

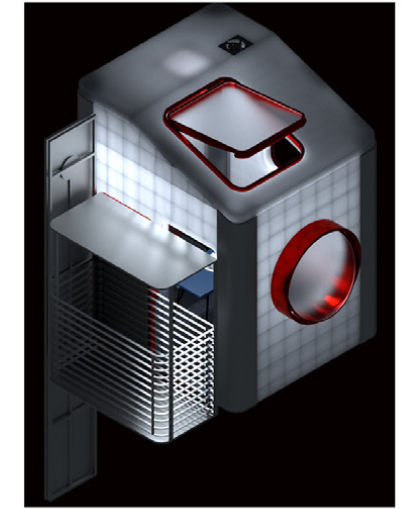
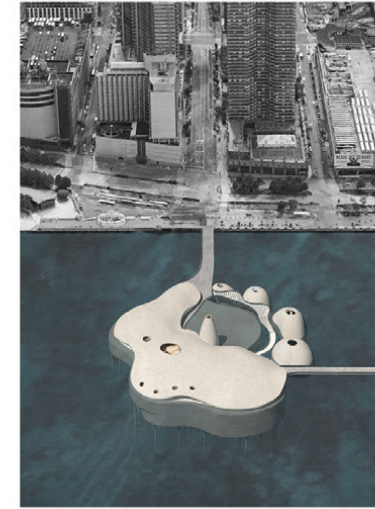
Enfeng Xie



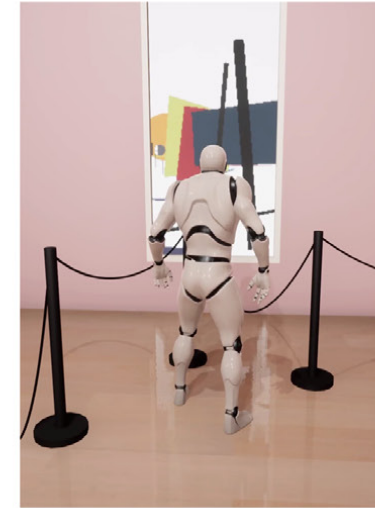
ex2129@columbia.edu

COLUMBIA GRADUATE SCHOOL OF ARCHITECTURE PLANNING AND PRESERVATION - 2022

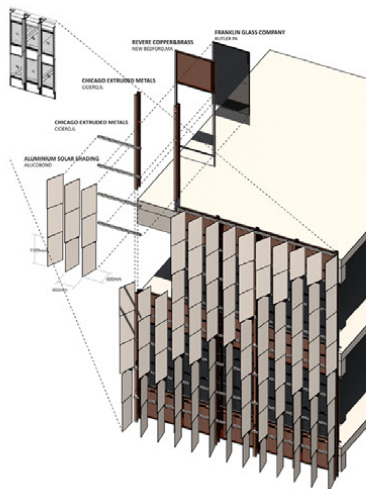
PART 1. ADVANCED
STUDIO[S]

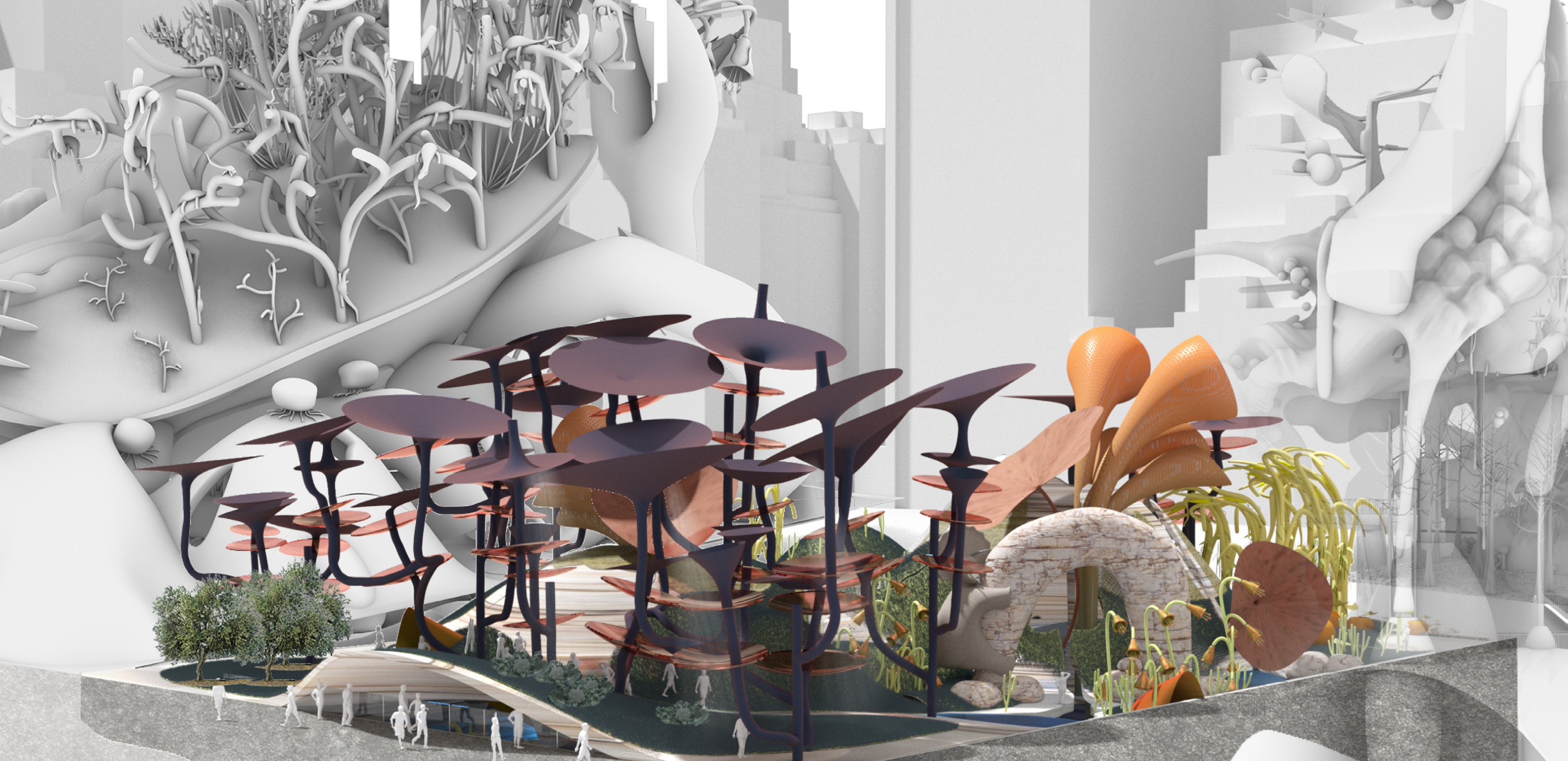


PART 2. VISUAL



PART 3. AAD TECH & ESSAY





01 FOOD FOREST FANTASY

Year: 2021 JUNE - JULY

Type: academic

Programme: 2021 Summer GSAPP Advanced Studio Landscape design

Role: individual work

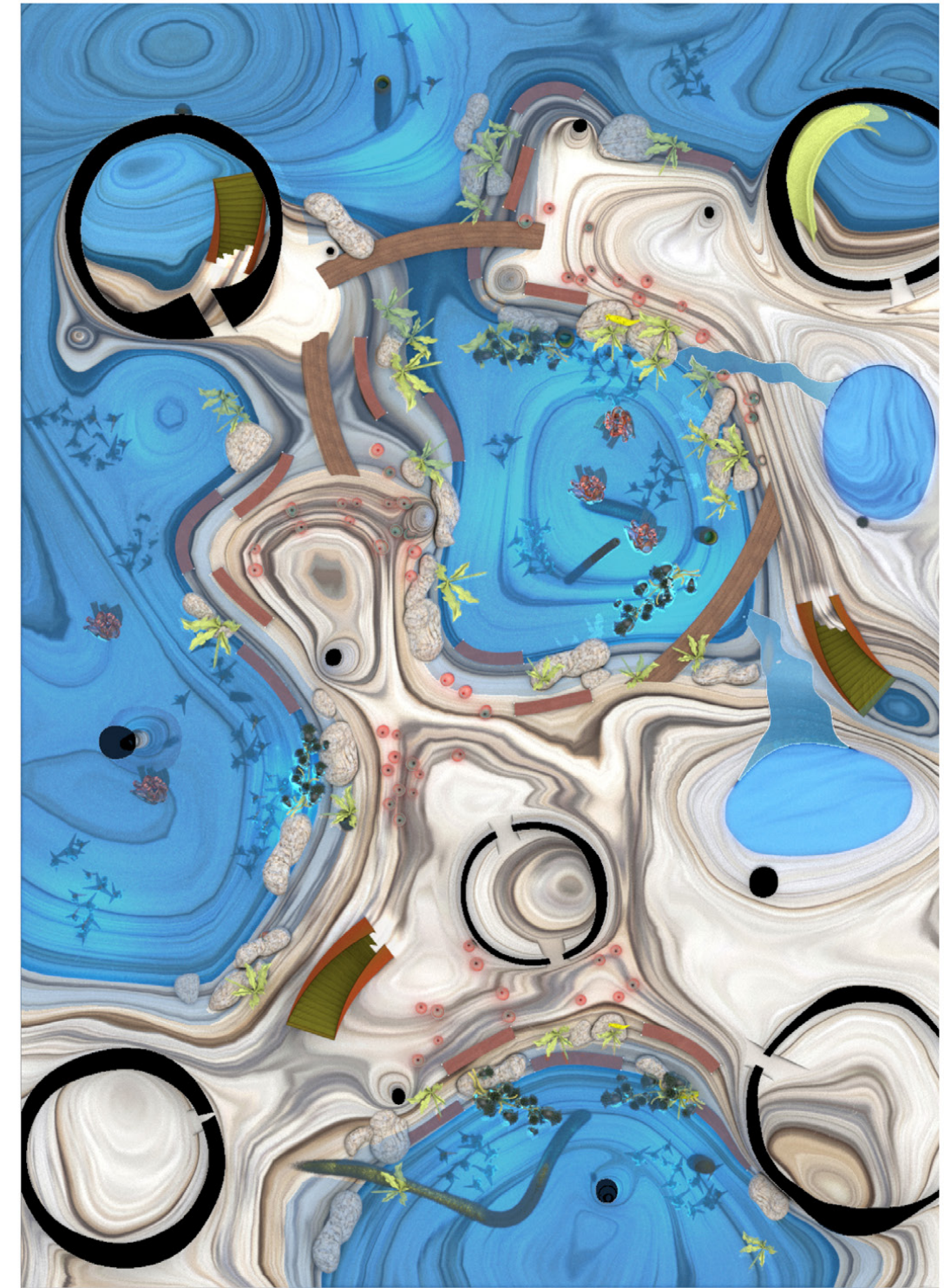
Instructor: Michael F. Loverich (mikeylove@bittertang.com), Antonio Torres (torres.torres@bittertang.com)

Site: Manhattan, New York, The United States

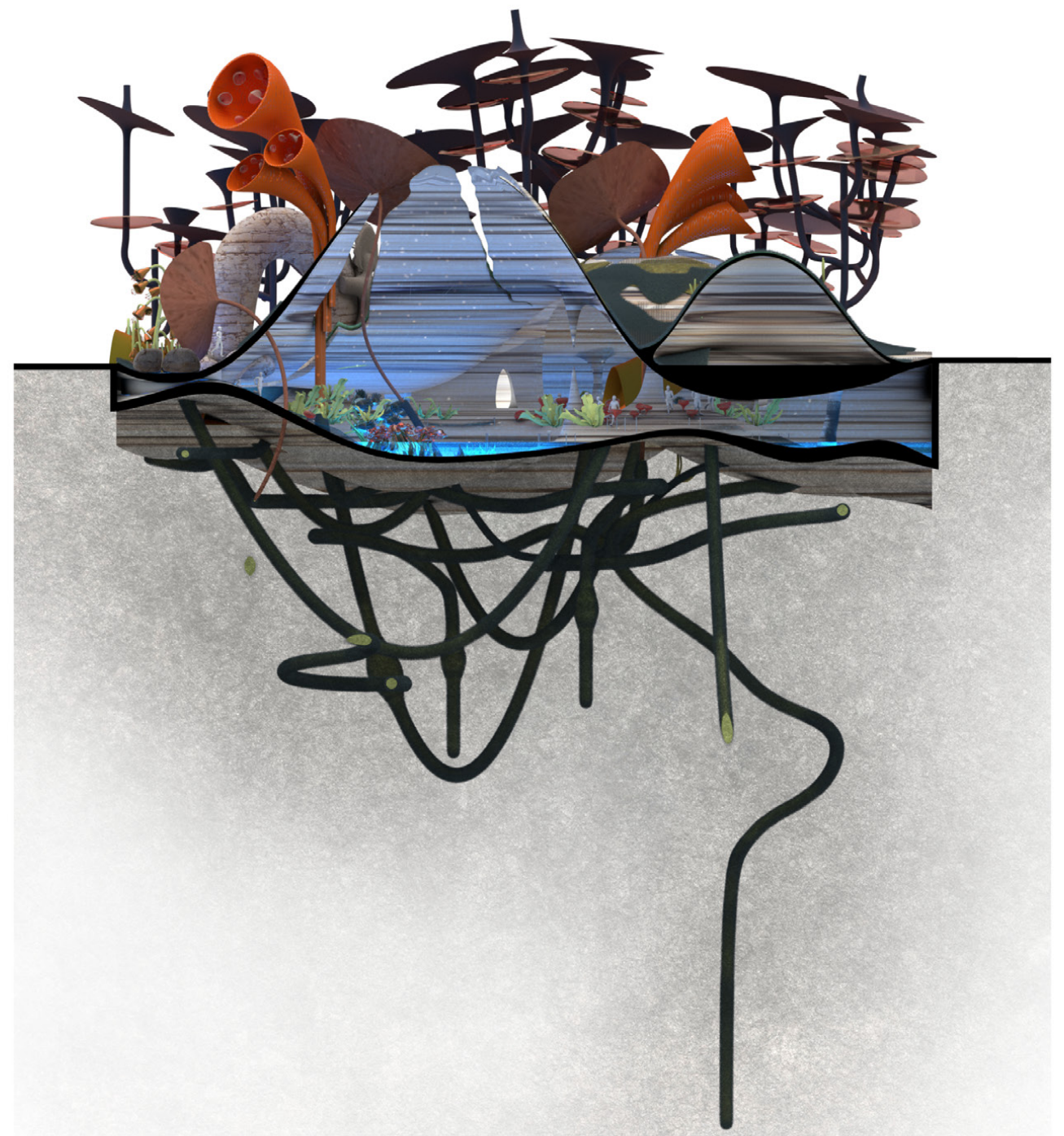
How long has it been since you've grown a vegetable or enjoy a harvest? For most people, vegetables only exist in supermarkets, vegetable baskets and refrigerator. People flock from the countryside to the city, especially in New York. This lessens the opportunity for them to spend time with vegetables, plants and nature. This project aim at creating citizen's reverence and intimacy to nature. It creates a agricultural experience and education for children and adult who never or rarely have a planting experience or look forward to enriching their knowledge of planting.

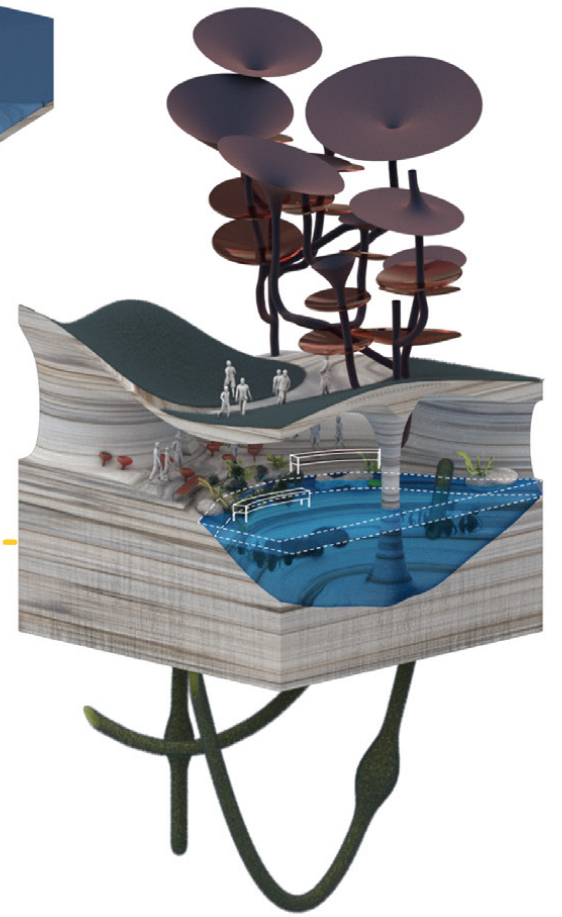
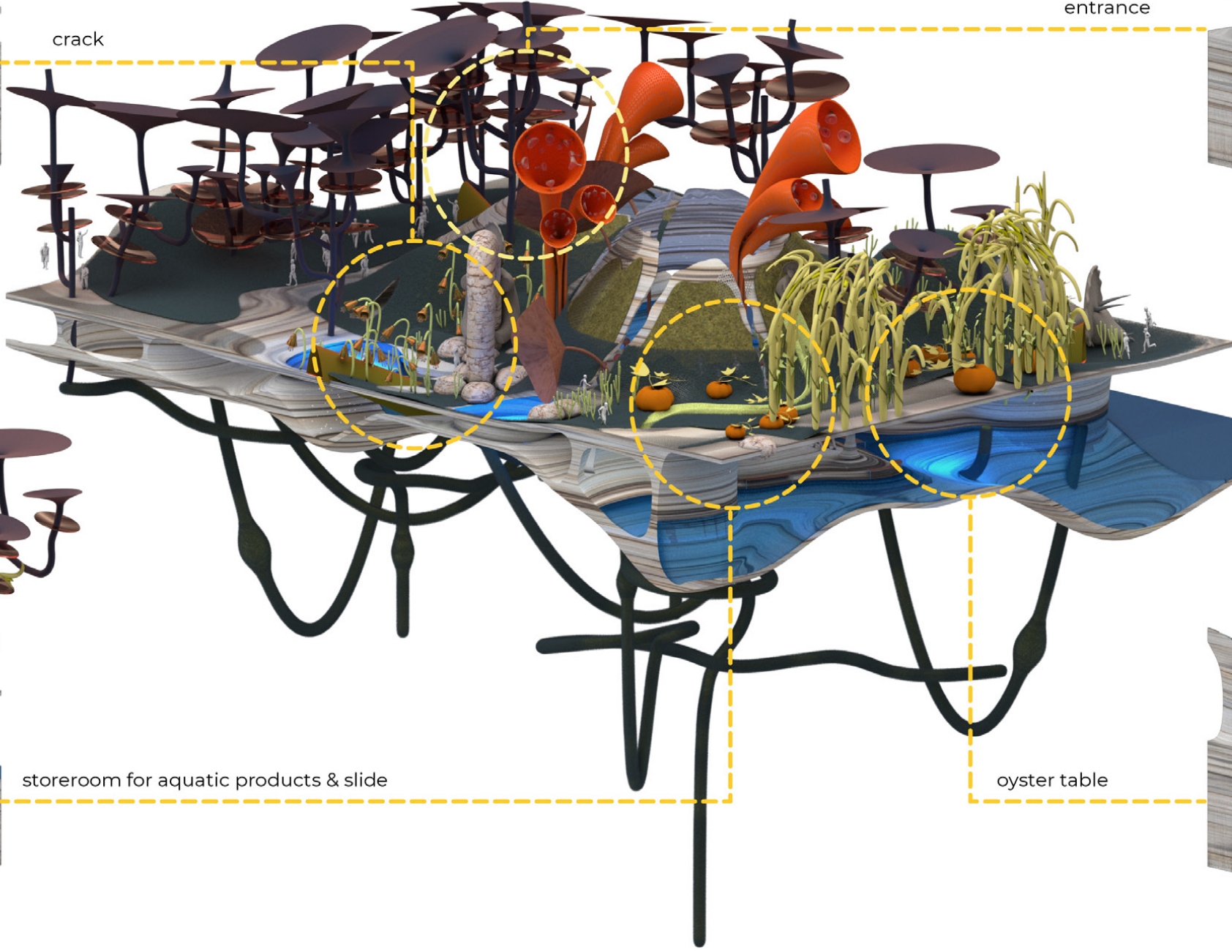
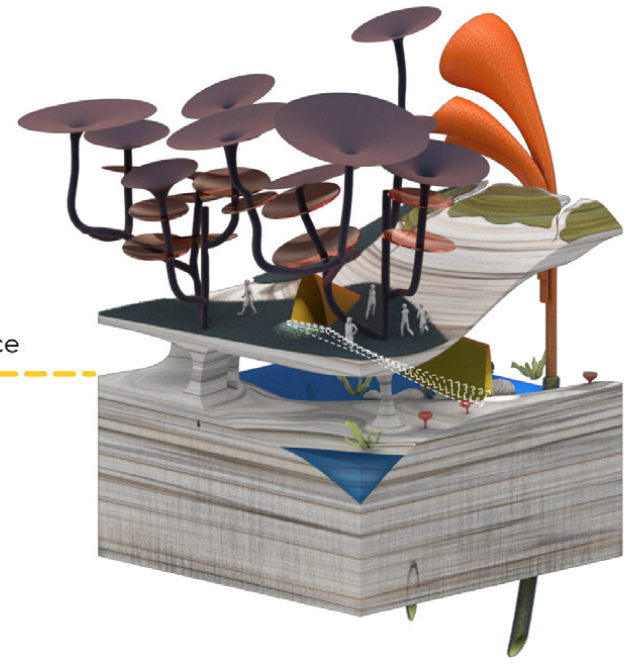
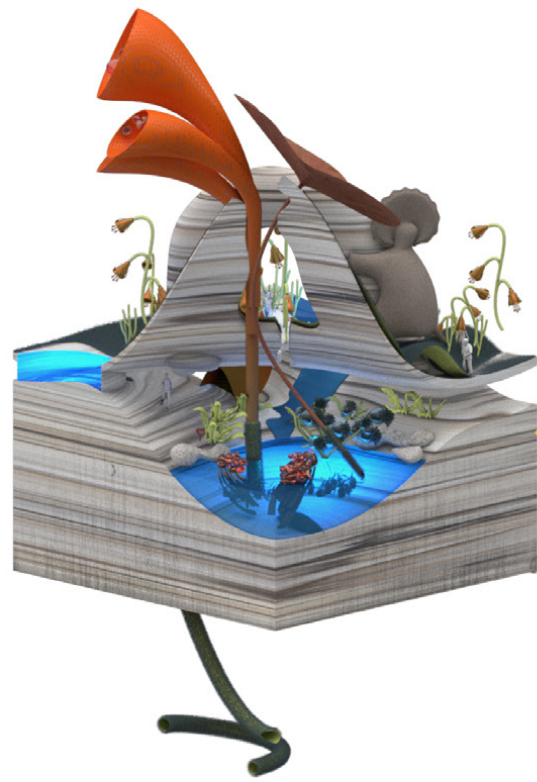


The overground part is mainly a plantation of vegetables which are highly fond of light and water. In the south, under the funnel canopy there are fields for different vegetables like olive trees, broccoli and onion. And the canopy offers shading and collects water. It's similar to a greenhouse. The lifted edge sticks out as a shelter for passers-by and also attracts people to the underground with its scene.



Underground is a out door restaurant. The difference is you should pick vegetable, wash, cook by yourself according to the guidance. There are 6 store rooms and a kitchen in this project. Visitors learn from practice during this process.



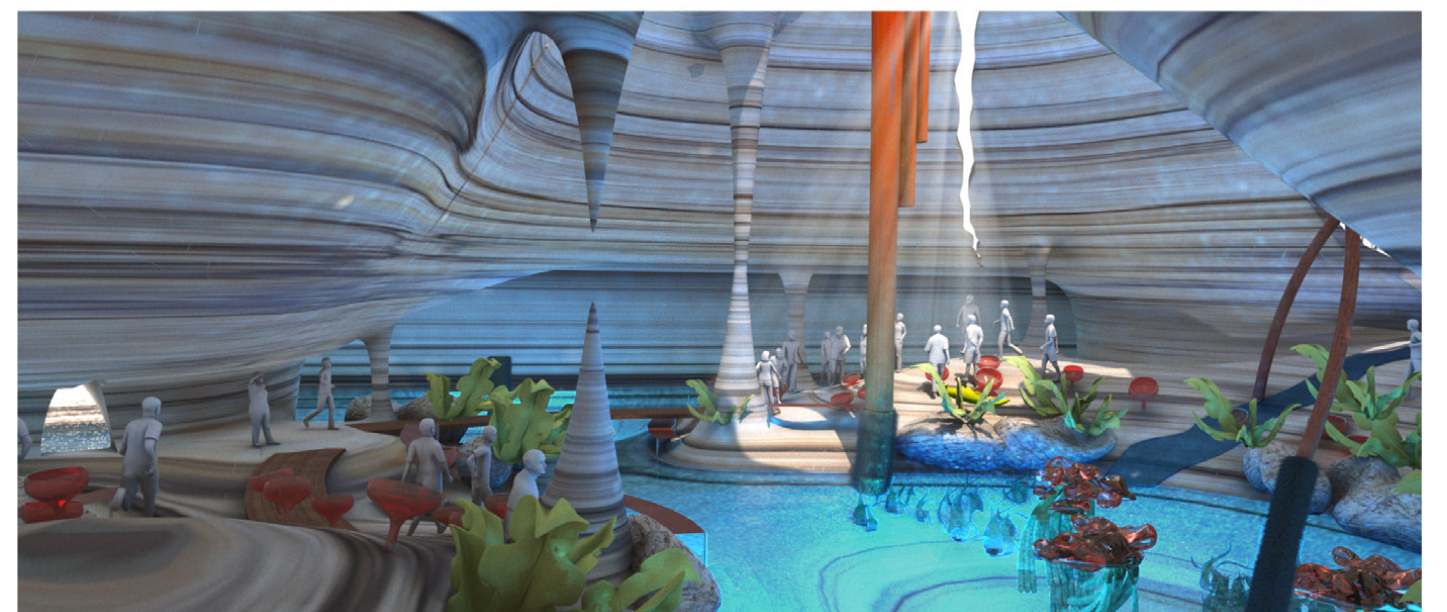
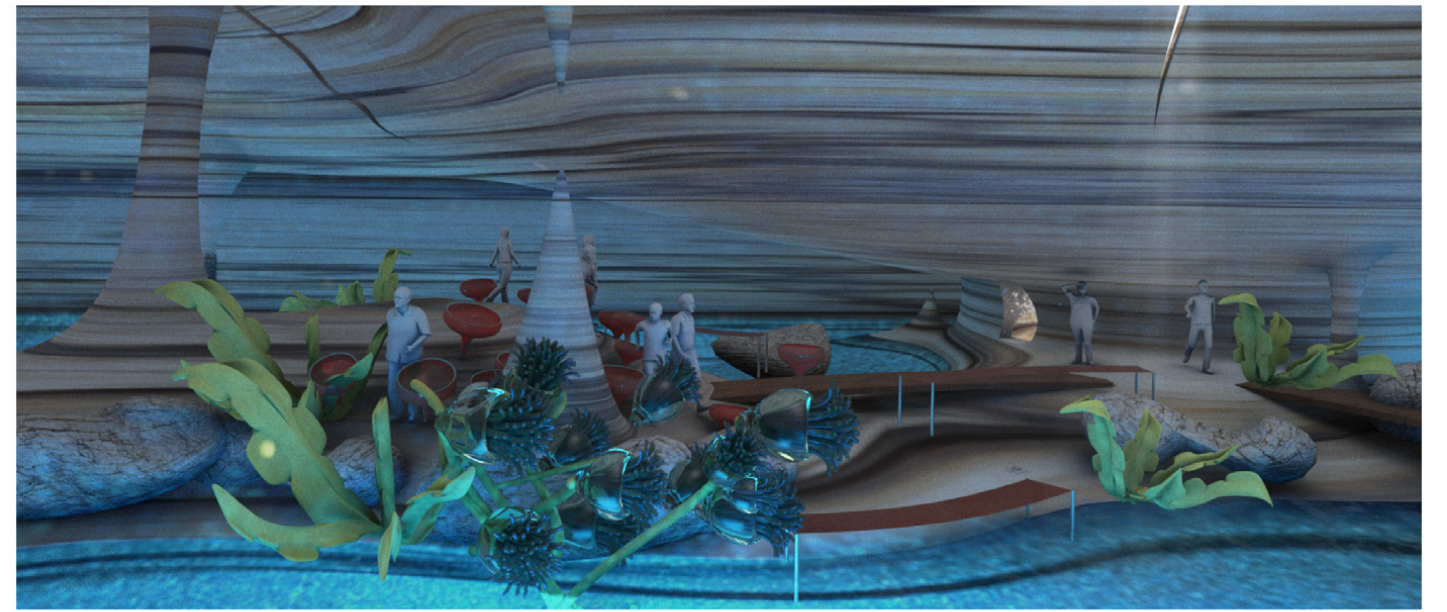


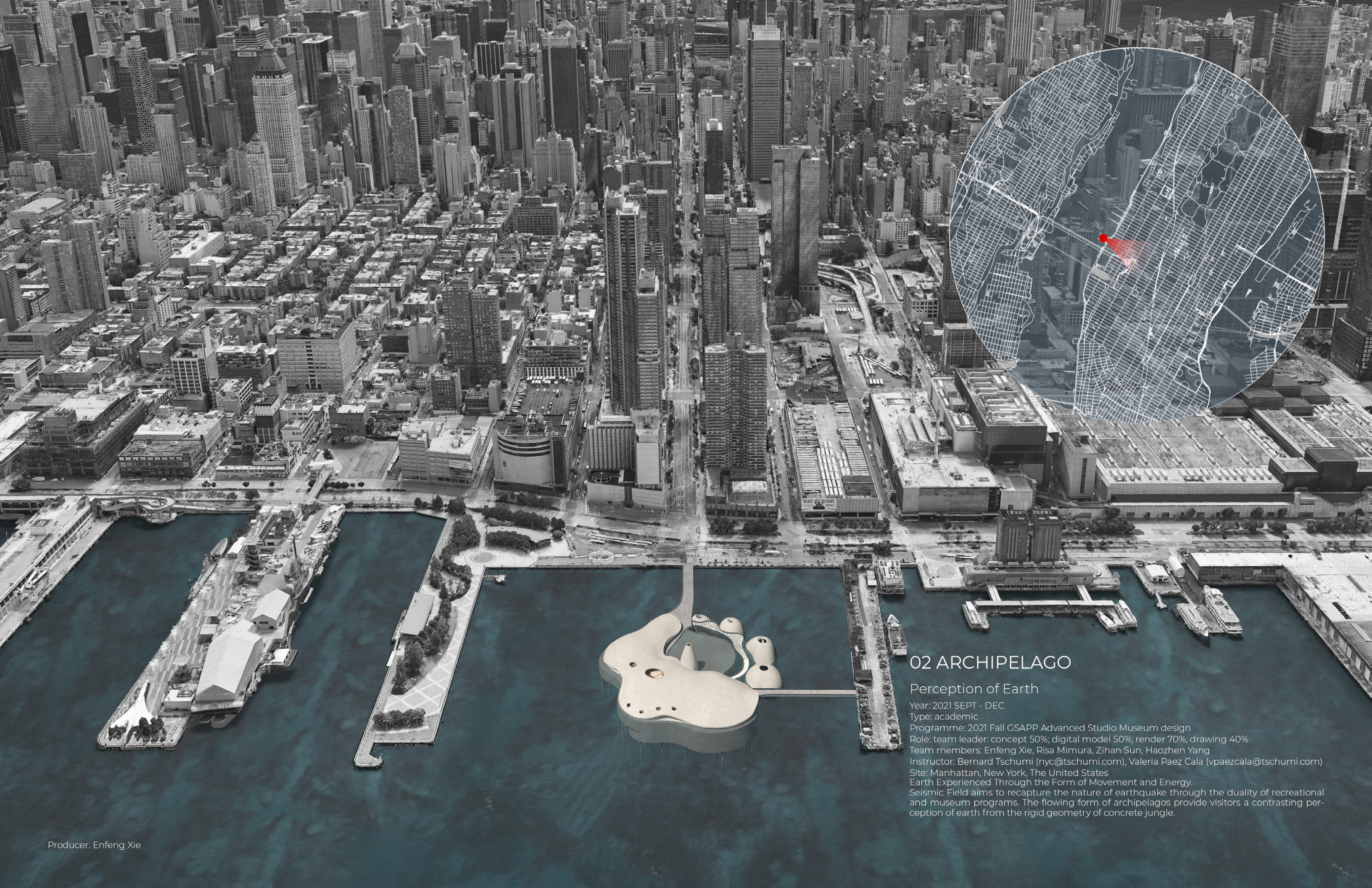
crack

entrance

storeroom for aquatic products & slide

oyster table





02 ARCHIPELAGO

Perception of Earth

Year: 2021 SEPT - DEC

Type: academic

Programme: 2021 Fall GSAPP Advanced Studio Museum design

Role: team leader: concept 50%; digital model 50%; render 70%; drawing 40%

Team members: Enfeng Xie, Risa Mimura, Zihan Sun, Haozhen Yang

Instructor: Bernard Tschumi (nyc@tschumi.com), Valeria Paez Cala (vpaezcala@tschumi.com)

Site: Manhattan, New York, The United States

Earth Experienced Through the Form of Movement and Energy.

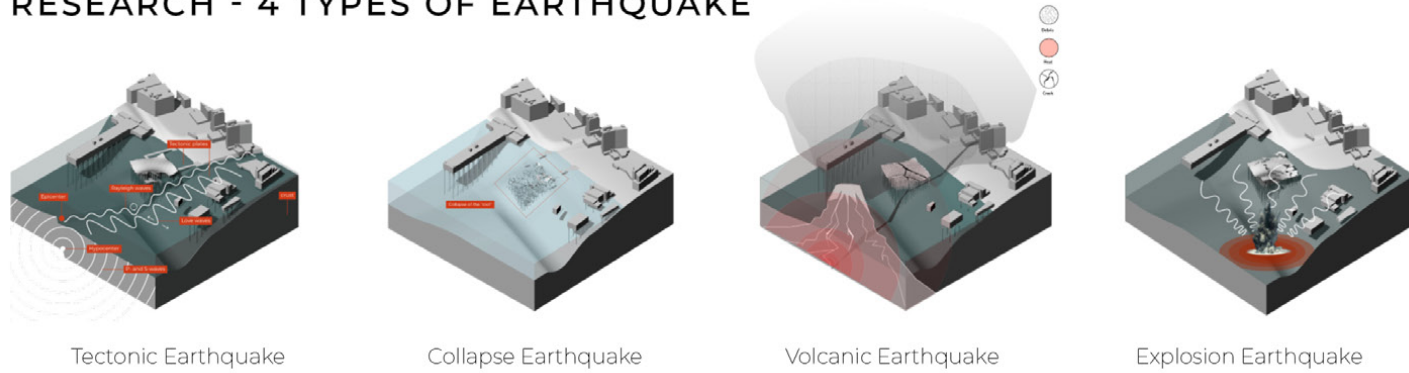
Seismic Field aims to recapture the nature of earthquake through the duality of recreational and museum programs. The flowing form of archipelagos provide visitors a contrasting perception of earth from the rigid geometry of concrete jungle.

RESEARCH - EARTH AND EARTHQUAKE



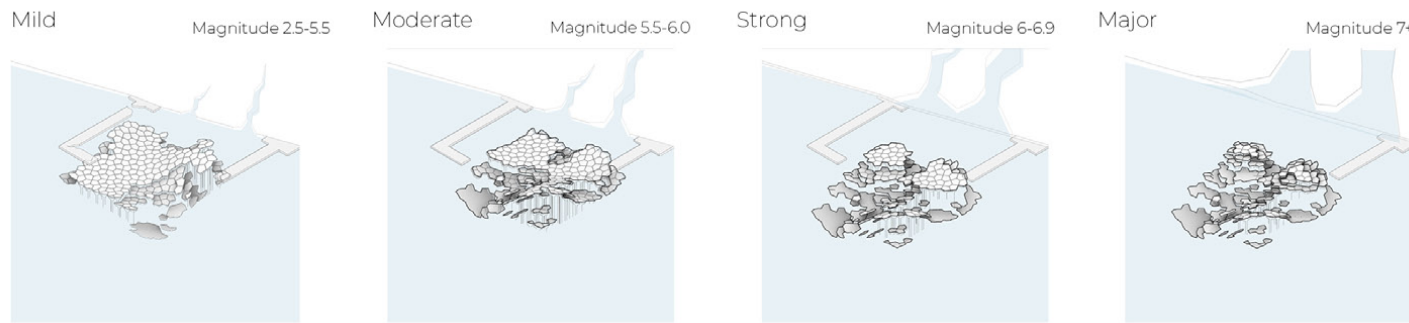
Earthquake as a natural catastrophe is always related to destruction and injuries.

RESEARCH - 4 TYPES OF EARTHQUAKE



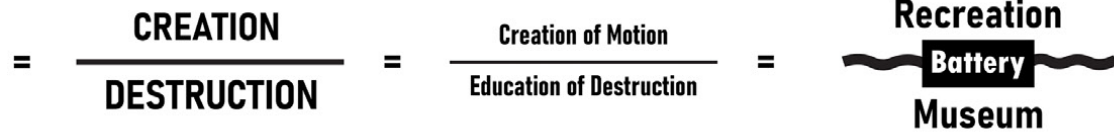
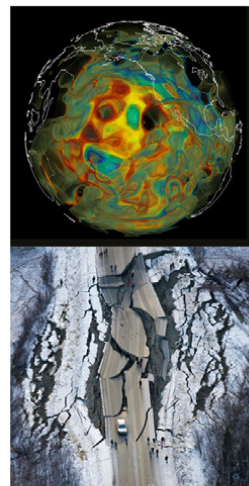
Earthquake can be caused by both natural events, and human activities.

RESEARCH - 4 TYPES OF EARTHQUAKE



Earthquakes damage varies according to its magnitude.

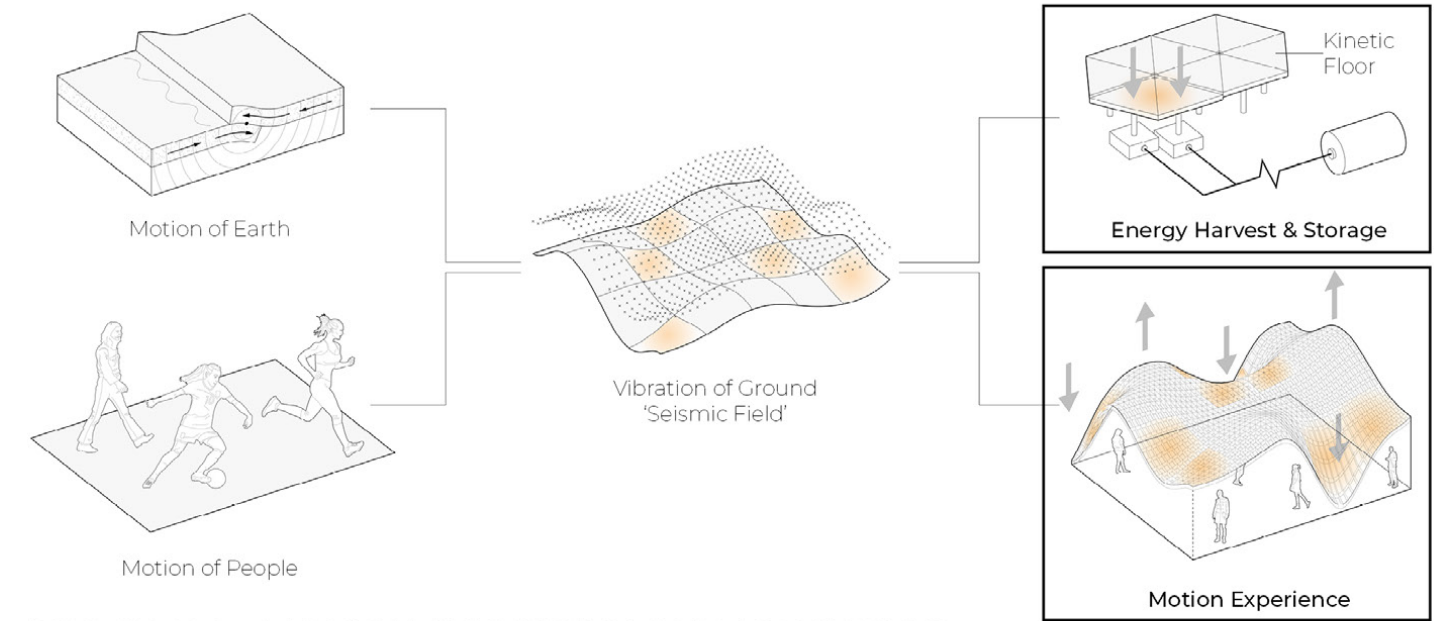
ARGUMENT - DESTRUCTION AND CREATION



Earthquake as a catastrophe is defined by human. In response to the duality of earthquakes, we propose a recreation center, a museum, and a battery connecting them.

Producer: Enfeng Xie (drawing 40%), Risa Mimura (drawing 25%), Zihan Sun (drawing 25%), Haozhen Yang (drawing 10%)

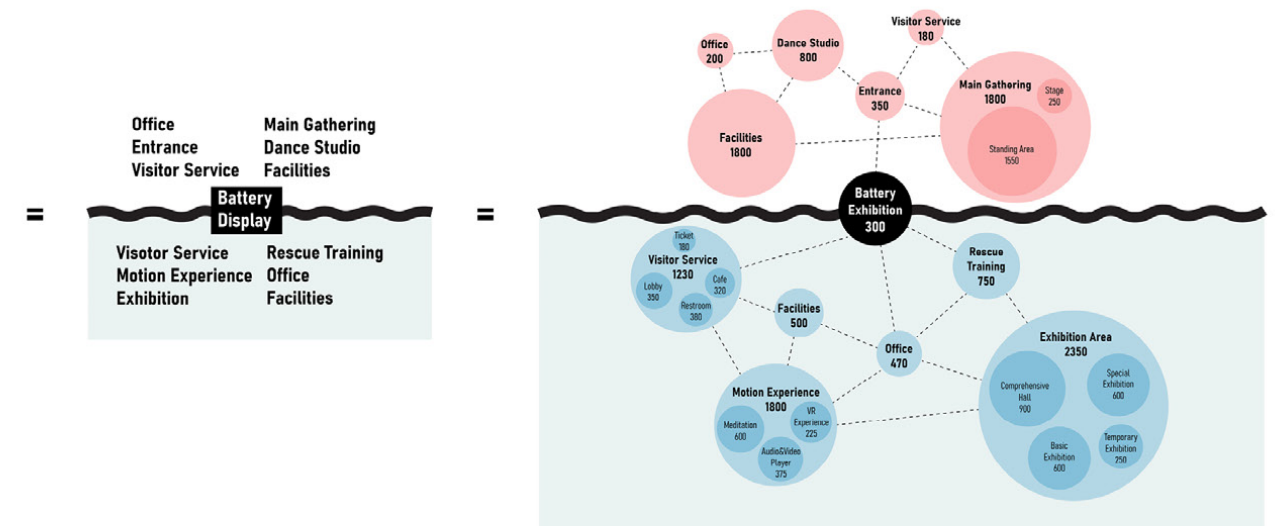
ARGUMENT - ACTIVATION OF SEISMIC FIELD



PROGRAM - MOTION INTENSITY AND EPICENTER



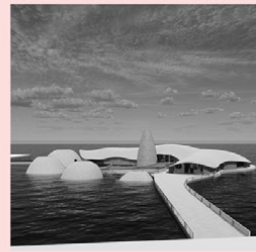
PROGRAM - DIVISION AND AREA



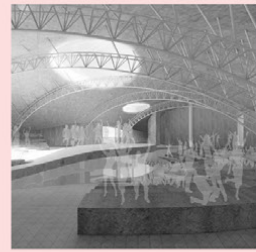
OVERVIEW - PLANS AND SEQUENCE



View from Manhattan



Entrance(Above Water)



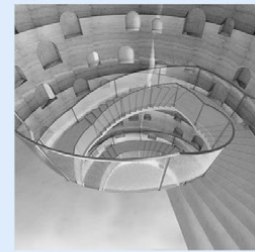
Main Gathering Space



Meditation Chamber Above Water



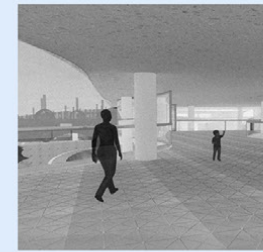
Battery Tower



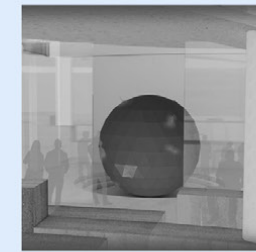
Entrance(Below Water)



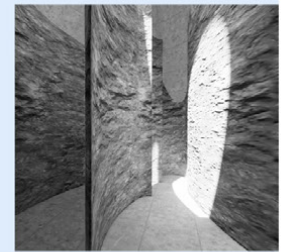
Motion Experience Cave



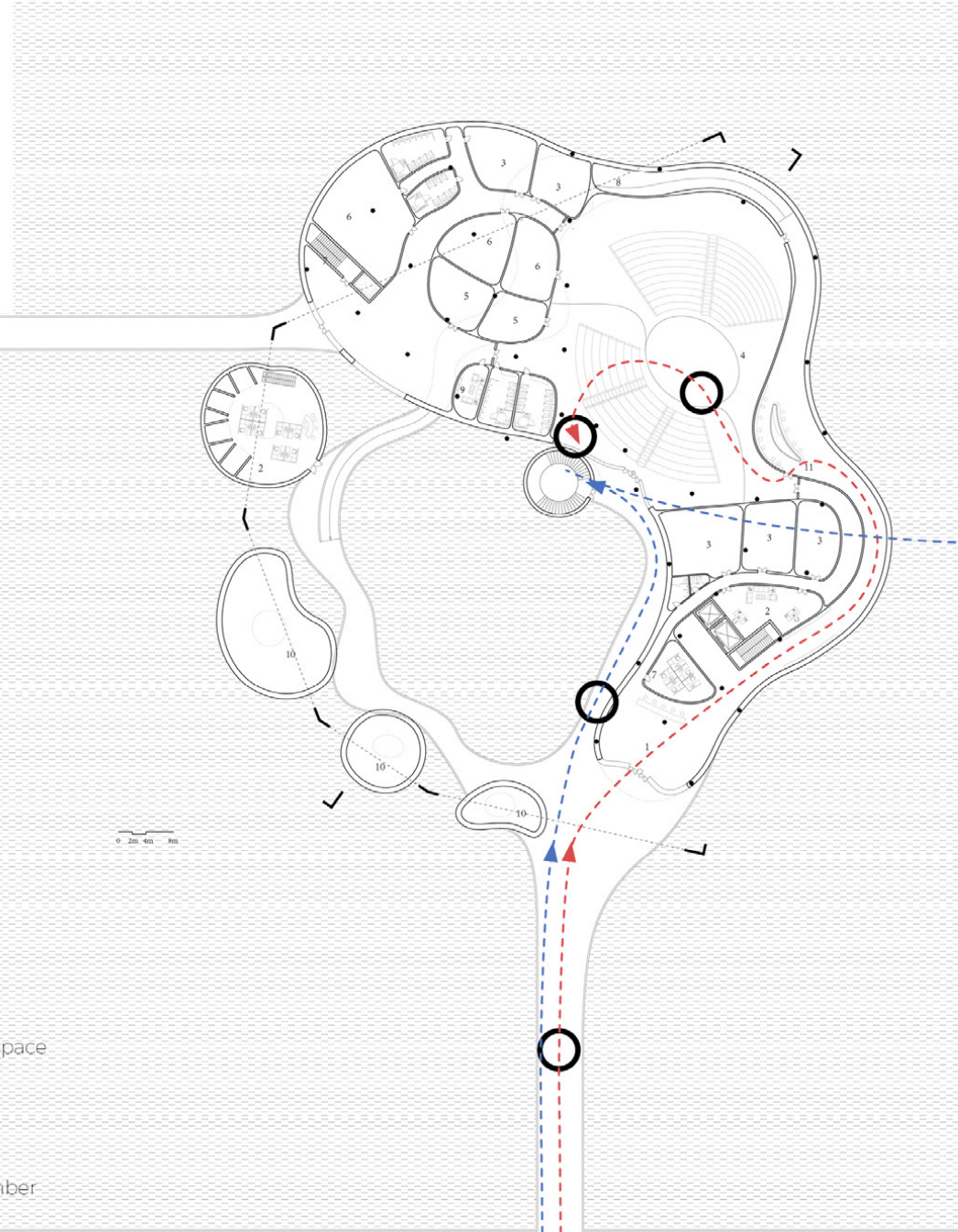
Sunken Alley



Rescue Training Arena

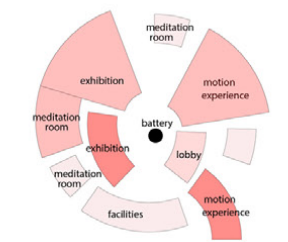
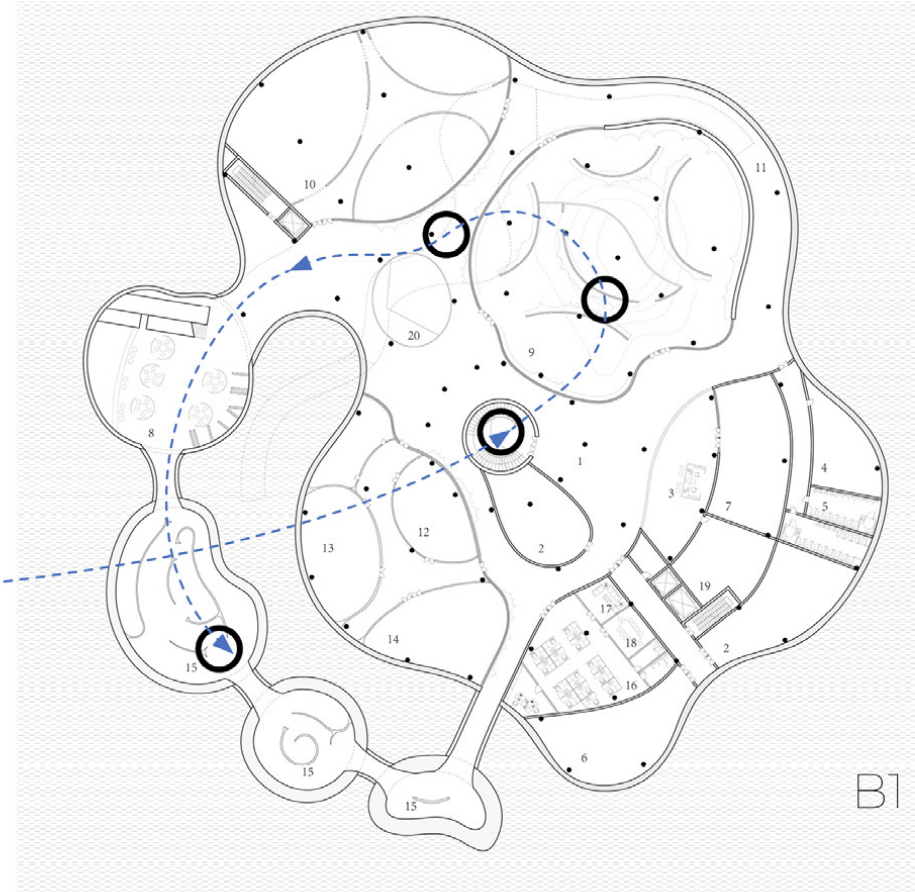


Meditation Chamber



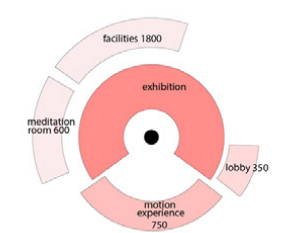
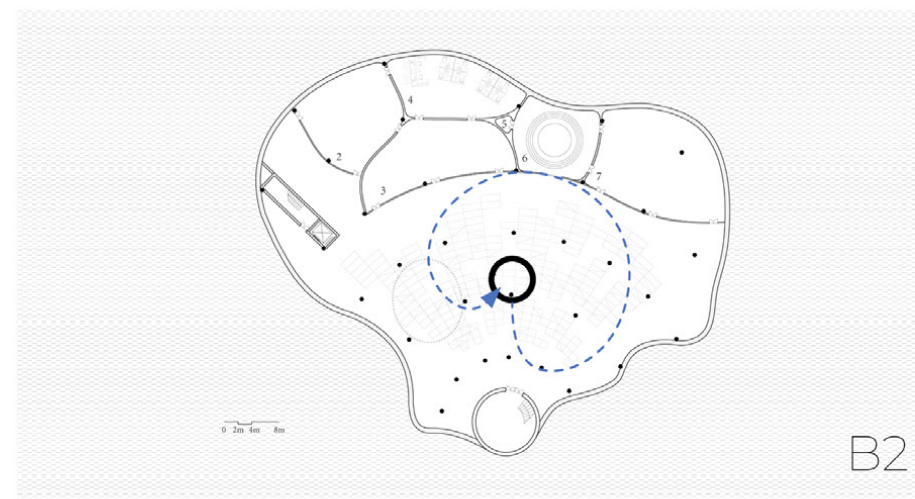
- 1 Lobby
- 2 Office
- 3 Rehearsal Room
- 4 Main Gathering Space
- 5 Facility
- 6 Storage Room
- 7 Security Guard
- 8 Sunken Alley
- 9 Reception Room
- 10 Meditation Chamber
- 11 Cafe

F1



- 1 Lobby
- 2 Facilities
- 3 Ticket Office
- 4 Coat Room
- 5 Restroom
- 6 Storage Room
- 7 Bookstore
- 8 Teahouse
- 9 Motion Experience Hall
- 10 Basic Exhibition Hall
- 11 Special Exhibition Corridor
- 12 VR Experience Room
- 13 AR Experience Room
- 14 Interactive Experience Room
- 15 Meditation Chamber
- 16 Office
- 17 Reception Room
- 18 Conference Room
- 19 Central Control Room
- 20 Atrium

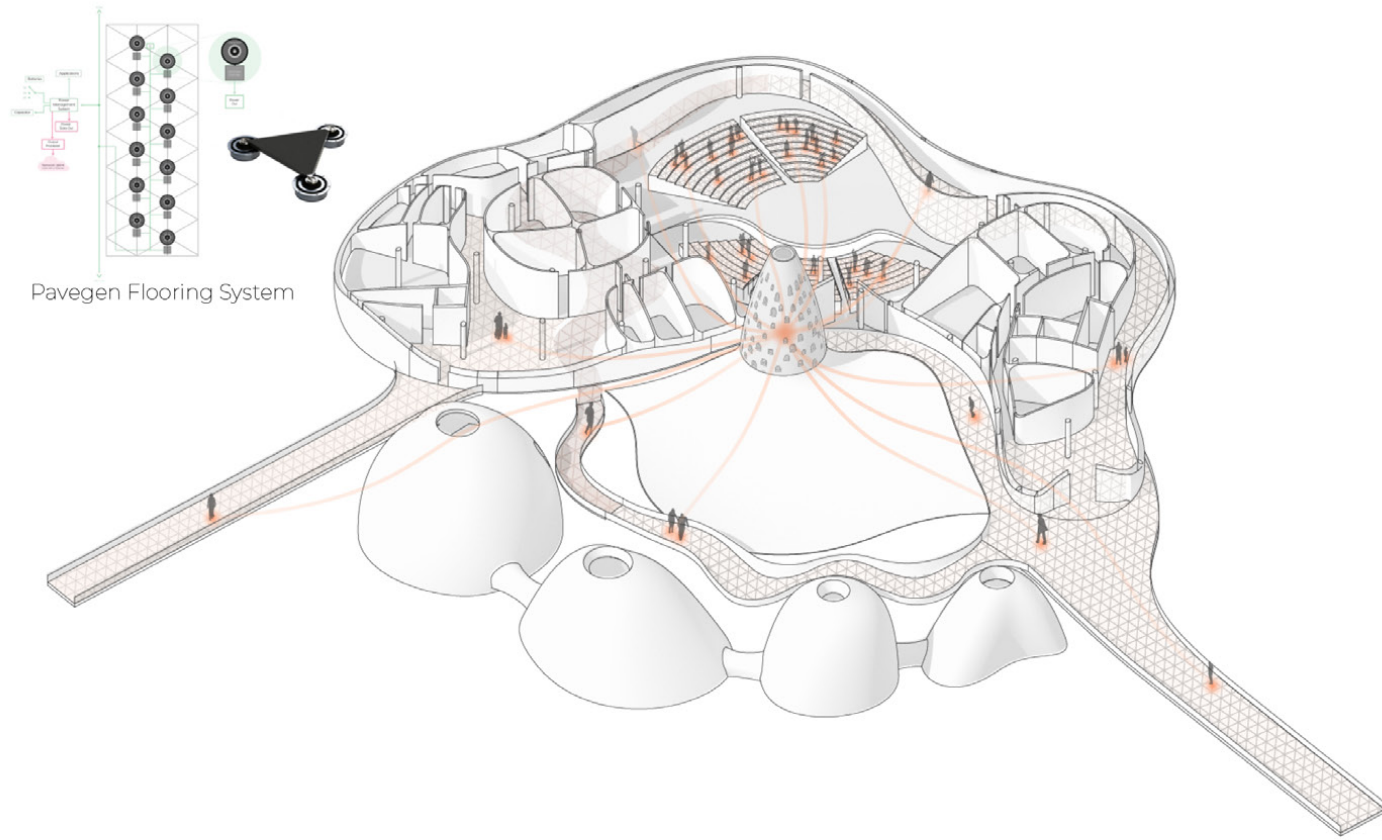
B1



- 1 Rescue Simulation Ruins
- 2 Equipment Display
- 3 Rescue Team Training
- 4 Office
- 5 Data Collector Room
- 6 Data Visualization Room
- 7 Headquarter

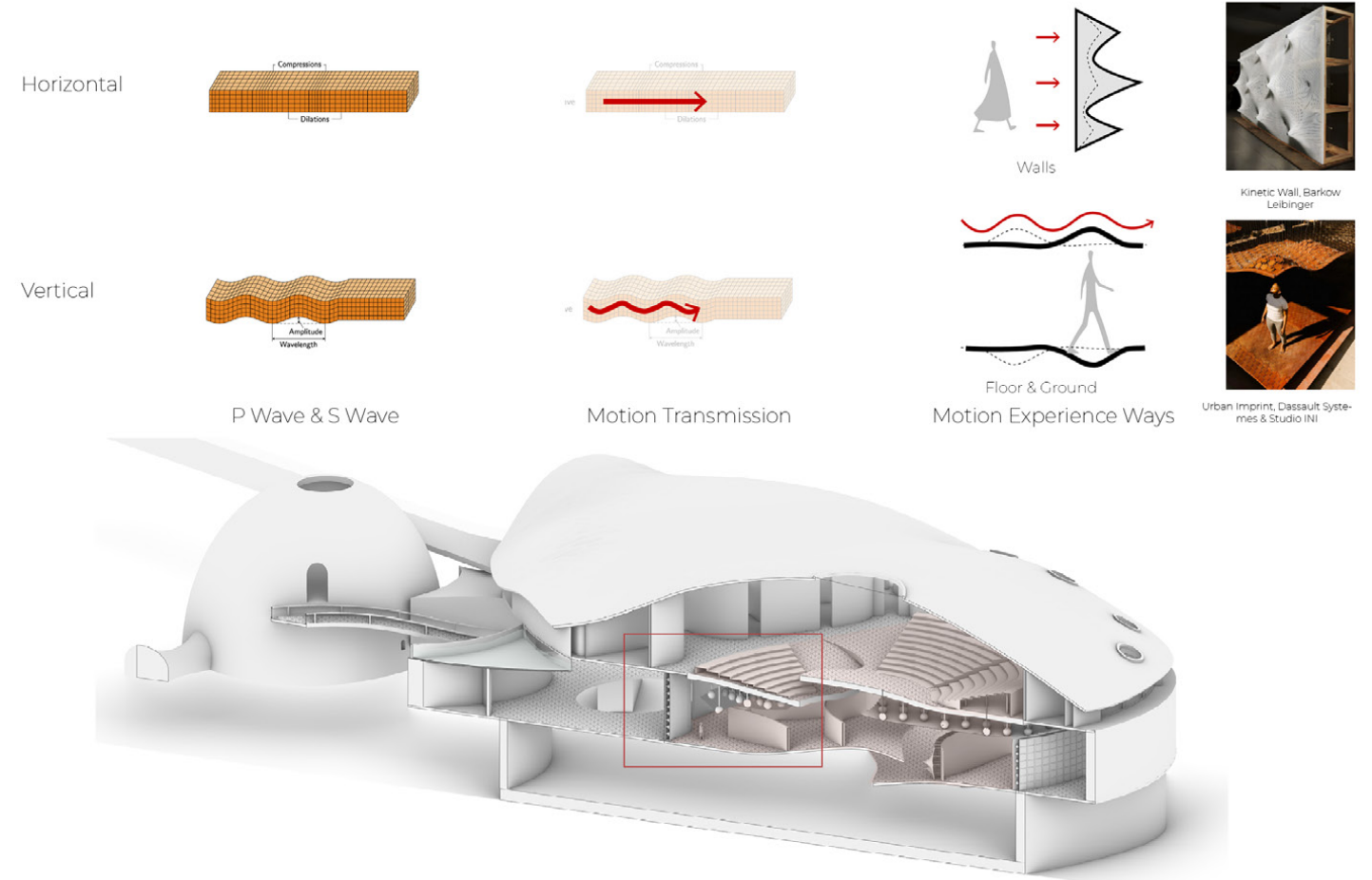
B2

ENERGY HARVEST & STORAGE - KINETIC FLOOR



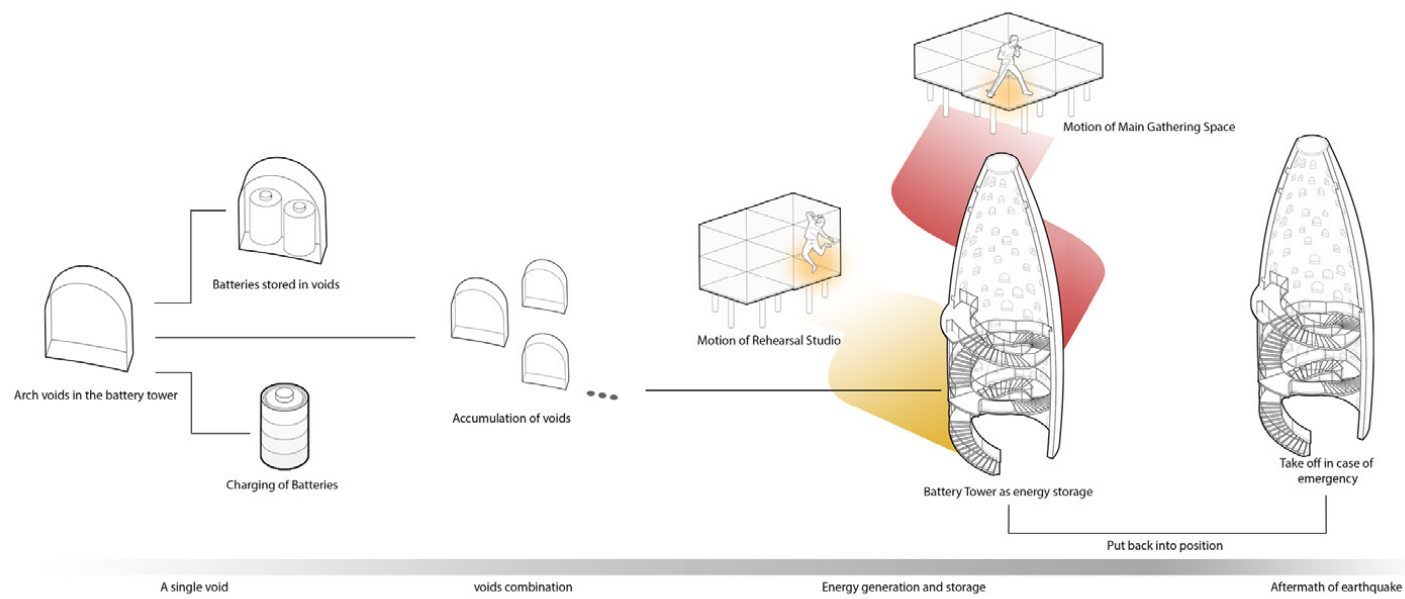
With movement of visitors, energy will be created and transported to battery tower

MOTION EXPERIENCES-SEISMIC WAVE & MOTION



Two types of motion experience in response to 2 types of seismic waves.

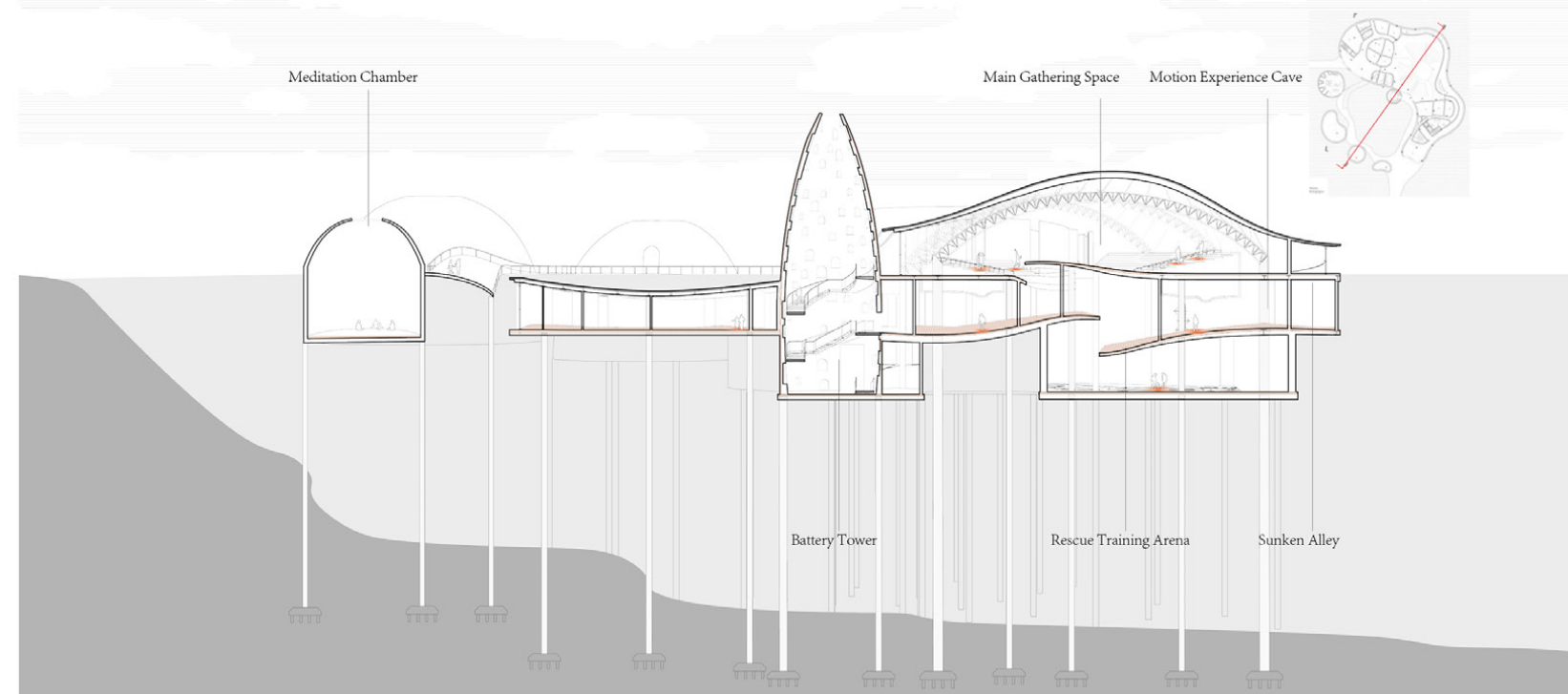
ENERGY HARVEST & STORAGE - ENERGY HARVESTING



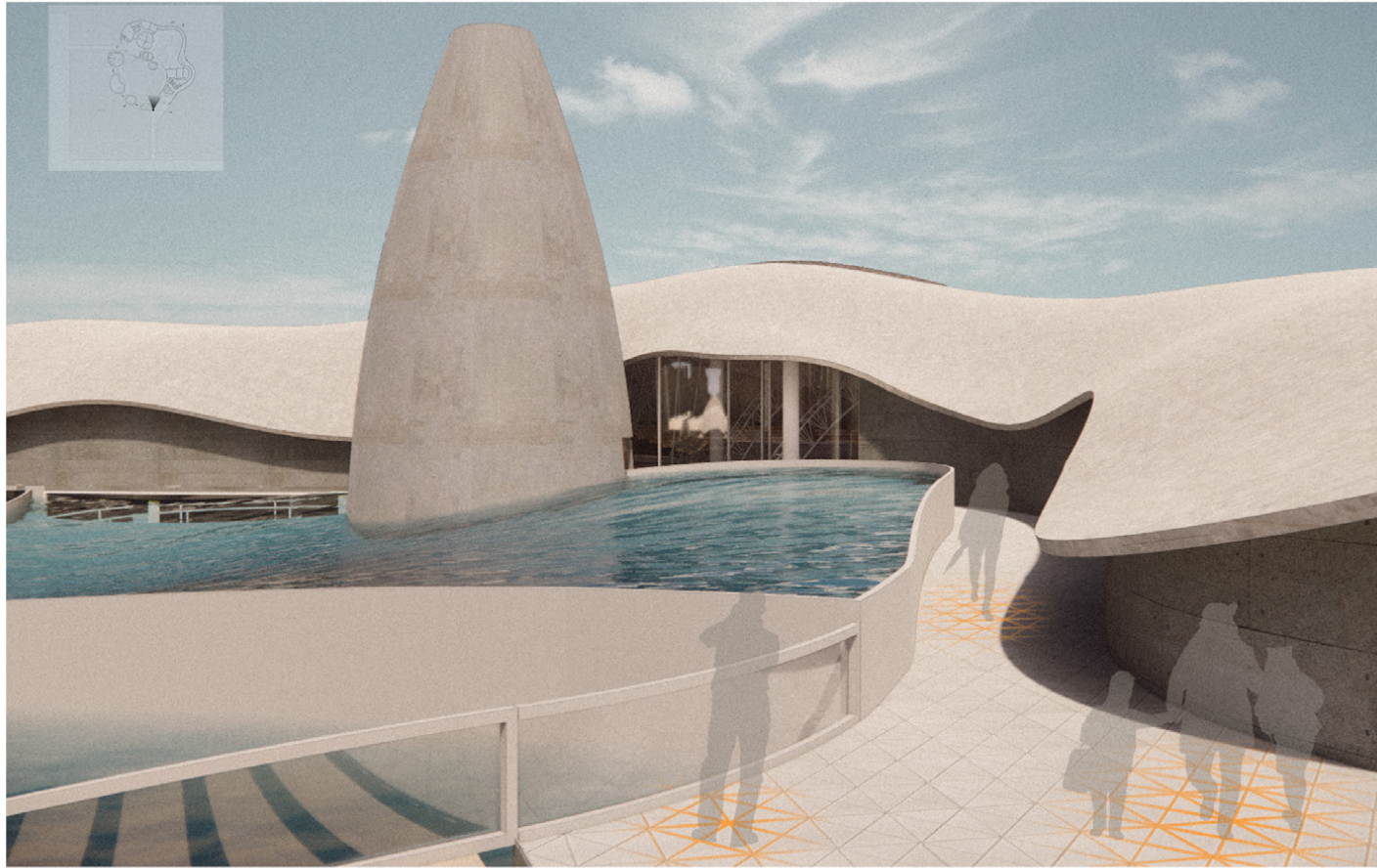
Utilize motion as a way to generate energy in our island and utilize energy during aftermath of earthquakes.

Producer: Enfeng Xie(drawing 30%), Risa Mimura(drawing 50%), Zihan Sun(drawing 20%), Haozhen Yang(drawing 0%)

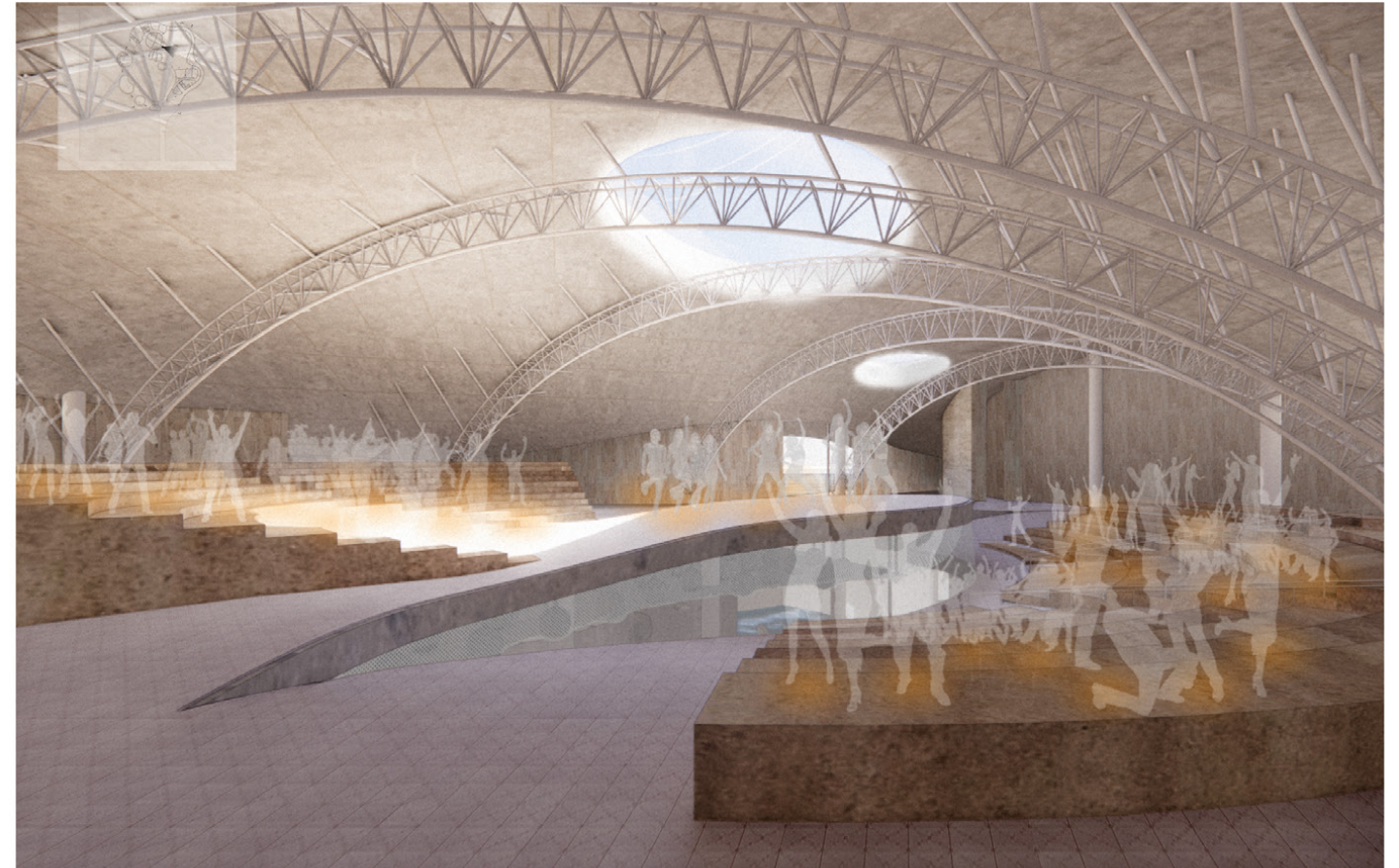
STRUCTURE - A-A SECTION



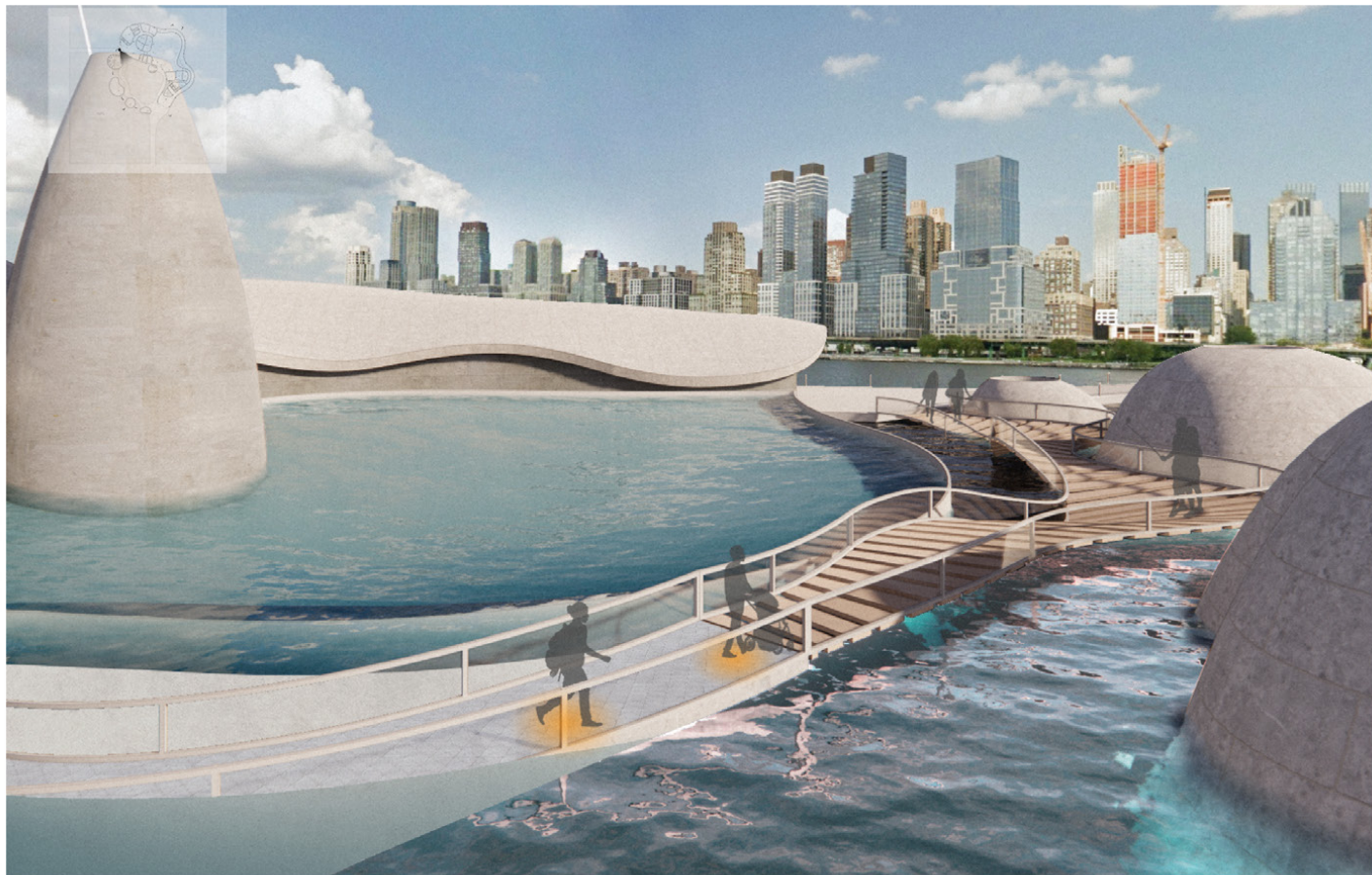
A-A Section shows the main spaces.



Battery Tower serves as the energy and circulation core of the island.



Motion generated by people in the main gathering space is collected by the floor.



Floating Bridge is trying to recreate the dynamicness of earthquake

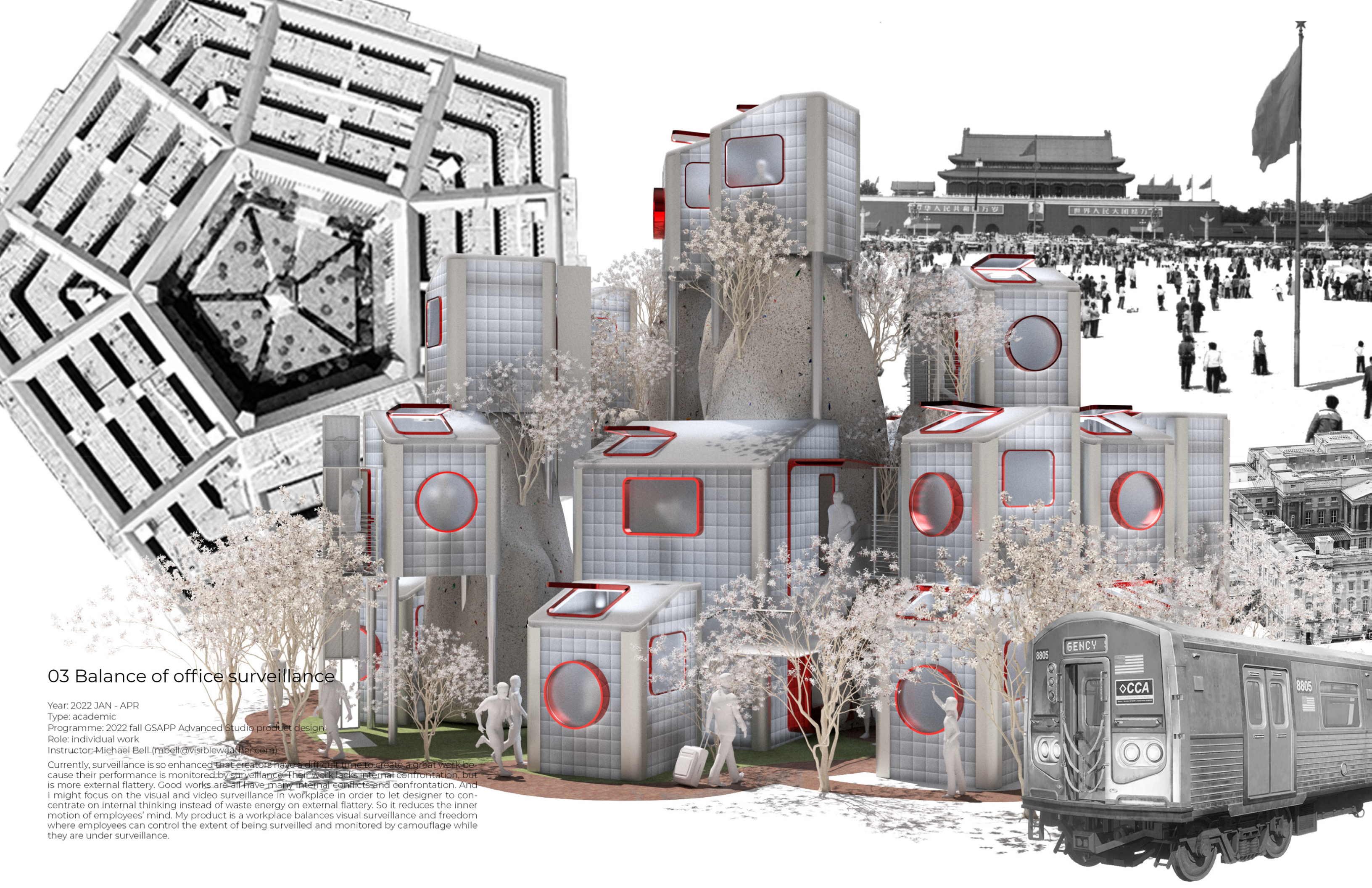
Producer: Enfeng Xie(drawing 50%), Risa Mimura(drawing 25%), Zihan Sun(drawing 25%), Haozhen Yang(drawing 0%)



Activation of motion sensitive wall allows visitors to experience the energy of movement through walls.

AFTERMATH





03 Balance of office surveillance

Year: 2022 JAN - APR

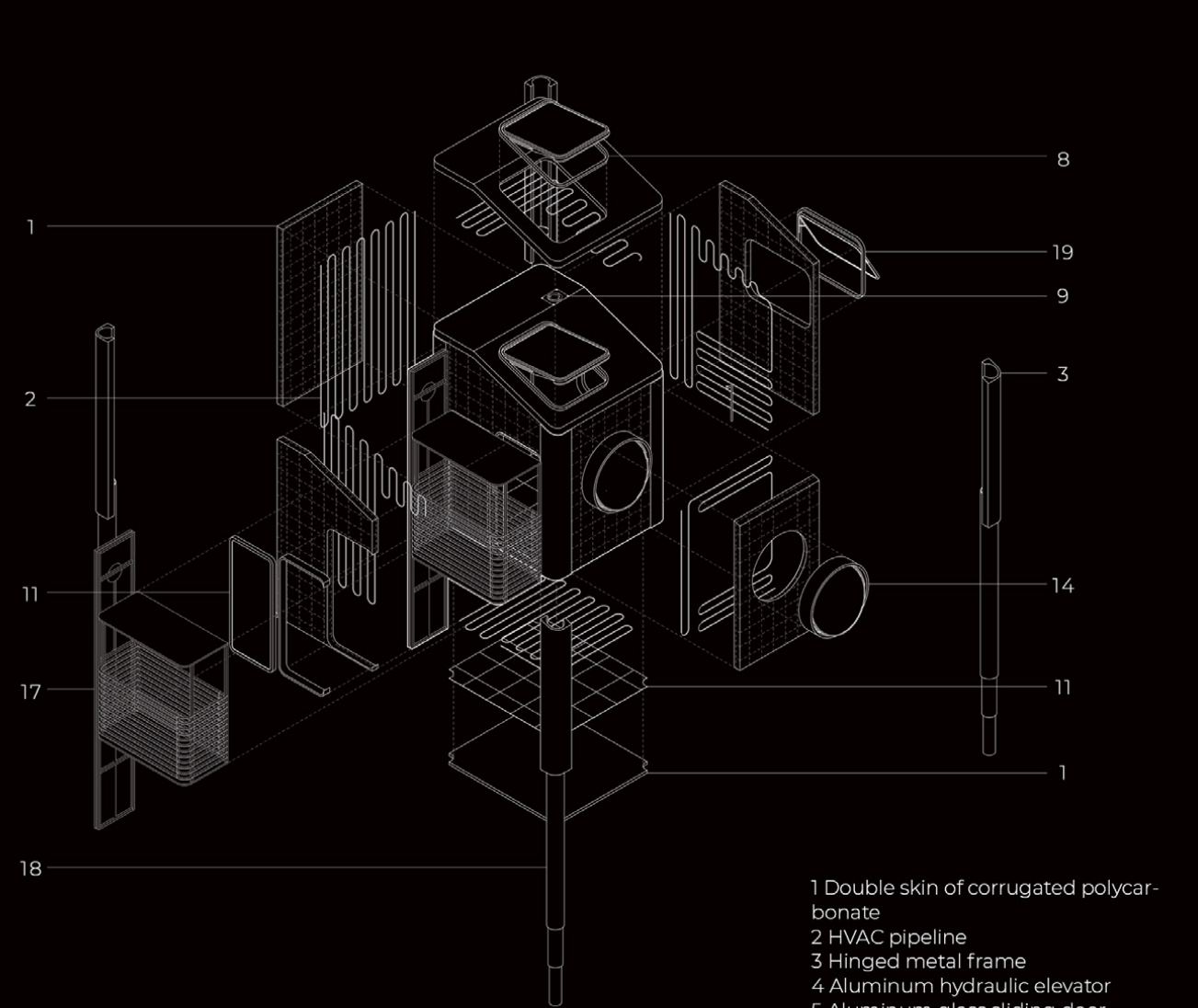
Type: academic

Programme: 2022 fall GSAPP Advanced Studio product design

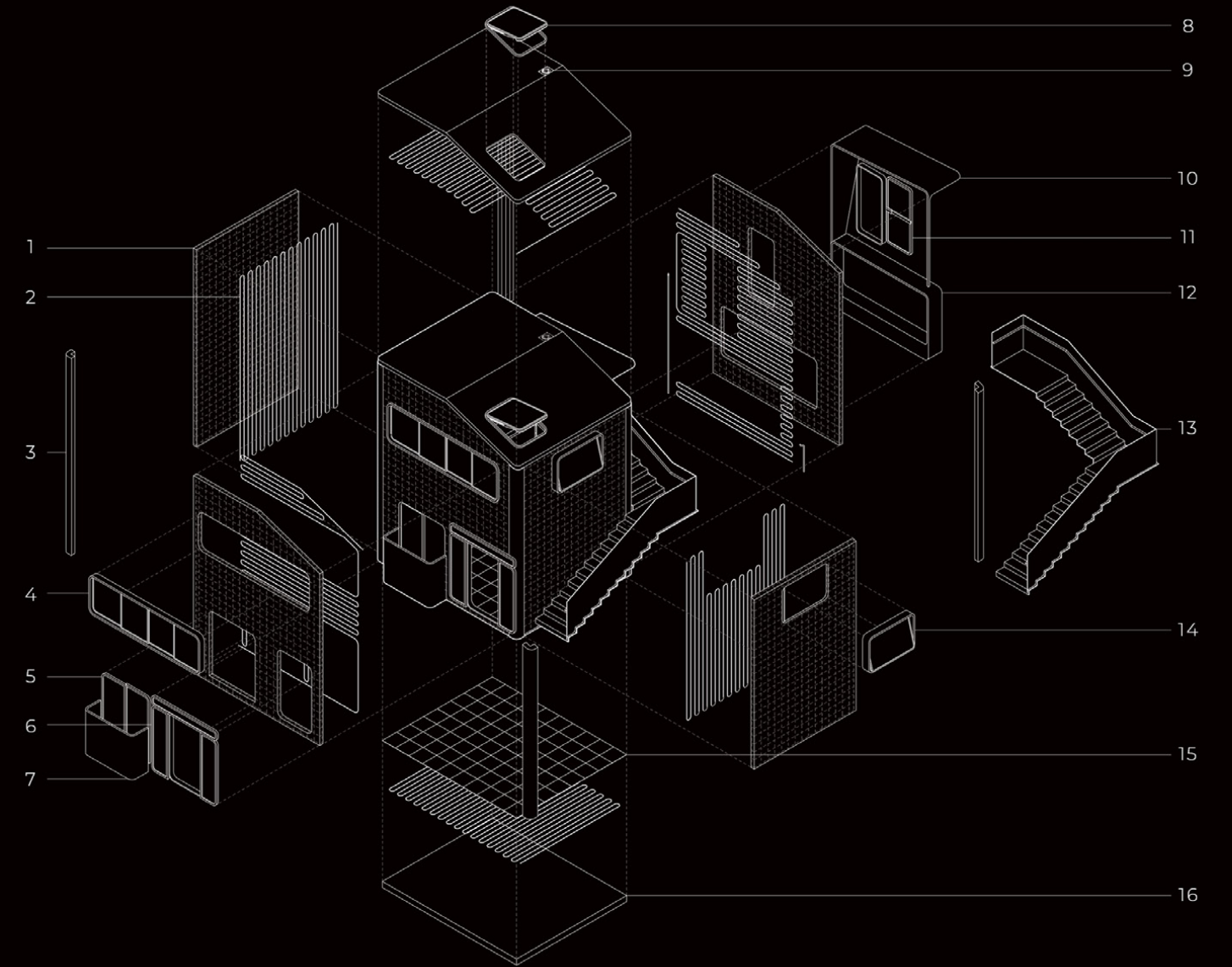
Role: individual work

Instructor: Michael Bell (mbell@visiblewaa(her.com))

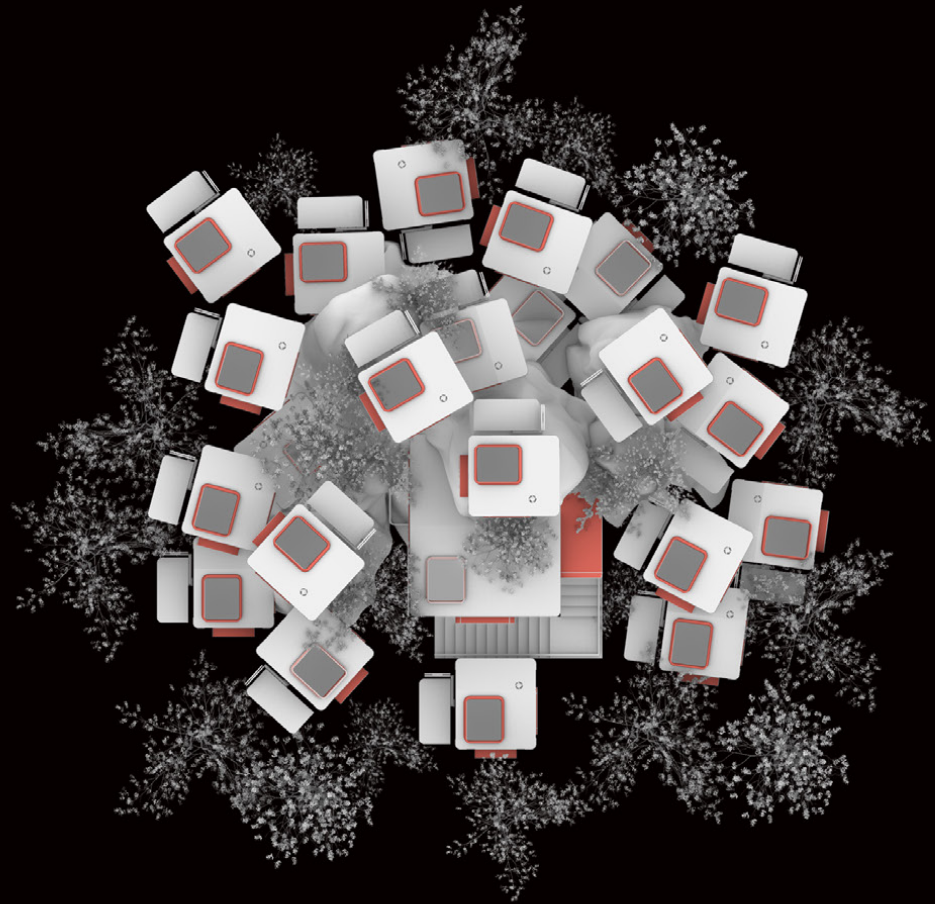
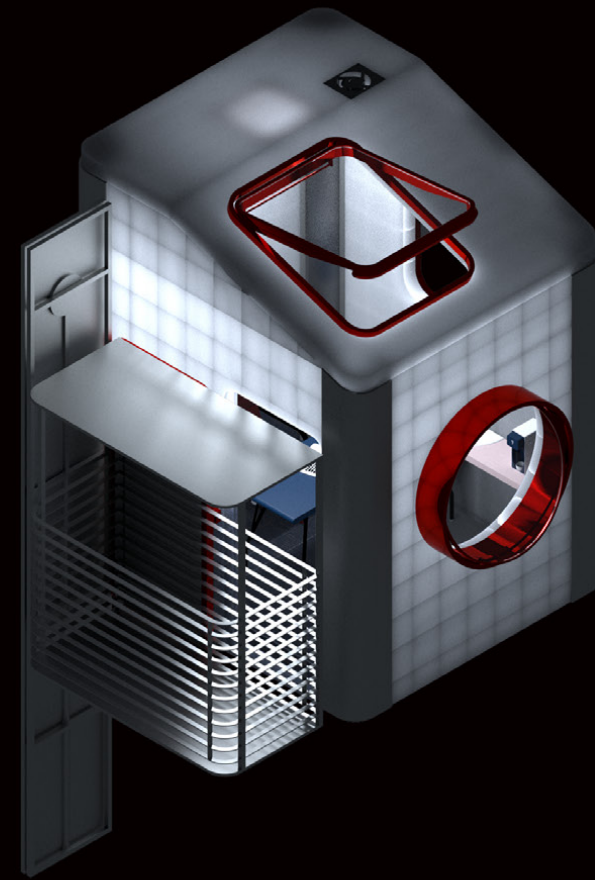
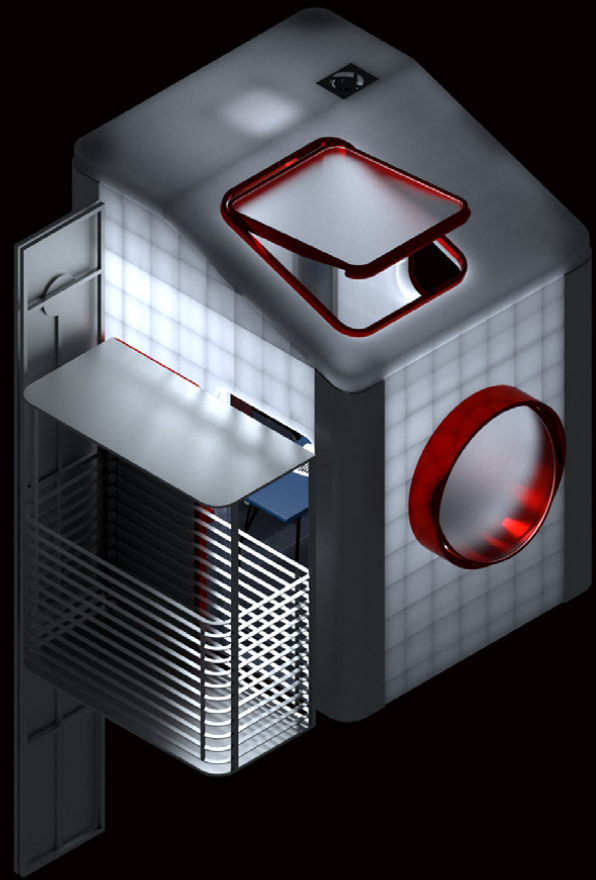
Currently, surveillance is so enhanced that creators have a difficult time to create a great work because their performance is monitored by surveillance. Their work lacks internal confrontation, but is more external flattery. Good works are all have many internal conflicts and confrontation. And I might focus on the visual and video surveillance in workplace in order to let designer to concentrate on internal thinking instead of waste energy on external flattery. So it reduces the inner motion of employees' mind. My product is a workplace balances visual surveillance and freedom where employees can control the extent of being surveilled and monitored by camouflage while they are under surveillance.



- 1 Double skin of corrugated polycarbonate
- 2 HVAC pipeline
- 3 Hinged metal frame
- 4 Aluminum hydraulic elevator
- 5 Aluminum glass sliding door
- 6 Pneumatic door
- 7 Smoking area
- 8 Aluminum top hinged roof window
- 9 Low noise fresh air ventilation system
- 10 Aluminum alloy rain shed
- 11 Automatic power electric sliding door
- 12 Aluminum alloy bay window
- 13 Steel stairs
- 14 Smart glass
- 15 Soundproof Nylon Carpet Anti-Slip Pvc Carpet Flooring
- 16 concrete waterproof floor
- 17 Aluminum hydraulic elevator
- 18 Aluminum adjustable column
- 19 Aluminum hinged window

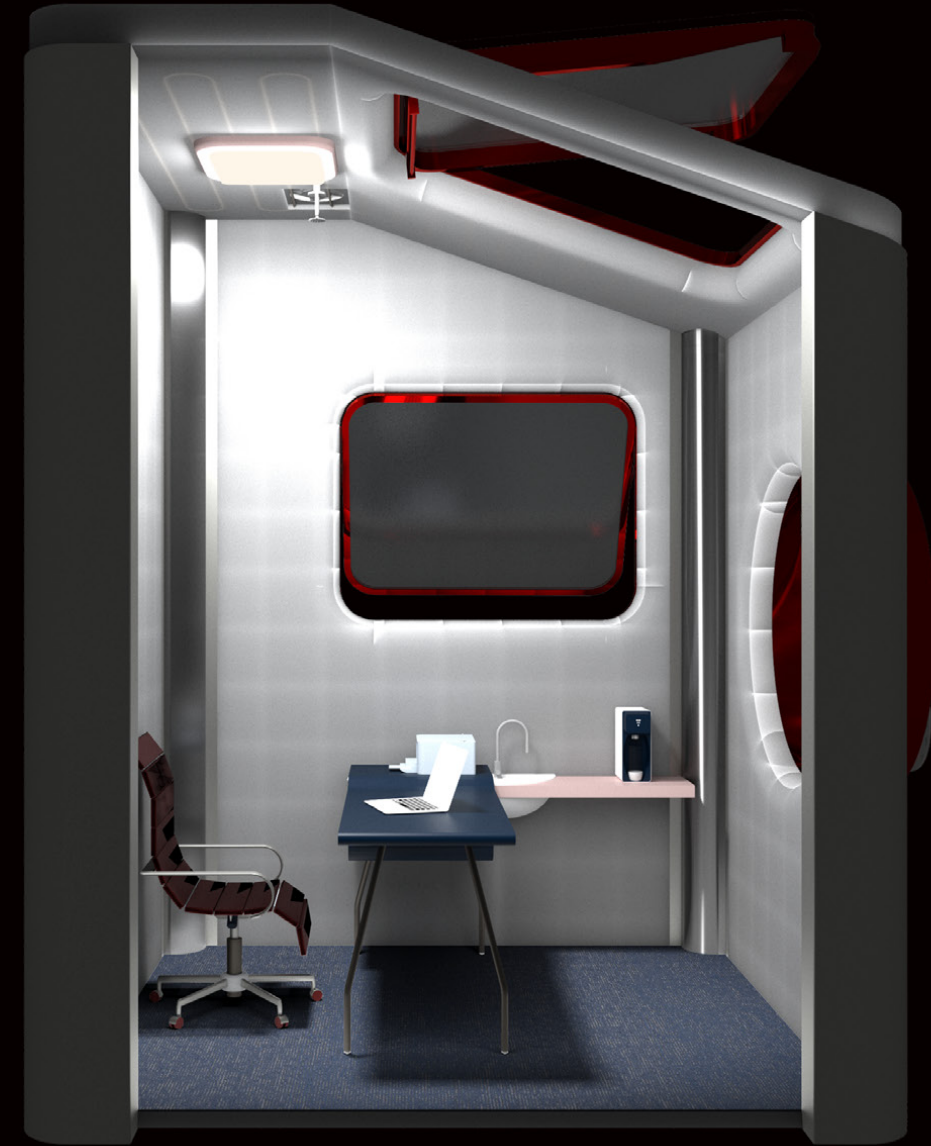


- 1 Double skin of corrugated polycarbonate
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- 15 Soundproof Nylon Carpet Anti-Slip Pvc Carpet Flooring
- 16 concrete waterproof floor





Individual cube daytime



Individual cube nighttime



Meeting room cube daytime



Meeting room cube nighttime



Individual cube



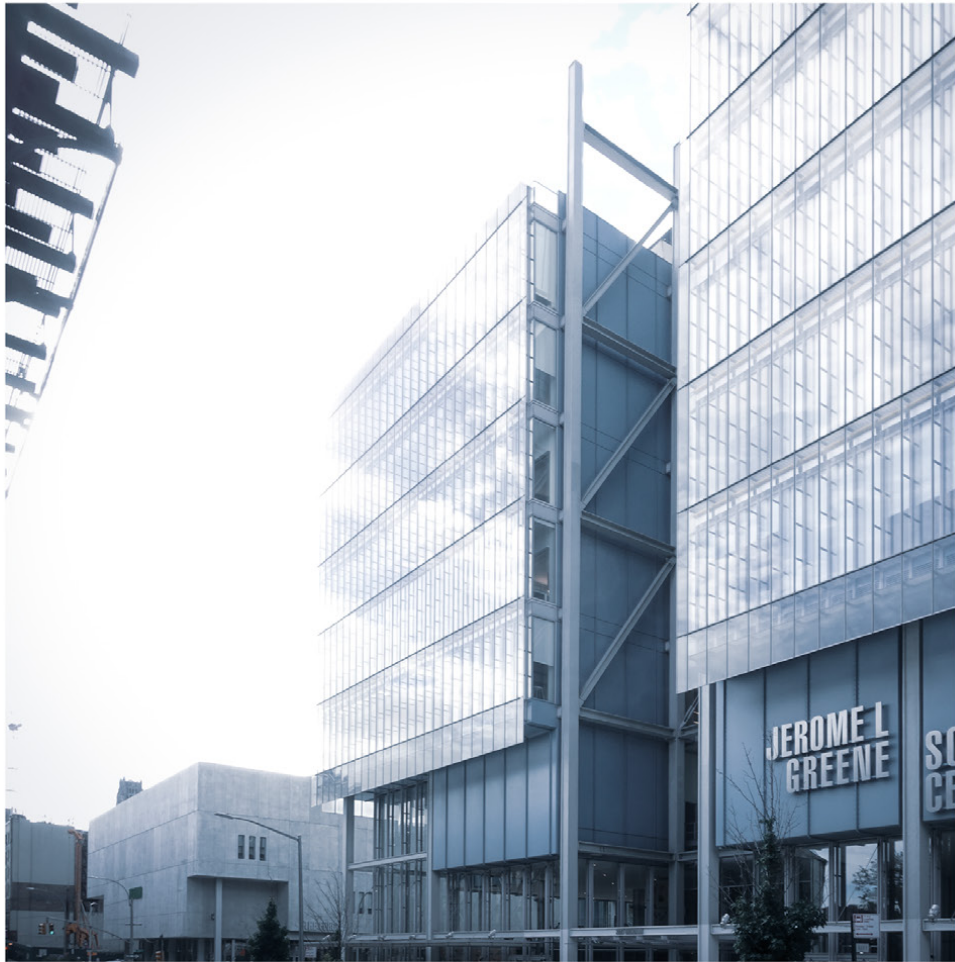
Supervisor office



Meeting room

4. ARCHITECTURAL PHOTOGRAPHY

Year: 2021 SEPT - DEC Type: academic Programme: 2021 FALL GSAPP Architectural Photograph
Role: Individual
Instructor: Michael J. Vahrenwald
Site: The Jerome L. Greene Science Center, 3227 Broadway, New York, NY 10027



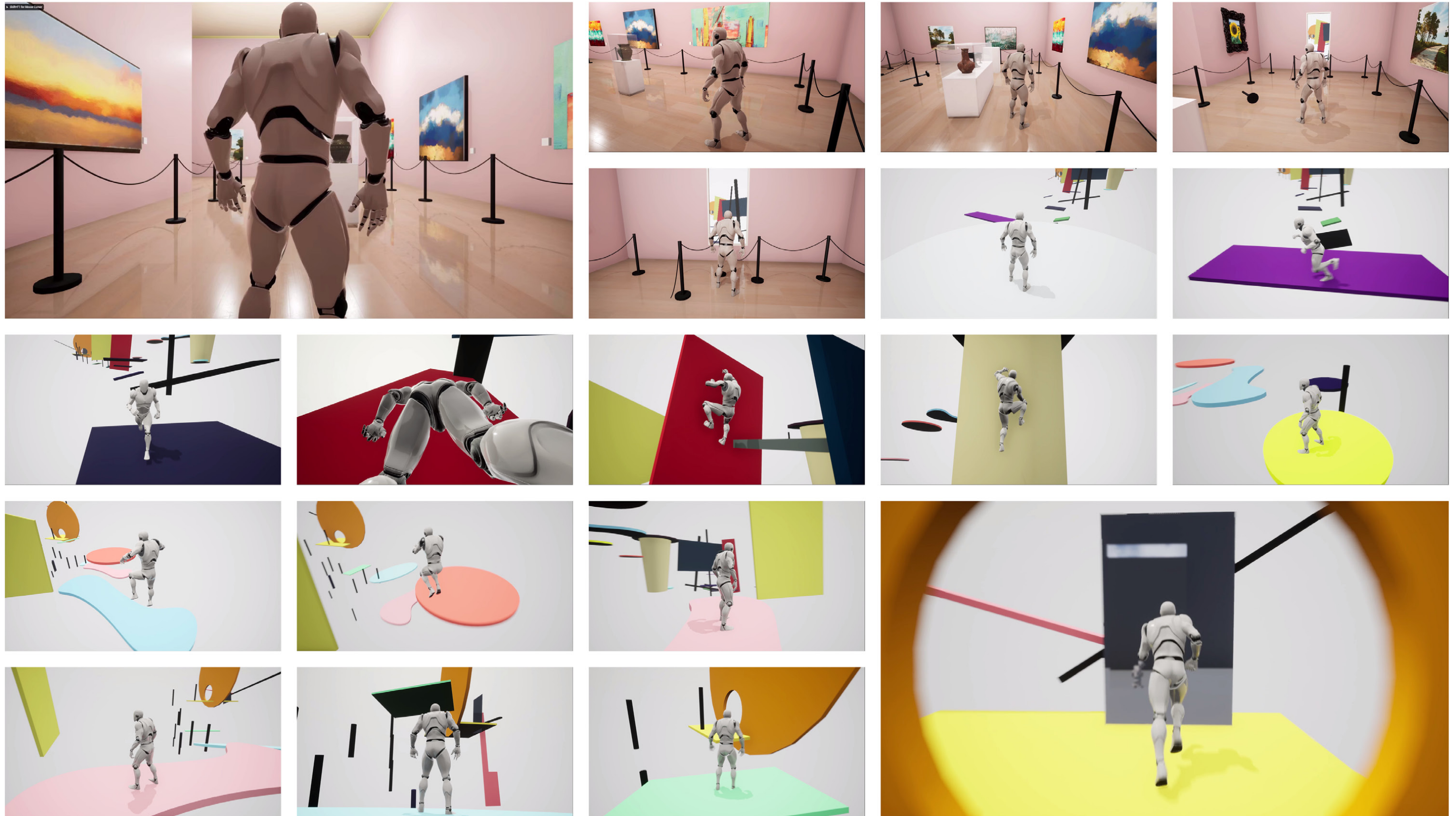




5. WALKING INTO MALEVICH

Year: 2022 2 JAN-MAY Type: academic Programme: 2022 SPRING GSAPP VIRTUAL ARCHITECTURE
Role: level design; character's blueprint and animation Team member: Enfeng Xie, Xiangru Zhao, Erxiao Chu
Instructor: Nitzan Bartov

This is an adventure game. Players explore the game scene by walking, jumping, and climbing. The game player's start point is located in an art gallery scene, and by observing the paintings, the player will find that one of Malevich's paintings is different from the others. And we find that we can walk into the painting. In order to get out of the world in the painting, we need to find an exit through various obstacles. The whole process is in a 3D painting of Malevich. Players can explore different ways to play and pass levels and finally out of the scene.



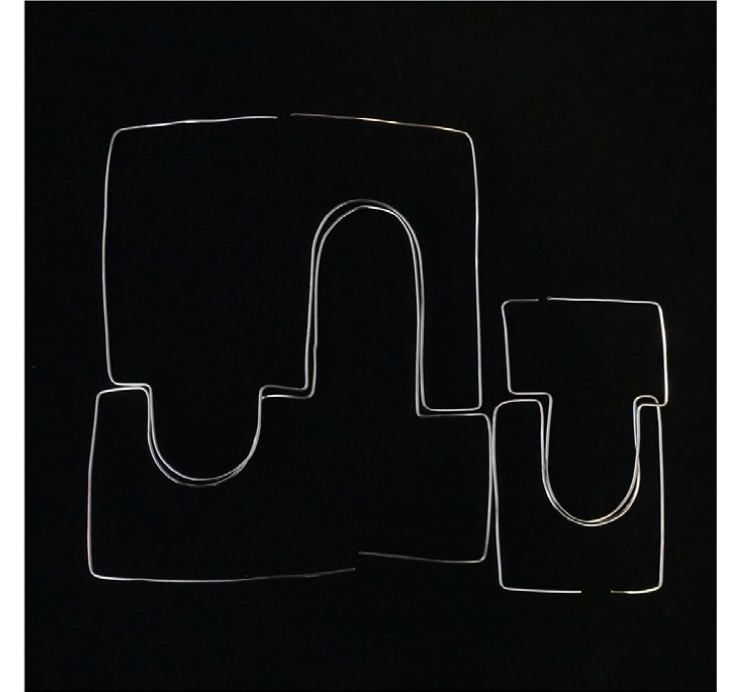
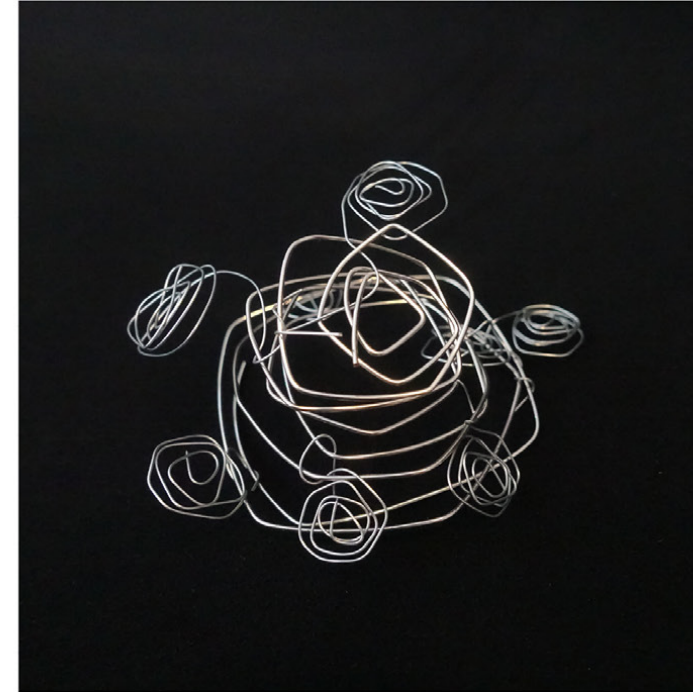
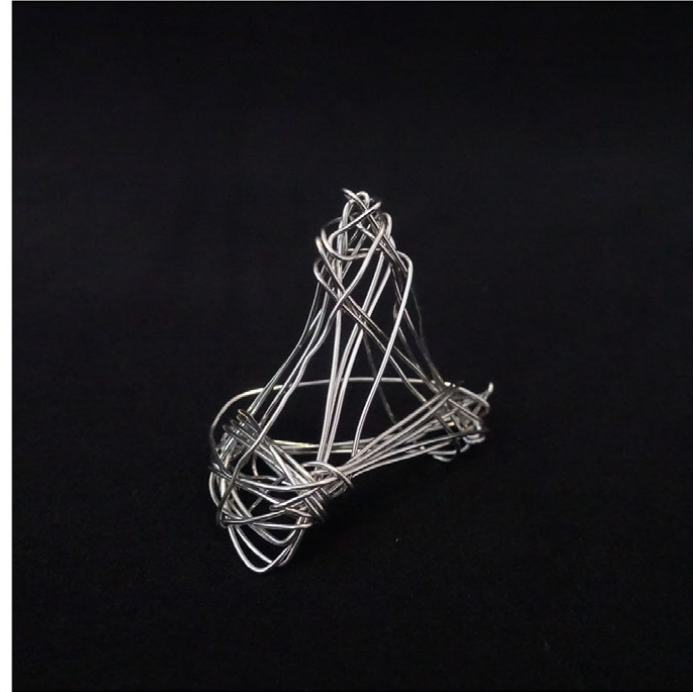
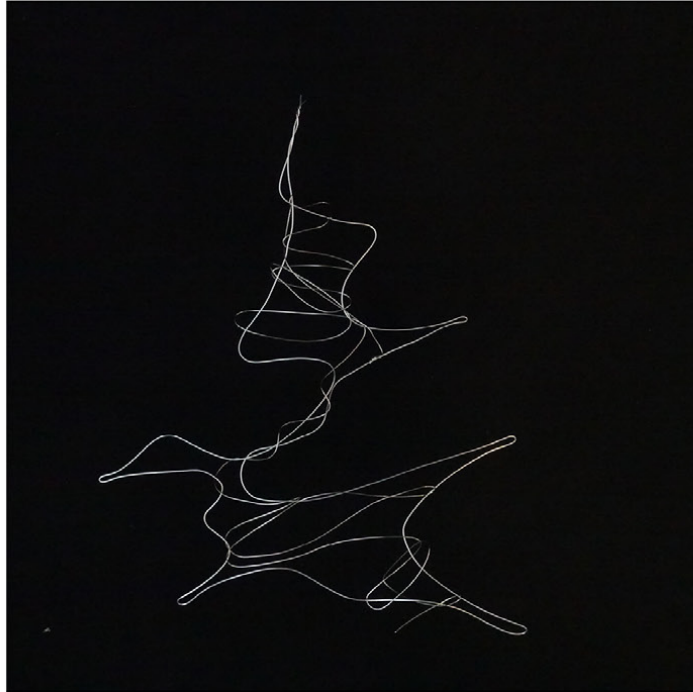
6. LINES NOT SPLINE

Year: 2021 SEPT - DEC Type: academic Programme: 2021 FALL GSAPP Lines not Splines

Role: Individual

Instructor: Christoph Kumpusch

Transforming image into 3d models



1000:

Parallel

100:

The swirling is like budding. One layer intertwine with another layer of larger scale.

10:

Lines are end to end forming a curvy enclosed but still not completely closed pattern. It looks like a space between clouds and they are surrounded by golden rims. And residual clouds are slowly moving within the gap. In a Chinese myth or folklore, the sky was supported by four column-like mountains. But two gods had a quarrel and they fought with each other. One of the mountains was broken off and so the stars started to orbit and rivers began to run. This drawing is like describing the sky without one of the column's support. You can also think it as a plan of a curvy building. Several walls squeeze the space and form slightly long and narrow passages.

1:

The drawing contains only one line. It presents horizontally on the paper. Also, it includes several straight and curvy directions. I will write down some of the imagination of one-line drawing.

The following is a horizontal view of the drawing.

Skyline: For me, the drawing is like a skyline of a city at its first sight. The color of a city gives visitors their first impression. The buildings are not rectangular-shaped. They have round-cornered outlines which seem like somebody feels anxious to finish the skyline and omits the corners of the buildings. If birds fly along with the outline, they easily finish their journey without hitting any walls. So in my mind if a city without right-angle buildings, the world of it will be all round-cornered objects. Tables are round-cornered, babies whose heads hit on them will never get severe injuries. All kinds of However if tiles are round-cornered, cleaners are going to get mad because they can never clean all dust between two tiles. But if we zoom in on the smaller scale of our nowadays objects, they will have a round corner in their edges in the end because there is no extremely right corner thing in the world. So scale matters a lot in our material world. Turn on the phone, we will find that the corners of the screen in recent years are no longer square, but rectangular with rounded corners. And rounded corners of cities' block is good for the drivers and passers-by.

The round corner is essential for design. If you pay close attention, you will find that this rounded rectangular design has already been reflected in three aspects:

First, the device hardware is rectangular with rounded corners. The rounded corners are more convenient and safer to use. It avoids

the risk of bumps caused by the right angle, and there is no need to worry about breaking the equipment or hurting yourself;

Second, the corners of the screen are rounded rectangles. It stems from the consumer's demand for a true full screen. Since the outer corners are already rounded, the screen should be rounded and fit from the outside to the inside to increase the screen-to-body ratio;

Third, the interface and icons (mainstream design style) are rounded rectangles. Because the rounded rectangle has its own look and feel, it is "good-looking" than other shapes.

A section of geology: Also this picture also reminds me of the bumpy road of some villages like the road to my grandma's house. After being plowed, the cultivated land's section is like this drawing. Then seeds are sowed in the concave part and small insects live in these small easily available houses. Also, it reminds me of the Karst landform of the southern part of China. The straight line is a peaceful water table, with people going through these mountains one by one via a boat. Sometimes we can see the shallow bottom of the river and sometimes we can see a dark abyss below the water.

Sonogram/Music: I also think about some music. Every music has its sound wave. Also, I wonder if there is an app. If we draw any lines on the coordinate system, the app can make a sound of that line and that will be really interesting because we always thinking about visualizing things, air sound, smell, and taste. But if the creature in the world is not dominated by eyes, the world of another animals have another sound-dominated system like bat or dolphin. They live in dark caves or deep oceans. They usually use organs like sound acceptors to feel the whole outside world. So how can we translate our image to their system of cognition and other creatures that are led by their powerful smell and taste as well? By then maybe intelligent animals can communicate with humans. There is a kind of device, this new device can convert images into sounds, guide the blind to "see" the world around them through hearing, and explain things, people, and even expressions. This device is called vOICe, which looks like a pair of sunglasses, but it is actually a head-mounted camera that captures images around the blind, and then uses image processing algorithms to extract edge, shape, color, and other information, and convert the multi-dimensional image into a one-dimensional line. The type of sound signal becomes "music" that the blind can understand. The changes in volume and pitch mainly depend on the brightness, color and contrast of the surrounding scene.

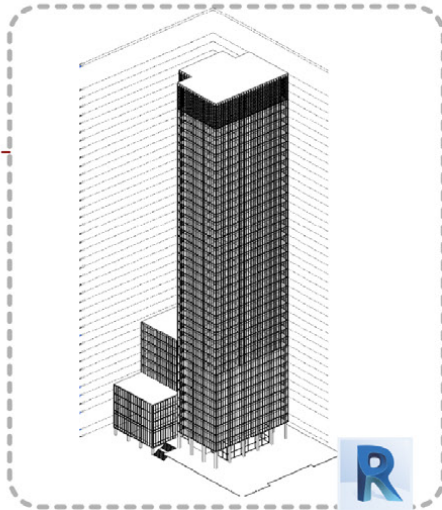
It also looks like a cardiogram. This will not be seen beyond ICU.

Puzzle: If we put the drawing vertically, the edges of it look like a puzzles' edge. The edges of the puzzles are intriguing. Sometimes they are similar but different. We thought they are perfectly matched but they don't. Sometimes they look in an inverted orientation so that we cannot find the one which matches their neighbors. So a puzzle made by our own lines will be interesting.

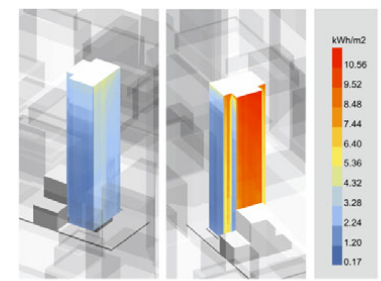
7. RE-THINKING BIM

Year: 2022 JAN-MAY Type: academic Programme: 2022 SPRING GSAPP RE-THINKING BIM
 Role: digital model 30%; simulation 75%; diagram 40%; render 75% Team members: Enfeng Xie, Zihan Sun, Yani Gao
 Instructor: Joseph Brennan
 Transforming image into 3d models

1. 3D Modeling

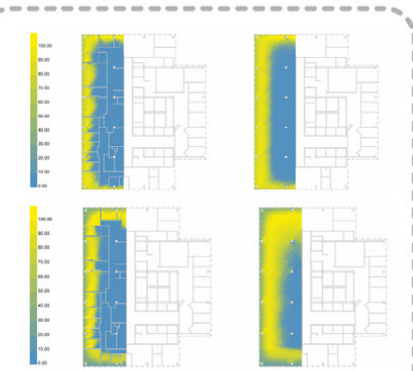


2.1 Benchmarking Facade Solar Analysis



-Envelope Solar Radiation
 Caculate Average Direct Sunlight
 Hours on Selected Hours on 21st of
 Every Month

2.2 Benchmarking Interior Daylighting Level

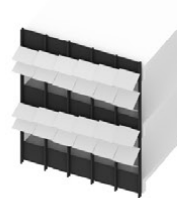


Interior Daylighting Analysis of
 selected 11th & 38th floor plans

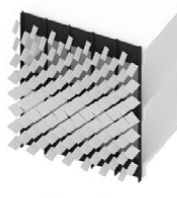
3. Examine Renovation Design Possibilities of West Facade



Type A



Type B



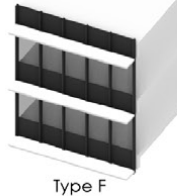
Type C



Type D



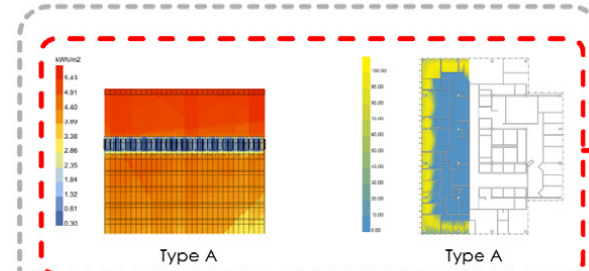
Type E



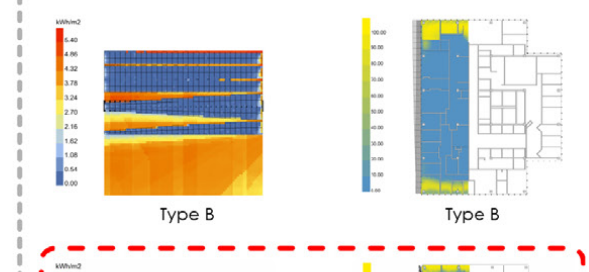
Type F

Producing different re-designing angels for mass testing
 - Horizontal Shading
 - Vertical Shading
 - Rotating Shading
 - Hybrid Shading

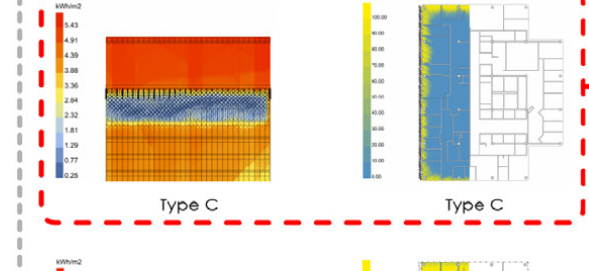
4.1 Batch Testing for Solar Radiation Simulation and Interior Daylighting Simulation



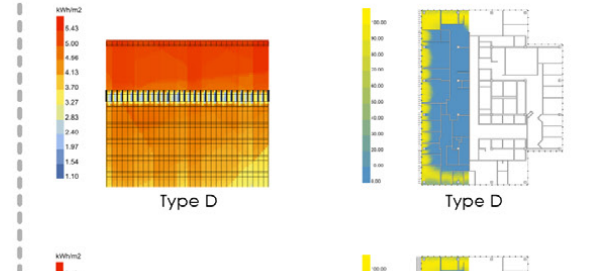
Type A



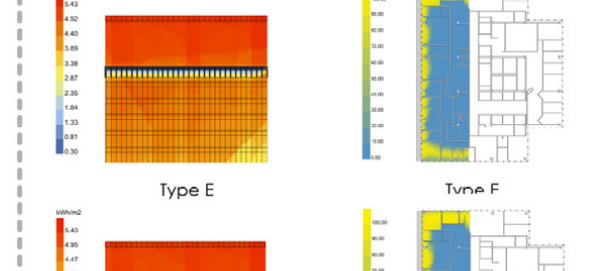
Type B



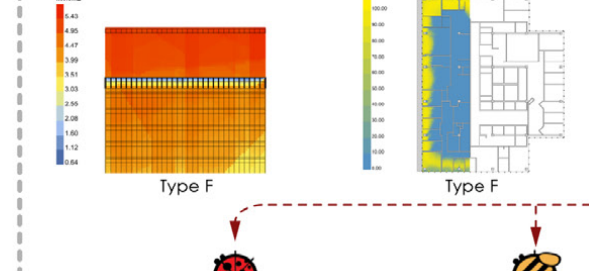
Type C



Type D

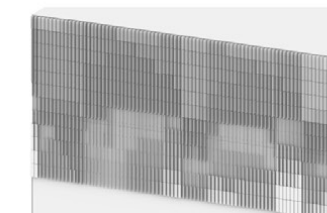
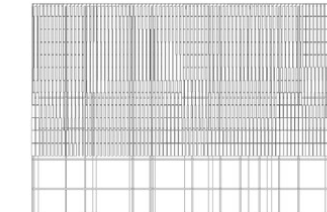


Type E



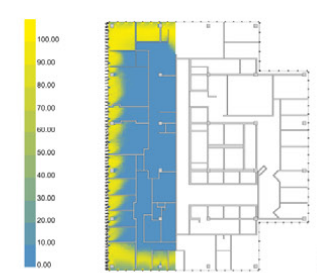
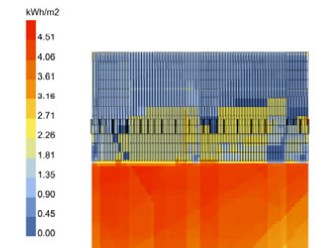
Type F

5. Hybrid Selected Strategies & Produce Design Iterations



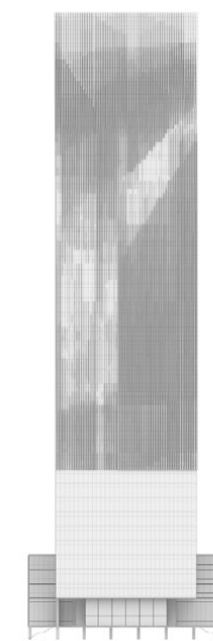
Combine the feature of Type A and C: rectangular panel with different rotating angles

6. Evaluate & Improve Overall Performance

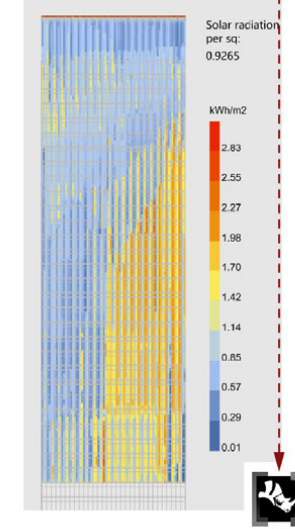


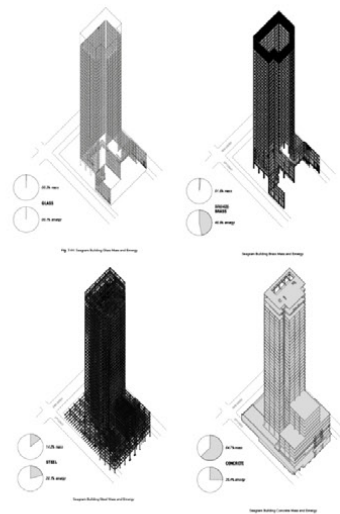
7. Loop Optimization

8. Optimal Design Generated



Seagram 11th Floor Plan Seagram 39th Floor Plan Solar Radiation Analysis
 Panel Spacing: 602 / Panel Height: 1109 / Panel Width: 600

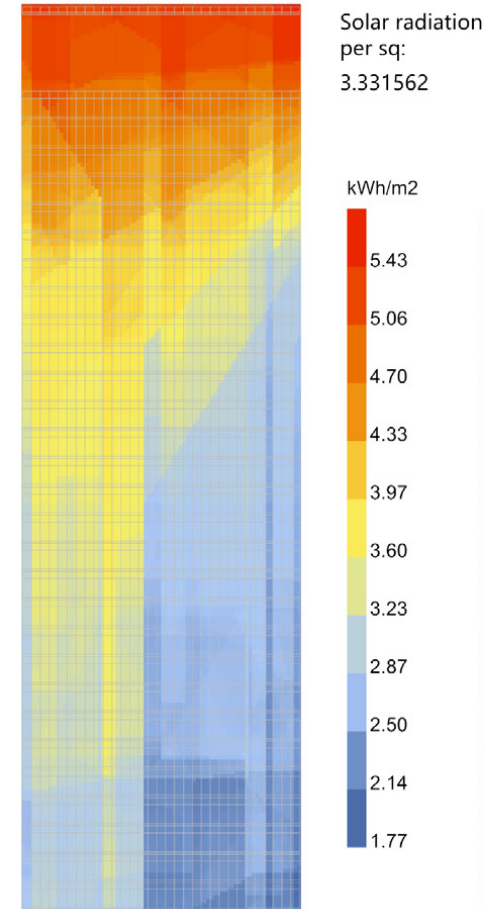
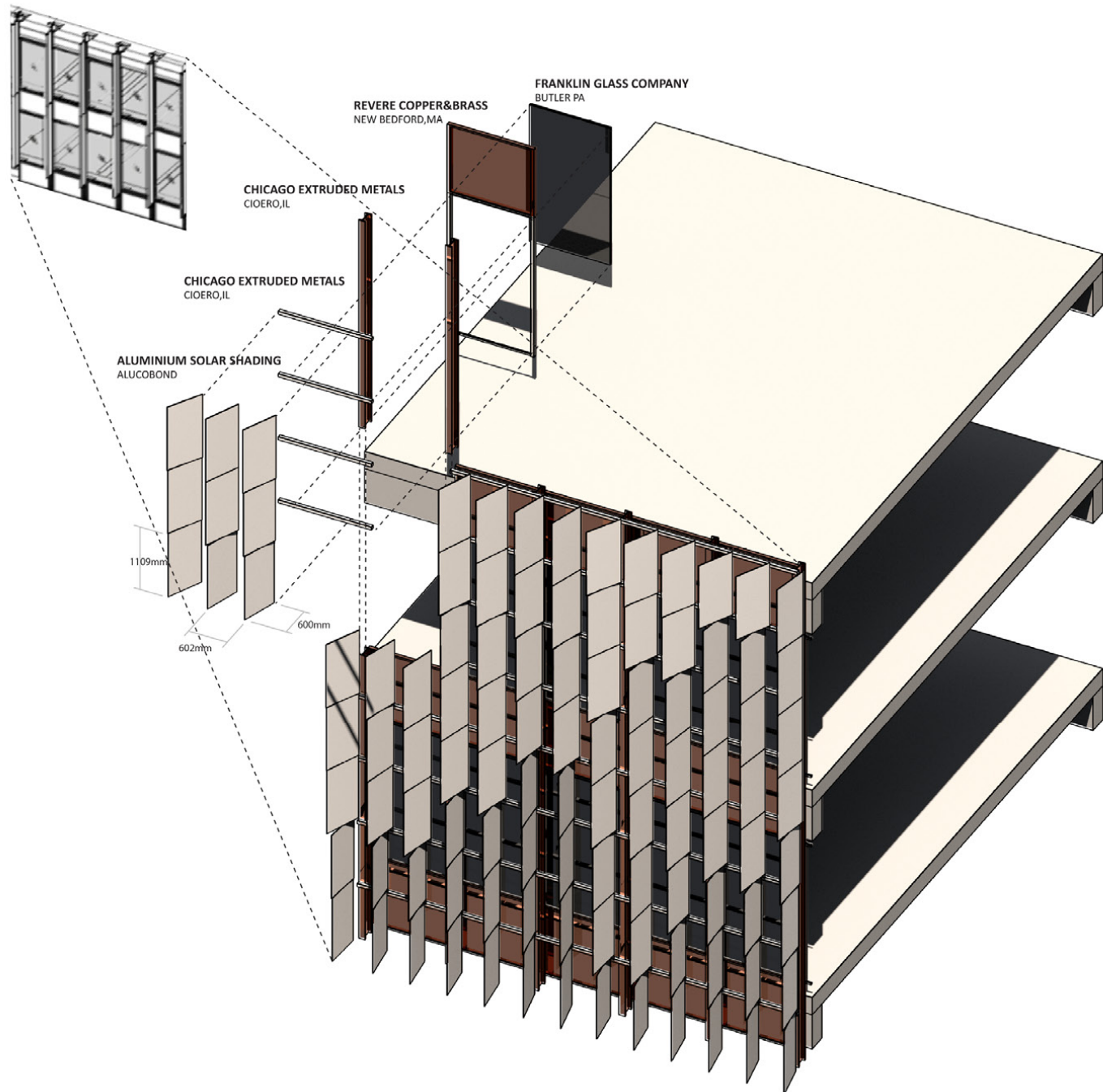




The ratio of energy content to mass was identified as the most telling indicator of the construction ecology in this case. The technomass and technofossils are understood as the index of natural and social processes, and moreover how such processes mix to yield uneven and asymmetric world-system.

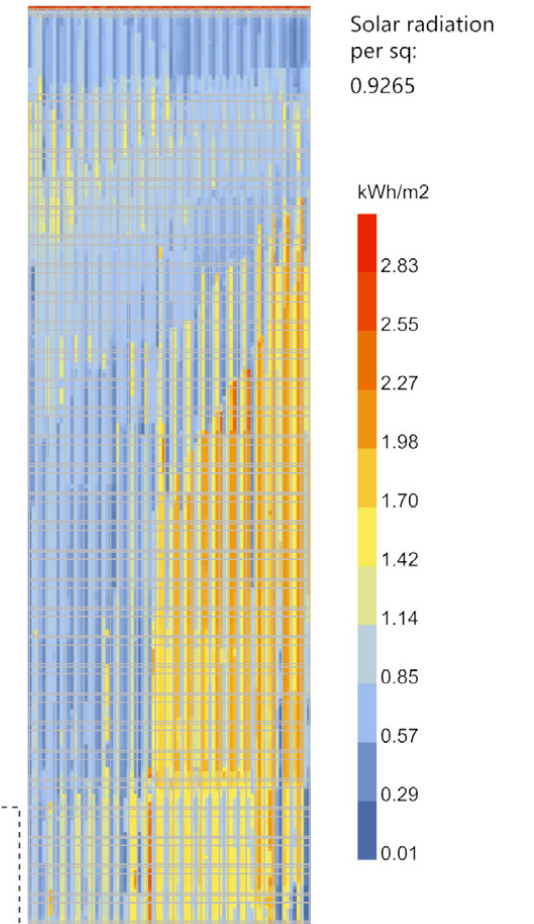
The term 'technofossil' was coined by Professor Jan Zalasiewicz and colleagues at the University of Leicester, to describe the material footprints that humans will leave behind through their material goods.

The world's technomass — the sum of all the world's non-living technology and technologically-created production (and non-organic waste).

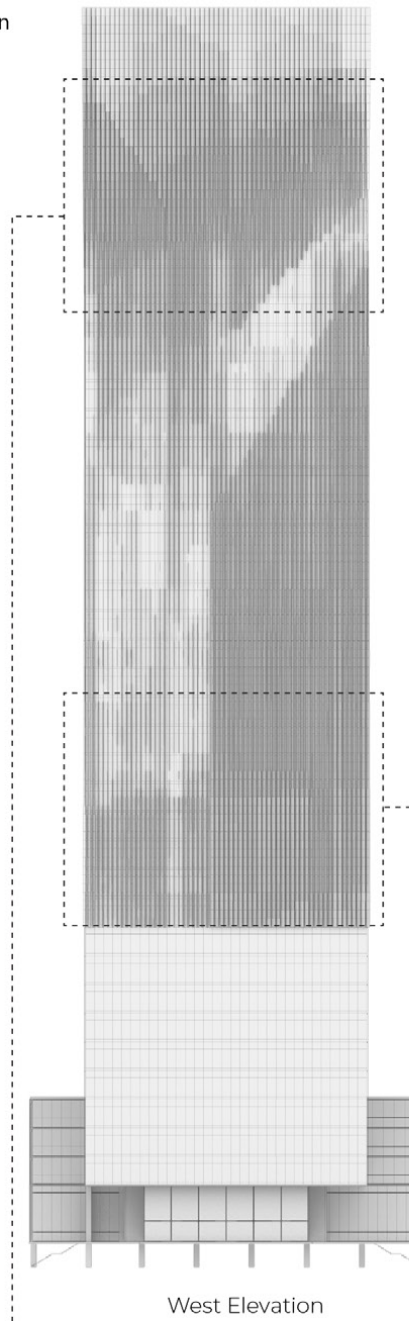


Solar Radiation Analysis without Optimal Shading

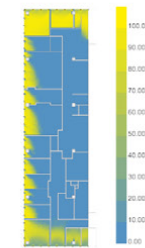
According to the solar radiation analysis of existing Seagram Building, a additive layer of undulating mullions is extended from the west facade to reduce the amount of direct solar radiation gain.



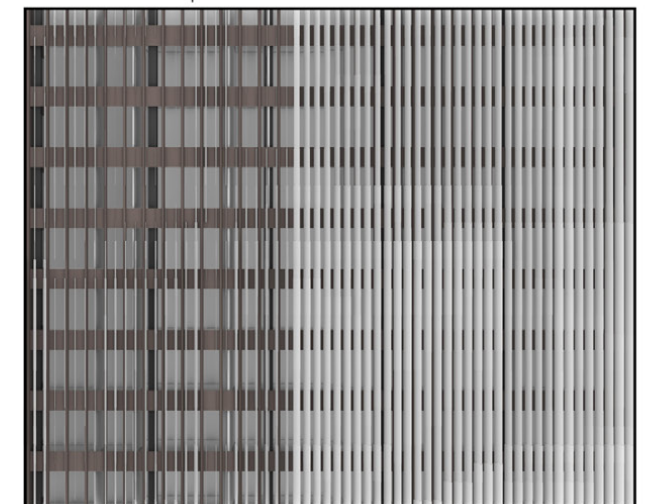
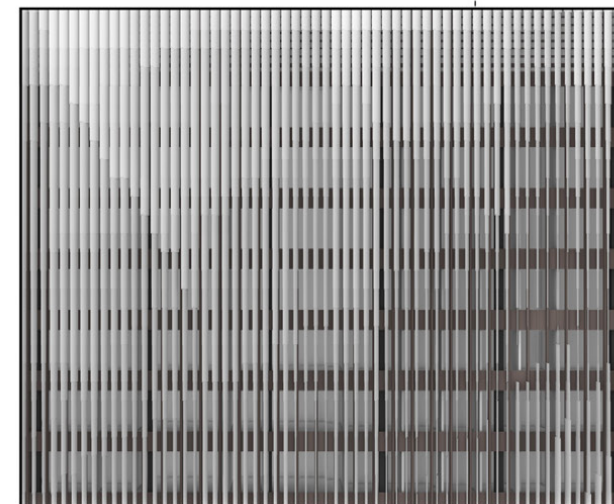
Solar Radiation Analysis with Optimal Shading



West Elevation



Daylight illuminance Analysis with Optimal Shading



8. ARGUMENT

Year: 2021 JUNE - JULY

Type: academic

Programme: 2021 Summer GSAPP Argument

Role: Individual

Instructor: Benedict Clouette

Architects' position in human intervention in ecosystem -Question for Cooking Sections

Salmon- A Red Herring authored by Cooking Sections introduces how human intervention affects salmon's life and body and how salmon "salmon"s salmon. Salmon is a color of a wild fish, people regard the color of salmon's meat as a standard of salmon's health. However, the deficiency of open-net fish farms makes salmon unhealthy and they are aesthetically unappealing and unmarketable.

The article mentions salmon's excrement sink and blanket the seabed and that place becomes a dead zone. How to minimize the influence that aquaculture brings to the ecosystem? Or how can we adjust our methods of cultivation in a virtuous circle with the ecosystem? Cultivation of specific animals always means isolating. Isolating a species like this obviously happens a lot. What role can architecture play in isolation? How architects play a role of connecting and isolating species?

The salmon's condition is tragic. All of these are just one of examples of human intervention in the environment. The dark moth- carbonaria twice outnumbered the peppered moth because of the factory pollution that distinguished the peppered moth. In India's Yamuna river, cadmium nickel and mercury from a bright pink foam which is from textile factories is making the vegetables grown nearby taste fast fashion. In Mumbai, dogs swimming in the river which is running seasonal trendy colors water become colored dogs. In a hot summer, after flowers withered,

Brooklyn bees resorted to cherry syrup from a nearby factory. So their hives and honeys are tinted. Zoos feed flamingos to keep their color as they expect.

There are myriad examples that humans treat the environment as a lucrative tool. They isolate species in an unethical way and pollute the environment. But these are always short-term profits. The trauma of the earth always brings about significant aftermath for all the creatures. Plants collect toxic substances, animals and humans themselves eventually consume all the toxin and heavy metal. Humans are making fishing nets and traps that hunt themselves physically and mentally. So from a viewpoint of architecture, what can we do?

Architecture and landscape have large power to adjust the environment. Architecture and landscape is the border of nature and humans. Humans themselves will be the first species that they isolate from the environment. So they consider architecture and landscape in a subjective way. This is the ingrained standpoint in how architects address the problem of architecture and environment. Most of the topics about nature and architecture are how nature can get in architecture or how nature can be blended with architecture. But actually what we have to know first is architecture is something originated from nature and surrounded by nature. The condition of designing and constructing depends on the environment. We can't use a patronizing attitude. If architecture and landscape is a solution to the environmental problem, it's attitude would include reverence and intimacy to our environment. Like the oyster table, the idea of Cooking Sections, it

allows people to utilize the tide in a proper way and also give enough reverence to underwater species and the environment. No overfishing. No torture to species. It's a sustainable method for humans' fishing needs. And most importantly, it raises the awareness of people.

It's an essential thing in how we see the world. A crisis in the color that we process through our eyes which are shifting and changing. This is what is at stake, we have to relearn how to see the color, the climate and the crisis with our eyes, relearn how to sense it with our bodies and how to smell it with our nose. And through that we are able to articulate the relationship with other species. A lot of relearning has to be done before our empathy and communication start.¹

The Netherlands is a very good example for an incredible isolating process, mechanizing, industrializing and making all of these food production processes extremely efficient. That has been done by control in making everything in different compartments and isolating each part of the process and making it the most efficient it can be. I think what is now really urgent to think about is how do we actually build a system that cultivates a multi-species approach that allows the interaction in these spaces and species to grow with each other. One of the things that we talk about is how do we develop interspecies and intraspecies vision? How do we go beyond isolation? How do we create compartments but actually how do we create linkages or re-establish that have been completely broken apart.²

In terms of typologies, the greenhouse is a fascinating history. The invention of the greenhouse and the glass housing made food production hyper efficient in the 20th

century. So it brought a lot of so-called developments but also it has other ecological problems that now we are starting to understand more and more. Cooking Sections' oyster table is actually a kind of cultivation in both greenhouse and nature. In high tide it is part of underwater animals' habitat. Underwater species coexist together without human won't interfere their lives. This is a kind of artificial connection in the cultivation. In low tide it is a small-scale fishing device. Some animals are isolated and captured by the net in a sustainable way. But it still only satisfies a small part of human's fishing needs. We still need to do more to avoid these designs becoming a kind of self-affection and self-entertainment of designers. How do we transition again from these highly efficient single species cultivation spaces into perhaps a mode that is less economically efficient in the short term but more ecologically beneficial in the long term?³ This is what's at stake.

Questions elicited by salmon need a long time to be addressed by joint efforts from society. Architects and engineers have a very big role to play. But there is a need for quite a radical shift. How do we think of food production and landscapes as producing habitats and producing ecological systems rather than producing foods? Only after having sufficient research and making sustainable decisions in design can architecture make the most of it in the ecosystem.

Note

1 Columbia GSAPP in conversation with Cooking Sections

2 The Berlage Thesis: "Salmon: A Red Herring" by Cooking Sections <https://www.youtube.com/watch?v=wylxLCJpgoFA>

3 The Berlage Thesis: "Salmon: A Red Herring" by Cooking Sections <https://www.youtube.com/watch?v=wylxLCJpgoFA>