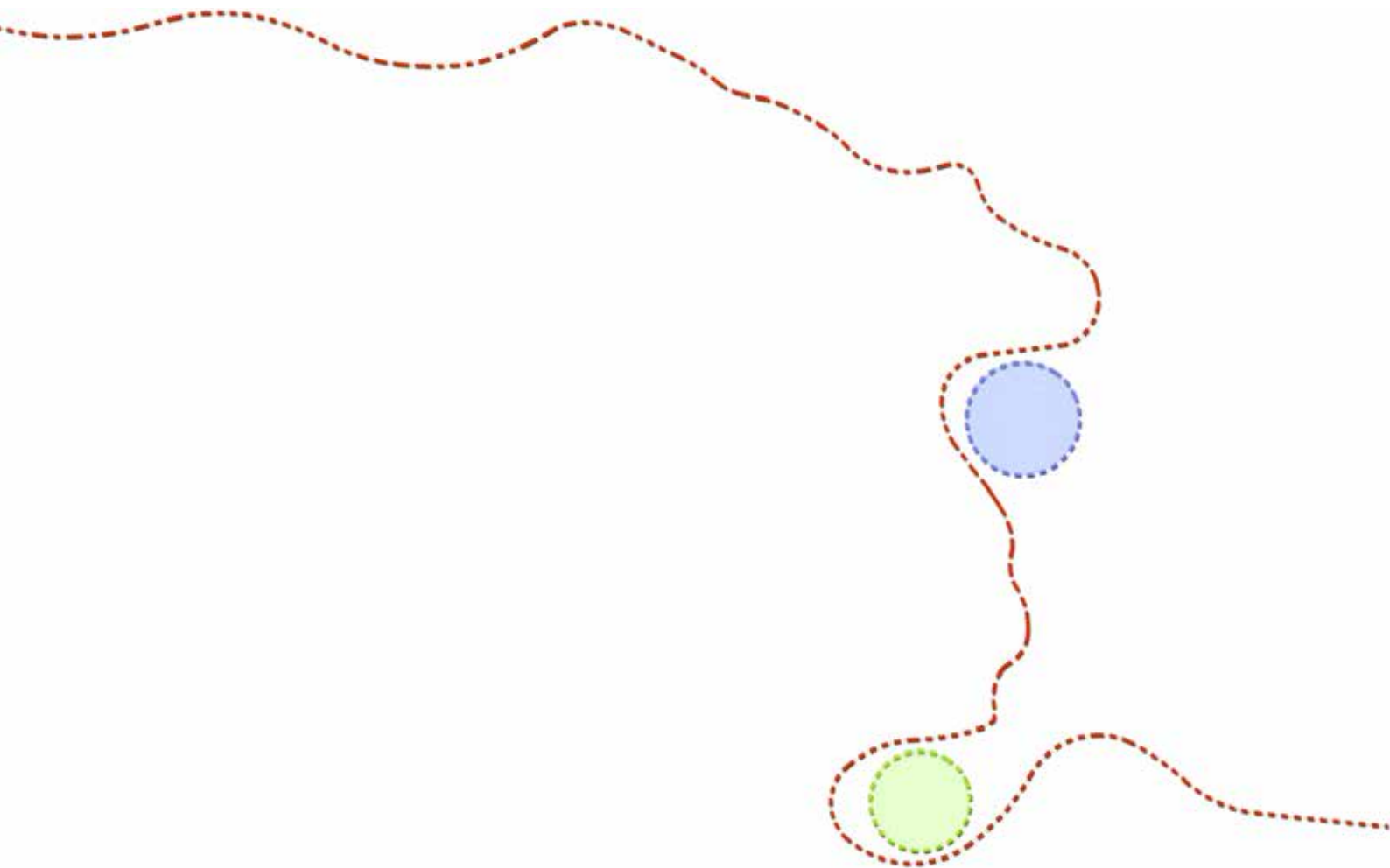


CAMPUS DESIGN -----

WUHAN UNIVERSITY, CHINA



AUTHOR: JING HUANG

INSTRUCTOR: REMO DORIGATI

FOREWORD

The design in Wuhan University is based on the research of the city history and culture, which takes urban transportation system and urban planning into consideration also, try to intergrate university with the neighboring residences, research and natural scenery together as a whole. The design strategy can be simplified as “two points and a line”, which has significance not only for university but also for the East Lake area and the whole city.

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INTRODUCTION

HISTORY OF WUHAN UNIVERSITY

The history of Wuhan University can be traced back to Ziqiang Institute, which was founded in 1893 by Zhang Zhidong, the then governor of Hubei Province and Hunan Province in the late Qing Dynasty. In the process of development and evolution, the institute changed its name several times before it was finally named Wuhan National University in 1928. It is one of the earliest comprehensive national universities in modern China.

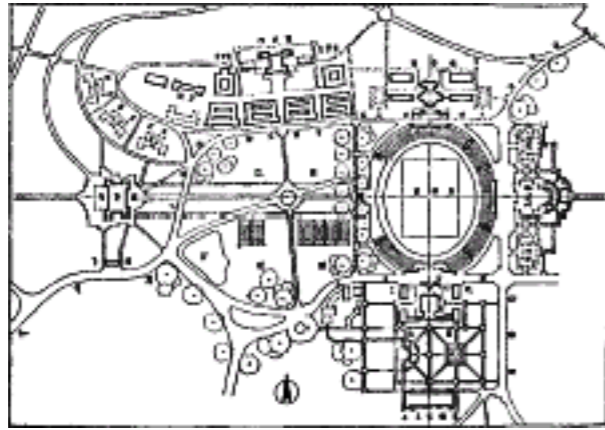
Wuhan University has a campus covering an area of 345ha and has a floor area of 2.56 square kilometers. The present location for the university was selected in 1923 according to the ideal model of foreign universities, as well as respecting the traditional idea of china academy “The wise delights in water, the benevolent delights in mountains.”



In 1923, the government appointed Li Siguang, who is an outstanding scholar dedicated on geology, to search a new location for Wuhan University. It is said when he was with his donkey together passing by Luoja Hill, the donkey was attracted by the amazing landscape and could not help moving more, then Li Siguang made the decision to choose this land as the campus for Wuhan University.

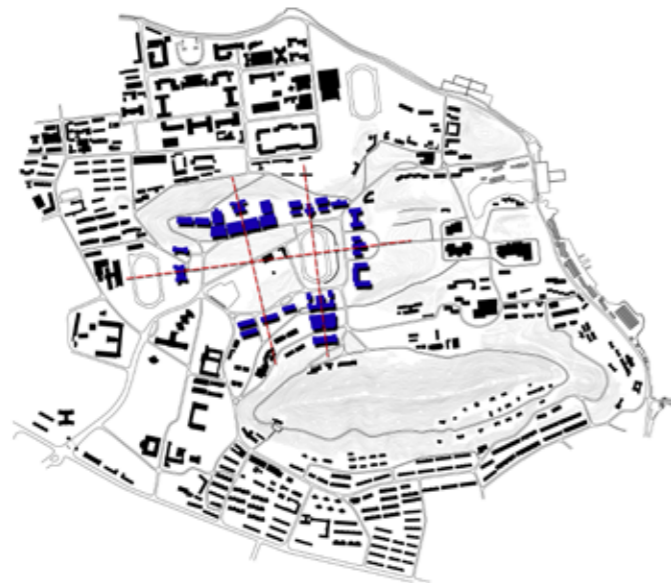


The early stage buildings in Wuhan University were planned by American architect F. H. Kales and constructed during the 30s of last century which included 26 buildings distributed in 15 different places. Kales planned the campus in the light of the natural topography and the request of modern education system together.



The center of the campus was designed with two groups of building which were organized according to two axes from south to north and one axis from west to east. Considering the north, east, south were all surrounded by the hills, the west was designed as Sport Ground while other sides were designed as academic buildings with respect to the geography.

Standing at the Shizi hill which is located at the north-west of the center, the East Lake is visible. While looking from the East Lake, the buildings standing upon the hill are visible as well, especially the library situated at the center of the peak which represents the spirit and image of Wuhan University.

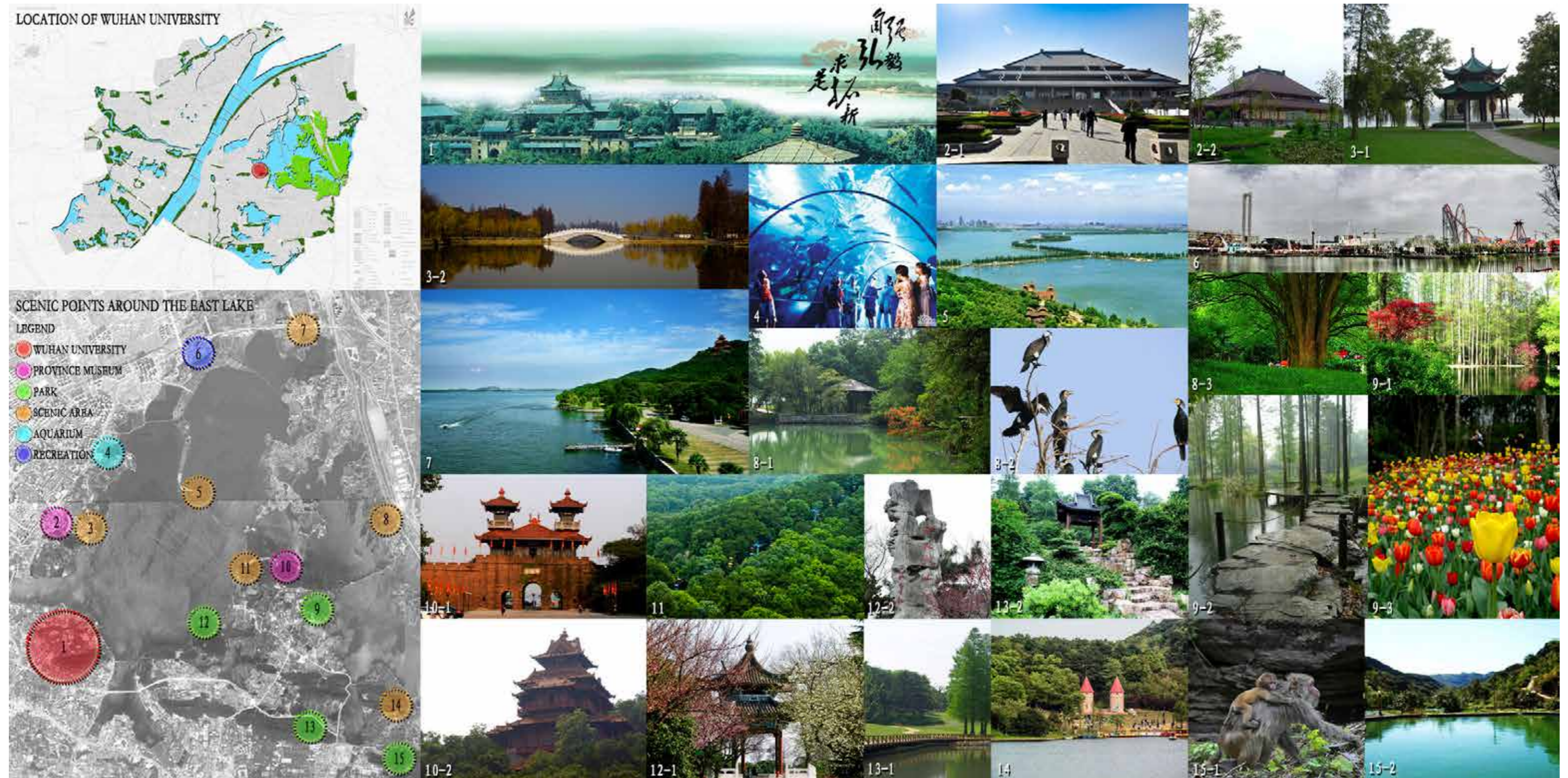


For the past century, Wuhan University has built an elegant palatial architectural complex of primitive simplicity which blends perfectly the eastern architectural style with that of the west. It is honored as the “Most Beautiful University in China.” In 1982, it was validated as “National Key Scenic Sites” in 1982 for its beautiful landscape in the campus. In 2001, in company with Tsinghua University and Beijing University, the early-age buildings in the campus were recognized as “Important heritage site under state protection”.



WUHAN UNIVERSITY AND THE EAST LAKE

Since Wuhan University was founded in the 30s of last century, it accelerated the city development around the East Lake, which gradually evolved into a fabulous scenic area. As a campus embracing two hills and adjacent to the lake, Wuhan University is a part of this “Natural Garden” as well.



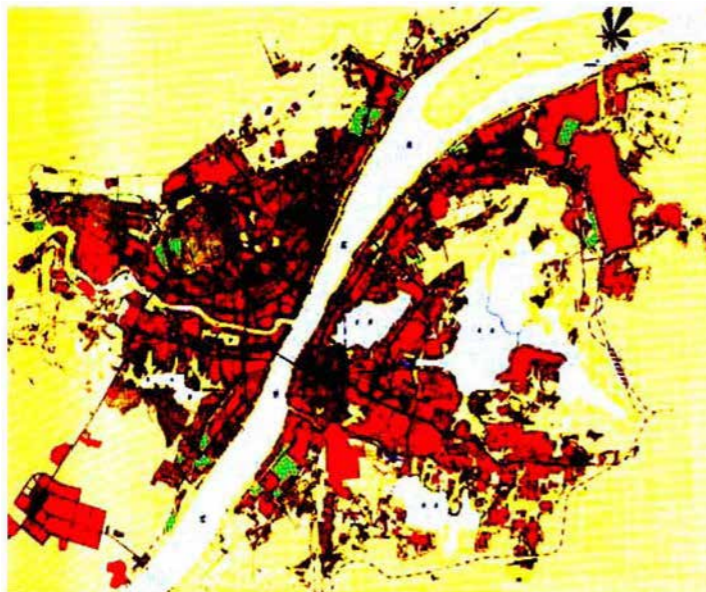
The distribution of scenic area around the East Lake

HISTORY OF WUHAN WITH ITS GEOGRAPHY AND NATURAL RESOURCES

Wuhan, which is the capital city of Hubei Province, was originated from around 4700 years ago. At the first beginning its developed slowly for the limitation of agricultural techniques and its geography, which was mostly occupied by mountains and waters. In the following years, as the handicraft was generated and Yantze River, which is the longest river in China and just passes by the city center of Wuhan, was used for transportation, trading became more and more popular, it enhanced the local development significantly. During this period, the local geography was not a negative factor anymore but turned to be positive. In the modern period, as railway and highway were built up, land transportation gradually replaced the water transportation, taking



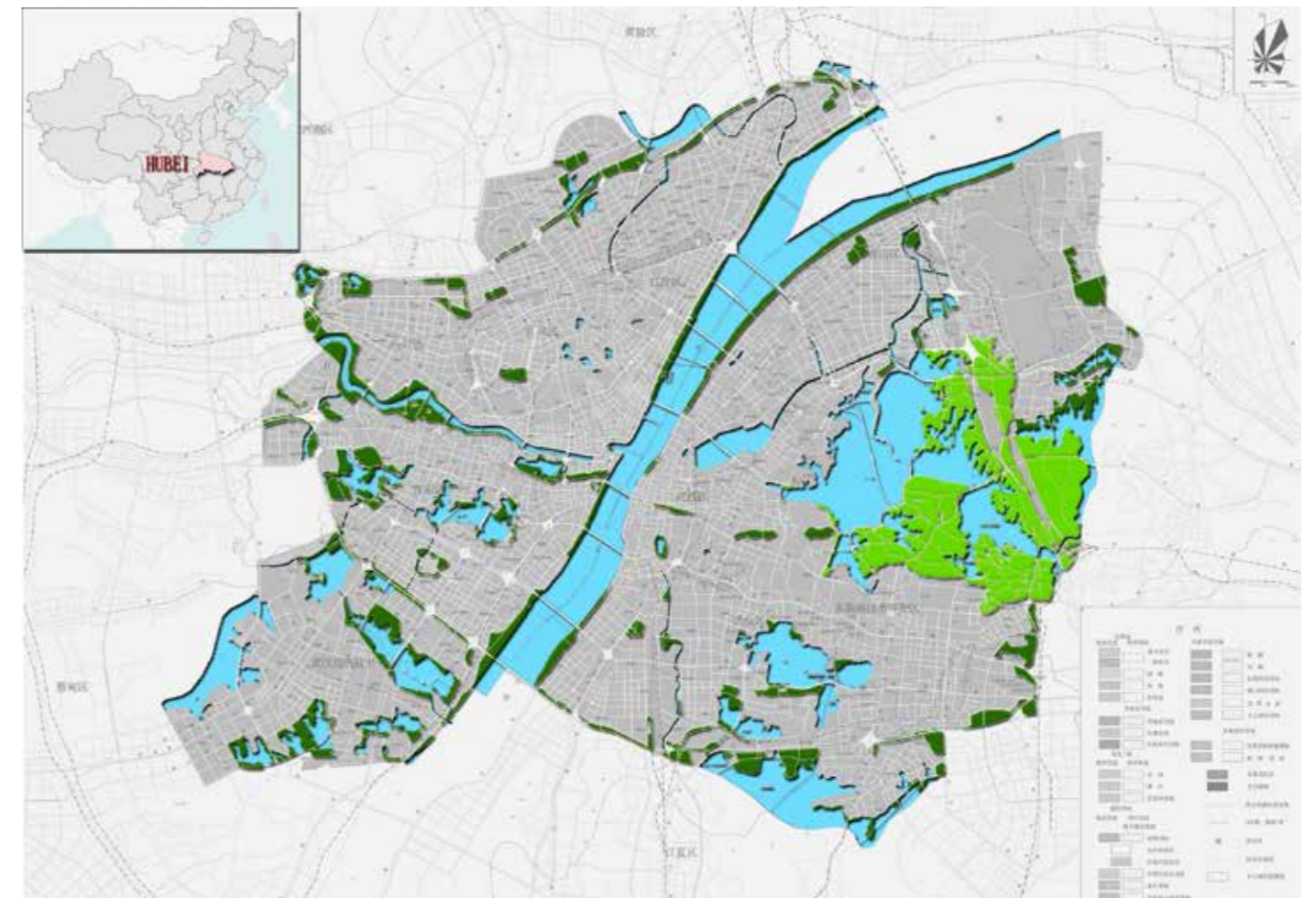
Wuhan in the year 1876



Wuhan in the year 1996

However, looking at the whole history of Wuhan, the city lakes played no role in the city development and were neglect in the Mordern time by urban planning, some lakes were even filled up in demand of large amount of constructions during this period.

Actually, Wuhan has a unique natural advantage. According to the record, there are totally 189 lakes in the city area, among them the biggest one “the East Lake” even covers 300ha, it is regarded as the biggest inner-city lake in China. Practically Wuhan is taken as the biggest city in China in term of proportion in water resource.



The distribution of water resources and mountains in Wuhan, Hubei Province

CITY DEVELOPMENT STRATEGY IN NOWADAYS

Water is the source of life. Since the ancient time China had tradition of choosing where “neighbored to mountain and water” as the place for developing a city. It was also reason why Wuhan initially formed and developed here.

Since 1990s the structure of industry in Wuhan started to transform, accompanying with the promotion of city comprehensive strength, government and investors progressively realized that natural resources have significant influence on establishing the city image, improving urban competitiveness and enhancing the city attraction... as city space is increasingly crowded and city air is polluted, the quality of life comes to an important position.

According to the Urban Master Plan, Wuhan strengthened the development and transformation of the waterfront areas. In light of the government’s demand of buiding “A Mountain-and-Water Garden City”, the East Lake area was firstly under operation --- all the roads around the lake were transformed, while the surrounding natural scenics and monuments were exploited and open to public.

Additionally, the government is implementing a new project now, what is named “Great East Lake Ecological Water Network Construction”. The project takes the East Lake as center, planning to connect it with Sha Lake, Yangchun Lake, Yanxi Lake, Yandong Lake and North Lake totally six lakes together as an entirety, and ultimately connects to the Yangtze River. With regards to this plan, 15.8 billions of RMB will be invested for building up a “Ecological Water and Wetland Network”, what combines all the water resources as a great unit!

As one of the top universities in China, and as an unique campus which neighbors to the East Lake as well as embodies two big hills inside, Wuhan University’s campus design is not only limited to its territory, but is connected to transformation of the East Lake area and transformation of the whole city.

WUHAN -----



A city rich in history and culture



A city rich in natural resources



A city rich in high-education and creativity



A city rich in information technology

WHAT IS THE ROLE OF WUHAN UNIVERSITY HERE

RESEARCH

THE DEVELOPMENT OF WUHAN UNIVERISTY IN RECENT DECADES

Since 1930s the new campus was settled, the scope of the university was expanding according to the request of increasing number of students. New academic buildings and dormitories were built up sequently.



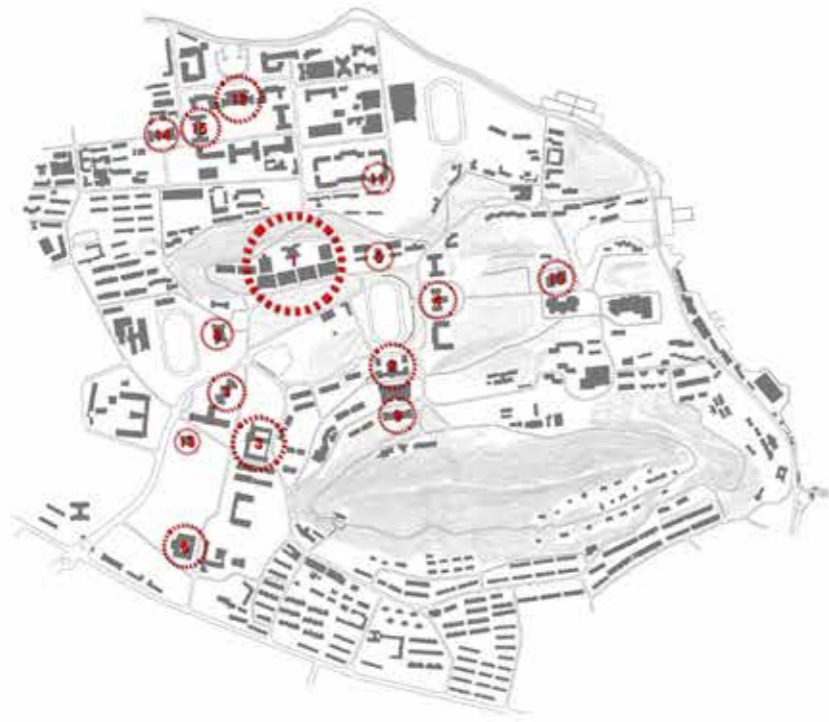
The typical traditional elements which were common used in the first stage buildings, such as green-color tile and big roof, were well kept in the later stage buildings; while landscape was designed with respect to the approach of traditional Chinese garden, which pursues the visual effect of being “free” and rich in variation.

Wuhan University is recognized as the most beautiful university in China for its splendid natural view. There are two big hills with rare protected plants and two lakes inside the campus. The early and middle age buildings were designed cautiously for coordinating with the diversified landscape and geography.

However, the buildings designed in recent years aourse concerns from the public.

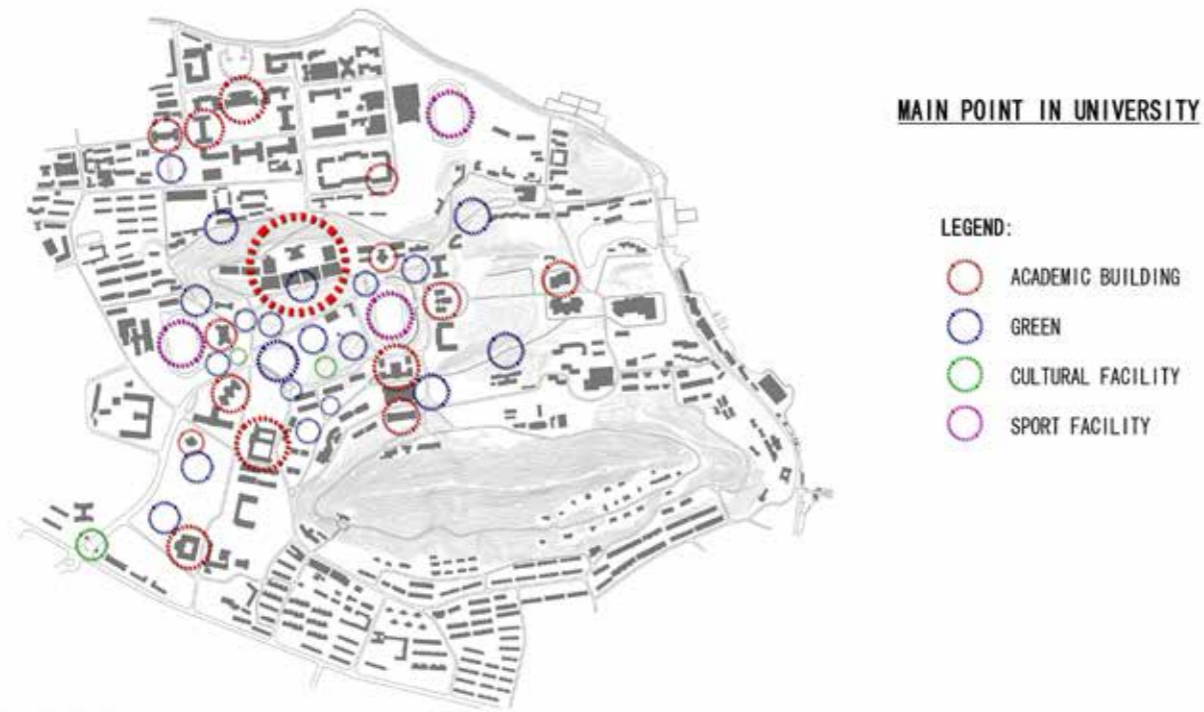


DISTRIBUTION OF MAIN TEACHING BUILDING AND OFFICE IN THE CAMPUS



DISTRIBUTION OF MAIN SCENES IN THE CAMPUS





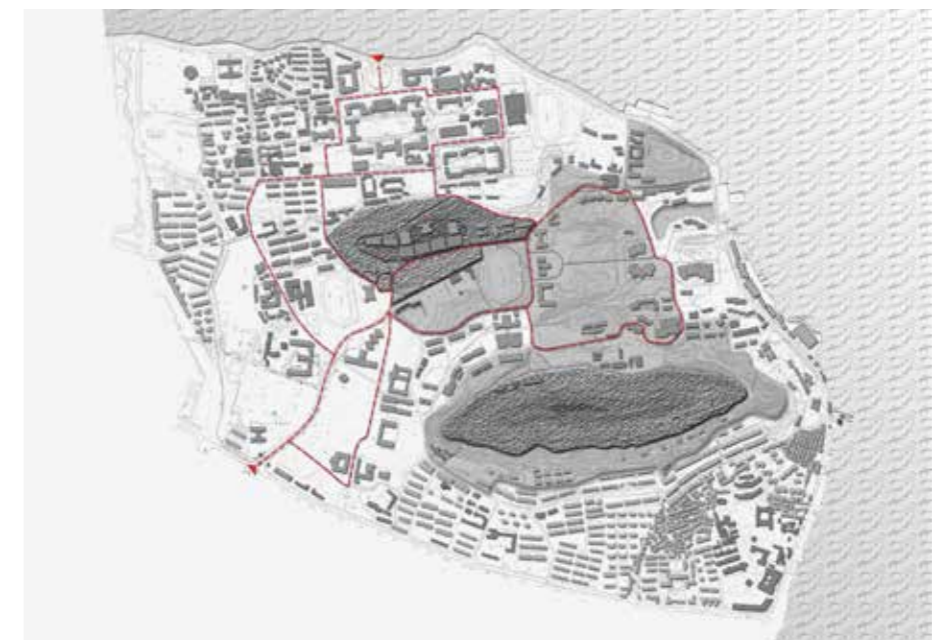
From the photo above we see that most of the main buildings and landscapes are distributed in the center of the campus, which were designed and built during the early and mid stages; while the new designed buildings and landscapes are distributed mainly in the north-west and north-east of the campus, which not only neglect the topography and natural resources of the location, but use the traditional building elements stiffly.



CAMPUS TERRITORY



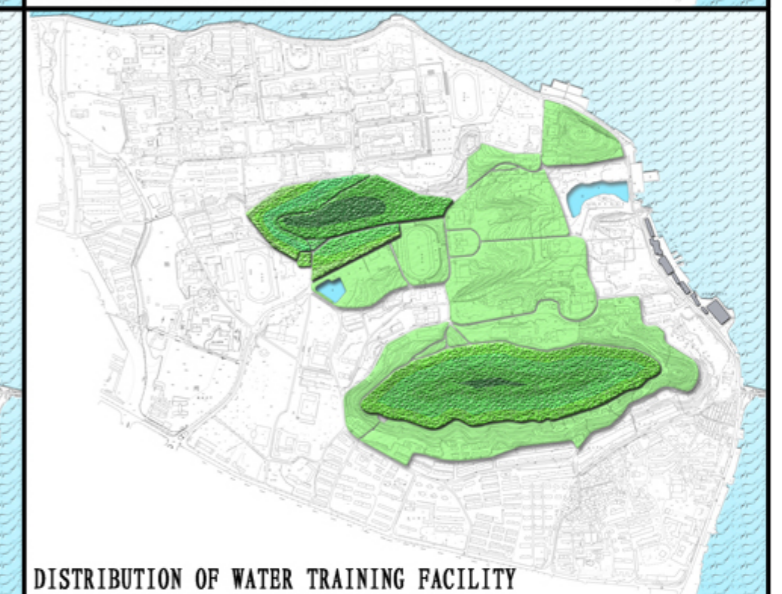
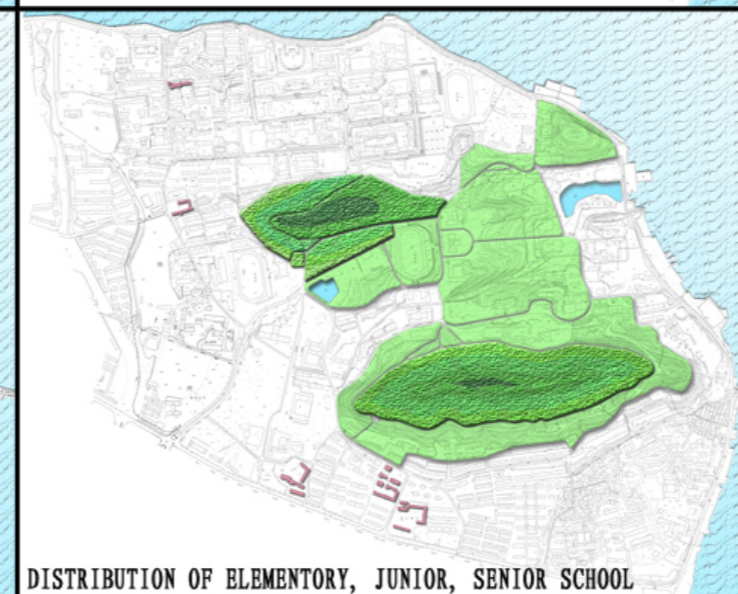
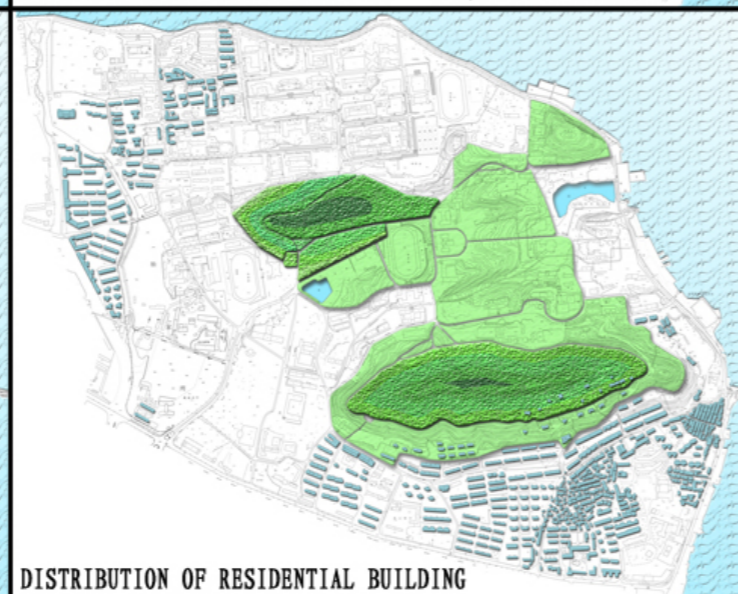
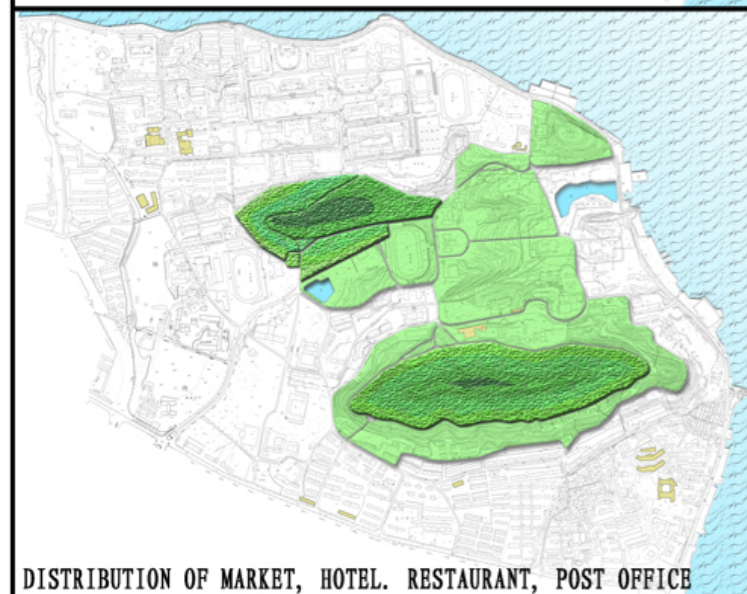
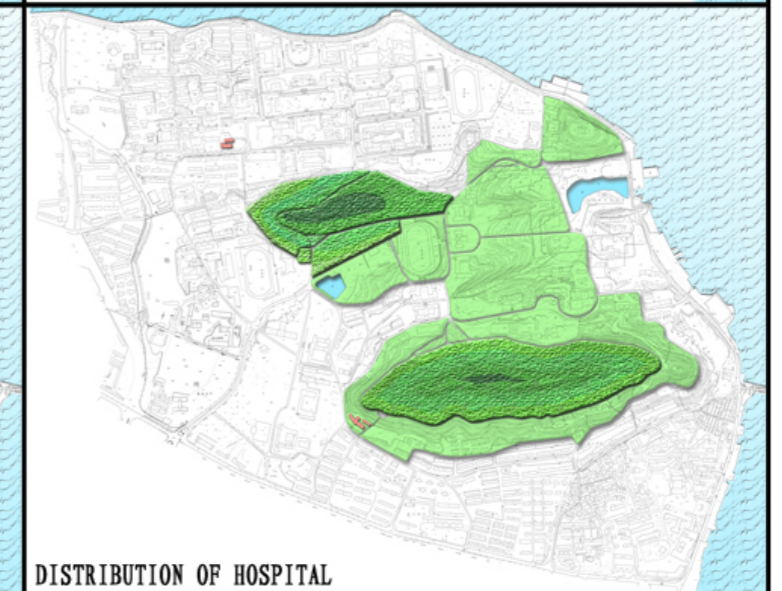
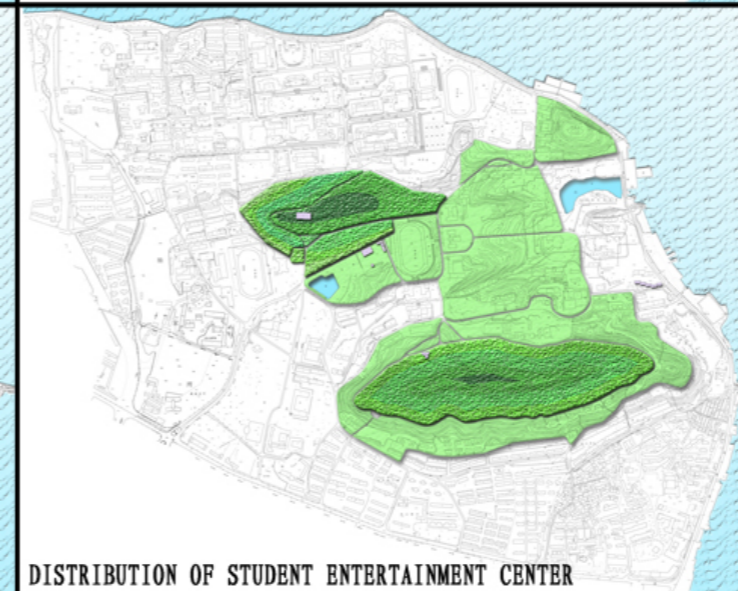
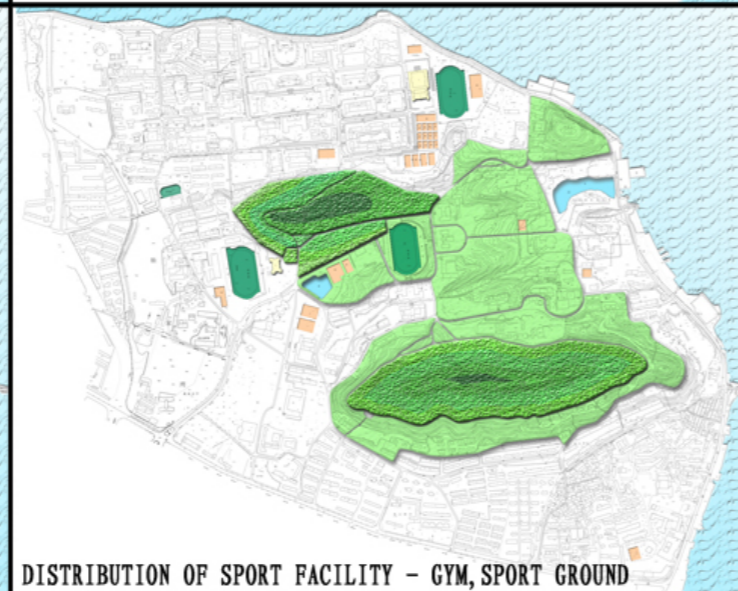
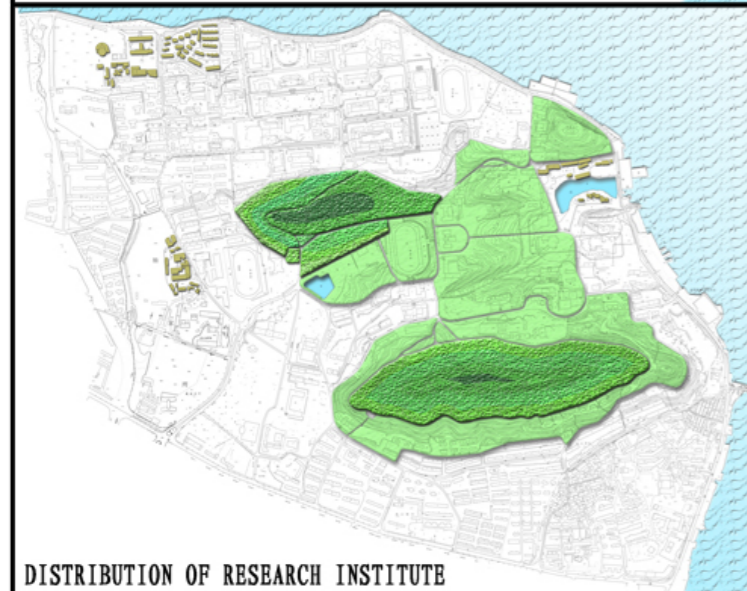
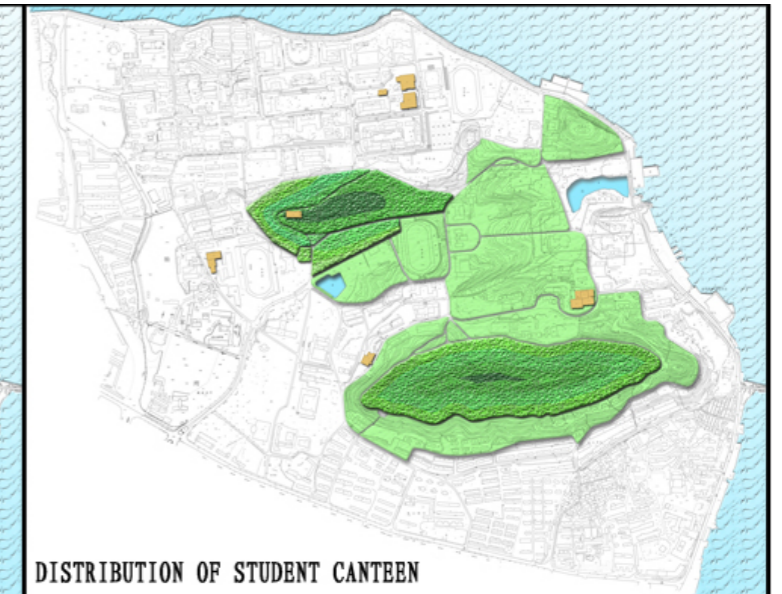
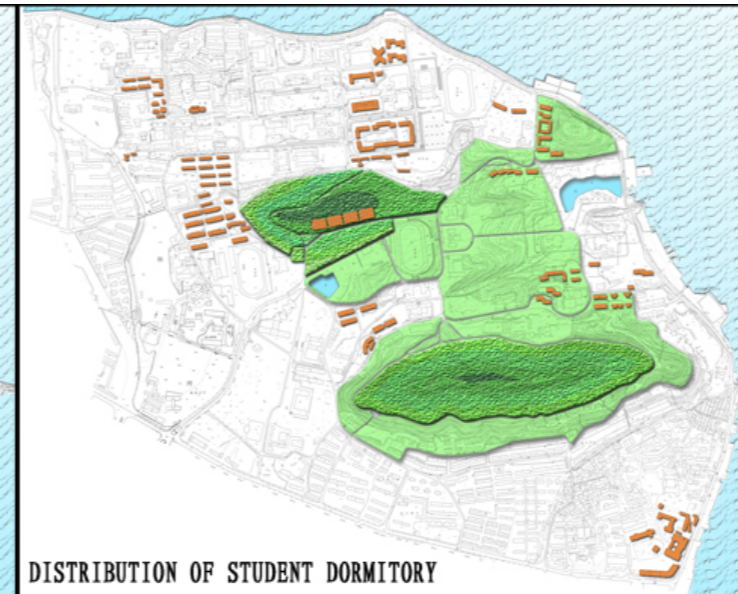
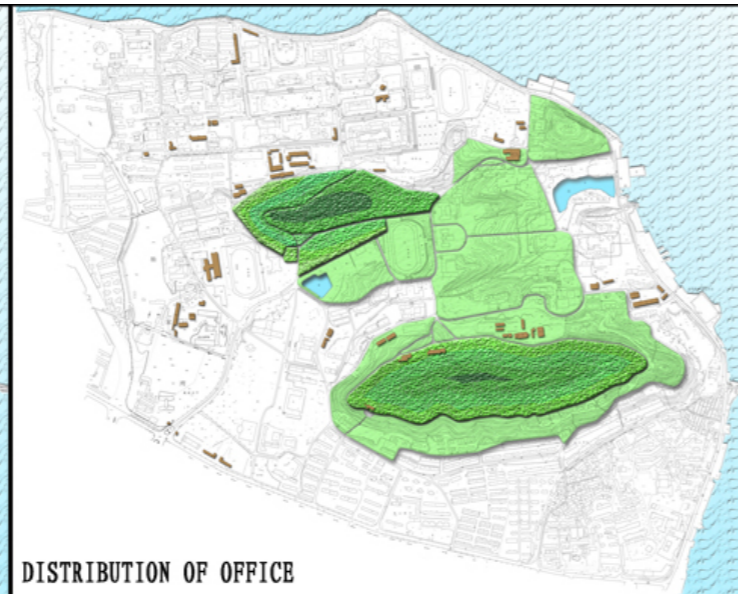
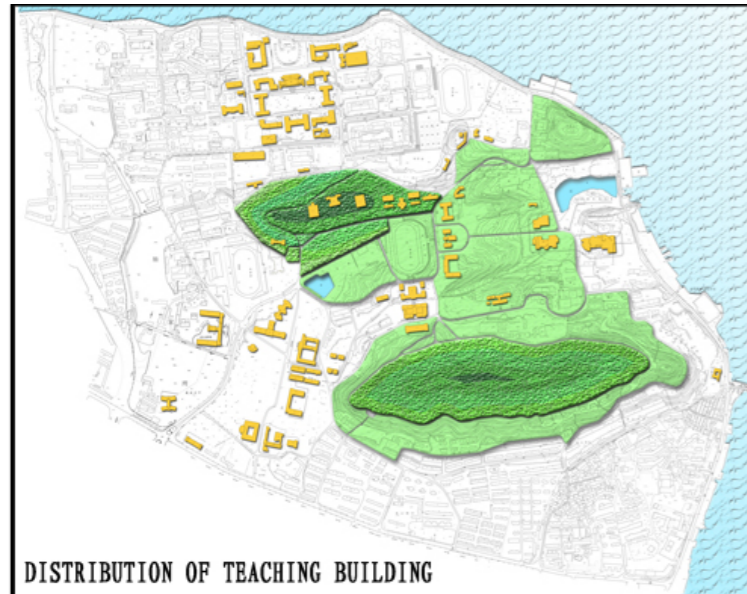
CAMPUS ENTRANCES



CAMPUS MAIN ROADS

DISTRIBUTION OF OTHER BUILDINGS AROUND THE CAMPUS

Except the teaching building and office, there are also student dormitory, canteen, sport facility, hospital, supermarket, post-office, residence and other auxiliary facilities distributed around the campus.



Generally speaking, the campus is divided into four functional zones:

- The residences are mainly located in the west and south-east of the campus;
- The research institutes are mainly located in the north of the campus;
- The teaching building, student dormitory, administration office, sport facility are mainly located in the center of the campus;



PROBLEM

From the graphs above we see that:

- There is no interaction between the campus and the East Lake;
- Four functional zones are relatively independent from each other, there is no interaction among them.
- Luojia Mountain is neglected by the public while the private villas are climbing up the peak wantonly ;
- There are only few auxiliary facilities dispersed around.

STRATEGY

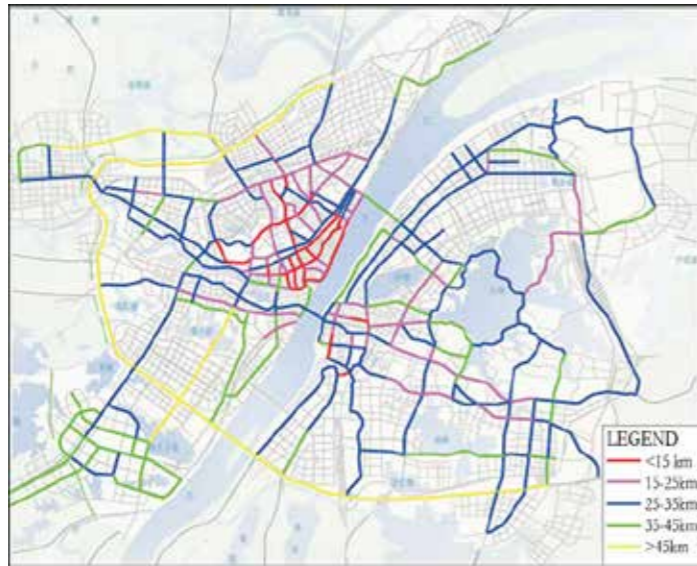


According to the problems above, a series of strategies are made for bettering the situation. Each strategy is not isolated from others but interacts with others or acts as prophase for other strategies.



CONNECTION BETWEEN THE CAMPUS AND THE EAST LAKE

The graphs below show the traffic speed and the traffic volume in Wuhan in the year 2011.



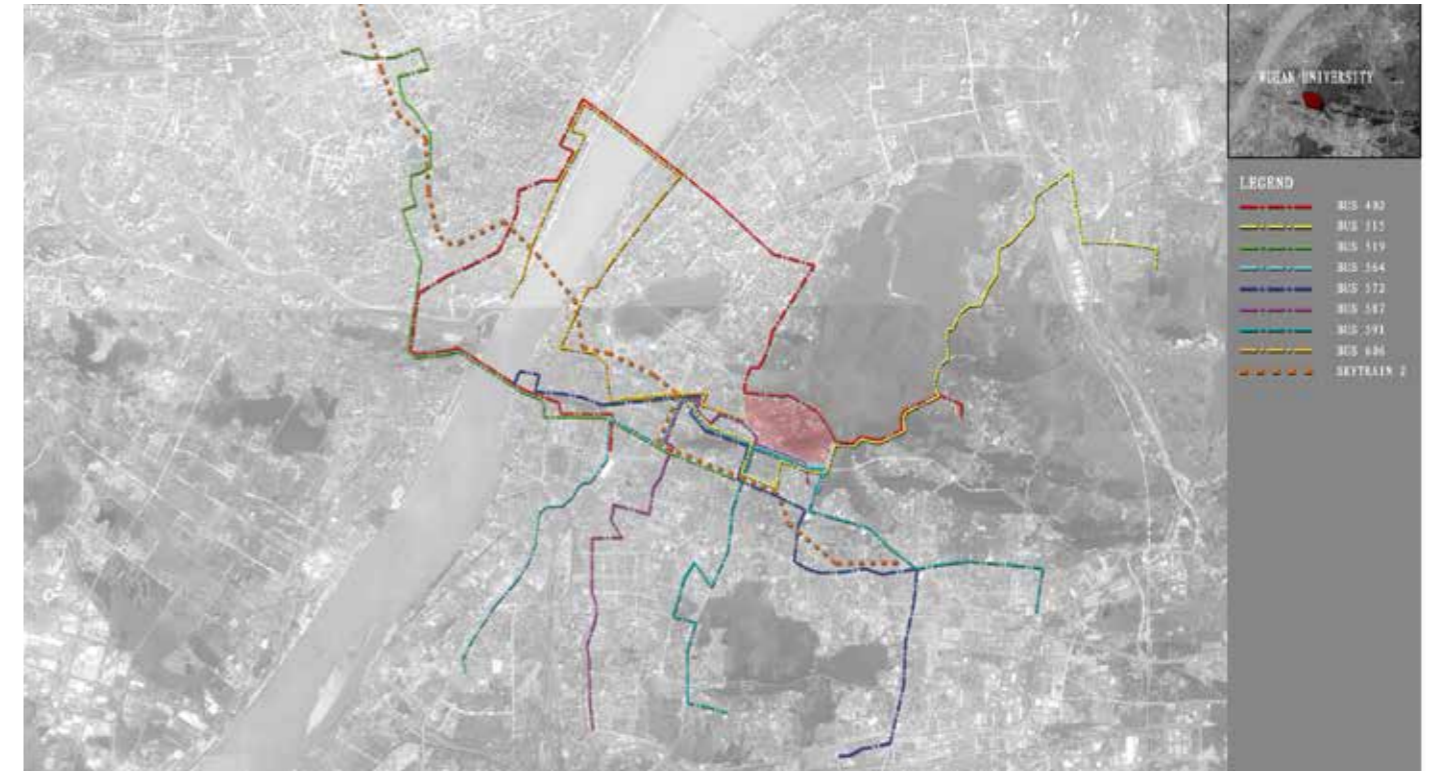
Traffic speed in Wuhan, 2011



Traffic volumn in Wuhan, 2011

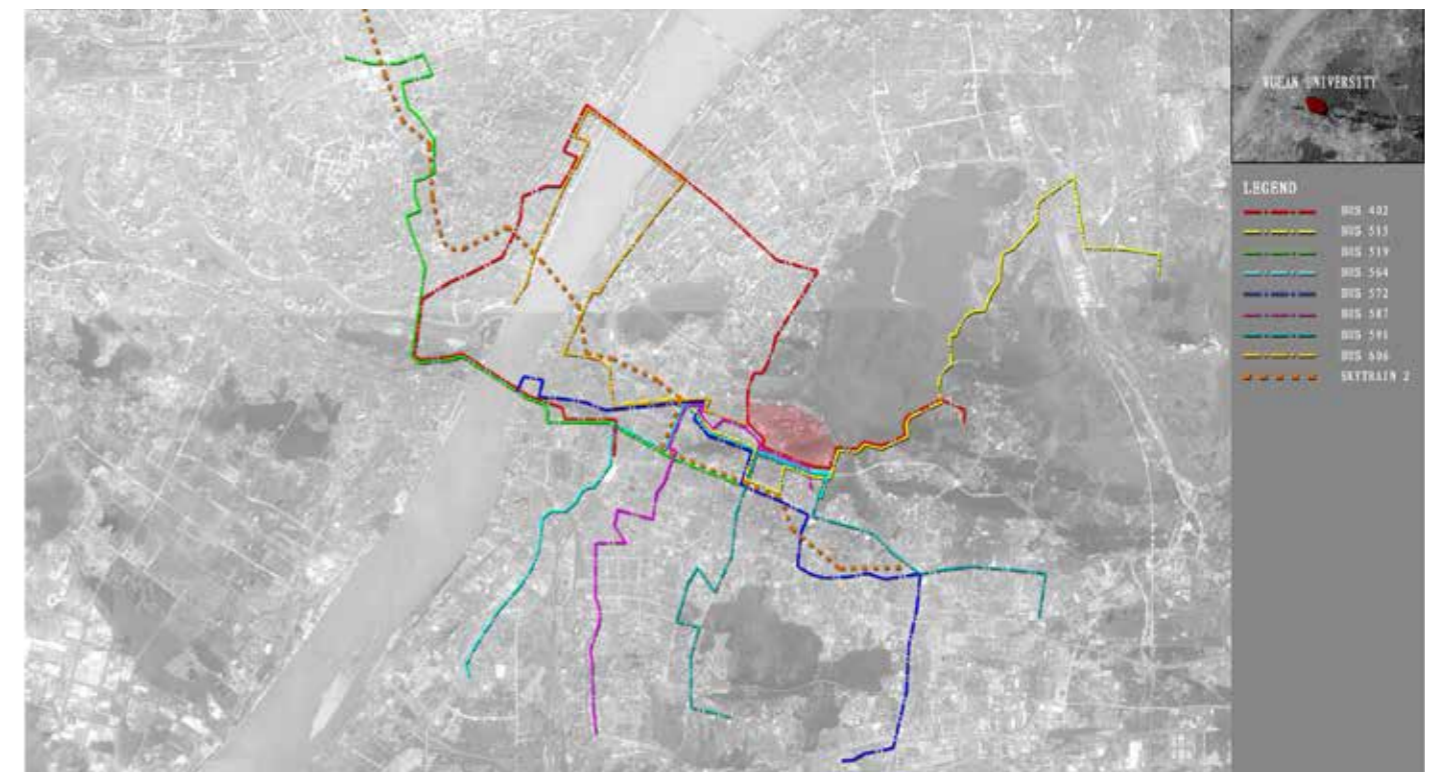
Here we can see the traffic speed in the coast-road between Wuhan University and the East Lake is around 35Km/h, while the traffic volume is also very high.

Actually, there is only one public transportation line passes by the coast-road between Wuhan University and the East Lake, which is the bus 402. It means the high traffic volumn and high speed on this road are mainly induced by the private cars. It is also the cause why the campus and the East Lake are devided into two seperate parts.



The public transportation lines passing by Wuhan University, Present condition

Strategy 1: Change the bus line 402 from the north of the campus to the south of the campus, prohibit the private cars here, and transform the coast-road into pedestrian road. Once the coast line is open to the public, events and contacts will be formed.



The public transportation lines passing by Wuhan University, Deisgn

CONNECTION AMONG FOUR SEPARATED FUNCTION ZONES

University is a place defined by certain activity, not a tangible border. It is part of the community which should be merged with the surrounding. The same as the nature, a place embodying diversified activities works the same way as symbiotic nature, it evolves by itself.



As the coast-road between the university and the East Lake is transformed into pedestrian, the “Blue Line” is freed for new activities. It is located just at the place where four separated function zones are linked.

How can the “Blue Line” connect live, study, work, leisure and beautiful scene together as an organic unity? The graphs below show some researches.



Aquatics&sport facility along the “Blue Line”



Square along the “Blue Line”

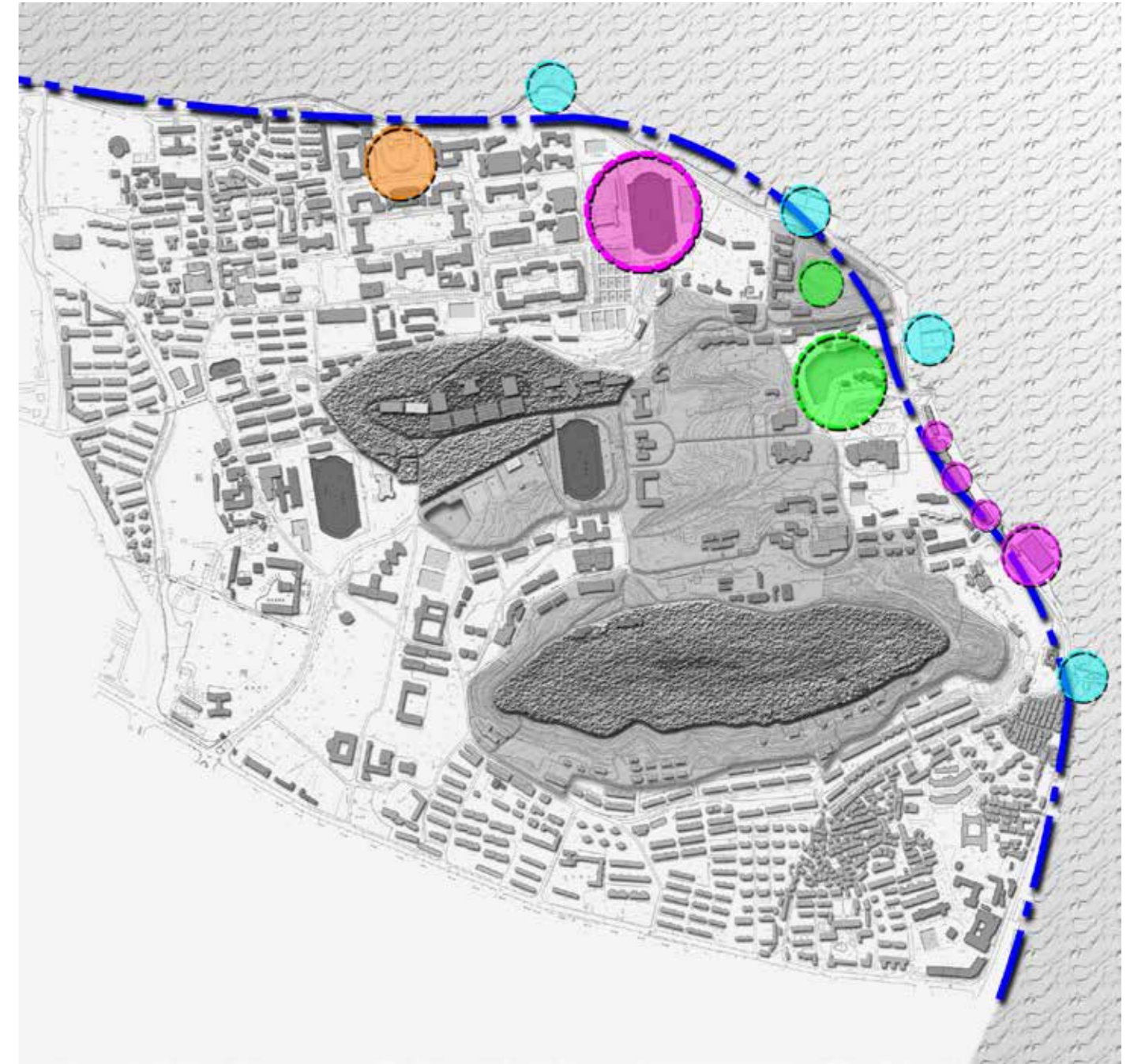


Beutiful scene along the “Blue Line”



Vacancy along the “Blue Line”

Potential spaces for unifying the community:



Strategy 2: Make full use of the existing facilities, leisure ground and the natural scenery; Exploit the vacant land with new functions which devotes to enhance the connection of the existing dots and the four zones in further.

LUOJIA MOUNTAIN AS A RESOURCE FOR THE PUBLIC

As human being, we are a part of the society; as student or worker, we are a part of a group; as parents or children, we are a part of the family; as independent physical and spiritual existence, we belong to ourselves...

University as a unit is the same as a person, it acts independently for high education, acts as a family-member for the neighborhood, but also acts as a group-member for the East lake area and for the whole city.



Wuhan University in the city area



Wuhan University in the East Lake area

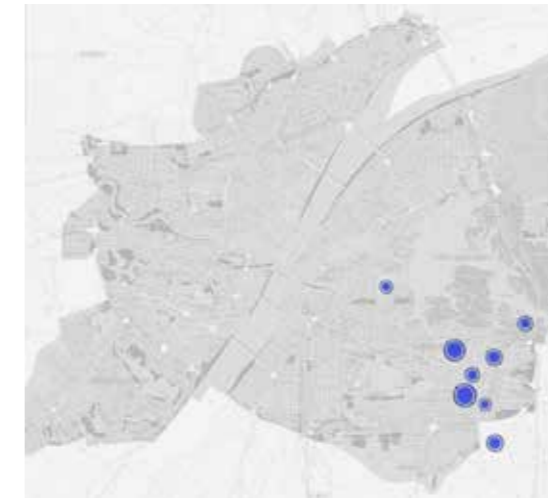


Wuhan University in the neighborhood area

Since the Modern history, eighteen universities were founded in Wuhan successively which promoted this city to be the third biggest city in China in terms of high education. As more and more research institutes and high-tech parks are located in the southeast of the city in recent decades, Wuhan is regarded as the most competitive city in the mid-part of China in terms of high-tech, informationization and creativity.

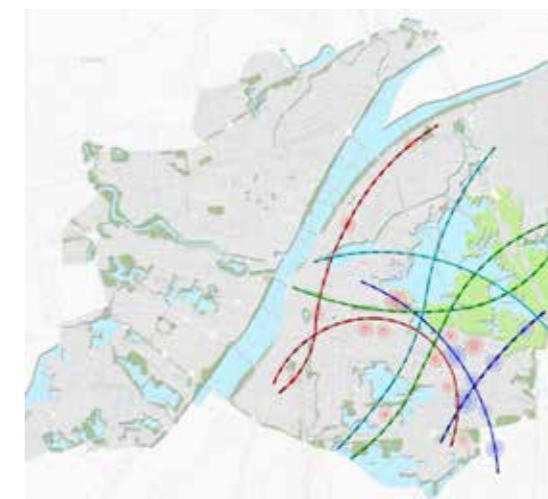


Distribution of University in Wuhan

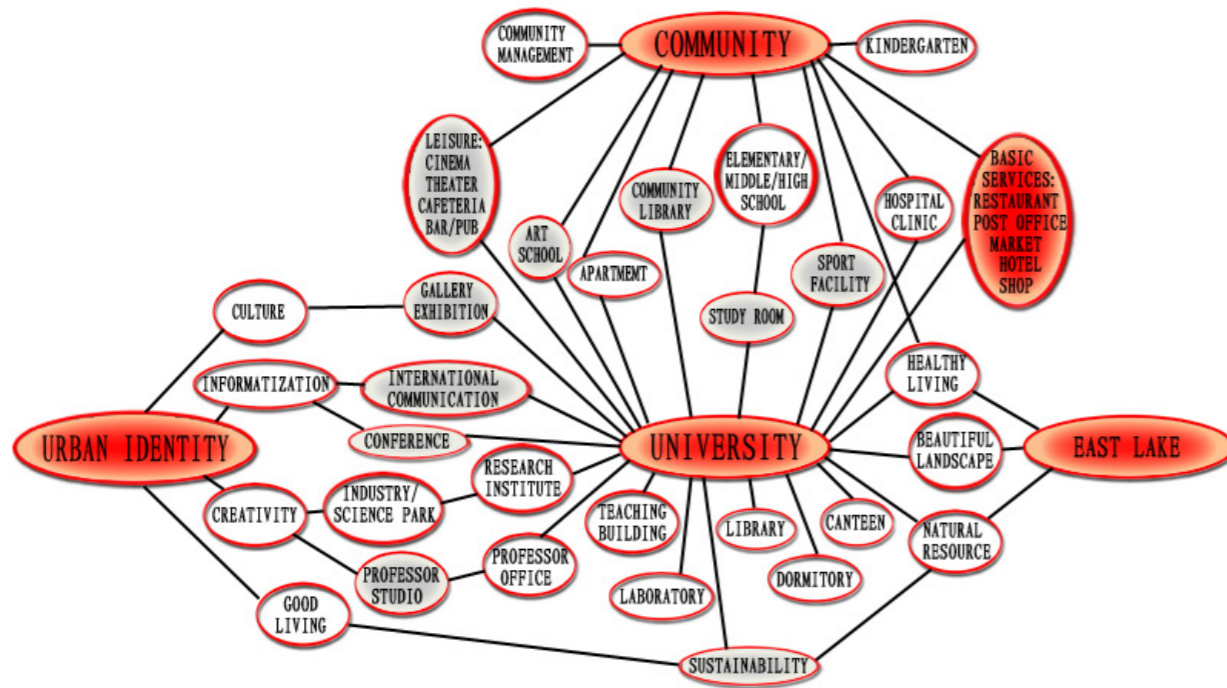


Research and high-tech park in Wuhan

Strategy 3: Connect Luojia Mountain with the scenics and monuments on another side of the East Lake together as a coherent serial; Stop the private construction on the mountain by organizing public uses, which devote on enhancing the communication among Wuhan university, the research&high-tech parks and other universities.



DESIGN OF OTHER NECESSARY FACILITIES



The graph above shows the functional connection between the university and the community, university and the East lake, as well as university and the urban identity.

Gray colour in the graph indicates what are absent or inadequate.

According to the analysis, certain activities will be designed in the potential spaces along the coast road and on Luojia mountain for bettering the daily life of students, residents and workers; while the overall strength of the university and its interaction with the community and the city are enhanced also.



Activities in need

MASTER PLAN-----

ONE LINE, TWO POINTS



CHINESE TRADITIONAL CULTURE & DESIGN CONCEPT

Since ancient time chinese traditional gardens were profoundly influenced by the traditional culture, especially the Confucianism and Taoism. The spirit of the culture was deeply rooted in the garden.

According to the chinese culture, the morality and the character of human being have something in common with the nature. By getting close to nature, our spirit and personality will get promotion. Confucius ever said “the wise has flexible mind, so loves the running water, the benevolent has discreet character, so loves stable mountain”.

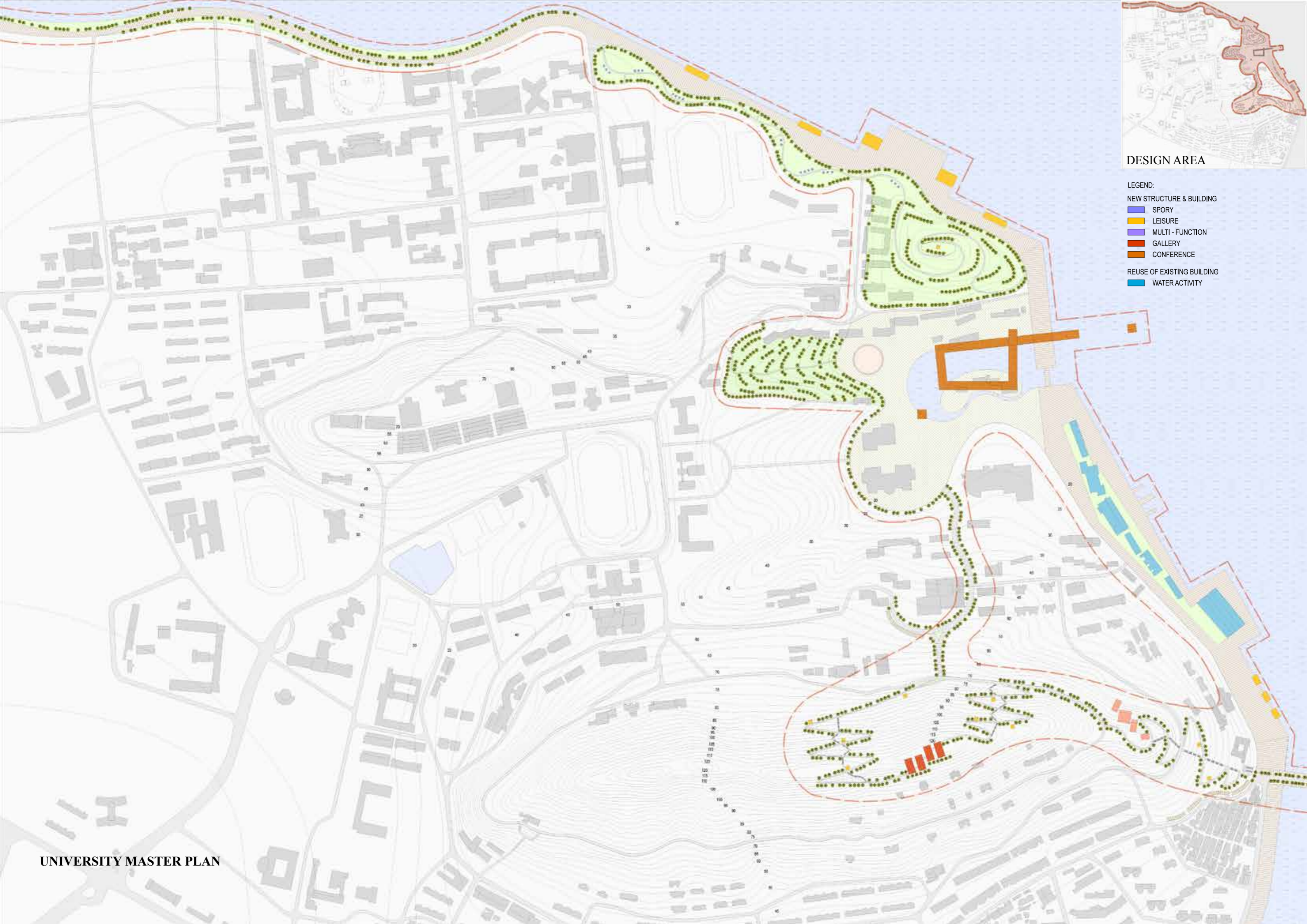
Confucius also said “When we climb up the East Mountain, we realize that the Lu Mountain actually is not big; when we get the peak of the Tai Mountain, we realize that all the world actually is small”. This sentence was used to show the mind that ‘the higher our viewpoint is, the wilder our view would be; as the view is changing, our realization of life is also changing’.



The wise delights in water, the benevolent delights in mountains.

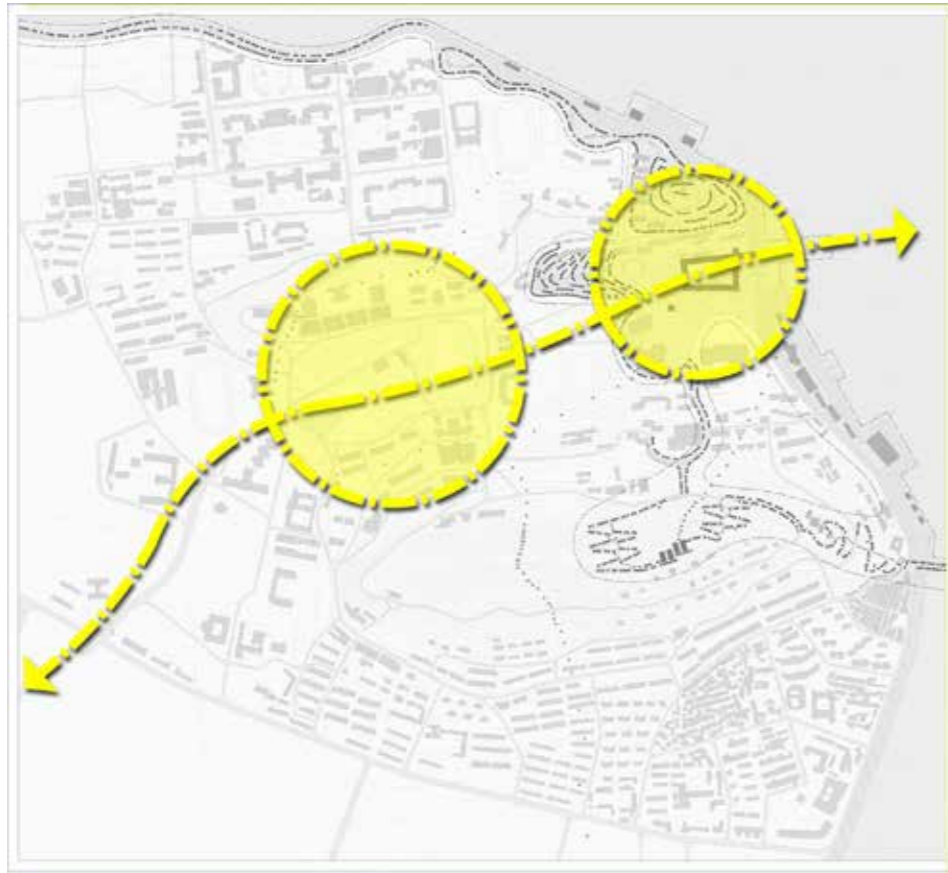
With respect to the above research, as well as respect to traditional culture and the initial approach in the university design, the masterplan comes out to be “One line and two points”.

One line refers to the coast road, which is mainly designed for joining students, residents and workers together with leisure and sport activities. Two points, one refers to the campus-lake area, it will be designed for energetic activities such as dining, recreation, shopping, music, dance..... in response to the water environment which represents “flexible and dynamic”. Another point refers to Luojia Mountain, it will be designed for quiet activities such as gallery, conference, library.....in response to the rock environment which represents “intelligent and calm”.



- LEGEND:
- NEW STRUCTURE & BUILDING
- SPORY
 - LEISURE
 - MULTI - FUNCTION
 - GALLERY
 - CONFERENCE
- REUSE OF EXISTING BUILDING
- WATER ACTIVITY

ANALYSIS



In campus area, as the space around the inner-lake (“Point one”) is developed to be a new activity center, an axis starting from the campus main entrance, passing by the campus historic center and further arriving the East Lake is formed.



In neighborhood area, the coast-road (“Blue Line”) strengthened the links among four separate zones.



In East Lake area, The coast road (“Blue line”) and LuoJia Mountain (“Point two”) are connected to the scenic areas and monuments in another side of the lake as a continuous series.



In city area, the activities designed on LuoJia Mountain (“Point two”) enhances the communication between Wuhan University and other research institutes and high-tech parks.



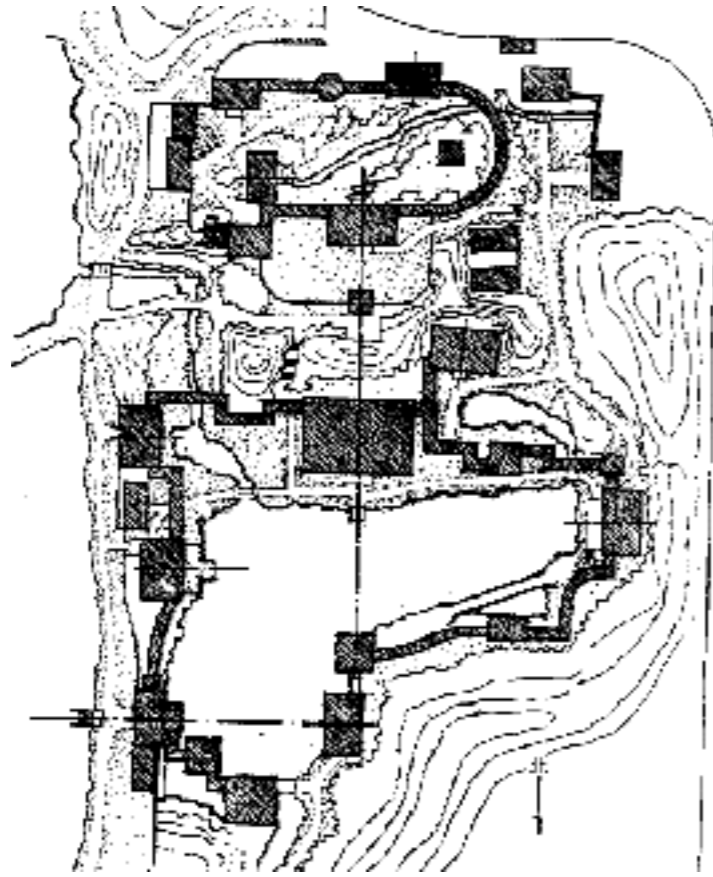


BUILDING ON WATER

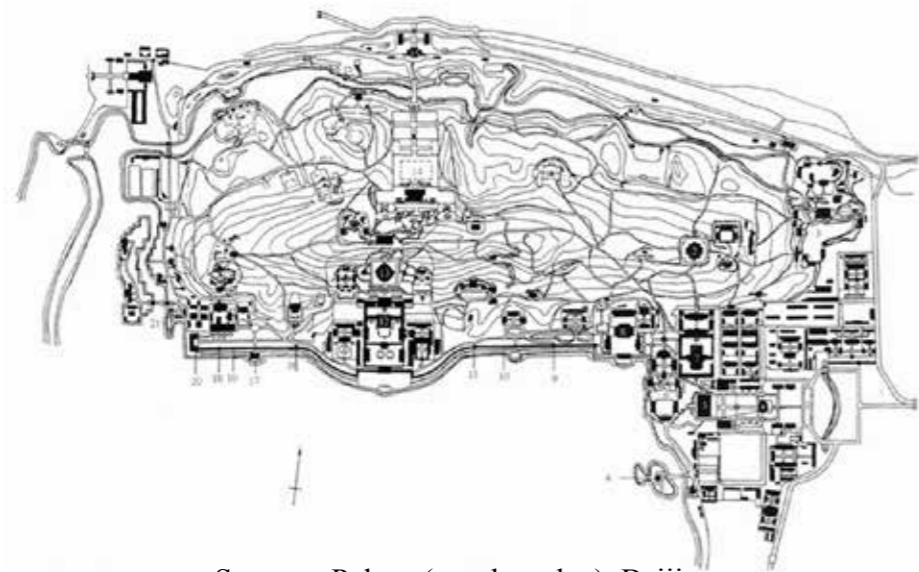


BUILDING AND WATER IN THE ANCIENT GARDEN

In Chinese traditional gardens, buildings normally were arranged around the pond or lake. No matter in the private garden in the south of China, or the royal garden in the north of China, it is obvious to see that the water area is enclosed or half-enclosed by the artificial structure, while the artificial structure as a separate system keeps rigorous axis.



Liuyuan (private garden), Suzhou



Summer Palace (royal garden), Beijing

In the garden, we see the artificial structures appear as different forms: some are completely closed buildings, some are half open pavilions and porches, some are completely opened platform.....all those forms together constitute a systematic series around the water area, it keeps the inner space airy, at the same time contributes to the open view between outside and inside.



Unfolded facade, Wangshi Garden, Jiangsu



Facade in Zhuozheng Garden, Jiangsu

The above approaches used in the ancient garden are well kept in the campus design, but applied in an evolved way in the campus-lake area.

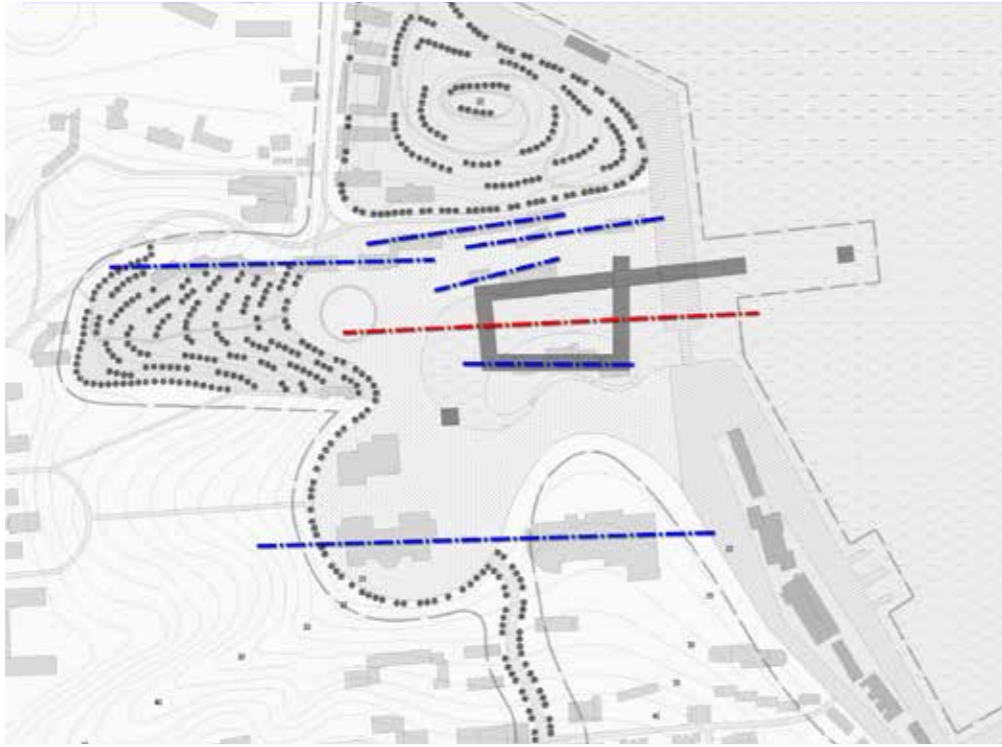


Present condition around the campus-lake area



Design around the campus-lake area

ANALYSIS



According to the existing building axes, an enclosed-form building is designed. It is supported by the stairwells below and stands over the lake, which not only keeps the vision around the lake open, but works as an independent system from the existing buildings below. In the future, the buildings below will also be transformed for new activities, while the square is responsible for outdoor events.



The campus-lake is connected to the East Lake directly, while another stream is designed in the north. A circulated system is formed for insuring the water vitality, at the same time forming an “island” from the surrounding land. Three bridges are made for the connections over water.

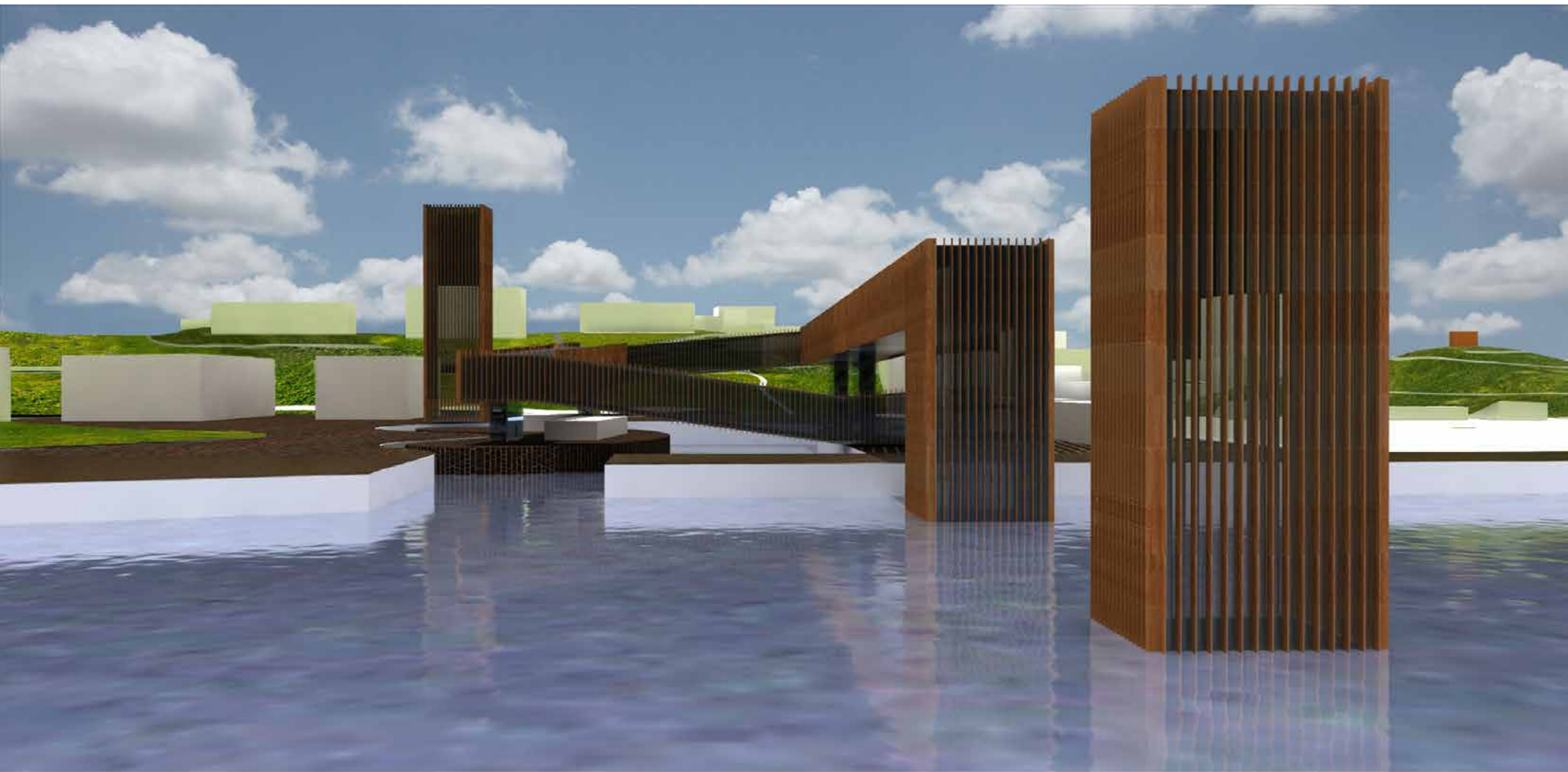


Here, the building is intentionally designed in an open angle towards the East Lake, to get the perspective effect.



In the campus, there are several groves which are allocated with stone tables and seats, they are fully used by the students and residents for studying and leisure, here a new grove is designed also. Combined with the building on water and the tower in water, an axis from the university arrives until inside of the East Lake is formed, which introduces people's activity into the water.

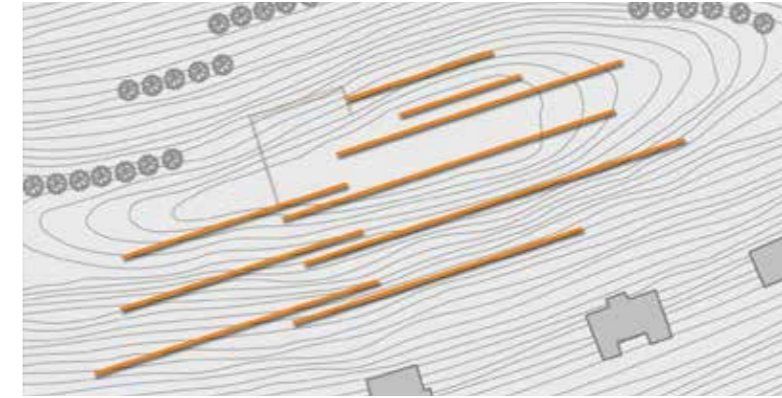




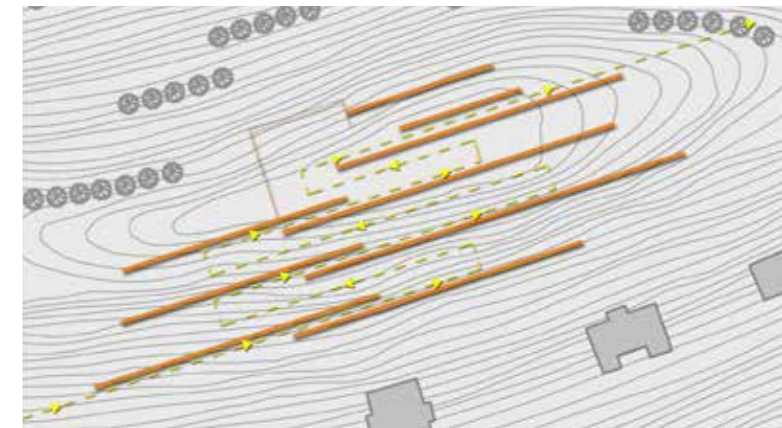
BUILDING ON MOUNTAIN



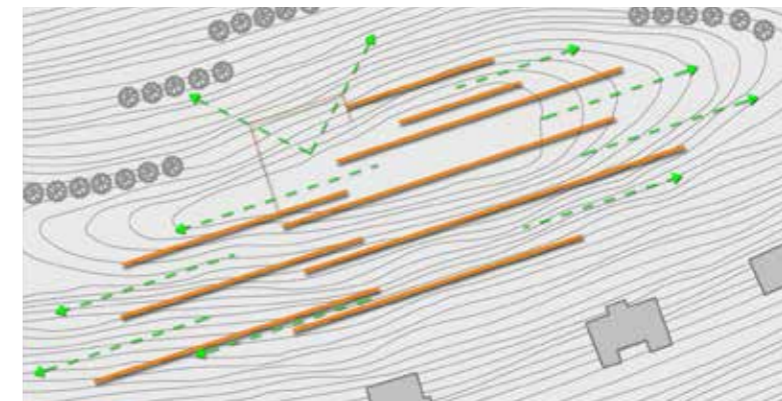
DESIGN CONCEPT



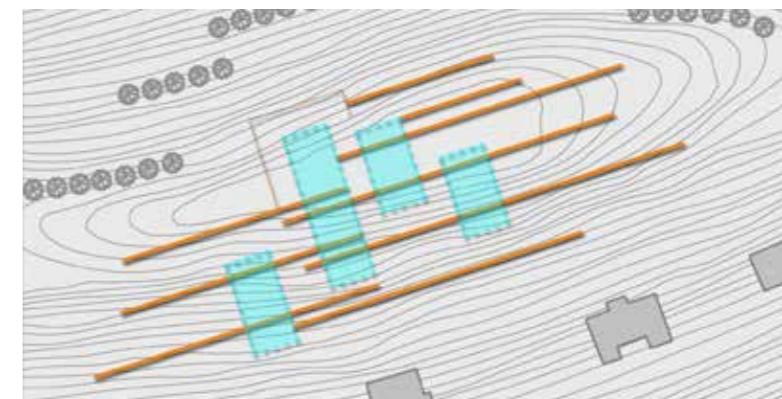
Indication of topography: A series of parallel walls are designed, which just follow the line of the contours. It becomes the indication of the topography on the mountain.



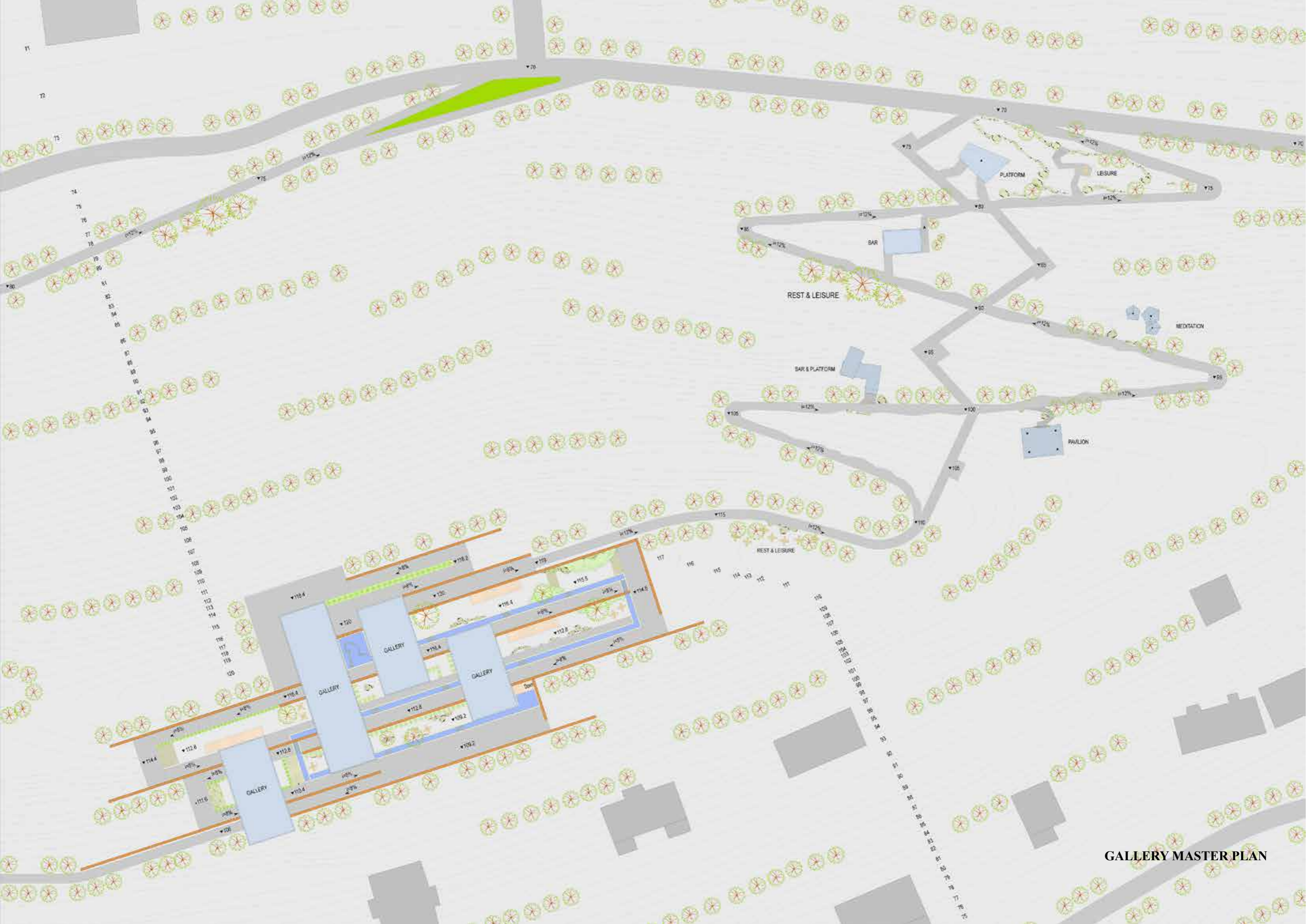
Indication of route: Wall is the basic unit for forming spaces. Here totally nine pieces of walls are arranged, which work as a series of “corridor”. It creates a strong sense of indication for the visiting route.



Indication of scenery: Mies Van der Rohe used walls for guiding people’s attention in German Pavilion of Barcelona. Here, the walls are not only used for guiding, but also for blocking the private villas which are wantonly spreading on the mountain.



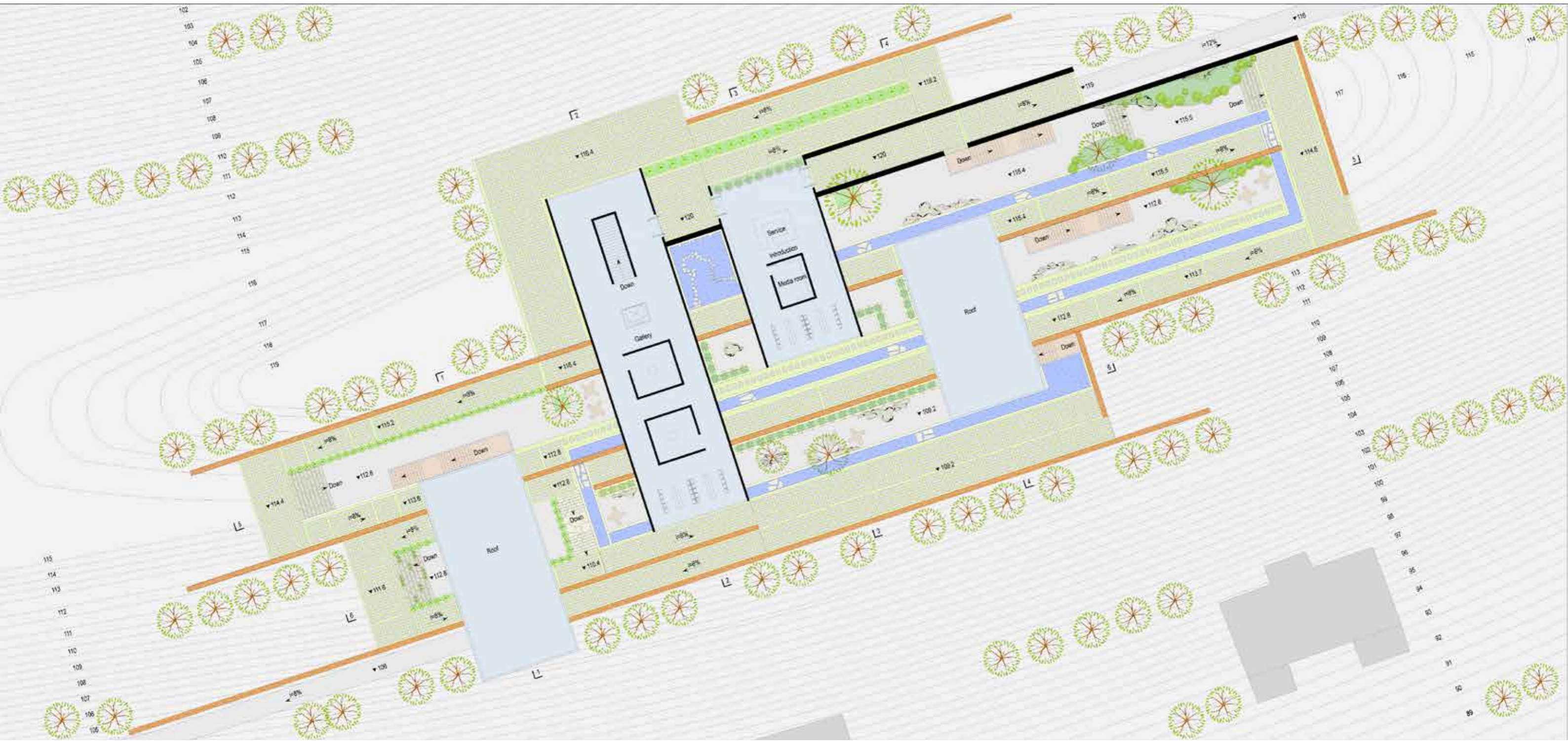
Structure for supporting building: Wall can be spacial element, but also structural element. Here it changes the role, working as load-bearing structure, which not only supports the gallery box above, but also save ground area for outdoor exhibition and for leisure.



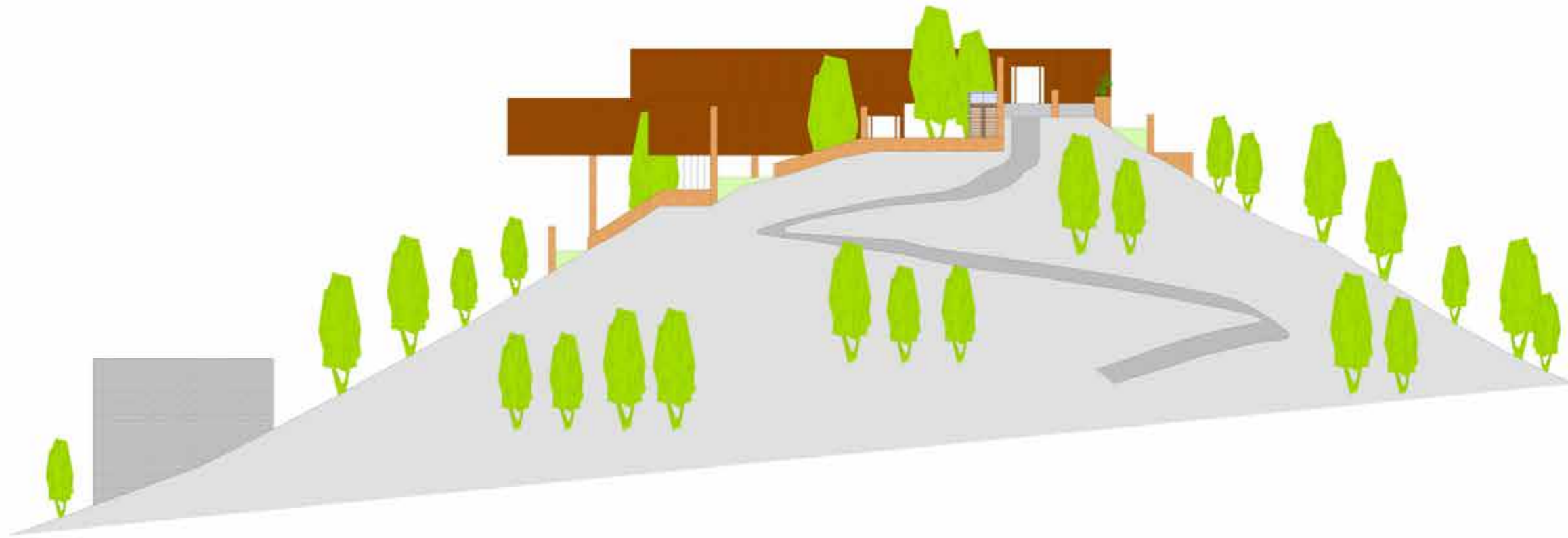
GALLERY MASTER PLAN



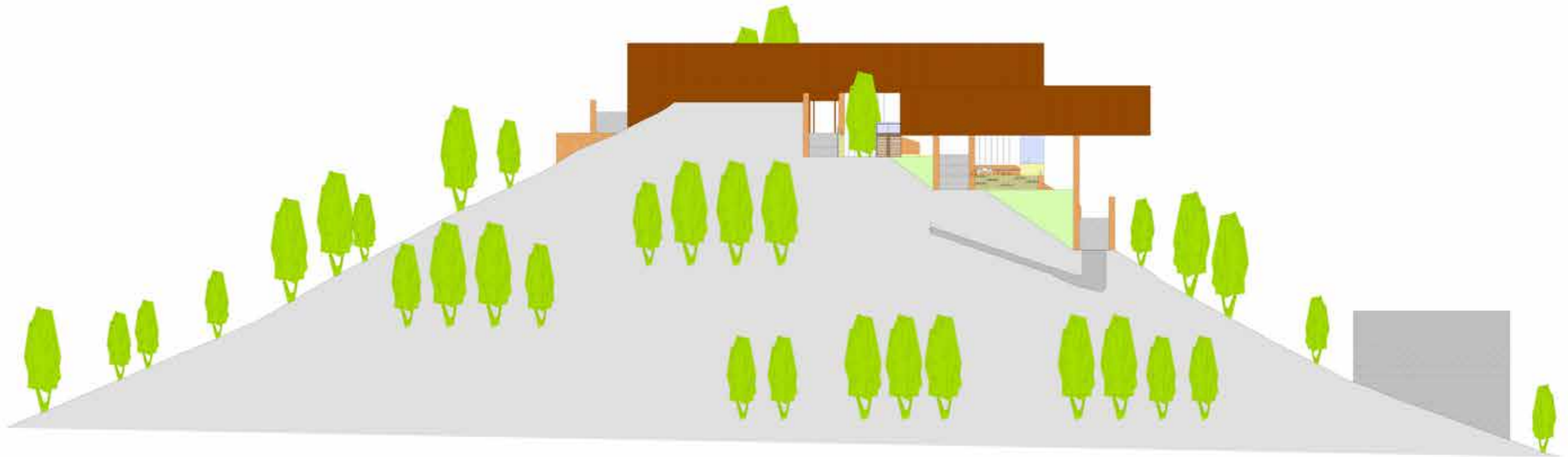
117.6M LEVEL PLAN



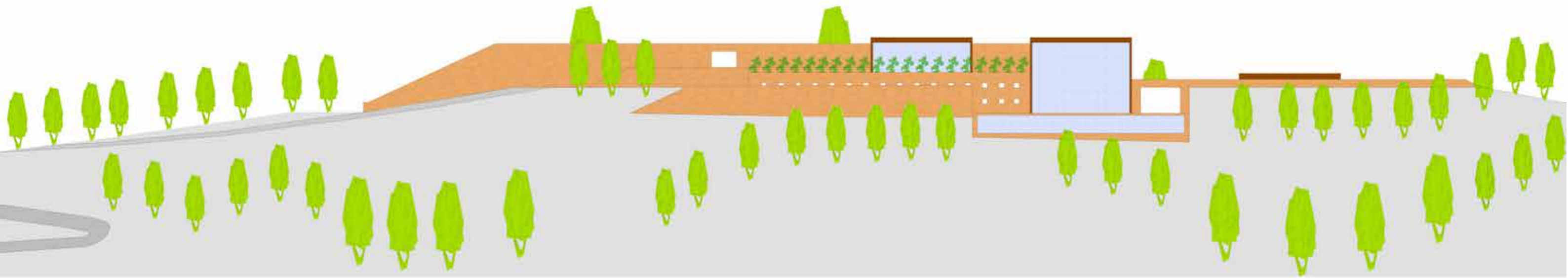
121.2M LEVEL PLAN



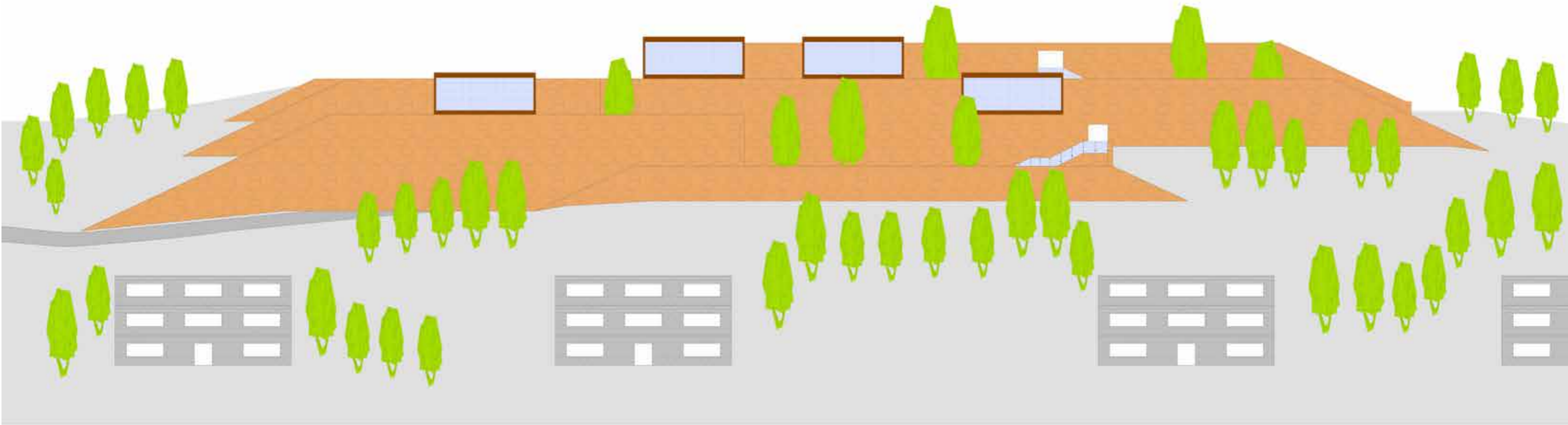
EAST FACADE



WEST FACADE



NORTH FACADE



SOUTH FACADE











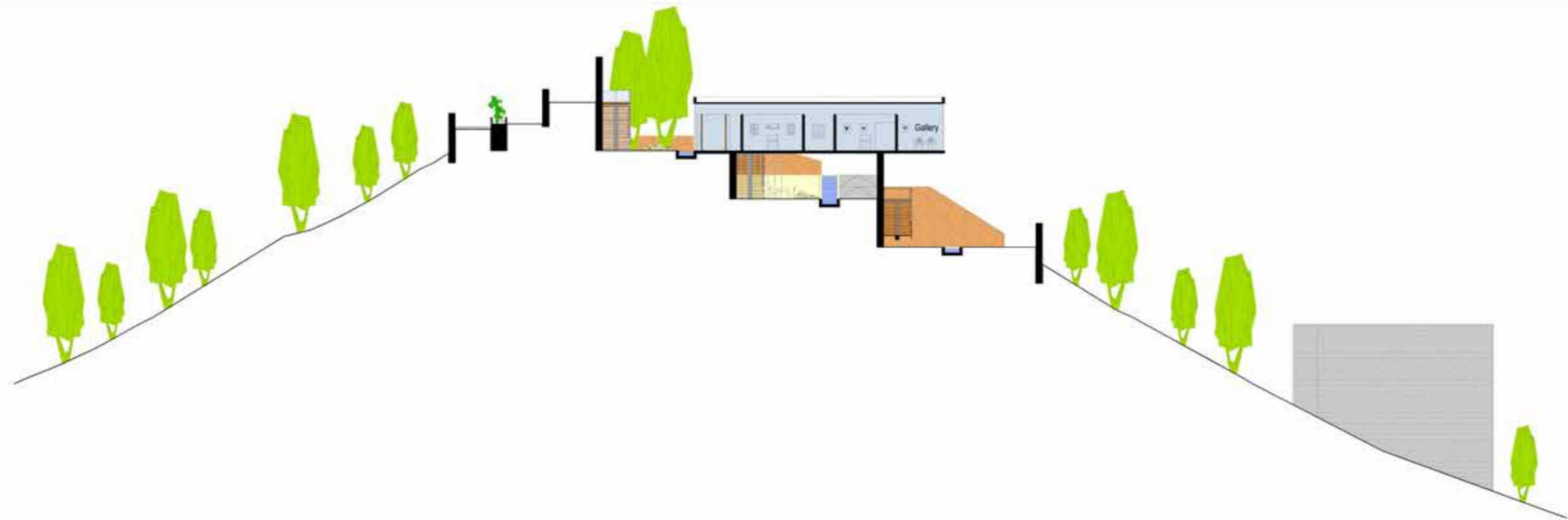
2-2 SECTION



2-2 SECTION



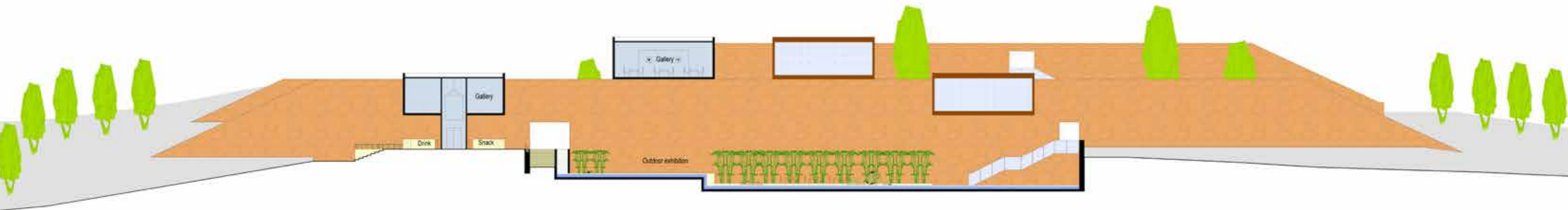
3-3 SECTION



4-4 SECTION



5-5 SECTION



6-6 SECTION

GALLERY FUNCTION DISTRIBUTION



Indoor exhibiton



Outdoor exhibiton



Leisure& recreation



Office & Toilet

CULTURE & IDENTITY

Wuhan University is divided into four districts and given four names according to four different kinds of plants which assemble in different areas. they are plum, osmanthus, maple and cherry.



Here the gallery area gets the name “Bamboo Garden”.

