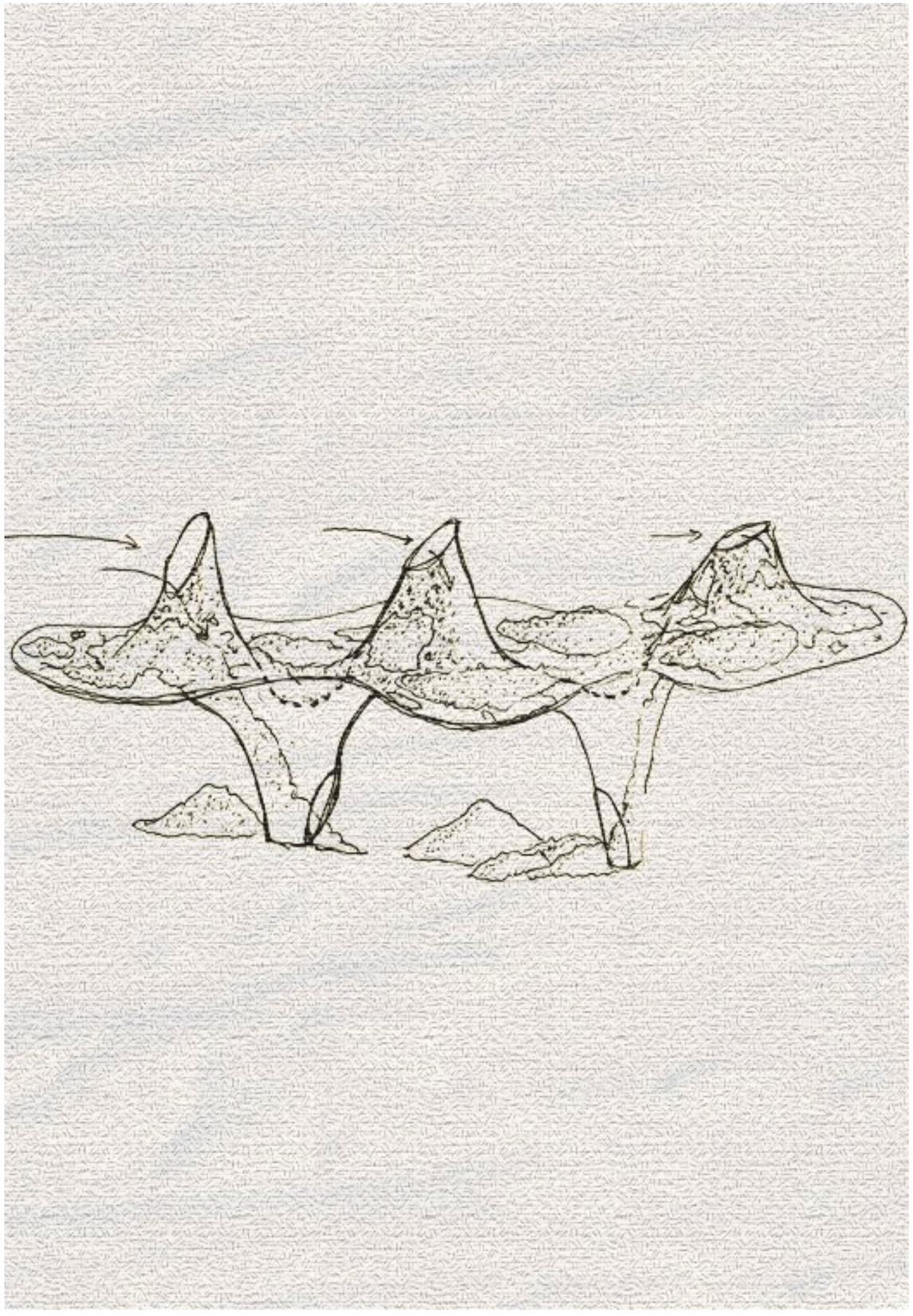


01 L·P·D

THE LOESS COLLECTOR

MAY, 2022

Site: Loess Plateau, China

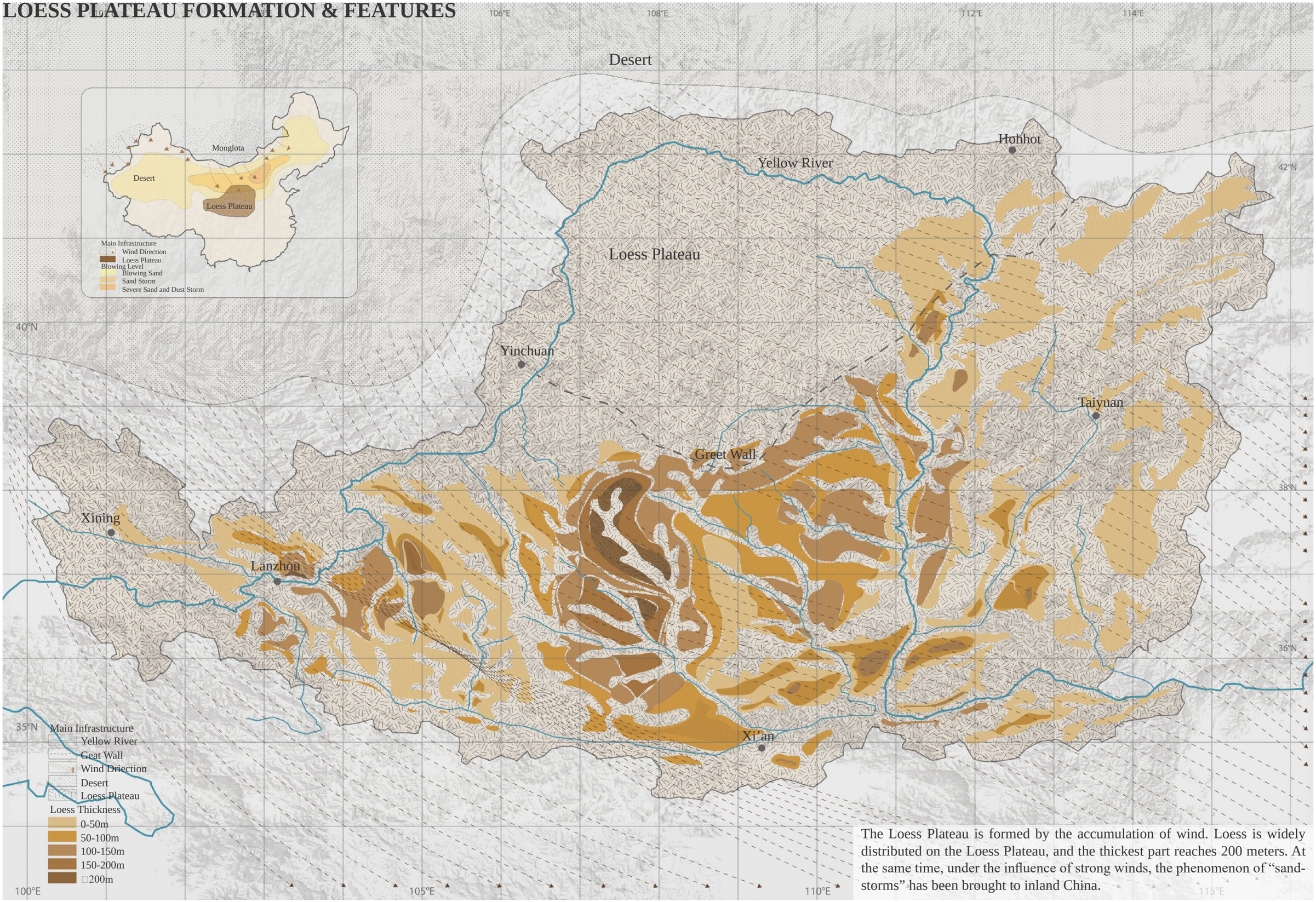
Instructor: Elias Anastas, Yousef Anastas

Team Work With Tim Chen

There is a saying that “the wind blows the Loess Plateau”. The Loess Plateau accounts for about 7% of China’s land area, covering an area of approximately 650,000 square kilometers, forming a “thousands of ravines” loess landform. Affected by the strong wind, the loess blows toward mainland China, bringing “sandstorms” and affecting people’s lives.

To reduce the problem as much as possible, we have conducted detailed studies on the Loess Plateau and artificial simulation device experiments. The construction loess collection device is placed in the wind gap. After a long collection period, the collector’s will be covered with loess, and people can walk on it. At the same time, after rain and wind, the accumulated loess will form sculptures for people to appreciate and visit.

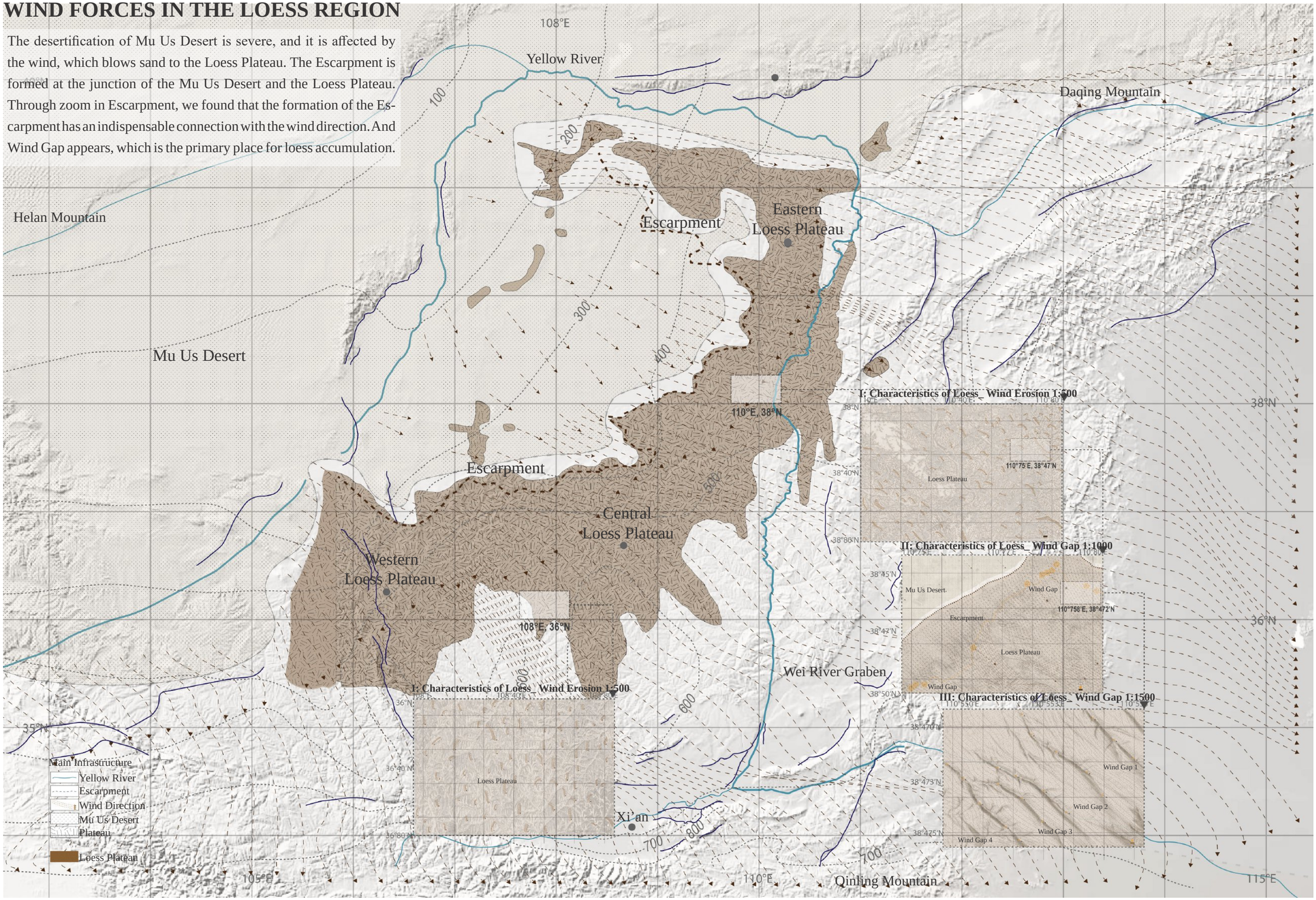
LOESS PLATEAU FORMATION & FEATURES



The Loess Plateau is formed by the accumulation of wind. Loess is widely distributed on the Loess Plateau, and the thickest part reaches 200 meters. At the same time, under the influence of strong winds, the phenomenon of "sand-storms" has been brought to inland China.

WIND FORCES IN THE LOESS REGION

The desertification of Mu Us Desert is severe, and it is affected by the wind, which blows sand to the Loess Plateau. The Escarpment is formed at the junction of the Mu Us Desert and the Loess Plateau. Through zoom in Escarpment, we found that the formation of the Escarpment has an indispensable connection with the wind direction. And Wind Gap appears, which is the primary place for loess accumulation.



LOESS COLLECTOR MATERIAL ANALYSIS

Research and study of different casting methods and structures. Various forms of Loess Collector were cast to better understand the formation and capture form of loess by studying materials such as PVA glue, glue gun, and mesh grid.

Casting Loess

Sand was mixed into water and PVA glue to be casted into excavated sand.

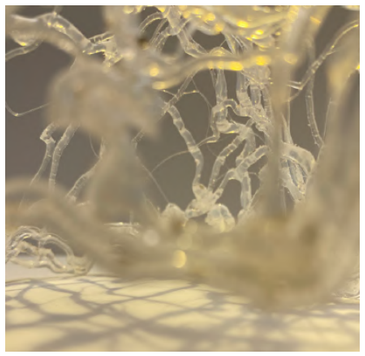
After 12 hours of waiting, the resultant form reinforces the idea that sand as a casting material can be molded from itself.

Partially enlarged, it can be seen that the cast model is very hard.

Liquid Mesh Form

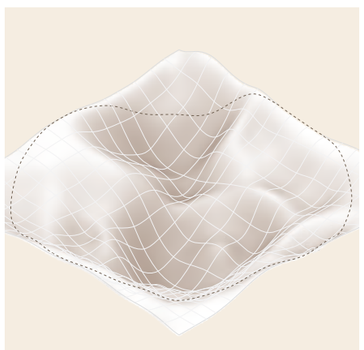
Mesh structure derived from flow of liquid travelling down contours of excavated sand via gravity.

Resultant mesh inverted as positive form as a base structure to initiate dust trapping in the wind.

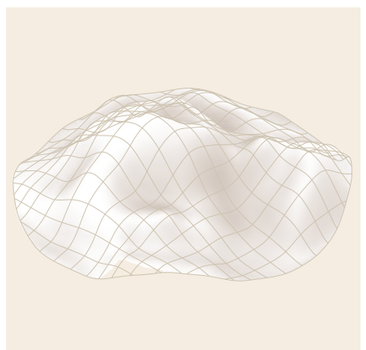


Under the light, the structure forms a beautiful reflection.

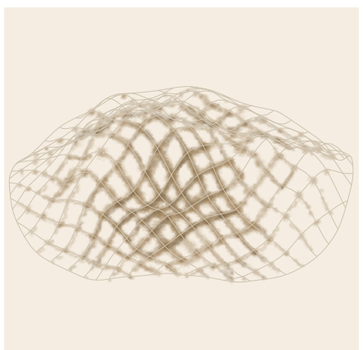
Duest Mesh Trapping



Using excavated form to create an inverted mesh structure that can suggest growth accumulation patterns of sand.



An inverted mesh structure is formed.

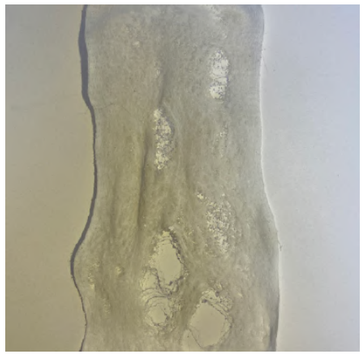


Due to the deformity of the forms, sand accumulates and appears to densify on surfaces parallel to the direction sand is dropped.

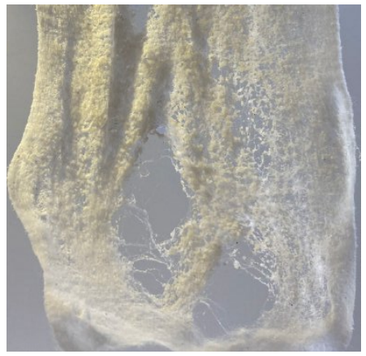
LOESS COLLECTOR EFFECT ANALYSIS

A more organic structure for dust trapping was tested in this phase. By stretching and pulling apart a woven surface, openings are created, held together by single threads that become the size of individual sand particles itself. The sand particles trapped in the threads appear as if they’re held suspended in the air.

Fine Cotton Mesh



By tearing the Fine Cotton Mesh, and experimenting with blowing sand to the surface.



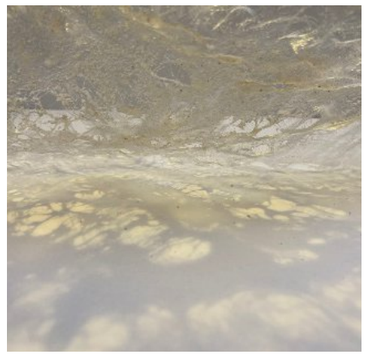
With the effect of partial magnification, the floating sand on the surface can be seen more clearly.

The effects of light and casted shadows start to imitate clouds of sands or dust flying overhead.

Fiberglass Mesh

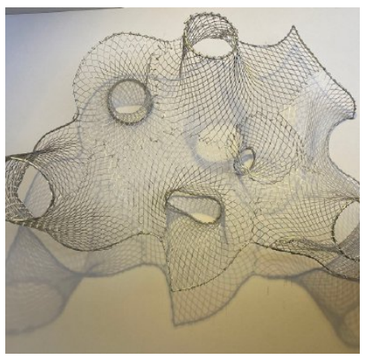
The surface of Fiberglass Mesh is more translucent, and the absorption of sand is better than that of Fine Cotton Mesh.

The density of Fiberglass Mesh is denser than that of Fine Cotton Mesh, and the mesh effect is more obvious after tearing.



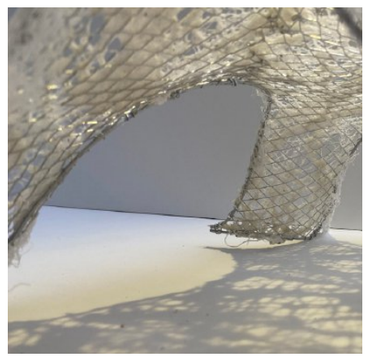
The effect of light transmission is so pretty.

Formal Application



Using the mesh grid, cast into a loess collector structure.

By wrapping a layer of gauze on the mesh grid, which can better capture more loess.



The effect of the loess collector on lighting.

(The models were built with teammate Tim Chen)

WIND SITUATION ANALYSIS & LOESS COLLECTOR PLACEMENT

Final Device

H:30-50m
W/S:1-4m/s

H:30-50m
W/S:1-4m/s

H:15-30m
W/S:4-6m/s

Loess Plateau

H:15-30m
W/S:4-6m/s

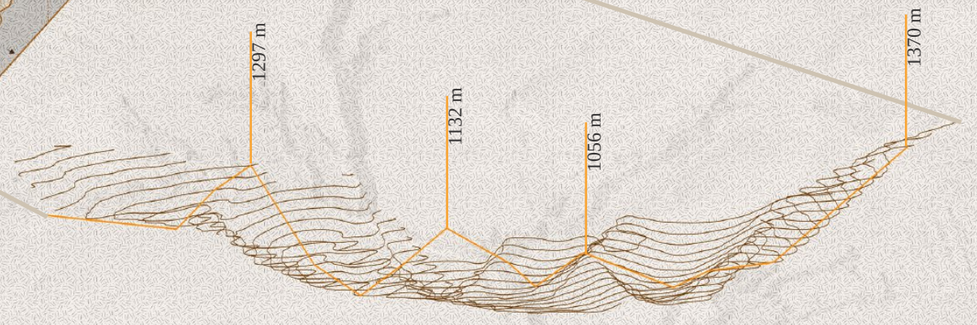
Escarpment

H:5-15m
W/S:6-8m/s

H:0-5m
W/S:5-7m/s

Mu Us Desert

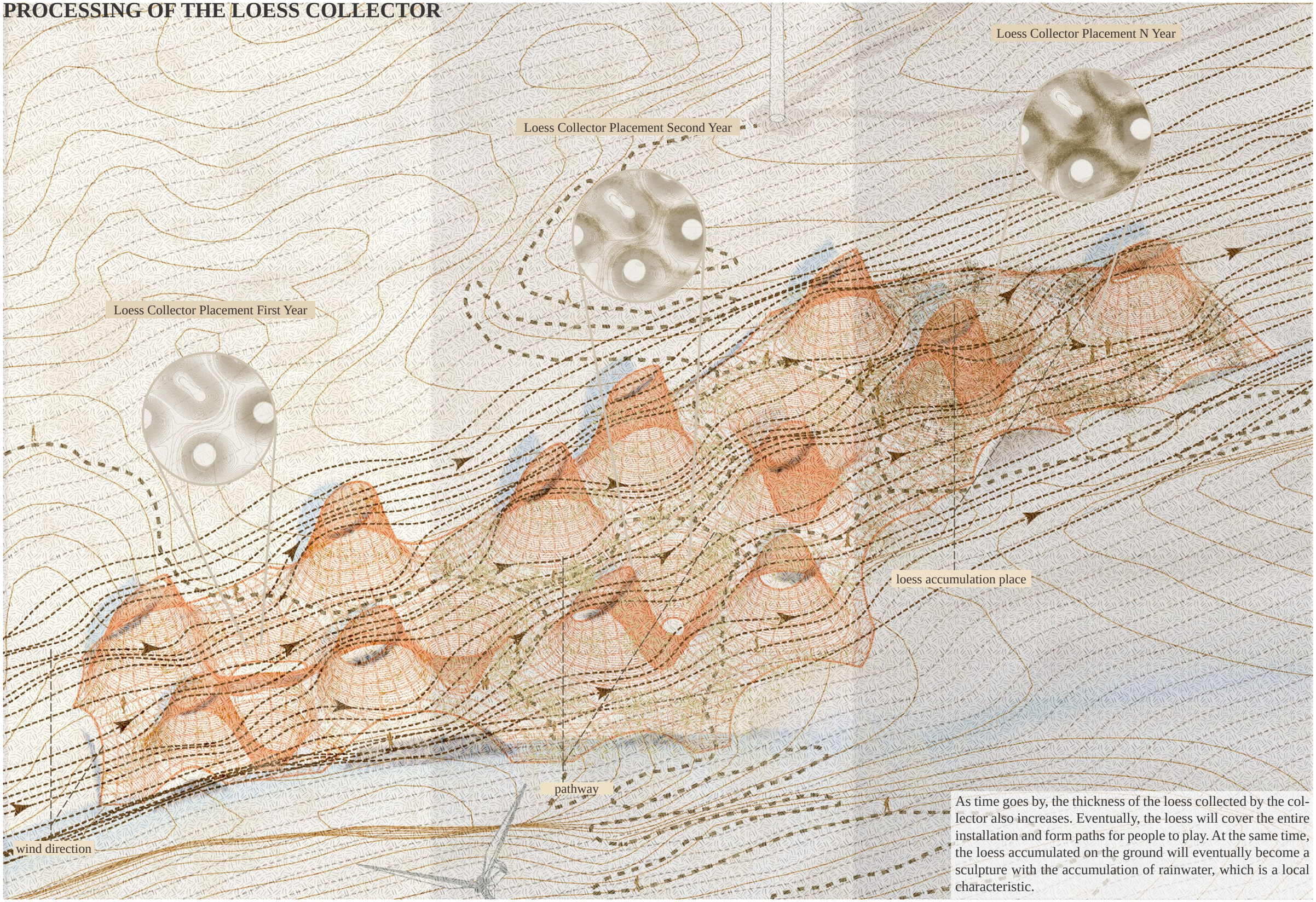
H:30-50m
W/S:2-4m/s



Section

After studying various factors such as terrain and wind direction, the tuyere is the most accessible place to catch more loess. Therefore, we decided to install loess collectors at the tuyeres to collect more loess.

PROCESSING OF THE LOESS COLLECTOR



As time goes by, the thickness of the loess collected by the collector also increases. Eventually, the loess will cover the entire installation and form paths for people to play. At the same time, the loess accumulated on the ground will eventually become a sculpture with the accumulation of rainwater, which is a local characteristic.

02 SOLAR FARMING

Solar Pannel Station

September, 2022

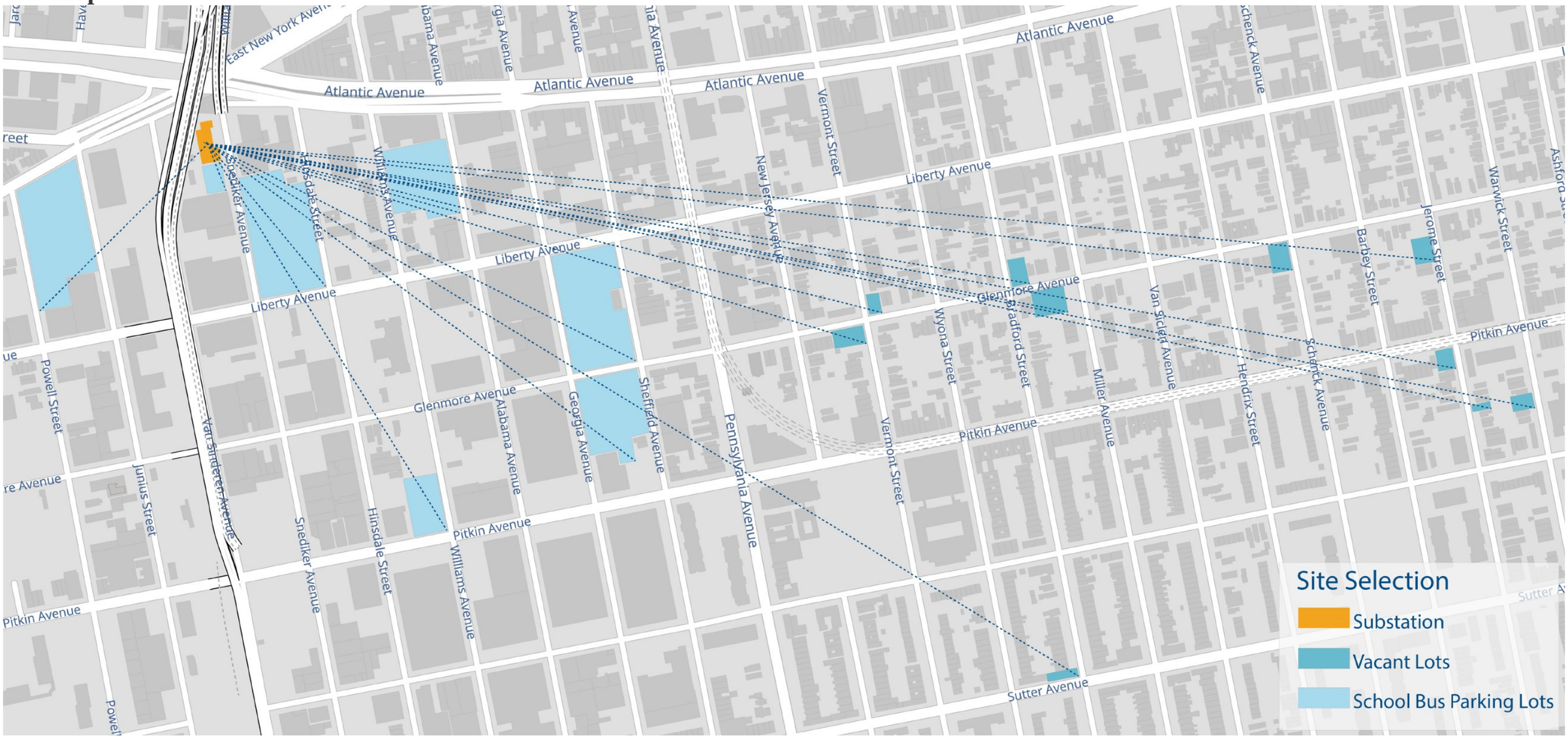
Site: East New York, Brooklyn

Instructor: Laura Gonzalez Fierro

Team Work With Yilin Zheng

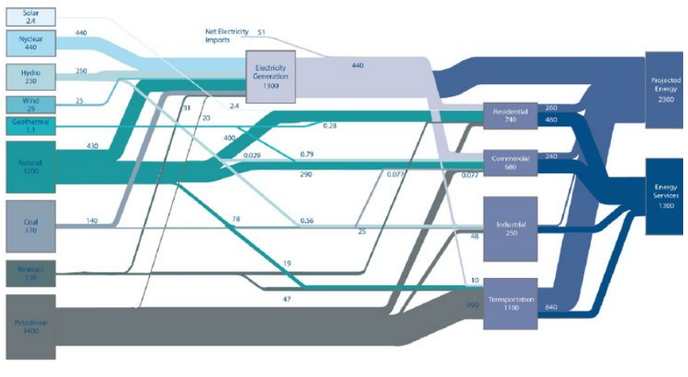
By reusing the abandoned substation which turns it into Solar farming , The solar panel is transmitted to the battery through the transformer, providing battery sales, leasing and other services for the surrounding residents, and providing convenience for the lives of the surrounding residents.

Site Map

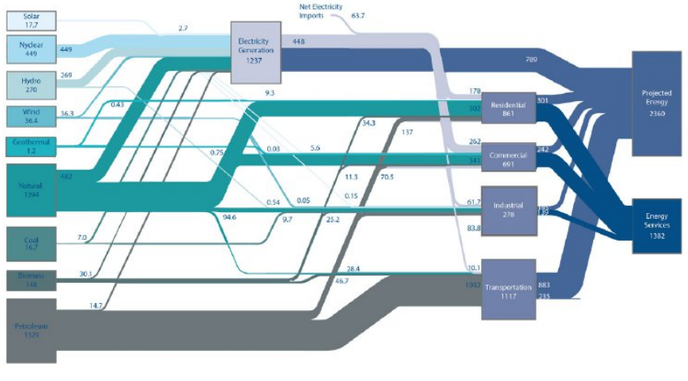


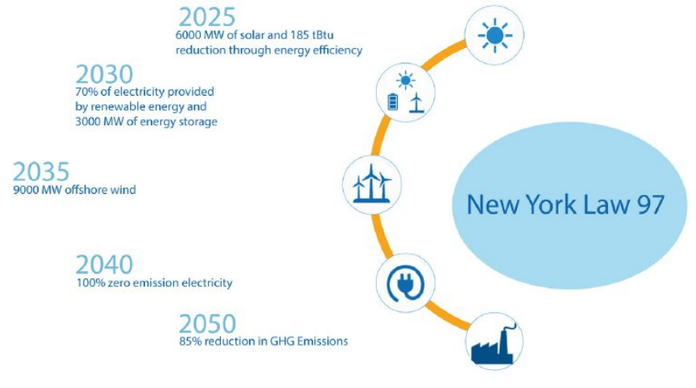
New York Goals

Estimated New York Energy Consumption in 2010:~3600 Trillion BTU $1Quad = 10^{15}BTUs$

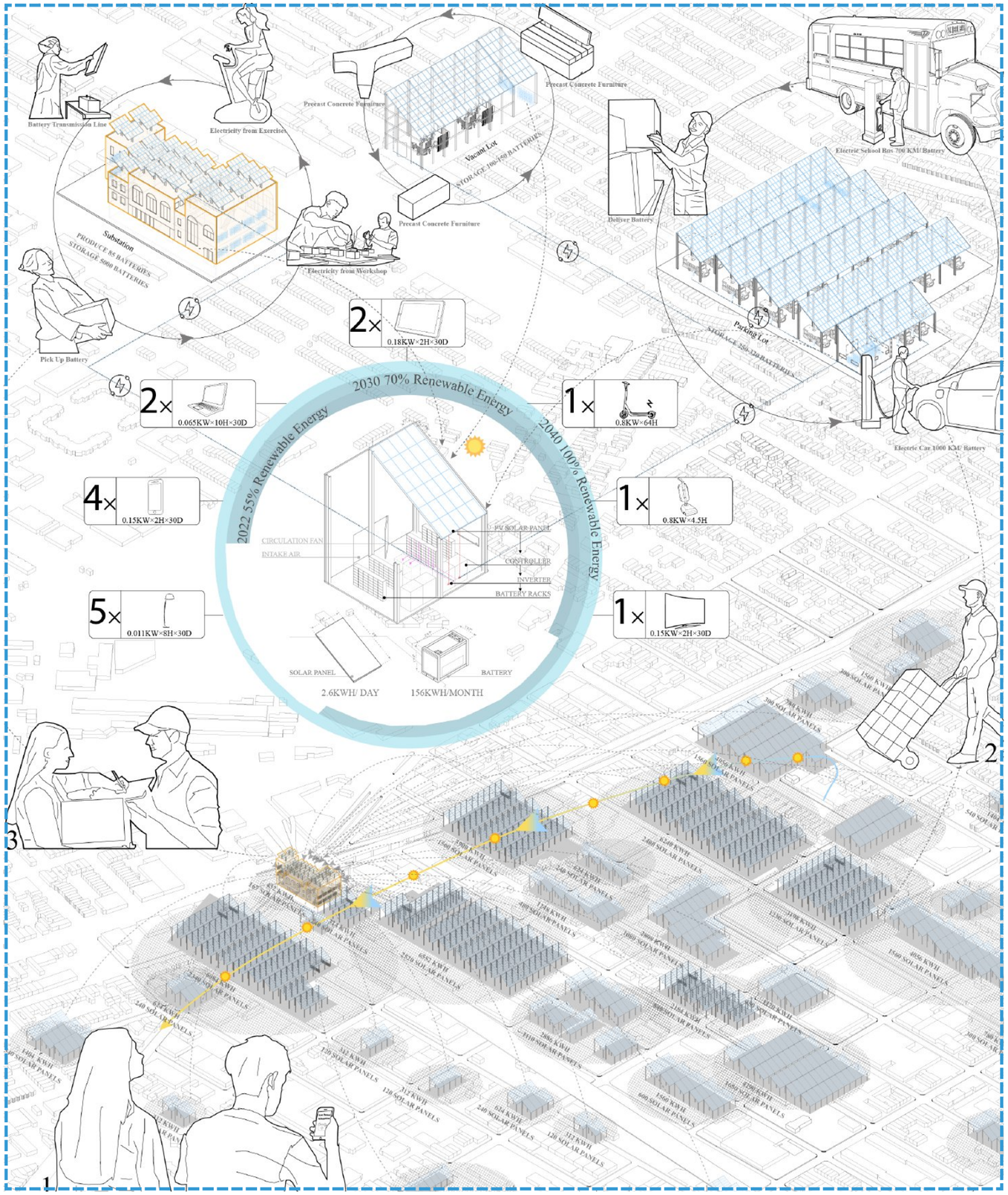


Estimated New York Energy Consumption in 2021:~3742 Trillion BTU $1Quad = 10^{15}BTUs$



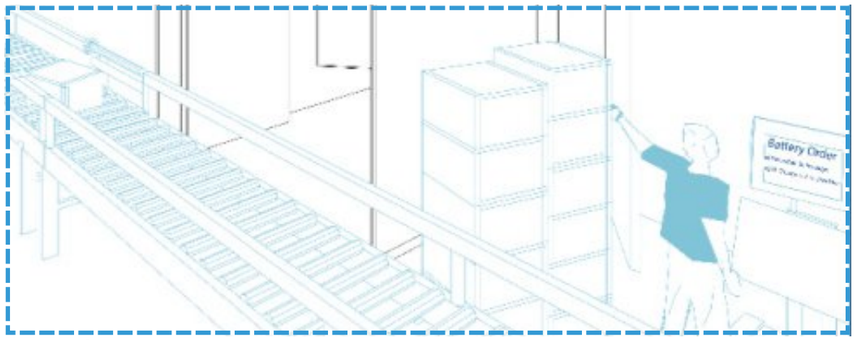


SOLAR PANEL SYSTEM

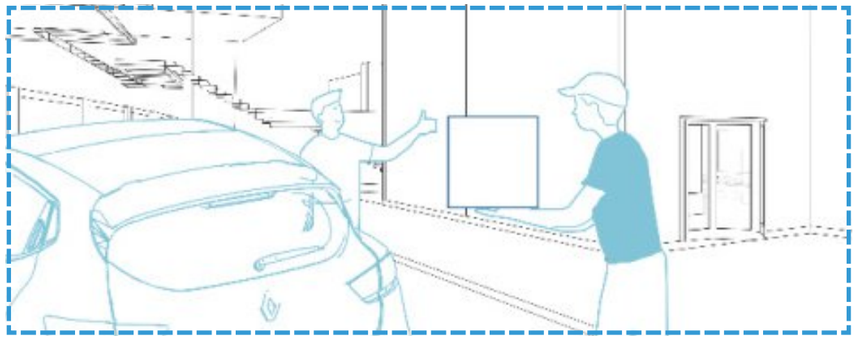


SOLAR BATTERY SYSTEM

1. Order Online/ Walk In



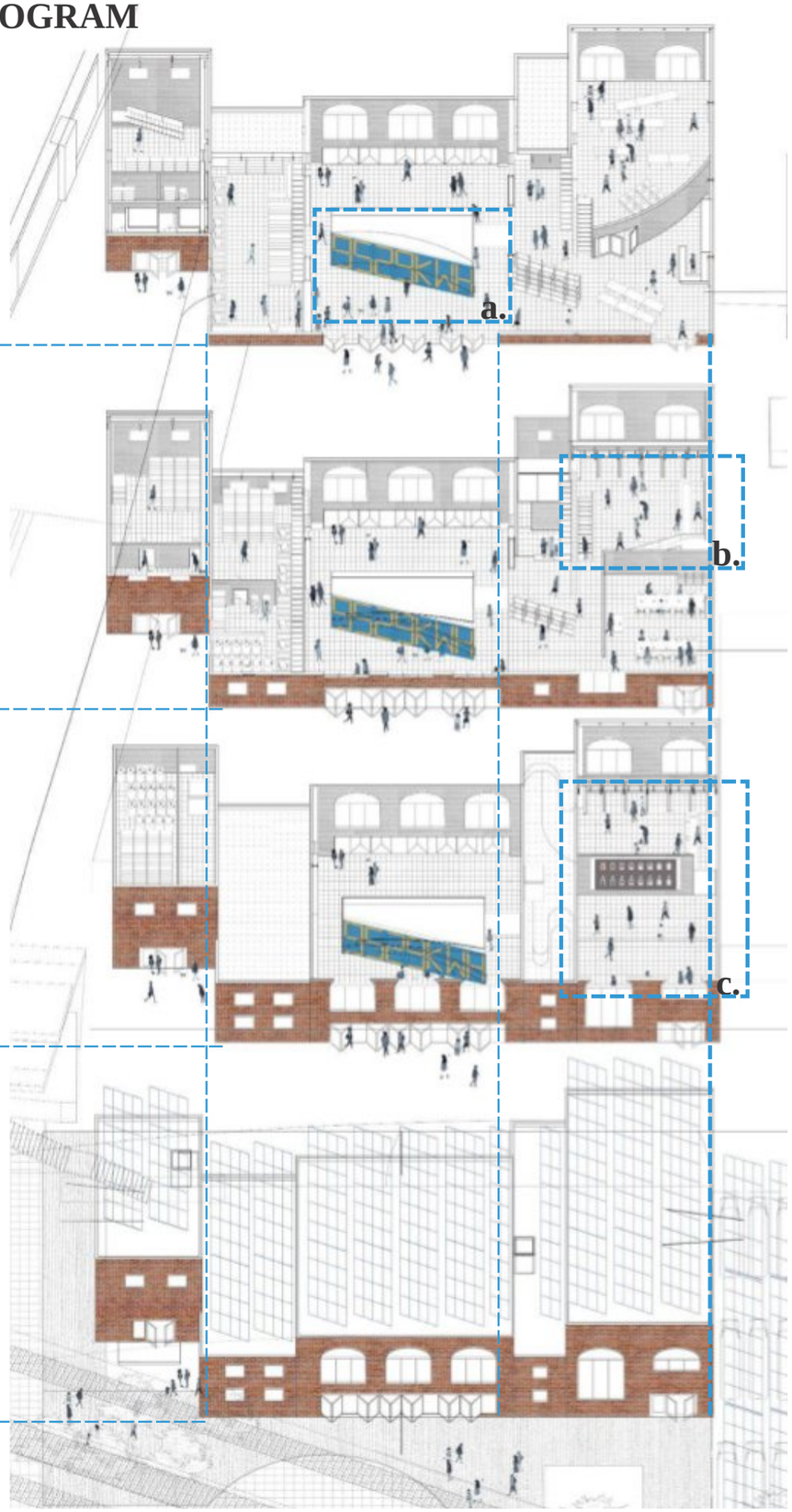
2. Transfer



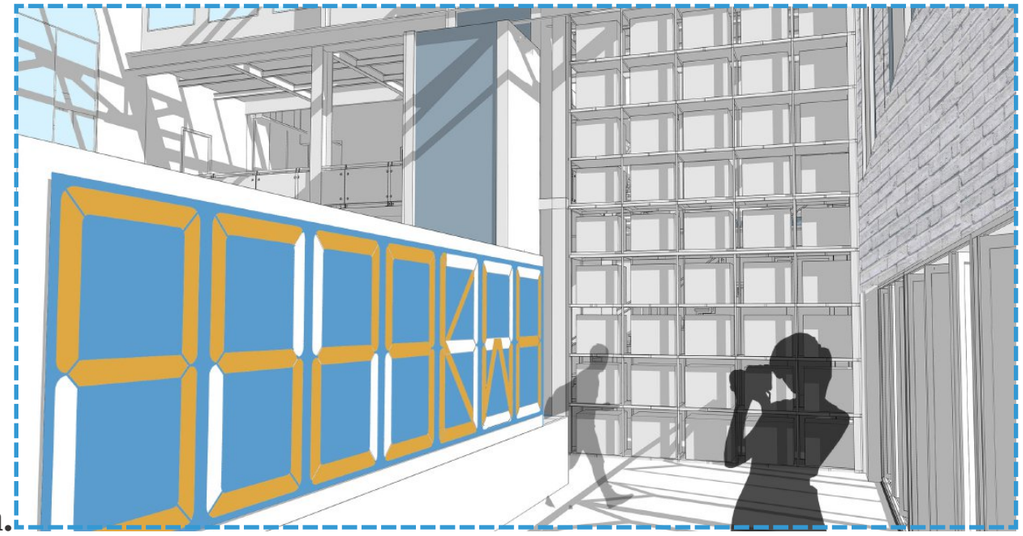
3. Delivery

4. Pick Up

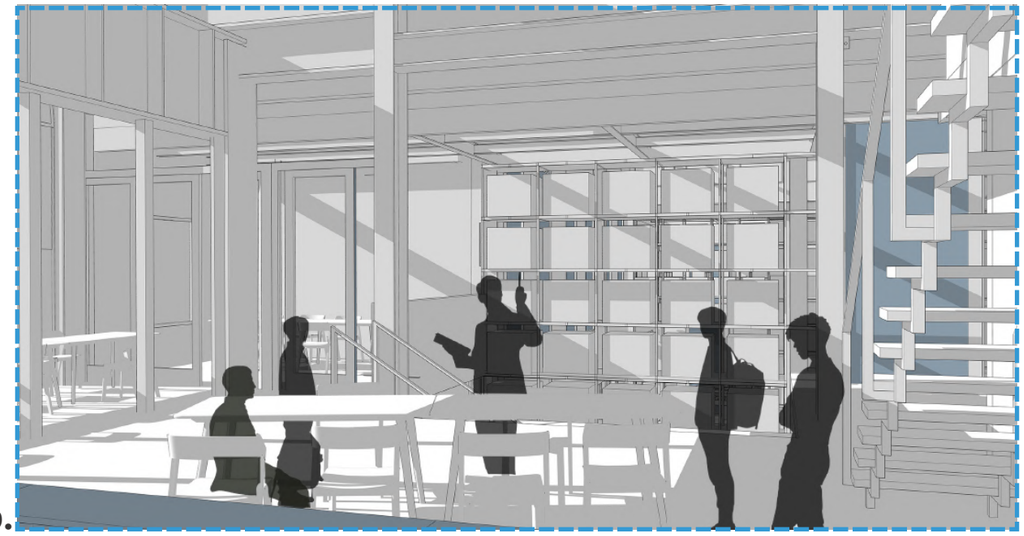
PROPOSED PROGRAM



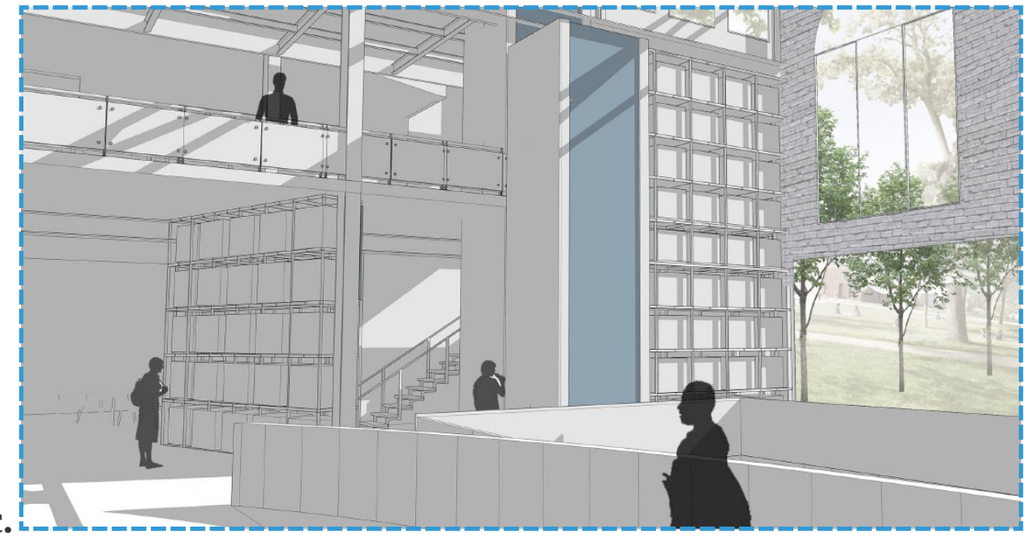
a.



b.

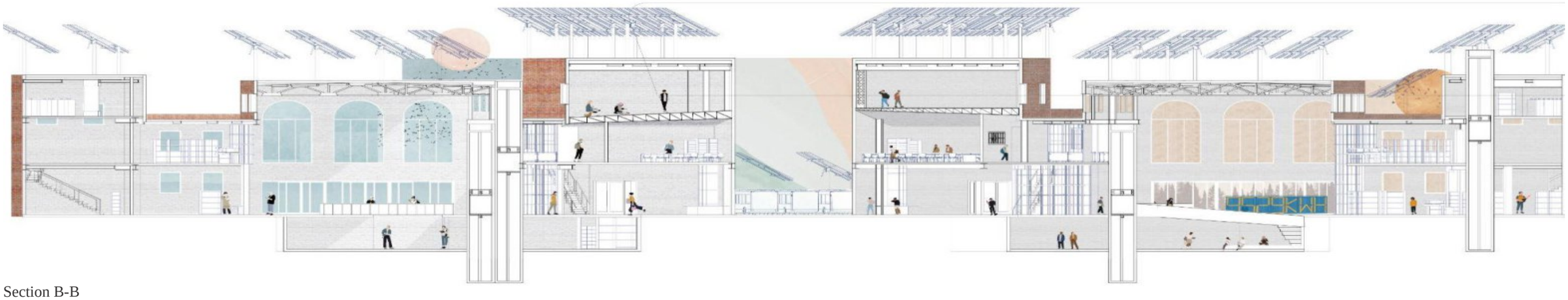


c.



Sectional Perspective

Section A-A



Section B-B

03 THE GREEN

Agricultural Museum

Janyrary, 2023

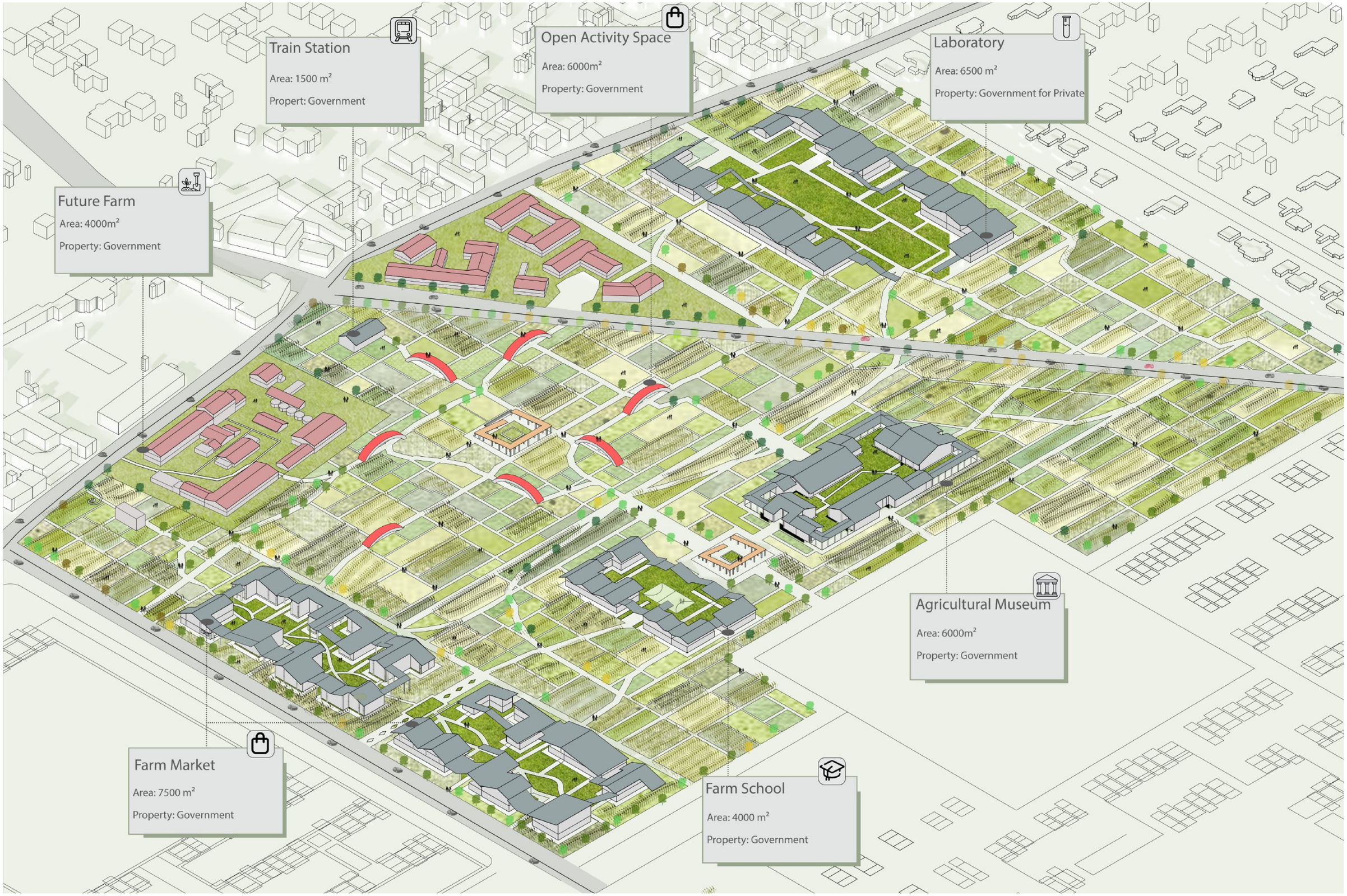
Site: Vienna, Austria

Instructor: David, Gissen

Individual Work

People living in this area can enjoy the pastoral happiness in urban civilization at the same time. My design revolves around the advantages of this area, connecting the agricultural land and the residents of the surrounding communities through design. The interaction between agriculture and urban structure is the main goal of this area. Create new economic value by strengthening the relationship between people and land.

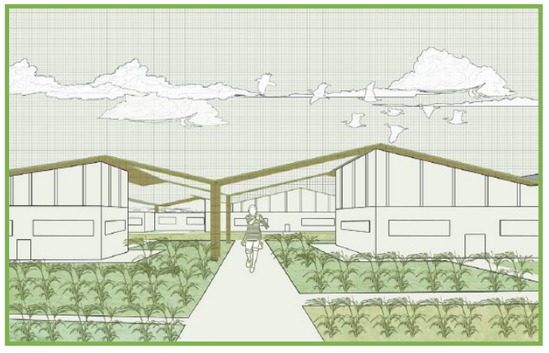
ONE ROOF IDEA



Point Perspective

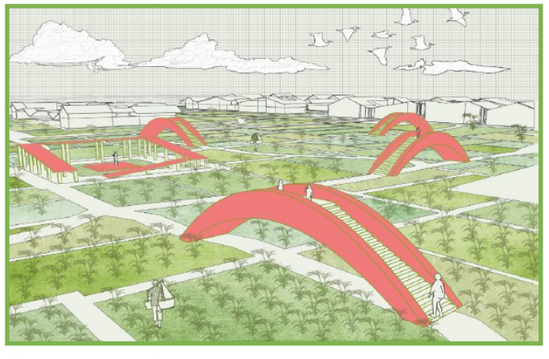
Farm Market

Farm School



Laboratory

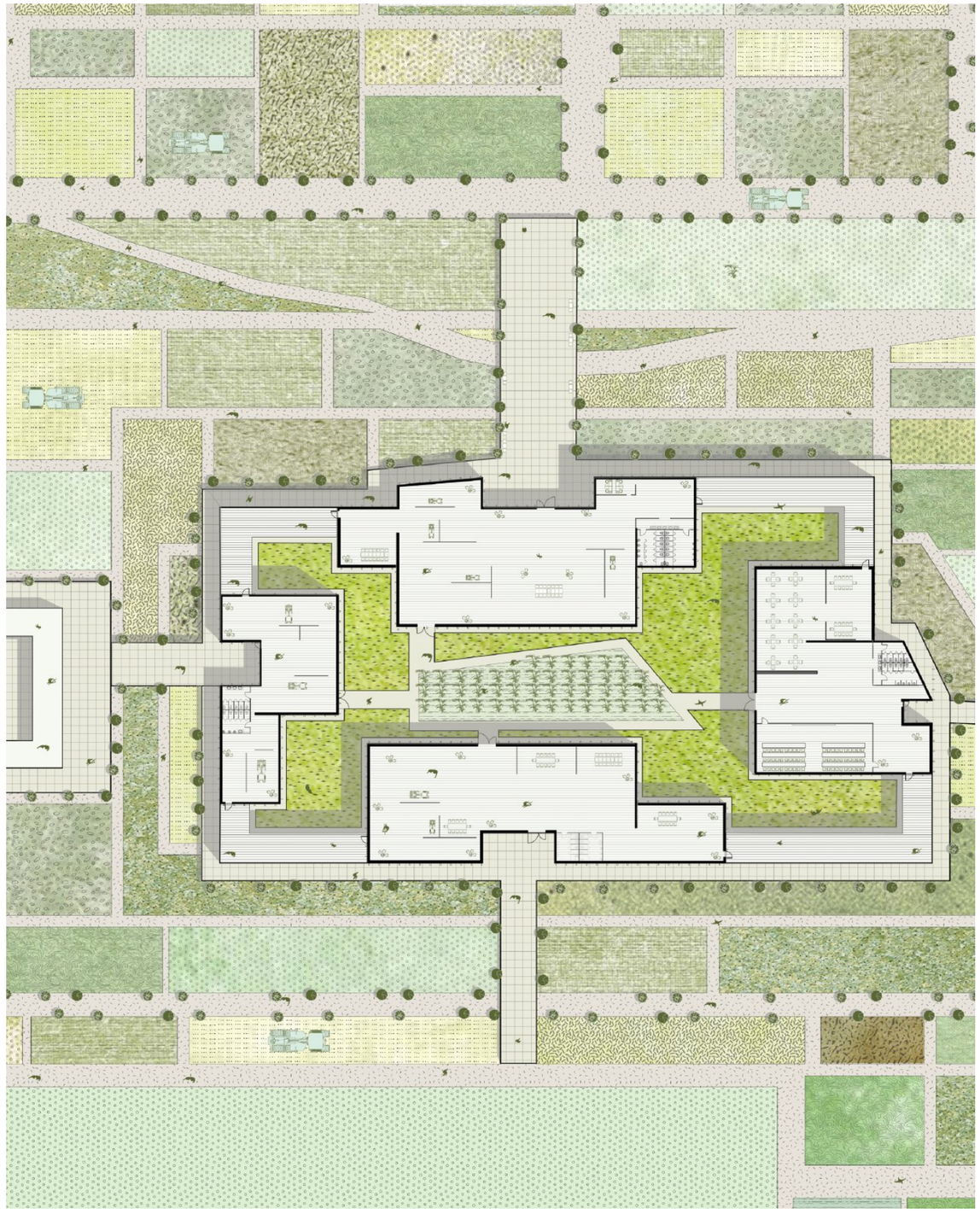
Agricultural Museum



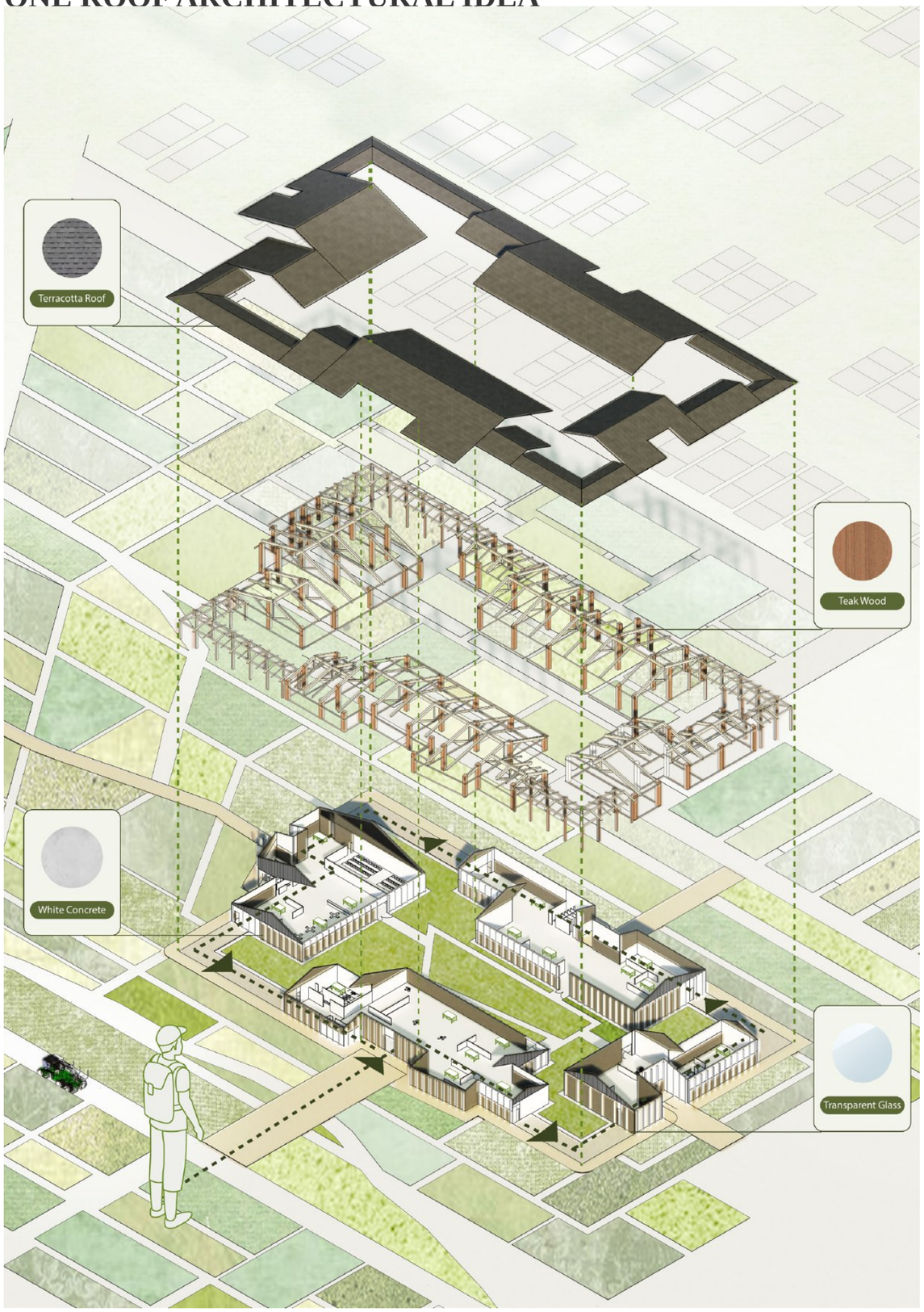
Open Activity Space

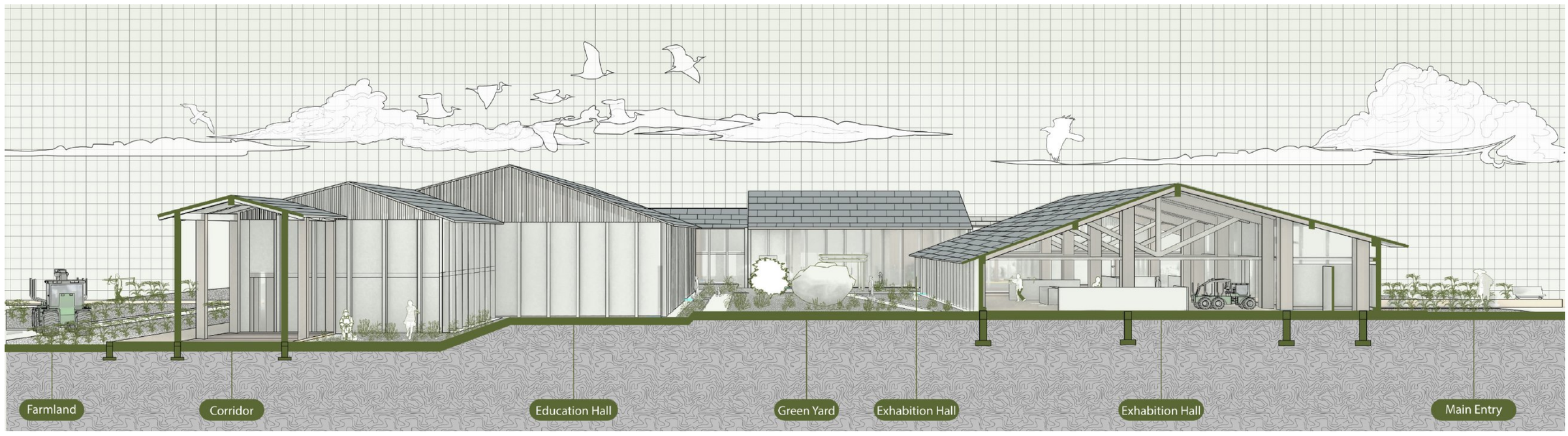
It expresses different scenes in the site, and each scene is full of agricultural culture, allowing visitors to have different agricultural experiences.

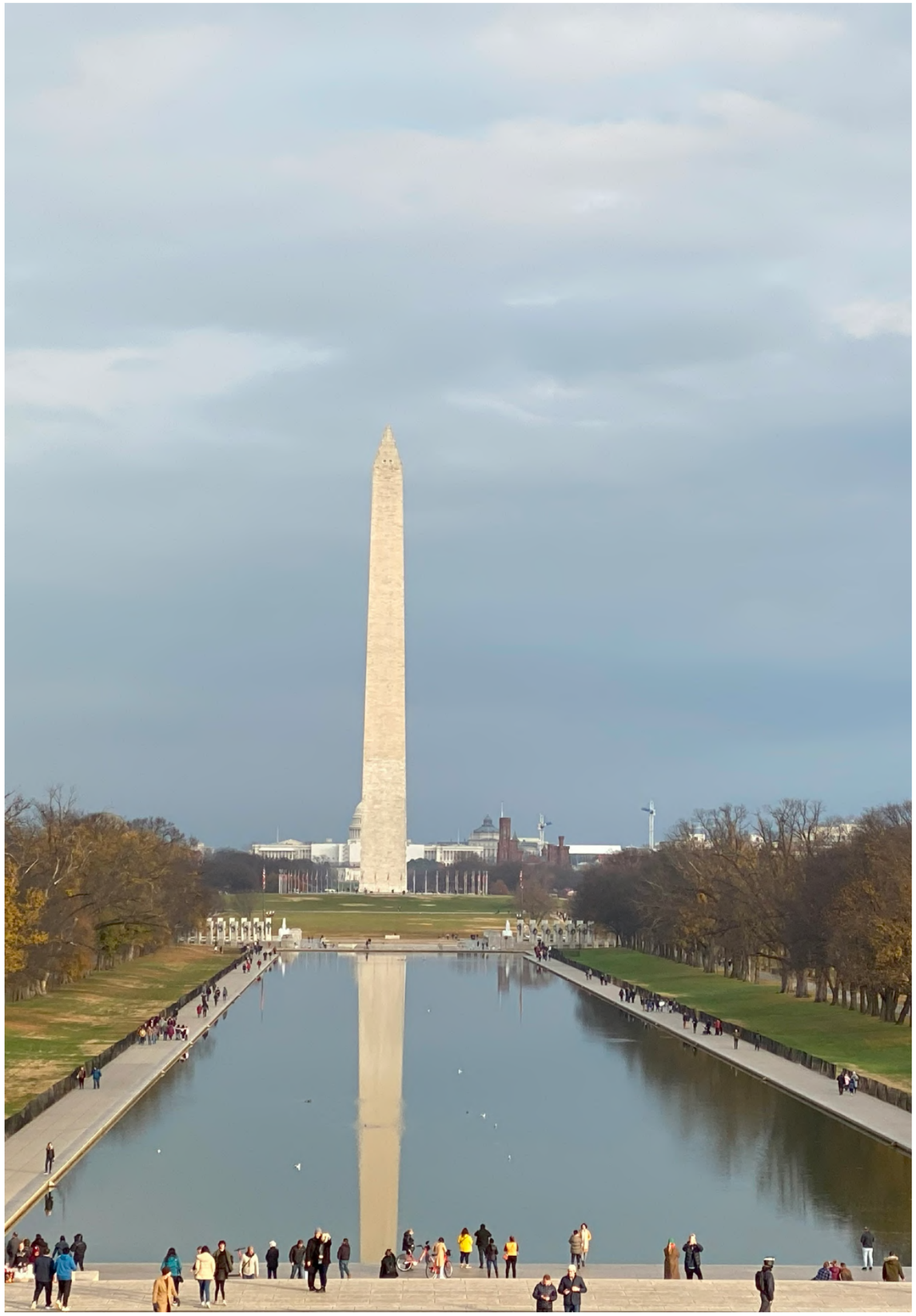
AGRICULTURAL MUSEUM MASTER PLAN



ONE ROOF ARCHITECTURAL IDEA




Farmland
Corridor
Education Hall
Green Yard
Exhabition Hall
Exhabition Hall
Main Entry



Architectural Photography Class

September, 2022

Instructor: Michael Vahrenwald

Individual Work

The photos were taken on a winter day in Washington DC. The shooting locations are the White House, Washington Monument, Capitol, Lincoln Memorial, and Washington Railway Station. The buildings are all in neoclassical style, with masonry as the main material, and the use of ancient Roman columns makes the whole buildings look particularly dignified and magnificent that show the “serious” atmosphere of the capital.

IBCT Class

KALEIDOSCOPE AT ST. JOHN THE DIVINE

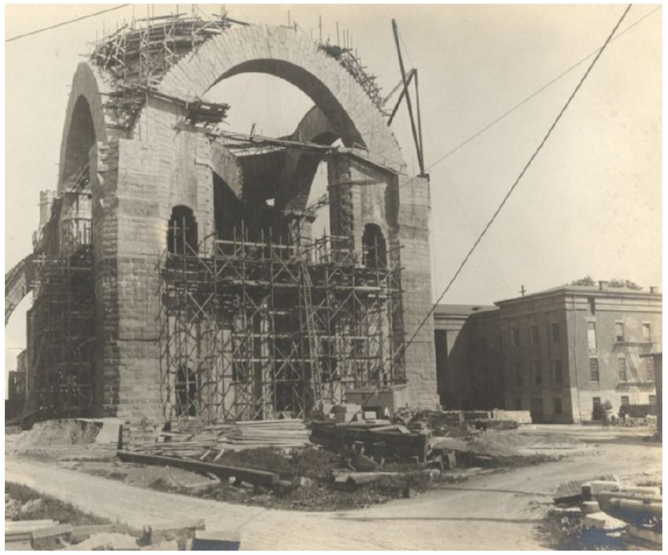
Janurary, 2023

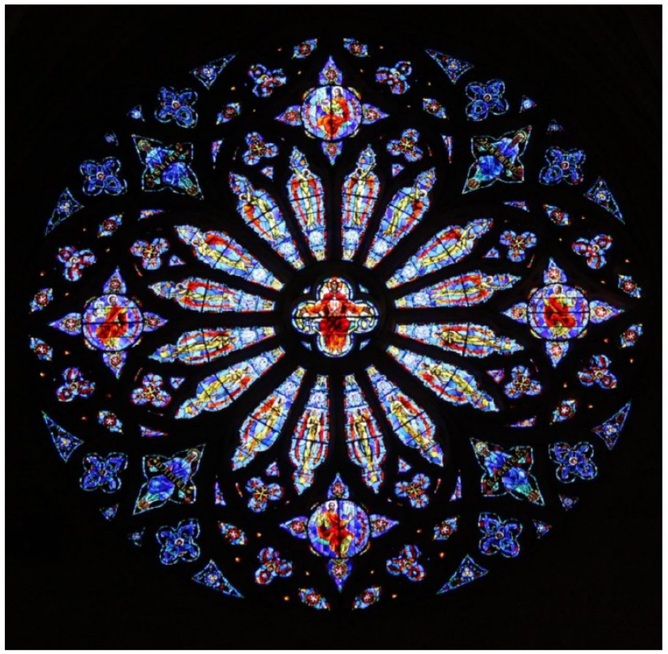
Instructor: Sharon Yavo

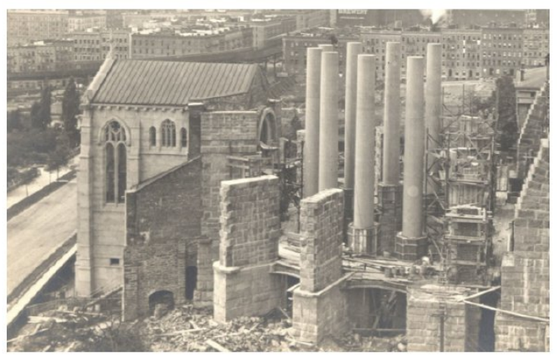
Team Work With
Jerry Schmit,
Maggie Su, Seung
Ho Shin, Xinyi Lin

Why Kaleidoscope? The architectural history of Cathedral

The cathedral is a combination of different architecture style. The original conception of the cathedral was devised by George Heins and Christopher LaFarge and showed a pseudo Byzantine configuration with Romanesque elements. Following the death of partner architect Geroge Heins in 1907, the trustees elected to hire Ralph Adams Cram to take over the design and to revise the style of the cathedral more towards gothic. This explains the uniquely romanesque arcade seen within the apse of the church which is completely shrouded in an otherwise gothic enclosure.



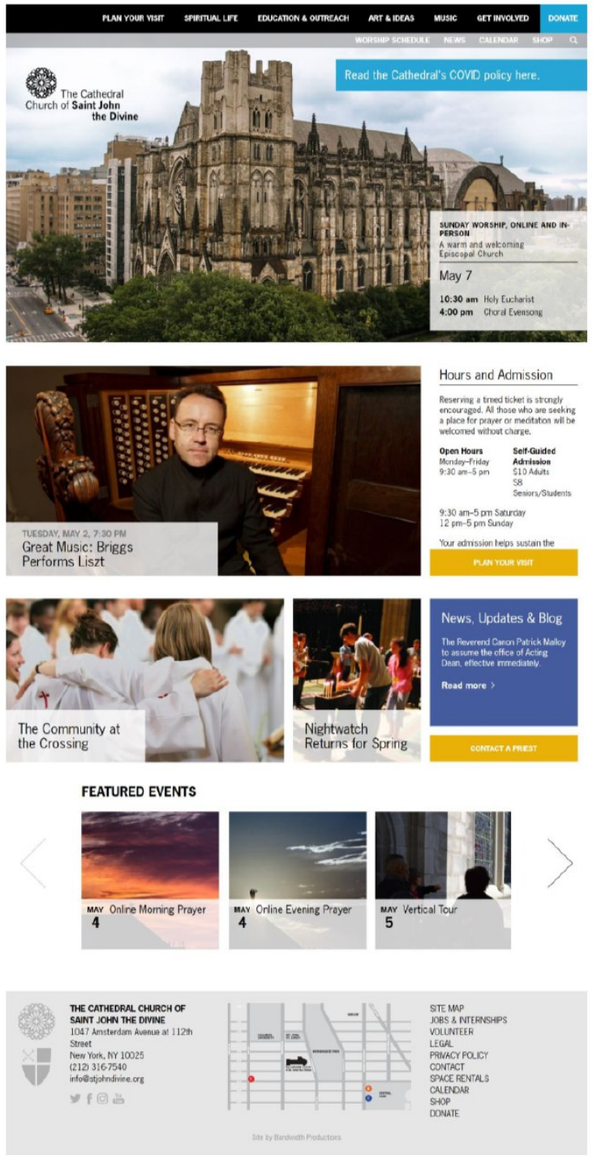


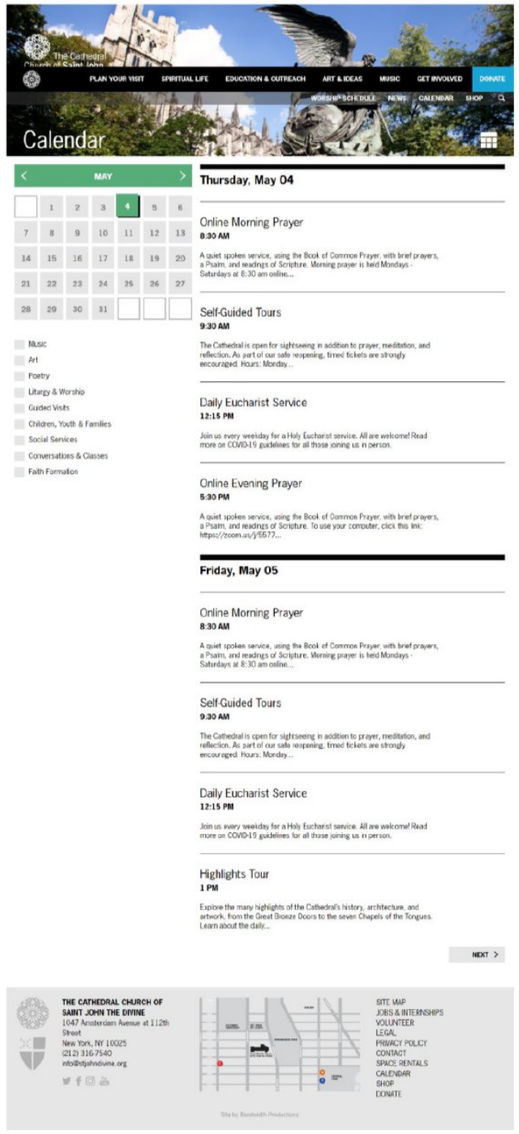


Why Kaleidoscope? The events of Cathedral

In our research, we also see different events on the cathedral's calendar. These events range from liturgical, social, to entertainment and artistic, and more. The cathedral is a concentrated of people's different aspects of life in one place.

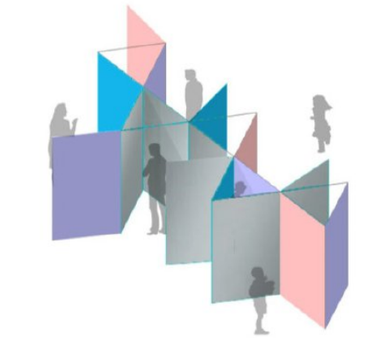
In this way, the form and the function of the church is just like a Kaleidoscope in which different information and images are collected, pieced up and layered together. Therefore we take it as our main concept for our site-specific intervention.

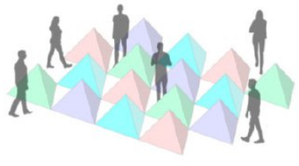


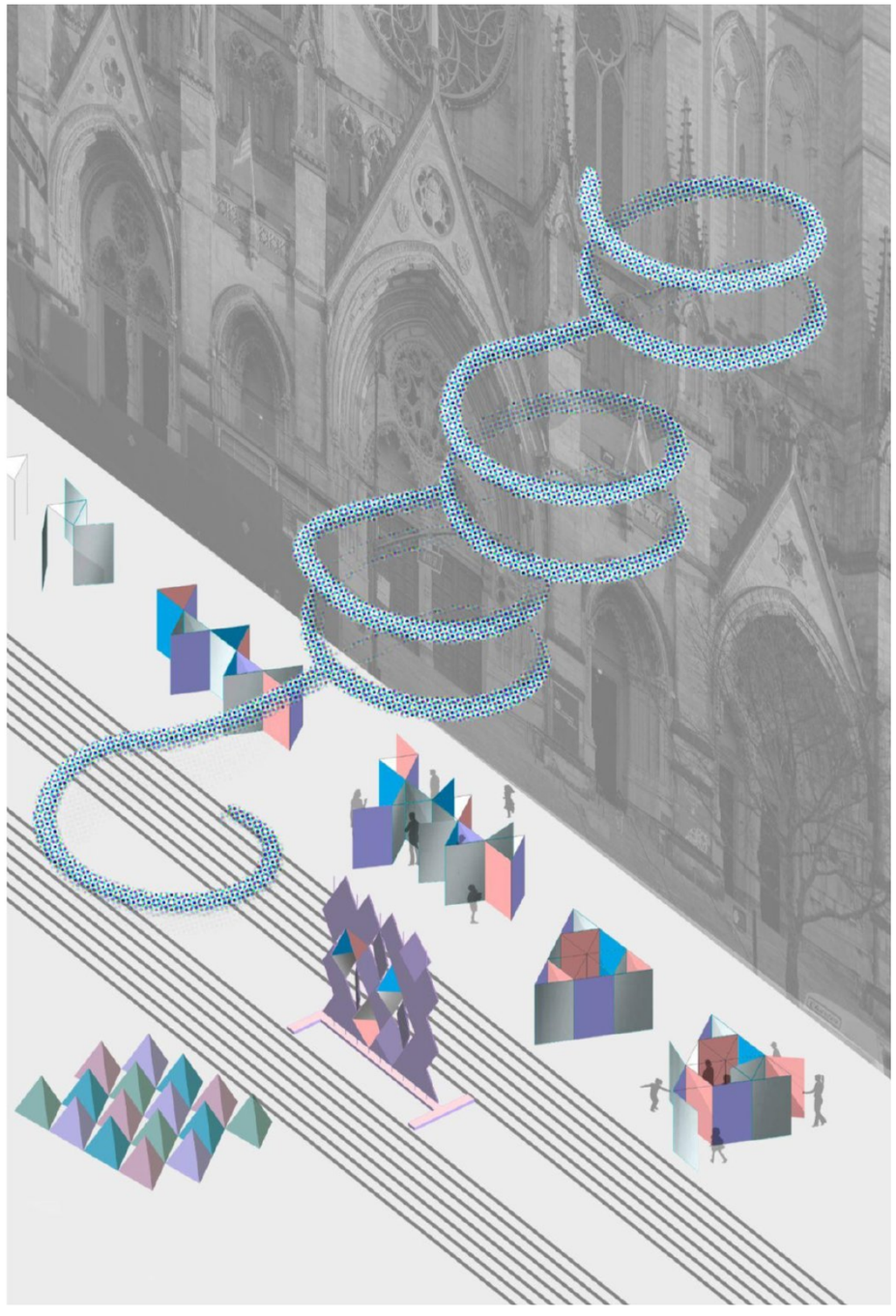


Iteration One

In the first iteration, we brainstormed around the idea of Kaleidoscope. Our shared methods are using mirrors and reflective materials. They are in different scales, different forms, and also has different ways of interactions with the visitors.

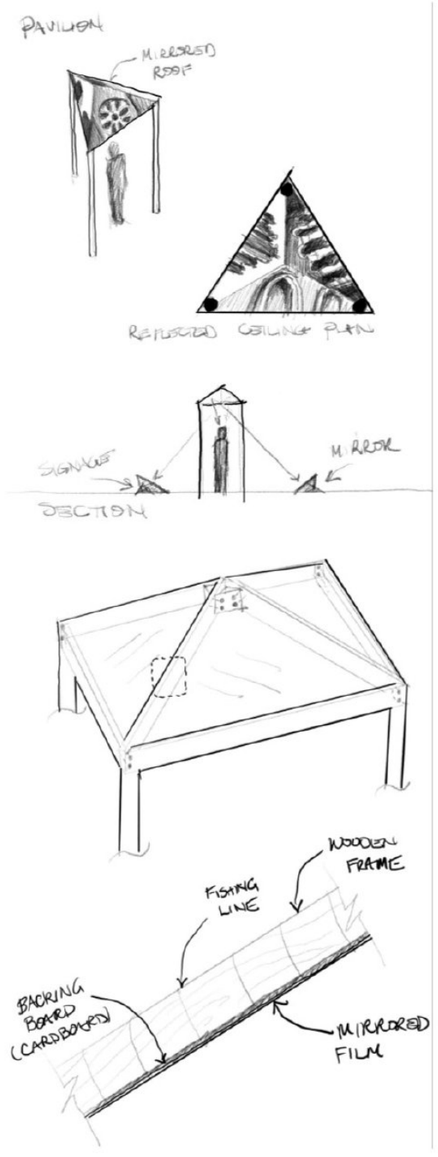


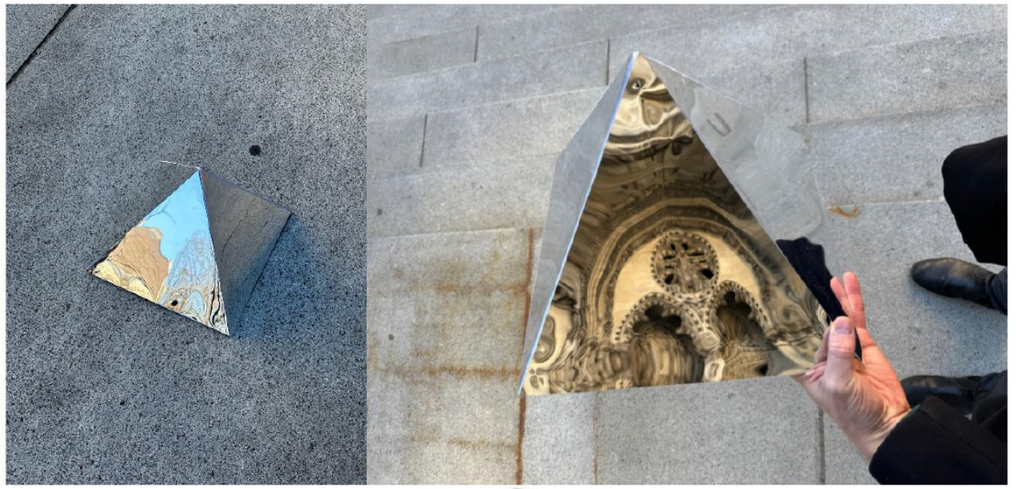


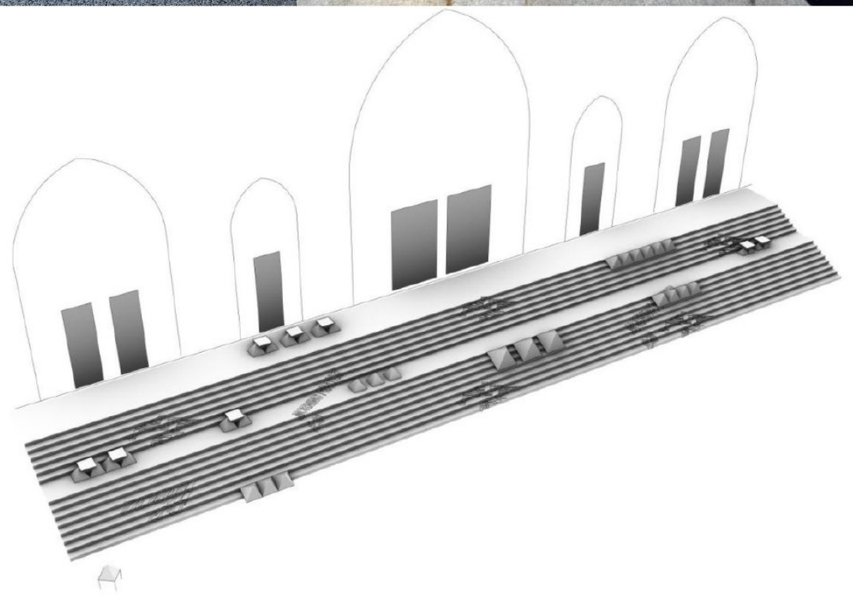


Iteration Two

In this iteration, we tried to further develop the “pyramid” idea. We made prototypes and tried to make it simple. We thought about construction techniques. We also tried to combine the cathedral’s event calendar by printing texts on the stairs.

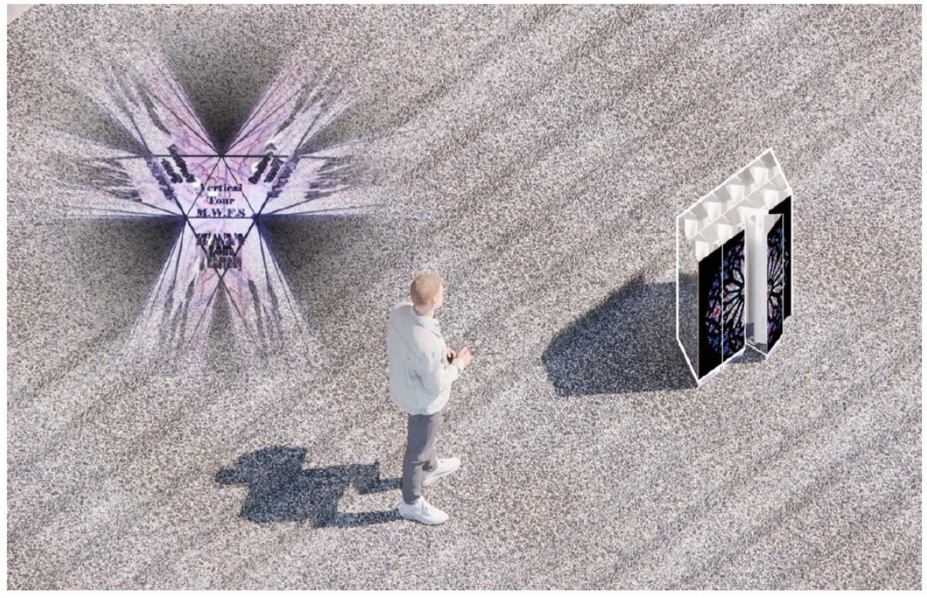


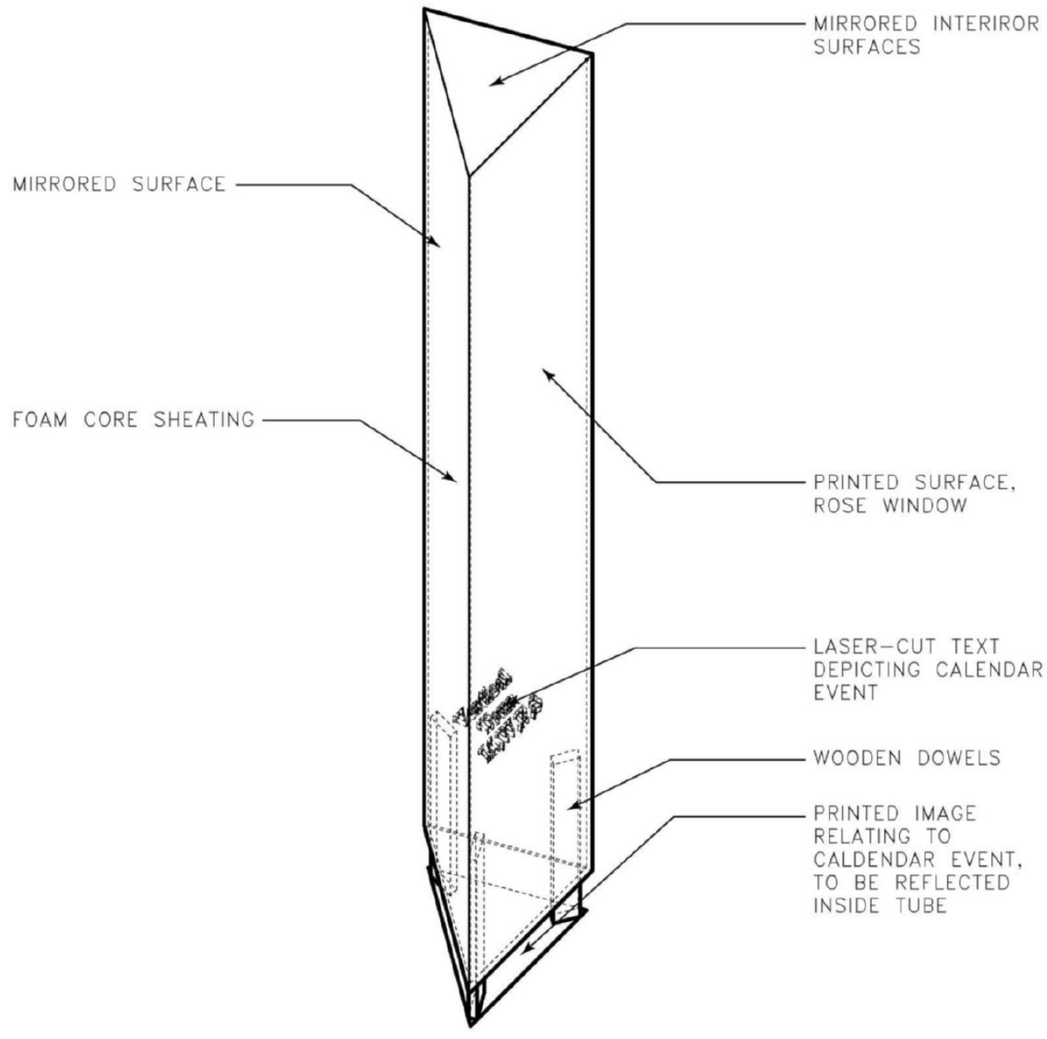




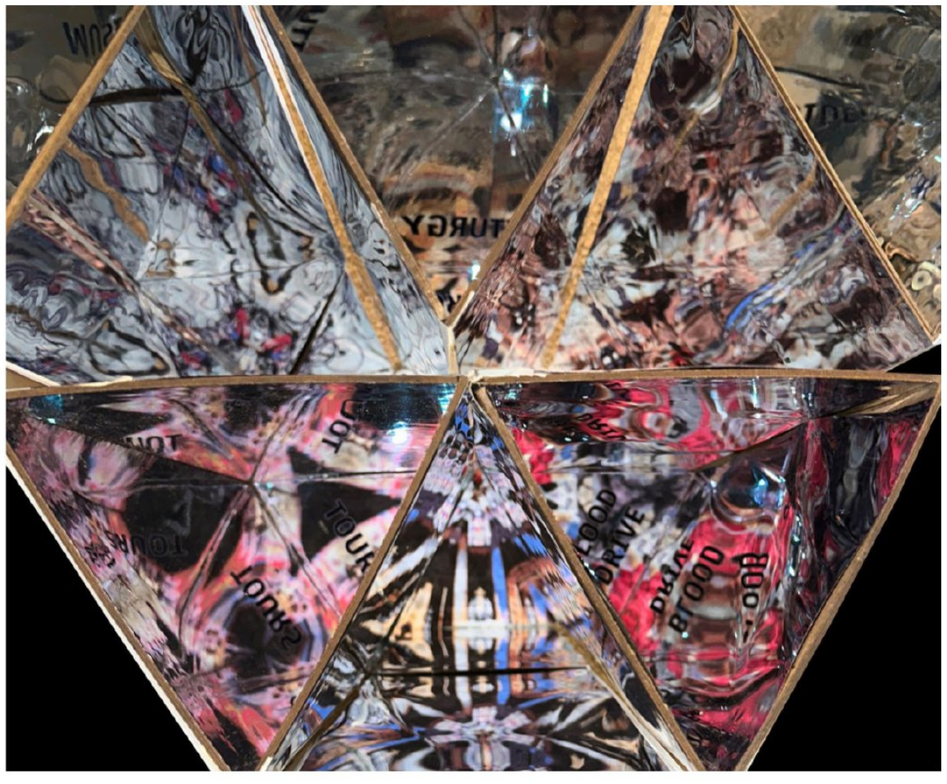
Iteration Three

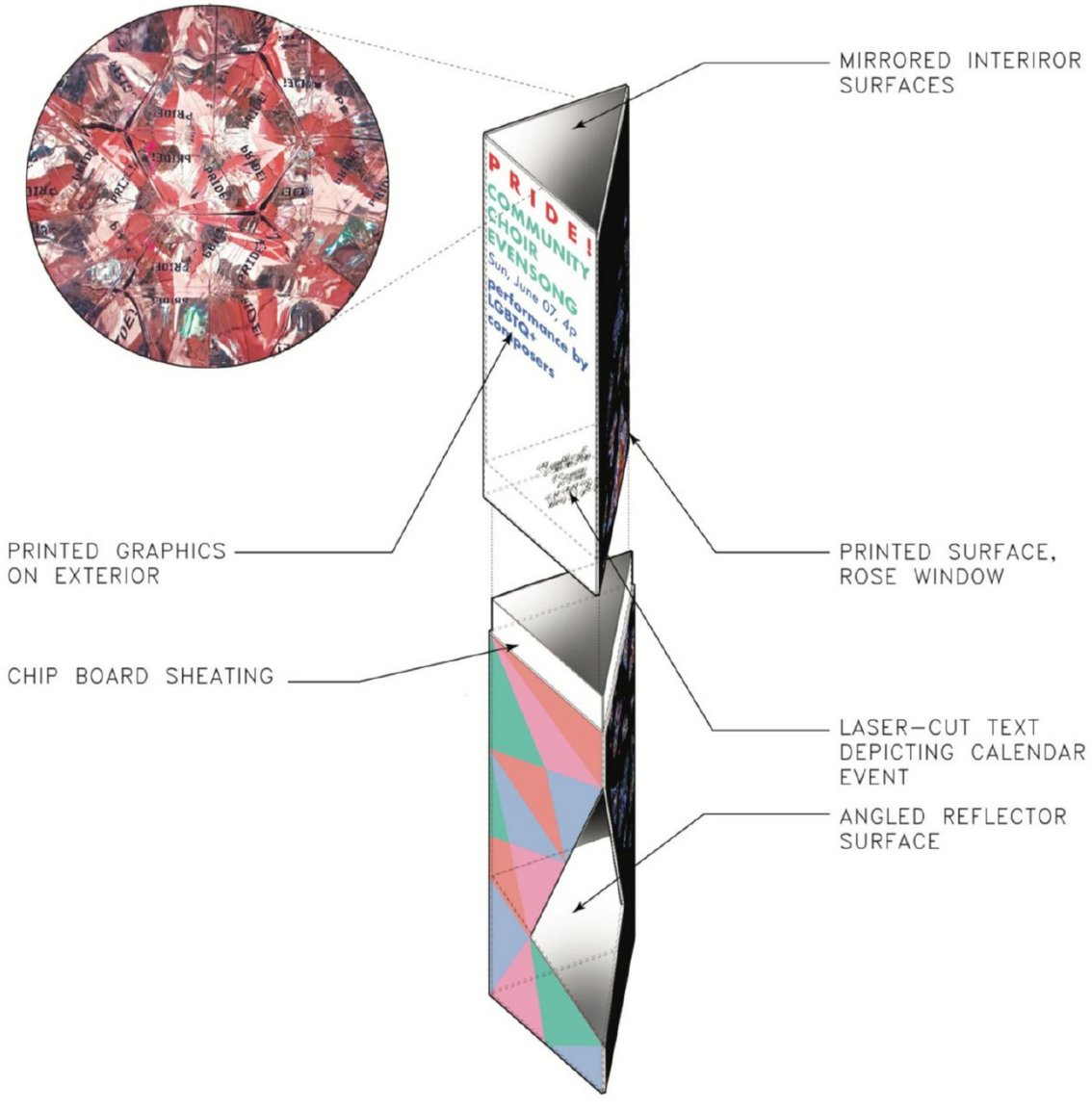
In this iteration we revised the form and prioritize the concept of kaleidoscope. We resort to the basic form of kaleidoscope and a modular approach. We thought about details, constructions and interactions in this process.



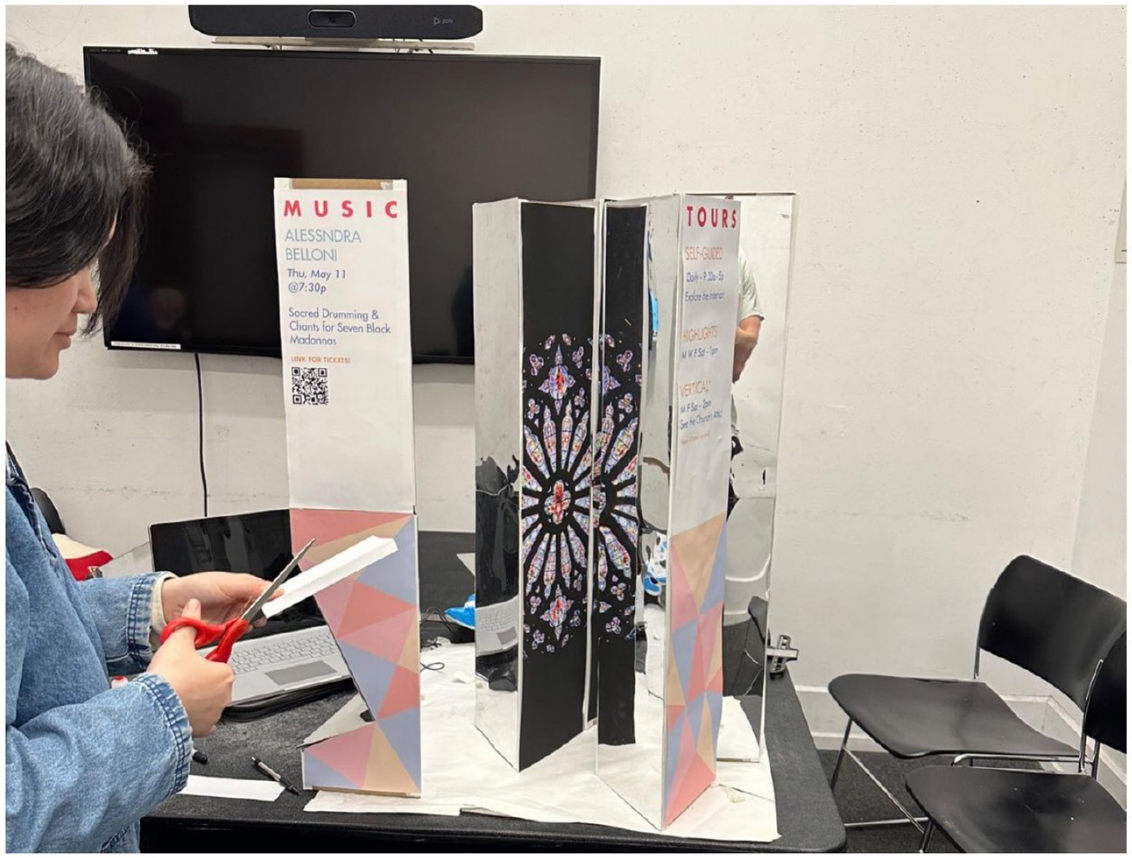


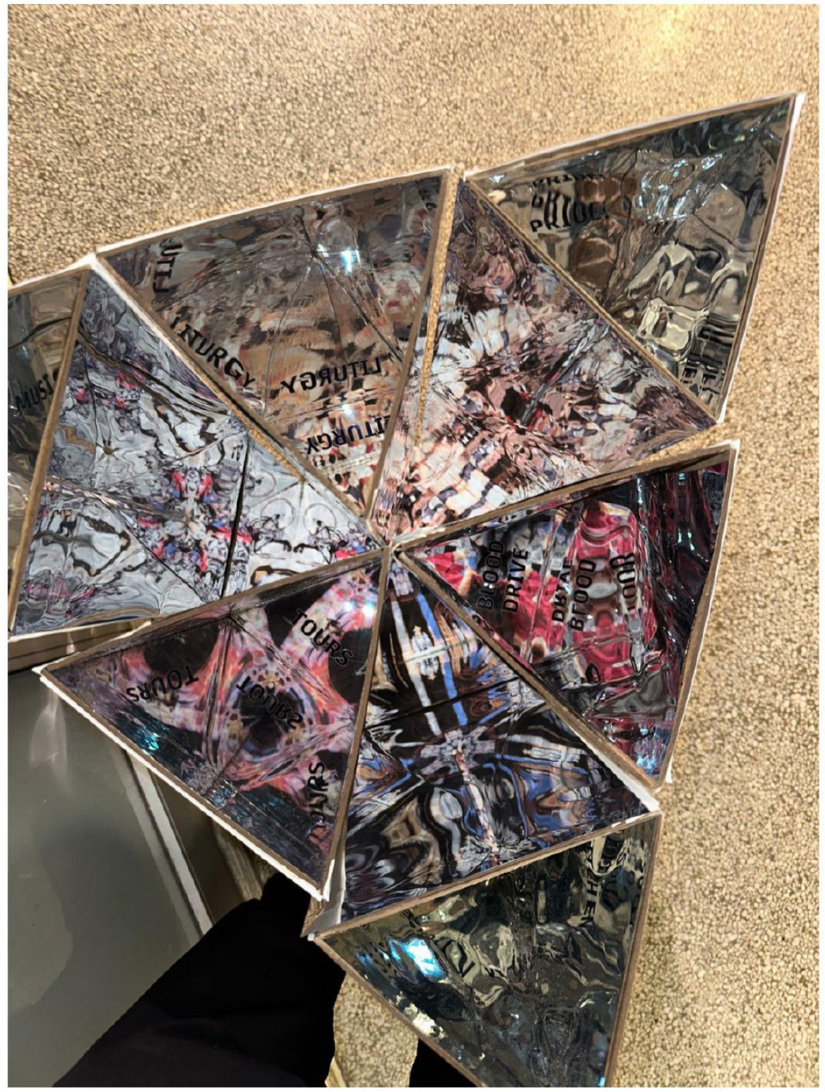
Final Iteration



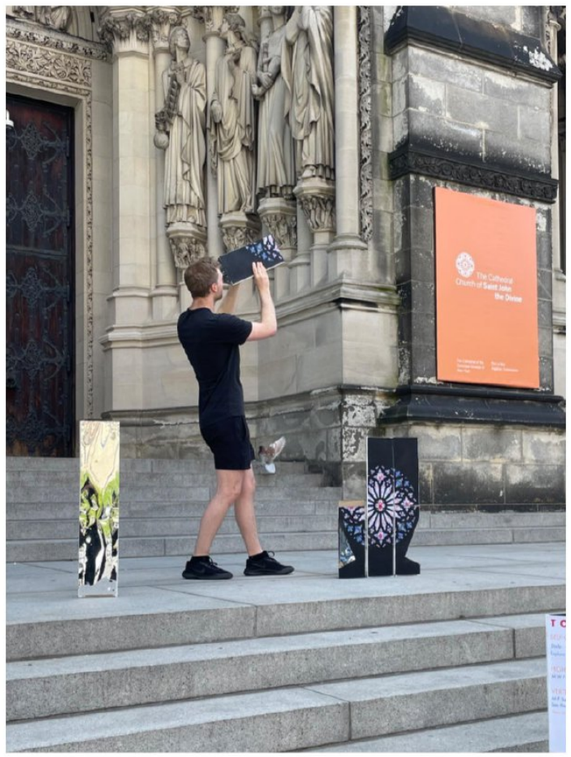


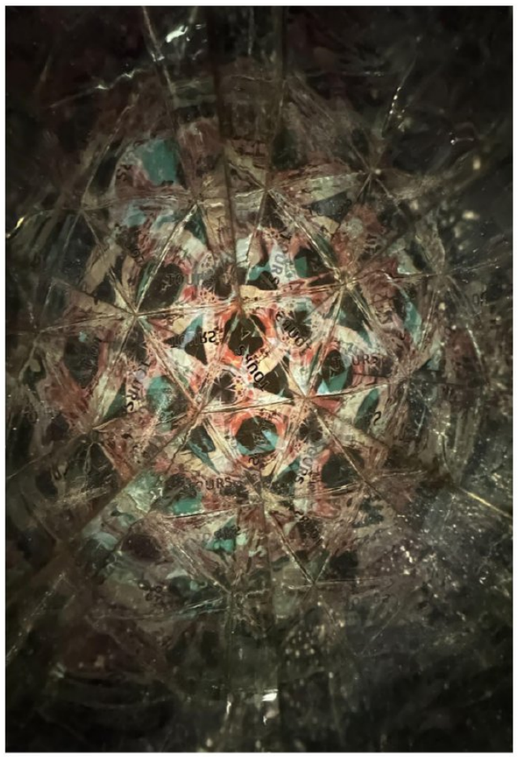
Construction and testing effect





Used as separate Kaleidoscopes





Separate on site and put-together

Interactions with users and visitors

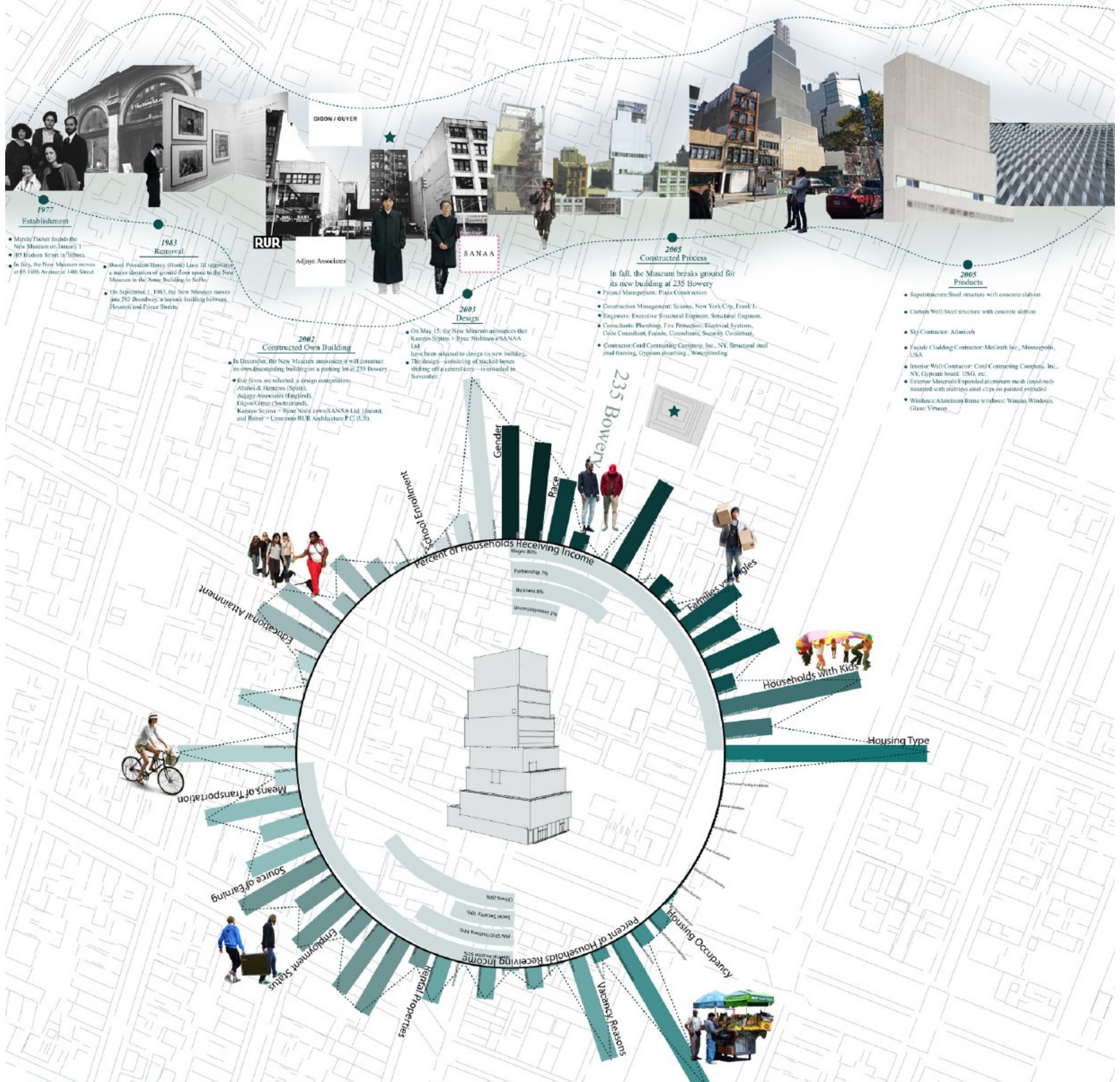
Rethinking BIM Class

September, 2022

Instructor: Joseph Brennan

Team Work With
Mingrui Jiang
Yang Fei

New Museum Historical Evolution Timelime



Challenges Within New Museum

OING DISTRICT : C6-1 Community facilities

235 BOWERY, 10002

Manhattan (Borough 1) | Block 426 | Lot 12

Zoning District: C6-1

INTERSECTING MAP LAYERS:
- FRESH Zone

ZONING DETAILS:
- Digital Tax Map
- Zoning Map: 12c (PDF)
- Historical Zoning Maps (PDF)

Owner Type	Mixed
Owner	Show Owner
Land Use	Public Facilities & Institutions
Lot Area	16,850 sq ft
Lot Frontage	124 ft
Lot Depth	173.5 ft
Year Built	2006
Building Class	Places of Public Assembly (indoor) and Cultural - Museum (P7)
Number of Buildings	2
Number of Floors	8
Gross Floor Area	103,411 sq ft
Total # of Units	4
Residential Units	2
Building Info	BISWEB
Property Records	View ACRIS
Housing Info	View HPD's Building, Registration & Violation Records

Neighborhood Information

Community District	Manhattan Community District 3
City Council District	Council District 1
School District	01
Police Precinct	5
Fire Company	L020
Sanitation Borough	1
Sanitation District	03
Sanitation Subsection	2A

General Central Commercial District

C6	C6-1	C6-2	C6-3	C6-4 / C6-8	C6-5	C6-7	C6-6 / C6-9	C6-1A	C6-2A	C6-3A	C6-3D	C6-3X	C6-4A	C6-4X
Commercial FAR		6.0		10.0		15.0			6.0		9.0	6.0	10.0	
Residential District Equivalent	R7-2	R8	R9	R10				R6	R8A	R9A	R9D	R9X	R10A	R10X
equired Accessory Parking PRC-B	None													
Permitted Sign Regulations (surface area)	5 X street frontage (500 sf total)			No restriction			5 X street frontage (500 sf total)							

AXIMUM HEIGHT OF WALLS AND REQUIRED SETBACKS

all districts, as indicated, if the front wall or other portion of a building or other structure is located at the street line or within the initial setback distance set forth in this Section, the height of uch front wall or other portion of a building or other structure shall not exceed the maximum height above curb level set forth in this Section. Above such specified maximum height and beond the initial setback distance, the building or other structure shall not penetrate the sky exposure plane set forth in this Section.

MAXIMUM HEIGHT OF FRONT WALL AND REQUIRED FRONT SETBACKS

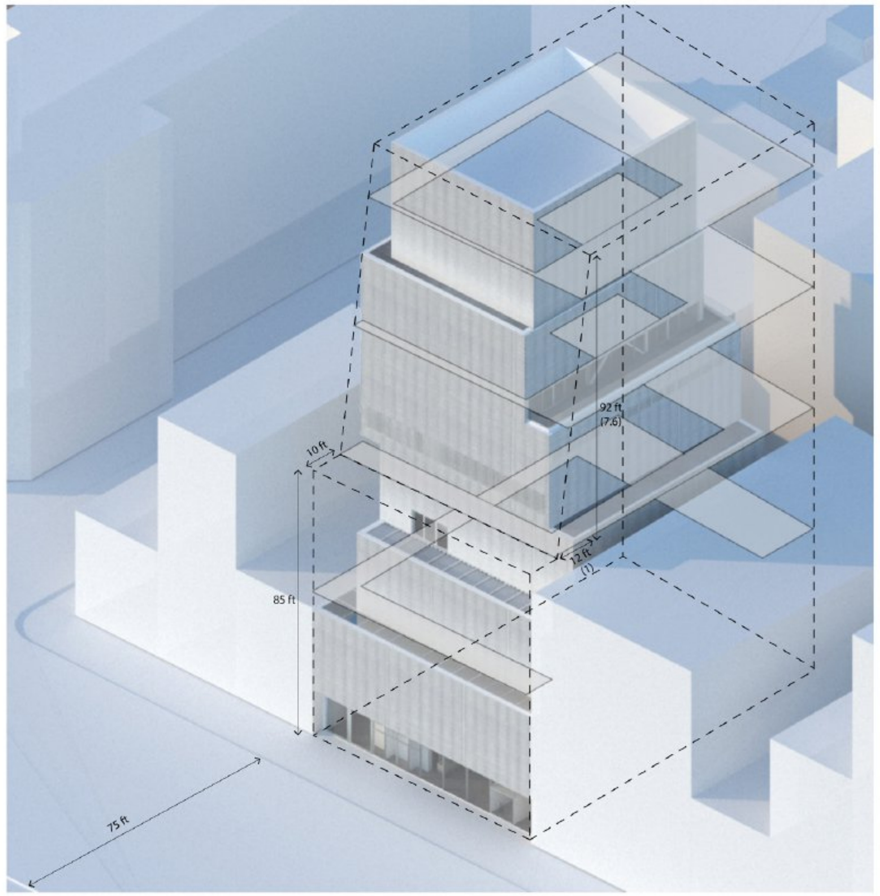
Initial Setback Distance (in feet) On Narrow Street	Initial Setback Distance (in feet) On Wide Street	Maximum Height of a Front Wall or other portion of a Building or Other Structure within the Initial Setback Distance	Sky Exposure Plane: Height above the Street Line (in feet)	On Narrow Street: Vertical Distance	On Narrow Street: Horizontal Distance	On Wide Street: Vertical Distance	On Wide Street: Horizontal Distance
Within C3 C4-1 C8-1 Districts							
20	15	30 feet or two stories, whichever is less	30	1	to 1	1	to 1
Within C1-6 C2-6 C4-2 C4-3 C4-4 C4-5 C7 C8-2 C8-3 Districts							
20	15	60 feet or four stories, whichever is less	60	2.7	to 1	5.6	to 1
Within C1-7 C1-8 C1-9 C2-7 C2-8 C4-2F C4-6 C4-7 C5 C6 C8-4 Districts							
20	15	85 feet or six stories, whichever is less	85	2.7	to 1	5.6	to 1

ALTERNATE REQUIRED FRONT SETBACKS

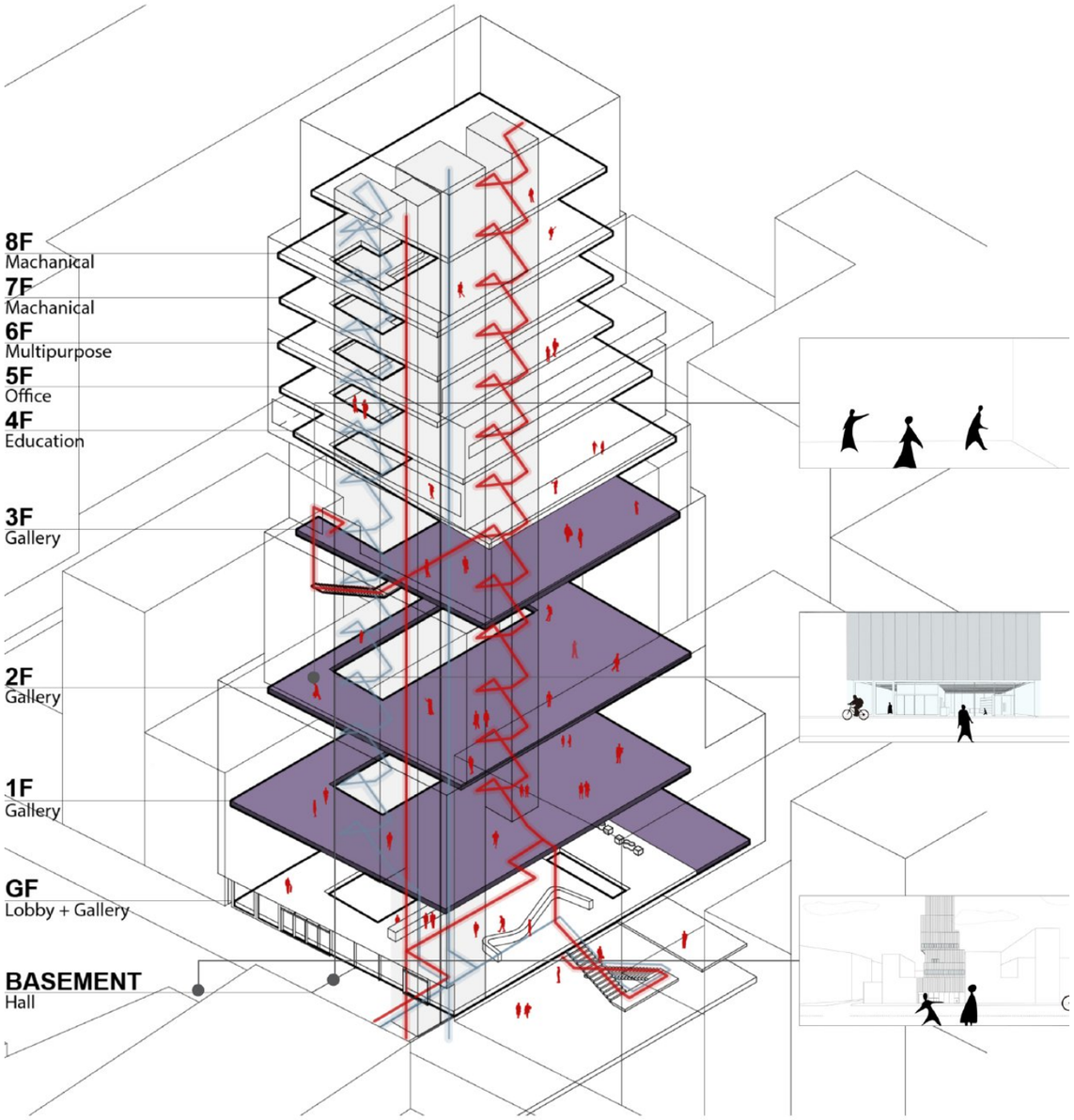
Depth of Optional Front Open Area (in feet) On Narrow Street	Depth of Optional Front Open Area (in feet) On Wide Street	Alternate Sky Exposure Plane: Height above Street Line (in feet)	On Narrow Street: Vertical Distance	On Narrow Street: Horizontal Distance	On Wide Street: Vertical Distance	On Wide Street: Horizontal Distance
Within C3 C4-1 C8-1 Districts						
15	10	30	1.4	to 1	1.4	to 1
Within C1-6 C2-6 C4-2 C4-3 C4-4 C4-5 C7 C8-2 C8-3 Districts						
15	10	60	3.7	to 1	7.6	to 1
Within C1-7 C1-8 C1-9 C2-7 C2-8 C4-2F C4-6 C4-7 C5 C6 C8-4 Districts						
15	10	85	3.7	to 1	7.6	to 1

treet

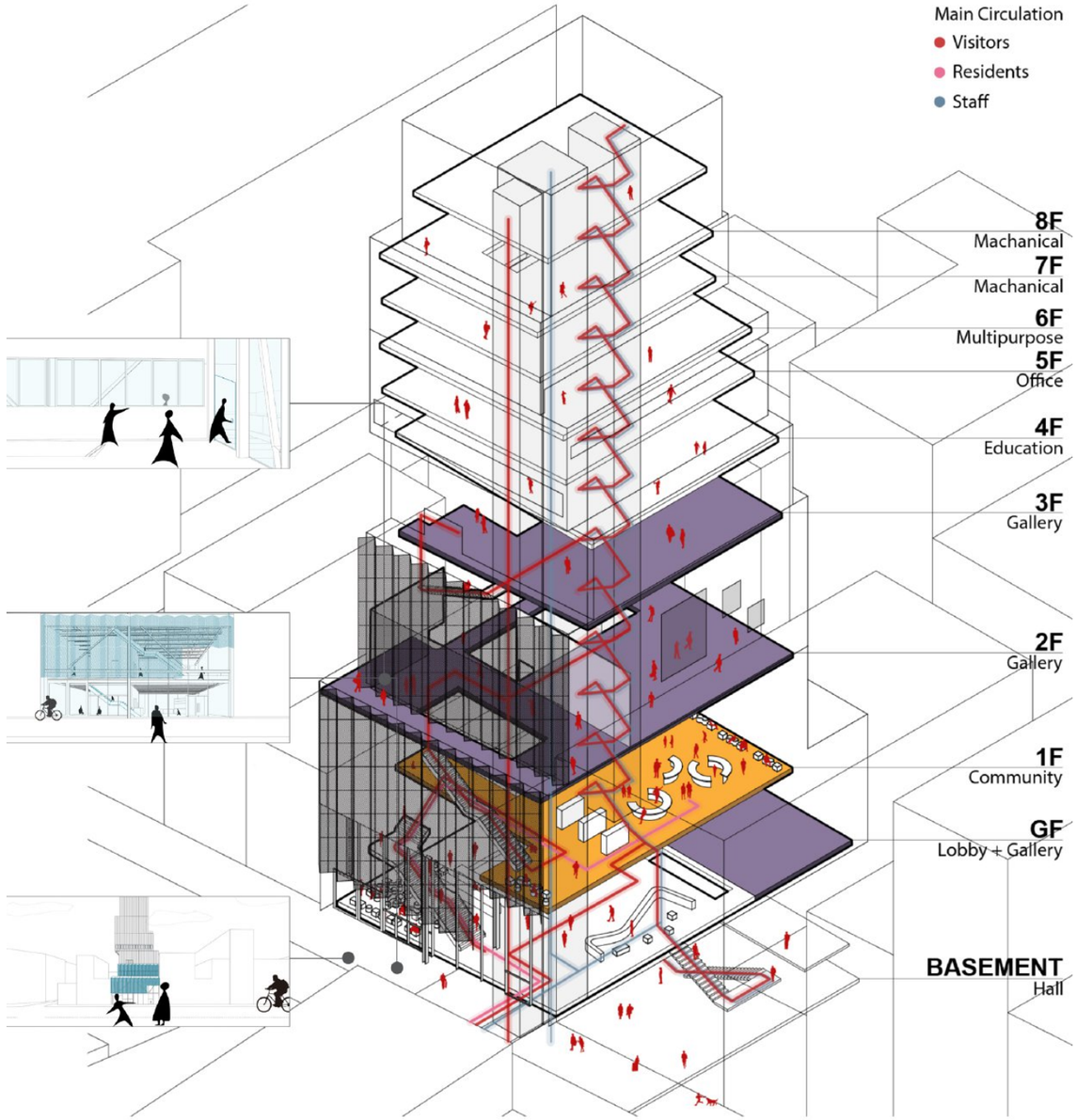
narrow street* is a street that is less than 75 feet wide.
wide street* is a street that is 75 feet or more in width. Most ulk regulations applicable to wide streets are also applicable to uildings on intersecting streets within 100 feet of a wide street.



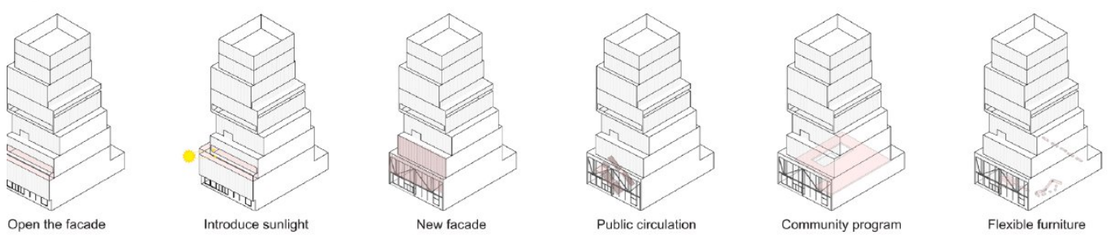
RIGINAL AXO VIEW



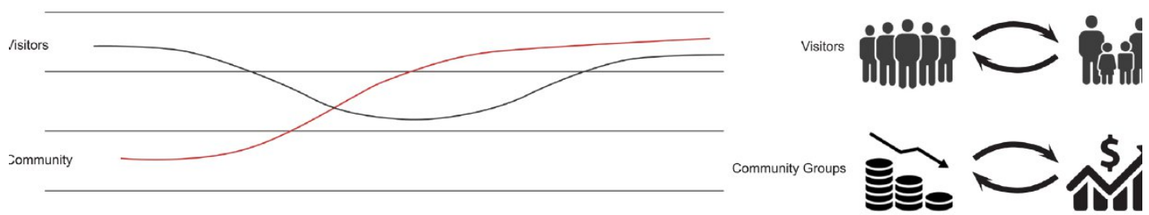
REVISED AXO VIEW



esign Process

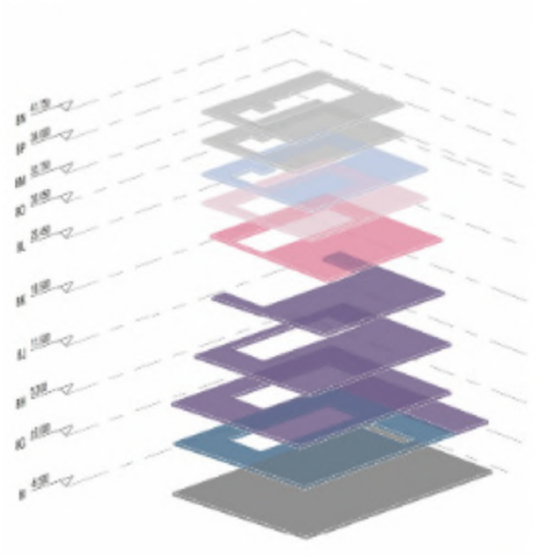


Trends based on Program Changes

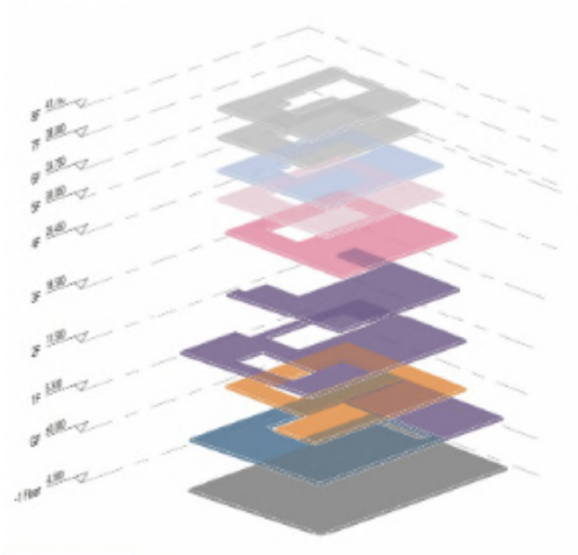


ROGRAM COMPARISON

riginal



Revison



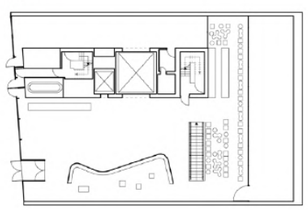
Floor Schedule		
Level	Floor Program	Area
8F	Mechanical	2154
7F	Mechanical	2154
6F	Multipurpose	2924
5F	Office	2867
4F	Education	3233
3F	Gallery	2911
2F	Gallery	3911
1F	Gallery	4835
GF	Lobby	4737
GF	Gallery	1243
-1 Floor	Hall	7348

Mechanical 4,308 sq ft
Multipurpose 2,924 sq ft
Office 2,867 sq ft
Education 3,233 sq ft
Gallery 12,900 sq ft
Lobby 4,737 sq ft
Hall 7,348 sq ft

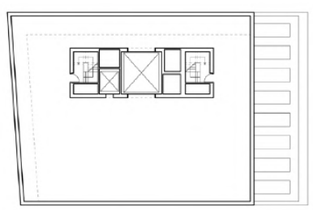
Community 4122 sq ft +4122
Mechanical 4694 sq ft +386
Multipurpose 3118 sq ft +251
Office 3061 sq ft +194
Education 3427 sq ft +194
Gallery 9390 sq ft -3510
Lobby 4344 sq ft -393
Hall 7348 sq ft

Floor Schedule		
Level	Floor Program	Area
8F	Mechanical	2347
7F	Mechanical	2347
6F	Multipurpose	3118
5F	Office	3061
4F	Education	3427
3F	Gallery	3102
2F	Gallery	4428
1F	Community	4122
GF	Lobby	4344
GF	Gallery	1860
-1 Floor	Hall	7348

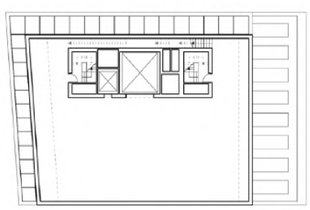
riginal



Ground Floor

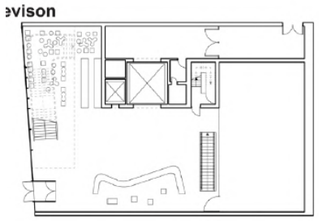


First Floor

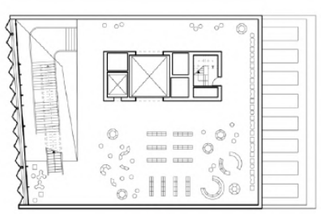


Second Floor

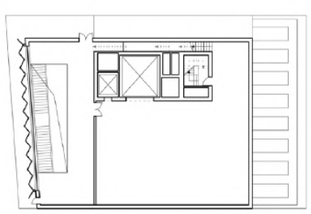
evison



Ground Floor

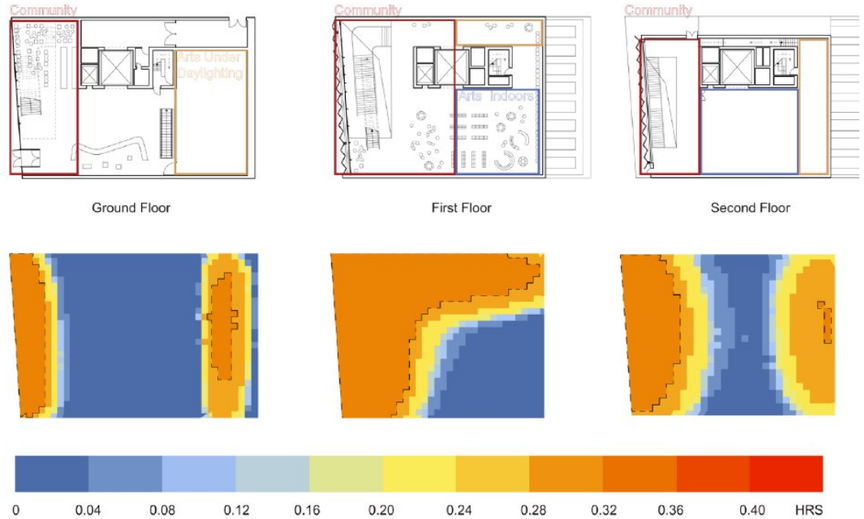


First Floor

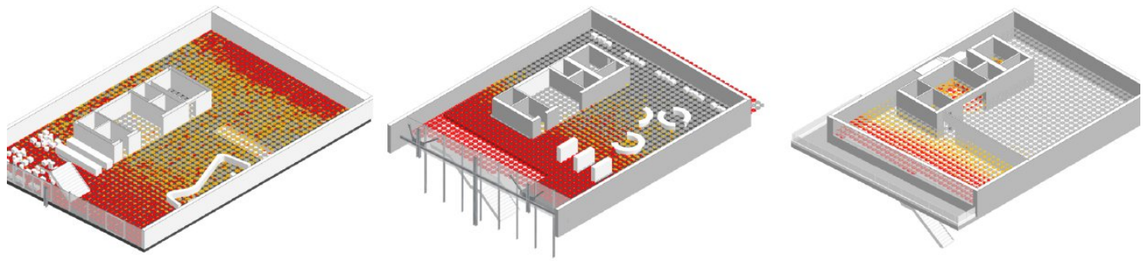


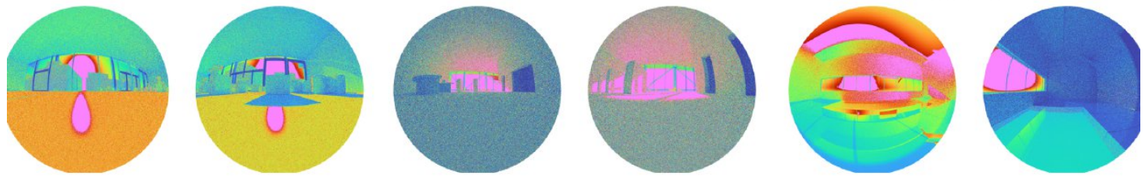
Second Floor

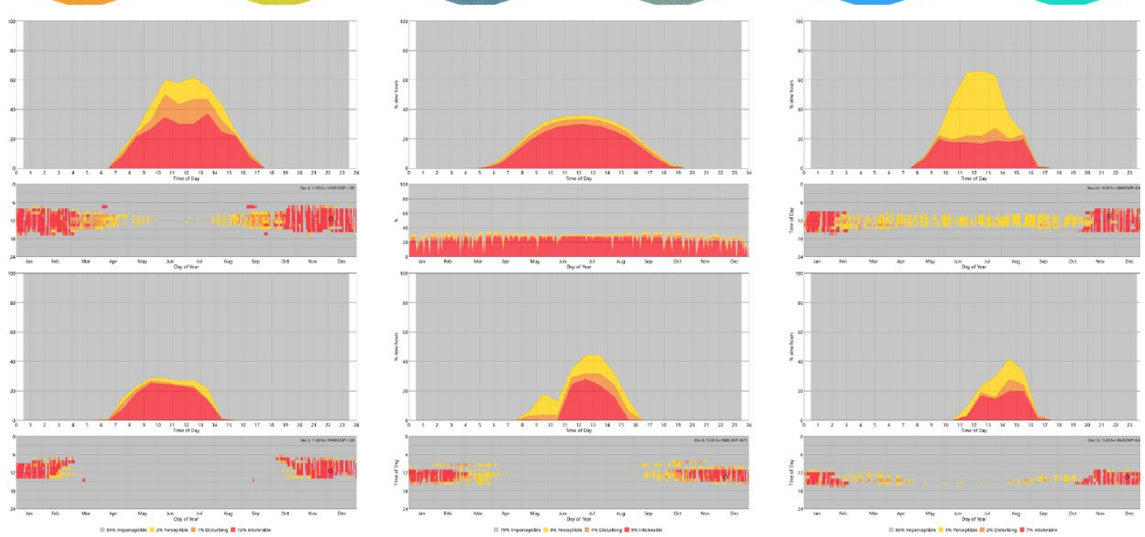
GHTING PERFORMANCE

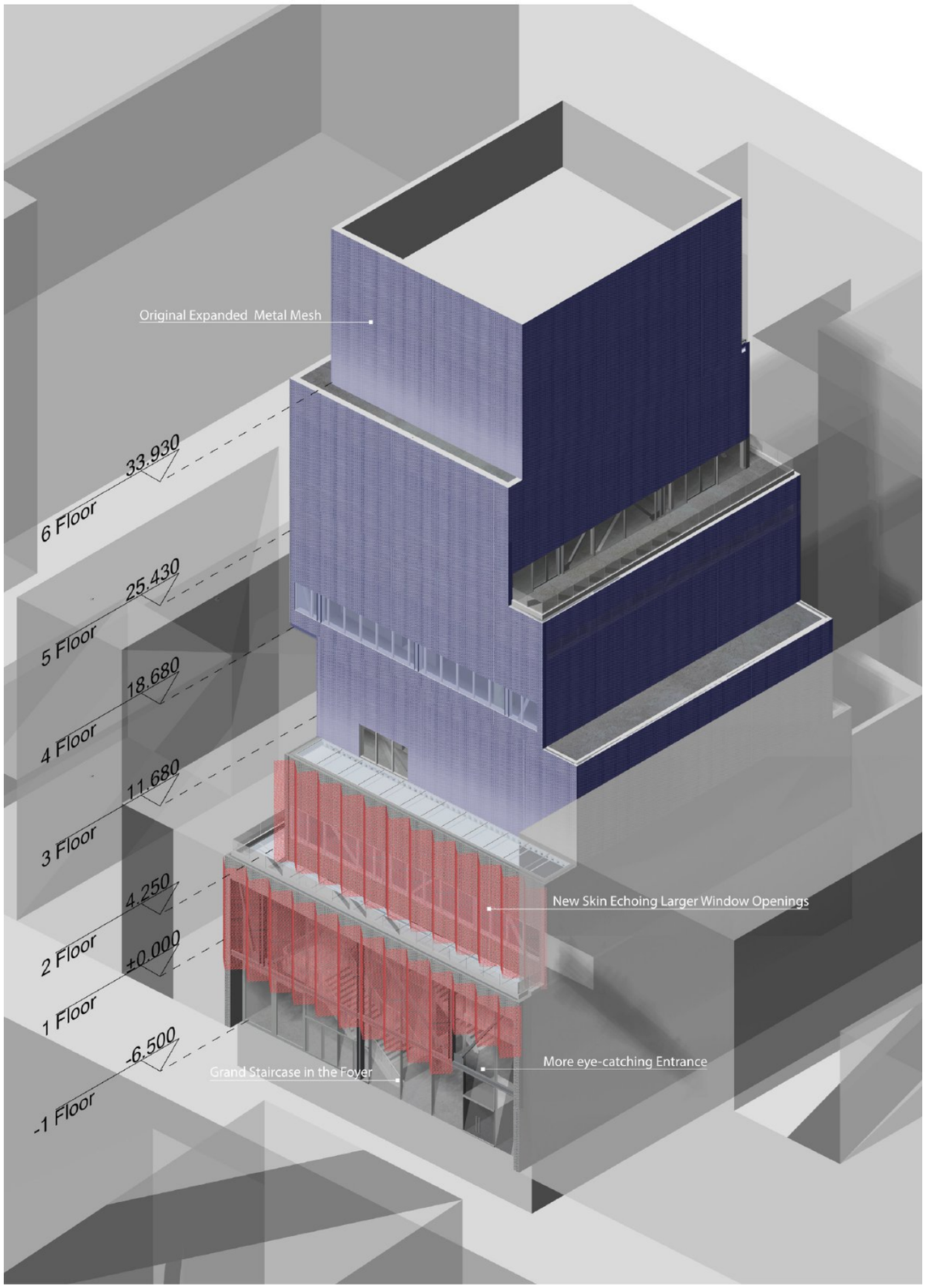


Ground Floor First Floor Second Floor

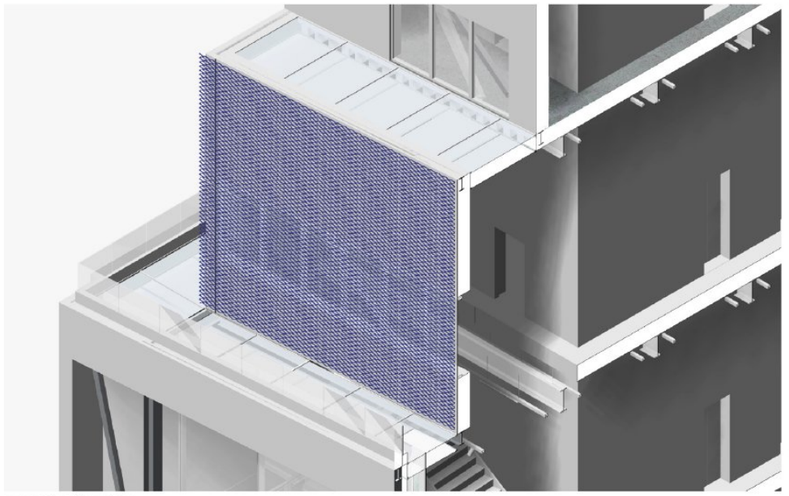




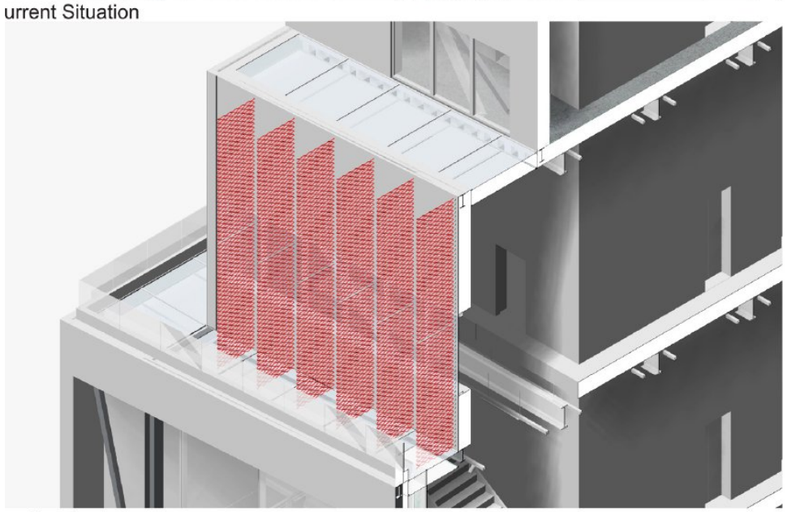




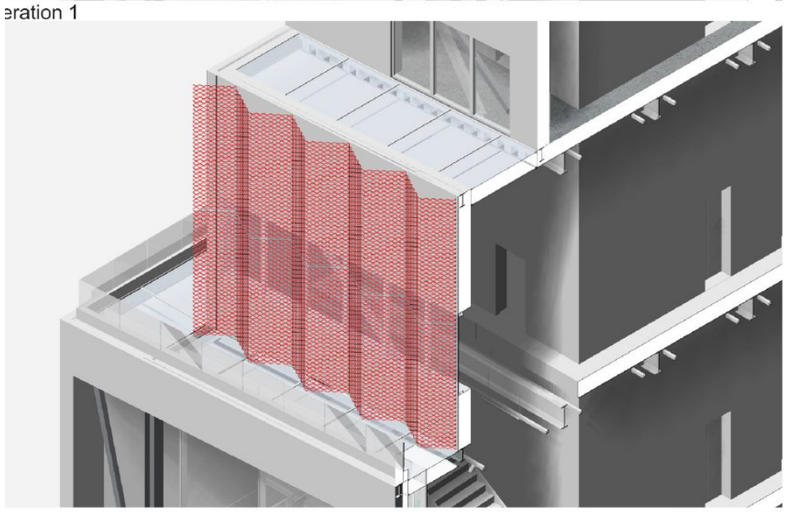
HERMAL PERFORMANCE

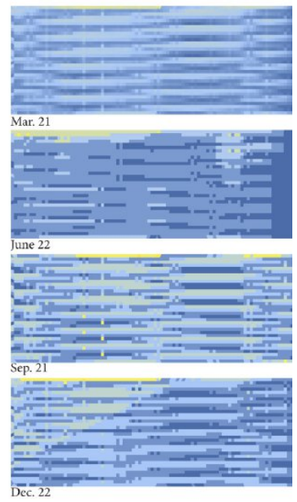


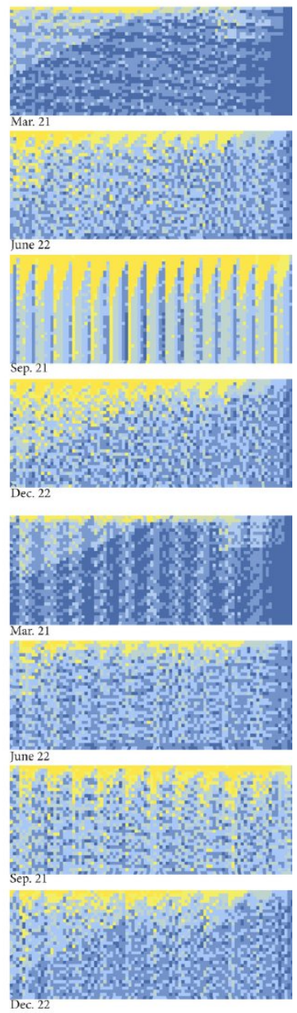
urrent Situation

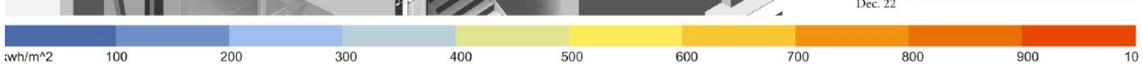


eration 1

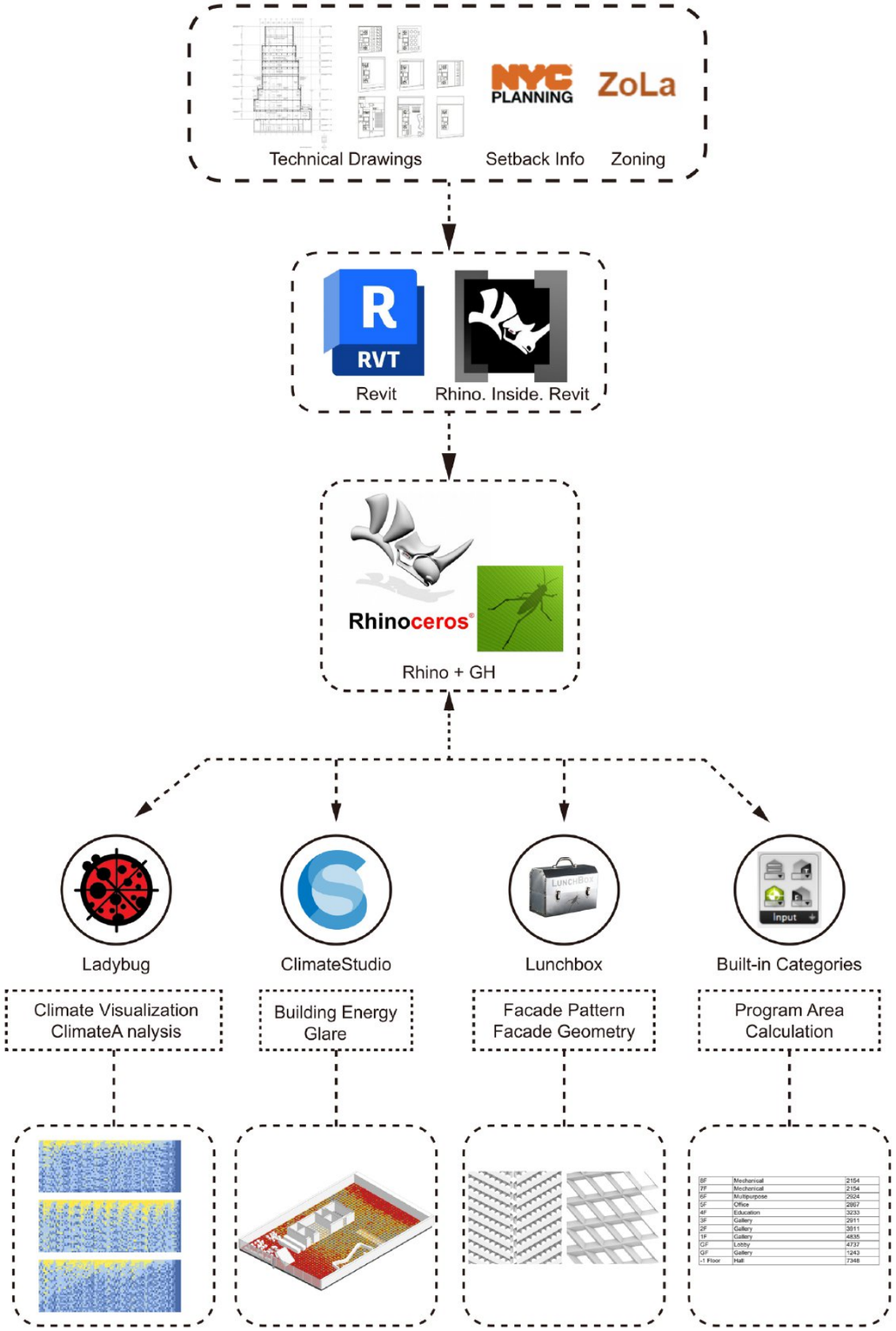








WORKFLOW


Technical Drawings
NYC PLANNING
ZoLa
Setback Info
Zoning
RVT
Revit
Rhino. Inside. Revit
Rhinoceros
Rhino + GH
Ladybug
ClimateStudio
Lunchbox
Built-in Categories
Climate Visualization
ClimateA nalysis
Building Energy
Glare
Facade Pattern
Facade Geometry
Program Area
Calculation
6F Mechanical 2154
7F Mechanical 2154
6F Multipurpose 2924
5F Office 2997
4F Education 3233
3F Gallery 2911
2F Gallery 3511
1F Gallery 4835
GF Lobby 4737
GF Gallery 1243
-1 Floor Hall 7348