

RUONAN JOAN DU

GSAPP M.Arch
2020-2023
work collection



Ruonan Joan Du

GSAPP M.Arch class 2023

During my final semester at GSAPP, I enrolled in a class called Metatool, which prompted me to reevaluate the tools and approaches I had adopted throughout my eight-year architectural education journey.

This experience helped me understand that architecture transcends mere form and spatial design; it can serve as a bridge connecting diverse social groups, humans and nature, industries and capital, as well as the past and the future. When discussing architecture, we delve into the unique history and context of a

specific space and time.

In my studio work, I aimed to create proposals that fostered new modes of interaction, responding to contemporary social, economic, and environmental challenges. In Core II, Core III, and Adv V, I explored potential ways to facilitate coexistence among different social groups. In Core I and Adv IV, I proposed innovative industry and business models. In Adv VI, I envisioned a novel residential pattern that took into account the intricate relationship between humans and nature.

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01

MILK HUB 2.0

TRANSITION OF MILK INDUSTRY AND COMMUNITY

Dairy has long been a crucial part of the American food industry, with milk sales representing 47.1% of New York's agricultural commodities in 2017, according to the U.S. Department of Agriculture (Dinapoli, 2019). Among all U.S. states, New York ranks third in milk production, with the Hudson Valley region playing a particularly significant role thanks to its abundant farmland resources.

The stranded asset we have chosen to renovate is a remnant of a condensed milk factory once operated by the Borden Dairy Company in Walkill, Orange County. This building serves as a miniature representation of the region's rich dairy history.

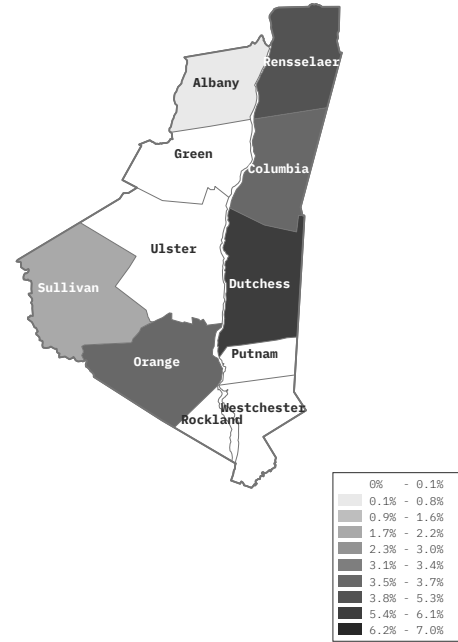
Our renovation project aims to foster community cohesion and support the continued growth of the dairy industry through the creation of open bridge spaces and other parallel allies. By revitalizing this memorable building, which has witnessed the rise and decline of the milk industry over the years, we hope to inspire the people working in it and pave the way for a more sustainable industry in the decades to come.

Project Info

GFA	1120 sqm
Location	New York, USA
Duration	2/2022-4/2022
Mentor	Pedro Rivera
Team	Ubaldo Escalante Wei Xiao

ADV IV joint studio
with urban planning at GSAPP

ISSUE: Regional milk industry decreasing

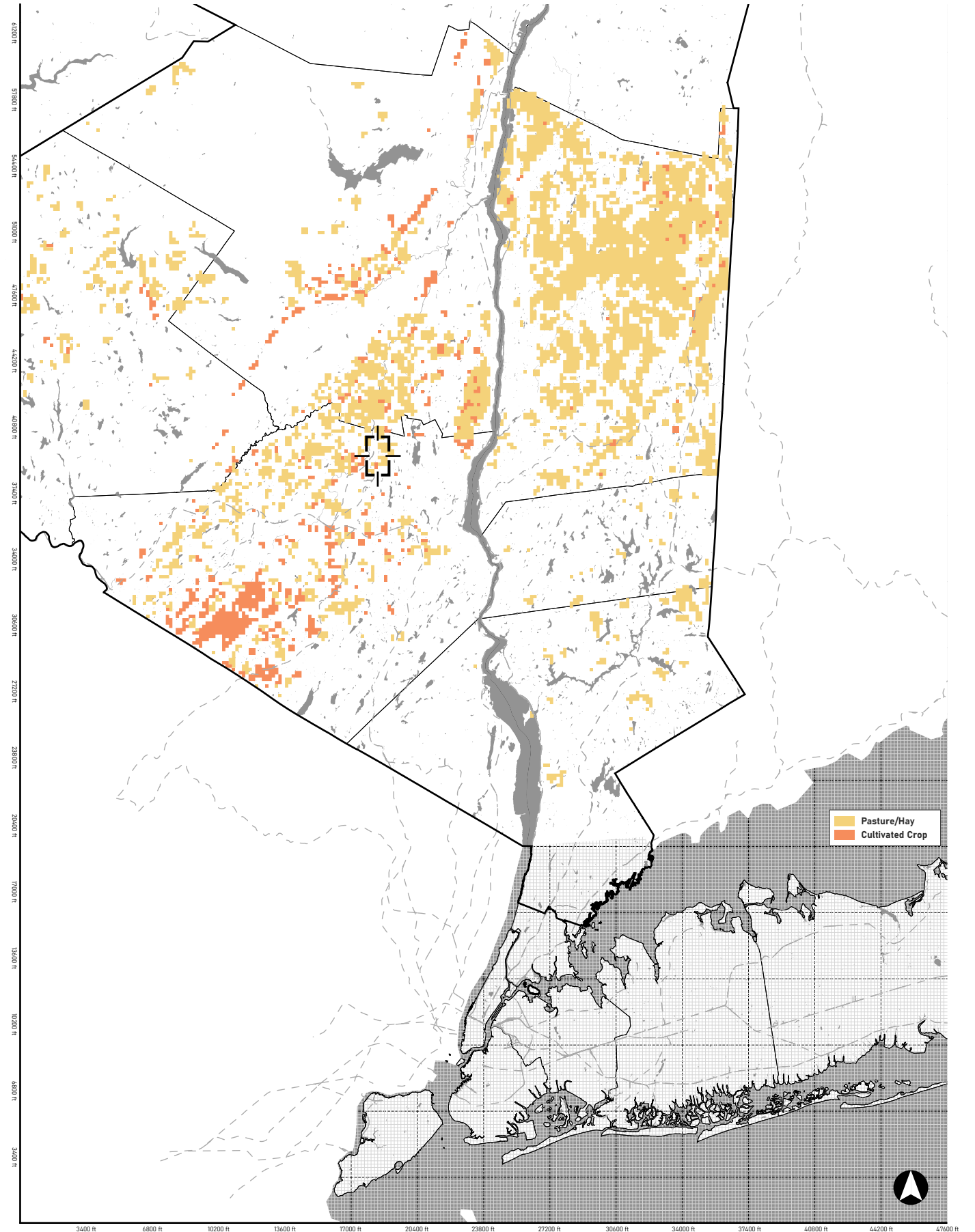
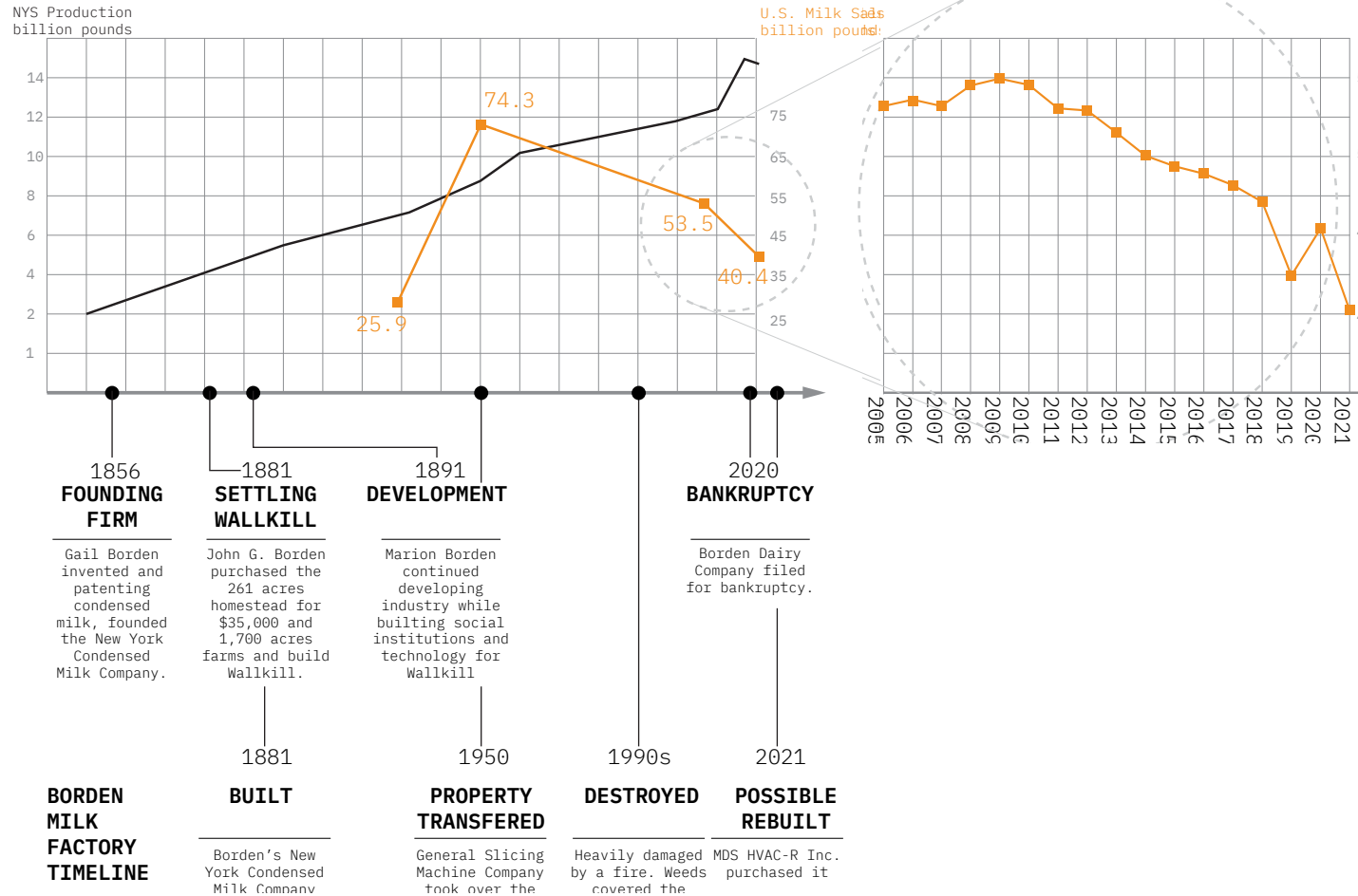


47.1%
of NYS agriculture income

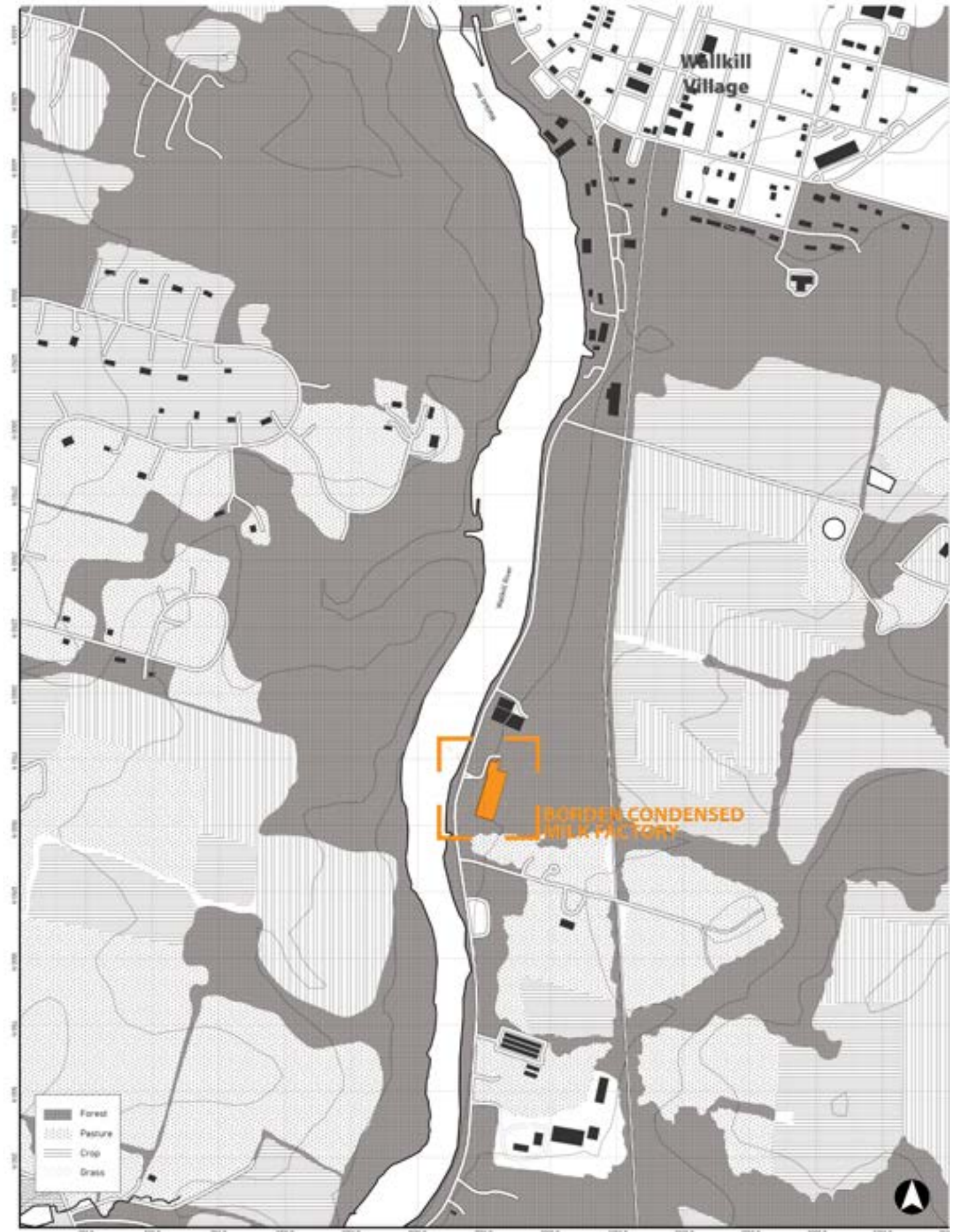
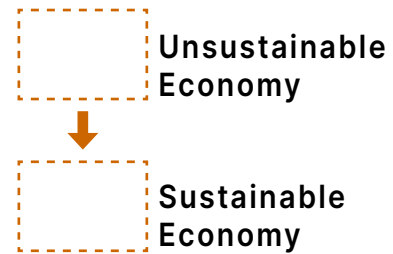
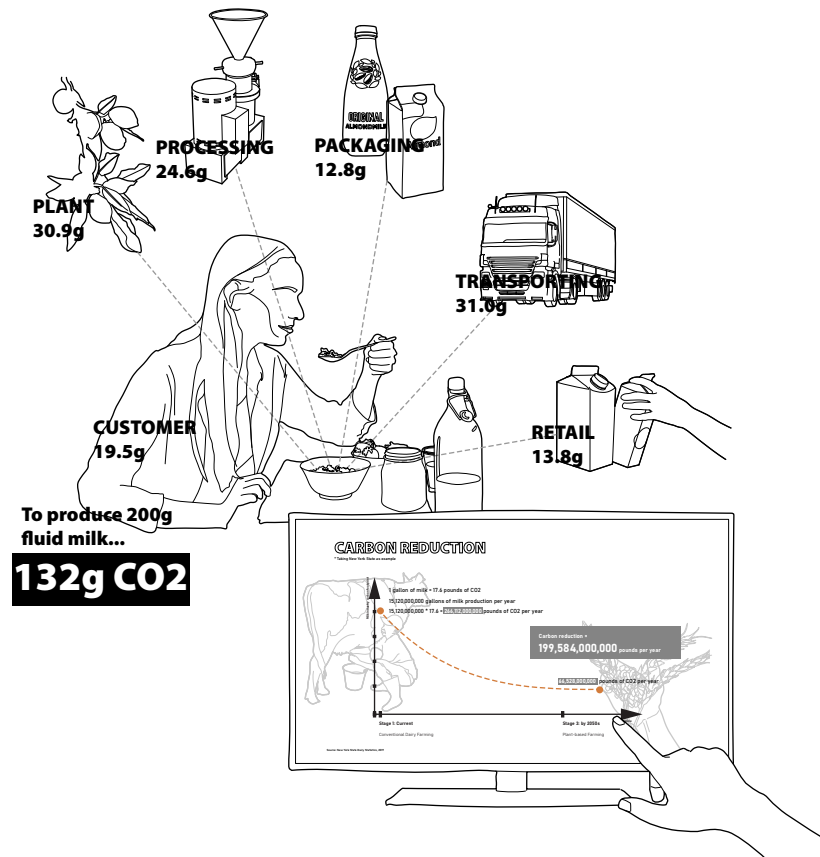
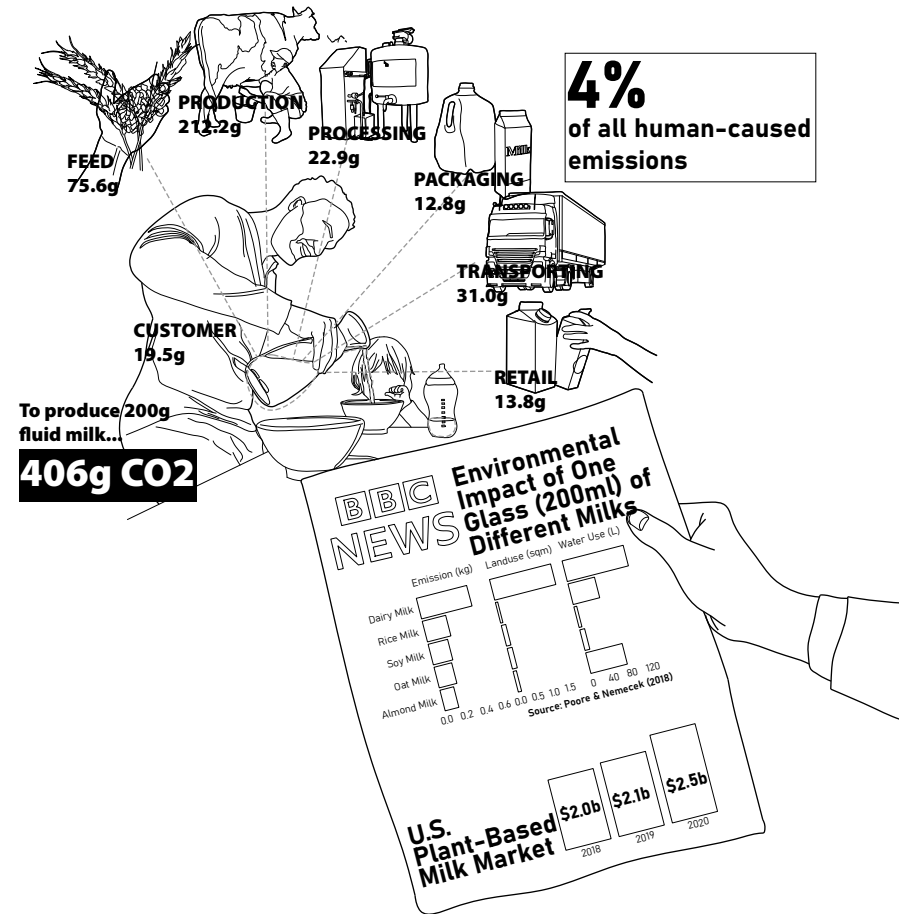
TOP 3
ranked in United States

First
condensed milk manufacturer

Founder
of Wallkill Village



STRATEGY:
Environmental transition



STRATEGY:
Community establishment

STATUS

* In 2022, it is estimated that immigrant labor accounts for 51% of all dairy labors, among them 93% are undocumented. Immigrant dairy farmworkers are a hidden population that is difficult to access because of their vulnerable immigration status schedules.



RESPECT

* Nearly half of the total interviewed immigrants report having suffered bullying or discrimination. They should be seen and respected.

EDUCATION

* Lack of education resources and opportunities for immigrant labors also create pressures towards the immigrant population.

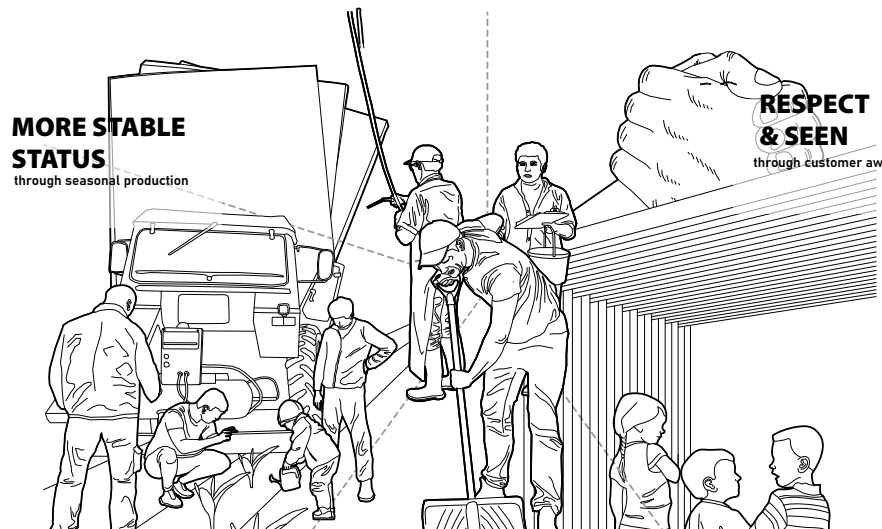
LABOR

* Working conditions of immigrant farmers are another concern. Now they are working over 12 hours a day with a poor payment just past nys minimum wage."

COMMUNITY

* The cultural isolation on rural farms, as well as the experiences of having suffered discrimination had fostered the need for a community space that is safe and welcoming."

MORE STABLE STATUS
through seasonal production

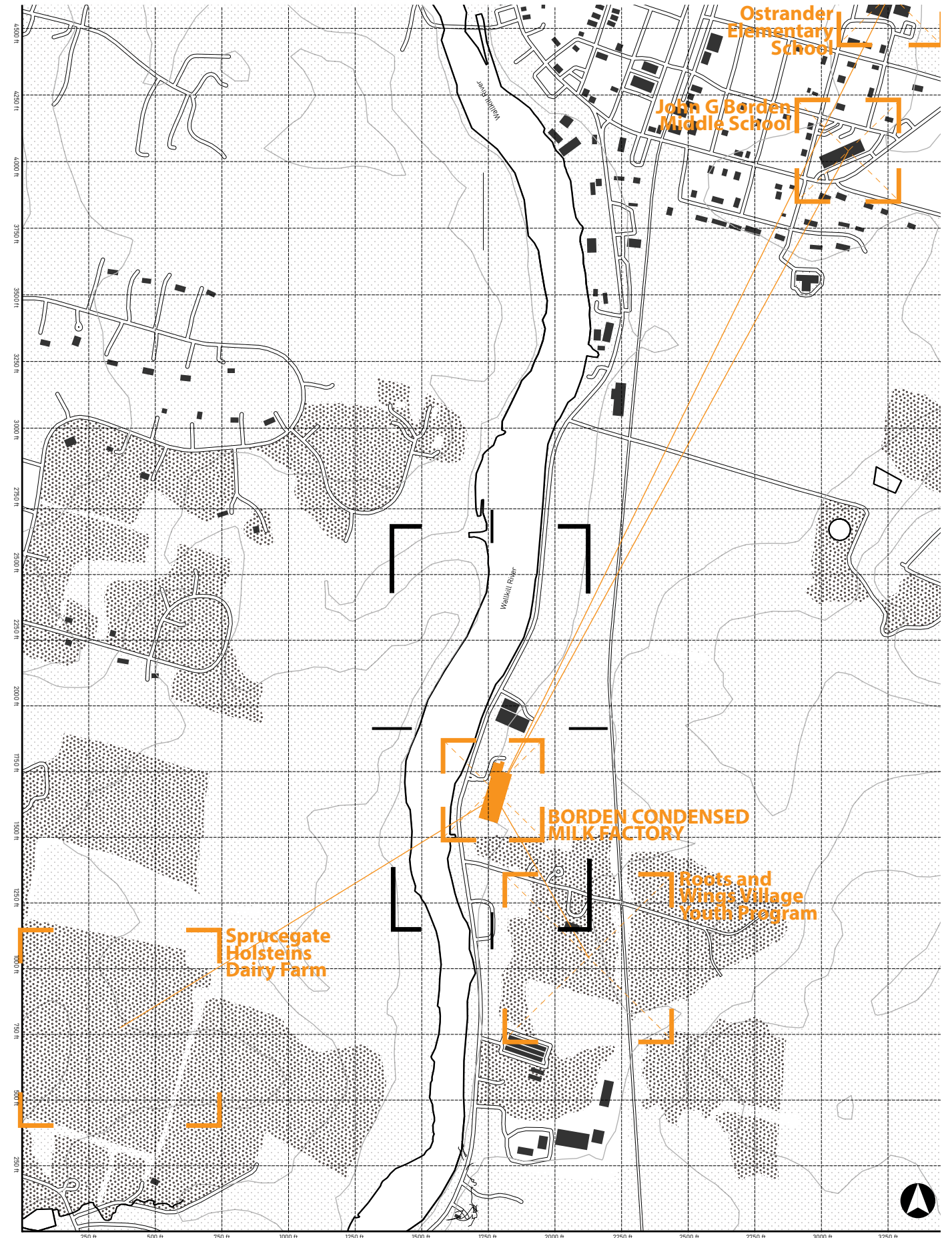
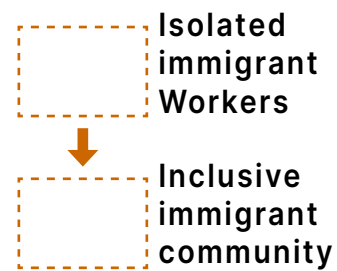


RESPECT & SEEN
through customer awareness

PROVIDE EDUCATION RESOURCES
through proposed programs

REDUCE BURDEN
through cooperation

SENSE OF COMMUNITY
through safe and welcoming community space





The use of physical models has been a key aspect of the project's design process.

Given that it involves the renovation of an existing building, transparent and oblique materials were utilized to clearly distinguish the added and original components. These models were particularly useful in experimenting with the design of the new roof from the perspective of the driveway, allowing the team to test and refine the form until it was optimal for the project's goals.

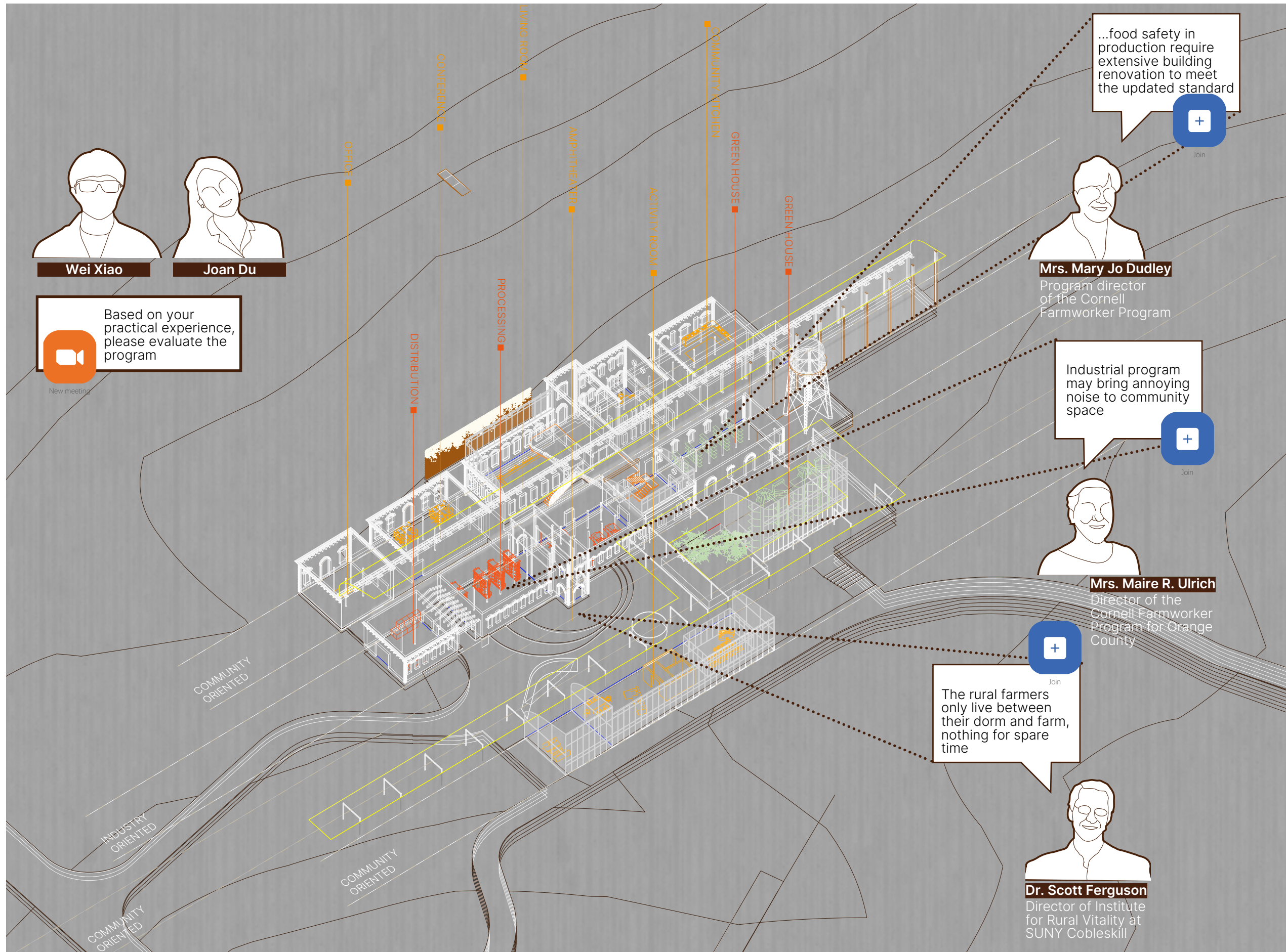
PHYSICAL MODEL



STAKEHOLDERS INTERVIEW

Besides data analysis targeting on the general immigrant population and milk industry worker, we value more direct interaction and communication with our targetted users.

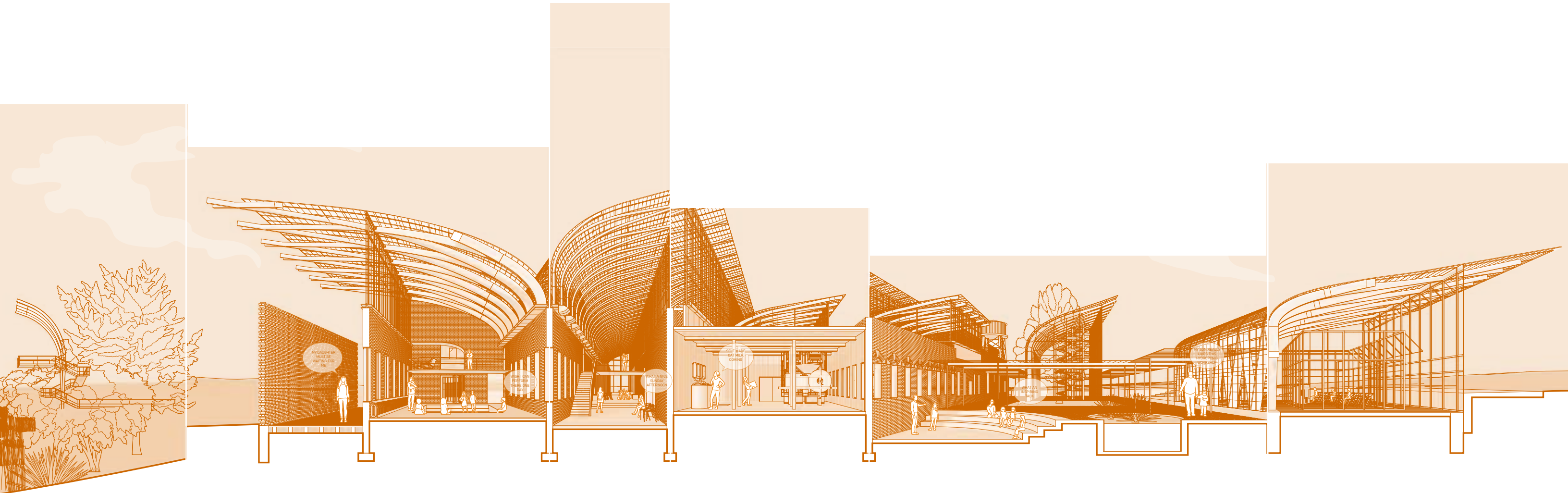
We reached out to Mrs. Mary Jo Dudley and Mrs. Maire R. Ulrich, program directors of the Cornell Farmworker Program and Dr. Scott Ferguson, director of Institute for Rural Vitality at SUNY Cobleskill and processed zoom interviews with them to obtain their evaluations on the programs in this dairy-hub.



SPACE SERIES

Section plays as an essential role in comprehending this architecture. From the river to pasture, community programs surrounds production ones.

Pattern of duplicated enclosed space - alley is manifested and dramatically light structure is shown.



LOOKOUT PLATFORM
NATURE ORIENTED

COMMUNITY LIVING ROOM
COMMUNITY ORIENTED

PROCESSING
INDUSTRY ORIENTED

AMPHITHEATER
COMMUNITY ORIENTED

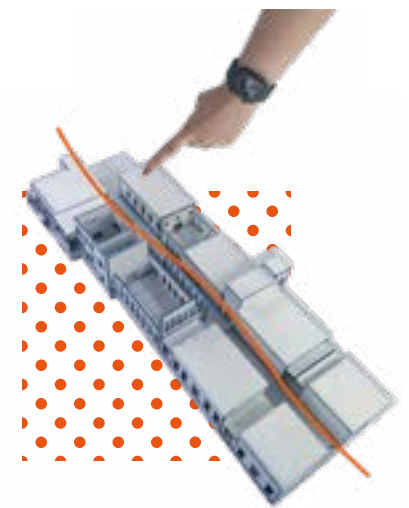
WORKSHOP
COMMUNITY ORIENTED

GROUND FLOOR PLAN



ALLEY SPACE

Allies are key space for its function of connecting isolated spaces for different groups. To attract people step out of each room, a tall space with abundant shadow effect is adopted.



DETAIL:
Transparent roof upon brick wall



For the purpose of protecting the historical landmark at large, we developed the structure response with a gutter detail, which will sit above the existing masonry wall with a T steel spanning in the long axis. Upon it are the rectangular profiled steels, holding the wood beams that extend freely to upair. To make the least carbon footprint, we combine this structure with a rainwater collection system.



02

PERMEABLE CITY

REIMAGINING HUMAN-SOIL INTERACTION IN HOUSING

Drawing inspiration from Otto Wagner's aesthetic and health principles of the early 20th century, which advocated for smoothness and impermeability, Vienna's urban landscape has been shaped by a detachment of exposed soil from people's daily lives. This has resulted in a disconnect between residents and the natural environment.

This proposal aims to spark a dialogue on alternative perspectives towards soil, emphasizing that it does not have to be viewed negatively when considering diverse ways of coexisting with it. Rather than isolating residents from soil through fixed programs and rigid spatial designs, the Permeable City project integrates an array of functions within a flexible and permeable landscape.

By embracing a more harmonious relationship with soil, the Permeable City not only reconnects residents with nature but also fosters a sustainable and adaptive urban environment that can better respond to the evolving needs of its inhabitants.

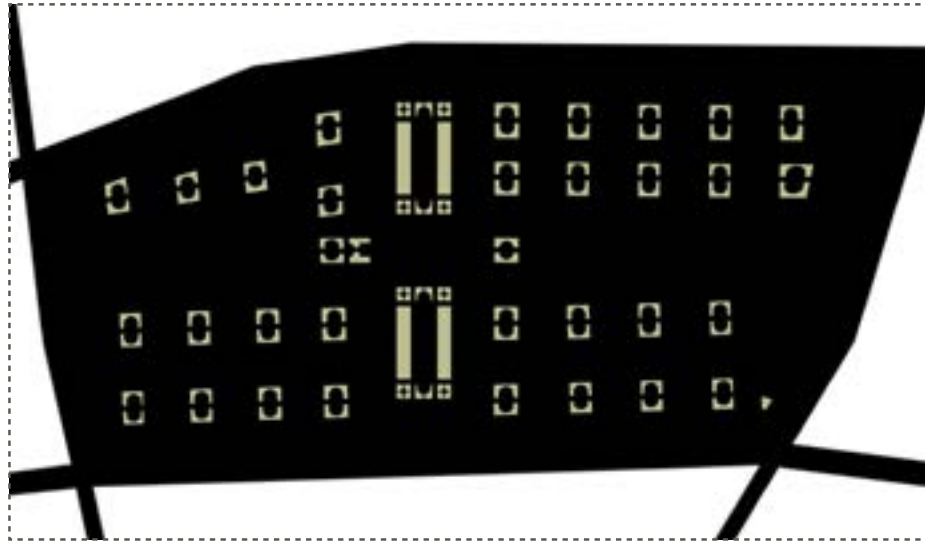
Project Info

GFA	1,000,000 sqm
Location	Vienna, Austria
Duration	2/2023-4/2023
Mentor	David Gissen
Team	Weiwei Wang

ADV VI studio at GSAPP



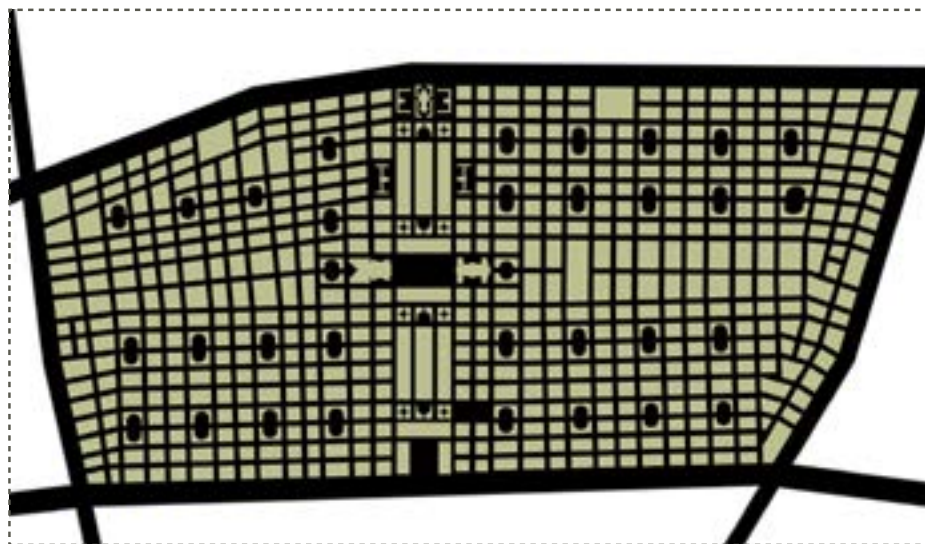
Critics on Otto Wagner's the Great City (1915)



4%

soil coverage

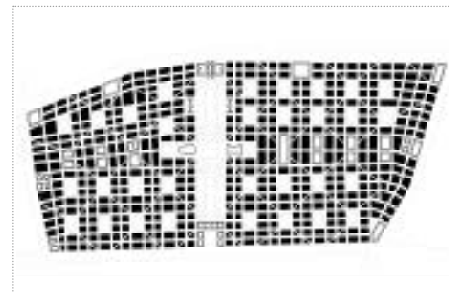
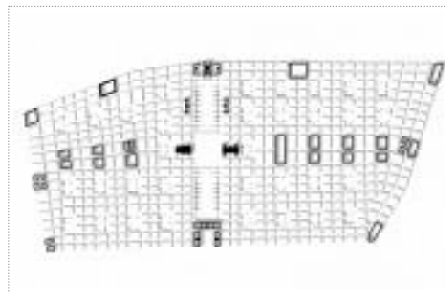
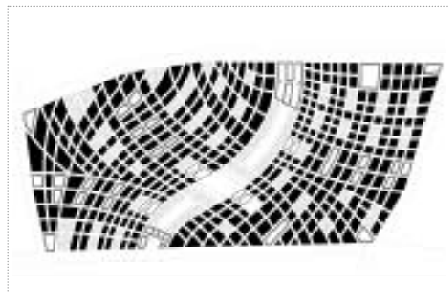
By measuring the area, only 4% of land is permeable because of the prevention of soil fecundity by Otto Wagner.



96%

soil coverage

If we reverse the amount of hard and soft ground in the city, what becomes possible?



alternative study

EUROPE ARABLE LAND

- Over 50%
- 40% to 50%
- 30% to 40%
- 20% to 30%
- 10% to 20%
- Less than 10%



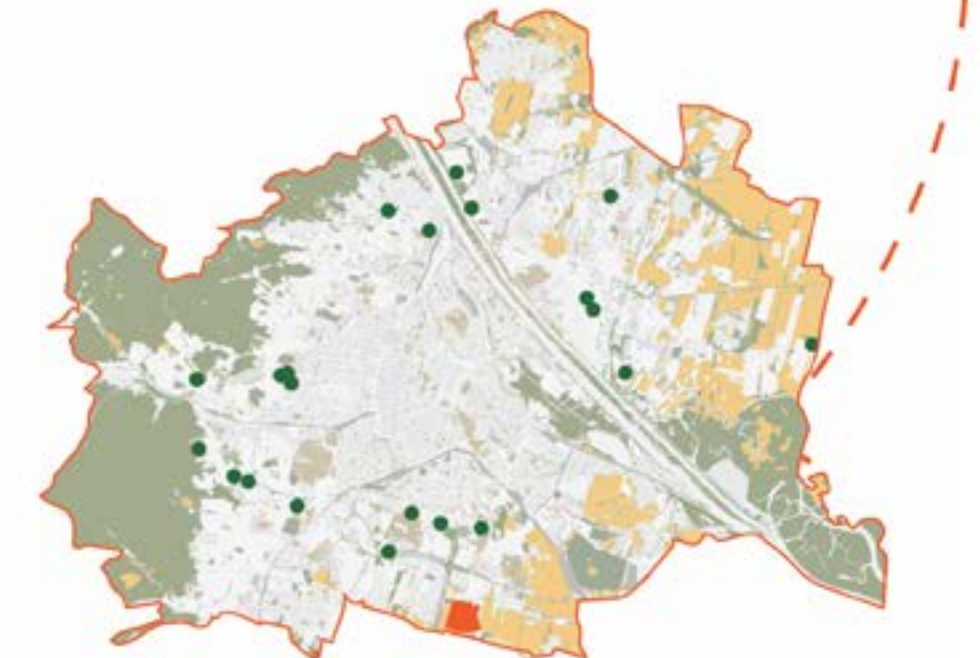
AUSTRIA LAND COVER

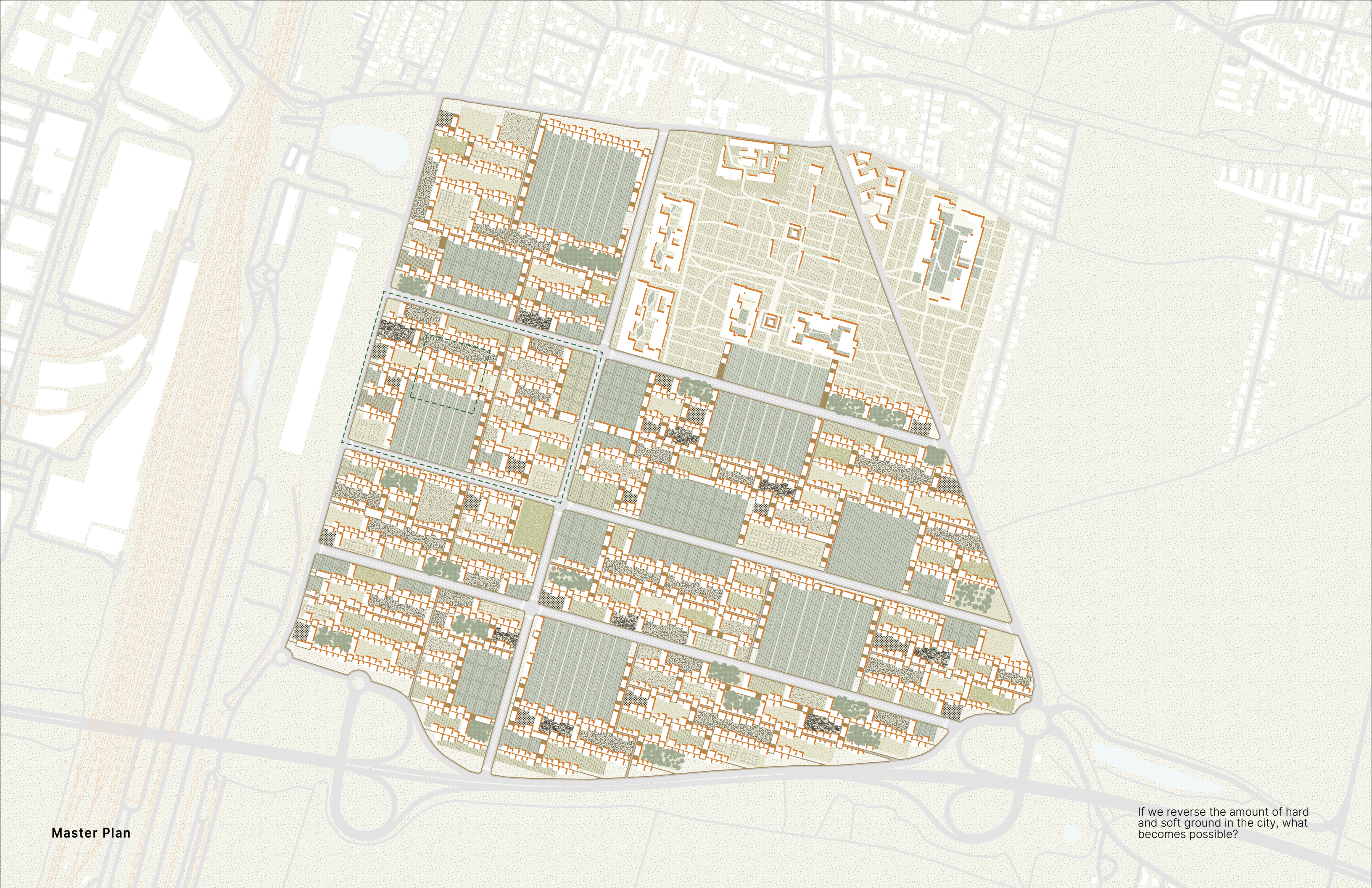
- Agricultural areas
- Artificial Surfaces
- Forest and naturals



VIENNA LAND COVER

- Arable Land
- Forests
- Urban Gardens
- SITE





Master Plan

If we reverse the amount of hard and soft ground in the city, what becomes possible?



The yards in the Permeable City are designed as a series of personal open spaces, originally featuring exposed soil and devoid of physical barriers. This layout encourages intimate public interactions with soil, fostering a sense of connection to the natural environment and promoting a healthier urban lifestyle.



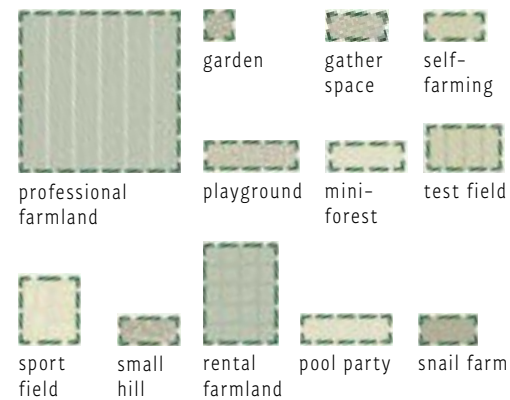
The yard programs and activities are determined by community discussions. This rendering depicts one possible activity - an open weekend market where residents can bring their harvests and exchange goods, fostering a sense of community and connection.



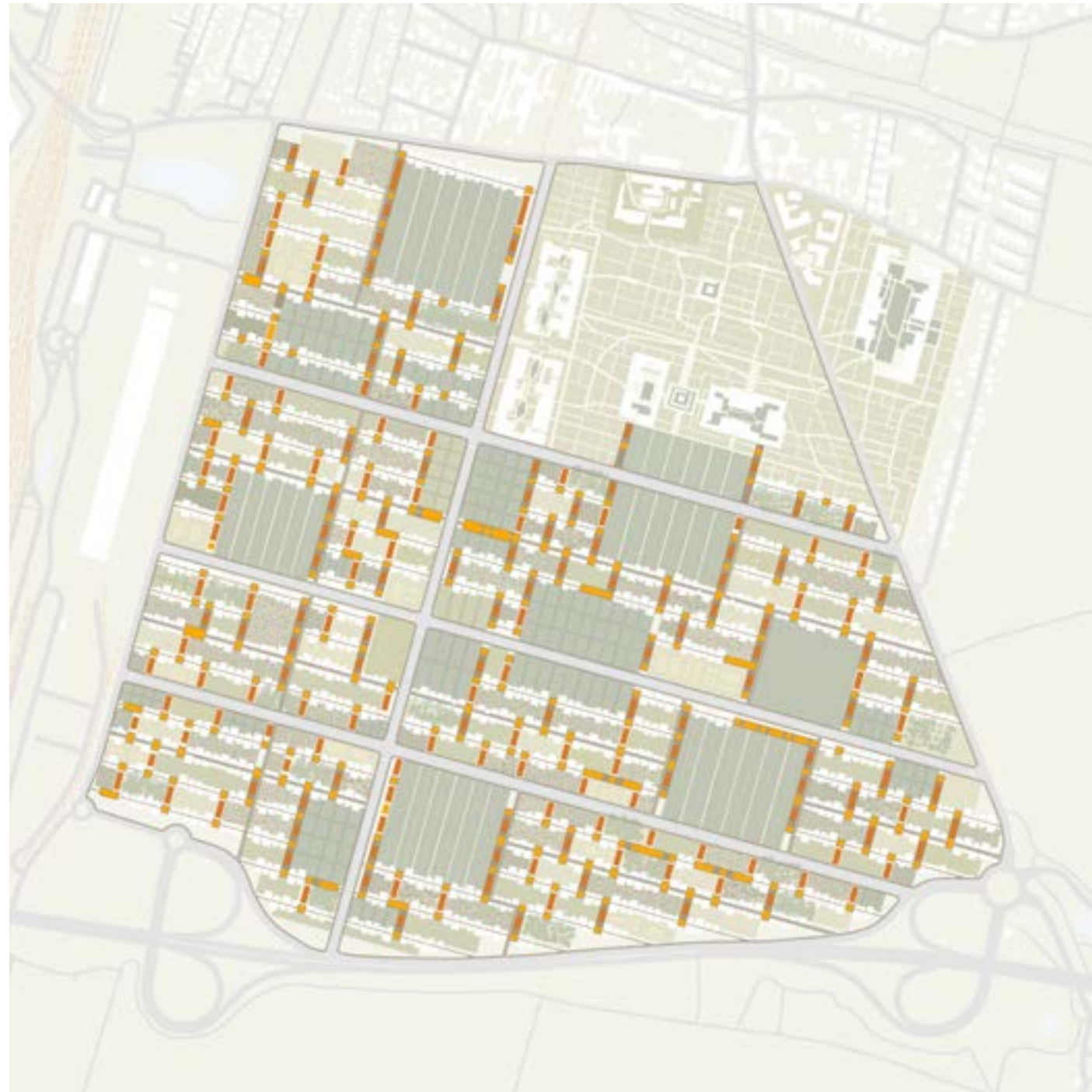
Challenging the conventional notions of openness and enclosure in urban design, the site comprises approximately 200 distinct yards, surrounded by buildings that create a unique interplay between interior and exterior environments. This innovative design fosters a sense of

interconnectedness, both within the community and with the natural world.

The yards offer a diverse range of programs tailored to suit various interests and needs, such as different types of farming, engaging landscapes, and versatile multipurpose fields for recreational and leisure activities.



Yards



Public programs are thoughtfully embedded within a carefully designed grid system to facilitate community services and foster shared activities among residents. These programs are strategically arranged in harmony with the yard layouts, ensuring a seamless integration of public and private spaces.

Public programs

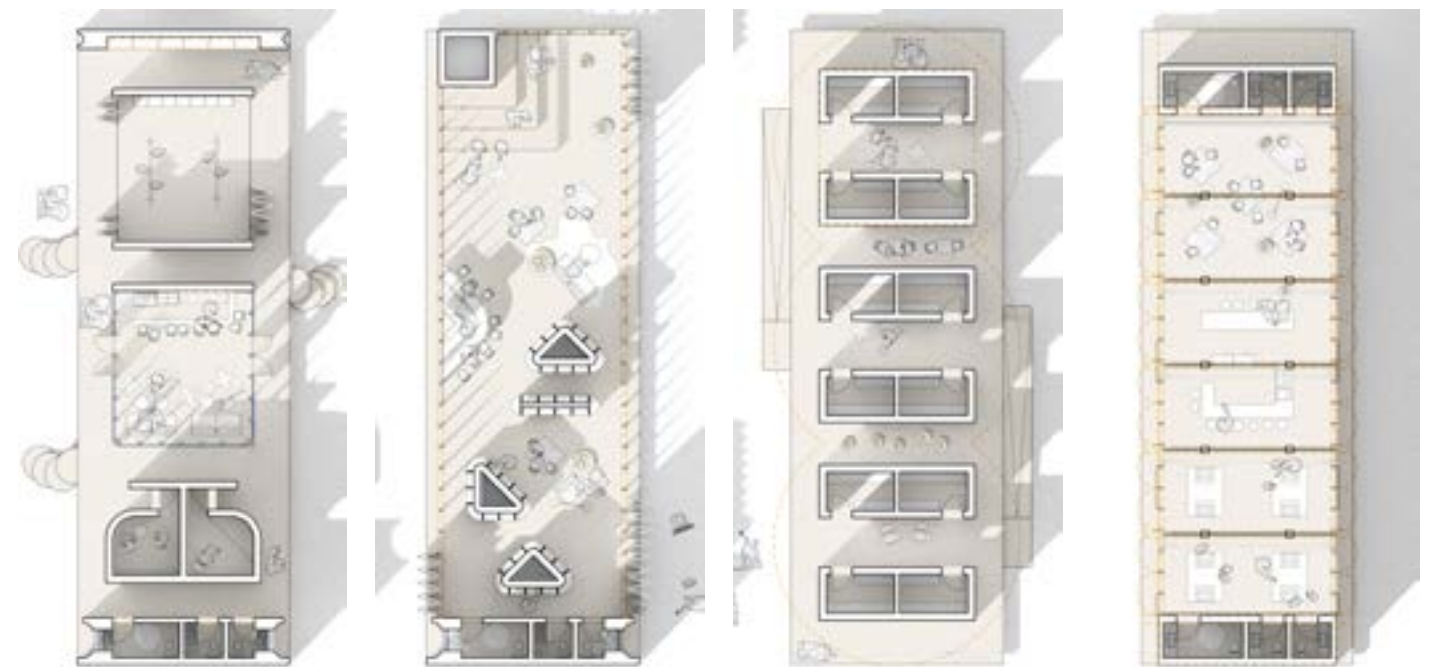
To further enhance the residential experience, versatile toolboxes have been designed to supplement the dwellings, providing residents with additional amenities and resources that cater to their needs. Moreover, the bridges connecting various sections of the development have been

thoughtfully planned to feature larger, more expansive spaces. These bridge areas serve as integral community hubs, promoting social gatherings and fostering a strong sense of community among residents.

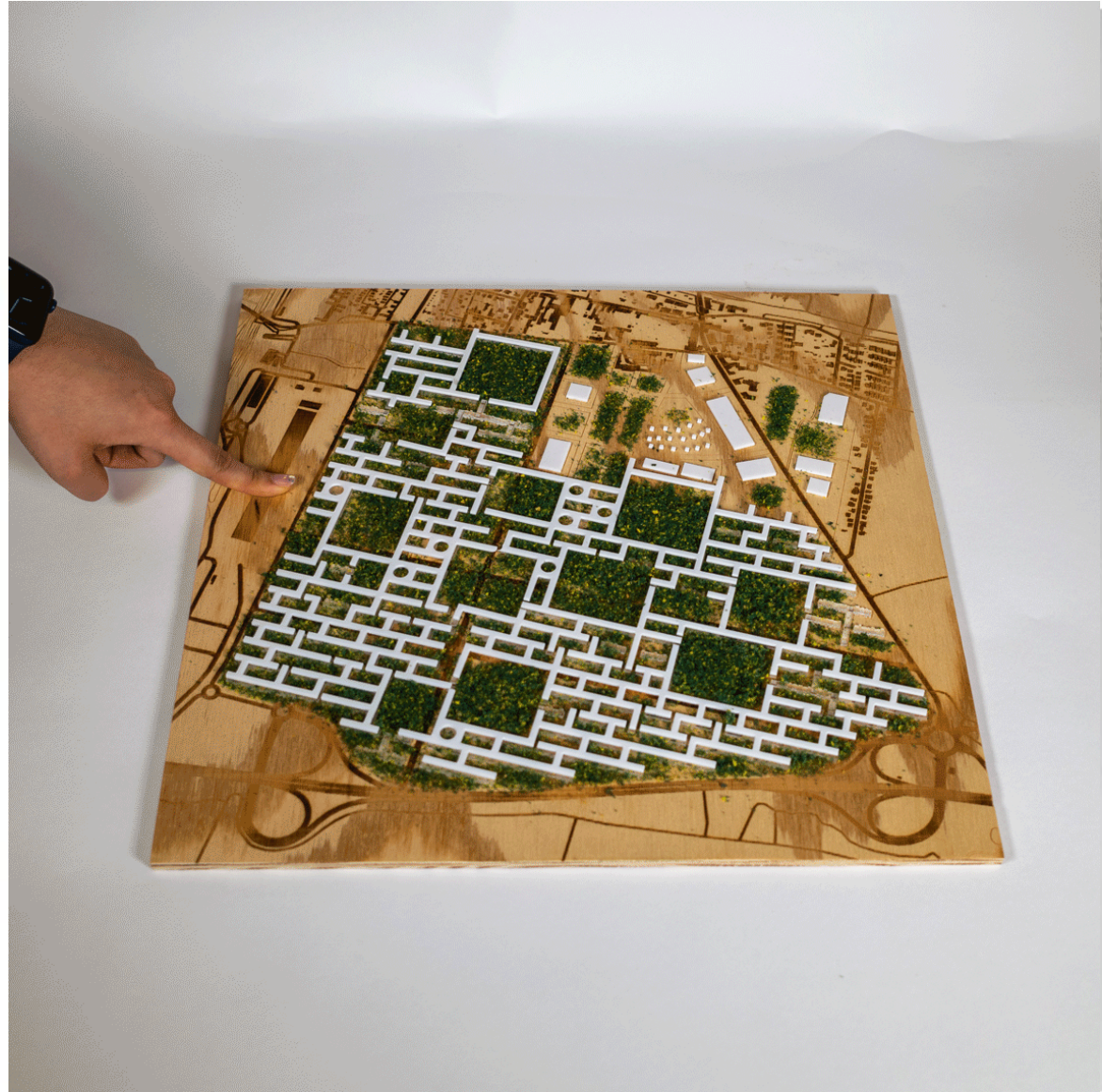
- toolbox
- bridge
- toolbox



Toolbox plans



Bridge plans



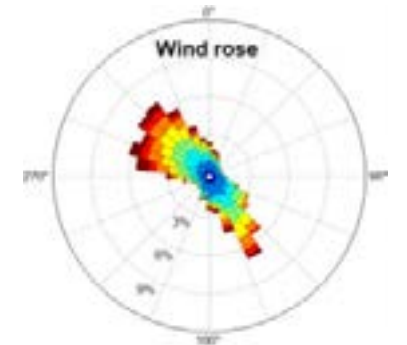
Tactile model making



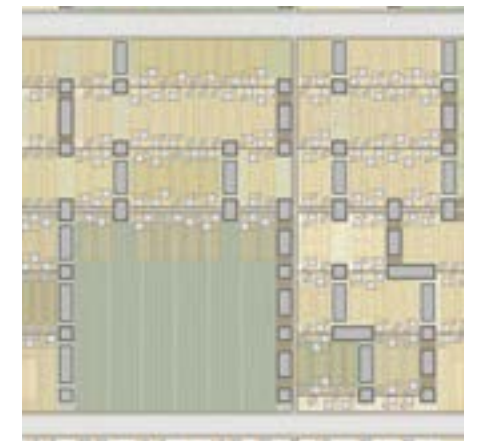


Plan and property

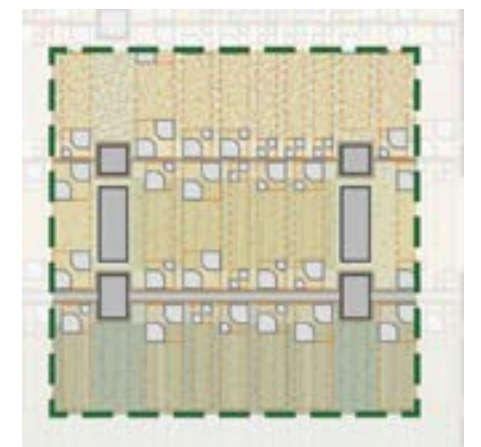
All housing units in the Permeable City are designed along a horizontal axis, ensuring maximum sunlight exposure for each residence. The interior spaces are thoughtfully divided into two sections, allowing for natural airflow and ventilation to pass through. This intentional design consideration makes living in close proximity to soil not only possible but also comfortable, fostering a harmonious and healthy relationship between residents and the environment.



Vienna wind rose map



block plan



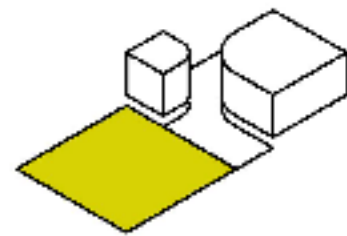
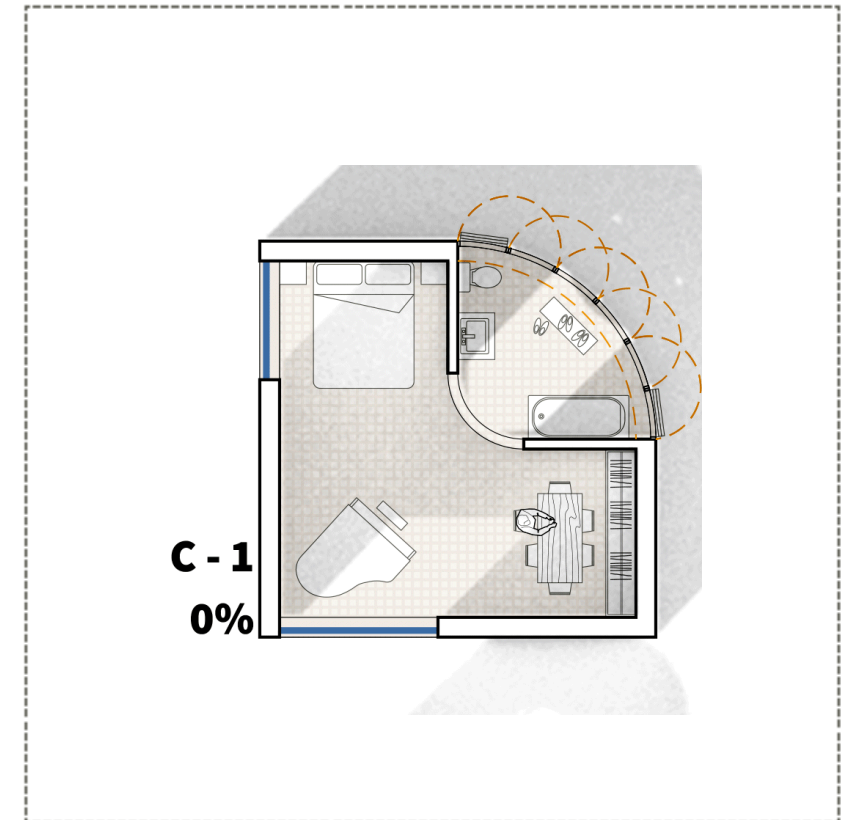
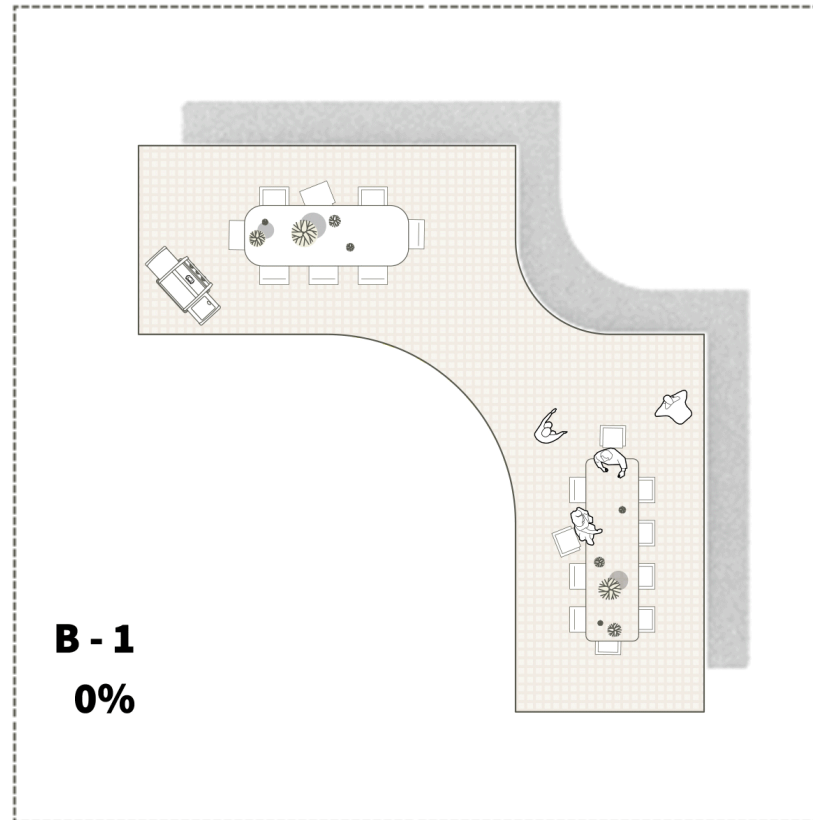
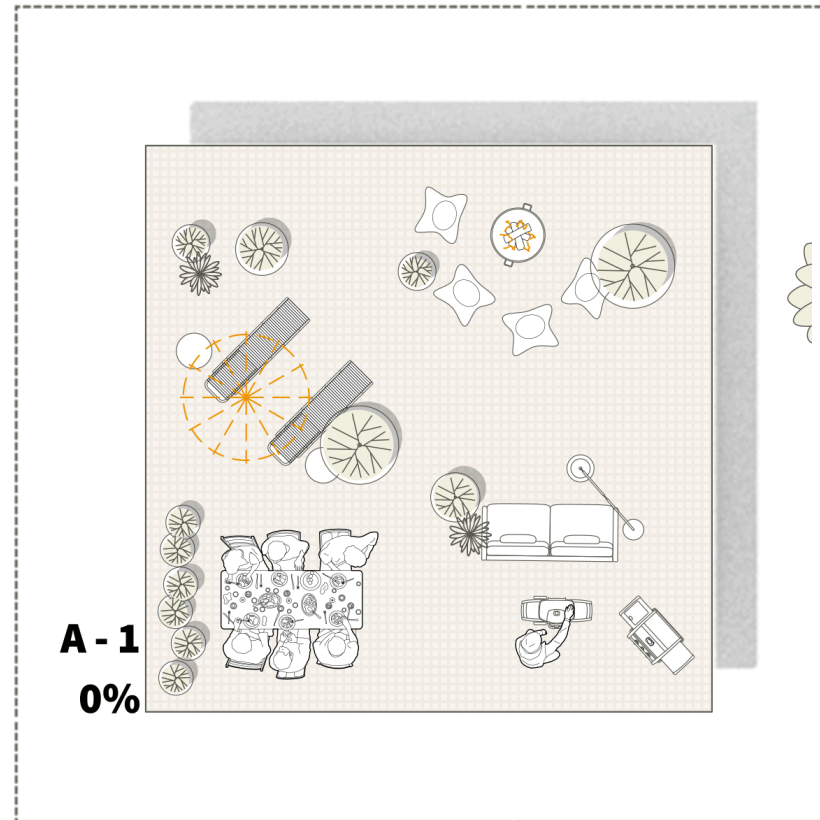
yard plan

Expand the spectrum of living with soil

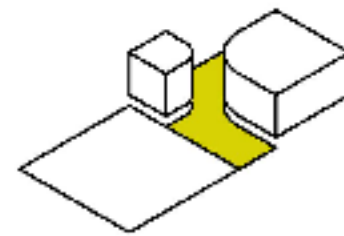
Upon selecting their desired neighborhood, residents are presented with an array of housing options, thoughtfully designed to foster a more intimate connection with nature. The guiding principle behind these designs is to broaden the spectrum of living

harmoniously with soil, creating a seamless transition between the built environment and natural surroundings. The design process is divided into three interconnected steps: open yard, in-between space, and personal spaces. These components come together to form an integrated and cohesive living environment. In each scheme, various soil coverage levels are

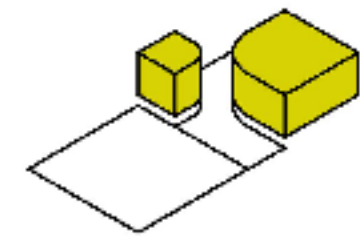
highlighted, demonstrating the diverse ways residents can engage with and embrace the natural landscape. Through this innovative approach, the Permeable City empowers residents to explore and adopt varying degrees of soil integration in their daily lives, nurturing a deeper connection with the environment and promoting sustainable urban living.



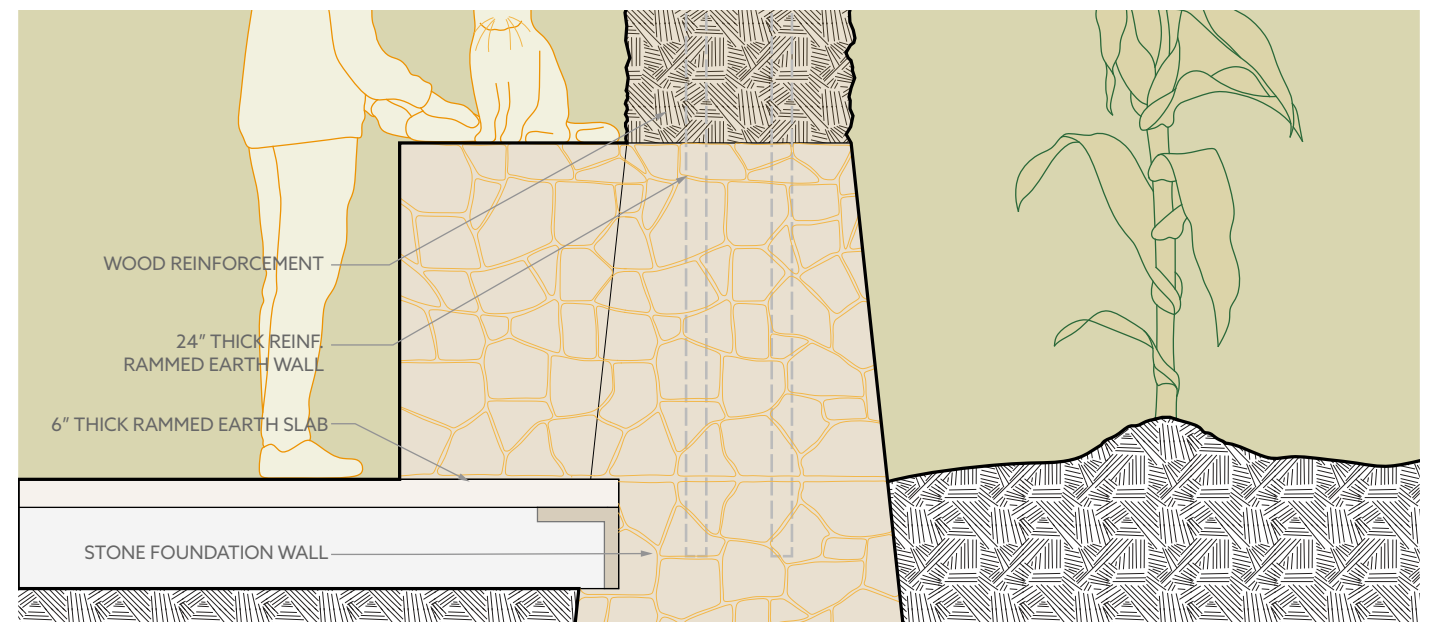
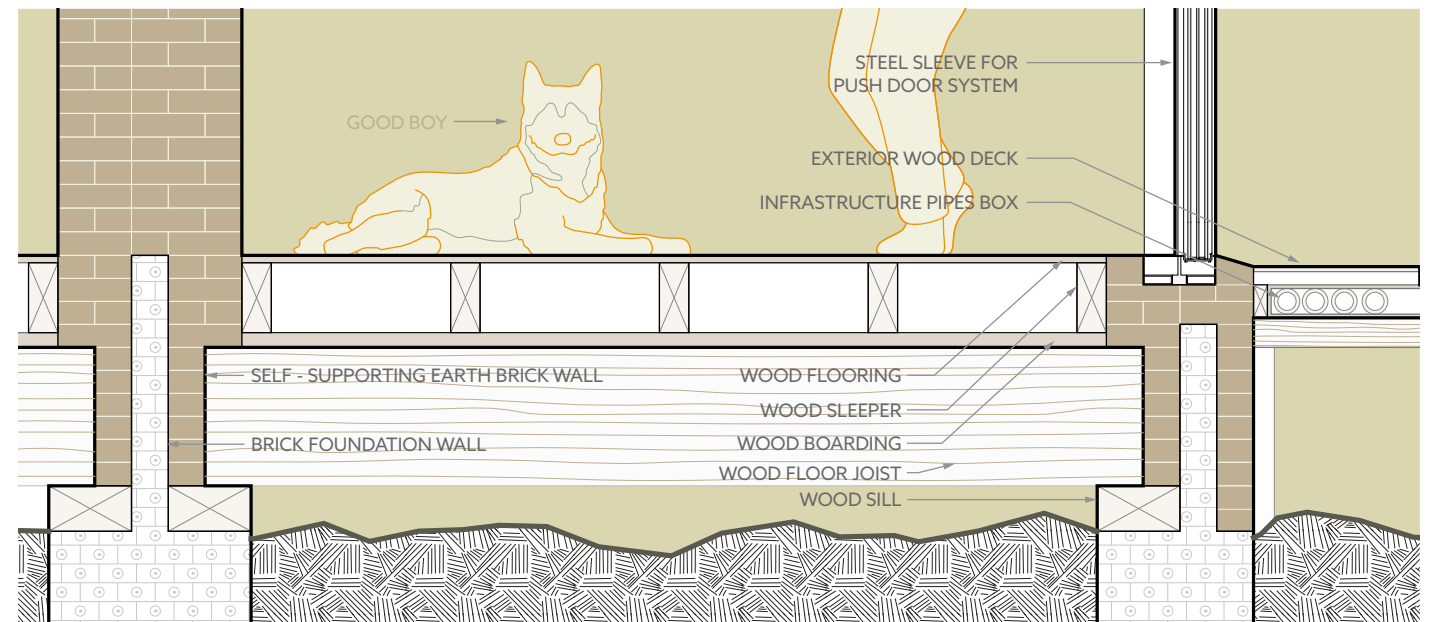
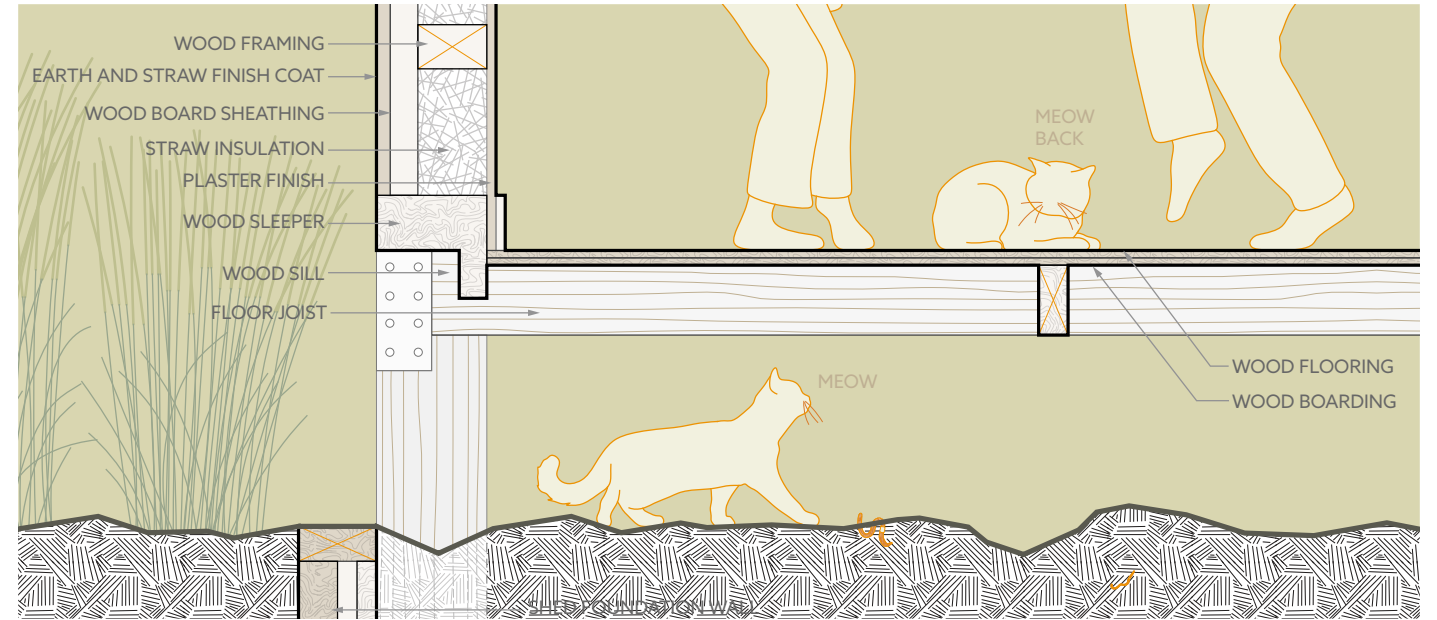
open yard
open yard's paving and utilization



in-between
approaches to home and the degree of enclosure for their personal open space



personal space
the level of soil involvement in their living environment



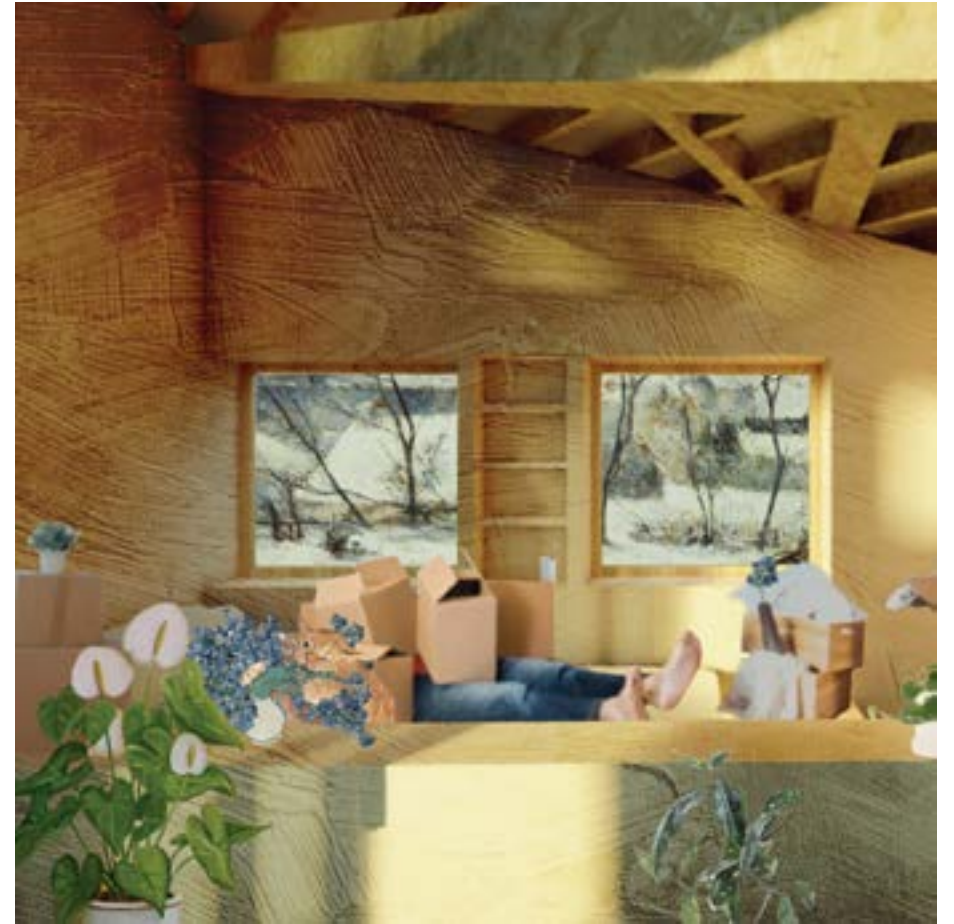
wood frame



brick



straw bale



03

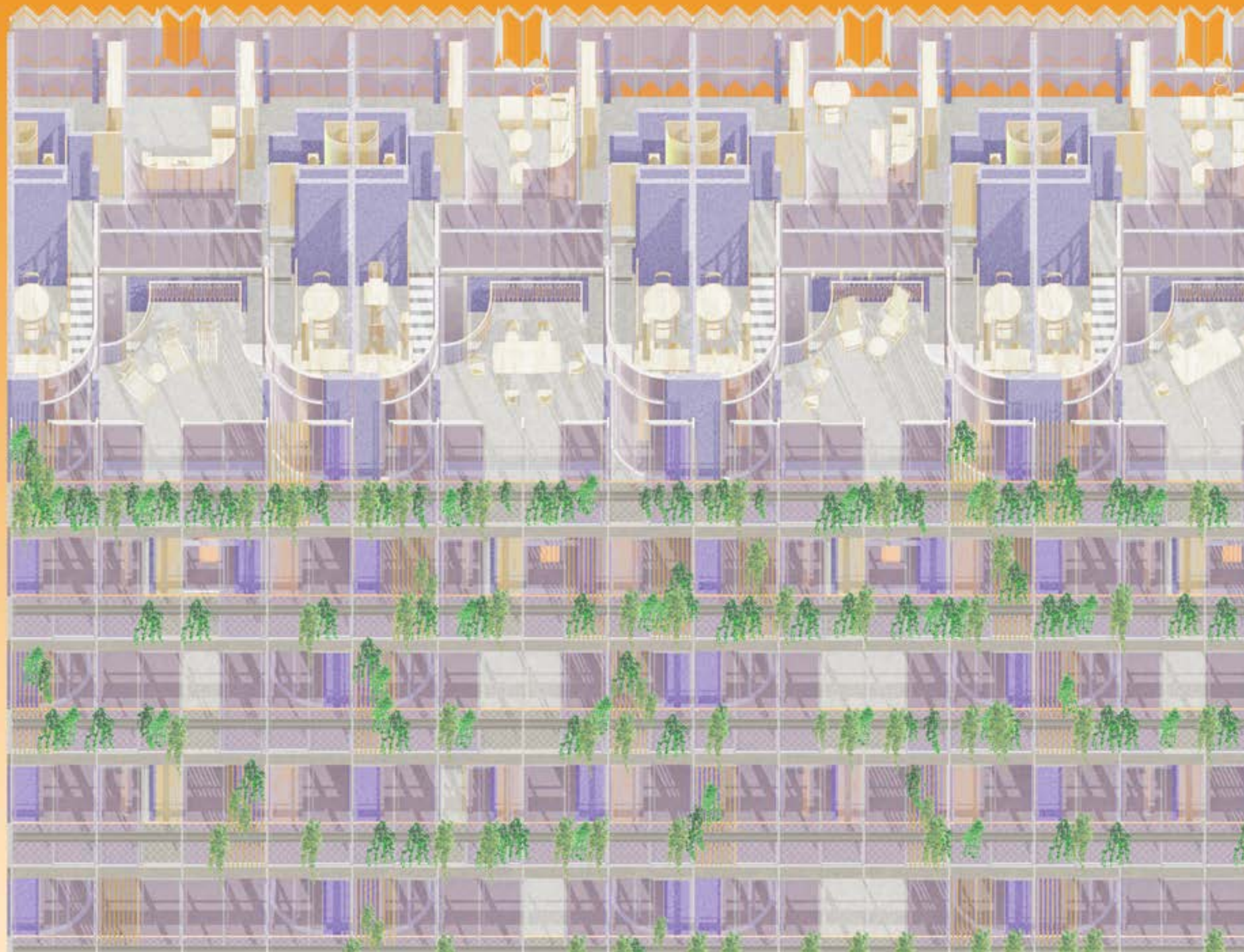
INTER-

UNIT CLUSTER FOR COMMUNITY INCLUSION

I interpret INTER- in three layers:

- Intergenerational property.
- Intersection as the main form language
- Interaction between different target groups

From the demographic research, we found that children and senior groups take up a considerable part in the community. Therefore, the first strategy is to incorporate afterschool programs and senior care center into the community service system. On residential unit level, we believe that community should play as a strong bond between residents. Based on this philosophy, an intimate unit cluster consisting of five units, which plays with different floor heights of spaces is applied.



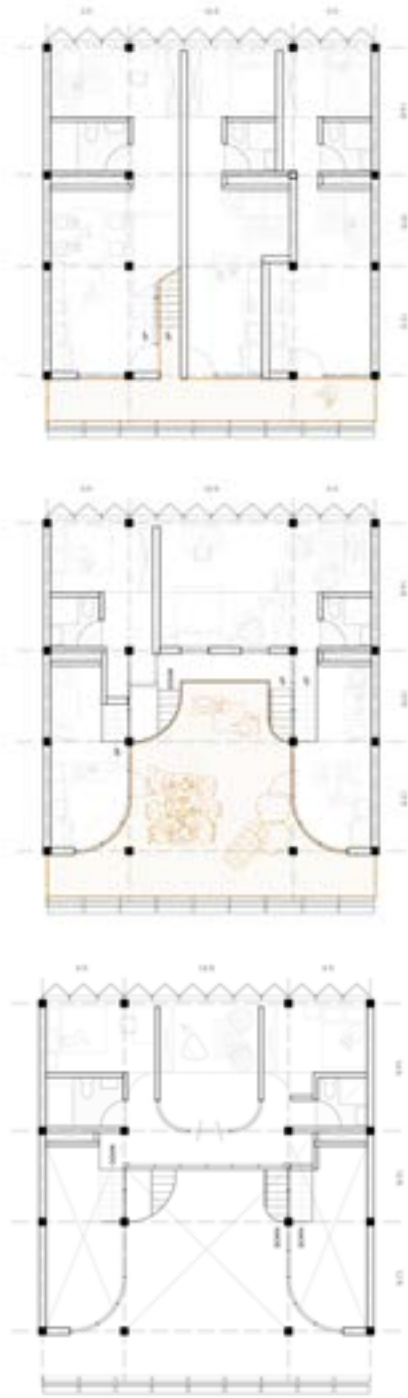
Project Info

GFA	430000sqft
Location	New York, USA
Duration	9/2021-12/2021
Mentor	Galia Solomonoff
Team	Alison Lam

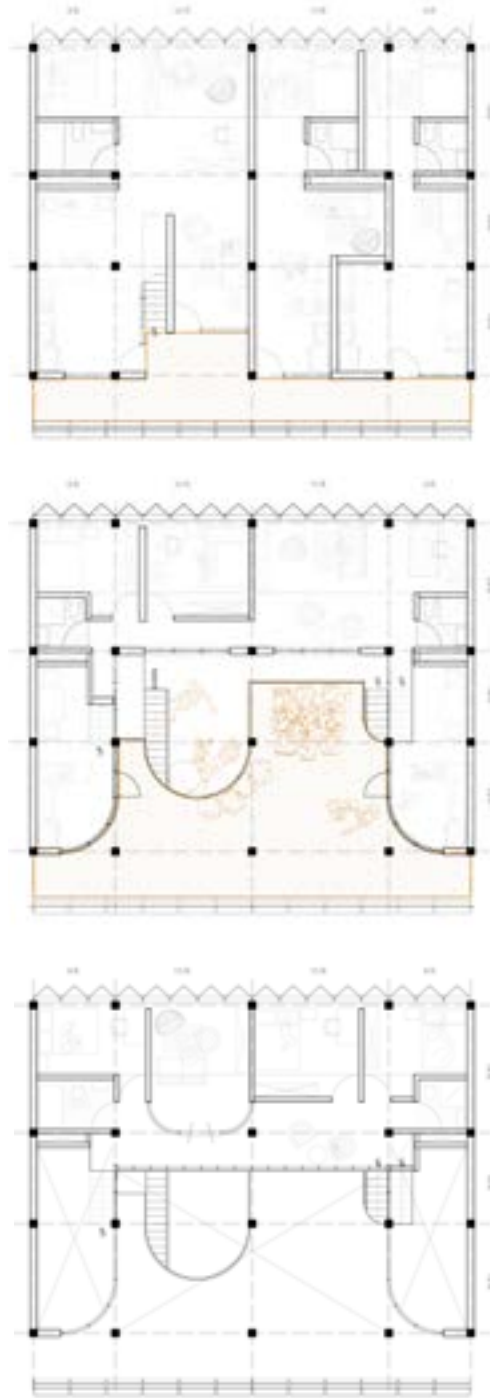
Core III studio at GSAPP

UNIT CLUSTER WITH SHARED COURTYARD

To strengthen social bonds between residents through providing more shared space, a unit cluster type has been developed. A unit cluster is made up of five residential units, with a shared indoor courtyard in the center.



UNIT CLUSTER TYPE A



UNIT CLUSTER TYPE B





UNIT CLUSTER WITH SHARED COURTYARD:
 Height difference to distinguish public/private space

To elevate the intimacy in a spatial sense, the unit cluster adopts a method with different floor-to-floor height of public side (12ft) and private side (8ft).



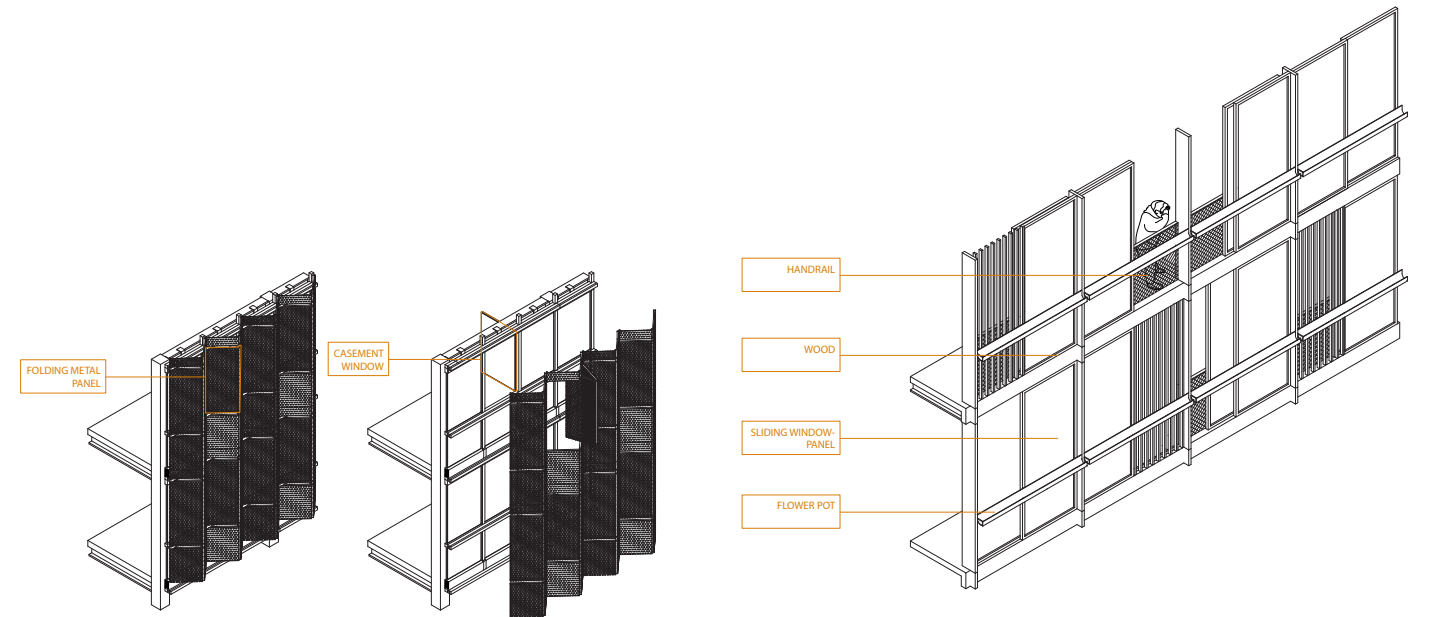
GROUND FLOOR PLAN



INTERIOR

**INDOOR QUALITY:
NATURAL AIR AND LIGHT**

Unit cluster courtyard is a transactional area from public corridor to private kitchen, where residents are encouraged to bring foods outside homes and share with neighbors. Quiet but not dull is the atmosphere in bedroom. To intake sunlight as dynamic shadows, operable penetrated metal panels are adopted in the bedroom-sided facade.



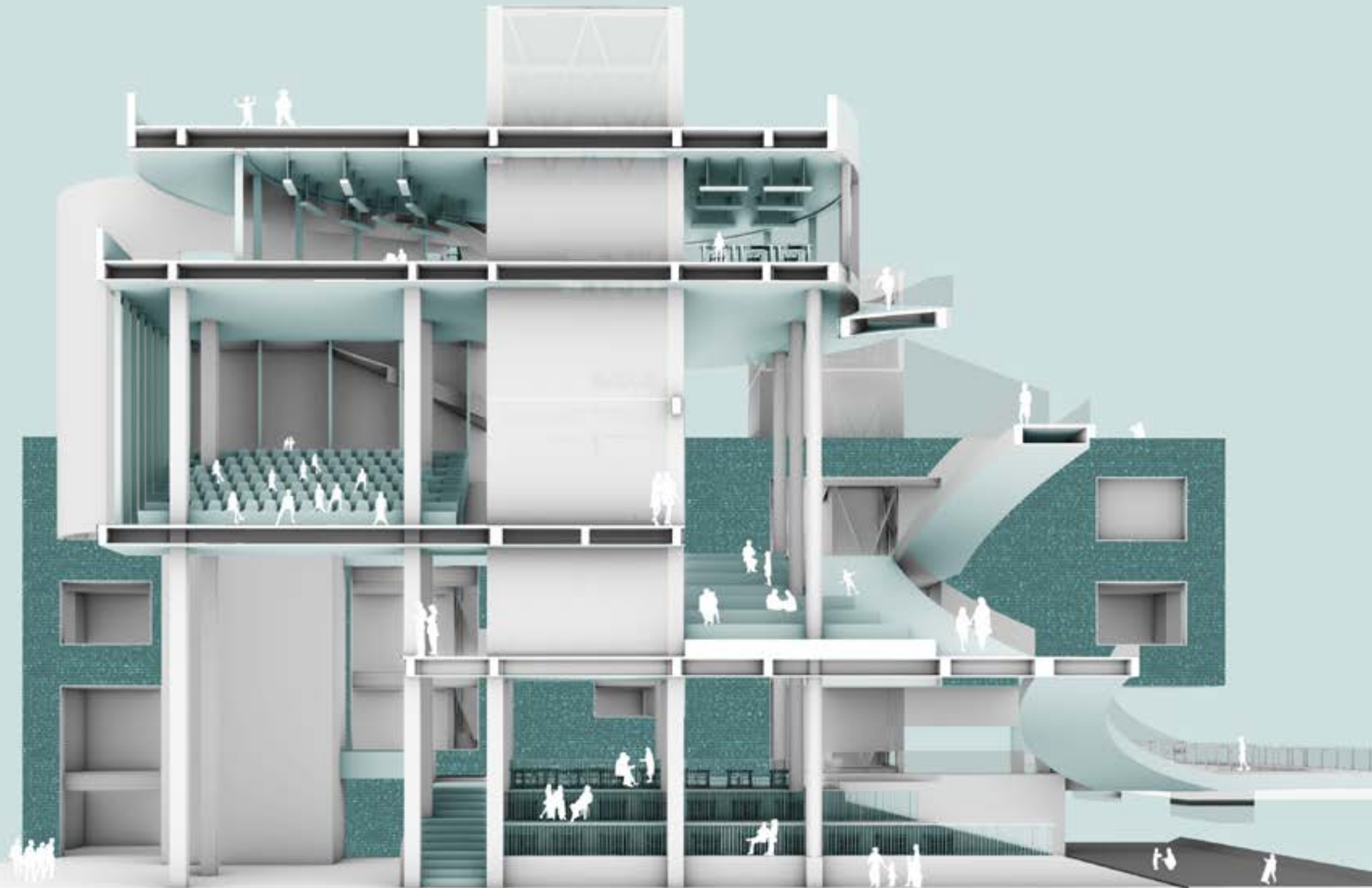
04

SOFT BOUNDARY

COMMUNITY ACCESSIBLE SCHOOL

P.S. 64 has long been at the center of a conflict between business interests and local residents. Closed since the mid-1970s, the building was purchased by Gregg Singer at an auction, with plans to convert it into a college dormitory. However, the neighborhood vehemently opposed this proposal, insisting that P.S. 64 should be designated as a historical site. To this day, many of the original Charas organizers still reside in the area and maintain that the space should serve the community, providing resources for children and the elderly.

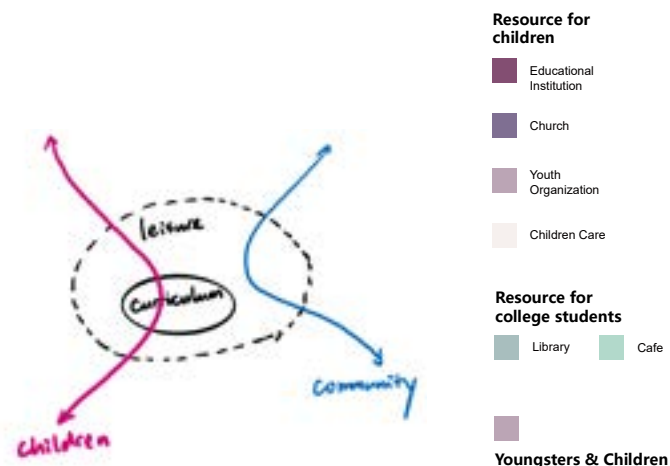
Considering this context, the reimagined P.S. 64 aims to fulfill not only its educational purpose but also its role as a community hub. In terms of design, the intention is to transform the existing solid courtyard into a series of interconnected spaces, fostering intentional or serendipitous interactions between community members and school occupants. By creating a welcoming and inclusive environment, P.S. 64 can become a focal point for the neighborhood, promoting unity and collaboration while preserving its historical significance.



Project Info

GFA	4500sqm
Location	New York
Duration	2/2021-4/2021
Mentor	Amina Blacksher
Individual work	

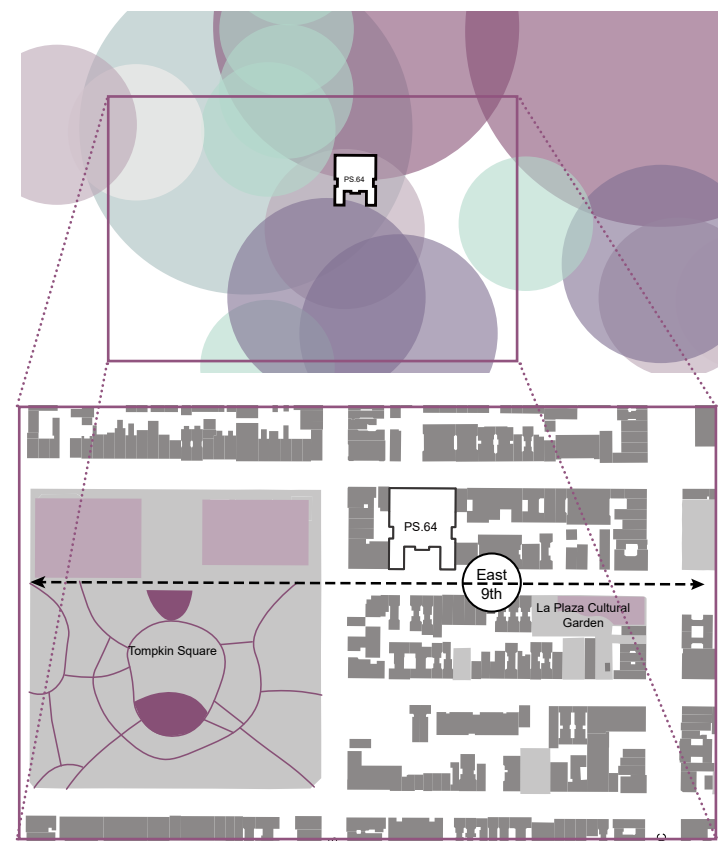
Core II studio at GSAPP



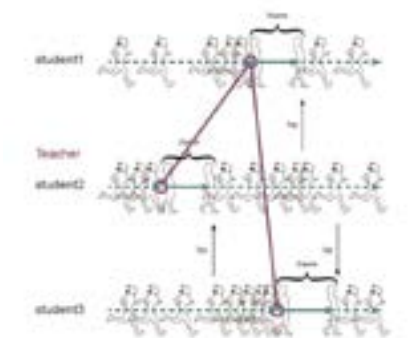
School & Community

P.S 64 is a discussion upon the BOUNDARY between community and school.

- Resource for children**
 - Educational Institution
 - Church
 - Youth Organization
 - Children Care
- Resource for college students**
 - Library
 - Cafe
- Youngsters & Children**
 - Basketball court, Skateboard, Handball court, Community garden, Park, Playground, Day-care centers, After-school program
- Elders**
 - Benches, Sunlight, Fresh air, Walk path, Chess table

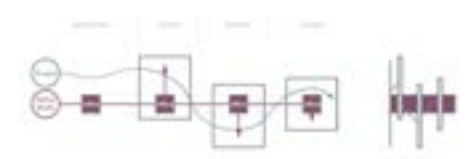


Game Logic



"Freeze Tag"

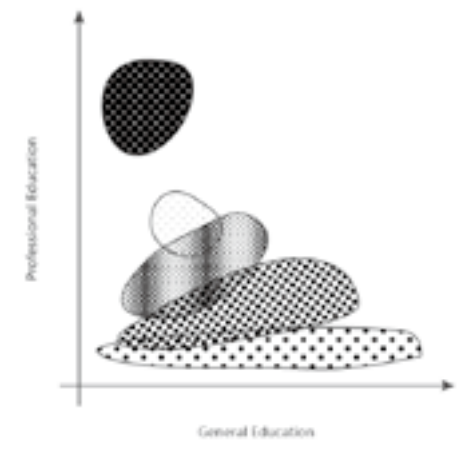
Form Logic



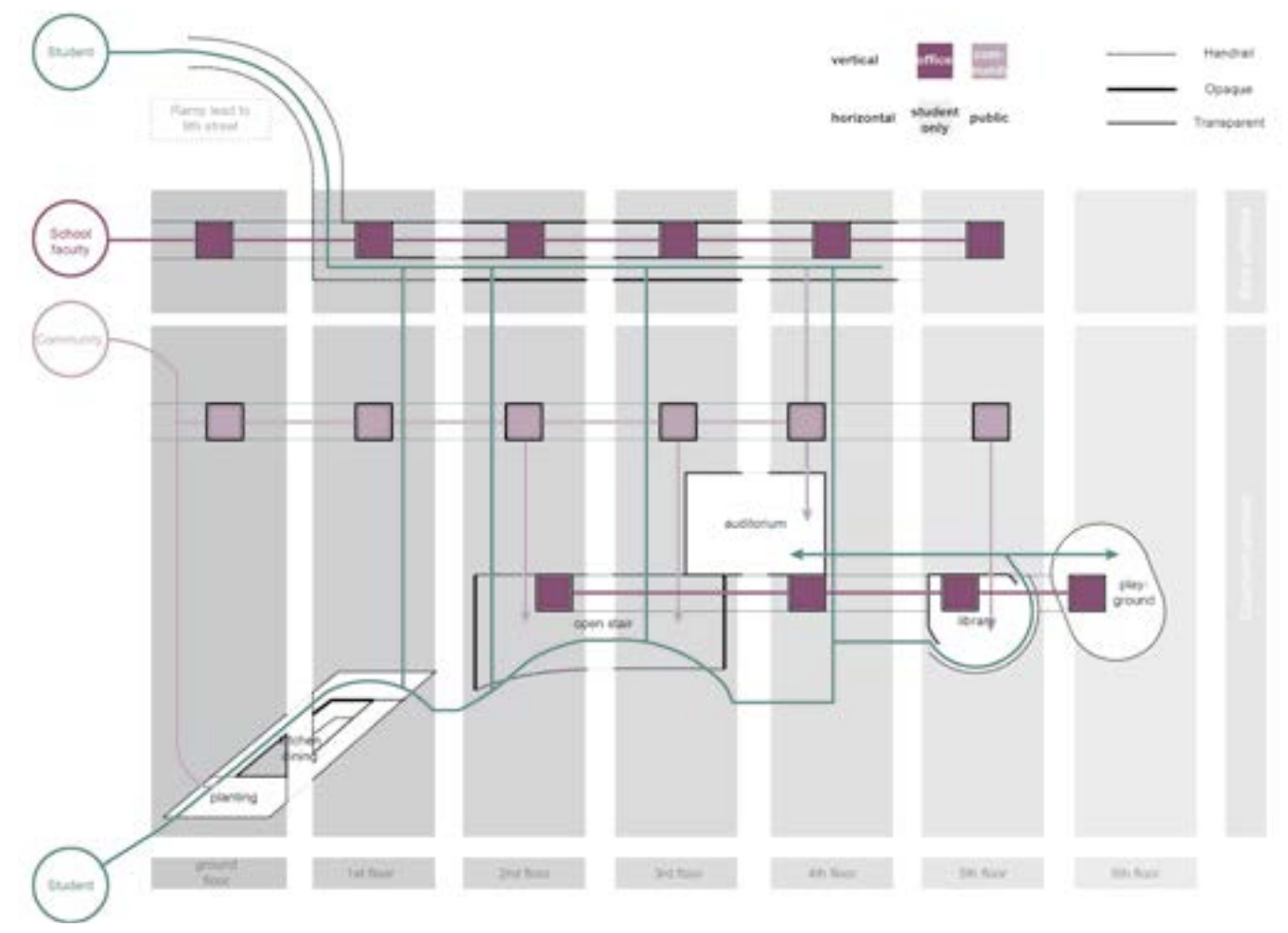
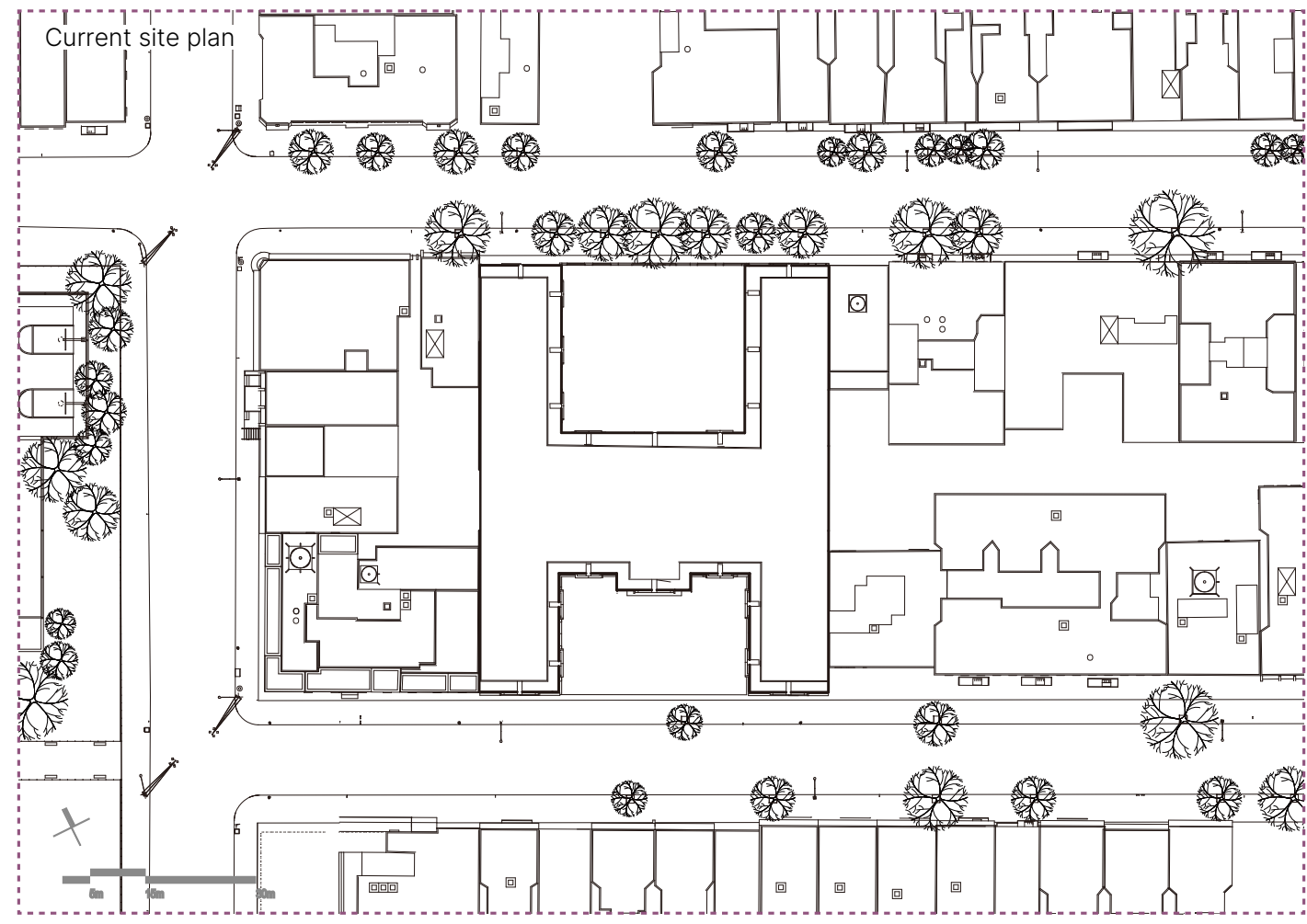
Vertical & Horizontal

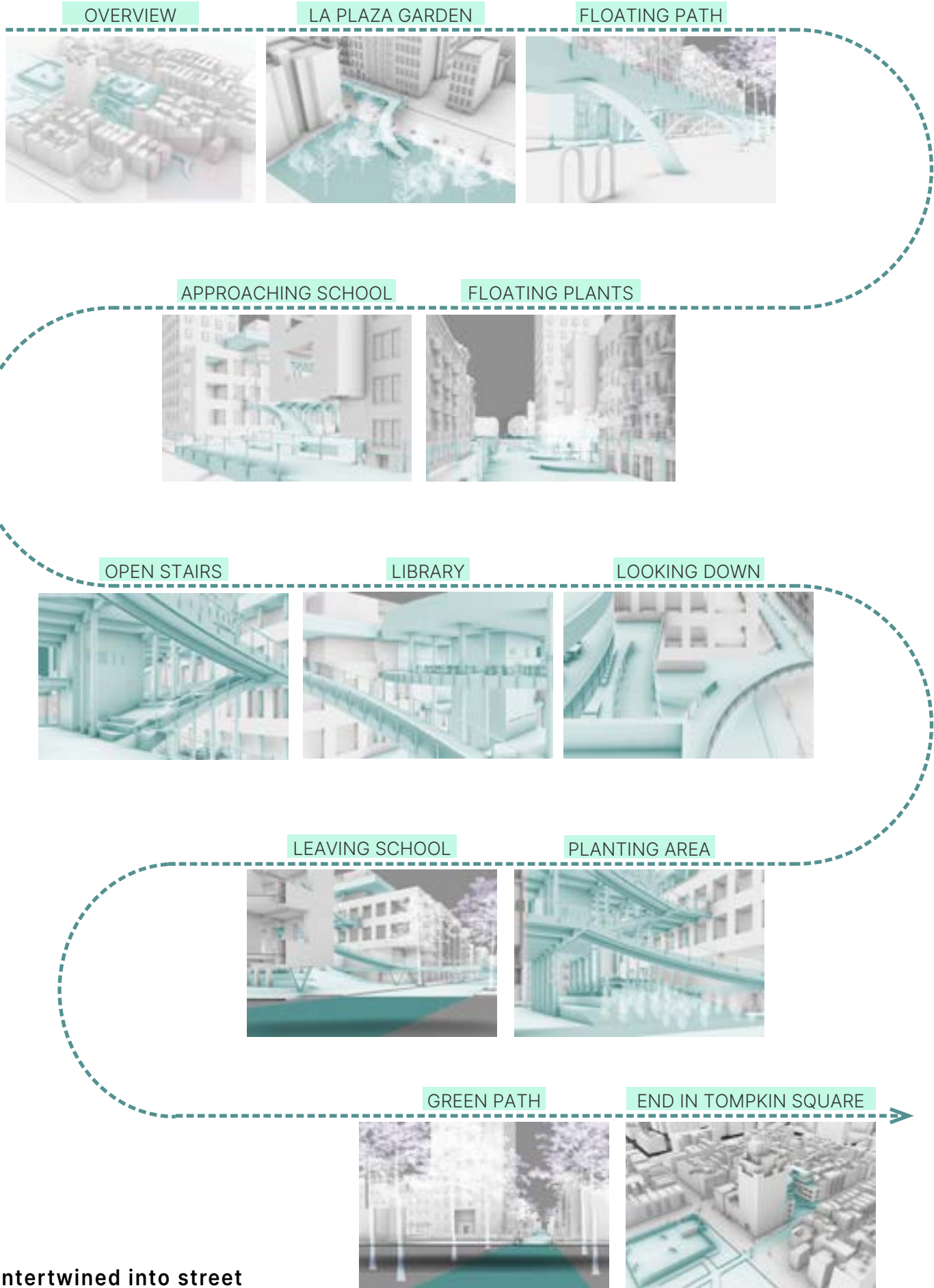
Course table

	K-4 Hands-on activities	5-6 Hands-on + Exposure to vary interests	7-8 Specific area Interest	Adults Popular science
student1	[Timeline bar]			
Teacher	[Timeline bar]			
student2	[Timeline bar]			
student3	[Timeline bar]			



- Open Lecture**
Content: Lecture for students or just for specific activities.
Time: All week
Cooperation: Any organization
Location: Auditorium on 4th fl
- Interest Workshop Program**
Content: College students give some workshops in different areas.
Time: Weekend
Cooperation: College students living in the community
Location: Library on 6th
- Planting Program**
Content: Nurture plants
Time: After school in weekday
Cooperation: La Plaza Cultural
Location: Planting area and 9th Street
- Community Talk**
Content: Guests invited or community members give a talk
Time: Weekend
Cooperation: Trinity Lower East Side Lutheran Parish and clubs nearby
Location: Open stairs on 3F
- Healthy Food Program**
Content: Introduce how to cook and foster a healthy diet habit to children.
Time: After school in weekday
Cooperation: La Plaza Cultural
Location: Kitchen and dining on GF

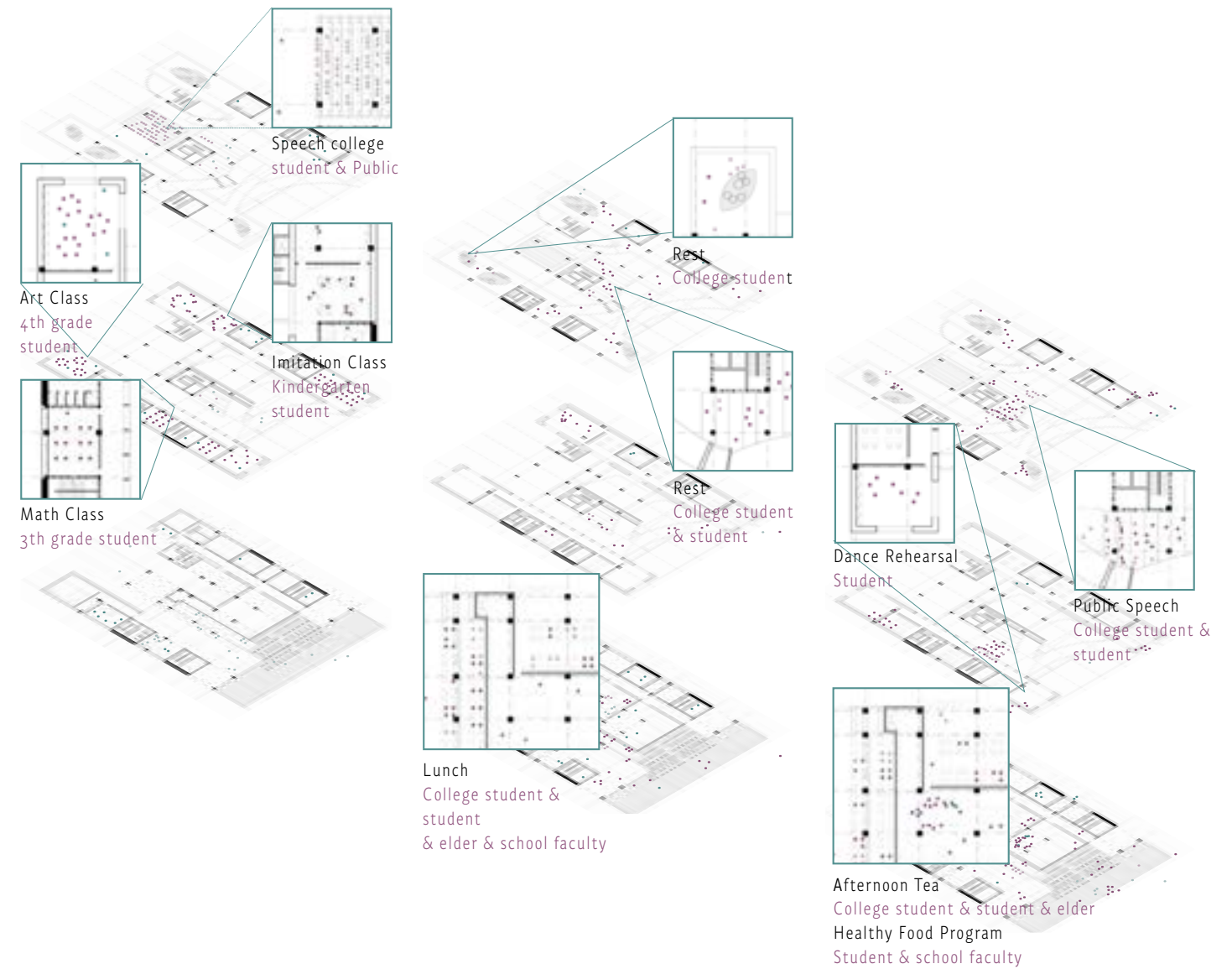




Intertwined into street



Site Plan



weekday

weekday

weekend

Kindergarten To 2nd Grade Classroom Type

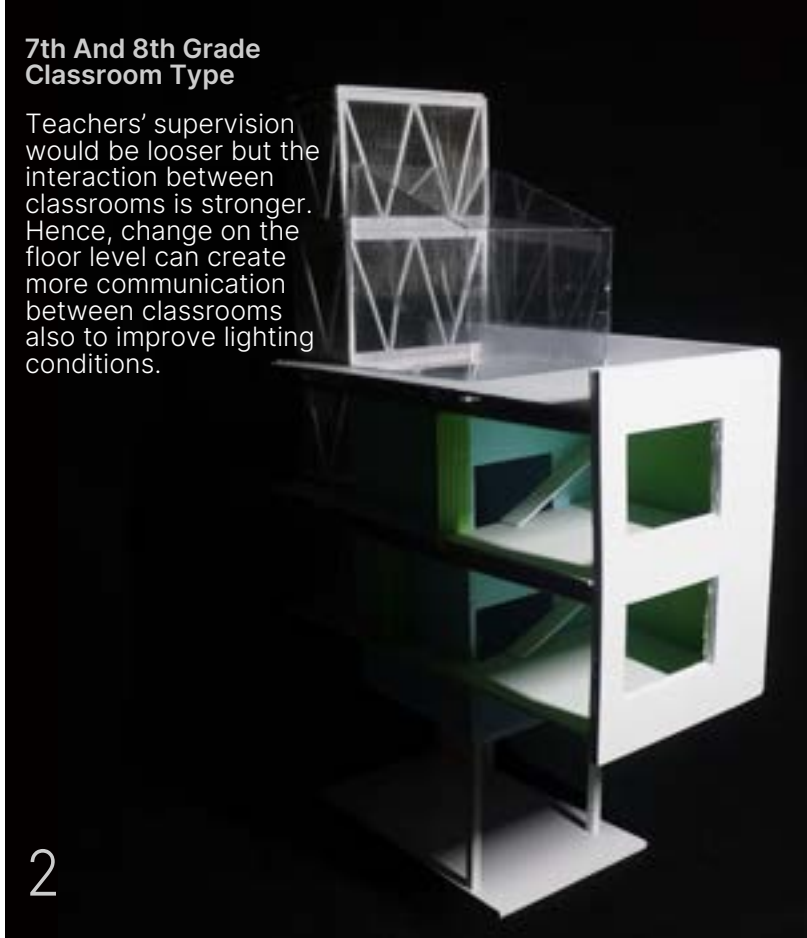
Teachers are more like close observers of students. Meanwhile, the tower can be utilized as sunlight access for classrooms and a lounge for faculties.



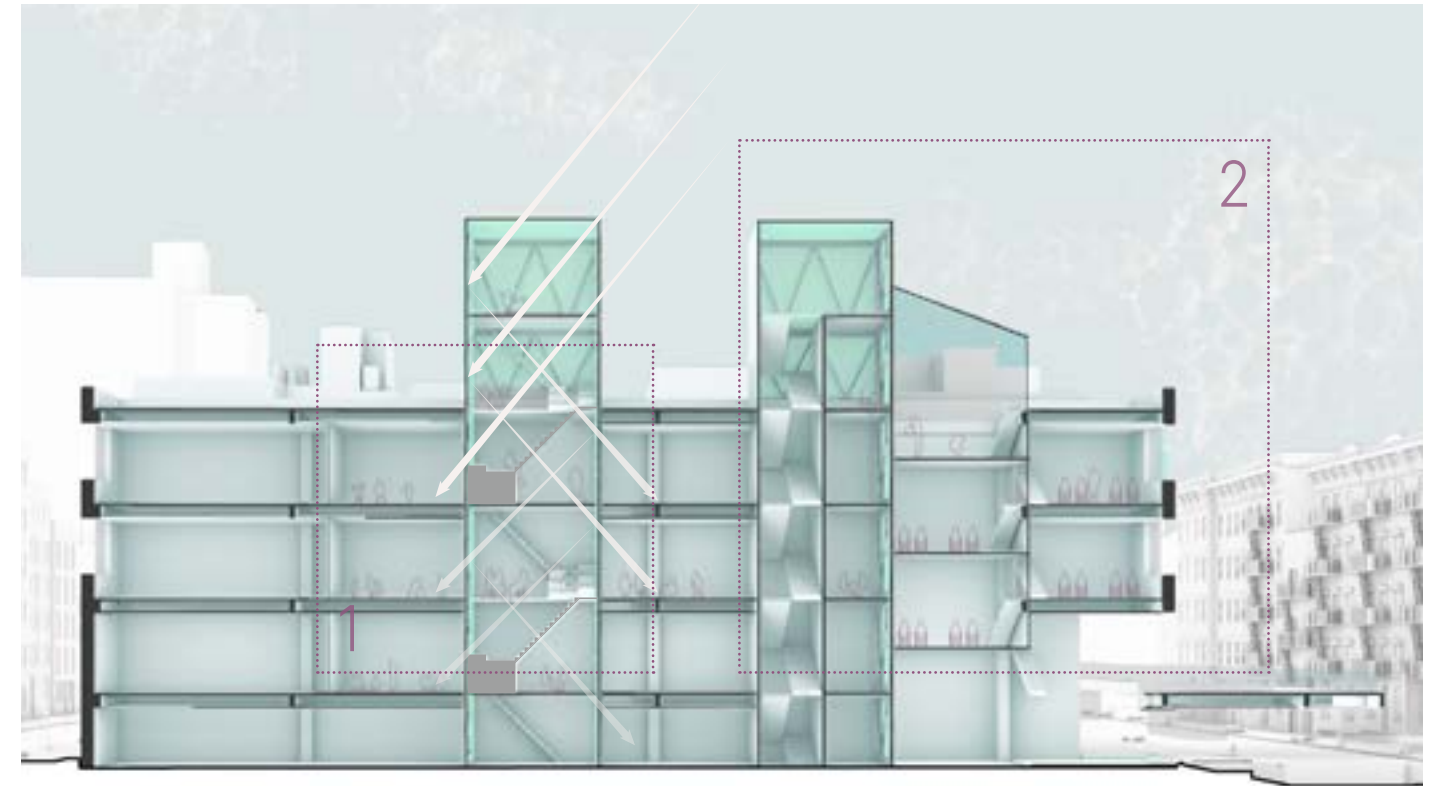
1

7th And 8th Grade Classroom Type

Teachers' supervision would be looser but the interaction between classrooms is stronger. Hence, change on the floor level can create more communication between classrooms also to improve lighting conditions.



2



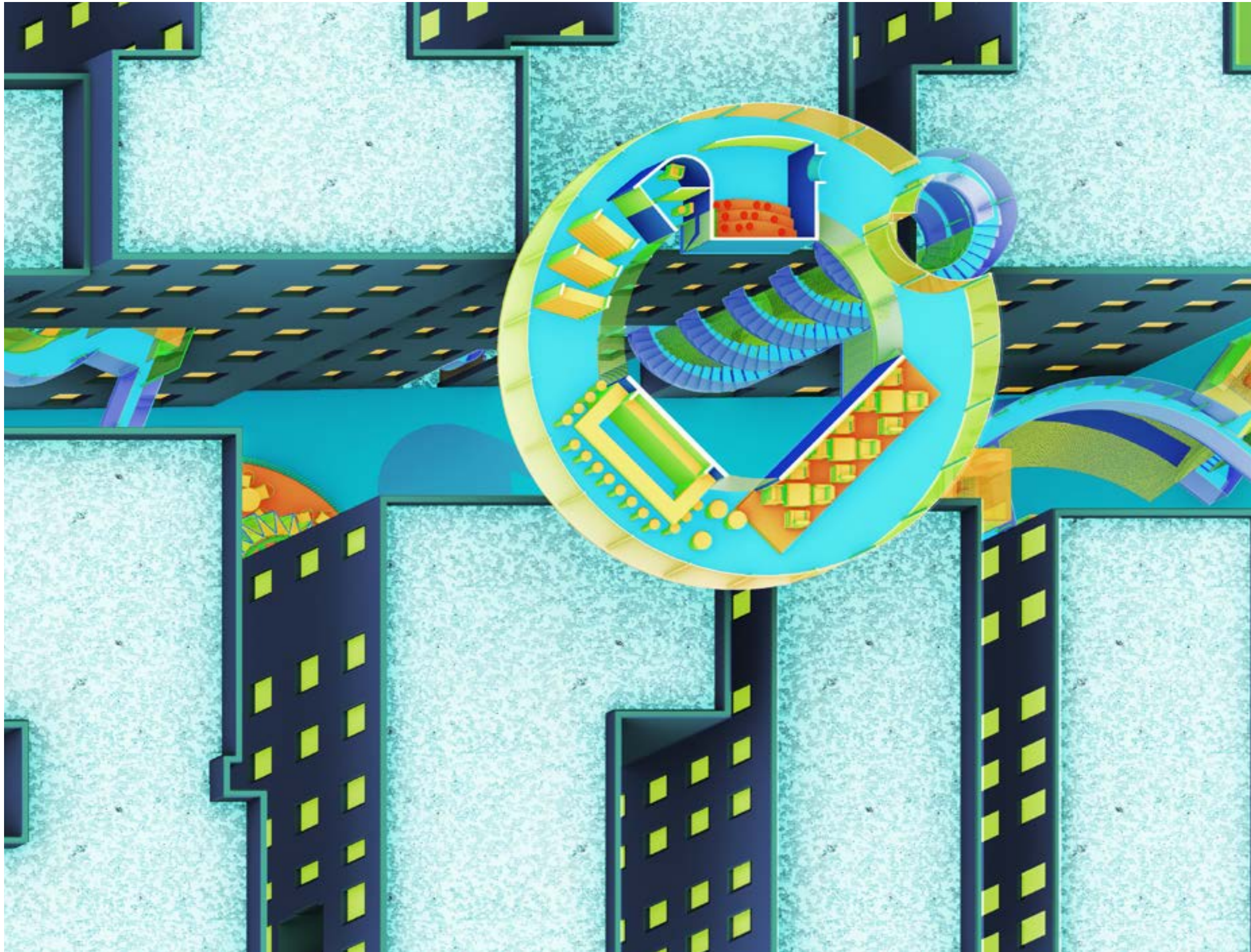
2



Masonry	Reinforced concrete	Steel
Preserved exterior wall	Floor slab, Beam, Column	Beam, Column
Metal net	Glass	Painted wood
Enclosure of zone	Curtain wall, Handrail	Interior partition

MATERIAL

Structure and materials intensify the contrast between vertical tower and horizontal path. Five truss towers strengthen the ability of resisting wind load while a concrete post and beam system support the horizontal paths. Towers are covered with bright metal mesh while the paths are in light grey concrete.



05

COMMUNAL- OFFICE

OFFICE MODULES IN URBAN VOIDS

This program starts with the concern about jobs. I want to figure out what pandemic does to people's jobs. There are mainly two issues around this topic. For people with lower education, they are more likely to be fired during the pandemic. And for people with high education, they are more likely to work remotely.

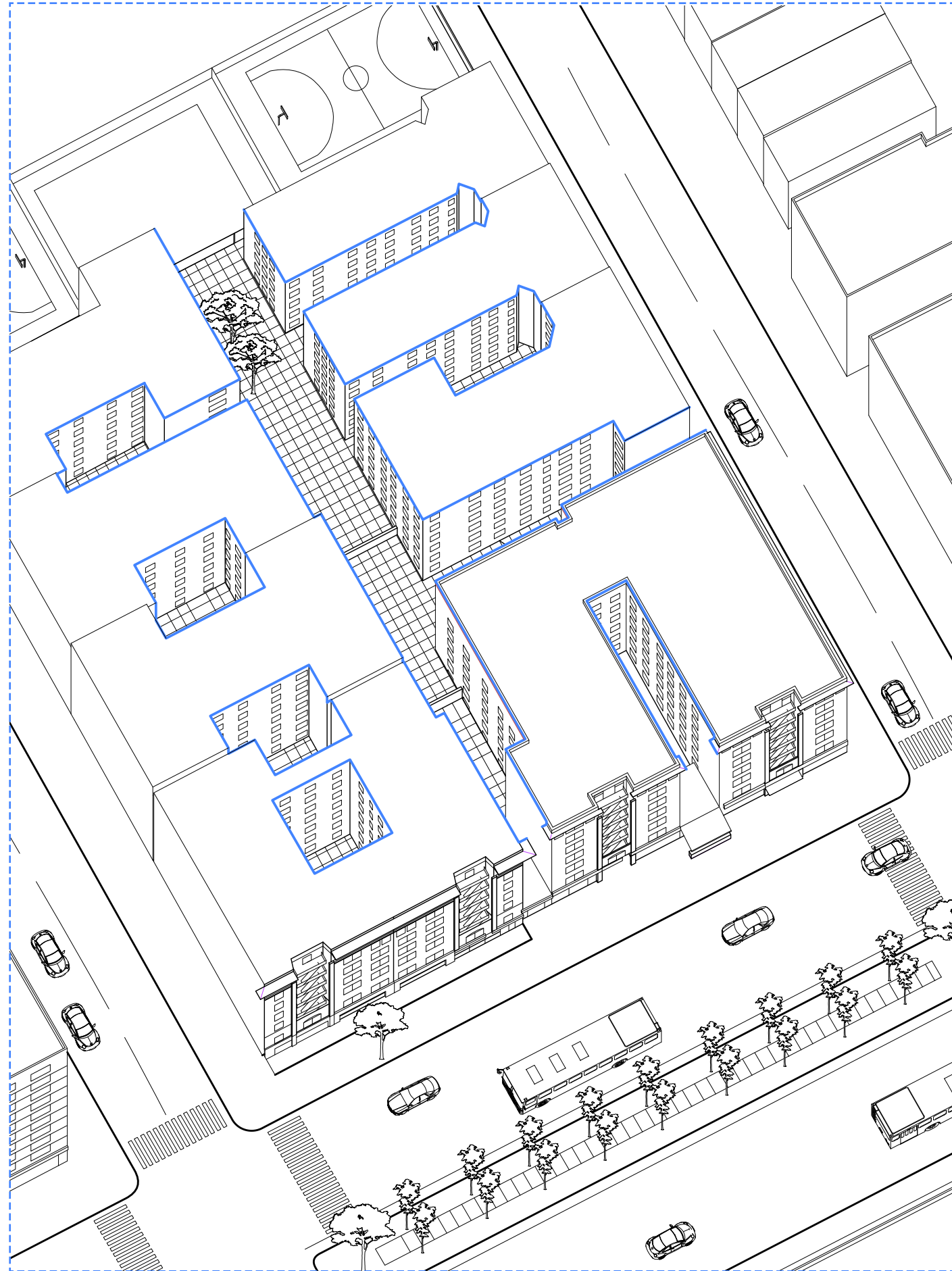
Communal-office proposal is to insert modules in interstitial space of community. Residents can turn a part of his house into a public workplace or even café and recreation rooms. He could use it himself, when it is available, he rent it for money.

This system of module could also be developed into a joint space in the void inside a block. The form of mesh gives an integrality to this system. Also, it protects the privacy of residence.

Project Info

GFA	211sqft
Location	New York, USA
Duration	9/2020-12/2020
Mentor	Alessandro Orsini
Individual work	

Core I studio at GSAPP



VOIDS INSIDE COMMUNITY

The concept of interstitial space is a common phenomenon in Manhattan, largely due to the typical layout and planar arrangement of tenement houses. These buildings are situated along the block's perimeter, resulting in a void at the center that frequently remains unused. Regrettably,

these spaces are often neglected, left unclean, and exposed to the elements. Consequently, they represent missed opportunities for valuable public space that could enhance the urban landscape and foster community interaction.

this issue, urban planners and architects can transform these underutilized interstitial spaces into vibrant, functional areas that enrich the city's fabric and contribute to a more connected and sustainable urban environment.

By recognizing and addressing

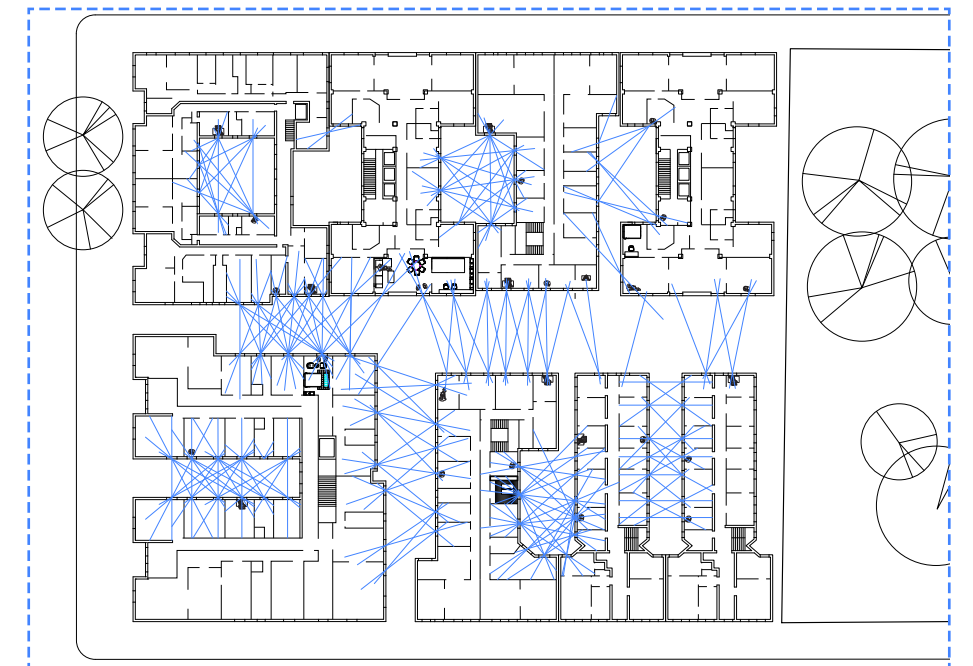
A GLIMPSE FROM THE STREET

Walking along Broadway, passengers could feel the strong rhythm brought by the repetition and symmetry of elevations and pay more attention to the interstitial space within a block.



VIEWS INSIDE THE VOID

Typically, there is an awkward problem that residents could clearly look through each others' windows and the scenes are dull. So I think there should be something to utilize this void and bring more vigour here.



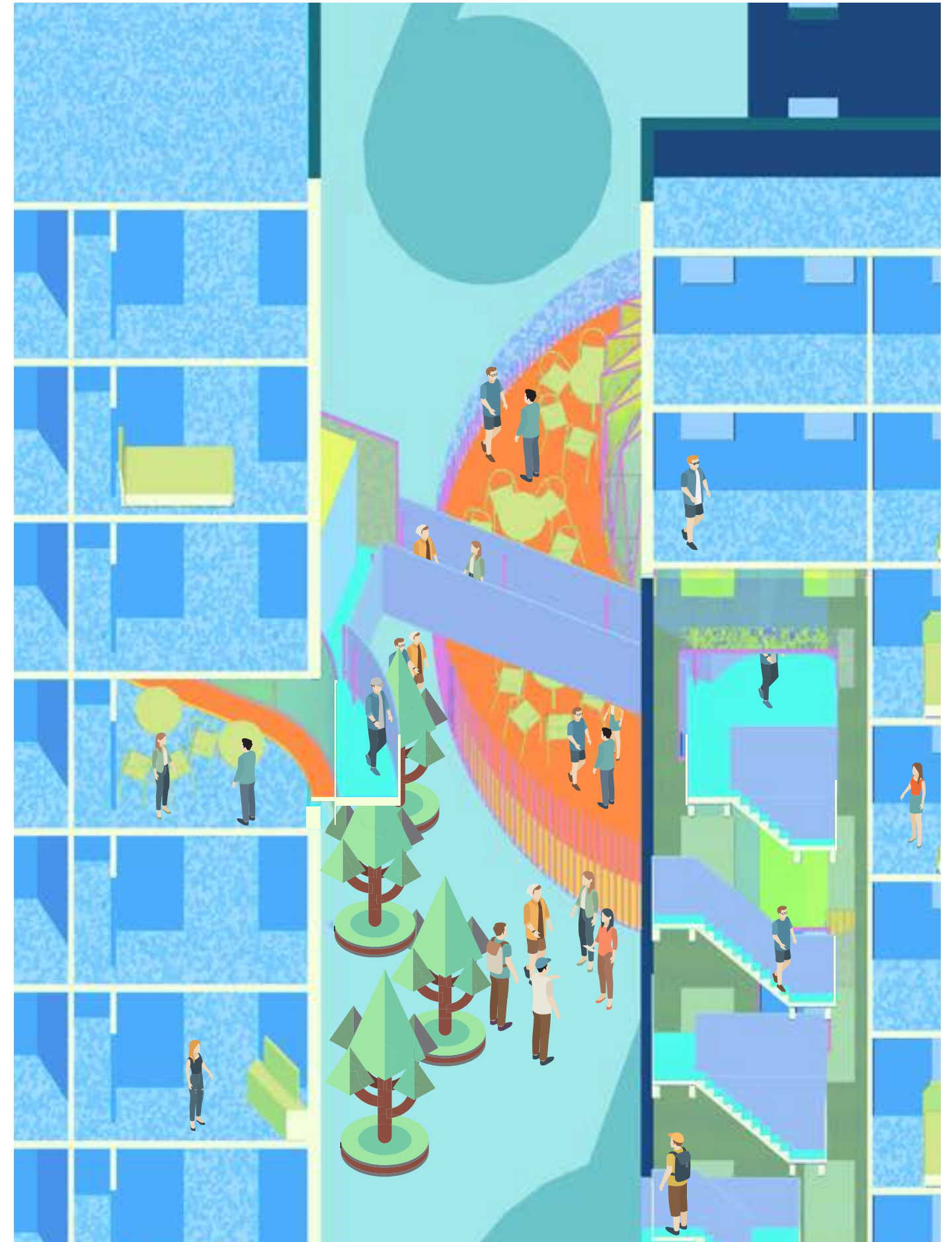
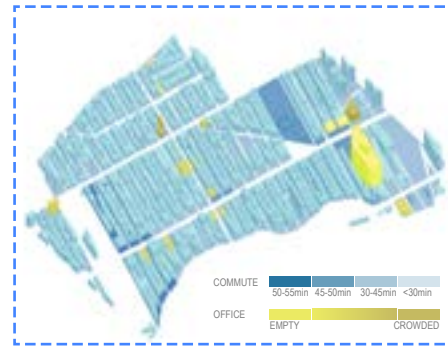
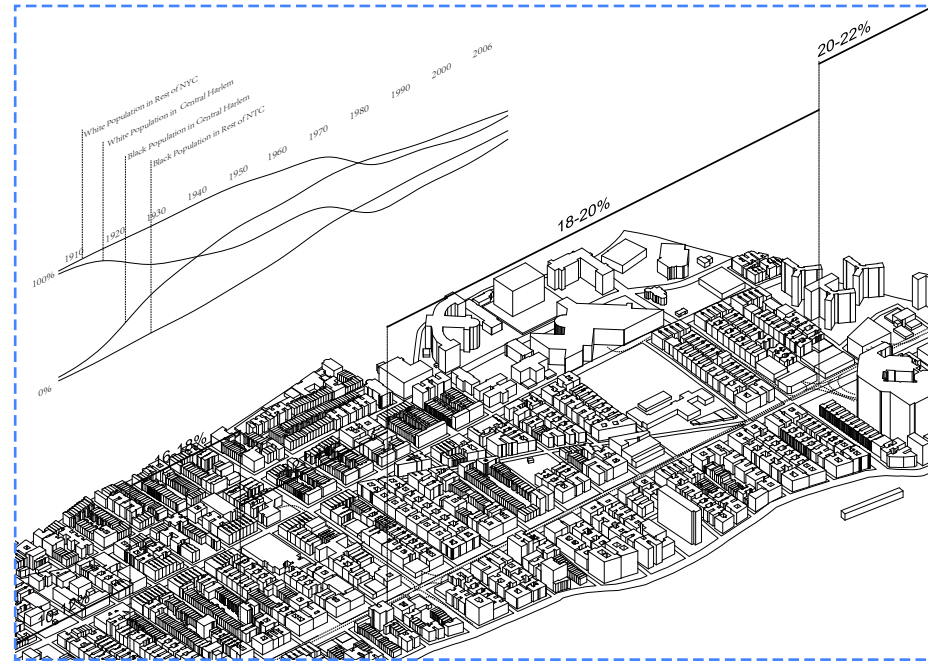
A NEW TYPOLOGY: OFFICE MODULE IN RESIDENTIAL INTERSTITIAL SPACE

This program addresses the impact of the pandemic on employment. Specifically, two key issues have emerged. Firstly, individuals with lower levels of education are more vulnerable to job loss during the pandemic. Secondly, unemployment is a pressing concern in District Nine. Conversely, individuals with higher levels of education, such as office workers or sales professionals, are more likely to work remotely.

To address these challenges, this proposal suggests the installation of modular workspaces and community areas in interstitial spaces within the neighborhood. Residents can rent out a portion of their homes for use as public workspaces, cafes, or recreational areas. The space can also be utilized by the residents themselves. When not in use, it can be rented out for additional income.

a. Harlem's unemployment rate stands at 18-20%, a stark contrast to the southern district's rate. Since the 1940s, the black population in the area has surpassed the white population.

b. In Harlem, the average commute time is between 30 to 45 minutes. Due to the concentration of jobs in other districts of Manhattan or the Bronx, most residents commute outside of their neighborhood for work.





The community cafe is cantilevered from the existing masonry building, creating shade for the outdoor dining area.



At night, the community cafe transforms into a beacon, serving as a focal point for the outdoor screening events that take place in the area.



The mesh material of the enclosure offers a semi-transparent visual effect. When dining in the space, individuals can observe the shadows and movements outside without causing too much distraction.

SPACE: PUBLIC LIVING ROOM

Instead of merely connecting the functional modules, this system is designed to serve as a public living room for the entire community and its visitors. As such, residents and visitors can enjoy the services as a cohesive whole. To achieve this goal, the ground floor has been reimagined to provide greater

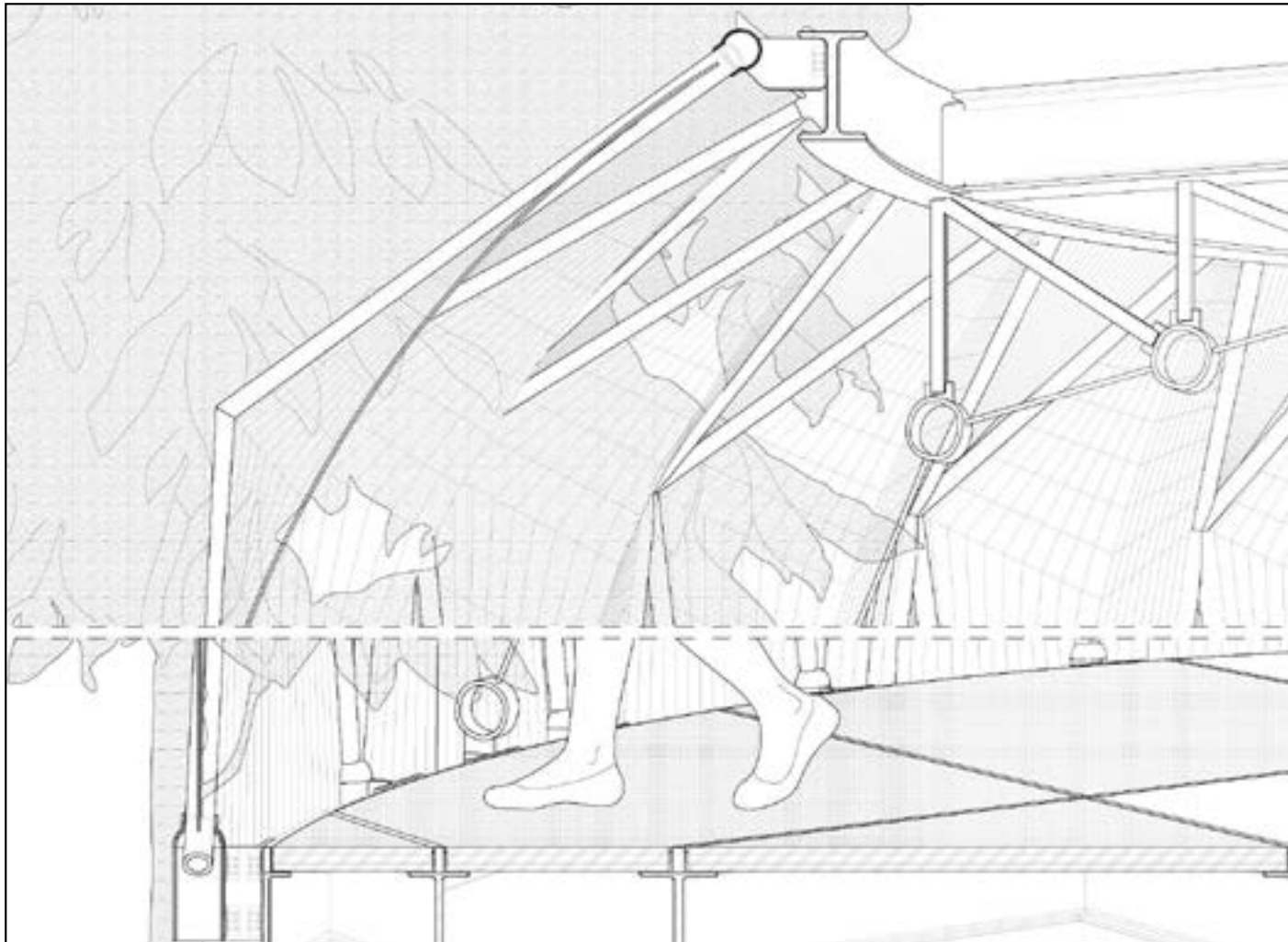
accessibility to the modules and apartment buildings.

The semi-transparent mesh that divides the interior and exterior spaces further enhances the experience. It allows individuals to perceive activities happening behind it, encouraging them to

explore and engage with the space.

Additionally, the mesh material, along with its radioactive supporting members, creates a plentiful shadow effect throughout the space.





DETAIL MODEL:
Mesh as a soft media between inside and outside





06

TEMP-HOME

ALL-ROUNDED NETWORK OF CARE FOR HOMELESS YOUTH

Homelessness has been an lingering issue for NYC. The homeless population has been constantly increasing since 1983. Among them, children take up 35%, adults with families 39%, youth from age 18-24 11%, and single adults above 24, 15%. The hispanic and black population takes up the largest ethnicity group, which is about 85%.

To the society, the homelesses are people that need to be avoided. Since they give the impression of unhygienic conditions and disturb the public area.

However, from the homeless's perspective, they feel rejected from society. Due to constantly increasing rent in NYC, they struggle to find affordable housing, which brings more dilemmas.

Project Info

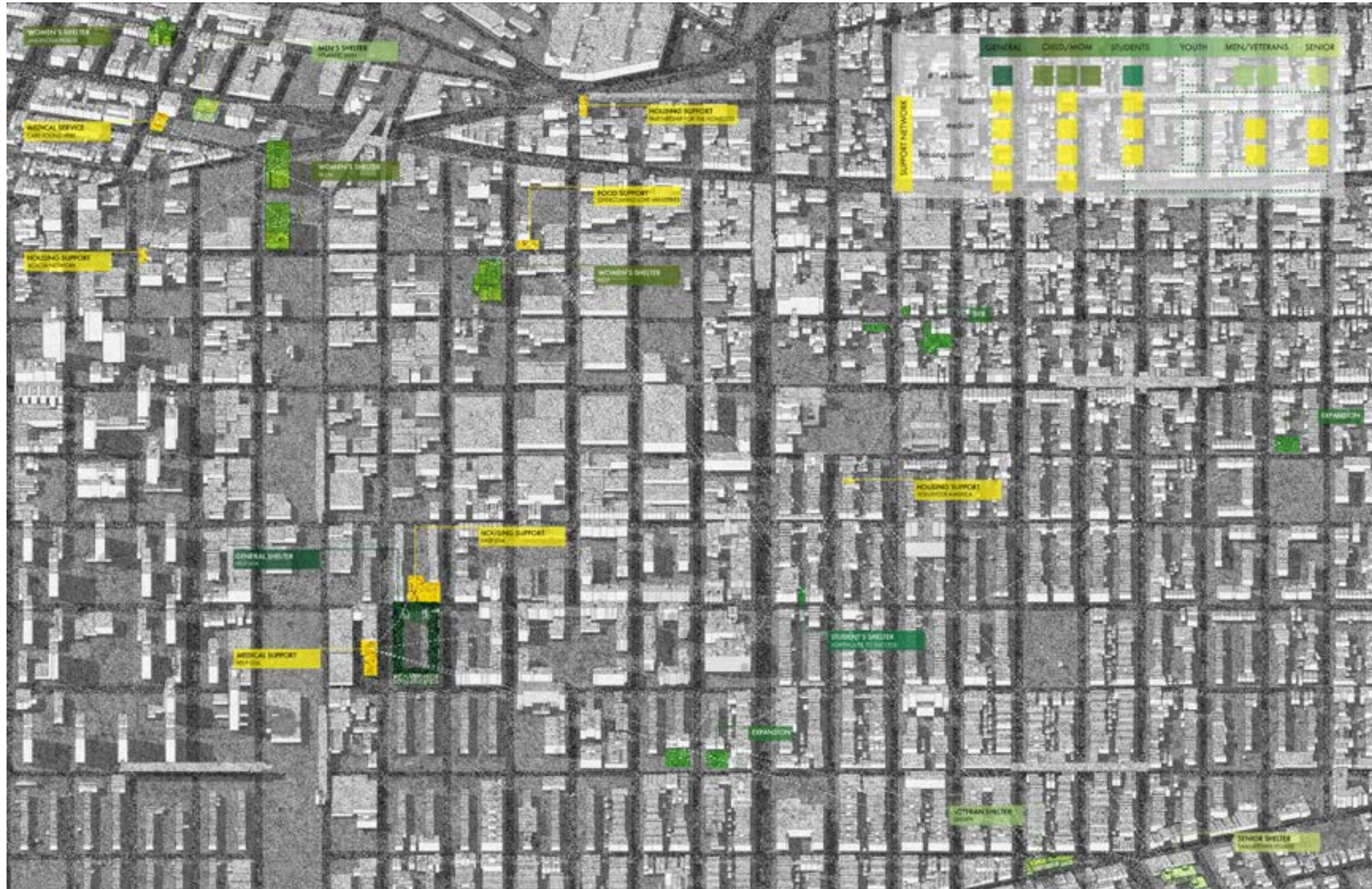
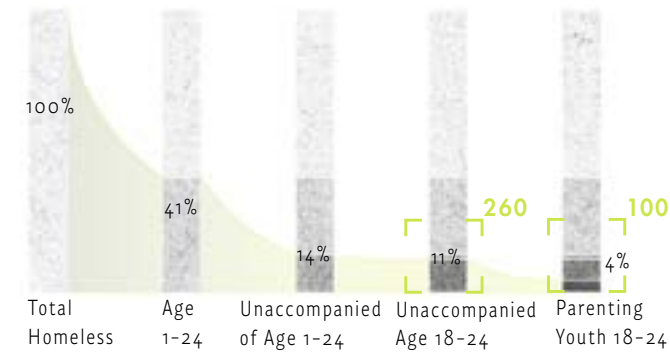
GFA	5000 sqft
Location	Brooklyn, NY
Duration	9/2020-12/2020
Mentor	Laura González Fierro
Team	Younjae Choi

ADV studio in GSAPP

**FOR HOMELESSNESS ISSUE,
BREAKING POINT IS
HOMELESS YOUTH (AGE 18-24).**

Our primary focus is on unaccompanied youth aged 18-24, including parenting youth, who comprise an estimated total of 260-360 homeless individuals in East New York.

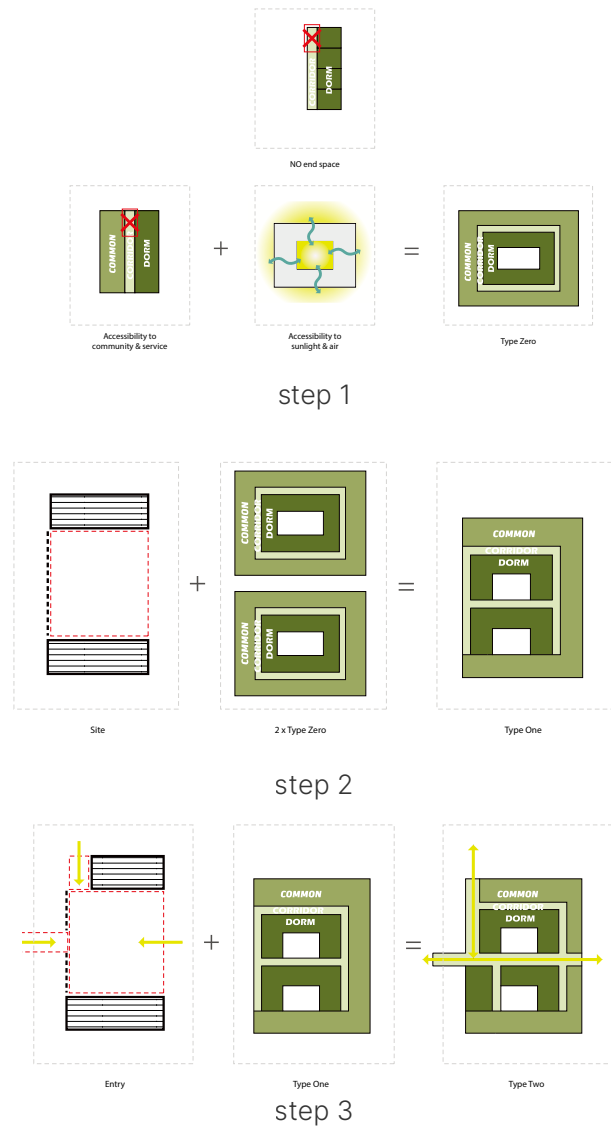
Homeless youth in this age group are at a critical stage in their lives. Often, they have experienced childhoods marked by poverty and domestic violence, which can have detrimental effects on their academic achievement and personal development. Although homeless youth represent only 11% of the total homeless population, we believe it is essential to break this vicious cycle by providing a new type of shelter specifically designed to address their unique needs.

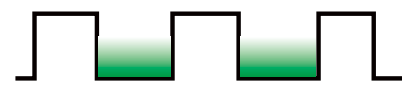


Accessibility to sunlight and ventilation

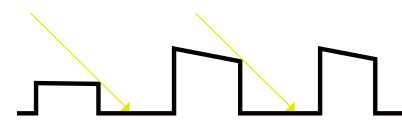
As an initial step in implementing the proposed system, we have identified five lots situated around the intersection of Glenmore Avenue and Vermont Street. The network has been divided into five distinct sections based on the specific needs of the area: a residential section, a drop-in center, an adjoining community garden, a training section, and a food section located across the street.

Each of these sections serves a unique purpose and caters to different community requirements. The residential section features isolated hygiene areas, laundry facilities, showers, a gym for well-being, and a daycare center for single parents and their children. Meanwhile, the training center offers workshops, mental health clinics, and a job information center, providing valuable resources to support community members in their personal and professional development.



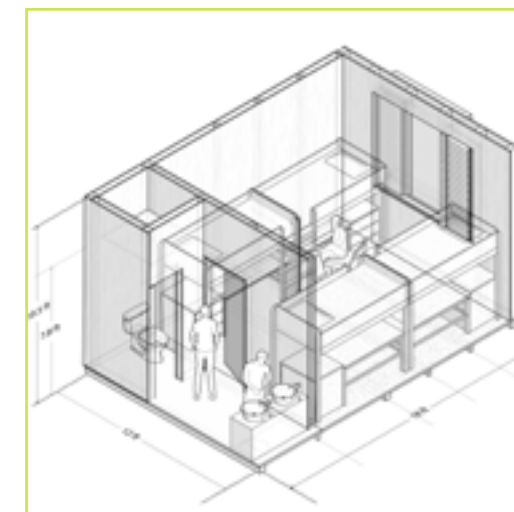
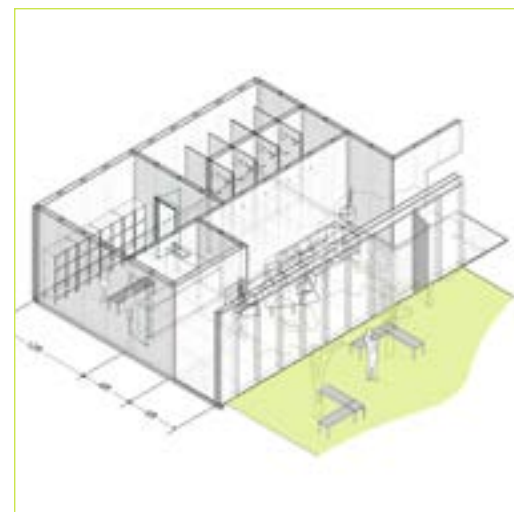


Two Courtyards



Accessibility to Sunlight

Accessibility and hygiene



In order to create a supportive and nurturing environment, it is crucial to combine accessibility to hygiene and safety while breaking down the barriers between these spaces and more visible areas, all without compromising privacy. Taking the laundry as an example, we strive to utilize this space as a bridge between the indoor corridor and the outdoor garden, both visually and functionally.

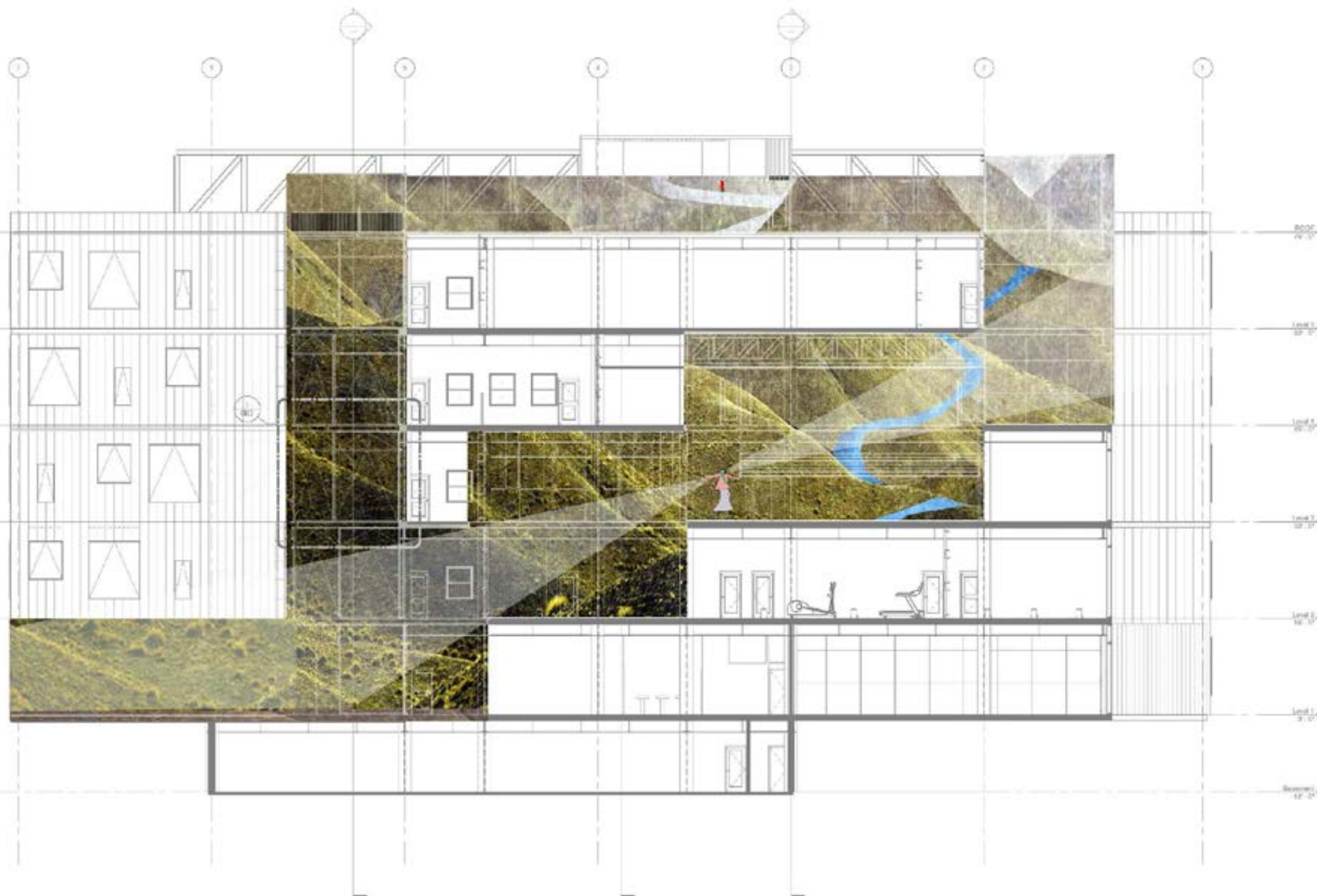
07

LOOP

PUBLIC SCHOOL WITH HIGH TRANSPARENCY

A series of open, column-free spaces are connected in a looped, sectional manner, transforming the central portion of P.S. 64 into a public education hub. The community is invited to use the cafe, gym, library, auditorium, and other amenities provided in the space.

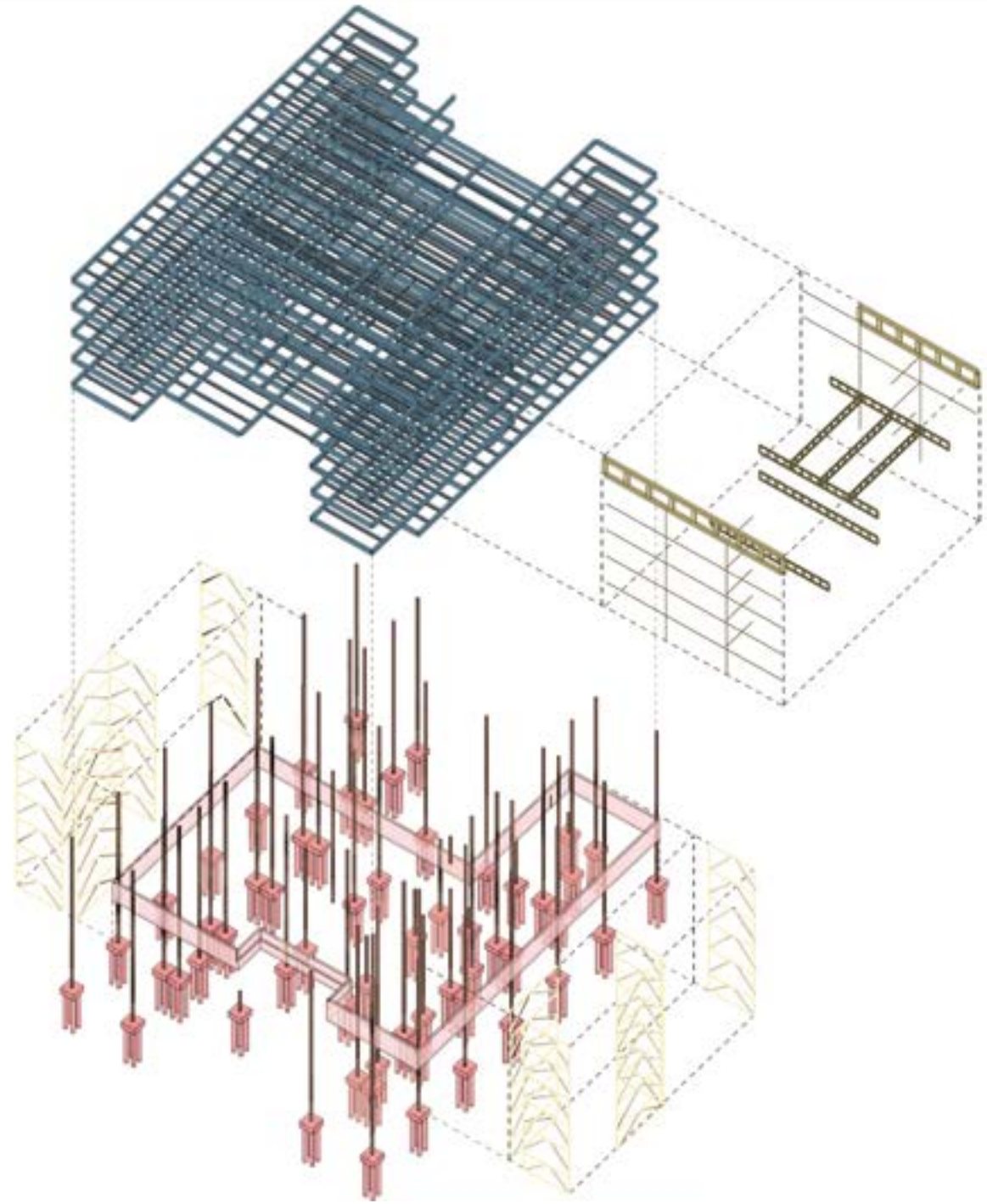
This looped design is not only architecturally significant but also sustainable, requiring careful attention to structural design. Our team of five collaborated on this project as part of the Architectural Technology IV course at GSAPP. Together, we worked to develop a feasible solution that addressed various aspects of the project, including architecture, structural design, MEP, and construction.



Project Info

GFA	111532sqft
Location	New York, USA
Duration	9/2021-12/2021
Team	Jiageng Guo Yuli Wang Karen Wang Alison Lam

TECH CLASSWORK in GSAPP

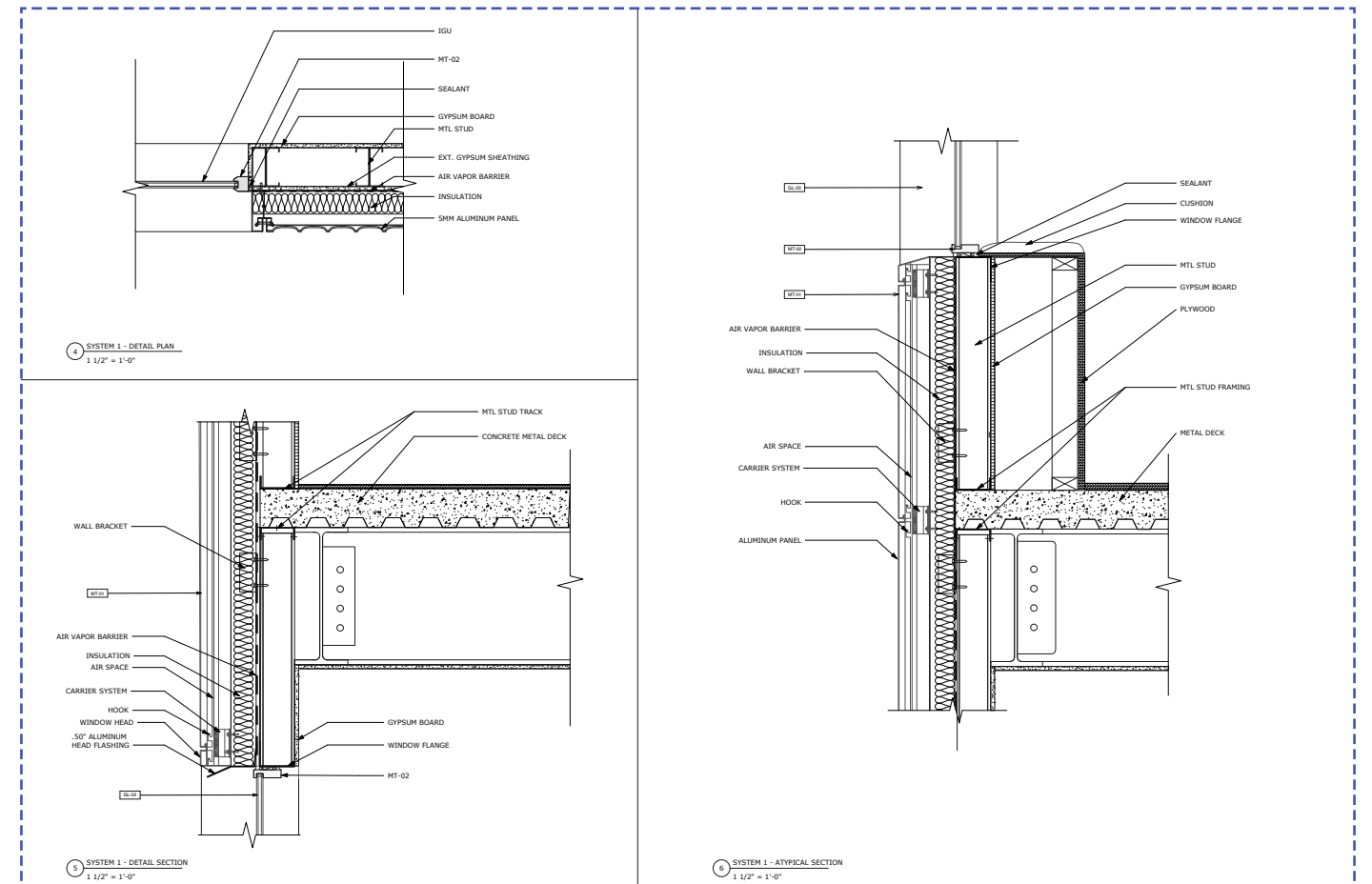
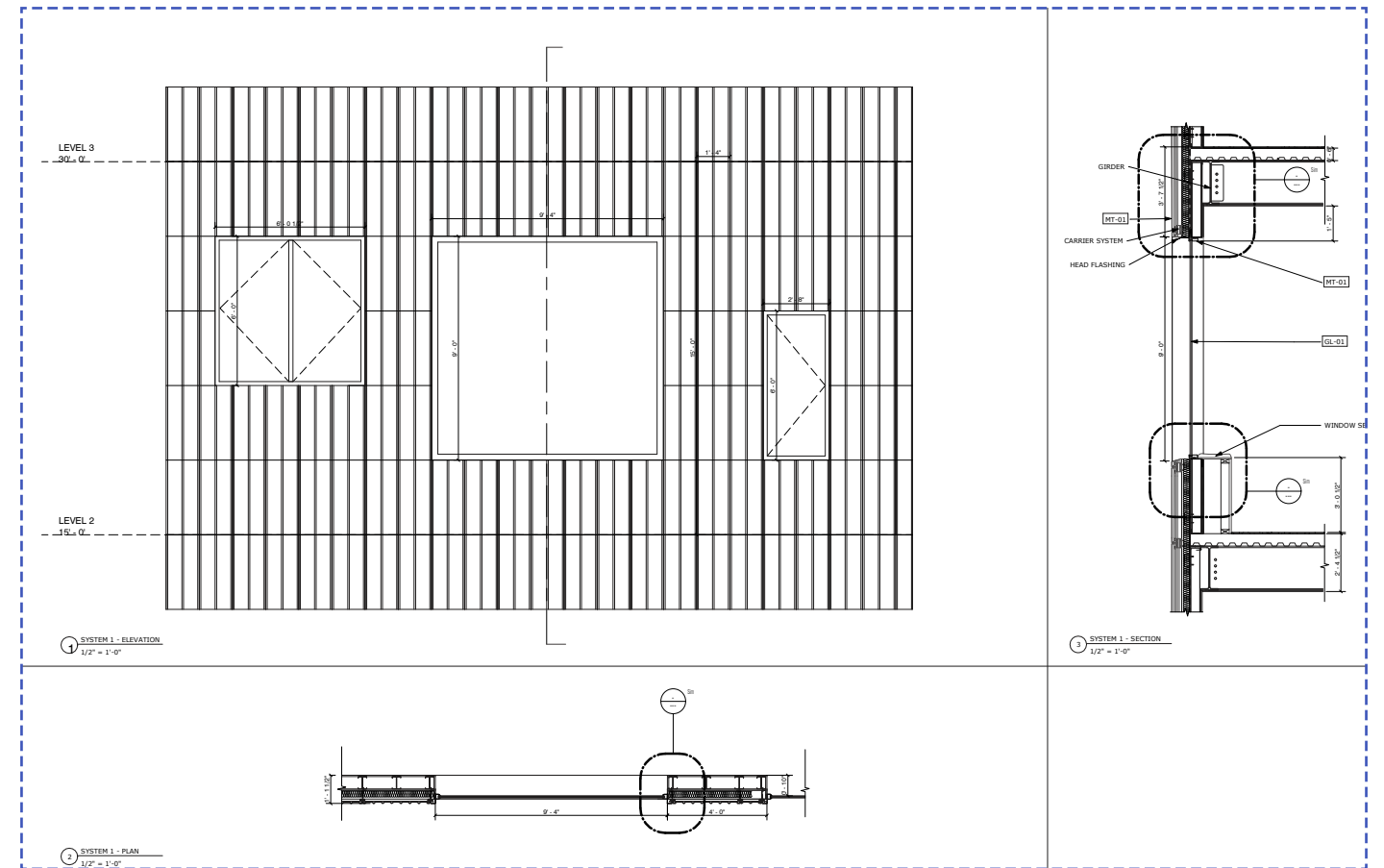


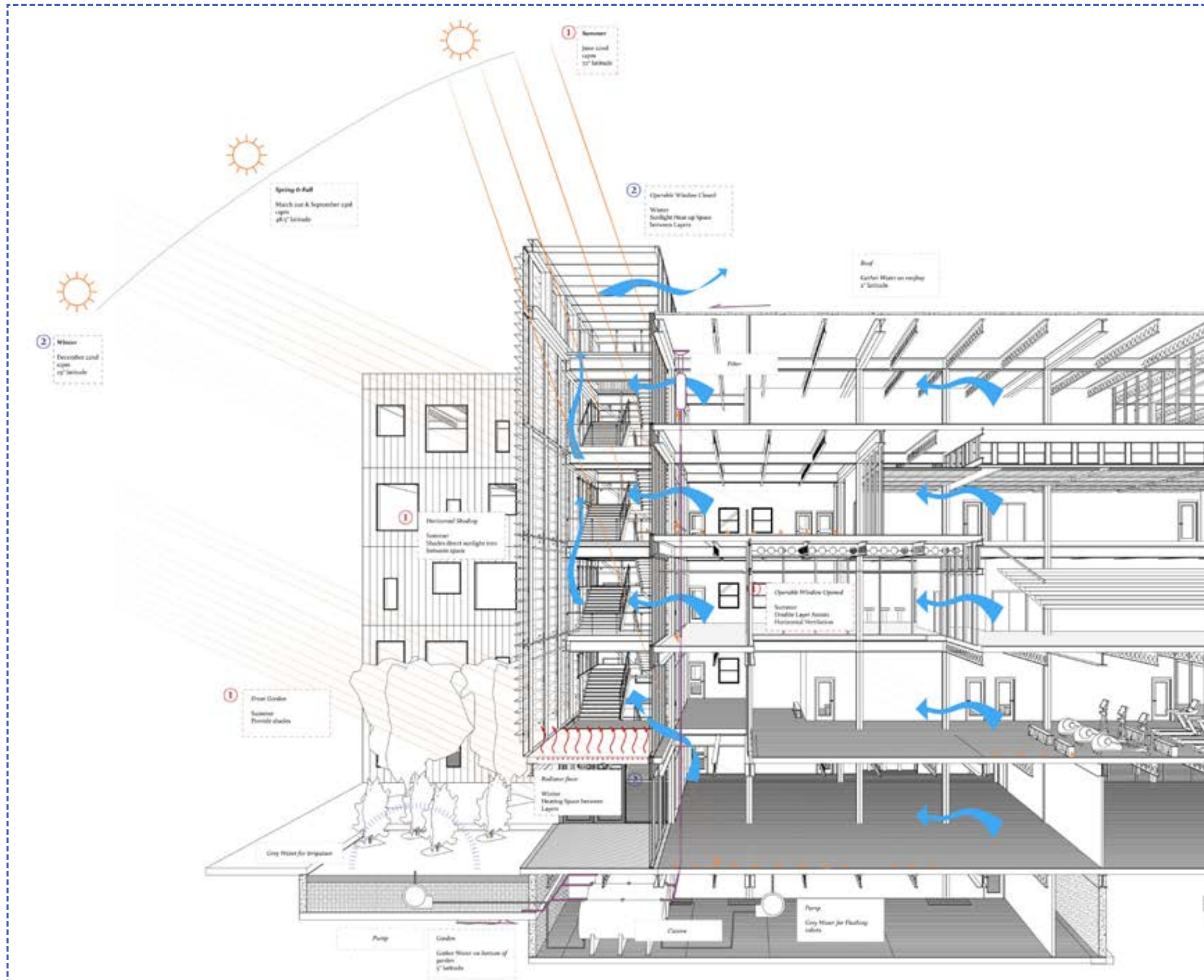
STRUCTURE AND DETAIL

The school adopted steel columns and trusses for efficiency in structural and use of space. Exposed CLT Floor Slab is a sustainable material to provide warmth and acoustic barrier.

The whole building can be dismantled and repurposed to adapt to the constant need for the schools. All Materials are honestly exposed in our building reducing the need for any finishes. Off-cuts have been repurposed for making the furniture in the shared space.

- FOUNDATION PILE CAPS
- REINFORCED CONCRETE CONSTRUCTION
- STEEL COLUMNS
- BRACING FRAMES
- STEEL GIRDERS
- STEEL BEAMS
- STEEL TRUSSES
- MACALLOY BARS



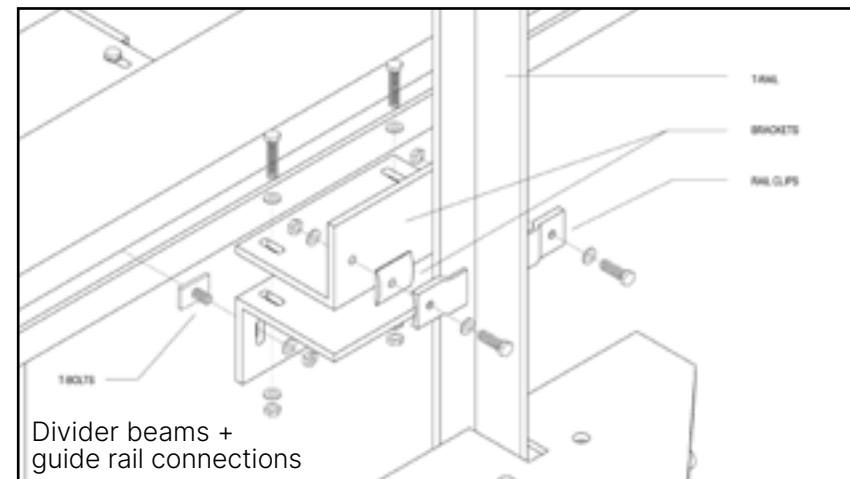
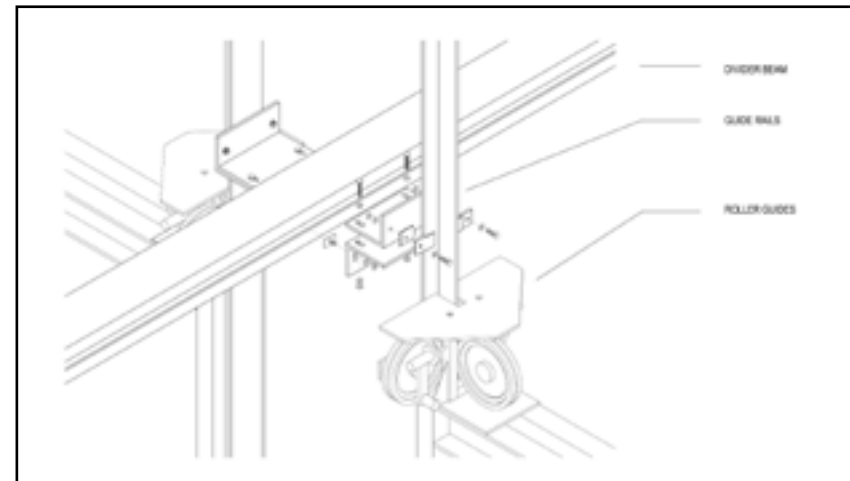
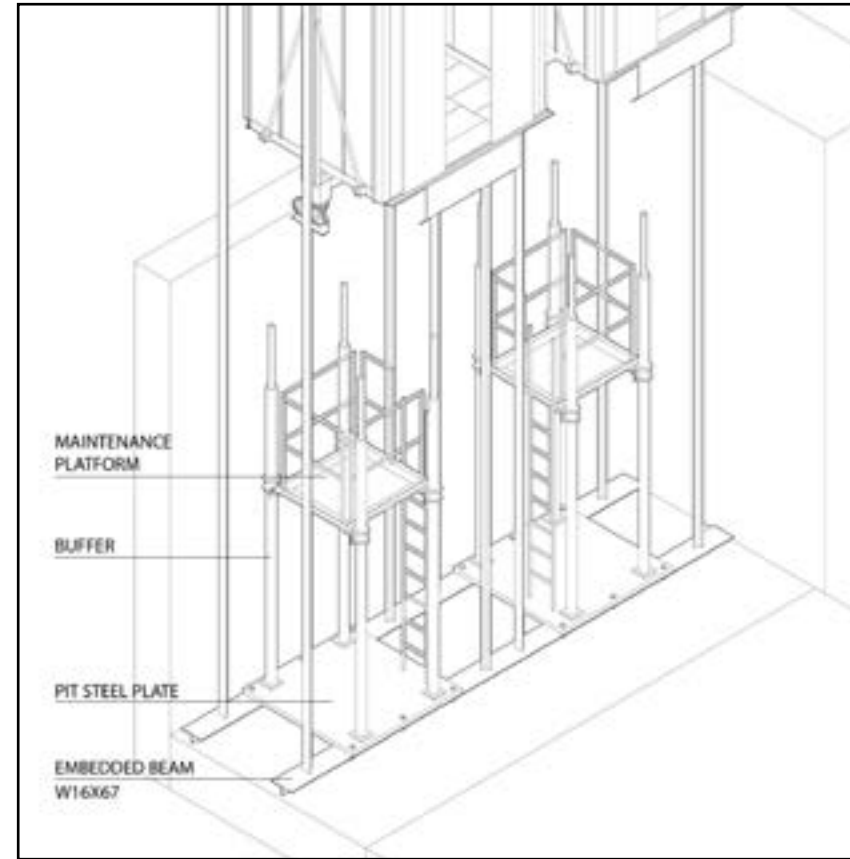
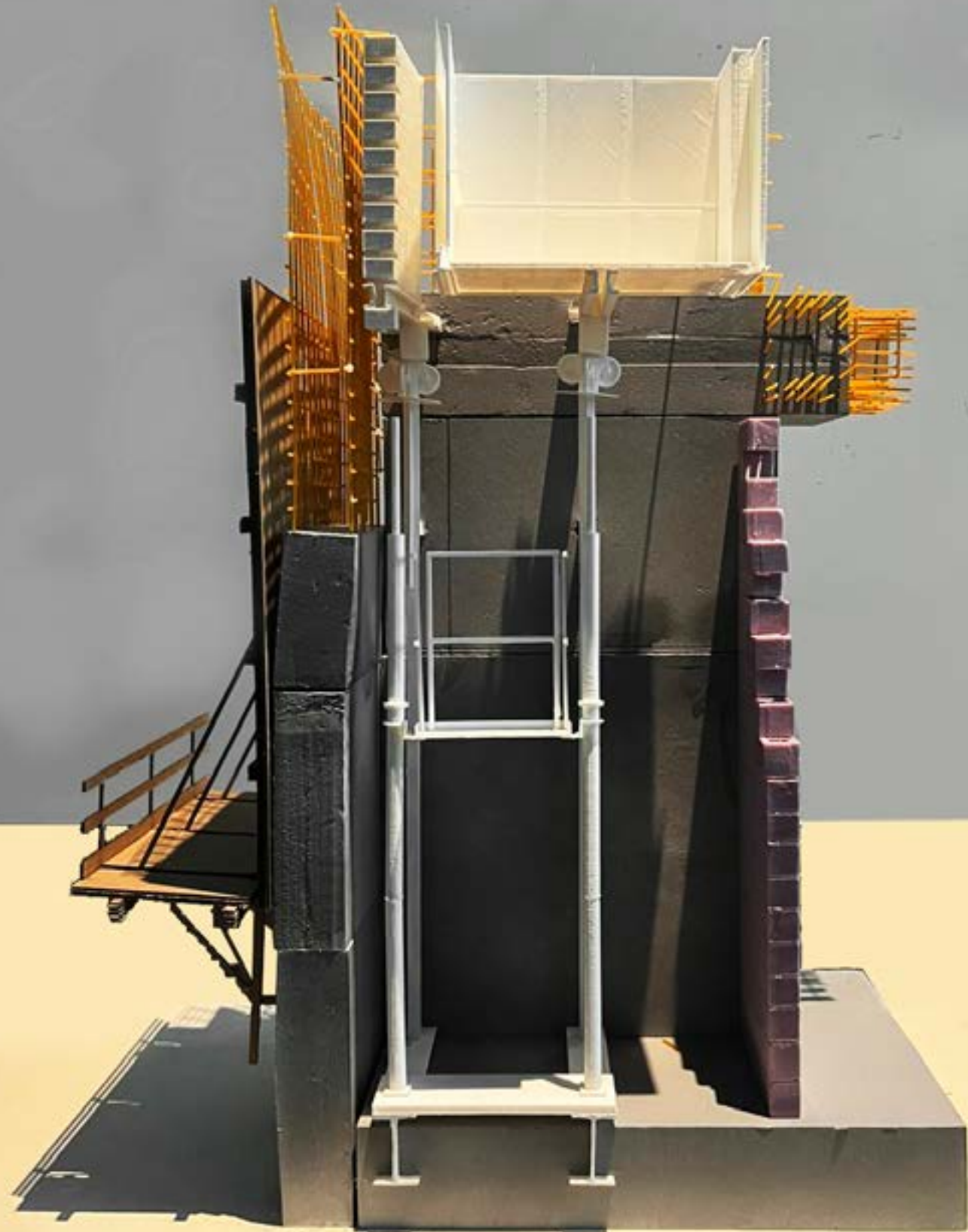


SUSTAINABILITY

We chose the VAV system for its cost effectiveness and lower maintenance requirement. There are 7 air handling units. Each of them can be turned on and down separately so that functions in the middle of the building, including cafe, gym, auditorium and winter garden can be used independently when semester is over and classrooms are closed.

When weather is not that harsh, energy provided for common space can be saved by operating the double facade system.

In summer, windows on the inner facade are opened, pressure difference between the top and bottom induce the horizontal ventilation throughout the building. In winter, windows are closed so that air between two layers is heated by the radiator slab. The double facade plays the role as a thickened isolation for indoor space.



08

VERTICAL TRANSPORTATION

ELEVATOR CONSTRUCTION CHUNK MODEL

Project Info

Team Priscilla Auyeung
Isaac Khouzam
Zida Liu

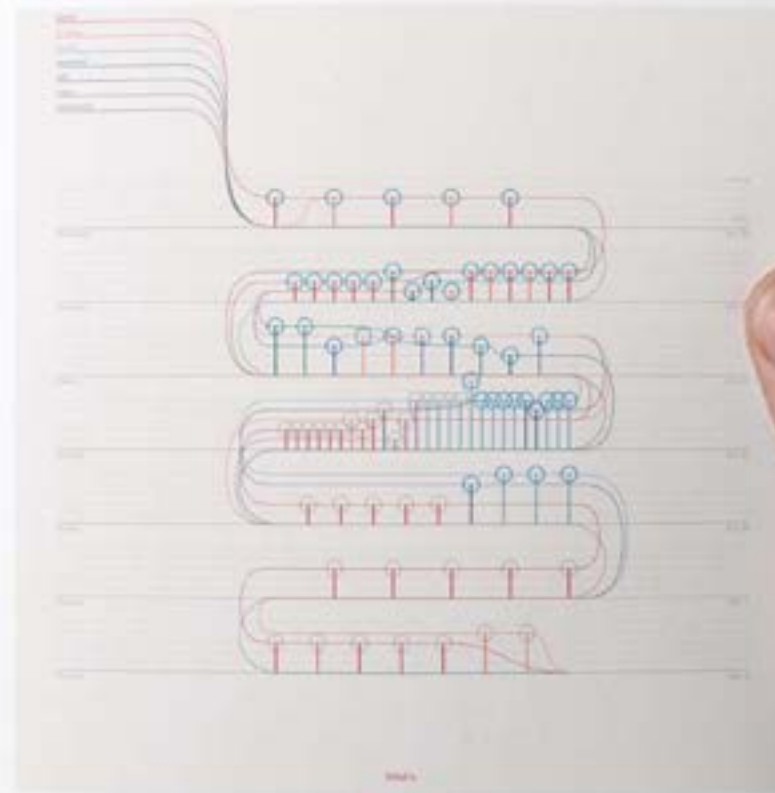
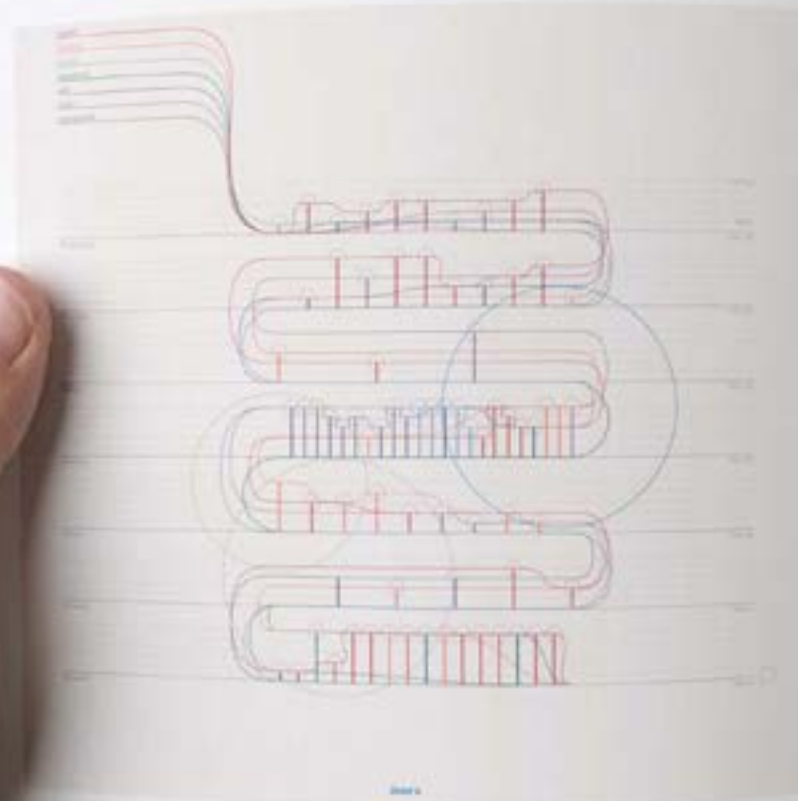
AT V work at GSAPP

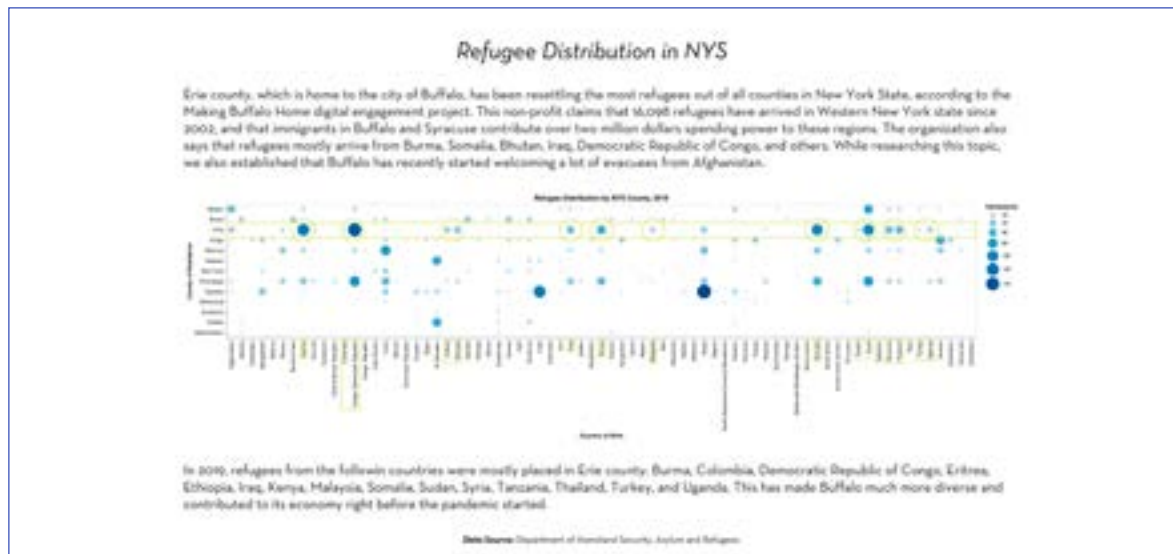
09

REPRESENTATION WORK

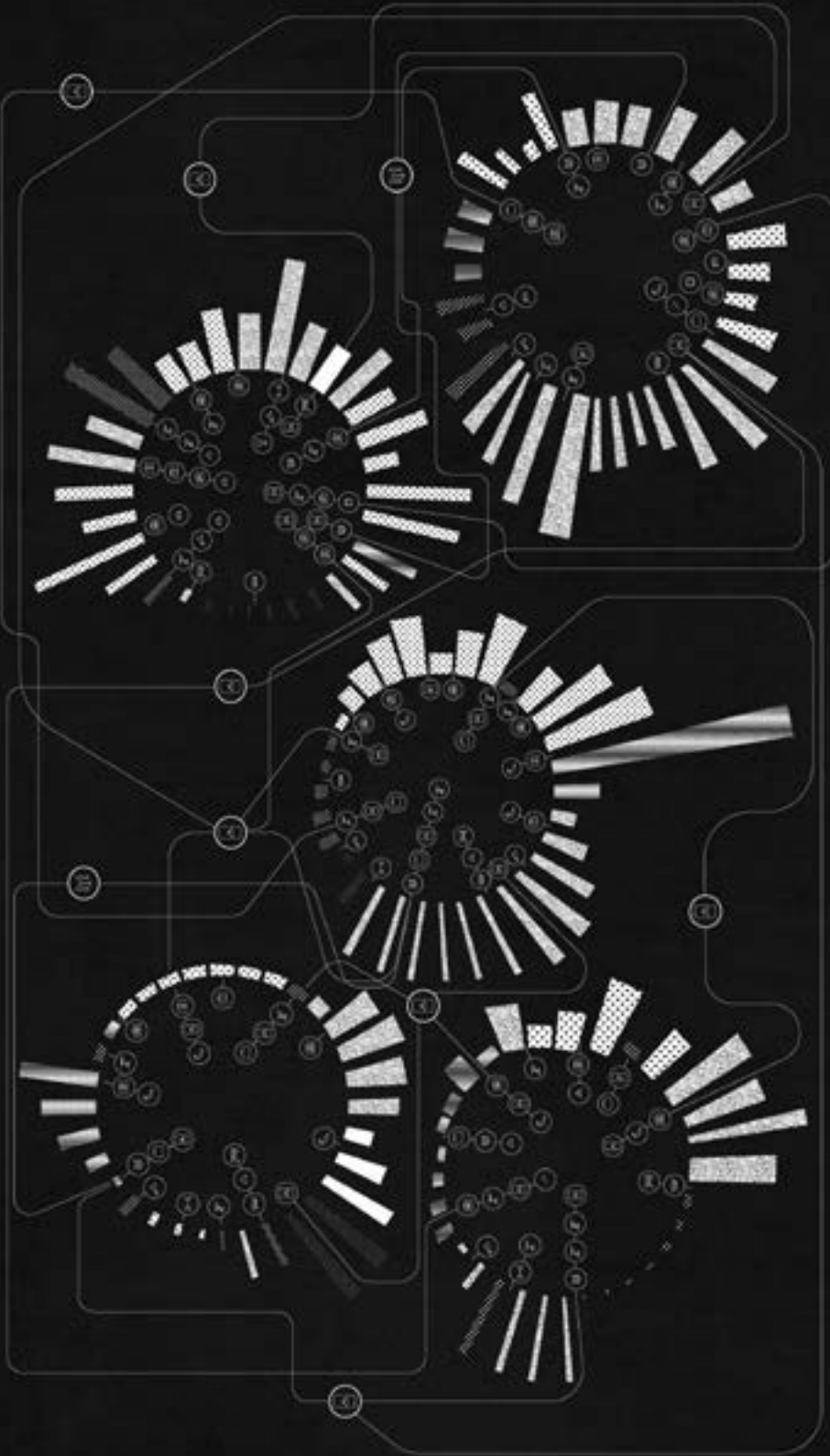
DRAWINGS, MAPPING & OTHER MEDIA

Diary of Talks





Journal and webpage practice, 2022



DRAWING AS COMMUNICATION

Collaborators:
Hallie Chuba
Kristen Fitzpatrick
Priscilla Auyeung
Rose Zhang

During the remote class period caused by pandemic, teamworks are extremely hard for us because of time zones. Hence, this drawing is depicting our cooperation mode, in which drawing itself is a form of communication. In the drawing, a library / dictionary of annotations and icons are utilized to communicate by conveying what our daily schedules/school lives looked like over the past semester.



May
15,
2020



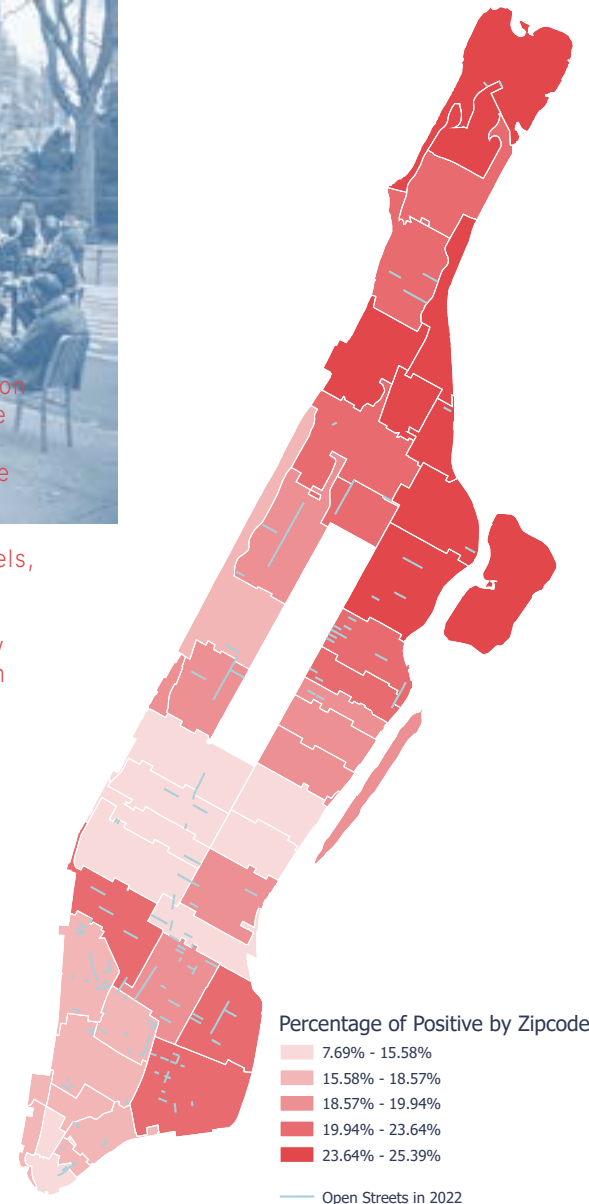
New York City's open streets policy could become permanent. Mayor Bill de Blasio said the city is aiming to open up 100 of the 6,000 miles of city streets for pedestrians.

Oct 25,
2022



A report released by the city's DOT on Tuesday found the Open Streets program pushed some bars and restaurants' sales above pre-pandemic levels, encouraged new eateries to open and stopped many existing ones from shuttering.

Post Covid: Open Streets more than keeping social distance



The COVID-19 pandemic pushed every city dwellers to realize the importance of outdoor space. New Yorkers, as those who are living in one of the most populated city in the world, are more concerned of it than anybody else. Therefore, the importance of sidewalk width has been put in focus unprecedentedly.

In 2020, STREETBLOG NYC called for wider sidewalk by pointing out most of sidewalks in NYC are less than 13-foot-wide, which is a minimum requirement of a 6-foot social distance rule.

Unveiled in late April, 2020, the Open Street Initiative opened 7.6 miles of streets in the Bronx, Brooklyn, Manhattan and Queens. During the waves of pandemic,

it was redeemed as a health necessity more than an aesthetic one. It widened the space for outdoor activity and provide with more room to keep social distance.

As the pandemic was normalized, the economic and cultural value of Open Street Program was discovered. Therefore, it was made permanent in 2021. According to the report, Streets for Recovery, released by the city's Department of Transportation, the Open Street program gave a vital boost to eateries by pushing some bars and restaurants's sales above pre-pandemic levels. Street Lab, which is an organization aiming at creating programs for publics, has created pop-up chalk murals and reading rooms, giving more vitality and creativity to the city.

10

SPATIAL EQUITY OF OPEN STREET LOCATIONS IN 2022

GIS PROJECT

Project info

Team
Professor
Mentor

Simon Galecki
Leah Meisterlin
Mario Giampieri

GIS 2022Fall Final Project



In 2022 , does the Open Streets Program effectively elevate the spatial equity in accessibility to low-risk walkable streets under the circumstance of Covid-19?

whose width is less than 13 feet that do not meet the minimal social distance rule for Covid-19

Research Questions

1. What is the width of sidewalk spatial distribution in New York City?
2. Where are the Open Streets identified by DOT in 2022?
3. How many percent of New Yorkers are living within the walkable distance to Open Streets in 2022?
4. Are Open Streets in 2022 located in areas with narrow sidewalks?
5. How is the equity in accessibility to low-risk walkable streets distributed related to median household income?
6. How is the equity in accessibility to low-risk walkable streets distributed related to race?

Office of Technology and Innovation (OTI). Jul 8, 2014. NYC Planimetric Database. [shapefile] Accessed from New York City Open Data: https://github.com/CityOfNewYork/nyc-planimetrics/blob/master/Capture_Rules.md.

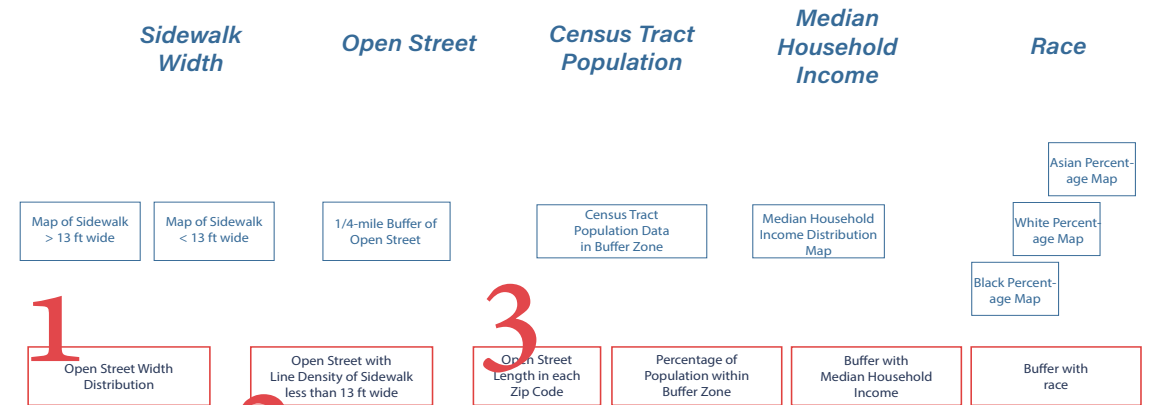
Department Of Transportation. Nov 9, 2022. Open Streets Locations. [shapefile] Accessed from New York City Open Data: <https://data.cityofnyc.gov/City-Government/Sidewalk/vfx9-tbb6>

U.S. Census Bureau (2017-2021). 2021. Total Population American Community Survey 5-year estimates. [shapefile]. Accessed from Census Reporter: https://censusreporter.org/data/table/?table=B01003&geo_ids=16000US3651000,1409%7C16000US3651000&primary_geo_id=16000US3651000

U.S. Census Bureau (2017-2021). 2021. Median Household Income in the Past 12 Months (In 2021 Inflation-adjusted Dollars) American Community Survey 5-year estimates. [shapefile] Accessed from Census Reporter: https://censusreporter.org/data/table/?table=B02001&geo_ids=16000US3651000,8609%7C16000US3651000&primary_geo_id=16000US3651000

U.S. Census Bureau (2017-2021). 2021. Race American Community Survey 5-year estimates. [shapefile]. Accessed from Census Reporter: https://censusreporter.org/data/table/?table=B02001&geo_ids=16000US3651000,8609%7C16000US3651000&primary_geo_id=16000US3651000

Data Source



Methodology

1 Coverage 20%

Only 20 percent New Yorkers live within the walkable distance of open street.

2 Household income

Household income varies within walking distance and without. Households within walking distance of highly-rated Open Streets were more than twice likely to earn over \$200,000.

3 Race

The open streets in Black and Latino communities were much more likely to lack useful barriers to prevent vehicles.

First step of Spatial justice in Open Street: Locations

Spatial equity, an essential issue

With all the benefits, the selection of streets is a crucial issue, as some critics point out the lack of equity of Open Street program.

According to a survey conducted in 2021 by Transportation Alternatives, Open Street Program is lack of spatial equity with three main reasons.

In 2022, 21 new locations were added to the list of Open Street Program, with a total of 156 locations throughout the five boroughs. Among them, 8 are located in Manhattan. With this adjustment been made, we hope to evaluate how it changes the spatial justice of open street programs, specifically in Manhattan, where is seen as the borough benefitting the most from the program.

The initial but crucial step is to look at the spatial distribution of open streets and people's accessibility to them. In this project, we are mapping out the open streets in 2022 to see if they are aimed to widen the narrow streets that are not conducive to maintaining social distance; and the difference in household income level that are within walkable distance or not. By doing these, we hope to obtain an overall rating on spatial justice of open street locations.



Assumptions

1

Open Streets in 2022 is generally effective in elevating the spatial equity in accessibility to low-risk walkable streets under the circumstance of Covid-19.

1. Compared to 2021, more New Yorkers are living within walking distance to Open Streets in 2022.
2. Open Streets in 2022 are mostly located in the areas with narrow sidewalks.
3. Where neighborhoods have higher median household income, there are wider sidewalks and fewer Open Streets in 2022.
4. Compared to Asian and Black dominated neighborhoods, White dominated ones have wider sidewalks and fewer Open Streets in 2022.

Limitations

1

The reasonability of defining low-risk walkable street as a street more than 13 ft wide.

As Leila Hawa pointed out, a 13 ft-wide sidewalk is just enough for pedestrians to practice social distancing of 6 ft. To form a reasonable conversation with her, this project adopts the same criteria. However, we should not neglect the vagueness of number selection in terms of safe distancing for pedestrians. Other than sidewalk width, there are additional physical conditions that have a huge impact on people's normal social distance. For example, how the street furniture is located, whether there is a pedestrian tree or not, whether it is a commercial street or not, how the parking condition is next to the sidewalk.

2

Other factors affecting the location selection of Open Street.

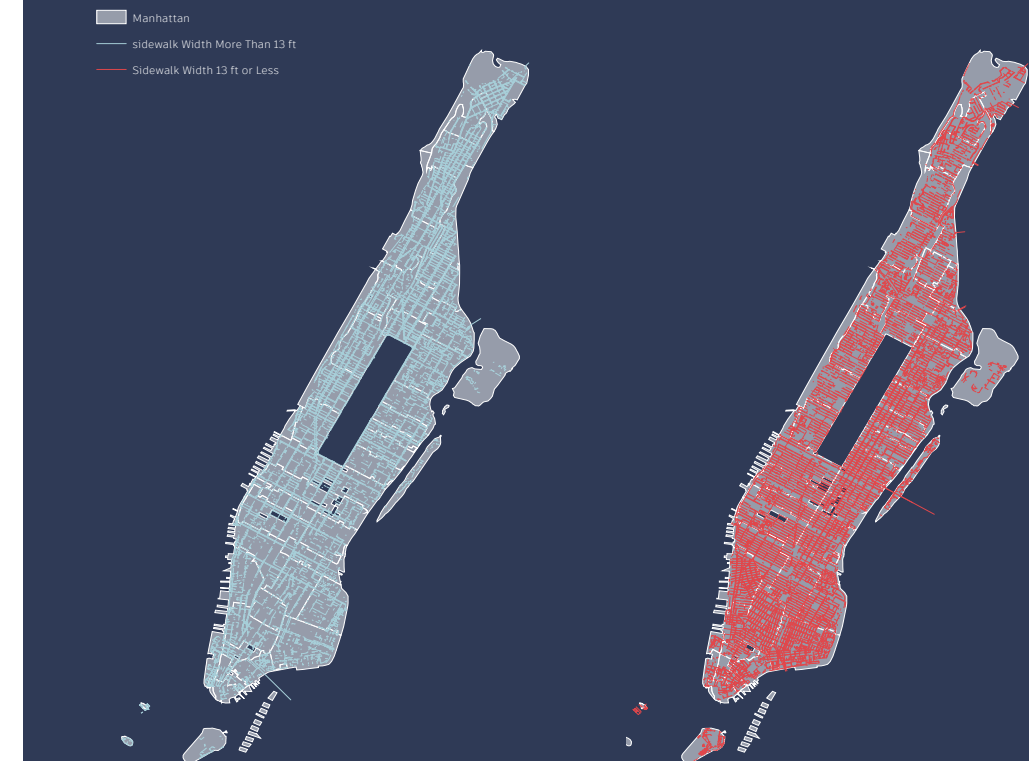
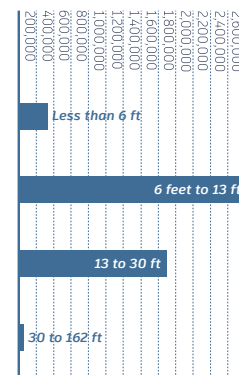
The location selection of Open Street is not merely determined by the sidewalk width. According to the report conducted by DOT, the Open Street Program is not only for health purposes, but also for economical, cultural and community purposes. Therefore, it is fair that other factors, including whether it is inside a residential zone, whether there are schools and restaurants nearby will affect the selection of Open Streets.

1. Spatial distribution of sidewalk width in NYC



59%
below 13ft wide.

Among all sidewalks in Manhattan
59% of the sidewalks total length are below 13ft wide.



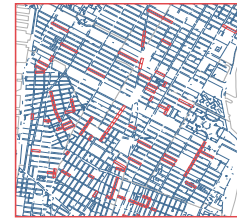


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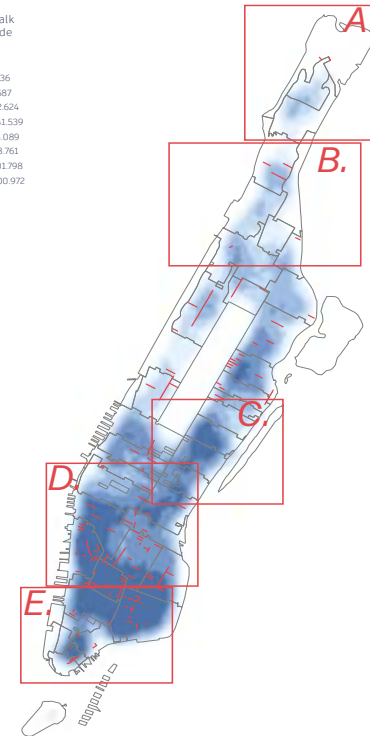
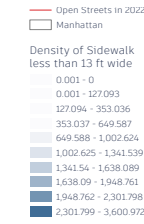
Comparing the location of Open Streets and the spatial distribution of sidewalk width

Mostly located in

Open Streets are mostly located in **NARROW** sidewalk (less than 13 ft)



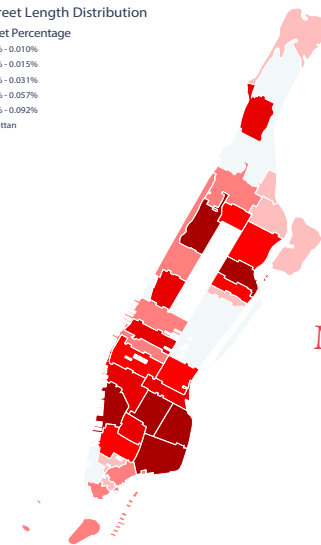
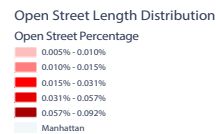
By overlapping the narrow streets and the Open Streets in 2022, we discover that the Open Streets are mostly located in areas with narrow sidewalks.



- A.** Zoom in on Inwood, Washington Heights North, Washington Heights South and Parts of Central Harlem. There are only two open streets in this three neighborhoods. One is on Academy street and the other one is on Dyckman street.
- B.** Zoom in on Washington Heights, West Harlem, Central Harlem, East Harlem, Hamilton Heights, Morningside heights and parts of Upper West Side. There is uneven coverage in this area. Hamilton Heights, West Harlem and Central Harlem have no open streets and very little coverage by the 1/4 mile walking distance. Priority is given to East Harlem, Morningside Height and Washington Heights which have five open streets.
- C.** Zoom in on Lenox Hill, Upper East Side, East Midtown, Murray Hill. There are no open streets in these neighborhoods. Lenox Hill and Upper East Side are within walking distance to East 78th Street. East Midtown and Murray Hill are within walking distance to East 36th street.
- D.** The area under central park has 82 of the 113 open streets in Manhattan. Midtown Manhattan, which includes Hells Kitchen, Chelsea, Midtown and Murray Hill, is almost fully covered with the 1/4 mile walking distance from the open streets with only parts of Chelsea and Midtown Manhattan are not within the 1/4 mile walking distance from the open streets.
- E.** Lower Manhattan which includes Chinatown, Financial District, East Village and Soho is almost fully covered by the 1/4 mile walking distance with only areas near the water front not being covered.

3.

Mapping the Open Streets in NYC, 2022



Open Streets in 2022 are

Unevenly distributed

Generally speaking, Open Streets in

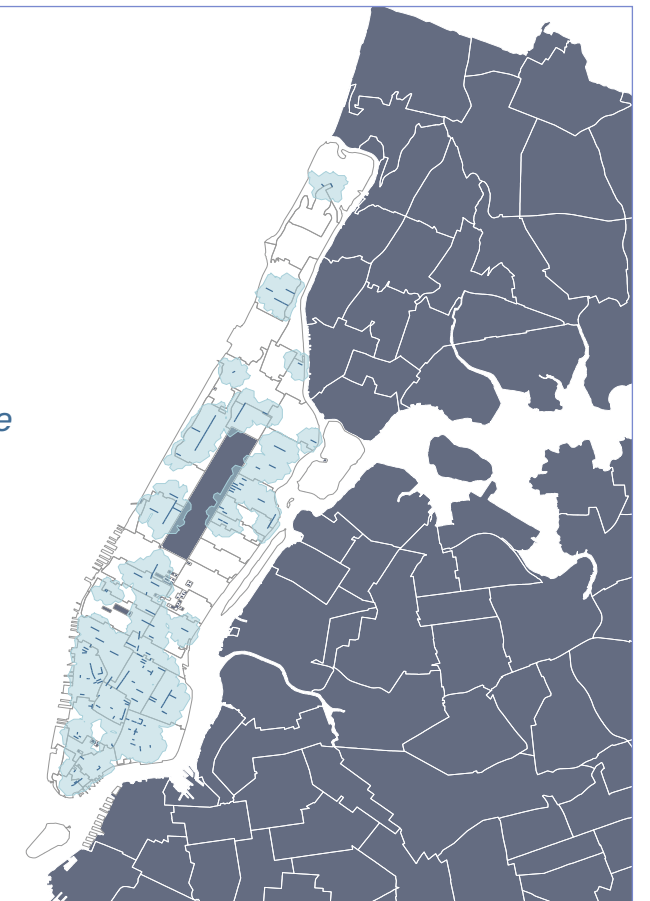
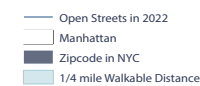
Lower Manhattan > Harlem
Midtown Manhattan > Washington Heights
Upper Manhattan

* Open Street Percentage = $\frac{\text{Sum of Length of Open Street in specified Zip Code}}{\text{Total Length in Manhattan}}$

In our project,

Walkable distance = 1/4 mile

In the U.S., over the past two decades, 400 meters (0.25 miles or a 5-minute walk) has sometimes been assumed to be the distance that "the average American will walk rather than drive", and has been used as the value of acceptable walking distance in studies. Hence, we selected 1/4 mile as the distance to create the buffer.





To better estimate the population covered within the walkable distance of Open Streets, it is assumed that the population is evenly distributed within each unit. Hence, we switched to total population by census tract (2021 by 5 years).



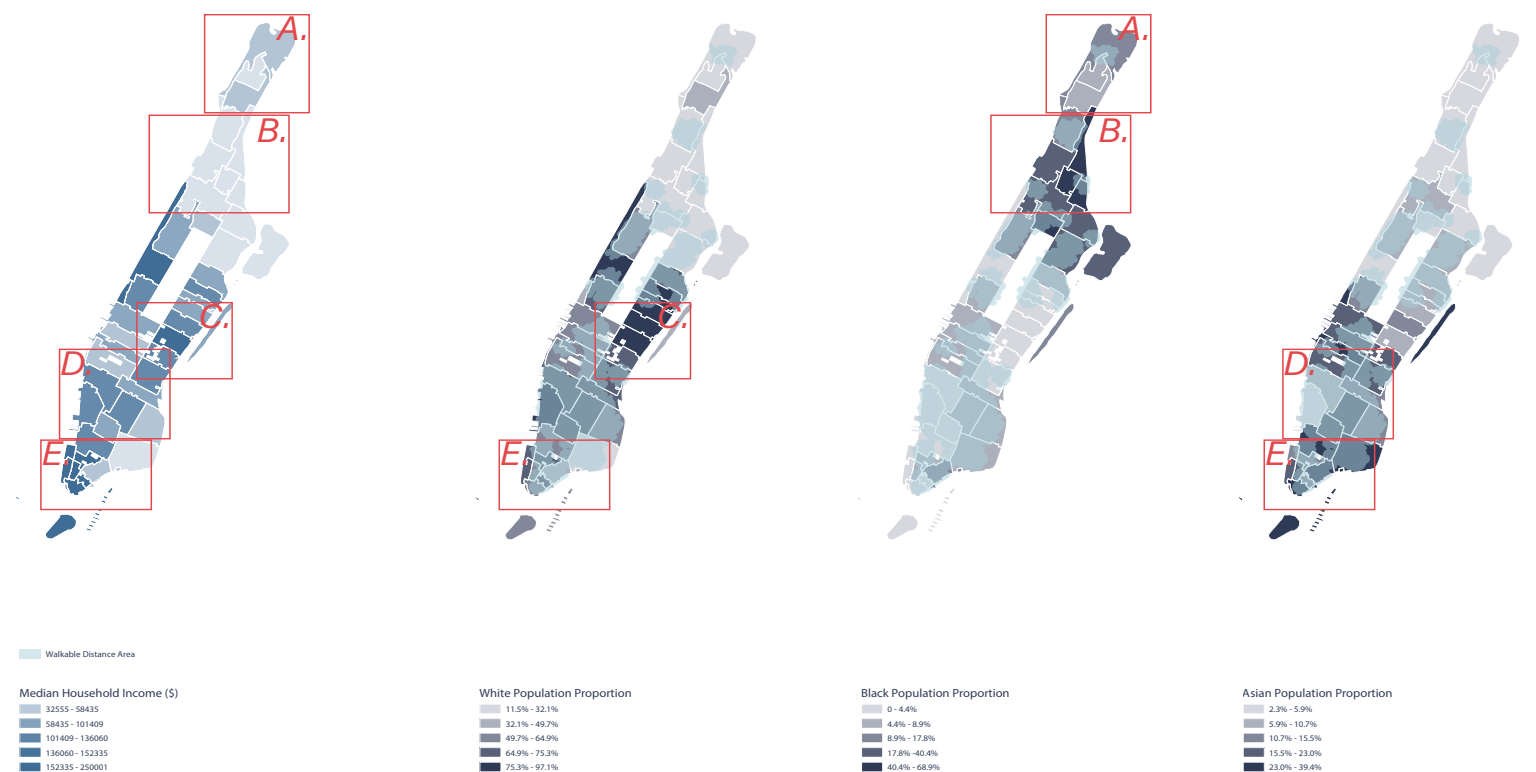
50.6% of residents in Manhattan is within the walkable distance to Open Street in 2022, compared to 20% in 2021.

In 2022,

$$50.6\% = \frac{845,160}{1,669,127} \times 100\%$$

845,160 people live within the walkable distance, 1,669,127 people live in the census tracts (partially) covering Manhattan.

- A.** The area which includes Inwood, Washington Heights North and Washington Heights South which has a household income below 101,409\$ and with the majority of the population being from the African- American community only has five open streets. Huge parts of this area are not covered by the 1/4 mile walking distance from the open streets.
- B.** Harlem which on average has one of the lowest household incomes in all of Manhattan and a large African American Community only has six of the 113 open streets in Manhattan and a very uneven coverage by the 1/4 mile walking distance.
- C.** The area which includes Lenox Hill, Upper East Side, East Midtown, Murray Hill which is dominated by a large white community and has some of the highest median household incomes in all of Manhattan has no open streets and very low coverage by the 1/4 mile walking distance from open streets.
- D.** Midtown Manhattan, which has a large Asian and White community, is almost entirely covered by 1/4 mile walking distance from the open streets with only parts of Chelsea and Midtown not being covered.
- E.** Lower Manhattan, which has a large Asian and White community and has some of the highest household incomes in all Manhattan with the exception being Chinatown which has one of the lowest household incomes, is almost entirely covered by 1/4 mile walking distance from the open streets with only areas near the waterfront not being covered.





Based on our finding that 59% of the side-walks in Manhattan are below 13 feet, which is not ideal for social distancing,

in 2022 , the Open streets program effectively offers people more walking space that will allow them to social distance.

Conclusion

The spatial distribution of Open Streets is not even. 82 of the 113 Open Streets are located below Central park. The accessibility to Open Streets has been elevated in 2022 compared to 2021, with 50.6% of the Manhattan residents living within the 1/4 mile walking distance to Open Streets. Midtown Manhattan and Lower Manhattan have the highest accessibility.

In demographic analysis, the pattern of Open Street distribution is uneven between the areas divided by Central Park. Majority of the Open Streets are located within Lower Manhattan, Midtown Manhattan and Upper Manhattan, where neighborhoods with the highest household income in Manhattan are located. Those areas also have a large white and Asian community. The area above Central Park only has 11 of the 113 open streets in Manhattan and an uneven coverage by the walkable distance to open streets. These areas include Harlem and Washington Heights, where neighborhoods with the lowest household income in Manhattan are located and the community is majorly composed of African-Americans.

References

Leila Hawa. "This Is Not an opinion Column: New York's Sidewalks Really Are Too Narrow." StreetsBlog NYC. Apr 23, 2020. <https://nyc.streetsblog.org/2020/04/23/this-is-not-an-opinion-column-new-yorks-sidewalks-really-are-too-narrow/>

Ella Torres. "New York City's open street policy could be permanent fixture, experts say". ABC News. May 15, 2020. <https://abcnews.go.com/US/york-citys-open-streets-policy-permanent-fixture-experts/story?id=70616741>

Appendix: Methodology

