

Graduation Portfolio

GSAPP
2021 - 2022

SeLim Jung

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Safe Heaven for Elephant

Spring 2022
Prof. David Benjamin, GSAPP

Group



Africa is the most vulnerable area where the temperature increases due to climate risk and also one of the most efficient areas to recover from global warming. Climate risk in Africa threatens not only humans but also biodiversity. Maintaining biodiversity eventually determines the viability of people in the region.

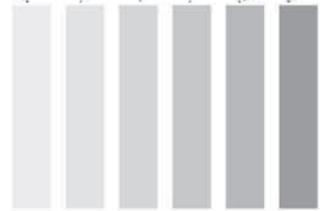
Tanzania has the second largest population of African elephants in the African continent, where its climate gets extremely drier and hotter. The African elephant is the most important species that indicates the viability of wildness from drought. We talk about resilience by protecting elephants to preserve biodiversity.

Lake Manyara, the junction of major elephant habitats, suffers from extreme drought. Since water resources are essential to elephants, they suffer from shrinkage of the surrounding greenery of the lake and water.

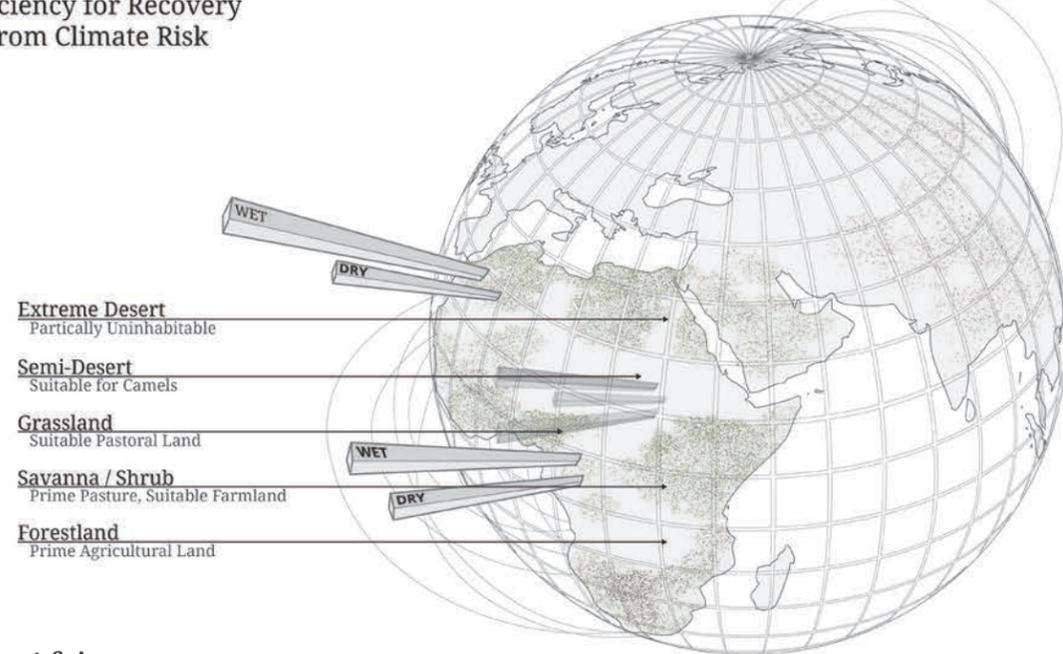
We suggest two main possibilities for this project. The first is to use sustainable but at the same time decaying African material for structure. We are saying that architecture does not have to exist forever in nature. The second is to think of a way to restore vegetation by harvesting water naturally within the area. Plants keep the soil moisten by containing water in their body. The resilience of vegetation will be a crucial point for surviving climate risk by breaking repeated drought chains.

This project will become a safe space for elephants and other species by helping sustain a proper water supply nearby the lake. It can be a prototype and be applied to the other water resources in the entire African region.

Climate Risk in World by 2040

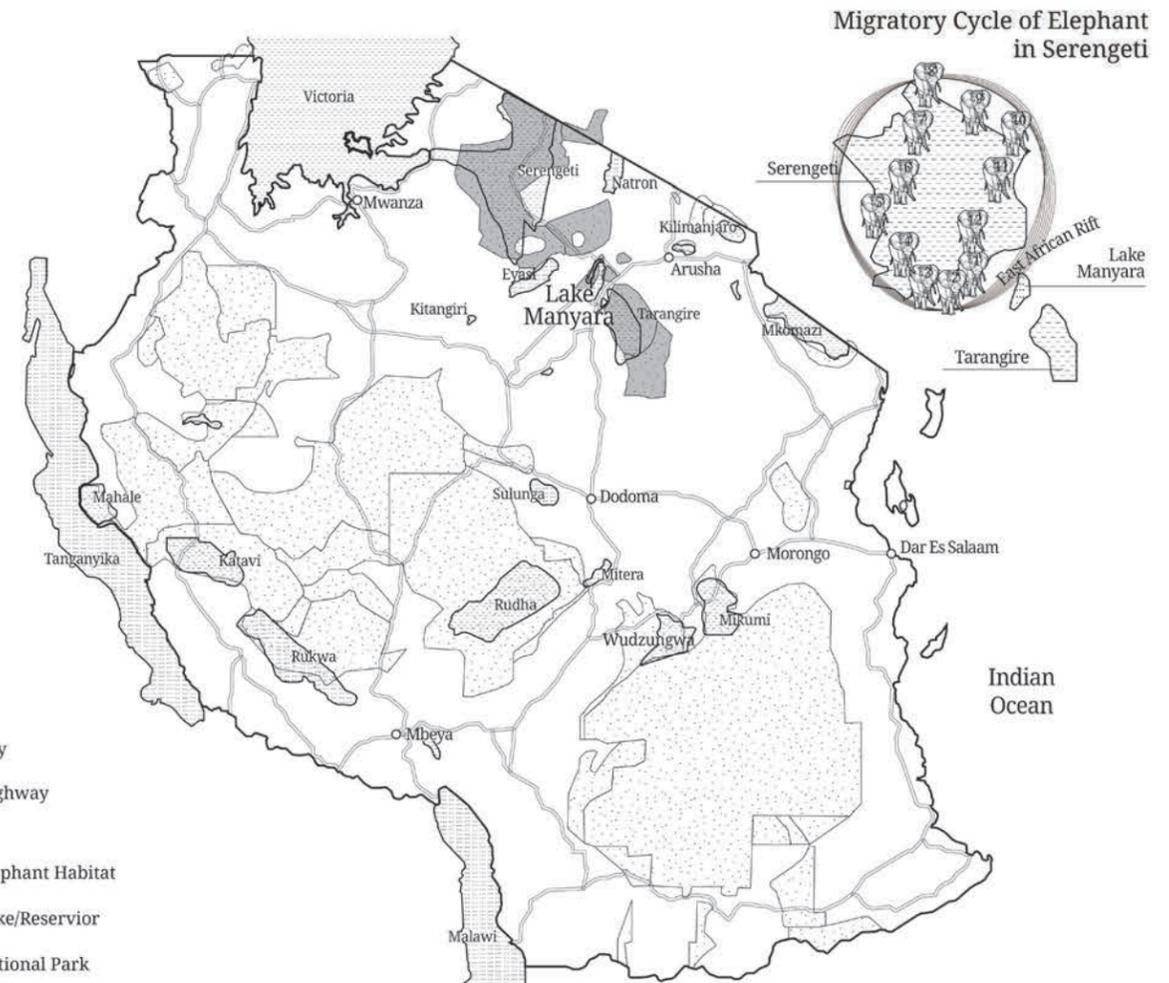
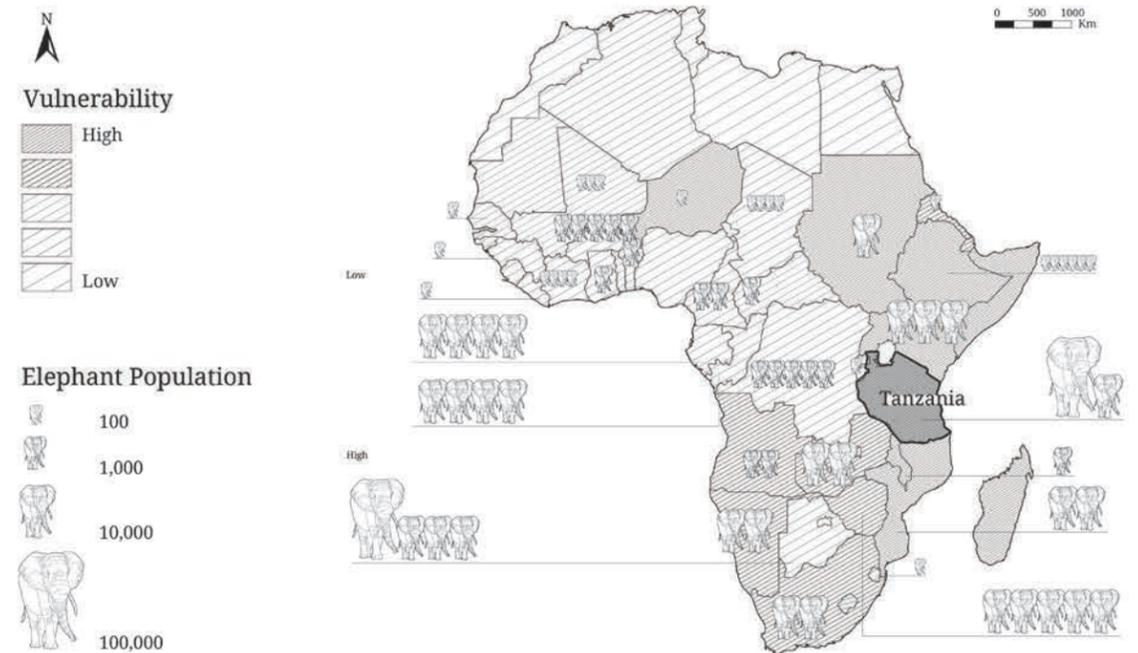


Efficiency for Recovery from Climate Risk



Land Availability in Africa

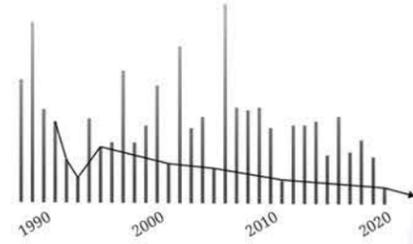
Elephant Habitation in Tanzania, Africa



Environmental Conditions of Lake Manyara

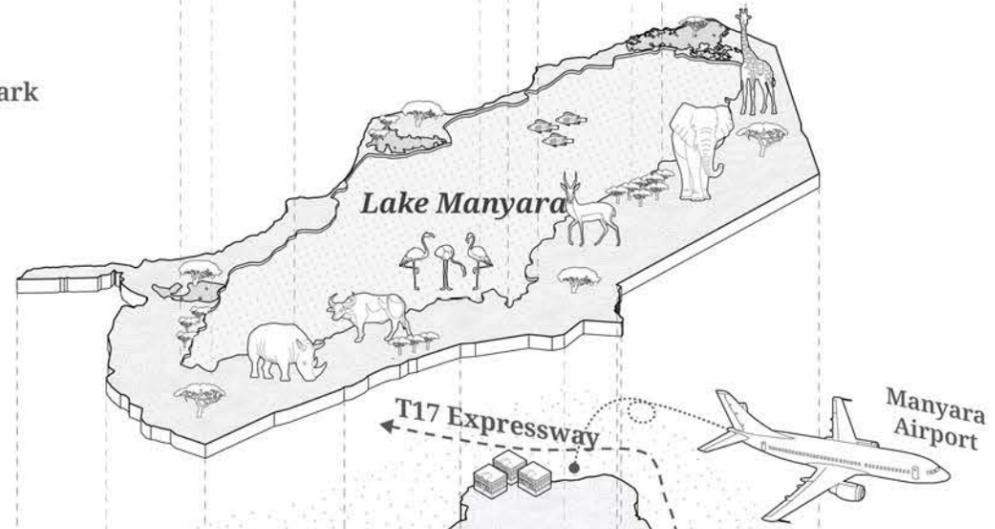
Water Body

Annual Rainfall (mm/yr)

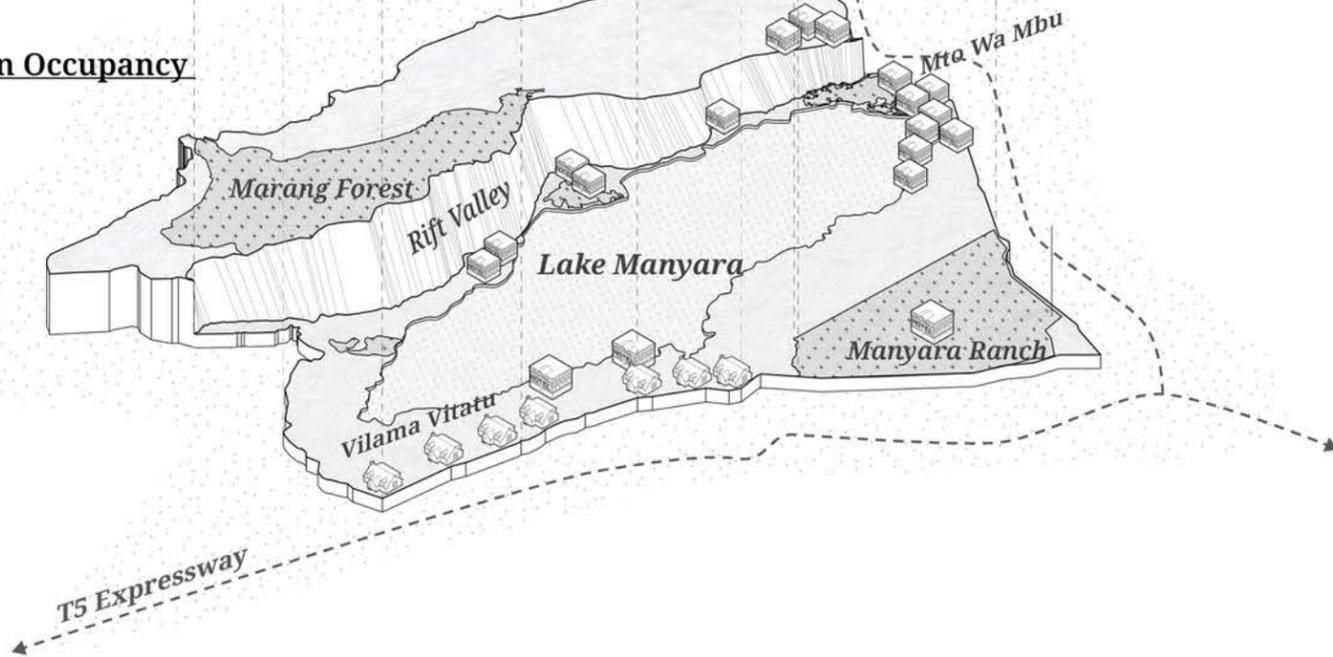


Ecology

Manyara National Park



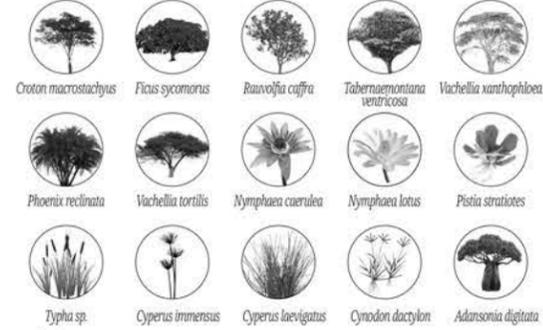
Human Occupancy



Lake Manyara Biosphere Reserve

Lake Manyara National Park has the greatest biomass density of mammals in the world.

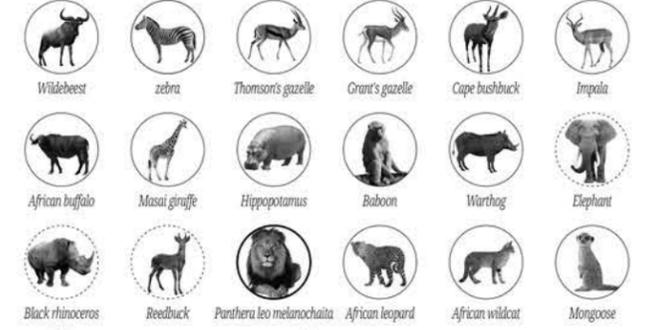
Vegetation



Bird



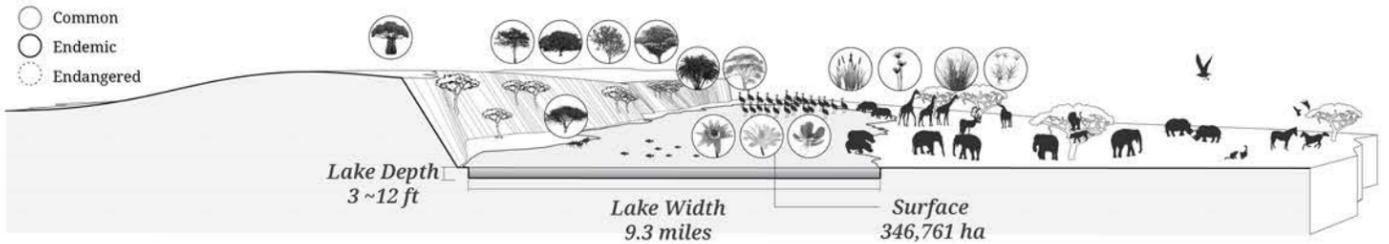
Mammal



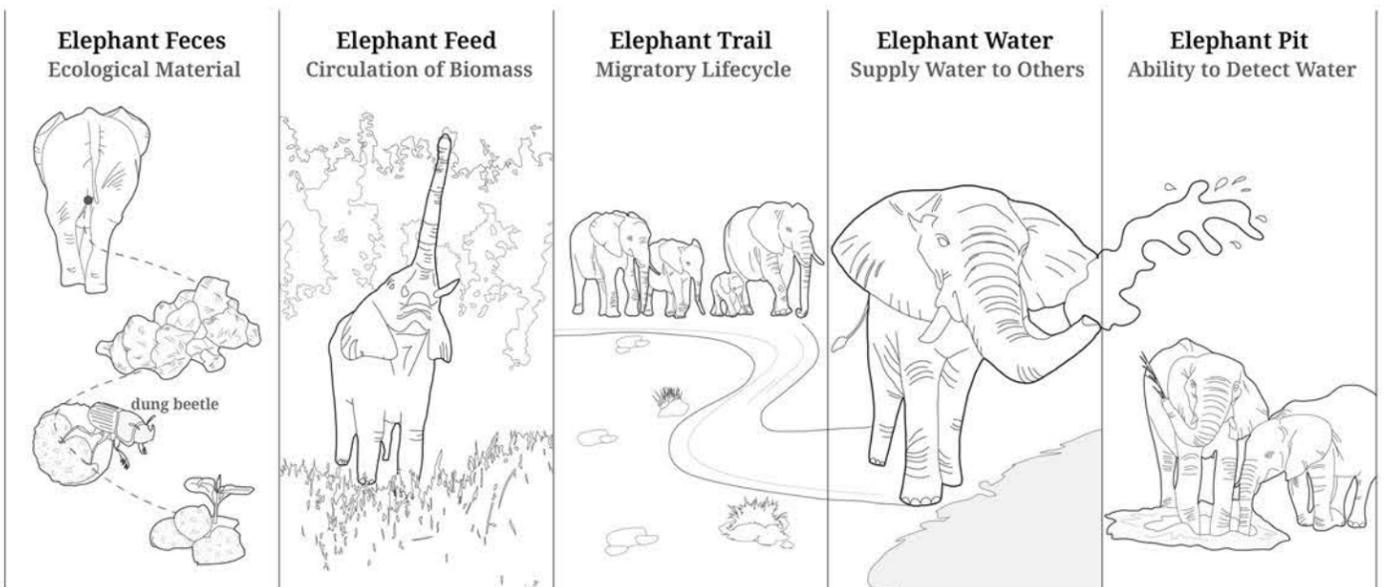
Fish



Butterfly



Elephant as Biomarker



To use sustainable but at the same time decaying, African material for structure because architecture does not have to exist forever in nature.
By considering the following two conditions, We selected cassava and bagasse by exploring natural materials that can be used as building materials.

Cassava



Naturally Dried

Bagasse



Naturally Dried

Cassava + Bagasse



Naturally Dried

Cassava + Bagasse



Heated

Cassava + Bagasse

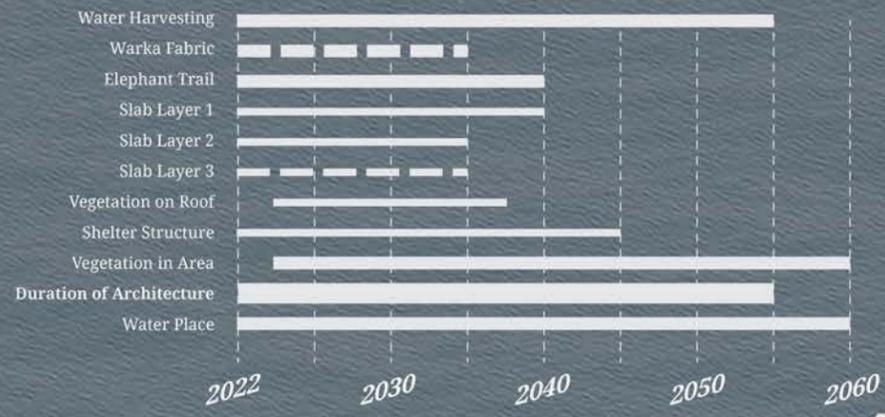


Dehydrated

Cassava + Bagasse



Baked

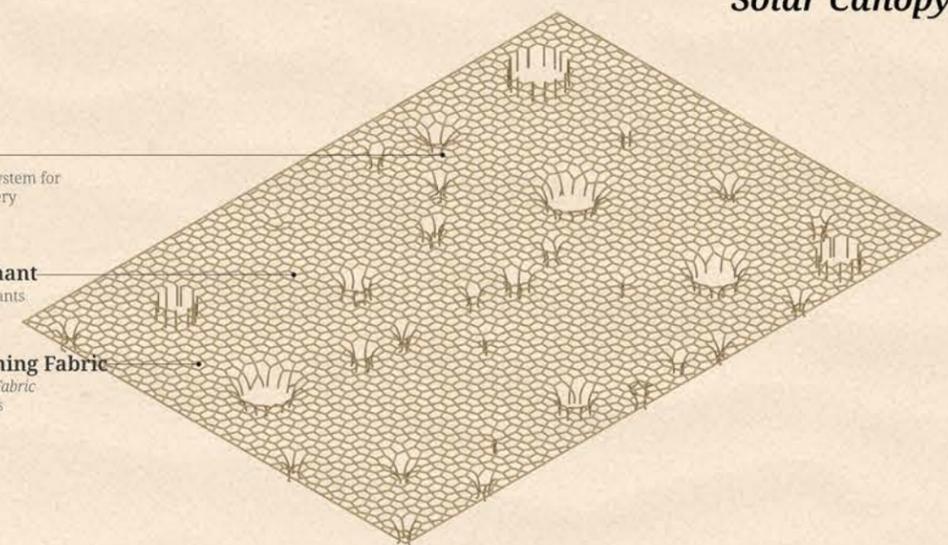


Proposed Cycle of Architecture



Lake Manyara

Solar Canopy

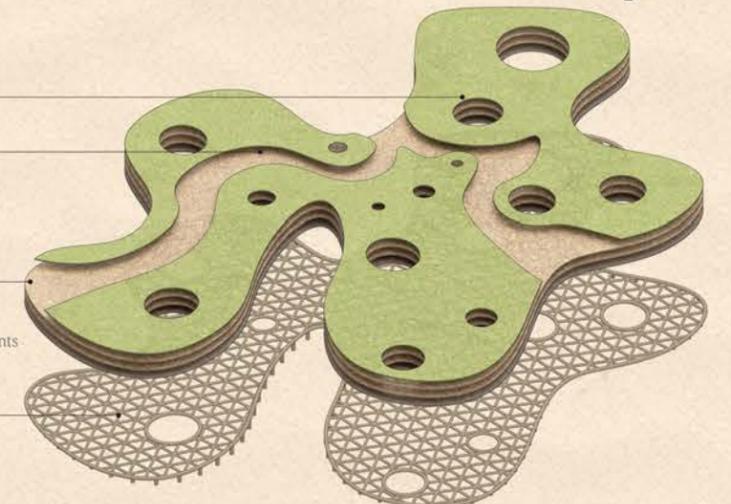


Water Pillar
Water Harvesting System for Resilience of Greenery

Shade for Elephant
Safe Zone for Elephants from Extreme Heat

Moisture Retaining Fabric
Degradable Warka Fabric Using Natural Fibers

Elephant Terrace



Terrace

Elephant Trail
The Nature of Elephants That Feed On The Move

Degradable Slab
Decaying With Intended Period Material Can Be Eaten by Elephants

Supporting Structure
Decaying With Intended Period

Ground Spcae



Vegetation Recovery
Conservation of Soil Moisture To Restore Vegetation

Research Facility
Interaction Between Humans And Elephants

Elephant Trail

Open Walls
Provides Spaces for Elephant's Activities

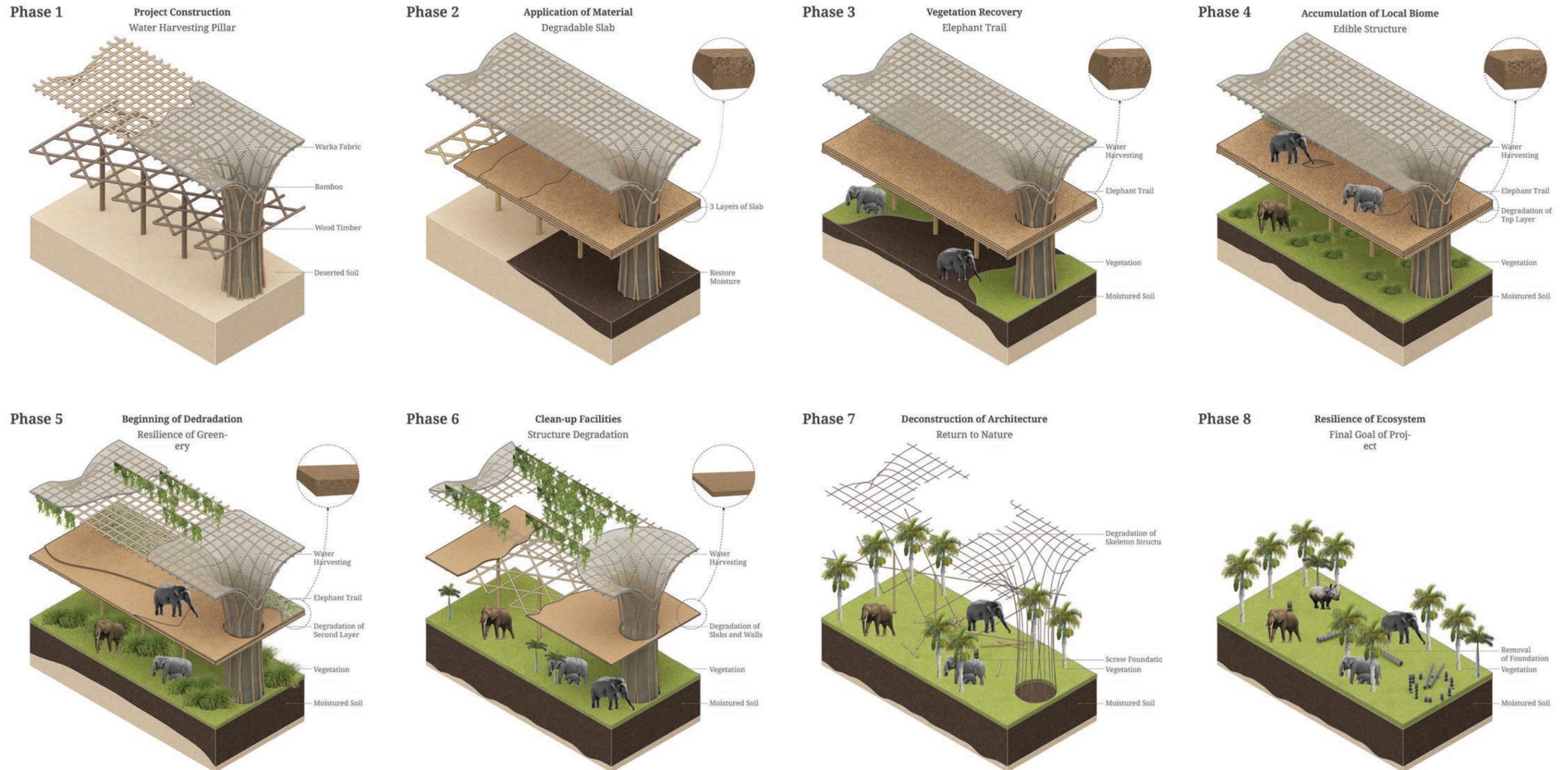
Open Space for Elephant

Pond
Water Places are essential To Elephant's Life

Degradation of Architecture

We propose a cycle system, not just the building itself. This system is planned for 8 phases, which plan both the generation and destruction of the architecture.

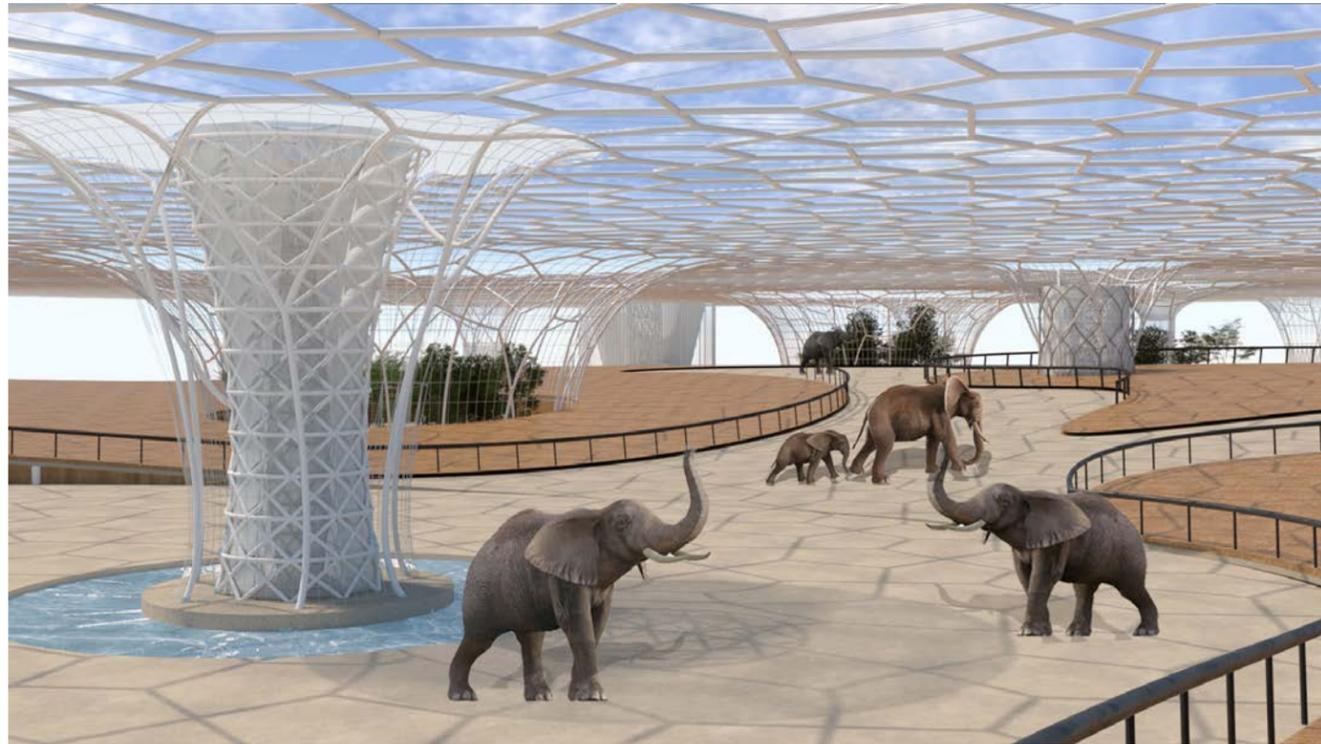
After constructing the framework of the building, add materials and wait for the surrounding vegetation to recover through water harvesting. When the biome begins to fully recover, the building begins to decline. Decomposing building materials can be eaten by elephants, and the elephant's feeding behavior can promote the dismantling of buildings. Water harvesting ends when the moisture in the ground is sufficiently restored and vegetation can grow spontaneously. When all the pillars embedded in the ground with the screw foundation are removed, the building will eventually disappear, and the newly created ecosystem is the final goal of our project.



Playful Water Place for Elephant on the Ground

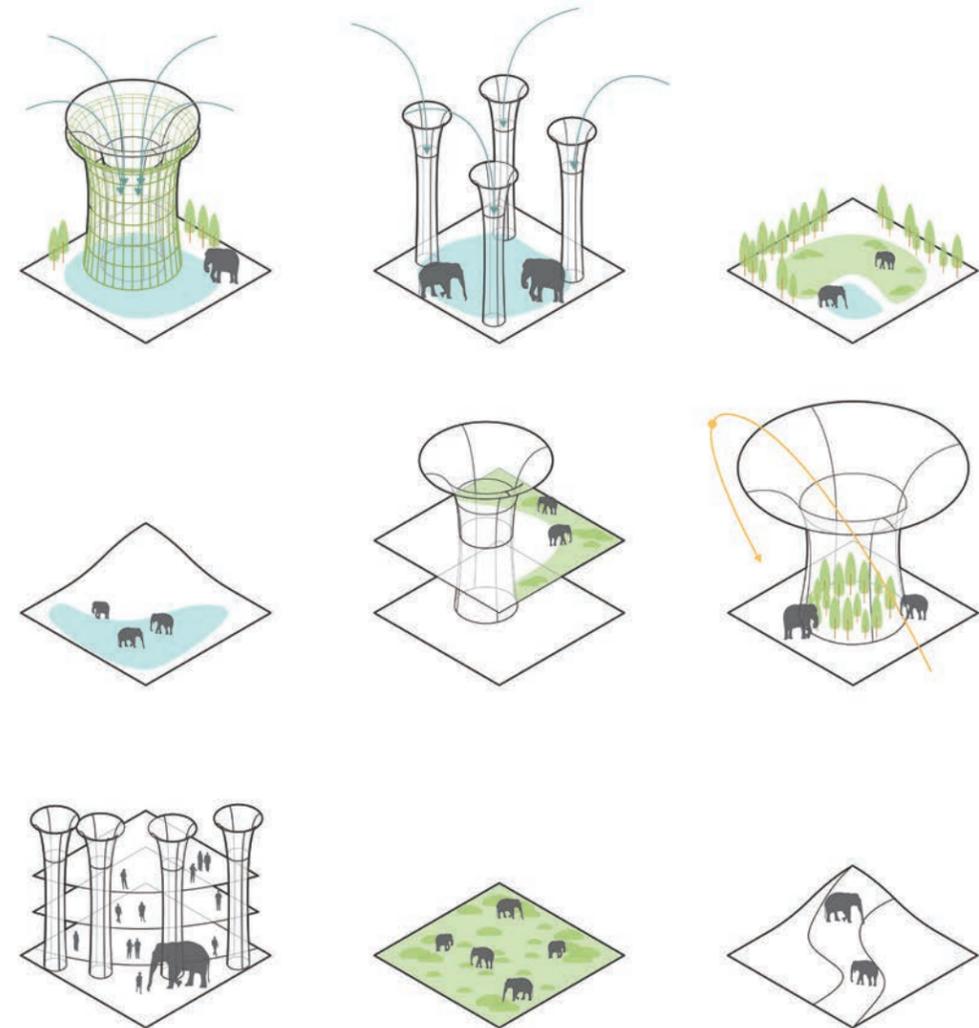


Elephant Trail on the Roof



Since our project is a safe area for elephants, we have proposals for various spaces and activities. Here, iterations are considered based on the distribution of water harvesting pillars throughout the building. The properties of a space can be divided according to the presence or absence of pillars, water space, and vegetation.

Proposed Spaces for Elephant





Holland Tower

Fall 2021
Prof. Nahyun Hwang, GSAPP

Group

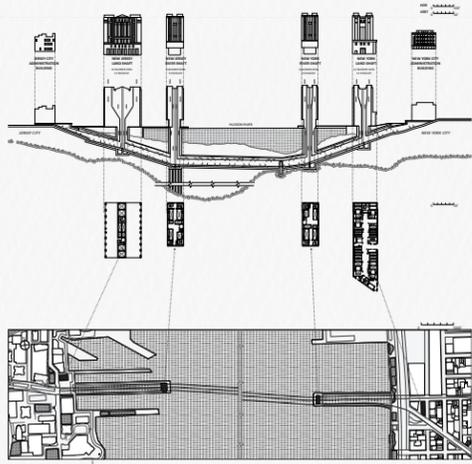
The project is about the renovation of the Holland Ventilation Tower which is the first mechanical ventilation system applied to the first underwater automobile tunnel. Standing in the middle of the Hudson River, these four ventilation towers for the Holland Tunnel symbolize the tip of an iceberg of urban underground construction. It was invented at the emergence of ventilation buildings for tunnels that happened at the point in human history when the main means of transportation passed from trains to cars. And this was the moment that people first became aware of the air quality of the city.

Ventilation towers for underwater tunnels are made in the United States from the 1920s to the 1950s and in a unique architectural type. the facades were mostly designed in Art Deco style. as the first tower was designed in art deco style by ole singstad. with the development of ventilation technology over time, ventilation towers have gradually decreased in size, and regionally, it can be seen that the towers are larger and more numerous at dense eastern coast of the States. This urban infrastructure cannot be completed without labor with a high death rate. The sandhogs who work underwater or underground might be subjected to silicosis and decompression disease.

This is a huge machine dressed like a building. Nowadays, as new technologies developed, we don't need huge air infrastructure anymore, so they are gradually disappearing.

Dimension : 47-1/4" x 47-1/4"

Material : Formboard, Steel, Plastic, Cotton



It connects Lower Manhattan in New York City to the east with Jersey City in New Jersey to the west. The Holland Tunnel is operated by the Port Authority of New York and New Jersey. If the lower Manhattan Expressway by Robert Moses were built, it would probably be connected to the Holland Tunnel.

The river ventilation building of the Holland tunnel, sits at the shoreline of the Hudson River. The riverfront area of west side New York City has been commercialized and into a symbol of luxury. Instead of a civic space, the architecture projects along the Hudson riverside are more about tourism and leiscurescape. Our project is looking to create another typology of New York City riverside architecture.

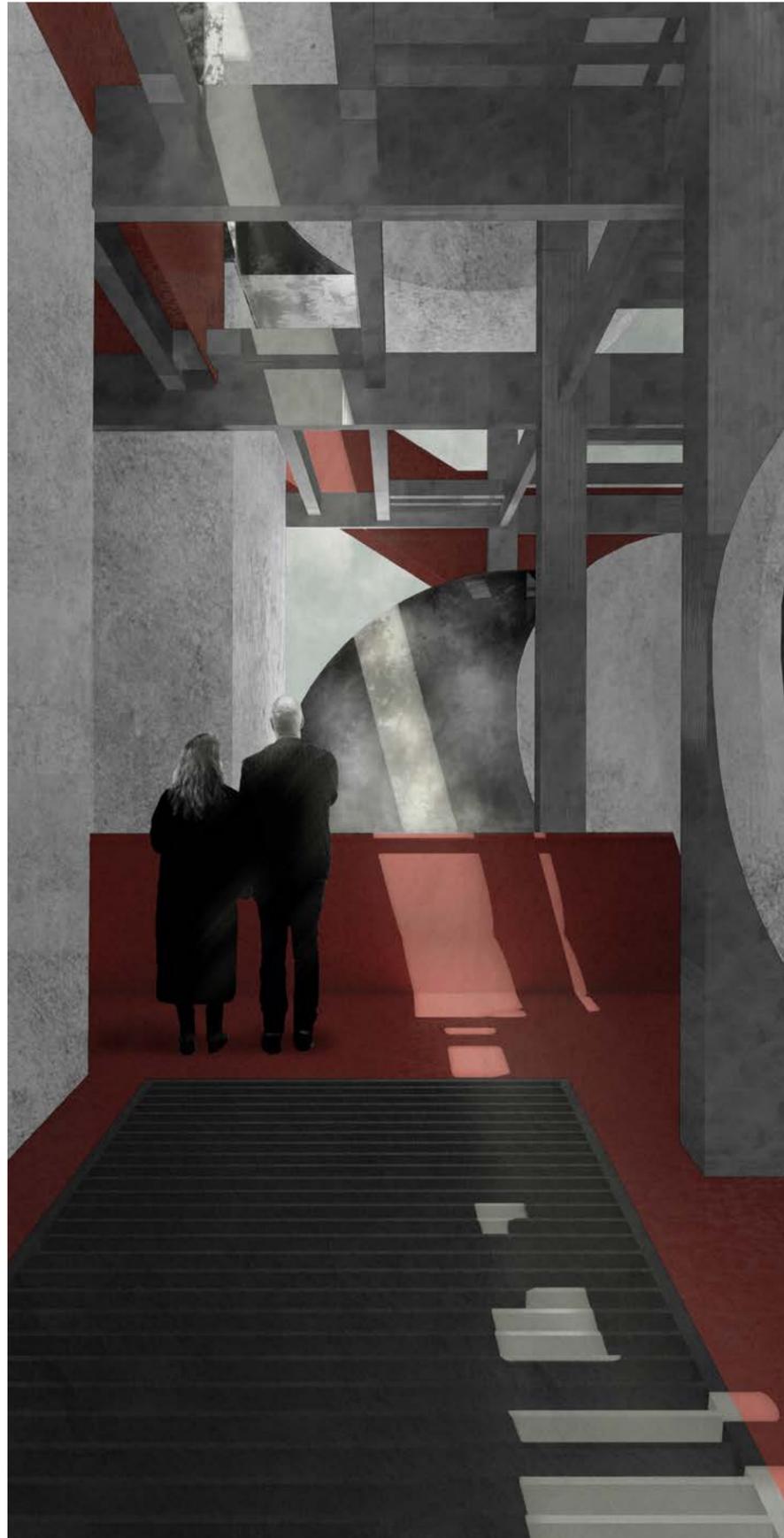
But also, the locality of our site also means vulnerability because of the possible water level rising that might happen in 100 years. It's such an ironic fact that the transportation system that these air towers use to support is the cause of their drowning.



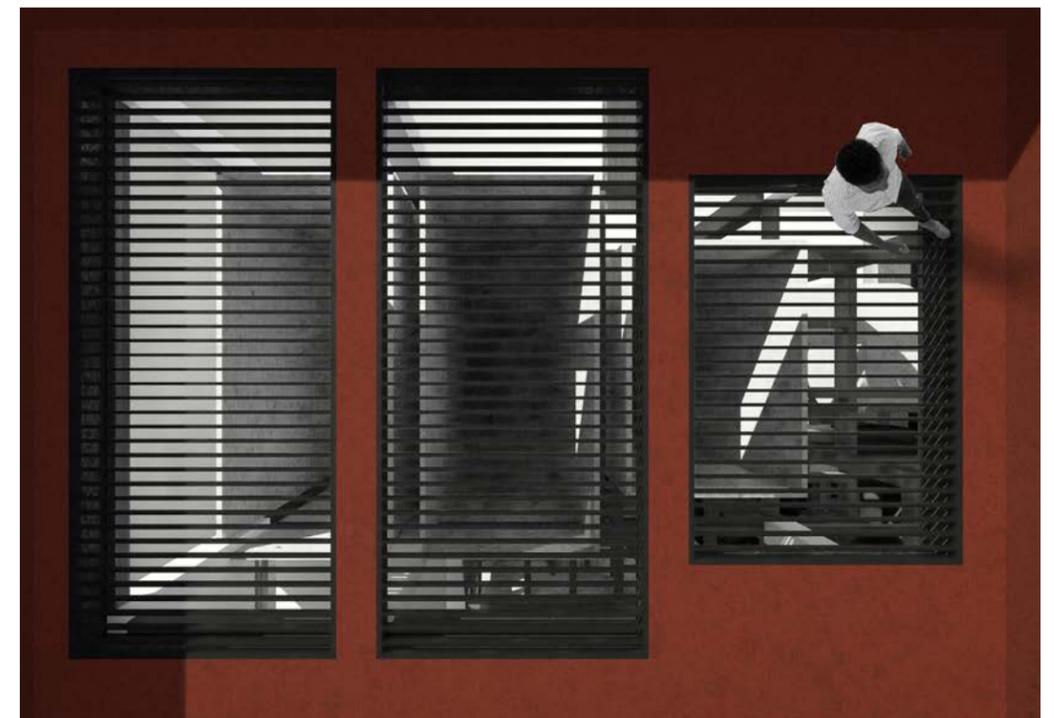
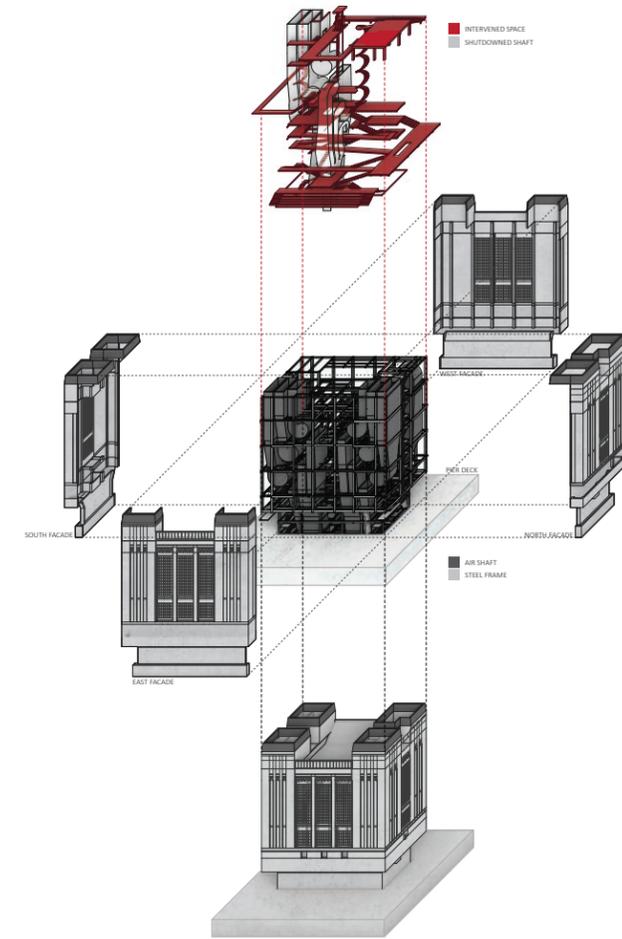
-  Shoreline in 2050
-  Shoreline in 2080
-  Shoreline in 2100
-  Park
-  Tunnel
-  Transit
-  Border

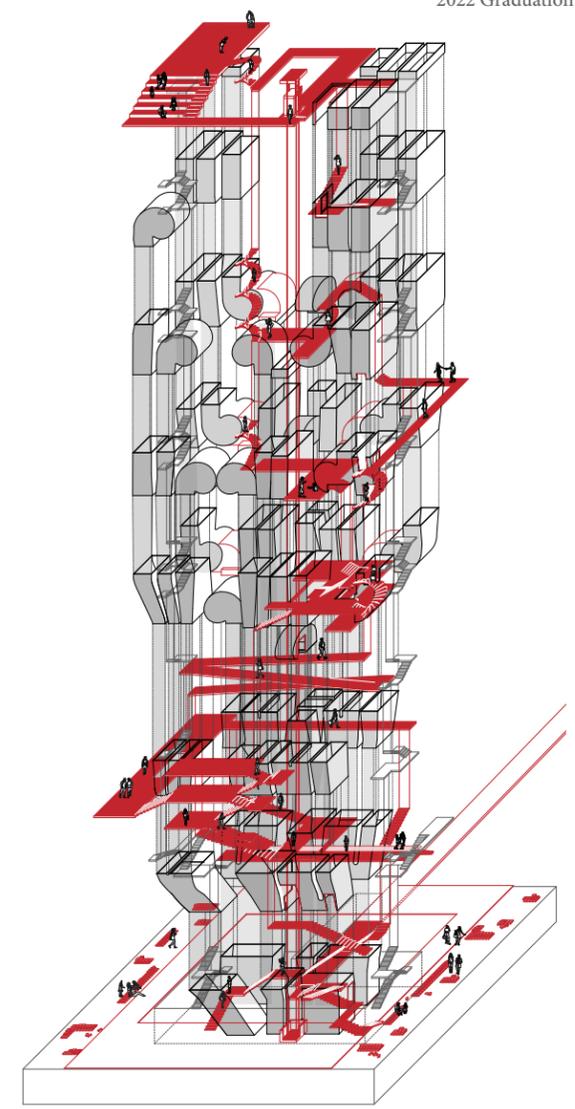
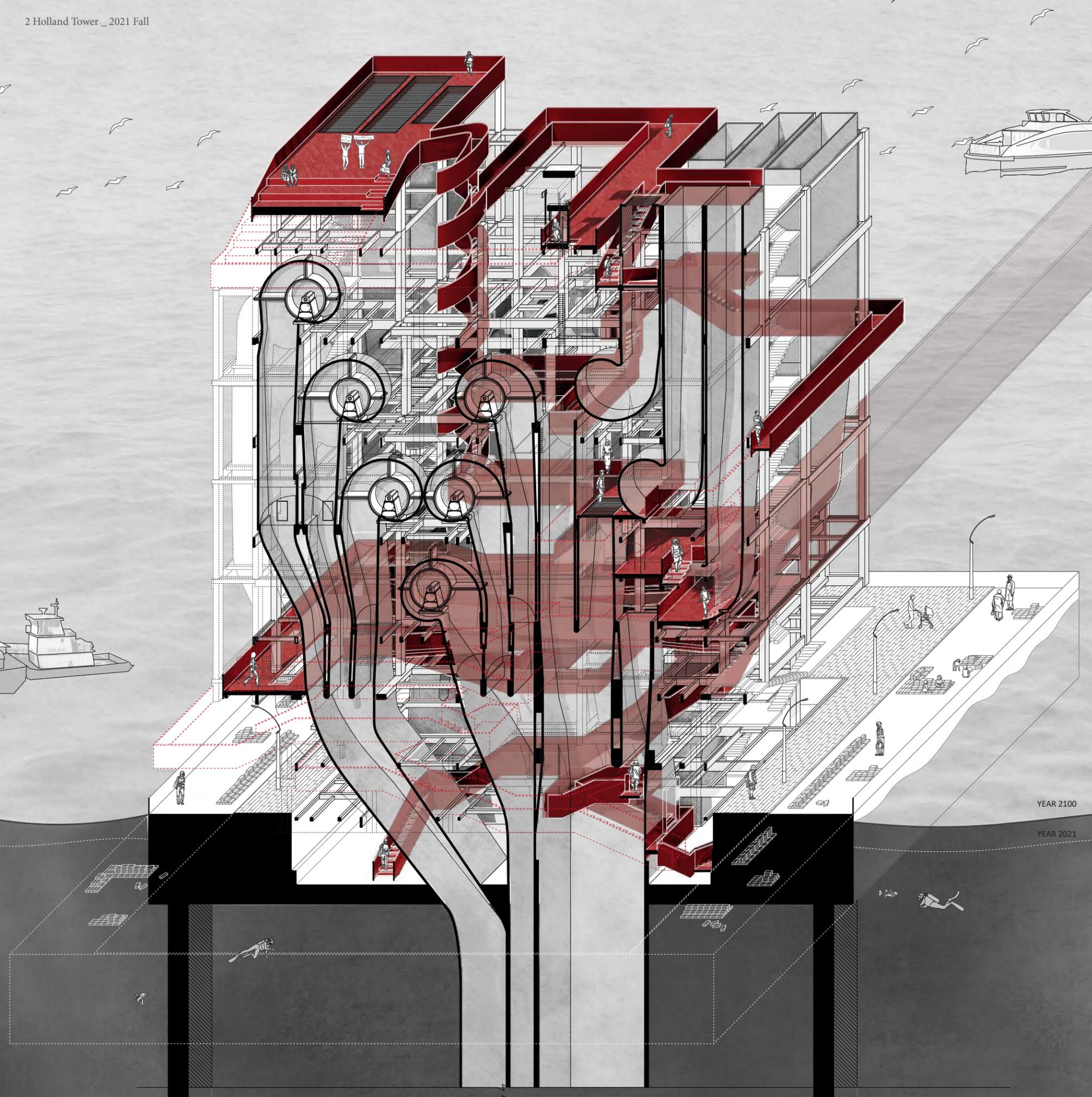


Experience Quality of Air

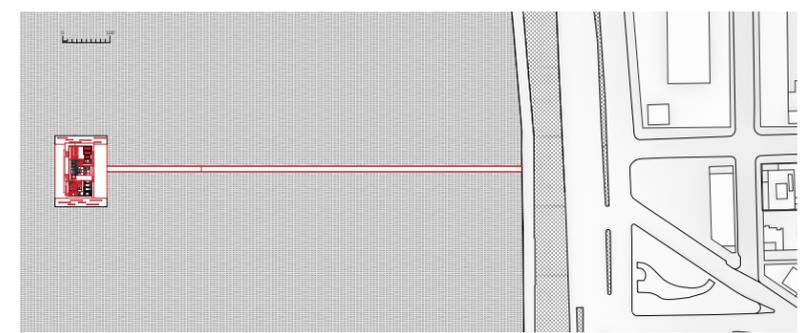
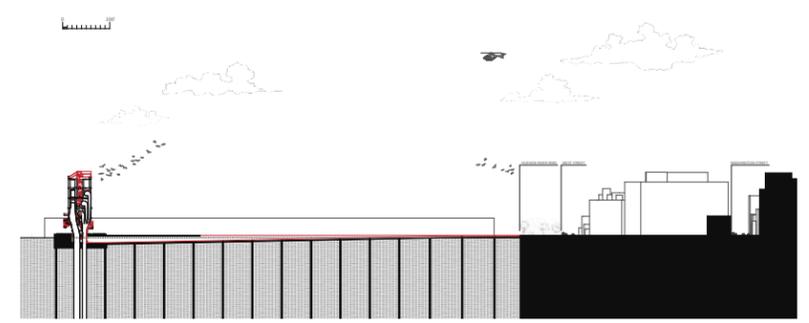


Dismantle of Existing Structure





Circulation in Structure



Site Plan

Sequence

Summer 2021
Prof. Yussef Agbo-Olaniyi, GSAPP

Individual



Everything that exists is temporary.

And temporality is necessarily accompanied by the property of change. This is a project about the ephemerality of things that are not permanent.

The poem "Seosi" is one of the most loved poems by Koreans, and the phrase "With my heart singing to the stars, I shall love all things that are dying" came to my mind throughout this project.

And I thought about how the poet could unravel the poet's beautiful considerations and attitudes about all the disappearing things architecturally. Everything that humans create, including architectures, eventually conforms to the laws of nature and has no choice but to disappear. But in the meantime, people have developed a lot of science and technology to try to exist forever. Architects are trained to create structures that will withstand loads and external stimuli as long as possible, and also have tried to create something that is permanent.

But eventually everything will decay. So, how should we deal with these disappearing things?



Plant wilting is also the clearest form of decay. I observed and recorded the wilting of plants. The leaf picked up from the park dries quickly before the gerbera withers, but the summer wildflowers last a very long time. Plants perish at their own pace, and this extinction process was not a transition from one stage to the next, but rather a sequence of transformation along a series of lines. After all, existence and extinction are a single linear sequence.

The spring flowers are gone and the summer bushes become thick. At the end of this hot summer, the green leaves will turn into brown and fall. However, we do not grieve over the temporaryness of flowers because we know that this extinction process is not the end and that another cycle will return and new lives will continue their lives again. I think that we could naturally recognize this sequence of extinction through architectural experience and accept the temporaryity of everything as a cycle.

Fatality and Apoptosis

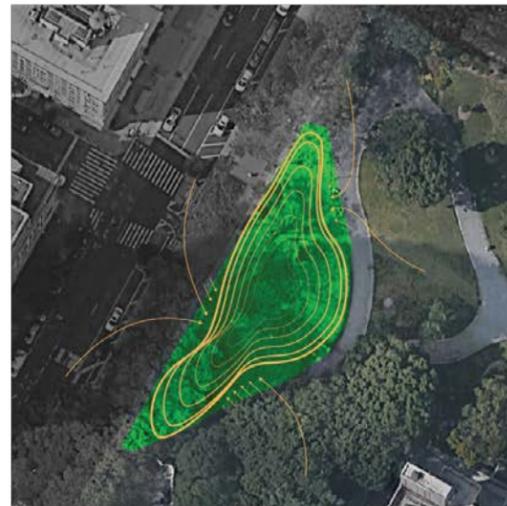
The process of apoptosis can be metaphorically carried out on this site.

First, there must be an external stimulus for apoptosis to occur. I could consider the attempts of people to access the existing green mass on the site as an external stimulus. And in the process of apoptosis, the cells contract, and people can access the extra space obtained by shrinking the solid green mass.

As the process progresses, the cell wall collapses and interacts with materials outside the cell. When applied to the site's design sequence, people begin to enter the inside of the solid boundary, creating a gap in the symbolic boundary of the green area. It starts to appear and can attract people from outside into the green space.

The next process of apoptosis is the fragmentation of the cell nucleus, which is the identity of the cell. When the solid identity of the green area disappears, intervention with new programs becomes possible.

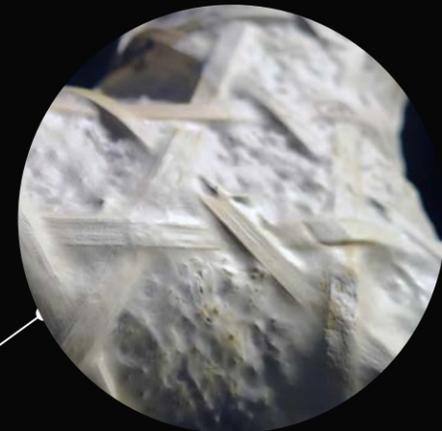
As the final process of apoptosis, everything in the cell returns to the environment, This is the final goal of this project to blend in with the people's daily life by resolution green space with the surrounding environment.



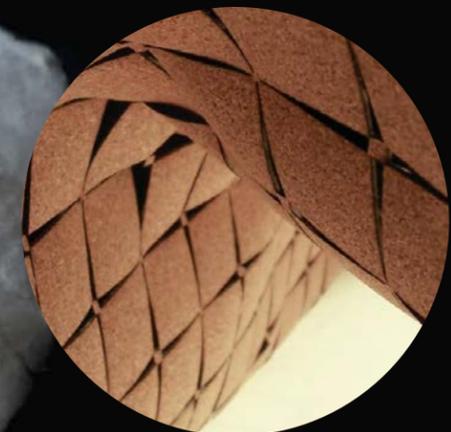
Architecture as Decay



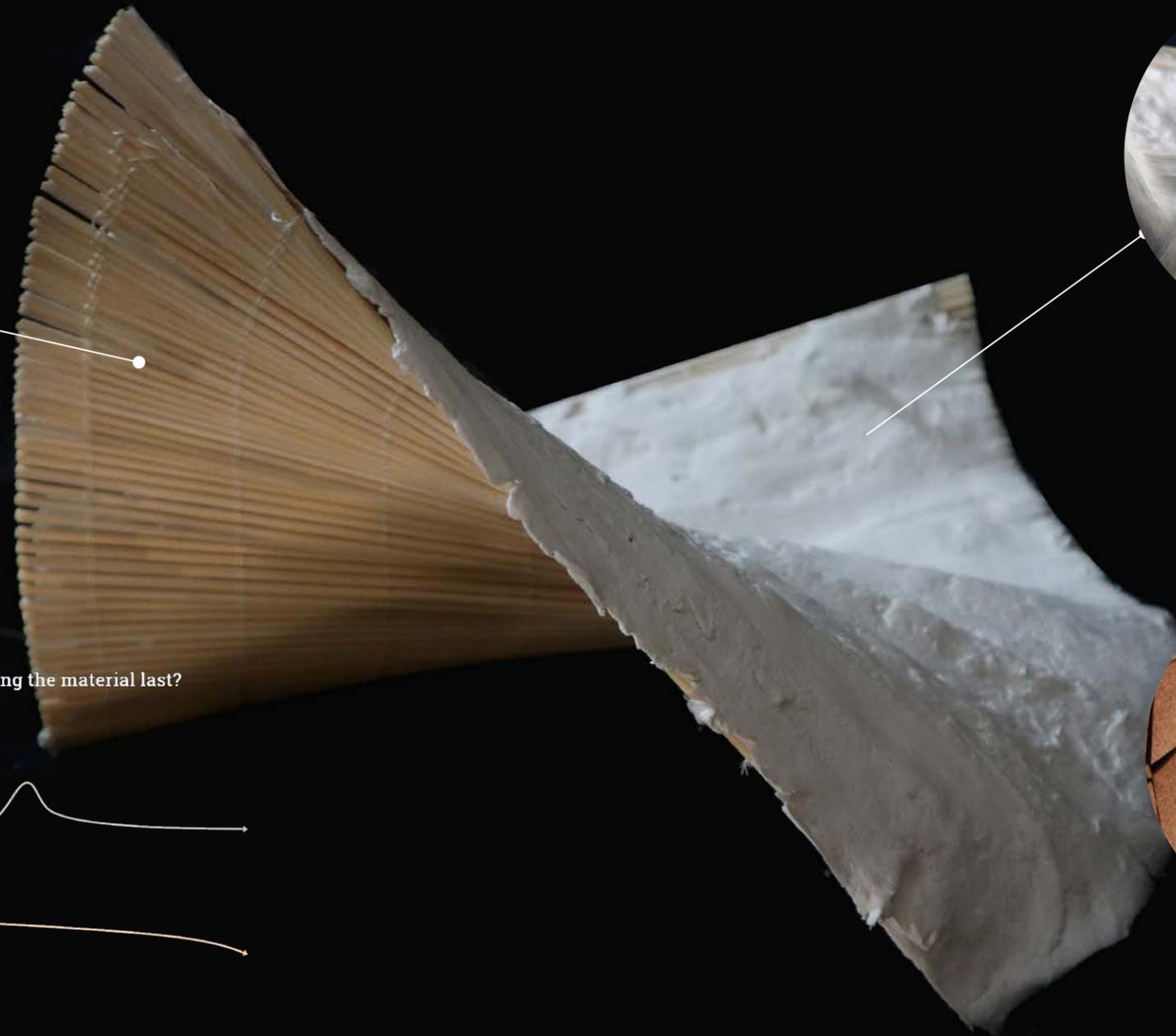
Bamboo Structure Frame



Mycelium

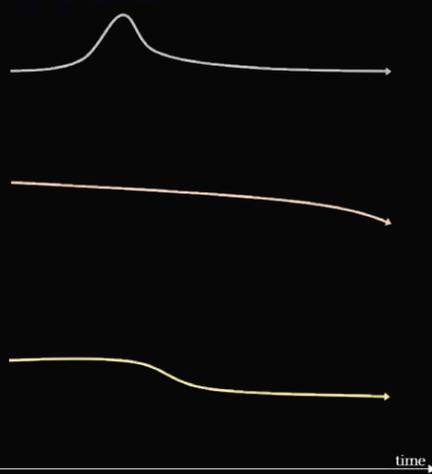


Cork



Where the materials come from?

How long the material last?



Dimension : 23-1/2" x 23-1/2" x 20"

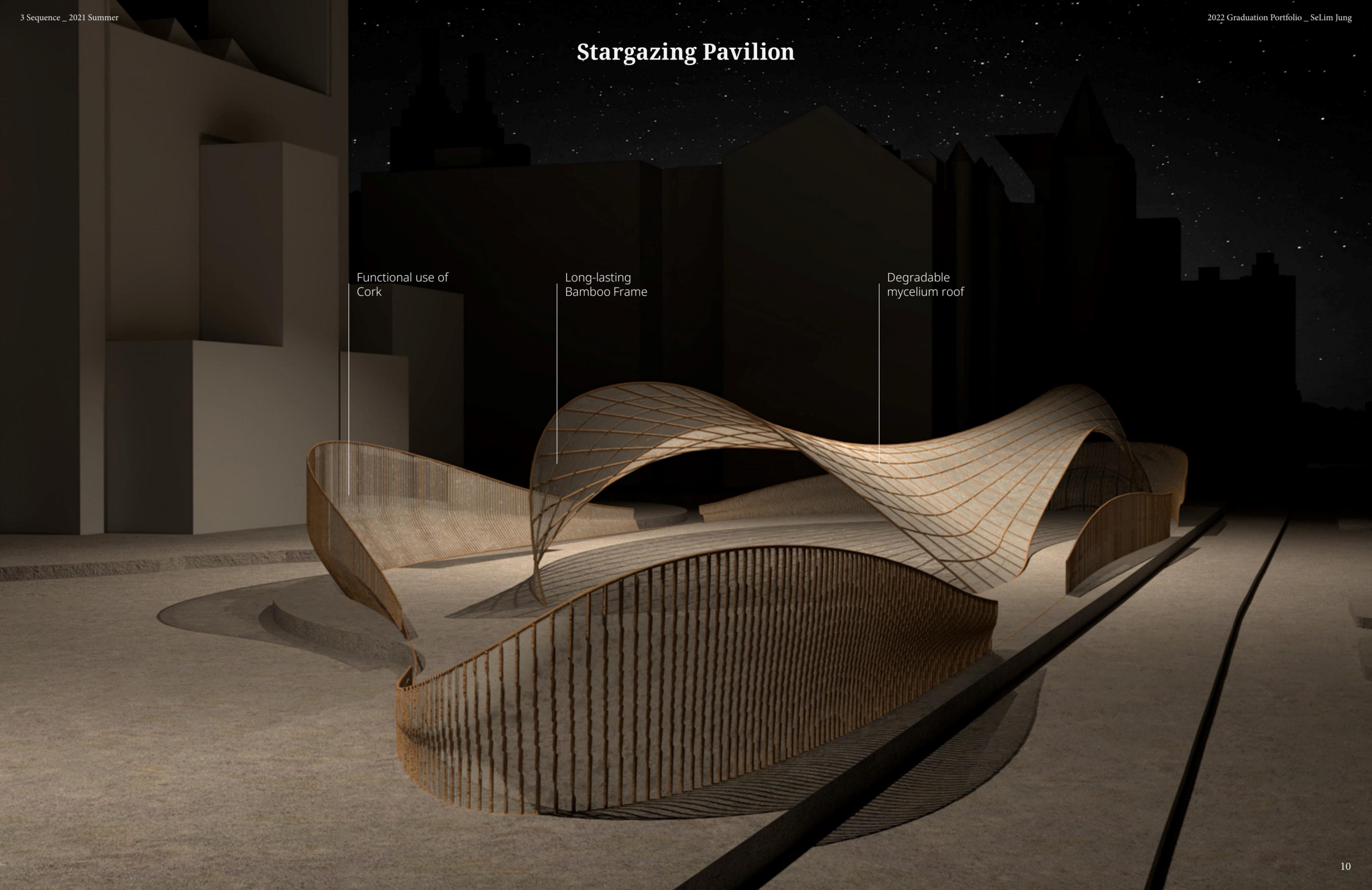
Material : Bamboo sticks, Clay

Stargazing Pavilion

Functional use of Cork

Long-lasting Bamboo Frame

Degradable mycelium roof



Stargazing Pavilion

Long-lasting
Bamboo Frame

Degradable
mycelium roof

With my heart singing to the stars, I shall love all things that are dying.
별을 노래하는 마음으로 모든 죽어가는 것들을 사랑해야지.

Demarcation

CONTRAST IN THE CITY

Manhattan, New York, USA



Spring 2022
Prof. David Eugene Moon, GSAPP

Individual

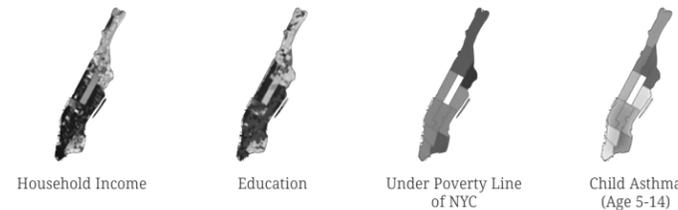
Talin Biennale

Central Park is a major landmark in Manhattan. It occupies 843 acres in the heart of Manhattan and plays an important role in New Yorkers' daily lives.

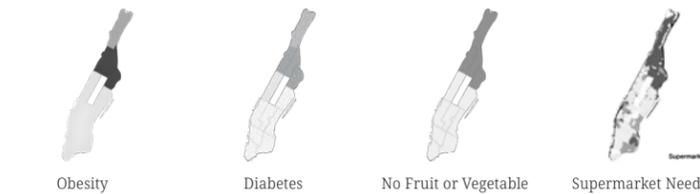
After the first large-scale park plan was proposed for Manhattan in 1840, the "Greensward Plan" proposed by landscape architects Frederick Law Olmsted and Calvert Vaux was approved in 1857, and the first section of Central Park opened to the public in 1858. This radical and rather violent park plan was thoroughly considered only by the establishment, and, of course, low-income residents of the site were not taken into account to create the park. A large black settlement called Seneca Village was confiscated and destroyed, and they settled in Harlem and the Bronx.

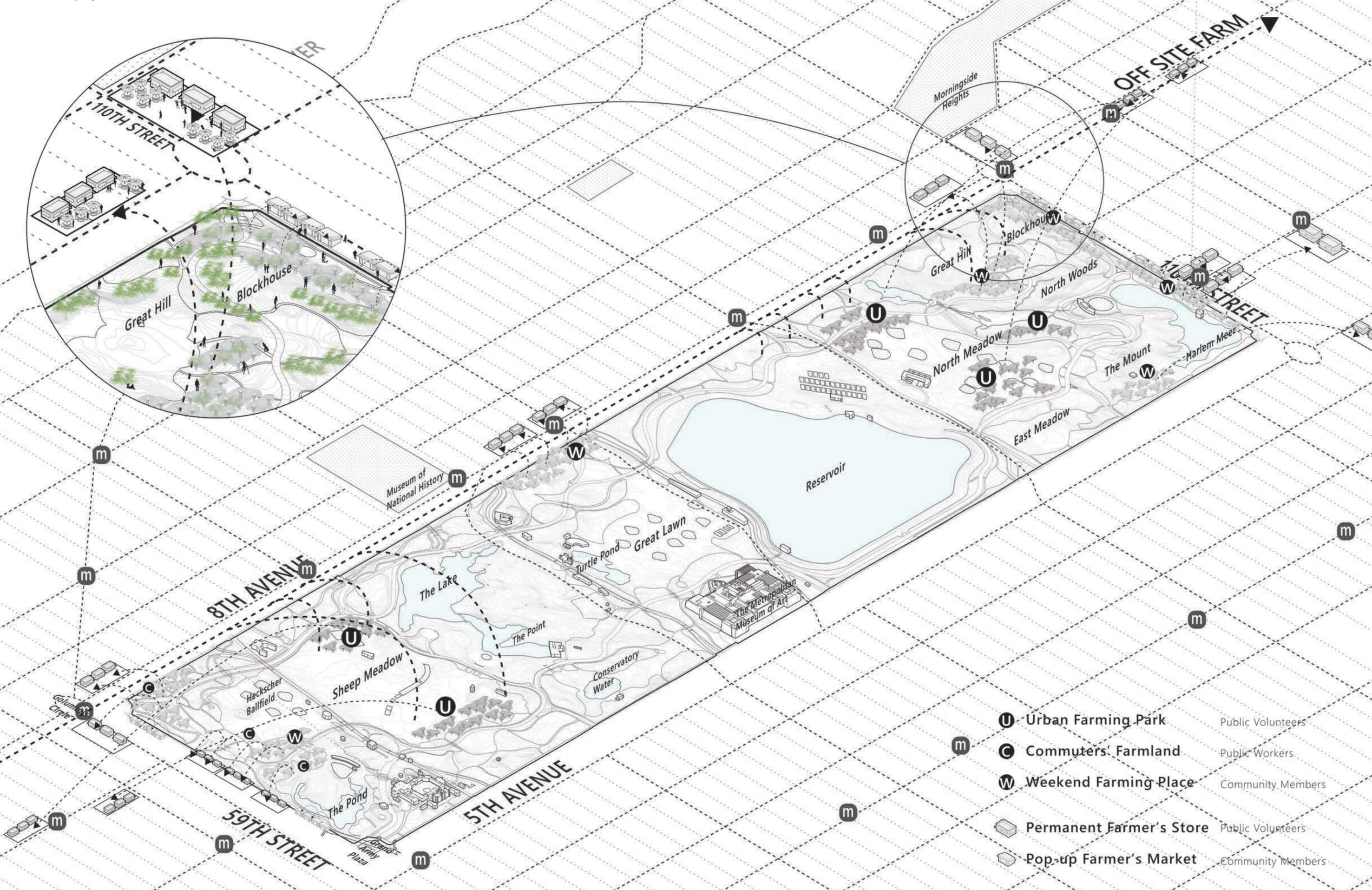
Central Park has done a lot with Manhattan real estate market. As the construction of Central Park was completed in the 1860s, the value of the surrounding land increased significantly, and the rate of increase of 700% between the start and completion of Central Park was shown. On either side of Central Park, there are upscale residential areas called "Upper Manhattan", and the wealthy who previously lived in mansions now live in apartments close to Central Park. When Central Park was restored in the early 2000s, real estate prices near Central Park skyrocketed once again, making it one of Manhattan's most expensive estates.

Social Vulnerability Indicators



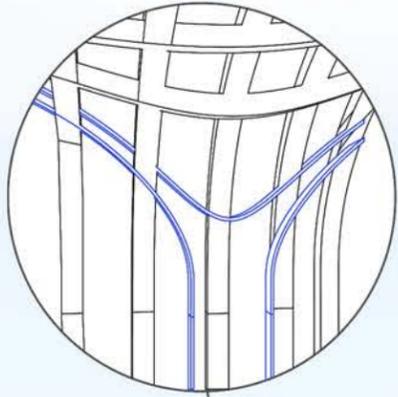
Quality of Food Indicators





- U** Urban Farming Park Public Volunteers
- C** Commuters' Farmland Public Workers
- W** Weekend Farming Place Community Members
- m** Permanent Farmer's Store Public Volunteers
- P** Pop-up Farmer's Market Community Members

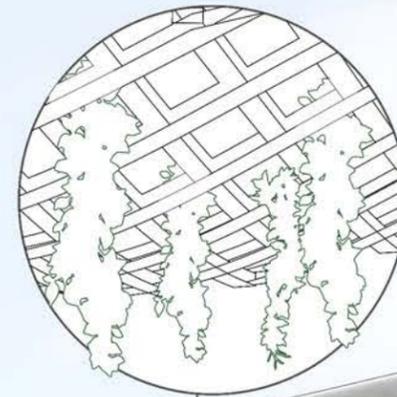
Irrigation on Top



For supplying fresh food for food equity in Manhattan, and there is such a huge green space in the center of the city, we could make an urban farm in Central Park. The mayor of New York has announced that the city will provide green spaces that can be accessed in 10 minutes in any place, and If we make farming places in such parks, we can increase access to fresh food as well as access to green areas.

This is a proposal to create an urban farm in Central Park to provide fresh food directly to the underprivileged. Instead of going to the supermarket, people can come to the park and take a walk and play then buy fresh food. and grow a variety of plants using the structures and the latest agricultural technology.

Smart Farm





Fabrics & Typology of Banpo, Seoul

Fall 2021/2022
Prof. Richard Plunz, GSAPP

Group

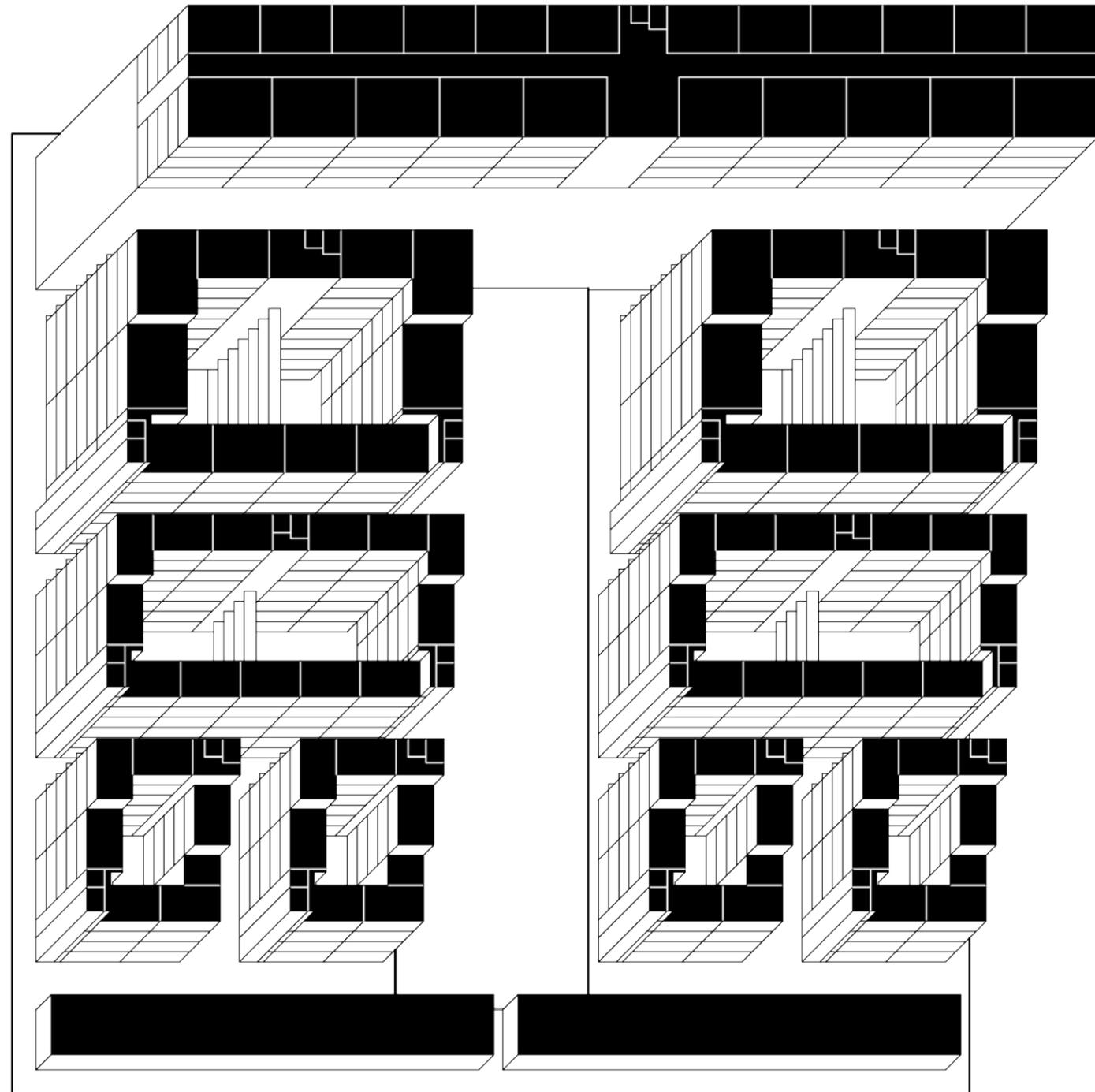
Before the 1960s, the city “Seoul” meant only the northern part of the Han River. The area south of the Han River was a fertile orchard, and people did not live in what is now called “Gangnam”. However, during Korea’s rapid economic growth, the density of Seoul increased too much than expected. In the 1970s, a large-scale migration policy to areas south of the Han River was carried out under the leadership of the Korean government.

The urban planning of the Gangnam area was based on Hilberzaimer’s modern urban theory, and the urban layout of the Gangnam area of Seoul is the same as that of the New City. The apartment in Banpo Jugong Complex 1, which we selected as the window, is the first apartment in the Gangnam area to be leased by the government to the private sector. The layout of this apartment is plate-shaped and is lined up in long rows along the Han River. At the time the area was developed, the apartment complex was the most densely populated residential complex in the area.

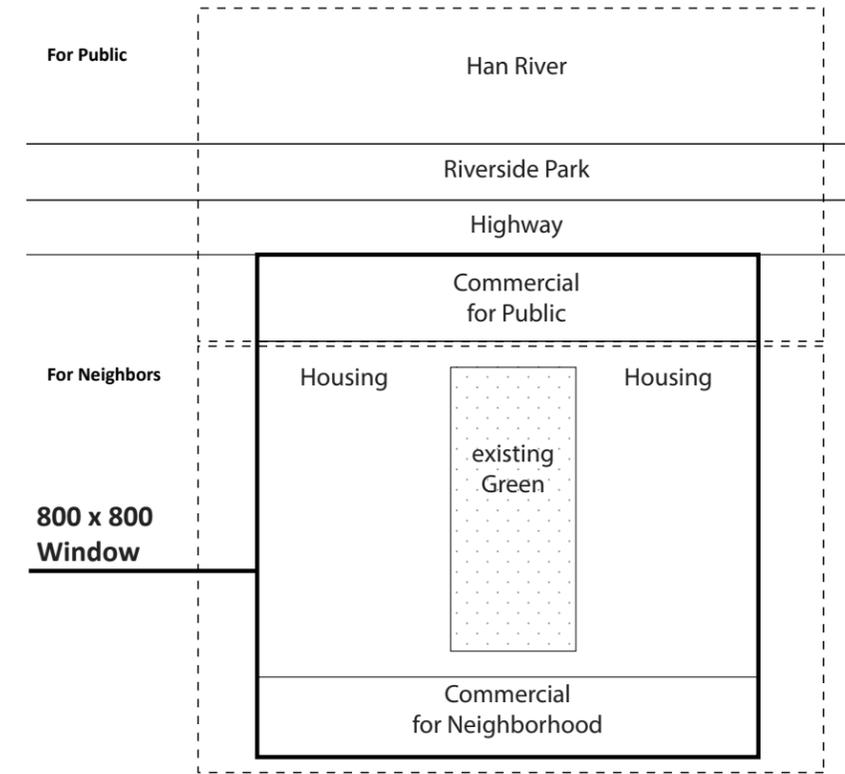
However, from today’s point of view, the five-story building and spacious yard make this area perceived as having a very low residential density. Currently, this window is one of the wealthiest residential areas in Seoul, and real estate prices are very high. The surrounding area of Banpo Jugong Complex 1 was replaced by high-density residential complexes due to the urban redevelopment boom of the 2000s, but this residential complex including Windows maintains a low urban density to this day.

We value the characteristics of this area, and also considering the high density of the Gangnam area, we thought it would be meaningful to keep the density of this area still low. So we decided not to raise the building’s floor heights as high as the surrounding buildings, but only to make sure that every household gets enough sunlight. In addition, we tried to break away from the existing planar layout that lines up to the Han river side by placing a central garden but to maintain the density of the building layout in a low area.

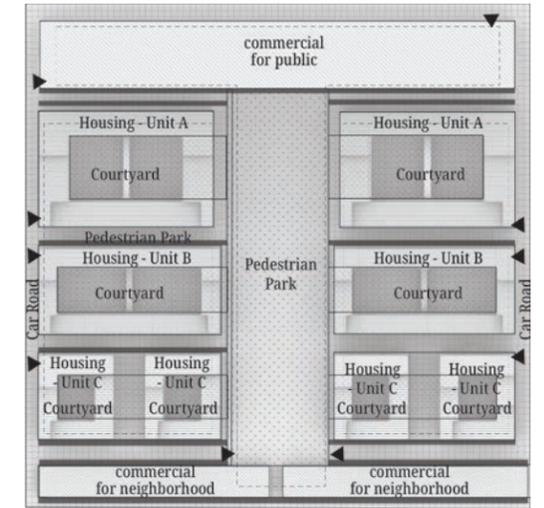
PROPOSED SITE EXONMETRIC



Layers of the Area



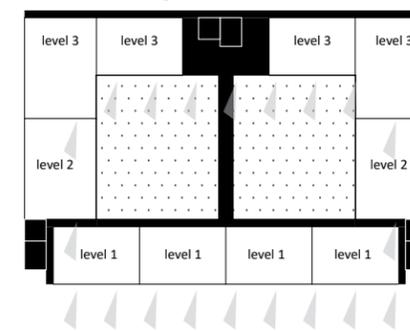
Application of Layers on Design



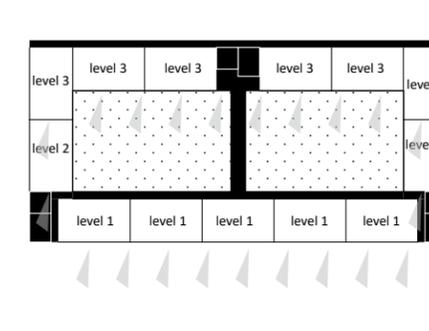
Considering Korea's residential culture and climate, we established the main design strategy of the proposal in three ways. Residential buildings in Korea have developed with an emphasis on the heating system rather than others, so Koreans strongly believe that the best houses face south, where they get the most sunlight. We planned the layout carefully considering their beliefs and culture.

Units and Orientation

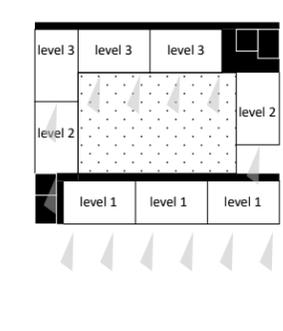
Unit 1 - The Highest



Unit 2



Unit 3 - The Lowest



The size of the courtyard was adjusted according to the height of the building. As the size of the courtyard is differed, the layout of the unit located in each courtyard changes, but the basic design schemes are maintained.



Facade of Complexes

All bays face south and get good sunlight.



Courtyard for Every Unit

It is a space where the community communicates, and it is a traditional Korean "MaDang" culture.



Graduation Portfolio

GSAPP AAD 2022

SeLim Jung

