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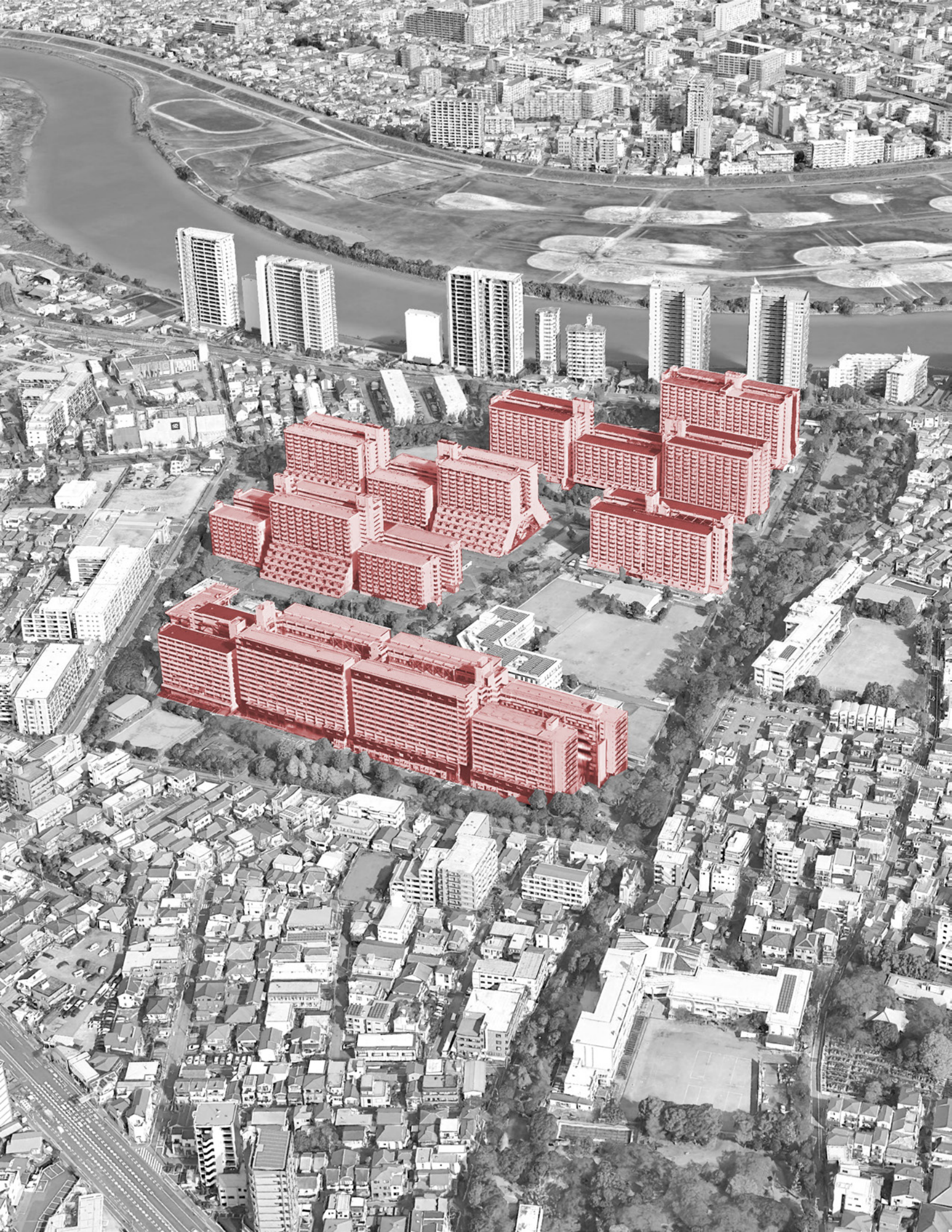
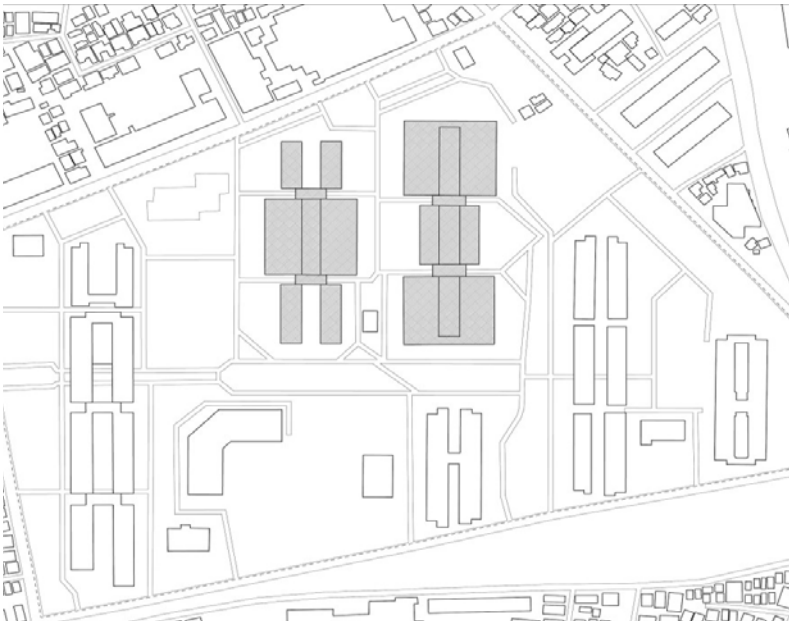


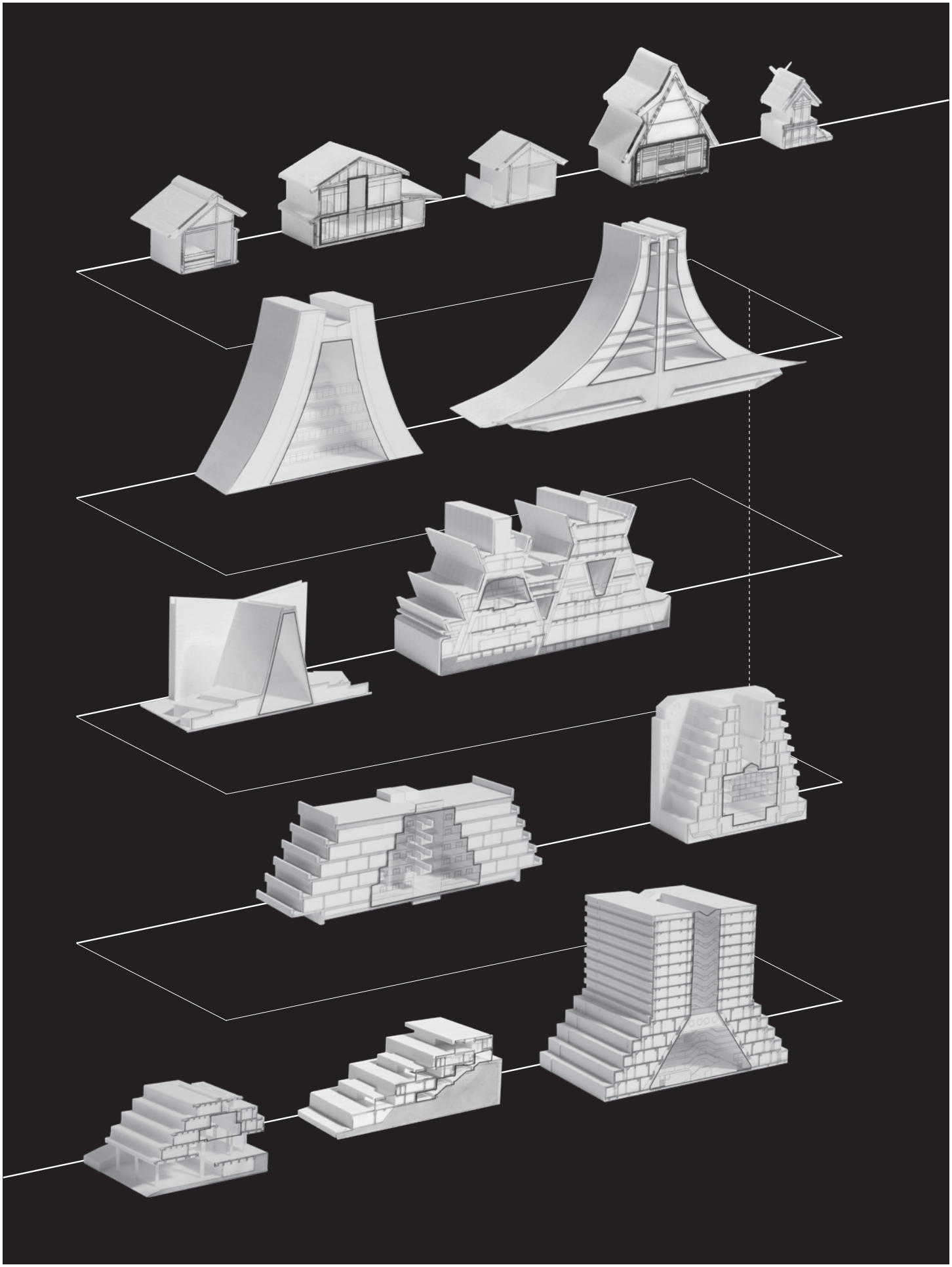
01_OPEN WORK

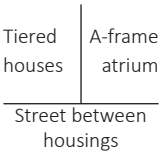
Housing Complex and Campus

Site Area: 56,000 sq. m
Instructor: Enrique Walker
Site: Kawasaki City, Kanagawa, Japan
Gsapp Advanced Studio, Spring 2020
Partner: Haitong Chen, Qifeng Gao, Xinning Hua

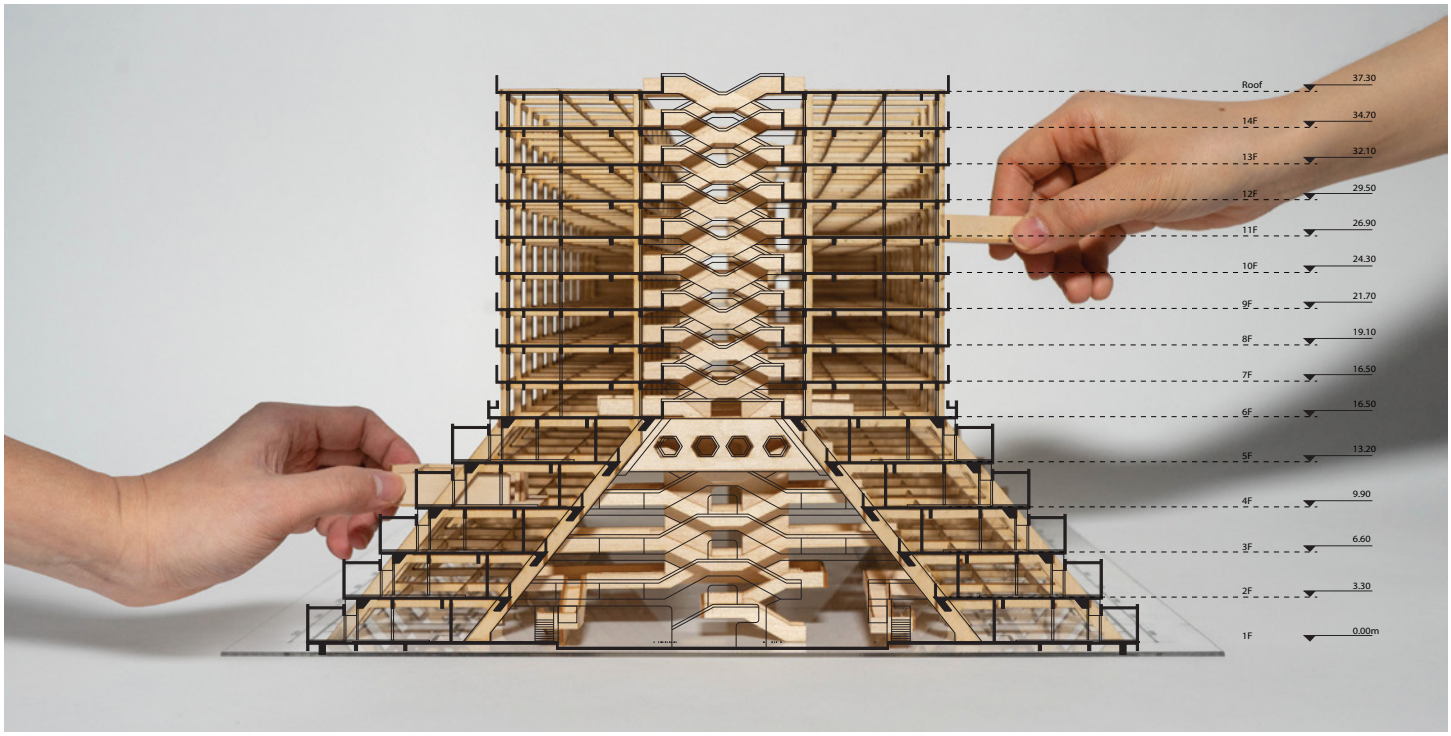


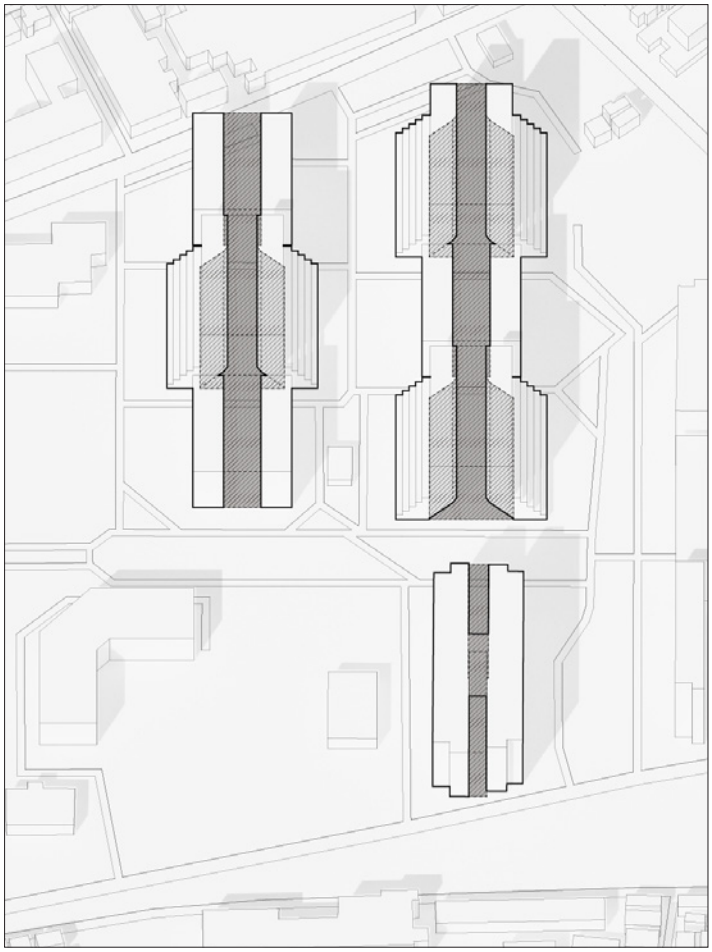
Half century ago, architecture became open-ended. Buildings would changeand grow, architects argued, not unlike cities. Architects embraced impermanence, promoted flexibility, timed obsolescence, and welcomed uncertainty. Against the backdrop of modern masters and modern monuments, and as a result of cultural, social, political, and technological developments, buildings became systems. Paradoxically, architects would pioneer new building types, in unprecedented ways, by openly disregarding program. Design theories for open-ended buildings differed, but they all implied, almost invariably, free plans and modular units, as well as building components discriminated by their rate of renewal: frame versus clip-on, core versus capsule, structure versus envelope. By the mid-sixties, just a few years after speculation on openness had begun in earnest, several projects materialized. Over the following years, many changed: some according to plan, some according to other, or no plan. Many others did not. Some were demolished against the architect's will, some preserved against the building's principles. Today, those buildings stand as monuments to architecture's attack on permanence.

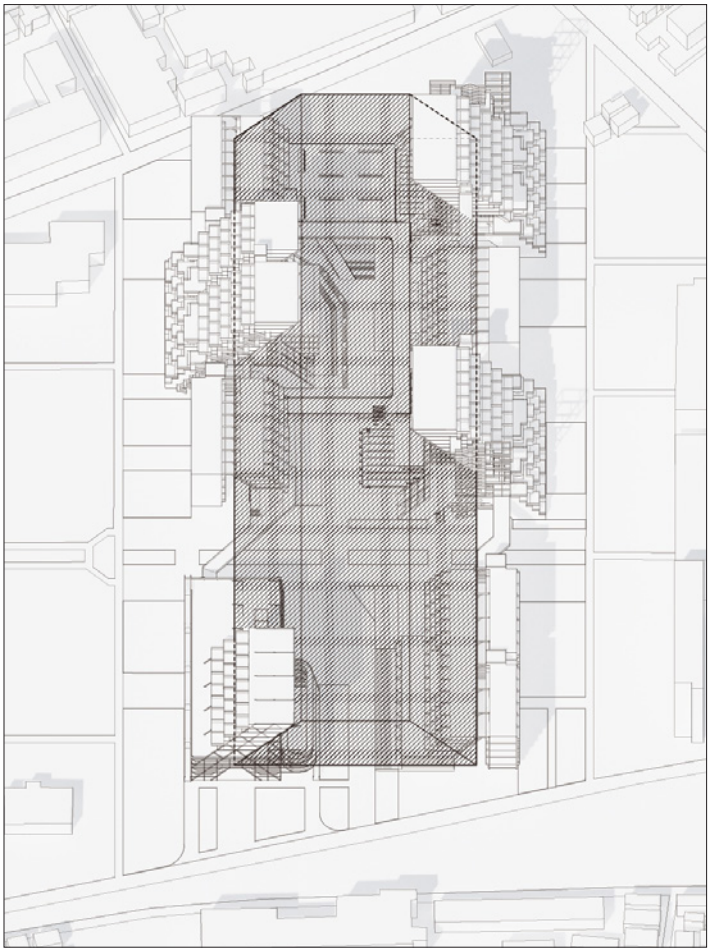


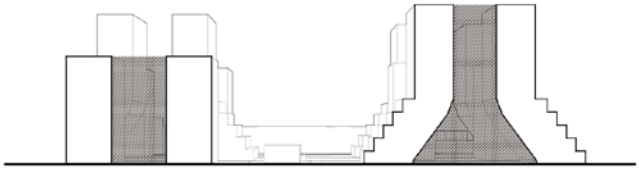


Kawaramachi Danchi, was constructed in 1970 by Japanese architect Sachio Otani, in Kanagawa, across the Tama River.A-framed buildings and normal apartment buildings are combined as a set. In Otani's original drawings, this site should be full of different sets like this. However, due to the budget shortage, only one cluster of original schemes was realized, others are all like standard danchi. Also, this project was supposed to be open and welcoming with green corridors that connect the city and river coast. But in fact, they are isolated from the urban context with a defensive gesture. The tiered housing units on both sides shape the street in a good way, that the pressure from high building mass is released. The A-Frame also shapes an interesting atrium inside. Though they are lacking vitality for now, we could see the potential of them being part of the city's publicness. To understand this unique form of Danchi more thoroughly, we studied the genealogy of A-frame and housing types in Japan. From Ise Shrine to folk housings, A-frame always appears as the symbol of Japan. At the same time, it could naturally shape an interior public space inside. Especially in Japanese apartment housings, interior public space matters a lot. Compared with the large outside space, it seems that Otani prefered to have activities happen in the atrium. However, nowadays, the A-framed atrium is far from lively. It is not only because there is a lack of programs, but also related to the fall of Danchi. In most Danchi that were built in the 1970s, space there is very cramped. After the post war housing crisis was solved, Danchi residents moved to single family detached houses, like nagaya, with family members. In this A-framed structure, there are two different types of housing units. Tiered ones below and normal ones above, which are also defined by the structure. Thick and strong structure below as the base, thin and light structure stands on it. Based on all the study of the project, we believe that by transforming the housing and reprogramming the A-framed public space, we could bring this dying danchi back to life.

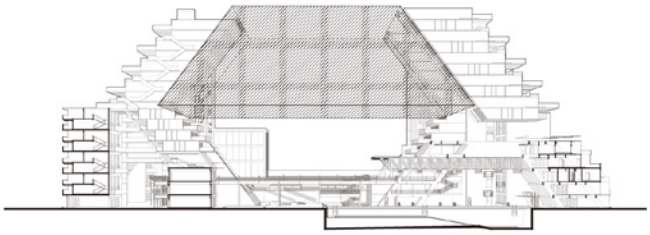






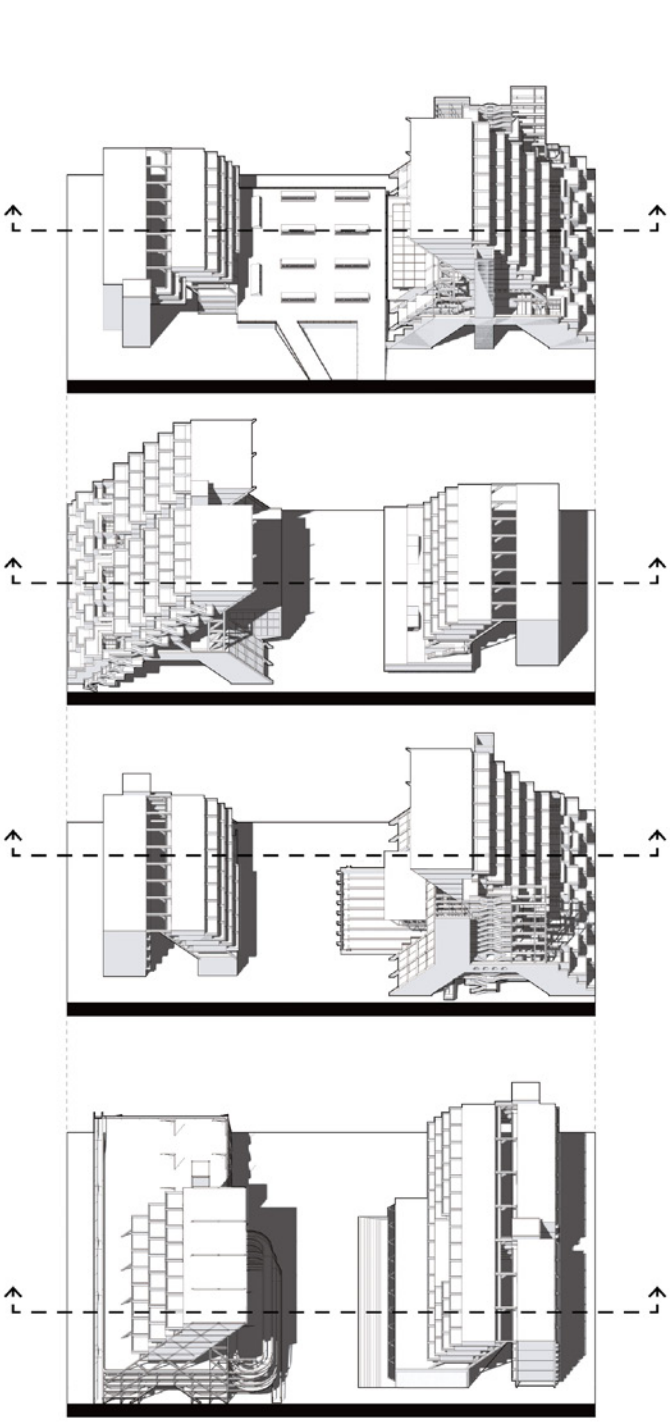


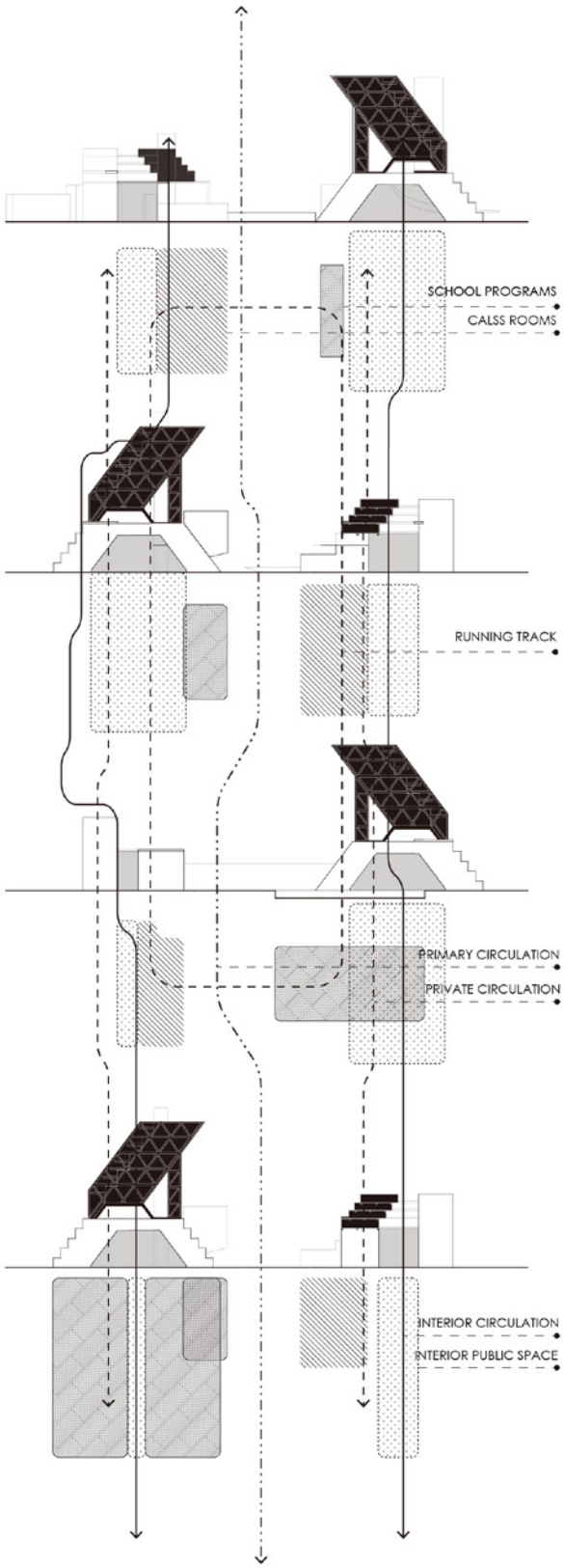
Original A-framed Public Space



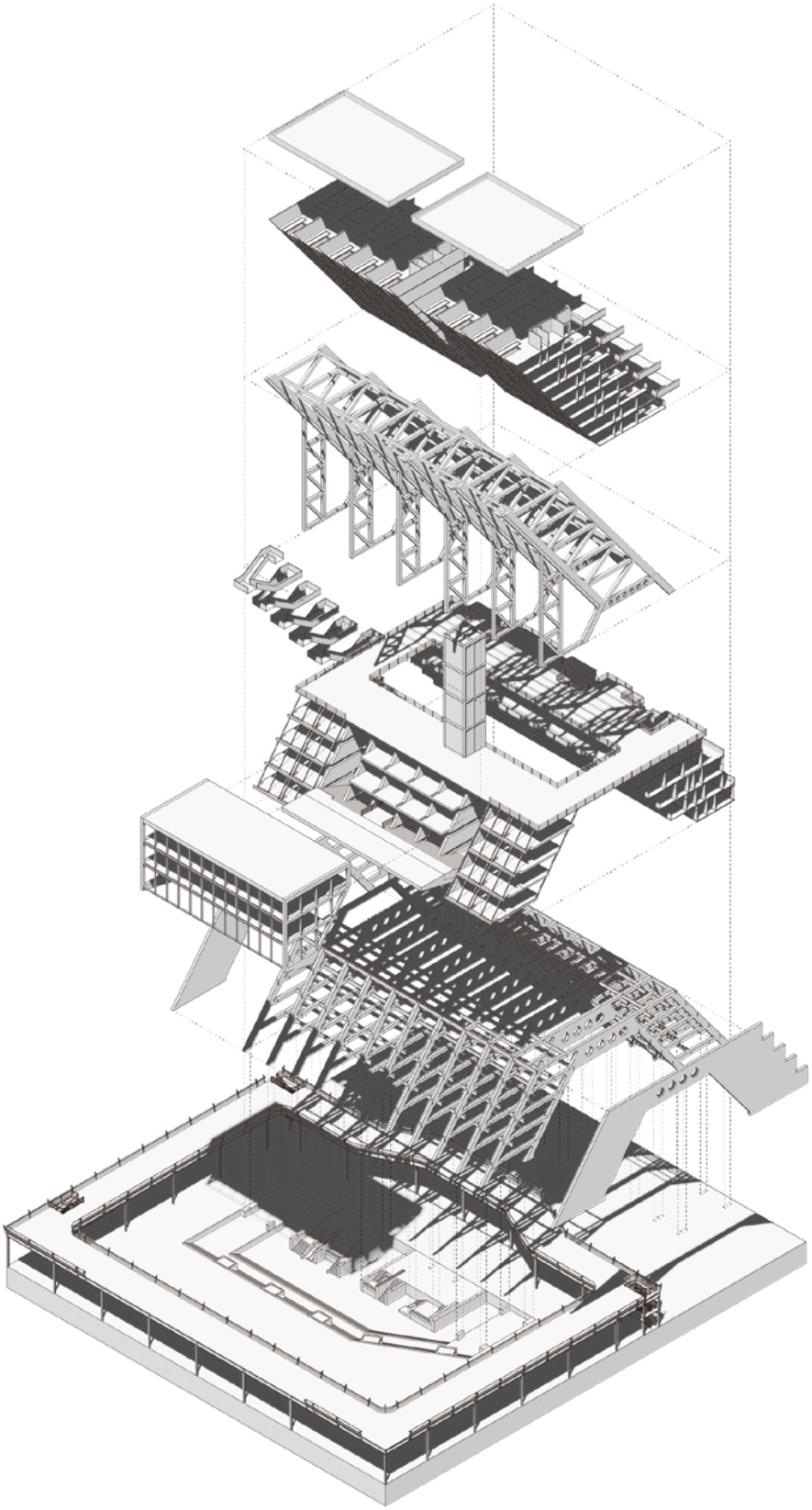
Doubled A-framed Public Space

This is the original massing of the kawaramachi housing project, which contains three A-framed megastructure residential complexes and four general residential mansions. The complexes and the mansions connected back to back with an internal semi-public space. We found that the silhouette of the structures keeps the same as the massing after we take off the envelopes. Learning from the genealogy, We decided to keep the advantages from original A-framed structures. We remove the upper part while maintaining the internal public space. We are doubling its public space by adding college programs both between and underneath the original structures. We also added the new residential structure following the gesture of the original A-Framed structures. With the extensions we are transforming the old interior A-frame space to an even larger A-framed campus in the middle that brings more connectivity between buildings.By adding the large college campus we finally bring vitality, connectivity, and accessibility to the whole community.

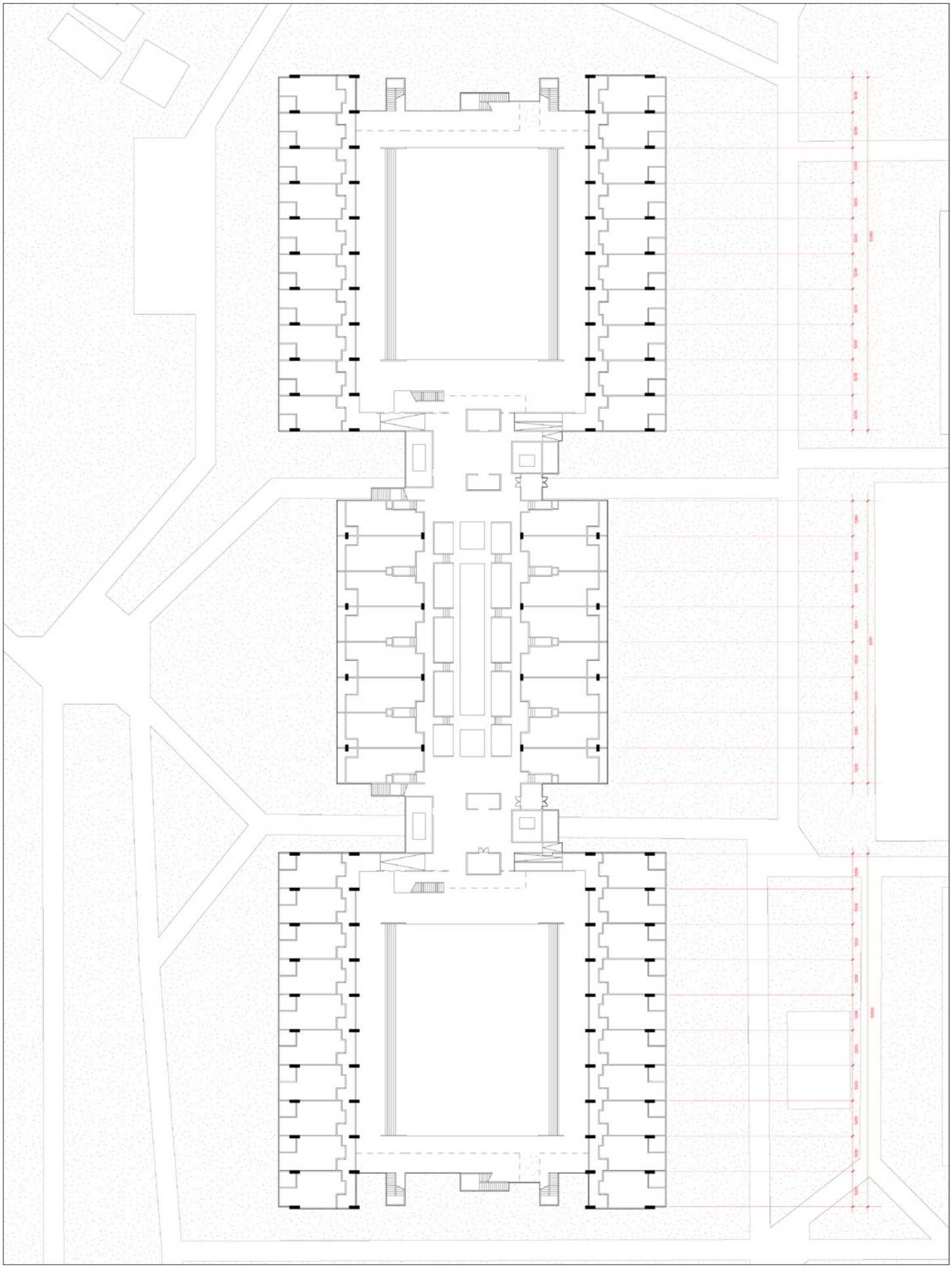


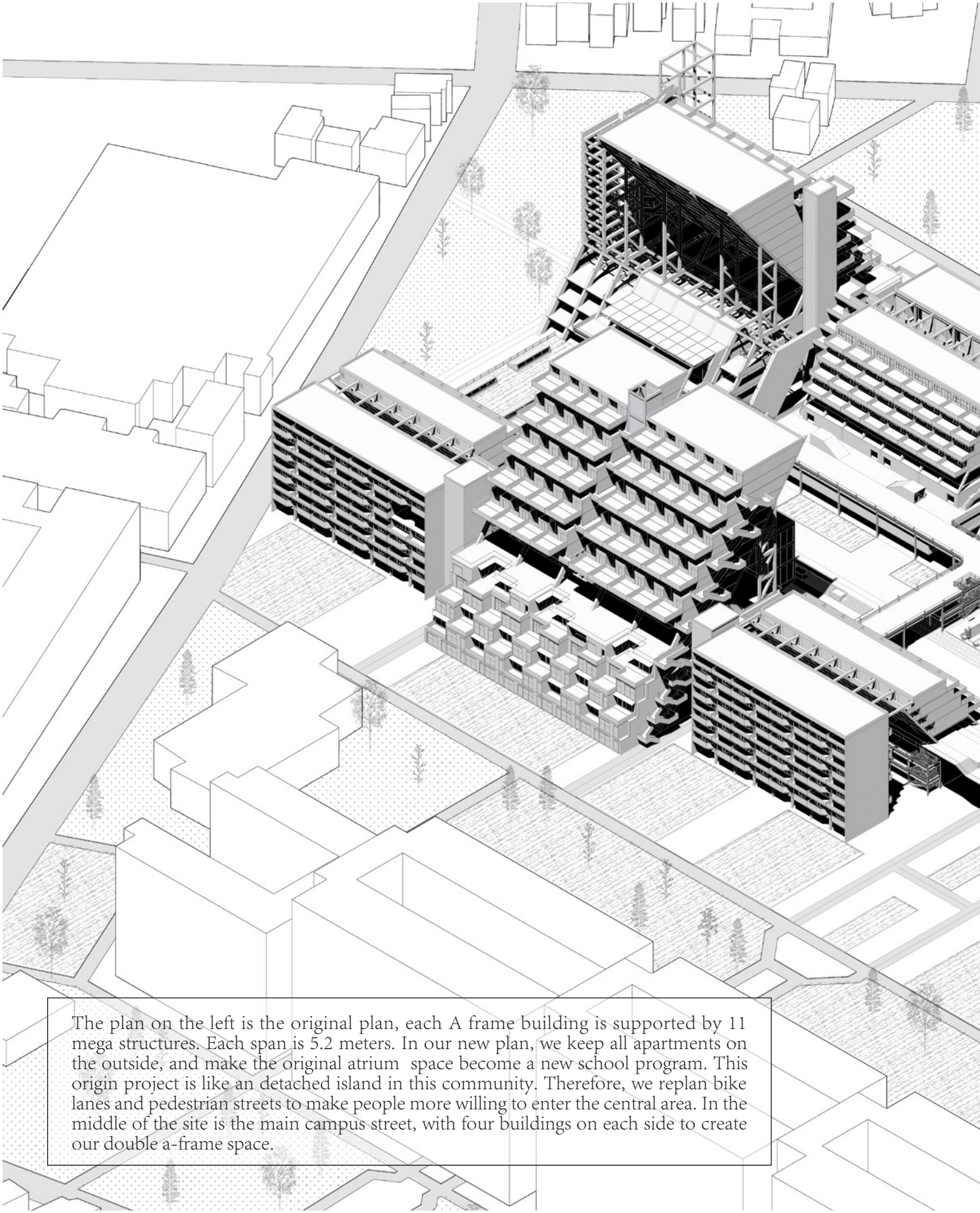


From the diagram we can see that the structure is divided into two parts: the white existing structure and the black new structures.While keeping two original internal public circulation of both sides, we also added two other main circulations to the project. The campus circulation in the middle And the running track at the center that connects the major school programs Also we added an auxiliary circulation on top of the third floor which creates a soft boundary between students and residents.

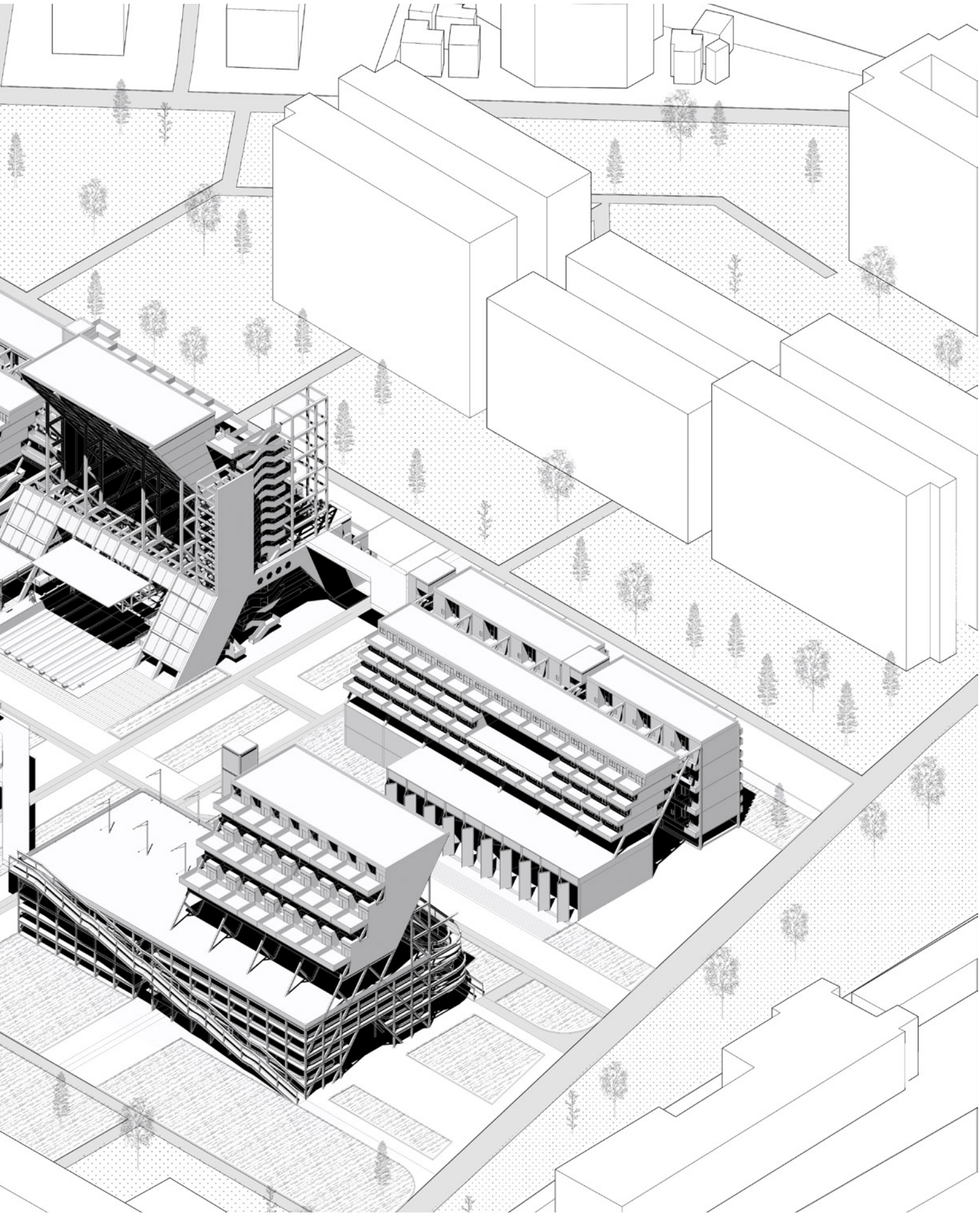


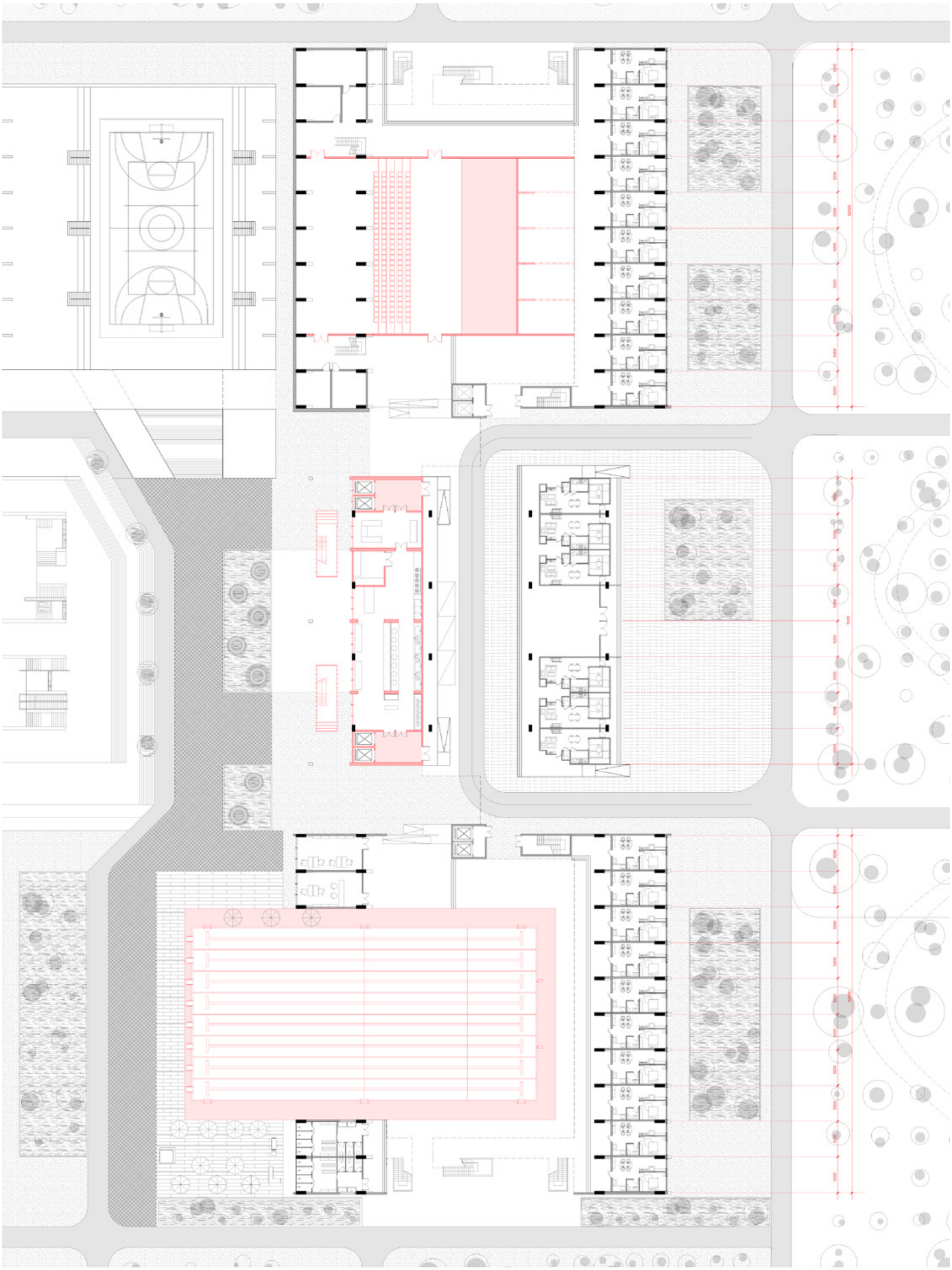
This is an Axonometric chunk we took out of our project, that may help you to get a clear understanding of the structure system. The new running track that connects major school programs. On top of that the original a-frame structures. The new program for the old structure. The new A-framed structure. And the housing volumes for the new A-framed structure.



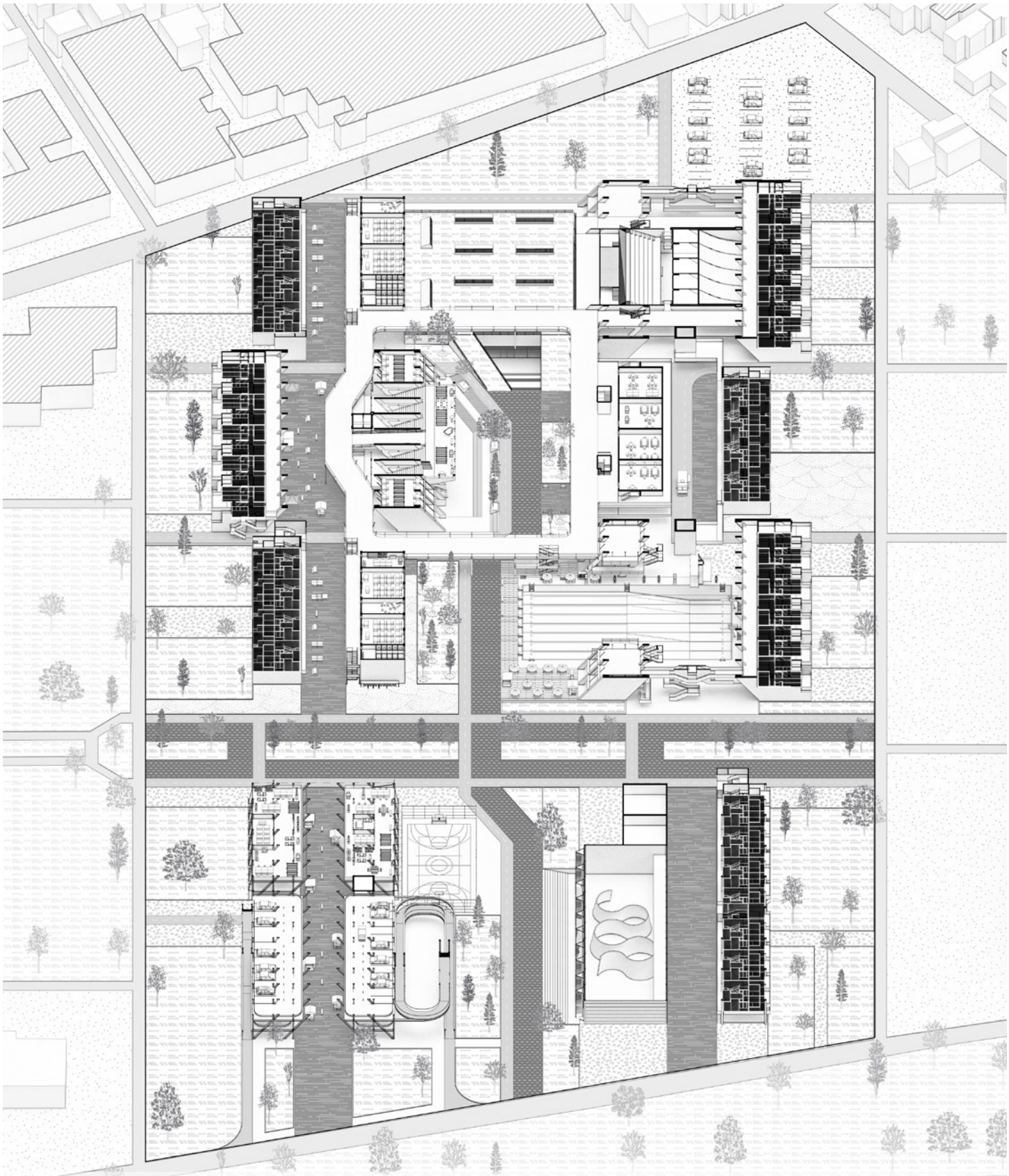


The plan on the left is the original plan, each A frame building is supported by 11 mega structures. Each span is 5.2 meters. In our new plan, we keep all apartments on the outside, and make the original atrium space become a new school program. This origin project is like an detached island in this community. Therefore, we replan bike lanes and pedestrian streets to make people more willing to enter the central area. In the middle of the site is the main campus street, with four buildings on each side to create our double a-frame space.

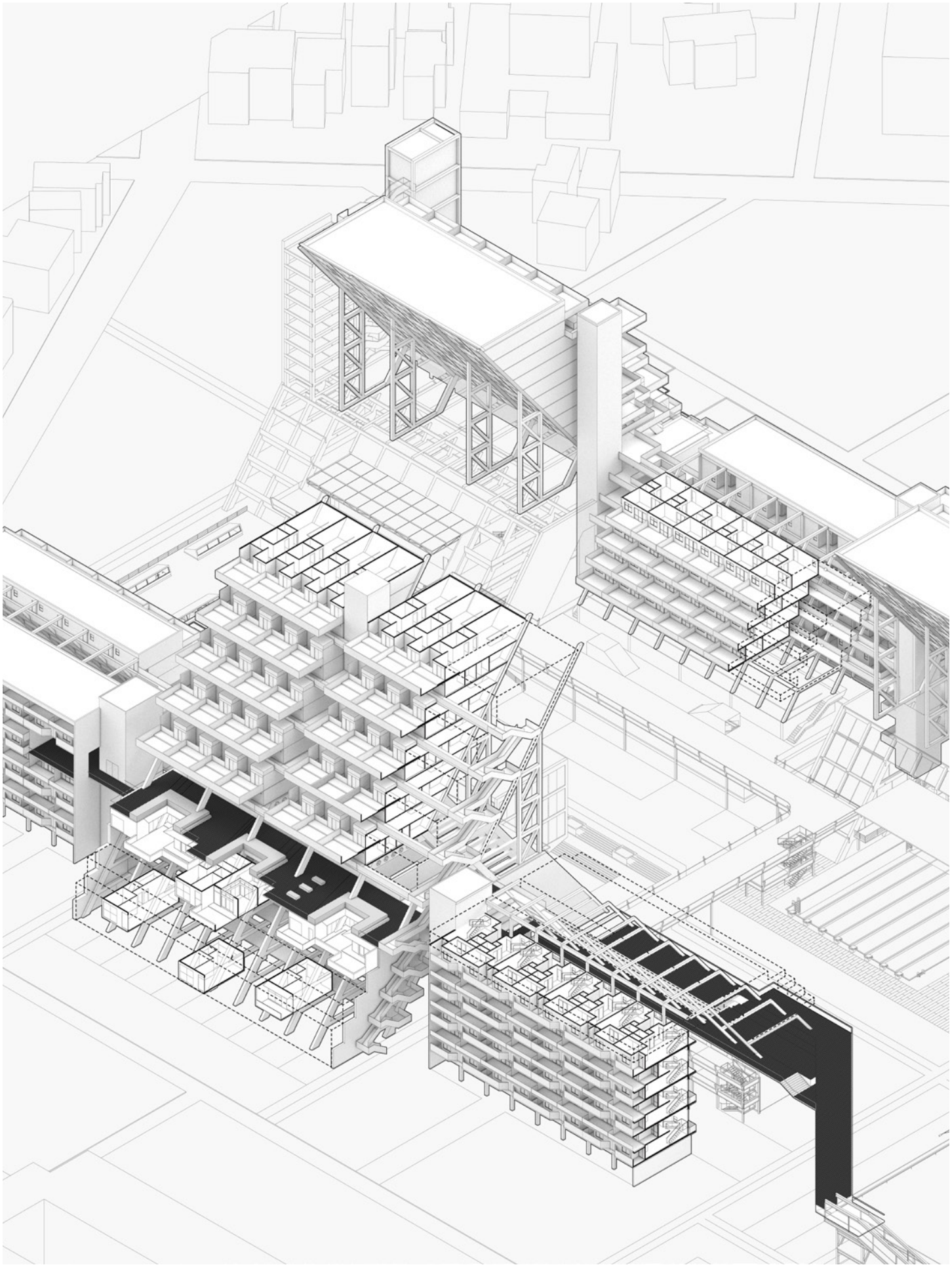




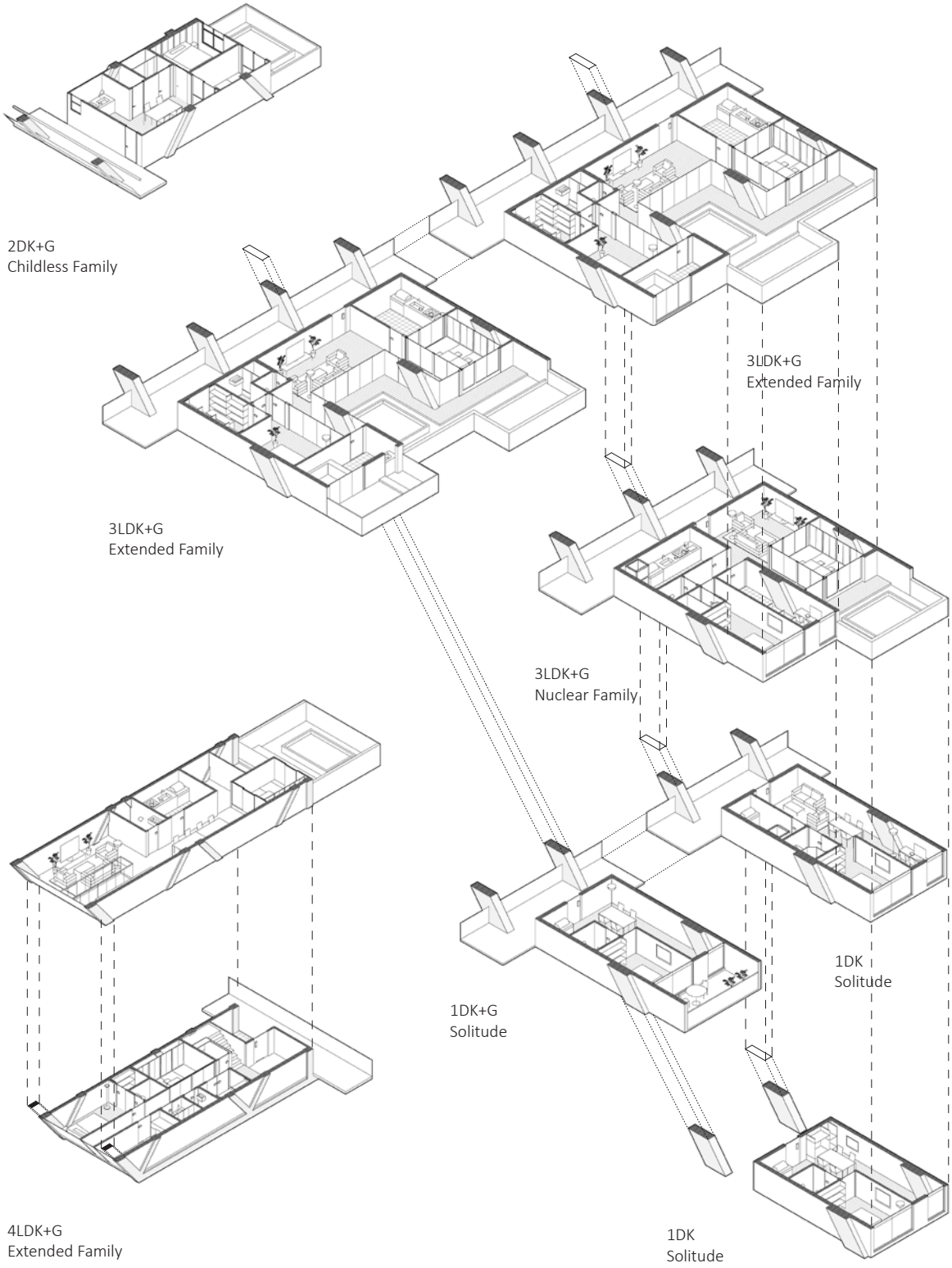
01 _ Open Work



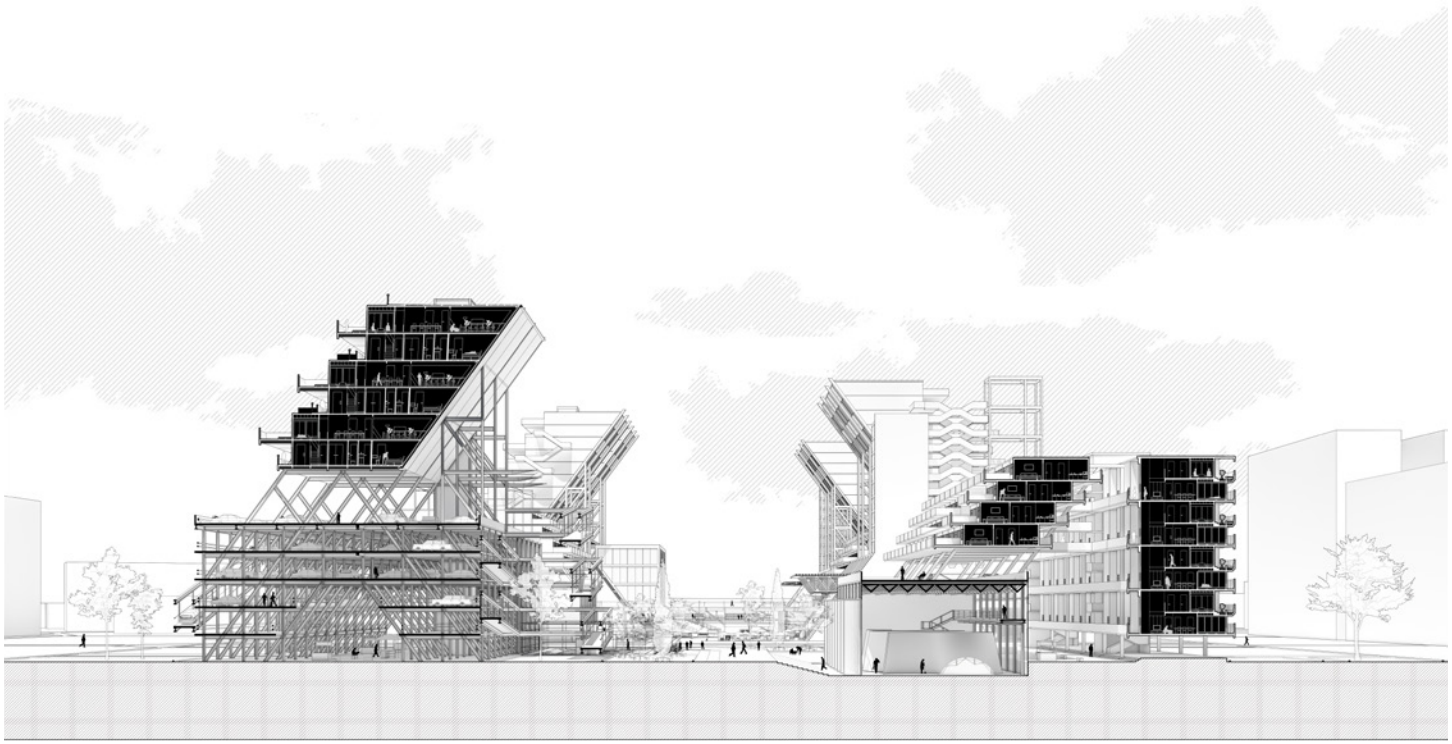
We add campus in the middle, while keeping the surrounding houses which is black part. The goal is to have community college in the middle not only serve students and residents, but also reactivate this neighborhood. In the middle of the site is the main pedestrian street. And there is a running track on the third floor to connect six buildings on the north side, it creates a second level of street.We add a new parking garage to connect the surrounding streets. We can also use the new parking structure as an additional exhibition space if necessary. The outdoor pool is open to students and residents to have more opportunities to communicate. This is a library for students, and there is a sunken plaza under the library.

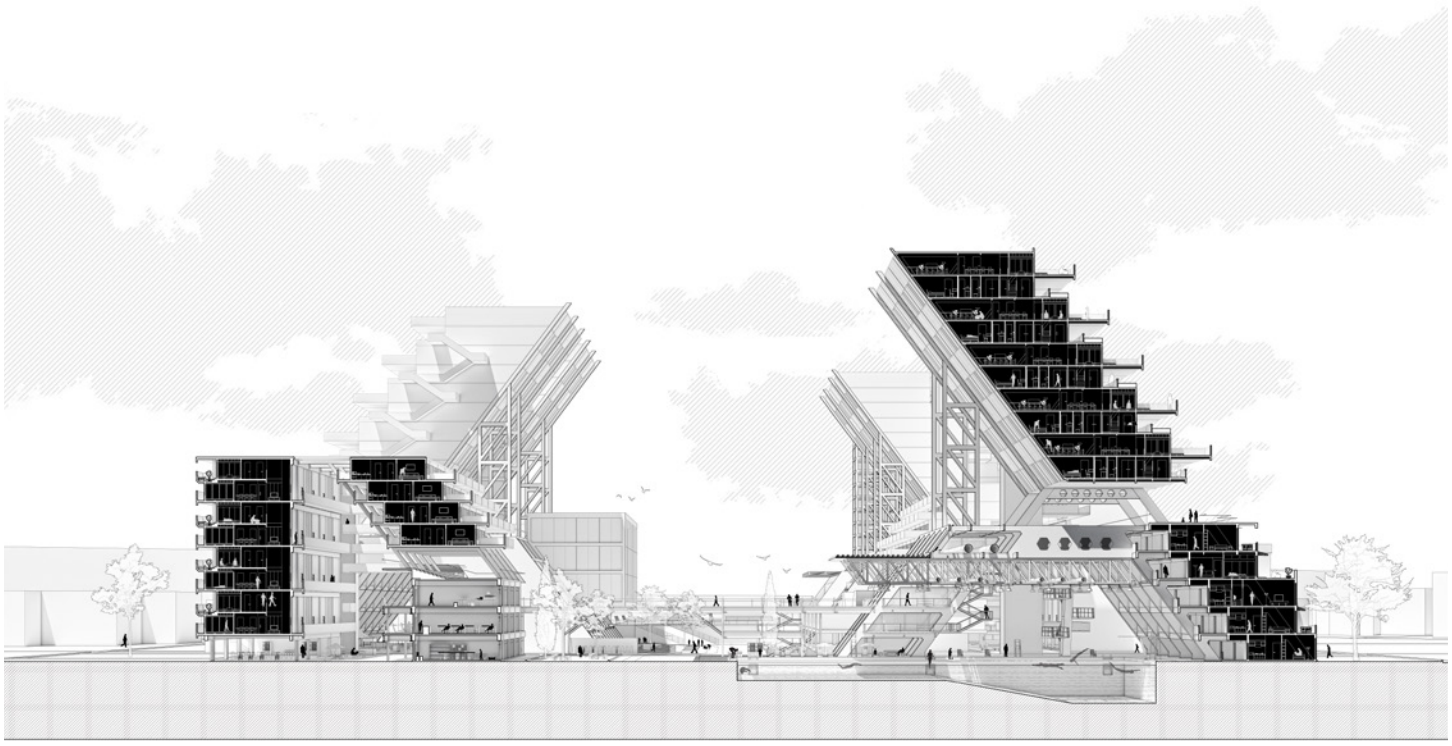


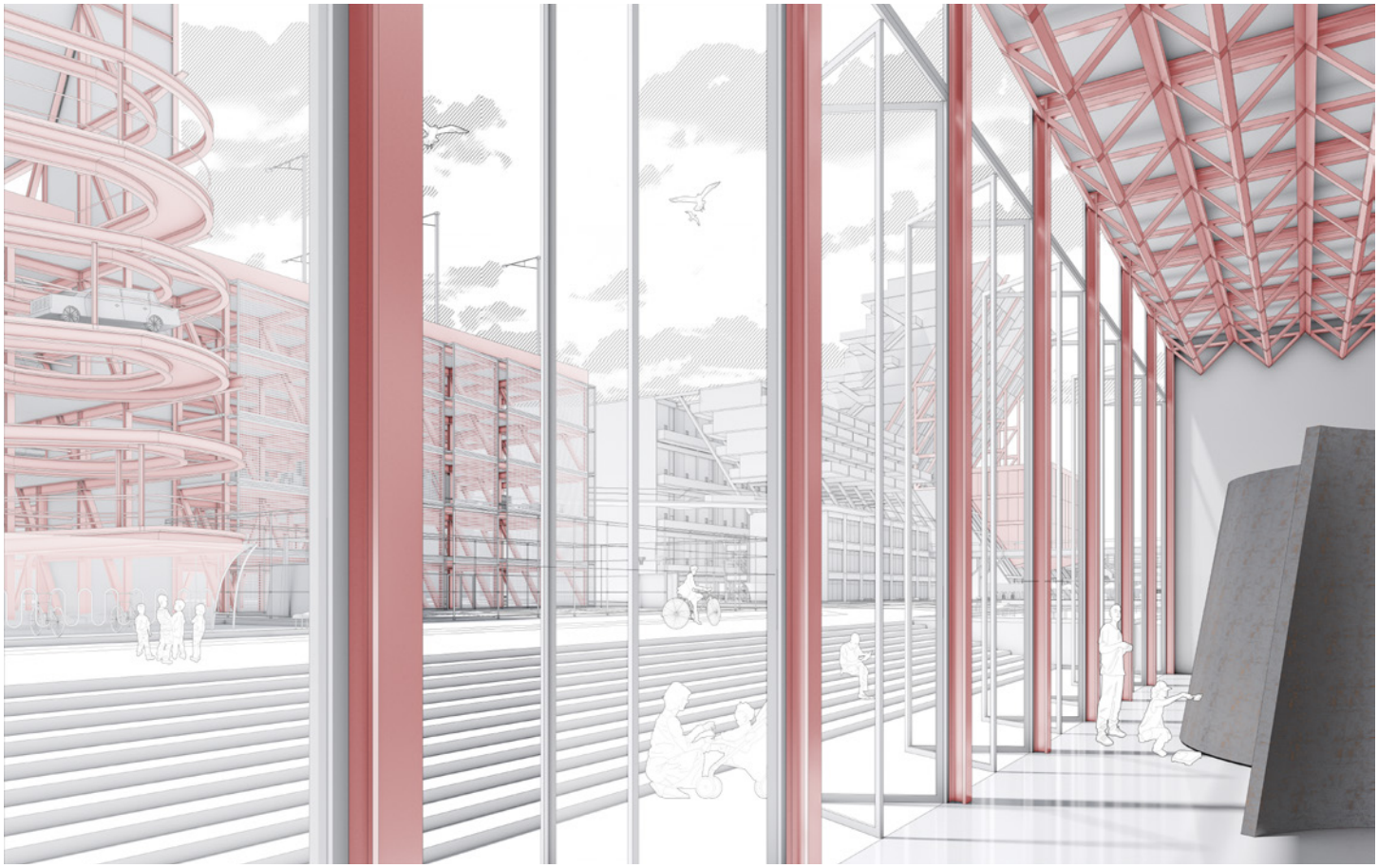
01 _ Open Work

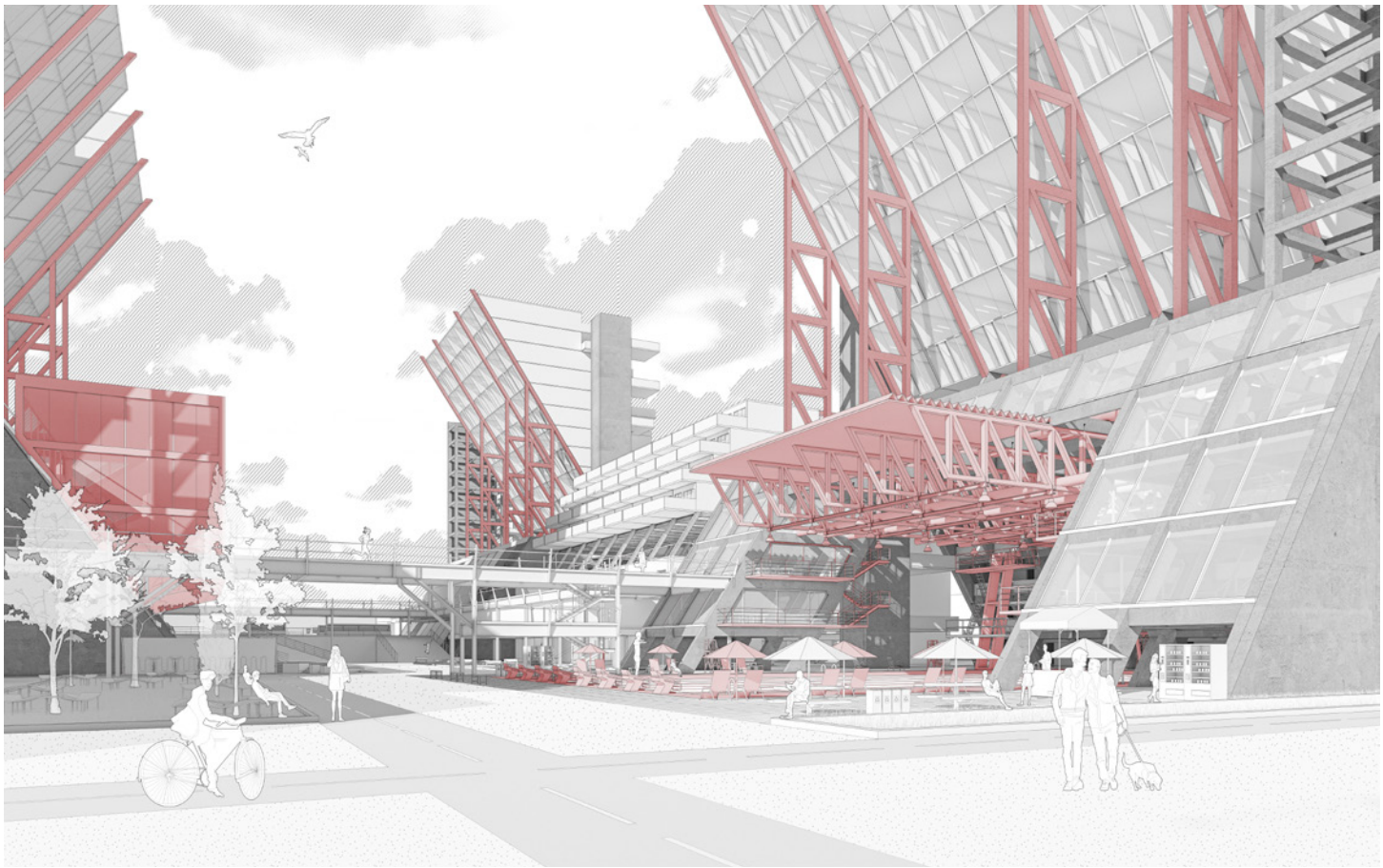


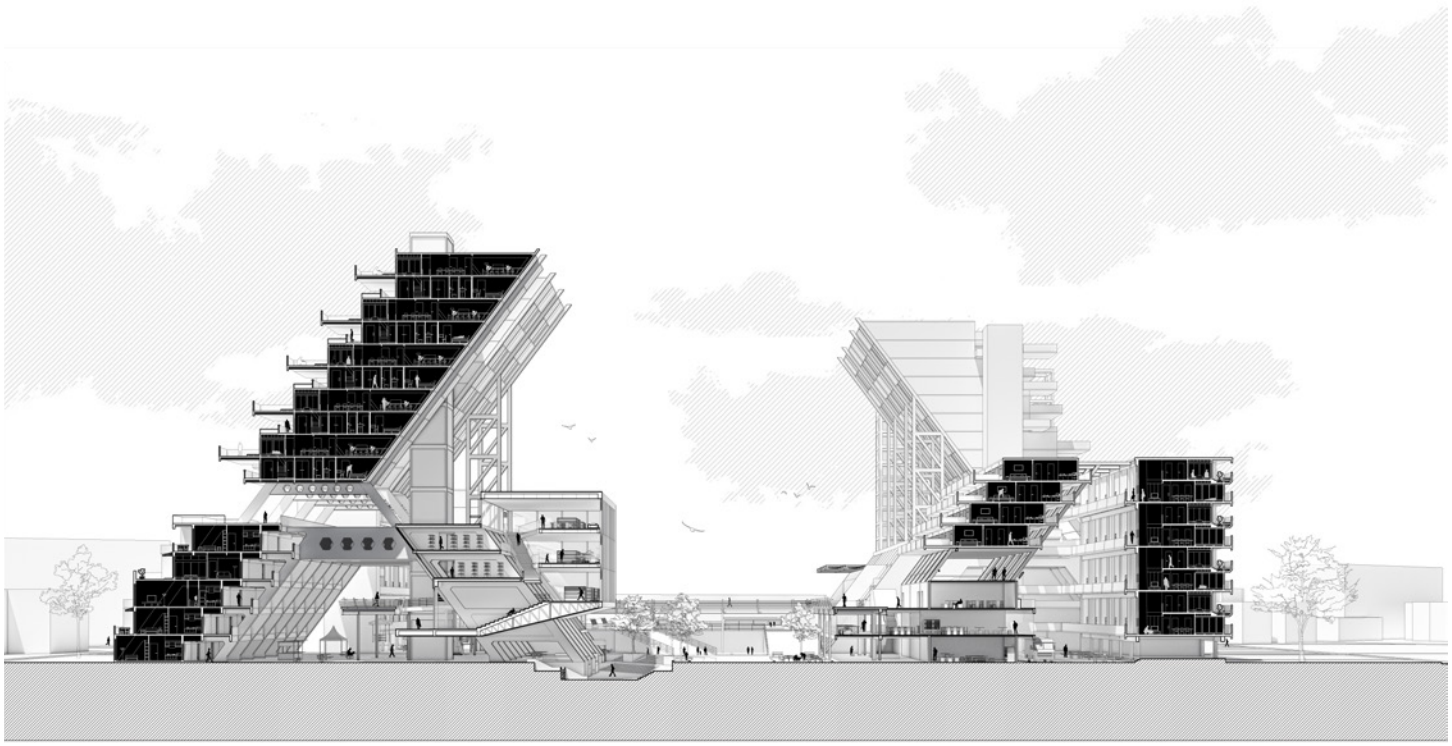
Over time with the aging of the Japanese population, older people encountered loneliness, depression due to lack of close family ties. And these issues also applied to the kawaramachi housing project. By renovating the structure, we changed the narrow danchi units into types of housing suitable to various family types. The new housing structures maximize the number of teared housing. Taking advantage of the teared units, each apartment has a family garden which traces back to the spatial experience in traditional Japanese housing types, like nagaya and machiya. Also, the teared units provide eye contact opportunities between neighbors and make the corridors more open. In this way, the elderly people can be seen and greeted more often, and also can get in touch with people from different age groups. So the solitude situation of them can be improved.We set the units layout based on the original ones and rearranged them accordingly.

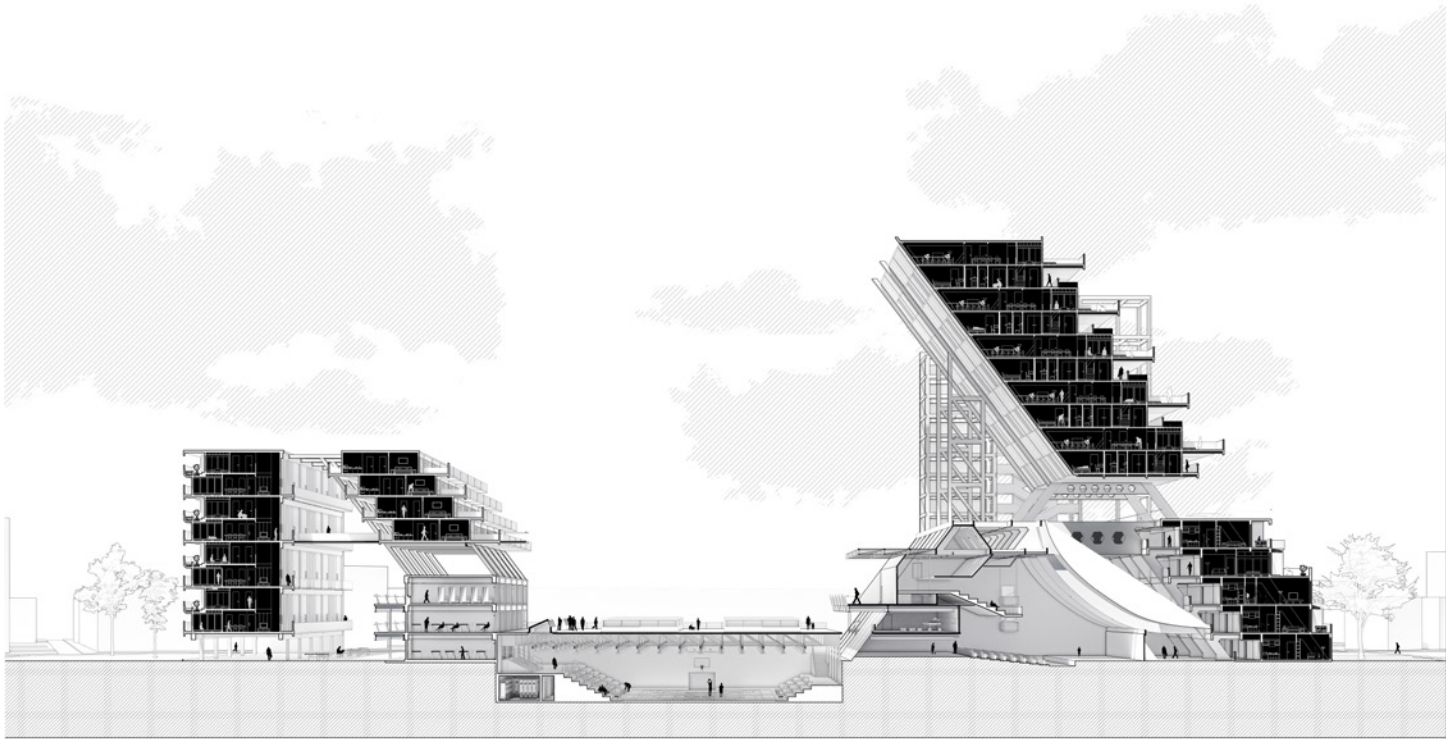


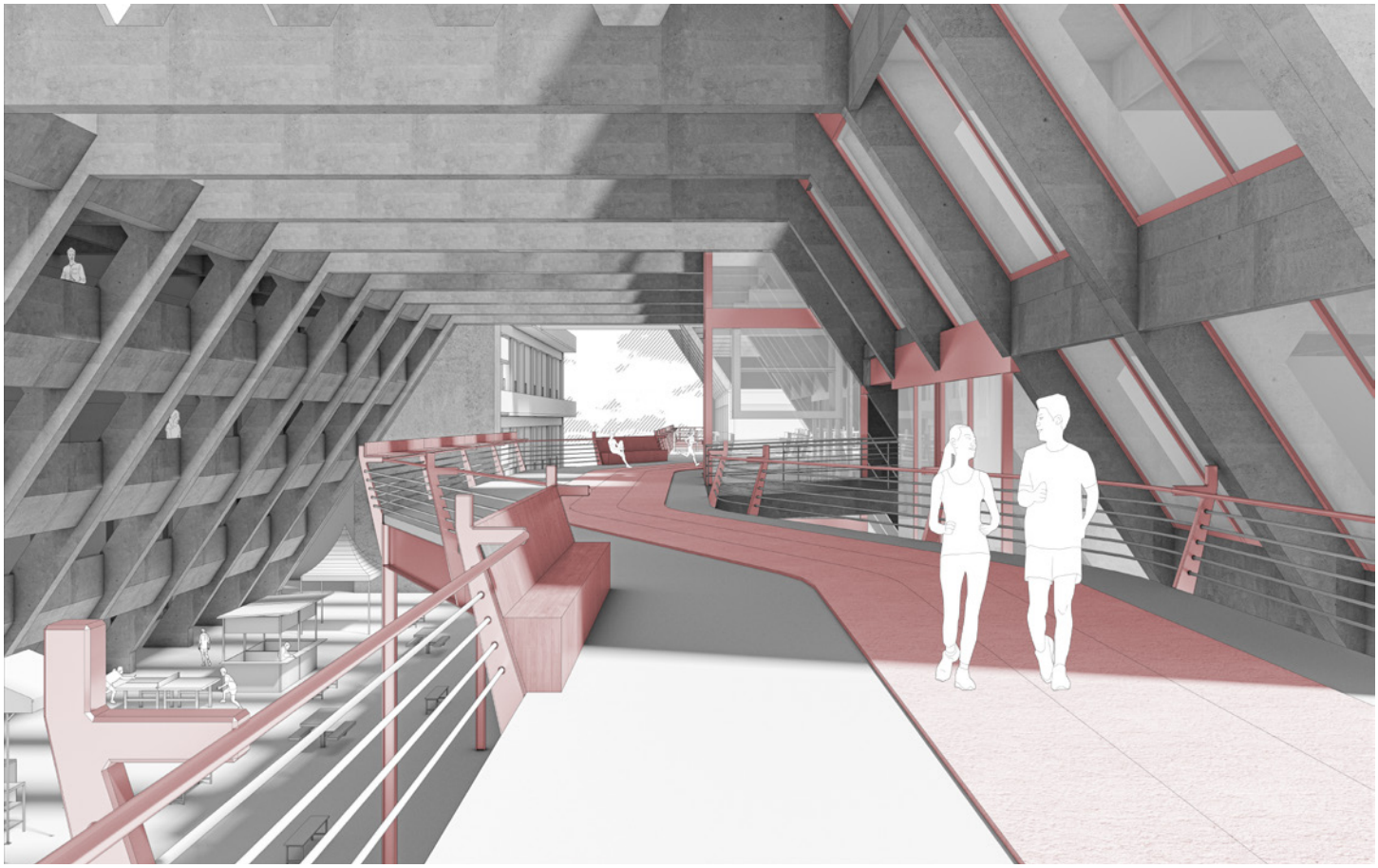


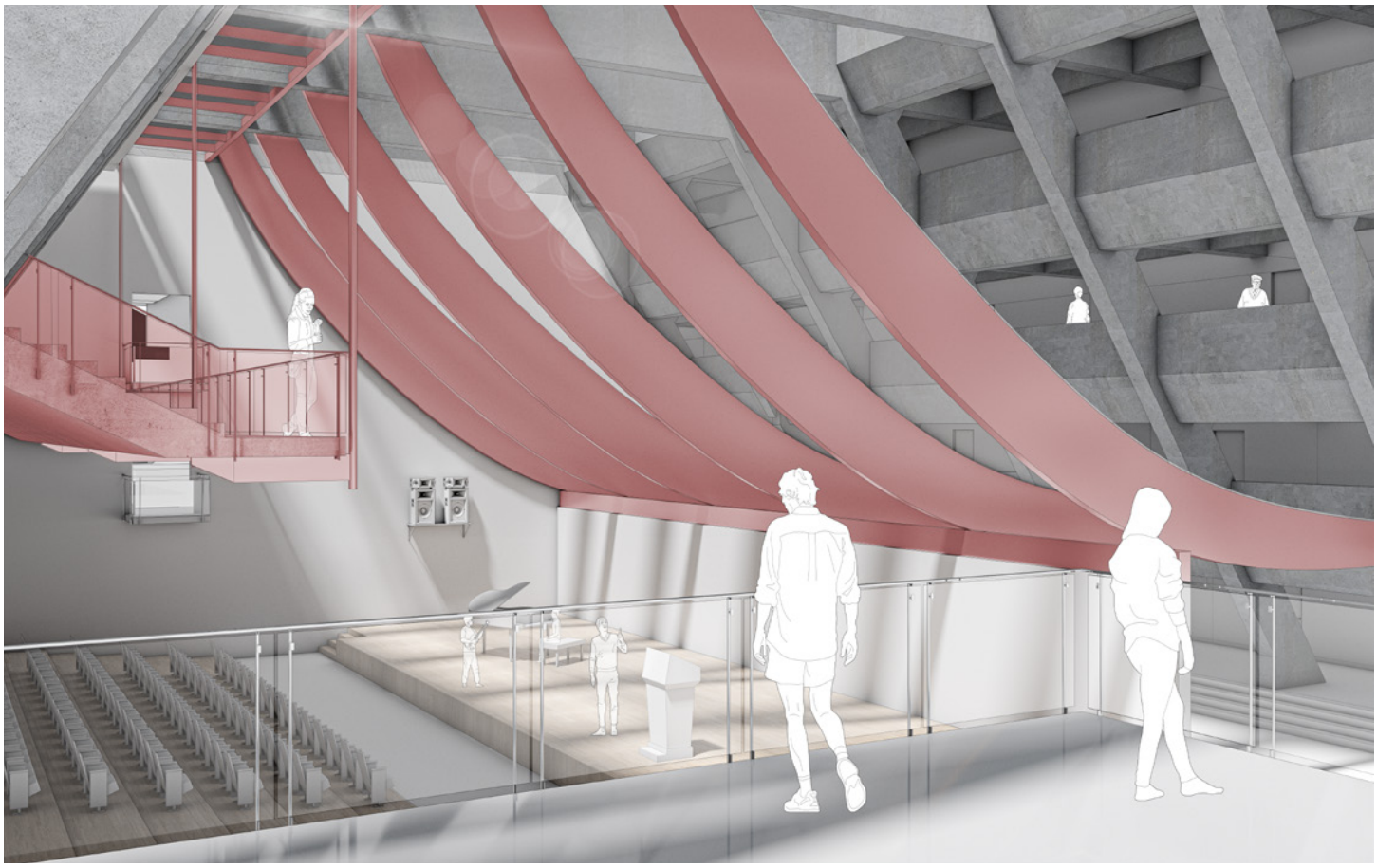


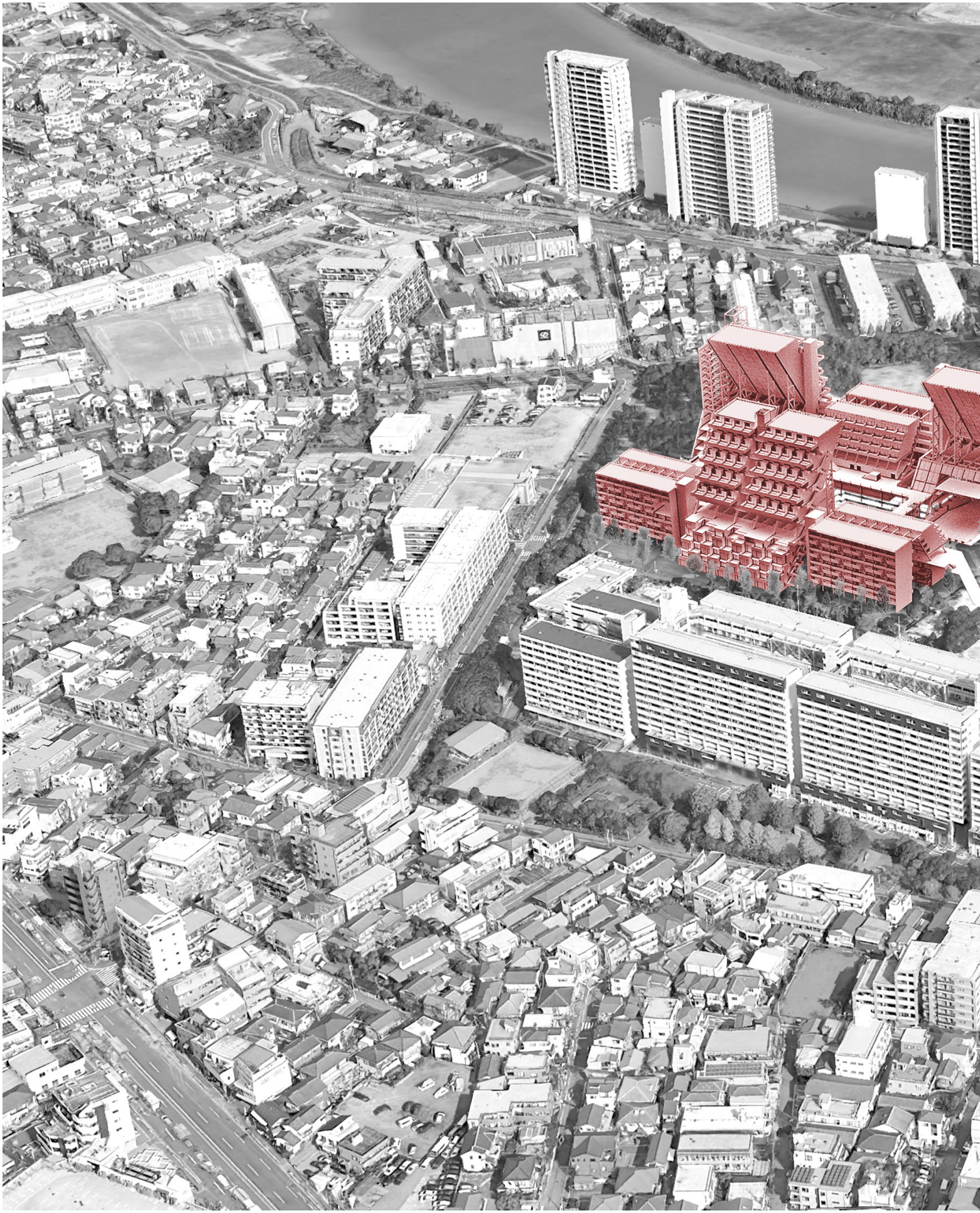


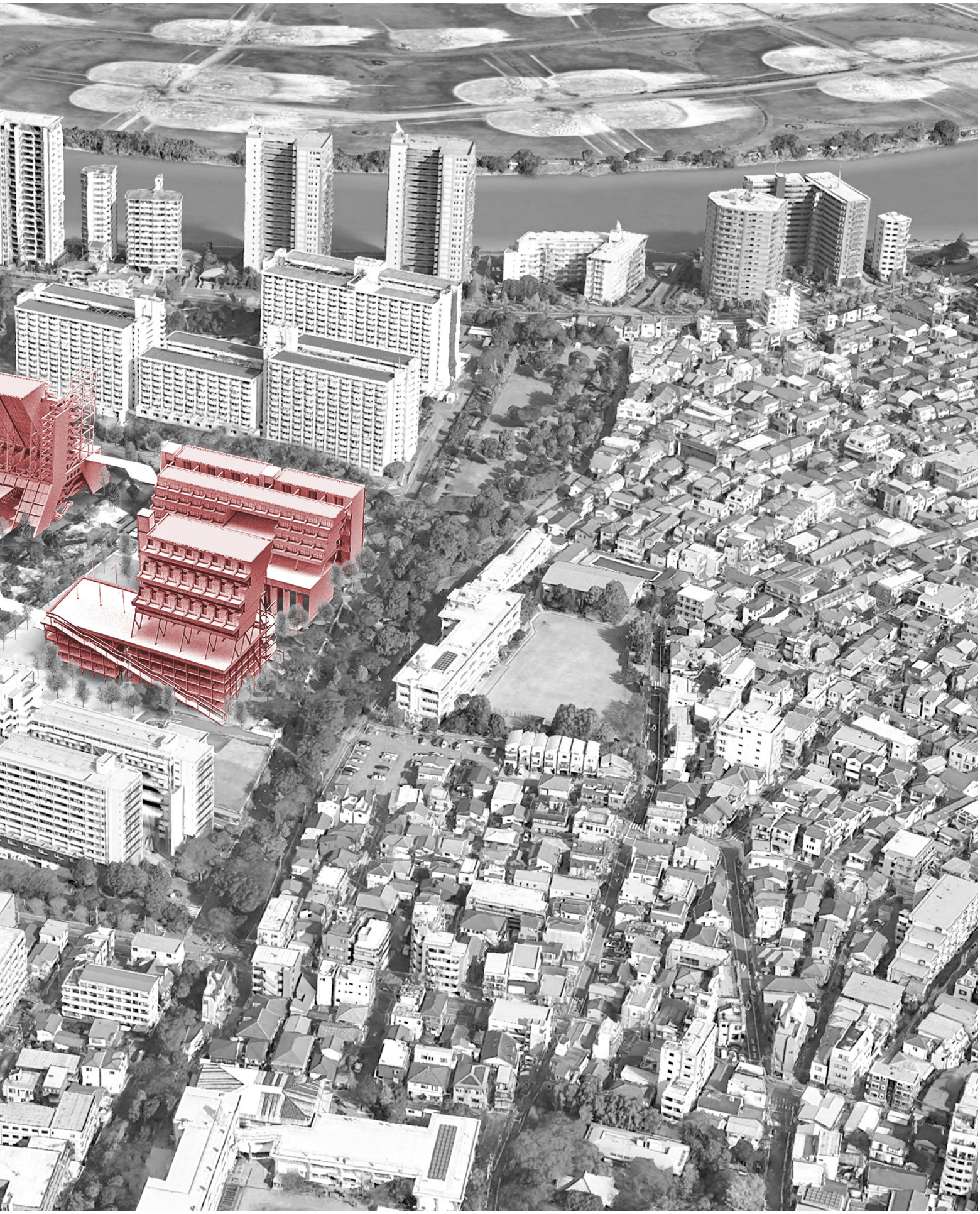


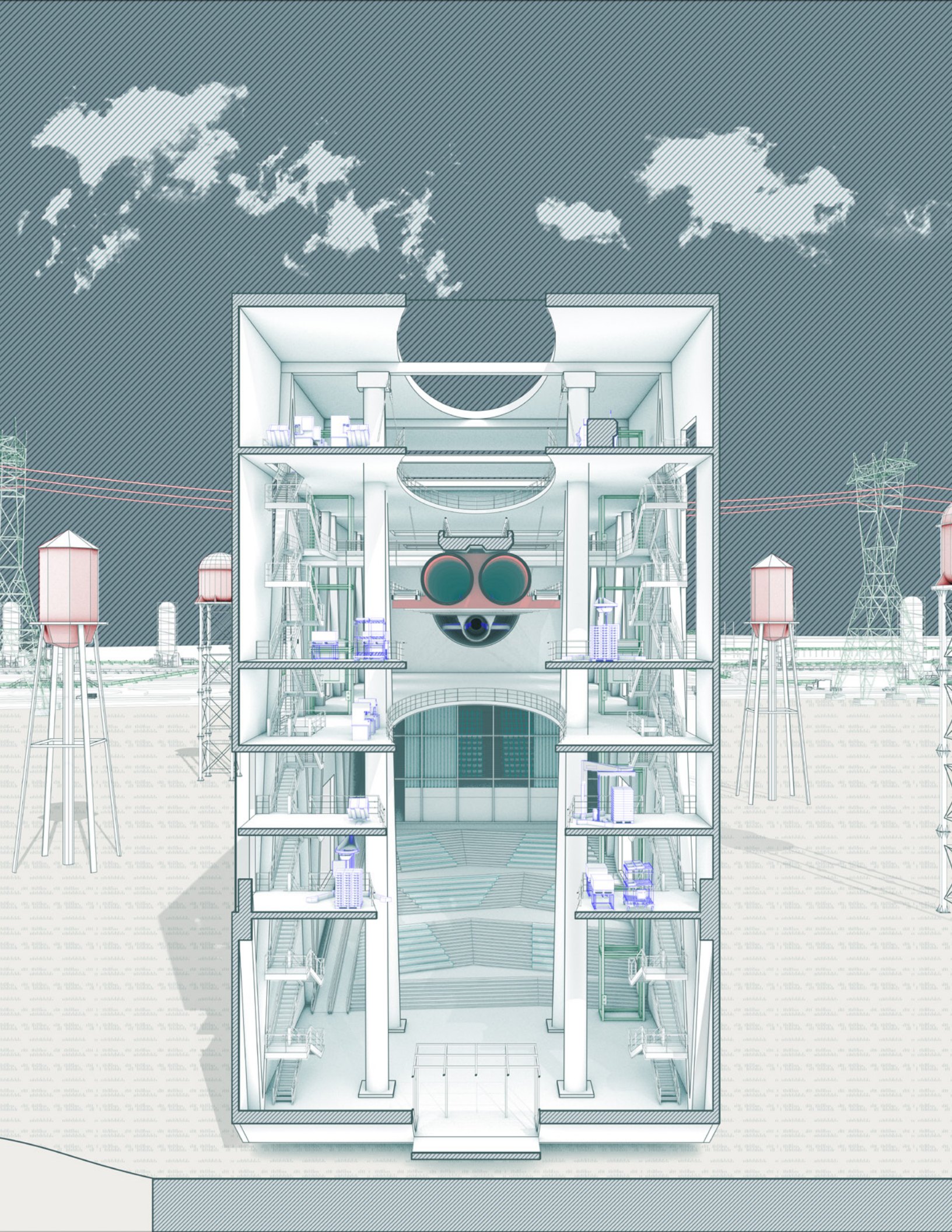








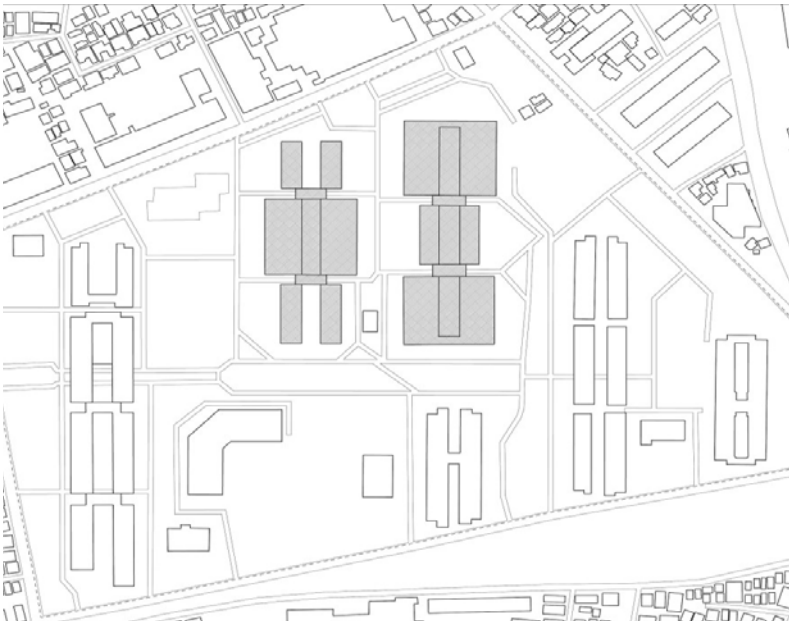




02_BEING-WITH

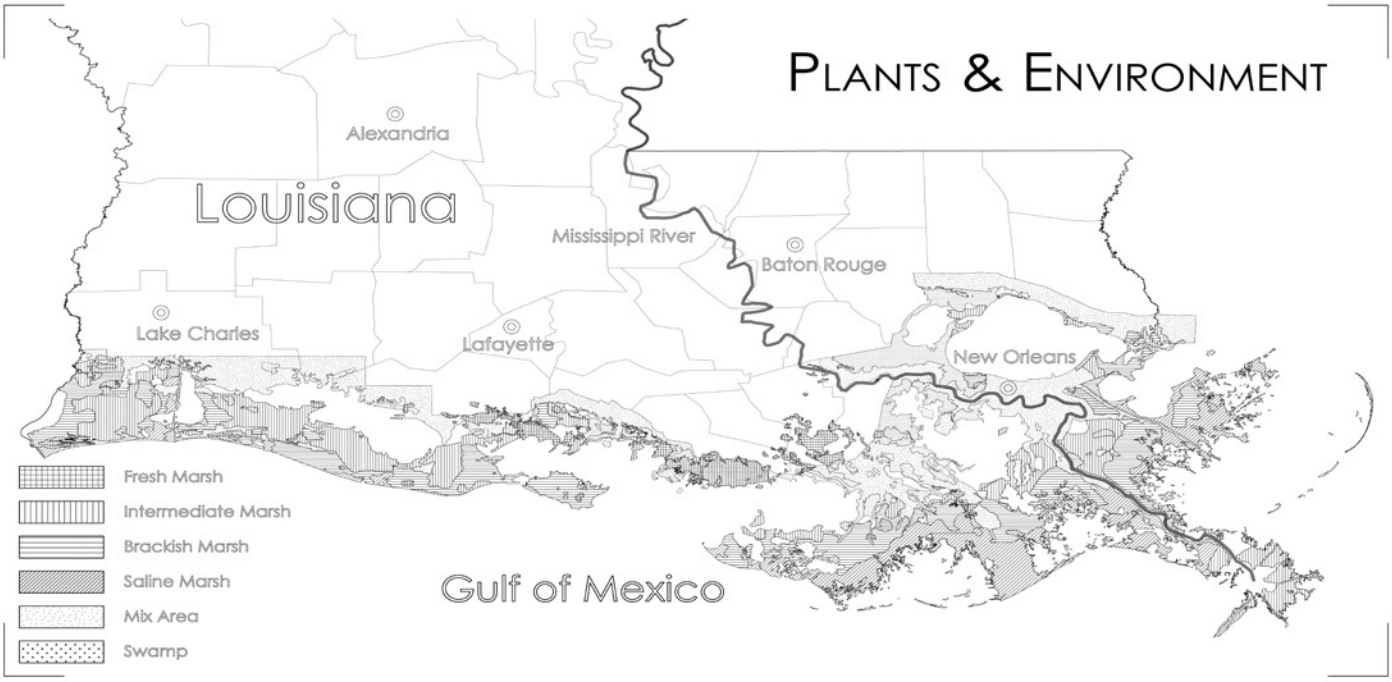
Coexistence at a Planetary Scale

Partner: Qiazi Chen
Instructor: Phu Hoang
Site Area: 42,000 sq. m
Gsapp Advanced Studio, Fall 2019
Site: International Marine Terminal, LA, USA

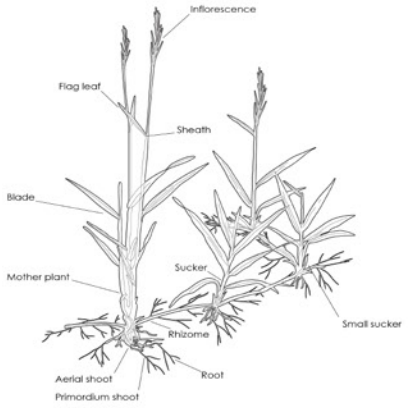


The studio questions two commonly held assumptions about the environment: incremental hierarchies of scale and the self-sufficiency, or individualism, of the human species. Both assumptions need interrogation by the design disciplines in response to the climate emergency. The studio site, along coastal Louisiana, is home to many human and non-human communities. Each species lives at a physical scale according to their own habitat (house, marsh, oil rig) but they have profound impacts at a planetary scale (biosphere, Gulf of Mexico, gas/ oil network). Speculating on a carbon-free climate future in coastal Louisiana requires students to design at both habitat and planetary scales, while avoiding thinking in binary terms of environmental relationships—human vs. animal, society vs. nature, organism vs.environment, even wild vs. domestic. The studio commits to a different view: that architecture is an extension of the environment and, conversely, that the environment is found within architecture. Rather than thinking either/or, students will design for a state of "being-with"—multi-species co-existence as climate action and envisioning ourselves as a part of, not separate from, the environment.

Plants & Environment

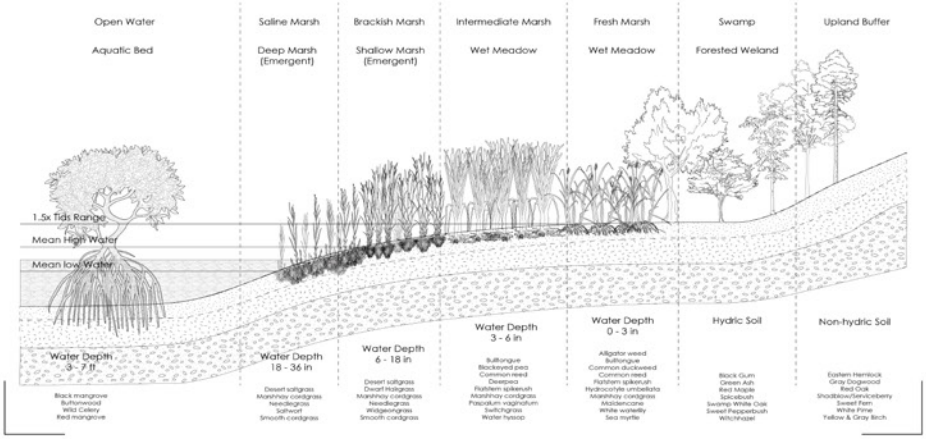


Rhizome System



Gulf of Mexico Wetland Cross-Section

(with typical plant species for each zone)

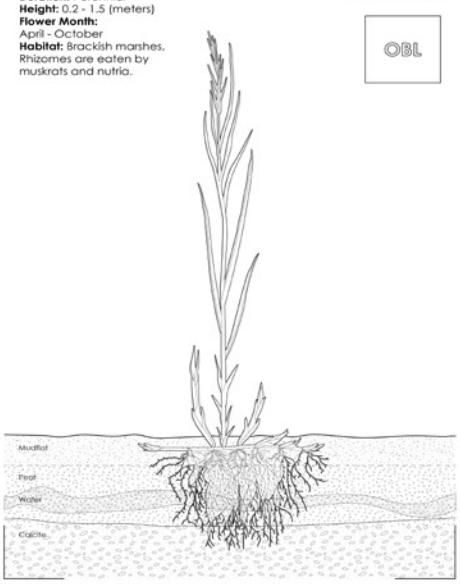


Smooth cordgrass
Sparcina alterniflora

Family: Poaceae
Duration: Perennial
Height: 0.2 - 1.5 (meters)
Flower Month:
April - October
Habitat: Brackish marshes. Rhizomes are eaten by muskrats and nutria.

Marsh Zones (%):
Saline Marsh: 62.1
Brackish Marsh: 4.77
Intermediate Marsh: 0.86
Fresh Marsh: N/A

OBL

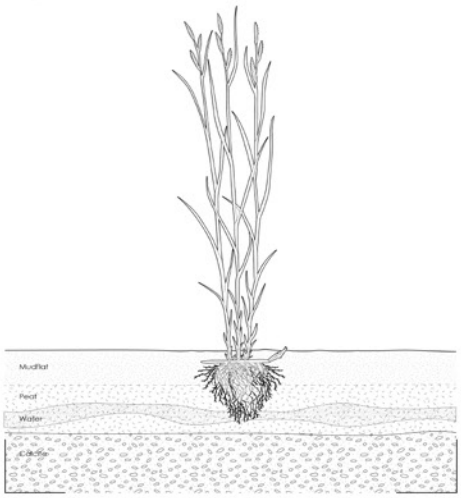


Marshhay Cordgrass
Spartina patens

Family: Poaceae
Duration: Perennial
Height: 0.3 - 1.2 (meters)
Flower Month:
May - November
Habitat: Sandy locations, seasonally moist soil near the coast, brackish marshes, low dunes.

Marsh Zones (%):
Saline Marsh: 5.99
Brackish Marsh: 55.22
Intermediate Marsh: 34.1
Fresh Marsh: 3.74

FACW

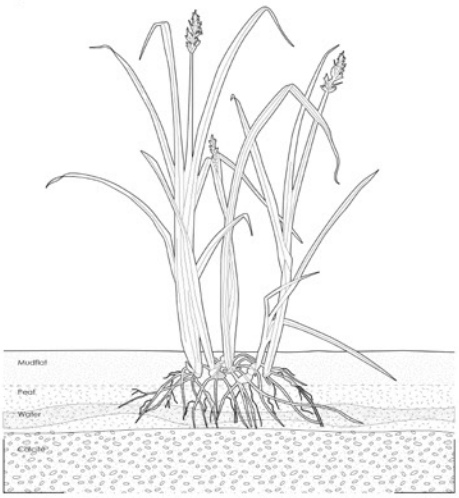


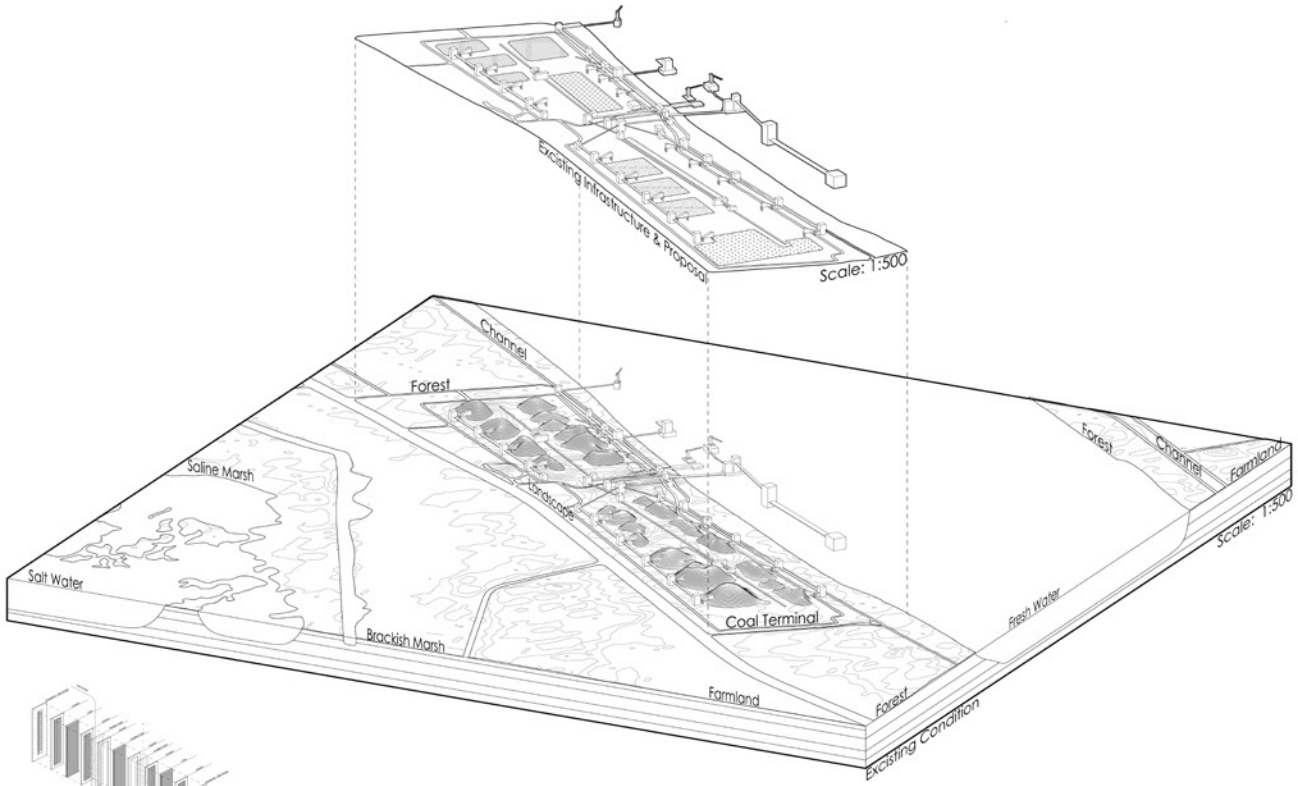
Maidencane
Panicum hemitomon

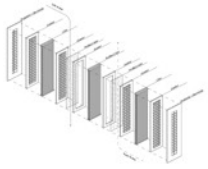
Family: Poaceae
Duration: Perennial
Height: 0.5 - 1.5 (meters)
Flower Month:
April - October
Habitat: Marshes, pools, ditches, ponds, streams, and on the margins of wet prairie.

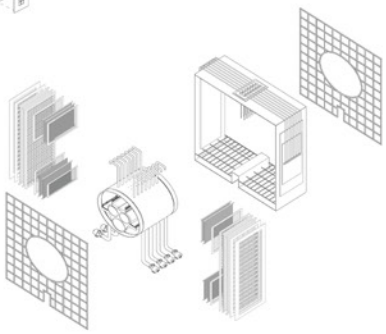
Marsh Zones (%):
Saline Marsh: N/A
Brackish Marsh: N/A
Intermediate Marsh: 0.76
Fresh Marsh: 25.6

OBL



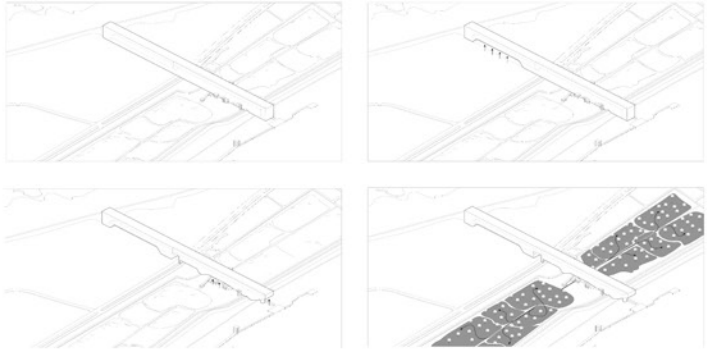






Reverse Electrodialysis

Reverse electrodialysis (RED) is a renewable energy source that uses the energy from the mixing of salt and freshwater. This Gibbs free energy of mixing is available when concentrated and diluted salt solutions mix and RED captures this salinity gradient energy using ion exchange membranes.



Kandelia candel
Kandelia candel

Family: Rhizophoraceae
Duration: Perennial
Height: 1.50 - 8.00 (meters)
Flower Month:
July - August
Habitat: Occurs locally on banks of tidal rivers among other mangrove species, but is rather rare.

Marsh Zones (%):
Saline Marsh: 0.60
Brackish Marsh: N/A
Intermediate Marsh: N/A
Fresh Marsh: N/A

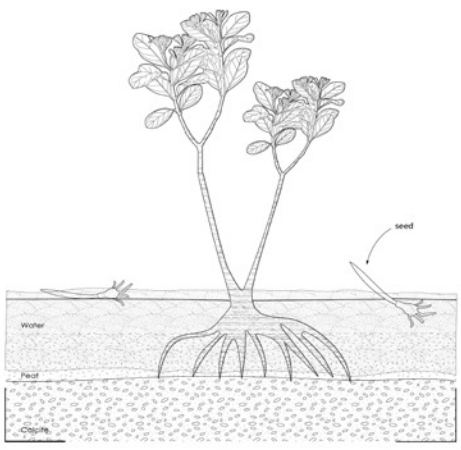
OBL

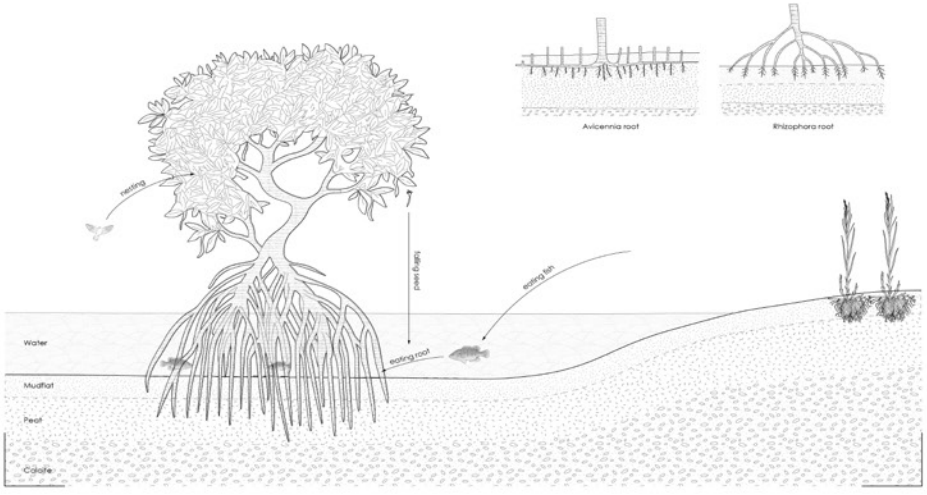
Black mangrove
Avicennia germinans

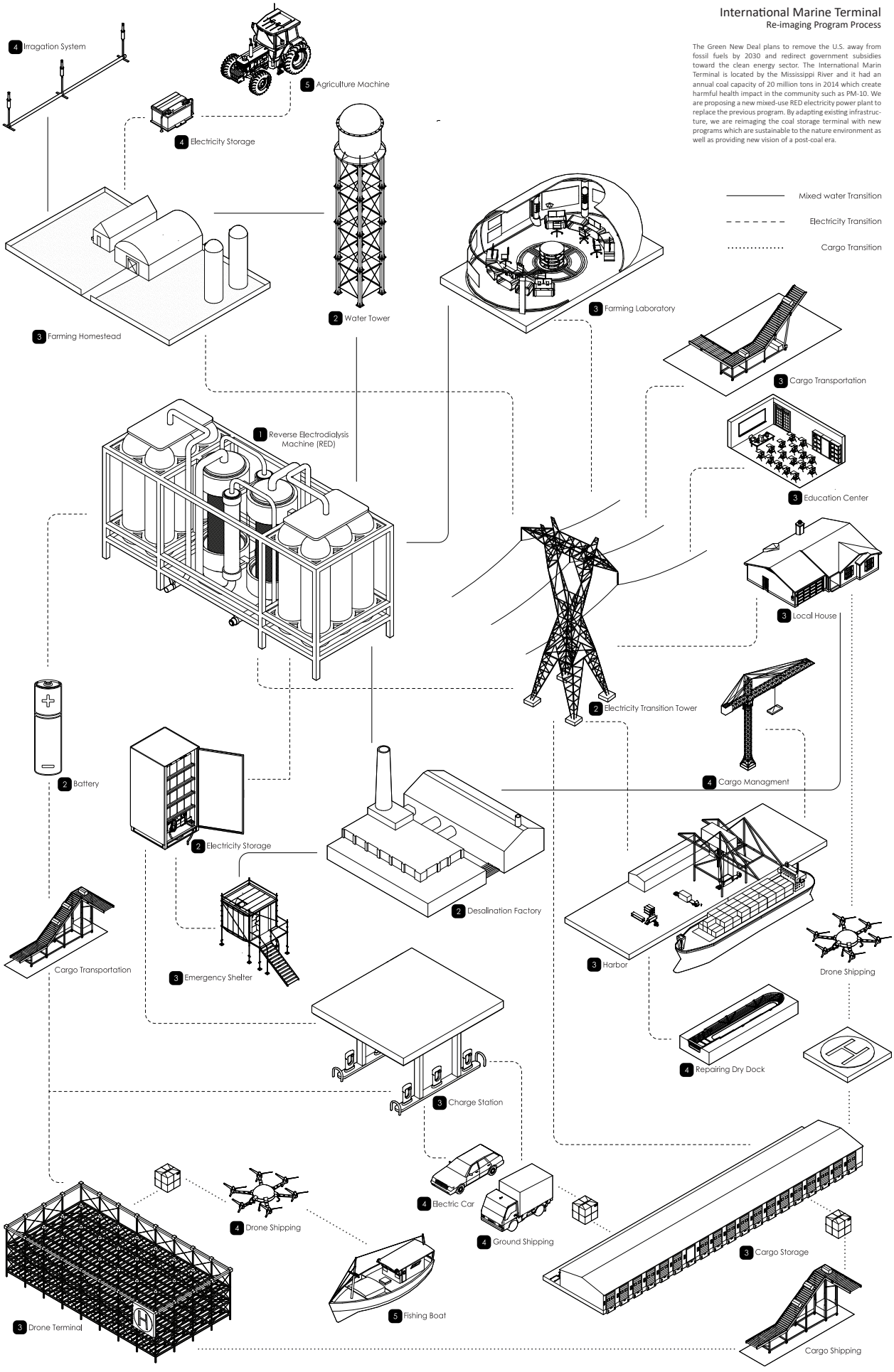
Family: Verbenaceae
Duration: Perennial
Height: 10.0 - 20.0 (meters)
Flower Month:
July - August
Habitat: Mangrove lagoons and along tidal shorest.

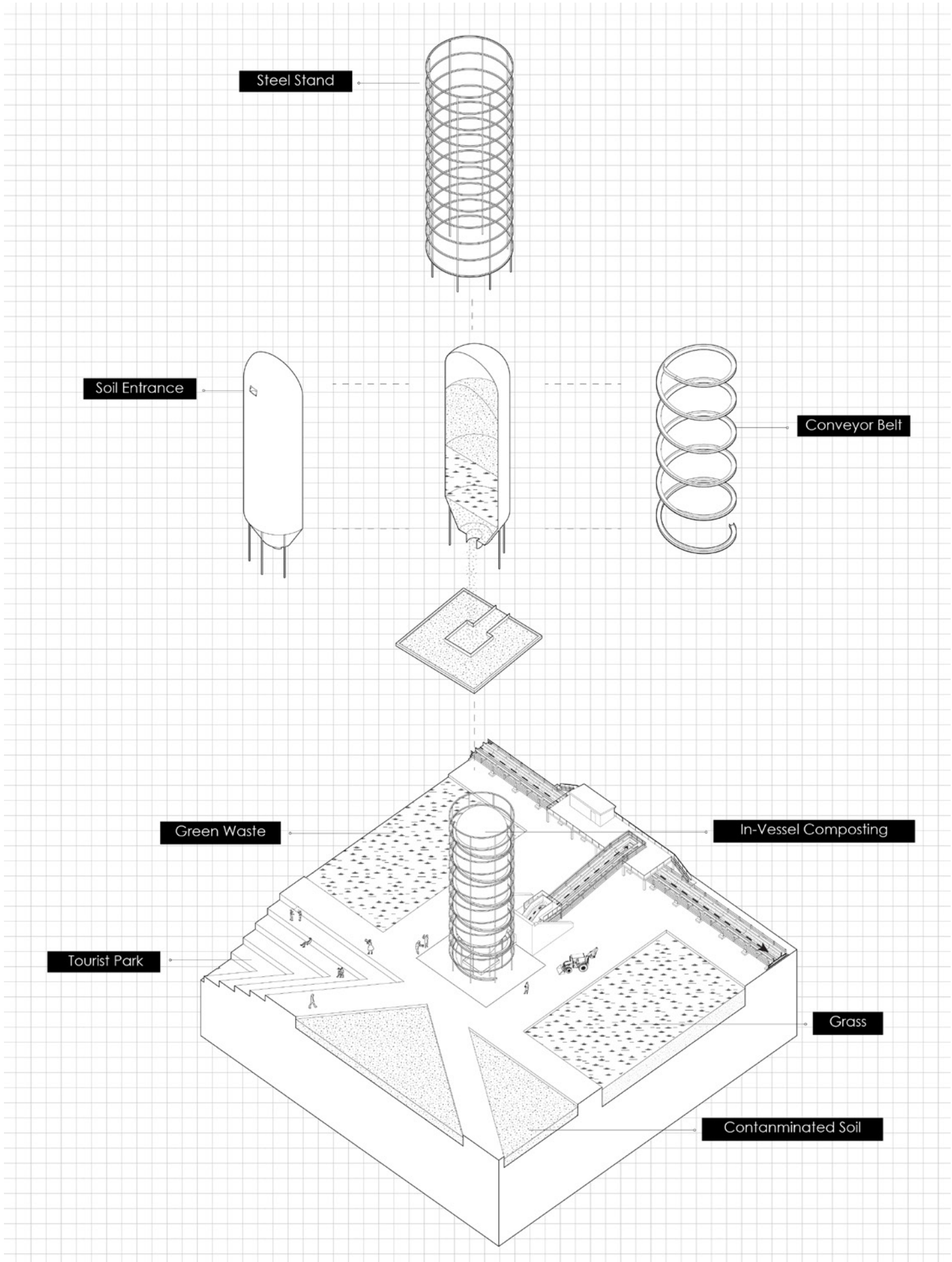
Marsh Zones (%):
Saline Marsh: 0.60
Brackish Marsh: N/A
Intermediate Marsh: N/A
Fresh Marsh: N/A

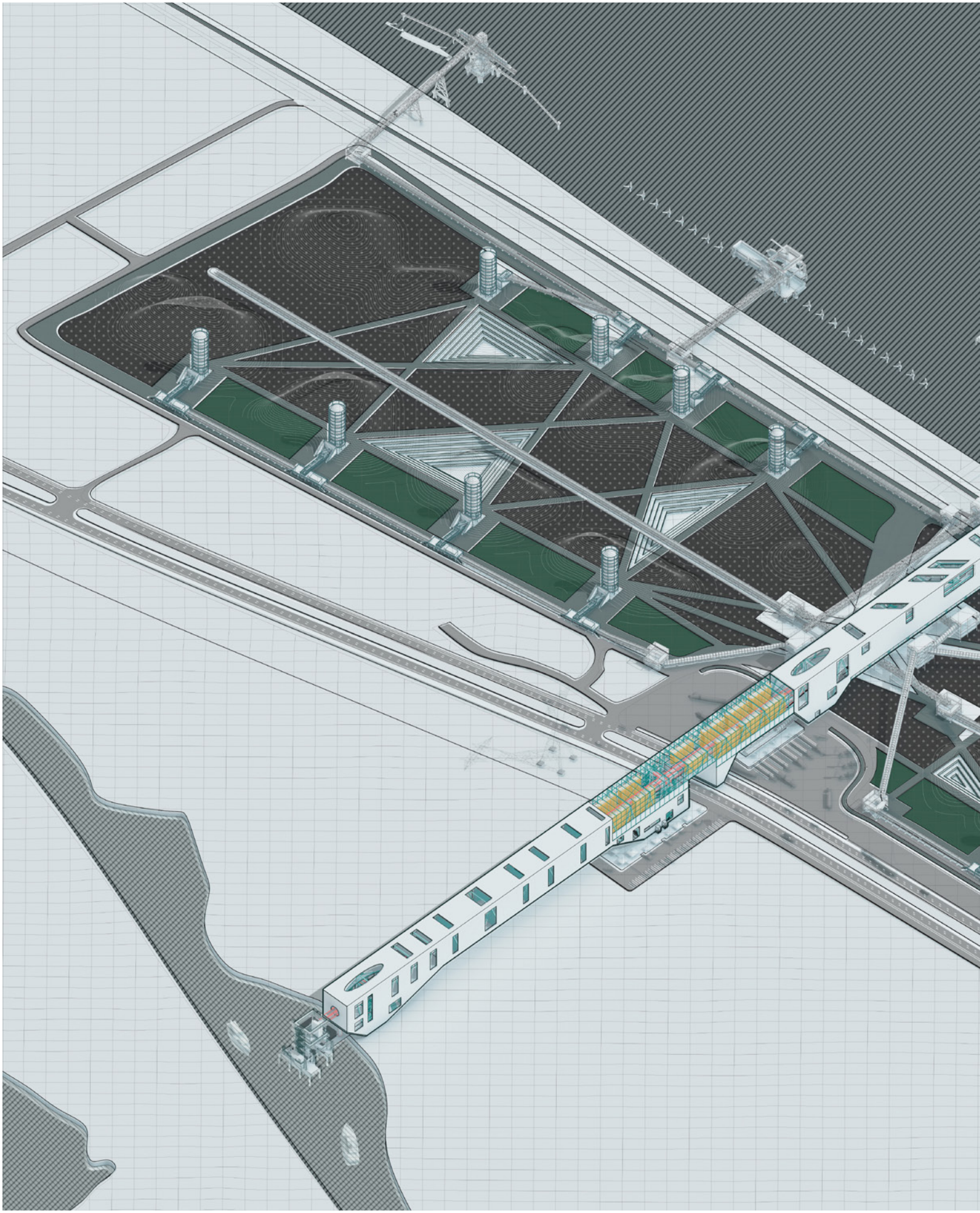
OBL

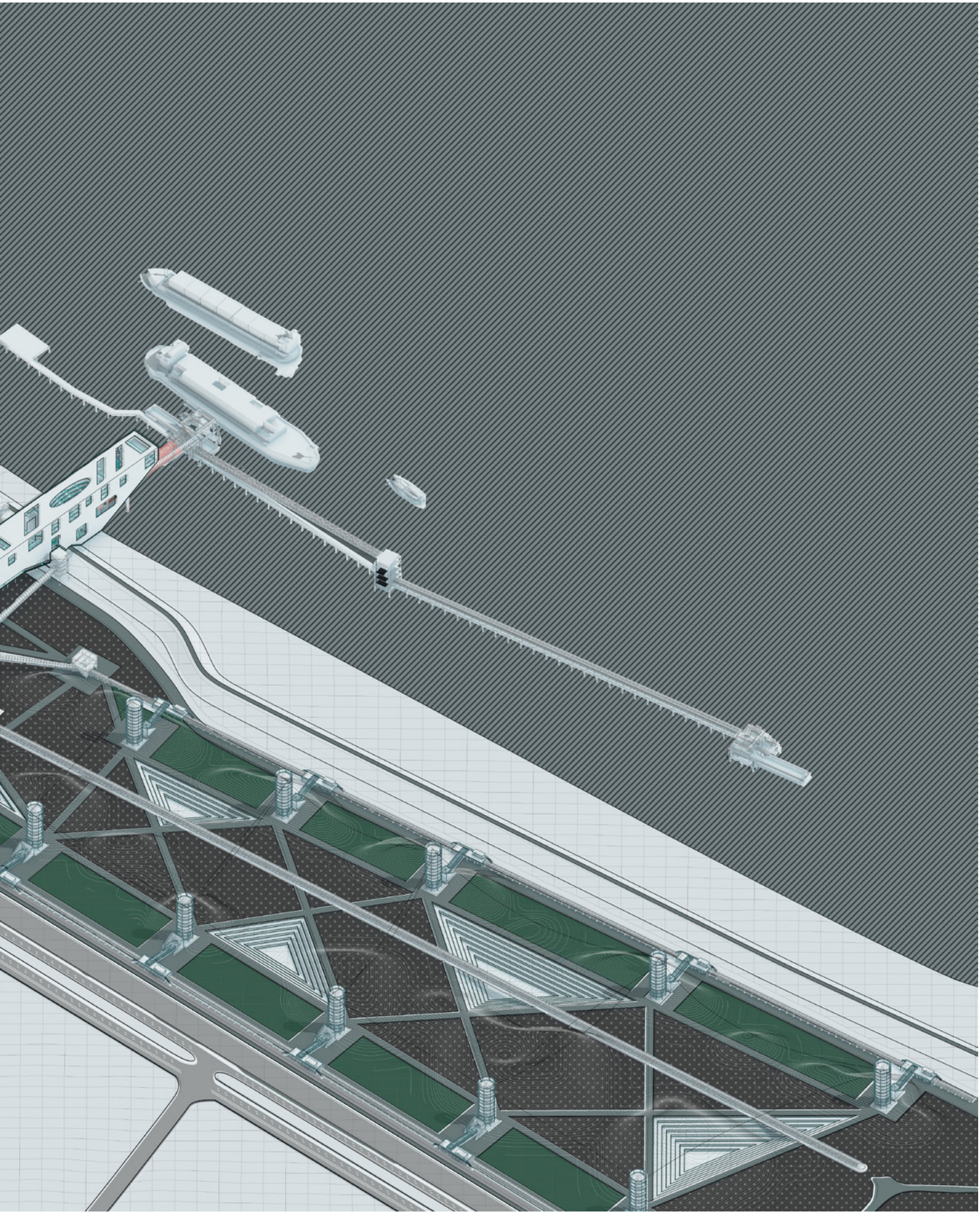


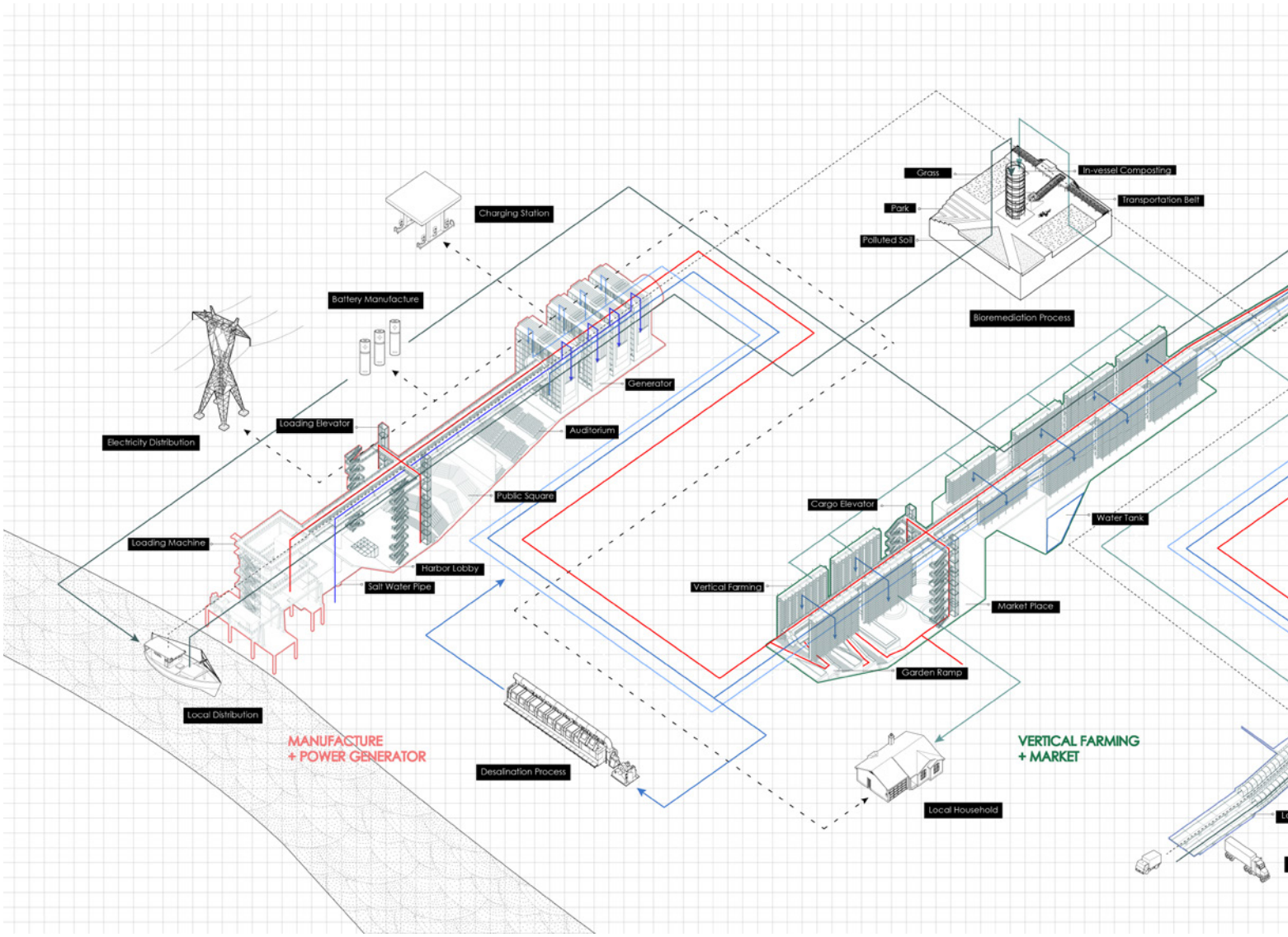


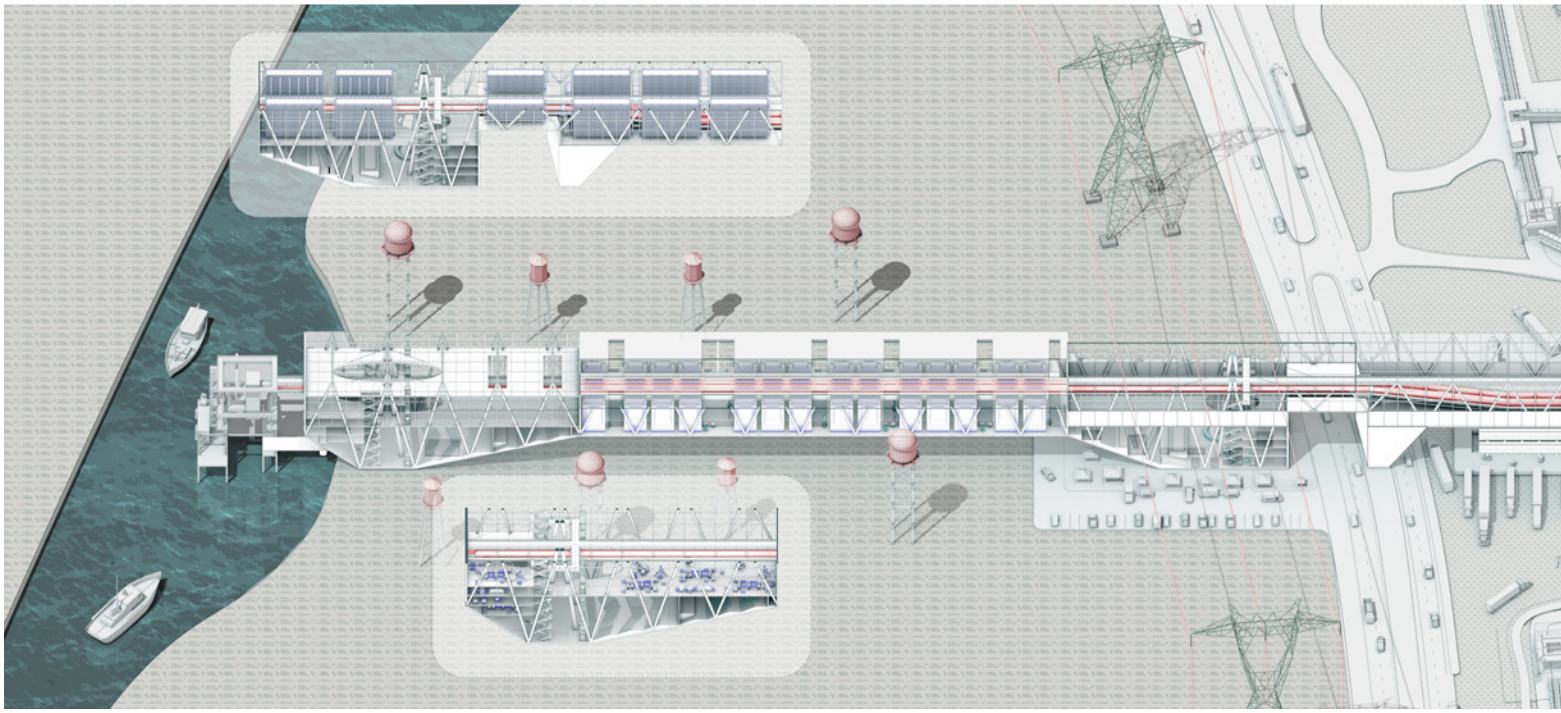

International Marine Terminal
Re-imaging Program Process
The Green New Deal plans to remove the U.S. away from fossil fuels by 2030 and redirect government subsidies toward the clean energy sector. The International Marin Terminal is located by the Mississippi River and it had an annual coal capacity of 20 million tons in 2014 which create harmful health impact in the community such as PM-10. We are proposing a new mixed-use RED electricity power plant to replace the previous program. By adapting existing infrastructure, we are reimaging the coal storage terminal with new programs which are sustainable to the nature environment as well as providing new vision of a post-coal era.
Mixed water Transition
Electricity Transition
Cargo Transition
4 Irragation System
5 Agriculture Machine
4 Electricity Storage
2 Water Tower
3 Farming Homestead
3 Farming Laboratory
3 Cargo Transportation
1 Reverse Electrodialysis Machine (RED)
3 Education Center
3 Local House
2 Electricity Transition Tower
2 Battery
4 Cargo Managment
2 Electricity Storage
2 Desalination Factory
Cargo Transportation
3 Emergency Shelter
3 Harbor
Drone Shipping
4 Repairing Dry Dock
3 Charge Station
4 Electric Car
4 Drone Shipping
4 Ground Shipping
3 Cargo Storage
5 Fishing Boat
3 Drone Terminal
Cargo Shipping

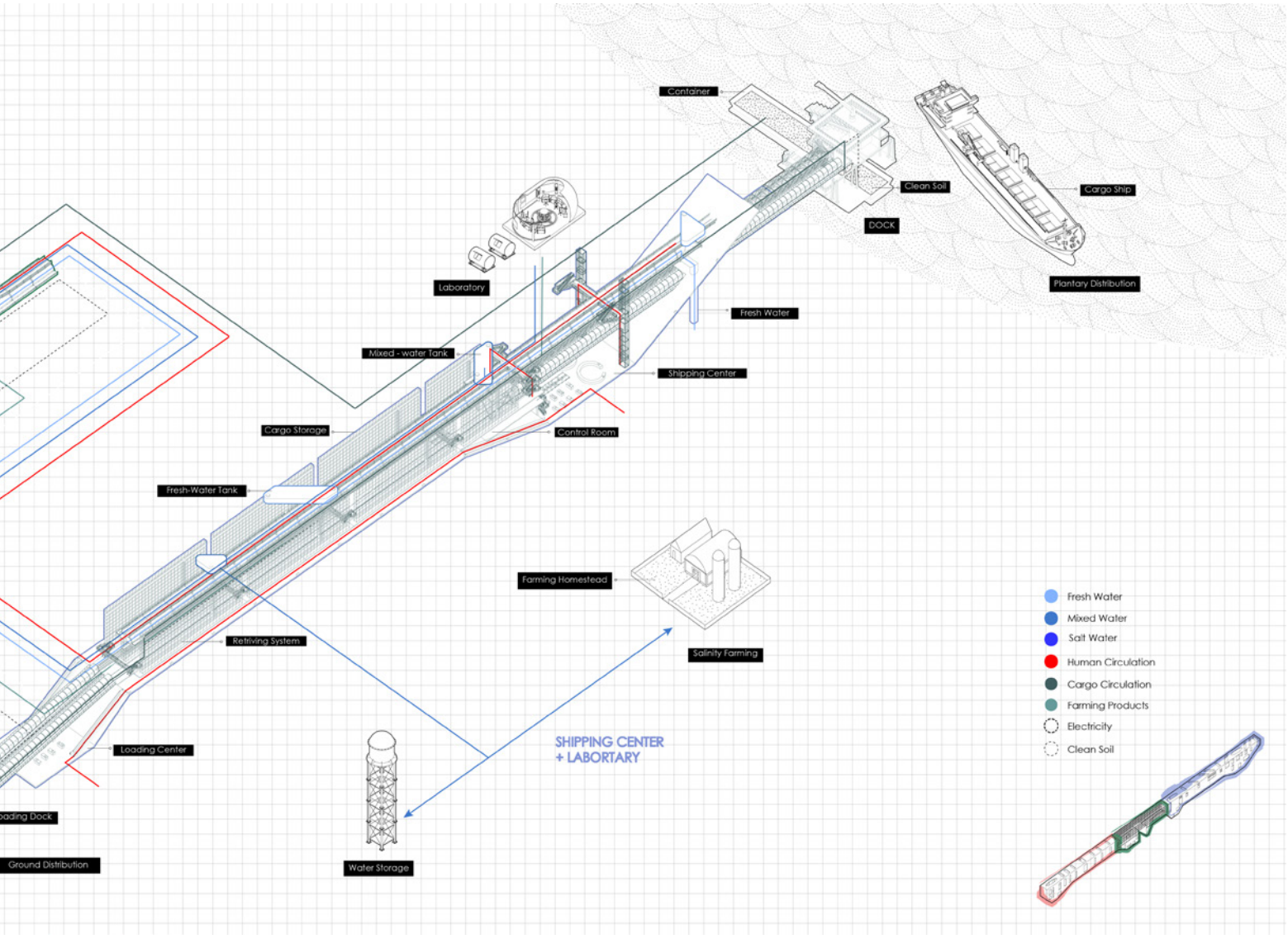

Steel Stand
Soil Entrance
Conveyor Belt
Green Waste
In-Vessel Composting
Tourist Park
Grass
Contanminated Soil

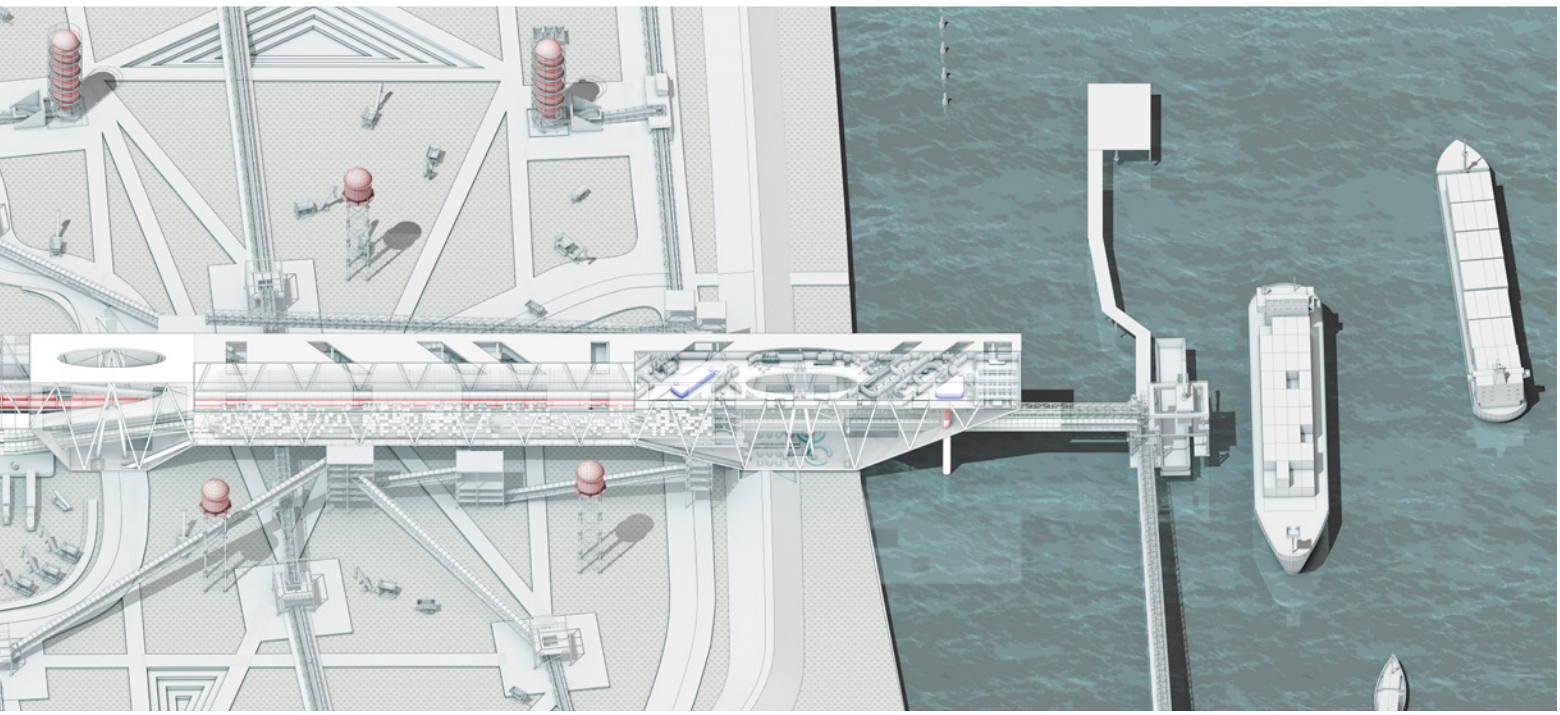


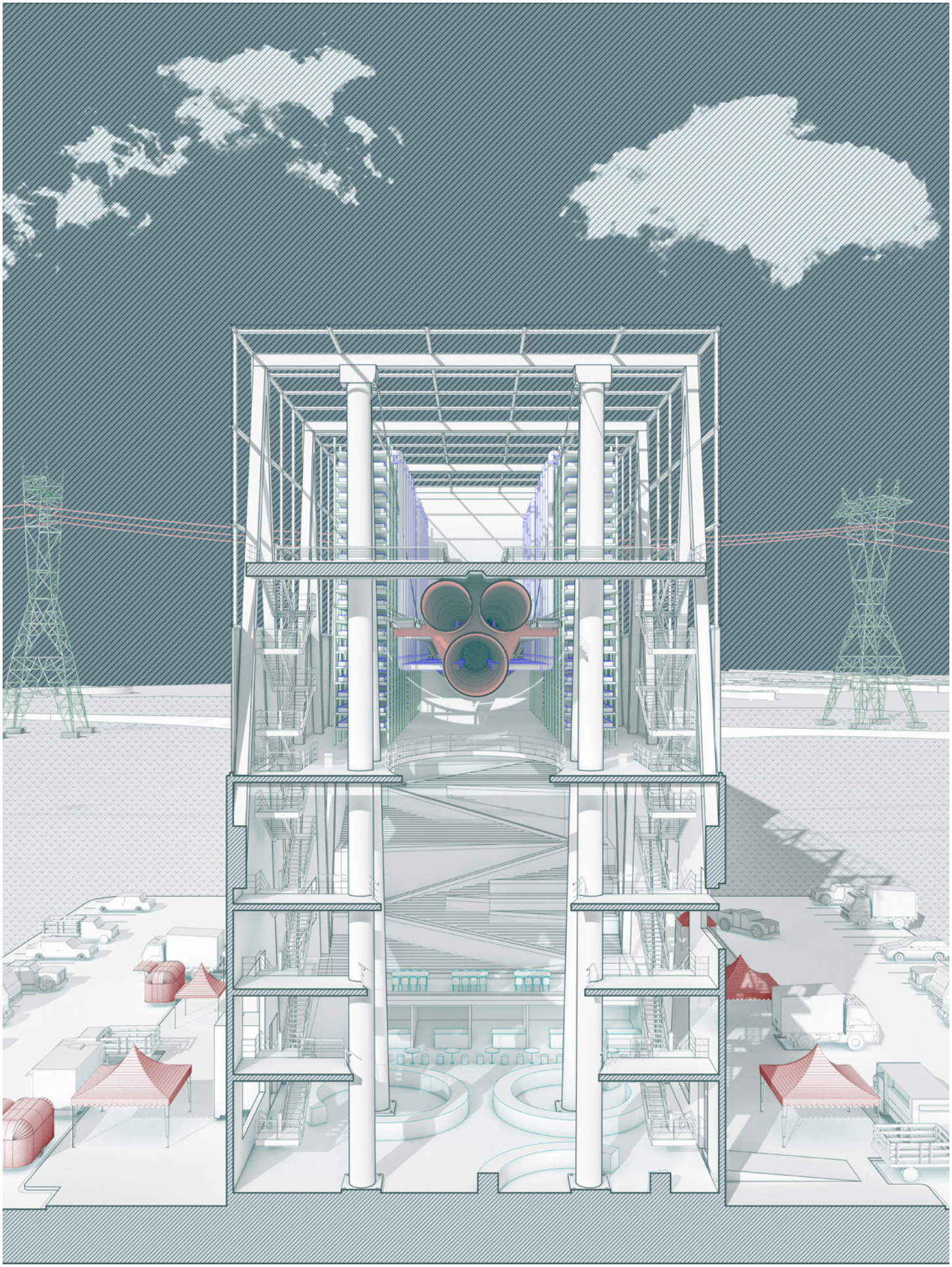


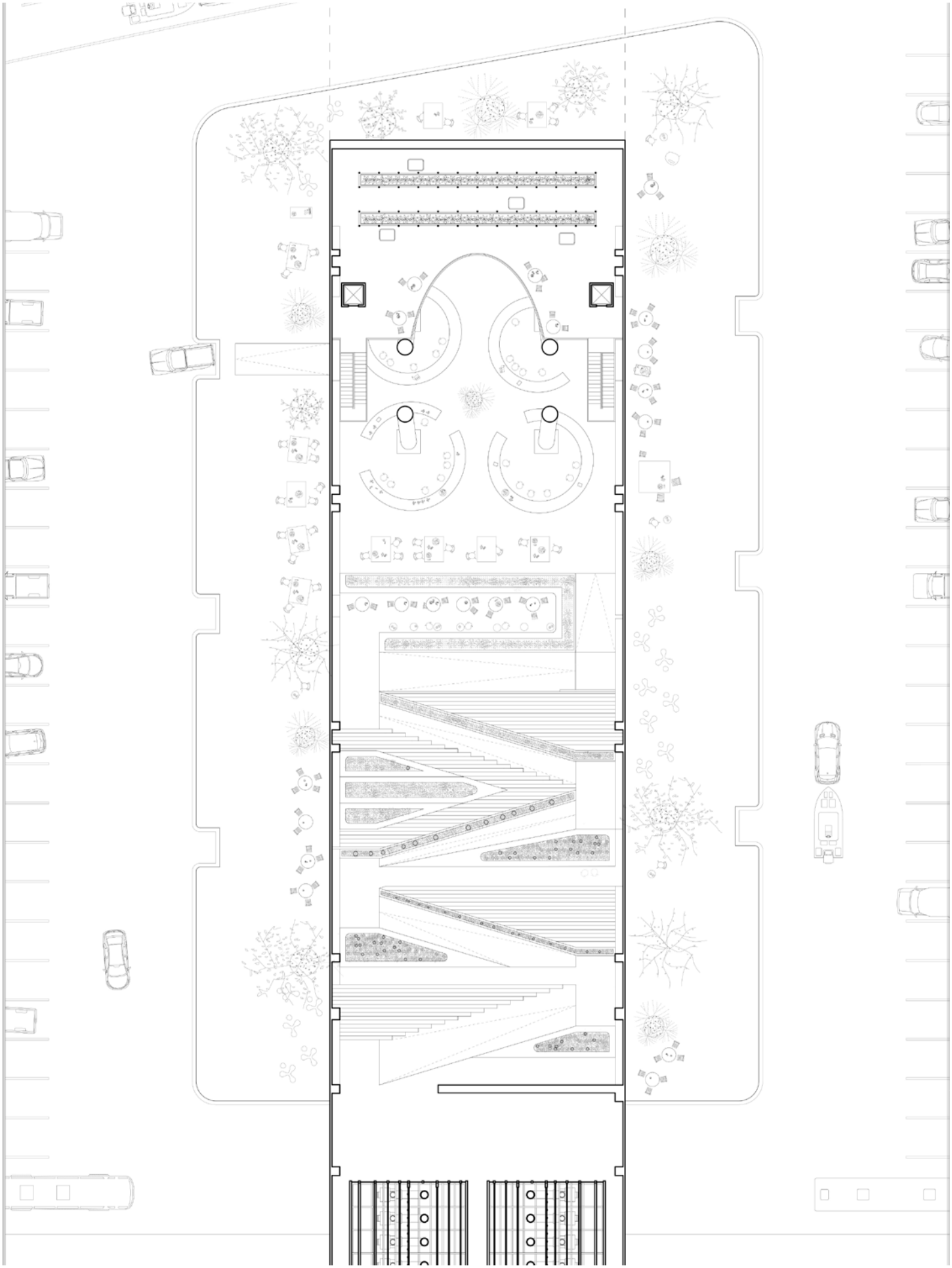

Charging Station
Battery Manufacture
Electricity Distribution
Loading Elevator
Generator
Auditorium
Public Square
Loading Machine
Harbor Lobby
Salt Water Pipe
Local Distribution
MANUFACTURE
+ POWER GENERATOR
Desalination Process
Grass
In-vessel Composting
Transportation Belt
Park
Polluted Soil
Bioremediation Process
Cargo Elevator
Water Tank
Vertical Farming
Market Place
Garden Ramp
Local Household
VERTICAL FARMING
+ MARKET

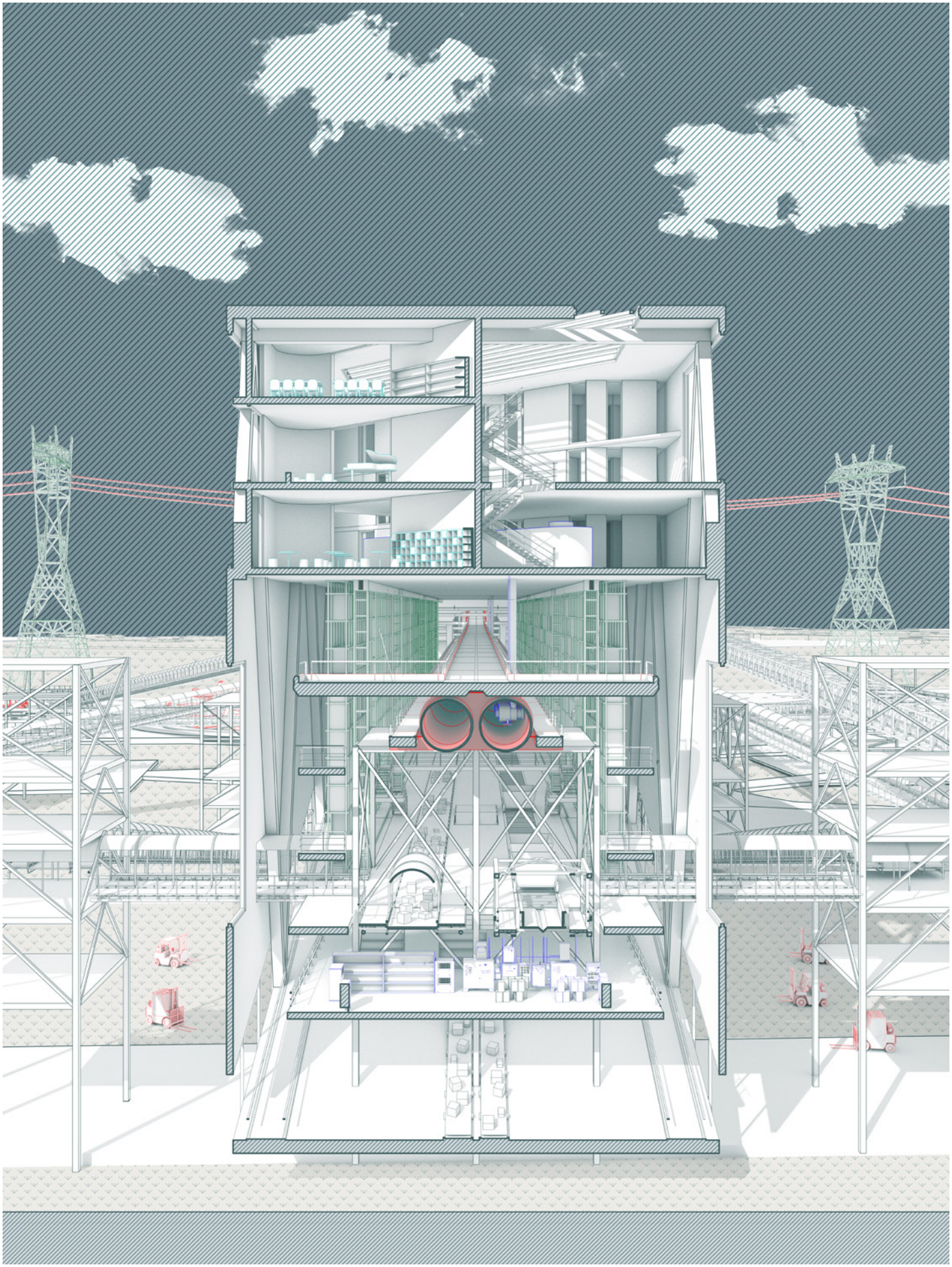


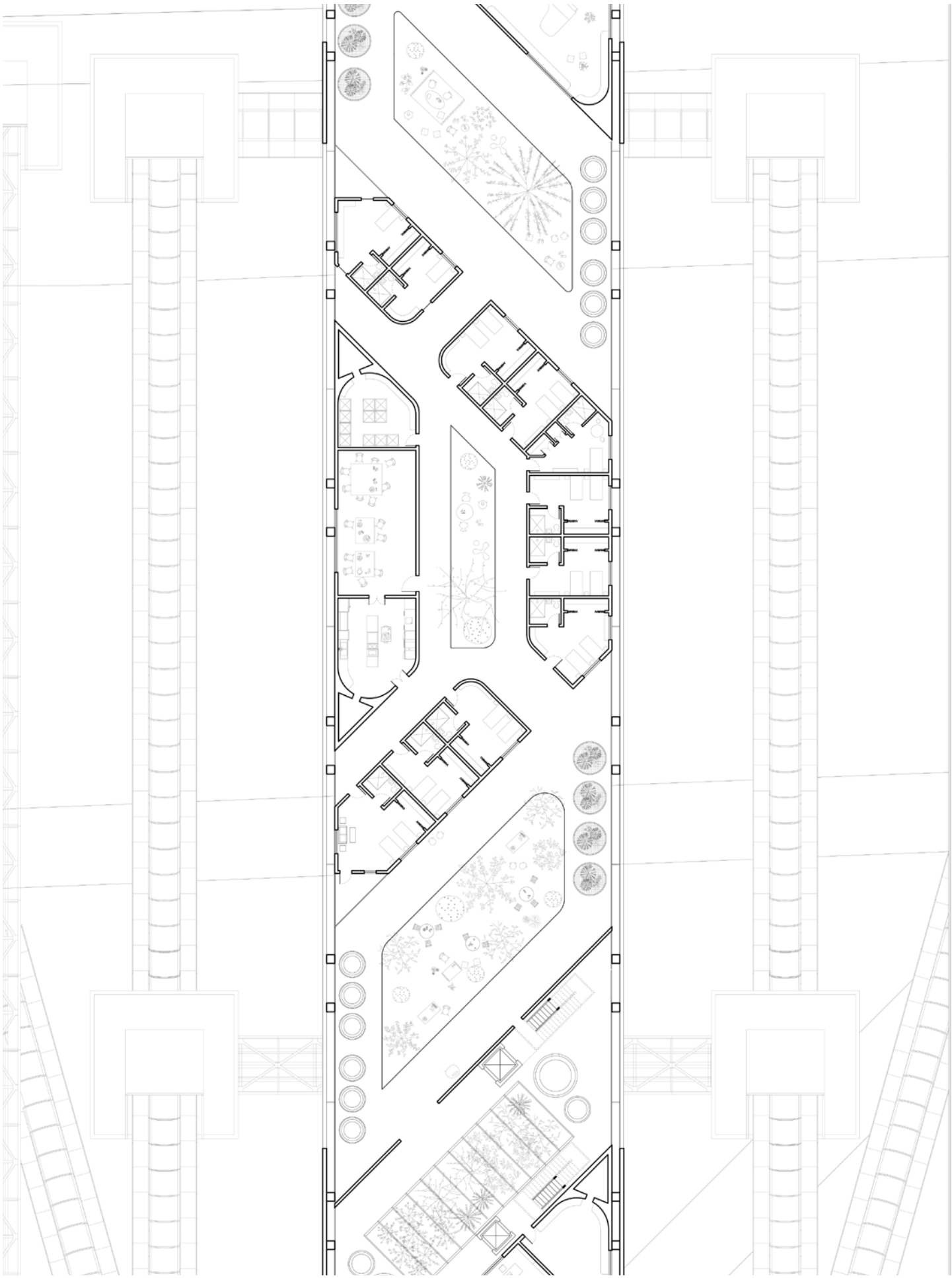

Container
Clean Soil
Cargo Ship
DOCK
Plantary Distribution
Laboratory
Fresh Water
Mixed - water Tank
Shipping Center
Cargo Storage
Control Room
Fresh-Water Tank
Farming Homestead
Retriving System
Salinity Farming
Loading Center
SHIPPING CENTER
+ LABORTARY
Ground Distribution
Water Storage
Fresh Water
Mixed Water
Salt Water
Human Circulation
Cargo Circulation
Farming Products
Electricity
Clean Soil

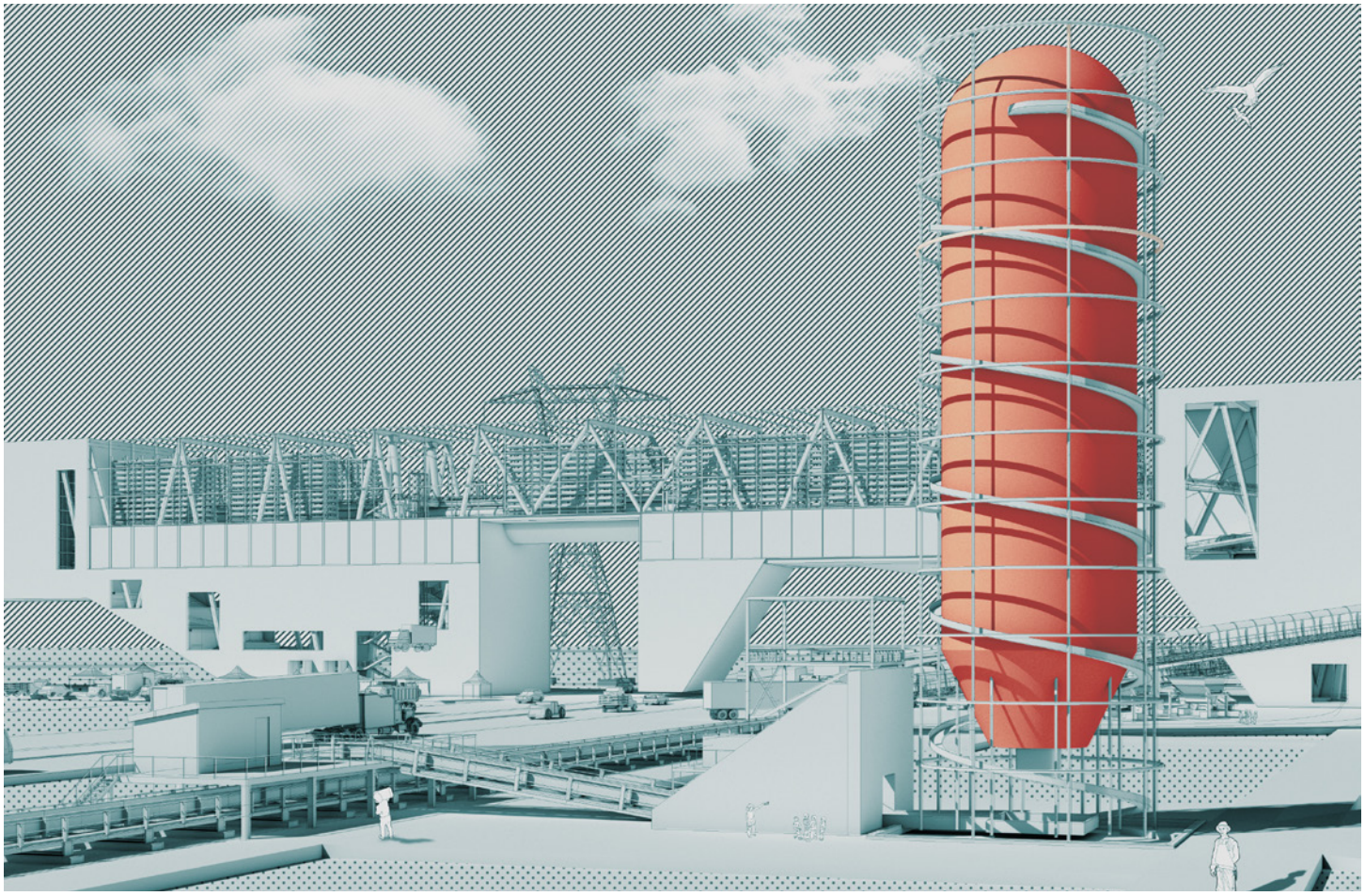


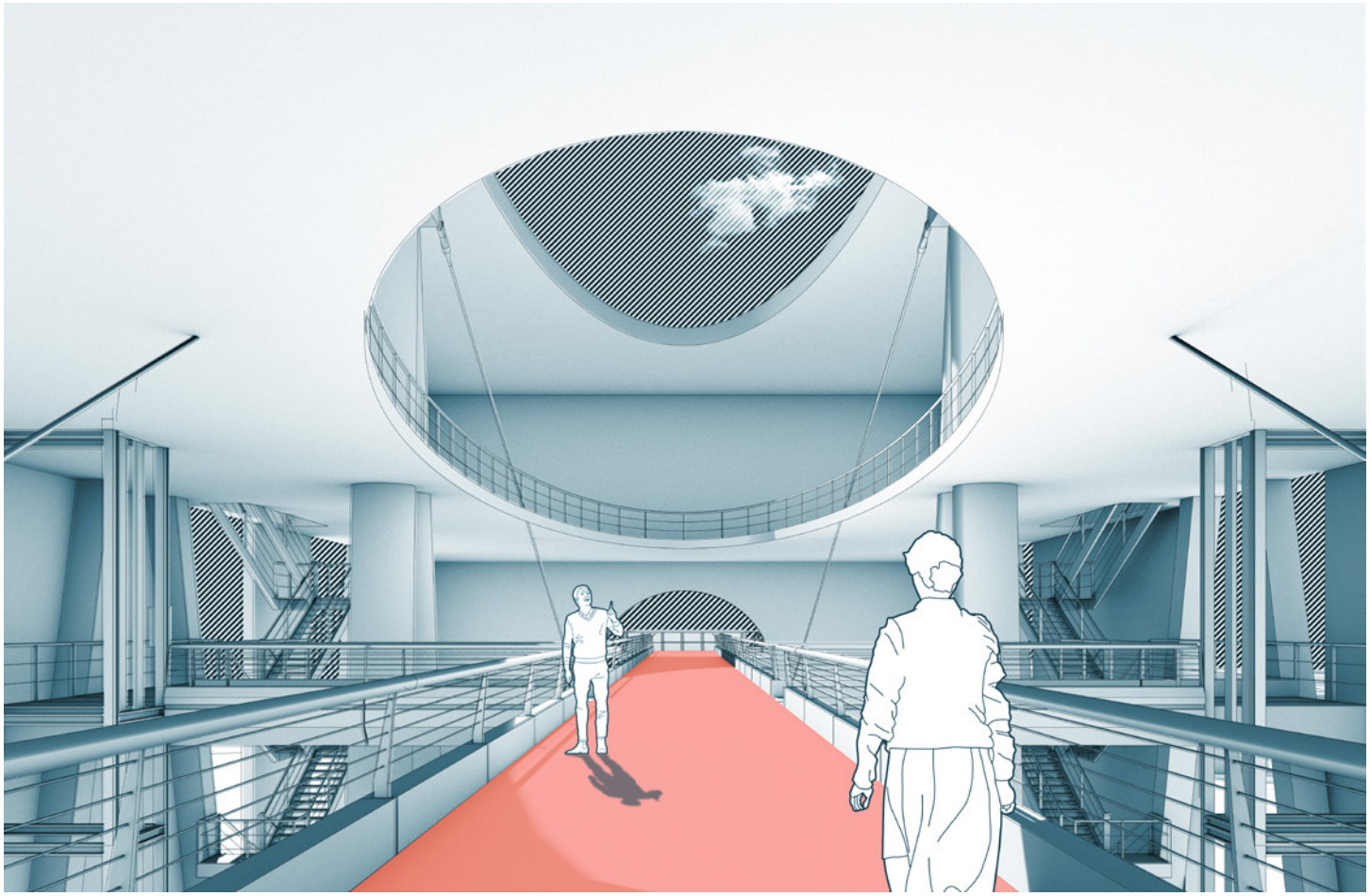


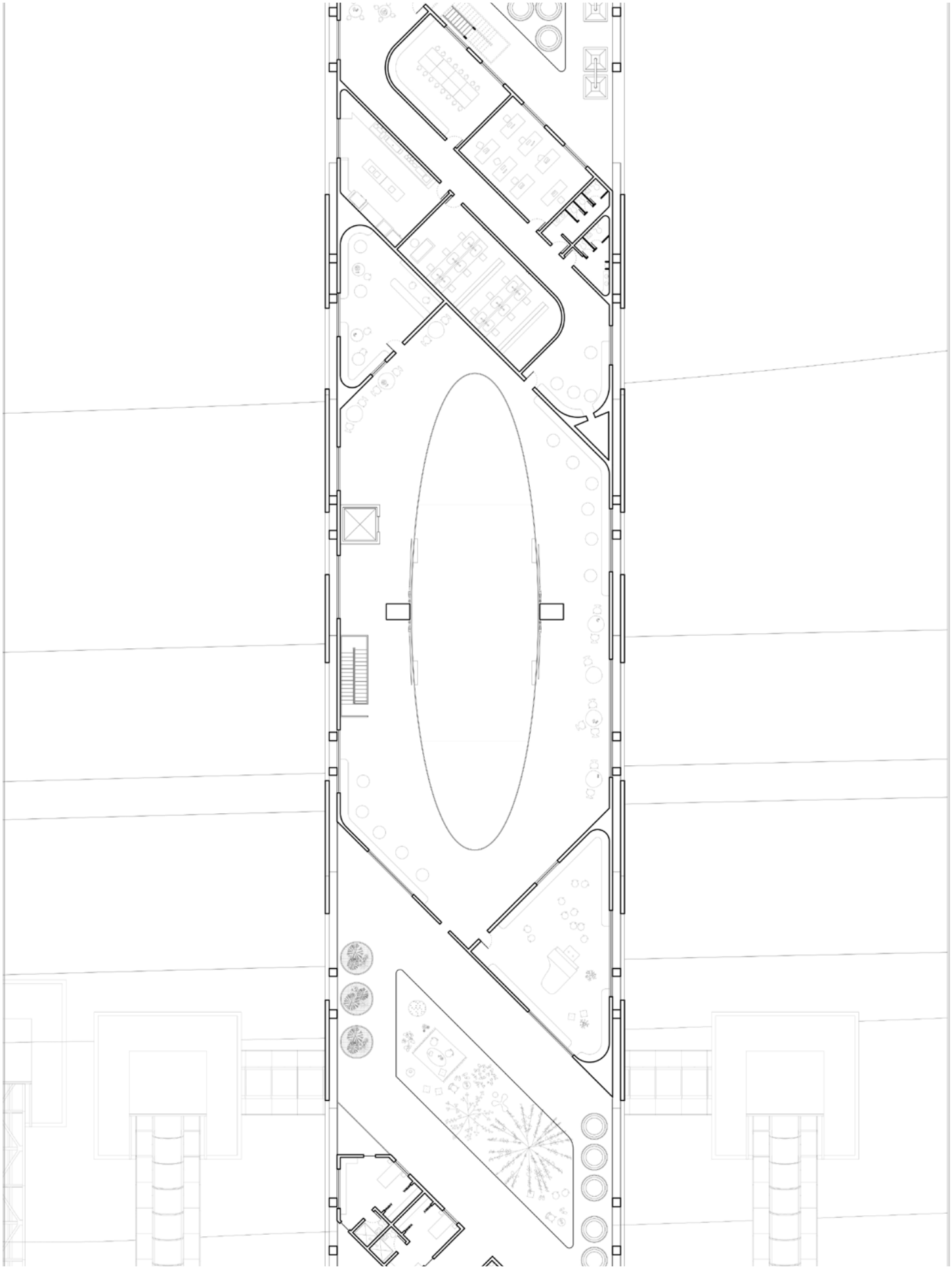








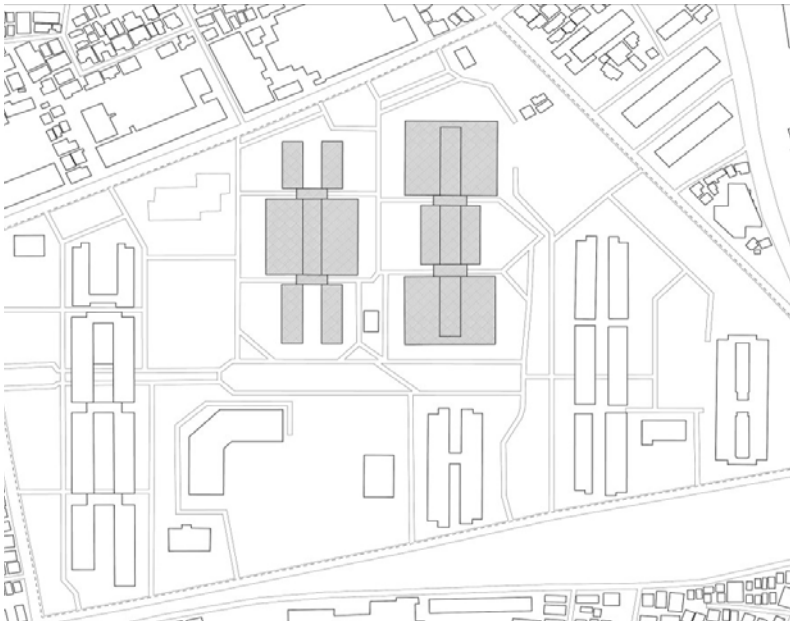




03_TOWRADS NEWER BRUTALISM

Mix-use Housing by High Line Park

Site Area: 2,700 sq. m
Partner: Haitong Chen
Instructor: Emmett Zeifman
Site: Manhattan, New York, NY, USA
Gsapp Advanced Studio, Summer 2019

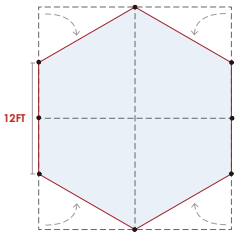


This project revisits the “new brutalism” articulated by Alison and Peter Smithson and Reyner Banham in the early 1950s: a legible synthesis of spatial, structural and material organization; individual buildings conceived as urban theses; directly express new technologies and social relations through architectural form. We critically evaluate the efficacy of these principles today, considering parallels and differences between the postwar years and the present. Where “new brutalism” sought to give form to the emerging welfare state and consumer society of the postwar period, the newer brutalism might express and challenge the transformed economies, social relations, and environments of the new millenium. Working on sites between 10th Ave and the High Line, these experiments are positioned as a direct challenge to the ongoing development of an area laden with financial and cultural capital. The studio asks students to define alternative structures, offering new possibilities of living, working, and building in the 21st century.

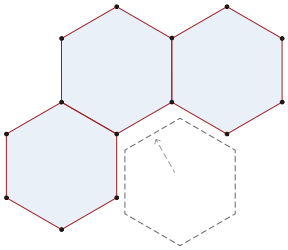
Form Strategy

EXAGON BEHIVES AS
A PERFECT GRID

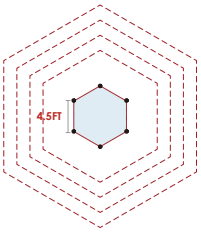
BRUTALISM ARCHITECTURE
FORMS



INDIVIDUAL CELL

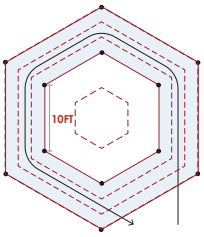


GRID STRATEGY

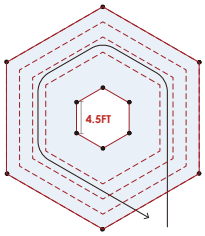


CORE

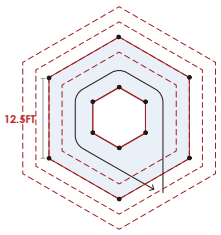
PROGRAM: LIVE ANDWORK



PUBLIC REALM

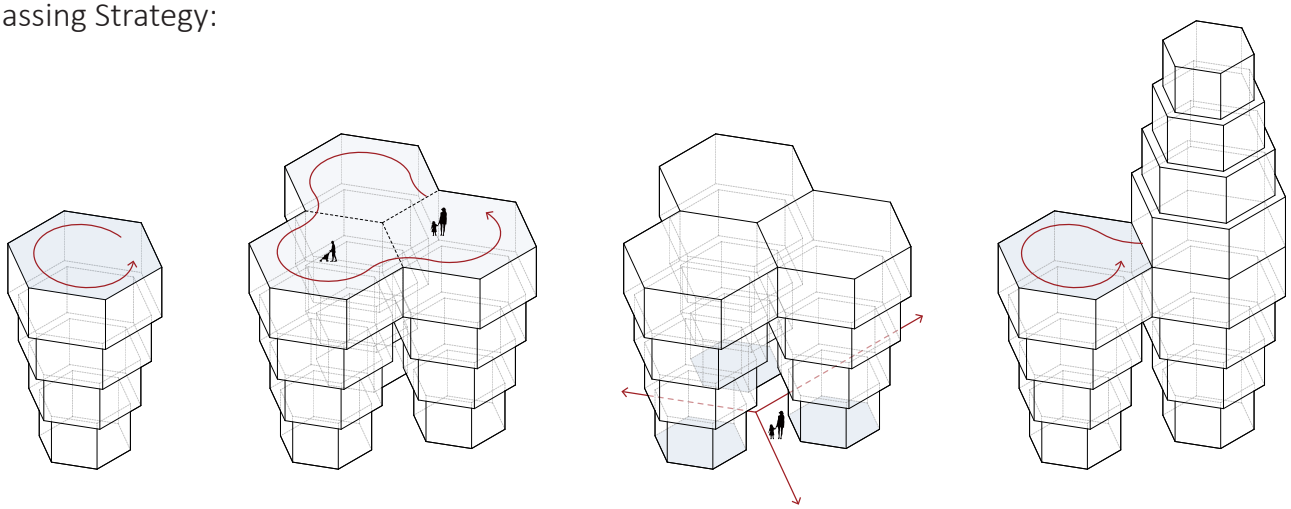


RESIDENTIAL

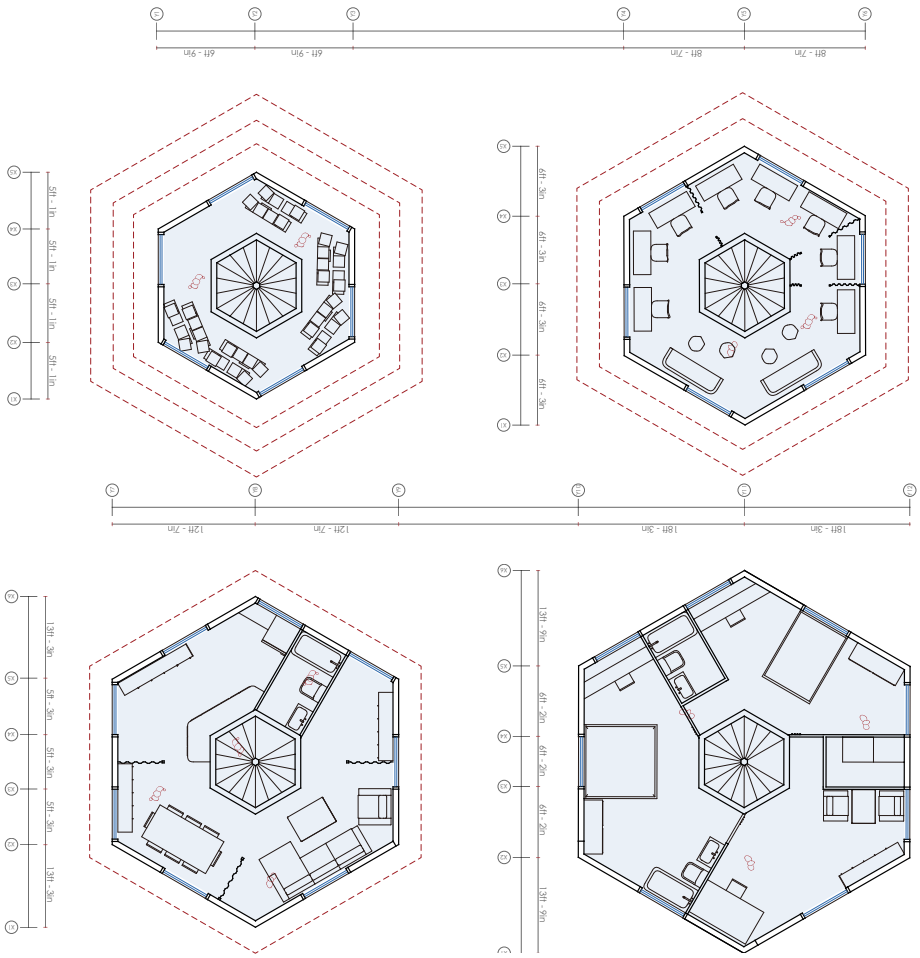


COMMERCIAL

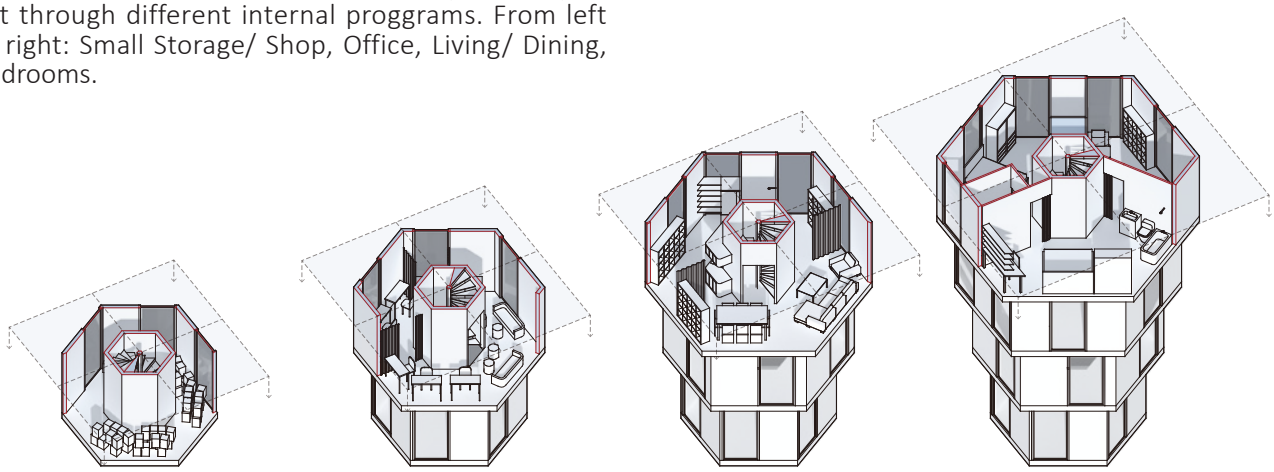
Massing Strategy:



Above: The roof area provides maximum space which allows the maximum sunlight hit the planters. Six differnt planter and three water threatment devices has been designed for this project. Three water threatment are 1. water tank. 2. water recycke system. 3. water threatment. Six planters are: 1. exterior o racks . 2. Square Organizers. 3. Exterior hangers for clibbing plans. 4. Interior L shape racks. 5. Green wall system. 6. I shape racks for multi-urban plans.



TYPICAL PLANS: Below are different cut plan obliques cut through different internal proggrams. From left to right: Small Storage/ Shop, Office, Living/ Dining, Bedrooms.



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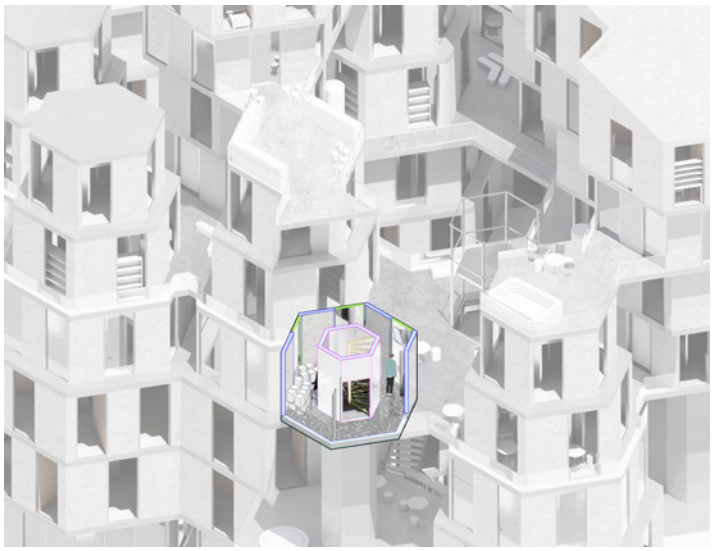

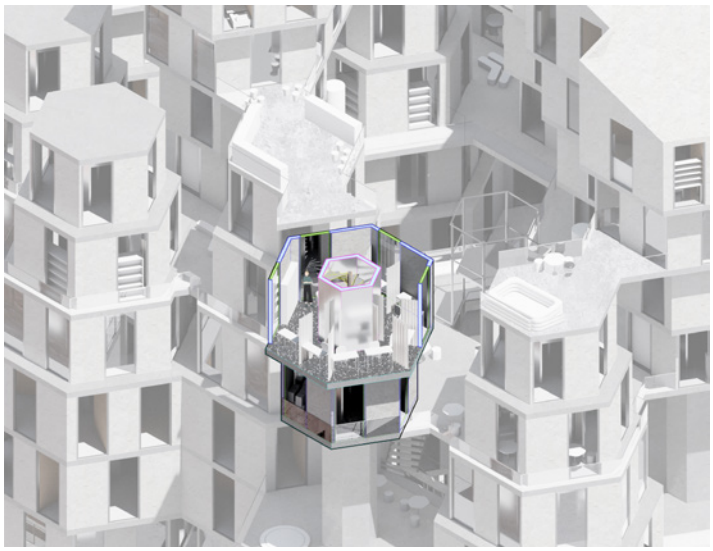

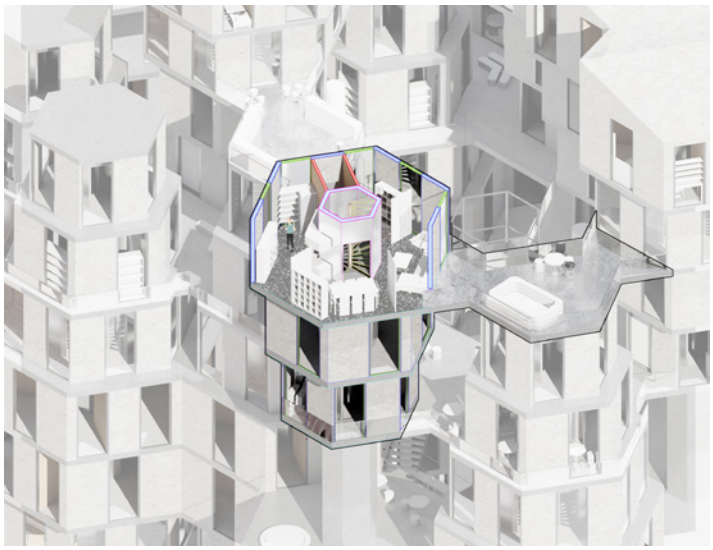

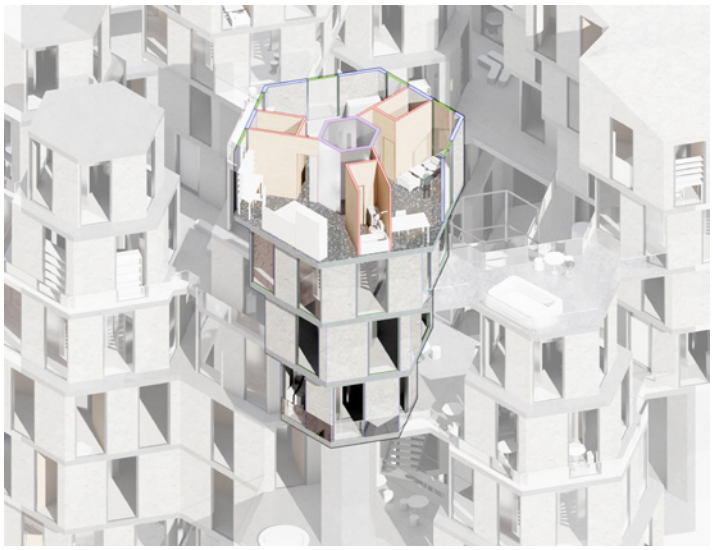

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