MAGGIE SU
PORTFOLIO

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LIGHTSCAPE : MORNINGSIDE PARK

Design Studio Core I | Spring 2023
Instructor: Galen Pardee

The project examines the different definition of “enclosure” in terms of public parks in Manhattan. The literal meaning of fences along with the implicit restraint suggested by the opening hours not only establish physical boundaries that inhibits people to access a public space, but also implies social hierarchies in terms of user experiences. Morninside Park especially stood out as a much restrained public park, in which security forces are stationed at major entrances to reinforce accessible hours, the physicla restraints due to the exaggerated topographical boundaries set forth by Columbia University, the parapet walls and lookout towers imposing as visual boundaries, and the lack of effective lighting infrastructure at night. The intertenvention is a preliminary reenvision of Morningside Park with three scales of mechanism that can be implemented throughout as needed. First off, the park itself separated into different zones based on activity level, then stratified into layers depending on public/private access, and light fixtures would be implemented to enhance these specific experiences.

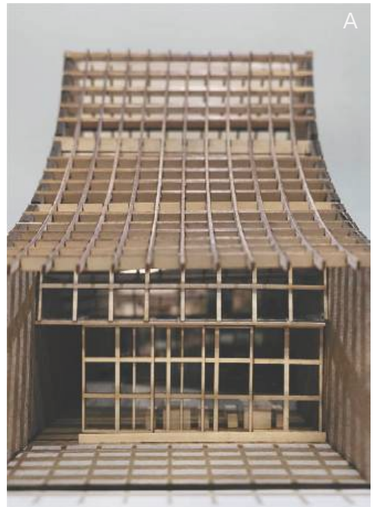
Model Vignettes. A series of scenes that envisions Morninside Park with the three different scales of intervention that intends to bridge the physical and visual barriers as a result of the exaggerated existing topography and scarcity of lighting aids at night.

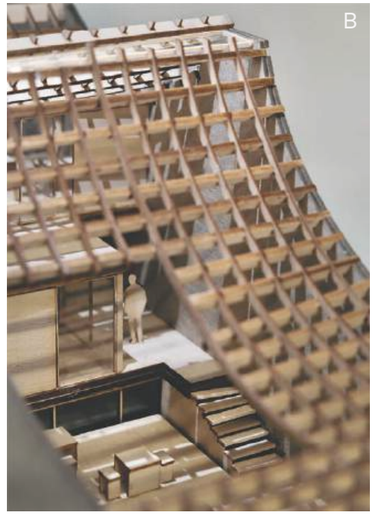
Model | Lighting Fixture. The implementation of a lighting fixture that has mulitple lighting levels as adjusted by the users passing by and/or the activity level in the designated area.

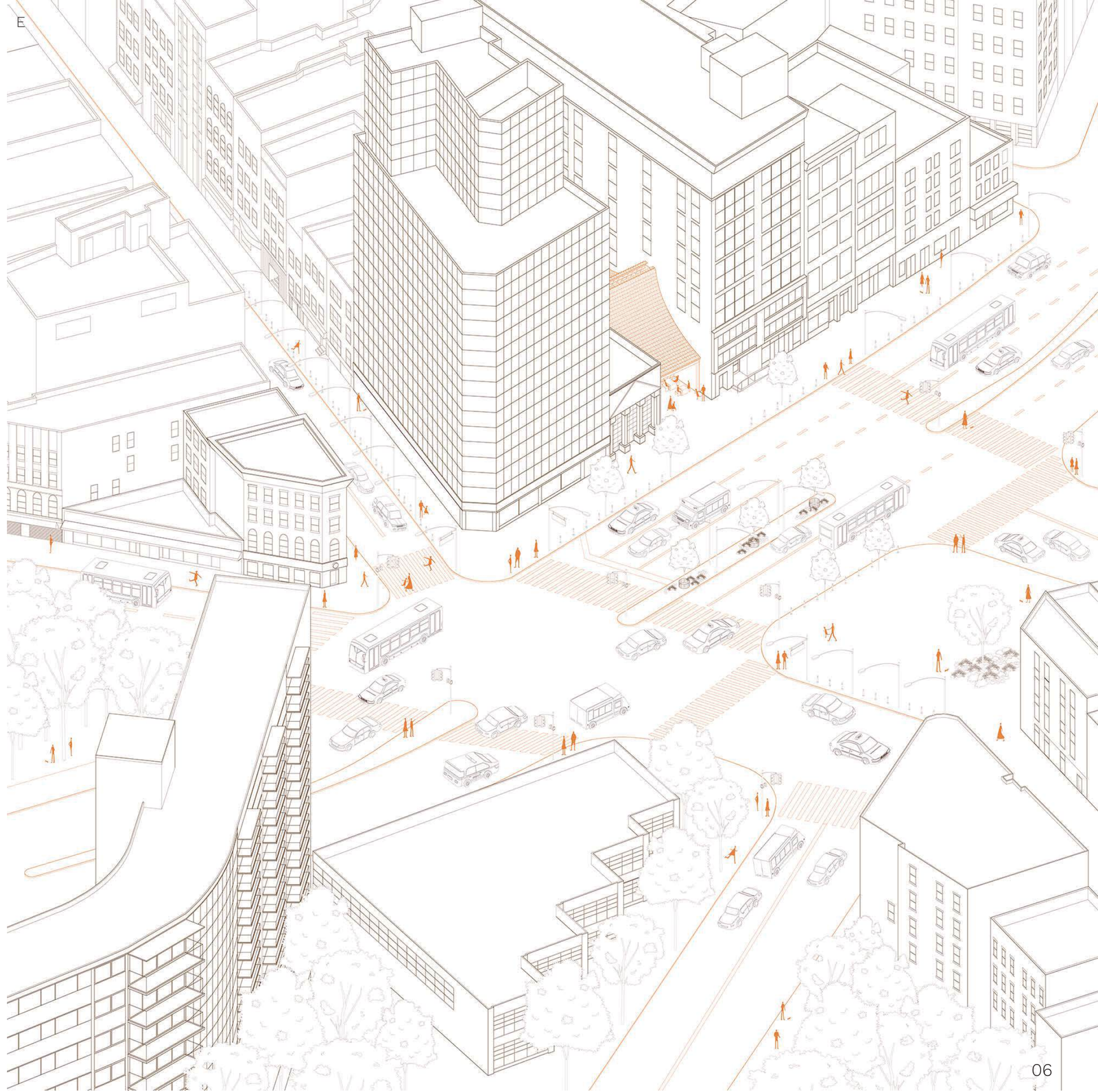
URBAN KITCHEN FOR MICRO-COMMUNITIES

Design Studio Core II | Spring 2023
Instructor: Benjamin Cadena

The project introduces the idea of a communal kitchen situated in Chinatown, where one of the largest immigrant communities has been battling gentrification and other political and cultural issues. Urban development has always been an ongoing process that shifts social structure and reconfigures neighborhood context, in which buildings are demolished, businesses are flushed out, and residents are forced to relocate. Within these neighborhoods, micro-communities began to form as a result of shared culture, background, or experiences. The project proposal is to provide an urban common space that serves as a medium between the city and the people, a place where they can call a second home. The design intervention identifies food preparation as the commonality that draws people together and instigates social interactions in context to the neighborhood, along with supporting programs that adapt to additional needs of the residents.



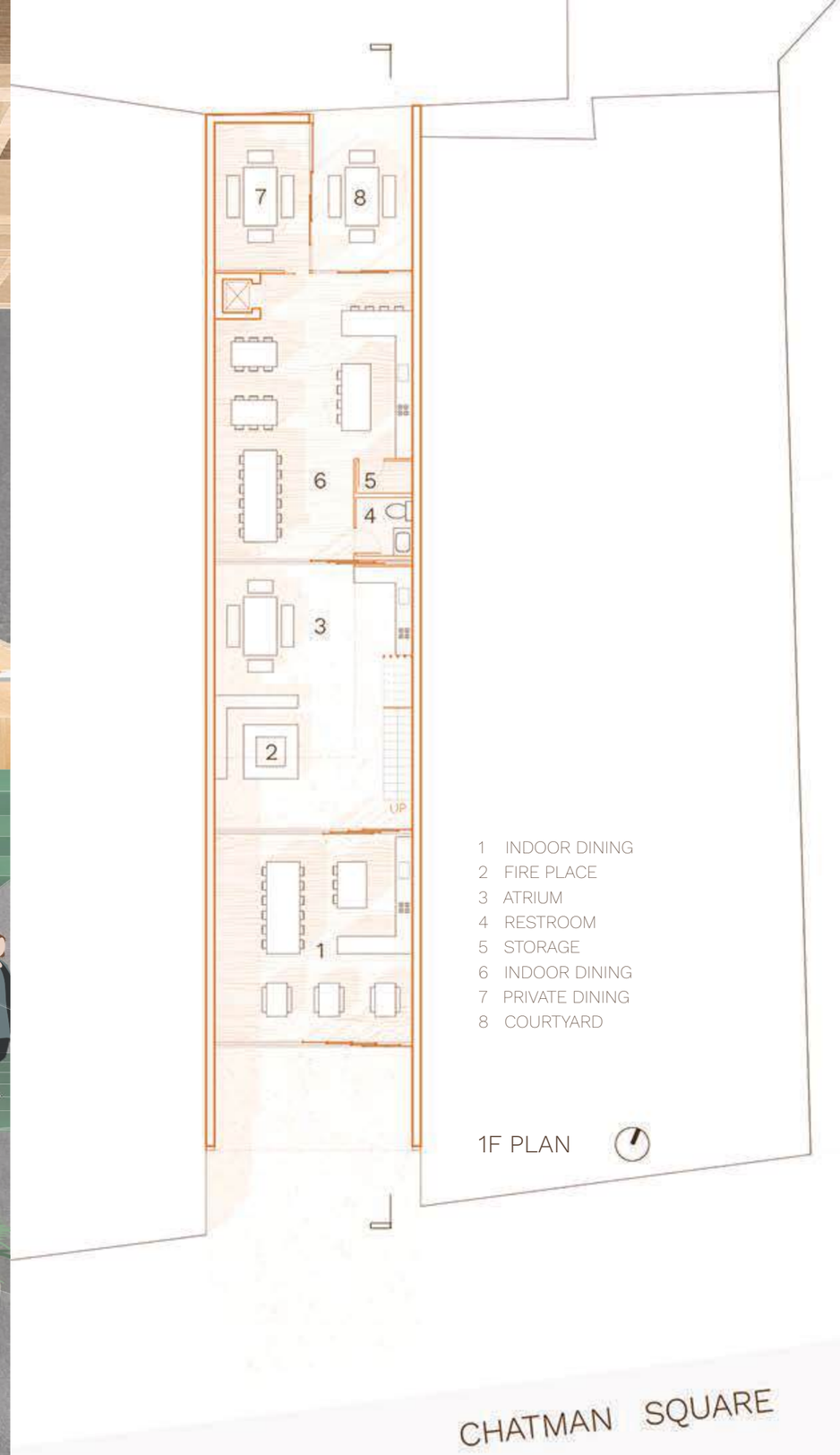




A **Model.** Facade facing main street.
B **Model.** Aerial view of atrium opening.
C **Model.** View of multipurpose room.
D **Model.** View of private reading space.
E **Site Axon.** Axonometric view of NYC Chinatown showing the neighborhood context and major street intersections.

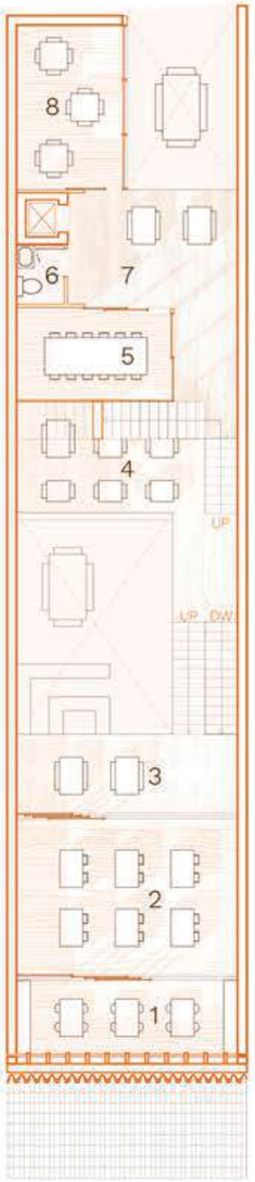
2F MEETING HALL

FIRE PLACE/ATRIUM



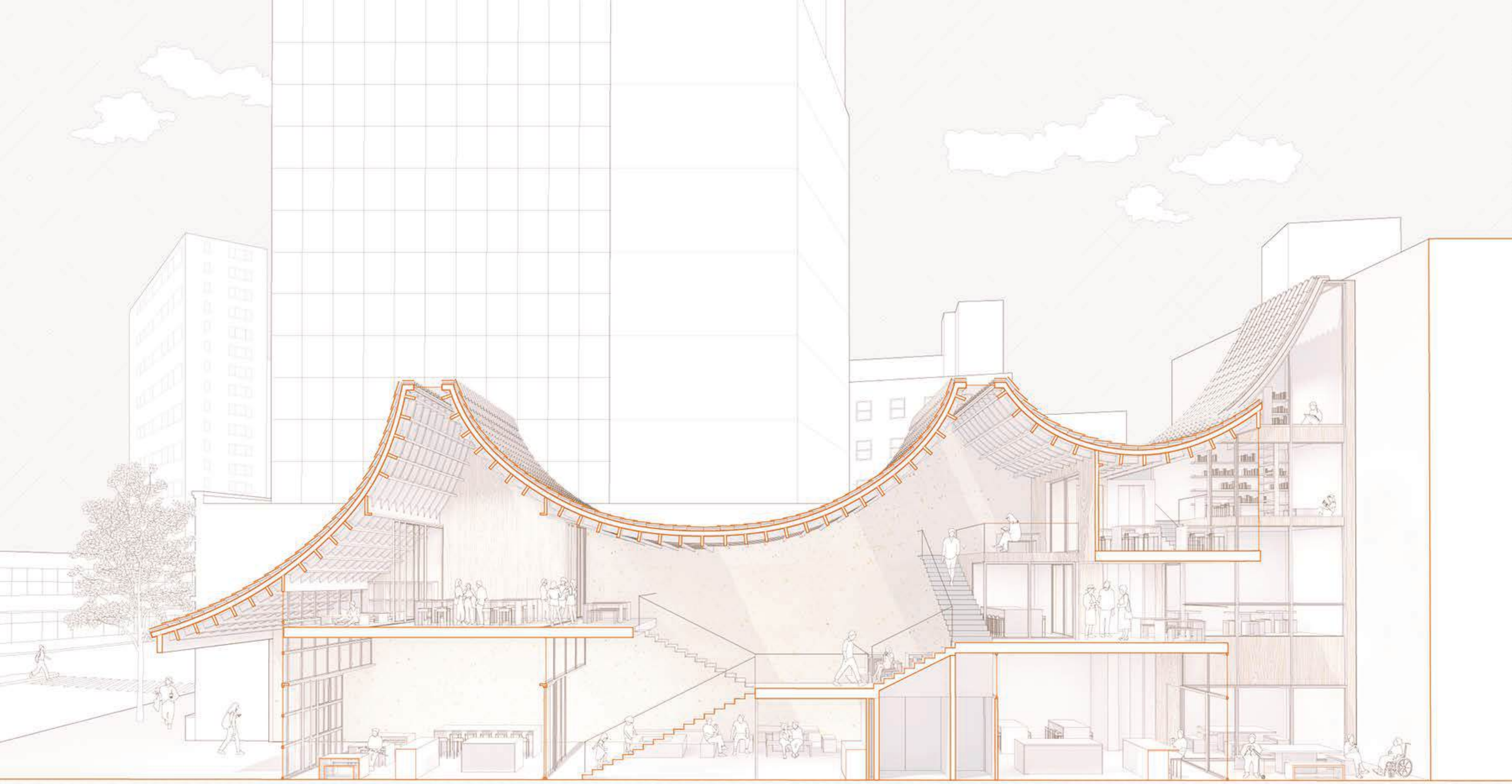
1 INDOOR DINING
2 FIRE PLACE
3 ATRIUM
4 RESTROOM
5 STORAGE
6 INDOOR DINING
7 PRIVATE DINING
8 COURTYARD

1F PLAN



1 READING ROOM
2 MEETING HALL
3 BALCONY
4 OUTDOOR DINING AREA
5 MEETING ROOM
6 INDOOR DINING
7 OPEN SPACE
8 LEISURE ROOM

2F PLAN



LIFE WITHIN THE GAPS

Discipline: Architecture, Adaptive Reuse
Typology: Mixed-use
Partner: Fenella Nyoto

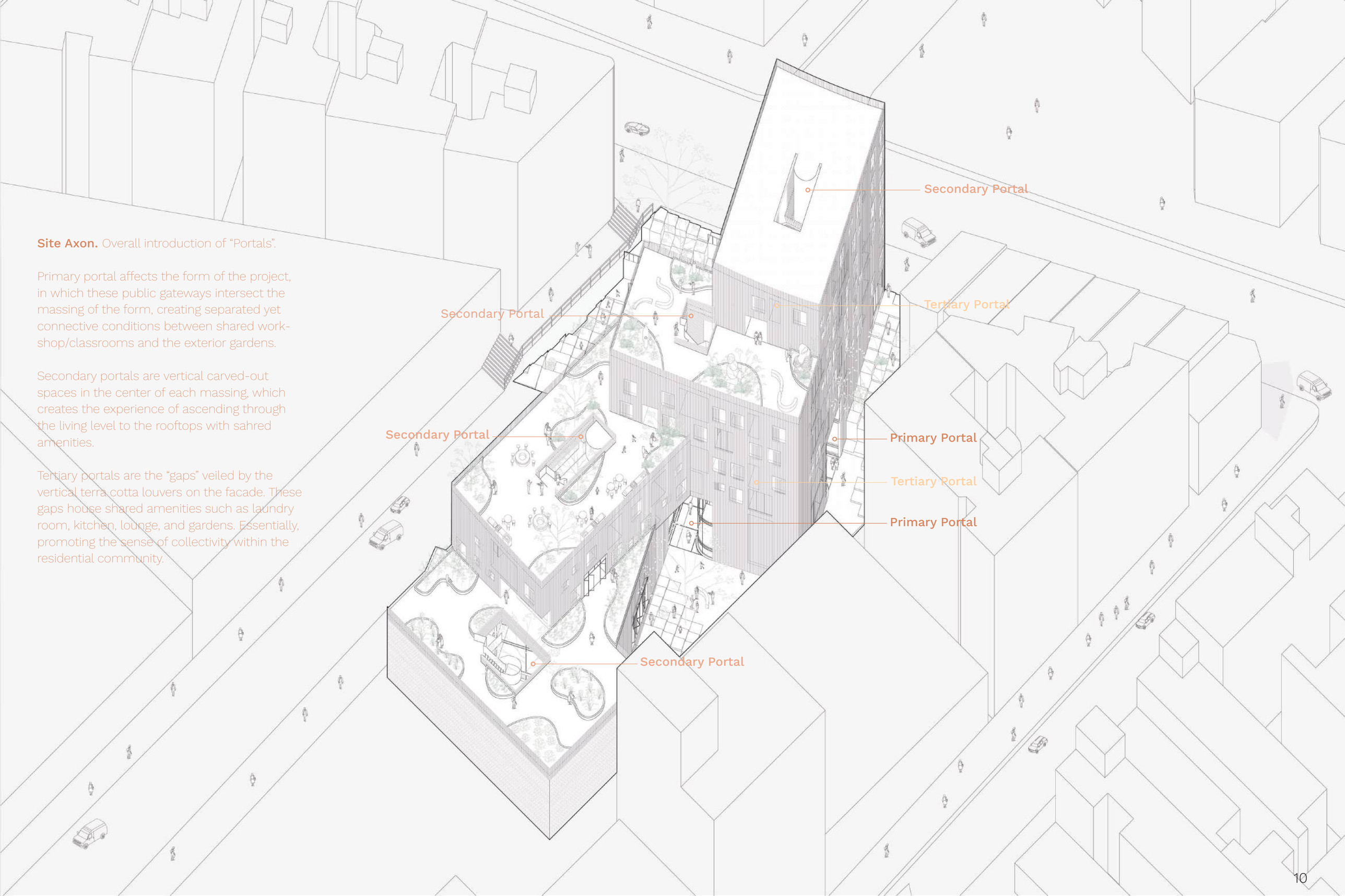
The Housing Studio facilitates discussions around social implications regarding diversity and collectivity. Considering the existing social, cultural, and economic dynamics at the border of the Morningside Heights and West Harlem neighborhoods, the project aims to highlight the artistic and historical character of the neighborhood by incorporating fabrication and art spaces, as encountered by visitors and residents through urban gaps/portals and gardens. Located in a low-income yet soon-to-be gentrified neighborhood, the project strives to reflect its humble yet distinctive characteristics by honoring and preserving the existing building. To further cultivate the inhabitants and the surrounding community, the project creates diverse communal spaces within the gaps. Consequently, the gaps/portals act as datums that dictate the program's adjacency and, at the same time, encourage collective activities.

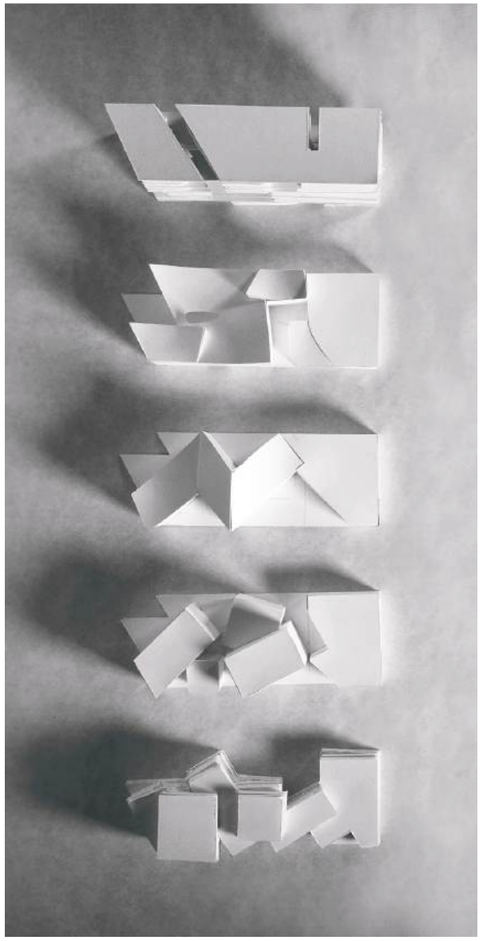
Site Axon. Overall introduction of “Portals”.

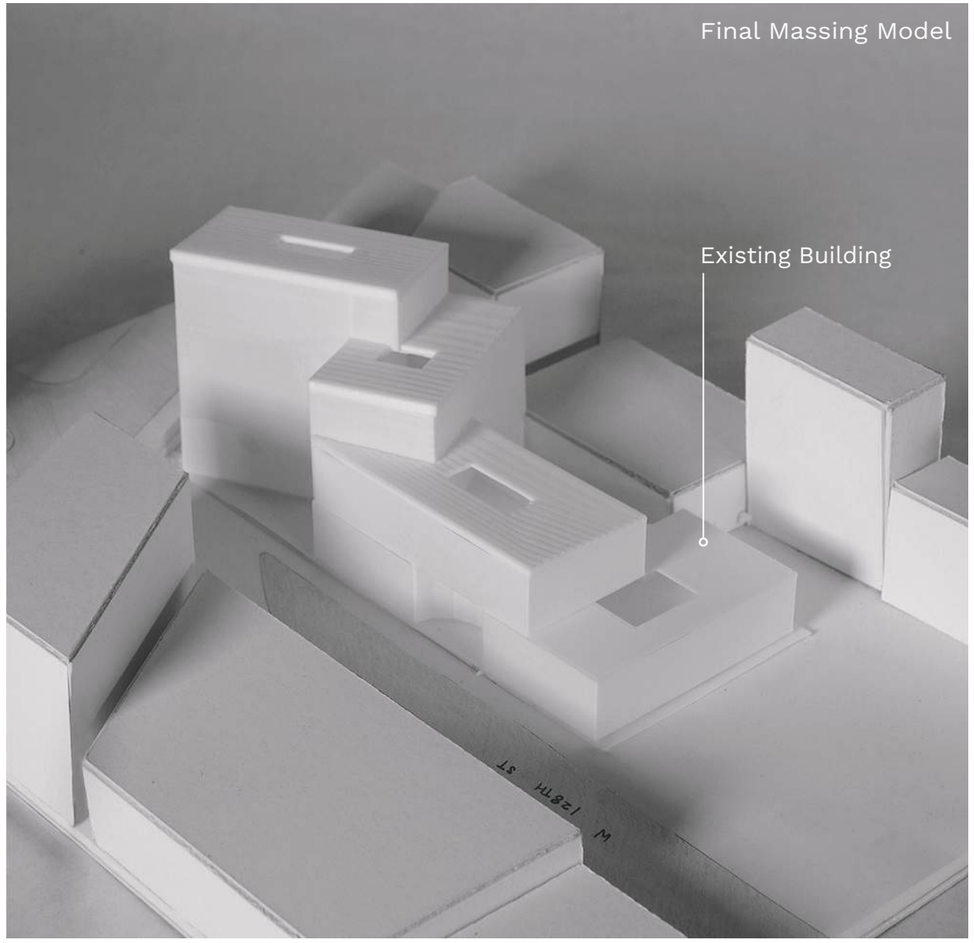
Primary portal affects the form of the project, in which these public gateways intersect the massing of the form, creating separated yet connective conditions between shared work-shop/classrooms and the exterior gardens.

Secondary portals are vertical carved-out spaces in the center of each massing, which creates the experience of ascending through the living level to the rooftops with sahred amenities.

Tertiary portals are the “gaps” veiled by the vertical terra cotta louvers on the facade. These gaps house shared amenities such as laundry room, kitchen, lounge, and gardens. Essentially, promoting the sense of collectivity within the residential community.

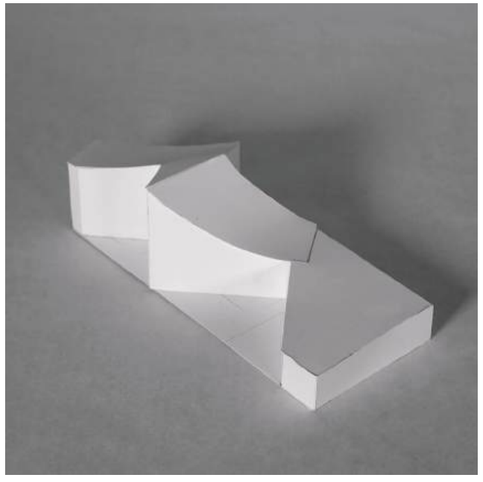


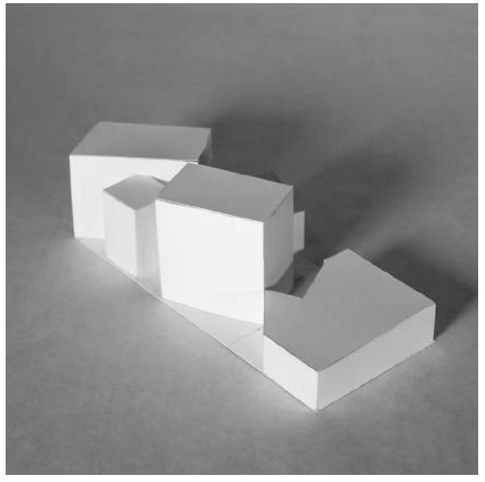




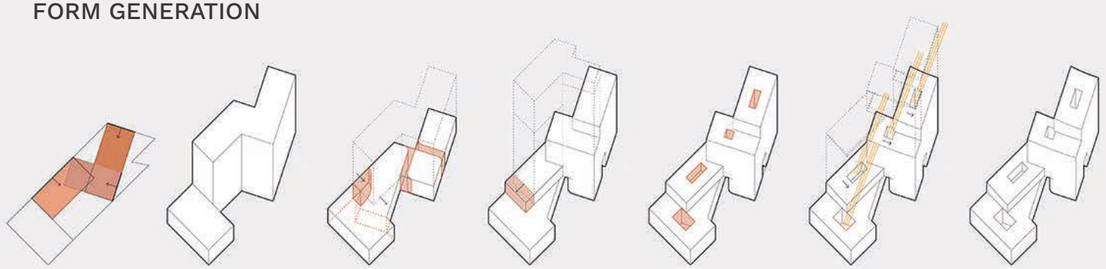
Process Models

The iterations of massing models explore the variety of formal configurations with an emphasis on prioritizing density and shared public spaces. The final massing model represents the evolution of these form generation, while celebrating the form of the existing building.

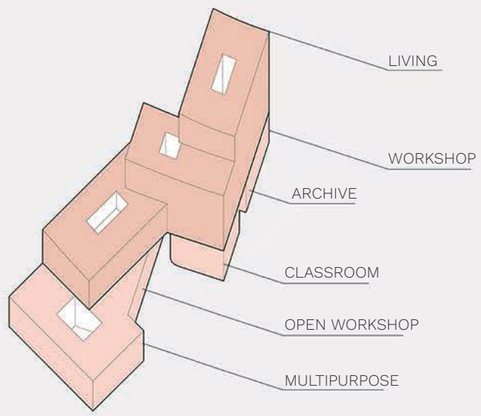




FORM GENERATION

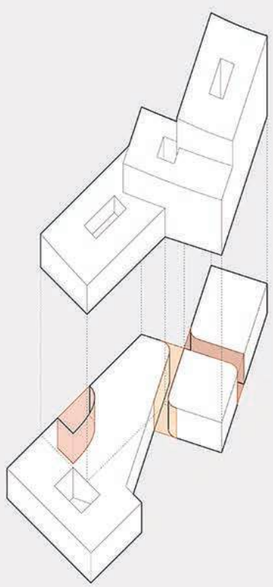


PROGRAM DIAGRAM

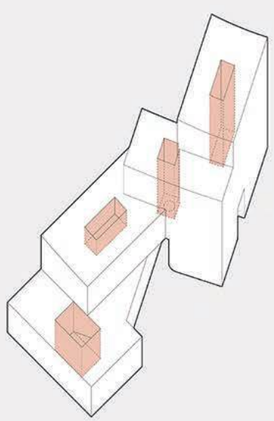


PORTALS

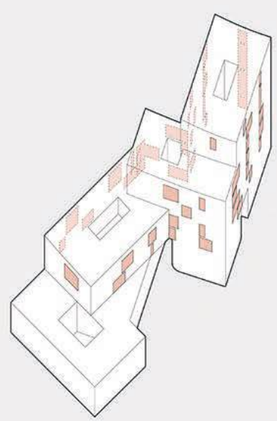
GROUND FLOOR PORTAL



VERTICAL PORTAL

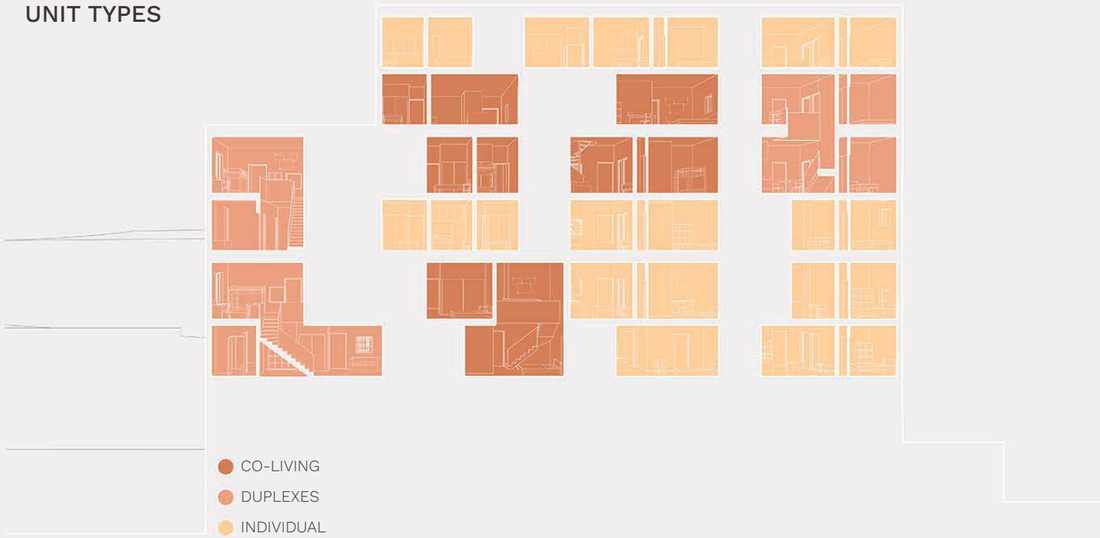


SECONDARY PORTAL (THE GAP)



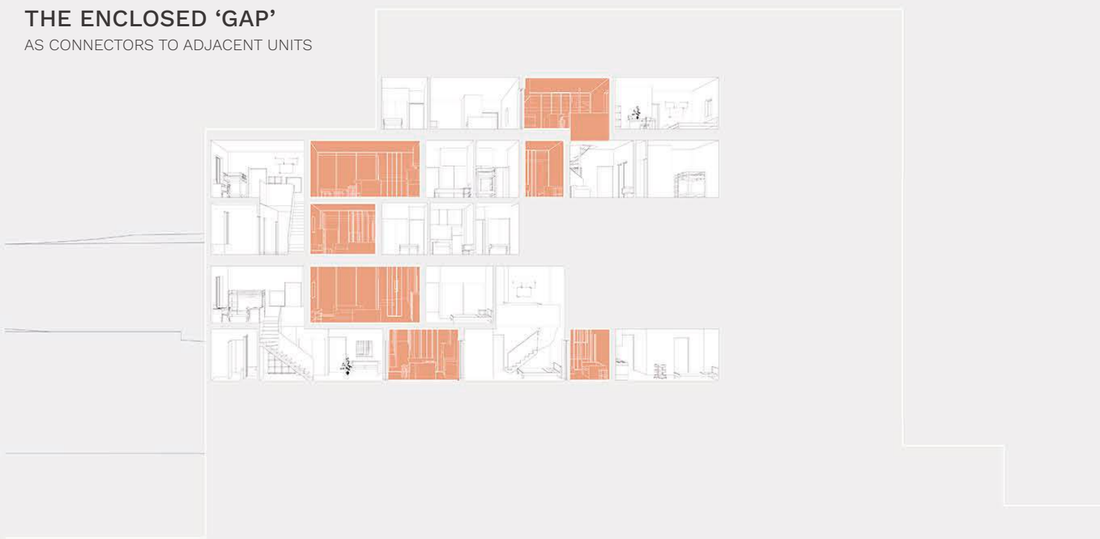
- EXISTING & NEW ADDITION
- CLASSROOM & OPEN WORKSHOP
- CLASSROOM & ARCHIVE

UNIT TYPES



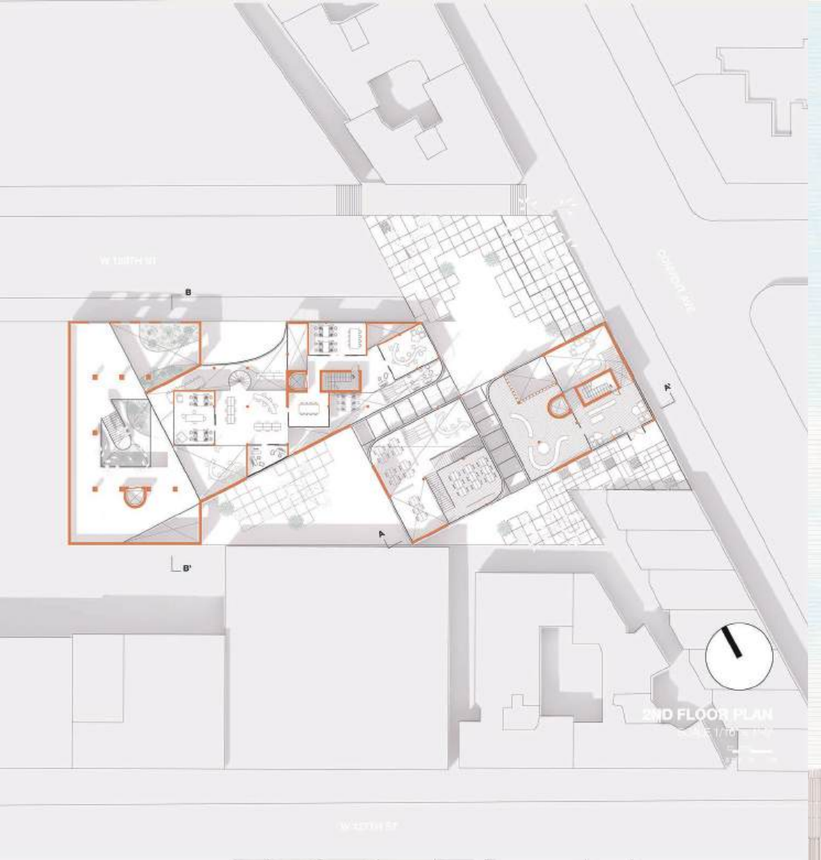
THE ENCLOSED 'GAP'

AS CONNECTORS TO ADJACENT UNITS

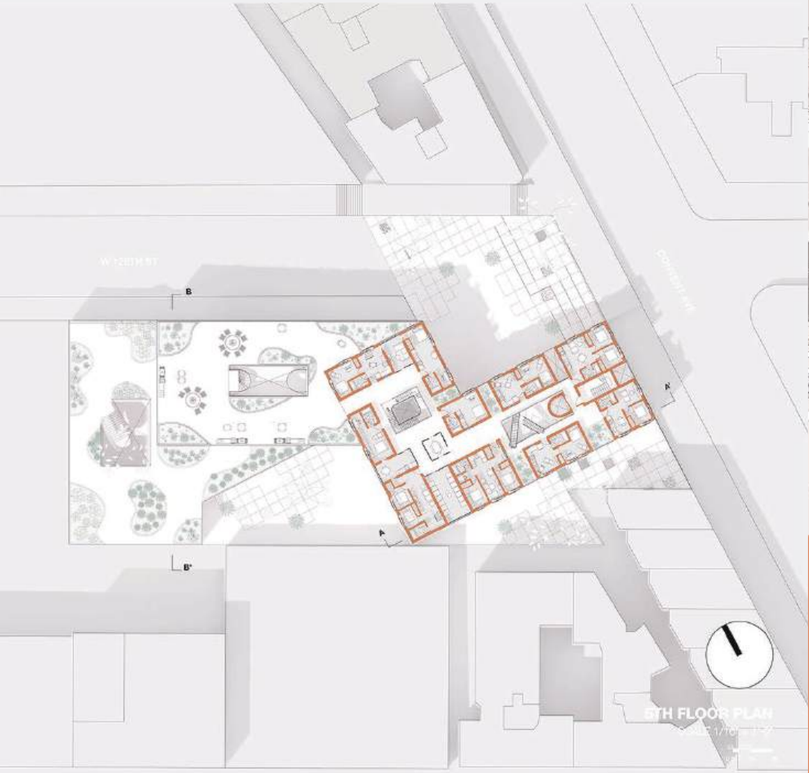


THE GARDEN 'GAP'

AS CONNECTORS FOR ALL UNITS



2ND FLOOR PLAN
SCALE: 1/16" = 1'-0"



5TH FLOOR PLAN
SCALE: 1/16" = 1'-0"

SECTION A-A'

3RD FLOOR PLAN

REED RENDITION

Design Studio Advanced IV | Spring 2024
Instructor: Feifei Zhou

Jamaica Bay is no stranger to the invasive Phragmites Australis. While park management struggles to eradicate them, phragmites continues to expand their territory, outcompeting native flora and fauna. The project proposal takes the form of a community center that functions as a neighborhood anchor by taking the issue to the community's own hands, giving the people who lives in the area the responsibility of the environment that they coexist with. The center promotes community engagement through the educational and recreational art programs, while facilitating material research and testing to further incentivize the use of invasive species as an alternative, more sustainable option. Thus, helps promote public environmental awareness and stewardship. The project takes advantage of the spread of phragmites by trying to create a more balanced relationship, which can be adapted to different places that are also dealing with other types of invasive species.

Site Research
Partner : Fenella Nyoto

The use of nitrogen-based herbicide and the nitrogen influx coming from the nearby wastewater treatment plant have led to the pervasive spread of the invasive Phragmites Australis. Along with the absence of competing native plants and their diversity, Phragmites gradually dominate the region, alter local ecology, and increase susceptibility to invasive pests.

Marine Park neighborhood is primarily consisted of single family housing and schools. The project considers the scarcity of public communal and educational facilities as well as the exclusive nature of the golf course, which led to a community-engaging approach to tackle invasive species such as phragmites.

A

B

A **Seasonal Diagram.** The programs treat phragmites as an opportunity to create, which in this case is to advance sustainable material development but also adding the recreational aspect of arts & craft. Considering the seasonal cycle of phragmites, the center will operate its spaces corresponding to their growing and dormant phase.

B **Phragmites Crowding.** While they serve as aesthetic buffers, Phragmites Australis are known for their aggressive growth both above and under the soil. They dominate the areas they inhabit, outcompeting native plants through their extensive spread of rhizomes and stolons. While the golf course and its use of herbicide aids the spread of phragmites due to the nitrogen influx, their resistant nature alongside other contributing factors such as wind/water to carry the seeds, human/-animal as spreading agents, etc.

Section Perspective. While exposed to the phragmites surrounding the entire site, the circulatory spatial program is anchored by a central courtyard where the educational, communal, and recreational activities can take place.

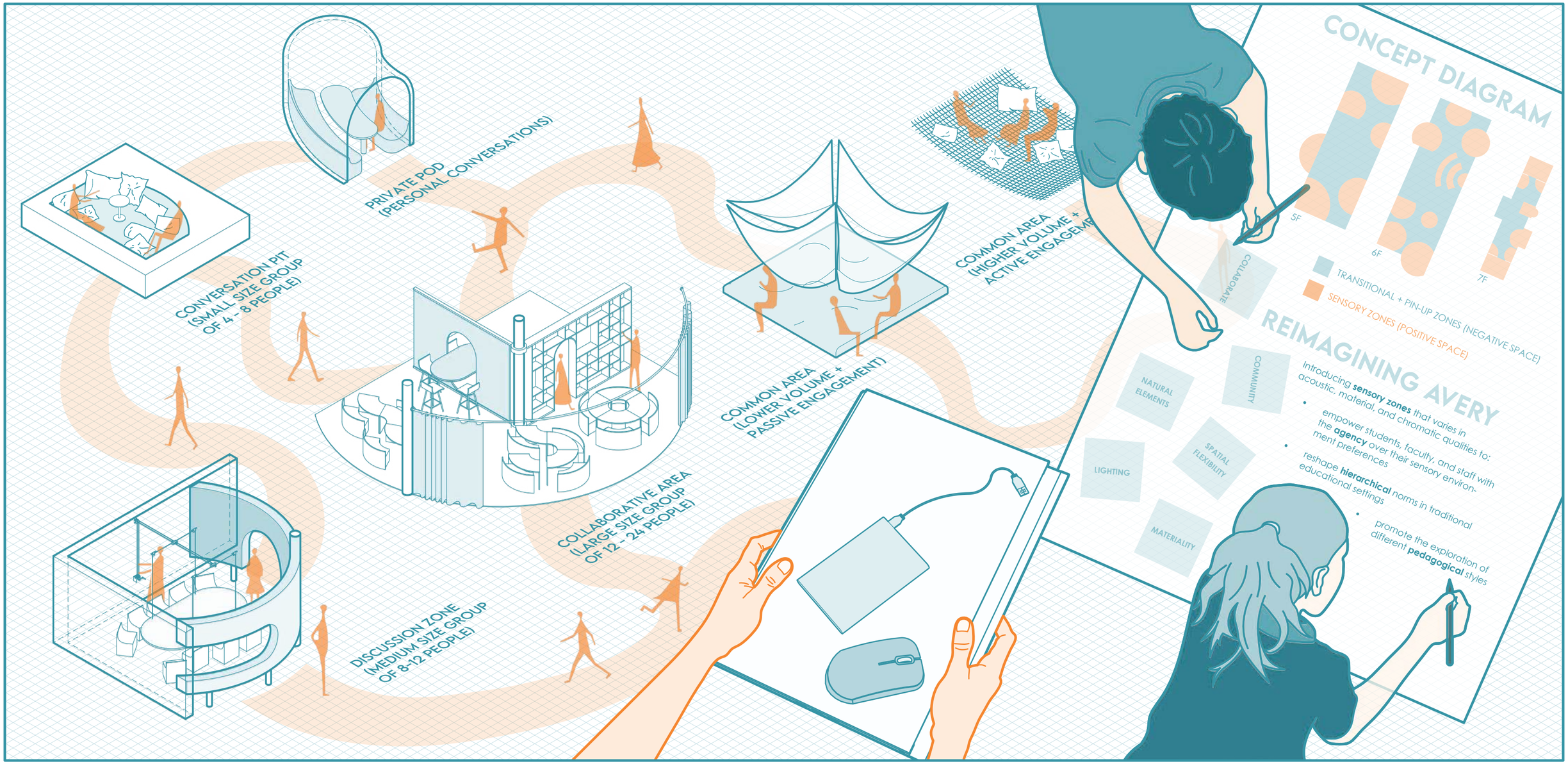
Tile Prototypes. A series of tiles made with a variety of materials including flower and tea pigmentations, soil, pebbles, clay, and weaving techniques.

Phragmites as Material. Building itself takes the form as a mixture of phragmites, including the thatched roof, the making of furniture, decorative building elements such as tiles, etc. The composition of these materials varies based on what is available on site, which can include mowed grass, compost ingredients, pebbles, and more. The current tiles as represented were made using the mixture of cement, phragmites, and coffee grounds. The flexibility of the mixture allows people to explore the materiality as a recreational artistic activity.

REIMAGINE AVERY

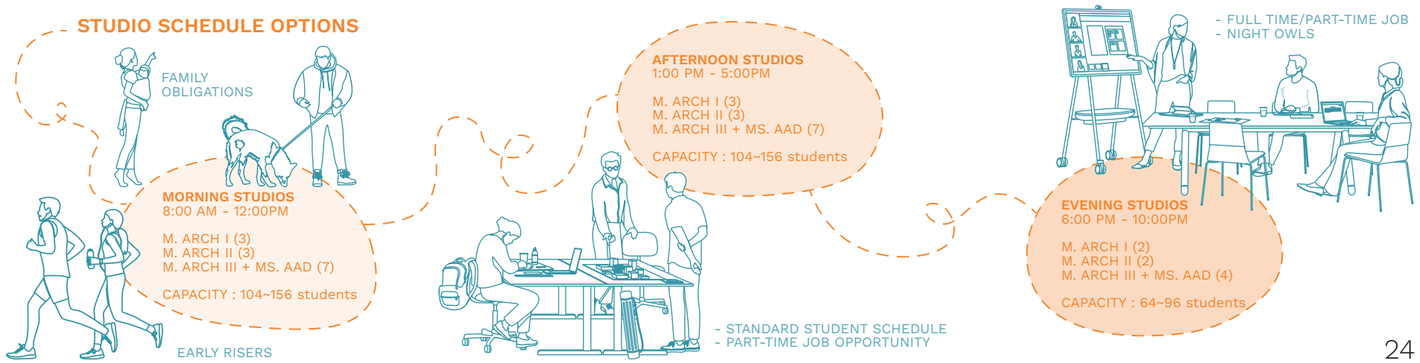
Design Studio Advanced V | Fall 2024
Instructor: Bryony Roberts

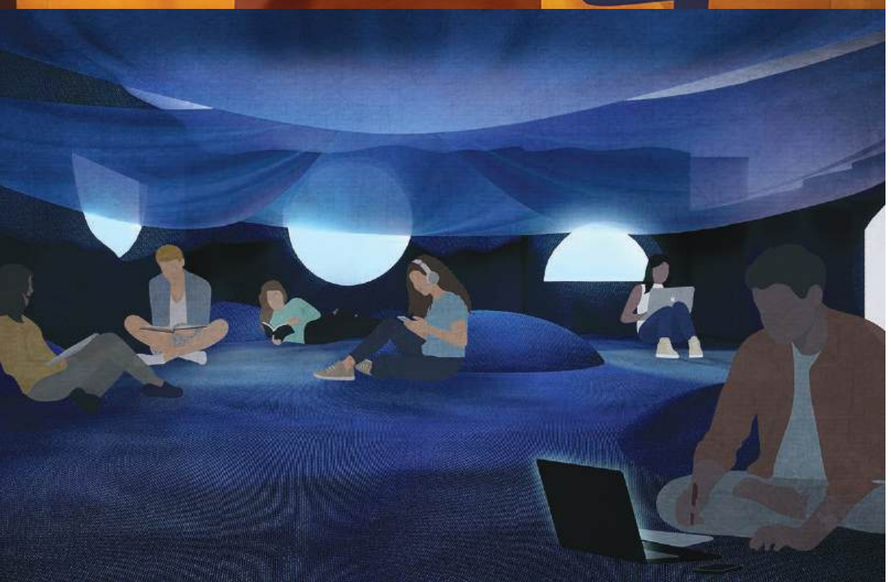
The renovation project seeks to transform GSAPP's restrictive studio environment by introducing flexible, mobile workstations and diverse sensory zones that cater to individual learning needs. By replacing fixed desktop setups with portable equipment and extending studio hours to include morning and evening sessions, the approach reduces overcrowding, fosters dynamic collaboration, and alleviates stress. Additionally, thoughtfully designed sensory areas—with varied tactile, lighting, chromatic, and acoustic features—empower students to select spaces that best support their creative process and well-being. This adaptive environment promotes greater autonomy, enabling students to blend moments of rest, interaction, and inspiration throughout their day. Ultimately, this strategy nurtures a more inclusive, supportive community where academic and social experiences are harmoniously integrated, enriching overall educational outcomes.

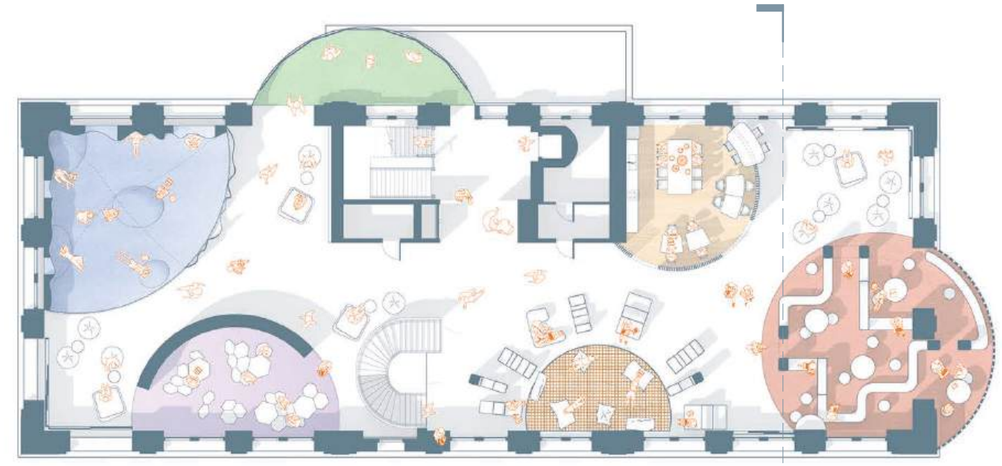


Concept Diagram

The introduction of a diverse range of sensory zones empowers students by giving them greater agency to explore and choose learning environments that best suit their needs at any given time. These zones, catering to the range of preferences from solitude to social interaction, allowing students to choose their desired level of engagement. Different tactile, chromatic, and acoustic arrangements within these spaces further enhance the experience, offering options that can help students feel more relaxed, focused, or energized depending on the task at hand. This adaptability fosters a sense of ownership over their learning environment, enhancing their comfort, productivity, and overall well-being.

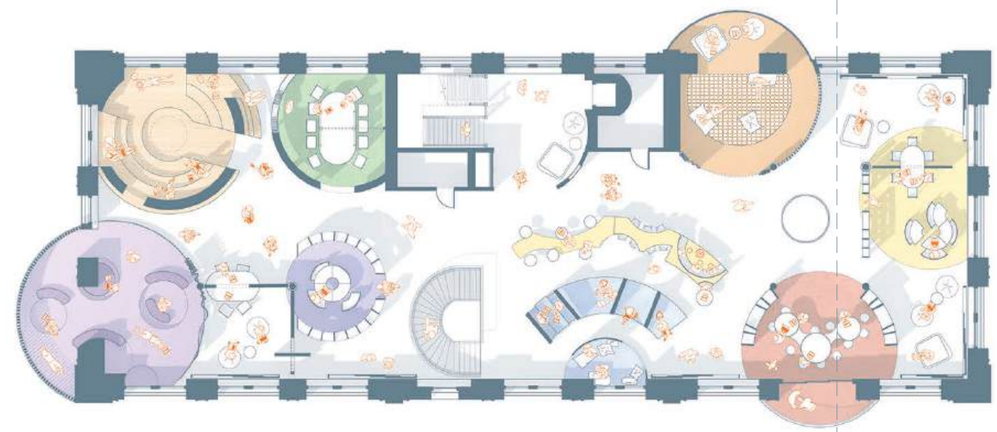






5F PLAN

CLASS
GATHERING
COLLABORATION
COMMUNITY



6F PLAN

SEMINAR
DESK CRIT
SMALL GROUP WORK

7F PLAN

SOLITARY
RELAXATION
INDENDENT WORK

Sensory Zones

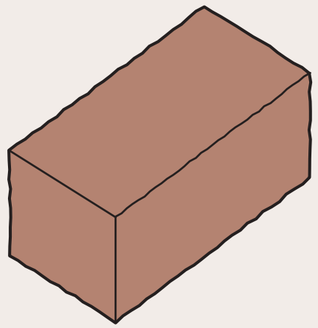
Integrating sensory zones with varied spatial, tactile, lighting, chromatic, and acoustic qualities in educational settings can significantly enhance students' mental well-being. These thoughtfully designed environments offer students the autonomy to select spaces that align with their individual sensory preferences and needs, thereby promoting relaxation, focus, and engagement. By introducing sensory zones, GSAPP can advance as a more inclusive and supportive community, acknowledging the diverse needs of its members. These spaces not only accommodate individual preferences but also create an environment where students feel understood and empowered in both their academic and social experiences.

BIOCANE HOUSE

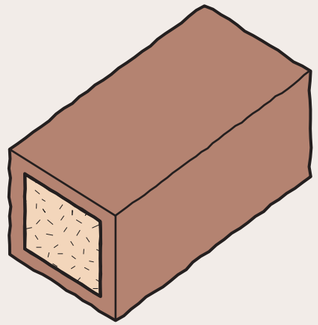
Design Studio Advanced VI | Spring 2025
Instructor: David Benjamin

The sugarcane industry is a major contributor to global greenhouse gas emissions, driven by intensive farming practices and the widespread open burning of crop residue. India, the world's second-largest sugarcane producer, plays a significant role in this output—particularly through the combustion of bagasse, the byproduct left after juice extraction. Located in Bardoli, Gujarat, the proposal centers on expanding a cooperative sugar factory to include a system that converts bagasse into a low-carbon building material for constructing seasonal housing for migrant workers who support the harvest annually. Once the harvest season ends and workers return to their hometowns, the adaptable structures transition into vibrant market spaces—serving the local community year-round. The project addresses both environmental impact and labor dignity—reducing emissions from agricultural waste while creating healthier, more equitable spaces for the working community.

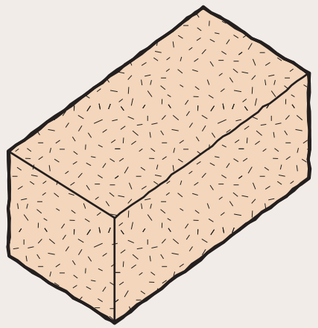
WASTE TO PRODUCT | REUSABILITY
Aside from using bagasse as manure for agriculture or selling it as an energy source, repurposing its abundance into building materials presents a promising opportunity for large-scale utilization.



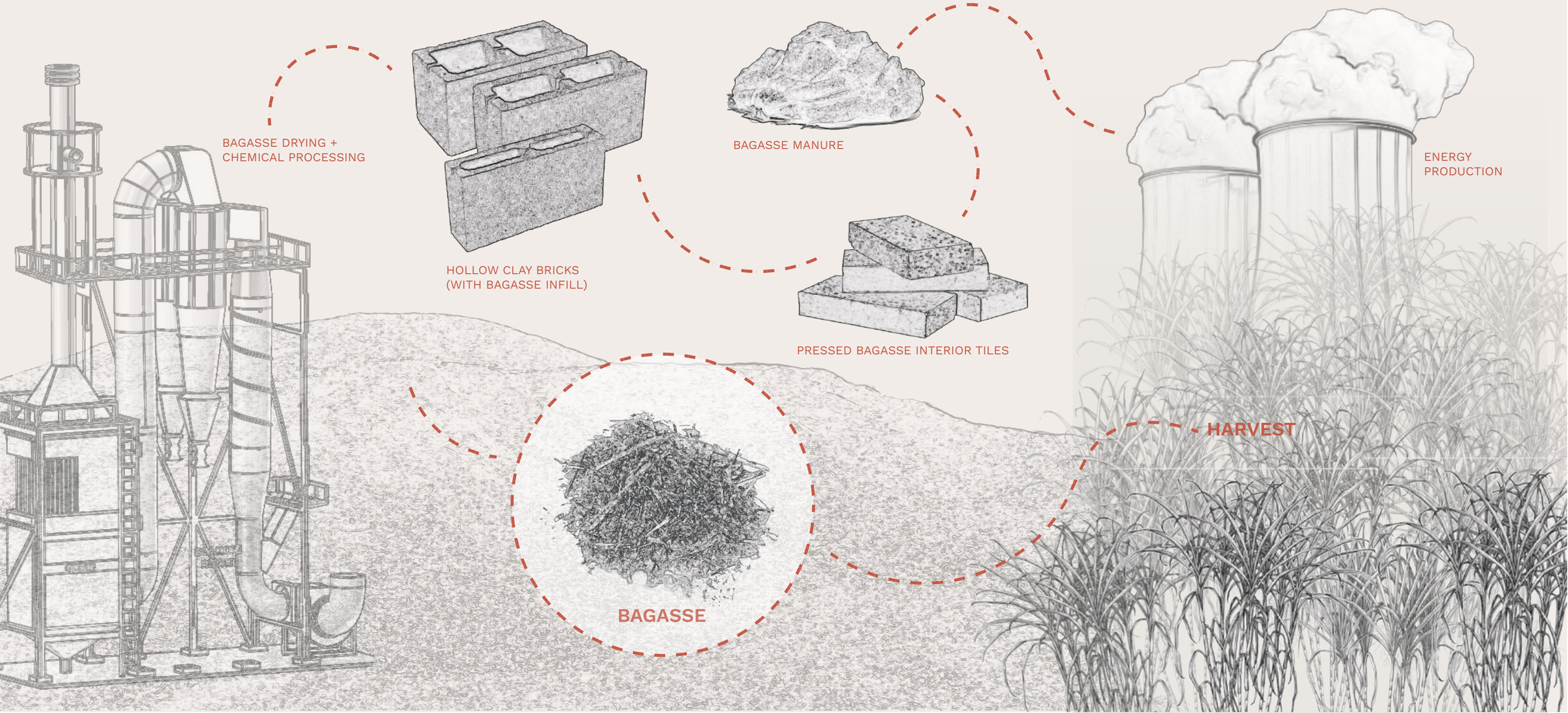
TRADITIONAL CLAY BRICK
WEIGHT = **6.2 lbs**
EMBODIED CARBON = **0.8-0.9 kg CO2**



HOLLOW CLAY BRICK + BAGASSE INFILL
WEIGHT = **4.11 lbs**
CARBON SCORE = **0.45 kg CO2**

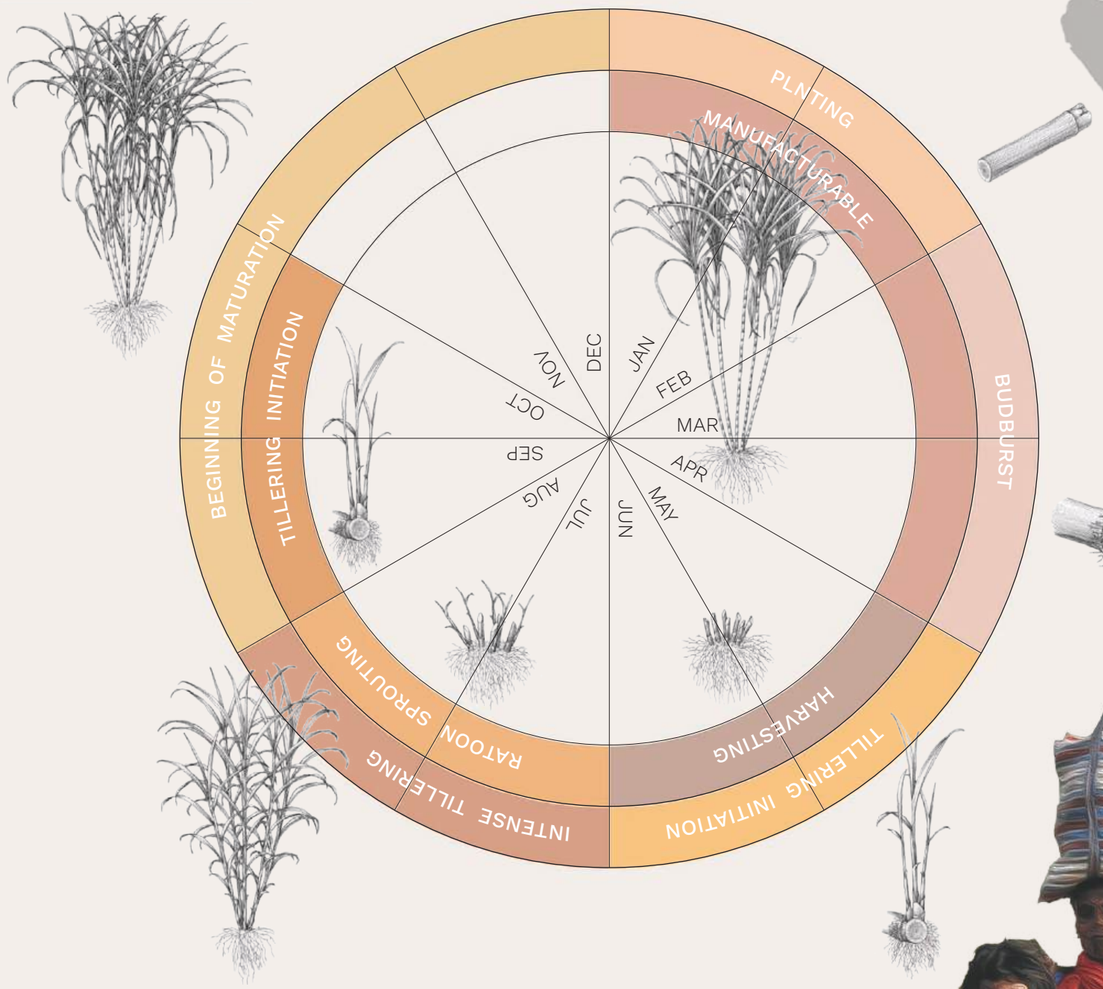


BAGASSE BRICK
WEIGHT = **2.17 lbs**
CARBON SCORE = **0.08 kg CO2**



Material Prototypes

Prototype material testing using bagasse as the base material and mixing with other natural binders such as cellulose, corn starch, guar gum, soil, lime plaster, pine tree rosin, and more to explore bagasse as a potential bio-based building element.



SEASONAL CYCLE

MAIN SEASON (EKSALI)

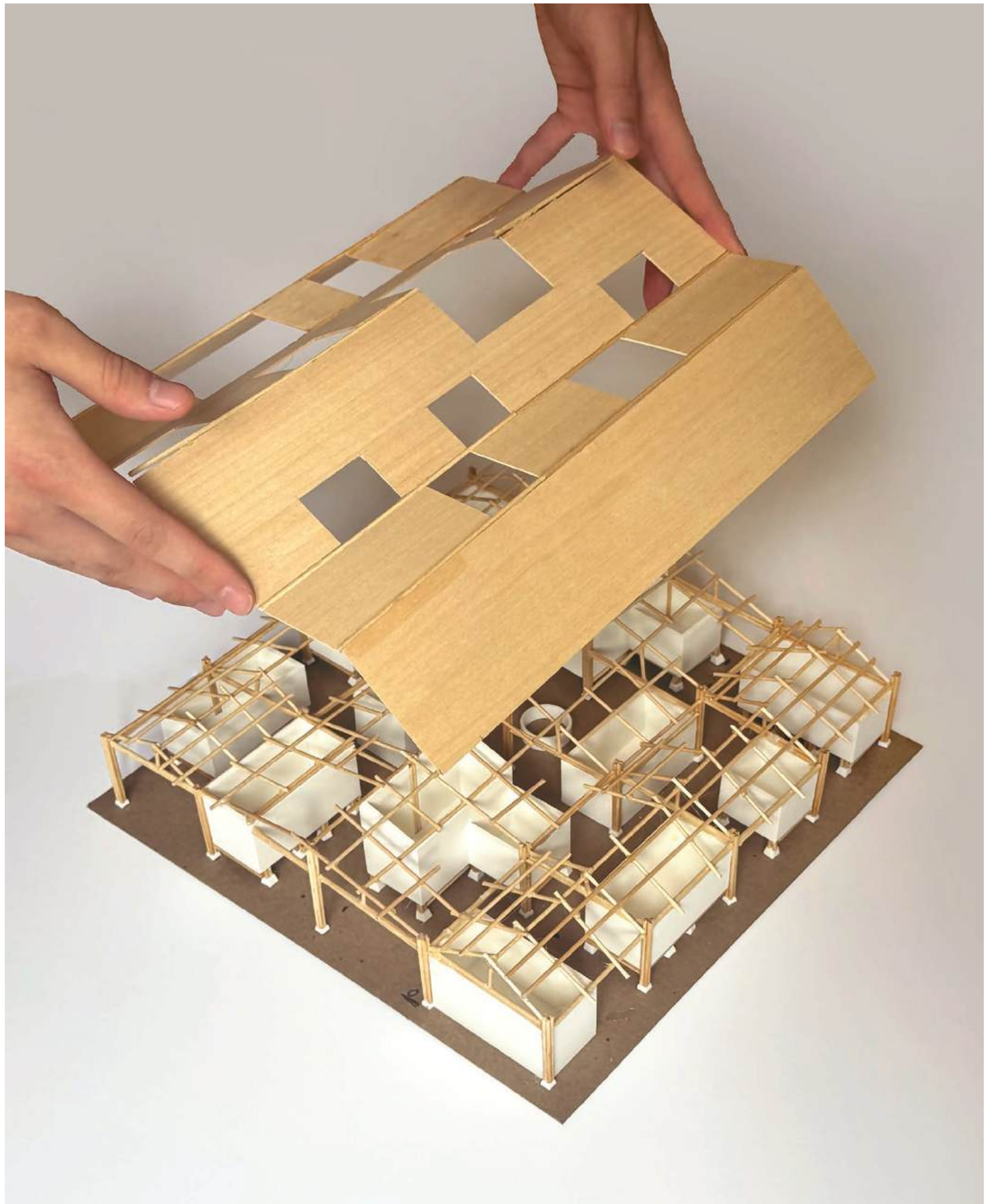
Sugarcane is planted in January to February and harvested after 12 months.

PRE-SEASONAL PLANTING

Planting occurs in October to November, with a maturity period of 13-15 months, supplying sugarcane during the early crushing period.

RATOON CROP

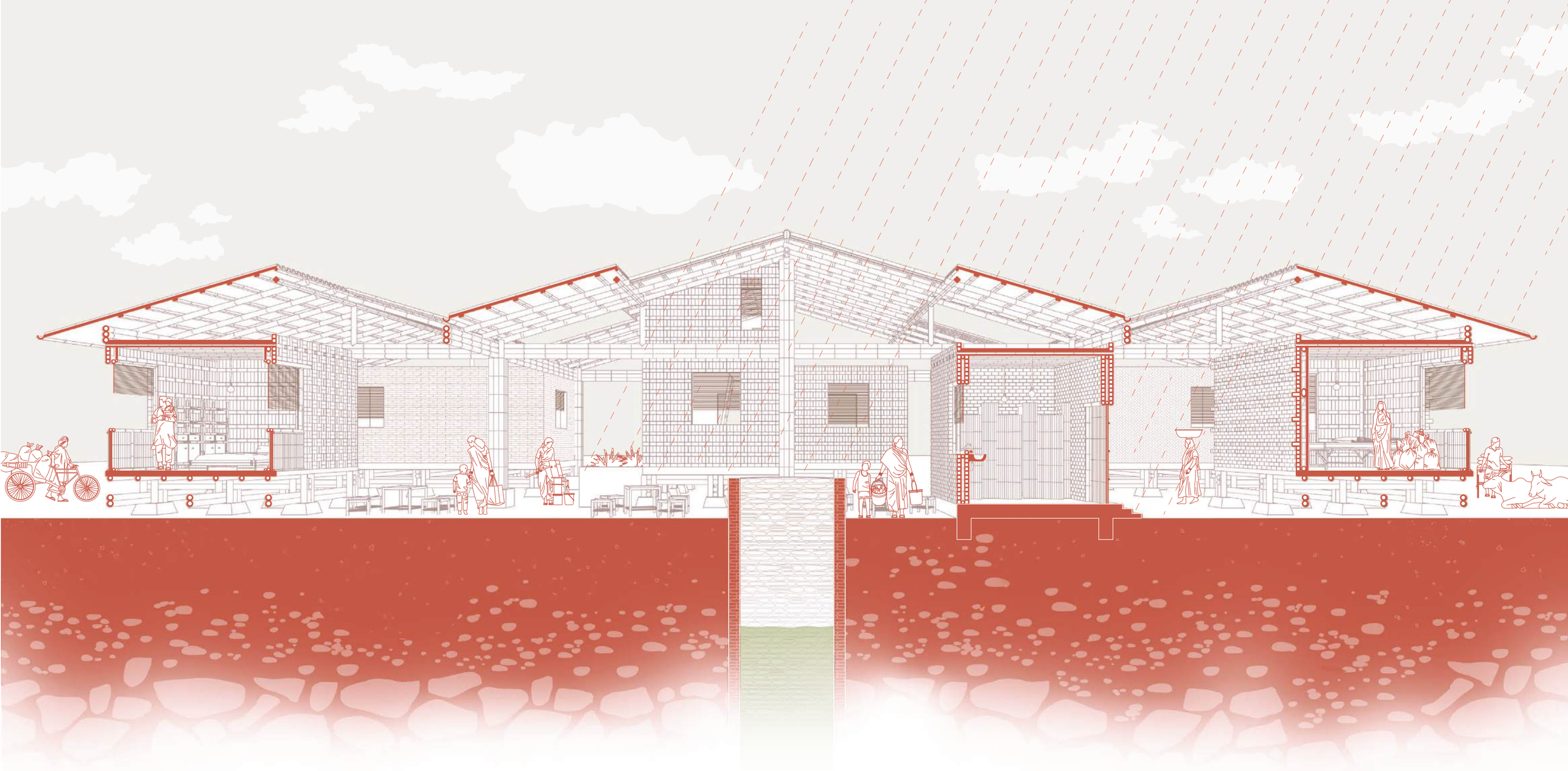
After harvesting the main crop, farmers may take a ratoon crop which re-grows and matrues within 10 months.



Massing Model

HARVEST SEASON (HOUSING)
OCTOBER - APRIL

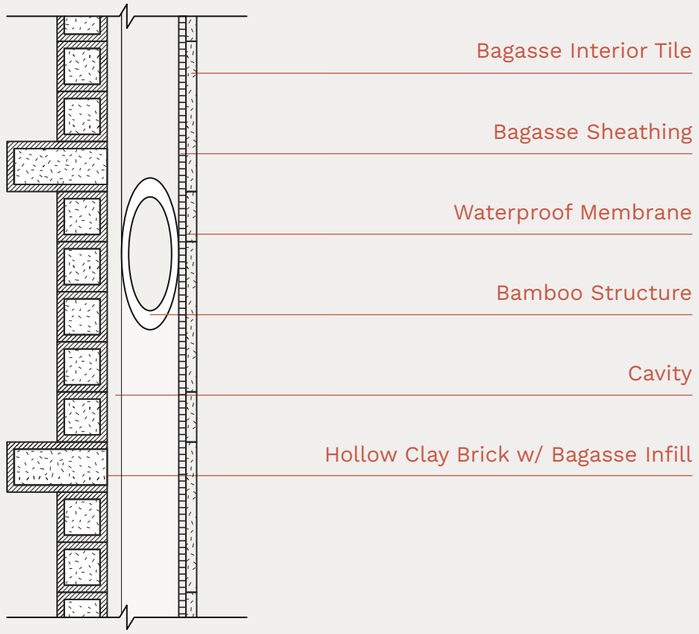
OFF SEASON (MARKET)
MAY - SEPTEMBER

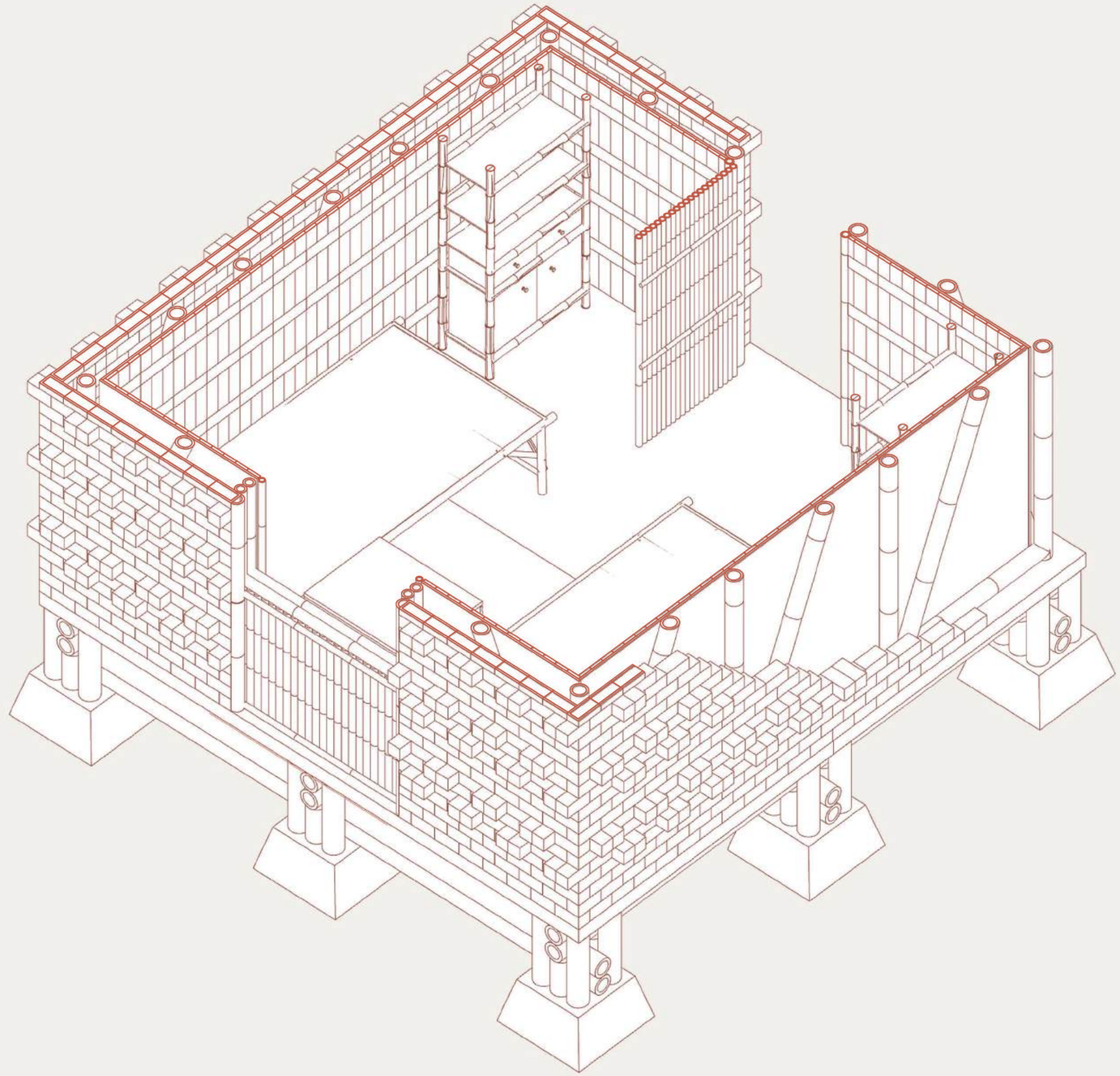


18,850 sqft Roof Catchment
80% Runoff Coefficient
1143 mm Annual Rainfall

100 L available for **950 people / day**

Rainfall Collection
= 2,875,000 L / month
= **95,835 L / day**





Wall Detail + Unit Scale Axon