

Kelly He



-Interplay-

*Master of Architecture | 2021_24
Columbia University | Graduate School of Architecture, Planning and Preservation*

-Interplay-

This compilation of work is an interplay between tectonics and typology - where spaces are never complete until they are transformed upon occupation, and continuously adapt and grow with time.

My design process is also an interplay between production and reflection, involving drawing, erasing, and expanding my toolkit to approach each stroke with sharper intention.

This work would not be made possible without the exchanges and support from my peers, mentors, and family.

In the realm of "Interplay," I am akin to an awaiting canvas, poised for my next transformative journey of exploration and discovery.

- 01 **In | On | In**
living community activated by metabolizing urban network over time
i. equitable space at the human scale - precedent study
- 02 **The Cloud Post**
rooftop pavilion as framework adapted for social activism
ii. the contemporary ruin - architectural drawing representation
- 03 **Luminal Convergence**
co-generational learning and interchange activated by natural light
iii. adaptable learning space - architectural technology
- 04 **Re-collecting Water Histories**
historical infrastructure transformed through ephemeral exhibits with climate and water
iv. gsapp worm - outside-in design seminar
- 05 **Building Dignity**
regenerative infrastructure for collective building, training and immigrant empowerment
v. metabolization through leisure and labor - re-envisioning precedent study
- 06 **Woven Dualities**
ever-changing inhabited landscape as adaptive framework and collective canvas

In | On | In

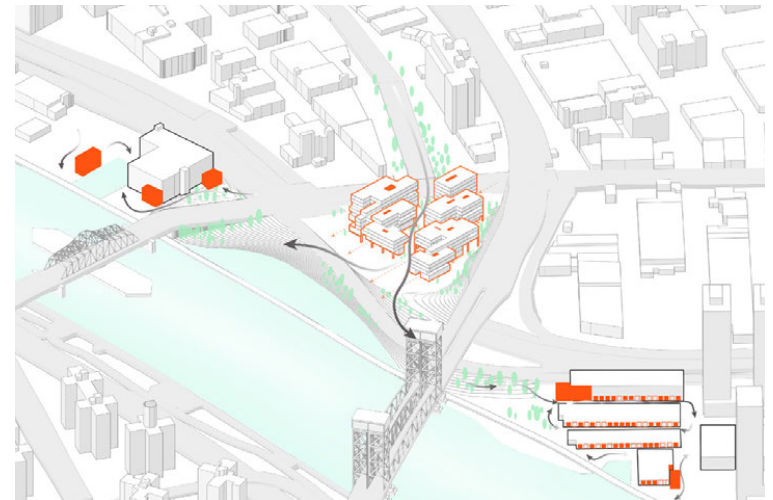
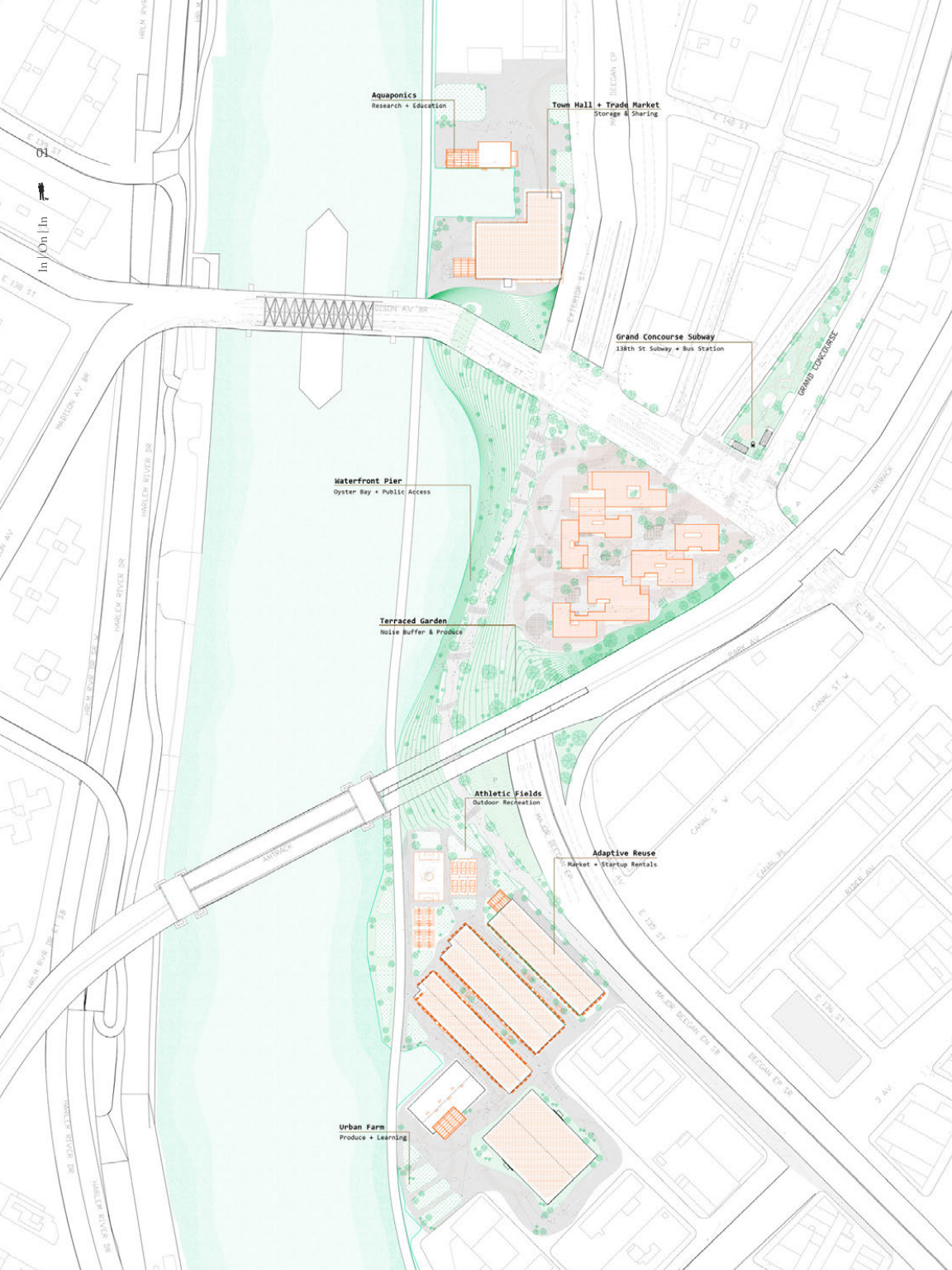
*Core III Studio
Fall 2022 | South Bronx, NYC
Partner: Laurin Moseley
Instructor: Gary Bates*

What if we rethought the power of housing design beyond the provision of living units for a metabolizing urban network?

In | On | In is a proposal at the urban scale for a sustainable intergenerational living community that metabolizes over time, both during and beyond construction. In phase I - Infill, an urban community network is designed as the foundation of housing, through the reclamation of vacant lots and adaptive reuse of storage units transforming derelict and inaccessible waterfront land into a new public destination.

In phase II- Onfill, co-living housing builds upon the cohesion of communities established through the connective urban realm from phase I. The design prioritizes accessibility from the rest of the Bronx to the new waterfront through a hierarchy of negatively carved spaces, extending Grand Concourse as a primary public pedestrian 'artery' disintegrating into semi-public secondary 'veins' and semi-private 'capillaries' within each interior floor. Co-living housing builds upon the cohesion of communities established through the connective urban realm.



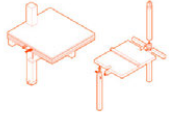


We recognize that building housing is not only providing living units, but the most essential goal is to create a community that sustains itself and metabolizes

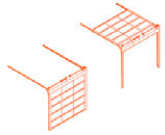
over time, both during and beyond construction. Thus, our project is in two main phases spanning across the urban and architectural scale.



Reclaimed Steel



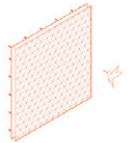
Glulam



Roll-up Storefronts



Reclaimed Scaffolding Boards



Feld Layered Facade Panels

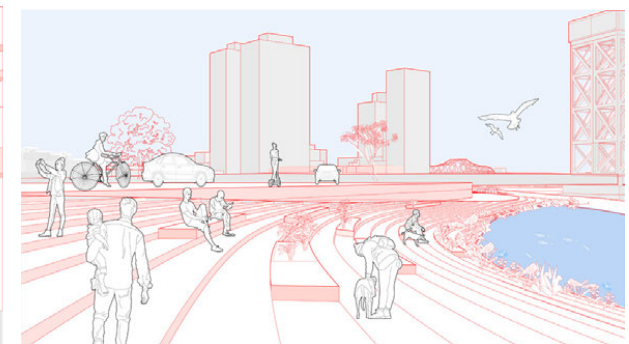
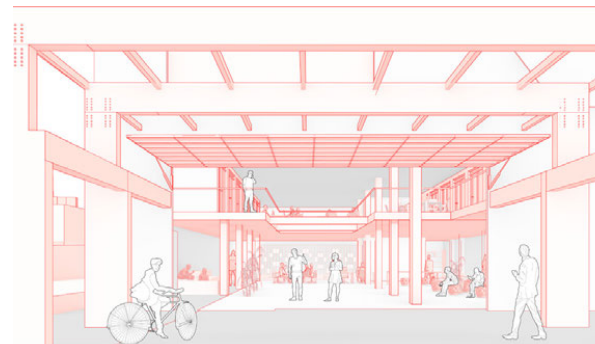


Porous Paving



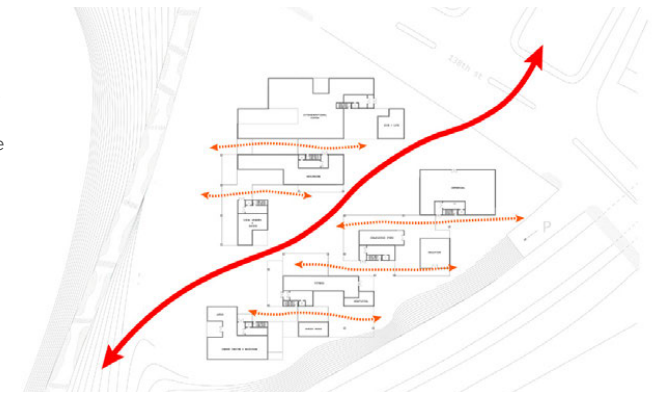
Phase I - Infill: Reclaiming the Public Waterfront

The current waterfront lies in a flood plain lined with storage facilities and warehouses with no public access. A modular and low-cost toolkit was designed to adaptively reuse and open up existing storage cubes rentable for small businesses and support community commerce generation such as startups, local markets, and self-sustaining community farms and aquaponics. Together with an excavated tiered plaza using soft flood mitigation strategies, a porous waterfront experience reactivates pedestrian traffic at the ground plane.

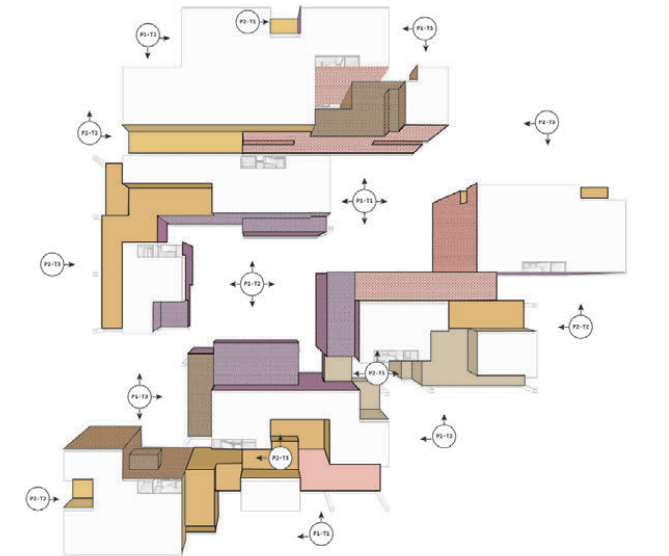


Phase II - Onfill: Accessible Living

The massing was carved by invisible forces of its context: noise, pollution, orientation, sunlight and most importantly, enhancing pedestrian accessibility linking the waterfront public realm established in phase I. The housing consists of seven interconnected buildings sharing a common porous ground floor with public amenities. The paving/ planting plan and outdoor programs of the site derive from variations of sunlight hours on open/sheltered surfaces casted by the massing.



Ground Floor Yearly Cumulative Sunlight



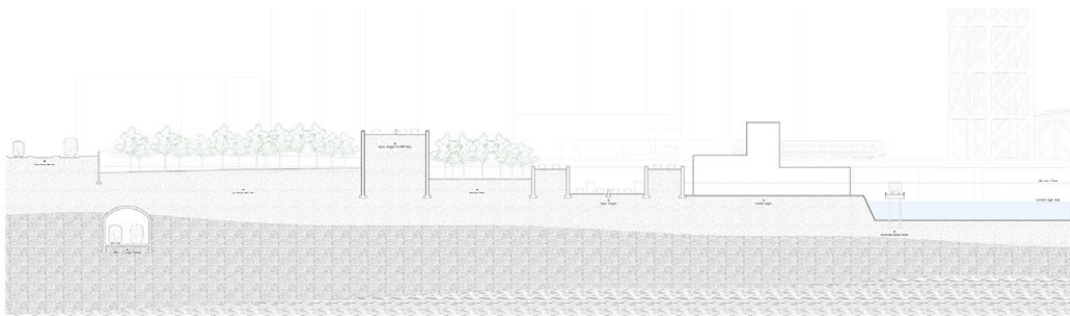
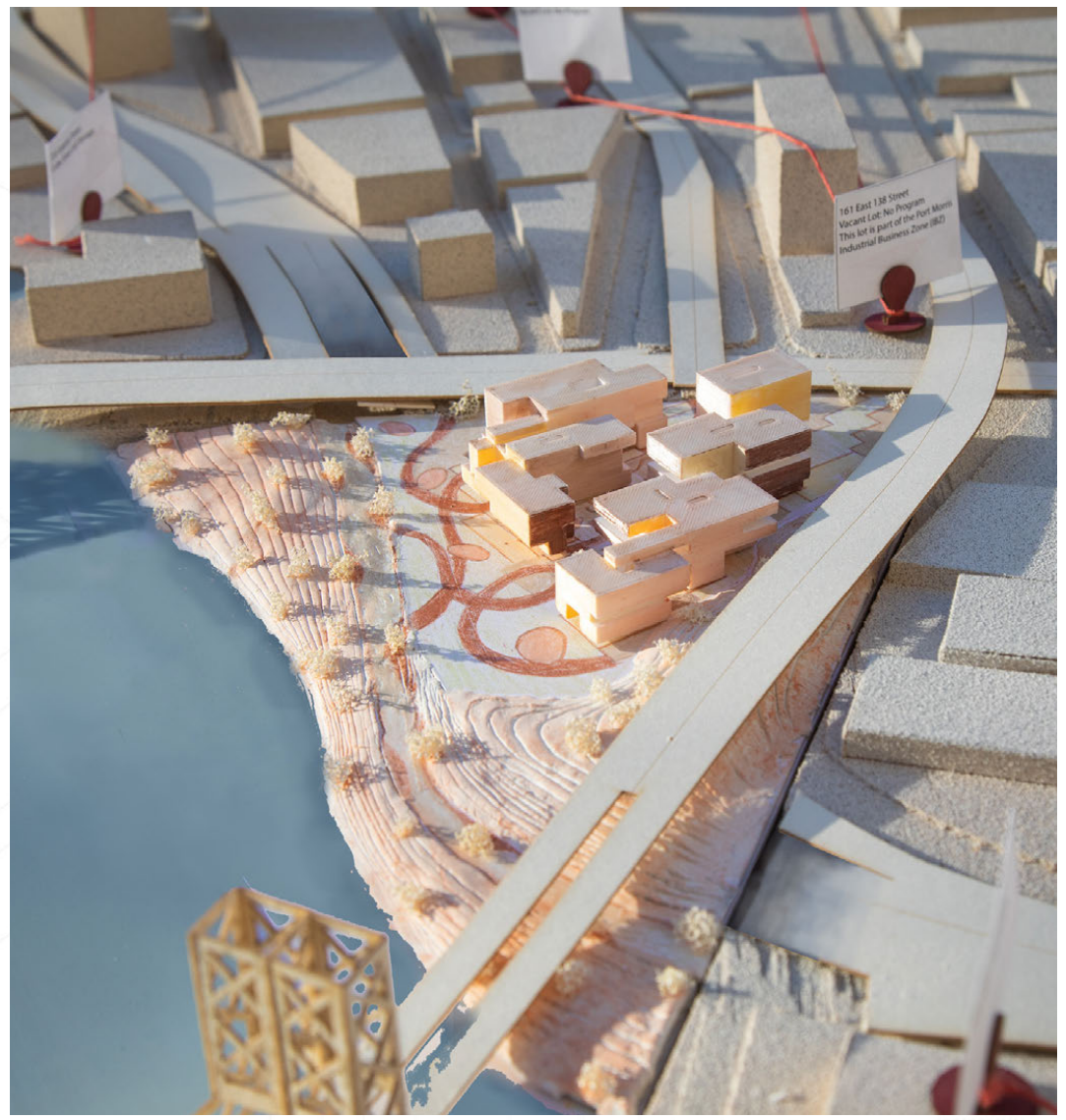
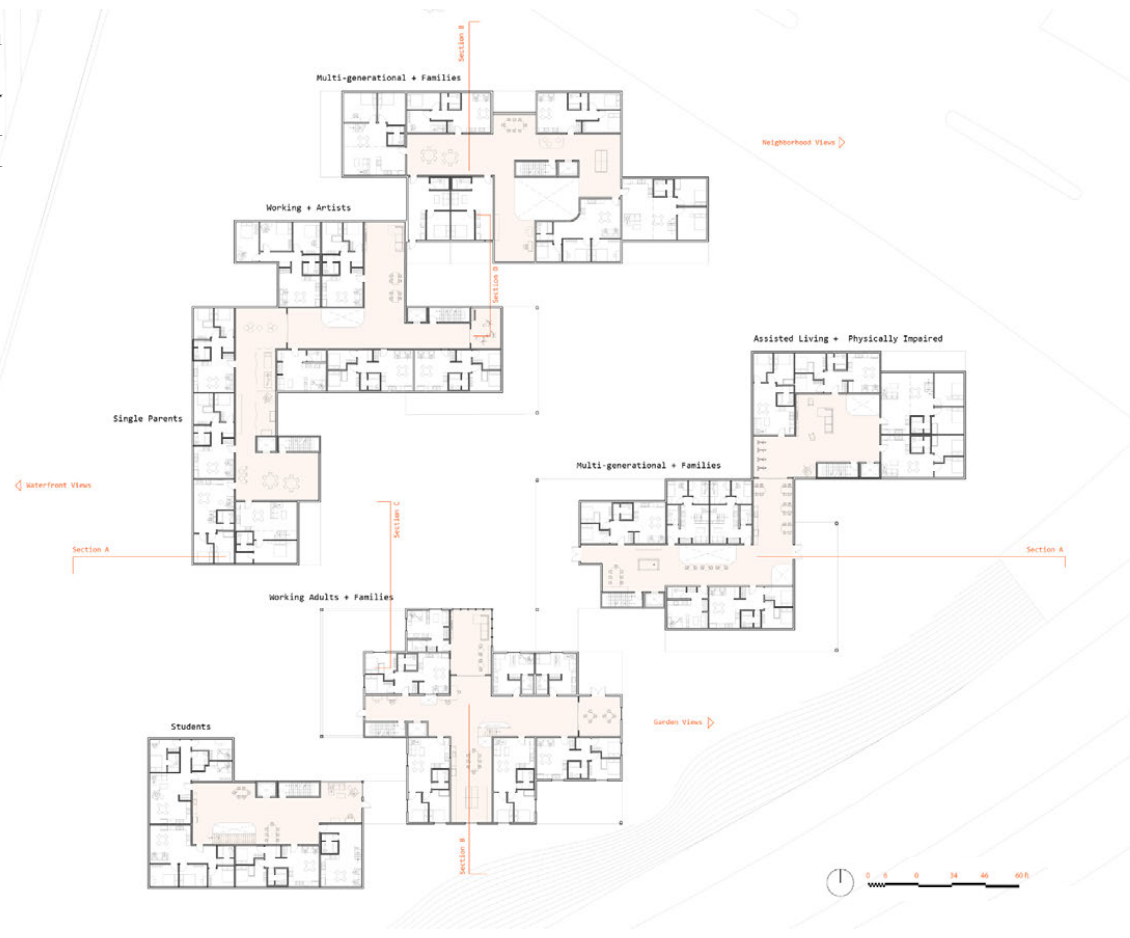
Ground Floor Wormseye Facade Diagram



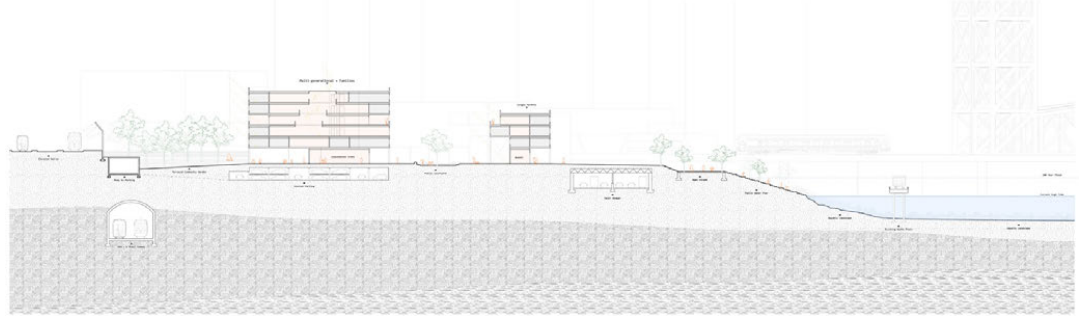
The paving patterns and materiality wrap from the horizontal planes to vertical surfaces in varying colored zones as one walks through the public ways, passing by gardens, local stores, sunken seatings, and open performance venues. The changing facade types are based on a prefab

matrix of modular terracotta tiles that share the same size but vary in pattern and color. With a simple combinations of different window types corresponding to the interior program on a standard 9ft grid, a dynamic cadence is achieved with maximum economy.

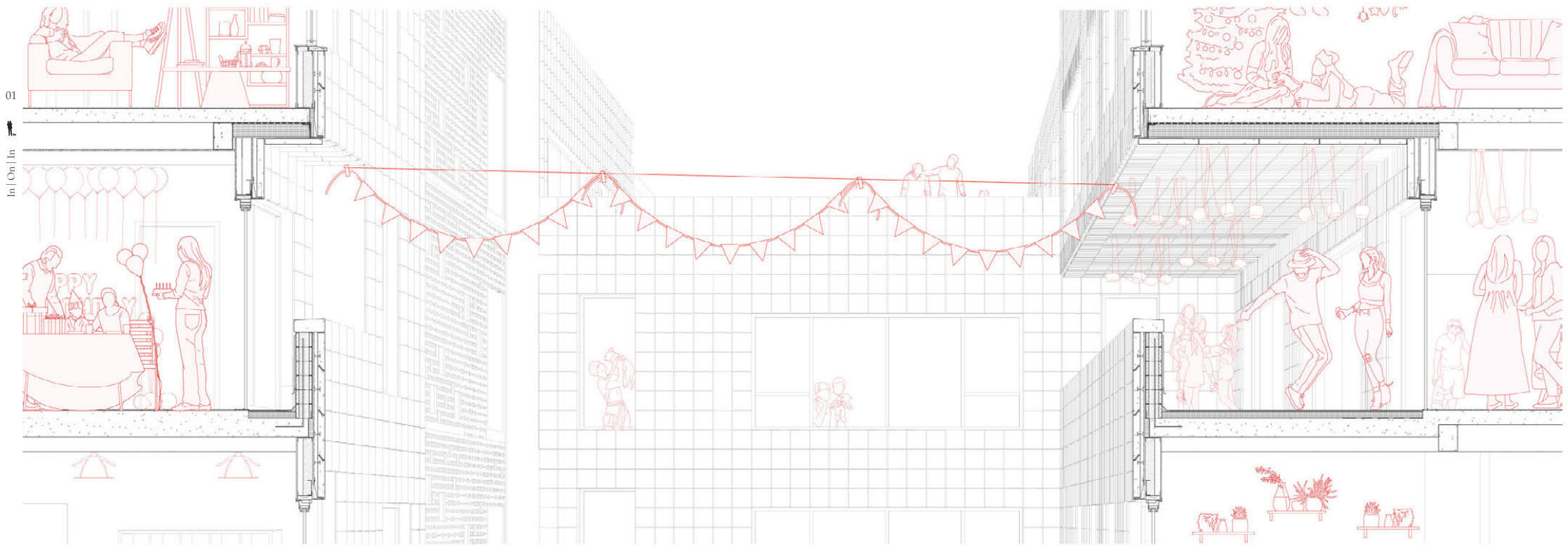




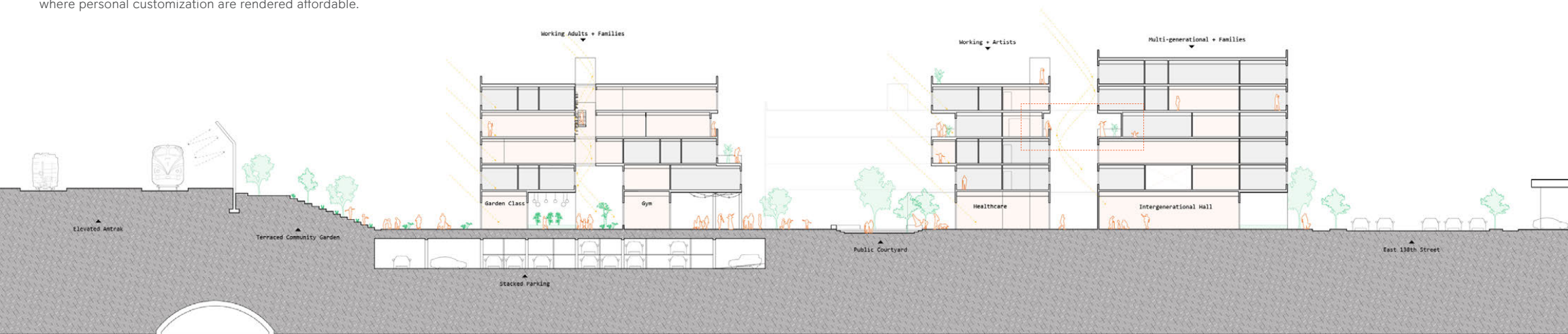
Site Section EW- Existing



Site Section EW- Proposed



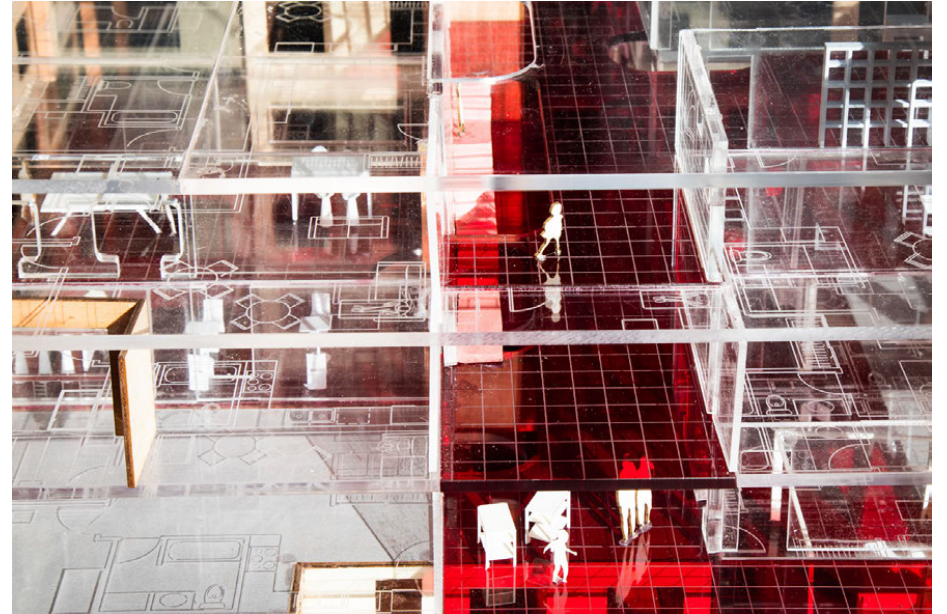
The carving of massing extends social interactions and 'stoop life' beyond the ground plane vertically. Residents enter each building through exterior staircases with perforated facade that brings in natural light along the walkways between buildings. The housing units are based on a 18ft grid that allows for a variety of living typologies, where personal customization are rendered affordable.





Left: A continuous garden berm with nature trails provides a refuge space for residents, and buffers amtrak railway noises on the south side of the site.

Right: Moments where the social corridor meets the exterior facade overlooking public spines and gardens below.



Left: dynamic paving patterns and landscapes create different energy zones flowing through courtyards to the waterfront, from the horizontal ground plane to facades.

Right: semi-private 'capillaries' within each interior floor as a continuation from the exterior public spine, each catered to different social/age groups.

At the heart of each building, skylight punctures through the darkest cores where semi-private social/work spines serve as flexible living rooms expanding the confines of fully private units. These shared living and outdoor spaces enhances interactions and mutual support between similar social groups, and defy the traditional dark corridor. The housing units are based on a 18-ft grid that allows for a variety of living typologies, where personal customization are rendered affordable.



"Once you are established people treat you as family"

NATURAL DAY LIGHT VIA SKYLIGHT ABOVE

CLERESTORIES FOR PRIVACY AND LIGHT IN UNITS

WORK FROM COMMUNITY ARTISTS

TO COMMUNAL "KITCHEN"

TO COMMUNAL "LIVING ROOM"

TO COMMUNAL "LIVING ROOM"

What service do you feel is missing in your neighborhood?
A library!!!! The closes one is like 2 train stops plus 10 min walk

What do you value within your community?

"The concrete park, also people around me always look out for me"

"Safe active spaces. There's a lot of green space that is blocked off by fences and I think without the fences a lot of these spaces can be turned into more playground, physical activities, social spaces."

CUBE SMART

FOOD TRUCK/ NIGHT MARKET FROM LOCAL VENDORS

WATERFRONT/CITY VIEWS

TERRACED ACCESS FROM HOUSING PLAZA TO WATERFRONT

What is your favorite place in your neighborhood?

- "Family own food truck"
- "Some of the parks and areas to walk around"
- "The Park"

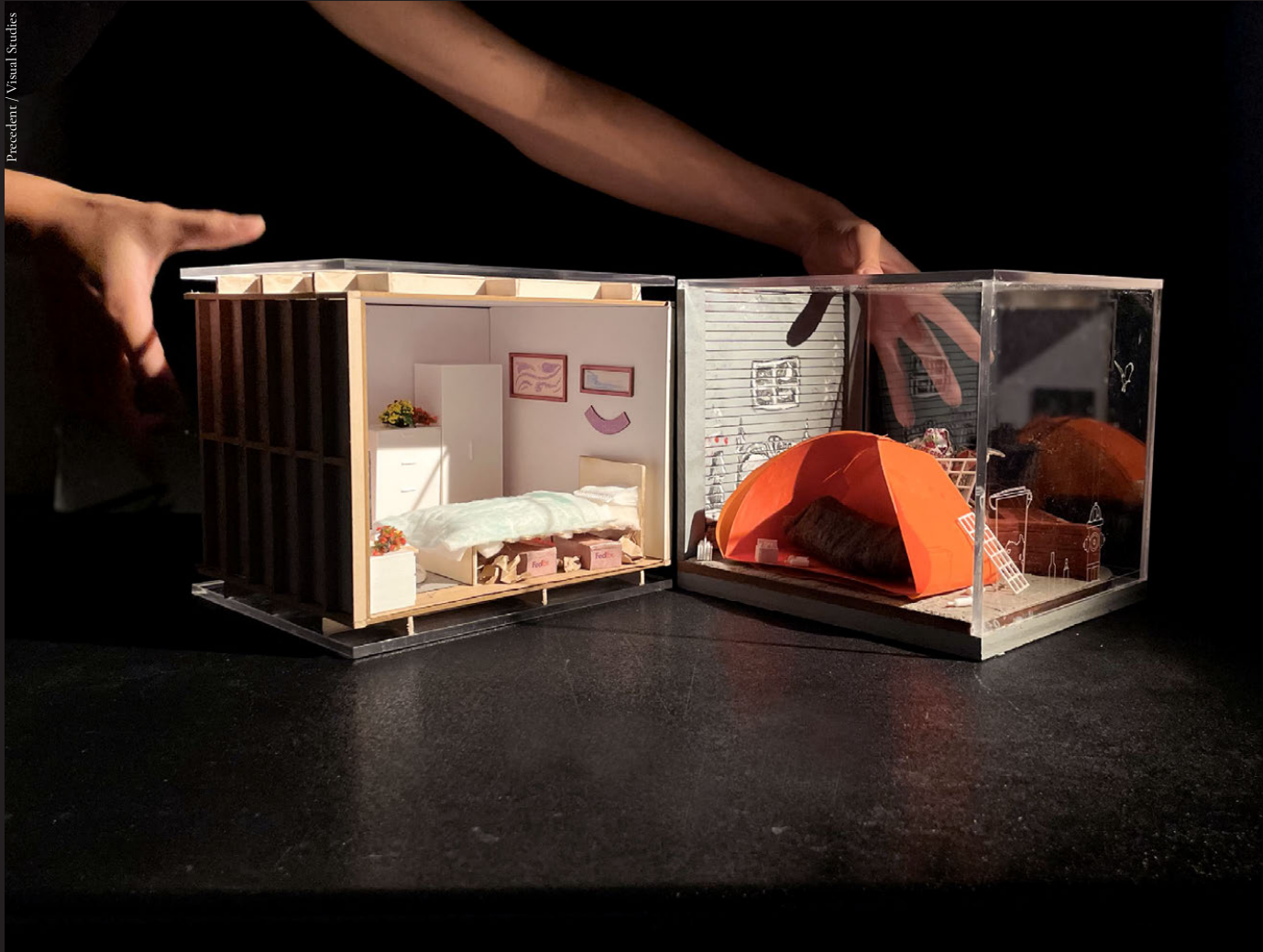


How do we design for transition? What does it look like at the human scale?

Precedent Case Study - Star Apartments

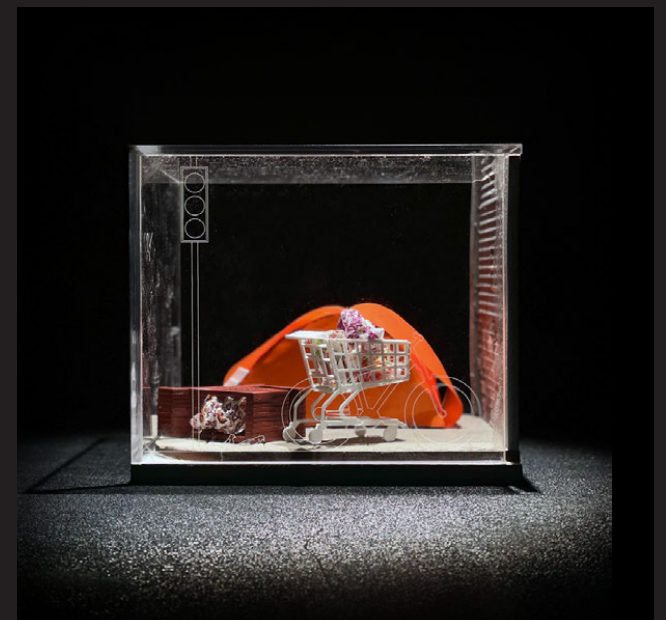
Team: Laurin Moseley, Mariam Jacob, Isaiah Graham

Our study analyzes the project - Star Apartments through the lens of the transitional experience from 'houselessness' to a permanent dwelling, in the turmoil of rapid expansion and resource scarcity in Skid Row, LA. This full scale model allowed people to experience the dimensions of living, while also juxtaposing the qualities of domestic living in public and being surrounded with traffic. Few participants interacted with familiar objects under the strange public setting and critiqued the layout in relation to their own living conditions.



Just like a 'star', those who were fortunate to live in Star Apartments and other affordable housing are only a fraction of the population that are still struggling to find shelter. The physical model is a sectional cut into the module of a typical prefab unit, mirrored with the

same volume of living unit on the sidewalks. It shows the juxtaposition of a total controlled environment vs. the variability of external elements on the streets, and imagines drastic emotional turmoil one goes through from one occupancy to the other.



The Cloud Post

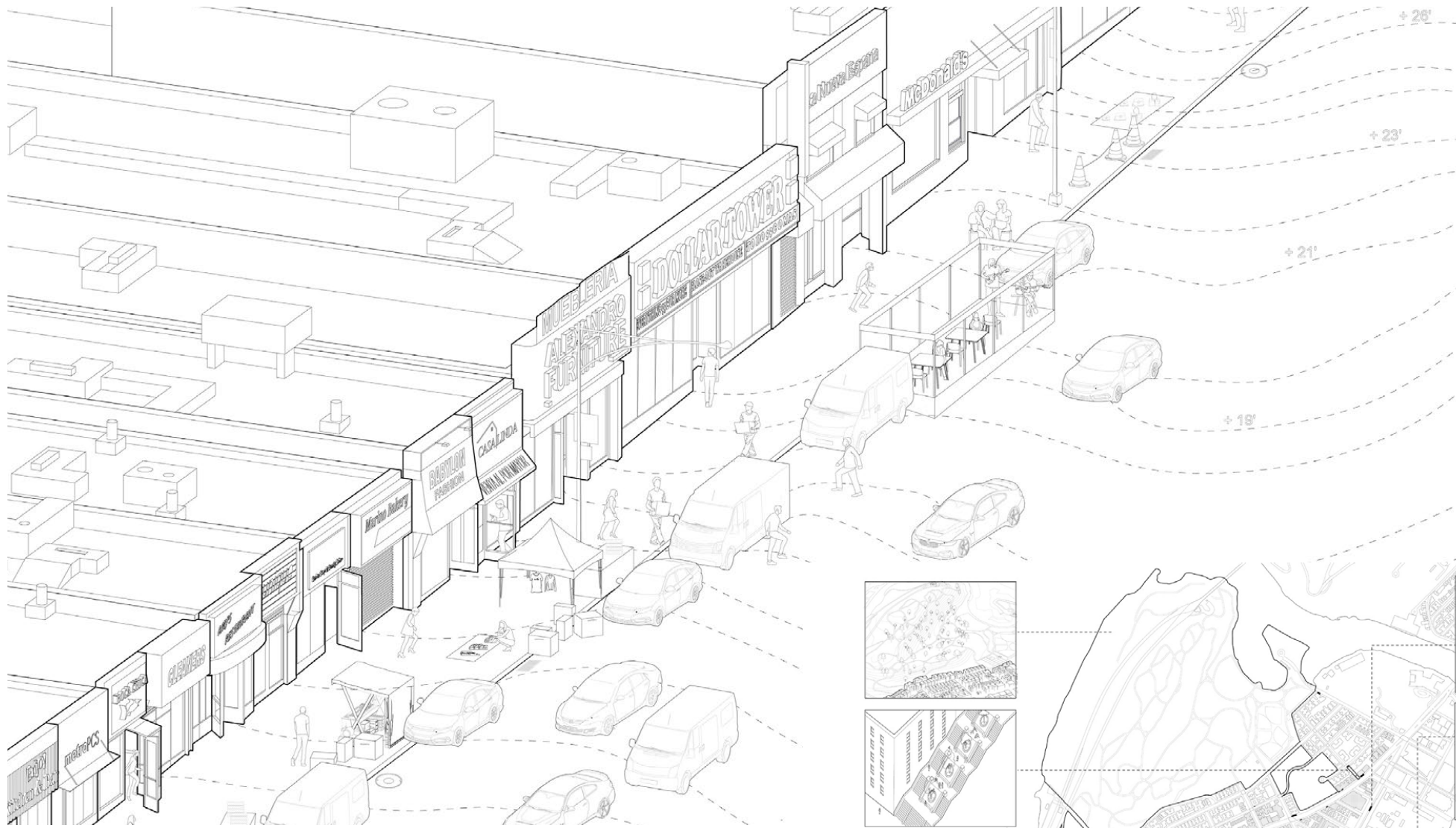
Core I Studio
Fall 2021 | Inwood, NYC
Instructor: Josh Uhl

What if space becomes a framework adapted for social activism?

The definition of a contemporary civic space in NYC has been largely challenged by the increasingly transient, fast-paced urban sprawl. Instead of the traditional uniform, static and formal public infrastructure as a product of gentrification that lacks flexibility and cultural-specificity, 'Cloud Post' explores a new form of public infrastructure that preserves the vitality of the informal and dynamic aspects of the neighborhood.

'Cloud Post' is a rooftop deck pavilion system that extends the vitality of the informal streetscape upwards through a modular, minimal and adaptable structure inspired by the typologies of street sheds below. Socially, the 'Cloud' serves as a new type of 'post stand' that is casual, accessible as a communication web for the city. Environmentally, the 'Cloud' also features a scalloping canopy that operates and collects rainwater feeding a hidden garden at the back. The modular system with vertical partitions as an extension of the scalloped roof serves as flexible dividers to accommodate different scales of activities. Ultimately, the 'Cloud Post' creates a new social typology that can parasitize on the site to become unique icons of the neighborhood to advocate and strengthen the immigrant community bond.



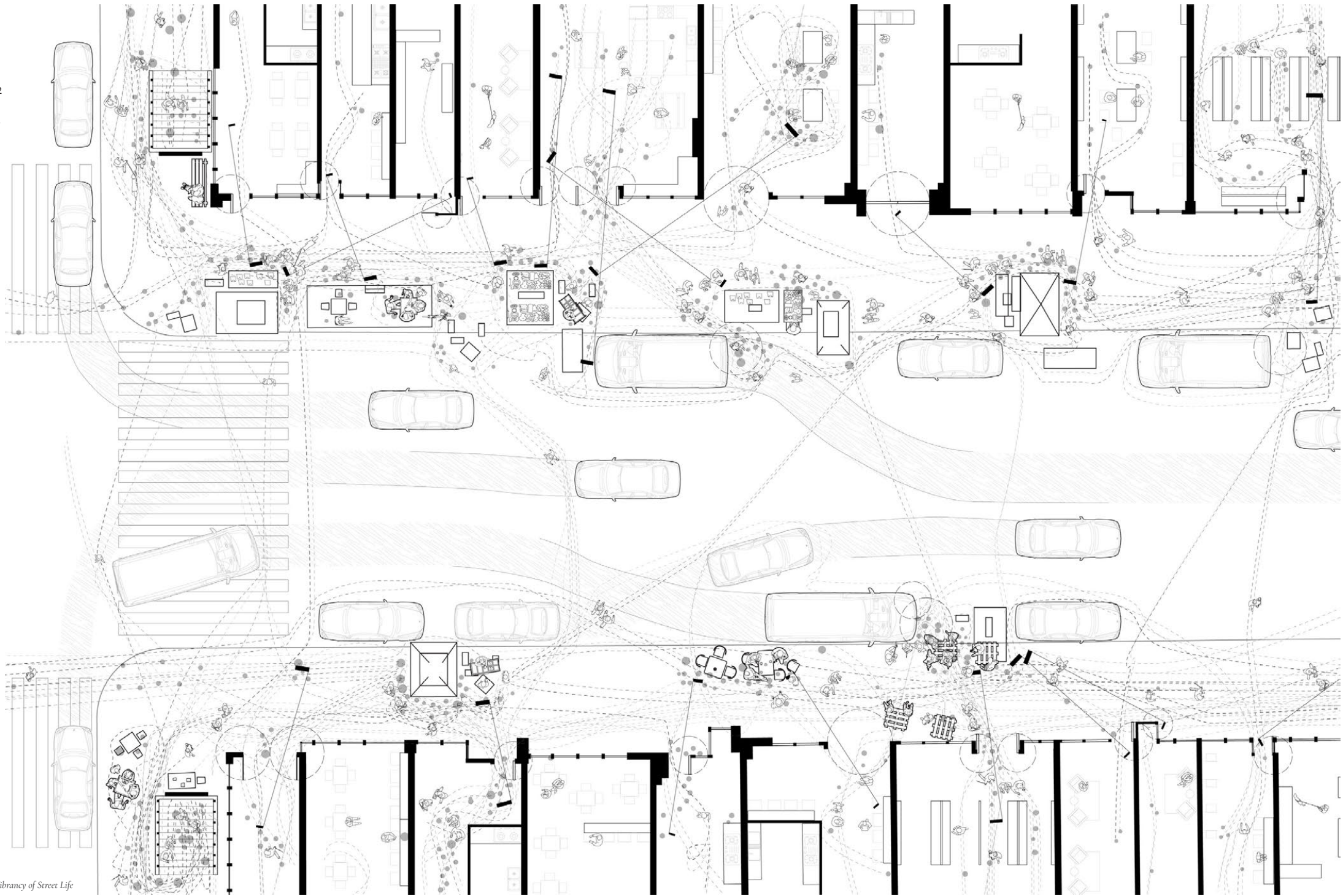


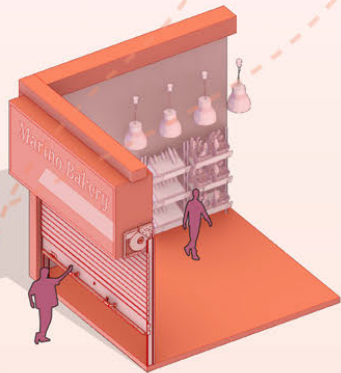
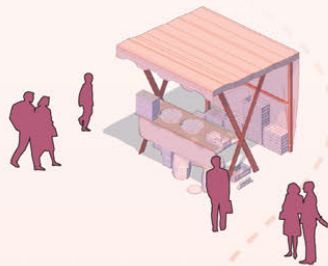
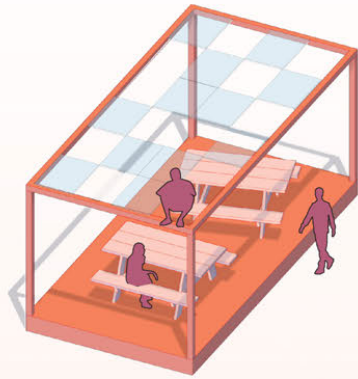
Informal Streetscapes of Inwood

East Inwood houses a large dominican immigrant population with lower than average income and education levels. 207th street is the busiest commercial street at the heart of inwood, adjacent to the terminal 1 train subway station. Low-rise strip malls combined with street vendors, artists, and

commuters form a very organic, jigjagging and idiosyncratic streetscape that defines the dynamic social scenes of East Inwood. However, compared to the vast amount of green spaces in West Inwood, East Inwood is desperately in need of social infrastructures.

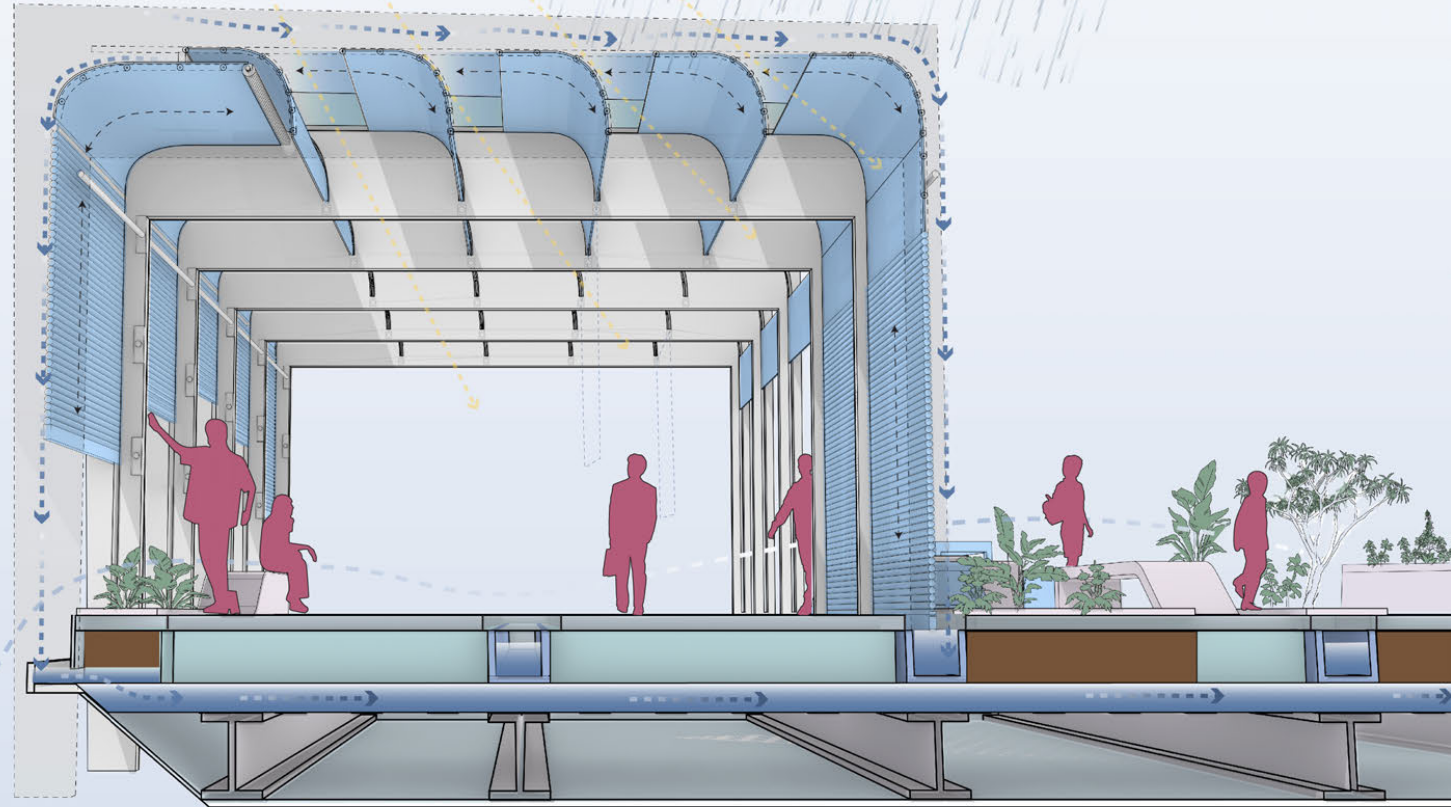


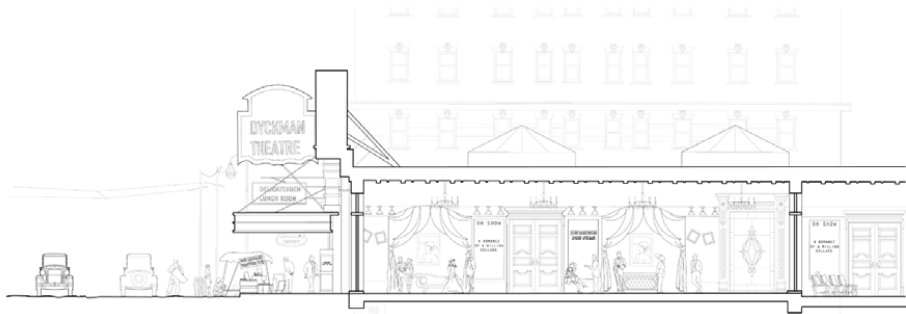




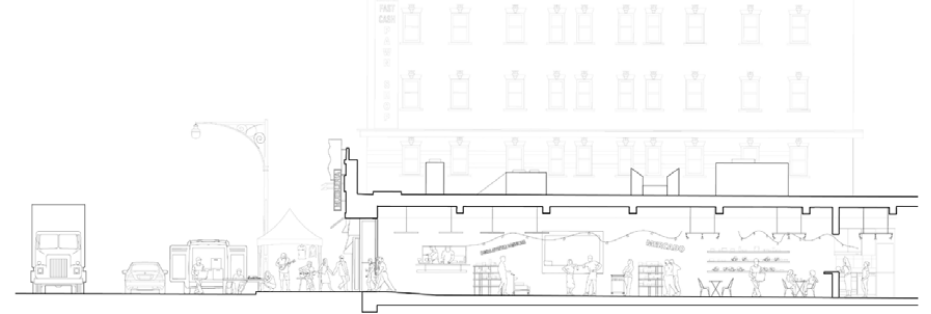
System Taxonomy

Drawing inspirations from the existing typologies of the street sheds, the design captures the vitality and informality of its host below in a similar operable, modular and adaptable system. The modular system spanning over the deck could be freely composed to form dividers in the space, while sliding roof panels offers a flexible indoor/outdoor space with rainwater collection mechanism.





Dyckman Theatre, 1926



La Casa del Mofongo, Bar and Bakery 2021

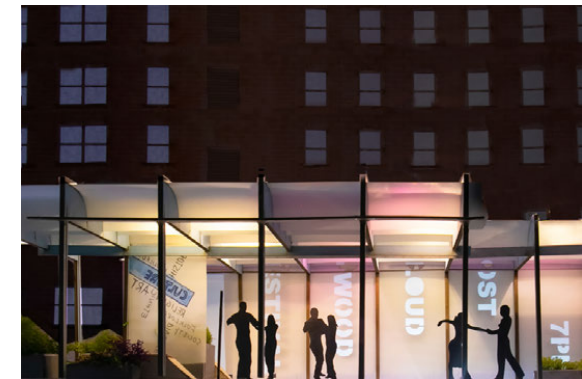
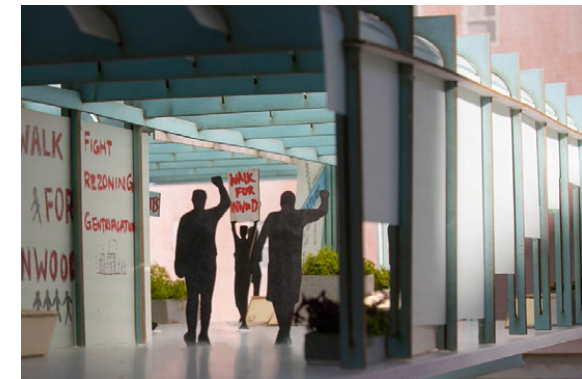


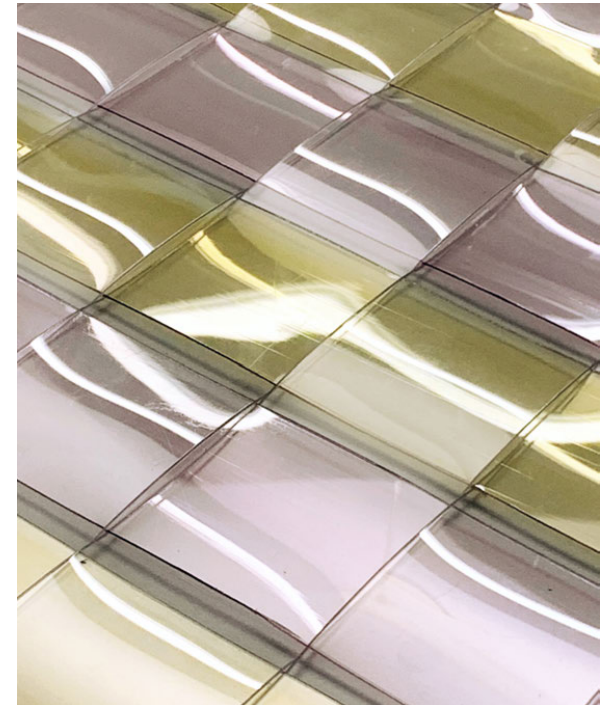
Cross-section, Design + Existing Laundry Shop



Adaptable Programs / Atmospheric Qualities

The Cloud Post provides a community-run opportunity as a place to pause, recharge, mingle and communicate in the fast-paced, transient and digital lifestyle. Adaptable to a range of programs varying in the need of privacy, shelter and energy levels at different times of the day, the contemporary public infrastructure becomes the icon of the block hosting the most recent news, cultural and political events .





Materials / Mechanism Exploration

A portion of the roof canopy with vertical partition was constructed at full scale to experiment with possible new materials options and the basic sliding mechanism.

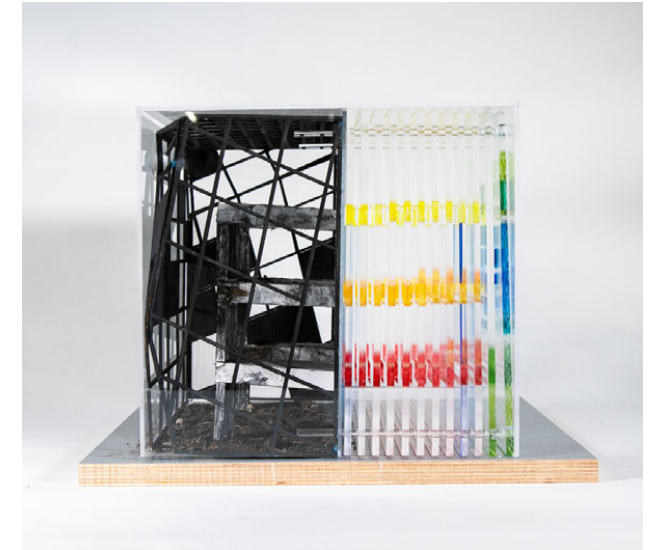
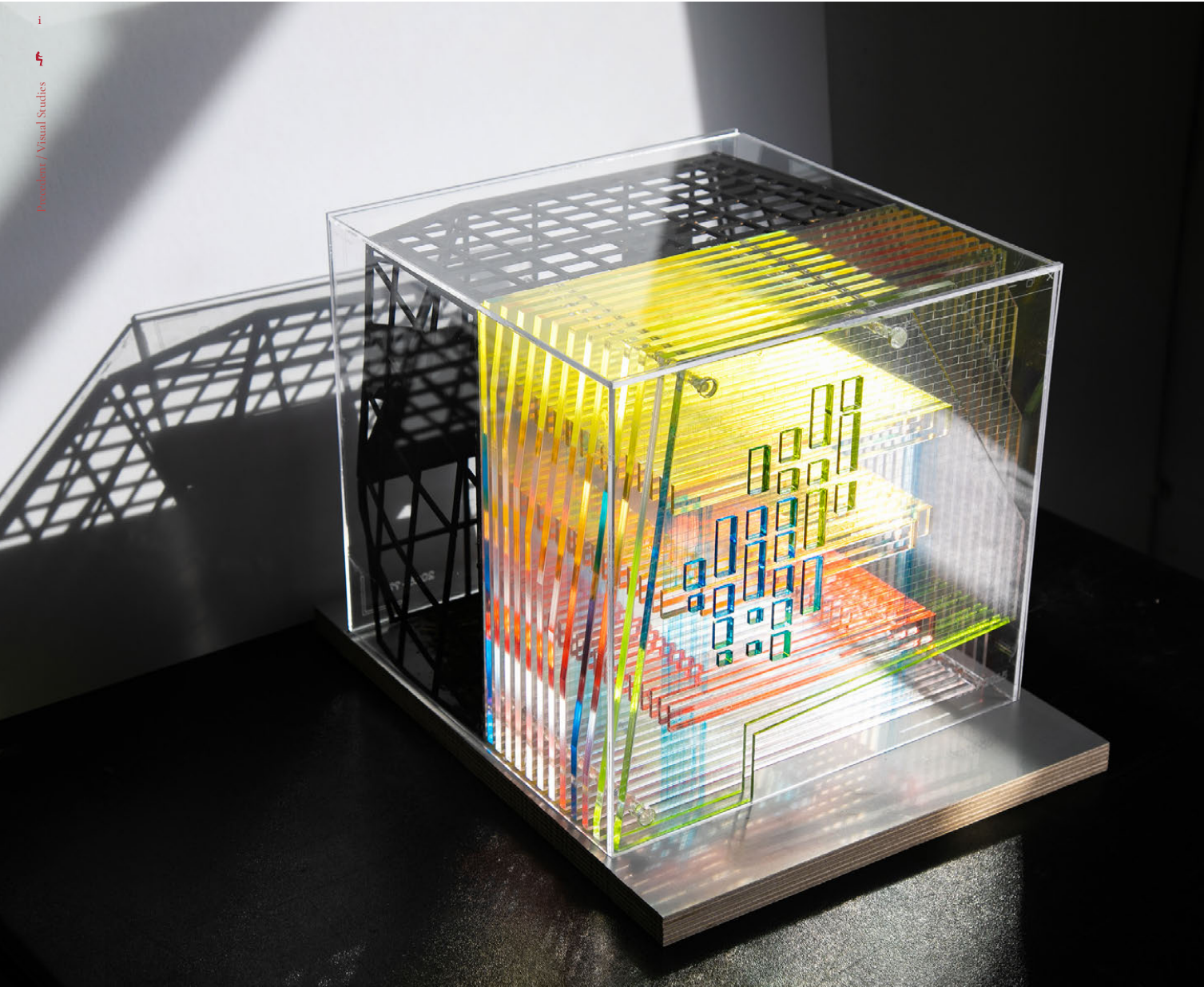


How can construction strategies from community projects ensure lasting impact in its locality?

Architectural Representation I - The Contemporary Ruin

Fall 2021 | Instructor: Andrea Chiny

Through drawing and modelling, the project takes an Instructoral stance reflecting on the life of the project Espana Library by Giancarlo Mazzanti in Medellin, Columbia. Once a cultural icon central in improving social welfare at the heart of the poorest neighborhood, today it is an abandoned ruin suffering from structural and foundation defects with controversy over its future responsibility. A speculative future blueprint for a new library combines the vitality and endurance of the medinas (slum) of Medellin as power for a new local architecture that better integrates with its surroundings in the future.



Then and Now: Espana Library

The model shows two contrasting views of the project at its two different states. One view is the initial envision through the lens of a promised, advertised web page, where the project is pristine and beautiful embodying all the expectations that the building was to live up to. However, viewing from the opposite side, it shows the lens of a camera viewport in reality today. The facade has torn down into pieces, scaffolding and framing structures left bare and fell into a ruin.

Luminal Convergence

Core II Studio
Spring 2022 | Lower East Side, NYC
Instructor: Erica Goetz

What if learning and exchange become co-generational activated by natural light?

The project reimagines a thriving educational environment for the Lower East Side's collective youth and senior citizens, amplifying learning through carved light and views.

Situated in one of the largest growing senior population districts of NYC - the project site is surrounded by a concentration of senior services and population. Many of these retired seniors have useful life skills to teach, that could benefit young children and expose them to working with experts in their own community. In return, seniors would also benefit from feeling more connected to the upcoming generation.

The building mass is organized into a bent L-shaped volume that flexes towards the light and view provided along Sara Roosevelt Park. The massing splinters open and form vertical crevices to allow light deep into the building and to break down the school into smaller segments that are visually connected. This flexing also creates porosity on the ground floor opening the building to the community and flowing pedestrian experience to the park.

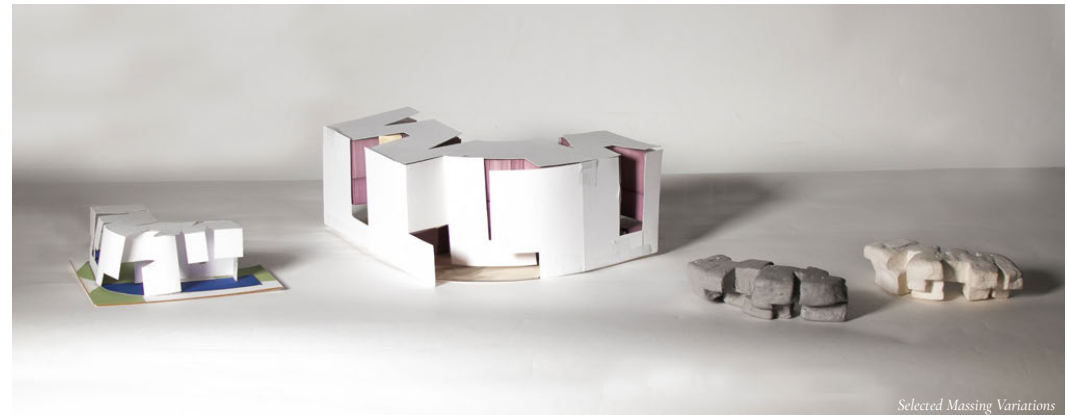




Study Models 1/32" = 1'-0"

Massing Explorations

Numerous study models were handcrafted prior to digital modeling to test out large massing strategies on the site model. The final design provides the most potential in introducing daylight in sync with the intergenerational programmatic needs, that created interesting visual connections both longitudinally and vertically across levels.

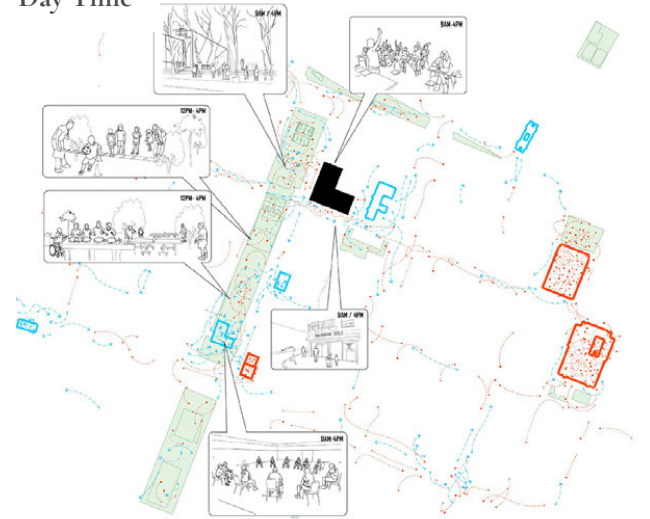


Selected Massing Variations

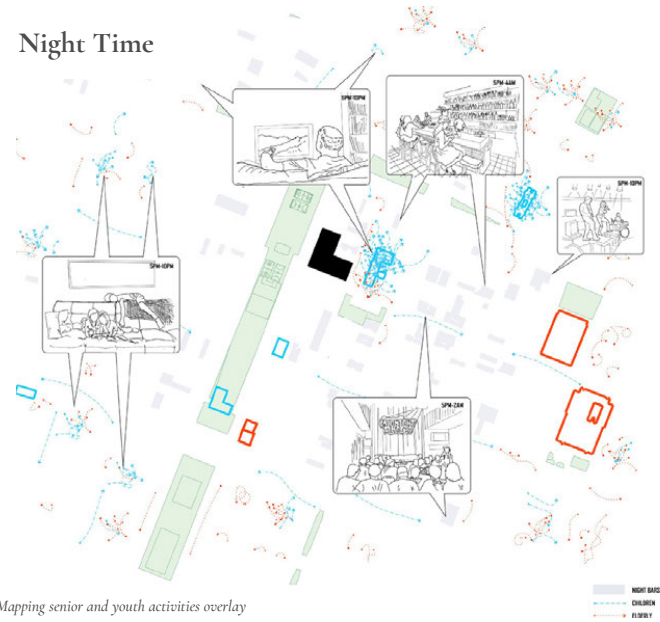


Ground Floor Plan

Day Time



Night Time



Mapping senior and youth activities overlay

Program Experiences

The ground floor features an open sweeping circulation with accessible senior-workshop studios that also share common sunrooms flooded with daylight linking the green backyard. These workshop spaces form the heart of the school where hands-on learning is paramount, which is open to seniors and children at all times, including after-school activities.

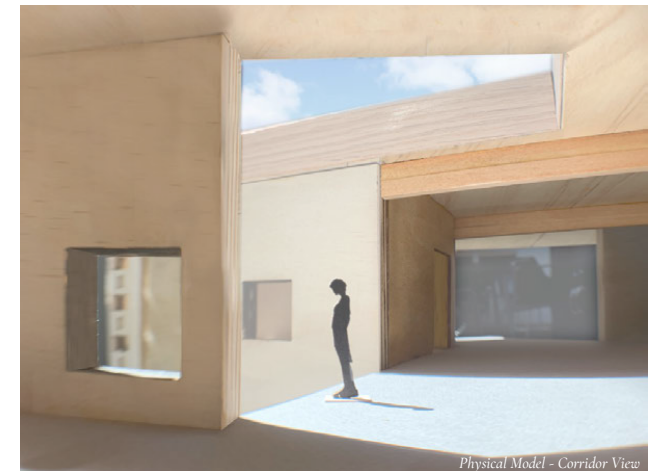


Construction, Materials, Facade

The circulation travels through the crevices on a journey flooded with light, mixed with changing viewports to the city, courtyard, and the vibrant adjacent programs. Multi-story central big programs (library and auditorium) at the center of the school serve as a vertical spine connecting upper floors with branches of traditional children-only classrooms.

The CLT structure of the building is formed with vertical load-bearing walls on the East side and a more open column grid system on the West facade. The cross-section rhythm created by the crevices forms a suitable grid for the CLT beam span.

Recognizing the rich historical brick context neighborhood juxtaposed with many new developments, the facade features a perforated metal screen as a 'modern' brick-inspired pattern that humbly overlooks the city and park, stitching into the existing context.



Physical Model - Corridor View

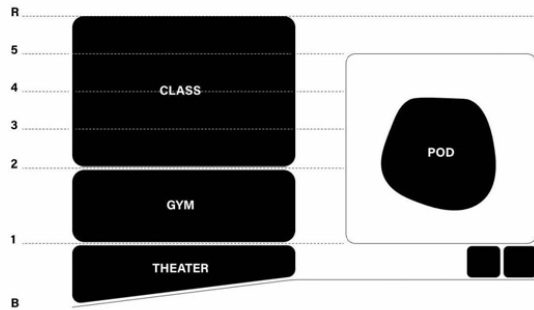
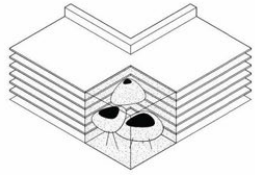
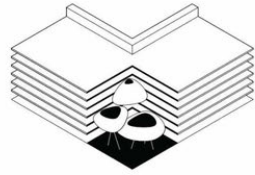
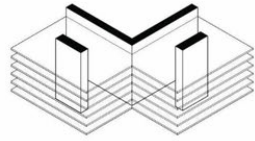
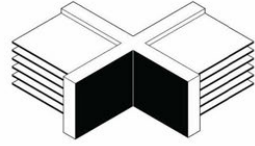
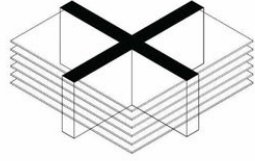
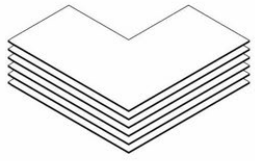


Unrolled Section Perspective

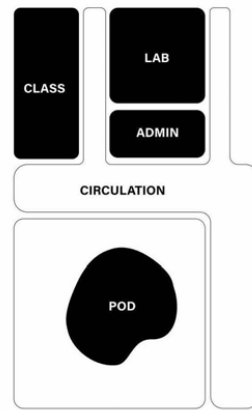
Adaptable Programs / Atmospheric Qualities

The design defies the traditional dark double-loaded corridor for a phenomenally transparent circulation, where natural light enhances social and learning interactions in these in-between spaces and most importantly, physically bridges co-generational interchange.





SECTION (N-S)



PLAN (N-S)

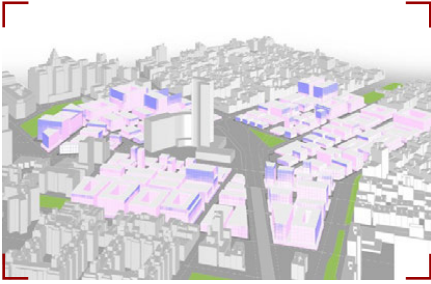
How does building technology enable open and adaptable learning spaces?

Architectural Technology

Spring + Fall 2022 | Instructors: Berardo Matalucci, Zak Kostura

Team Members: Mo Ismail, Yuna Li, Rilka Li, Duncan Tomlin, David Zhang.

The following projects are a series of experiments and practices on building science. Through the explorations of visual narratives, digital fabrication, building information technology (BIM), and parametric computation softwares, they become a compilation of design toolkits marrying technicalities with unconventional project narratives.



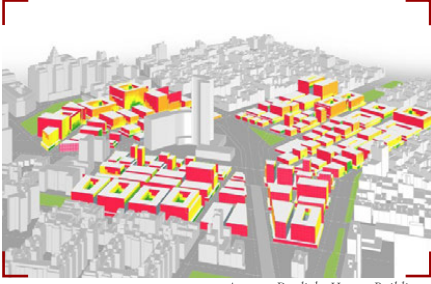
Percent Open View

X-Information Modeling: Alternate Chinatown

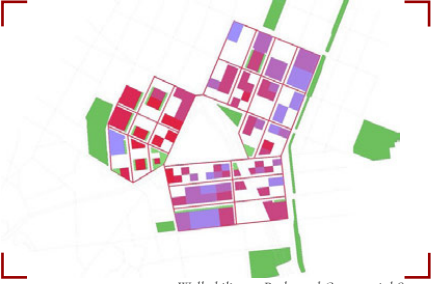
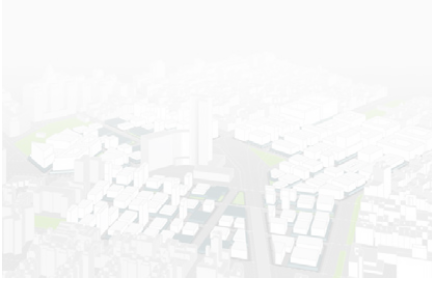
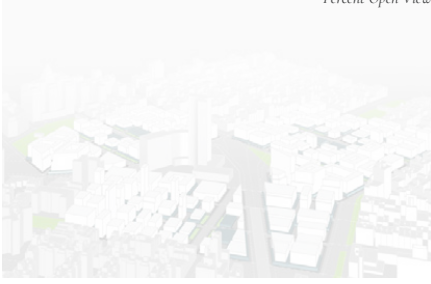
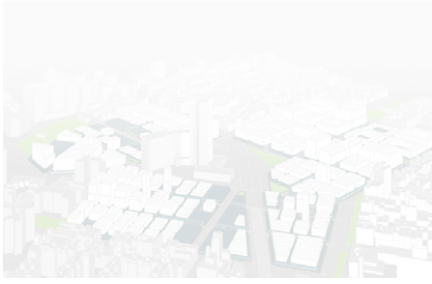
Spring 2023 | Instructor: Snoweria Zhang | Partner: Wei Xiao

The project takes a parametric design approach to reimagine the potentials of Chinatown's urban landscape by increasing both living qualities and street/cultural life. Through variations of streetscape (width/setback/amenity network), density on land use, and building typology, 7 inputs are

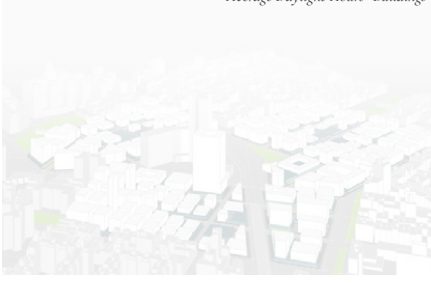
established in the parametric design model, resulting in 80 design iterations. A holistic evaluation was conducted against 4 key criteria: average daylight for open space and building units, percentage of open view, and walkability to green/commercial spaces.



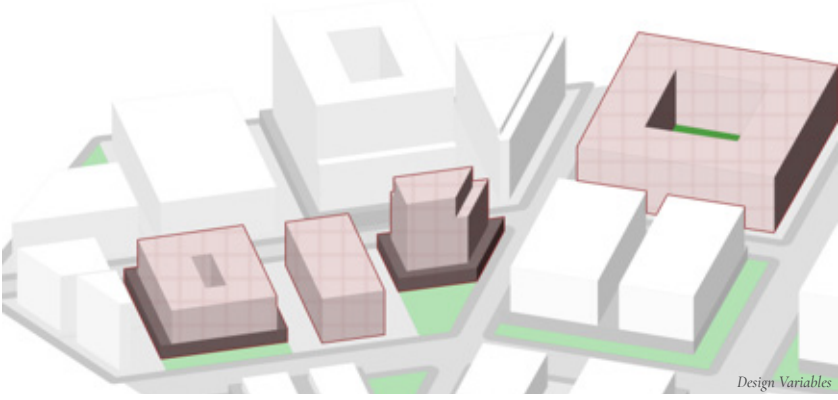
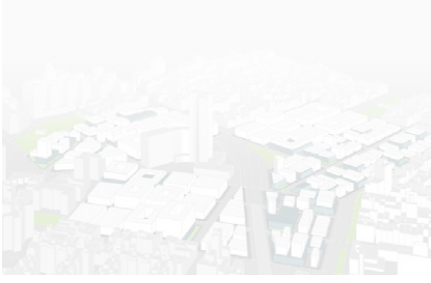
Average Daylight Hours- Buildings



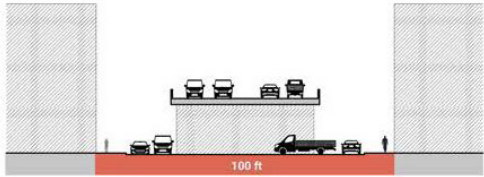
Walkability to Parks and Commercial Stores



Average Daylight Hours- Open Space



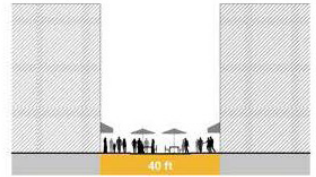
Design Variables



Primary: Cross Borough Bridge, pure vehicle



Secondary: Mixed-use



Tertiary: Pure pedestrian

Inputs	# of options	Description of the options
Street Type Option	3	Primary, Secondary, Tertiary
Streetscape Configuration	4	4 options was generated with 3 street type options
Density Attraction	4	Towards center, Towards periphery, Linear, Dispersed
Percentage of parcels with commercial use	5	30%, 50%, 60%, 80%, 90% of parcel ground floor
*Building Typology	4	Regular residential, Residential courtyard, Podium type 1, Podium type 2
* FAR	x	0.87-3.44 residential, 1.0-6.0 commercial (mixed-use)
* Parcel Width	x	60 - 125 ft
Design Space Size	80	



Reconfigured Tertiary Streetscape

Re-collecting Water Histories

Adv V Studio

Fall 2023 | Venice, Italy

Instructors: Mark Rakatansky, Jorge Otero-Pailos

What if historical infrastructure is transformed through ephemerality with climate and water on exhibit?

The adaptive reuse project encapsulates Venice's unique water collection history, specifically its wellheads—an ingenious system vital in a land surrounded by saltwater. The project reimagines the societal and communal significance of this historical infrastructure, and evokes contemporary water conservation efforts of the future. Transforming and extending the existing site of a former naval training swimming pool 'Piscina Gandini' from the 1960s, the immersive journey through water's historical significance exhibits the evolution from early water collection systems, the social fabric and communal order they wove. It climaxes at the intersection of waterspines, where the transformed piscina building becomes a contemporary exhibit of collecting, consuming and experimenting with water processes. The museum experience thus transcends typical enclosure boundaries, offering diverse encounters with water.

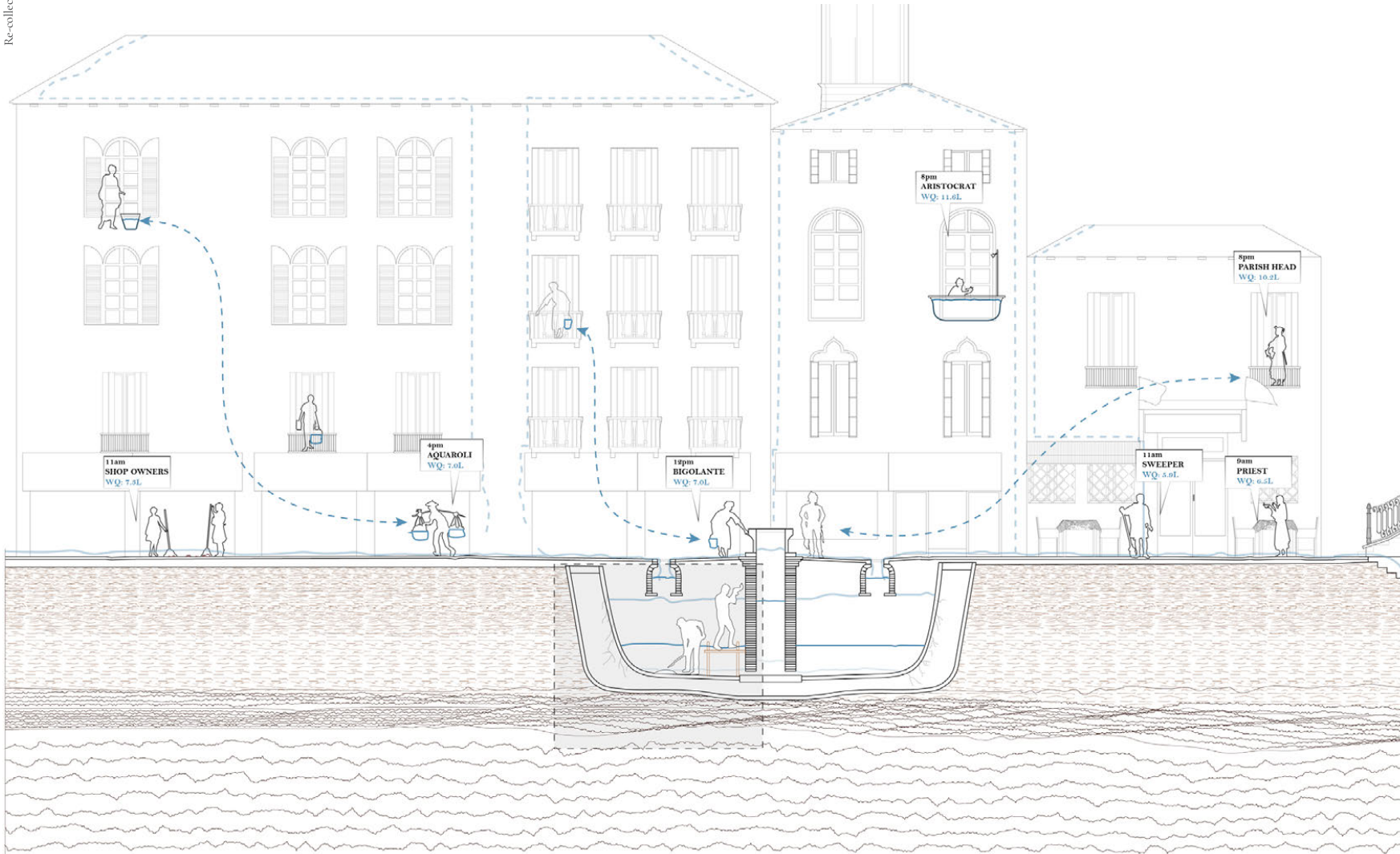
By both honoring and projecting forward from Venice's water history, the project aims to deepen public awareness about water processes, advocating for their conservation as crucial resources for a sustainable future.



Historic Wellheads Society & Archive Pictures

Central to the public squares that formed Venice's urban fabric, the wellheads were both an important essential infrastructure and social bonding symbol unique to Venice. This engineering invention allowed people to collect water from the sky and ONLY from the sky, through the maintenance of 2 surfaces: the

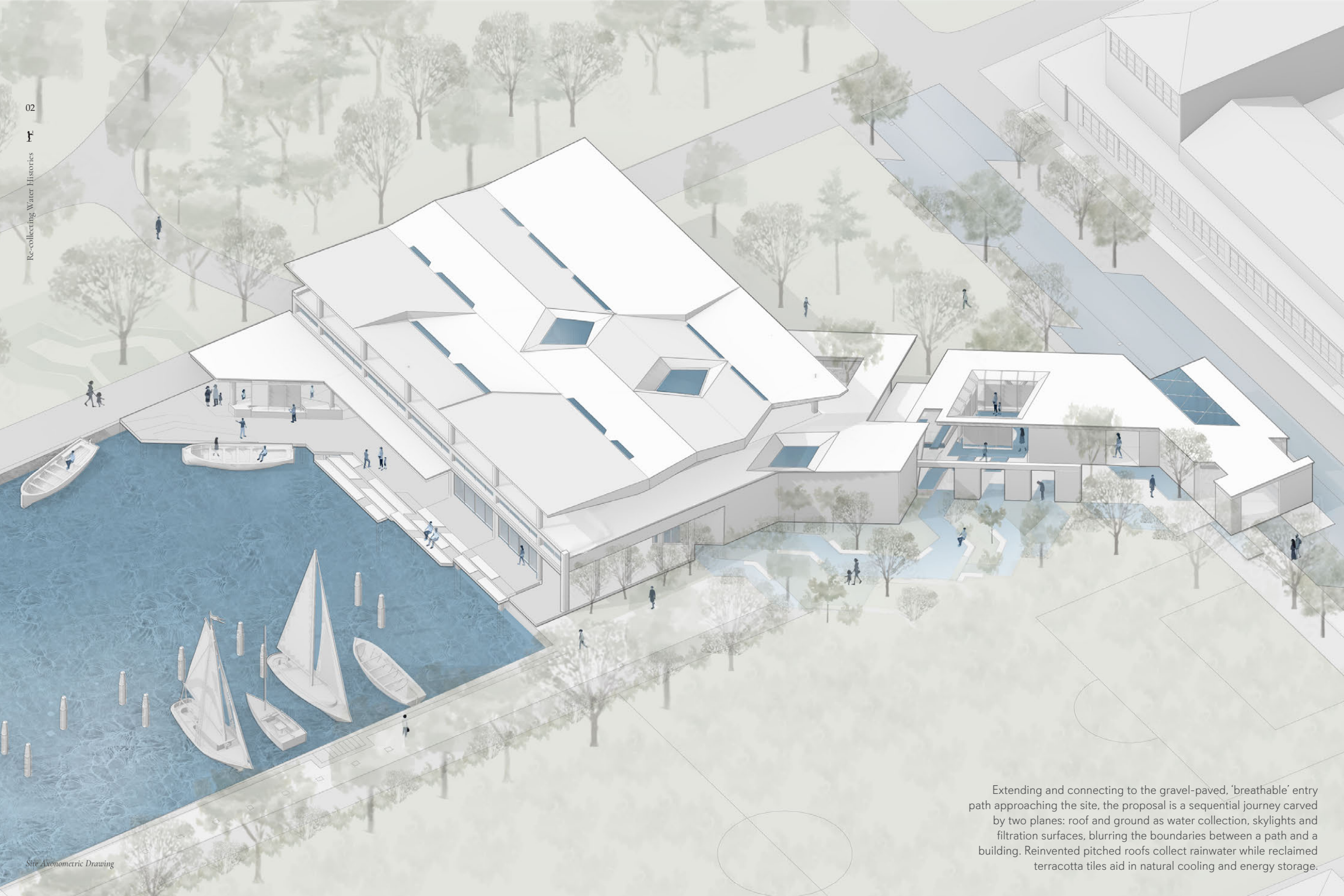
roof plane funneling water down through gutters and the ground plane filtering and storing water using unique bricks, sand and impermeable silt. Drawing water was a collective and solidary act, in which every citizen participated in the maintenance of wellheads in a social systemic operation with laws and order.



Existing Structure - Piscina Gandini



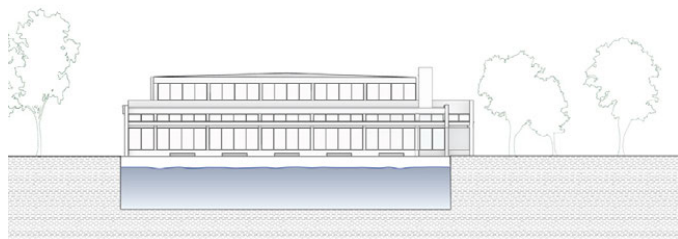
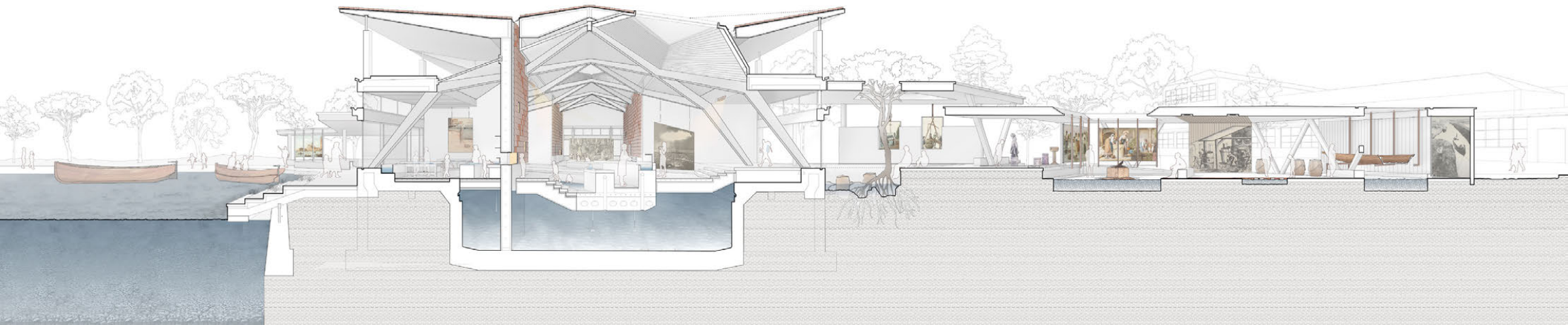
Historic Documentations of Water Collectors and Maintenances



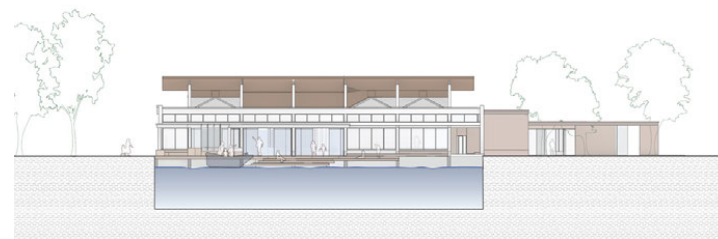
Extending and connecting to the gravel-paved, 'breathable' entry path approaching the site, the proposal is a sequential journey carved by two planes: roof and ground as water collection, skylights and filtration surfaces, blurring the boundaries between a path and a building. Reinvented pitched roofs collect rainwater while reclaimed terracotta tiles aid in natural cooling and energy storage.

Water Infrastructure as Exhibition Curation

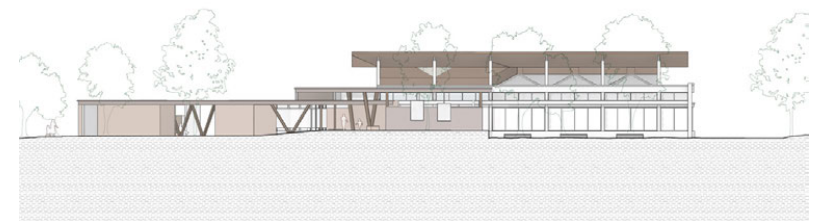
The architecture is an infrastructure exhibiting the processes and harvesting of water, and this process becomes the armatures reaching in, framing, and holding its exhibit objects. A new water entry dock completes the linear experience, or rather, making the museum experienceable from both ends of the sequence.



Existing Waterfront Elevation



Proposed Waterfront Elevation



Proposed Garden Elevation



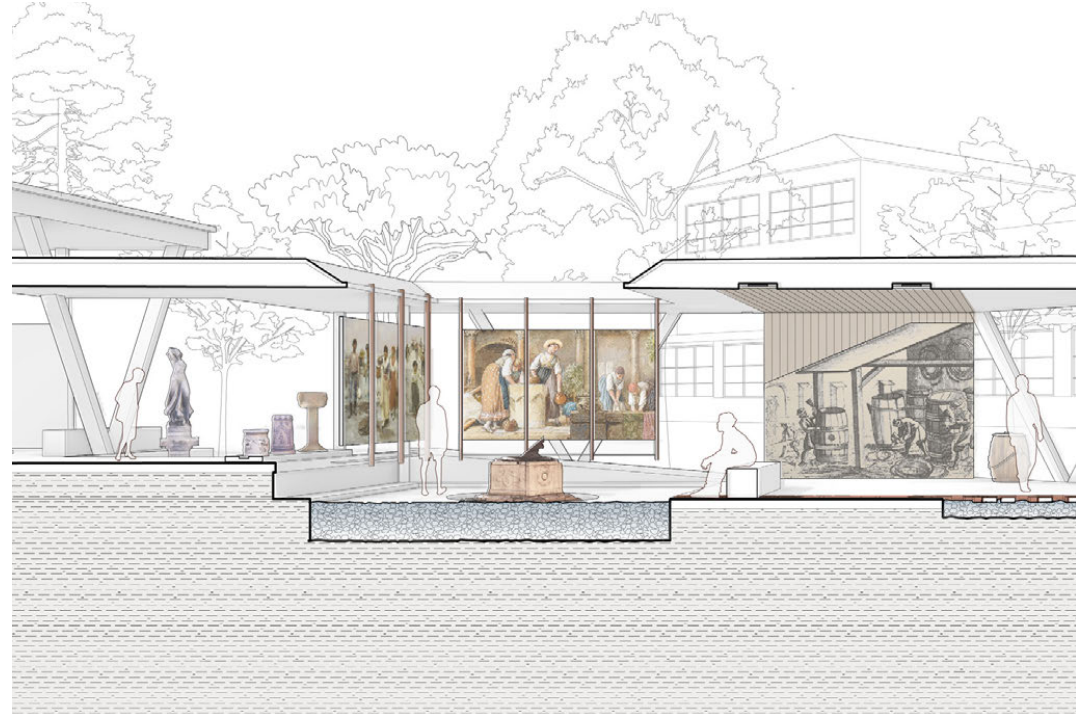
The watermen had made a habit of carrying the water to the city, and the guild's thirty-three barges made a total of 11,557 trips.¹² Some watermen made the trip two or three times a day, although on average it works out to just under a burchio held 30 botti of fresh water, or 25.38 cubic metres, is meant that the watermen





First, water was acquired purely through the transport of waterboats from the mainland, bringing river water through waterwheels loading buckets and transporting back to Venice. The wooden boats also enabled the transport of bricks, as the building block of Venice's pavement and construction of wells, with laws and order.

As wellheads flourished, it created a whole society and politics functioning around its system. Every citizen had duties in maintaining the operation of the public wellhead, while private wellheads were afforded by the aristocrats. As the spine reaches the pool building, the exhibit transitions to the erosion and decline of the wellhead system, and the advent of the aqueduct dredging.



In the scene on the next page, the roof gutters become the framing of the portraits, showing different societal roles, and diverting water down into the gravel courtyard. Central to the drawing of water are women known as the *bigolante* who delivers water to each households.

At the turn of the public scene, the wellheads developed from the primitive brick to elaborately adorned artifacts, as those who can afford their private wellheads often celebrated their affluence with water vessels and sculptures in social tea parties as the most essential resource to Venice.

Wellhead Society

In the Ghetto as elsewhere, well-heads—occupying prime positions in the squares, streets and courtyards—were a focal point for sociability, “an extension of the domestic space”. The public cisterns were opened twice a day, to the ringing of a bell, when women and maidservants of the local parish would come to fetch water for their households. The *bigolanti* were mostly, though not exclusively, women. As domestic workers, they had no guild unlike their male counterparts, the *acquareoli*. The earliest pictorial representation appears in a series of etchings of sixty Venetian itinerant trades by the printmaker Gaetano Zompini 1785 in the “*porta bigolo con acqua*”. She is depicted simply clothed and barefoot, stepping down from the well-head bearing the tell-tale harness over her shoulders, supporting two copper buckets full of water, into one of which a boy is looking.

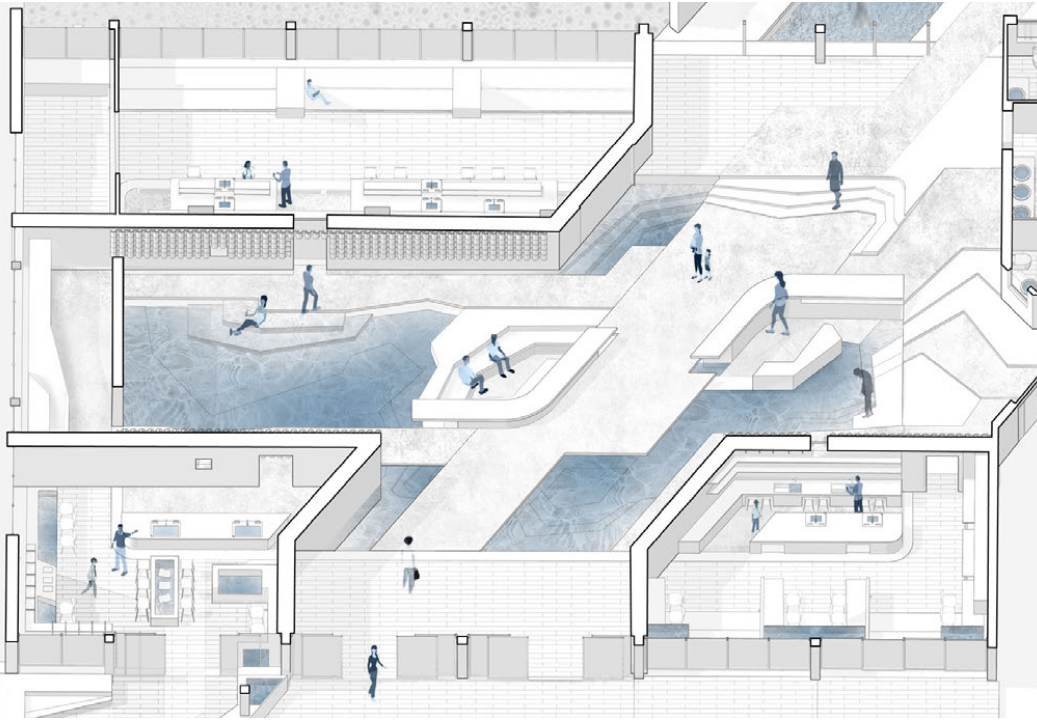




RE-QUIESCERE

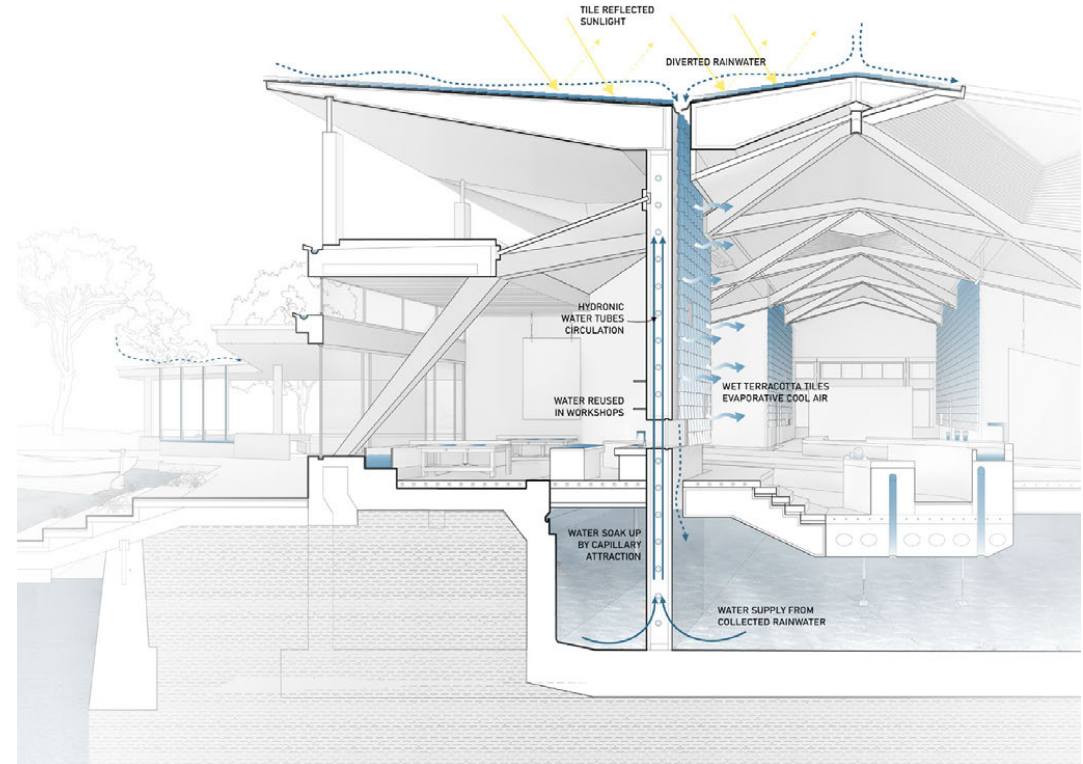
...the power was in the hands of a few, and that the supply was not to be hoarded, but to be distributed to all who needed it. The world had never before seen a society in which the wealth of the rich was not hoarded, but was used to benefit the poor. The rich were to be seen as the stewards of the wealth of the world, and not as its owners. The poor were to be seen as the recipients of the wealth of the world, and not as its subjects. The rich were to be seen as the servants of the poor, and not as their masters. The poor were to be seen as the equals of the rich, and not as their inferiors. The rich were to be seen as the benefactors of the poor, and not as their oppressors. The poor were to be seen as the beneficiaries of the wealth of the world, and not as its victims. The rich were to be seen as the providers of the wealth of the world, and not as its hoarders. The poor were to be seen as the consumers of the wealth of the world, and not as its beggars. The rich were to be seen as the givers of the wealth of the world, and not as its takers. The poor were to be seen as the receivers of the wealth of the world, and not as its thieves. The rich were to be seen as the donors of the wealth of the world, and not as its robbers. The poor were to be seen as the recipients of the wealth of the world, and not as its plunderers. The rich were to be seen as the providers of the wealth of the world, and not as its hoarders. The poor were to be seen as the consumers of the wealth of the world, and not as its beggars. The rich were to be seen as the givers of the wealth of the world, and not as its takers. The poor were to be seen as the receivers of the wealth of the world, and not as its thieves. The rich were to be seen as the donors of the wealth of the world, and not as its robbers. The poor were to be seen as the recipients of the wealth of the world, and not as its plunderers.

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Entering the piscina building, the horizontal spine becomes a congregational water playspace extending and reaching from the exterior landscape, with organic steps down into the water storage tank with fluctuating levels. The banks of the building host educational laboratories and workshops where water samples from this building and throughout larger parts of Venice are collected and studied, and children will be able to create their own hands-on experiments in a

classroom setting. The space is made dynamic where water can be experienced in a myriad of ways. From drinking, sharing, playing, exploring, learning, to performing and projecting, and experimenting with fresh/marsh filtration plantings from the labs that turn the space into temporary phenomena.



When it rains, water is collected through the reinvented pitched roof down the thermal walls, lined with terracotta tiles reclaimed from the existing roof and inverted as interior rainscreens, draining into the tank of the pool. Water can then be circulated within the wall supplying the reuse in laboratories. In the summer, wetted terracotta tiles are an effective evaporative cooling facade, releasing cool

air to passively cool the building. While in winter, thermal chromatic paint of the new roof terracotta tile enables the absorption and storage of heat, with embedded solar energy then stored in the wall as a thermal mass, combined with hydronic radiant flooring using the water below.





How can temporary installations create interactive and fun experiences powered by renewable energy?

GSAPP x Worm

The Outside-In Project Seminar

Spring 2023 | Columbia University, NYC

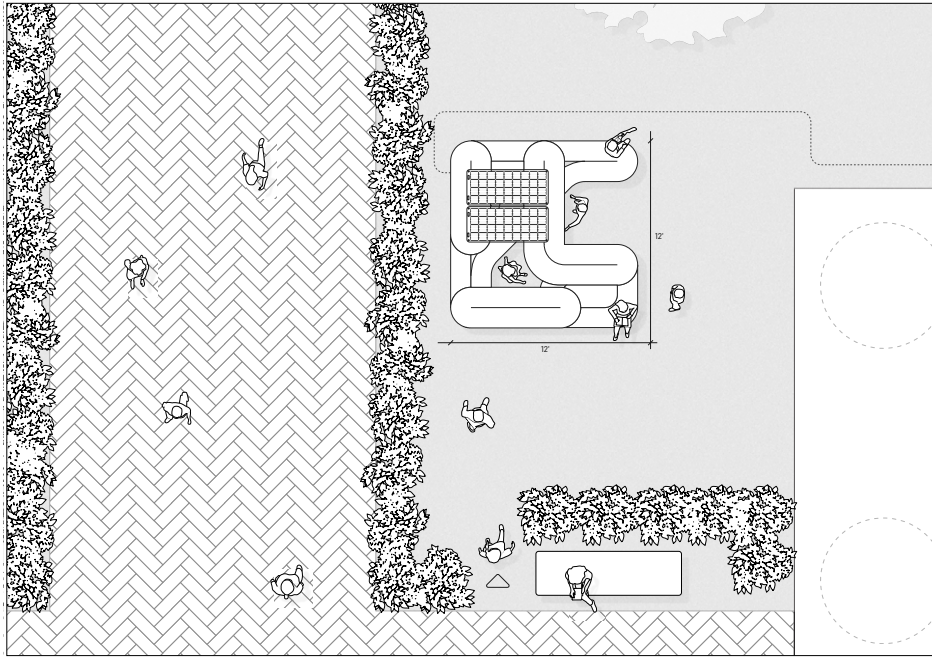
Instructors: Galia Solomonoff, Laurie Hawkinson

GSAPP Worm, a pop-up pavilion was designed and constructed as part of Columbia GSAPP's "End of Year Show" and the school-wide graduation ceremony. The inflatable installation takes the concept of dynamic continuous line and creates intimate playscapes that invites visitors to bounce, walk, sleep, sit, and charge their phones in the solar powered pockets.

The simplicity in form allows for an ease of assembly and reduction in material cost and construction time frame: erected in half a day and deconstructed in 30 mins. The pitched upper arms of WORM were designed to optimize incident sunlight to increase the efficiency of two mounted photovoltaic panels. The lower section, filled with recycled foam and anchored by weighted ballasts, enables various forms of interaction without compromising structural integrity or appearance. This installation reflects our team's efforts to blend creativity with sustainability, offering a lighthearted glimpse into innovative architectural possibilities.

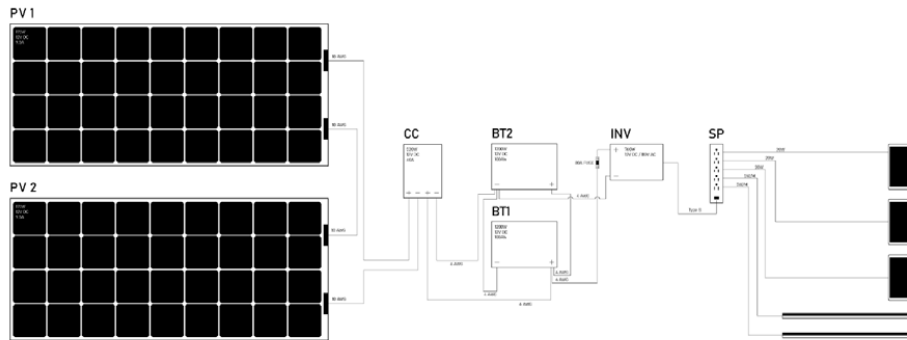
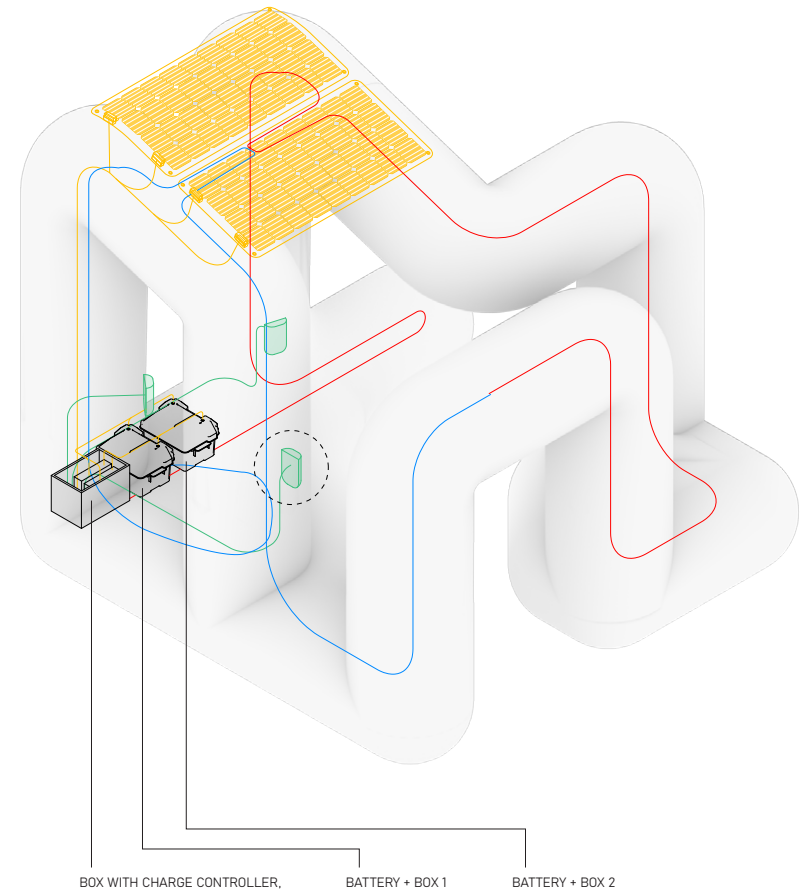
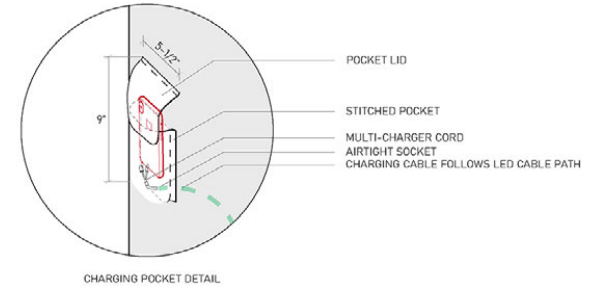
Team Members: Samuel Bager, Brennan Heyward, Nicholas Richards, Vishal Benjamin, Yuna Li, Marina Guimaraes, & Zina Berrada.

A Future in Local Power- Espana Library

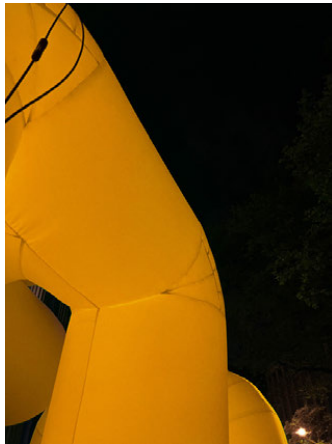
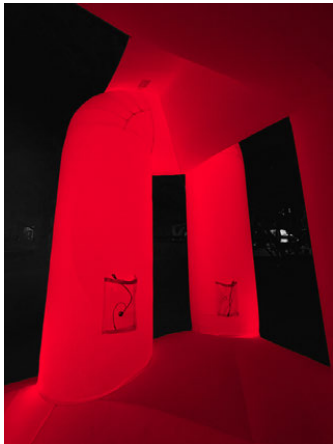


Site Plan

- PV WIRING IN (321" or 26'-9" or 8.25m)
- POCKETS OUT (229" or 19'-1" or 6m)
- MULTI-LED 1 (518" or 43'-2" or 13.25m)
- MULTI-LED 2 (563" or 46'-11" or 14.25m)



- WIRING ORDER → BEGIN HERE → FOR FULL SETUP → FOR ONLY BATTERY PV CHARGING
1. BT2(-) to BT1(-)
 2. BT2(+) to BT1(+)
 3. WIRE(+) to INV(+)
 4. WIRE(-) to INV(-)
 5. INV(-) to BT2(-)
 6. INV(+) to FUSE to BT1(-) -- this will spark
6a. optional: test power with appliances
 7. CC(-) to BT2(-)
 8. CC(+) to BT1(-)
8a. Configure Battery if needed
 9. PV2(-) to CC(-)
 10. PV2(+) to PV1(-)
 11. PV1(+) to CC(+)



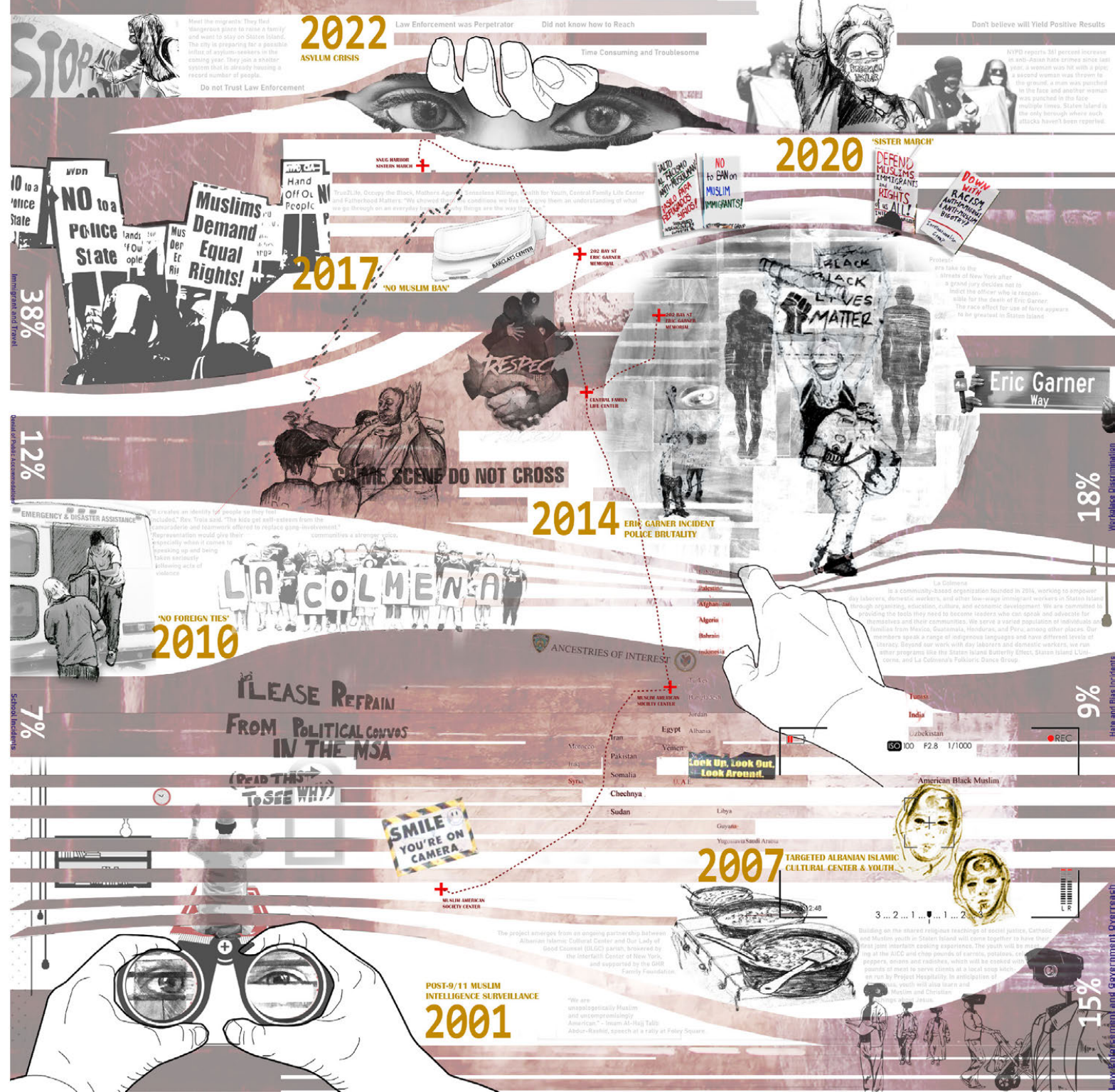
Building Dignity

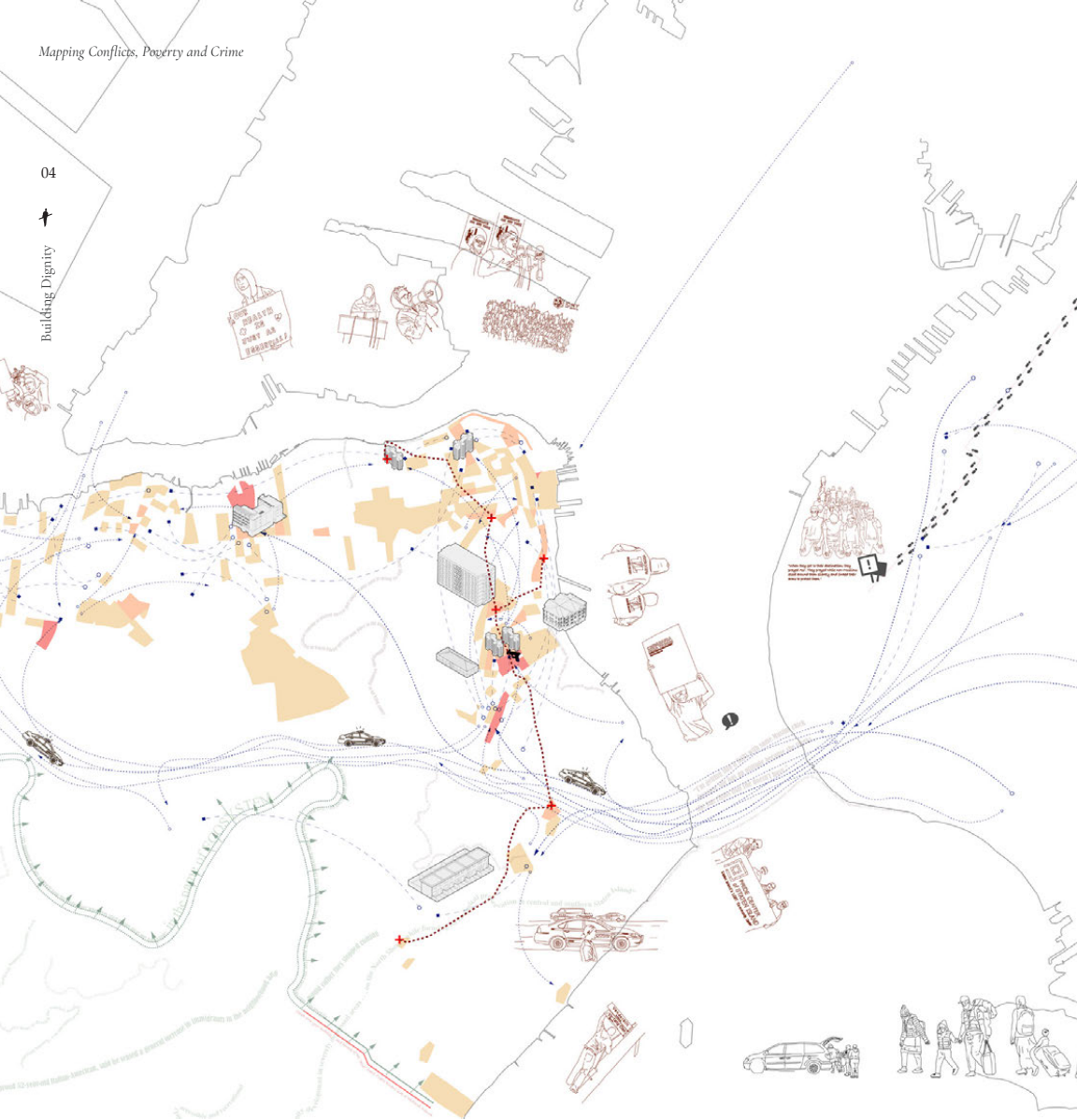
Adv IV Studio
 Spring 2023 | Stapleton, Staten Island
 Instructor: Ziad Jamaledine

What if infrastructure becomes collectively-grown, built and maintained?

The histories of immigrant racial conflicts are deeply rooted in the Staten Island, a conservative borough predominantly white for decades. From the initiation of the post-9/11 Muslim surveillance, Trump's 'No-Foreign Ties' policies, to violence on the black community, immigrants have continued to face hardships and protested for their rights. The newly arrived immigrants of Staten Island are a group often overlooked by the public, yet makes up a huge essential labor force driving socio-economic developments and growing at an unprecedented speed in recent years. While most of these immigrant workers long for a humble way to make a living and support their families, their wages are shockingly only a fraction of the same job earnings for non-immigrants in the rest of NYC. The majority are employed in blue collar jobs such as construction, maintenance, cleaning and service industries.

The project is a self-sustaining educational institution that provides essential labor training for newly-arrived immigrants awaiting their legal status of employment. It is a shared community asset of knowledge, and support, during their most vulnerable period of awaiting their legal working status.





The Vulnerable 180 Days of Invisibility

A huge factor for the inequality in wage and employment rights can be traced back to the notorious 180 days of processing period for the immigrant legal work status application. As one first arrive in the borough, they need to formally request a work permit called an employment authorization document. This period leaves many with

no means to support themselves legally. Many of them resort to the streets for informal day labor pickups with harsh working conditions at the risk of exploitation with no negotiation power. Without any formal training and legal knowledge of their rights, this exploitation continues even beyond earning a legal working status.

Site Context

The geographical tracing of political conflicts shows a scarring spine of concentrated regions of poverty, crime and labor insecurities for immigrants on the SI Northshore. Zooming in the center of this spine is the Stapleton District, where I have identified two vacant lots directly adjoining the Stapleton subway stop. The site is also special as one of the most vibrant and densely populated immigrant

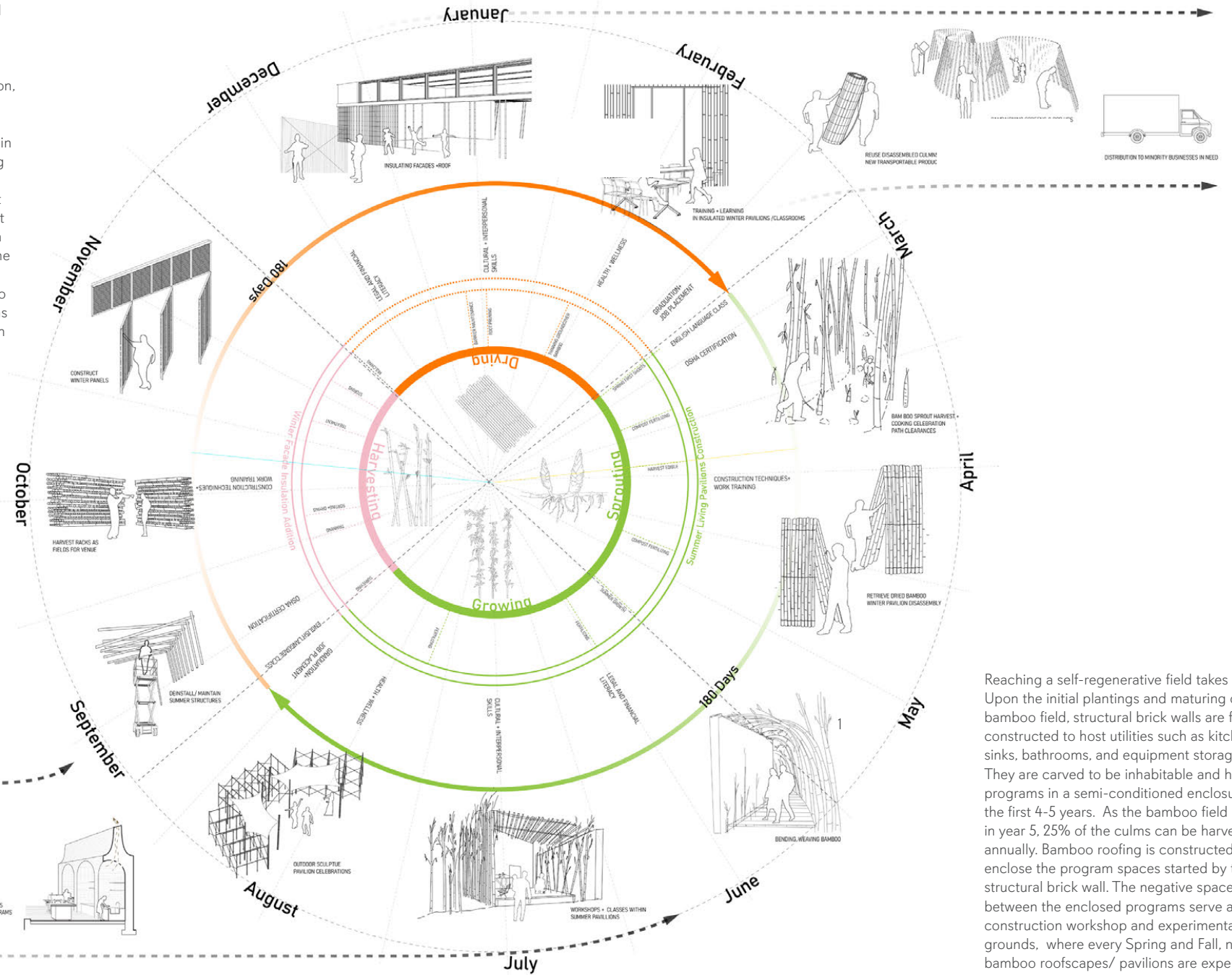
communities on the island, adjacent to the only immigrant job resource center-La Colmena. The nonprofit with huge social significance in empowering immigrants through education , organizing, culture and economic development. Yet their physical space of a single storey room could no longer accommodate the overflowing needs for training courses for construction and service industries.



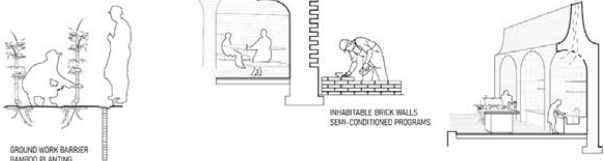
Structuring, Harvesting, Experimenting

The project provides resources, networks, and training to transition immigrants to a stable and formal source of employment focusing on their most vulnerable period of 180 days and beyond, administered by la colmena. In addition, it is an evolving experimental ground where the majority of trainees in the construction industry can practice building techniques within a regenerative design-build project, in working with bamboo as a construction material in addition to their general knowledge training. It is constructed, maintained, and partially rebuilt bi-annually every 180 days through the growth and upkeep of a bamboo field by workers in the construction industry as a renewable building resource on-site, with collaborators of bamboo nurseries in NJ, Massachusetts, and Oregon as part of the American Bamboo Society northern chapter expansion effort.

04 Building Dignity



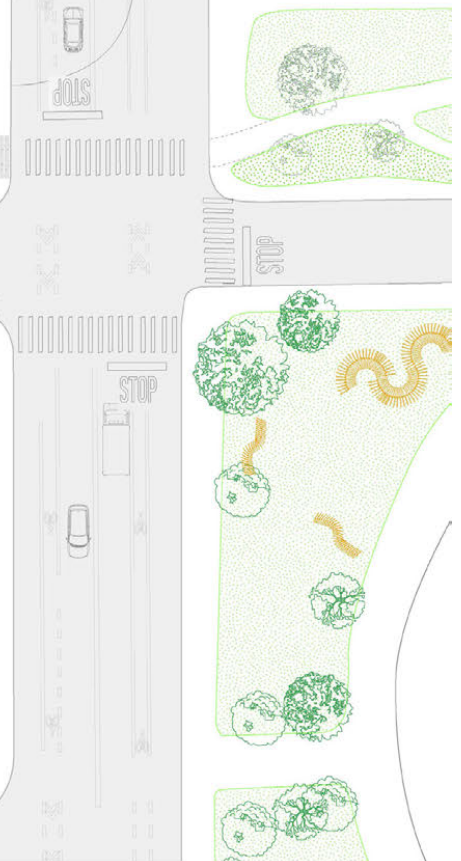
Reaching a self-regenerative field takes time. Upon the initial plantings and maturing of the bamboo field, structural brick walls are first constructed to host utilities such as kitchen sinks, bathrooms, and equipment storage walls. They are carved to be inhabitable and host programs in a semi-conditioned enclosure in the first 4-5 years. As the bamboo field matures in year 5, 25% of the culms can be harvested annually. Bamboo roofing is constructed to enclose the program spaces started by the structural brick wall. The negative spaces between the enclosed programs serve as construction workshop and experimental grounds, where every Spring and Fall, new bamboo roofscapes/ pavilions are experimented with as part of the training and inhabited in summer and winter.





Linear Journey, Non-Linear Timescale

The long section perspective collapses the linear journey of the project at the cross-section between the subway commuter spine connecting two existing public parks - in a non-linear timescale capturing moments throughout the evolving calendar. Recycled poles at the end of each cycle have the opportunity to be fabricated into modular pavilions for canvassing events spreading any news or knowledge to the wider community beyond the physical site.



CLASSROOM/ ADMIN
*In-Progress

BENDING

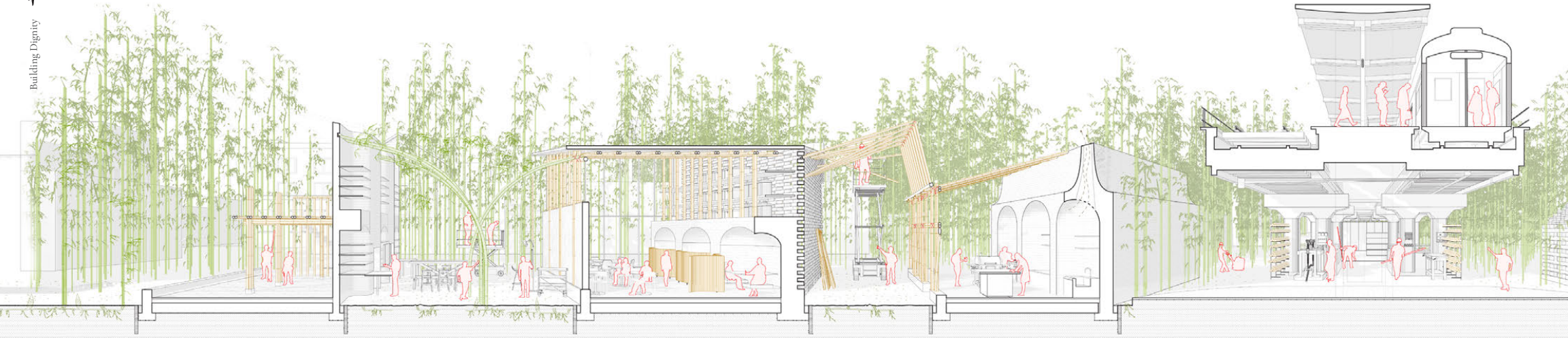
CAFE/ CLASSROOM

FRAMING

COMMUNITY KITCHEN
*In-Progress

MACHINERY + WORKSHOP

SUBWAY CONNECTION



WEAVING

CLASSROOM

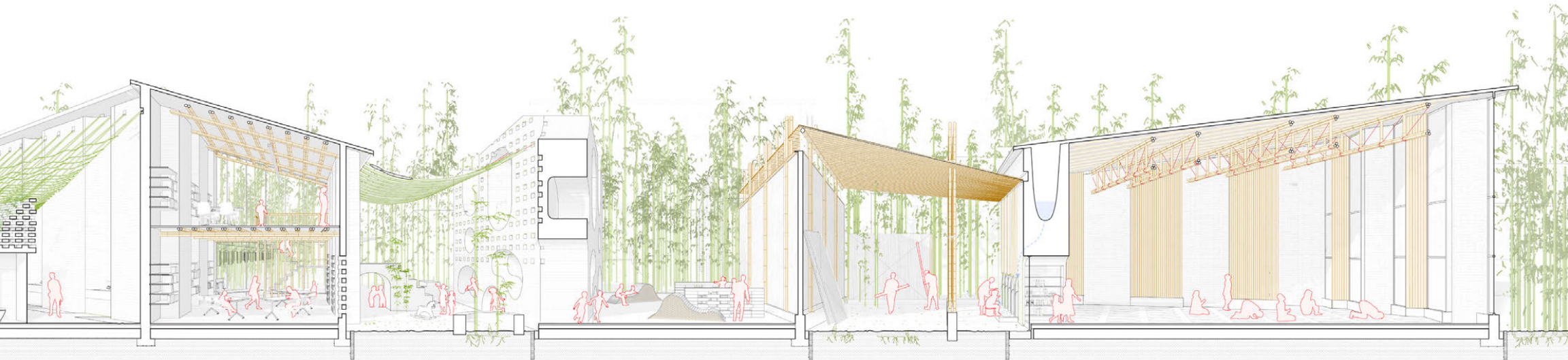
DRAPING

DAY CARE
*In-Progress

WATERCOLLECTION

ABLUTION WALL

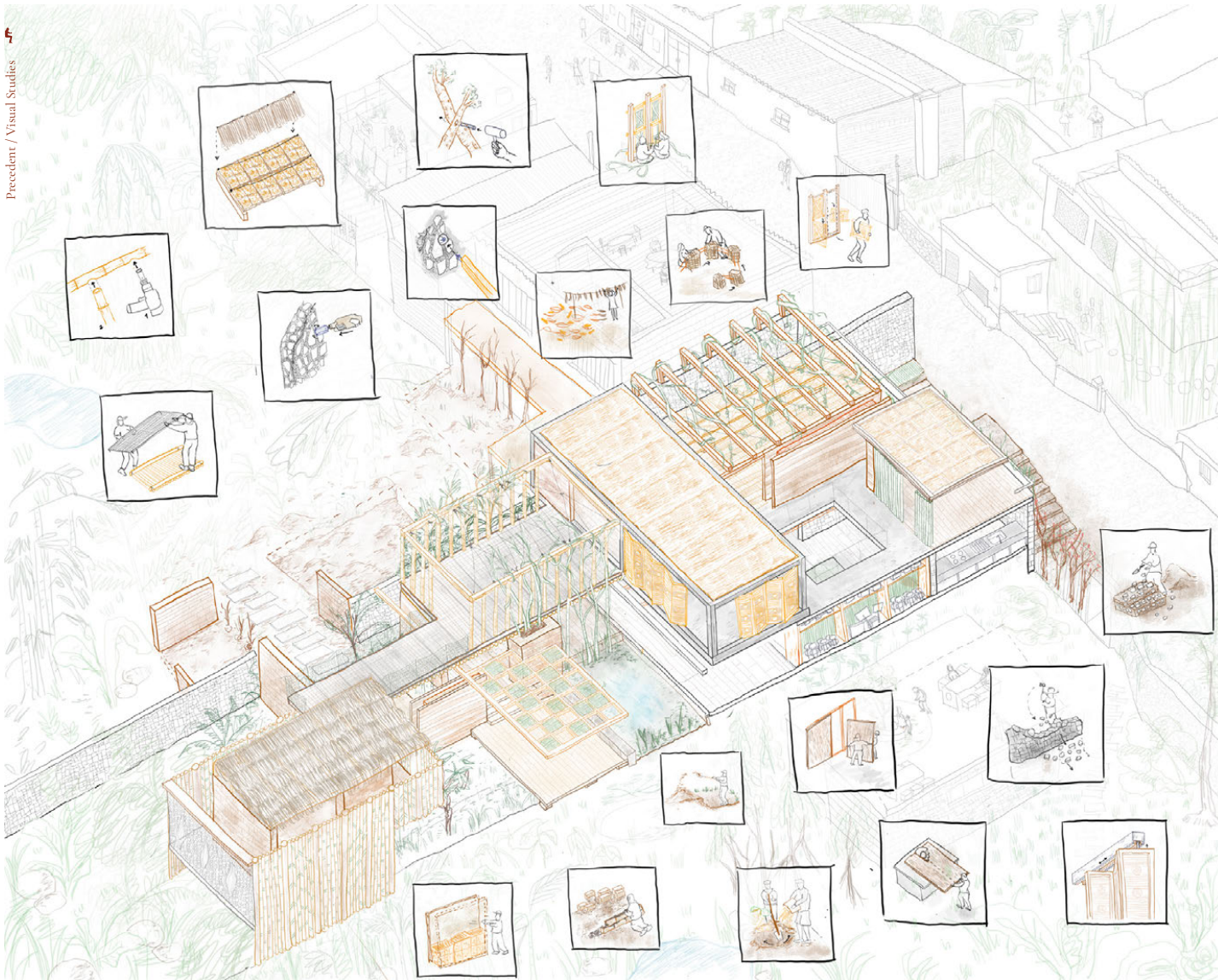
PRAYING SPACE + ASSEMBLY





Symbol of Dignity in the Public Landscape

The speculative project challenges a typical building typology as a regenerative infrastructure, where it experiments with the possibility of being self-grown, self-built, and self-sustained with the input of its inhabitants. In training and building collectively, knowledge is shared and practiced on-site while building a cohesive immigrant community. Seeing the architecture manifests becomes a symbol of dignity recognized in the public landscape.



How can a building's metabolization foster leisure and labor opportunities?

Re-envisioning Casa Albino Ortega

Spring 2024 | Case Study for Adv VI Studio

In Tepoztlan Mexico, the conflict between tradition and tourism prompts a shift towards new communal initiatives in embracing its future. The project reimagines a private residence as a communal cooperative, bridging traditional construction and craft with tourism. By blurring the lines between leisure and labor, the project foregrounds indigenous knowledge and production as cultural and economic opportunities. The private lot becomes an extended public street network, accommodating permanent and flexible programs to generate cultural revenues, fostering pride and sustainability. The half-permanent duality of the original house is transformed into a dynamic framework, producing building and craft components as both commodities and communal distribution.



Monologue from the House:

"Looking back, I was once aloft, tranquil and empty within this vibrant town. Some may say I was a retreat and envy my apparent elegance and style, but my beauty came with a price tag that only performed a few days for the tourists, then it quickly deteriorates to messiness, abandonment before having to make over by local tenders for the next nightly performance.

Now my heart is full. I am metabolizing when many parts of me are constantly occupied with changing programs and experiments.

I am proud to host the second round of seed craft facade construction to be transported to my friends who need them across the street, and hold onto those beautiful props and handmade marching signs in my storage closet to be taken on the streets at any moment.

I have grown and mingled into my former garden with new construction grounds, as workshop and production of craft through those impermanent frameworks, meetings advocating for the right changes

I am still half building, half constructed landscape. Half permanent, half temporal.

I am content that I am never perfect or in a state of completeness, but I grow and flow connected with the spirits of the town."



Woven Dualities

Adv VI Studio

Spring 2024 | Nakhon Ratchasima, Thailand

Partner: Carmen Chan

Instructors: Rachaporn Choochuey + Lucy Navarro

What if we design for ‘permanently in progress’, where spaces continually evolve and adapt as a living canvas?

“Woven Dualities” reimagines the architectural landscape as a perpetually evolving canvas, where the intricate interplay of leisure and labor is woven into the very fabric of the environment. The project envisions a space where formerly disparate agencies- farmers, weavers, artisans, tourists, and artists coalesce, their interactions weaving a living tapestry of cultural traditions and innovative practices.

Through site planning and agroforestry techniques using bamboo local to Nakhon Ratchasima, the project proposes a dynamic, evolving landscape as an adaptable framework (warp), ready to be shaped and reshaped by those who inhabit it (weft). Designed to be ephemeral in respect for the land, it can be removed without a trace, leaving the earth as it was found with a legacy of planted land art. Here, the lines between architecture and nature blur, inviting all who visit to partake in shaping its story.





Disintegrating Tectonics

The site is layered through various planting and growth phases through time. The drawing has two layers envisioning a site elevation and a site section (when outer layer pulled up) at different growing phase. Planted bamboos are selectively harvested for the construction of wall panels, partitions, and craft as well as serving a living structure and armature for customizing spaces.

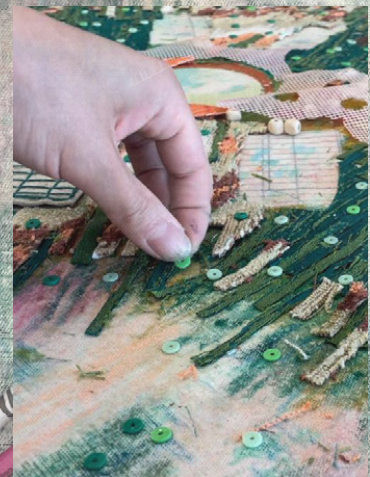
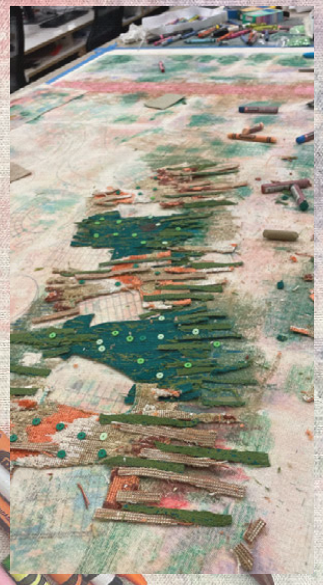
If the day comes when the artist-in-residence program has taken on a new location, the bamboo forests left behind become living archives of past residencies and serve as productive land art. In itself an ever-changing playscape and attraction that invites revisiting, taking on different forms throughout seasons and years.



Site Plan 3/32" = 1'-0"

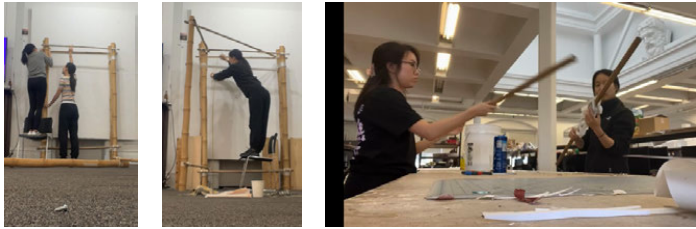


We challenge the former orthogonal and distinct field regions from the site's agriculture past for a fluid site intervention along the natural fluvial pathways. The site plan weaves through the landscape with a planting scheme that serves as the basic framework for building upon. Our representation process also corresponds to the interlaced stitching of landscape planting zones.



Site Plan: Creative Process





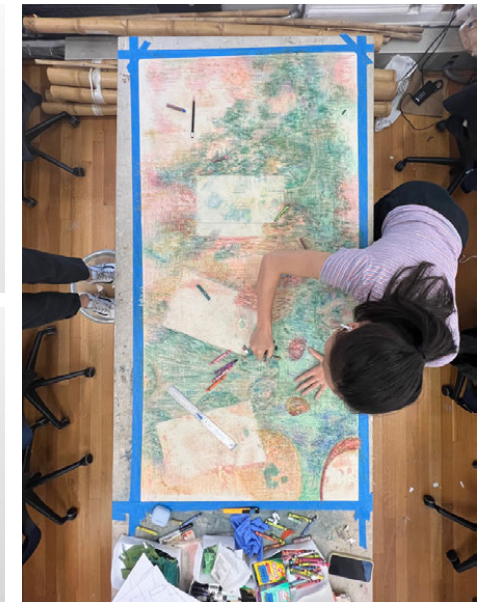
Living Frameworks for Display

The full scale installation mimics living bamboo columns at two different column widths that add to the customization flexibility similar to the warp and weft concept in weaving. The poles serve as the warp for many different 'weft' wall configurations and materials to install upon, such as our own drawings. We used lashing and non-drilling attachment details for the preservation of a living bamboo culm.





Unit Cluster Plan 3/8" = 1'-0"



Layered Axonometric Drawings + Process

Layers of Privacy and Expansion

Each module is initially built with a 'nucleus' that provides the basic unit necessities (bathroom and outdoor shower and kitchenette, living space). The units allow for private expansion in depth and customization of enclosures depending on the resident's needs through a modular rail and panel system. The nuclei also have the option to expand in width on both sides. Different planting zones allow for

varying collaborative spaces between neighbors on either side. The unit section, plan and model represent a possible scenario of expansion through a cluster of 3 studios in year 2, occupied by a textile designer, a painter, and a chef. The idea is similar to a silkworm raveling in a cocoon outwards, where horizontal canopies, and vertical planes are blurred as an open canvas for displaying, hanging, drying, shading, storing, etc.

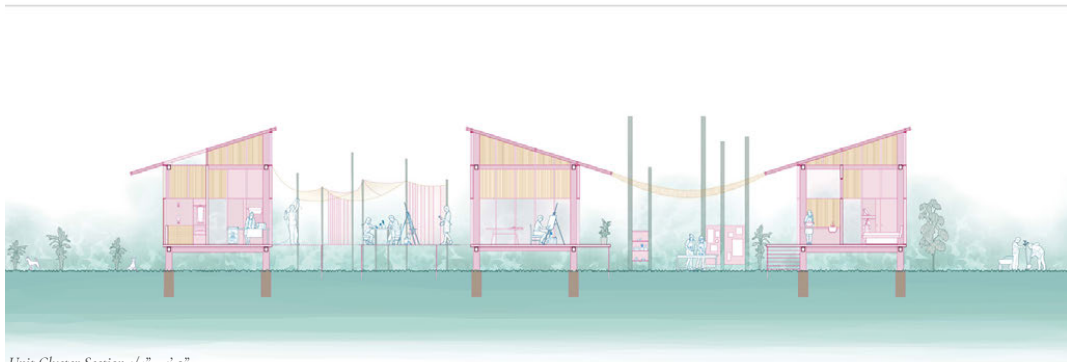




Inspired by the traditional Isan houses, steel columns are set into concrete footings and the units are elevated 4' from the ground, allowing grasses and bushes to still grow beneath and for clearance above the flood zone.

There are an infinite organic ways to build/share spaces with the bamboo plantings in between two zones:

The larger, sparser bamboo zone, signified by the pitched-in roofs on either side, are ideal for shared outdoor studio spaces and making on the ground. Stringing between these thicker, living bamboo columns can create support for shelving and tools, as well as draped fabric canopies between the roofs. Smaller denser bamboo zone for more intimate outdoor working nodes on mesh and ephemeral lightweight curtain partitions.



Unit Cluster Section 1/4" = 1'-0"

Shared Courtyard View





Reflection on Making

The process of hand-making helped us attain a richer understanding of the project's essence through the stumbles and triumphs that accompanied each step. We continuously shared moments of exchange and experimentation as our creative journey became intertwined, and our own lines between leisure and labor began to blur. Our process stayed loose, fluid, and operated

on many layers of opacities that manifested our design intentions. There are further potential for multiple breathing facades incorporating more living/harvested bamboo elements from the landscape as it unravels from the core nucleus - blurring the boundaries of form and field. Trusting the making process and allowing it to critically reflect back in our design became the most enjoyable journey.







spaces are never complete until they are transformed upon-

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