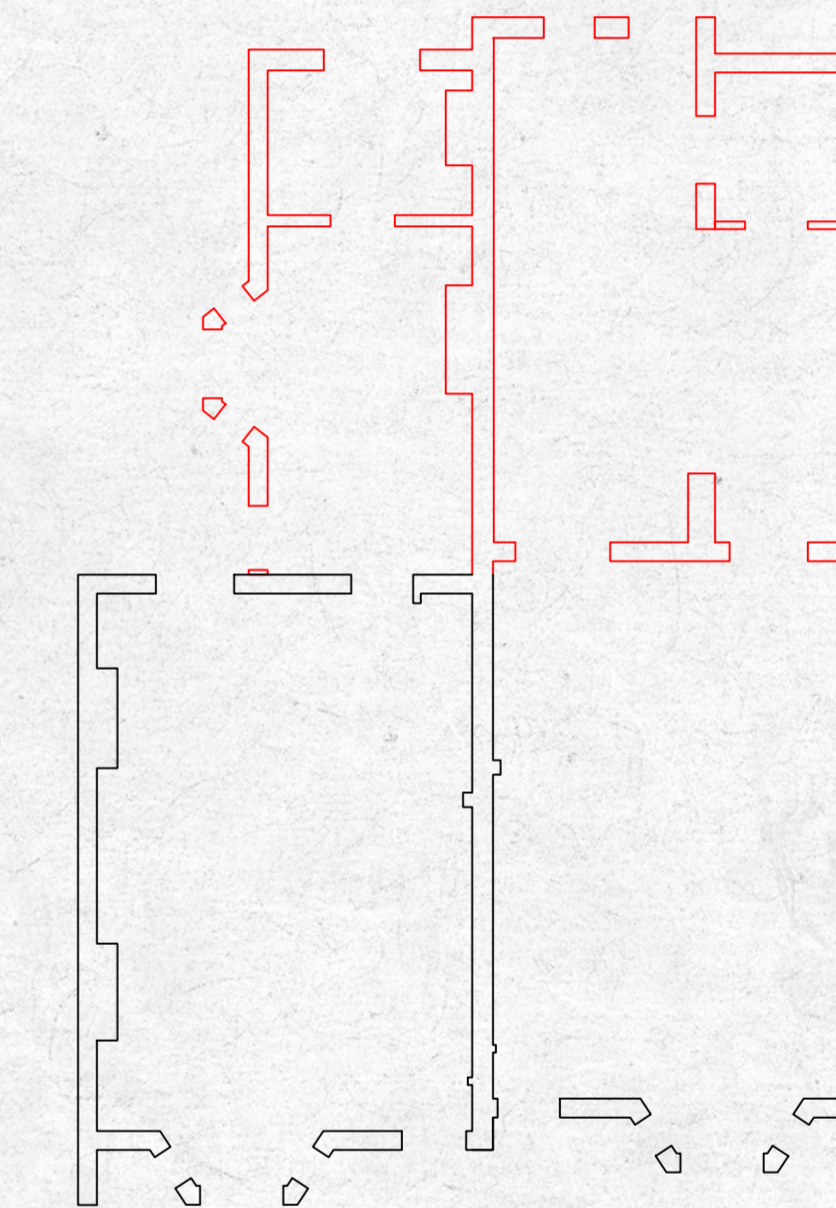


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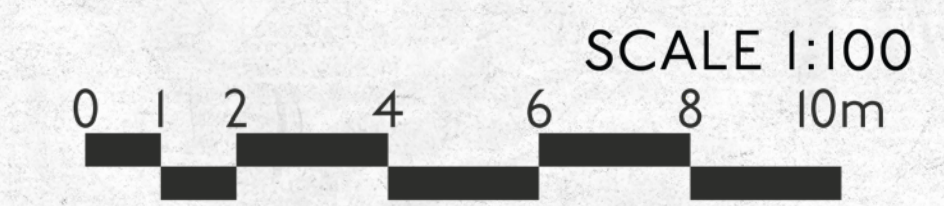
Plan - Demolition Drawing



GF

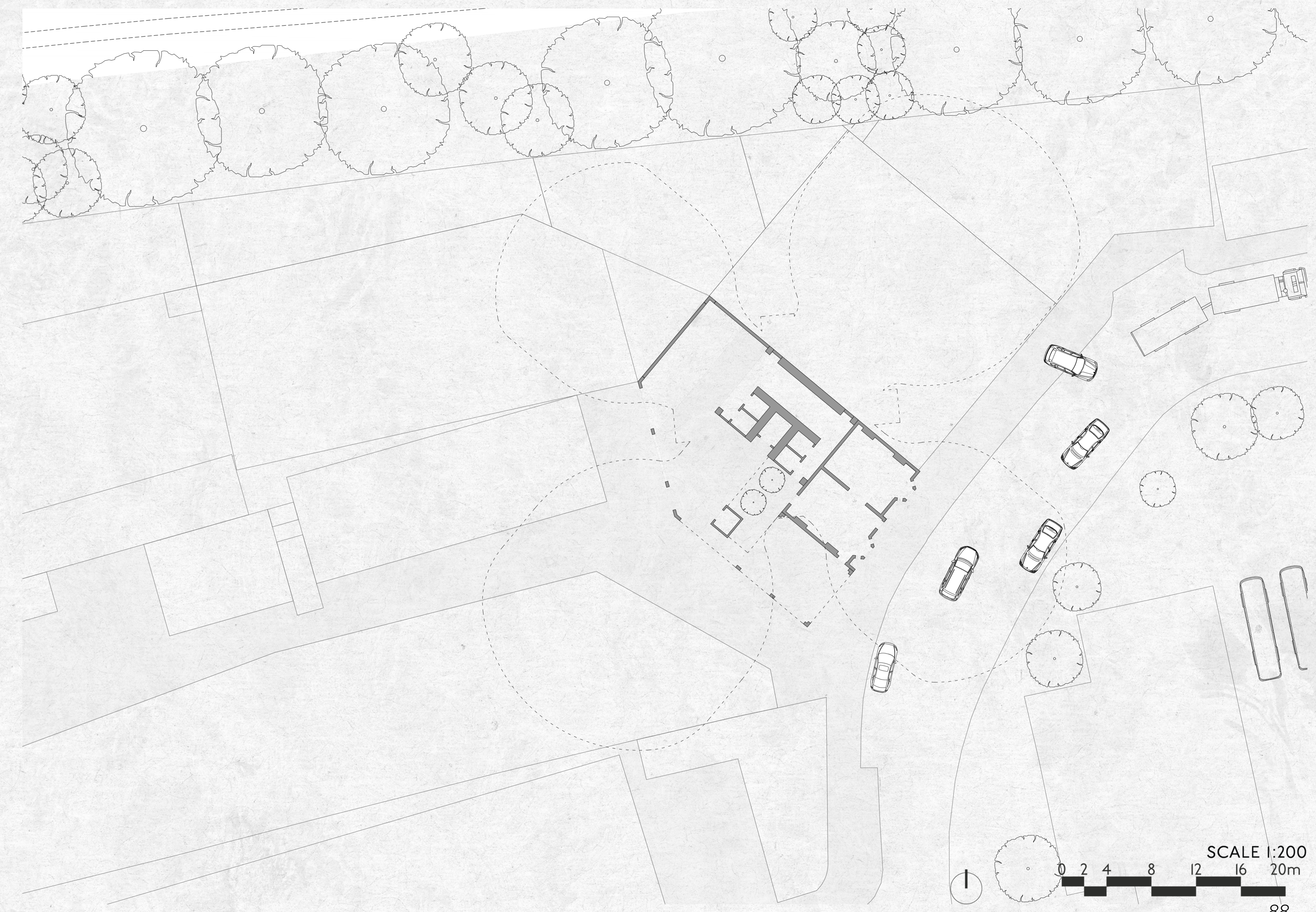


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Site Plan

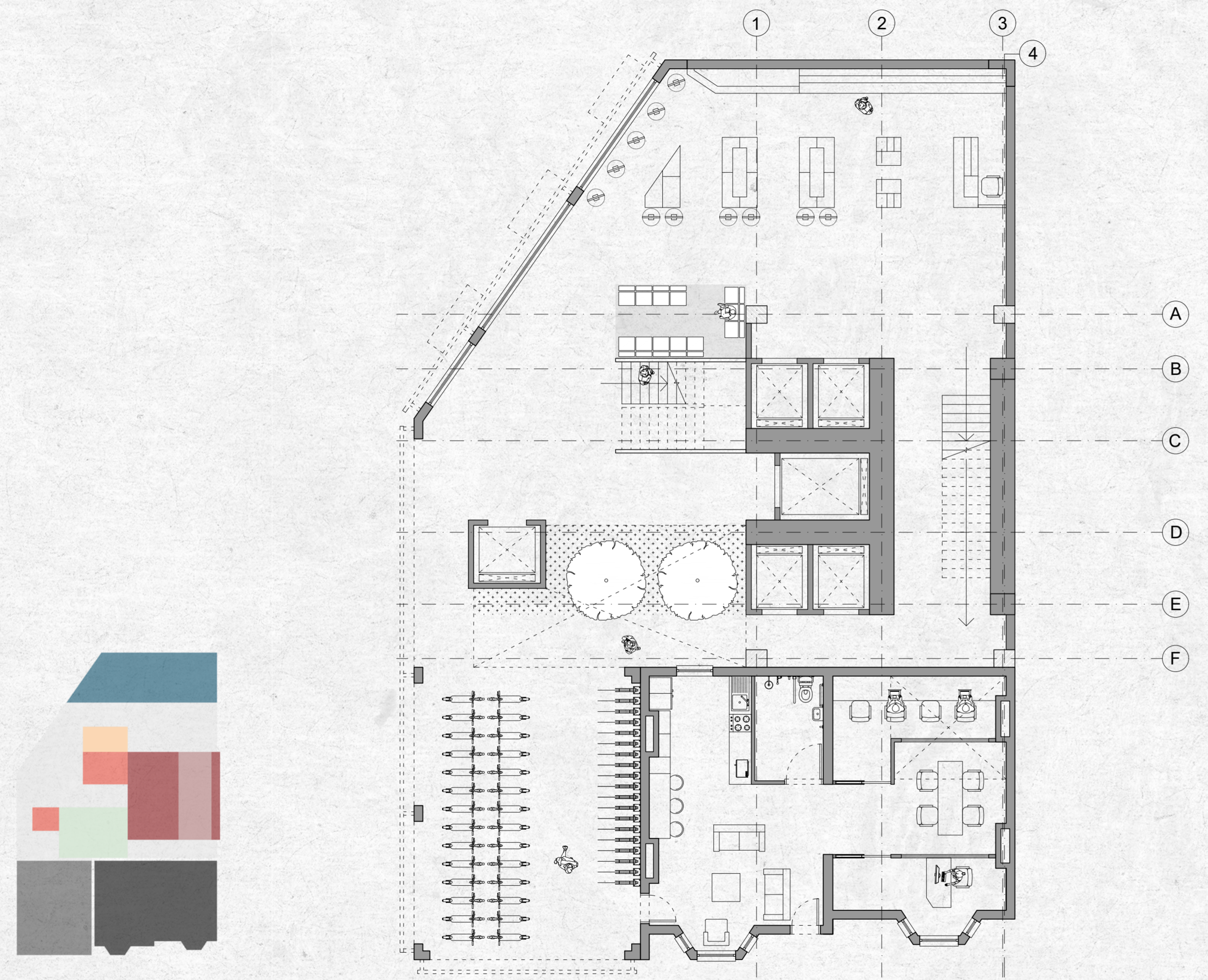


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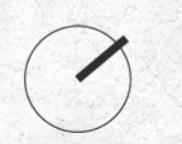
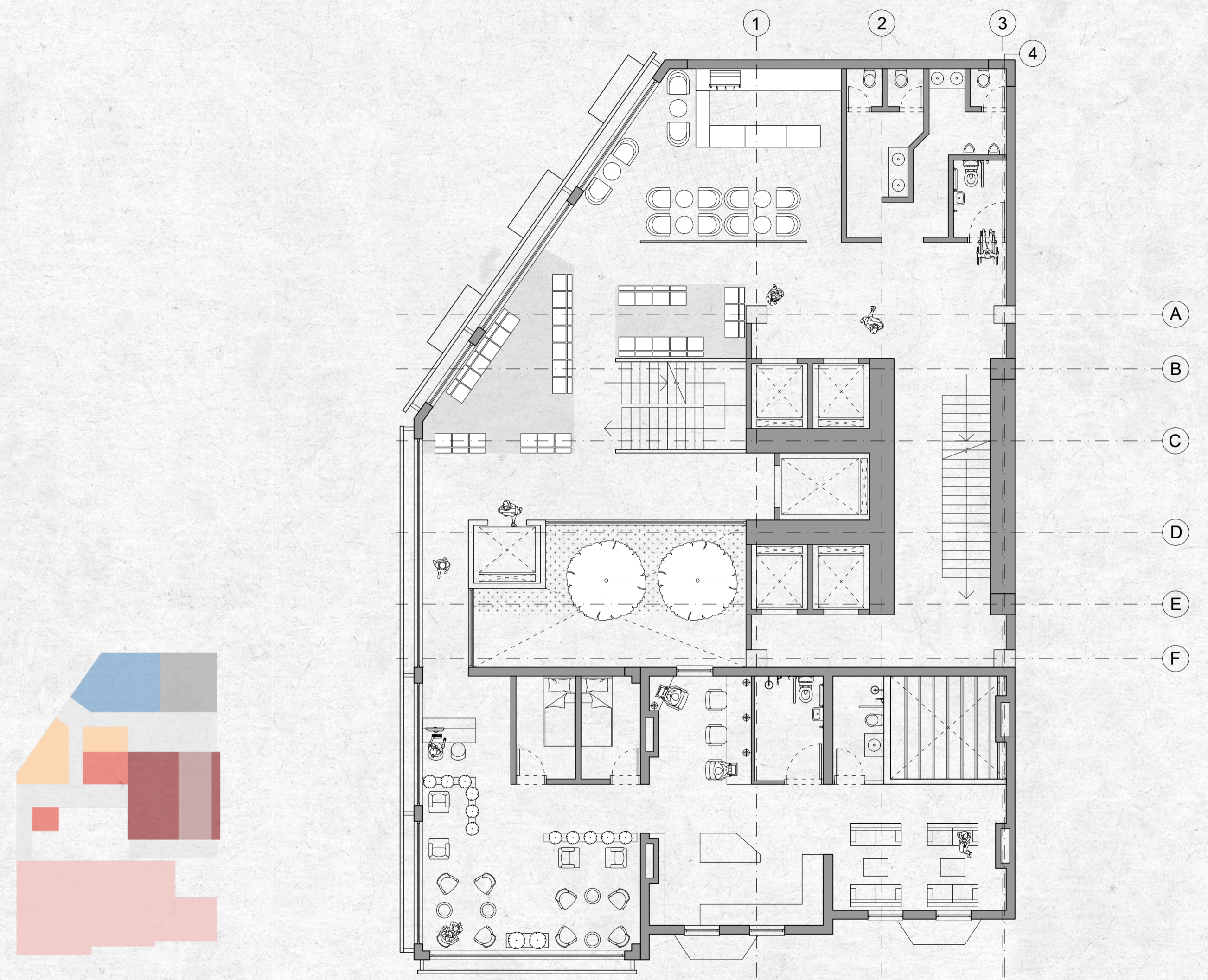
0 2 4 8 12 16 20m

Terminal Waiting Area Mini 'Core' Core Bike Parking Control Room Convenience Store Cafe Lounge Garden Bar Viewing Deck

GF Plan



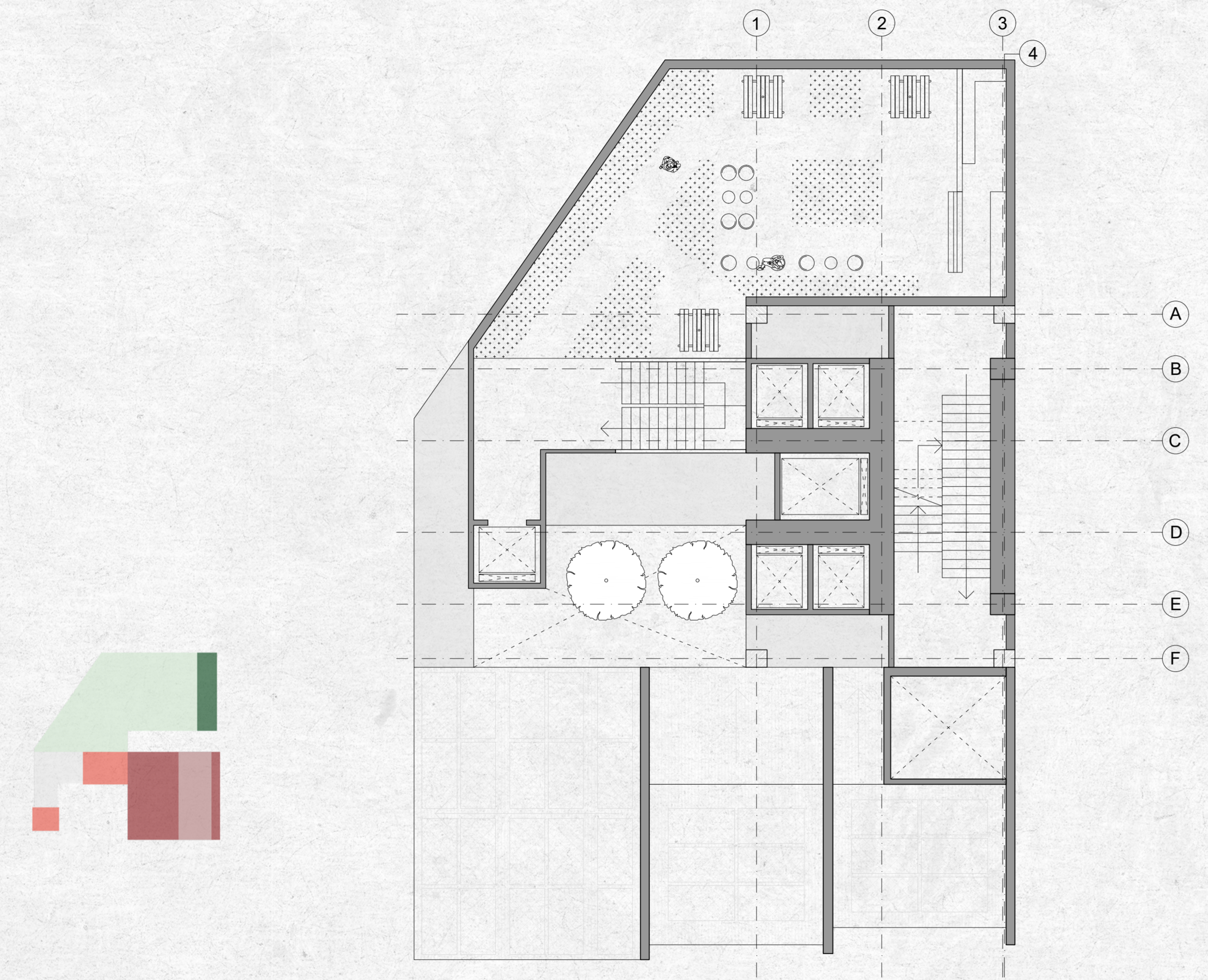
FF Plan



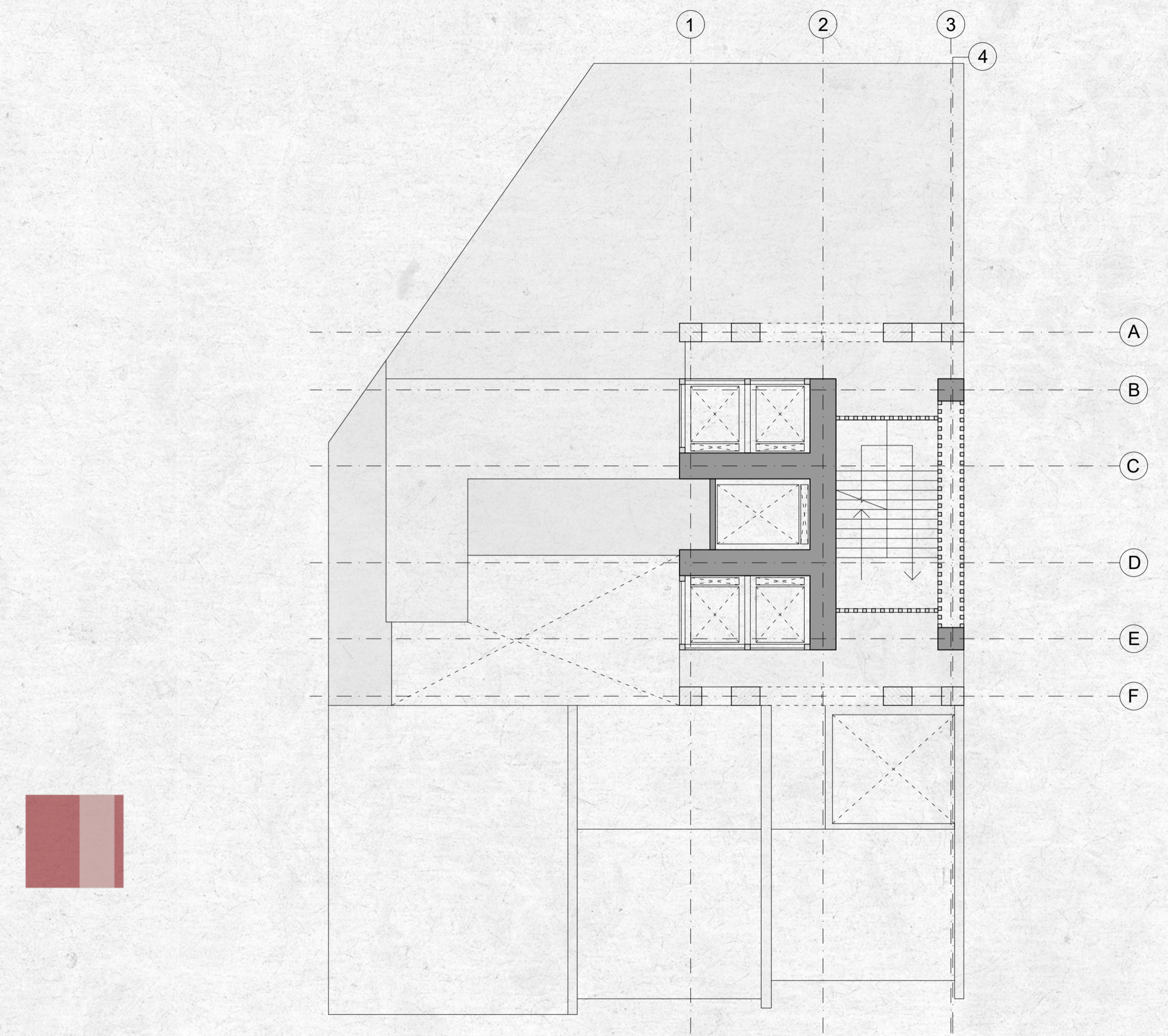
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Terminal Waiting Area Mini 'Core' Core Bike Parking Control Room Convenience Store Cafe Lounge Garden Bar Viewing Deck

Terrace Plan



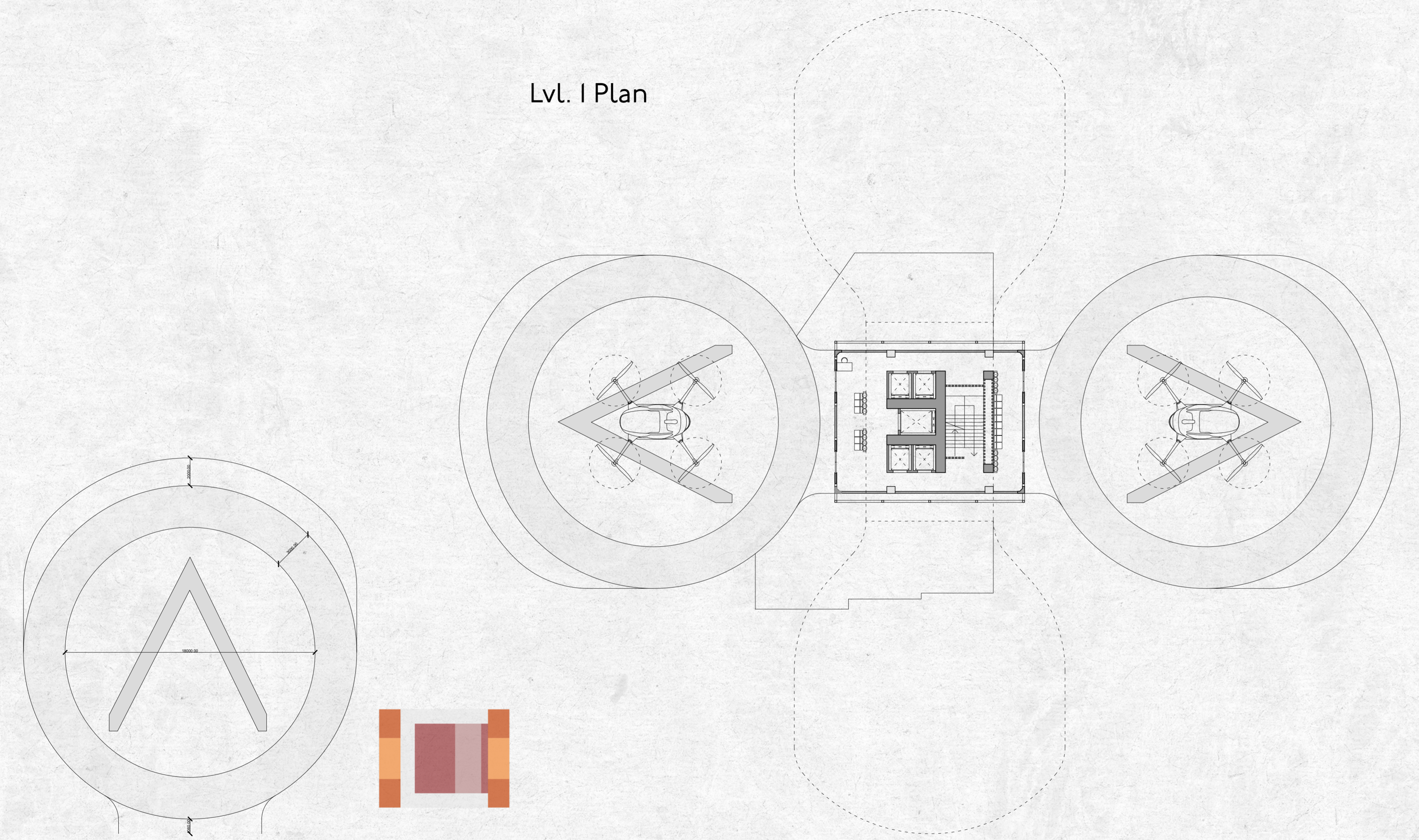
Plan @ +16700



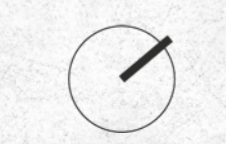
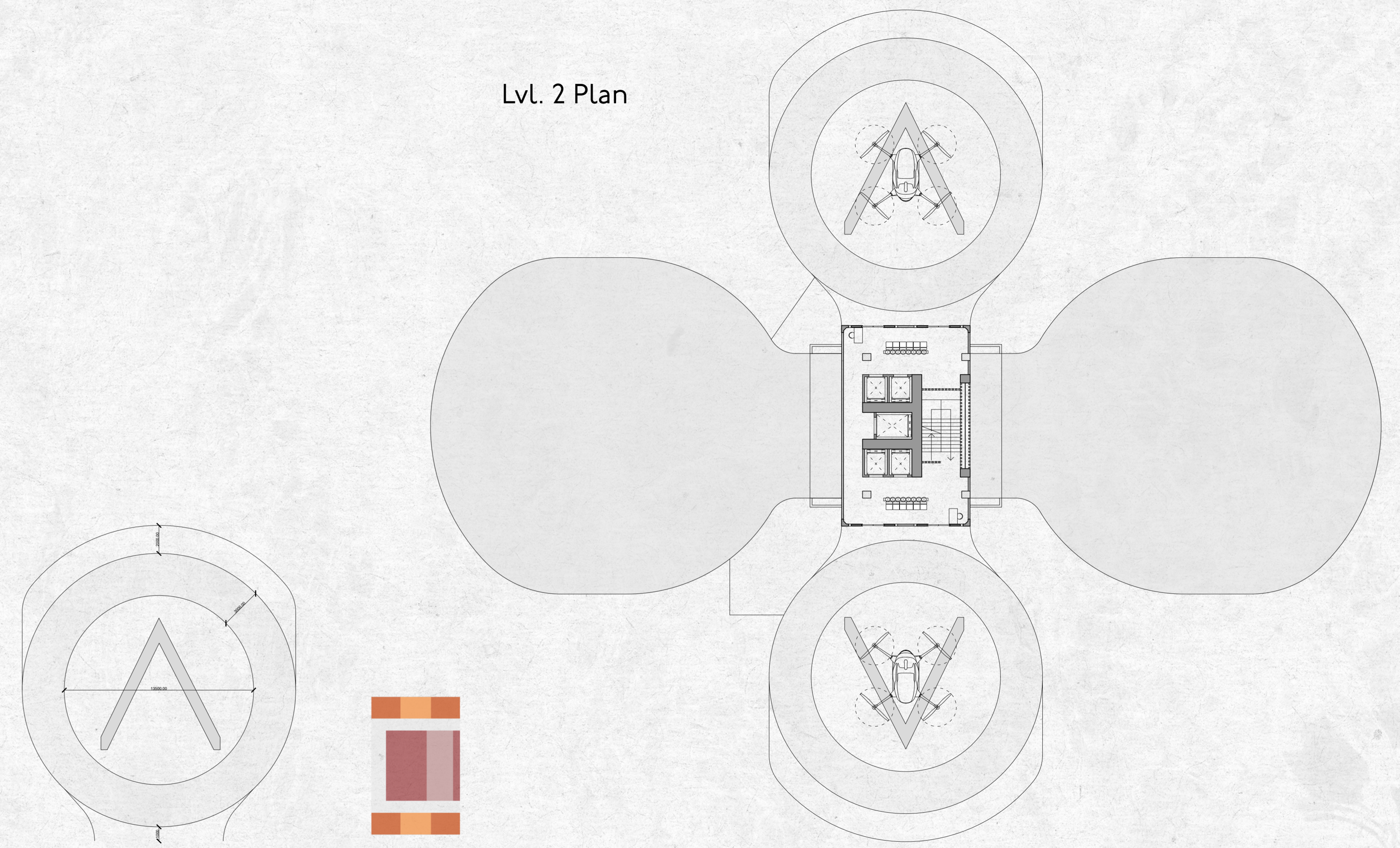
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Terminal Waiting Area Mini 'Core' Core Bike Parking Control Room Convenience Store Cafe Lounge Garden Bar Viewing Deck

Lvl. 1 Plan



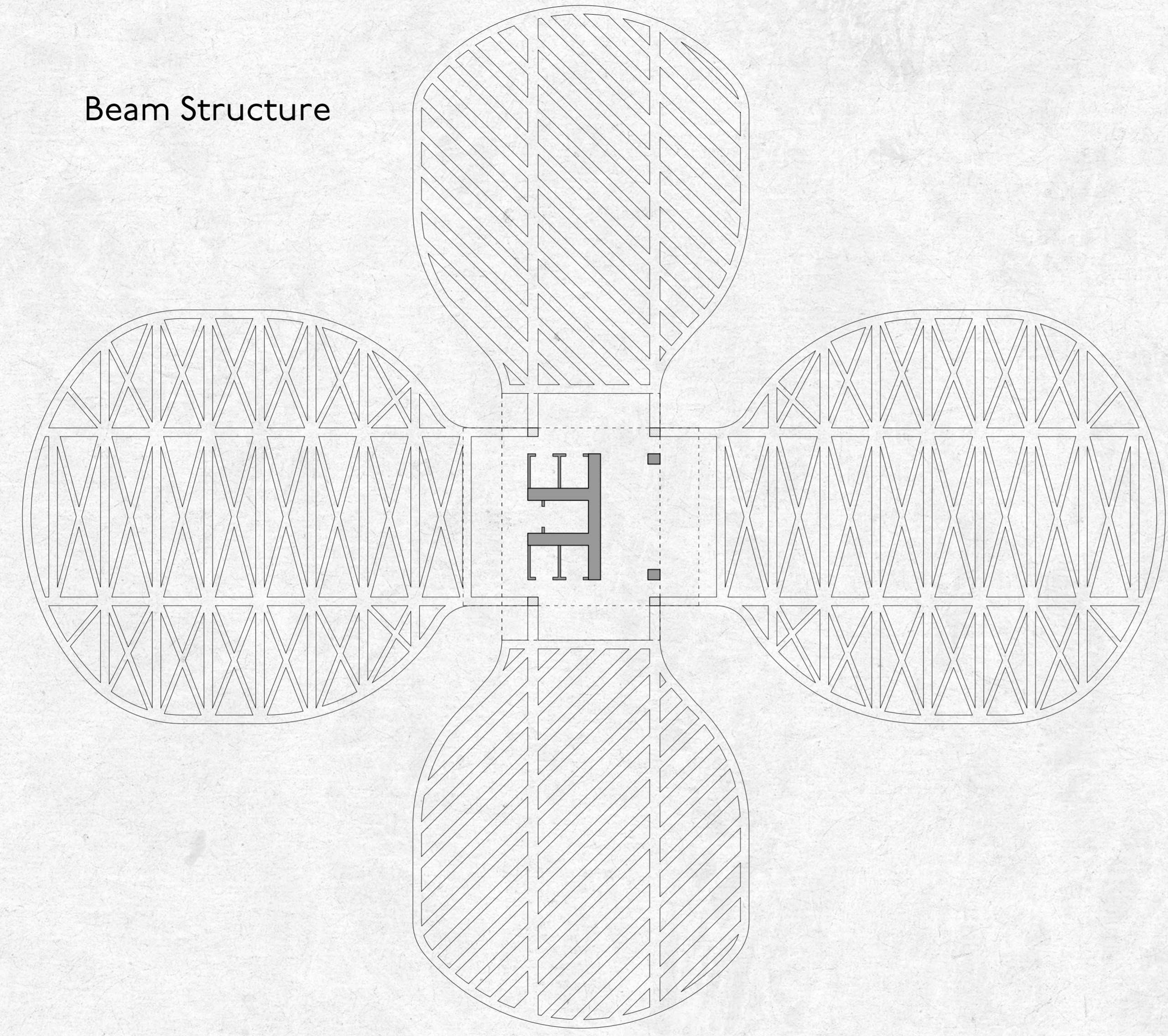
Lvl. 2 Plan



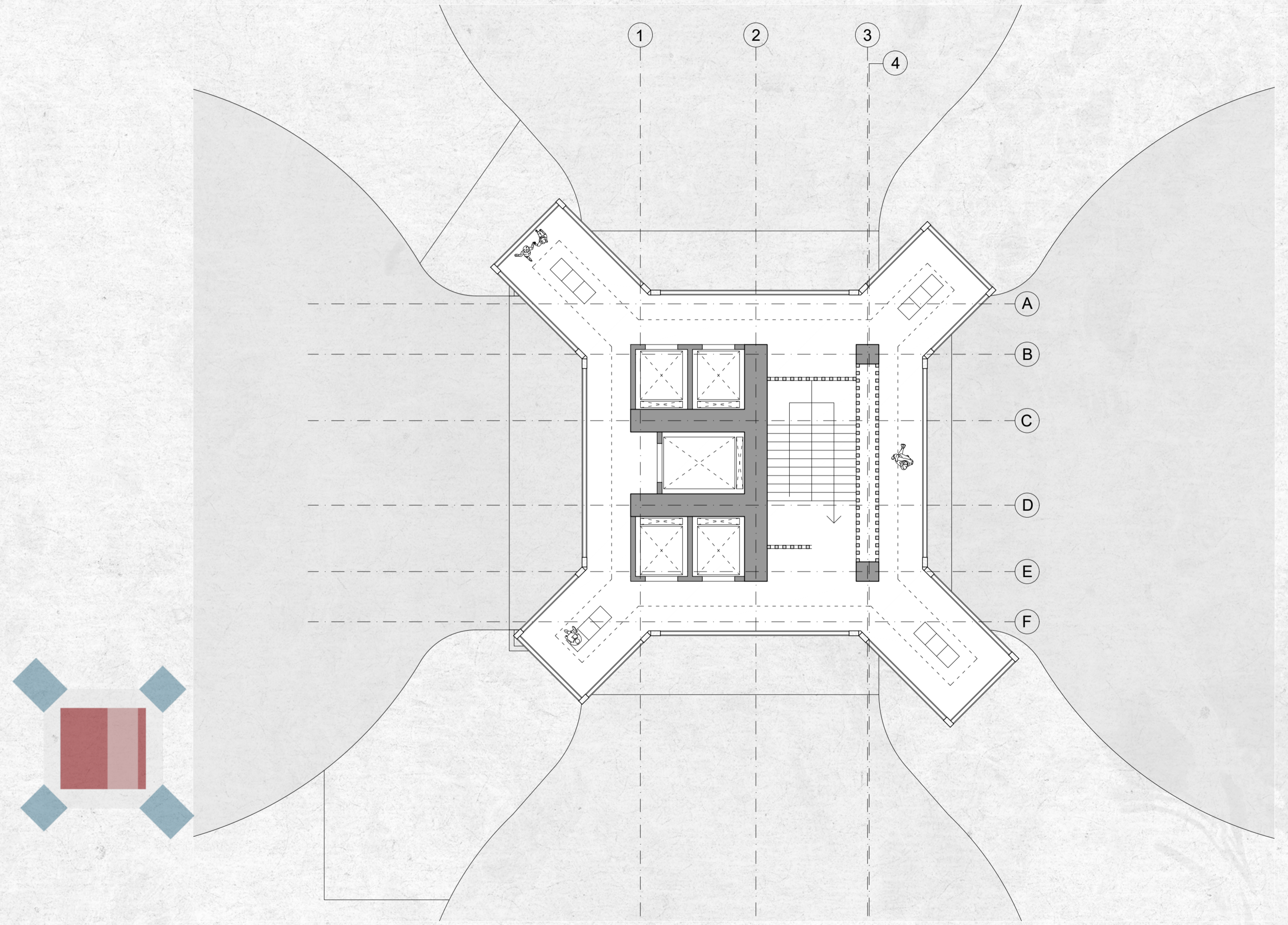
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Terminal Waiting Area Mini 'Core' Core Bike Parking Control Room Convenience Store Cafe Lounge Garden Bar Viewing Deck

Beam Structure

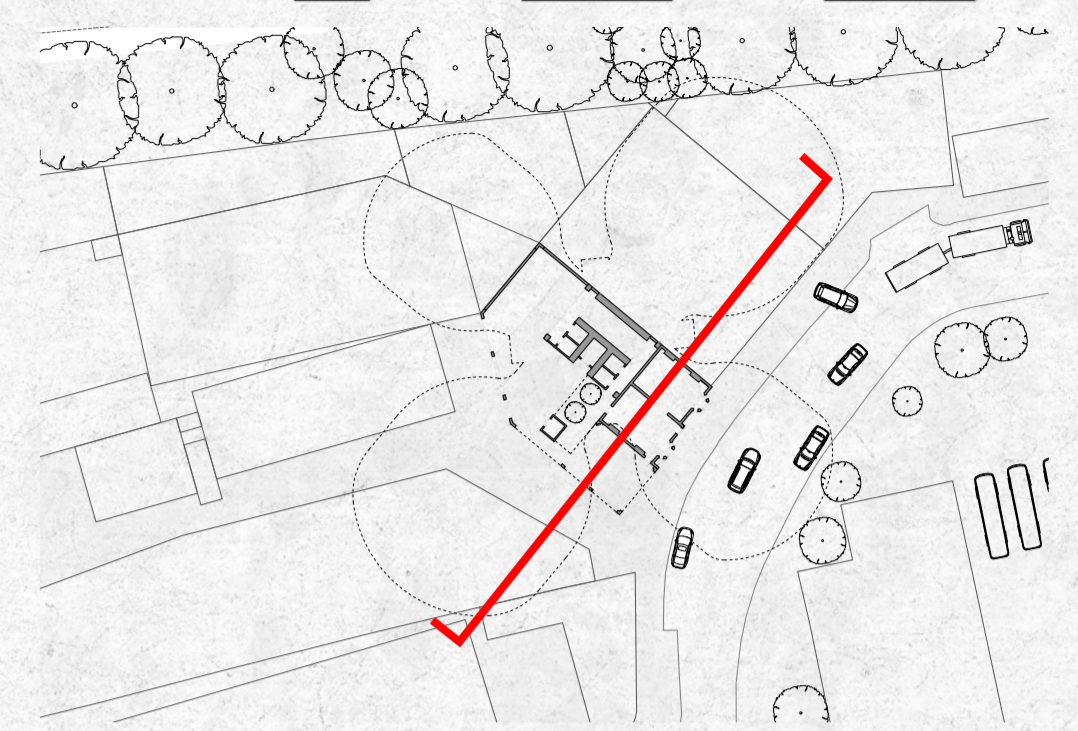


Viewing Deck Plan

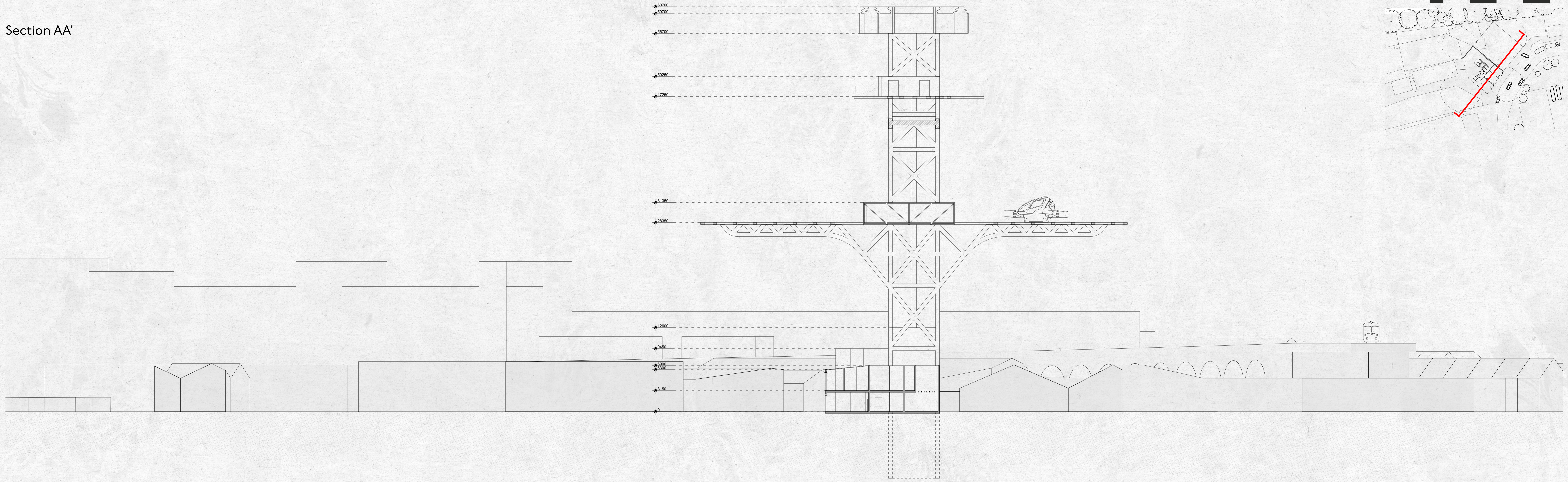


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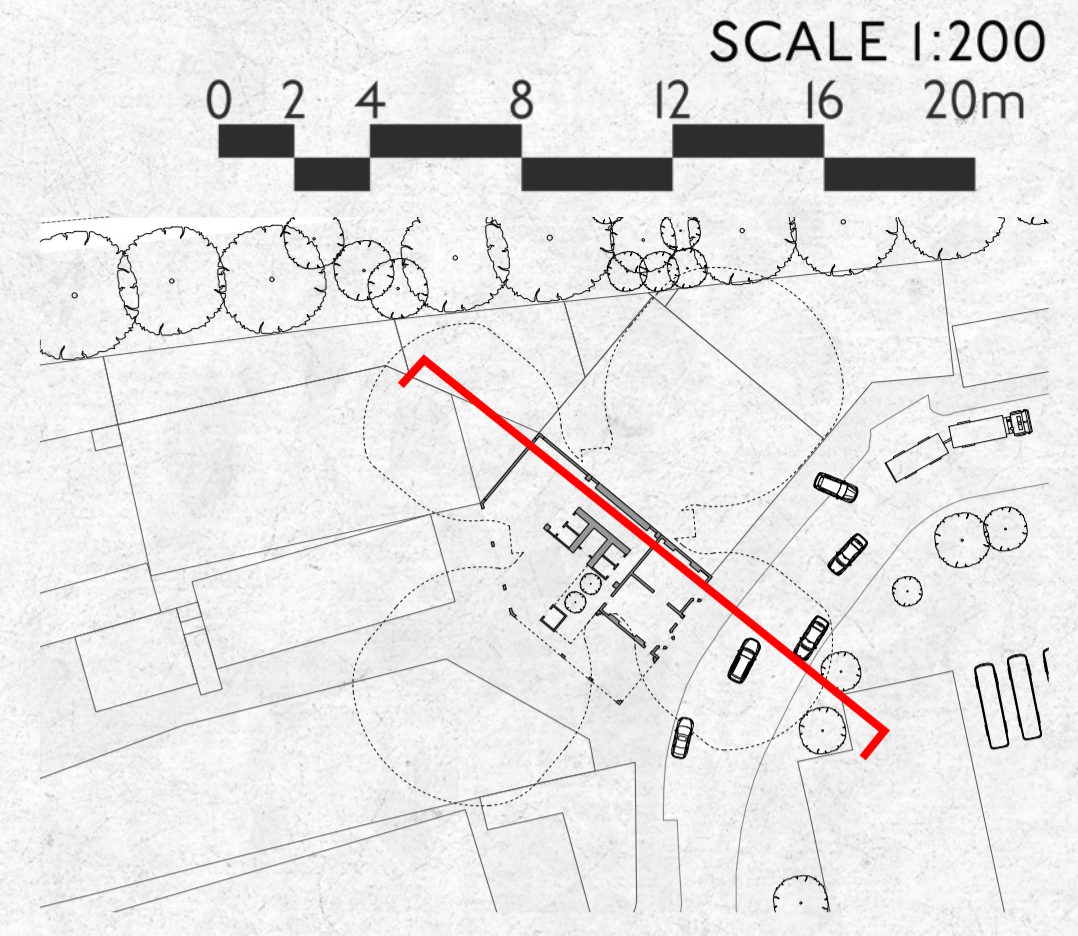
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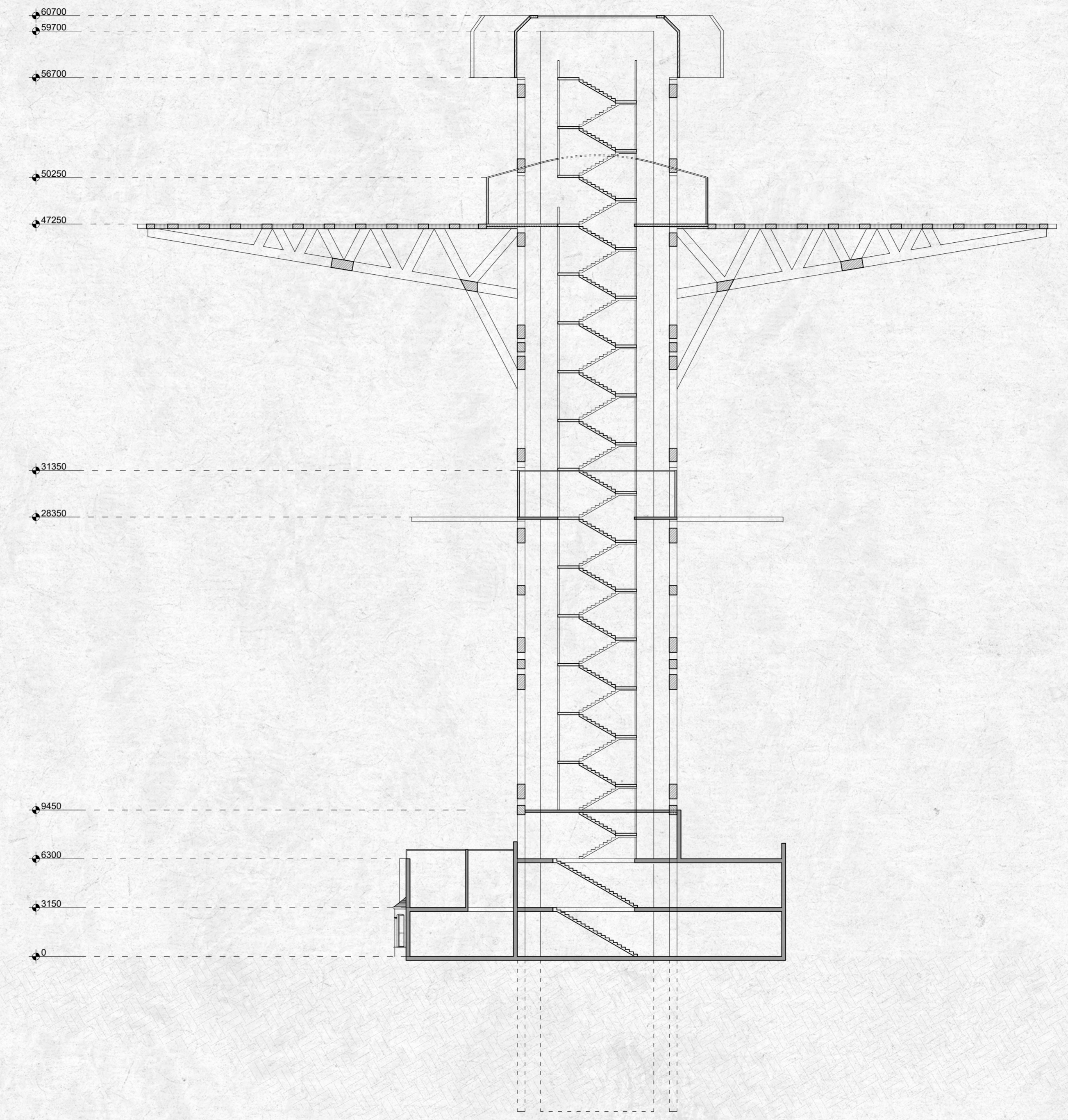
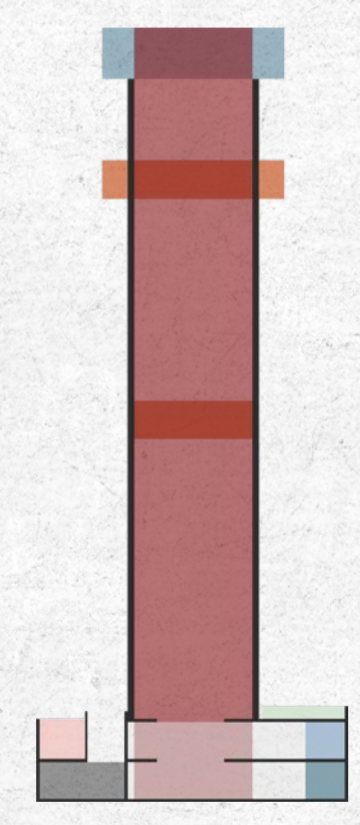
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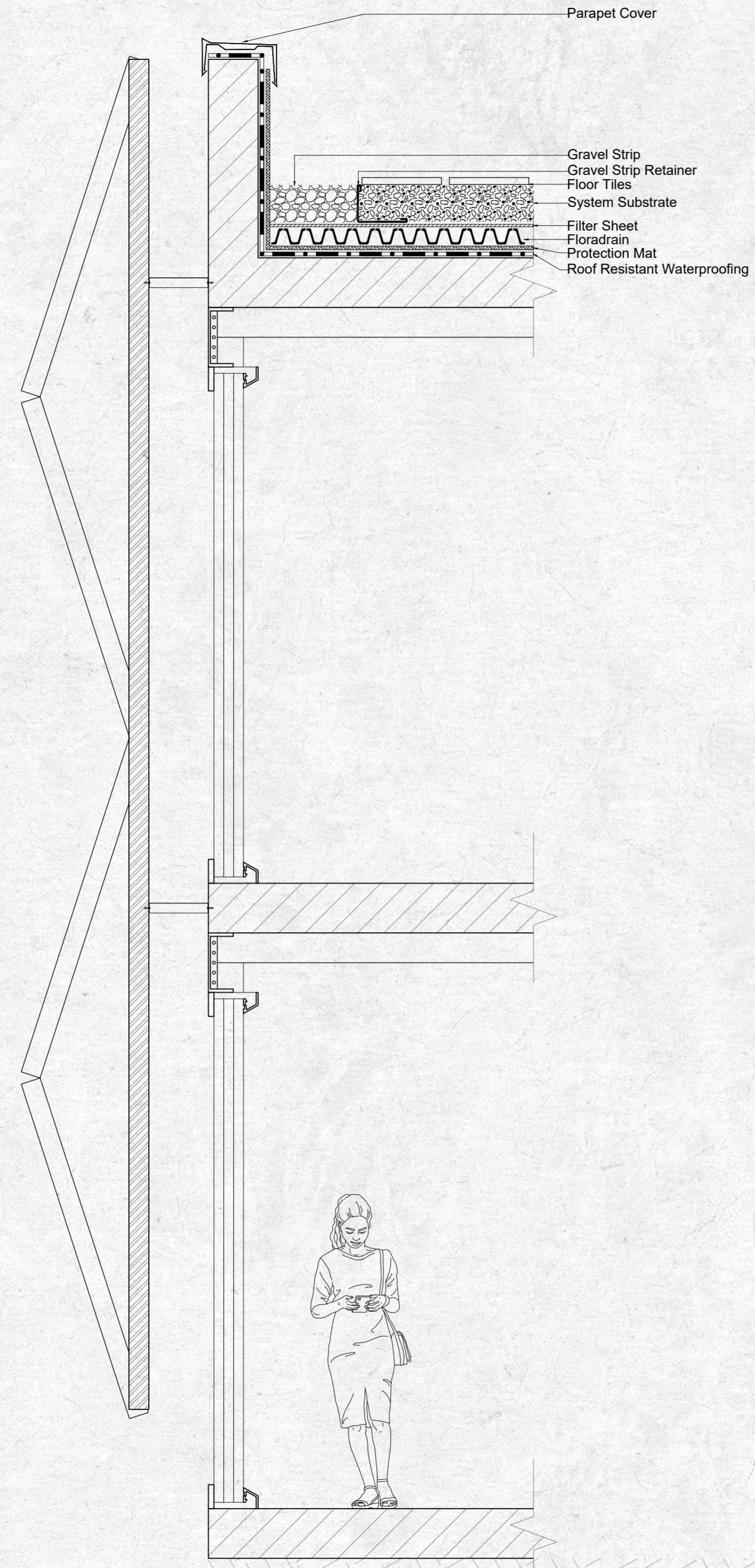


Terminal Waiting Area Mini 'Core' Core Bike Parking Control Room Convenience Store Cafe Lounge Garden Bar Viewing Deck

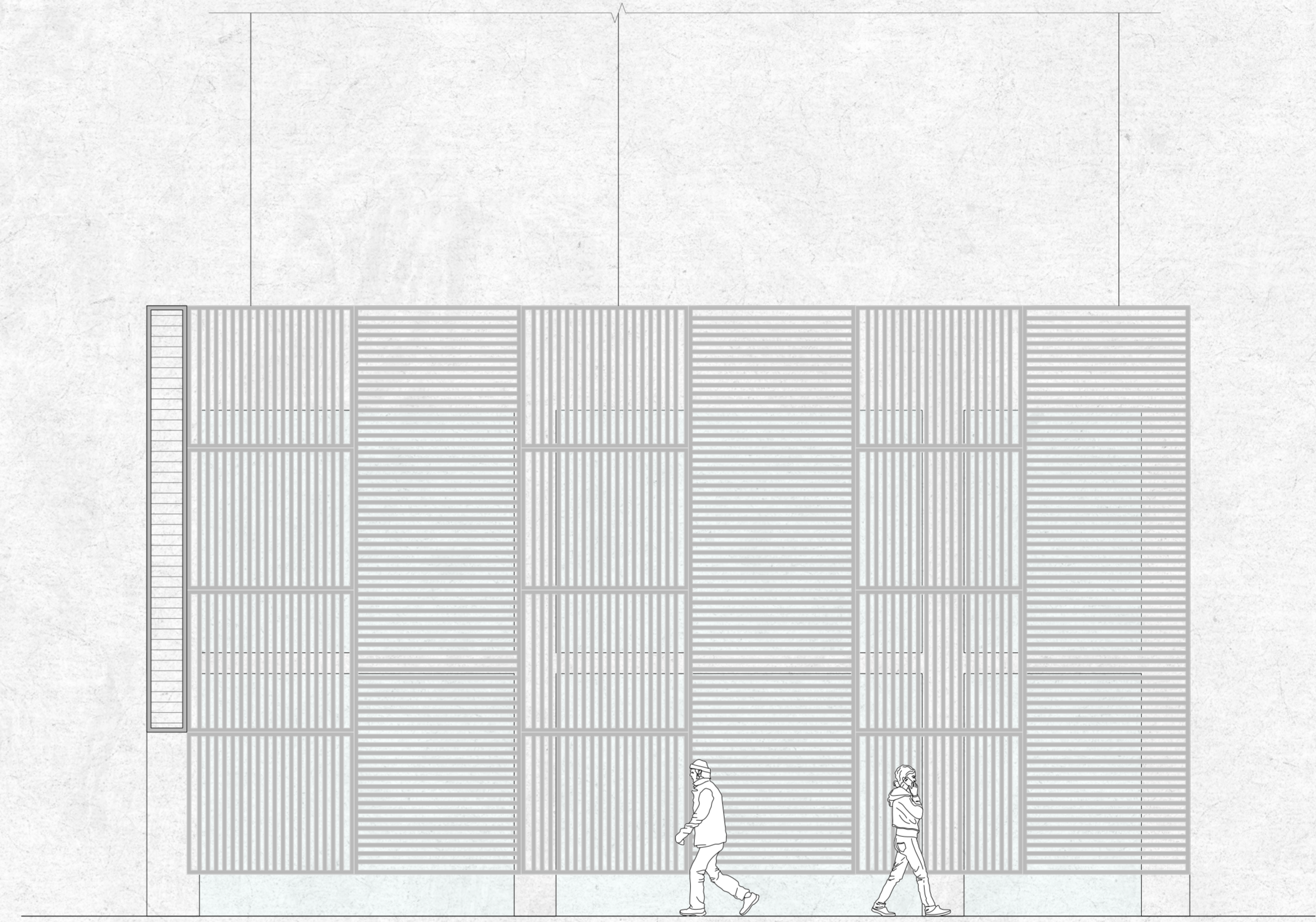


Section BB'

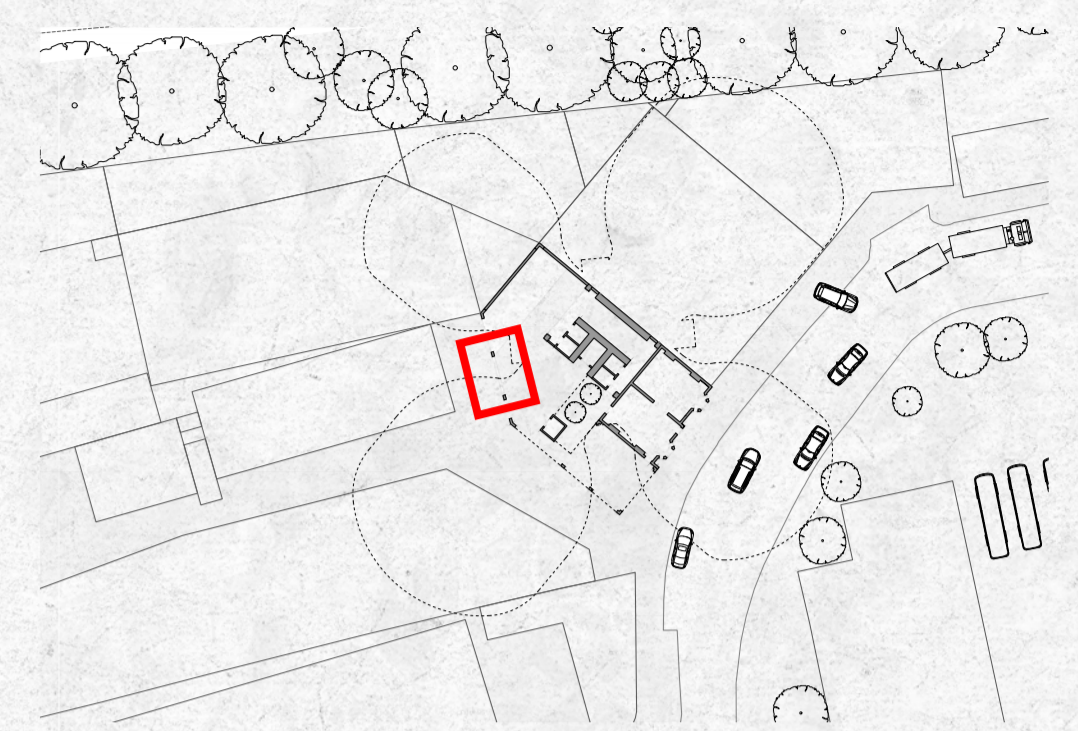




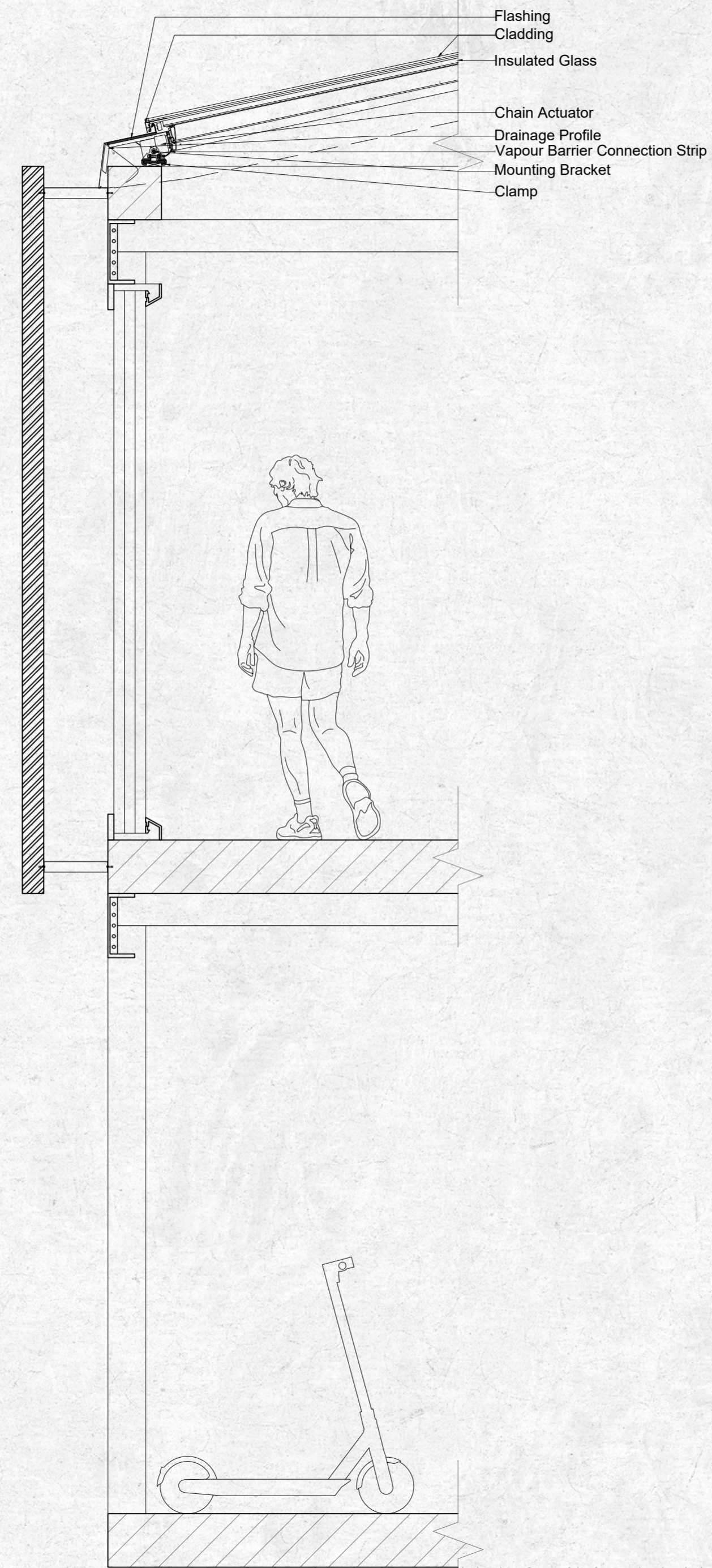
Detail A
Section @ 1:20



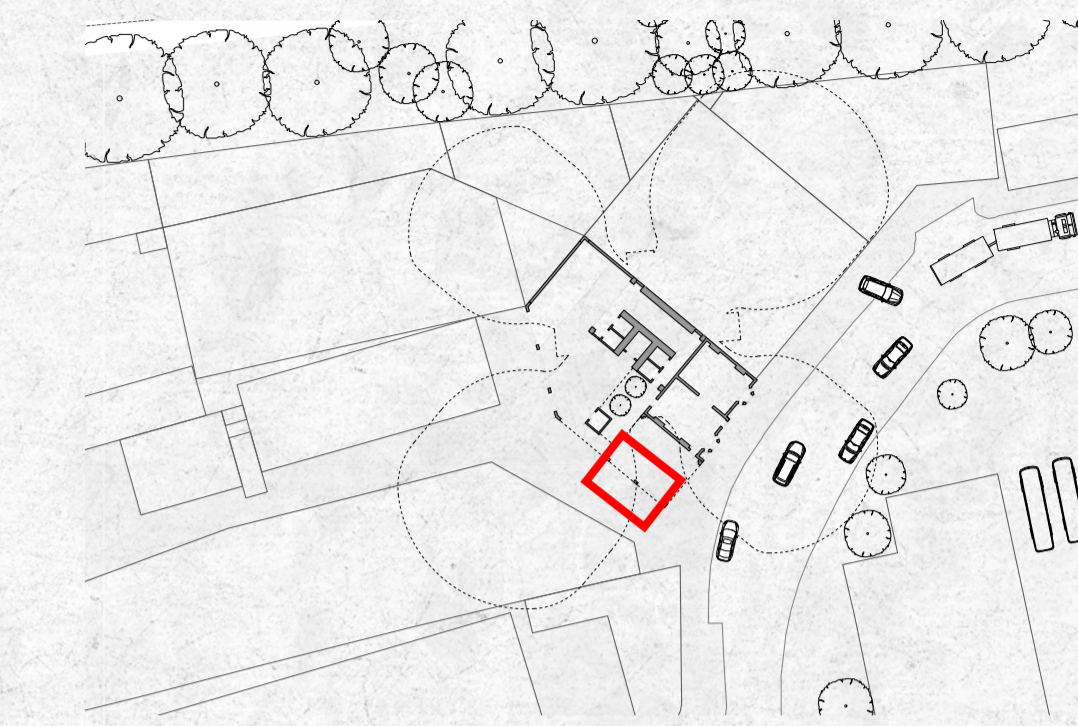
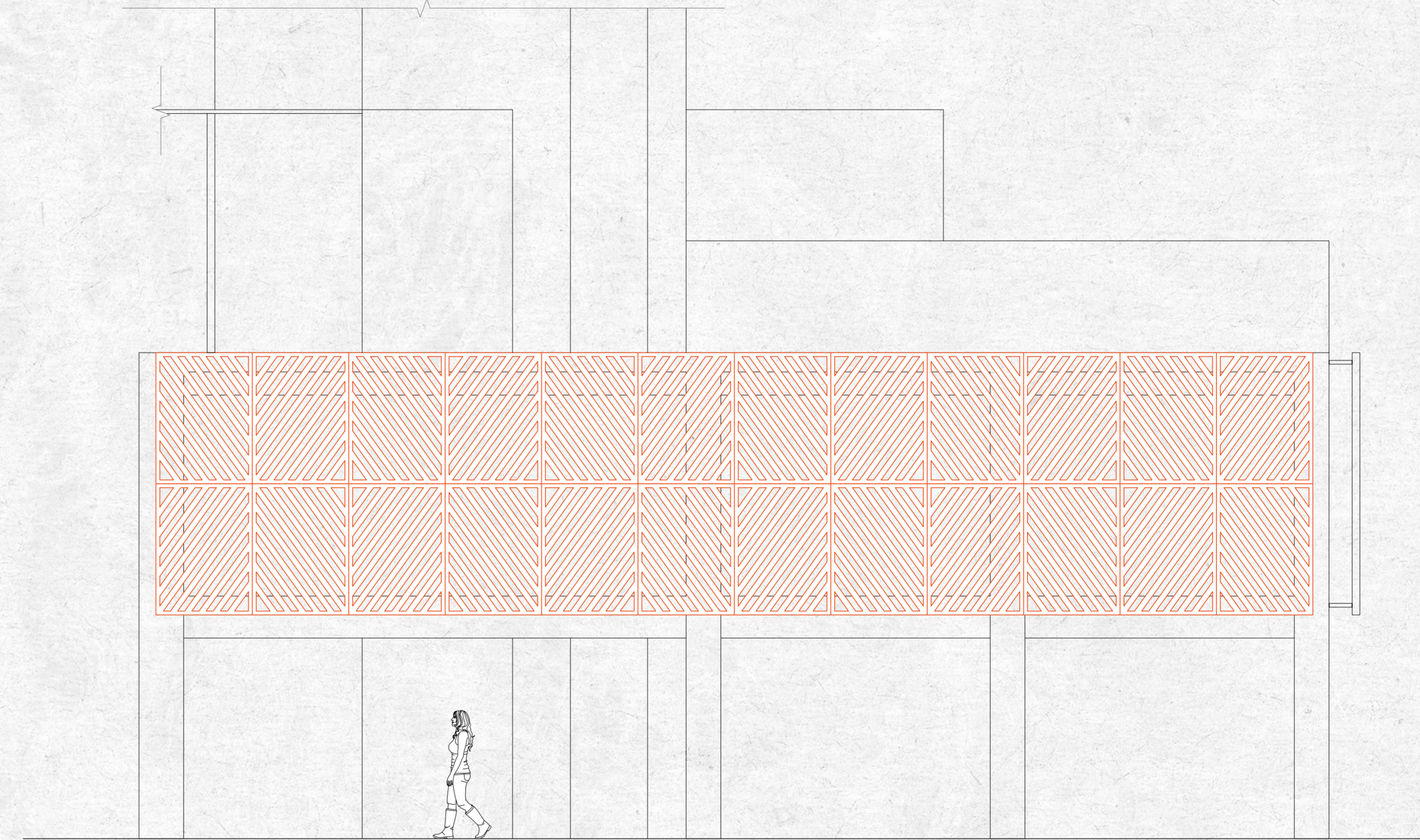
Detail A
Elevation @ 1:50



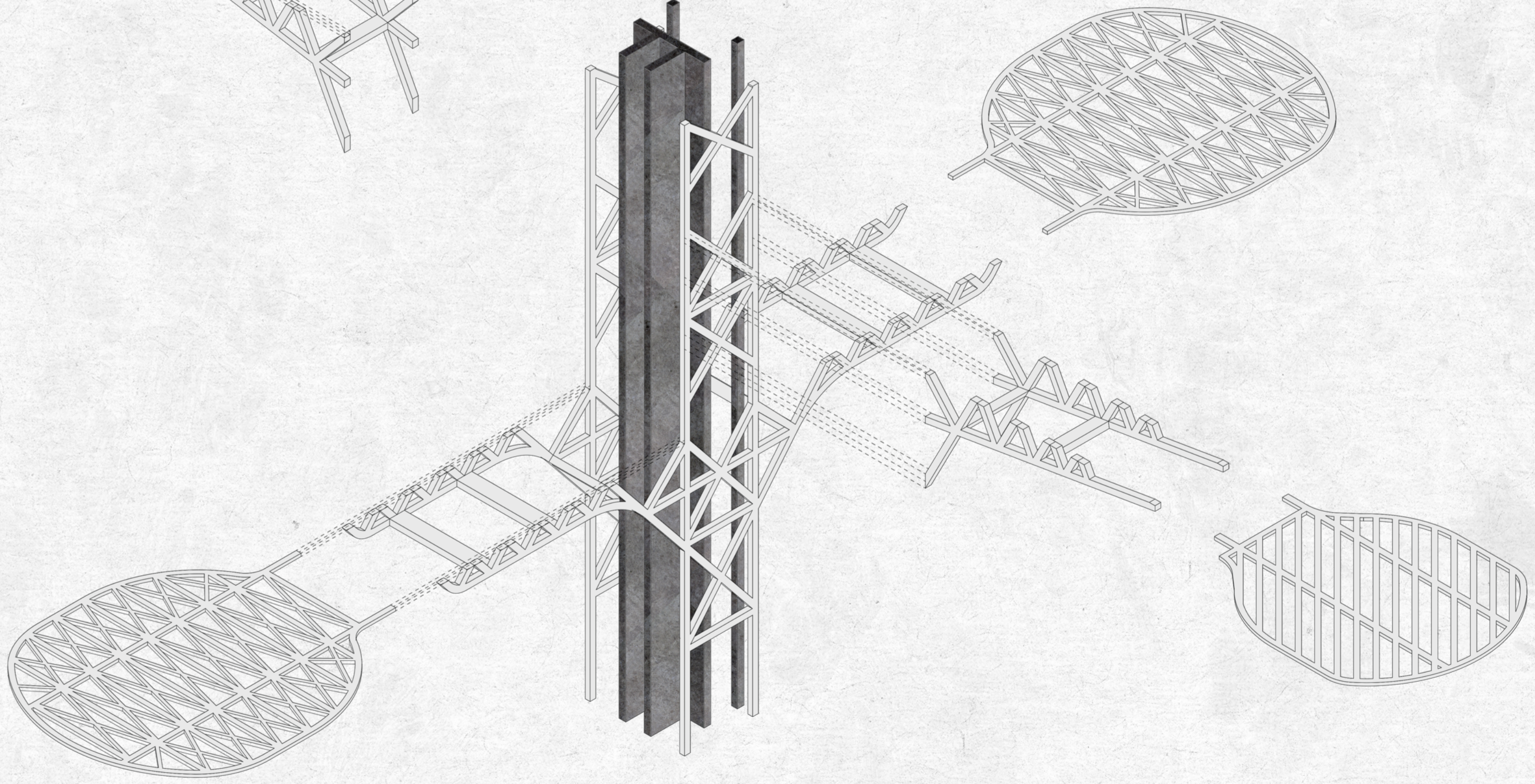
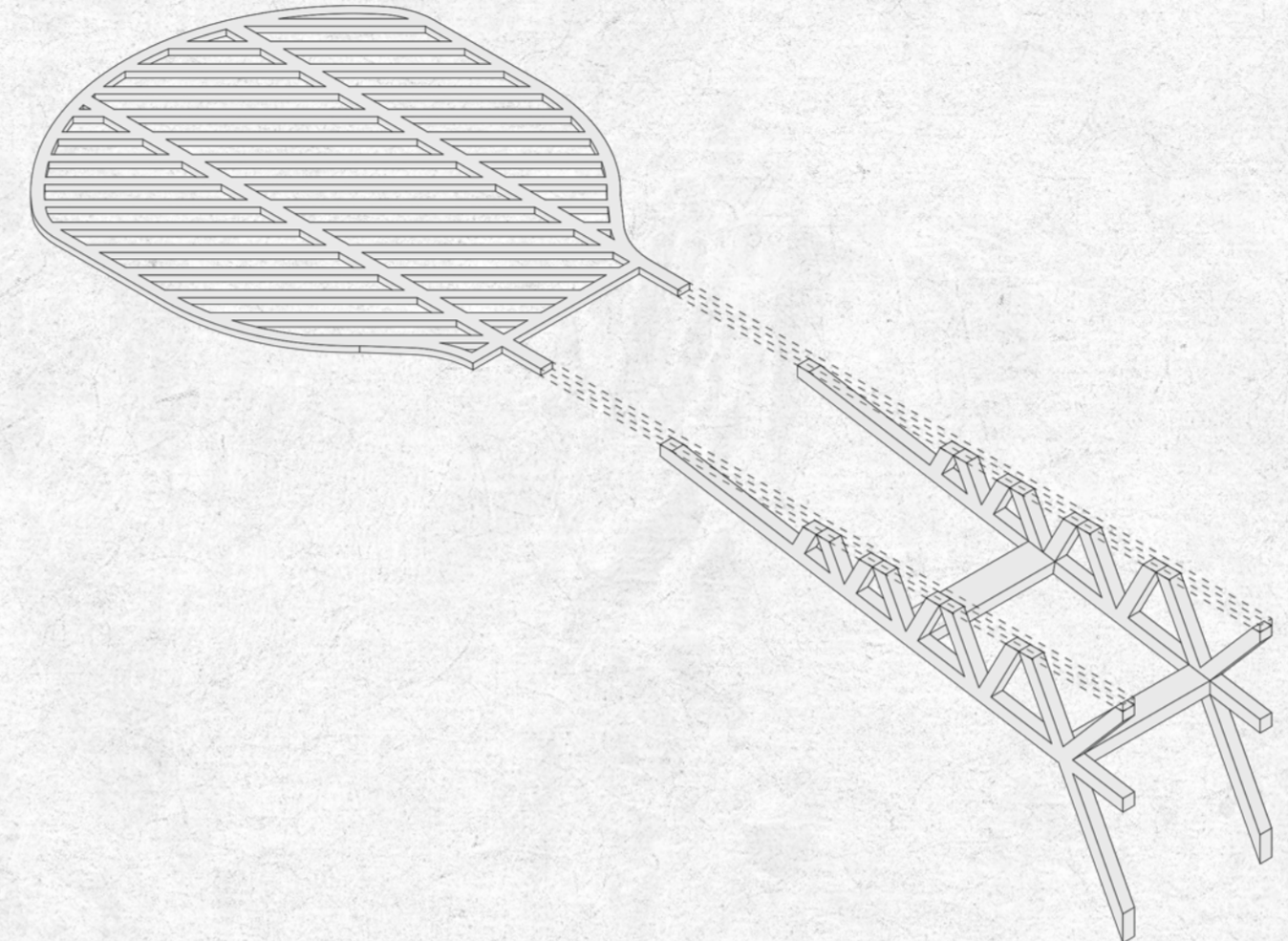
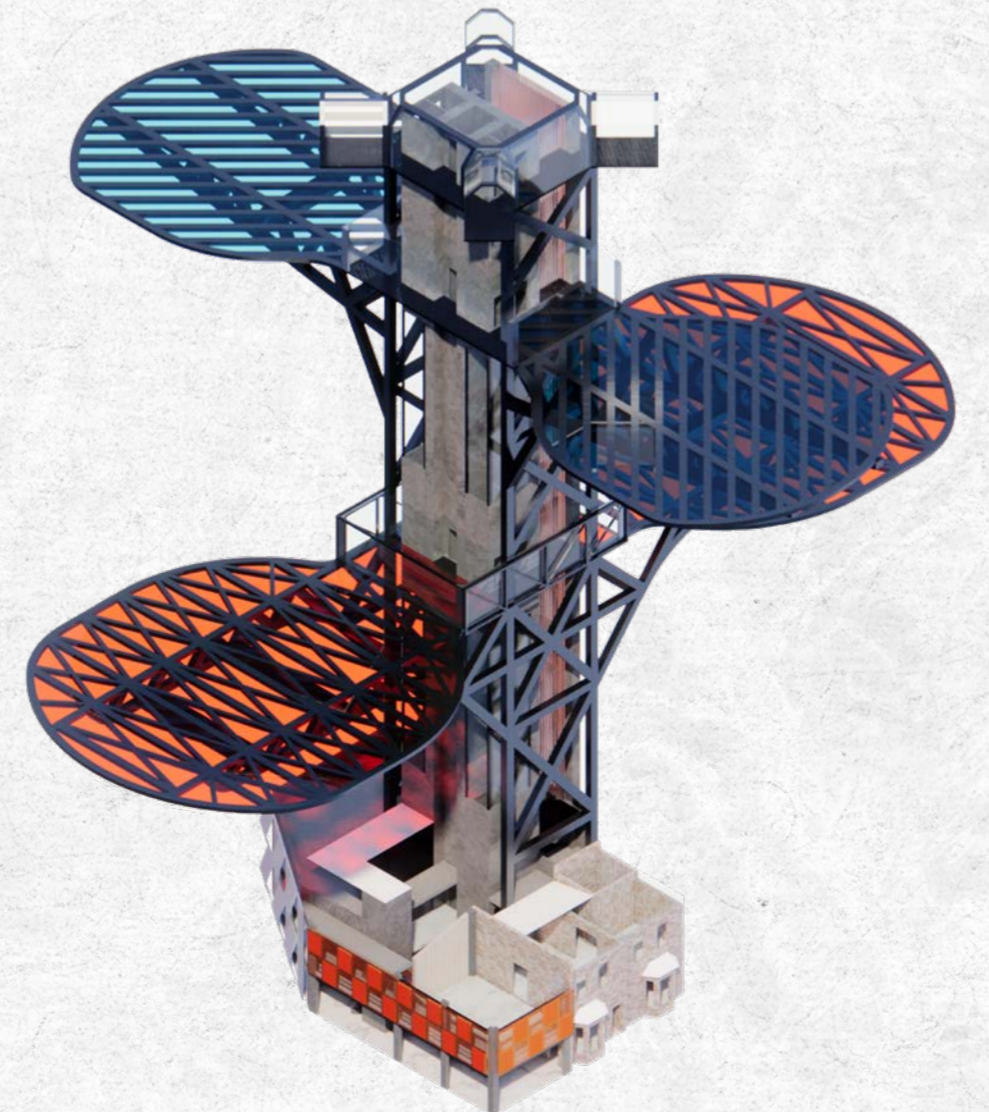
Detail B
Section @ 1:20



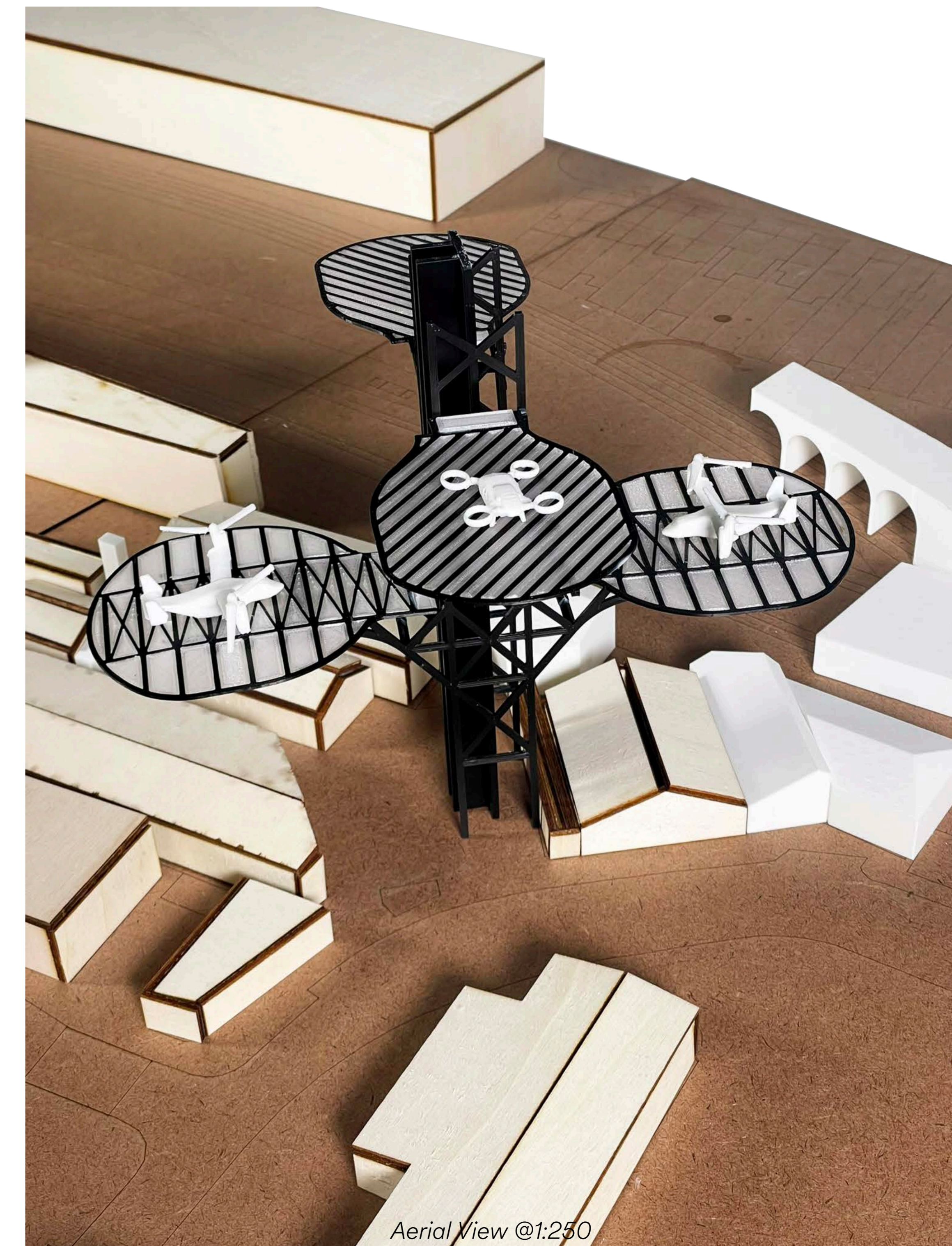
Detail B
Elevation @ 1:50



Exploded Axonometric



Visualisation

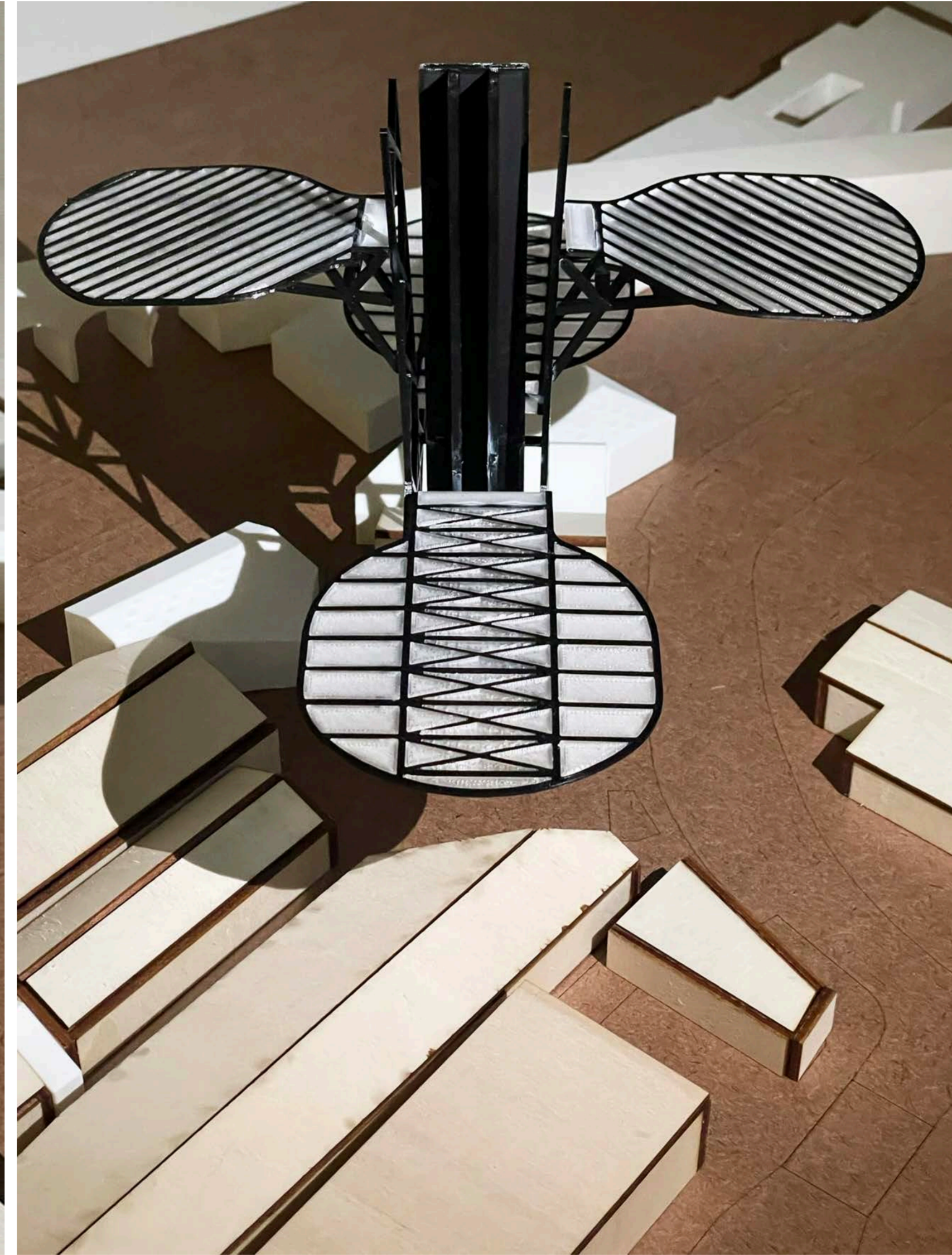




Aerial View @1:250



Street View @1:250



Experimenting with light



Plan @1:250

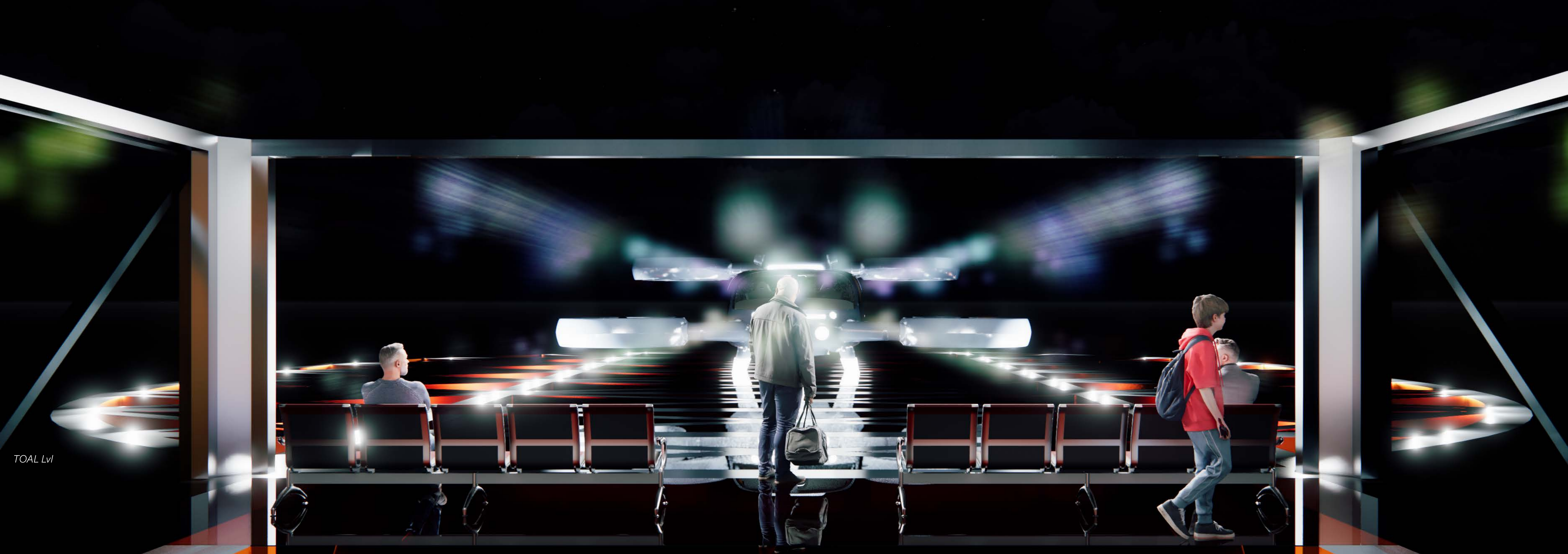
Interior



Lounge

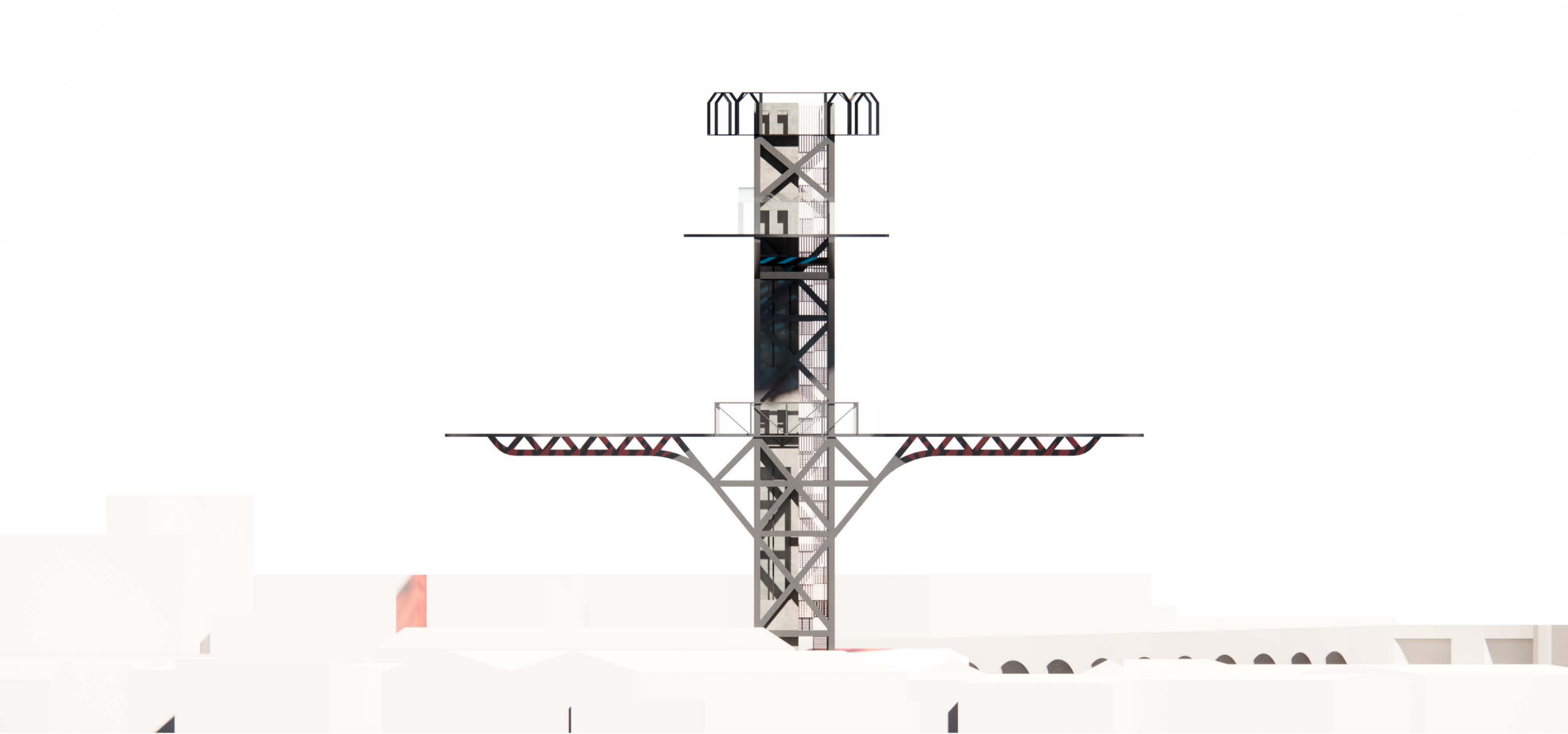


Viewing Deck

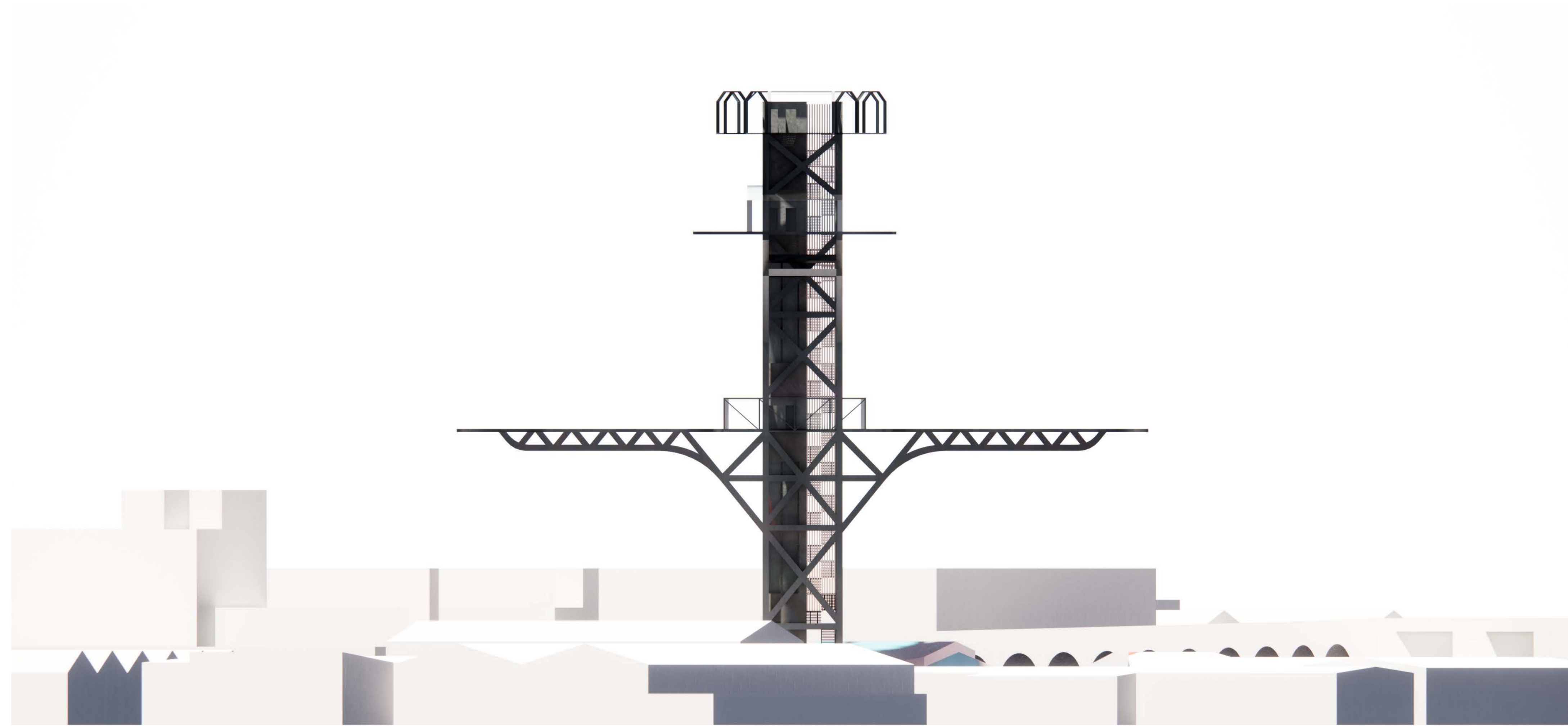


TOAL LVI

Front Elevation

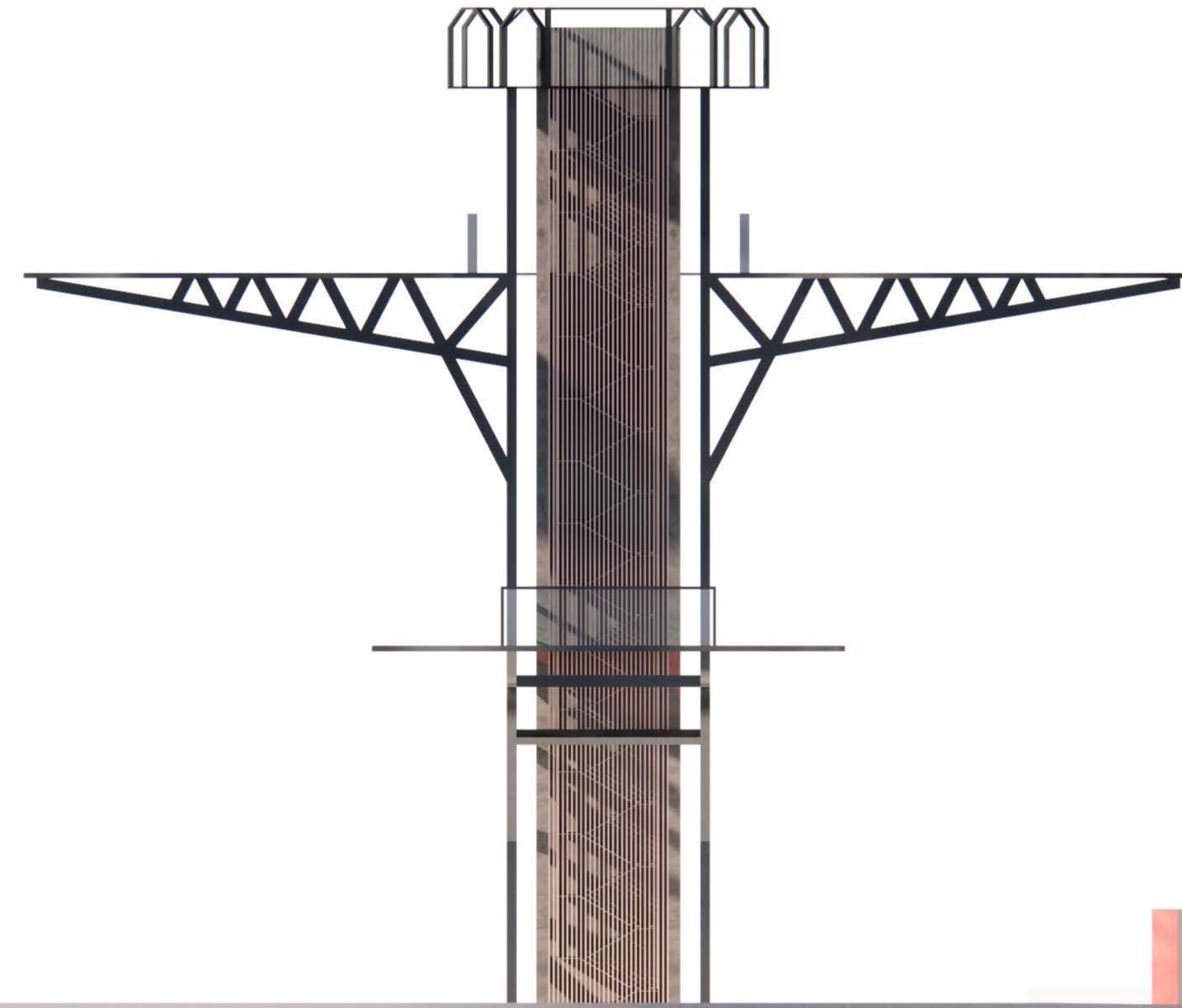


Morning

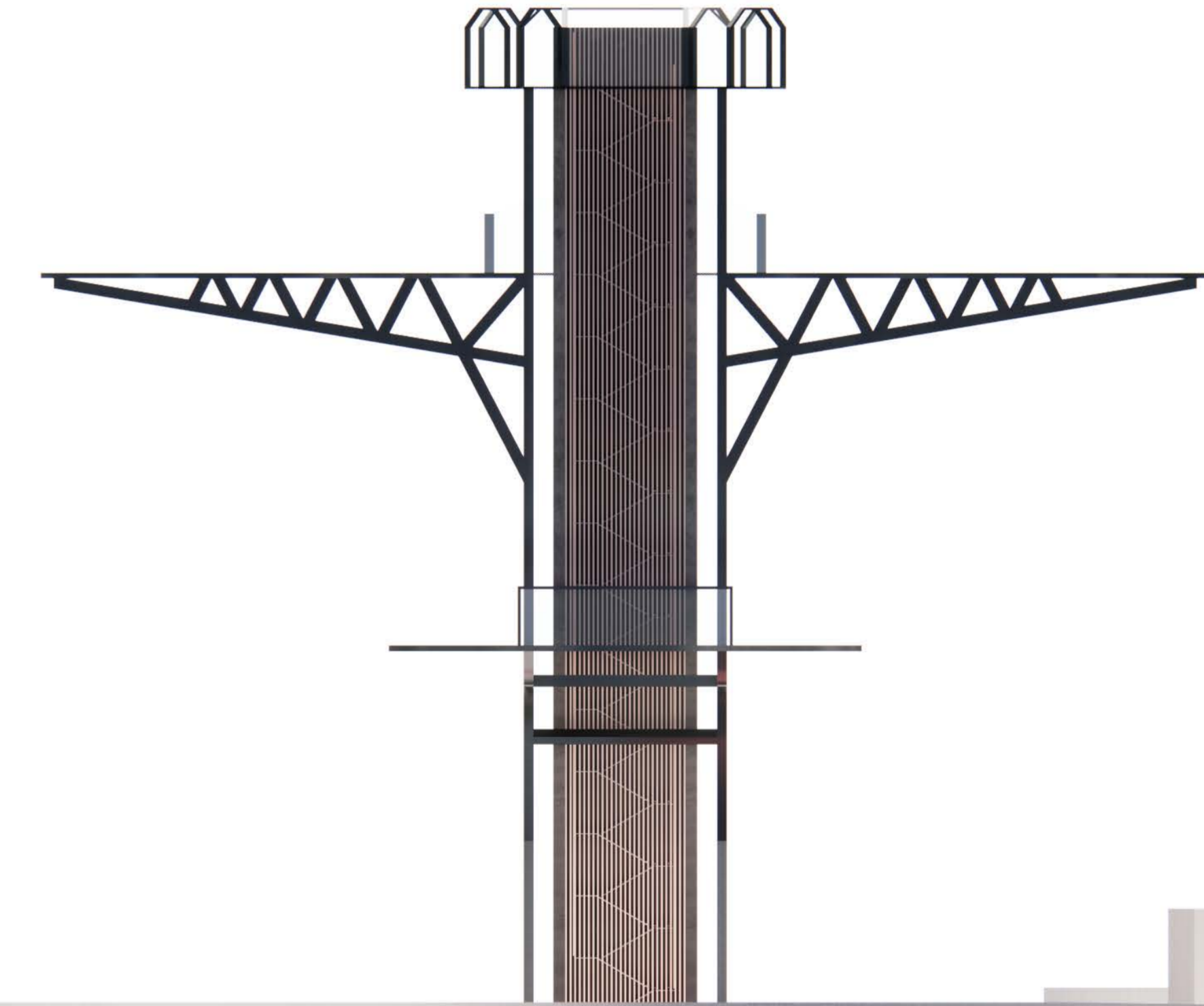


Midday

Side Elevation



Morning

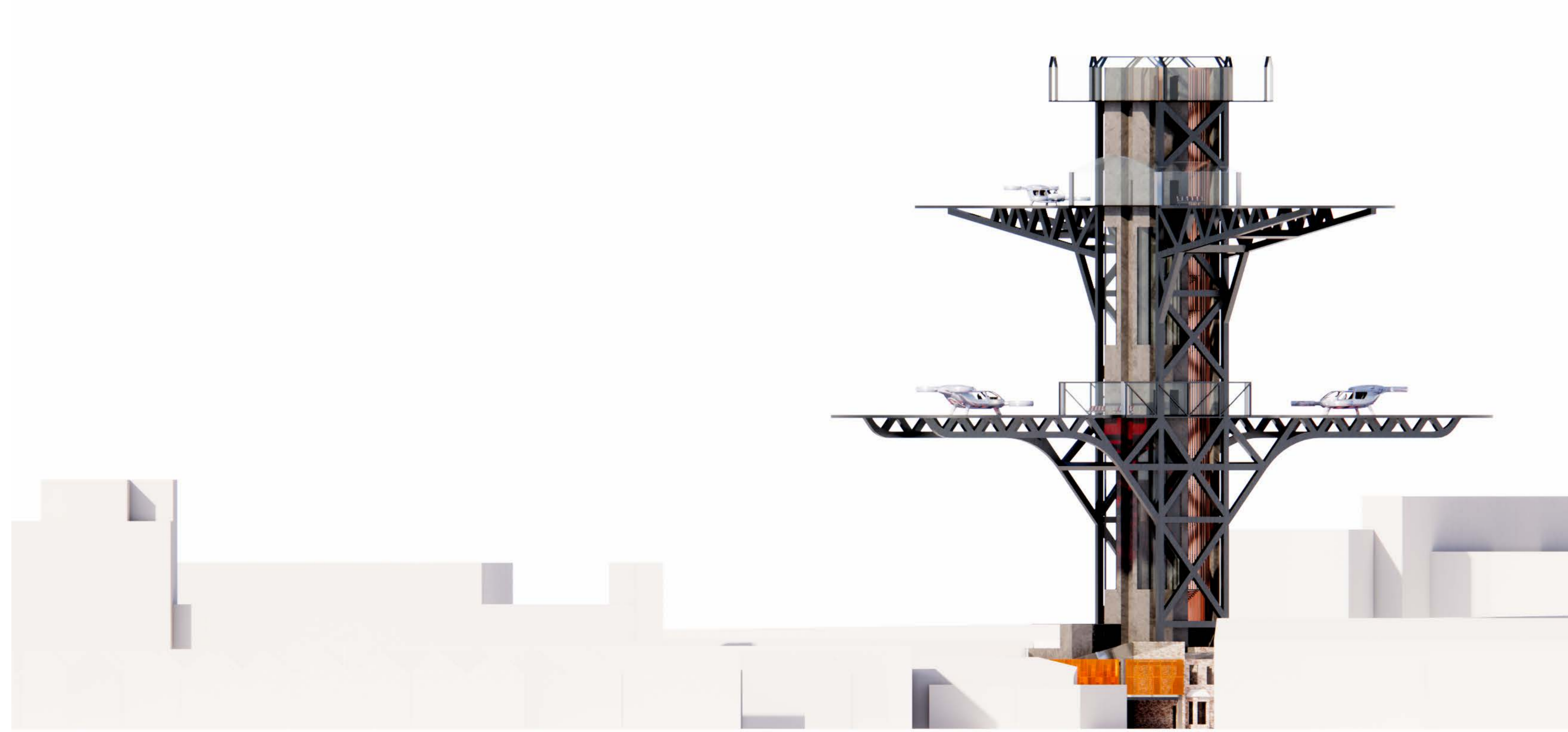


Midday

Street Elevation - Bournemouth Rd



Midday



Midday Evening

Terminal Facade Elevation



Morning

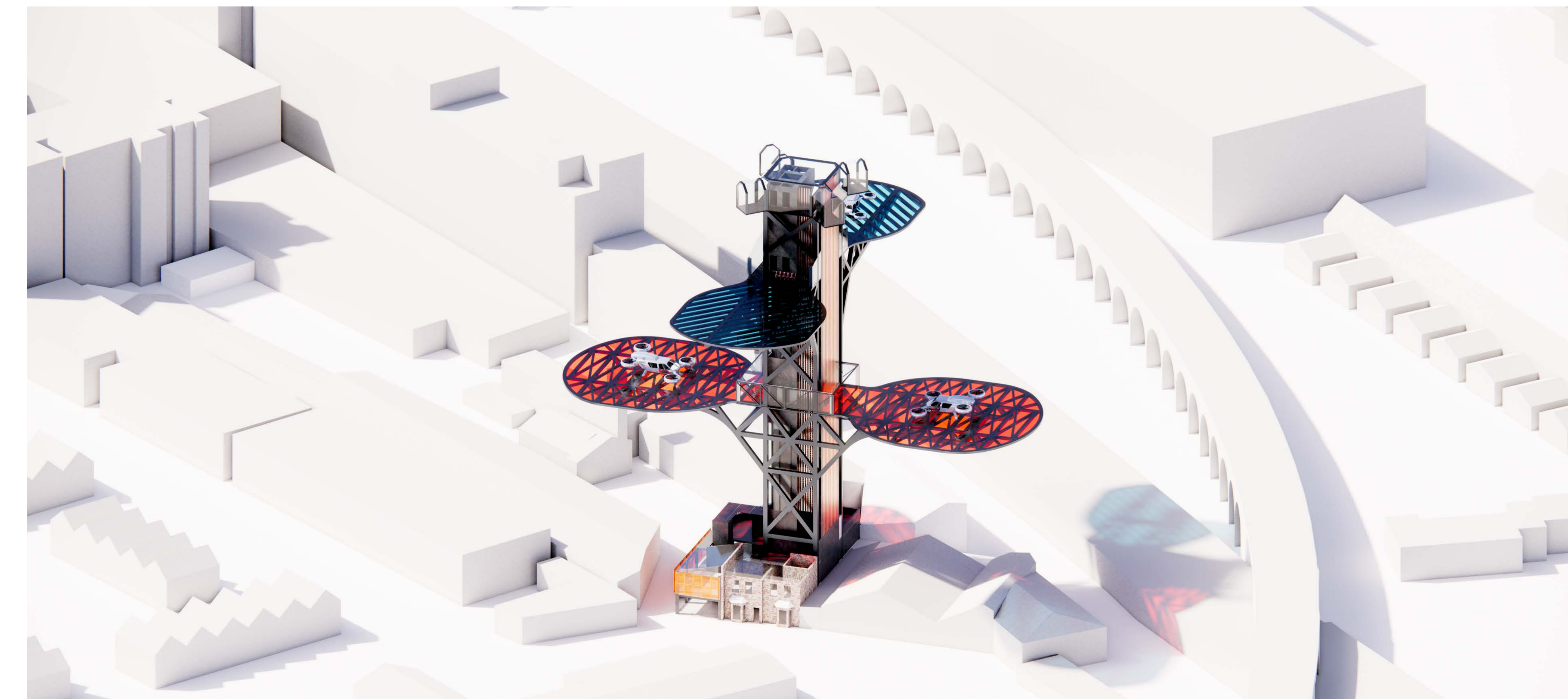


Midday

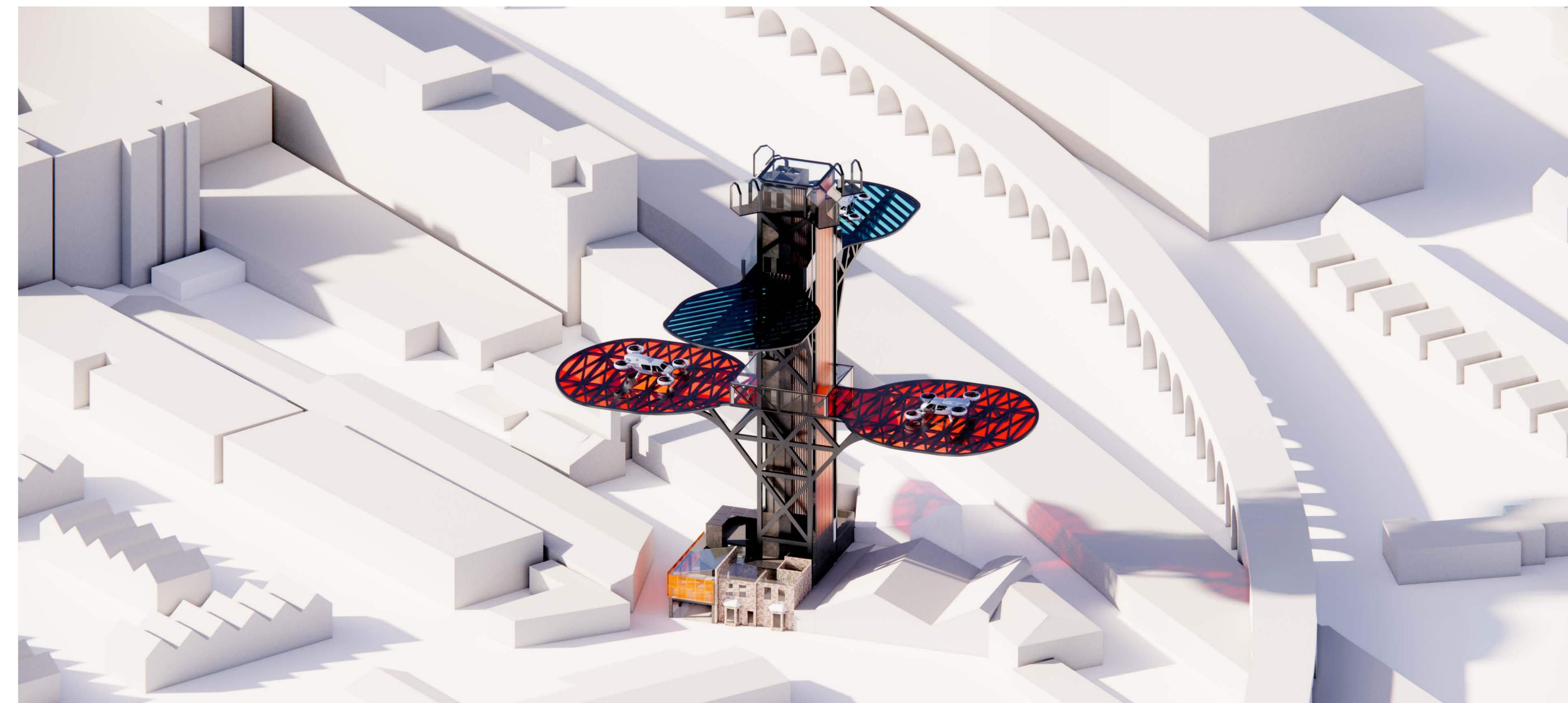


Evening

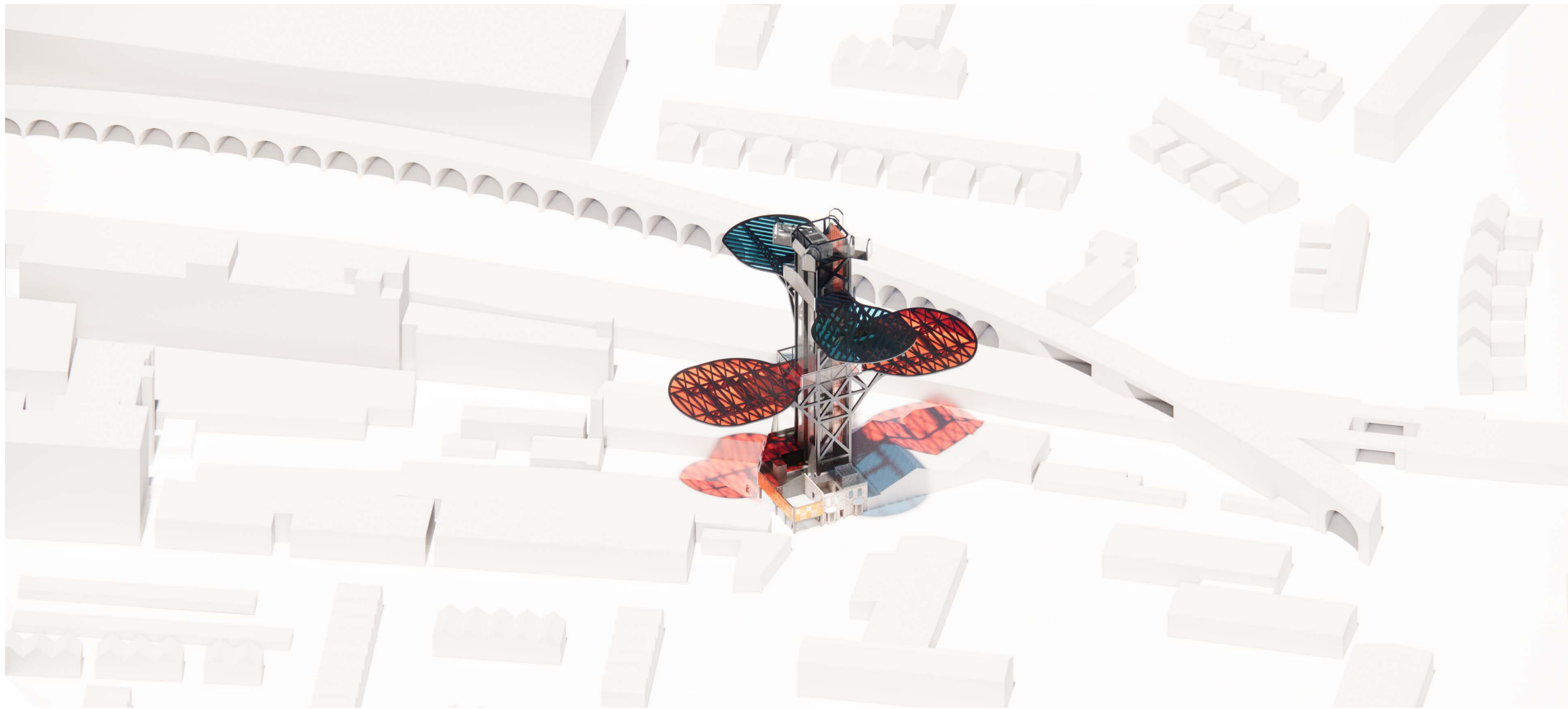
Aerial Views



Midday



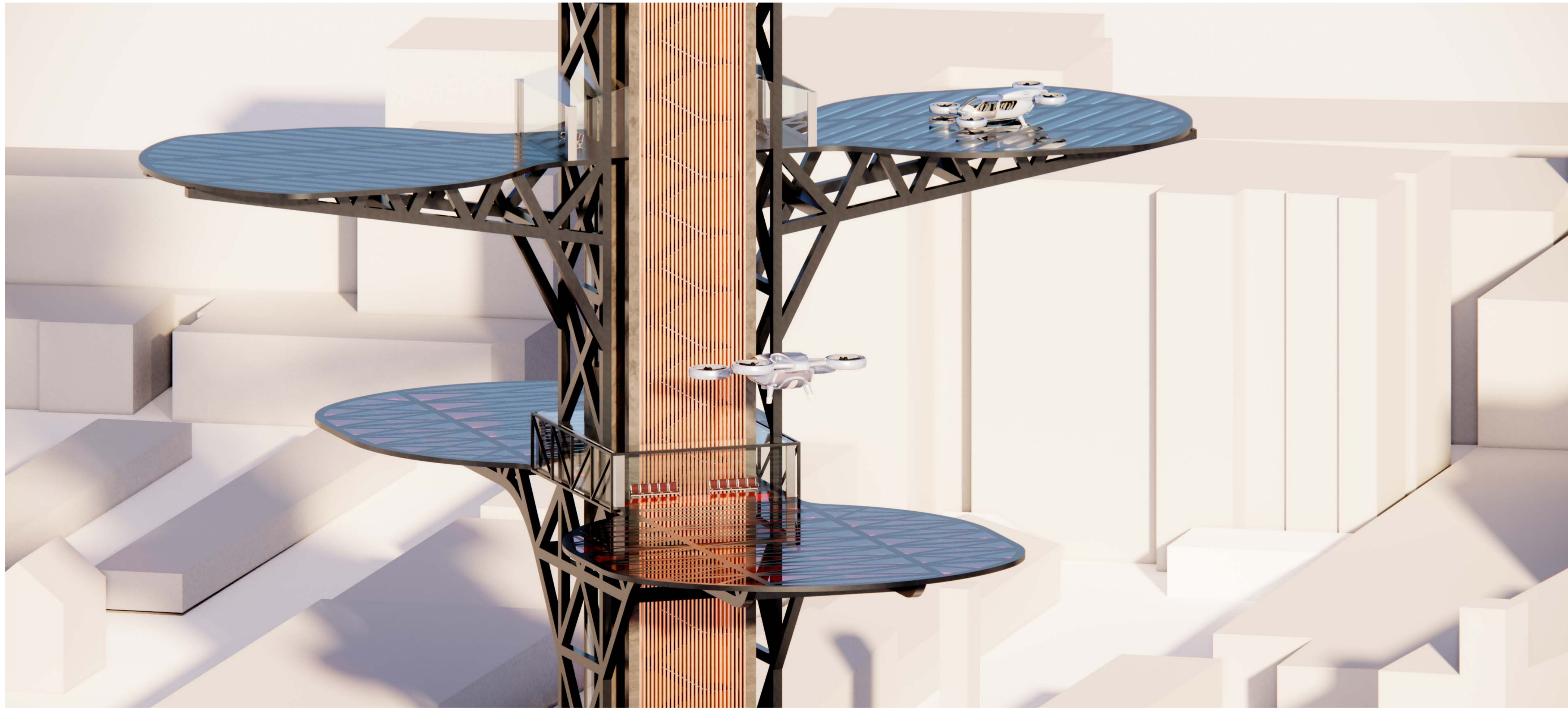
Evening



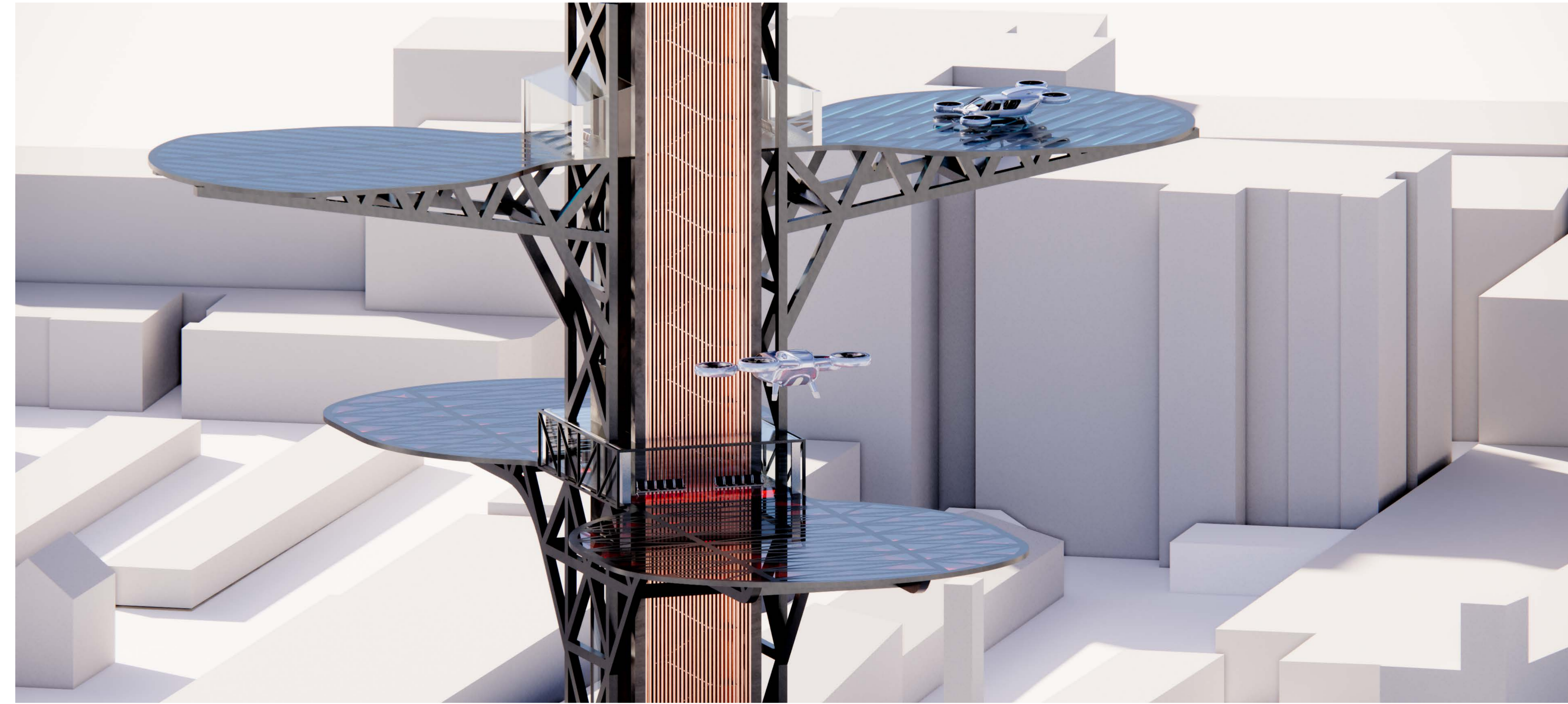
Midday



Late Evening

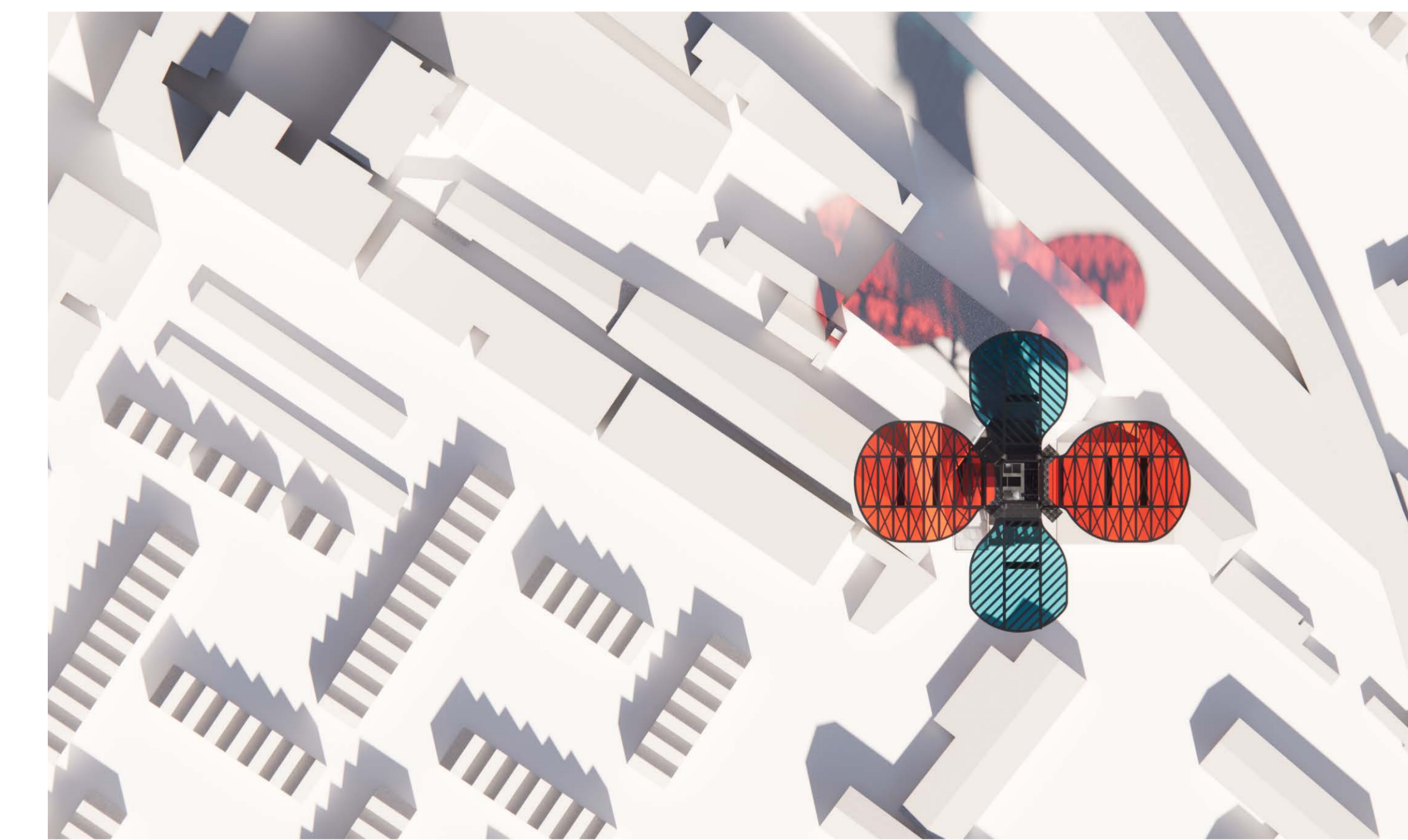


Morning

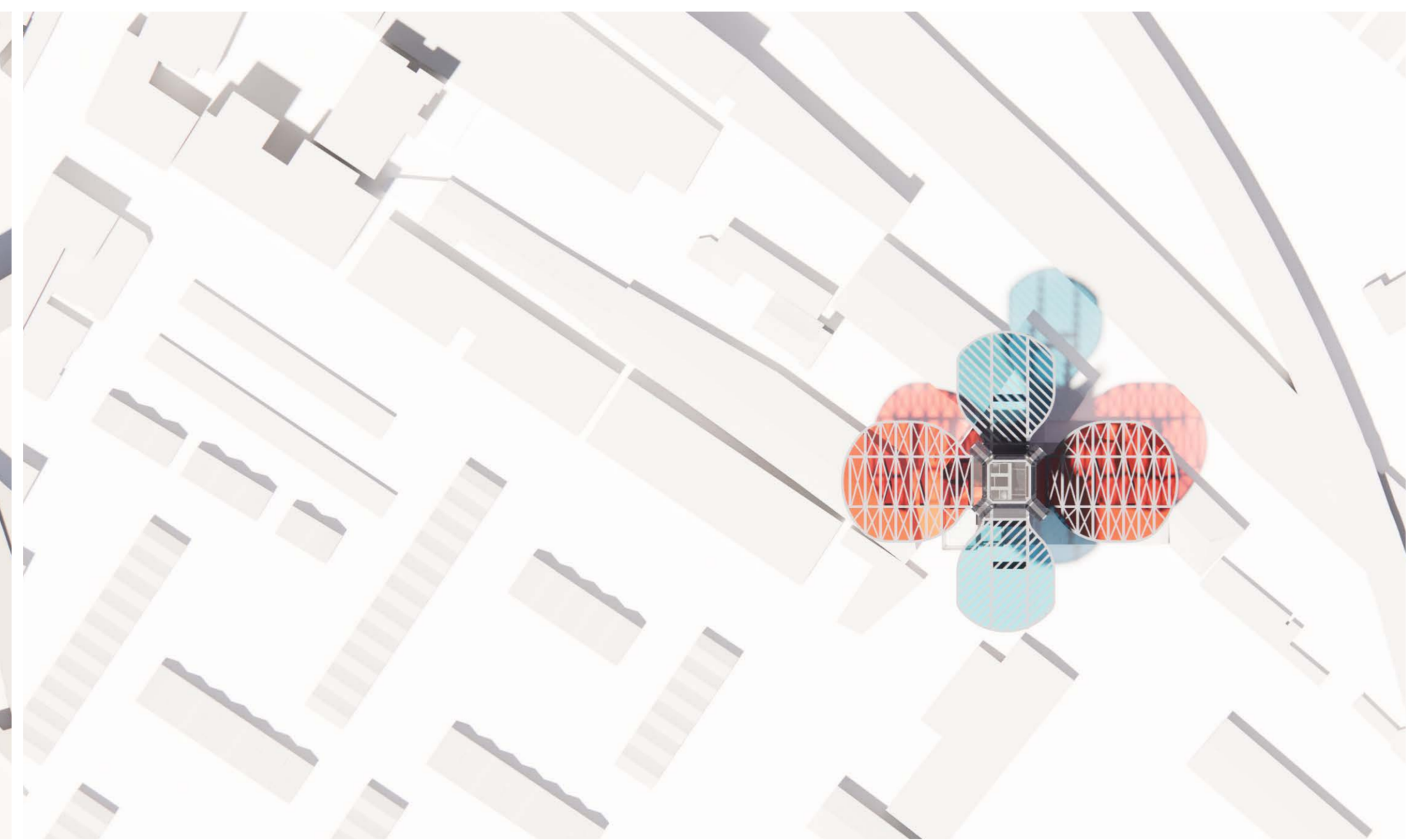


Evening

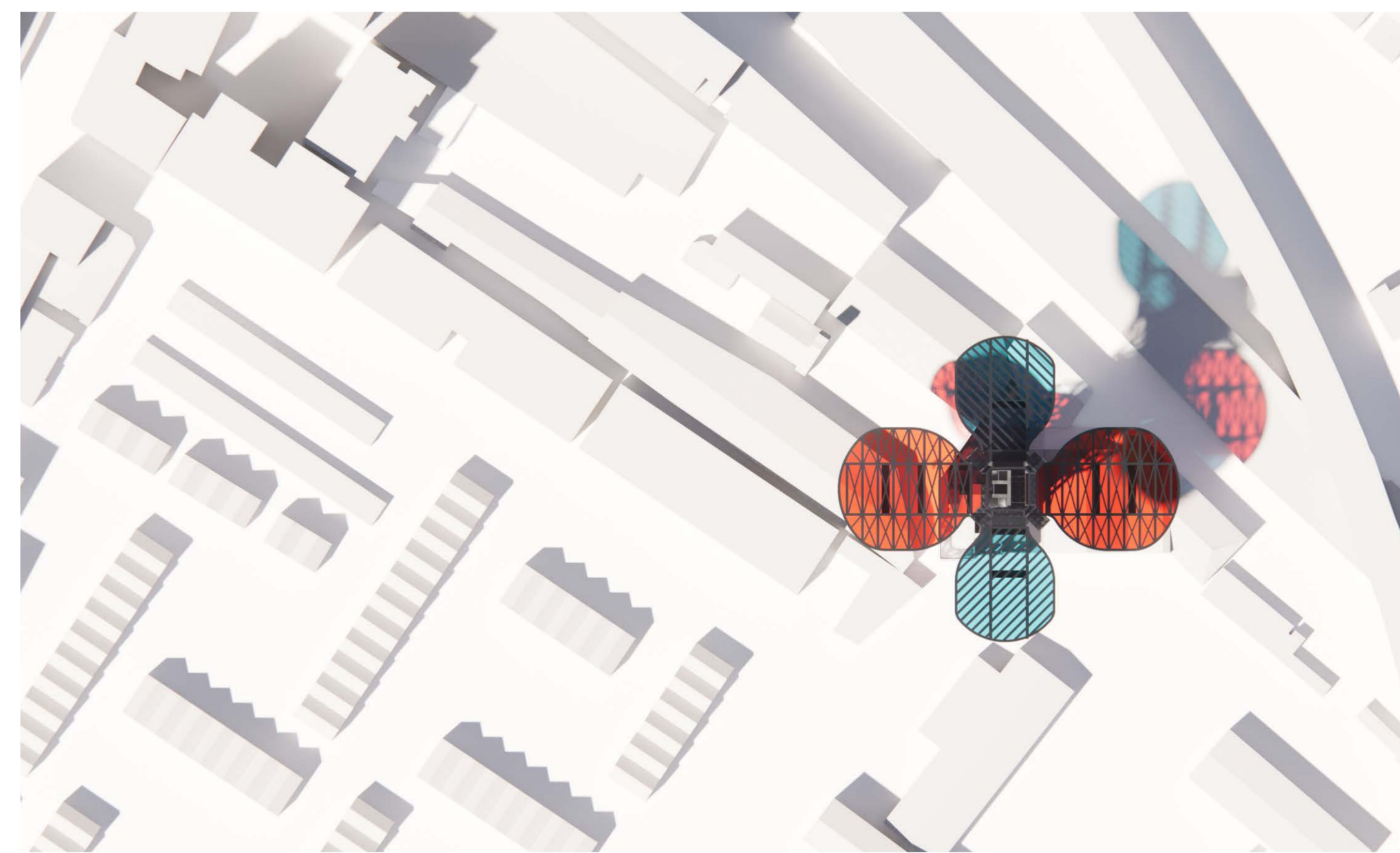
Plan



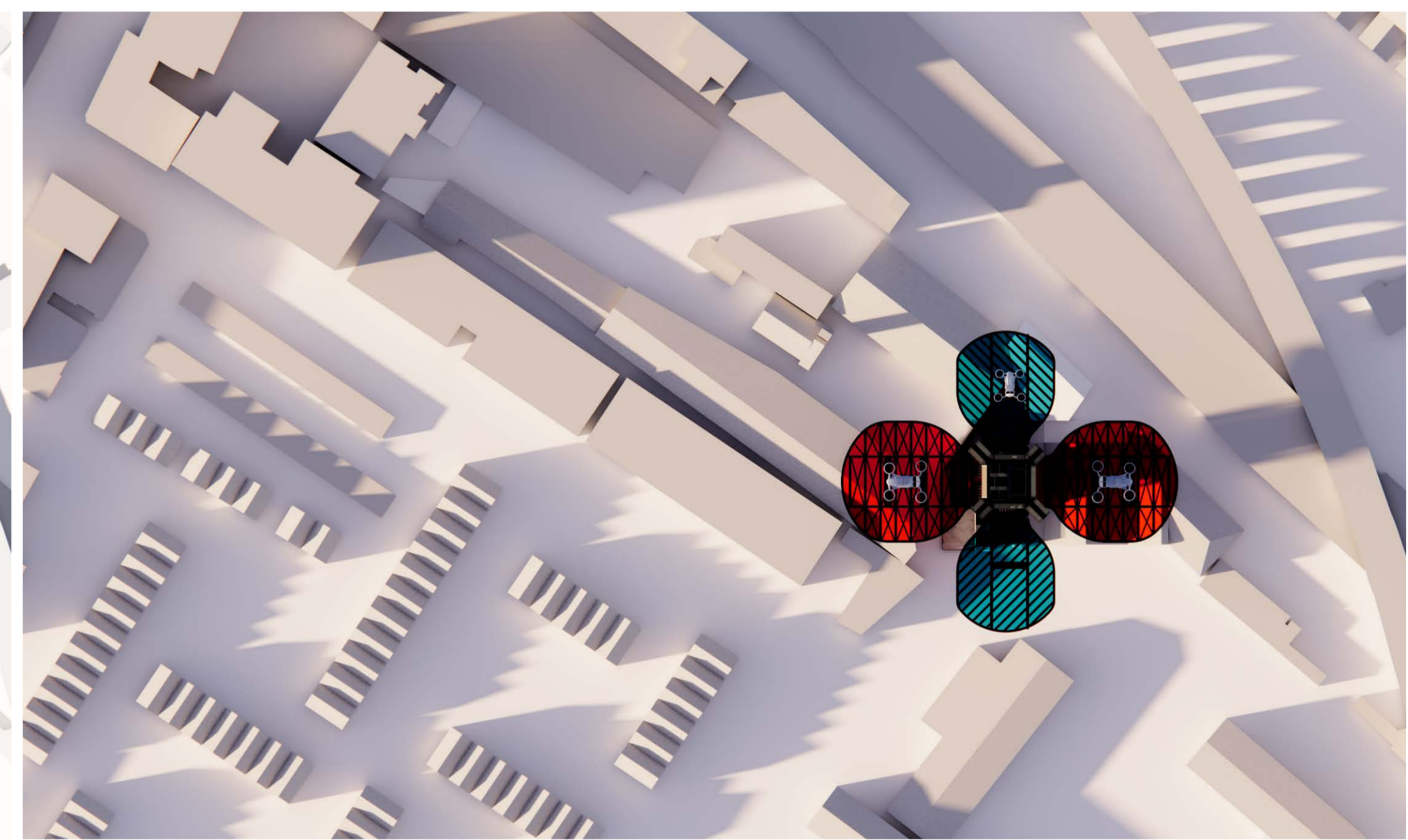
Morning



Midday

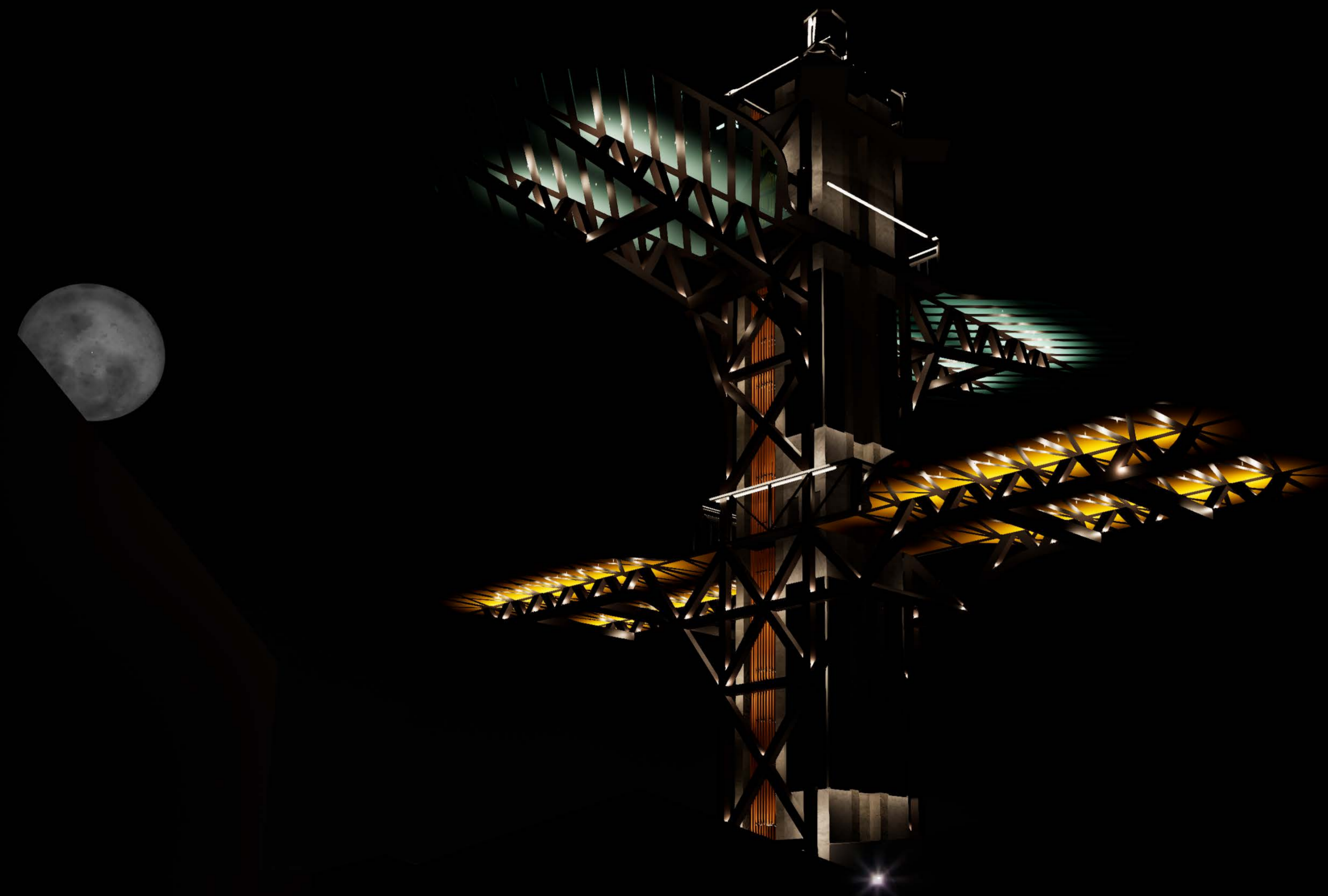


Evening



Sunset

Night Views





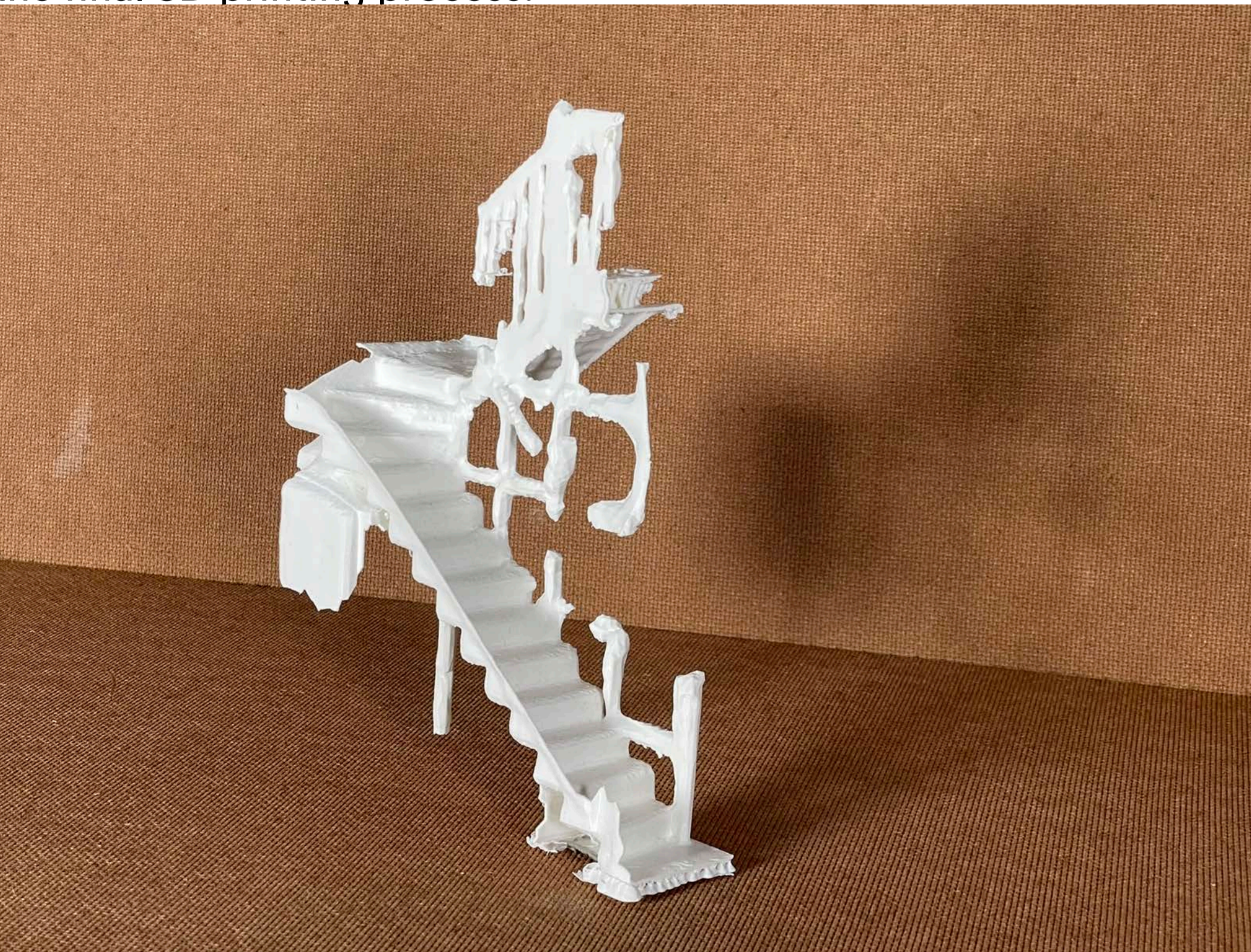
Proposal on Site



Architectural Detail: Site and Staircase

I created a digital model of the site using tools such as Polycam, Rhino, my drone, and my phone. I later 3D printed one of the scans I captured of the staircase inside the Safehouse.

Throughout this project, I learned the complete workflow of 3D printing - from site scanning to the final 3D printing process.



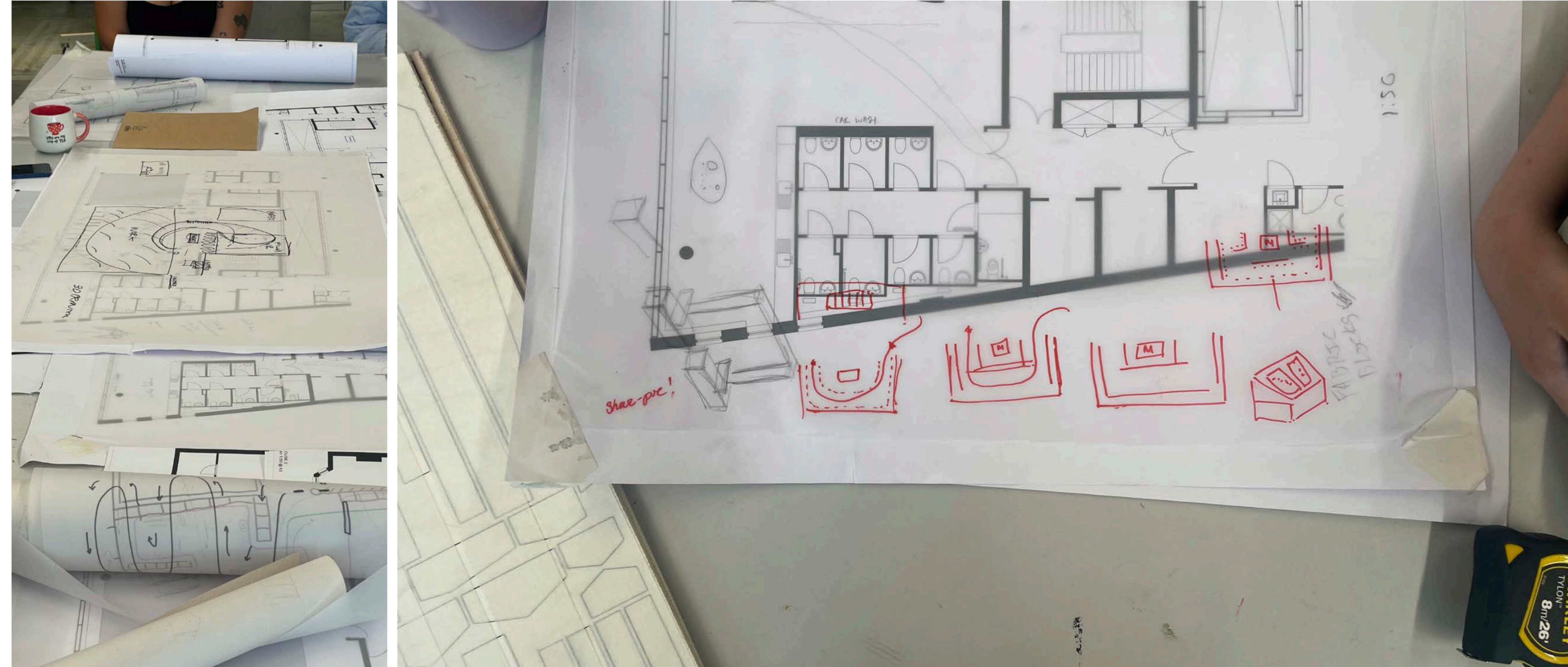
Existing Staircase



*1:50 Section of the existing structure of the Safehouse.
Produced by Year 3.*

Exhibition Design

Working on the exhibition design was a valuable experience, particularly knowing it would be realised. What I enjoyed most was the collaborative process - sharing ideas, solving problems together, and seeing our individual contributions merge into a cohesive design that reflected a range of perspectives and strengths.



I was part of the curation team, contributing to the development of concepts and refinement of the exhibition design. My responsibilities included helping shape the spatial arrangement and supporting my colleagues with CAD-related tasks.



I helped build a mock-up of the proposed design within the space to evaluate its visual impact and spatial arrangement. During this process, we tested out different ideas and configurations to explore what worked best in the context of the exhibition.

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