



YIHUAO XU

Selected Work

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PORTFOLIO

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Yihao Xu
Current RISD IA Graduate Student

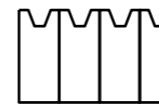
RISD Academic Work
Professional Work
Undergraduate Academic Work

Tel: +1 401-241-4081

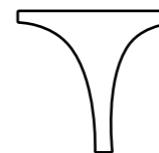
Email: yxu13@risd.edu
xuyihao342@outlook.com



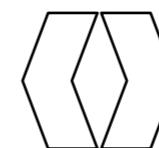
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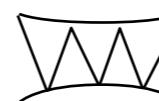
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MAGIC CARPET

Building Renovation

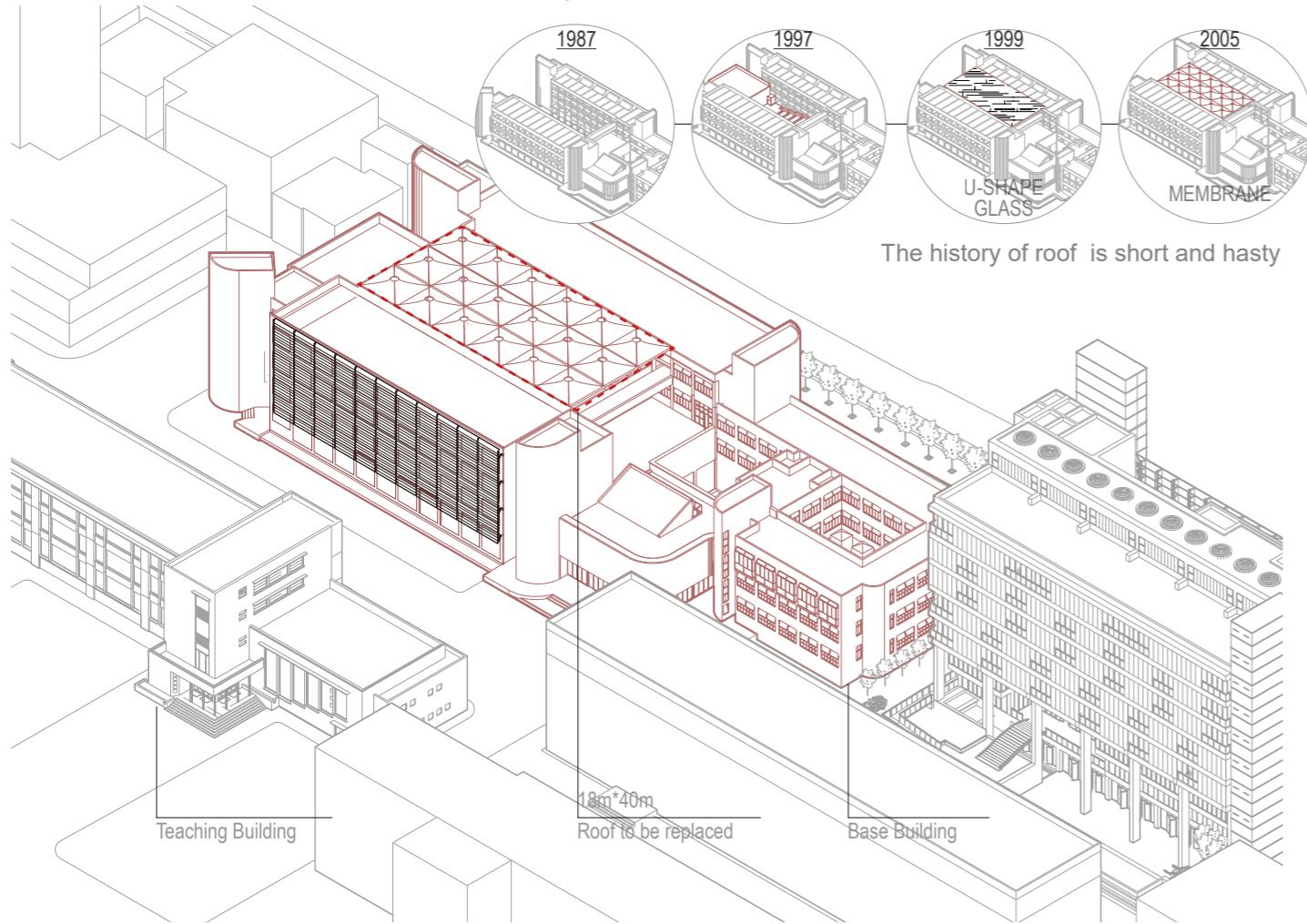
Date : Feb-Jun,2019 Semester-long
Location:Shanghai,China

Instructor:Juan Chen, Qian Jin
Type: Academic Work

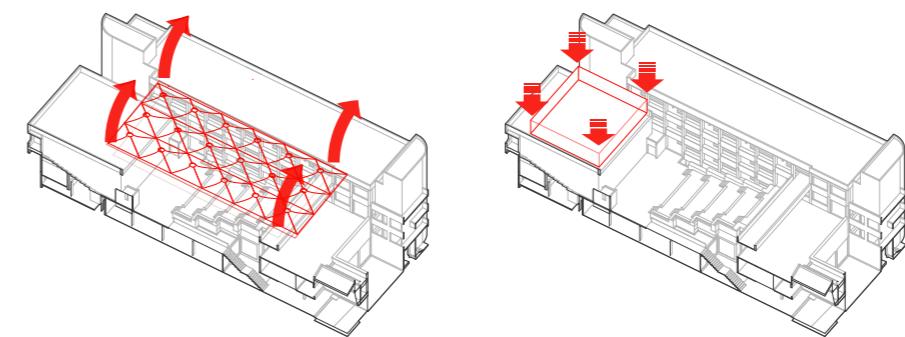
Space Renovation
Solo Work 100%

The old roof is low qualified. Therefore, it has to be moved. To solve the space shortage, a box was inserted into the atrium. In order not to block the sunshine, the new box is located right on the top of the conference room.

Main Issue: Roof shall be replaced

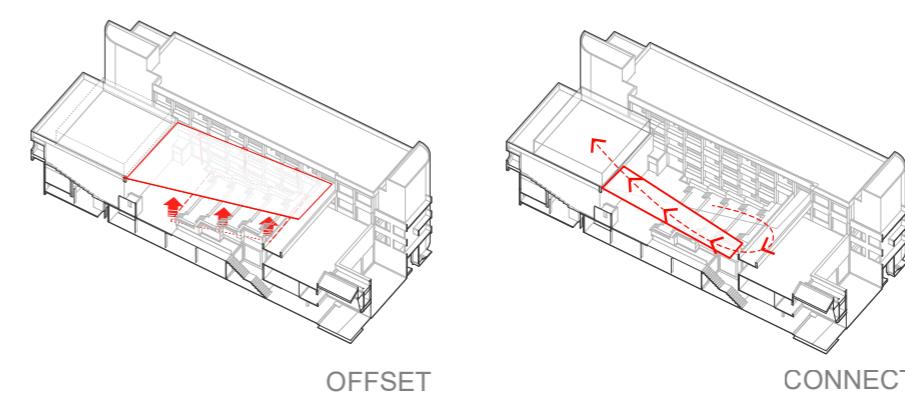


Renovation Solution: A New Box and its Chain Action



REMOVE

INSERT A NEW BOX



OFFSET

CONNECT

The old roof is low qualified. Therefore, it has to be moved. To solve the space shortage, a box was inserted into the atrium. In order not to block the sunshine, the new box is located right on the top of the conference room.

Another important thing is that the atrium is too high, which failed to make people feel warm and safe. Therefore, an elegant scale should be created, which is one of the two new roof surfaces. Meanwhile, a ramp is necessary to connect the old space and the new box.

Background: Growing Number of Students

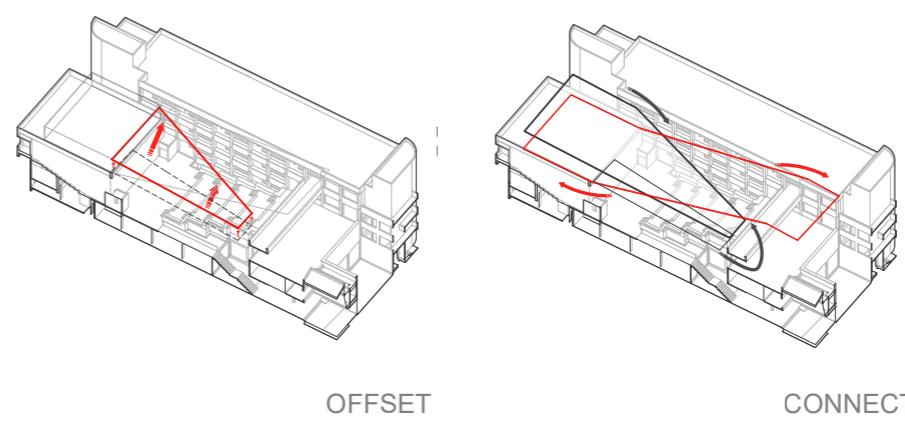
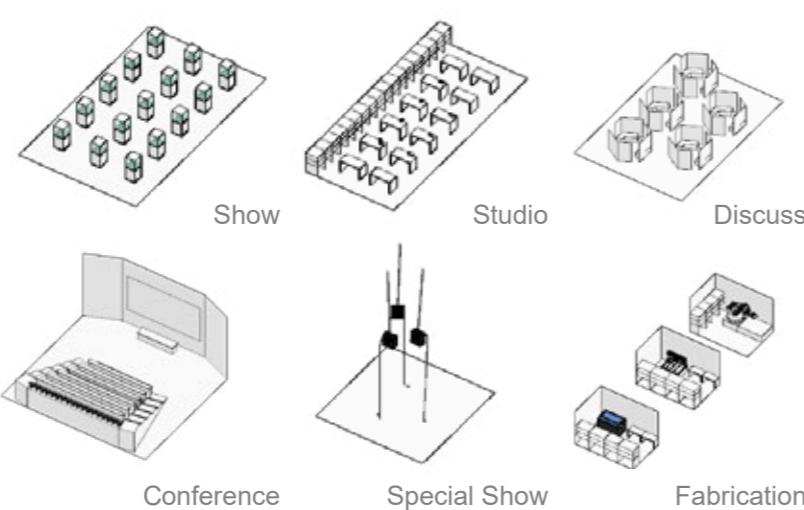


Result: Serious Lack of Exhibition Space

Because of the domestic population grows and the school expansion its enrollment, the old space cannot meet the current needs. Usually, the atrium is used for exhibition. Sometimes more than 120 students and teachers gathered in this area, so crowded.



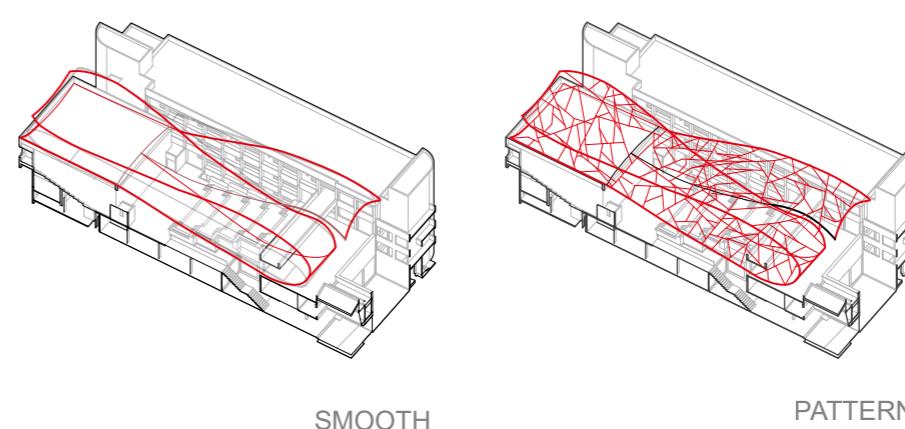
Function: Student Demand & Exhibition



OFFSET

CONNECT

To protect from the rainy, the new ramp, or we say the bridge, needs a cover. By far, the form of two twisted surfaces come to the surface.

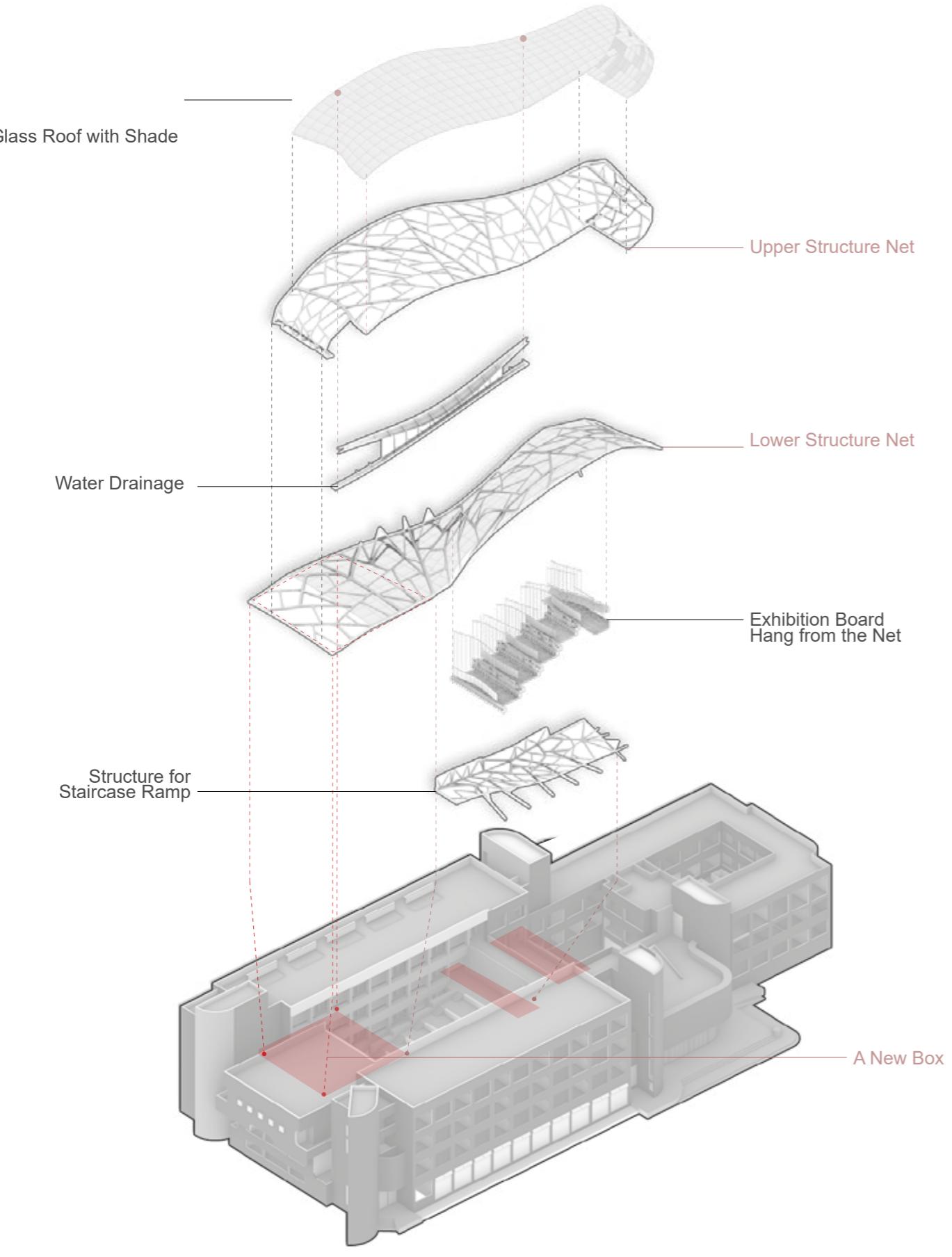


SMOOTH

PATTERN

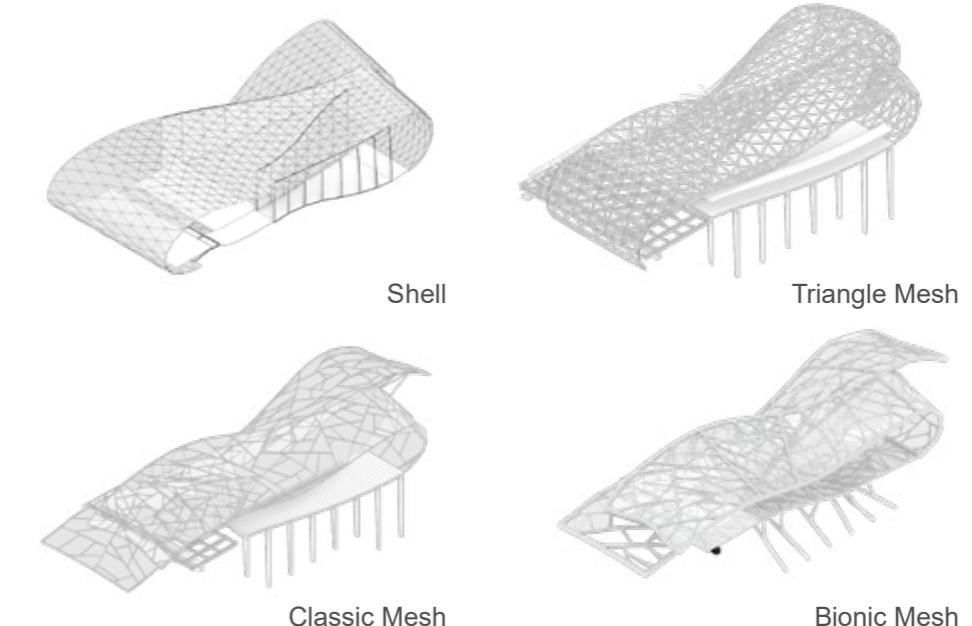
The new roof shall be smooth and gentle, as a flying carpet. Rethinking the truss grid itself, hoping to create a feeling of pulling between the two old buildings in the north and south.

Structure System: Dual Structure + Shade



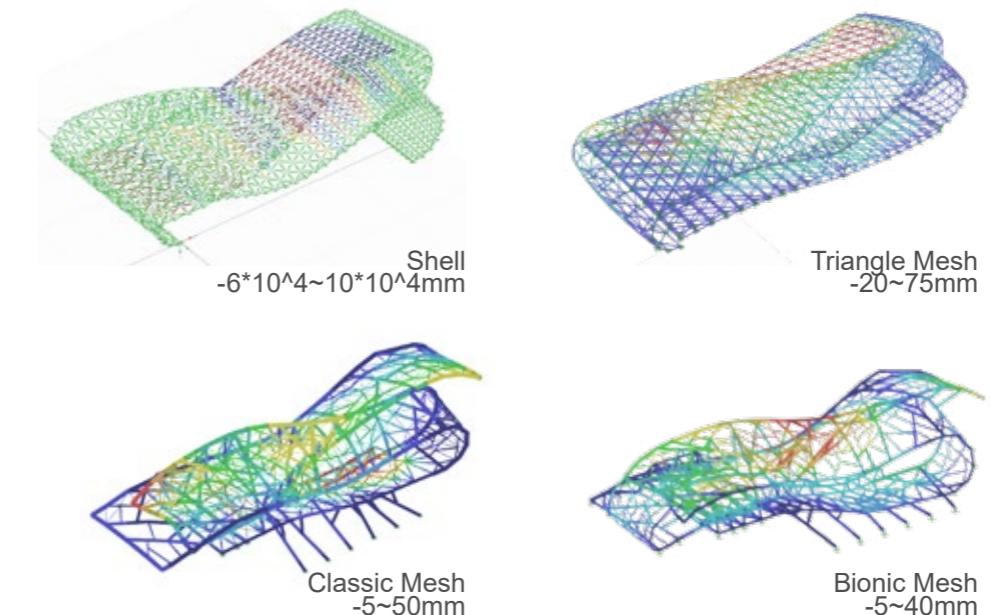
Exploded Isometric

The whole roof system is meant to be inserted into the atrium. The overall system consists of structure, water proof, sun shade, drainage and exhibition function. From the structure perspective, a double-truss net is very practical, since the gap between the two corridors is about 24 meters. Otherwise, the middle of the net is weakest, and no doubt should it be strengthened.



Design Consideration

From the beginning form analysis, the use of two twisted surfaces have been determined. In other words, the pattern, which has structural meaning, comes from thin triangles, thick triangles, classic and bionic. The final bionic idea comes from the fact that the system is located between two corridors. This idea renders the feeling that the system is connecting the two old buildings.

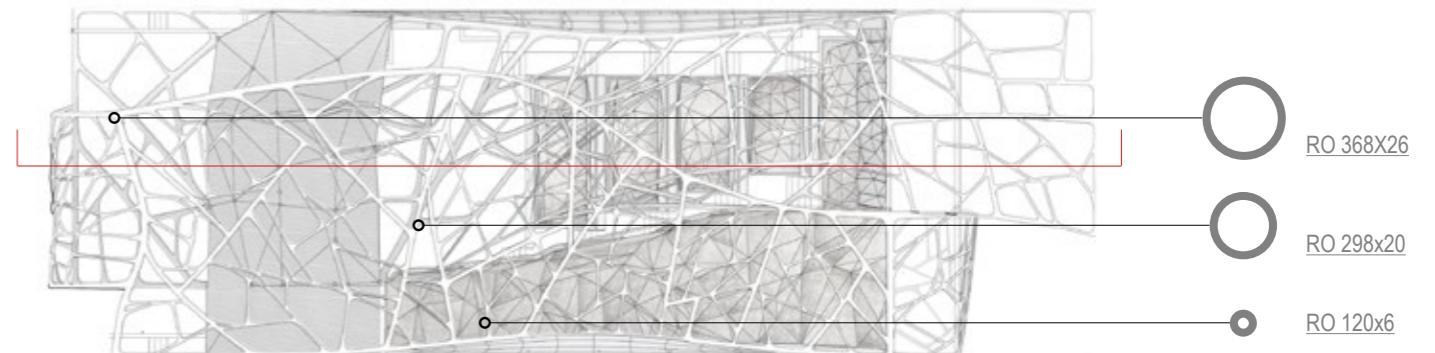


Structure Analysis

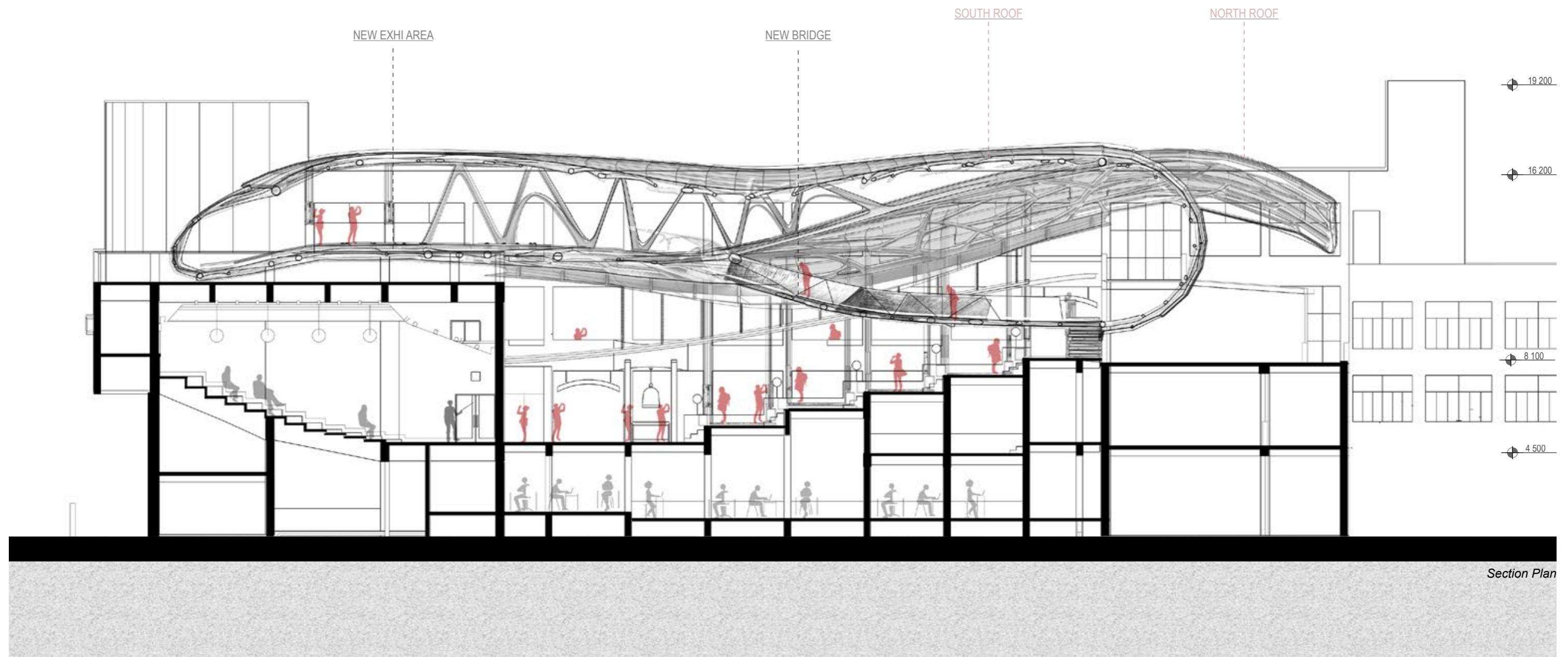
The creative form needs strong back of structure analysis. With the help of RFEM, the researcher can gain solid proof for his design. The RFEM analysis told the researcher that the simple flatten shell would not work. Meanwhile, triangle mesh is able to resist its own weight. In fact, resisting its own weight is not enough, which means live load, static load should also be considered.

Building Section: A New Magic Carpet

Increase the usable area by 130 square meters. A 17m*8m large plate located 5.4m above the entrance of the lecture hall. Relatively compatible scale 5.4m height. And does not interfere with the sight communication of the entire space . Strive for the truss to be simple and transparent, and the internal space is bright and pleasant . The newly rebuilt roof truss is lower than the roof of the fourth floor of the Red Building, keeping a low profile to the old building. The roof of the roof truss is closed for lighting, sheltering from rain, and keeping warm. Viewed from the section, the twisted frame is connected with the original building's stepped space

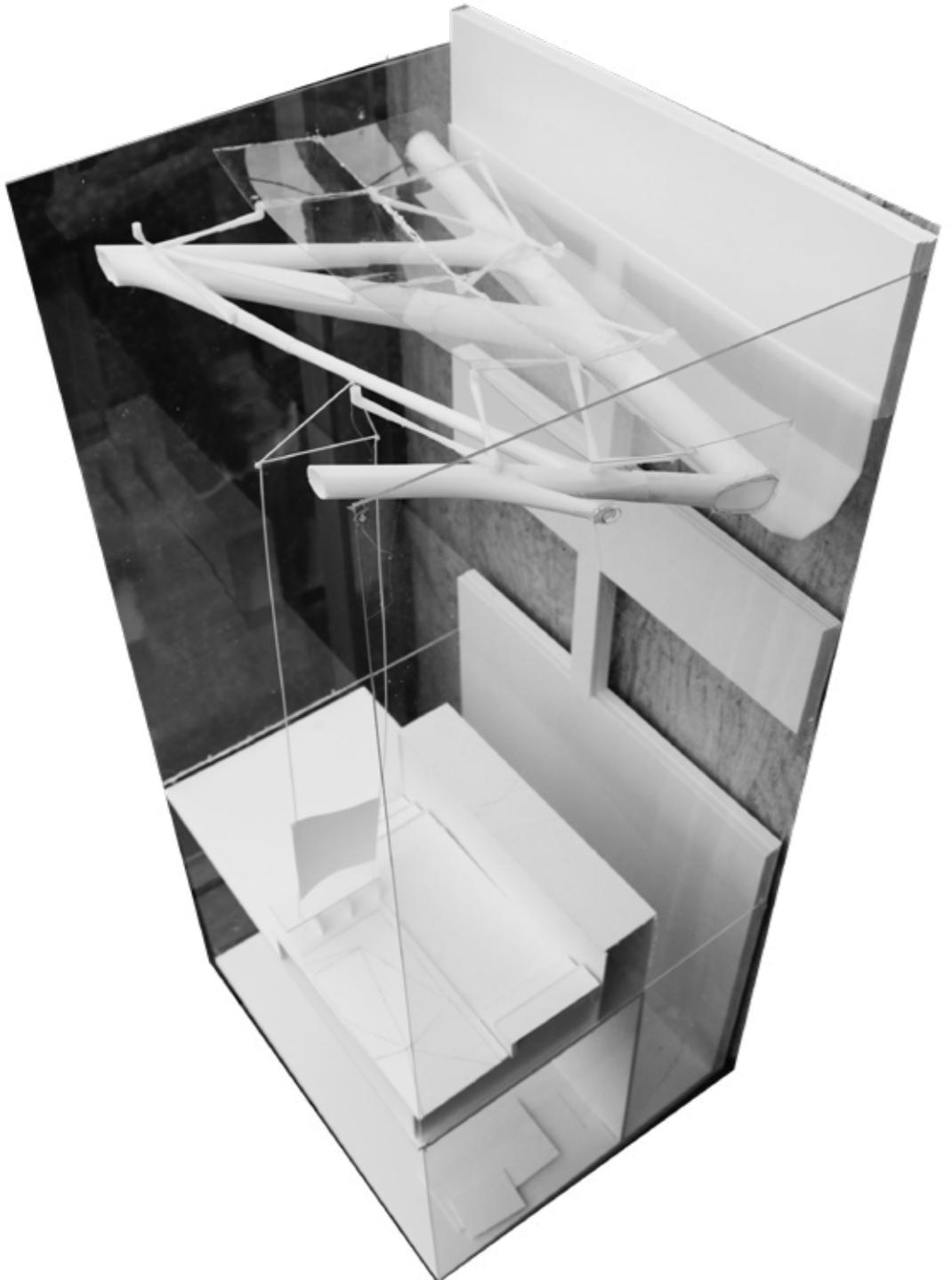


Structure Net Plan



Section Plan

Model & Detail Drawing: Digital Fabrication



1:25 Detail Model

As showed in the real model, the new system is controled under the roof of the old buildings so as to keep a low profile.



Staircase View



Exhibition View



2+

SITTING PARK & LIGHT FUNNEL

Cement Plant Renovation & Industrial Silo Reuse

Date: Feb-Jun, 2020, Semester-long
Graduation Design

Location: Suburb Area, Shanghai, China
Instructor: Yong Chen, Qiang Chen

Type: Academic
Six People Group Work:Urban Design
Research and Idea 30%
Area Design 20%
Video Rendering 100%

Solo Work Part:One Silo Building Renovation100%

Cement Plant Reuse Design Urban Design Group Work Part

Graduation Design.

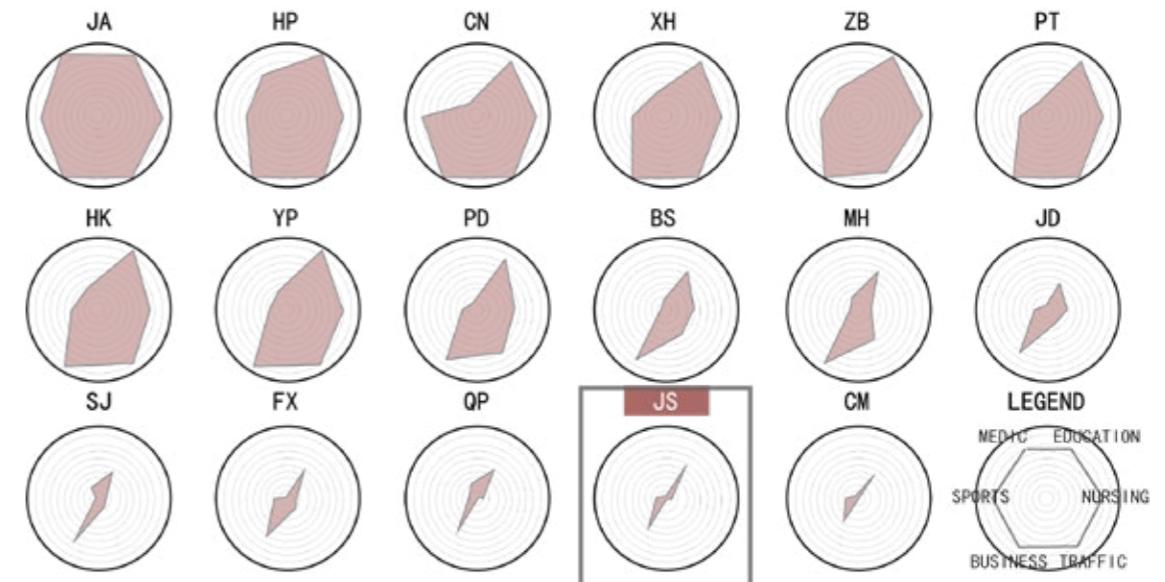
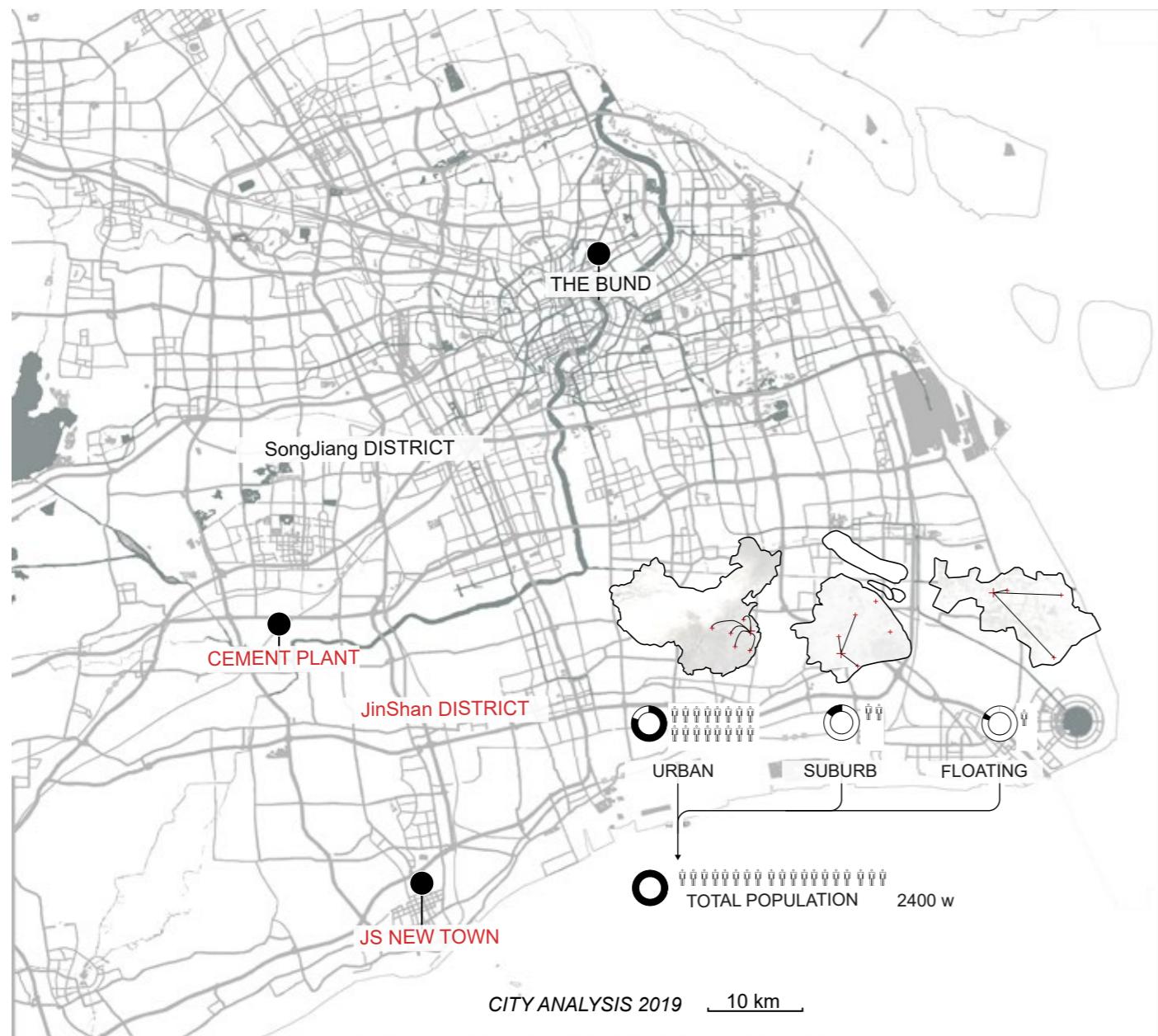
This project consists of two part: a group work urban design and a solo work industrial reuse design.

The plant is going to totally shut down.

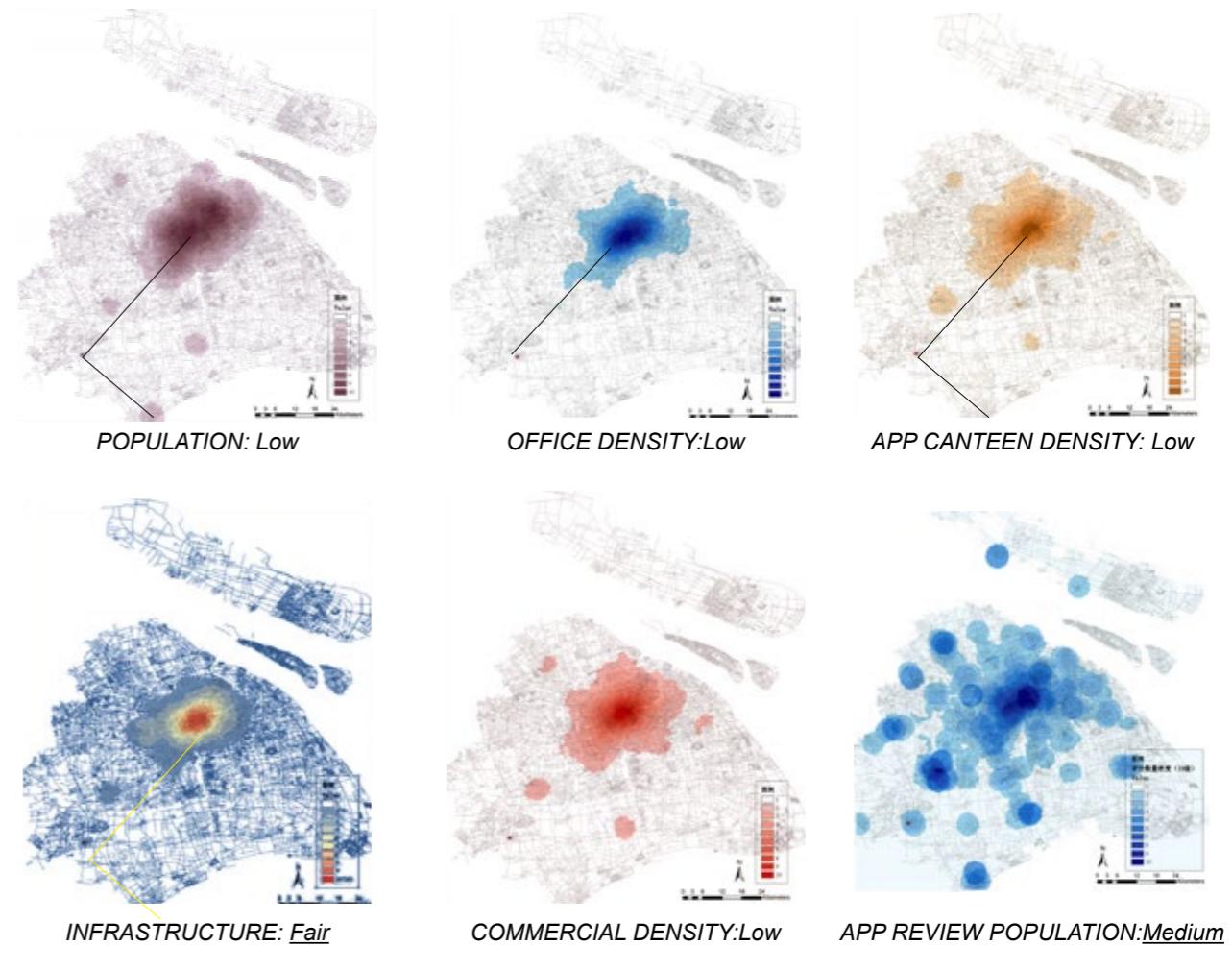
Find the fully-developed solution to better improve the local living environment.

SURROUNDING DISTRICTS

At present, the population of Zhujing Town adjacent to the east of the base is relatively small, and the number of public facilities is correspondingly out of date. Since its number is far less than that of New Zone, it is estimated that the construction of the facilities takes a long time. Generally speaking, compared with Songjiang (SJ) and Jinshanwei (New Zone) areas, the town is showing a decline. Looking forward to the future and from the perspective of development, to attract the working population, the population will inevitably increase in the future. Therefore, it is necessary to build corresponding supporting public facilities in order to improve the local service level and attract more young people. Basically follow Songjiang and Jinshanwei. New forms of business should be injected and integrated into public space design. The base design should combine the advantages of "industrial heritage", make use of existing buildings, and transform and set up corresponding cultural museums, show venues, etc. And regularly organize theme exhibitions, T stage performances and other activities to improve the cultural atmosphere of the community.



Combining the GIS analysis and the info offered by local government, it is not hard to find out that JS still lack many resources. If this problem cannot be solved, the settlement around the site will turn out to fail. Therefore, the research points out that a high qualified renovation is quite important to the development of the JS district.



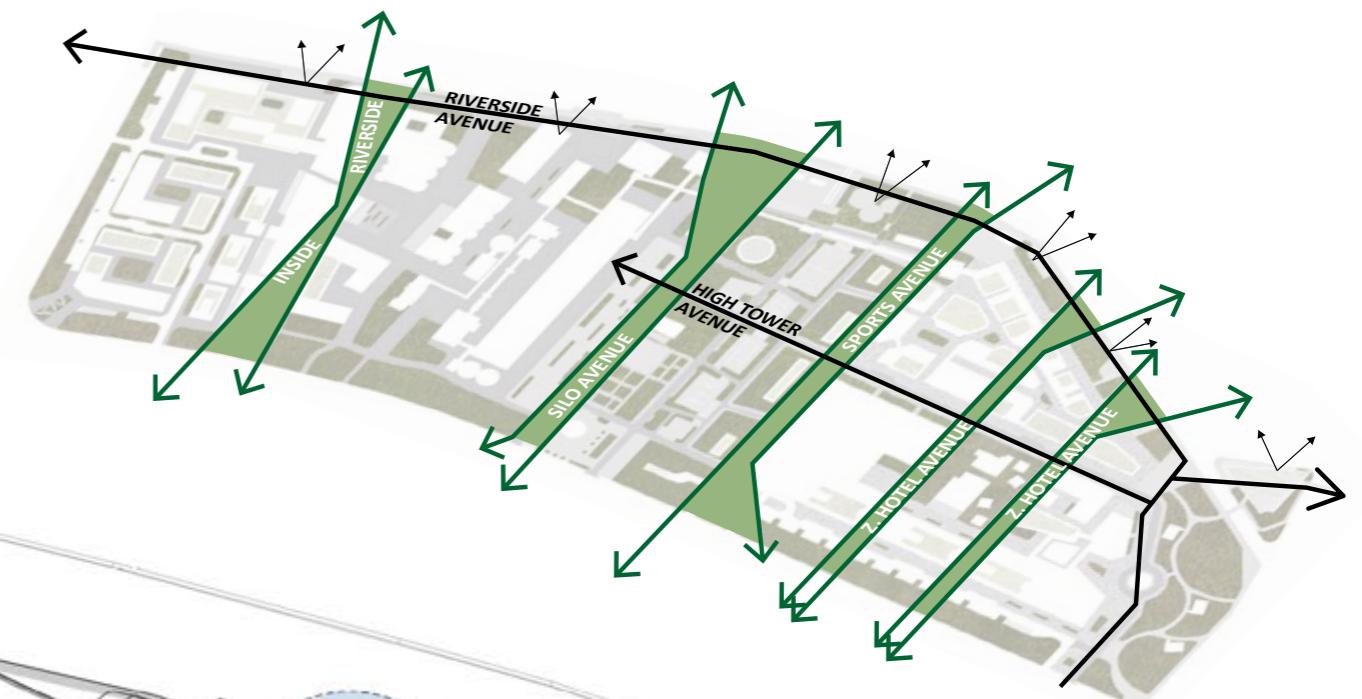
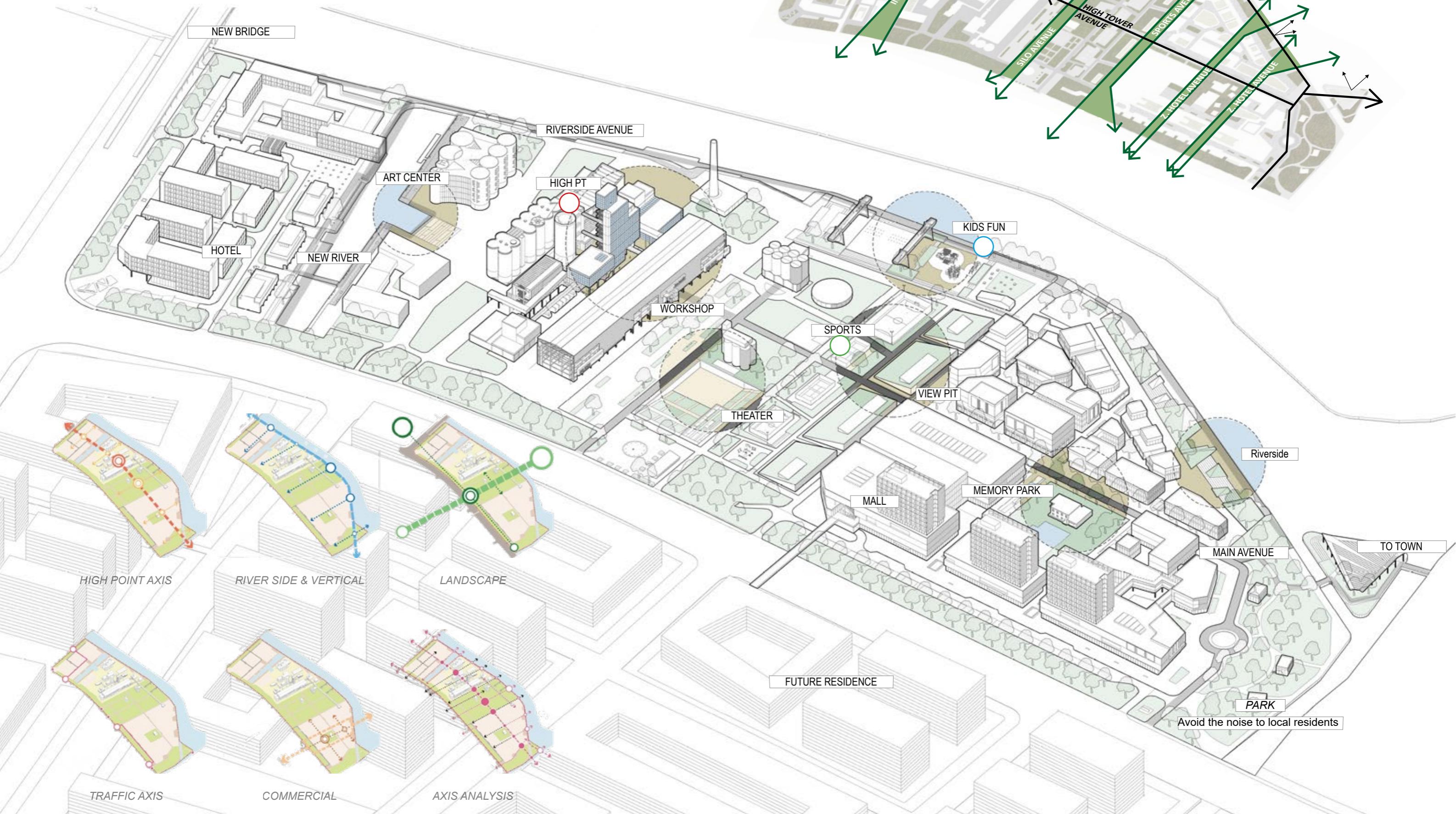
WHOLE CITY ANALYSIS: JS has a potential to attract more people to settle

25 km

The GIS analysis based on a local APP called 'Da zhong dian ping', like Yeap!, with a website www.dianping.com. Gathering the information about all the canteens and attractions around the Shanghai, the researcher can obviously figure out that Shanghai concentrate the most resource in the city center. The fact that Shanghai is a very large city results that the city center lock too much job opportunity. In the future, the surrounding area of Shanghai should develop as satellite city so as to release the pressure in the downtown. In the other hand, JS has so many tourist attractions that JS has a potential to attract more people to settle.

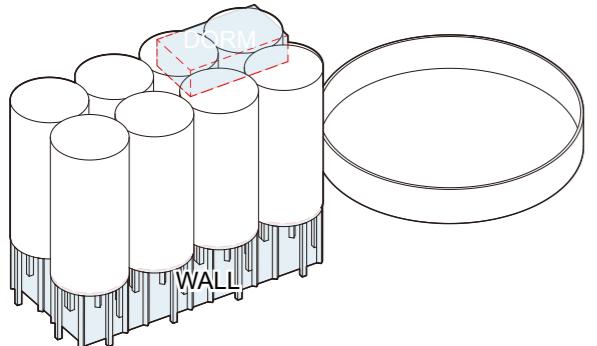
SITTING PARK: Industrial Background + Open Platform

High tower as a new landmark here. Therefore, a main road is pointed right in front of the high tower. In addition, to spark the riverside landscape space, the roads are also arranged from south to the north. As shown in the right diagram, the main frame of the design consists of five vertical and two horizon roads. My role is to design the middle sports area between the storage room and the commercial area.



Due to COVID, all design studio became online ZOOM. Therefore, a real model was not required. Yet, a rendering video was asked. Here are the links, please :)
<https://youtu.be/H6crgI2n3LE>

Reuse Strategy: the Value of the High Cylinder Space

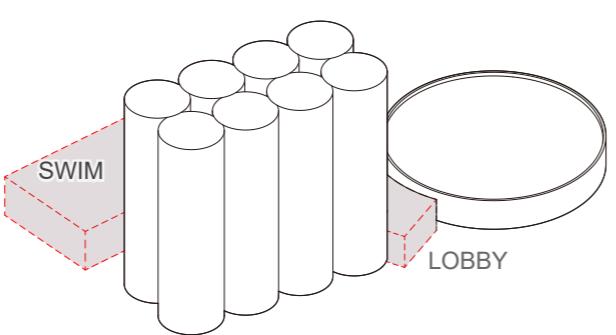


REMOVE: Dorm Room & Bottom Wall

The top dorm room and the bottom cement wall would be removed.

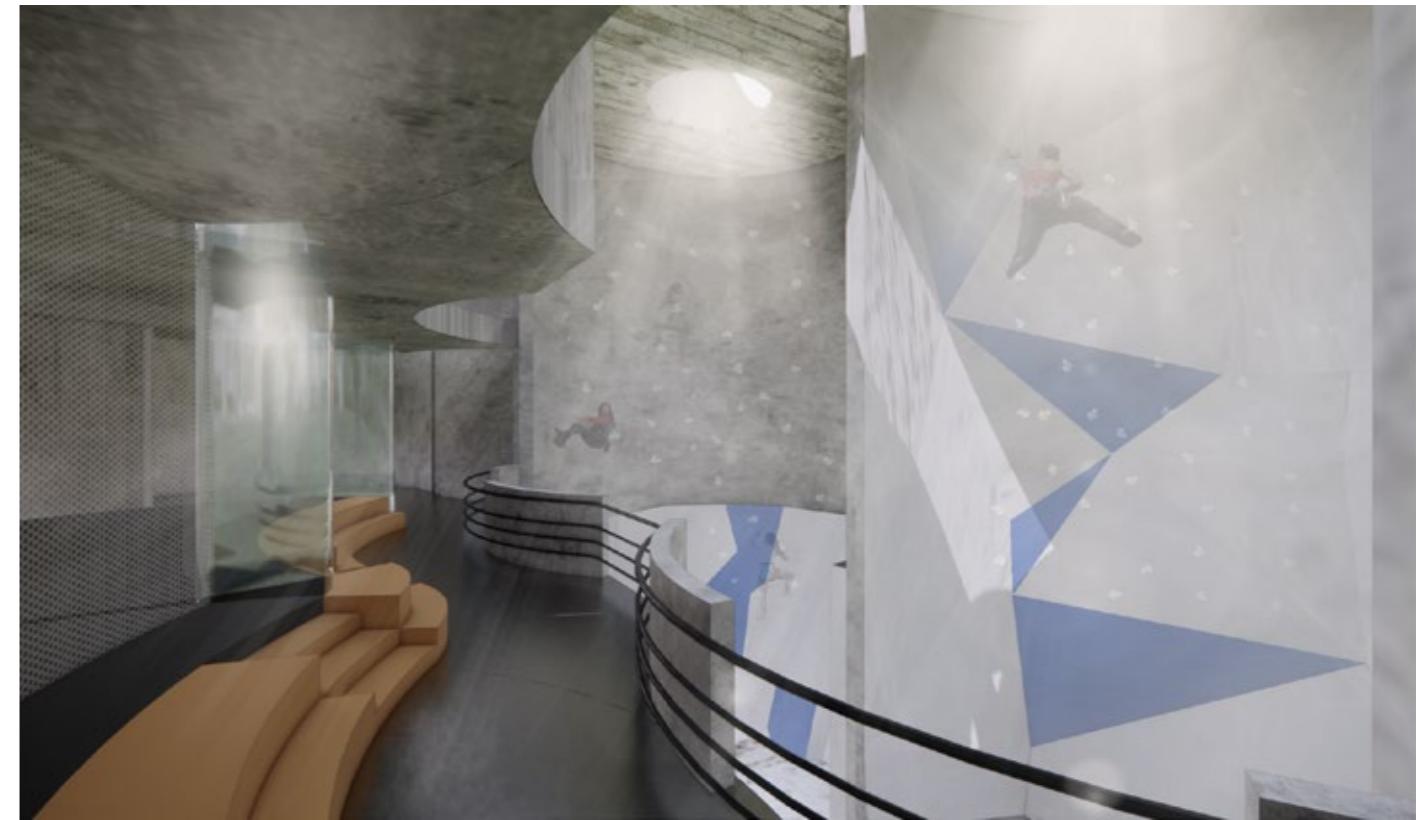
The top room has no use at all and the bottom area would be arranged new function.

New material would applied on the top and in the bottom.

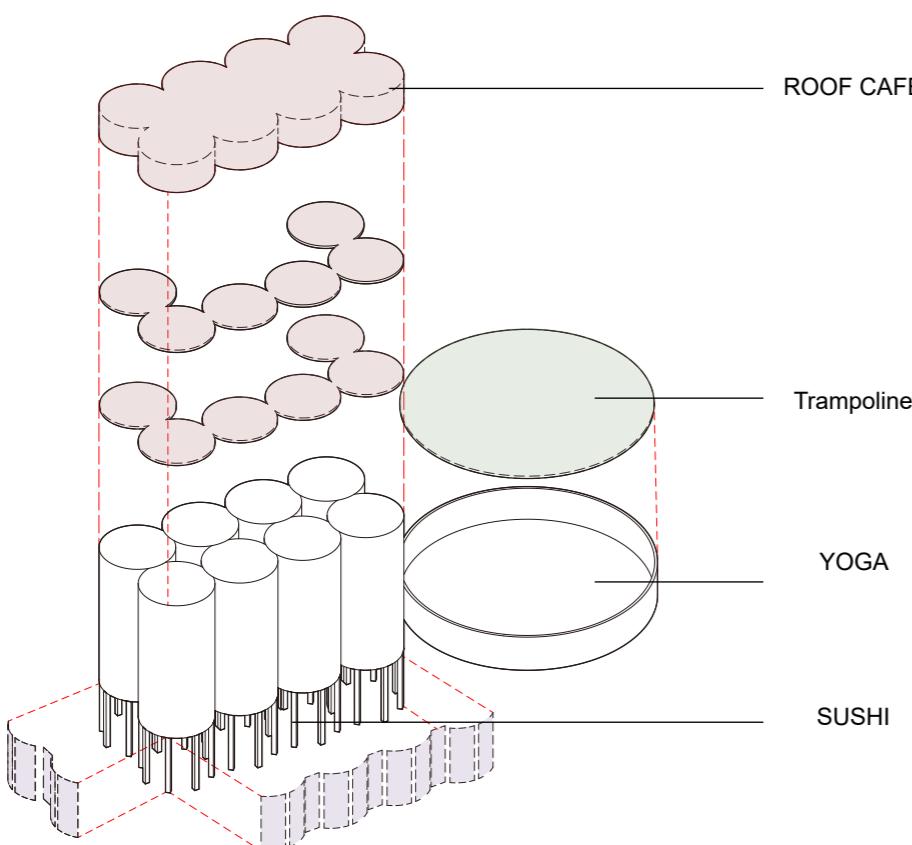


ADDITION: Swimming Pool & Lobby

As a new sports center, a new swimming pool is needed. A lobby is necessary to connect the three parts, silo, swimming pool, and old water pool.



SILO INDOOR CLIMBING: Vertical Climbing + Lighting Well



A new top floor is added as serving area, locker room, sunshine rest room, and washroom.

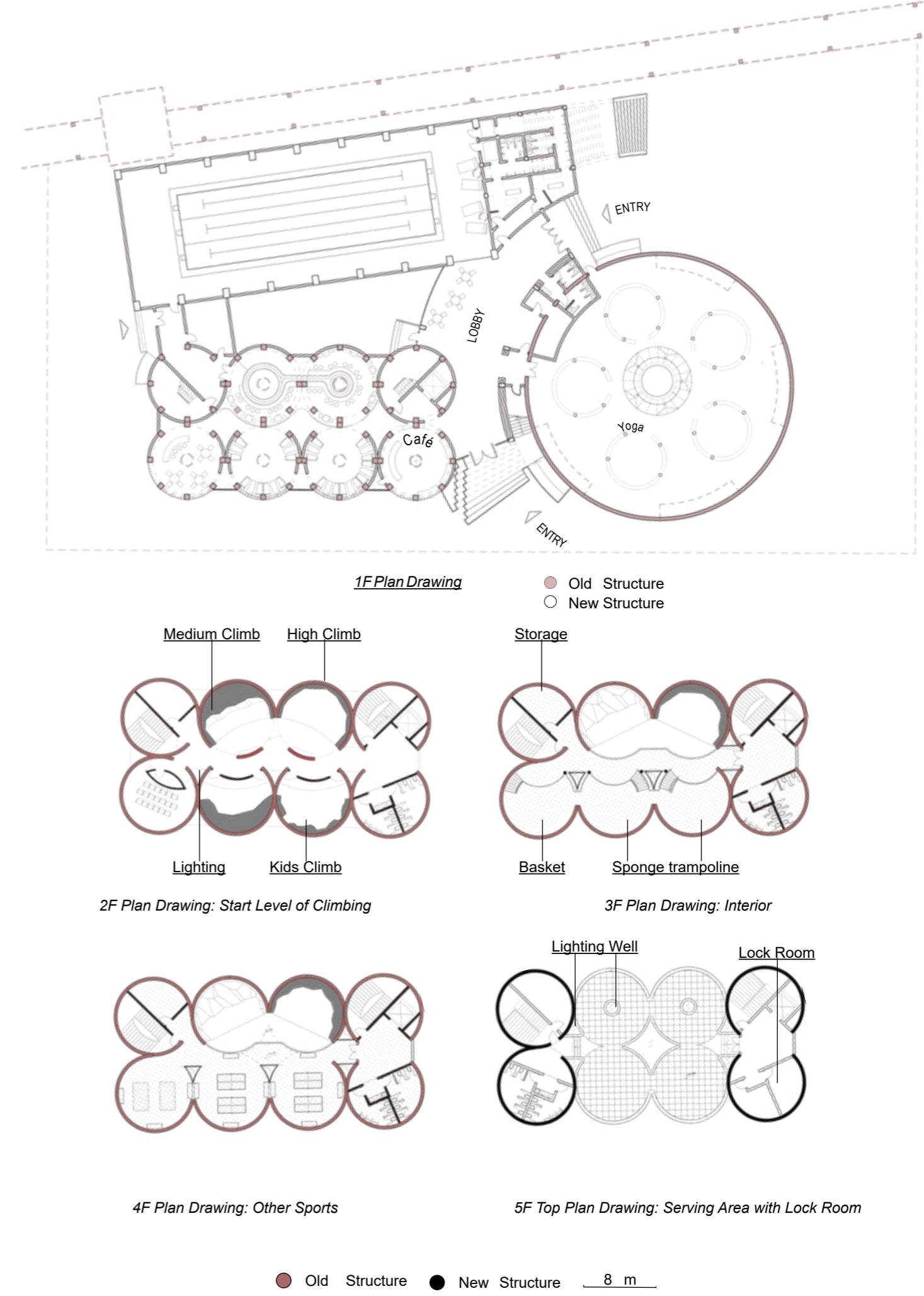
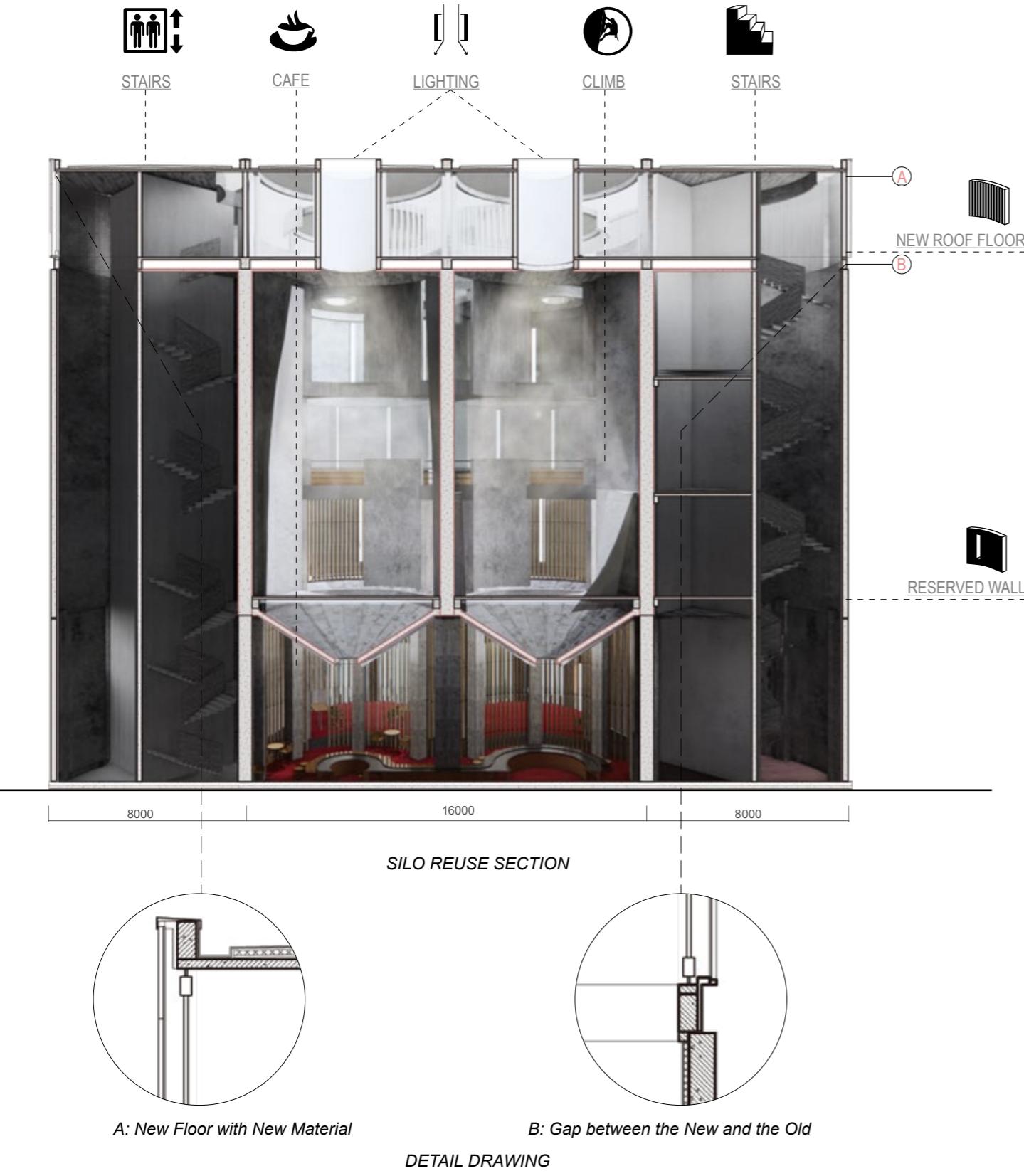
- 1) bottom silo hopper would be used as restaurant.
- 2) the silo would be served as interior climbing area.
- 3) the water pool would be used as interior yoga space.



ENTRY RENDERING

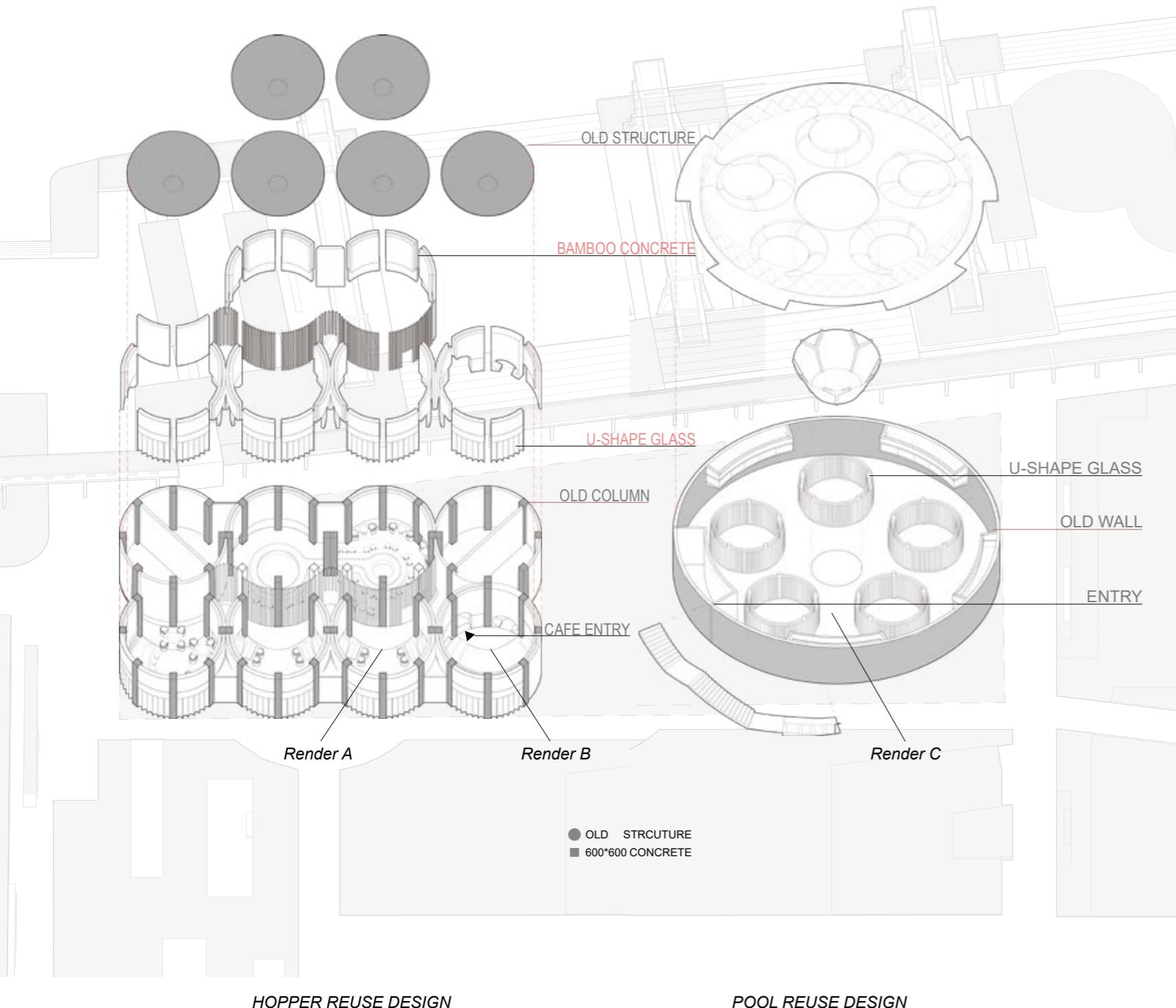
LIGHT FUNNEL =Light Well + Vertical Climb + Bottom Cafe

The silo has eight cylinders. Generally, two cylinders use as stairs function. In addition, the middle two cylinders serve as high climbing space to make good use of the silo's height. With the skylight from above, the climbing space would quite popular among the social media. As shown in the elevation rendering, the top new built floor uses new metal material. As illustrated in the below two detail drawings, a gap is designed between the old and the new wall.



LIGHT FUNNEL : the Language of Cylinder

The silo has eight cylinders. Generally, two cylinders use as stairs function. In addition, the middle two cylinders serve as high climbing space to make good use of the silo's height. With the skylight from above, the climbing space would quite popular among the social media. As shown in the elevation rendering, the top new built floor uses new metal material. As illustrated in the below two detail drawings, a gap is designed between the old and the new wall.



HOPPER REUSE DESIGN

The old space at the bottom of the hopper is unique, so the development of commercial catering is considered. At the same time, it must also strengthen its round characteristics, and also consider it as a revolving restaurant. In the concrete transformation, bamboo template concrete hanging slabs were used to flatten the walls.

POOL REUSE DESIGN

The pool used to open up storage space, but now the roof is sealed. The lower part is the yoga space of the gym, and the upper part is the outdoor trampoline. The inner space is full of circular elements, pursuing dynamic. Because the wall is the original structure, the daylighting is mostly considered by skylights and atriums.



Render A



Render B



Render C

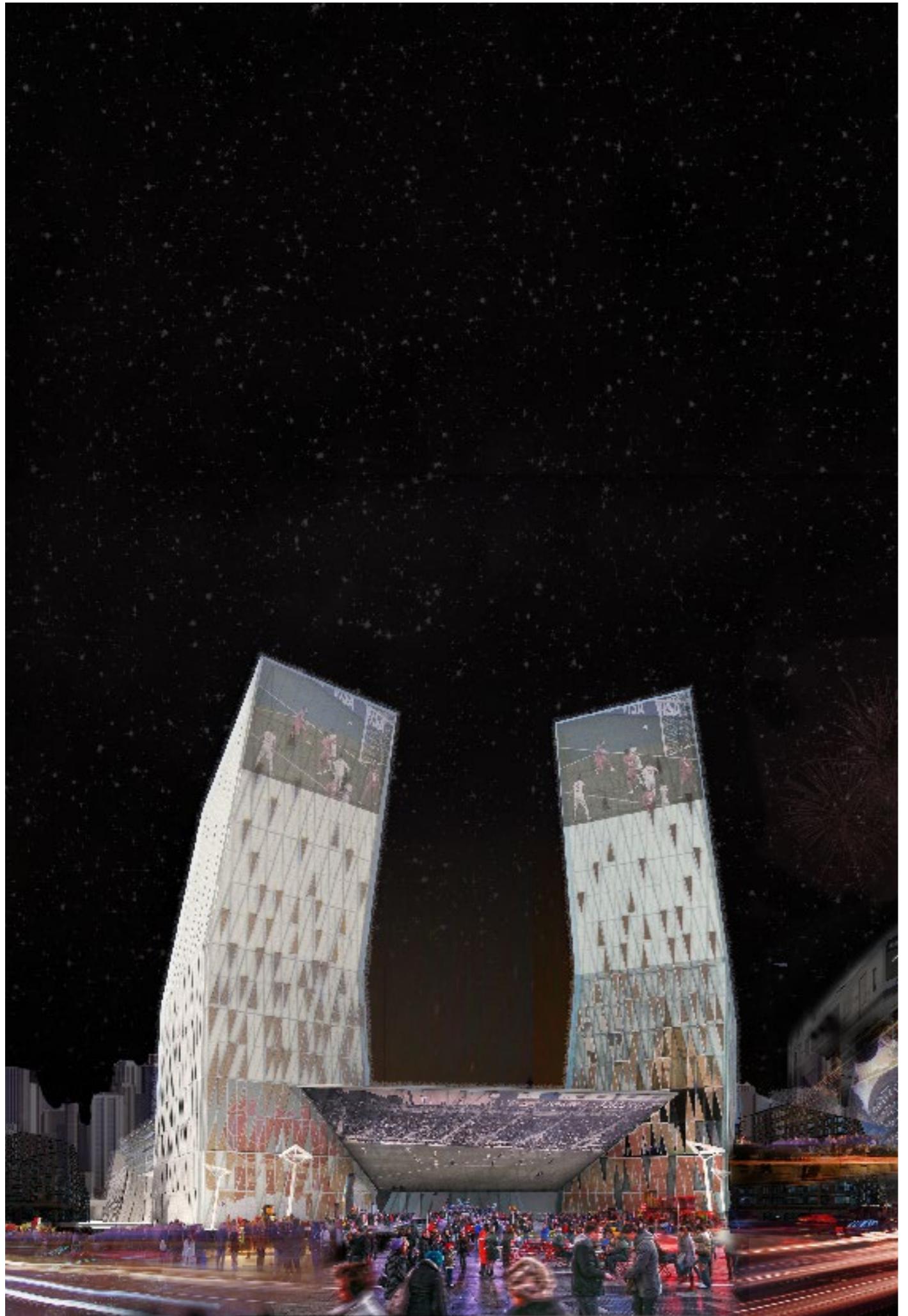
5

FIFA PARK Mixed Use Complex

Date : Feb-Jun,2019 Semester-long
Location: Shanghai, China

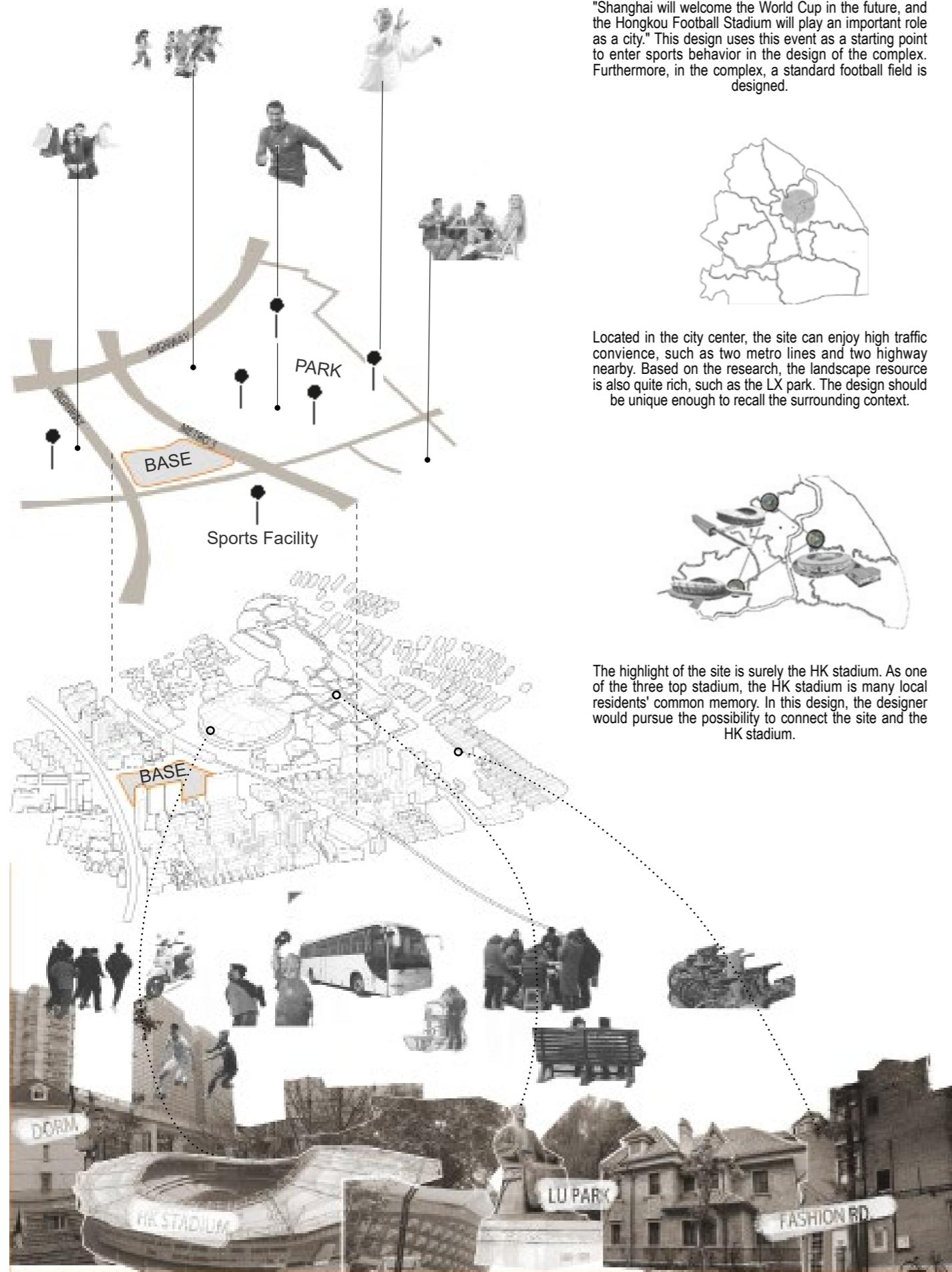
Instructor:Hao Wang
Type: Academic

New Urban Complex Design
Solo Work 100%



Shanghai is very likely to welcome the World Cup in the future, and the Hongkou Football Stadium will play an important role as a city. This design uses this event as a conceptual starting point and enters the theme of football sports in the design of the complex. That is, in this case, a standard football field is designed.

New Urban Complex: Master Plan + Mix Use + Soccer Theme



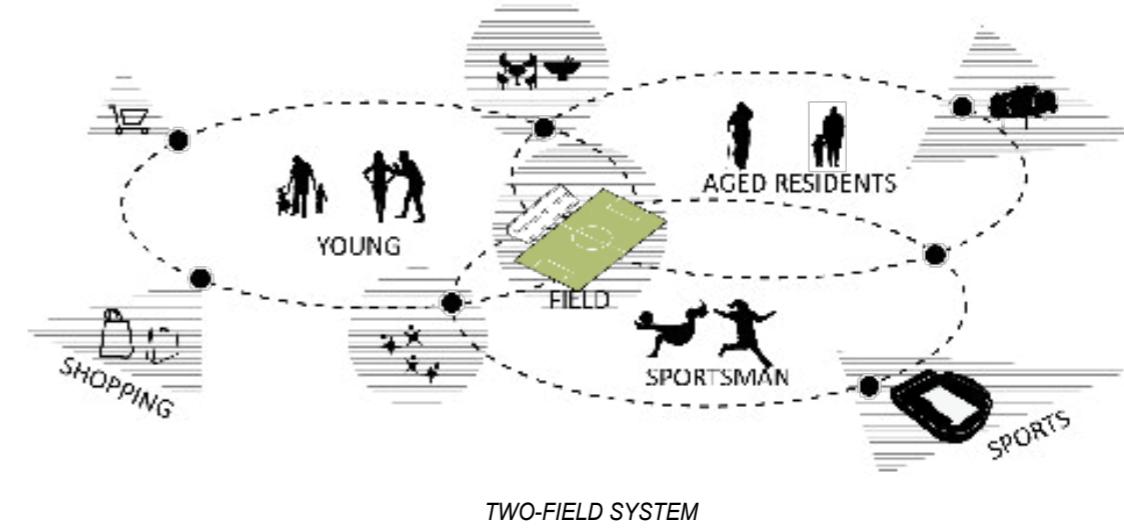
"Shanghai will welcome the World Cup in the future, and the Hongkou Football Stadium will play an important role as a city." This design uses this event as a starting point to enter sports behavior in the design of the complex. Furthermore, in the complex, a standard football field is designed.



Located in the city center, the site can enjoy high traffic convenience, such as two metro lines and two highway nearby. Based on the research, the landscape resource is also quite rich, such as the LX park. The design should be unique enough to recall the surrounding context.



The highlight of the site is surely the HK stadium. As one of the three top stadium, the HK stadium is many local residents' common memory. In this design, the designer would pursue the possibility to connect the site and the HK stadium.



FIFA sportsmen need actually two fields: TRAINING FIELD + COMPETITION FIELD.

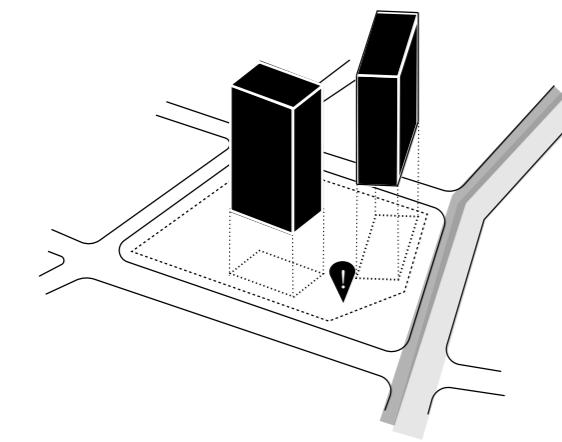
Two different roles: Training field for sportsmen &Leisure place for local people.



FIFA SPACE STUDY

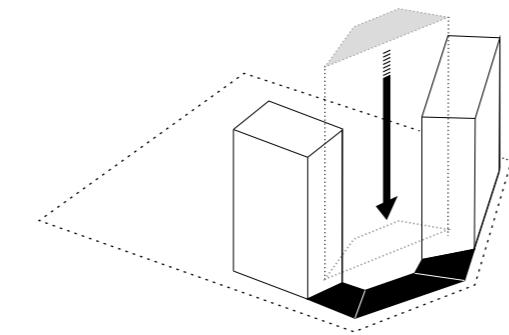
The football field can be used as a training venue when the World Cup is held. In normal times, it can be used as a venue for residents' sports activities or football teaching. In other commercial and office designs, the interaction between the fans' behavior into the complex after they leave the stadium-celebration, etc.-and the football field is taken into consideration.

DESIGN IDEA



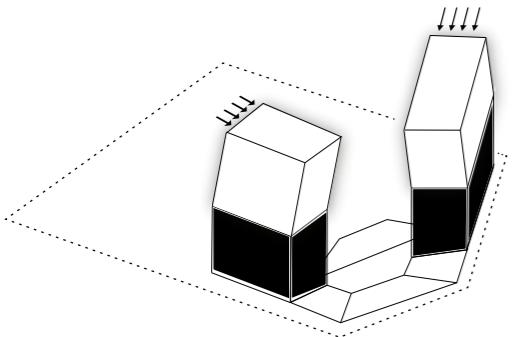
ENTRY IDEA

Two high towers form define the entrance, as the main source of people. This type of scene can be a famous tourist attraction in the city.



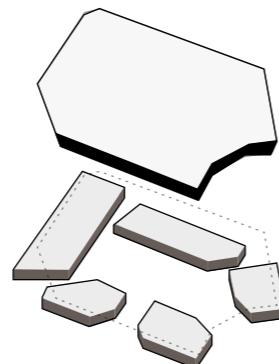
PARTY IDEA

The entry can naturally have a role of gathering soccer fans. Consequently, a large digital live screen is unique.



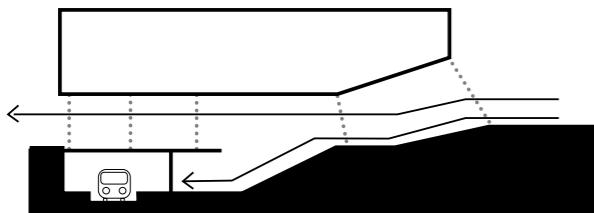
TOWER IDEA

The two high towers form define the entrance, as the main source of people



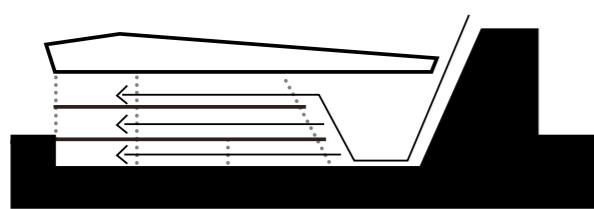
FIELD IDEA

The new soccer field just locates above the bottom shops, like several stones holding a large bowl.

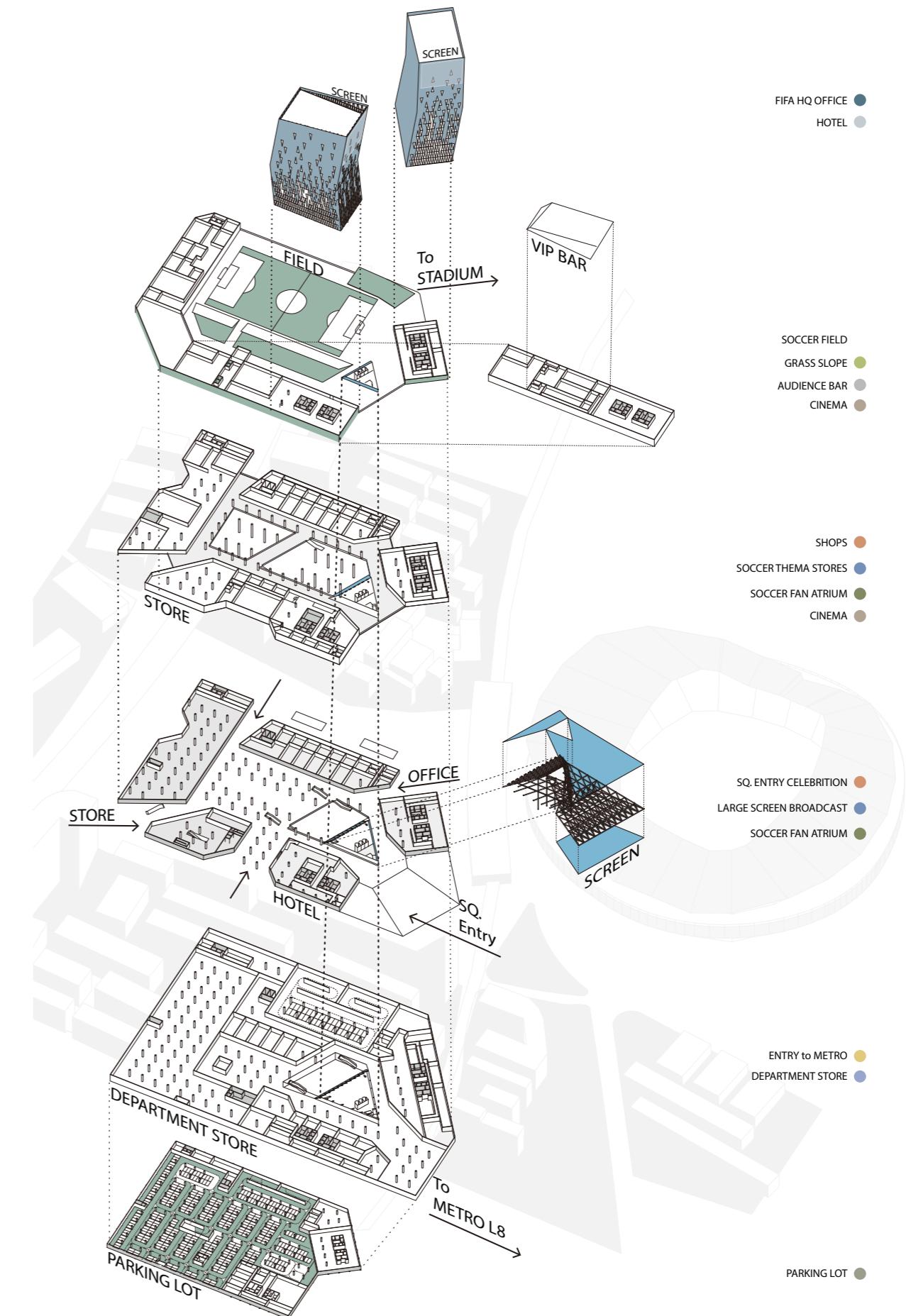


Entry Pit + Lighting Atrium

For the urban complex, the convinence towards the traffic is top important. Therefore, the ground floor goes down a little and the central atrium has a connection toward the underground. The triangle shape indeed becomes the motive of the whole project. The use of this advanced form is to gain a sense of movement, as the project is based on sports.



URBAN CONTEXT: Mixed Use + Multi-dimensional Response



FIELD & ENTRY DESIGN: Multi-group gathering space

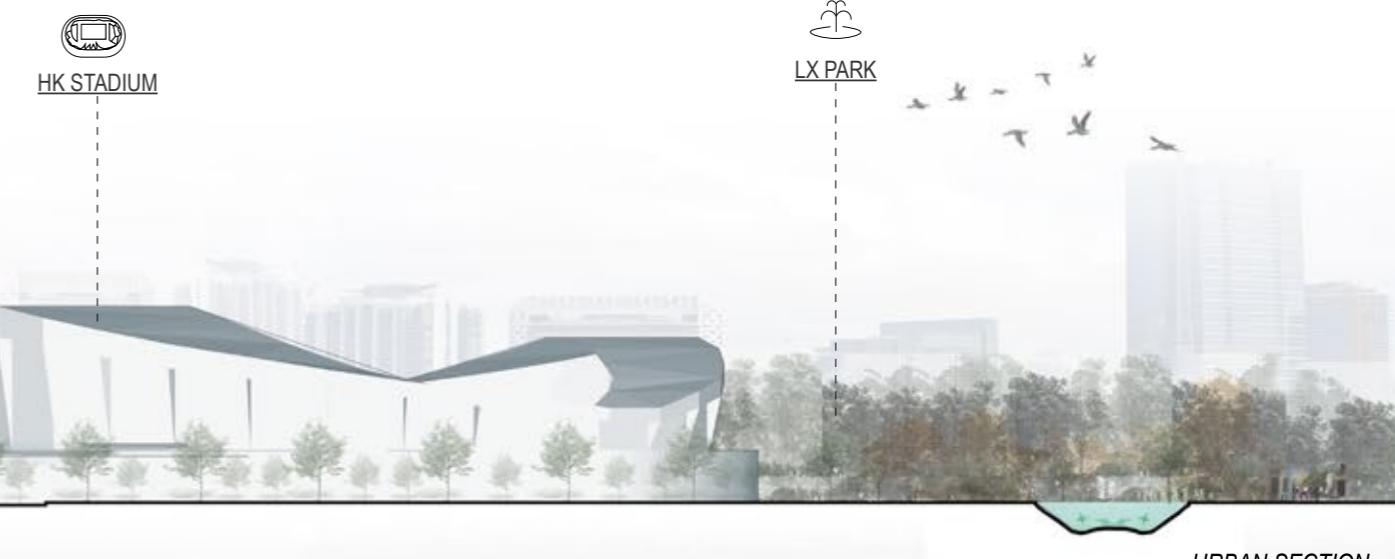
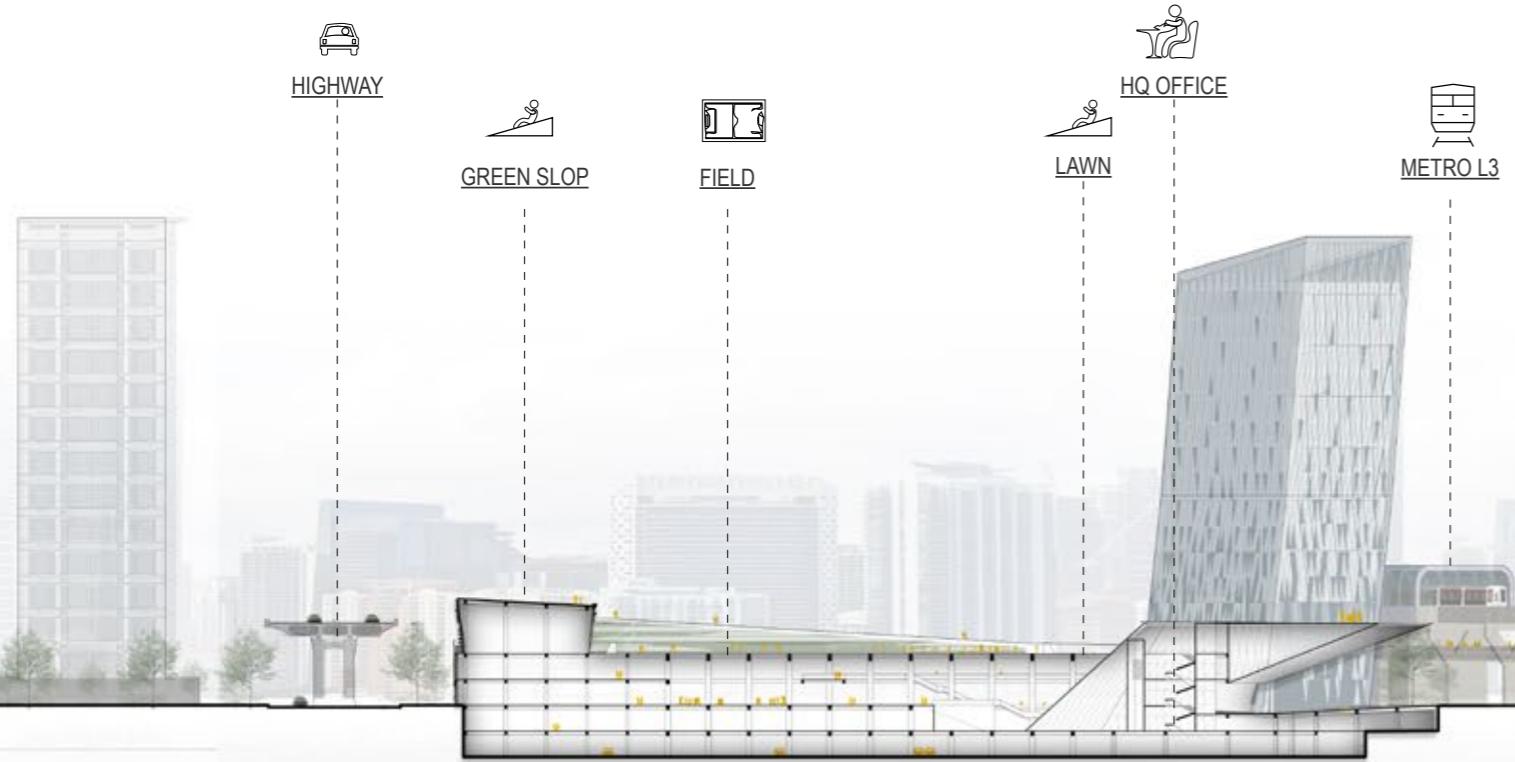
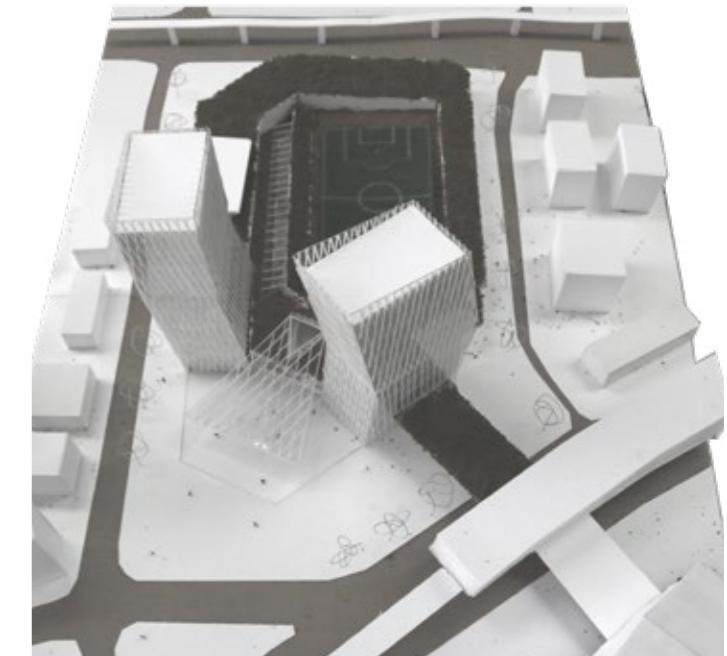
For this urban complex design project, the location of entry is quite obvious. The first reason is that the street corner is a natural place to guide the people, where the commercial value is highest. The second reason is that on the east of the site locate park and classical street. Nevertheless, the metro is also situated there. The entire design project seeks to find the connection between the stadium and the urban complex.



THIRD FLOOR RENDER



1:250 Model



URBAN SECTION

6

STITCHING Urban Design

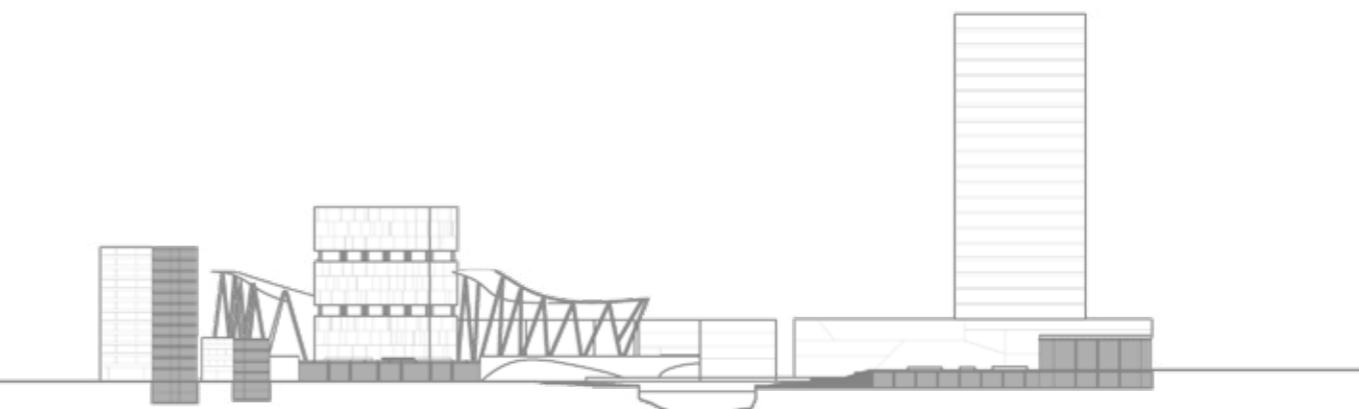
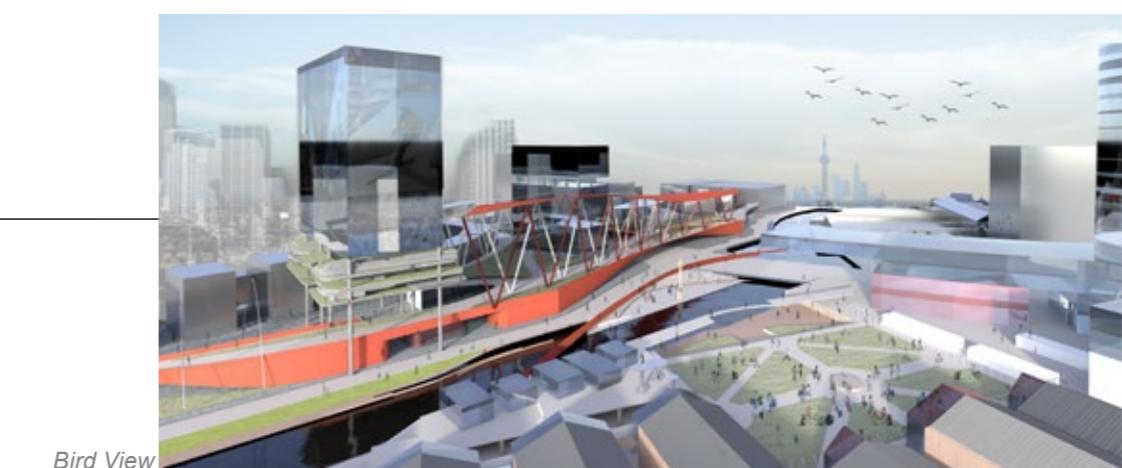
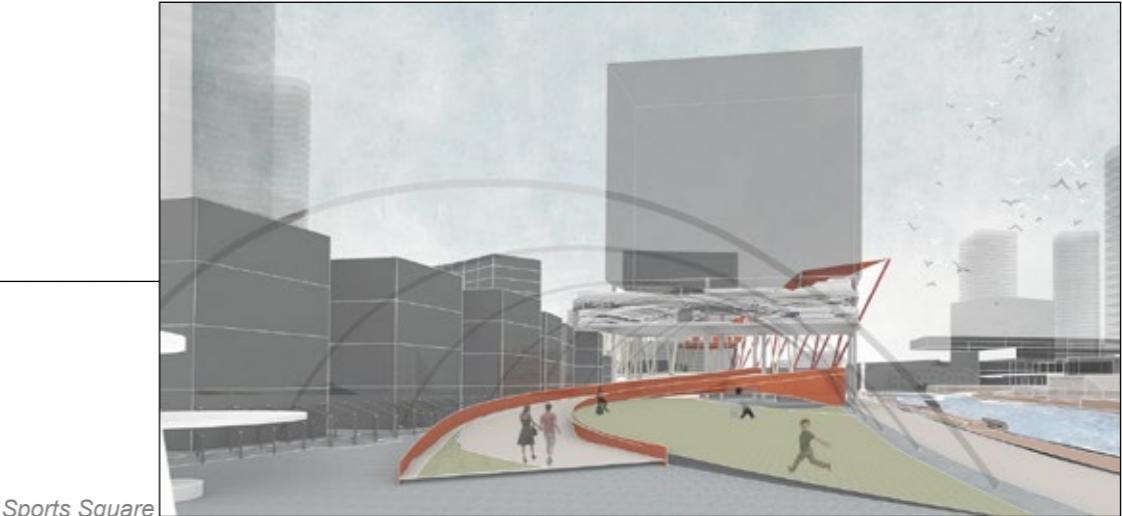
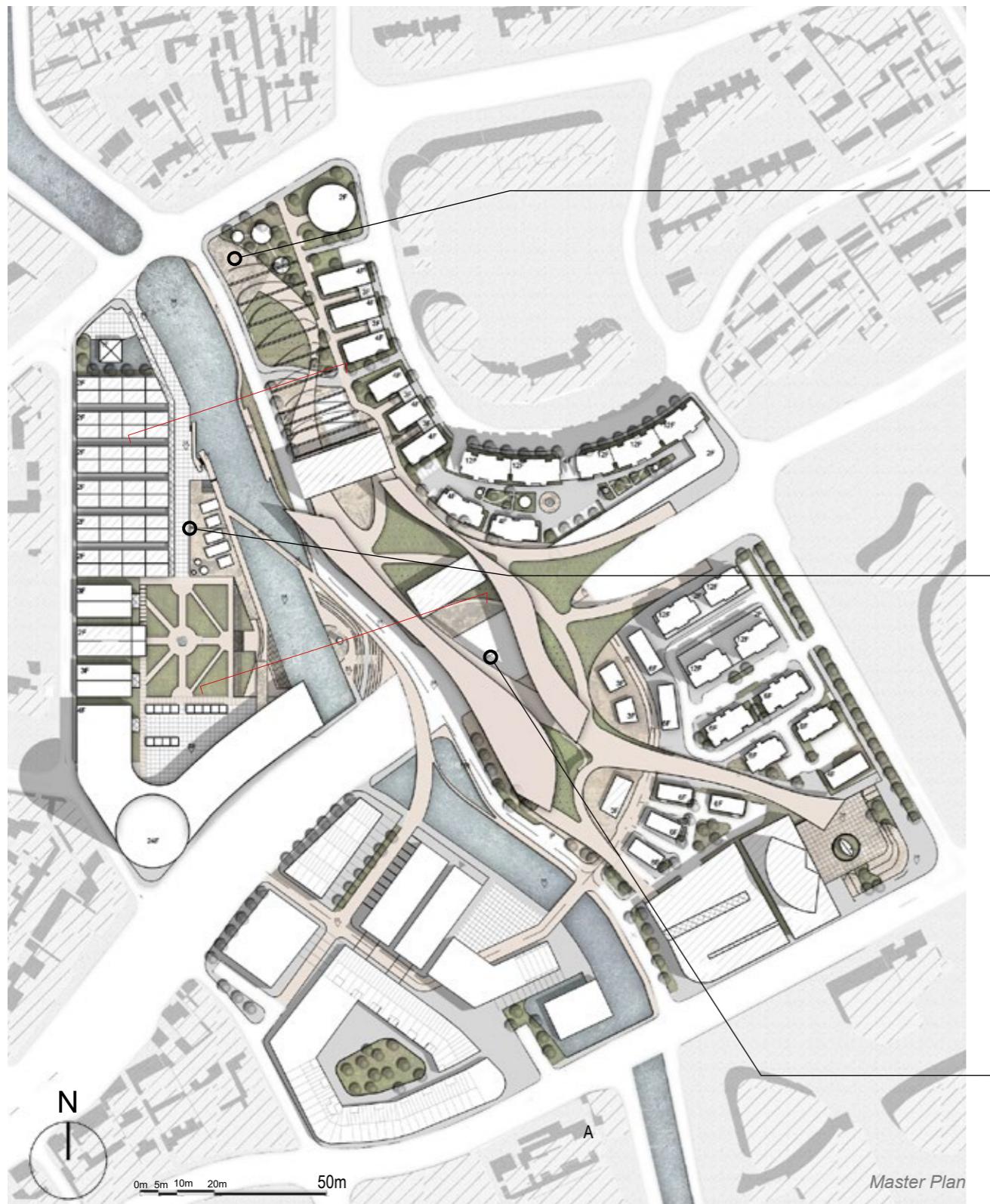
Date: Sep-Oct,2018, Half-Semester-long
Location:Near Bund, Shanghai, China

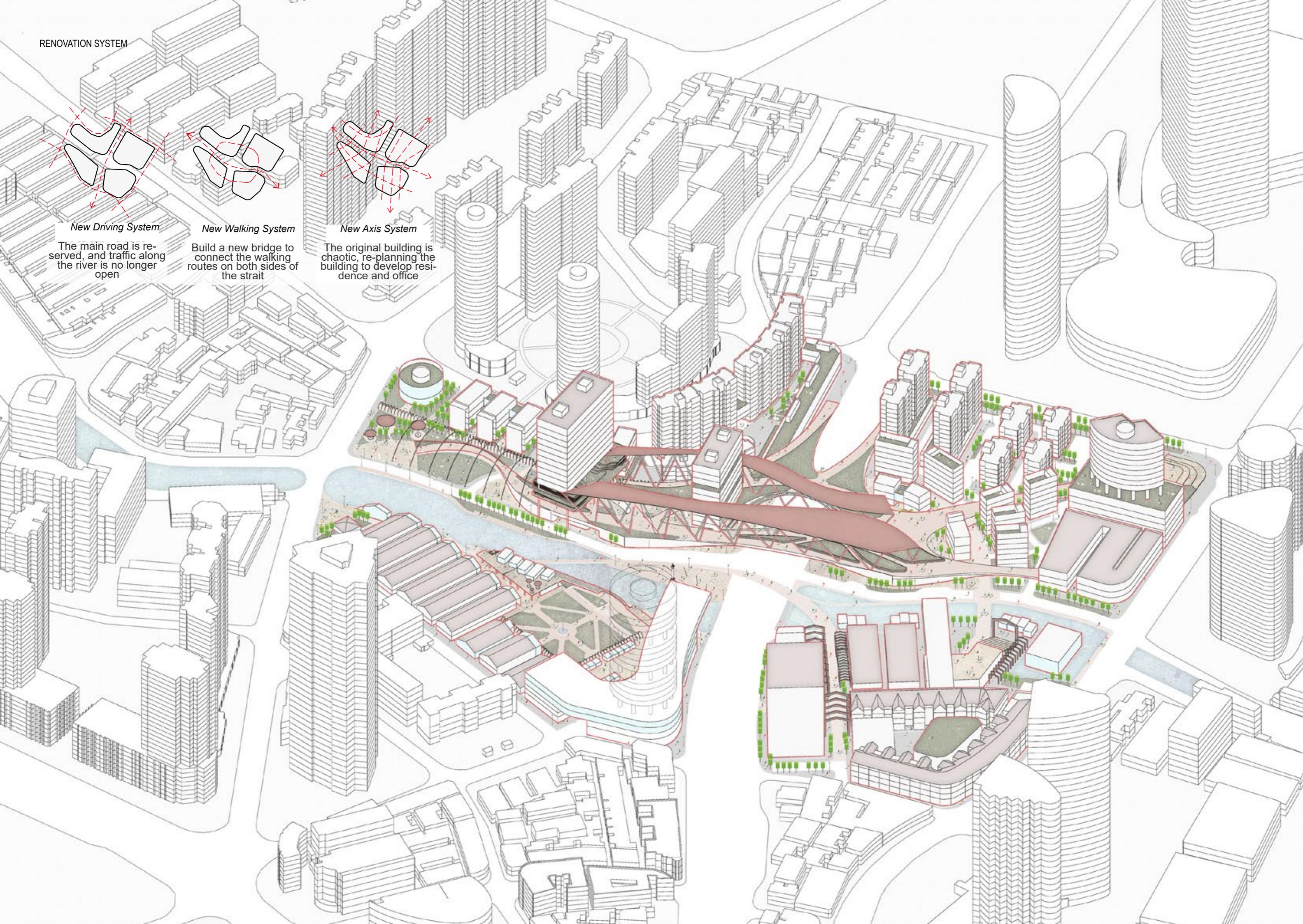
Instructor:Chunfang Dong
Type: Academic work

Team Work Two-person group work
My Role: Landscape + Bridge Design 50%



In order to optimize the street experience and repair the damaged urban texture, a large green island service resident across the road was designed. In line with the needs of the surrounding citizens, elite white-collar workers, and tourists, we also look to the future and think about the possible future forms of the region in Shanghai.



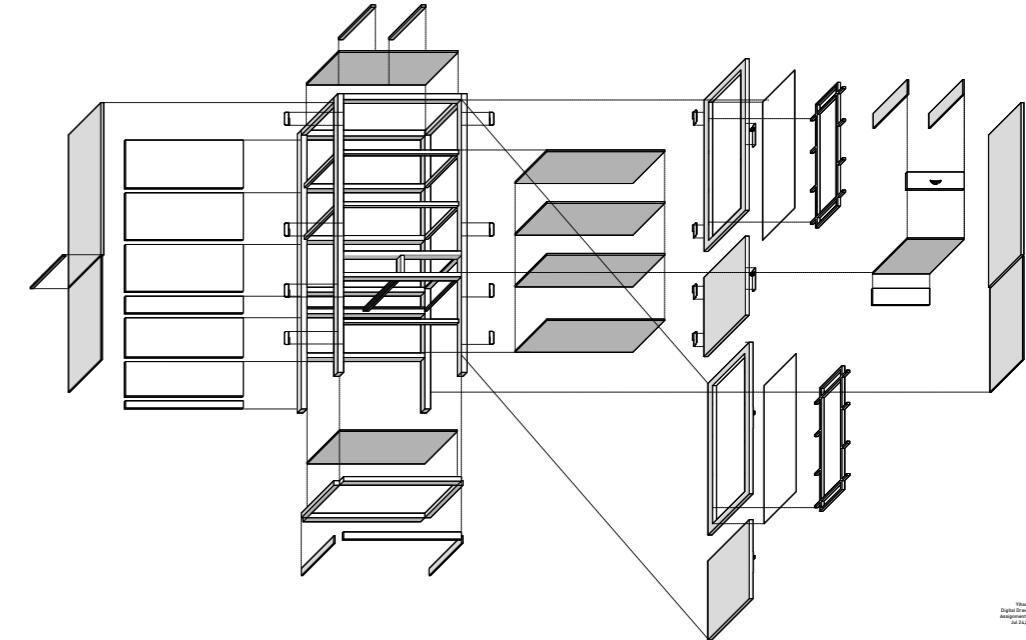
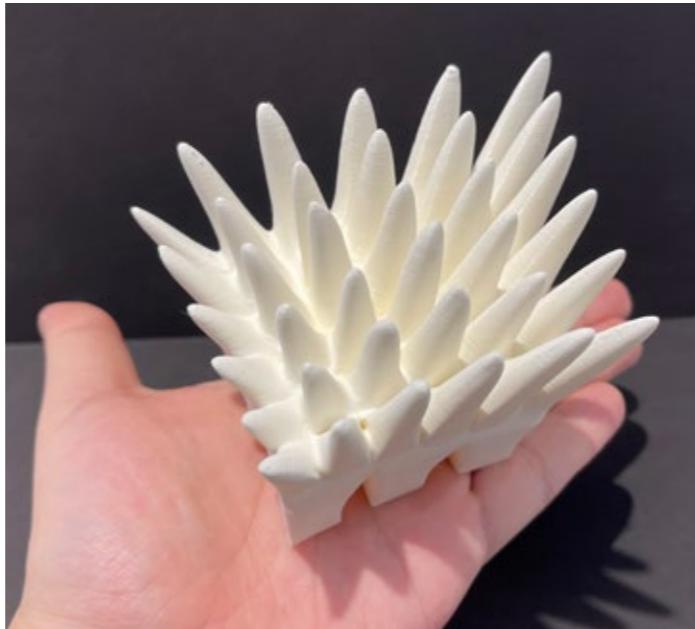


OTHER WORKS I: Professional Work



3D Print Bio Form Study

Date: Oct,2021
Location:RI,USA
Instructor:Bob Pavlik
Type: Personal Work



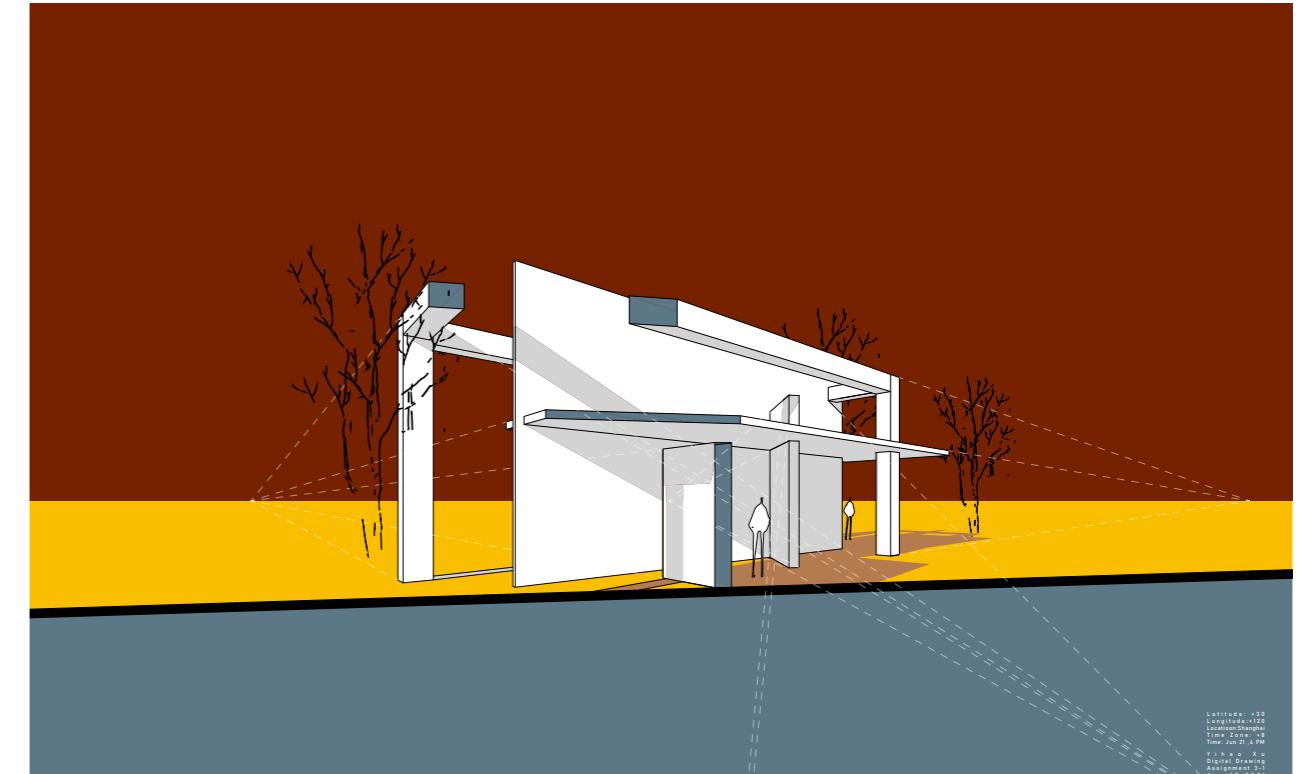
Digital Drawing Furniture Study

Date: Aug,2021
Location:RI,USA
Instructor:Rachal Stopka
Type: Personal Work



Making Plaster Form Study

Date: Aug,2021
Location:RI,USA
Instructor:Bob Pavlik
Type: Personal Work



Digital Drawing Viewpoint Study

Date: Aug,2021
Location:RI,USA
Instructor:Rachal Stopka
Type: Personal Work

View by
Digital Drawing
Assignment 3
and sketch

Latitude: +10
Longitude: -10
Location: Rhode Island
Time: Jun 21 4 PM
Y: h o o X: o
D: 100% A: 100%
Assignment 3:1
A: 100% S: 100%



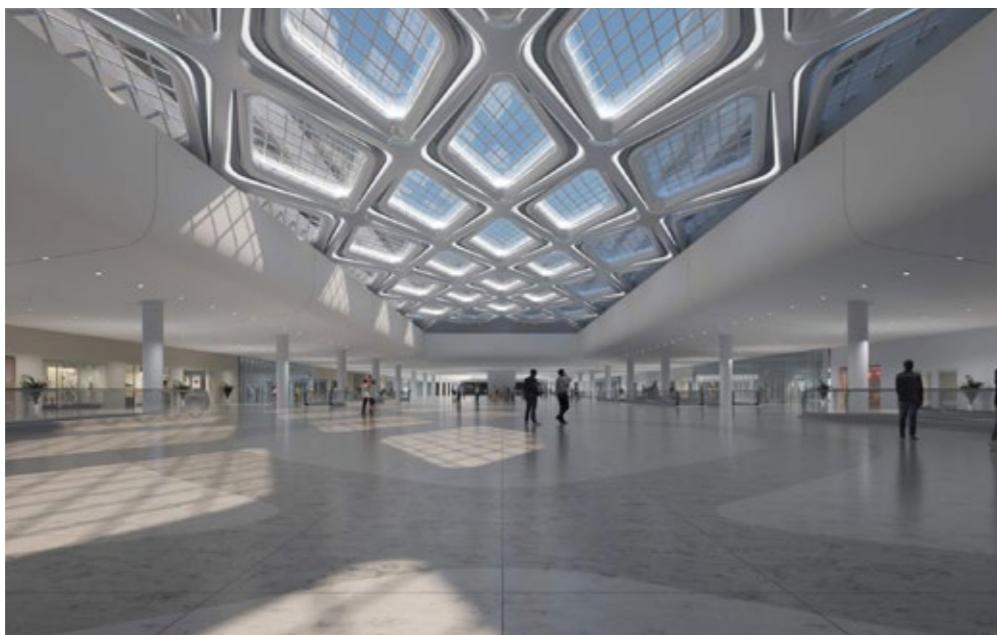
Interior Renovation of Terminal Building

Date: March-May,2021
Location:Shanghai,China
Instructor:Paulo (ECADI)
Type: Professional Group Work
Office Building Interior Part 70%
Responsibility: Design Interior,Model



Parking Building Design

Date: March-May,2020
Location:Guangxi,China
Instructor:Paulo (ECADI)
Type: Professional Group Work
Office Building Interior Part 30%
Responsibility: Design Interior,Model GH



Hangzhou Airport GTC

Date : Aug-Oct,2020
Location:Shanghai,China
Instructor:Paulo (ECADI)
Type: Professional Group Work
Office Building Interior Part 70%
Responsibility: Design Interior,Model



Interior Renovation of Aging Nursing Building

Date : Aug-Oct,2020
Location:Shanghai,China
Instructor:Paulo (ECADI)
Type: Professional Group Work
Office Building Interior Part 80%
Responsibility: Design Interior,Model



Interior Renovation of Terminal Building

Date : Aug-Oct,2020
Location:Shanghai,China
Instructor:Paulo (ECADI)
Type: Professional Group Work
Office Building Interior Part 70%
Responsibility: Design Interior,Model



Dong Hospital

Date : Aug-Oct,2020
Location:Guangxi,China
Instructor:Paulo (ECADI)
Type: Professional Group Work
Office Building Interior Part 30%
Responsibility: Design Interior,Model GH



West East Park

Date: Jun,2019, three-month long
Location:Zhuhai,China
Instructor:Jiaqi Hu (KFS)
Type: Professional Team Work
Urban Complex
Theater & 70%
Hotel Elevation with GH 70%
Responsibility: Elevation Design, Model



Lu Neng Office

Date: Aug,2019, one-month-long
Location:Shandong,China
Instructor:Jiaqi Hu (KFS)
Type: Professional Team Work(70%)
Office Building
Responsibility: Design the building in photo,Model

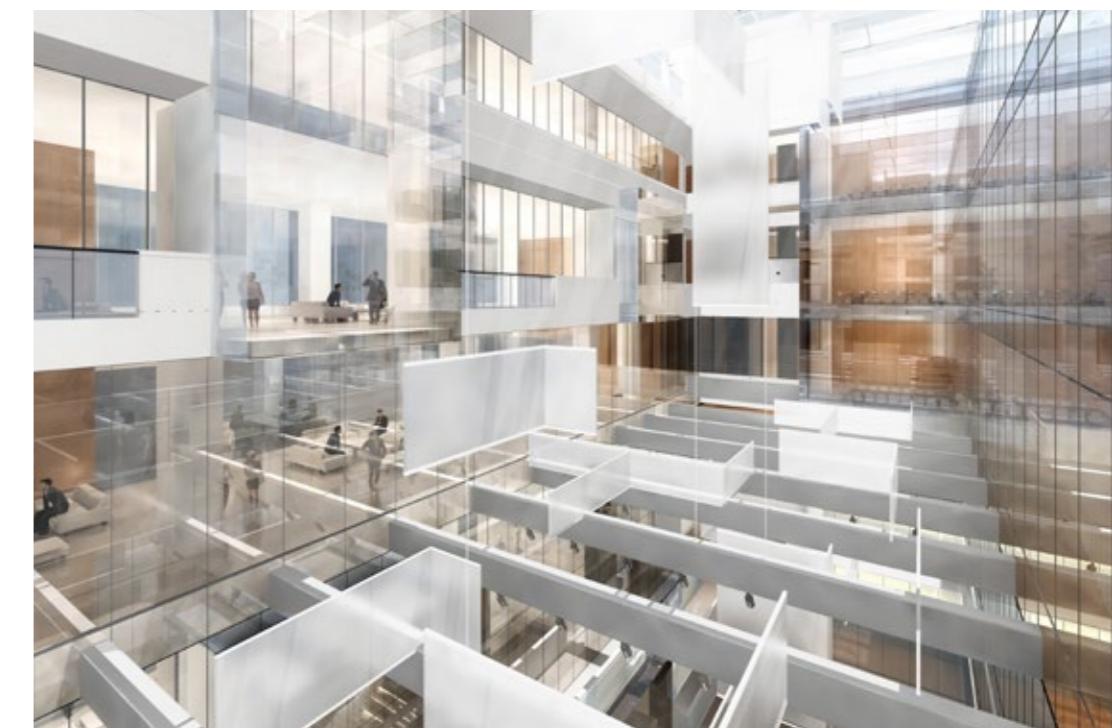
Metro Complex

Date: Jul,2019, two-month long
Location:Zhuhai,China
Instructor:Jiaqi Hu (KFS)
Type: Professional Team Work
Role: Modeling the resident tower 30%



Sales Center

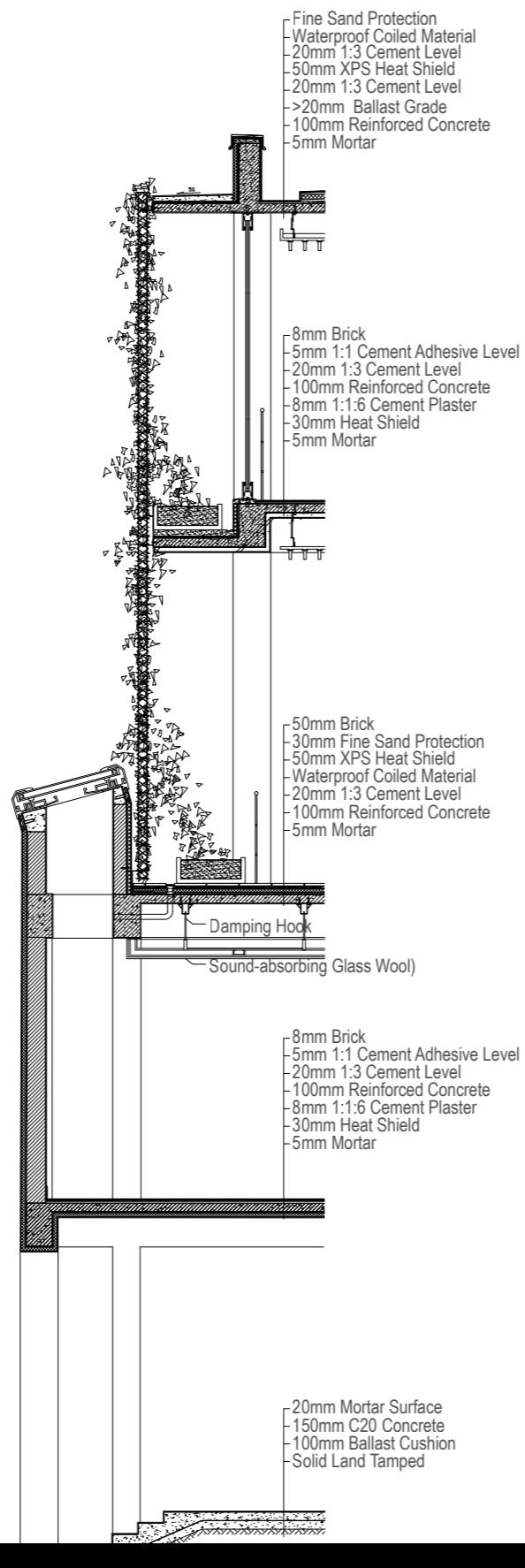
Date: Aug-Oct,2020
Location:Shanghai,China
Instructor:Paulo (ECADI)
Type: Professional Group Work
Office Building Interior Part 80%
Responsibility: Design Interior,Model



Interior Renovation of Terminal Building

Date: Aug-Oct,2020
Location:Shanghai,China
Instructor:Paulo (ECADI)
Type: Professional Group Work
Office Building Interior Part 70%
Responsibility: Design Interior,Model

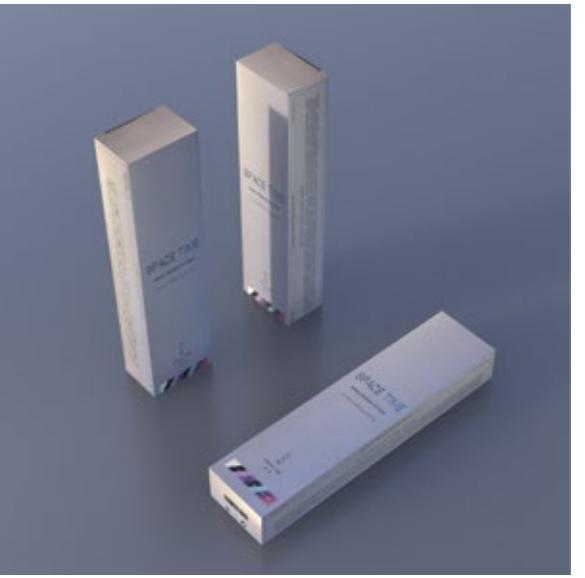
OTHER WORKS II: Detail Study



Elevation Study Part

Date: Sep-Dec,2016, semester-long
Location:Near TJ Uni, Shanghai, China
Instructor:Jian Zhou
Type: Academic Office Building
Solo Work 100%

OTHER WORKS III: Industrial Design



Industrial Design: Make Up Pipe Modeling

Date: Aug-Oct,2021
Location:Shanghai,China
Instructor:HU
Type: Professional Personal Work
Responsibility: Model



Industrial Design: Make Up Pipe Modeling

Date: Aug-Oct,2021
Location:Shanghai,China
Instructor:HU
Type: Professional Personal Work
Responsibility: Model