

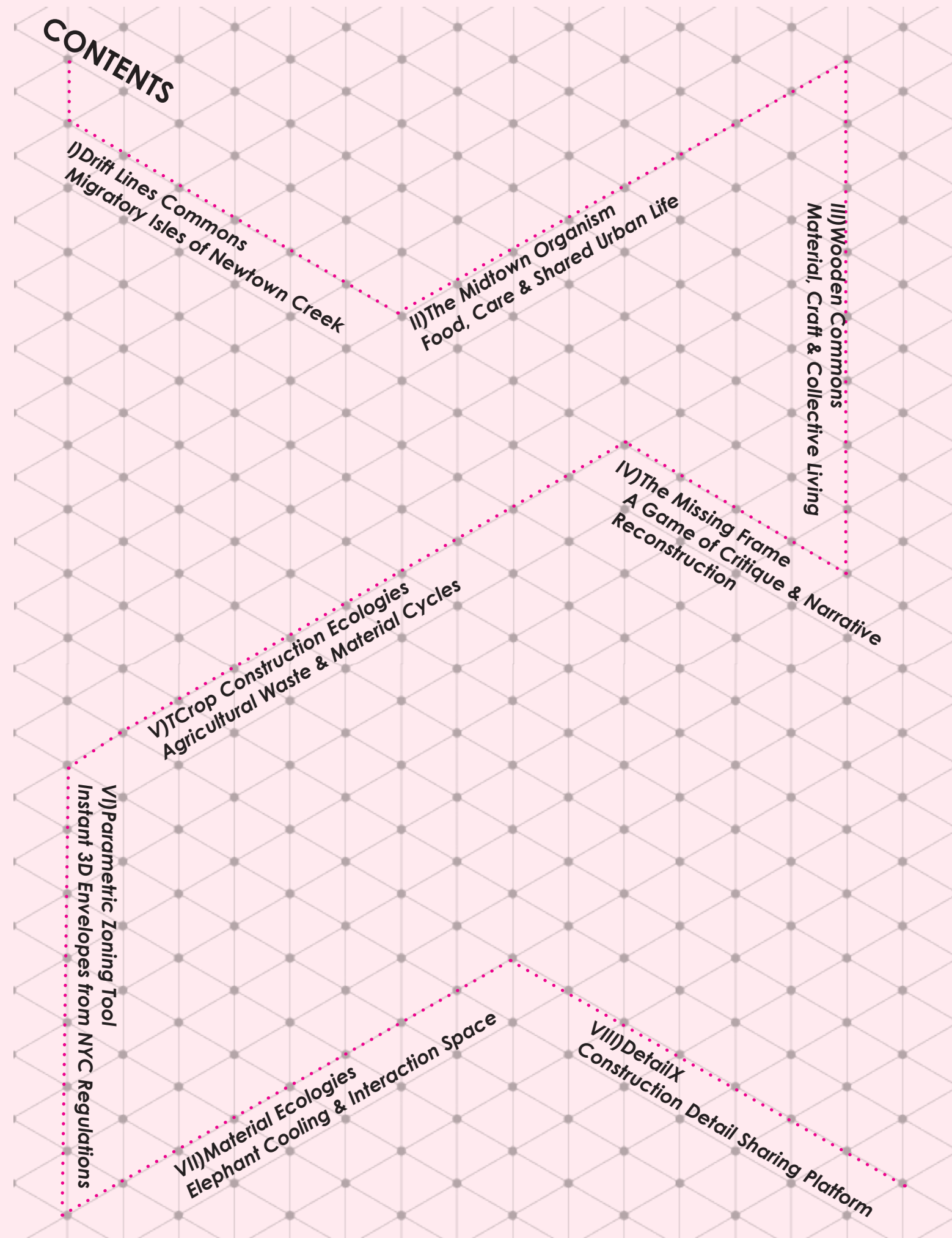


Systems of Collective Futures

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M.S.AAD -2025-2026
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Abstract

I am an architectural designer currently pursuing the M.S. Advanced Architectural Design (MSAAD) program at Columbia GSAPP (2025–26). My work explores architecture through ecology, material systems, collective infrastructures, computation, and speculative futures. Moving across scales and mediums, I investigate how architecture can operate as an adaptive system shaped by environmental processes, labor, care, and social interaction. This portfolio brings together a diverse body of work ranging from floating ecological infrastructures in contaminated urban waterways, food-based urban systems, and timber-driven collective housing, to computational zoning tools, material ecologies, and critical narrative games. Through drawings, models, mappings, and speculative frameworks, I engage questions of climate, craft, resource circulation, public space, and hidden systems of power. Rooted in both research and design experimentation, my work approaches architecture not as isolated objects, but as evolving networks of material, ecological, and social relationships.

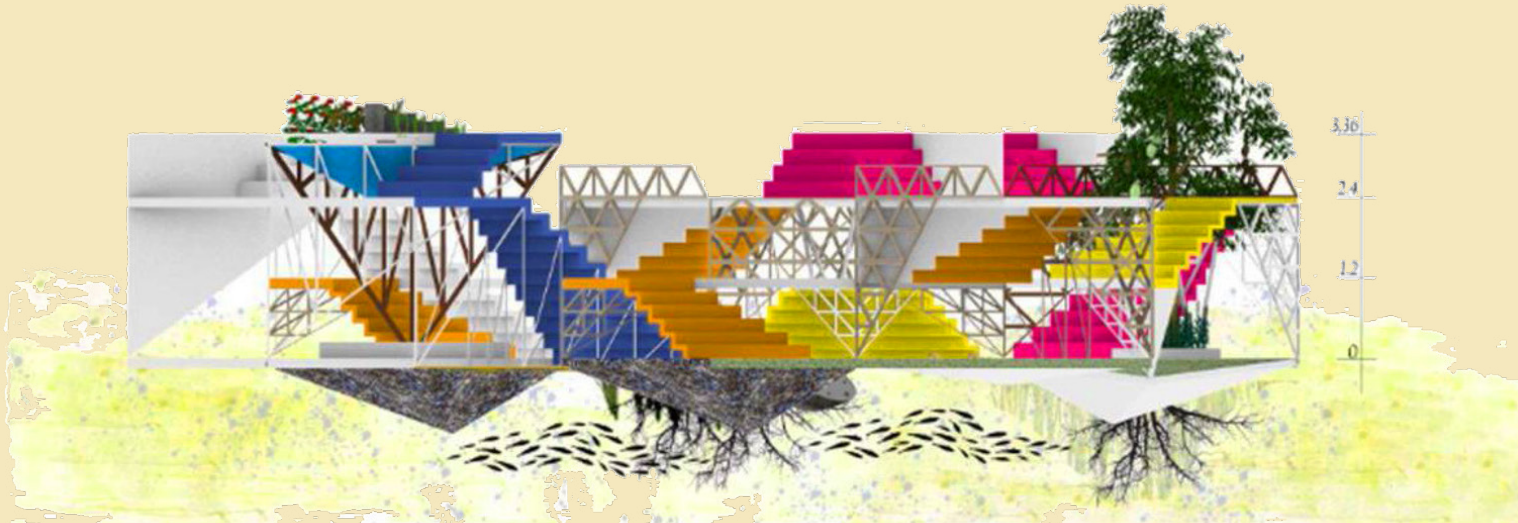


I. Drift Lines Commons - Migratory Isles of Newtown Creek

Columbia GSAPP MSAAD SUMMER 2025

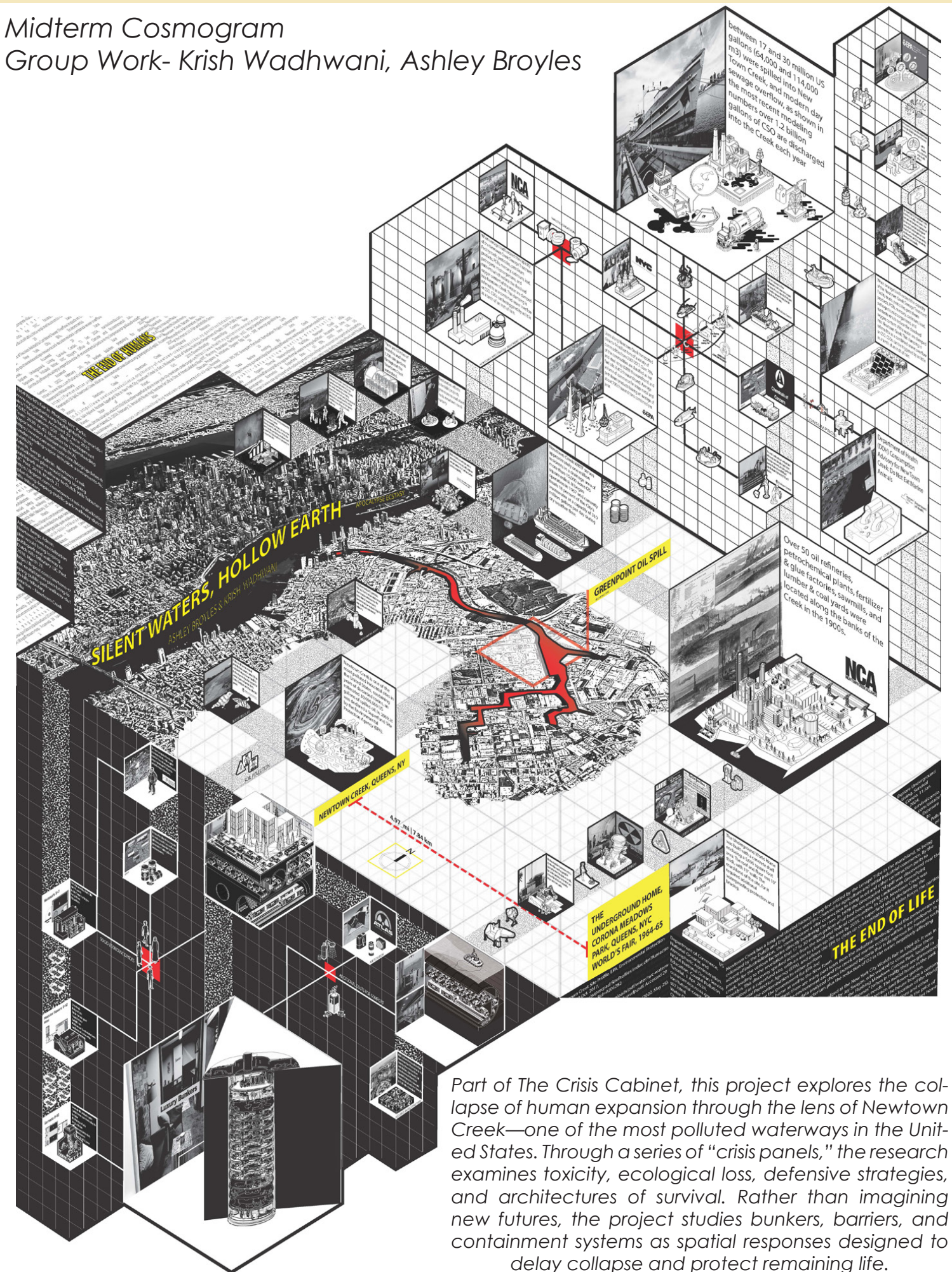
Guided By- Uriel Fogue

Newtown Creek—a 6-kilometer Superfund site between Brooklyn and Queens—remains one of the most contaminated waterways in the United States. Industrial runoff, sewage overflows, petroleum residues, heavy metals, and radioactive waste have left the creek toxic, with full remediation expected to take decades. Meanwhile, communities along its edge remain disconnected from the water and lack access to safe public space.

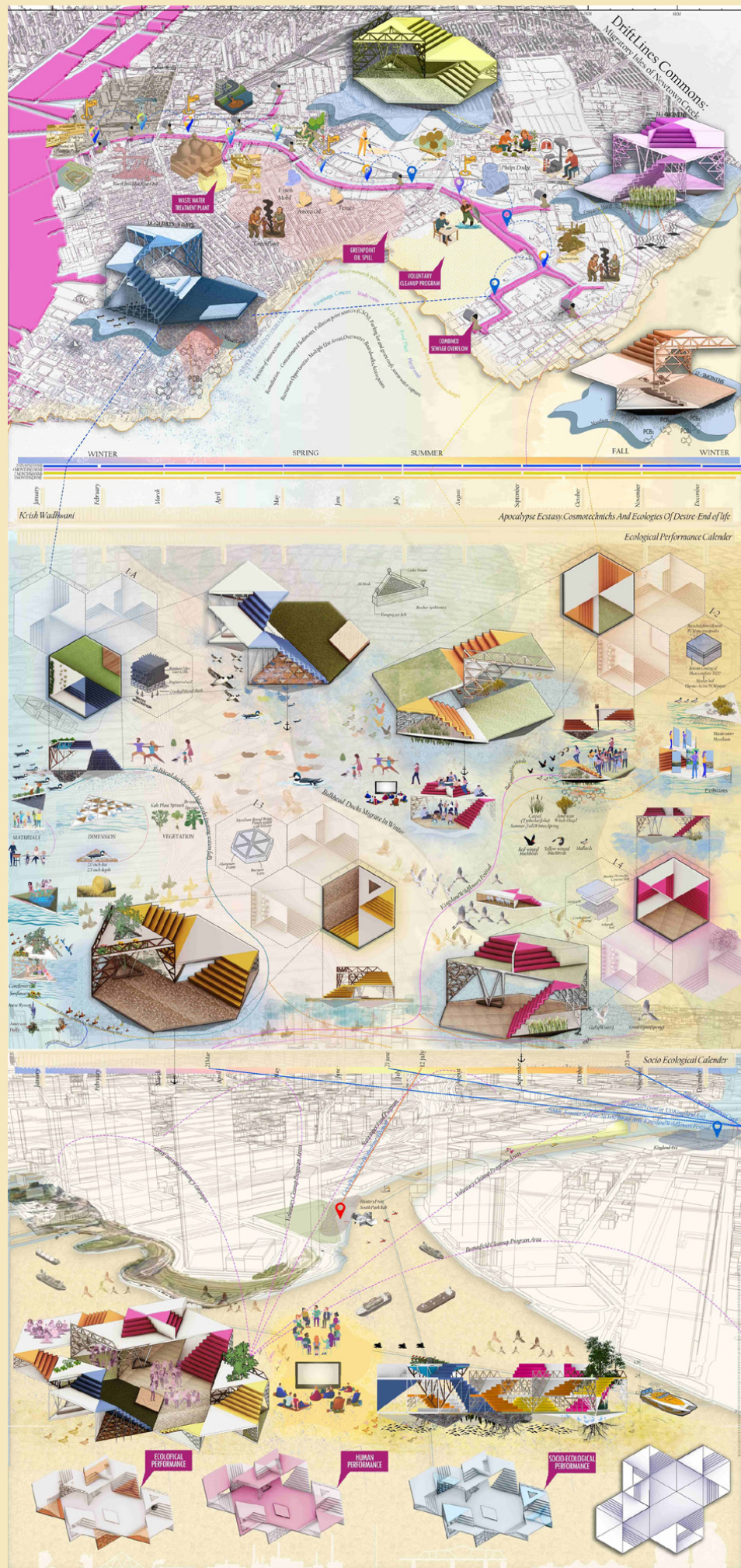


Midterm Cosmogram

Group Work- Krish Wadhwani, Ashley Broyles



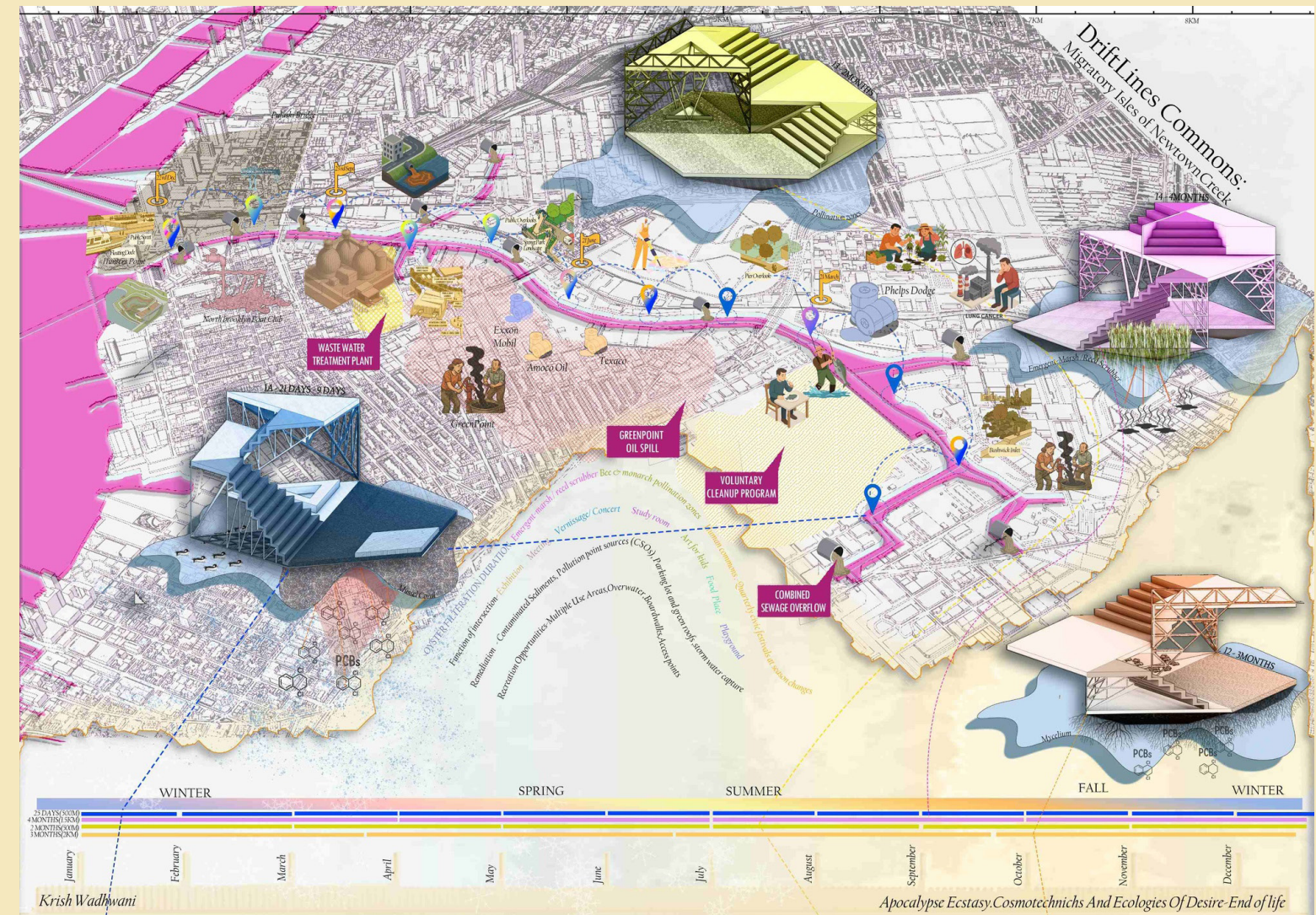
Part of The Crisis Cabinet, this project explores the collapse of human expansion through the lens of Newtown Creek—one of the most polluted waterways in the United States. Through a series of “crisis panels,” the research examines toxicity, ecological loss, defensive strategies, and architectures of survival. Rather than imagining new futures, the project studies bunkers, barriers, and containment systems as spatial responses designed to delay collapse and protect remaining life.



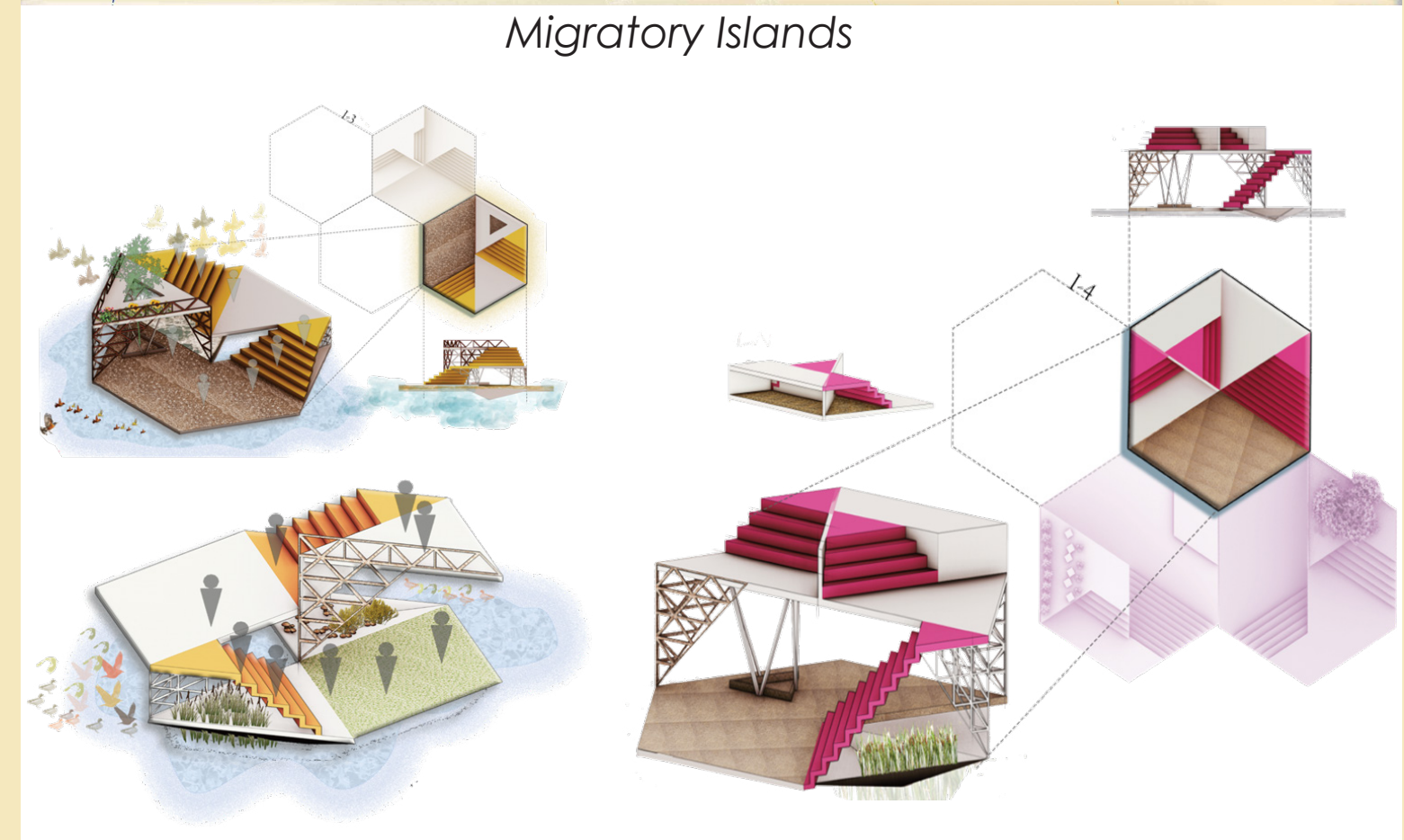
Final Panel(Individual)

Drift Lines Commons proposes an adaptive response to this prolonged condition of toxicity. Rather than waiting for remediation to conclude, the project introduces four floating islands that slowly migrate along Newtown Creek over the course of a year. These islands operate as mobile infrastructures for collective care, ecological repair, and civic gathering-transforming contamination from a hidden liability into a shared, visible process of engagement.

The islands stop at twelve fixed points spaced every 500 meters along the creek, anchoring at four seasonal milestones: the solstices and equinoxes. These temporal pauses align with biological rhythms already present in the creek-mussel filtration cycles, reed rooting periods, migratory bird pathways, and crab mating seasons. By syncing movement, ecology, and public occupation,



Migratory Islands

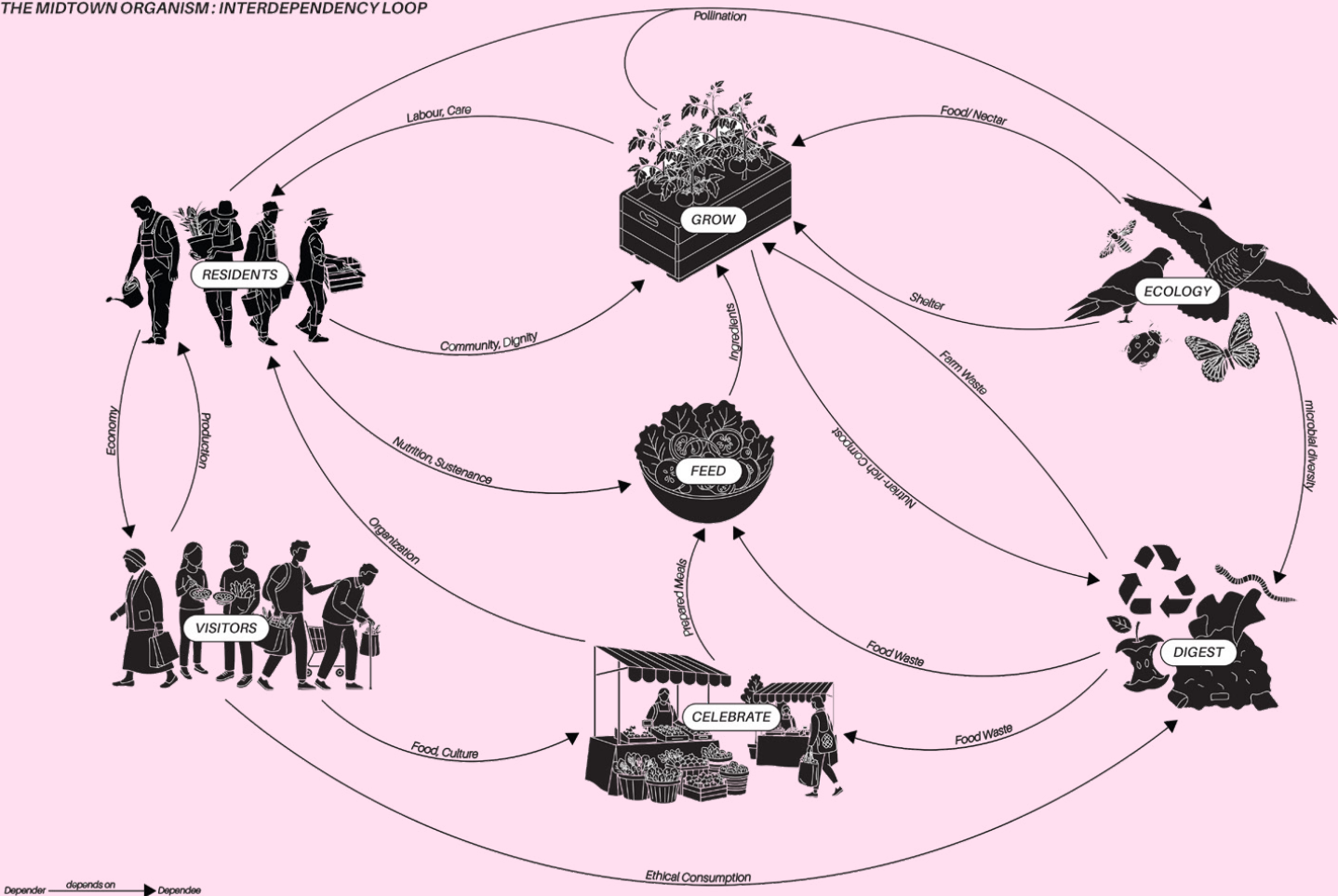


II.The Midtown Organism

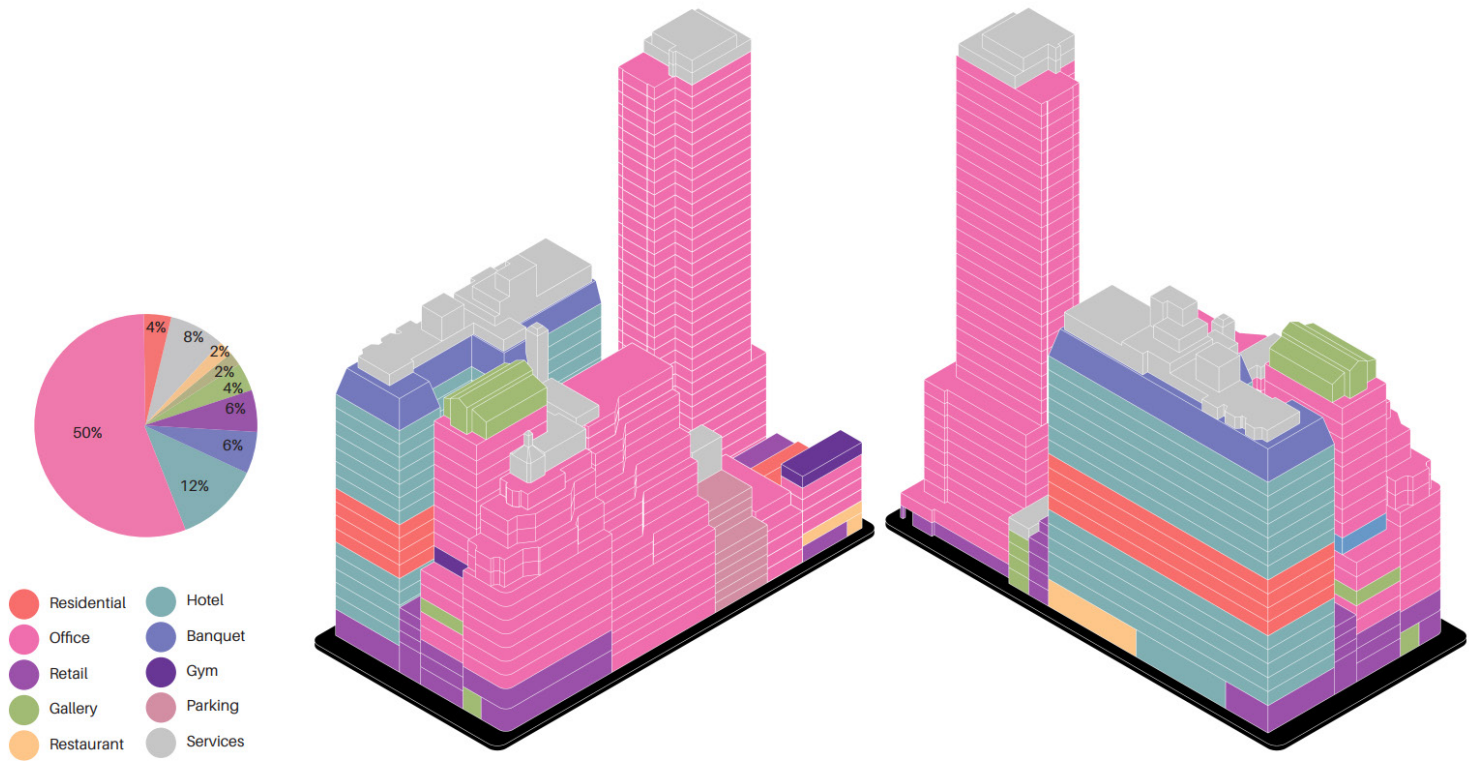
Columbia GSAPP MSAAD FALL 2025
Guided By- Sebastian Adamo, Javier Flores
Group Work - Nicole Kertzhus, Krish Wadhwani, Aditi Gangadhar

The Midtown Organism reimagines a single Midtown East block as a living system organized around food, care, and shared life. Rather than treating buildings as isolated programs, the project links rooftops, interiors, facades, and ground levels into a continuous loop where growing, cooking, eating, storing, and exchanging food become collective acts. Food operates not as an object but as infrastructure, moving through people, spaces, and economies. By pairing limited on-site growing with distributed kitchens, markets, and visible storage, everyday routines become shared rituals. The loop stitches together public and private realms, above and below ground, proposing a coordinated and caring urban whole.

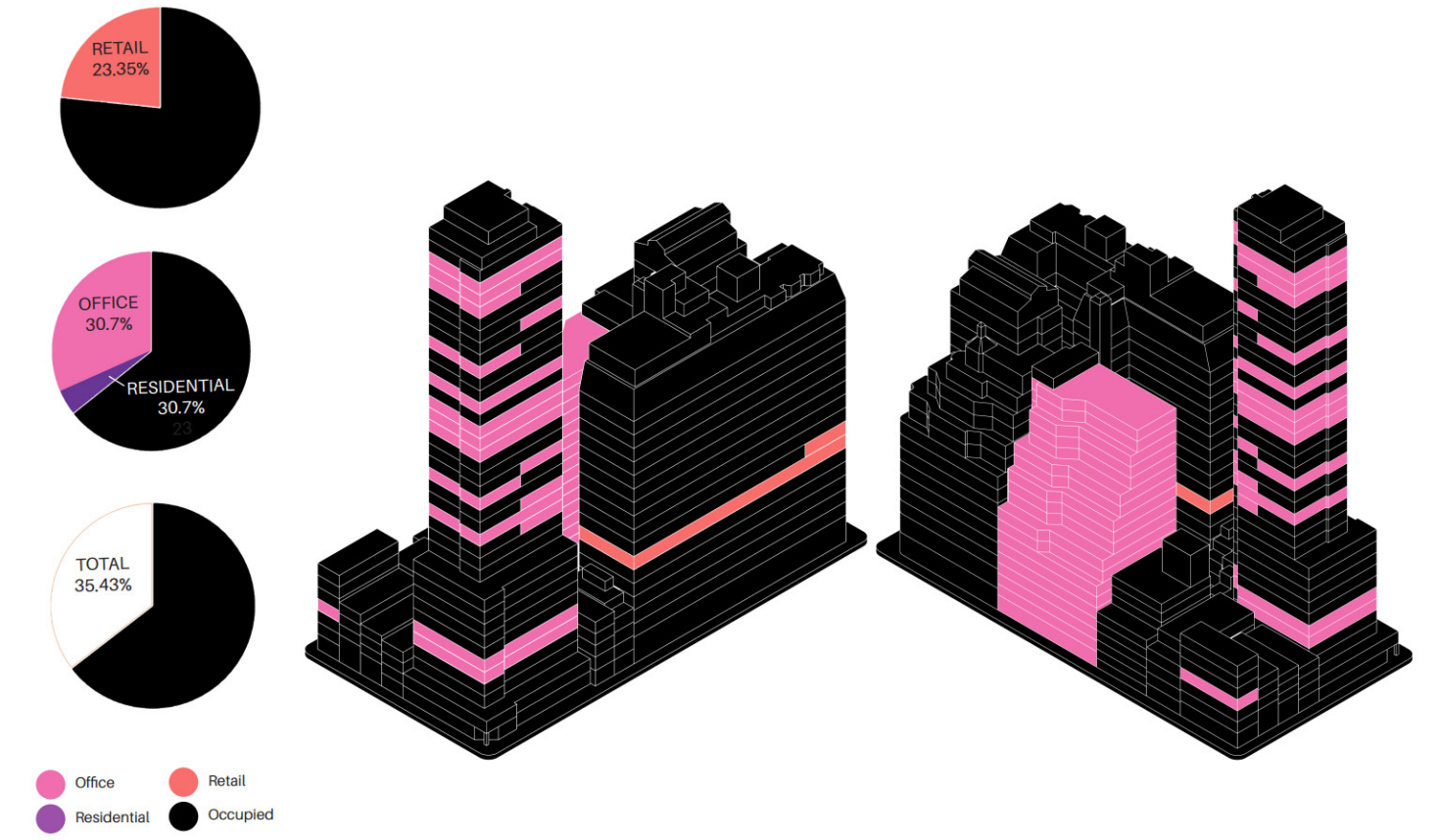
THE MIDTOWN ORGANISM: INTERDEPENDENCY LOOP



Program

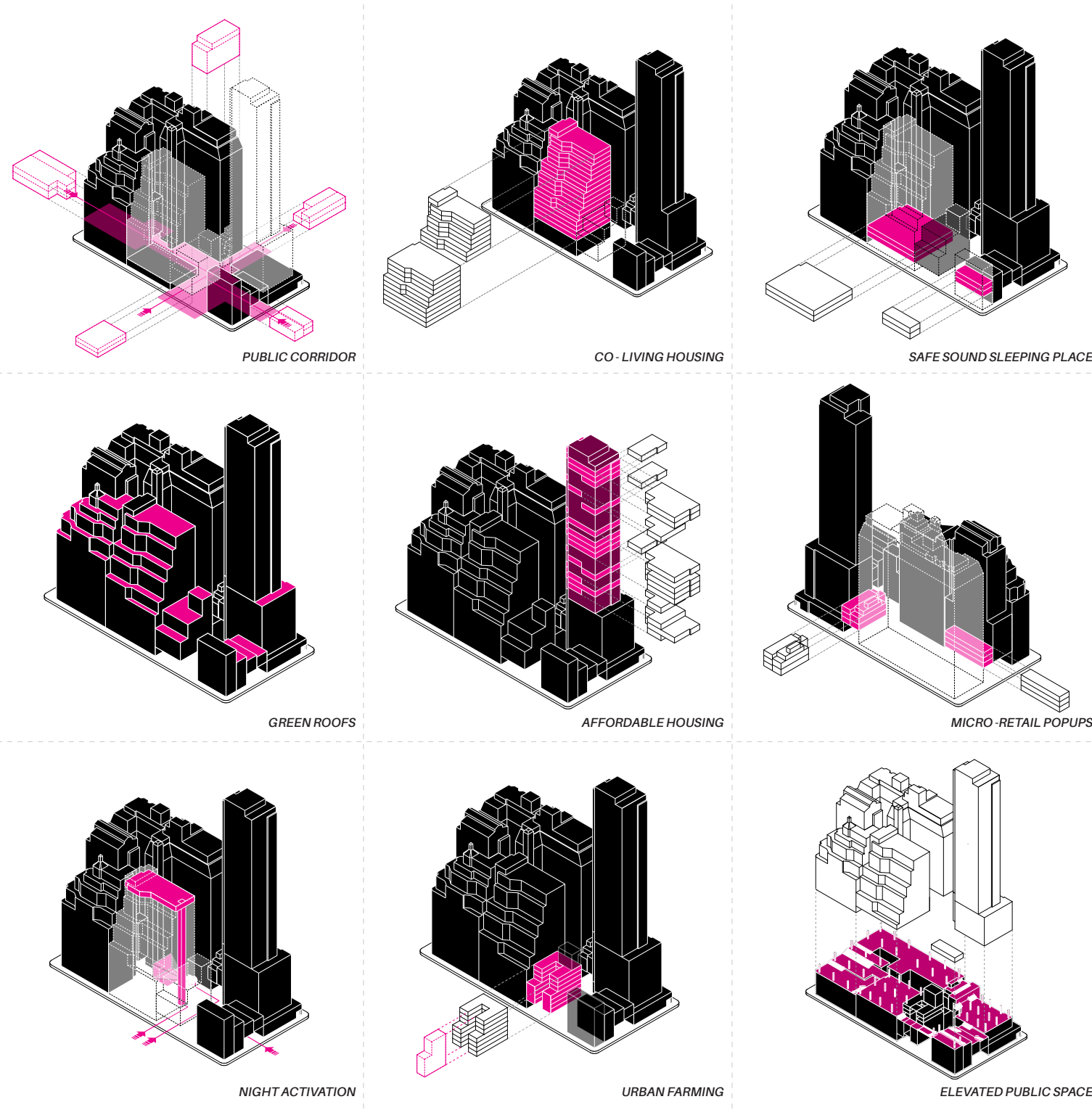


Vacancy



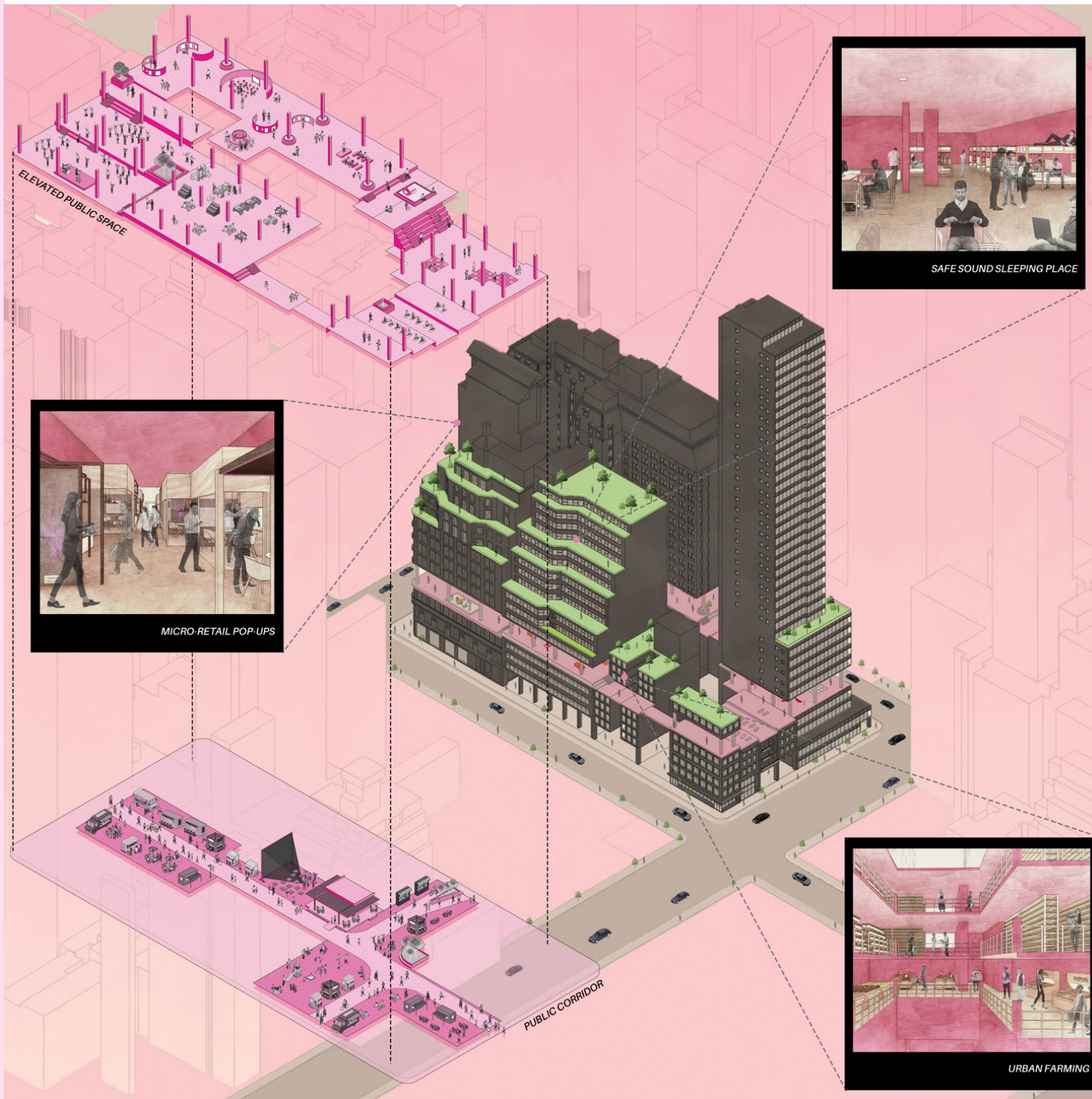
Midtown Actions

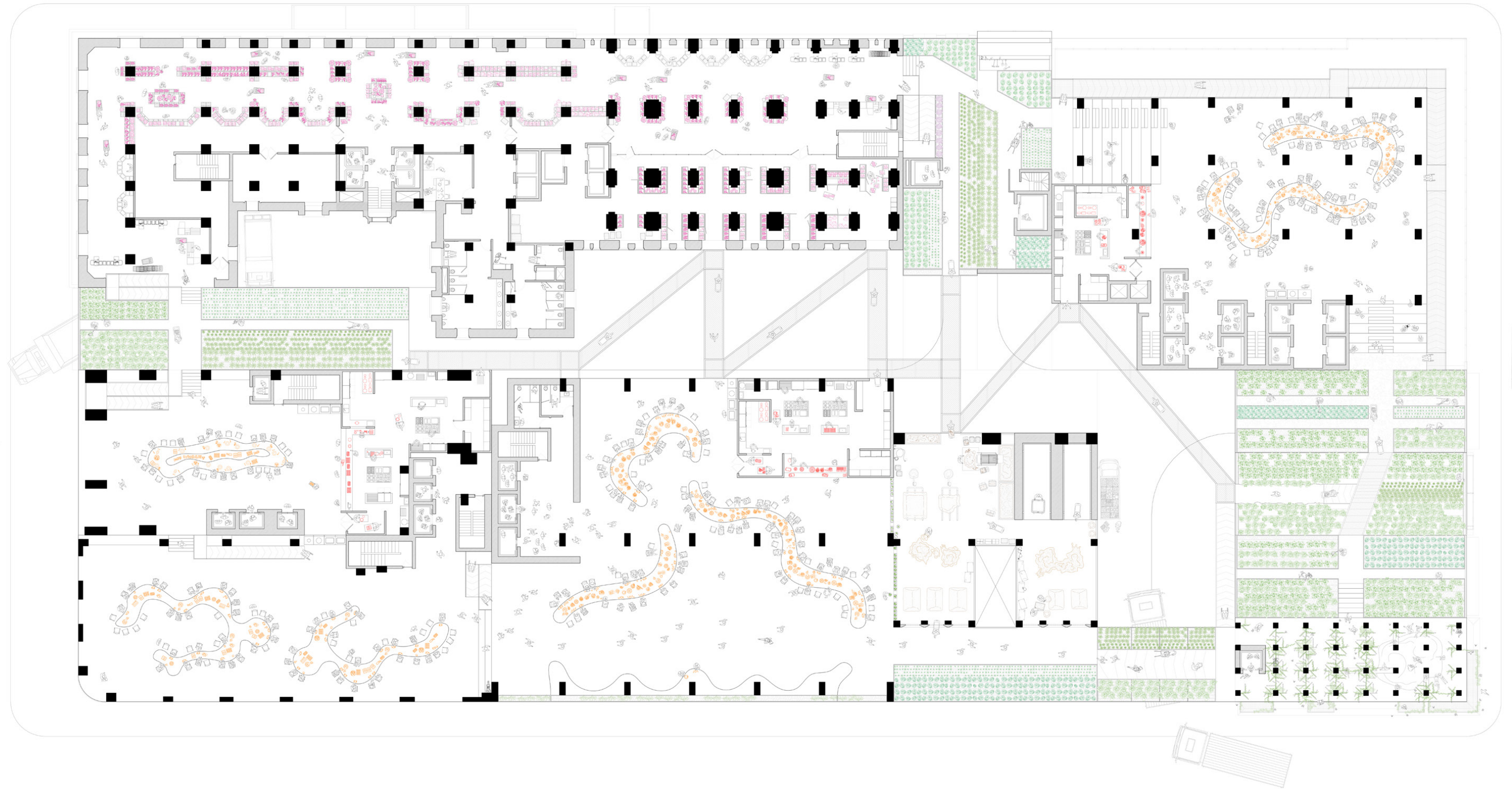
The project developed through a series of urban actions that tested how the Midtown block could become more collective, accessible, and ecologically productive. These interventions explored public corridors, co-living housing, safe sleeping spaces, urban farming, green roofs, micro-retail popups, elevated public platforms, and night activations. Rather than proposing a single fixed building, the semester focused on introducing layered systems of food, care, housing, and public interaction that could transform Midtown into a more connected and socially active urban environment.



Midtown Organism Strategy

The project transforms the Midtown block through layered public and ecological interventions that extend across rooftops, streets, and interior spaces. Elevated public platforms, micro-retail popups, urban farming systems, and safe sleeping spaces are connected through a continuous public corridor, creating new relationships between work, housing, care, and food infrastructure. Rather than functioning as isolated programs, these interventions operate together as a collective urban system that activates the block throughout the day and night.





Floor Level of Mid Level Loop

The mid-level loop transforms the block into a connected public infrastructure centered around food, care, and collective life. Growing areas, kitchens, dining spaces, markets, composting zones, and social spaces are linked through bridges and shared circulation systems across the site. Productive landscapes and composting cycles are integrated directly into the plan, creating a continuous loop of growing, eating, storing, and reusing within everyday urban life.



Compost



Feed



Grow

Compost

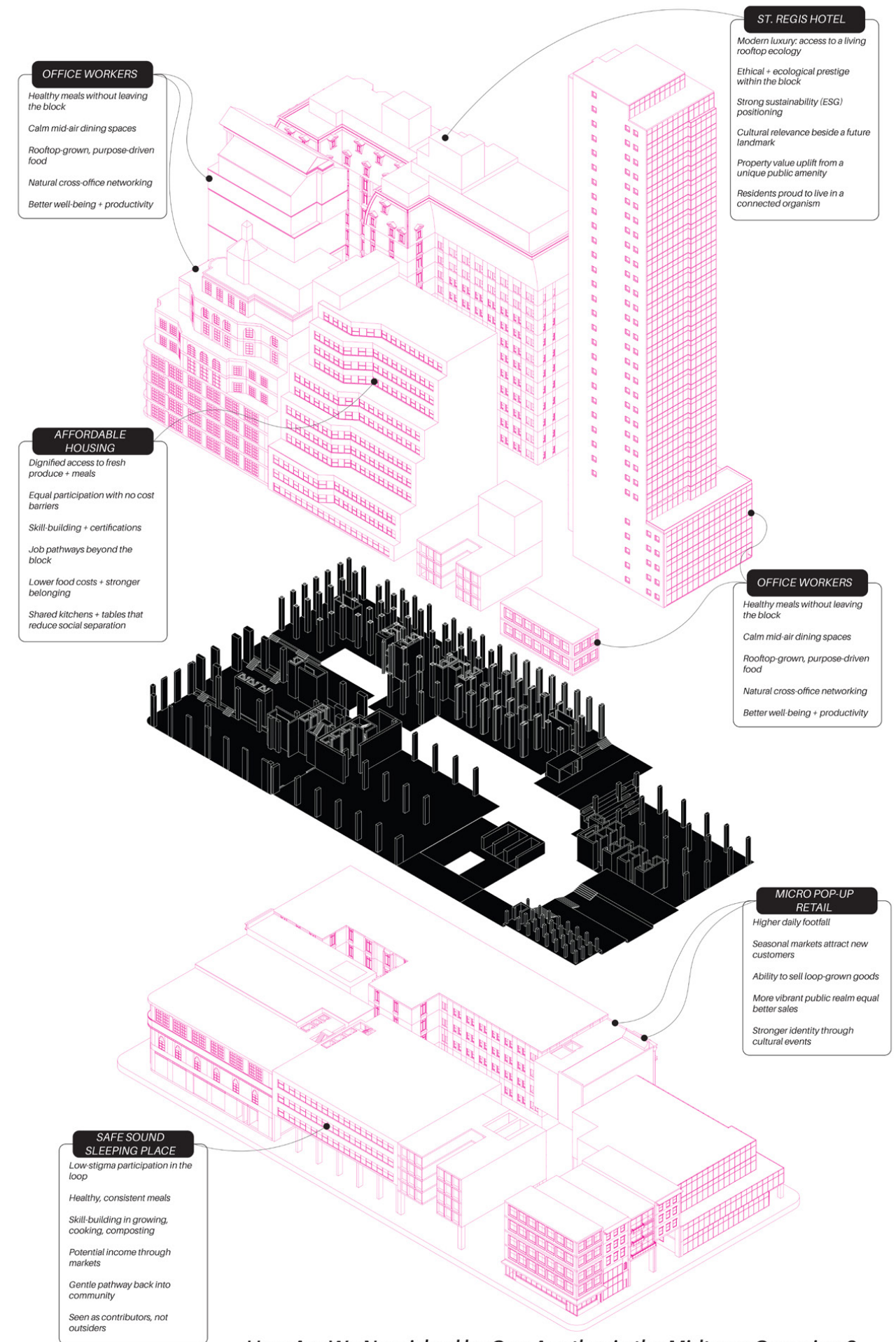
Organic waste from kitchens and food spaces is transformed into compost, creating a visible cycle of reuse within the block. The composting spaces operate as both ecological infrastructure and collective activity zones.

Feed

Shared dining and food spaces encourage interaction between different communities within Midtown. Food becomes a social connector that brings together workers, residents, and visitors through collective gathering.

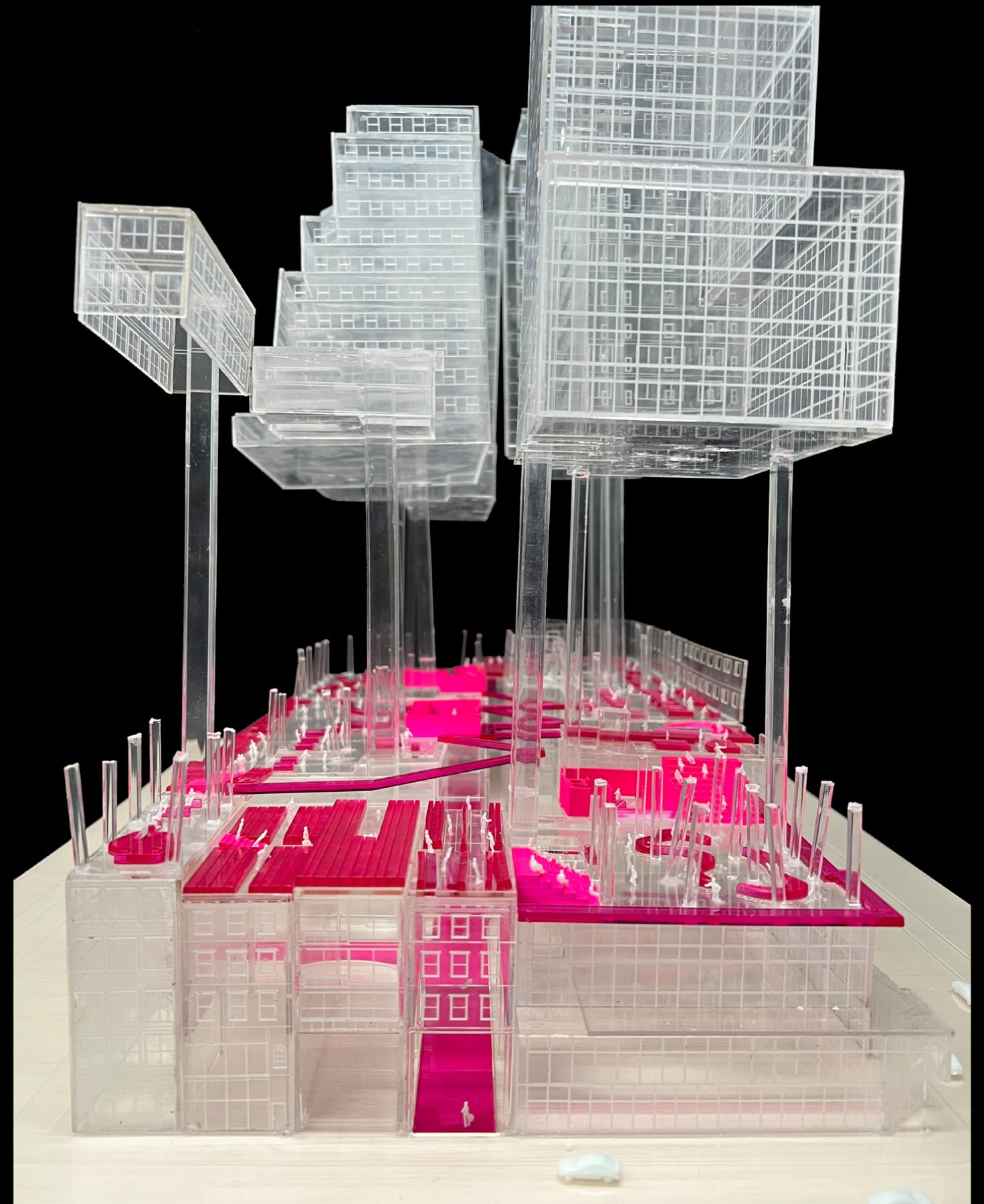
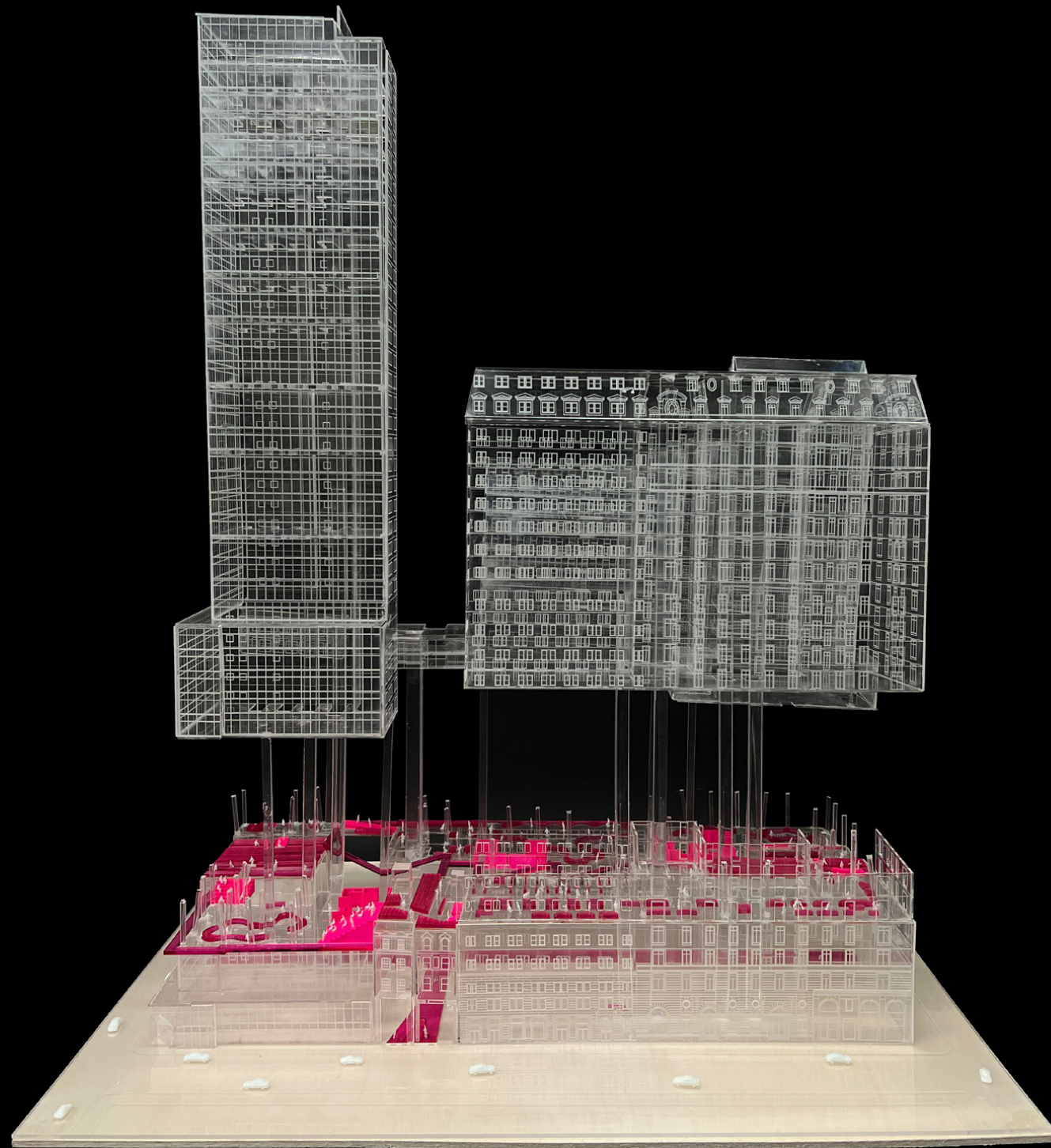
Grow

Urban farming areas are integrated directly into the architecture, making food production part of everyday life. The productive landscape supports local cultivation while reconnecting the block to ecological systems.



How Are We Nourished by One Another in the Midtown Organism?

Acrylic Model- Mid Level Loop



III. Wooden Commons

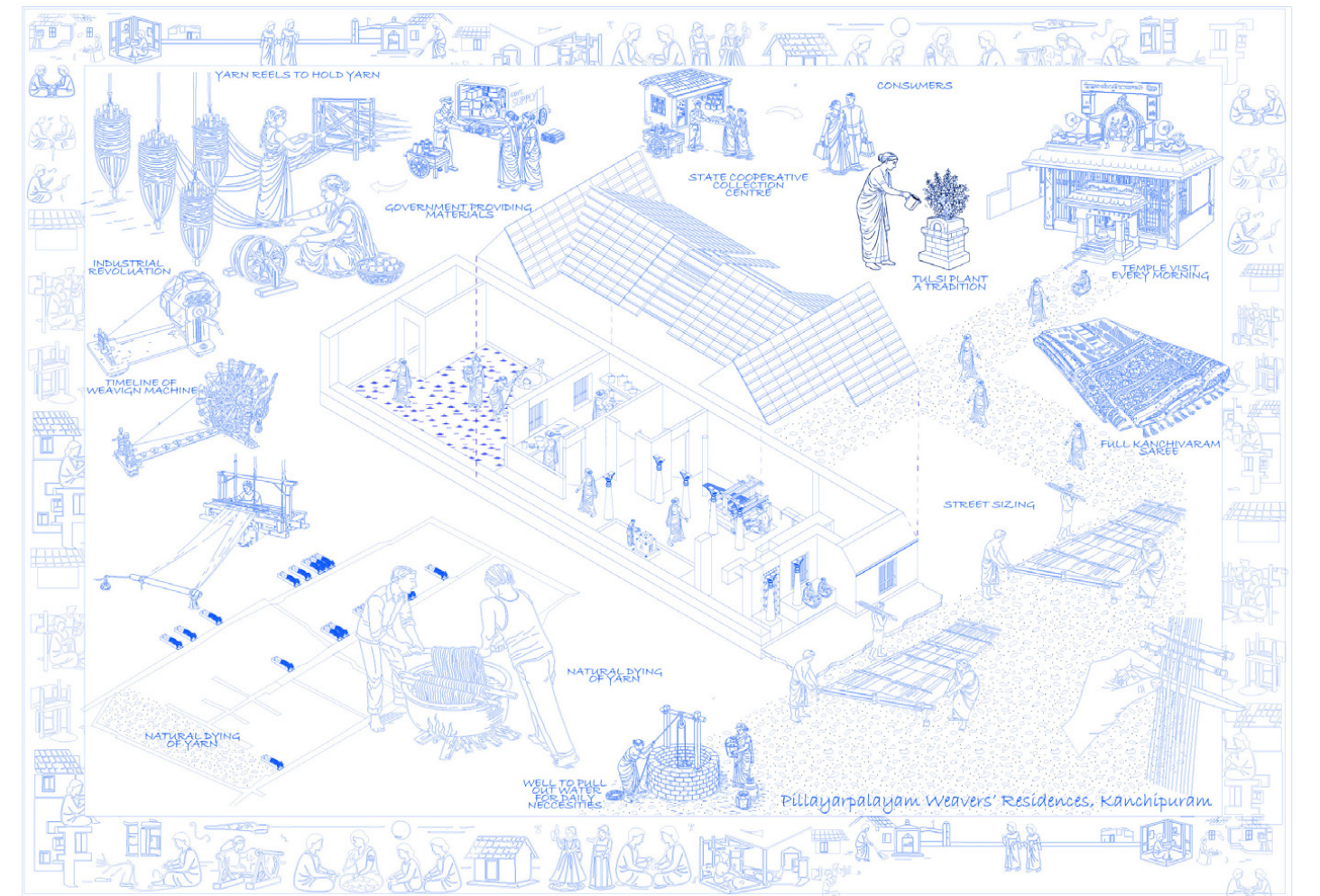
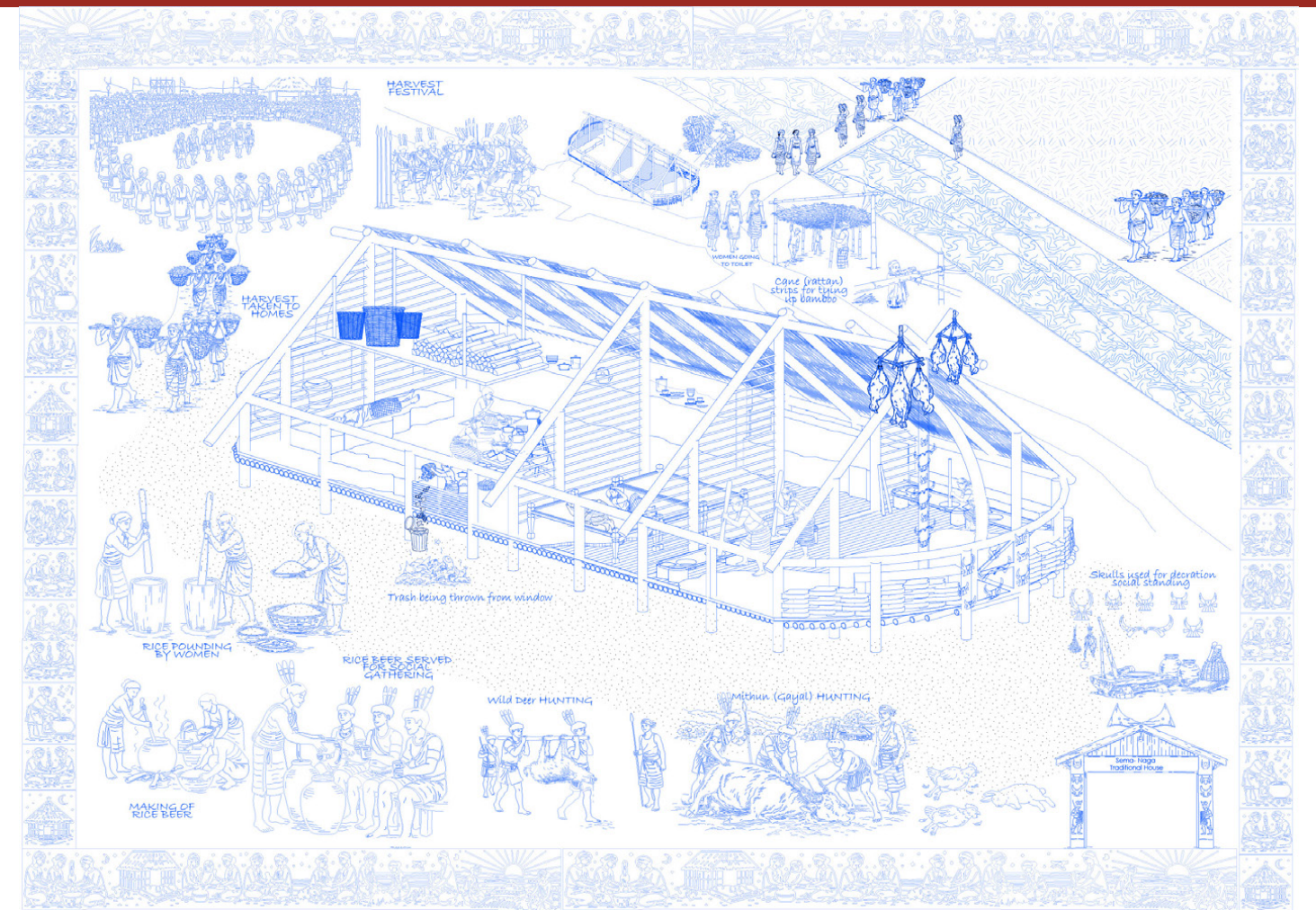
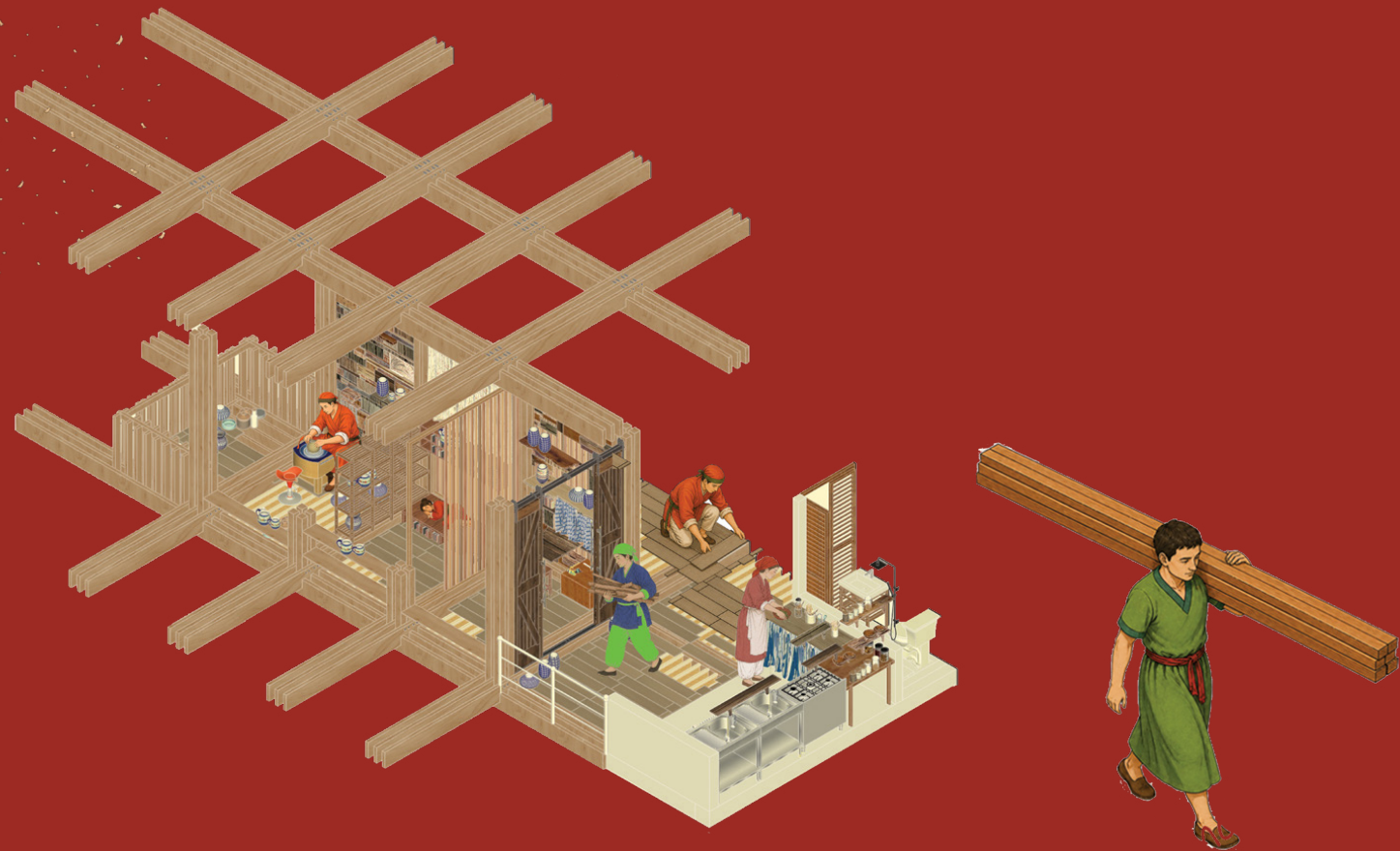
Columbia GSAPP MSAAD Spring 2026

Guided By- Michaeljohn D. Raftopoulos, Alejandro Marin

The project begins by engaging wood as both material and craft, not only as a building element, but as a cultural and productive practice. It reconceptualizes the polykatoikia as an open, process-driven system where architecture emerges through making, use, and material circulation. Situated in Metaxourgeio, Athens, adjacent to an active wood workshop, the proposal embeds itself within an existing network of material, labor, and knowledge.

The building is structured through a two-part starter kit, a timber frame and a set of panel partitions, establishing a fixed spatial order alongside an adaptable interior. It imagines a community from Metsovo, whose woodcraft knowledge is reactivated within the city.

Wood operates in continuous circulation, from raw stock to structure, partitions, and reused scrap. A concrete shell anchors the system, while the timber interior enables transformation, forming a “wooden commons” shaped through collective living and making.



An initial exploration of the polykatoikia as a timber-based system connecting woodcraft, material circulation, and collective living.

Midterm Panel



The final proposal develops the polykatoikia into an adaptable wooden commons where living, making, repair, and shared community infrastructures evolve through an open timber framework.

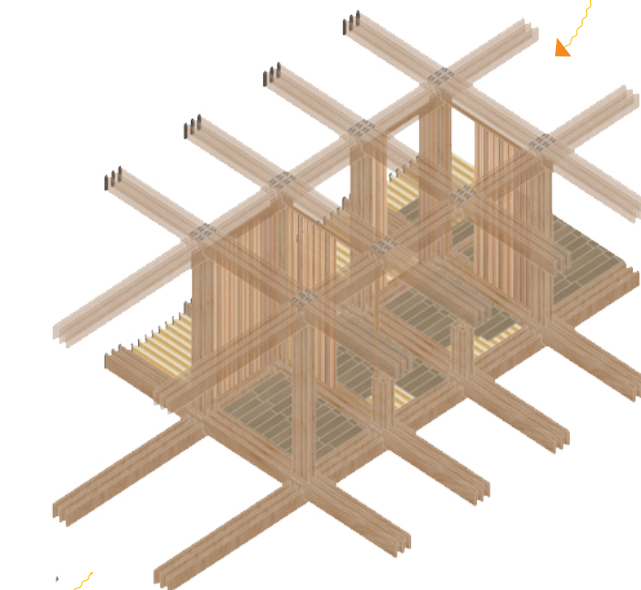
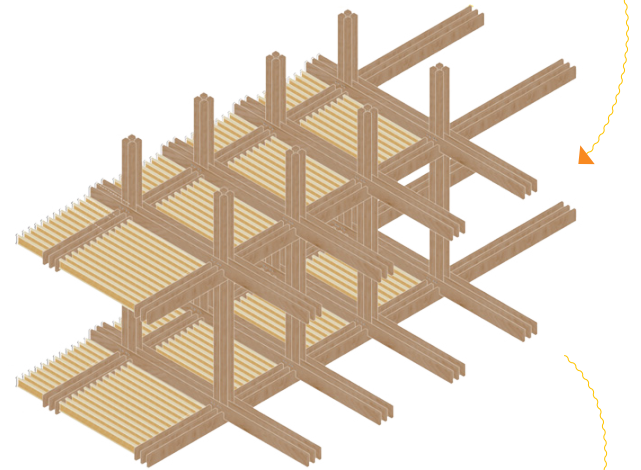
Final Panel



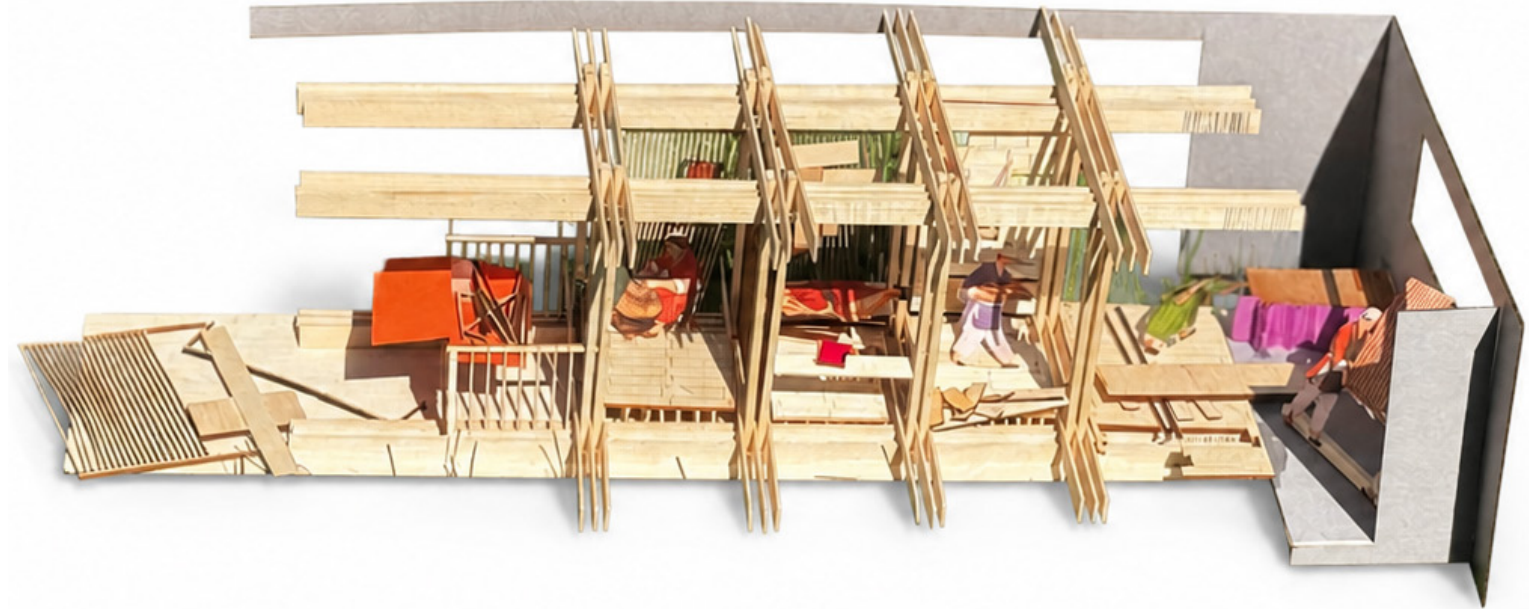
Each dwelling unfolds as a negotiation within the grid. It may occupy a single module, stretch across many, or rise into the floor above. Space grows through combination and choice—but always leaves the path of entry open.



The polykatoikia begins as a two-part starter kit: a fixed timber frame and a set of wooden panel partitions. Together, they provide a basic spatial structure that residents can adapt, expand, and reconfigure over time.



Physical Model



The building is conceived as a concrete shell that protects a timber framework within - like a cocoon. While concrete forms the stable core, life unfolds inside through adaptable wooden elements.



IV.The Missing Frame

Columbia GSAPP MSAAD SUMMER 2025

Guided By- Benjamin Weisgall

The Missing Frame is a card-based game of visual critique, displacement, and narrative reconstruction. Drawing from the language of tarot and the politics of architectural representation, players are invited to expose what curated images conceal-labor, surveillance, environmental harm, and systems of inequality. Each round begins with a distorted or “noisy” image card, layered with abstraction, absence, or spectacle. Players must interpret these visuals by pairing them with agent cards-archetypal forces like The Veil (aesthetic obfuscation), The Scaffold (labor exploitation), or The Extractor (neocolonial power). By revealing the original image or design intent, players explore the fracture between what is seen and what is suppressed.

Through dialogue, pairing, and collective reading, The Missing Frame transforms critical reflection into gameplay—challenging players to reframe narratives, question visibility, and uncover the architectures of power behind every image.

THE MISSING FRAME

- How to play
A card game to reveal what’s hidden
“Can you reframe the truth?”
- Objective
Match distorted images with hidden agents and original intents to expose what architectural images conceal-power, labor, displacement, control.
- What’s in the Box?
 - 1. Image Cards (3”x5”)
Front: Distorted/noisy visuals
Back: Poetic or critical prompt
 - 2. Agent Cards (2.5”x3.5”)
Front: Words like “Migration,” “Labor,” “Spectacle”
Back: 2-line description of the invisible force
 - 3. Original Image Cards (3”x5”)
Front: Architect’s clean image
Back: 1-sentence design intent
 - 4. Context Cards (Optional, 2.75”x4.75”)
Scenario prompts like: “Protest erupts” or “Aid is cut”
- How to Play
Setup:
Shuffle all decks
Each player draws:
 - 1 Image Card
 - 2 Agent Cards
 - 1 Original Image Card (face down)

- Round Structure
 - Step 1: Reveal & Describe
Describe the distorted image. What do you see?
 - Step 2: Reframe
Choose 1 Agent Card that best explains the distortion or hidden force.
 - Step 3: Reveal the Intent
Flip the Original Image Card. Does it align or conflict with the distortion?
 - Step 4: Debate
Discuss what was omitted, disguised, or reframed.
- Archetype Twist (Advanced Mode)
Agents can act as Tarot-like archetypes:
 - The Displacer – Migration
 - The Silencer – Media
 - The Mirage – Design Intent
 - The Scaffold – Labor

Each player can interpret one archetype’s deeper meaning per round.



How to Play

Players match distorted image cards with hidden agent cards and original architectural images to reveal concealed narratives and systems of power within representation.



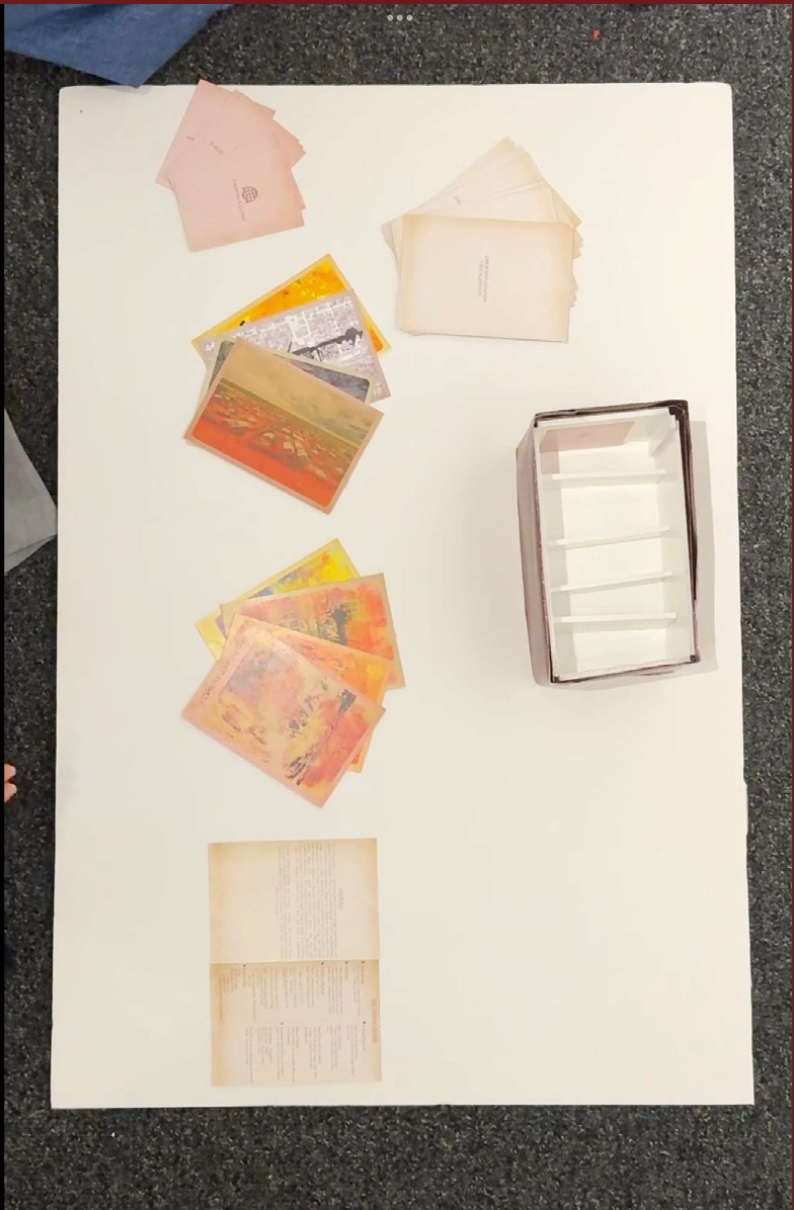


Image Cards

Distorted and abstracted visuals act as fragmented architectural landscapes that invite interpretation and speculation.

Agent Cards

Agent cards represent invisible forces such as labor exploitation, displacement, surveillance, environmental degradation, and neocolonial power.



Original Image Cards

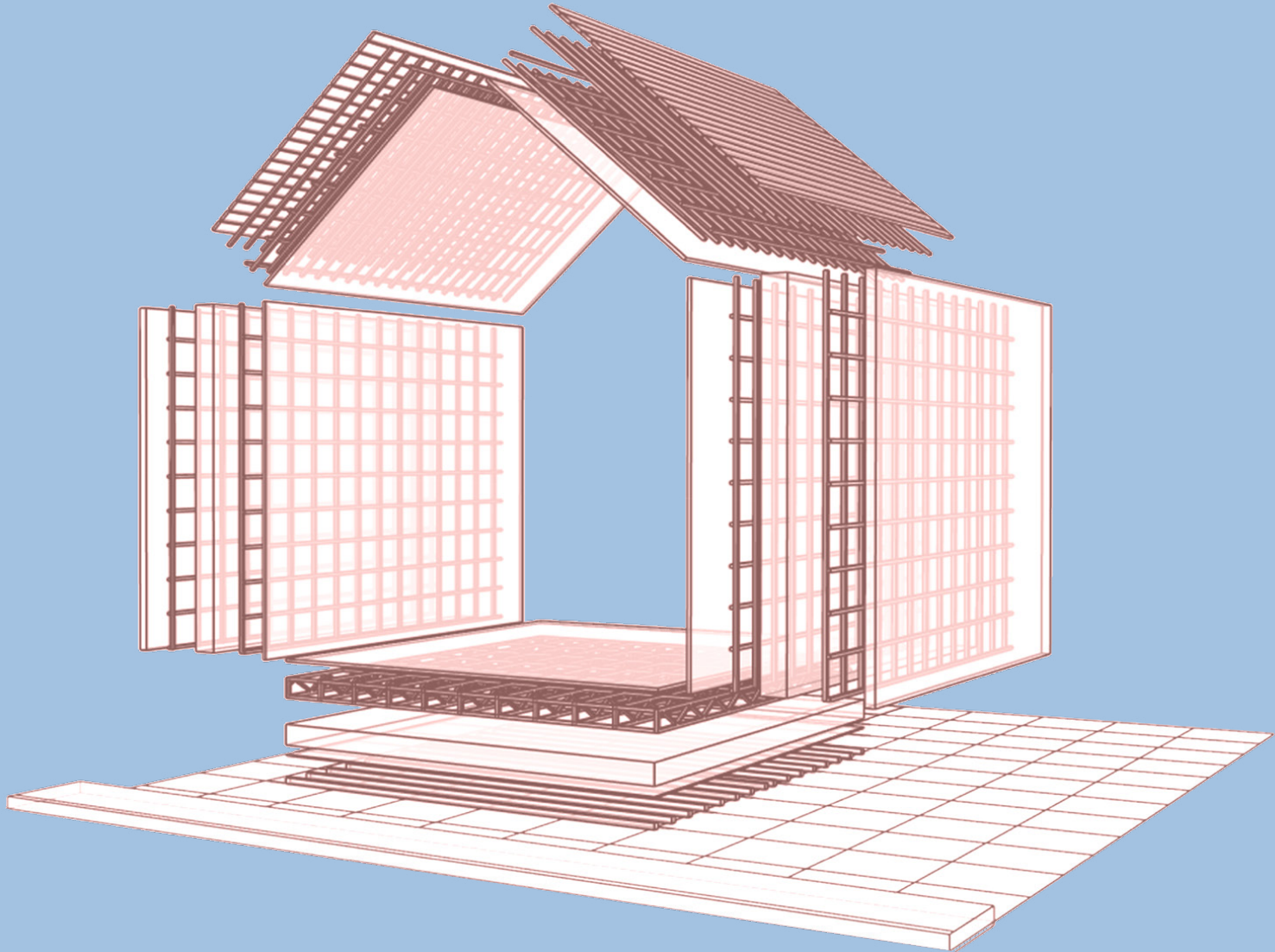
The original image cards reveal the hidden architectural context behind each distorted visual, exposing what was previously concealed.

V.Crop Construction Ecologies

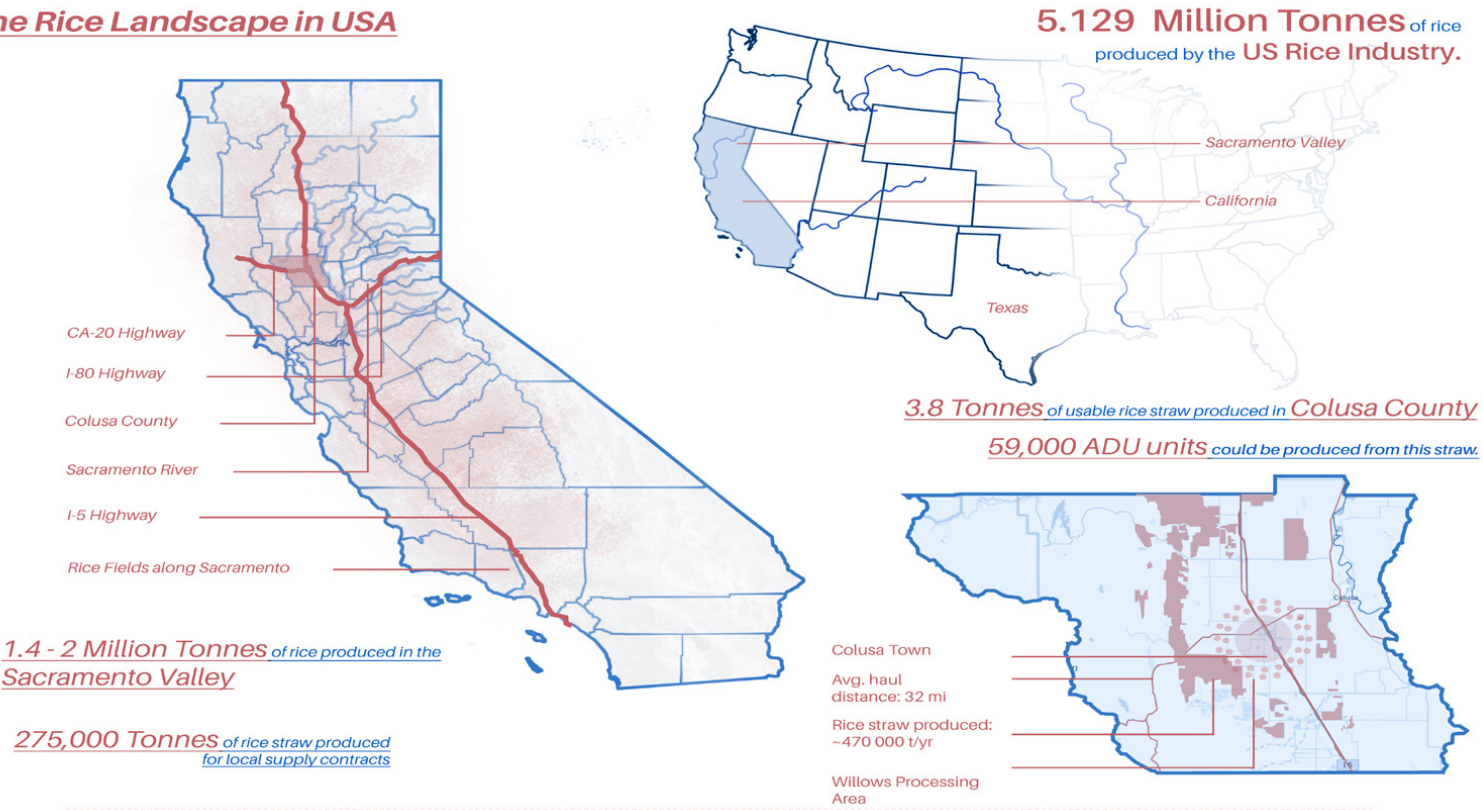
Columbia GSAPP MSAAD FALL 2025
Guided By- Thomas N. Schaperkotter
Group Work - Krish Wadhwani, Abilash Satish

This project explores how agricultural waste can become a seasonal and prefabricated construction material through the reuse of rice husk byproducts. Focusing on California's rice production landscape, the proposal investigates the hidden ecological and logistical systems connecting farming, waste generation, material processing, transportation, and building assembly.

Through modular prefabricated panels made from rice husk composites, the project rethinks construction as a circular material ecology where waste is transformed into light-weight architectural systems. Rather than treating agriculture and architecture as separate industries, the proposal positions building materials within larger cycles of production, labor, climate, and resource circulation.

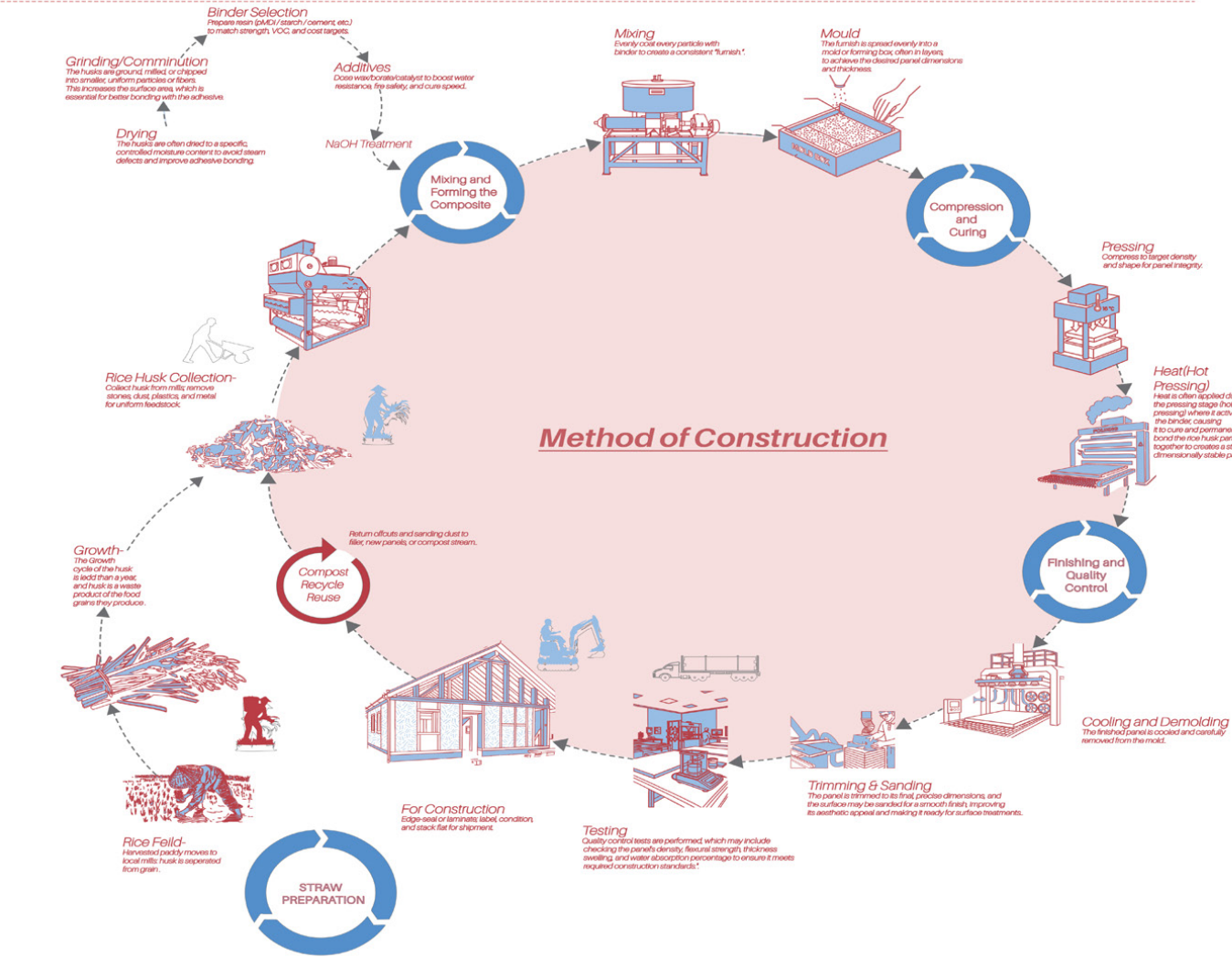


The Rice Landscape in USA



1.4 - 2 Million Tonnes of rice produced in the Sacramento Valley

275,000 Tonnes of rice straw produced for local supply contracts



Field-to-Facade: The Real Time of Husk Panels

Process Flow:

- Growth & Harvest:** Grow 5-6 months. Feedstock & Prep. Harvest same day.
- Husk Processing:** Dry 0.5-2 days → Mill min/Hr → Husk ready.
- Panel Manufacturing:** Binder mix 1-2 hr • Mix 30-60 min • Form 10-20 min/batch. Drying 4-8 hr / 1-3 days • Cleaning 2-6 h • Grinding 2-4 h.
- On-Site Assembly:** Install rate 80-120 m²/day (2-person crew). Pack 30-60 min • Transport 0.5-1 day.

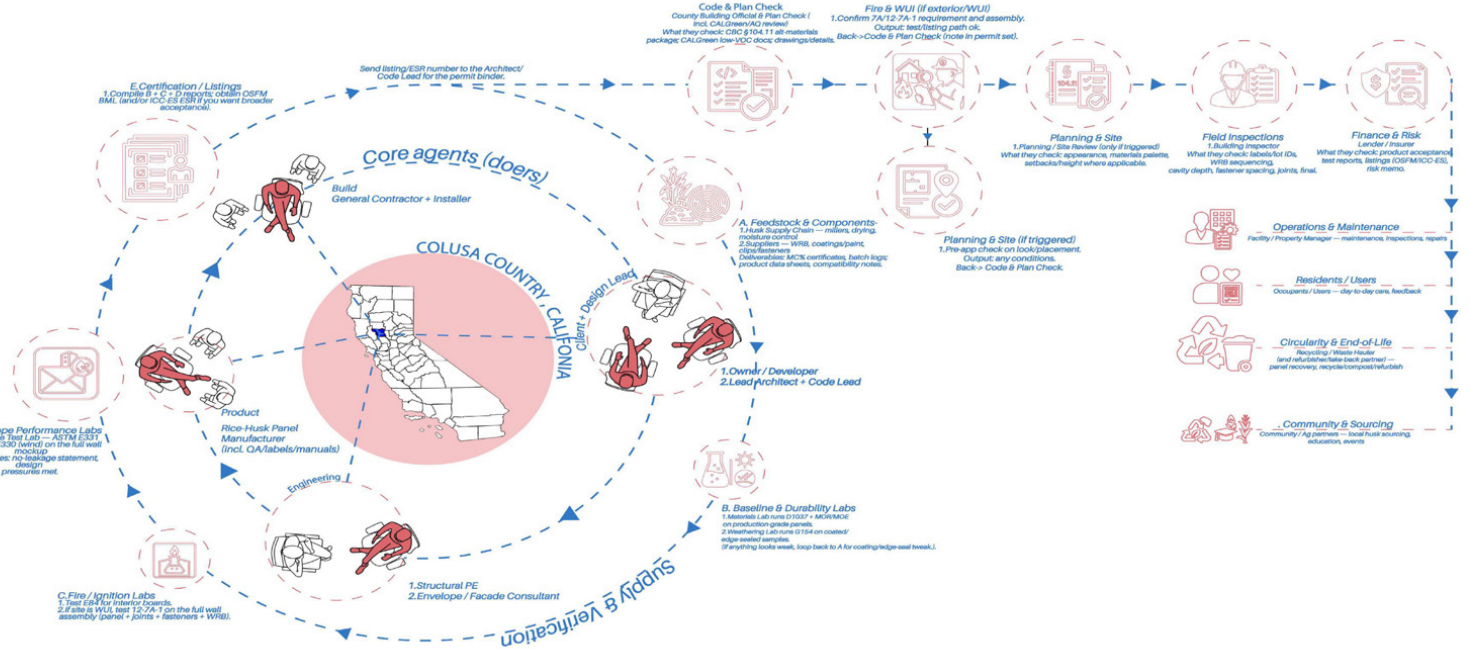
Key Milestones & Timeframes:

- Grow 5-6 months
- Feedstock & Prep
- Harvest same day
- Dry 0.5-2 days
- Mill min/Hr
- Husk ready
- Binder mix 1-2 hr
- Mix 30-60 min
- Form 10-20 min/batch
- Drying 4-8 hr / 1-3 days
- Cleaning 2-6 h
- Grinding 2-4 h
- Pack 30-60 min
- Transport 0.5-1 day
- Install rate 80-120 m²/day (2-person crew)

Additional Information:

- Panel Manufacturing:** Husk + binder are blended, formed into a mix, then hot pressed to thickness (also conditioned before finishing).
- On-Site Assembly:** WRB continuous mount rainscreen rails/clips (10-18 mm cavity), set panels, seal cut edges, and record locations for Q&A.

Bylaws and Practical Applications



VI.Parametric Zoning Tool

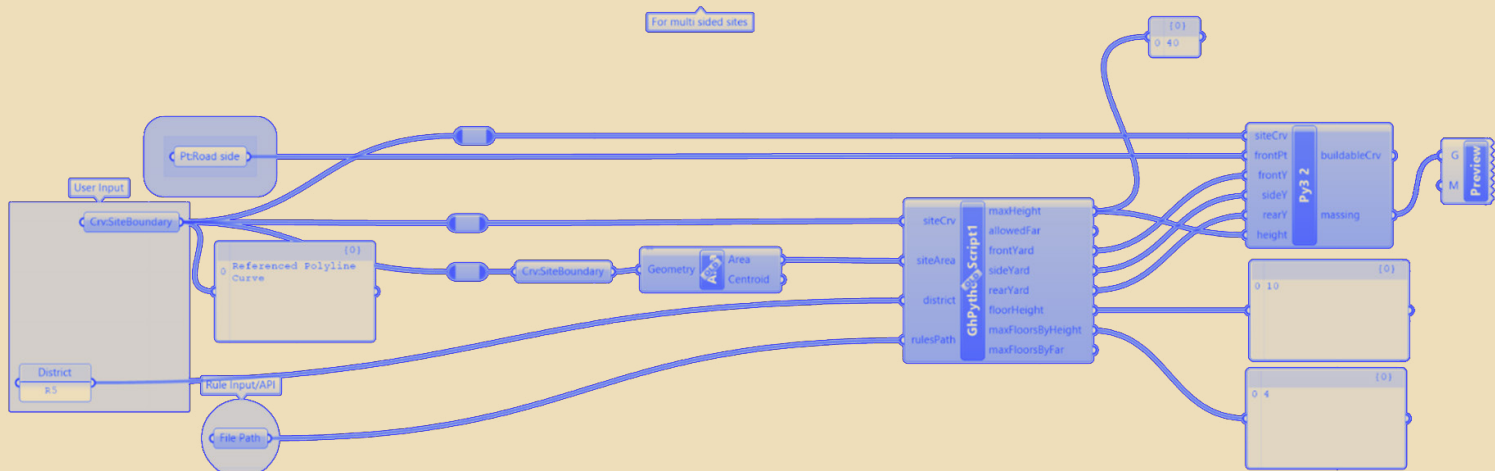
Columbia GSAPP MSAAD FALL 2025

Guided By- Danil Nagy

Group Work- Sriya Thotakura · Varadraj Borde · Krish Wadhwani ·

Aditi Gangadhar · Chelsea Hai

The Parametric Zoning Tool translates complex NYC zoning regulations into instant three-dimensional building envelopes through a computational workflow. By combining zoning data, site conditions, and user-defined inputs, the tool automates zoning-compliant massing generation, compliance checks, and spatial evaluations in real time. Rather than treating zoning as a static constraint, the project reimagines regulations as an active generative framework that supports faster, clearer, and more iterative early-stage design exploration.

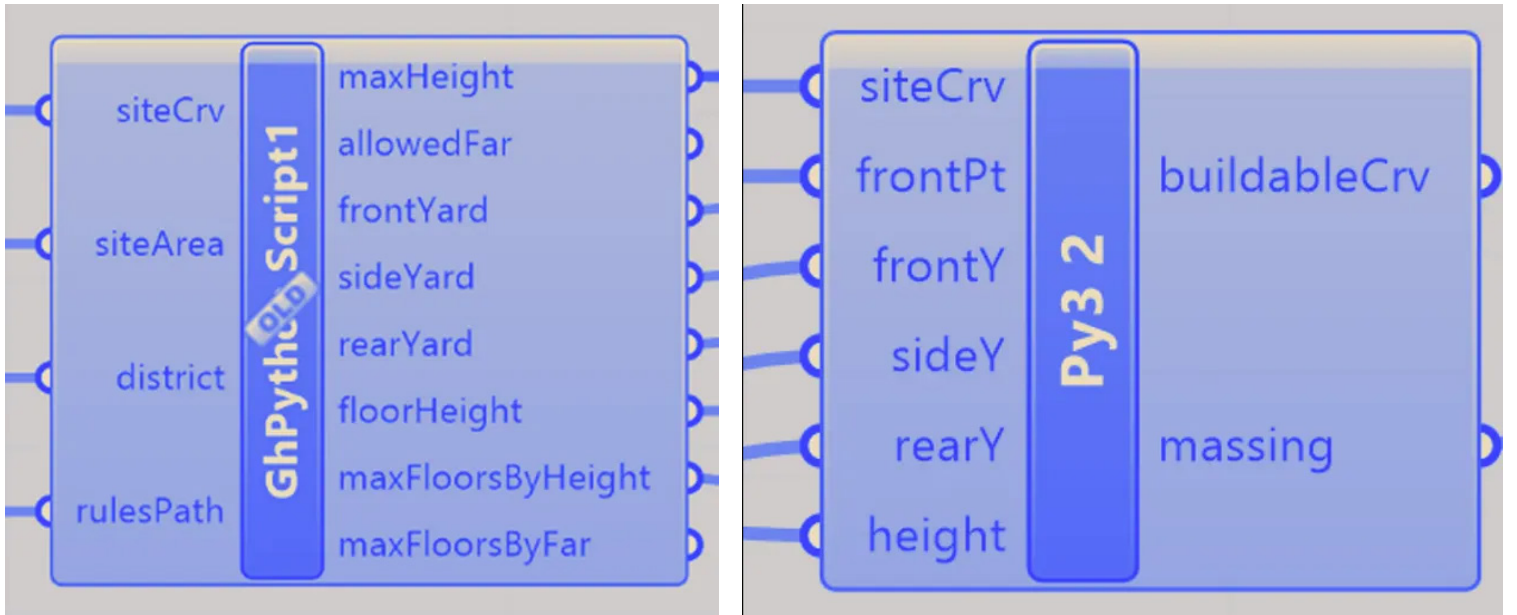
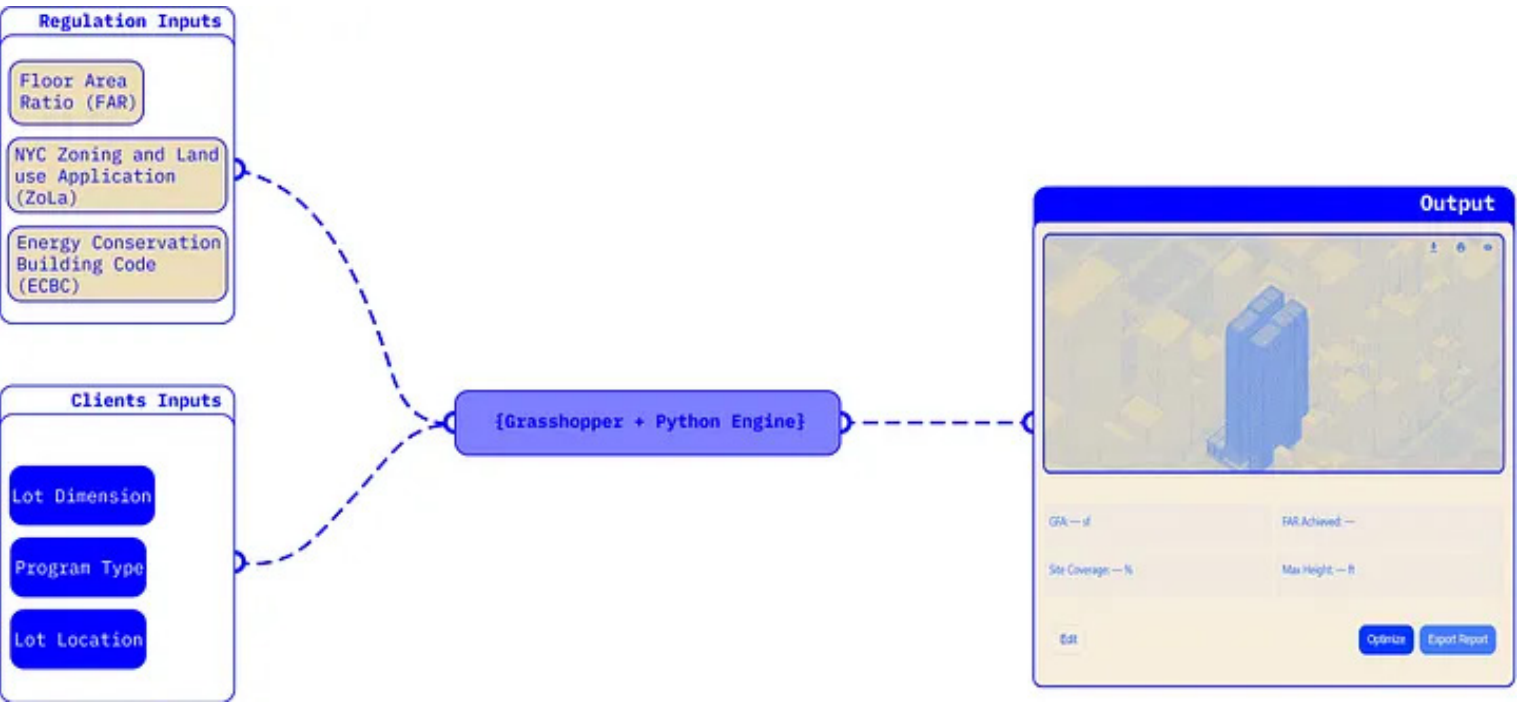


Pipe Line and Python Code

Workflow Diagram

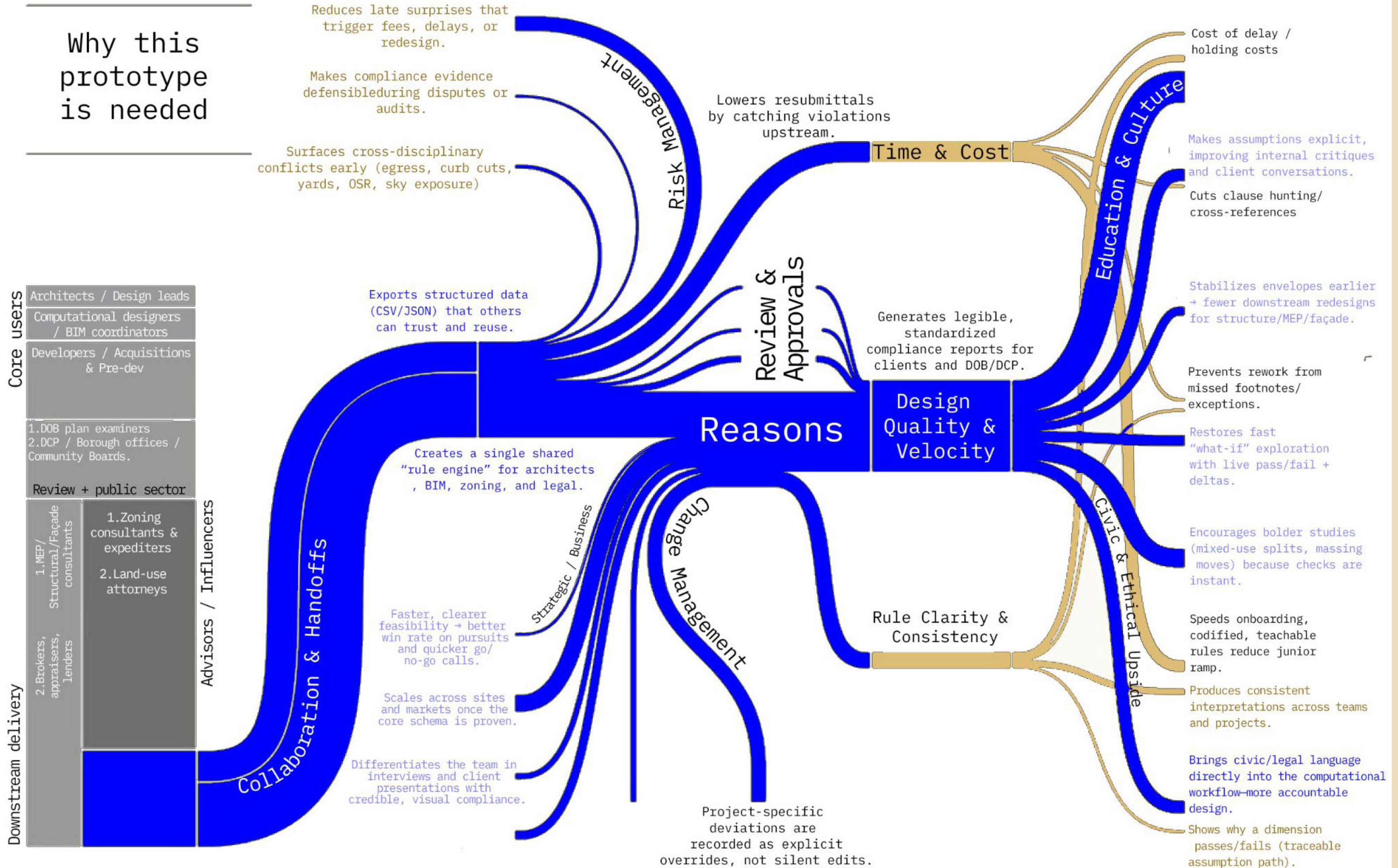
Overall Concept Flow : User Input Requirements : Autogenerated Building Envelope : User Input Generated Design Envelop : Compliance Check

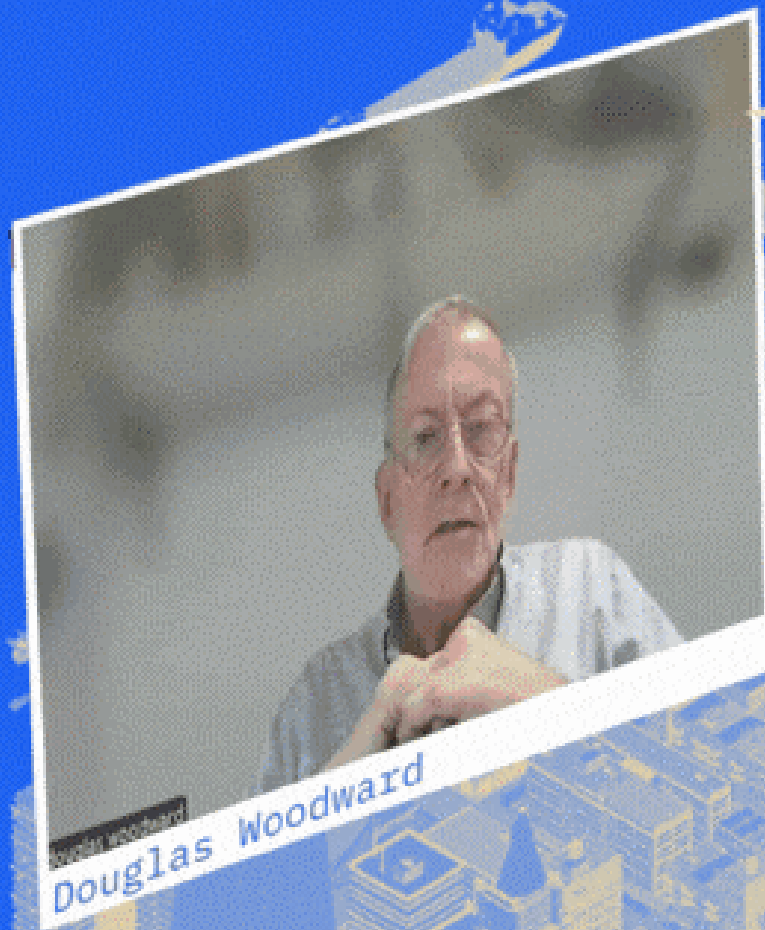
The diagram illustrates the computational workflow of the Parametric Zoning Tool, where zoning regulations and user-defined site inputs are processed through a Grasshopper and Python engine to generate automated zoning-compliant building envelopes and compliance outputs.



Input List and Output List that can be extracted or worked with in future through these two python module setup

Why this prototype is needed





Douglas Woodward

Other stakeholders to consider-community, officials.
Add a layer to already exist system.

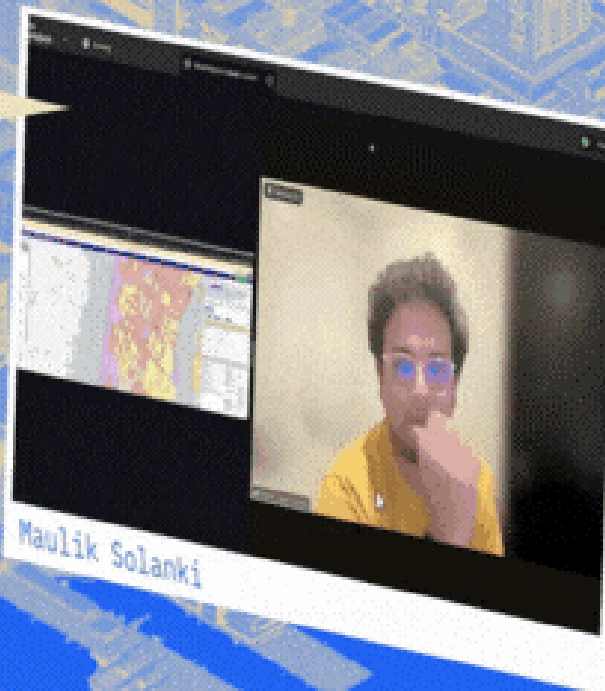
Architectural Scalability



Ashwita Y.

Empty Plots

Data accuracy issues,
Needs community land
trust based design.



Maulik Solanki



Maulik Solanki

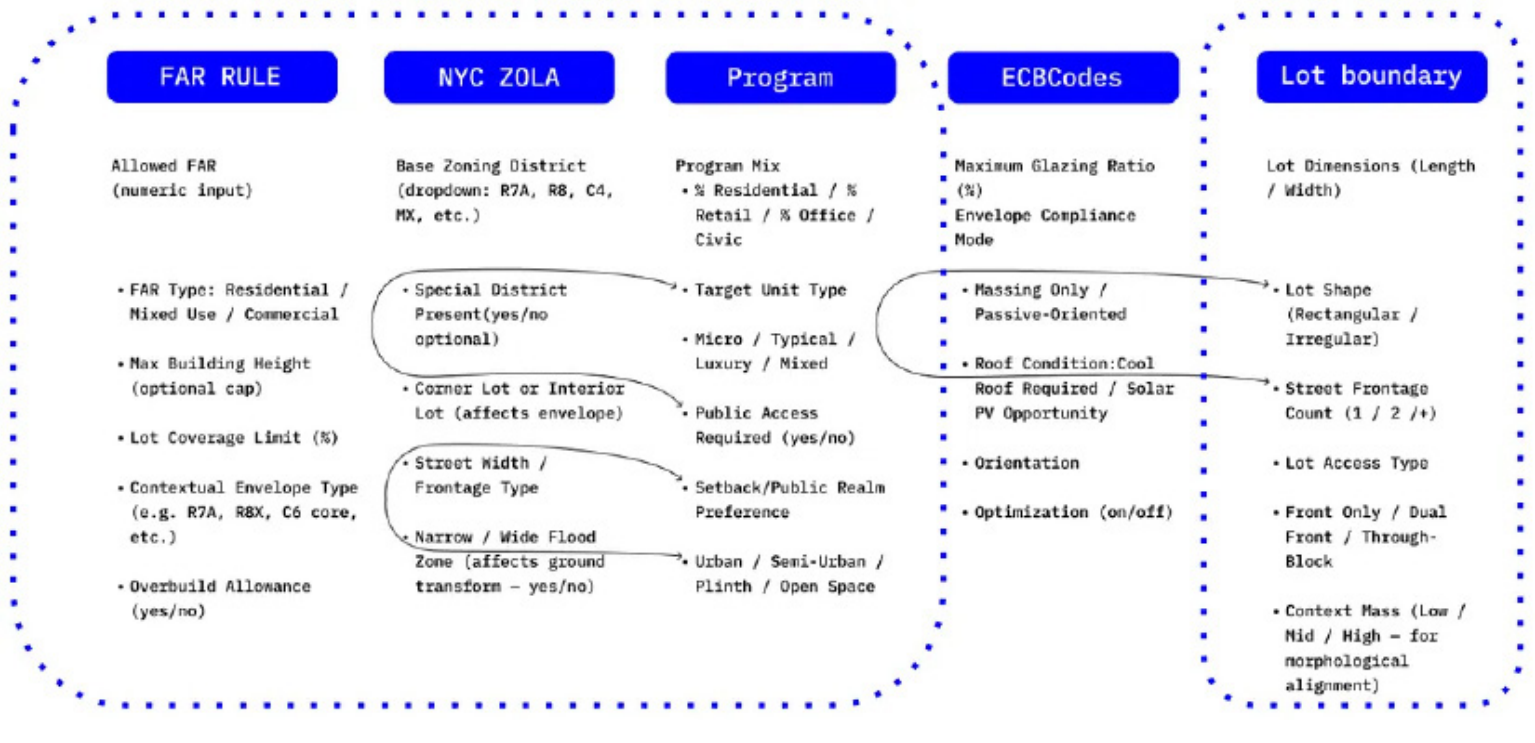
Zoning and Regulatory Inputs

Zoning regulations are sourced from NYC ZoLa and encoded into a structured JSON rule-book. Each zoning district is defined through parameters such as FAR limits, height restrictions, yard requirements, and sky exposure plane conditions.

District	Type (short)	Res. FAR	Max Ht. (ft)	Rear Yard (ft)	Contextual ?	QH ?	Parking/DU
R2	Low-density	0.5	35	30	No	No	1.0
R4	Low-density	0.75	35	30	No	No	1.0
R5	Low-density	1.25	40	30	No	No	0.85
R6	Low-density	2.2	55	20	No	Yes	0.25
R6A	Contextual	3.0	70	20	Yes	Yes	0.5
R7-1	Medium	3.44	80	30	No	Yes	0.6
R7-2	Medium	3.44	80	30	No	Yes	0.5
R7-A	Contextual	4.0	80	30	Yes	Yes	0.5
R7-D	Contextual	4.2	100	30	Yes	Yes	0.5
R8-A	Contextual	6.02	120	30	Yes	Yes	0.4
R8-X	Contextual	6.02	150	30	Yes	Yes	0.4
C4-4D*	Contextual (RBA eq.)	6.02 (res)	120	20	Yes	Yes	0.4

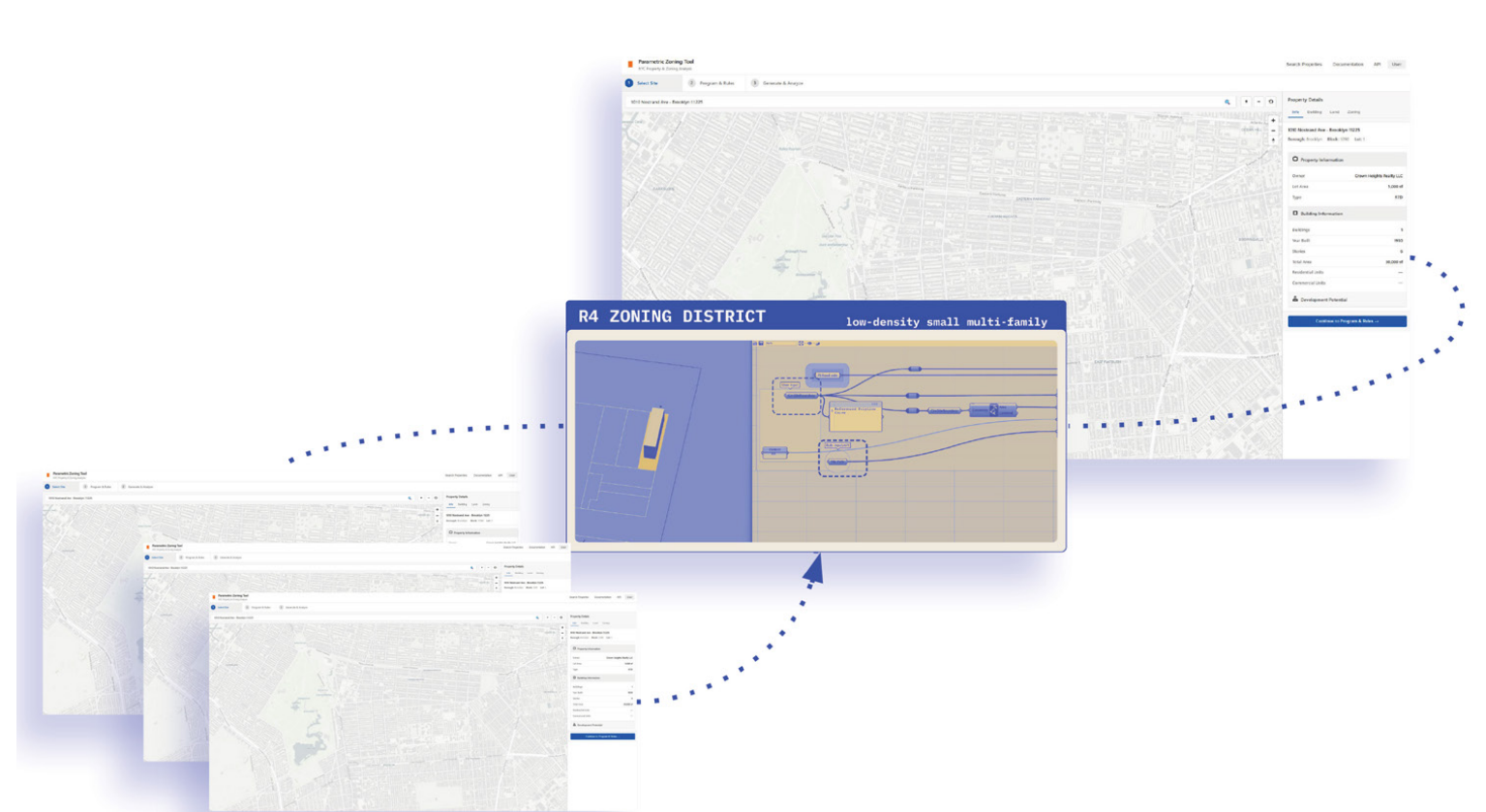
Design Inputs

Users can specify programmatic requirements, FAR targets, and height assumptions. These inputs allow the system to generate envelopes and evaluate compliance based on proposed design intentions.



Iterative Feedback and Adjustment

Rather than stopping at compliance checks, the system provides feedback that supports iteration. Adjustments to height, FAR, or setbacks trigger updated evaluations, allowing designers to explore alternatives while remaining within zoning constraints.



Grasshopper + Python Pipeline

The pipeline processes zoning rules, site dimensions, and regulatory inputs through Grasshopper and Python scripts to generate buildable envelopes and automated massing outputs.



VII. Architectures of and for the More-Than-Human

Columbia GSAPP MSAAD SPRING 2026
Guided By- Mireia Luzarraga Alvarez

This project explores architecture through the lens of animal behavior, climate, ecology, and interspecies relationships. Moving beyond human-centered design, the work investigates how spaces can respond to the needs, movement, comfort, and interactions of animals while also supporting larger ecological systems. Through studies of elephant habitats, termite mounds, and Hathigaon in Jaipur, the project examines how architecture can emerge from environmental performance, material intelligence, and coexistence between humans and animals. The proposals explore cooling systems, tactile surfaces, collective living, ventilation, and adaptive ecological structures, rethinking architecture as a shared environment shaped by multiple forms of life rather than human occupation alone.



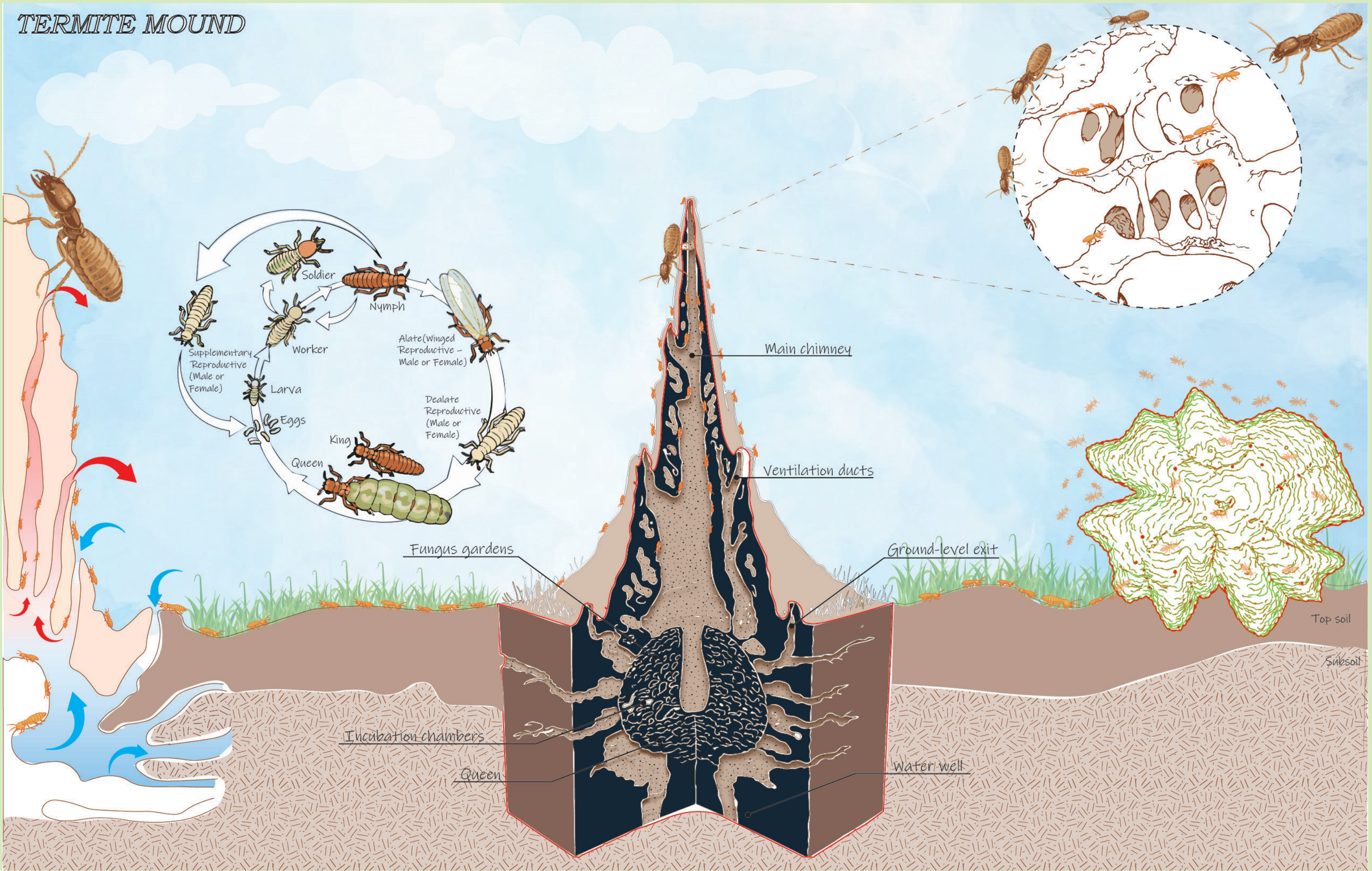
This project explores architecture beyond human-centered design through studies of elephant habitats, termite mounds, and interspecies environments, investigating how climate, material systems, and animal behavior can shape spaces of coexistence.

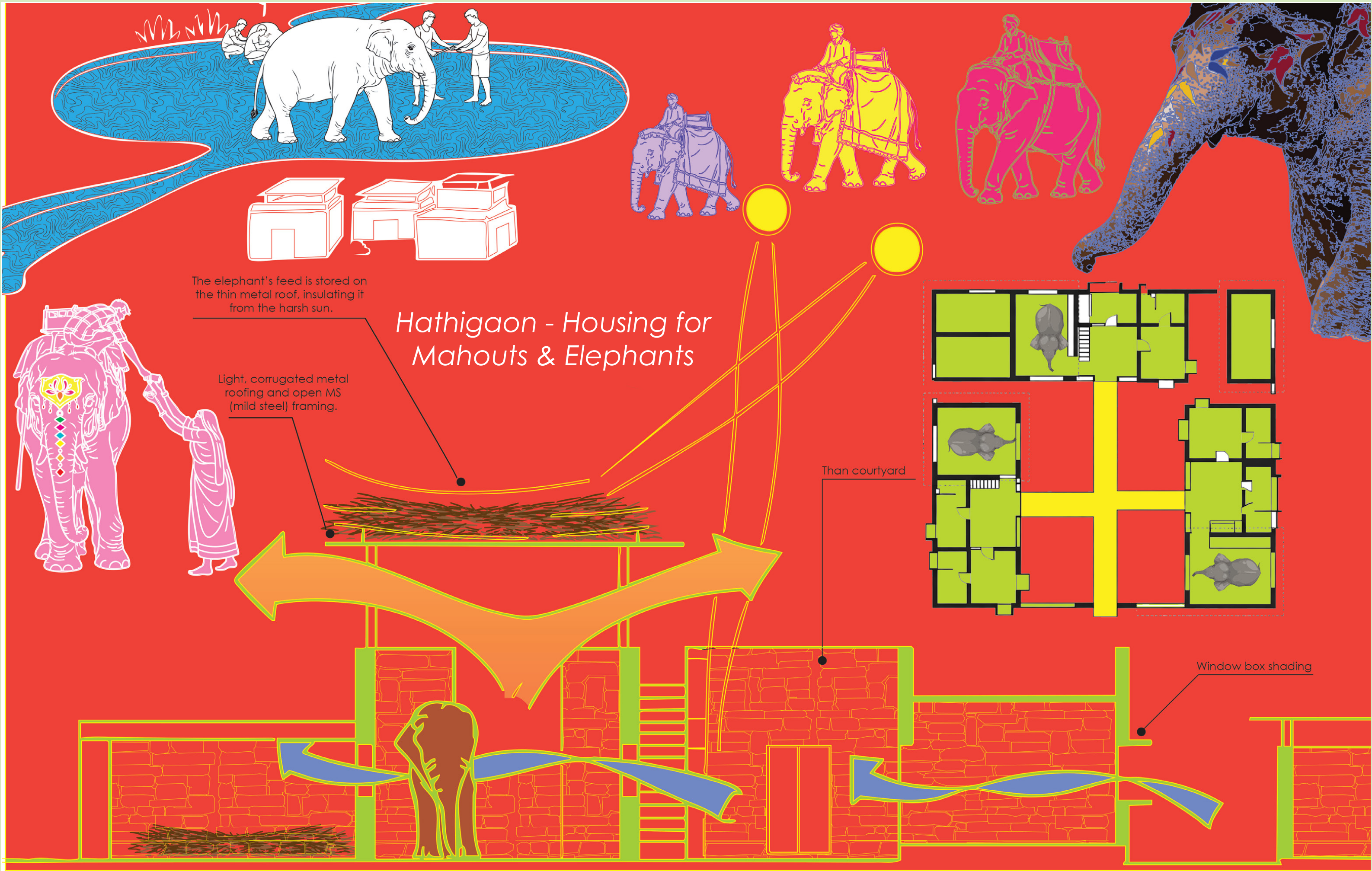


Material Ecologies:
Elephant Cooling and
Interaction Space



TERMITE MOUND





VIII.Industry, Practice & Research -
Intersecting Design & Entrepreneurship in Architecture

Columbia GSAPP MSAAD SPRING 2026

Guided By- Wendy W Fok

Group Work- Krish Wadhwani, Neha Sarah Abraham, Ridhi Sawhney

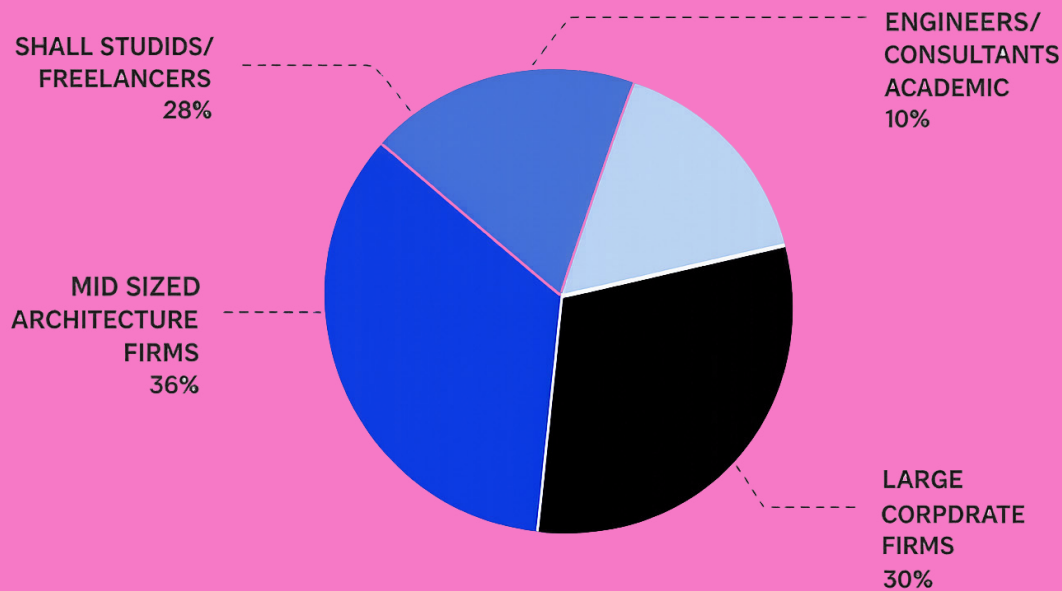
DetailX is a digital marketplace for architectural construction details that transform technical drawings into reusable and monetizable design assets. The platform allows architects, freelancers, consultants, and firms to upload, browse, purchase, and license construction details, creating a shared ecosystem of technical knowledge across practices.

The project questions why some of the most technically intensive work in architecture remains financially undervalued and proposes an alternative model where architectural expertise can generate recurring income through royalties, subscriptions, and shared digital distribution. By reducing repetitive drafting and enabling knowledge exchange between firms, DetailX reimagines construction details as a scalable form of architectural intelligence rather than isolated project documents.

detailX
draw once, earn forever.

<https://detailx-platform.vercel.app/library/detail-6>

Who is the Target Harket?



ITS BLURRED.
ITS HIDDEN.

BLIND DATE

SIDE
STARTS!
HUS-
TLE

GET PAID

Because maybe architecture doesn't need more drawings.

SWIPE NOW

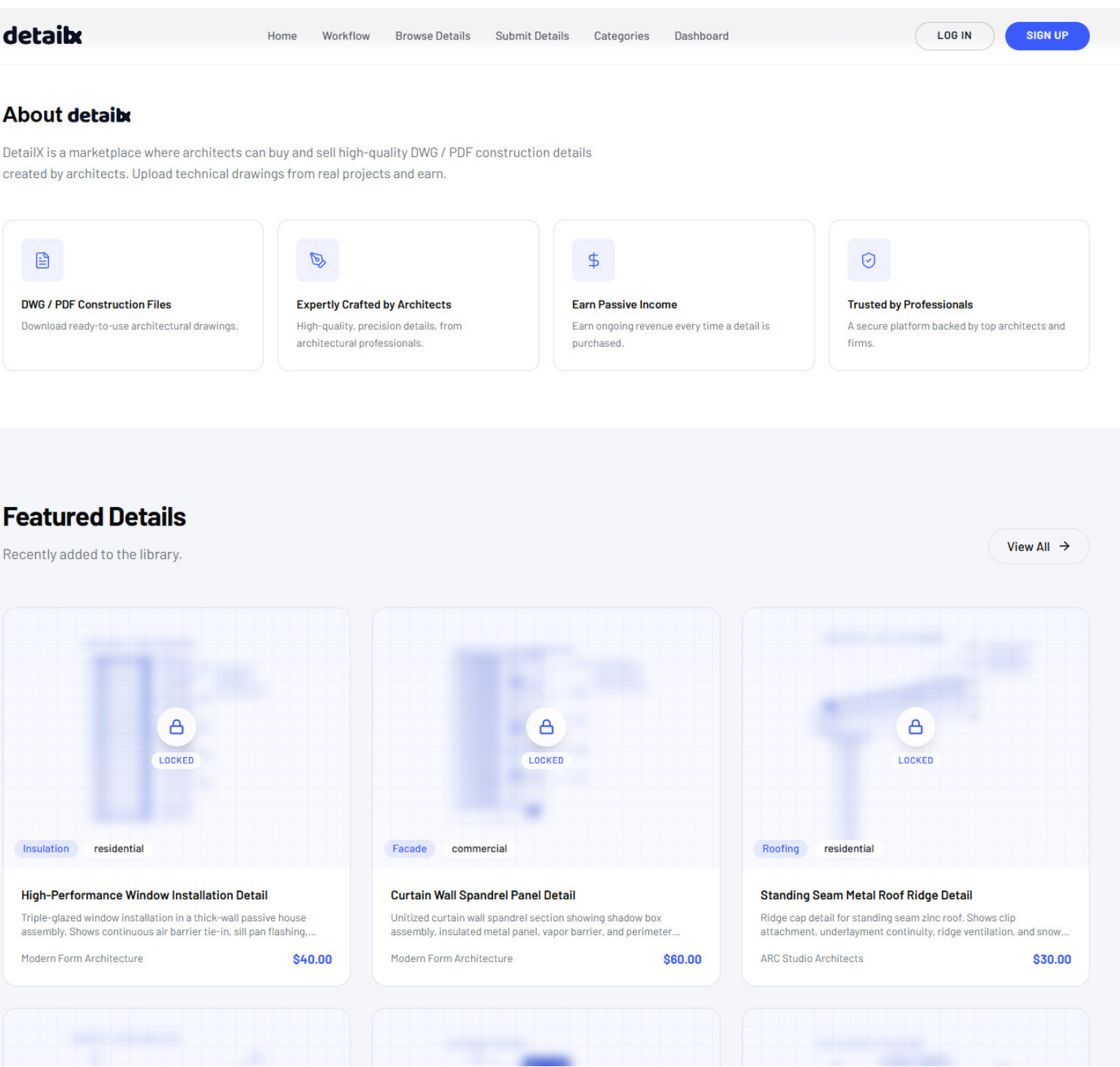
LOOK

1. Aluminum Mullion
2. Expanded Metal Mesh Glazing

EARN

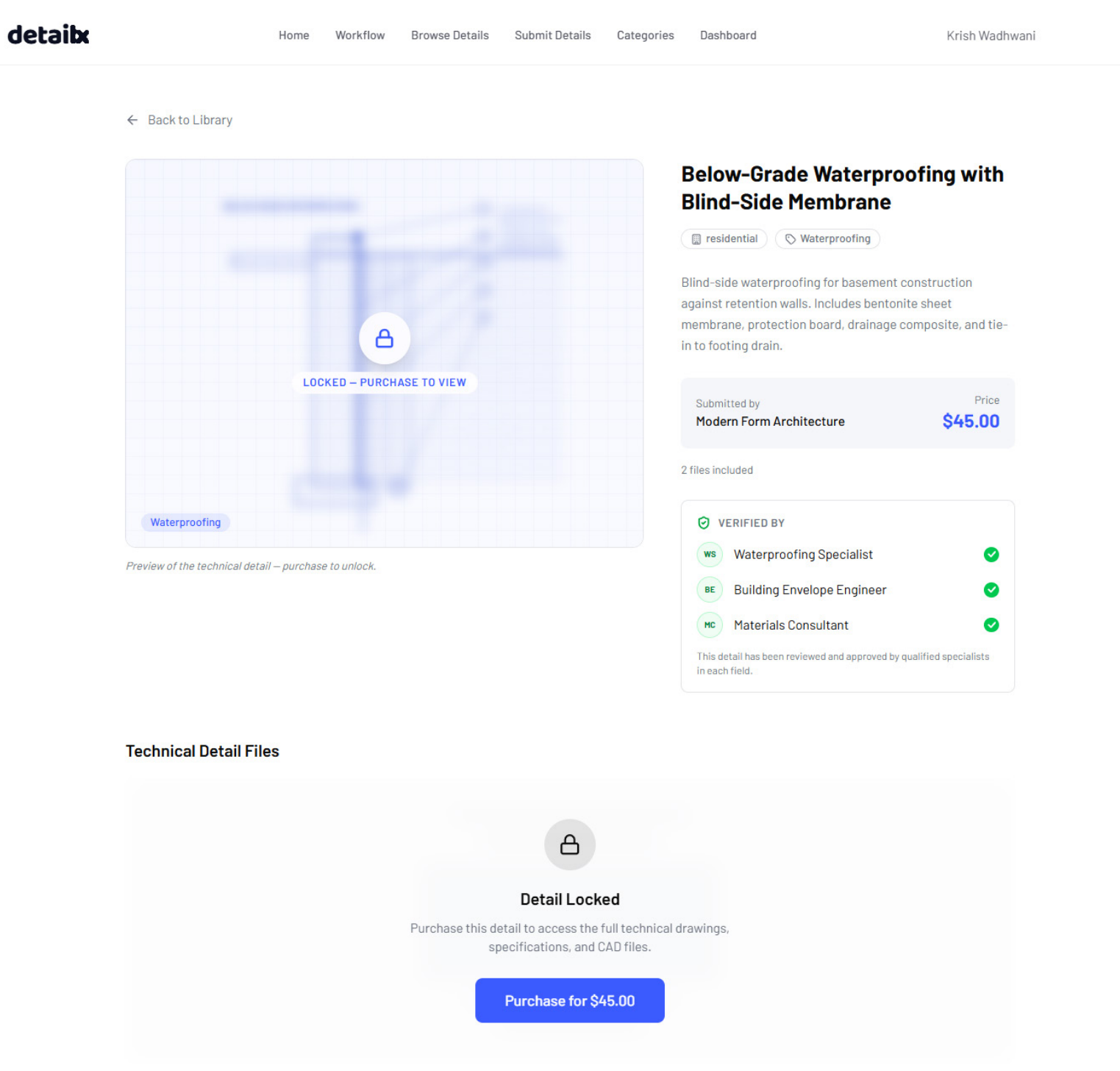
UNLOCK
YOUR
DETAIL

Let's turn drawings into recurring income.



Detail Library Interface

The platform homepage allows users to browse, upload, and purchase architectural construction details through a searchable digital marketplace.

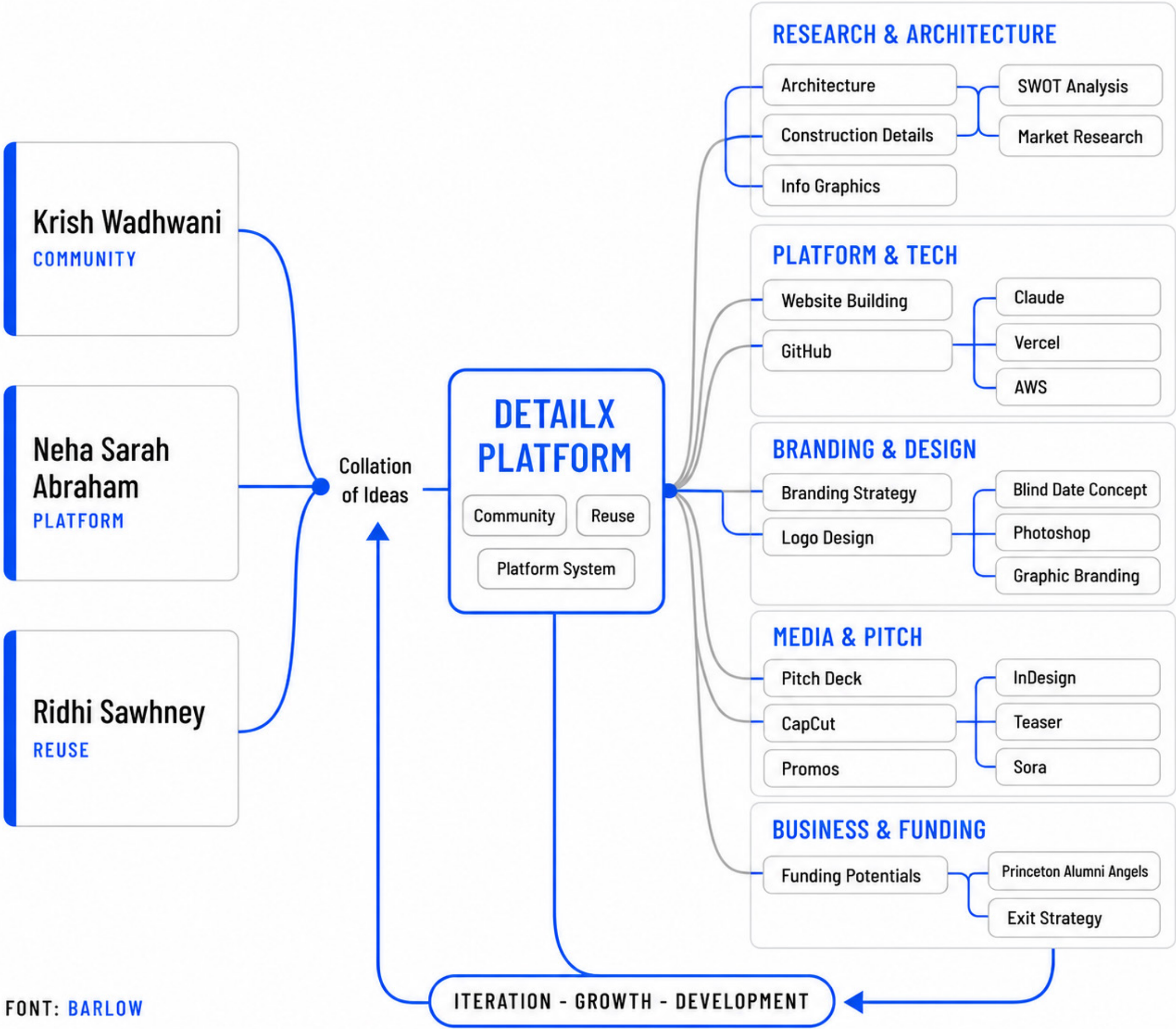


Detail Purchase Interface

Each detail page provides locked previews, technical information, verification status, and purchasing access for downloadable construction drawings and files.

Work Flow Diagram

The diagram maps the collaborative structure behind the DetailX platform, showing how research, technology, branding, media, and business strategies were integrated through an iterative process of development, testing, and refinement.



Meet the Team



Krish Wadhwani
Marketing Lead

- Define platform vision, business model, and architecture-specific strategy.
- Manage content partnerships with architecture firms.
- Oversee community engagement and quality control.



Neha Sarah Abraham
Operation Lead

- Handle day to day operations, workflows, and platform coordination.
- Manage user onboarding, support systems, and community engagement.
- Coordinate internal teams to ensure smooth execution across functions.



Ridhi Sawhney
Business Lead

- Handle marketing, brand building, and user acquisition.
- Coordinate customer support, onboarding, and content moderation.
- Develop analytics and growth strategy.

Who's Next?



Sai Ajay
Tech Support

- **Accountant** :Track royalties, subscriptions,platform revenue, tax compliance
- **Legal/IP Advisor** :Draft license agreements and terms of use, IP Rights
- **Tech Support / DevOps**: Maintain server uptime, troubleshoot issues, and handle updates.

Thank you
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