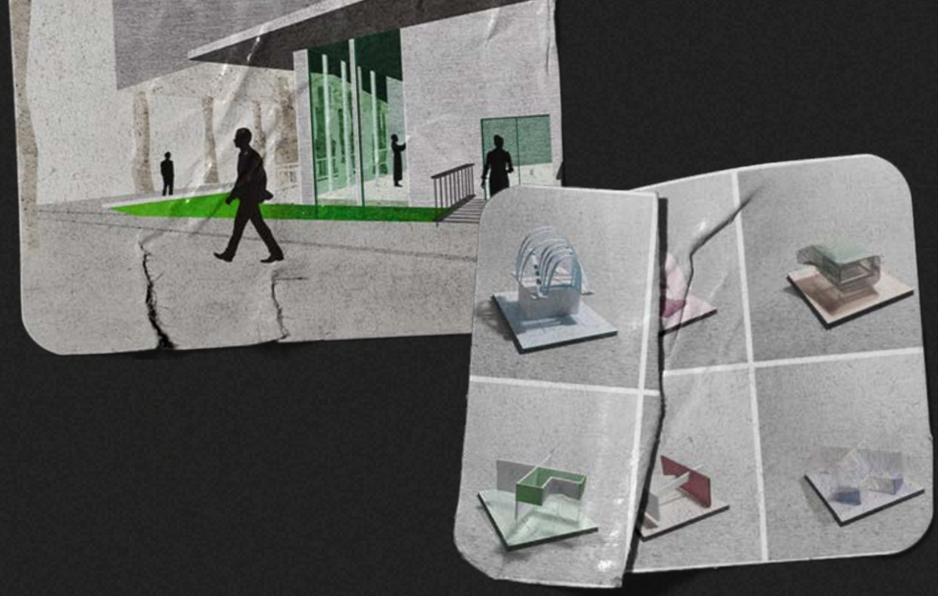
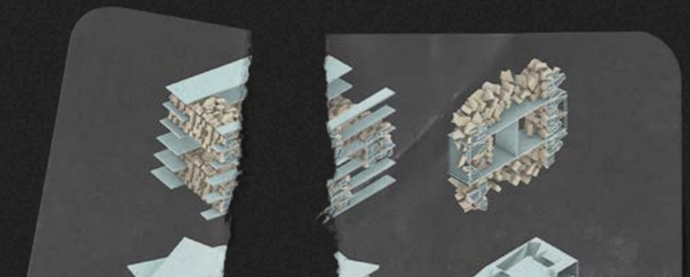
RZ.

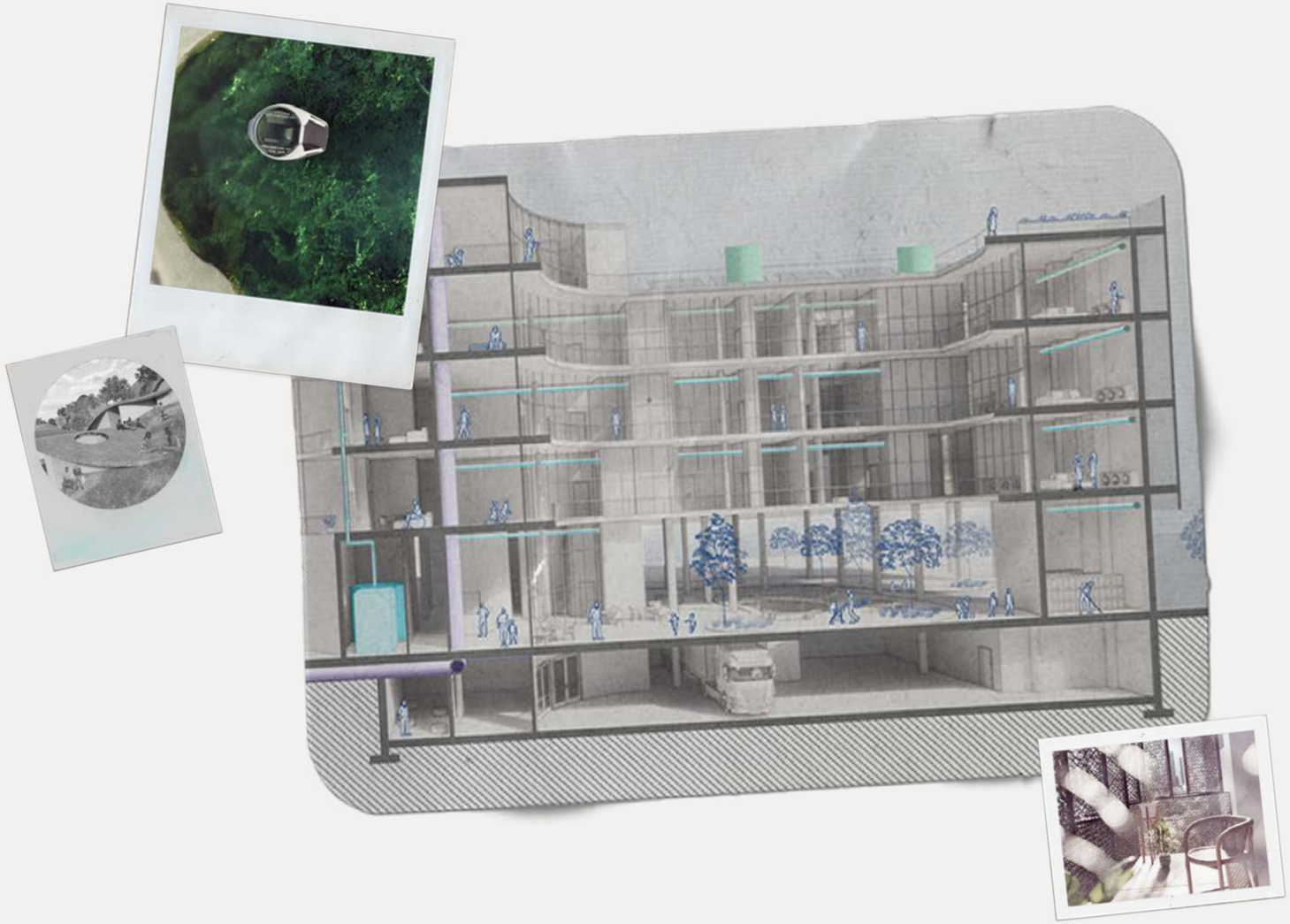


ROSE ZHANG



GSAPP

PORTFOLIO



Contents:

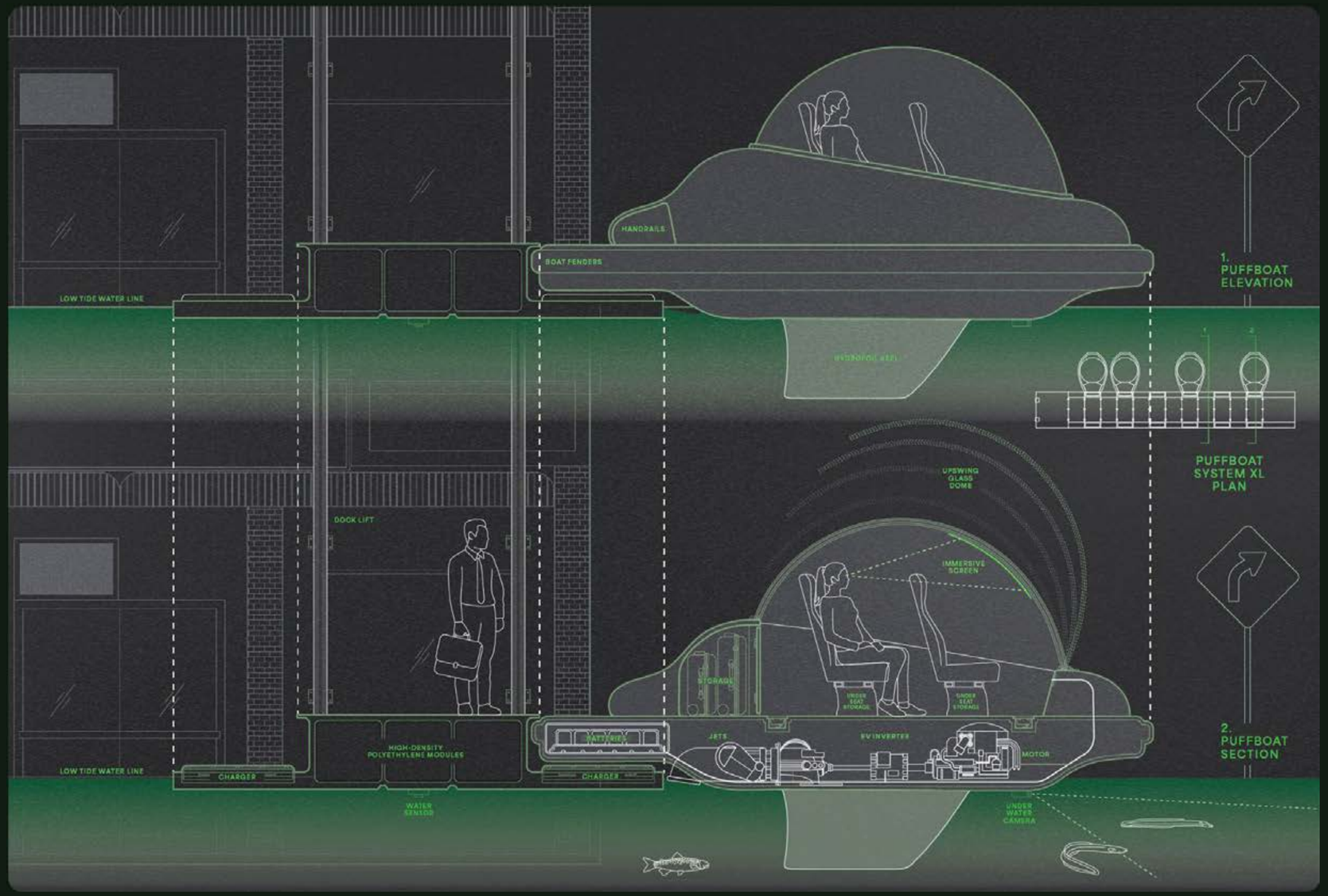
FLOW HUB

Located at Spring Studios, Flowhub is a scalable intervention that embraces the rising sea levels in Manhattan. In 2053, it will act as a home for native blue mussels, serving to filter, clean, and rehabilitate water. Flowhub supports the Hudson River's ongoing prosperity, as well as the young ecosystems of the new flood zone.

WHAT →	Amina Blacksher Studio, ADV 5
WHEN →	2023
WHO →	Rose Zhang, Megan Dang

EARLY RESEARCH

In 2053, we will rely on Puffboats, a hydrofoil water vessel, to navigate the 5 to 10’ flood zones across Manhattan. The Puffboat network adapts to the river’s tide cycle, addressing 2053 sea level rise challenges and preserving biodiversity through accessible personal transportation.



PUFFBOAT ELEVATION & SECTION

PUFFBOAT DOCKS

To set the scene, a short film was created to establish the state of Manhattan in 2053. This was created in Blender, After Effects, and Premiere Pro.

CLICK TO WATCH ⟶

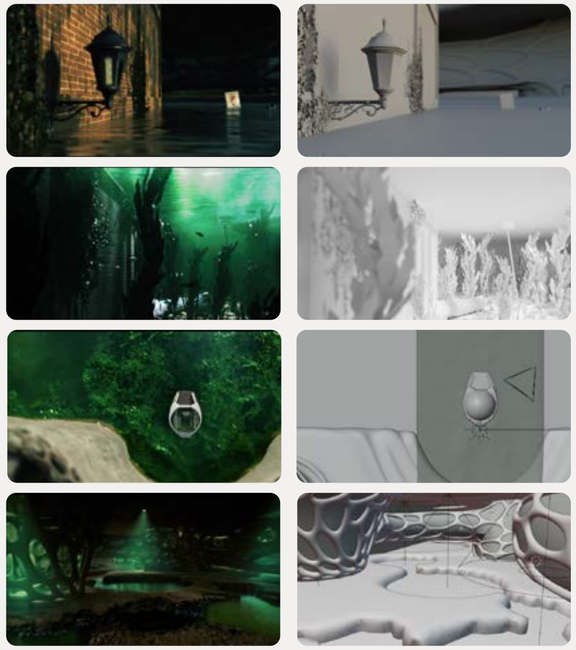
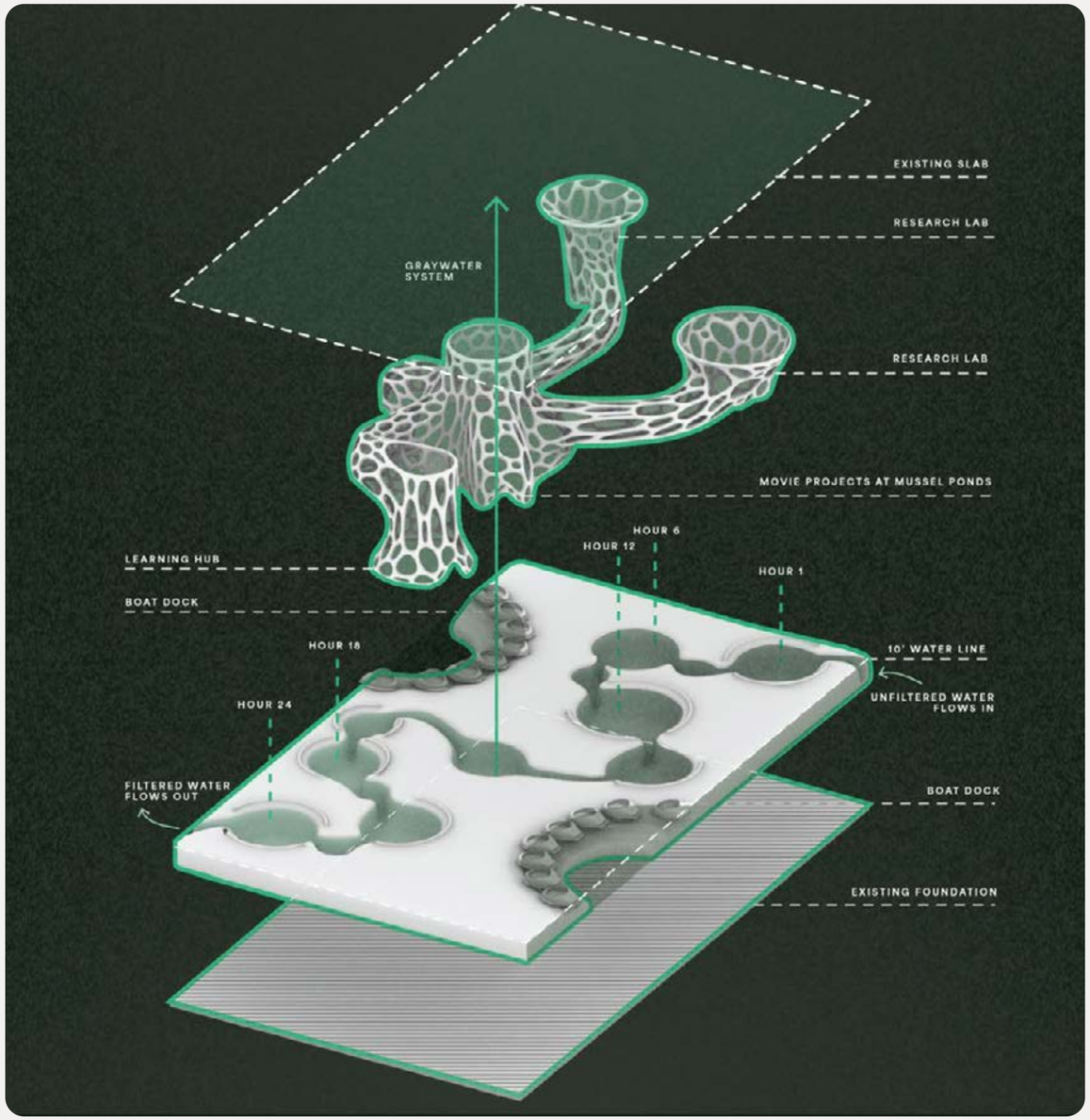
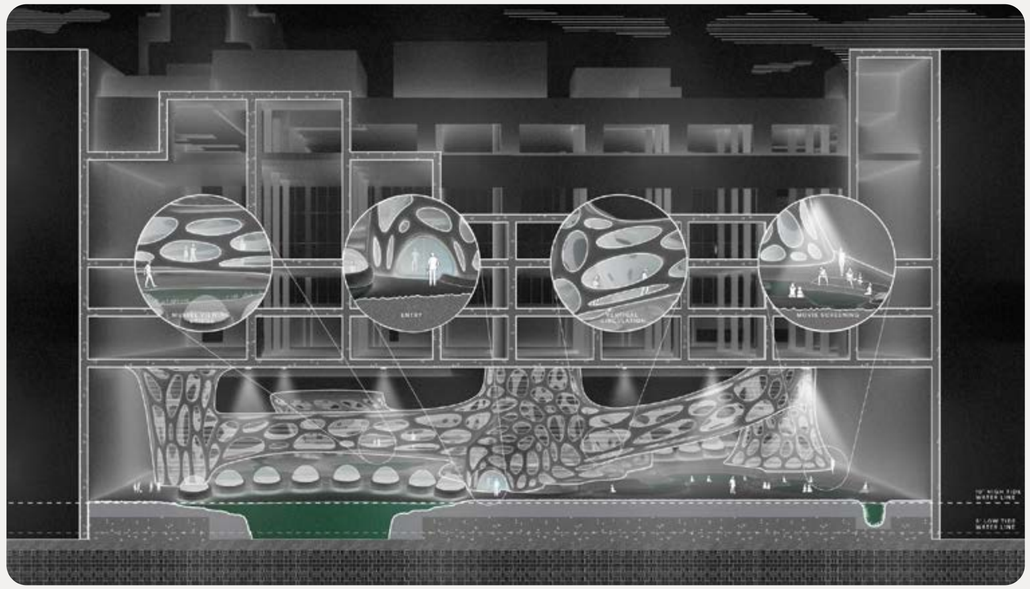


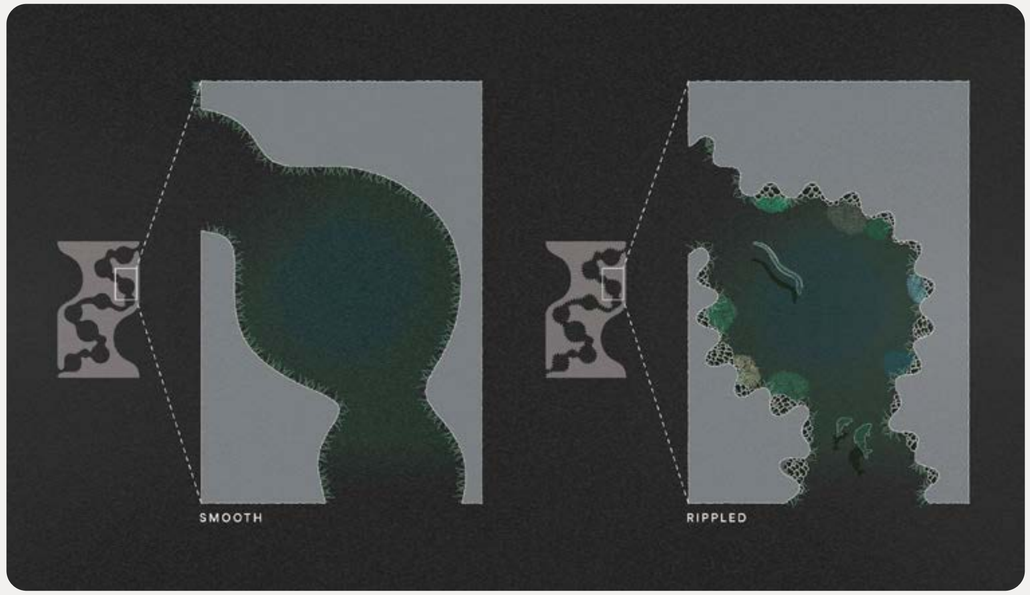
IMAGE SEQUENCE FROM THE SHORT FILM

FLOWHUB SYSTEM DIAGRAM



PROGRAM DIAGRAMS





1:1 MODEL

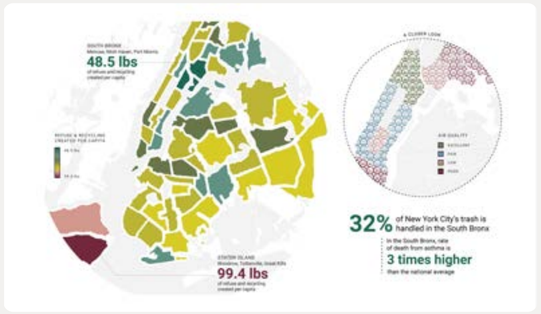
At Spring Studios, our hub for native blue mussels serves to filter, clean, and rehabilitate the water, supporting the river's prosperity and any newly established habitats in the flood zone.

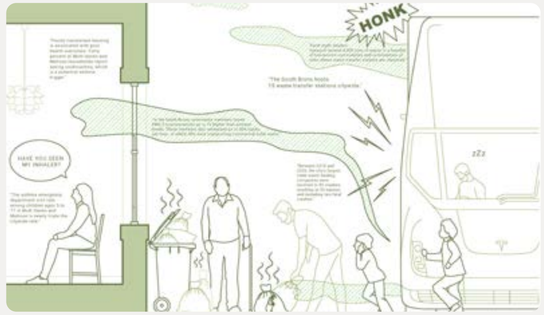
SOFT HOME

Historically, the South Bronx has been disproportionately affected by the municipality's waste management system. The distrust between urban governance and its inhabitants was exacerbated by resulting health injustices, environmental inequality, and a loss of home. SoftHome re-imagines systems of waste as a means to restore environmental comfort and facilitate a reclamation of sensory ownership.

WHAT →	Alicia Ajayi Studio, CORE 3
WHEN →	2021
WHO →	Rose Zhang, Megan Dang

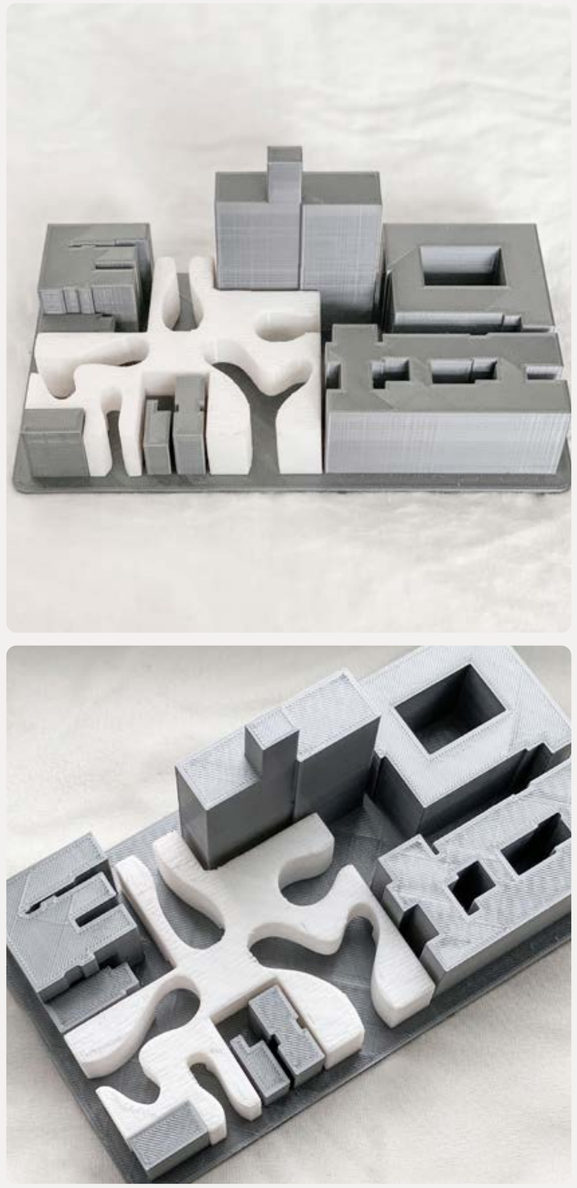
RESEARCH





SKETCH MODELS

MASSING WITH CONTEXT



THEN

There are currently 17 waste transfer transfer stations and 7,200 trucks traverse the South Bronx every day.

47, 450
miles driven per year

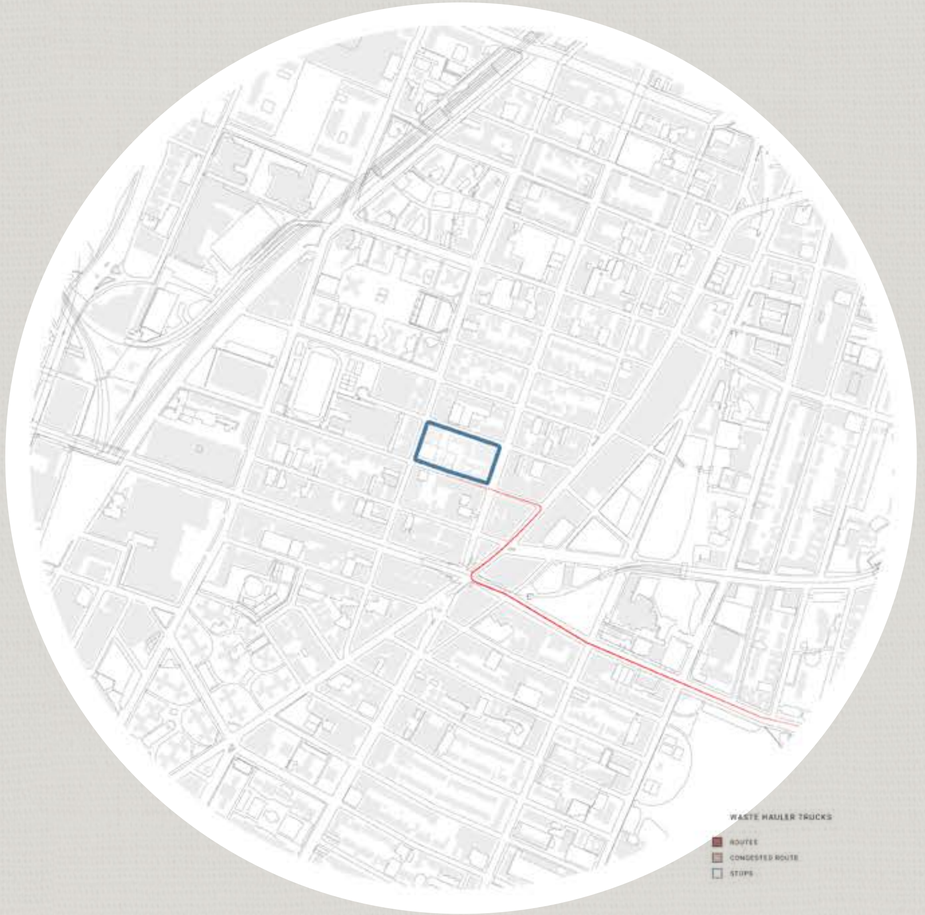
25, 550
driving hours per year

7,200
trucks traverse the South Bronx every day

VS

NOW

By scaling this project, 15 pneumatic stationary systems could service all 212,530 South Bronx residents.



328.5
miles driven per year

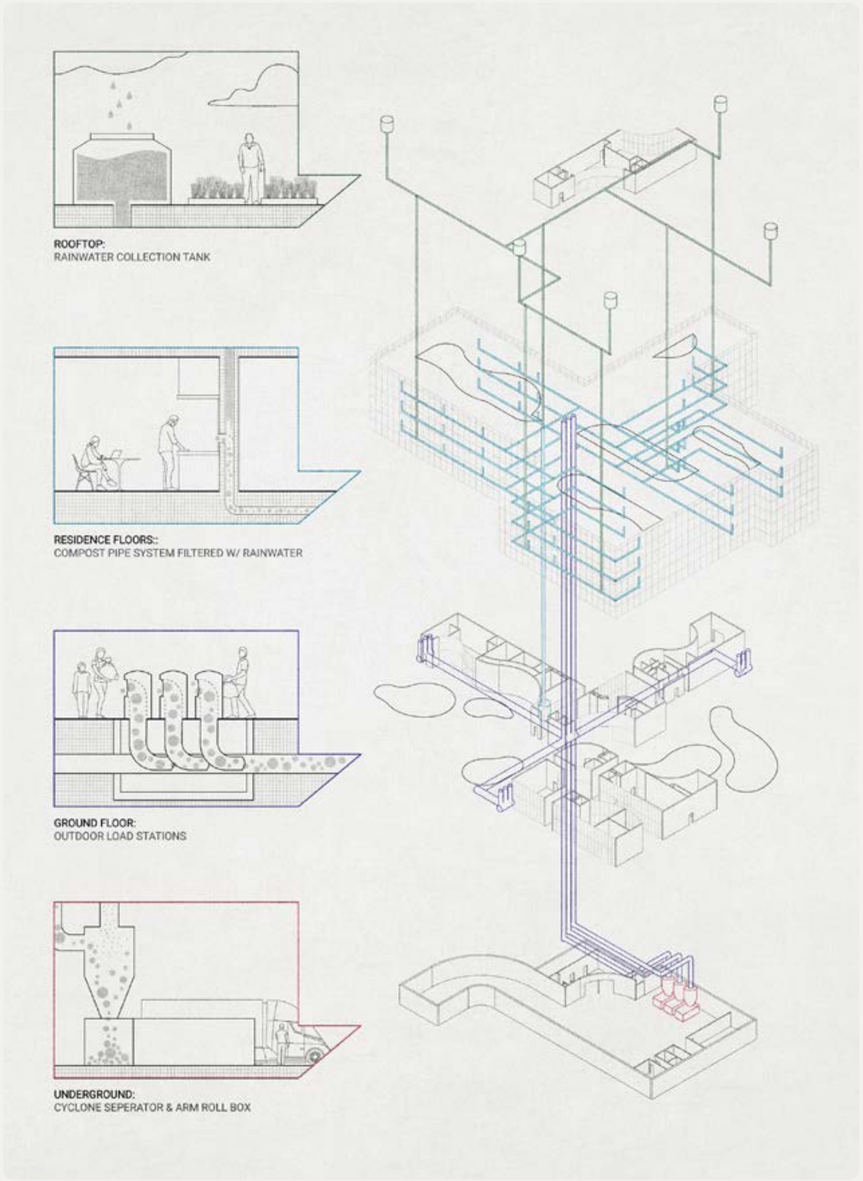
36.5
driving hours per year

15
trucks traverse the South Bronx every day

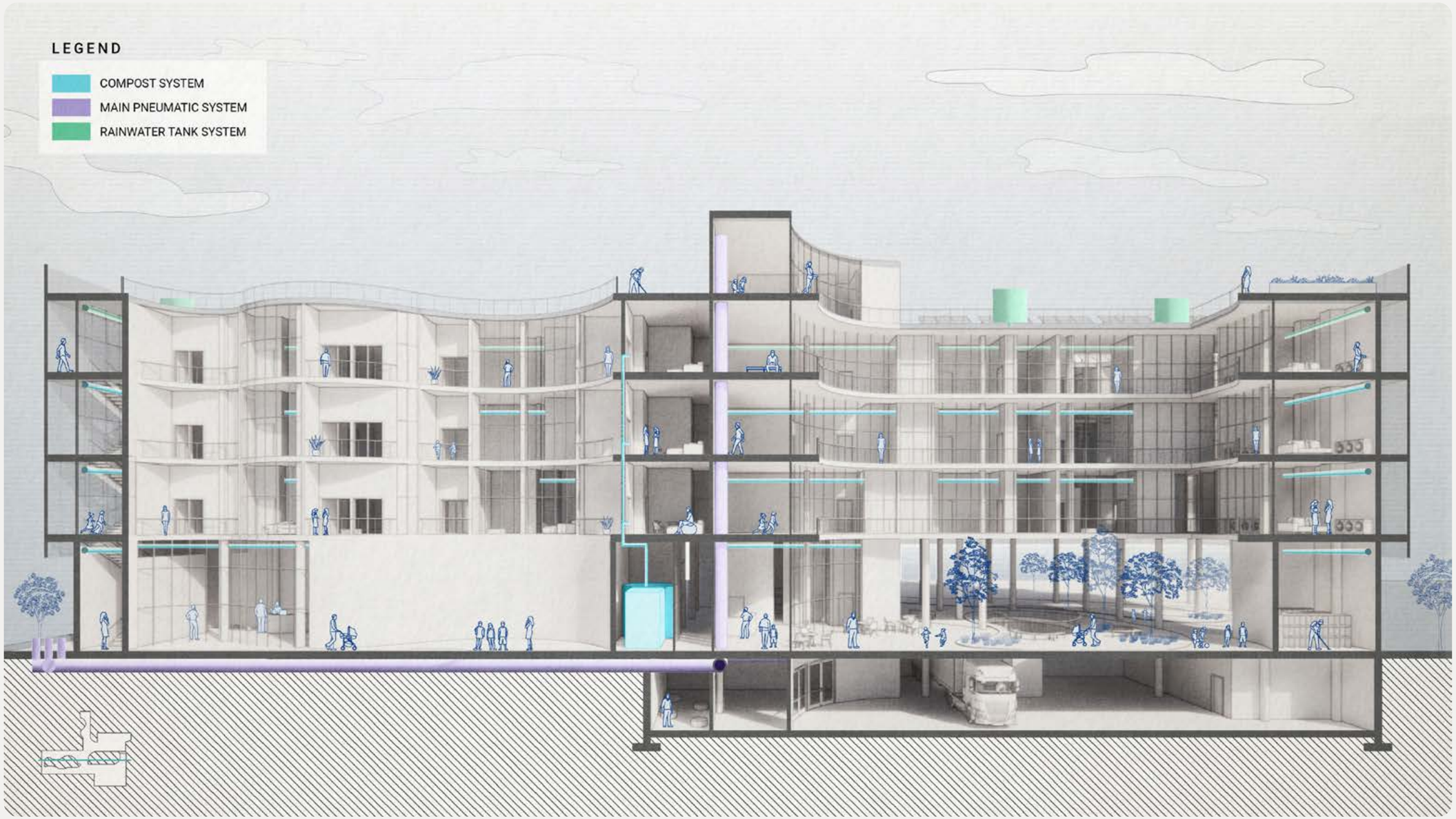
Our proposal embeds 4 systems to re-imagine waste:

1. A rooftop rainwater system.
2. A compost system terminating in a sorting room.
3. A pneumatic system with publicly accessible load stations.
4. A basement cyclone separator that loads arm roll boxes for trucks to pick-up.

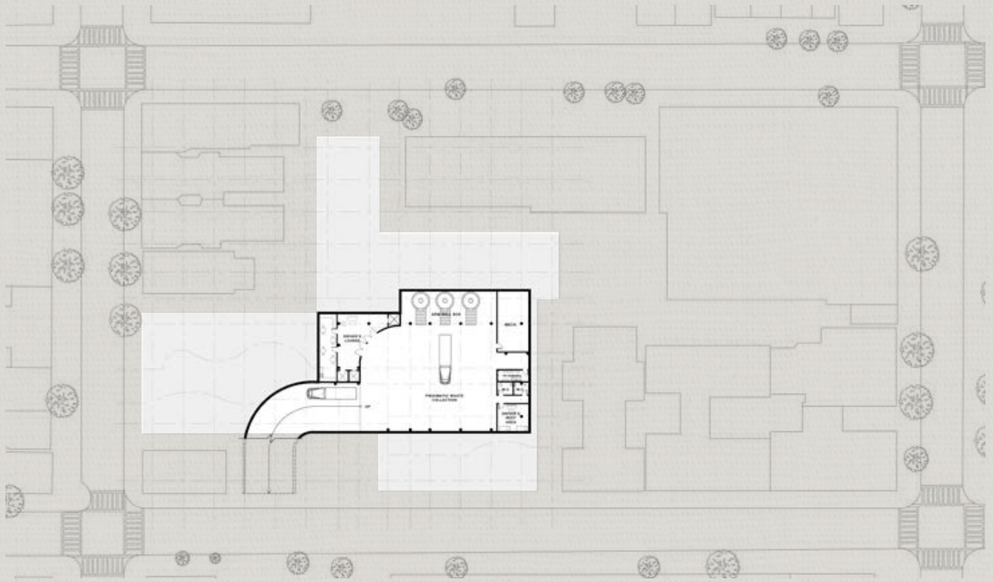
SYSTEM DIAGRAM



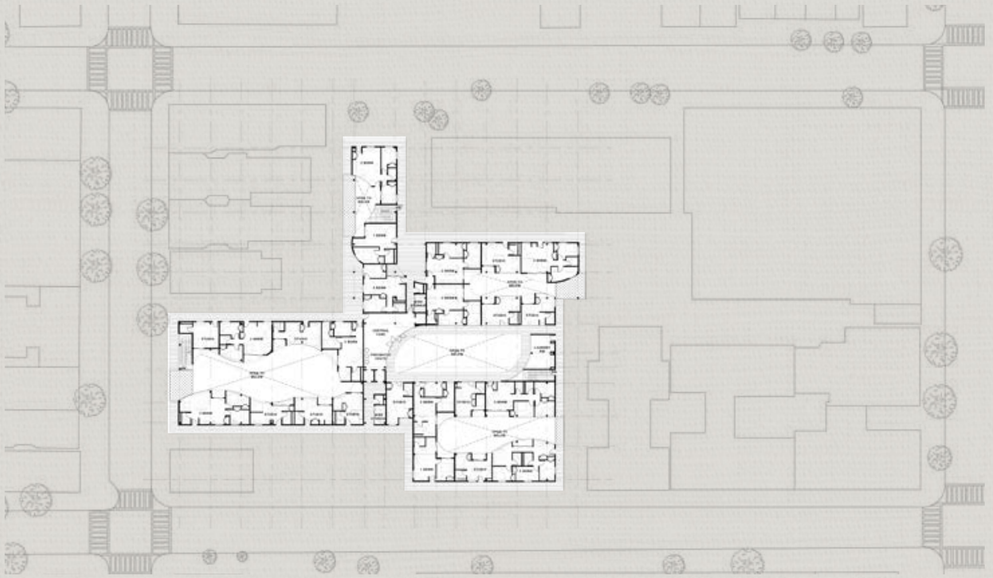
SECTION PERSPECTIVE



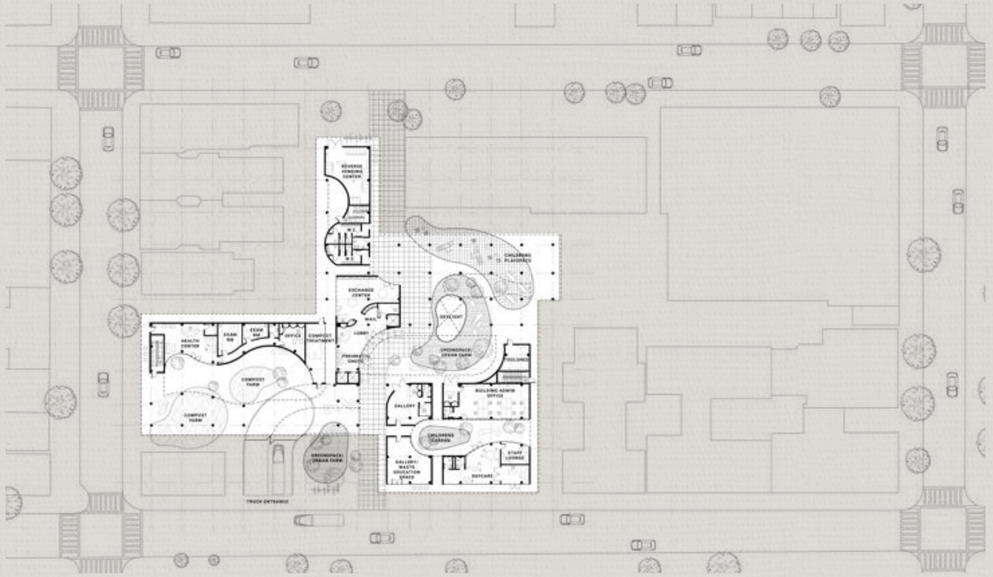
BASEMENT



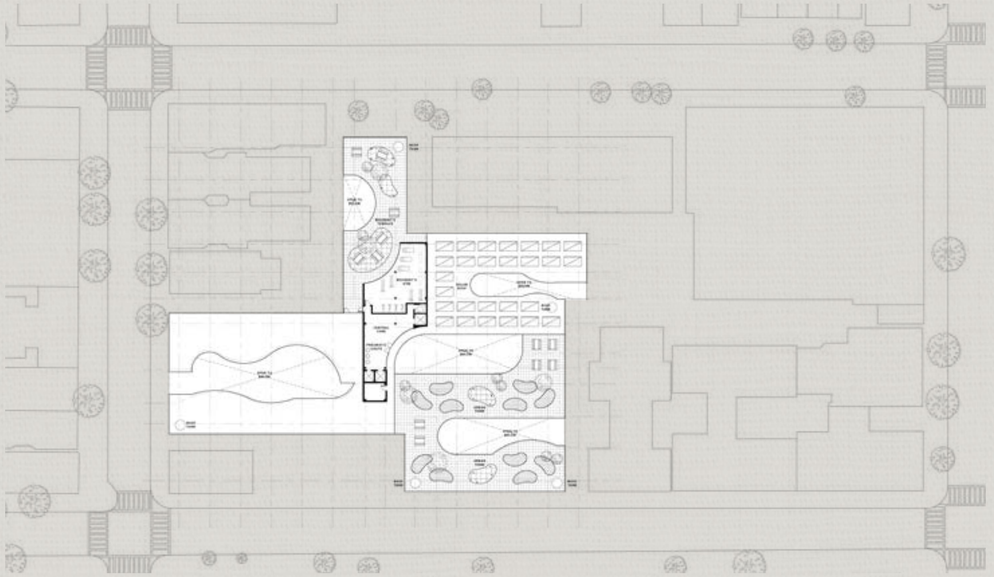
TYPICAL RESIDENTIAL

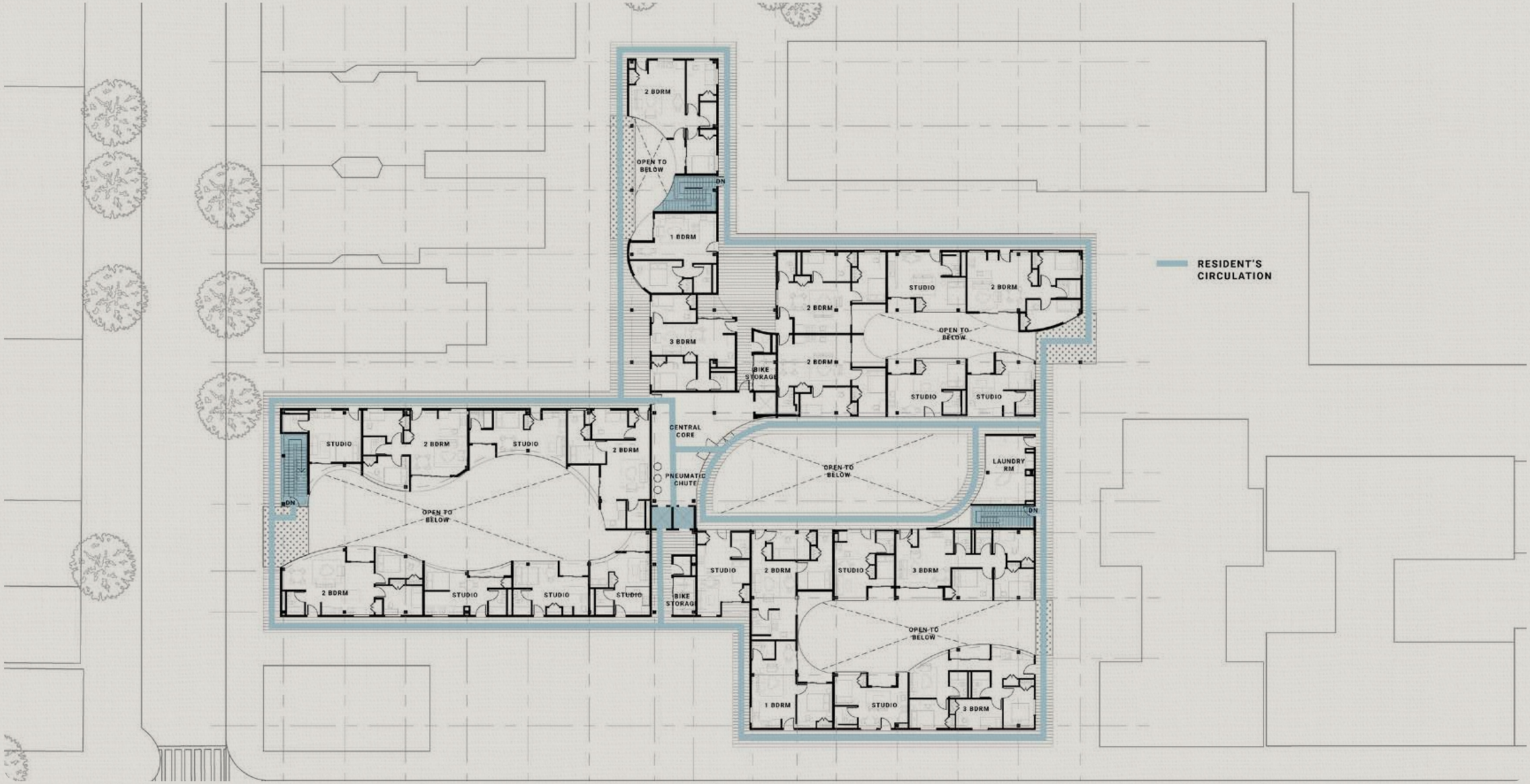


GROUND FLOOR

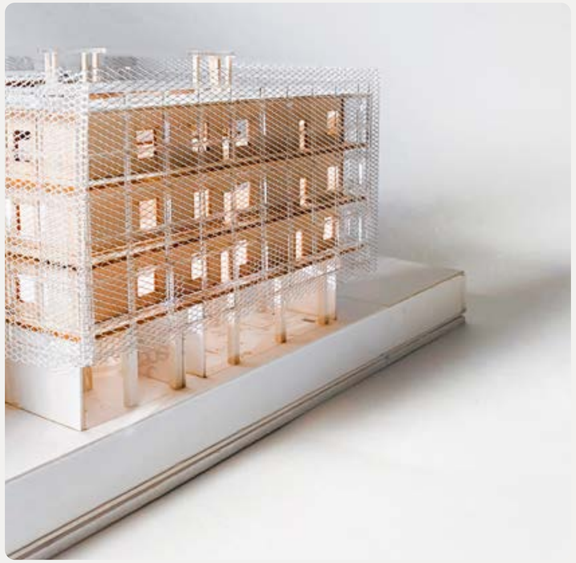


ROOF

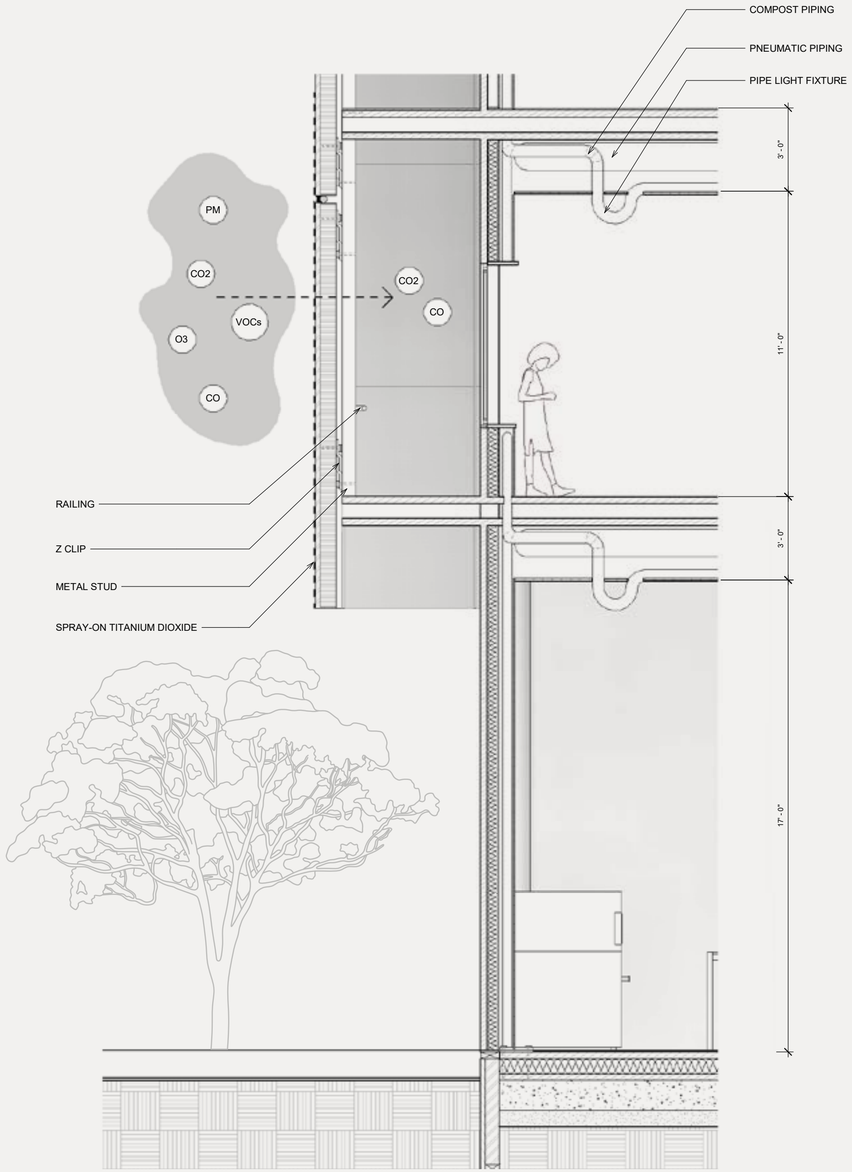



2 BDRM
OPEN TO BELOW
DN
1 BDRM
3 BDRM
BIKE STORAGE
STUDIO
2 BDRM
OPEN TO BELOW
STUDIO
STUDIO
CENTRAL CORE
PNEUMATIC CHUTE
OPEN TO BELOW
LAUNDRY RM
DN
STUDIO
2 BDRM
STUDIO
3 BDRM
OPEN TO BELOW
1 BDRM
STUDIO
3 BDRM
RESIDENT'S CIRCULATION

For our facade strategy, we focused on creating sensory comfort in housing: through experiencing layers of boundaries; providing a sense of protection. The facade is coated with a superfine titanium dioxide, a pollution-fighting technology that is activated by ambient daylight.



FACADE DETAIL DRAWING



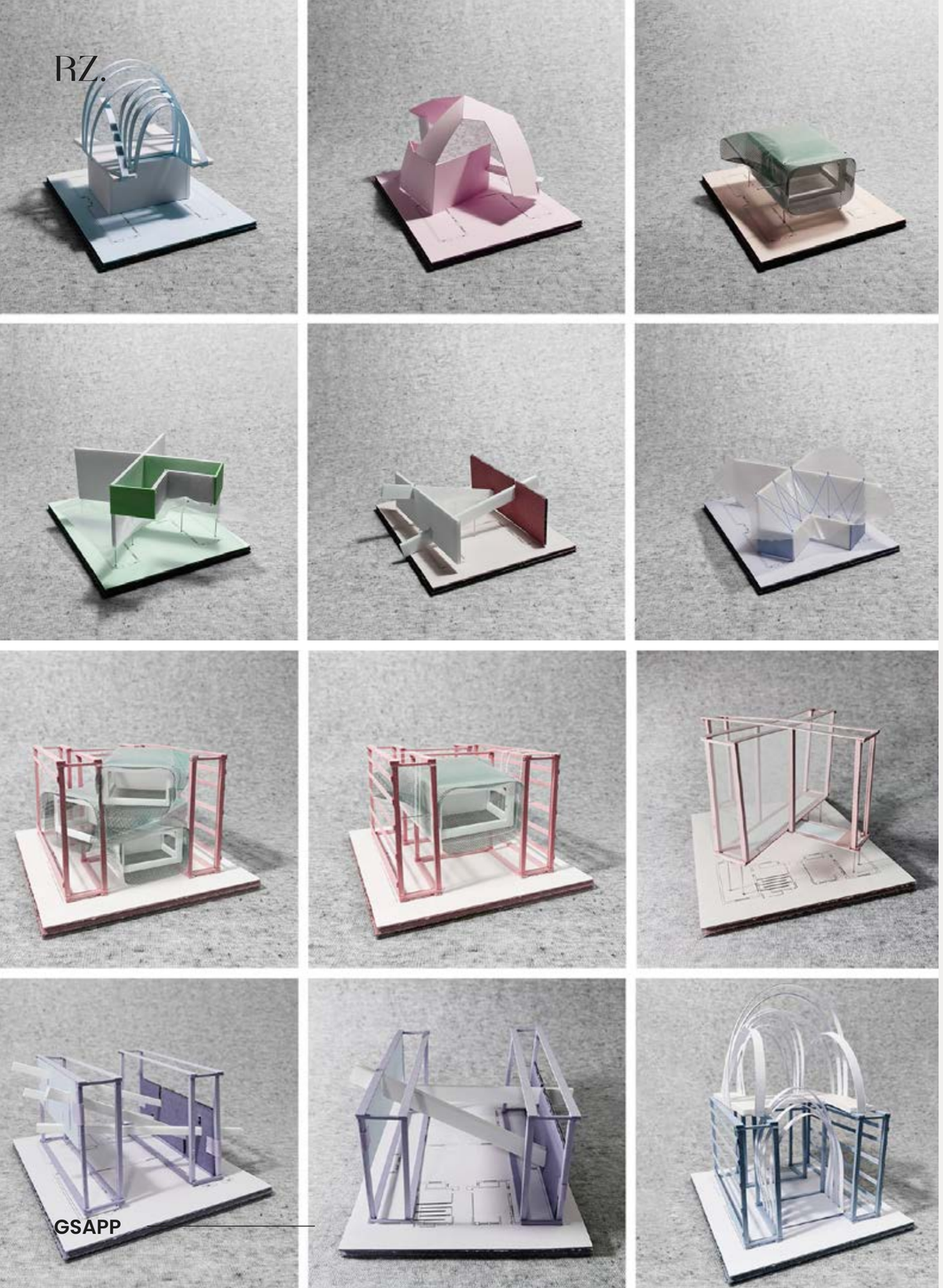
SCALE MODEL

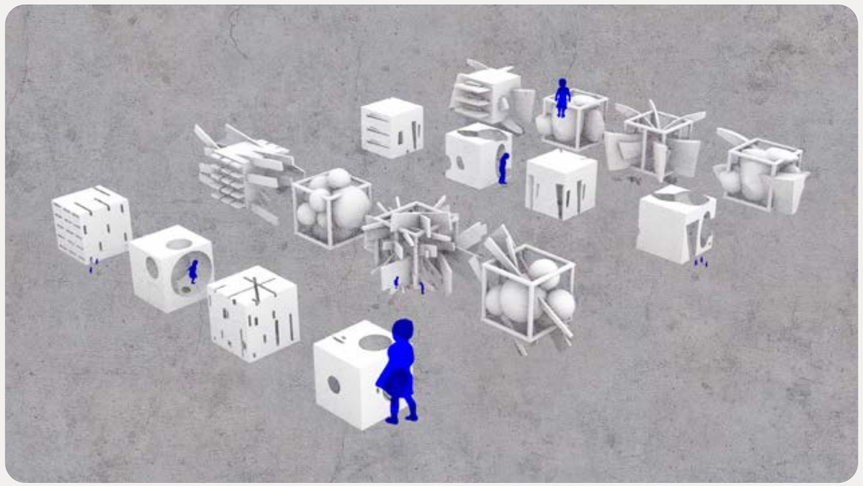
LAMINATED SCHOOL

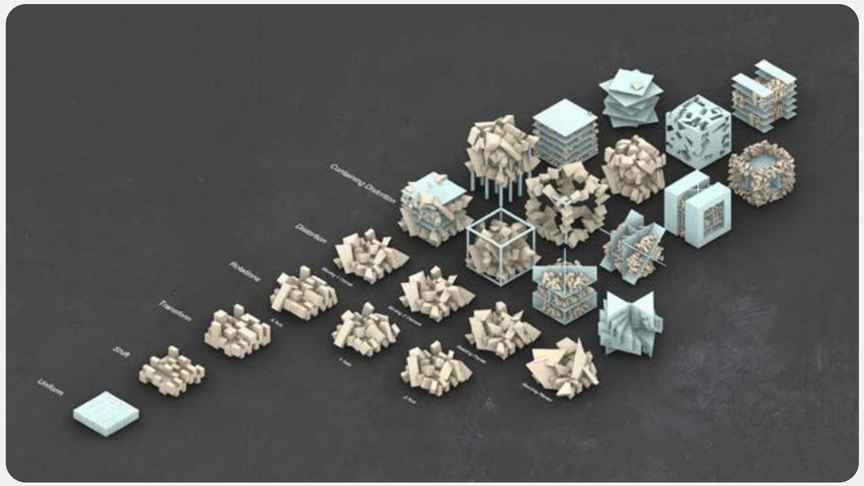
Our brains are layered hubs of communication. By mimicking the composition of gap junctions in brain tissue, porosity is adopted in materiality and scale to nurture and maximize connectivity within the school and its wider community.

WHAT →	Lindy Roy Studio, CORE 2
WHEN →	2021
WHO →	Rose Zhang

SKETCH MODELS

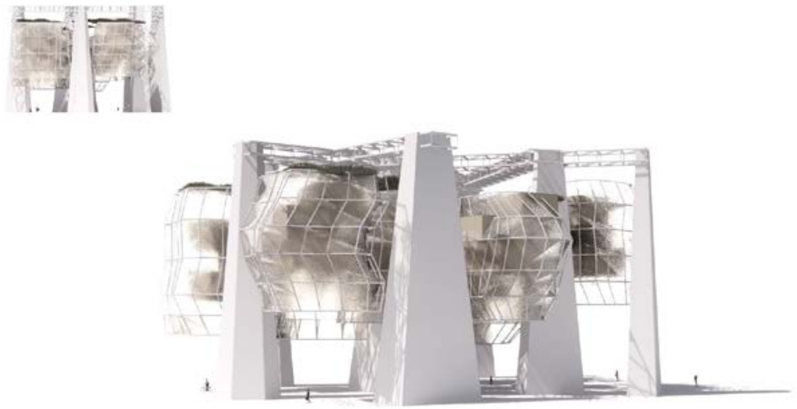






DIGITAL EXPLORATIONS

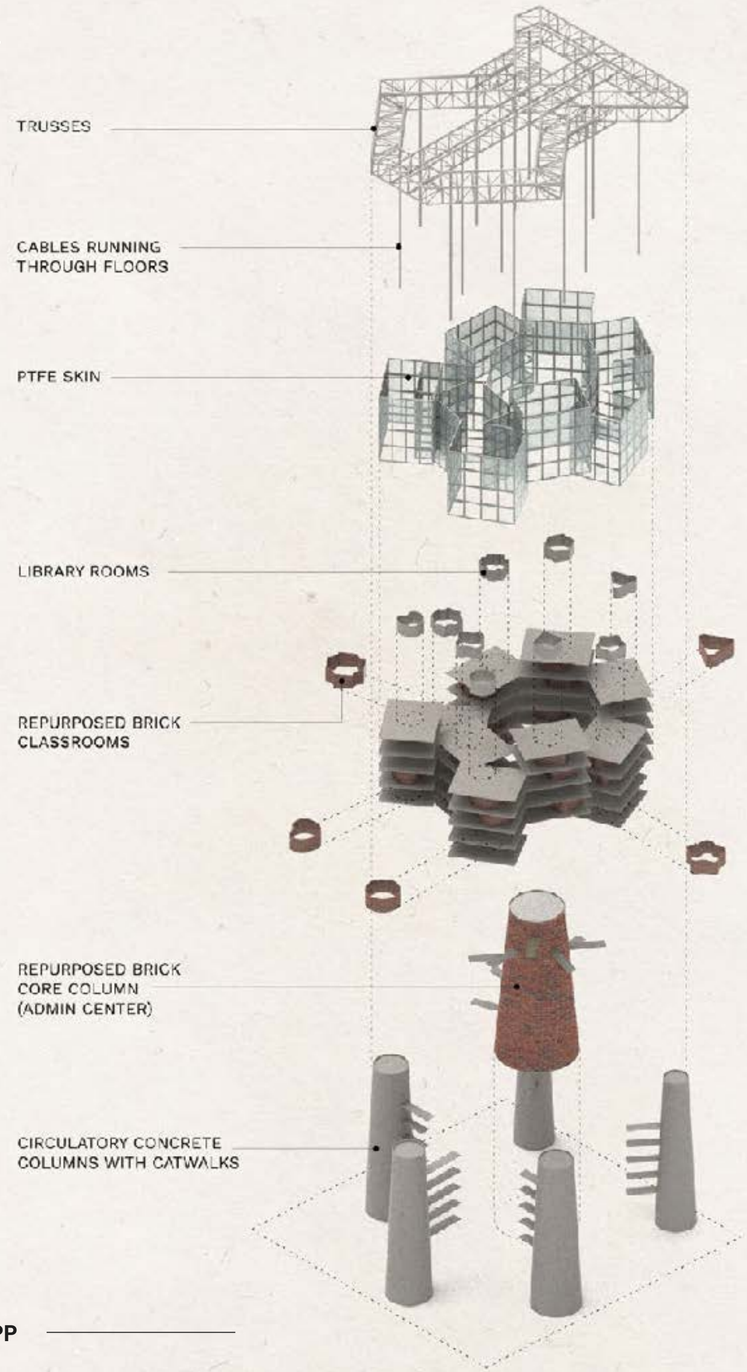
To maximize permeability, the outer shell of the building was foregone, explosing only the hubs inside.



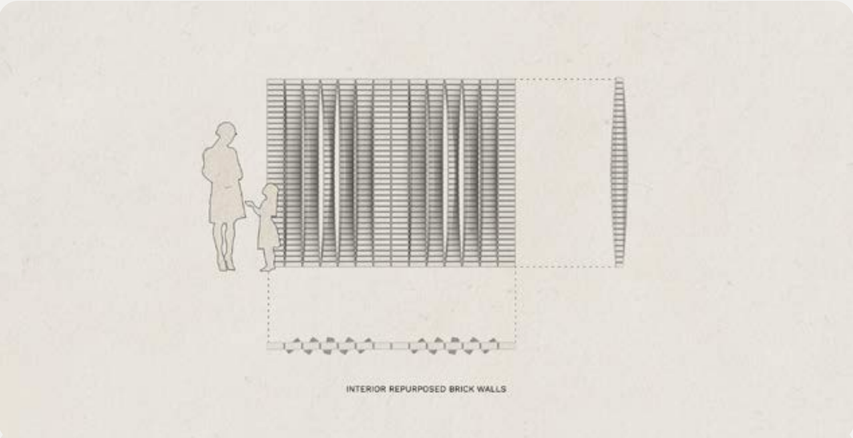
INITIAL DESIGN CONCEPT

DESIGN CONCEPT WITH CONTEXT

SYSTEM DIAGRAM

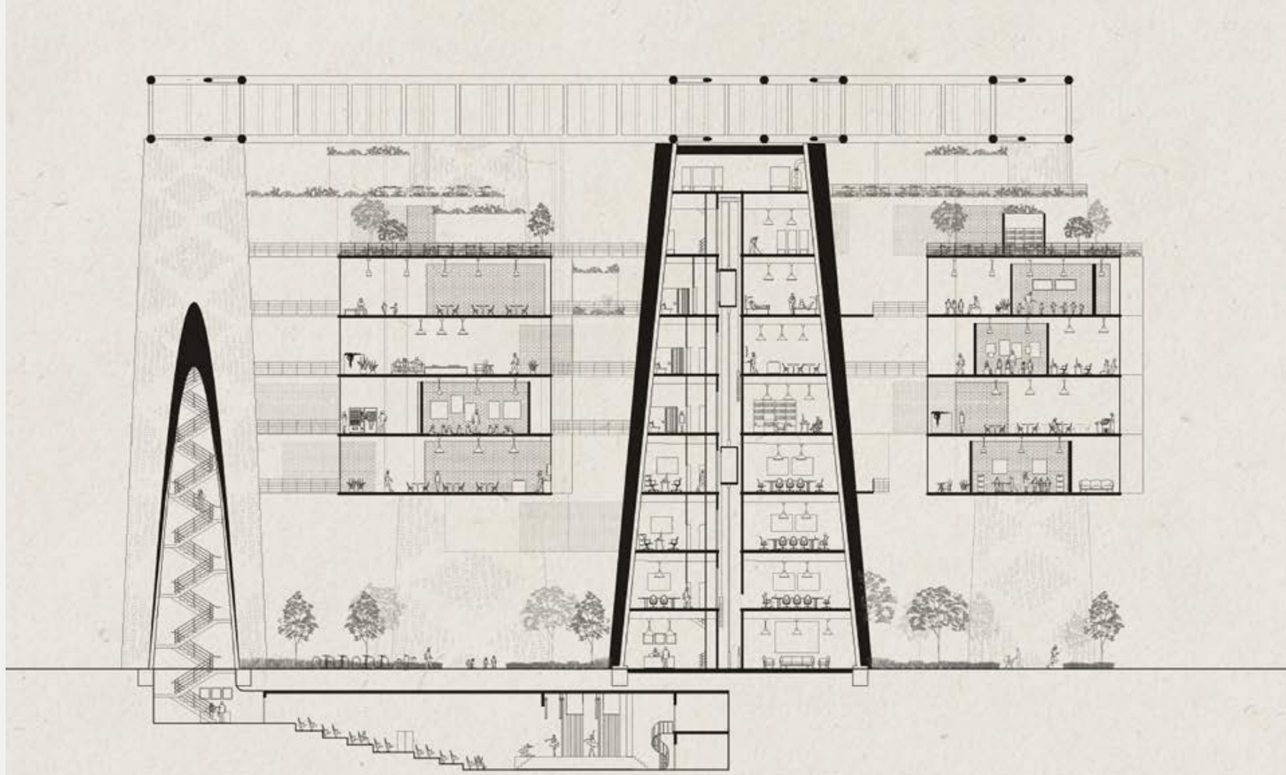


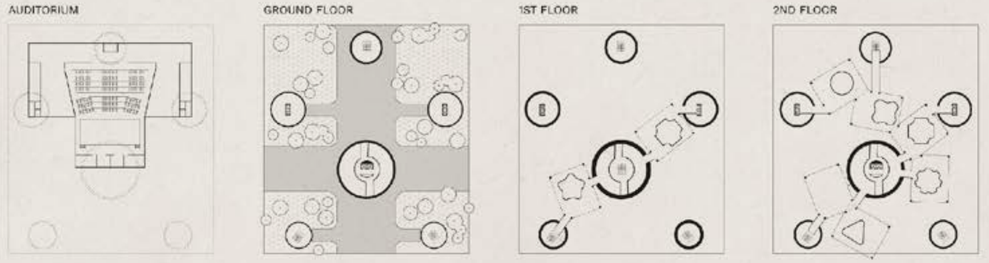
INTERIOR PERSPECTIVE



At the Laminated School, porosity is utilized at every scale to maximize connectivity both within the school and the greater community.

LONGITUDINAL SECTION & PLANS





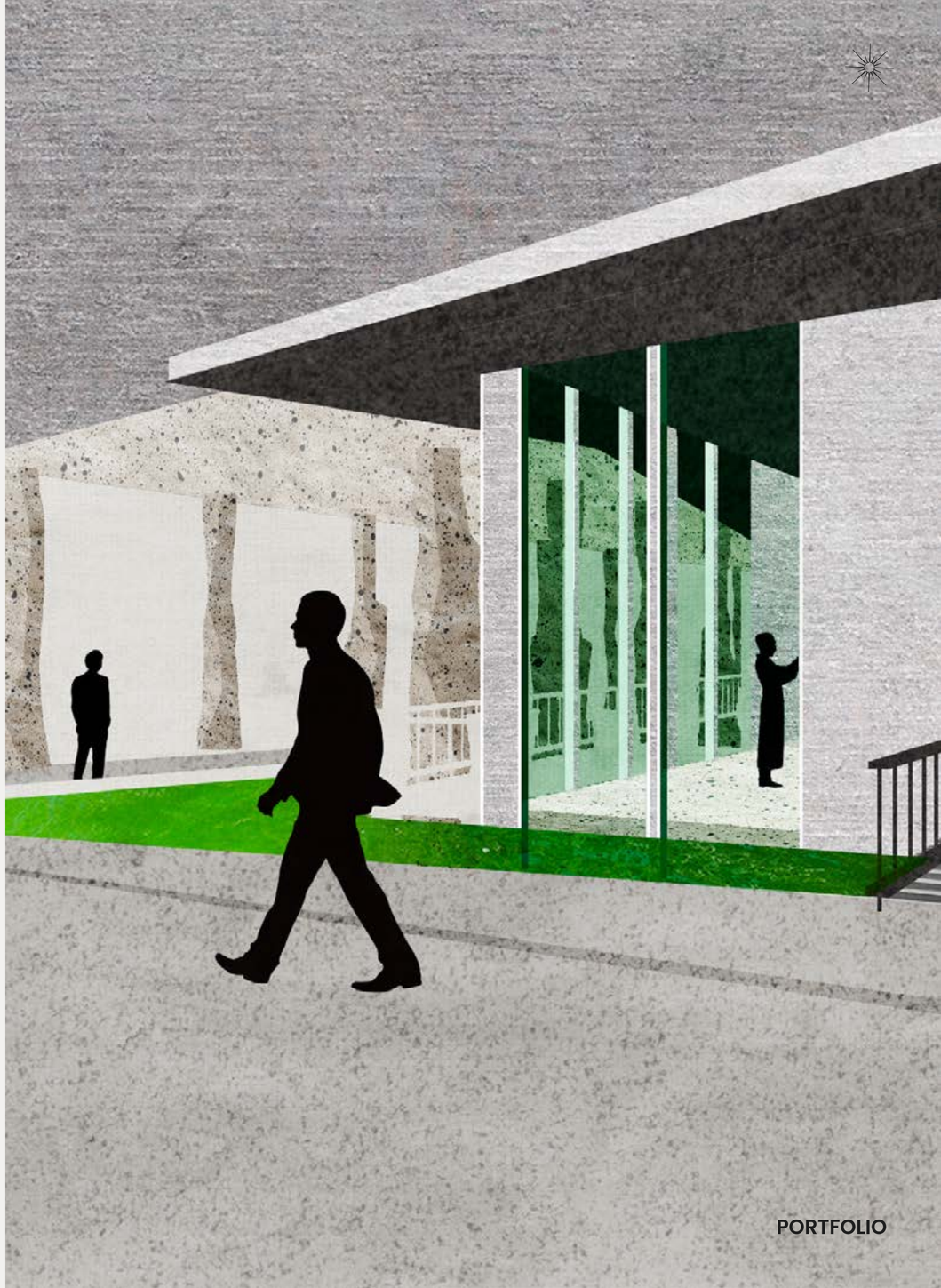
CARBON CULTURE

Carbon Culture is a circular system that utilizes carbon capture and bio-sequestration as a basis to innovate, adapt and improve the ecological health of two sites. This project won the Buell Center Paris Prize in 2020.

WHAT →	Lindsey Wikstrom Studio, CORE 1
WHEN →	2020
WHO →	Rose Zhang

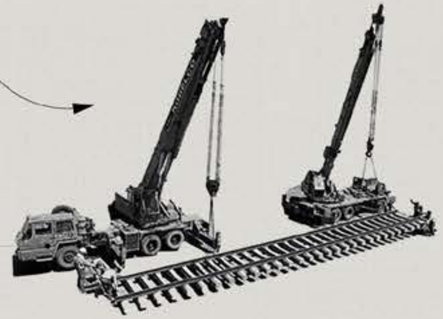
An investigation into 29 Broadway's steel skeleton revealed a trail of destruction. Tracing the material to its site of manufacture, the fabrication of steel gradually laid waste to a ten-acre pond and subsequently unraveled the surrounding ecosystem. The effects reverberated from one habitat to the next; as the steel industry expanded, the soil grew acidic and groups of macrofauna became threatened, plant growth was disturbed, resulting in a loss of herbivorous animals as well as forestry. A prospering biodiversity network quickly withered - and earned the name "Scotia Barrens". Behind a curtain of limestone, the steel stood for the next century embodied with an unremedied biological cost.This project proposes a new chapter,one of cultivation and generation rather than extraction.

COLOR-BLOCK DRAWING



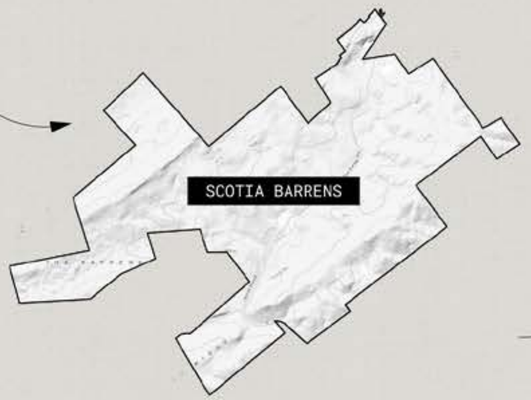
CARBON CULTURE

IRON MINING & STEEL PRODUCTION



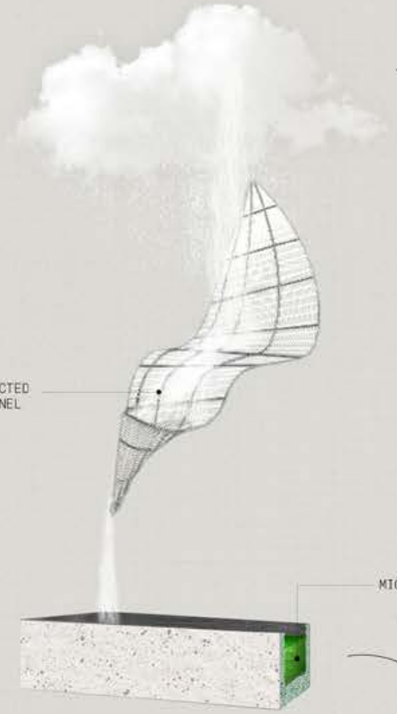
RAILWAY CONSTRUCTION

NATURAL POND DESTROYED



BOTH SITES BECOME

CARBON NEGATIVE

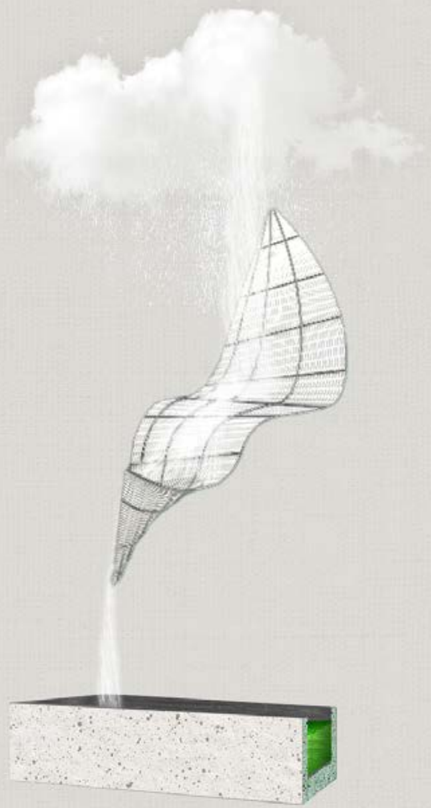


RAINWATER COLLECTED USING STEEL FUNNEL

MICROALGAE GROWS

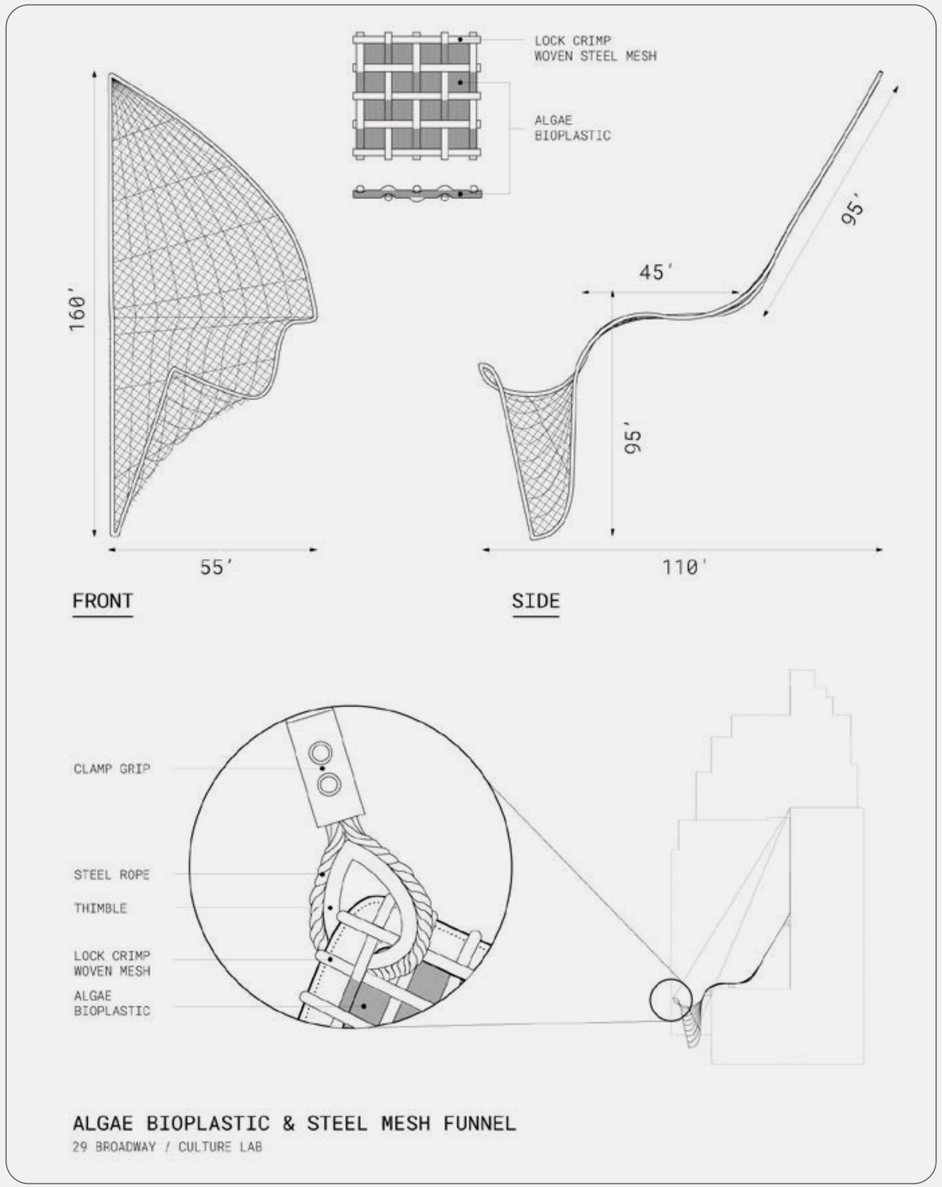
ALGAE PHOTOSHYNTEHSIS OFFSETS CARBON EMISSIONS FROM STEEL PRODUCTION

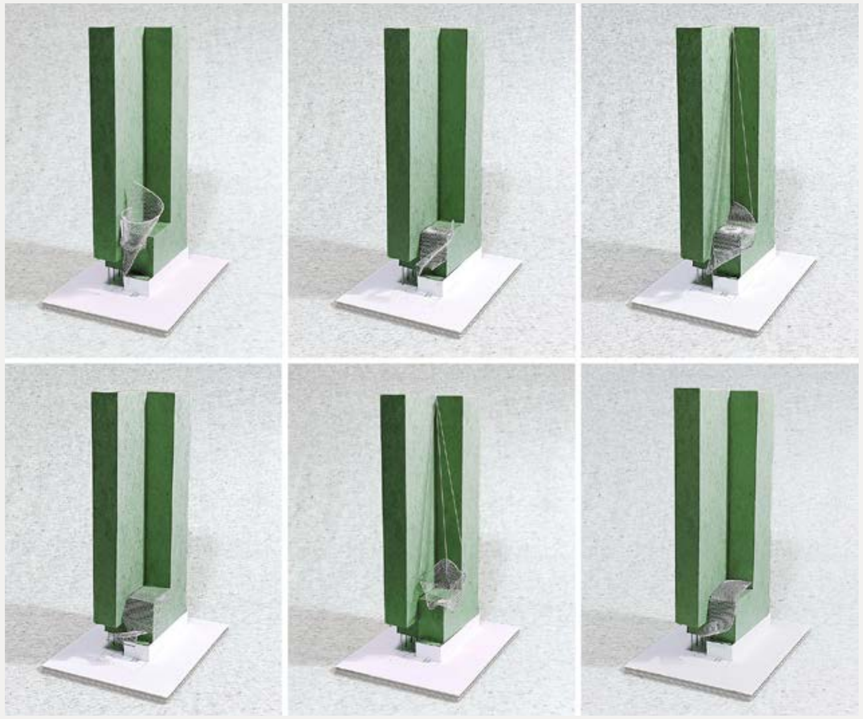
BIOLOGICAL LAB WASTE RESTORES THE ECOSYSTEM AT SCOTIA BARRENS



A structural funnel collects rainwater, directing it into a man-made pond for microalgae growth. On average, microalgae can assimilate 1.87kg of CO_2 by cultivating 1 kilogram of itself daily. Using conservative estimates, the 4200 ft^2 pond can grow 9200 kg of algae to capture 17204 kg of CO_2 annually. For every kilogram of steel produced, 1.85 kg of CO_2 is emitted, thus the building's gargantuan 1,000,000 kg steel skeleton would be fully redeemed within a century. Furthermore, biological lab waste will be processed into fertilizer and transported back to the origin site, restoring its ability to host life by improving the soil health. The space thus evolves both 29 Broadway and Scotia Barrens to become carbon negative.

FUNNEL DETAIL DRAWING





SKETCH MODELS

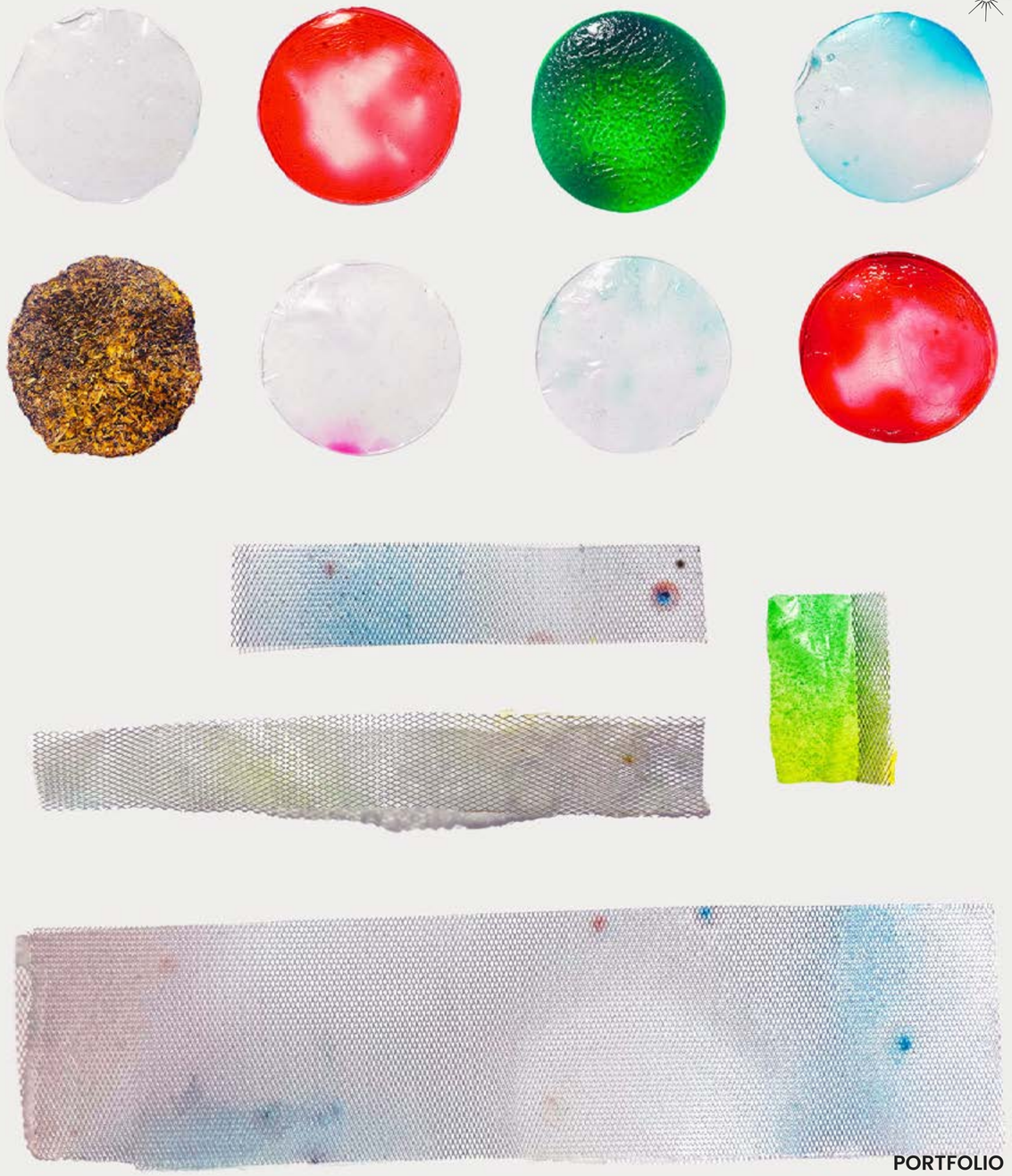
PLAN

Carbon Culture invites students, commuters, and workers to engage in remediation as an everyday habit. The space fosters public exploration and research in solutions to current construction practices; for instance, algae as insulation or algae as partitions. Such exploration is embodied in the rainwater funnel, created from an algae-infused bioplastic that fortifies and waterproofs a minimal recycled steel mesh sub-structure.

Through its restoration of the building's site of extraction, Carbon Culture increases public awareness, collaboration, and accountability in each building's response to global warming and mass extinction.

PROGRAMMATIC SECTION

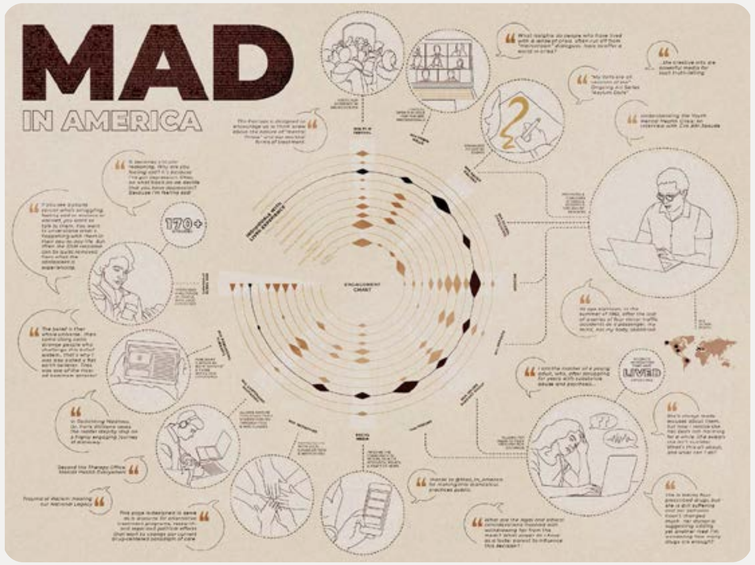
MATERIAL STUDIES

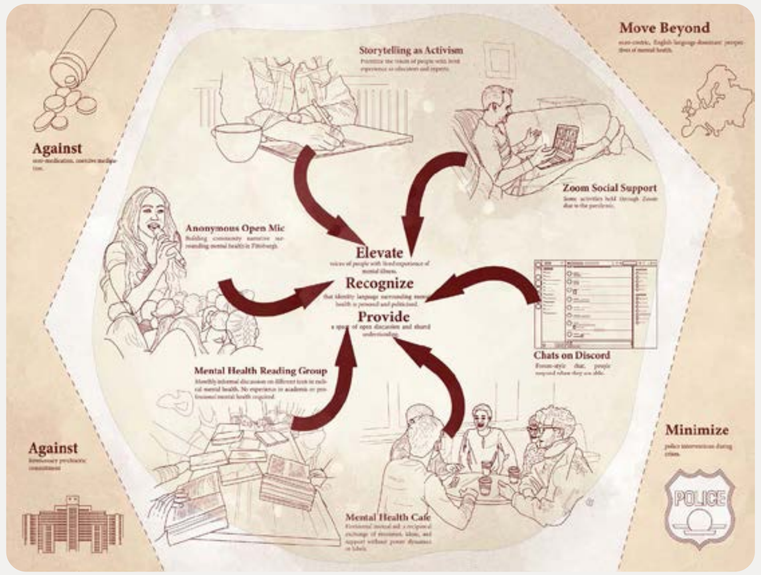


KIN HOUSE

Kin House provides a space for relational healing. The facility targets those with a history of opioid addiction, who are referred to as “friends in need”. Kin House differs from conventional sober living houses as it provides medical services and programs that are personalized for each individual.

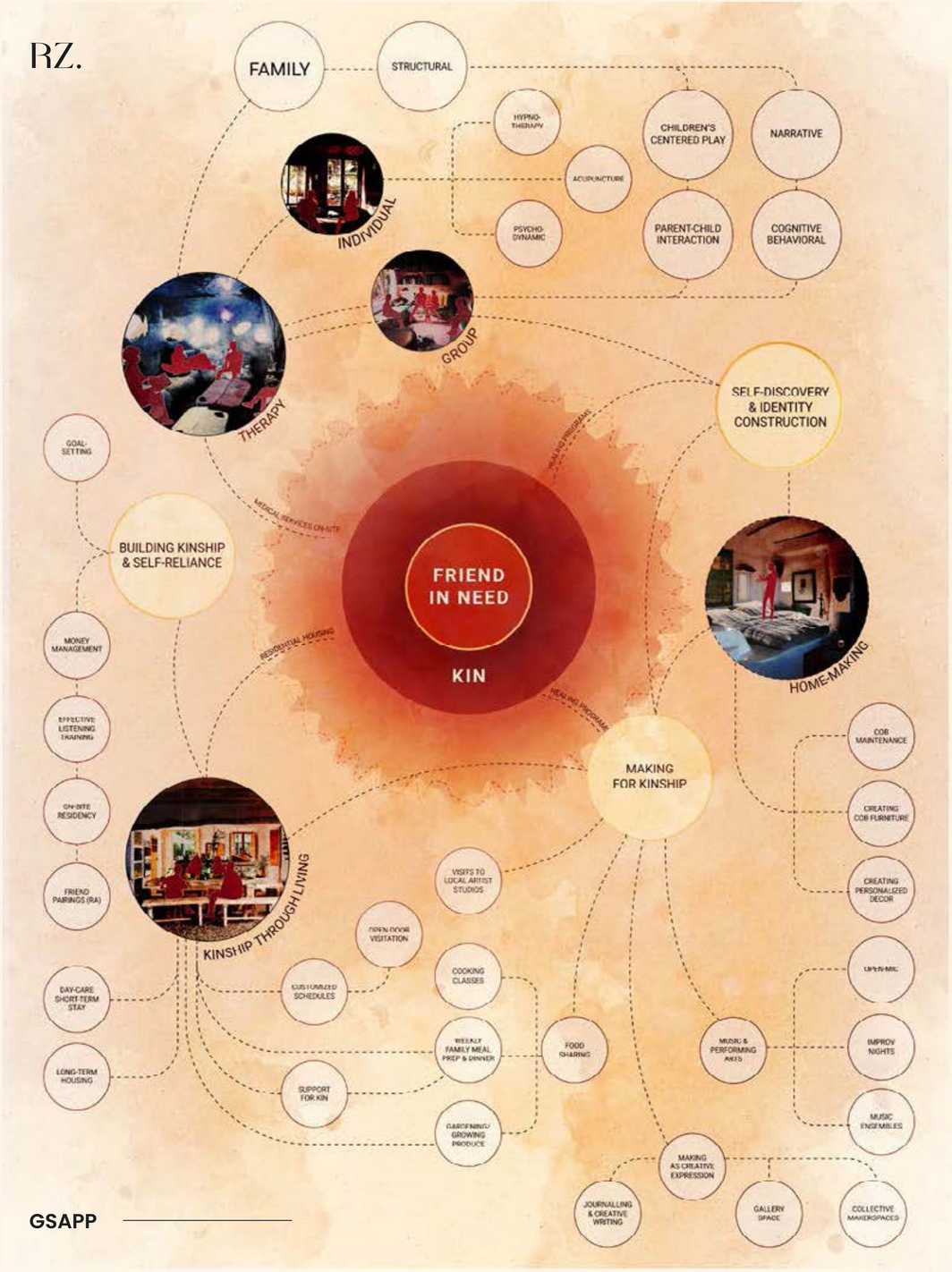
STUDIO ⟶	Bryony Roberts Studio, ADV 4
WHEN ⟶	2022
WHO ⟶	Rose Zhang, Sky Zhang

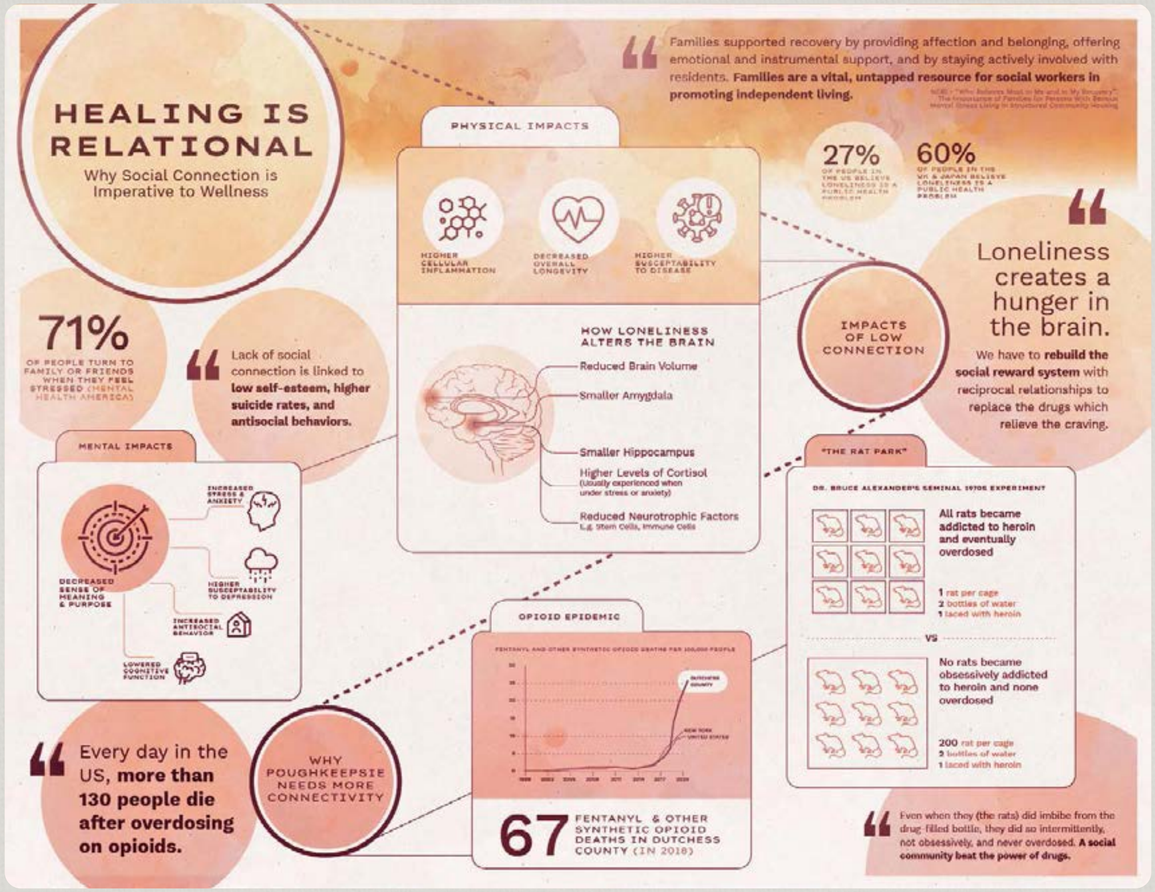




ORGANIZATIONAL STUDIES

FORM EXPLORATION





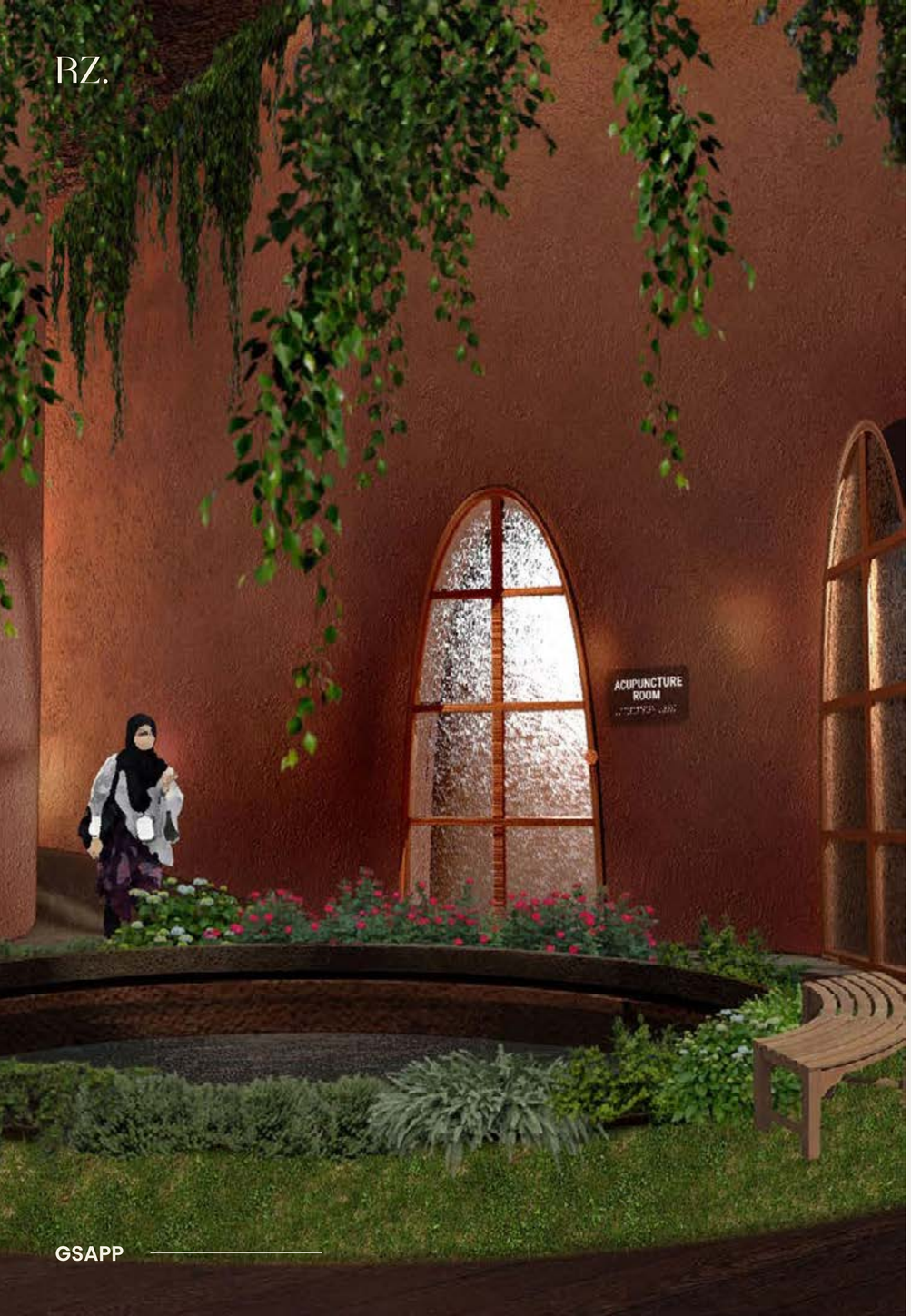
RELATIONAL HEALING DIAGRAM

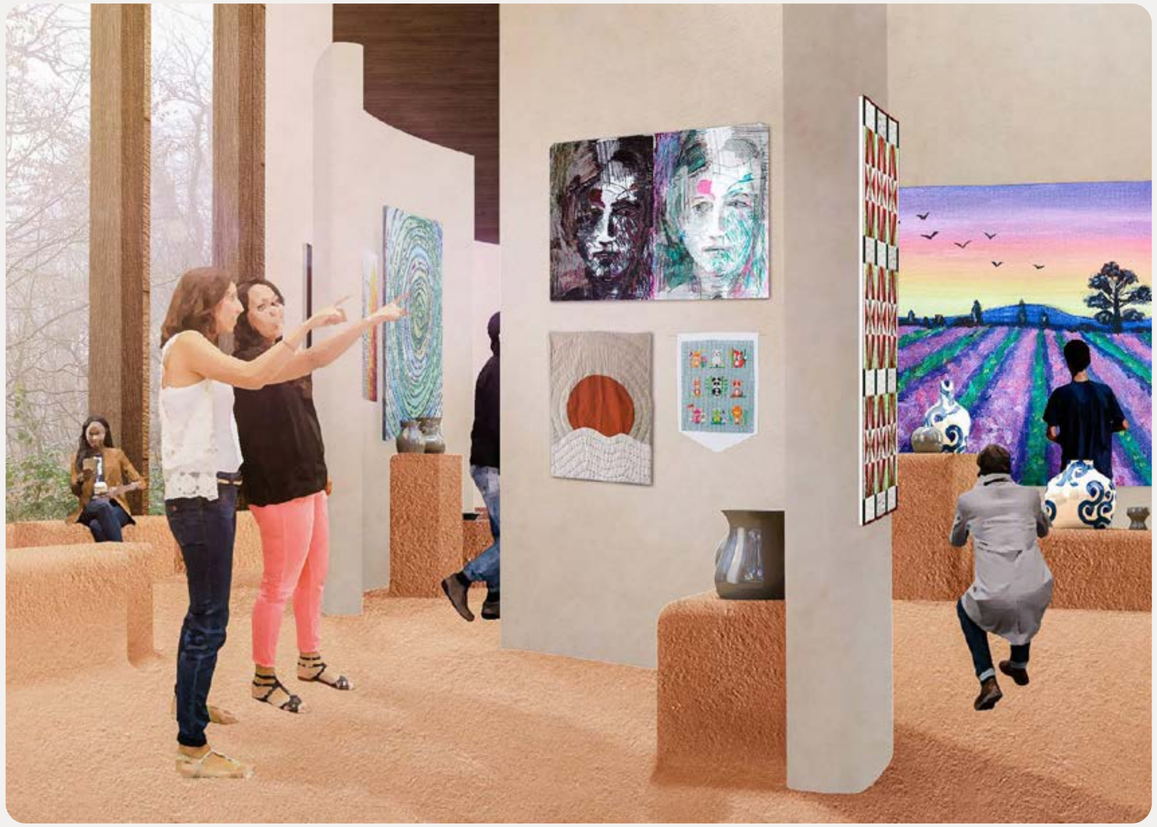
PLAN OF GROUND FLOOR

2ND FLOOR BEDROOMS

LIVING & DINING PER SHELL

SHARED MAKING SPACES





ARTIST GALLERY SPACE

SCALE MODEL OF SHELL

By integrating therapy, craft-making, and communal living in eco-friendly cob structures, Kin House fosters healing relationships and holistic well-being.

HEMP CORE

HempCore reuses hazardous hemp waste. By integrating abandoned crops and biomass into prefabricated kits, it introduces a balcony system that enhances the energy performance of public housing complexes, starting with prototyping in Denver and aiming for scalable, sustainable impact worldwide.

STUDIO →	David Benjamin Studio, ADV 6
WHEN →	2024
WHO →	Rose Zhang, Megan Dang

MATERIAL STUDIES

1 100g Rockite, 50ml Water, 50g Hemp

2 50g Rockite, 60ml Water, 35g Hemp, 100g Mussel Powder

3 50g Rockite, 50ml Water, 35g Hemp, 100g Oyster Powder

4 70ml Water, 35g Hemp, 200g Oyster Powder

5 50g Rockite, 60ml Water, 15g Hemp, 120g Mussel Powder

6 50g Rockite, 60ml Water, 15g Hemp, 120g Oyster Powder

7 55ml Water, 15g Hemp, 160g Mussel Powder

8 55ml Water, 15g Hemp, 160g Oyster Powder

9 60ml Water, 50g Hemp, 160g Oyster Powder

10 100g Rockite, 100ml Water, 50g Hemp, 100g Sap

11 100g Rockite, 100ml Water, 25g Hemp

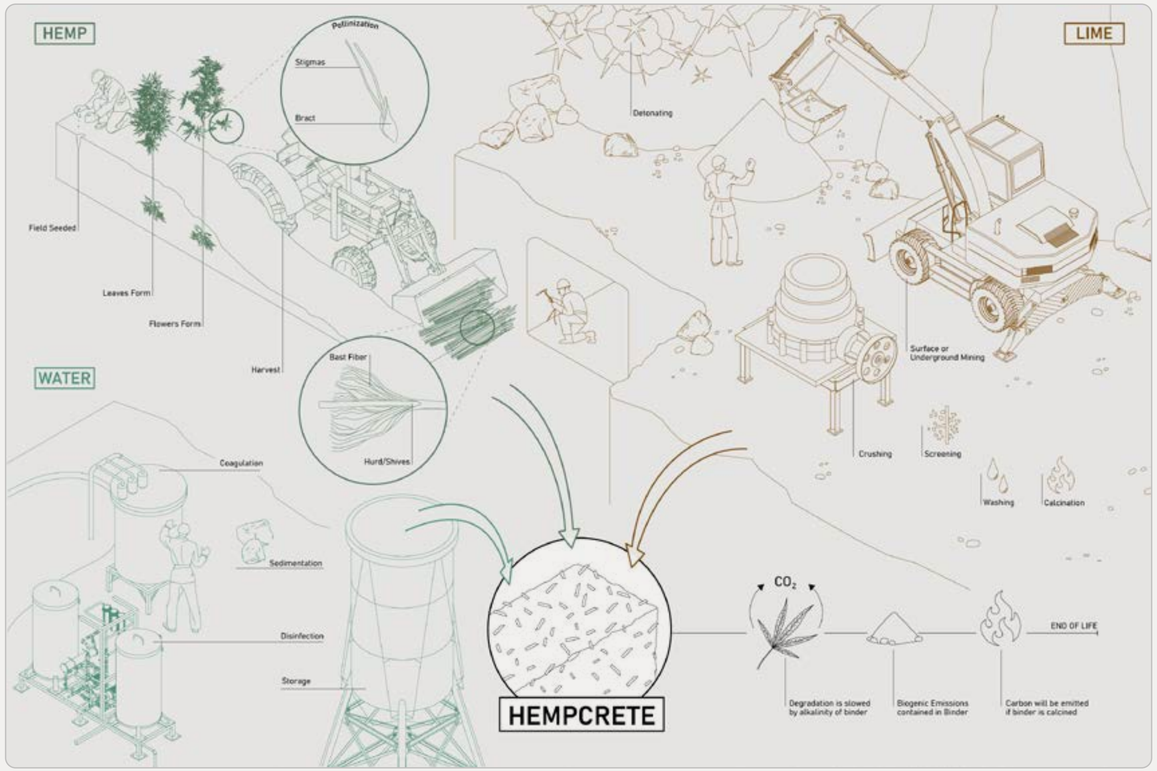
12 100g Rockite, 100ml Water, 16g Hemp

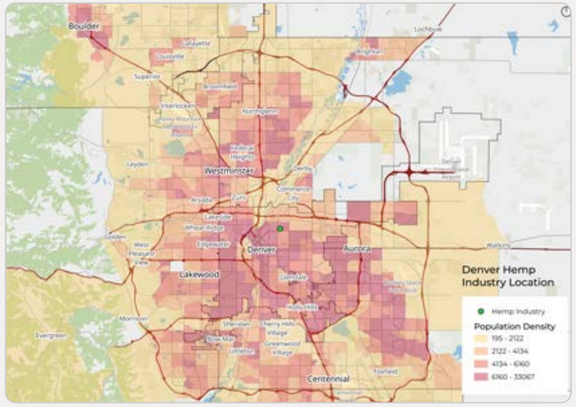
13 100g Rockite, 100ml Water, 10g Hemp

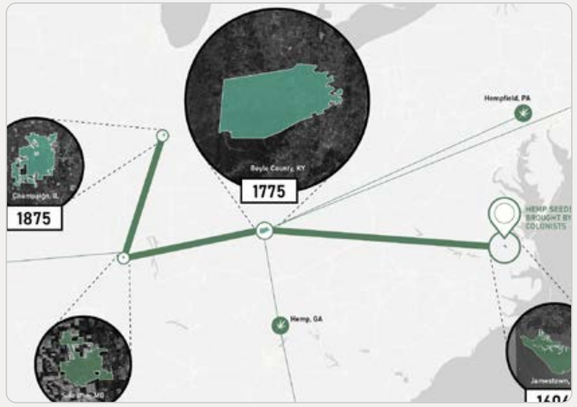
14 100g Rockite, 100ml Water, 10g Woven Hemp

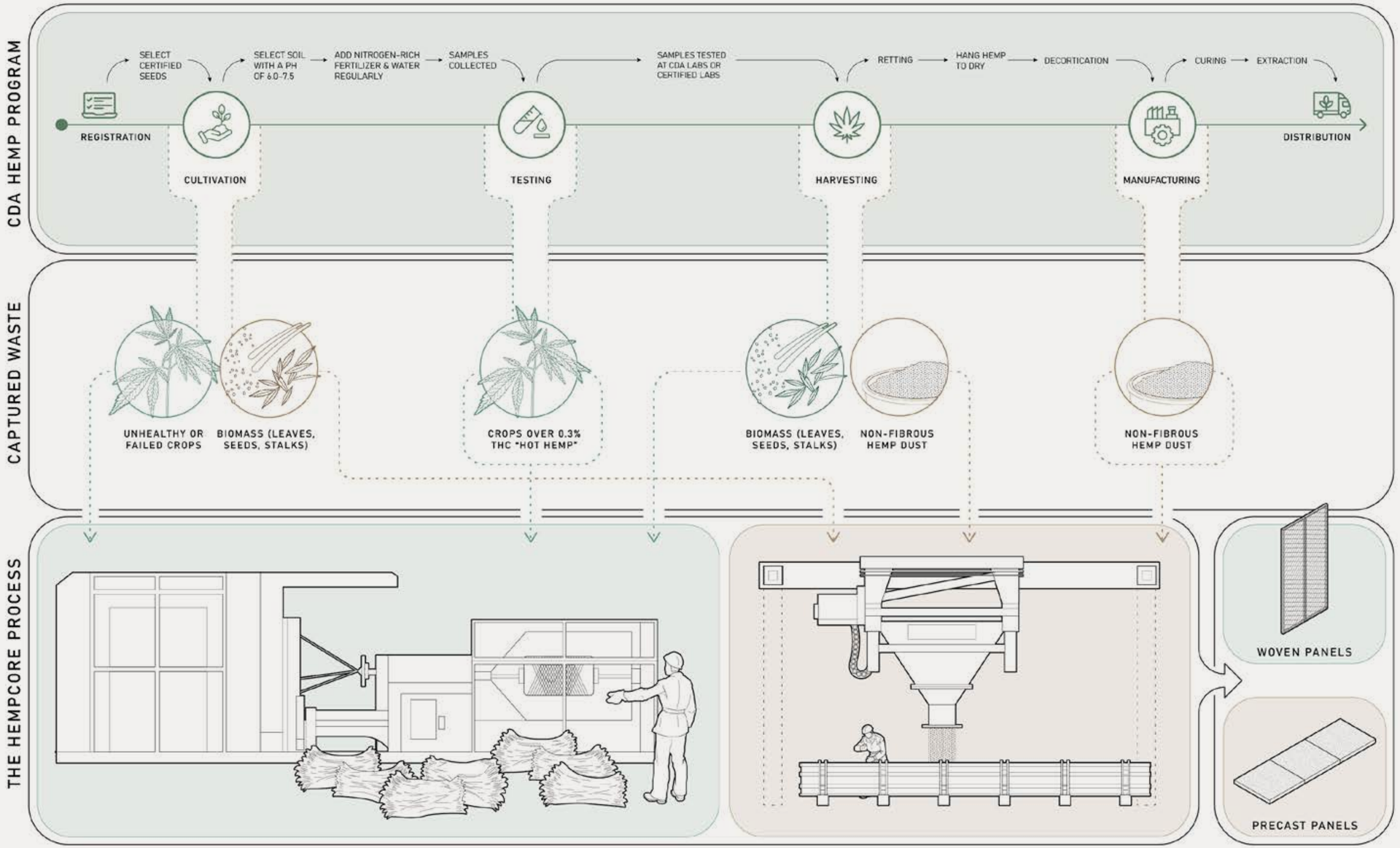
MATERIAL STUDIES

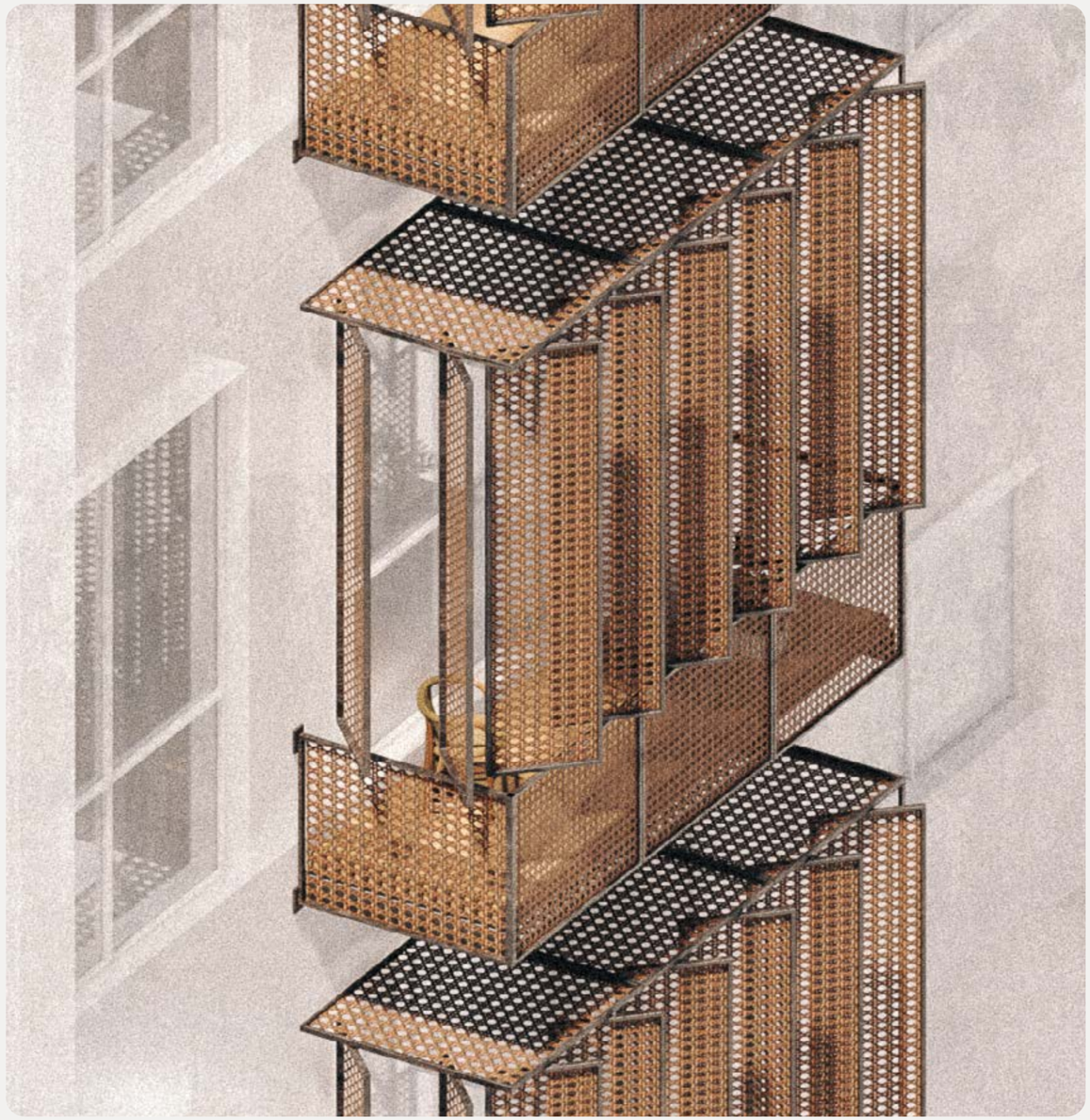
RESEARCH

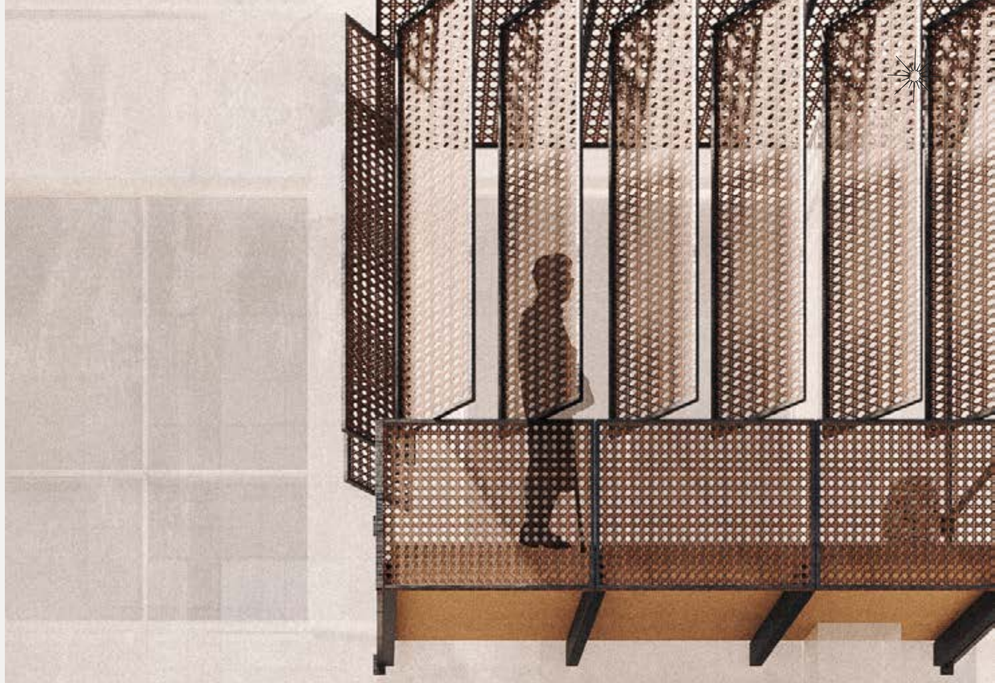


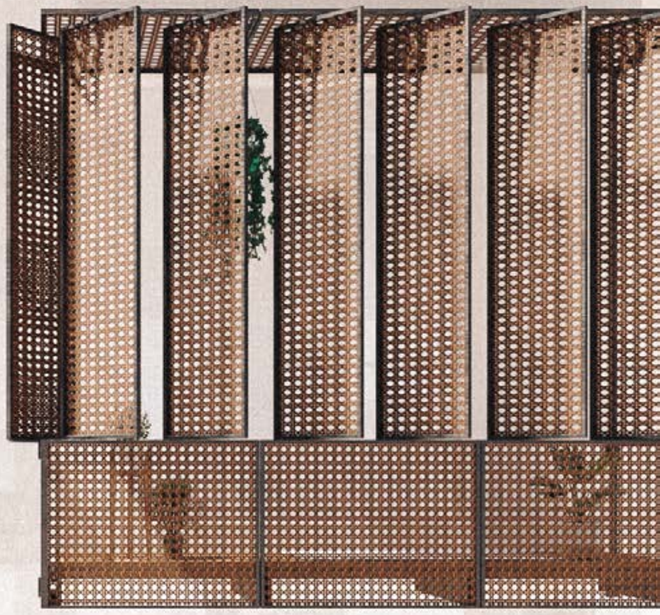





CDA HEMP PROGRAM
REGISTRATION
SELECT CERTIFIED SEEDS
CULTIVATION
SELECT SOIL WITH A PH OF 6.0-7.5
ADD NITROGEN-RICH FERTILIZER & WATER REGULARLY
SAMPLES COLLECTED
TESTING
SAMPLES TESTED AT CDA LABS OR CERTIFIED LABS
HARVESTING
RETTING
HANG HEMP TO DRY
DECORTICATION
MANUFACTURING
CURING
EXTRACTION
DISTRIBUTION
CAPTURED WASTE
UNHEALTHY OR FAILED CROPS
BIOMASS (LEAVES, SEEDS, STALKS)
CROPS OVER 0.3% THC "HOT HEMP"
BIOMASS (LEAVES, SEEDS, STALKS)
NON-FIBROUS HEMP DUST
NON-FIBROUS HEMP DUST
THE HEMPCORE PROCESS
WOVEN PANELS
PRECAST PANELS

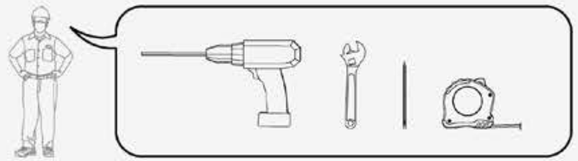


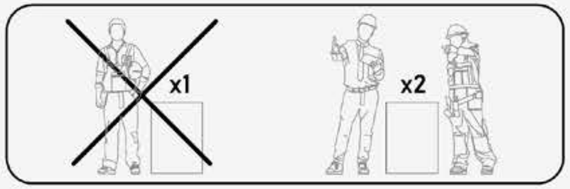


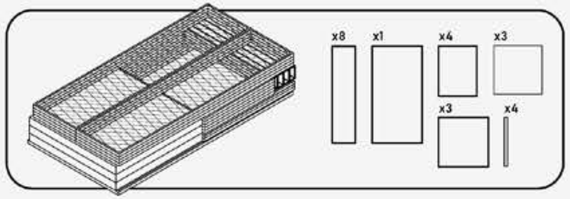


BALCONY FORMATIONS

ASSEMBLY INSTRUCTIONS







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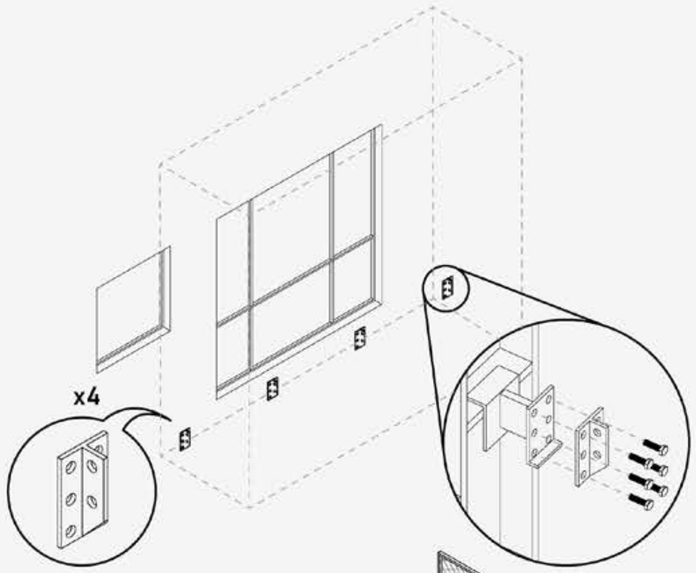

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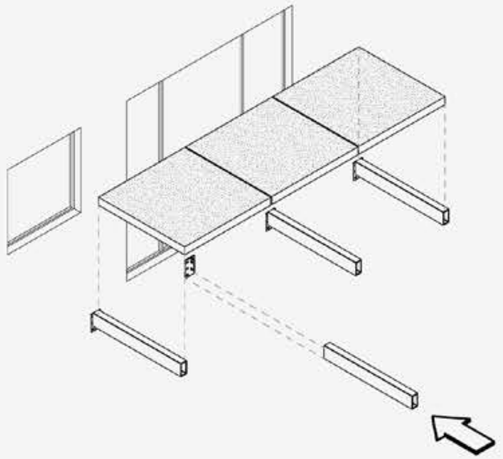

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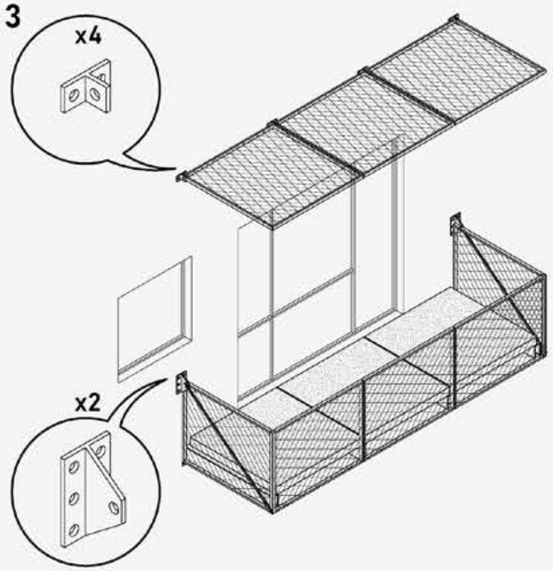

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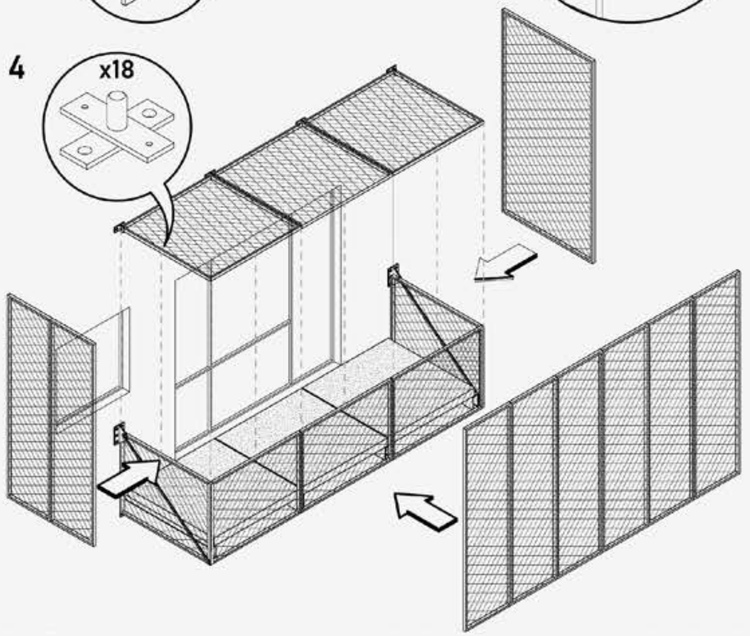

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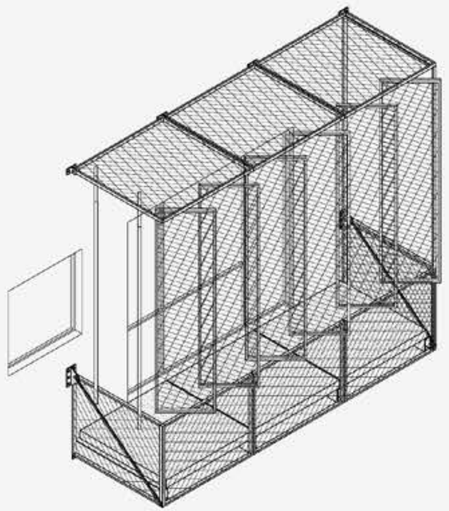
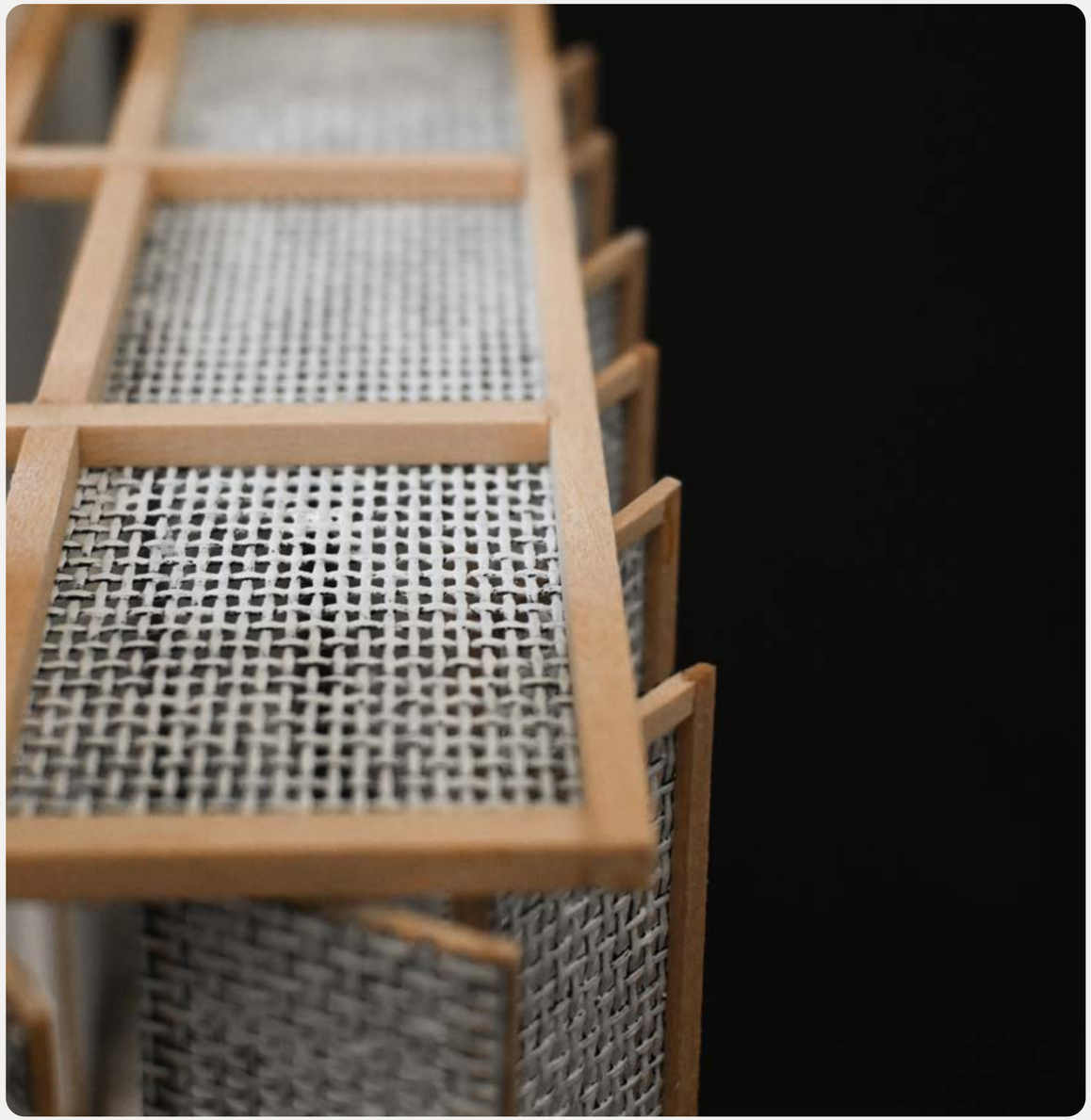


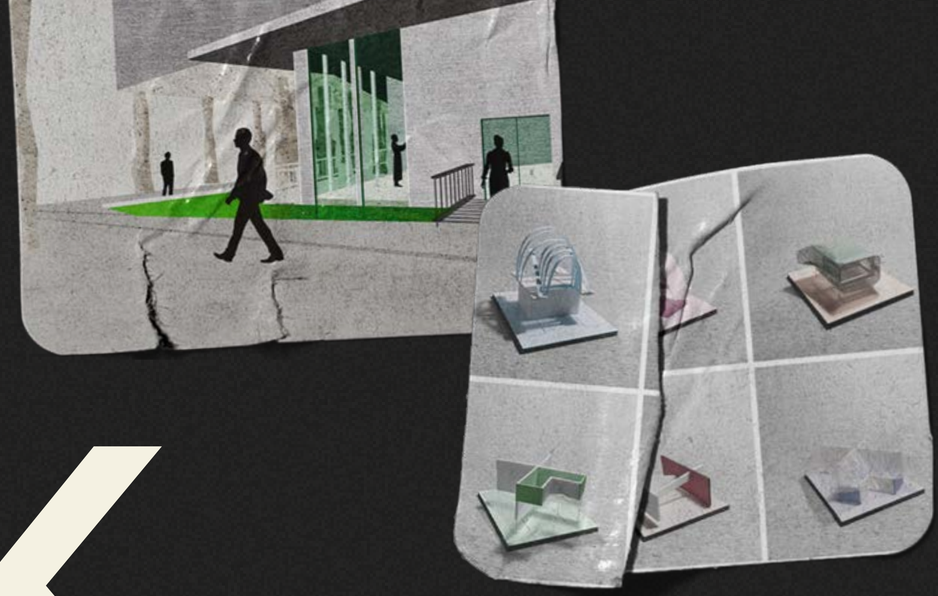


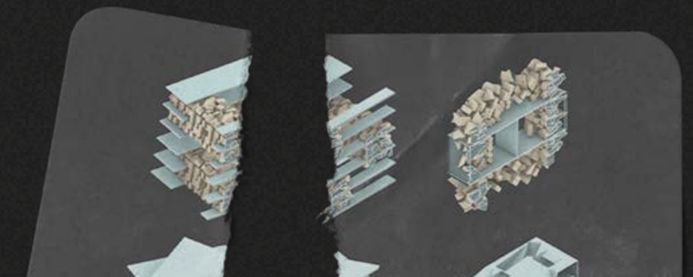
SCALE MODEL

HempCore embodies a vision for a more sustainable future in the hemp industry, offering innovative solutions that prioritize waste reduction and carbon sequestration.

RZ.

THANK YOU





GSAPP

PORTFOLIO