


GRADUATION PORTFOLIO

Qingfan Wu

qw2361@columbia.edu

academic works

Ms advanced achitectural design

TABLE OF CONTENT

semester 1,2021 May
tutor:Gabrielle Printz&Rosana D Elkhatib
collaborate:Fan Liu
Studio:Ford Foundation

coffee experience center

The venue is located in Oaxaca, surrounded by a small towi1 with a coffee industry to guarantee survival, with a coffee museum, coffee shop, and coffee making center. Although fair trade has trained farmers, it only focuses on coffee planting and production by the farmers themselves. The experience center will Develop a standard quality system for specialty coffee and a commercial coffee quality standard system It will provide Supplier Training on Planting and Production and Quality inspection report, taking production and consumers as the focus of the new system to improve the level of high-quality coffee planting.

WHO

1989
When the Mexican Coffee Institute fell apart, along with the International Coffee Agreement, producers were left with little state support and plummeting prices.

OXFAM AMERICA

Oxfam launched "What's that in your coffee?", an international campaign to draw attention to the global crisis destroying the livelihoods of 25 million coffee farmers in more than 50 countries.

2004
The coffee crisis began , coffee production was too large,so the economic chain collapsed, and prices fell again.

The number of the famers join the Fair trade is rarely only 3000 in15000. Because joining the Fair trade is too troublesome to be certified and the farmers is lack if knowledge , the farmers who did not join went bankrupt and changed their jobs, far away from home to seek other survival.Therefore a large number of desperate Mexicans immigrated to the United States.

FARMERS

CEPCO

1989
CEPCO was Founded , facing the midst of a severe crisis in Mexico's coffee industry

FORD FOUNDATION

2000
As Porter (2000:126) notes, "Most smallholders suffered as ICA collapsed and the state withdrew from the coffee sector. Nevertheless, some coffee growers managed to take advantage of shifting international and national conditions, forming independent coffee producer unions and scaling up the coffee commodity chain."

2001
Transfair USA
(Oakland, CA)
$300,000
To expand the marketing of certified fair trade coffee and other products in the United States.

2002
Oxfam America, Inc.
(Boston, MA)
$250,000
For a Mexico-based pilot program to increase the supply of high quality Fair Trade Certified coffee.

2002
Oxfam America, Inc.
(Boston, MA)
$300,000
For a campus-based campaign to increase the consumption of Fair
Trade Certified coffee.

2003
Network of Coffee Consumers (Mexico)
$65,000
For organizational development to strengthen its capacity to promote greater consumption in Mexico of sustainably cultivated, fairly traded coffee.

2004
Oxfam America, Inc.
(Boston, MA)
$192,000
To expand the demand for Fair Trade Certified coffee in the United States.

Innovative Planting

2004
The Failure of Fair Trade:

Fair trade focuses its sponsors on farmers, trying to use production technology to raise coffee prices.
However, this caused farmers to overproduce coffee, and the oversupply eventually led to the collapse of the market. At the same time, farmers cut trees to make room for coffee, destroying the environment and species diversity.

STARBUCKS

Ethical Sourcing Approach
Coffee and Farmer Equity (C.A.F.E.) Practices

Economic Transparency
Social Responsibility
Environmental Leadership
Quality

Innovation Quality Audit

Welfare Purchase Policy

The Ford Foundation reflected on the coffee crisis caused by fairtrade and shifted the focus of investment from farmers to consumers.
The money invested by the Ford Foundation in oxfarm was transferred from Mexico to the United States.
From investment in planting to investment and trade, the Ford Foundation spends money on publicity and encourages people to drink coffee.

CONSUMERS

Innovative Coffee Making

Cafe innovation

Argument:

The failure of Fair Trade made people realize that Mexican coffee production should focus on quality rather than quantity. The failure of fair trade comes from three points.
Firstly, only helping farmers to increase production cannot effectively balance the consumer market.
Secondly, it is unfair for farmers who cannot join fair trade due to limited knowledge, and secondly, it is unsustainable.
The expansion of coffee production has destroyed the surrounding forests and other ecological environments and species diversity.

''WHAT'S THAT IN YOUR COFFEE''

WHO | **WHAT/HOW** | **SITE** | **PRODUCT**

FARMERS

PROCESSING TECHNIQUES

In 24 hours
Hand Depulpers
Centralized Depulping Stations

Depulping

Fermenting

the depulped coffee beans are deposited into large, clean tanks that are made of cement, wood and sometimes plastic water collection receptacles. The coffee beans ferment in the mucilage that is left on the bean after the depulping process, transforming the natural sugars to liquid. Fermentation can take from four hours to three days depending on the country, altitude and humidity of a particular area.

COFFEE PRODUCTION

ORGANIC COFFEE

Cleaner beans/ Air/ Land/Water
Organic Fertilizers
Prefers the Shade

Growing

Forests are cleared to make room for open fields

The wild ecosystem of flora and fauna is demolished

Dry Processing vs. Wet Processing
To ensures that the fermentation process has stopped
The coffee is then dried, either by the sun or mechanically.

Drying

Roasting

By Hand
By Hand With Conveyor Assistance
By Machine

Medium Roast
Full City Roast
Vienna Roast
French Roast
Blending

Sorting

employers

ACQUISITION POLICY

Starbucks also has its own green coffee sourcing standard, known as CAFE (Coffee and Farm Equity) Practices

Environmental criteria

Quality Analysis

RETAIL-MARKETING STRATEGIES

Brewing & Enjoying

CONSUMERS

COFFEE FARM

Oaxaca has a tropical savanna climate

MEXICO
OAXACA

COFFEE FACTORY

There is an additional section that deals with environmental issues having to do with coffee processing specific to either wet processing or dry processing, which includes indicators on water conservation, waste management, and energy use.

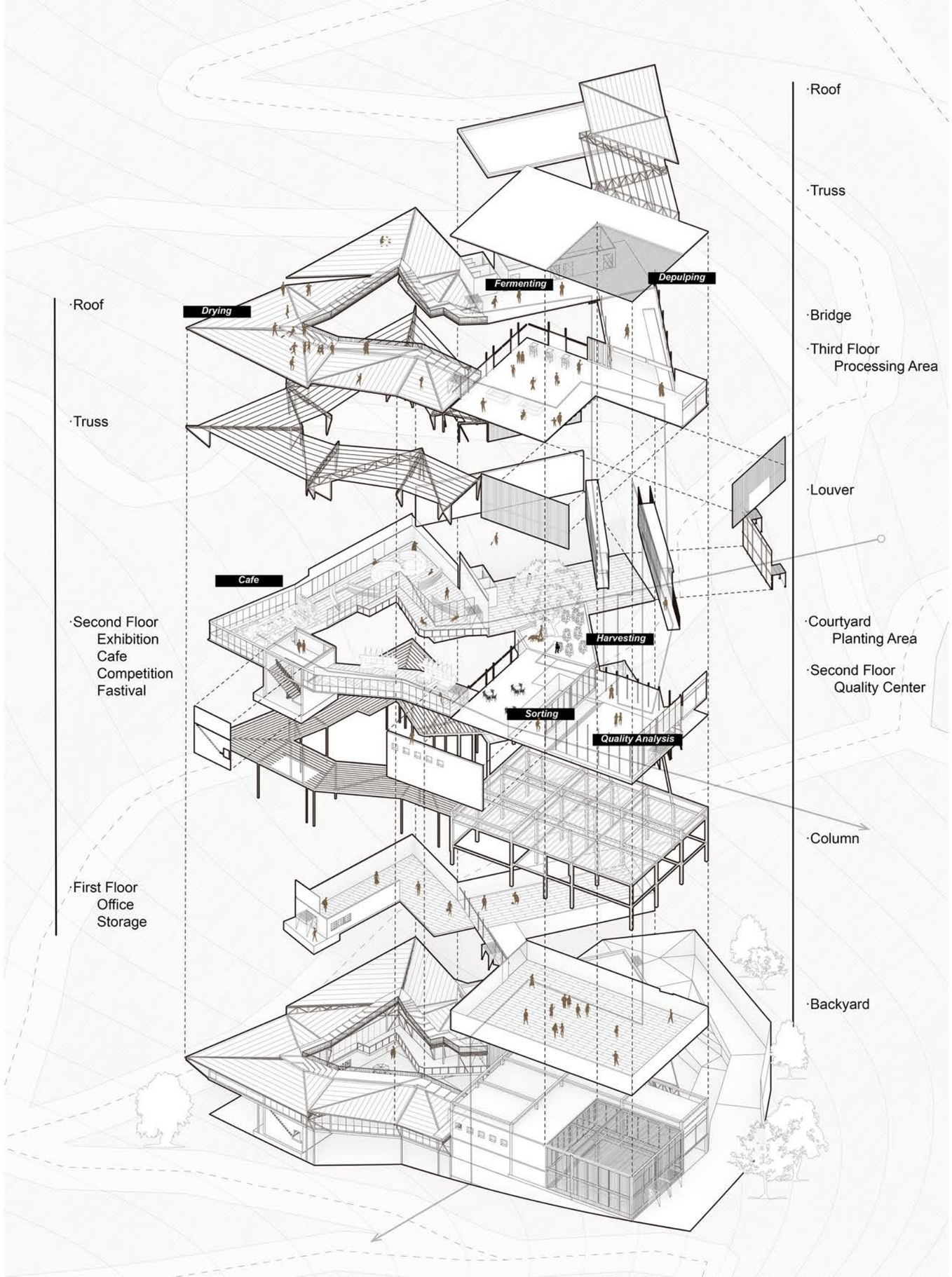
OFFICE

CAFE

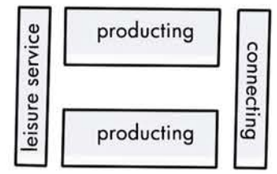
Coffee Shop

C.A.F.E. Certification

Experience Center Certification

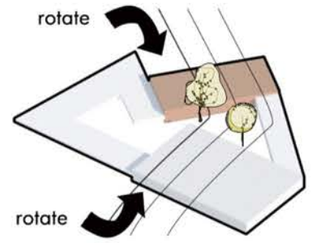


Function arrangement



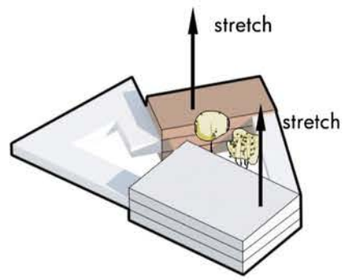
According to the functional requirements of the coffee center, four volumes , including the transportation part , are placed.

Comply with the terrain



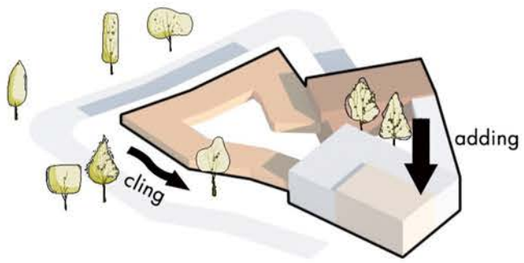
Make the building perpendicular to the contour lines to increase its fit to the terrain.

Increase the layer

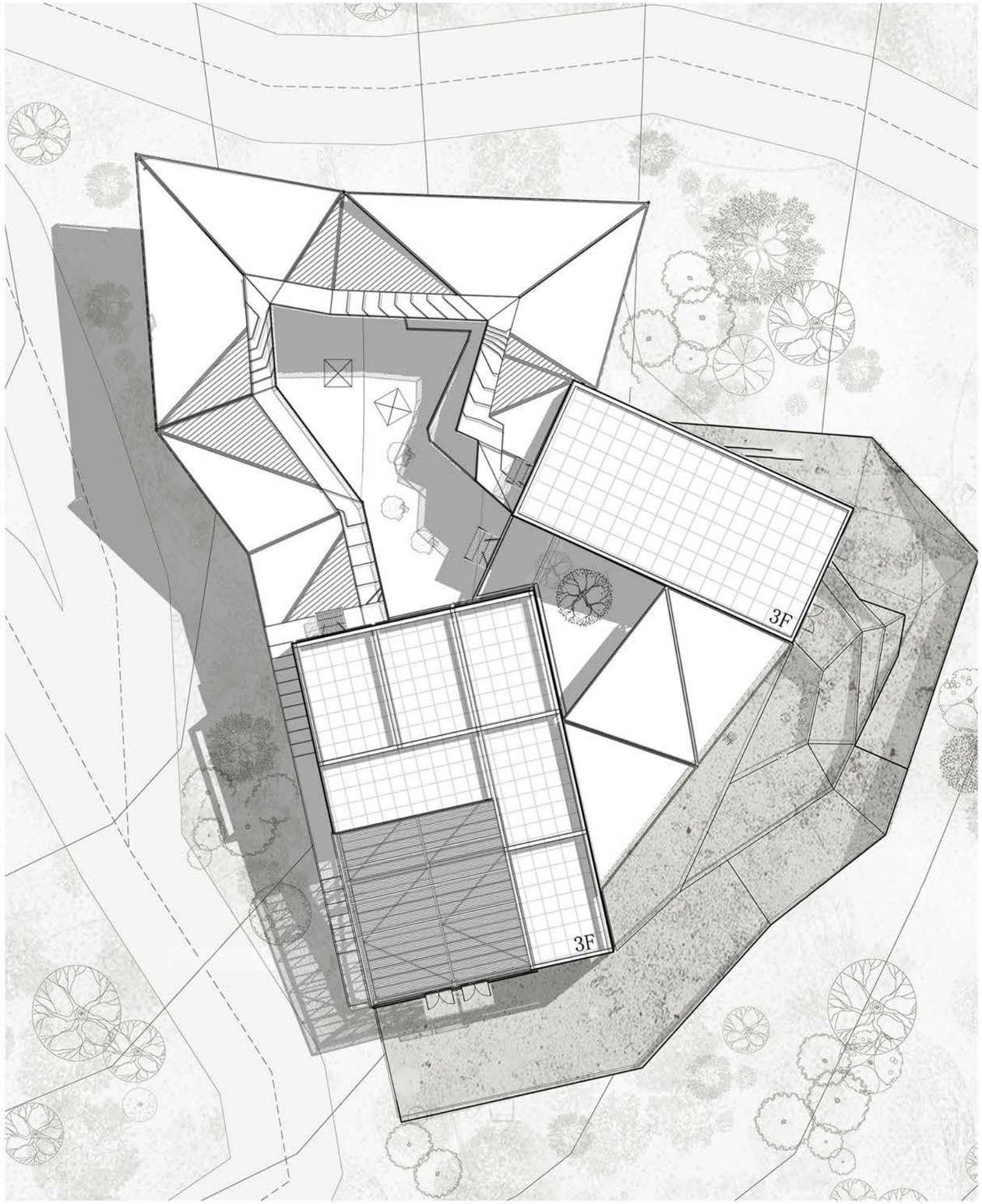


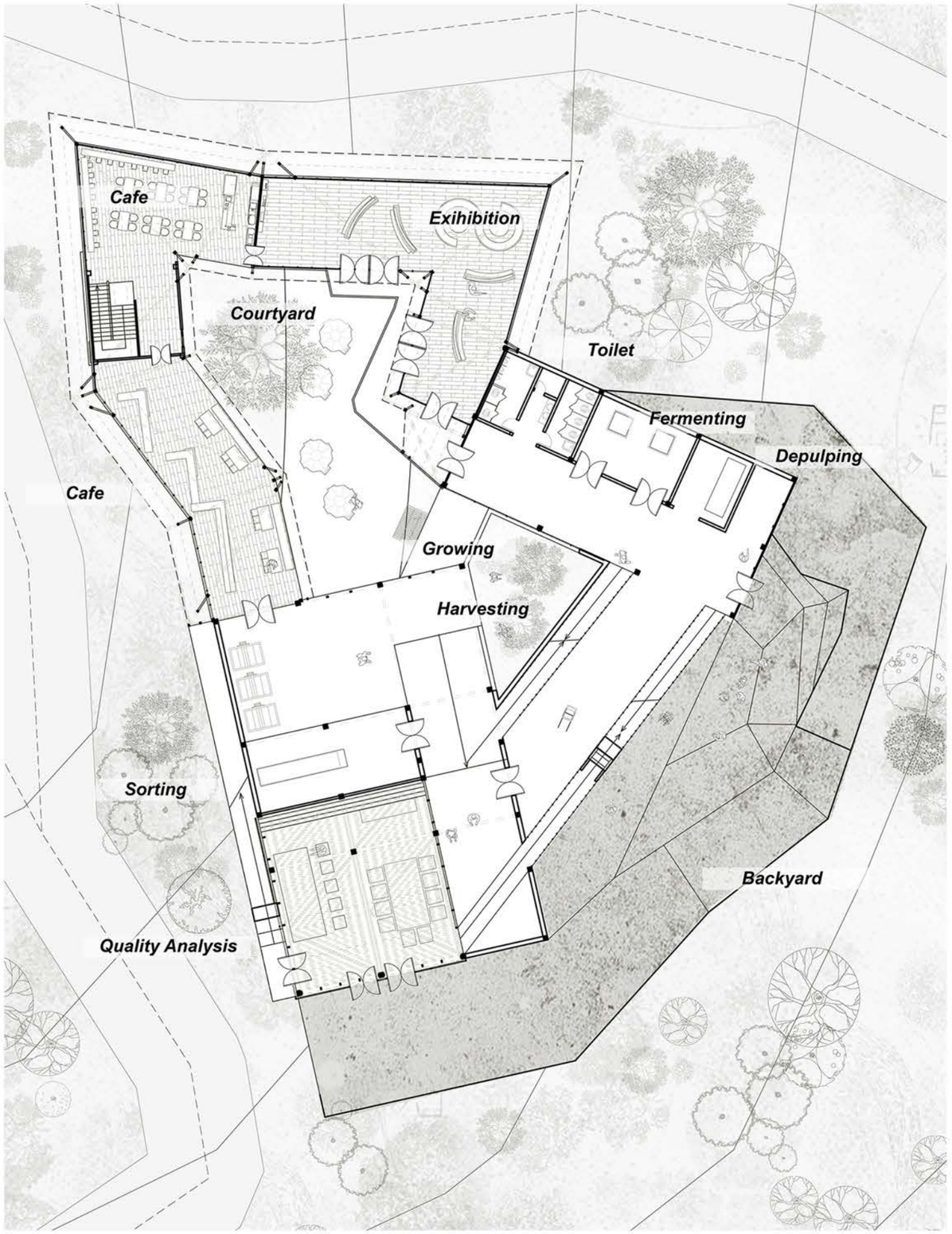
In the complex areas, increase the number of floors of the building in order to carry more space.

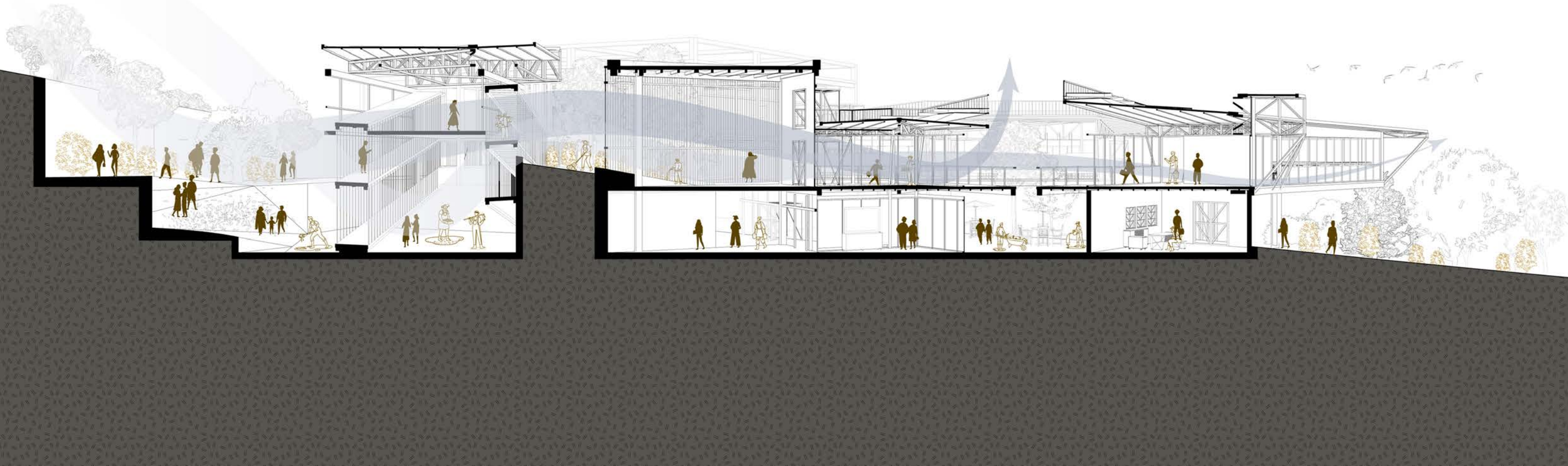
adjustment



Let the building more compatible with the road, and to add more complete space in the exhibition area.


3F
3F


Cafe
Exihibition
Courtyard
Toilet
Fermenting
Depulping
Cafe
Growing
Harvesting
Sorting
Backyard
Quality Analysis



semester 2,2021 September
tutor:Richard Plunz,Victor F. Body
collaborate:Zheng Yin

Studio:under the viaduct:community well-being in harlem

living community

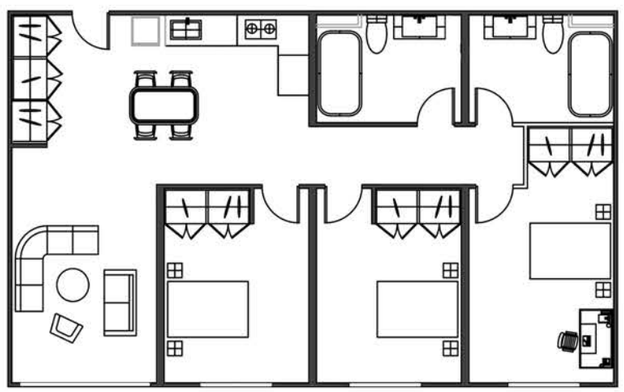
Based on its long engagement with the Bradhurst community, HCCI has articulated detailed priorities as framework for all of its initiatives. Through a community visioning process HCCI has translated the BOA project into several goals. As the entrance to Harlem, this residential building will combine commercial and community services to provide affordable housing for people and make an attempt to improve the quality of life in Harlem.

cultural plaza

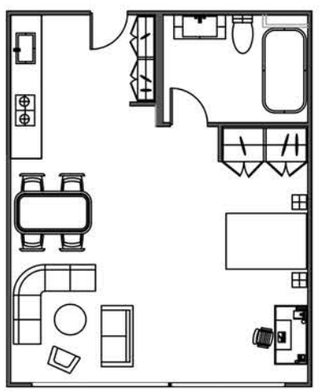
pedestrian street

W154 St

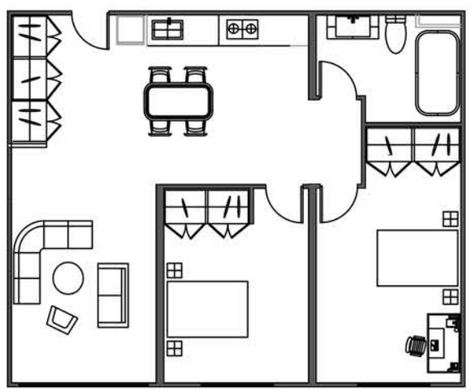
facilities courtyard



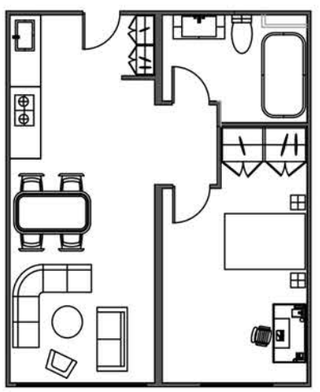
3b2b



studio



2b1b



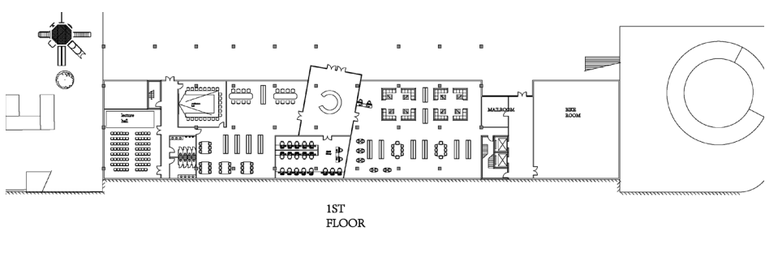
1b1b

16F

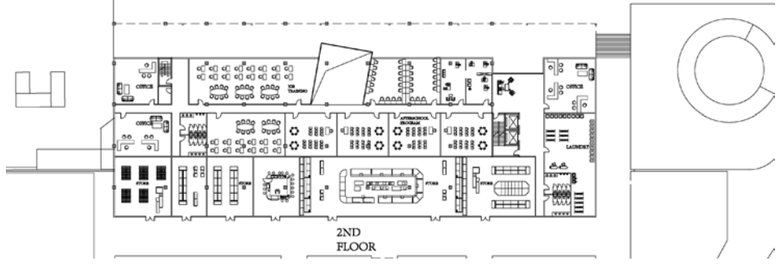
18F

18F

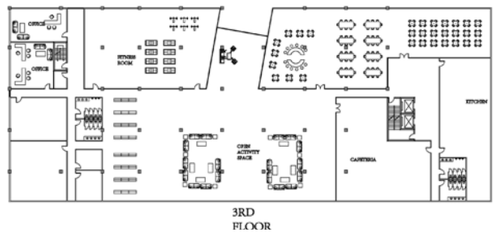
16F



1ST
FLOOR

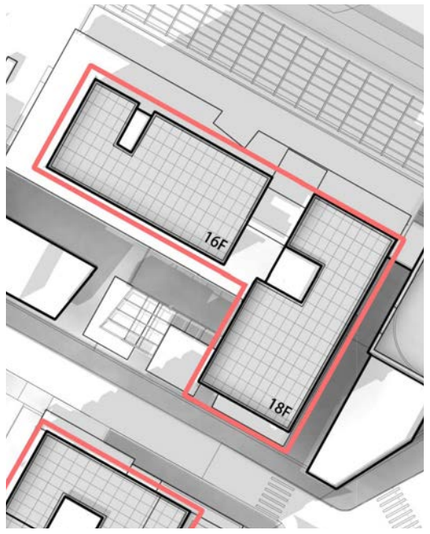


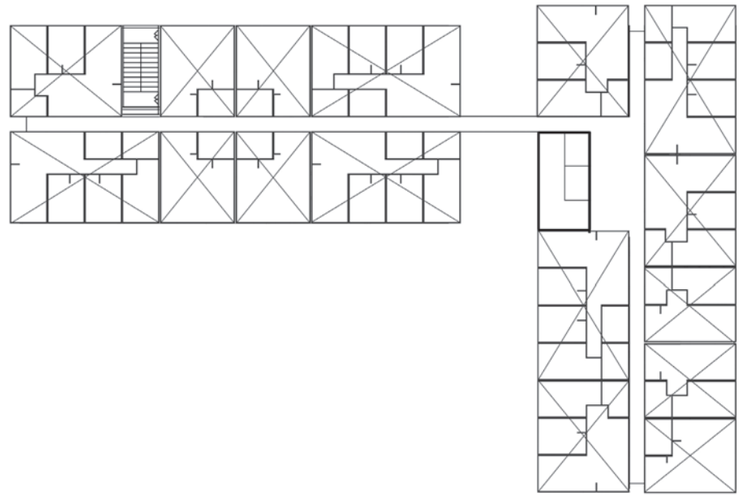
2ND
FLOOR

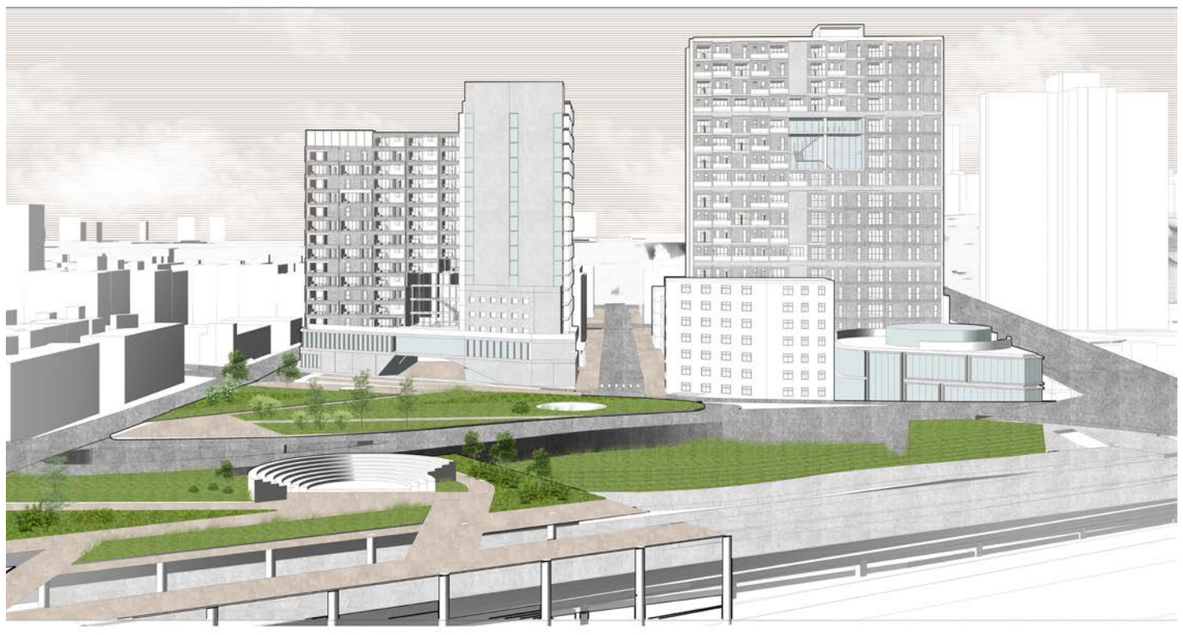


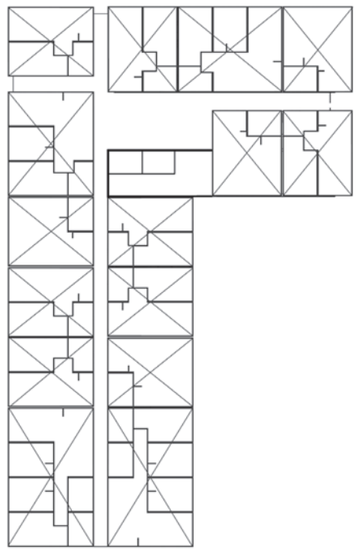
3RD
FLOOR

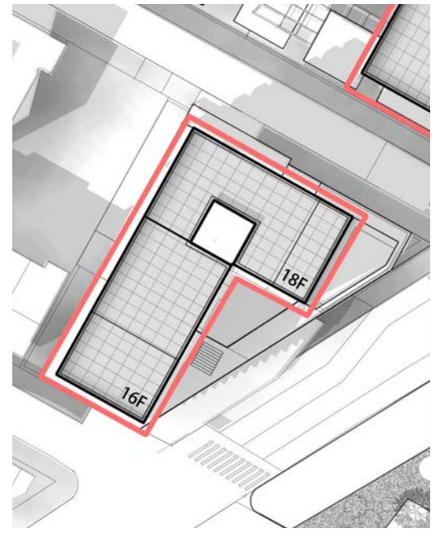

Affordable Housing
Stores
Afterschool Program
Computer Room
Brdhurst Public Library
Inner Street
Cultural Plaza

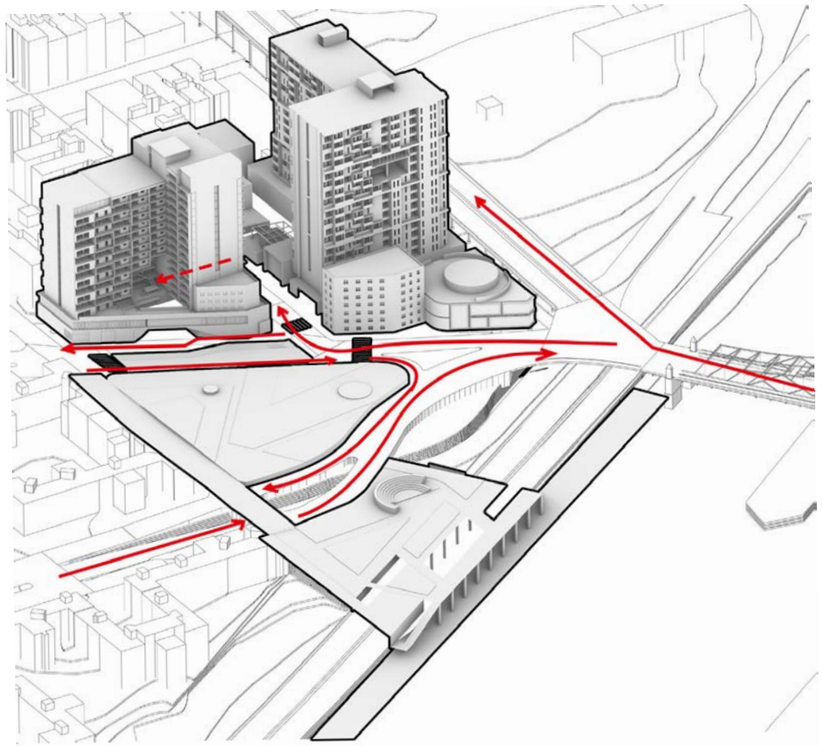

16F
18F

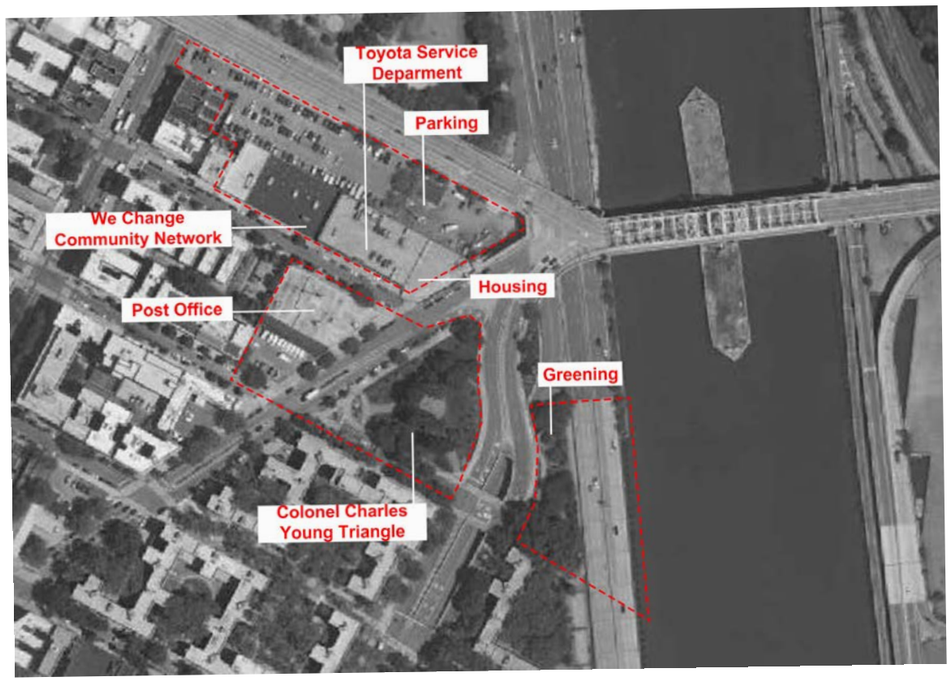


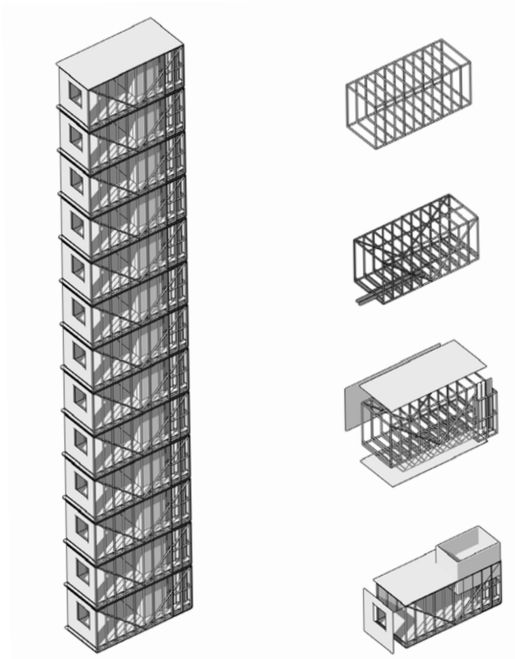


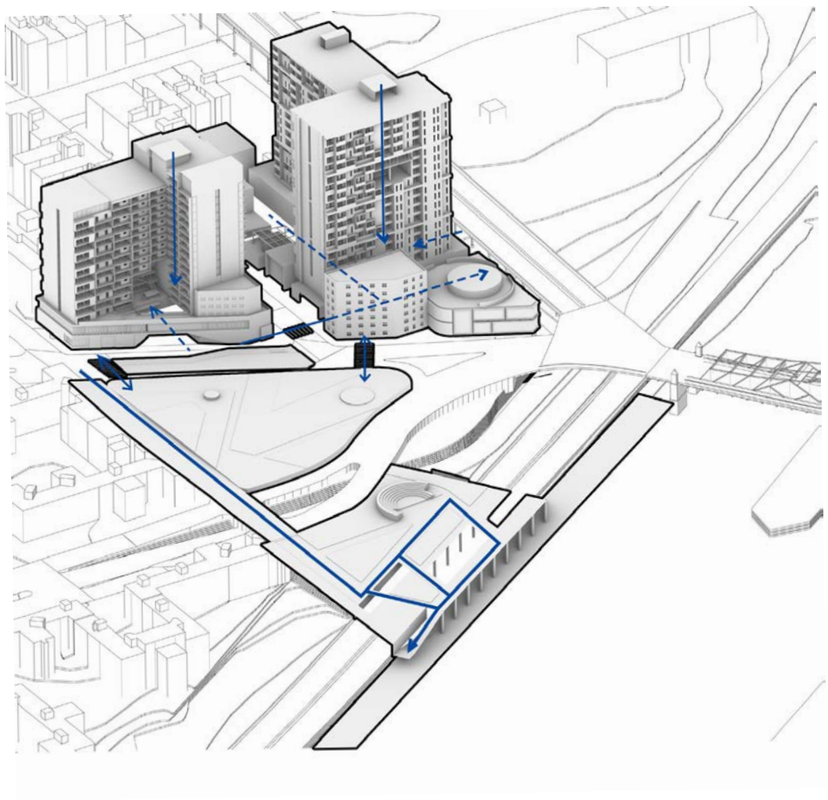


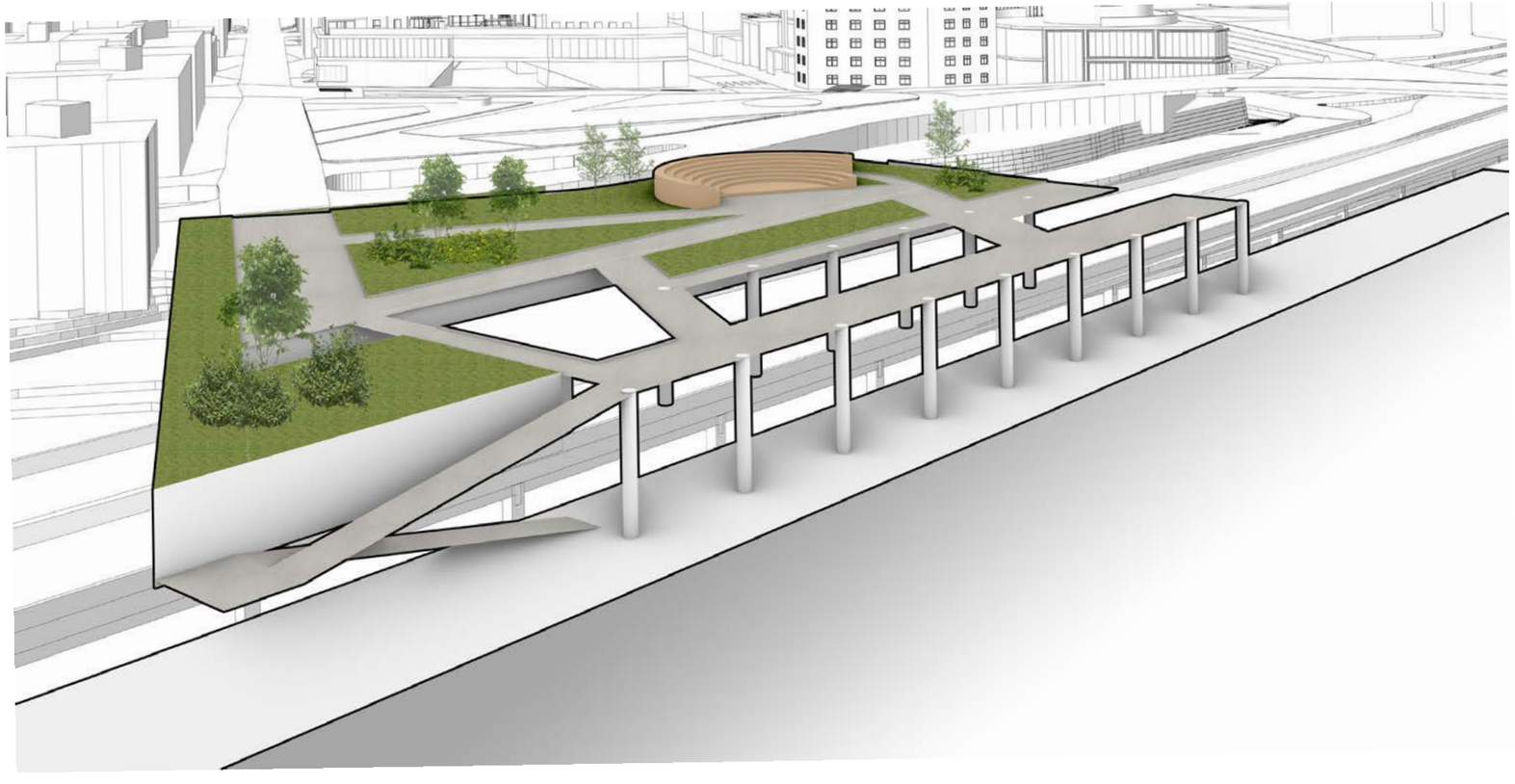

18F
16F




Toyota Service Deparment
Parking
We Change Community Network
Housing
Post Office
Greening
Colonel Charles Young Triangle



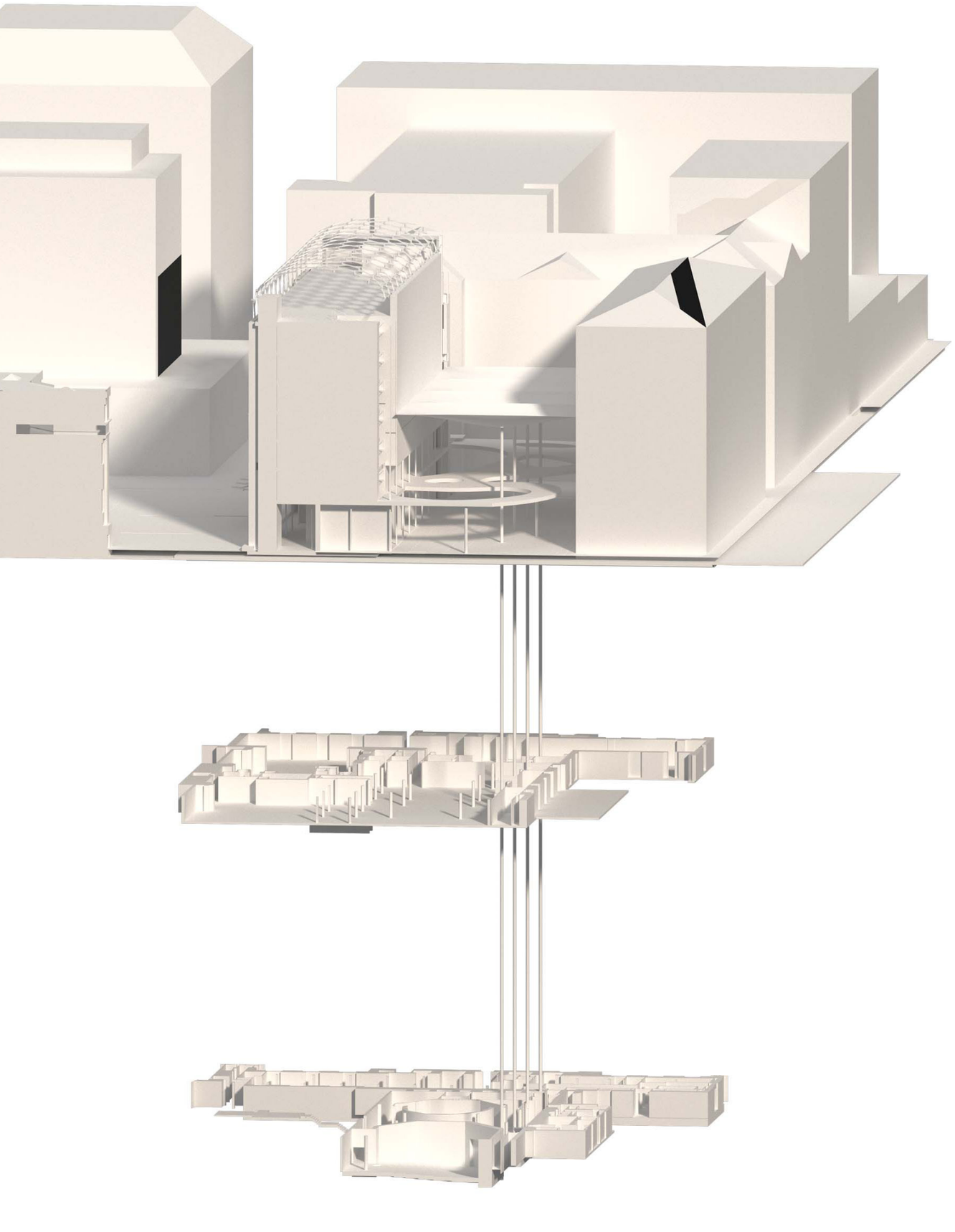


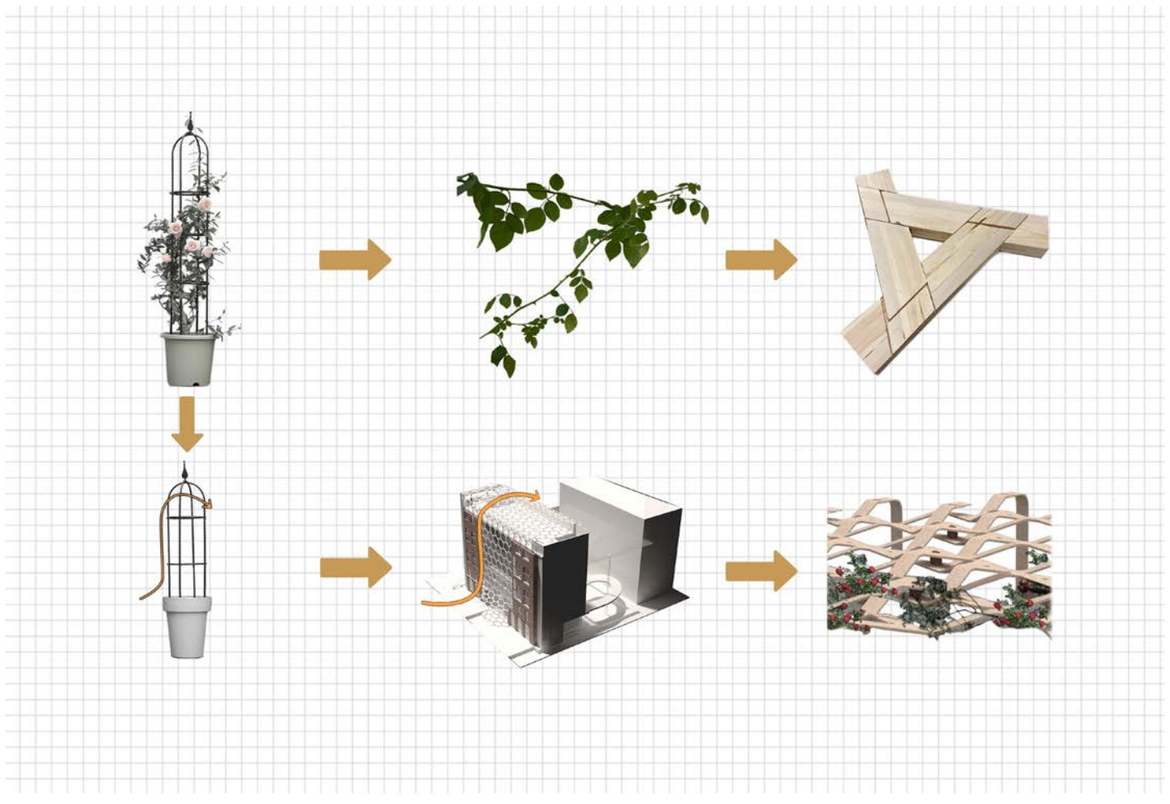


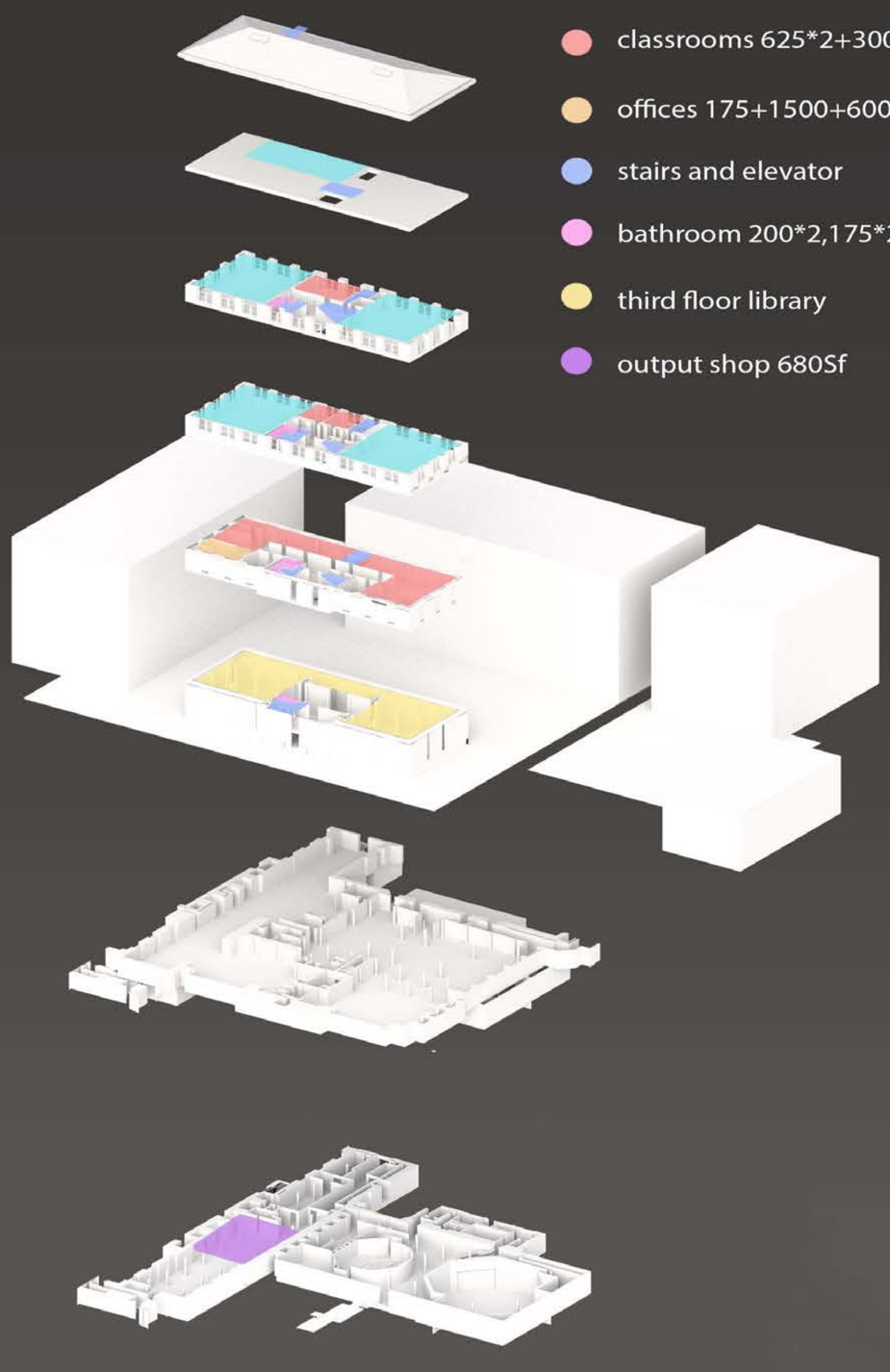
semester 3,2022 February
tutor:Gordon Kipping
collaborate:independent work
studio:Wood&Plants

climbing along the hall

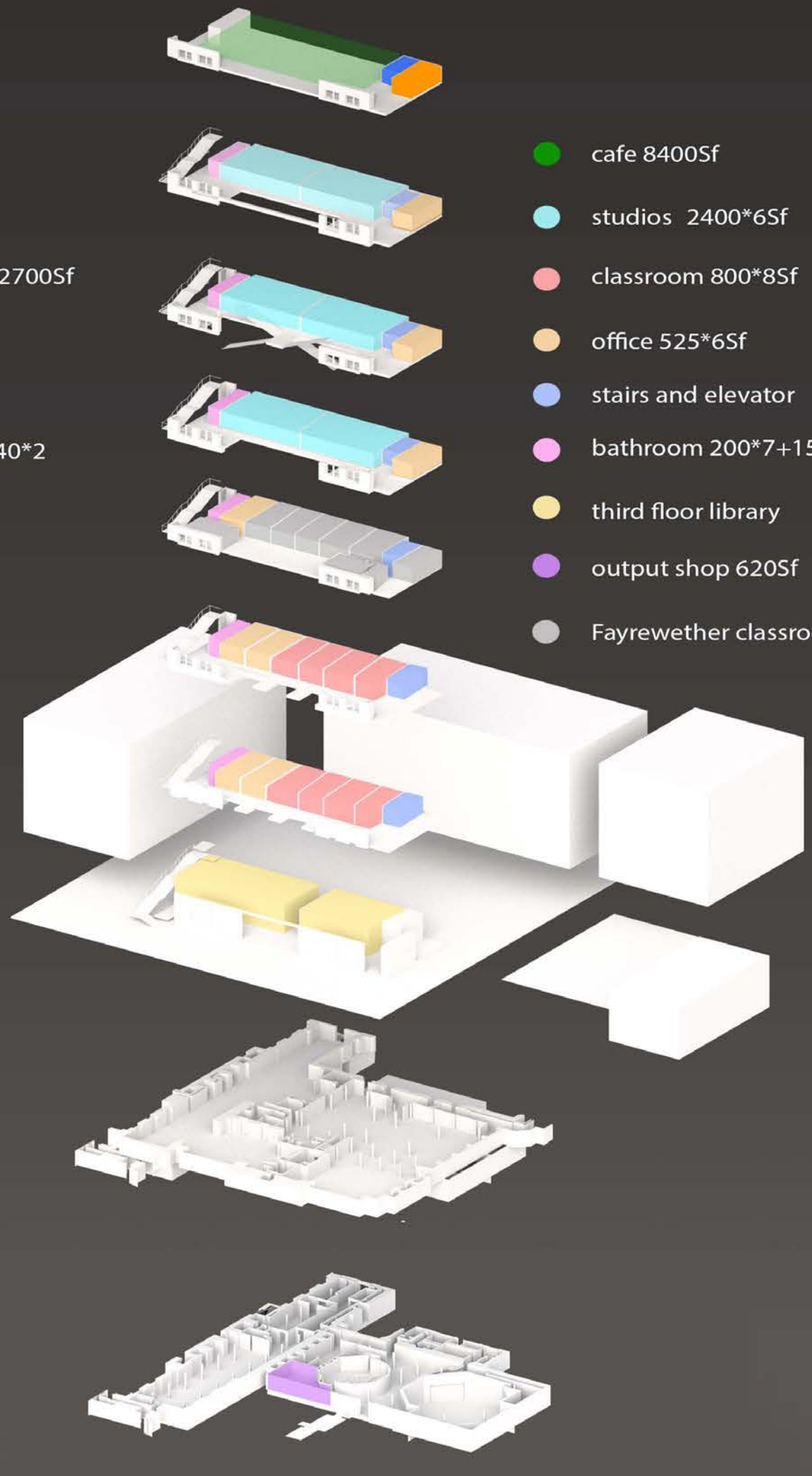
Starting from the study of climbing Chinese rose, this design starts with the logic of plant growth and considers the combination of plants and architecture to try to transform Avery Hall.At the beginning of the design, the research and practice of wood structure were carried out. After the structure model is obtained, the structure is used in the facade design of the building, and the function of the building is analyzed and redesigned, which is upgraded on the basis of retaining part of the original building.



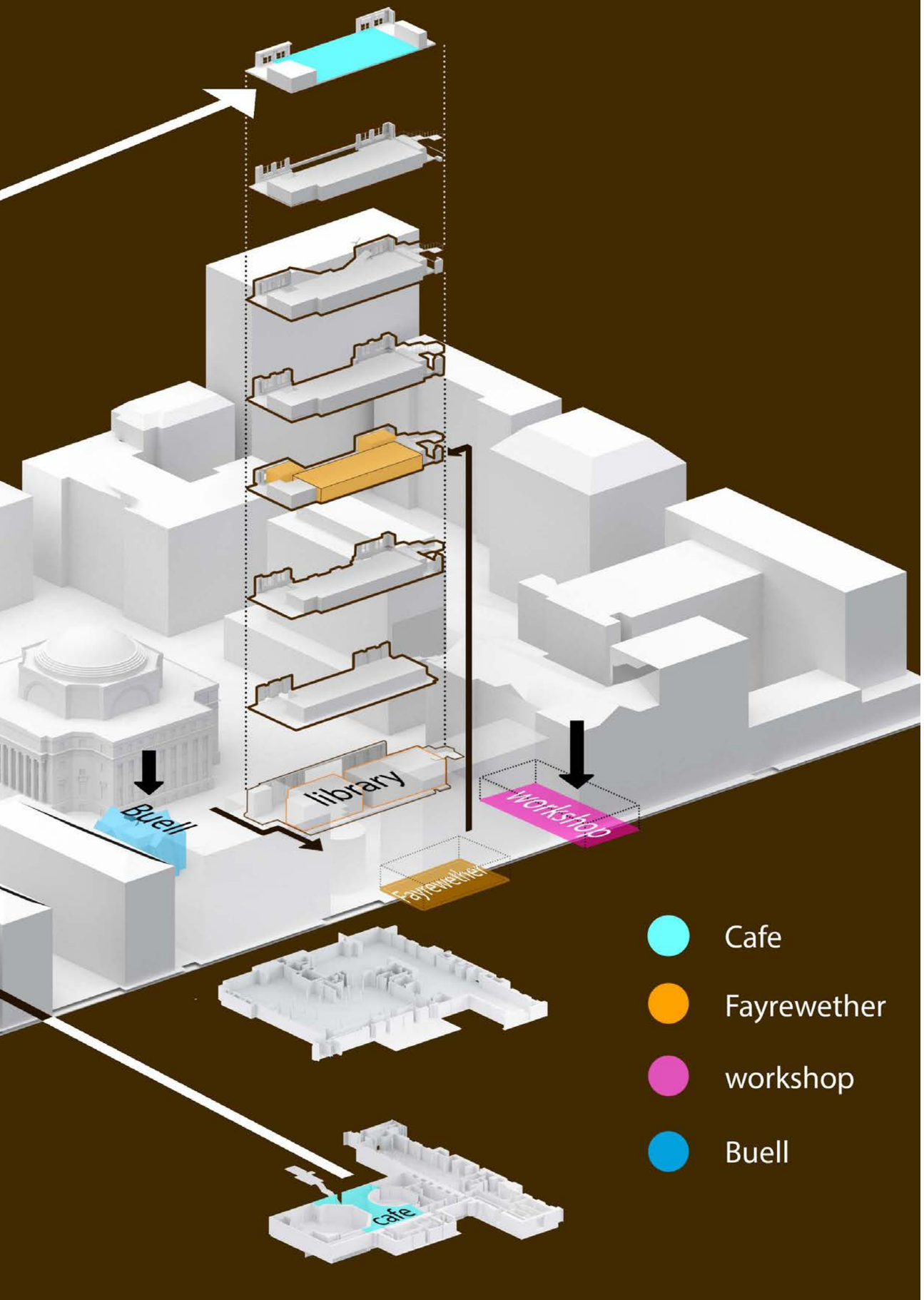




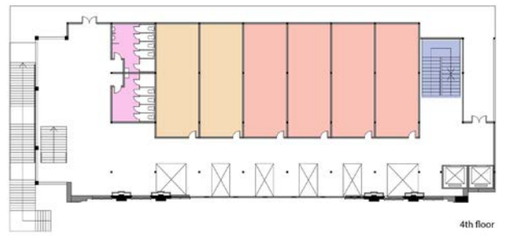
- studios 2300*4+2600=11800Sf
- classrooms 625*2+300*4+250=2700Sf
- offices 175+1500+600=2275Sf
- stairs and elevator
- bathroom 200*2,175*2,120*2,140*2
- third floor library
- output shop 680Sf



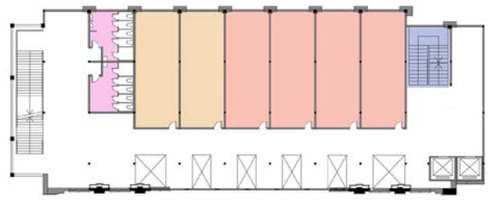
- cafe 8400Sf
- studios 2400*6Sf
- classroom 800*8Sf
- office 525*6Sf
- stairs and elevator
- bathroom 200*7+150*7
- third floor library
- output shop 620Sf
- Fayrewether classroom 4225Sf



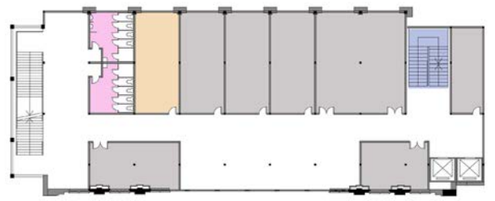
3rd floor
(ground floor)



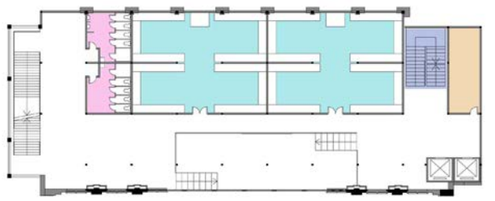
4th floor



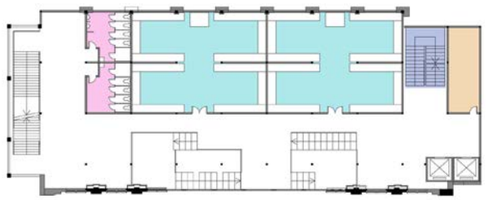
5th floor



6th floor

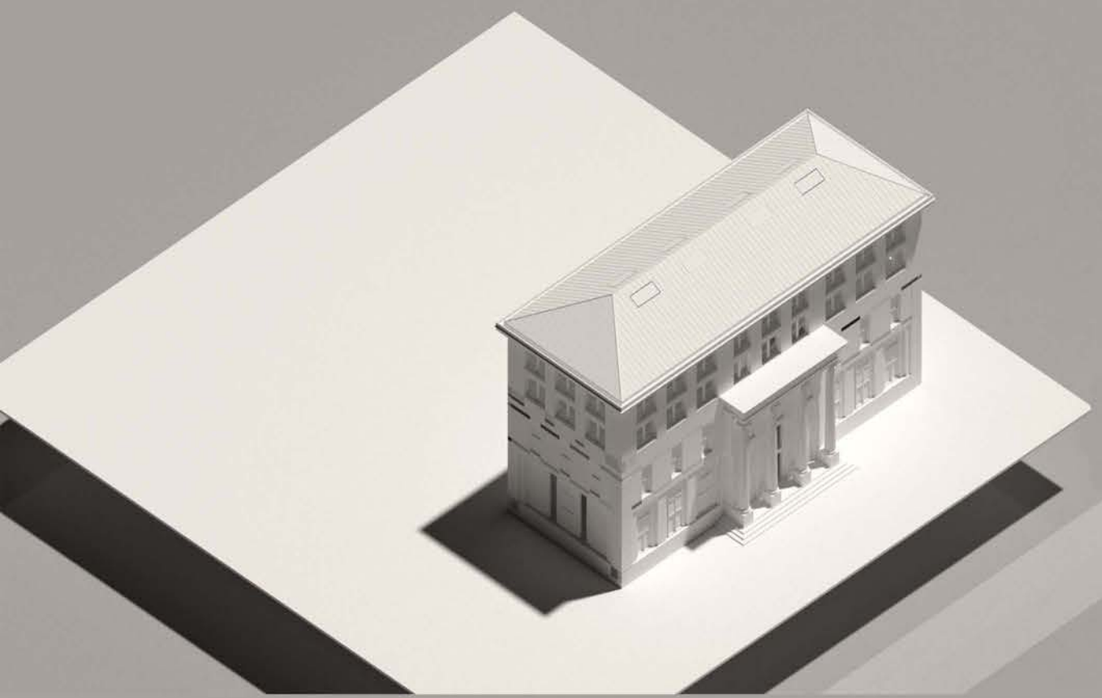


7th floor

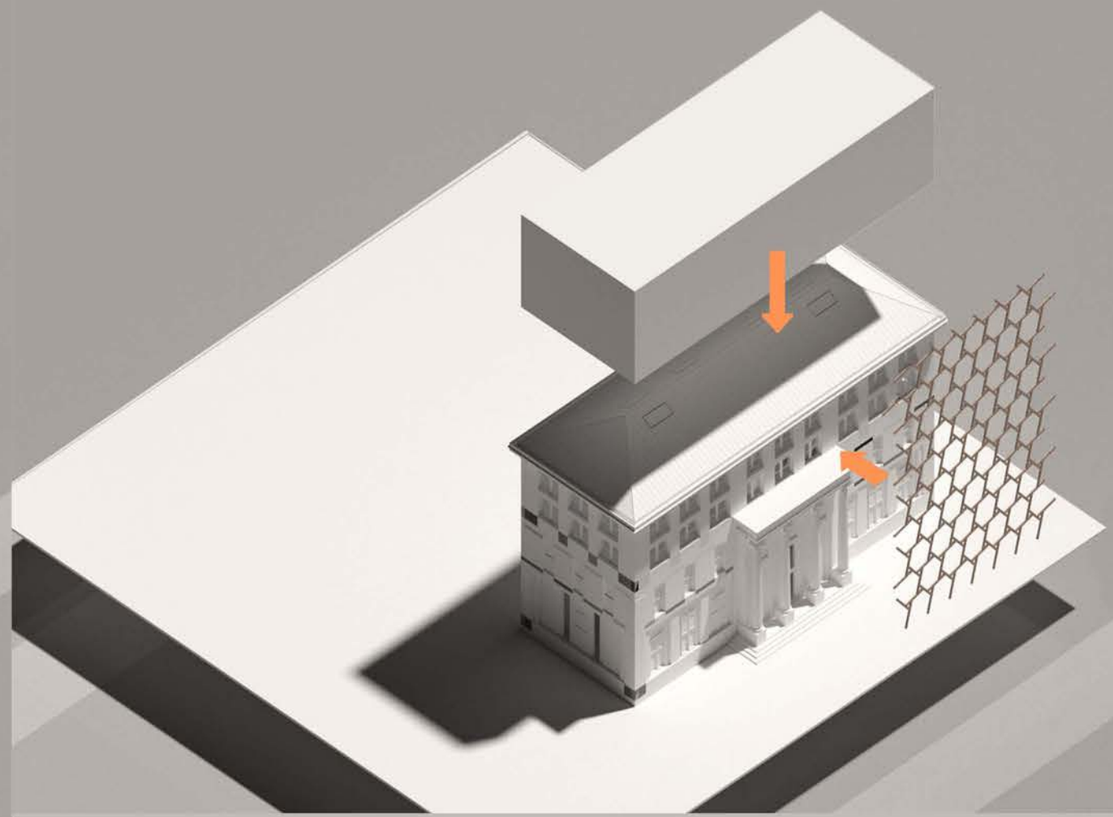


8th floor

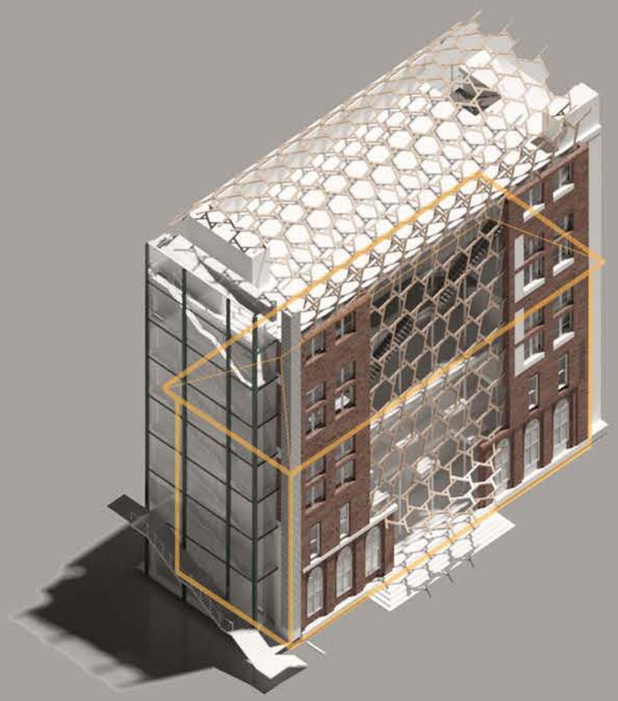
step 1: start with the former structure



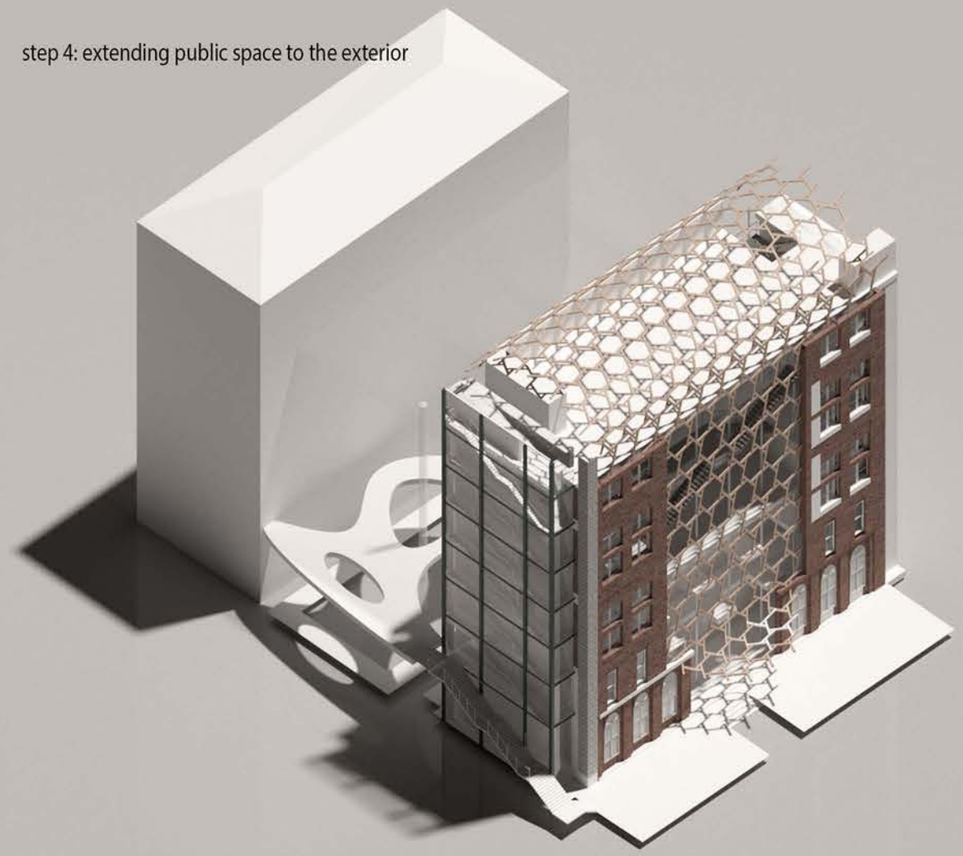
step 2: increasing area and adding new facade

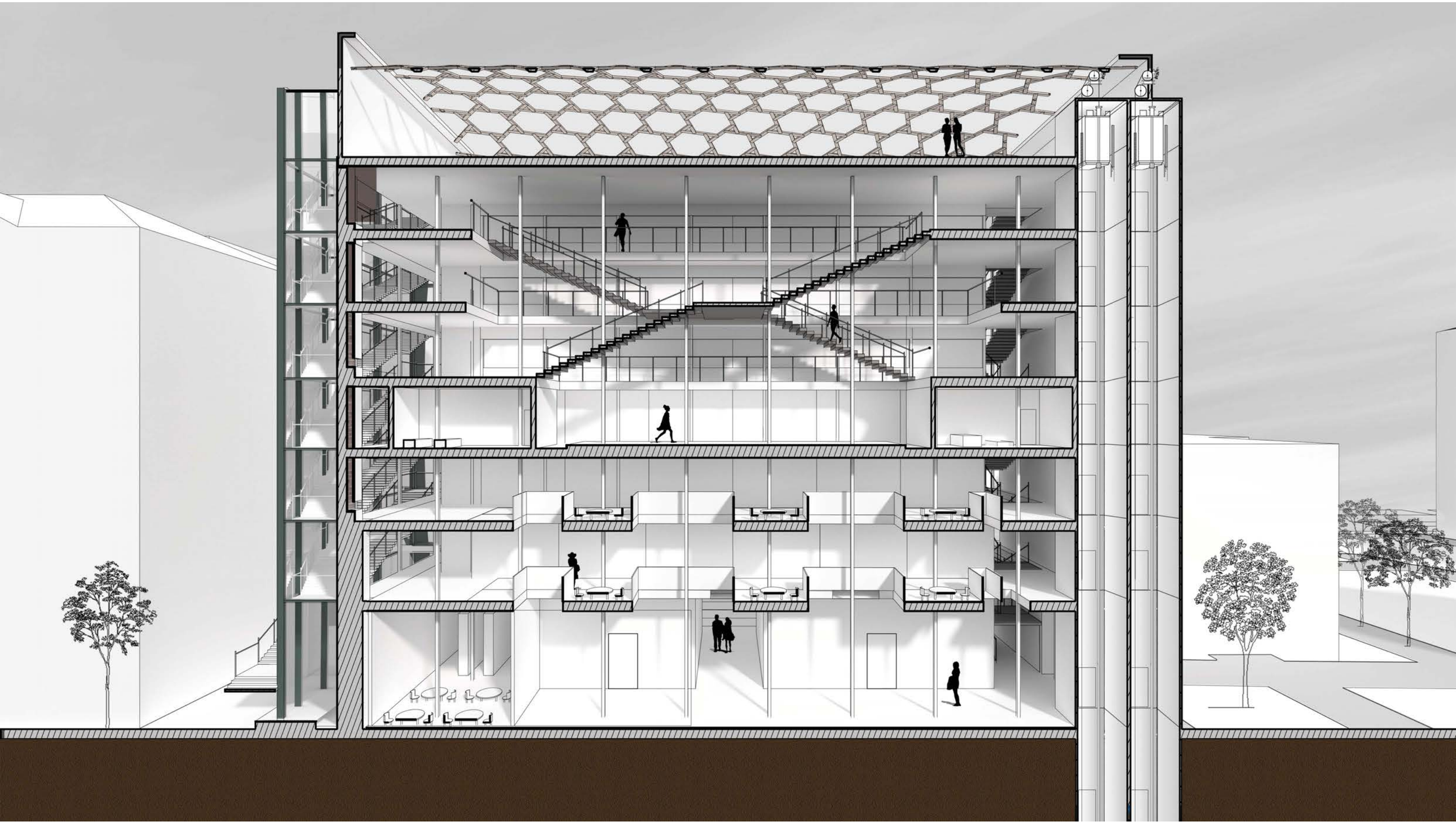


step 3: introducing a new structure system



step 4: extending public space to the exterior





section of west facade

rendering of second floor

Southwest bird 's-eye view

EXTERIOR + STRUCTURAL

Irmak Turanli + Qingfan Wu

Project: A Think Tank
Location: Los Angeles, CA
Program: Research Center for scholars and researchers

When the climate of Los Angeles is taken into consideration, what material use while designing a think tank presents the minimum operational energy? Which material use allows to reduce the work of mechanical environmental control systems? At the same time, which material produces the minimal human and environmental impact to the people occupying the building?

The program of the building is a research includes and it includes offices spaces and a library. Because Los Angles is located in an earthquake zone, we had to think about exterior and structural materials that would present durable and stable architecture. We also had to consider the climate of Los Angeles where it gets very hot in the summer and colder at night.

Site:

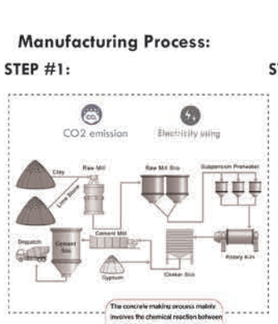
Precedents in LA, California:
-

What is it made of?

CEM	Cement	CO2 emission
SA	Sand	
AG	Aggregate	Air Pollution, CO2 emission
WA	Water	
ADM	Admixtures	
FA	Fly Ash	Asthma, Cancer, Inflammation

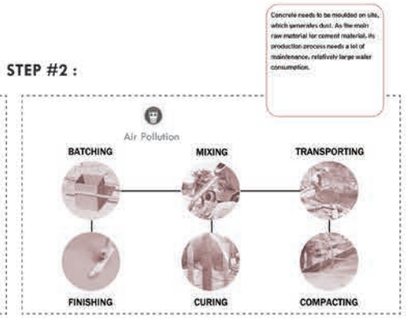
Manufacturing Process:

STEP #1:



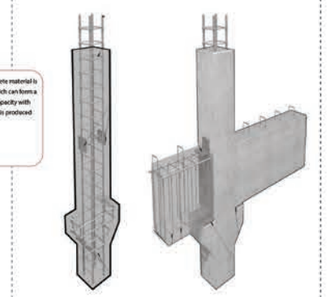
The concrete making process mainly involves the chemical reaction between clay and Limestone, which will produce a lot of CO2. In the production process, all kinds of equipment will also consume a lot of electricity. Most electricity now comes from thermal power, which also produces CO2.

STEP #2 :



Concrete needs to be moulded on site, which generates dust. As the main raw material for cement material, its production process needs a lot of maintenance, relatively large water consumption.

Thermal Quality + Structure:



The structure of concrete material is mainly reinforced, which can form a very strong bearing capacity with concrete. A lot of CO2 is produced as it hardens.

Maintenance + Affordability:

Concrete needs water to maintain after construction to ensure proper wettability during hardening. The main materials of concrete can be obtained directly from nature.

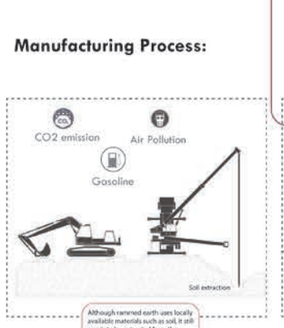
Precedents in LA, California:
- Glendale Childcare Center by Marmol Radziner Architecture, 10,00-25,000 sq ft

What is it made of?

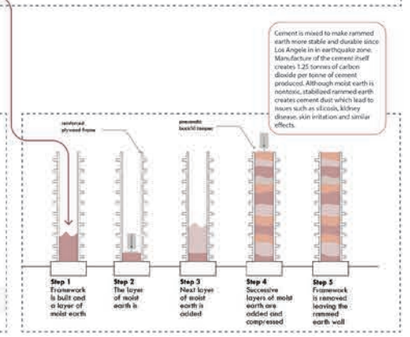
CL	Chrushed Limestone	
CEM	Cement	
RCA	Recycled Concrete Aggregates	Air Pollution, CO2 emission
FA	Fly Ash	Asthma, Cancer, Inflammation
ELS	Engineered Local Soil	
CCR	Calcium Carbide Residue	Reduced Agriculture, Impaired plant life

+ stabilized rammed earth

Manufacturing Process:

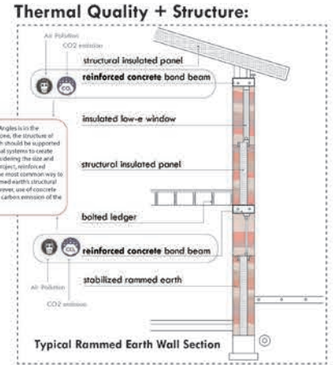


Although rammed earth uses locally available materials such as soil, it still needs to be extracted from the ground. The processing involved in the making of rammed earth includes machines drilling the ground. This process has a high carbon footprint as those excavators rely on gasoline.



Cement is mixed to make rammed earth more stable and durable since Los Angeles in an earthquake zone. Manufacture of the cement itself creates 1.25 tonnes of carbon dioxide per tonne of cement produced. Although moist earth is nontoxic, stabilized rammed earth creates cement dust which lead to issues such as silicosis, kidney disease, skin irritation and similar effects.

Thermal Quality + Structure:



Because Los Angeles is in the earthquake zone, the structure of rammed earth should be supported with additional systems to create stability. Considering the size and scale of the project, reinforced concrete is the most common way to increase rammed earth's structural capacity. However, use of concrete increases the carbon emission of the material.

Typical Rammed Earth Wall Section

Maintenance + Affordability:

They last extremely long. A flattened earth house can easily sustain its integrity for 1000+ years. Raw materials of cement can be shipped anywhere for production. Because the site is rich in terms of clay-rich subsoil, there are no supply chain considerations.

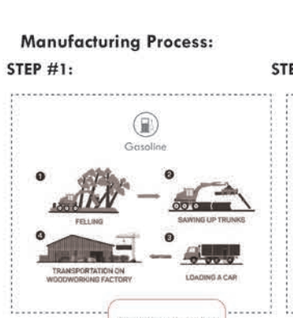
Precedents in LA, California:
- Glendale Childcare Center by Marmol Radziner Architecture, 10,00-25,000 sq ft

What is it made of?

NP	natural plants	
SAROT	stem and root of trees	
RWB	recycled wood board	Air Pollution, CO2 emission
GFSB	glue for sticking boards	Asthma
AFF	Artificial forest farm	

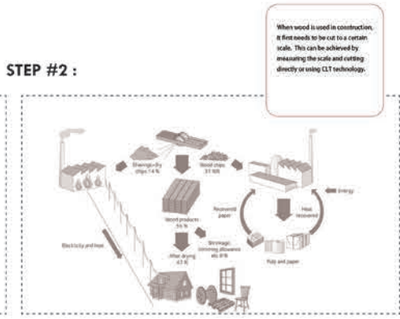
Manufacturing Process:

STEP #1:



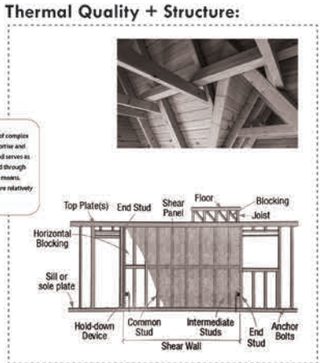
The greatest need for wood is to grow it in a specific place.Large machinery is used to cut the wood, and large vehicles are used to transport it, a process that uses a lot of petrol..

STEP #2 :



When wood is used in construction, it first needs to be cut to a certain scale. This can be achieved by measuring the scale and cutting directly or using CLT technology.

Thermal Quality + Structure:



Maintenance + Affordability:

www.shutterstock.com · 370660730

Wood lasts for fifty years and needs to be reinforced as it ages. Wood that has not aged due to accidental collapse can be recycled..

Most timbers are made of complex frames connected by mortise and tenon joints. When wood serves as wall, need to be installed through agglutination and other means. Anyway,Wooden walls are relatively weak.

HUMAN HEALTH	Dust will be generated when it is made, which affects health	Although soil is nontoxic, concrete that is used to increase its durability has concrete aggregates that pollutes air	There is no harm in the material itself. only a small amount of influence from processed raw materials
INDOOR CLIMATE	very high thermal mass, can keep indoor climate stable	Rammed earth walls function to absorb heat during the day and release it at night, cutting energy costs dramatically.	Have certain heat preservation ability, but sound insulation effect is bad
ENVIRONMENT - ENERGY	It takes a lot of energy to mine stone and make cement	The process of extracting soil requires machines to drill the ground. This process relies on high energy and high carbon emission.	The energy contained in itself is very small, and it is difficult to have an energy effect
ENVIRONMENT - CARBON	The production process emits a lot of carbon dioxide	Both the process of extracting soil and using concrete to stabilize the rammed earth structure creates high carbon emission	Carbon negative.There are certain carbon emissions in the process of cutting and processing
AFFORDABILITY	A plain concrete slab costs an average of $6.60 per square foot	The cost per m2 for a rammed earth wall can vary from $450 to $750 per face m2, on average.	Average price is about 1000 dollar per thousand board feet
MAINTENANCE	As long as the repair is in place, maybe there is no problem	Stabilized rammed earth walls are extremely low maintenance.	Most of wood can be used over 50 years. The best of them can keep useful for 100 years
DISASSEMBLY / RECYLING	concrete can be crushed and reused as aggregate in new	Although soil and limestone can return directly to the ground, recycling dry and hardened concrete requires crushing.	Easy to disassemble and move, and can be burned or used for paper.
















260
ROSS BURAC
HAL SHAPIR
JEFF WINIC



El Semanalito



pharmacy Rx
OPEN
24hrs

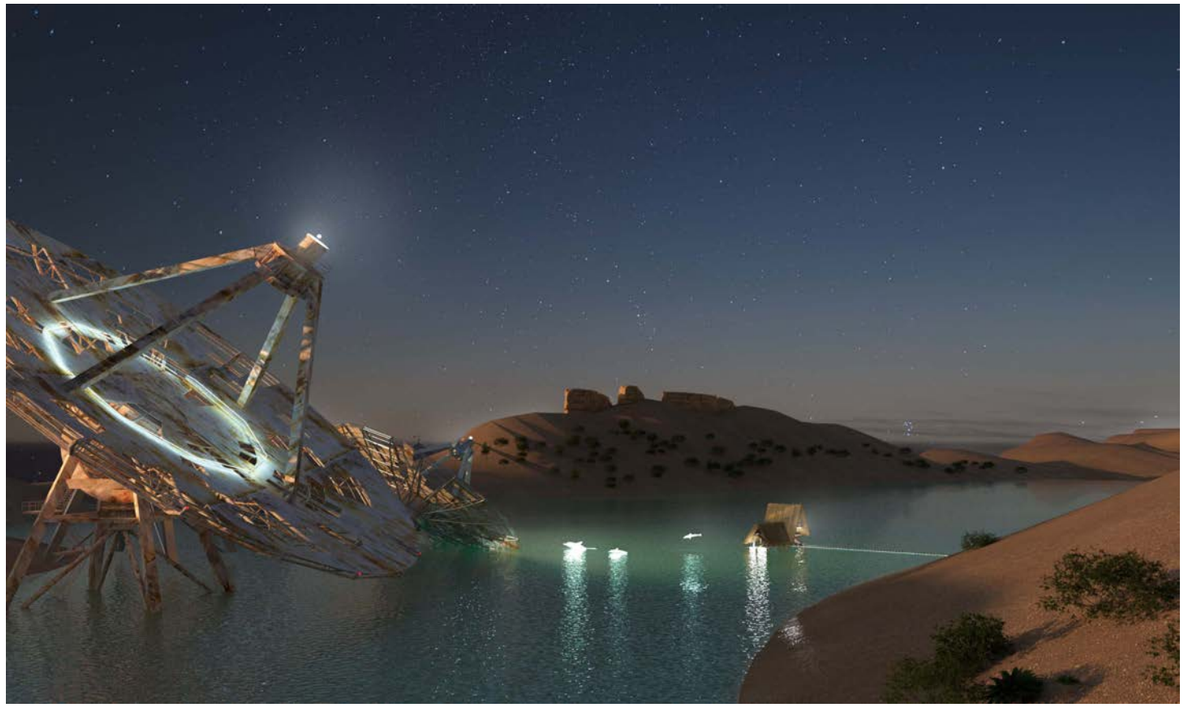


NYPD
4675
24 PCT


optional course
tutor:Phillip Crupi
collaborate: Kuo Han,Kennedy Marie Vantrump, Jerry Schmit
Ultreal

scene rendering

In the design, the collision between lost modern civilization and warm traditional culture is considered. When the two representative objects appear in a scene at the same time, what kind of contrast will be formed and what kind of artistic sense will be brought? This is the conclusion we want to draw from this rendering mission.



A modern injection-project-Hutong Bubble

Qingfan Wu

Transscalarities Workshop
Yara H. S. Saqfalhait

July 22,2021

A modern injection-project-Hutong Bubble

During the 2006 Venice Architecture Biennale, MAD's urban concept "Beijing 2050" made its debut IN the solo exhibition MAD IN China IN Venice.Three years later, the hutong bubble, which scattered like water droplets in the old city of Beijing, appeared in a small courtyard at 32 Beibingmasi Hutong in the old city of Beijing.

With the development of technology and the expansion of cities, people become familiar with the technology-filled lifestyle.Being surrounded by new technology has gradually become a habit, which makes the once traditional houses no longer popular with people.In this way, without the shadow of technology, the old space is gradually abandoned.

As a part of project Beijing 2050, the Hutong Bubbles are coming.

How to change the living space from Technodeterminism to the Techno-social? It needs time, and need to be done in steps. The development of technology has enhanced the information exchange between people, and people have become accustomed to living in a society with transparent information. However, the traditional architecture needs to be changed.It is not necessary to adopt large-scale reconstruction, but to insert some small-scale elements, like magnets, to renew the living conditions and activate the neighborhood.Compatible with other old houses and bring life to each other.At the same time, these elements should have the possibility of reproduction, and on the basis of adapting to various living needs, the recovery of the whole community can be achieved by changing the local situation. Therefore, MAD tries to insert some bubbles created by modern technology into traditional architecture. Through a little bit of technology implantation, it connects the once separated traditional architecture with modern society.Technology is like a bridge, acting as a connecting device in this change, changing the form of the old society, transforming it little by little into a new society.

It just likes what technology does on our life. A new technology appears, and it starts to change the whole lifestyle from a start point. The designer just wanted to transfer this process into this program, which is put some new structures ,which stand for modern technology, into an old area first, then both the space and lifestyle in this area will change from these start points.In fact, as a case of old street renovation, it does bring great changes to the local area.This change is reflected in the visual first, traditional hutong changed the shabby image of the past, into a new form of modern and traditional combination.When people are attracted to the modern elements of this scattered layout, they will naturally reexamine the forgotten old buildings

Although some people still criticize it, saying that it is a kind of transformation like a seal, I think it is a way to break the forgotten situation of traditional buildings by throwing a stone into the calm water like this.It is this controversial contrast that is more effective at attracting attention.

On the other hand, the transformation of the old house function has also played a role in attracting people's attention.In the new building, there are more projects conducive to the modern visitor experience, including cultural activities.Instead of experiencing the tradition in books, people nowadays are more willing to come and feel the charm of culture in hutong No.218.

GRADUATION PORTFOLIO

Qingfan Wu

qw2361@columbia.edu

academic works

Ms advanced achitectural design