

WENXUAN XU

AN ARCHITECTURE STUDENT
SELECTED WORKS FROM GSAPP

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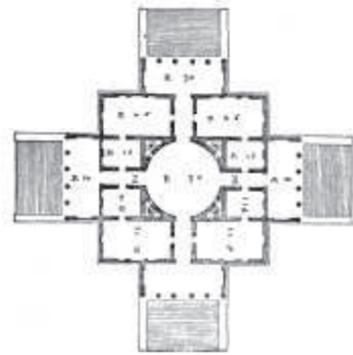
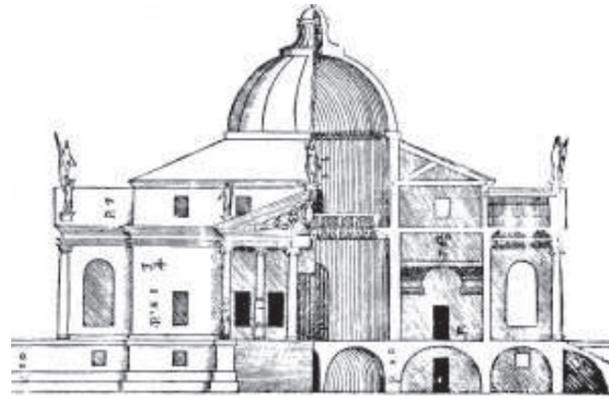
01. CORRIDOR DORMITORY

GSAPP Adv. Studio
Academic Project | Individual Work
Instructor: Hilary Sample Spring 2022





<Figures, Doors and Passages>
Robin Evans



Villa Capra 'La Rotunda' (1567-1592)
by Andrea Palladio in Vicenza

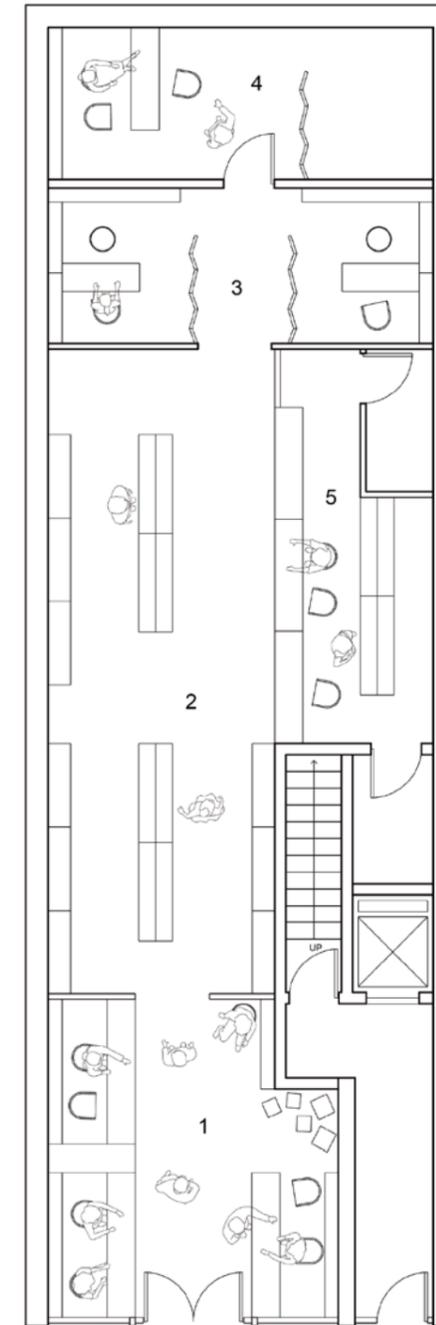
The project puts forward a new live-work housing prototype for intern nurses in Manhattan, New York. At first, I do the research about the storefront clinic where nurses usually work. This clinic is not only a clinic but also a pharmacy and has some small businesses which are related to the Chinese. Because of the high rent in New York, the clinic had to rent out a part of the physical space to reduce its financial burden. From the plan, we can see that in this clinic, one space is connected to another. People are free to talk to other people as they move through each space. This healthcare system would help to promote cohesion among the Chinese. This reminds me of the essay <Figures, Doors, and Passages> from Robin Evans.

In his essay, Evans sets out to analyze human relationships as they are realized in an architectural plan. Drawing on a fascinating comparative analysis of paintings and floor plans of domestic spaces, Evans contrasts a type of layout: the 16th-century Italian Renaissance model of interconnected rooms. In the Renaissance period, it was common for houses to have a series of rooms, all connected to one another, such as in Palladian villas. This plan layout does not distinguish between the way through a house and the occupied parts of a house. The villa was permeable and offered lots of choices for movement. It also meant the paths of inhabitants would intersect often. Evans argued that this was reflected in Italian Renaissance paintings of the time, where bodies lean into each other, interact, and touch each other. The plans of interconnected rooms, therefore, represent architecture and society of habitual gregariousness, passion, carnality, and sociality according to Evans.

Robin Evans thinks there are no corridors in that plan. But I reimagine this clinic as a large corridor with lots of society. So, in this project, the corridor is the communal space that can promote more cohesion among the nurse.

Forever Health Pharmacy

Address: 244 Grand St, New York, NY 10002, United States

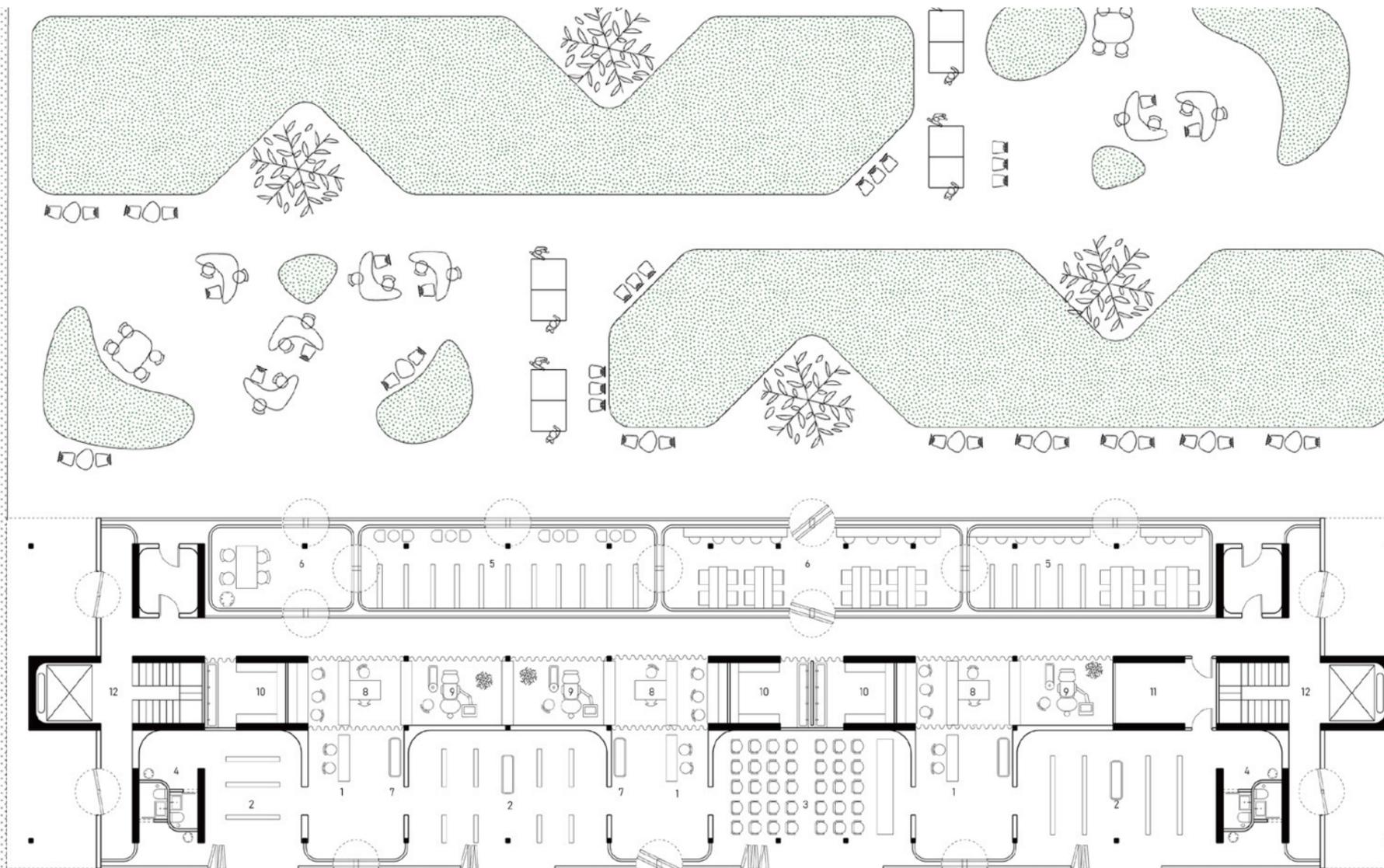


1. small business/lottery/phone card/express
2. pharmacy
3. private consult/vaccine
4. office
5. prescriptions

0 3 6 9 12 15feet

W 48th St

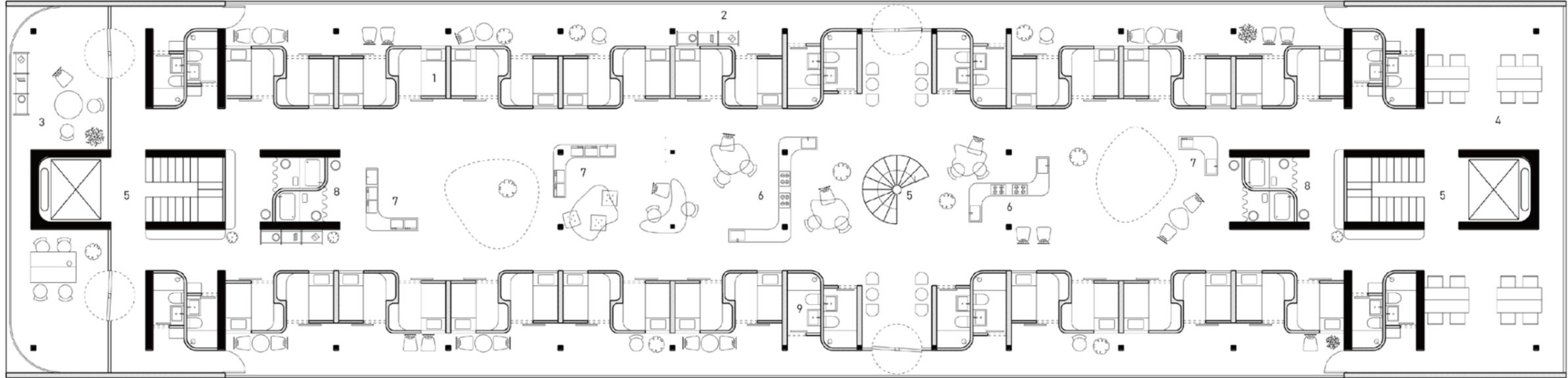
W 49th St



- 1. reception
- 2. exhibition
- 3. lecture room
- 4. restroom
- 5. library
- 6. reading space
- 7. waiting space
- 8. private consult
- 9. treatment
- 10. locker room
- 11. storage
- 12. circulation

1F

10th Ave



- 1. bedroom
- 2. corridor
- 3. balcony
- 4. studying room
- 5. circulation
- 6. kitchen
- 7. laundry spcae
- 8. spa room
- 9. restroom

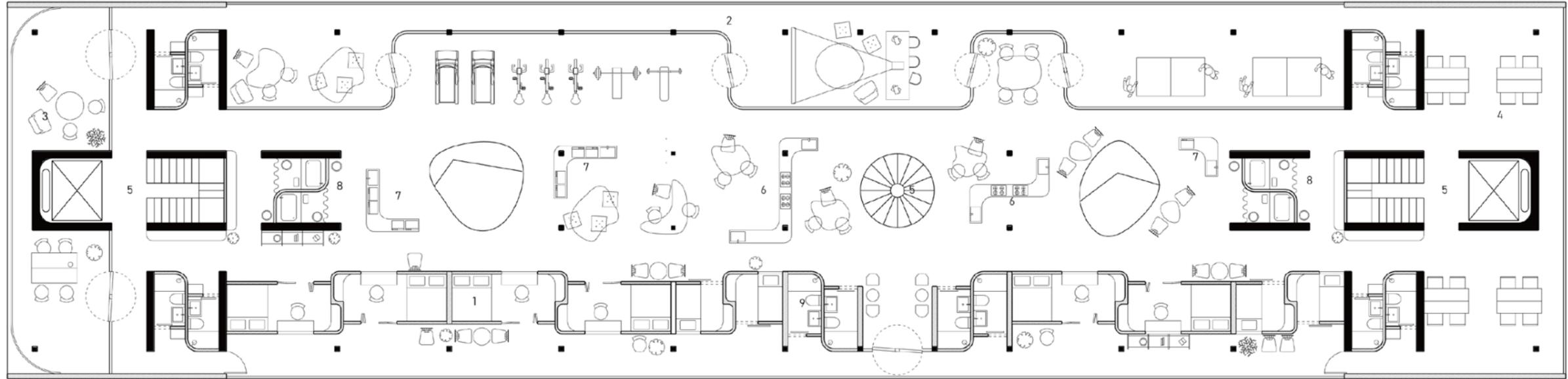
2/4F



View of the library



View of the corridor



1. bedroom
2. corridor
3. balcony

4. studying room
5. circulation
6. kitchen

7. laundry space
8. spa room
9. restroom

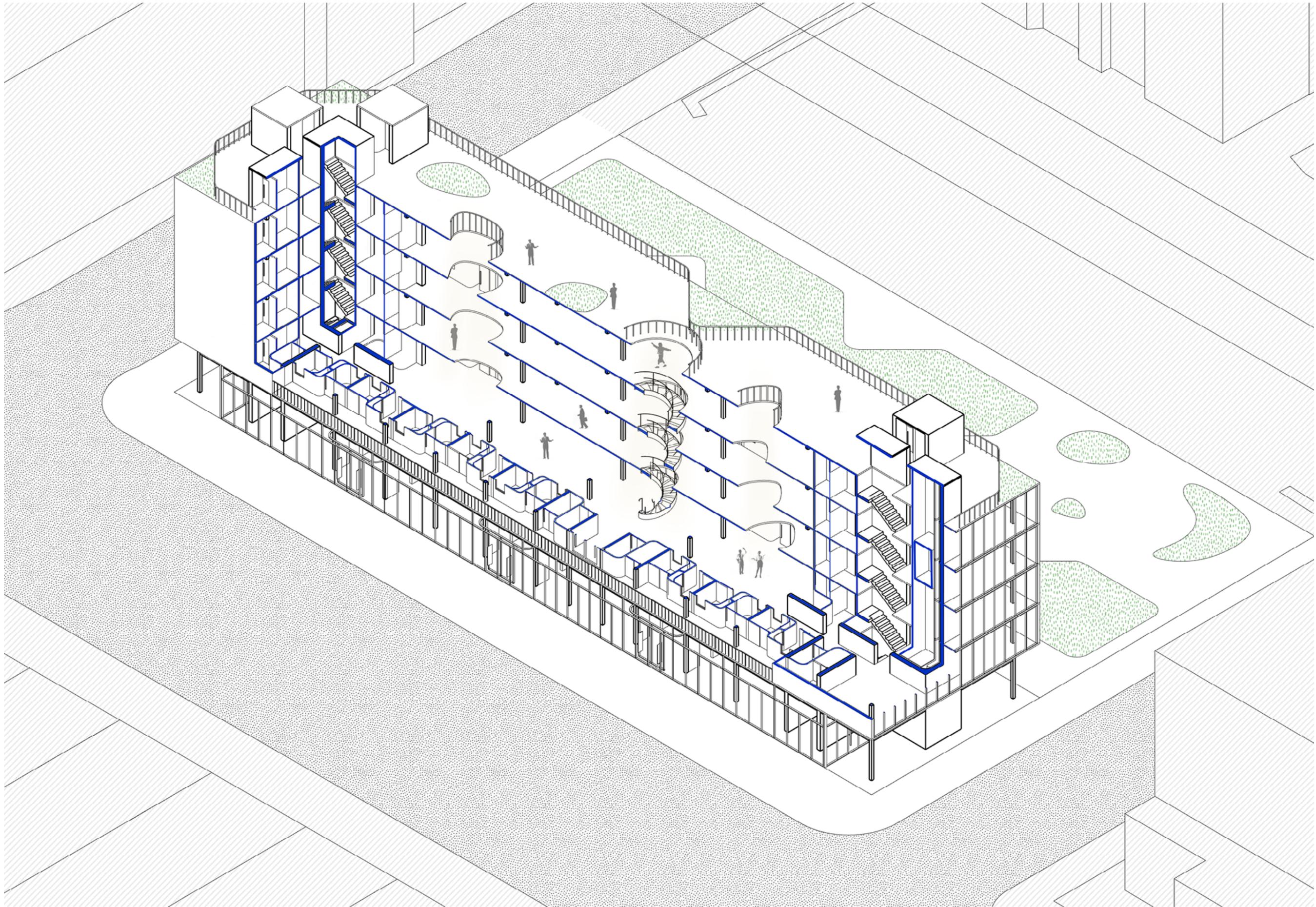
3/5F



Physical Model

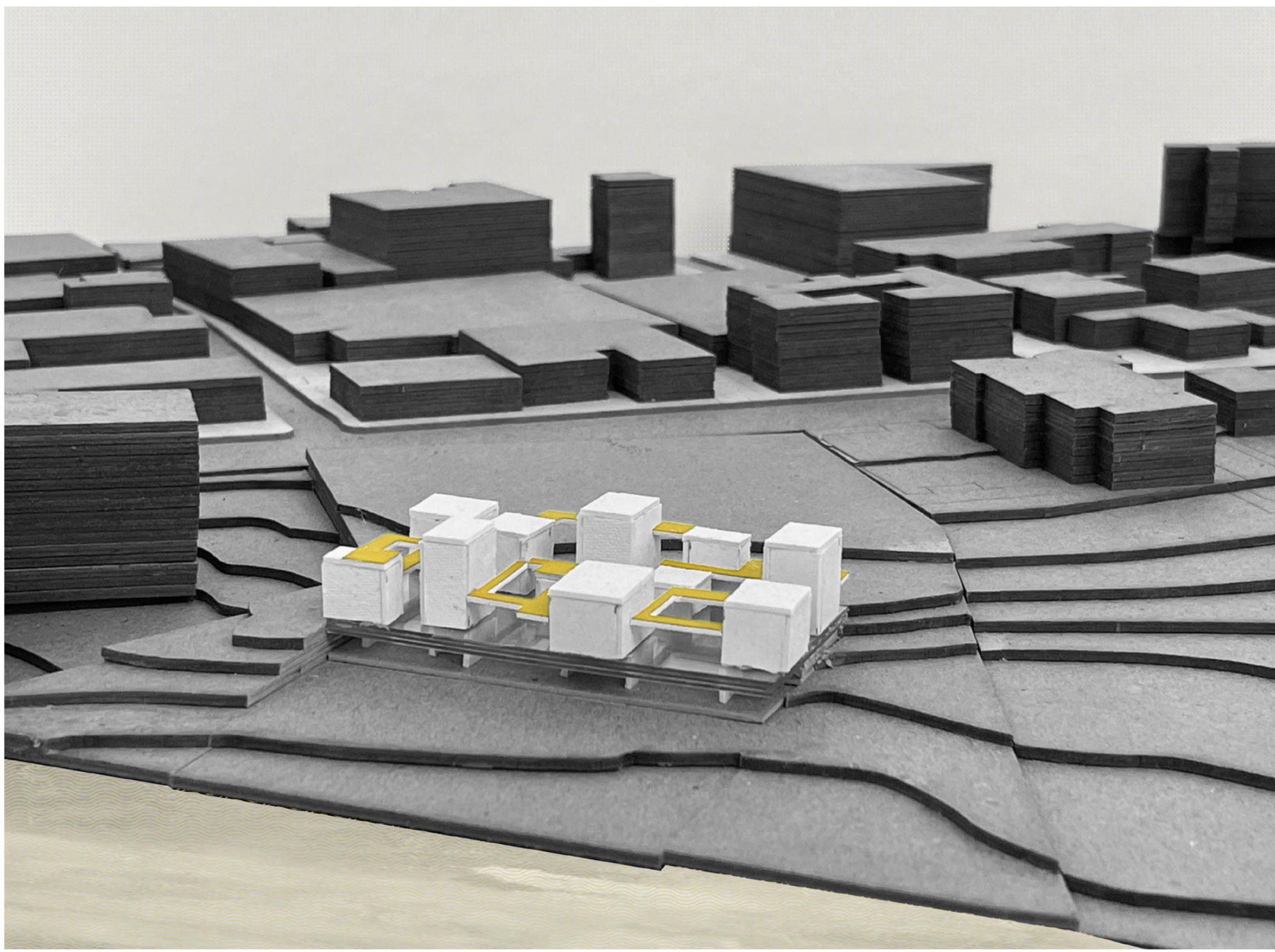


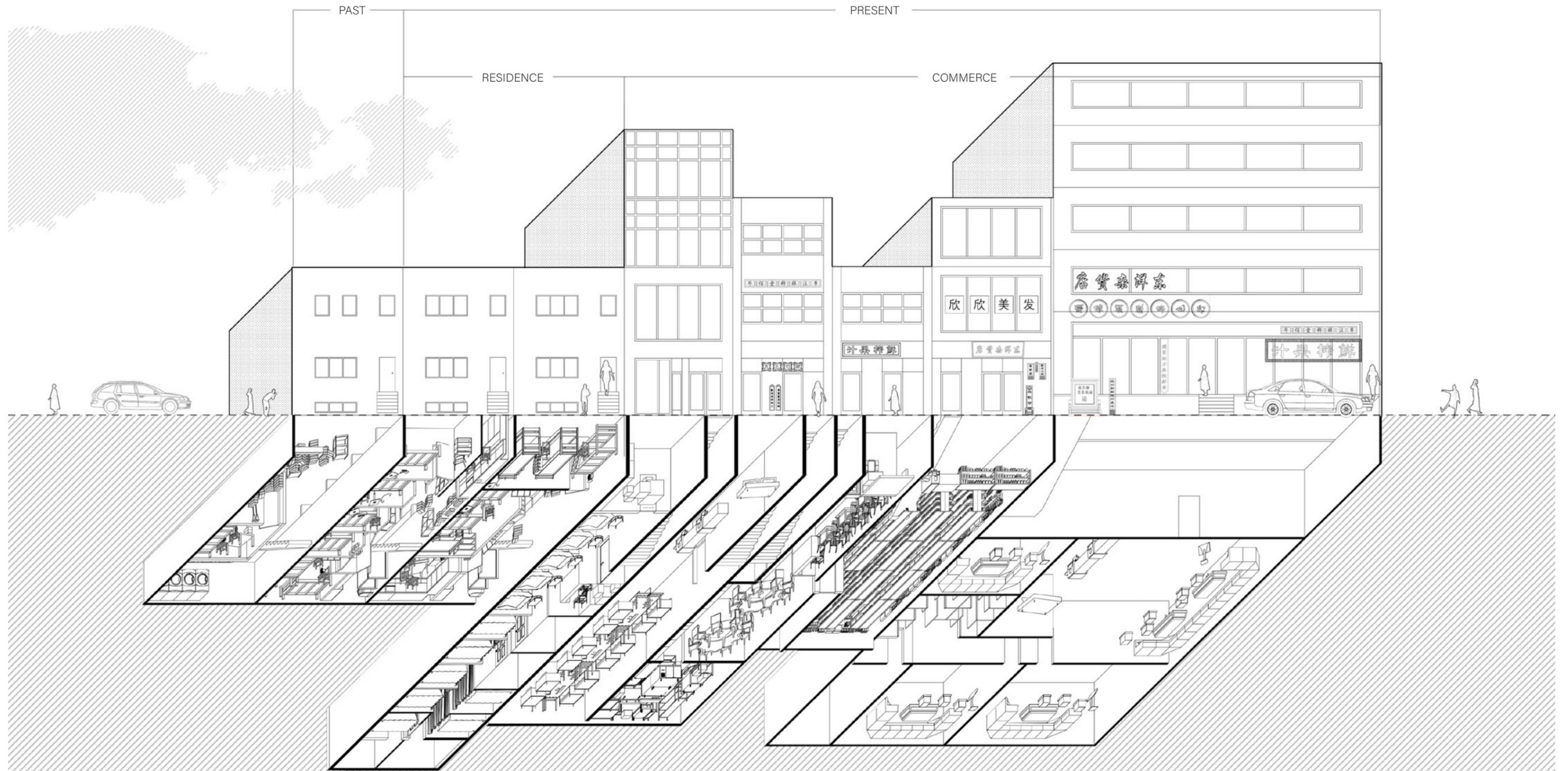
Physical Model



02. FOOD CAMPUS

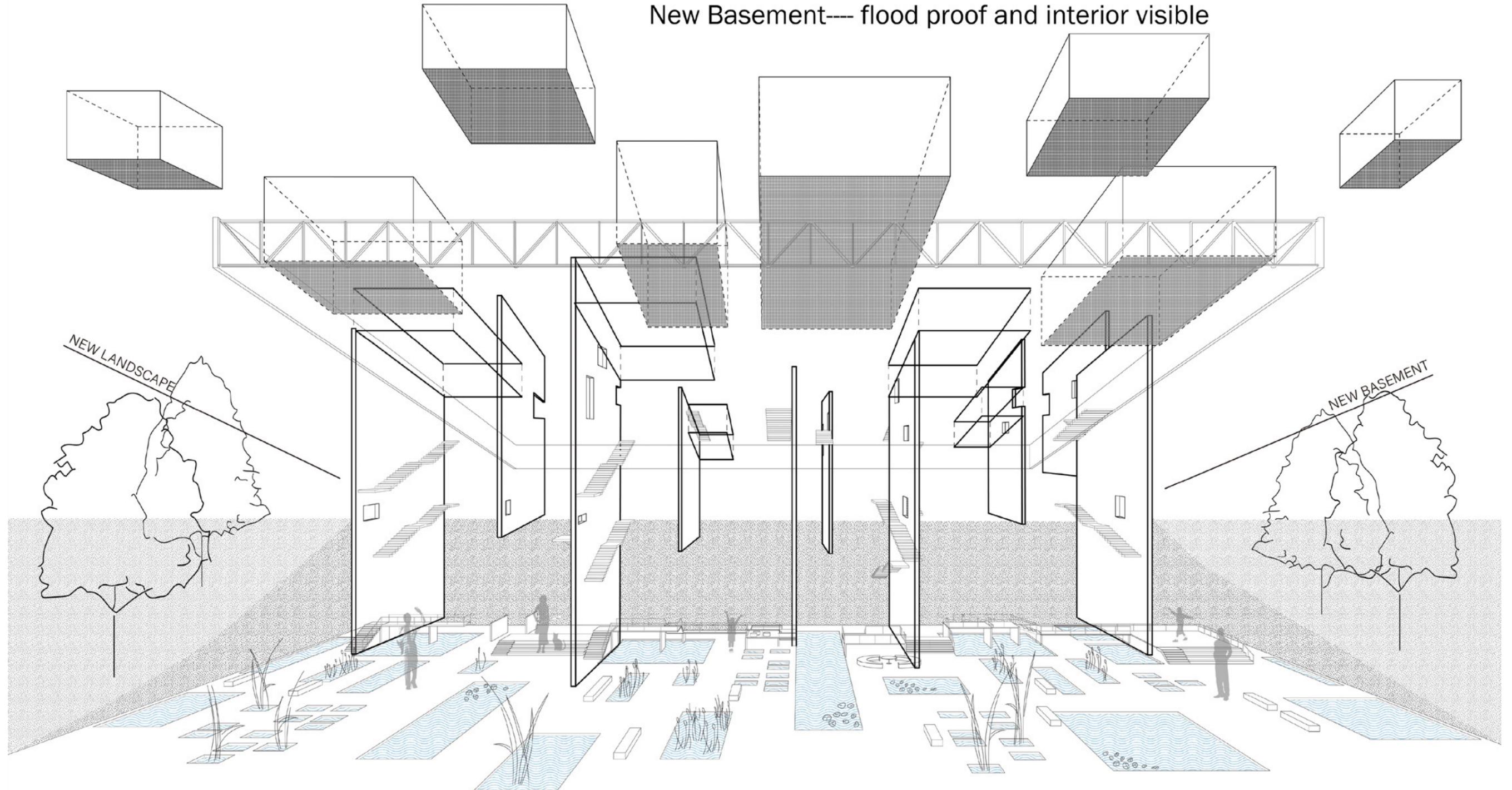
GSAPP Adv. Studio
Academic Project | Work with Jiang Wanqi
Instructor: Phu Hoang Fall 2021



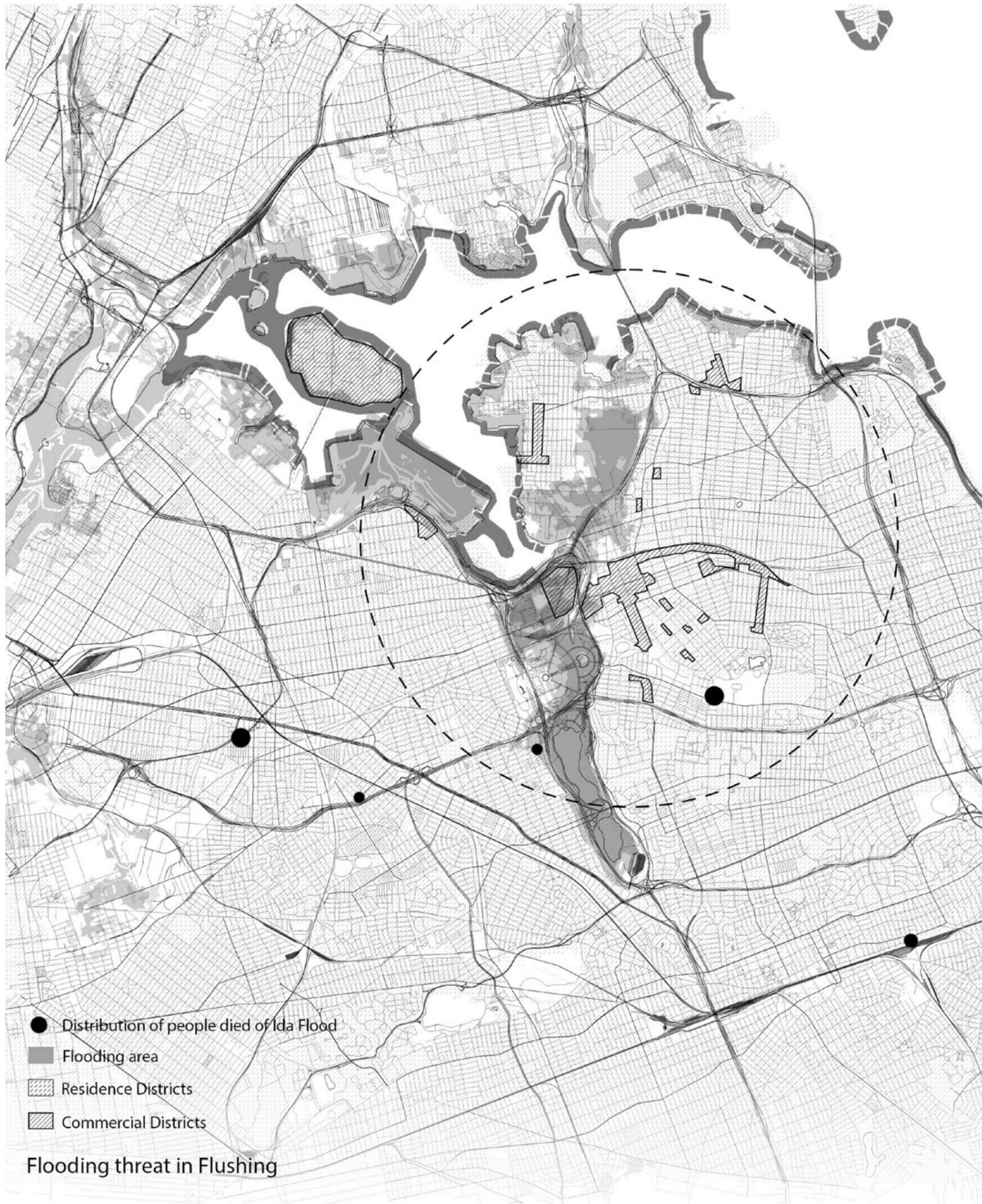


The basement, as a basic spatial prototype, was initially built as service rooms or storerooms, which is private and regarded as ancillary space of the house. With the development of New York and various economic and political factors, more and more Asians flood into this city and try everything they can to survive here. Because of the high housing prices and the shortage of house in New York, these immigrants give the basement new functions and challenge the maximum utilization efficiency of buildings, which creates many anti-typological basements. They try to live, work and have entertainment underground and transform the entrance facade to activate the hidden business, which shapes the informal urbanism in Flushing.

New Basement--- flood proof and interior visible

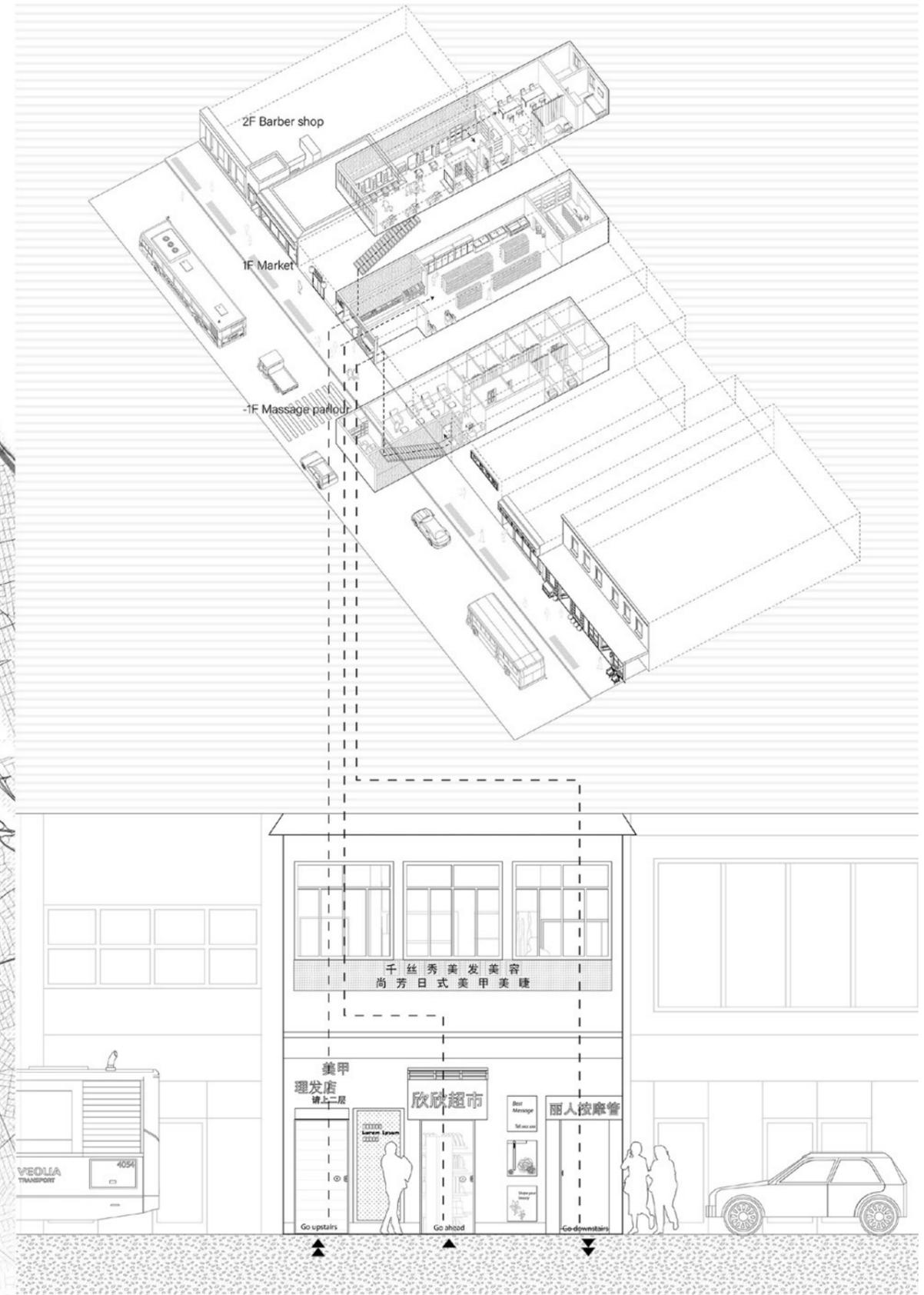


The abundant basements of Flushing are full of vitality and popularity, but it is hidden underground, most people cannot clearly perceive the plusation inside. In addition, due to climate change, these basements are also facing the threat of flooding. Therefore, we hope to create and redefine a new basement space. It is located on a slope, part of which is buried underground, and the other part is erected by the supporting structure. The voids are interspersed in the new basement space. This will not only avoid the impact of flooding but also enable people above or below to see part of the activities inside the basement, generating more interaction.



Redundant circulation

Independent entrances to different level business



Gentrification V.S. Localization

In the 1960s, the former president was willing to relax immigration policies, and a large number of Chinese international students valued the multiculturalism of New York City. After the establishment of Metro Line 7, Flushing has the convenience of connecting East Queens and Manhattan. Especially after the 9/11 incident, a large number of Chinese began to immigrate to Flushing from Chinatown in Manhattan.

subway 7 Flushing Local

Chinatown

flushing

the Chinese regard buying a house as an investment.

Small businesses based on individuals are replaced by large businesses based on large funds.

House prices in Flushing are getting higher and higher. The influx of people has caused people's demand to continue to grow. Real estate developers have the idea of gentrifying Flushing and want to build a fancy and modern Flushing.

House Value Index

| Year | Flushing | Manhattan | New York |
|------|----------|-----------|----------|
| 2012 | ~37K | ~63K | ~90K |
| 2013 | ~38K | ~65K | ~92K |
| 2014 | ~39K | ~67K | ~94K |
| 2015 | ~40K | ~69K | ~96K |
| 2016 | ~41K | ~71K | ~98K |
| 2017 | ~42K | ~73K | ~100K |
| 2018 | ~43K | ~75K | ~102K |
| 2019 | ~44K | ~77K | ~104K |
| 2020 | ~45K | ~79K | ~106K |
| 2021 | ~46K | ~81K | ~108K |

The rise in housing prices has led to higher and higher rents. Small businesses are beginning to be replaced by large businesses.

FLUSHING RIVER

AGAINST GENTRIFICATION

PROTECT TRADITIONAL CHINESE FOOD

PROTECT TRADITIONAL CHINESE FOOD

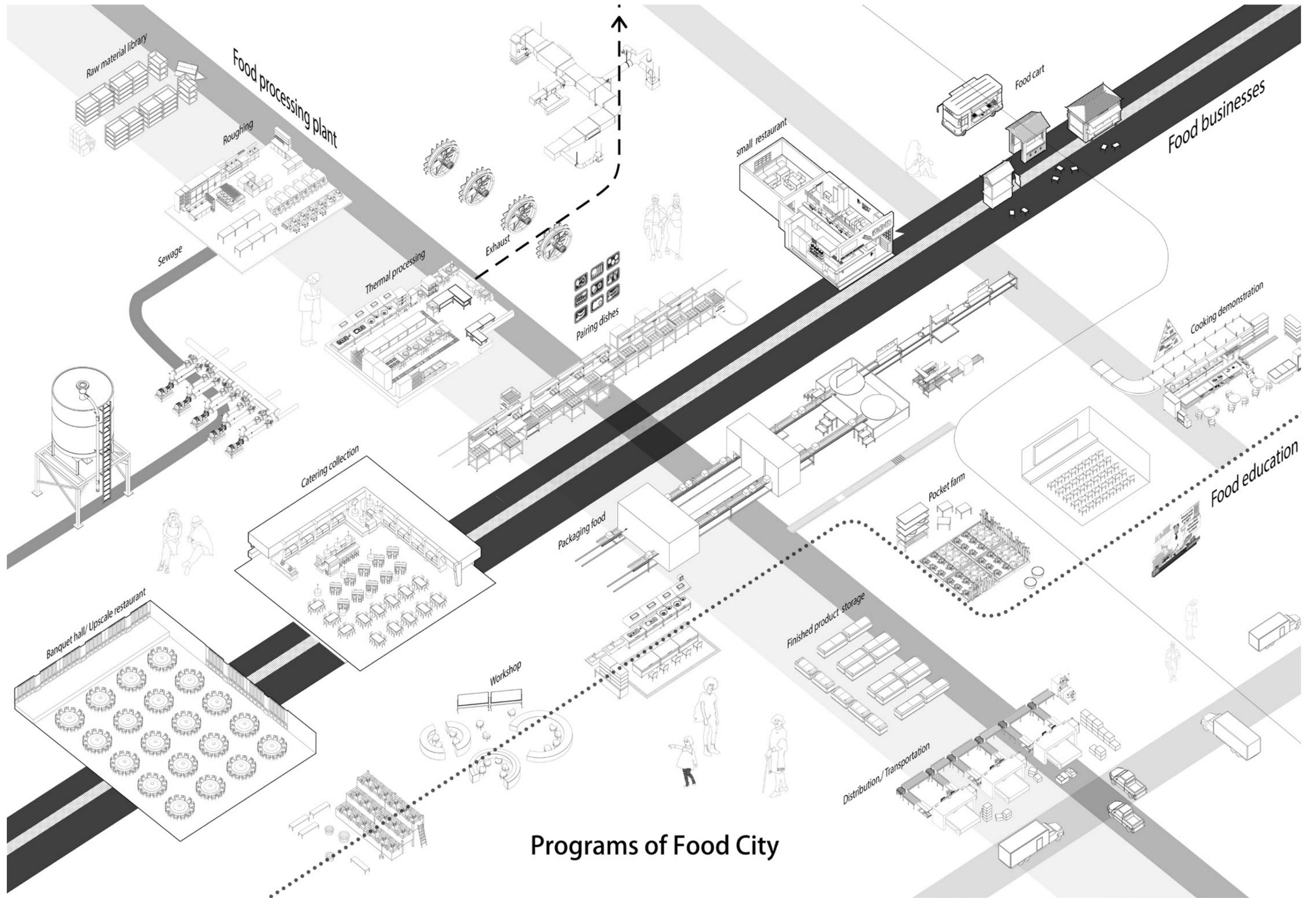
PROTECT TRADITIONAL CHINESE FOOD

PROTECT TRADITIONAL CHINESE FOOD

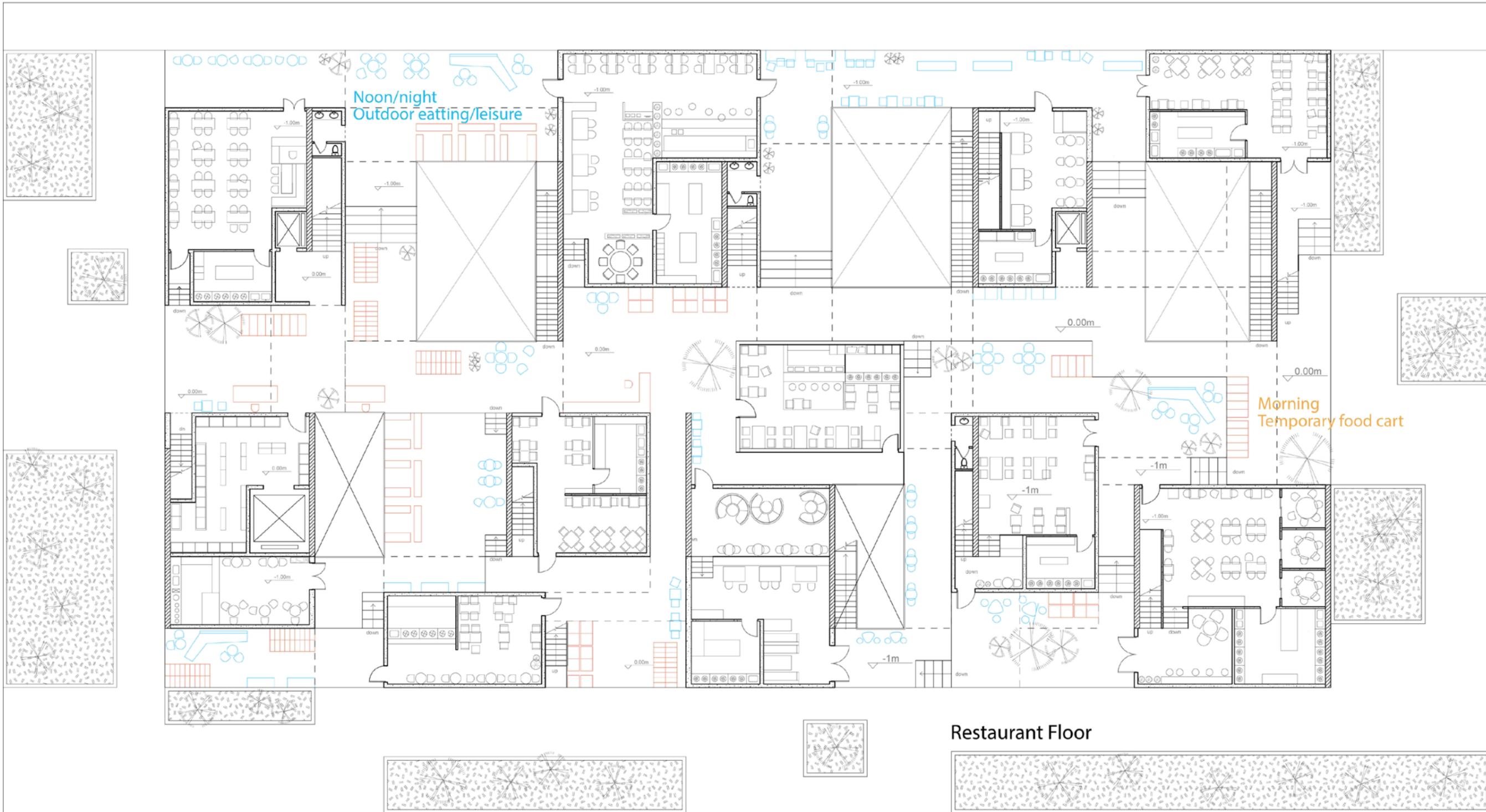
sichuan cuisine

rice rolls

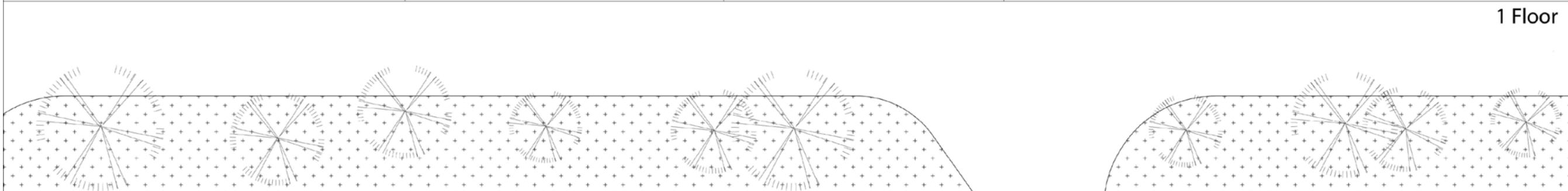
dumplings

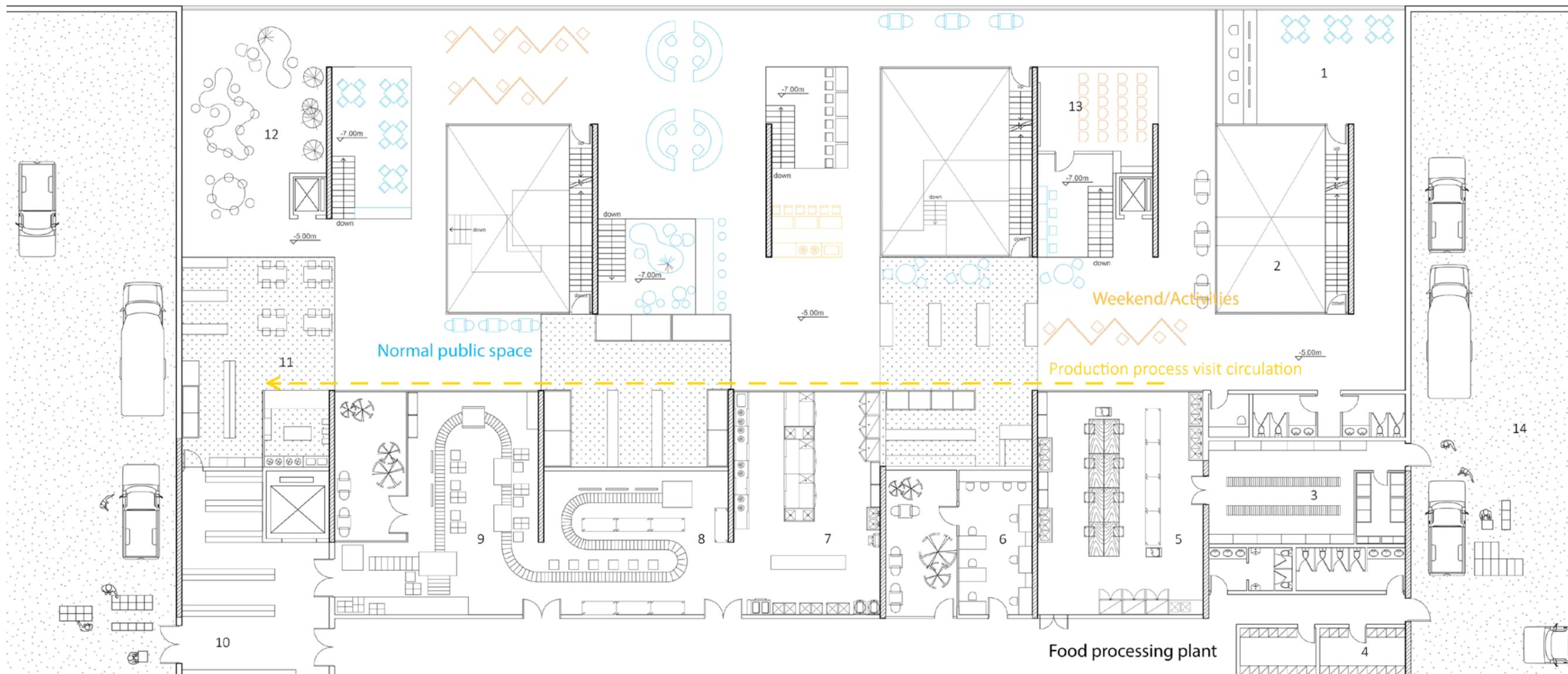


Programs of Food City



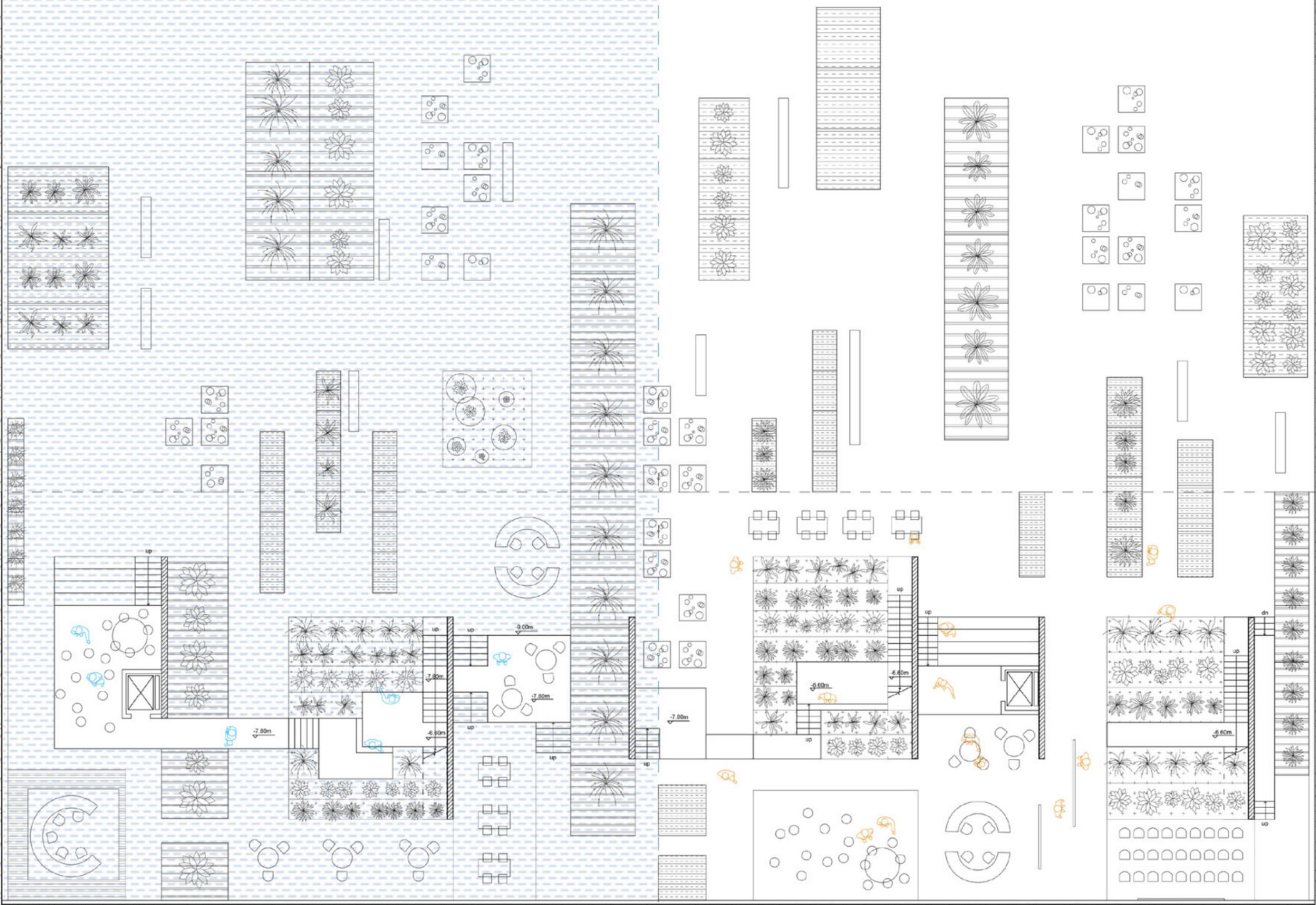
1 Floor





- 1. Entrance hall 2. Void 3. Raw material storage 4. Dressing room 5. Roughing
- 6. Office 7. Thermal processing 8. Pairing dishes 9. Package 10. Finished product storage
- 11. Informal shopping space 12. Children play 13. classroom 14. Parking lot

Waterfront park plan

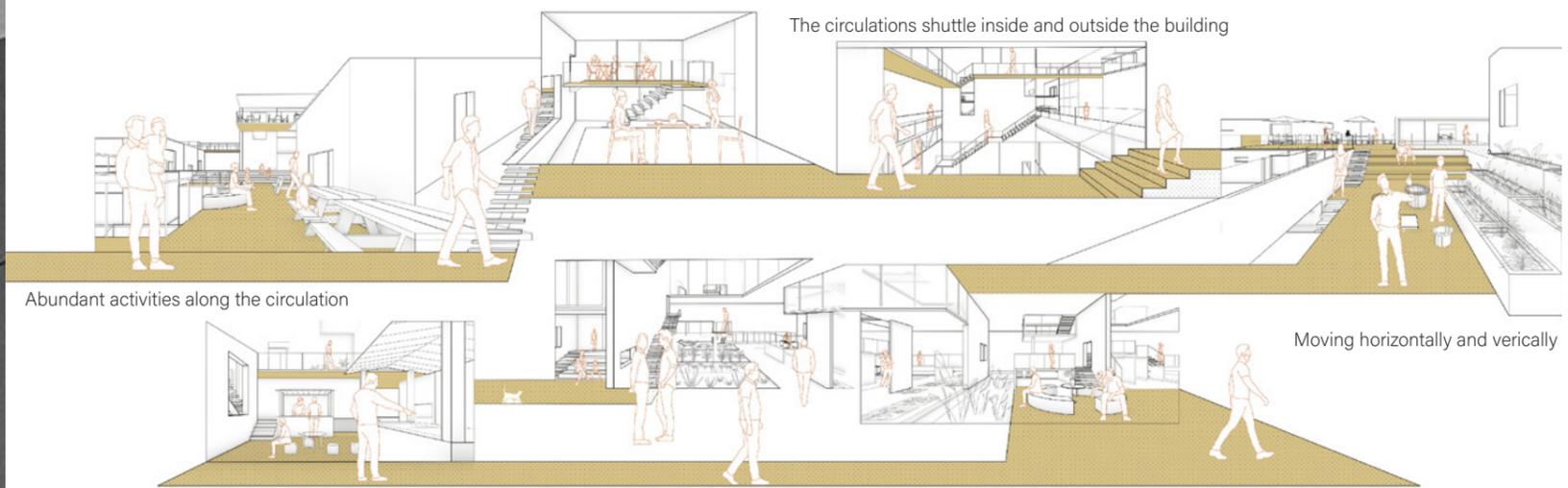
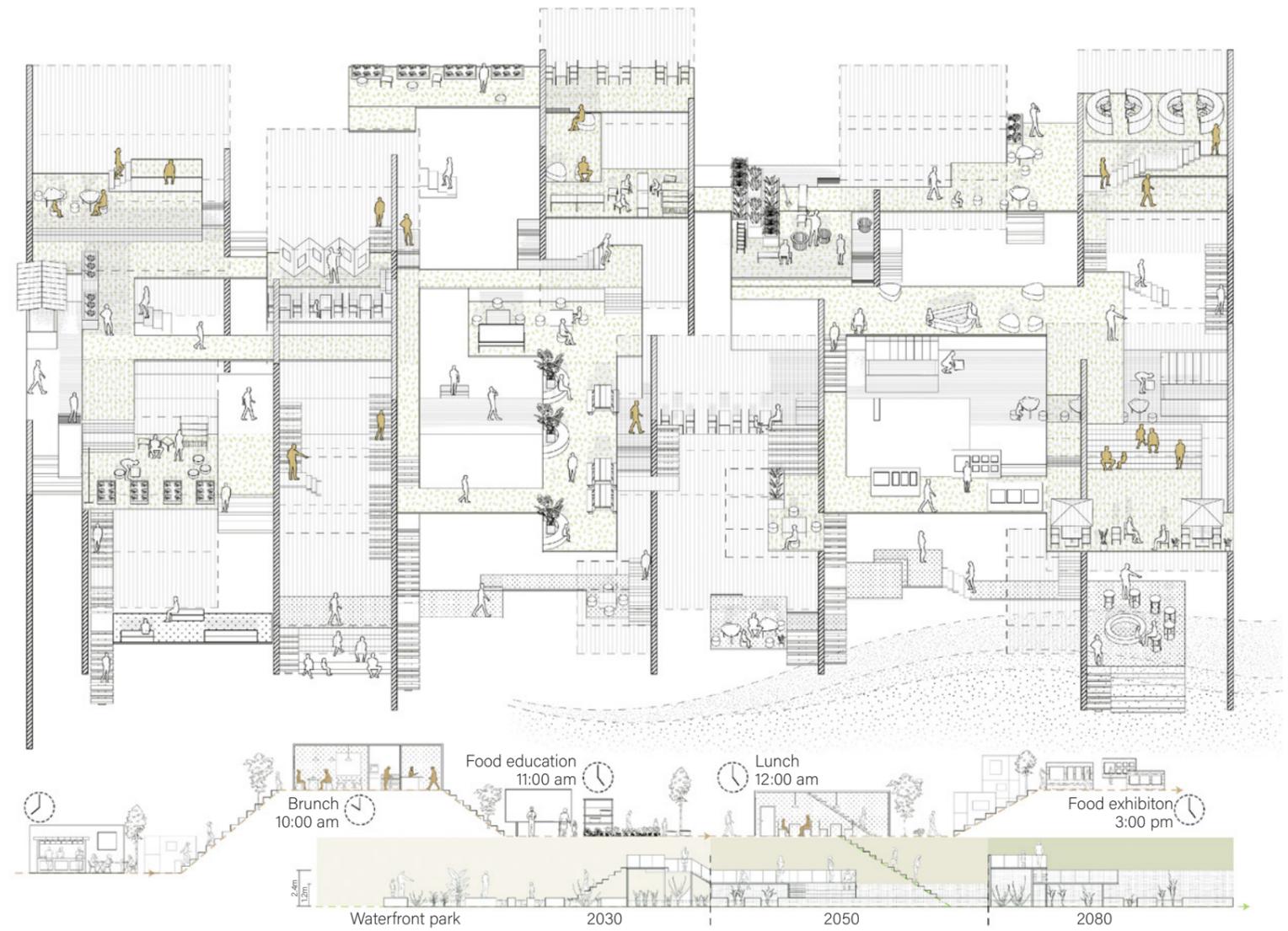


2050
Flooding submerge 1.2 meters

Now
Aquatic crop park

Redundant Circulation

multiple circulations in or outside the building
extra space for other activities



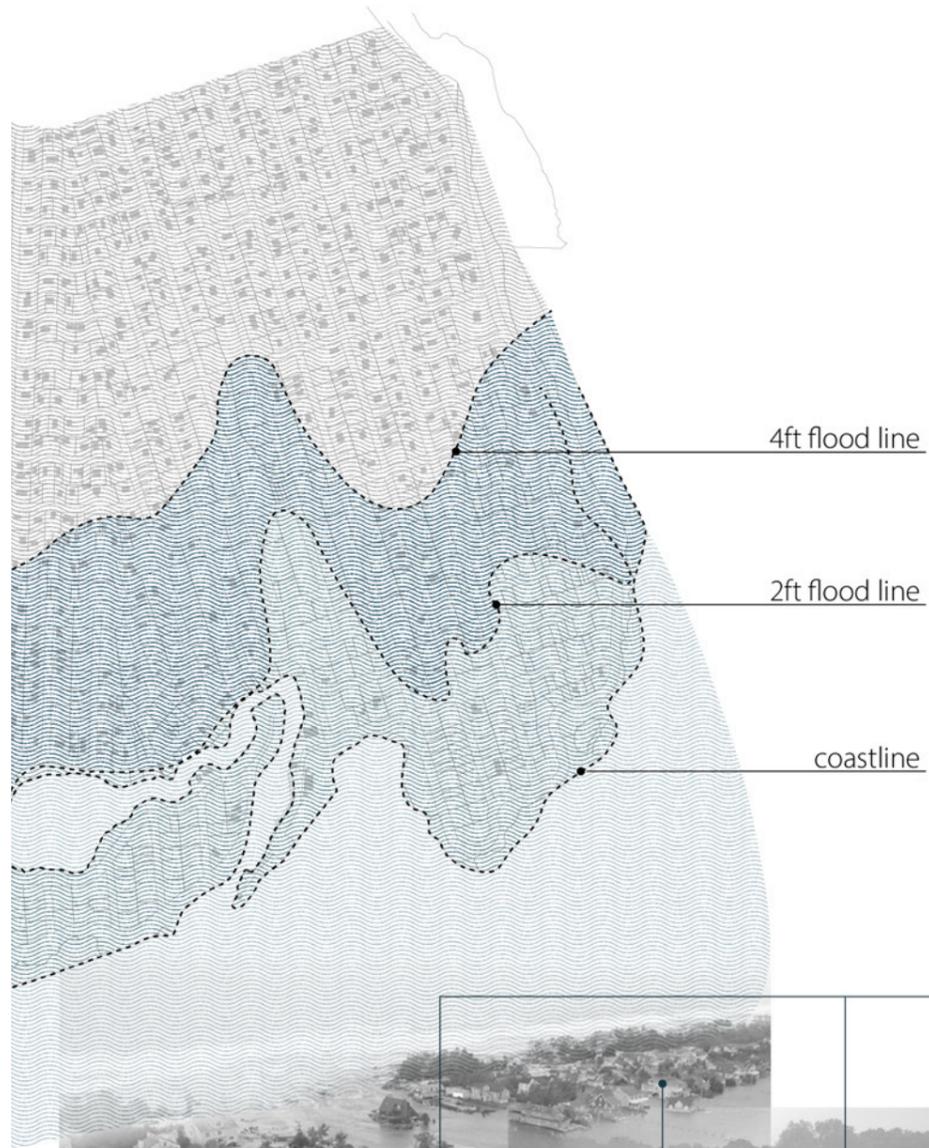
Abundant activities along the circulation

Moving horizontally and vertically

03. BEACH LAB

GSAPP Adv. Studio
Academic Project | Work with Jiao Jianqiang
Instructor: Tei Carpenter Summer 2021





Flooding



ruin

ruin

fallen trees

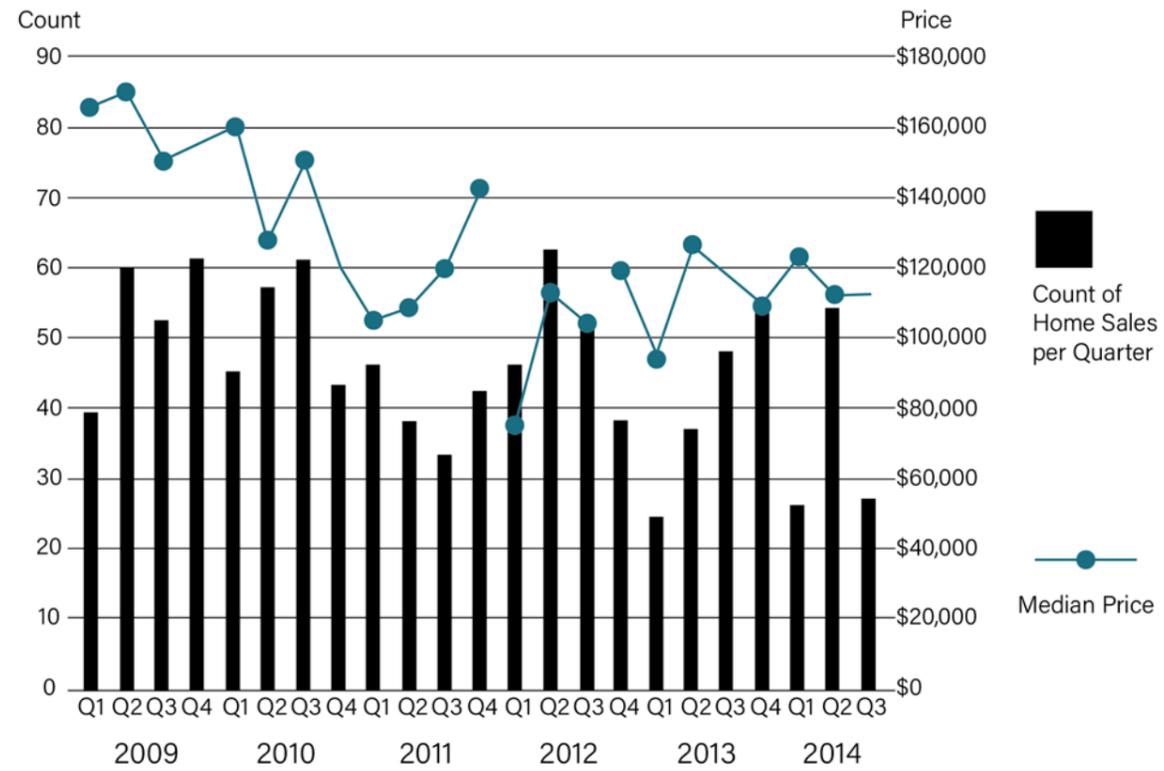
elevated house

elevated house

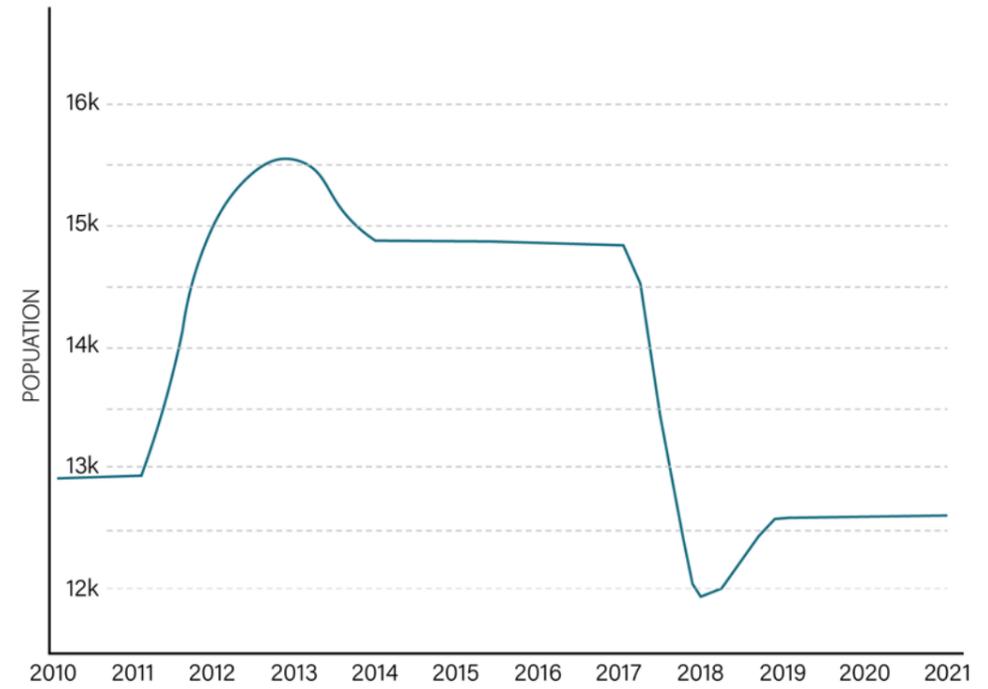
**Mastic Beach
Climate Deterioration**



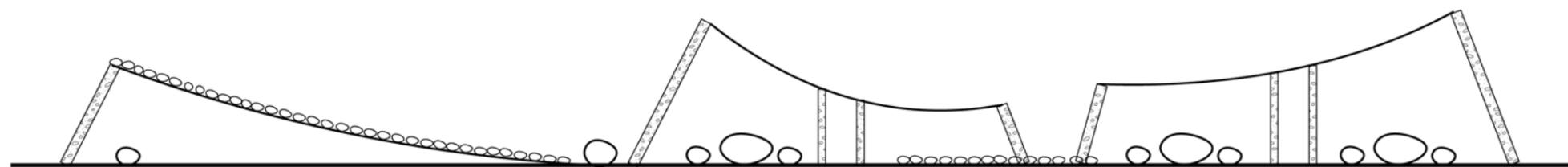
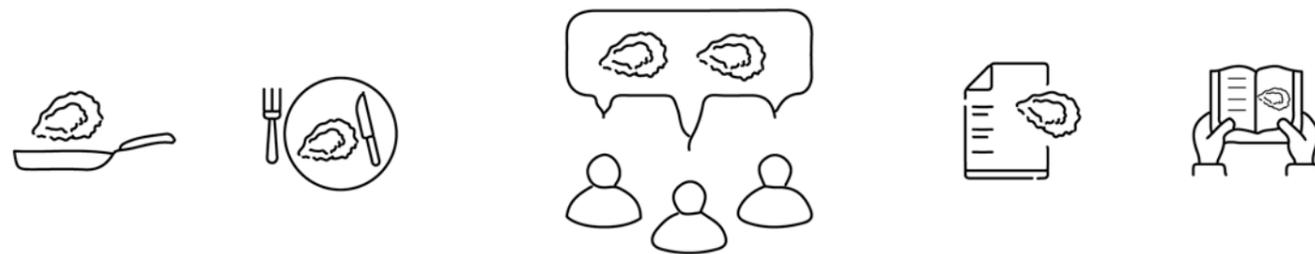
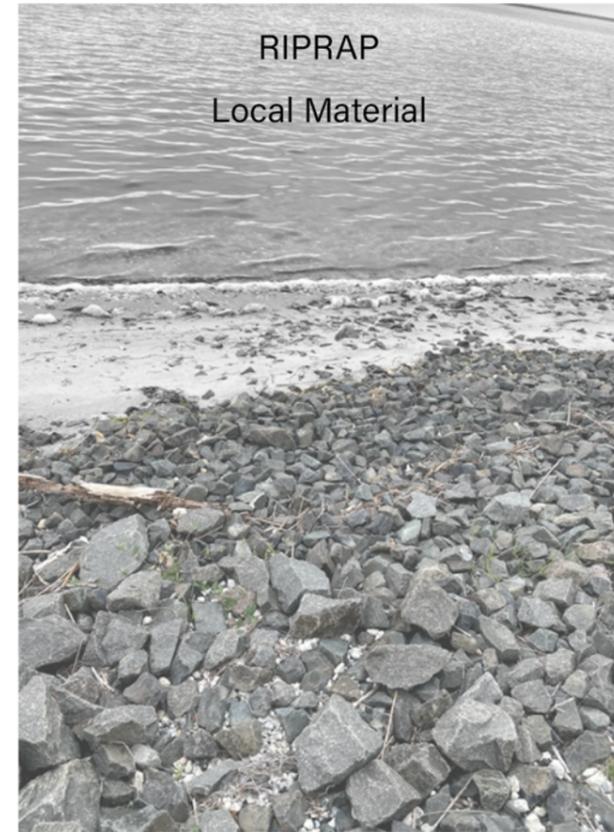
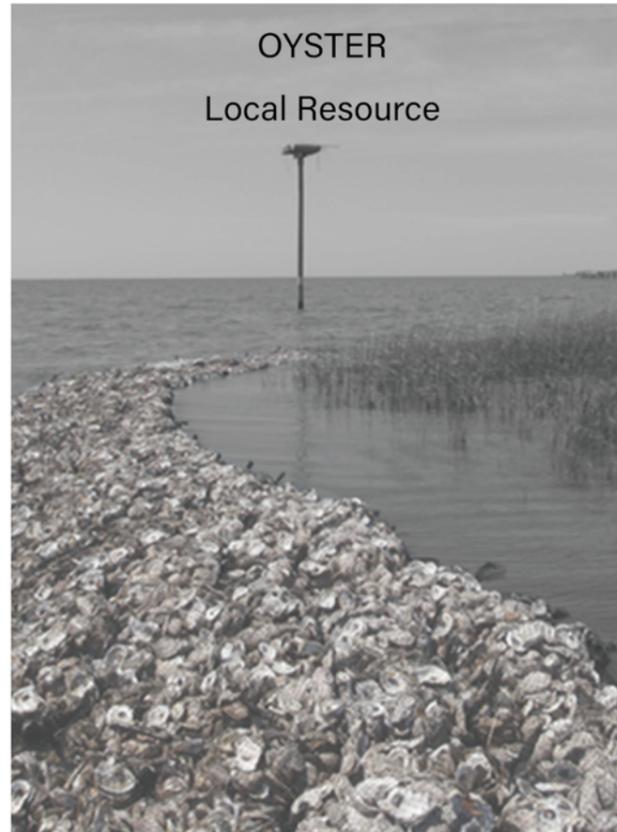
Home Sales in Mastic Beach, NY



Mastic Beach, New York Population



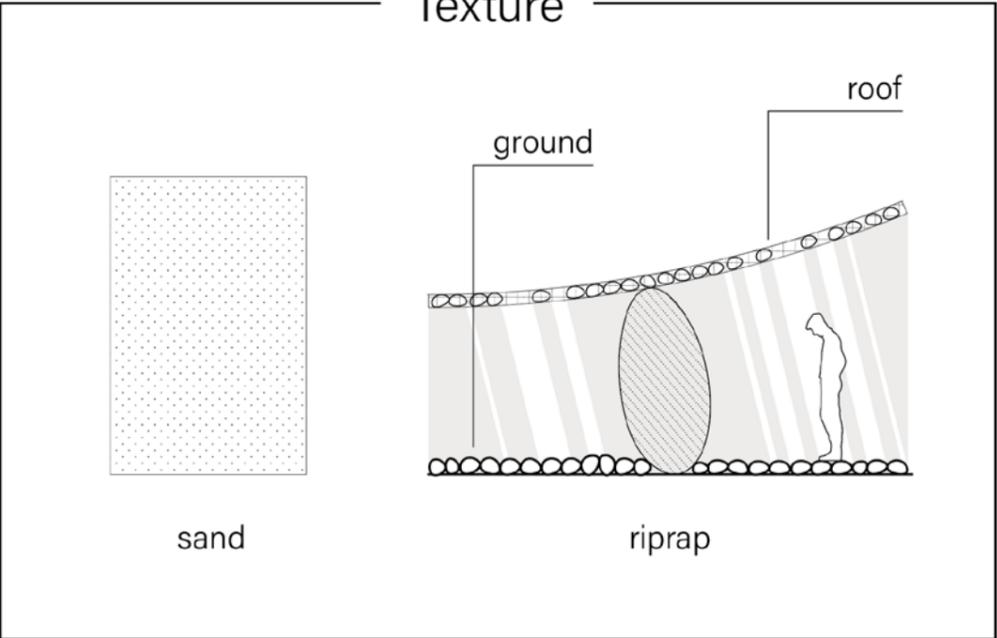
Climate Deterioration → Economic Losses → Recuperate



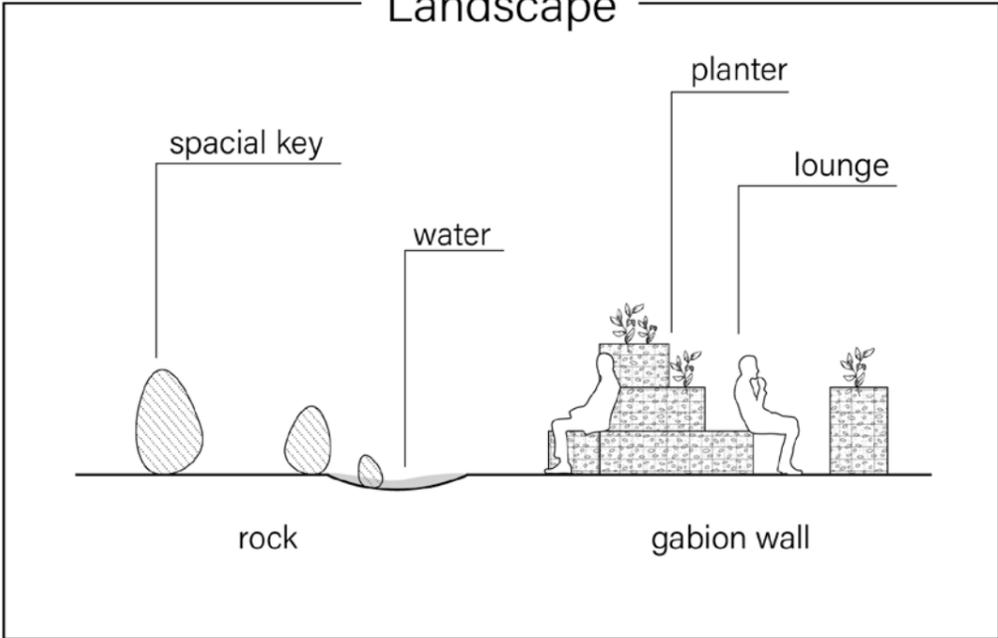
The riprap will blend with the environment and integrate in to the landscape

RIPRAP

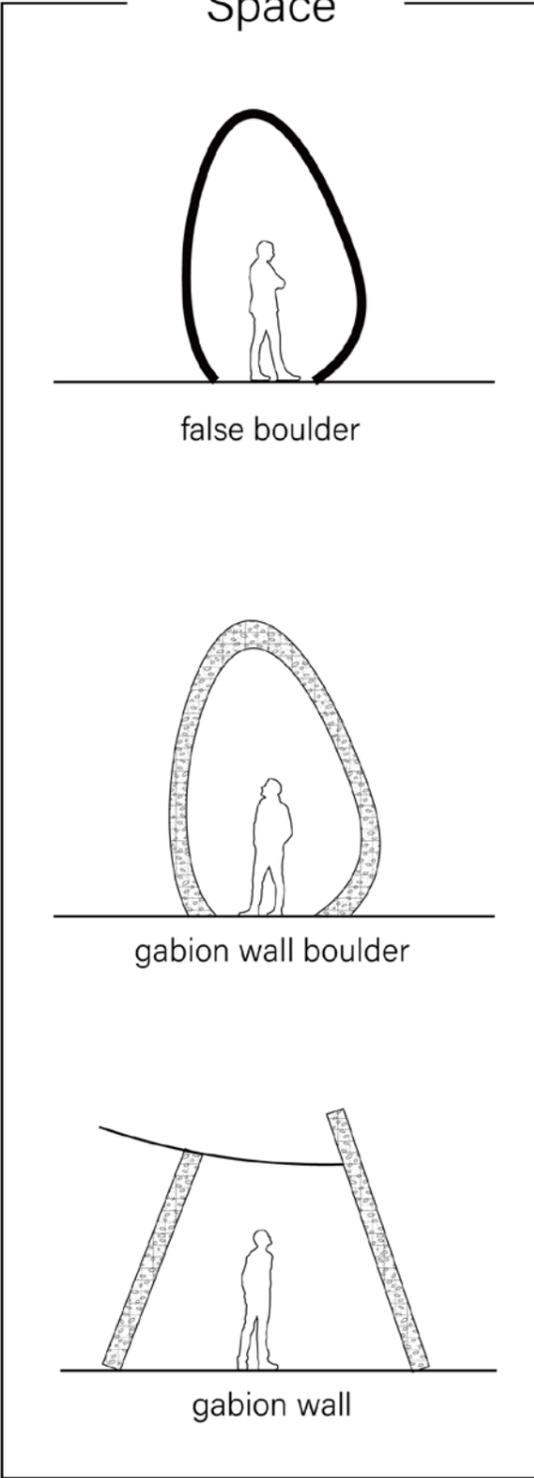
Texture



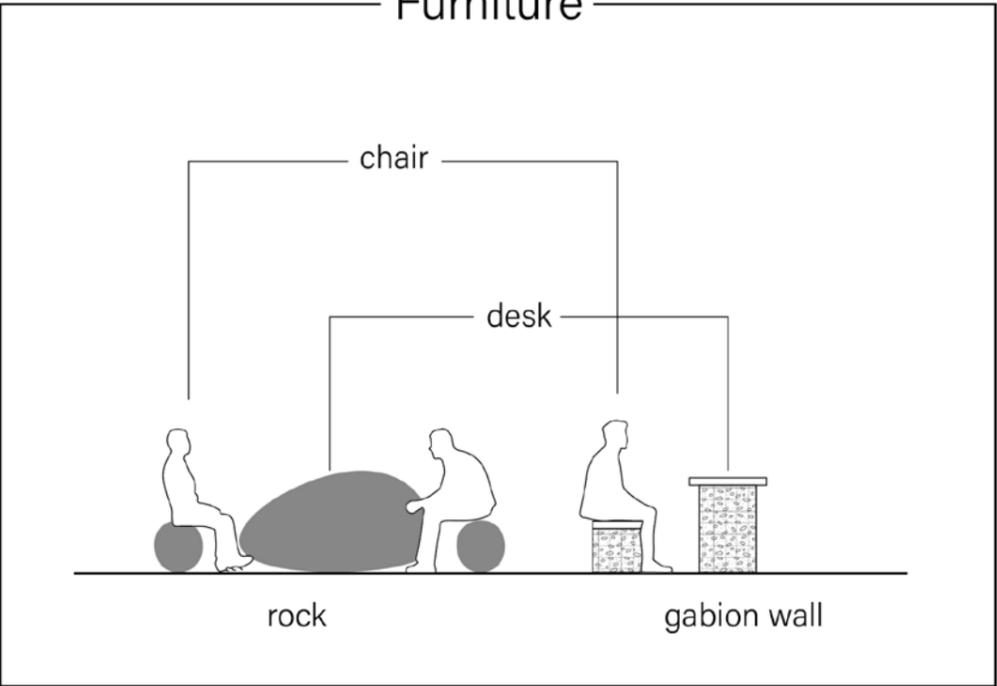
Landscape



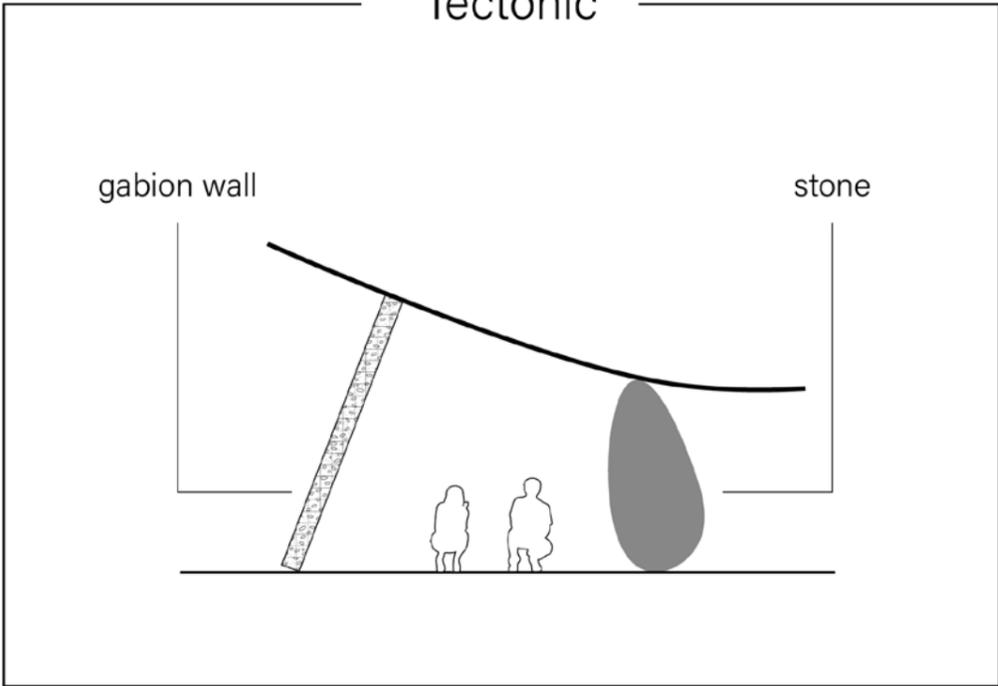
Space



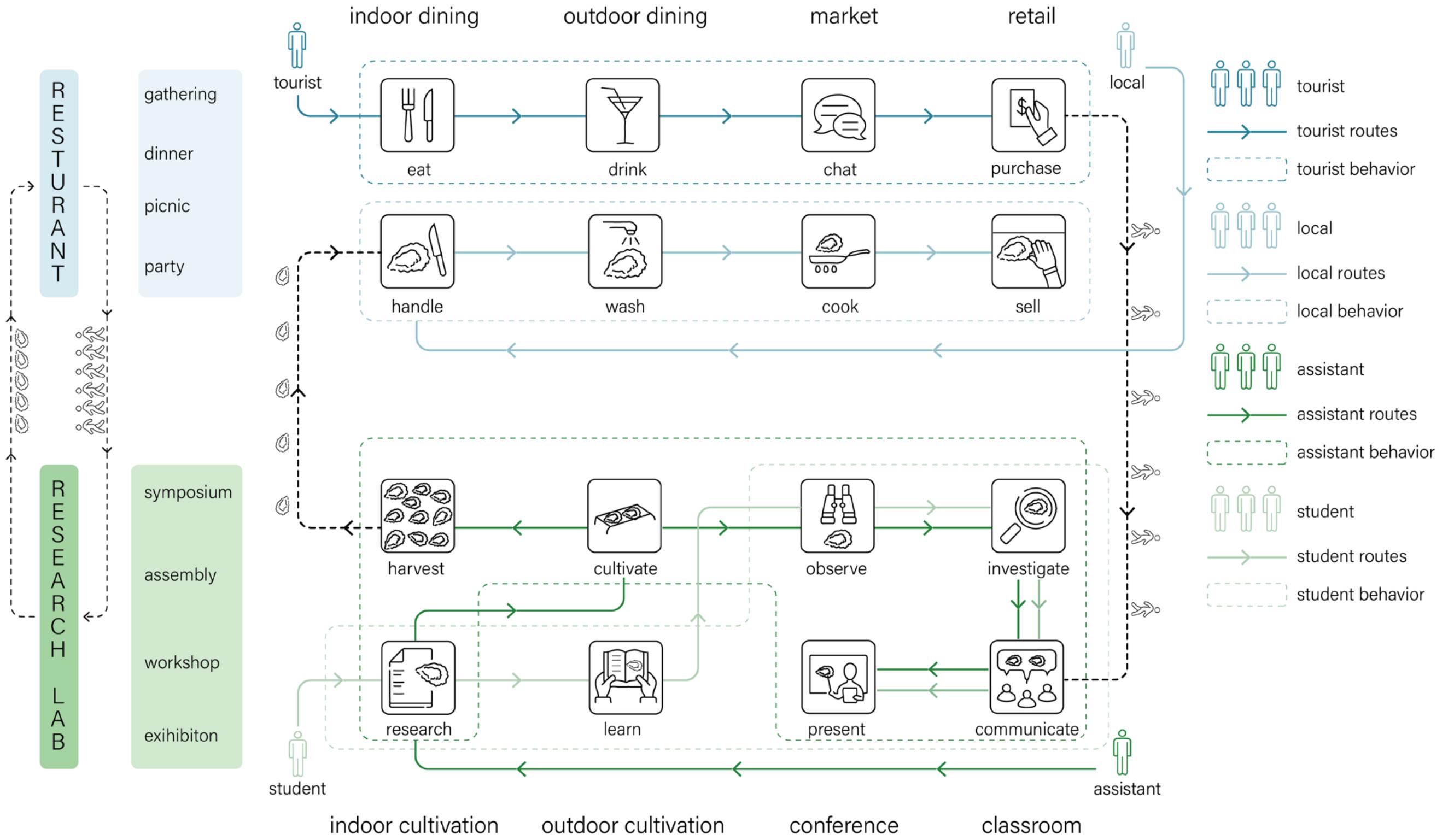
Furniture



Tectonic



gabion wall

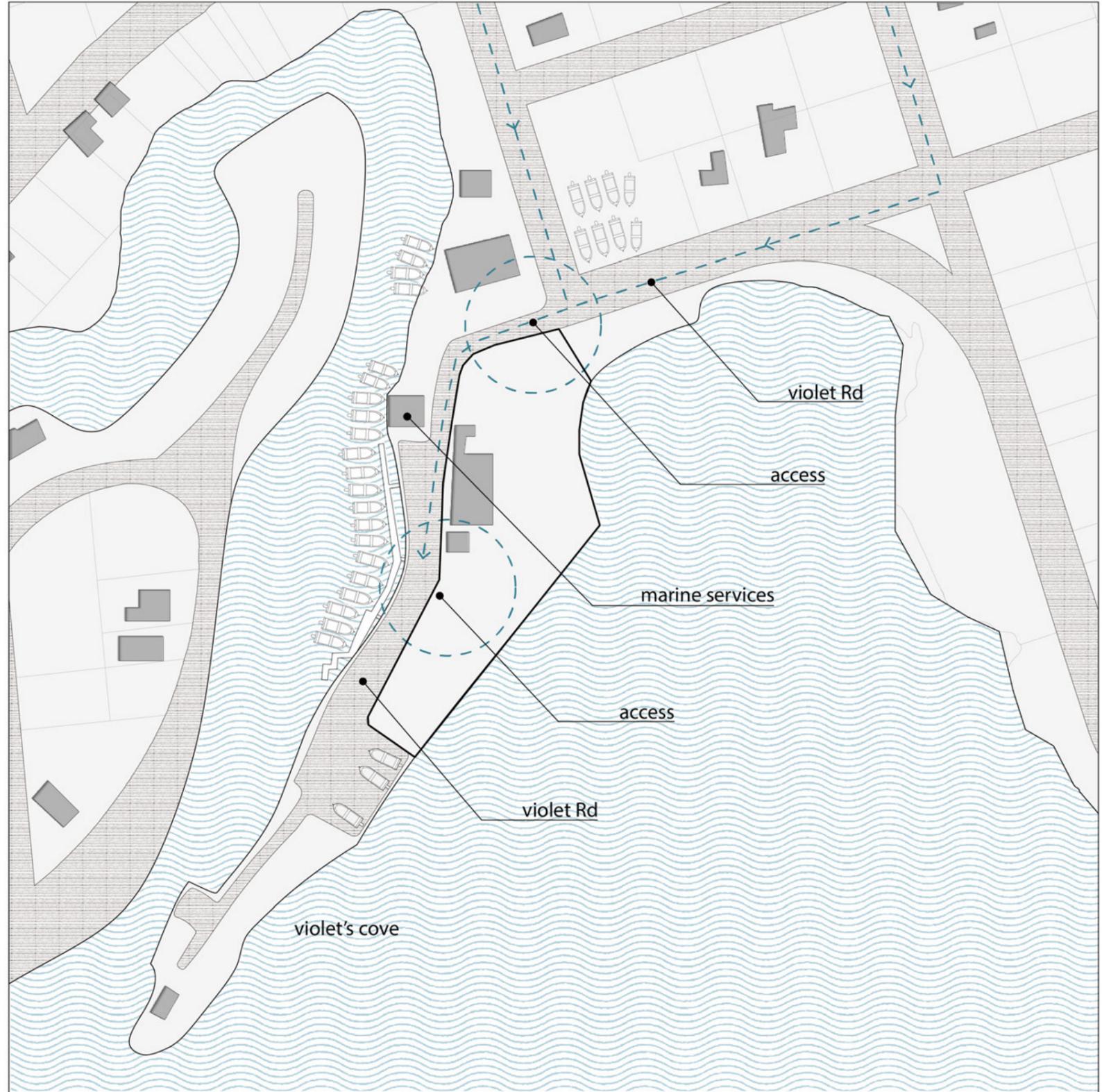




existing building major road



high marsh intertidal marsh



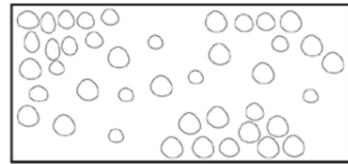
site accessibility

Option 1.1 riprap____texture

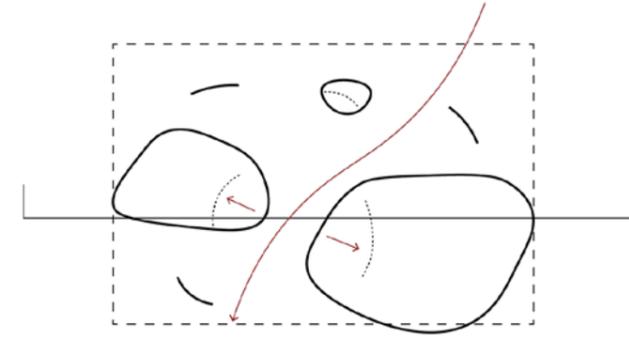
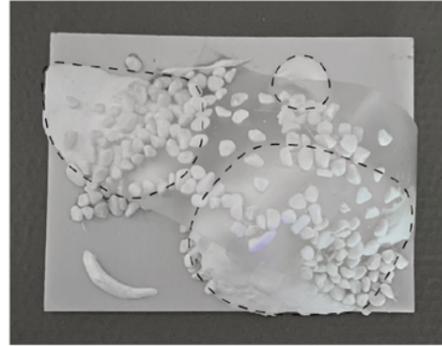


three caves

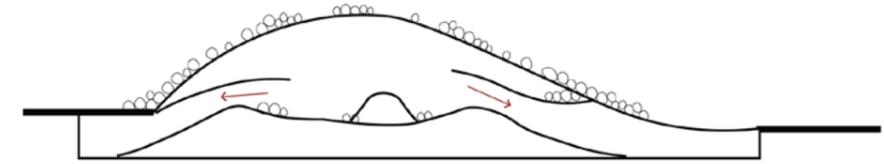
+



big board with
different density riprap
roof or ground?



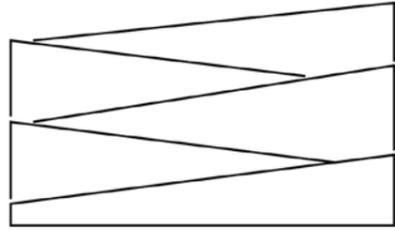
PLAN



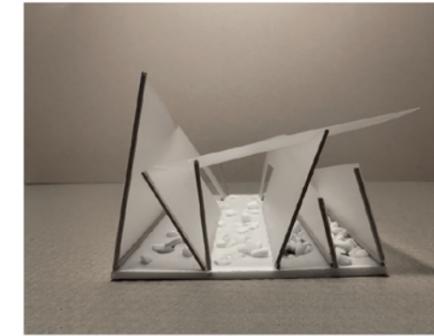
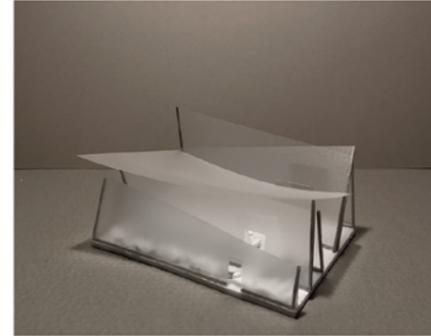
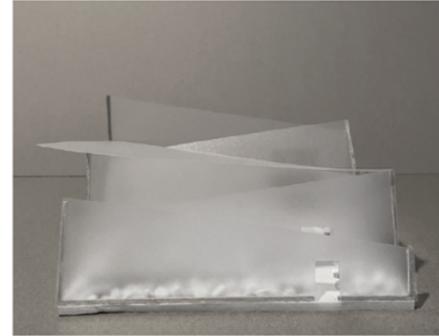
SECTION



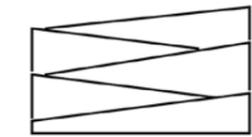
Option 1.2 riprap__texture



Translucent
lightweight thin wall

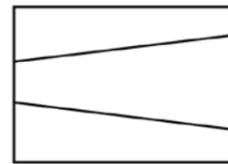


spoon-drift
layer by layer



Translucent
lightweight thin wall

+

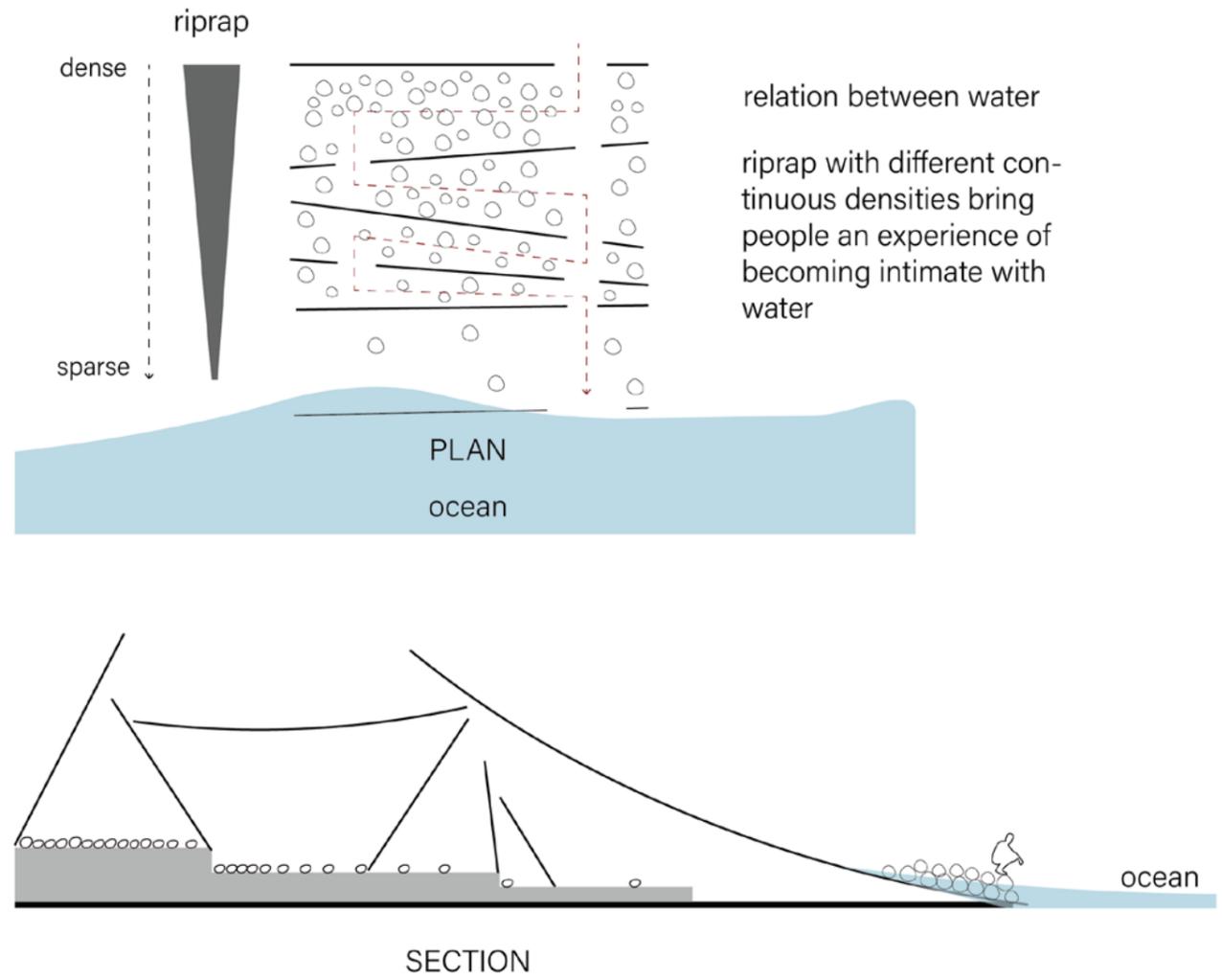


step
ground

+



roof



Option 2.1 riprap___object

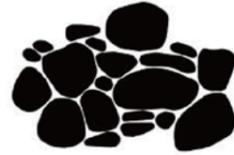
Double Layer

Section Diagram of Kait Plaza - Junya Ishigami



Riprap

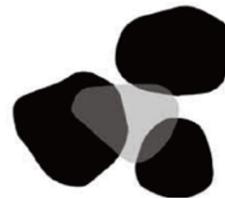
Extracting the idea of Stack



Sectional Diagram



Plan Diagram



Option 2.2 riprap___object

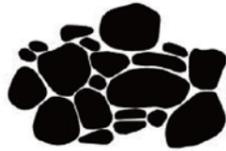
Double Layer

Section Diagram of Kait Plaza - Junya Ishigami



Riprap

Extracting the idea of Stack



Sectional Diagram



Plan Diagram



Menu



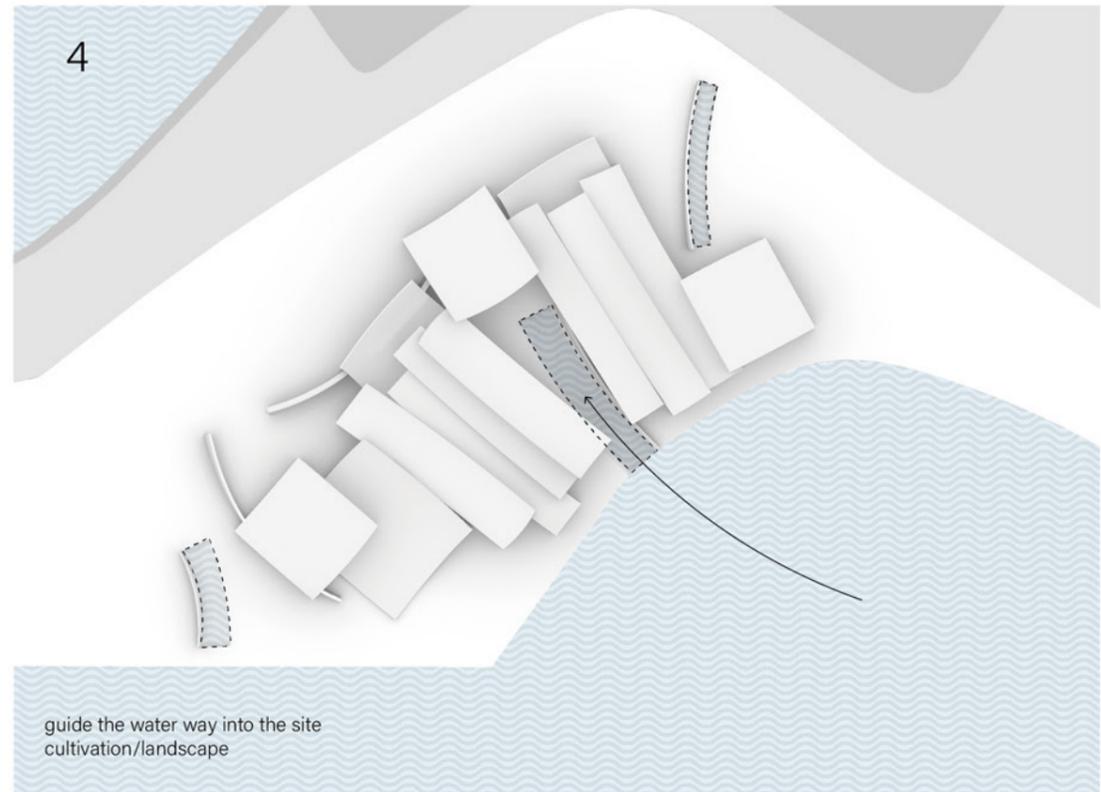
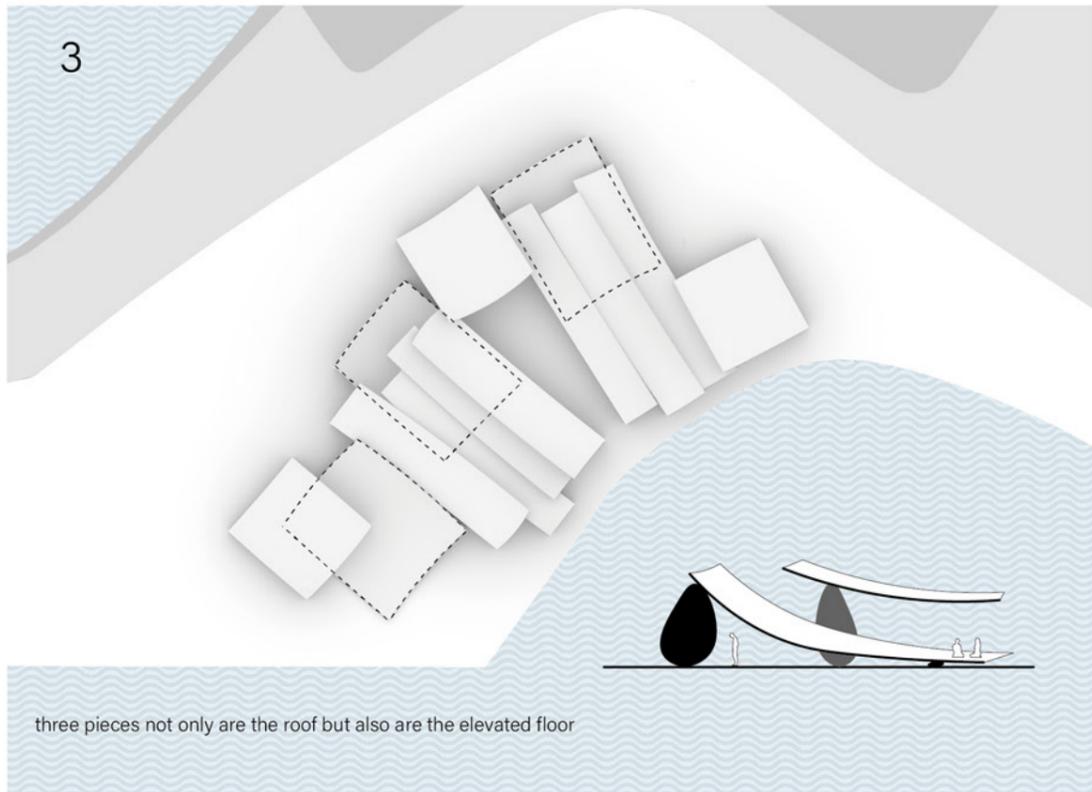
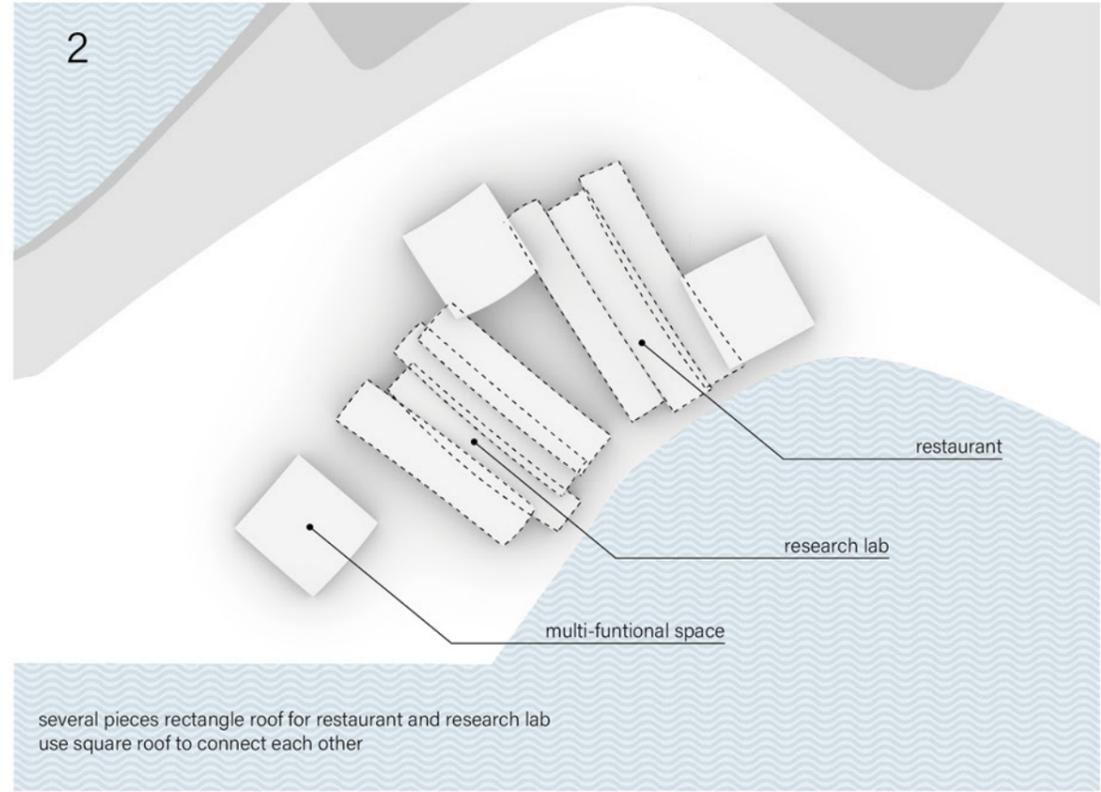
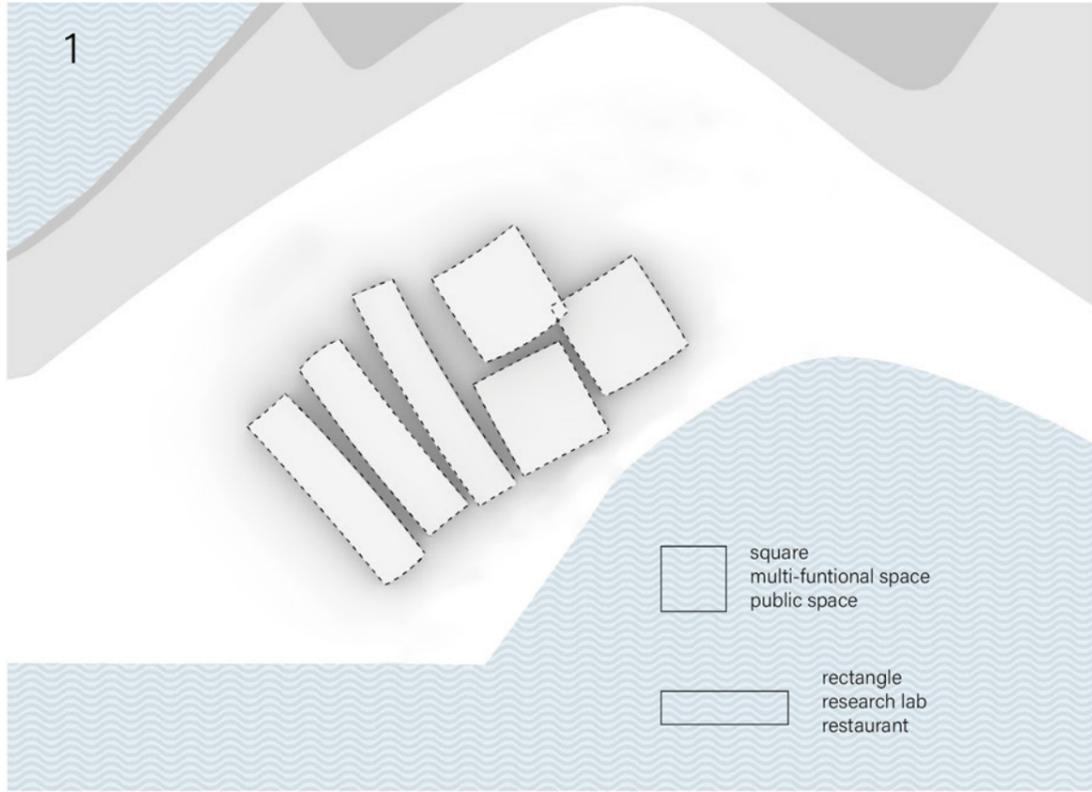
Stack, Stack, Stack

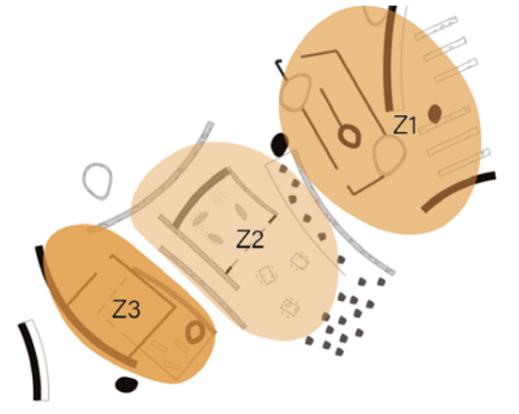
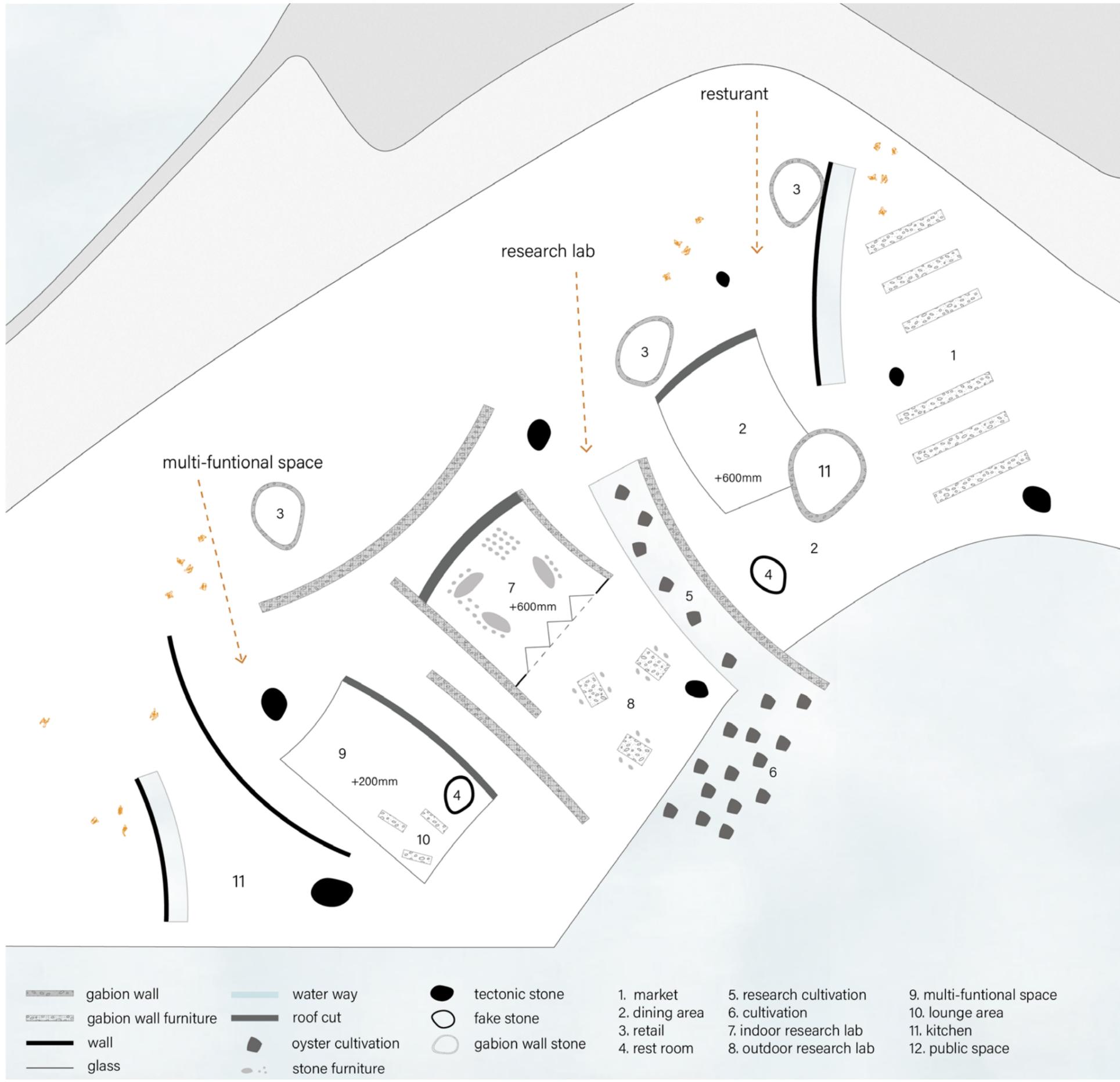


Elevation View



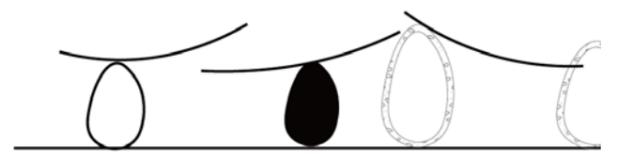
Close-up





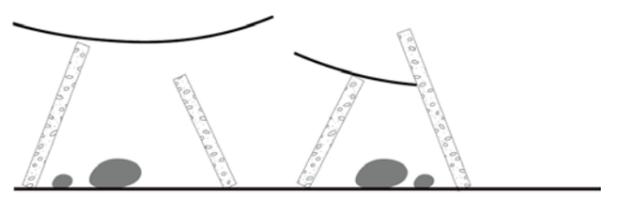
Z1 resturant Z2 research lat
Z3 multi-funtional space

Z1 resturant



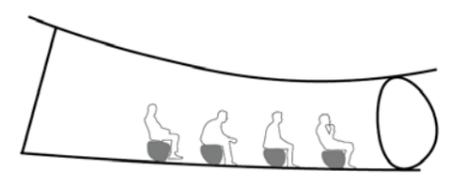
stone as tectonic
enclose
false stone

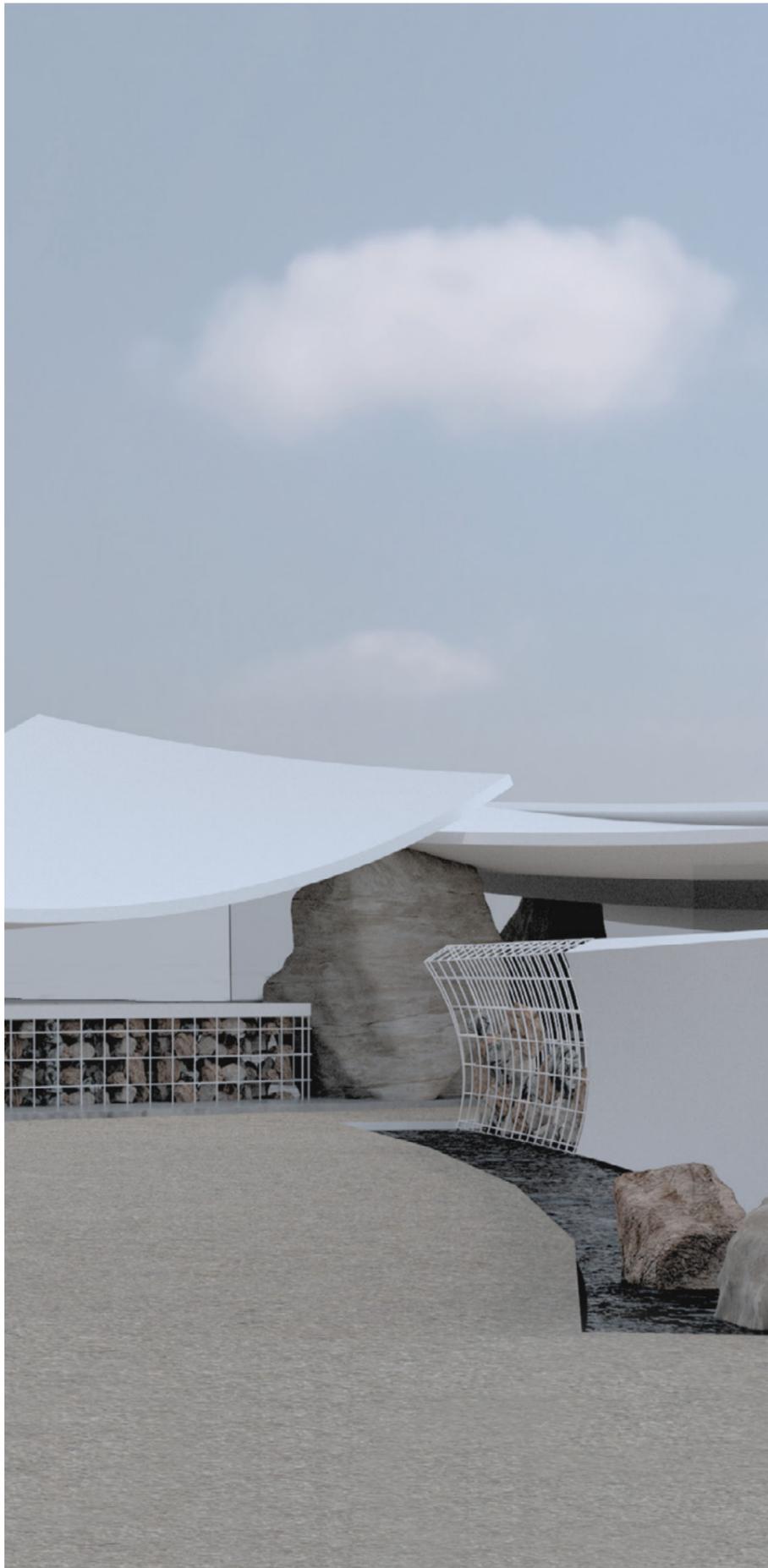
Z2 research lab



gabion wall as tectonic
stone as furniture

Z3 multi-funtional space





04. IMAGE DISSEMINATION IN ARANYA

GSAPP Speculative City
Academic Project | Individual Work
Instructor: David Moon Spring 2022

The real estate project named Aranya was launched in 2012 as a seaside real estate for holiday buyers in Beijing. It is in Qinhuangdao, about 3 hours drive from Beijing. Aranya is not a real estate project in the traditional way, he is to create a lifestyle brand. In their business, from selling houses to selling services, from selling services to selling lifestyles, and then from selling lifestyles to selling values.

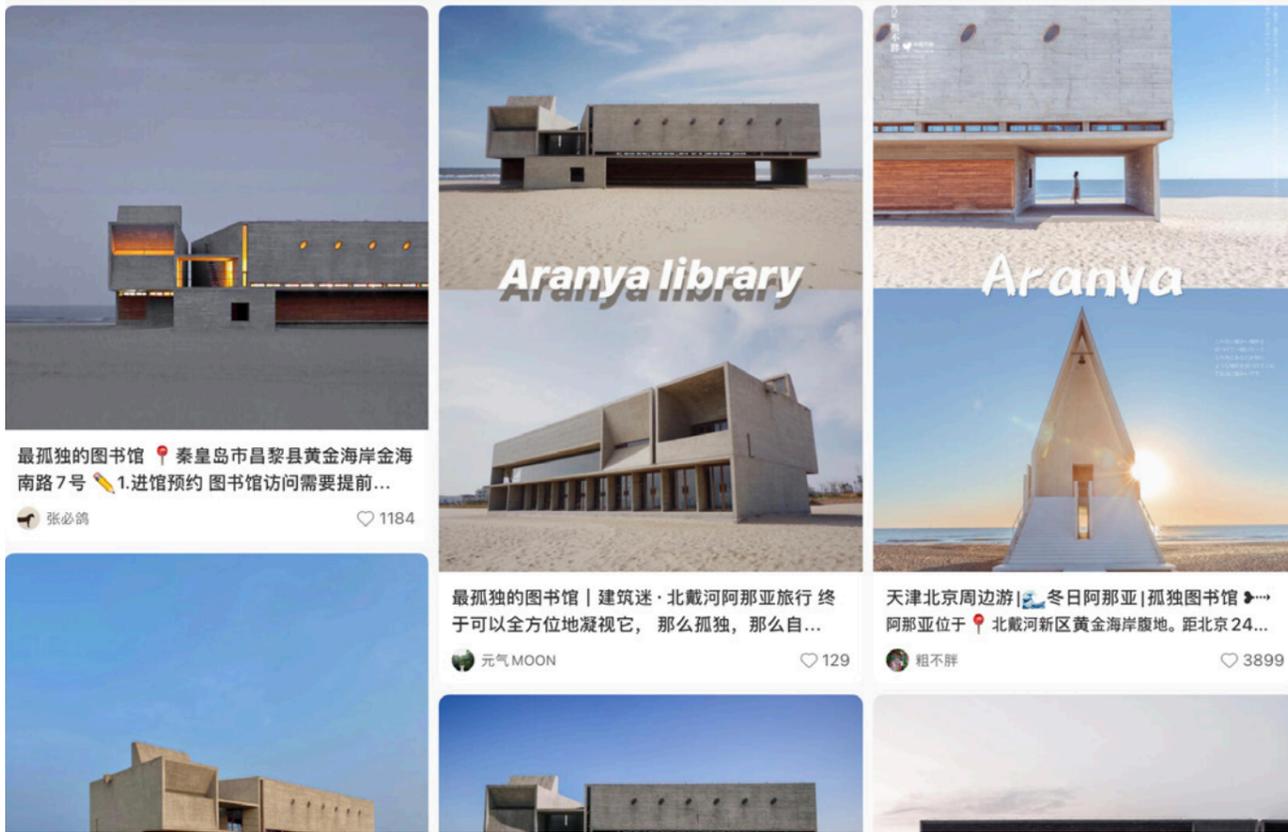
Aranya become popular on the Internet because of a video titled "The Loneliest Library in China", and has become one of the most famous tourist and vacation check-in places in China. As of June 2021, typing the word "Aranya" into Instagram's search bar will yield a total of 2,082 related posts. These posts are image records of different users visiting Aranya at different times. Before they were released, they went through a series of processes such as shooting, retouching, selection, and copywriting, gained likes and comments, and solidified them into traceable online data.

Compared to Anaya's popularity in China, these photos are clearly a drop in the bucket. However, if WeChat, Weibo, and Douyin are social media that are close to the daily life of all age groups in China, with huge information fragments floating in them, then Instagram is a novel window for young people to show themselves, and it is popular with network security and age preferences. Media product that is double filtered. Susan Sontag once said, "To collect pictures is to collect the whole world". The more than two thousand photos that exist in the public domain of the Instagram network can be regarded as both the image medium that shapes the "Aranya" and, in turn, influences the psychology of the crowds that create these images. What shooting angles and travel preferences are reflected in these photos, how architects and the built environment are represented and what role they play in them, how architectural image dissemination intervenes in capital circulation, and how to participate in shaping photobloggers, Internet celebrity architecture and Anaya's The media image, and the conflict between tourists and the local community is the focus of this article.

The early owners of Anaya have similar "profiles". They come from Beijing, and most of them live in the eastern part of Beijing, where the cultural and art industries are concentrated. And They have certain economic strength, Aranya's real estate is their holiday home, not just needed. More importantly, they have a relatively similar spiritual world.

But today, Aranya has more than 4,000 owners and project sales of more than 3 billion. In addition to the beautiful sales performance, Aranya has also become a famous tourist destination in Qinhuangdao, and the operating income is increasing at a rate of 100% every year.

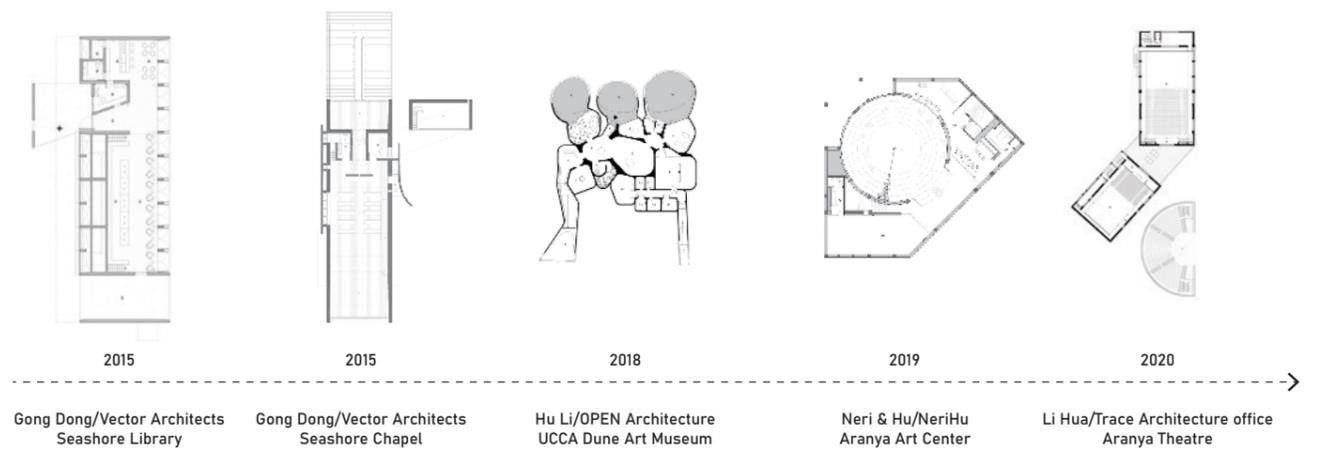




Aranya in China Social Media

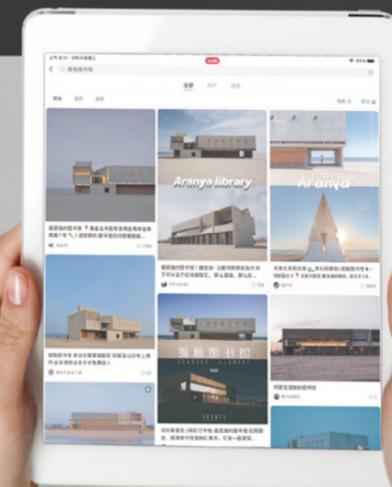
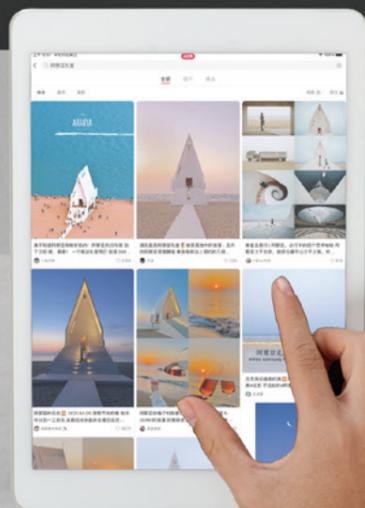
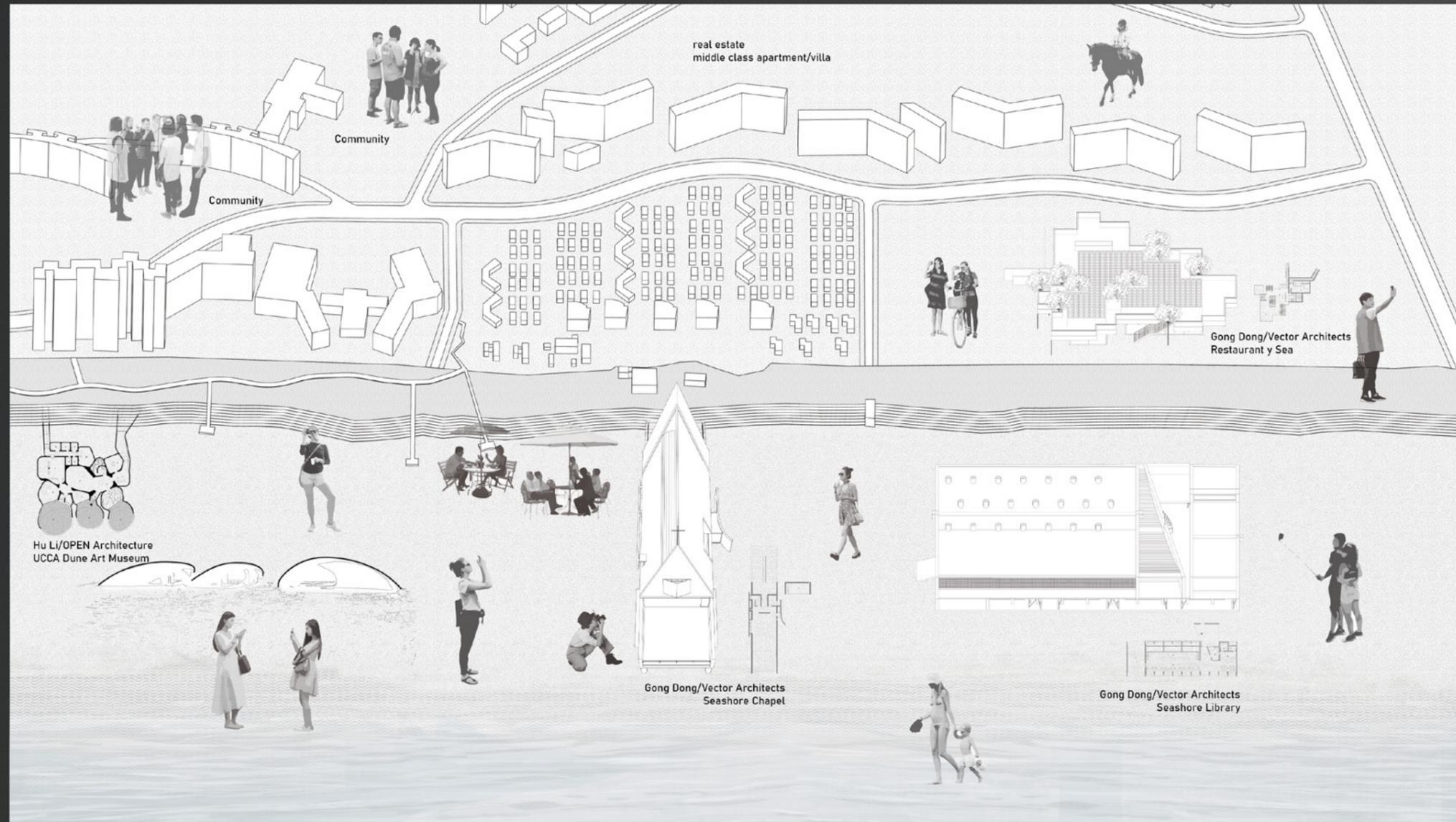
In 2015, after Dong Gong's Seaside library was completed, his video became popular on the Internet, and two or three thousand tourists came to check in every day. The large number of tourists who came here seriously exceeded the capacity of the library, and the library immediately established an online reservation platform, which was limited to 200 readers a day. Even so, there was still an endless stream of visitors.

Architect groups are also part of this crowd. But unlike ordinary tourists, with their professional knowledge, architects seem to have the discourse priority of architectural aesthetics. In the face of this "overnight popular" building, there have been endless discussions about its slightly picky formal vocabulary. In the second half of 2015 alone, the three authoritative Chinese architectural journals, <Architectural Journal>, <Architect>, and <World Architecture>, published six articles discussing seaside libraries. Two of them are project articles signed by the architect himself, two are interviews or conversations with Dong Gong between architects and scholars, and the other two are academic reviews of the seaside library. From the three evenly distributed essay types, we vaguely read the architect's ambitions: he seems not content to deliver his work to the popularity of popular culture but intends to push it into the serious, orthodox, academy of architecture in academic discussions. Interestingly, in these articles, the architect no longer uses the word "loneliness" to render the atmosphere of the library but instead uses the terms of site, space, structure, section, and material to explain his creation.



The Seaside Library Project is the community library of Aranya Seaside Resort in Beidaihe New District. This background is often overlooked but is an implicit premise for explaining many problems. Aranya community is located in Changli County, Qinhuangdao, Hebei Province, about 40 kilometers from downtown Qinhuangdao and 300 kilometers from downtown Beijing. As a tourism real estate project, Aranya's total area is 2.2 square kilometers, and the property rights period is 40 years. In 2015, Aranya came into the public eye due to the successful marketing of the "Lonely Library". Since then, the developer has continuously cooperated with domestic star architectural firms to build a series of distinctive community supporting buildings, including the Aranya Auditorium. (Dong Gong, Vector Architects), Dune Art Museum (Li Hu & Huang Wenjing, OPEN Architects), Aranya Art Center (Neri & Hu Architects), etc. With the blessing of community activities, the high popularity has driven the rise in real estate prices and sales, enabling Aranya to realize the transformation from a "dying real estate project" in 2012 to a "real estate god". It sounds like a Chinese version of the "Bilbao effect". But unlike people talking about the role of the Bilbao Guggenheim Museum in promoting urban development, in Aranya, the role of architecture as a real estate facility to drive project upgrades does not seem to be the focus of architects. In the urban middle-class cultural atmosphere that Aranya deliberately creates, architects are more inclined to use a series of complex discourses of architecture, art, and phenomenology to push architectural efforts to the end of culture, aesthetics, and soul.

On the one hand, it is the "pure form" realized by architects through a relatively loose creative environment, and on the other hand, it is a cultural symbol that attracts tourists and home buyers as a place for Internet celebrities to check-in. The community architecture of Aranya seems to be a contradictory community of these two extremes. If according to Manfredo Tafuri's theory, modernist architecture begins with resistance to capitalism and bourgeois aesthetics, and the complicity of the avant-garde and capital will eventually lead to its gradual demise, then it seems unavoidable that the community buildings in Aranya exist precisely to attract consumption, just like shining pins in the real estate plate, providing a picture that the urban middle class wants to see, representing their culture and aesthetic taste utopian landscape. Therefore, the role played by these "modern buildings" in real estate projects, marked by simple geometric volumes, may not be very consistent with the cultural originality behind their forms, which may be the reason architects tend to use terms such as perceptual experience to replace their social value.



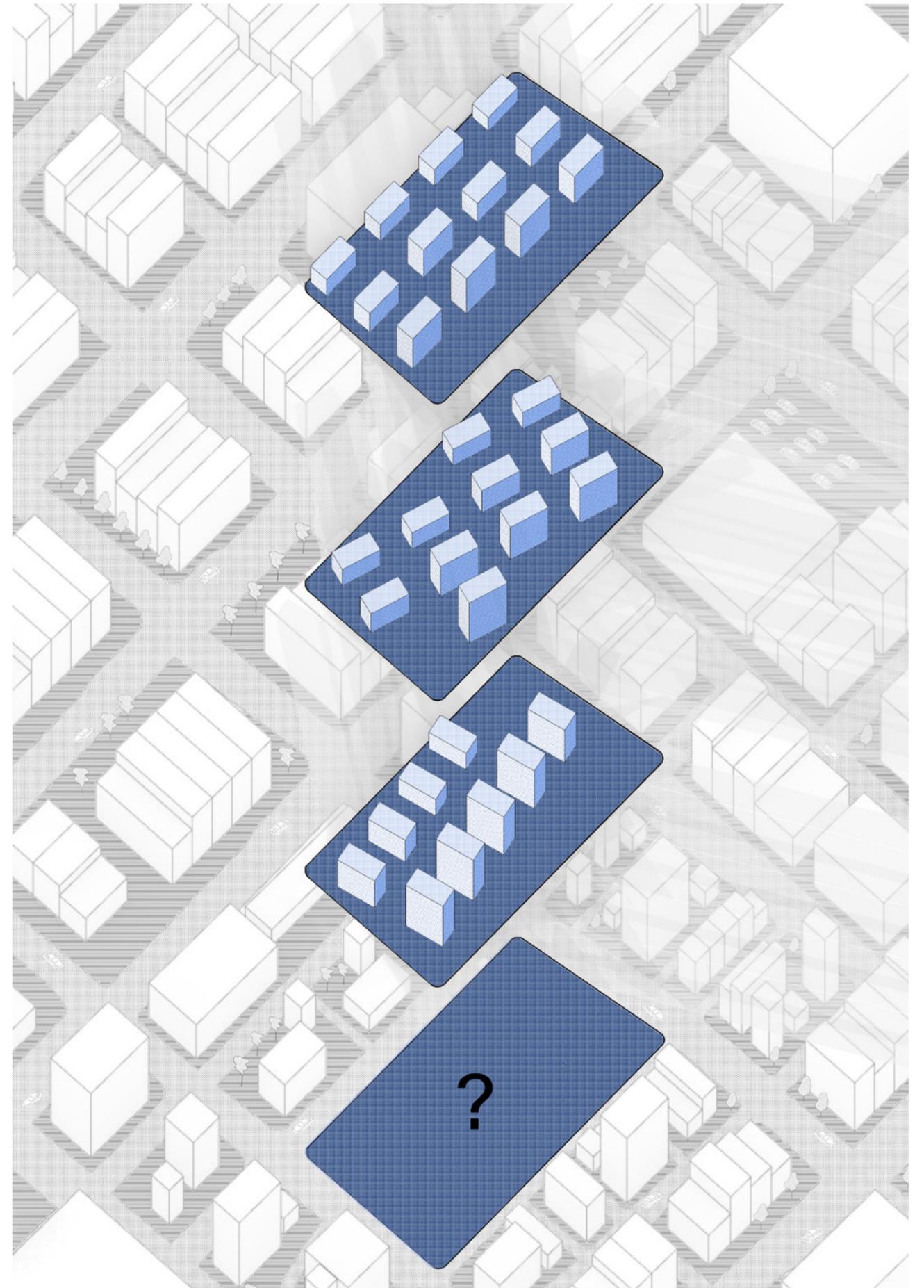
05. REAL ESTATE PLANNER

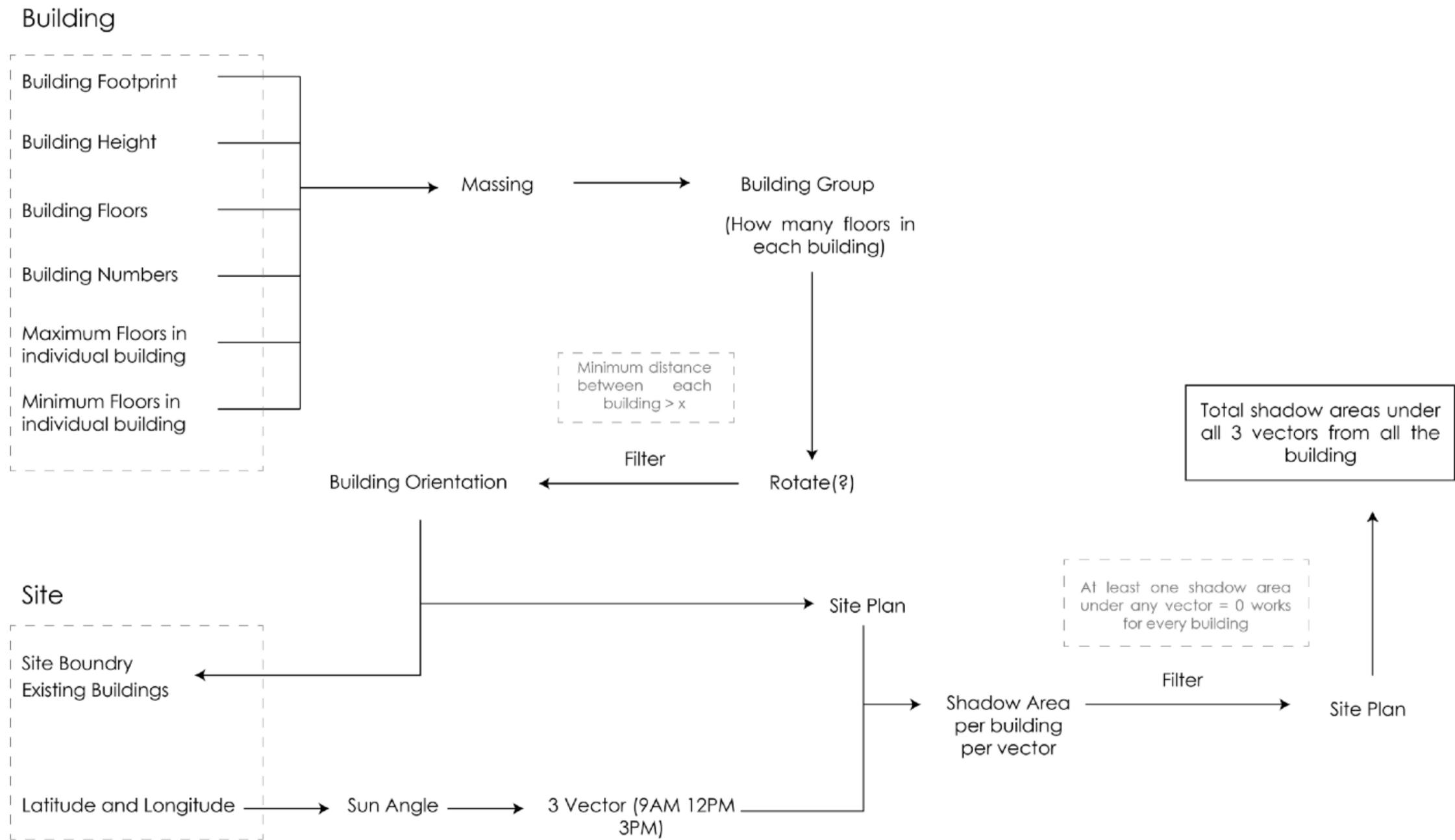
GSAPP Generative Design

Academic Project | Work with Deng Jialu, Yu Qingyang, Yang Can, Pang Yinlei

Instructor: Danil Nagy Spring 2022

In real estate design, site plan design is tedious and highly repetitive work. Whenever the area index, single building plan and building floor height change, it often means the revision of the site plan. At the same time, the rapid economic and social development has led to the increasing shortage of urban land, and the urban development model has gradually changed from a plane extension to a three-dimensional expansion, and the intensive utilization of land resources has become an inevitable trend. The design of the strong discharge scheme in the residential area is helpful to save the land for construction projects and achieve intensive construction. In the existing strong emission reduction design, the designer subjectively makes strong emission reduction design decisions based on the results of sunshine simulation analysis. However, in high-density residential areas, the sunlight and shadows of buildings are seriously blocked by each other. The method of manual trial-and-error adjustment makes the scheme design inefficient and is limited to the architectural design cycle. More intelligent and efficient design methods are urgently needed. The original design intention of our project is to use procedures instead of manual work to carry out these cumbersome works so that the site plan can carry out real-time feedback according to the changes of individual buildings. With further discussion and thinking, we try to explore whether this project can not only replace human labor but go further to achieve the goal that cannot be achieved by human labor and provide better choices for design. Taking the sunshine duration, an important evaluation standard of residential design, as the starting point, we try to complete a tool that can be applied to different sites through this project, which can provide the optimal solution through multiple simulations according to the specific conditions of different sites.





Methodology___Design Generation Logic of Model

The project aims at generating solutions facing various different building sites while achieving the best daylight conditions and profits. According to this idea, the generation of building volumes on a given building site can be divided into four steps. 1-Generate general logic for the layout of the building complex. 2-Adjust the building complex as a whole, including positions of the complex, different rotation angles, total number of units needed, etc. 3-Add the shadow overlap area of the building complex under certain daylight conditions as a measure of daylight conditions. 4-Generate the best options and let the user choose the one that better suits The option that better suits the needs.

Methodology___Input Parameters

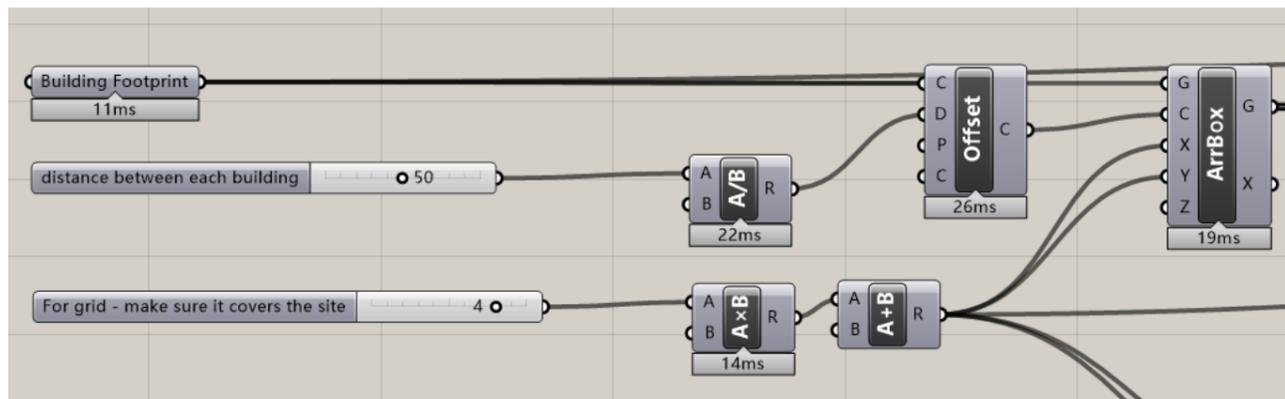
Site model — Inputs from the site include the boundary of the site where the building is generated and the massing of the surrounding buildings.

Parameters for generating buildings — Inputs which determine the basic condition of the buildings, including the footprint of the building unit, distance between each unit, floor height of the buildings, total numbers of levels and the maximum and the minimum numbers of the levels in each building. Setting these parameters can help us to initially filter the possibilities that need to be calculated and to more efficiently generate the design later.

Solar Condition — Inputs which determine the site location for positioning the sun position and sun direction, including the latitude and longitude of the site, and time zone.

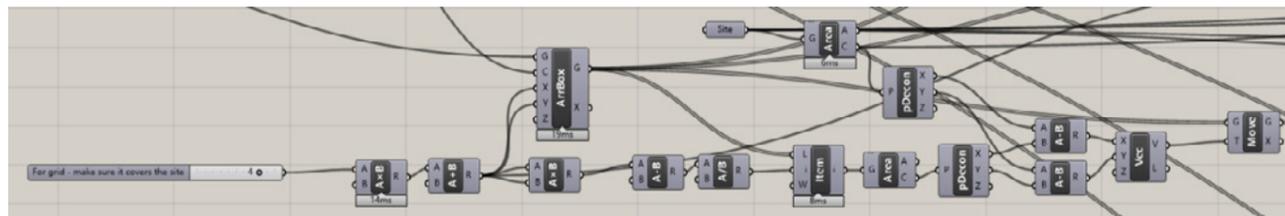
Methodology___Iterations Processing

Layout of the building complex — by offsetting the building footprint with half of the distance between each unit, we get the cell for Box Array.

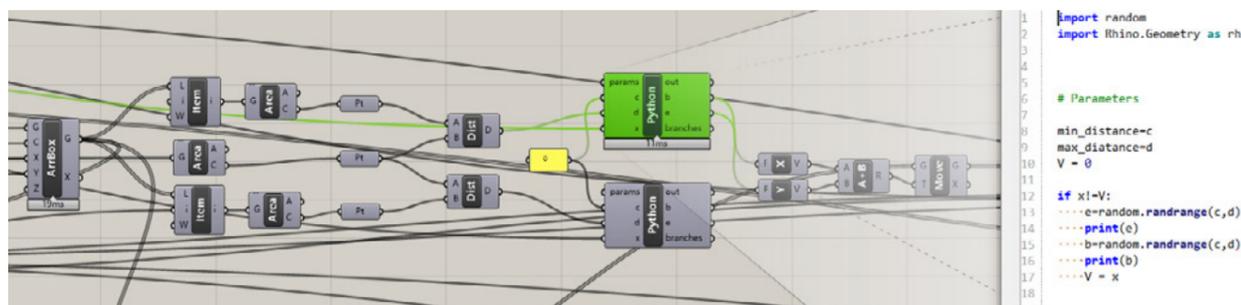


Components for constructing building complex

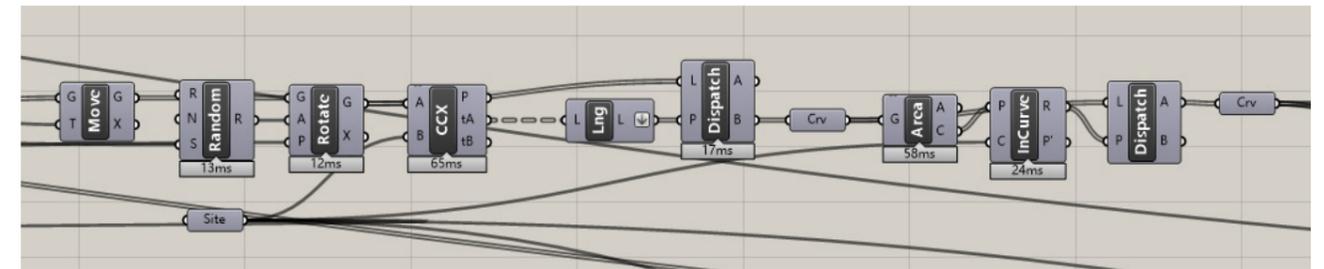
Position the building complex — the building complex is first moved to the center of the site, then shifted to the two directions of the complex in random distances, and at last rotated in a random angle for a final position.



Components for moving the building complex to the site

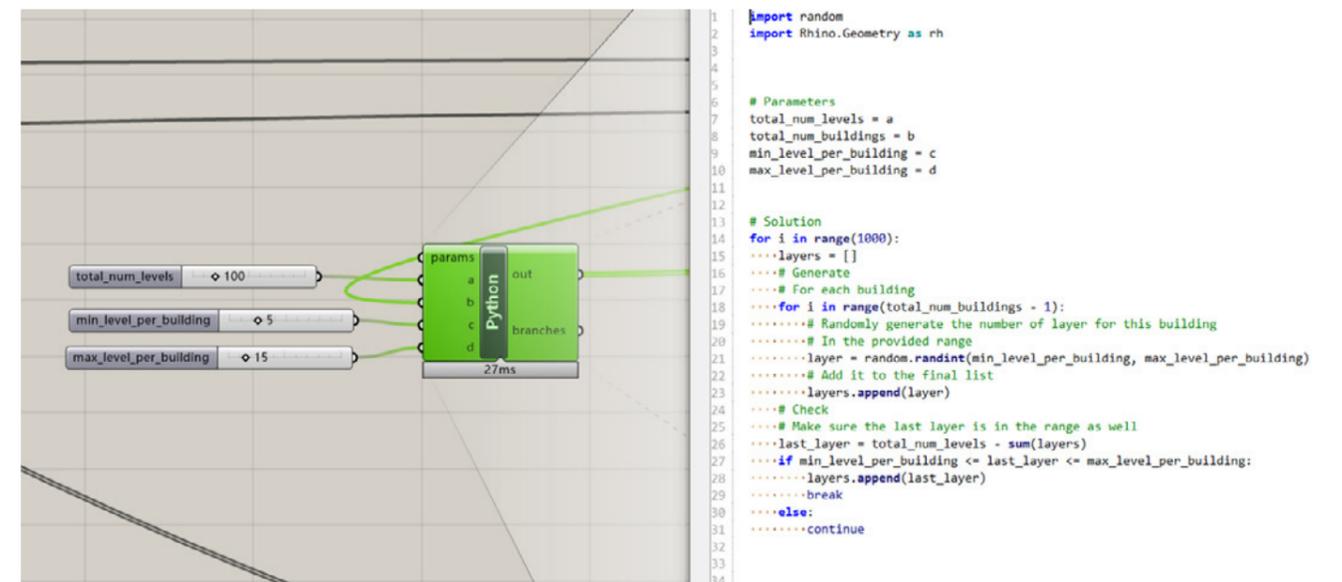


Components for shifting the building complex in random distances



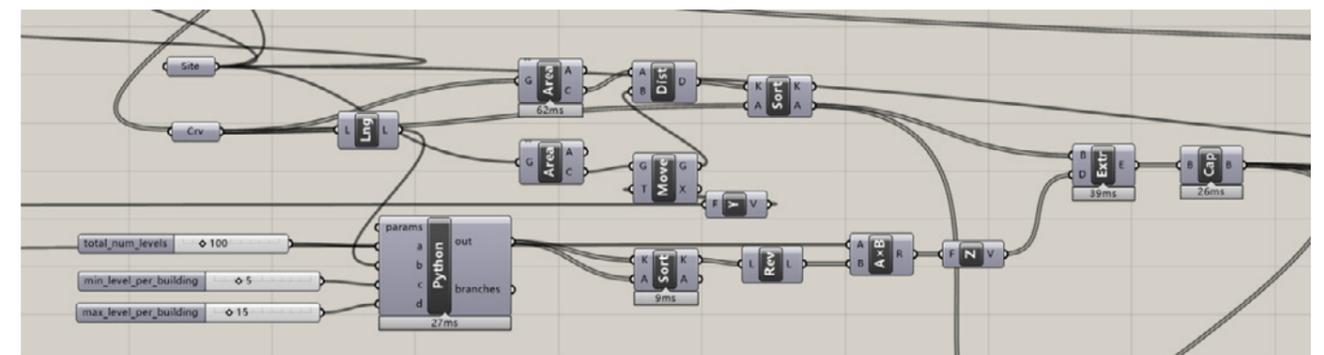
Components for rotating the building complex in a random angle

Number of floors in each building unit — with inputs of total numbers of levels and the limits of the maximum and the minimum numbers of the levels in each building, python will help offer a set of numbers showing how many floors are in each of the building.



Components for creating a set of numbers of floors in each building

Massing of the building complex — units are first sorted by their positions on north-south direction, and the numbers from the last step are applied to them based on the principle that the unit closer to the north have more floors so the complex will have a better daylight condition.

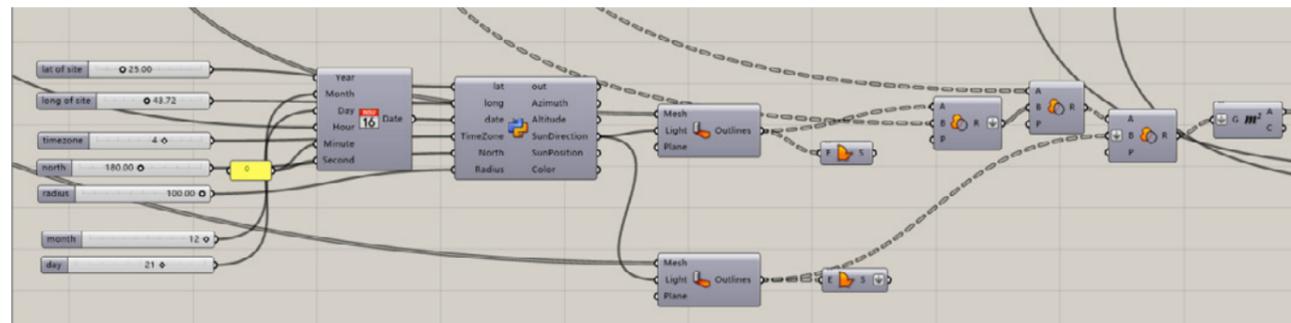


Components for creating the massing

Methodology___Performance Metrics

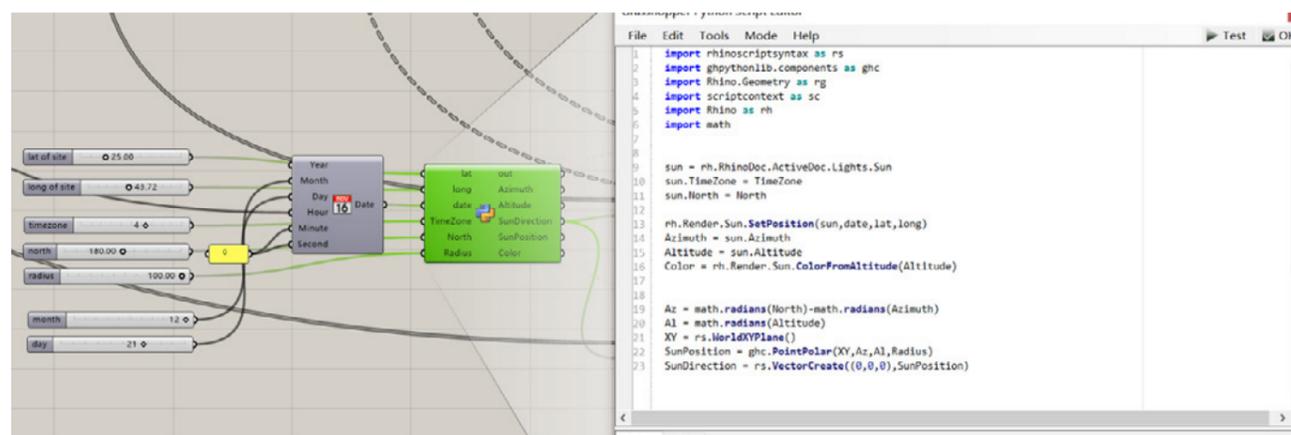
We use daylight conditions as a performance indicator for filtering the generated models to help produce better building layouts.

Daylight Condition (Objectives) — When analyzing the daylight conditions, we need a quantifiable data to determine the good or bad daylight conditions. We use the shaded area of the obtained model and the area of the building repetition as a parameter for the determination. By comparing the sum of the repeated shaded areas at three different times (9:00 am, 12:00 pm, and 3:00 pm), we can determine which solution has better daylight conditions.



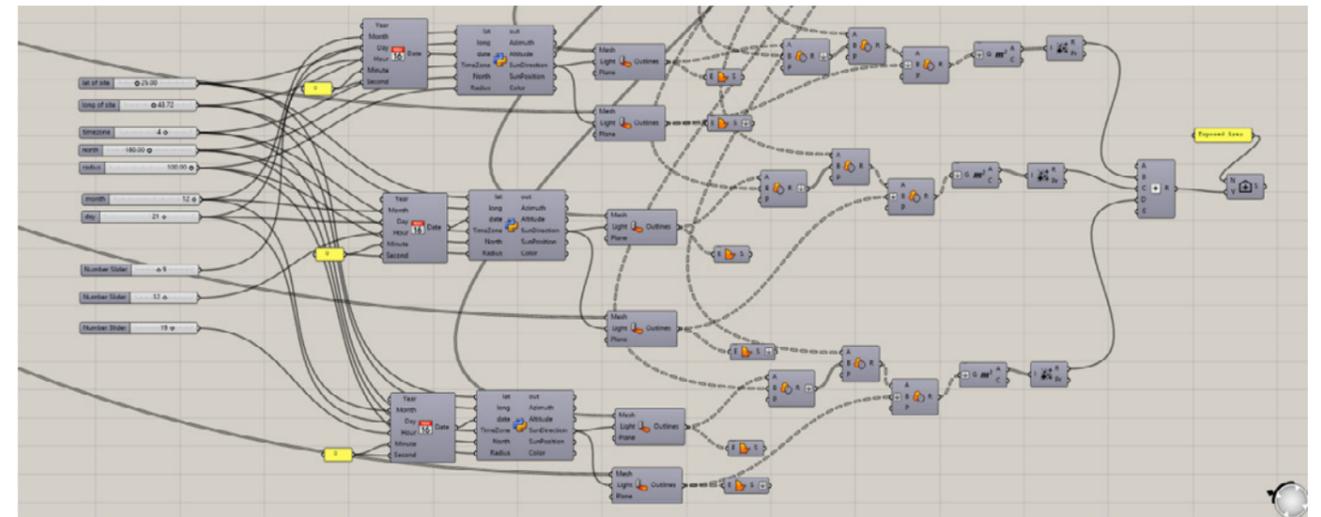
Components for shifting the building complex in random distances

In this part of the generation process, we first perform the input of the longitude and latitude of the site and the time zone and determine the parameters of the sunlight in the rhino model by writing a Python script. We then overlap the boundary of the generated shadows with the boundary of the building itself by using the mesh shadow battery group to get the area of the overlapping part.



Components for Daylight Generation in Model

Subsequently, we use cell group operations for each of the three different times to obtain three overlapping area parameters, and add them together to obtain the overlapping partial area parameter of the final layout as a quantifiable index for judging the daylight conditions of each layout.

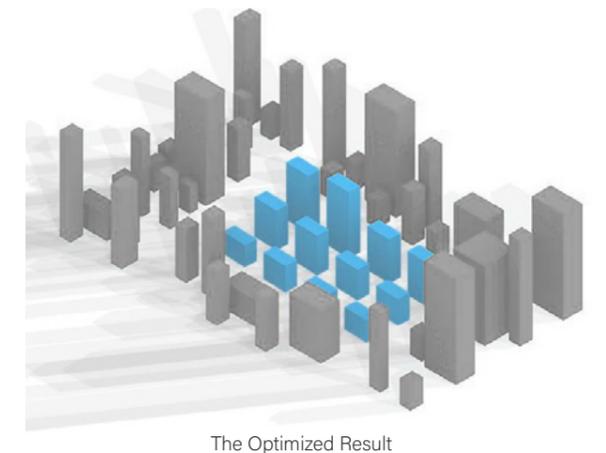
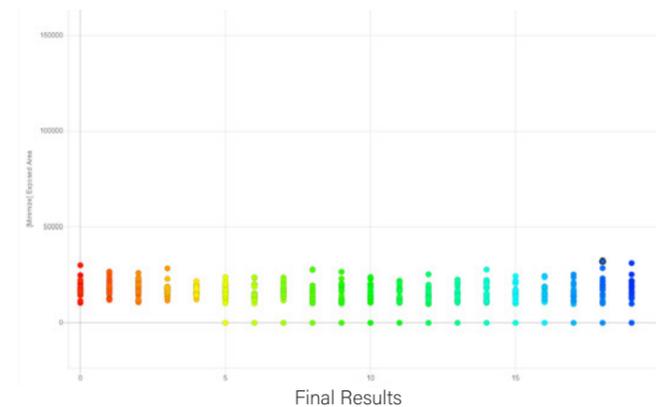


Components for Daylight Generation in Model

The objective can then be calculated to find the possible layouts for optimization. The optimized design options are visualized by connecting the grasshopper batteries to Discover.

Results

We got the optimized designs after running 20 generations with 20 designs generated per generation. With the X-axis representing different building groups and y representing the total exposed area at 3 different times of a day, the optimal building groups appear when the exposed area is largest. Exposed area represents the difference of building groups' footprint area and the shadow area. The larger the exposed area, the better light conditions buildings get.



The results reach our goals that the grasshopper and Discover could generate multiple building groups' arrangements and calculate each arrangement's total exposed area, letting the designer choose the optimized arrangement with the best light conditions.

Conclusion

In conclusion, the optimization process demonstrated that it is possible to generate multiple residential layouts by Rhino, Grasshopper, Python, and Discover and to optimize plan layouts with daylight conditions. We use the software to generate a series of layout schemes in a short time by adjusting the Angle, spacing, width and height. Then, the light conditions in three time periods of each scheme in a day are calculated to get the optimal solution. Through these calculations, designers can save a lot of time in simulating residential light conditions after design, and developers can maximize profits under limited conditions. At the same time, because all variables are artificially input, this system can be applied to different sites and different projects. It is universal and adaptive. While there are still areas