# Portfolio

Columbia University, Graduate School of Architecture, Planning and Preservation

Master of Science degree in Advanced Architectural Design 2019 - 2020

CHUN-CHANG TSAI





# PORTFOLIO

GSAPP 2019 - 2020



I would firstly thank my family, for the love, encouragement, belief in, and grace for me throughout this process of the master program and of being part throughout the duration.

I also couldn't have made it through without the unfailing support and love of my amazing friends from Columbia GSAPP family. Thank you all for being always there, unwaveringly encouraging me at every moment and every night.

Thanks to all my design / linked research Tutor from the University:

Reformative Modernity: Mimi Hoang
New Coastline Framework: Ziad Jamaleddine
Wall Market: Tei Carpenter
Open Work: Enrique Walker
Transscalarities: Andrés Jaque

With the special thanks to Jui - Cheng Hung for the additional time that he made me in order to fully understand and support my interests and personal developments throughout the Master degree journey.

Most importantly, thank you to all who supported me.



# TABLE OF CONTENTS Thesis - Landscape - Architecture

## INTRODUCTION

Columbia University | GSAPP Selected Works

	Table of Contents	7
	Curriculum Vitae Personal Experience & Academic Award	8
	RECTIFICATION	
[1]	Reformative Modernity Landscape as an action for new coastline connection	10
	Bush Terminal Site for practices	15
[2]	New Coastline Framework Landscape as an architectural intervention for a new coastline imagination	30
	Boundary Rethink the way of connection by redefinding the relationship between the two	29
	INTERVENTION	
[3]	Wall Market Market as a manifesto for a new economy system	52
	Manifesto The new way of arises the public awarness of the land pollution	56
	ELECTIVE	
[ - ]	Architectural Photography You don't take a photograph, you make it.	72

PORTFOLIO

# Chun-Chang Tsai

195 Claremont Avenue, Apartment 43B, New York, NY, 10027 Tel: 646 617 9088 Email: chunchang.tsai@gmail.com tsai.chun-chang@columbia.edu



http://www.chunchang-tsai.com

## Education \_

Columbia University, Graduate School of Architecture, Planning and Preservation, New York

Master of Science degree in Advanced Architectural Design - Expected graduation, May 2020

2019 - 2020

## Tamkang University of Technology Development of Architecture, Taiwan (R.O.C.)

Bachelor of Science in Architecture, July 2016 - November 2011

[ - ] Excellent Design Award	Thesis Hereby Honor	2016
[ - ] Outstanding Performance Award	Annual Academic Award	2015 - 2016
	Annual Academic Award	2014 - 2015
[ - ] Da Yu Award	Academic Excellence Award	2011 - 2012

## Professional Experience \_\_\_\_

## JJPan Partner, Architects and Planners, Taipei, Taiwan (R.O.C.)

Junior Designer

[DD] The Shanghai Commercial & Savings Bank, Ltd. / SCSB Headquarter, Taipei, Taiwan April 2018 - May 2019

- Oversaw regulation reviews, discussed with the Taipei City Government, Urban Planning Committee for regulatory reports and construction permissions.
- · Worked with consultants of the facade detail designs, developed facade module systems, watertight designs, practicability of ventilation module integrations, and structural joint reviews.
- Integrated consultants' feedbacks and fire compartmentation developments, established construction timelines, and budget assessments.
- · Building area calculation, building bulk assessment, overall regulation review, and plan adjustment within the construction drawing phase.

## Ying-Chun Hsieh, Atelier-3, Design For People, Changdu, Sichuan, China

International Internship

[CD] 2008 Sichuan Earthquake reconstruction project, Liangshan Yi autonomous prefecture June 2014 - July 2014

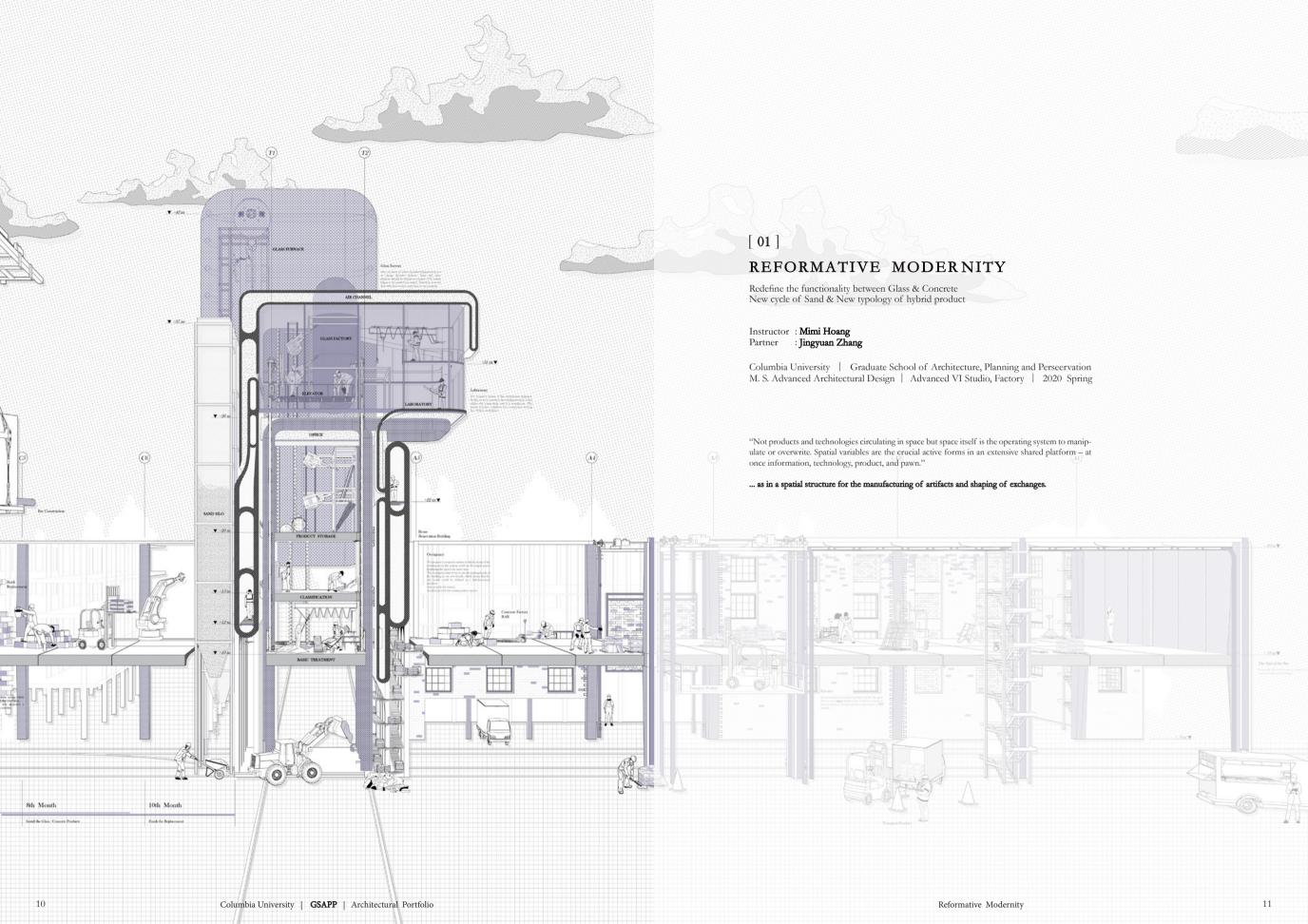
- · Assisted Yi minority indigenous with building accommodation, provided methods of how to create their new habitation, which provides safe dwelling places.
- Developed dwelling designs, construction component managements, and designed the procedure of turning aluminum plates into physical architectural components.

## Competition & Award

[ - ] Archiprix	Participants' Favorite
Selected by Tamkang University the best thesis design in 2016 and 2015	February 2017
Archiprix is an international biennial architecture competition, selected by the university as their best graduation project which finished in the last two years to participate in the international competition.	
[ - ] Is Arch	Final Lists
International Awards Students' of Architecture	December 2016
[ - ] UIA HYP Cup	Third Prize
International Students' Competition in Architectural Design	October 2016
[ - ] Taiwan 20 IEAGD	First Prize
International Students' Thesis Competition	August 2016
[ - ] Tsingrum Award International Students' Paper Competition	Second Prize December 2015

Skill

Is Arch International Awards Students' of Architecture December 2016  UIA HYP Cup International Students' Competition in Architectural Design October 2016  Taiwan 20 IEAGD First Prize International Students' Thesis Competition August 2016  Tsingrum Award Second Prize International Students' Paper Competition December 2015  Fluent in English, Chinese, and written Mandarin Proficient in MS Office (Word, Excel, Outlook, Power Point) Rhinoceros, SketchUp, AutoCAD, V-ray, Adobe Photoshop, Adobe Illustrator, Adobe Indesign	as their best graduation project which finished in the last two years to participate international competition.	in the		
International Students' Competition in Architectural Design October 2016  Taiwan 20 IEAGD First Prize International Students' Thesis Competition August 2016  Tsingrum Award Second Prize International Students' Paper Competition December 2015  Fluent in English, Chinese, and written Mandarin Proficient in MS Office (Word, Excel, Outlook, Power Point) Rhinoceros, SketchUp, AutoCAD, V-ray, Adobe				
Taiwan 20 IEAGD International Students' Thesis Competition August 2016 Tsingrum Award International Students' Paper Competition December 2015  Fluent in English, Chinese, and written Mandarin Proficient in MS Office (Word, Excel, Outlook, Power Point) Rhinoceros, SketchUp, AutoCAD, V-ray, Adobe	UIA HYP Cup	Third Prize		
International Students' Thesis Competition August 2016  Tsingrum Award Second Prize International Students' Paper Competition December 2015  Fluent in English, Chinese, and written Mandarin Proficient in MS Office (Word, Excel, Outlook, Power Point) Rhinoceros, SketchUp, AutoCAD, V-ray, Adobe	International Students' Competition in Architectural Design	October 2016		
International Students' Paper Competition December 2015  Fluent in English, Chinese, and written Mandarin  Proficient in MS Office (Word, Excel, Outlook, Power Point) Rhinoceros, SketchUp, AutoCAD, V-ray, Adobe				
Proficient in MS Office (Word, Excel, Outlook, Power Point) Rhinoceros, SketchUp, AutoCAD, V-ray, Adobe	Tsingrum Award International Students' Paper Competition			
	Proficient in MS Office (Word, Excel, Outlook, Power Point) Rhinoceros, Sk	setchUp, AutoCAD, V-ray, Adobe		





**Study Model**Module study No. 3

Reformative Modernity is a project that challenges the tradition of construction.

The vertical factory, Model I, is a contractor/builder that uses recycled glass cullet and recycled sand to make new building components. And renovation is conducted on the site. Through our system, values are recreated out of outdated industrial buildings.

Construction and deconstruction are happening fast in our city. Usually, all the raw materials are transported from a quarry very far from the construction site, which is not efficient in terms of time and transportation cost. Recycling materials from the demolition debris can solve this problem. Therefore in our project, we are promoting a new way of construction and renovation that makes full use of the potential of existing buildings.

In our manufacturing system, we are using recycled glass cullet and recycled sand to make new building components. By mixing the materials with different ratios, different degrees of transparency can be created. Also, the heat generated in the furnace goes through a water-vapor-water cycle and is turned into electricity and feeds back to the system.

According to these principles, we developed Project Model No.1. In short, it is a vertical factory which can be seen as a builder/contractor working around the city. It is able to turn demolition debris into new building components for renovation on site. Here is a video that shows how the system works.

## Strategy

Our site is located in the bush terminal, Brooklyn. The old buildings are not in good condition. Original glass windows no longer meet the standards of use; also, the old rails are no longer in use.

- We repair and reuse the broken rails which provide the new connection between the water and the city.
- The tower, Model I, can be introduced into the site.The pier is rebuilt as the loading dock, which provides spaces for raw material transportations, products, and machines are transported both from water and roads.
- 3. Parts of the existing building are deconstructed. After that, open spaces were created for the outdoor operation. The tower, Model I, started working. It takes in the demolition debris of the old buildings and gradually builds the decks along the facade.
- When the renovation was done, Model I, would be sent to another construction site, or retrieved by our company. Eventually, the bars would become a permanent part of the architecture.

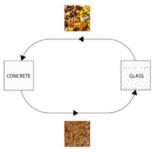
"Not products and technologies circulating in space but space itself is the operating system to manipulate or overwrite. Spatial variables are the crucial active forms in an extensive shared platform – at once information, technology, product, and pawn."

#### The End State

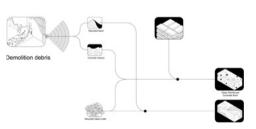
The idea of volume and void is redefined in the renovation. Original spaces in between facades are now occupied by the bars, which can be used as an extension of production lines in the factories.

And courtyard spaces are created. It connects the rails and the bars. Factory owners and workers can use it as an outdoor working/storage space or open it for public use.

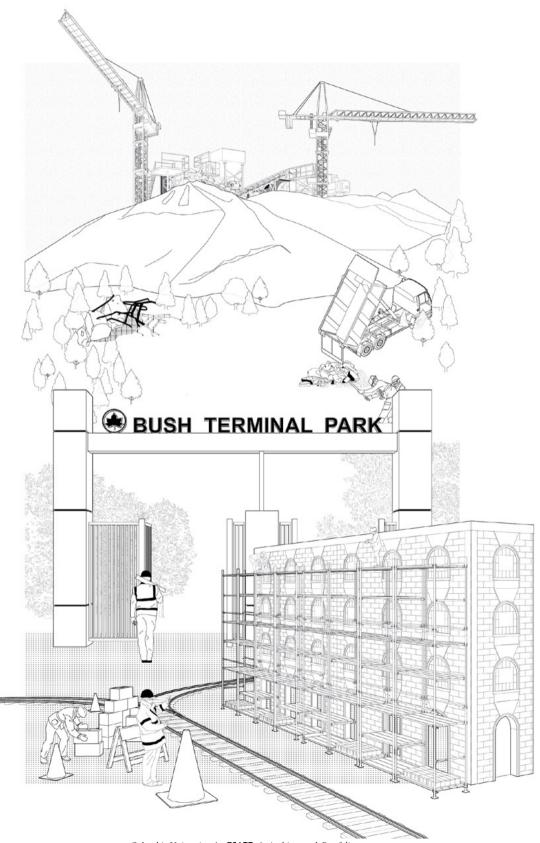
The Model I stands at the center of the four buildings. Rails running under it brings in materials and equipment.

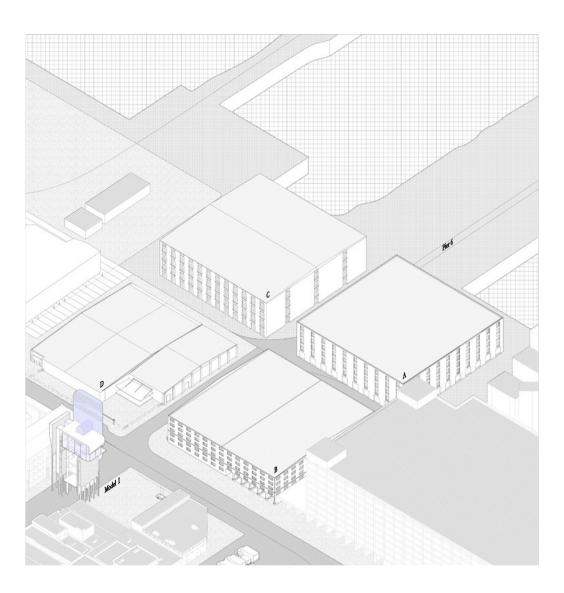


In our manufacturing system, we are using recycled glass cullet and recycled sand to make new building components. By mixing the materials with different ratios, different degrees of transparency can be created. Also, the heat generated in the furnace goes through a water-vapor-water cycle and is turned into electricity and feeds back to the system. According to these principles, we developed Project Model I In short, it is a vertical factory which can be seen as a builder/contractor working around the city.



It is able to turn demolition debris into new building components for renovation on site. Here is a video that shows how the system works.



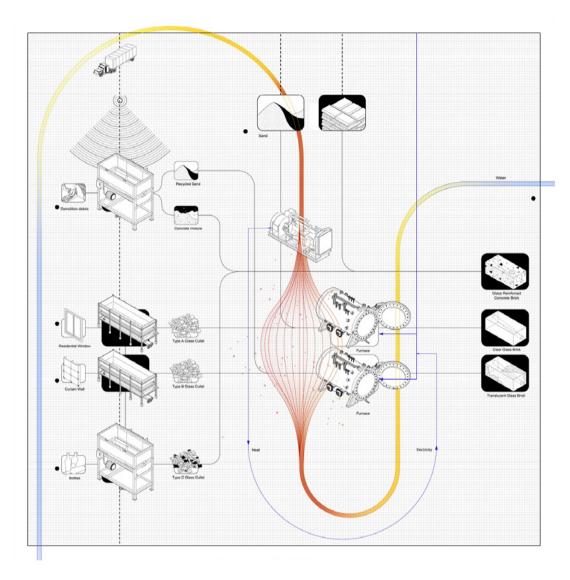


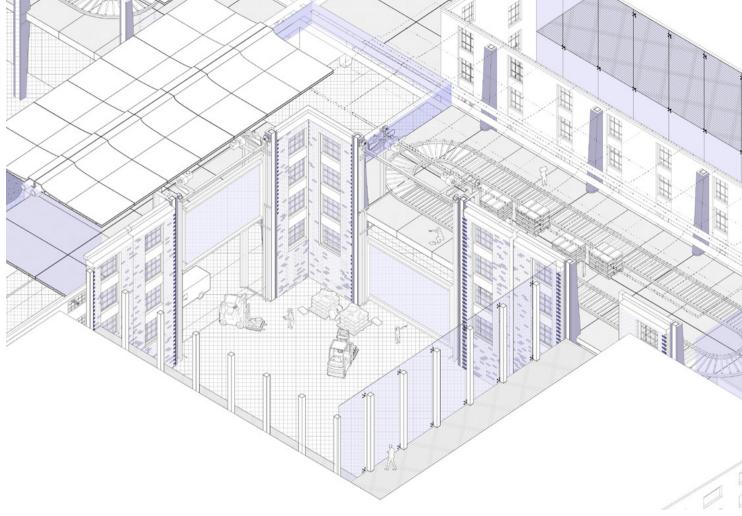
#### Bush Terminal

We try to renovate the four building which located in the bush terminal. The four building, building A, building B, building C, and building D.

These four building are in the bad condition, in order to be reuse, they need to be renovate. However, we try to propose a solution for the current situation. So we proposed a way provide the building renovation mby their debris and a moviable factory, Model one.

Our site is located in the bush terminal, Brooklyn. The old buildings are not in good condition. Original glass windows no longer meet the standards of use; also, the old rails are no longer in use.





## New Recycle System / Heat and Energy

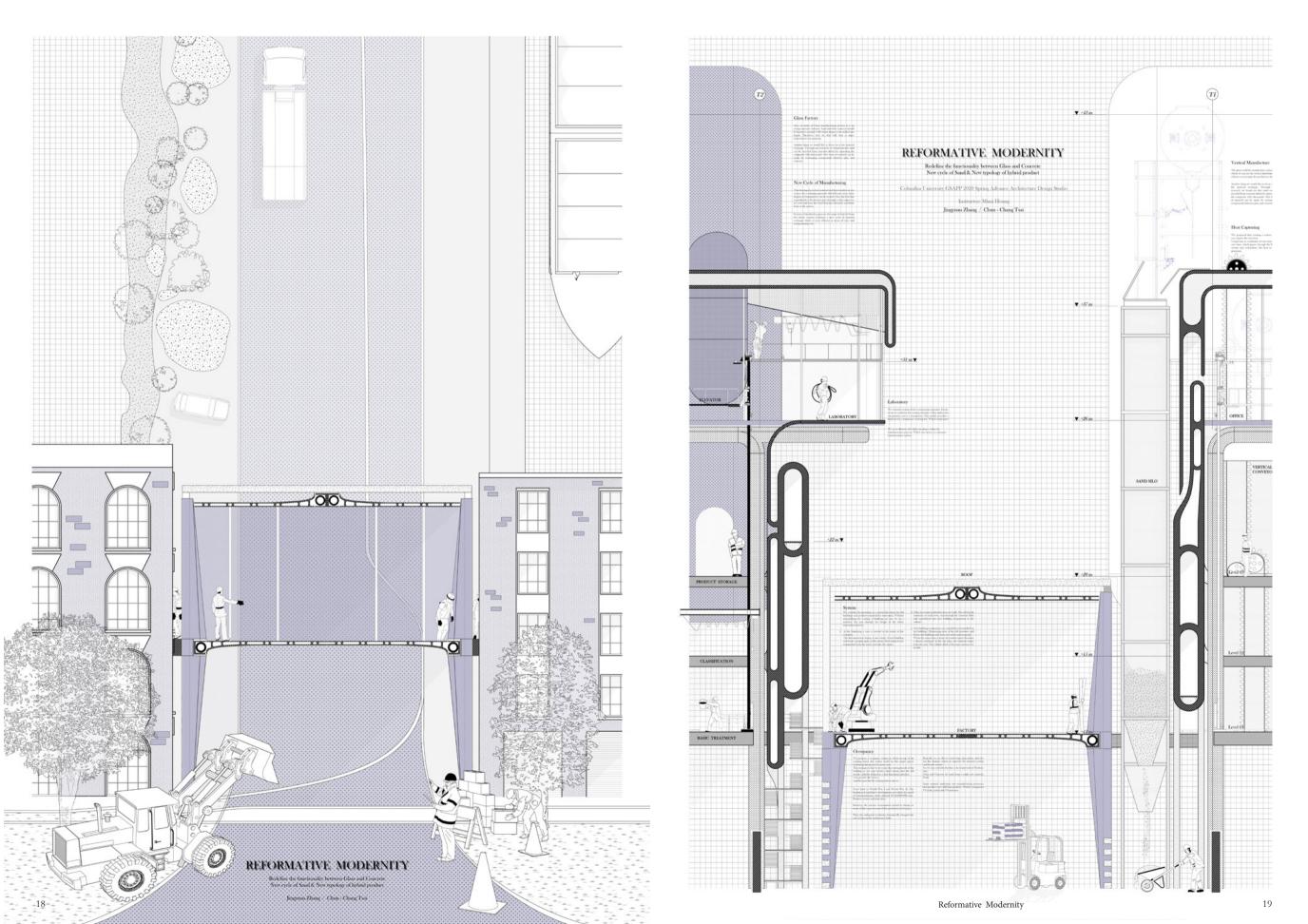
Both concrete and glass industry consume huge amounts of sand each year. Yet our world is in a crisis of sand shortage in recent years.

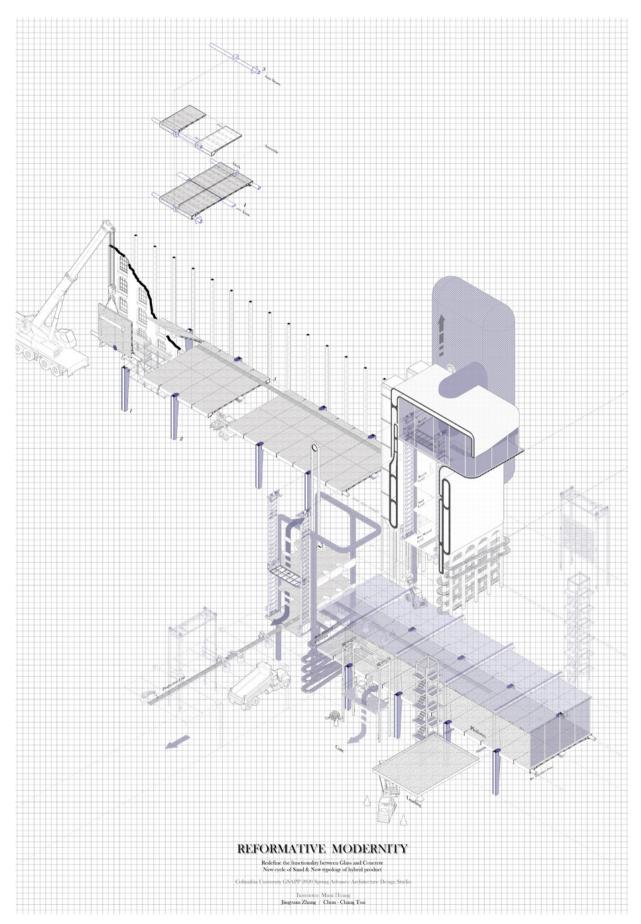
We found out that there is a way to recycle sand from demolition debris and we can use it to make new types of concrete and glass products. In this way, nearly 50% of sand can be saved and we can rescale the ratio of the two materials in buildings. Construction and deconstruction are happening fast in our city.

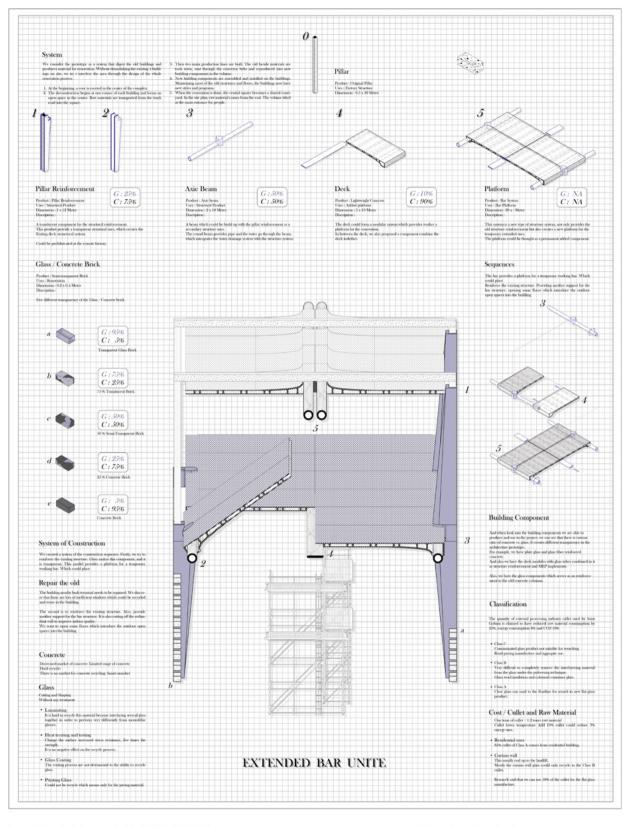
## The Spaces In-Between

This is a view in the courtyard and in between two walls. On the left is the new glass facade and on the right is the renovated brick walls. The renovated factory typology has new and beautiful materials, wonderful lighting conditions, and more porosity.

And the image shows the working environment on the ground floor. And on upper levels, newly built decks help the workers operate. It changes from an scaffolding from part of the architecture.







Our project is in dialogue with modernium. We my to argue and rethink the typical characteristic of the architectural material, which is concrete and glass. We question why the concrete only can be used as a structure, and the glass can only be used as the myelops?

#### Project Origin

In our proposal, we try to rethink the material itsel and possibilities of dual materiality between the two Domino system and plate glass. Trace back to World War I and World War II, The booming of machinery development provoked the speed of Industrialization, which defined Modernism

However, the interior environment started to change in terms of the improvement of the production technique. Then the industrial revolution domaintainds changed the role of glass in the architecture field Glass became cheap and affectable. People or mus if, flat glass as their building facade, which provides a better indoor environment. Provides a better indoor environment. Provides the tree been using glass as an infill, as an envelope also

## REFORMATIVE MODERNITY

Redefine the functionality between Glass and Concrete New cycle of Sand & New typology of hybrid product

olumbia University GSAPP 2020 Spring Advance Architecture Design Studio

Instructor: Mimi Hoang Jingyuan Zhang / Chan - Chang Tsai Basically, we are able to create larger glass plates, and also use the domino system to separate the structure system and facade system.

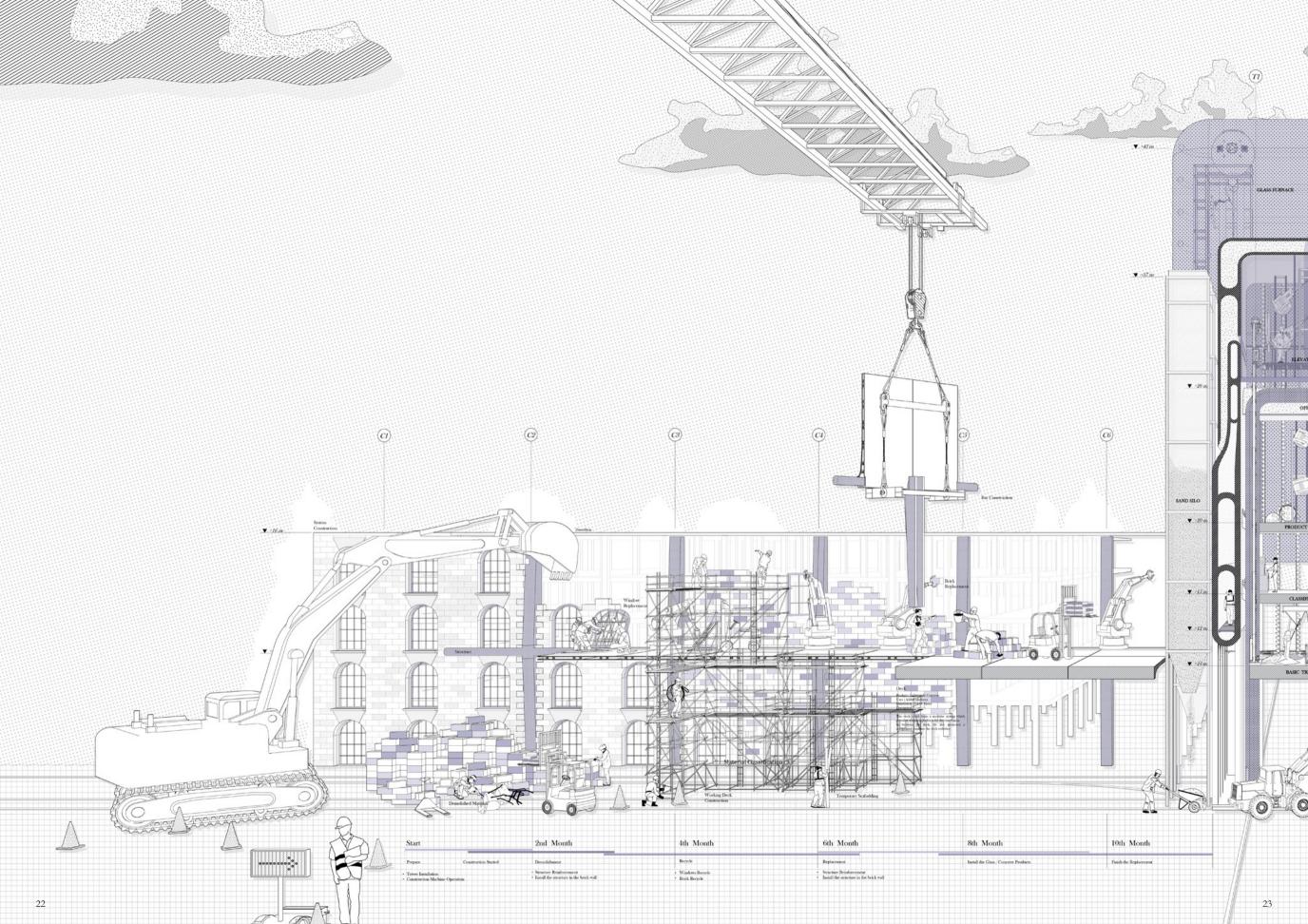
So, we can conclude that this is the framework Modernism. Glass and Concrete all come from single raw material, Sand. Same material undergo two manufacturing processes that produce very diffent products. Which transparent VS solid, at foods VS structure.

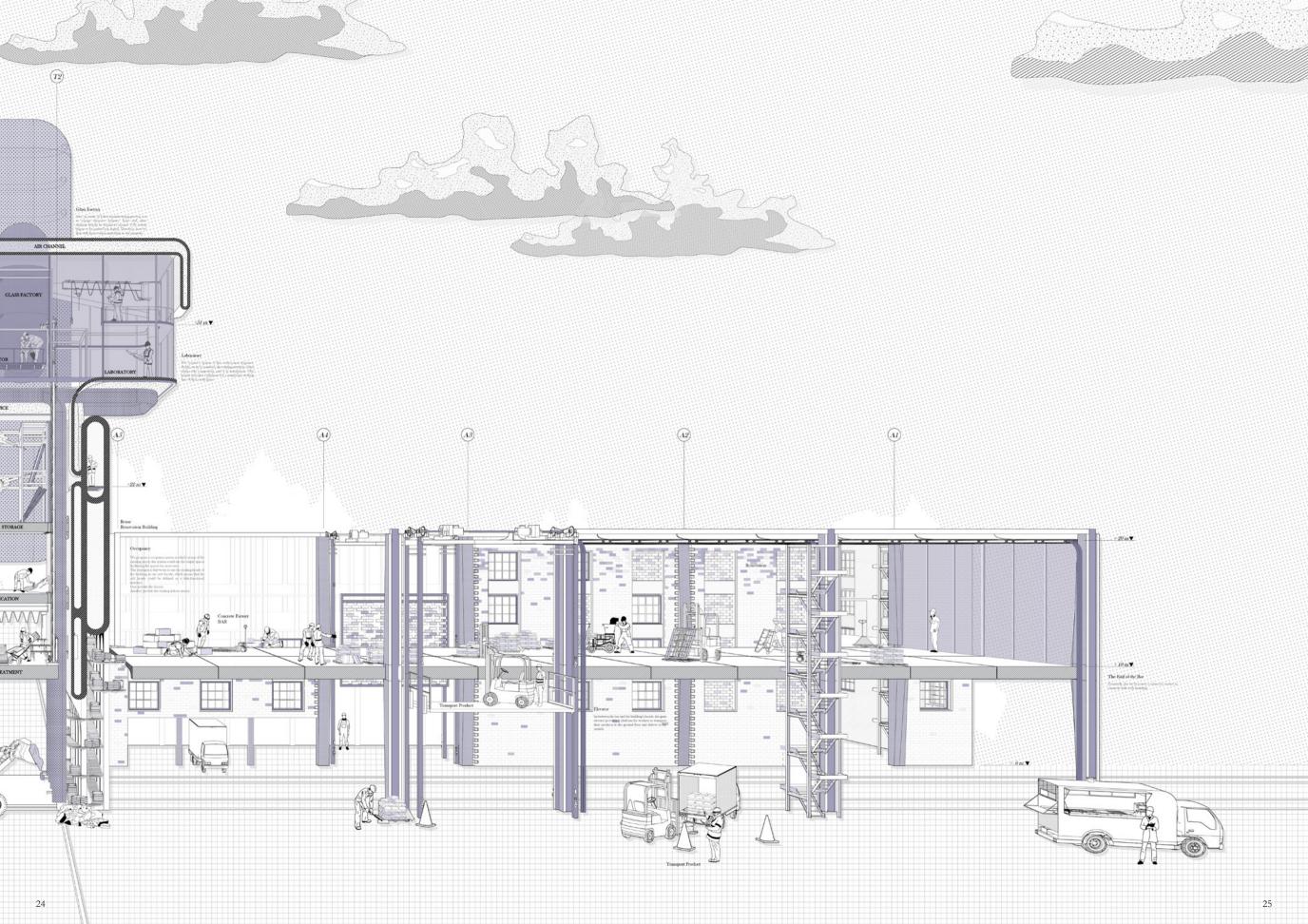
Also, in terms of Glass manufacturing process it is an energy intensive industry.

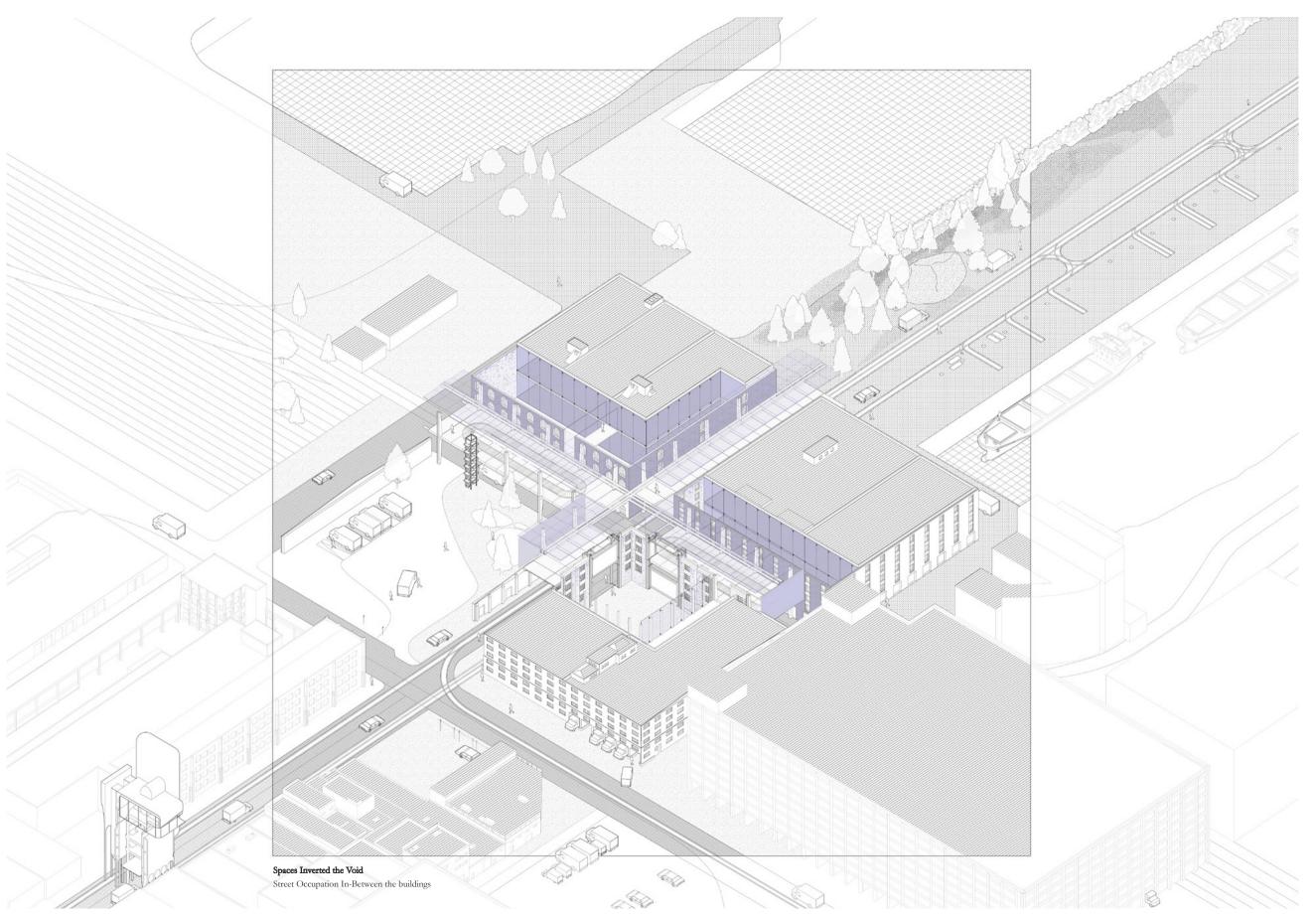
#### nd Material Mediato

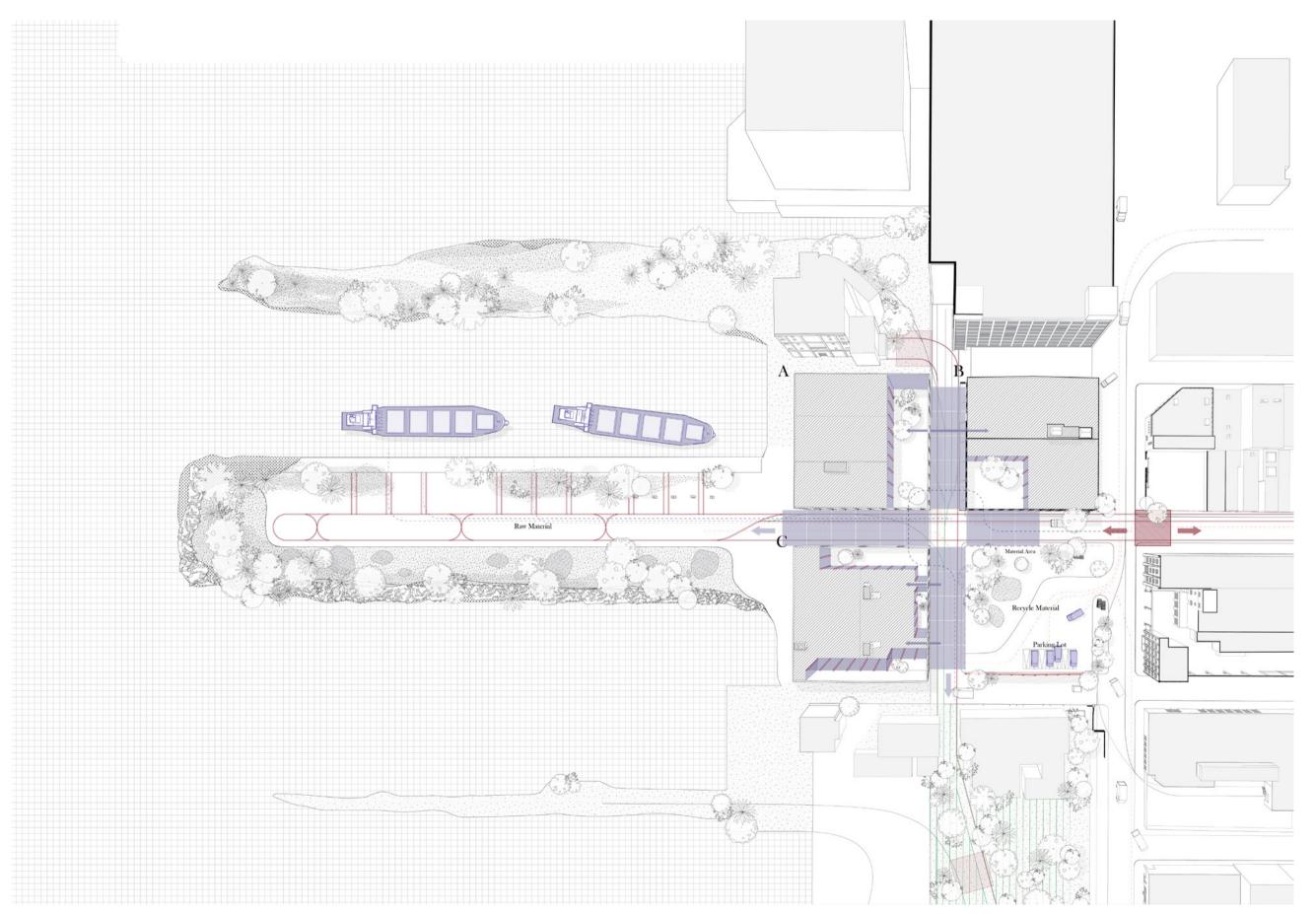
In terms of production process, the usage of materi of al from the urban context facilitates a new cycle of om a material exchange which is more efficient in terms of time and transportation cost.

> n architecture and infrastructure. Instead of sing a building, we are developing a prototype ble to build itself and also renew the old all buildings on site.











[ 02 ]

# NEW COASTLINE FRAMEWORK

Landscape as an action for new coastline connection

Instructor: Ziad Jamaleddine Partner: Xinglu Zhu

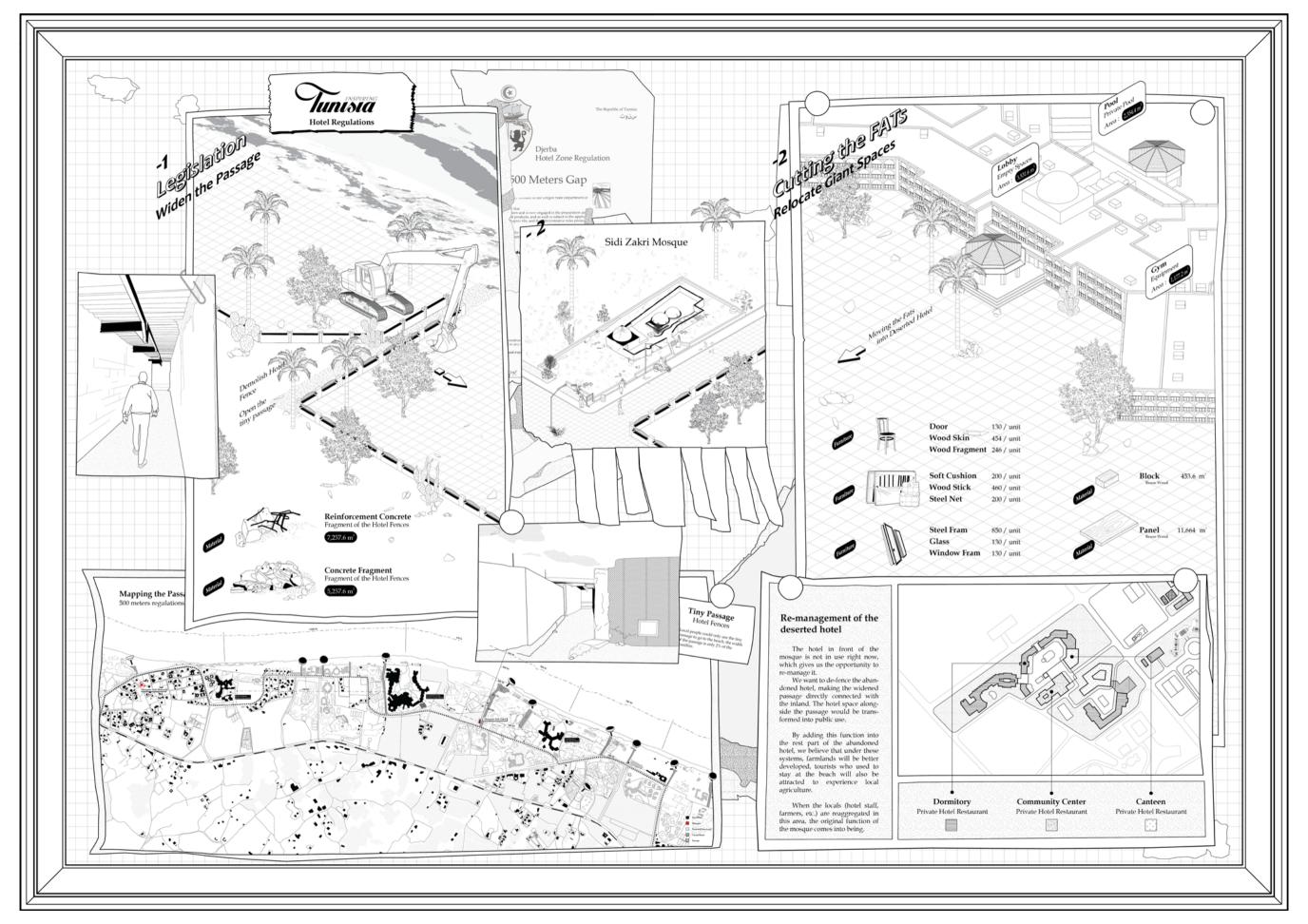
Columbia University | Graduate School of Architecture, Planning and Perseervation—MSAAD | 2019 Fall Studio, Advanced IV, De-Fensing the Mosque

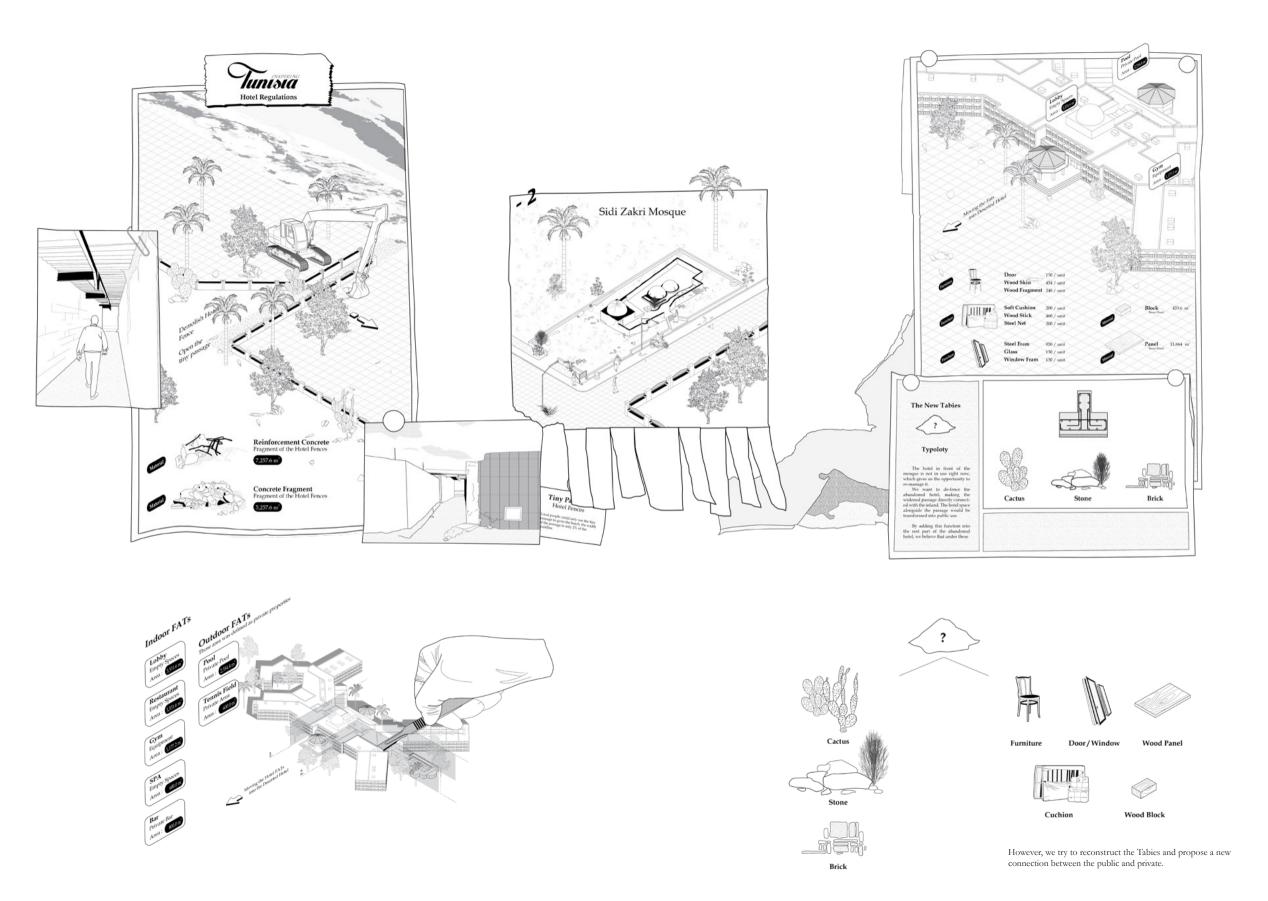
New Coastline Framework discusses about the strategies of cutting down hotel "FATs" and proposes better connections for the local and the tourist area interaction.

"The mapping shows the scale differences among menzel, mosque, and giant hotel"

So we try to rethink the way of connection by refedine the boundary between the private and the public boundary.

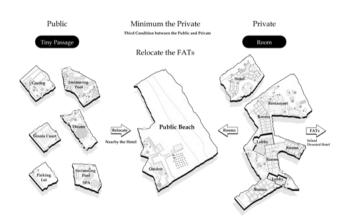
New Coastline Framework





# Public / Private



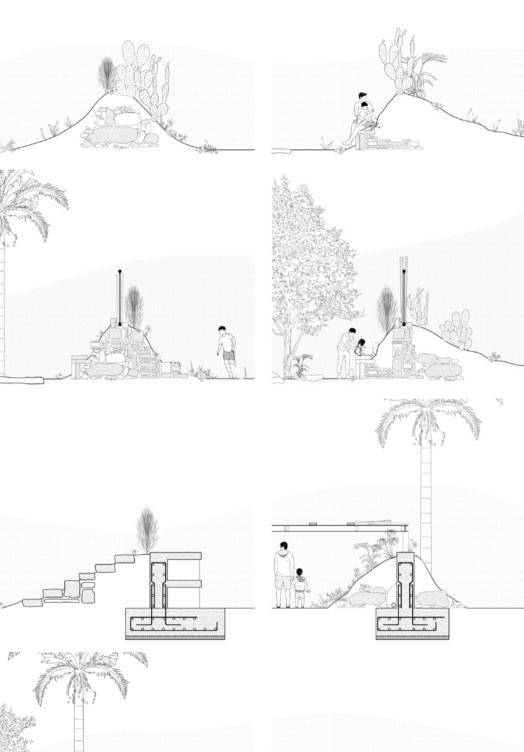


## The Tiny Passage

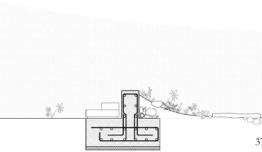
Several tiny passage squeeze between the hotel fences.

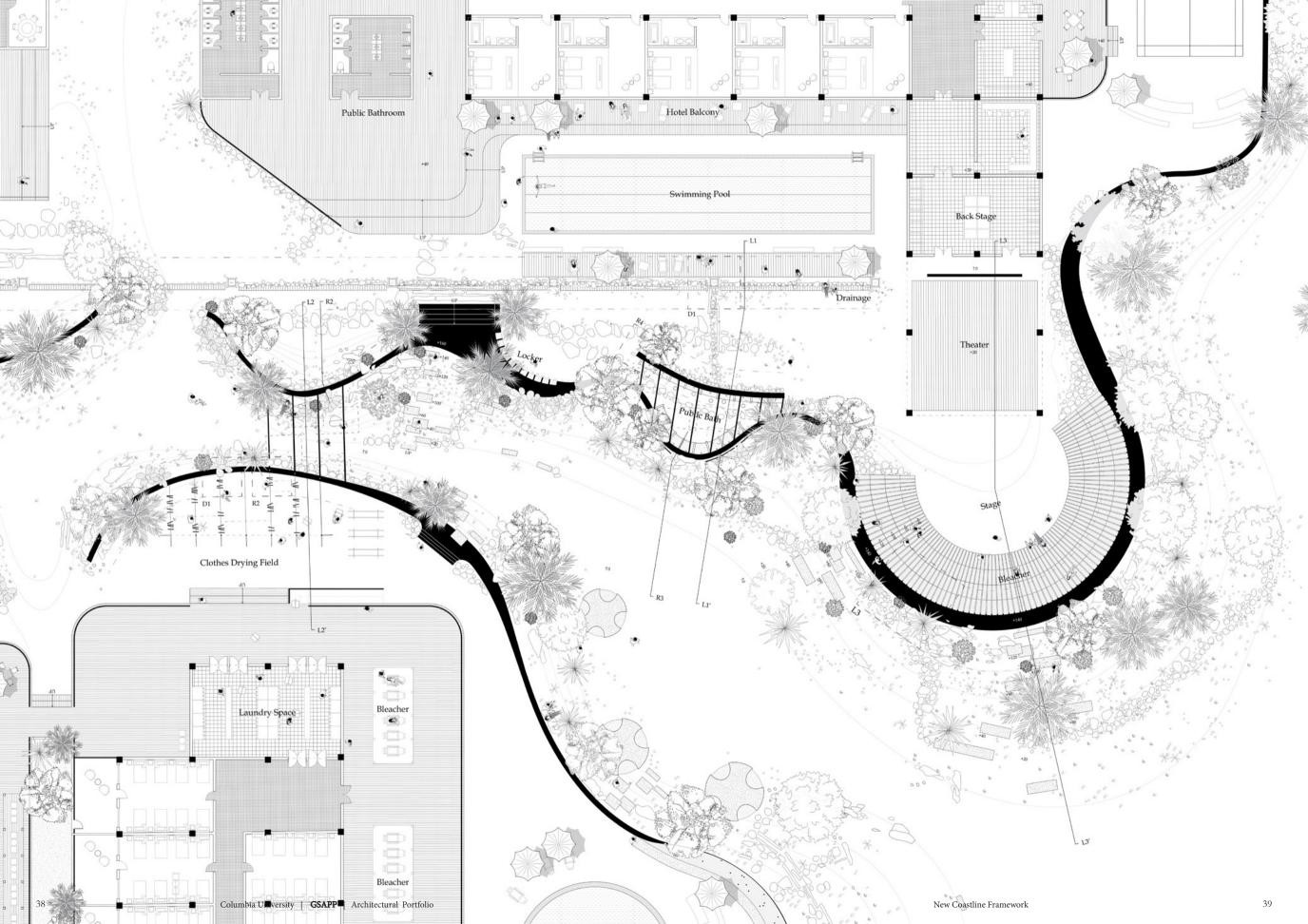
The way local peope get access to the beach is to go through narrow passages. The reconnection started from the one which is right next to the abandoned mosque. In order to make this, fences of this two hotels in the picture need to move back a little bit.

The resulting two cut-out part would be transformed into public use. The reduced number of rooms could be placed far into the abandoned menzels, in that way, transforming menzels into a new home-stay for tourists as well.







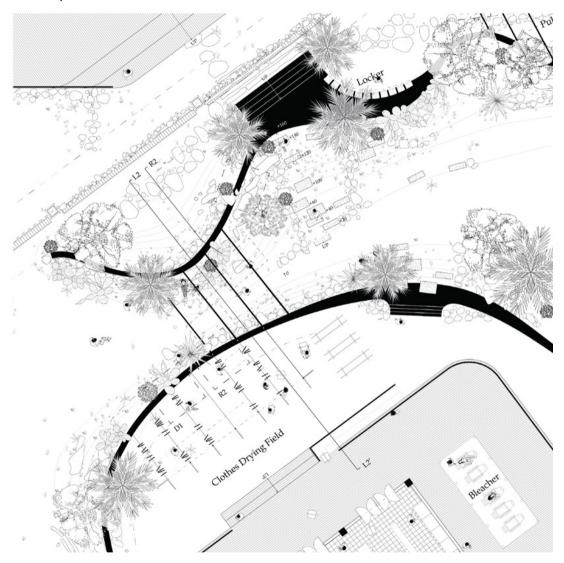








## Soft Boundary

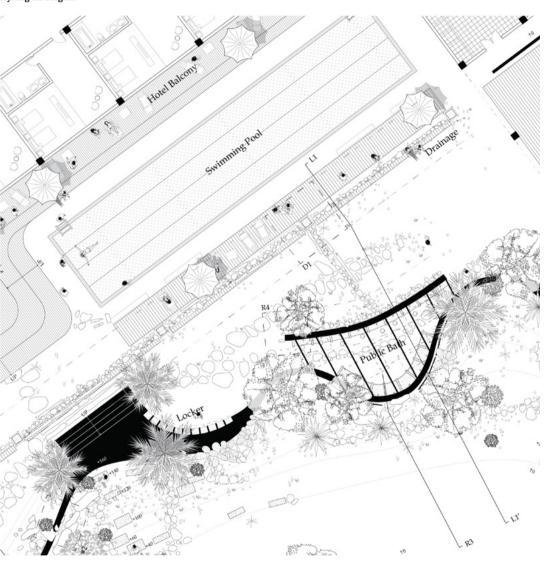


## Beach Gacilities / Laundary Spaces

The giant hotel privatizes the public beach; the public is blocked by the giant rail and fences in order to separate the hotel area and the public area. We try to propose the new boundary in-between the two.

We define the laundry area as a seasonal program, because the off-season, the number of the visitor reduced, and the room of the hotel is empty. We try to free up these unused spaces seasonally and provide functions for the public use.

## Layering the Program

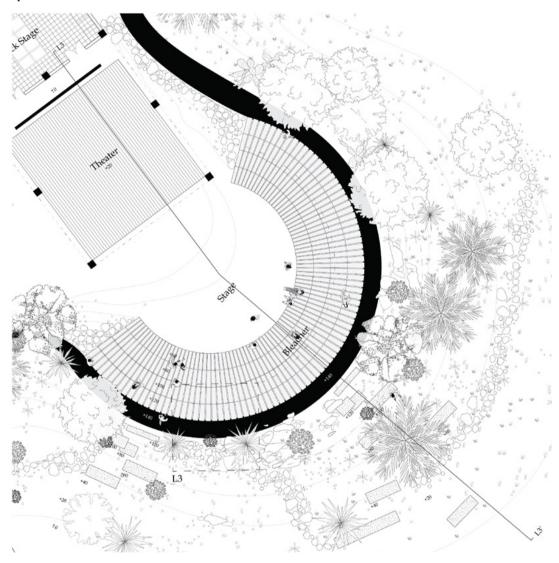


## Public Bath Field

We try to use the new type of TABIES to create soft border and also reconfigure the hotel public facilities. A buffer created within the private hotel and the public area.

This space provide the basic wash after the beach activities; we created a set of the enclosed area, which offers the private wash space qualities.

## Open Air Theater

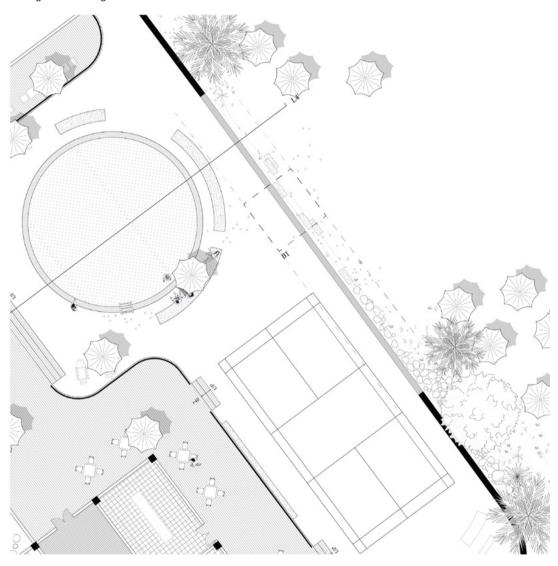


Open Air Theater / Soft Boundary

The open air theater provides a space for gathering and performing, which is also a public lounge for the beach users.

This sector is closed to the coastline, we design the soft boundary between the hotel structure and the beach.

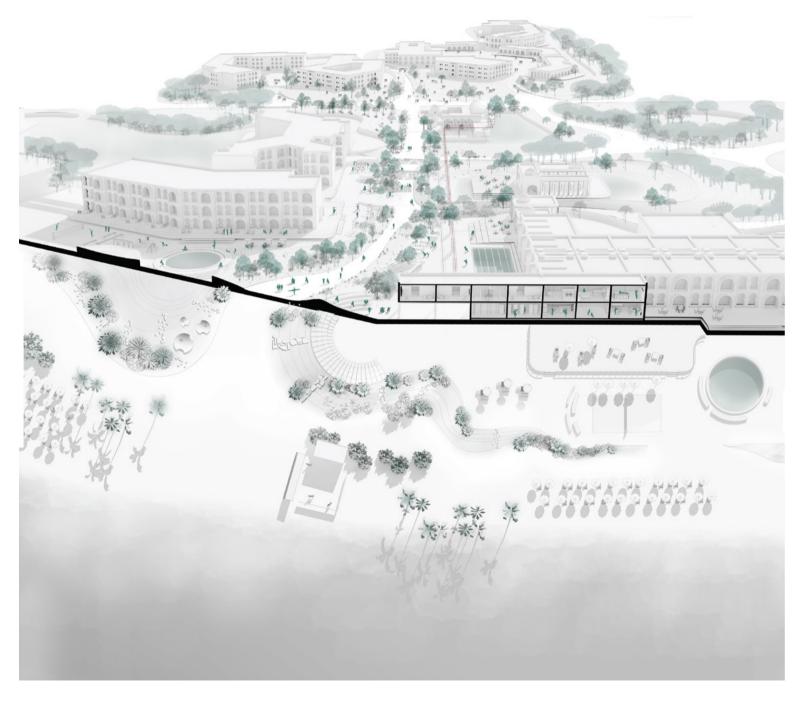
## Rearrange the Private Program



Hotel Activities / Low Tabies

The hotel activities such as the tennis field, swimming pool, bleacher, and garden which were re-located between the private properties and public area.

The gray part of the tabies is 60 centimeters, which provides the view connected the coast-line and the hotel deck.



Section Perspective

The new connection from the inland to the sea



# [ 03 ]

## WALL MARKET

Market as a manifesto for a new economy system

Instructor : **Tei Carpenter** Partner : **Xingyi Zhang** 

Columbia University | Graduate School of Architecture, Planning and Perseervation

MSAAD | 2019 Summer Studio, Advanced III, Market Value

Wall Market is a mediator bringing more people to engage into land pollution issue. At the same time, its height will also gradually vanish as the land pollution problem improves.

Maybe one day in the future, our market will eventually disappear with the toxic land issue. First, we repair and reuse the broken rails which provide the new connection between the water and the city.

"As of 2001, companies in the United States were spending more than 700 billion annually to clean up thousands of toxic sites."

by Christopher Gilbr

53

## Concept

We propose a new type of hypermarket, imagining that a market becomes a platform in which people can experience and participate the process of recovering our toxic soil. We create a market space that exhibits several issues that happened in New York and worldwide. Also, the soil cube market displays toxic soils and shows the process of detoxifying the land.

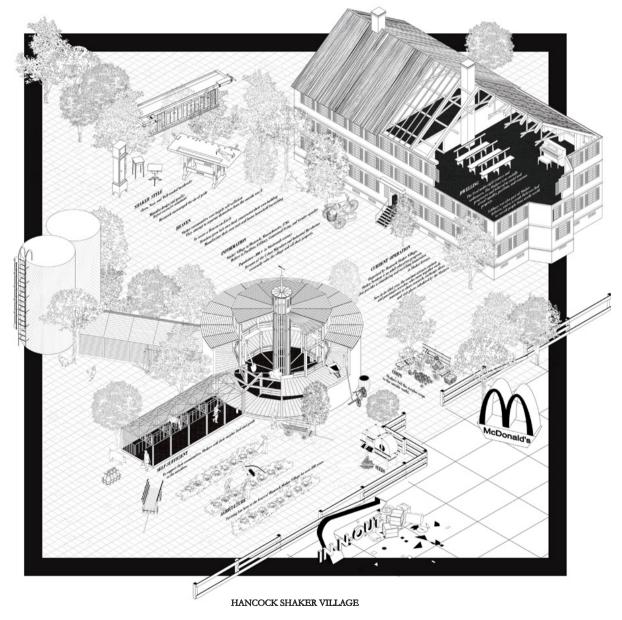
52 Columbia University | **GSAPP** | Architectural Portfolio New Coastline Framework



## VIVOS

X POINTS
The Underground Survival Shelter
Location : South Dakota

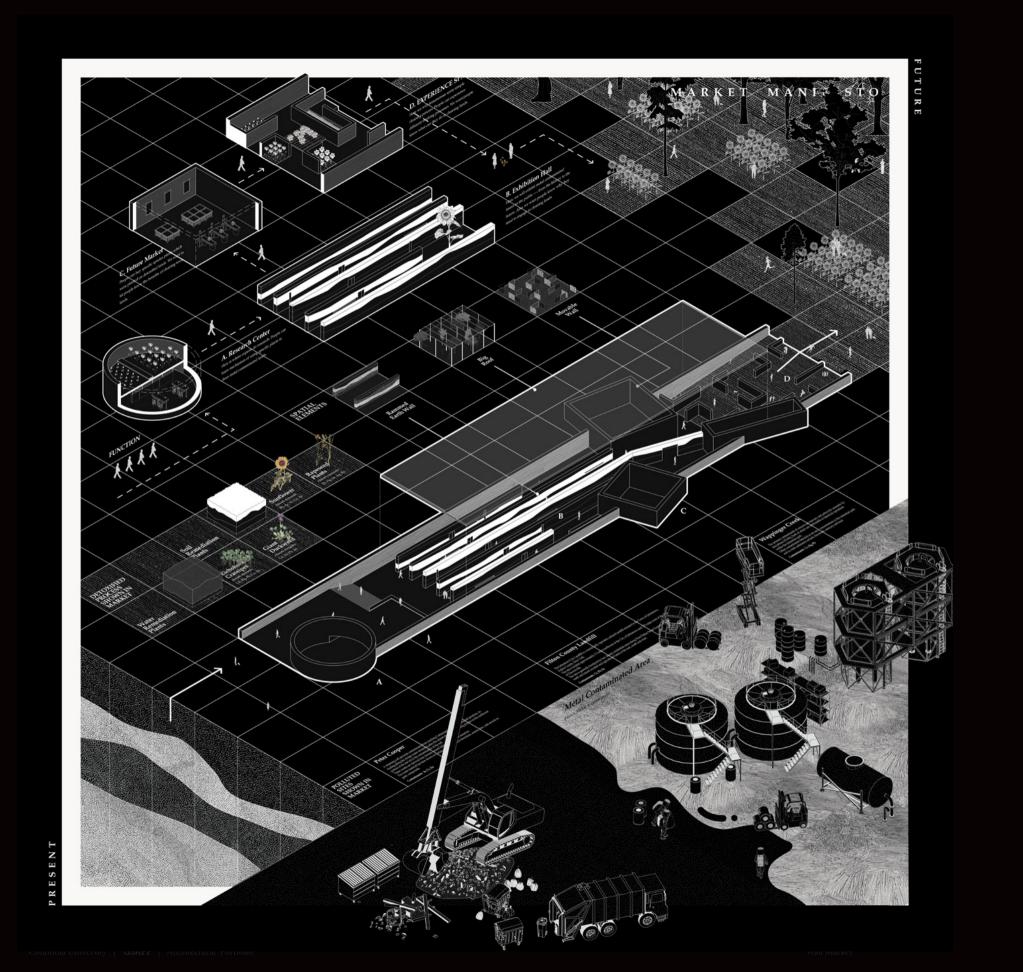
Survivor uses the groundwater as the water resourcem and they are using the storage dule to power their daily needs.



The Heaven on Earth

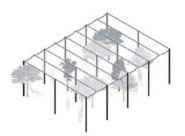
Locarion : Hancock, Massachusetts

Shaker commutities were largely self-sufficient, to suppoet their communities, Shaker sold surplus food and goods to outsiders.

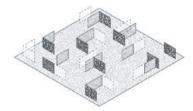




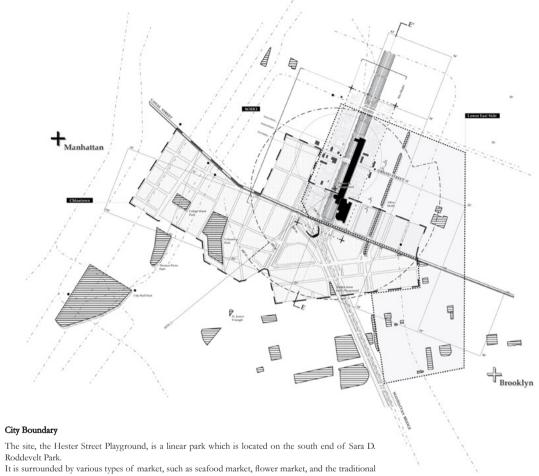




Big Roof All spaces under a roof



Flexibility Flexible market spaces



It is surrounded by various types of market, such as seafood market, flower market, and the traditional Chinese market. We propose four programs, which are the laboratory, the exhibition hall, the market spaces, and the experiences zone.

## #1 Peter Cooper

Gowanda, New York



#### Metal Contaminated Area.

Ar Cr 2

For 45 years, Peter Cooper used a portion of the site to pile "cook-house sludge," a byproduct of animal glue production. This left arsenic, chromium and zinc contamination in the soil.

## #2 Johnstown City Landfill

Johnstown



#### Metal Contaminated Area.

Cr Pb Fe

The site was an open dump from 1947-1960. It accepted industrial waste and sewage sludge in the 1970s. Heavy metals from the waste have contaminated wells in the area.

## #4 Wappinger Creek

Dutches County

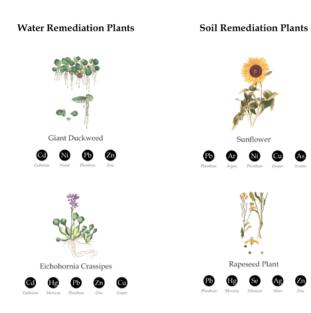


#### Metal Contaminated Area.

Cr Hg F

Buildings within an industrial park near the Wappinger Creek discharged waste into the creek for more than 180 years. Contaminants include chromium, mercury and lead.





#### Market System

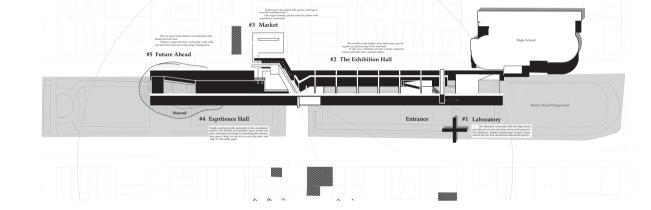
Using the power of speculative design, borrowed from practitioners like Dunne & Raby, we imagine and visualize a marketplace with new economies that suggest shifts in behavior and attitudes for an alternative model of society.

Building on case study research to assemble a dossier of social models and organizations, students develop a future-oriented and speculative design for a marketplace in New York City as a manifestation and index for a new economy and value system that it facilitates.





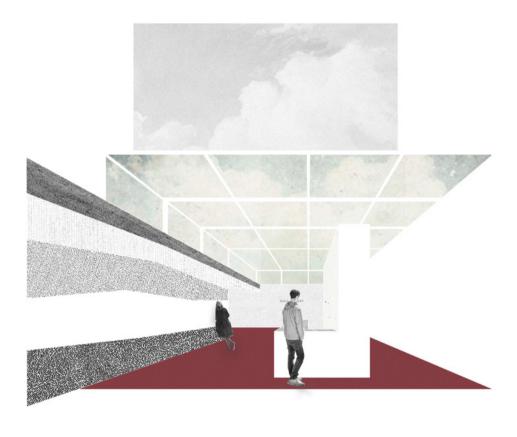
Punch Card System





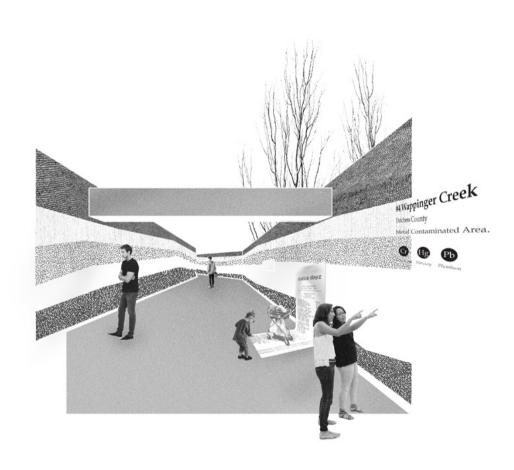
## EXPERIENCE HALL

Manager can adjust the shelf and rearrange them to different uses; meanwhile, the roof could also adjust for different uses



## FUTURE MARKET

In this space, visitors could purchase goods which had been grown from the remediated land. This market system could provoke the public awarness of the toxic issues. Also provide a platform for people to intervine with the process.



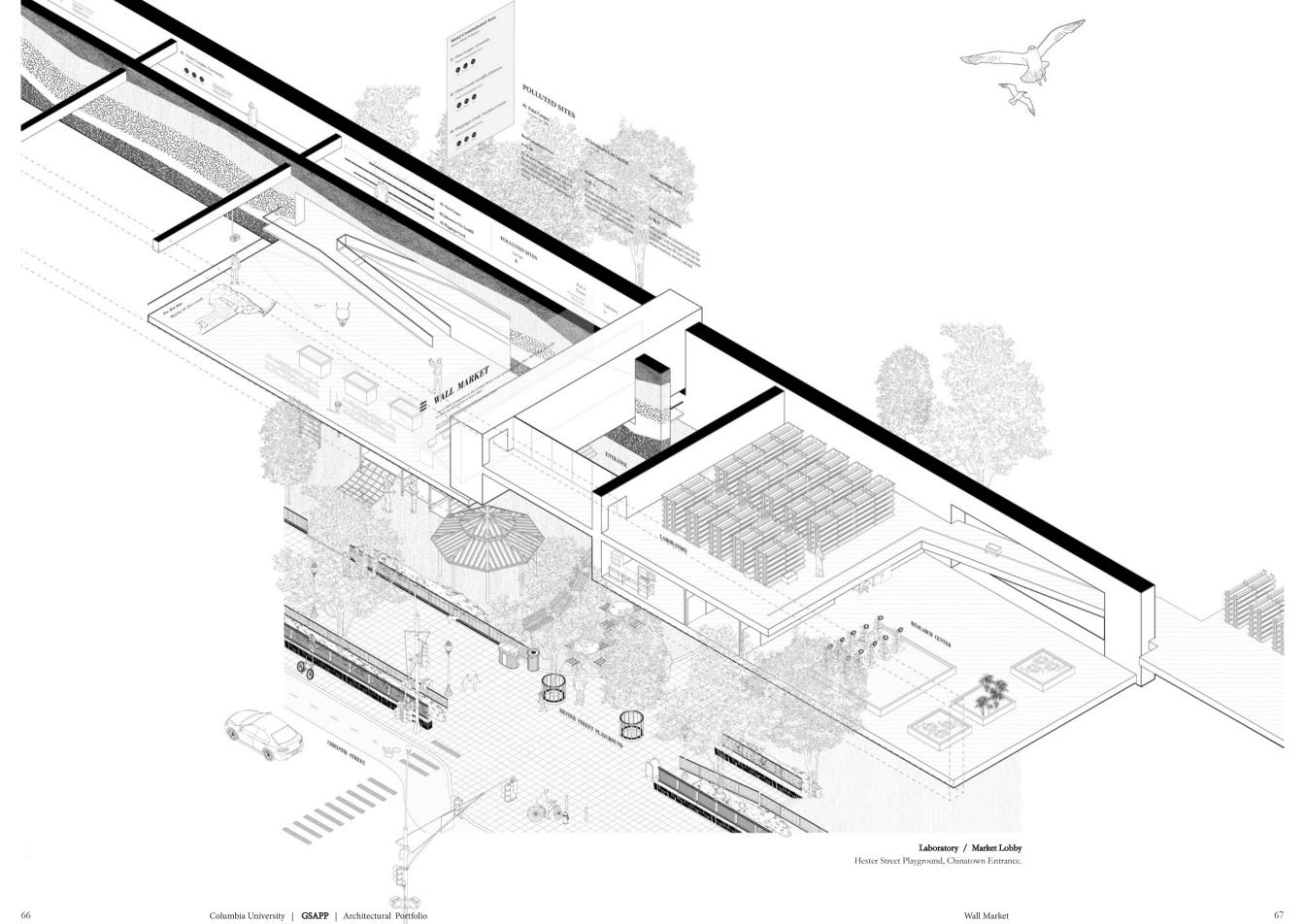
## EXHIBITION HALL

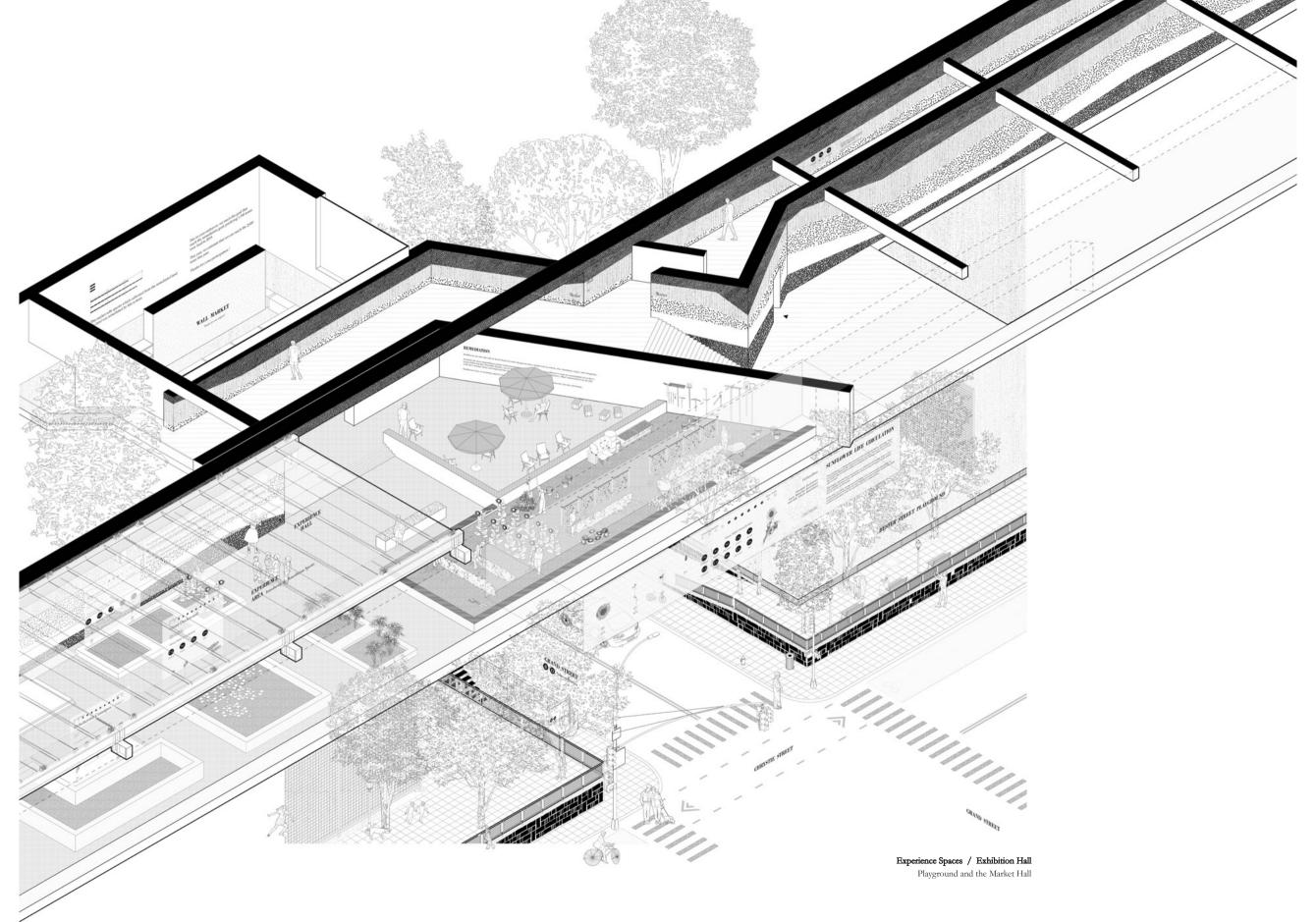
The exhibition presents issues which were happened nearby the NYC, illustrating the basic data and information about the toxic issues.

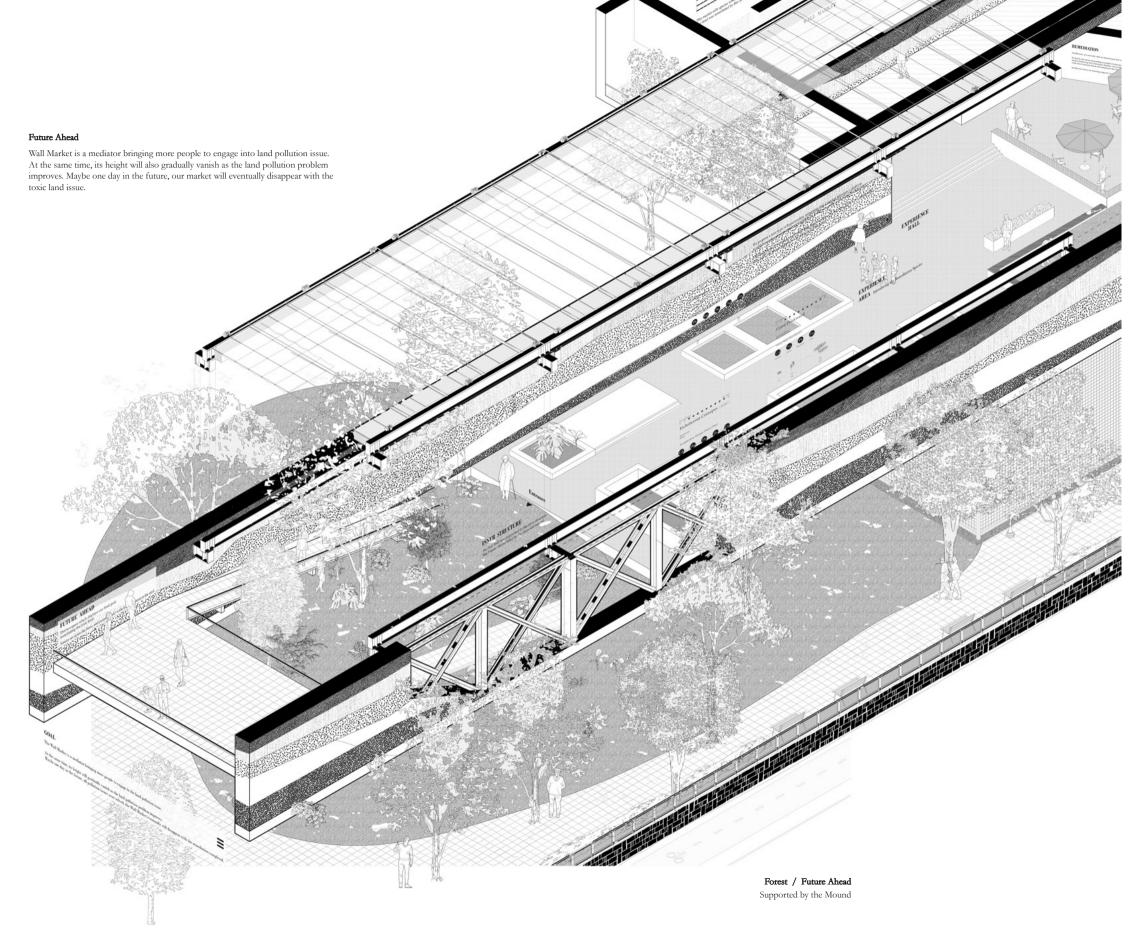


## LABORATORY

Specialization of the machine uses. For instance, people could not operate the machine by themselves but the assistance.









[ - ]

# ARCHITECTURAL PHOTOGRAPHY

You don't take a photograph, you make it.

Instructor: Michael Vahrenmald Photographer: Chun-Chang Tsai

Columbia University | Graduate School of Architecture, Planning and Perseervation MSAAD | 2019 Fall Elective Course, From Model to the Built Environment





## [ Worker ]

The High Line Elevated Public Park in Manhattan, New York

2010 Summ

The hidden side of the trash industry within the City.

The worker emphasizes the contradiction between the furious Hudson Yard and the High Line.

75

"For me, the camera is a sketchbook, an instrument of intuition and spontaneity."

by Henri Cartier-Bresson

I used photography as an media to memories the day I stay in New York City, which is an unforgettable period; I could slowly experience every part of the City.

"It is more important to click with people than to click the shutter."



# [ Layering ] Grand Central Station 89E 42nd Street, New York 2019 Fall

[ Rush ] Grand Central Station 89E 42nd Street, New York 2019 Fall

77 76 Columbia University | **GSAPP** | Architectural Portfolio Architectural Photography



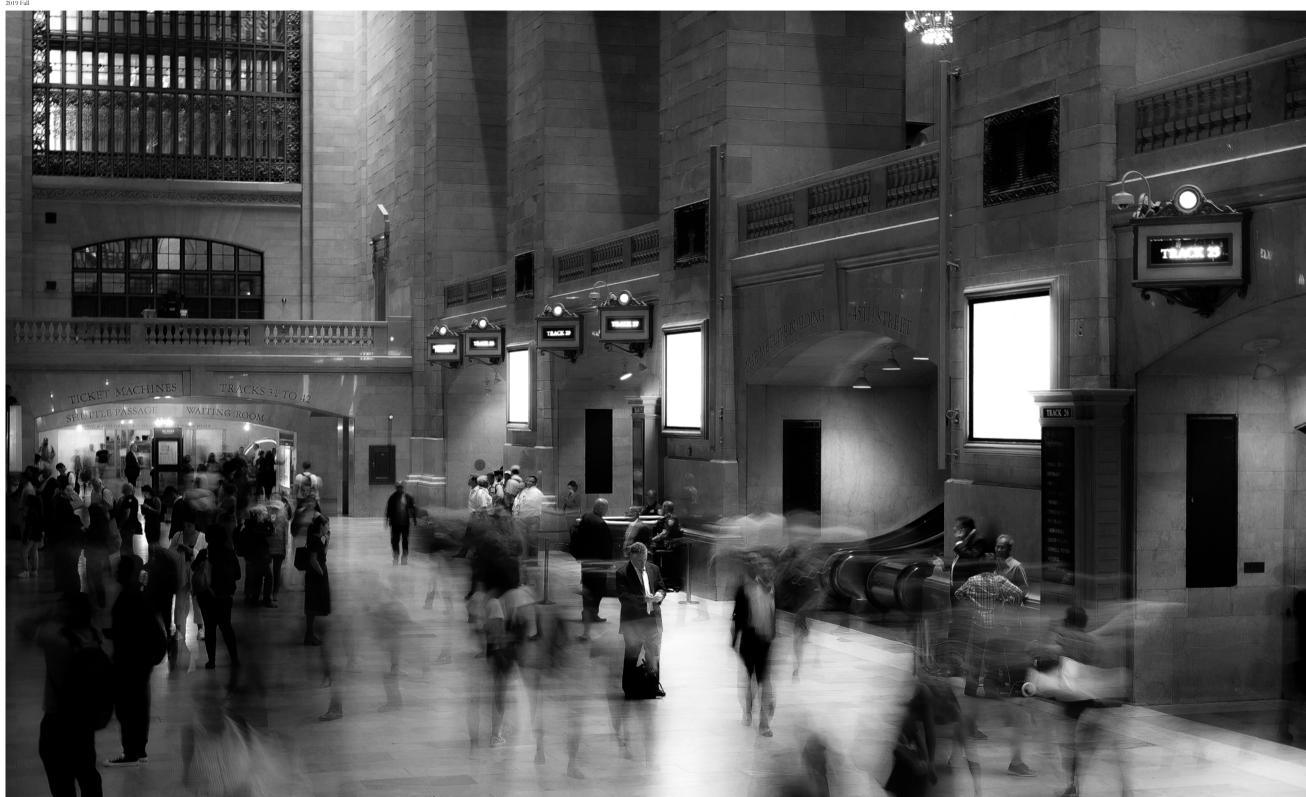
[ Gap ] New York MTA Subway 125 Street Red Line Station, New York





[Still]

Grand Central Station 89E 42nd Street, New York





## [ Inversions ]

New York Public Library 5th Avenue, W 42nd St, New York,

2019 Winter

## [ Neon Cube ]

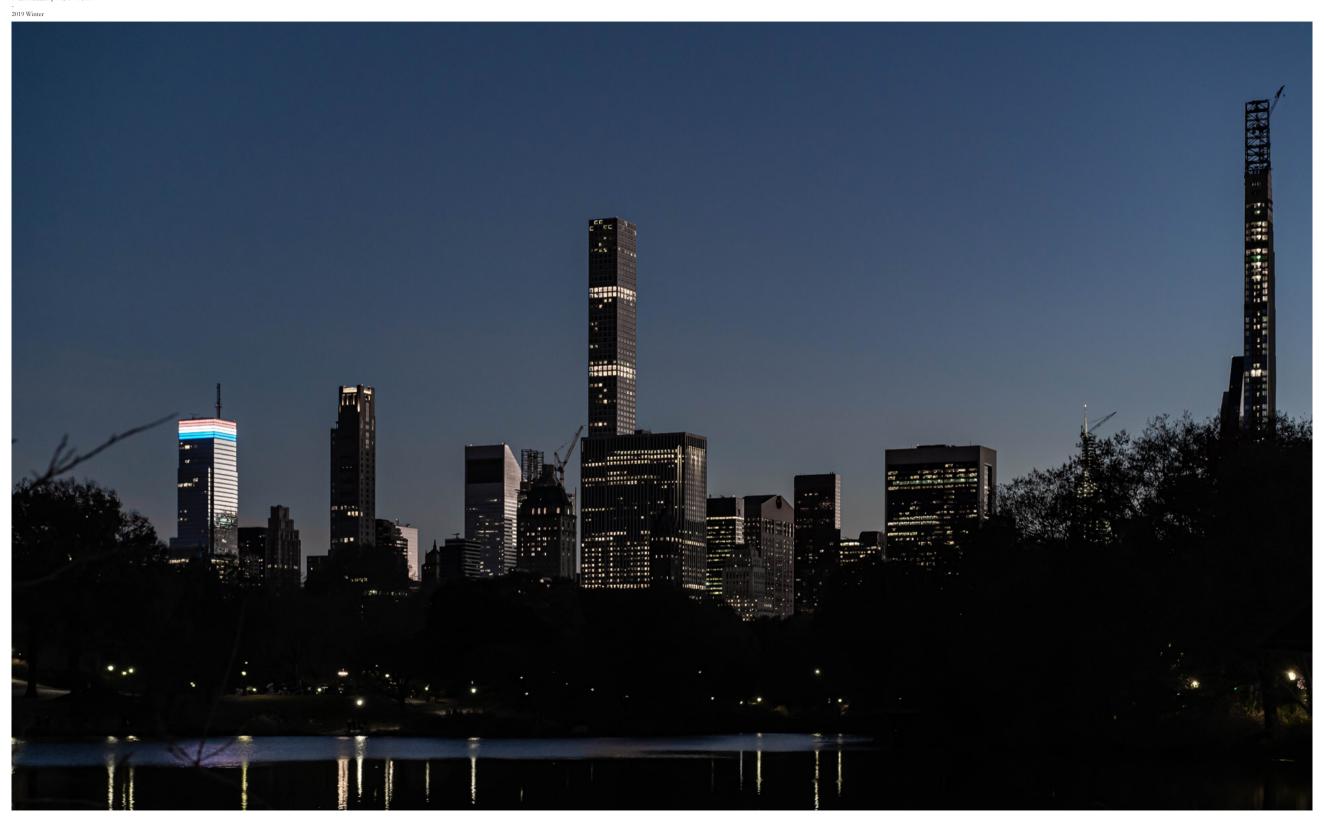
Midtown Manhattan Manhattan, New York

2019 Winter



## [ Hours ]

Central Park Manhattan, New York

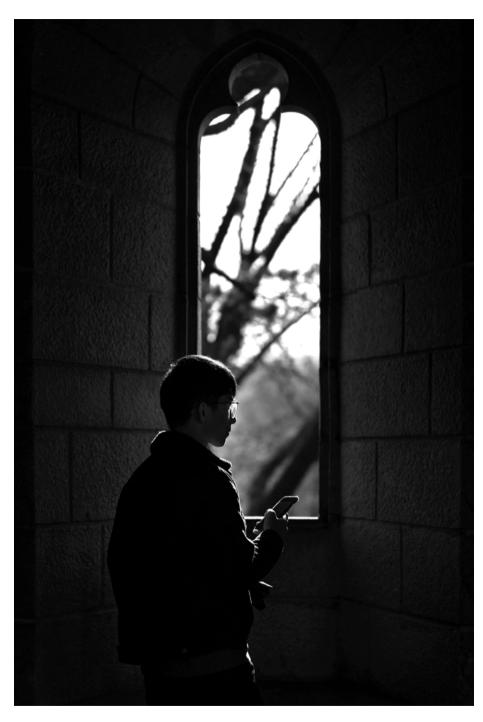




[ Information Center ]
Grand Centaral Station
89E 42nd Street, New York







[ Accompany ]
The Met Cloisters
99 Margaret Corbin Dr, New York
2020 Spring



[ 125 Station ] 125 Red Line Station Manhattan, New York 2019 Fall

PORTFOLIO

GSAPP 2019 - 2020

