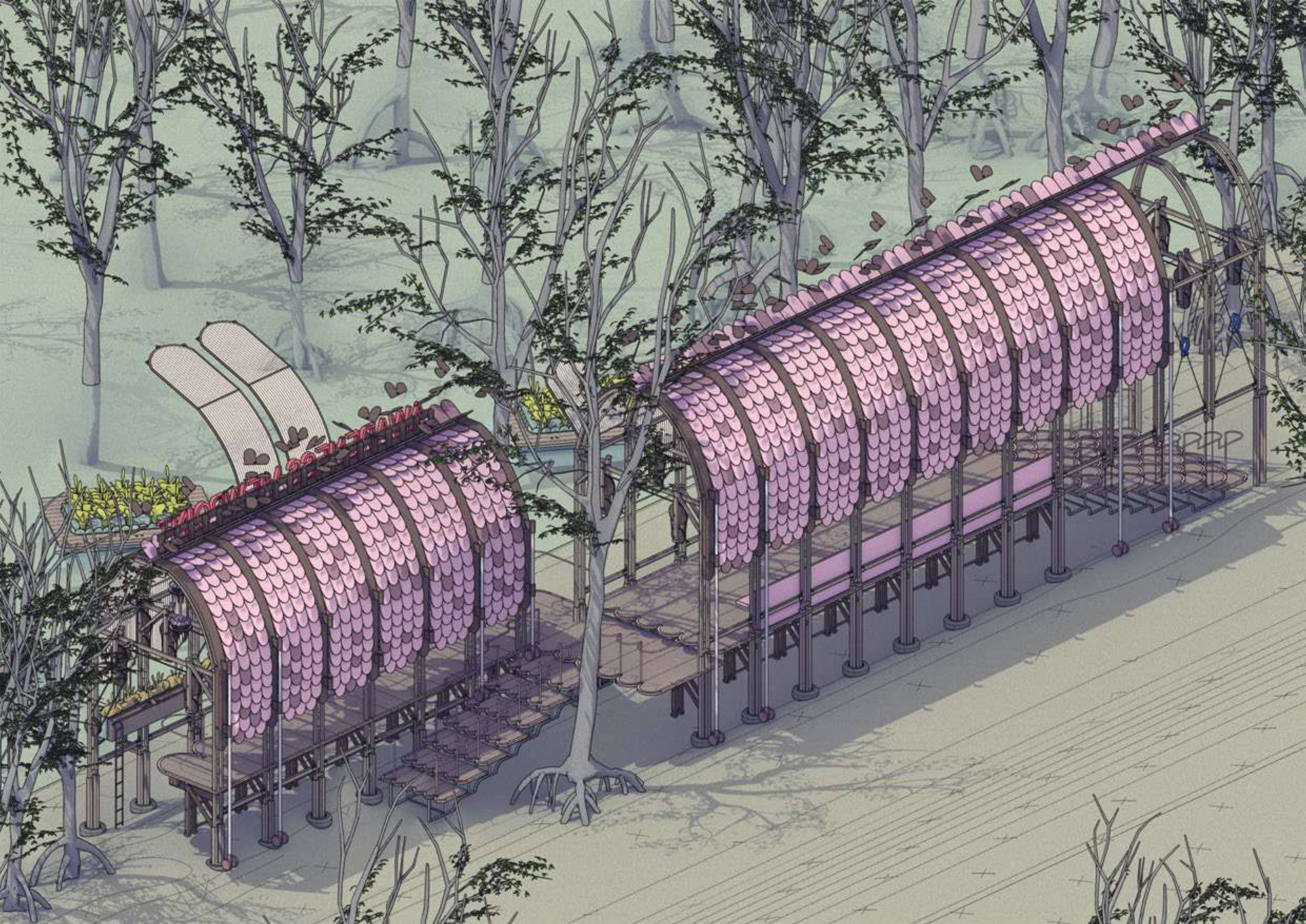




Theoretical Foundation for Design

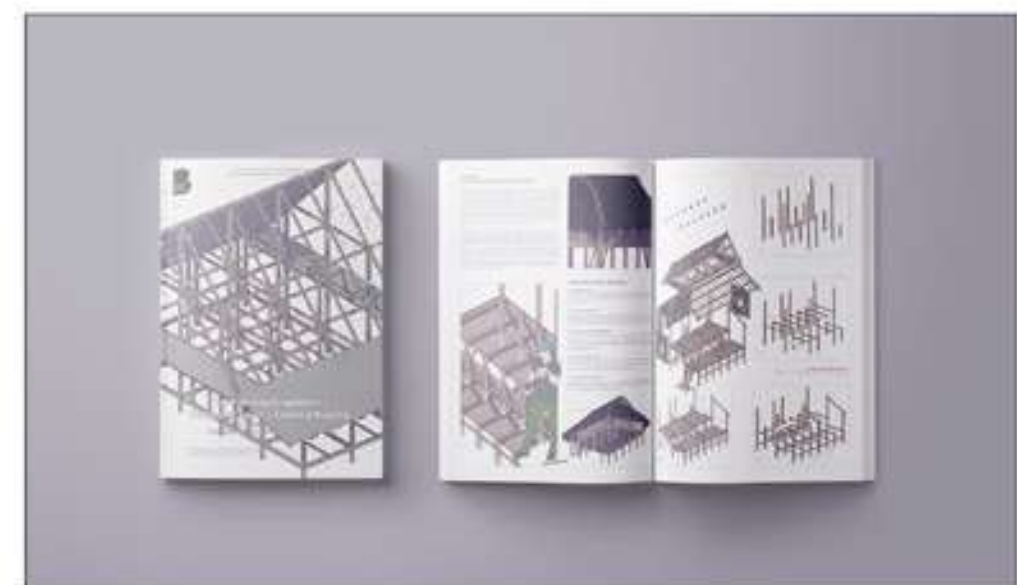
This thesis proposes an architectural model for Singapore that draws on our traditional values of collective care, cooperation, and mutual support to strengthen environmental sustainability through community-led, low-tech building practices.



Polytechnic of Pulau Ubin, Singapore

This proposal envisions an education centre in Pulau Ubin of Singapore that revives the tradition of collective care, cooperation, and mutual support through locally grounded learning and practice.

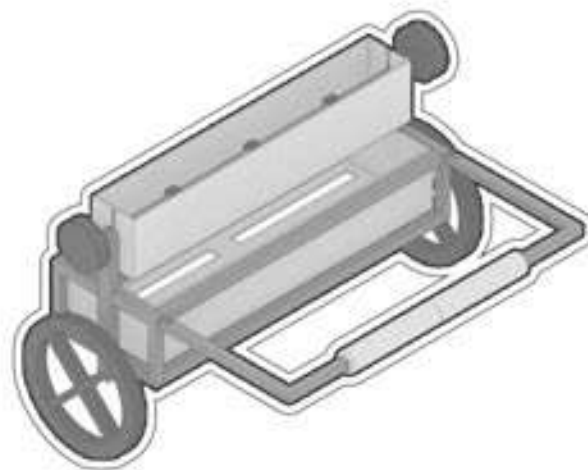
By bridging grassroots knowledge with formal policy, it empowers collective action and sustainable living shaped by citizen's participation rather than the current top-down regulation.





Urban Refuge (Sungei Buloh)

Designing a mobile green corridor to reconnect fragmented habitats, inspired by HDB void decks as multifunctional community spaces.

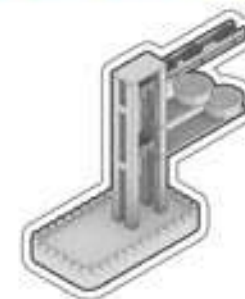


Kampong Restoration (Mandai)

Reviving kampong farming practices with a manual compost-fertiliser system to enrich soil and support wetland flora.

Extracting Artefacts: Selected Sites

The artefacts will draw inspiration from four sites in Singapore, addressing their environmental and cultural challenges through contextual designs



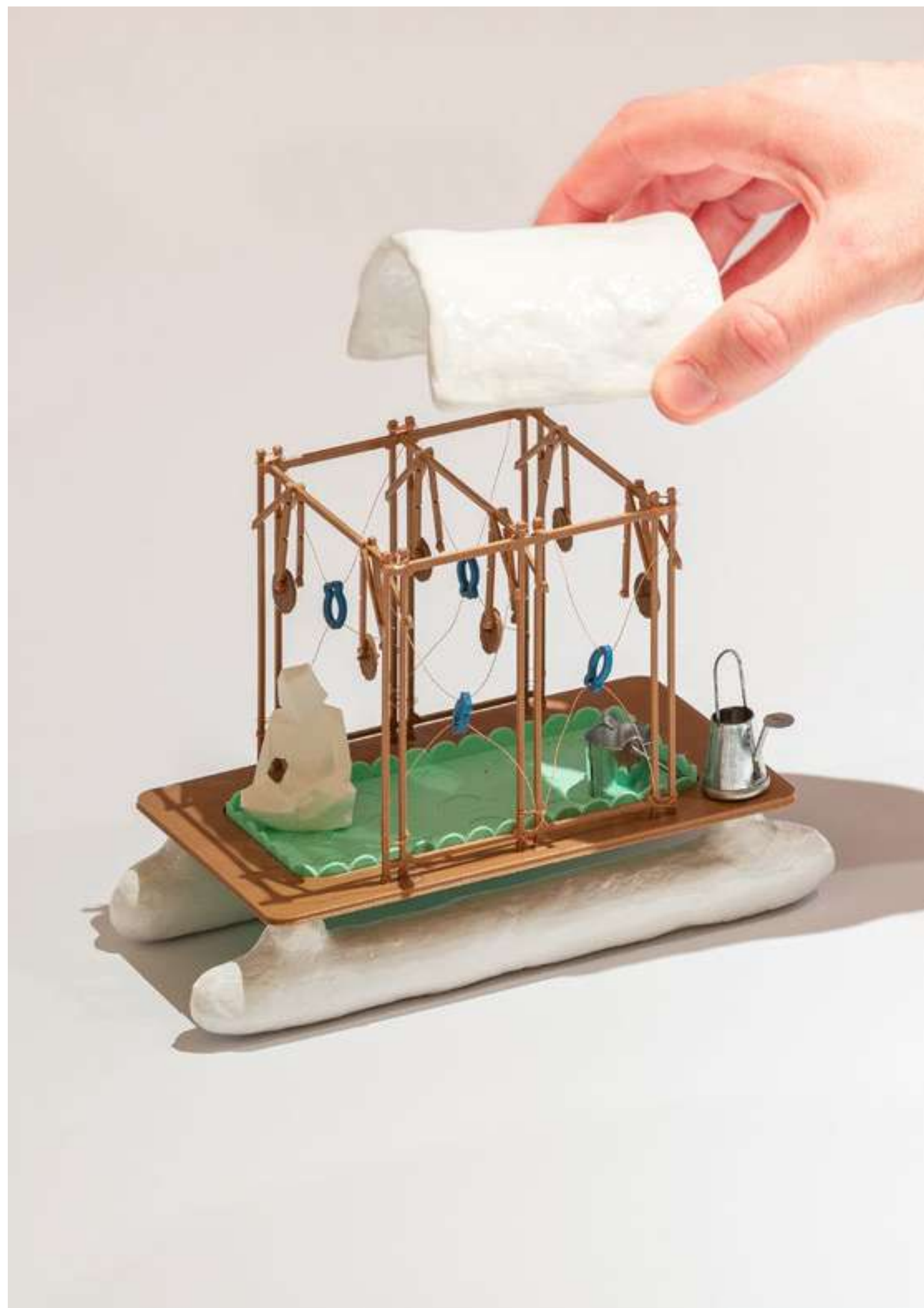
Ceremonial Rainwell (Pulau Ubin)

Reimagining kampong wells with a participatory rainwater redistribution system to combat soil erosion and support vegetation growth.



Kelong Nursery (Long Island)

Adapting tidal-responsive kelong structures to create habitats for seagrass and marine life using biodegradable materials for ecological renewal.

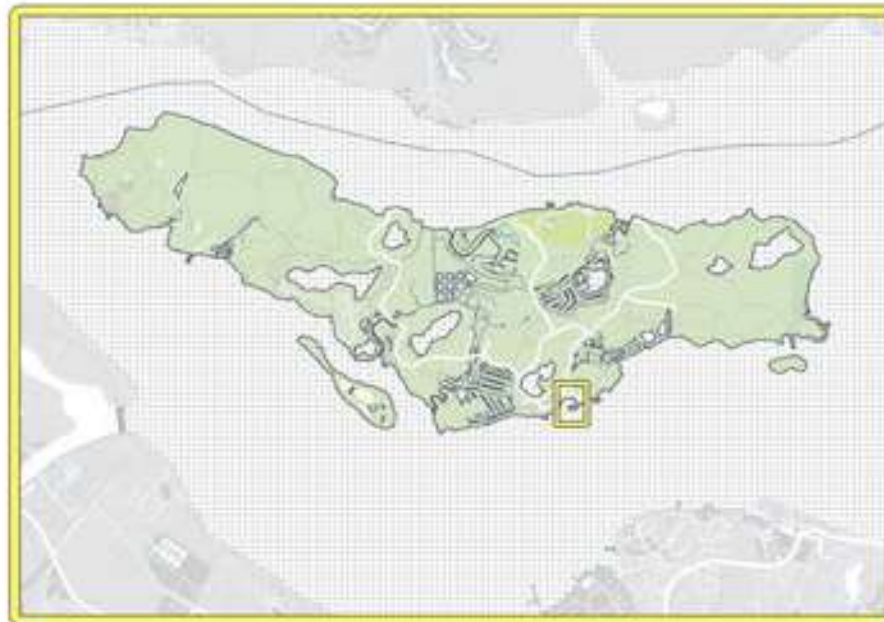




Cultural Context of Ubin (Community / Low-Tech Heritage)

Pulau Ubin's Kampong heritage reflects resourcefulness, simplicity, and community-based problem-solving.

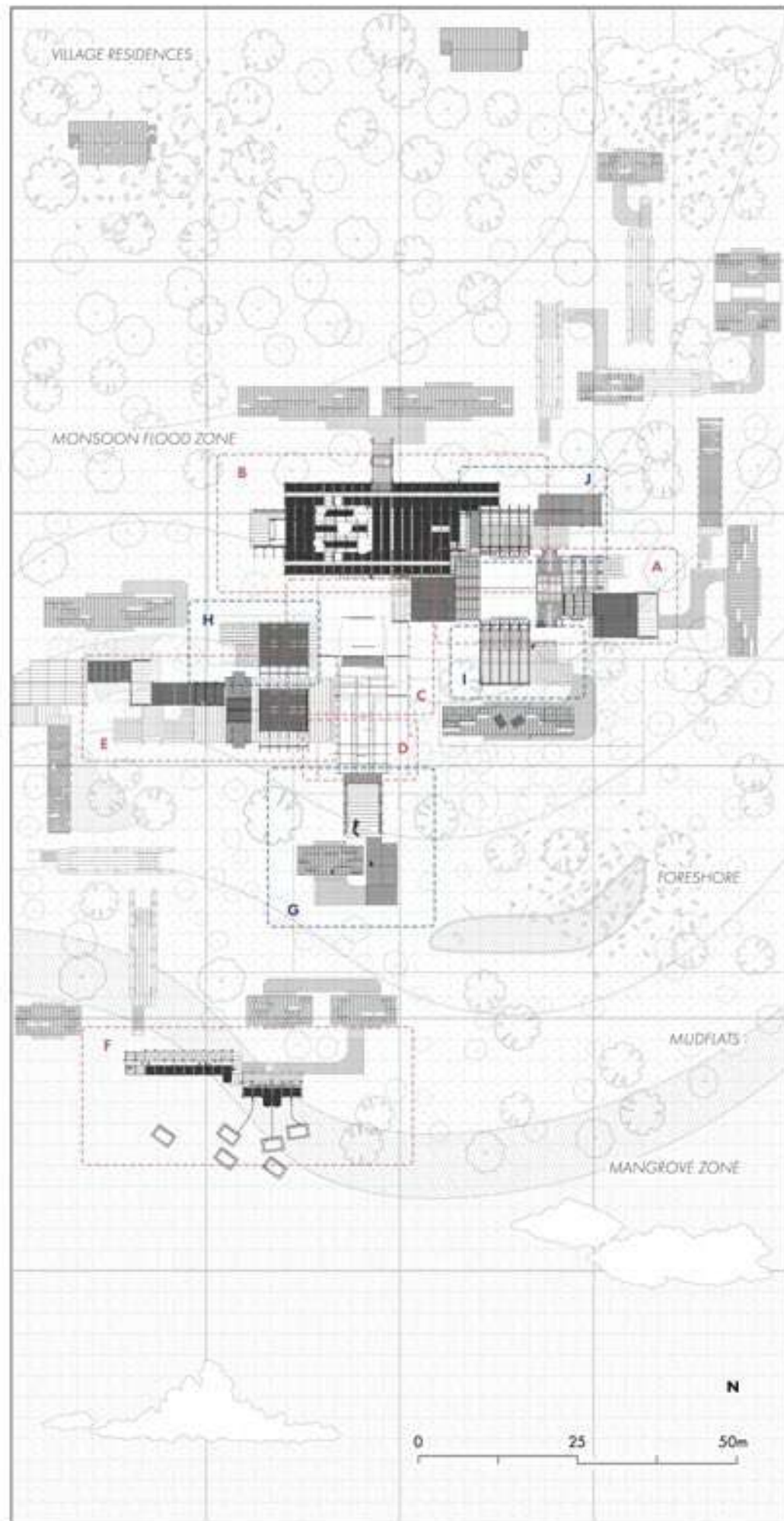
Its traditional timber structures and low-tech practices inspire the project's participatory framework, blending cultural preservation with innovative, low-impact solutions to foster collaboration and environmental stewardship.



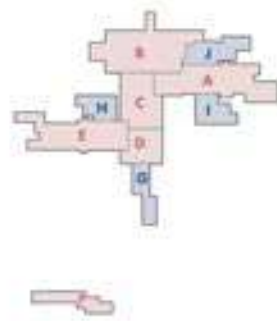
Commerical, Nature, Residential Heritage

The site's intersection of commercial areas, floating kelong, mangroves, and Kampong settlements offers a rich yet vulnerable context, blending livelihoods, ecology, and heritage while facing overtourism and habitat degradation.





COMMERCIAL DISTRICT
>



Proposed Urban // Site

programmatic mass

A. Welcome Exhibition:
≈350sqm

B. Ceramics Workshop:
≈500sqm

C. Archival Room:
≈180sqm

D. Harvesting Studio:
≈250sqm

E. Lunch Garden:
≈300sqm

F. Coastal Pavilion:
≈70sqm

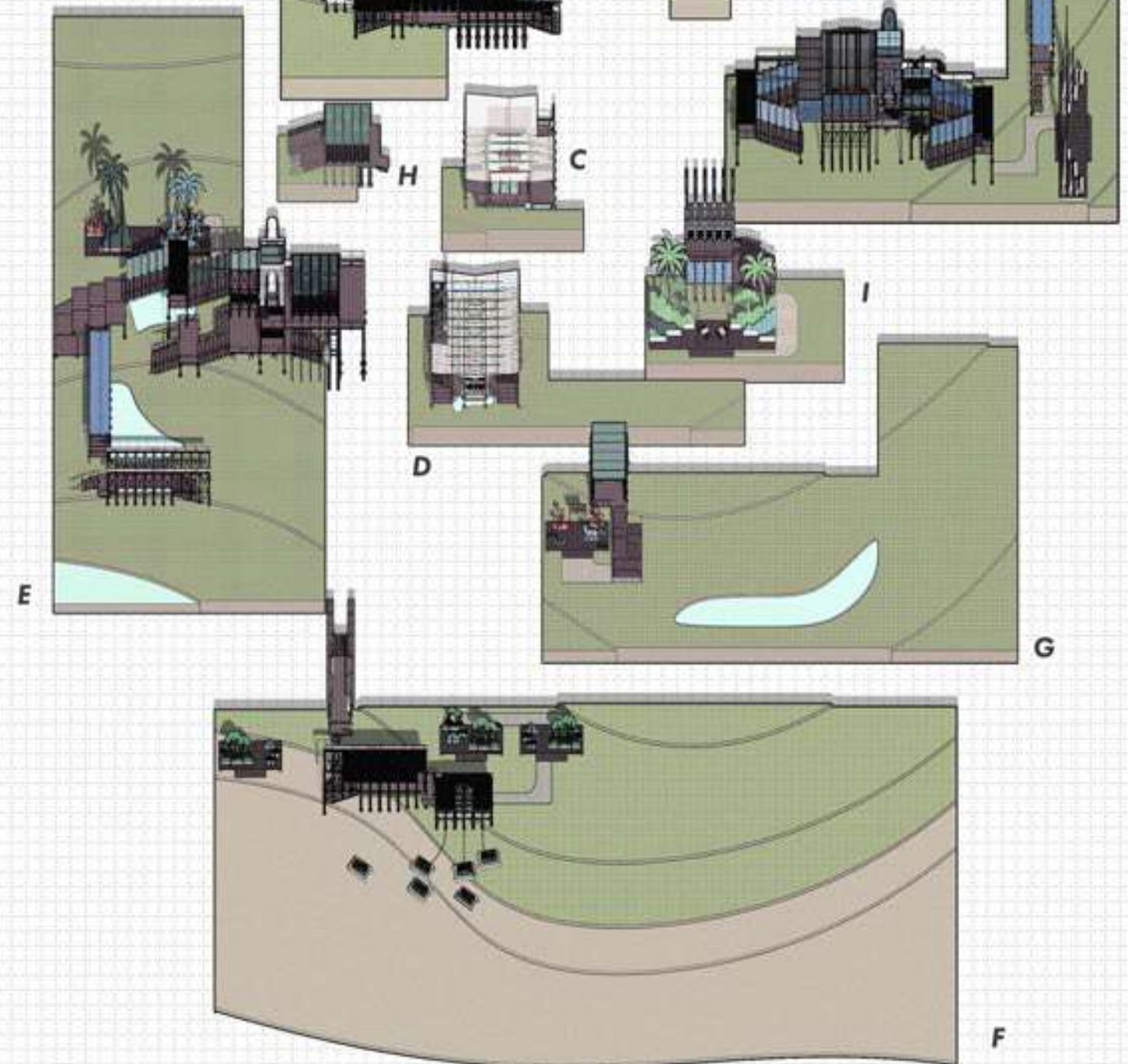
G. Habitat Corridor (Node):
≈110sqm

H. Kampung Market (Node):
≈70sqm

I. Flower Courtyard (Node):
≈65sqm

J. Flower Forum (Node):
≈110sqm

TERRAINS DEFINES THE
FORMS



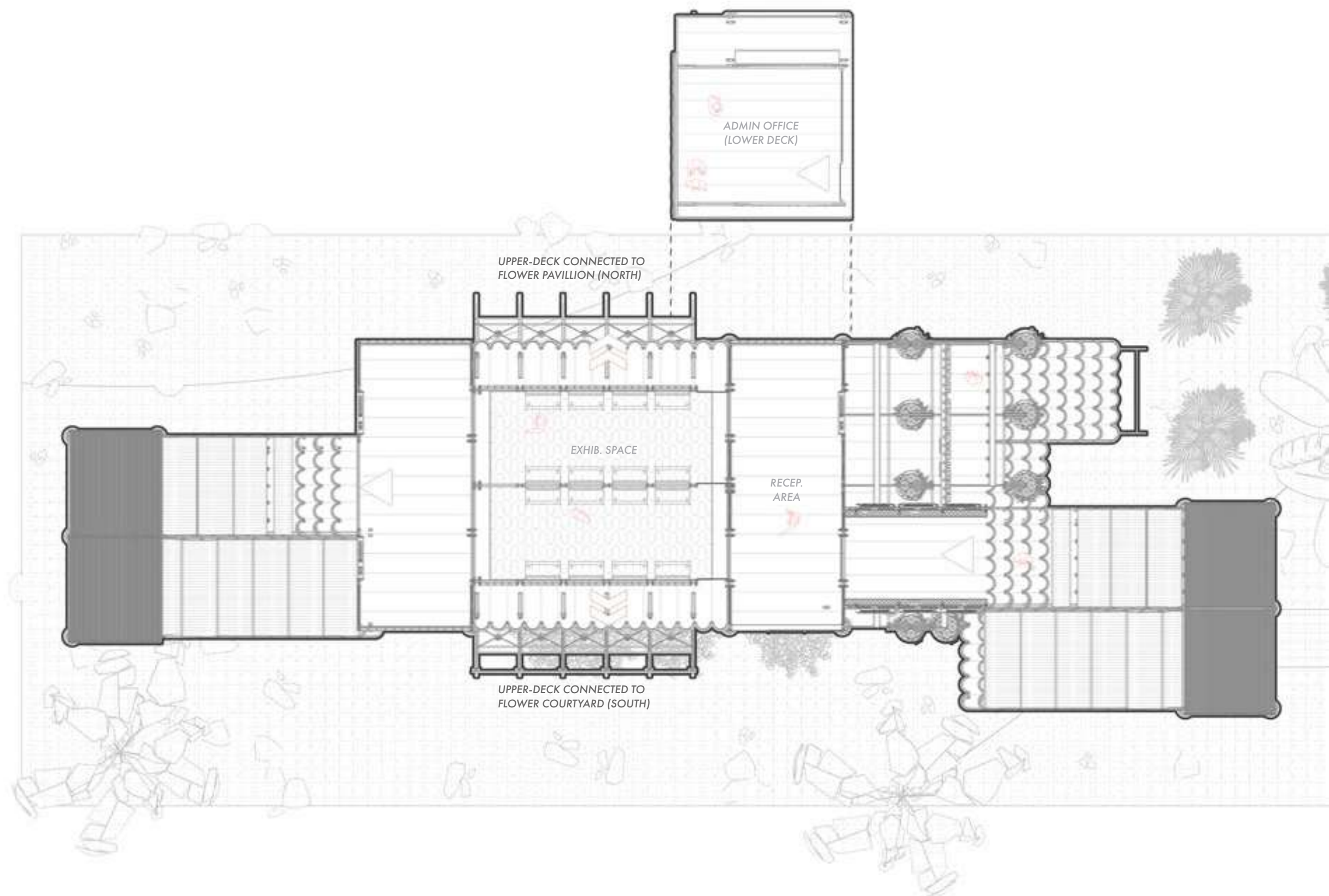


Welcome and Cultural Orientation Hub

This programme category forms the cultural and operational heart of the polytechnic, serving as a welcoming gateway, educational hub, and administrative centre.

Together, these interconnected spaces embody the spirit of collective care by fostering community engagement, preserving vernacular knowledge, and supporting collaborative stewardship, key to revitalising the kampong ethos within a contemporary framework.





WELCOME & EXHIBITION

Main reception and gathering node with cultural orientation displays, showcasing the island's evolving relationship with climate and community.



Kampong Entryway



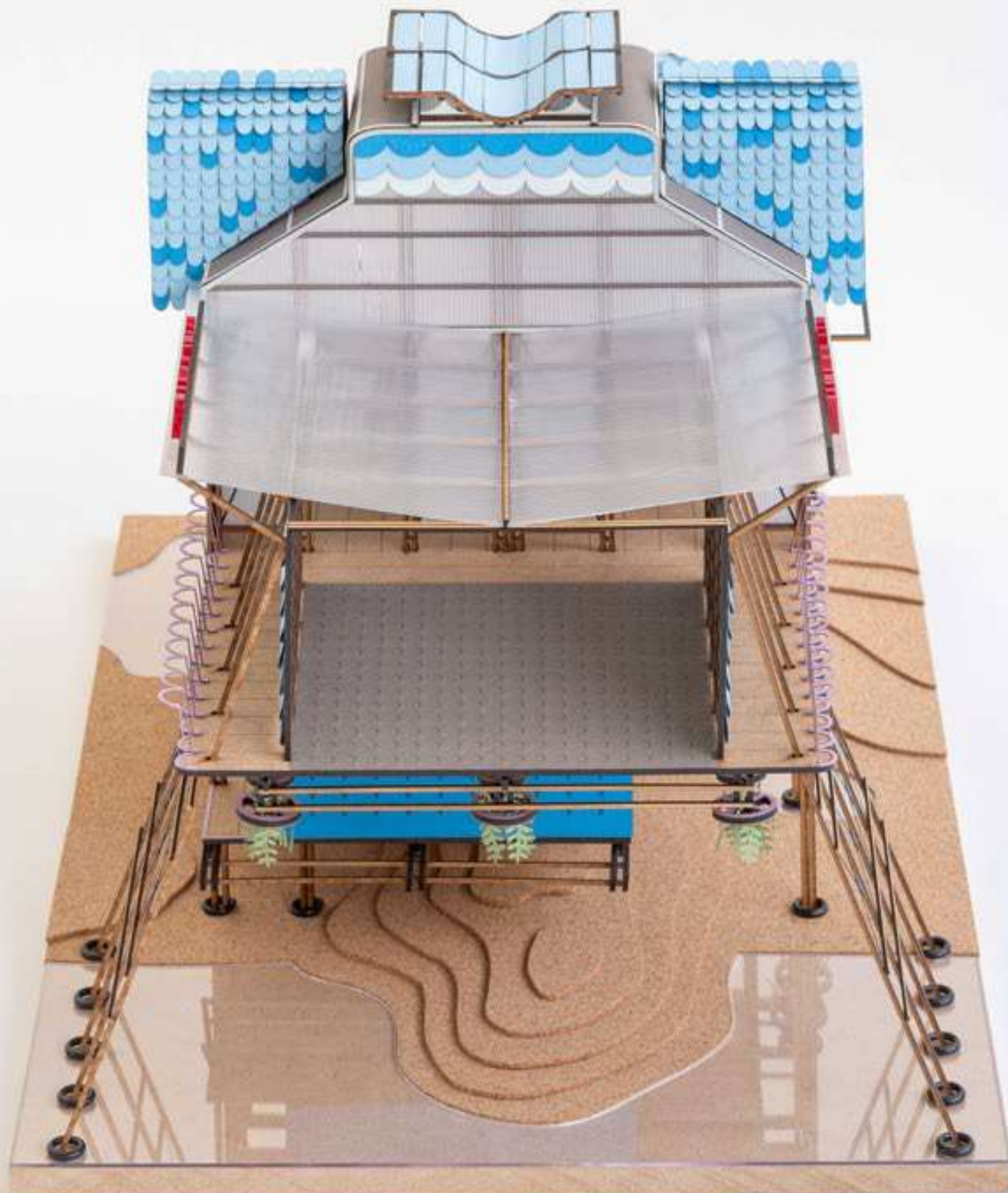
Drawing inspiration from the kampong's entryway, which traditionally served as a vital threshold for social gathering and neighborly exchange. By acting as the main reception and cultural gathering node, it revives this sense of place-making and communal welcome.

The hub's cultural orientation displays echo the kampong's role as a living archive where stories, practices, and seasonal rhythms were shared orally, helping visitors appreciate the island's evolving relationship with climate and community before entering deeper into the polytechnic.

Kampong Entryway



Playful yet symbolic element that invites visitors to engage physically and socially, echoing the informal gathering spots of traditional kampongs where communal leisure fostered connection and joy.



Vernacular Practices Gallery

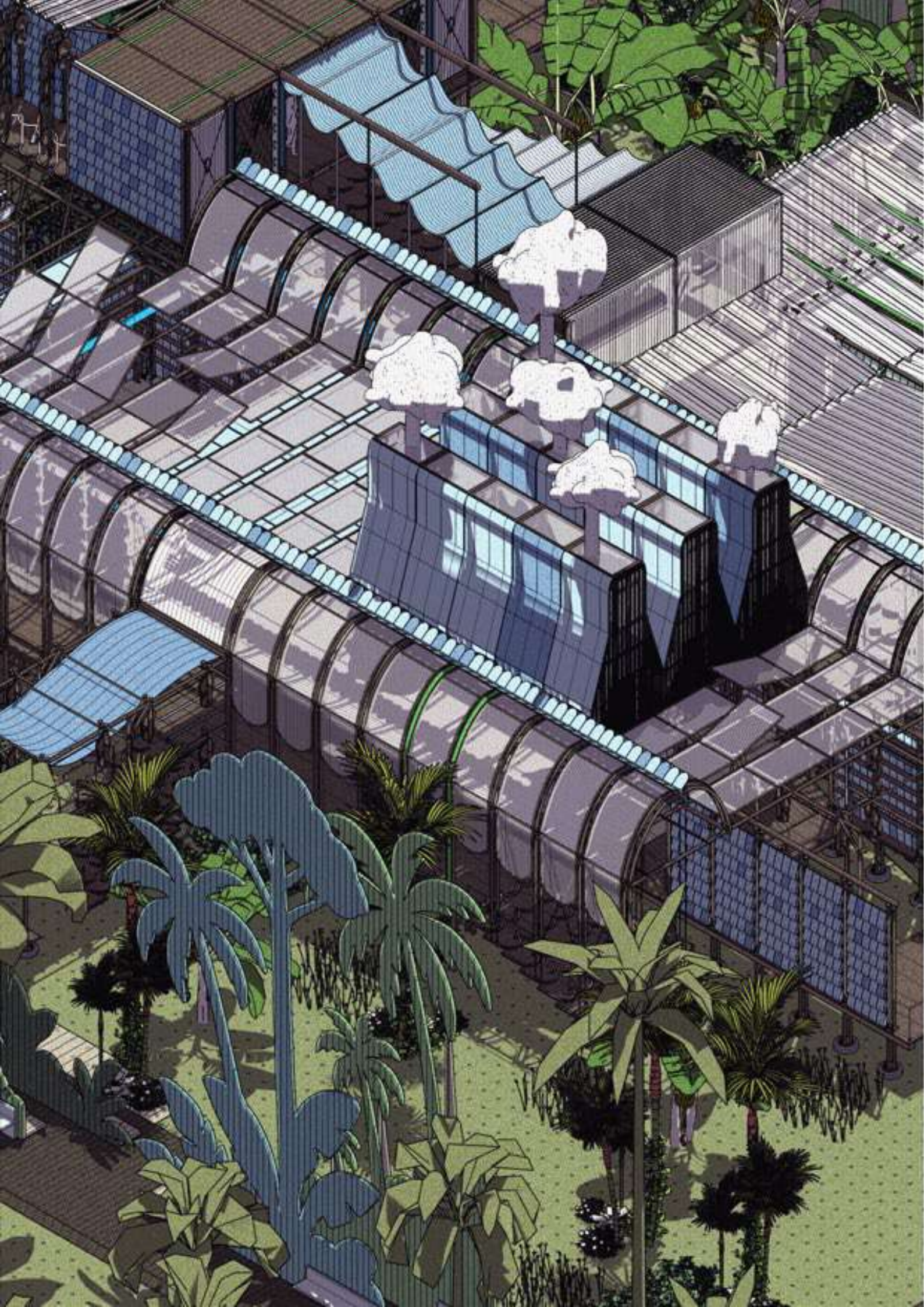


By showcasing adaptive vernacular techniques and participatory climate strategies, it revives the tradition of collaborative learning and material culture as a foundation for resilience.

The rotating installations embody the dynamic and evolving nature of kampong life, never static, always adapting to environmental and social changes.







Island Clay Workshop

A skills transfer hub and micro-economy incubator rooted in repair, material heritage and shared ecological care. This educational production space brings together local residents such as housewives, bakers and retirees in a spirit of gotong royong where collective effort and mutual support guide the crafting of roof tiles from island-sourced clay. These tiles are used in polytechnic construction, kampung repair or informal sale, fostering community resilience through shared knowledge and cooperation.

STUDENTS OF THE POLYTECHNIC



Housewives

Engaged in preserving traditional crafts, housewives learn to create roof tiles, contributing to local heritage and supplementing household income.



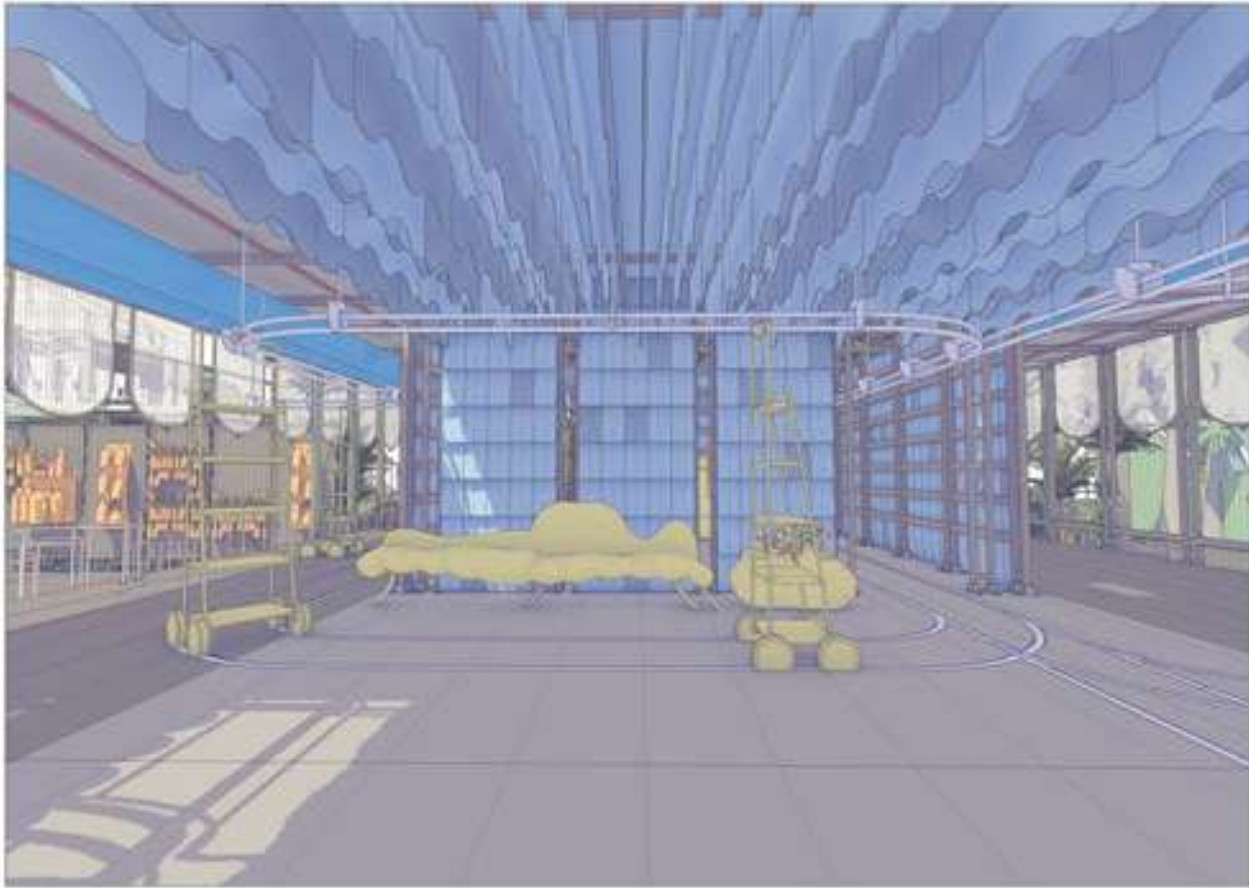
Hawkers (Street-Food Sellers)

Hawker cooks expand their skills beyond food by participating in clay production, fostering a deeper connection to community and sustainable practices.

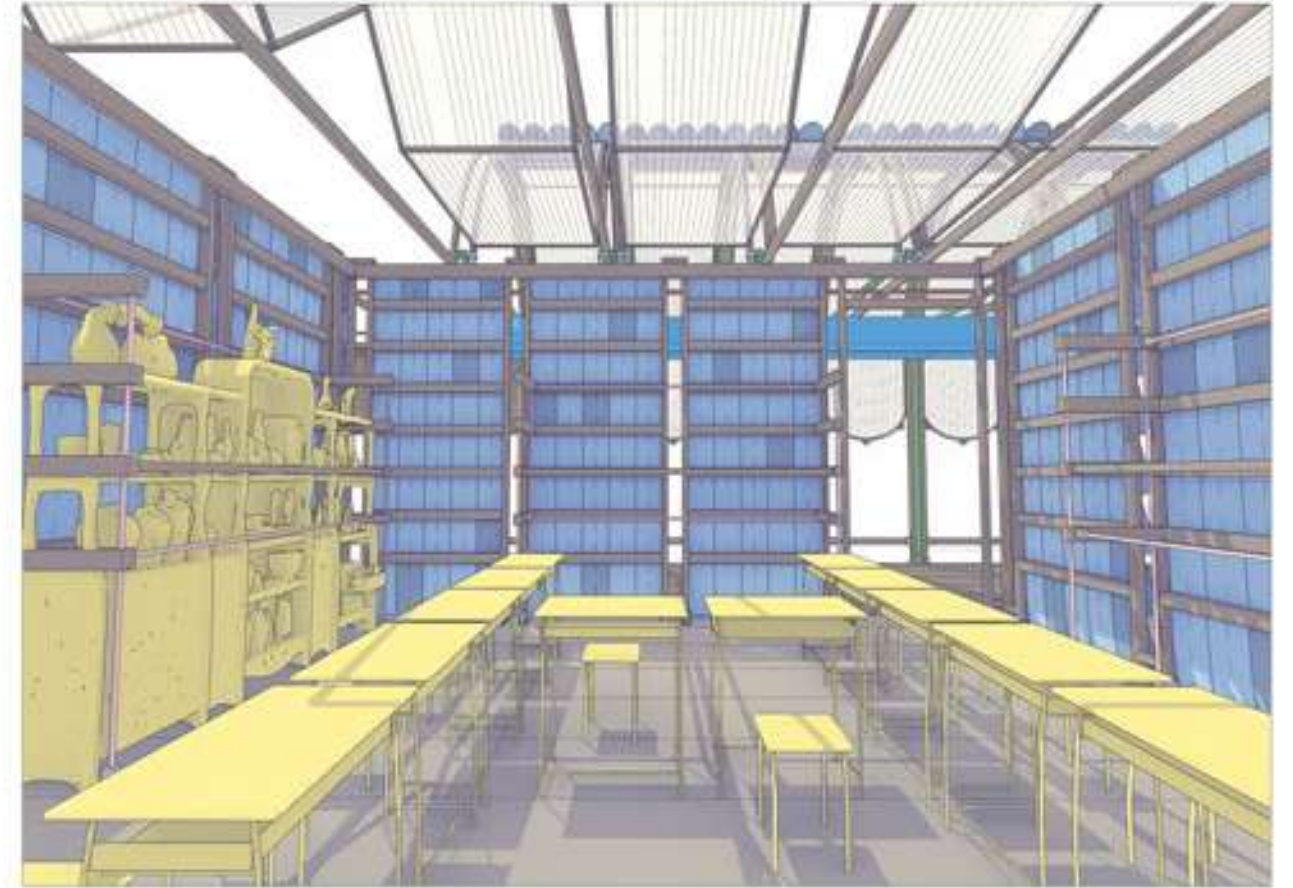


Retirees

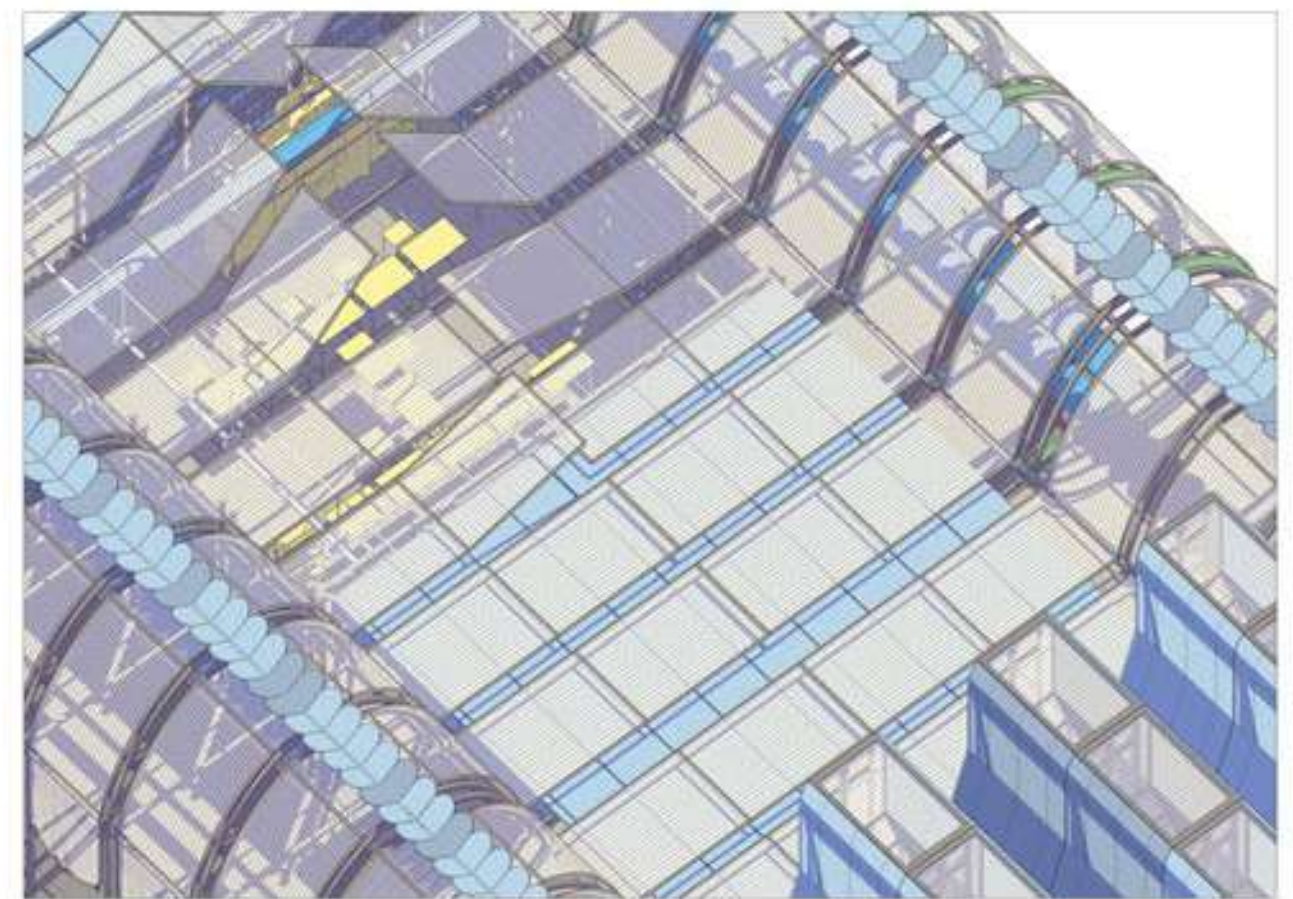
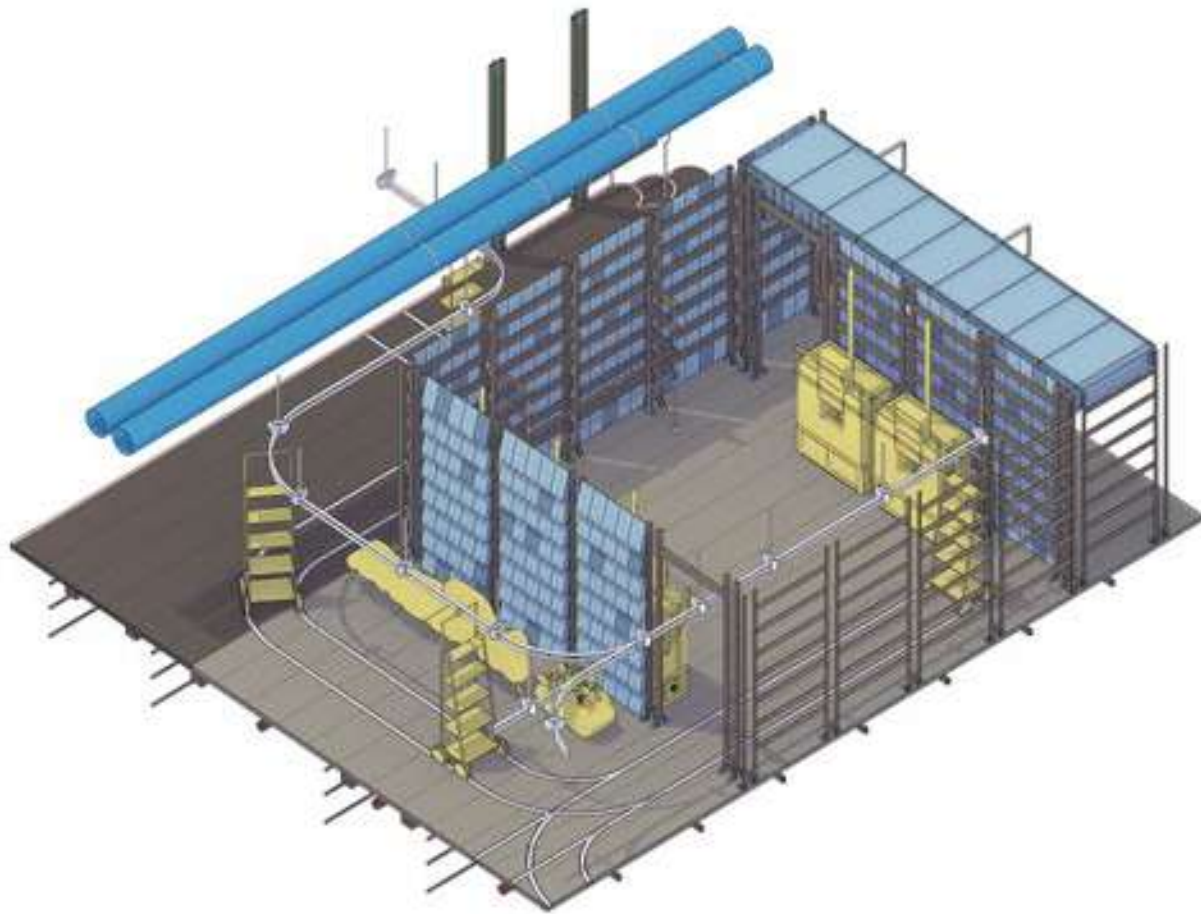
Retirees share their life experience while acquiring new hands-on skills, staying active and strengthening intergenerational knowledge transfer.



Embedded Track Systems for Clay Transport



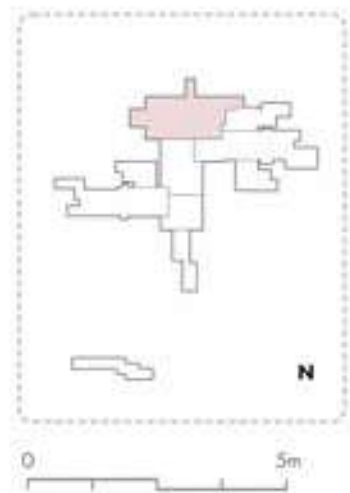
Operable Roofs





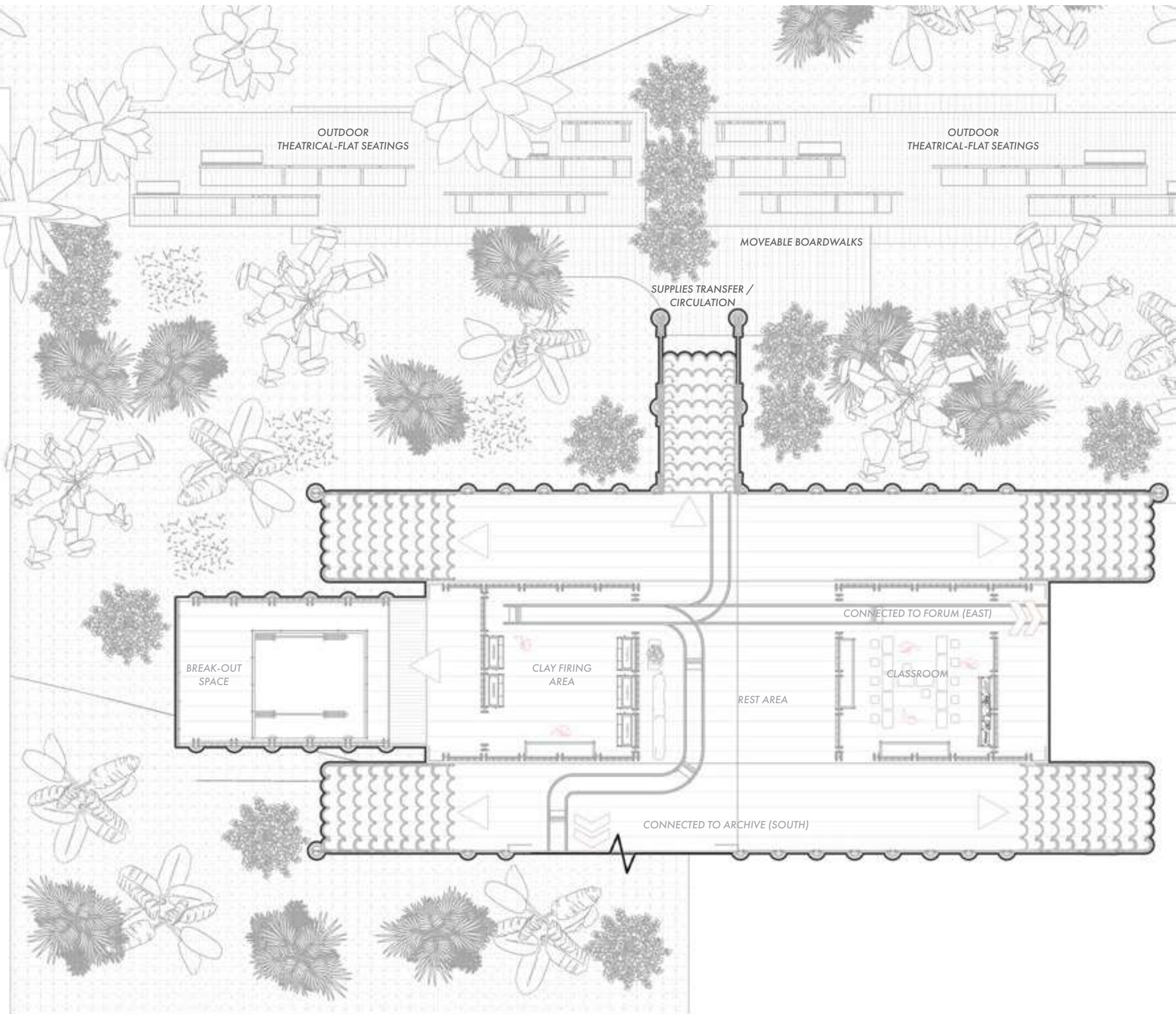
Island Clay

Hands-on workshop where traditional techniques using island clay and other recycled or natural materials are explored; displays contrast decaying and revitalised kampong roof designs, integrating heritage craftsmanship with modern sustainable practices.



CERAMICS WORKSHOP

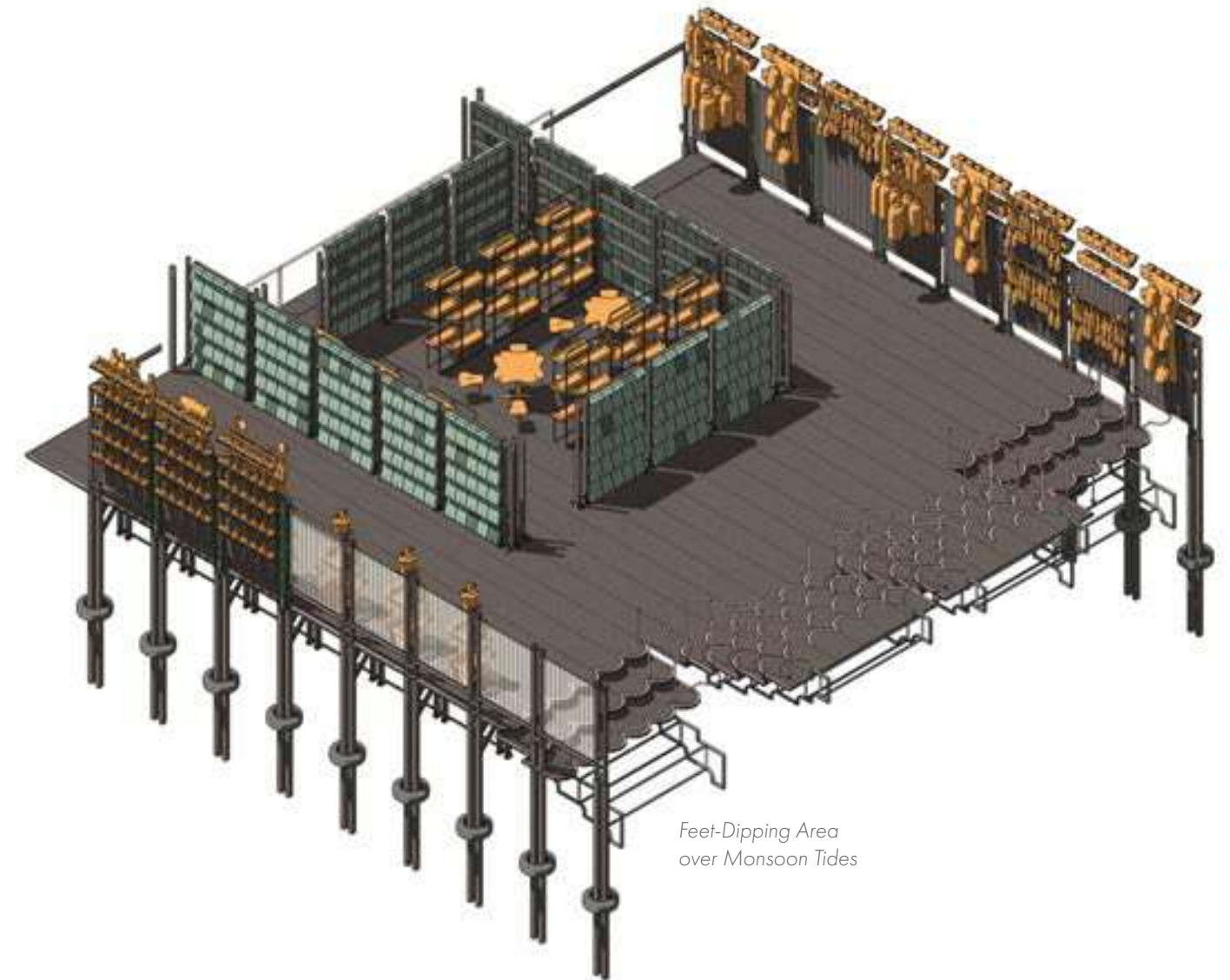
Skills transfer hub and micro-economy incubator rooted in repair, material heritage, and shared ecological care. Teaches local residents such as housewives, bakers, and retirees to craft roof tiles from island-sourced clay for use in both polytechnic construction and kampong repair or informal sale.





The Monsoon Archive Space

Reconnects vernacular knowledge with community participation by preserving manuals, oral histories, seeds, and materials for hands-on learning. Located beside the ceramics workshop, it addresses knowledge loss and promotes active reuse. Secured tidal-edge steps engage users with monsoon cycles, grounding education in natural rhythms. Beyond a static archive, it fosters resource-sharing and collaboration, supporting knowledge preservation, ecological stewardship, and social cohesion central to the polytechnic's mission.



Feet-Dipping Area
over Monsoon Tides

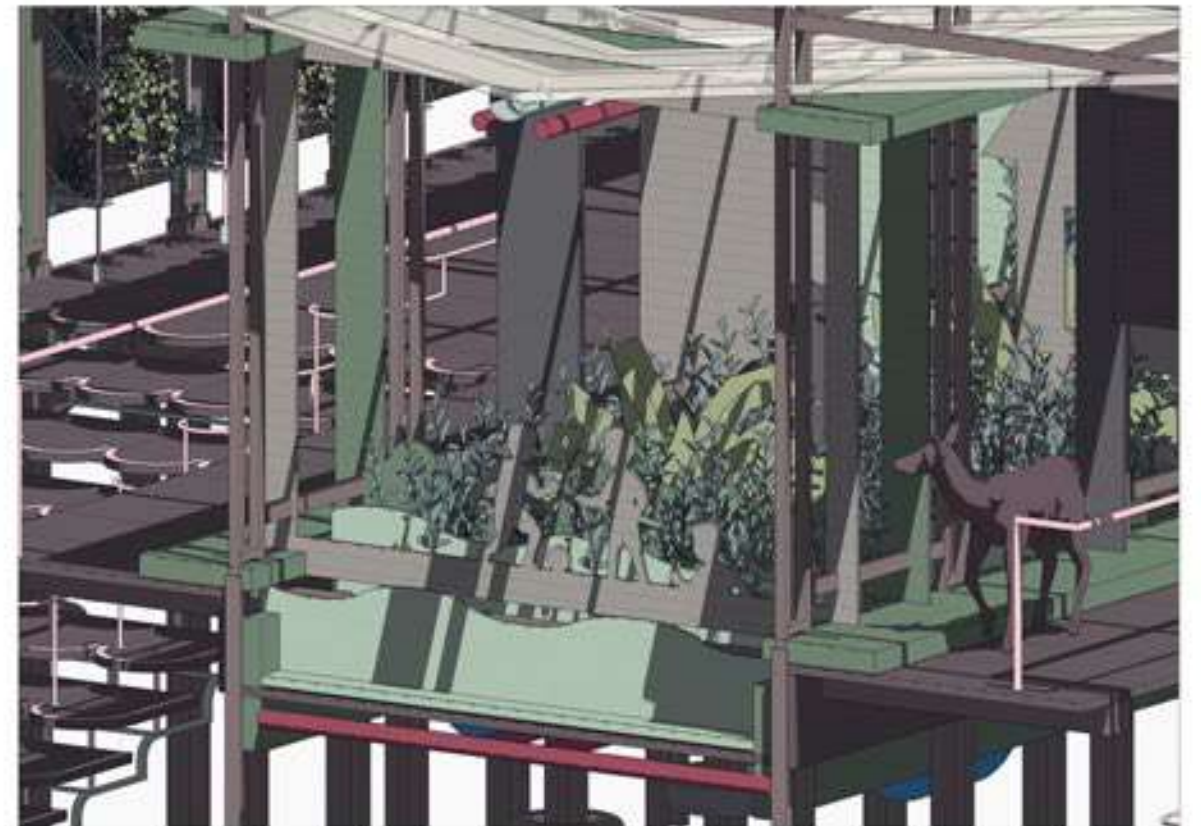
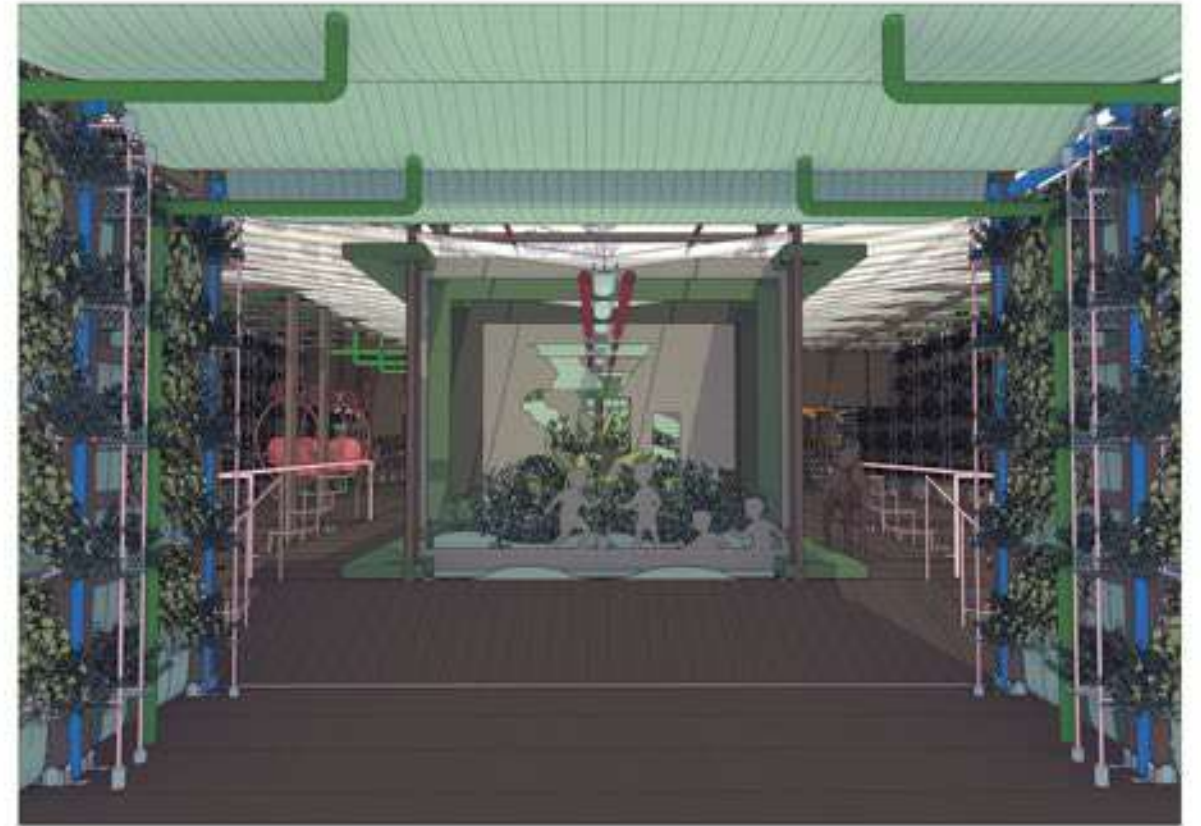


Monsoon Tides



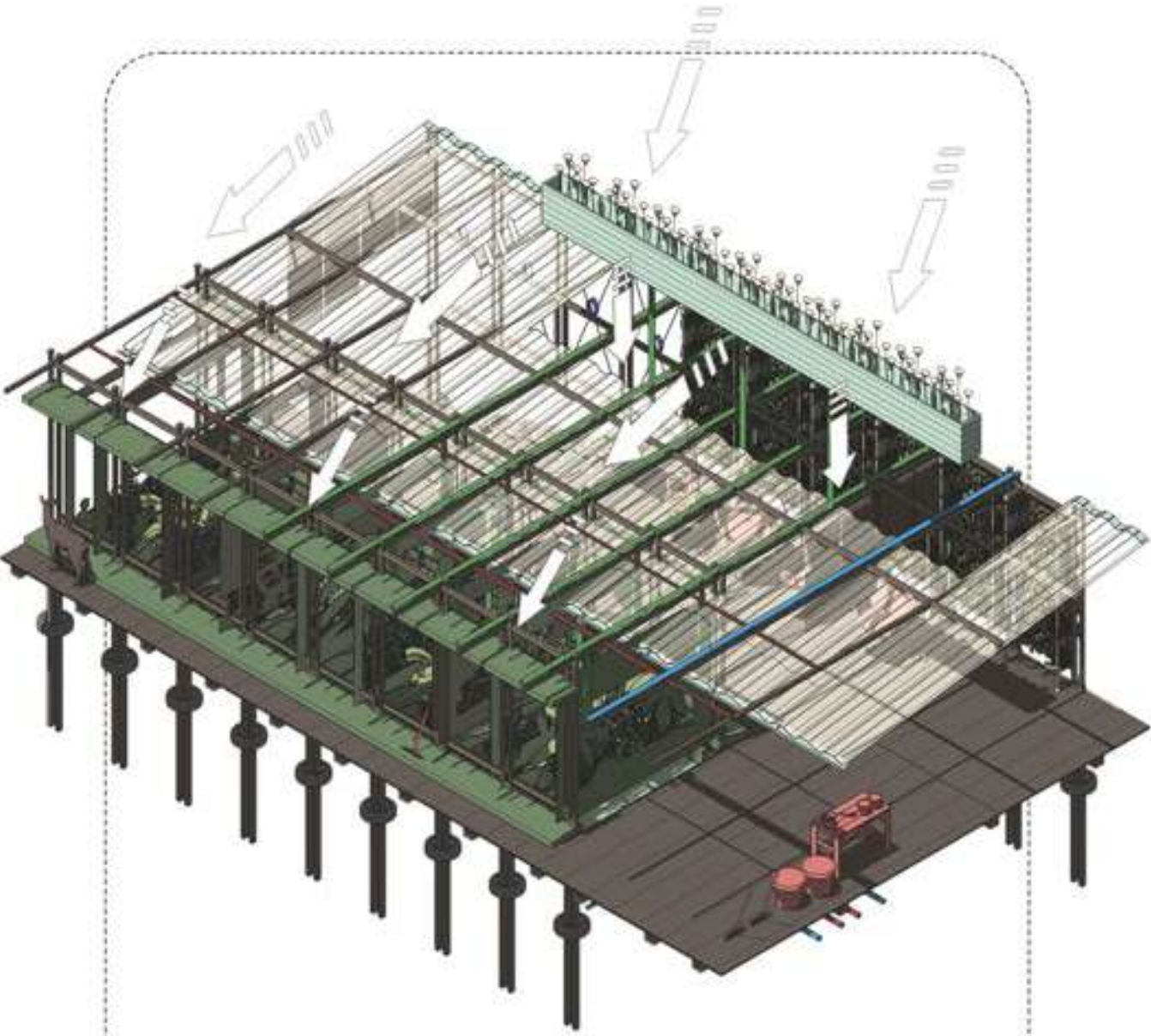
Harvest & Habitat Studio

An interactive studio where kampong values thrive through indoor farming, storytelling, and habitat conservation. Featuring a vernacular-inspired water system that passively filters water, it showcases traditional ecological knowledge. This living archive blends food production, craft, and nature, fostering coexistence with Pulau Ubin's wildlife and strengthening community bonds.



Vernacular-Inspired Water Management

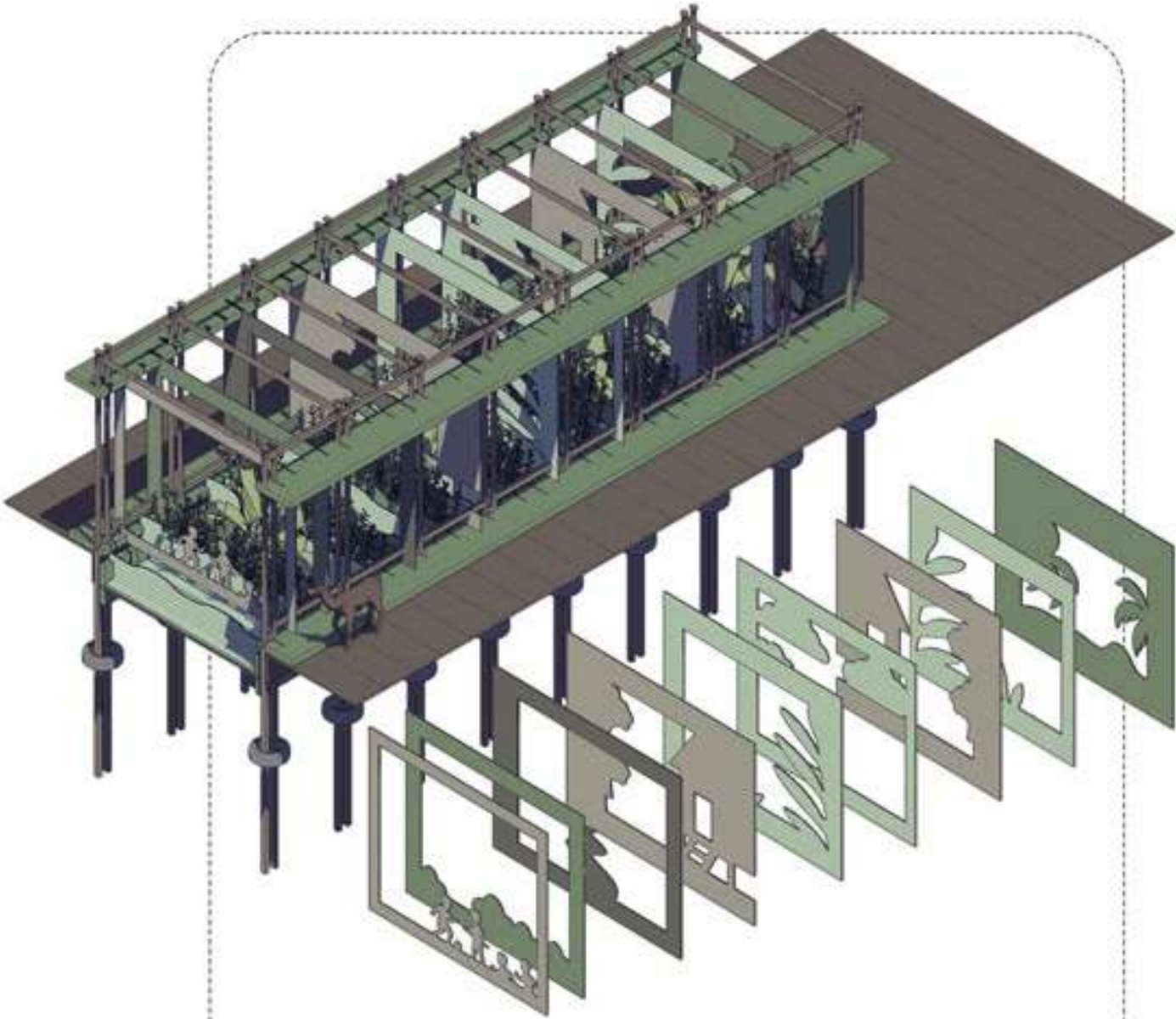
A vernacular-inspired water management system passively filters water within the studio, showcasing traditional ecological knowledge. This system supports sustainable practices by integrating natural cycles and reinforcing the connection between farming and habitat. Natural cycles are demonstrated in real time; encourages hands-on experimentation and dialogue



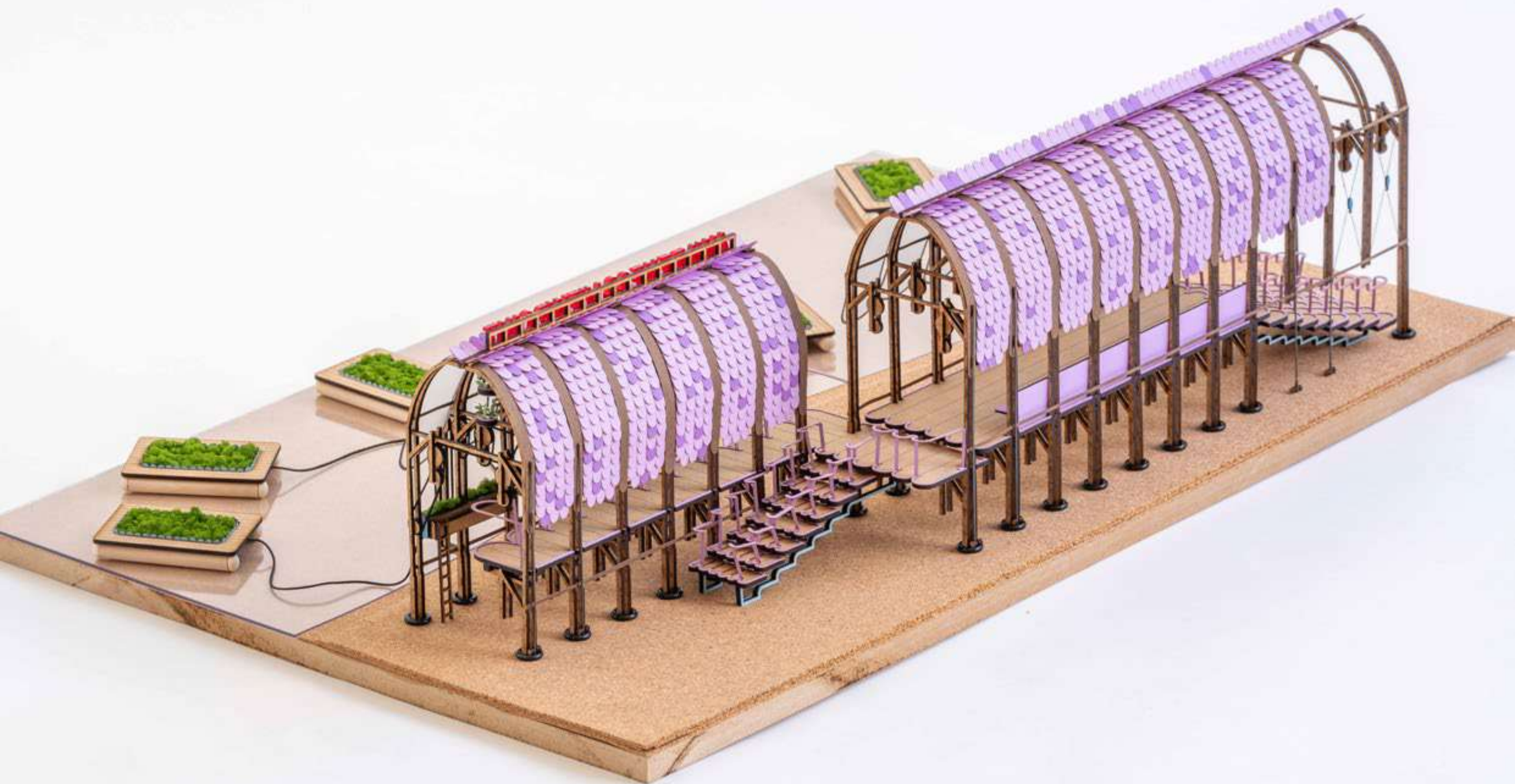
Kampong Water Harvesting
Kampong communities collect and manage natural water resources, reflecting sustainable practices rooted in local knowledge and environmental stewardship.

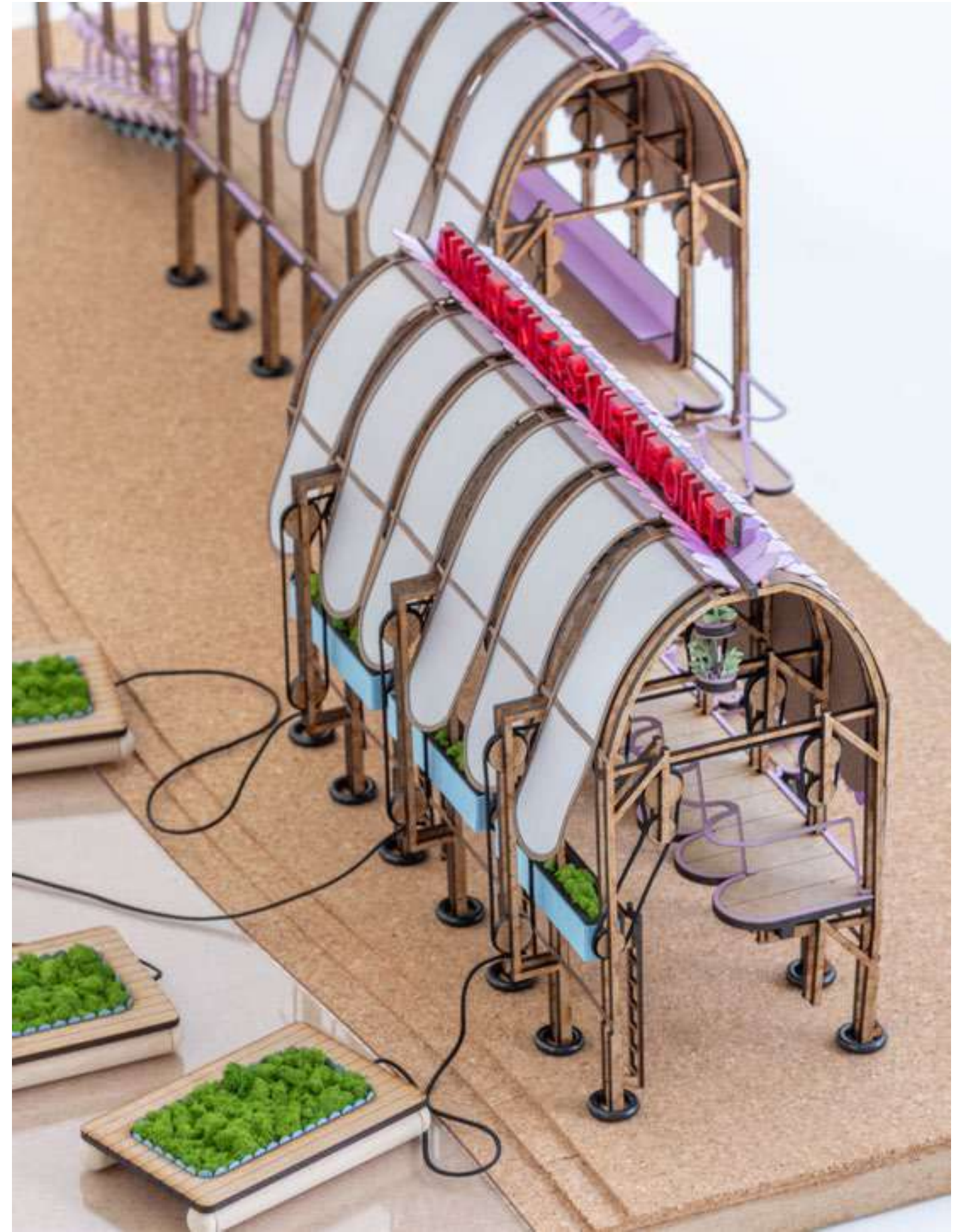
Theatrical Cut-Out Layers

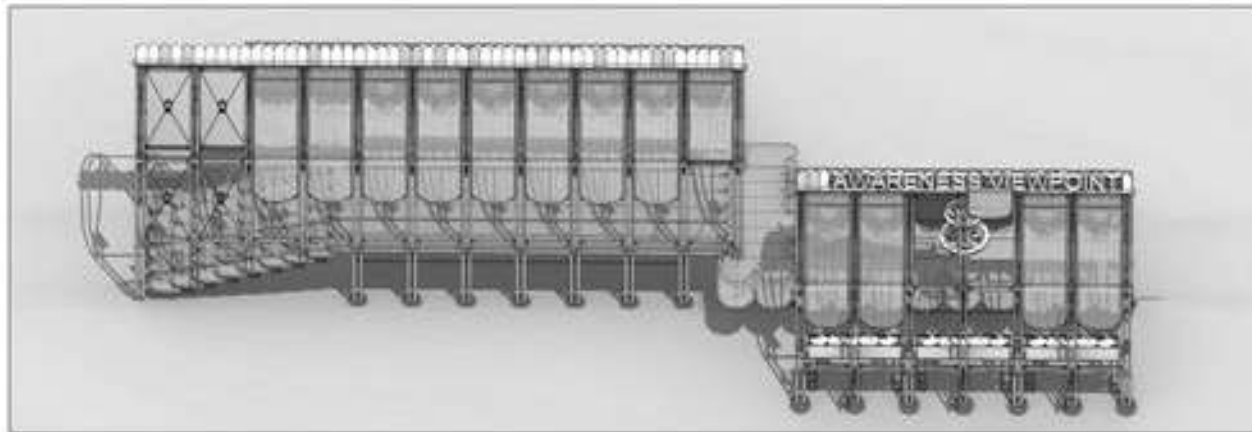
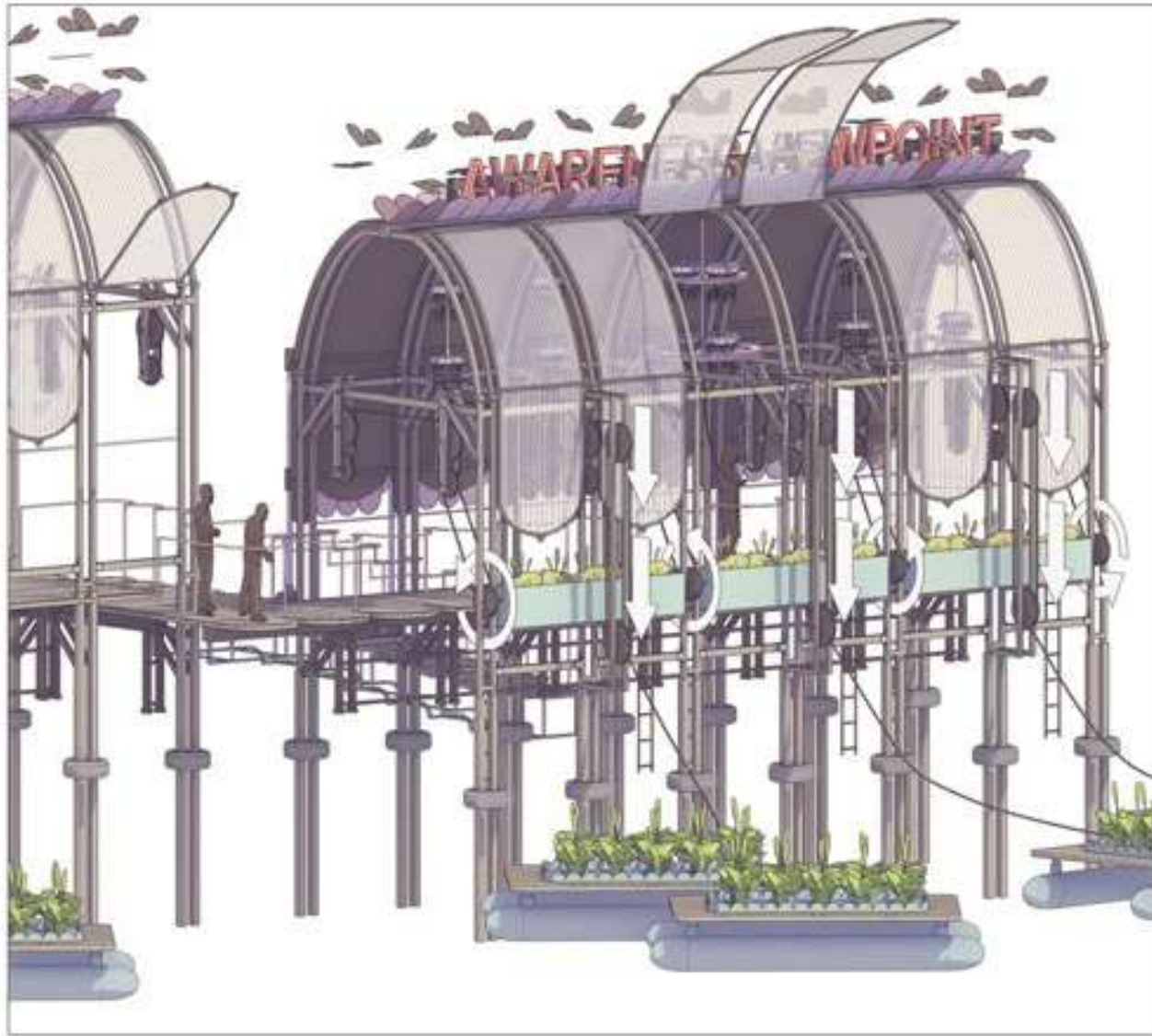
The indoor farm is divided into sections by theatrical cut-out layers, each illustrating historic stories of Singapore's kampong life. These panels create a layered narrative that immerses visitors in cultural heritage while linking ecological practices to the island's communal past.



Stories of Kampong Life
Narratives capturing everyday moments, that highlight the social bonds, play, and communal spirit central to kampong culture and identity.

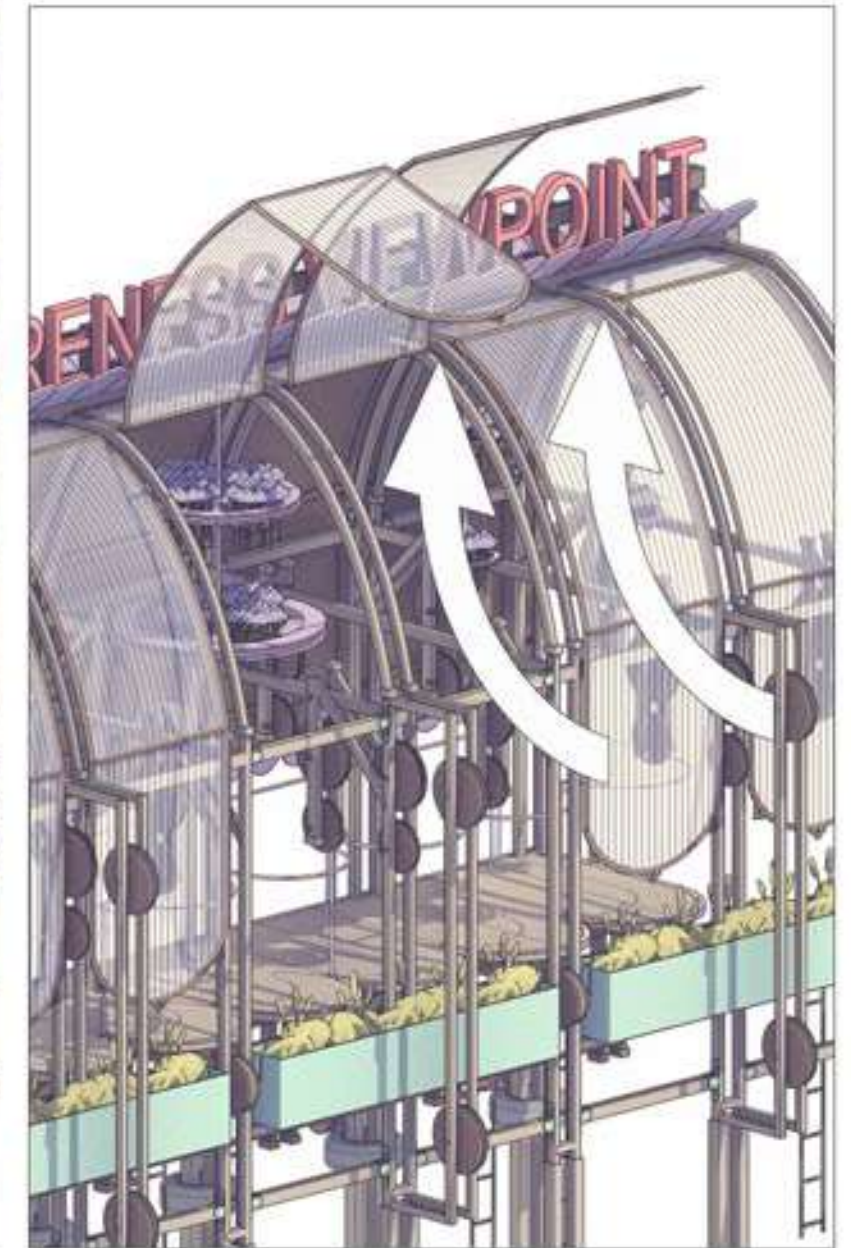






Shades' Material: Upcycled Corrugated Polycarbonate

Sourced from discarded industrial roof panels, old greenhouse cladding, decommissioned bus stops, or temporary event structures. These materials, commonly found in Singapore's urban and rural settings, align with the project's focus on sustainability by reducing waste and repurposing durable, light-diffusing materials.

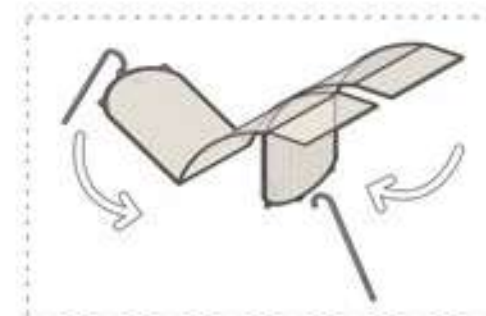
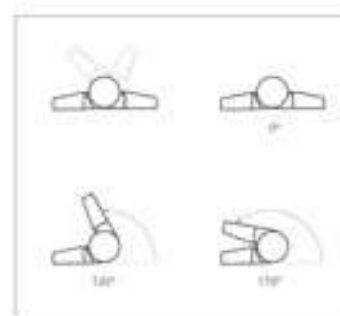


Adaptive-Operable Shades

Responsive to Site Conditions

The operable shades adapts to Pulau Ubin's coastal environment, allowing users to regulate airflow and shading using a hook stick through bottom hem holes. Detent hinges ensure secure, adjustable positioning, enabling passive climate control for comfort and energy efficiency.

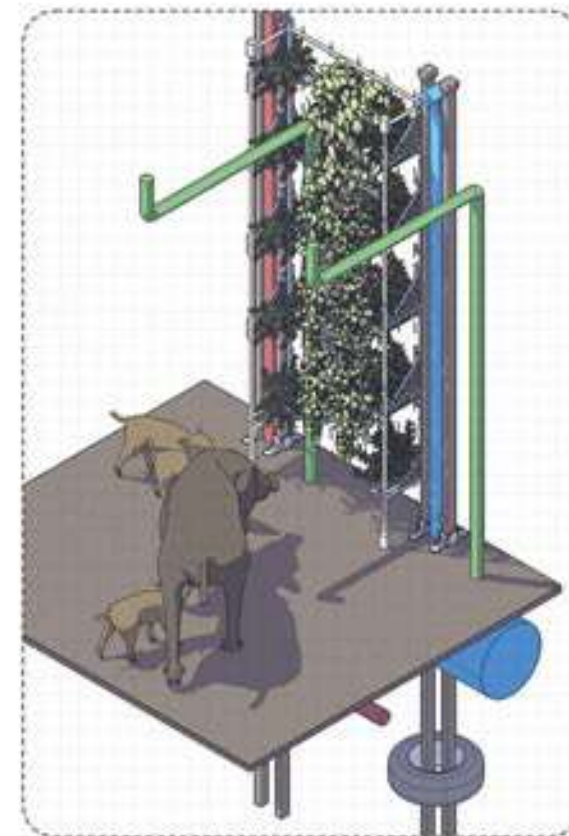
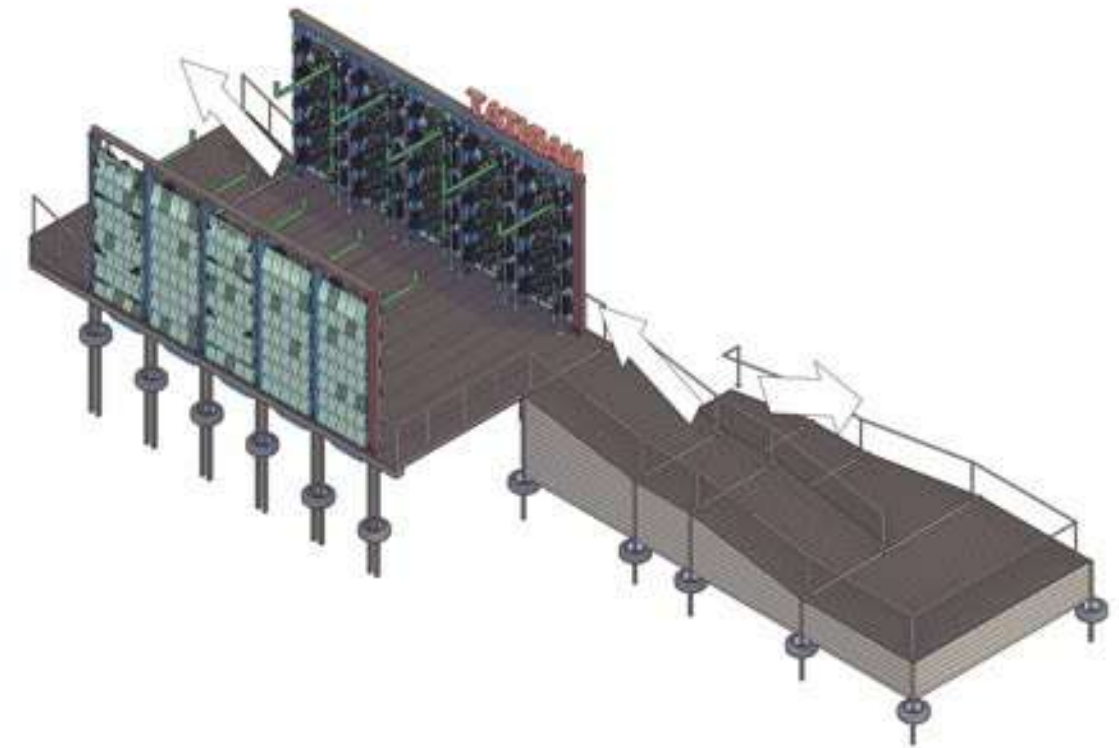
This hands-on, low-tech design reflects Kampong heritage, fostering cultural relevance and user engagement while minimising environmental impact.





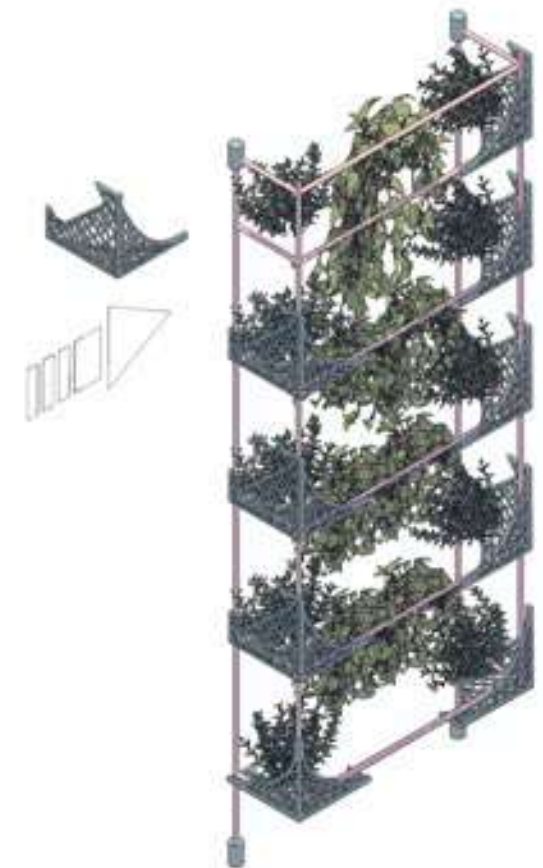
Habitat Corridor

This gently planted ramp creates a seamless passage for both people and wildlife, serving as a quiet space for pause and observation. It nurtures a shared presence that strengthens the connection between humans and nature, fostering care within the campus ecosystem.



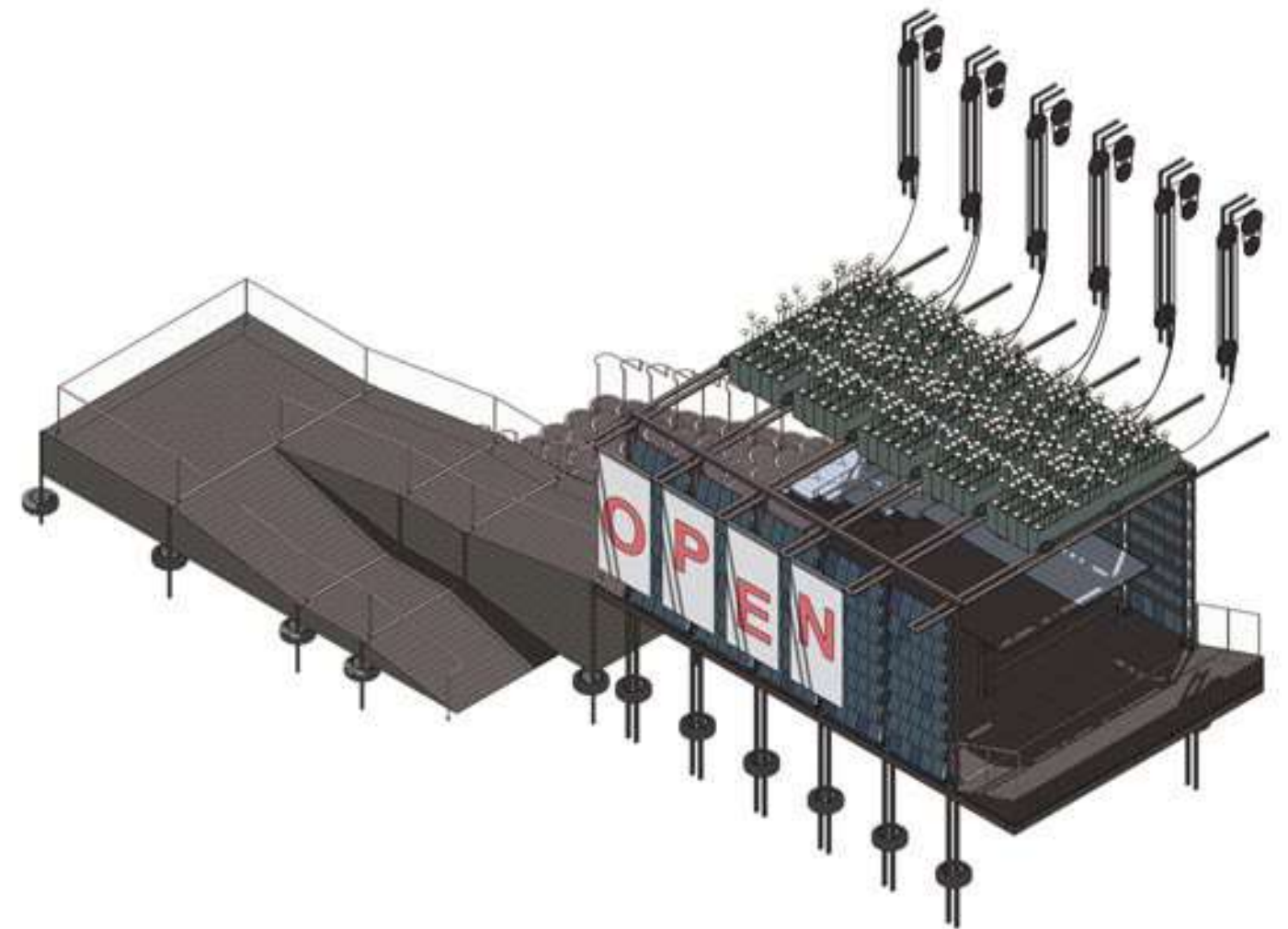
Exposed MEPs

Exposed MEP pipes reveal the building's systems for easy maintenance and educational transparency, enhancing the industrial character while supporting the polytechnic's learning environment.



Green Walls (Animal Friendly)

The green wall, crafted by ceramics students, integrates living plants with handmade ceramic modules, encouraging natural growth and demonstrating the fusion of traditional craft with ecological innovation. This area's green wall provide food for animals.



Flower Canopy Forum

An outdoor stage with a flexible roof, the forum serves as a vibrant platform for storytelling, performances, and community dialogue. It connects creative production with civic engagement, amplifying the voice and life of the campus.



