D E S I G N P O R T F O L I O

MJ. KO

Selected Works 2020 - 2023

Columbia GSAPP M.Arch Candidate 2023
VOL.2

DESIGN PORTFOLIO

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01

CITY HALL : LIBRARY

Columbia GSAPP Advanced Studio VI

Year: 2023 Spring
Location: New York City Hall Park, New York
Type: City Hall
Instructor: Eric Bunge (N Architects)
Team work: Myungju Ko, Younjae Choi

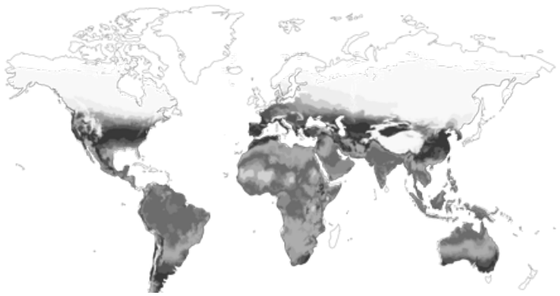
New York has always been the city of immigrants. About 36% of the city's population is foreign-born. it's one of the highest among US cities. Such diversity and mixture of culture make New York one of the most dynamic and powerful cities in the world. We are assuming the time frame where the crisis will affect 3 billion people around different regions and drive mass migration which can lead to dramatic population shifts in New York City. To respond to such large and complex issues of the future, we began our project with a speculation of how the city and city hall can be resilient and what the future city hall of New York should be?

As our response to these issues, we believe the next city hall should be planned and prepared for the next generation of new york citizens. And the next city hall should be a civic space that is heterogenous, inclusive and tangible. We want to propose a city hall Campus by re-defining the boundaries of the city hall. It will be a collective working environment for the offices, a tangible public experience for the citizens, and a symbolic representation of the next new york city citizens - the immigrants.

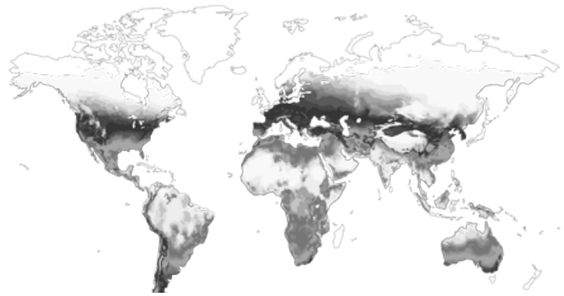
Climate Change and the Future of Migration

For over a milennium, people have resided in the same climatic niche temperature range suitable for living -- with annual mean temperatures between -11C and 15C. and this impact will cause dramamtic population shift in new york city. But with global warming, 19% of the Earth's surface is going to experience at least 29C or more annual mean temperature by 2070, affecting 3 billion people and driving climate migration. New York has always been the city of immigrants. About 36% of the city's population is foreign-born. it's one of the highest among US cities. Such diversity and mixture of culture make New York one of the most dynamic and powerful cities in the world.

2022



2070

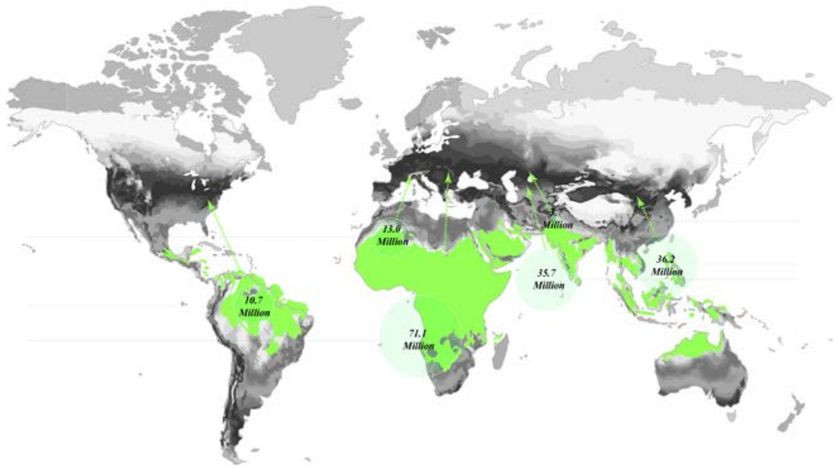


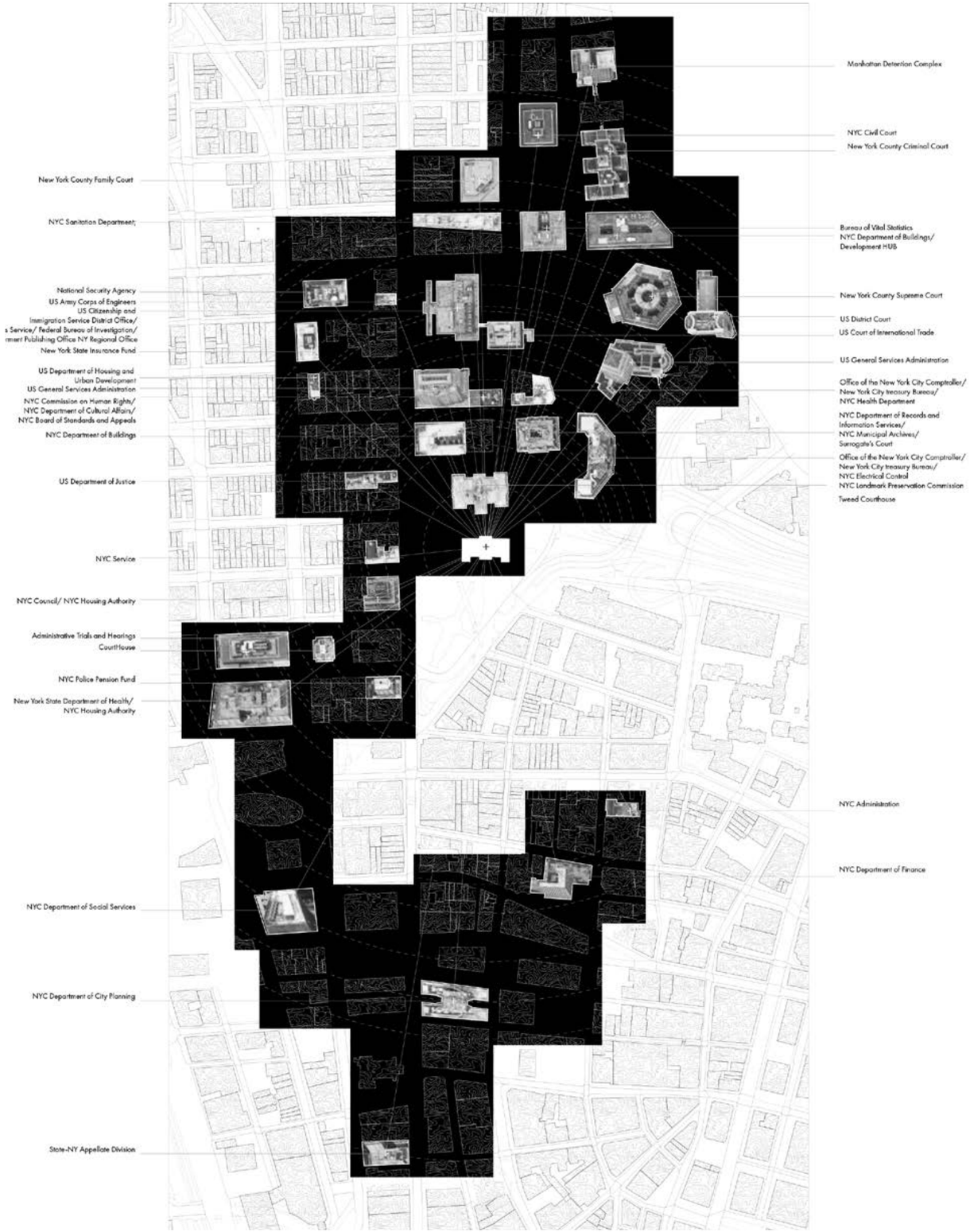
Climate Sutability :

low high

Timeframe : 50 years later

In a time frame of 50 years, the world expects a shift in the population due to the Northward of Climate Niche. We are assuming the time frame where the crisis will affect 3 billion people around different regions and drive mass migration which can lead to dramatic population shifts in New York City.





Existing Condition

Emptying the plots adjacent
to the City Hall Park

Extension of the Civic
Space to connect the City
Hall Campus

Lifting the surface to create
continuous pathway to the
buidling

The New York City Hall

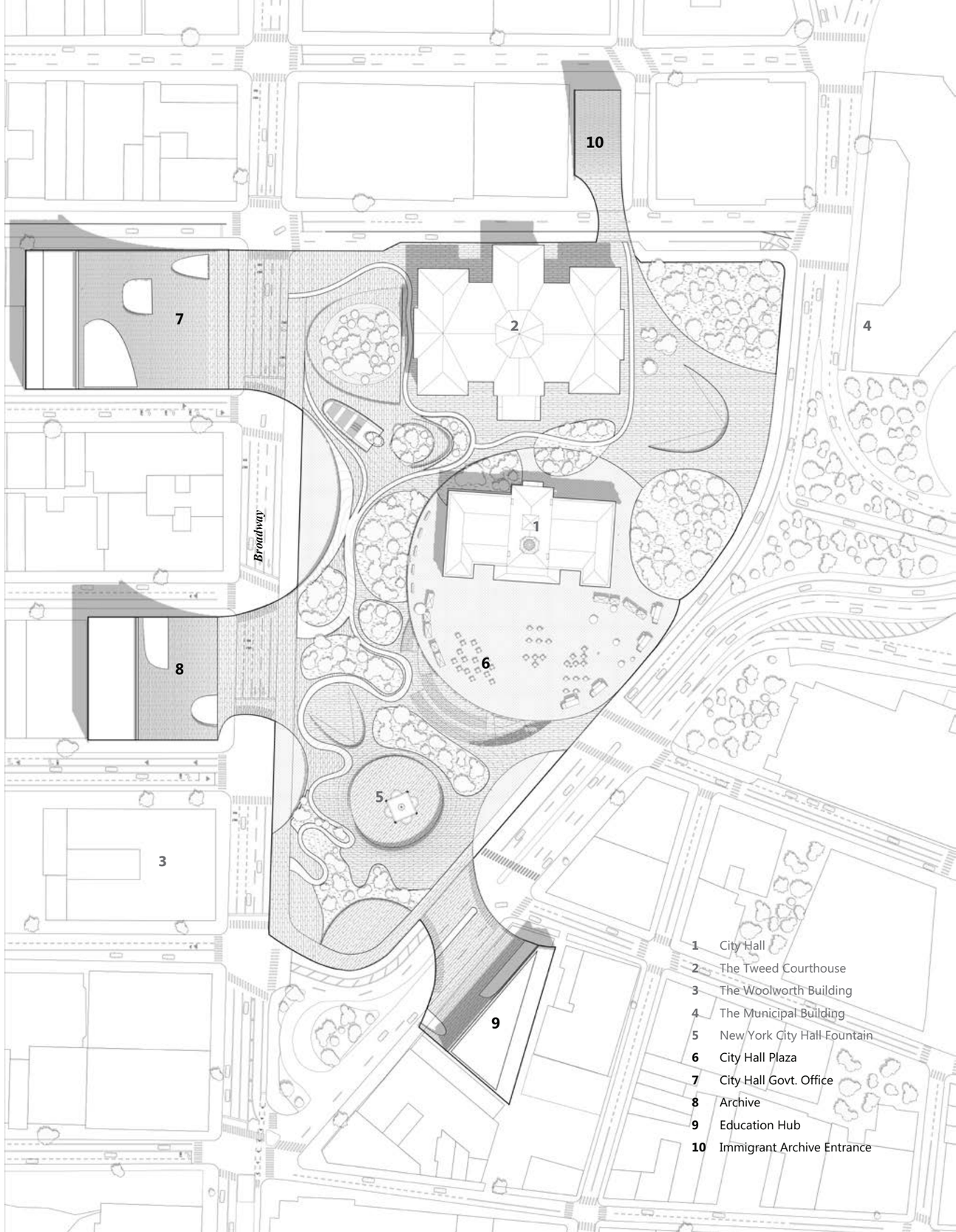
First, we propose to maintain these highlighted historical heritage buildings and first remove these buildings to give some breathing space to New York City.

After that, imagine bringing the migrant related offices to the plaza in a way to expand city hall to the ground and to define a more active role of the city hall. By lifting we want to propose a city hall Campus by re-defining the boundaries of the city hall.

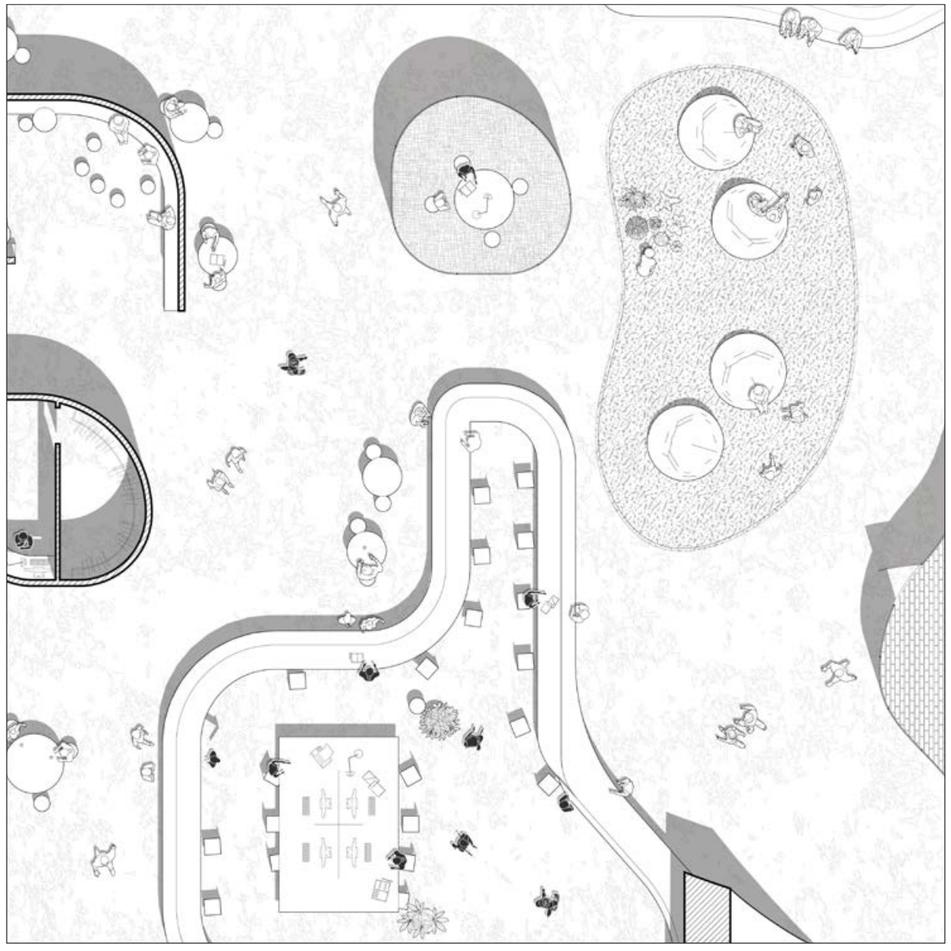
It will be a collective working environment for the offices, a tangible public experience for the citizens, and a symbolic representation of the next new york city citizens - the immigrants.

City Hall Park
Historical Building
New York City Hall

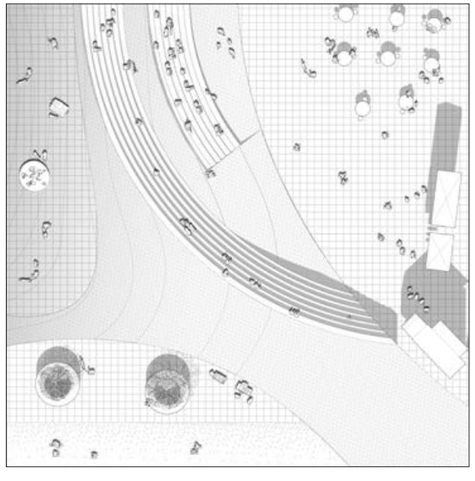
Initial Idea Model

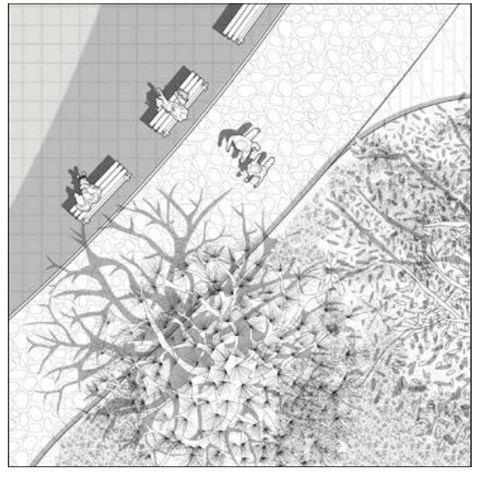


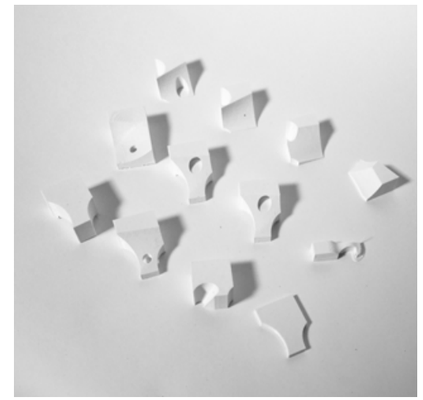
1 City Hall
2 The Tweed Courthouse
3 The Woolworth Building
4 The Municipal Building
5 New York City Hall Fountain
6 City Hall Plaza
7 City Hall Govt. Office
8 Archive
9 Education Hub
10 Immigrant Archive Entrance



2nd Floor Office + In person meeting area







Mass iteration

Public

Govt. Officers

New City Hall Campus

Different kinds of undulating slabs create various spaces inside the city hall. Once you enter through main entrance, there is a reception area for the visitors to give information and directions in the building.

The second entrance of the building is through the second level of the building, where public can walk up along a gradual sloped facade. The officials, which are in black figure, quickly interface with the public, which is in white figure, responding to them. The public can freely wait in the couch and lounge area if there is any waiting necessary.

Also, Plaza enriches day-to-day lives of civilians. A walkway along the park provides people to jog, and bench sitting areas with a casual lunch spot from food trucks, and also a sitting area when festivals and events are held.

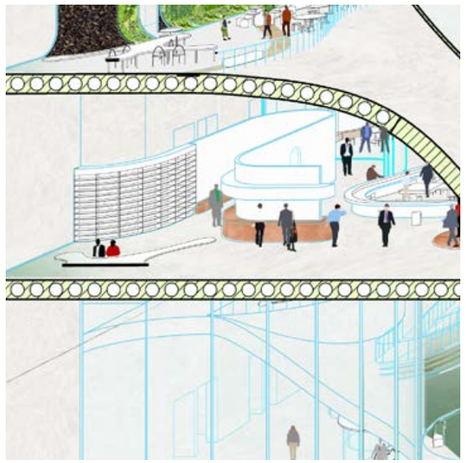
Horizontal Scape of City Hall Library

And this low-rise City Hall campus, which is very rare in high-density Manhattan, people walk through the City Hall in a horizontal motion rather than vertically. If you go up along the white pavement, you will naturally bump into the immigration service space, and while handling government work there, you can also have a more pleasant and enjoyable time by freely going outdoors and indoors next to it.

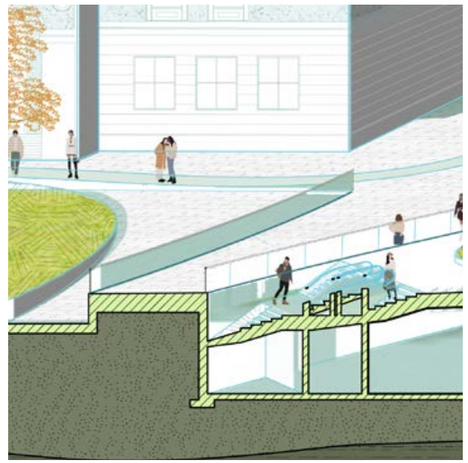
This flow is also connected to the subway line and naturally raises the underground flow upwards.The plaza provides a civic space where you can enjoy multi cultural festivals or various anniversaries along with the functions of the existing city hall park. A very gentle slope connects the city hall fountain and the tweed courthouse, allowing citizens to experience a variety of vegetation and shelter.

A

B

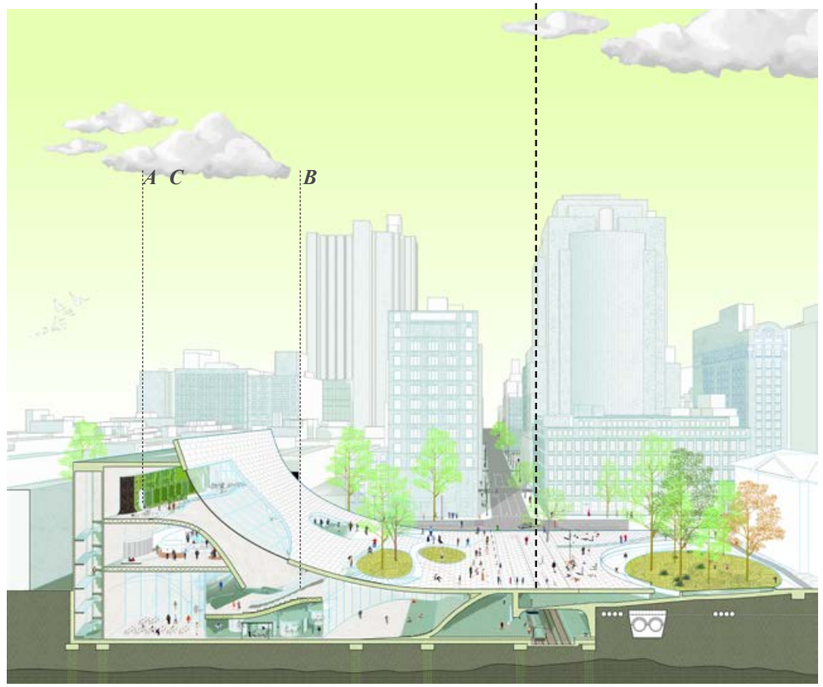


C

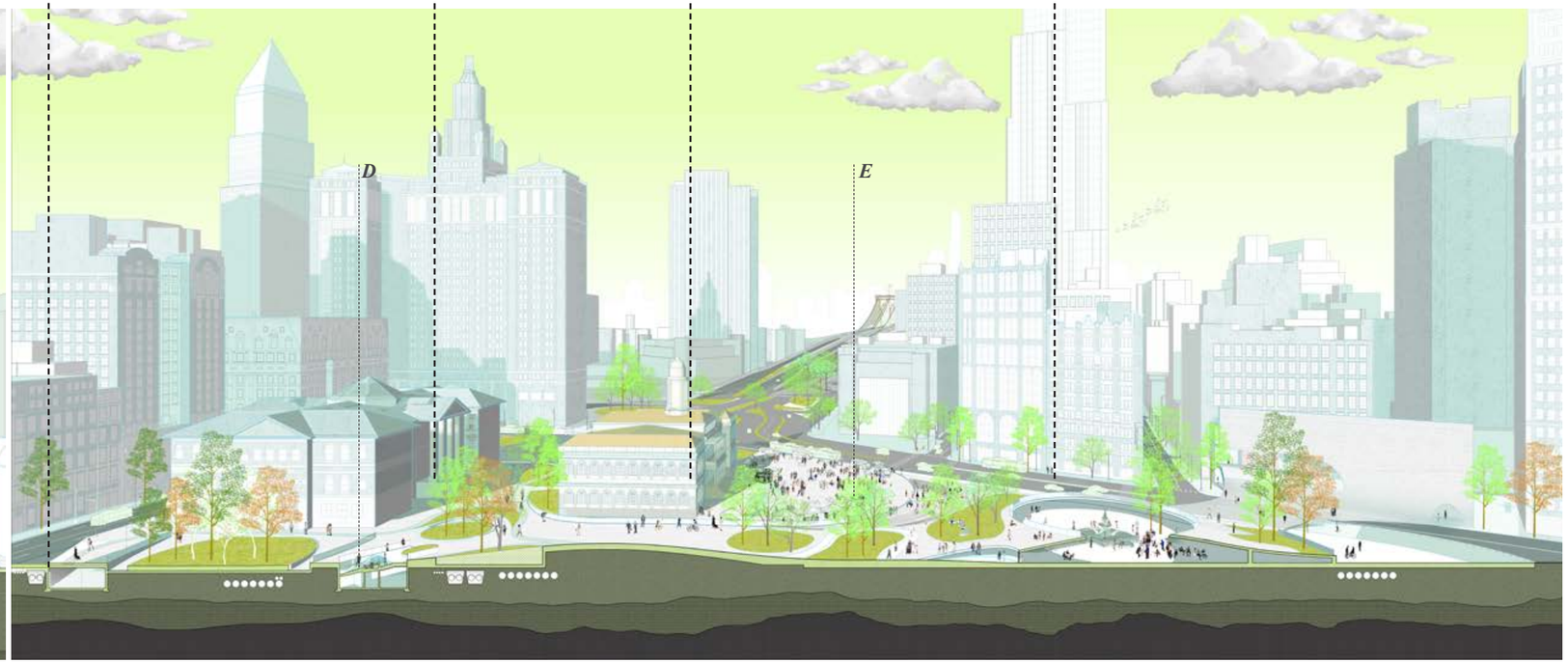


D

E



City Hall Campus West 1st Building



City Hall Campus West 1st Building

02

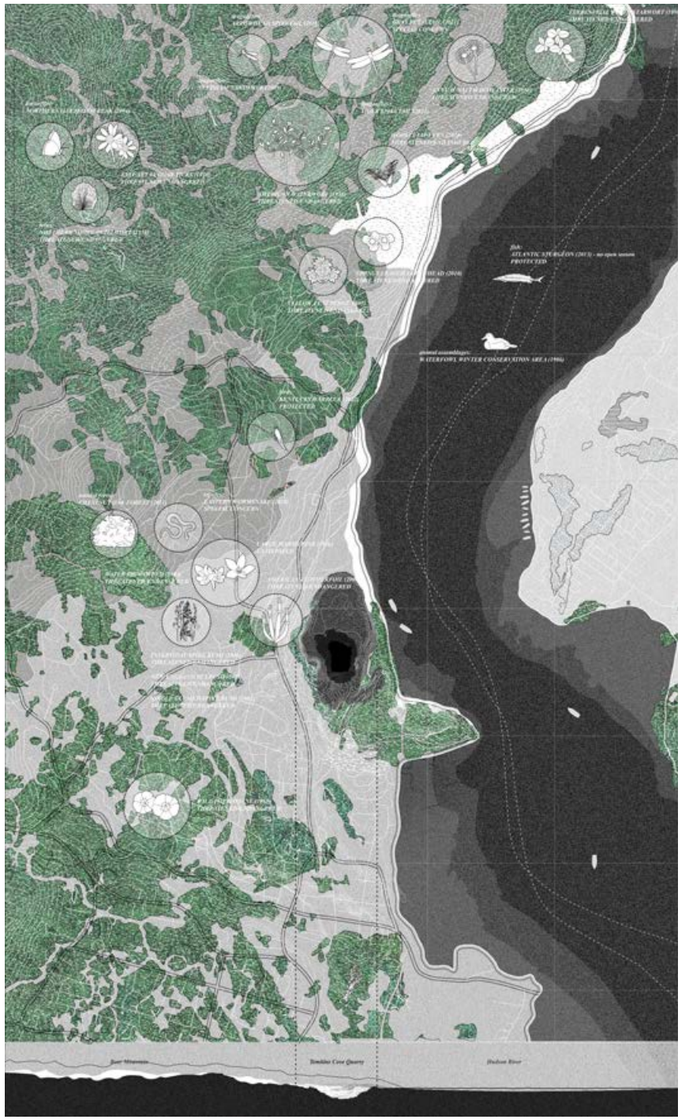
LIFE: PROPAGATED

Columbia GSAPP Advanced Studio V

Year: 2022 Fall
Location: Tomkins Cove Quarry, Stony Point Town , New York
Type: Research Lab
Instructor: Lindy Roy
Team work: Myungju Ko, Agnes Anggada

Just as humans accelerated existential change to our world's ecosystem, our project hopes to accelerate the regrowth of life, propagating and creating a symbiosis between humans and nature. We are taking a stance of welcoming the entropic process as part of the natural cycle of life, which creates a constantly changing and emerging new nature. "Life: Propagated" will act as a substrate which allows organisms to live, grow, and exist in its reemerging life sustaining environment.

The quarry is quietly alive, growing, flooding, constantly changing, and flora and fauna species slowly adapt with the water level change and propagate to higher ground as time goes by. Our approach is to reorganize, redistribute, and reconfigure these existing resources on the site. By carving in and building around, we aim to reorganize new negative spaces for humans and species to inhabit, interact and observe.



Stony Point Town Flora and Fauna

Most of Stony Point has plenty of “protected” flora and fauna species because of its threatened natural ecosystem ranges from birds, snakes, dragonflies, butterflies, ducks a nd plants such as ferns, flowering plants, and chestnut oak trees.

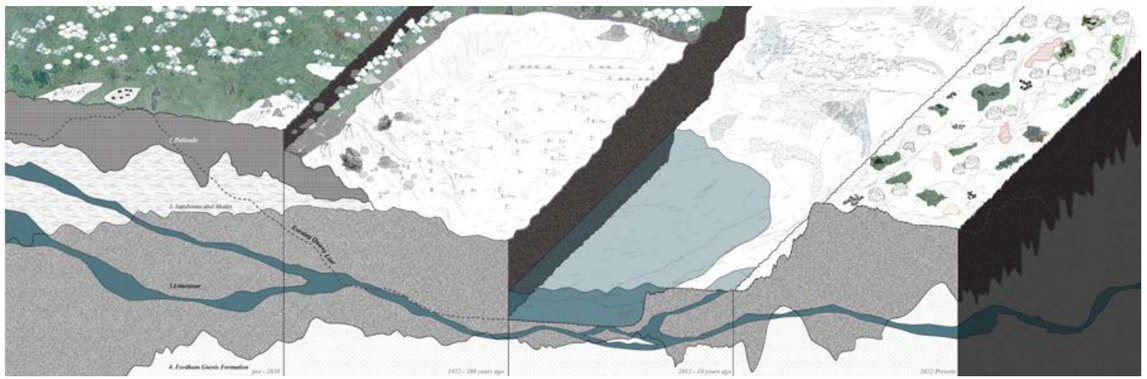
What is now an abandoned mining site was once a nature-centric economy, home to mammals, birds, fish, plants, fungi, and bacteria. It is such a shame that a quarry this small relative to the huge parks, river and nature surrounding, could create such a negative impact to the indigenous ecological communities.

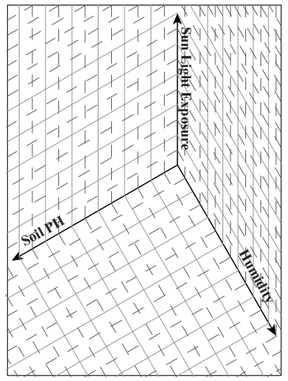
Tomkins Cove Quarry

100 YEARS AGO, The formerly low entropic-state changed drastically due to logging, burning, and excavating limestone. Natural flora and fauna habitats and self-sustaining ecosystems were disturbed and destroyed, the layers of the earth’s strata were manipulated and exposed, and water and air compositions were also altered.

10 YEARS AGO, the excavation finally stopped and the drastically changed terrain caused extensive water loss and soil erosion, exposing an extensive amount of bedrock to the surface, and also seeping groundwater into the center of the quarry.

We imagine the future of the quarry as embracing the unique microclimate conditions with the newly exposed surfaces in sun or shade, altered compositions of soil and water, as new habitats teeming with new life.



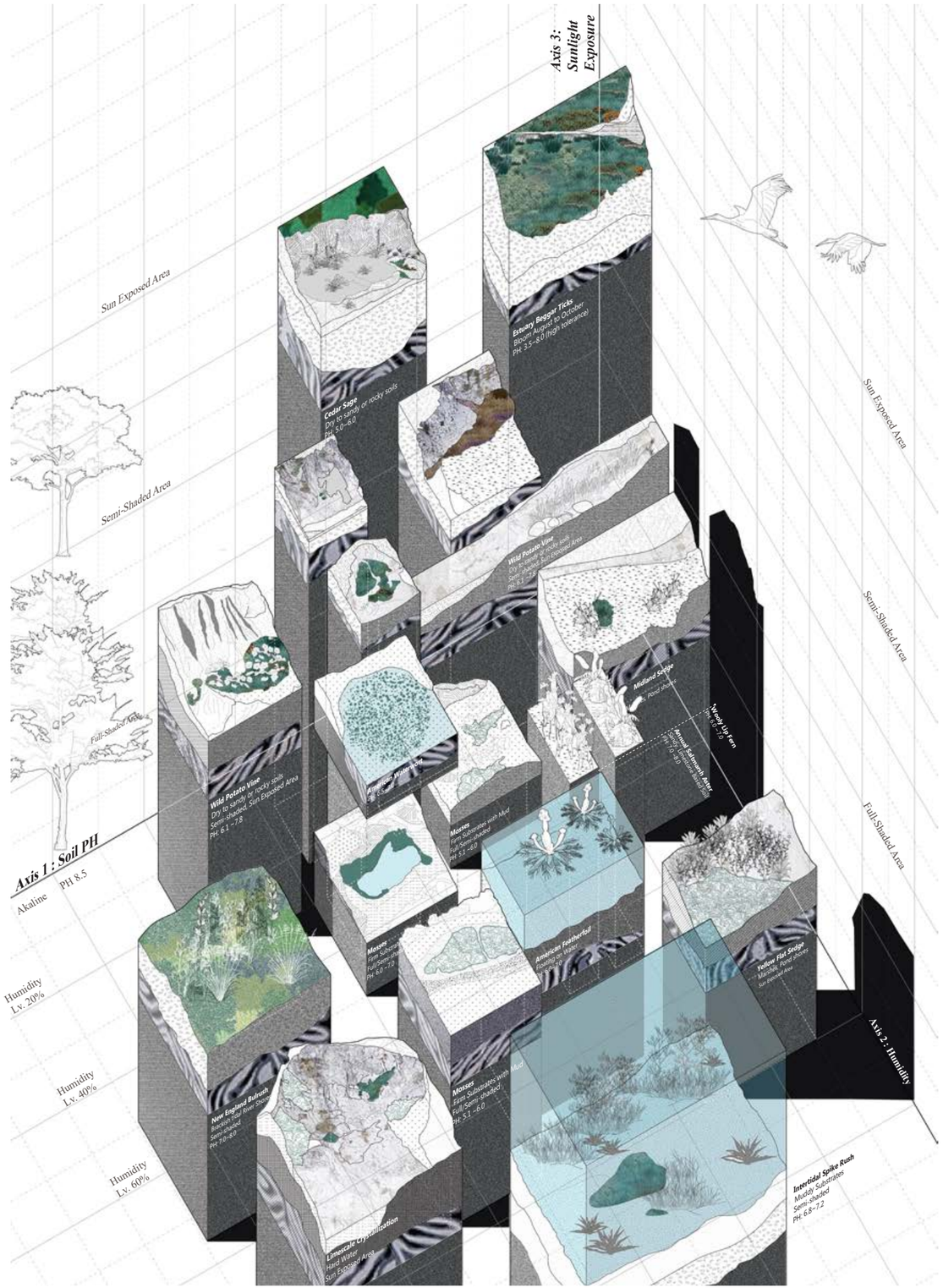


Sunlight, Soil PH, Humidity

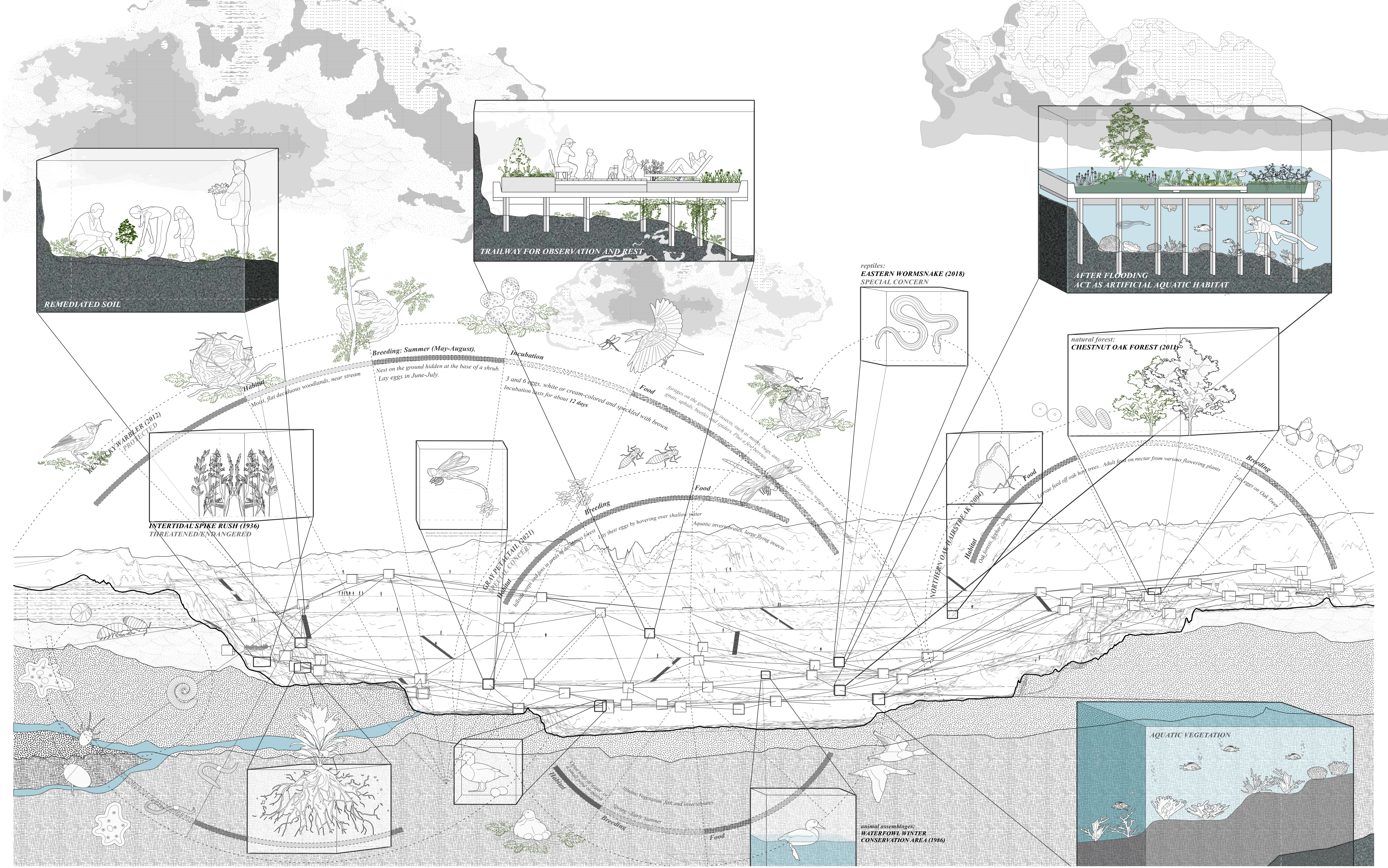
These three factors form each axis, creating an environment in which not only the indigenous species present on the site, but also plants growing only in wetlands that had not previously thrived or water weeds growing in alkaline water. In addition, hard water enriched with minerals through mining operation has also made limescale crystallization in surrounding terrains.

Crystal Vitrine- Micro climate

We did an experiment with crystal making, how natural growth can propagate on different substrates. We tested how crystals can grow on different materials and forms, trying to understand the way that organic life or inorganic matter accumulate. This model acts as a metaphor of life in the quarry, which can grow spontaneously according to the changing entropic scenarios.



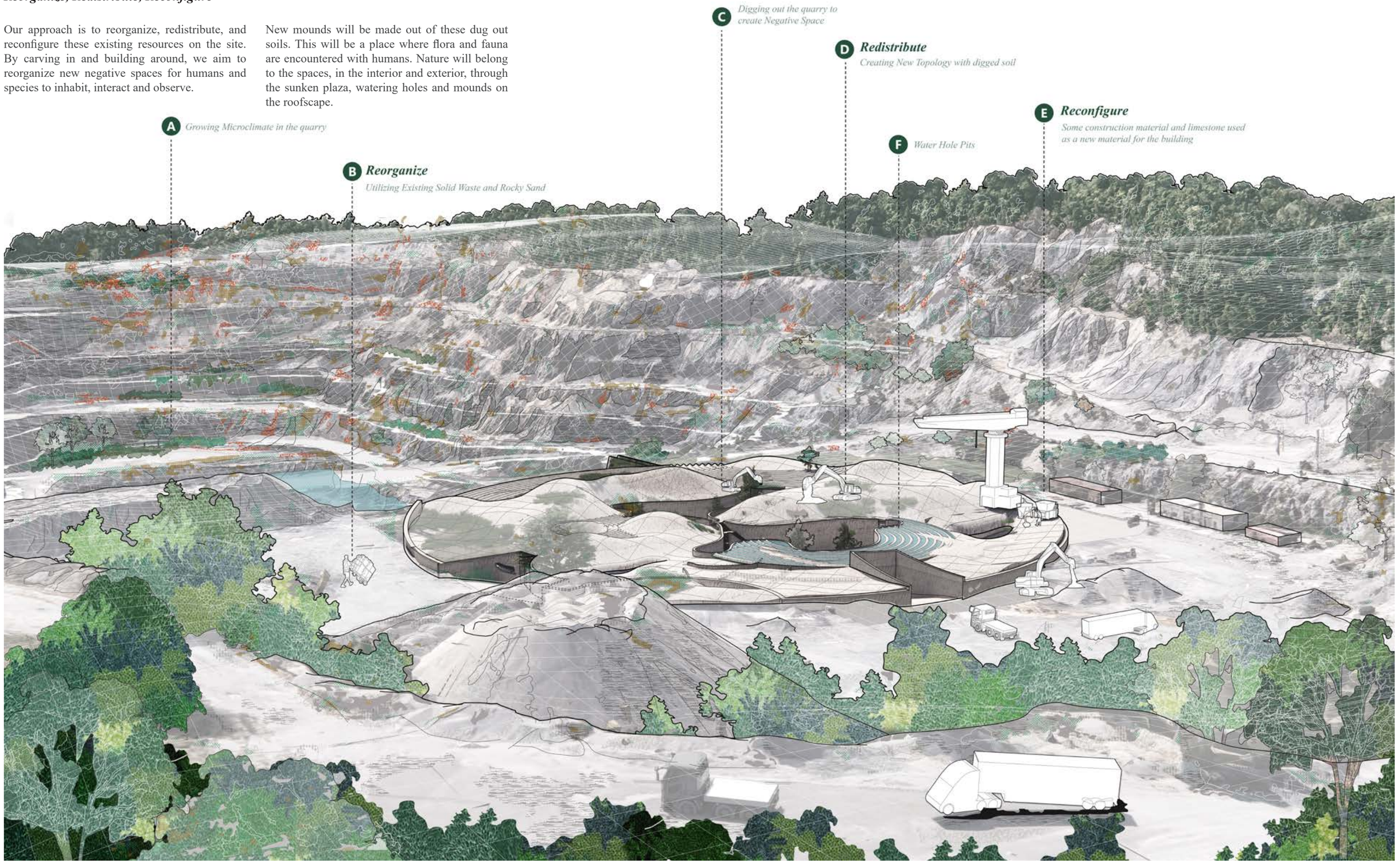
Species Life Cycle

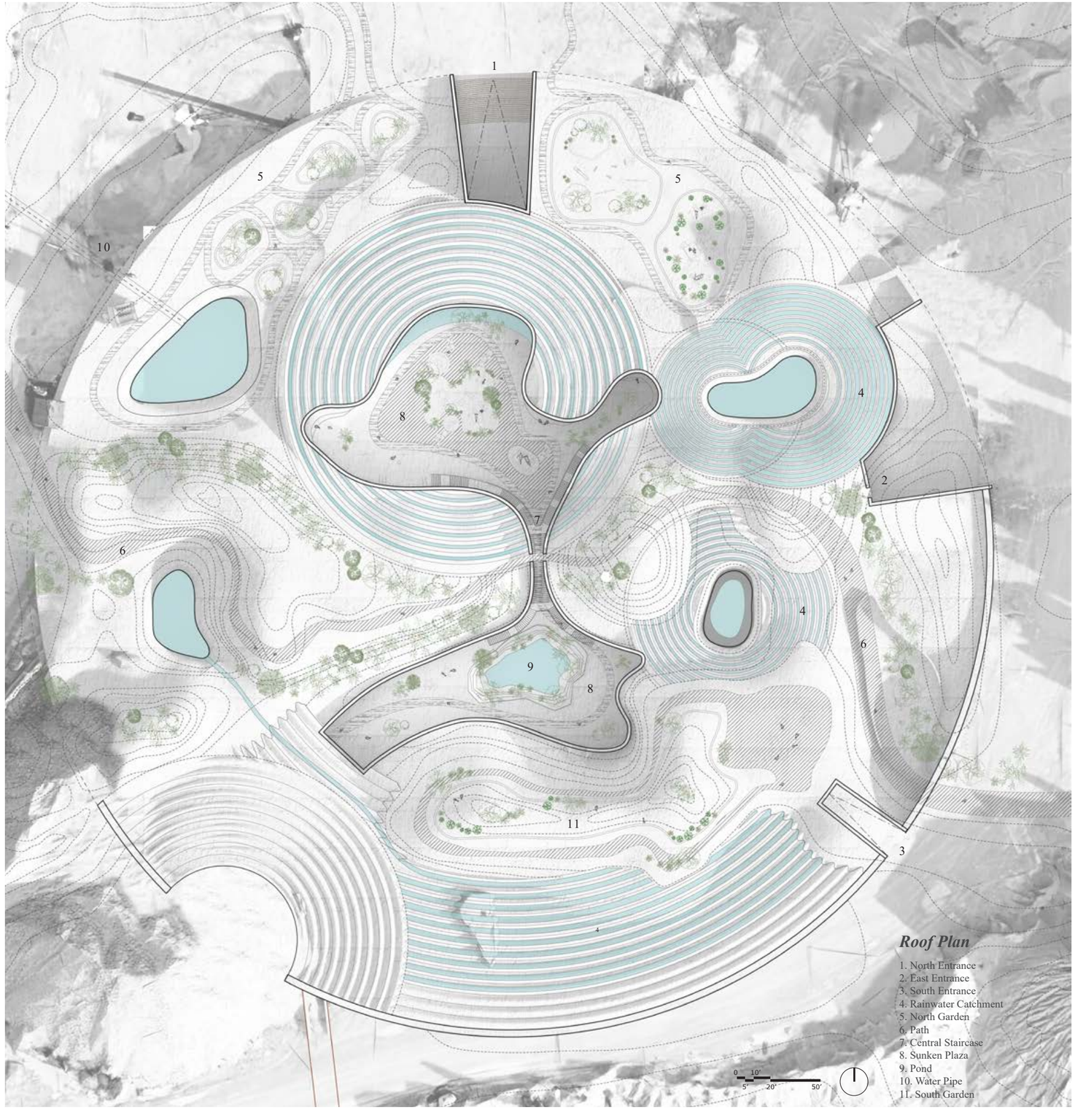


Reorganize, Redistribute, Reconfigure

Our approach is to reorganize, redistribute, and reconfigure these existing resources on the site. By carving in and building around, we aim to reorganize new negative spaces for humans and species to inhabit, interact and observe.

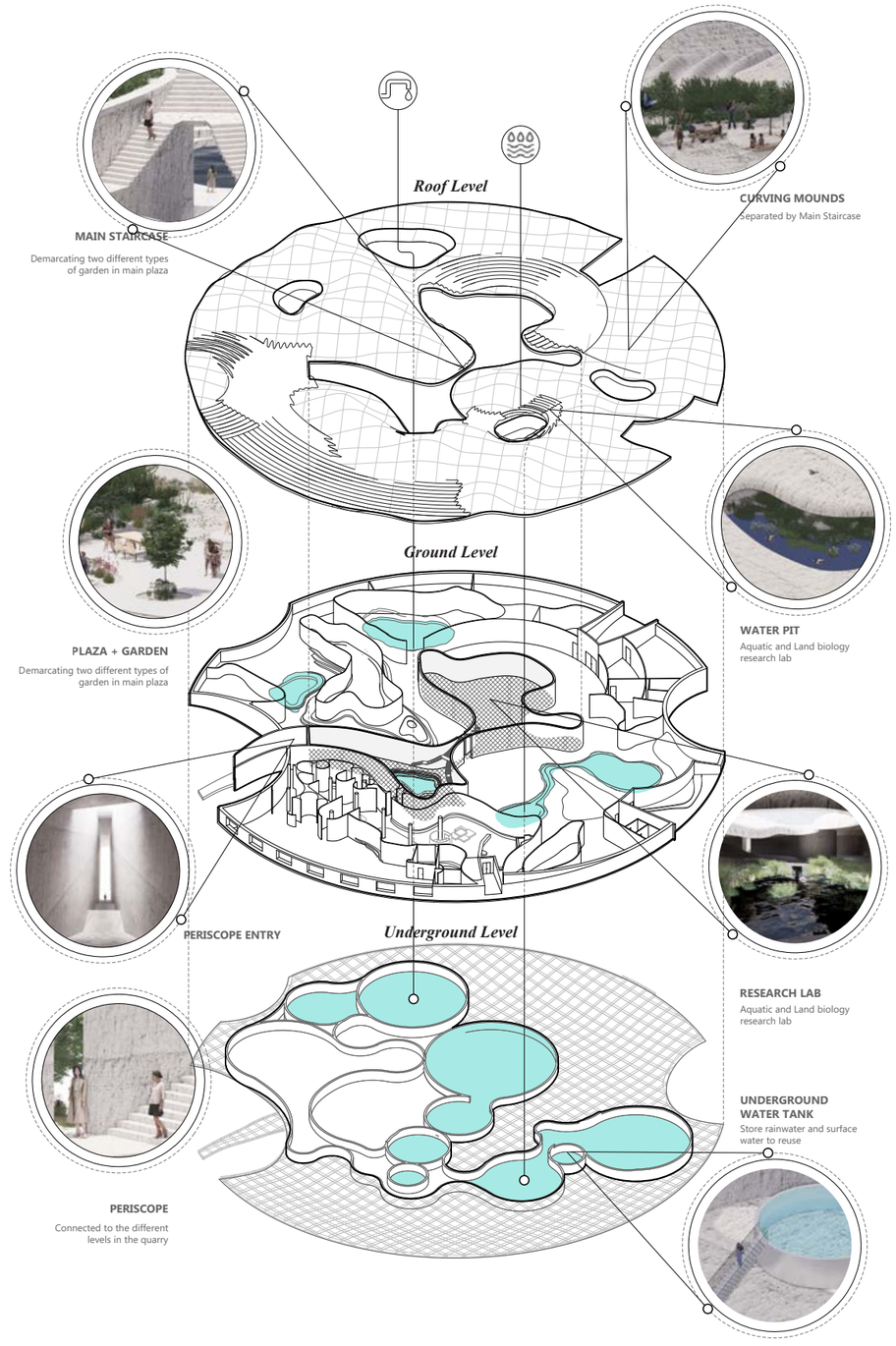
New mounds will be made out of these dug out soils. This will be a place where flora and fauna are encountered with humans. Nature will belong to the spaces, in the interior and exterior, through the sunken plaza, watering holes and mounds on the roofscape.





Roof Plan

1. North Entrance
2. East Entrance
3. South Entrance
4. Rainwater Catchment
5. North Garden
6. Path
7. Central Staircase
8. Sunken Plaza
9. Pond
10. Water Pipe
11. South Garden



Entropic Landscape and Life Centric Design

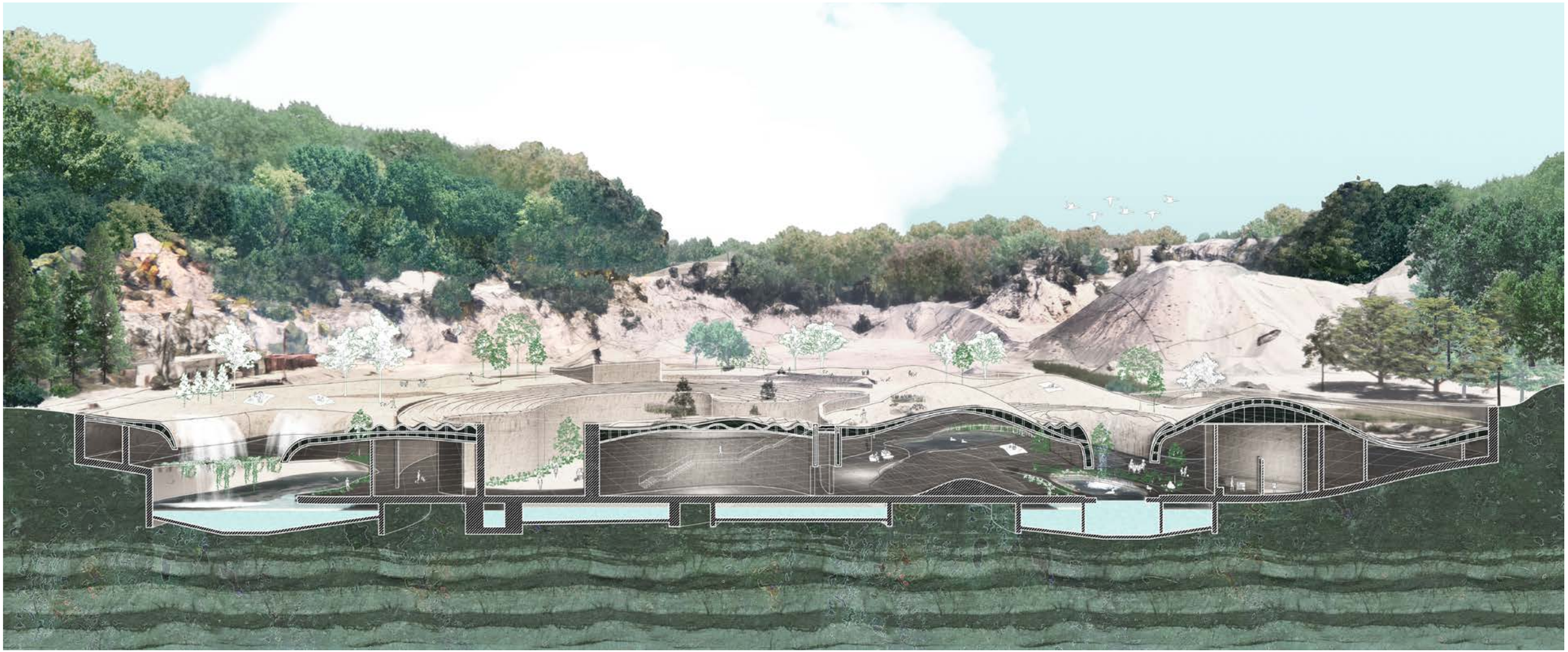
With the irreversible impact of industry, land cannot physically go back to what it was before. Instead, we hope to reevaluate the relationship between nature and construction as not just merely reconstructing based on aesthetics, but thinking beyond and designing with thoughtfulness and towards an uncertain future.

By embracing nature to reclaim the land, we hope that our project can be a model where humans and nature can live in symbiosis, and where significant change in our mindset can be implemented, away from human centric design but towards a life centric design.

Periscope

Indoor Garden

North Plaza



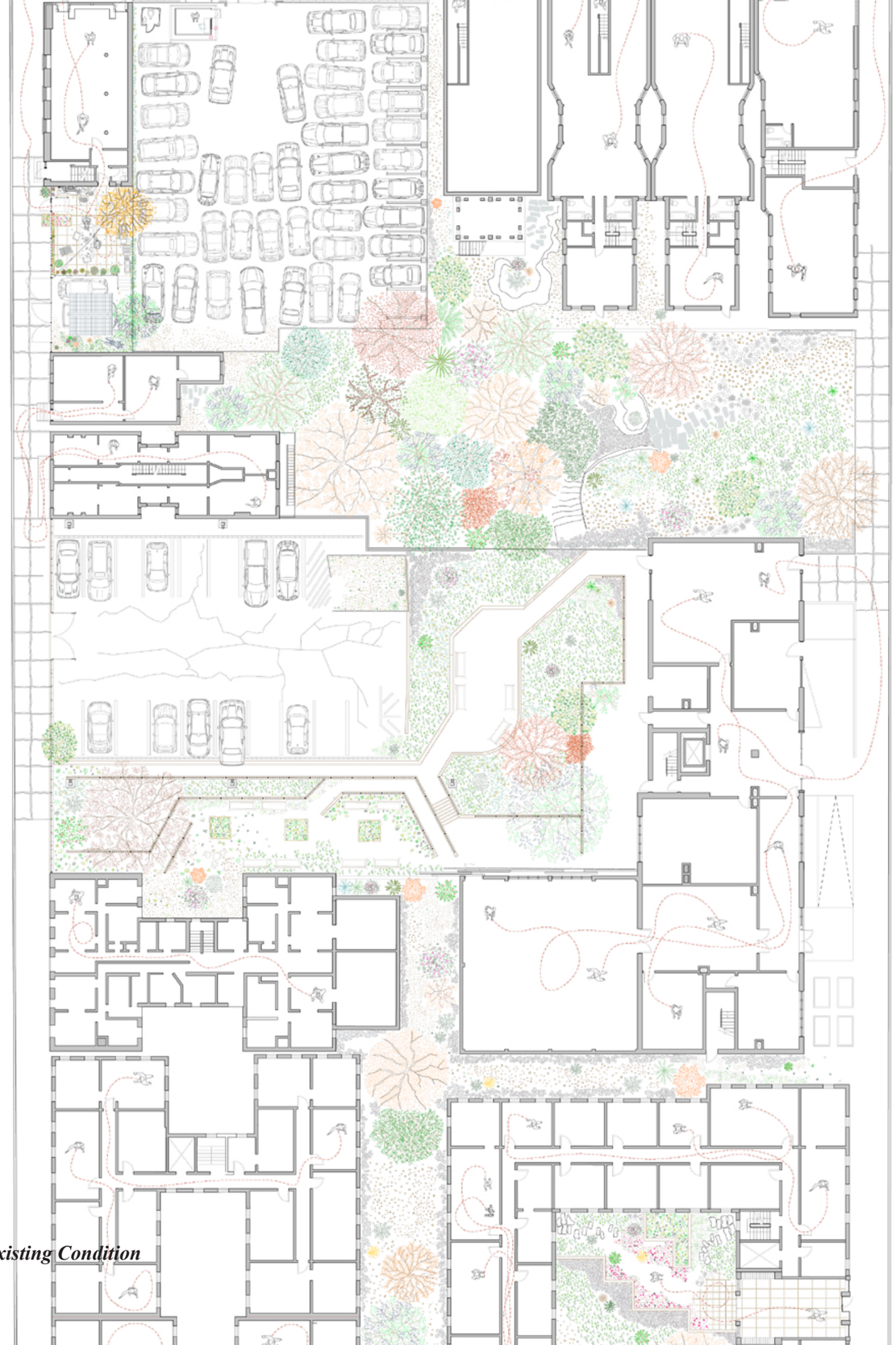
03

THE COURTYARD HOUSE

Columbia GSAPP Core 3 Housing Studio

Year: 2021 Spring
Location: Melrose, Bronx, NY, United States
Type: Affordable Housing
Instructor: Hilary Sample
Team: Myungju Ko, Yifei Yuan

This project looks at new possibilities for housing in NYC, our project tests new housing models with sharing courtyards for collective living in high-density urban context . I hope to argue that this housing scheme helps form a tight community and create a sharing environment that redefines the way we live. By demolishing the lower level brick walls, the lower floor is completely penetrated to create a large courtyard that can be read simultaneously with the open space on the north side and the small garden on the south side.
A promenade that crossed the site north-south and east-west was created to make a clear movement line across the courtyard. The lower volume is more porous and open to the public. This divides the two courtyards and connects the south and north sides of the site. The lower ground floors consist of commercial space in a loop configuration which is more accessible and creates a more unified space with a courtyard.

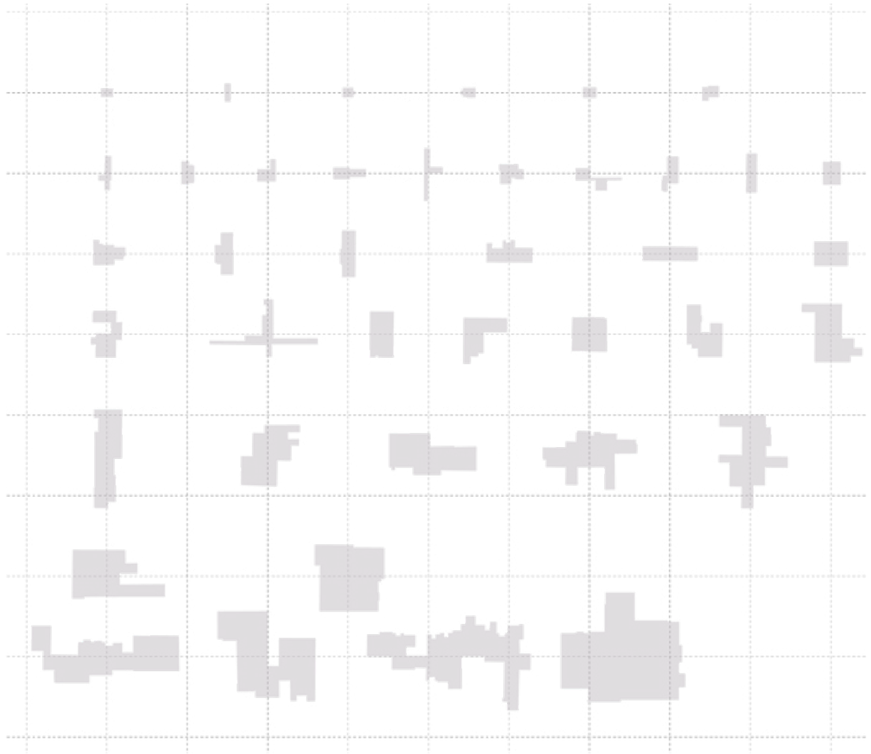


Existing Condition

Site Strategy

When we zoomed into the site, The first thing we felt was that it had several moments of potential to become an attractive courtyard. However, the existing courtyards had no desired condition. They were blocked with barbed wire, and the parking was also not organized. Thus, it was not possible to take advantage of the site's strengths. We tried to zoomed out, and see the entire urban context, tried to study the green space and open courtyard in surrounding condition. From our survey of the site, the dispersed courtyard can be sorted by its area and the way how it's opened to the public. But the studying courtyard only by its area has it's limit. We decided to eliminate the courtyard with a low wh index existing inside the site, and create a new courtyard that is spacious and can be enjoyed by all units.

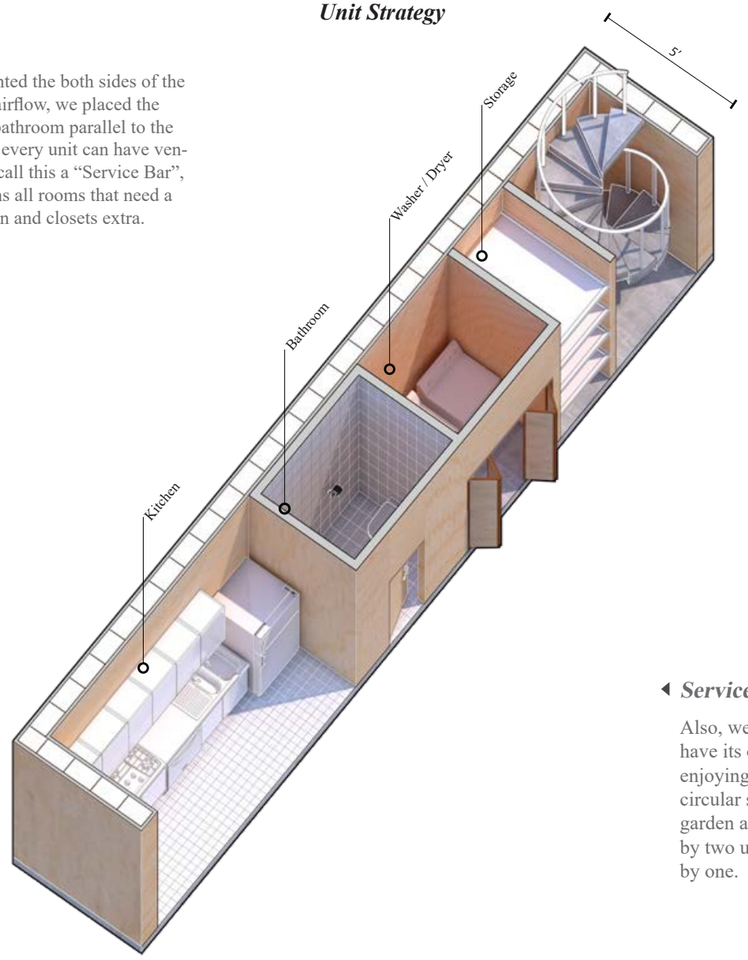
The Courtyards



Due to the nature of the courtyard, it can be divided into various area categories, from a very small size used by one person to a large courtyard built around a school or NYCHA.

Unit Strategy

Since we wanted the both sides of the unit to have airflow, we placed the kitchen and bathroom parallel to the mass, so that every unit can have ventilation. We call this a “Service Bar”, and it contains all rooms that need a water function and closets extra.

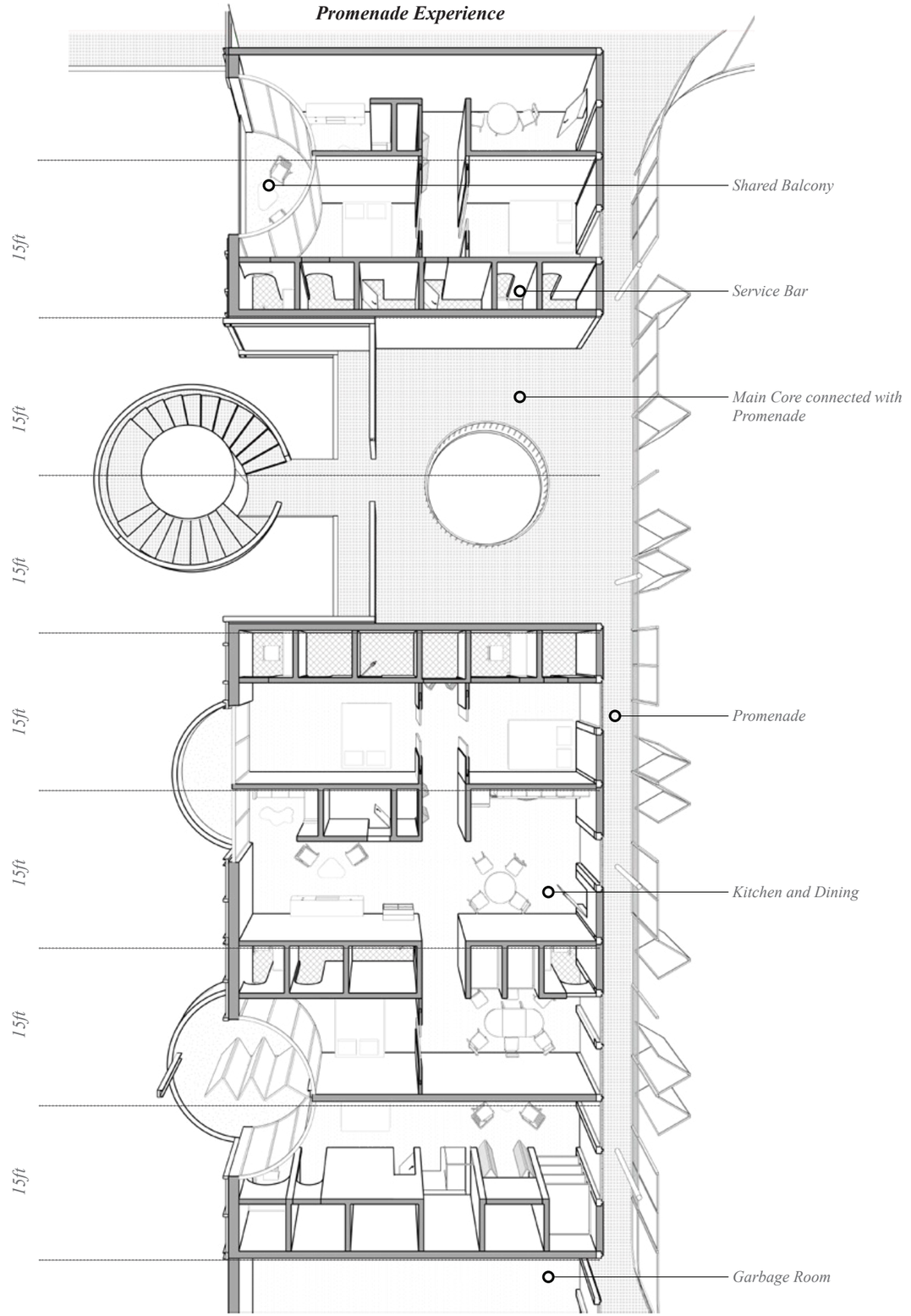


Service Bar Axonometric

Also, we wanted each unit to have its own small garden while enjoying one large courtyard. The circular shape is more the private garden and it can be either shared by two units or can be occupied by one.

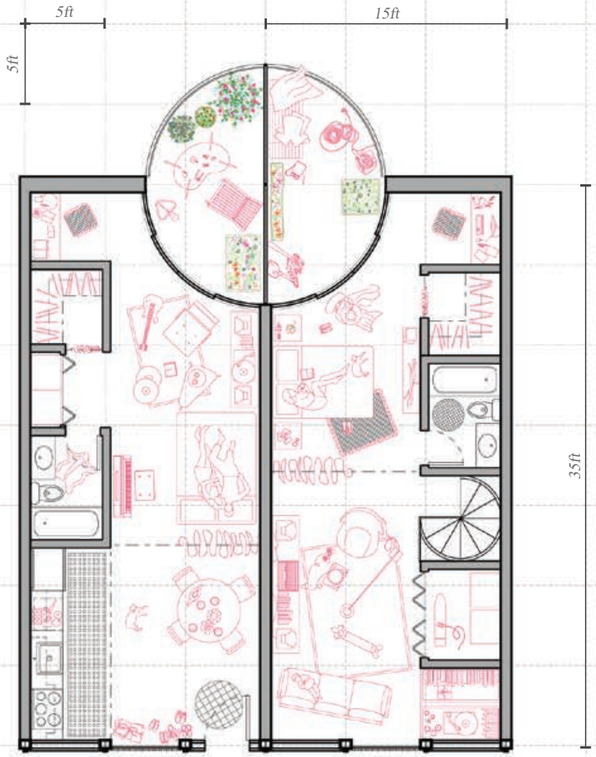
Unit Physical Model
Scale: 1/2”=1’-0”

Promenade Experience

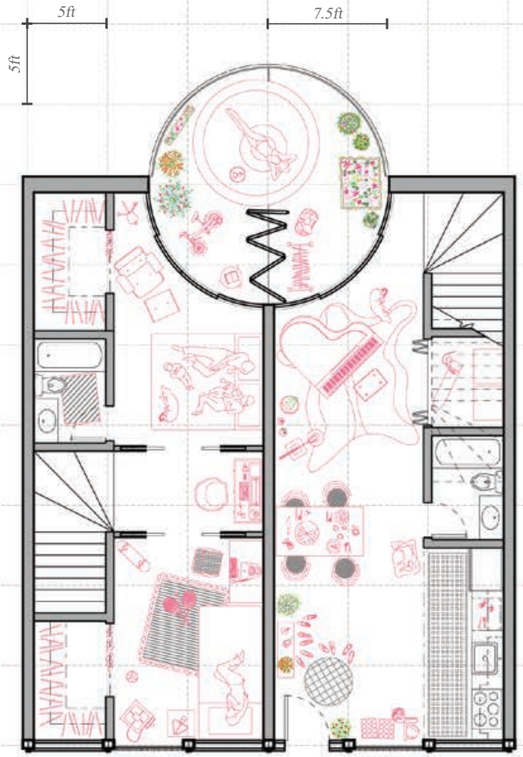


Balcony Story

Unit types can be choosen by residents depends on their life style. Circular shaped balcony either be used in the whole circle with the neighbor unit or be divided and used privately by its residents. In particular, there is a double-floor unit in order to allow one unit to have various types of balconies. If the lower floor shares a garden, the upper floor, which is the bedroom, can have a private garden.

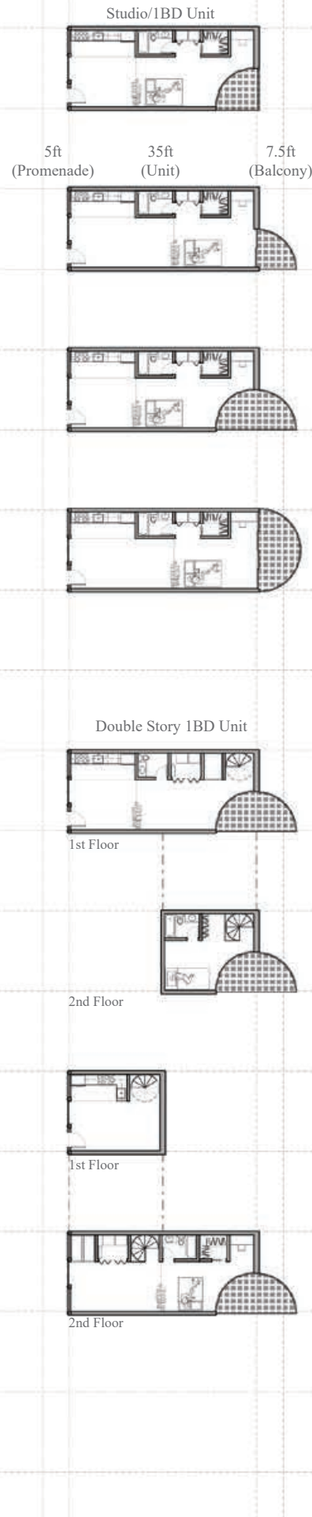


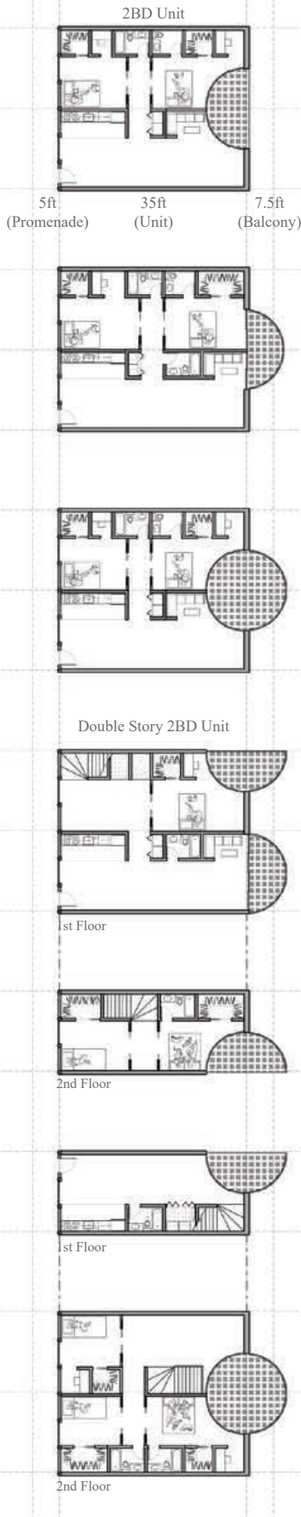
<Balcony with Fixed Panel>

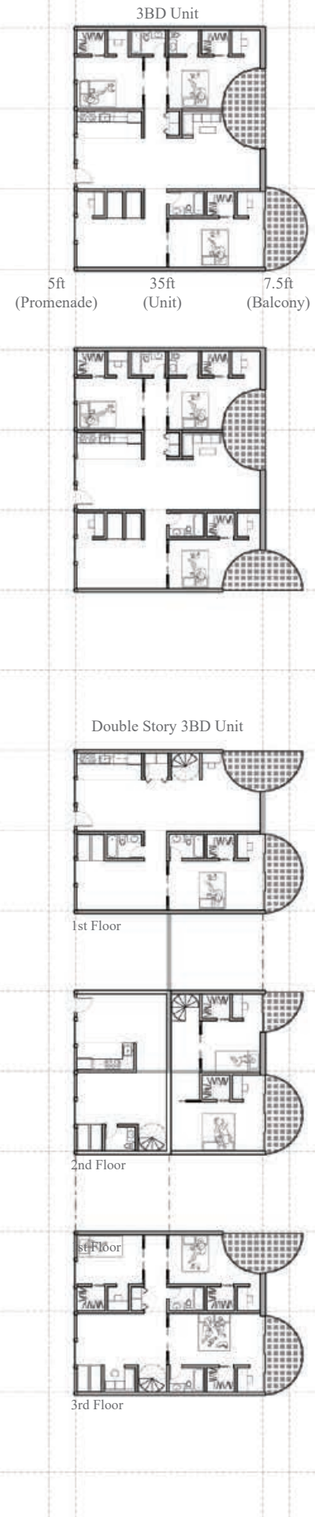


<Balcony with Operable Screen Door>

Unit Configuration



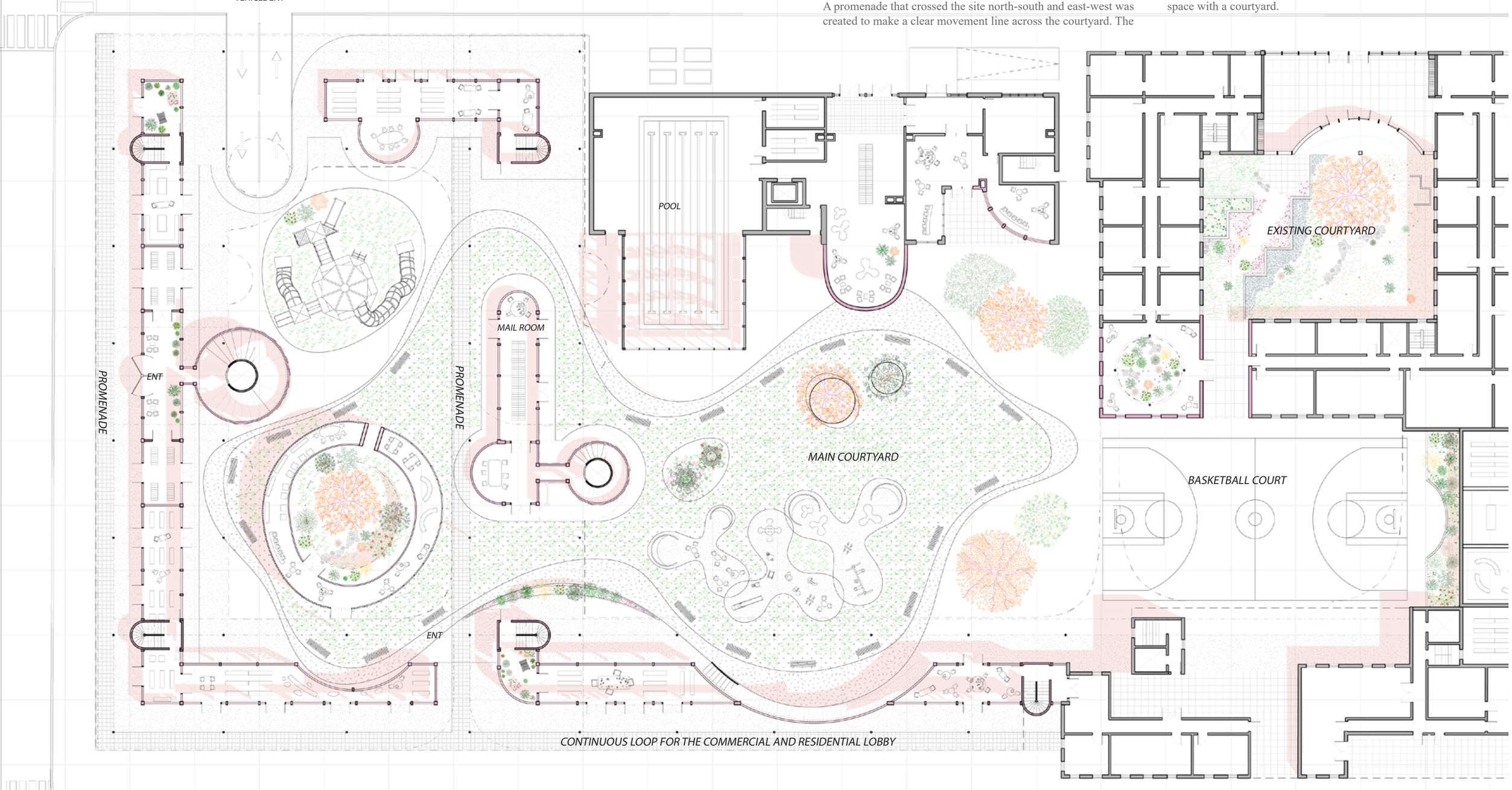




Ground Floor Plan

New
Existing

By demolishing the lower level brick walls, the lower floor is completely penetrated to create a large courtyard that can be read simultaneously with the open space on the north side and the small garden on the south side.
A promenade that crossed the site north-south and east-west was created to make a clear movement line across the courtyard. The lower volume is more porous and open to the public. This divides the two courtyards and connects the south and north sides of the site. The lower ground floors consist of commercial space in a loop configuration which is more accessible and creates a more unified space with a courtyard.



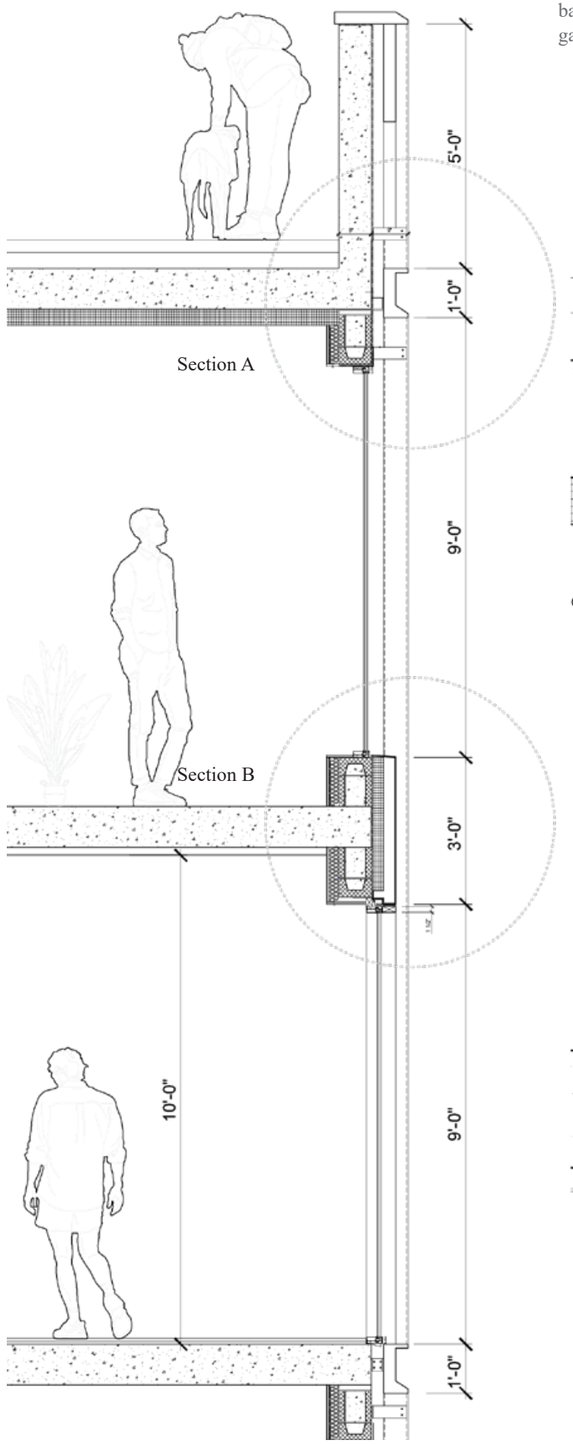
2nd Floor Plan

1. Main Core 1
2. Main Core 2
3. Community Room
4. Gym
5. Yoga Room
6. Outdoor Garden
7. Existing Buildings
8. Promenade
9. Studio units
10. 1BD units
11. 2BD units
12. Laundry Room
13. Garbage Disposal Room

Typical Floor Plan

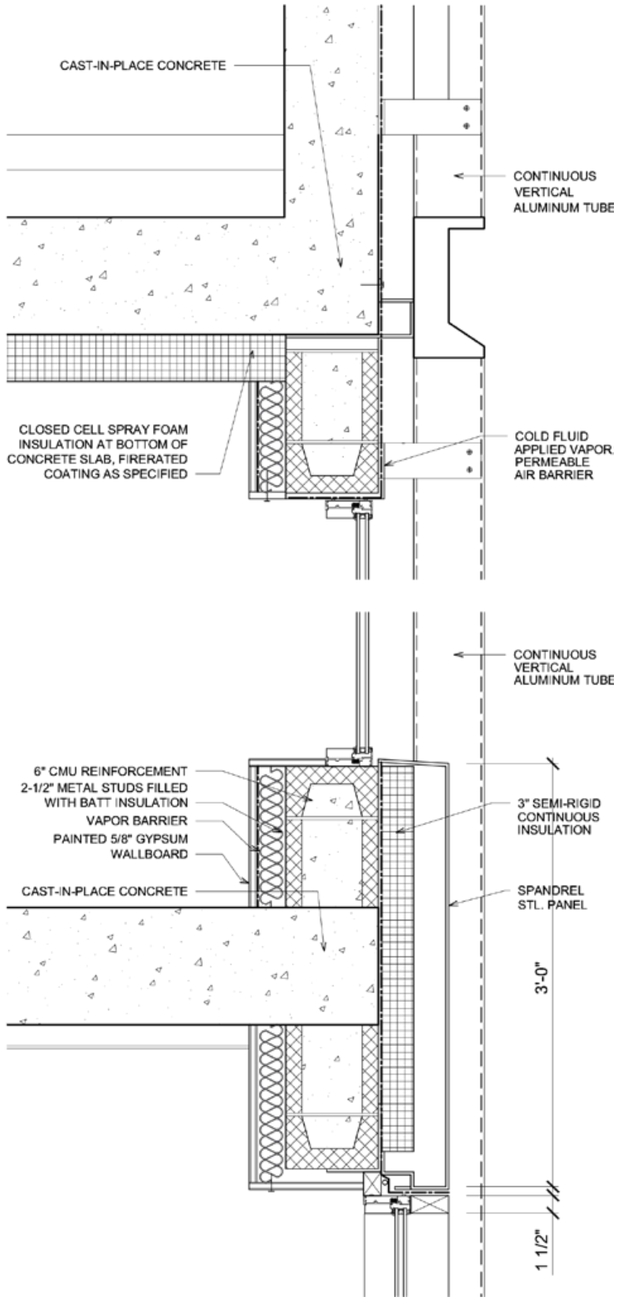
Facade Details

Facade at Promenade consists of a 15x22 grid. It was made for metal panels, louvers, and glazed systems. The side facing the service bar is covered by a metal panel. The promenade and the private garden is covered with a glazed system.



Section A

Section B



Facade Strategy

04

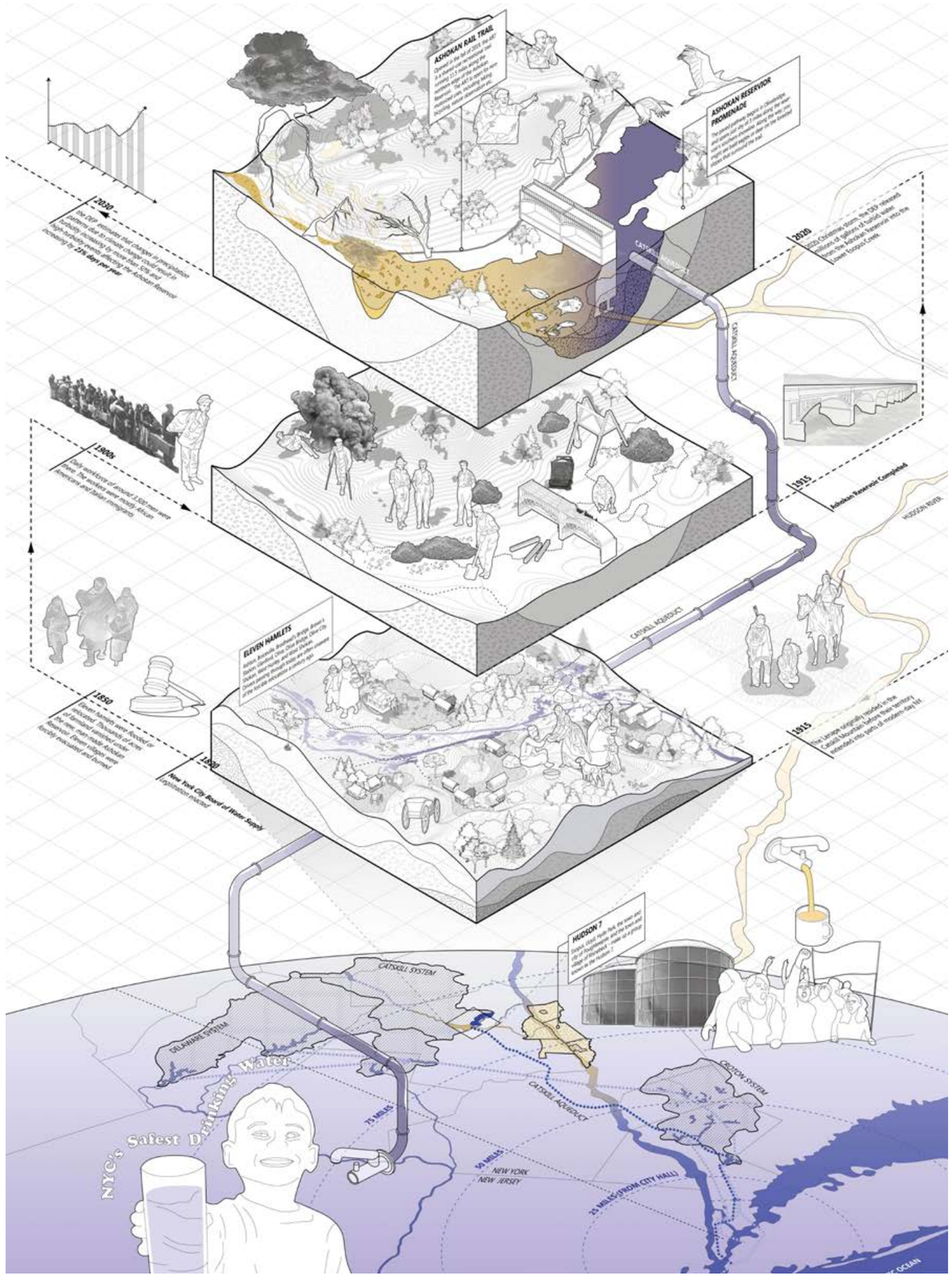
THE SEDIMENT ISLAND

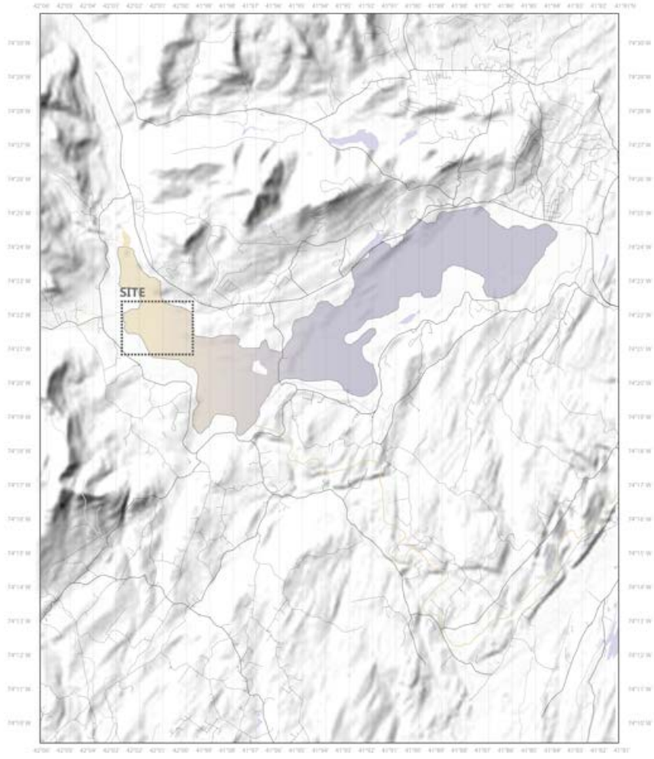
Columbia GSAPP Advanced Studio IV

Year: 2022 Spring
Location: Ashokan Reservoir, NY, United States
Instructor: Nahyun Hwang (NHDM)
Teamwork: Myungju Ko, Younjae Choi

While researching the Hudson Valley, we grew our interest in an ironic phenomenon happening in the Ashokan Reservoir. Currently managed by New York City DEP, it is releasing large amounts of turbid water into the Hudson River, which is affecting daily lives of communities near the Hudson River with contamination while providing clean drinking water to New York City.

On the surface, Ashokan Reservoir is known for its scenic natural view with lush vegetation and tourist attractions.
Through our project, we want to highlight the negligence and sacrifices that went through to create an illusion of sanctuary of wilderness and exclusive use of natural resources.





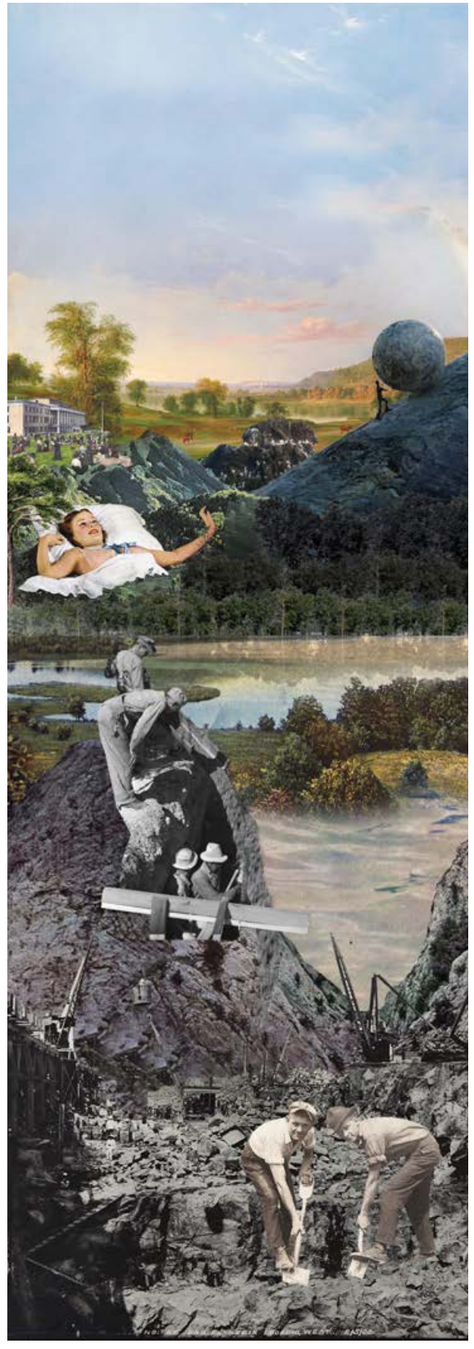
Ashokan Reservoir and the New York City

In 1820, New York City started to find their water source outside the city, which was Ashokan. The evacuation was forced to construct the world's largest reservoir at the time. Daily labor force composed mostly of African American and Italian immigrants constructed the Ashokan Reservoir and dividing weir, and many were killed or injured during the process.

After all this wreckage, in 1915 Ashokan reservoir was completed. And now the reservoir has established itself as a famous tourist attraction, providing both locals and tourists with beautiful natural scenery.

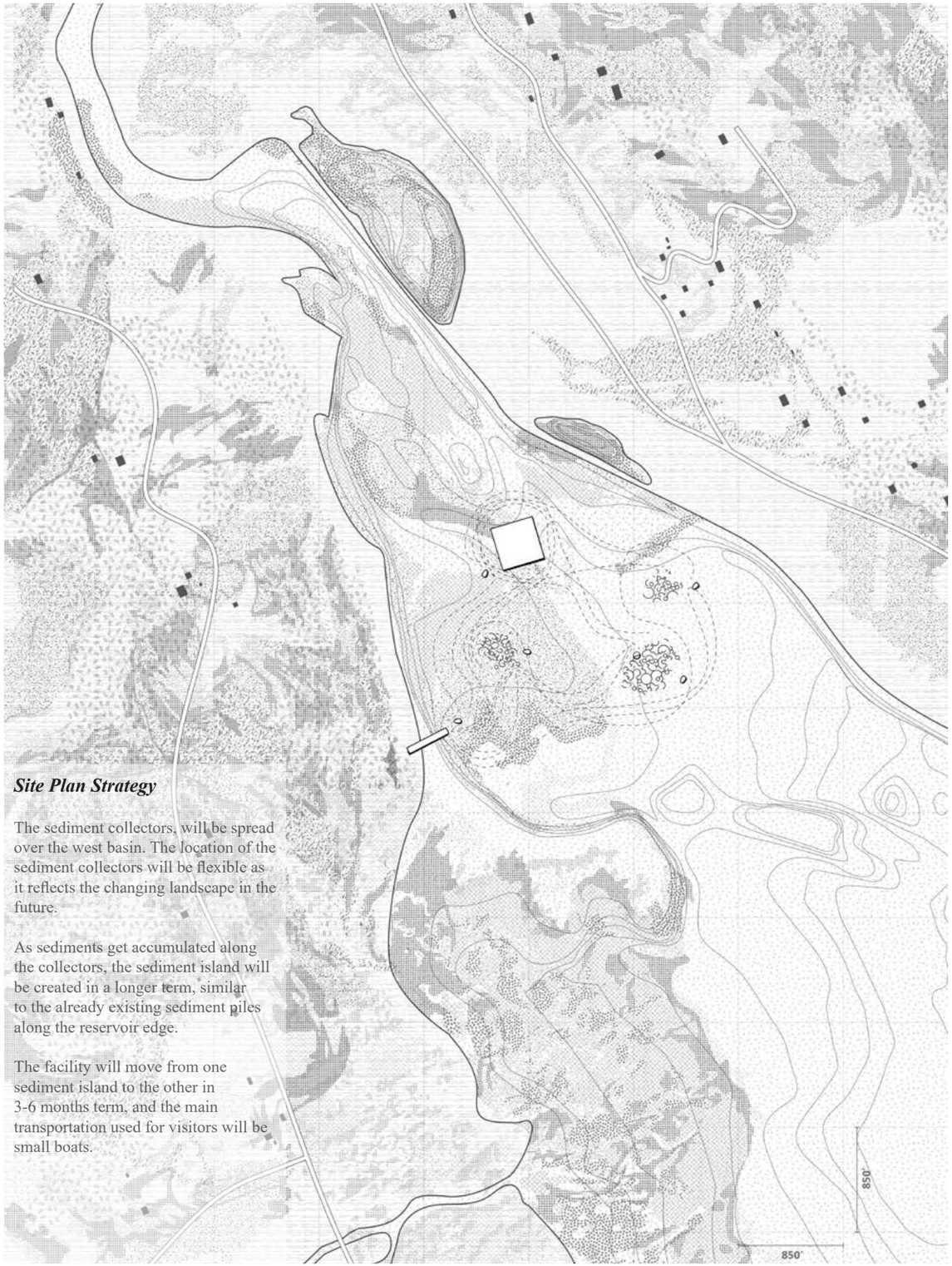
However, in 2020, an unexpected storm caused large amounts of turbid water to flow into the reservoir. This turbid water from the Upper Esopus creek contaminated the west basin, as well as New York City's drinking water. DEP discharged this turbid water to the lower Esopus creek which leads to the Hudson River in order to provide clean water to New York City.

Recently, DEP is spending another 33million dollars in Century Project, while still neglecting the turbidity affecting the community nearby.



Concept Collage

Despite the picturesque background of Catskill Mountain house, we often domesticate the wilderness and exploit the other group because of certain need, and deceive ourselves that this scenery is natural and unspoiled.

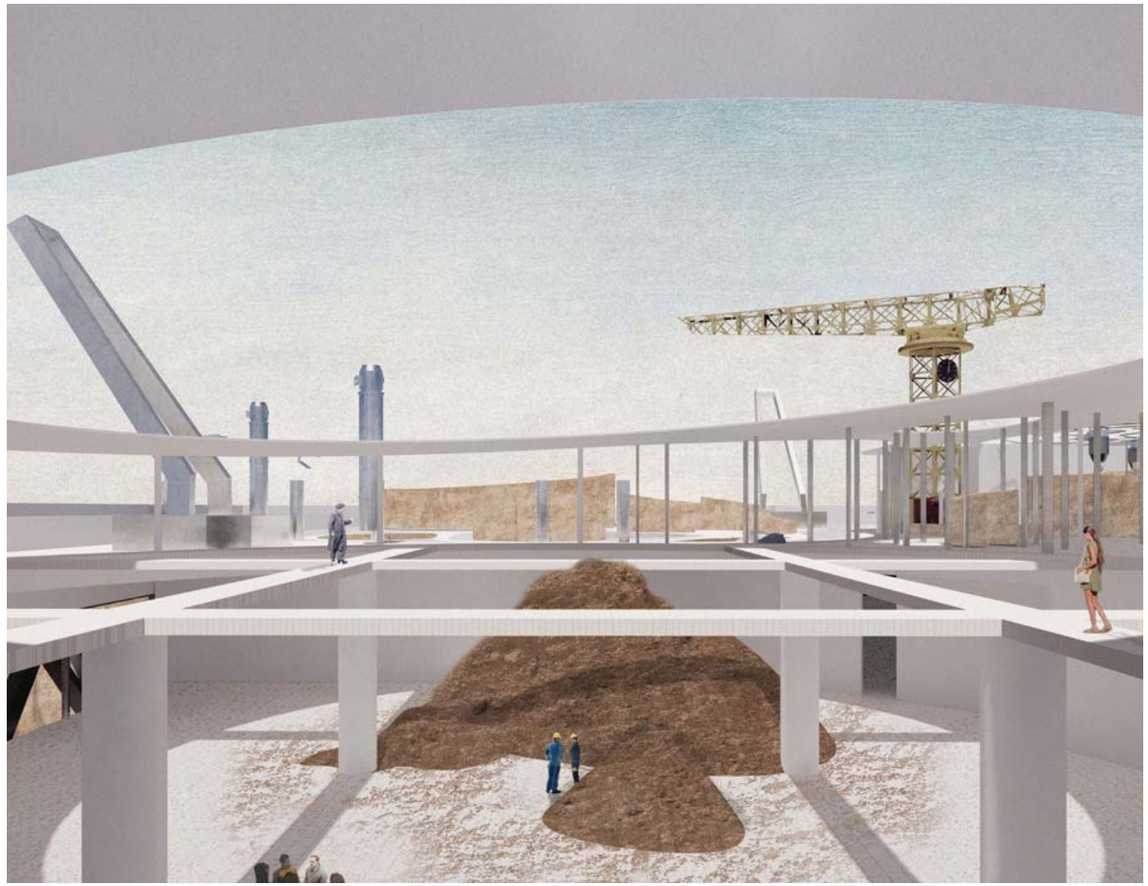


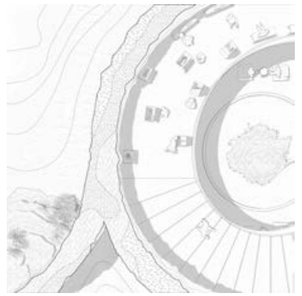
Site Plan Strategy

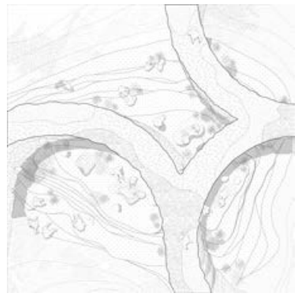
The sediment collectors, will be spread over the west basin. The location of the sediment collectors will be flexible as it reflects the changing landscape in the future.

As sediments get accumulated along the collectors, the sediment island will be created in a longer term, similar to the already existing sediment piles along the reservoir edge.

The facility will move from one sediment island to the other in 3-6 months term, and the main transportation used for visitors will be small boats.







Research, Produce, Archive

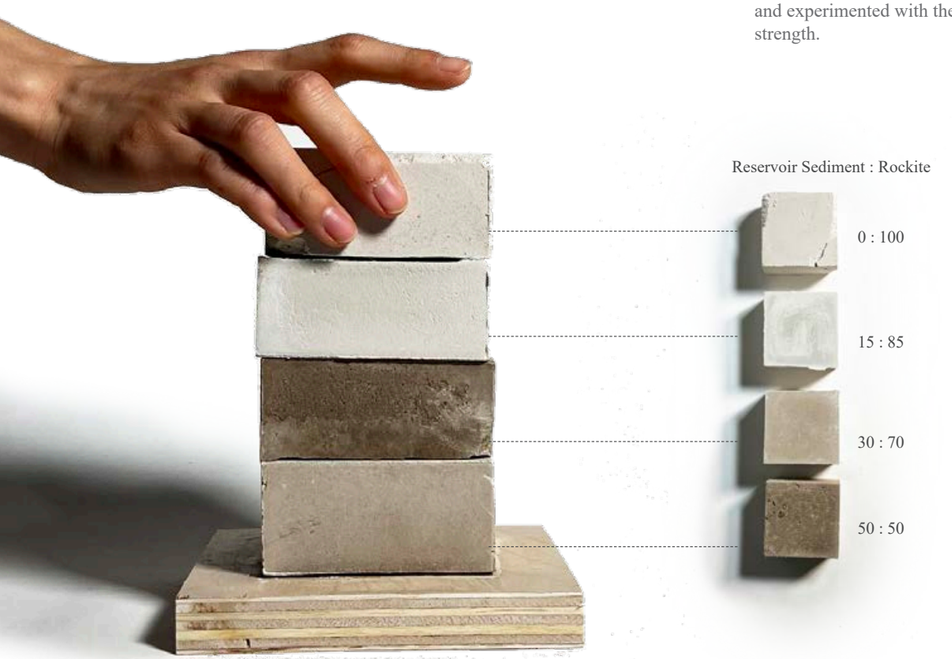
These collectors produced from the barge are scattered around the reservoir, creating a surreal sediment island and an archive of the history of the reservoir.

In the largest module among some sediment islands, an indoor space is created to display and archive the wreckage of hamlets, underwater ecosystem, or sediment layers during the collecting process.

The landscape created by the trapped sediment gives people a surreal experience. By stepping on the floor composed of the same material as a wall, visitors can encounter the raw nature and reverse to the artificial beauty of an artificially created reservoir. This is the most accidental and therefore roughest form of nature created by the reservoir.

Sediment Collector Form-Finding

To test different types of materiality of the collectors when we reuse the sediments, we used soil that we collected from the site. We mixed it with rockite to harden the material, and experimented with the texture, color, and strength.



Collector Experiment

To understand the way that sediments get accumulated, we tested different combinations with quarter of circles as a module type for the possibility of expansion. The quarter of circles are in three different sizes - 30’ 60’ and 90’, and they are linked to one another creating different combinations.

Prototype Model

Prototype model shows how the island would actually look and feel like. Some of these spaces are gardens where people can have hands-on experience with the muddy texture of the sediment, or waterways that capture the sediments and let the clean water go.

Scene #1

Scene #2

Scene #1

Where the sediment is about reservoir level (Inhabitable yet still waiting for the future residues to accumulate)

Scene #2

Sediment Garden
(Habitable, creating eccentric mood with mud and solid ground)

Barge and the Collectors

People can see the production of collectors directly on the barge. Barges are connected to one or more sediment islands during the settling and collecting process, allowing people to freely roam between the islands and the labs.

The barge is a combination of collecting, producing, and experimentation space. The collecting happens at the bottom of the barge. The puller inhales water and sediment to the main conditioning place, and there is a flow rate sensing facility for hydraulic energy.

The sphere is a hydro-electric power supplier that produces energy with the velocity of the water flow. Such natural form reduces collisions with other underwater ecosystems such as fish and sea plants. This new form of hydroelectric power becomes a fuel for the whole facility.

Reservioir as Sanctuary

Reservoir, once depicted a foe to the residents of the Hudson Valley, is now a friend and a shelter after 100 years. The outlandish island that arises above the reservoir coexists with birds and underwater plants and fishes create another form of ecosystem and habitation. Stepping out from the methodology of exploitation and sacrifice, we expect the sedimentology lab facility to provide positive influence not only on the Hudson River residents but also to the New York City residents in understanding one another.

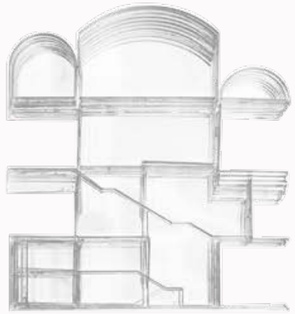
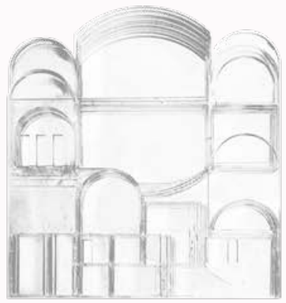
05

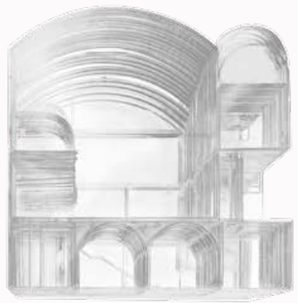
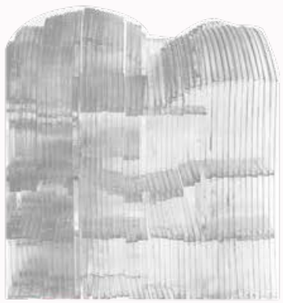
SUSPENSION OF DISBELIEF

Columbia GSAPP Core 2 Design Studio

Year: 2021 Spring
Location: PS64 New York, NY
Instructor: Erica Goetz
Type: Public School Adaptive Reuse
Individual Work

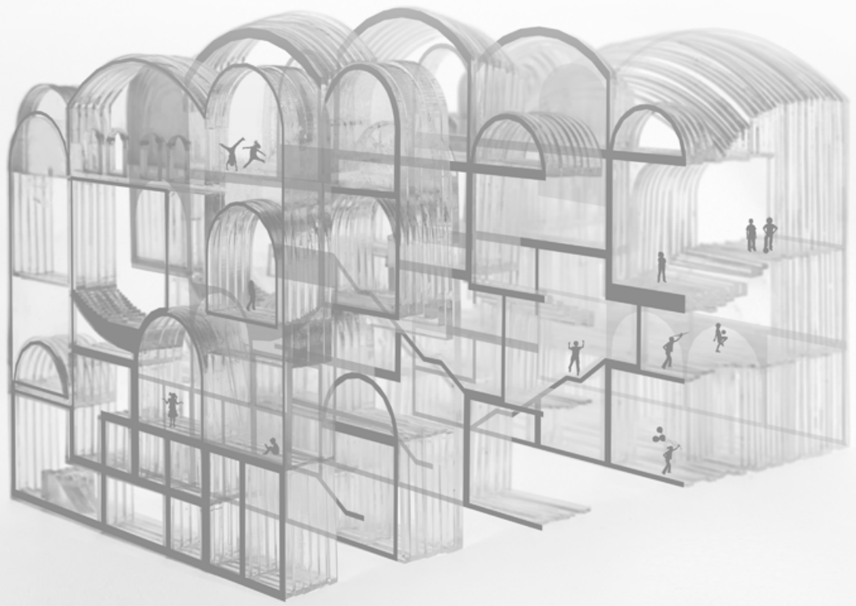
Suspension of disbelief is the intentional avoidance of critical thinking in examining something surreal, such as a work of speculative fiction, in order to believe it for the sake of enjoyment. When it comes to the children, they can easily fall into their own story by making themselves a protagonist in their imagination. Borrowing strategies of “suspension of disbelief” from literature, this project blurs dichotomies (imaginary/real, outer/inner space, study/play) and eases users into the story of character with a fluid organization of space and program. Different program areas spread throughout the raised interior level and different shapes of arches encourage mixing between programs and openness. Merging these modules into each other and into the site creates a seamless transition between zones and between the building and the site. Through this process, the school can be a place where children’s imagination becomes unlimited.

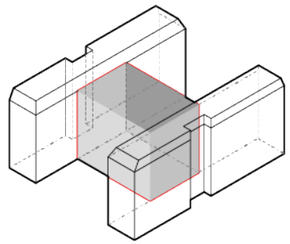



Proto Model

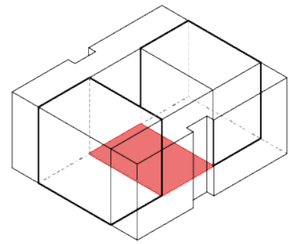
6x6x6 Acrylic Physical Model



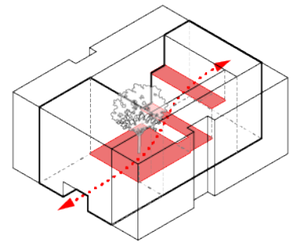
- Function
- Indoor Circulation
- Outdoor Playground
- Outdoor Circulation
- Core Circulation



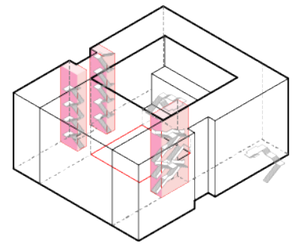
Subtract Mass



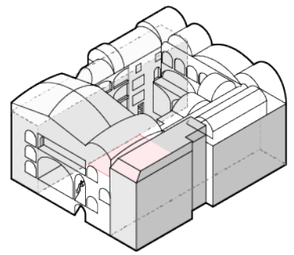
Extension of the out-door playground



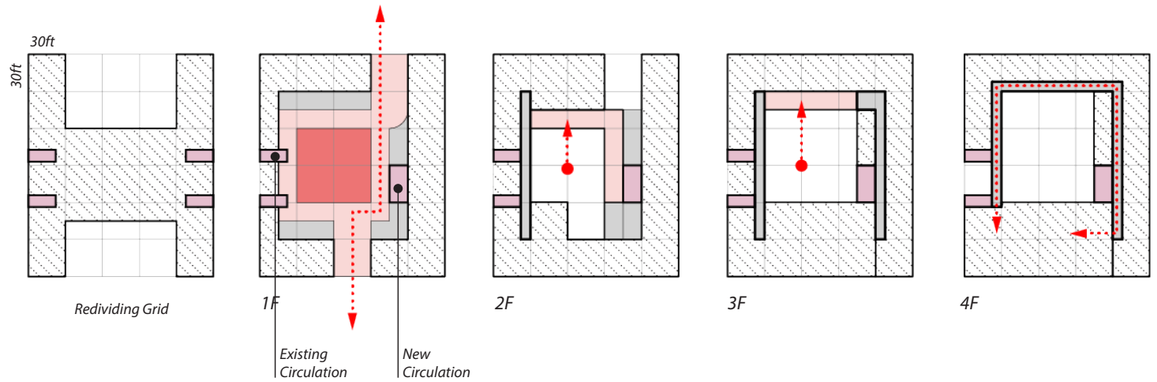
Subtract Mass



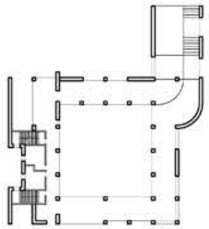
Core Circulation

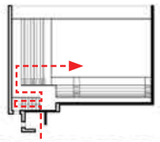


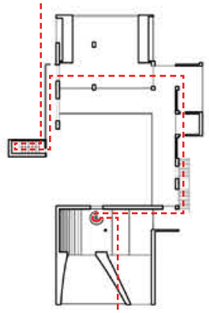
Insertion of Arches

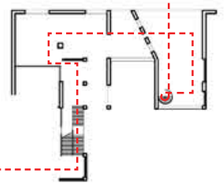


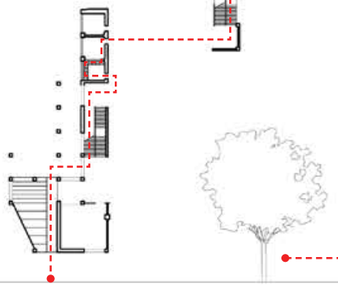
Daily Timeline

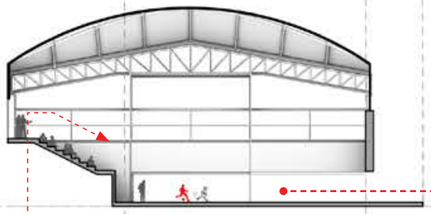


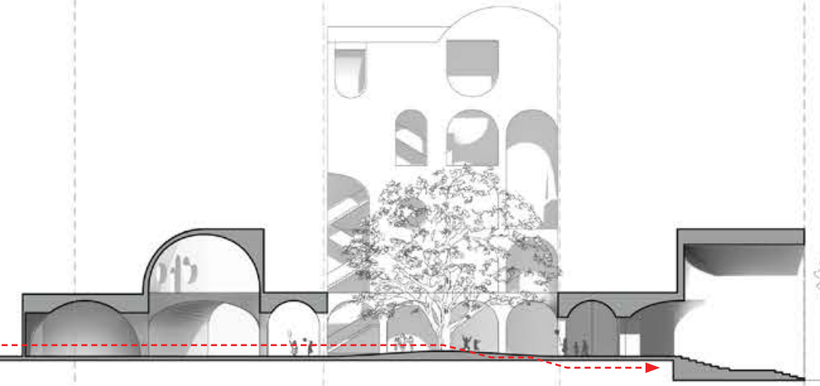








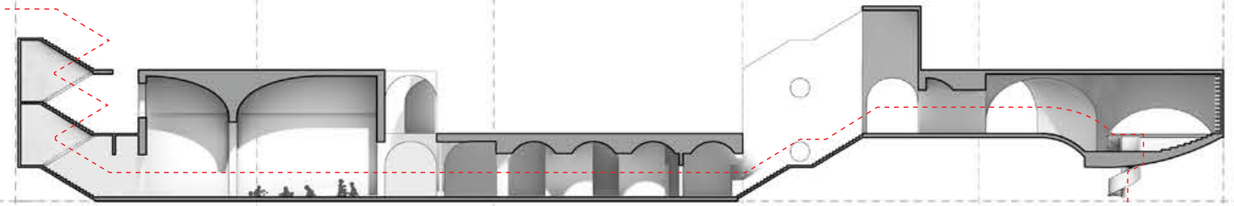




P.E Class
2:30 PM - 4:00PM

Outdoor Playground
4:00 PM - 5:00PM

End



Creative Time
1:30 PM - 2:00PM

Enter
8:00

Academic Time
11:00 PM - 12:00 PM

Academic Time
12:00 PM - 12:30 PM

Reading Books
12:30 PM - 1:00PM

Floor Plan

30 ft

30 ft

E.10th STREET

North ENT

teacher's room

outdoor playground

supply room

supply room

playground equipment room

computer room

South ENT

E.9th STREET

1st Floor Plan

Indoor Playground

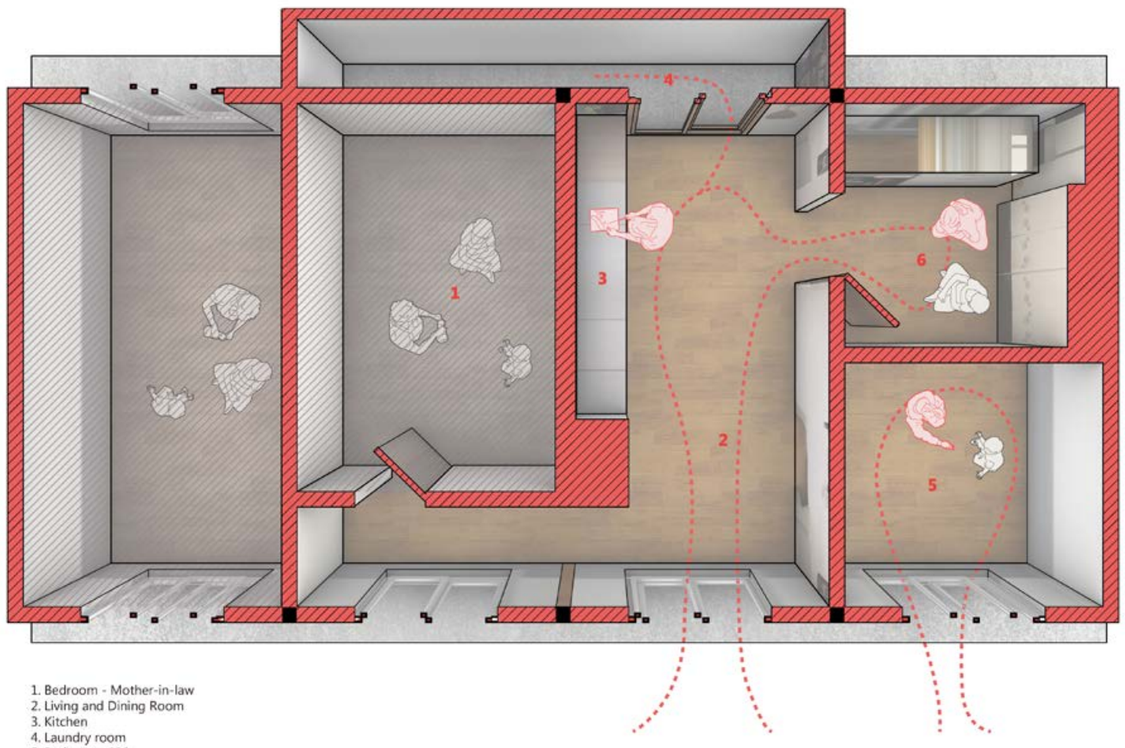
Library

2nd Floor Plan

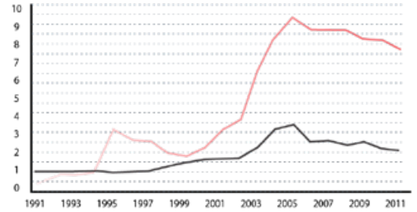
7 6 5 4 3 2 1

1 2 3 4 5 6

30ft
30ft
30ft
30ft
30ft
30ft
Roof
5
4
3
2
1
16ft
16ft
16ft
16ft
16ft
20ft



1. Bedroom - Mother-in-law
2. Living and Dining Room
3. Kitchen
4. Laundry room
5. Bedroom - kid
6. Bedroom - Husband and Wife



Source : Statistics Korea, Vital Statistics 1991-2011

Share of Foreign Grooms(%) Share of Foreign Brides (%)

In a country that defines itself as ethnically homogenous, marriages to foreigners have been tripling since the early 2000s.

“...marriage migrants play multiple roles - as mothers, domestic workers, caretakers, or family helpers.”

Eunji Lee, Soojin Kim, Kyunghee Jung-Choi, Kyoungae Kong , <Household Decision-making and the mental well-being of marriage-based immigrant women in South Korea>

07

REDIFINING HOMOGENEITY

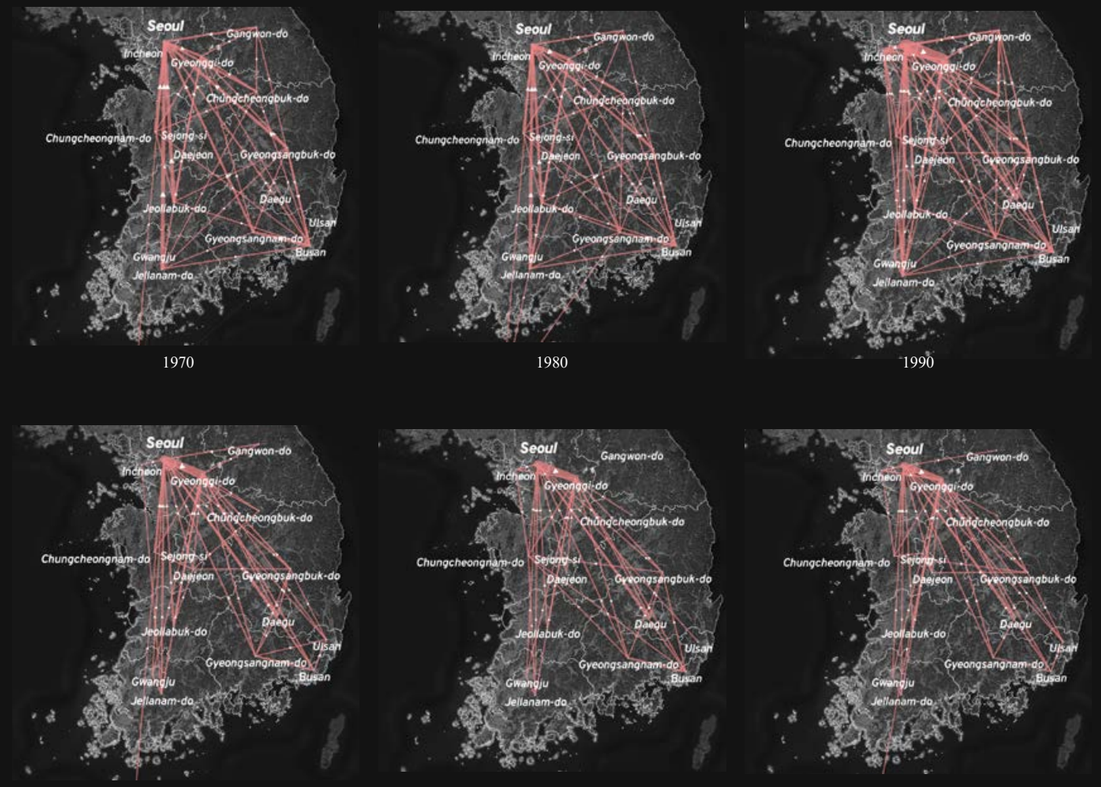
Marriage Migration in Rural South Korea

Year: 2022 Spring
Thesis Project / Conflict Urbanism
Instructor: Laura Kurgan
Team: Myungju Ko, Yani Gao, Hyuein Song

Once a country known for its homogeneity, South Korea’s population is no longer homogeneous. Over the past 30 years, South Korea’s highest in-migration rate has been through marriage. Primarily women from southeast Asian countries – China, the Philippines, Vietnam, and Cambodia – have been encouraged by government-sponsored subsidies to get married in South Korea. This ‘marriage migration’ was driven by the considerable numbers of unmarried men in rural towns, resulting from fast economic growth and internal migration by rural women to urban areas. The migrant brides, in turn, have created economic and cultural links between Korea and their home countries. This cultural and social phenomenon(Onishi 2008), this movement has vast implications and impacts on the future of this country and on what it now means to be identified as “Korean.”

This project investigates these international and domestic scale movements; they reveal a spatial complexity created by marital cultures and local policies, all ultimately driven by economic necessity.

Domestic Migration in South Korea :1970s and Onward

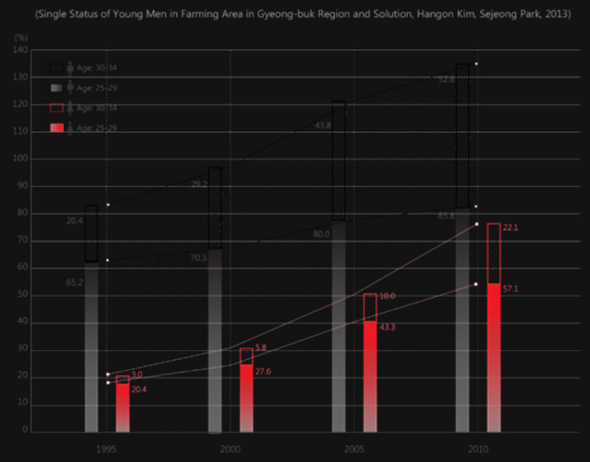


1970 1980 1990

2000 2010 2020

Internal migration within Korea over the years (1970-2020).
Source: kosis.kr

Gender Ratio of Unmarried Population by Age



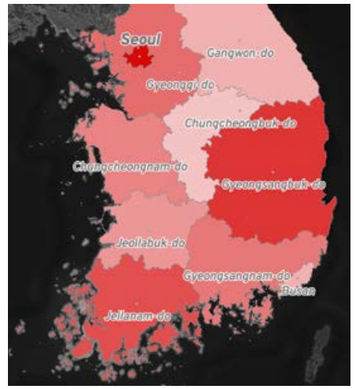
Despite these recent economic changes and rural-urban migration, social life in South Korea remains embedded in Confucian culture, especially in rural areas, where the emphasis is placed on family and kinship. The patrilineal Confucian definition of the family has an immense impact on domestic migration across Korea. Confucianism underscores that filial piety is a cardinal virtue and that marriage and procreation are the eldest son's most important social obligations. (Hsu 61)

A traditional Korean nuclear family, according to Confucianism values, has four formal criteria:

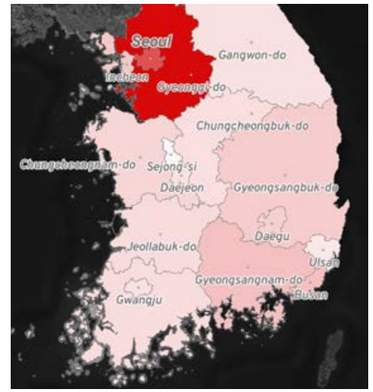
1. The nuclear family 가 (家).
2. The family's formal head Hoju 호주 (戶主), the oldest man in the family, holds significant rights and privileges.
3. The successor to the head-of-house 호주계승 (戶主繼承), which is the eldest son.
4. The estate is considered family property 가산 (家産).

Domestic Migration in South Korea :1970s and Onward

Since the Korean War, South Korea has been experiencing tremendous and steady economic growth. In 2022, it is now the 10th largest world economy. The drastic increase in its national GDP from the 80s till now was coined the "miracle on the Han River." Along with the economic growth, a mass country-wide migration from rural to urban areas has been ongoing. As a result, more than 50 percent of the national population now lives in the Seoul metropolitan area, which accounts for only 0.6 percent of the country's land area.



1970

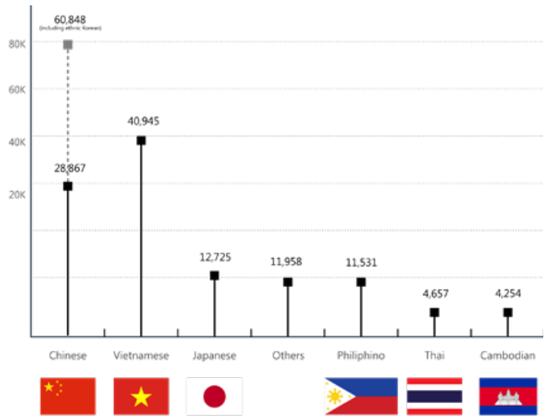


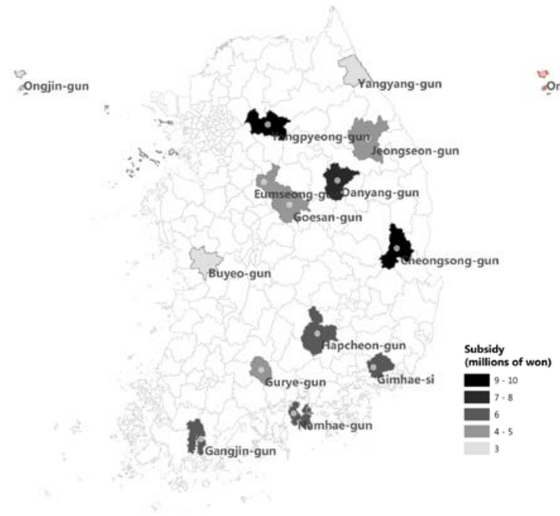
2020

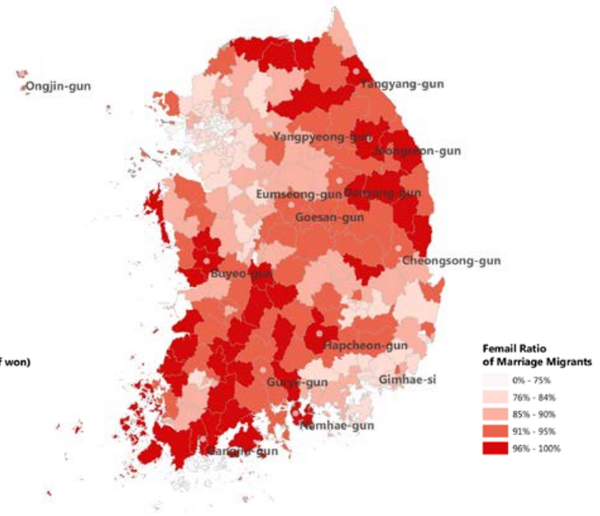
International Marriage Migration to South Korea

In the 1990s, 35 rural municipal governments started subsidizing private marriage brokers to introduce unmarried male farmers to ethnically Korean women in China and women from other Asian countries, paying the brokers 4 to 10 million Korean won (back then, around $3,800 to $12,000) per marriage.

These policies were established in an attempt to address the aging population by encouraging these unmarried men to find a wife and eventually reproduce to increase population growth. However, after 30 years of this practice, in 2021, government subsidies started to be removed. As a result, in South Korea, between 2000 and 2005, such marriages increased almost fivefold, from 6,945 to 30,719. Now bolstered at more than 334,000, these marriage migrants (immigrants and naturalized by marriage) account for 16.7 percent of all immigrants in South Korea. Renowned as a monoethnic country, Korea is now demographically and politically shifting towards becoming a multi-ethnical society.





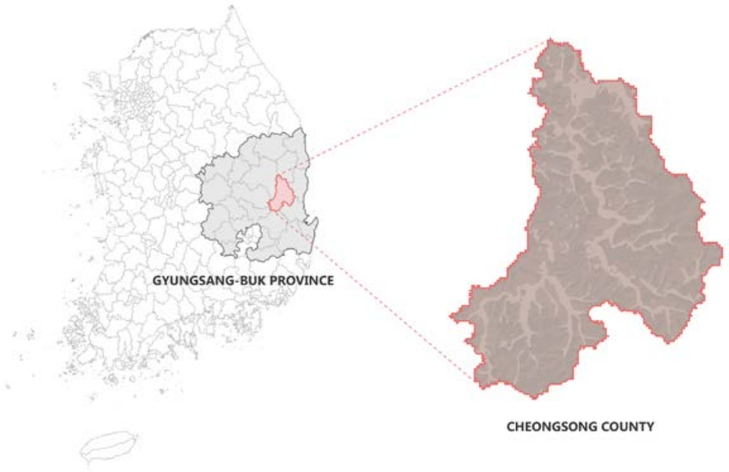


The Story of Pham, From Vietnam to Cheongsong County

However, these political movements and economic subsidies supporting marriage migration are not 100% celebrated and, in fact, have an adverse effect. Marriage migrants report facing higher levels of domestic and social conflict. They are isolated from their home countries and remain disadvantaged in these new environments. Furthermore, they tend to face more economic difficulties since more men from rural lower-income brackets seek help from marriage agencies for foreign brides. A study conducted by Ewha Womans University in 2022 has found that "…immigrant women in patriarchal households were more likely to be depressed … poorer life satisfaction … and poorer marital satisfaction … than women in martially equal households." (PLOS ONE 2022)

Marriage migrants have also been expected to maintain the patriarchal hierarchy by acting as compliant and submissive wives, limiting their career growth and eventual integration into Korean society. Language barriers, cultural differences, and financial dependencies contribute to the characteristic isolation these new immigrants face in the so-called homogenous society in which they have: '…marriage migrants play multiple roles - as mothers, domestic workers, caretakers, and family helpers." (Piper and Roces 2003)

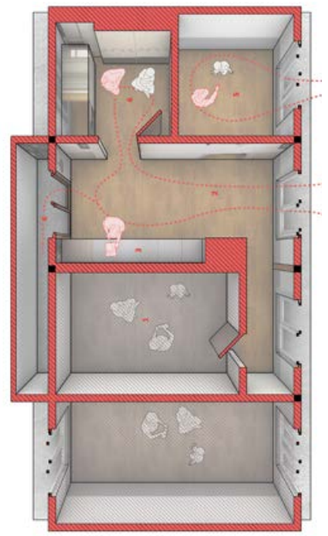
Cheongsong County, a county in Gyungsang-buk Province, has an influx of marriage migrants, which make up more than 69 percent of the foreign residents in the municipality. Among them, the overwhelming proportion is women. Additionally, Cheongsong County, a rural area of the province, was one of the counties that sponsored the most significant subsidies for international marriage as a part of rural revitalization policies.



In this section, we are translating the architectural space inhabited by a marriage migrant from Vietnam- Pham, through the images portrayed in the documentary film "Tales of Multicultural Inlaws." By reconstructing the typical rural house where a marriage migrant lives in Cheongsong, we transform this narrative into a more intimate one.

Her hierarchy in the household becomes visible to the viewers- you can see the limited access she has to a lot of the house and her workspace in her living quarters, including the kitchen, living room, and kids' room. This- clearly shows her unequal position and traditional feminized role in the family.

Cheongsong Marriage Migrant Population



Conclusion

Capture from Mozilla Hub

The research exposes the so-called homogeneity of South Korea through the lens of marriage migration at various scales, from the global to the intimate. The story visualizes how urbanization in one country has an impact across the border between countries and permeates everyday life in South Korea—combined with the Confucian culture, which is deeply rooted in rural areas. The urbanization of South Korea has created an unbalanced gender ratio in the rural towns in addition to the more common issues exacerbated by urbanization, such as population decrease and underdevelopment. As a result, female marriage migrants from neighboring countries have been filling up the voids created by urbanization. This phenomenon has caused adverse effects, revealing how South Korea's so-called homogeneity, a distinct characteristic and pride of the county, is forever transformed.

This research is conducted from the perspective of Korean society, which mainly investigates through the data visualization of population movements. However, if conducted through a political and economy-driven approach, this phenomenon would reveal much more conflict on the scale of international affairs. Therefore, a probable different approach would be to trace back these marriage migrants to their home country by collecting data on their remittance and investigating how this money drives the supply of potential migrants.

Iterative process of computationally derived building massing studies

08

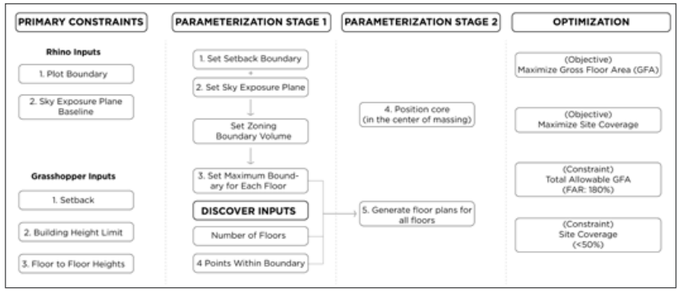
THE FAR GAME

Computationally Optimizing Gross Floor Area within Local Zoning Constraints

Year: 2022 Spring
Instructor: Danil Nagy
Type: Cultural Center
Group Work by 5

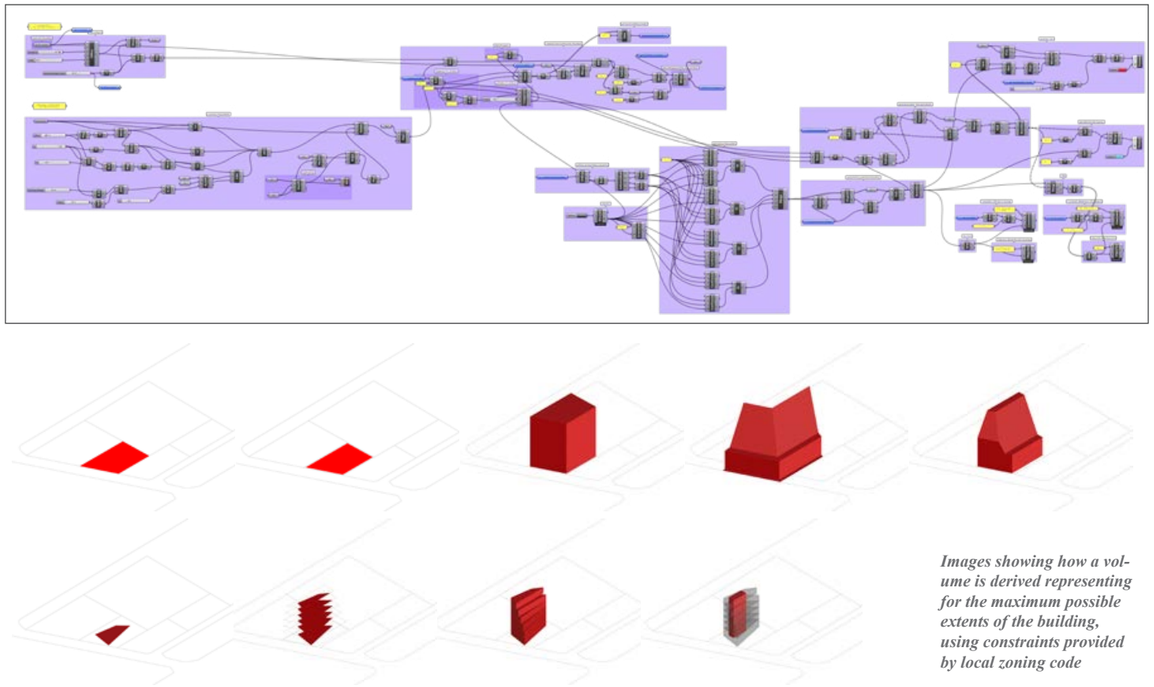
When designing for clients in high-density cities, an architect's top priority is typically maximizing their building's gross floor area while staying within the size constraints provided by local zoning codes. Maximizing gross floor area (GFA) enables the client, typically a developer, to optimize profits by maximizing the building's leasable space. Local zoning codes typically provide constraints for a building's maximum floor area ratio (FAR), height, and setback from site boundary, as well as further setbacks determined by environmental parameters. Our team asked how automation can assist and expedite this process, hypothesizing that the computer can replace the architect in performing these first iterations and analyses. Using generative design, the computer can develop multiple design iterations that meet the constraints provided by zoning code, and then select among these iterations to determine a massing that maximizes gross floor area. This massing scheme can then be developed and refined by the hand of the architect.

Methodology



Overview of Computational Design Process

The Grasshopper model that we developed is primarily responsive to one manual input from the Rhino model: a polyline that represents the site boundary. The Grasshopper model then uses different groups of components to generate a volume which represents the maximum possible spatial extents of the massing, based on the constraints provided by local zoning code.



Images showing how a volume is derived representing for the maximum possible extents of the building, using constraints provided by local zoning code

The first major group of components in the Grasshopper model creates a volume defined by the building setback requirement and height limit. For the site that we studied in Seoul, the setback requirement is 0.5 meters from the lot line, and the height limit is 25 meters. A volume is created by extruding the perimeter of the building lot, offset to the amount specified by the setback requirement, to the height determined by the building height limit.

The next major group in our Grasshopper model defines the sky exposure plane, a requirement for new buildings in Korea so that they do not over-shade buildings on their north side. The sky exposure plane is generated by the boundary of each site adjacent to the north-facing side(s) of the lot, which are represented by polylines in the Rhino model that are manually inputted into the Grasshopper model. The sky exposure plane extrudes vertically by 9 meters from each of these boundaries, then is set back 4.5 meters, and then extrudes at a vertical slope of 2:1. These exact numbers (9 meters, 4.5 meters, and 2:1 slope) are determined by the local Korean zoning law.

The Solid Intersection component in Grasshopper combines the limits generated by the site's setback requirements, height limits, and the sky exposure plane to generate a volume that represents the spatial constraints of the massing. If a designer was generating massing for a building in a region with different environmental requirements, they could develop an alternate set of components that created a limit based on local environmental constraints, and then plug them into the Solid Intersection component. If they were generating a massing in a region with no environmental constraints, they could simply delete the part of the script that generates the sky exposure plane, and the massings generated would likely look more like simple rectangular extrusions.

Once the model has generated a volume that represents the maximum possible spatial constraints of the massing, the next group of components creates floor plates within this boundary, the heights of which are inputted manually. In our model, the first floor is set to be 4 meters tall and each successive floor is 3 meters tall, but these inputs could be adjusted depending on the desires of the architect and client.

Input Parameters

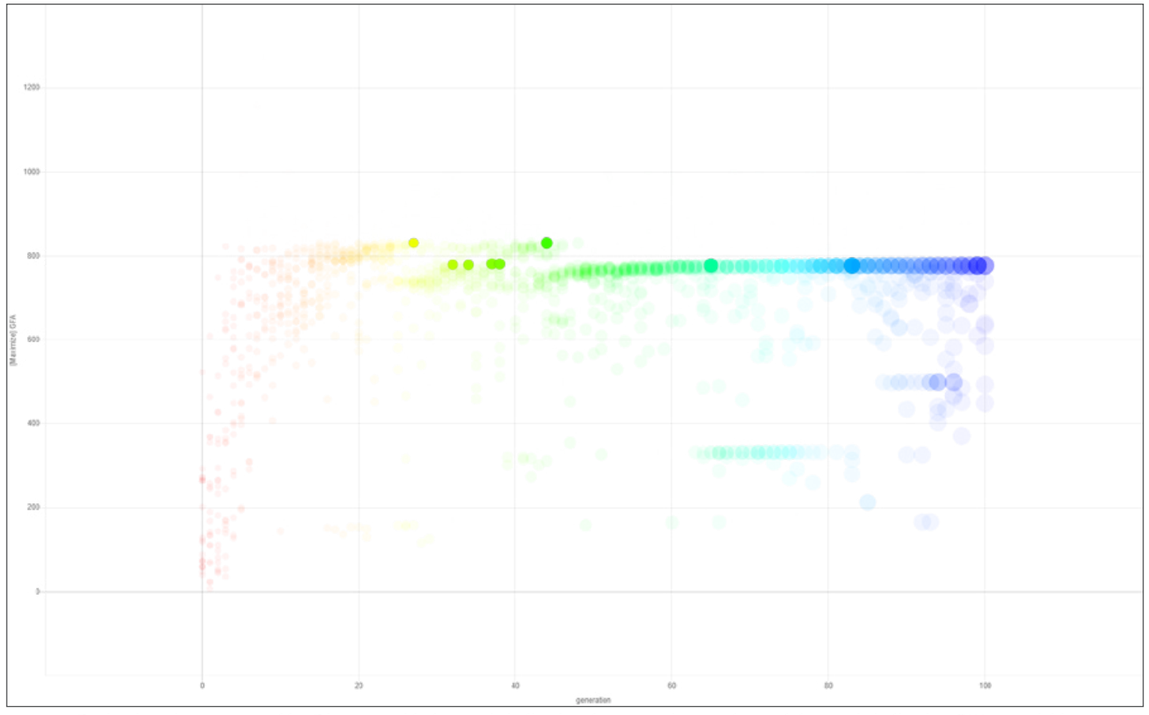
There are two input parameters generated by Discover. This meant that Discover generates multiple design iterations using these two input parameters and then discards options as it searches for the optimal inputs to maximize GFA.

The first input parameter that Discover generates is the number of floors in the building, a categorical parameter. The second input parameter that Discover generates is the x and y coordinates for 4 points that determine the perimeter of the building's ground floor. The x and y coordinates of each of these points are set as continuous parameters, whose minimum and maximum values are determined by the volume that expresses the maximum extents of the building's massing. In order to determine the x and y coordinates for 4 different points to determine the building's footprint, Discover generates 8 total input parameters.

The footprint of each of the successive floors is determined by the input parameters that determine the footprint of the first floor. For the successive floors, each point is tested to see if it still falls within the volume that identifies the building's maximum possible spatial constraints. If the point falls outside of these constraints, Grasshopper's Curve Closest Point component is used to move the point inside of the spatial constraints. This means that for our site in Seoul, the model mostly yields terraced outcomes, as the model steps in order to stay within the constraints provided by the sky exposure plane.

The placement of the core of the building is determined by Grasshopper using the input parameters generated by Discover. The core is placed by intersecting the top floor plate and the bottom floor plate, and then determining the center point of this intersection. The outline core, which is manually referenced by a Rhino polyline, is then placed at this center point and extruded to the same height as the building.

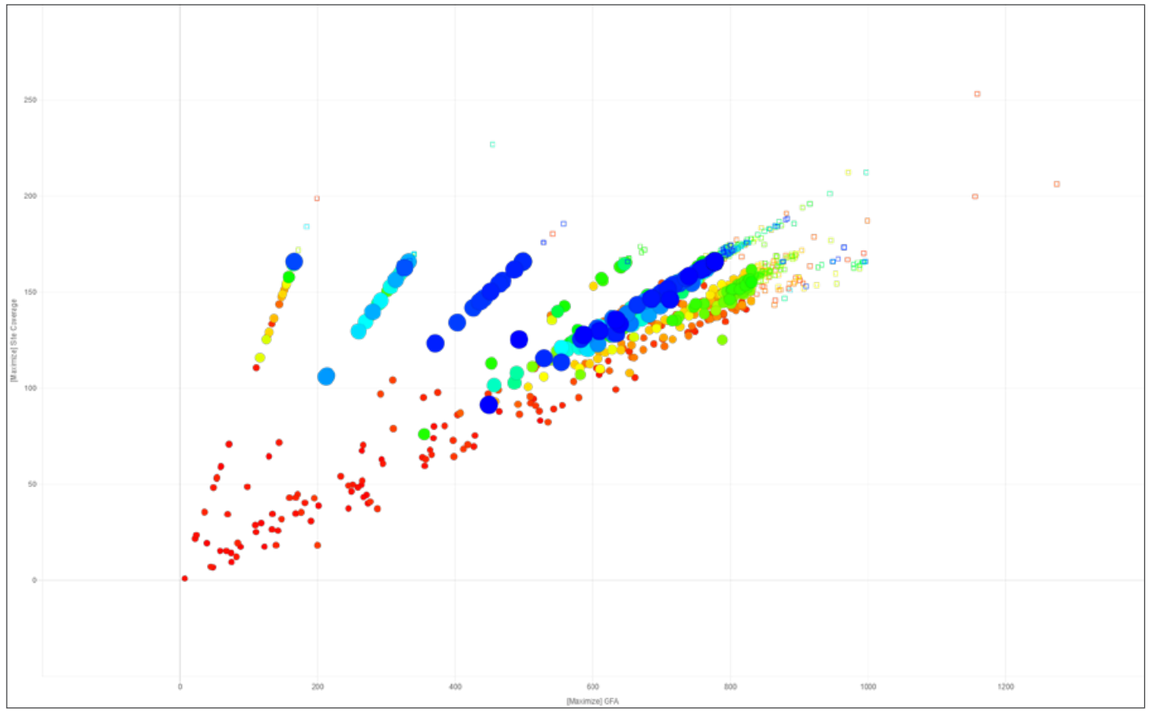
Performance Metrics



Design iterations generated by Discover, with the x-axis indicating the generation number and the y-axis indicating GFA, a variable the program seeks to maximize

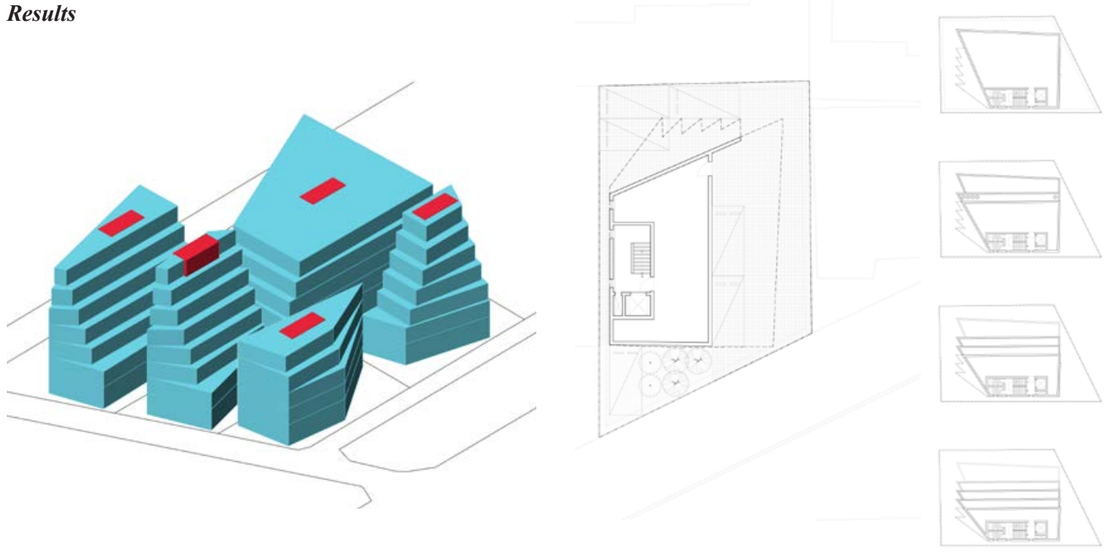
Paradoxically, the objectives and constraints of the optimization run by Discover are effectively the same. The first objective is to maximize gross floor area (GFA). However, floor area also represents the first constraint: gross floor area had to be less than the FAR determined by local zoning codes. For this site in Seoul, maximum FAR is 250% of the site boundary.

The second objective is to maximize site coverage, as a means of maximizing gross floor area. However, site coverage also represented the second constraint. The building cannot cover more of the site than is allowed by zoning code. For this site in Seoul, this amount is 50%.



Design iterations generated by Discover, with the x-axis indicating GFA and the y-axis indicating site coverage, both variables the program seeks to maximize

Results



Computationally optimizing a building's massing proved to be an exciting and efficient means of automating the design process, as is demonstrated by the building massings that our team was able to generate. For designers globally, there are bound to be opportunities to use this as an iterative way of generating optimal building massings by manually inputting the site boundary and core layout and then adding local zoning constraints to the Grasshopper model.

This automated generation of building massing should be performed at the earliest stage of the design process, as the massings it generates are quite crude. They lack the tactile and ephemeral qualities that transform the building into a living object with experiential qualities. They do not determine spatial qualities such as atmosphere or materiality, or important social considerations, such as who has access to the building and how this is demonstrated architecturally.

09

CURTAIN WALL

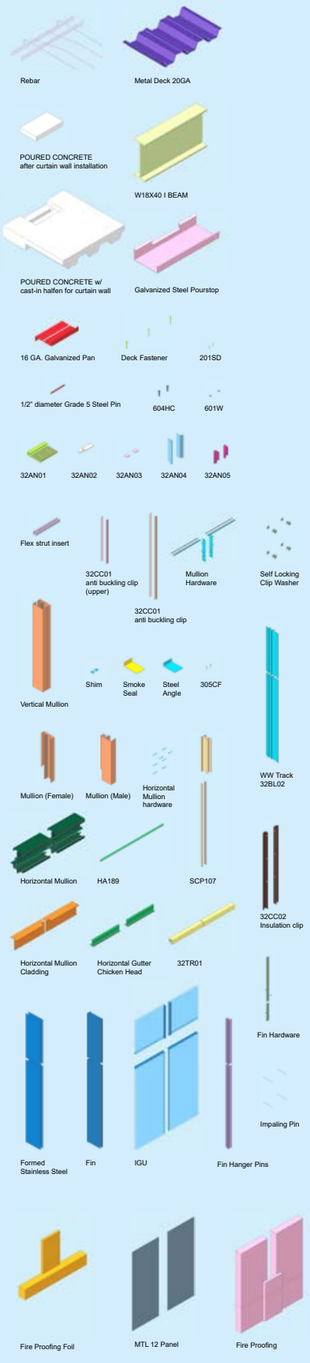
Year: 2022 Spring
Instructor: Nicole Dosso
Team: Myungju Ko, Yiyi Gao, Chi Chi Wakabayshi, Audrey Dandervilt

Architectural Technology V

This project is an assembly study of the curtain wall chosing the visual identity of Lego. First introduced in the late 1990s, the current iteration of the iconic producer of plastic construction toys spans cultures, languages, and ages. Relevant to very different play cultures around the world, the symbols, rituals, and visual signature of the LEGO brand is well adapted to solve challenges of communication. The developed model is accompanied by an instructions manual, indicating the different assembly steps and sequence.

Chi Chi Wakabayashi
Yiyi Gao
Myungju Ko
Audrey Dandenault

TEAM B1



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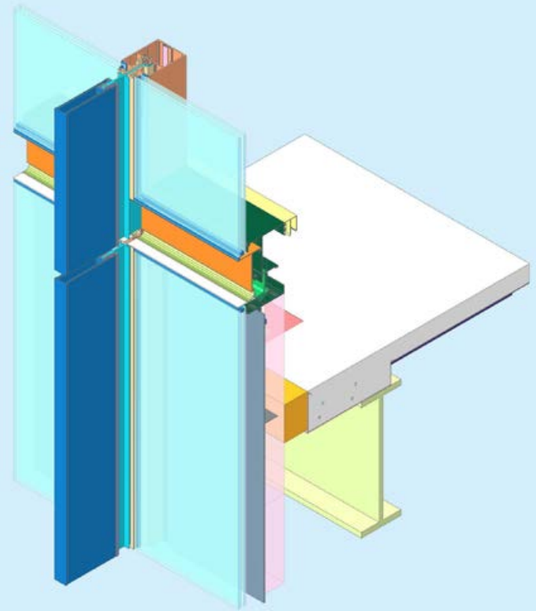

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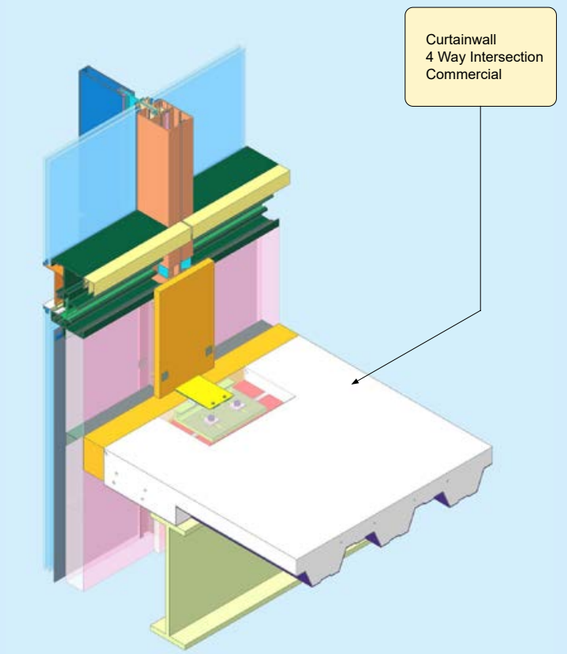
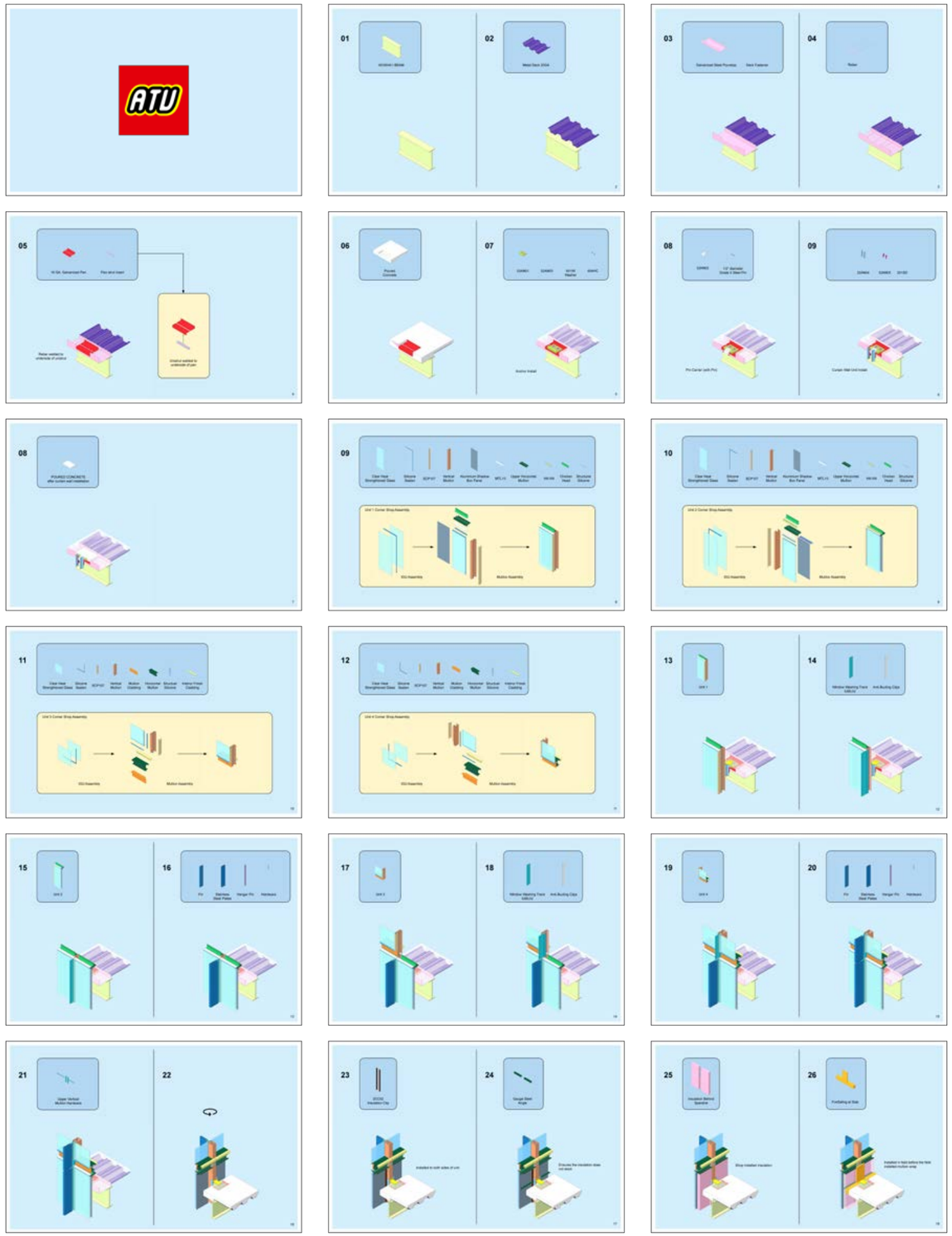
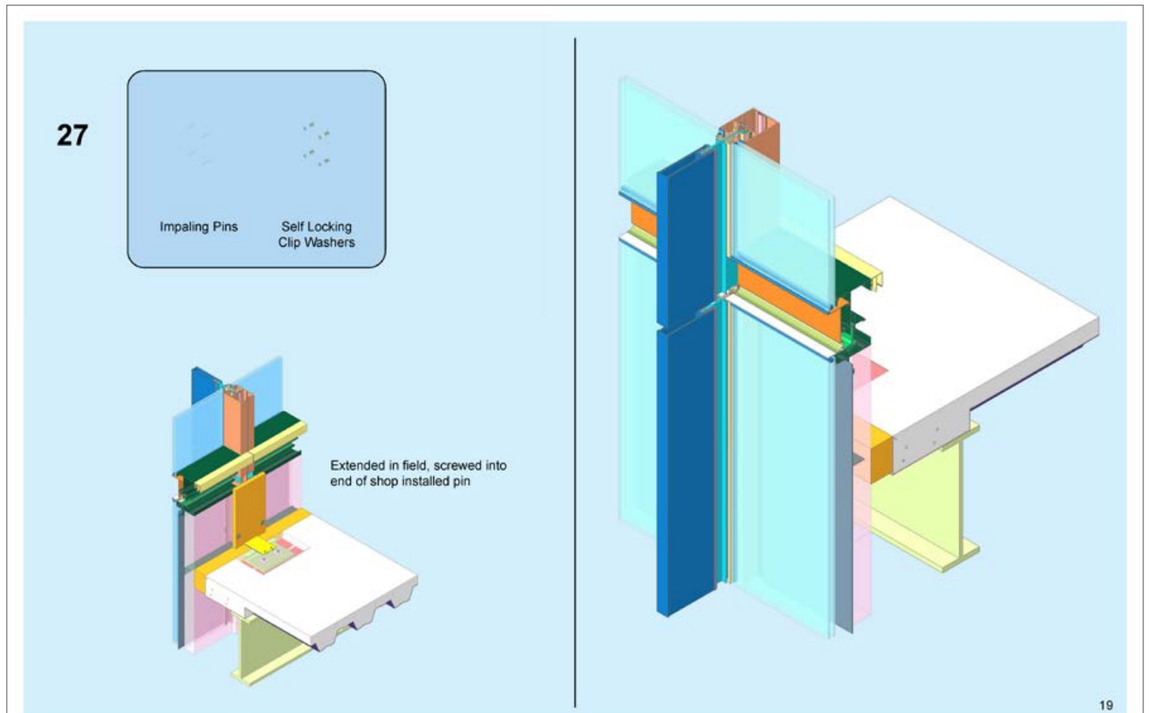


Booklet

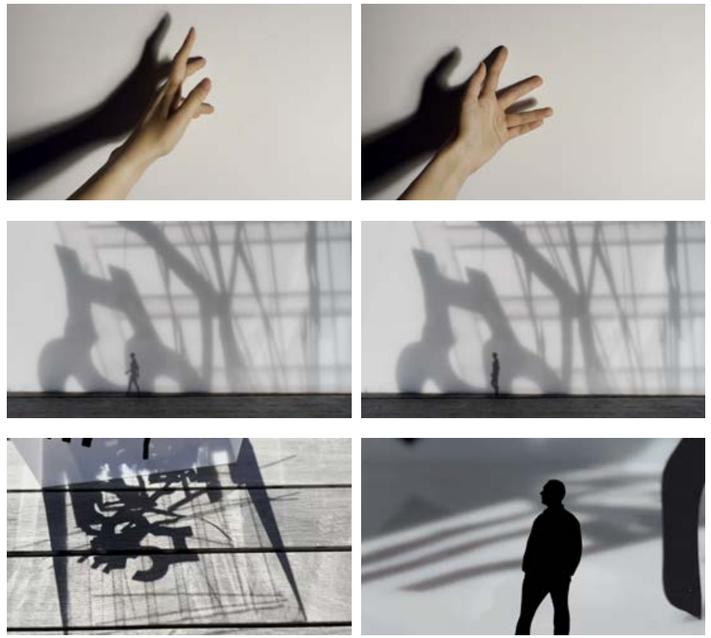




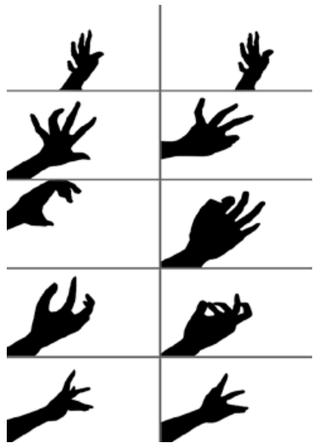
Lego Representational Model

Based on provided detail drawings, shop documents, and provided information, we developed a chunk model, both digital and physical, of a four-way commercial curtain wall. The entire assembly was draw and modeled thoroughly, so as to learn about assembly sequence, scale, materials, field installation vs shop fabrication, etc.

Chillida, Gravitation



Shadow Box



09

SHADOW METAMORPHOSIS

Year: 2023 Spring
Instructor: Steven Holl, Dimitra Tsachelia
Individual Work

Architectural Apropos Art

Shadow Metamorphosis is a project that materializes three characteristics of Chillida's work- objects, layering, and three-dimensional space-through acrylic, paper, and sunlight. If one looks at the shadows that appear from the moving hands, the attributes of complex objects are erased and the geometric feature is captured entirely in monochromatic shapes. Here, 'erasing' means revealing the fundamental properties of objects and allowing them to be observed without prejudice.

The shadows sway with the wind and change shape with the sunlight. These ever-changing shadows make unclear what its matrix is. The shadow image, which expresses the relationship through the outline, is also another means to feel the presence of light-through the density of shadows and the blurriness of its boundaries; therefore, this can be felt as a new sense of the way of looking at light, which has been the fundamental motive of space and visual arts.