

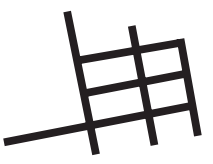


KATS TAMANAHA
INTERIOR DESIGN MFA
SUSTAINABLE ENVIRONMENTAL SYSTEMS MS
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cover image
oil on canvas
spring 2016



corridor 4



permeability 36



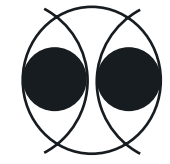
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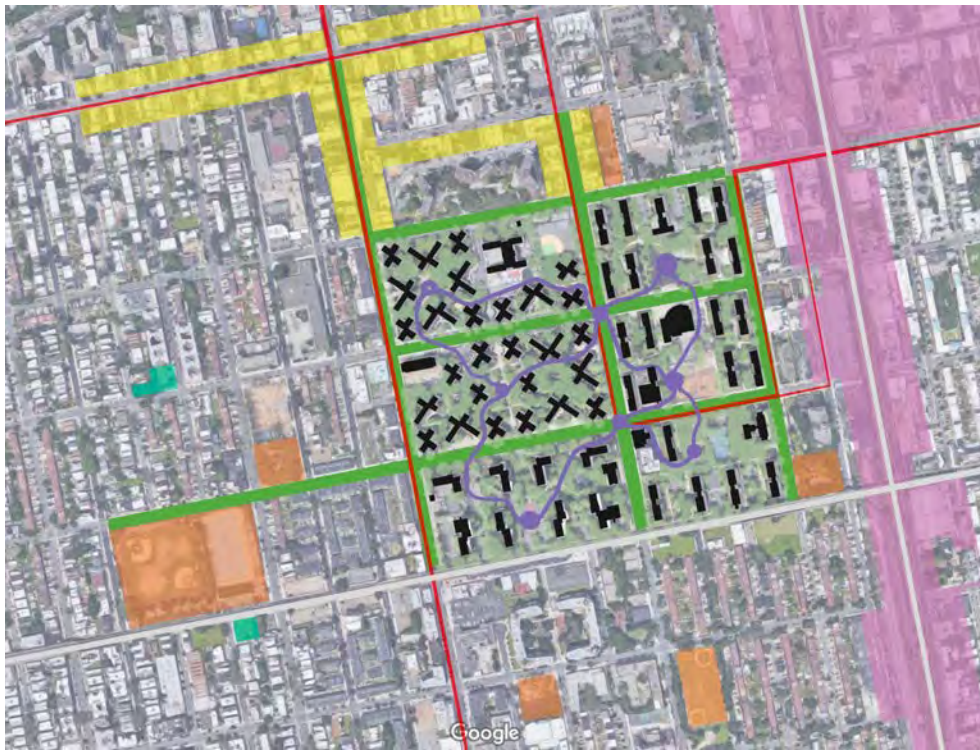


brief: to design an integrative green infrastructure and urban agriculture master plan for the six-superblock NYCHA campus in Brownsville, Brooklyn

concept: transforming the existing streetscape into a series of interconnected agricultural corridors will harvest rainwater for self-sustaining irrigation, provide immediate access to fresh produce, mitigate air pollution and obesity-related health impacts, decrease the urban heat island effect, and create long-term economic growth for local residents



perspectival view - agricultural corridor streetscape



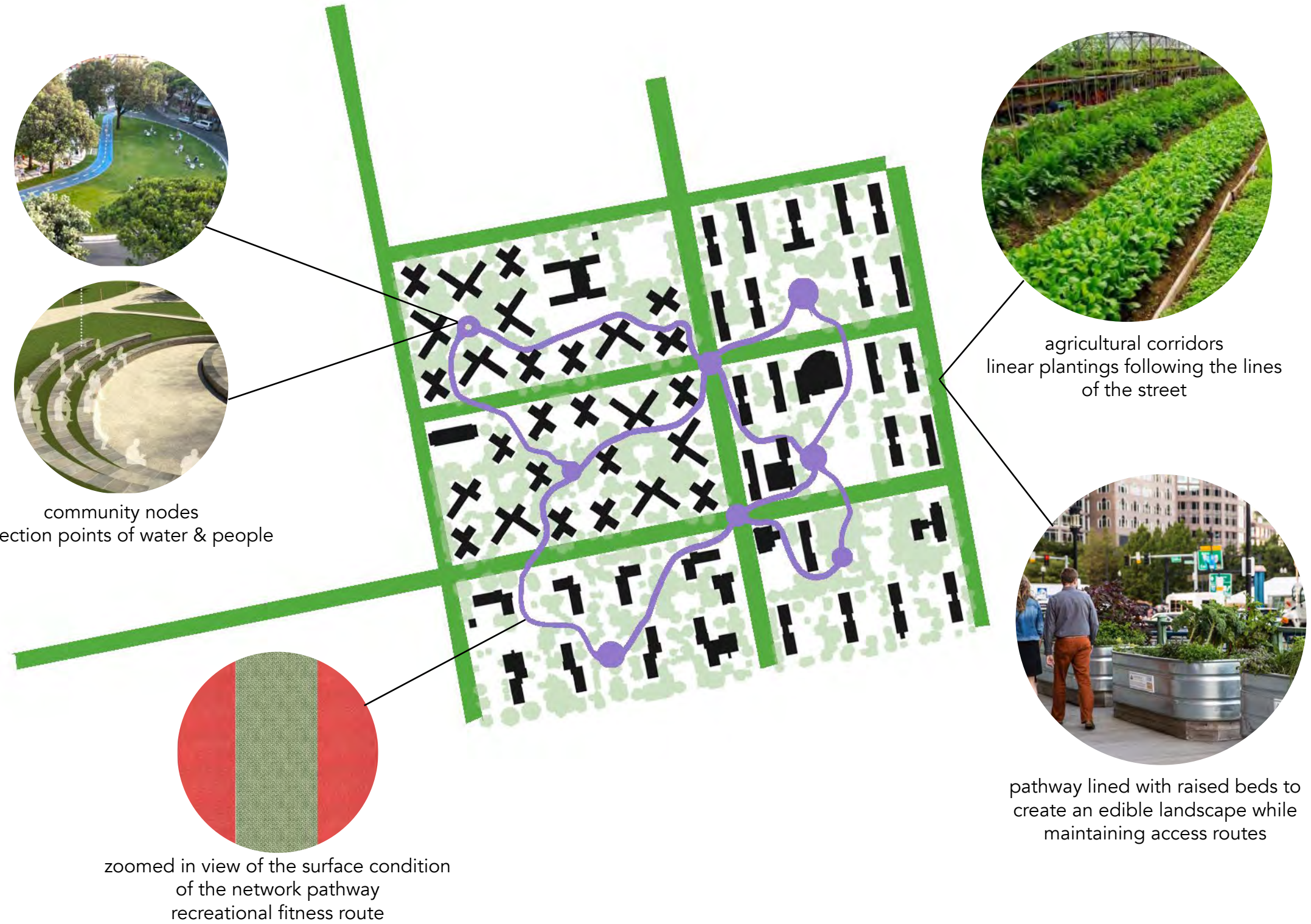
interventions in neighborhood context

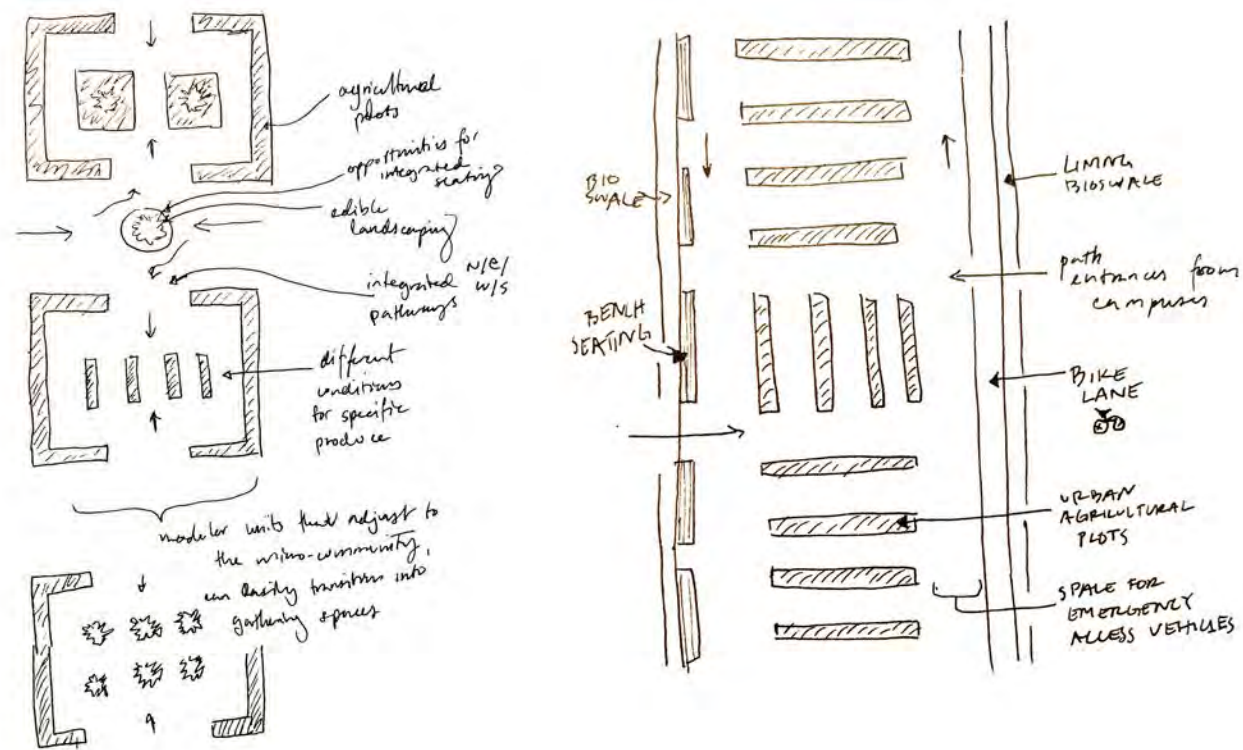
existing conditions

- city parks
- commercial streets
- industrial zoning
- community garden
- bus routes
- subway routes

design intervention

- agricultural corridor
- node and network





if we farmed on every square foot of street ...

... we could generate **995,900 lbs of fresh produce** each year
 ... this would amount to roughly **1/3 of the recommended daily fruit & vegetable intake per person** for all of the residents of the six superblocks

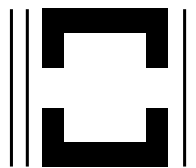


... we would need enough labor to create a minimum of **58 full-time jobs**

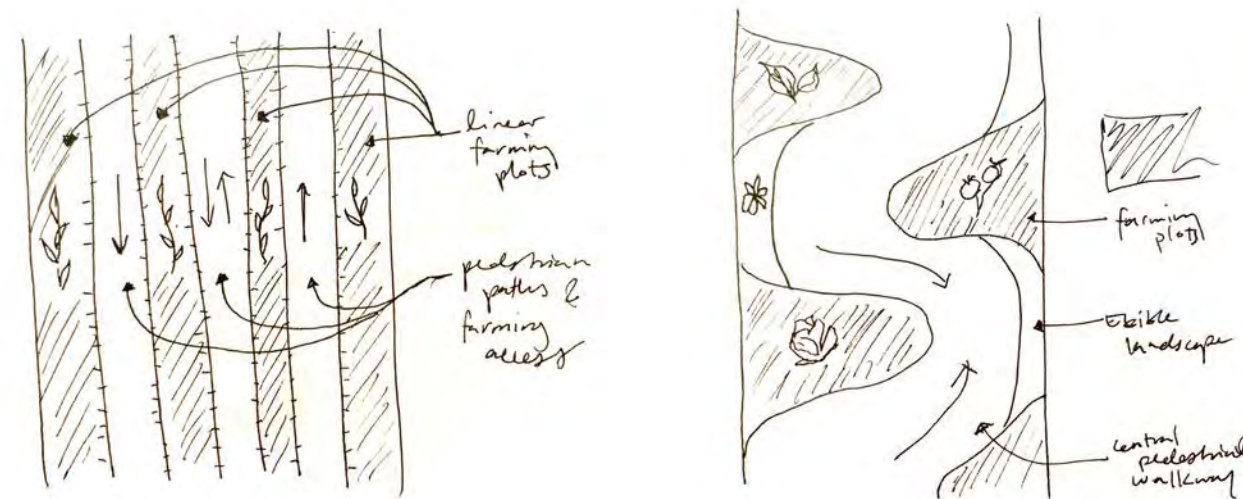


farming with space for movement and life...

... we can generate **146,080 lbs of fresh produce** each year
 ... this amounts to less than 1/20 of the recommended daily fruit & vegetable intake per person for all of the residents of the six superblocks
 or, roughly **1/2 of the recommended daily fruit & vegetable intake per senior** for all adults over the age of 65 in the six superblocks

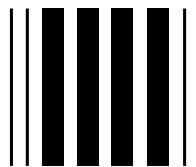


... would need enough labor to create a minimum of **9 full-time jobs**



farming with hyper-efficiency...

we can generate **229,800 lbs of fresh produce** each year
 this amounts to roughly 1/13 of the recommended daily fruit vegetable intake per person for all of the residents of the six superblocks
 . or, roughly **1/3 of the recommended daily fruit & vegetable take per child** for all of the kids under 18 in the six superblocks



... would need enough labor to create a minimum of **14 full-time jobs**



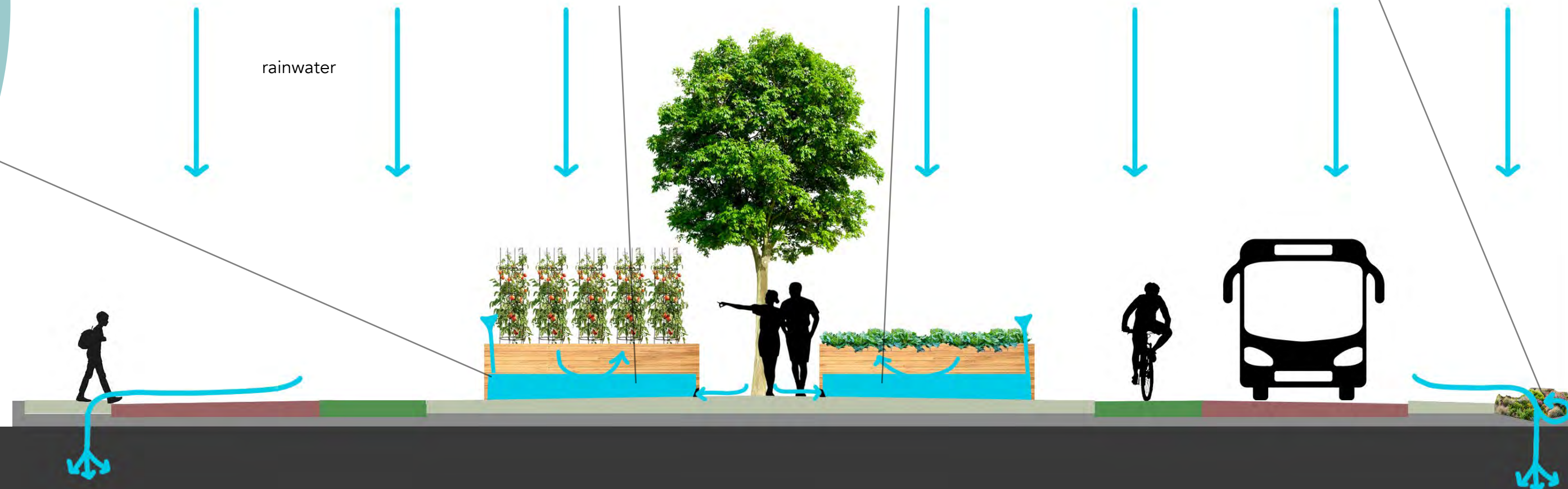
**self-irrigating
rainwater catchment planters**

collect rainwater runoff from existing crowned street capture, store, and reuses rainwater to irrigate the plants



the water captured from a **single average rainfall event** will be enough to **sufficiently irrigate plants for up to ten weeks at a time**, ensuring that the streetscape farms can thrive without additional water even in **periods of drought**

bioswales lining the sidewalk divert additional rainwater from sidewalk and road helps **infiltrate excess water in large storm events**





bioswale

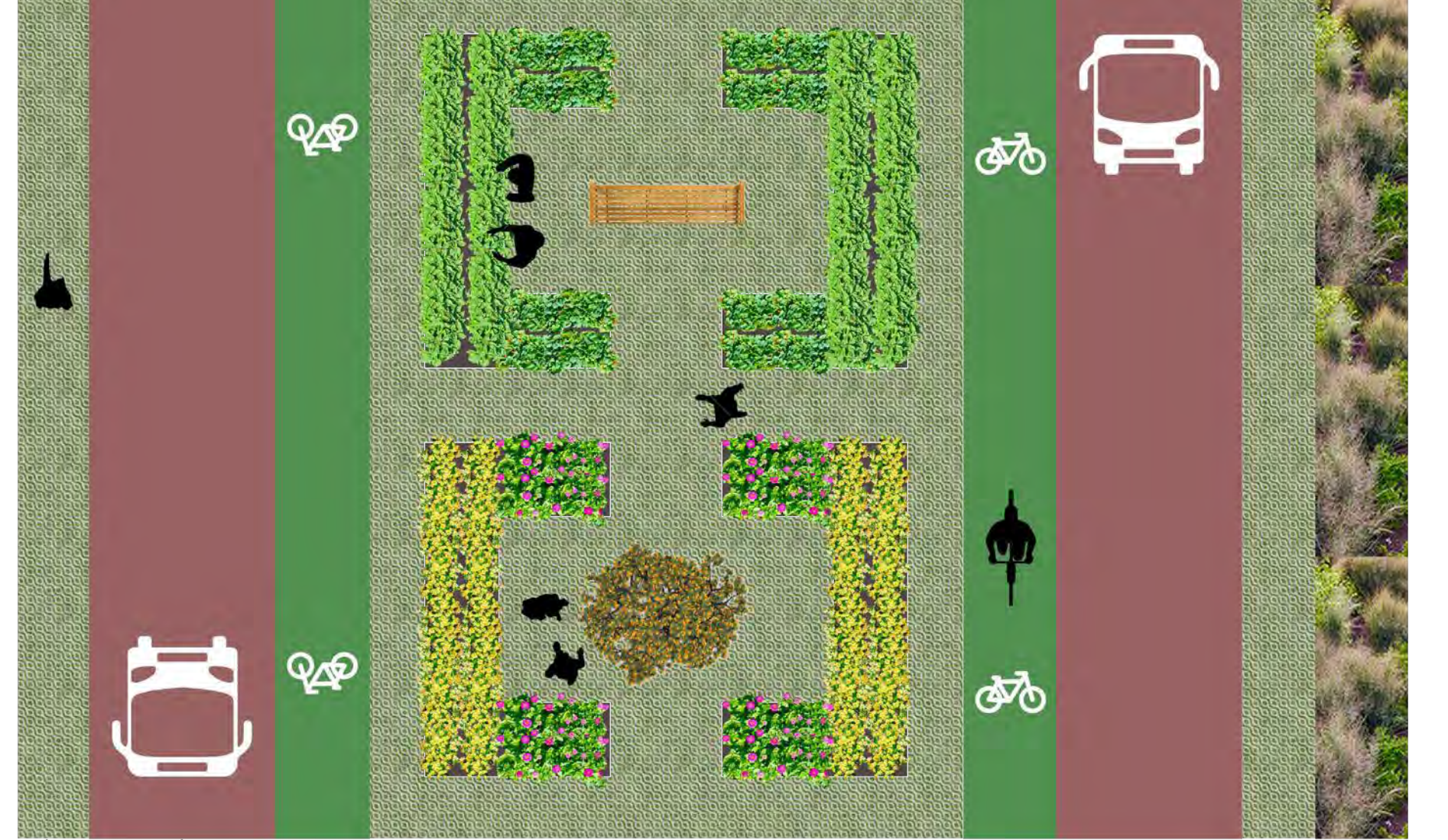
bike lane

raised garden beds
urban agriculture

edible landscaping
fruit trees

space for intergenerational
relaxation and recreation

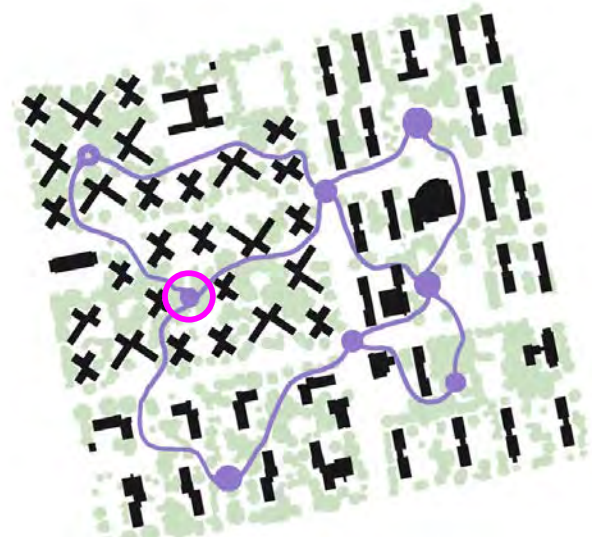
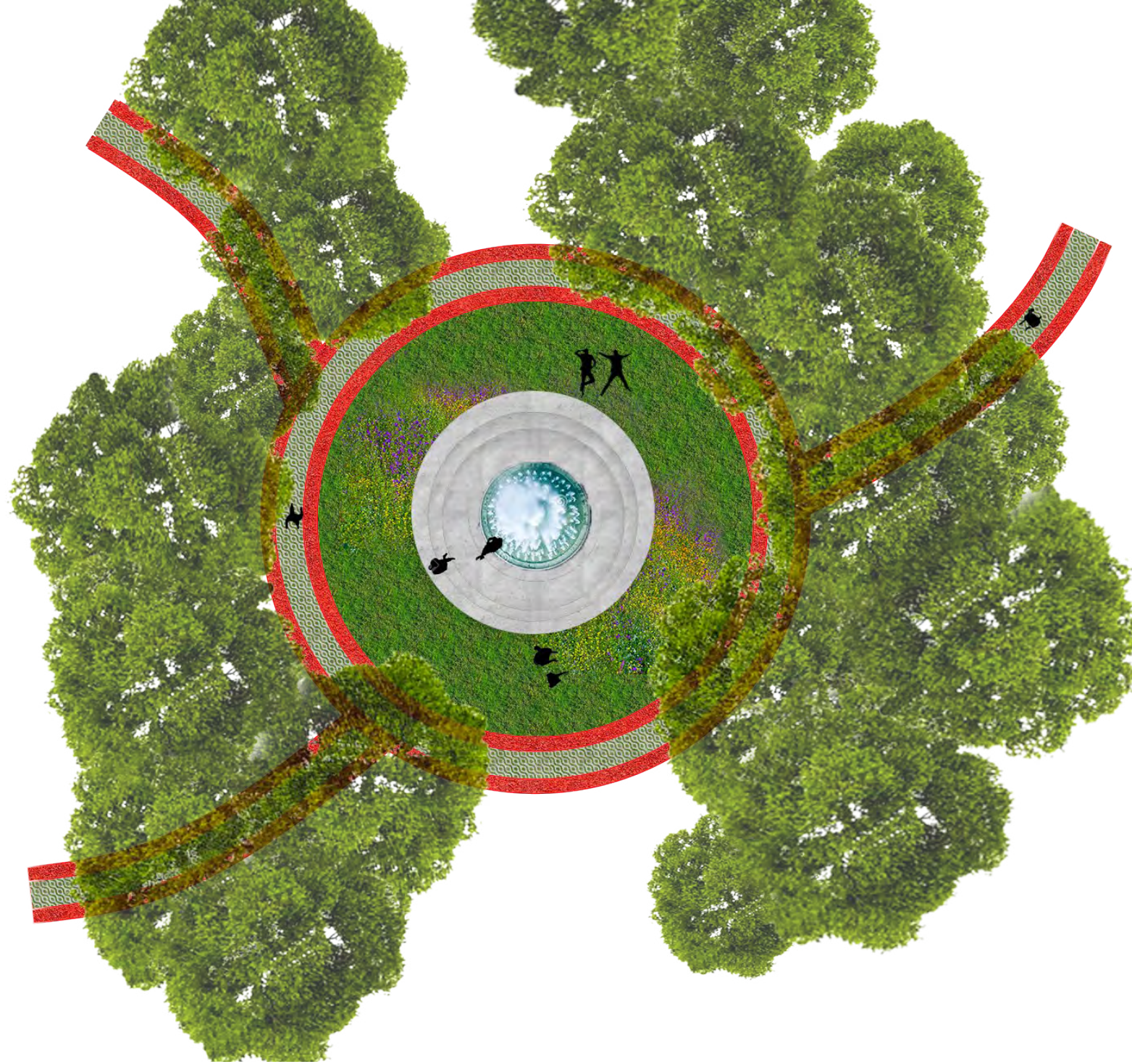
agricultural corridor streetscape plan
streets without bus routes



permeable
pavement
sidewalk

bus lane

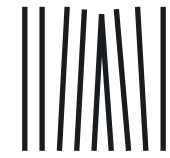
agricultural corridor streetscape plan
streets with bus routes



central node with extending networks - plan view
fountain - open field - gathering space



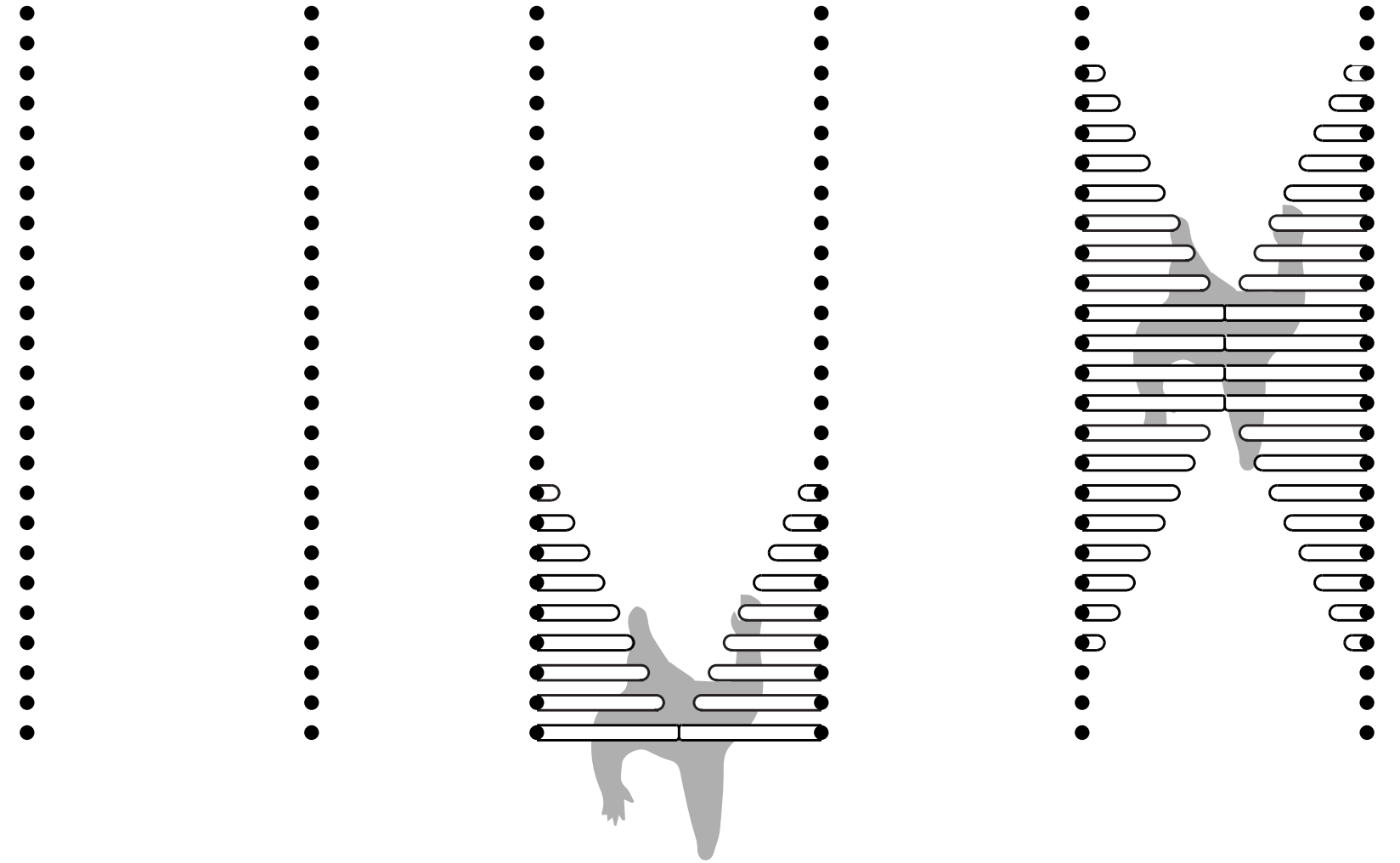
perspectival view - network towards a node, brownsville houses



impact

brief: to design a two-story office space for a growing tech/music company in industry city, brooklyn.

concept: the structure responds to movement such that the actions of the individual directly impact the collective.
Inspired by the site, a warehouse in luxury development project contributing to gentrification in sunset park.



site: 34 35th street, industry city, sunset park, brooklyn

Industry city development was widely protested by residents of Sunset Park, resulting in delays in development as local city councilman Carlos Menchaca demanded reforms from developers.

how it works:

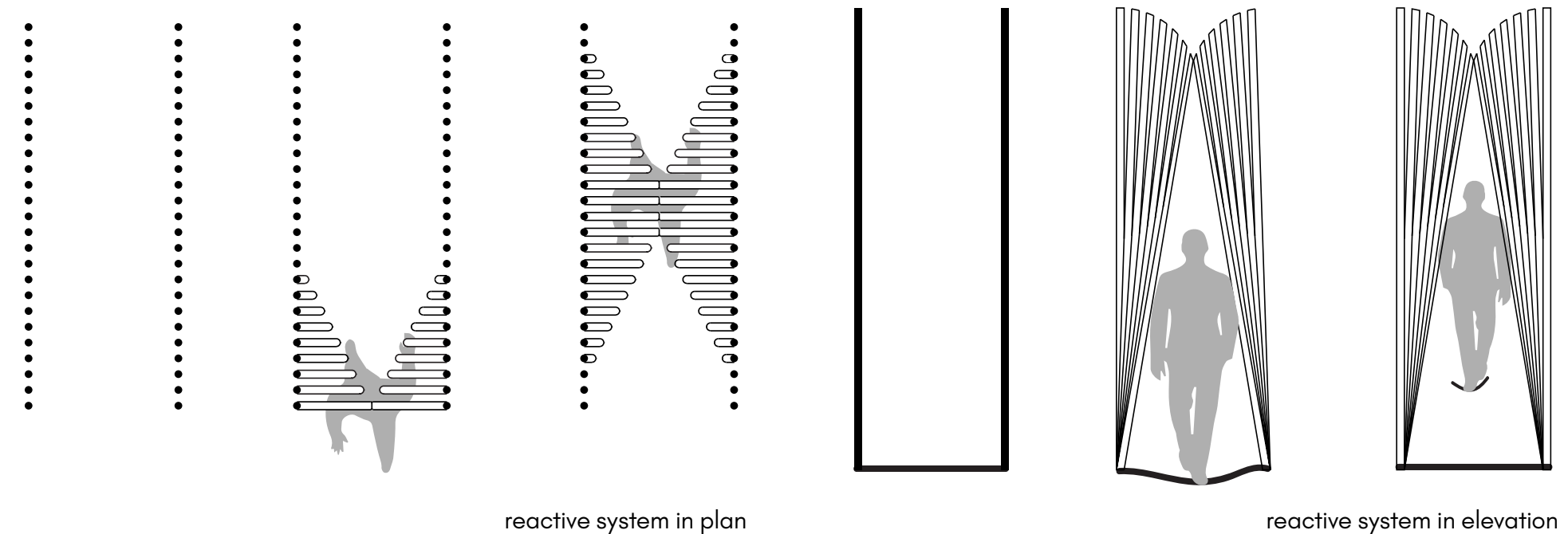
Partitions in employee circulatory areas are made of cork tubing embedded in foam flooring, which folds to ensconce the person walking within, pulling away from the work areas and thumping together to make a dull noise. In semi-public, visitor-oriented spaces, the cork is used to create flexible ergonomic furniture systems. This system creates a space which responds to a person's actions, causing an immediate social impact.

"Between 2000 and 2017, the median sales price per unit in a one-family building in the Sunset Park community district increased from about \$346,000 to almost \$1.3 million."

- Nina Agrawal for the L.A. Times

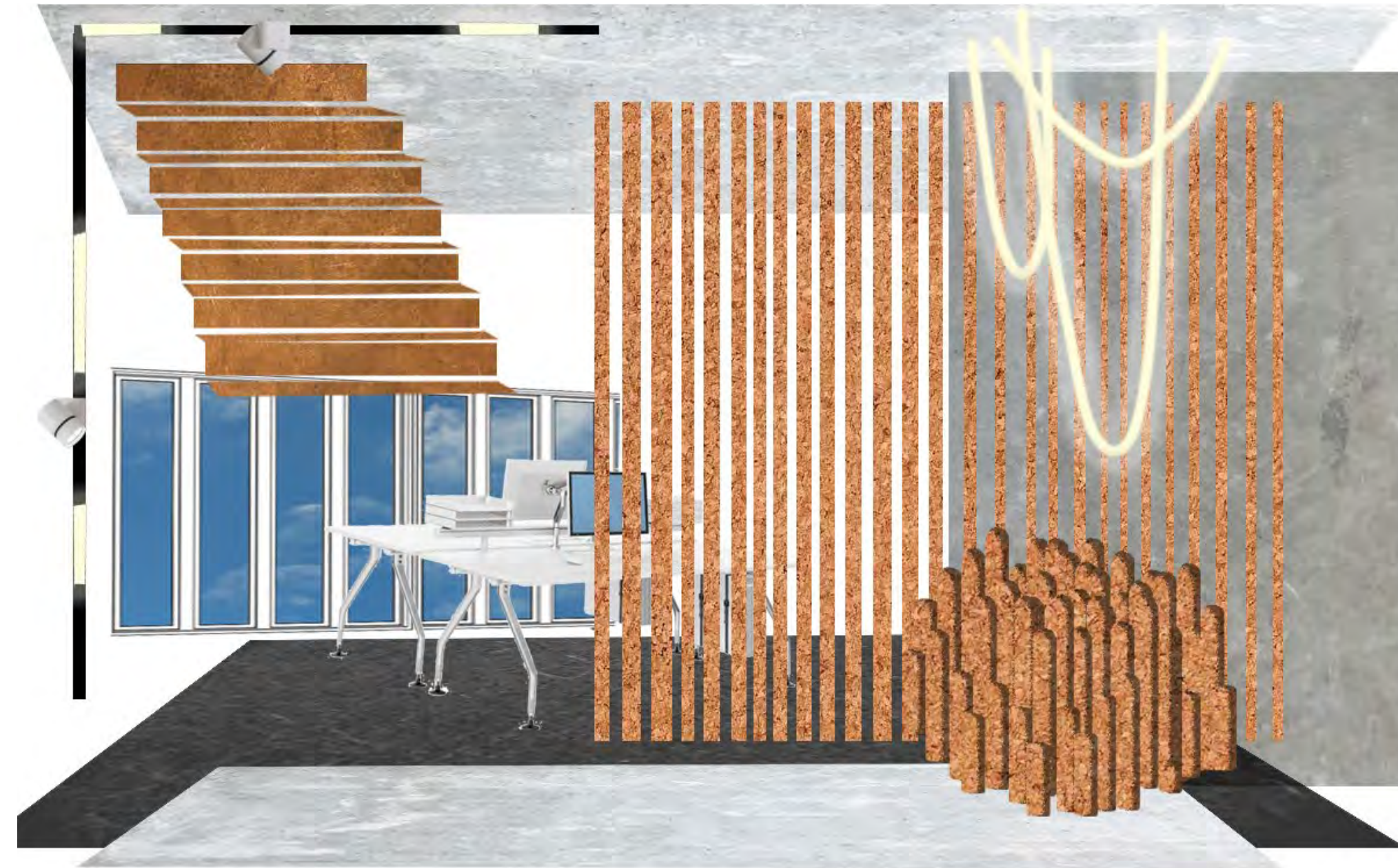


protests against industry city development



reactive system in plan

reactive system in elevation



material collage

1. illuminated glass
handrail light system
tubular light system

2. glass
pre-existing windows
phone booth partitions
elevator walls

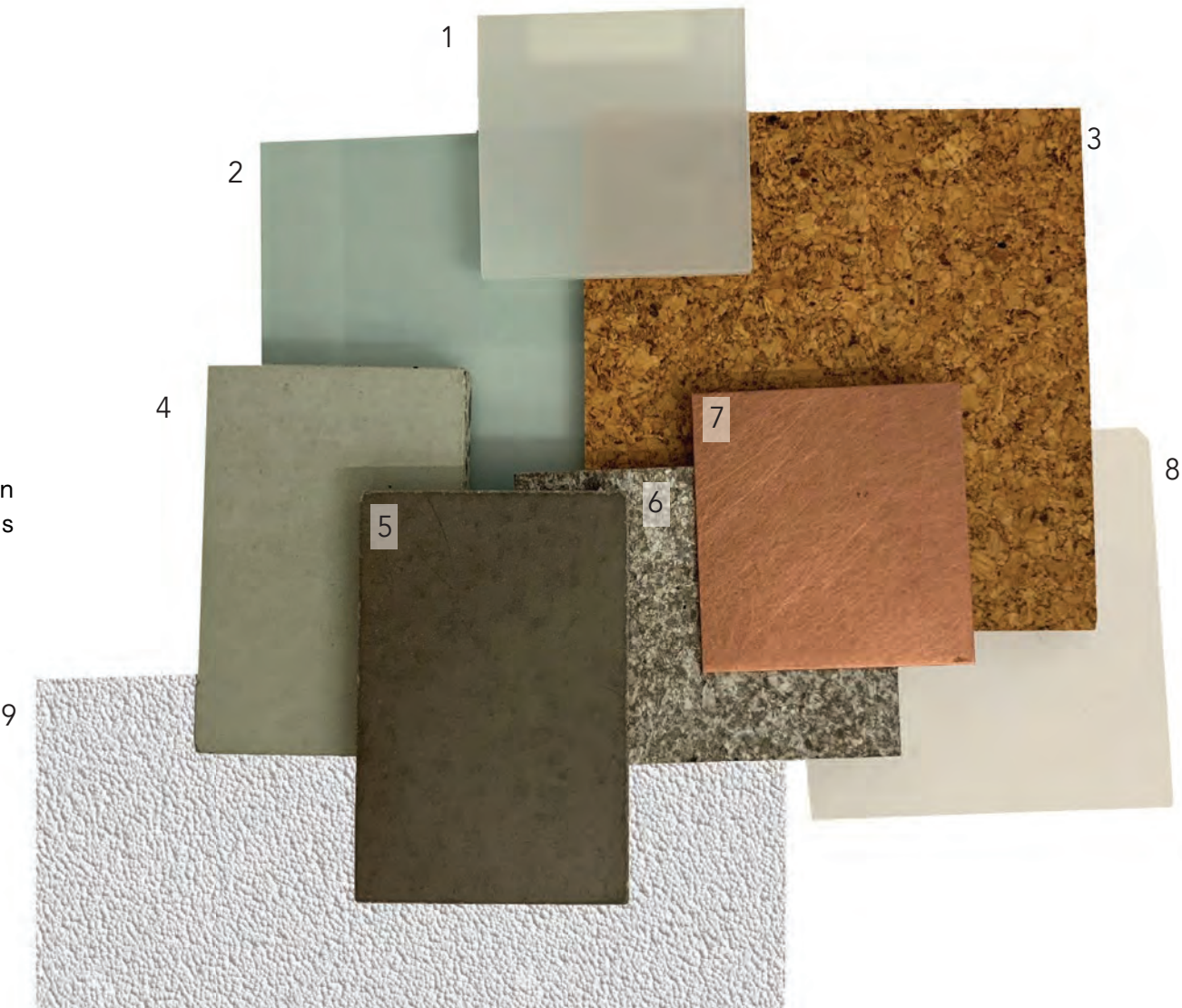
3. cork
partition system in private/employee areas
furnishing system in public and semi-public areas
lightweight + sound absorbent for acoustic insulation
sways with movement of passing visitors, emits thuds

4, 5, 6. concrete
pre-existing wall and ceiling material
whitewashed flooring in public and office spaces
provides stability for furnishings, easy maintenance
built-in furniture, counter tops, stage

7. bell metal
blend of copper and brass for vertical circulation
emits noise during movement in vertical circulation
strong and slight enough to be used in curved forms

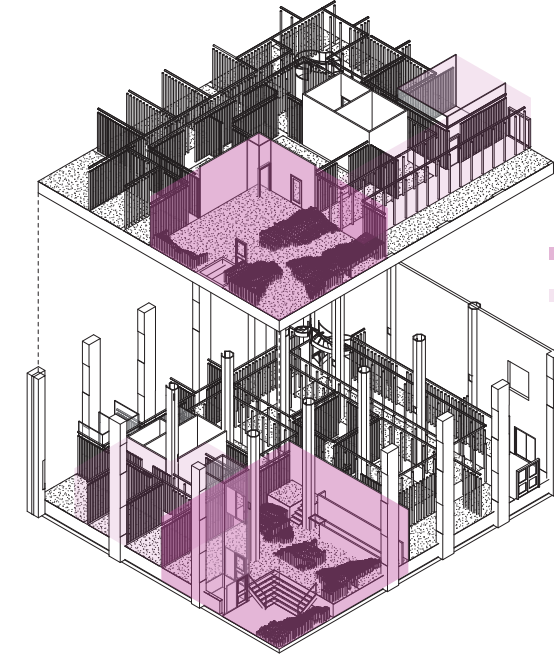
8. white mdf
furniture systems/employee desks

9. foam
malleable flooring system in staff horizontal
circulation anchors cork partitions while allowing them to move
forms the ability for a reactive space in employee areas





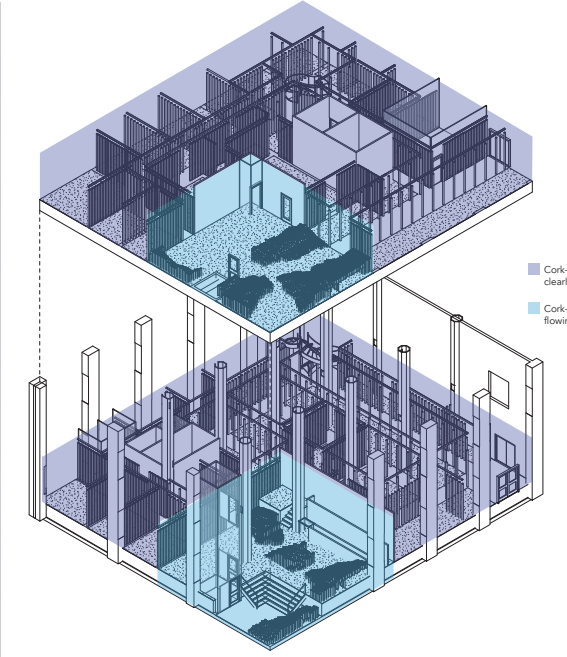
view of the second floor hallway



visitor and employee spaces



lighting conditions



cork typologies



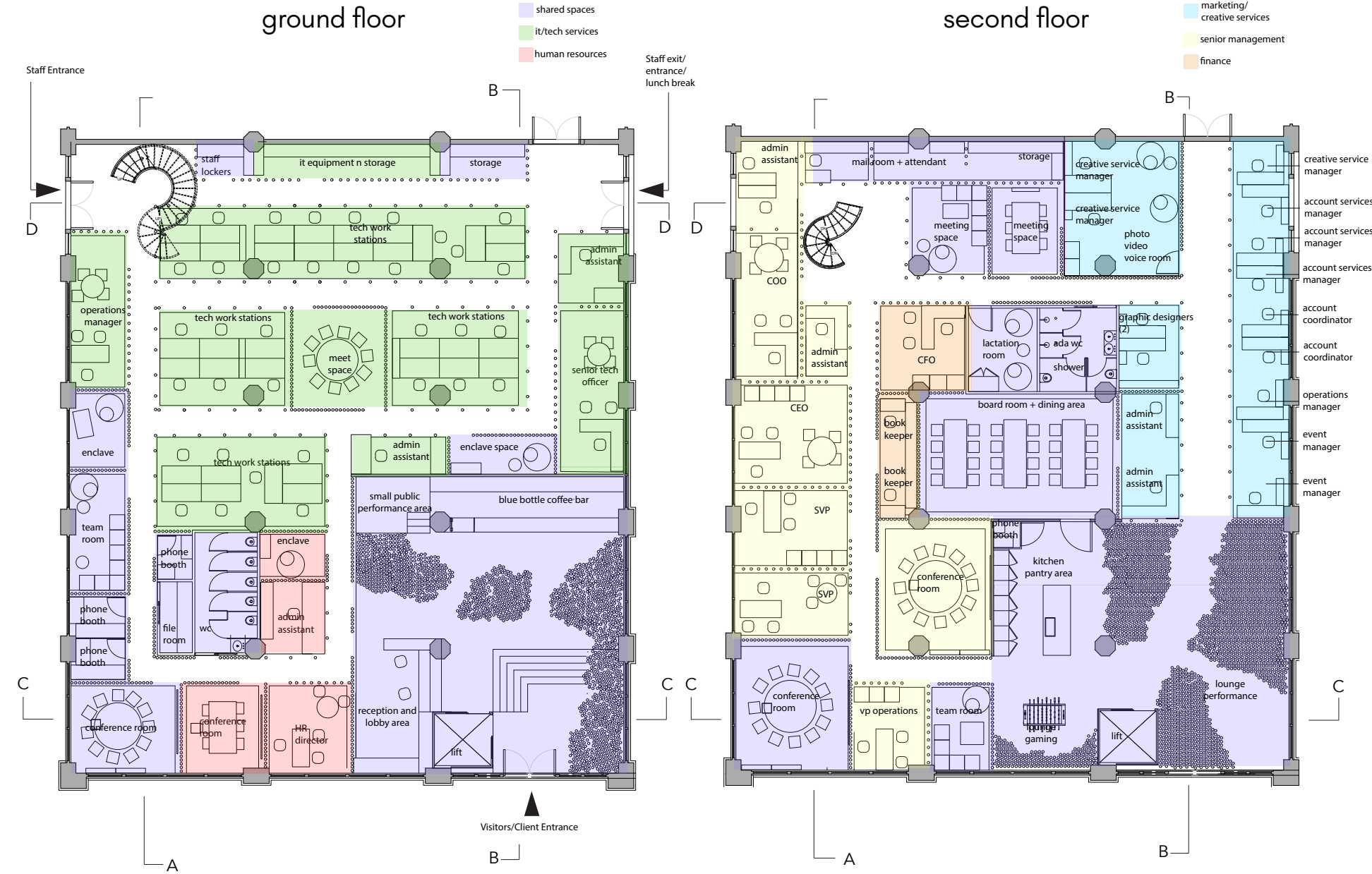
view from the employee entrance



view from the visitor/client entrance



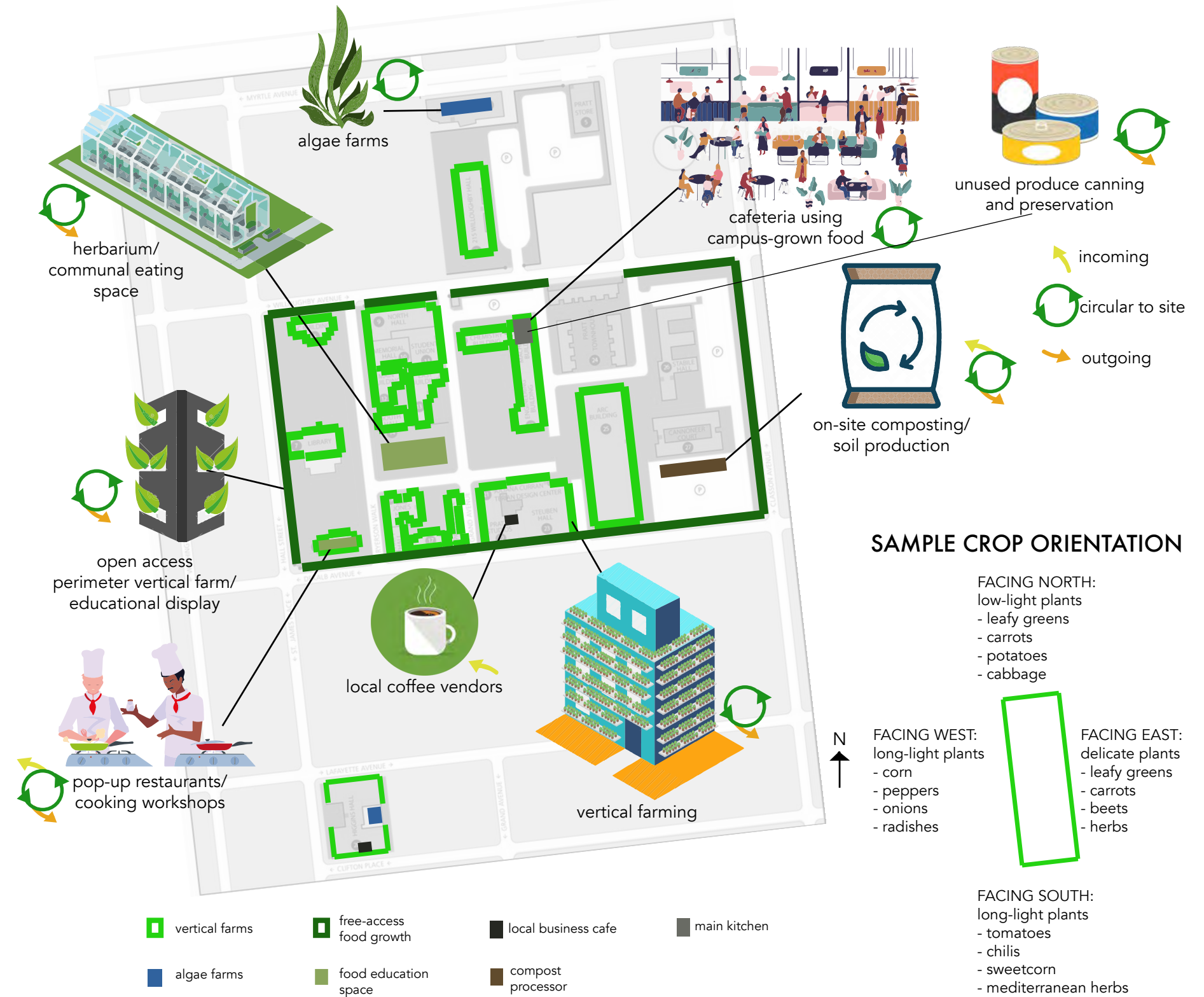
view of the main performance area from the kitchen



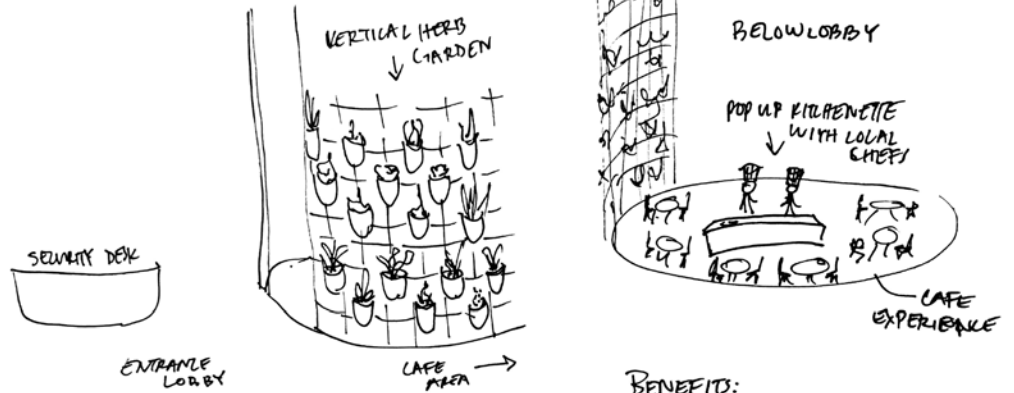
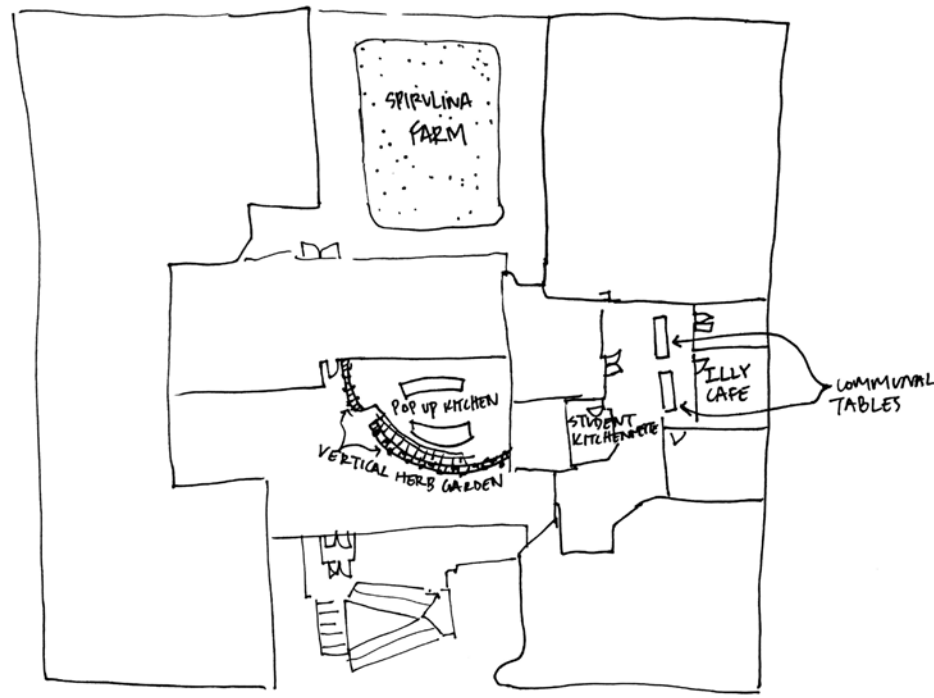
nourishment

brief: study an existing system at Pratt and redesign a better, more sustainable system

concept: replace the multi-billion dollar food providers at Pratt with a completely self-sustaining, circular on-site urban agriculture program. Integrate vertical farming with alternative nutrient sources like algae, engage the community and students to pioneer a deeper understanding of food in an increasingly food-insecure future.



initial ideation sketches

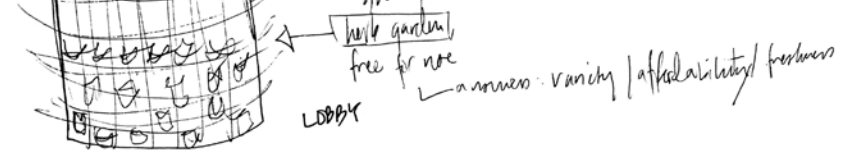


- BENEFITS:**
- FRESH, LOCAL, FREE ACCESS
 - IMMEDIATELY & EASILY ADD FRESH + NUTRITIOUS ELEMENTS
 - ADDS NATURAL ELEMENT & AIR TONING-REMOVING PLANTS
 - OPENS LOBBY TO MORE INTERACTIVE USE
- BENEFITS:**
- INTEGRATED LOCAL COMMUNITY
 - CAN OFFER EXCITING WORKSHOPS FOR STUDENTS TO BE IMPAIRED BY COOKING
 - INCREASES VARIETY / FRESHNESS
 - CREATES A MORE FLUID CONNECTION BETWEEN COMMUNITIES

Main Design Intervention Ideas:

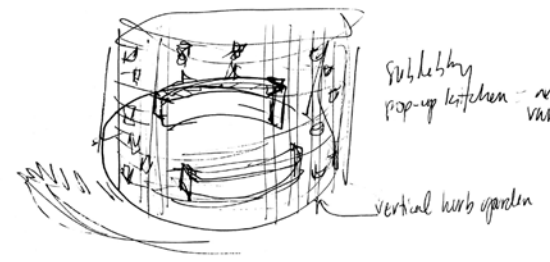
- Teaching kitchen (pop-up kitchen) - doubles as space for students

community/creating/staying
variety/affordability/freshness
options pay as you go

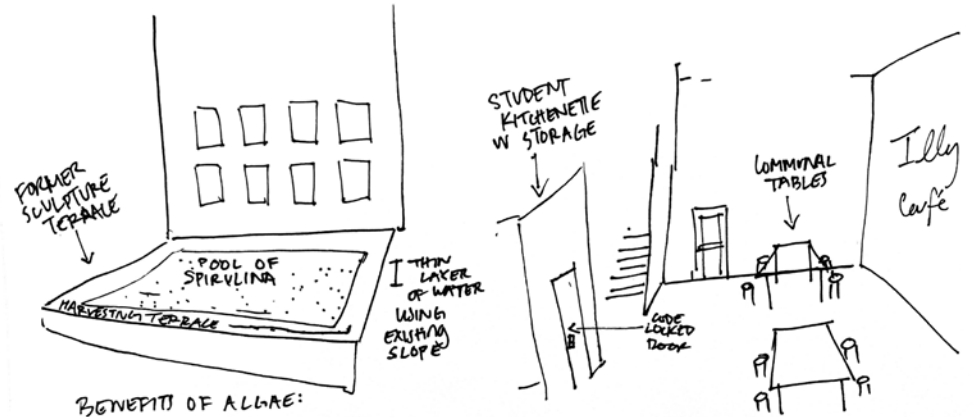


- Algae culture
- micro-spirulina
- micro-seaweed

spirulina farm installation
lobbies: affordability/freshness



- BENEFITS:**
- COMMUNAL TABLES ENCOURAGE CONVERSATION RATHER THAN ISOLATED WORK + EATS
 - KITCHENETTE ACROSS FROM CAFE ENCOURAGES EASY OPTIONS FOR EATING YOUR OWN FOOD WITHOUT SACRIFICING SOCIAL ENGAGEMENTS
 - OFFERS CHEAPER OPTIONS & LESS RESTRICTIONS

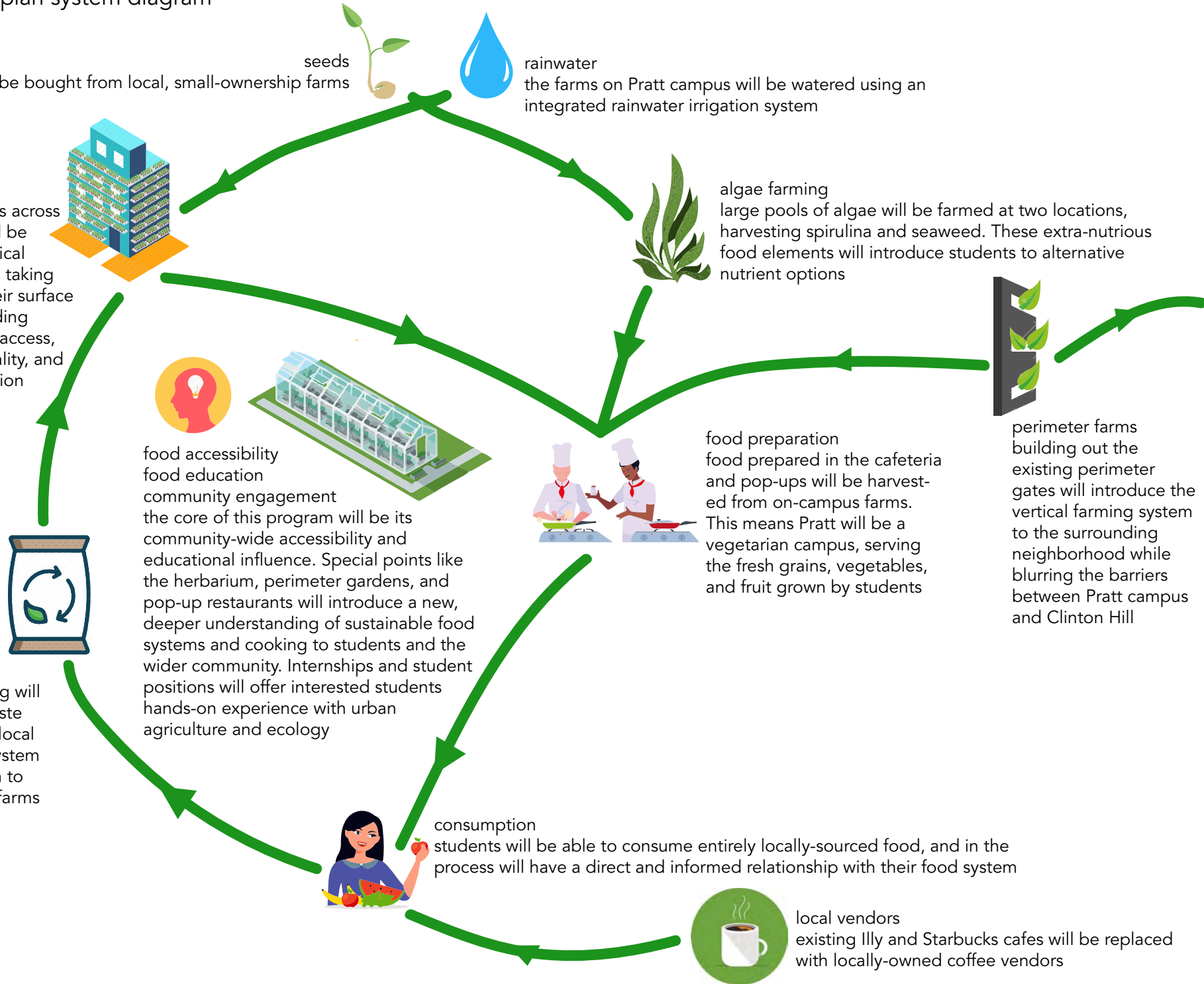


- BENEFITS OF ALGAE:**
- EASY TO GROW
 - EXTREMELY NUTRITIOUS
 - EASY TO MAINTAIN
 - CAN BE INTEGRATED INTO MANY FOOD SOURCES
 - EASY TO HARVEST
 - EXISTS IN OUR CLIMATE

master food plan system diagram

initial seeds will be bought from local, small-ownership farms

vertical farming existing buildings across Pratt campus will be layered with vertical farming systems, taking advantage of their surface area while providing immediate food access, improved air quality, and improved insulation



composting on-site composting will eliminate food waste while providing a local and sustainable system for soil production to maintain the vast farms on Pratt campus



decay

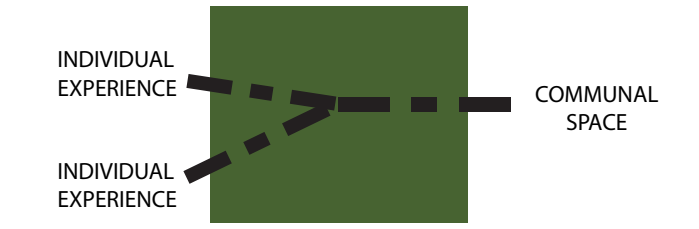
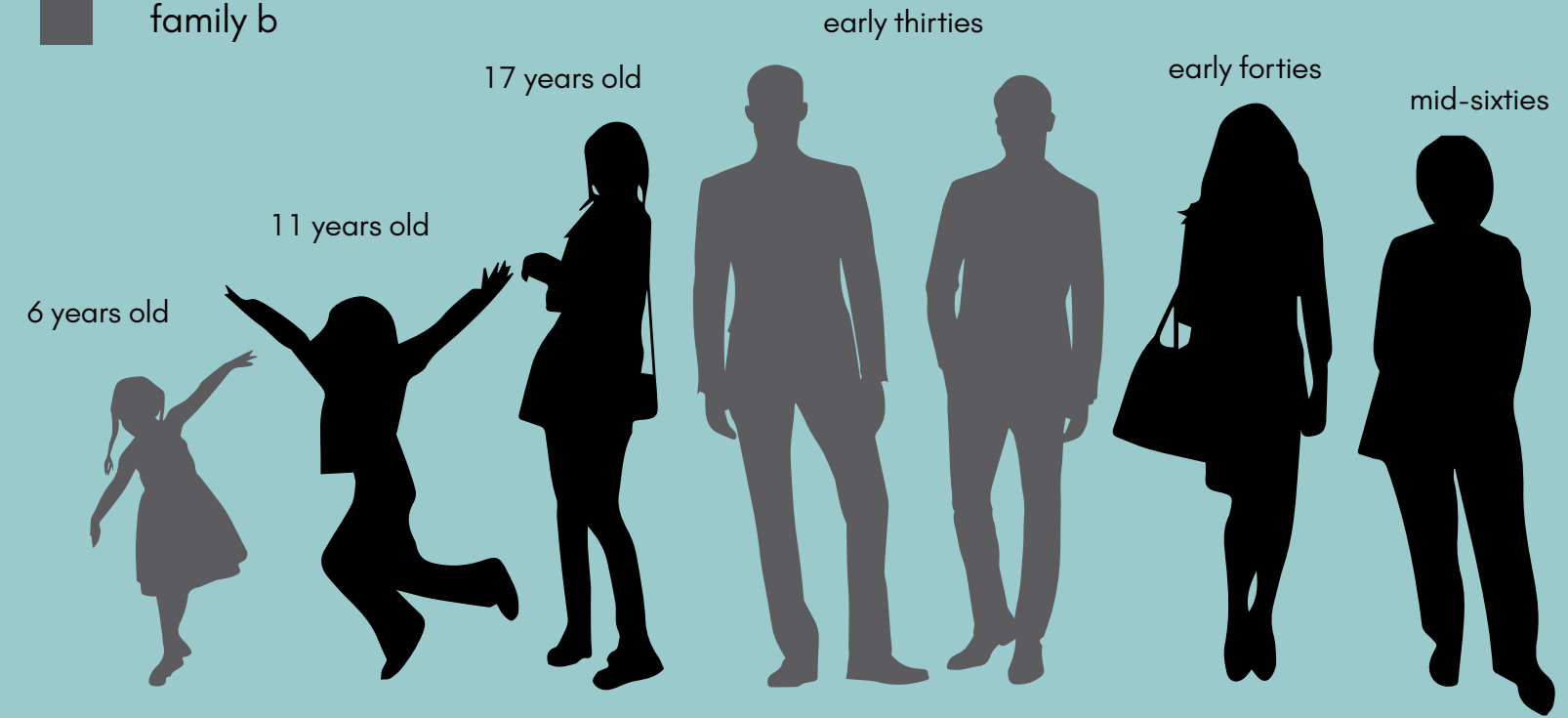
brief: design a home for two given families to co-inhabit.

concept: celebrating transformation over time, from everyday minutiae to the larger phases of life. Quotidian changes are accommodated with flexible walls while biophilic spaces grow in conjunction with the inhabitants. Raw and natural materials were chosen to decay and show the gradual wear-and-tear of life.



family a
 family b

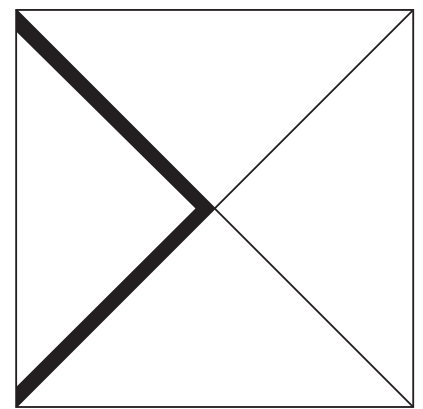
stages of life in the household



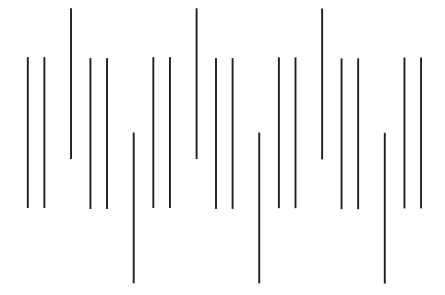
types of atria



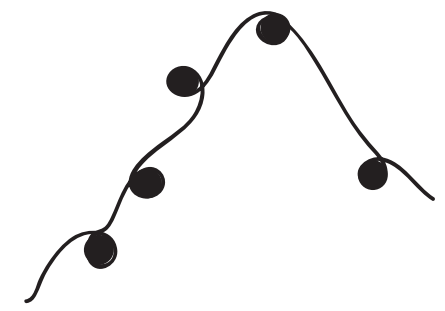
trevor - runner action



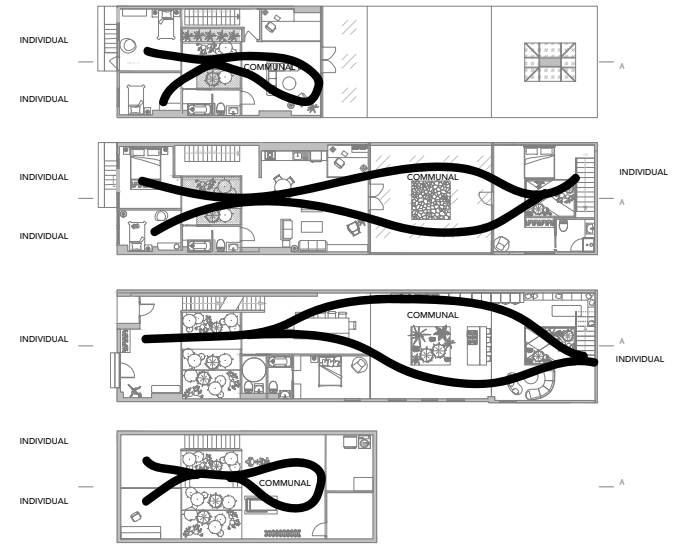
michael - sculptor parts of a whole



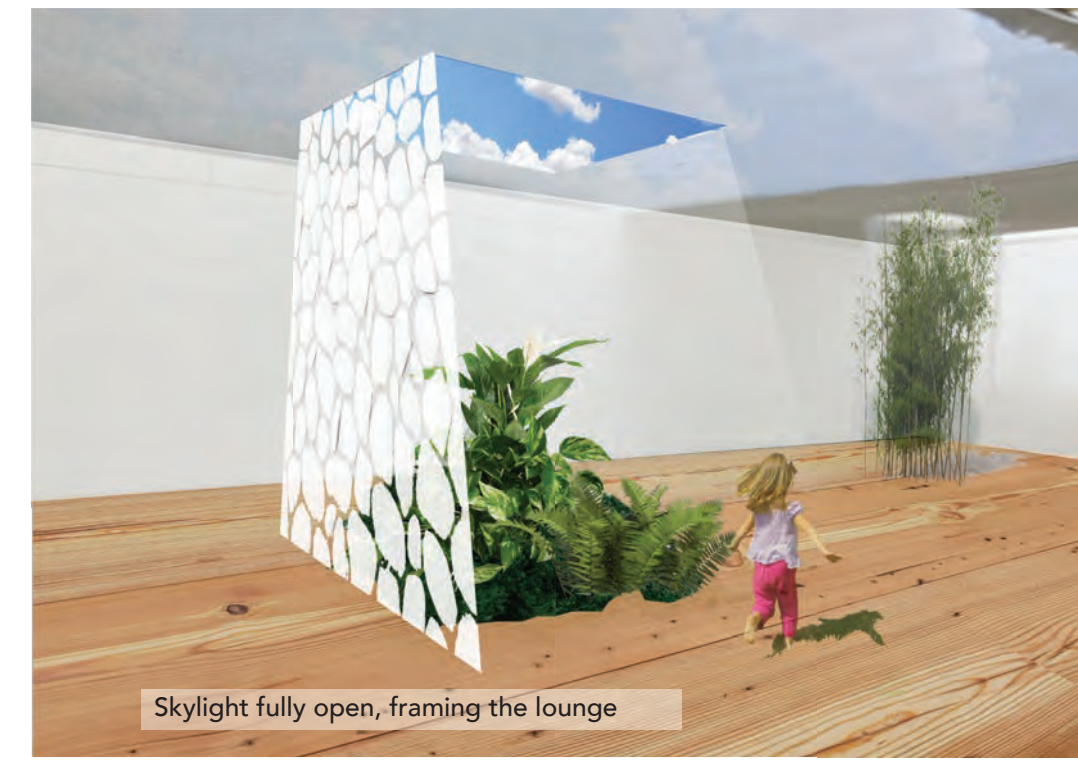
rosario - piano player rhythm



tuna - cat flexibility



atria circulation paths





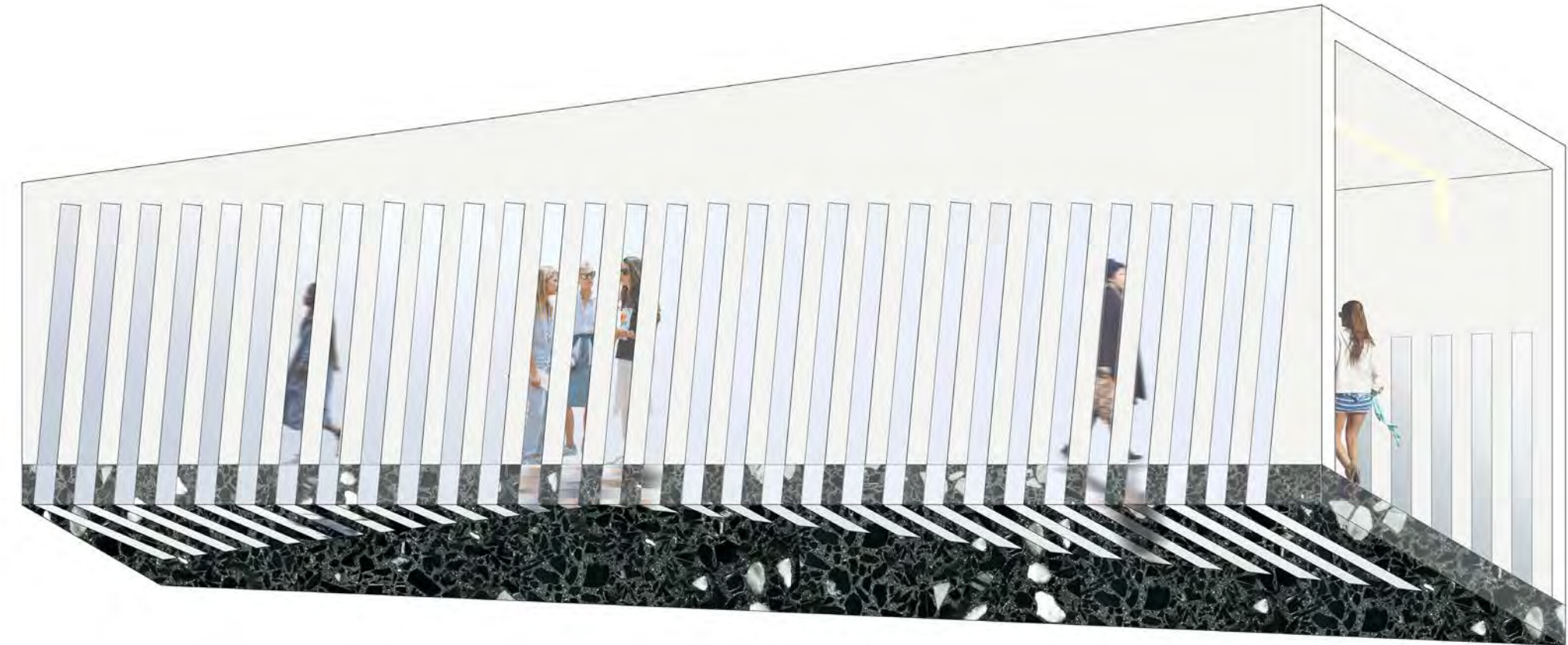
interior perspectives
physical model + photoshop



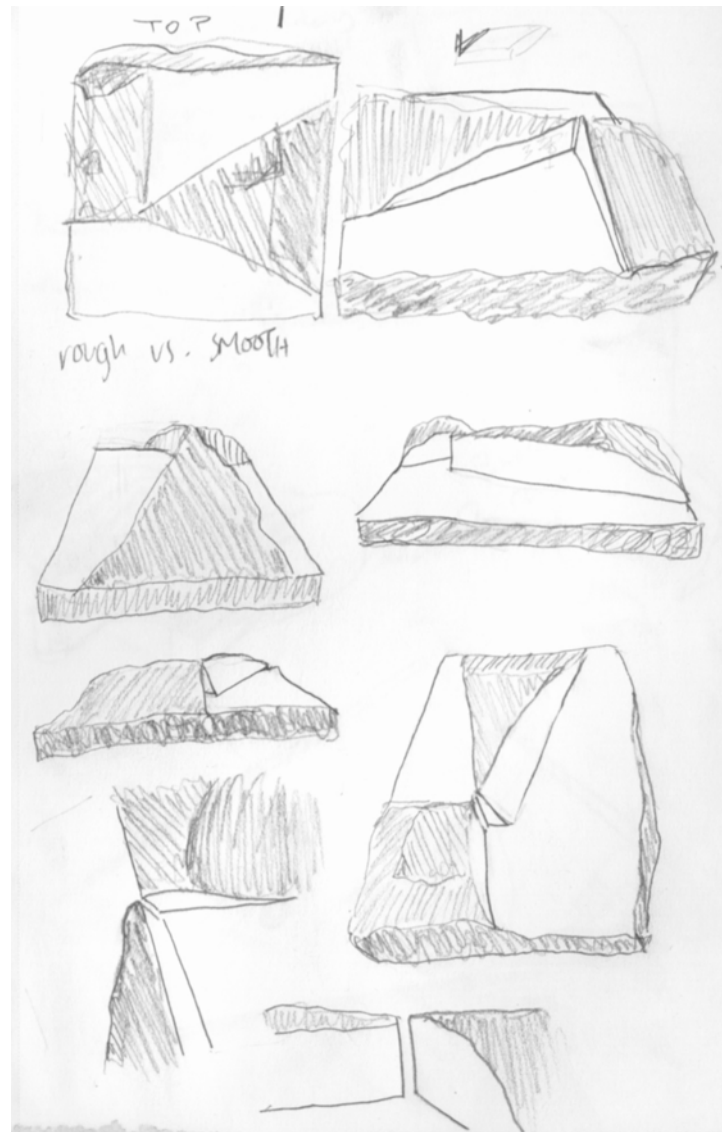
permeability

brief: design an annex and an opening exhibition concept for the Noguchi Museum in DUMBO, NY.

concept: blurring the boundaries between the neighborhood and the annex. Layers of systematic perforations create a moiré effect along the façade, emphasized by the circulation of people both within and outside of the space. The fluctuating sense of interior and exterior makes the building appear to move in sync with pedestrians and visitors alike, and acts as a tribute to the ever-changing demographics and diversity of life in the New York boroughs.



preliminary research
 the visual language for this design was derived from Noguchi's 1984 sculpture, Basin and Range. a miniature viewing mechanism emphasizes the 'keyhole' effect in the center of the Noguchi sculpture *Basin and Range*. two openings on either end of the box force the viewer's perspective directly through the gap and back out of the box



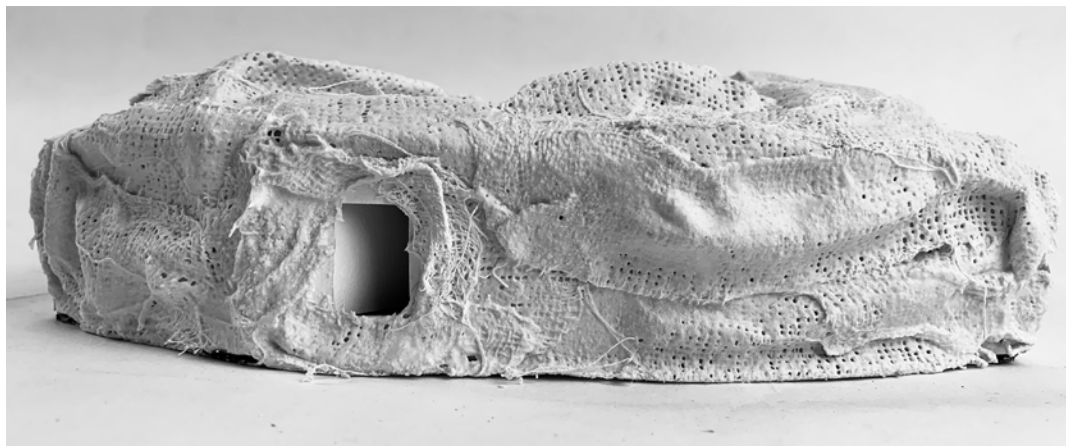
study sketches of Basin and Range



view through the keyhole and sculpture to outside

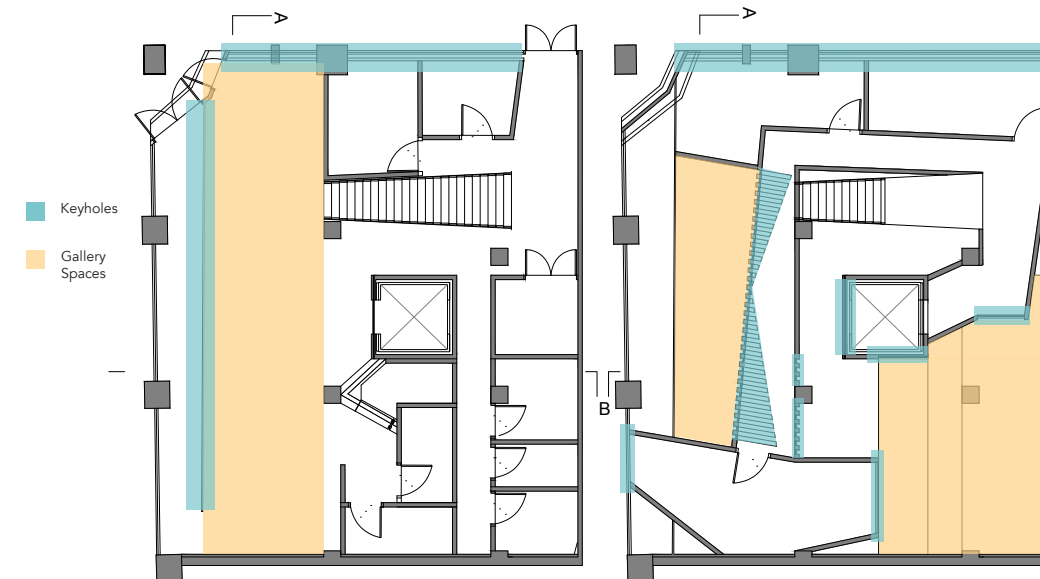


view through the other side of the keyhole

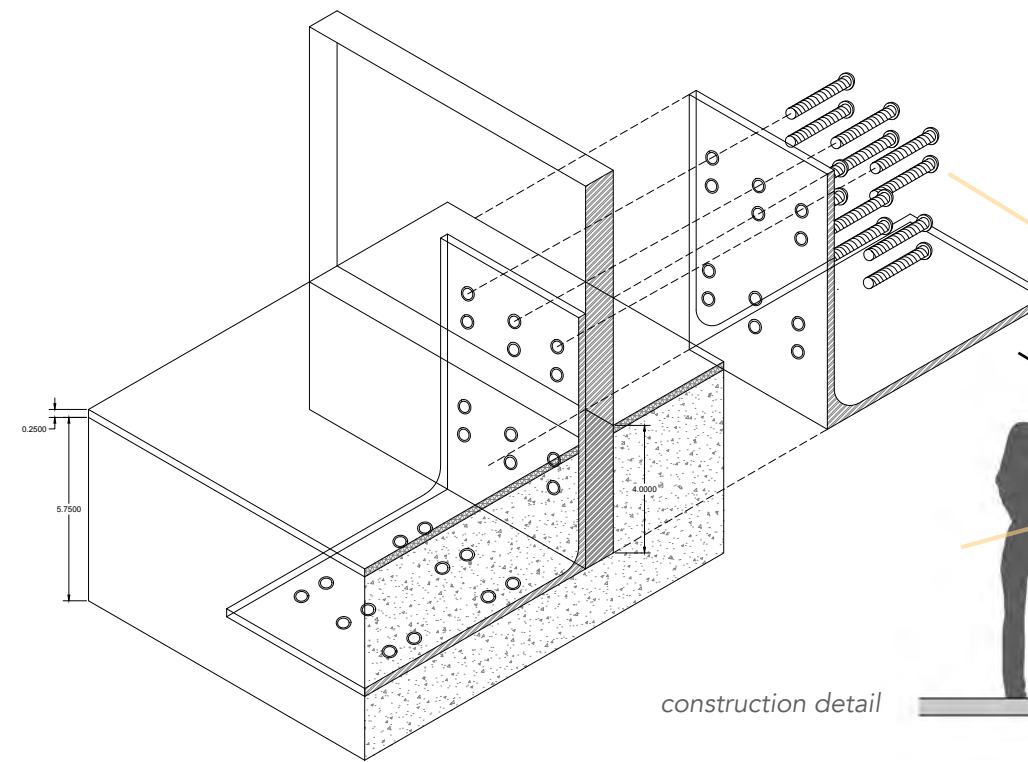


opening that reveals the keyhole

guided sightlines



sightlines diagrammed in plan



construction detail

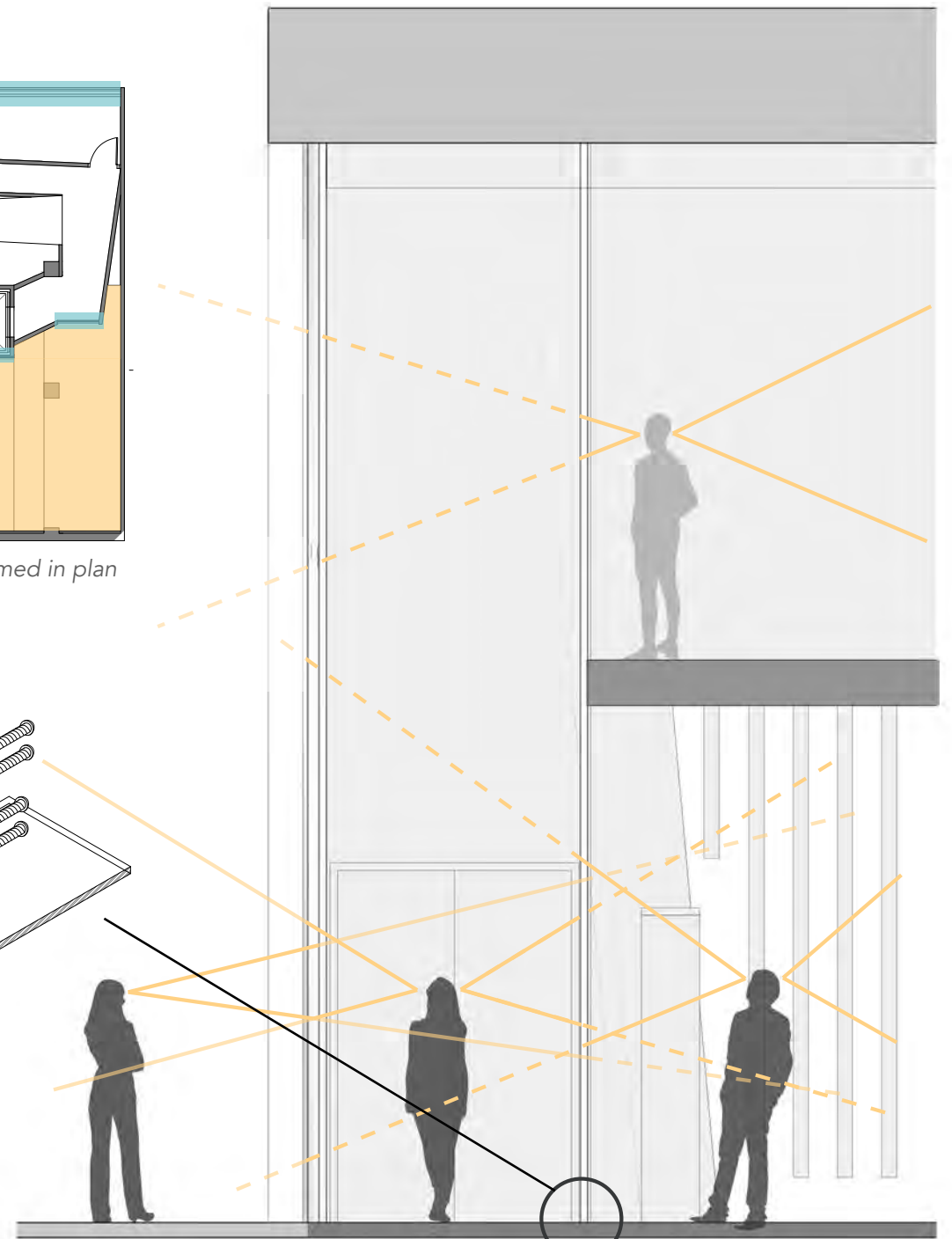


diagram of sightlines through the perforations

section a



main street elevation



material/artwork plans

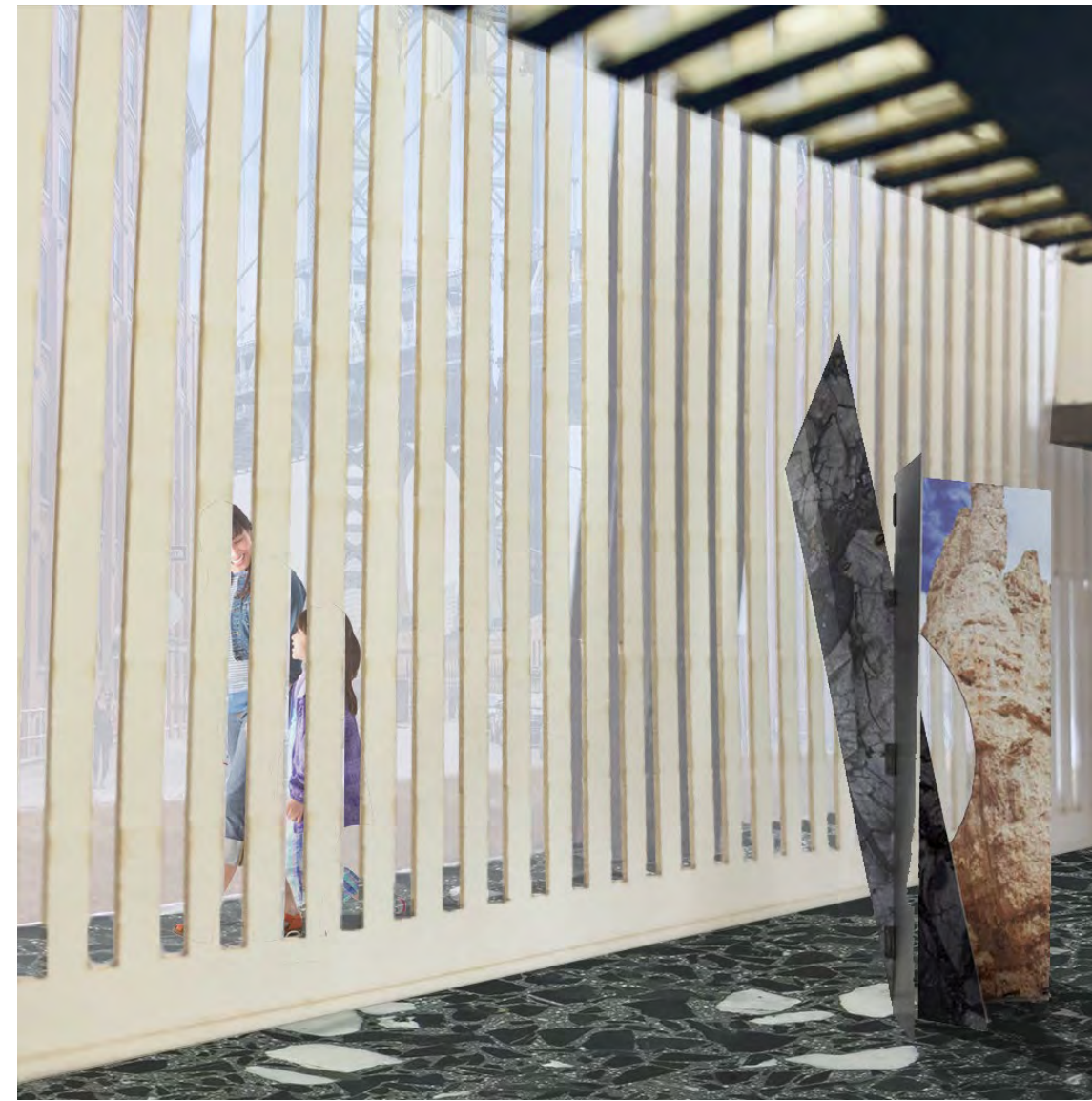




facade in context



looking down the the entrance corridor



people walking through the the entrance corridor



interior second floor hallway

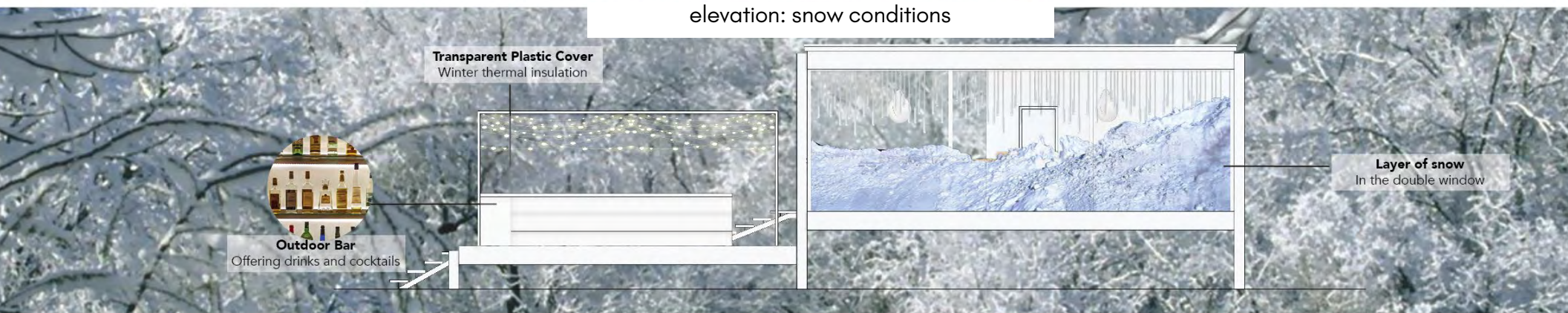


accumulation

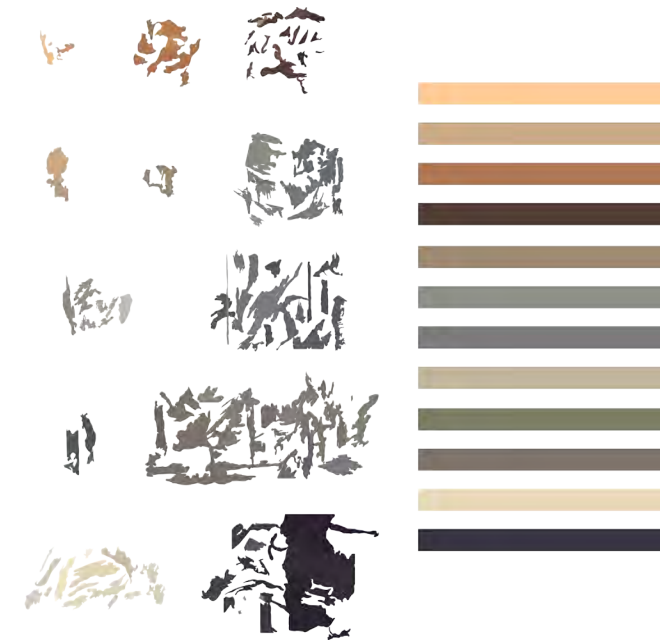
brief: use color and materials to transform the farnsworth house into a cafe set in aspen, colorado

concept: wrap the house in a second layer of glass to trap snow and rainwater, insulating the cafe in a layer of weather that changes with the seasons. The interior becomes a microcosmic moment of the exterior designed in collaboration with xiaoke li

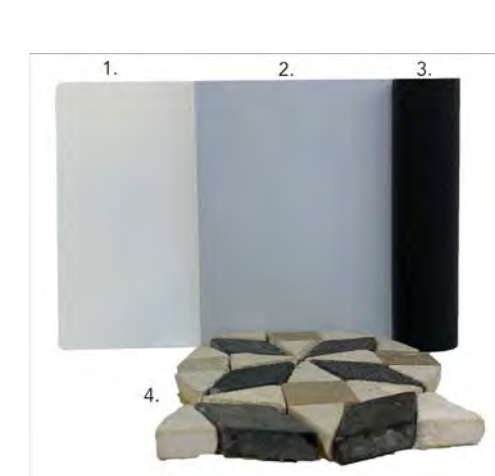
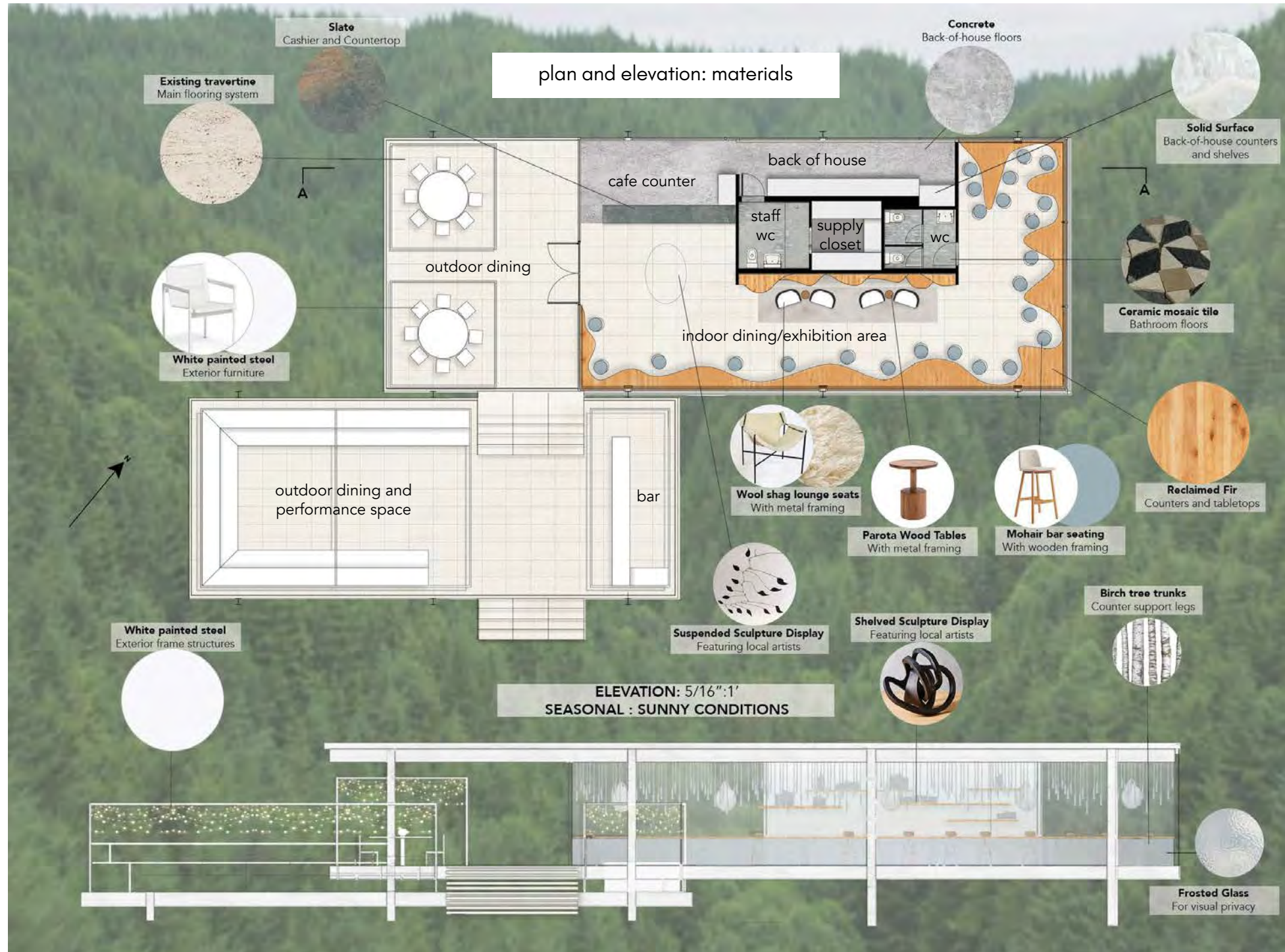




artwork inspiration for dappled light:
the reading - Edouard Manet (1865-1873)



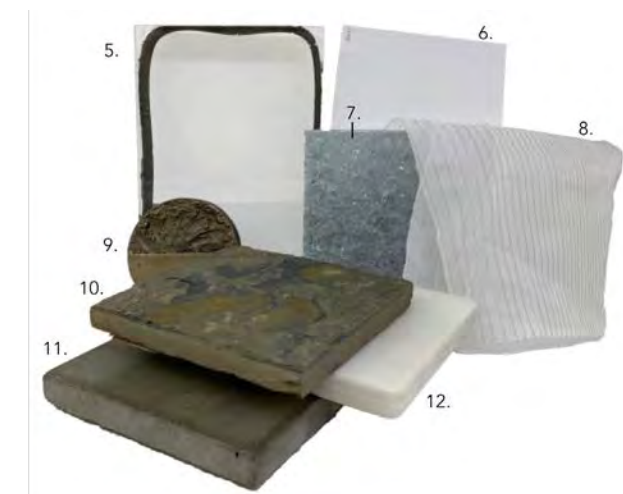
weather-conditional light patterns concept collage



wc materials



seating area materials



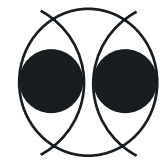
back-of-house materials



view entering the seating area on a clear day



view of the coffee bar counter on a snowy day



collective

brief: to design a two-story fabrication space in Bushwick, Brooklyn, that doubles as a makerspace for entrepreneurs and a subsidized job training center for new-economy jobs

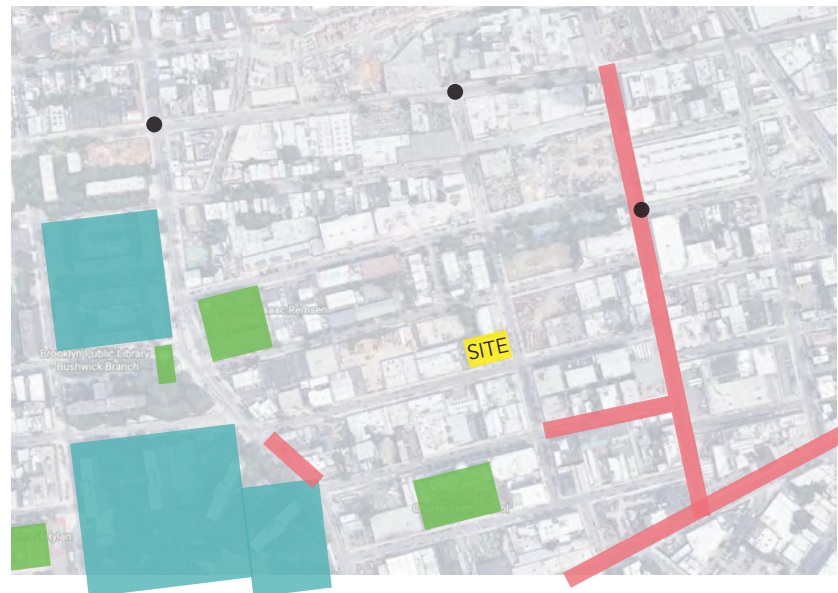
concept: a universally accessible, all-ages, all-incomes, sustainable space that collapses past, present, and future to inspire cross-cultural collaborative innovation. the center is dedicated to the population, adapting symbiotically with the flow of visitors and clients.





“where innovation meets access”

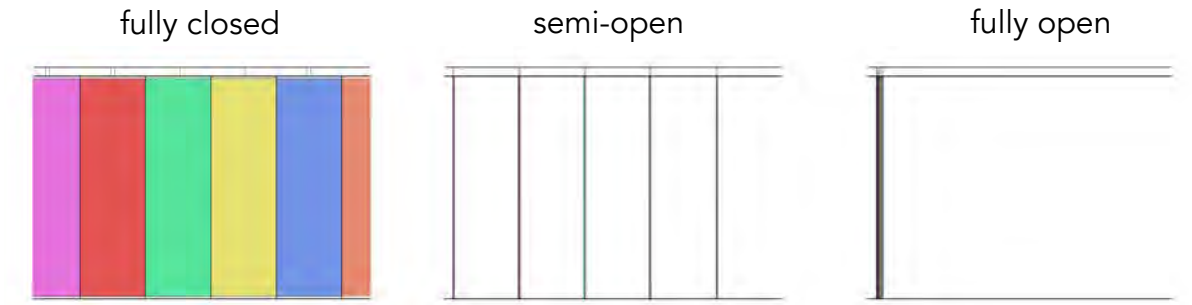
the fabricators’ lab was initially proposed as a nebulous space meant to encompass three core components: accessible job training for a new-economy workforce, flexible multi-generational education, and a makerspace for product innovation and development. the key conceptual driver for the space was “where innovation meets access.”



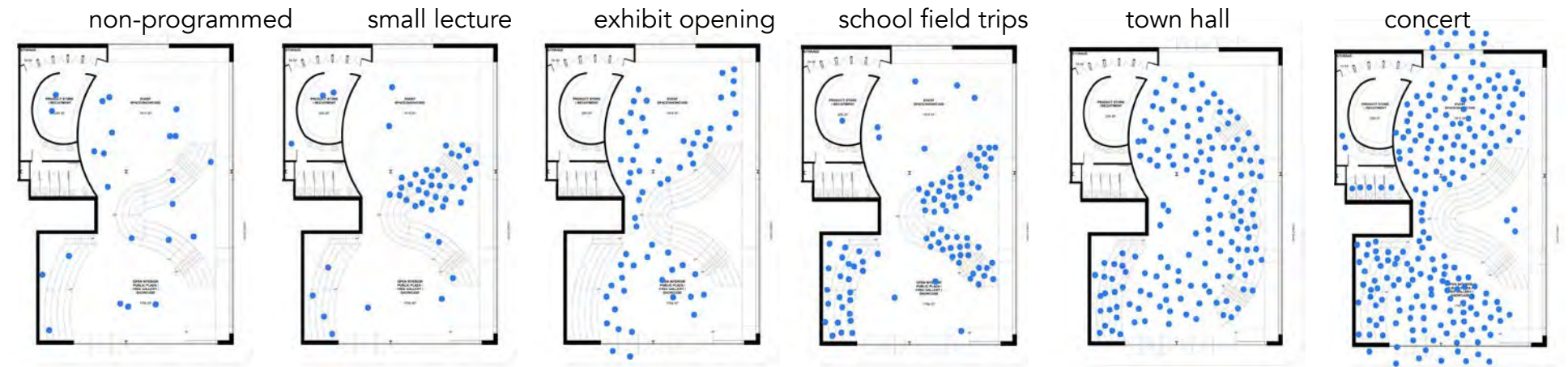
the site is 215 moore street in bushwick, brooklyn. it occupies the right half of a two-building complex, connected via skybridge.

bushwick is one of the rapidly genetrifying neighborhoods in brooklyn. the fabricator’s lab was conceived of as a universally accessible place to provide economic mobility to the underserved population of the neighborhood.

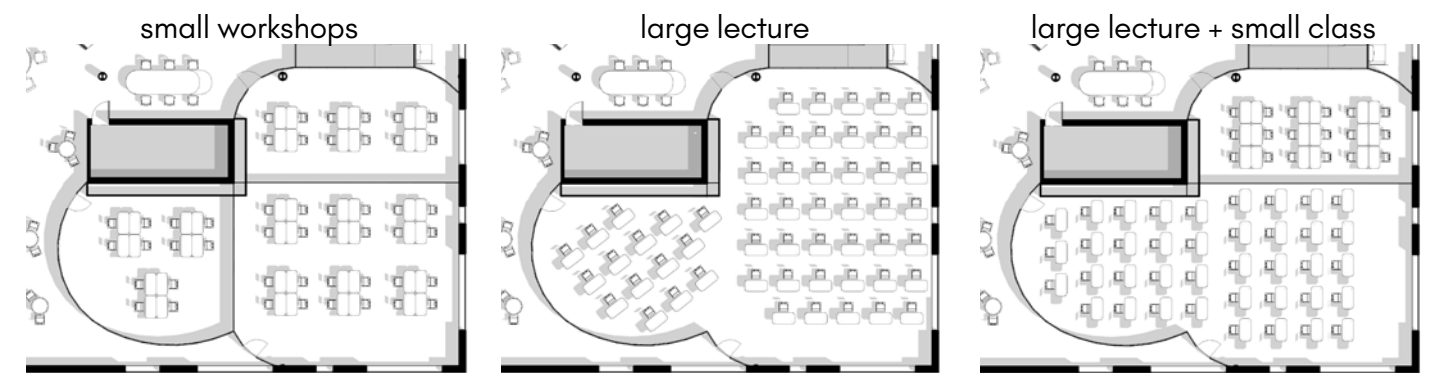
a collapsible partition system was designed, that functioned as a weather-adaptable facade on the ground floor, and as flexible walls on the second floor.



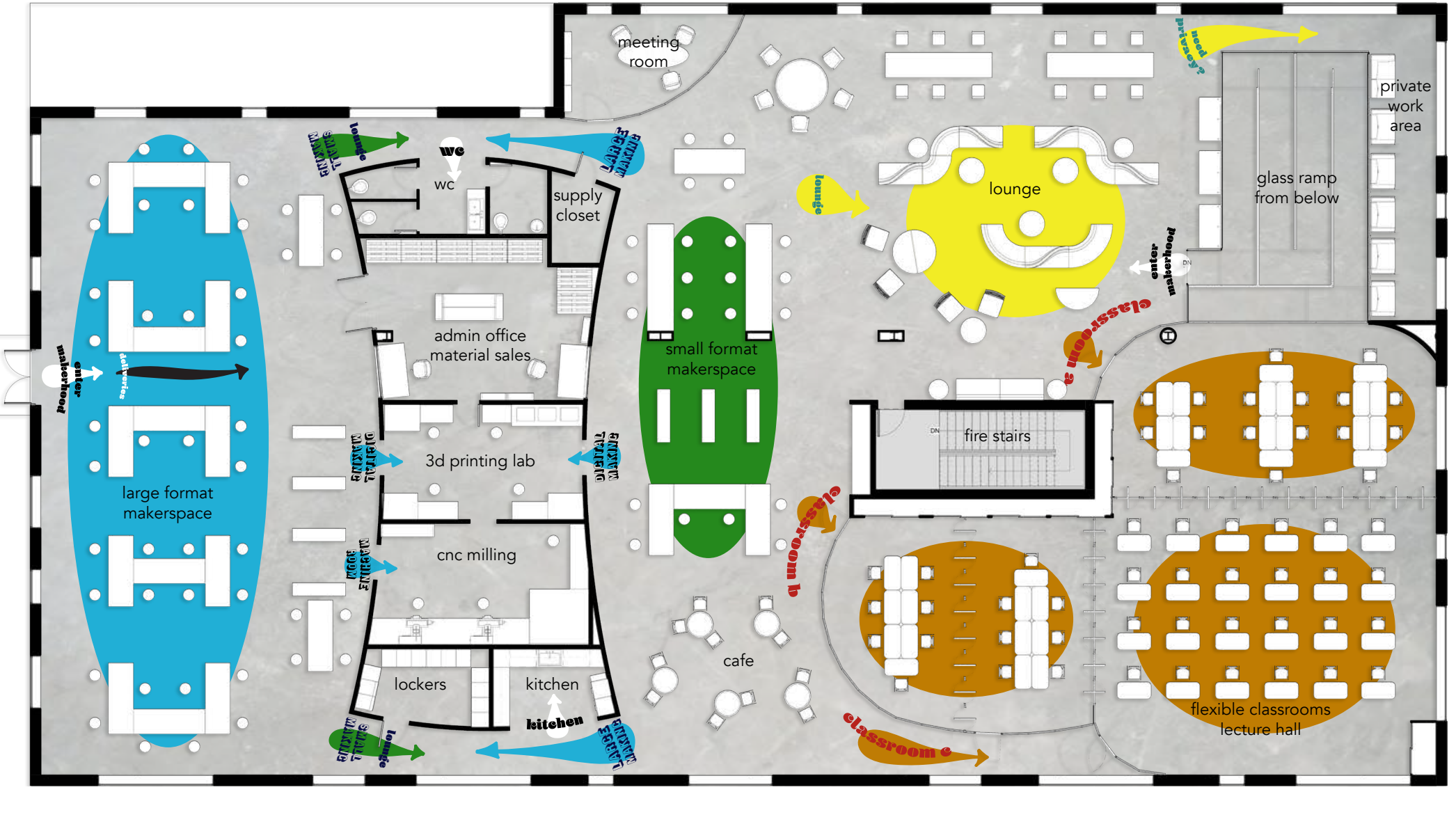
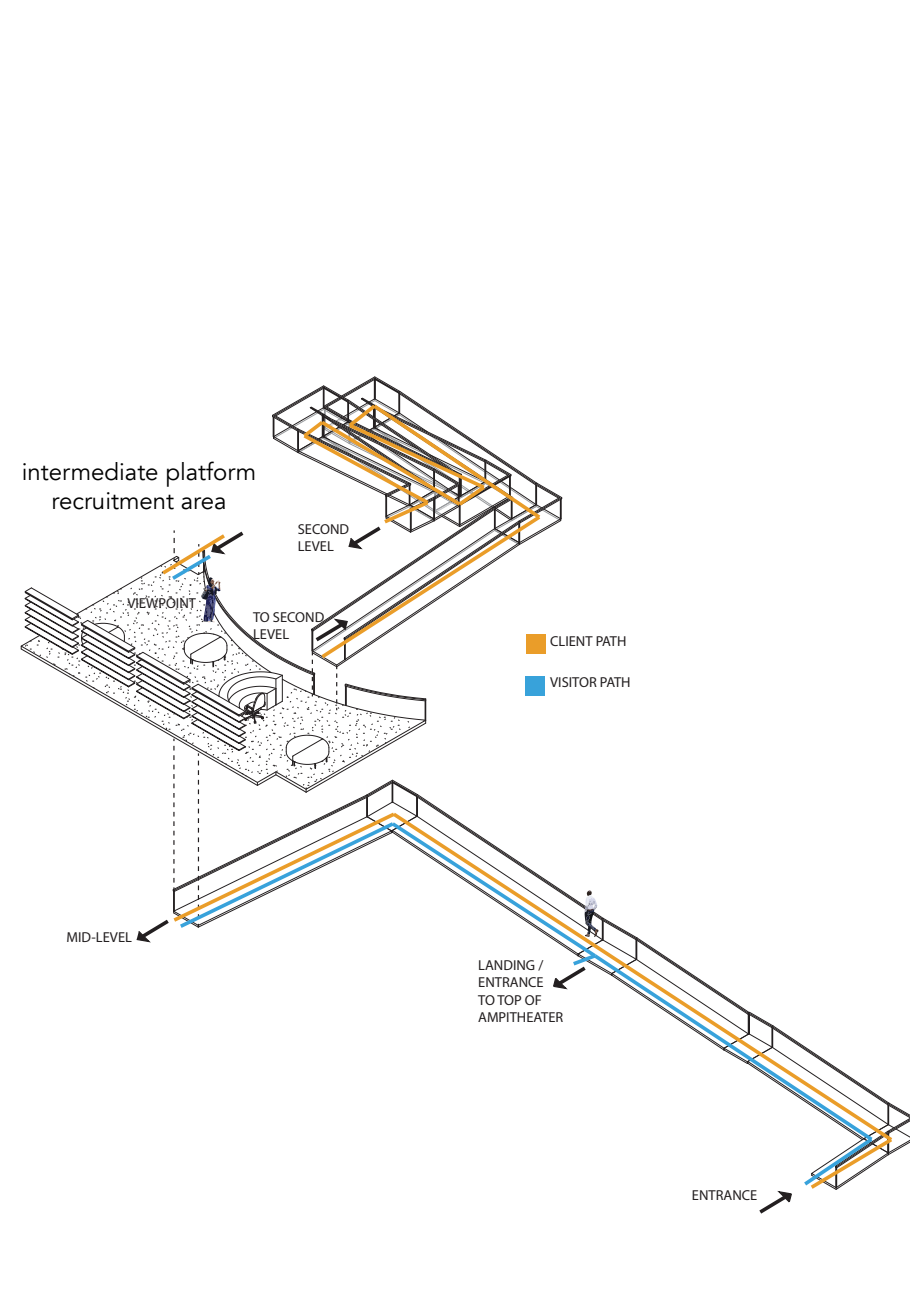
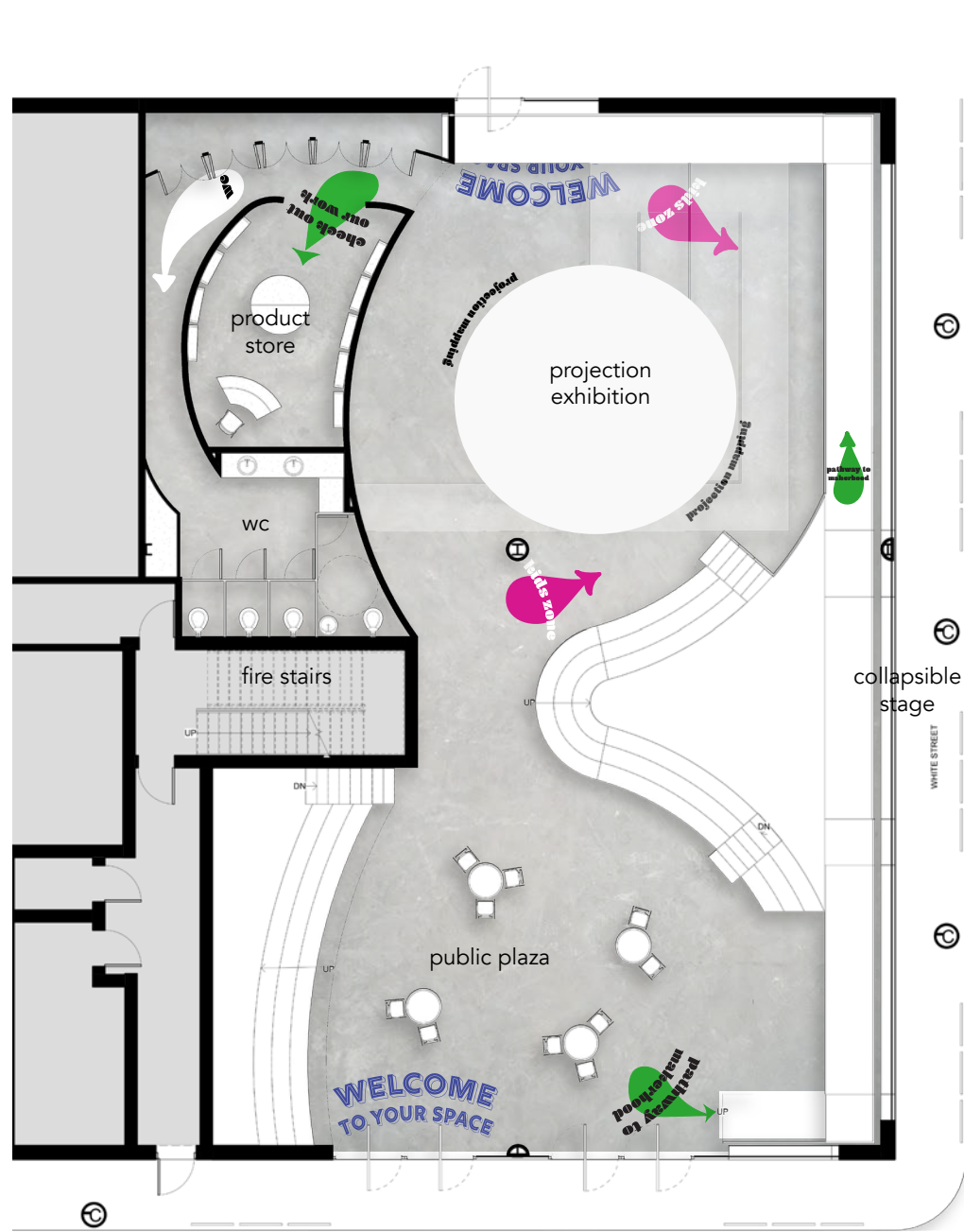
the ground floor was blown out to create an interior public plaza that would serve many functions: an exhibit hall for local artists, a showcase for product development happening upstairs, a concert hall, etcetera.



different uses of the interior open-air plaza - ground floor



different classroom configurations - second floor





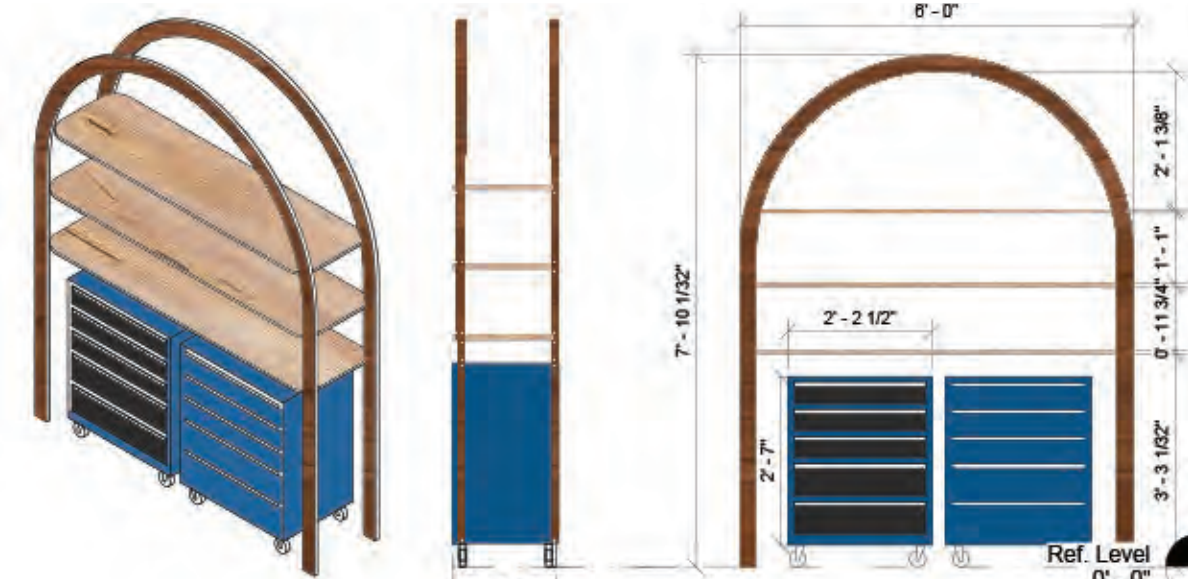
ff&e collage



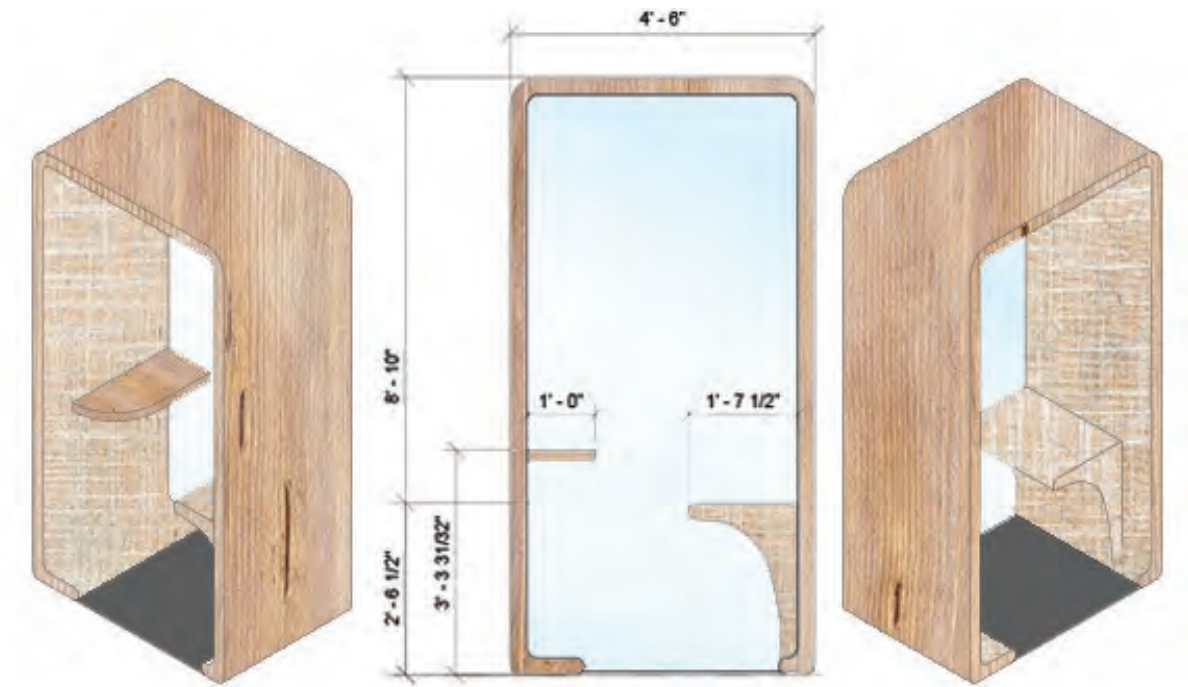
second floor interior perspective
non-programmed day



ground floor interior perspective
non-programmed day



shelving unit with stored rolling tool chests
installed in both makerspaces - second floor



shelving unit with stored rolling tool chests
installed in both makerspaces - second floor



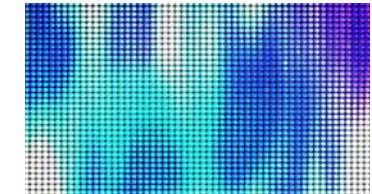
recycled concrete
flooring, painted



colorful glass
facade/entrances
collapsible partitions
interior walls



painted murals
pyramid steps
showcase walls
featuring local artists



led screens
showcase walls



reclaimed woods
ceiling
furniture
work tables



natural fabrics
furniture
cushions



moss
facade
interior ceilings



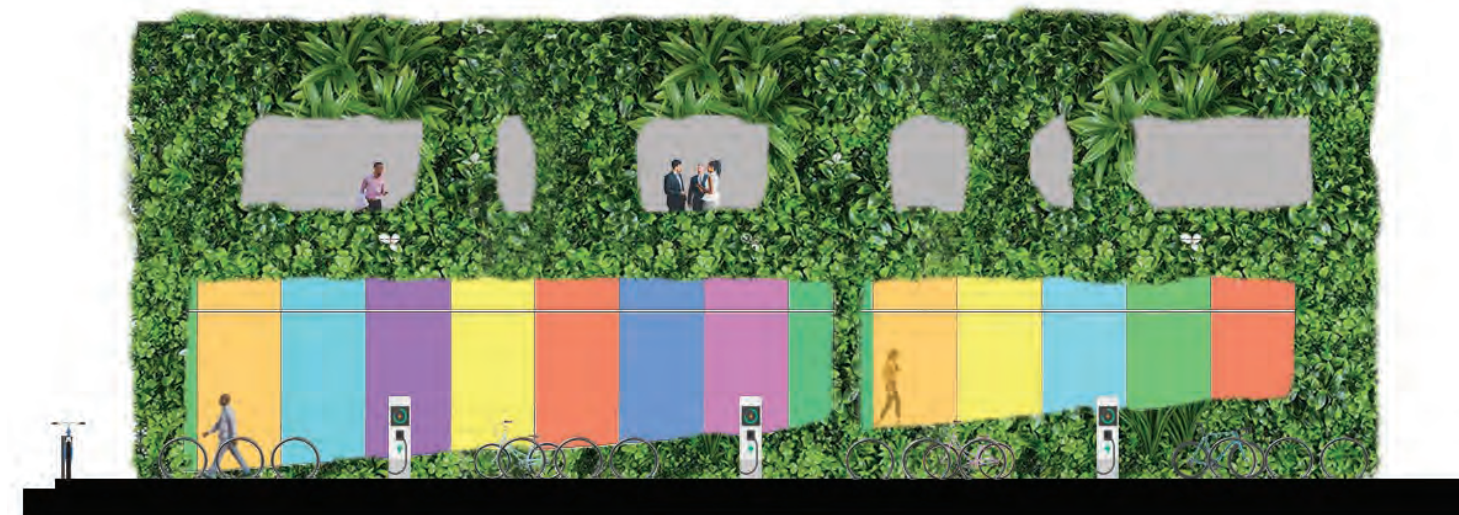
illustrated infographics
gallery exhibits
explanatory texts
introductory graphics



moore street facade



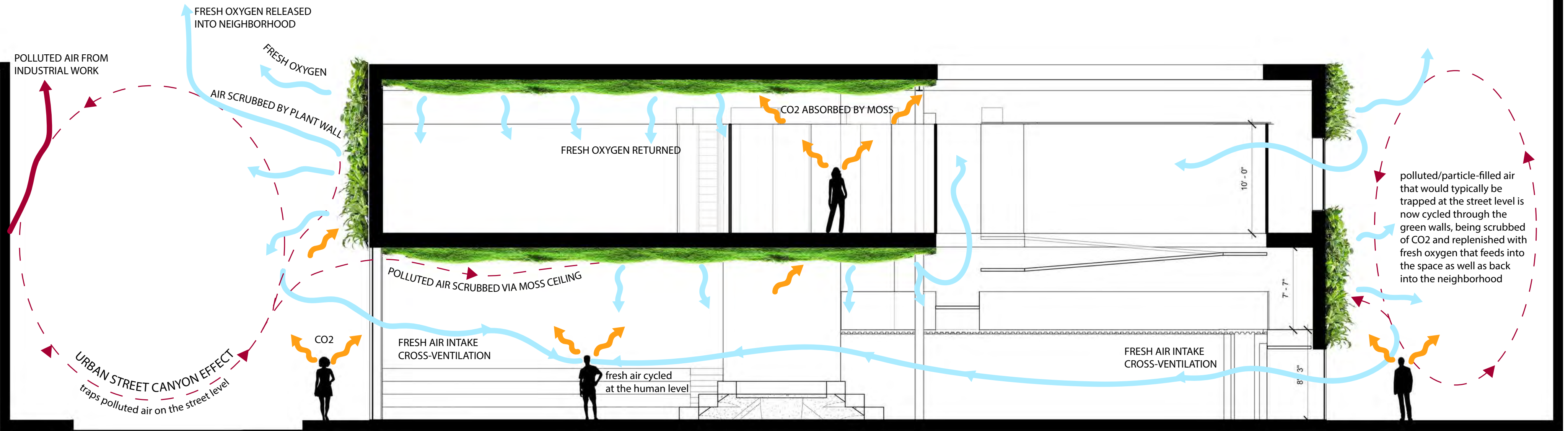
moore street facade



white street facade



pedestrian walkway facade



POLLUTED AIR FROM INDUSTRIAL WORK

FRESH OXYGEN RELEASED INTO NEIGHBORHOOD

FRESH OXYGEN

AIR SCRUBBED BY PLANT WALL

CO2 ABSORBED BY MOSS

FRESH OXYGEN RETURNED

10'-0"

polluted/particle-filled air that would typically be trapped at the street level is now cycled through the green walls, being scrubbed of CO2 and replenished with fresh oxygen that feeds into the space as well as back into the neighborhood

POLLUTED AIR SCRUBBED VIA MOSS CEILING

7'-7"

CO2

FRESH AIR INTAKE CROSS-VENTILATION

fresh air cycled at the human level

FRESH AIR INTAKE CROSS-VENTILATION

8'-3"

URBAN STREET CANYON EFFECT
traps polluted air on the street level

interior plaza - nighttime
panel discussion



thank you.

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photo of my undergraduate thesis - "Rebuilding the Rainforest: Simulacra in a Post-Natural World"
handmade immersive installation using all recycled and waste materials