DJ FAN PORTFOLIO

Columbia GSAPP **M.Arch** **2022-2025**

May 2025
by DJ Fan in New York
Columbia GSAPP M.Arch 2025

xf2245@columbia.edu / djfanxk@gmail.com
New York, New York 10025
+1 (332) 225 5025

Thanks to
Columbia University
Graduate School of Architecture, Planning and Preservation
1172 Amsterdam Avenue
New York, New York 10027
+1 (212) 854-3414

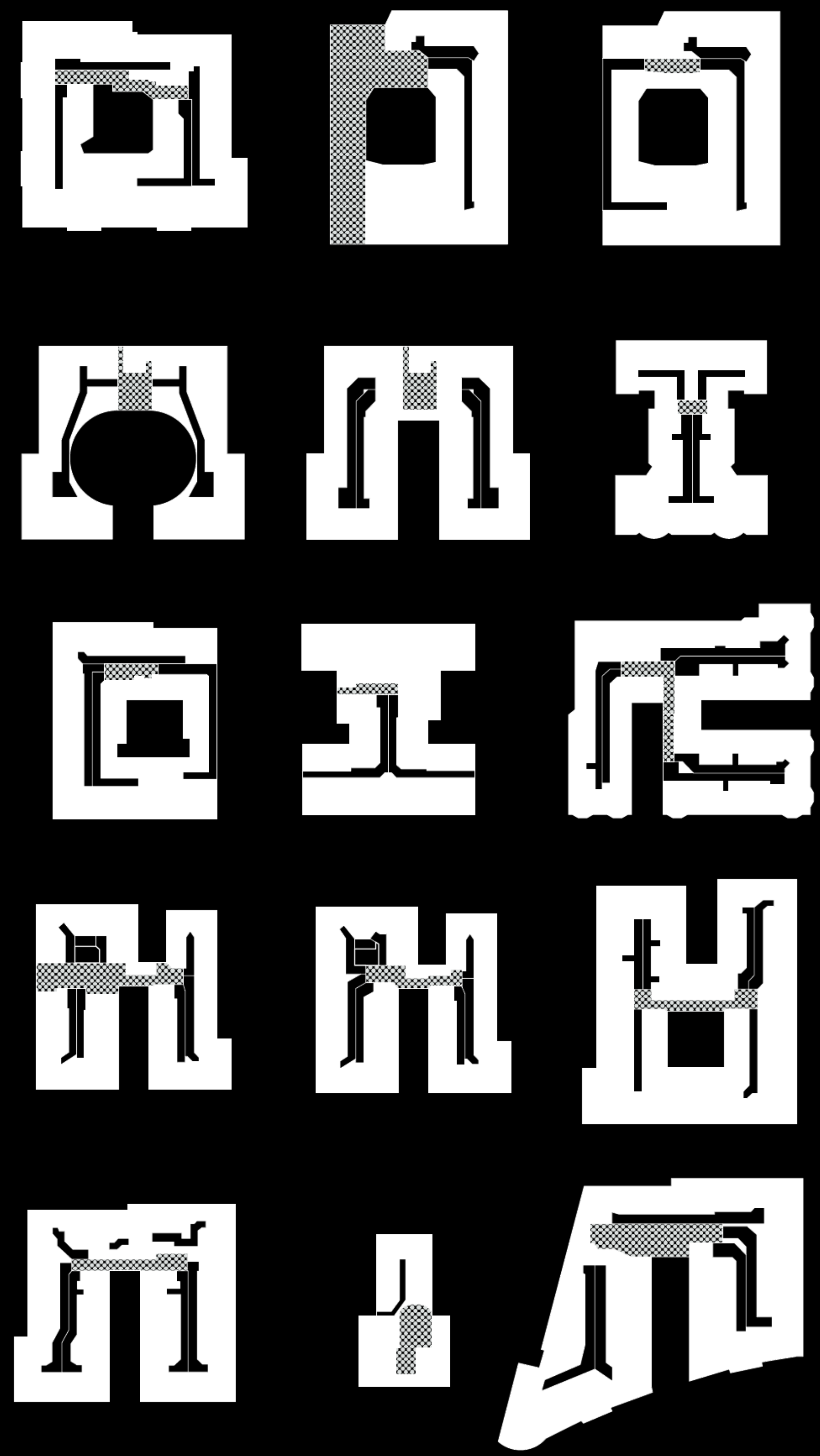
With gratitude to
Amina Blacksher
Regina Teng
Hilary Sample
Mario Gooden
Lucia Allais
Robert Marino
Amale Andraos
Jaeyu Kim
Jerry Schmit
Darwin Eng
Yonah Elorza
...
and so many others in and around GSAPP whose support and insight shaped this work.

Contents

1

2

3



I.

VACANT HOUSE
Housing

2023 Fall
Columbia GSAPP / Core III Studio
Instructor: Hilary Sample
Partnered with Jerry Schmit ❤

THE CLUTTERED CORRIDOR

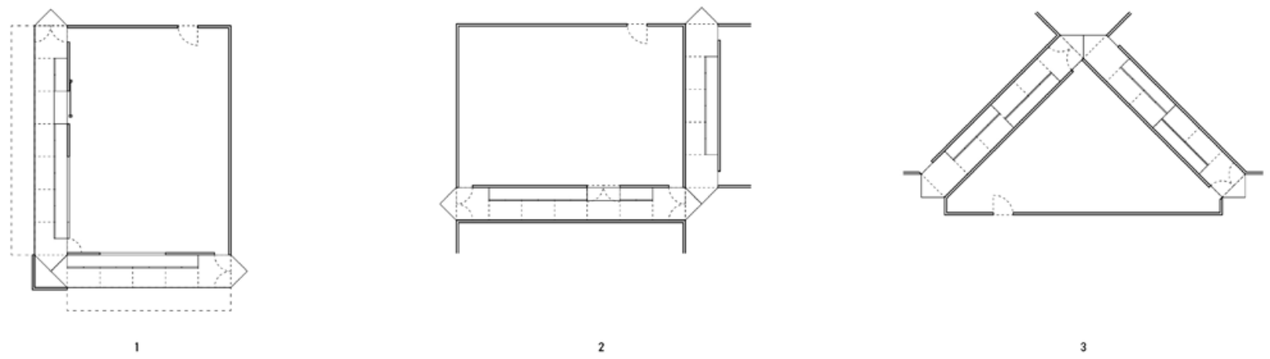
1-2 The Cluttered Corridor
1/4" = 1' Model, paper, 3D-printed PLA
based on NYC 19th century tenant apartment plan

3 Corridor Plan Study
white regions indicate corridor space

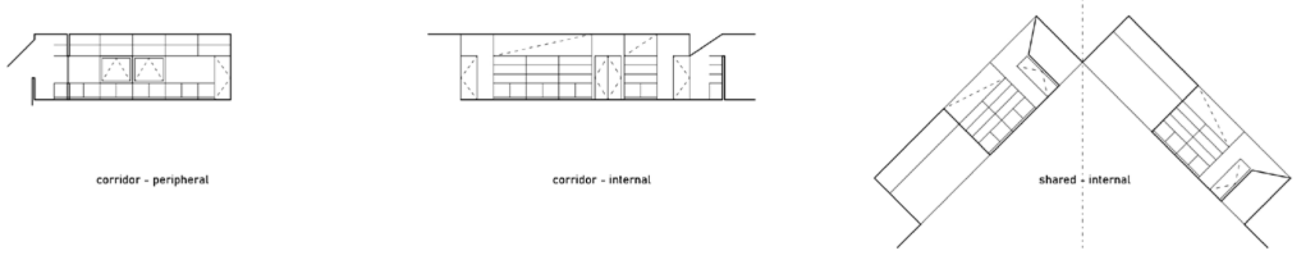
This housing project started with associating the misfunction of **corridor** with the growing need of extra **storage space** in New York City. By giving each unit a semi-public corrdior space, the project suggests reconsidering the relationships between interior and exterior, public and private, domestic and industrial architectures. We imagined plans, structures, furnitures and the life through the scope of storage and **liminal space**, and question the current housing issues in New York where the vacancy and need exist at the same time. The process is full of handcrafting collages, models.

The Cluttered Corridor
1/4" = 1' Model, paper, 3D-printed PLA
based on NYC 19th century tenant apartment plan

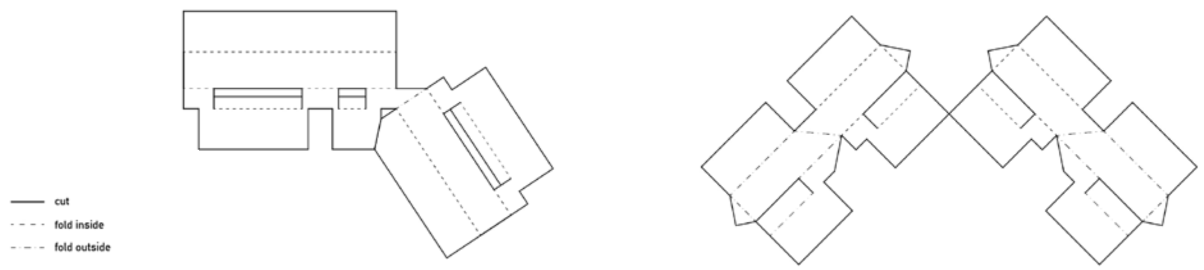
i



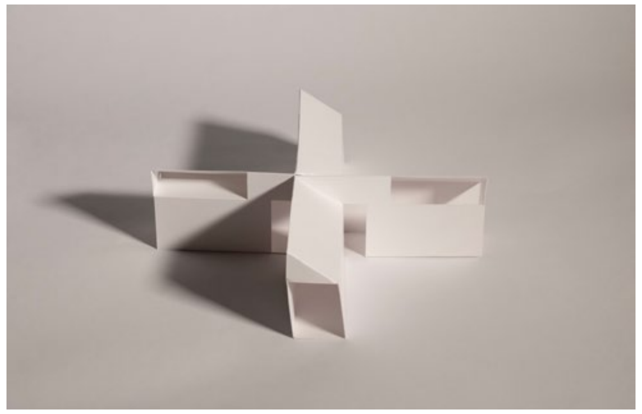
ii

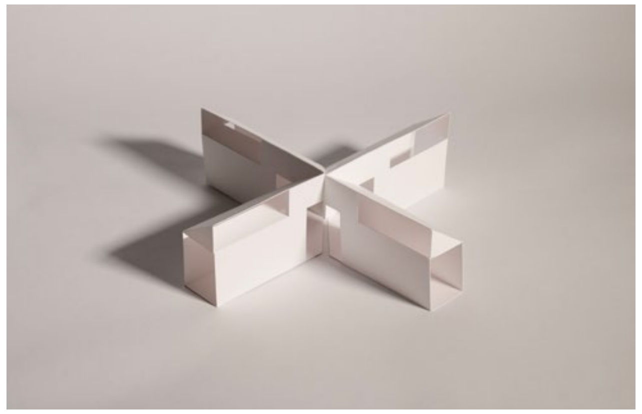


iii



iv

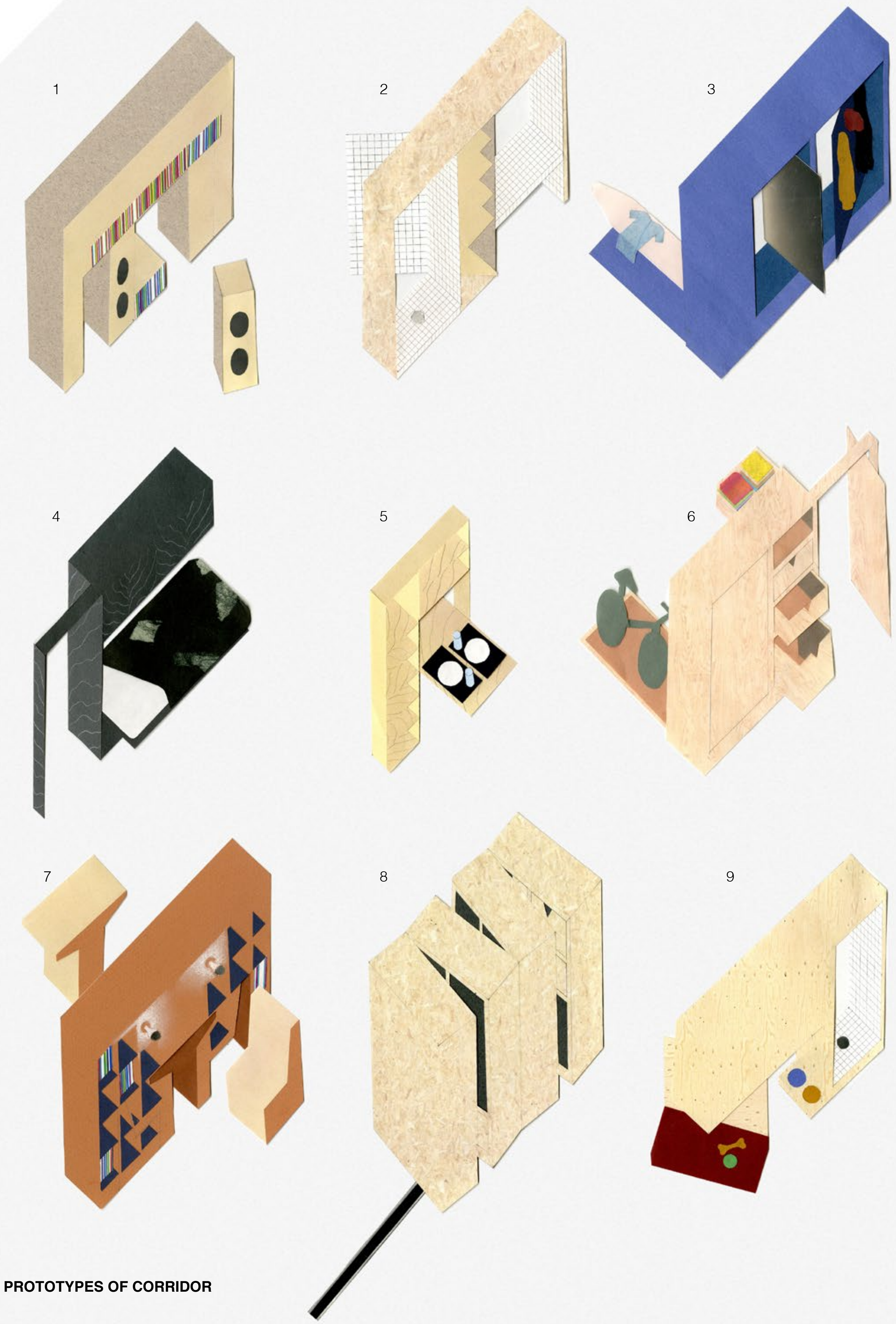




CORRIDOR UNIT
width = 5'

i	Plans of three typical corridors
ii	Elevations of three typical corridors
iii	unfolded paper model of corridors
iv	Paper model 1:4 for internal corridors

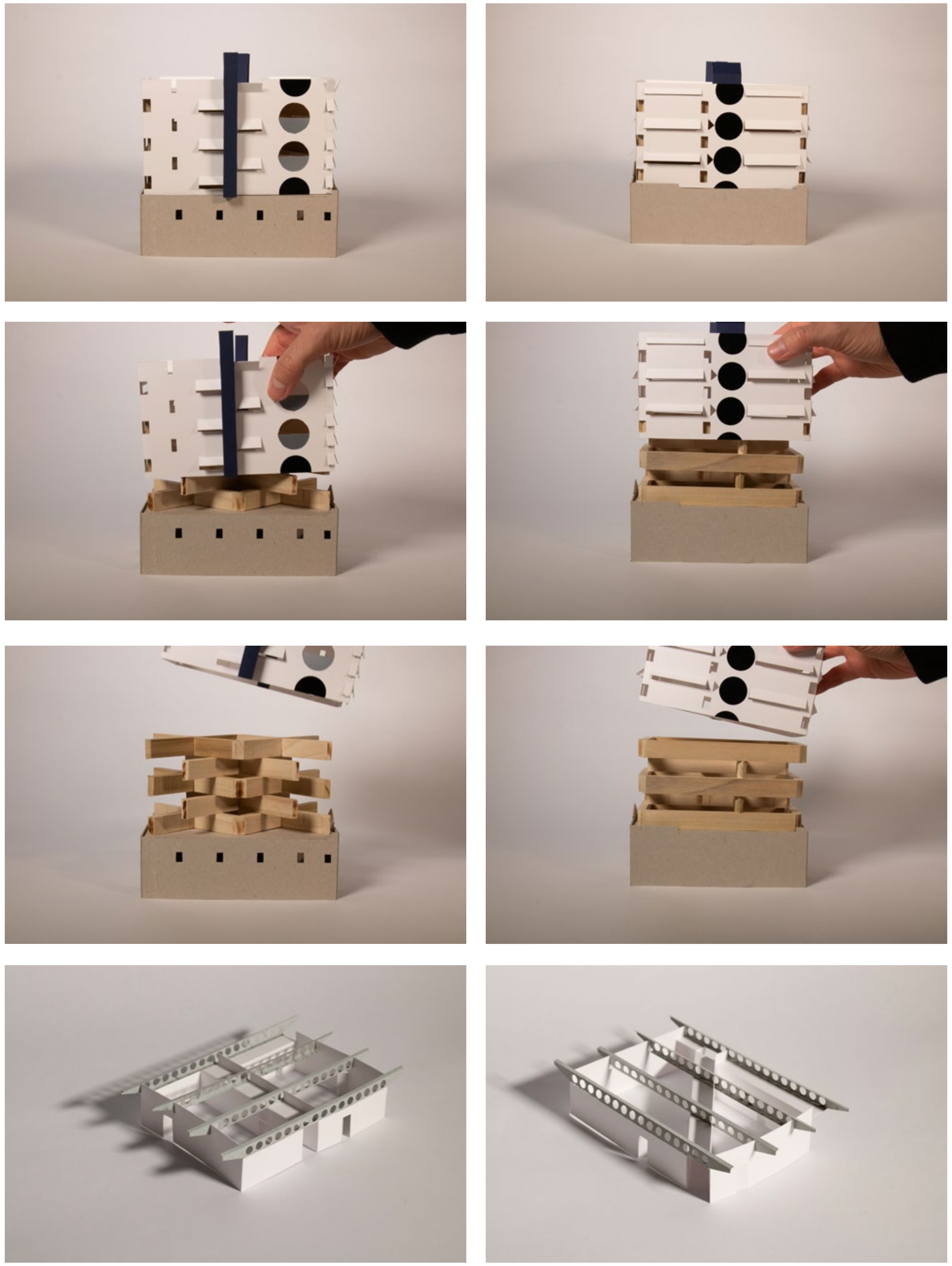
The first attempt is to define the dimension of a corridor that can be used as storage space. As egress requirement, we developed the corrdior in **5ft-modular** dimensions with a 4ft clearance. The paper mock-up suggest different possible corridor configurations and their dynamic relationships between units. Through collage, we also proposed different **functions** that can utilize the **thickness** of walls and corridors.

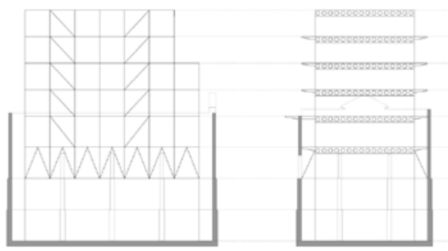


PROTOTYPES OF CORRIDOR

1	Corridor with vinyl sheves and speakers
2	Corridor with tiled shower/wet space
3	Corridor with a wardrobe and ironing board
4	Corridor with a twin-size bed
5	Corrdior with a dinning table
6	Corridor with a bicycle shelf and some drawers
7	Corridor with built-in tables and chairs
8	Corrdior with bookshelves on a rail
9	This corridor is for pets.

1. Early study models of facade & structure

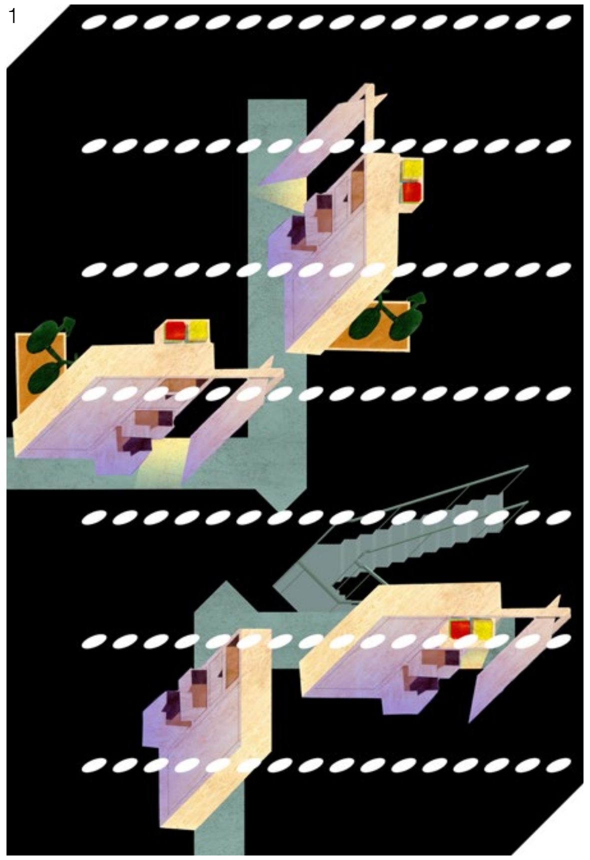




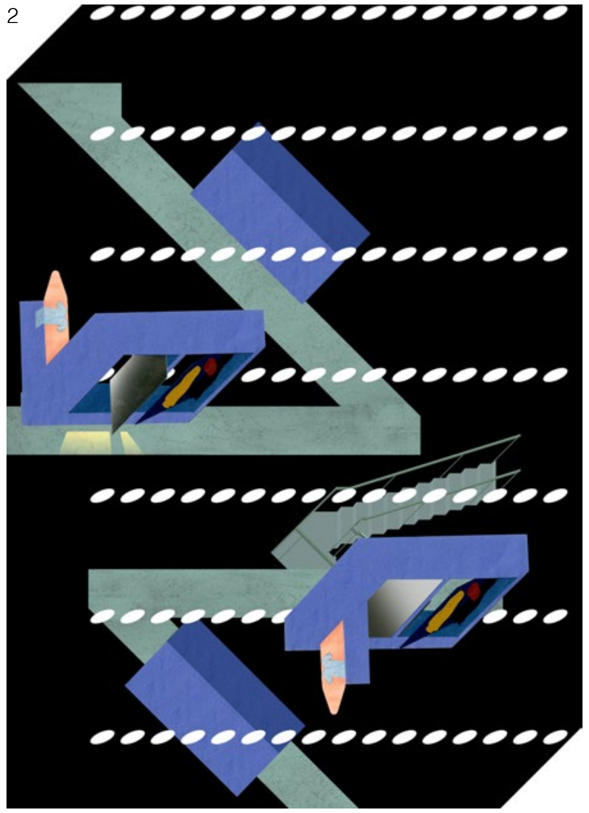
“Build the corridor, build the house.”

Structurally, an independent castellated truss system divides the space vertically into living spaces and **plenums** for infrastructure and storage. And its **clear span** allows different floor configurations **stacking** over each other as a building. Corridors function as both connectors and dividers that connect and separate into several different-size units. The structuren adapts itself with the existing building.

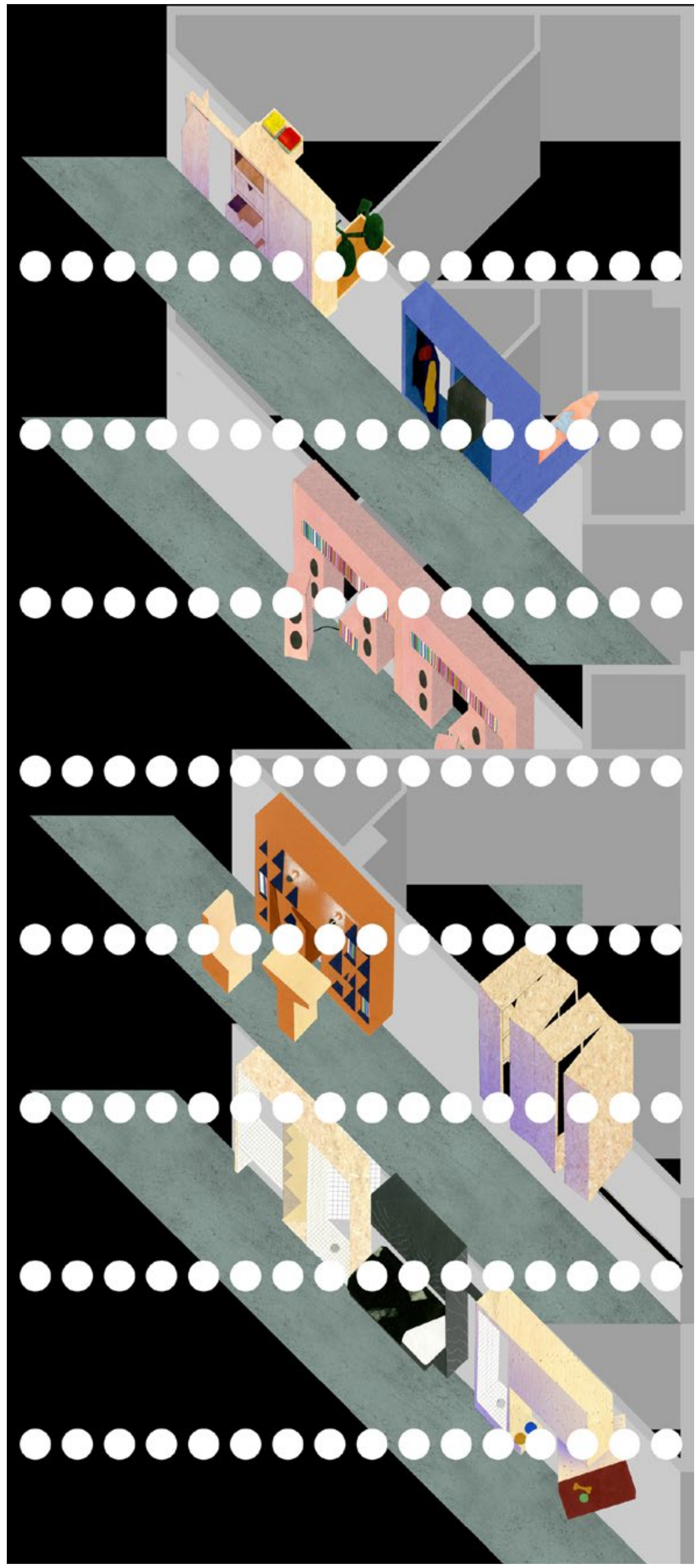
1



2



3



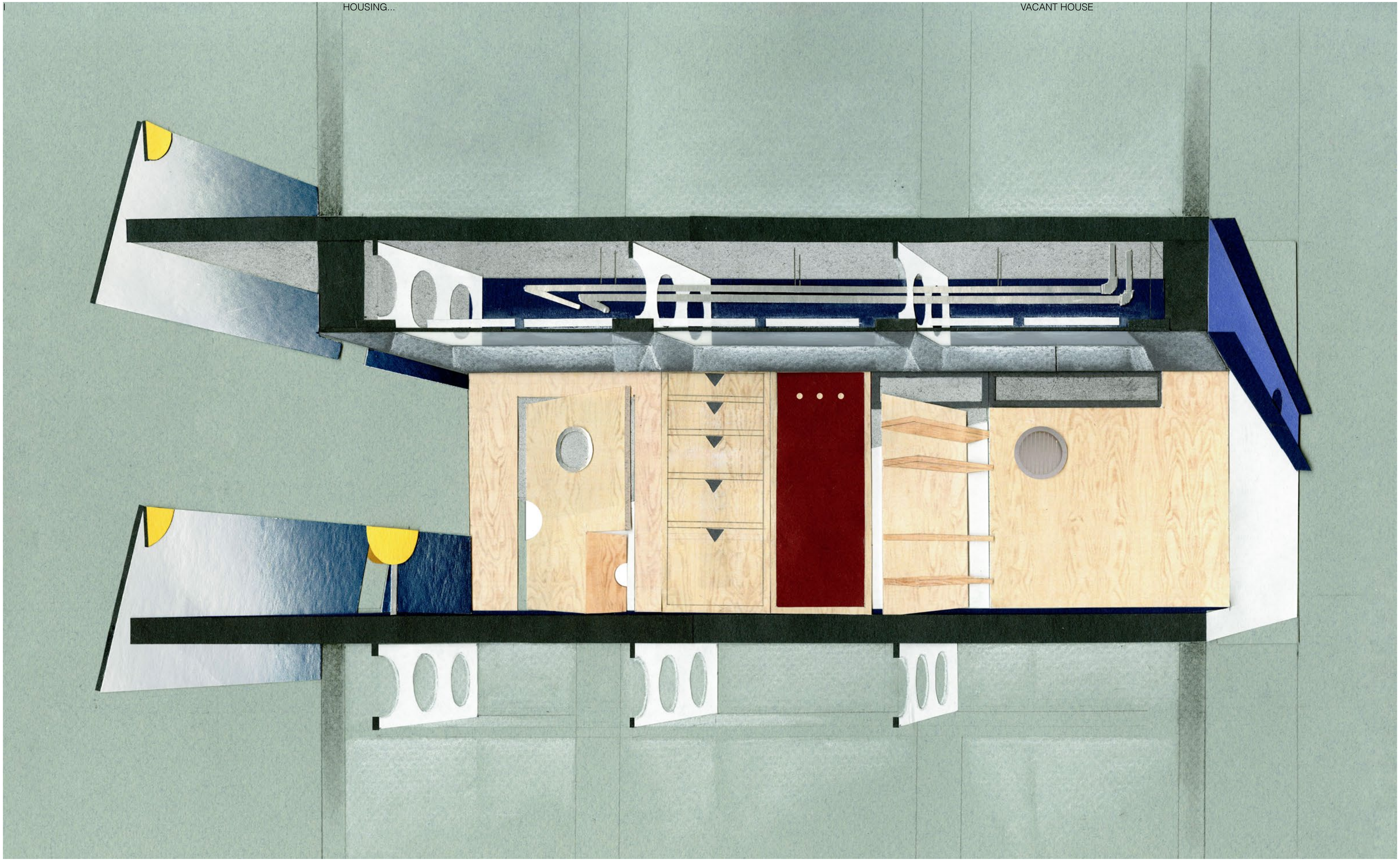
1 Collage of a corridor for bicyclist

2 Collage of a corrdior for clothing

3 Collage of different corridor configurations

CORRIDOR CONFIGURATION

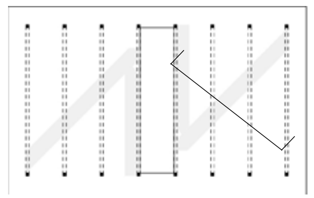
We propose two connected corridors on each floor that divide the plan into **four units**. Here movements and activities shift from private units to semi-public corridors, which **liberate the private living space** in the units and change the dynamics between units. Here we select two different configurations as typical floor plans for the project that are going to be adapted into the existing building.



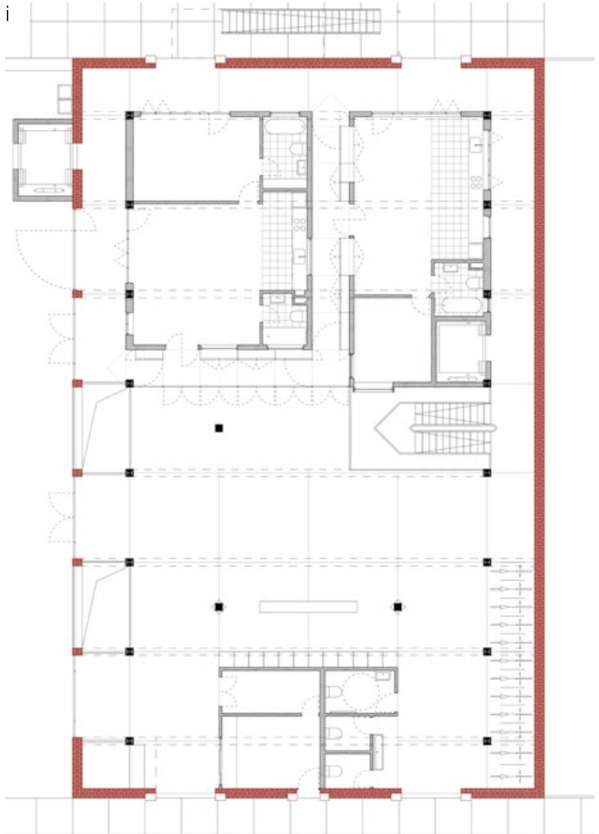
SECTION
1/4" = 1' collage, paper, pencil

1-2 Section showing longitudinal elevation of corridor connecting exterior balcony and light well.

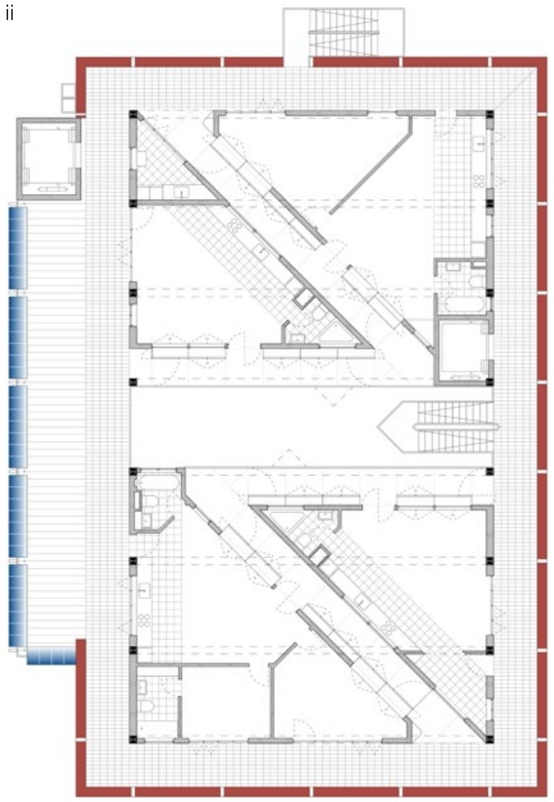
The section illustrates a longitudinal elevation connecting the exterior balcony to the lightwell. The corridor is equipped with **pivot doors** (including a smaller one for pets) and integrated drawers. Above the ceiling, piping runs through **castellated trusses**, which also function as a plenum.



i

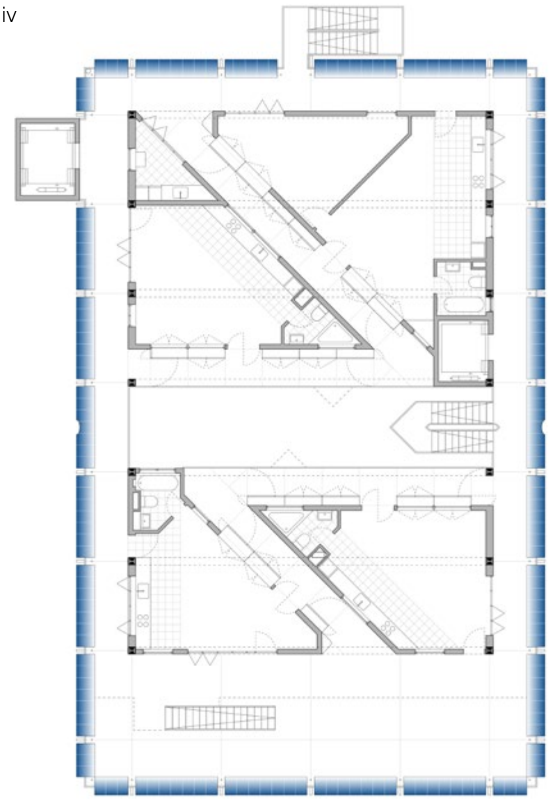


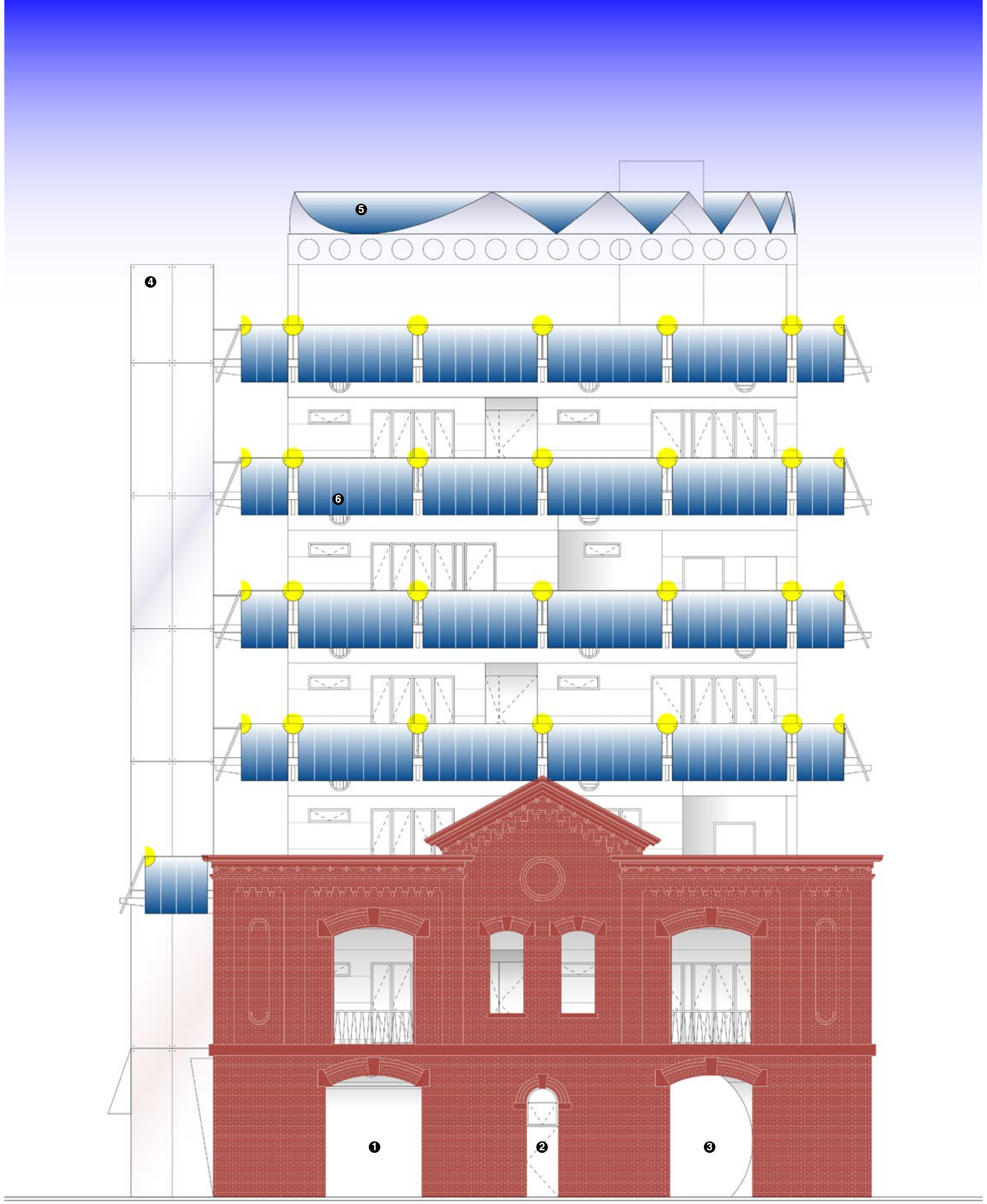
ii



iii

iv





FLOOR PLAN

i	Level 01 Ground Floor Entrance hall, doorman room, 1-bedroom unit x2
ii	Level 02 Residential Floor Podium, studio x1, 1-bedroom unit x2, 2-bedroom x1
iii	Level 04 Residential Floor 1-bedroom unit x4
iv	Level 05 Residential Floor Terrace, studio x3, 1-bedroom unit x1

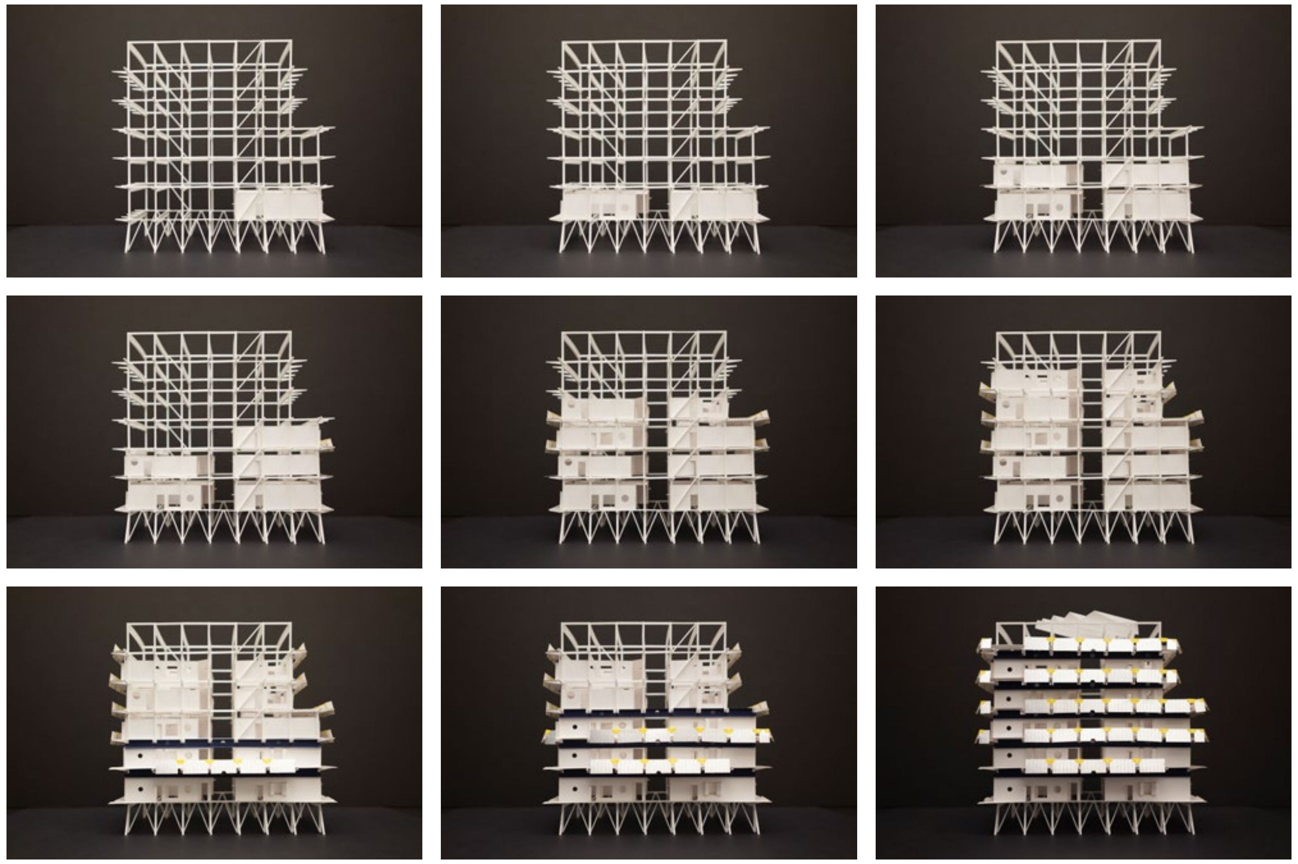
5 10 ft

SOUTH ELEVATION

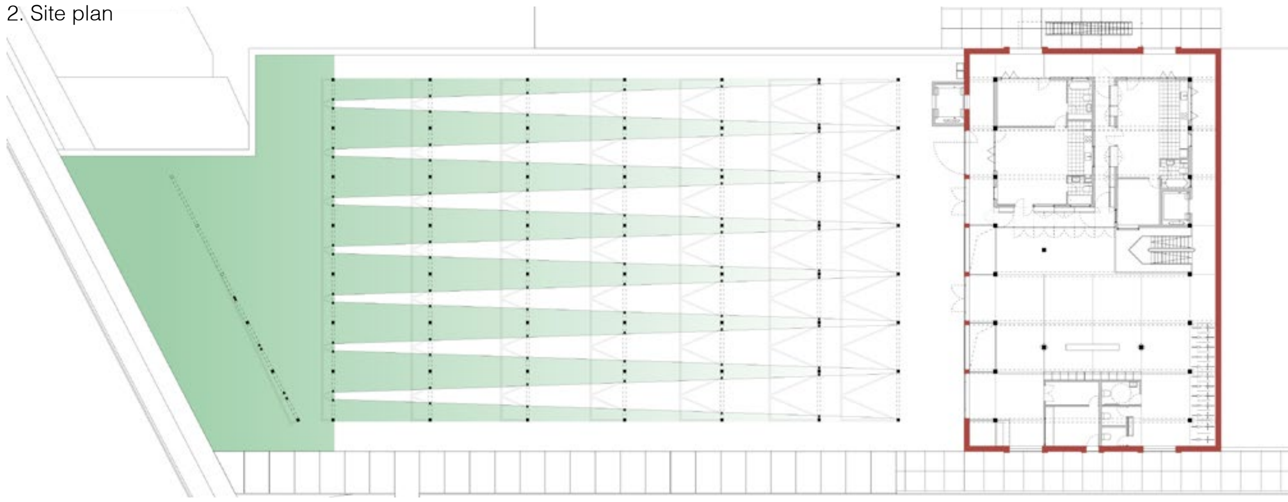
1	Main entrance
2	Doorman room
3	Main entrance (for bicycle)
4	Glazed Elevator
5	Transucent umbrella pavilion
6	Anodized aluminum panel

5 10 ft

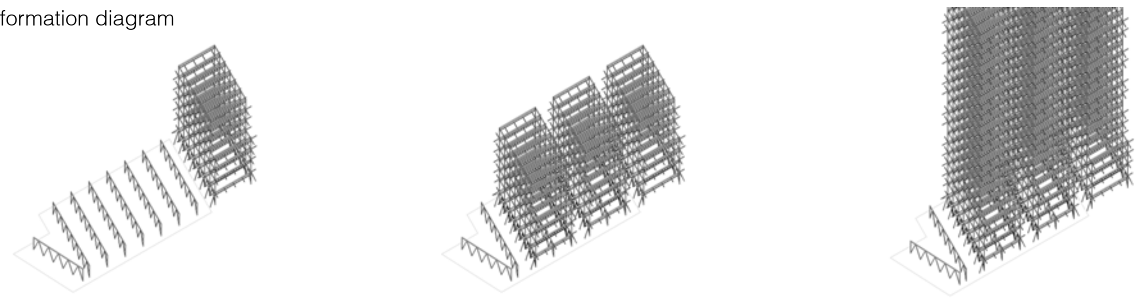
1. Structural model with units

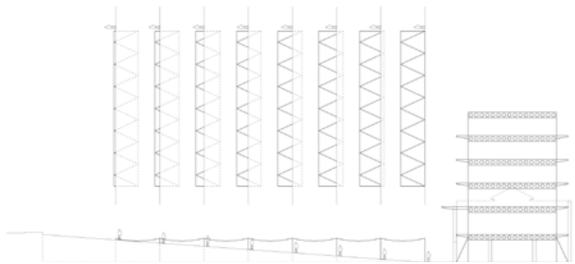


2. Site plan



3. Transformation diagram

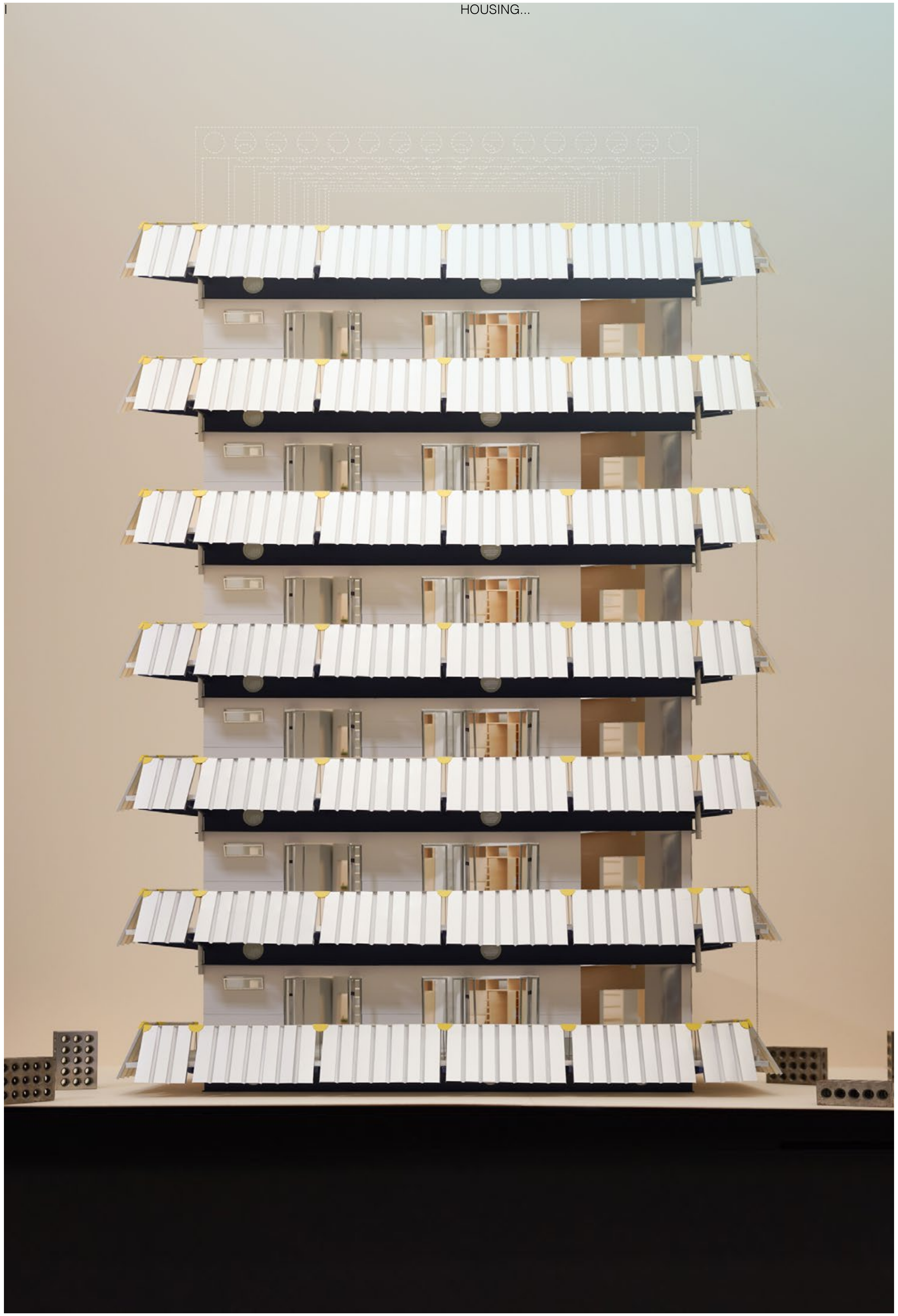


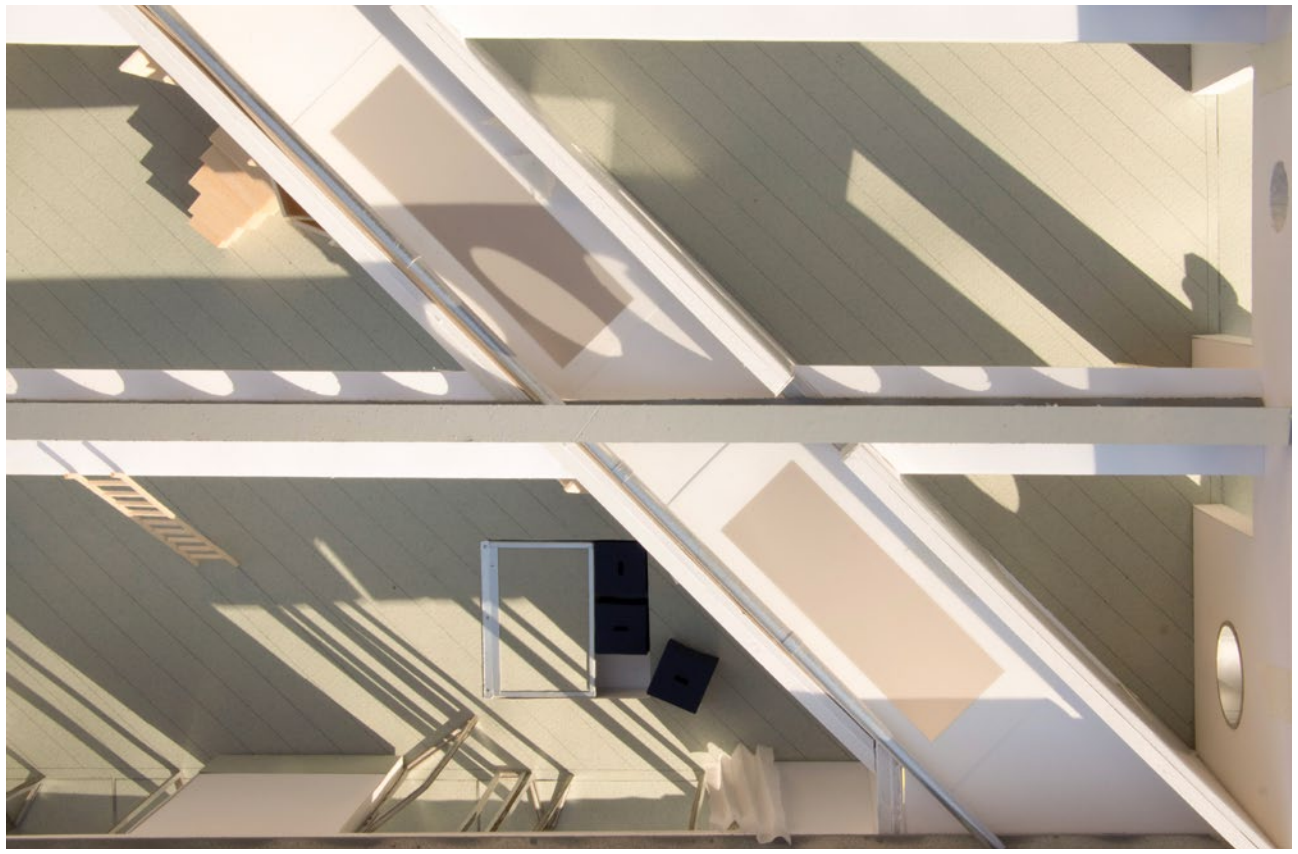


GARDEN AS FOUNDATION

The main part of the community garden is the **extension** of the truss system on the ground floor with a **sloped landscape** that buries the trusses into ground at different heights. Steel chains are used to guide rainwater and provide structure for installing canopies. The whole landscape is suggesting moving. Further more, in the future the garden can become **foundation** of new buildings. As the site has been transformed as a type of **storage** for future.

Interior view from a unit





CLUTTERED CITY, VACANT PLOTS

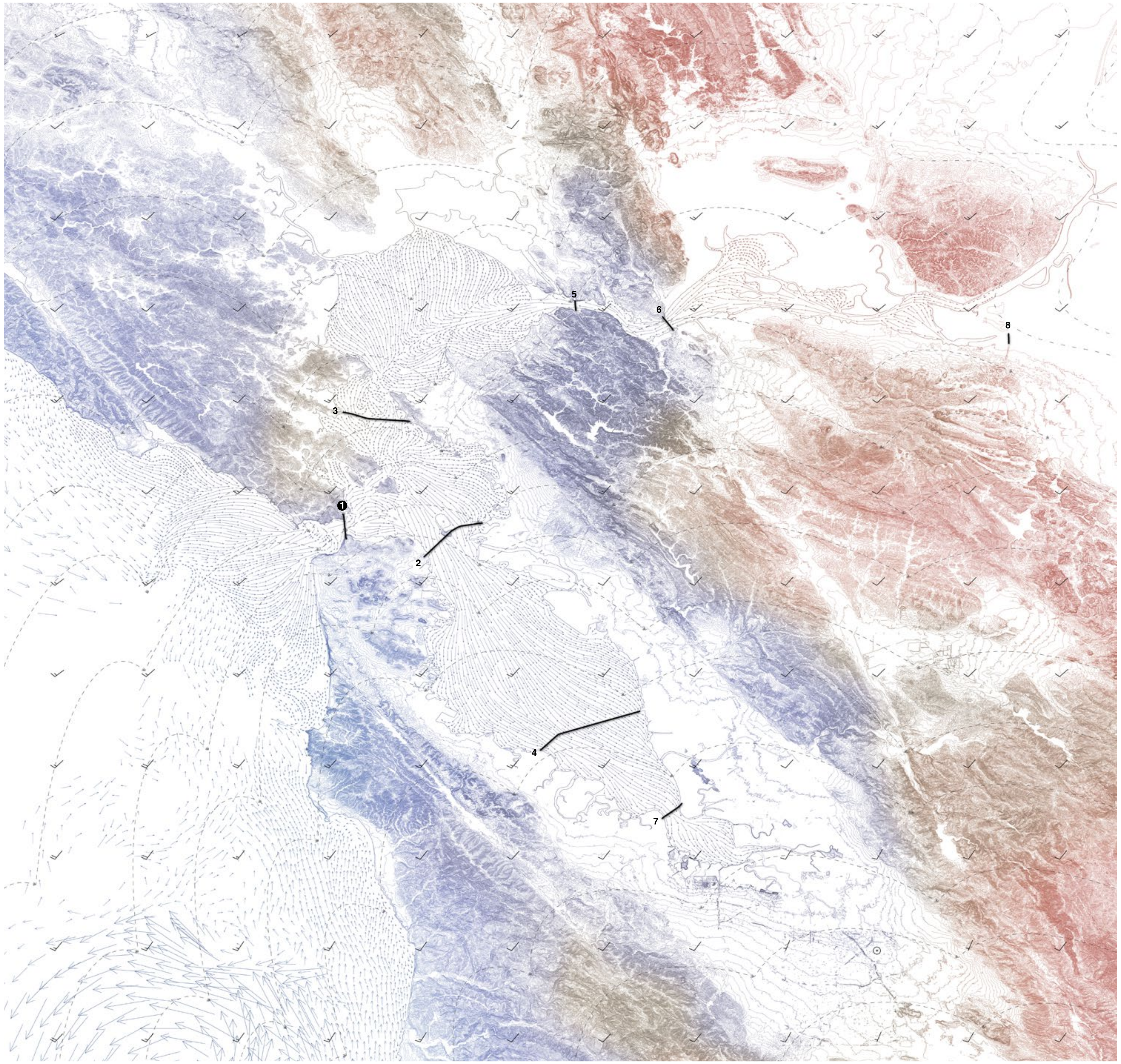
1 Elevation of model 1/4" = 1'

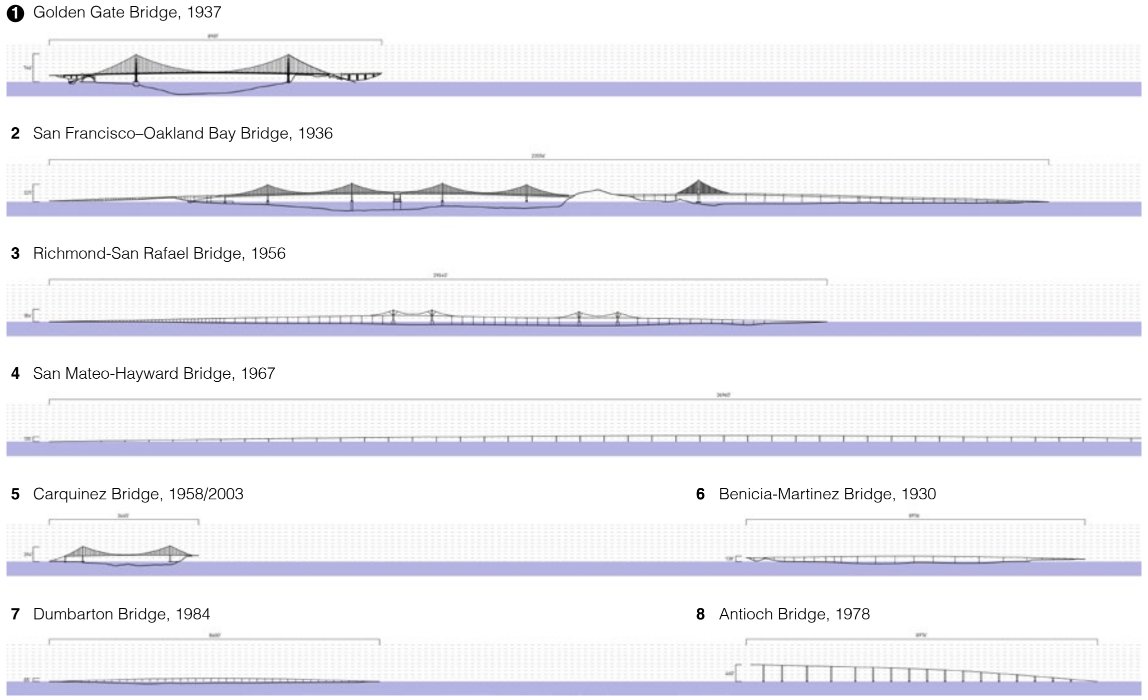
2 View from exterior look through corridor

3 View from the livingroom of a unit

New York suffers from a **shortage** of housing and storge, while many **vacant plots** awaiting development. By adapting a industrial truss as structure in the project, we give the possibility that one day the project will be converted back into warehouses. This project provides a question on rather than an answer on the potential of storage space, vacant plots and **adaptive reuse**.

Exterior view looking into a corridor



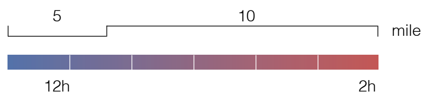


II.

BLURRING BRIDGE

Damage Control

2023 Spring
Columbia GSAPP / Core II Studio
Instructor: Regina Teng
Individual Work

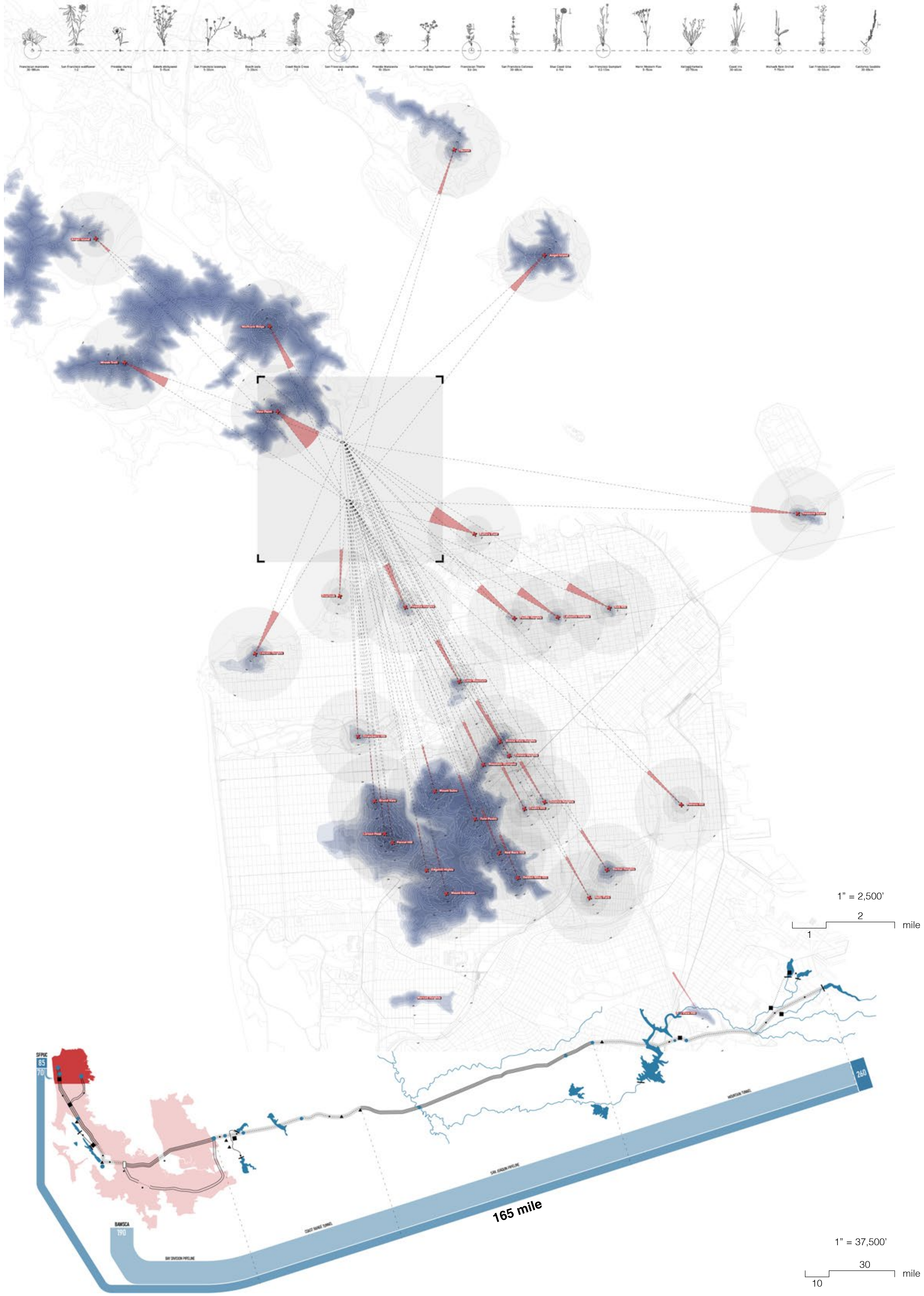


When the fog in San Francisco has reduced 30% in the past 100 years, what else that is happening in the environment can we perceive? The project aims to link human perception with fog, water, infrastructure and climate change.

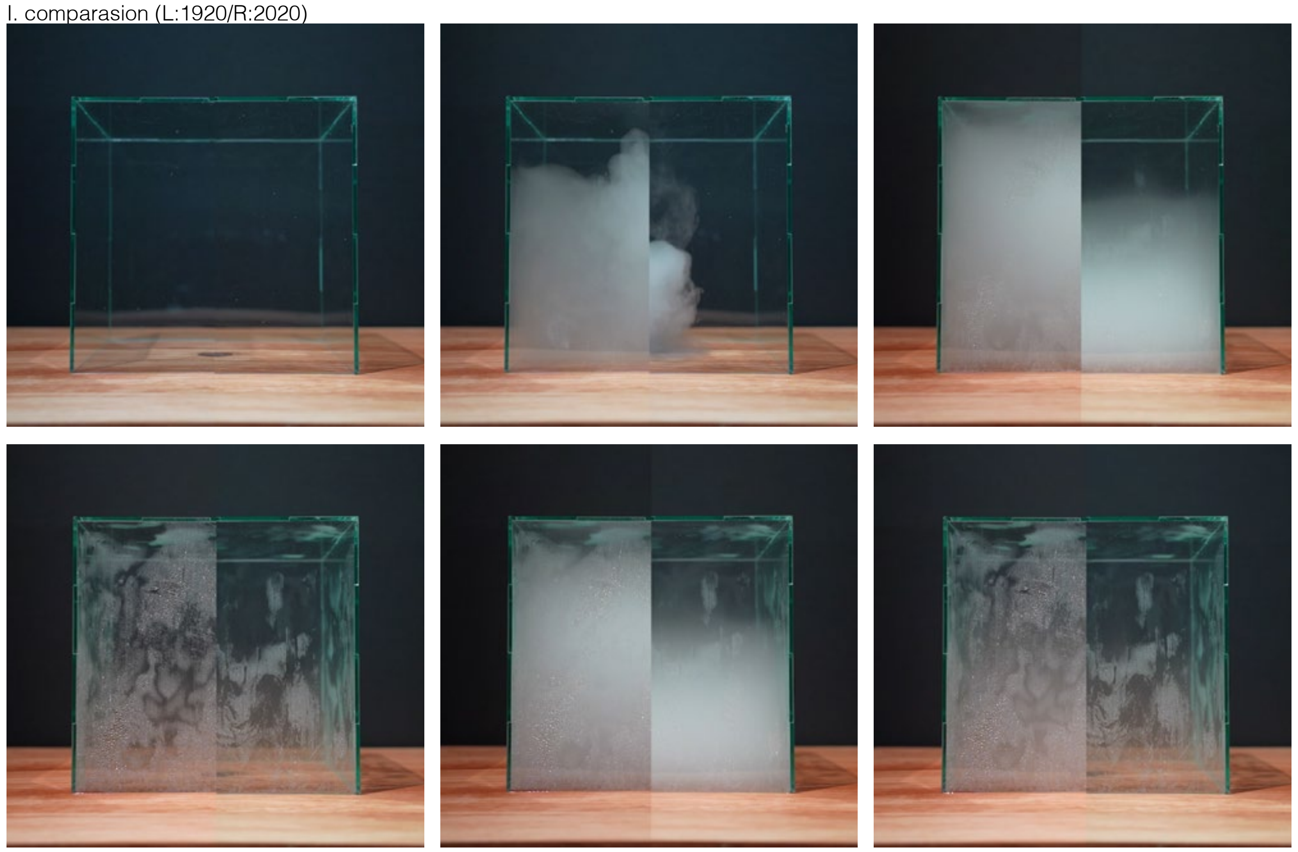
The intervention is a **retractable facade system** installed on Golden Gate Bridge in San Francisco which collects water from fog. The idea behind is to address the current drought and make the process visible by hiding the landmark bridge as a reminder of **climate change**.

DAMAGE CONTROL

BLURRING BRIDGE

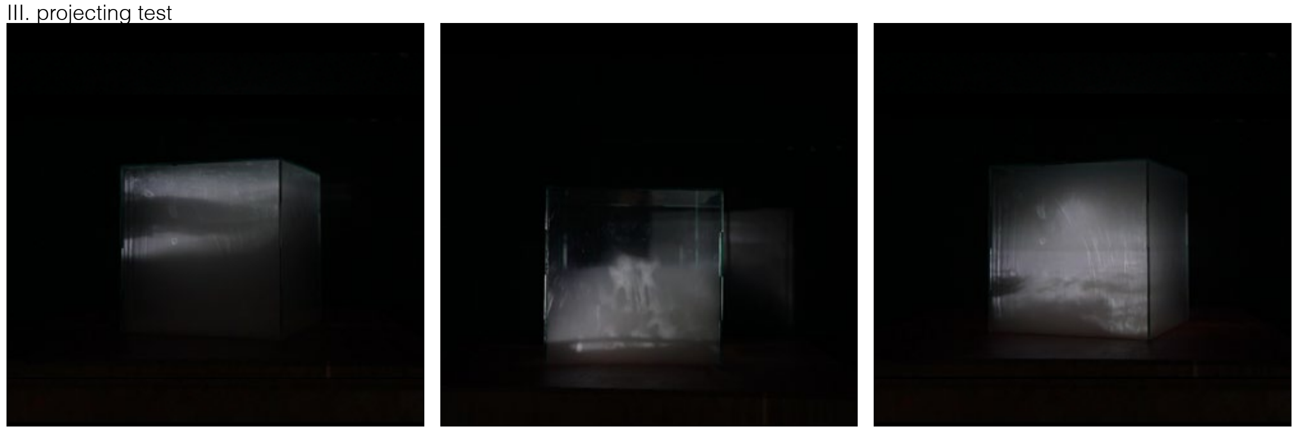


I. comparasion (L:1920/R:2020)



II. guiding test

III. projecting test

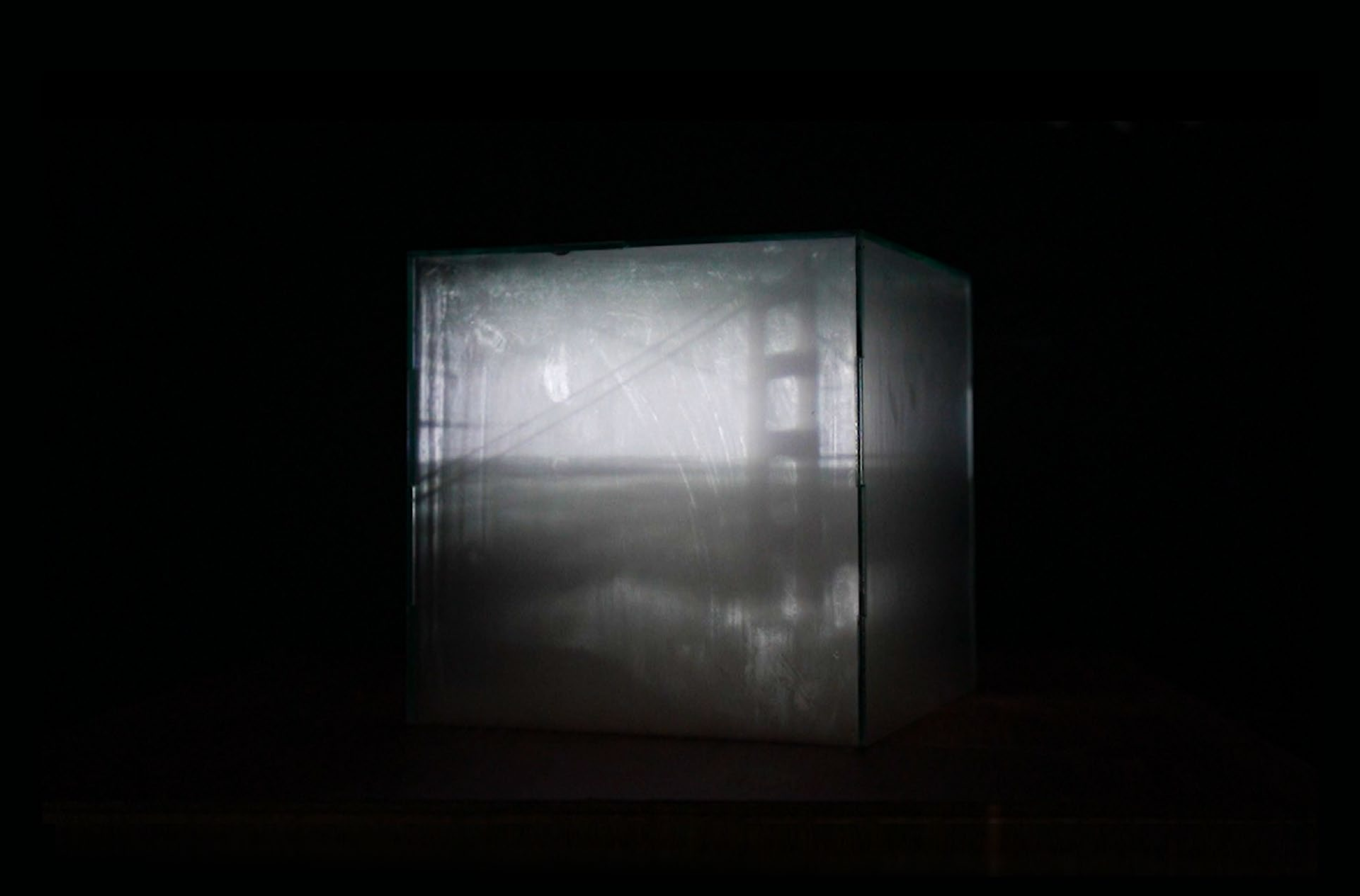


MAP OF SAN FRANCISCO CITY
Geo-spatial relationship of Golden Gate Bridge

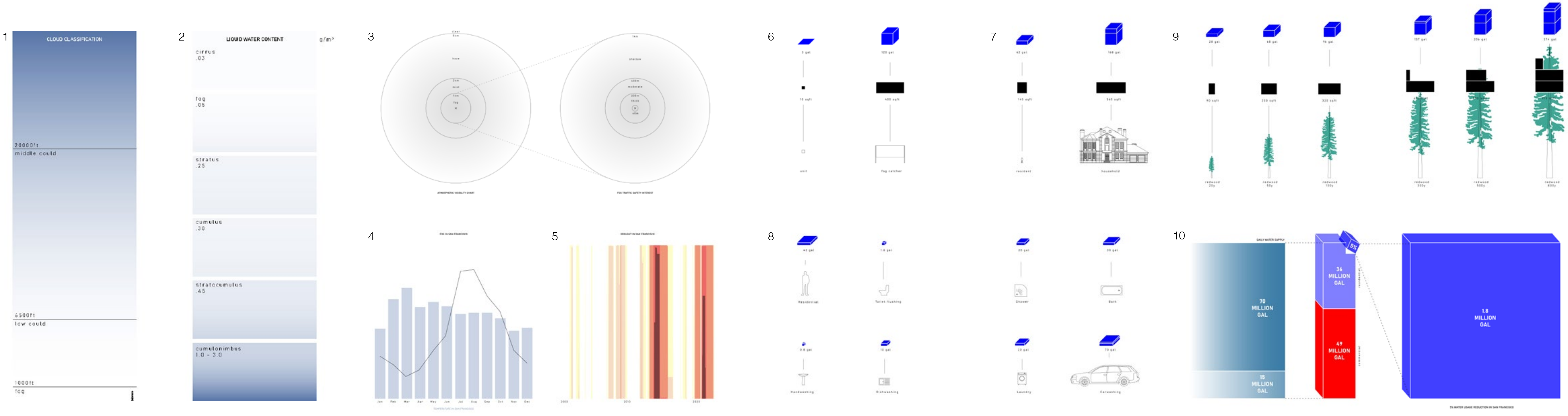
1. Endangered local plants since 1920s
2. Hills above 90 feet in San Francisco
3. Hetch Hetchy Water System
   *water unit: millian gallon

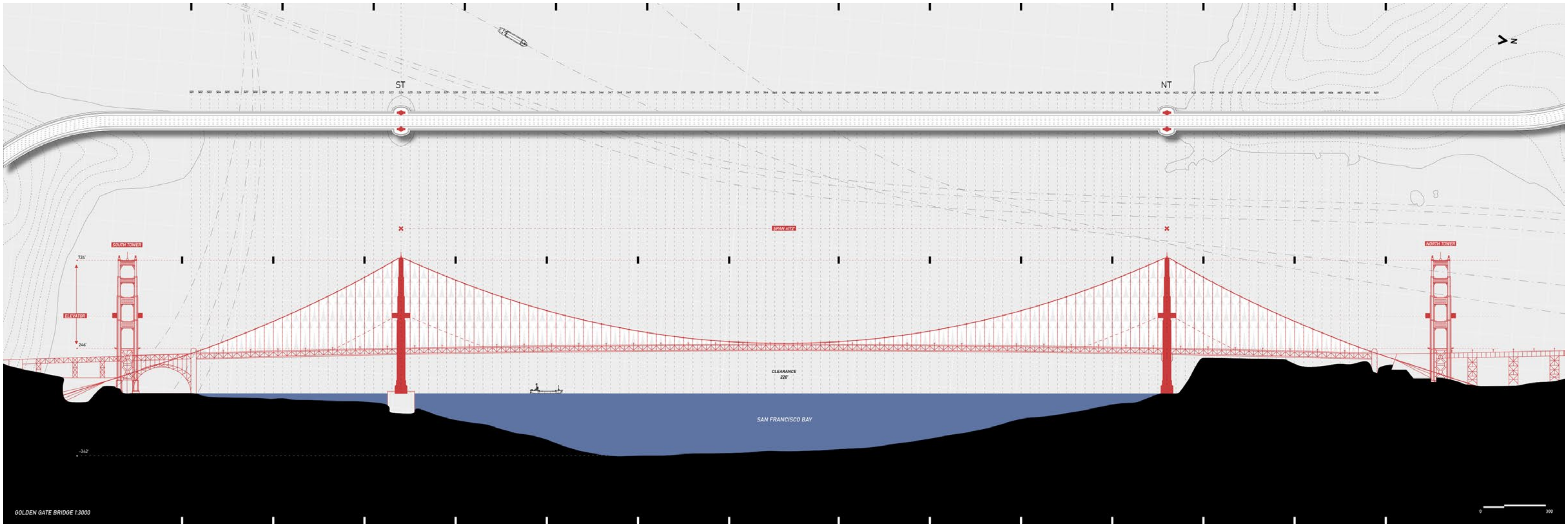
FOG SIMULATION TESTS

I. comparasion between 1920/2020
   1-6 7am - 5pm
   data from San Francisco Chronicle
II. guiding test
   1-3 airflow, condensation result
III. projecting test
   1-3 600LM projector with black&white film clips



Fog box screening





Fog Classification

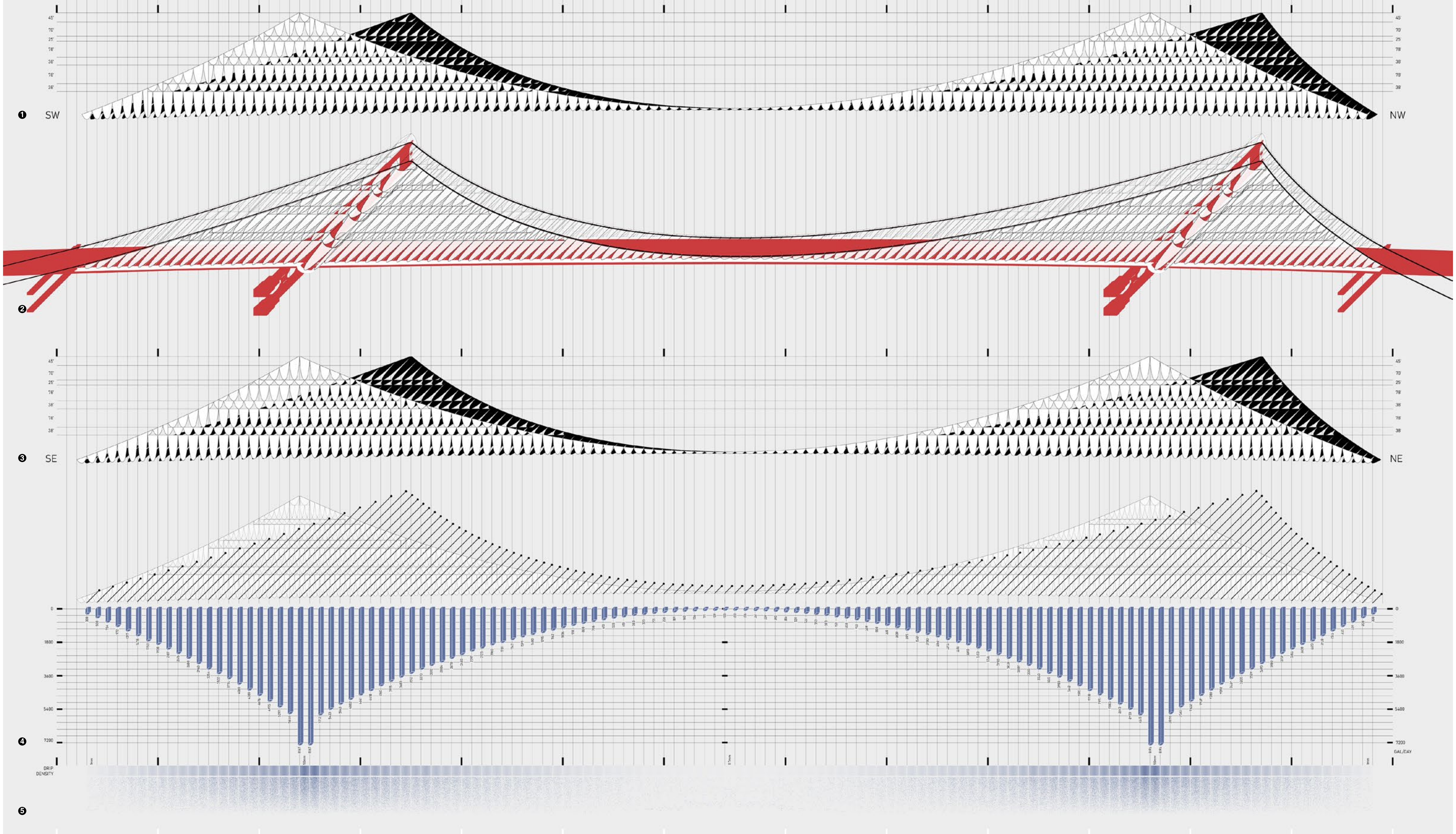
1 Cloud Classification (height)
2 Liquid Water Content (LWC)
3 Visibility
4 Fog pattern v.s. Temperature
5 Drought in San Francisco

Water Consumption

6 Fog catcher
7 Domestic
8 Activities
9 Redwood
10 Overall water consumption

Since 85% of San Francisco's daily water supply comes from the Hetch Hetchy water system—transporting water from **165 miles** away—even a minor drought can have a major impact. Calculations show that turning the Golden Gate Bridge into a fog catcher could collect up to **0.8 million gallons** of water, covering roughly one third of the city's daily water supply shortage (1.8 million gallons) — enough to serve nearly 13,000 residents.

*Calculation based on data accessed from drought.gov

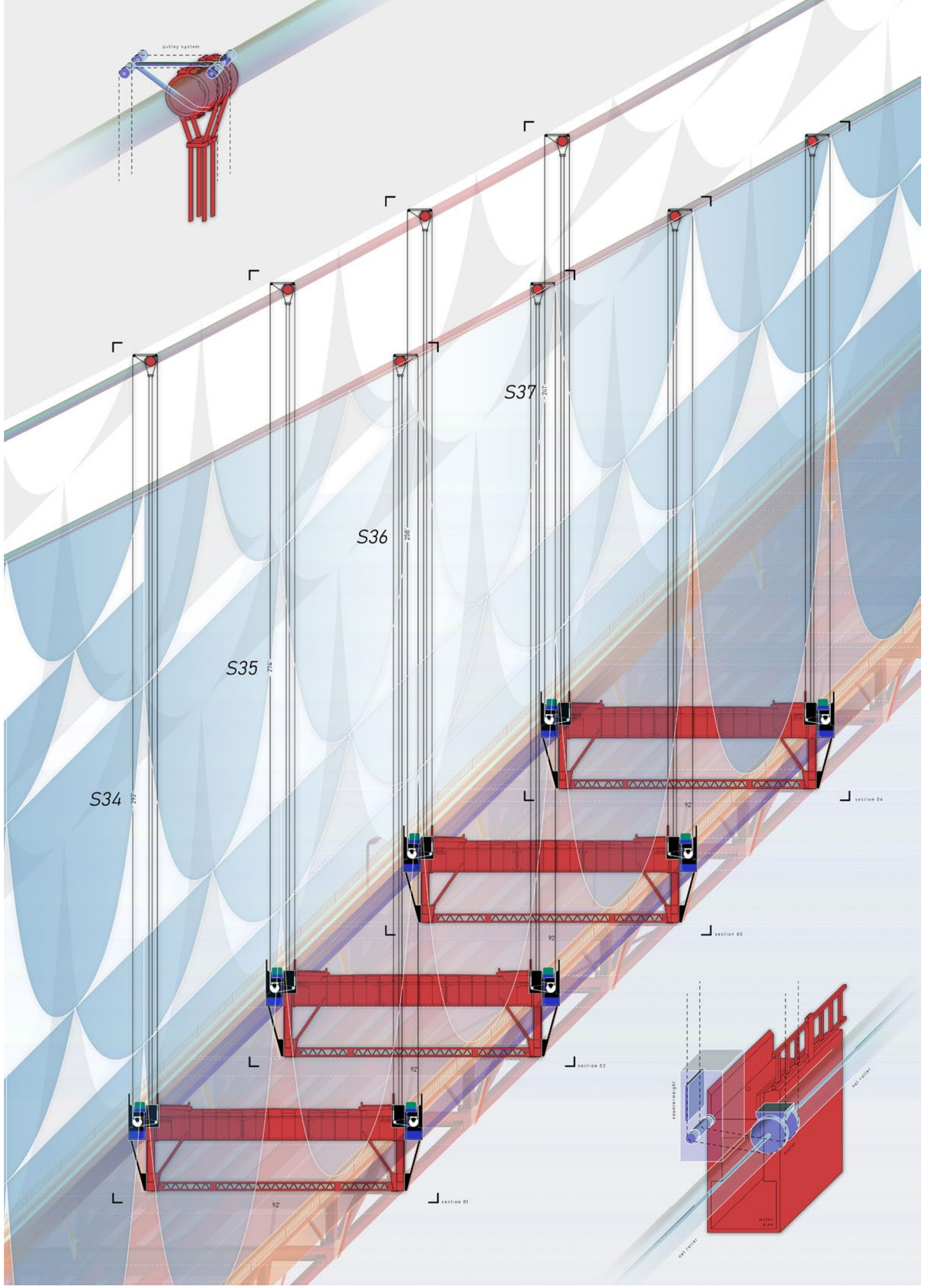


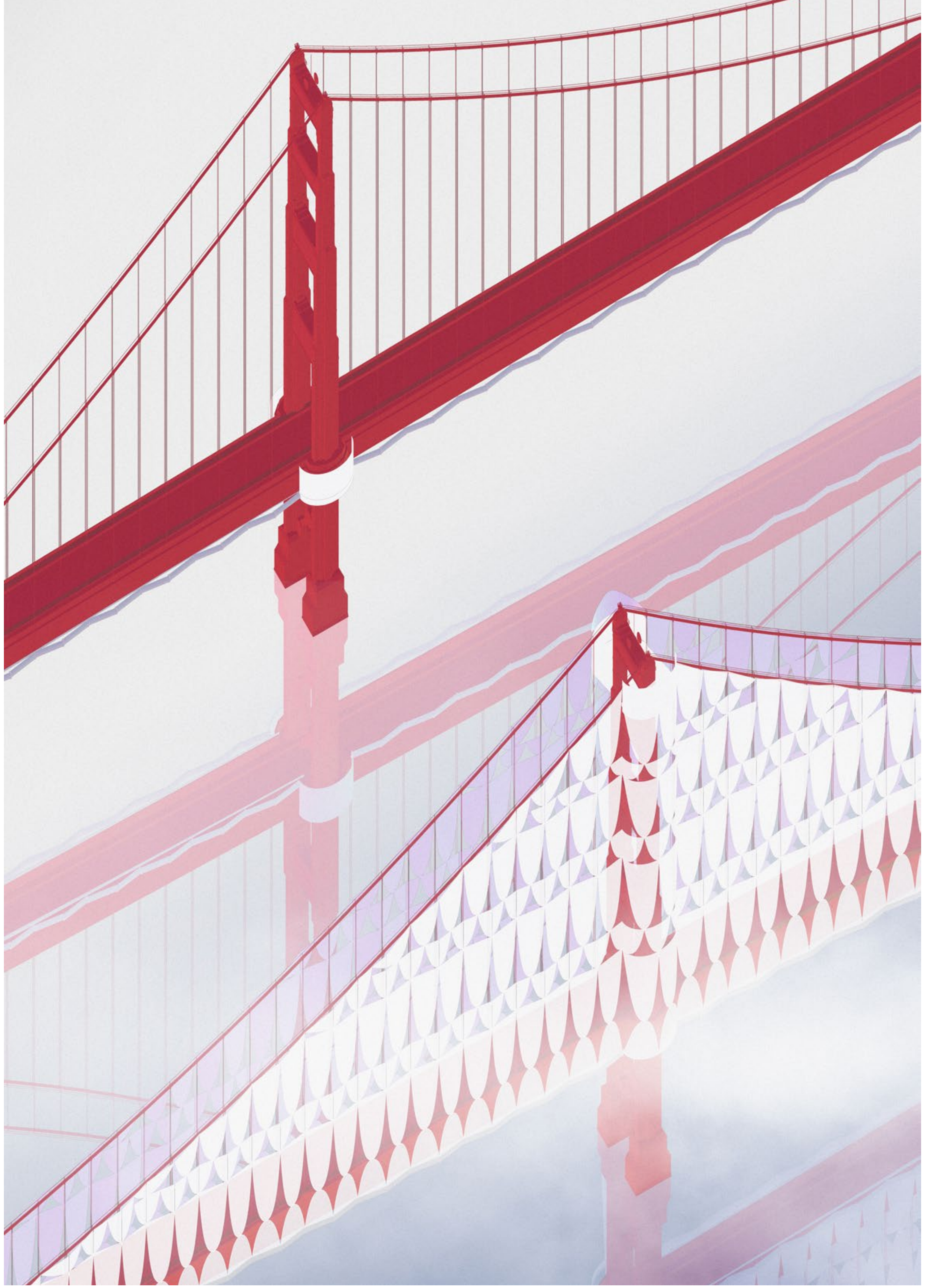
System of fog condensation & collection

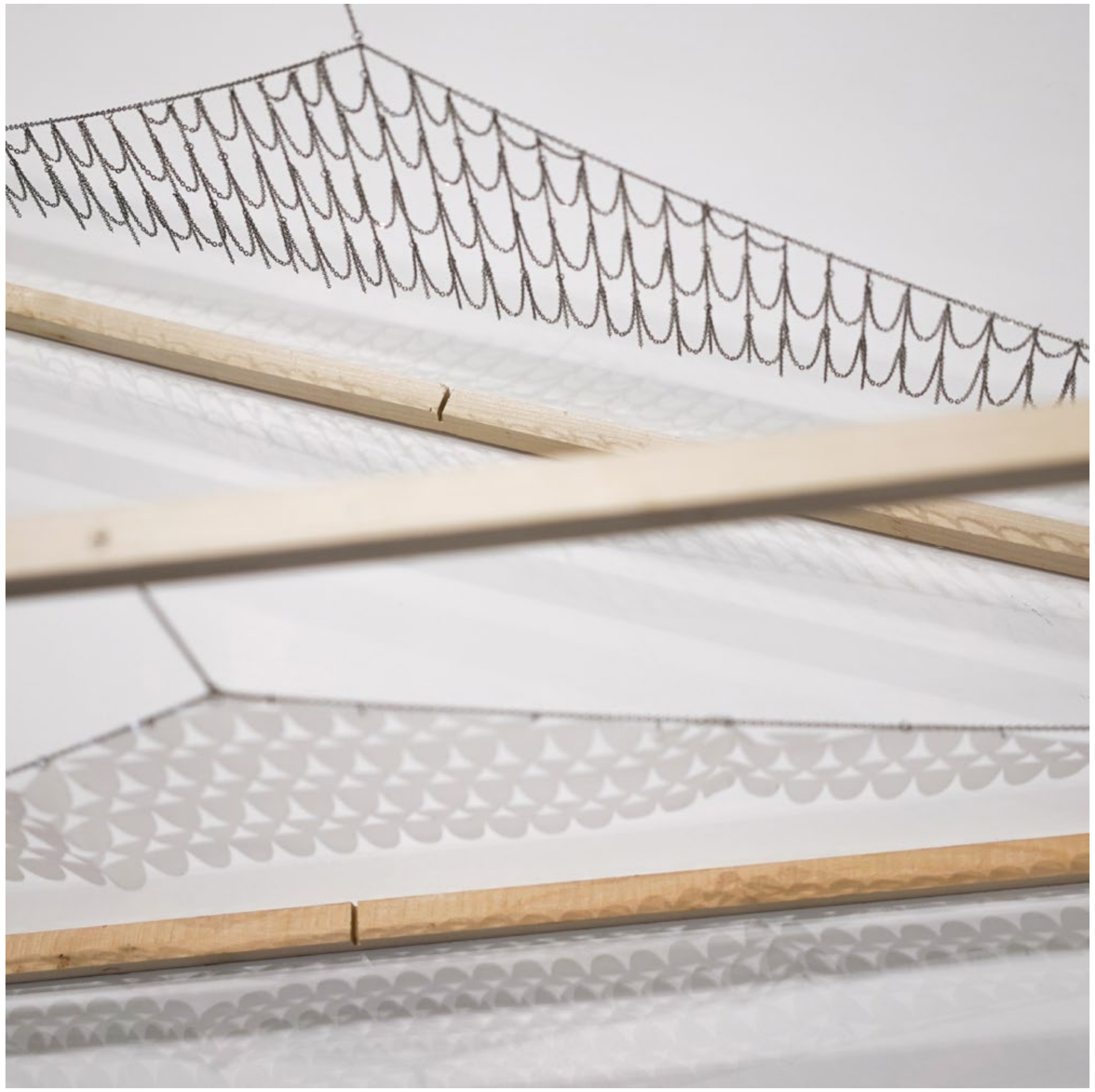
1 Fog catcher curtain (West side)
2 Golden Gate Bridge with fog catching system
3 Fog catcher curtain (West side)
4 Water volume per unit
5 Drip density per unit

100 500 ft

The intervention is a **retractable** façade system installed on Golden Gate Bridge in San Francisco which collects water from fog. The idea behind is to address the current drought and make the process visible by hiding the landmark bridge as a reminder of climate change. The façade consists of 120 hidden curtain rollers that would be activated to wrap the bridge during the fog. Each retractable curtain is made of hydrophilic **water-condensing** nylon mesh and free-hanging **steel chains**. Water flowing along hanging chains in funicular shapes turns into rain curtains that fall on green belts which can purify water through root cleaning system.


pulley system
S37
S36
S35
S34





1	2

1 Model: 1:200
steel chain, nylon fabric, wood

2 Model: 1:50
steel chain, nylon fabric, wood, 3d printed PLA

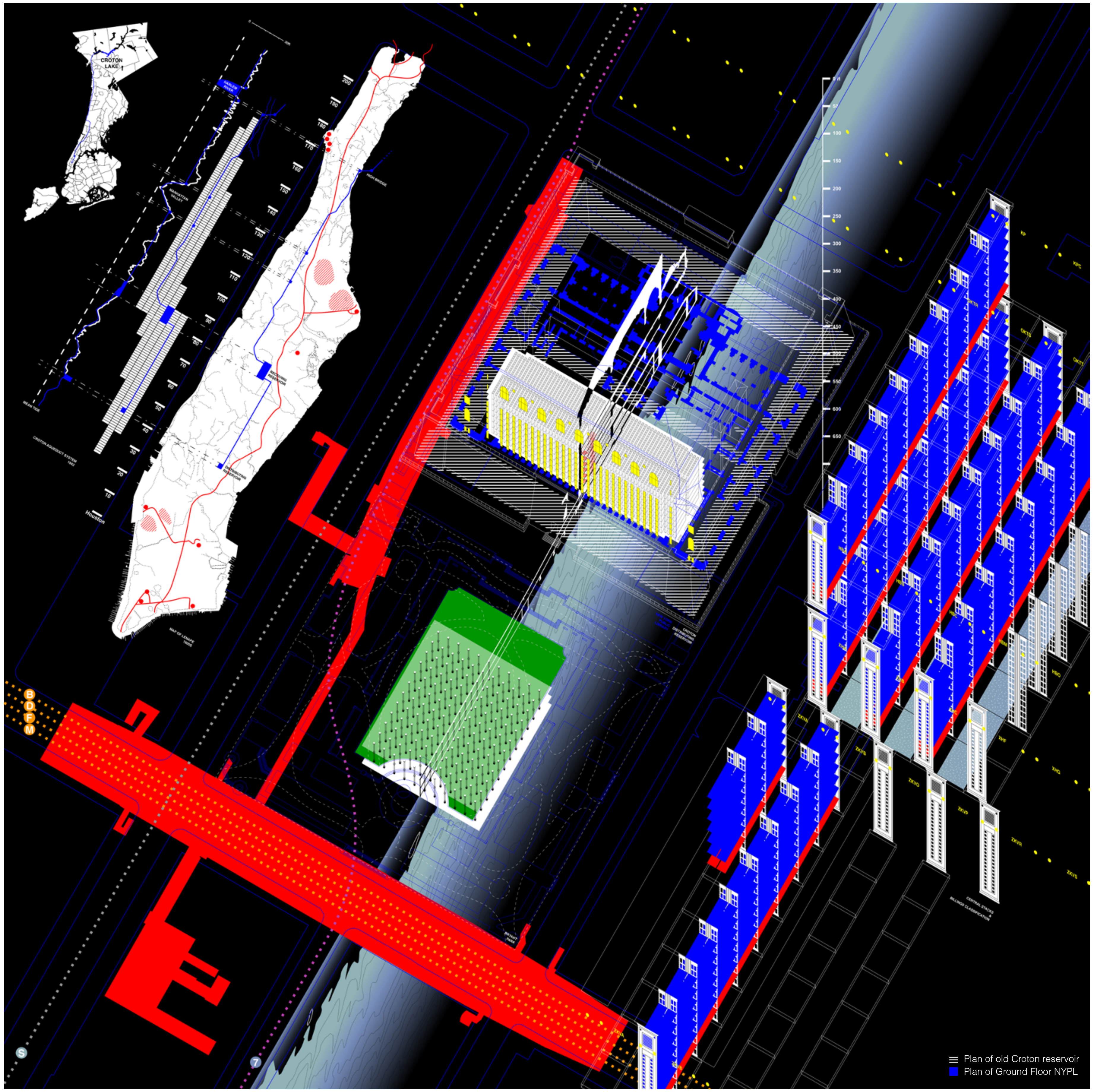
The pattern on two sides are slight different. On side shifted a half of the grid in order to reduce the wind tunnel effect but not increase the **wind load** on the bridge.

The curtains will be divided into different **rollers** hidden under bridge, when there is no fog, the invisible is almost invisible. The two towers and its platform will be turned into a elevator, in order to take the curtain up. On the pedestrian walk, there are two green strips to clean water through plant roots.

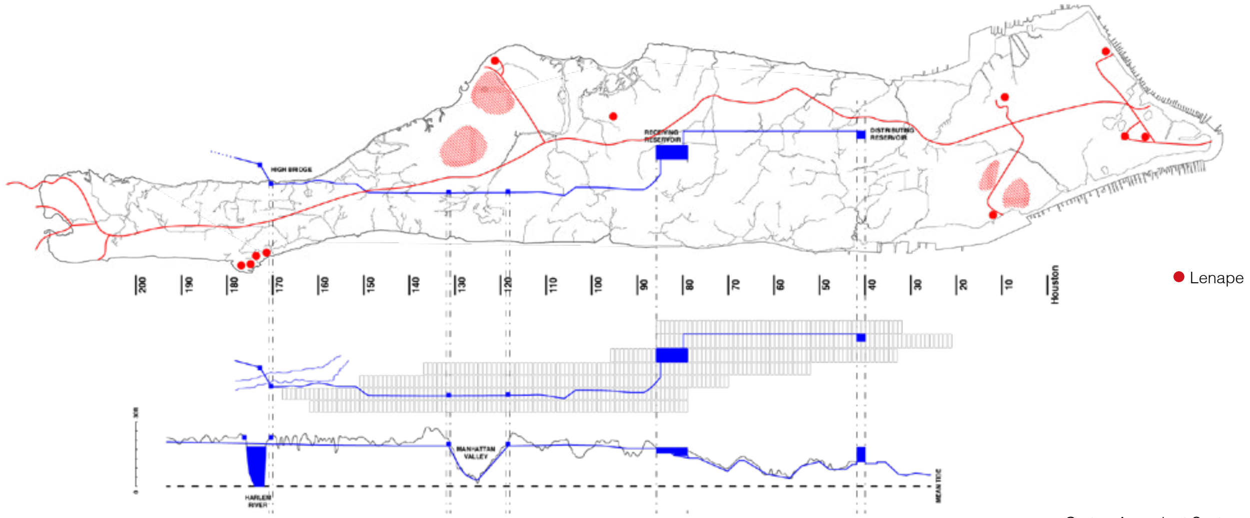
1/128" = 1' Catenary Model, Steel chain

DAMAGE CONTROL

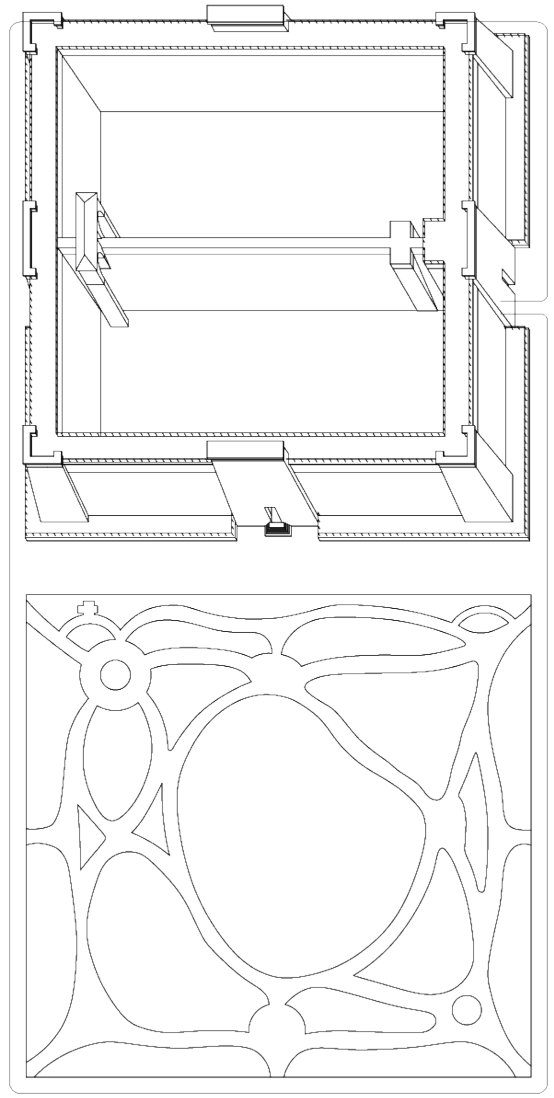
BLURRING BRIDGE



I. Map of Manhattan Island in 1600s

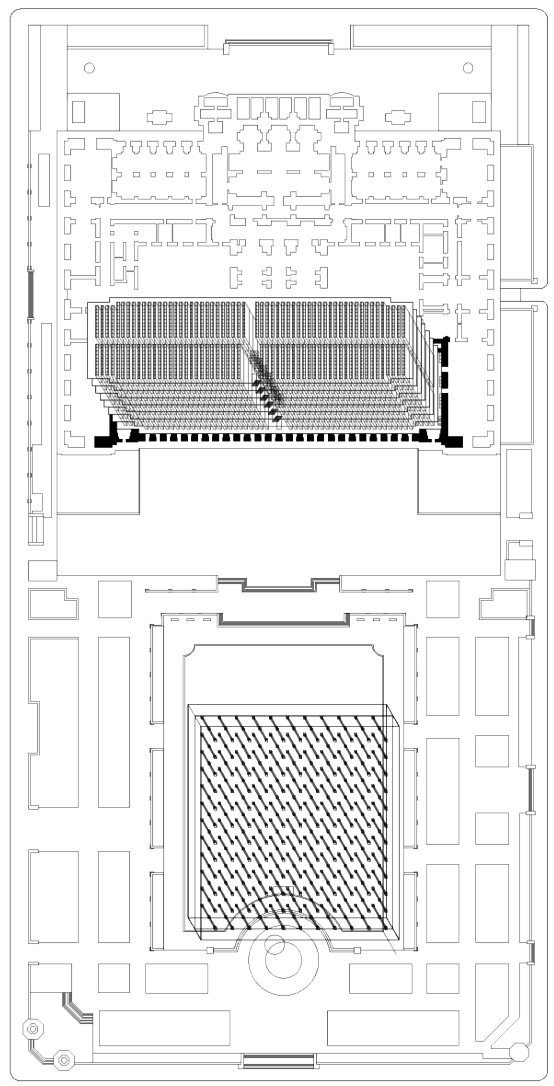


II. Croton Reservoir Park, 1842



Volume: 20 million gallons

III. Bryant Park & New York Public library, 2024
Milstein Stacks, 1980s & 2016



Volume: 5 million books

III.

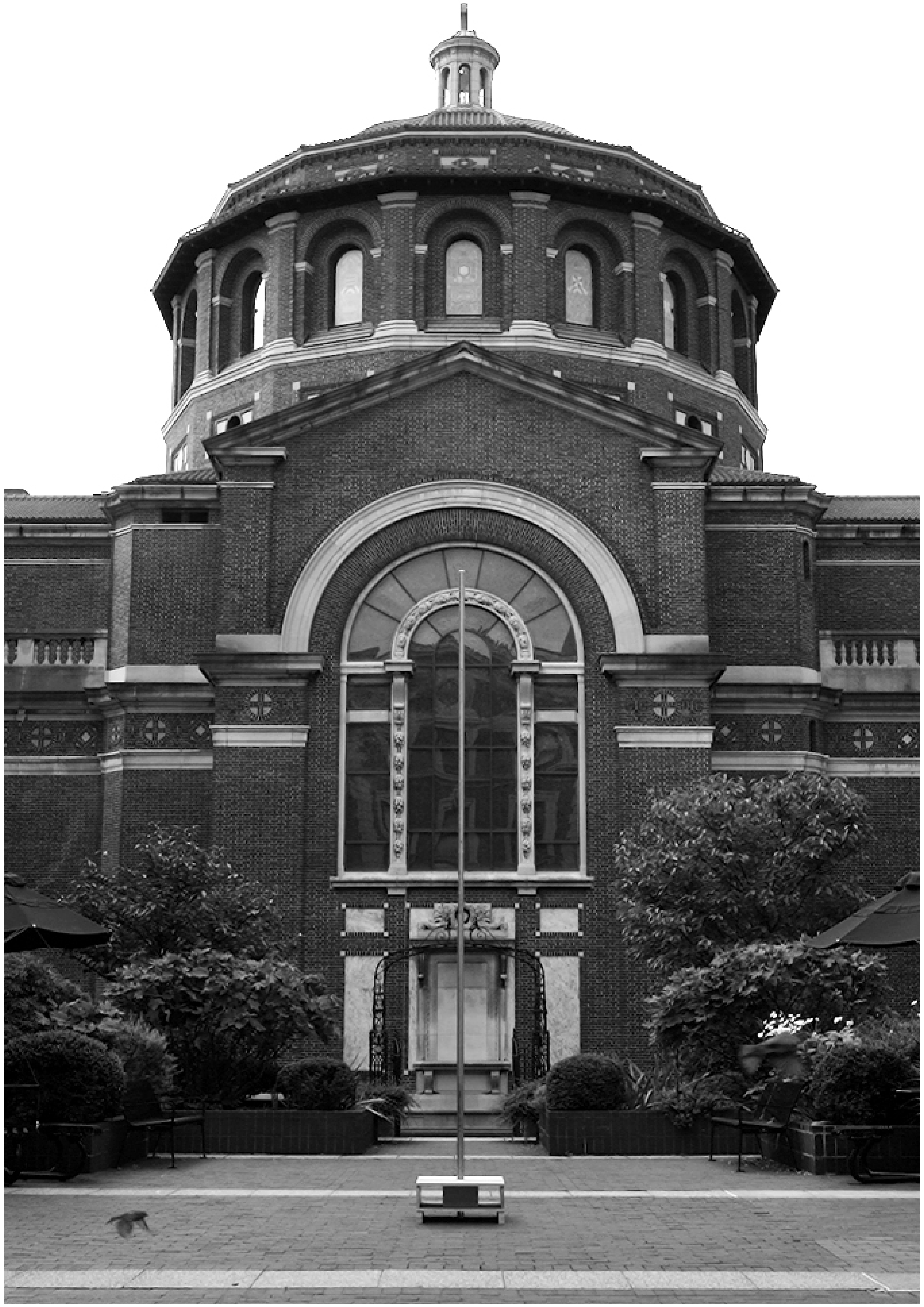
FLUID CATALOGUE

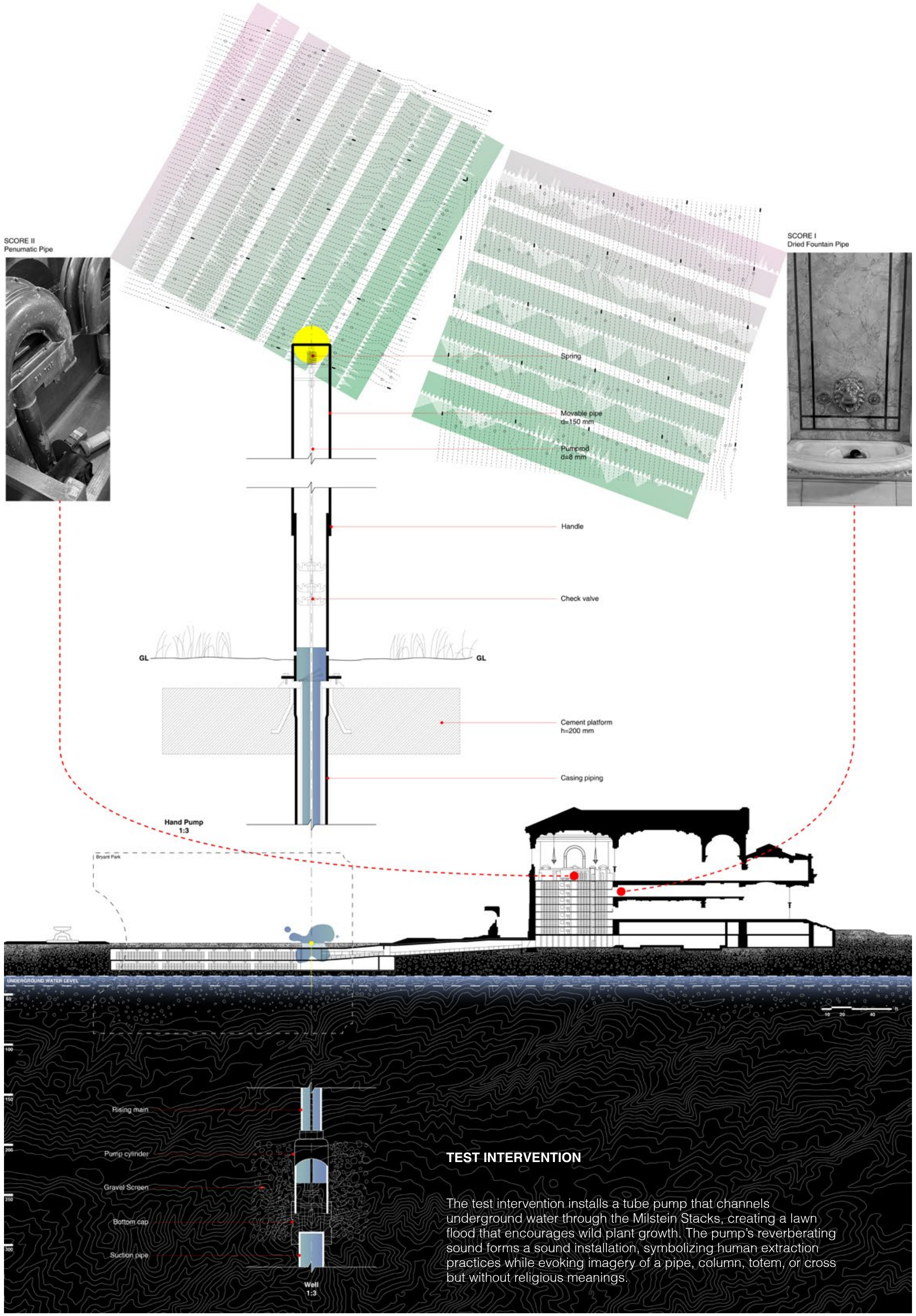
STTLMNT: UNSETTLING

2024 Fall
Columbia GSAPP / Adv V Studio
Instructor: Mario Gooden, Raven Chacon
Individual Work

Extraction, Enclosure & Displacement

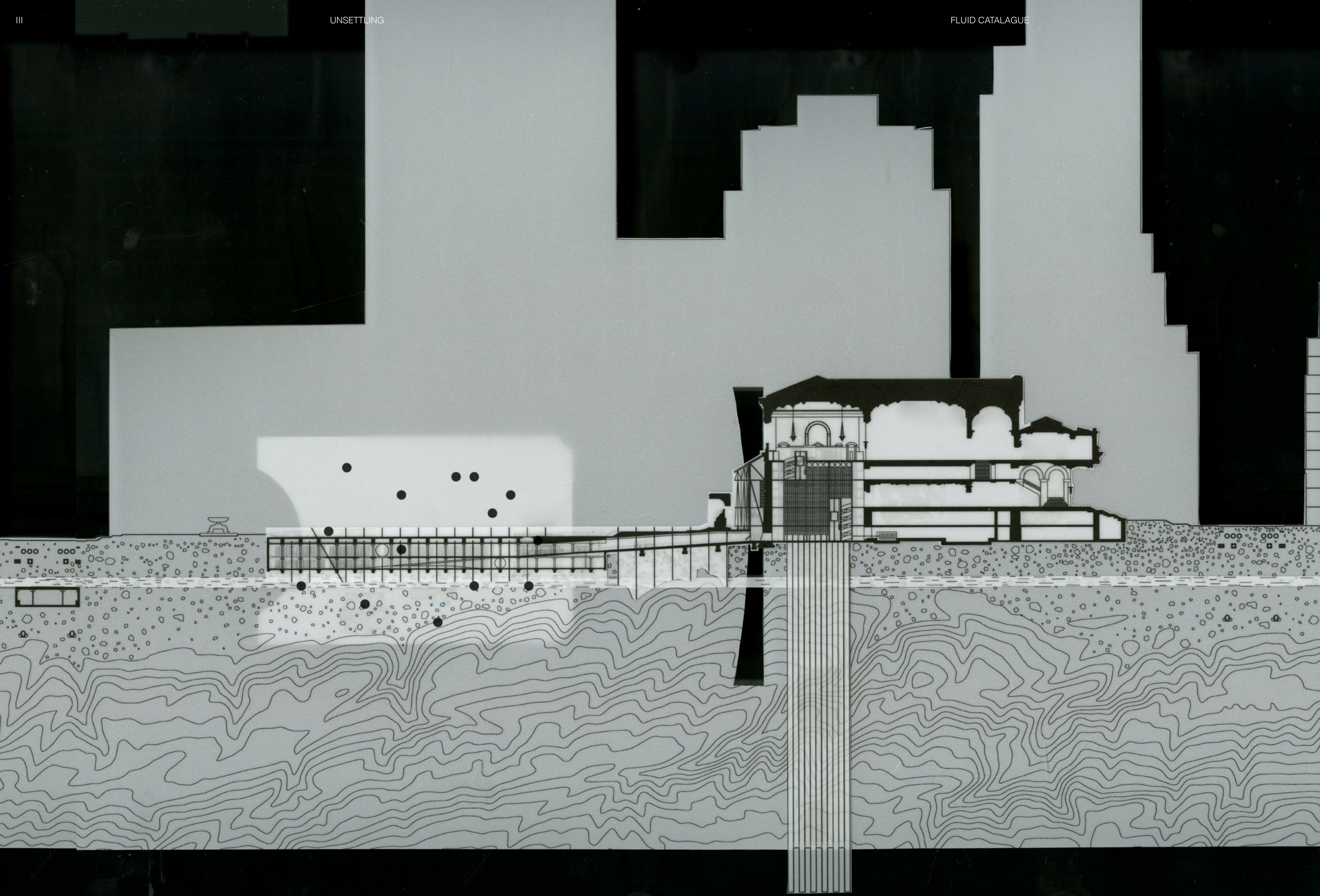
The history of Bryant Park is the spatial evidence of how **colonialism** displaced and enclosed **water** and **knowledge** as resources, extracting them from their dynamic origins and imposing Eurocentric epistemology. The intervention aims to expose the **failed systems** and **erased histories** on the site and reintroduce water and knowledge as dynamic elements that perform in their own nature spatially. By reproposing Milstein stacks to a water sanctuary and renovate the empty central stack, the project offers visitors an immersive experience to evoke memories and reflect on the colonial impact on knowledge and water infrastructure.



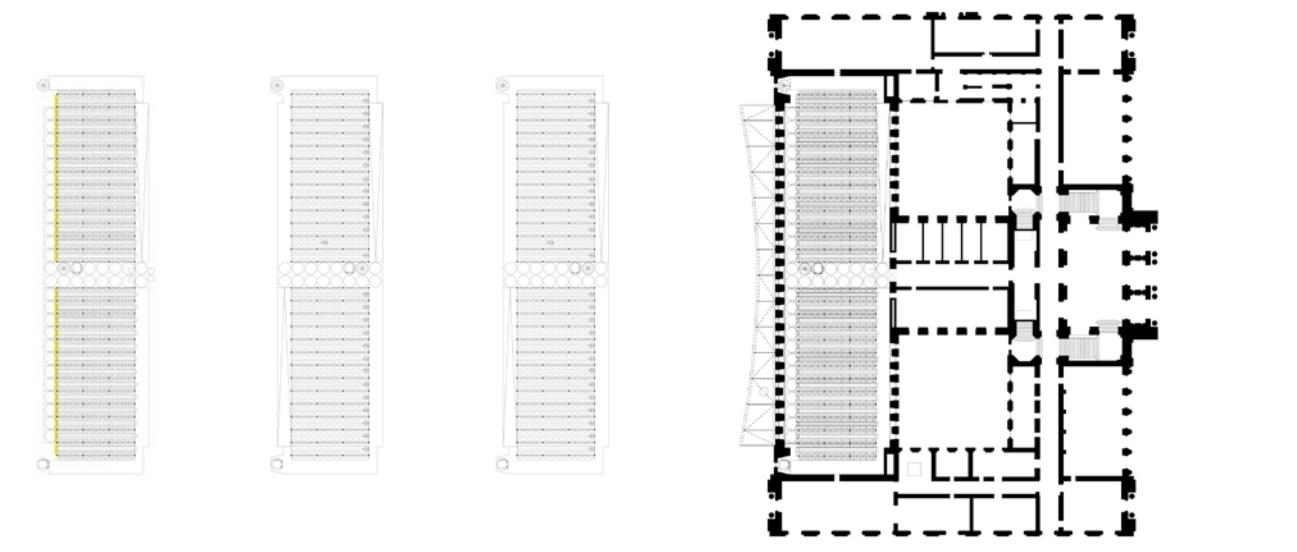


TEST INTERVENTION

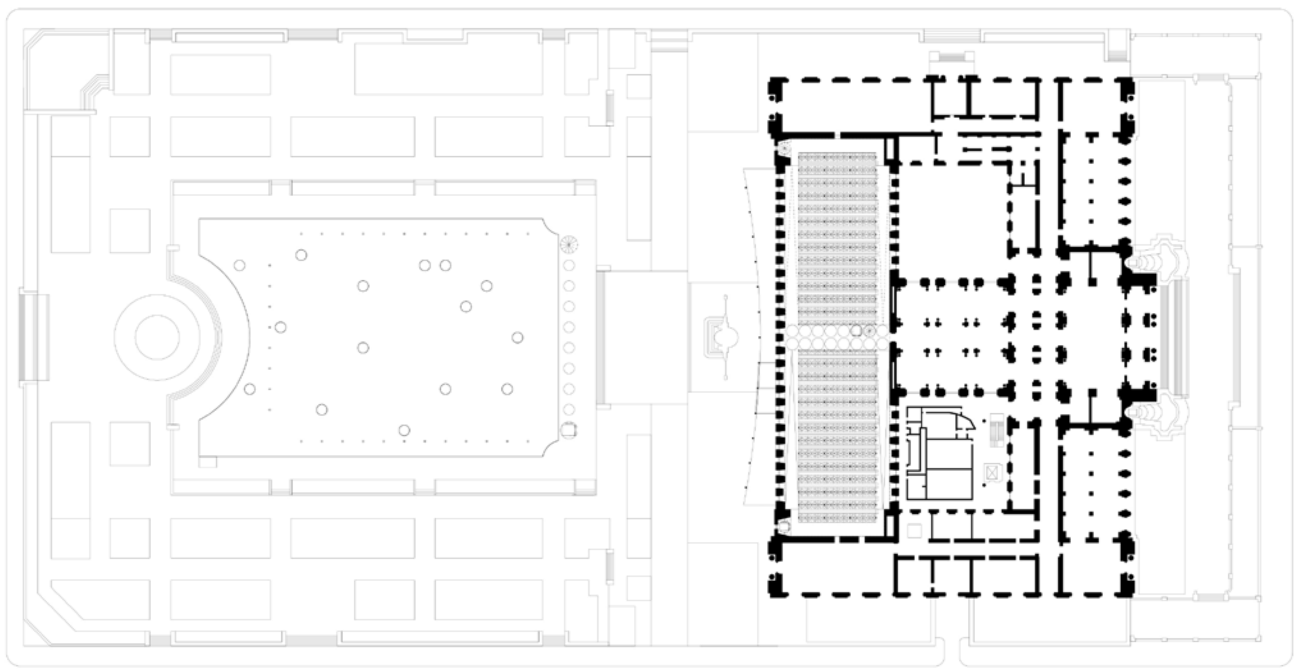
The test intervention installs a tube pump that channels underground water through the Milstein Stacks, creating a lawn flood that encourages wild plant growth. The pump's reverberating sound forms a sound installation, symbolizing human extraction practices while evoking imagery of a pipe, column, totem, or cross but without religious meanings.



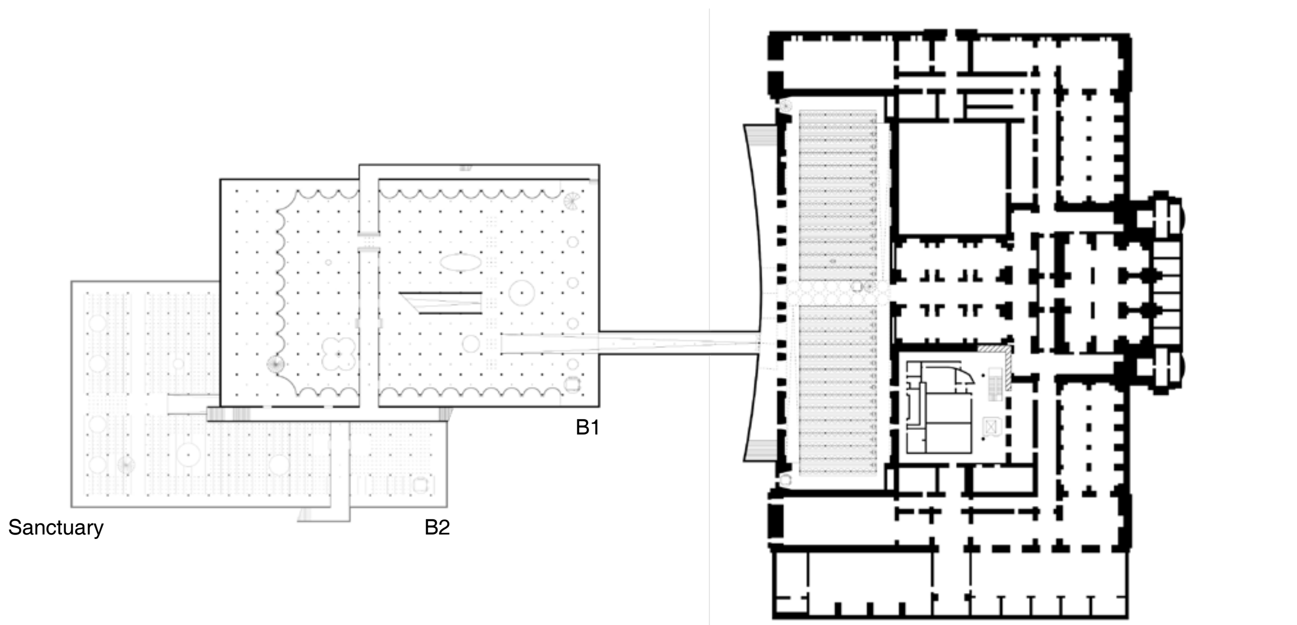
Section
1/16" = 1'



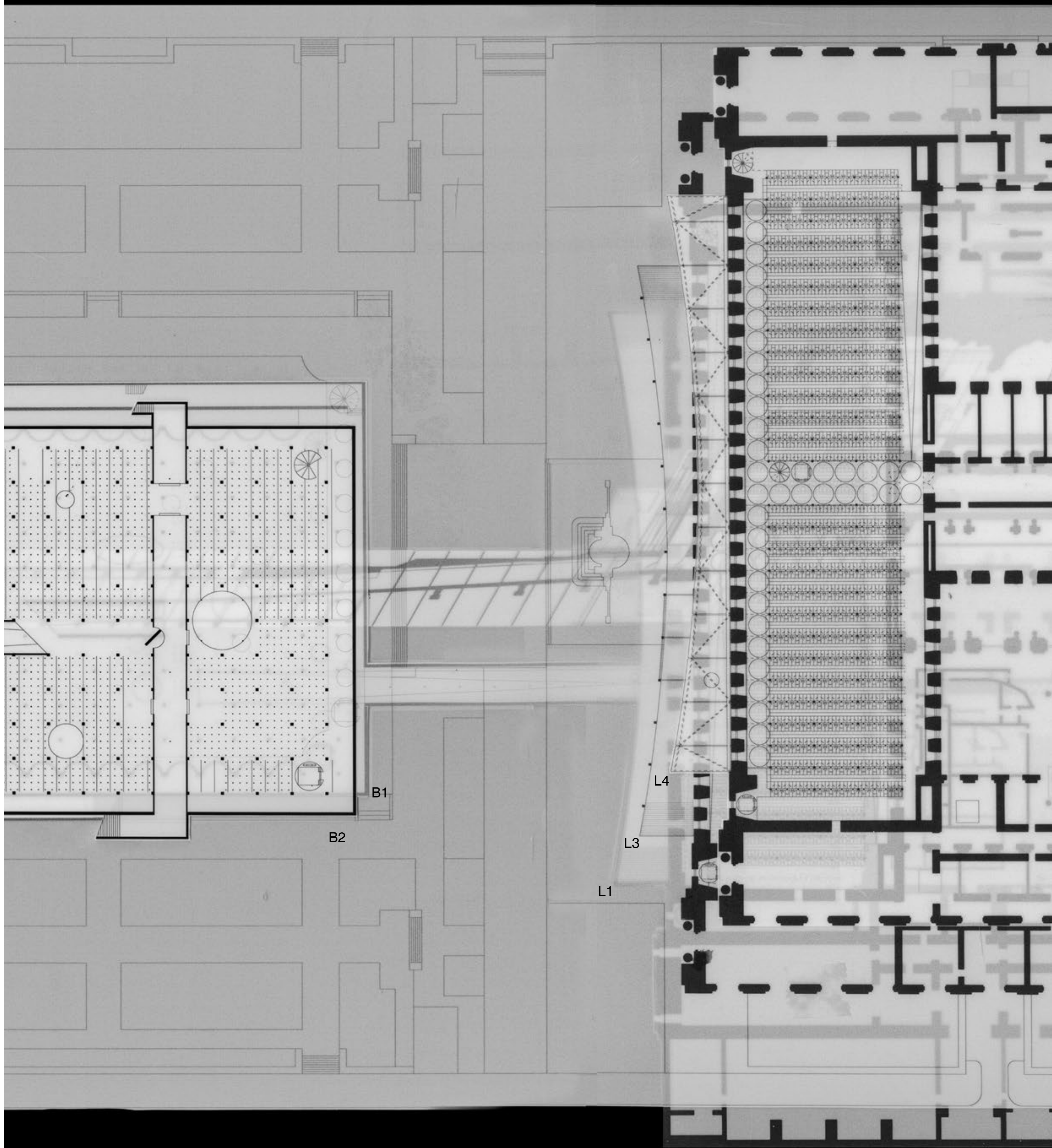
Central Stacks L7 L6 L5 L4 NYPL 3rd Floor



Bryant Park L3 NYPL Ground Floor



50 150 ft L1 NYPL B1 Floor

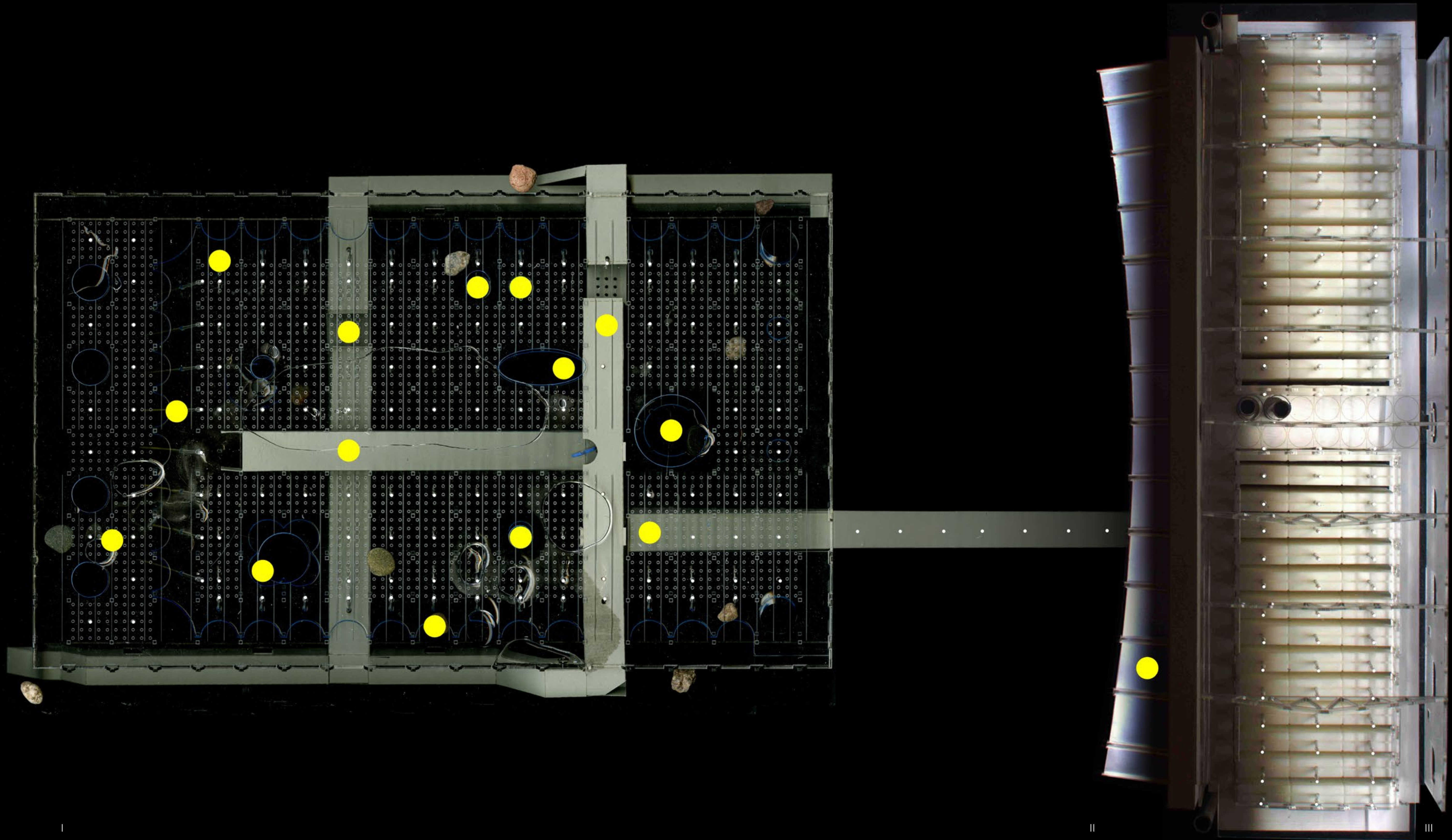


LIBRARY SPATIAL STRATEGY

Left Plan of NYPL & Milstein Stacks
L1-L7 Central Stacks
B1-B2 Milstein Stacks

Right Plan Oblique
1/16" = 1'

The renovated Central Stacks house five million books in a dense automated storage system. While the original seven-floor structure is preserved, it has been rebuilt with compact spacing for vertical stacking. In contrast, the Milstein Stack is emptied and transformed into an underground water sanctuary. The public regains access to the Central Stacks from Level 1, which connects to the sanctuary, or by walking around the stacks via ramp that winds through them.

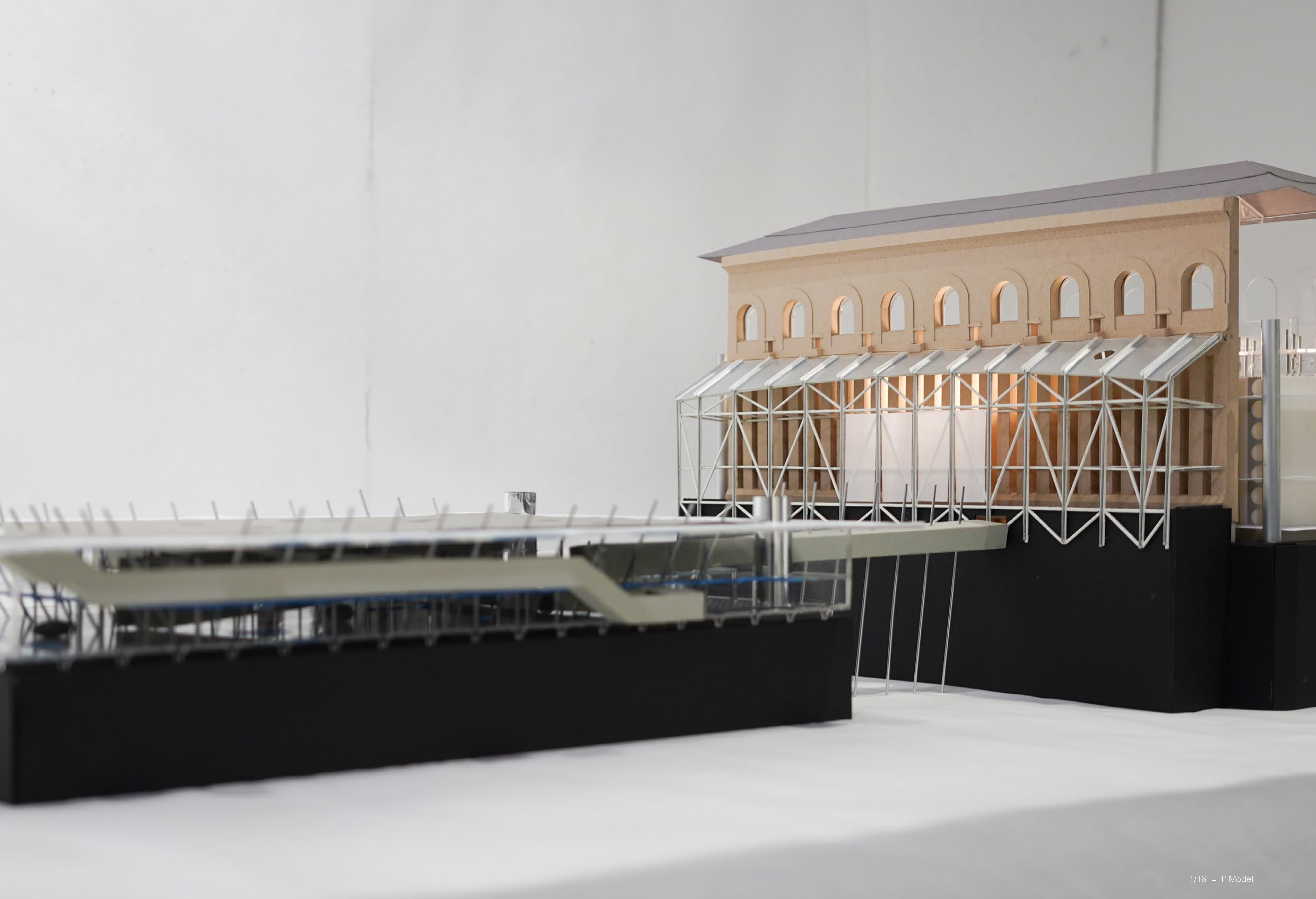


PROGRAM
Model 1/16" = 1'

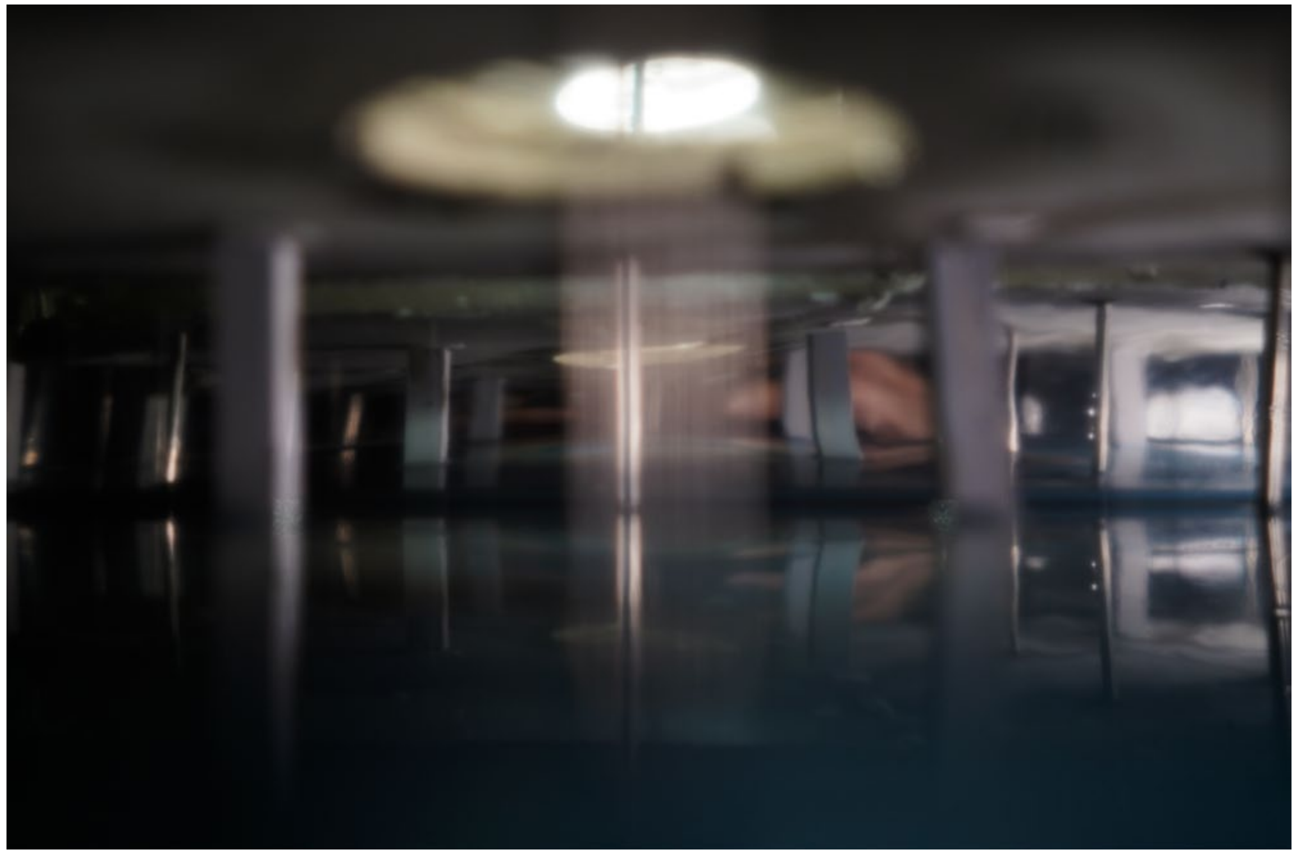
I	Automatic Stack System
II	Overlook
III	Sanctuary

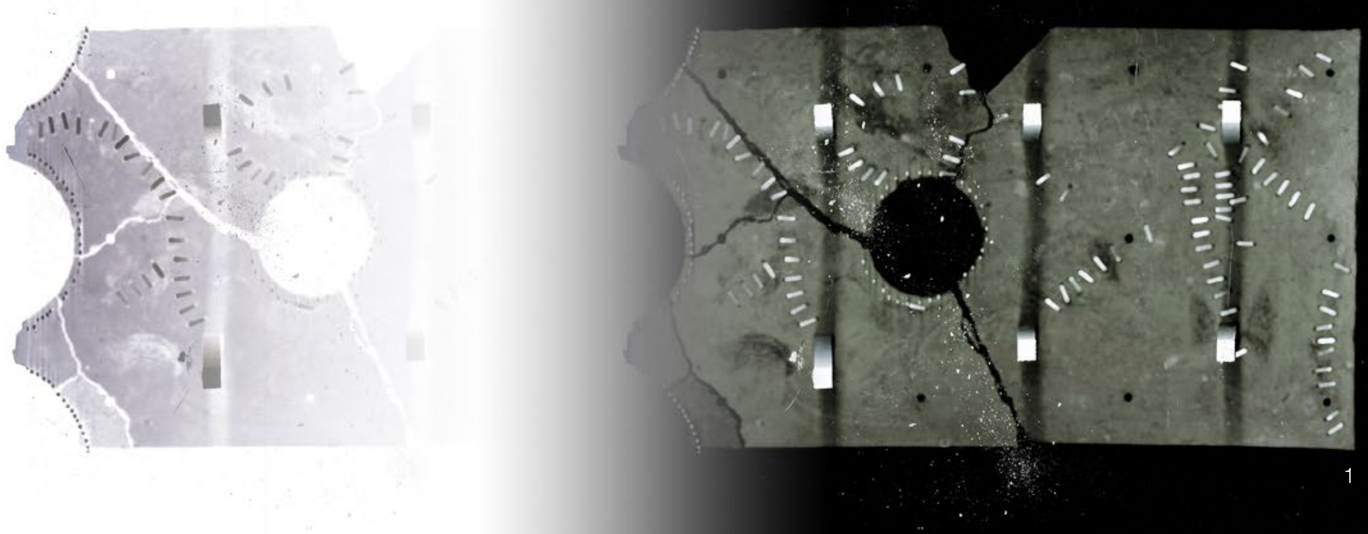
PLACE FOR DISMANTLING
Water Sanctuary

320 pipes across the site facilitate flooding, irrigation, and geothermal climate control. Renovated central stacks accommodate five million books with automated storage. Wild plants reclaim the lawn, cracks and moisture create a living ecosystem, redefining the space as a sanctuary. A multi-floor overlook reveals the building's historic foundation, offering views of both the sanctuary and library.



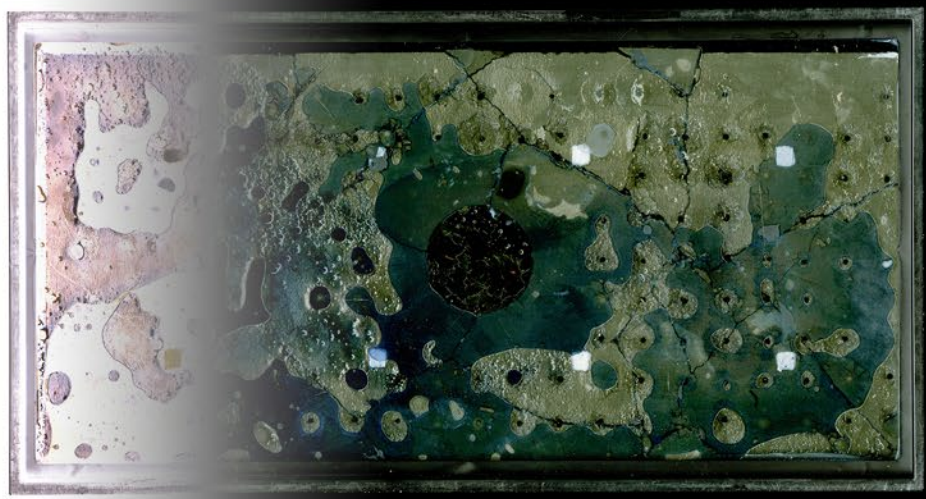
1/16" = 1' Model





1

2



3

ABOVE GROUND

The overlook structure invites the public to experience views of both the sanctuary and the library's historic architecture. It also doubles as a space for **film screenings** during summer nights, re-enhancing public interaction above ground.

UNDERGROUND

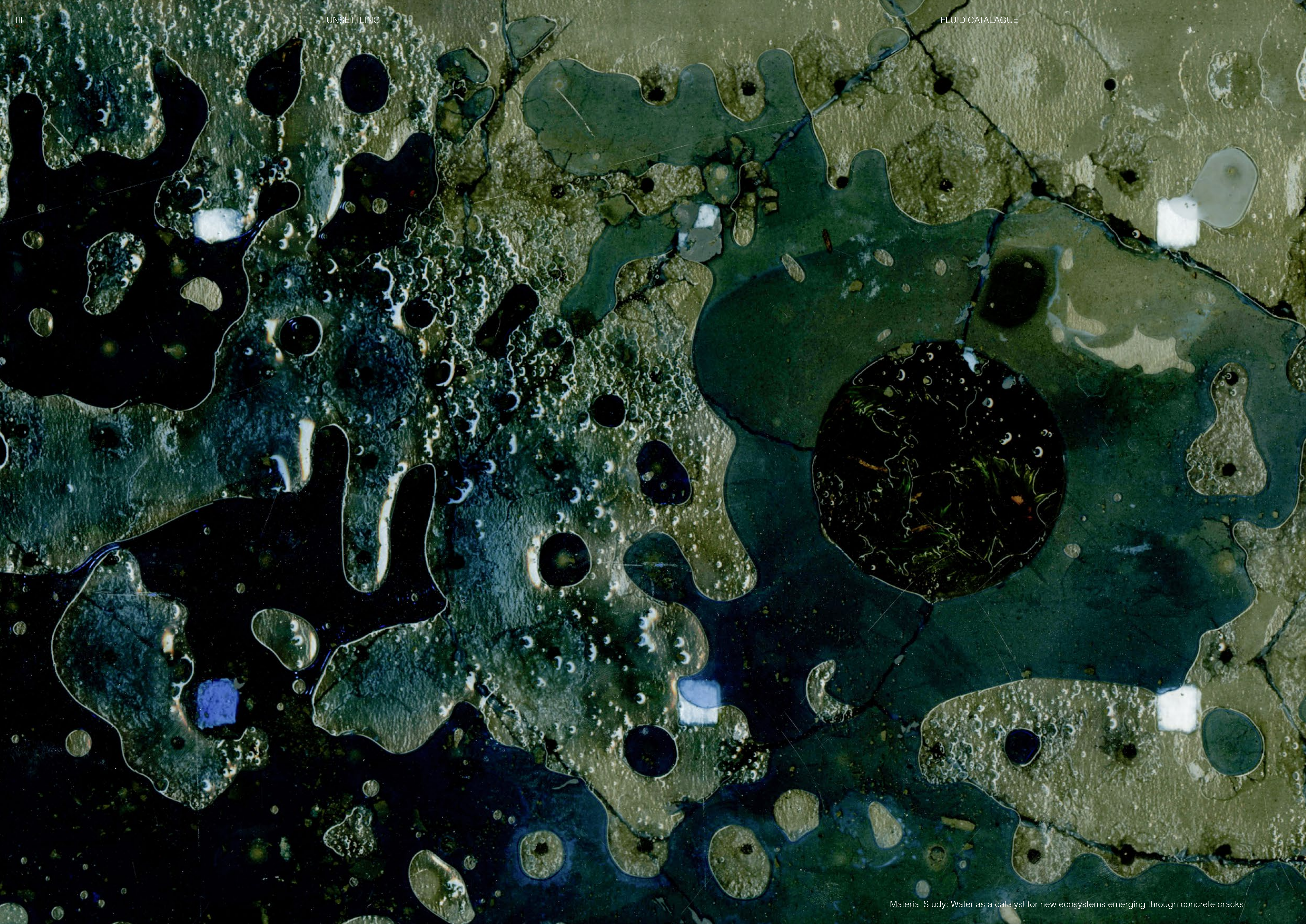
The Milstein Stacks are turned into a water sanctuary, with cored floors letting underground water flood the space, creating a living **ecosystem**. Pipes with hand pumps irrigate Bryant Park, helping wild plants **reclaim** the lawn. Oculus openings link park visitors to the sanctuary below, encouraging engagement and reflection.

DIGITALIZATION

1, 2 Material test for cored floor slab
concrete, staple, steel tube
color-scanned

3 Material test for water and penetration
color-scanned

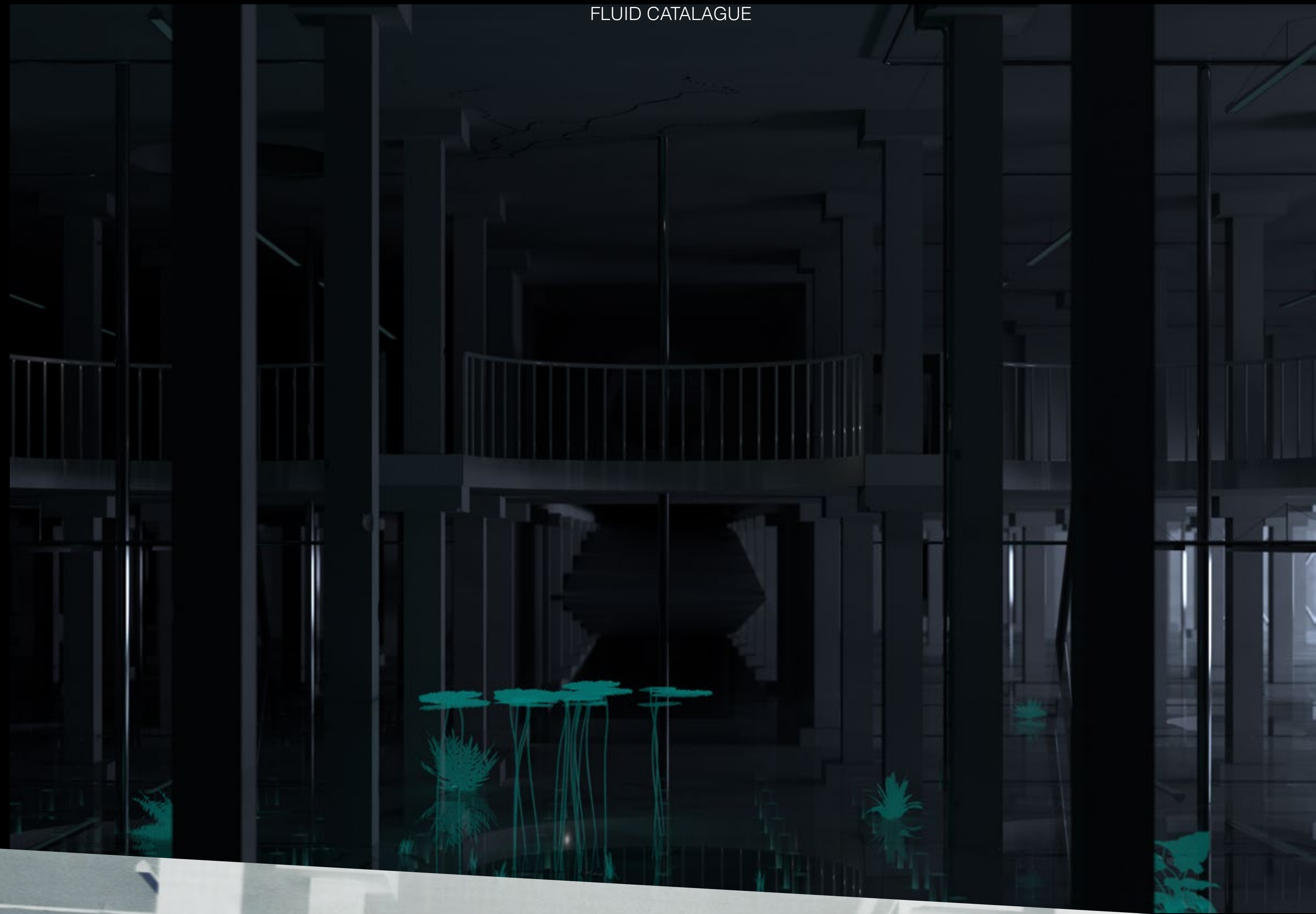
Footage from the rendering video captures the transformation of the underground sanctuary, showcasing the evolving ecological system. The scan technique is used to document the shift as nature gradually reclaims the space, highlighting the dynamic interaction between water, plants, and the environment.



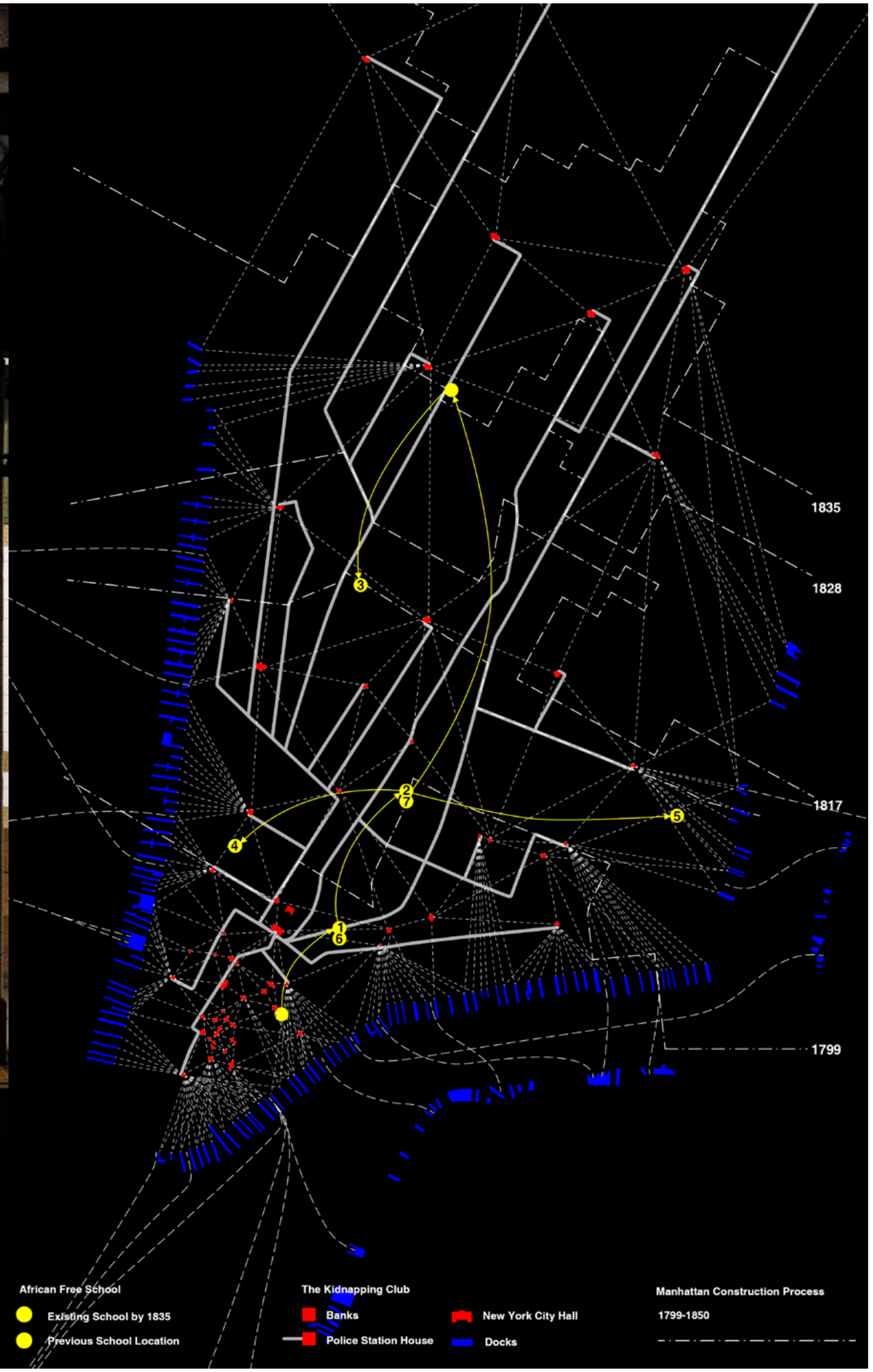
Material Study: Water as a catalyst for new ecosystems emerging through concrete cracks

1. Sanctuary with different underground water levels

2. Scanned space after water flooding the sanctuary



4. Scanned space with new ecosystem taking over the sanctuary



IV.

METRO-CLOCK

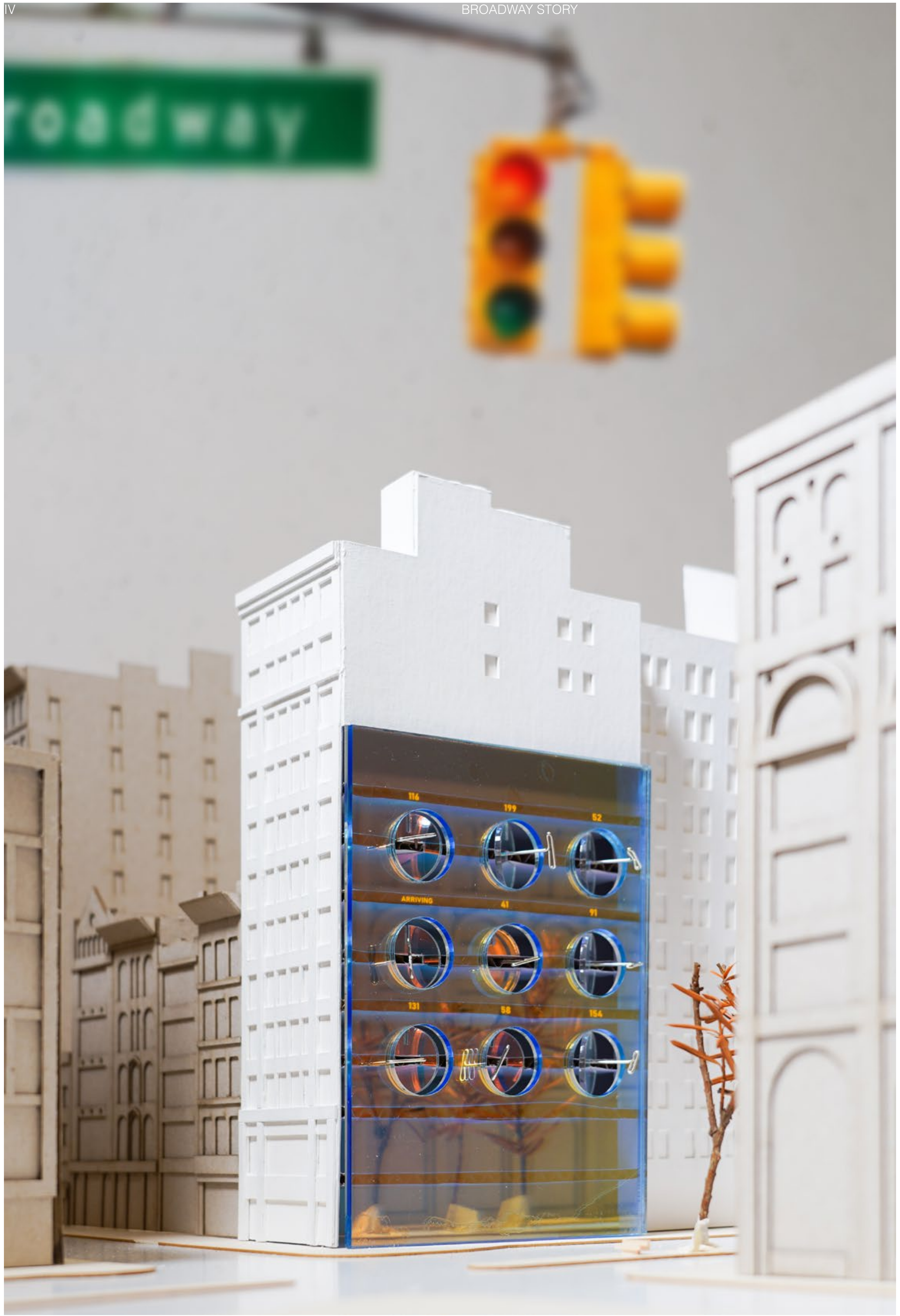
Broadway Story

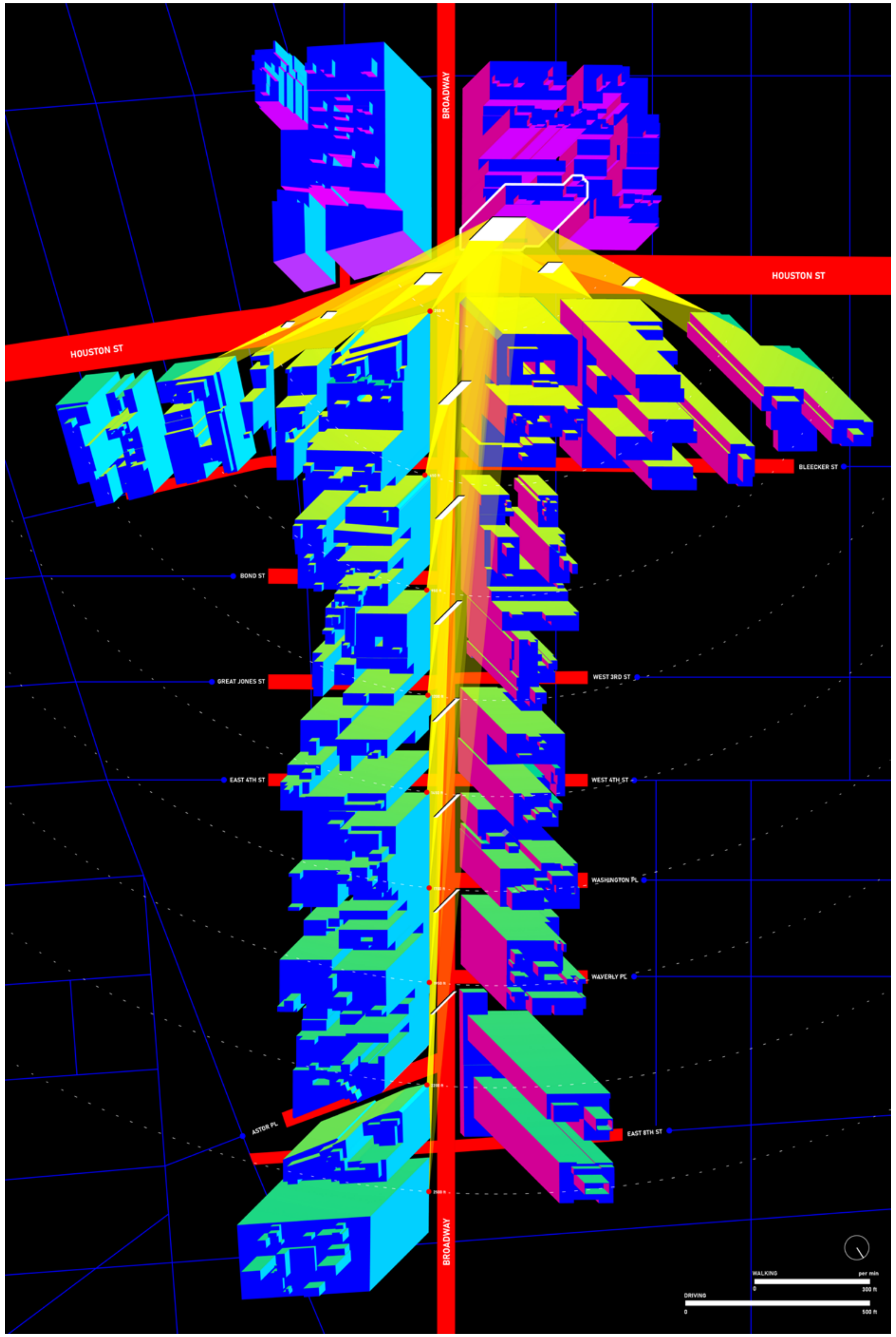
2022 Fall
Columbia GSAPP / Core I Studio
Instructor: Amina Blacksher
Individual Work

WHEN ARE THE TRAINS COMING?

You walked down the stairs.
You tapped and entered the gate.
You started watching rats racing below the tracks.
You miss the sun, the air, and everything that lingers above.
If only you'd known — seven minutes till the next train.
Before you go down, look up.

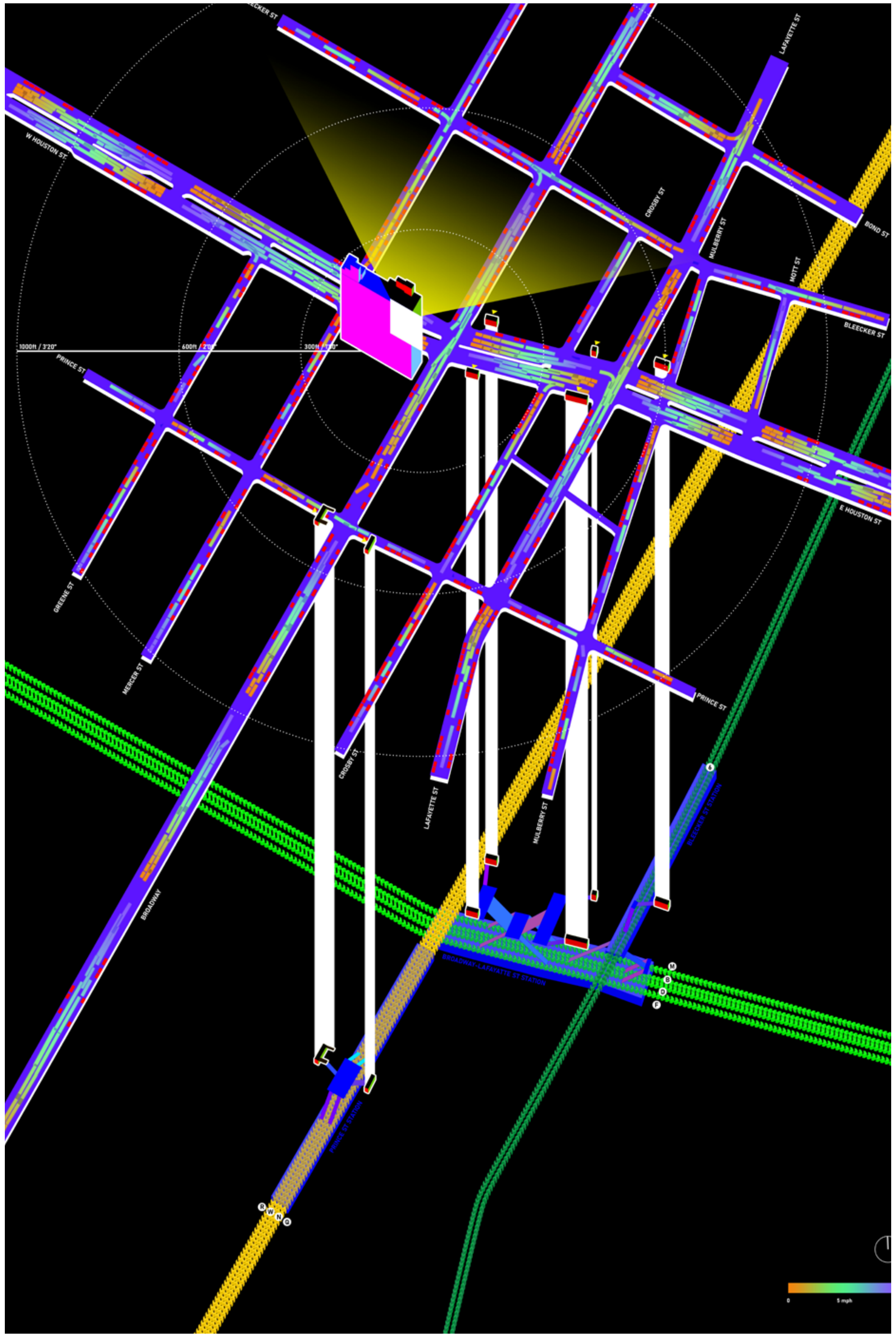
Located on the northern facade of Ayer Building at the intersection of Broadway and Houston Street, the intervention is a addive **clock system** that communicate subway trains' schedule at a public scale. The revolution of each clock depends on different subway lines' **frequency** running through the intersection.





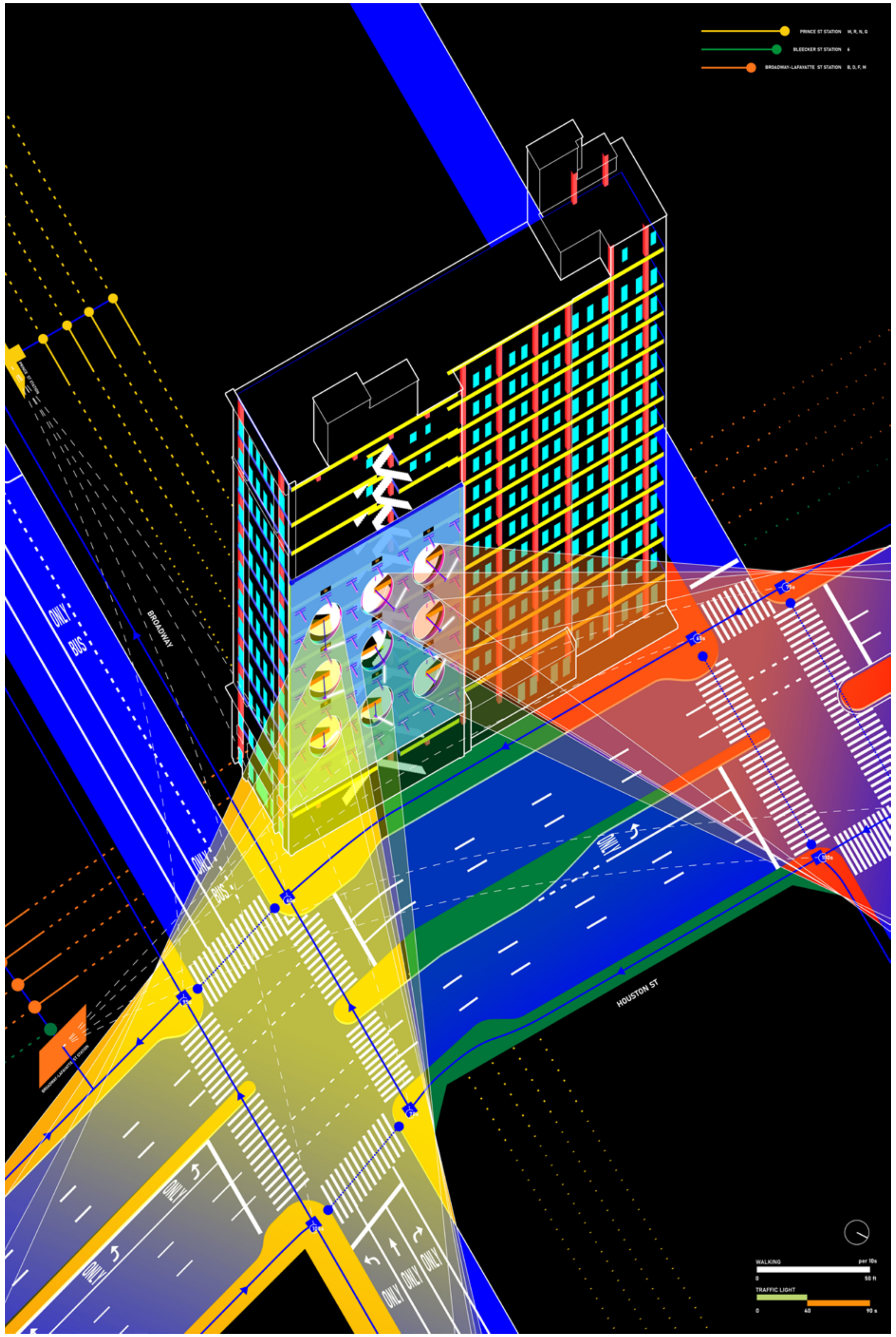
DRAWING I
Site Visibility Analysis

The northern facade of Ayer Building is where the intervention will be located. As a busy traffic hub, the site receives much **public attention** and potentially has huge influence on surroundings. When going along Broadway down, the public are able to notice the wall with different perspectives from half mile away.



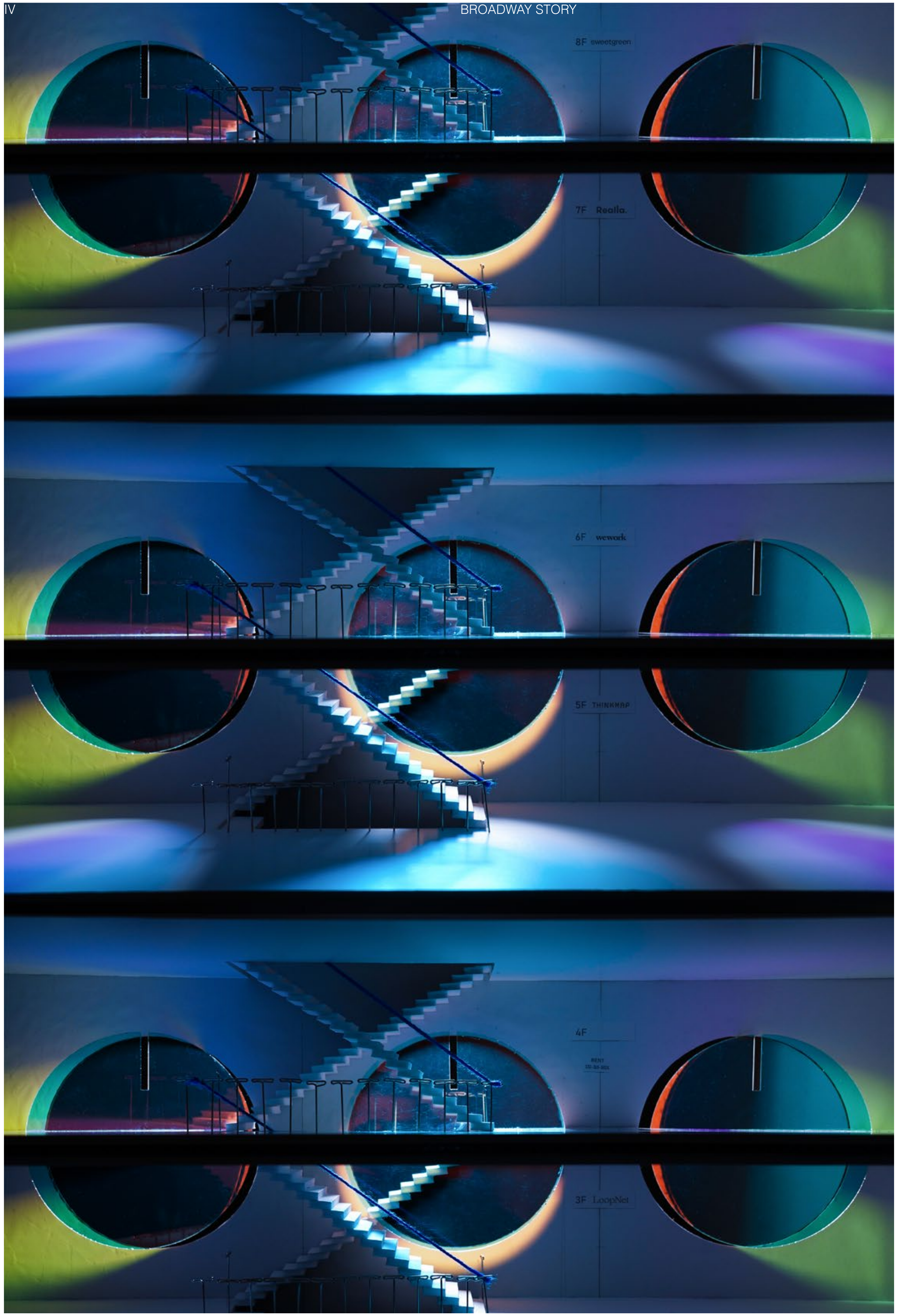
DRAWING II
Traffic Systems Analysis

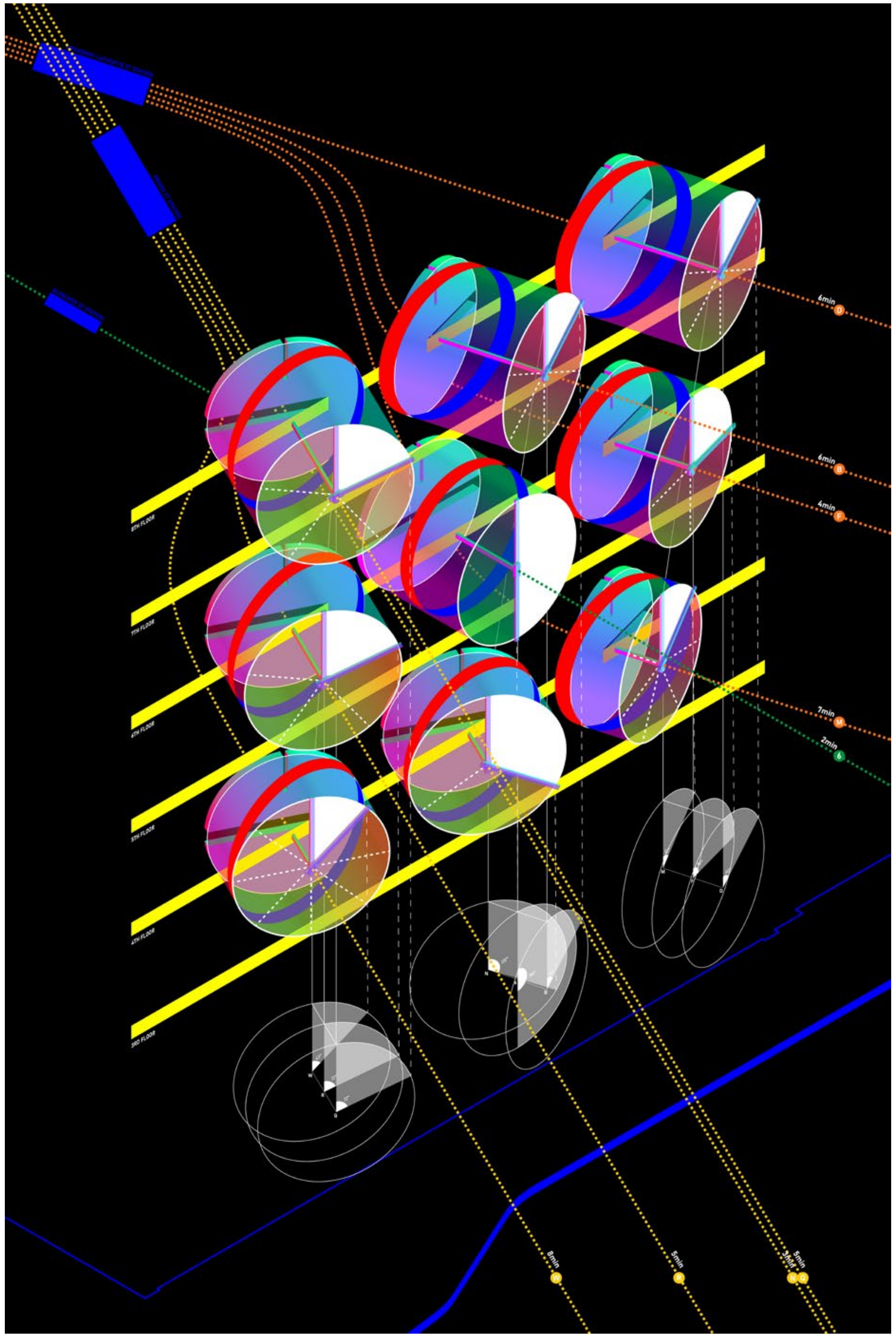
Nine subway lines run underground and there are seven **subway entrances** to three stations in this area, whic are all in 1-2 minute walking distance. Subway schedules and the traffic above and underneath are two independent systems but both are running based on time.



DRAWING III
Building Axon with Passenger Routes

The intervention consists of nine clocks that run based on nine subway lines underneath. The clocks face different directions including **two major intersections**. Passengers can read when trains will arrive and walk to the station which usually takes one minute.





DRAWING IV
Detailed Assemblage of Clocks

The revolution of each clock represents each subway train's **frequency**. These clock surfaces, as openings on the wall, also function as **pivot windows**. The window helps bring light in the building that can improve the condition of working space as it is an office building.

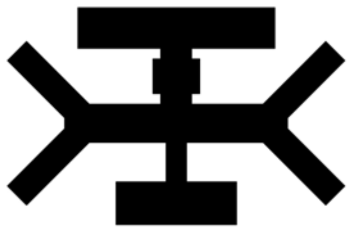
V.

THE CALL
SMALL FOOTPRINT: CLINIC

2025 Spring
Columbia GSAPP / Adv VI Studio
Instructor: Hilary Sample
Individual Work

DONATION, PUBLIC, CARE, CALL

Three vacant **storefronts** and a courtyard in **East Village** are turned into a blood donor center and a gallery—a public place to care for **blood health** and commemorate the history of blood and activism in the fight against blood-related diseases. Flexible by design, gallery rooms become donor booths, and benches double as donor chairs. Extended storefronts become extended **public space**. Open all year around, ready to respond to any call: call for blood, call for activists.

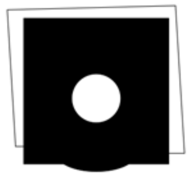


Old Main Hospital in Ann Arbor, 1920
Albert Kahn

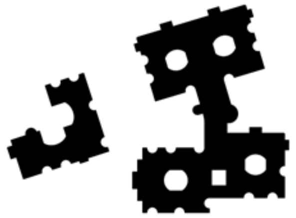
Paimio Sanatorium, 1933
Alvar Aalto

Amsterdam Orphanage, 1960
Aldo van Eyck

Bronx Development Center, 1977
Richard Meier



Sant Vicenç dels Horts Healthcare Centre, 1986
Jaume Bach & Gabriel Mora



Padua Psychiatric Clinic, 1989
Aldo and Hannie van Eyck

Hospital of Móra d'Ebre, 1990
José Antonio Martínez Lapeña & Elías Torres

Childrens Center for Psychiatric, 2006
Sou Fujimoto

Dormitory in Date, 2003
Sou Fujimoto

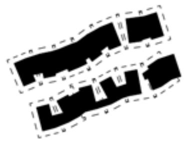
7/2 House, 2003
Sou Fujimoto

Group Home in Noboribetsu, 2006
Sou Fujimoto

Malpertuus Veterinary Clinic, 2009
architecten de vylder vinck taillieu

CAP Salt 2 Health Centre, 2009
Jordi Badia

Maggie's Centre Gartnavel, 2011
OMA



Léo Surgical Clinic, 2014
Francis Kéré

Left Plan of collected clinics

1 Elevation of model 1/4" = 1'

2 View from the corrdior

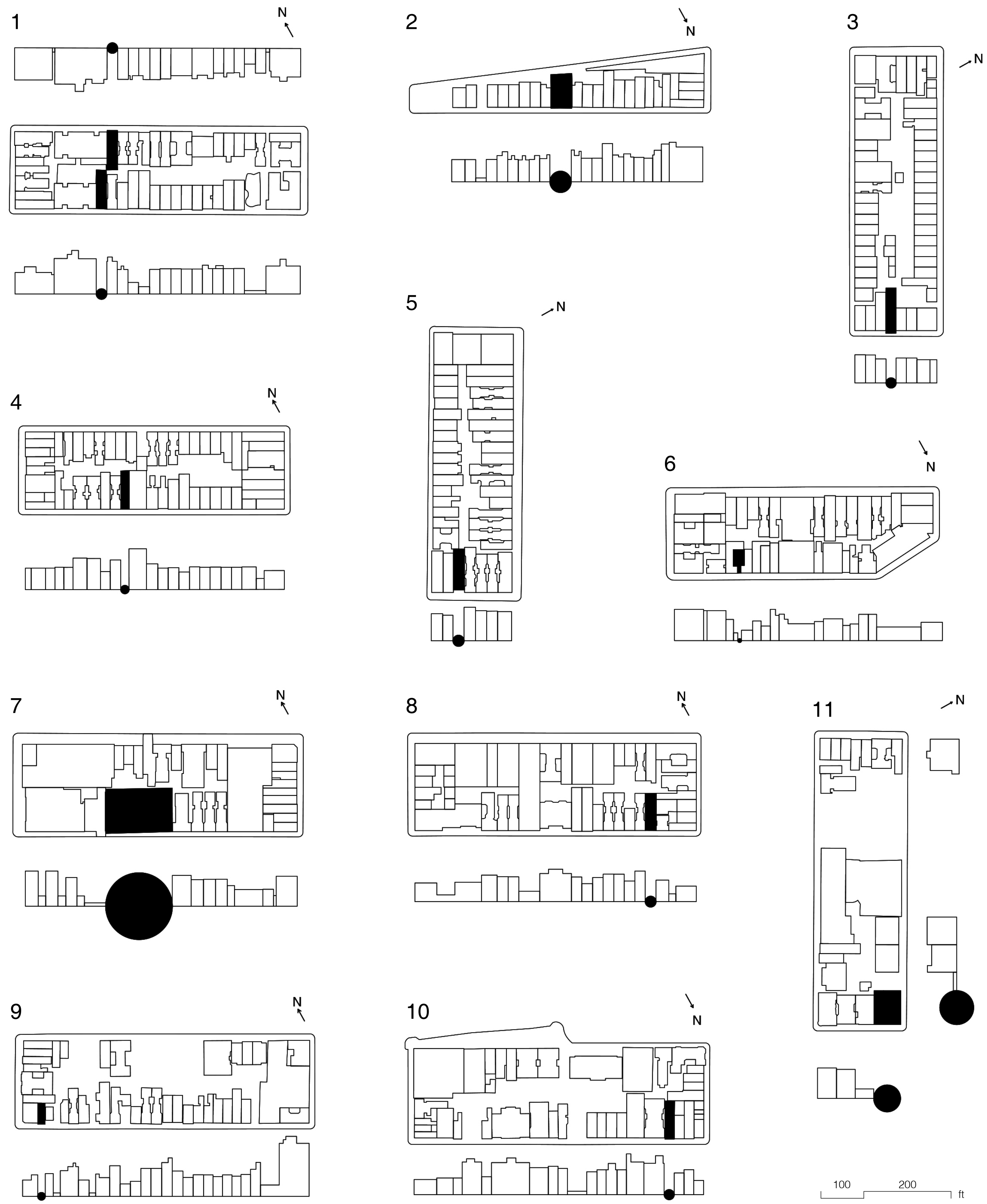
CASE STUDY
Padua Psychiatric Clinic in Boekel, Aldo & Hannie van Eyck, 1989

The psychiatric clinic accommodates psychiatric patients who are not permitted to leave the facility. The main building is organized into four sections, each containing a small external courtyard surrounded by a **cloister**. Aldo & Hannie's design emphasizes the **sequence** of nature and interior spaces, particularly the role of the **courtyard** as a closed open space.

Top view of 1/4" = 1' Model

Night view from courtyard

Address	Lot Size	Area (sqft)
1. 611 E 6th St + 196 E 7th St.	25’ x 90’ x2	4,500
2. 231 E 2nd St.	50’ x 80’	4,000
3. 89 1st Ave.	24’ x 100’	2,400
4. 419 E 6th St.	19’ x 90’	1,710
5. 123 2nd Ave.	25’ x 100’	2,500
6. 236-240 E 9th St.	10’ x 56’	560
7. 327 E 13th St.	138’ x 103’	14,214
8. 543 E 13th St.	25’ x 103’	2,575
9. 233 E 7th St.	19’ x 49’	931
10. 276 E 3rd St.	23’ x 87’	2,000
11. 53-55 Ave. D	63’ x 80’	5,040



Map of East Village
*data accessed from Zola NYC

100 500 ft

VACANT LOTS
East Village, New York

The site is to be located in the East Village, a neighborhood once known for its vibrant **storefronts**—many of which were shuttered after COVID. In addition to empty storefronts, several vacant lots offer potential to be repurposed as **public spaces**. Through Zola, 11 such lots were identified and compared based on size and surrounding neighborhood conditions.

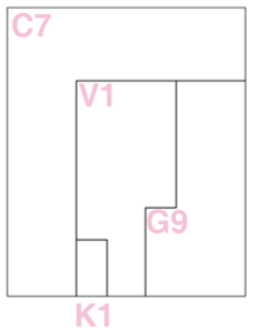
* circles indicating the proportion of lengths x height of the storefront

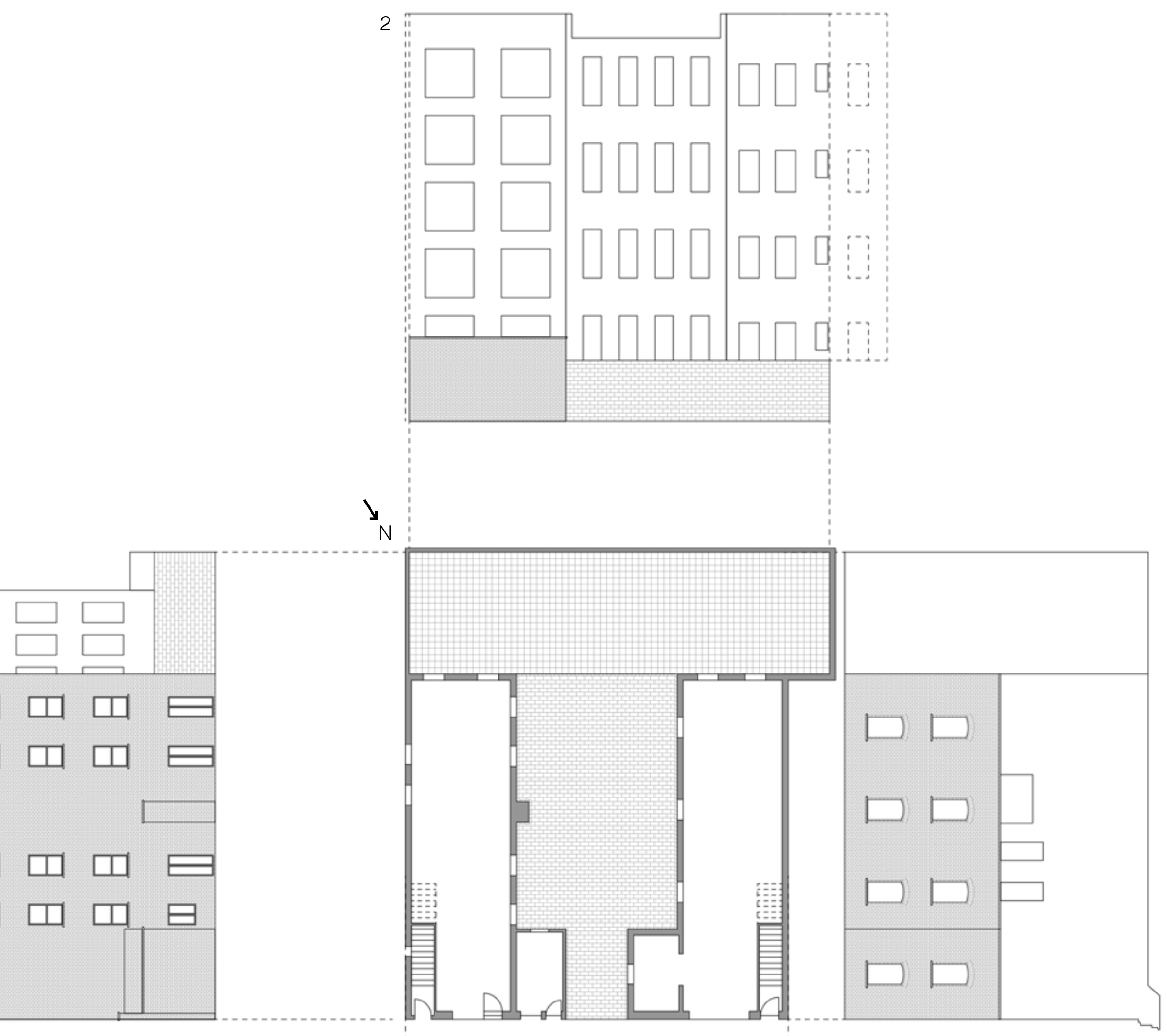
VACANT STOREFRONTS
East Village, New York

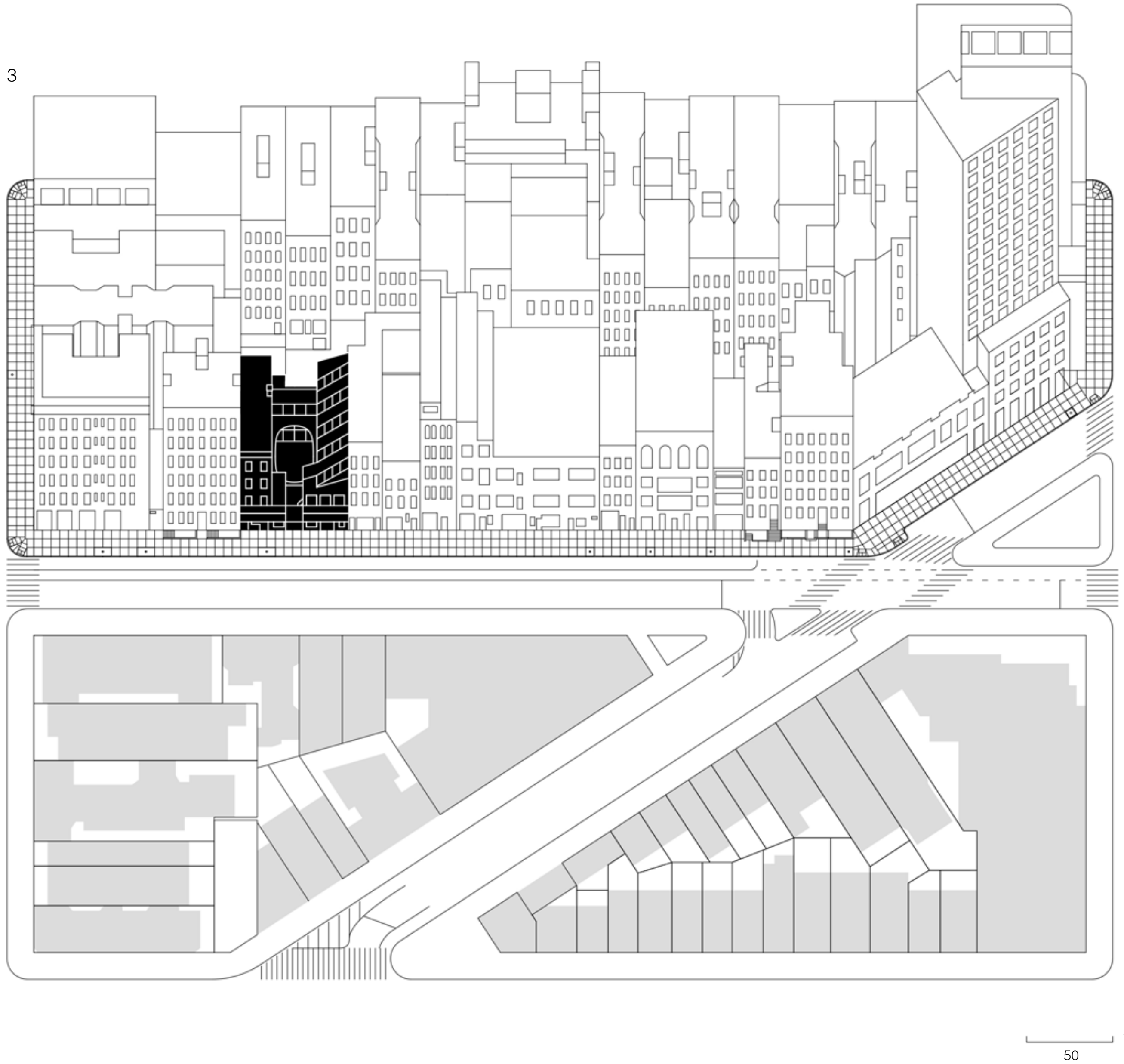
After comparing the vacant lots and their sizes with clinic precedents, all 11 sites were further examined through street view and **storefront conditions**, which provided a clearer understanding of the spatial qualities of each lot. Eventually, Option 6 was selected—a vacant **courtyard** surrounded by three empty storefronts.

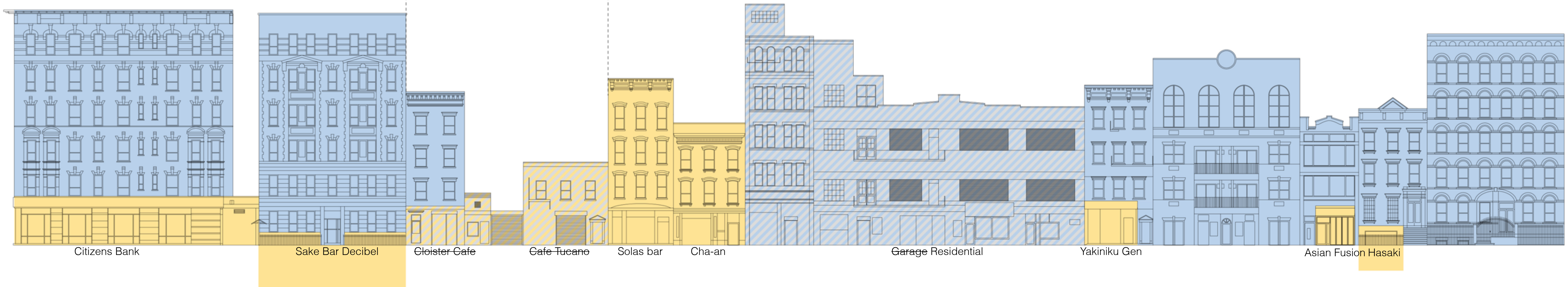
THE CALL

Storefront of the Call
1/8" = 1' model, paper

1


2


3




234-238 E 9th St
East Village, New York

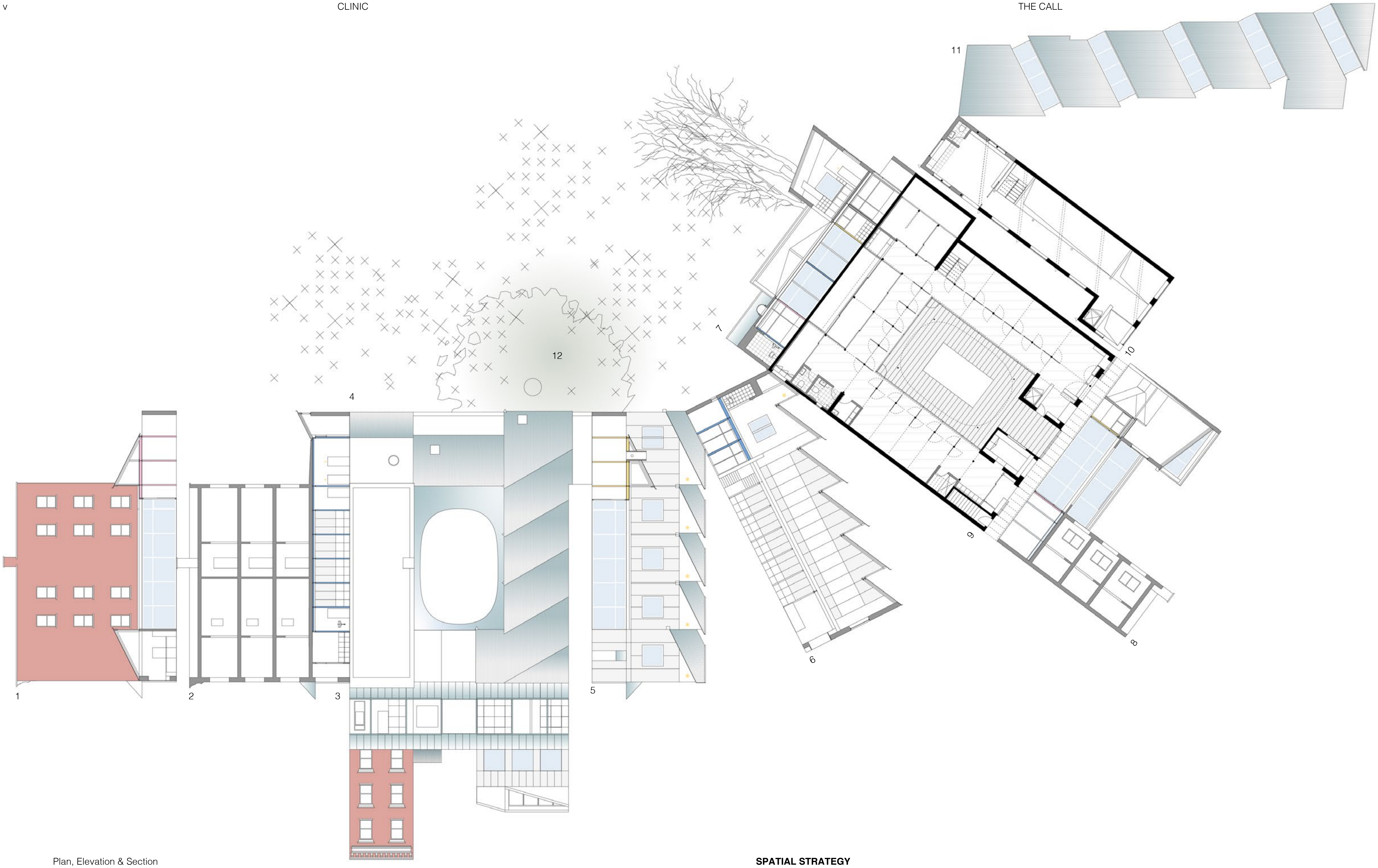
1 Building Code

2 Existing site condition

4 Block Oblique View

The site consists of three **vacant storefronts** that used to be café and dessert stall. The courtyard used to be outdoor seating of Cloister Café, on the ground floor of the residential building (238 E 9th St), before it closed during COVID. Since then, the courtyard has been left abandonedwith ivy overgrowing. Most buildings on East 9th Street are **residential**, with some restaurants and bars.

- residential
- commercial
- vacant



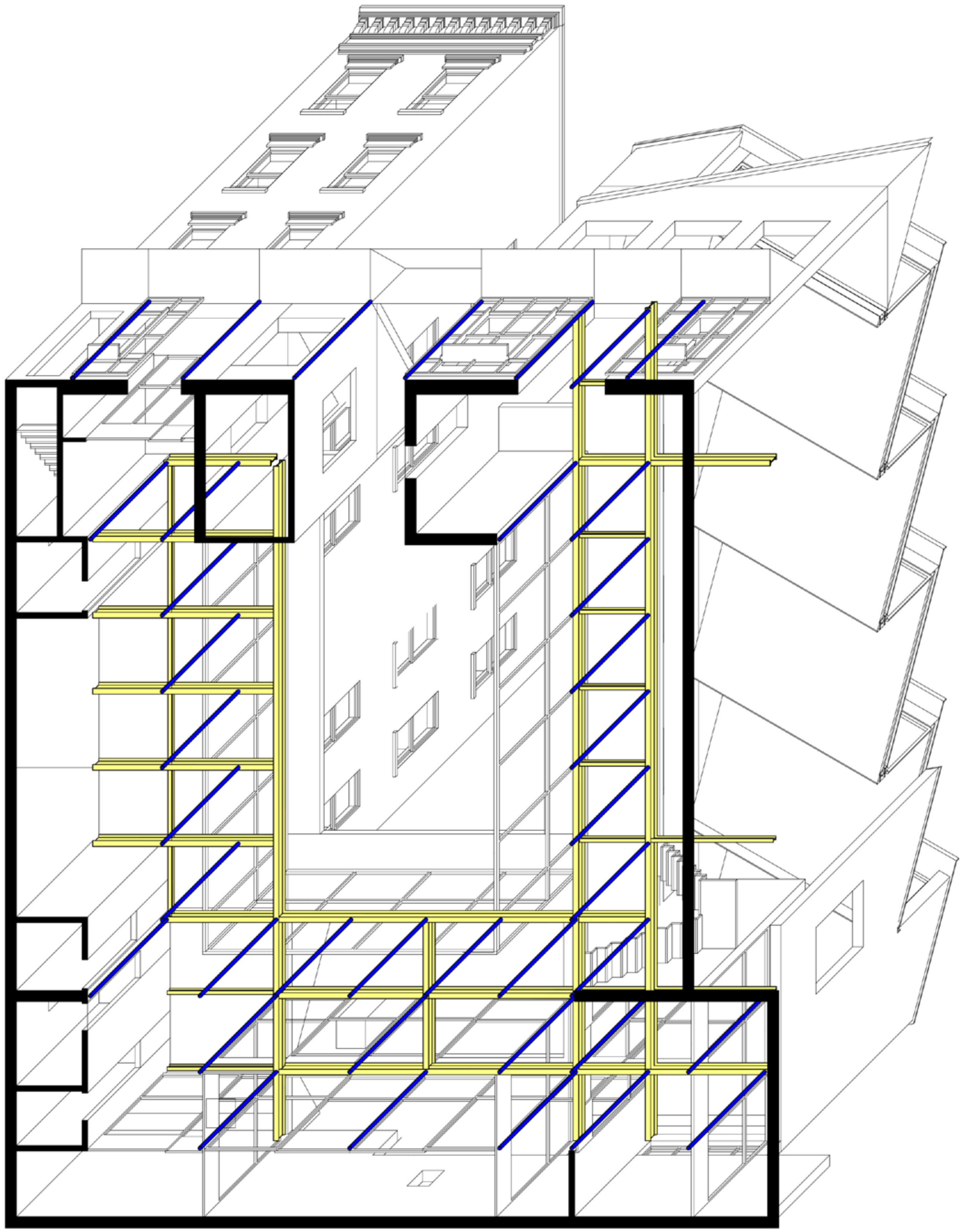
Plan, Elevation & Section

1	East Elevation	5	West Elevation	9	Ground Floor Plan
2	East Section	6	West Section	10	Second Floor Plan
3	North Elevation (storefront)	7	South Section	11	Sawtooth Roof Plan (unfolded)
4	Roof Plan	8	South Elevation	12	Honey Locust (existing)

SPATIAL STRATEGY

The design is **flexible**, altering between a blood donor center and an art gallery depending on seasonal needs. The layout can adapt to provide a flexible number of donor slots—such as more donor slots in August, when galleries often close and blood demand is high. The ground floor is kept mostly open to function as a public space, inviting people in to learn about the history of blood and raise awareness of **blood health**.

10 30 ft

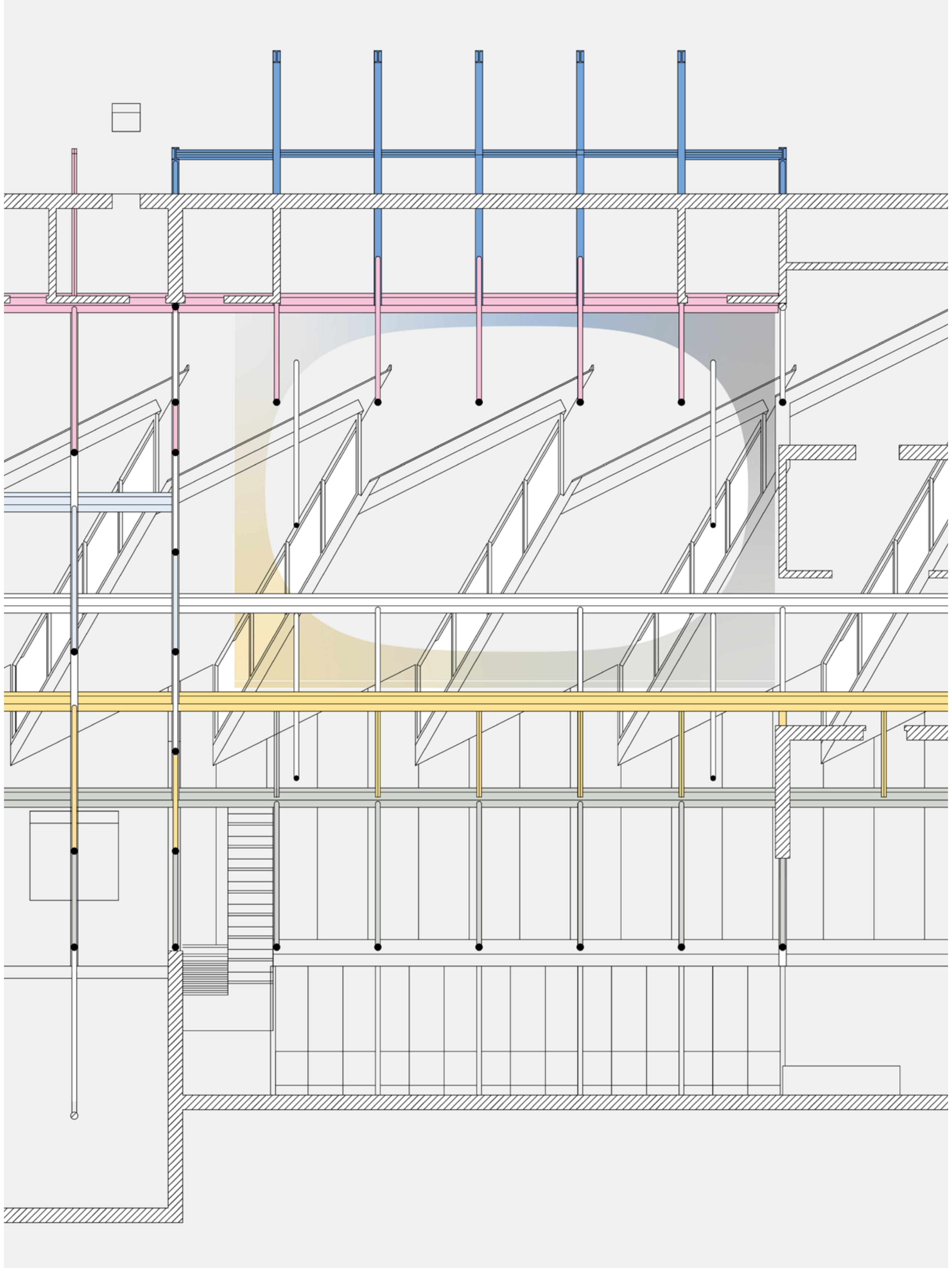


Left Street view of new structure 1/8" = 1' Model

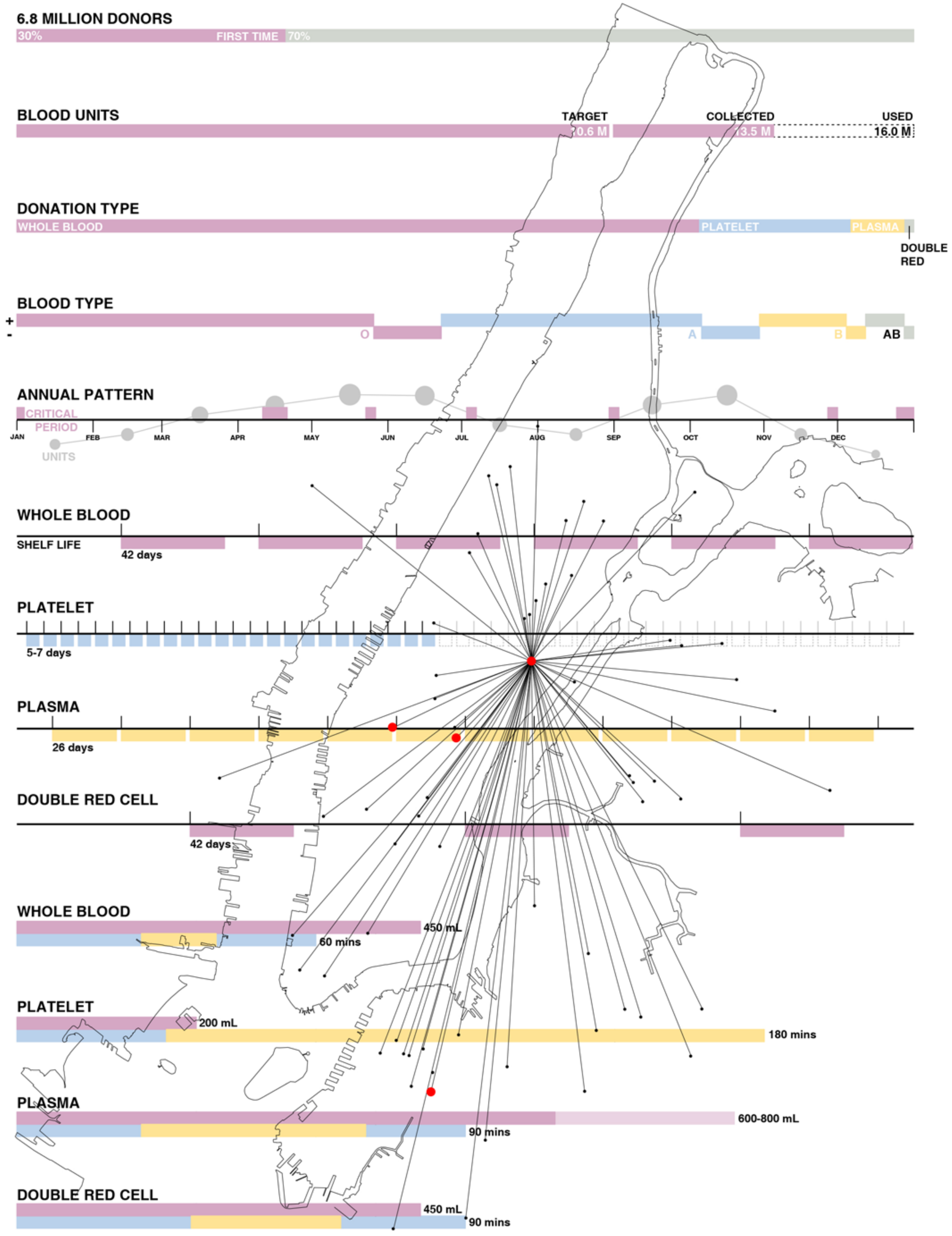
Right Worm-eye Plan Oblique highlighting new structures

STRUCTURE

The ground floor masonry walls are removed and replaced with new steel columns with beams, making space for large **storefront windows**. The garage roof is rebuilt as a saw-tooth structure to bring in natural light and signal its new role as a gallery. The storefronts extend into the courtyard, transforming it into a shared **public space**.



Worm-eye Plan Oblique

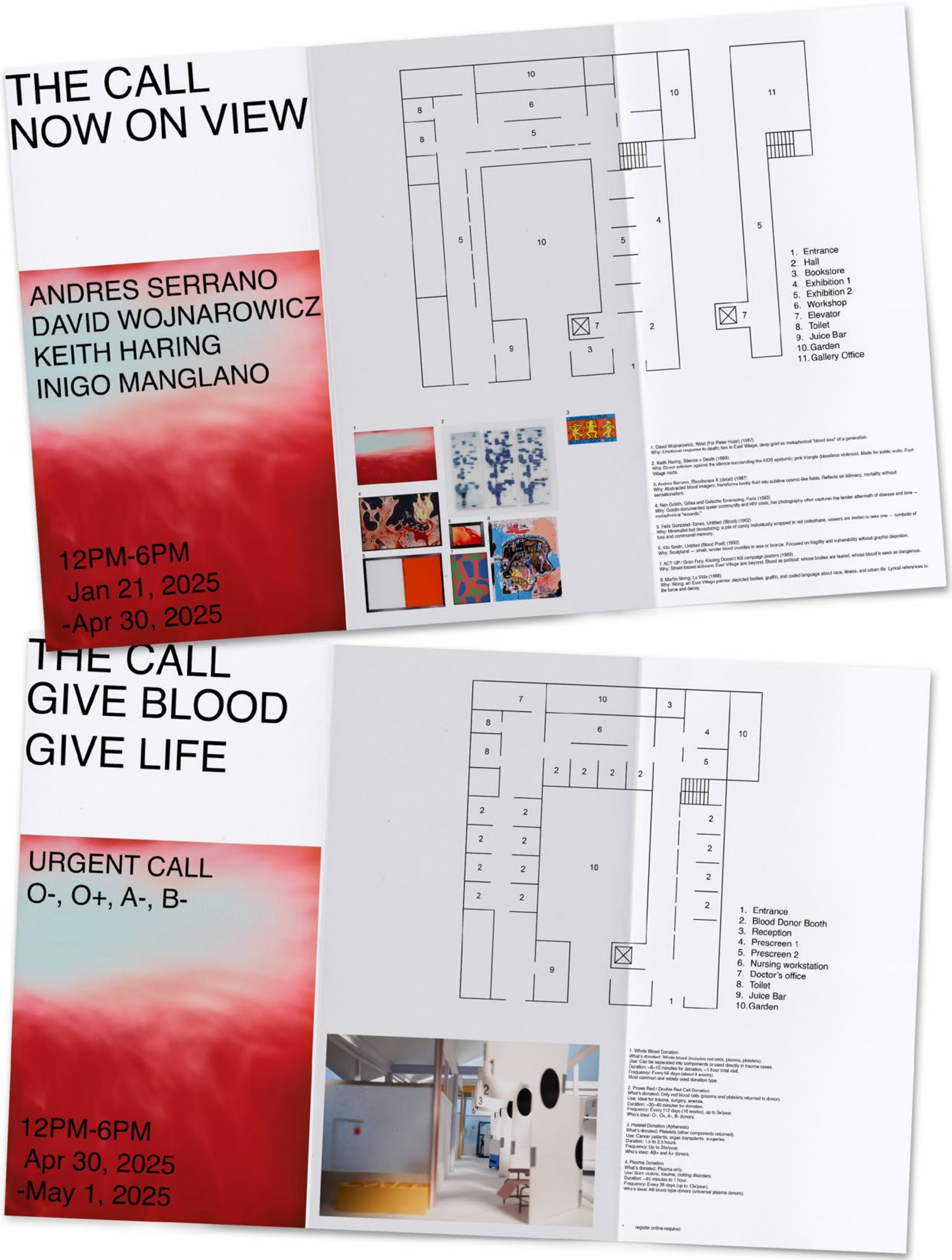


Map of New York Blood Center
- blood drive (daily)
- Blood Center

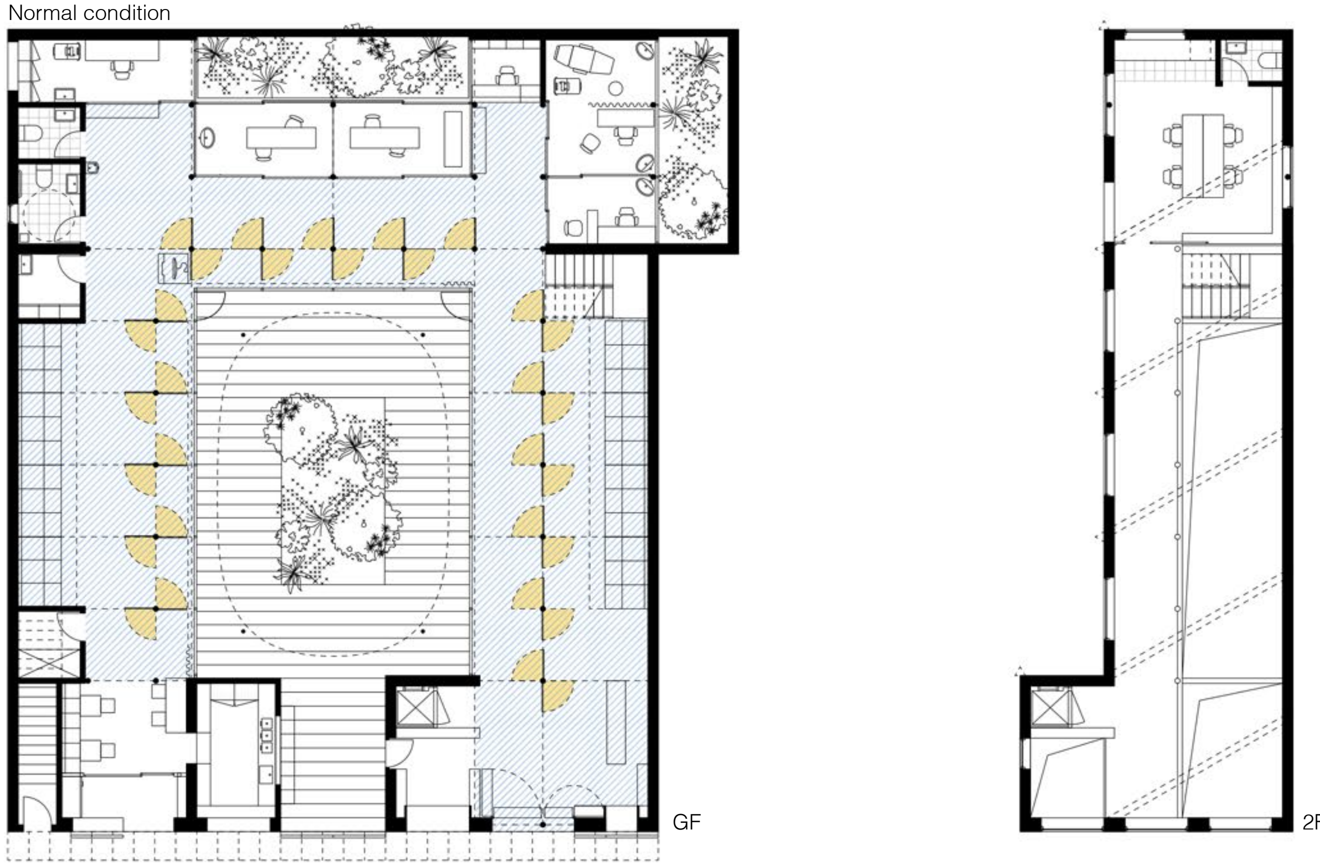
BLOOD DONATION
in New York City

Blood donation is primarily managed by the **New York Blood Center**, with a headquarters and three main locations. Introducing a blood donor center and clinic in the East Village is rooted in the neighborhood's history of **art, resistance, and the HIV crisis in the 1980s**. The proposal of a hybrid gallery and donation space pays tribute to artists who fought against blood-related diseases.

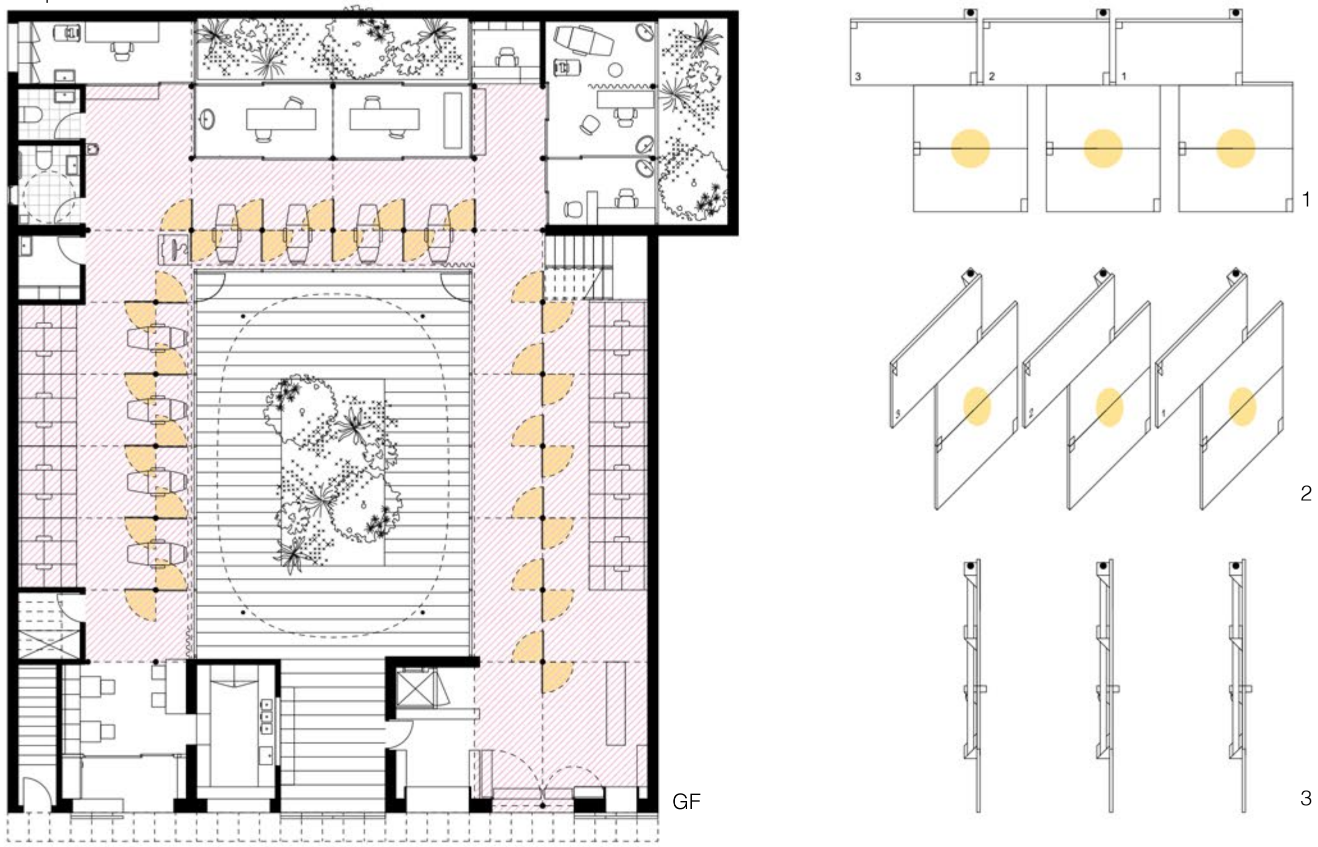
Interior view of the corridor
with panels forming an enfilade of donor booths



Normal condition



Responsive condition



Left — Brochure design for gallery & clinic visitors

Right — Plan under normal & responsive conditions; 1-3 Pivot panel operation

TRANSFORMABLE

When needed, the space can provide between 4 to 16 donor slots. This flexibility is made possible through **pivot panels** that rotate around columns—opening up the space, blocking views when needed, or creating an **enfilade** of rooms that function as donor booths. Gallery benches convert into phlebotomy chairs, and curtains wrap around the windows to provide **privacy**.

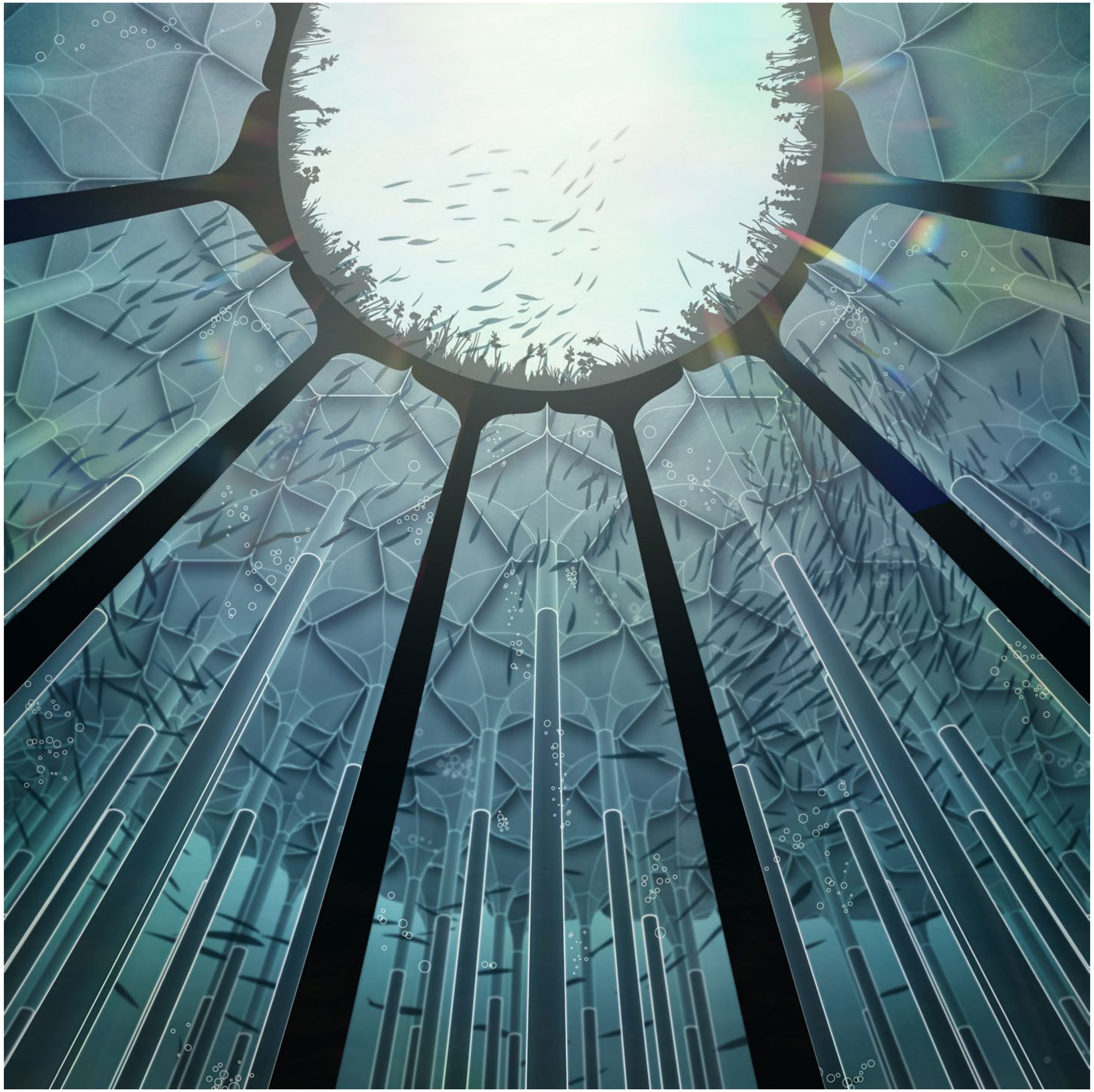
1

2

3


4

1/8" = 1' model, paper



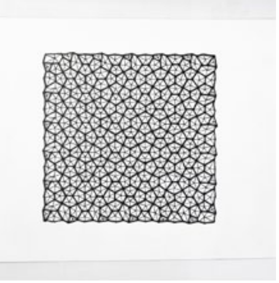
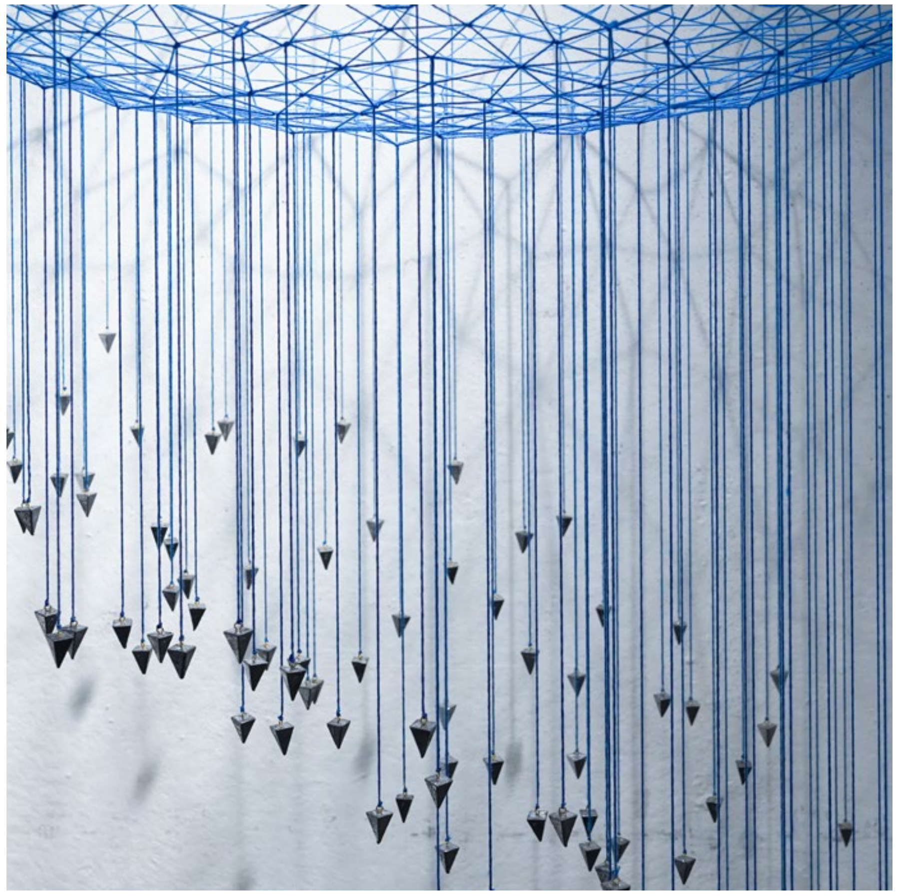
VI.

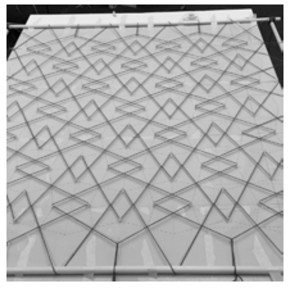
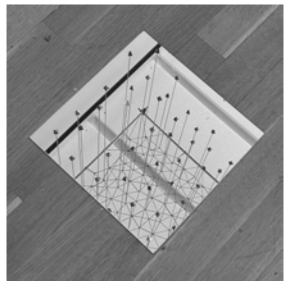
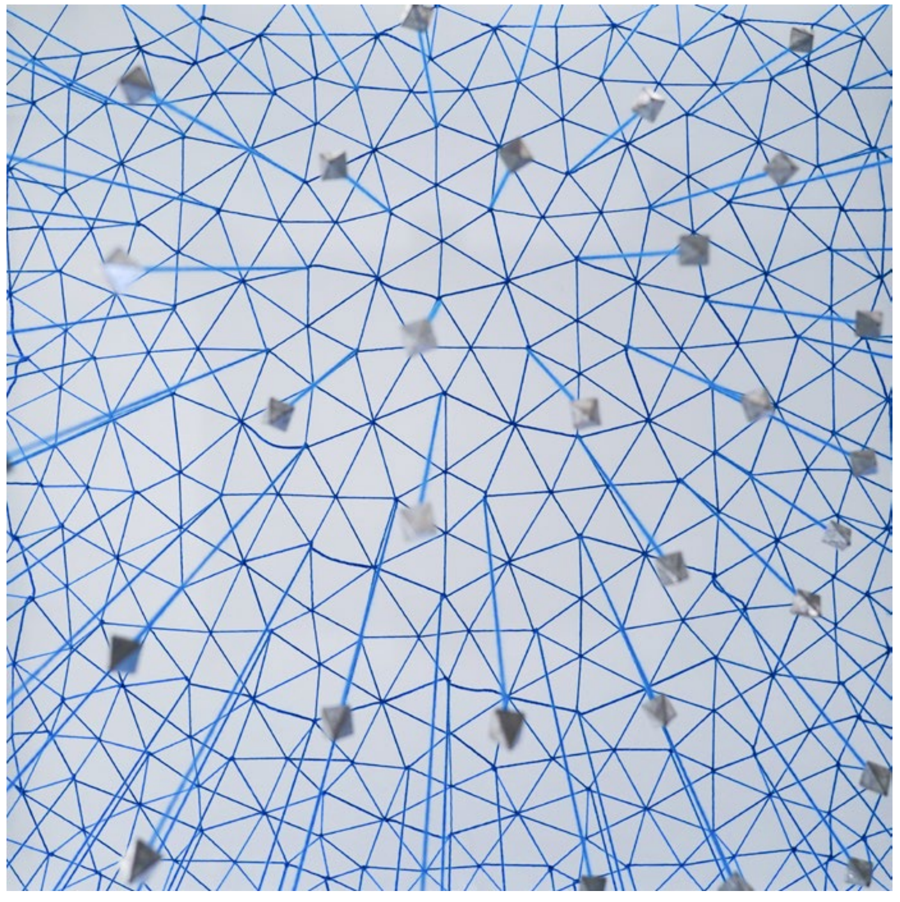
LITTLE ISLAND REMAKE

2023 Spring
Architectural Drawing & Representation I
Instructor: Ray Wang
TA: Ken Farris, Zoona Aamir
Individual Work

The project is intrigued by the **massive underwater construction** of Little Island. With its $250 million cost, the project serves as a constant reminder of the immense cost of creating new land and its impact on the surrounding environment. The drawing envisions an imaginative scene of a fish swimming beneath the water, weaving through the forest of concrete columns that rise from the seabed. These towering structures create a cathedral-like **sanctuary** for marine life. Will fishes pray here?

Case Study: Heatherwick Studio, *Little Island*, New York, 2021


1

2

6

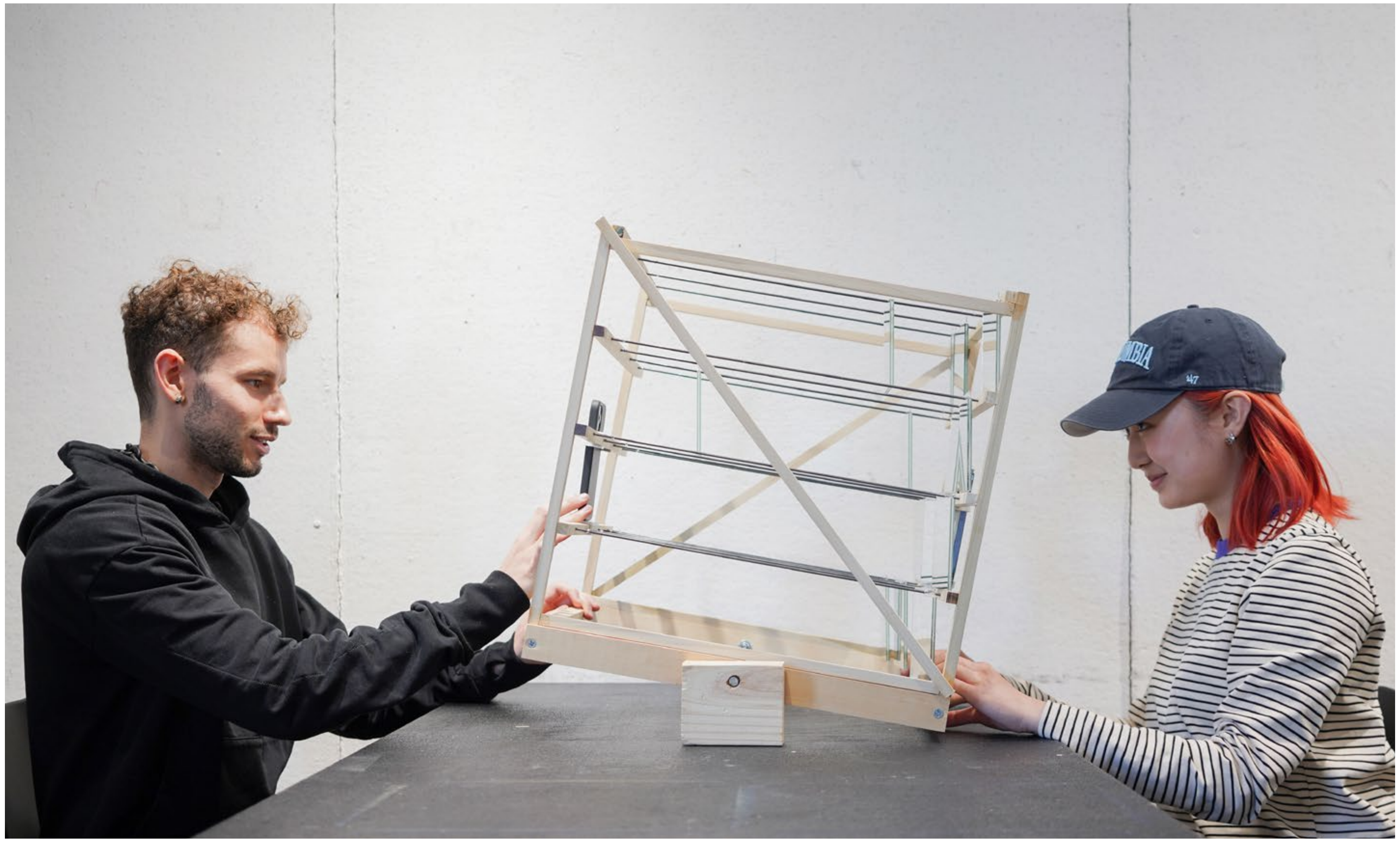
3

4

5

7

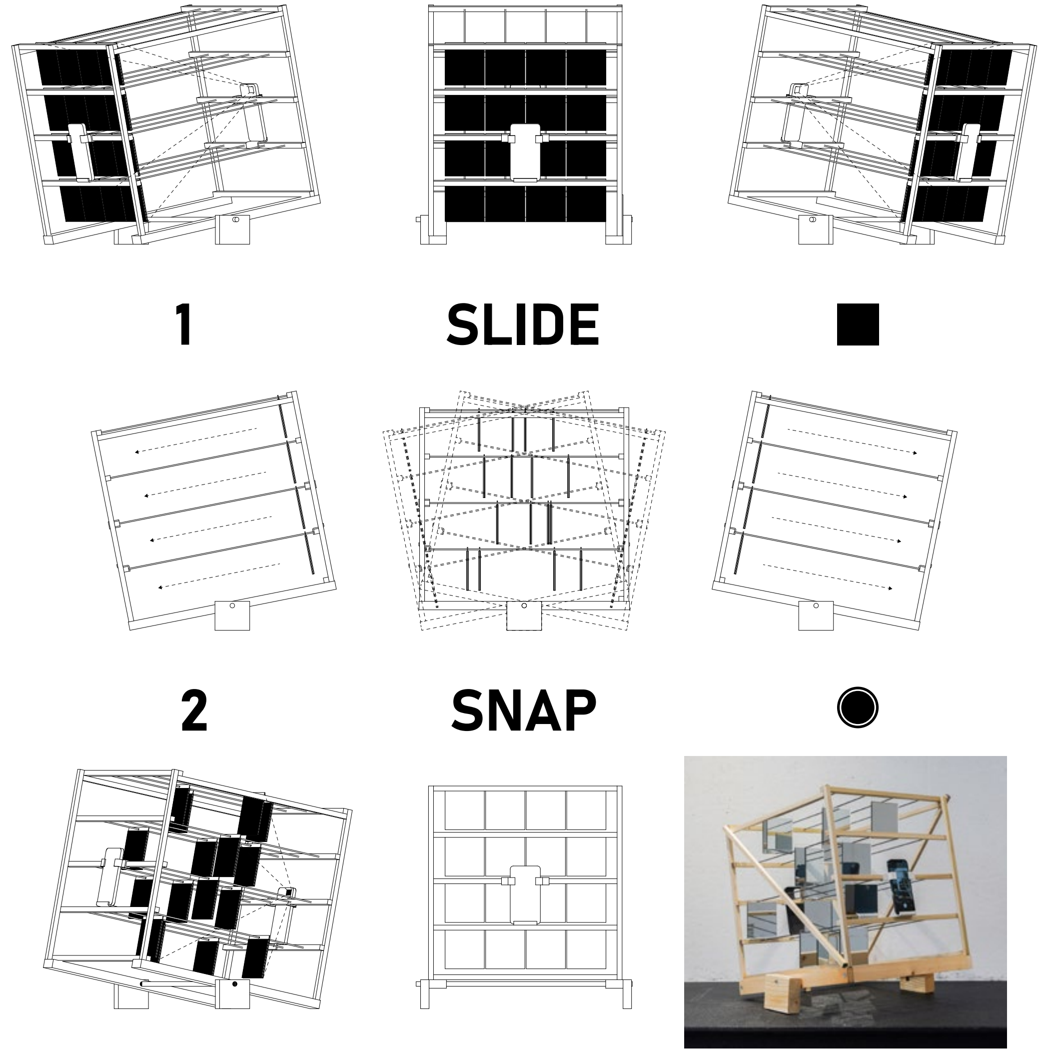

1 Section (sketch)
2 Plan (sketch)

3 Test model
4 Weaving in process
5 Mirrored view from bottom

6 Model photo I
elevation

7 Model photo II
worm's-eye view





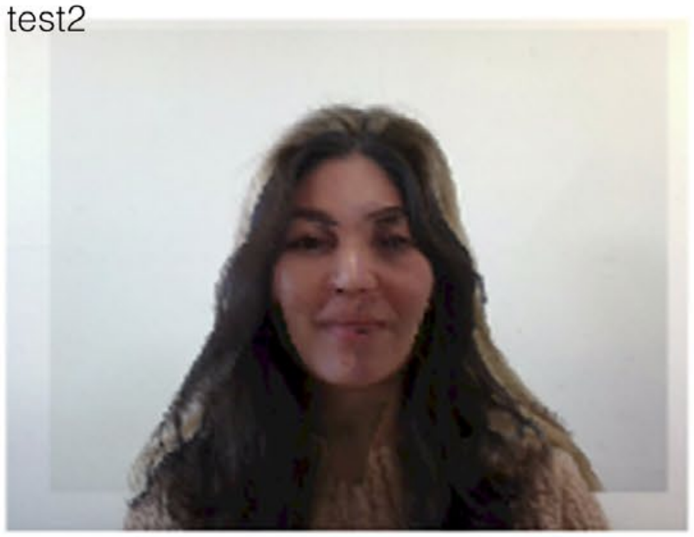
VII.

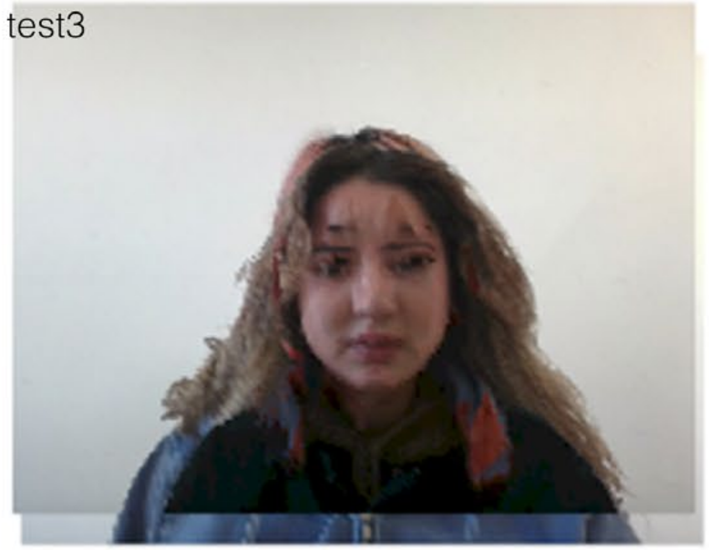
BLENDING MACHINE
Drawing Machine

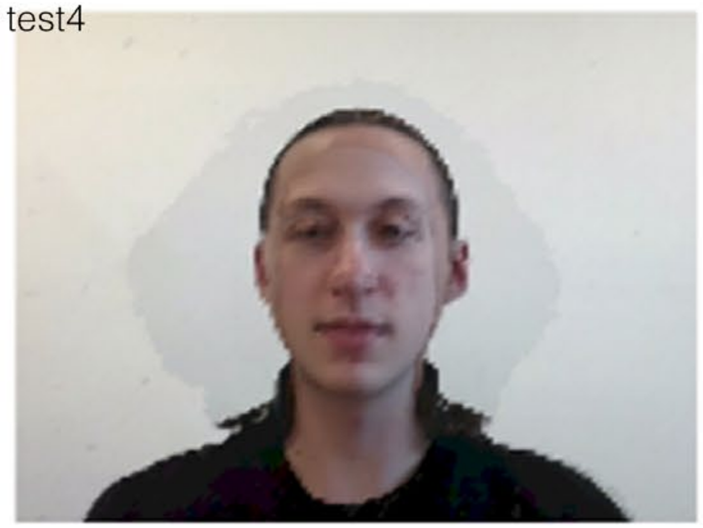
2023 Spring
Architectural Drawing & Representation II
Instructor: Genevieve Mateyko
Individual Work

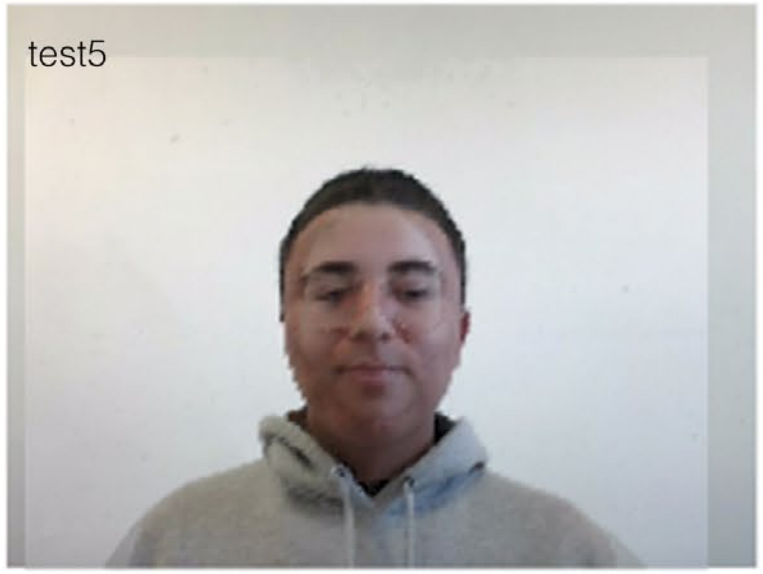
I. SELFIES IN MOTION

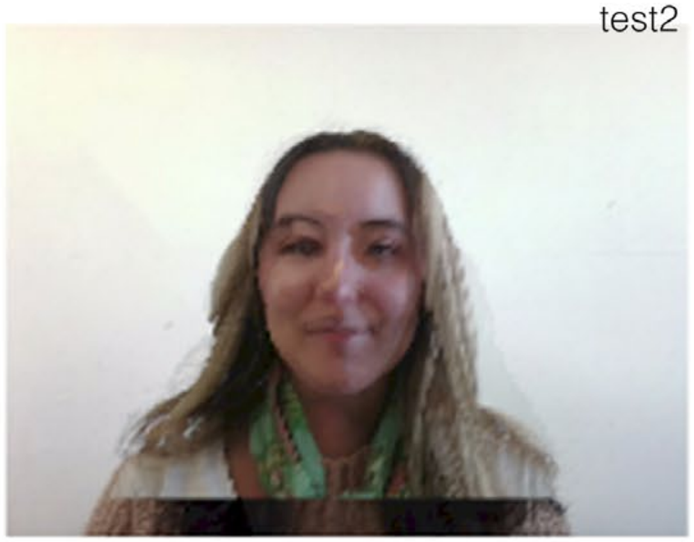
The project begins by reimagining the process of taking a selfie, making it less **predictable** and more **interactive**. At its core is a **two-way selfie machine**—an installation of 16 mirrors suspended from a **see-saw** frame, requiring two people to control and balance. This playful device experiments with how we physically “blend” portraits, challenging conventional digital manipulation and questioning how we can create human-driven alternatives to **AI-generated** imagery.

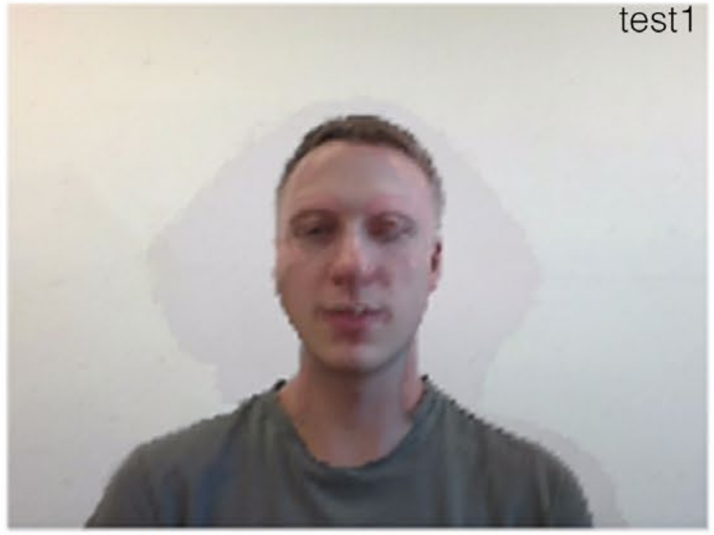


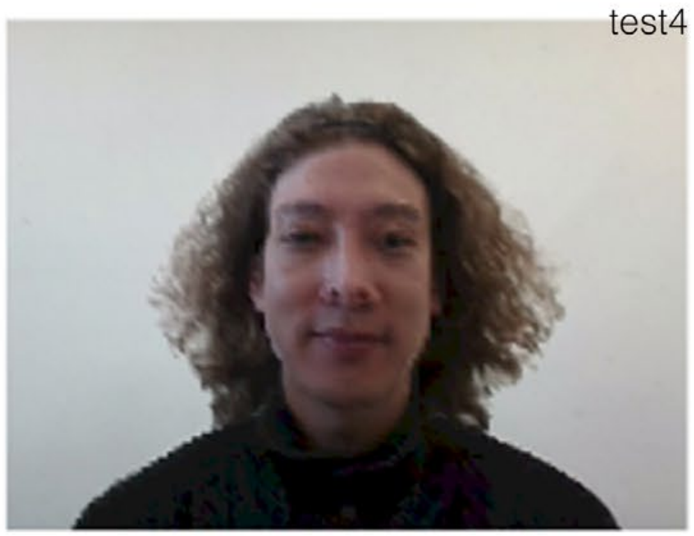


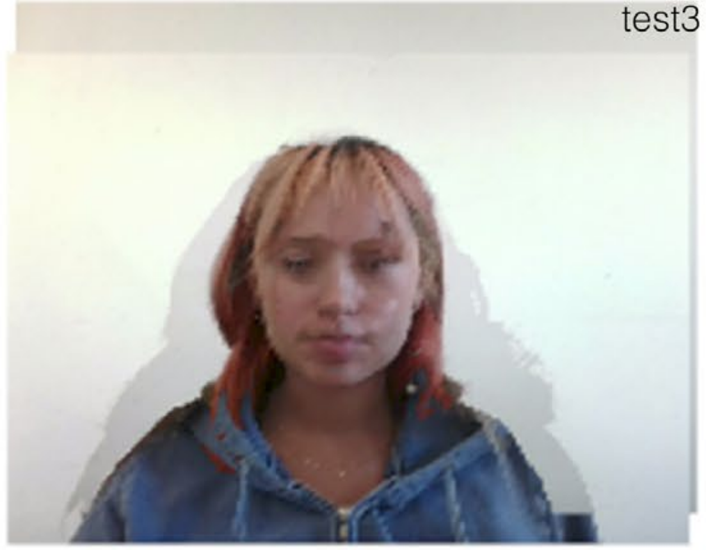


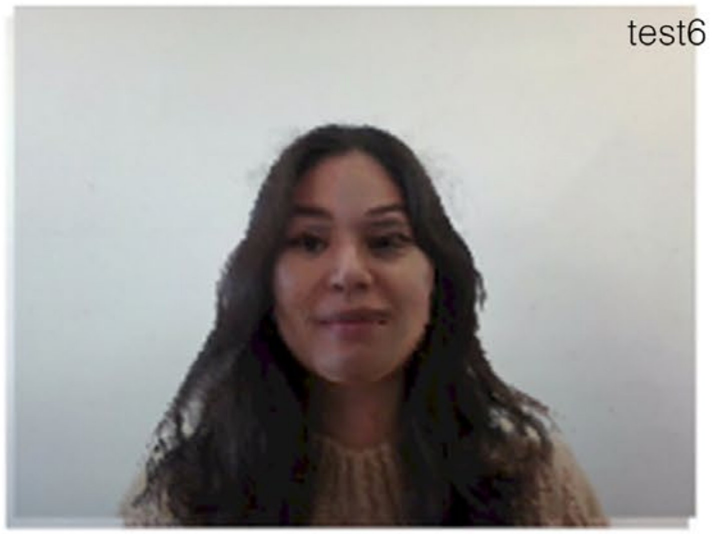


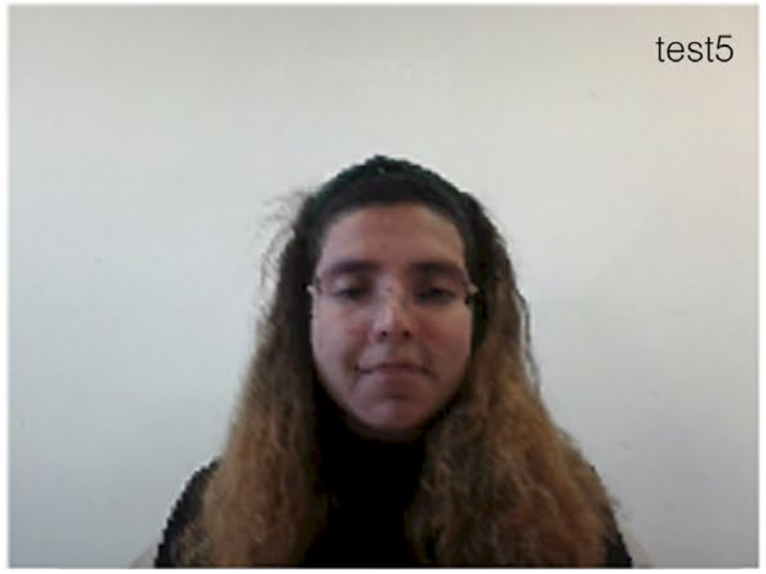












II. DIGITAL FACE BLENDER (AI-FREE)

Test 1-6
blending faces with 3d meshes generated from firefly

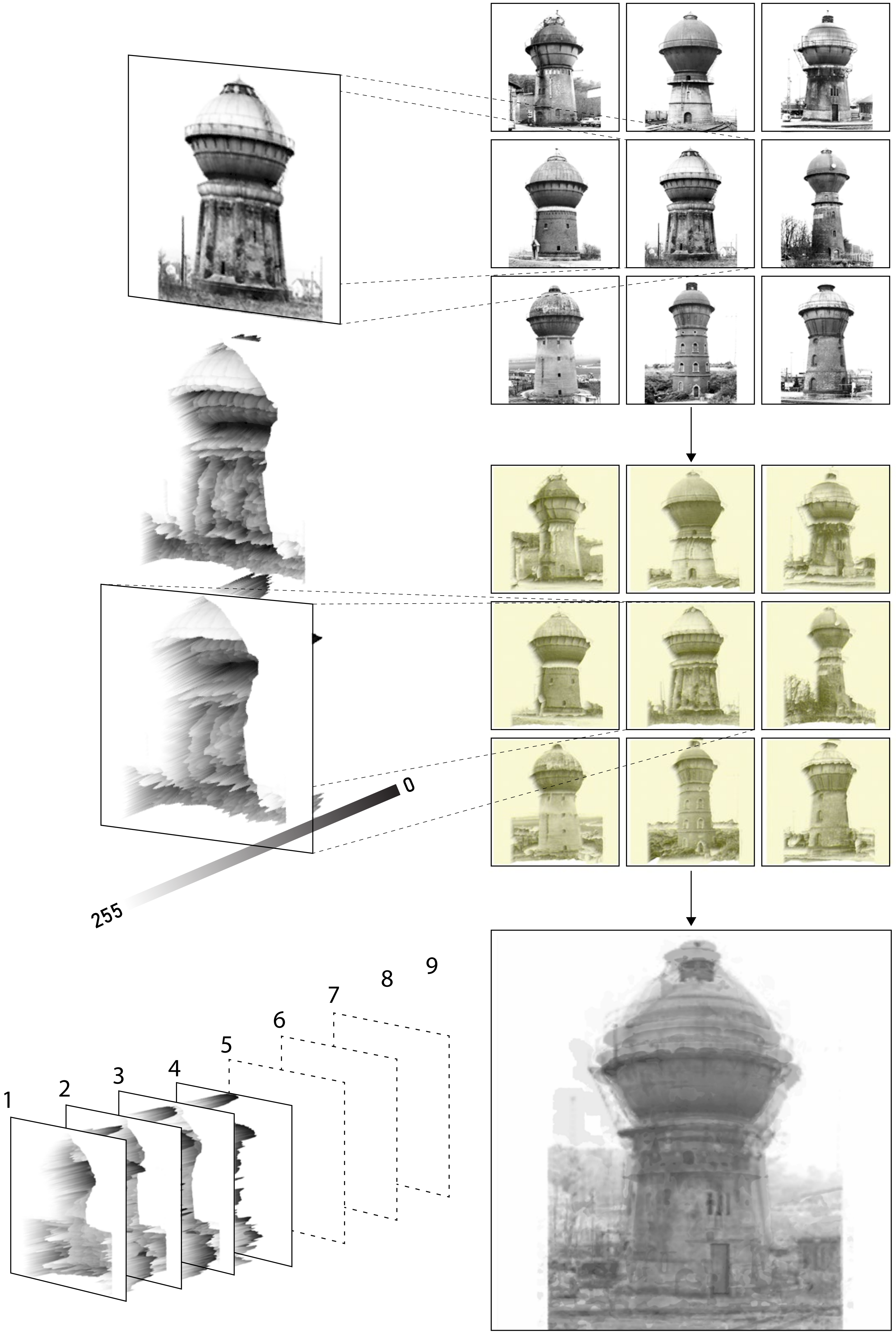
*Images are created through collecting faces of my cohort. Thank you everyone who joined the tests.

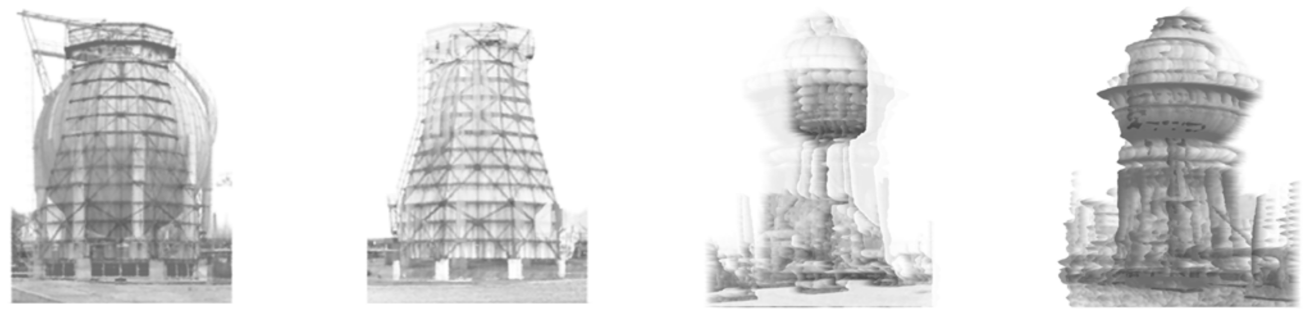
The experiment begins by translating the two-way selfie machine into a digital tool capable of generating dynamic drawings. Using **Arduino** and **Firefly**, I developed a script that edits real-time 3D portraits with an **accelerometer sensor**. The output is a live-generated mesh, where depth is determined by pixel values.

PROCESS

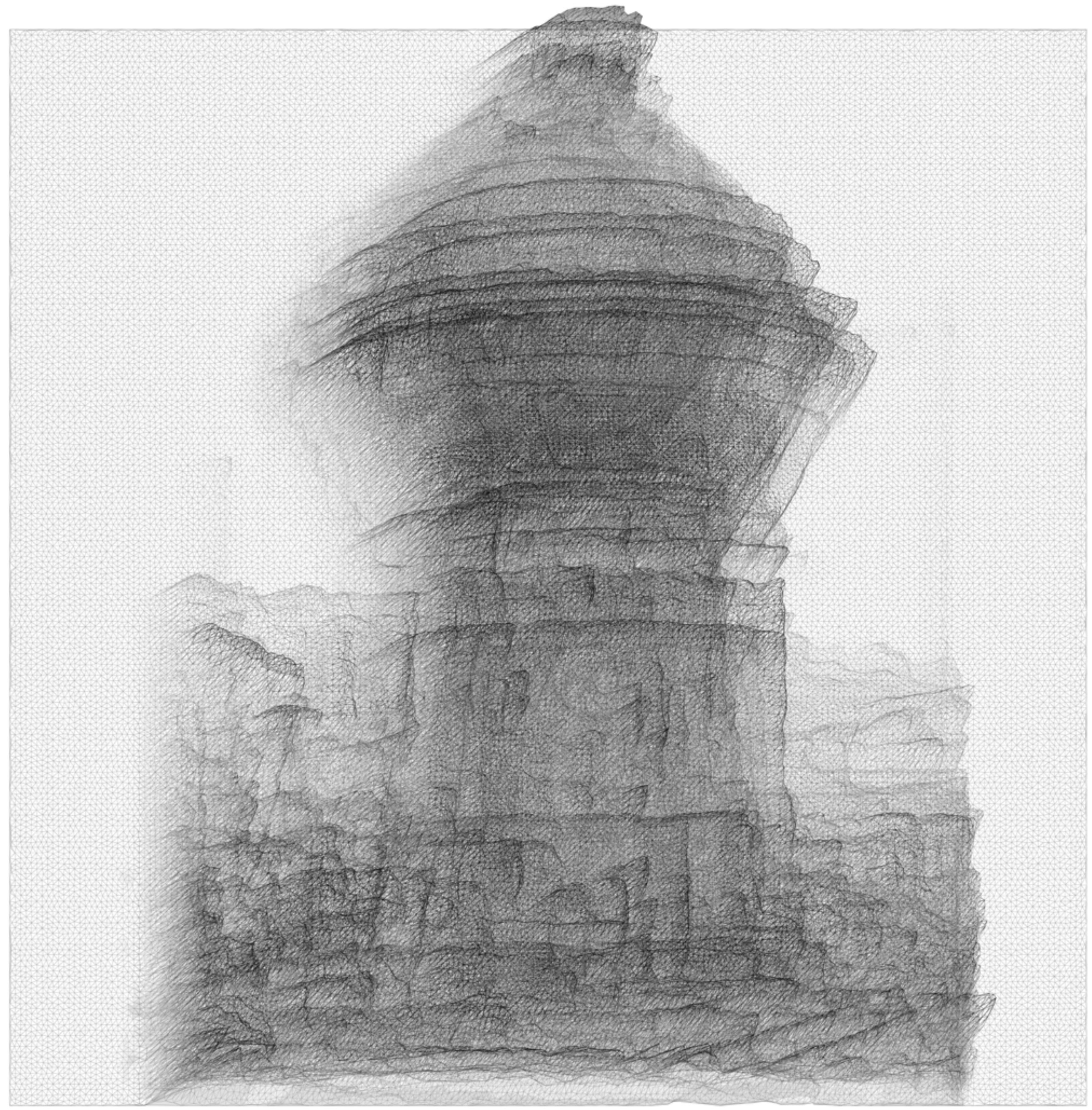
Building on the concept of the selfie machine, I explored digital face blending. As with the physical version, two participants take selfies simultaneously while operating the Arduino-powered see-saw to control the level of blending. As the see-saw tilts, the image transitions smoothly between the two faces.

By overlaying two 3D meshes generated from each participant, I created two alternating images—one shifting forward and the other backward within the blended mesh. The result resembles **AI-generated face-swapping** or blending, yet the entire process remains **AI-free**, relying purely on physical and digital interaction.





a b c d



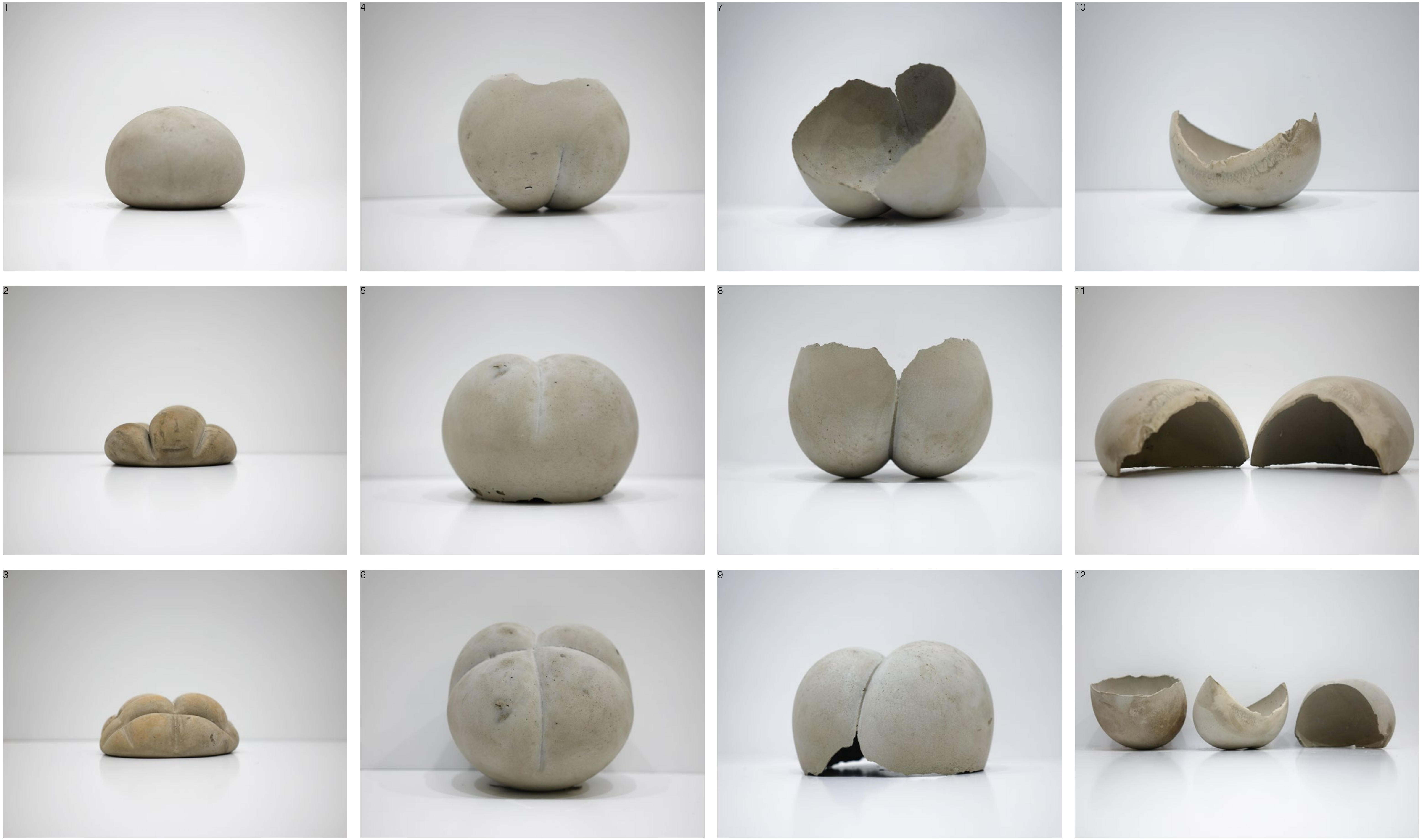
III. BUILDING BLENDER (AI-FREE)

Left Logic diagram of blending prototypes

1 Examples of mixed prototype (image a-d)

2 Final collective prototype (Type 1-9)

Step III transforms building images into 3D meshes by superimposing multiple similar images to create an averaged, **representative form**. This process generates spatial qualities while maintaining a clear distinction from edited or AI-generated images. As an experiment, the work applies this technique to Bernd and Hilla Becher's water tower photography, exploring how patterns in imagery can be translated into spatial constructs—without AI intervention.



VIII.

DOUBLE-SKIN SHELL

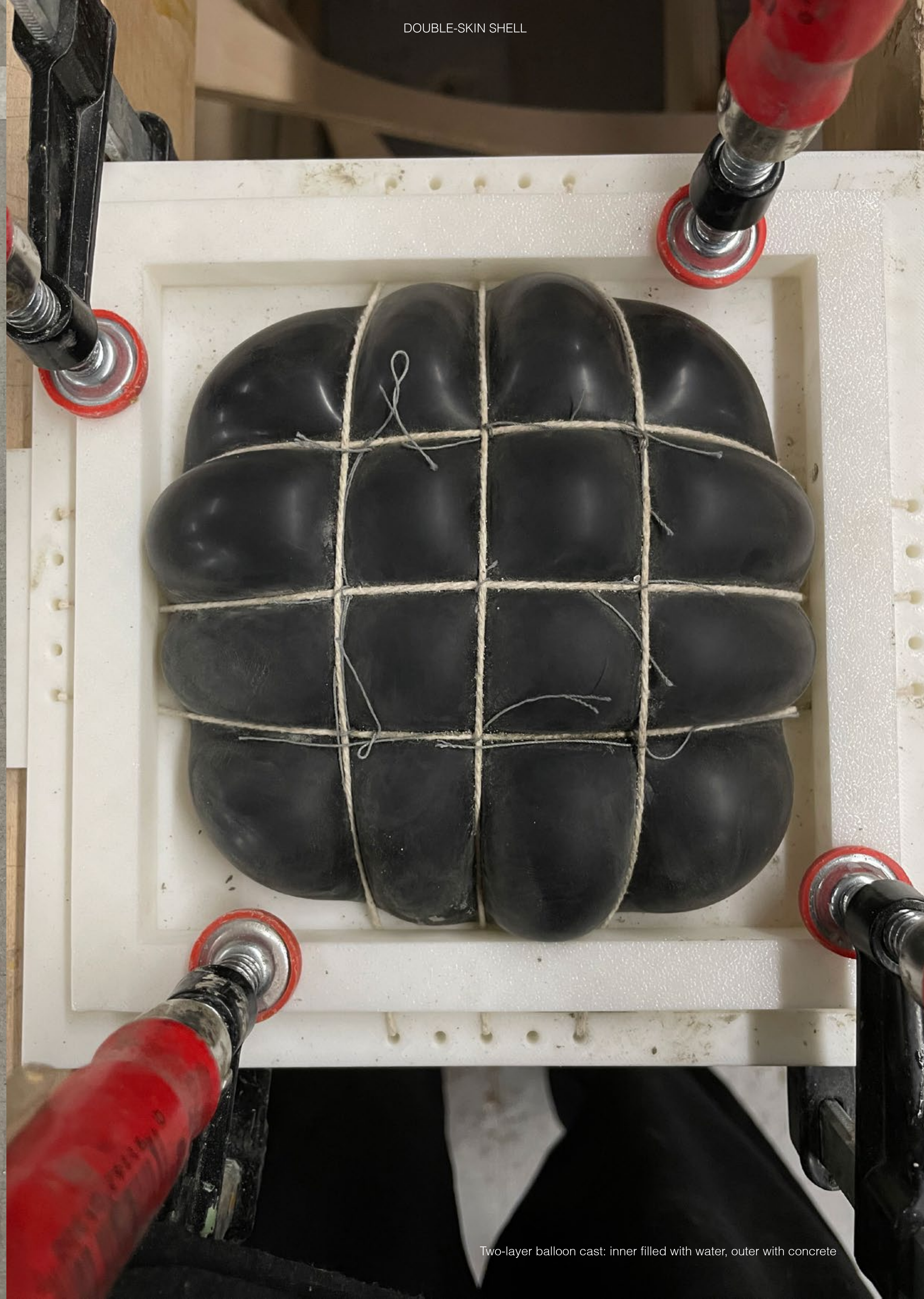
Dual-Layer Inbetween Baloon Casting

2024 Fall
Tensile/Compression Surfaces
Instructor: Robert Marino
Partnered with Jaeyu Kim ❤

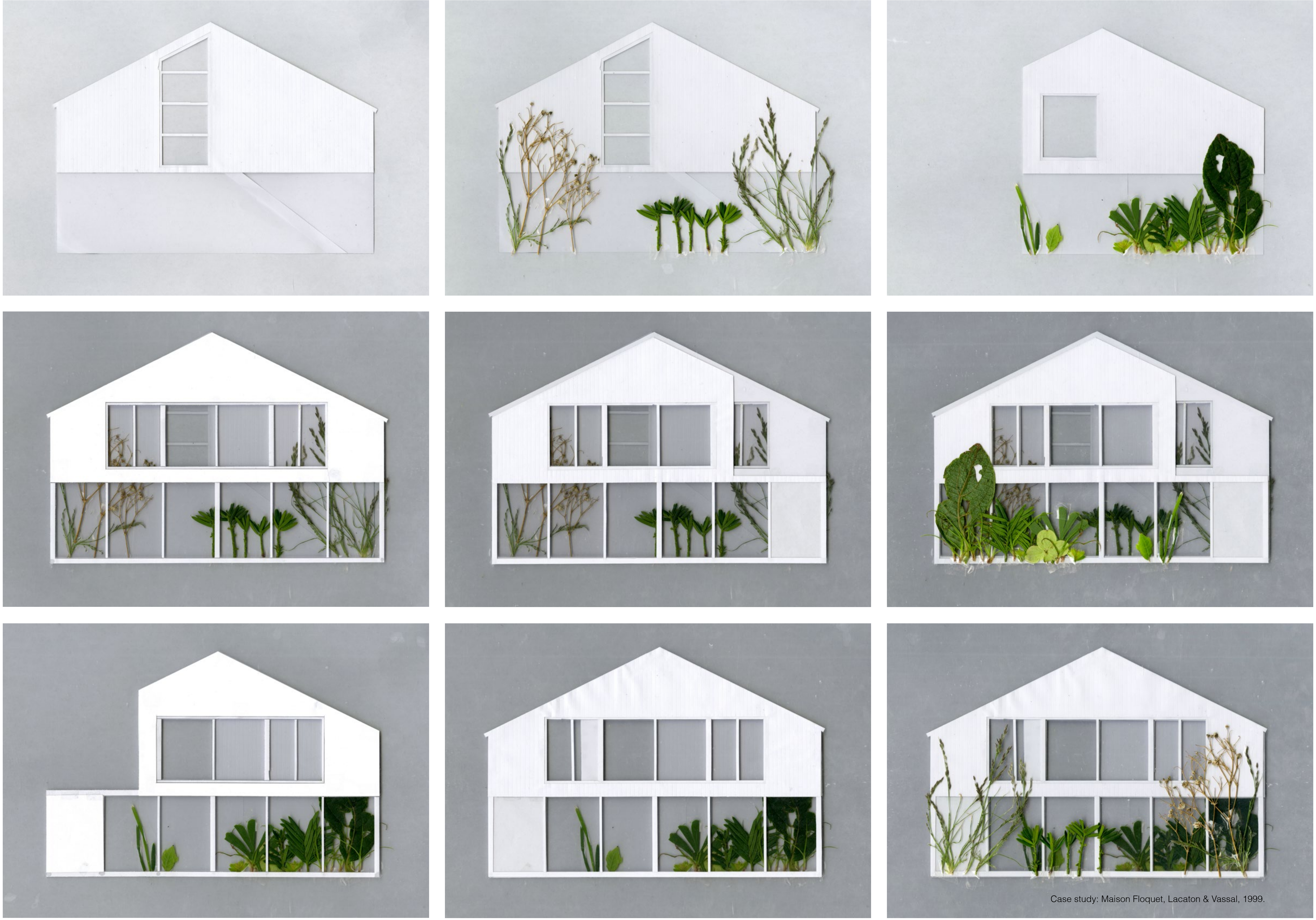
A casting technique using two layers of balloons—**water inside**, concrete outside—forms a tensile shell shaped by **gravity**. Inspired by the transformation of tension into compression in **baked buns**, the system allows the shell to take shape naturally, whether **suspended** or **resting** on a surface, with or without cooking string restraint.

1-3	Resting, with 0/2/4 strings
4-6	Resting, with 2 strings crossing
7-9	Hanging, with 1 string
10-12	Hanging, test

Early study inspired by Korean sweet buns—tension transforms into compression



Two-layer balloon cast: inner filled with water, outer with concrete



Case study: Maison Floquet, Lacaton & Vassal, 1999.