

PORTFOLIO

YIMING XIONG

Selected Works 2023-2024

M.S. Advanced Architectural Design, Columbia University

ADVANCED STUDIOS:

01.EXTREME SCALE - THREADS

AAD Studio - The renovation of Kingsbridge armory

02.A NEW ARCHITECTURE OF INVISIBILITY

AAD Studio - Subsation and Marine Terminal

03.PERMANENTLY IN PROGRESS

AAD Studio - Artist Residence at Jim Thompson Farm

SEMINARS:

05.ARCHITECTURE APROPOS ART

Study and Translation of Lyubov Popova's work

06.SEMINAR OF SECTION

Section of M+ Museum

THREADS

2023 Fall

Location: Bronx, New York

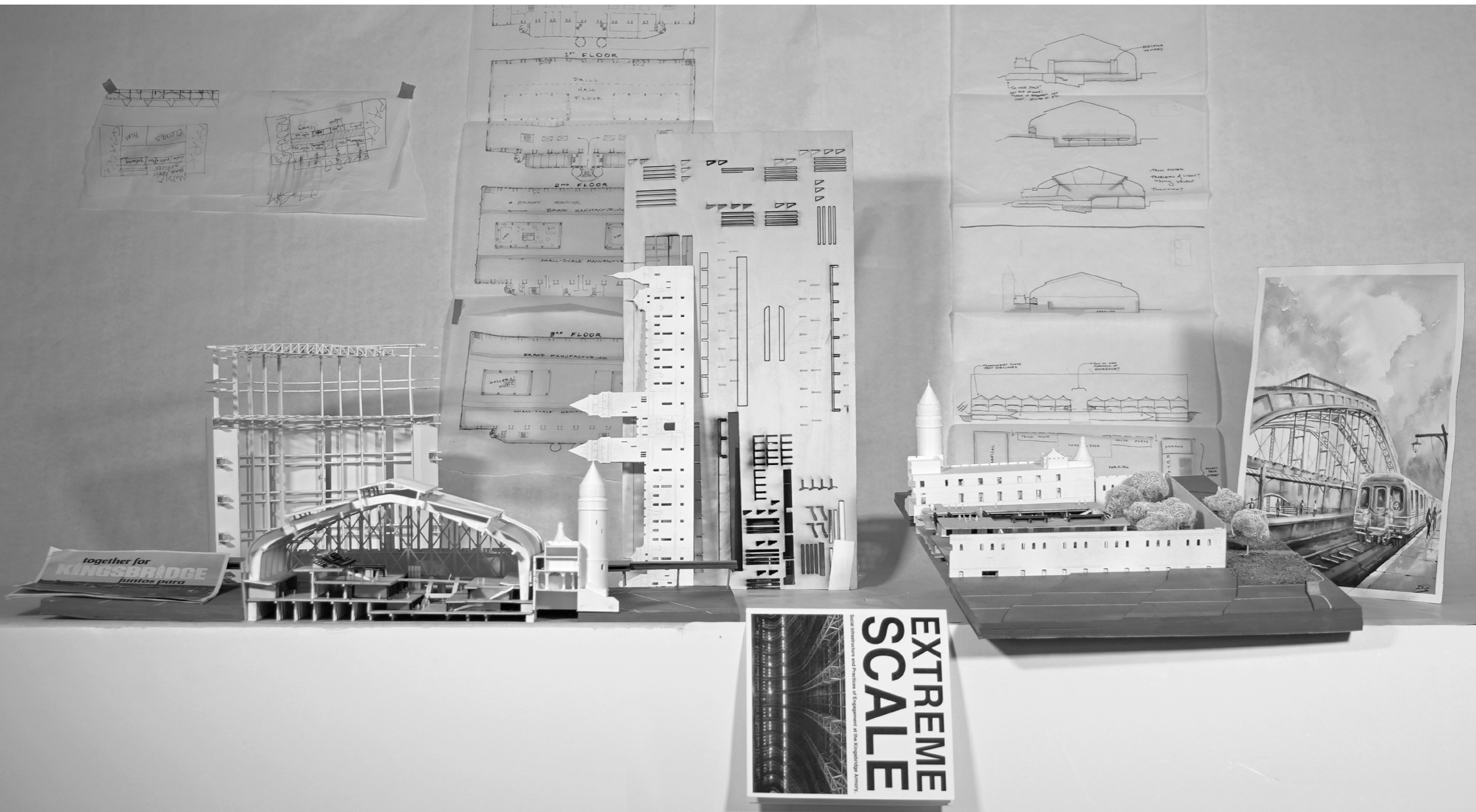
Instructor: Wonne Ickx

Group Work with Philip Spence

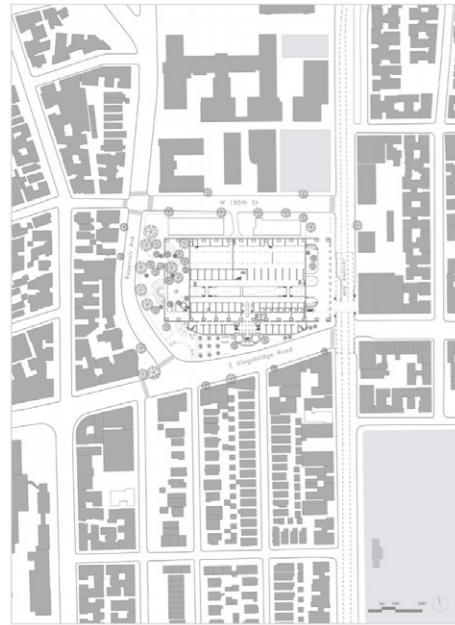
What if we were to think about the armory typology in relation to its original architectural inspiration: the 19th century train station? Both building types, 19th century stations and armories, are organized around entry buildings attached to large columnless halls, both employ similar spatial proportions and structural approaches, and both deal with high volumes of circulation.

The Kingsbridge Armory has a strong skeleton, abundance of space, and is situated within a dense urban fabric. However, the building's impenetrable skin and past functions have left it detached and vacant, resulting in a building that is situated within a neighborhood in need of meaningful public space without the framework to meet that need.

Our proposal converts the east end of the armory into an urban plaza and the west into a public garden. Through this conversation, we formed spaces which both reside in the armory and spill out into the surrounding context. Connecting these public spaces are linear streets, running the length of the drill hall like train platforms. These terraced platforms capitalize on the "bigness" of the interior, simplify movement throughout, and stitch together the two ends of this behemoth structure, forming a cohesive fabric that can be knit into the urban context.



NOLLI PLAN OF THE SITE



EARLY CONCEPT - LEARN FROM TRAIN STATIONS



Union Station, Savannah



9th & Green St, Philadelphia



President St Station, Baltimore



Reading Railroad, Philadelphia, PA, 1893



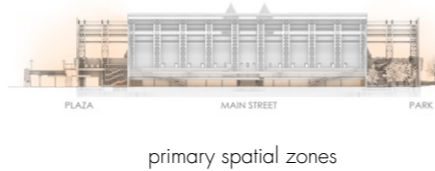
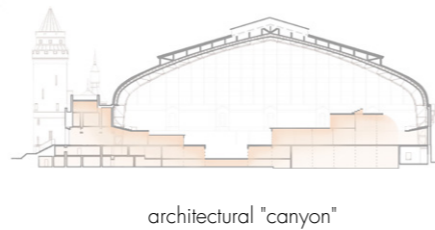
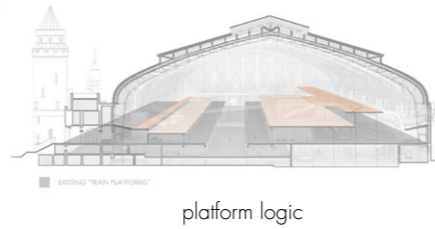
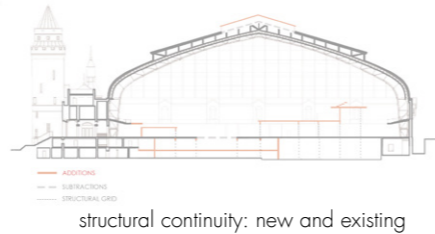
Reading Railroad, Philadelphia, PA, 1893

WATERCOLOR RENDERING

By Philip Spence



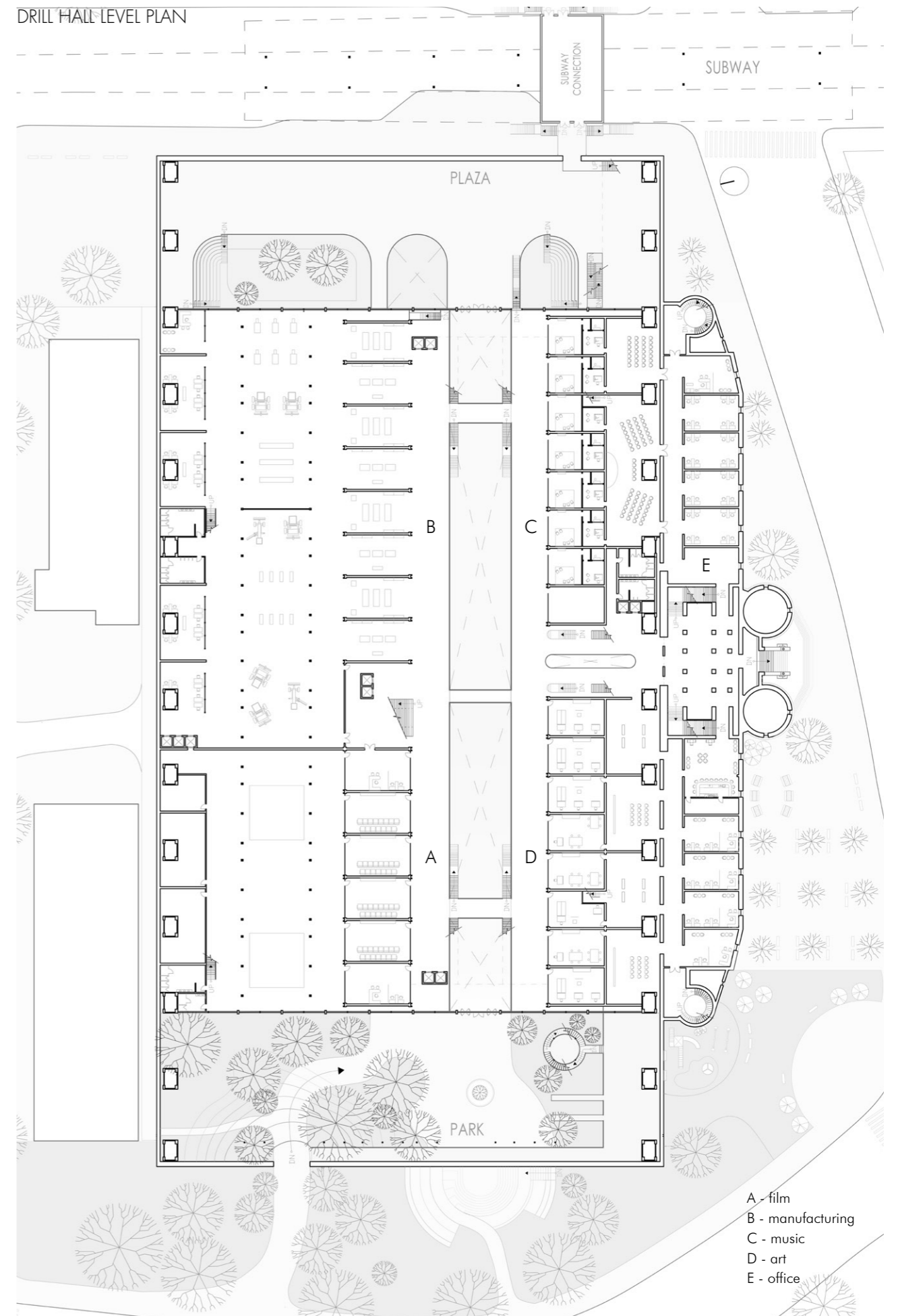
DESIGN STRATEGY



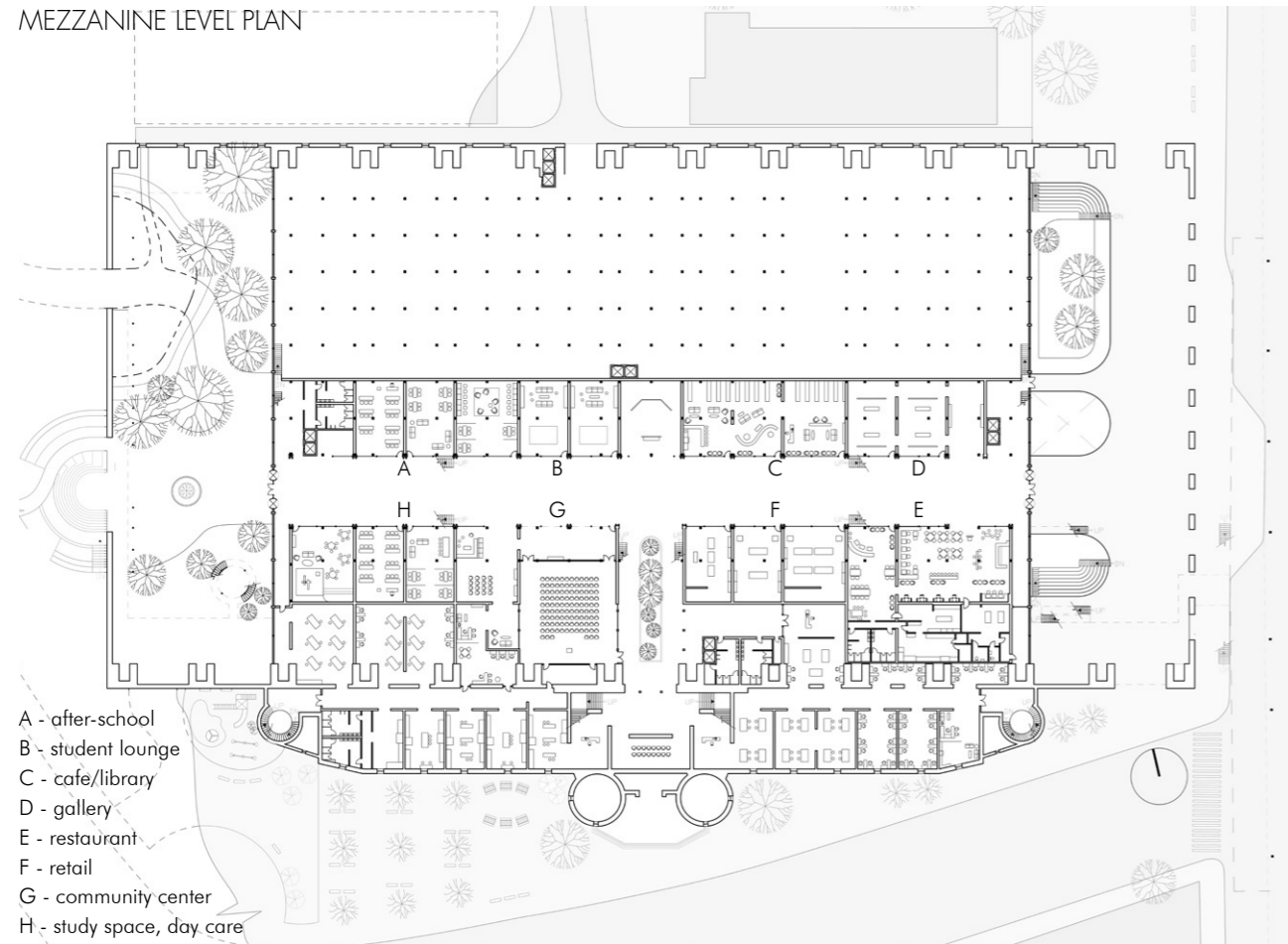
VIEW FROM THE URBAN PLAZA
rendered by luimion



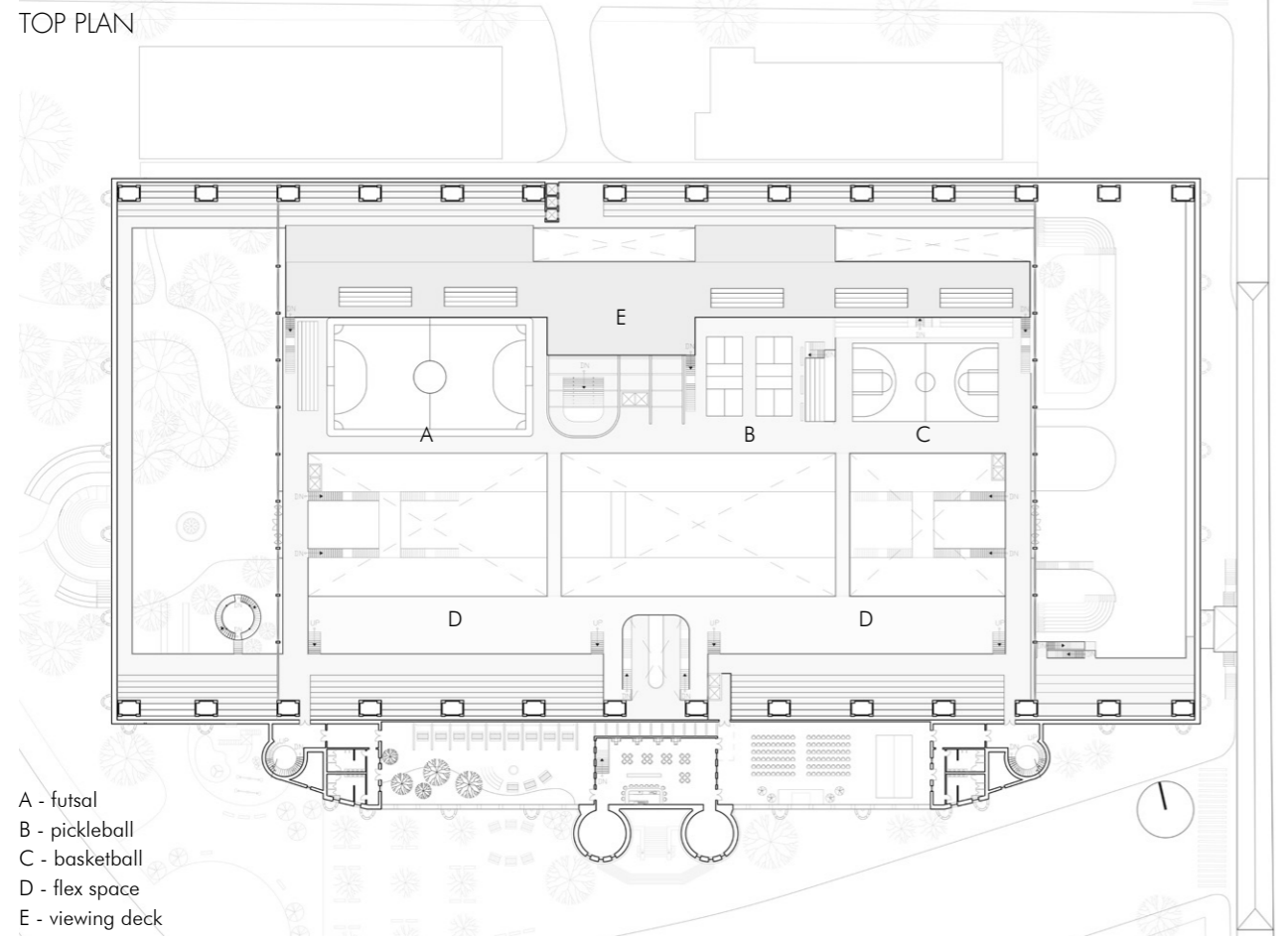
VIEW FROM THE MAIN STREET
 rendered by V-ray



MEZZANINE LEVEL PLAN



TOP PLAN



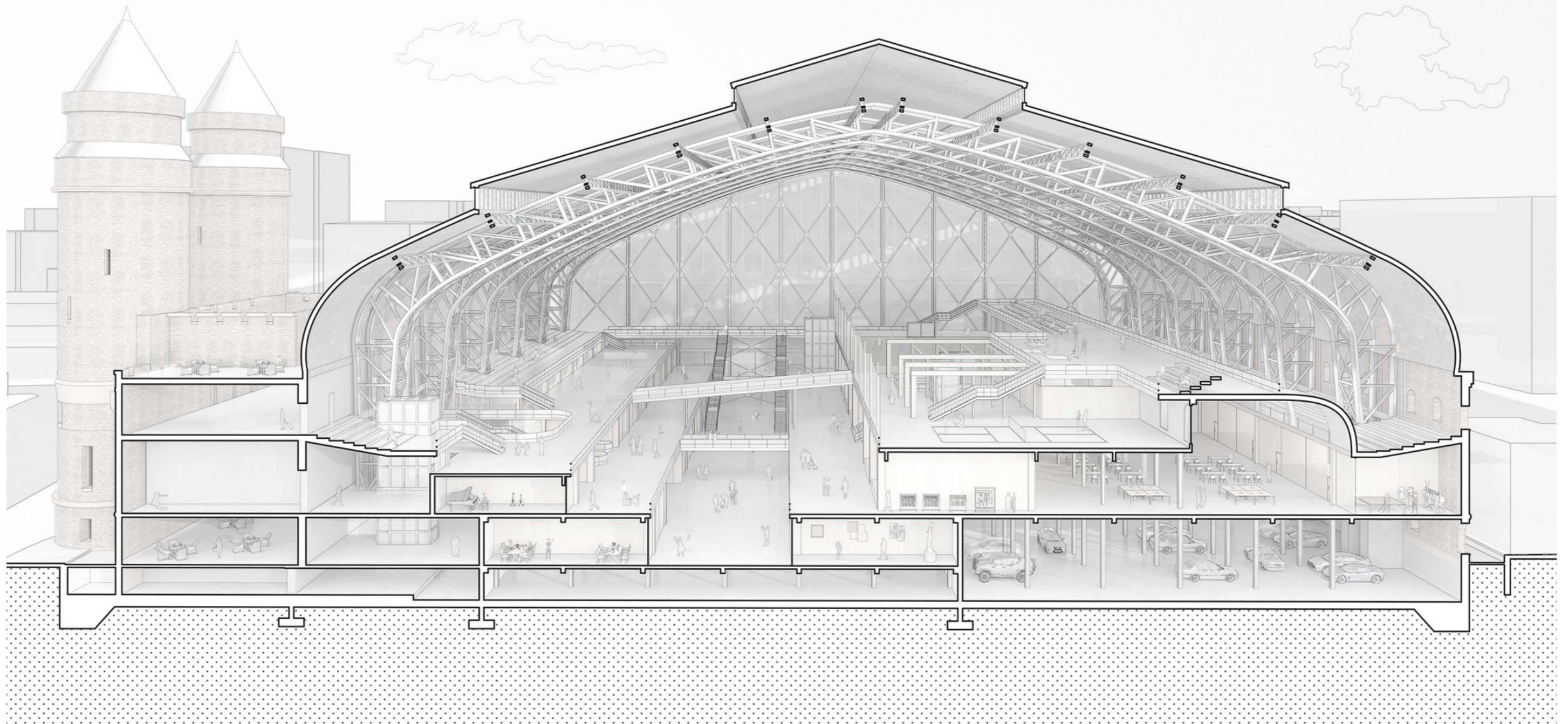
PARK INSIDE THE ARMORY
rendered by Lumion

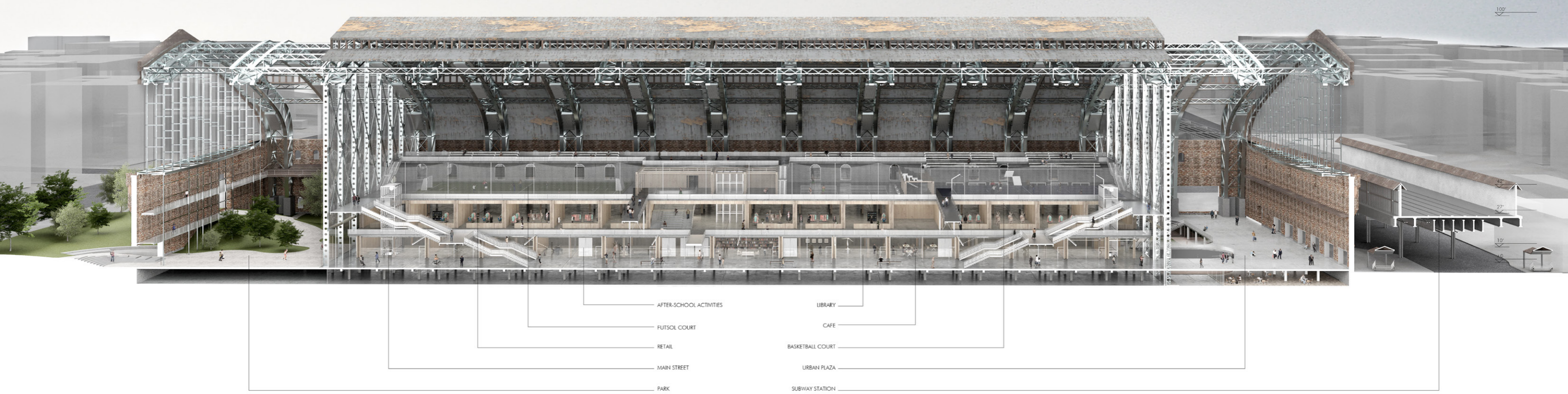
PERSPECTIVE SECTION - SHORT

This section perspective shows the Main Street, looking East towards the Entrance Plaza, with platforms terracing off on either side. Larger spaces, like sports courts and sustainable manufacturing spaces are closer to the walls. The Head house is united since the platform heights correspond to its floor levels.

A series of ramps connect the various levels of the space and cross above the main street. Public spaces placed throughout respond to key entry points and inflow from the surrounding urban context.

It is a simple way to organize space, especially when there is so much of it, and in buildings with a repeated form. This system both encourages flow and movement through the space while providing natural gathering spaces and places for rest.





PERSPECTIVE SECTION - LONG



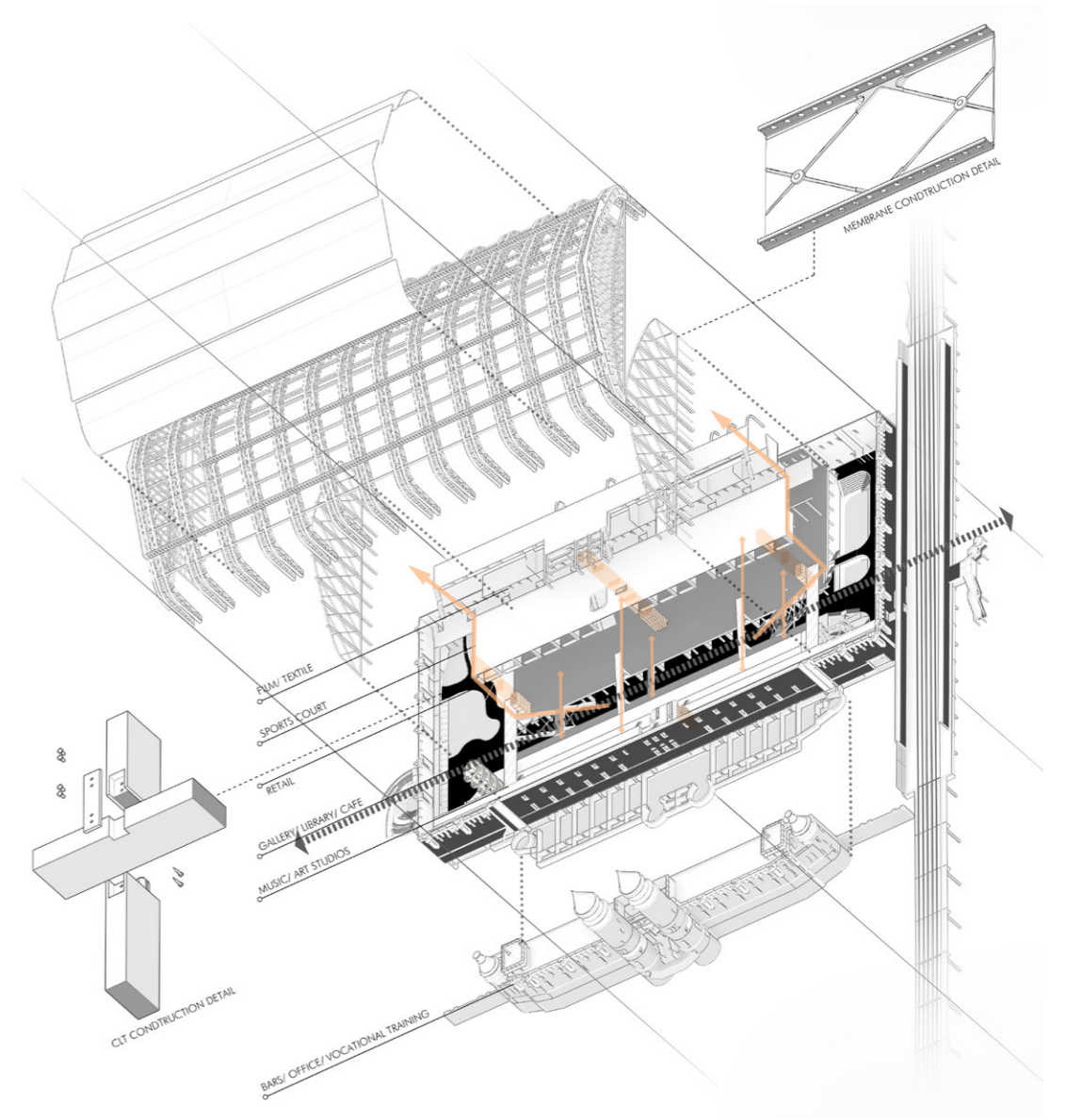
VIEW FROM THE HEADHOUSE ENTRANCE
rendered by V-ray



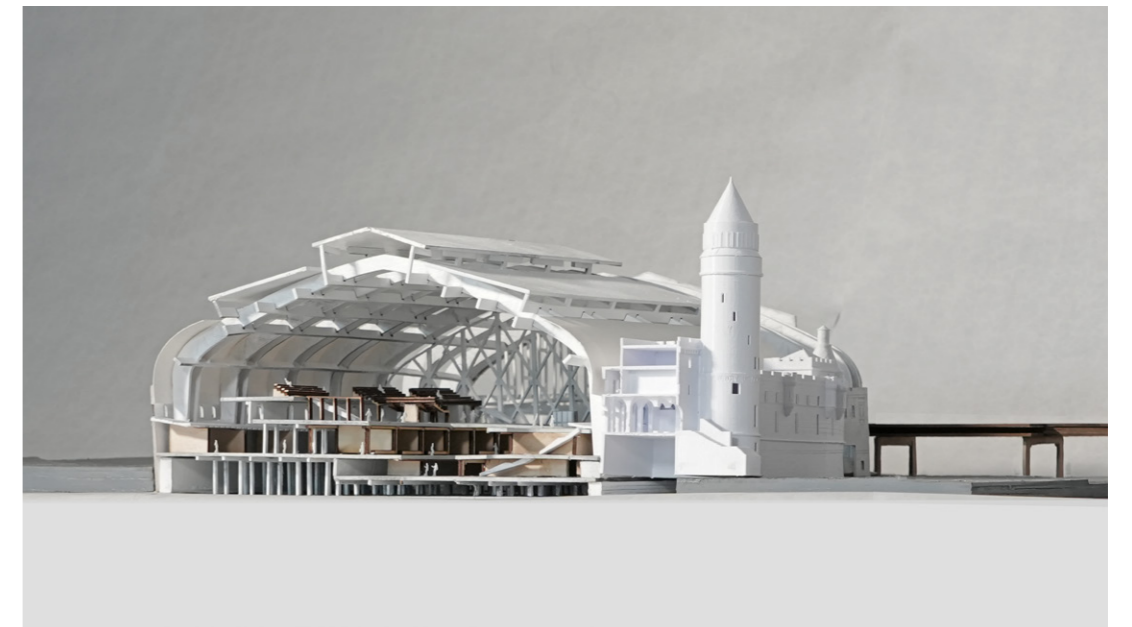
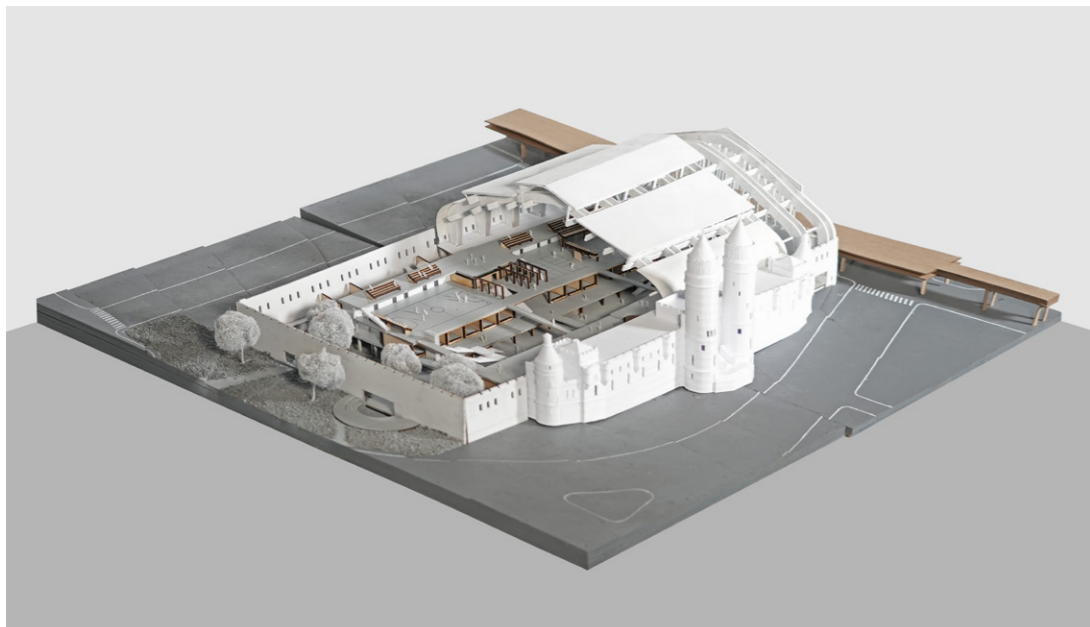
MANUFACTURING AND DESIGN STUDIO
rendered by V-ray



PHYSICAL MODEL 1:300
 laser cutting, 3d printing
 cardboard, plywood, PLA, spraypaint



CIRCULATION AND STRUCTURE ANALYSIS



- A NEW ARCHITECTURE OF INVISIBILITY -

2023 Summer

Location: Brooklyn, New York

Instructor: Dan Wood

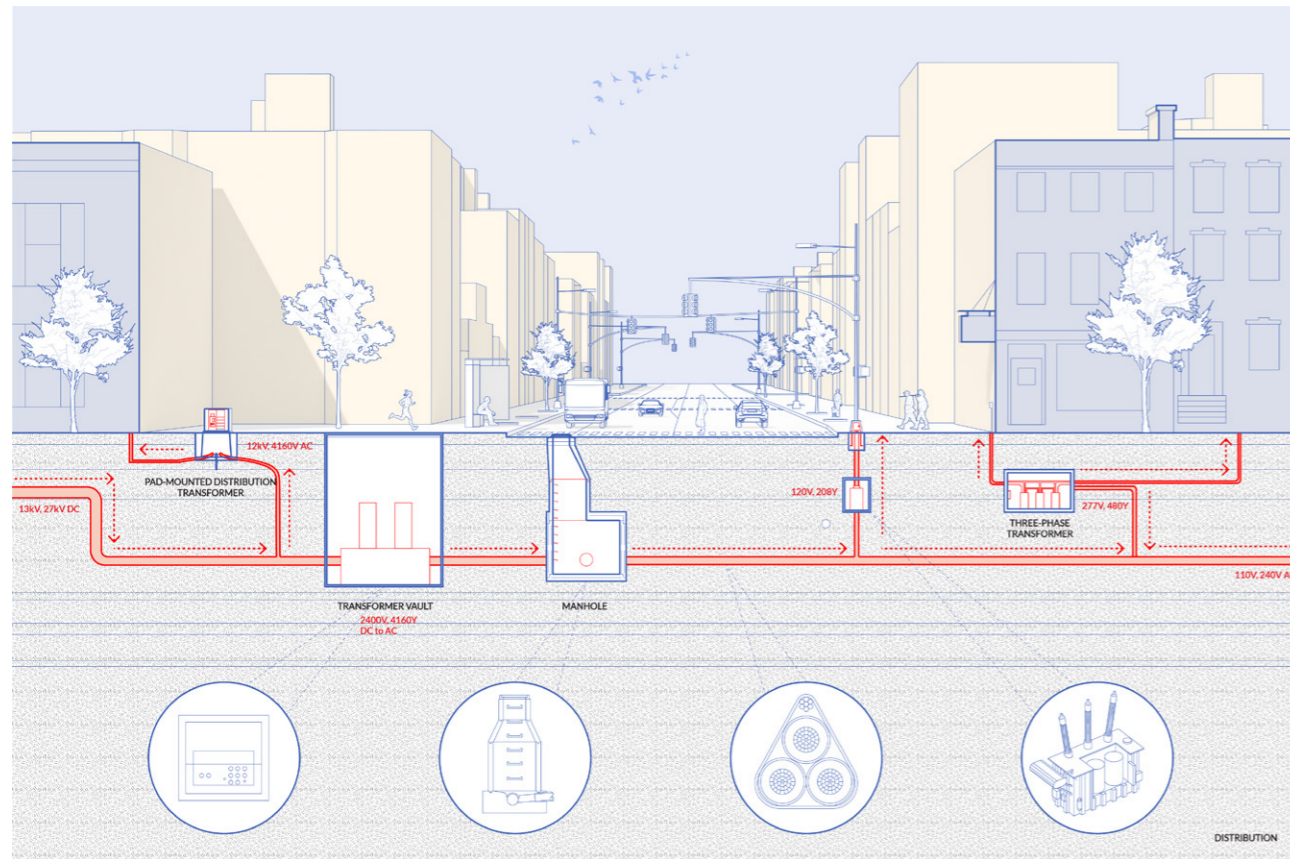
Individual Work

In Manhattan, New York, you can hardly see any utility poles and cables nowadays. In 1888, a snowstorm nearly devastated Manhattan's power system, prompting the city to bury all the alternating current (AC) power lines underground for safety. Present-day Manhattan no longer has utility poles, but it houses numerous sizable substations. These substations are camouflaged as regular buildings within neighborhoods, yet they contribute nothing to the community space.

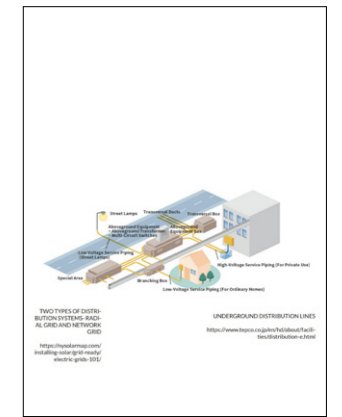
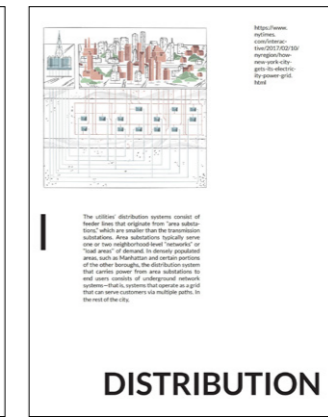
Therefore, I aspire to relocate the invisible utility poles and cables back above ground and repurpose them to suspend the substations that were once on the ground. This action aims to return the space the substations occupied to the citizens for use. Simultaneously, I intend to combine the charging station with civic activities by utilizing the electrical energy generated by the substations. As my base is located by the seaside, I have decided to merge the charging station, civic square, shipping terminal, and substations, forming a comprehensive new type of space.



SECTION OF MANHATTAN'S UNDERGROUND POWER DISTRIBUTION SYSTEM

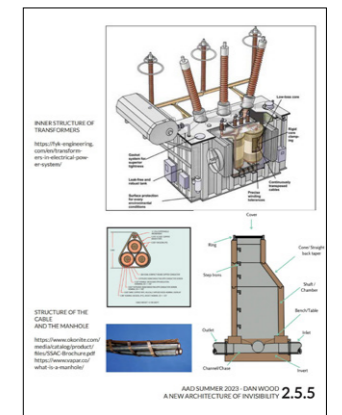
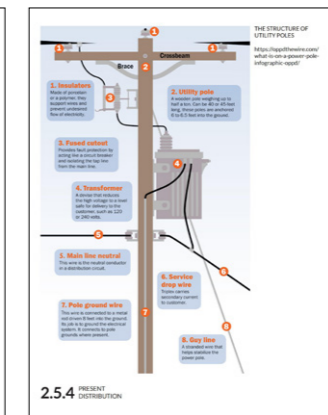
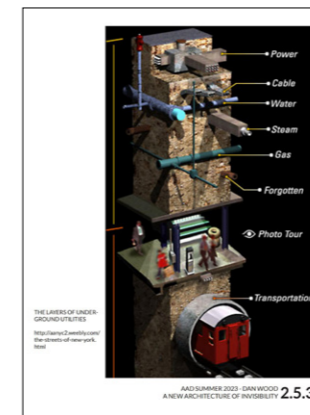
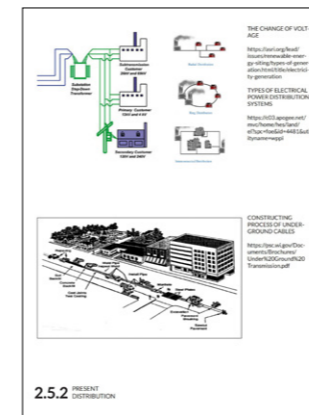


Part2. Present



Nowadays, as it shows in the section, there is no any utility poles in the streets of manhattan, however, large parts of Brooklyn, Queens, and Staten Island are still serviced by overhead lines.

The utilities' distribution systems consist of feeder lines that originate from "area substations," which are smaller than the transmission substations.

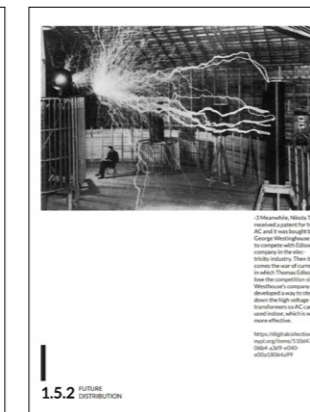
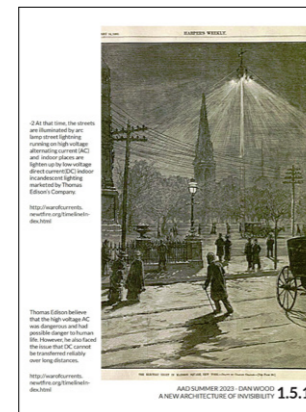
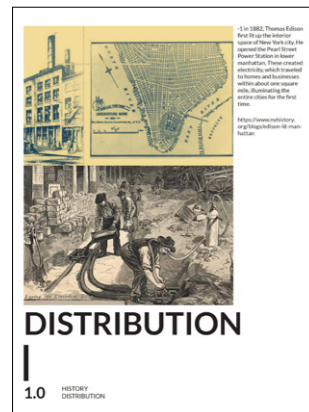


Area substations typically serve one or two neighborhood-level "networks" or "load areas" of demand.

In Manhattan, the distribution system that carries power from area substations to end users consists of underground network systems—that is, systems that operate as a grid that can serve customers via multiple paths.

RESEARCH BOOKLET OF NYC DISTRIBUTION SYSTEM

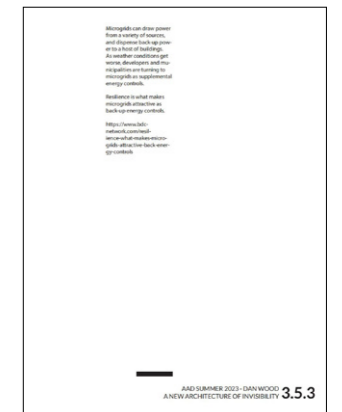
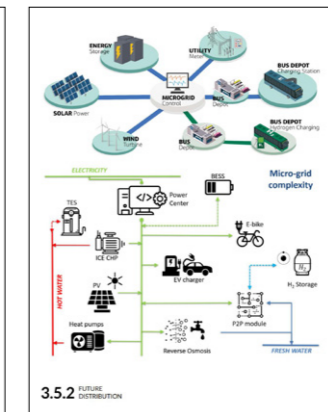
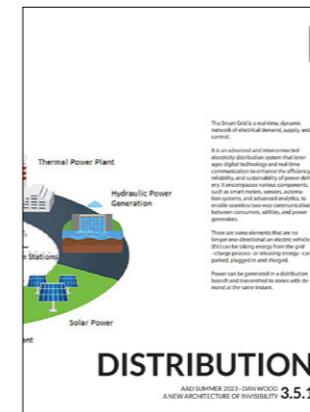
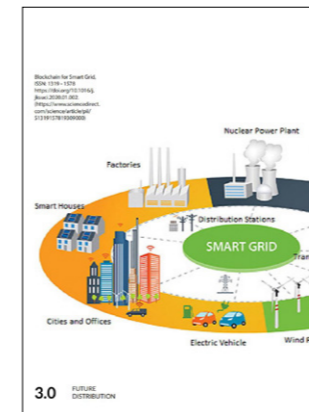
Part1. History



In 1882, Thomas Edison first lit up the interior space of New York city. He opened the Pearl Street Power Station in lower manhattan, These created electricity, which traveled to homes and businesses within about one square mile, illuminating the entire cities for the first time...

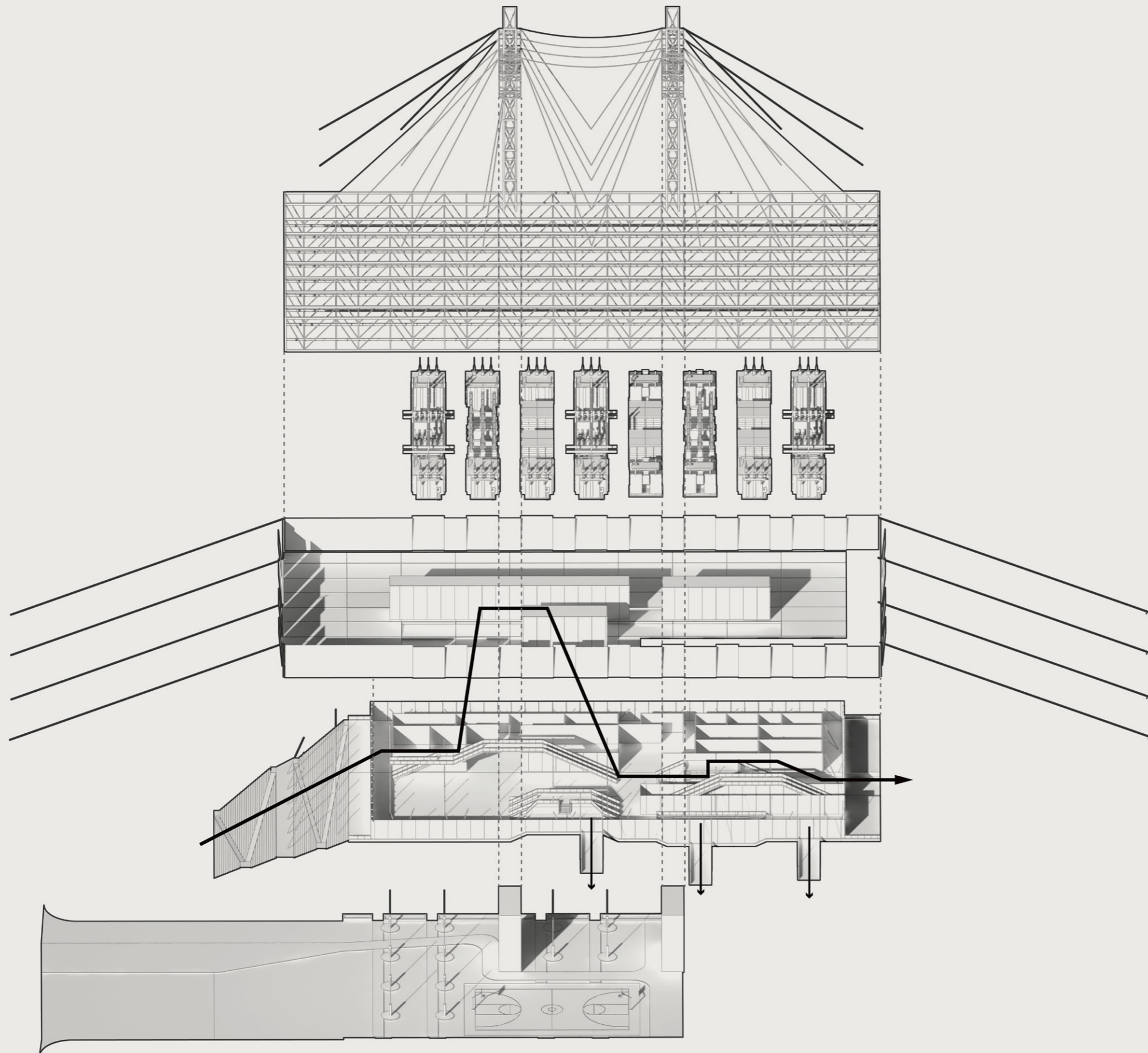
In the winter of 1888, there was a great white hurricane, a blizzard that made almost all the poles in the city collapse and the city's electricity shut down. After that, the government decided to bury cables underground to prevent natural disasters like this.

Part3. Future

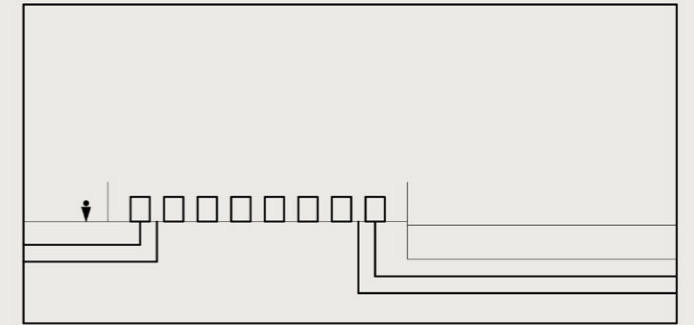


The Smart Grid is a real-time, dynamic network of electrical demand, supply, and control. It is an advanced and interconnected electricity distribution system that leverages digital technology and real-time communication to enhance the efficiency, reliability, and sustainability of power delivery.

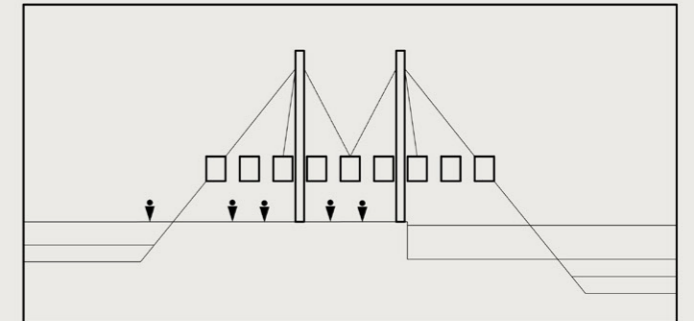
Microgrids can draw power from a variety of sources, and dispense back-up power to a host of buildings. As weather conditions get worse, developers and municipalities are turning to microgrids as supplemental energy controls.



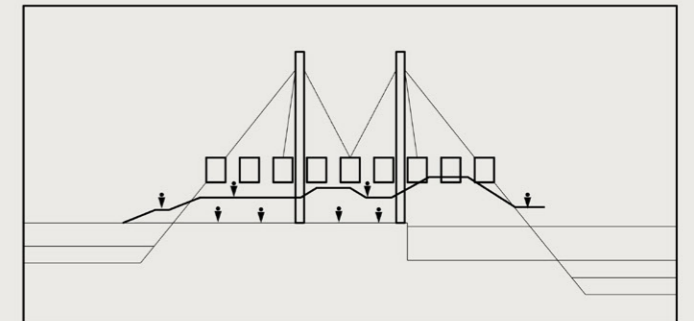
ENLARGED SECTION - PHYSICAL MODEL



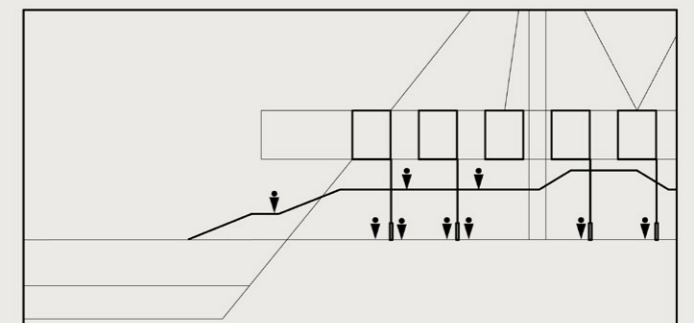
Traditional substation - waste space on the ground



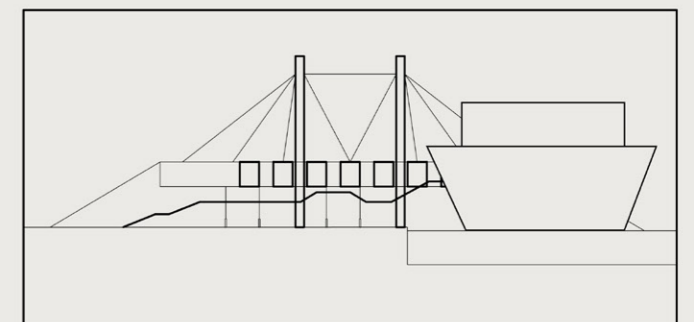
Strategy: use electric poles and cables to hang up the station



Create connection between the substation and the public



On the ground - charging station and park, upper space - exhibition



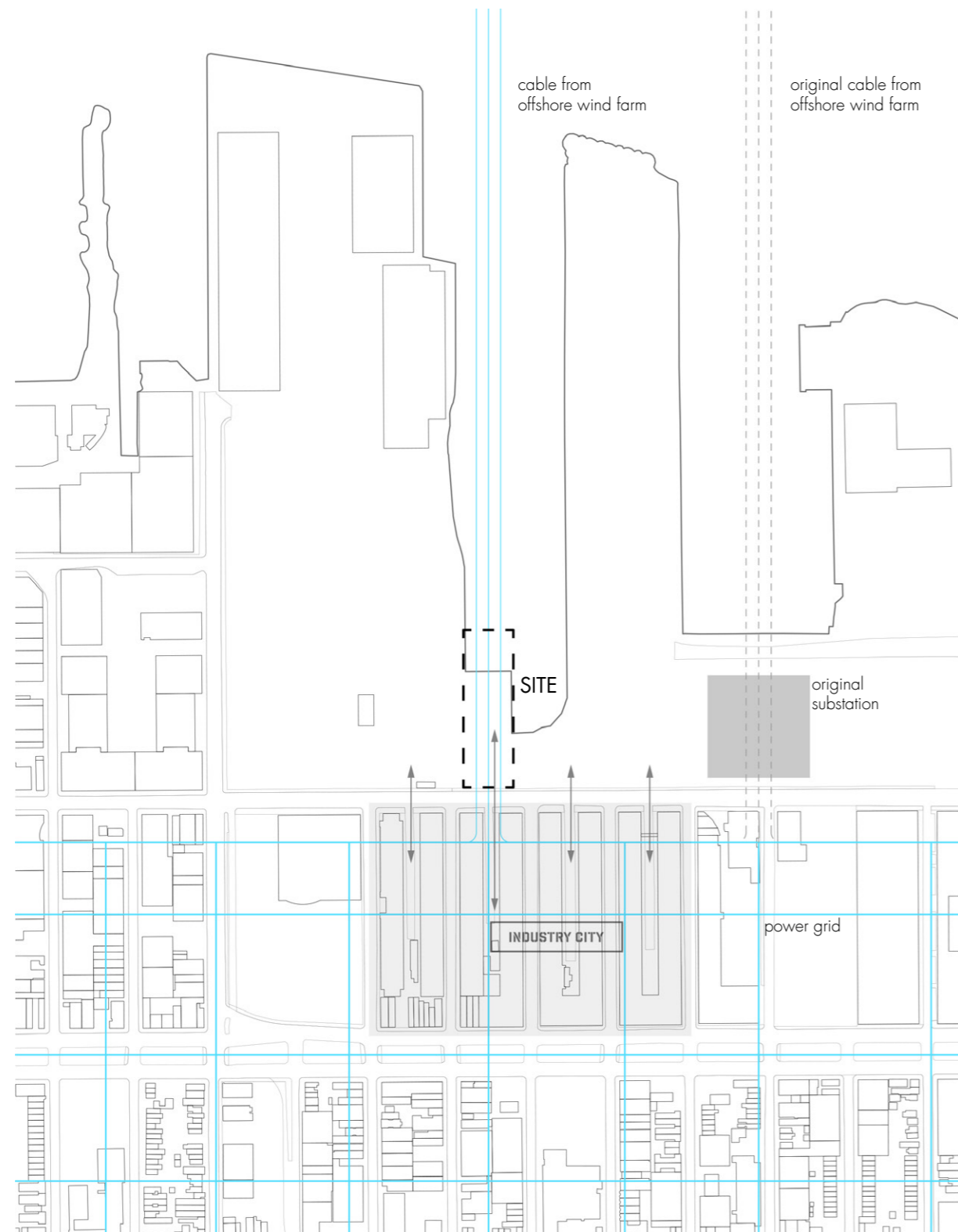
Combine substation and public program with a ferry terminal

SITE ANALYSIS - INDUSTRY CITY



Industry City is Brooklyn's new vibrant creative hub along the scenic waterfront of Sunset Park, reformed from a historic intermodal shipping, warehousing, and manufacturing complex. To take advantage of the crowds from this area, I want to create a continuity of the circulation from the main street of the hub.

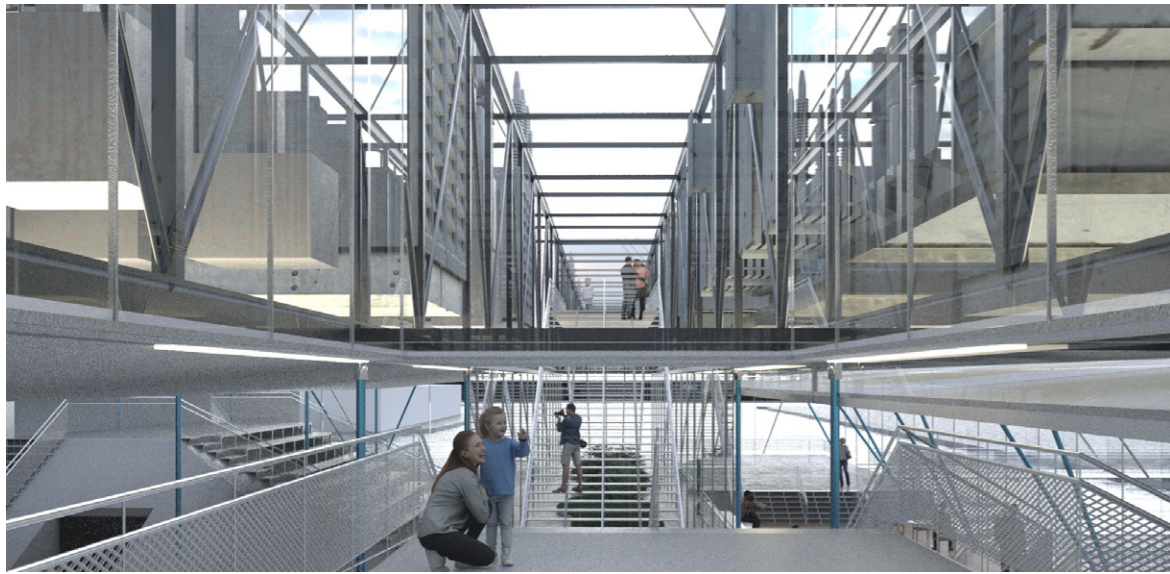
As a result, I moved the original site of the substation to the west, aligned with the main street. Meanwhile, the shoreline is moved closer to the site so that the cables under the sea can come up and reach the substation, finally connecting to the city power grid.



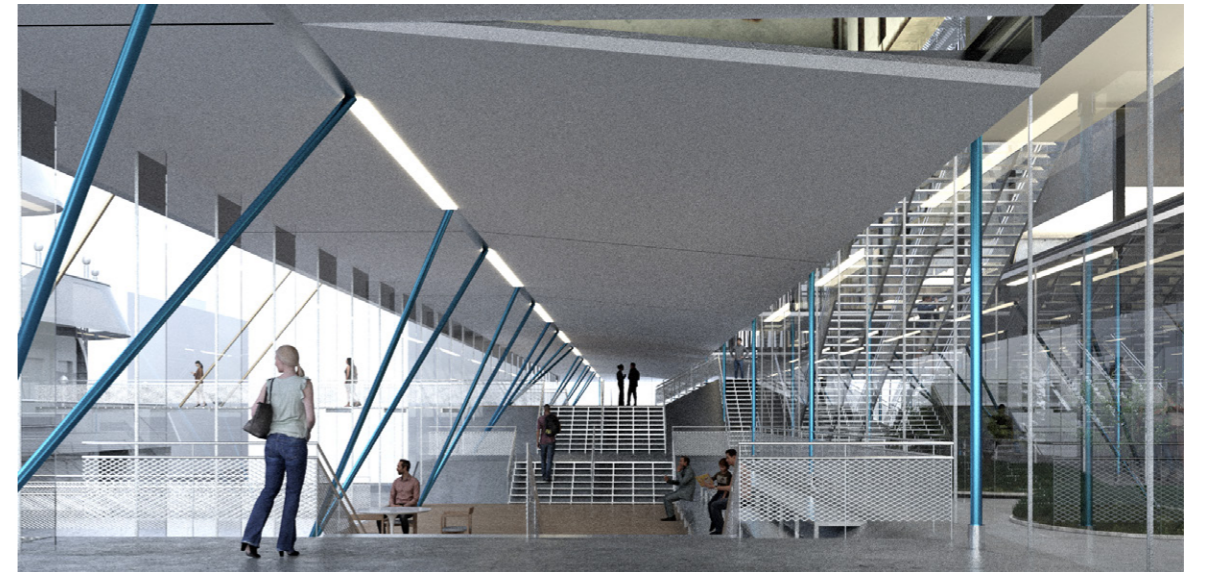
VIEW FROM INSUDTRY CITY

rendered by V-ray

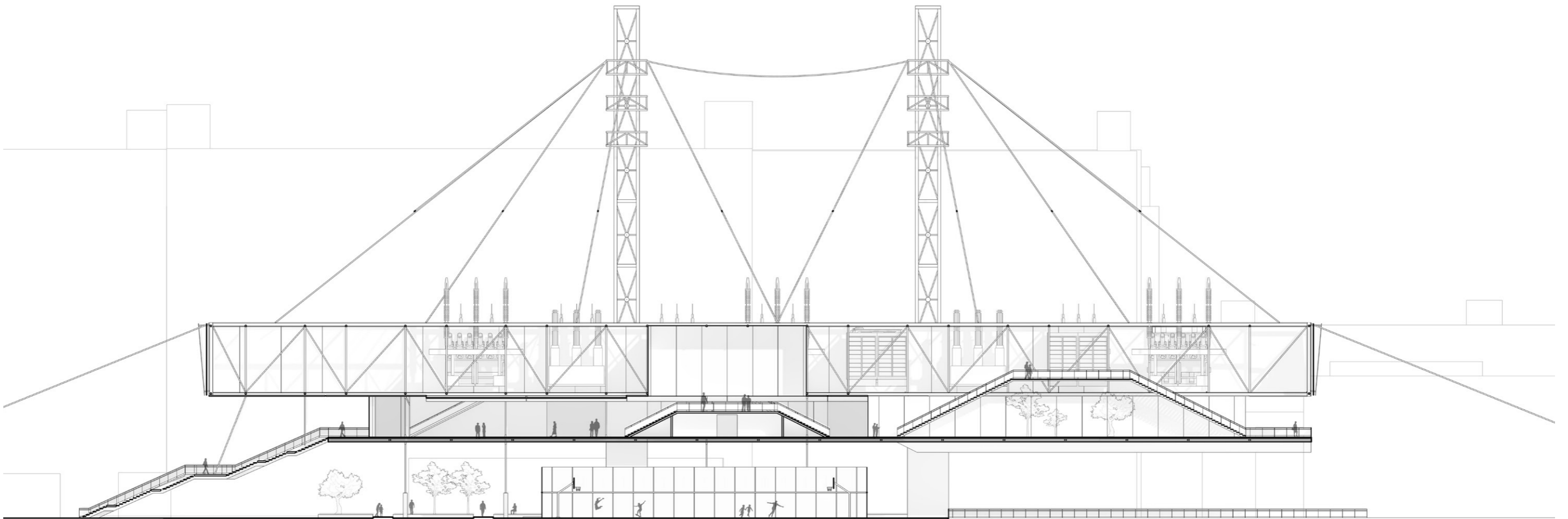




EXHIBITION SPACE OF THE SUBSTATION

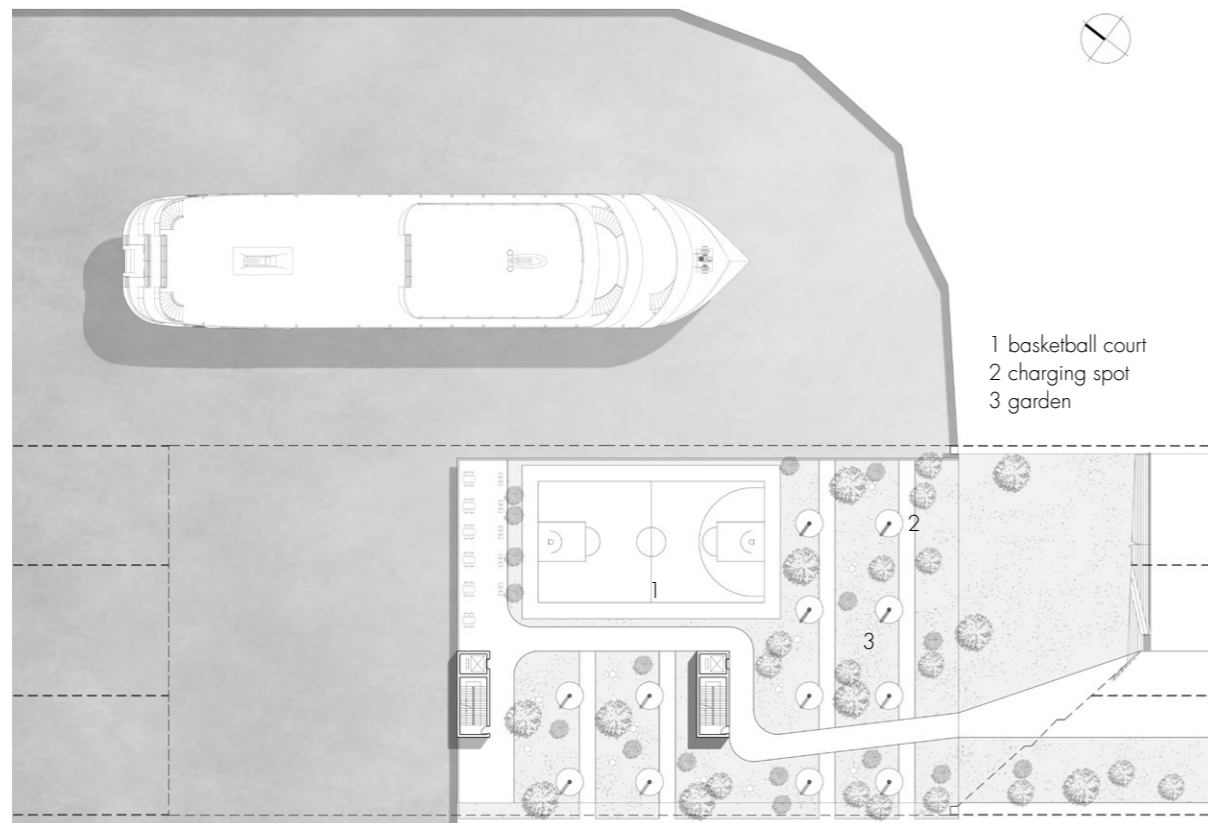
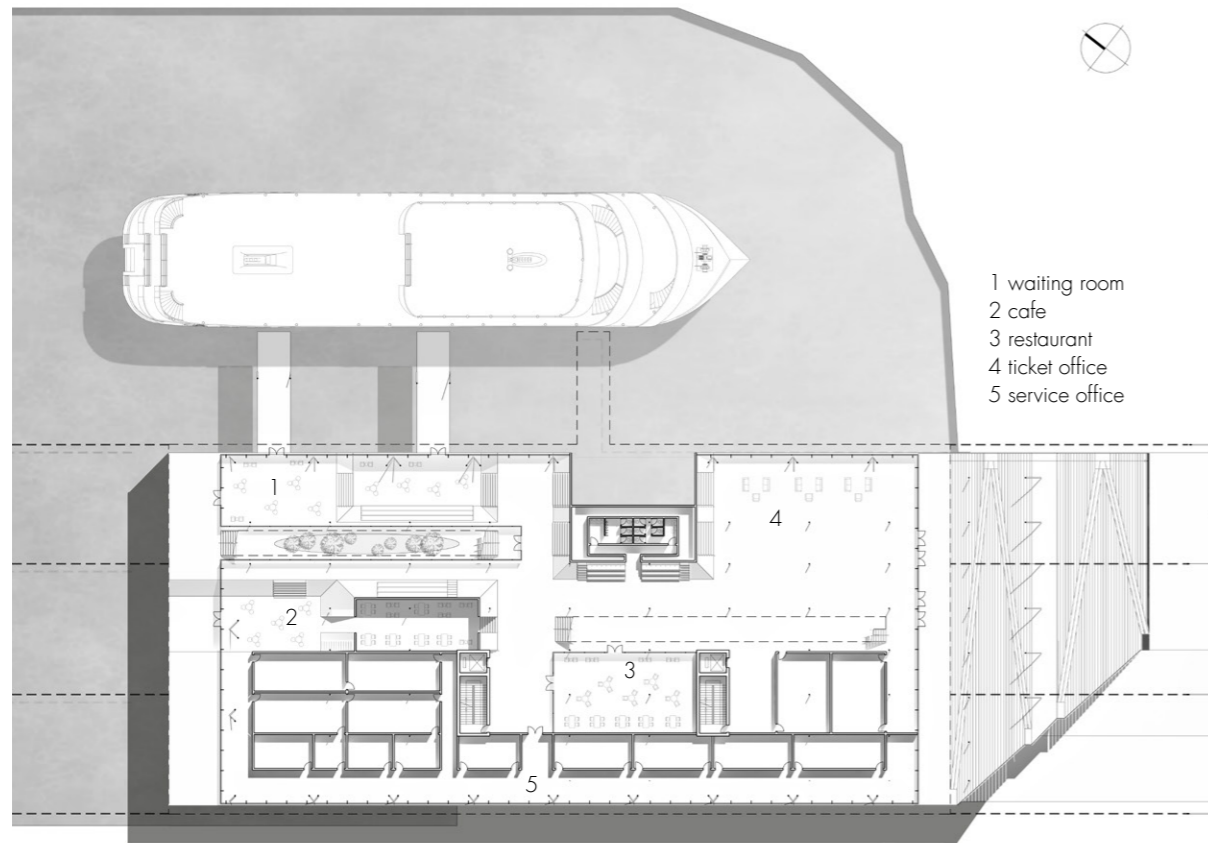


FERRY TERMINAL WAITING ROOM



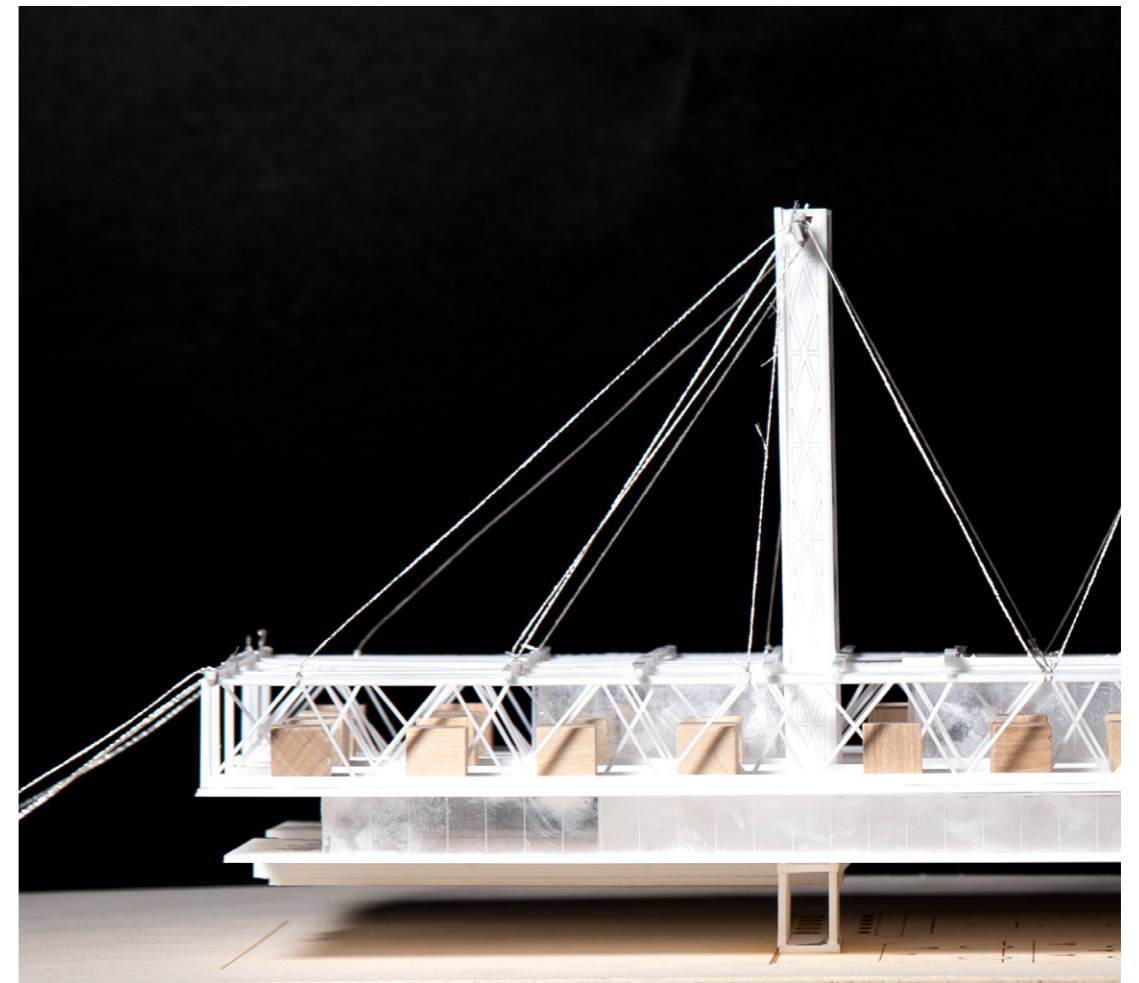
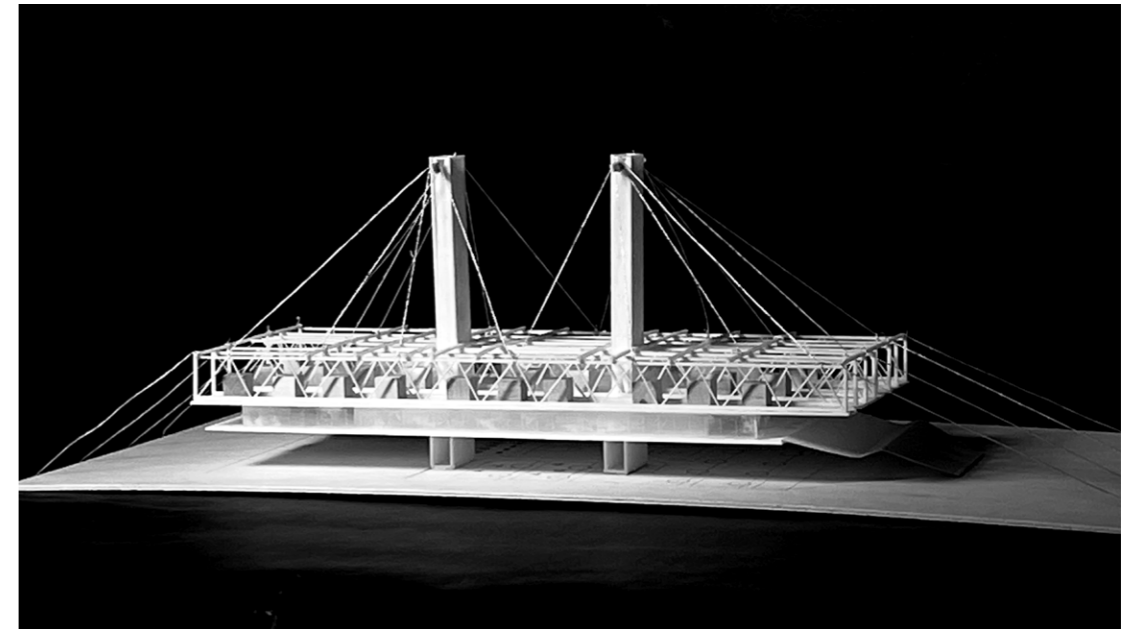
SECTION A-A

1ST FLOOR PLAN
2ND FLOOR PLAN



PERSPECTIVE SECTION

rendered by V-ray
edited in Photoshop



PHYSICAL MODEL 1:400

laser cutting, handcutting
plywood, acrylic, cardboard, nylon wire

PERMANENTLY IN PROGRESS

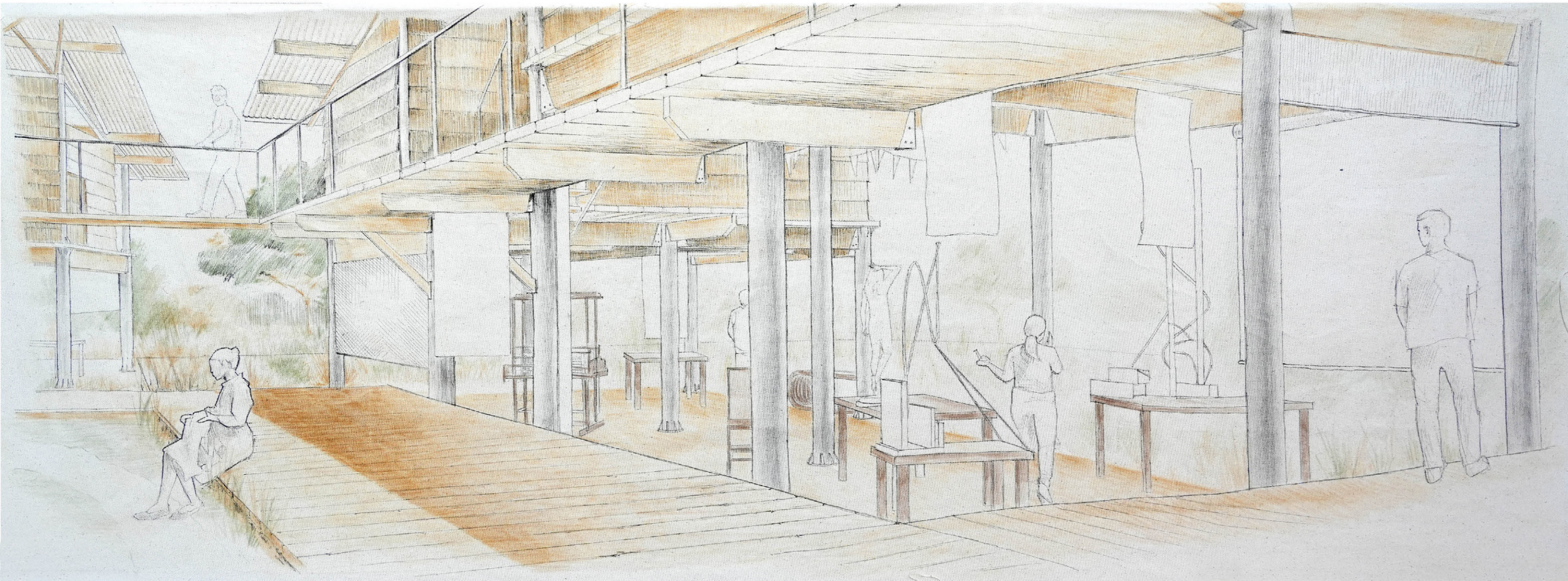
2024 Spring

Location: Jim Thompson Farm, Korat, Thailand

Instructor: Rachaporn Choochuey, Lucy Navarro

Group Work with Philip Spence

After Studied and understood the life cycle of a building through the first half of spring semester, we went to Thailand to visit the site - Jim Thompson Farm. The most memorable part of the trip is the intense heat and humidity in Thailand, which we think is a hard condition for artists to produce artworks. Thus when designing the residence back in New York, we want to focus on how to create a comfortable space for artists making use of the existing natural conditions. We also aimed to develop structures designed for easy deconstruction, ensuring adaptability and sustainability in our approach to architecture.



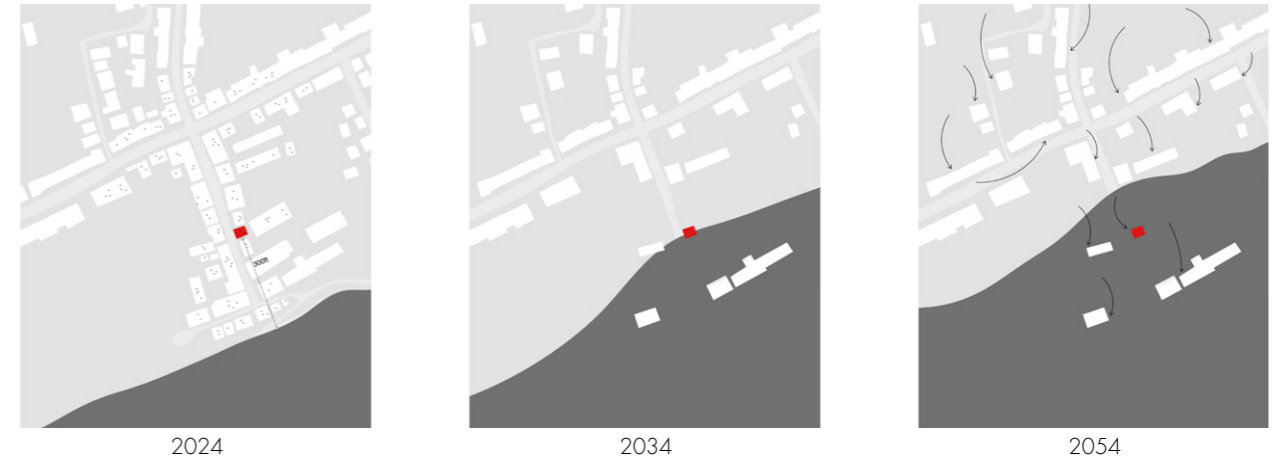
PART 1 - UNDERSTANDING THE LIFE OF A BUILDING

MY GRANDPARENTS' HOUSE IN HUNAN, CHINA

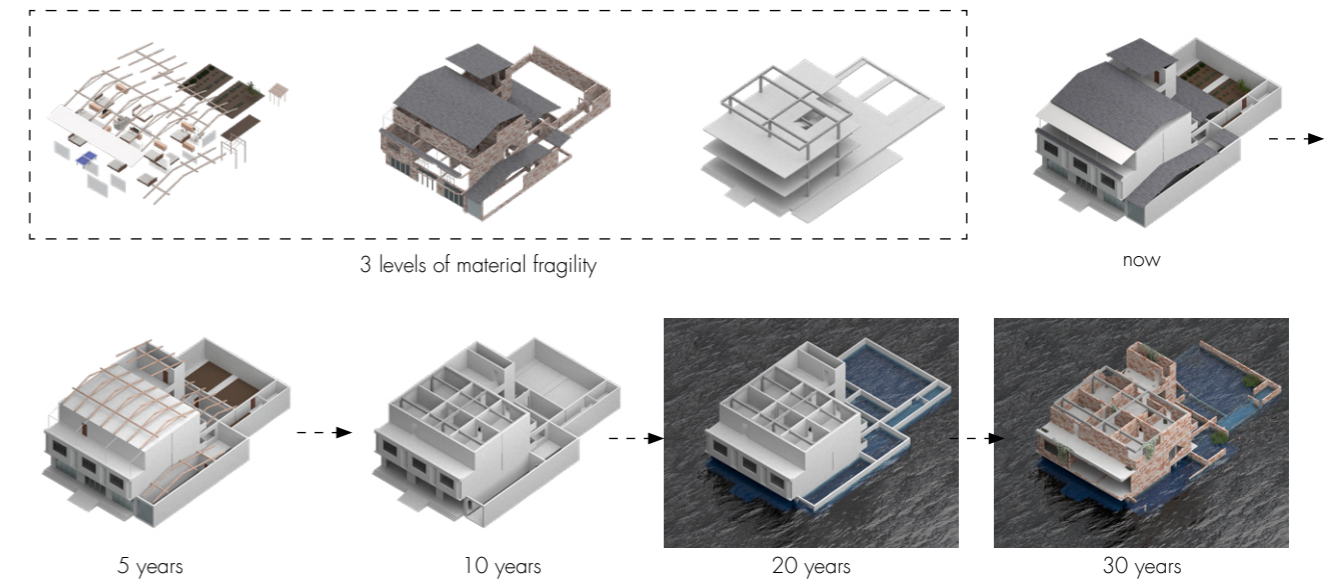


I chose my grandparents' house as the casestudy of the first half of the studio. It is located in Mashi Village, Hunan Province, China. Mashi Village, far from cities, is a peaceful and beautiful place where my grandparents live and my father grew up. Nonetheless, it is facing problems since young people move out of the village to big cities and population of the old generation is gradually decreasing. Large parts of the land are vacant and buildings need maintenance and renovation. Meanwhile, the rise of the river level gives Mashi Village the risk of being flooded by the water.

RISE OF THE RIVER LEVEL



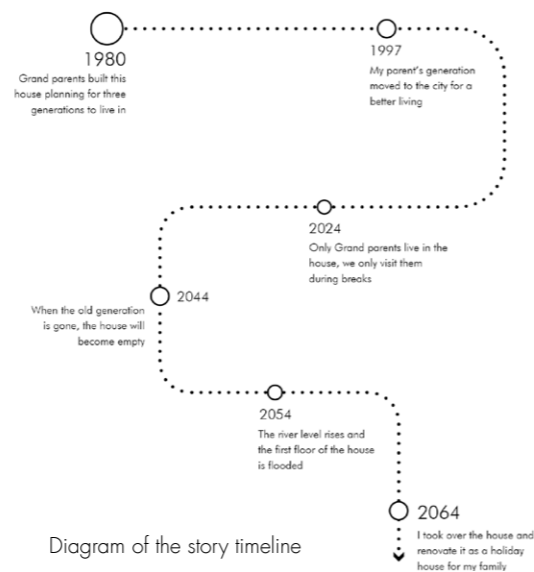
DECAY OF MATERIAL OVER TIME



THE PAST AND THE FUTURE OF MY FAMILY HOUSE

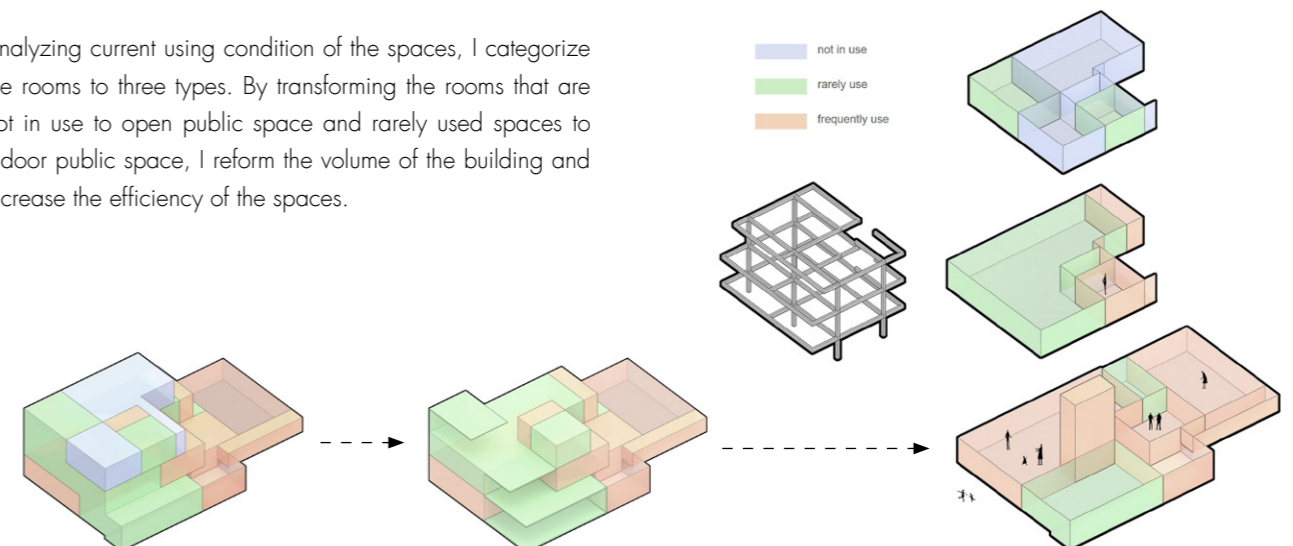


A picture of my grandfather holding one-year-old me. This was the time when our family house was just built, the beginning of the story. What was the story and how will the story be? Let's imagine...

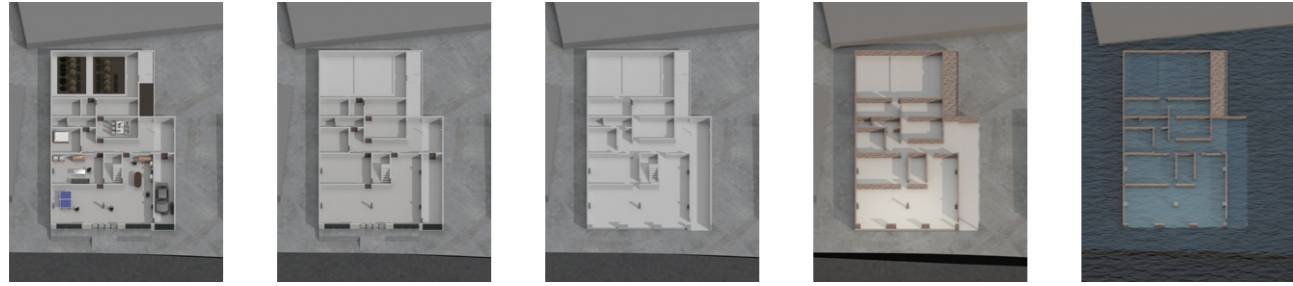


VOLUME RENOVATION STRATEGY

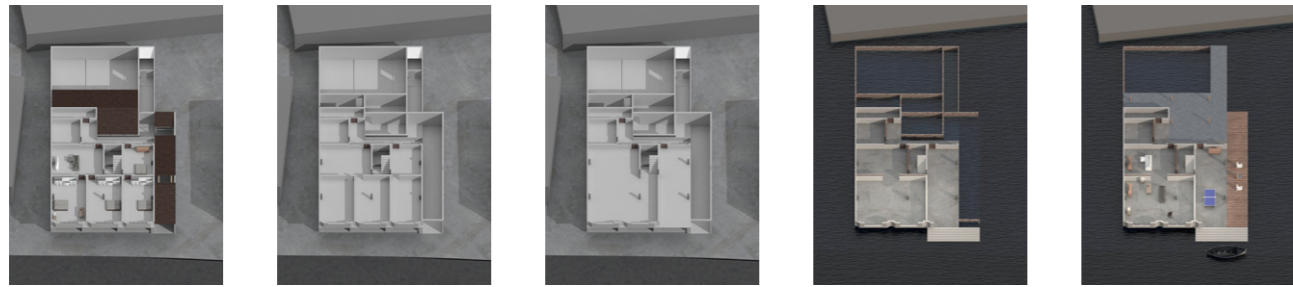
Analyzing current using condition of the spaces, I categorize the rooms to three types. By transforming the rooms that are not in use to open public space and rarely used spaces to indoor public space, I reform the volume of the building and increase the efficiency of the spaces.



1ST FLOOR PLAN MUTATION



2ND FLOOR PLAN MUTATION

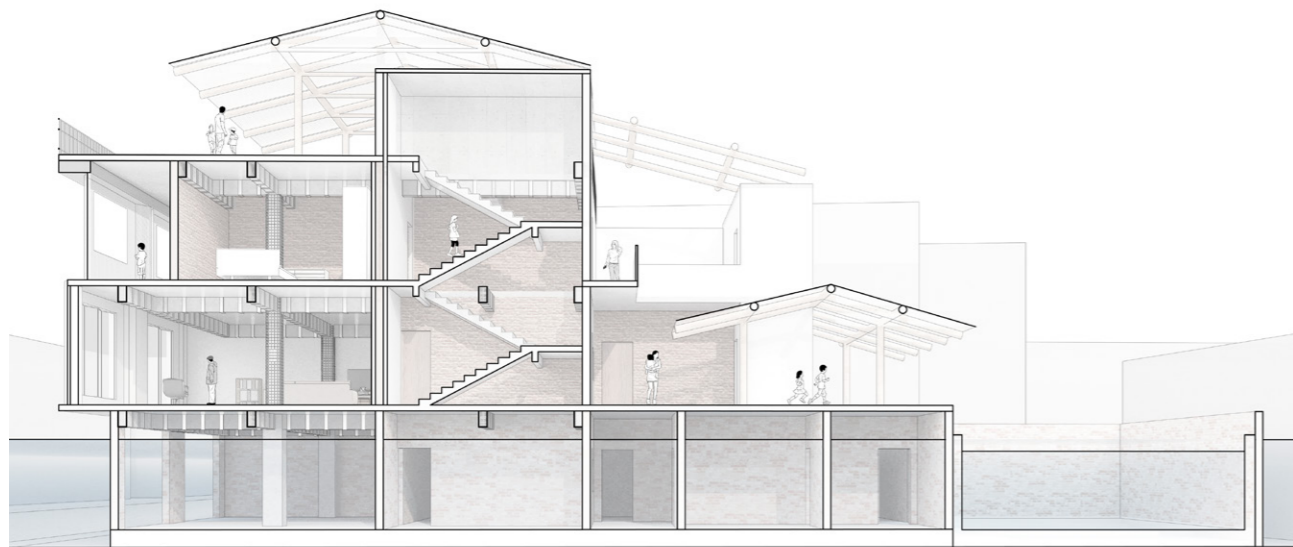


3ND FLOOR PLAN MUTATION

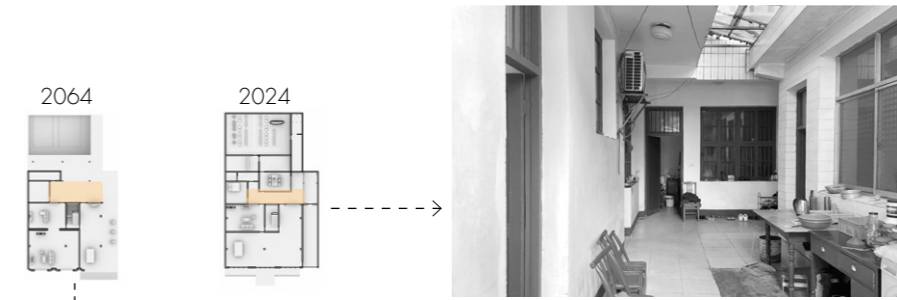
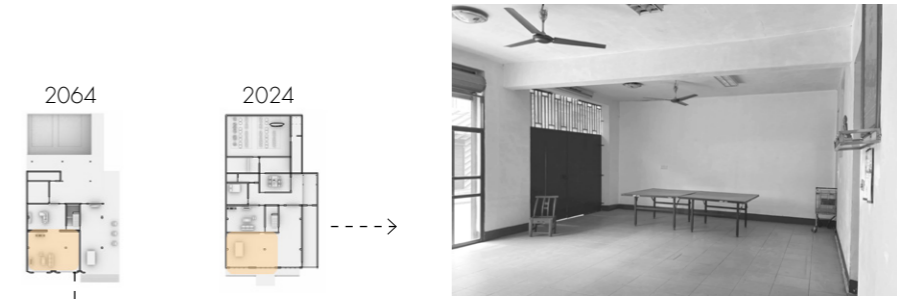


2024 2034 2044 2054 2064

PERSPECTIVE SECTION OF THE FINAL STATE



COMPARISON OF THE PAST AND THE FUTURE



PART2 - DESIGNING ARTIST RESIDENCE

CANVAS SHEET 01 - CONCEPT AND DIAGRAMS

THAILAND EXPERIENCE 3/2-3/9

GULF OF THAILAND

TEMPLE OF SAMUT CHIN
LAT. 13.50766, LONG. 100.53092; SAMUT PRAKAN

CLIMATE: WIND

CLIMATE: SHADOW & SUN

	1 PM	2 PM	3 PM	4 PM	5 PM
MARCH					
APRIL					
MAY					
JUNE					

FLEXIBILITY

WORKING SPACE

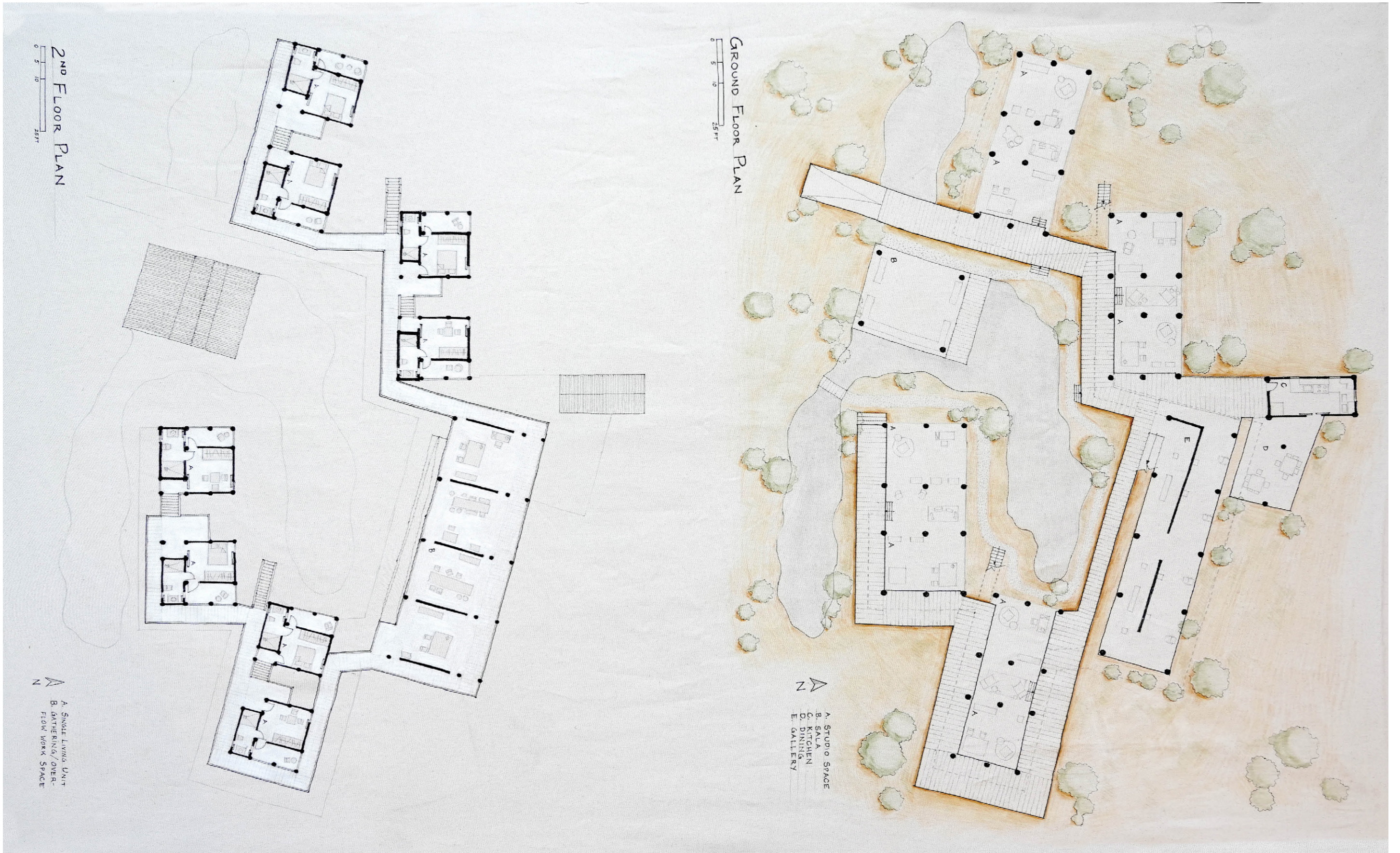
LIVING SPACE

SLOWNESS AND CONNECTIVITY

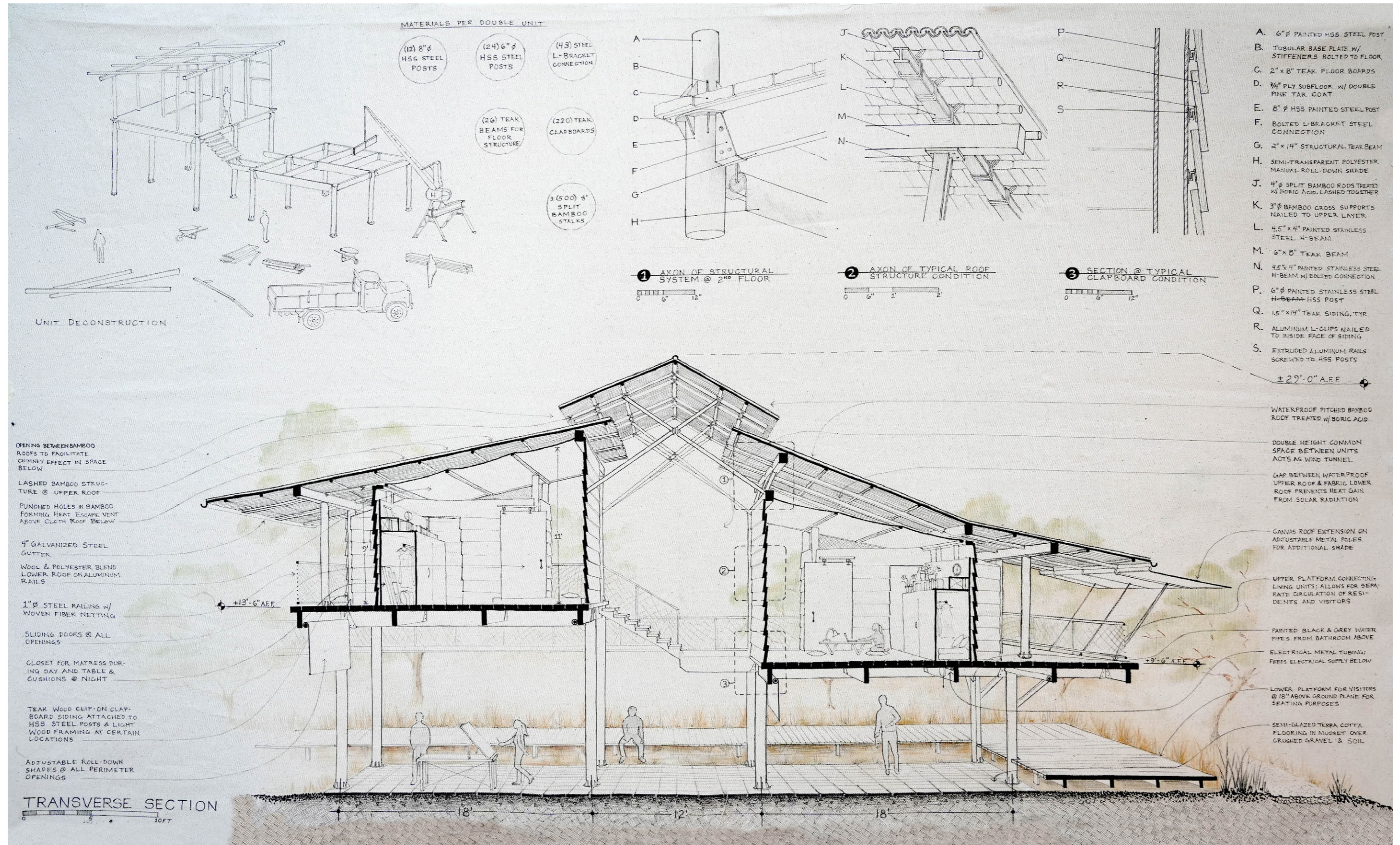
SITE PLAN

BEAUTY & LANDSCAPE

SECTION @ COURTYARD



CANVAS SHEET 03 - PERSPECTIVE SECTION AND CONSTRUCTION DETAILS



DECONSTRUCTION PROCESS OF THE UNITS



1
Complete model



2
Remove bamboo rooftop



3
Remove wood rooftop structure



4
Remove wood rafters



5
Remove metal purlin



6
Remove fabric ceilings



7
Remove ceiling structure



8
Remove wood siding walls



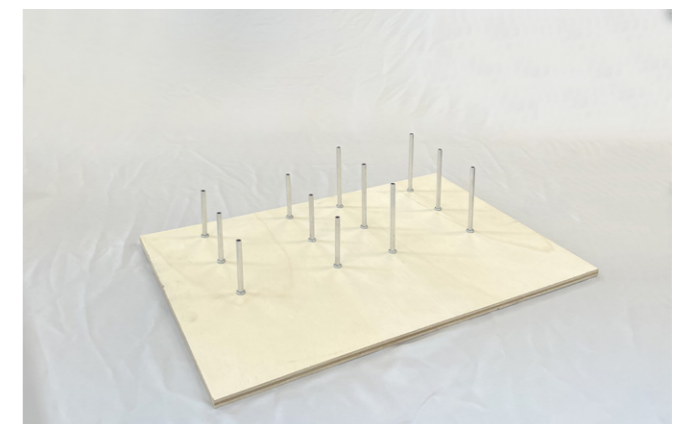
9
Remove wood beams



10
Remove metal columns



11
Remove wood floors



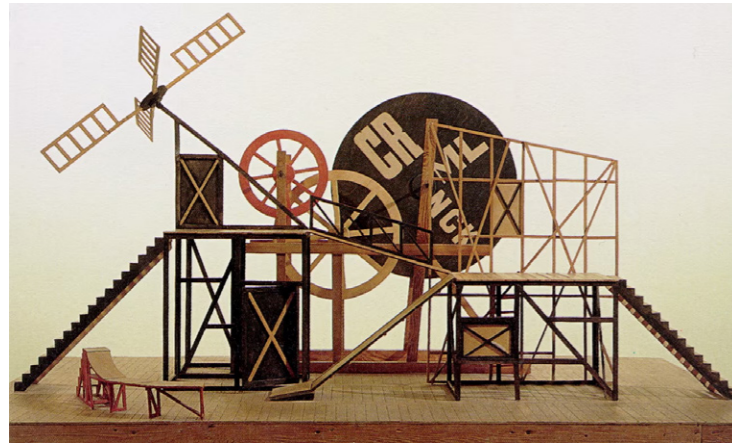
12
Remove wood beams

SEMINAR: ARCHITECTURE APROPOS ART

2023 Fall

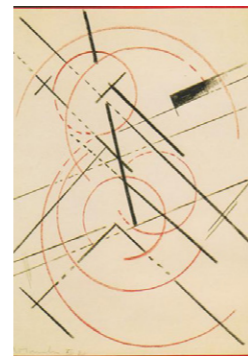
Instructor: Steven Holl, Dimitra Tsachrelia

Movement through spaces of interaction, materials, light, and proportions of a work of architecture all have the capacity to inspire art created within their walls. First, this seminar examines historic examples and recently built schools and museums in detail. Later, it focuses on art's relationship to 21st-century architecture. Each student makes analytical drawings, prints, or models and an illustrated presentation.



STUDY OF POPOVA'S WORK

Lyubov Popova, born in a wealthy Moscow family, received quality art education and was influenced by Italian Renaissance and Russian iconography. Engaging with Moscow's avant-garde scene, she worked with prominent artists like Tatlin and embraced Cubism after exposure to French art. She joined Malevich's Suprematist group in 1916 and later ventured into Constructivism, moving towards practical arts, including textiles and set design.



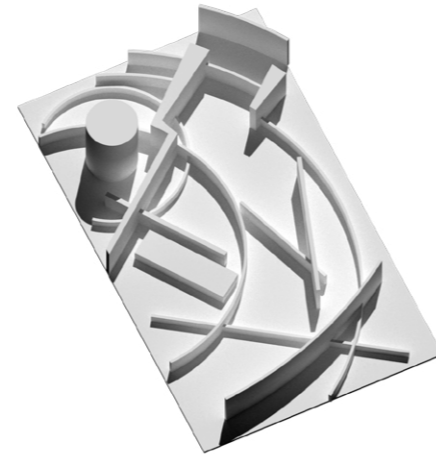
TRANSLATION FROM 2D TO 3D



abstract movement



cubism style graphic



3-dimensional space



PHYSICAL MODEL

SEMINAR OF SECTION - M+ MUSEUM

2024 Spring

Instructor: Marc Trurumaki

Individual Work

M+ Museum, situated in Victoria Harbour, stands as a cultural center and a new landmark of Hong Kong, designed by Herzog & De Meuron. Impressed by its striking form and construction, I decided to study and produce a section of it for this seminar. One of the most captivating features of this building is the intersection where a substantial slab meets a towering structure, giving rise to a great space within the heart of the building. I chose a realistic rendering style to vividly showcase the sheer magnitude of the volume, its structural system, and its integration within the surrounding urban landscape.

