

# portfoLlo

LESLEY LI / selected works



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# Timber Digest

*Instructor \_ Lindsey Wikstrom  
Site \_ Black Rock Forest, NYC  
Project Type \_ Academic, Group (2)  
Grade \_ High Pass*

Timber Digest is a research-based design exploration in the Black Rock Forest. Our findings result in a mass timber education center with a DLT (Dowel Laminated Timber) factory for local supply.

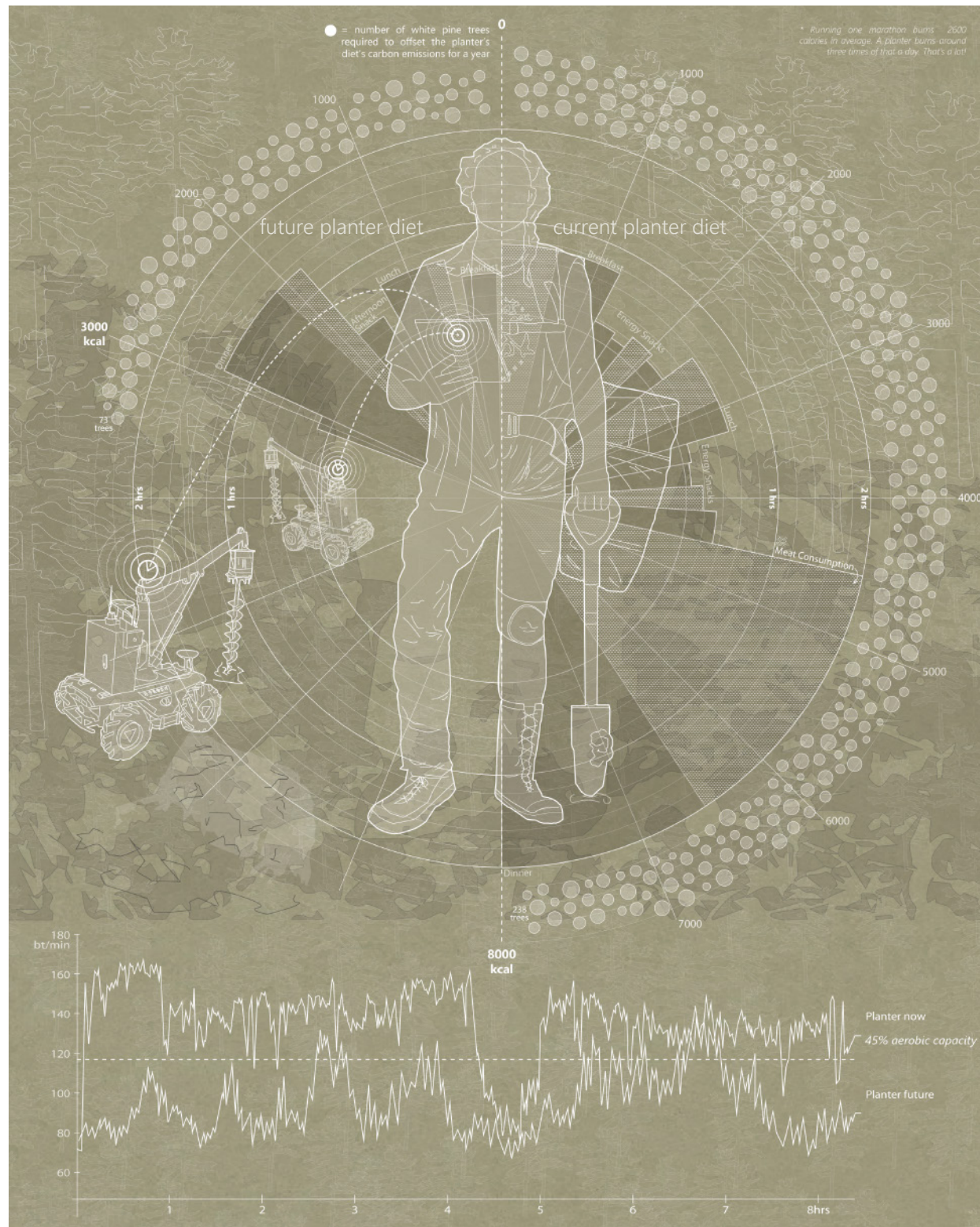
The word digestion has three layers of meanings: diet, wood and knowledge. Human body's digestive system is very similar to the production of DLT, and knowledge is key to sustaining a healthy diet and seeing the potential to turn waste into valuable products.

We invented the DLT beam structure. The **I** profile allows the beams to interlock with each other, creating a reciprocal frame beam grid. Then, Chinese traditional Dou Gong inspired us to develop a bracket system with DLT I-beam that connected the column and the beam grid. Growing in scale, the structure spreads in a fluid form along the terrain, while the floors are elevated from the ground to be least disruptive to the earth ecosystem.

SIDE VIEW >

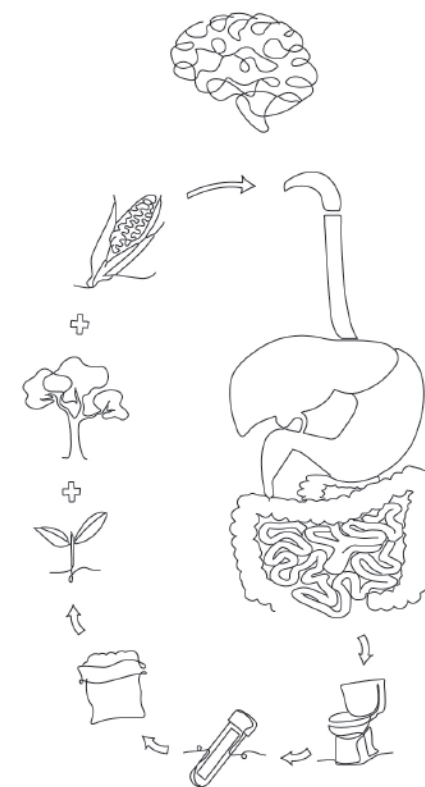






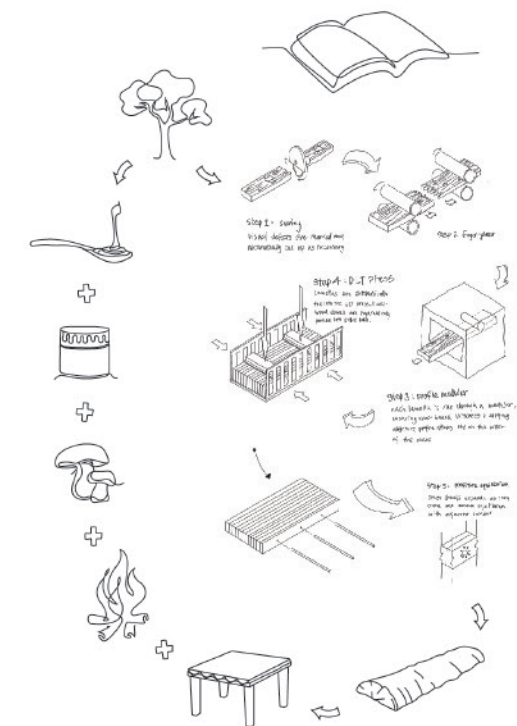
^ DIGEST OF FOOD, WOOD, AND KNOWLEDGE

RESEARCHES SUGGEST THAT CURRENT PLANTERS NEED TO INTAKE UP TO 8000 CALORIES PER DAY IN ORDER TO SUSTAIN THEIR LABOR-INTENSIVE WORK, AND SUCH A DIET REQUIRES 238 TREES PER YEAR TO OFFSET ITS CARBON FOOTPRINT. THEY ARE FORCED TO MAINTAIN A VERY HIGH HEART RATE DURING WORK, WHICH BURDENS THEIR BODIES EXTENSIVELY. WE IMAGINED FUTURE PLANTERS, WITH THE HELP OF HIGH TECH AND MACHINERY, WILL REQUIRE MUCH LESS FOOD INTAKE, LESS CARBON EMITTED, AND A MORE SUSTAINABLE WORK STYLE.



**Digestive Cycle of Human Body**

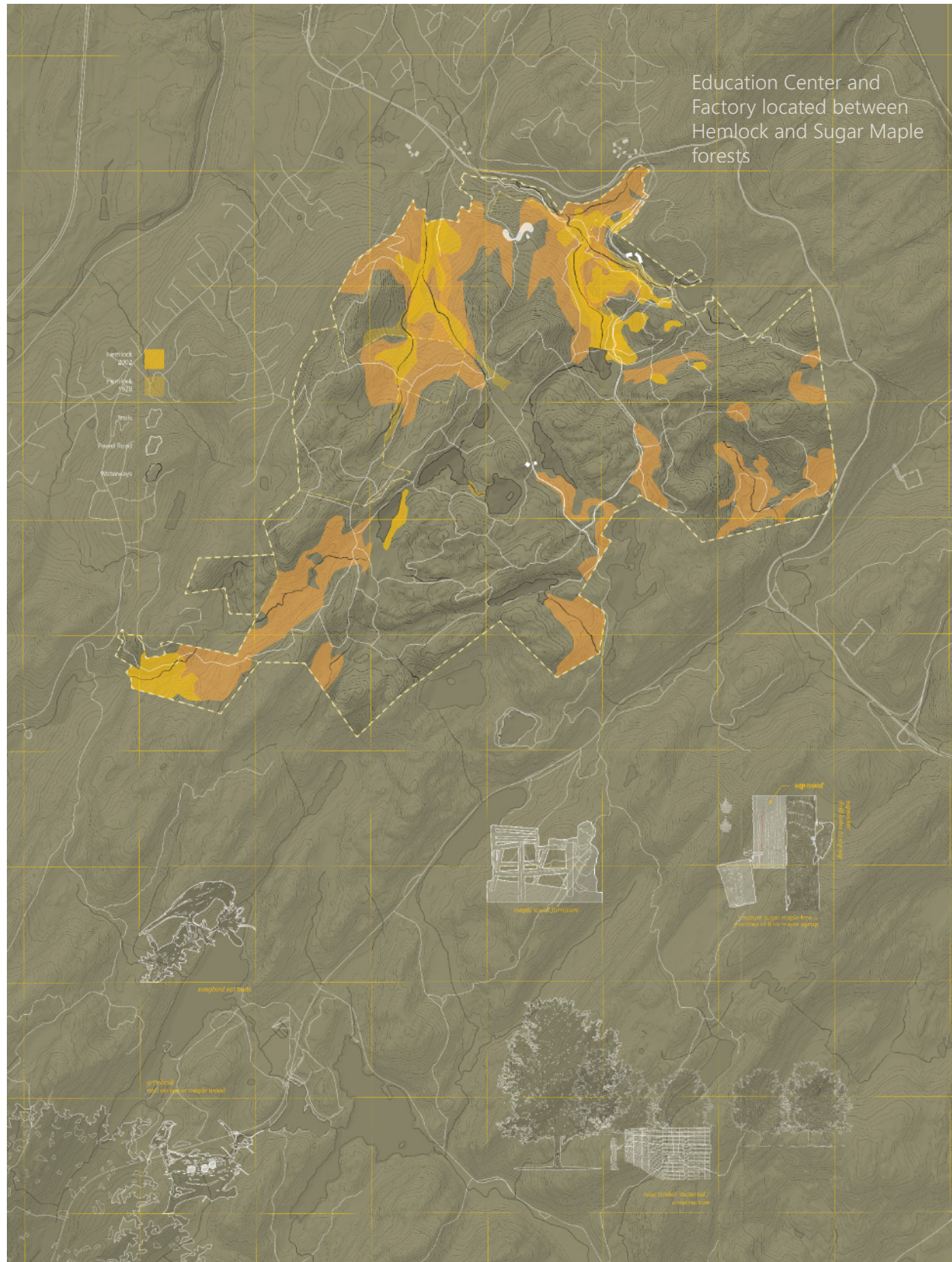
We intake food, turn it into energy, and the waste can be treated and turned into manure, which helps to grow plants and enter the cycle again. However, knowledge is key to sustaining a healthy diet and seeing the potential to turn waste into valuable products.



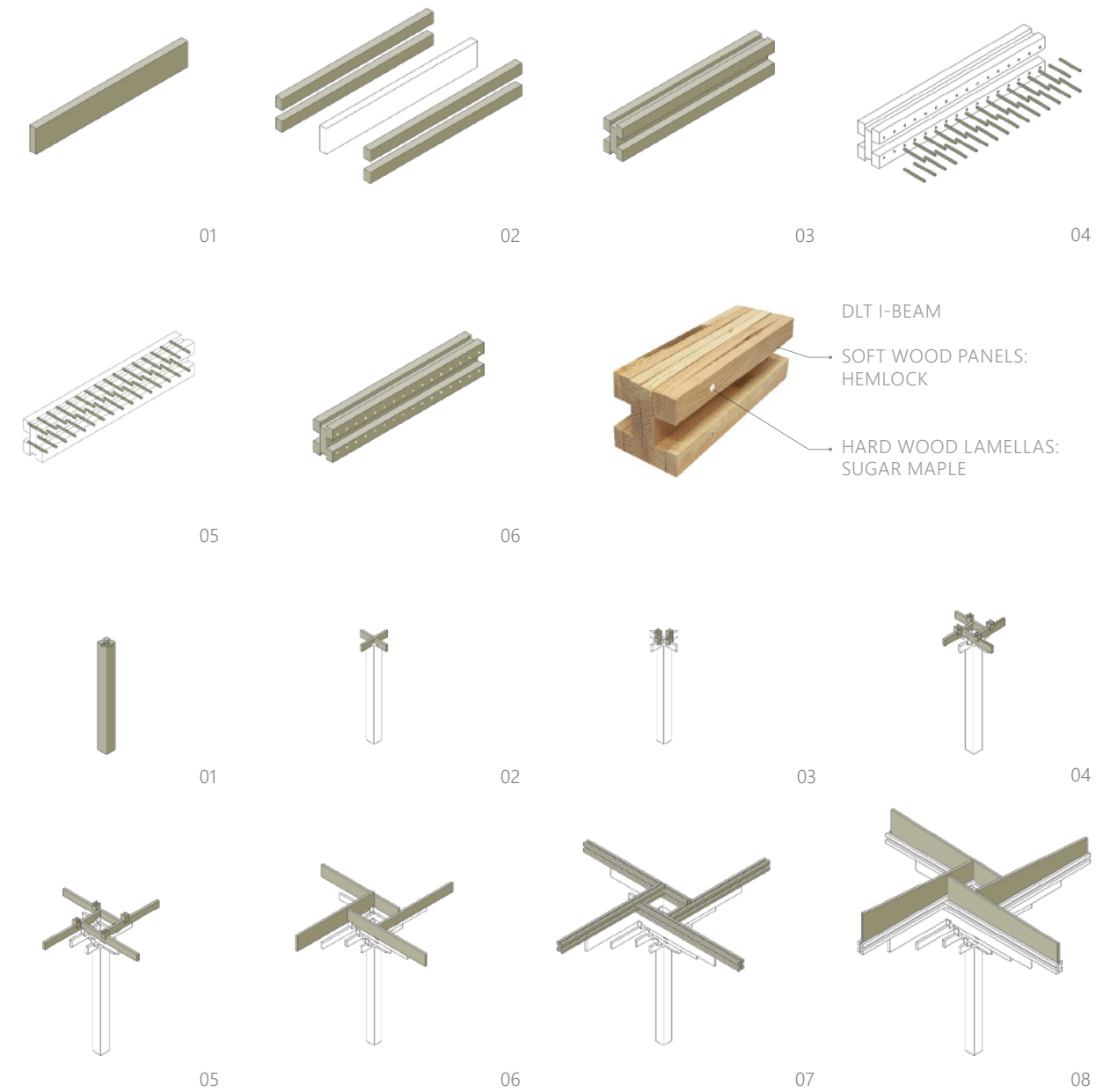
**Knowledge Cycle of DLT**

Similar to Dowel Laminated Timber (DLT) manufacturing, turning wood into mass timber alone is not enough. Only when sufficient knowledge is achieved then will people gain preference towards mass timber construction, completing a full cycle.





^ LOCATION IN BLACK ROCK FOREST BETWEEN HEMLOCK & SUGAR MAPLE FOREST AND MAJOR HIGHWAY



DLT I-BEAM  
SOFT WOOD PANELS: HEMLOCK  
HARD WOOD LAMELLAS: SUGAR MAPLE

**“All-Wood” Grid and Bracket System**

The I profile allows the beams to interlock with each other, creating numerous opportunities for structural support and stairs, railings, and different types of wall partition.

COLUMN TO BRACKET SYSTEM MODEL >

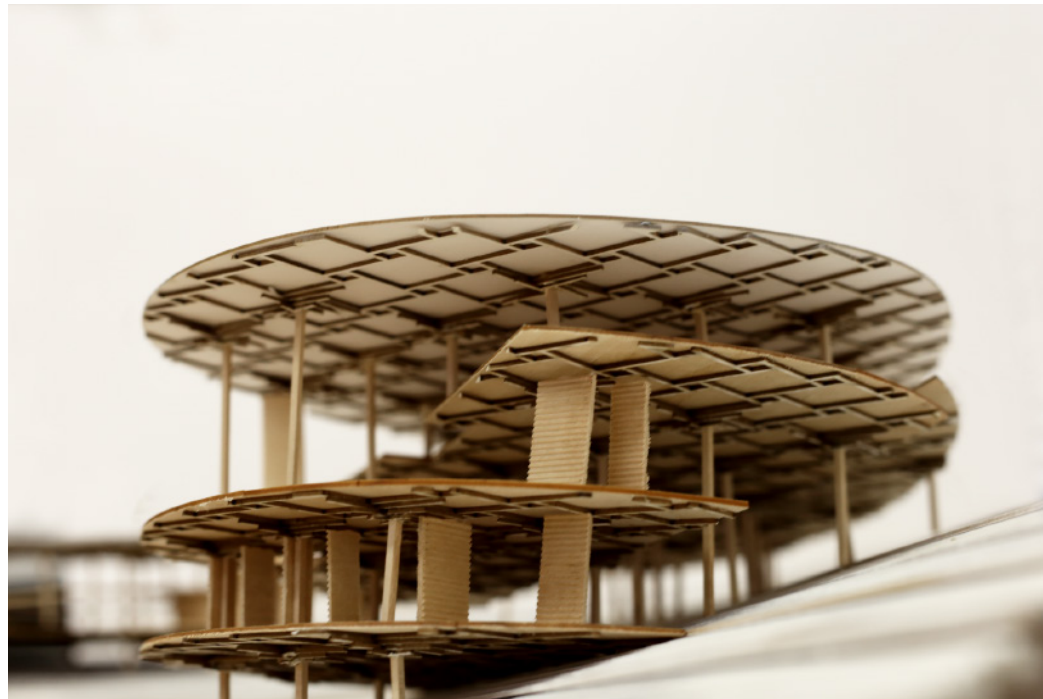






< FOREST HIDE THE GIANT WINGS FROM TRAFFIC

IN THE SUMMER AND FALL, PEOPLE DRIVING OR WALKING THROUGH CAN ONLY SEE A FLOATING BRIDGE FROM FAR. THE TWO WINGS ARE HIDDEN BEHIND THE VIGOROUS TREES.

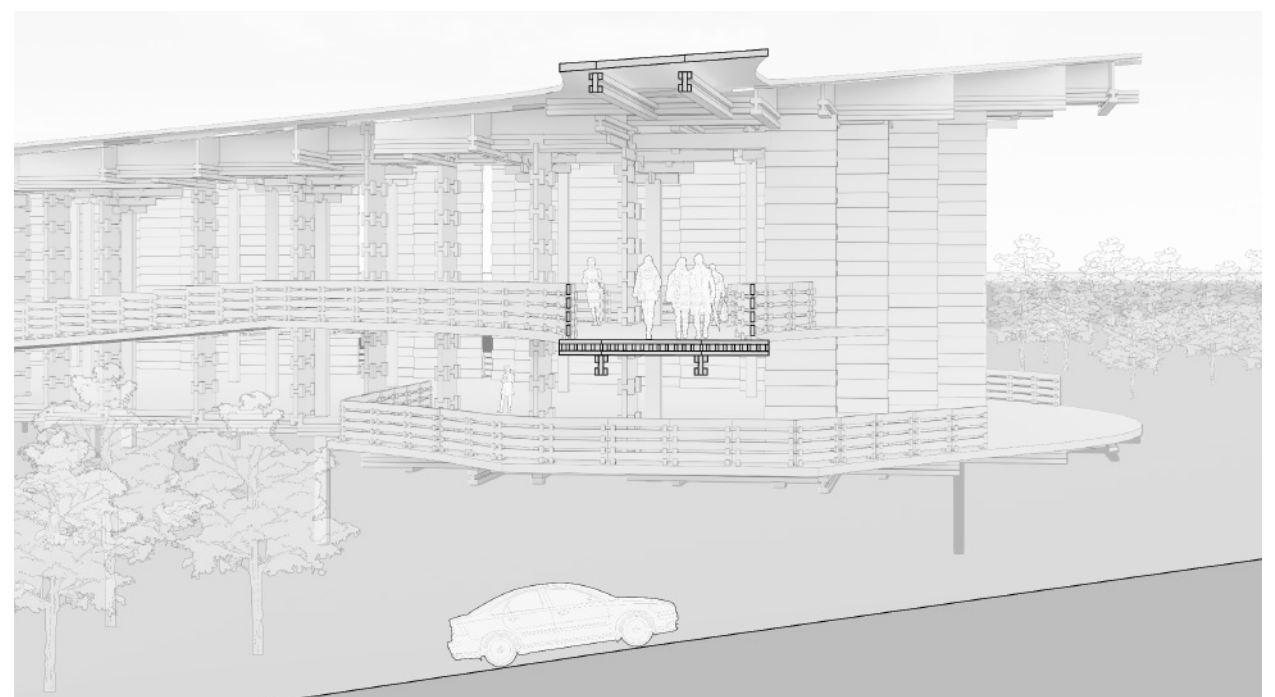


^ EXPOSURE OF STRUCTURE FROM ABOVE

SITE PLAN >  
VISITORS AND FACTORY TRANSPORTATION /CONNECTION TO TRAILS







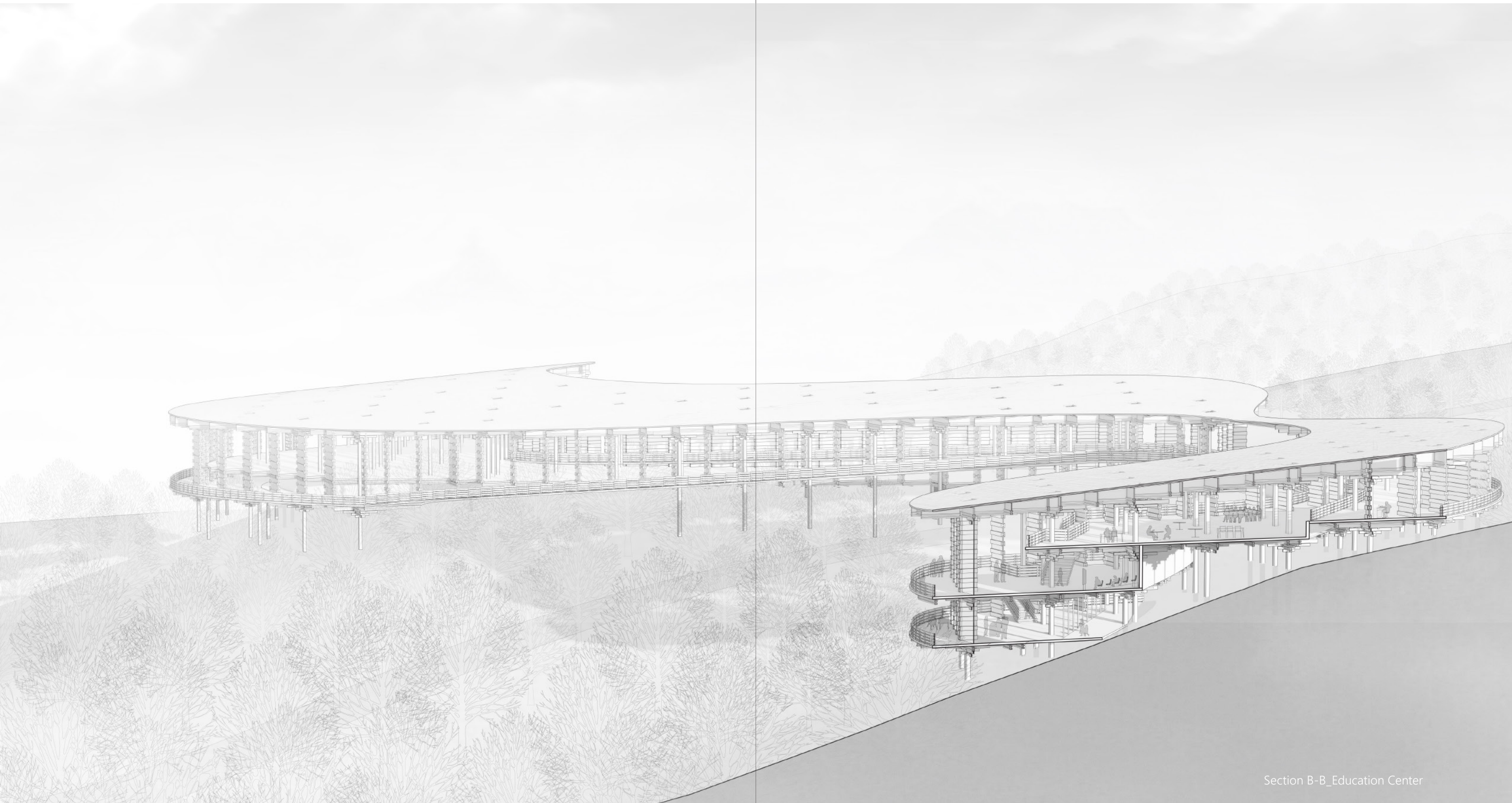
SECTION A-A\_BRIDGE

**Exchange of Learning and Making**

The bridge connects the Education Center with DLT Factory wing. The Factory tour starts at the end of the bridge, proceeding to the ramp. Mass timber workers come over to the cafeteria during lunch and dinner time.

< EDUCATION CENTER





Section B-B\_Education Center

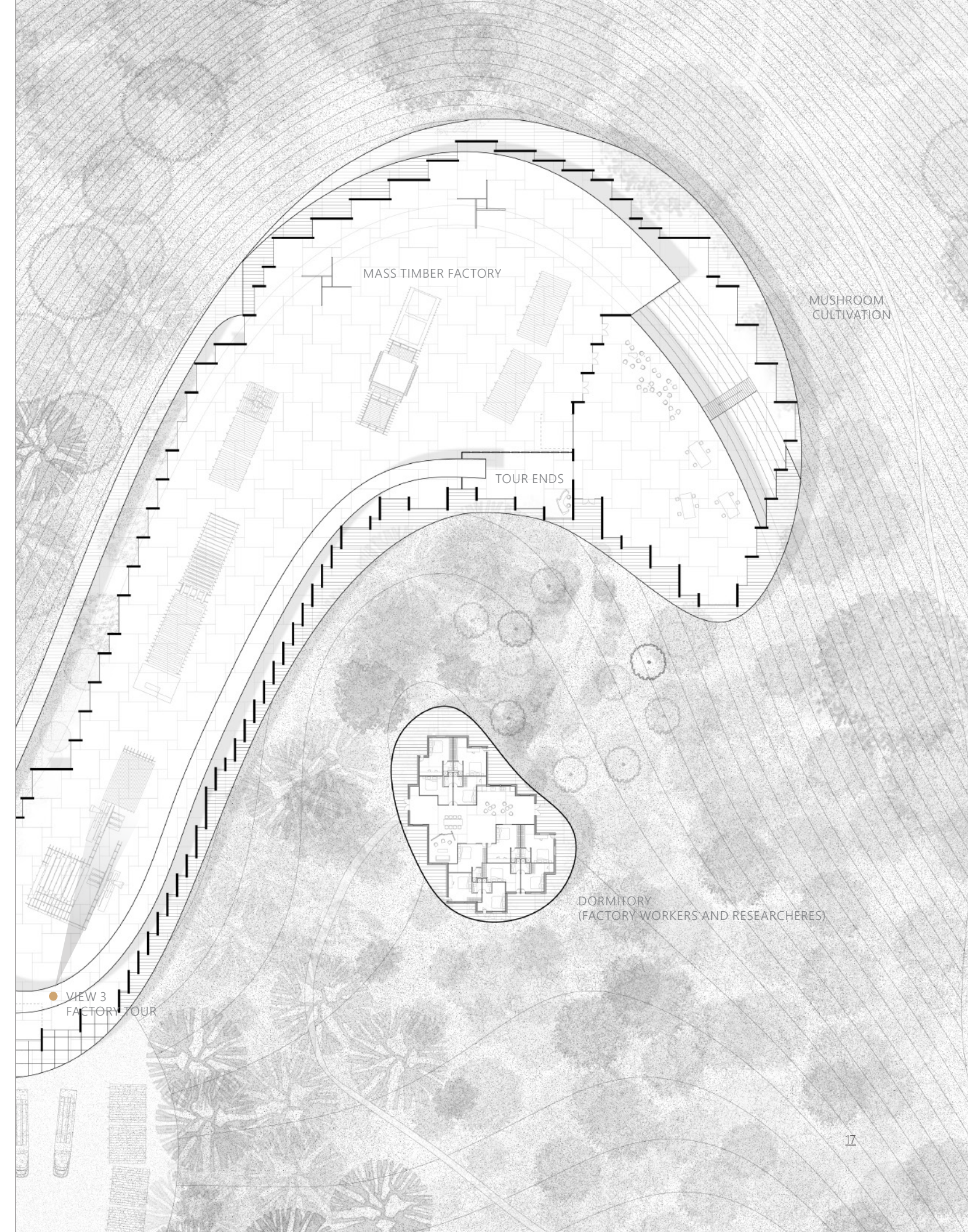




VIEW 1\_FACTORY TOUR

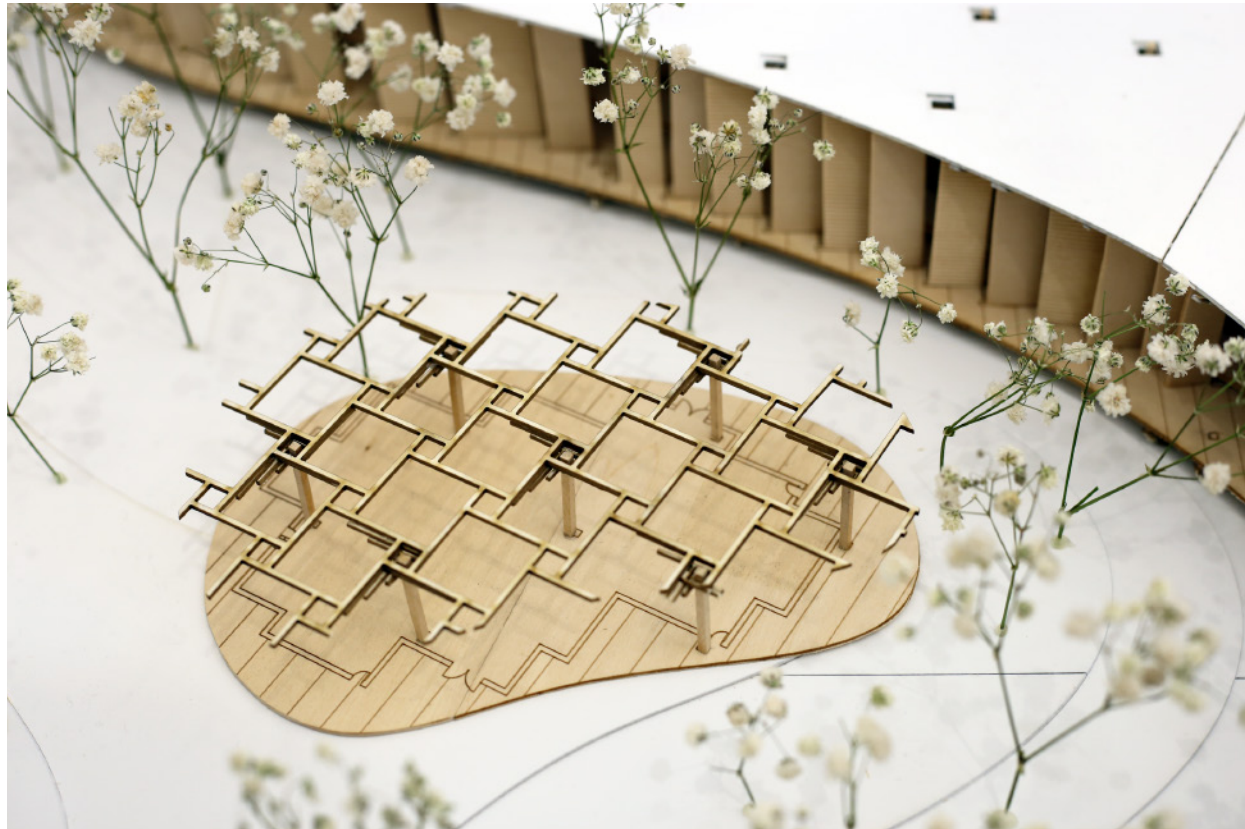
### Occupation Equality

The ramp will gradually descend to the same level as the factory. Every group (i.e. responsibilities) are "prioritized" Timber Digest, groups will always convene in the complex, at some points, at some times.



MASS TIMBER FACTORY AND DORMITORY>





DORMITORY  
BUFFERED FROM THE FACTORY WITH TREES



GOING BACK TO THE SITE FROM FOREST TRAIL

DORMITORY HAS DIRECT ACCESS TO THE FACTORY AND FOREST >





# Bio-Scaffolding

*Instructor \_ Amina Blacksher*

*Site \_ Waverly & Broadway*

*Project Type \_ Academic, Individual*

*Grade \_ High Pass*

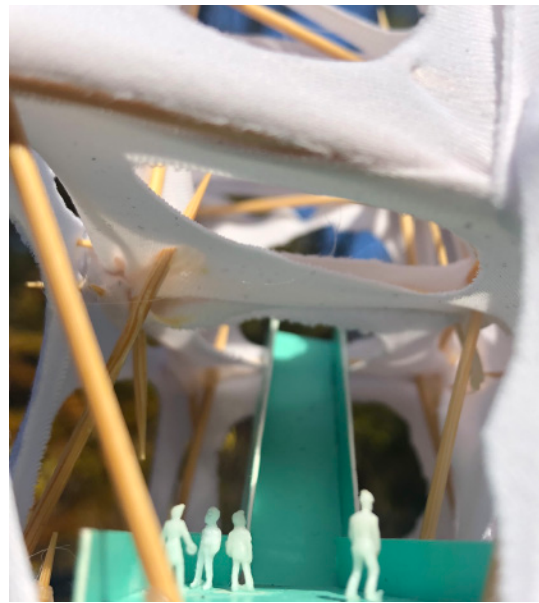
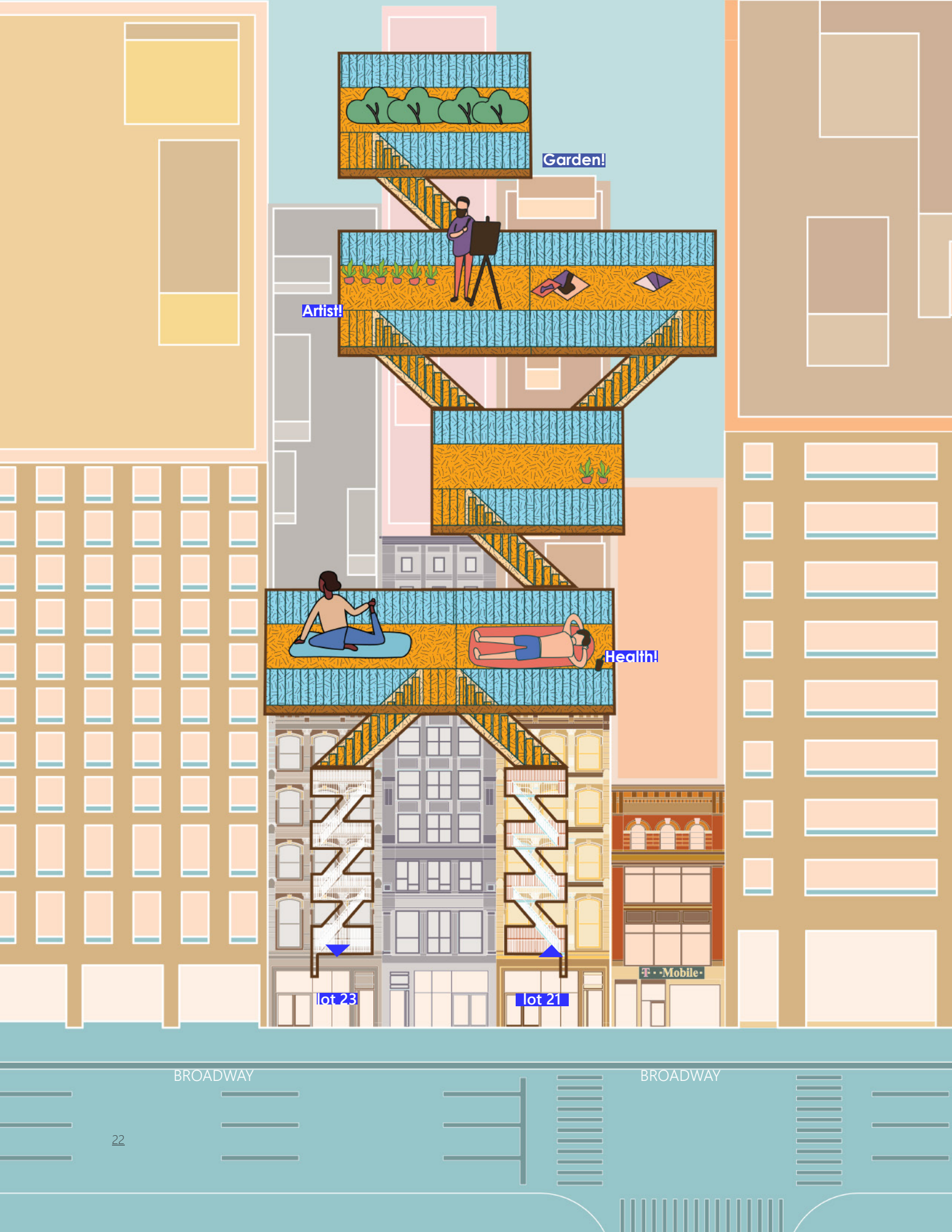
As a famous art district in New York, Noho has experienced a great population influx in the early 20th century. Massive construction of tenements stretched into the sky to accommodate overcrowded ground level. Before the broad installation of residential sprinkler systems, the fire escapes emerged as an economic agreement of landlords and building codes. However, these clunky scaffoldings are abandoned and facing safety issues nowadays.

Thus, the project aims to revitalize the two evocative but vacant feature spaces in NoHo: abandoned exterior fire-escapes and unoccupied rooftops by creating a self-monitored bio scaffolding structure.



STREET RELATIONSHIP >





**Reintegrate fire escape as egress**

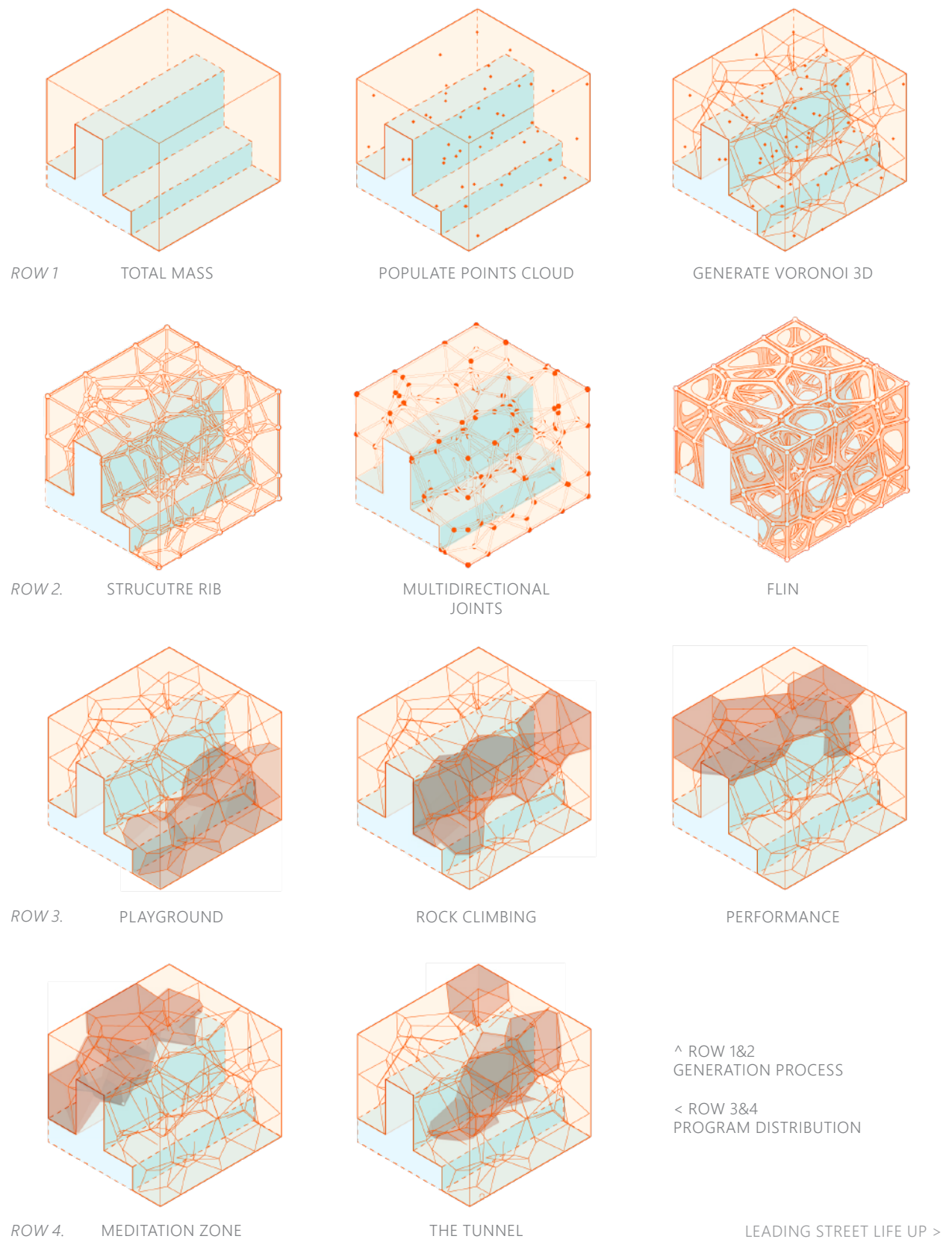
The fire escape connects Broadway and the rooftop. The visitor enters from Lot 21's fire escape and exits from 23's.



**Bring the fun back too!**

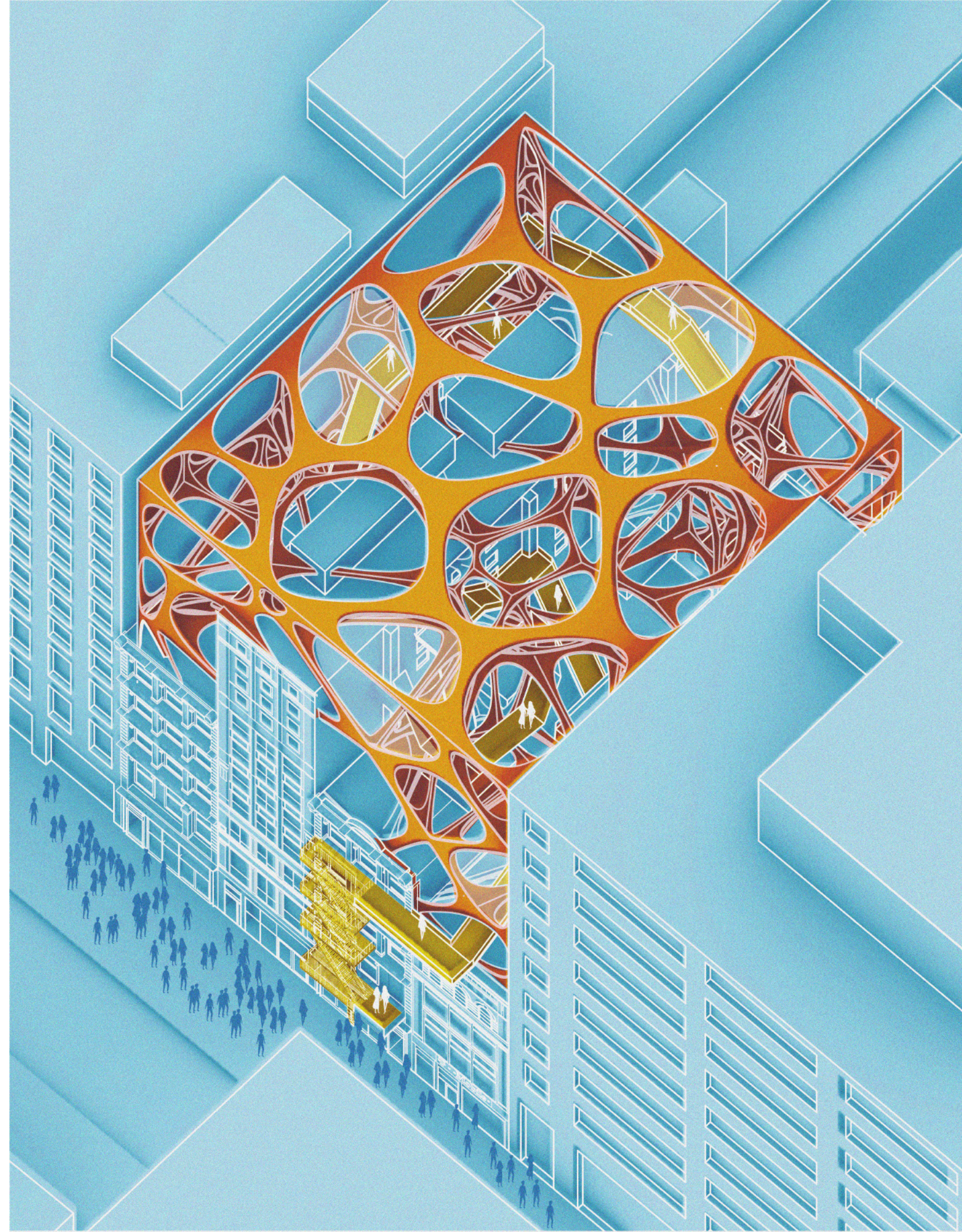
Urban dwellers brought daily activities to these clunky metal structures — for example, balcony gardens, chit chat spots, and sleeping areas. The fire escapes reshaped the urban life for Noho dwellers and vice versa.



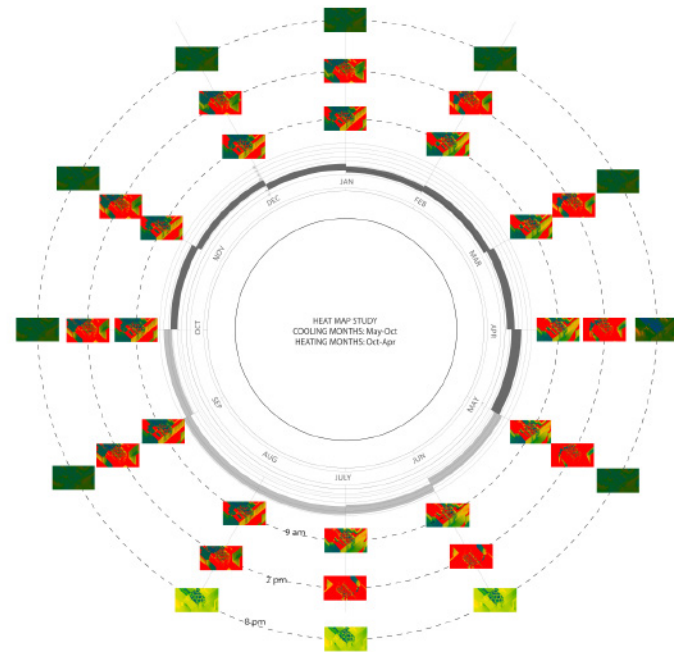


^ ROW 1&2  
GENERATION PROCESS

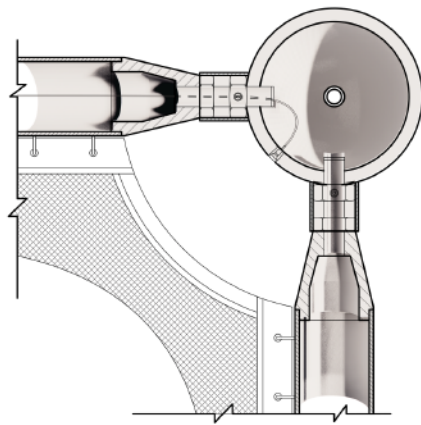
< ROW 3&4  
PROGRAM DISTRIBUTION







ANNUAL HEAT MAP / 24 HOURS



SECTION\_JOINT

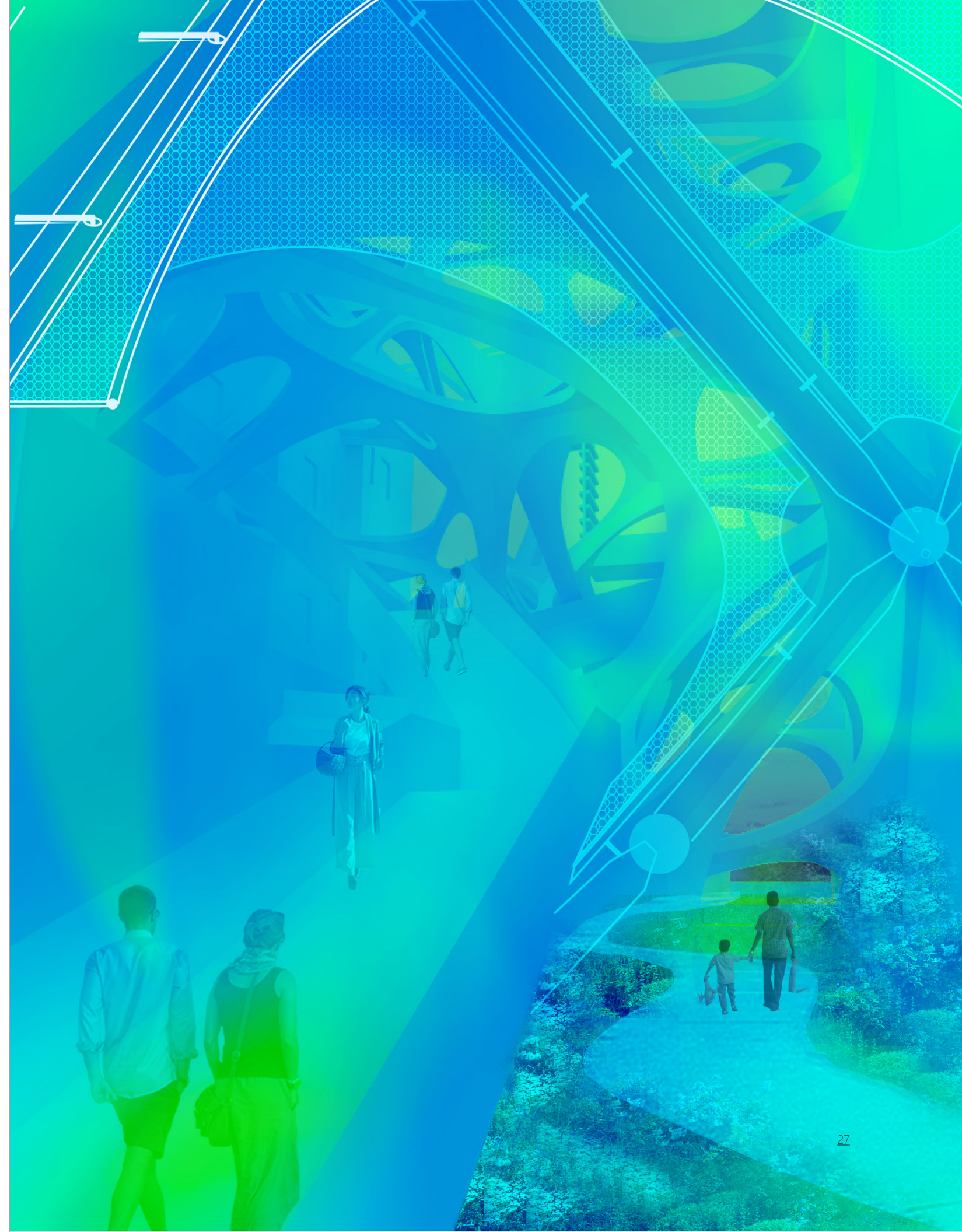


MIST FROM JOINT

### Mist System

The most pleasant temperature for people is 72-77 Fahrenheit degree( 22-25c), so the structure embedded a self-monitored mist system that can detect the structure's macro temperature. When the temperature reaches over 77 degrees, the mist system will activate until the temperature drops to the ideal range. Simultaneously, the mist system works as a sprinkler system in a fire emergency and an artistic tool for performance.

IMMERSIVE HEATMAP OVERLAY >  
MIST SYSTEM TURNS ON WHEN TEMPERATURE REACHES 72 DEGREES FARENHEIT





# Looping School

*Instructor \_ Lindy Roy, Berardo Matalucci*

*Site \_ New York, USA*

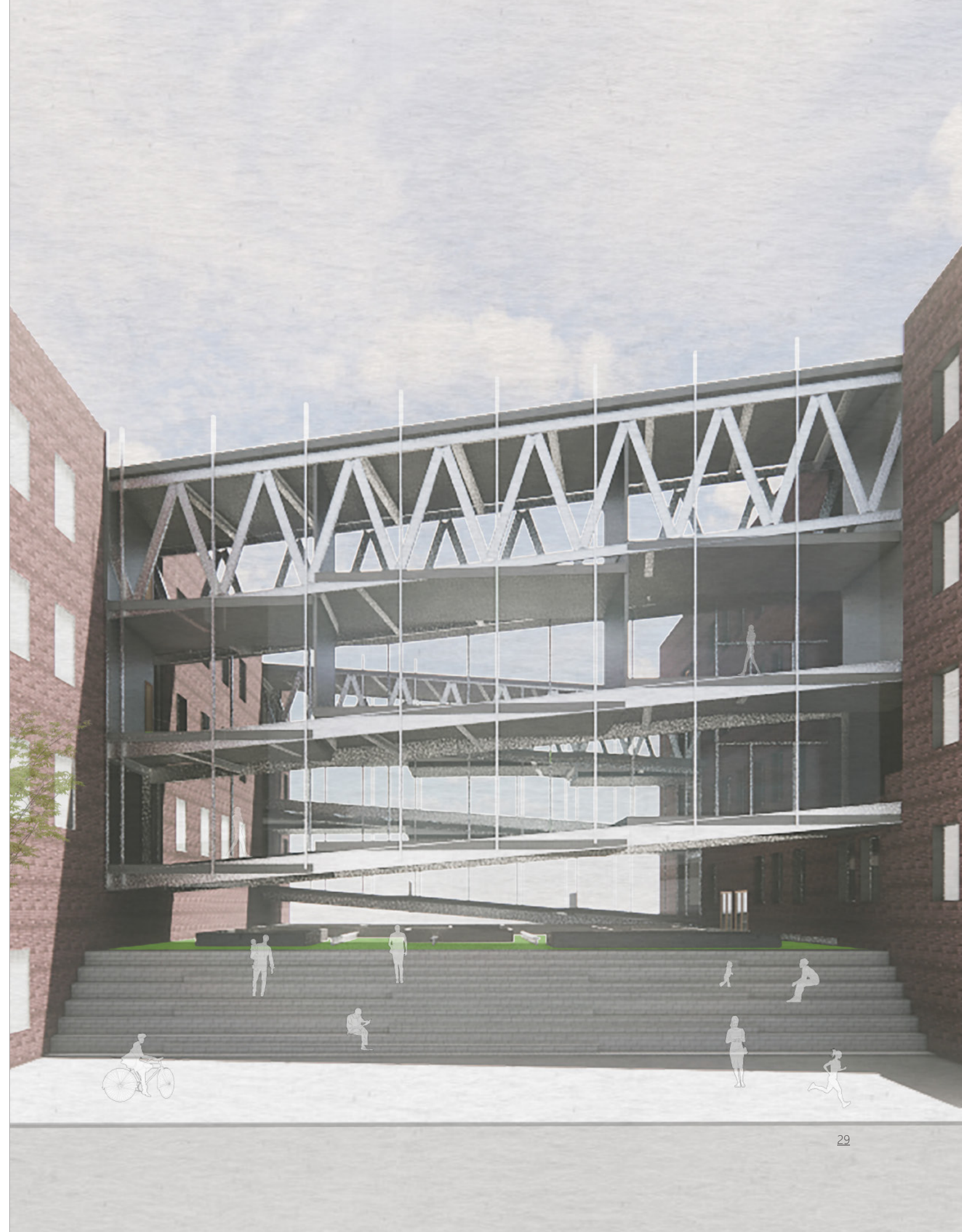
*Project Type \_ Academic, Group (5)*

*Grade\_Pass*

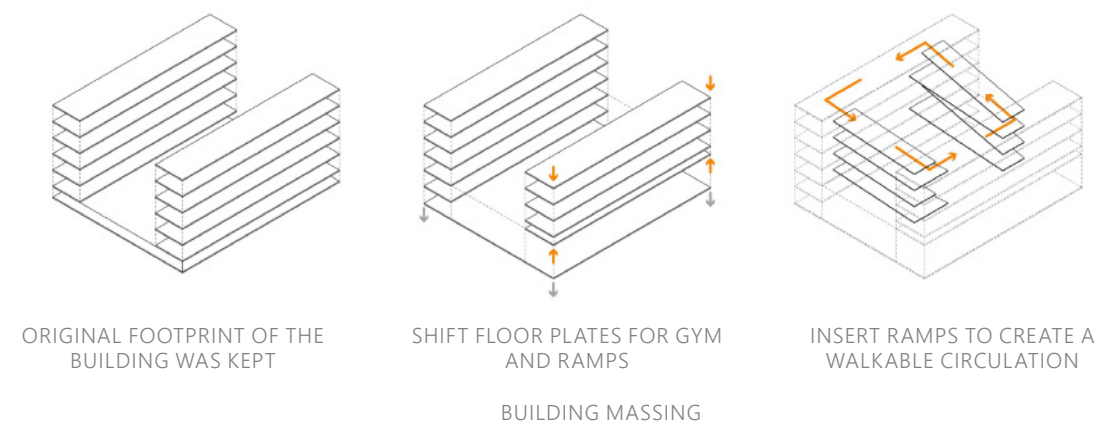
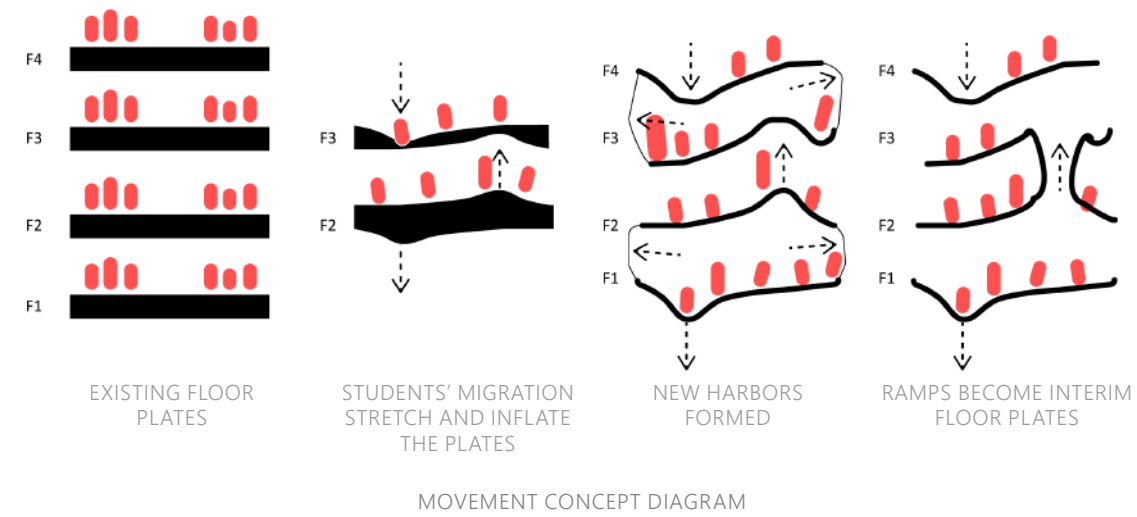
The studio incorporates Neurodiversity as a design apparatus. As a redesign of the current P. S. 64 School, this project intends to raise awareness of special education, including autism, in New York City, particularly on the Lower East Side. Instead of providing a uniform learning environment, the School recognizes that every child has unique needs, senses and space.

Rather than letting structures define circulation and programs, children can move freely around the School. The School will be a space that can be continuously explored from ground to roof on different routes, and everyone's experience will be different.

STREET RELATIONSHIP >



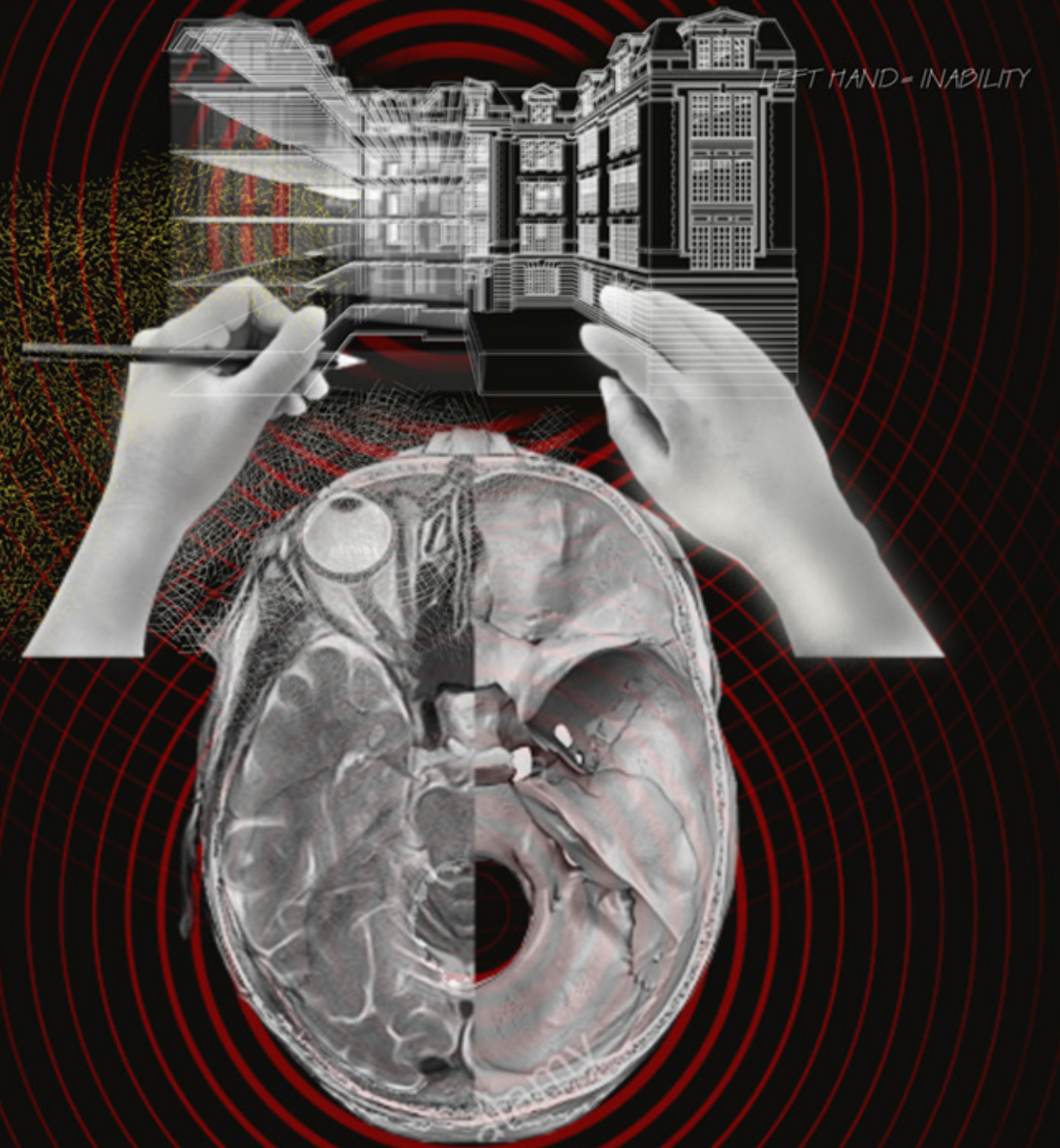




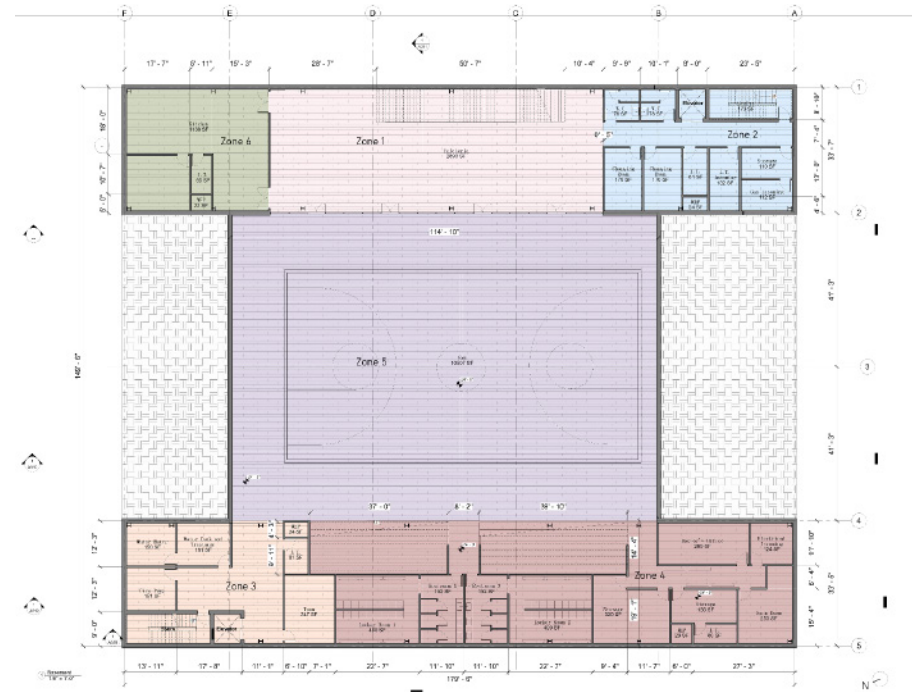
### Neurodiversity Inspiring Design

In the 20th century, X-ray examined the body's physical essence; nowadays, FMRI images use blood flows to show individual behavior's linkage to the brain's areas. This evolution in understanding human beings inspired consideration of student behaviors and programs as the tool to reshape the floor slabs.

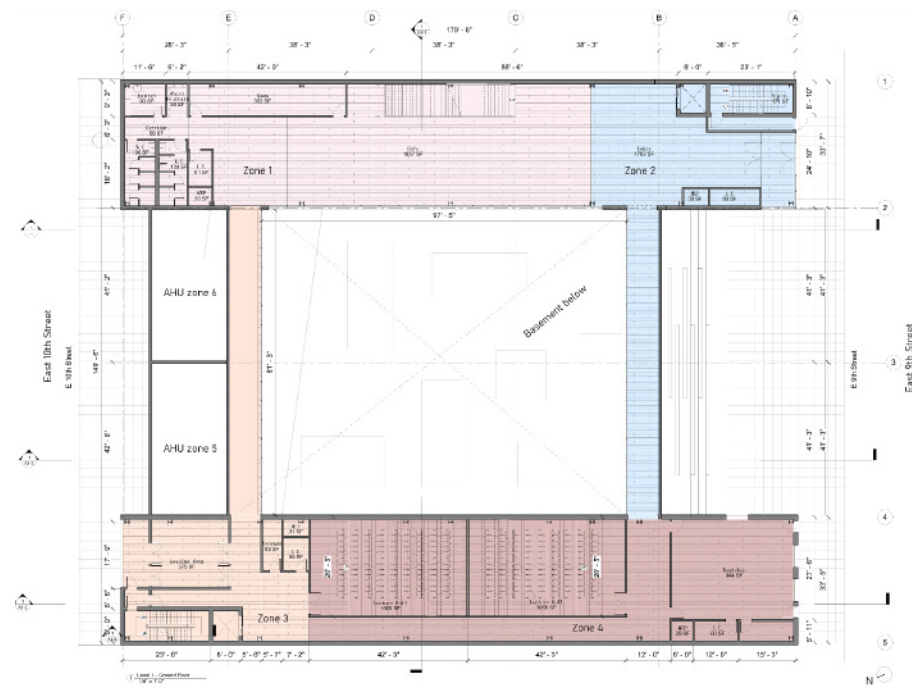
TO PROMOTE BEHAVIOR LINKAGE TO THE BRAIN'S AREAS >



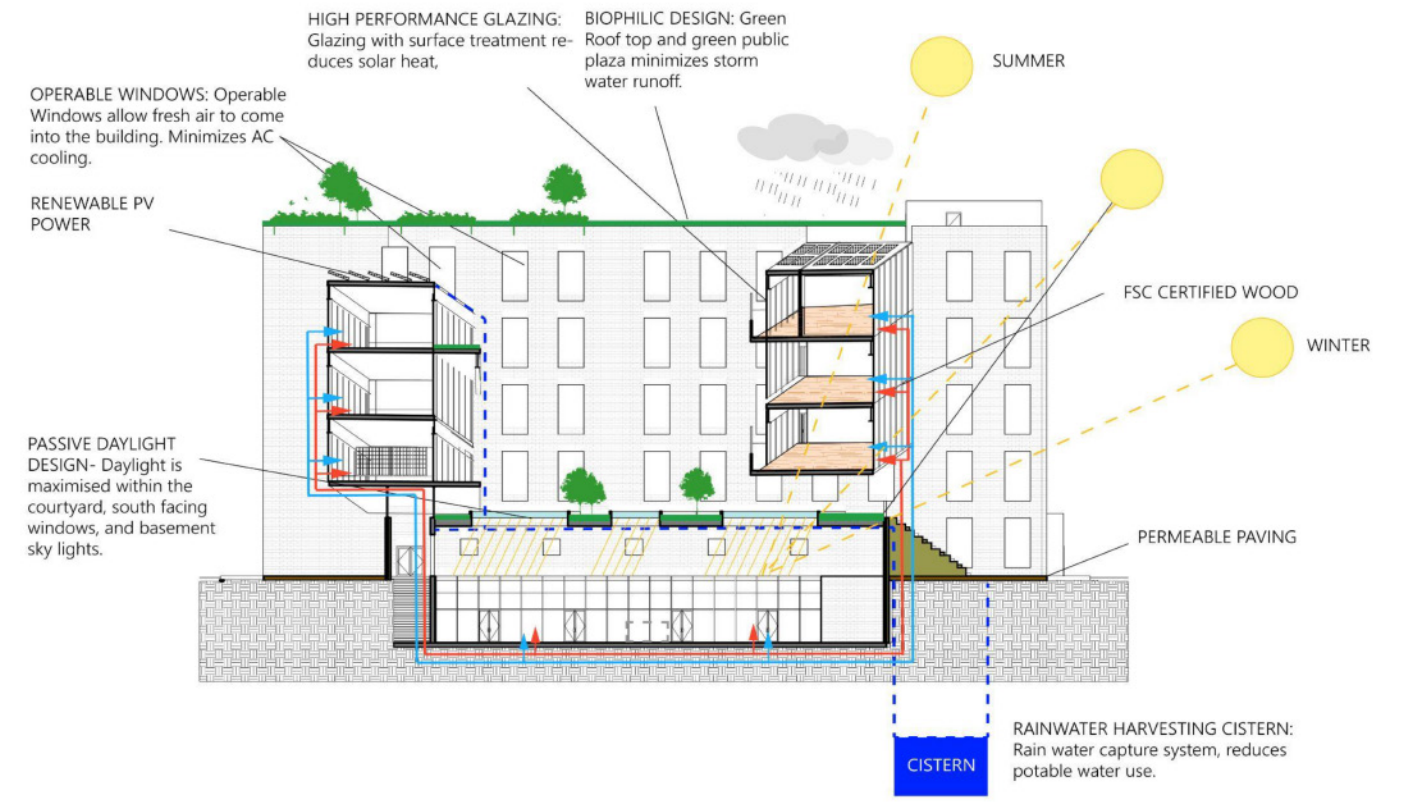




BASEMENT WITH ZONING  
GYM, KITCHEN, FITTING ROOM, LOCKERS

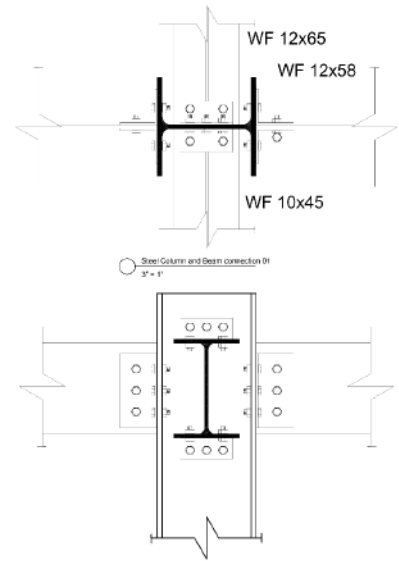


FIRST FLOOR  
LOBBY, LECTURE HALLS (2), WOOD SHOP, LOADING, CAFE, GARDEN

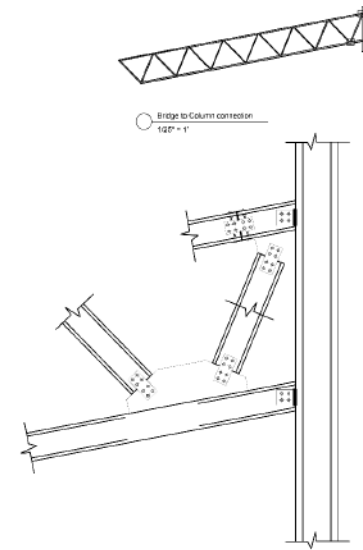


SUSTAINABILITY CYCLE

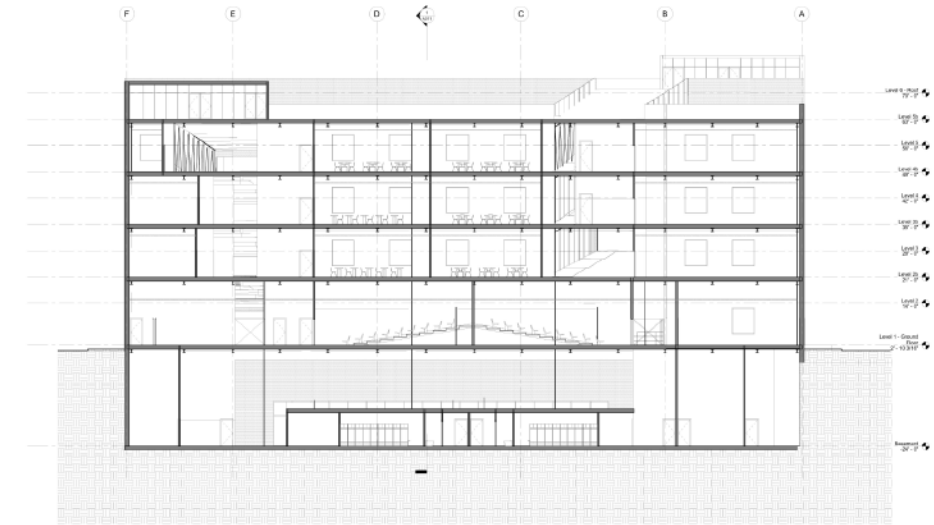




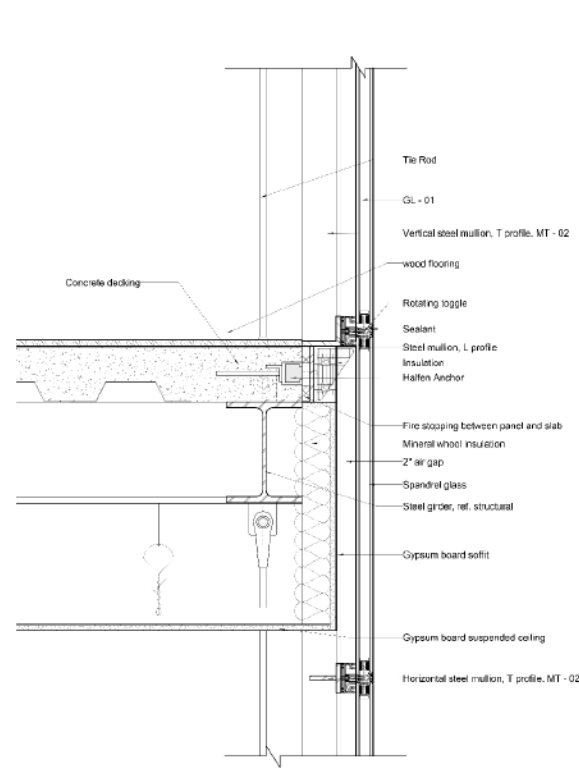
STEEL COLUMN AND BEAM CONNECTION



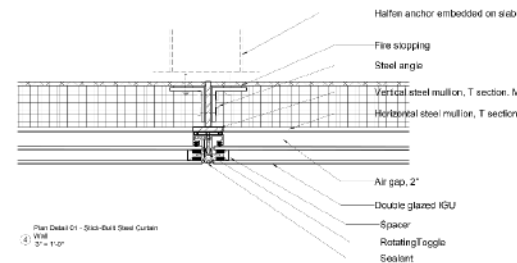
BRIDGE TO COLUMN CONNECTION



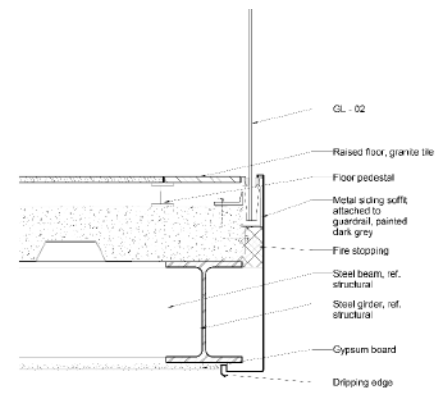
SECTION A-A



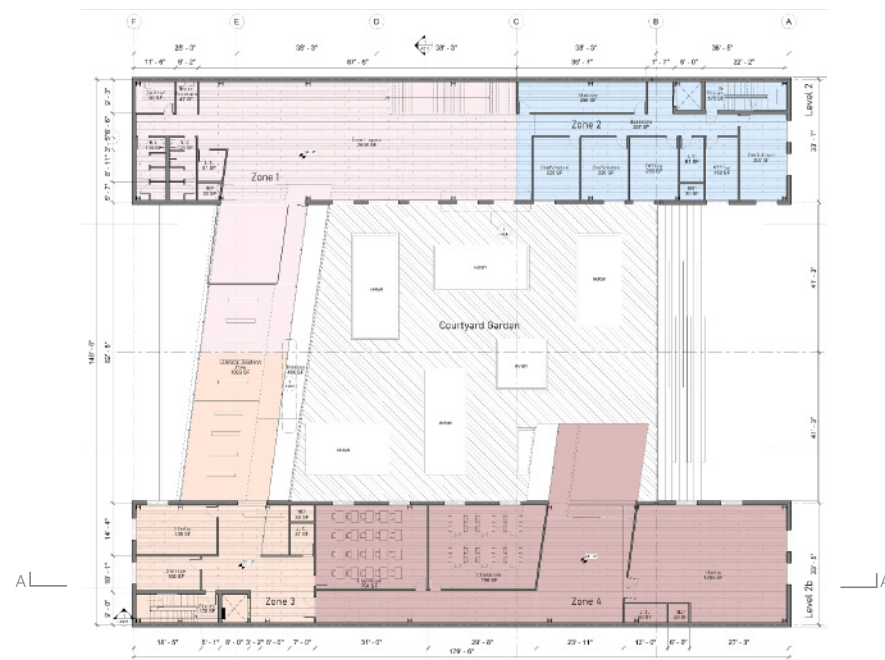
CURTAIN WALL DETAIL 1  
STICK-BUILT STEEL CURTAIN WALL & SLAB CONNECTION



CURTAIN WALL DETAIL 2  
STICK-BUILT STEEL CURTAIN WALL

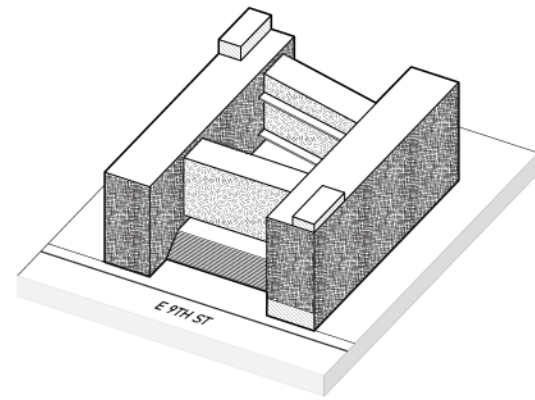


CANTILEVERED BALCONY

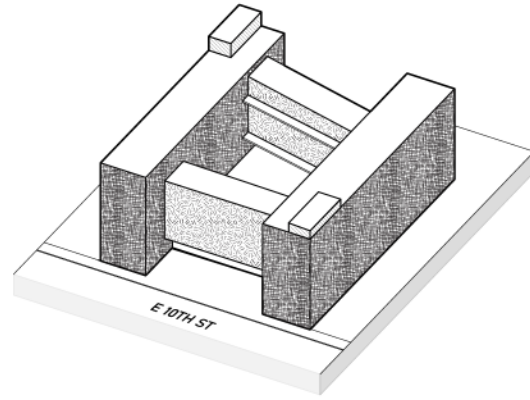


SECOND FLOOR  
STUDIO, LECTURE HALLS (2), WOOD SHOP, CLASSROOMS, OFFICE





NORTH FACADE



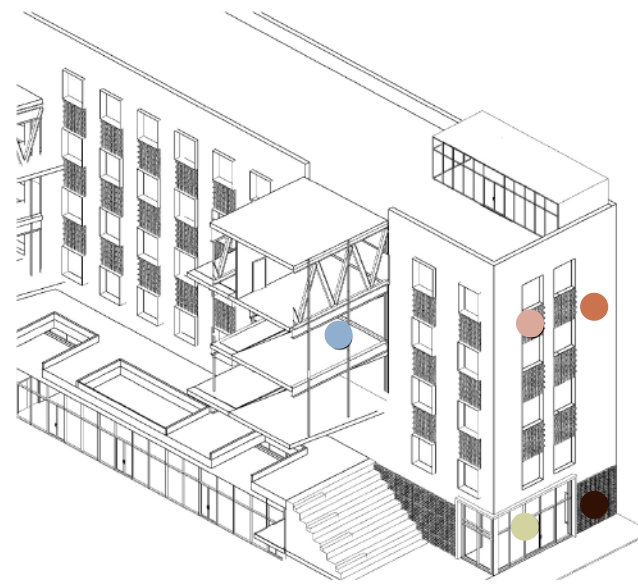
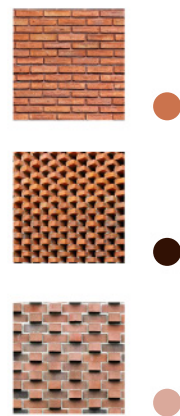
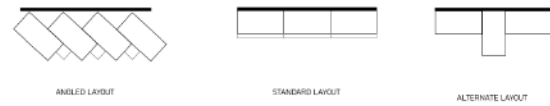
SOUTH FACADE

EXTERIOR WALL TYPE SCHEDULE

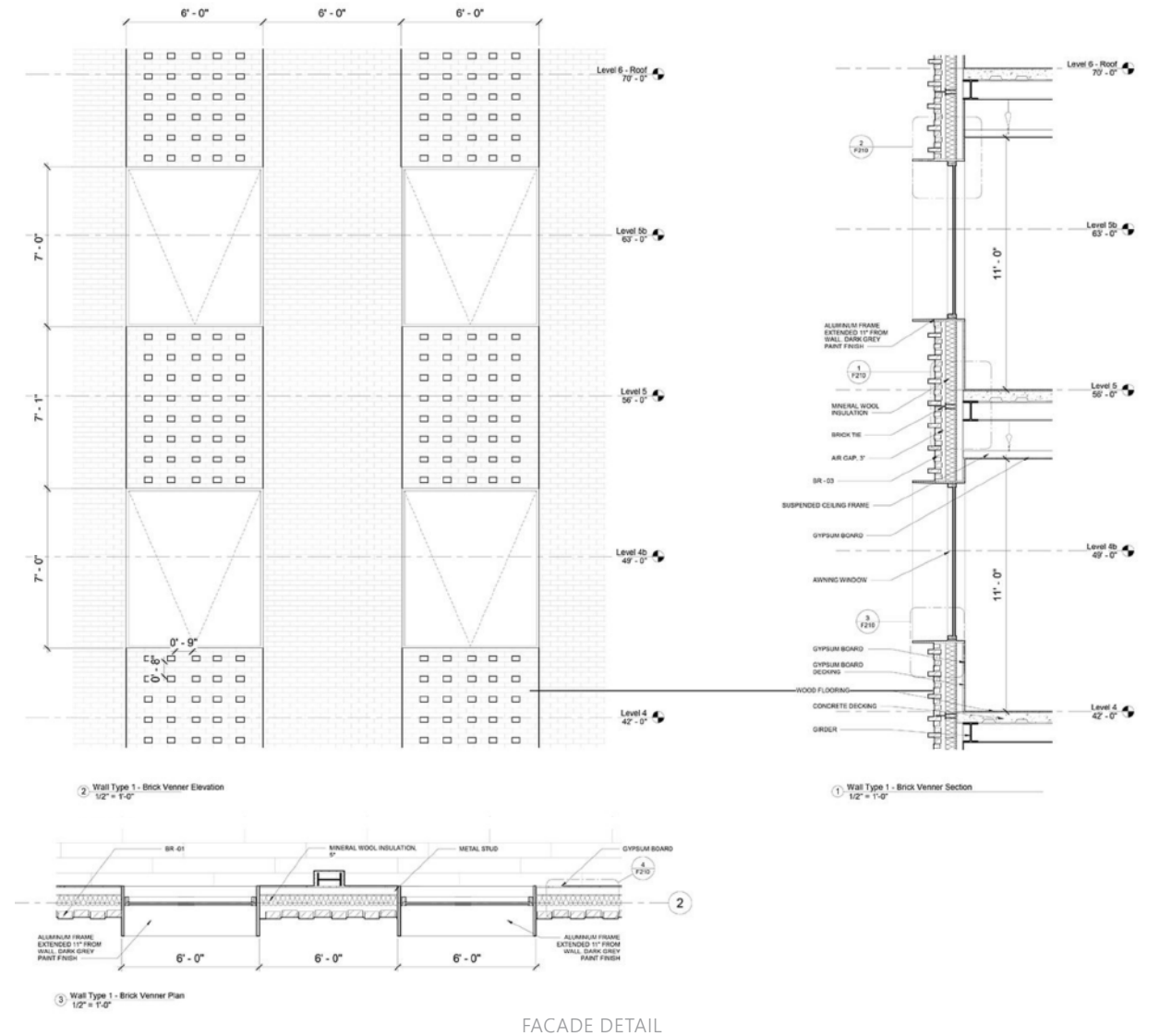
- WT-1** BRICK VENEER RAINSCREEN SYSTEM
- WT-2** STICK-BUILT CURTAIN WALL SYSTEM
- WT-3** STOREFRONT GLASS WALL SYSTEM

EXTERIOR MATERIAL SCHEDULE

MATERIAL	DESCRIPTION	MANUFACTURER	LOCATION
BR - 01	NEW YORK RECLAIMED FULL BRICK, STANDARD LAYOUT	BRICK IT	WT - 1, FROM SECOND FLOOR UP
BR - 02	NEW YORK RECLAIMED FULL BRICK, ANGLED LAYOUT	BRICK IT	WT - 1, GROUND FLOOR
BR - 03	NEW YORK RECLAIMED FULL BRICK, ALTERNATE LAYOUT	VITRO GLASS	WT - 1, PERIMETER WRAPPING OPENINGS
GL - 01	AVIPROTEK E-BIRD-SAFE LOW-E GLASS, DOUBLE GLAZING	VITRO GLASS	WT - 2
GL - 02	STARPHIRE ULTRA-CLEAR GLASS, DOUBLE GLAZING	VITRO GLASS	WT - 3 AND ALL EXTERIOR WINDOWS
MT - 01	ALUMINIUM FRAME, PAINTED DARK GREY		WT - 1, PUNCHED WINDOW FRAMES
MT - 02	STEEL PROFILE, PAINTED DARK GREY		WT - 2, CURTAIN WALL PROFILES



FACADE SCHEDULE



FACADE DETAIL

Facade Design: Brick

The original school's bricks will be collected upon demolition and will be used in the new facade. the newly developed brick facade takes on the original condition and advances with more variations.



# Impermanency

*Instructor\_Benjamin Cadena  
Site\_Bronx, NYC  
Project Type\_Academic, Group (2)  
Grade\_Pass*

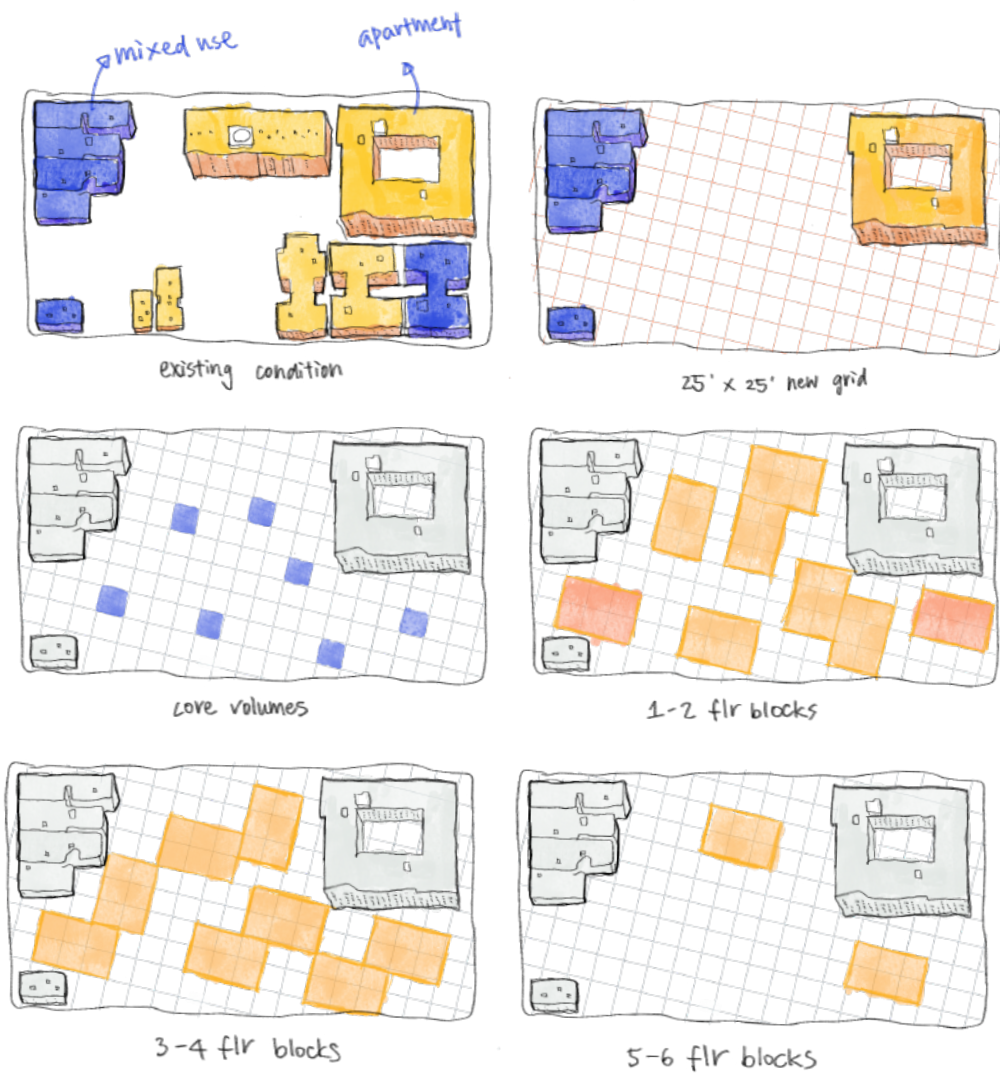
NYC's average household size kept decreasing for the past decades, leading to a significant shortage in smaller size apartments. Because one's lifestyle and demands change over time, people move around for a more suitable house type during their life.

Our community encourages multi-generational families of today to closely bond within while maintaining high levels of privacy and freedom. Even the smallest 300 square feet apartment can convert to meet ADA requirements. We also provide maximum flexibility sizes and available infrastructure and furniture in the apartments. No matter who you are or your life status, one can always find a place in our community, through loose but versatile unit layouts, and residents are welcomed to shape their homes to meet new demands.

GARDEN COMMUNITY >







SITE DEVELOPMENT

### Massing Strategy

A new grid system of 25' x 25' introduced for the site. 30-degree rotation avoids face-to-face awkwardness with existing buildings. The modular blocks extruded from the grid cluster around 7 significant cores. In the 2nd iteration, the W and E streets trim off part of the ground blocks. They form the upfront commercial facade of the clusters.



CONCEPTUAL SITE MODEL  
COLORFUL BEADS REPRESENT THE RESILIENT AND VIVID LIFE IN THE COMMUNITY



FIRST ITERATION  
100% REMOVAL OF EXISTING BUILDINGS

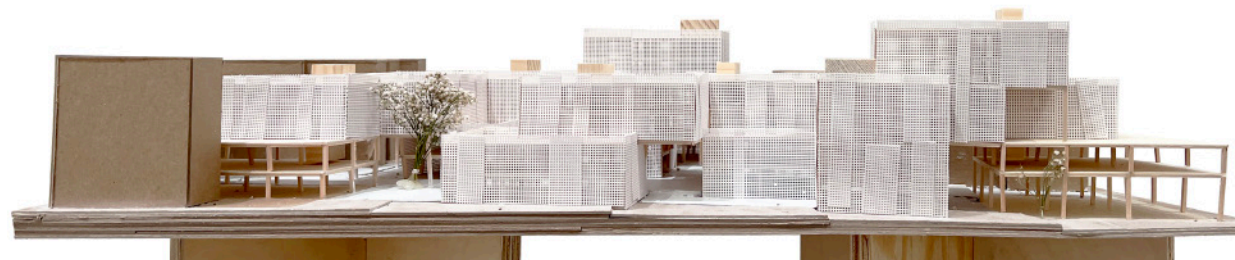
SECOND ITERATION  
50% REMOVAL AND GRID SYSTEM

THIRD ITERATION  
CONFIRMED CORES AND CLUSTERS





GROUND FLOOR PLAN  
 12 X 300 SQF + 28 X 600 SQF + 14 X 900 SQF = 54 APTS



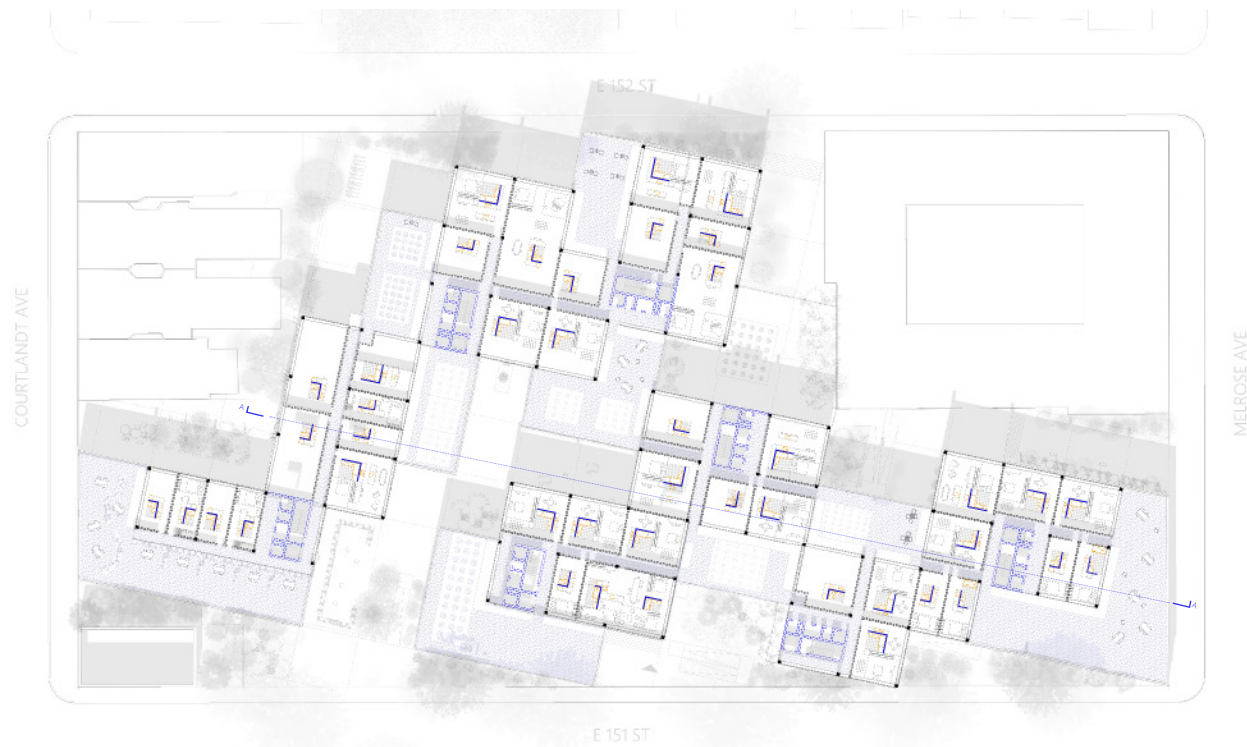
FACADE / STRUCTURE MODEL, 1/16"=1-0'  
 SOUTH FACADE

### Nature Home

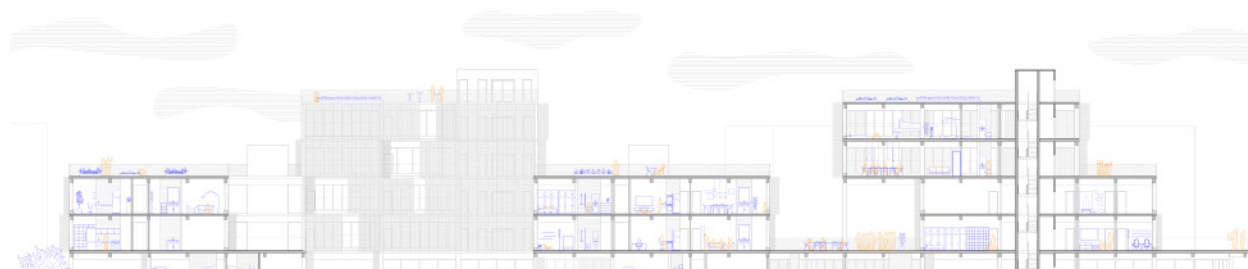
Maximum green space is achieved on the ground level. The rotated grid system creates pocket gardens between the building and adjacent streets. Three levels of courtyards follow the street slope, and they are connected by stairs and ramps.







3RD FLOOR PLAN  
 26 X 300 SQFT + 46 X 600 SQFT + 10 X 900 SQFT = 82 APTS

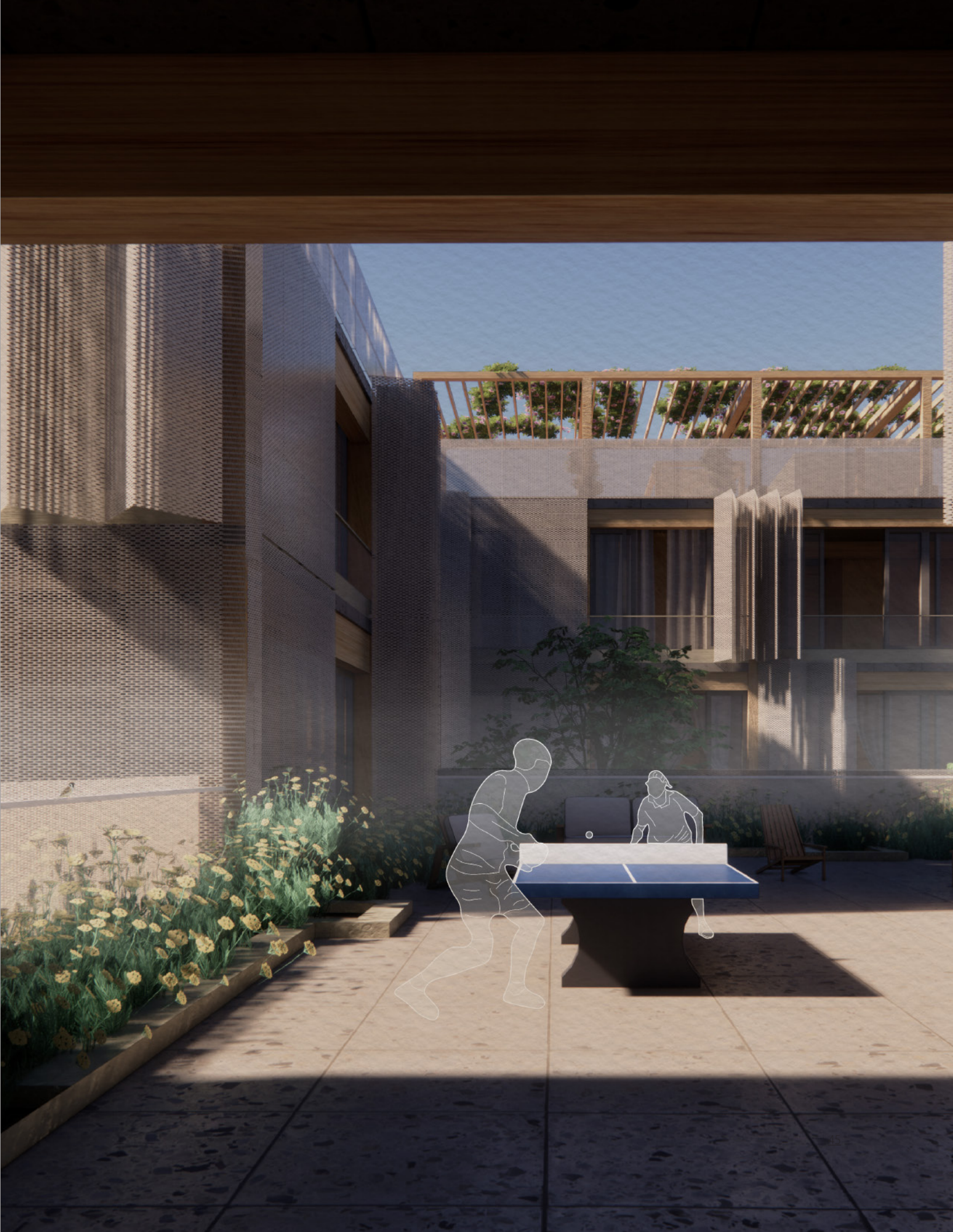


SECTION A-A

**Inter-family Bondings**

The third and fourth floors feature connected corridors to roof terraces. Residents can easily visit their families in another cluster without going down to the ground floor. It continues to promote inter-family bondings.

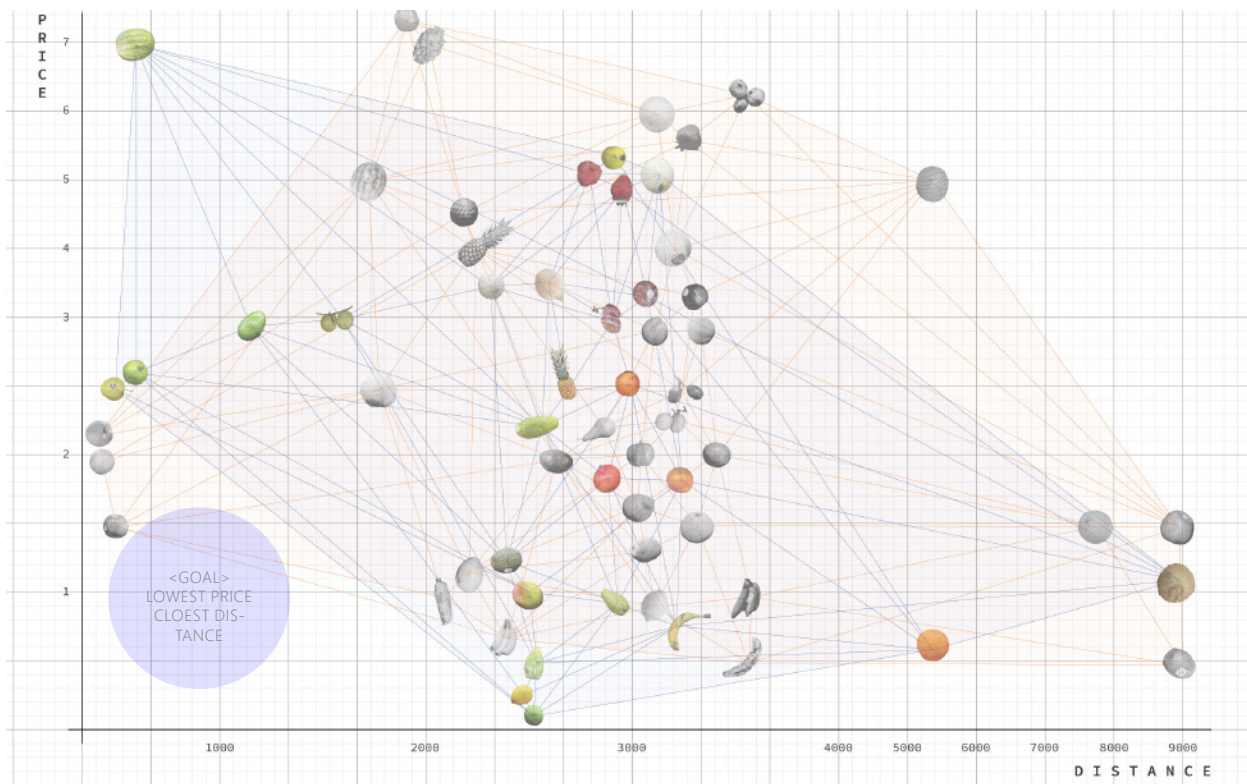
MORNING EXERCISE ON THE TERRACE >







5TH FLOORS PLAN  
 4 X 300 SQFT + 12 X 600 SQFT + 4 X 900 SQFT = 20 APTS



DISTANCE V.S. PRICE STUDY OF FRESH PRODUCE



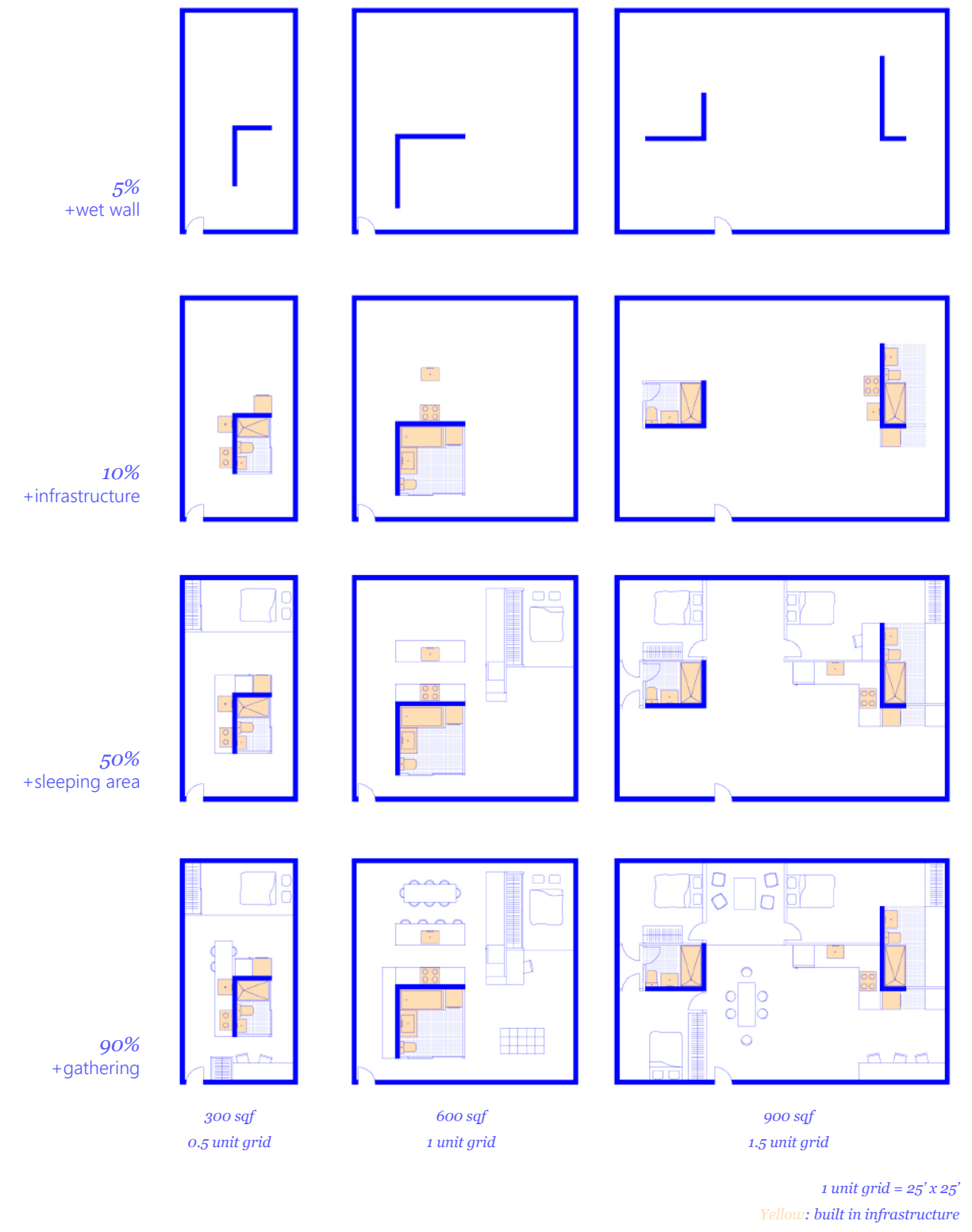




A 600 SQFT APARTMENT WITH 0% INFILL

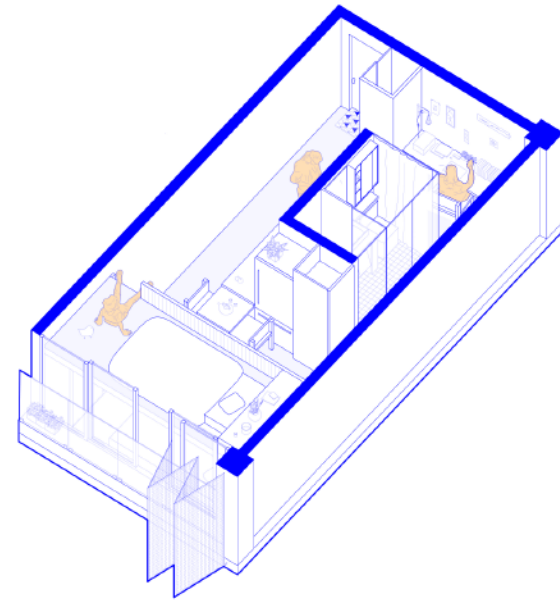
### Apartment Autonomy

We question naming conventions such as "2b2b" and "1b1.5b". We want to pass on the most autonomy of the space to the residents. Only wet walls are built-in to provide kitchen and bathroom units. The majority of the interior space is for residents to tailor.

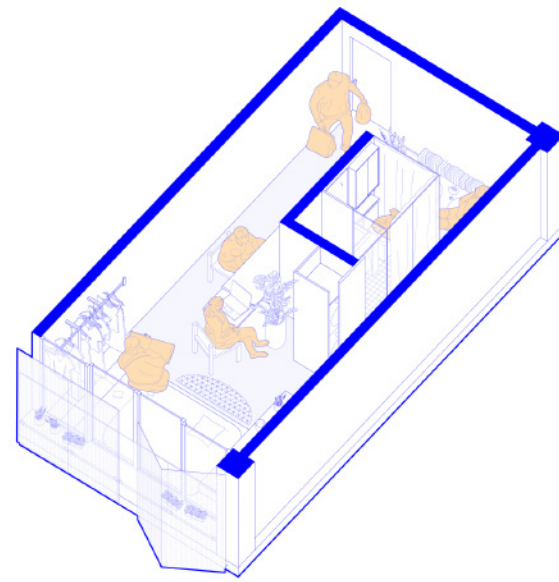


APARTMENT AUTONOMY TABLE

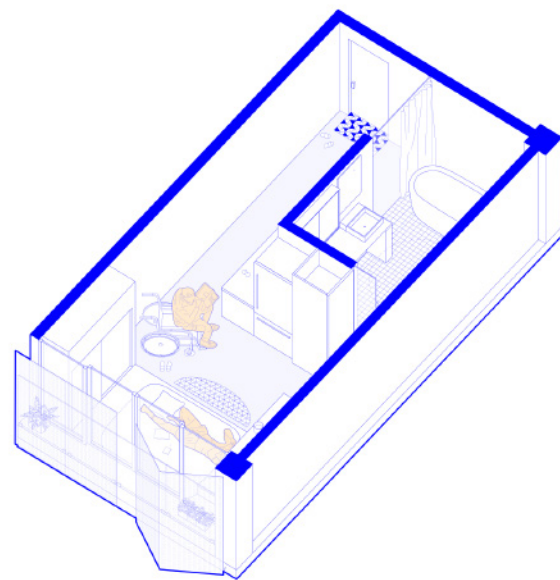




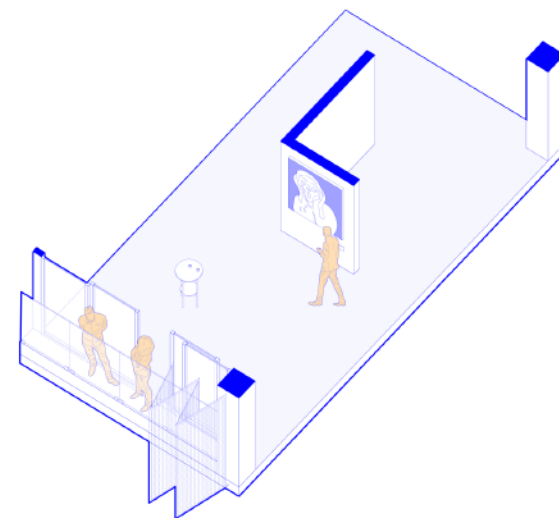
YEAR 2021  
 BULK BED/STUDY AREA/BATHROOM/COOKING/DINING  
 "A SINGLE PARENT WITH 2 CHILDS"



YEAR 2031  
 QUEEN BED/COZY ZONE/BATHROOM/COOKING/DINING  
 "A COUPLE INVITE FRIENDS TO SPEND THE WEEKEND"



YEAR 2041  
 ADA/BATHROOM/COOKING/DINING  
 "RENOVATED TO BE WHEELCHAIR ACCESSIBLE"



YEAR 2051  
 EXHIBITION, CONCERTS, WEDDINGS ETC...  
 "GALLERY TO BE"

**TEMPORAL / SPATIAL RESILIENCY** DEMONSTRATED IN 300 SQFT UNIT ^  
 WOOD FURNITURES ARE ALL ASSEMBLED IN THE **COMMUNITY WOOD SHOP** >







SECTIONAL MODEL

### Structure/ Facade Approach

The frame structure is mass timber with concrete slabs. The facade system consists of sliding doors/windows and a layer of folding shades.



mass timber detail structure\_1/8"=1-0'



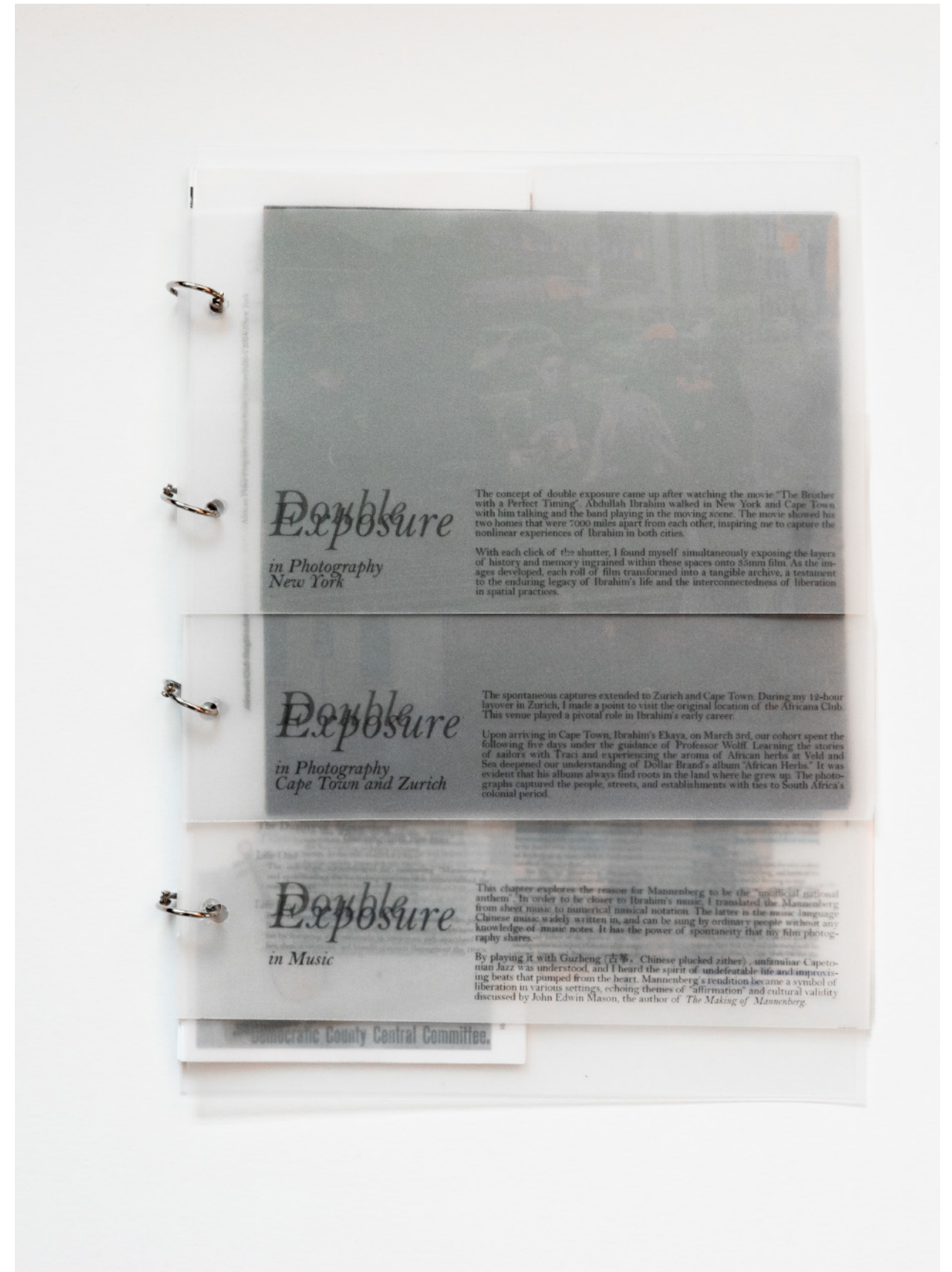
# Double Exposure of Liberation

*in Photography, Music and Conversation*

*Instructor \_ Ilze Wolff, Lafina Eptaminitaki  
Project Type \_ Academic, Individual*

After watching "The Brother with a Perfect Timing," the idea of double exposure emerged, inspired by Abdullah Ibrahim's dual life in New York and Cape Town. Using 35mm film, landscapes and artifacts related to anti-apartheid history were captured simultaneously, creating tangible archives. Translating Ibrahim's Mannenberg into numerical musical notation allowed for its performance on the Guzheng, revealing the spirit of Capetonian Jazz and themes of liberation.

This exploration, discussed by John Edwin Mason and Julie Tay, extended to the Mencius Society, highlighting music's unifying power. Through double exposure, a fusion of photography, music, and conversation uncovered themes of cultural confidence and liberation.







VIEWING WITH OVERHEAD PROJECTOR

### Double Exposure of Publication

- There are two ways of viewing this publication.
1. It can be projected using an overhead projector for public viewing.
  2. It can also be views with a "light-up" card for personal reading.



LIGHT IT UP!







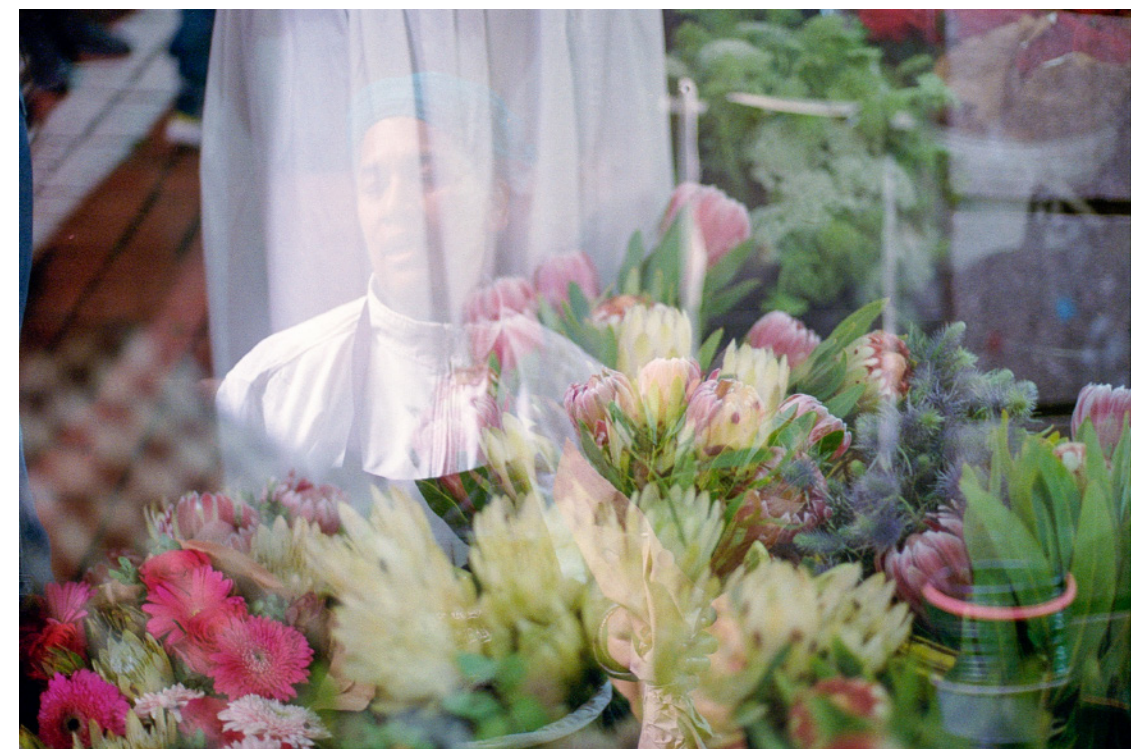


### Double Exposure in Photography

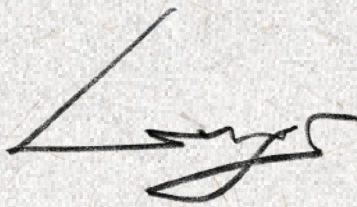
The concept of double exposure came up after watching the movie "The Brother with a Perfect Timing". Abdullah Ibrahim walked in New York and Cape Town with him talking and the band playing in the moving scene. The movie showed his two homes that were 7000 miles apart from each other, inspiring me to capture the nonlinear experiences of Ibrahim in both cities. Landscapes and artifacts involved in the history of anti-apartheid were exposed simultaneously on 35mm films, and each roll of the film became a tangible archive.



^ GREATMORE  
FLOWER MARKET IN CAPETOWN





A handwritten signature in black ink, appearing to read 'Lesley Li'. The signature is fluid and cursive, with a long horizontal stroke extending to the left from the start of the first letter.

Lesley Li / selected works