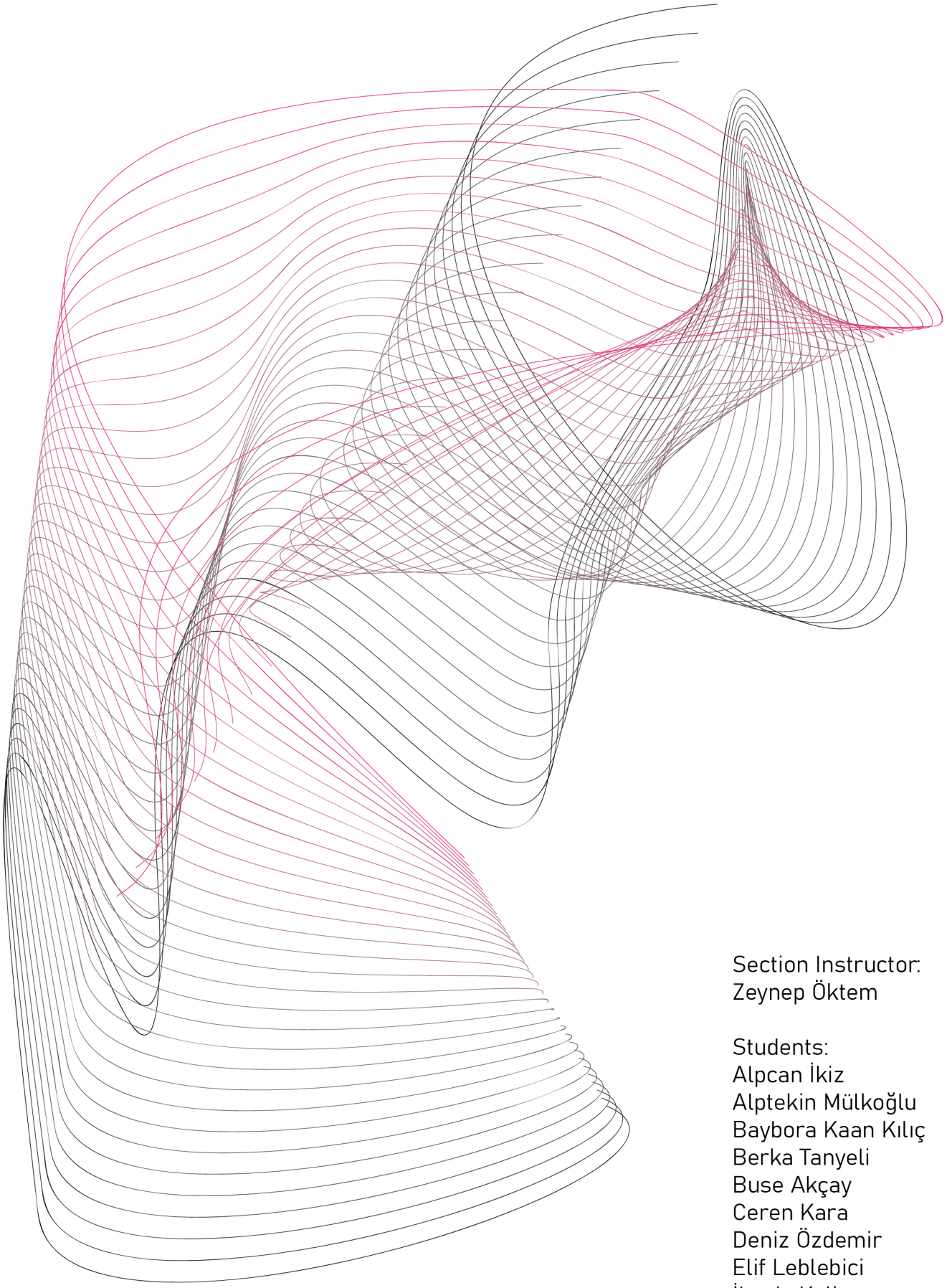


Section Instructor:
Zeynep Öktem

Students:
Alpcan İkiz
Alptekin Mülkoğlu
Baybora Kaan Kılıç
Berka Tanyeli
Buse Akçay
Ceren Kara
Deniz Özdemir
Elif Leblebici
İlayda Kalkan
Orkhan Hasanov
Öykü Ökkan
Sara Mandou
Zeynep İyi

ZOOM CRITICS
ARCH 402 @ BILKENT ARCHITECTURE DEPT.

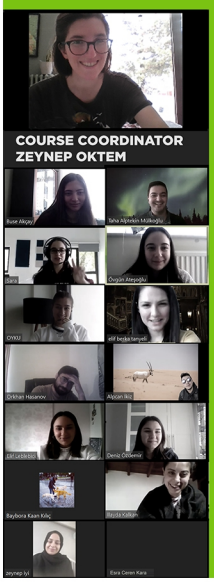
10.04.2020 FRIDAY @14.30

CAN KUBİN

MURAT MEMLÜK

ONAT ÖKTEM

ZOOM CRITICS
ARCH 402 @ BILKENT ARCHITECTURE DEPT.



24.04.2020 FRIDAY @13.30

BORIS ZEISSER

from
NATRUFIED ARCHITECTURE

ZOOM CRITICS
ARCH 402 @ BILKENT ARCHITECTURE DEPT.

01.05.2020 FRIDAY @13.30

SEDEN CİNASAL AVCI

RAMAZAN AVCI

from
SCRA MIMARLIK

ZOOM CRITICS
ARCH 402 @ BILKENT ARCHITECTURE DEPT.

27.04.2020 MONDAY @13.30

ENİSE BURCU DERİNBOĞAZ

from
PRAXIS LANDSCAPE

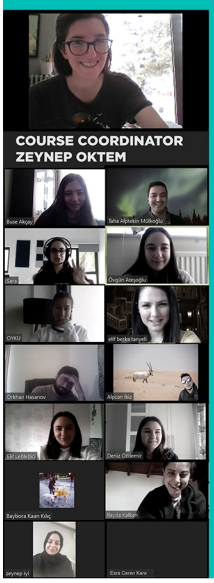
ZOOM CRITICS
ARCH 402 @ BILKENT ARCHITECTURE DEPT.

01.05.2020 FRIDAY @13.30

ALPER DERİNBOĞAZ

from
SALON

ZOOM JURY
ARCH 402 @ BILKENT ARCH. DEPT.



15.05.2020 FRIDAY @11.00

BORIS ZEISSER

BANU UÇAK

SEGAH SAK

Y. BAVER BARUT

ARCH 402 SPRING SEMESTER 2019-2020 | ZEYNEP ÖKTEM

Alpcan İkiz

MEGA DUNES ECO-LODGES ABU DHABI

Alpcan İKİZ

MEGA DUNES ECO-LODGES
ABU DHABI

Alpcan İKİZ

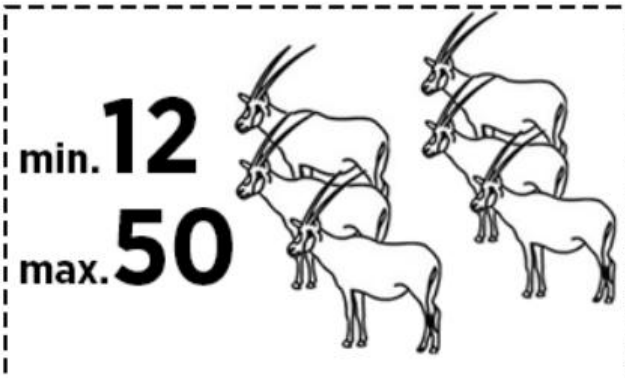
For this architecture competition, participants are tasked with creating sustainable designs for visitors lodges that can be replicated throughout the protected areas of the United Arab Emirates (UAE).

As the Environment Agency - Abu Dhabi (EAD) is interested in constructing 25 lodges across the protected areas, sustainability is the key focus. Each lodge will need to be able to accommodate guests and provide a degree of comfort in which to view the striking natural landscape, observe the Arabian Oryx up close, and gaze at the spectacular views of the Milky Way that can be enjoyed due to the desert's low light pollution.

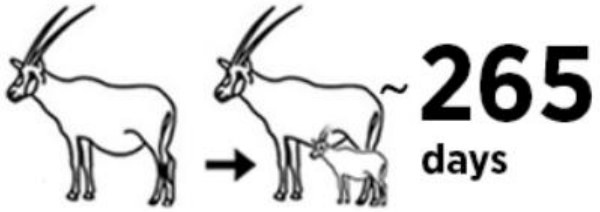
Arabian Oryxs & Protected Area

The Arabian Oryx Protected Area is home to the largest population of Arabian Oryx in the world. Spanning over 5,900 square kms, it is located in the southern region of the UAE, bordering Saudi Arabia and Oman.

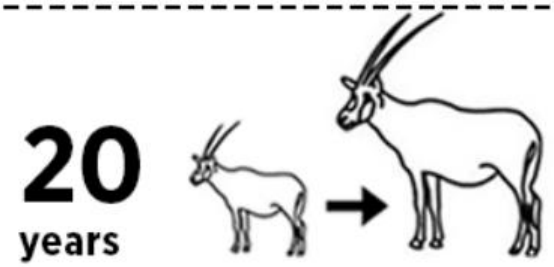
The majority of the Aranian Oryx Protected Area consists of sand sheets and dunes, with some mega dunes and gravel plains with dwarf shrub vegetation located throughout the area.



Arabian Oryxs mostly live in groups of 12-50. The size of the groups can differ according to the weather, food or other factors.



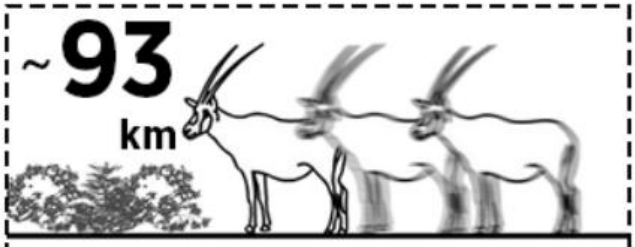
Gestation period of Arabian Oryxs lasts for 255-273 days and there is no fixed rutting season for Oryxs. Males spar while competing for females and these fights may end with an injury or death.



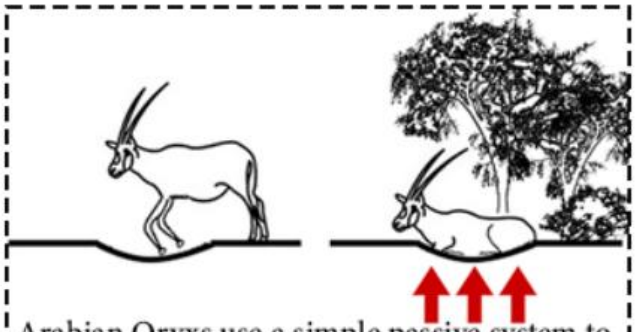
Arabian Oryxs live approximatly 20 years. The new born Oryx joins the herb just after few days. In captivity, female Oryxs give birth for the first time when they are 2.5-3.5 years old.

In 2007, 186 Arabian Oryx were introduced to the protected area but 10 years later that number had increased to 835 according to aerial surveys.

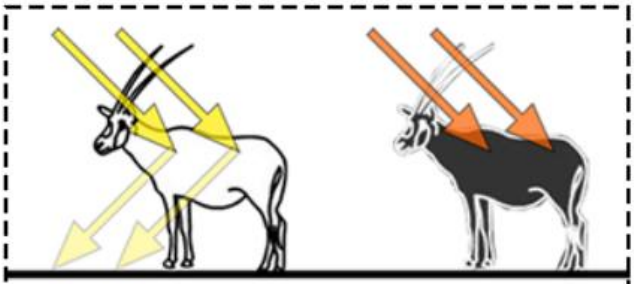
In addition to being home to the Arabian Oryx, the protected area hosts 92 species of plants, birds, reptiles and mammals. The diversity of some animal groups in the protected area is significantly lower than would be expected of large mammals.



Arabian Oryxs mainly eat grasses and bushes in the desrt. Because of the lack of vegetation , they may wander long distances in search of pasture. They can cover nearly 93 kms in 18 hours. Also, they can survive for long periods without drinking due to this ability.



Arabian Oryxs use a simple passive system to protect their body temperature from the harsh conditions of the desert. When they rest, they dig small depressions to create a thermal mass and avoid wind/cold around vegetation.



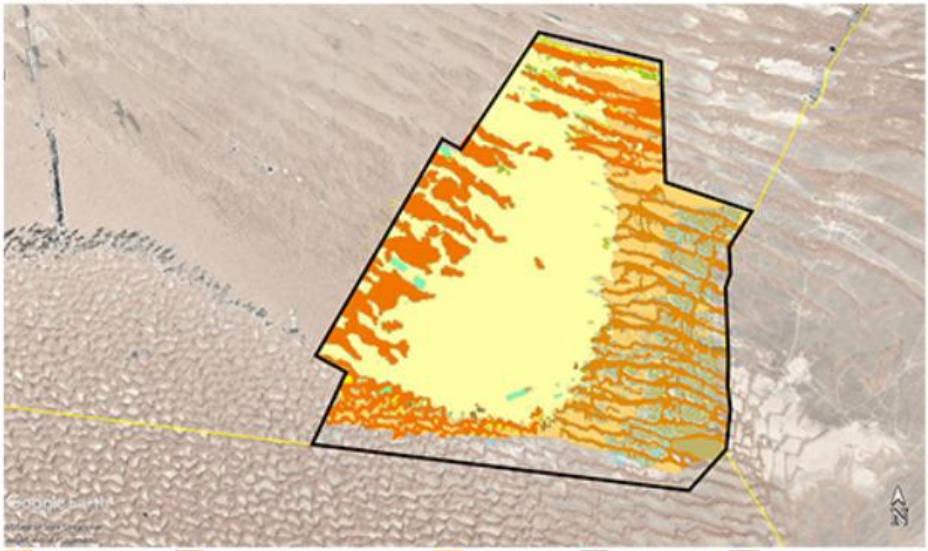
Arabian Oryxs have another ability to survive in a harsh climate. They have 2 different skins that are light and dark. They erect light hairs in hot to reflect the sun and dark hairs to promote heat absorption.

Site Analysis

Arabian Oryx Protected Area

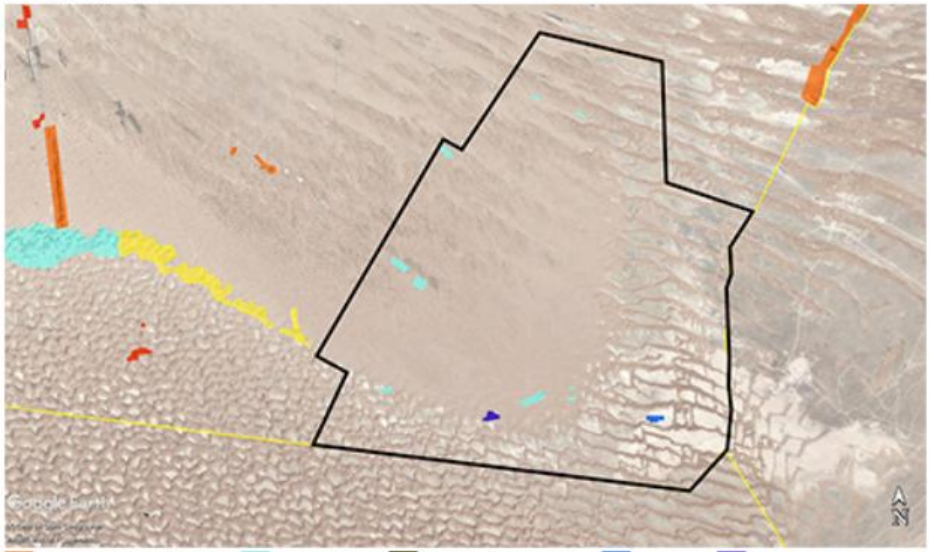
Arabian Oryx Protected Area Coordinates: @23.05959, 54.845122

Terrestrial



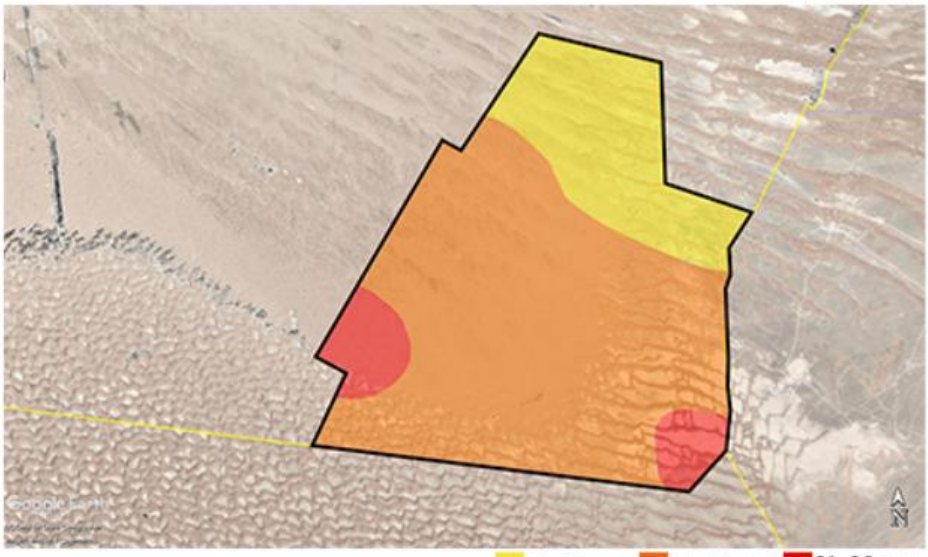
Mega Dunes | Sand Sheets w/herbs | Big Dunes | Farmlands | Inland Sabhka
Gravel Plains | Wadis in Open Terrain&Drainage Channels

Function



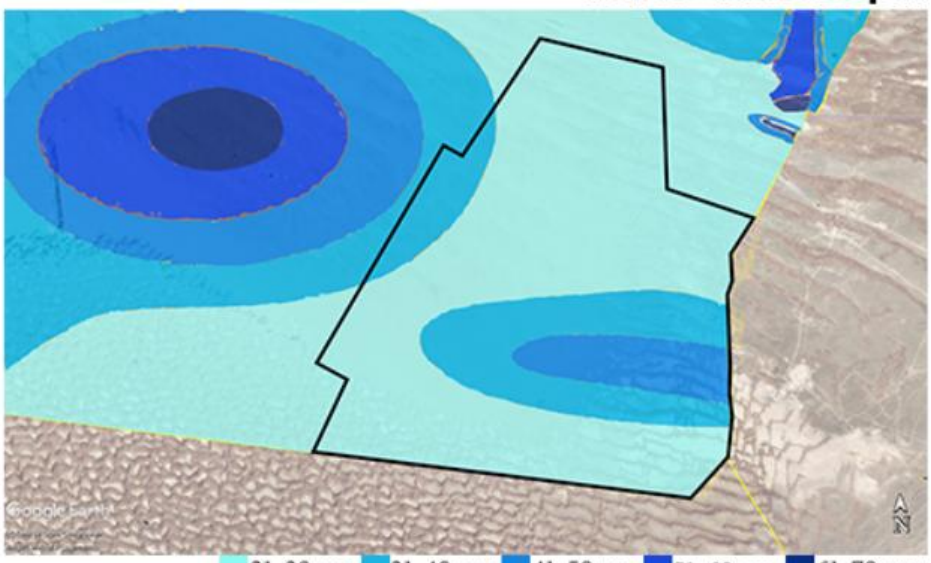
Urban Settlements | Farmlands | Hotels & Camps | Airbase | Oil Industry

Rainfall



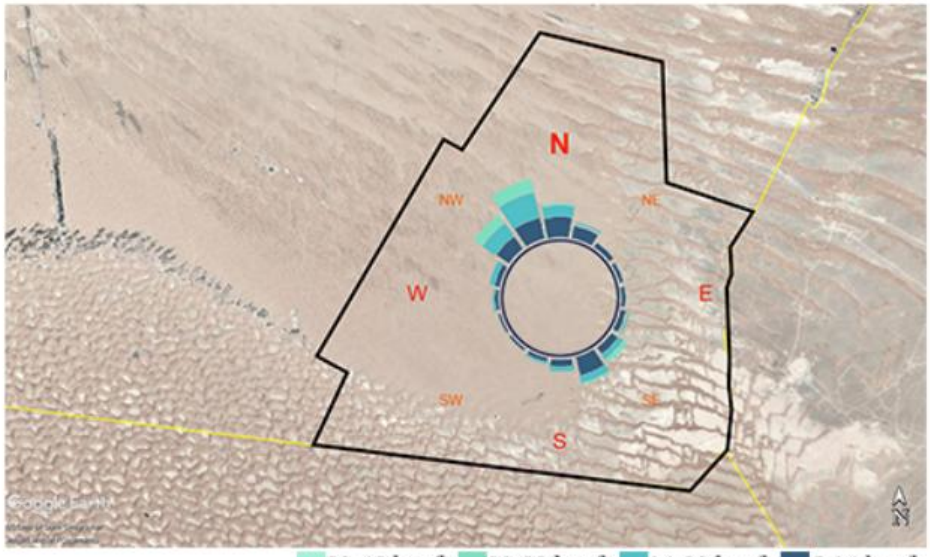
41-50 mm 31-40 mm 21-30 mm

Water Table Depth



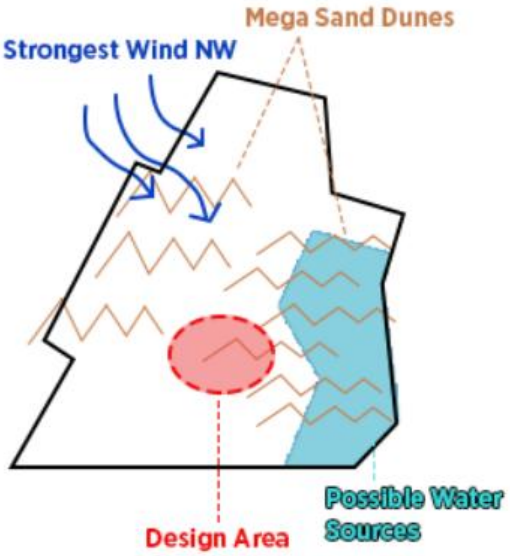
21-30 mm 31-40 mm 41-50 mm 51-60 mm 61-70 mm

Wind

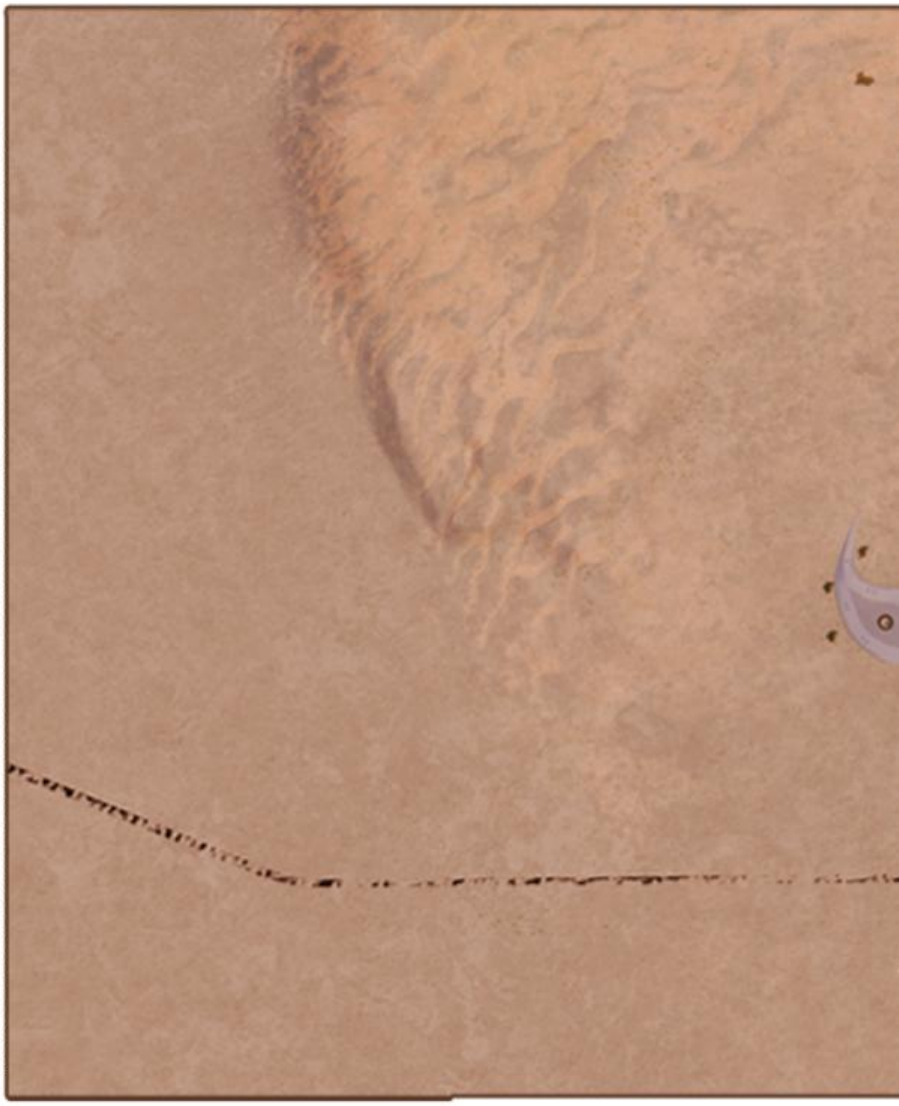


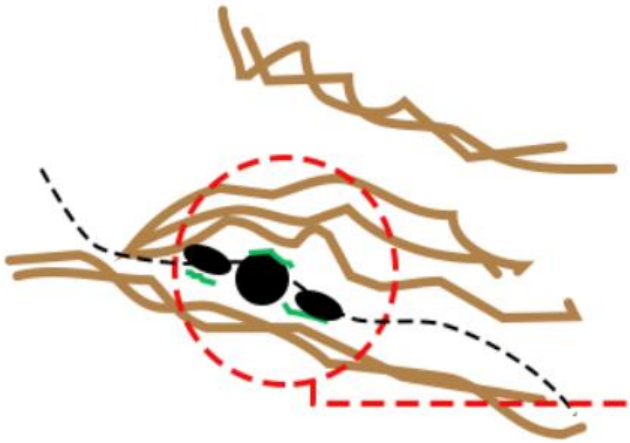
32-43 km/h 22-32 km/h 14-22 km/h 5-14 km/h

Masterplan



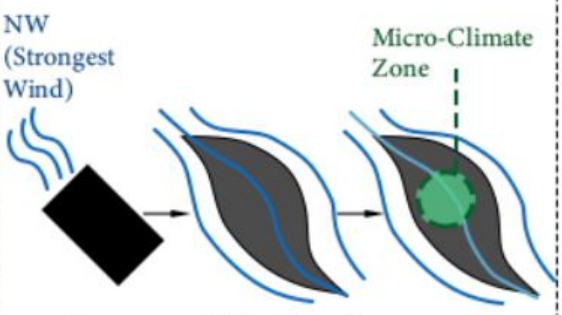
According the site analysis, the best location for building masses is the bottom side of the Oryx Protected Area. Because, that part of the site is useful in terms of sources, natural habitat and etc.



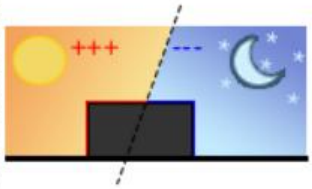


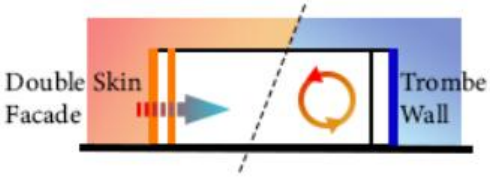
To achieve a natural atmosphere and protect the existing nature, masses will be located between mega sand dunes. Also, this will be provide a natural protection from the harsh conditions of the desert.

On the other hand, the curves of the dunes create a pathway that can be worked as an axis for the building.



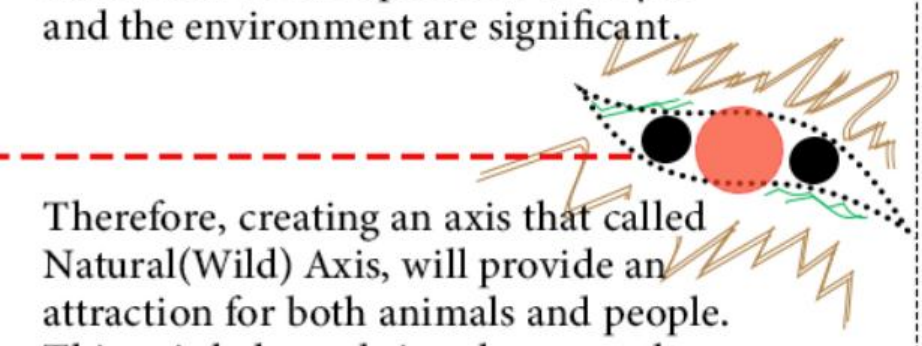
Wind is one of the hardest challenges in the desert because of its speed and effects such as sand migration. That's why, control of the wind and creating comfortable places that will be micro-climates with this control is crucial for design. According to the analysis, with curved and organic shapes it can be succesful.





One of the other hardest challenges in a desert is sun and the change of temerature. To avoid the heat and design comfortable spaces for people creating micro-climate zones is important ,. Also, using several passive systems such as trombe walls thermal masses can be useful and efficient to protect inside of the buildings.

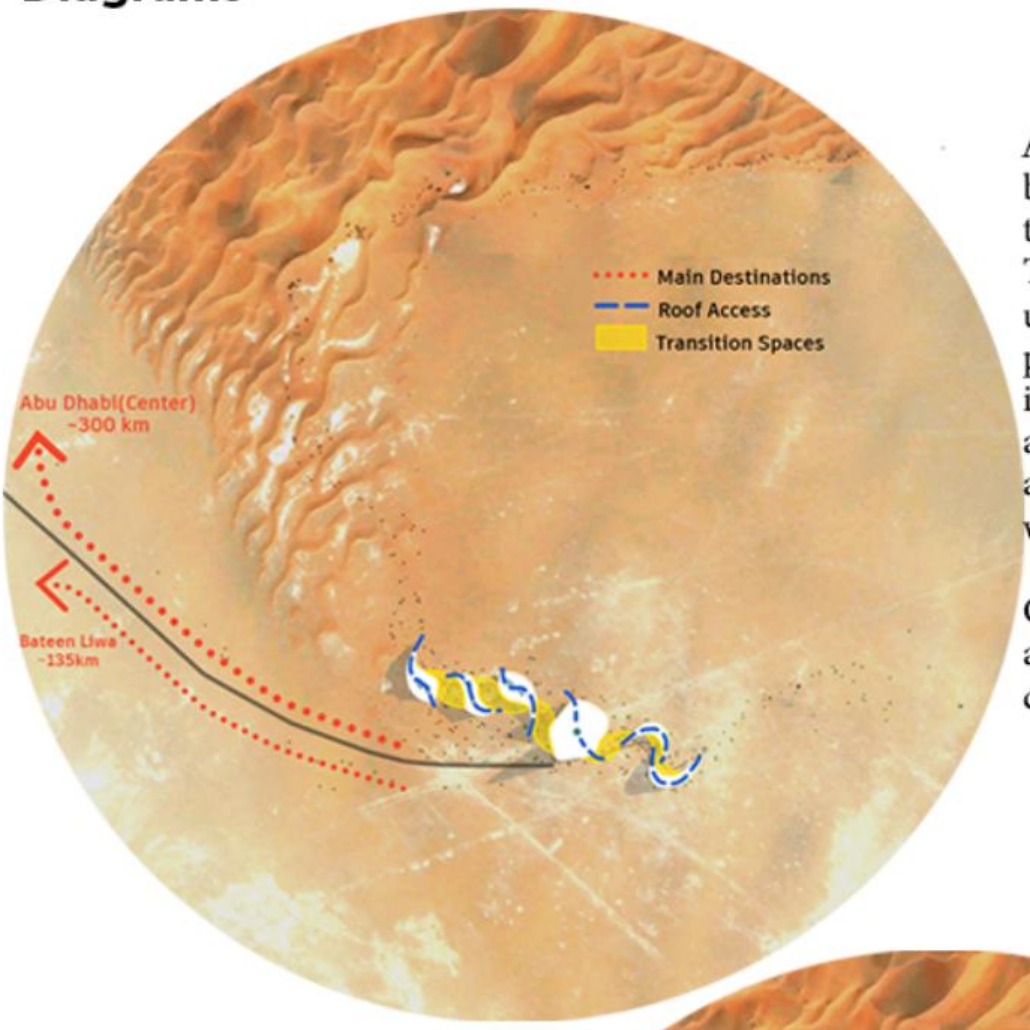
Because of the restrictions and importance of the Arabian Oryx P.A. observation and experience of Oryxs and the environment are significant.



Therefore, creating an axis that called Natural(Wild) Axis, will provide an attraction for both animals and people. This axis helps to bring them together.

Diagrams

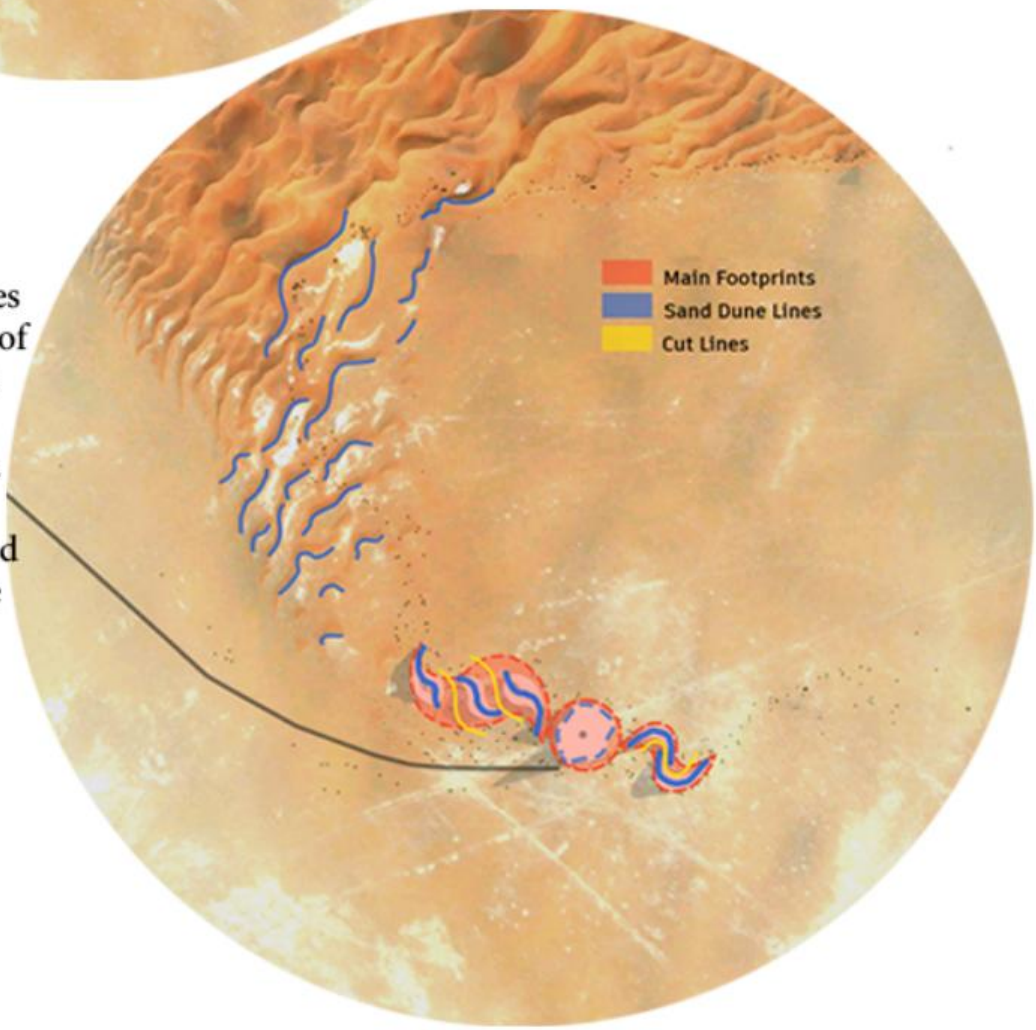
Accessibility



Accessibility is one of the biggest issues because of the scale of the desert. There are some low density urban settlements near the project site and Abu Dhabi is approximately 300 km away. Also, there is a small airport near to the site as well.

On the other hand, roofs are accessible so, Oryxs can walk on them.

Mass Creation



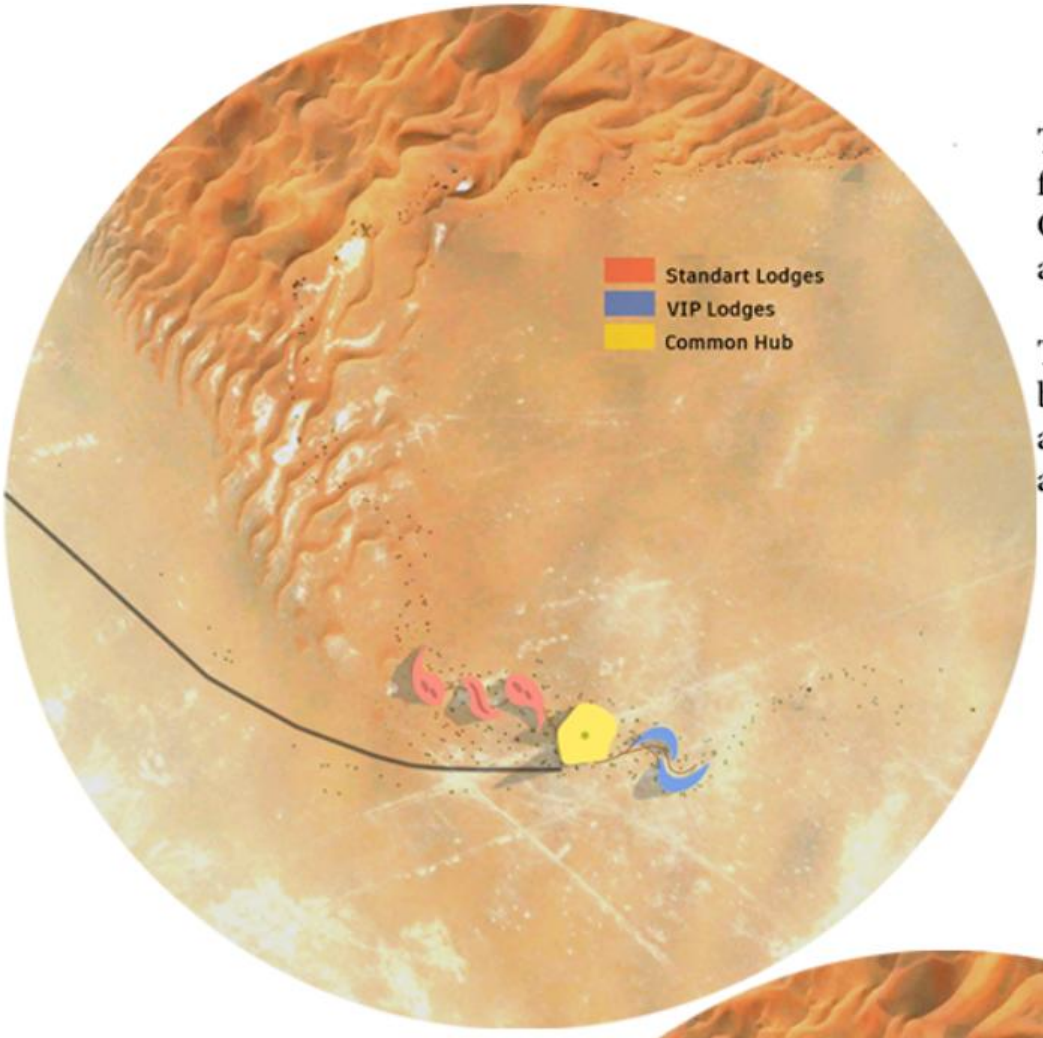
The main idea of the masses comes from the footprints of sand dunes. To protect the natural environment and keep the species in the site.

Also, according to wind and sun analysis the masses are created and improved.

Building Functions

There are three different functions in the project, Common Hub, Standart and V.I.P. Eco-Lodges.

The allocation of the buildings are decided according to the functions and privacy.

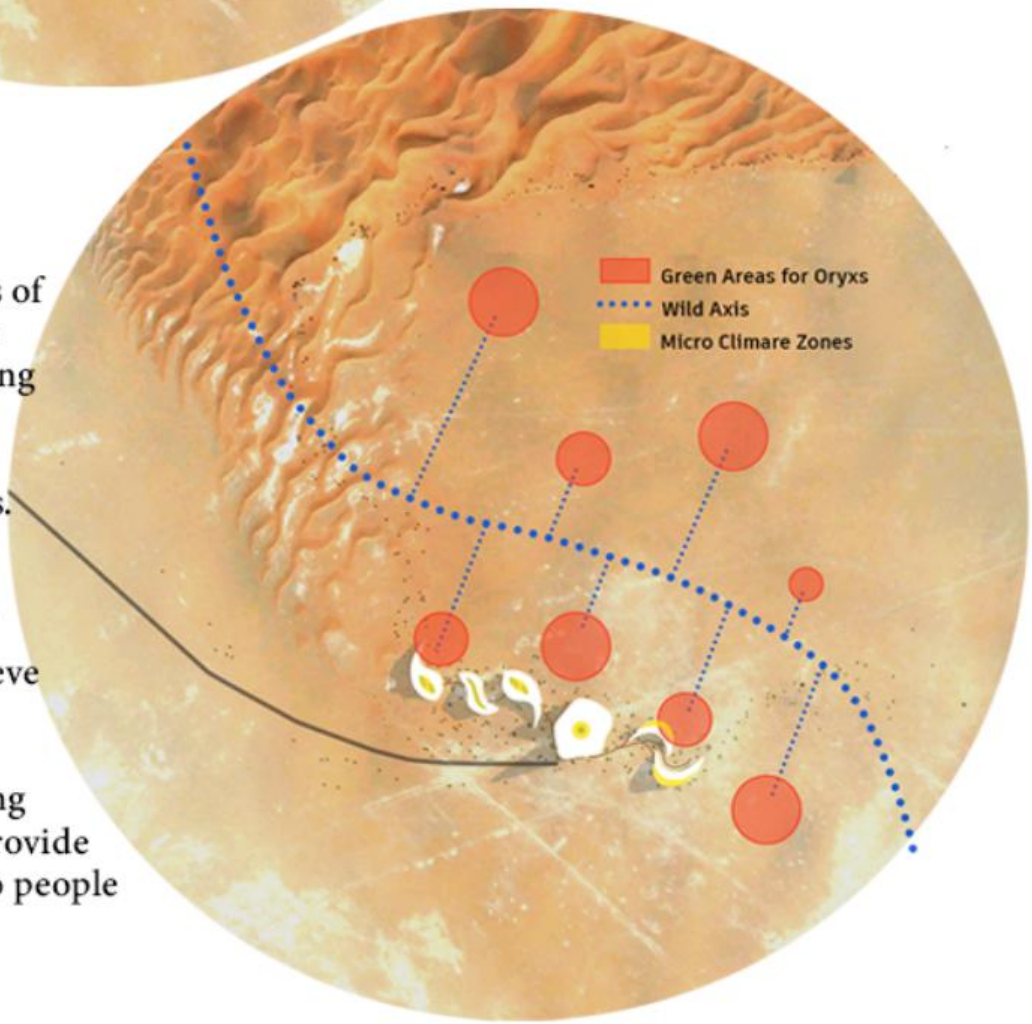


Exterior & Interior Spaces

One of the attractive points of the project is the Wild Axis because it provides a meeting point between people and Oryxs. It gives the chance of observation of the Oryxs.

Therefore, creating some green areas on the route of Wild Axis will help to achieve this purpose.

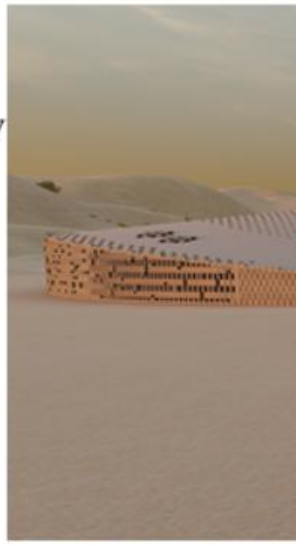
Beside the exterior, crerating micro-climate zones will provide more comfortable spaces to people in the buildings.

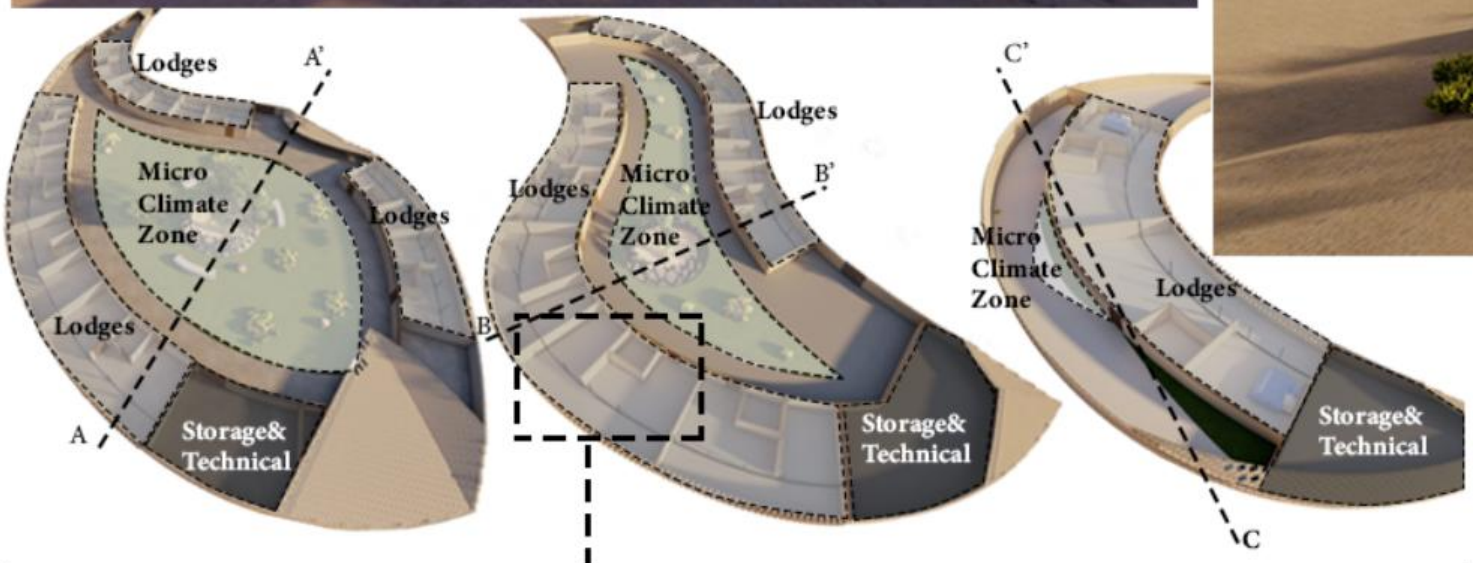


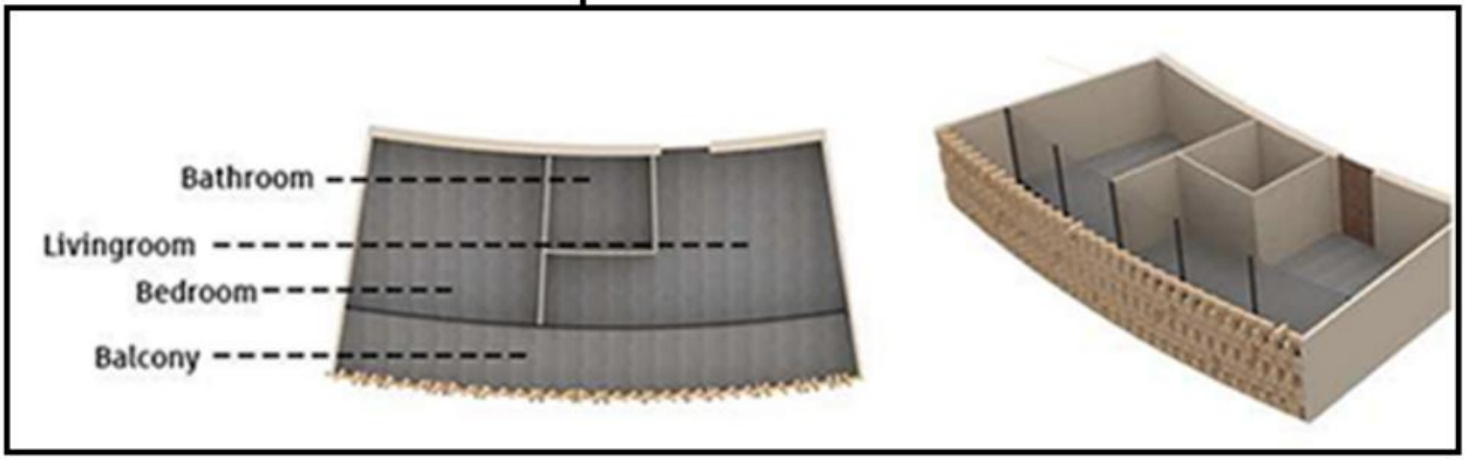
Eco-Lodges

Eco-lodges are designed according to create comfortable spaces but simplicity is also considered with respect to the Arabian traditional tents. Therefore, eco-lodges contain only lodge units, a common area and a storage.

On the other hand, the shapes of the eco-lodges are inspired from the sand dunes to maintain natural environment. Also, the wind is considered to achieve efficient shape.







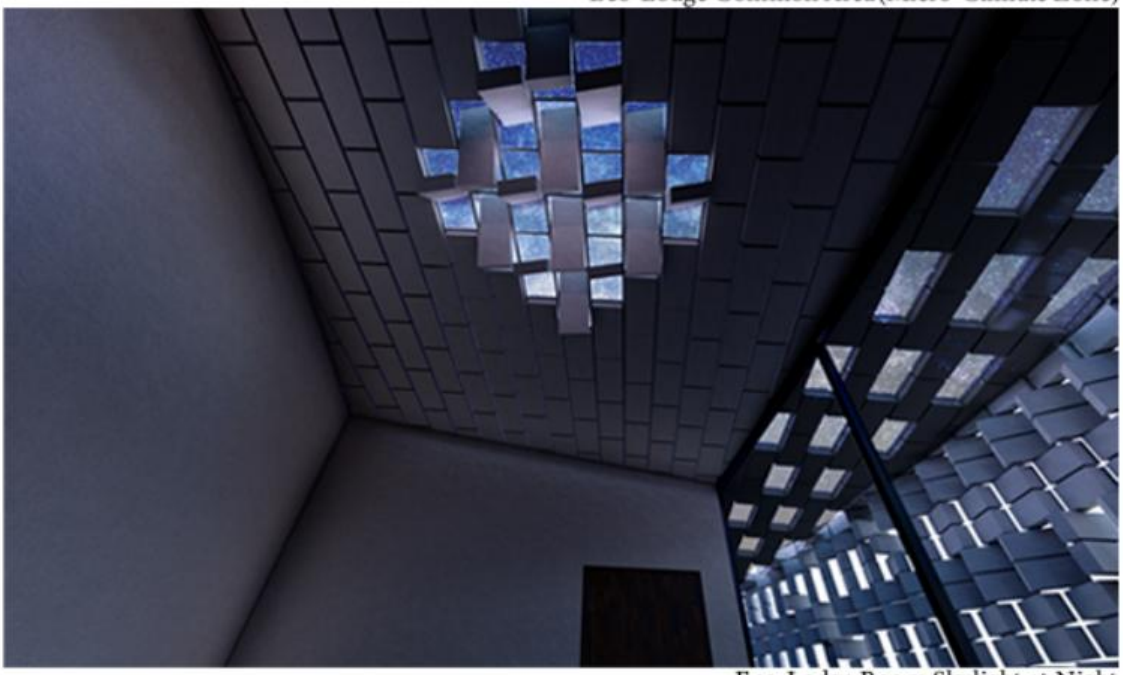
Standart Eco-Lodge #1 | Section AA'

Standart Eco-Lodge #2 | Section BB'

V.I.P. Eco-Lodge | Section CC'

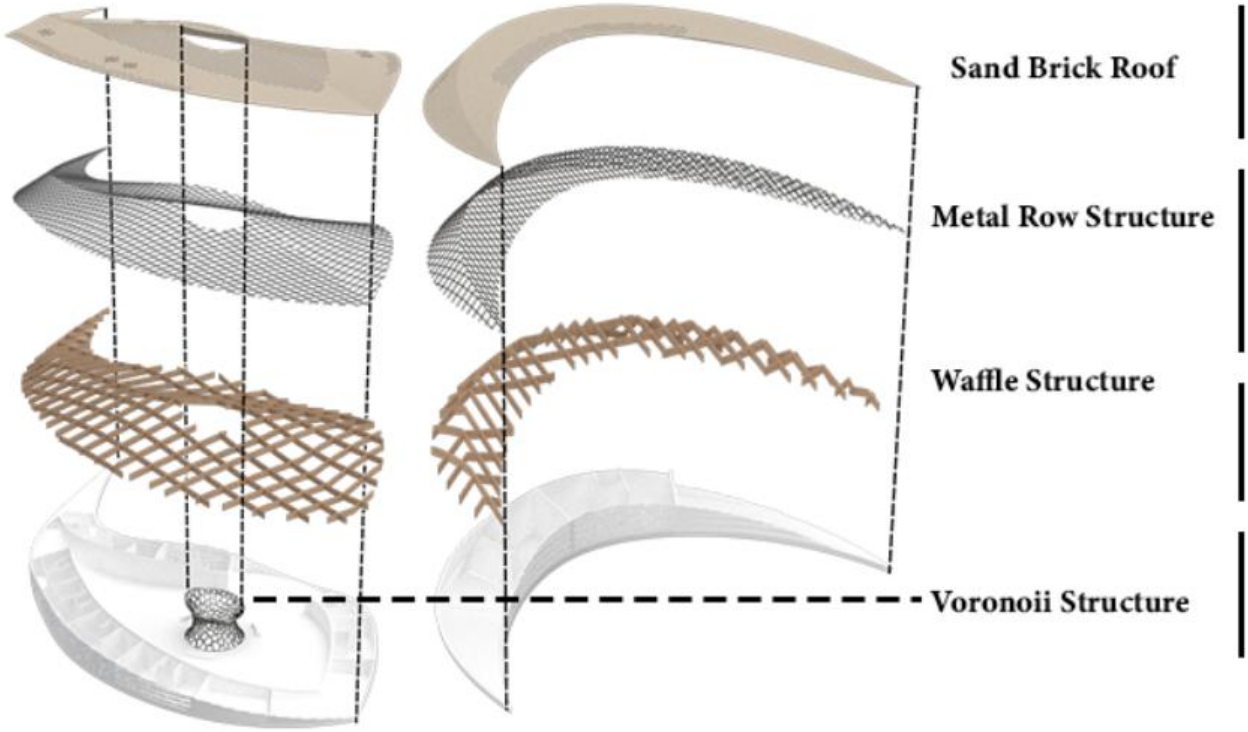
Eco-Lodge Balcony View

Eco-Lodge Common Area(Micro-Climate Zone)

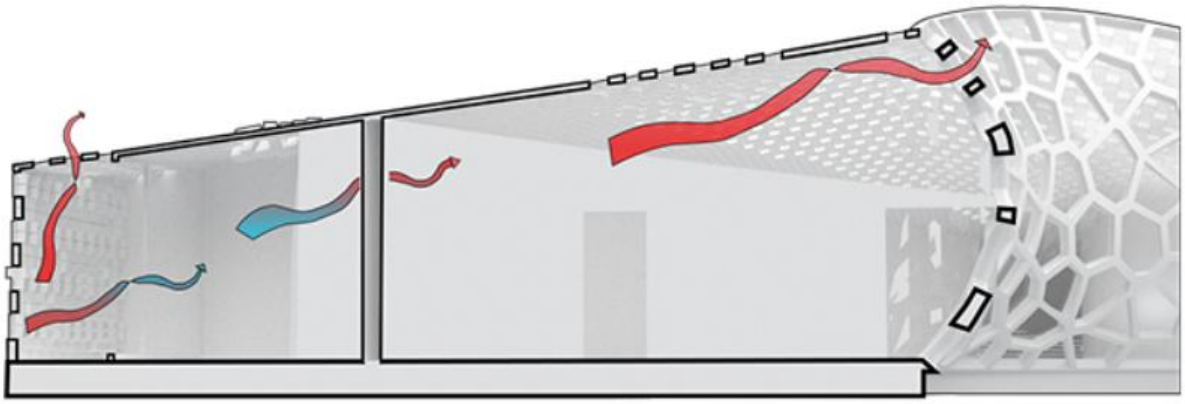


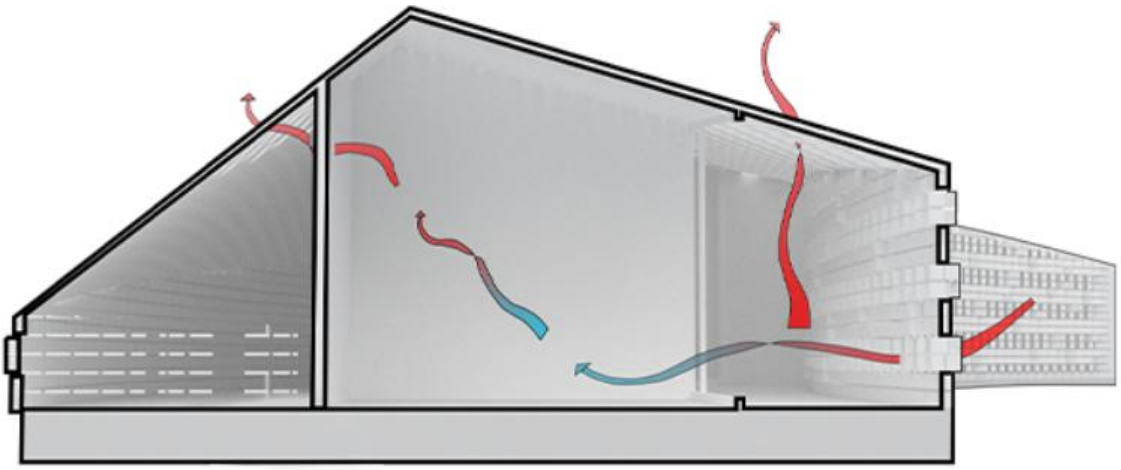
Eco-Lodge Room Skylight at Night

Roof Structure Diagram



Ventilation Diagram





Common Hub

Common Hub is an experience based design and the main aim is that guests who will come here need to live all the feelings that they can feel in a desert. Therefore, there are several different functions such as a sunken restaurant*, an observation center*, a sand timer*, a vista bar, workshops*, social areas and a shop.

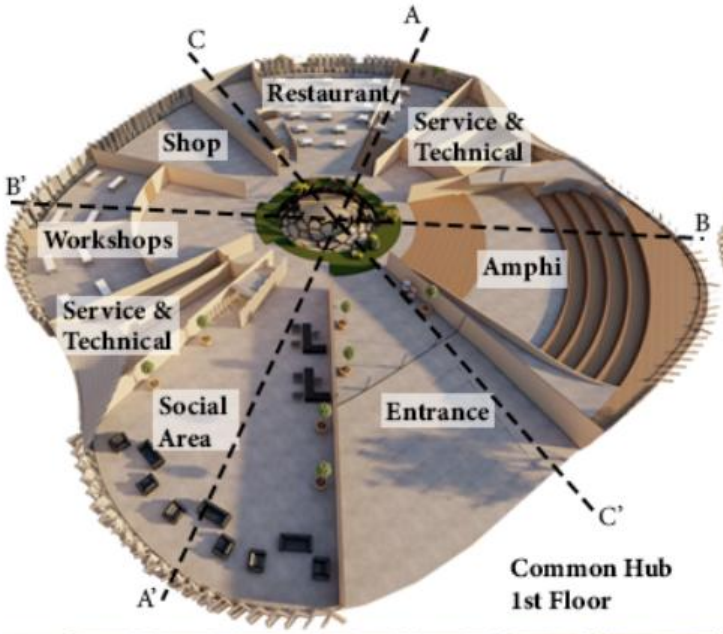
Sunken Restaurant: The facade covered with sand and it works as a sand aquarium. So, people can observe species that live under the sand while eating.

Observation Center: It is designed for the both professional and amateur purposes to observe and experience Oryxs, desert and the nice Milky Way view.

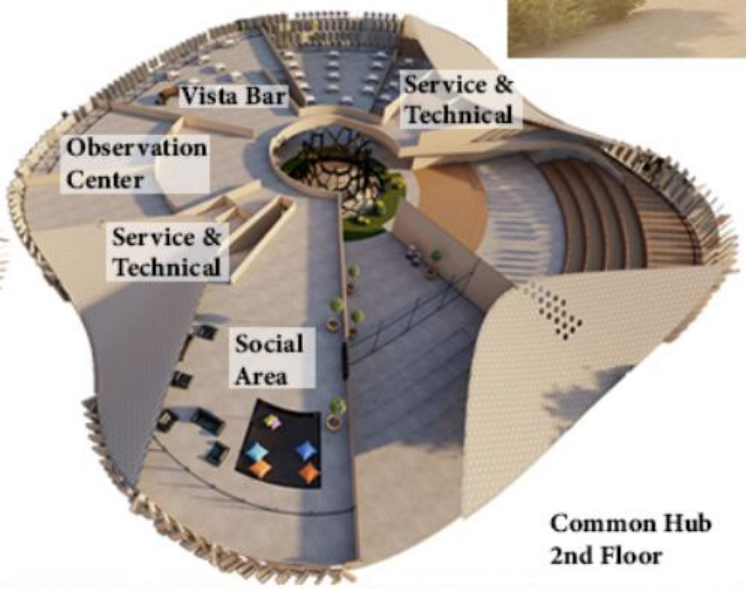
Workshops: The main aim is to experience the process of the sand brick manufacture so all the guest will be able to feel the building better.

Amphi: It is mainly designed for gathering and some group shows. Also, people are able to watch the sand timer during the sand storms from there.

Sand Timer: Sand Timer is the main figure of Common Hub because of its structure and function. It provides a lot to the buildings in terms of sustainability. Also it has a nice view during storms.



Common Hub
1st Floor

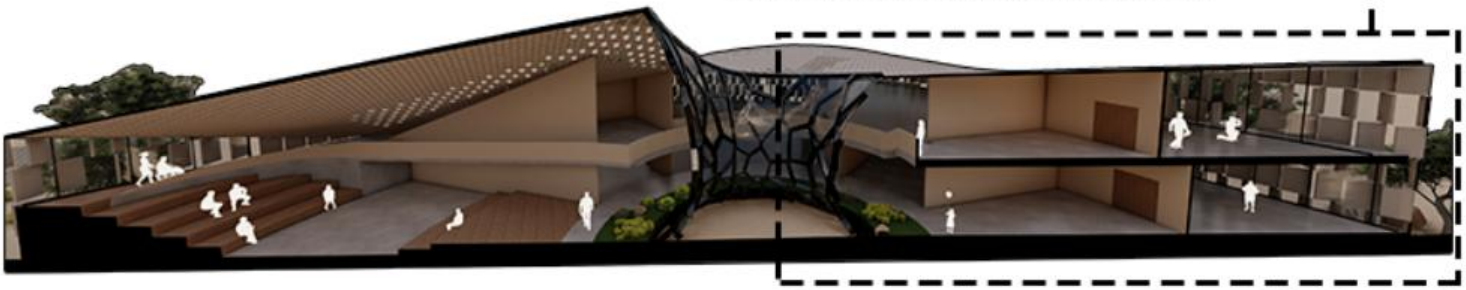


Common Hub
2nd Floor

Common Hub | Sand Timer During a Sand Storm

Common Hub | Sunken Restaurant Section

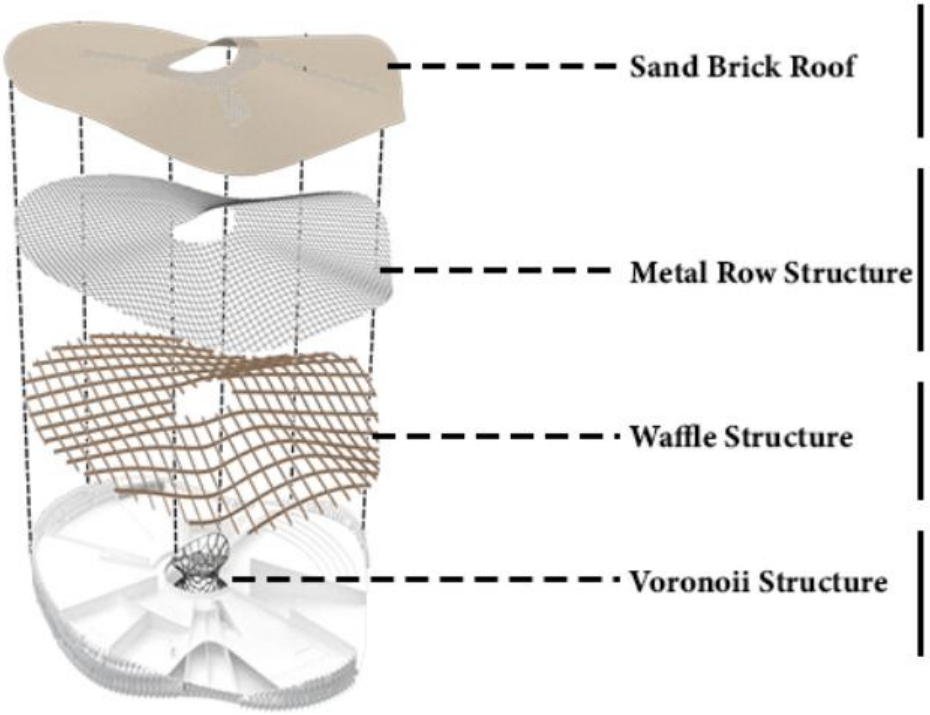
Common Hub | Observation Center Section



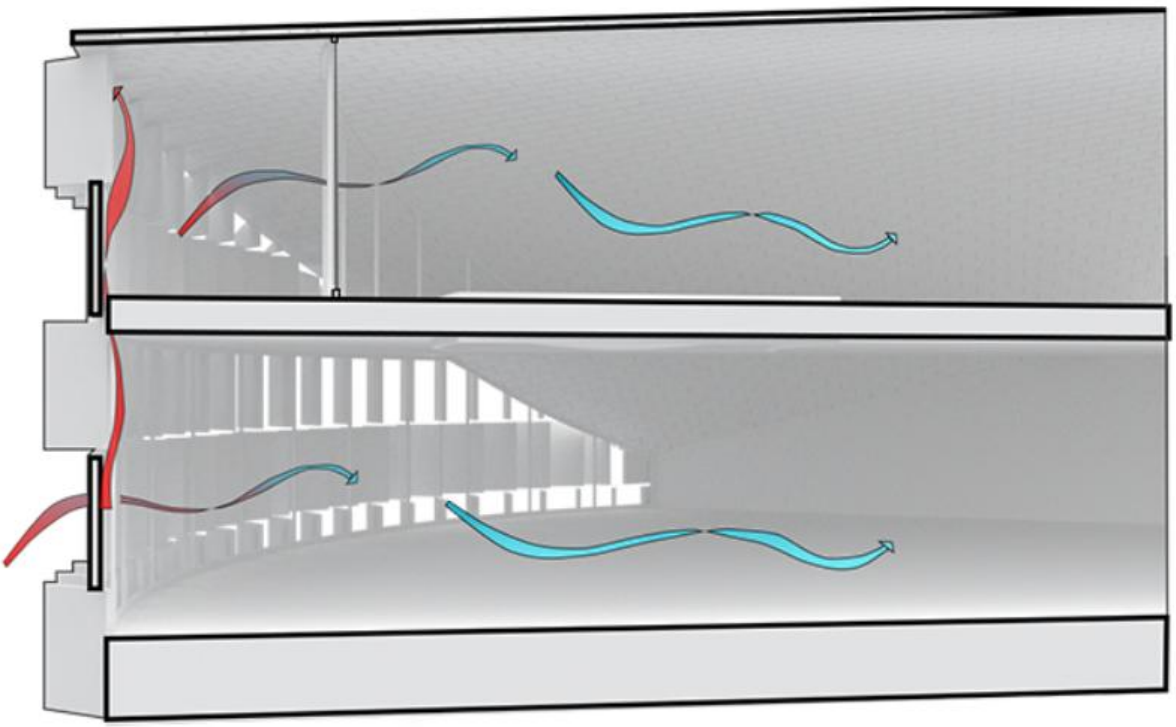
Common Hub | Section BB'

Common Hub | Section CC'

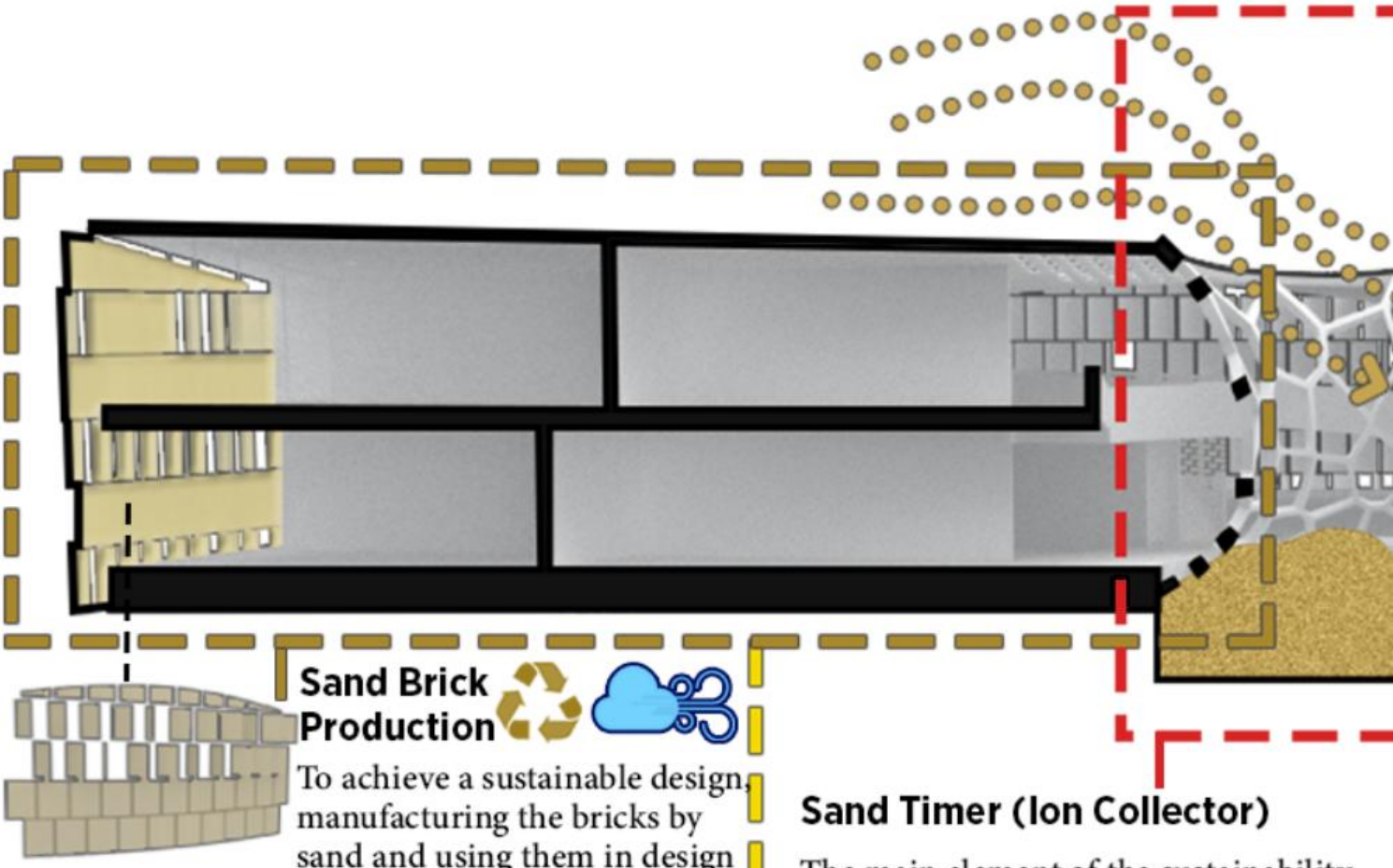
Roof Structure Diagram



Ventilation Diagram



Sustainability

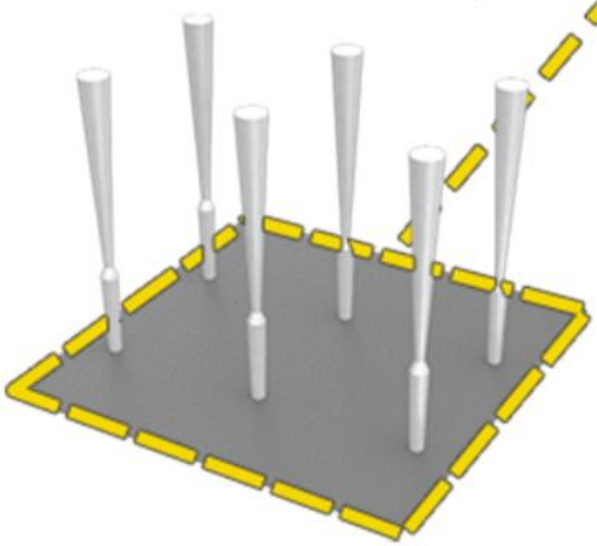


Sand Brick Production

To achieve a sustainable design, manufacturing the bricks by sand and using them in design is significant. Also, creating a facade and roof system with them helps to provide passive air conditioning as well.

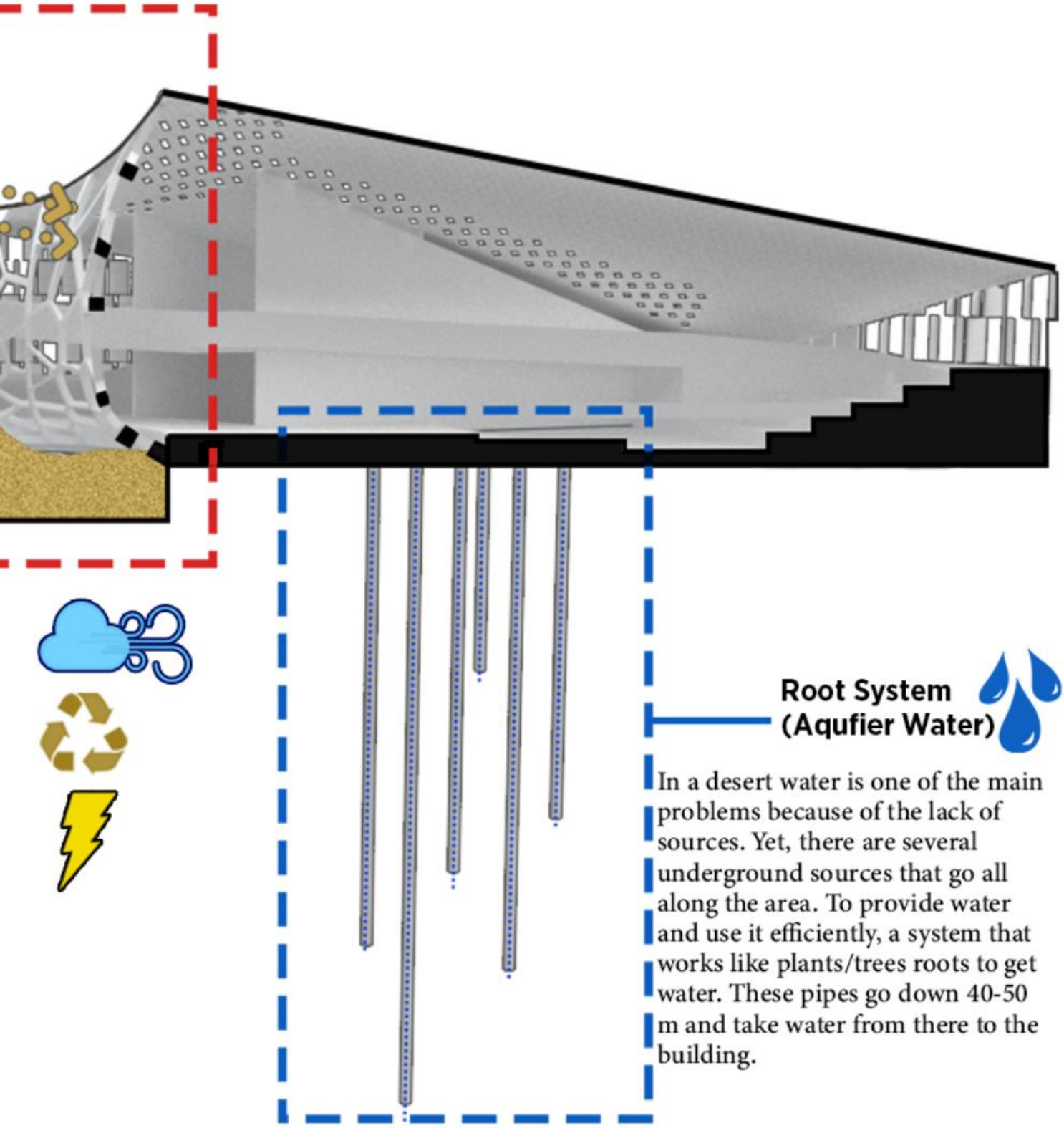
Sand Timer (Ion Collector)

The main element of the sustainability in the project is the sand timer. Sand Timer helps in different purposes such as electricity, recycle of the sand and ventlation. Basicly, it collects the ions from polarized sand with collectors. Then, the collected sand can be used in brick production. Also, it helps to achieve a succesfull ventilation.



Wind Tirbunes

To provide the electricity of the both Eco-Lodges and Common Hub wind tirbunes are used. They are located a far away from the buildings and they are bladeless to not to harm animals.



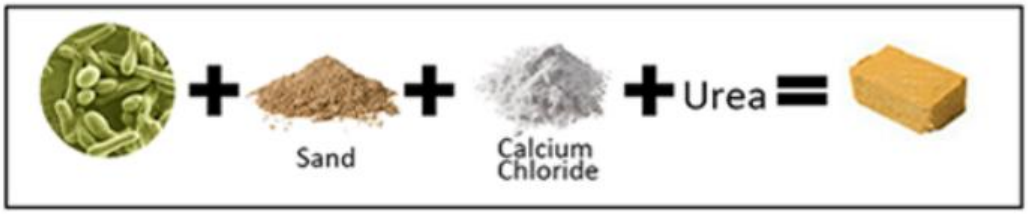
Root System (Aquifer Water)

In a desert water is one of the main problems because of the lack of sources. Yet, there are several underground sources that go all along the area. To provide water and use it efficiently, a system that works like plants/trees roots to get water. These pipes go down 40-50 m and take water from there to the building.

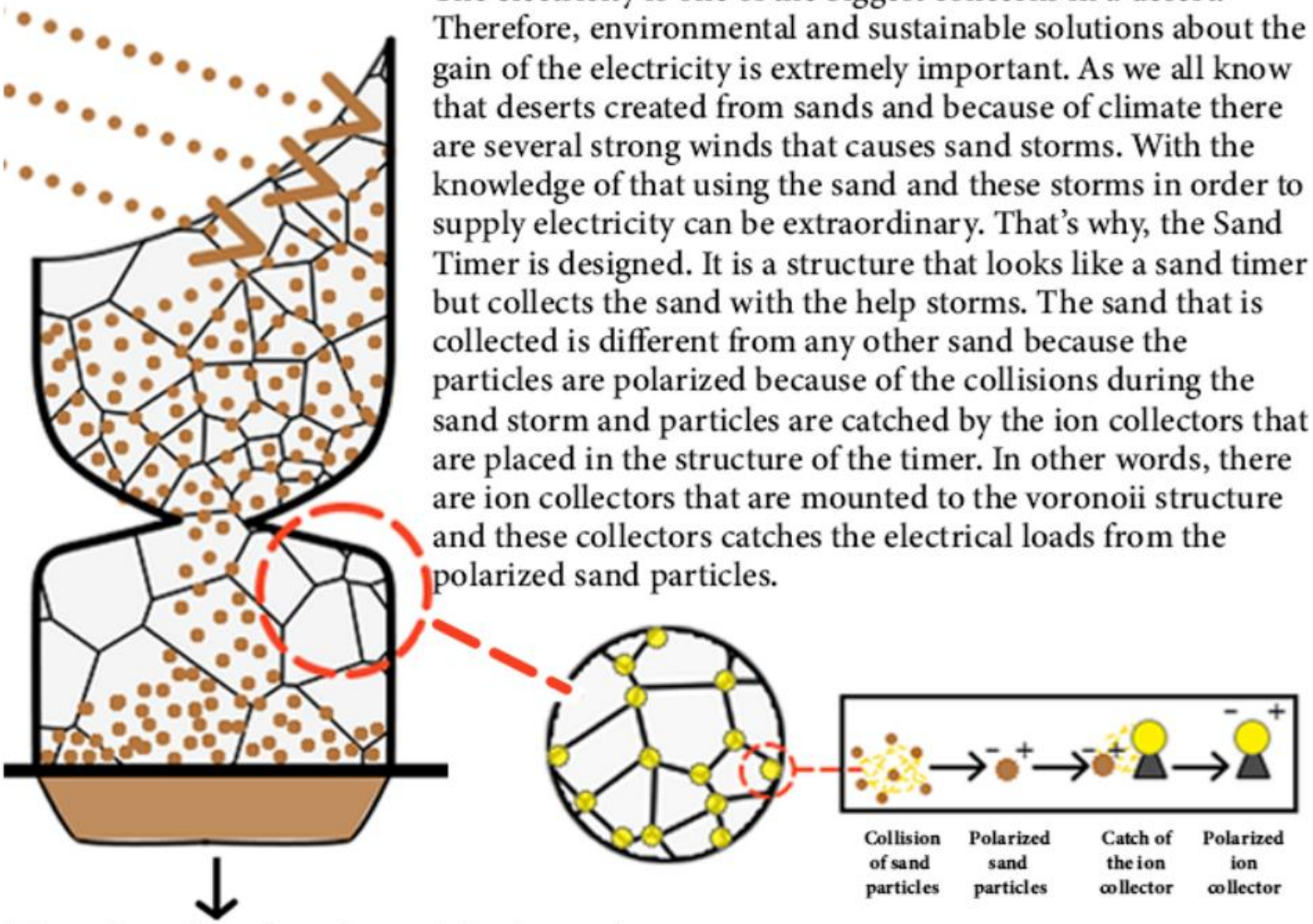
Sustainability

Bacillus Pasteuri

Bacillus Pasteurii(Sporosarcina Pasteurii) is a bacteria that helps to toughen and strengthen the sand through microbiologically induced calcide precipitation or biological cementation. By molding the sand after mixing it with several materials, different types of sand bricks,walls can be manufactured according to dimensions of the molds.



Sand Timer (Ion Collector)



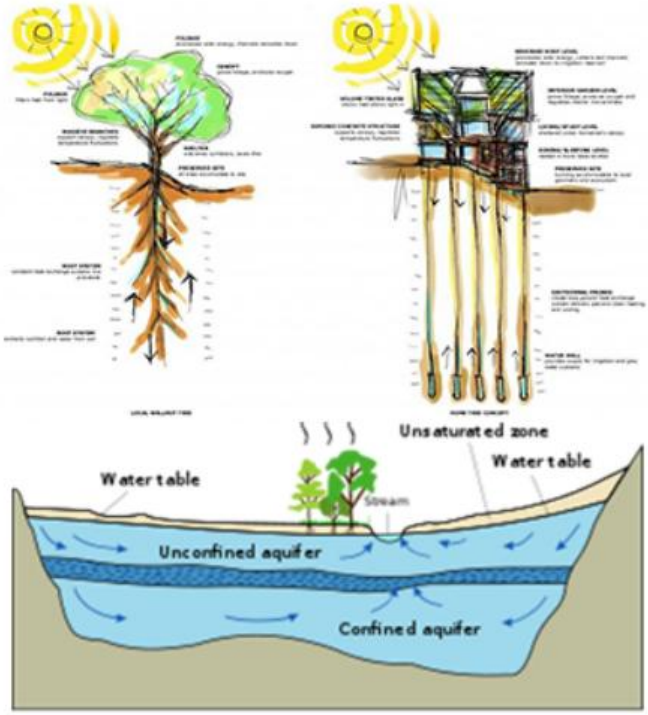
The electricity is one of the biggest concerns in a desert. Therefore, environmental and sustainable solutions about the gain of the electricity is extremely important. As we all know that deserts created from sands and because of climate there are several strong winds that causes sand storms. With the knowledge of that using the sand and these storms in order to supply electricity can be extraordinary. That's why, the Sand Timer is designed. It is a structure that looks like a sand timer but collects the sand with the help storms. The sand that is collected is different from any other sand because the particles are polarized because of the collisions during the sand storm and particles are catched by the ion collectors that are placed in the structure of the timer. In other words, there are ion collectors that are mounted to the voronoii structure and these collectors catches the electrical loads from the polarized sand particles.

The collected sand can be used for the sand brick manufacture. Therefore, this system become more sustainable and useful.

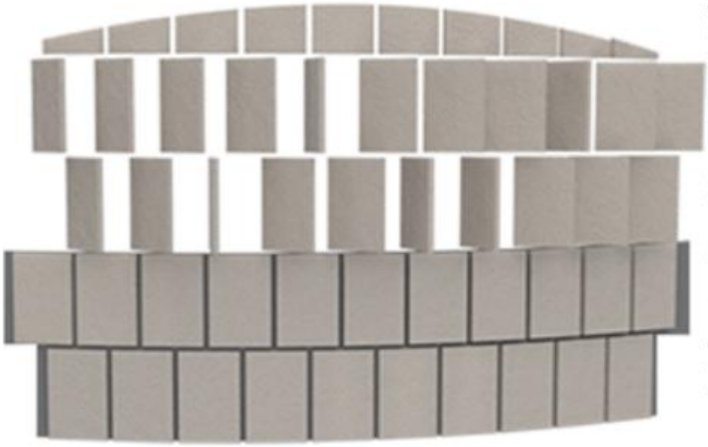
Root System(Aqufier Water)

According to the water analysis, it can be said that underground water sources are extremely significant for the design. In order to achieve a well designed water system, working principles of roots of the plants are observed.

With the help of that observation, a system that is called “Root System” can be used for supplying water and recycling it.



Sand Brick Facade

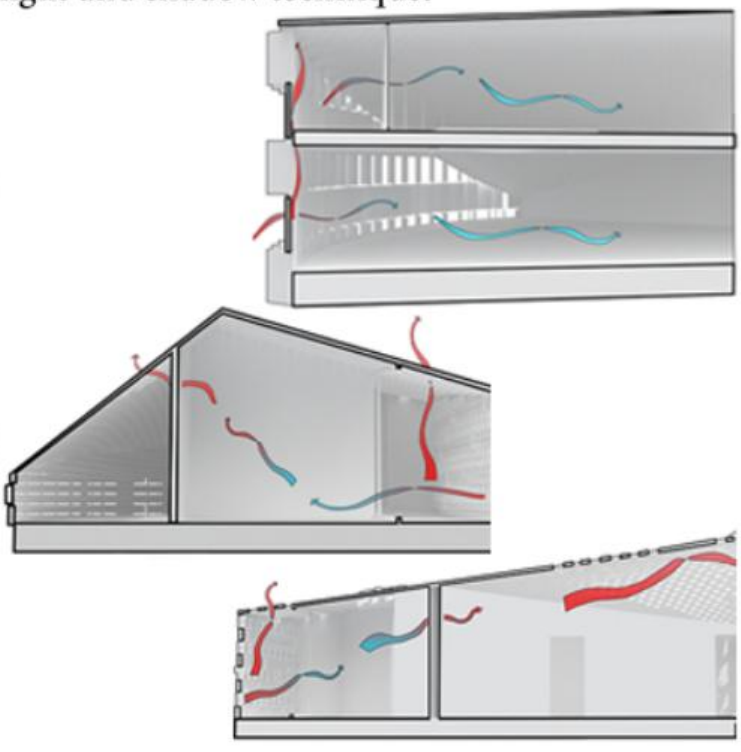


As it is mentioned, with the help of Sand Timer, sand is collected. By appyling the bacteria, sand bricks are manufactured. With these bricks a facade system that is fully sustainable and eco-friendly is designed. The bricks on the facade have specific angles according to the sun angle at that direction. So, sun and high temperature can be controlled. Also, it provides a nice view in the building with light and shadow technique.

On the other hand, sand brick facade system provides passive air conditioning such as trombe wall and double skin facade.

During daytime it works as a double skin facade so hot air becomes cooler inside and when it become hot again, it moves up to the outside.

At nights, it works as a trombe wall. Sand bricks act like thermal mass and keep inside warm.



Renders

Common Hub | Entrance at Night

Mega Dunes Eco-Lodges Overall at Night

V.I.P. Eco-Lodges | Exterior

Common Hub | Social Activity Area

Renders

Mega Dunes Eco-Lodges Overall at Daytime

Taha Alptekin Mülkoğlu

Rural Rehabilitation&Renewal Project in Kızılcahamam-ANKARA

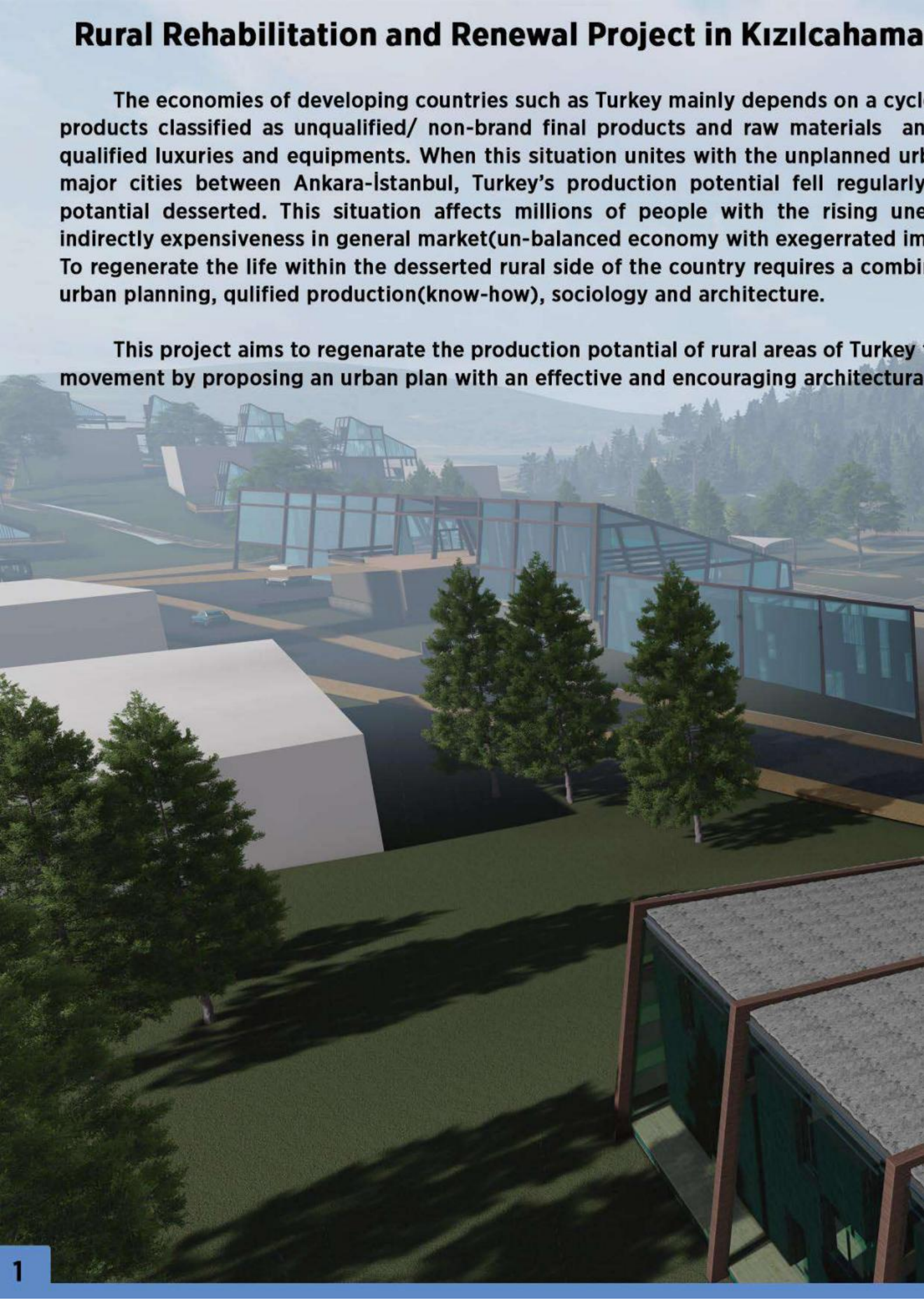
by Taha Alptekin MÜLKOĞLU

Context:

Rural Rehabilitation and Renewal Project in Kızılcahama

The economies of developing countries such as Turkey mainly depends on a cycl products classified as unqualified/ non-brand final products and raw materials an qualified luxuries and equipments. When this situation unites with the unplanned urb major cities between Ankara-İstanbul, Turkey's production potential fell regularly potantial desserted. This situation affects millions of people with the rising une indirectly expensiveness in general market(un-balanced economy with exegerrated im To regenerate the life within the desserted rural side of the country requires a combi urban planning, qulified production(know-how), sociology and architecture.

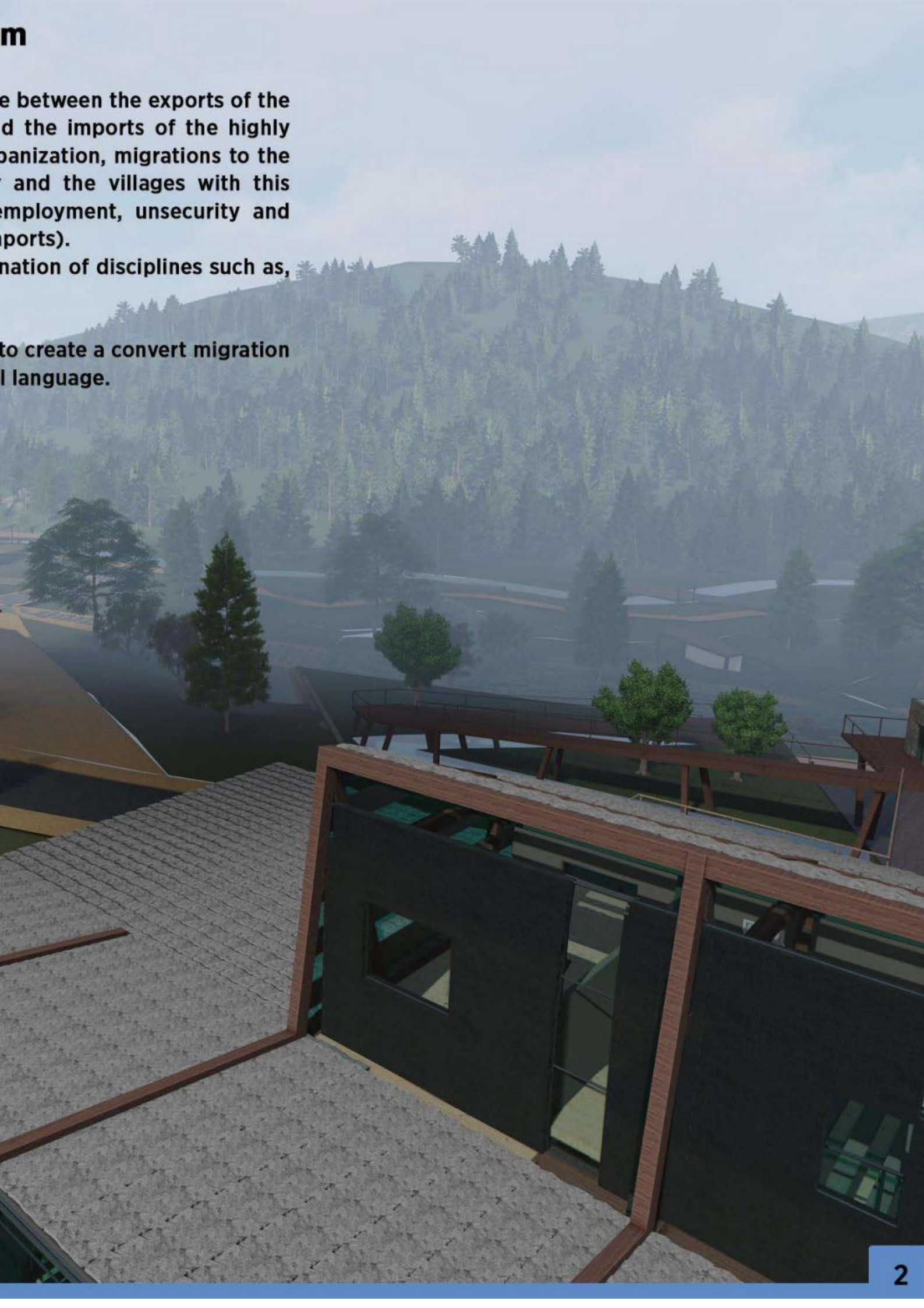
This project aims to regenarate the production potantial of rural areas of Turkey movement by proposing an urban plan with an effective and encouraging architectura

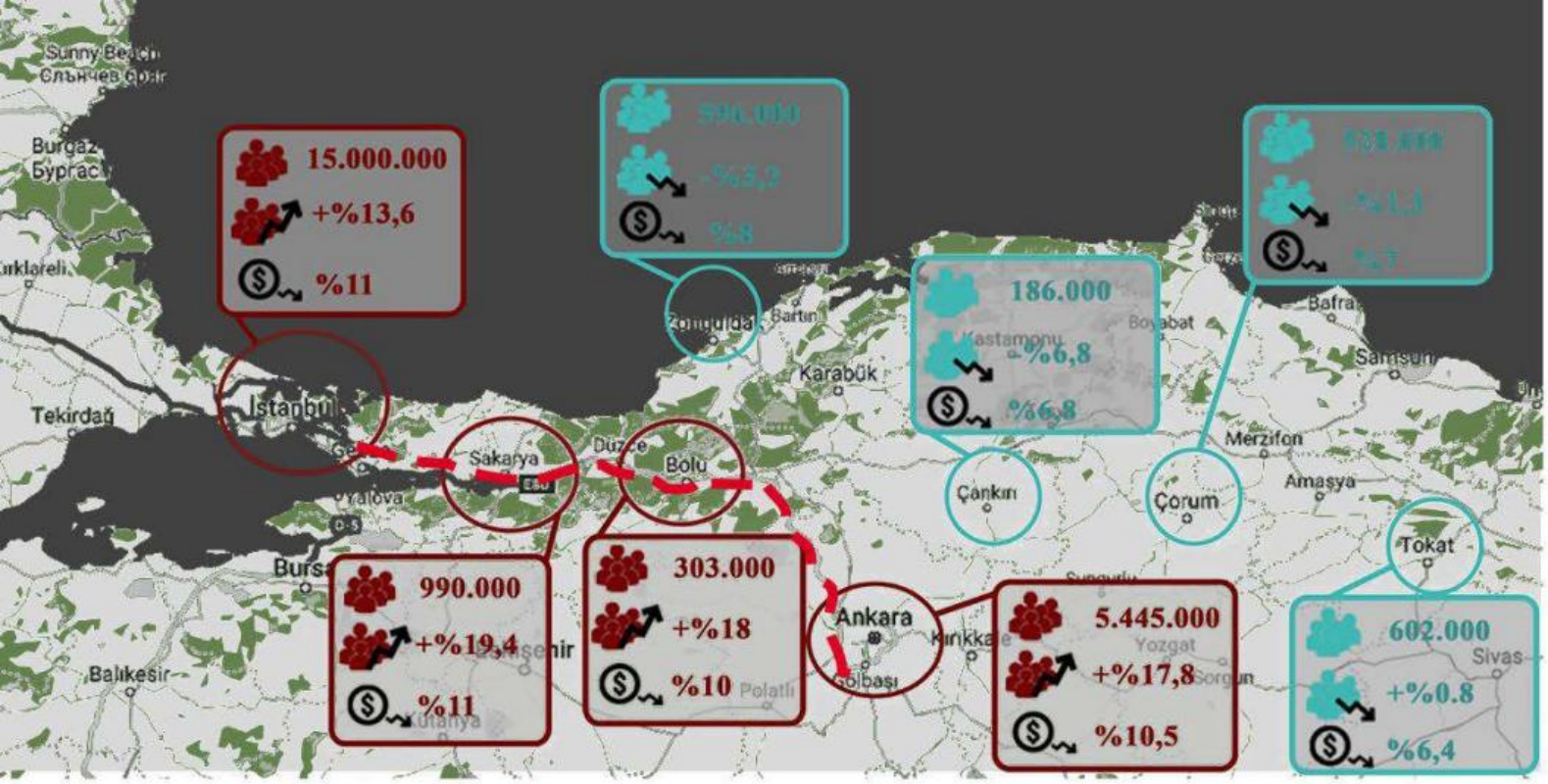


m

e between the exports of the
d the imports of the highly
panization, migrations to the
and the villages with this
employment, unsecurity and
ports).
nation of disciplines such as,

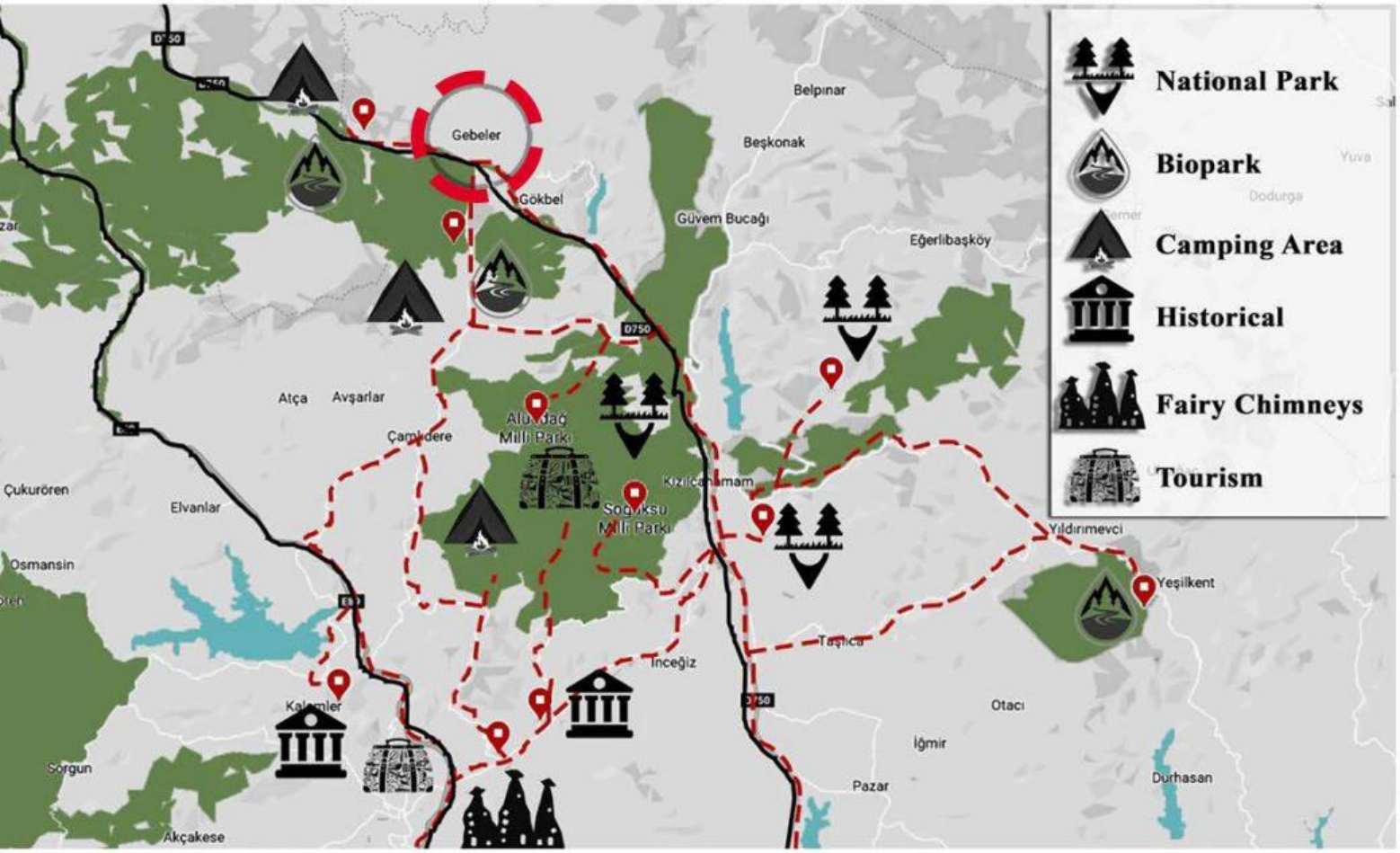
to create a convert migration
l language.





Migrations&Over Population Routes and Problems in Turkey

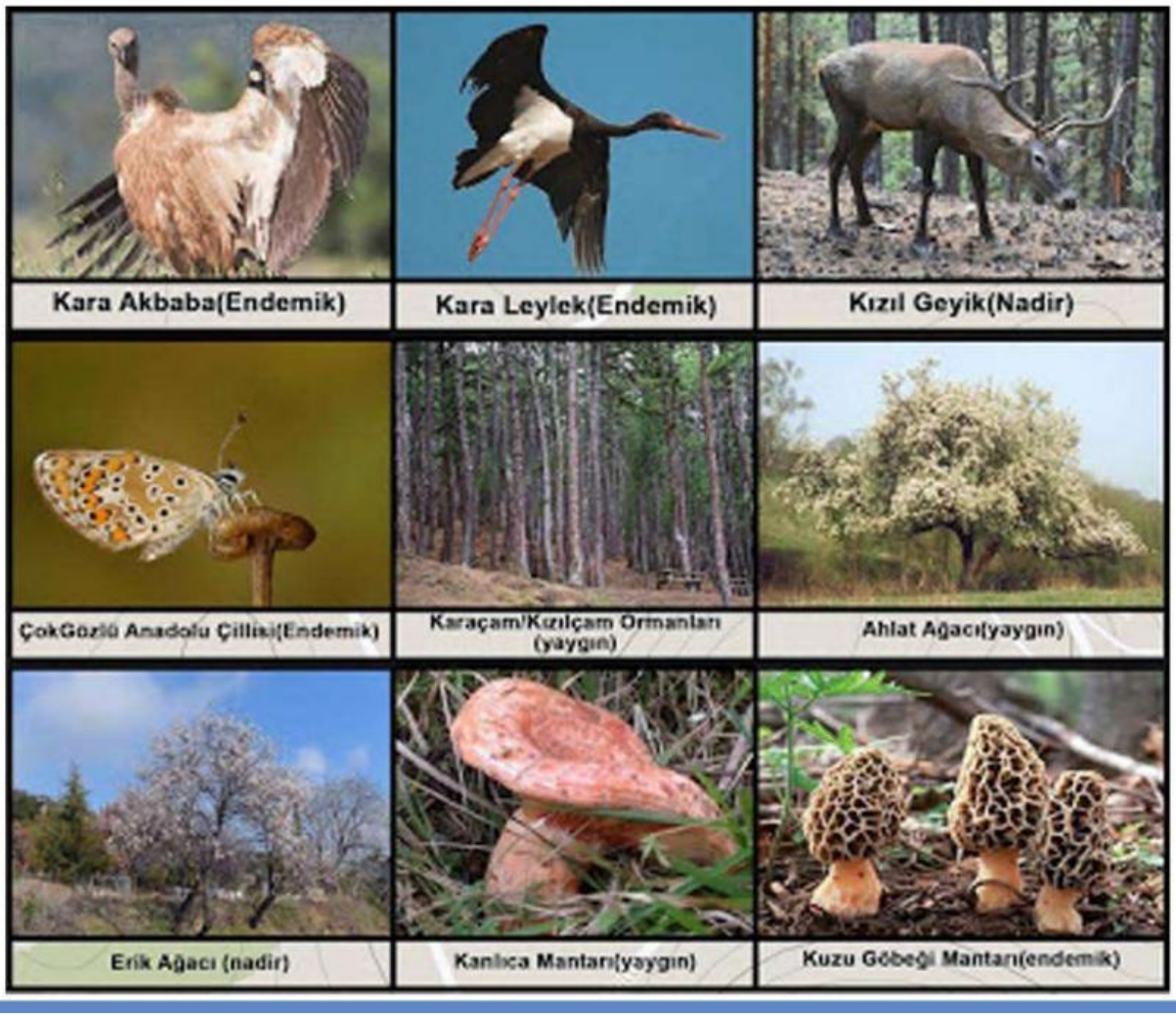
The demographic map showing the population, population growth and unemployment rates on a provincial basis, which was created based on 2017 TÜİK (http://www.tuik.gov.tr/Start.do) data, is above. This map, which westward migration in Turkey, Ankara's northwest (Istanbul direction), and has tried to show by taking the numerical data of the north east of the province.



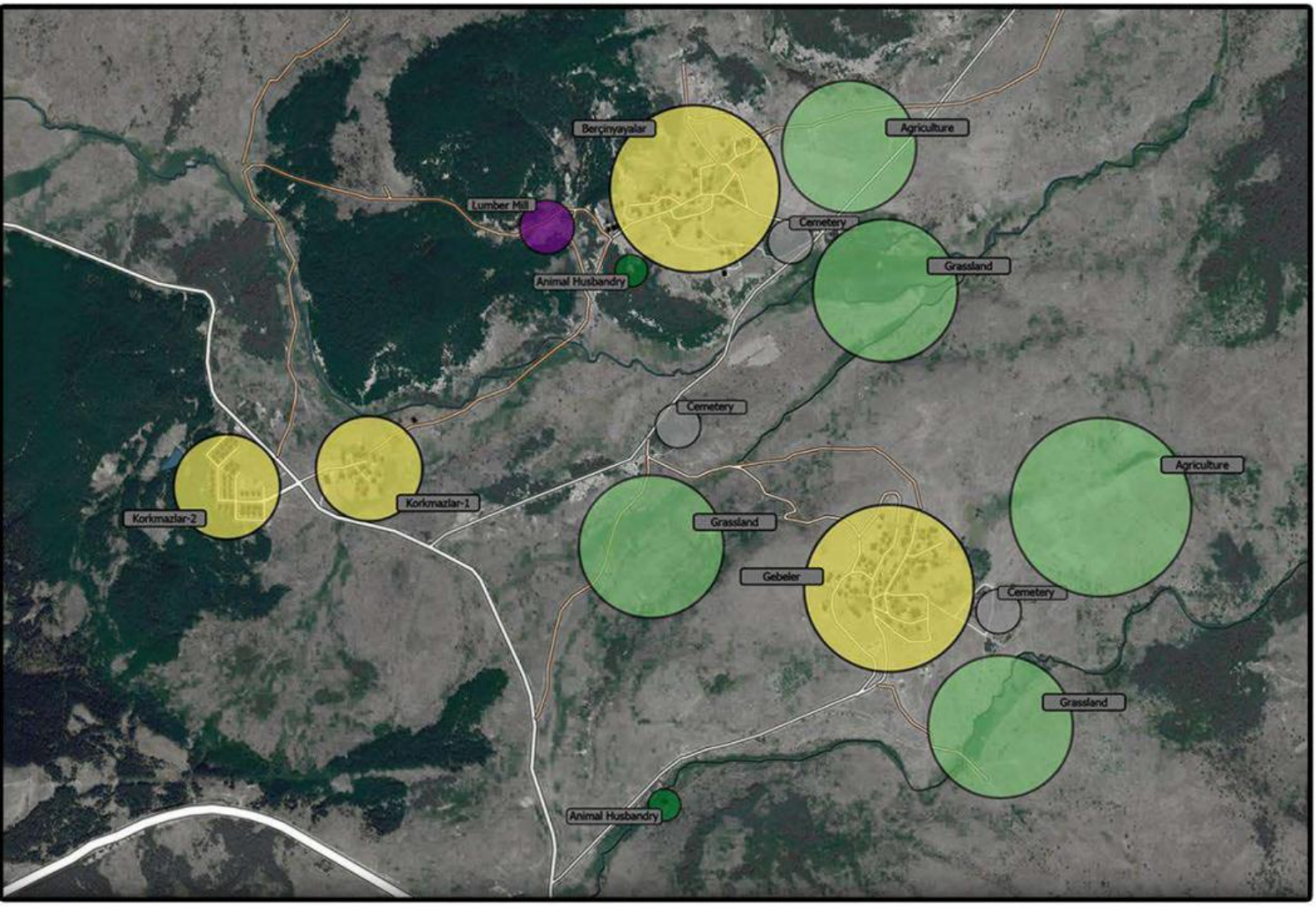
A graphic showing the flow of people on the basis of touristic circulation of the region has been arranged. This approach can reveal potentials that are not used in the flow and can help scale down the choice of project area.

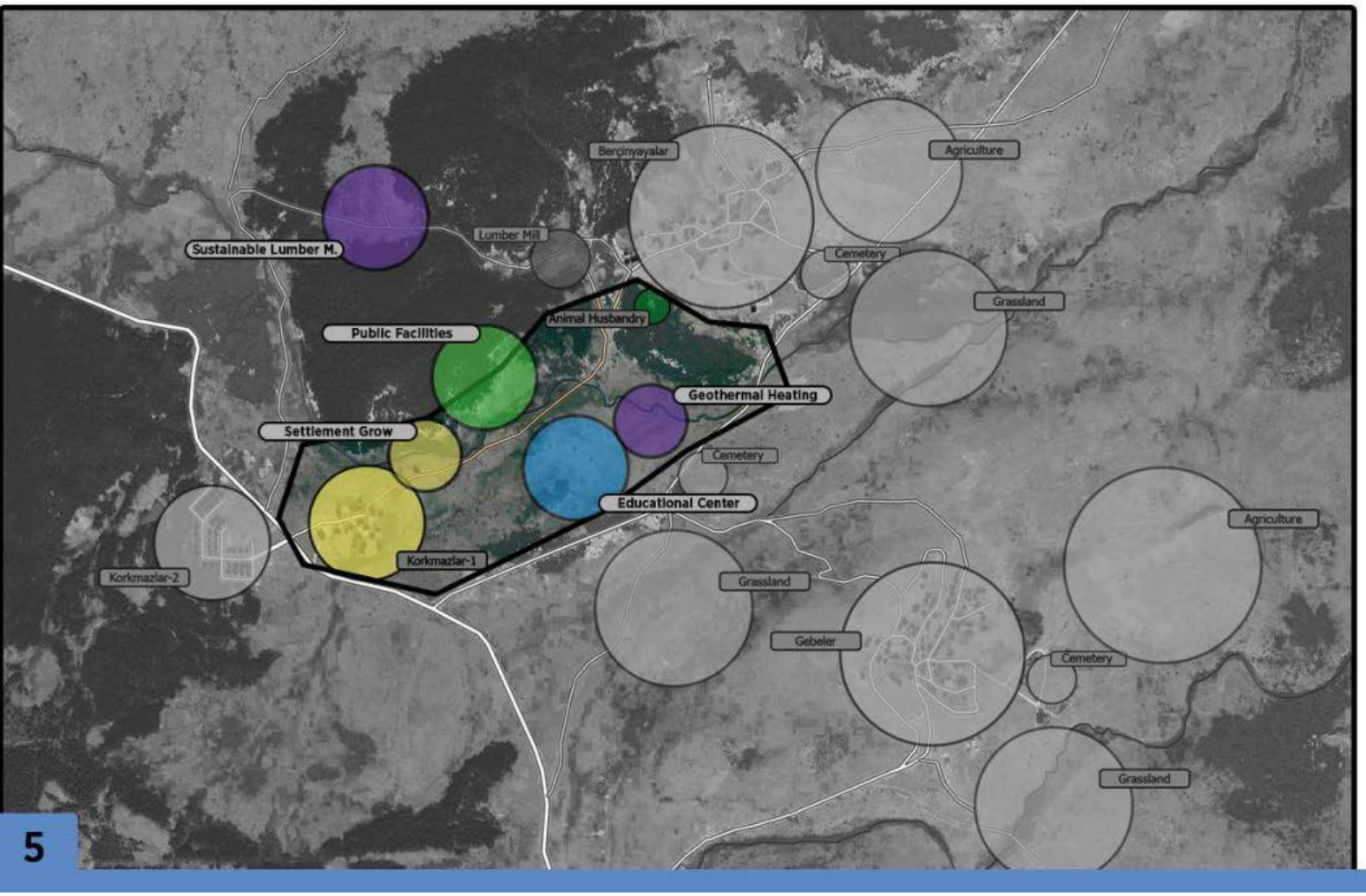
Possible Reverse Migration Scenerios, Regional Investigation

I decided to study the Ankara-Kızılcahamam area marked as "1" because of the possibility of access to the axes fed by important ports in the Black Sea region, proximity to Ankara-Istanbul direction, geothermal wealth in the region and my individual experience in the region. In the study, the active / idle areas of the region will be evaluated and abandoned settlements will be revitalized with the production, trade and education cycle and a sustainable village life model will be emphasized. The lack of production and exports brought by the idle rural areas will be tried to be broken; economic, sociocultural and infrastructure problems caused by overpopulation in metropolitan cities will be tried to be alleviated.

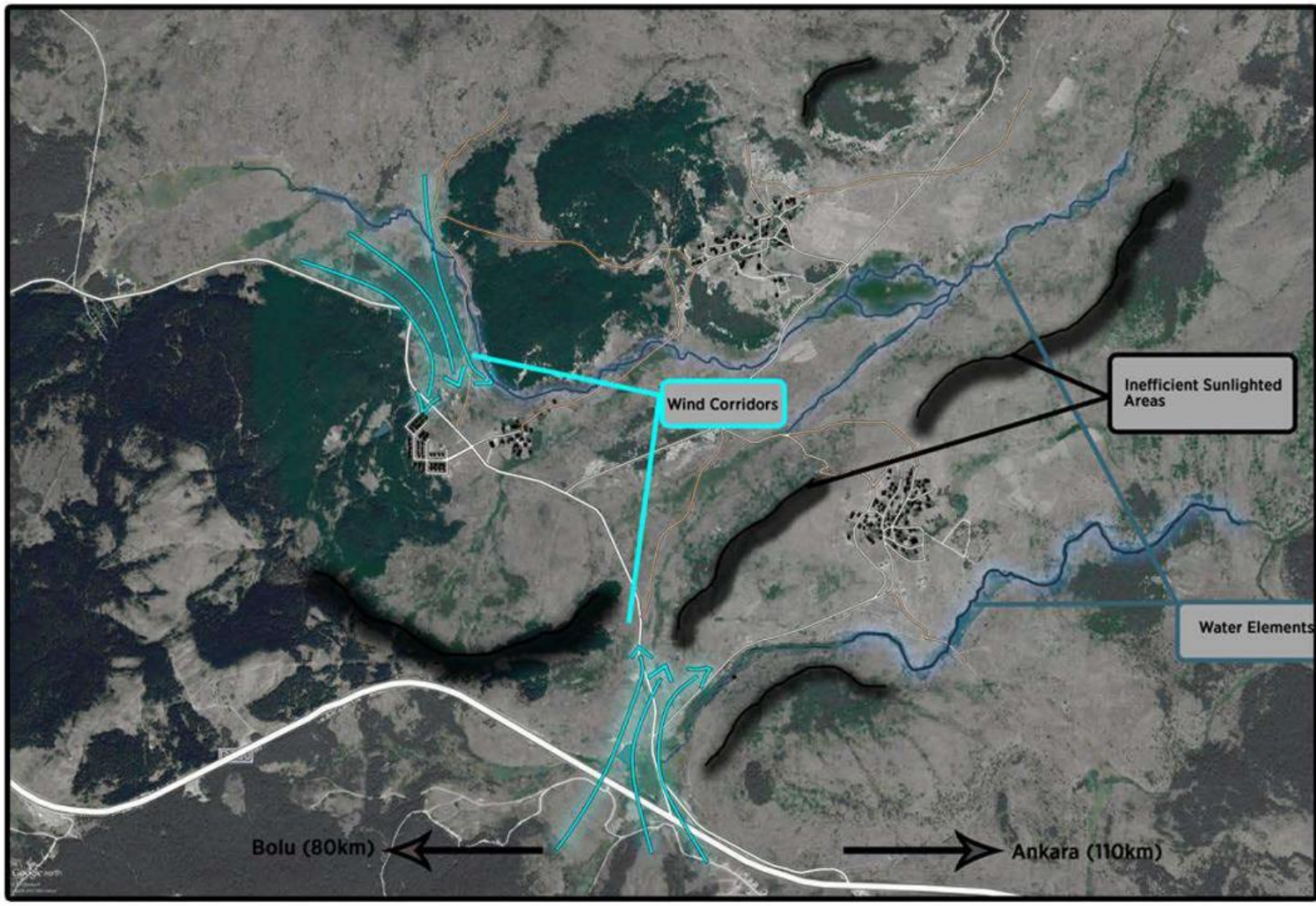


EXISTING & P


Berçinyayalar
Agriculture
Lumber Mill
Cemetery
Grassland
Animal Husbandry
Cemetery
Agriculture
Korkmazlar-2
Korkmazlar-1
Grassland
Gebeler
Cemetery
Grassland
Animal Husbandry


Berçinyayalar
Agriculture
Sustainable Lumber M.
Lumber Mill
Cemetery
Grassland
Animal Husbandry
Public Facilities
Geothermal Heating
Settlement Grow
Cemetery
Educational Center
Agriculture
Korkmazlar-2
Korkmazlar-1
Grassland
Gebeler
Cemetery
Grassland

ROPOSED ZONES



Proposed Functions:

-Sustainable Lumber Mill

-Geothermal Heating Plant

-Institution

-Public Facilities

-Housing Typology

-Trading/Marketing Center

-Hydroponic Farming

Program Will Be Focused On:

"Regeneration of social flow."

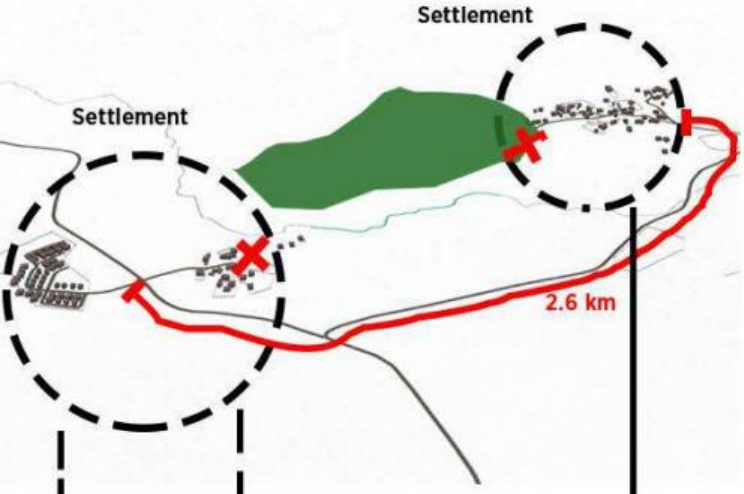
Project Program:

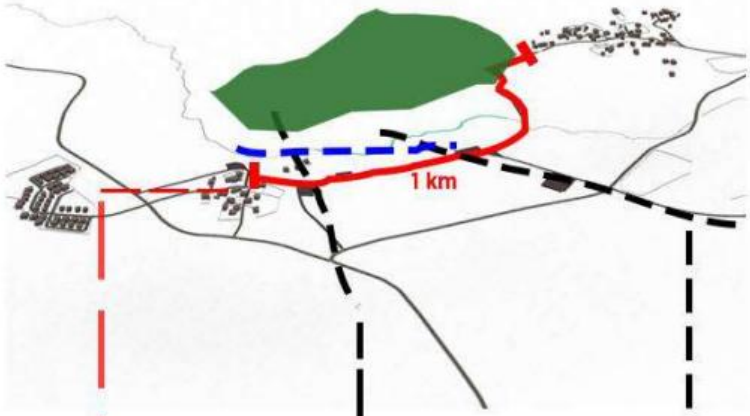
-Housing Typology

-Public Facilities

-Adaptive Education Center

Connecting Dead Ends in Circulation





A new settlement disregards site references, old habbits and flows. Seasonal use.

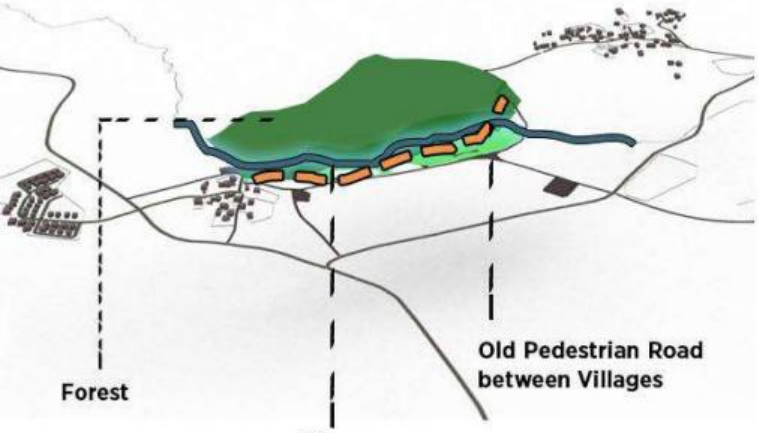
Oldest settlement in site. Deserted mostly.

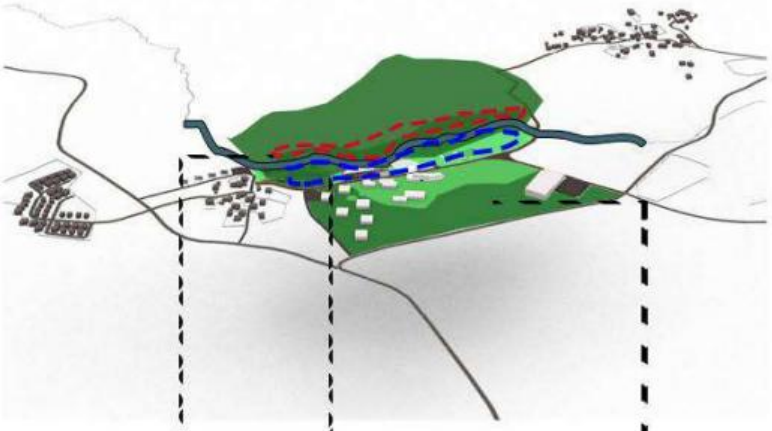
Another old settlement, has some activities such as animal husbandry and lumbering still but mostly deserted.

Proposed additional car roads to create the junction points on the main axe which will carry intense social and infrastructural load.

Proposed main axe that could easily create social and infrastructure flows by connecting villages and using site reference advantages.

Defining Appropriate Zones





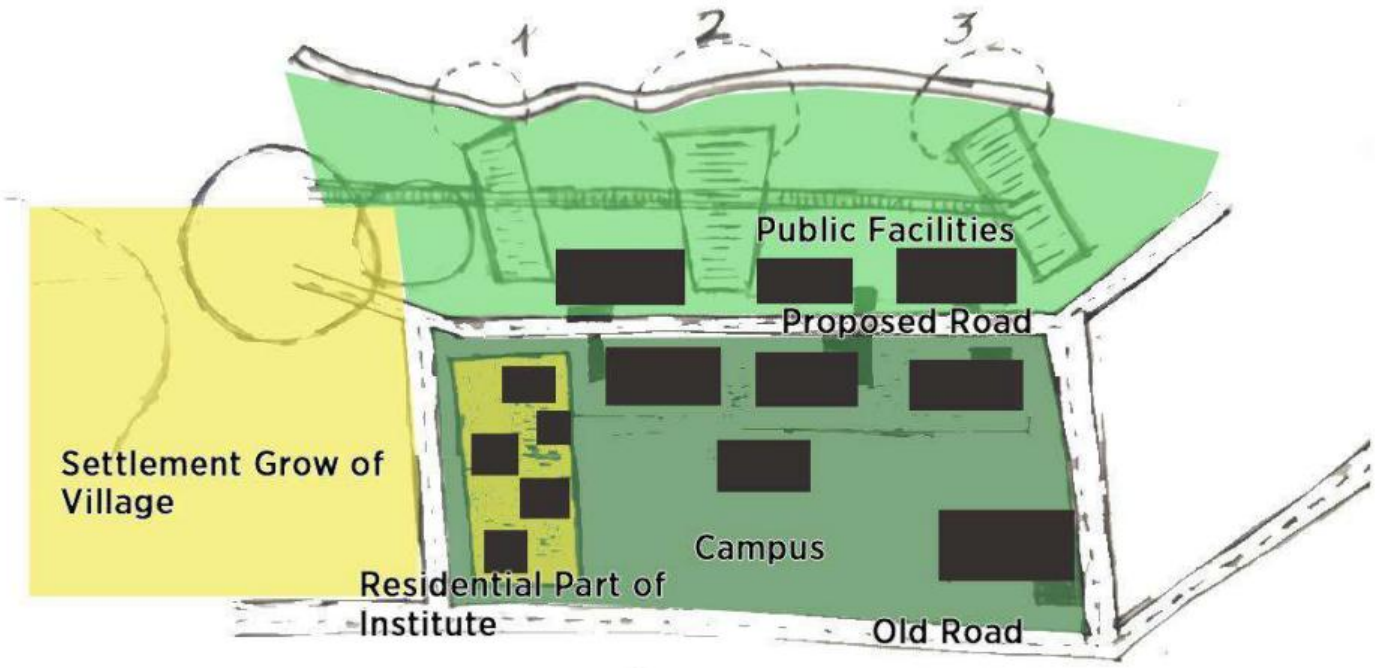
A green corridor is proposed through river as a buffer zone between forest and public activities.

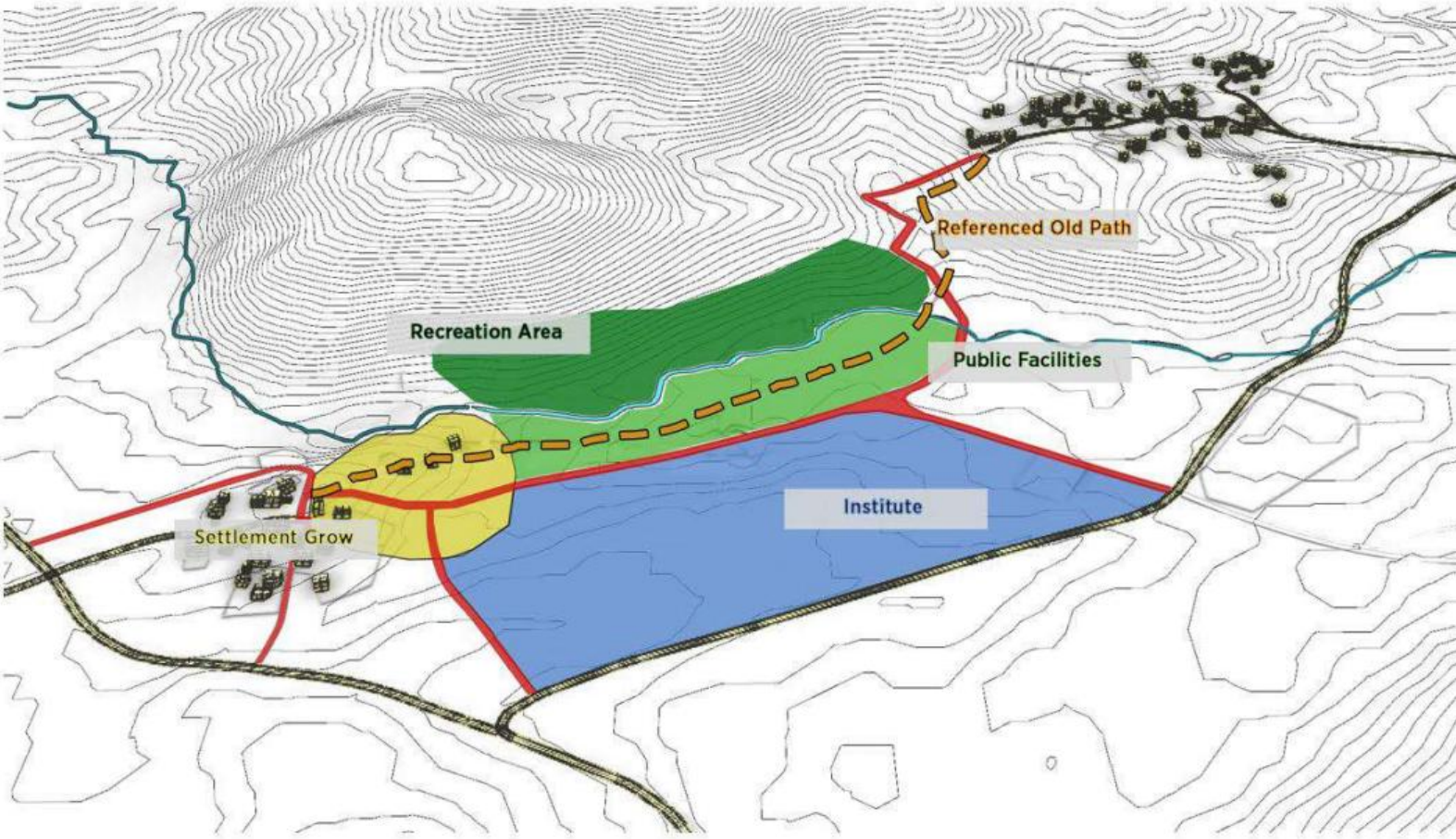
Public Facilities Proposed between the axes of river and proposed main car road.

Institute is proposed to mentally sustain the qualified production activities at the area.

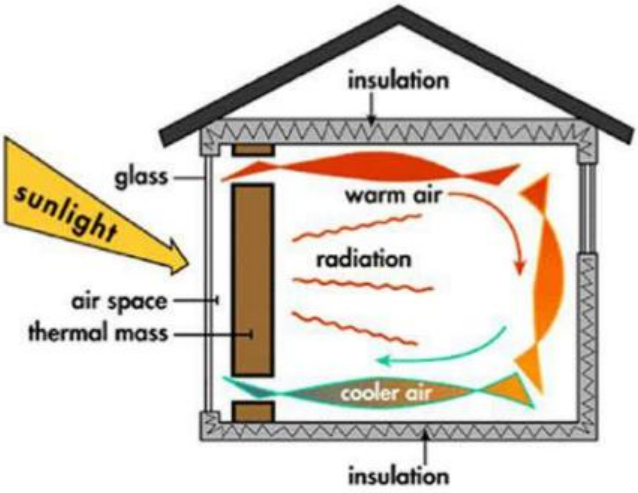
Strategies

Basic Aproaches

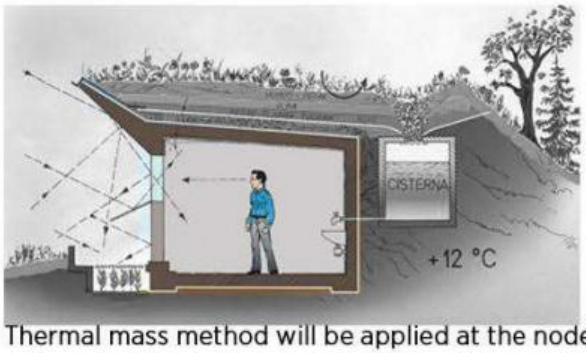




Passive Systems



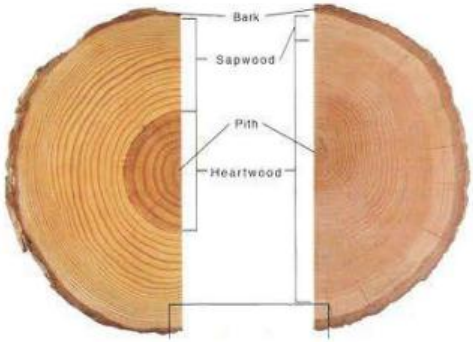
Trombewall system will be applied to increase thermal dn air comfort of the inside volumes at the units which will have night & evening time use for the efficiency.



Thermal mass method will be applied at the nodes ground level eye contact desired through the social axe. It is also mor efficient for the units which has no night time activity.

Roof top water collection system for the use of gardening and grey water.

Materials



Red Pine White Pine

Local softwoods like the products of red and white pines will be used for non-loadbearing elements. On partition walls, floor finishing, facade panels, etc.

Walnut Tree Plum Tree

Local hardwood products produced from walnut and plum trees will be used for loadbearing elements and at areas where durability needed.

Volcanic Stones

Agglomerate

Agglomerate will be used in mostly landscape elements.

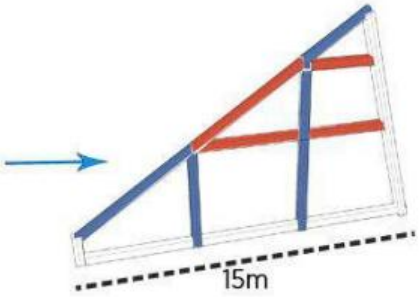
Marlstone

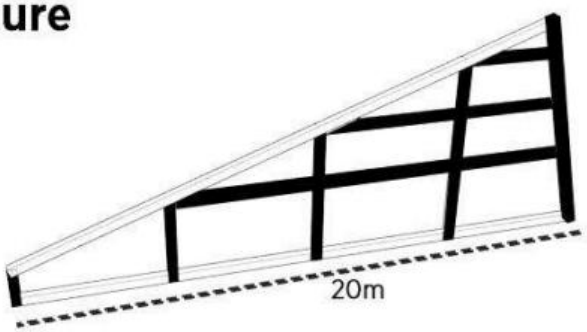
Marlstone will be used in rooftile system which requires durability.

Symbolic applications.

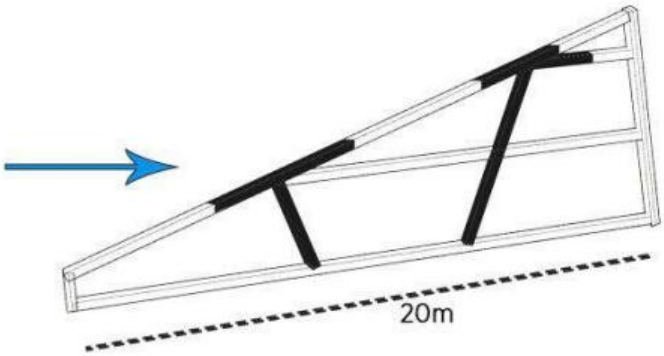
uilding Typology

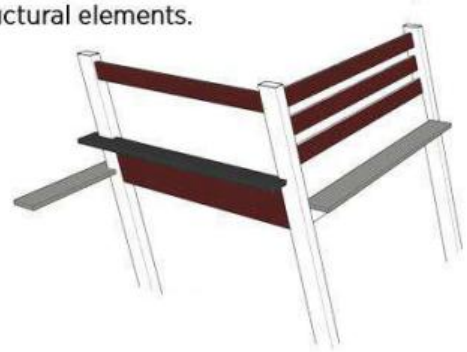
Structure





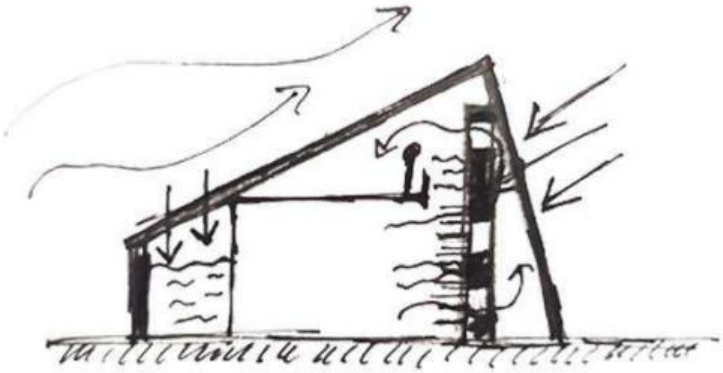
While up to 15m units the standard column and beam system works efficiently; for bigger spans and purposes, especially with the big sloped roofs, it starts to limit the volumetric design because of needed density of structural elements.



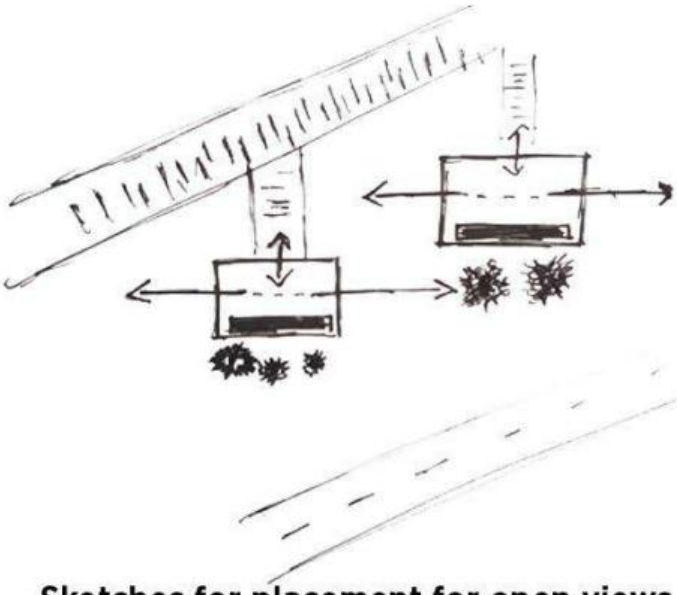


Search of more useful structural design pushed me to use vertical elements perpendicular to the rooftop rather than ground. This system also supports the volumetric design while helping to create different purpose of interior components like furniture, partition walls, etc.

Form and Settlement Ideas



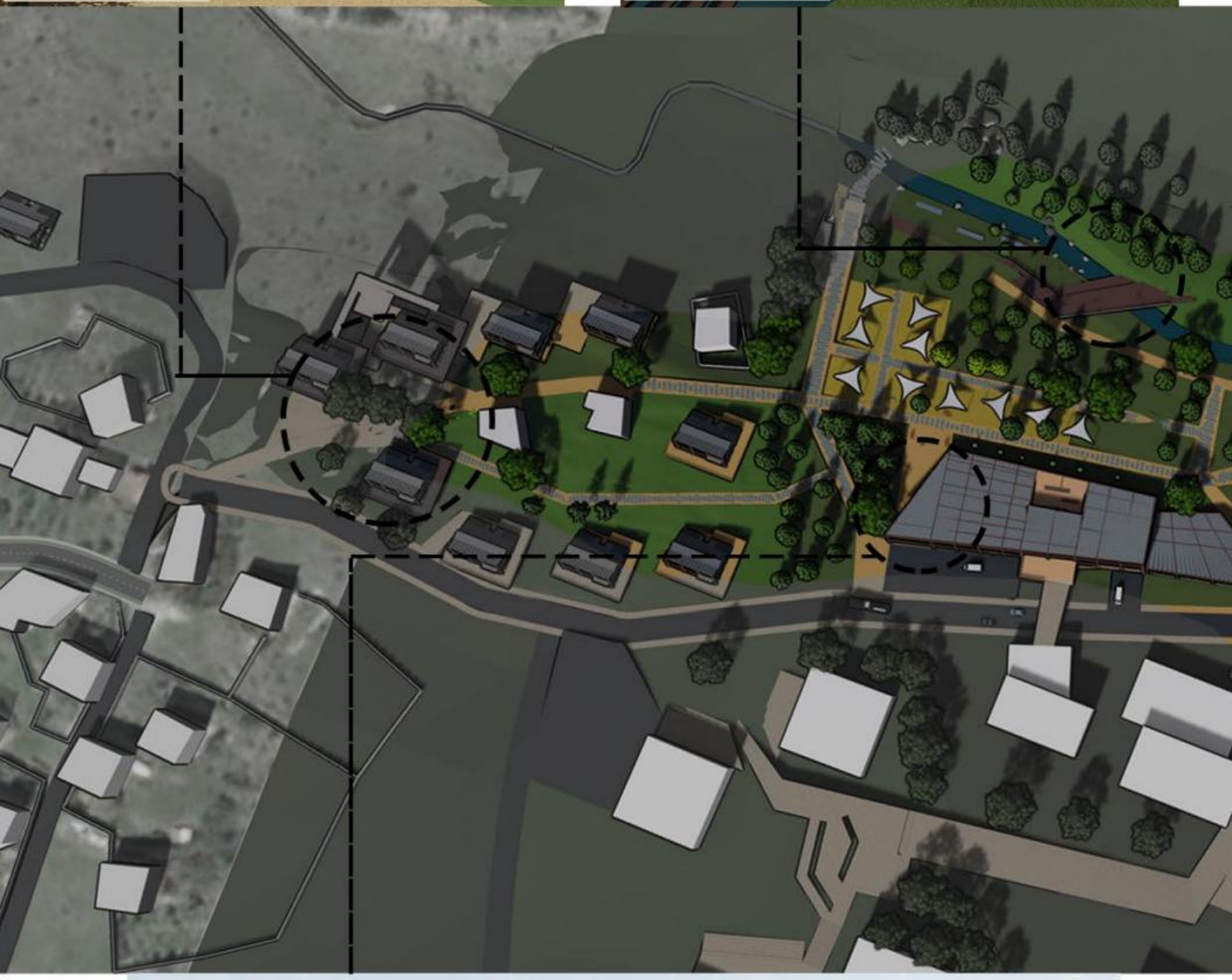
Sketches about how will affect passive systems form

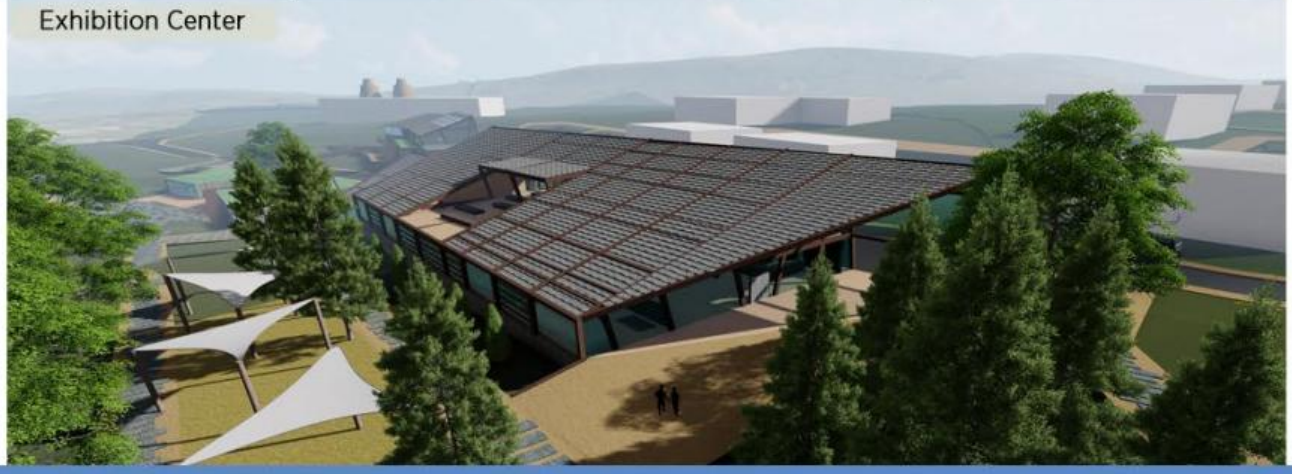


Sketches for placement for open views and car/pedestrian road relations

Residential Area

Recreation Area

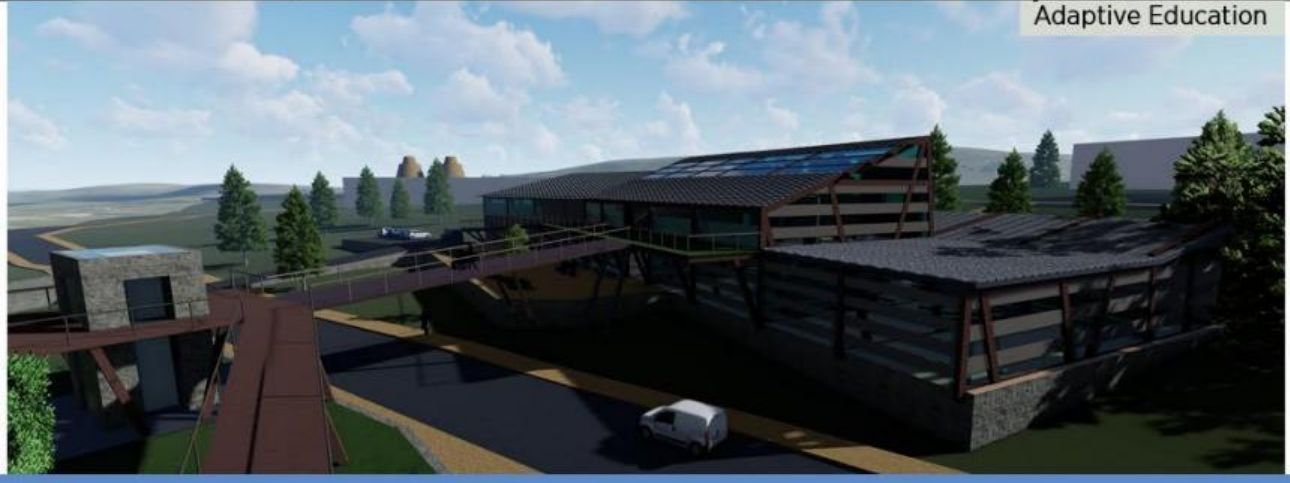




Exhibition Center

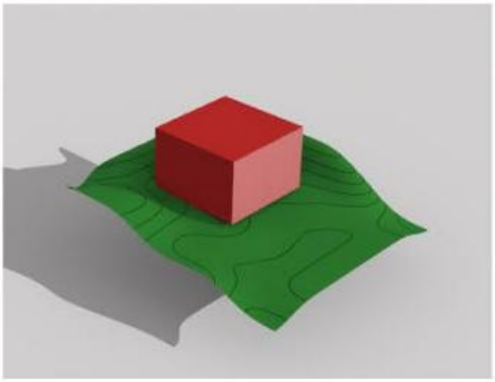
Recreation Area

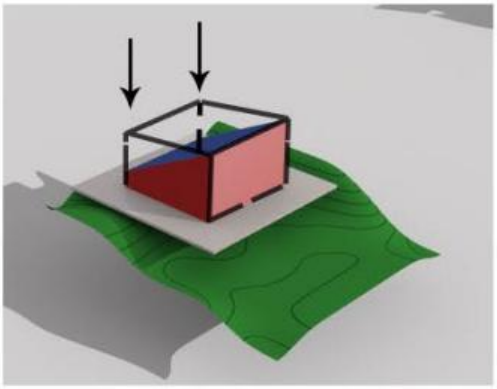
Cafeteria View

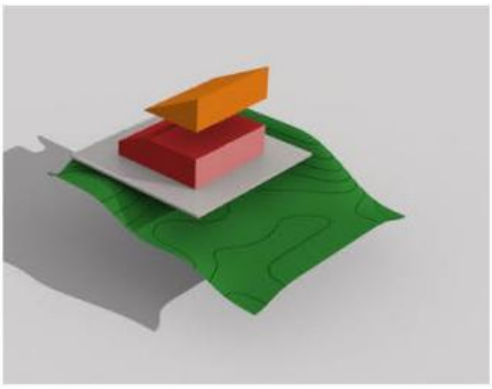


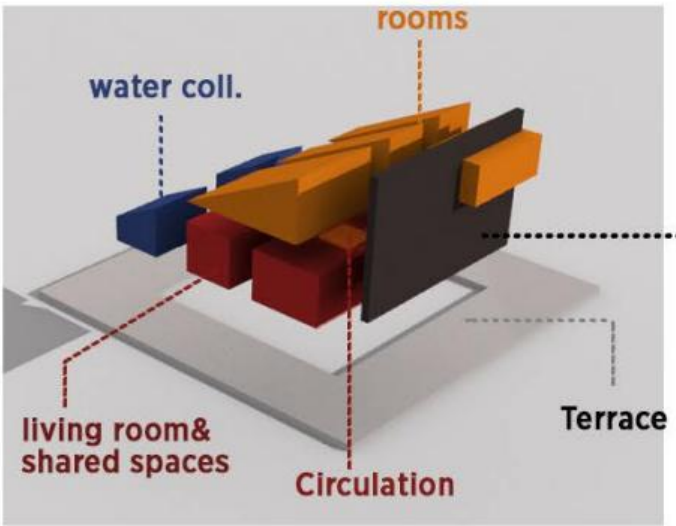
Adaptive Education

Volumetric Design

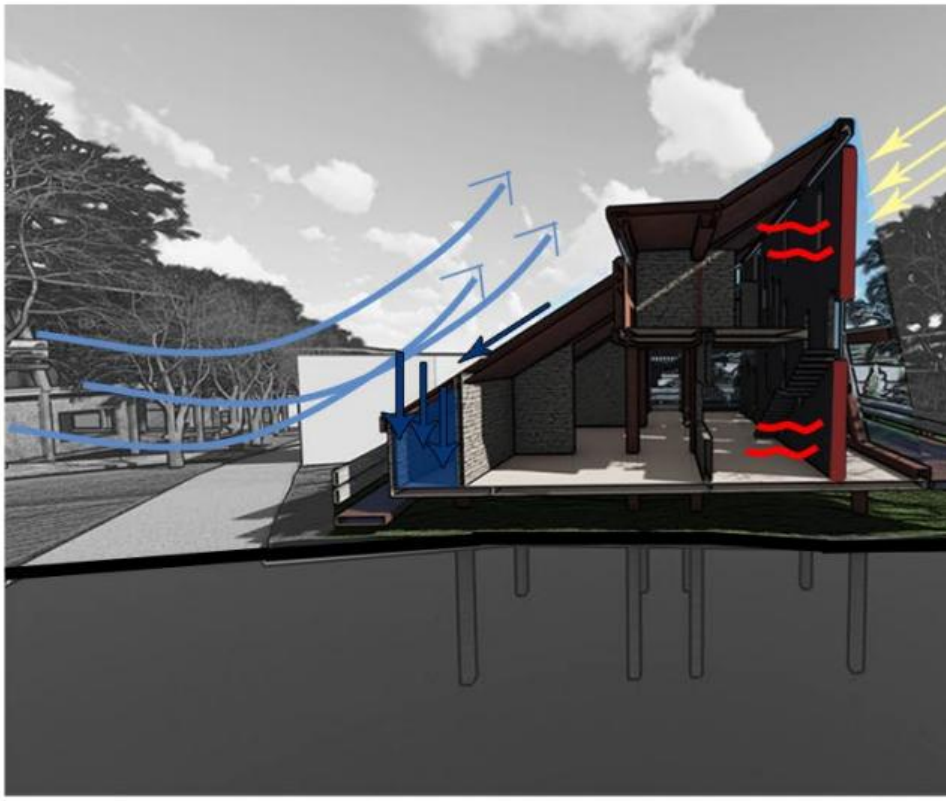








Section



The form of the building mianly depends on the purp
effectiveness towards the latheral effects. The roof slope is can
northern winds meanwhile it is designed to collect rainwater for
At the south facade, local stonework trombe wall located with v
openings to trap the sunlight to heat the both floow levels of
radiation.

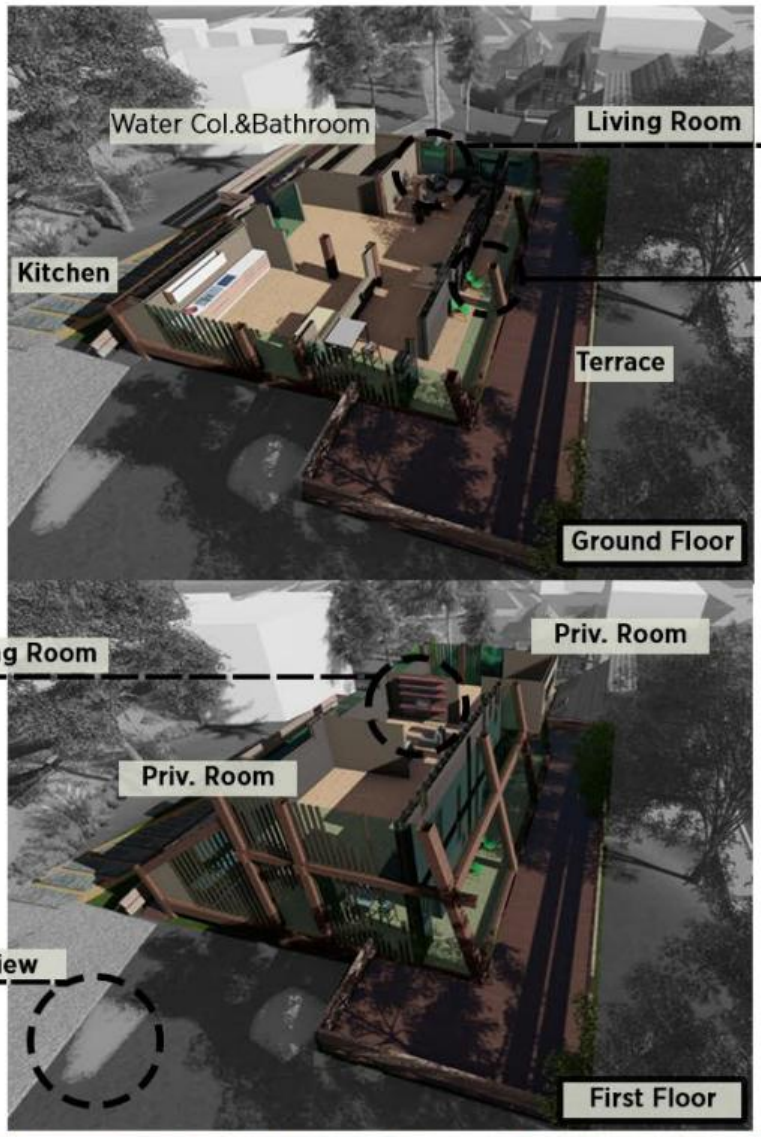
Structure

While the process of decision making to create the housing module, past references of traditional habbits and materials are taken as base and combined with sustainable architecture principles. Creating a common living space that spread the flow of users, structural frame easy to install and material selections are the basics of these traditional references.

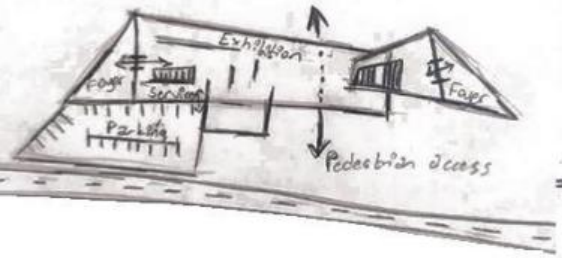
tial Units

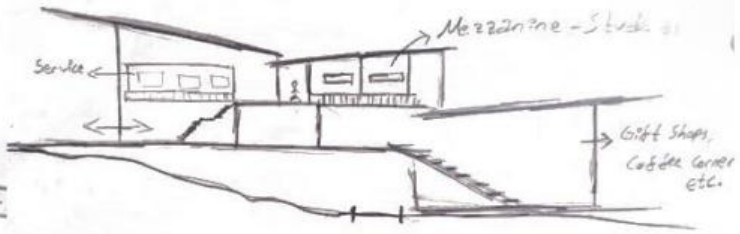
oses of passive
alizing the harsh
use of residences.
with vertical light
the structure by

Use of Space

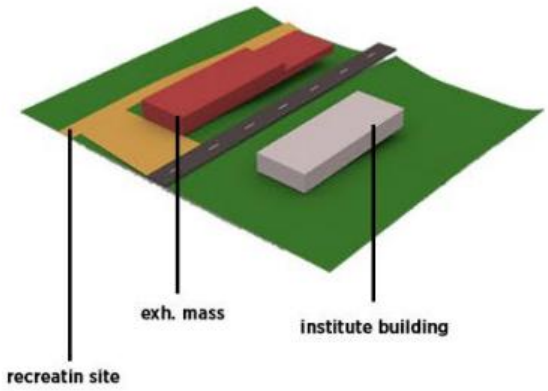


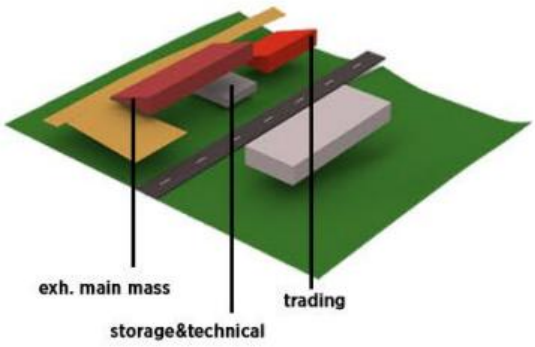
Public Facilities -

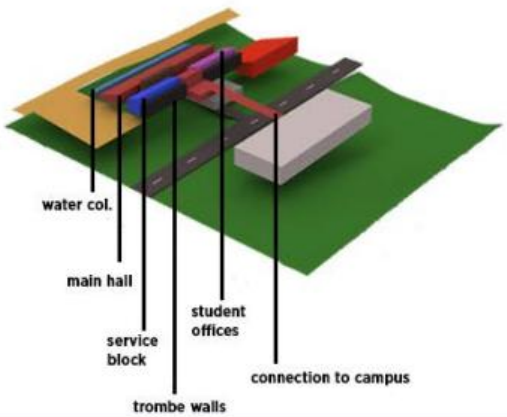


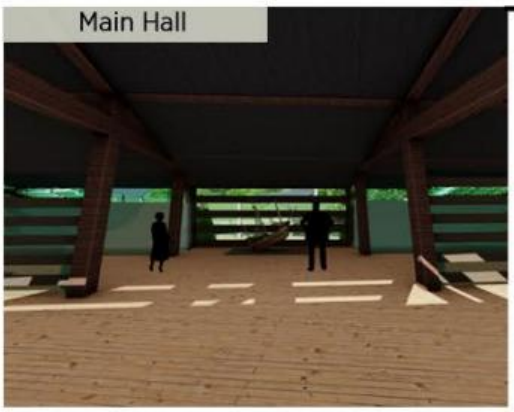


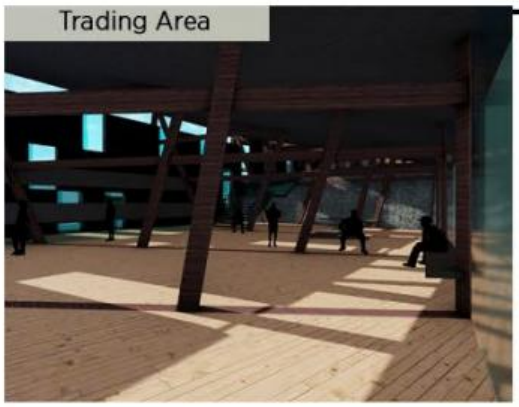
Volumetric Design



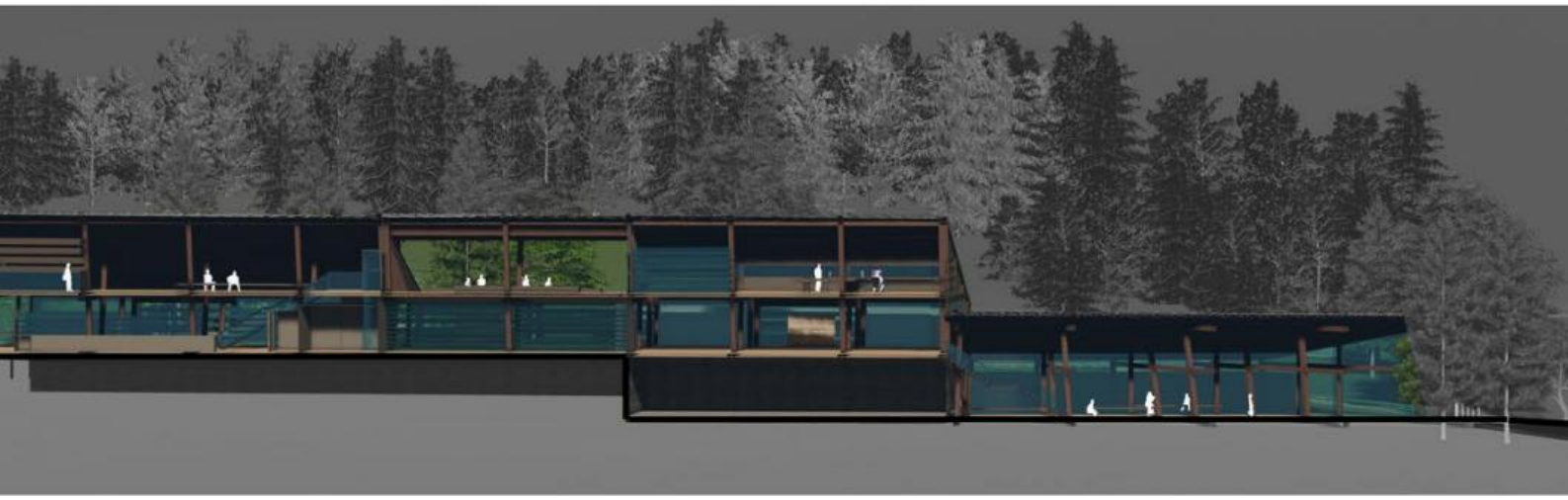








Exhibition Center



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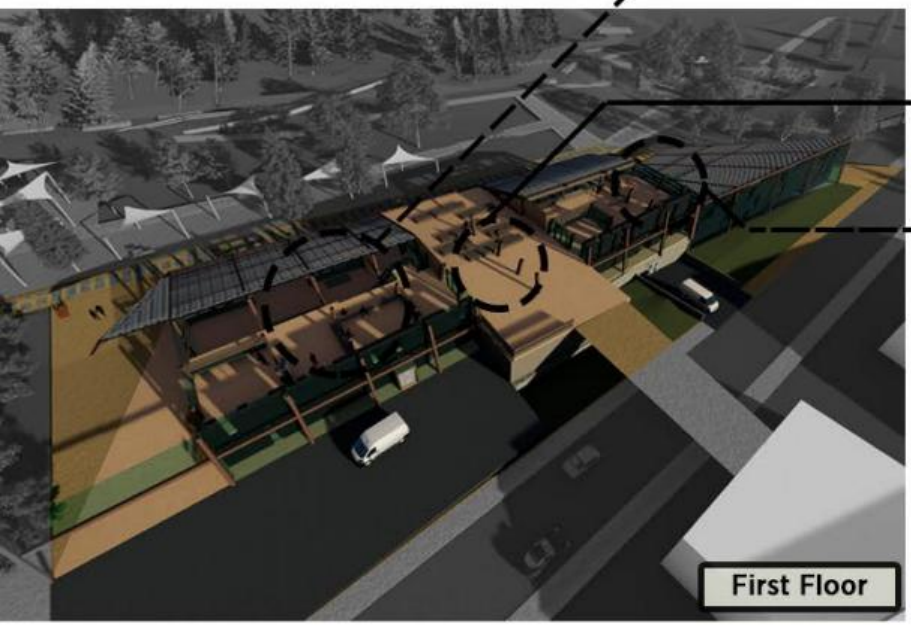
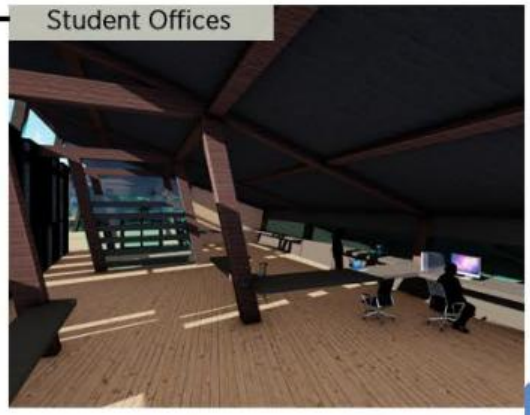
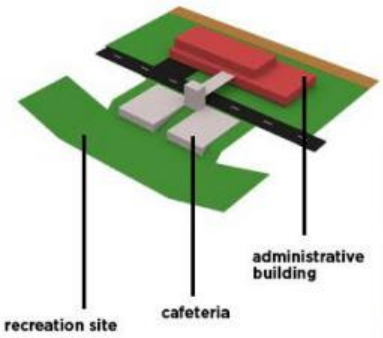
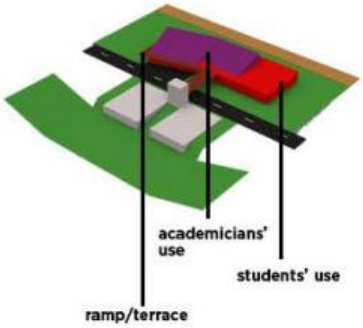


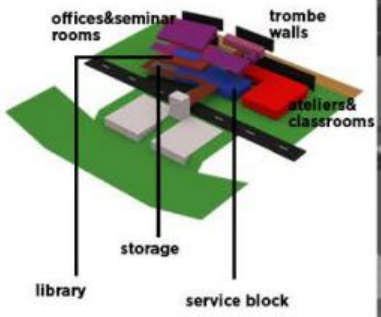


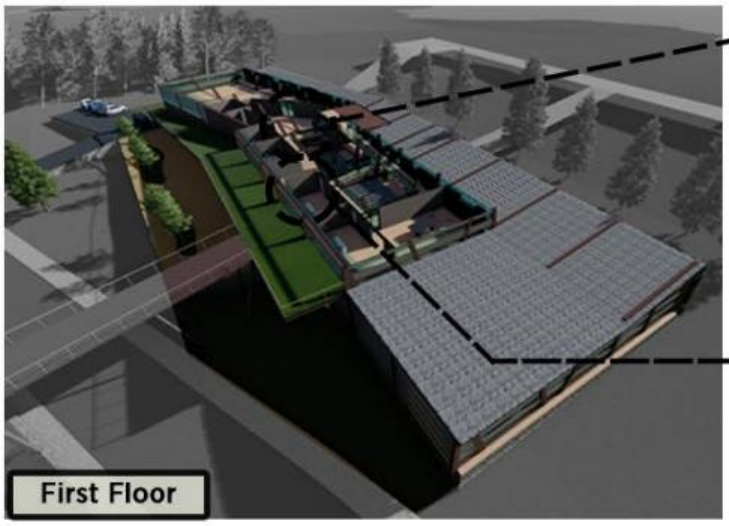
Institute - Adaptive Education

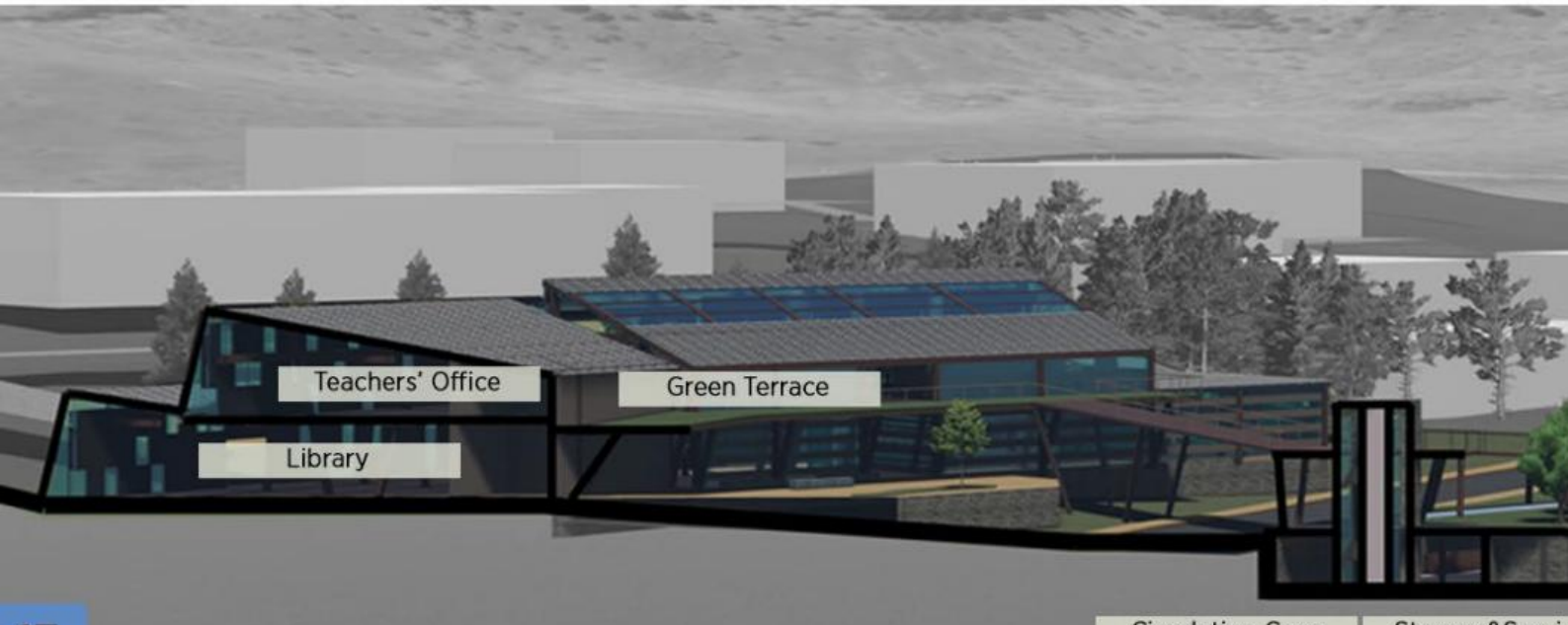
Volumetric Design



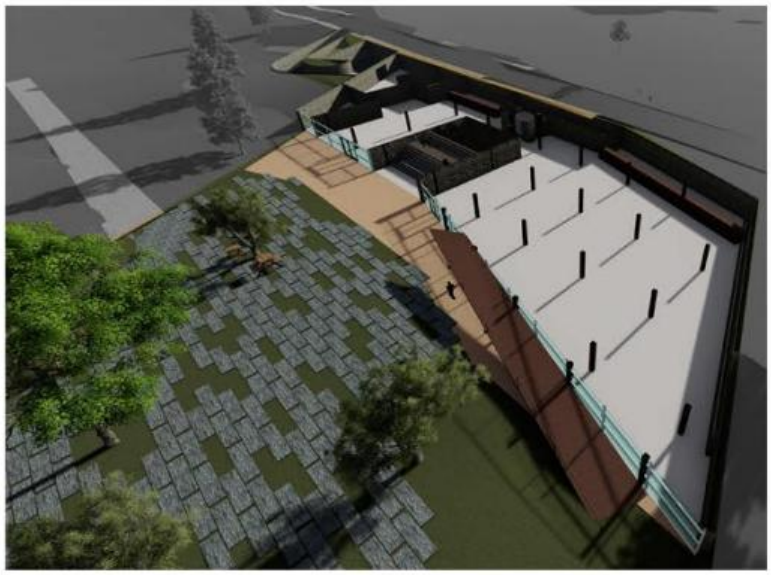




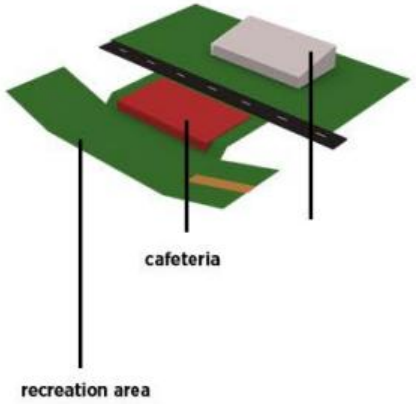


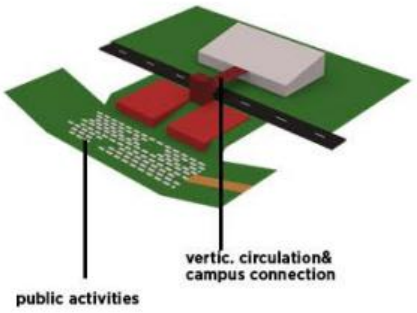


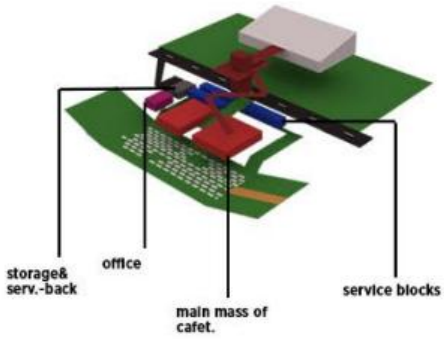
Public Facilities - Cafeteria

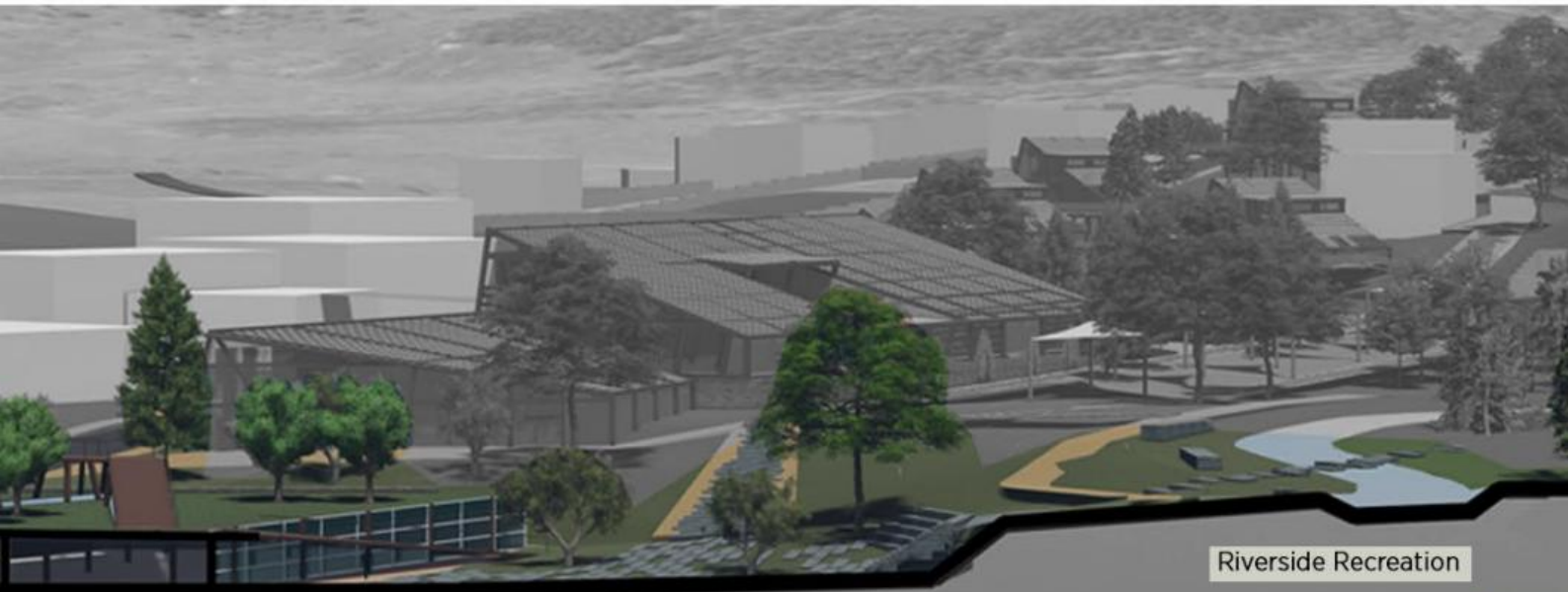


Volumetric Design



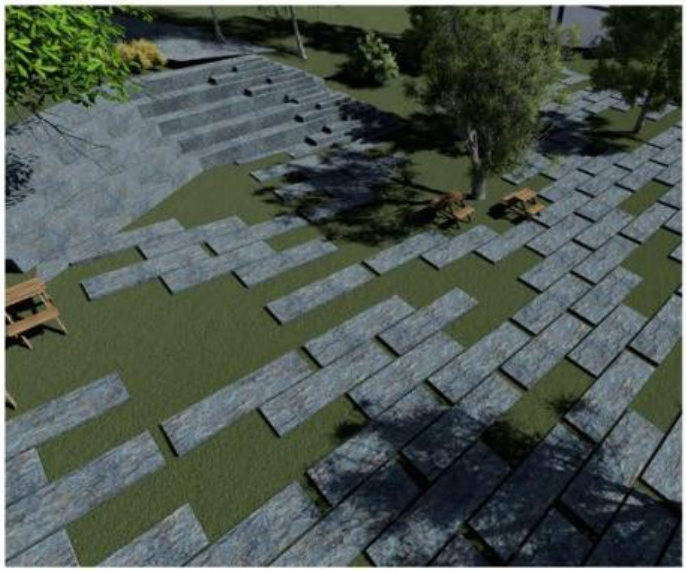






Landscape Strategies

Resolving ladscape elements which are partially occurs and disappears are used through the riverside to support experimental feeling.



While at the junction points of main axes solid gathering areas are occuring, for more spread squares partial patterns of resolving strategy shows up.

Baybora Kaan Kılıç

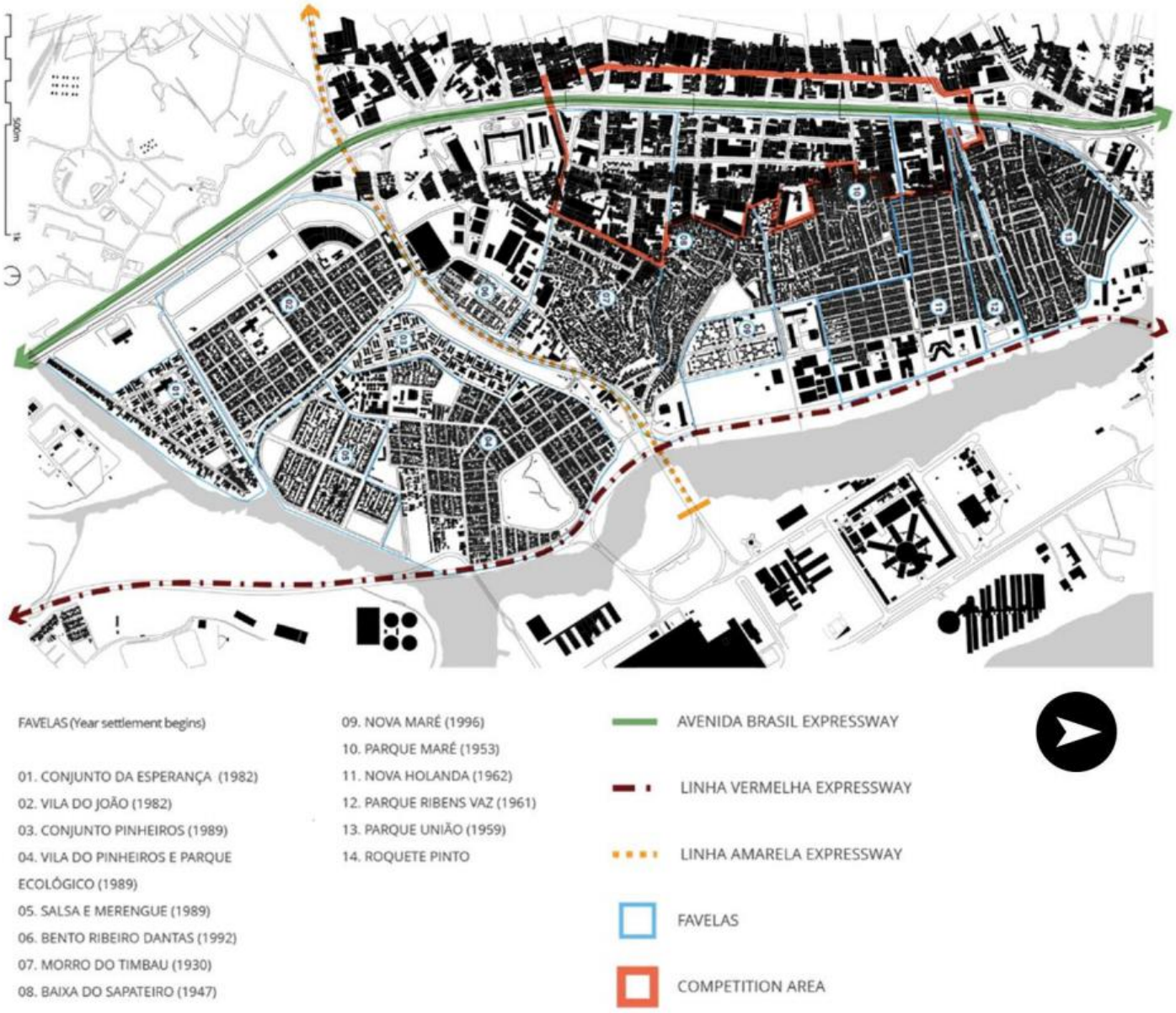
REDEVELOPMENT AND REVITALIZATION OF MARE CIDADE

BAYBORA KAAN KILIÇ

REDEVELOPMENT AND REVITALIZATION OF MARE CIDADE

BAYBORA KAAN KILIÇ

Considering the problems raised regarding the competition site – such as the relationship between Maré and the city, its proximity with Avenida Brasil, the lack of basic infrastructure, precarious housing standards and the problems generated from the poor quality of streets crossing the site – the project aims to propose innovative interventions. The key challenge of this project is to find innovative solutions for a sustainable urbanization of these territories while increasing the quality of the built environment and improving the quality of life of its inhabitants. It is therefore expected that the proposals present new approaches in an effort of urban and social integration. In other words, spreading the vitality of the favelas, and benefiting from the potential of its surroundings.



LOCAL CONTEXT

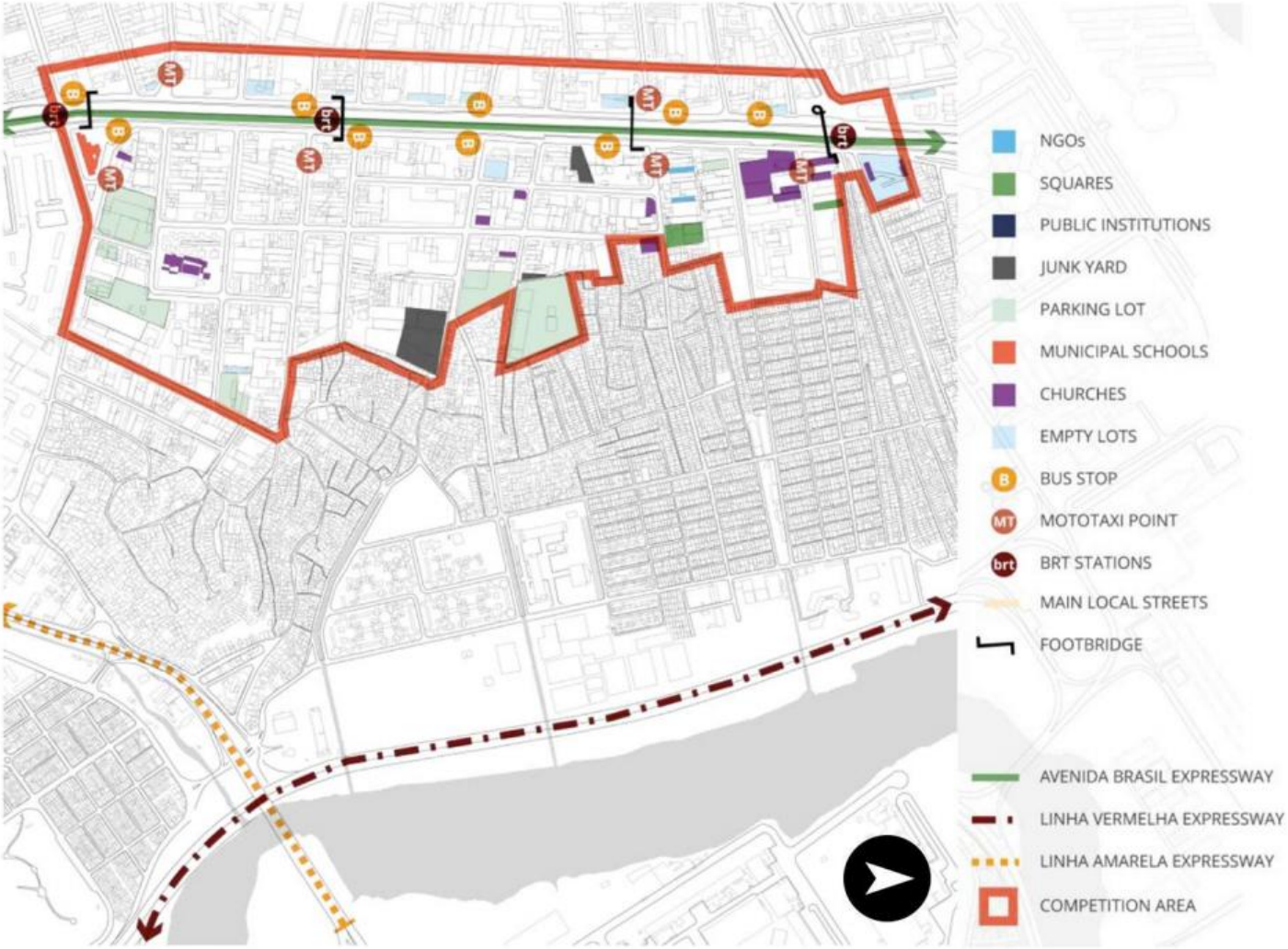
The focus area chosen for this project comprises a territory along an industrial territory neighbouring the Complexo Maré in Rio de Janeiro. Complexo here means a cluster of favelas, and the Complexo da Maré is one of the largest of these settlements in the city of Rio. In Maré, there are around 140,000 inhabitants, distributed among the 16 existing favelas, with more than 40,000 dwellings with different architectural morphologies, ranging from informal self-built to government-built housing projects.

In the 1940s with the construction of the expressway Avenida Brasil, the first settlements started alongside the highway. Although, the immediate margins of the Avenida Brasil along the Maré are formally occupied by industrial buildings, and warehouses. At the Maré, occupations take place mostly behind that front layer of industrial facilities.

In the 1960s, the dynamics of the area changed. Between the informal settlements, government started to build housing projects. But these projects, such as the Provisional Housing Centre, were not created for the local families. Instead, they were made to accommodate families removed from other favelas in Rio from wealthy areas, originally, on a temporary basis. But they became permanent, and some Favelas emerged from those housing projects.

Through time, with the new settlement, Maré was consolidated. Local buildings, which are mostly housing, began to be transformed to provide services to the local community. These services have made the area a productive territory of the city.

In the last decades, due to the urban expansion process of the metropolis, industrial businesses along Avenida Brasil have been relocated to the outskirts of the city and, as a result, these large plots occupied by industrial facilities and warehouses have become obsolete or abandoned. This process contrasts with the expansion of Maré in the same period.



INSUFFICIENT PUBLIC POLICIES AND LOCAL MOBILIZATION

Government investment in these communities has never been sufficient to meet the residents' needs. In addition to lack of basic sanitation, the health and social care system is precarious and insufficient. There are schools and cultural facilities, however, they are few and their quality is inferior to those found elsewhere in the city. Due to insecurity regarding land property, the local population made an effort to improve housing conditions, replacing fragile wooden houses by dwelling made of bricks.

There is a constant struggle for access to public services. The achievements made were due to the mobilization of the residents in negotiation with the public authorities. It was through the pressure by the residents that, for example, they achieved the paving of roads, access to electricity and street lighting. However, they still lack a number of key services.

Departing from this logic of community organization, the Maré consolidated itself as a territory densely occupied by low-income social groups. Solidarity among relatives, friends and neighbors is what enables community actions and claims to public authorities. Those social groups strive for the right to live in the city.

Maré is seen by the authorities as an economically deprived territory, and as a gray area regarding law or order, and this discriminatory stance directedly influences the police interventions in the area. The residents have been living for over three decades with this vulnerability, which makes urban violence dominate the community's daily routine. In addition, narcotraffic cartels interfere with territorial control. The war on drugs has resulted in constant police operations and, as a consequence, there are repeated cases of violation of the residents' rights. Stray bullets, arbitrary raids on homes, arrests without a warrant, summary executions and other transgressions establish an atmosphere of concern and terror in those communities.

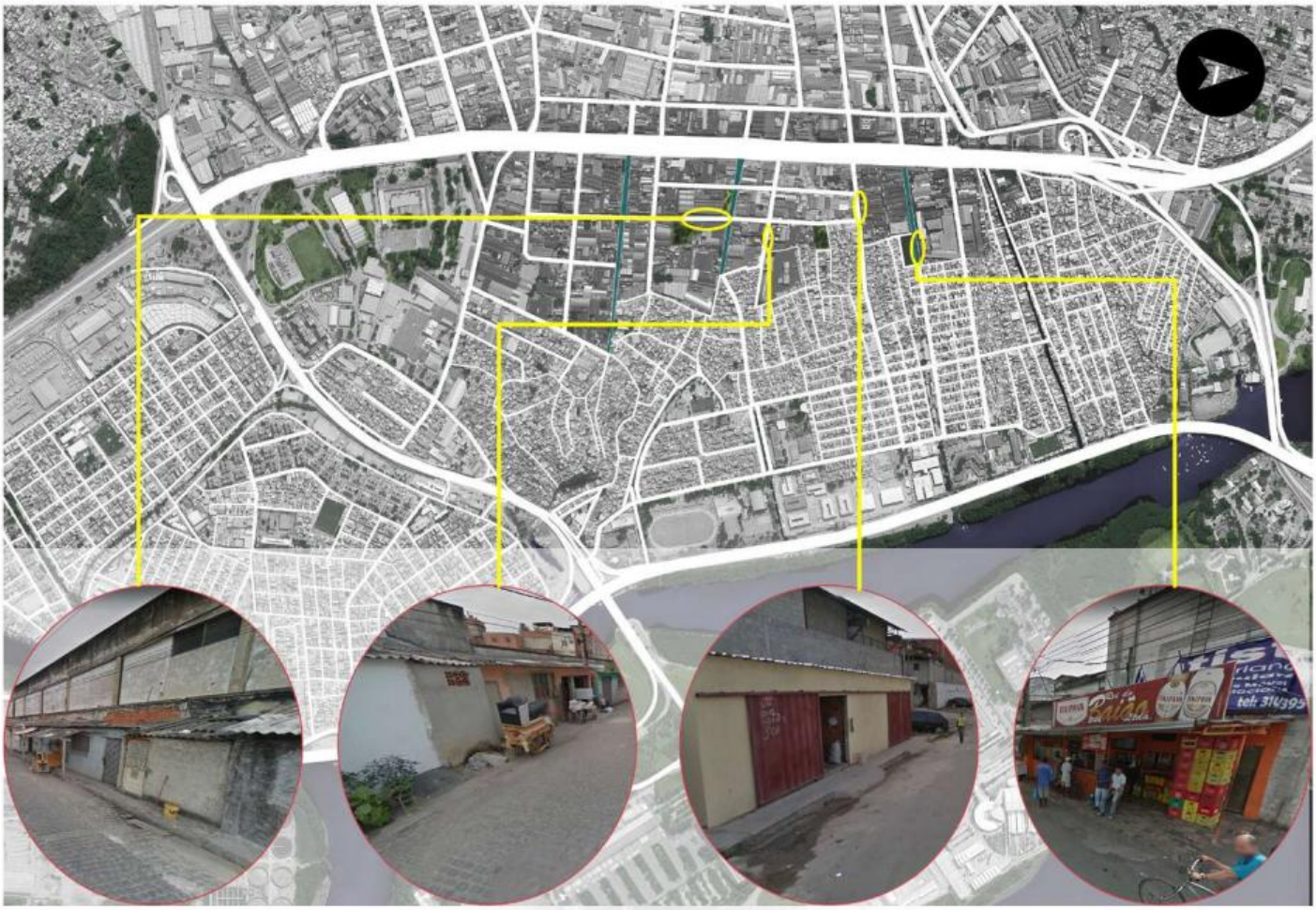
URBAN STRUCTURE

The urban form of Complexo da Maré presents little variation. With a few exceptions, the buildings range from two to five floors, and it is common to find stores on the ground floor on the community's main access and circulation roads. One element found in almost all these constructions is a rooftop terrace, also known as laje. The role of the laje at the Maré, as in many other favelas in Rio, is fundamental to the residents' life. The laje represents the possibility of expanding the built area, providing more space for the family or using as leisure area.

From the three major expressways that delimit Maré, Avenida Brasil is the most important regarding access public transportation. The history of the Avenida Brasil is directly connected to the city of Rio de Janeiro's process of expansion towards the old rural areas, and it was designed to be a road axis to serve the industrial expansion. Along Avenida Brasil, there are also several public housing estates, industries, military areas, gas stations and auto repair shops, among other uses.

The Avenida Brasil absorbs an important portion of the city's communal mobility. Along the area that borders Maré, the expressway is, on average, 70 meters wide with total of 10 lines, with two to three local service lanes with public transportation, and, two to three express car lanes on each side. In addition, a new Bus Rapid Transit (BRT) express corridor is currently under construction. The expected demand for this corridor is 900,000 passengers/day.2 Upon the implementation of the system, the travel time saved is estimated to be around 40%. Besides public transport, 220,000 private vehicles circulate each day on this road.

By being next to Avenida Brasil, residents have access to many parts of the city, and the pedestrian flow from the footbridges and bus stops is an important factor that defines the hierarchy of Maré's internal streets. The streets Rua Teixeira Ribeiro, Rua Sargento Silva Nunes and Rua Bittencourt Sampaio are the three main streets to access Maré from Avenida Brasil. These streets connect Avenida Brasil to Rua Principal, which is the only street that crosses all favelas. These crossroads are important local centralities, with a vast offer of services and internal transportation, with minibuses and moto-taxis. These streets are the continuation of the industrial and warehouse street grid. The inner urban fabric is made up of narrow and irregular streets that can be defined by a constant negotiation between informal vendors, pedestrians, motorcycles and cars.



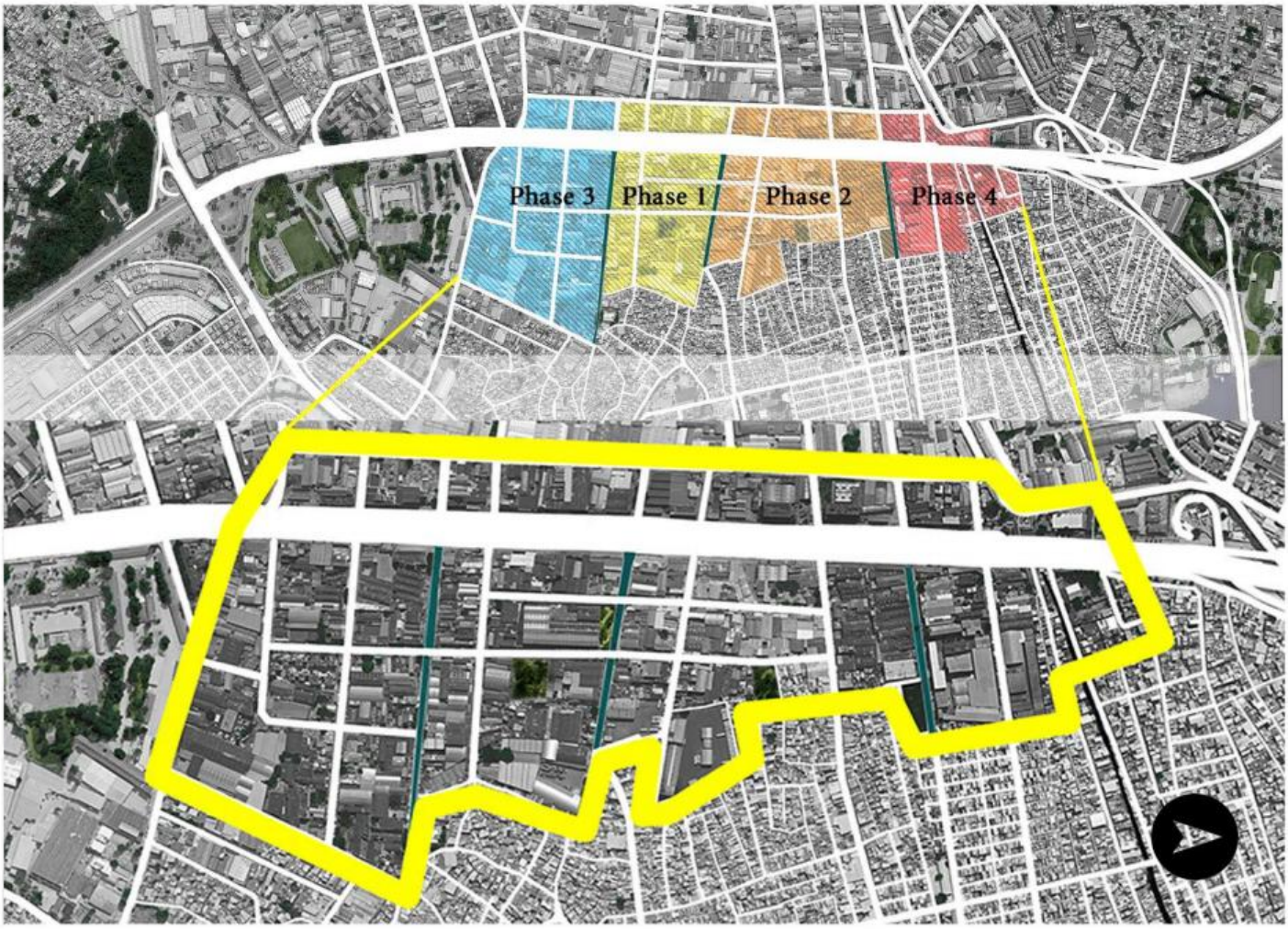
LACK OF SHELTERING

In the project area, there are some shelters made by local people side by side. These "shelter strips" are in poor conditions. Also they don't have any openings except doors, so they can not get enough sun light and fresh air.

These shelters sometimes are used as pub, grocery shop and similar facilities.

Since transportation is one of the leading sector in the area, containers can be used as living unit for poor people. Reuse of containers can improve standarts of that people.

Security is the reason of lack of the openings in these shelters. Perforated metal facedes can provide necessary sunlight and fresh air and also they can give an identity to the streets. When these facades are applied to the commercial zone, these areas may become center of attraction for both local people and tourists.



DEVELOPMENT SYSTEM

It is possible to divide the project area into phases by revitalization of the already existing rivers in the region. This river beds passing through the site however they are burried due to lack of area that need for residentials and factories. Dividing the area into phases will both facilitate the coordinadition and implementation of the project and will benefit the success of it.

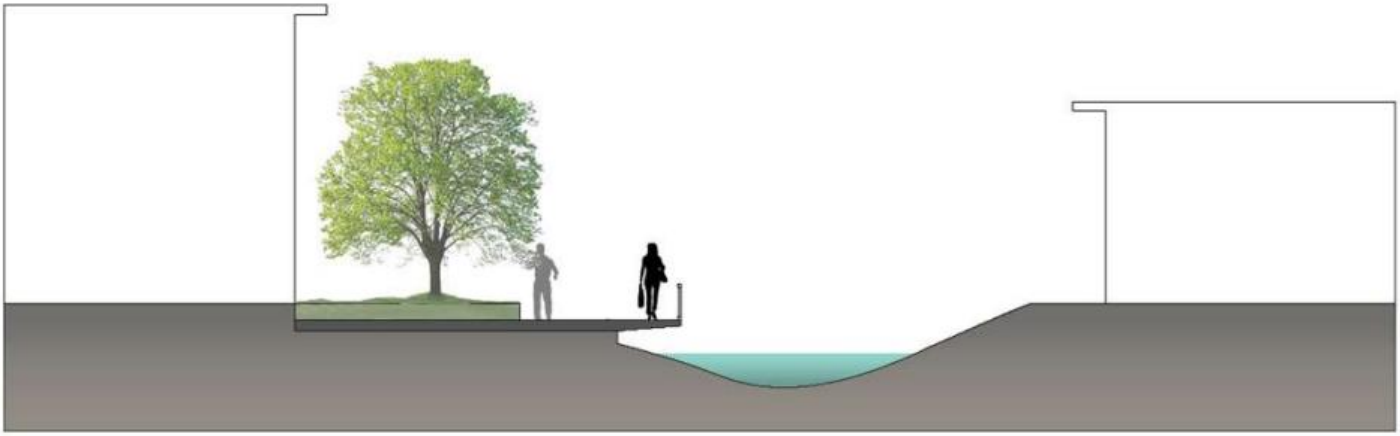
The project area will be divided into 4 regions according to the crossing places of the rivers. Considering the social structure of the region, it will be easier to apply it phase by phase rather than a full aplication.

One reason for this area to be considered unsafe is gridal system of the streets. This gridal system restricts the view angle of people and creates zones that invisible to people who are using the street. Architectural interventions can be made to the streets to break this gridal system and can increase the view of people. Interventions to the streets will be much easier than interventions to people's property.

Project area have a great potential because it consist of mostly abandoned factories,parking lots and junkyards. However any intervention or proposal without lateral thinking will definitely damage the social structure and memory in the area. The social structure and the life style of the people that both the ones lives in the favelas and the project area have to be the key factors which should be considered in design process.

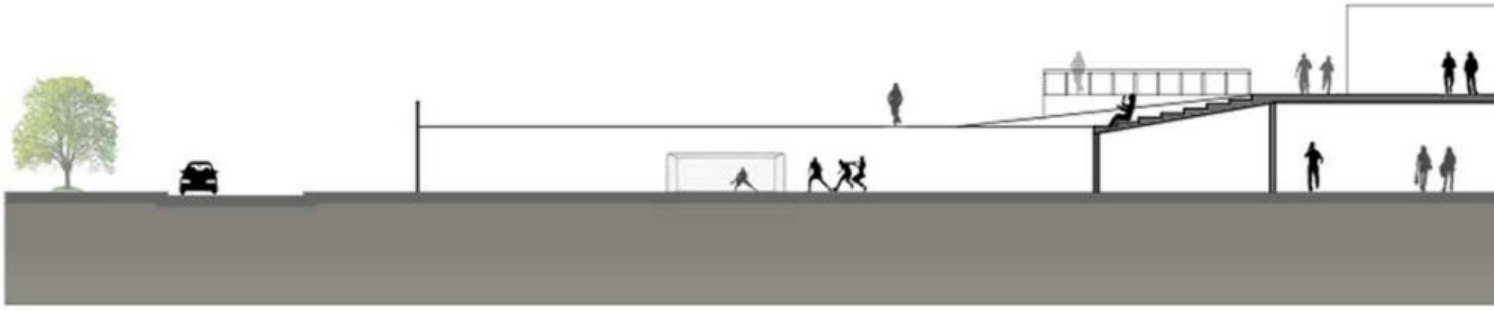
Rather than redesign and rebuild the entire project area, an 'urban acupuncture', intervening to key points and using its effects to redevelop and revitalize the area is much more appropriate approach in this context. This kind of approach will minimize the negative effects of the alteration in social structure and memory.

In this project one key point will be selected and proceed on it. This area will include existing features of the region and suitable for all masterplan strategies.



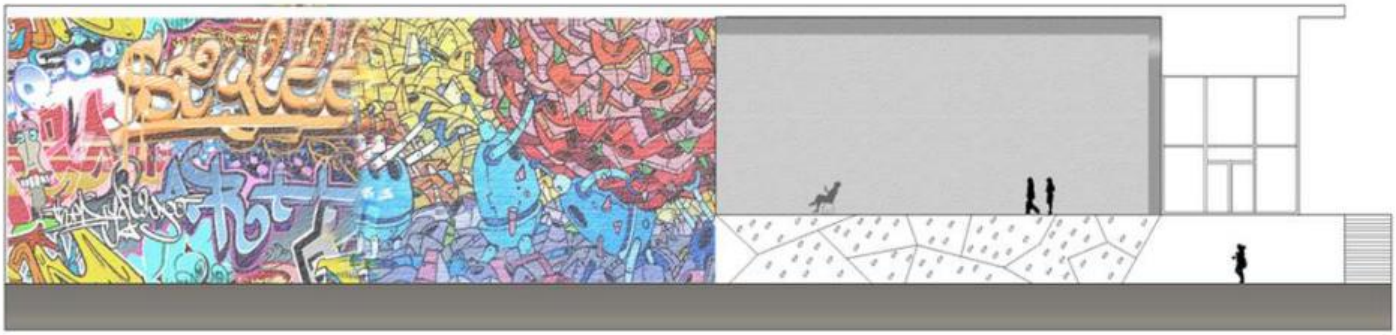
RIVER REVITALIZATION

By revitalizing the rivers, breaking the gridal street system of the area is aimed. Beside increasing the view angle of the people, rivers will become center of focuses and attract people. Rivers will also become public axis that provide recreational areas, green areas and buffer zones. The most important feature that rivers have is they can become an urban void and increase the survaillence which makes the cities safe and secure.



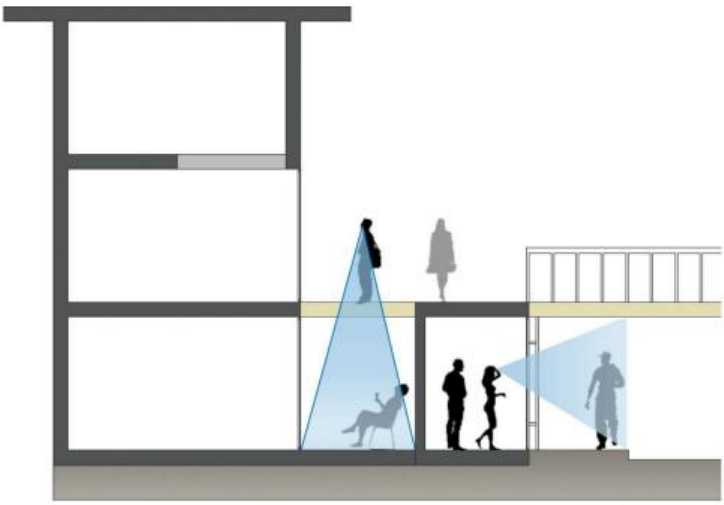
SPORTS AS UNIFIER AGAINST CRIME

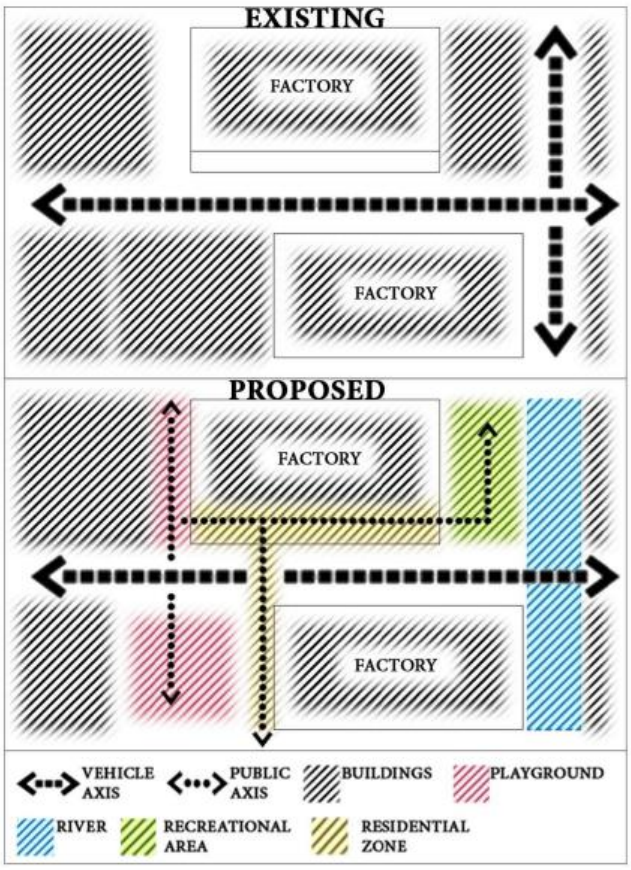
Sports has good effect on metal health of the people. In a society where crime rates are high, doing sport is one of the best activity to keep people, especially young ones, away from crime. Team sports are improving unity and solidarity emotions as well as social and comminication skills. Beside players, this improvments are valid for families and friends of the players. Tribunes are providing them same oppurtunity to improve themselves.



USAGE OF FACTORY WALLS AS ACTIVITY AREAS

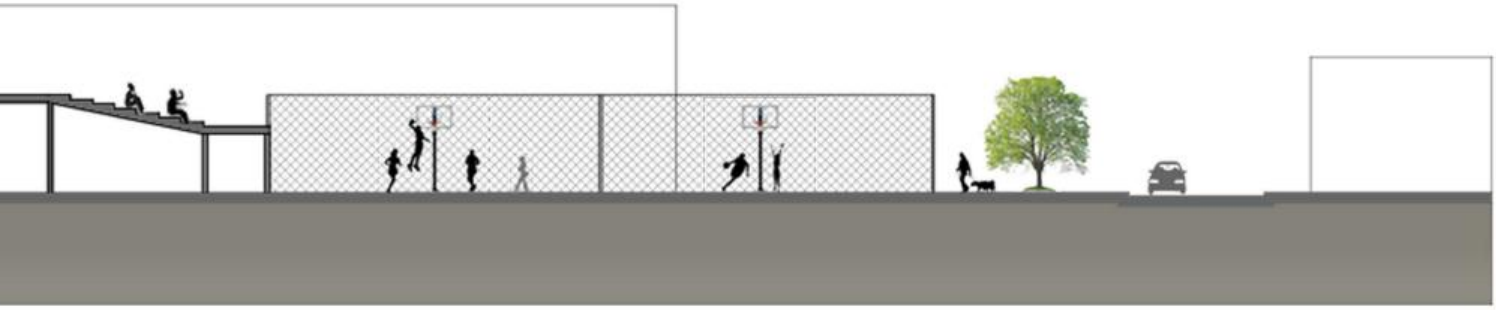
There are a lot of factories which have long and untreated walls. These are elements that act like a barrier to both public circulation and people's view angle. These areas have a potential to become a center of attraction. The walls can be used as painting or street art walls as well as climbing walls which are all serves to the public.





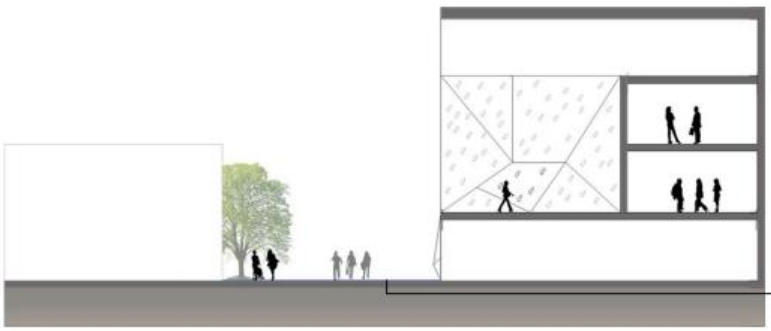
INCREASING SURVEILLANCE WITH RESIDENTIAL UNITS AND FACADE DESIGN

Increasing the surveillance is aimed by adding residential to the desolated streets and making adjustments on the facades of these functions. Also other functions which serves to public proposed to increse density of the human circulation which causes dramatical decrease on crime rates.



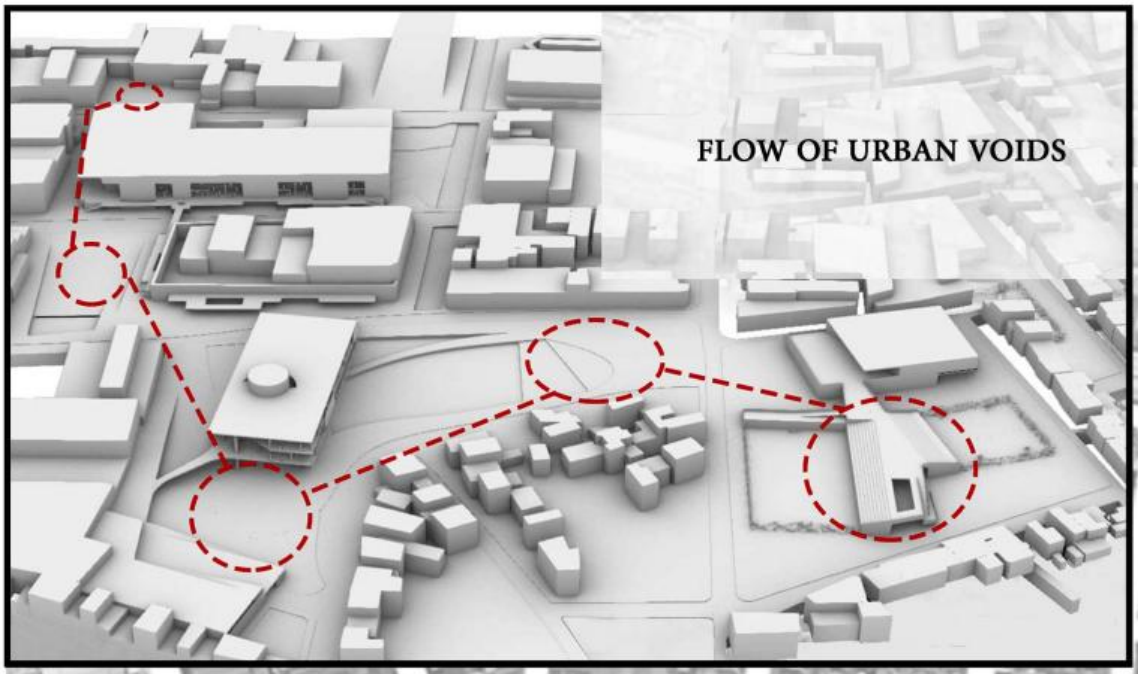
OUTDOOR SPORT AREAS AS URAN VOIDS

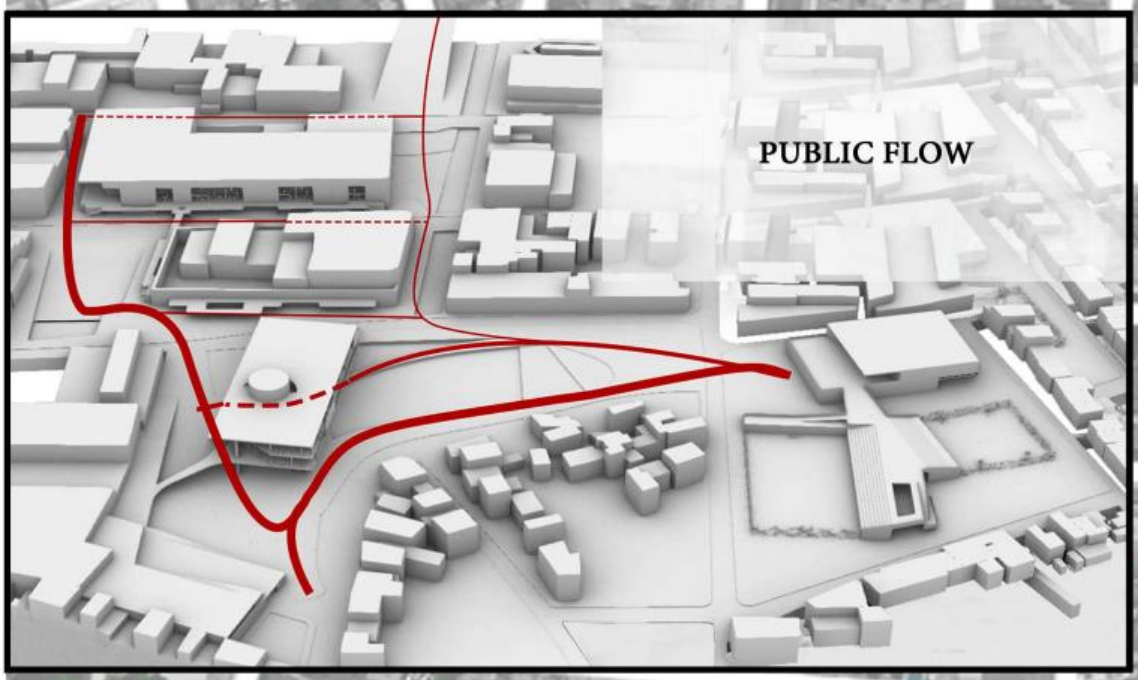
Locating outdoor sports areas to a site also creates urban voids. These urban voids ensures and improves surveillance which has dramatic effect on crime rates. Beside improving the unity and solidatary emotions, comminication and social skills, sports areas also improves the surveillance and view angle, thus provides a safer and secure place to people lives in the area.

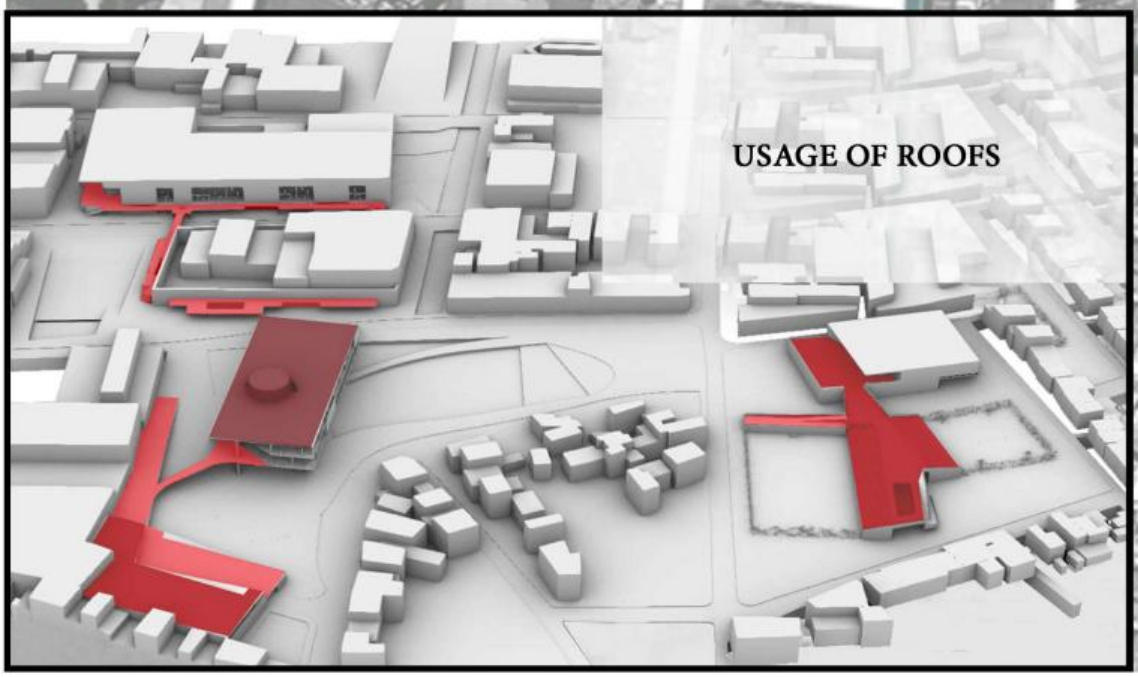


REUSE OF ABANDONED FACTORIES AND LIGHTING STRATEGY

Abandoned factories can be treated and reused for a commercial purpose. When all of these come together the area can become a public place. In a public place, security should be ensured and the lighting is the keystone of the security. A lighting approach as above can be used both for the security and to emphasize the public axis.

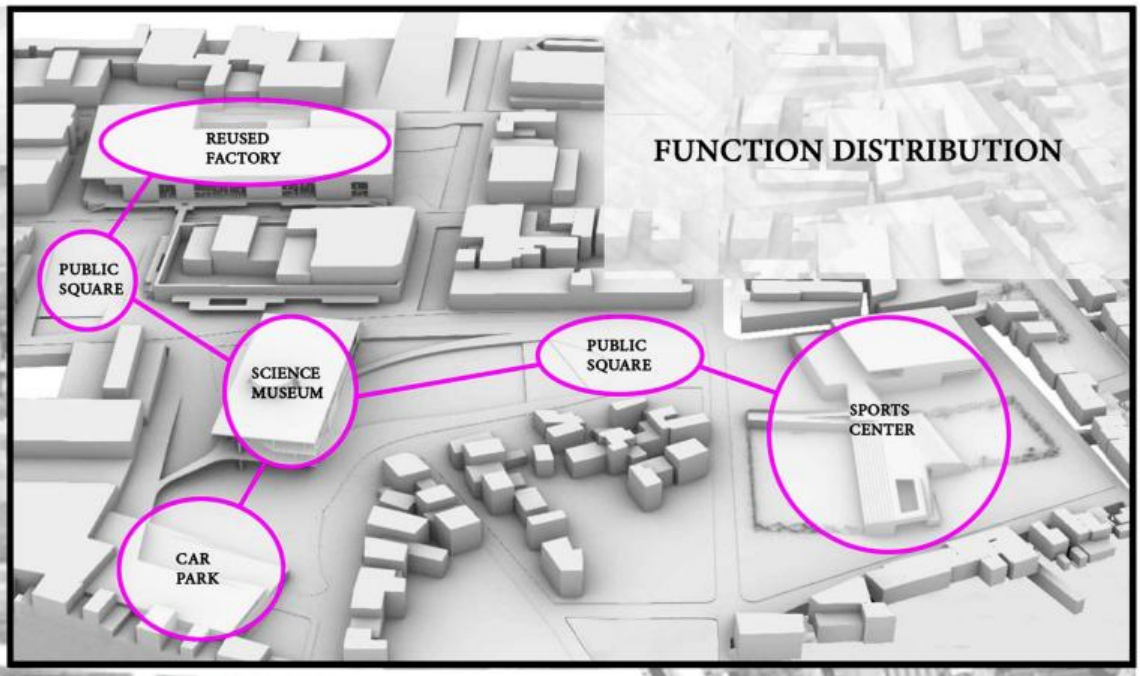

FLOW OF URBAN VOIDS


PUBLIC FLOW

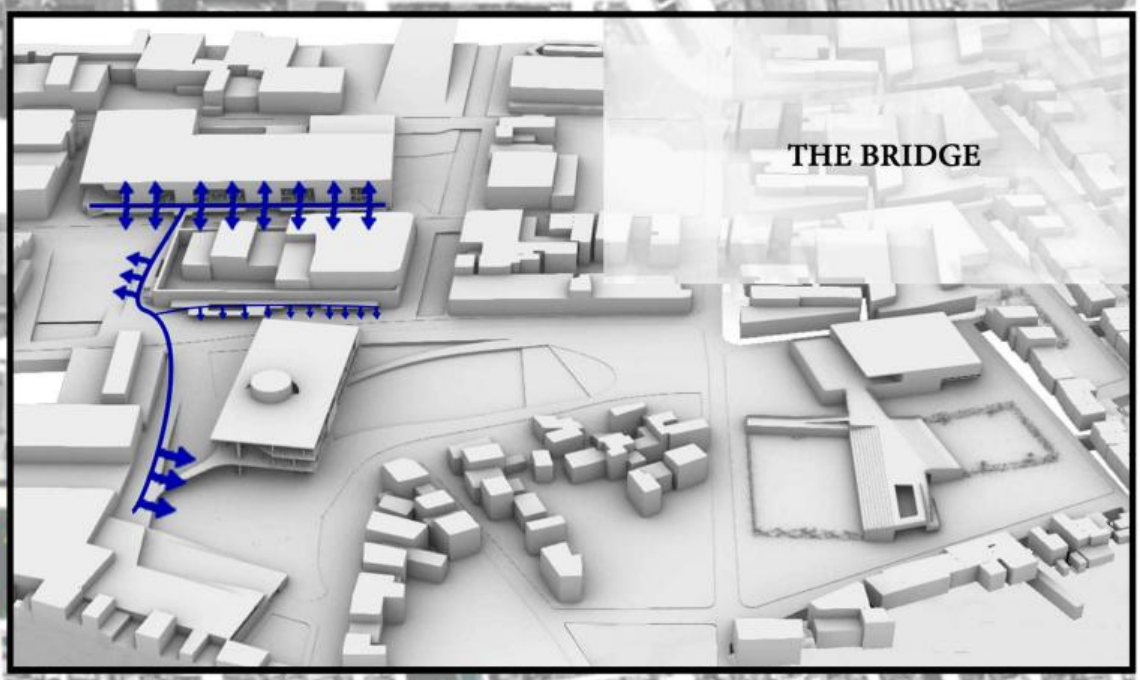

USAGE OF ROOFS


MASTERPLAN

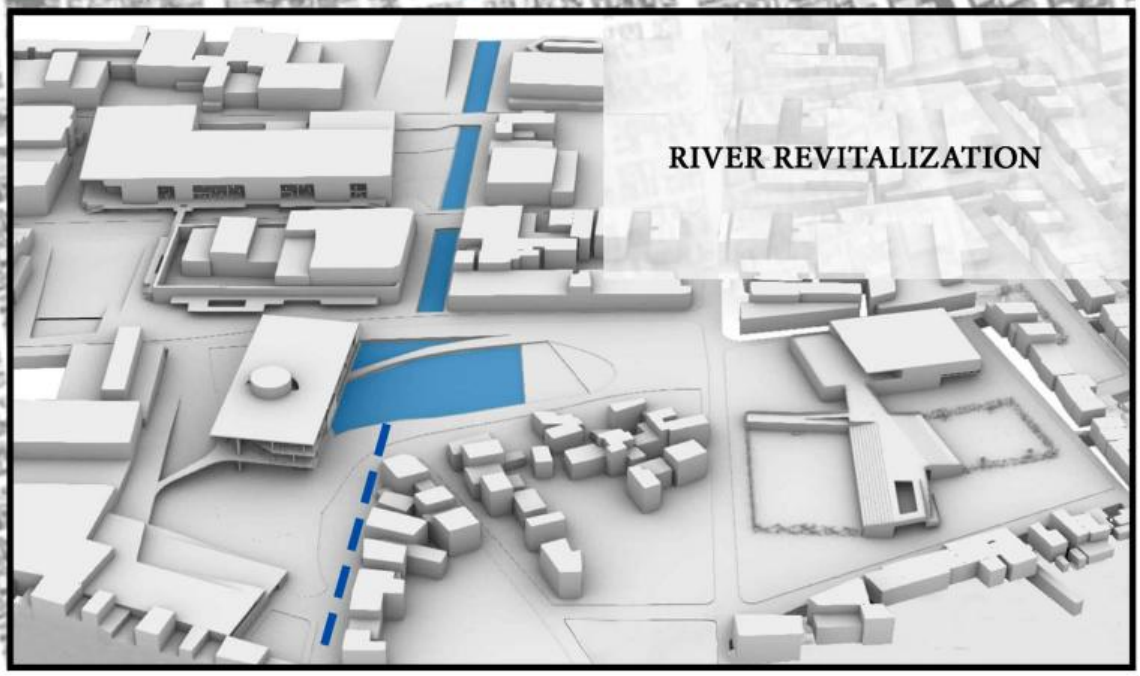
N STRATEGIES



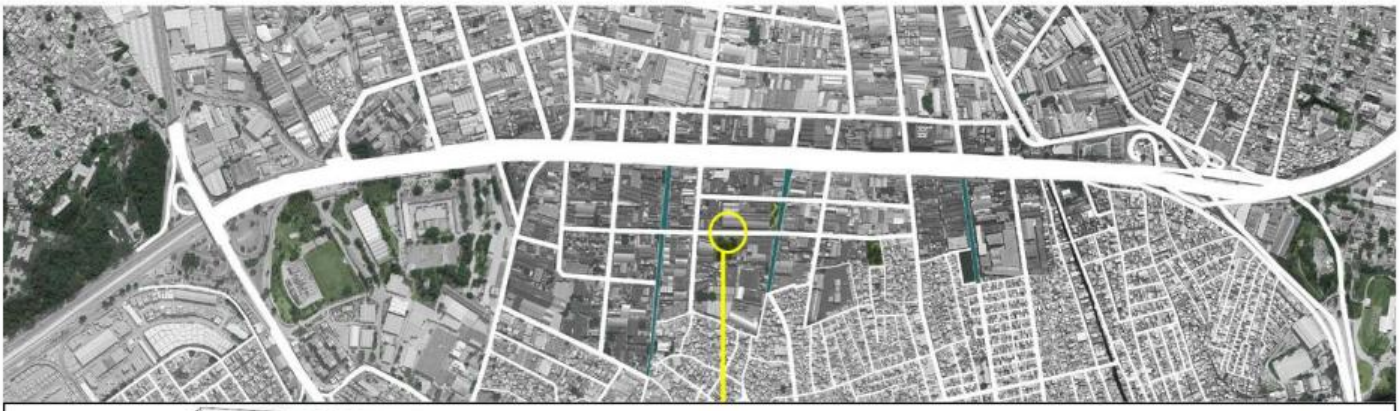
FUNCTION DISTRIBUTION

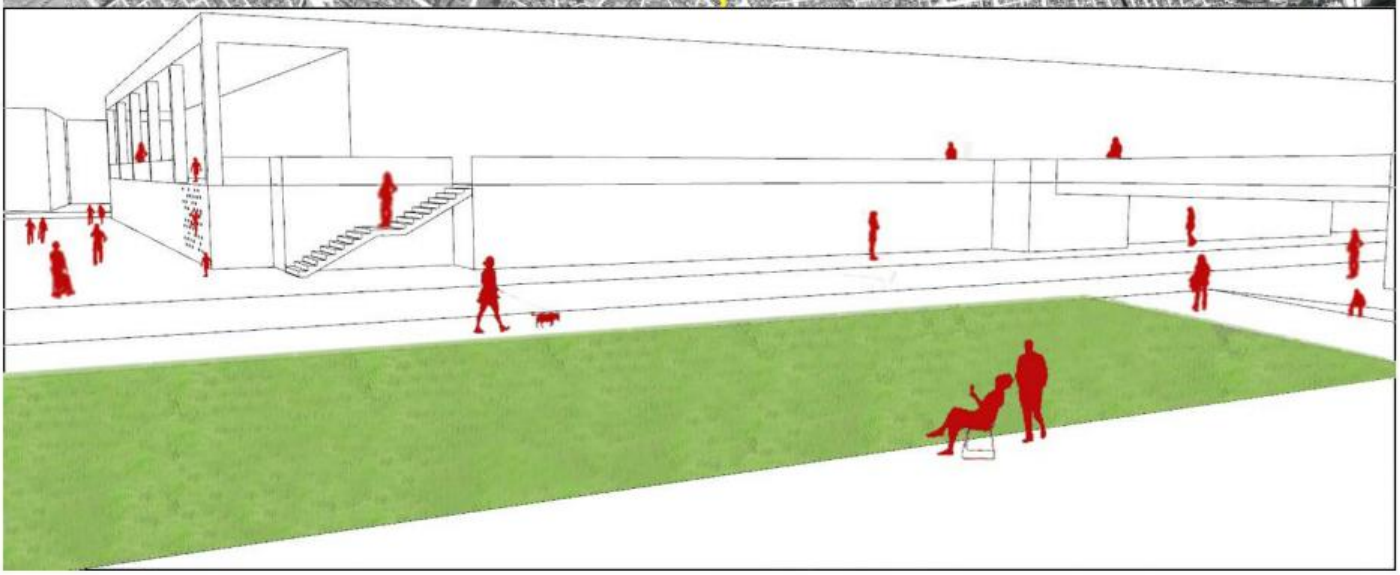


THE BRIDGE



RIVER REVITALIZATION

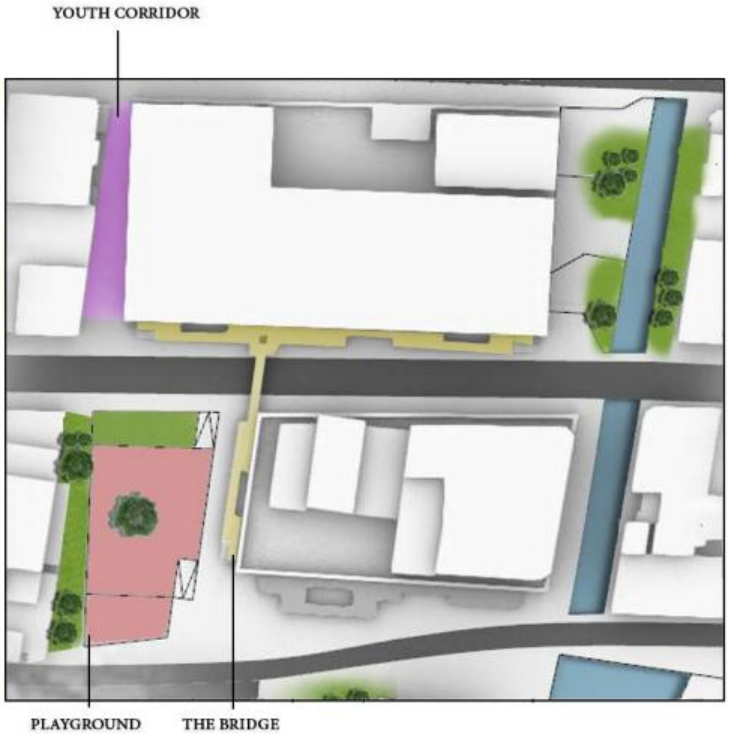


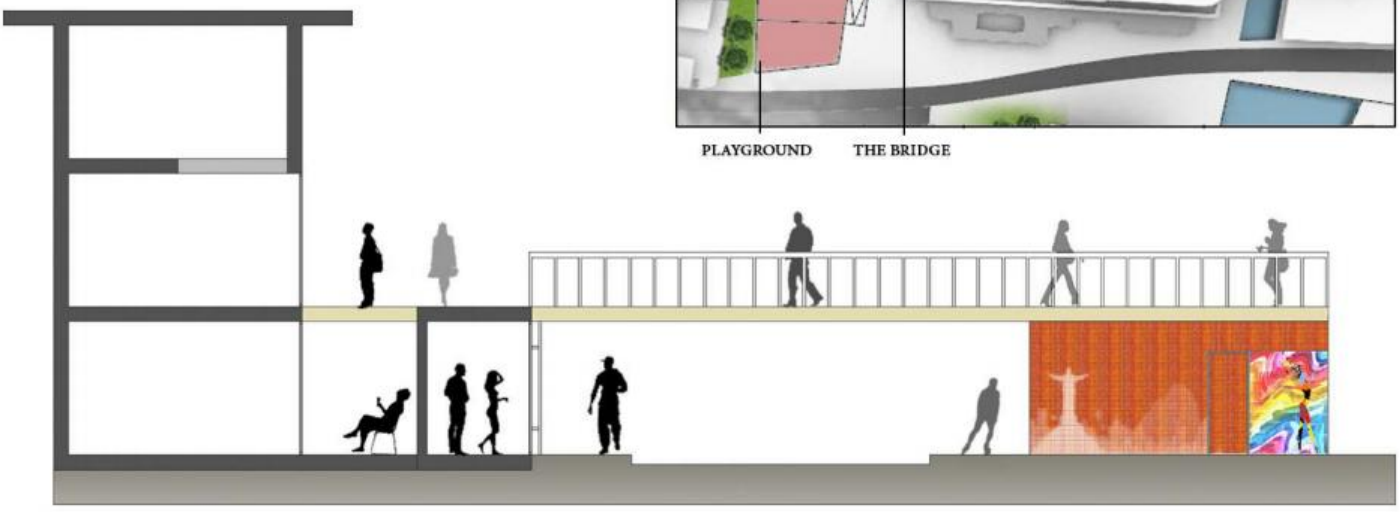


A NEW PATH INSIDE THE NEIGHBORHOOD

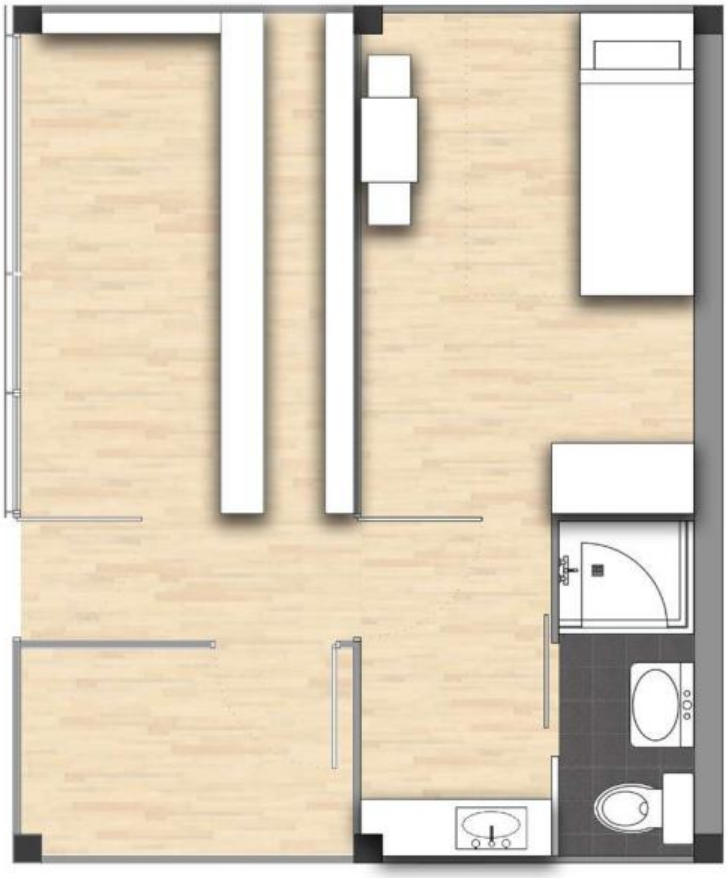
Best place where contaniers will be located is adjacent to the factory walls. Thus, it is avoided to create areas where there is no surveillance and the new identity can be provided to the streets.

This new container system allows its top to be used as a bridge. Bridge is not providing only a new axis to the site, it is also creates opportunity to reuse the factory buildings for commercial purpose. Since the system can be applied to all of the site, functions that feeds the systems can be proposed to all of the site too.





LIVING UNIT



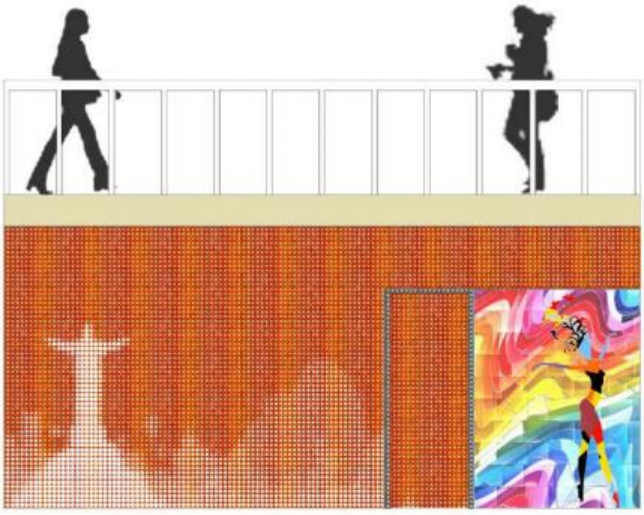
LIVING UNIT WITH STORE AREA

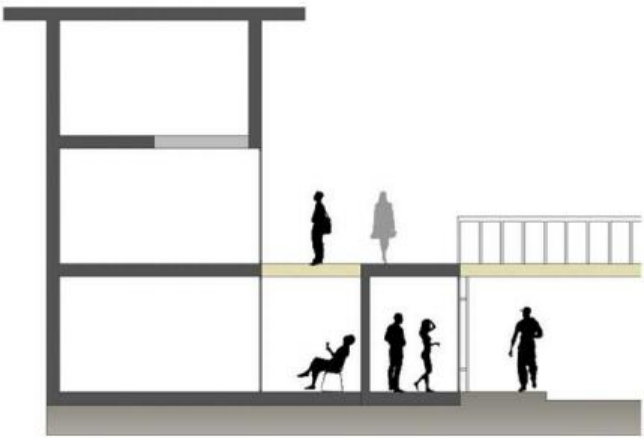
USAGE OF CONTAINER

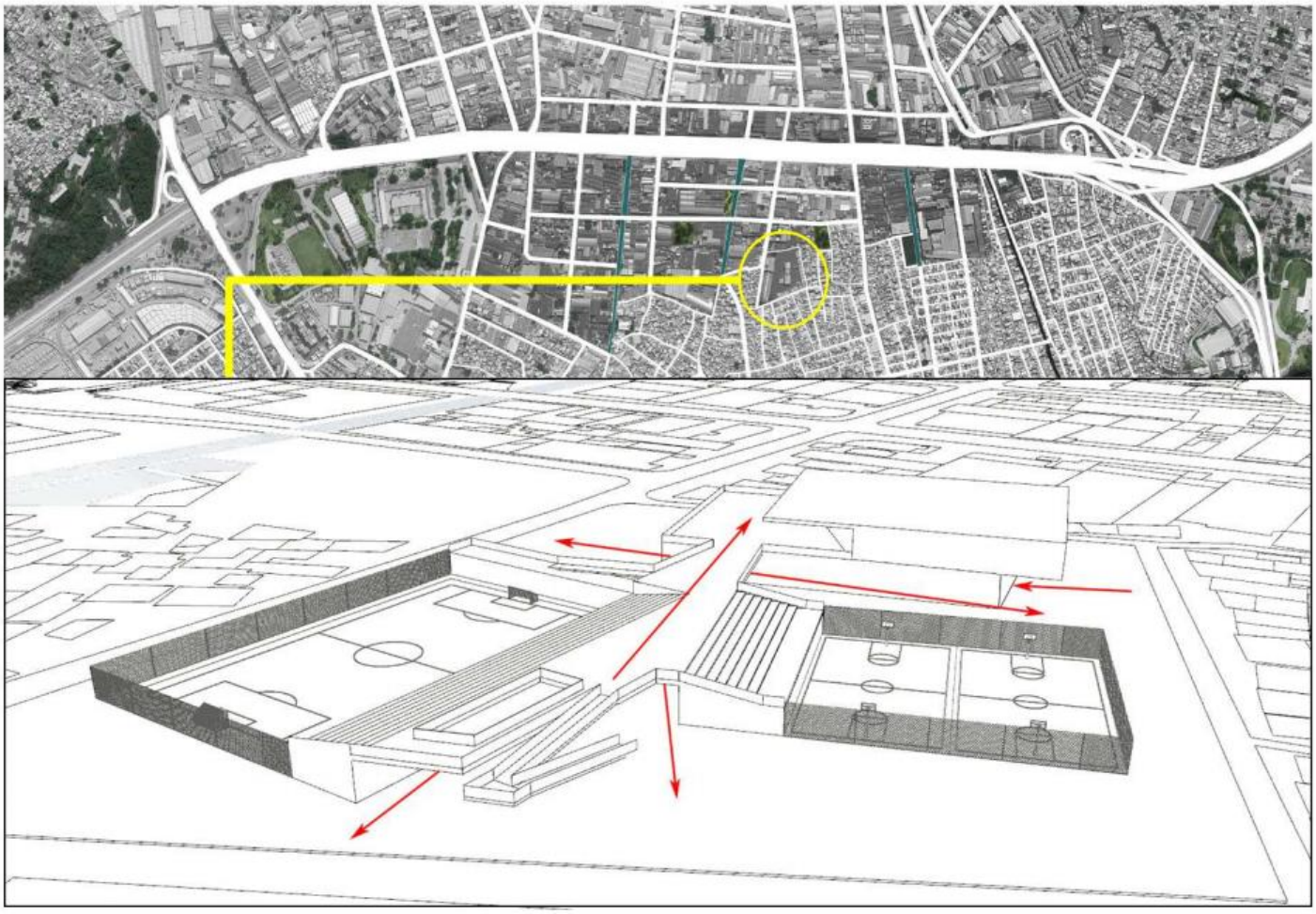
The use of containers has been proposed to improve the living conditions of low-income people. First of all, it is a sustainable and accessible proposal due to the transportation sector in the region. In addition to meeting the needs of people and improving the quality of life, it is an approach that will not displace people and will not harm public memory since it has a similar proposal to old living spaces.

Many types can be created by combining containers in certain ways. It can be used as a dwelling or as a combination of dwelling and commercial unit. It is believed that this new route, which is created by using the top of these units or the areas they define, will attract people's attention. The basic intervention required for a place to be safe is to create a certain level of continuous human circulation.

Finally, the facades of these units provide an opportunity to give the street a new identity. Providing spaces for street artists on these façades and using a perforated metal design are the right approaches to highlight Rio's colorful identity. In addition, perforated metal façades not only provide clean air and light flow inside, but also provide a safe environment for the inhabitants and decrease the crime rate as it increases surveillance for the street people.



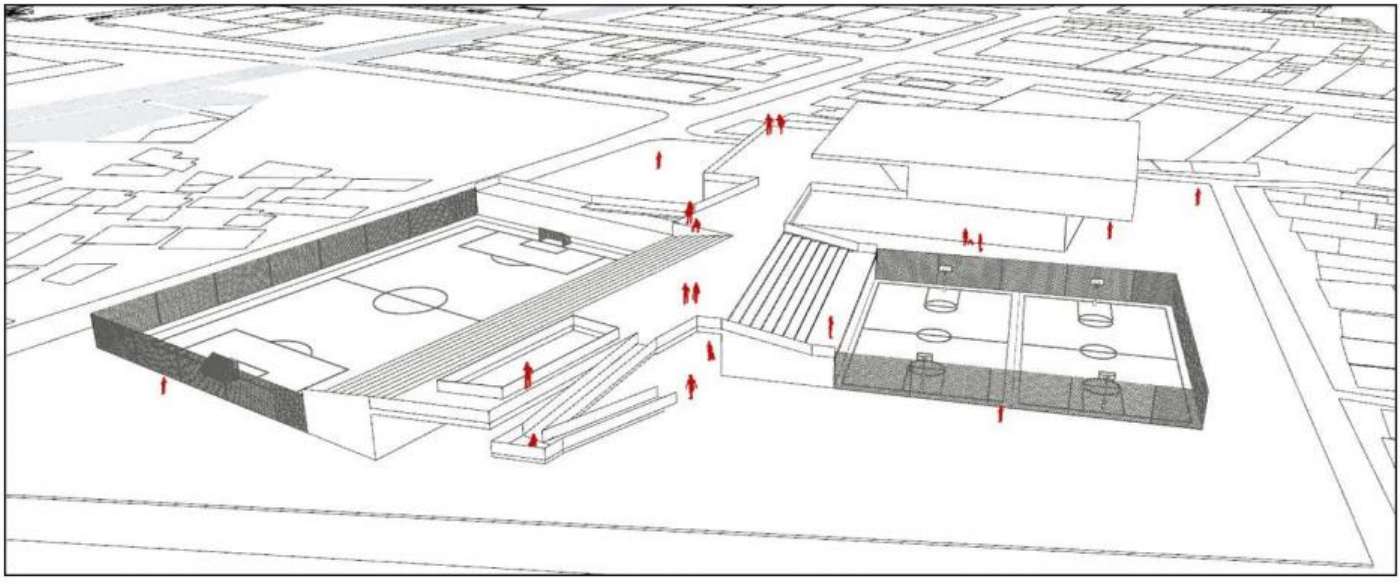




SPROTS CENTER

It is a world-known fact that Brazil lives with sports. In such an area where the public space is almost nonexistent, the first function to be proposed should be the sports center. This function proposed in Masterplan will definitely be the most widely used place by the public.

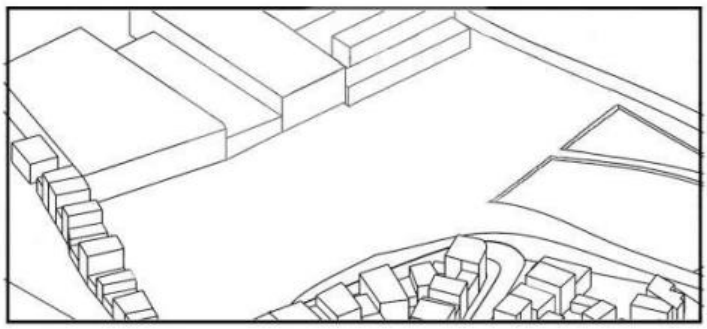
Since the building is located in a public space, it should be permeable and should not block the flow of people. For this reason, the structure of the tribune has been elevated, its bottom has been turned into a corridor for the flow of public, and commercial and social functions, like shops and cafes, are located there. The upper part is connected to the indoor sports hall and it is aimed to use the tribune outside of competitions. In addition, the fields are planned open to the public not only the clubs.



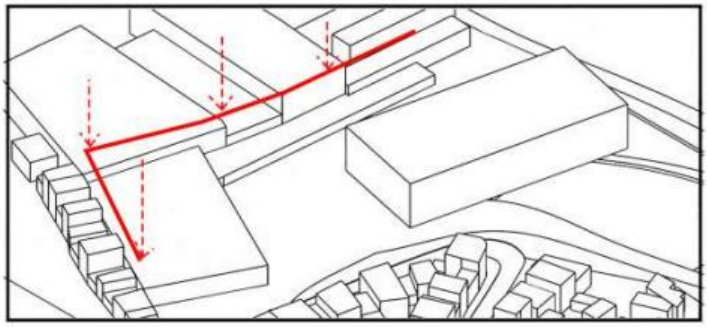
SCIENCE MUSEUM AND PARKING LOT

BUILDING DESIGN STRATEGIES

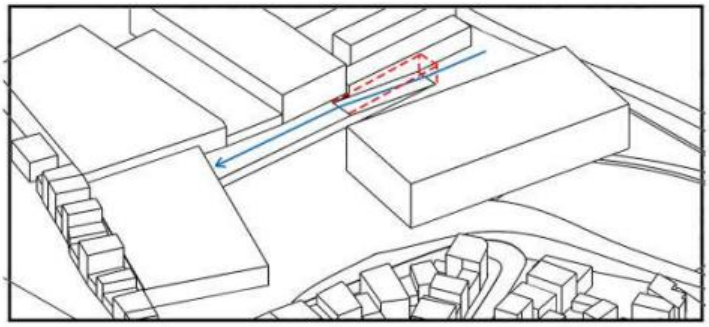
The buildings are located in an area which is being used as a junkyard. Insufficient usage of the area and reveal its potential were key factors in site selection.



The building complex includes 3 main part which are science museum, container commercial area and the parking lot. Parking lot and commercial area located next to the existing walls to increase surveillance which is a key factor in increasing safety and security.

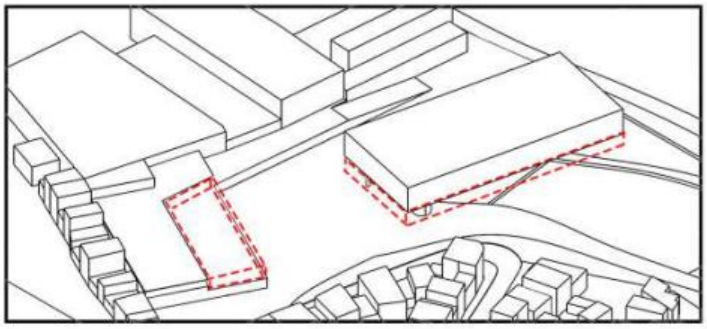


As it can be seen in whole masterplan continously, this container block have potential to act like a bridge. A ramp is located at starting point of the block to lead public to the first floor of the parking lot and make people spend more time on the parking lot.

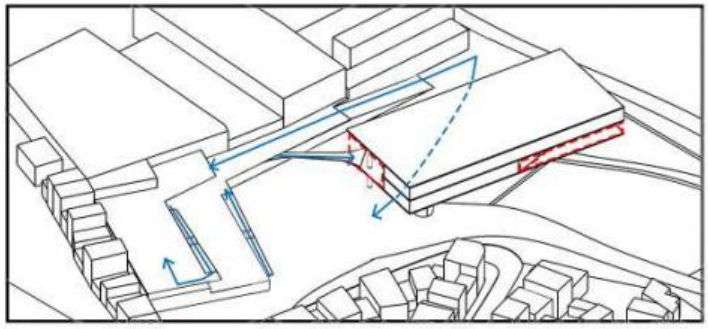


A part of the mass is pulled of from the parking lot to create a terrace and accomodate people.

Also science museum is elevated from the ground to increase surveillance in the square between two masses.



Lastly ramps are located to the building complex to connect the parts and create a continuous flow. After interventions, three masses become connected and create a continous flow which will attract public's attention and bring more sufficient usage of area.

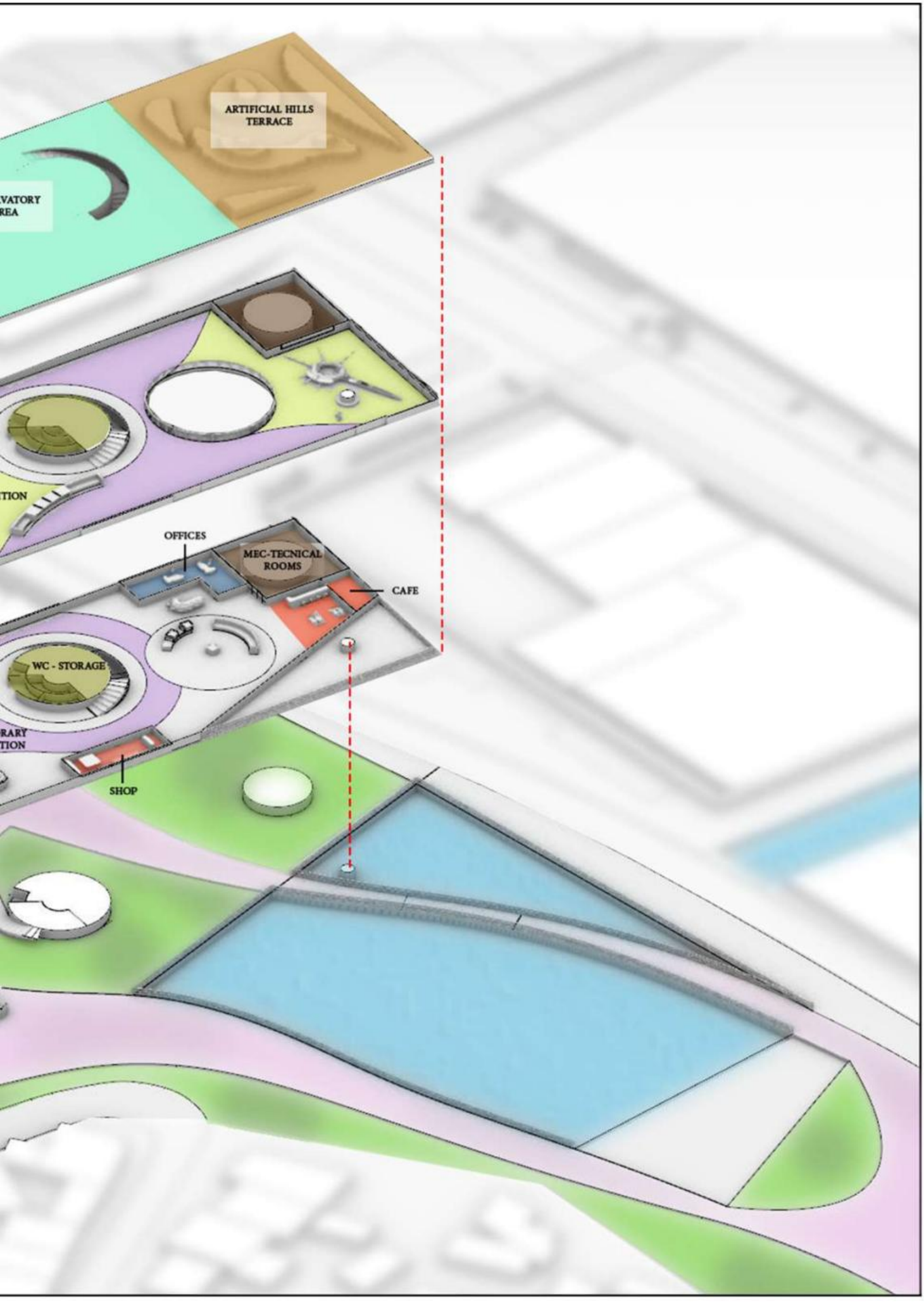


BUILDING PROGRAM

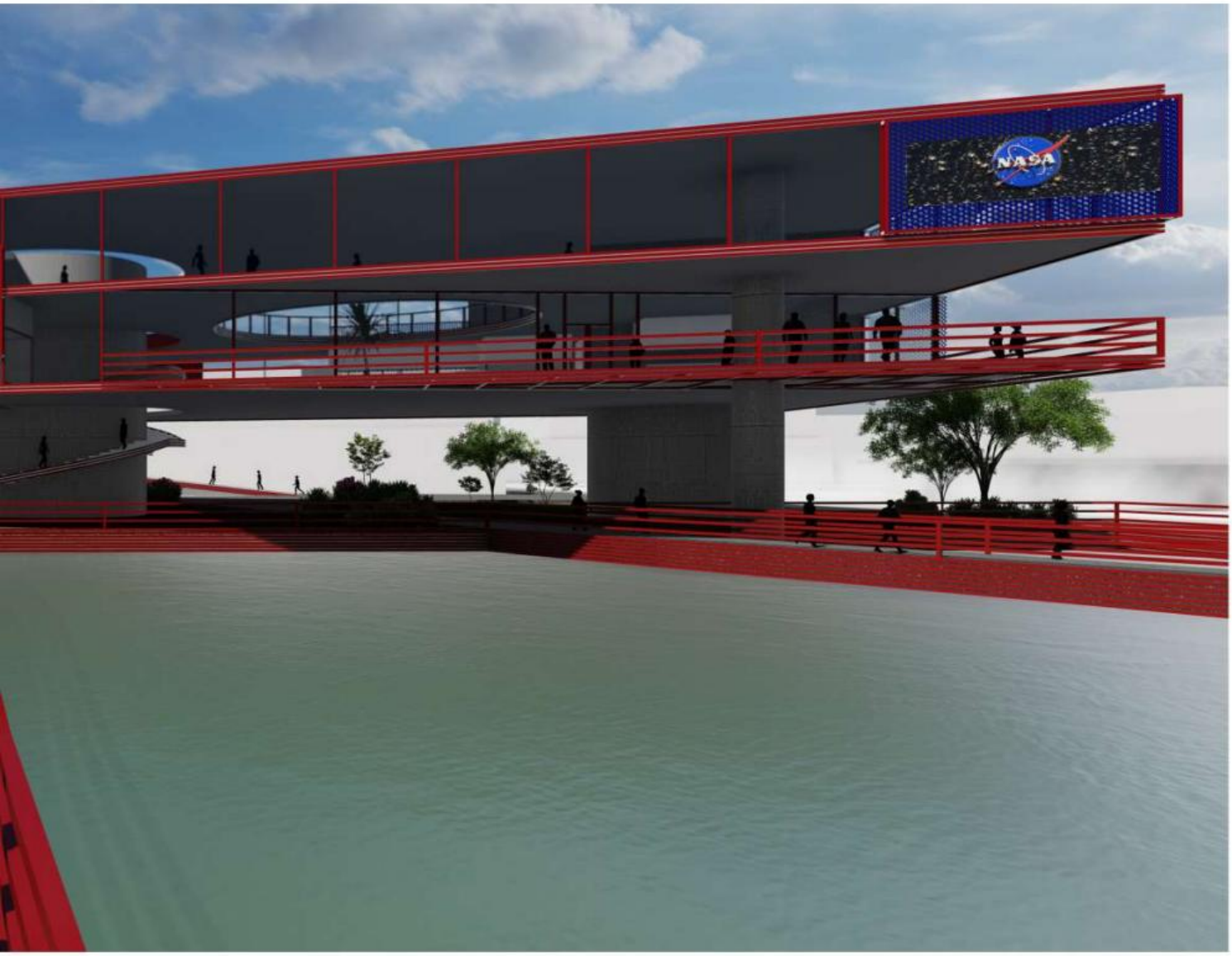
The complex includese science museum and a parking lot. Science museum has temporary and permanent exhibition areas which are mainly serves space field. An observatory area placed that serves mainly young people as informative area, to top of the building with terrace.

Roofs of parking lot is used as terraces to both provide a green area which is lacking in the site and attract public attention to site and increase the densitiy of public flow.

Also a public square created betwwen two building which is a part of 'shining route', the main flow and supported with commercial areas created by containers.


ARTIFICIAL HILLS
TERRACE
OFFICES
MEC-TECNICAL
ROOMS
CAFE
WC - STORAGE
SHOP


SCIENCE


NASA

Elif Berka Tanyeli

ARCH 402 THESIS PROJECT

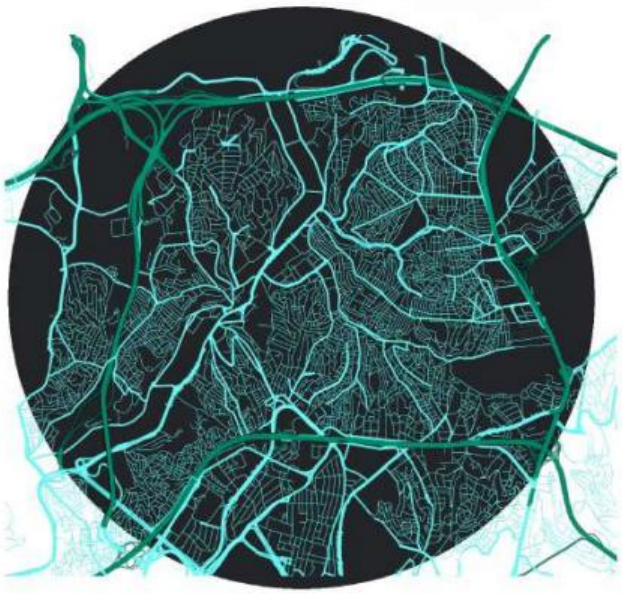
REVITALIZATION OF BARBYSSOS

ELİF BERKA TANYELİ
21501287

GOLDEN HORN

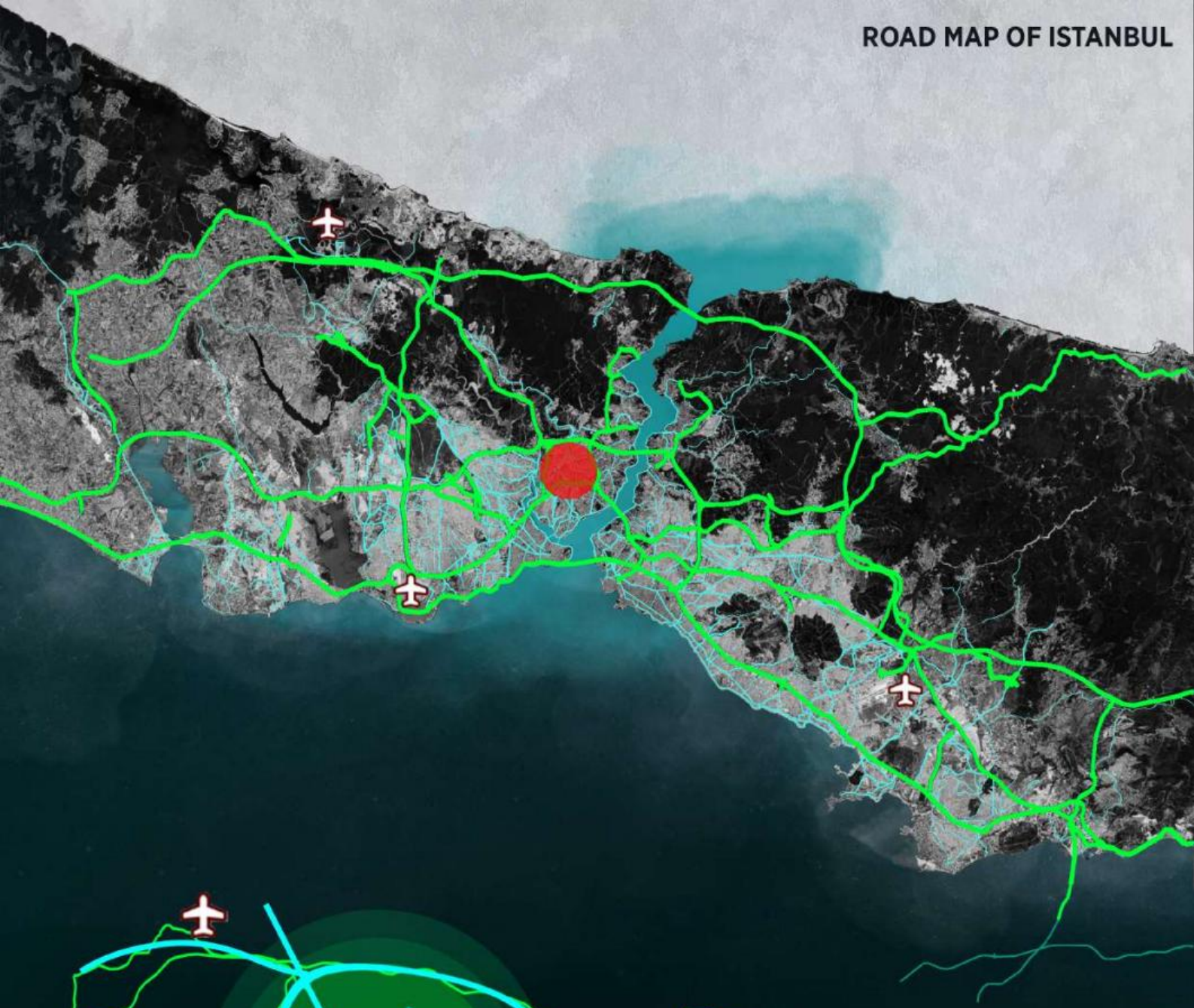
BOSPHORUS

FOCUS ON KAGITHANE



SLOPE MAP

ROAD MAP OF ISTANBUL

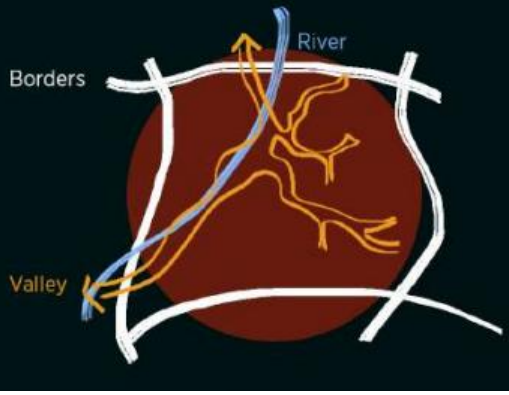


Istanbul, located in the northwest of Turkey's Marmara region, Turkey is the most impolite province. It is one of the oldest cities in the world, located between the continents of Europe and Asia, surrounded by the Marmara Sea on 3 sides and built on a peninsula surrounded by the Bosphorus and the Golden Horn.

Kağıthane region has become the new focus of big investments today. Investments have increased especially in the field of finance, as it is located between the E5 and TEM highways, surrounded by metro transportation networks and its proximity to the Bosphorus bridges, and the focus of the Istanbul has been directed to this region.

There is the 3rd İstanbul Airport in the northwest and the 3rd bridge in the northeast. Atatürk Airport (closed) is in the southwest and Sabiha Gokcen Airport is in the southeast.

FOCUS ON KAGITHANE



CADIR
MANSION 1723

HISTORY OF BARBYSSOS (KAGITHANE RIVER

Kağıthane region is an area that one of the first settlements in Istanbul in history was seen at the place where the freshwater and salt water at the beginning of Kağıthane converge and flow into the Golden Horn. As the city is on plateaus throughout Istanbul, it is a region where the elevation difference is intense, the valleys and Kağıthane Creek pass through it.

According to some historical sources, the production of paper established in this environment is very old even before than the Byzantine Period. It is written that there was a paper mill during the conquest of Istanbul. It is known as 'Kağıthane' in the Ottoman period due to a stream that flows into the Golden Horn Bay and the old paper mills in its valley.

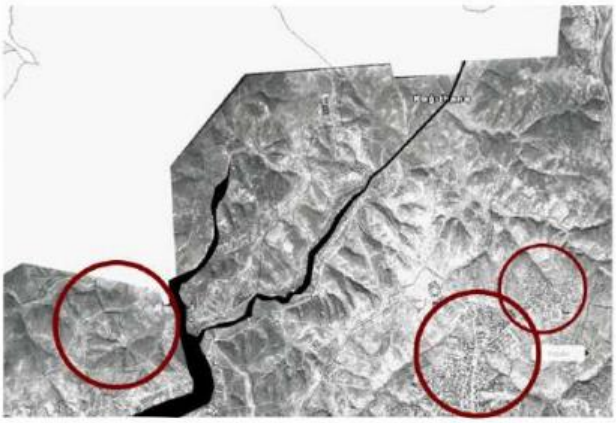
It was a place of entertainment. During the Ottoman period, many mansions such as Sadabad Pavilion, Imrahor Pavilion, Cadir Mansion and Kağıthane Pavilion belonging to the palaces were established around the Kağıthane creek at the end of the 16th century and became an area where they can travel by boat on the promenade parks, horse farms and streams. Due to the proximity to the water source, it has become an area where trees are abundant, which are frequently used in agriculture and animal husbandry. Also known as Sadabad, Kağıthane tulips, sycamore, poplar trees, the promenade area was one of the areas preferred by the public for picnicking and socializing in spring.

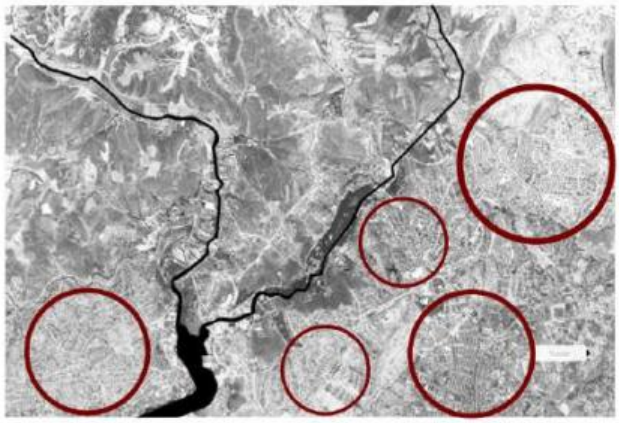
During the Republic of Turkey, the region was used for military purposes because it was secluded area within the region. After war with the opening of the region to the industry, rapid settlements have been built on unsupervised and low value lands, Kağıthane has started to develop out of plan and new settlements such as Gültepe, Çağlayan and Hürriyet neighborhoods, namely slum areas, have been established (Irmak, 2007: 21). The Kağıthane Creek and its surrounding, which has become a factory, has lost its feature of being a promenade and there are no traces of its former form. The fish living in the stream filled with the chemical wastes of the factories, trees and plants along the stream have also died. In addition, Vadi has become the slum and dump site of Şişli and Beşiktaş regions in early Republic. Due to the increasing population density, the number of dwellings increased rapidly in the 1900s, and in the early 2000s, business centers began to enclose the Kağıthane River. Recently it is began to be the focus of financial and business centers.

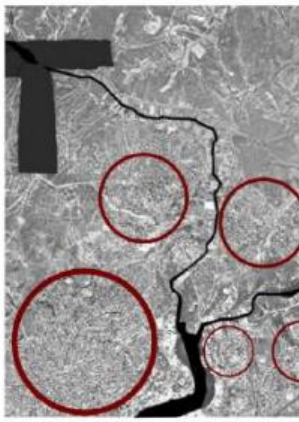
In parallel with urbanization, with the zoning plan approved in 1984 and the efforts to clean the stream, Kağıthane and its surroundings started to be organized. Green areas and parks have been created nowadays, but they have lost their former popularity and become an area that is not used much by the public.

1911 kagıthane map

1946 1970 1982







GROWTH POINT

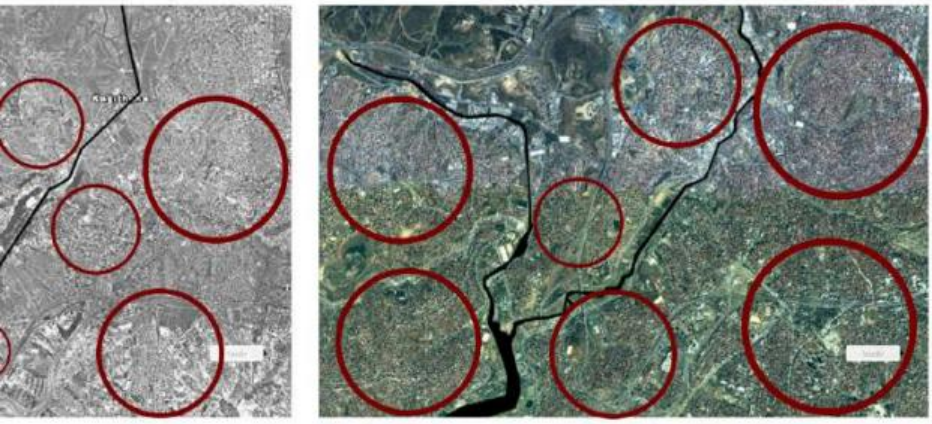
The level difference between the valley and riverbed is 50 meters and more (the hills reaches 120 m in the area divided by the valley opened by the Kağıthane stream). Topography, which constitutes the main character of the region, is reflected in the district names such as Nurtepe, Seyrantepe, Gültepe, Esentepe, Gayrettepe, Kuştepe.
Due to these difficult geographical conditions, the creek and its surroundings were avoided for a long time. but in the period of increasing population and industrialization, the settlements increased rapidly.

Kağıthane and Alibeyköy Valleys of 1911 (Irmak, 2014)

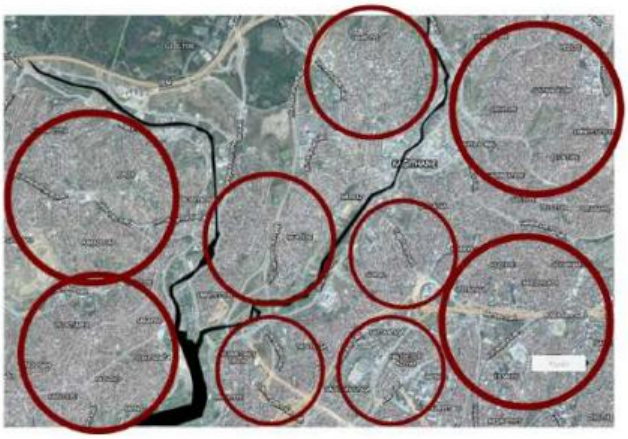
SADABAD AND KAGITHANE RIVER 1900S

https://i.pinimg.com/originals/e7/40/4b/e7404b382d05fd57b0f893fce43dd696.jpg

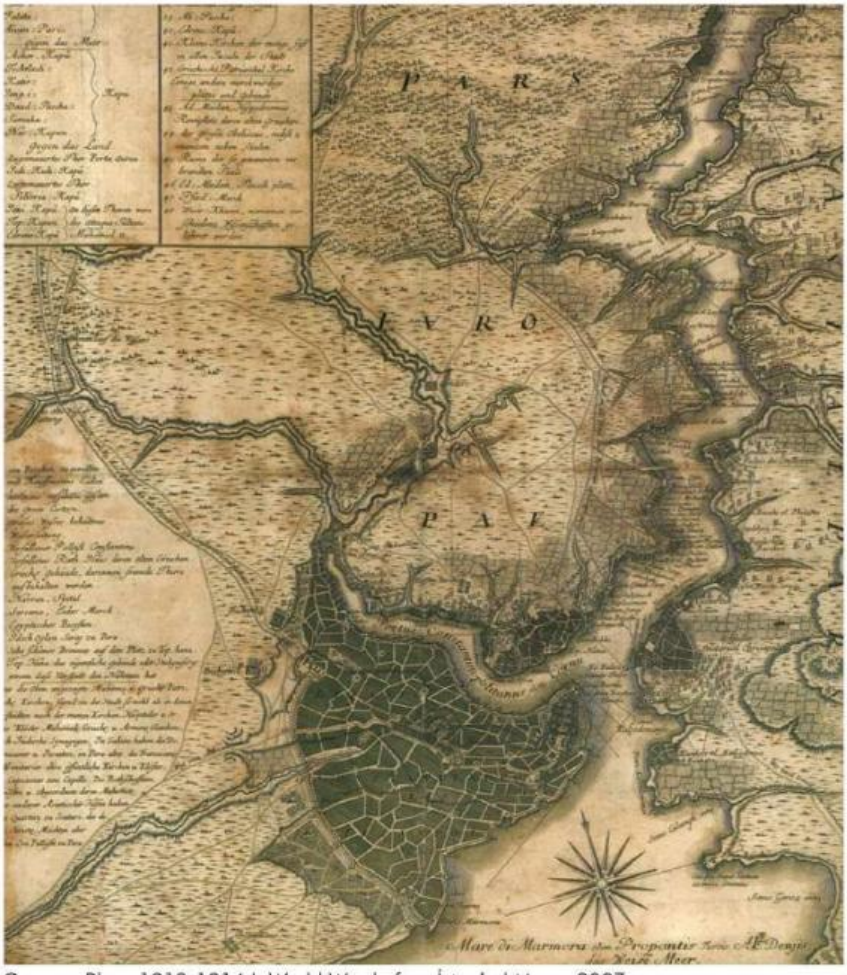
2006



2011



2013



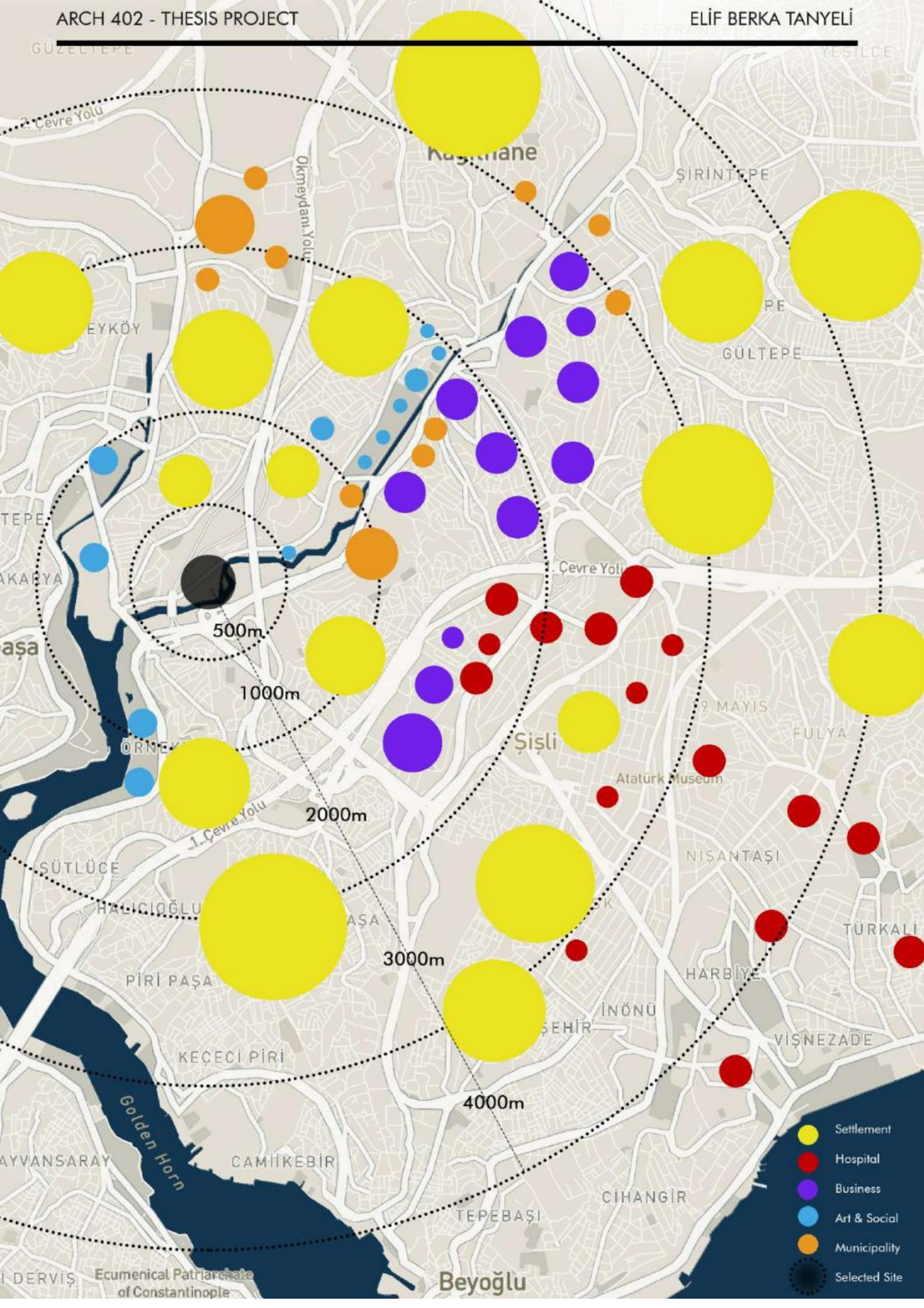
German Blues 1913-1914 I. World War before İstanbul Maps, 2007

2014

2015

Kağıthane River and the First Settlements 1895

http://www.eskiistanbul.net/2188/sadabad-ve-kagithane-deresi-abdulla h-freres-1880s#ig=0&slide=0


500m
1000m
2000m
3000m
4000m
Settlement
Hospital
Business
Art & Social
Municipality
Selected Site
Şişli
Beyoğlu
Golden Horn
Çevre Yolu
1. Çevre Yolu
Okmeydanı Yolu
Atatürk Museum
GÜLTEPE
ŞİRİNTEPE
NİŞANTAŞI
HARBİYE
TÜRKALİ
VİŞNEZADE
İNÖNÜ
PİRİ PAŞA
KEÇECİ PİRİ
CİHANGİR
TEPEBAŞI
CAMİİKEBİR
SÜTLÜCE
FULYA
9 MAYIS

REVITALIZATION OF BABRYSSOS (KAGITHANE RIVER) FOR SUSTAINABLE DEVELOPMENT OF KAGITHANE

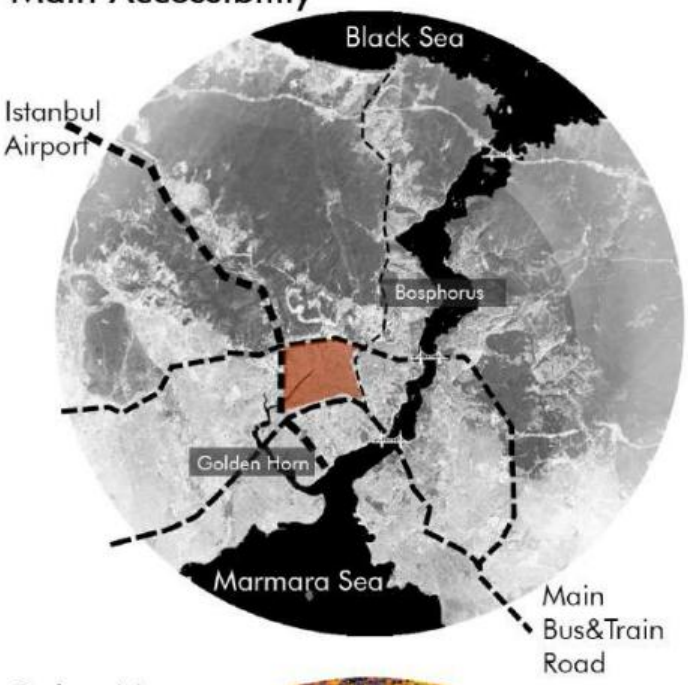
Cendere Valley (Kağıthane River Valley) has lost its historical and natural texture in the historical process as it transformed from recreation area to military area, military area to industrial area. The region, which is a valley extending from the Black Sea to the Golden Horn, creates an ecological air corridor for Istanbul and the creek extending from North to South offers users a breathing space.

The river was used frequently by the people in the old times, it has become a place that nobody visits today. The river, which the sultans, writers, diplomats, soldiers and visitors could not saturate to view, lost its old reputation when it became unusable with paper factory waste (actually the region got the name from paper factories). The aim of this project is to make the river reusable in the close future and to blend it with sustainable, developing technology.

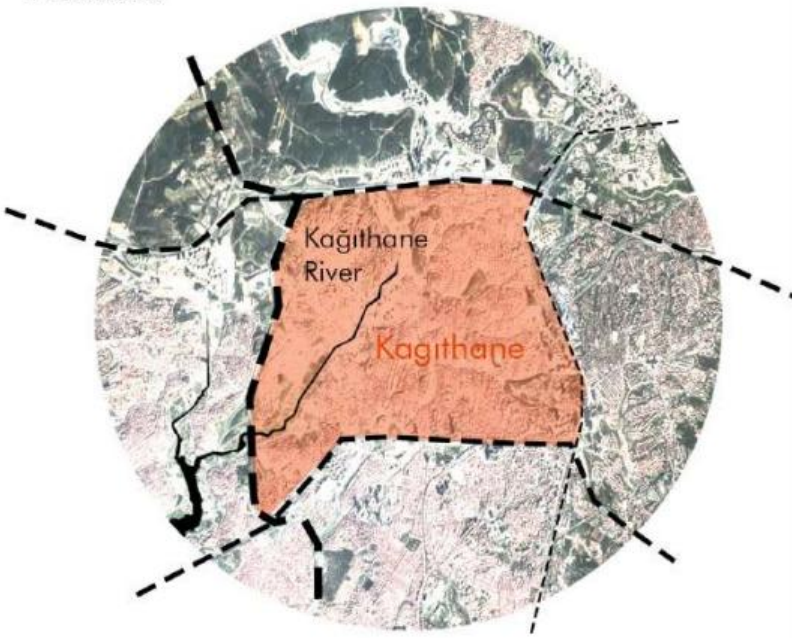
Ottoman Period

Recently

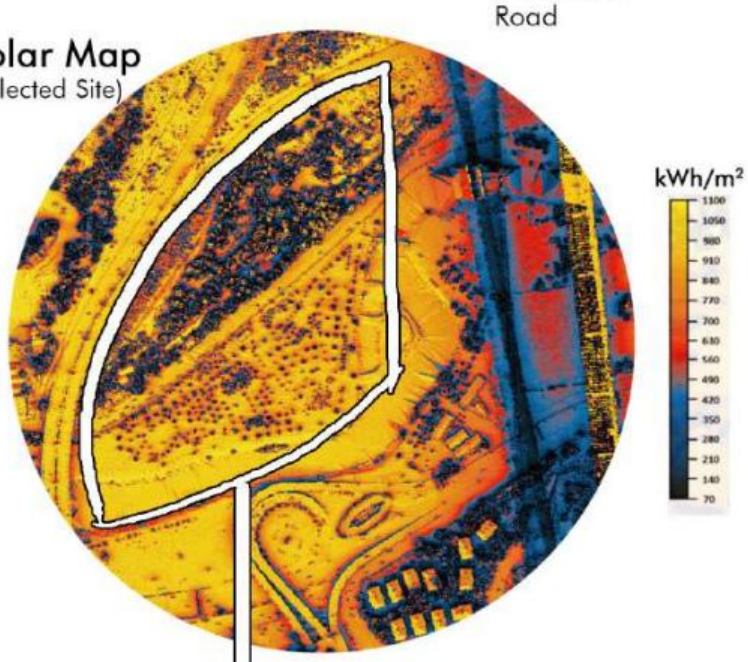
Main Accessibility



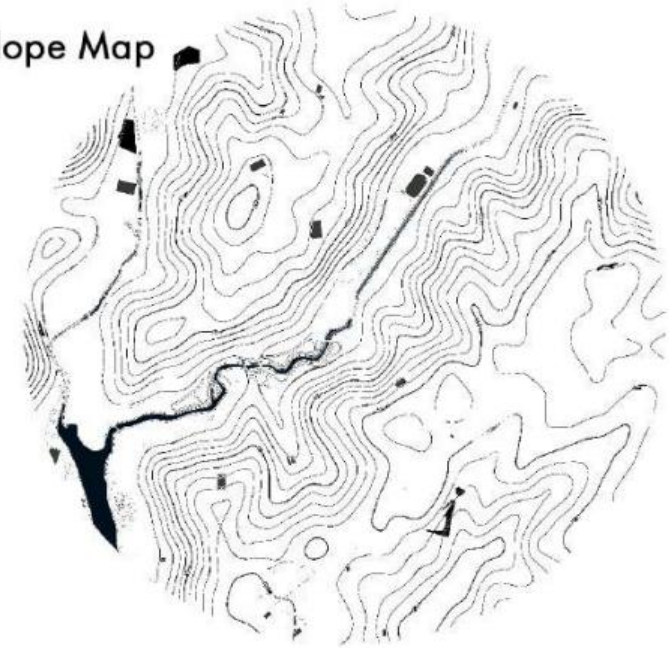
Focused

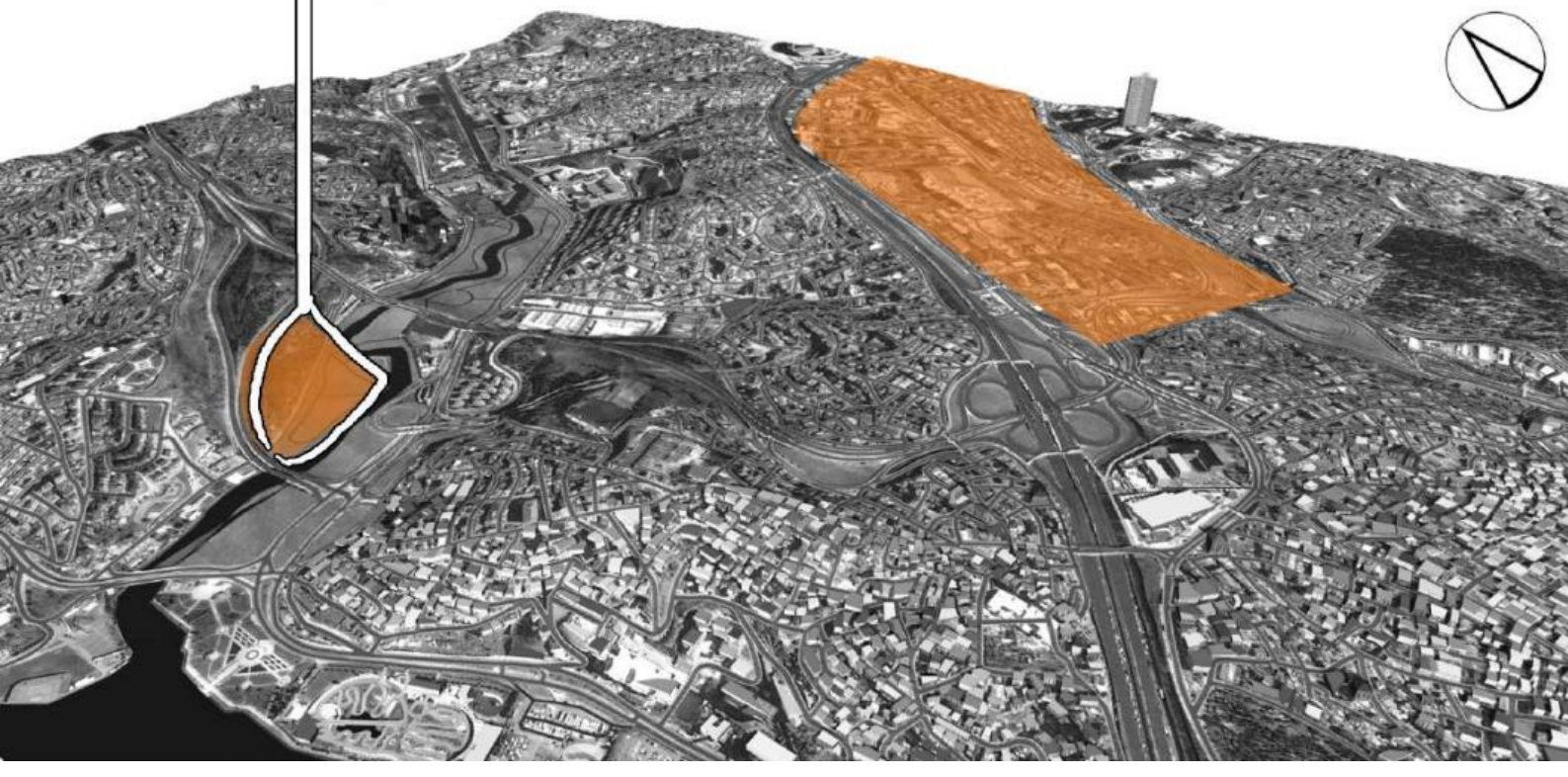


Solar Map
(Selected Site)



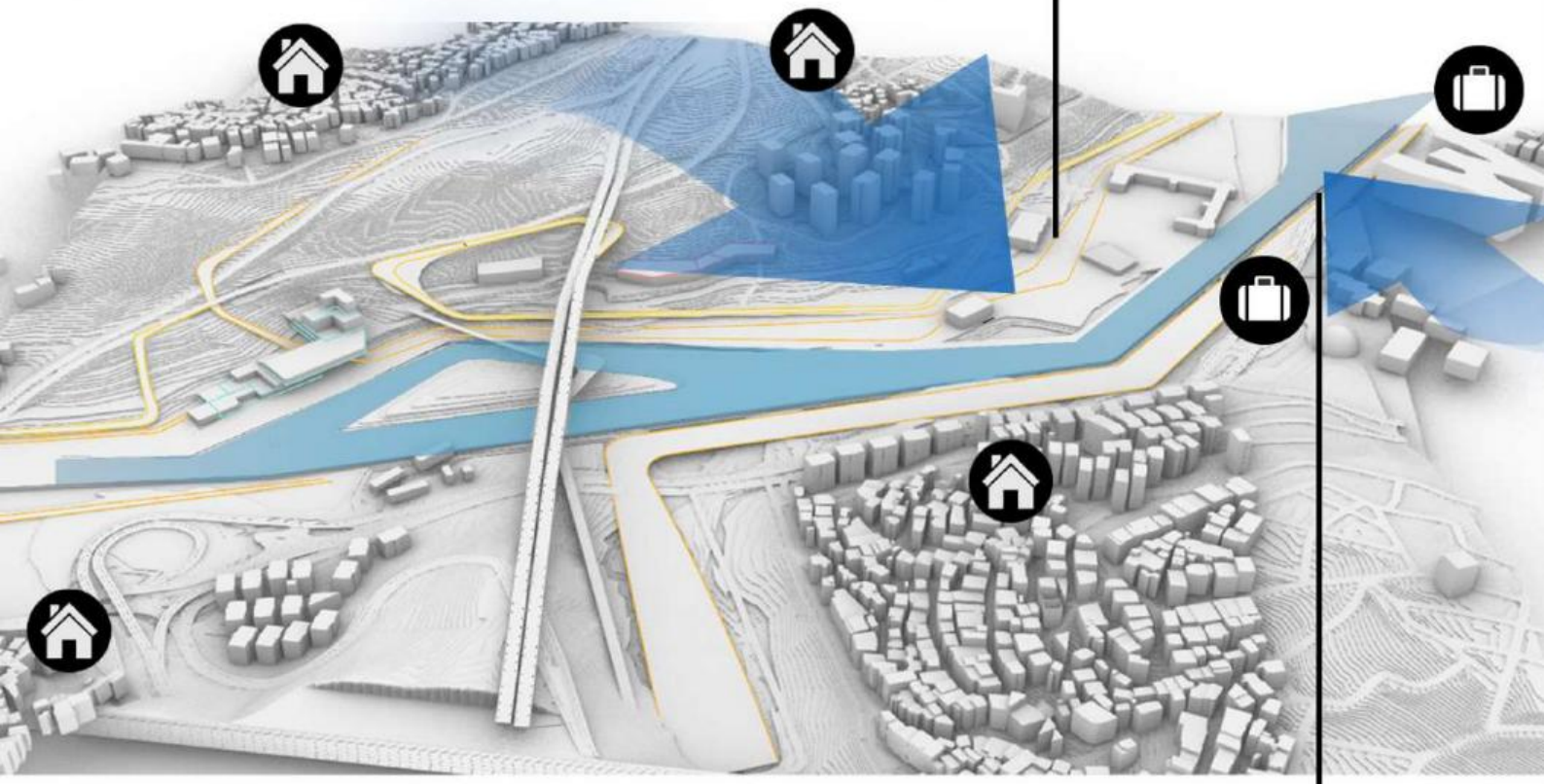
Slope Map





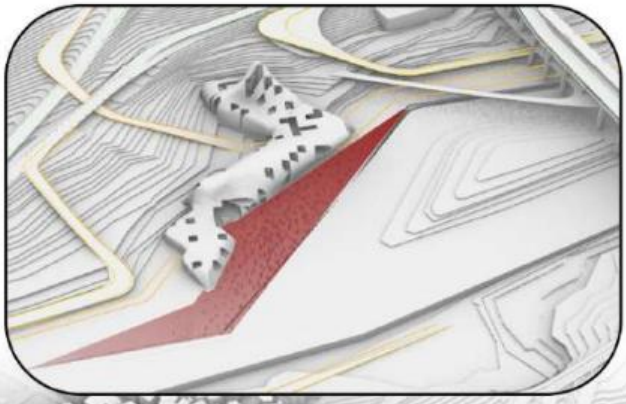
MASTER PLAN DECISIONS

Layered topography from settlements to the riverside and various pavement styles for walking, cycling and sitting will increase the use towards the river.



Designed pedestrian walkways extend layer by layer from the financial center& business axis to the edge of the river to reduce the stress level on working people.

MASTER PLAN DECISIONS

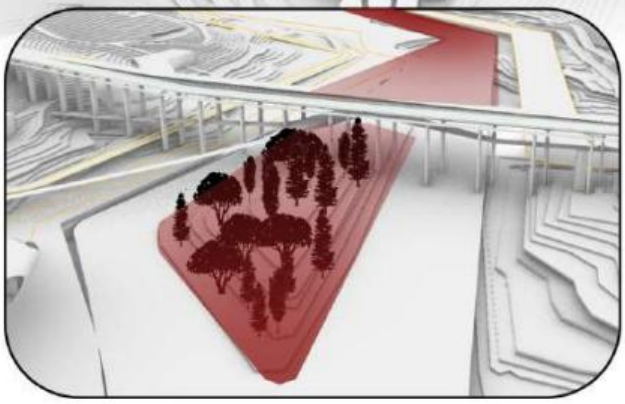


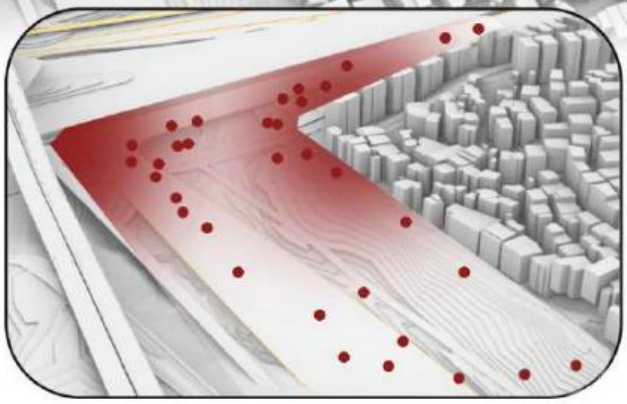
3D PRINT DESIGN ATELIER& 3D PRINT MALL

MEDICAL 3D PRINT FACTORY AND RESEARCH& DEVELOPMENT CENTER

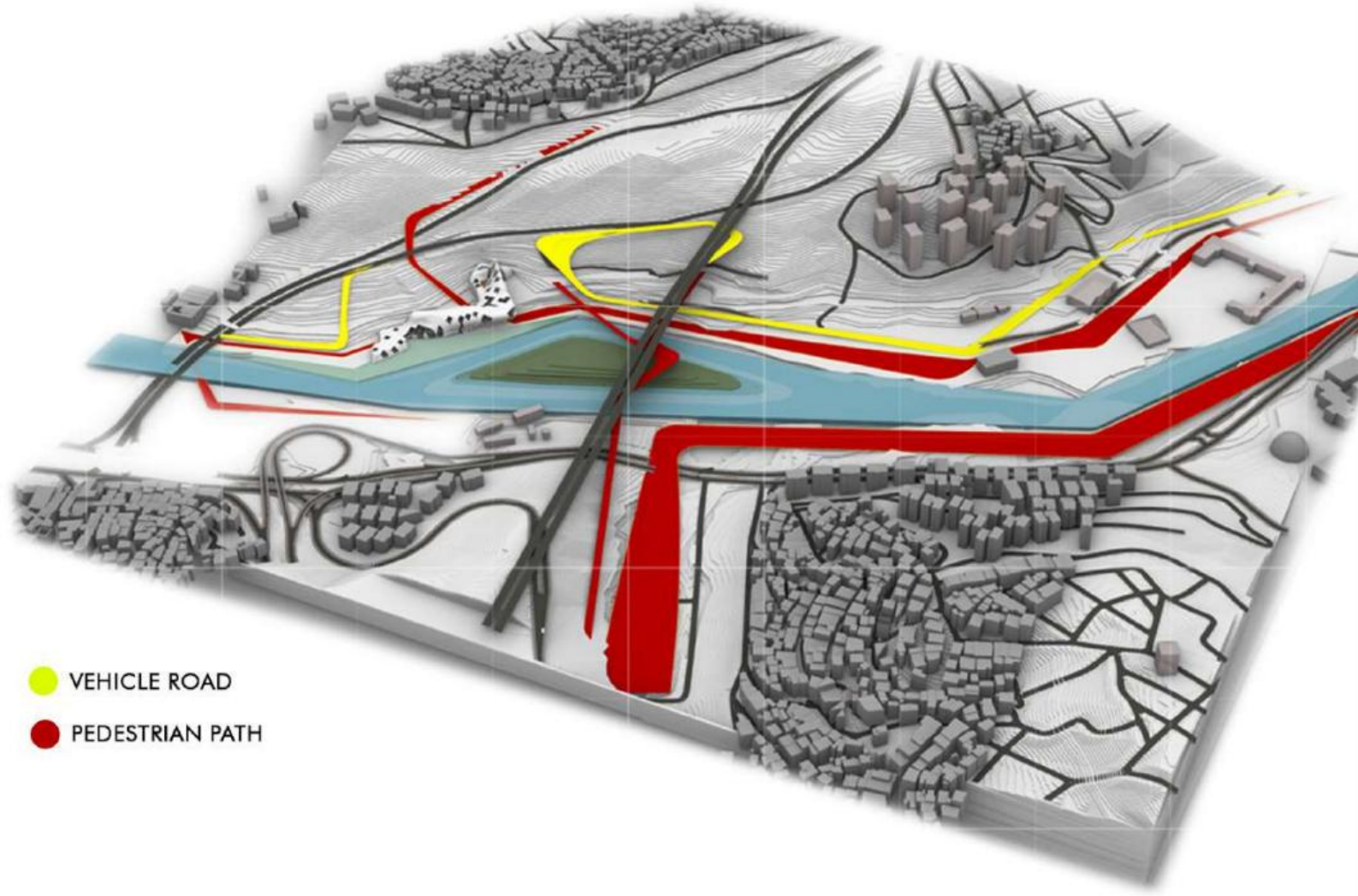
GREEN ISLAND UNDER THE BRIDGE

FESTIVAL AREA AND SPORTS FACILITIES

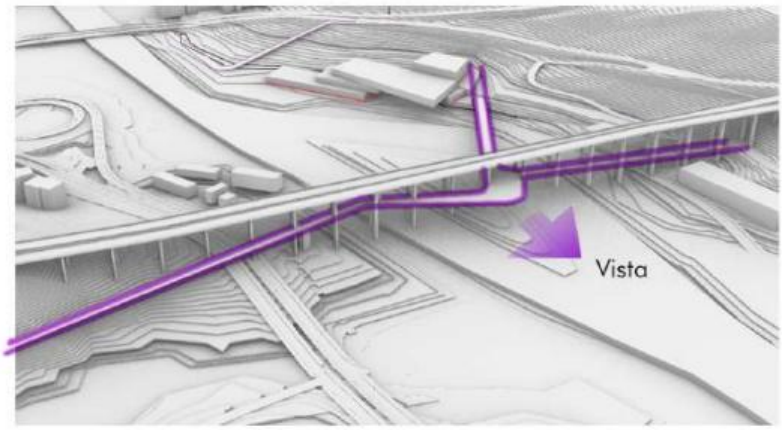




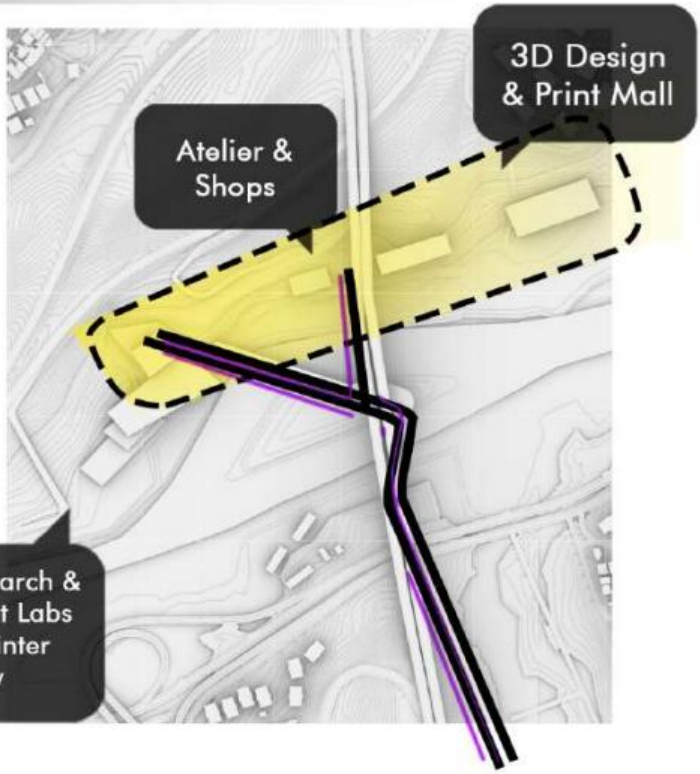
PROPOSED ACCESS



UNDER BRIDGE PEDESTRIAN CONNECTION



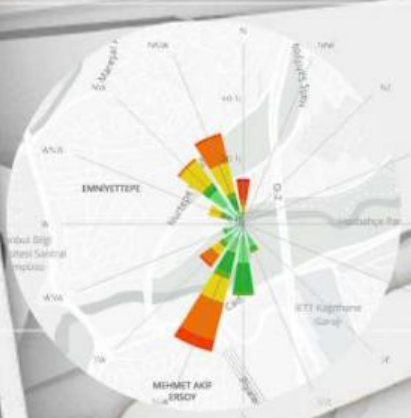
Pedestiian road from city's crowd point reaches to the other side of the river that is also 3d print axis under the main vehicle road.



SITE PLAN DECISIONS

Machine of the design. Includes 3D printer ateliers, computer labs and drone tower.

Wind Direction

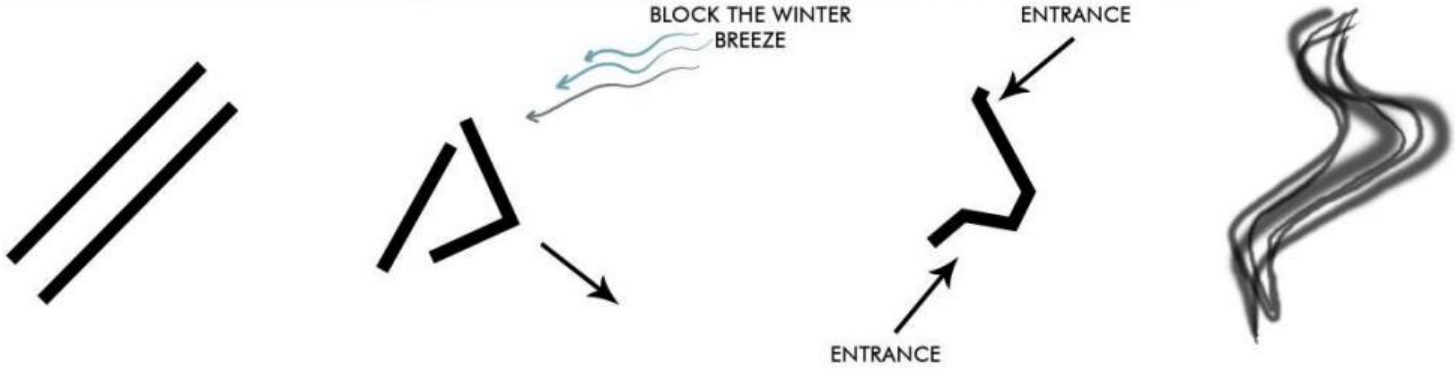


Raw material of the design. Includes algea farming, polymer production.

Brain of the design. Includes research&development labs, offices.

Algea Farms to produce material (algea polymer) for 3Dprinters + filter CO2 from river.

FORM DIAGRAM



ALGAE LAB.

The algae are collected from the accumulated pond (algae farms) and taken to photosynthesis laboratories for polymer production. In these labs algae turns into bioplastic to 3D printer material.

Algae absorbs CO2 and produces starch (waste:O2)

ZONING: Algae Farms, Harvesting Area, Transforming Labs, Storage.

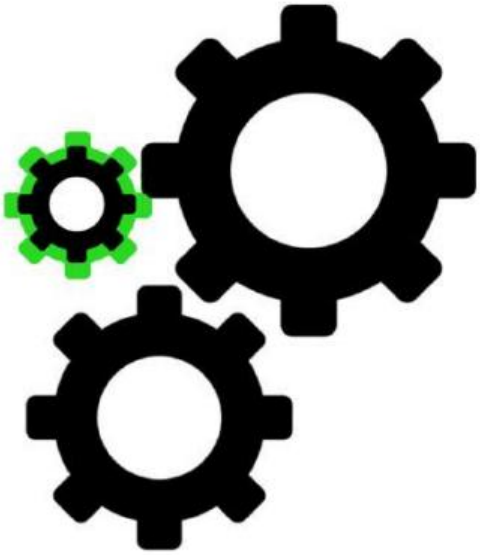
"Algae can quickly filter CO2 from the sea and the atmosphere" (Klarenbeek&Dros)

https://www.dezeen.com/2017/12/04/dutch-designers-eric-klarenbeek-maartje-dros-convert-algae-biopolymer-3d-printing-good-design-bad-world/

RESEARCH LAB.

Related medical and design research will be done before production.

ZONING:Research Labs, Library, Classrooms, Multipurpose Hall, Meeting Hall, Offices, Relaxation Zones, Cafeteria.



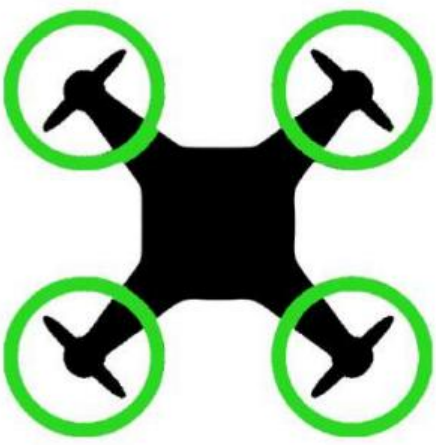
3D PRINTER LAB.

Since in the recent times, people realized that the world insufficient in serial medical production in urgent situations, such as COVID-19 pandemic treatment.

The technology that develops in the future will use 3D printing technology to produce complex shaped or emergency medical products; which is easy to manufacture and short leadtime, low cost and sterilizable.

It is anticipated that this industry, which is used in the fields of automotive, space, architecture, education and communication, will be used in the field of health in the future. Scope of the industry will include dental products, robotic&prosthetic limb, synthetic tissue and organ, protective equipment (protective masks are produced in COVID-19), surgery supplies etc.

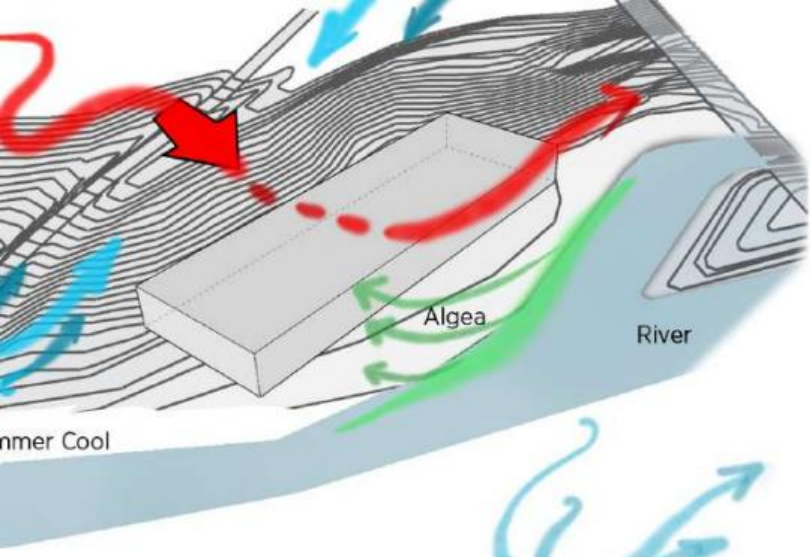
ZONING:Computer Labs, 3D ateliers, 3D Printer Labs, Sterilization Hall, Meeting Hall, Multipurpose Hall, Classrooms.



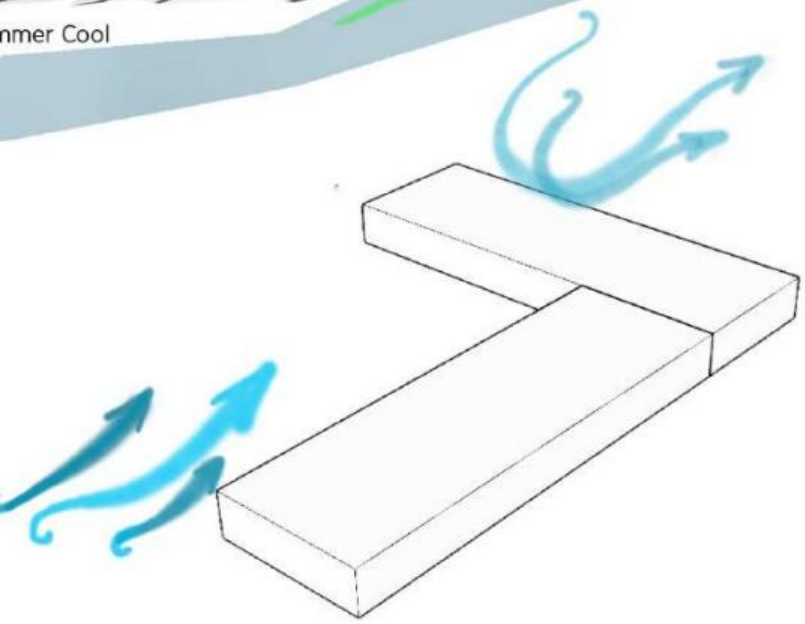
DRONE TOWER

Delivery of products will be made to hospitals by drones. Thus, a faster and safer transportation will be provided.

ZONING: Control Room, Tower.

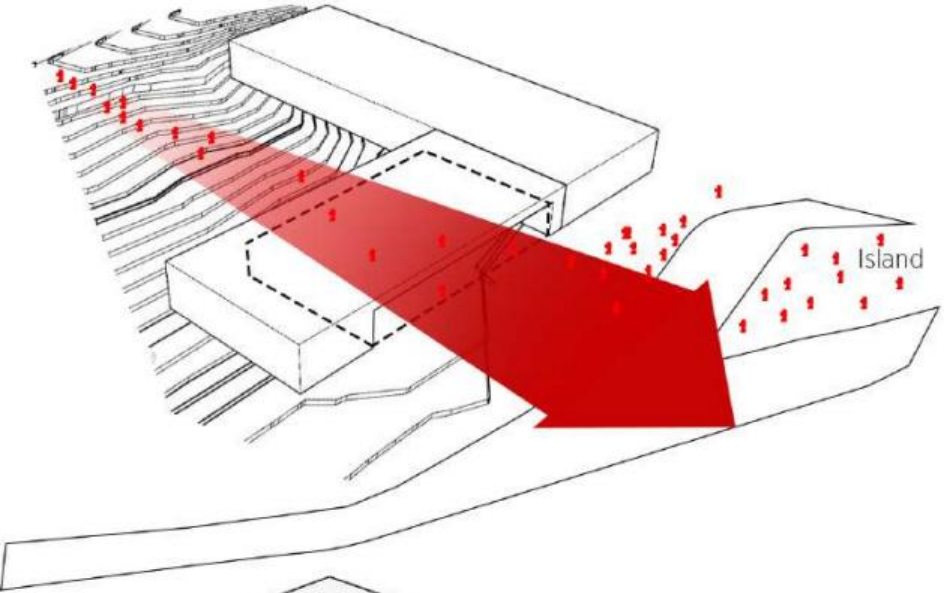


The selected area is located at the foot of one of the highest hills of the valley, at a point meeting the islet-forming water of the stream. The aim is to clean the water from algae than use algae as raw material for 3d printer and print products in the field of healthcare. And final, send the products to the hospital region by drone transportation.



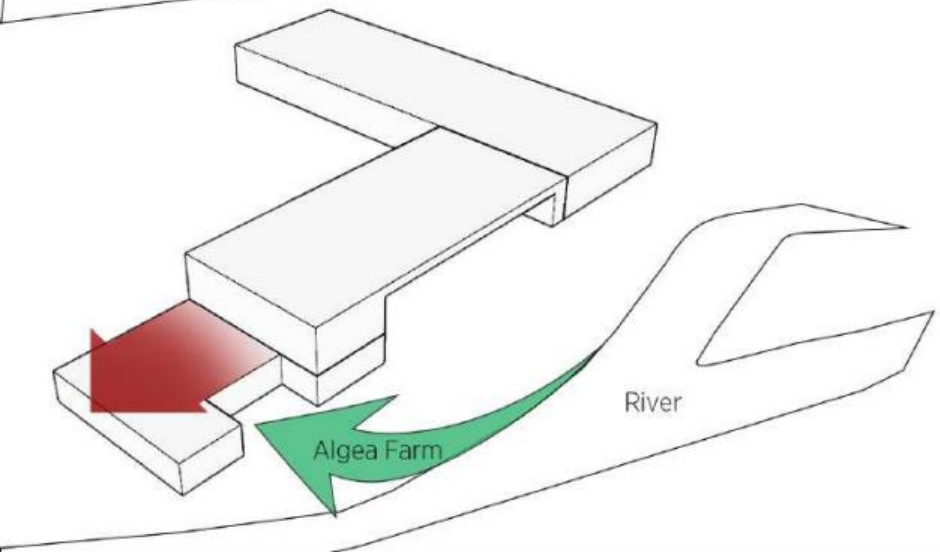
1. Block Winter Breeze

A mass that will block the main wind direction, which is effective to prevent breeze inside the inner courtyard in winter



2. Public Passage Through the Building

To open a direct passage path from the settlements to the riverside.

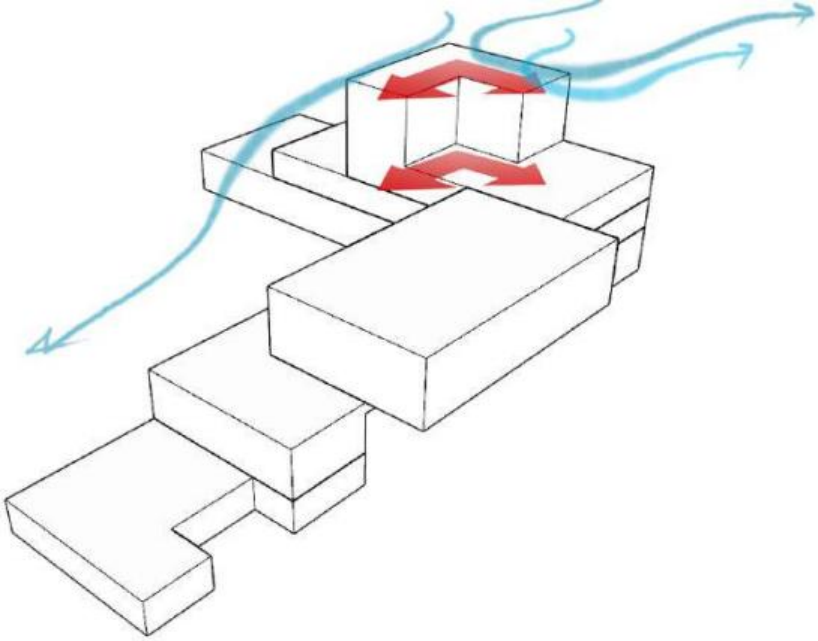


3.Algea Accumulation

The flow of the stream decreases by divided into 2 branches with the island in the middle. Therefore algae collection is provided in the upper arm

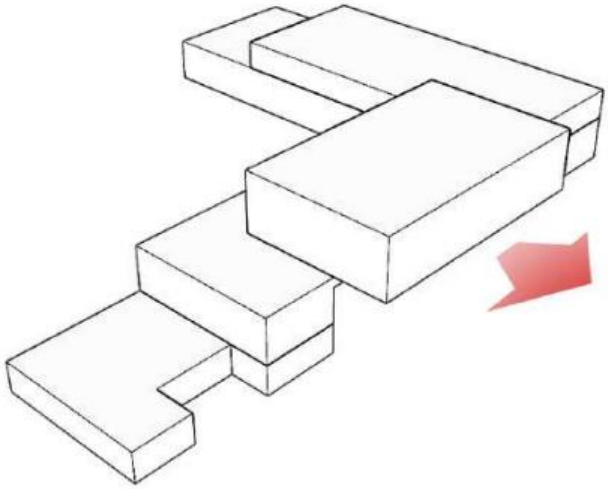
7. Block Wind & Ease Drone Flight

The mass sitting on the high part of the topography is further raised for the drone tower. The north and northeastern part of the tower is closed to facilitate the flight and reduce the wind effect.



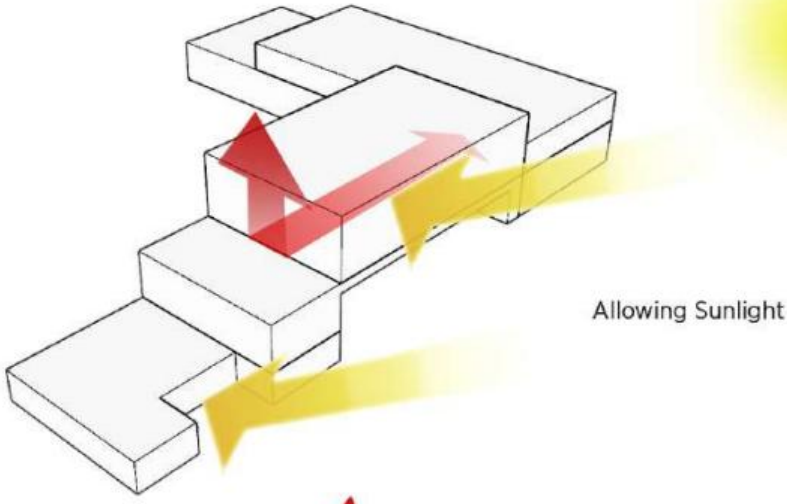
6. Optimizin View

tTe upper mass is lifted and pushed to allow for daylight to illuminate the labs and for workers to enjoy views to the river and valley



5. Elevating the Production Mass

To continuous circulation and for the drone tower that will come top on it, adding new floor the production mass . This section is also required high ceiling for big 3d printer machines.



4. Elevating the Production Mass

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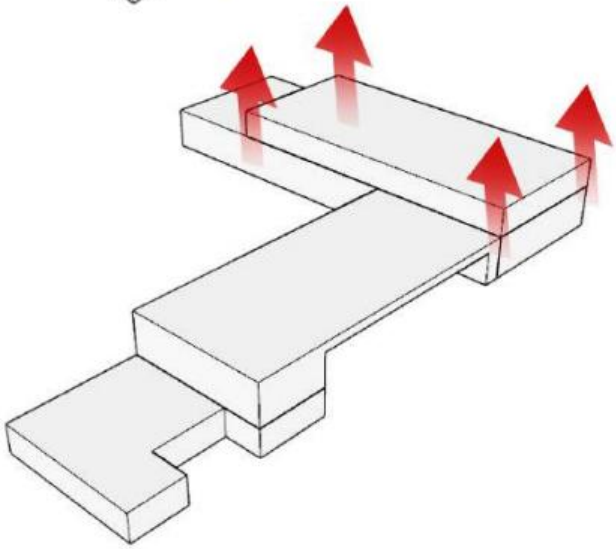
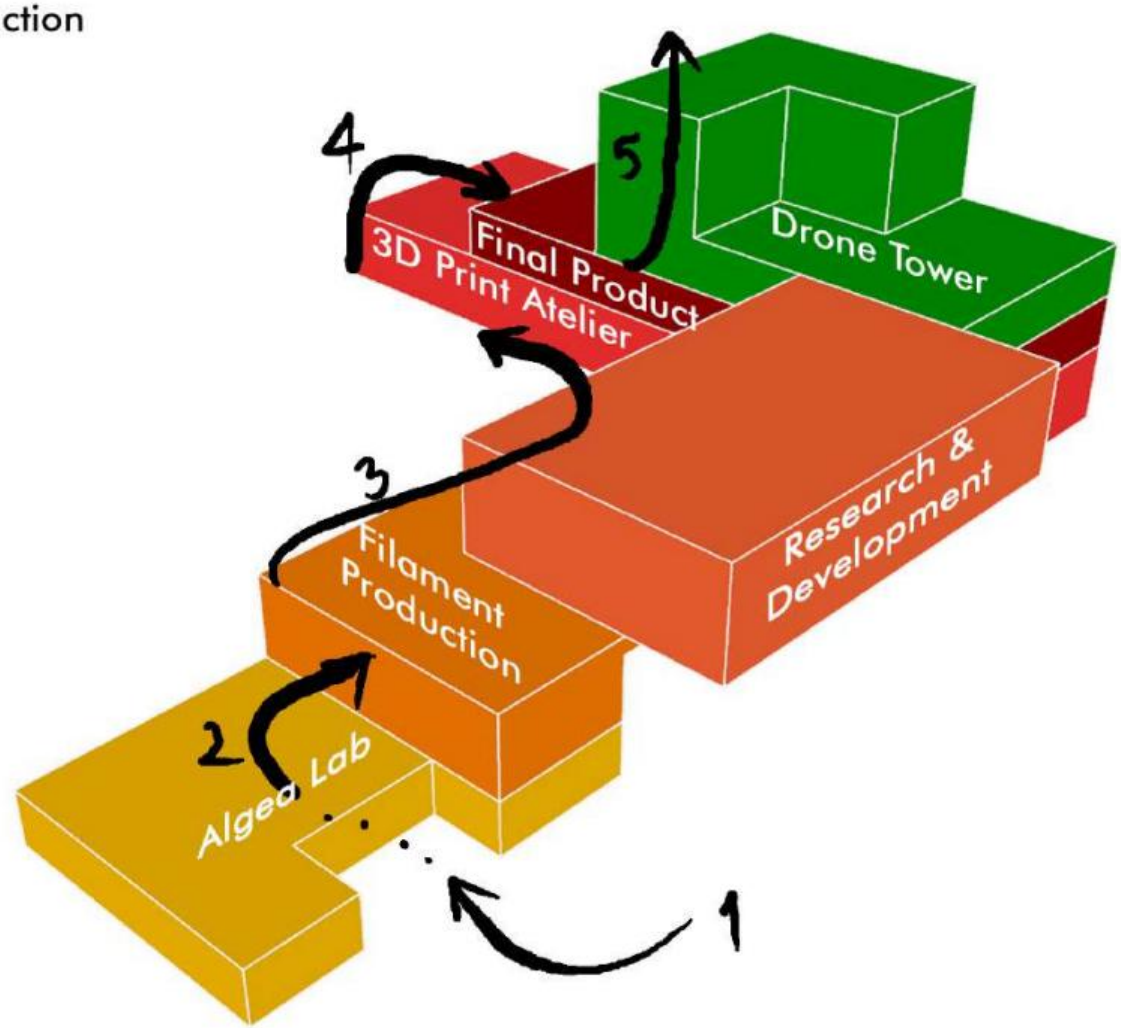
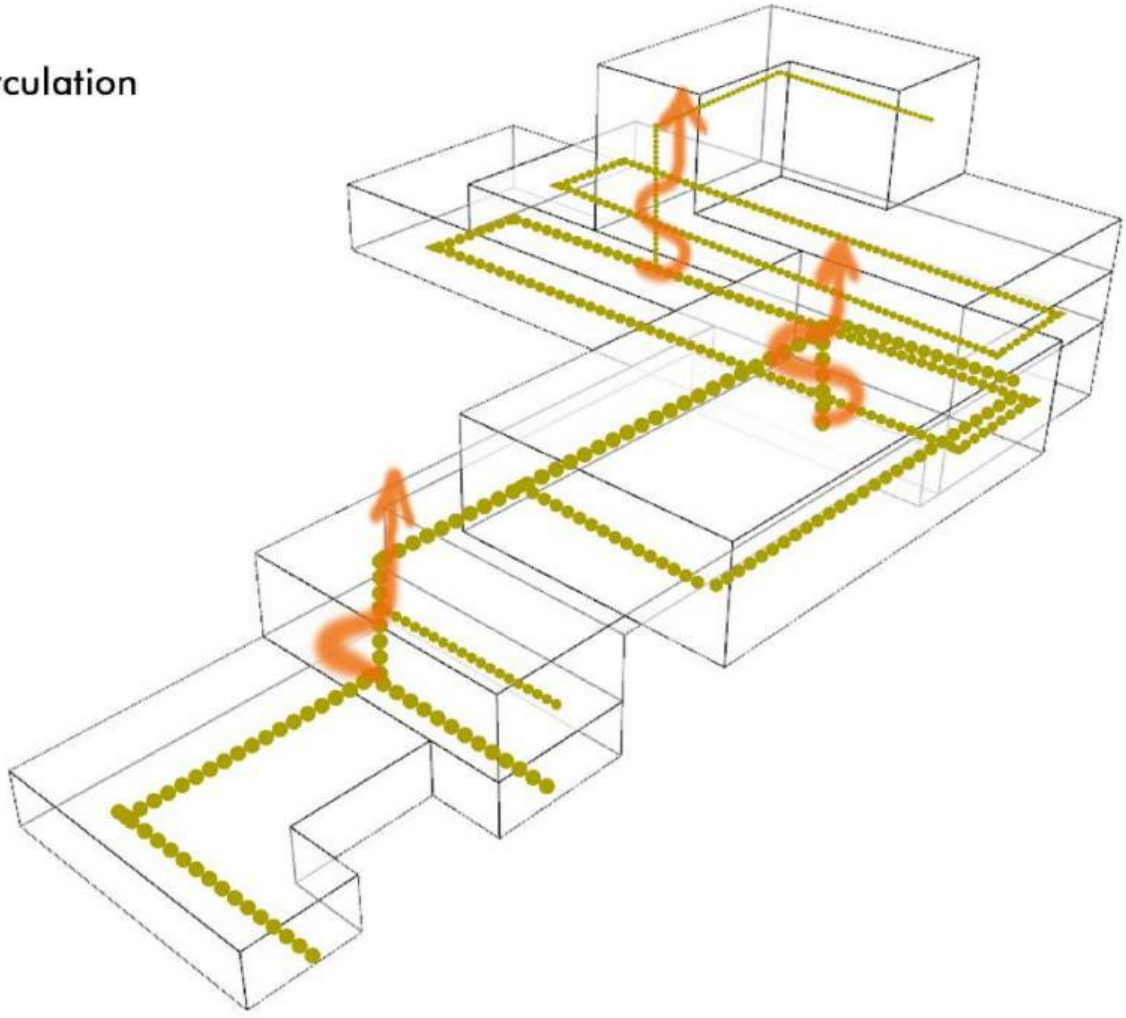


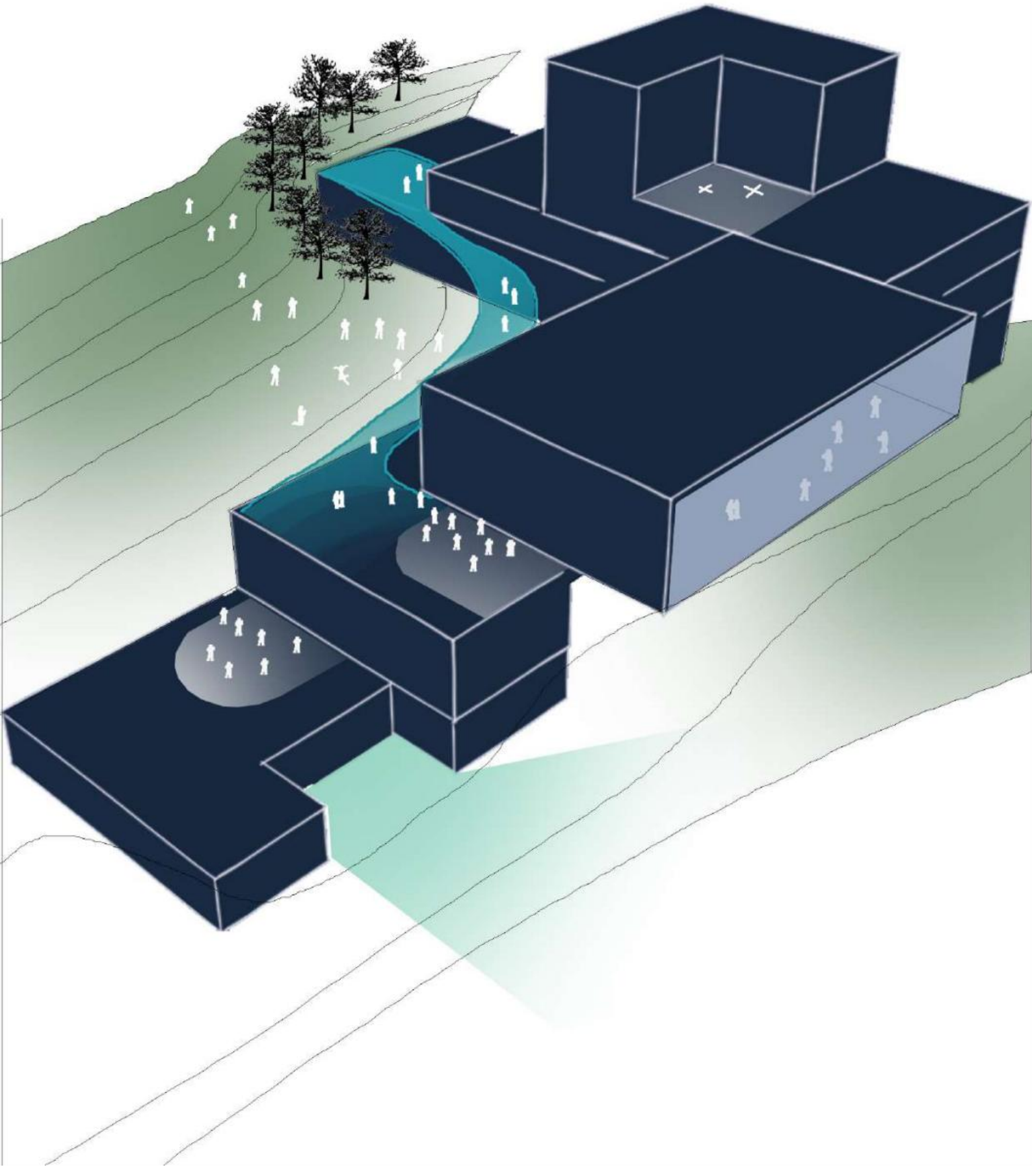
Function

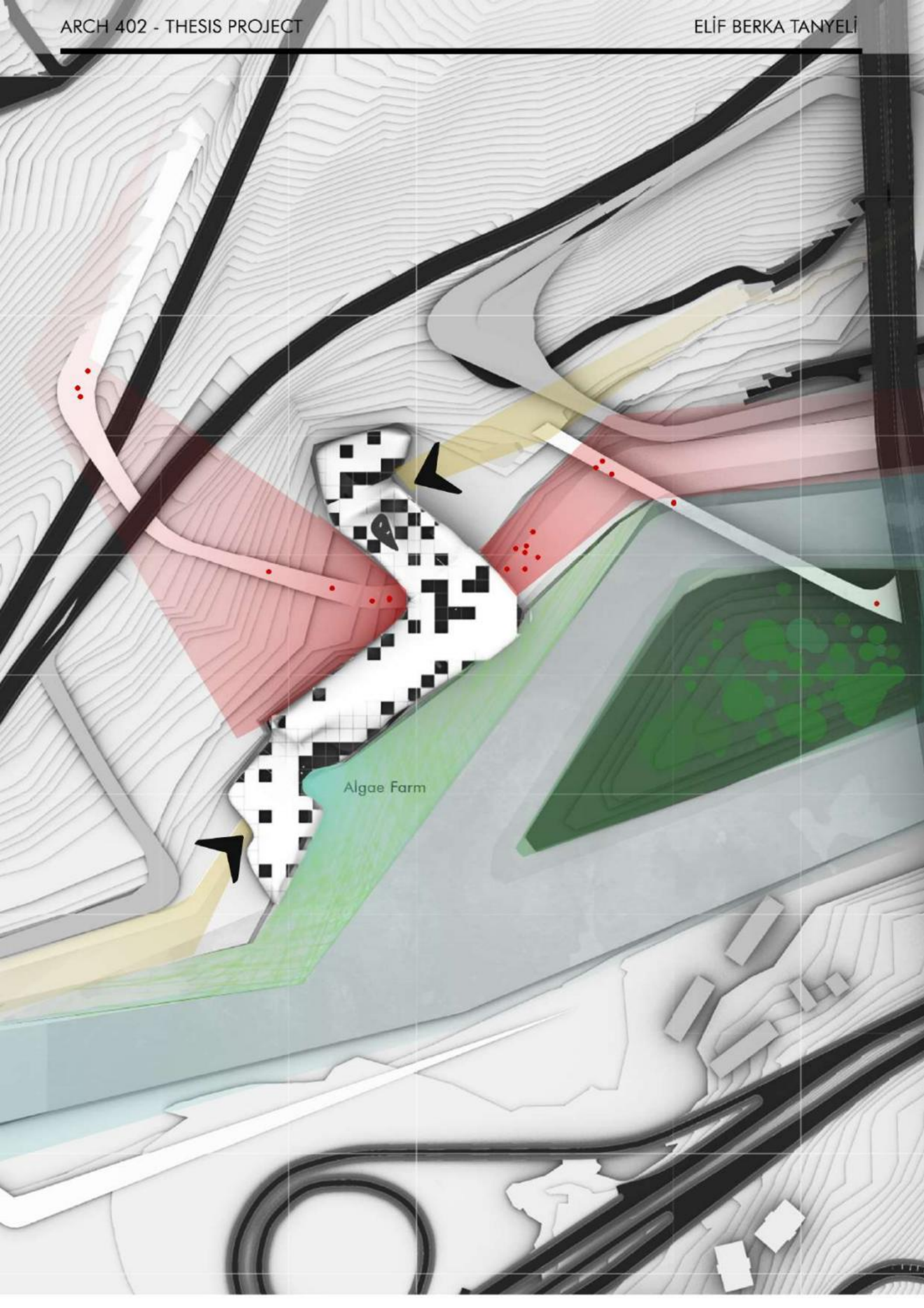


Circulation

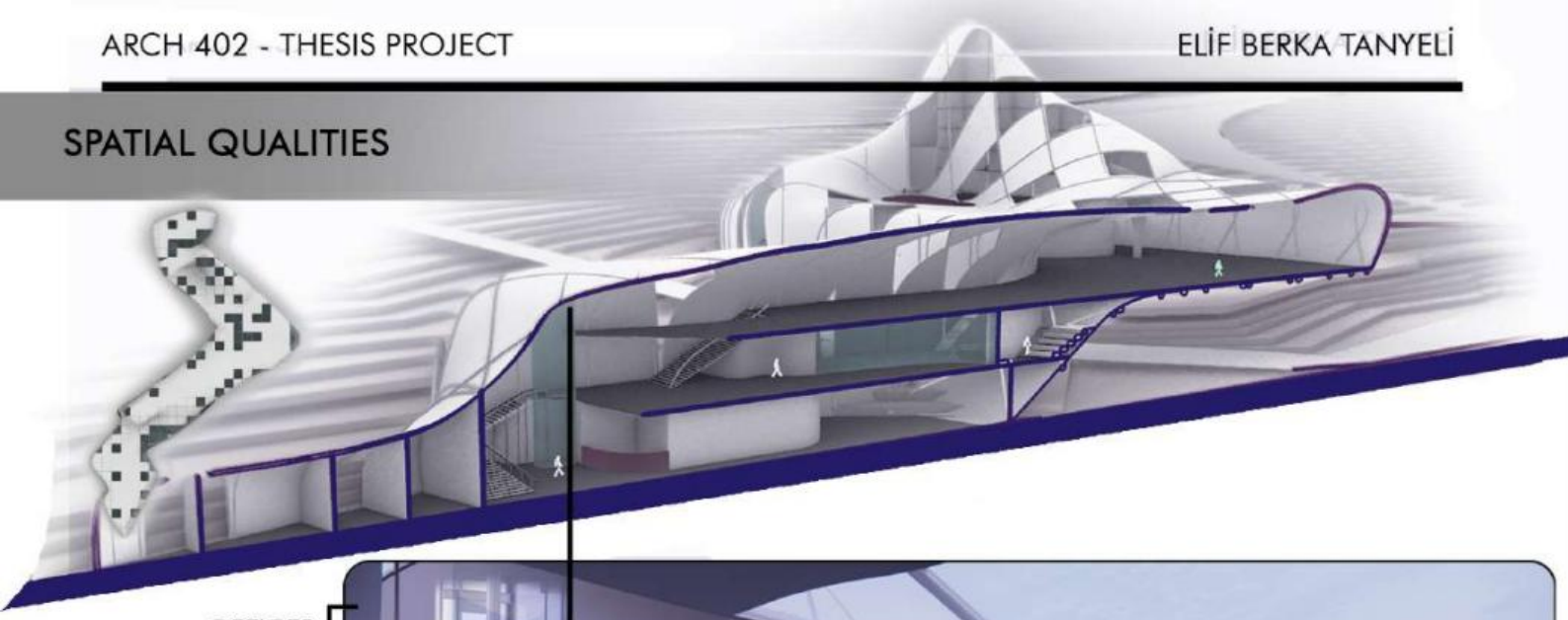


Considered Design Ideas



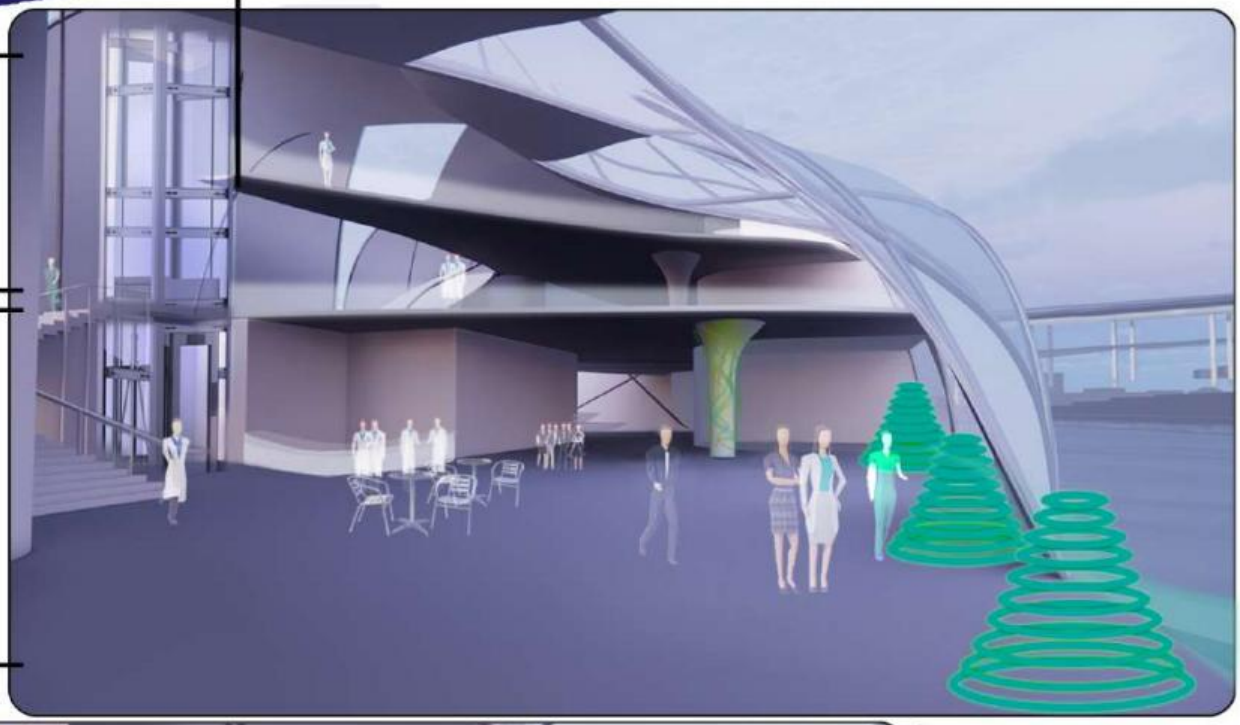

Algae Farm

SPATIAL QUALITIES



OFFICES
LIBRARY
MEETING ROOM
CLASSROOM
WORKING SPACES
CONFERENCE HALL
FILAMENT PRODUCTION

ALGAE FARMING
HARVESTING
OXIDATION POND
CAFETERIA
OFFICES
CHEMICAL LABS
STORAGE

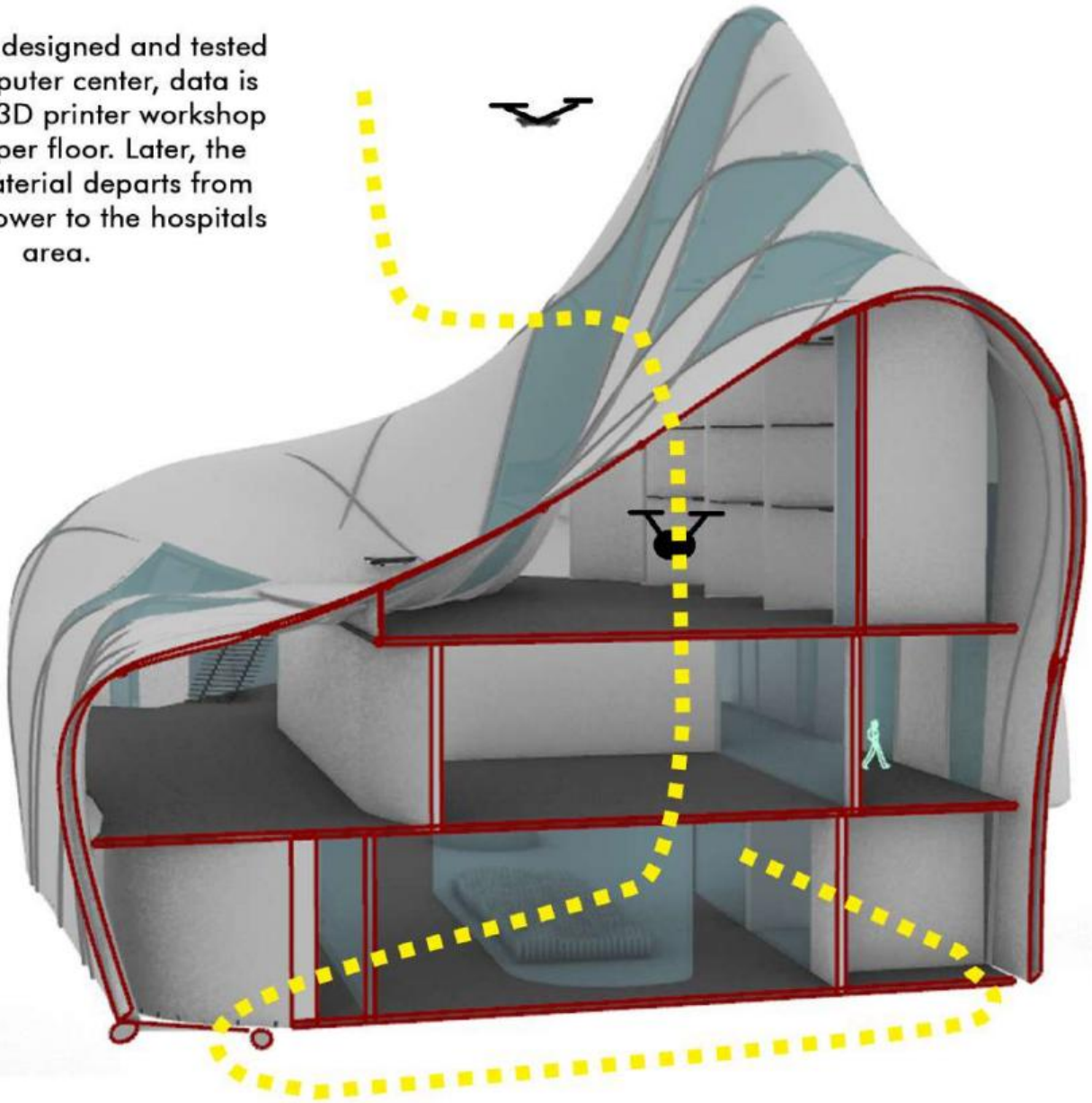


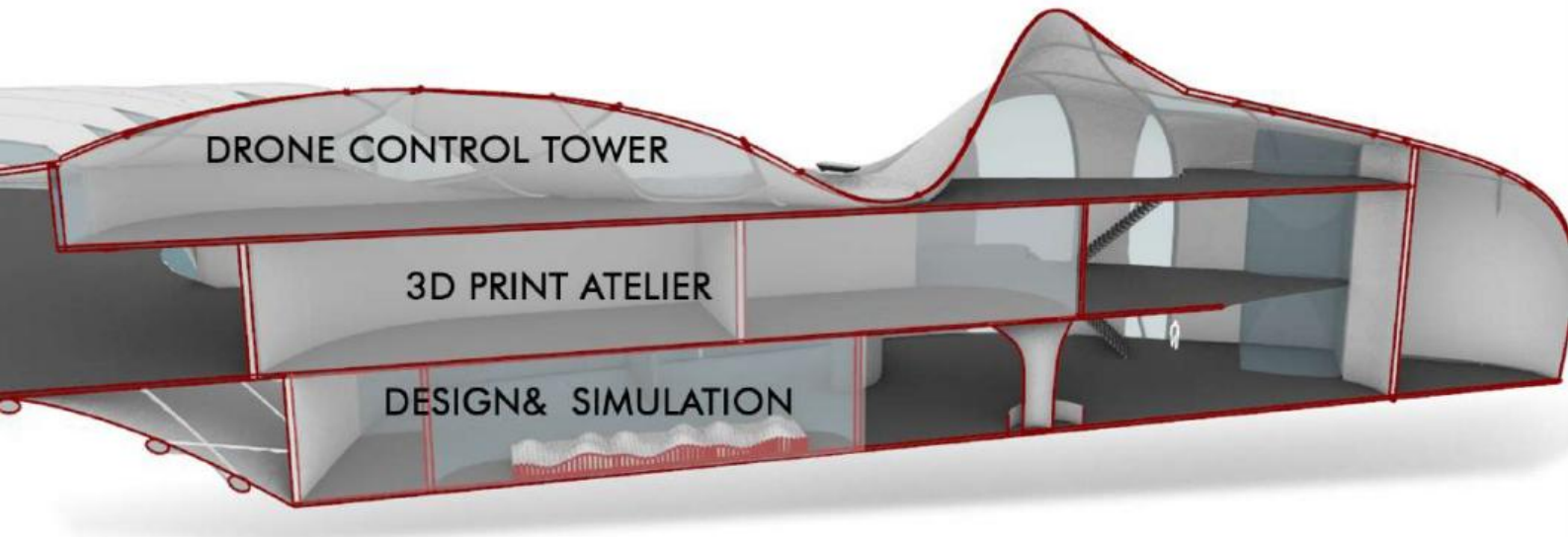
DRONE TOWER
COMPUTER ROOMS
OFFICES

3D PRINTER ATELIER
MACHINERY
STORAGE
DESIGN LABS
COMPUTER LABS
TESTING &
SIMULATION LABS
OFFICES

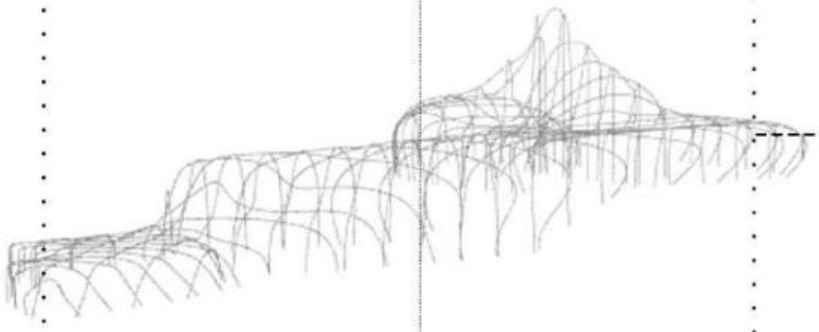
HOW SYSTEM WORKS?

After being designed and tested in the computer center, data is sent to the 3D printer workshop on the upper floor. Later, the printed material departs from the drone tower to the hospitals area.

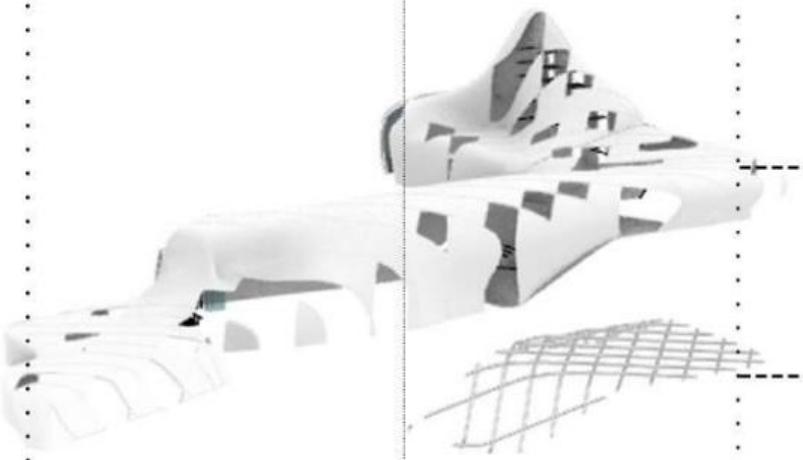




Photovoltaic Glazed Solar Panels

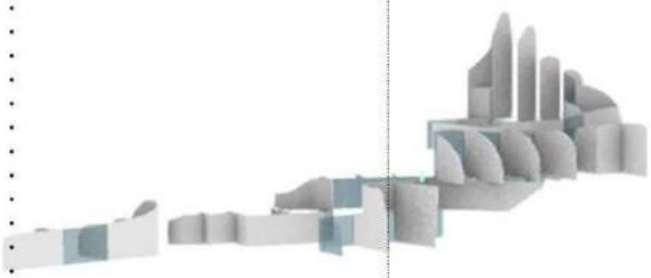


Truss System

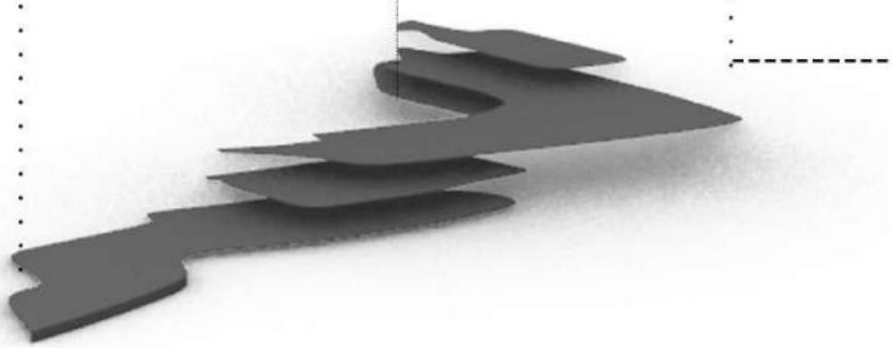


Titanium Dioxide Concrete Precast Panels
-Remove harmful nitrogen oxides in the air
-Absorb UV sunlights

Stainless Steel Slab Reinforcement

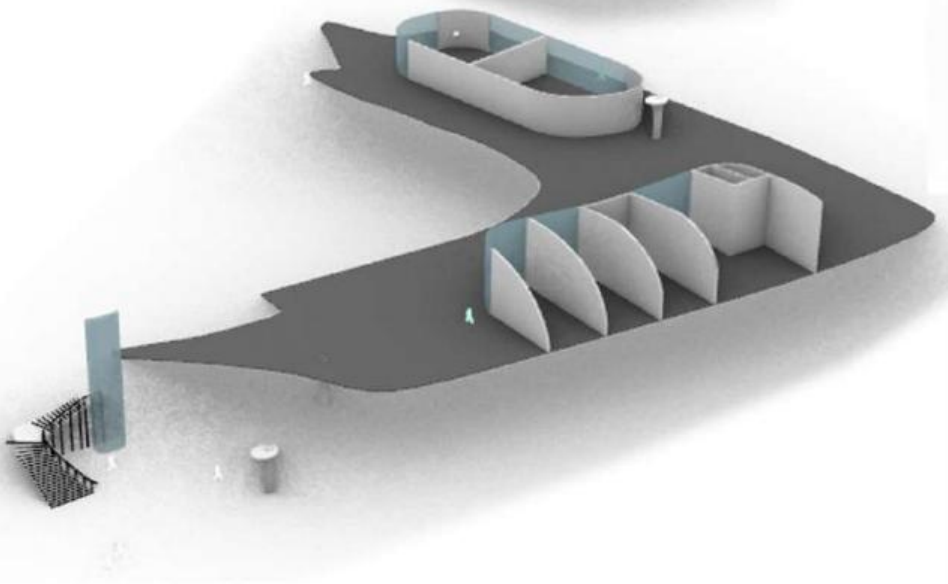


Concrete wall

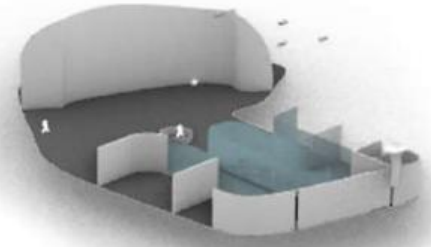


Concrete Floor

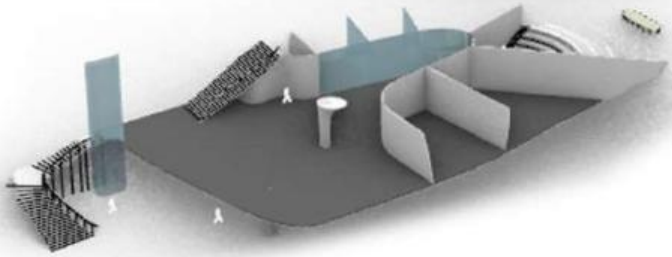
Drone Tower
Computer Control Lab
Drone Runway

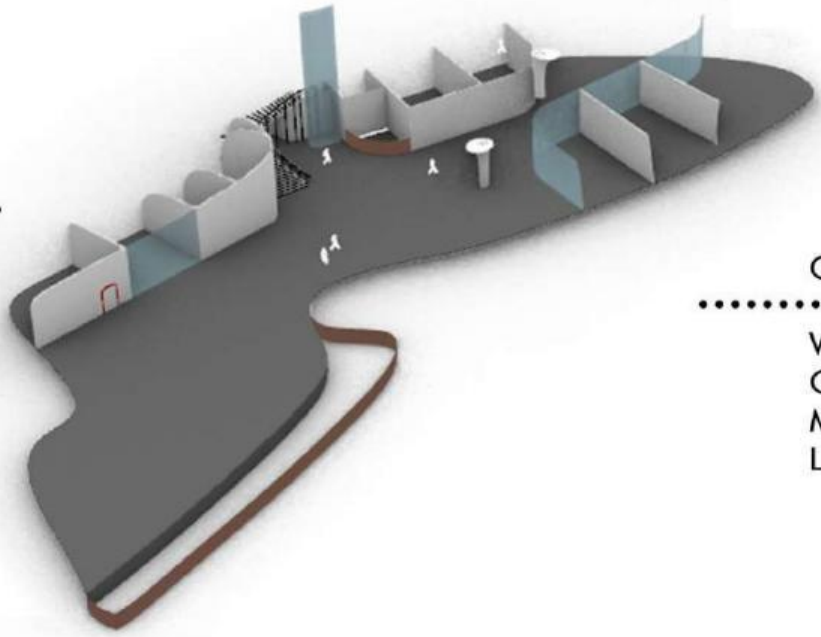


Research& Development Offices
Classroom
Library
Offices
3D Print Machine Atelier
Storage
Dezenfection Lab
Cafeteria



Waste Process Area
Dehydration Area
Filamet Production(Chemical Lab)
3D Print Atelier
Computer Lab
Test & Simulation Lab





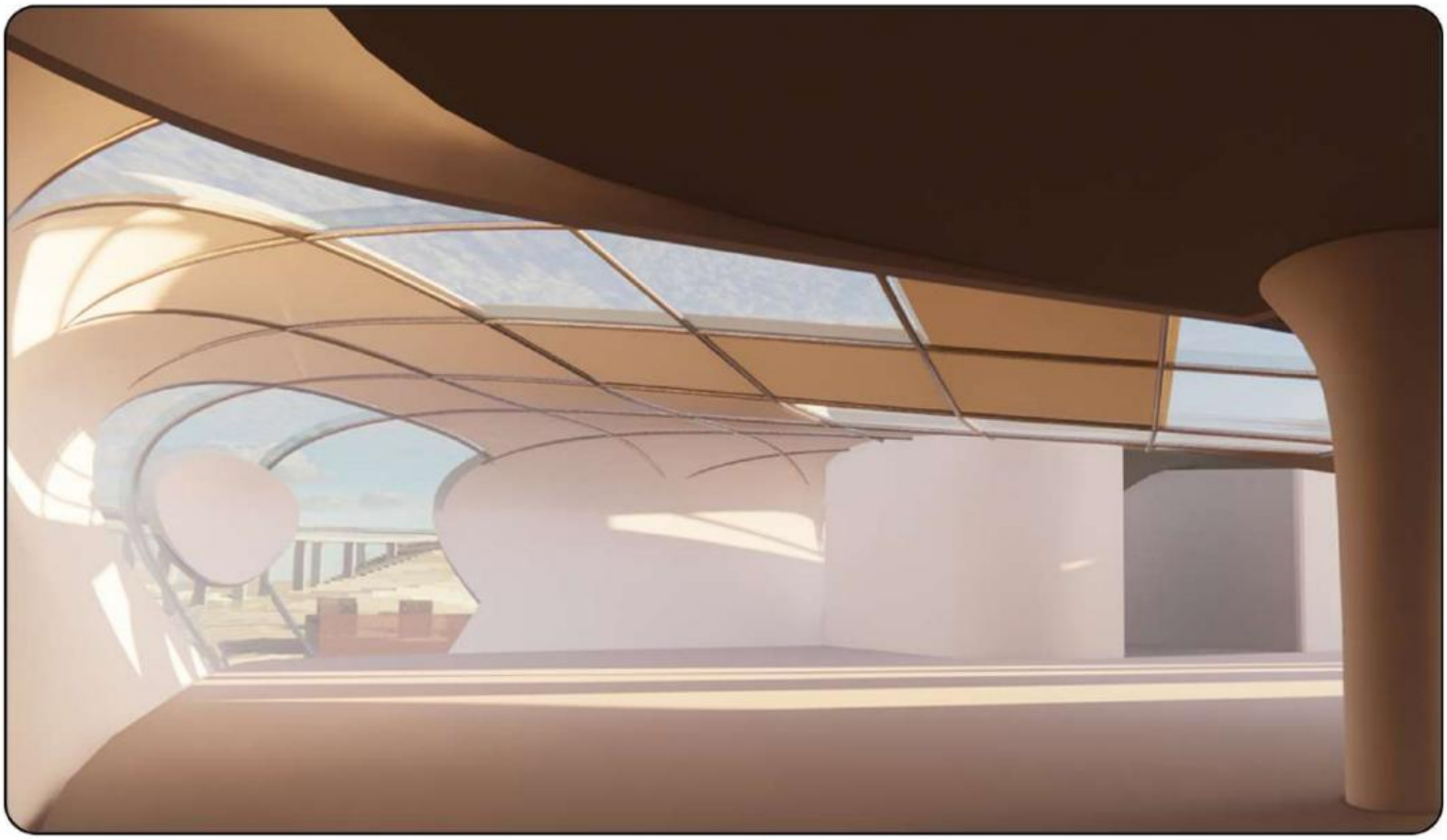
Algae Harvesting
Oxidation Pond
Water Cleaning
Storage
Cafeteria

Common Areas

WC
Offices
Meeting Room
Lobby

DRONE TOWER RENDER

BETWEEN THE LABS RENDER



Buse Akçay

ARCH 402
ARCHITECTURAL DESIGN STUDIO IV

CAPPADOCCIA BOTANIC RESEARCH GARDEN

BOTANIC RESEARCH CENTER DESIGN

by buseisontheair

Buse Akçay

Architect

08/12/1998

CONTACT

Ankara, Turkey

+905455106006

buseisontheair@yahoo.com

buseisontheair@gmail.com

instagram/buseisontheair

linkedin/buseakcay

pinterest/buseisontheair

EDUCATION

Ihsan Dogramaci Bilkent University Department of Architecture (2016-2020)
Bachelor's Degree
Grade 3,44/4
%100 Scholarship+
Monthly Grant+Free Accommodation
Ranking in 2016 cohort is 3

Diltas Private Anatolian High School (2012-2016)
High School Diploma
Grade 98,63/100
%100 Scholarship+
Free Meal and Transportation

Meram Fen High School (2012)
High School
Got Accepted by Exam and Went for 30 Days

Diltas Private Primary School (2003-2012)
Primary School Degree
(1 year of Kindergarden)
%100 Scholarship for 3 years

EXPERIENCE

ONCUOGLU ARCHITECTS + ACP (2019-30 days)
Architectural Intern

Assistant of Chiu, Chen-Yu, Ph.D. in Bilkent University (2019-60 days)
Architectural Assistant

YDA Construction Industry and Trade Inc.-YDA CENTER (2018-30 days)
Construction Intern

Muharrem Sahingeri Architecture, Engineering, Real Estate, Ind. Trade, Co. Ltd. (2017-59 days)
Architectural Intern

ACTIVITIES

Tour Manager and Booklet Editor (2019)
Senior Academics Forum on Ancient Chinese Architectural Forum in Bilkent
Toured 25 Professors from East Asia and Prepared Konya/Ankara/Cappadocia Architectural+Archeological Travel Booklet

Workshop Assistant (2019)
Ankara Bilkent/Milano Politecnico Multiplicity and Eclecticism International Workshop
Prepared a Study Model for the Selected Area in Ulus

Member and Secretary (2016-2018)
Bilkent Design and Architecture Society
Organized DAS Bilkent

Magazine Editor (2015)
Gumus Magazine in High School

Endnote Editor (2014)
Thesis Format Assistant

SKILLS

Hand Drawing
Model Making
Painting
Sketching
Designing

AutoCad
Sketchup
Rhino
InfraWorks
Lumion
V-ray
Photoshop
InDesign

Microsoft PowerPoint
Microsoft Word
Microsoft Office
Microsoft Excel

ACCOMPLISHMENT

6. Architecture Students Project Exhibition Steps-TSMD (2019)
Third Year Final Project

ARCH317 Parametric Design Studio Campus Reanimated Exhibition-Bilkent University (2018)
Urban Furniture Project

48 Hours Architecture Foundation Competition Entry (2018)
Temporary School Proposal

4. Architecture Students Project Exhibition Steps-TSMD (2017)
First Year Final Project

10 Awards and Certificates of Achievement- Diltas Private School's
Awards for success in exams

3 Painting Exhibition Participation-Diltas Private Primary School
Exhibition of acrylic paintings

LANGUAGE

Turkish
Advanced

English
Advanced

German
A1

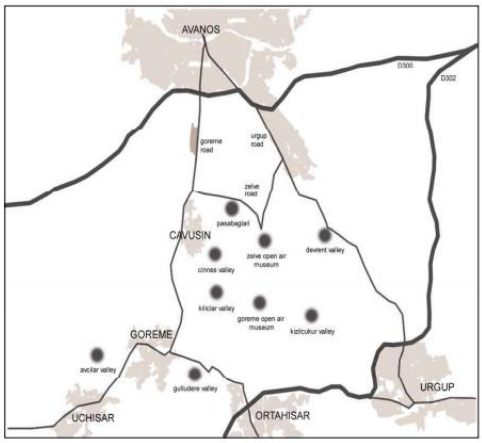
Italian
A1

TABLE OF CONTENTS

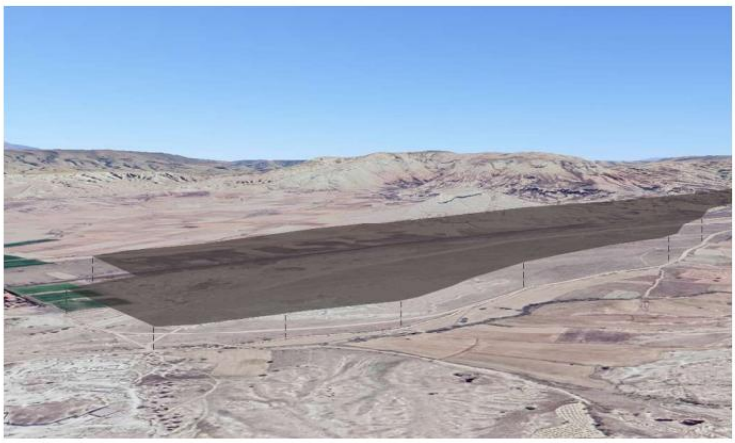
CAPPADOCCIA BOTANICAL RESEARCH CENTER

4th Year Design Studio / ARCH402 / Spring'20

Instructor: Zeynep Öktem



Site Key Map



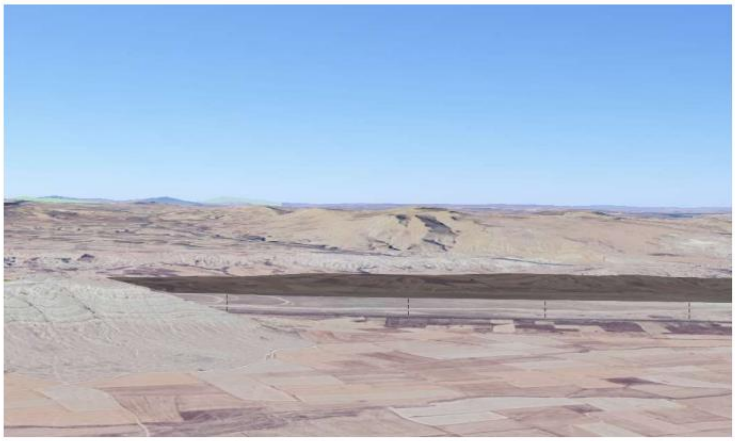
3D View of the North-West Side

THE SITE & CAPPADOCCIA

The site is located between Avanos and Cavusin, on the left side of the Goreme road, in Cappadocia. In the middle there exist the natural igneous beauties company the visitor who comes from Urgup and Goreme. Inside of the triangle provides panaroma and contains fairy chimneys, cave churches and valleys that emerge from the volcanic activities. As a result, touristic activities located around the triangle and Goreme&Urgup&Zelve roads gain value that also be considered as a decrease of the value. Another road starting from Izmir and continuing till Van, D300 is on the Silk Road. Kızılırmak is seperating Avanos on the northern side.

The site is choosen because, while reaching to the places to tour, Goreme road has nothing to offer as an activity or even as a visual. The connection with the cities are limited with the roads. Goreme road is relatively in a worse condition than the others. The road between Urgup and Avanos is reserved for the future development of the cities, the road between Uchisar and Cavusin has panoramic quailities that makes the road bearable. However, Goreme road has no specific features and it is not a pedestrian friendly road. The site has a stream breaking through it from the middle, it has two voids -the lungs- at the northern side and site will be a lavender field in the coming years. These voids are emerged because people excavated the soil and it remained open. The left and right side are the agricultural lands. There is a new Cappadocia Regional Museum at the northern end.

Cappadocia region was formed 60 million years ago by erosion of soft layers of lava and ash and occasional layer of basalt, hardened with wind and rain over millions of years. Cappadoccia has terrestrial climate and it is a climate type that is effective in places far from the sea effect and in the Northern Hemisphere. The summers are hot and arid, the winters are cold and snowy. Plant cover is step and steppe. Main vegetations that grow are apple, grape, patato, cabbage and wheat. Main products are vine, boiled grape juice, tomato paste, vinegar, juice, earthenware pot, stone prosessing, brick and Nevsehir stone. People make their living by farming, touristic activities and industries. Two types of wines are produced locally: Dimrit and Emir. In the local houses there are generally a courtyards and storage caves to store wine because they are built on the castles.

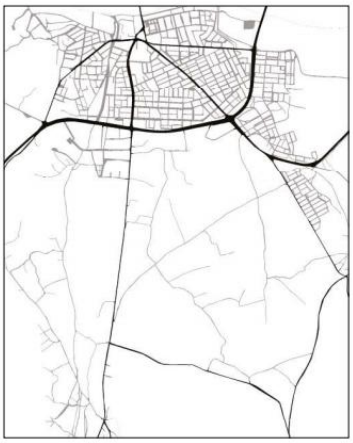


3D View of the East Side

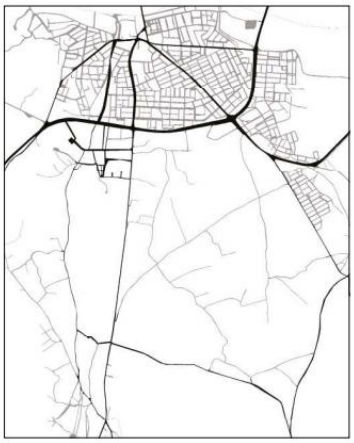
Site Satellite Views

CITY MASTER PLAN

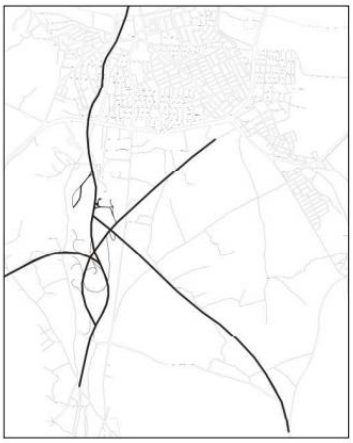
NEW MASTER PLAN



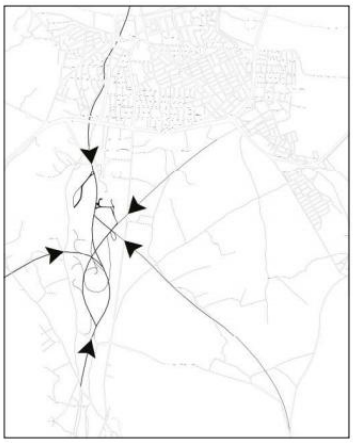
Existing Car Circulation Frequency Diagram



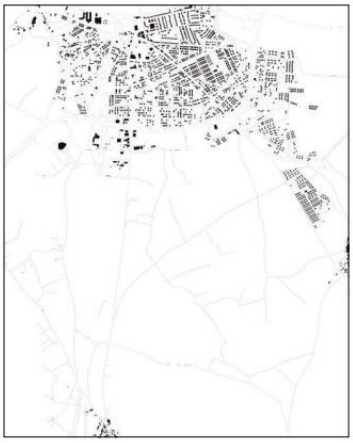
Proposed Car Circulation Frequency Diagram



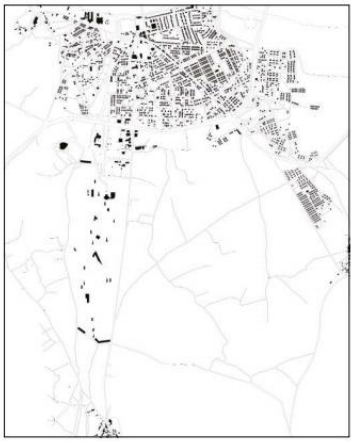
Proposed Pedestrian and Bicycle Circulation Diagram



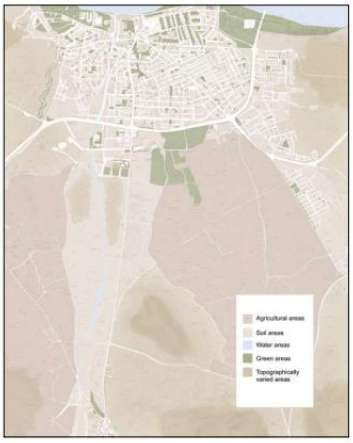
Proposed Entrance Diagram



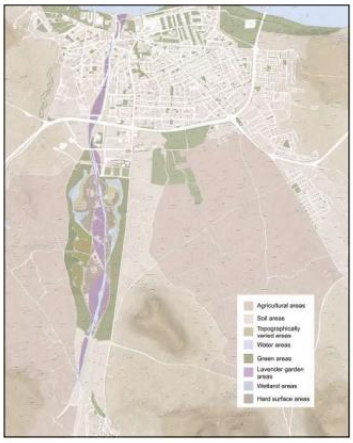
Existing Figure Ground Diagram



Proposed Figure Ground Diagram



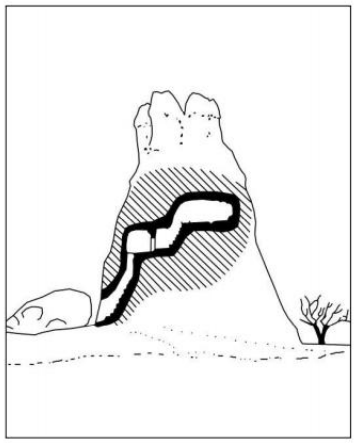
Existing Surface Texture Diagram



Proposed Surface Texture Diagram

MASTER PLAN CONCEPT

The concept is respecting the silence and emptiness of the site and making minimum touches to the area. The main axis created by water stream will be emphasized with lavender gardens and site will be surrounded with a green boundary. The buildings on the higher levels will be buried from the northern side to avoid harsh wind.



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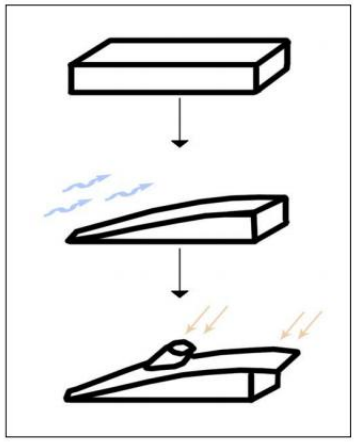
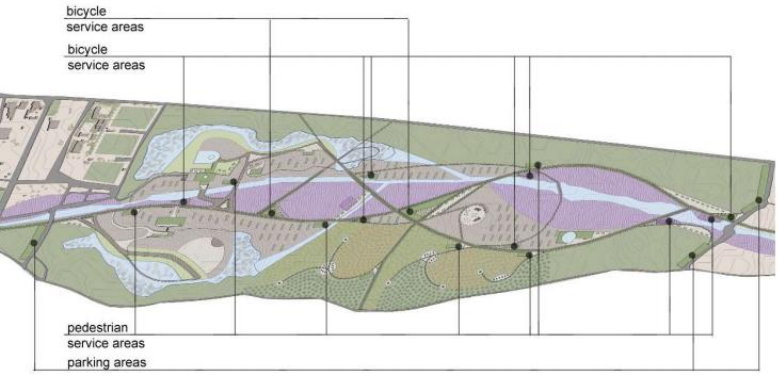
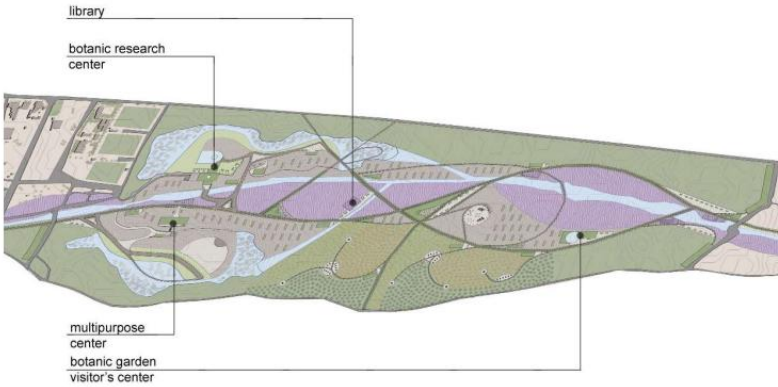


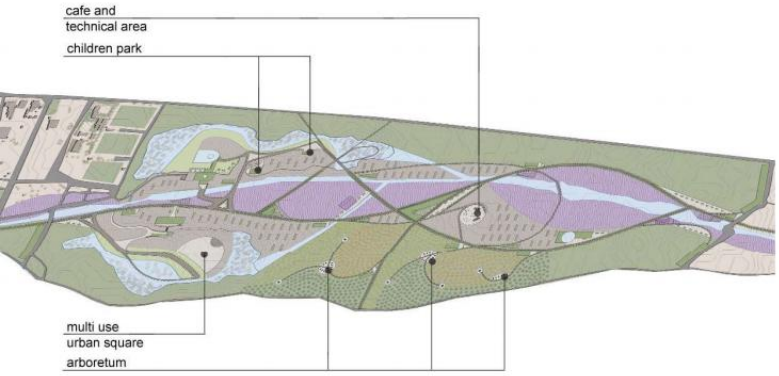
Interpretation Sample

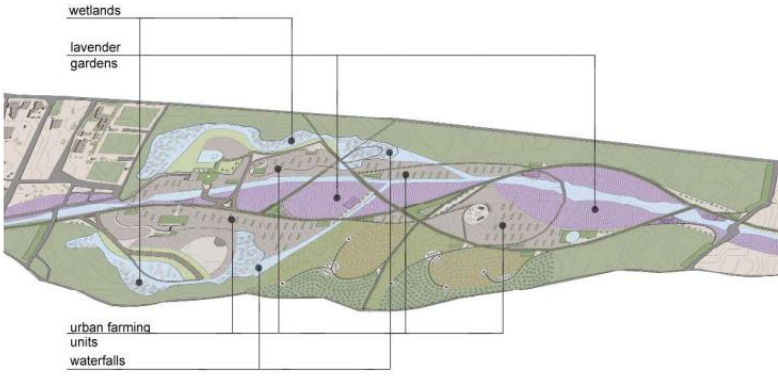
BOTANIC GARDEN

The project is developed to improve the quality of the in-between road between Goreme and Avanos. To make it accessible by everyone for them to enjoy the view and have a break in the site, the site will be a botanic garden including bycle routes with bicycle services, resting areas for pedestrians, agricultural areas, arboretum, botanic research center, botanic garden visitor's center, library and multipurpose center are designed. The spine and its close surrounding leading towards Kızılırmak will be the main axis followed by lavender gardens. The site has three more axes determined by the bicycle routes leading to touristic areas and to the city and by educational farming units on the lands owned by the locals. 'The lungs' have wetlands inside to grow various types of plants. Research center mainly focuses on these plants, lavender fields, grapes, farming areas, arboretum and igneous land of Cappadocia. The idea is making Cappadocia more sustainable and green instead of the current approach to the tourism. Not only for the tourists but also the locals should enjoy it and it should not be for the annuity but to teach and understand the life there.


bicycle
service areas
bicycle
service areas
pedestrian
service areas
parking areas


library
botanic research
center
multipurpose
center
botanic garden
visitor's center


cafe and
technical area
children park
multi use
urban square
arboretum


wetlands
lavender
gardens
urban farming
units
waterfalls

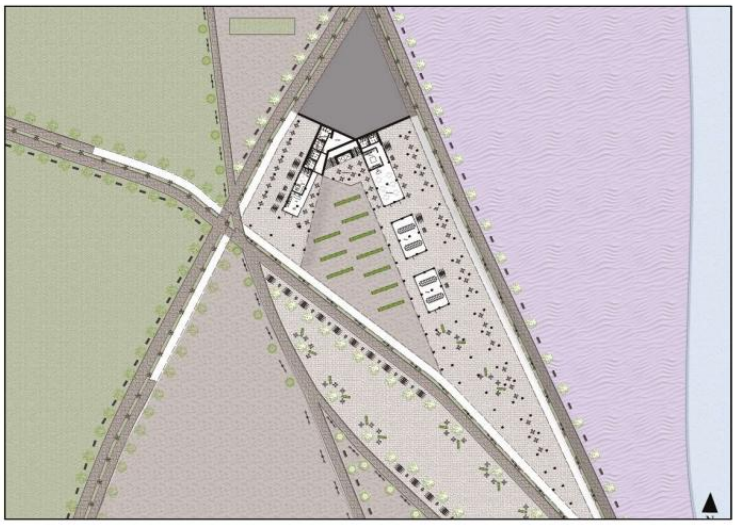
Bicycle Service Area

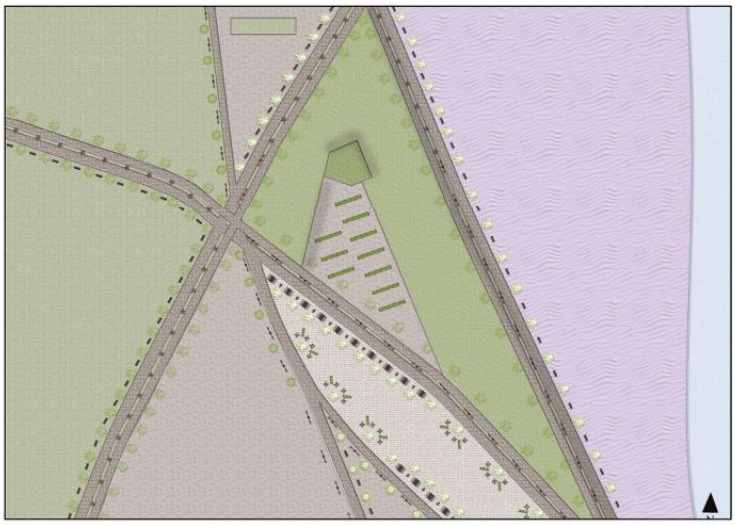
Pedestrian Service Area

Elevation

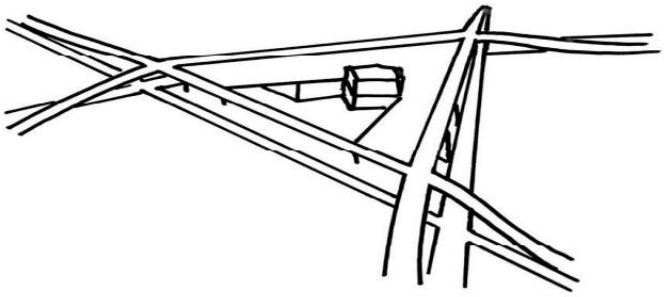
Elevation

Bicycle and Pedestrian Service Area

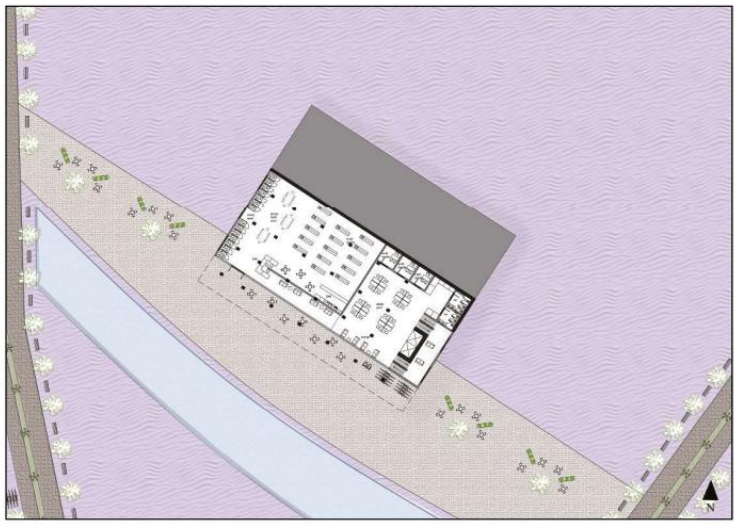


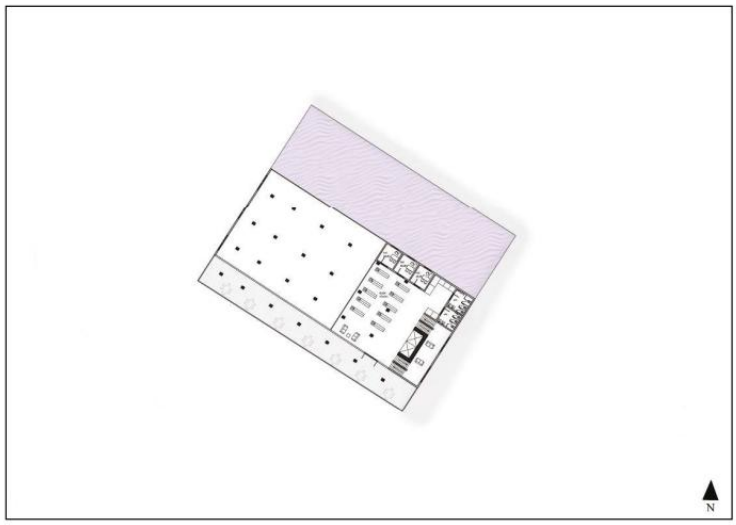


Elevation



Library





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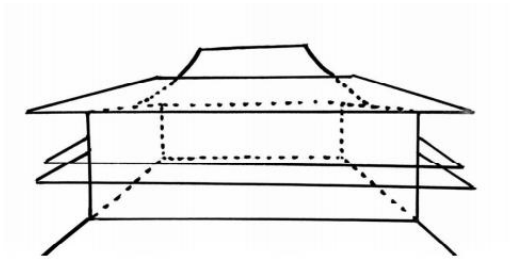
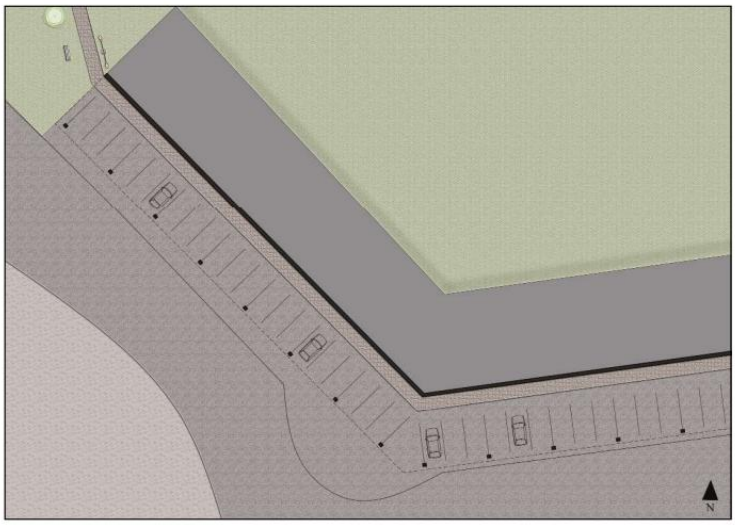


Cafe and Technical Area

Parking Area



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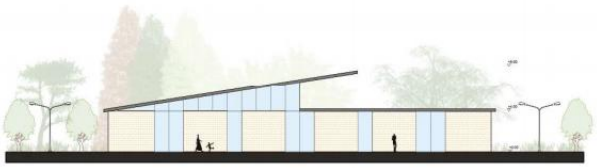
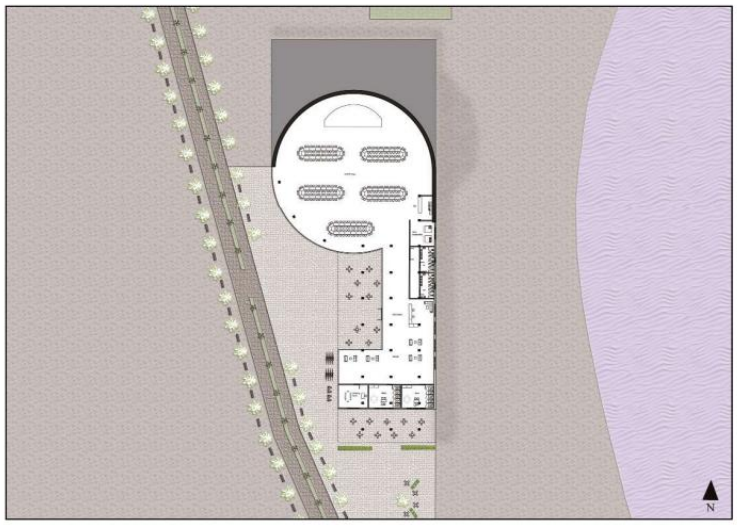


Elevation

Multipurpose Center

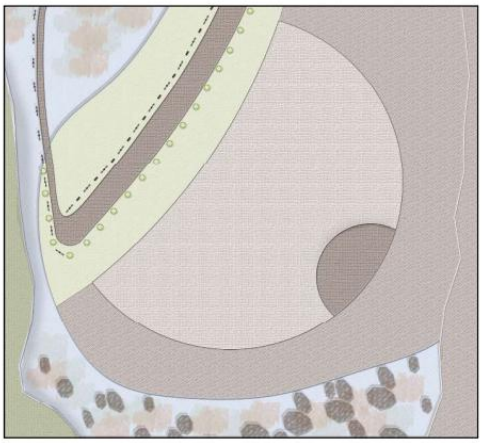
Elevation

Botanic Garden Visitor's Center



Elevation

Bicycle and Pedestrian Roads



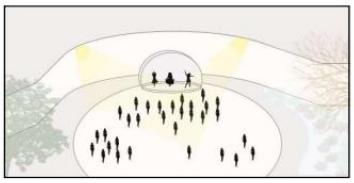
Multi Use Urban Square

Arboretum

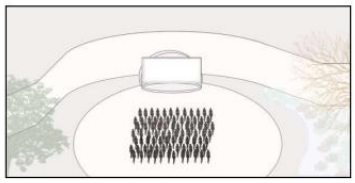
Bridges

Lavender Fields

Gathering Areas



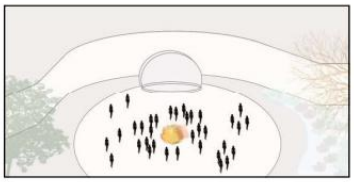
Concert Area



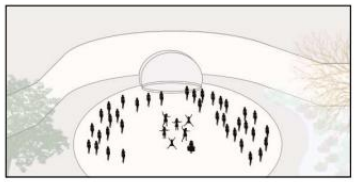
Open Air Cinema

Children Park

Multiuse Urban Square



Bonfire

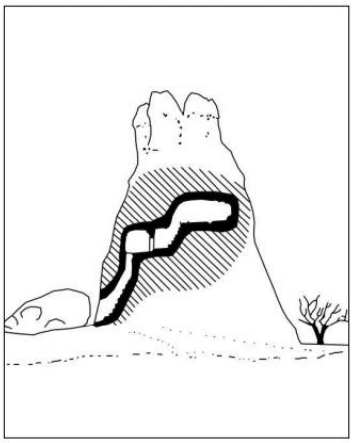


Village Fete

Wetlands and Waterfalls

BOTANIC RESEARCH CENTER

The project is developed to do more researches about Cappadocia's fertile soil. To make it more productive, it is located next to thewetlands. Inside garden will be more about grapes and how they are taken care of since Cappadoccia is known by producing it. People can access from the higher level and go down inside of the greenhouse and experince the site while leaving. The first mass at the entrance is shaped by the flow of public. It contains an amphitheatre on the way through the exhibition hall and the greenhouse. The second mass on the lower level which is the greenhouse is shaped by the needed height for the plants and also the exit. The third mass covering the first mass, is for the researchers and the students. There exist a conference hall for the occasional events. More private offices are at the highest level. The façade is shaped by the needed privacy. Ivy plantations are used as sun brakers and a horizontal shading system is for the areas that does not need much privacy. Laminated timber structure is combined with Nevşehir stone for carrying the mass.



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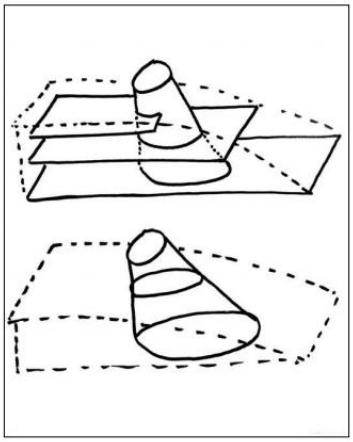
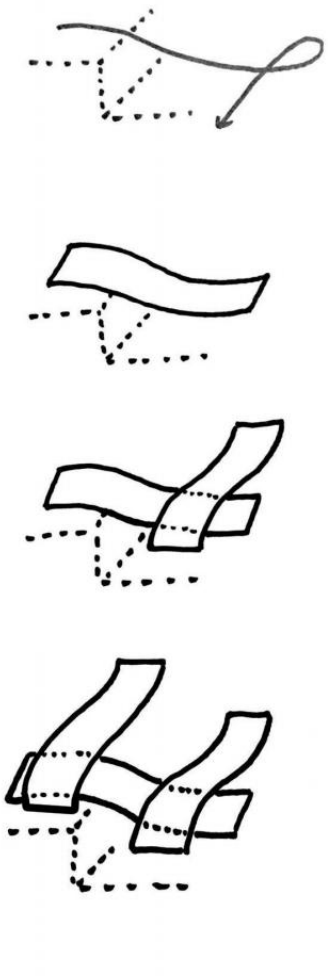
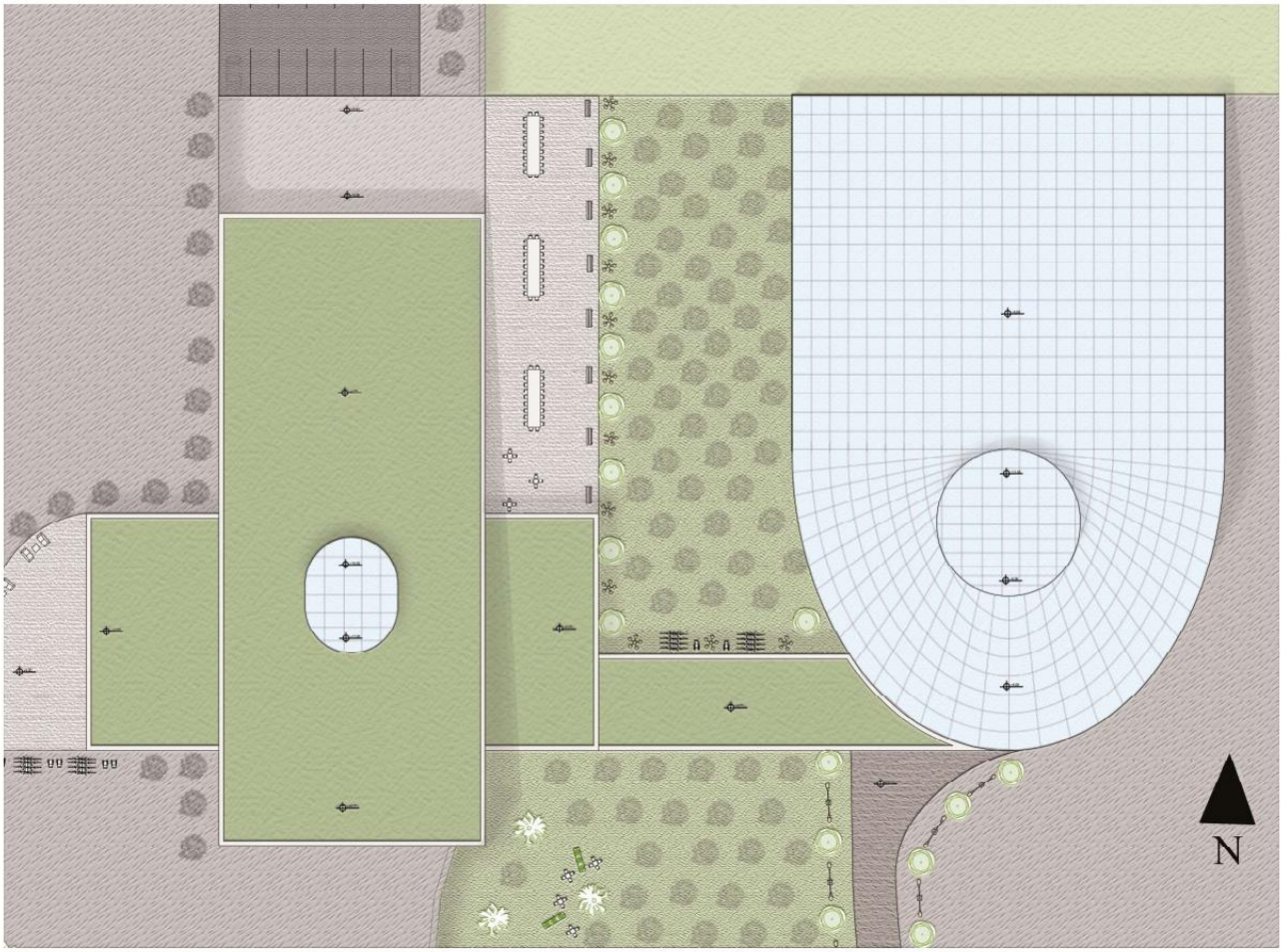


Interpretation

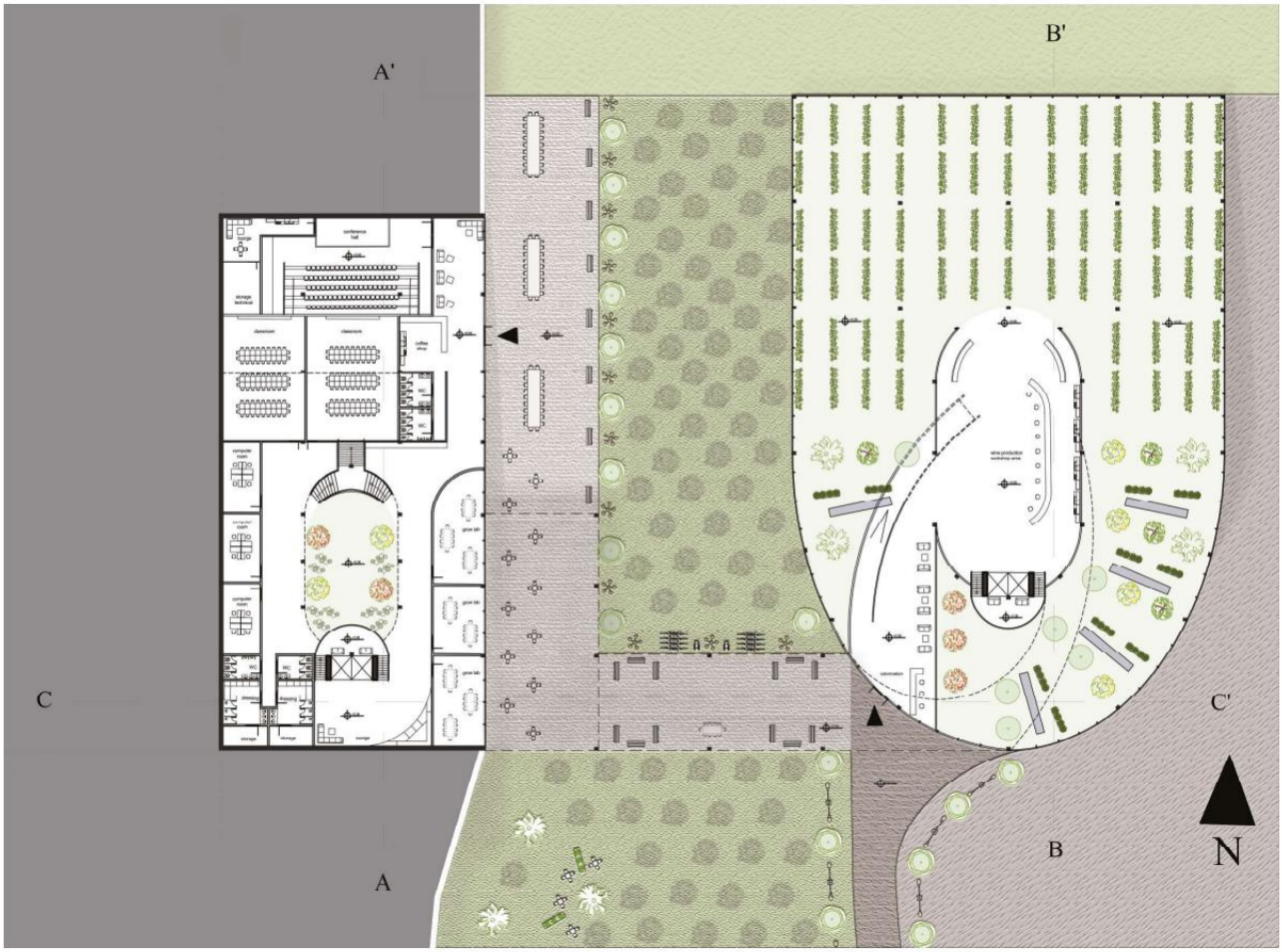


SITE PLAN CONCEPT

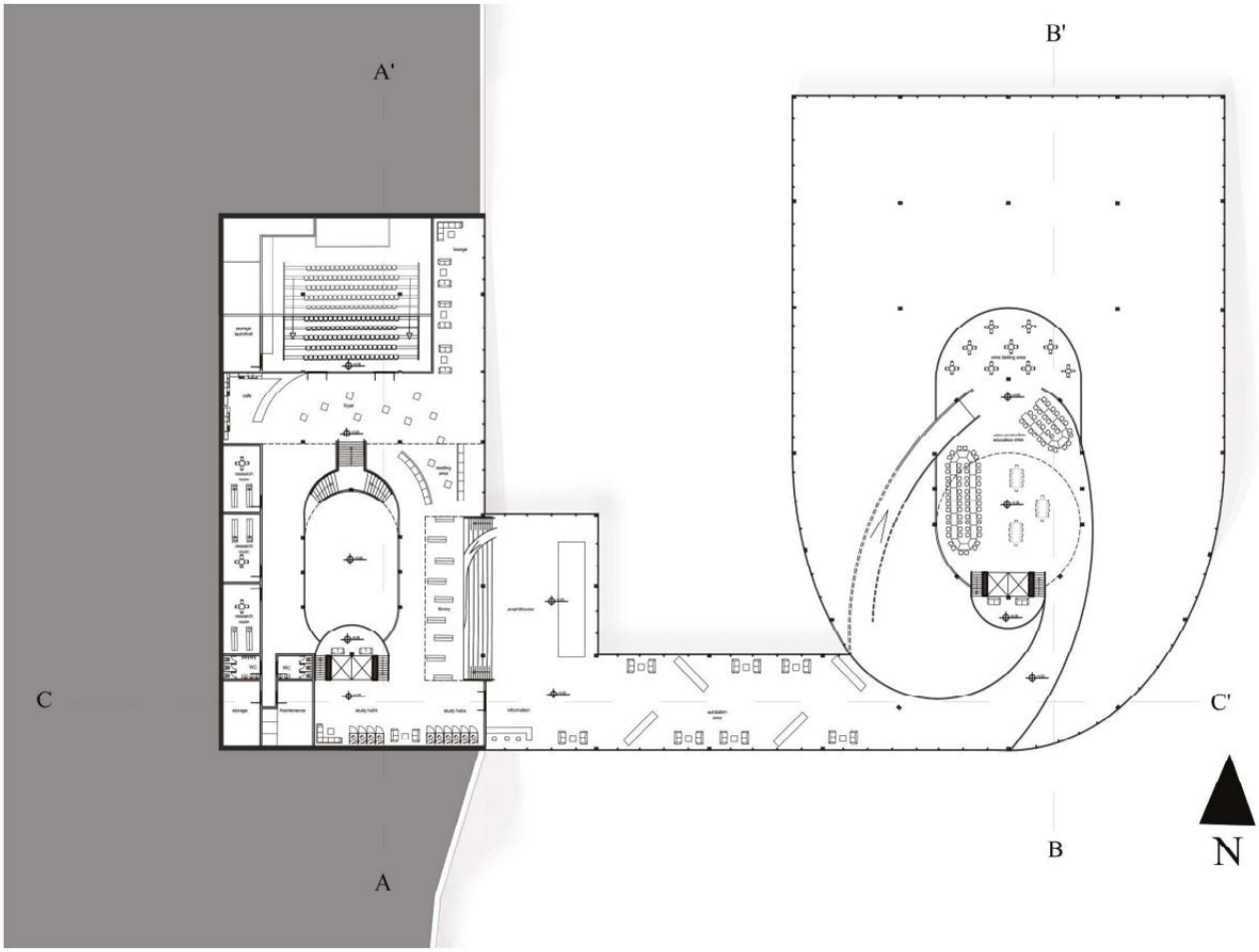
Master plan level concept is followed and the mass will be shaped by the function, the wind and the sun. Fairy chimneys are interpreted as circulation, ventilation and structural cores. Botanic mass will have a solid core including the functions and Research mass will have a void core for better light quality.



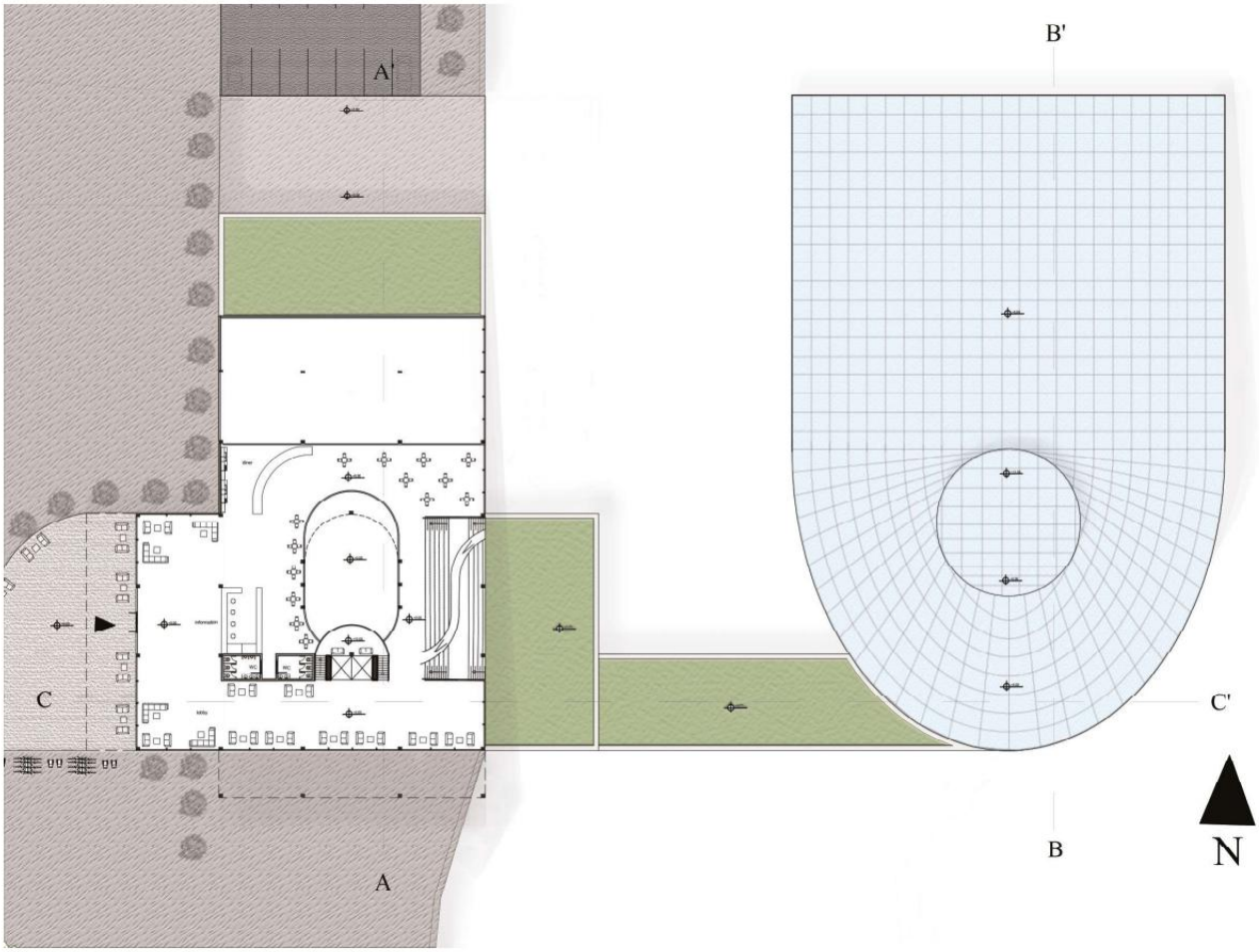
SITE PLAN



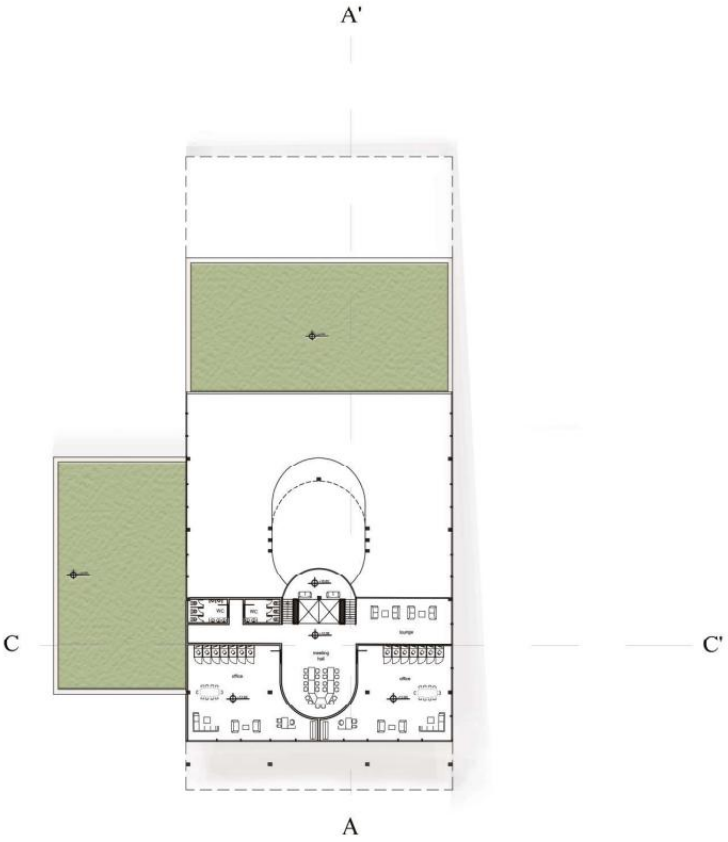
+0.00m LEVEL PLAN



+4.00m LEVEL PLAN



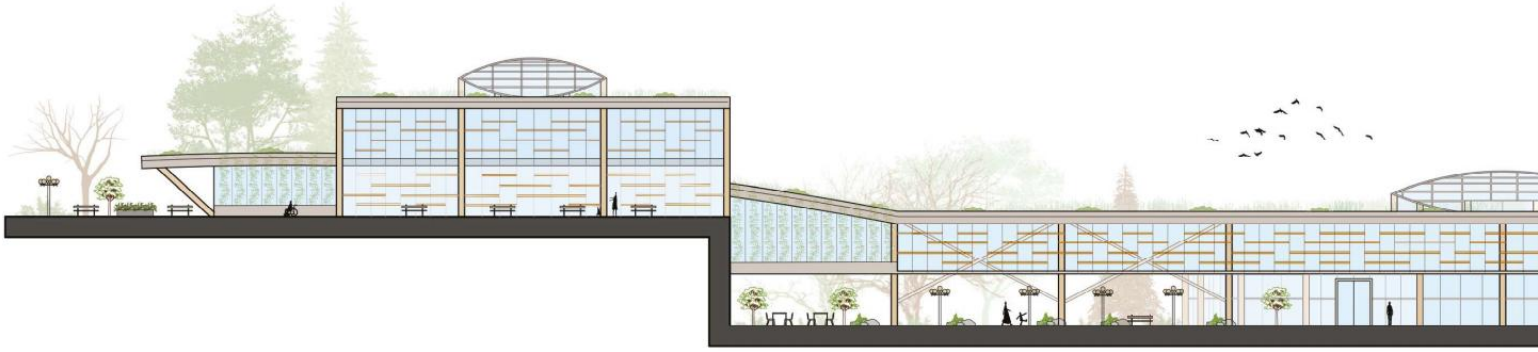
+8.00m LEVEL PLAN



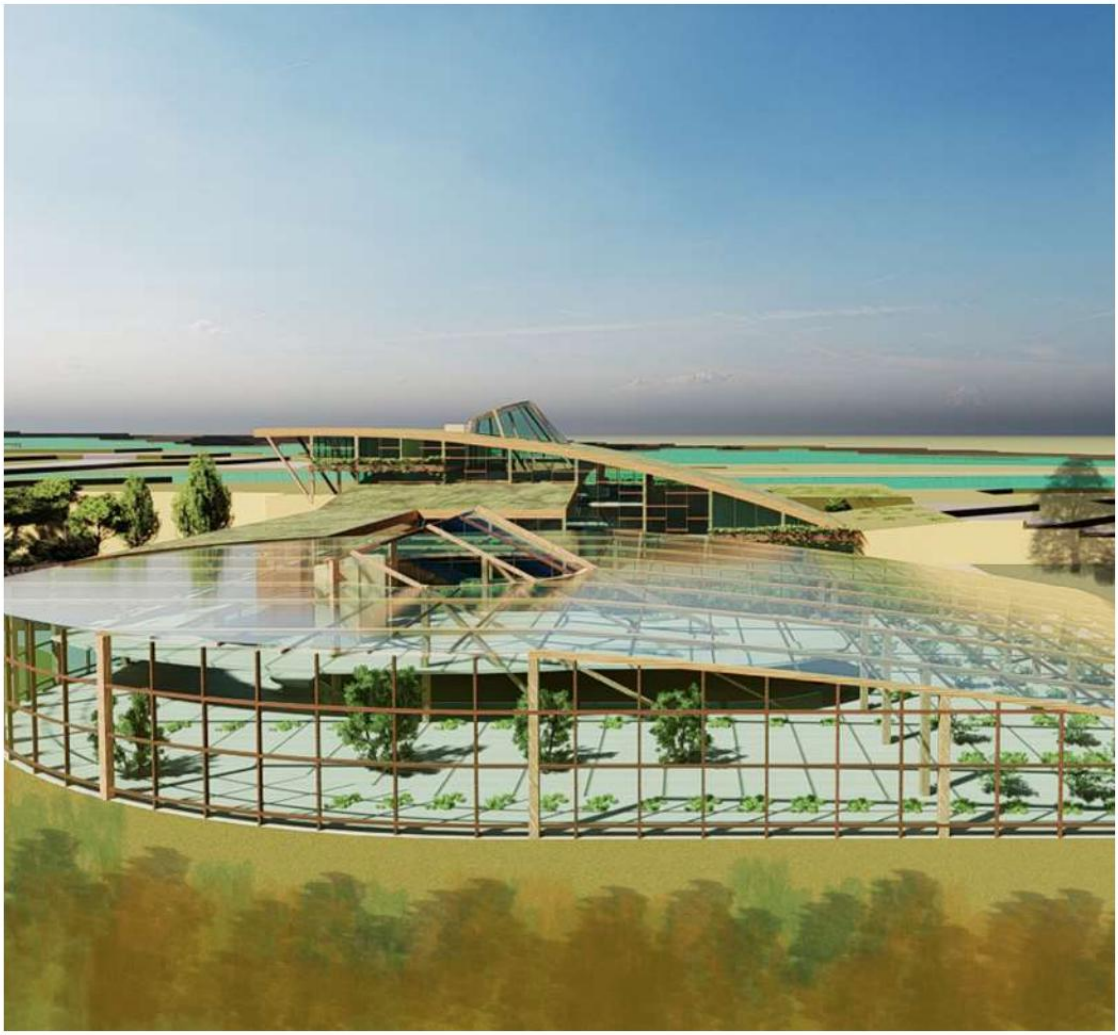
N

+12.00m LEVEL PLAN

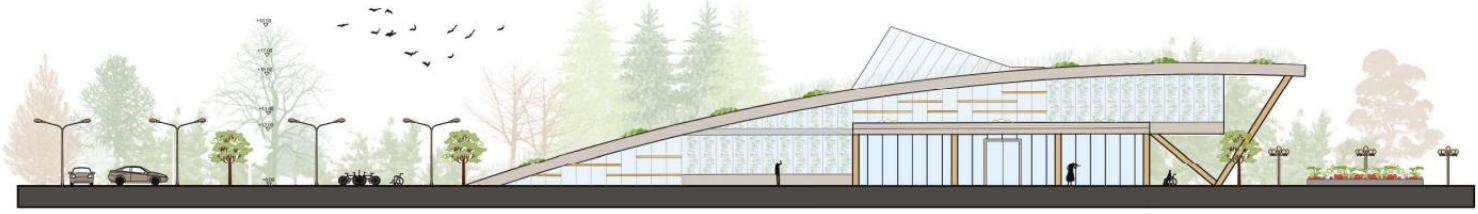
SECTION CC'



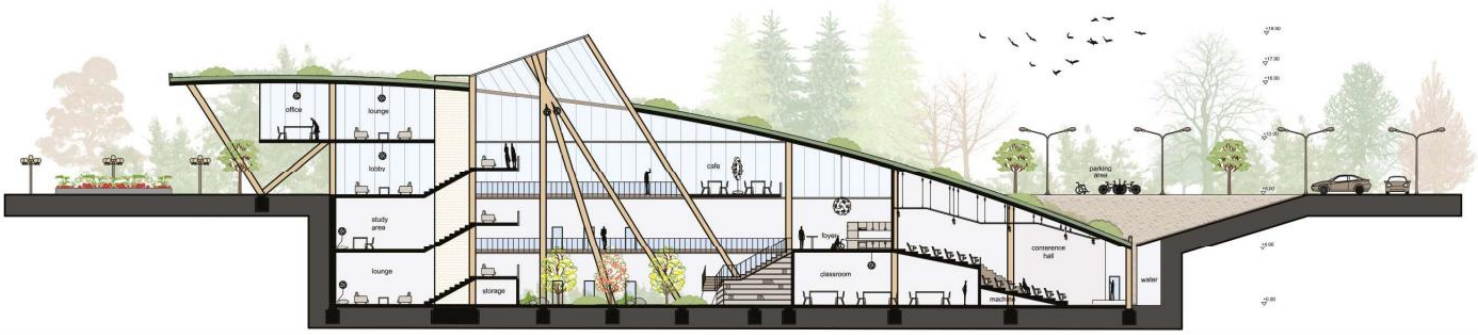
SOUTH ELEVATION



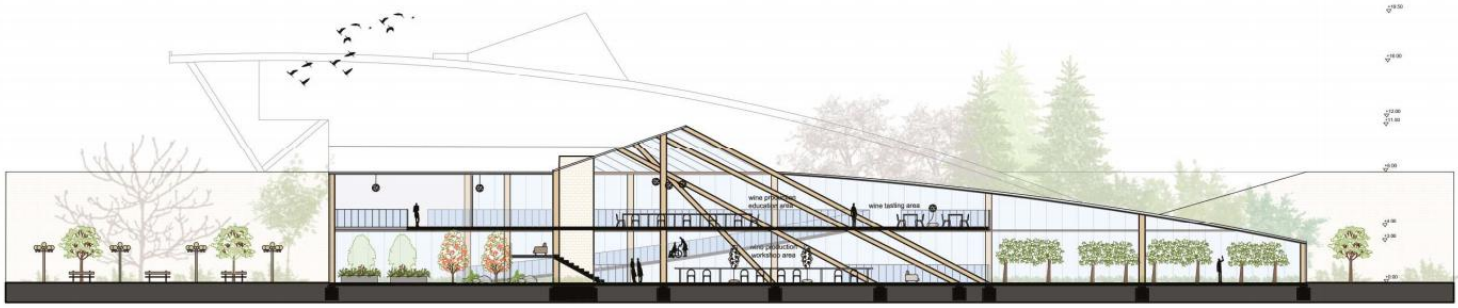
EAST ELEVATION



WEST ELEVATION



SECTION AA'



SECTION BB'

Ceren Kara

Craco Site Museum and Interpretation Center

E. Ceren kara

Craco Site Museum and Interpretation Center

E.Ceren Kara

Site museum and interpretation center combined of research center regarding Craco, its history, sociology and genealogy and workshop areas for history, cinematography, photography, drawing and restoration. Craco to proposed cultural route in Basilicata. Accommodation during the workshops will be provided by nearby towns such as Craco Peschiera.

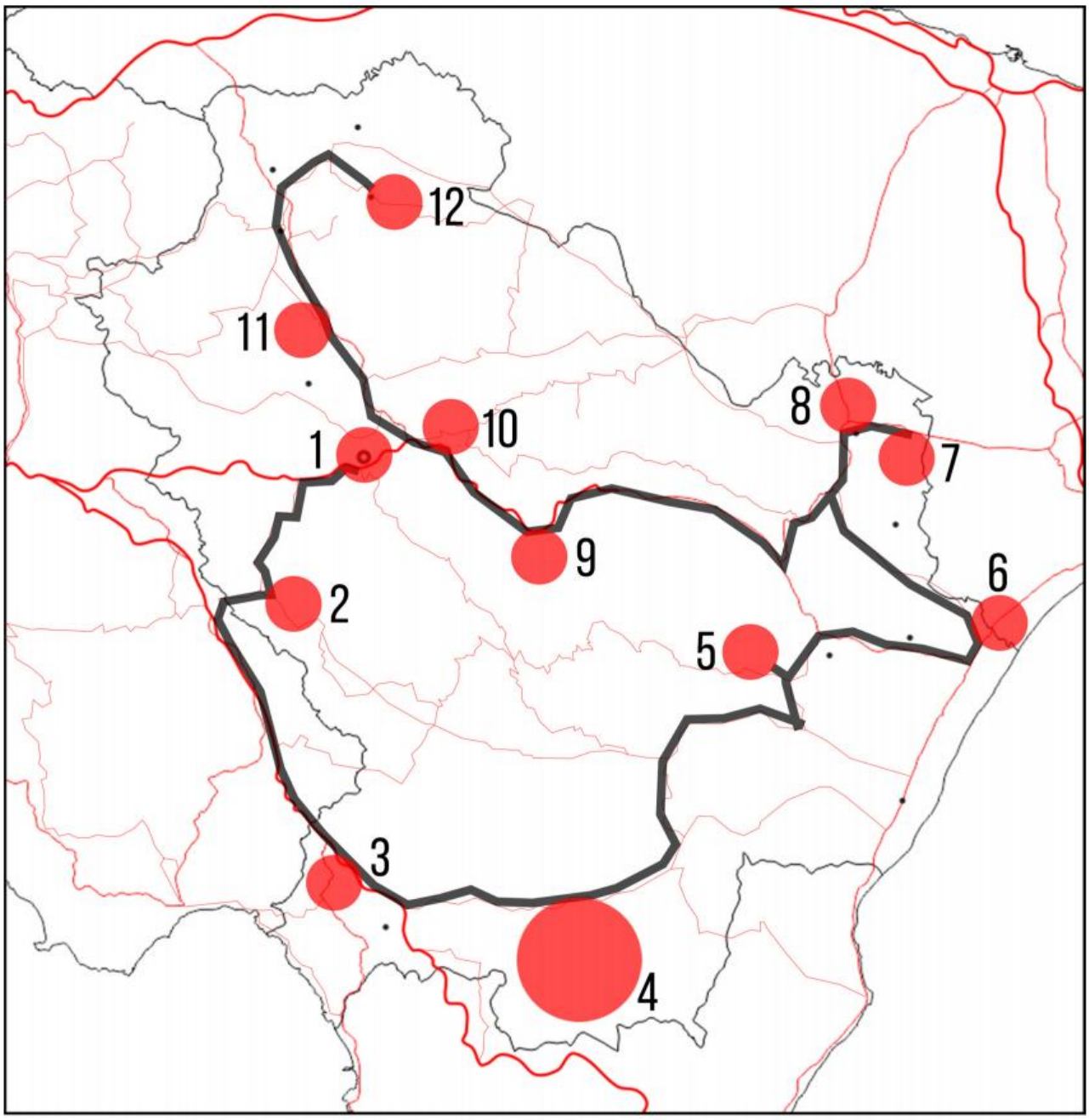
The concepts of the design are connection and relation. These achieved with "reconstruction of the past" as frame elements where landslide showed its effects drasticaly. Town can be experienced with different routes, rather than a linear route a branched one with multiple entrances and options is designed. There are existed historical routes as well as a proposed deck system on this historical route. It is encouraged for visitors to draw their own path in Craco. There will be interactive activities inside of the historic town for them to participate such as restoration works and drawing ateliers. There are 4 main festivals in Craco and many more festivals in the poposed cultural route the complex will also be used in these festivals.

Site Information

Craco is a classical Middle age town with its towers, palaces and architecture. It is located in Basilicata region of South Italy, at the instep of the boot. It shows both the properties of semi- arid and Mediterranean climate. The total design area is 200.000 square meters. Basilicata is a earthquake prone region that composed of badlands formed by intensive erosion and vegetation-less mounds called "calanchi". Craco is built upon a south-west side of the 400 meter cliff overlooking to the Cavone River valley. Since 1870 to the abandonment of the town at 1978 a series of destructive landslides begun and combined with earthquakes and floods, and finally made Craco uninhabitable.

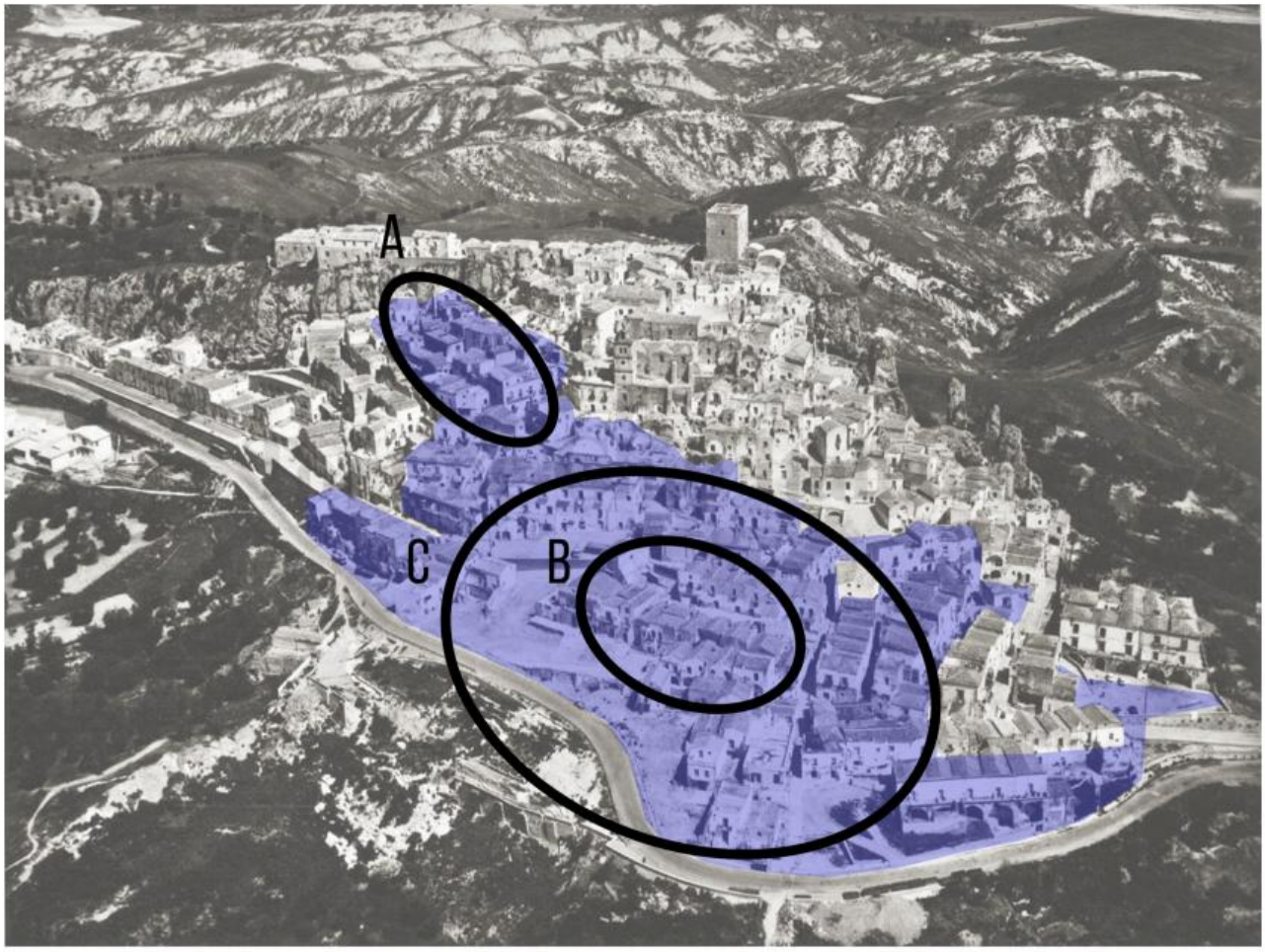
Because of the mentioned reasons above there are some limitations regarding height and weight of the museum complex. Light- weight structures should be used and geological survey must be done; piling and appropriate plantation must be done for consolidation.

The town is in World Monument Watch (WMW) since 2010 and many movies are shot in the area. Restoration work is slowly continuing since 2010. The guided tours are the only way to get inside of the ghost town and usage of protective helmet is required in the perimeter.



Cultural Route in Basilicata

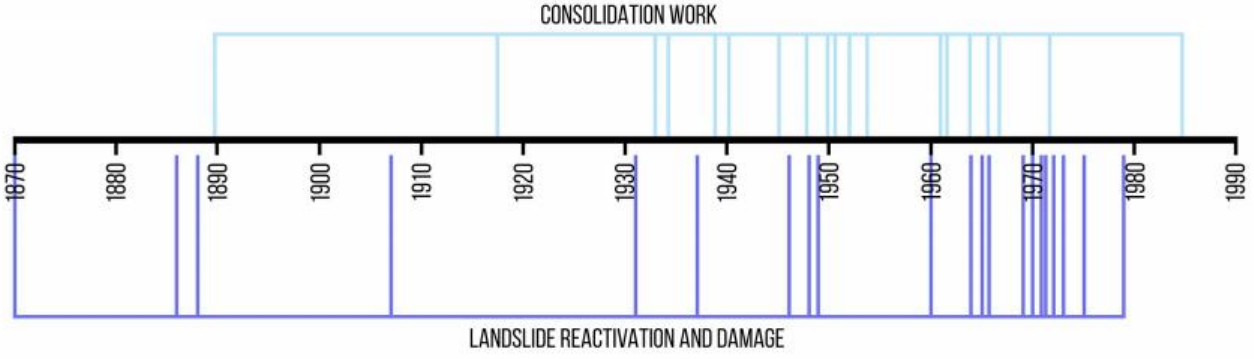
1. Potenza
2. Sasso di Castalda: bridge to the moon and lunar landscape
3. Lagonegro
4. Pollino Natural Park
5. Craco
6. Metaponto: archeological site and Palentine tables
7. Park of Murgia Materana: UNESCO heritage site
8. Matera: 2019 culture capital
9. Regional Park of Gallipoli; Castelmezzano, Pietrapertosa and "Maggio Area"
10. Vaglio Basilicata
11. Castel Lagopesole
12. Venosa: Ancient Roman city in extinct volcanic area



Landslides in Craco

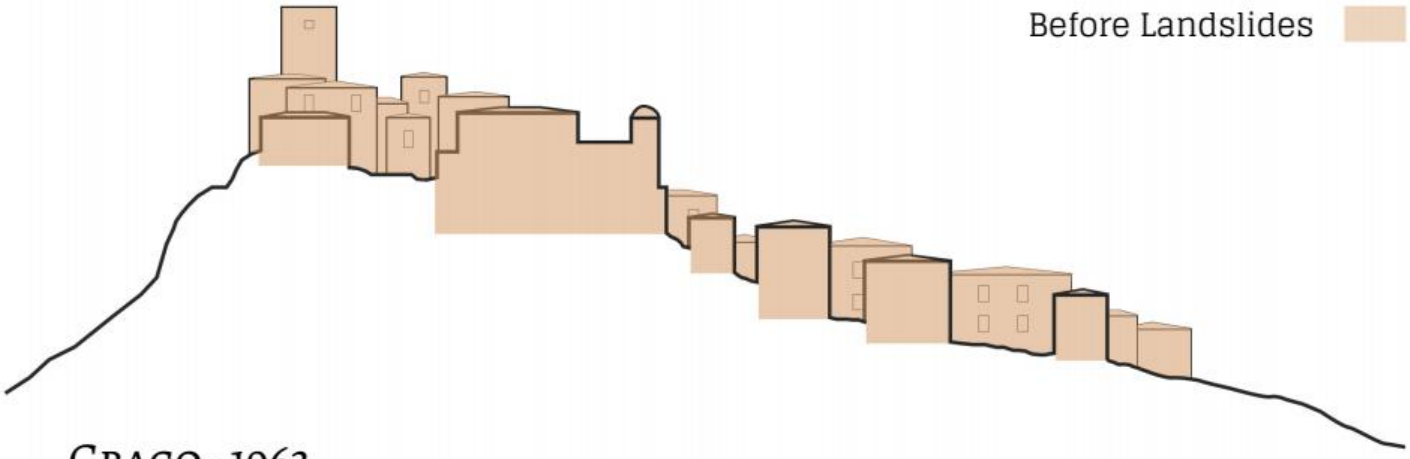
Craco faced with many landslides since 1870 to 1978 until its total abondenment. 3 most important landslides and their impact area with total destructed area is shown in the diagram above. These important landslides are named as:

A. Landslide of Convent
B. Landslide of Historic Center
C. Landslide of Schools in chronological order.

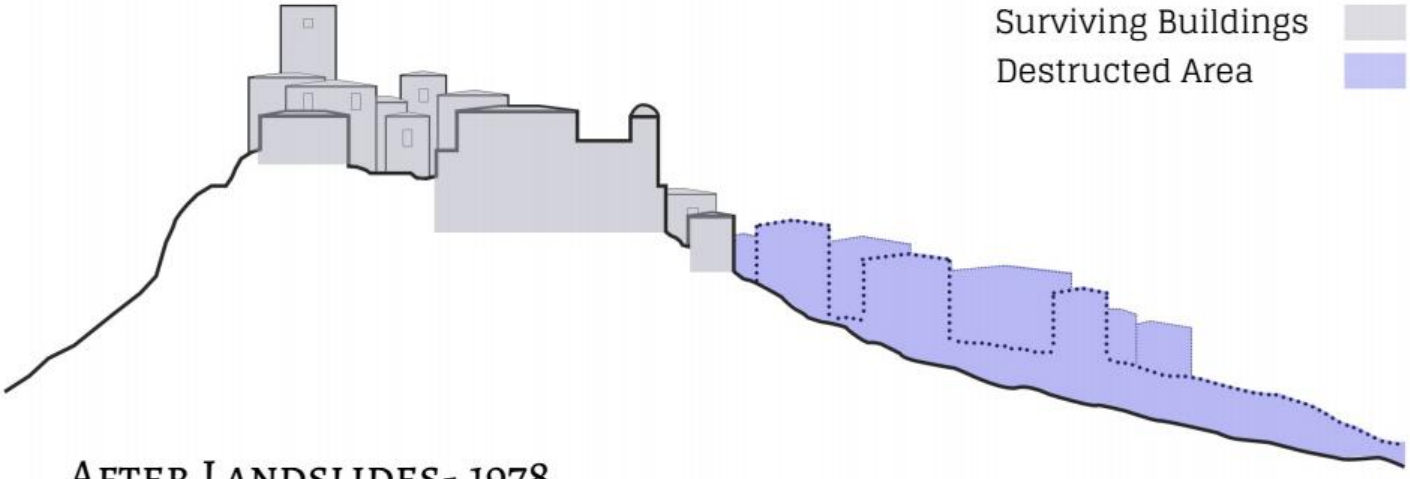


Master Plan Proposal

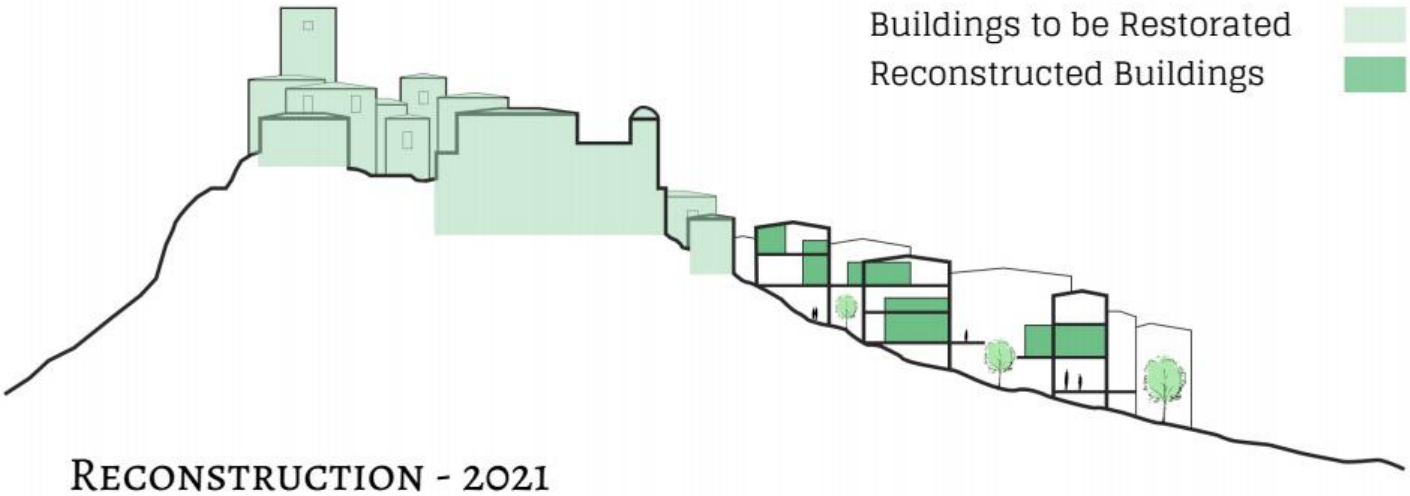
There are 6 historical and important buildings that are visited during the tours: Norman Tower, Palazzo Maronna, Palazzo Grossi, Palazzo Carbone, Palazzo Simonetti and Monastery of St Peter. The routes entering the town are designed in a way that connect all 6 of them together. These proposed routes will give geople a different perspective of the city. After the frana, a significant amount of land slided together with the buildings. For the project, I wanted to focus on how drasticly this landslides effected Craco. Thus, by investigating the photos of Craco before landslide happened, destructed buildings and their location is found and a reconstuction of these ruined buildings is proposed. Reconstruction will be as elevating them as structures by timber frames and the complex will be attached to these frames as modular boxes with specific rules. Circulation will be both on deck level, which took reference from the road level before frana, and current ground level. Thus, people can experience both present and "reconstruction of the past". The buildings will be constructed with light weight materials such as wood and glass.
There are 4 main festivals in Craco and complex will be used during these: Madonna della Stella Festival, San Nicola Festival, Madonna di Monserrato Festival, San Vincenzo Martire Feast Day.



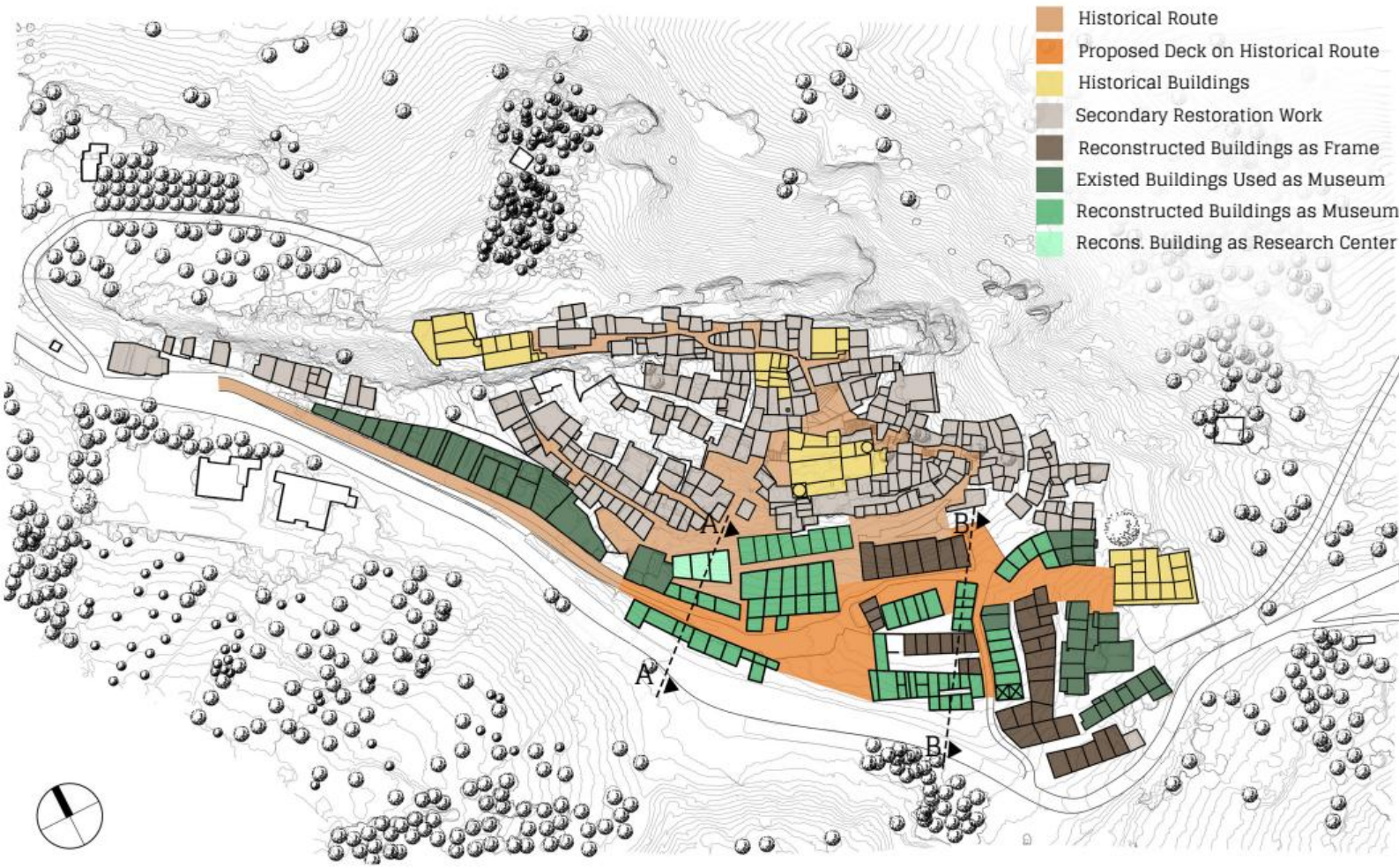
Craco- 1963



After Landslides- 1978



Reconstruction - 2021

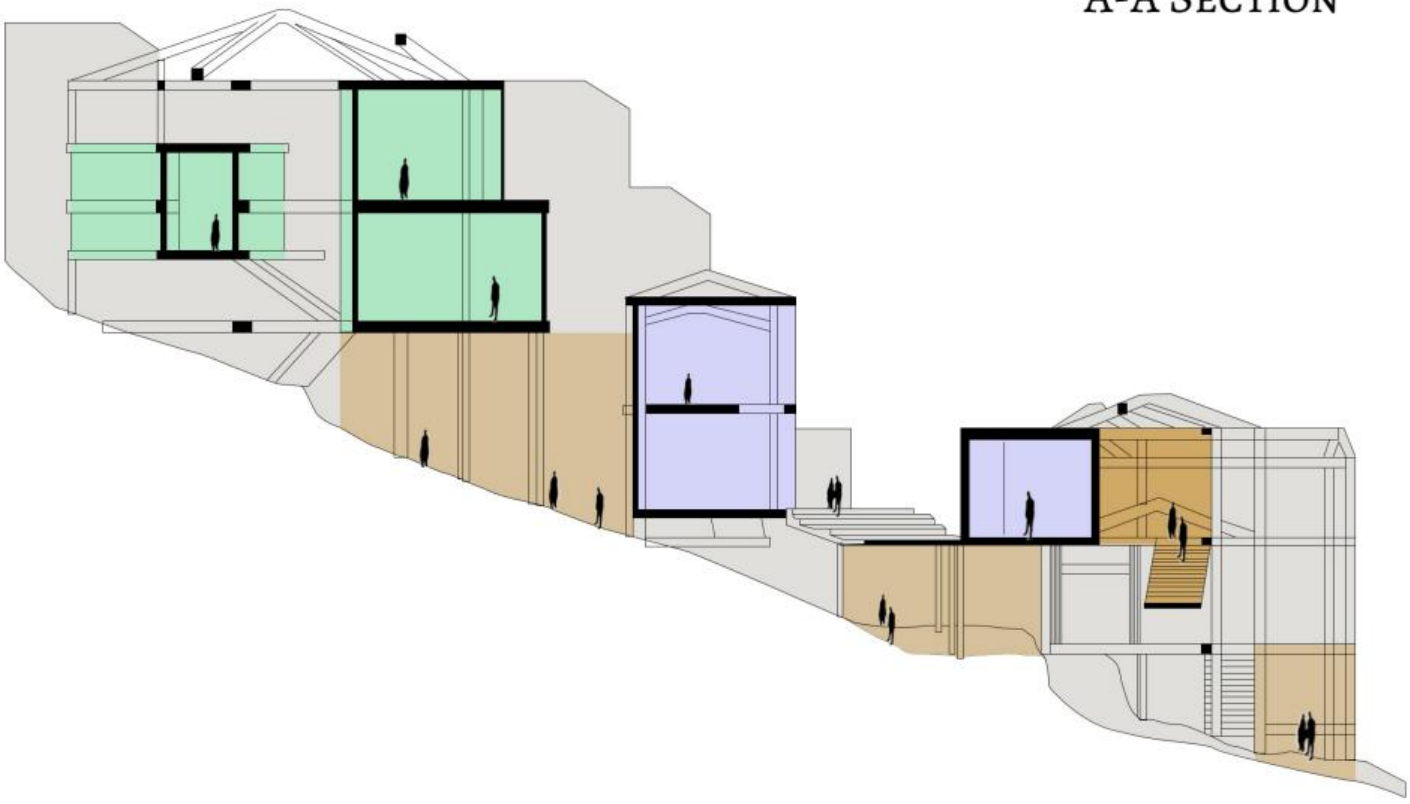


Since Craco is located in a earthquake and landslide prone region it is forbidden to make any interventions to soil. Excavation operations or creating of underground spaces are not permitted as well as filling of land. Thus, elevated building structure is required. It can be done in two ways. One of them is creating a deck over ground level and placing buildings above this artifical deck, and the second way is simply elevating buildings by pilotis and truss system. In this project, these systems will be combined throughout the complex.

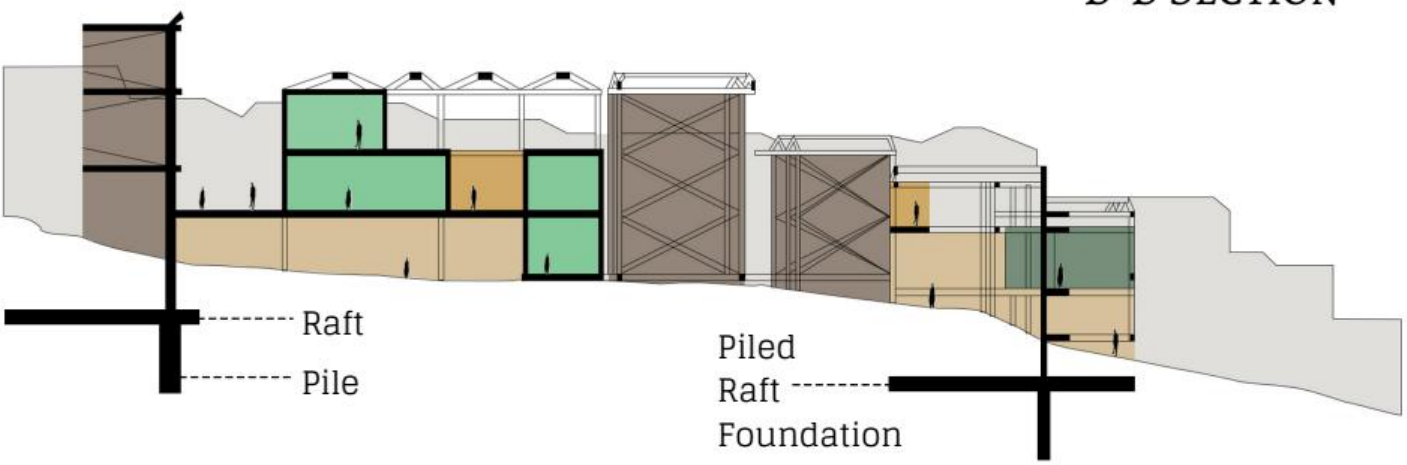
Concept is putting spaces as boxes to be placed inside of the frame. The masses will be attached to the reconstructed timber frames and be connected with both interior and exterior deck systems. Exterior deck is the main deck system, as mentioned before, will follow the historical route that people used before the lanslides. Whereas interior deck system connect proposed masses together in a new way.

Vertical circulation will be achieved with usage of stairs and elevators. People can explore the deck, frame, boxes within as well as the land below all this structures. This relation is important since the landslide wanted to be focused.

A-A Section

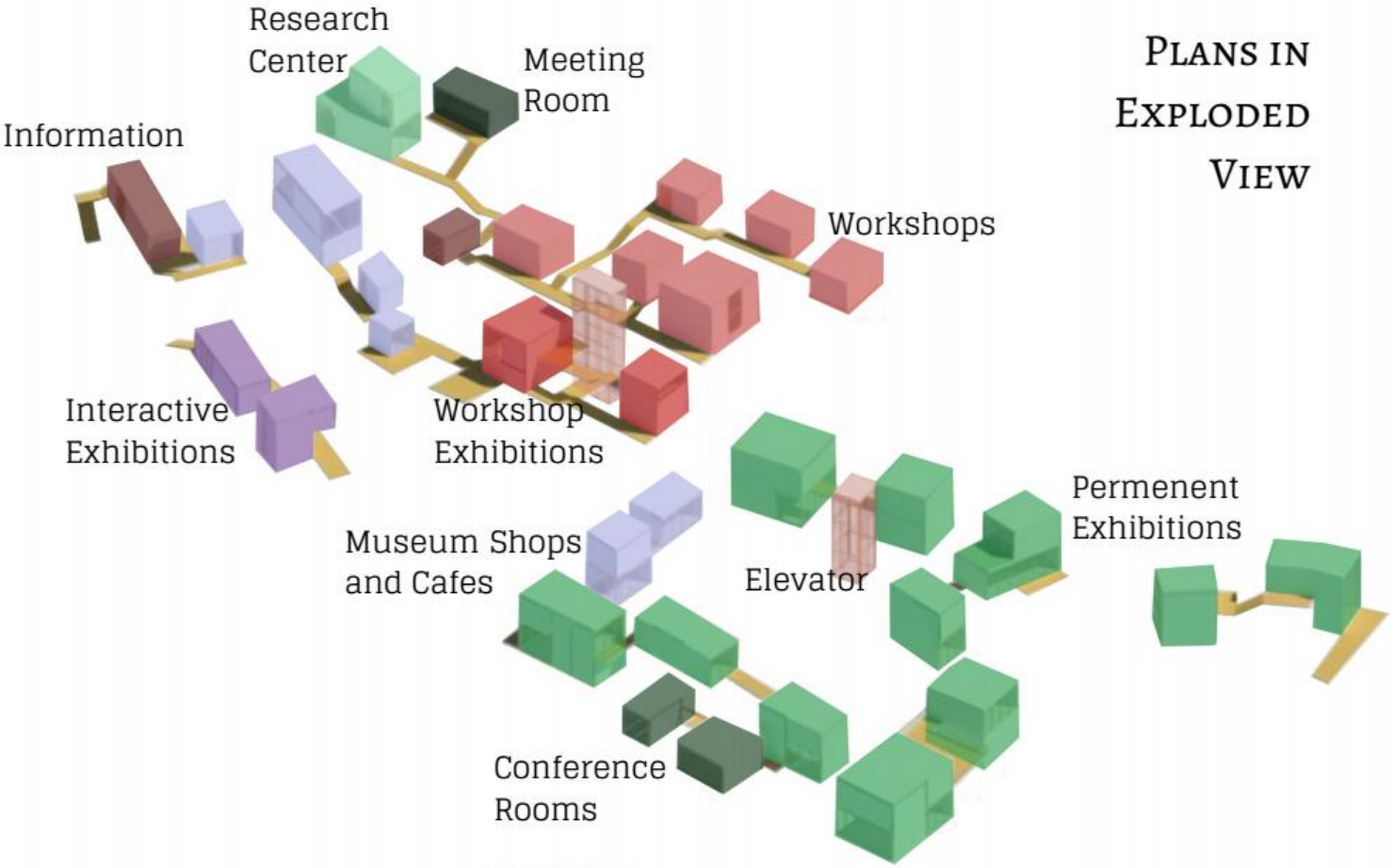


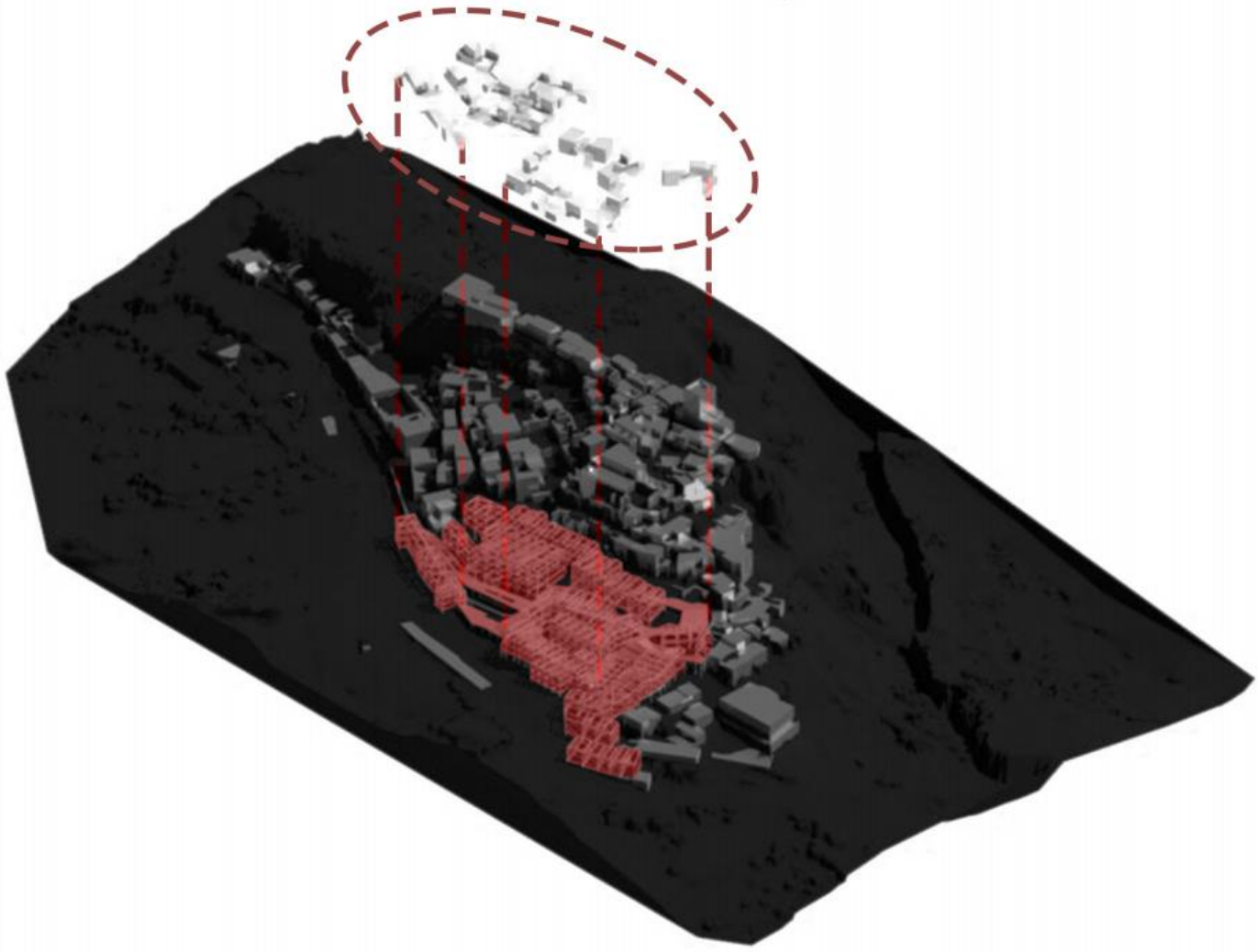
B-B Section

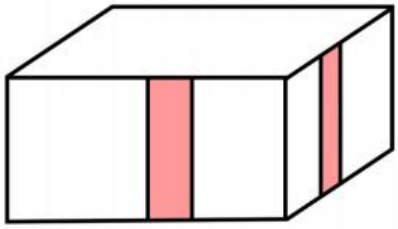


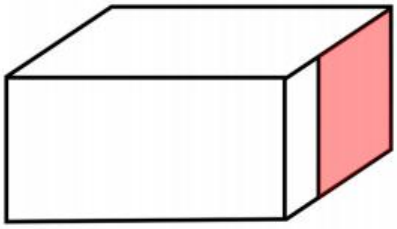
- Current Ground Level Where People Can Experience
- Deck System Inside the Frames
- Reconstructed Buildings as Frame
- Exhibition Area
- Research Center
- Conference Room
- Museum Shops and Cafe

Plans in Exploded View









Facade Design

In the South facing facades the ratio between transparent and opaque surfaces is approximately 1/8. This ratio protects building against direct sunlight and heat. I will implement this ratio to museum proposal, but change the position of transparent surfaces to emphasize linearity in the design as shown in the box diagrams above. In the exhibition areas, north light is preferred.

Wood, glass, mesh, and white gypsum wall panels will be used as construction material, since lightweight structures are required. Colour will be used in order to differentiate interior deck system. Exterior deck system refers to historical route in Craco Vecchia. It will have visual connection with ground level to emphasize the importance of landslide throught the punch holes and mesh material.


LUMION
PRO STUDENT

E. Ceren kara

Deniz Özdemir

ARCH 402
ARCHITECTURAL DESIGN STUDIO
THESIS PROJECT

SEJONG CIT'S INTER-REGIONAL CONNECTION

MIXED-USED TRAIN STATION PROJECT

Sejong is located in the middle of the South Korea. The city is founded in 2007 as a new administrative capitol of South Korea to ease congestion in Seoul and encourage investments. The city currently could only reach its one tenth planned population growth. Due to serval reasons such as; Lack of sense of community caused by functional zones without transition and transportation systems.

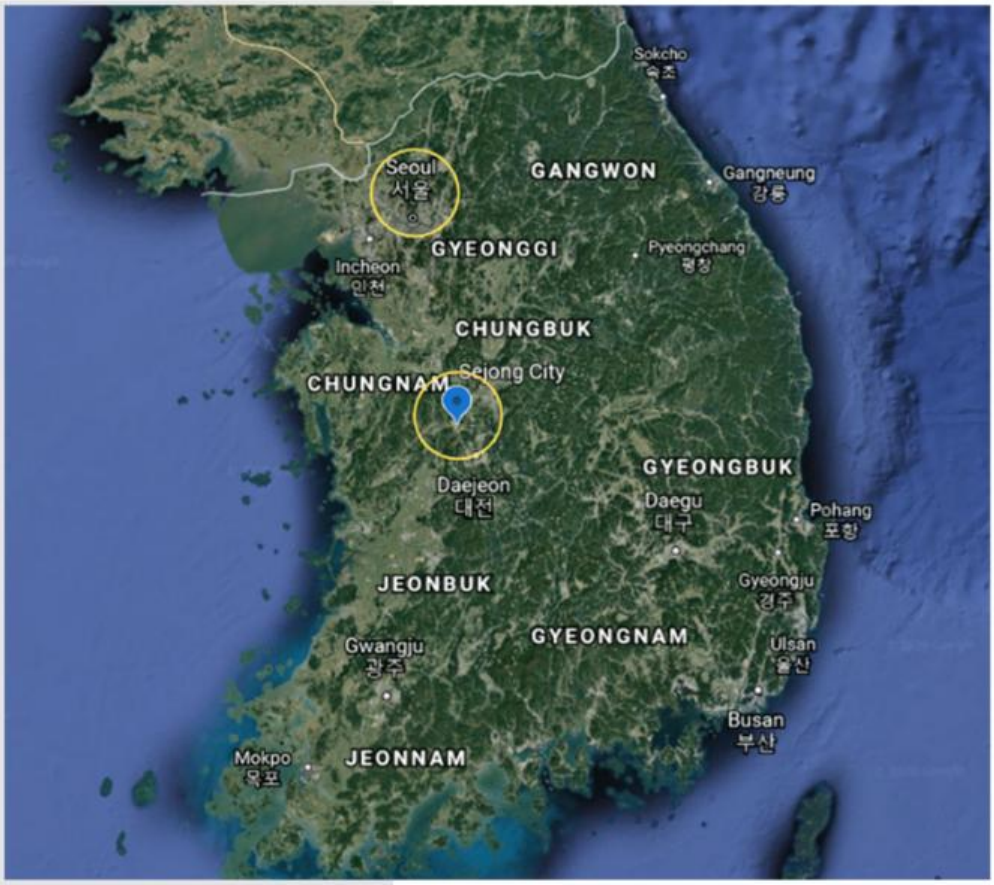
With the proposal of the mixed-used train station project and in addition with proposed metro lines connected to it, transportation to and within the city will be reinforced. Proposed railways will link the major high-speed routes together and will pass through the city, making it easily assessable from its surroundings.

This project is mainly aiming to reinforce transportation of the city, become bridge between its surroundings and attract people from them, and become the continuation of the proposed recreational area. Making the city a connection, a midpoint, first impression for its visitors.

Besides its transportation function this project proposes functions such as meeting halls and conference halls to become a midpoint for business meetings. And with the leisure activities both for kids and adults enabling its users to enjoy the experience of the train station.

DENIZ OZDEMIR

LOCATION OF THE SEJONG CITY



ABOUT SEJONG CITY

Sejong was founded in 2007 as the new national capital of South Korea to ease congestion in SouthKorea's current capital and largest city, Seoul, and encourage investment in the country's central region.

It is a city built from the scratch. Government of South Korea has relocated numerous ministries and agencies to Sejong, but many still reside in other cities - principally Seoul where the National Assembly and many important government bodies remain. Recognizing South Korea's demographic imbalance,Roh pledged to relocate its capital–and lure some of the country's population, jobs and investments– to the central Chungcheong province.

SITE ANALYSIS

Educational
Sport Facilities
Health Facilities
Religion
Governmental
Commercial
Mixed-Use
Cultural
Industrial
Residential

1.LAND USE

Concentration on residential buildings and governmental buildings
Lack of socio-cultural and mixed-use buildings
Lack of entertainmental buildings and touristic activities

2.FIGURE GROUND

The most distinctive part of the city is its governmentalunits. It is only part of the city that has a different design approach
There is a lack of public open spaces and there is a need for squares or parks

0-5 Stories
5-10 Stories
10-15 Stories
15-20 Stories
20-15 Stories
25+Stories

3.HEIGHT

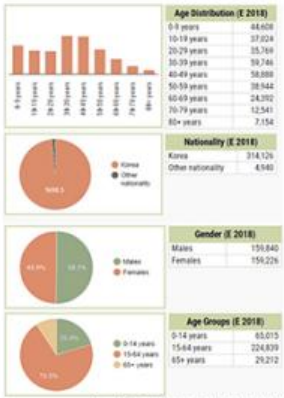
Mountain Forests
Public Parks
Private Grren Areas

4.GREEN-WATER DISTRIBUTION

Public parks only located near the Sejong Lake
Residential areas need more social spaces for social activities

5.TRANSPORTATION

City is divided into functional zones and an inner and outercirculation ring to connect those zones



6.DOMOGRAPHY

The working class constitutesthe majority of the population,while 30% of it is dependentage group
Sejong City had the highest fertility rate promising for young families, as it is both a safe environment for children to grow up and it is more economical

PROBLEM DEFINITON

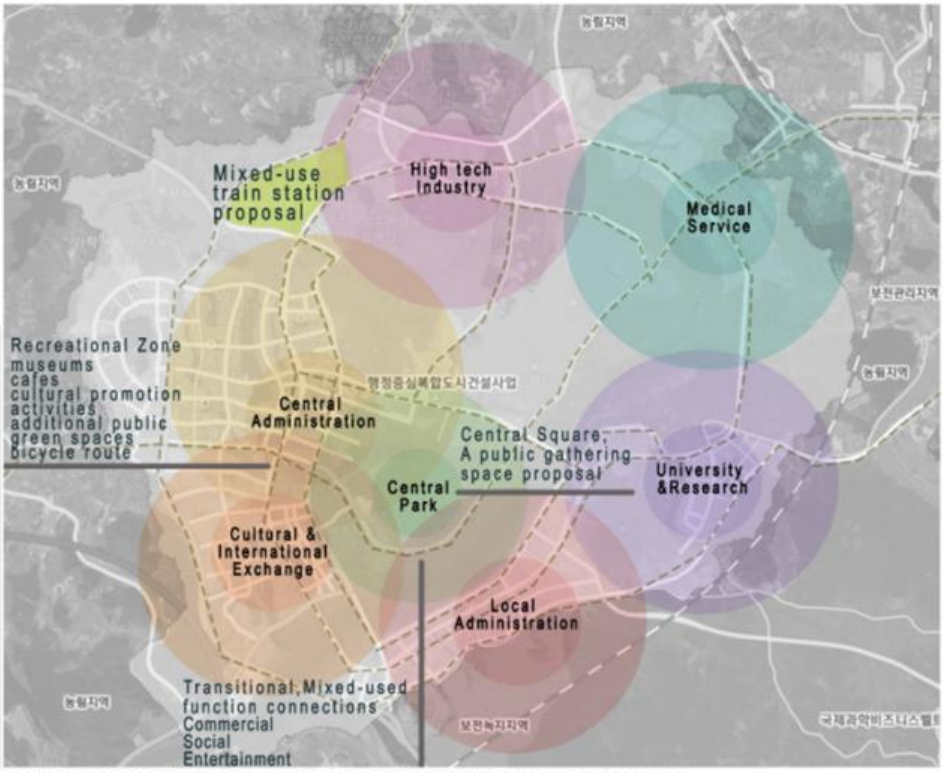
1.THE CITY IS DIVIDED INTO FUNCTIONAL ZONES WITH OUT TRANSITIONAL ZONES

2.LACK OF MIXED USED FUNCTIONS AND SOCIAL SPACES

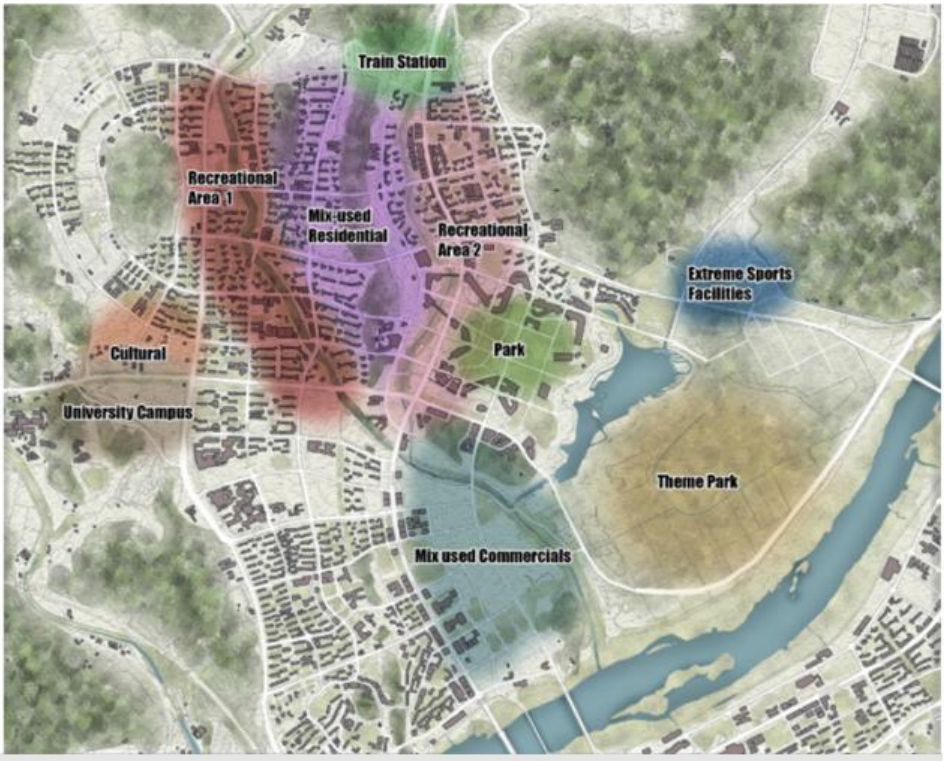
3.CITY'S POPULATION IS MAINLY CONSTITED OF ADULTS AND KIDS

4.TRANSPORTATION SYSTEM OF THE CITY IS NOT CONVINENT OR WELL DEVELOPED

LAND USE PROPOSAL



CITY IS DIVIDED INTO FUNCTIONAL ZONES
INNER AND OUTER CIRCULATION RING TO CONNECT ZONES



Recreational Area 1:
Restaurants, Cafes
Arcade games
Vr center
Karaoke
Shopping areas
Night clubs

Recreational Area 2:
Shopping areas
Hotels
Restaurants, Cafes
Entertainment
Museums

Mix-used Commercial:
Offices
Restaurants, Cafes
Squares
Shopping areas

Mix-used Residential:
Offices
Restaurants, Cafes
Green areas

Park:
Cafes
Restaurants
Pavillions
Green parks
Sport activities

Cultural:
Theater
Cinema
Library
Museum

CITIES CONNECTED WITH RAILWAY

THE UK CASE

INTER REGIONAL POTENTIAL FOR RAIL IMPROVEMENT

AGENT OF CHANGE IN CITY-REGION DEVELOPEMENT

FOCUS IS ON THE CONNECTIONS BETWEEN LONDON, METROPOLITAN AREA, LARGEST CITY IN UK

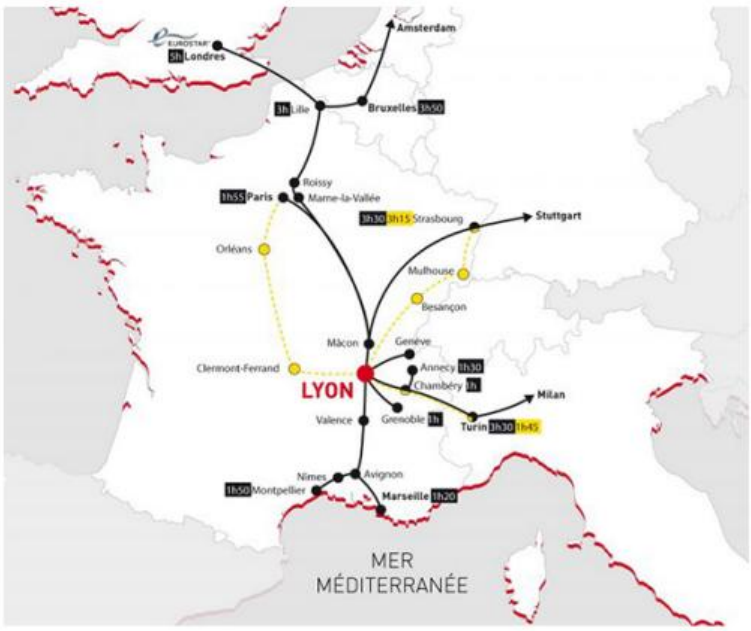
"...cities connected to a new HST could seize opportunities which non-HST cities will not be able to do so, but this is not a zero-sum situation. Instead, it involves a national strategy to develop a hierarchical network with HST between London and key regional hubs, well integrated at these hubs with intra-regional transport systems."

THE LYON CASE

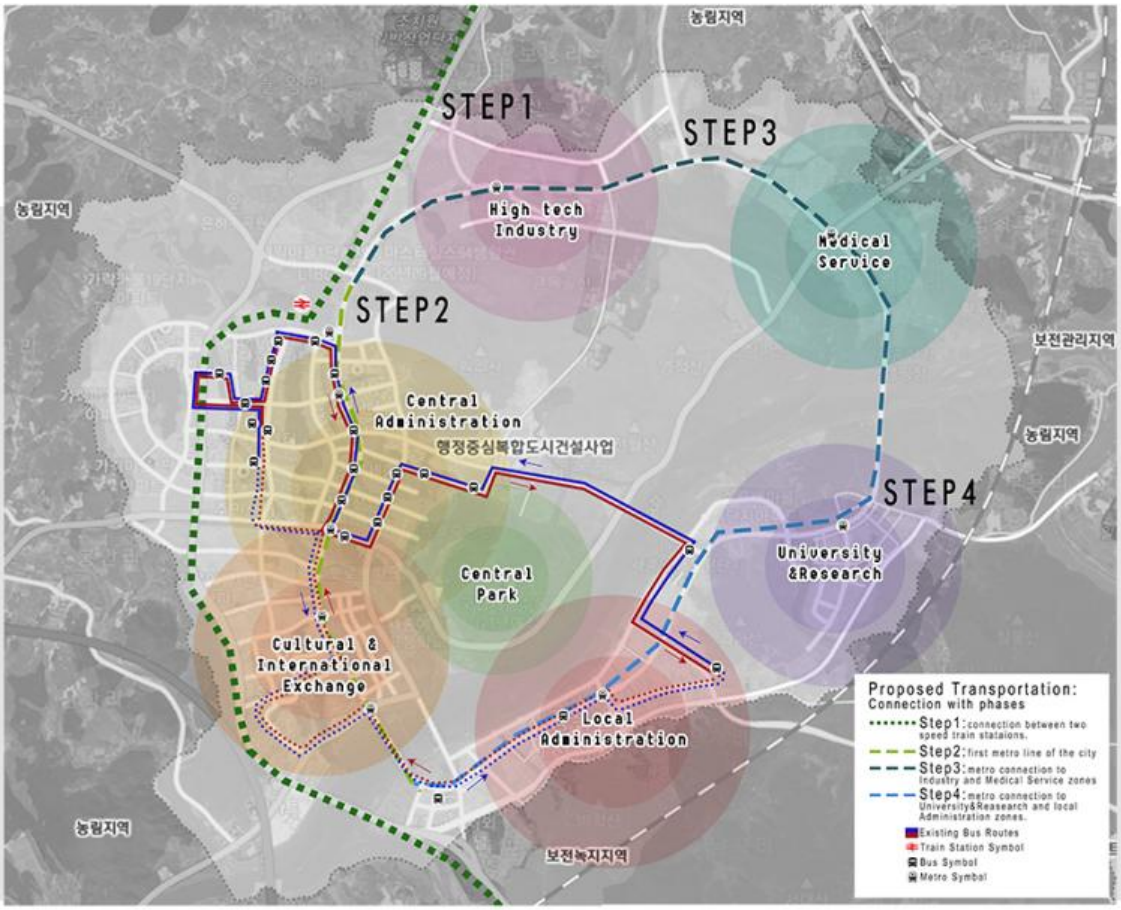
A RAILWAY TRANSORT HUB

LYON HAS 3 RAILWAY STATIONS, PROVIDIND RAPID CONNECTIONS WITH MAJOR EUROPEAN CITIES

A MIDPOINT BETWEEN MAJOR CITIES IN EUROPE, REDUCING TRAVELED DISTANCES



TRANSPORTATION PROPOSAL



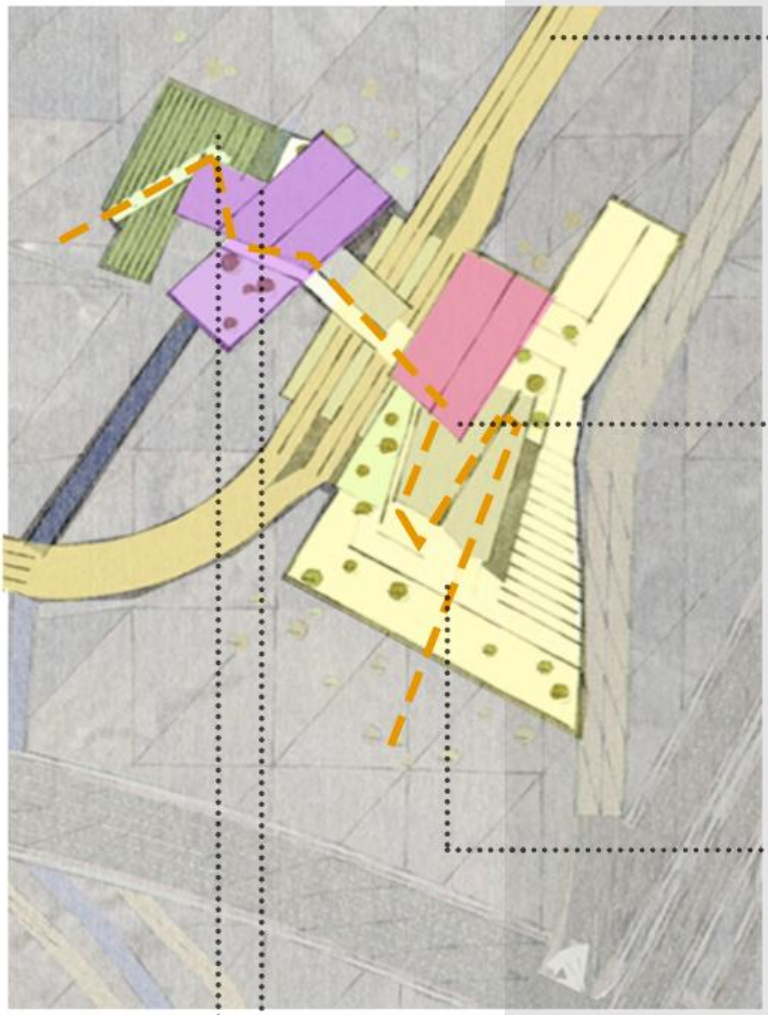
BEING THE FIRST RAILWAY SYSTEM OF THE CITY

IT WILL LINK GYEONBU HIGH SPEED RAILWAY AND HONAM HIGH SPEEDRAILWAY LINES TOGETHER

SEJONG WILL BE CONNECTED WITH OTHER BIGGER CITIES OF SOUTH KOREA

ESPECIALLY WITH SEOUL AND CAN BE REACHED EASILY FROM ITS SURROUNDINGS

TRAIN STATION PROPOSAL



TRAIN STATION

- REEINFORCING TRANSPORTATION AND BECOMING BRIDGE BETWEEN CITIES
- A CONNECTION,A MIDPOINT

MEETING, CONFERENCE HALLS AND LIBRARY

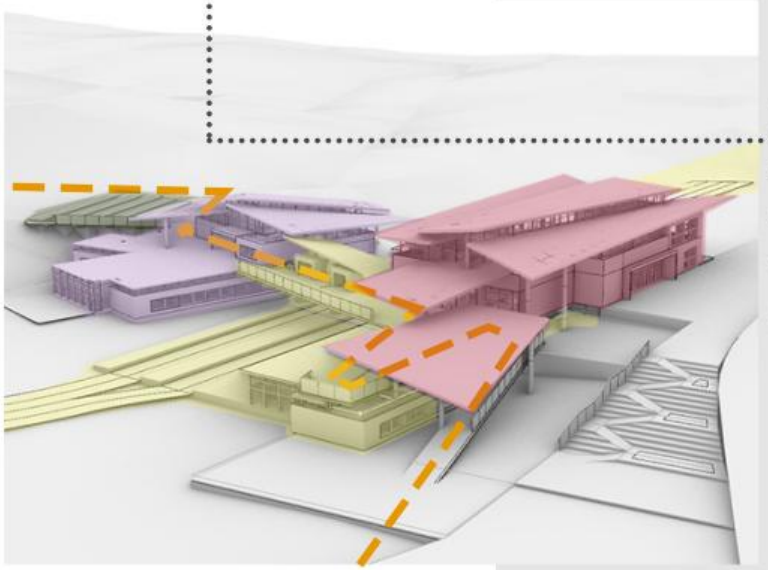
- A MIDPOINT: AIMING TO ATTRACT PEOPLE FROM ITS SURROUNDINGS
- ADMINISTRATIVE CITY OF THE SOUTH KOREAN (GOVERNMENTAL COMPLEX) CONVINIENT FOR THE VISITERS

RAMP CONNECTION

- CONTINUITY OF THE RECREATIONAL AREA 2
- CONNECTION BETWEEN FUNTIONS

SCIENCE CENTER

- A DESTINATION:CONNECTION BETWEEN GENETARIONS
- MIXED-USE TRAIN STATION: TRAIN STATION CONNECTED SCIENCE CENTER



HOBBY GARDENS

- END OF THE RAMP SYSTEM AND GREEN ROOF COMPLETED WITH HOBBY GARDENS IN THE MOUNTANOUS AREA

DEVELOPEMENT PROCESS

SELECTED AREA

LOCATED BETWEEN THE HIGH-TECH INDUSTRIAL ZONE AND CENTRAL INDUSTRIAL ZONE

PHOTOGRAPHIC SURVEY


1


1


2


2

SEJONG CITY'S INTER-REGIONAL CONNECTION MIXED-USED TRAIN STATION PROJECT

TOP VIEW AND MASSING

CONTINUATION OF THE RECREATIONAL AREA

FIRST IMPRESSION OF THE CITY

PROJECT GOALS

LEISURE ACTIVITIES ENABLING THE USERS TO ENJOY THE EXPERINCE OF THE TRAIN STATION

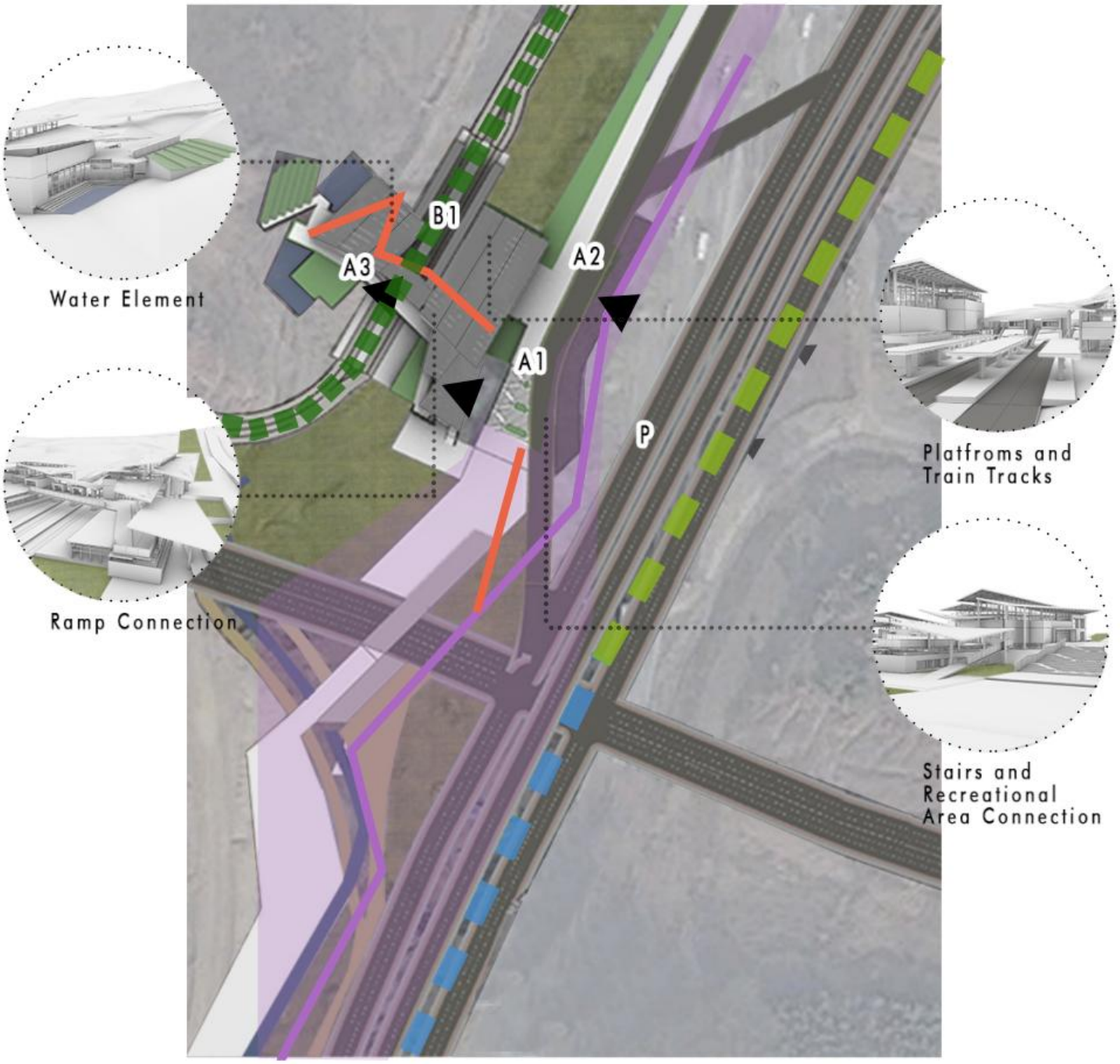
MIDPOINT FOR BUSINESS MEETINGS, CONFERENCES

ACTIVITIES BOTH FOR ADULTS AND CHILDREN

SCIENCE CENTER AS THE ENDING OF THE RECREATIONAL AREA

SEJONG CITY'S INTER-REGIONAL CONNECTION MIXED-USED TRAIN STATION PROJECT

PROGRAMS AND THEIR RELATIONS



STEP1: connection between two speed train stataions

STEP2: first metro line of the city

STEP3: metro connection to Industry and Medical Service zones

Recreational Area: museums, cafes, cultural promotion, cafe, additional public green spaces, bicycle routes

Ramp Connection (with greenroof)

Water Element

Enterances

EXTERIOR SPACES

A1 Program

- Train station
- Railwayn system
- Metro connection
- Information centre
- Public Spaces
- Bicycle Renting
- Cafes

A2 Program

- Library
- Individual and collective working areas
- Conference Halls Exhibition and
- Gallery spaces

A3 Program

- Art&Music Programs
- Creative thinking spaces
- Spaces for physical activities
- Cafes

B1 Program

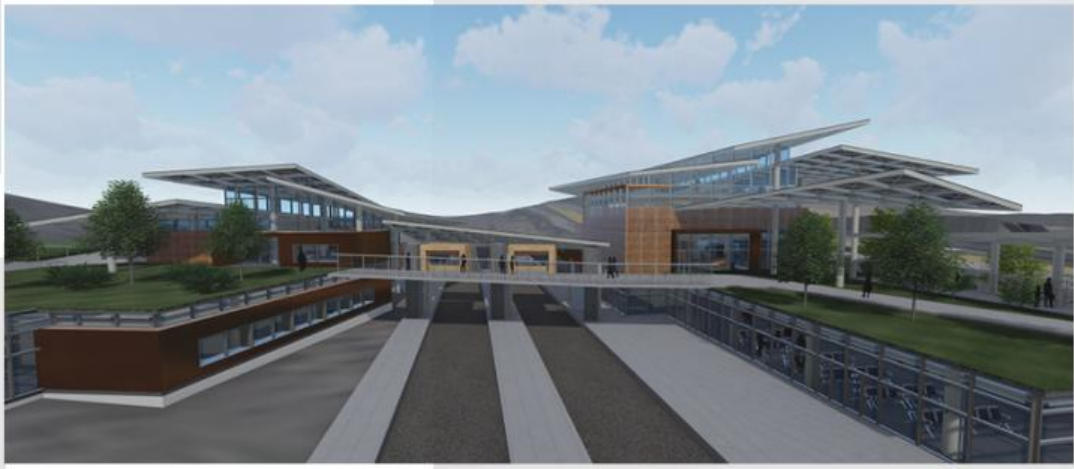
- Science center
- Playgrounds
- Spaces for physical activities
- Hobby gardens
- Cafes

P Program

- Parking Lots

Train Station Entrance

Ramp Connection to Science Center

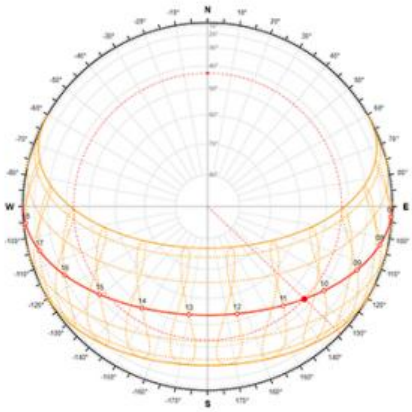


Science Center and Train Station Overview

ENVIRONMENTAL ASPECTS

SUN PATH AND PREVAILING WIND DIRECTION
SHADING ELEMENTS AND VENTILATION SYSTEM

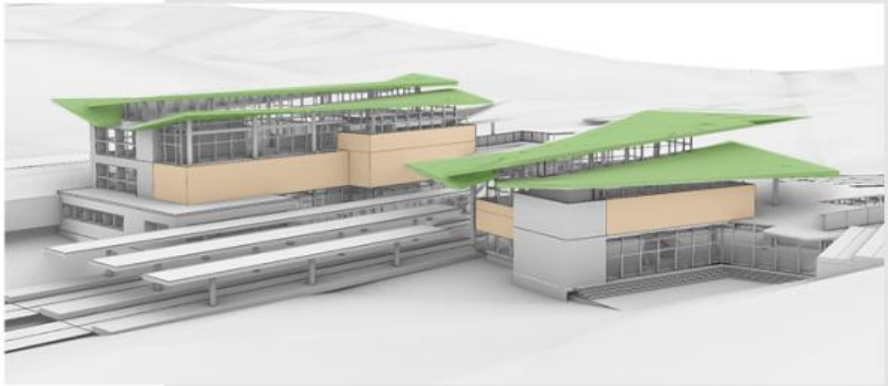
SUN PATH



SUN PATH DIAGRAM

SHADING ELEMENTS

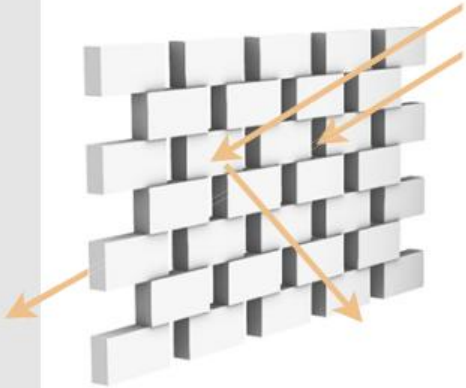
EAST FACADE



WEST FACADE

Roof Structure as a Overhnag

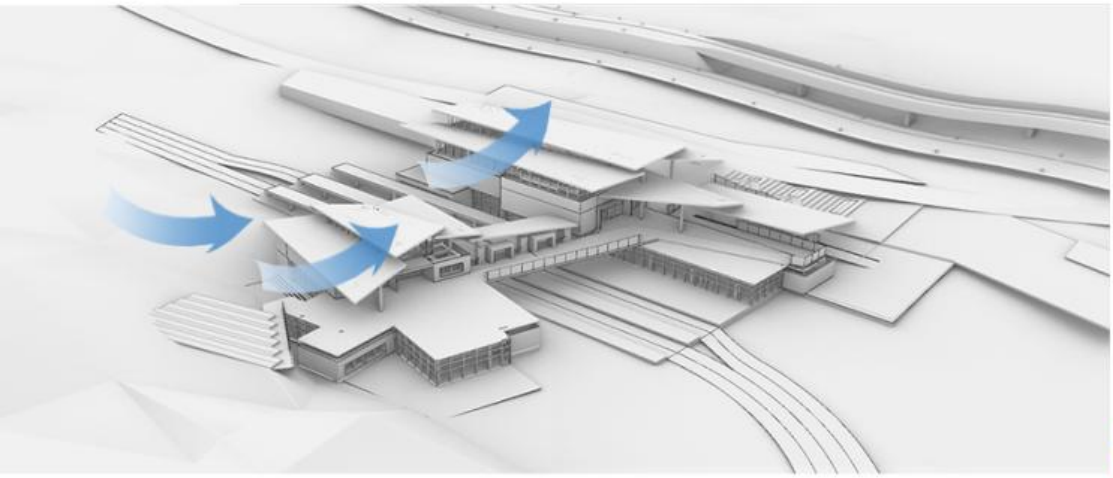
Perforated Metal Pannels

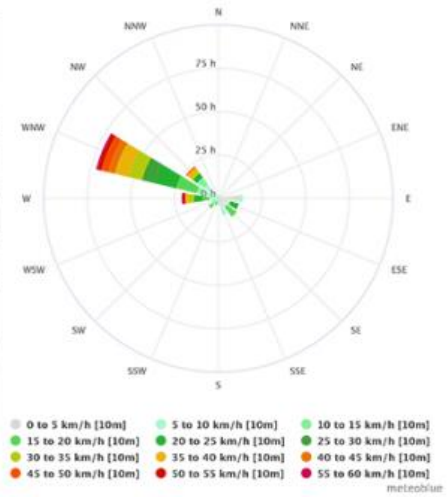


PERFORATED METAL PANNEL

AS A SHADING ELEMENT

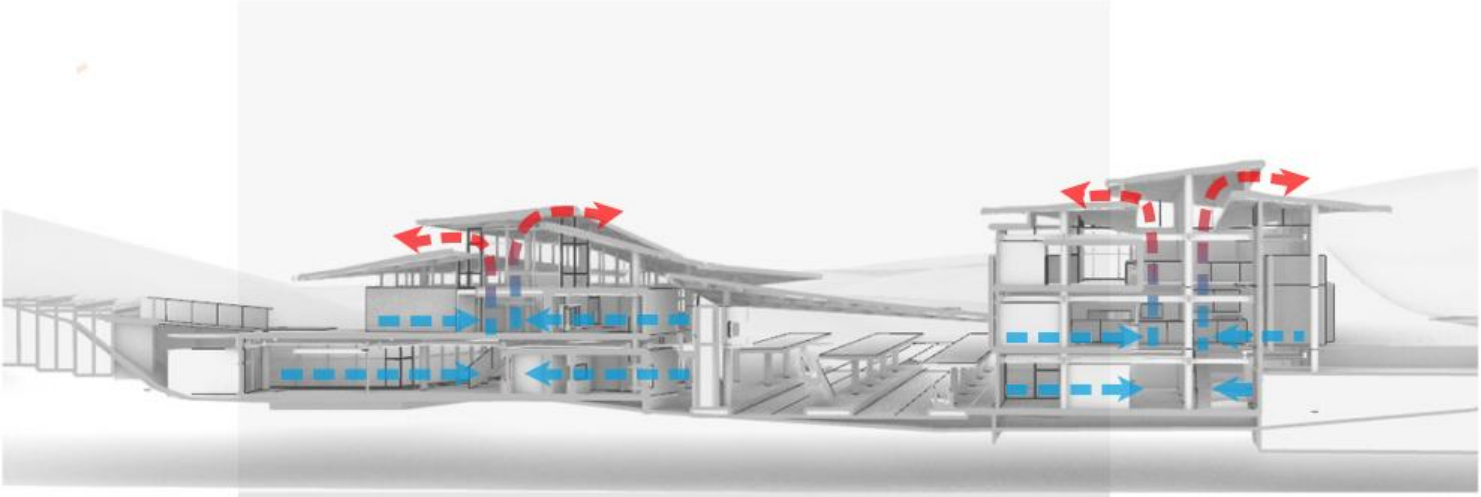
PREVAILING WIND DIRECTION





WIND ROSE DIAGRAM

STACK VENTILATION DIAGRAM



Hot Air Rising

Fresh Air

RAMP CONNECTION

Overview from library connection

Recreational area continuation

CONTINUITY OF THE RECREATIONAL AREA

ENDS WITH URBAN FARMING AREA

CONNECTS THE UNITS

HOBBY GARDENS

SCIENCE CENTER

PLATFORM CONNECTION

TRAIN STATION

PUBLIC GREEN AREA

THERE IS A CONSTANT TRANSITION BETWEEN FUNCTIONS

https://www.archdaily.com/928029/the-south-china-sea-museum-architectural-design-research-institute-of-scut?ad_source=search&ad_medium=search_result_projects

https://www.archdaily.com/780383/taiyuansouth-railway-station-in-china-csadi

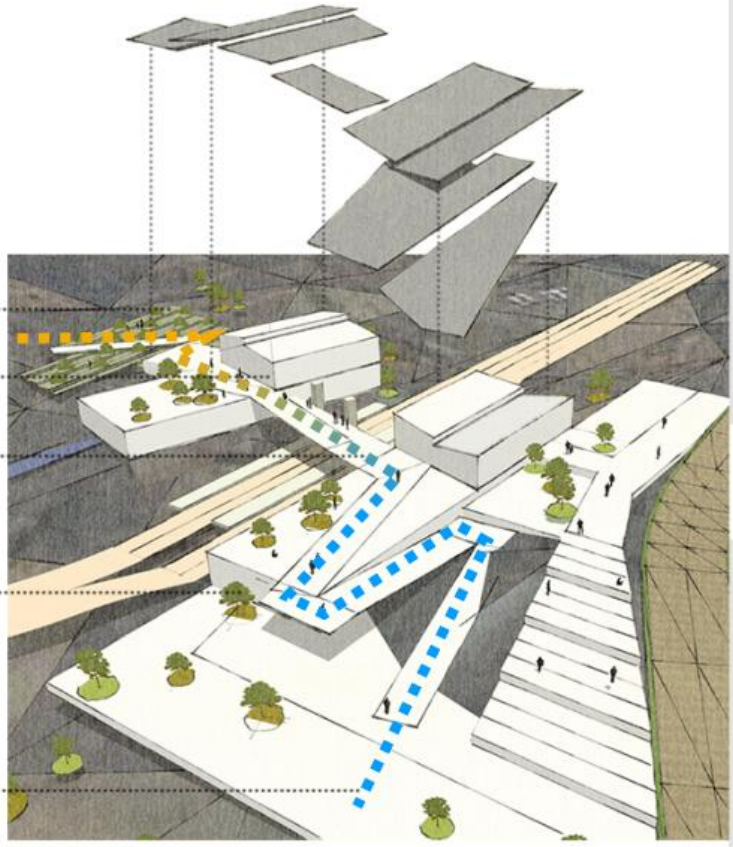
https://www.archdaily.com/928796/the-hakka-triangle-house-team-bldg

https://www.google.com/search?q=wuhong+city+government+complex&sxsrf=ALeKk02YIPG85vl90w9xGI--r:1621MImTyg:1588934810879&tbm=isch&source=lnms&sa=X&ved=2ahUKEwj9yEXI48boAhVxUhUIHfI9BoAQ9QEwCnoECAoQKA#imgrc=PCiFajBwc3QXXM&imgdii=jt11qdN0dnBfgM

FUNCTION DISTRIBUTION



ROOF SYSTEM REFERENCE: ABSTRACTED TRADITIONAL ROOFS



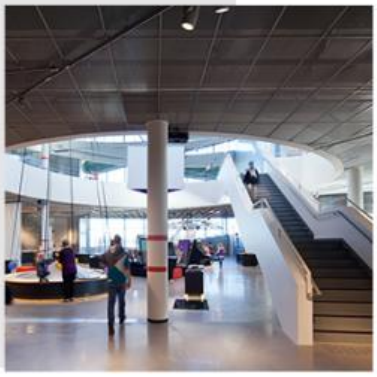


GREENROOF REFERENCE: GOVERMENTAL COMPLEX

SCIENCE CENTER

HOBBY GARDENS

SCIENCE CENTER



TRAIN STATION

LIBRARY AND MEETING HALLS

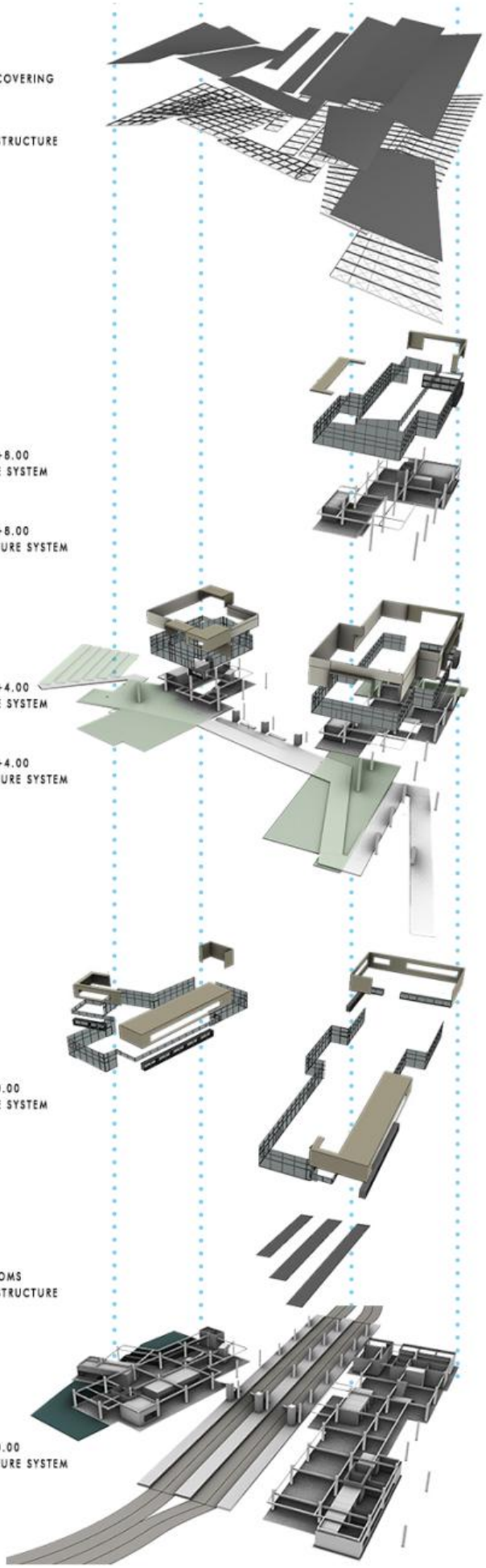
TRAIN STATION

EXPLODED STRUCTURE DIAGRAM

SPACES UNDER STRUCTURE SYSTEM

Traditional Hanok Structure

https://tr.pinterest.com/pin/824317881894308813/



09
ROOF COVERING

08
ROOF STRUCTURE

07
LEVEL +8.00
FACADE SYSTEM

06
LEVEL +8.00
STRUCTURE SYSTEM

05
LEVEL +4.00
FACADE SYSTEM

04
LEVEL +4.00
STRUCTURE SYSTEM

03
LEVEL 0.00
FACADE SYSTEM

02
PLATFROMS
ROOF STRUCTURE

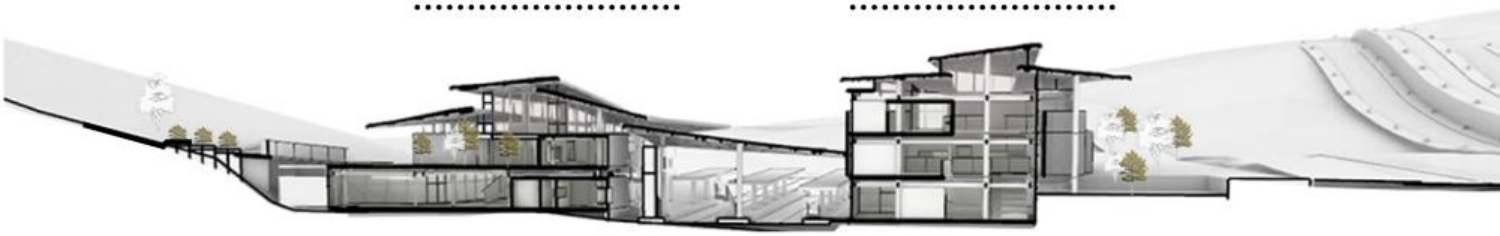
01
LEVEL 0.00
STRUCTURE SYSTEM

SECTIONS

RELATION WITH THE TOPOGRAPHY

SCIENCE CENTER

LIBRARY



ART & MUSIC ACTIVITIES

HOBBY GARDENS

CONNECTION TO THE PLATFORMS

TRAIN STATION

SECTON A-A

Initial Sketch Idea

LIBRARY

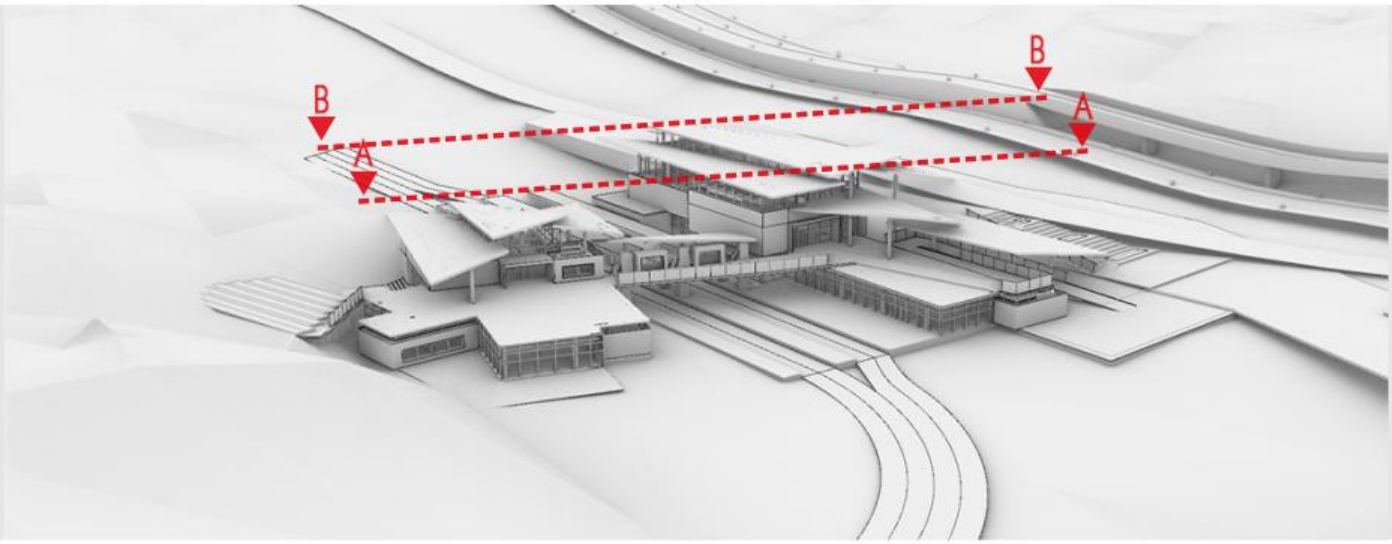
TRAIN STATION

CONNECTION TO THE PLATFORMS

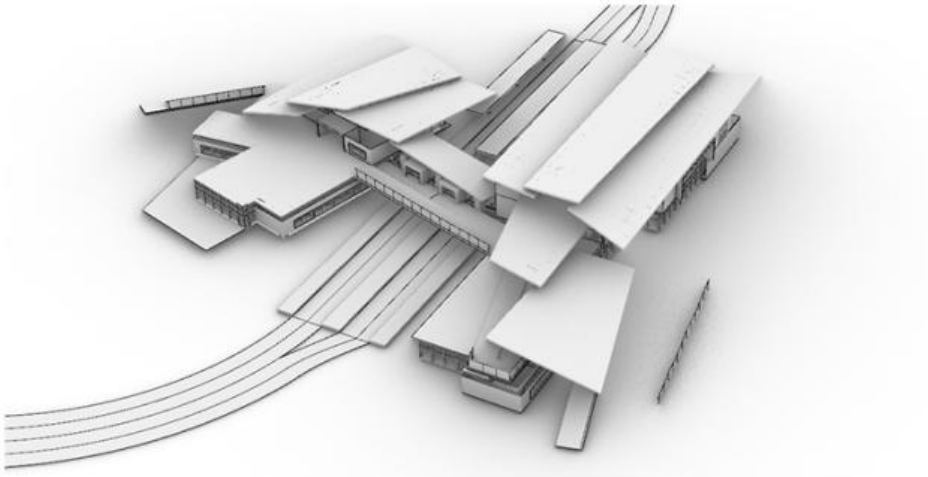
SCIENCE CENTER

HOBBY GARDENS

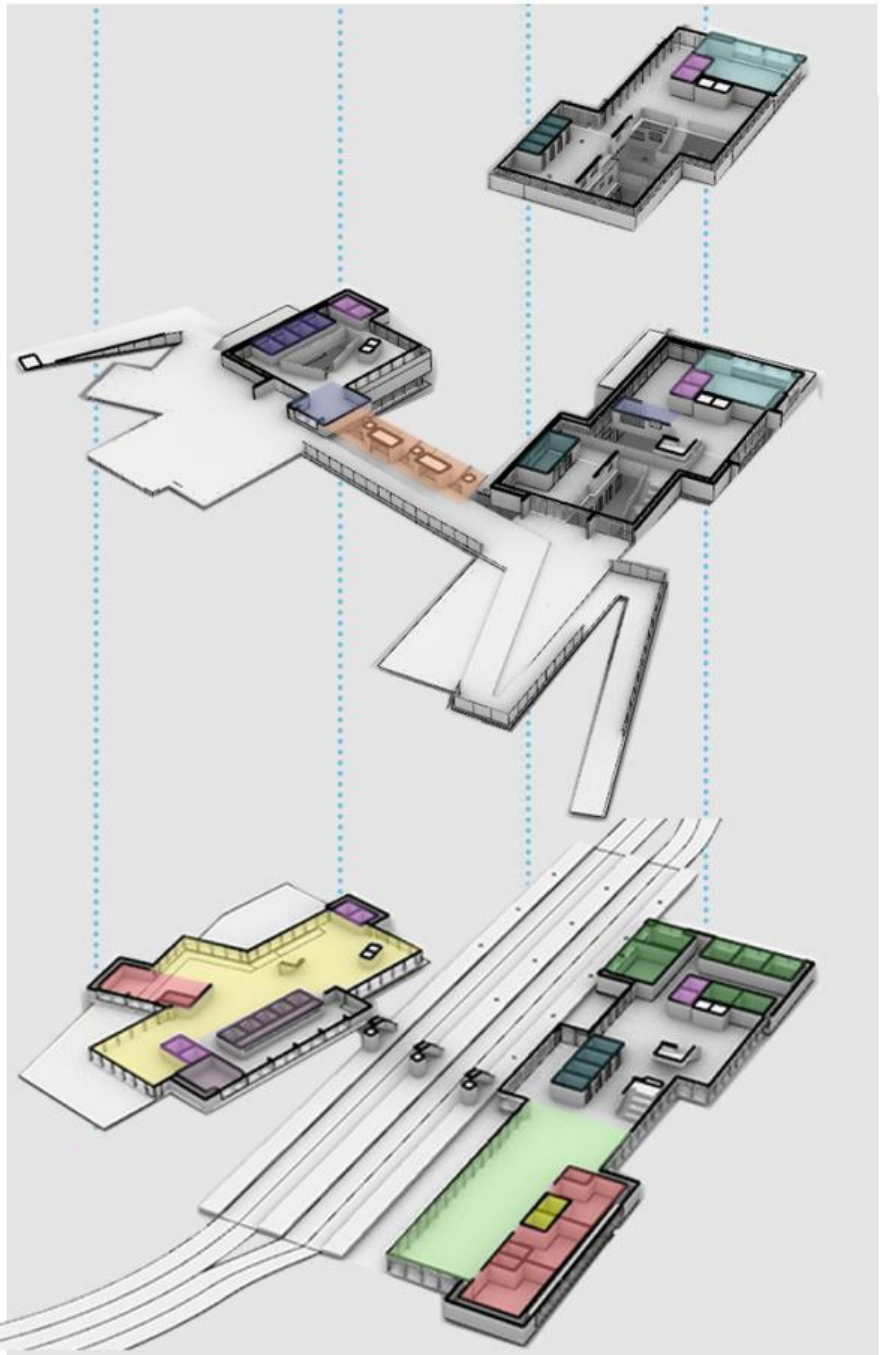
SECTON B-B



EXPLODED FUNCTION DIAGRAM



- Offices
- Restrooms
- Music & Art Studios
- Cafes
- Connection to platforms
- Exhibition Area
- Waiting Areas
- Conference & Meeting Halls
- Working Spaces
- Library
- Information desk & Kiosks



+8.00 LEVEL

+4.00 LEVEL

LIBRARY AND TRAIN STATION ENTRANCE

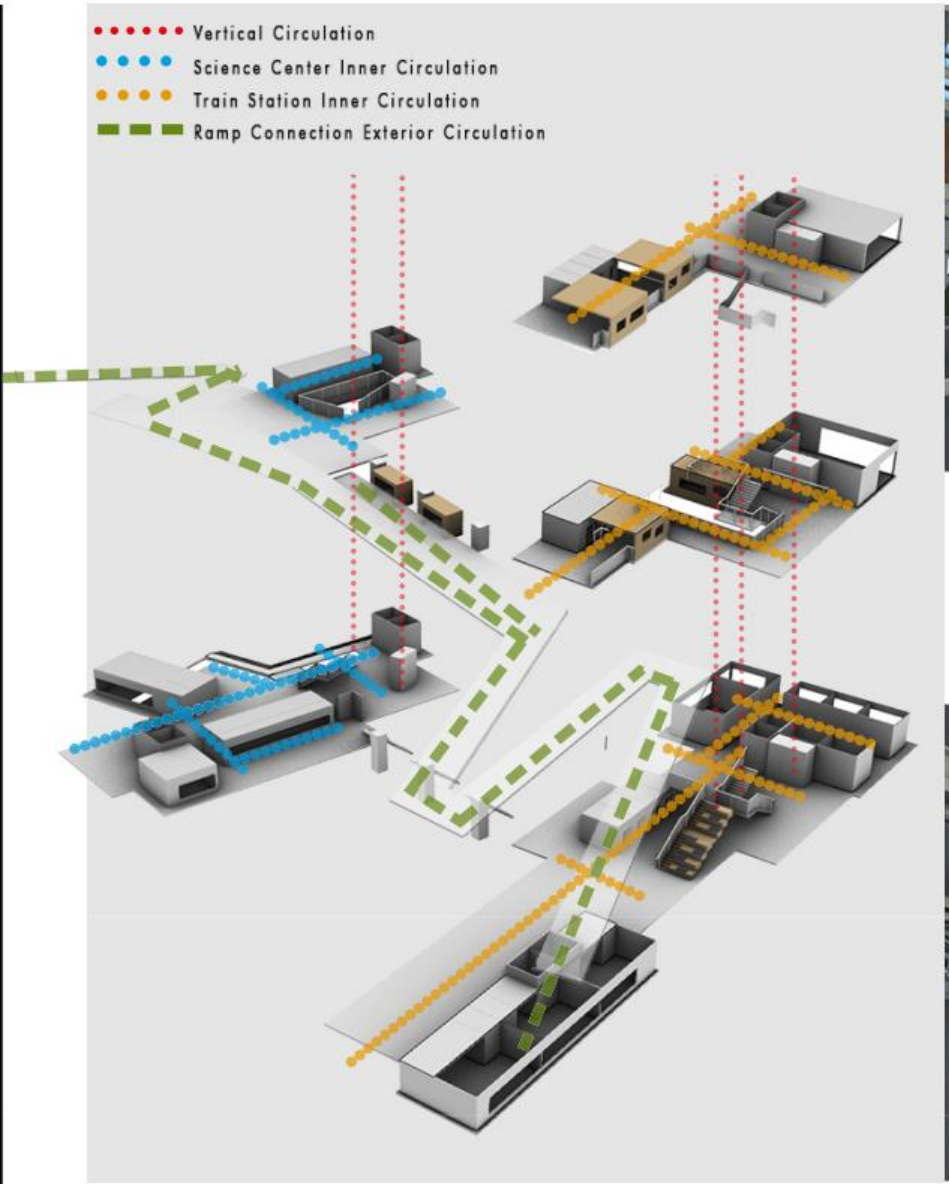
RAMP CONNECTION

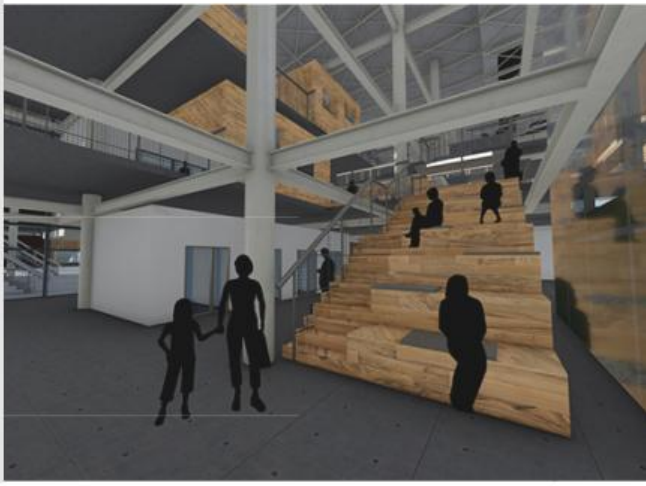
±0.00 LEVEL

RAILWAY SYSTEM AND CONNECTION WITH RECREATIONAL AREA

RAMP CONNECTION

CIRCULATION DIAGRAM



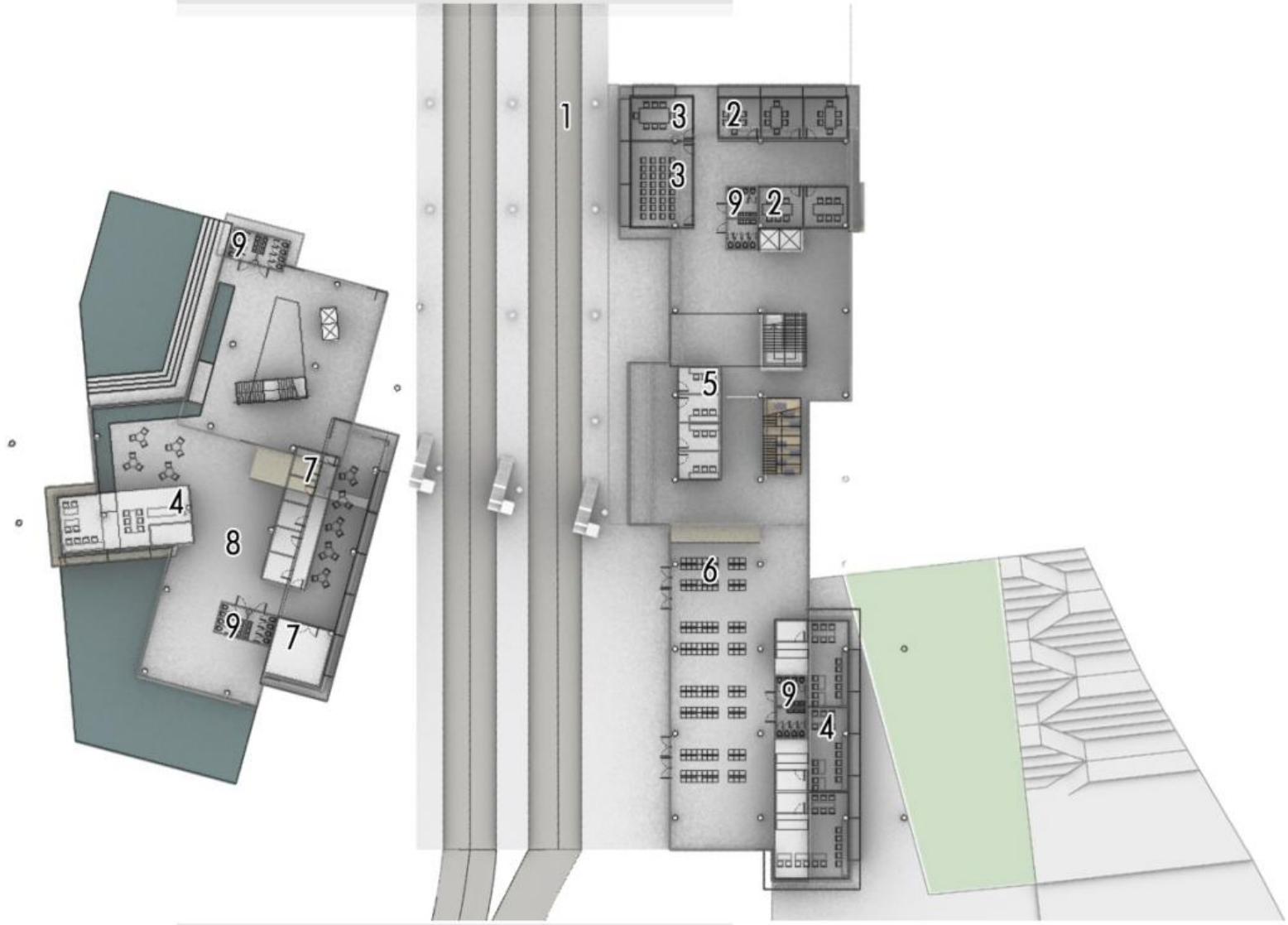


SEJONG CITY'S INTER-REGIONAL CONNECTION MIXED-USED TRAIN STATION PROJECT

FLOOR PLANS

LEVEL ±0.00 PLAN

01 RAILWAY SYSTEM
02 MEETING ROOMS
03 CONFERENCE HALLS
04 CAFES
05 INDIVIDUAL AND COLLECTIVE WORKING SPACES
06 WAITING AREA
07 MUSIC AND ART STUDIOS
08 SCIENCE EXHIBITION SPACES
09 RESTROOMS



LEVEL +4.00 PLAN

01 INFORMATION DESK
AND KIOSK
02 KIDS LIBRARY
03 READING AREA
04 OFFICES
05 RESTROOMS
06 HOBBY GARDENS

SEJONG CITY'S INTER-REGIONAL CONNECTION MIXED-USED TRAIN STATION PROJECT

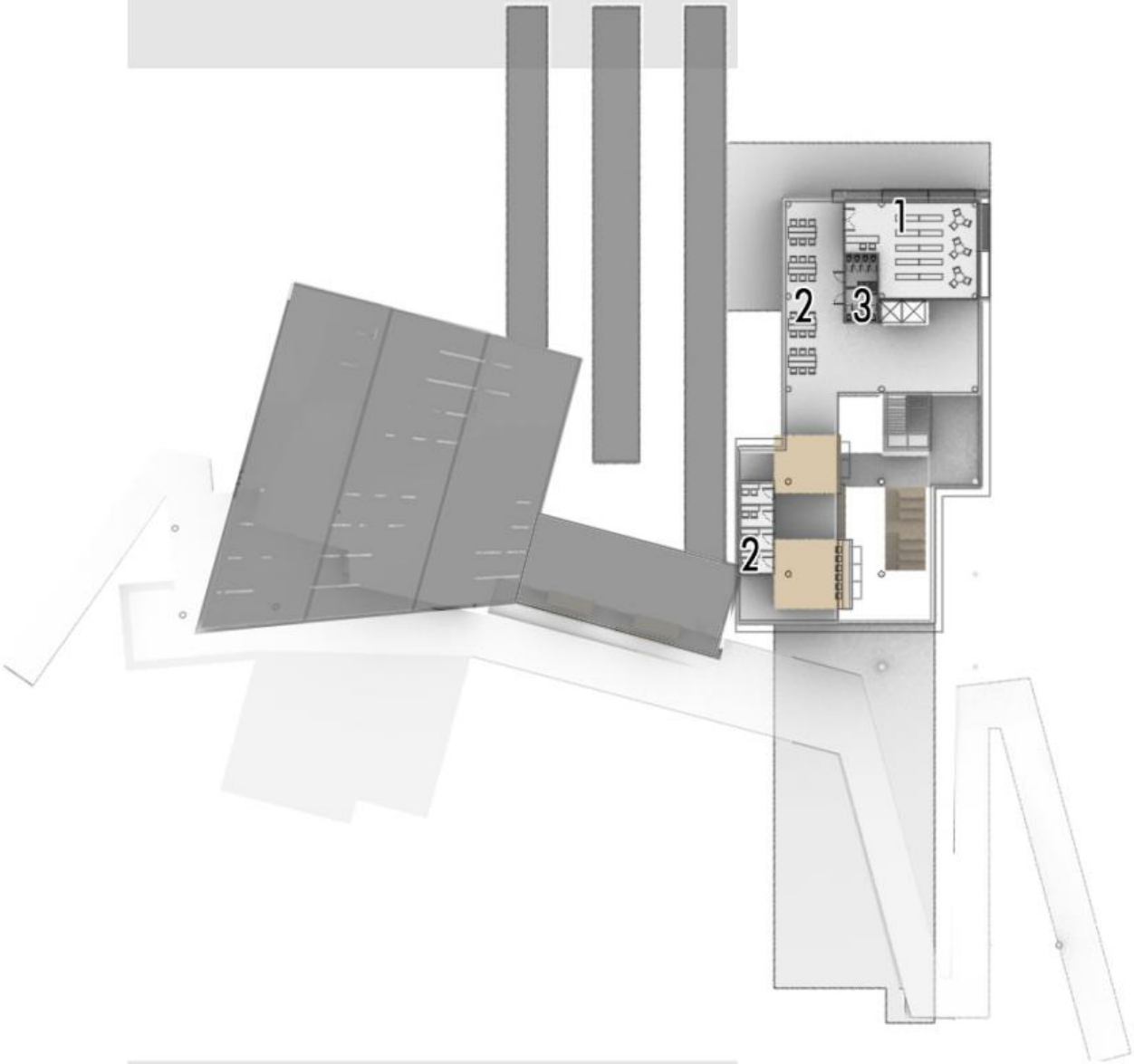
FLOOR PLANS

LEVEL +8.00 PLAN

01 LIBRARY

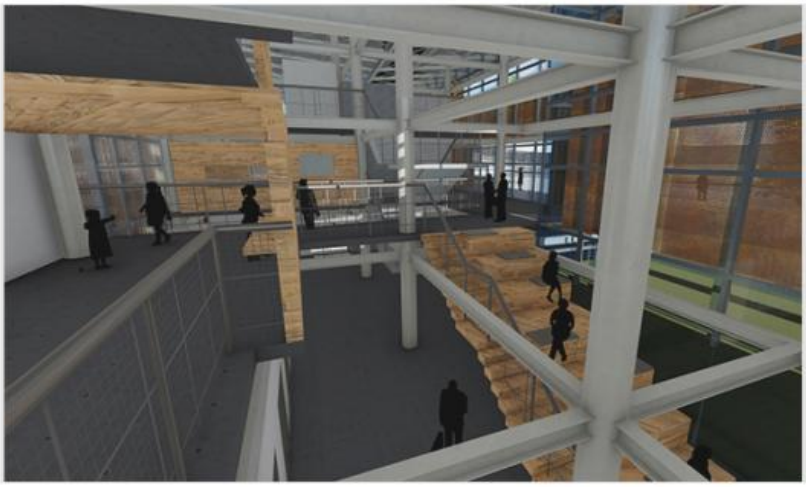
02 INDIVIDUAL AND COLLECTIVE WORKING SPACES

03 RESTROOMS



INTERIOR SPACES

Train Station and Library Entrance



Library Stairs

Train Station Waiting Area

Elif Leblebici

ARCH 402
THESIS PROJECT

SPRING 2020

ARCH 402 ARCHITECTURAL DESIGN VI

NOMAD HOUSE

ELIF LEBLEBICI

FUTURE HOUSING AND WORKSPACE DESIGN FOR DIGITAL NOMADS IN SINGAPORE

FUTURE HOUSING AND WORKSPACE DESIGN FOR DIGITAL NOMADS IN SINGAPORE

ELIF LEBLEBICI

We live in a networked society where mobile information and digital communication connect us to anyone, from anywhere at anytime. Mankind's desire to develop more and newer technologies has transformed the way we work tremendously. A world more connected via digital merging with physical, is now the current norm. With rapidly growing urbanisation it is predicted that by 2050, 70% of the world's population will be living in cities. Homes are more likely to become expensive and smaller. Vehicular and pedestrian traffic in cities is of prime concern and this is just the beginning of what's to come. Workplaces have artfully slid into our lives and taken the centre stage. People spend majority of their time at their workplaces and are always connected with their work via digital means. People are choosing to blend work and life; exploring the world while continuing to work.

The boundaries between workspace and living space have become blurred. Offices increasingly resembles a home. While, work has transformed from 'a place to go', to 'a thing to do'. The challenge here is to design a hybrid structure of a house and a workspace for digital nomads based in the future, 2030. The structure designed aims to be flexible enough to be compatible with constant migration of the inhabitants. The site is strategically selected in the area having majority of office buildings, Marina Bay in Sigapore.

CO-LIVING WORKSPACE

01 PROBLEM DEFINITION

WORK HAS TRANSFORMED FROM 'A PLACE TO GO', TO 'A THING TO DO'.

LİVEABILITY, SUSTAINABILITY AND AFFORDABILITY

RESEARCH

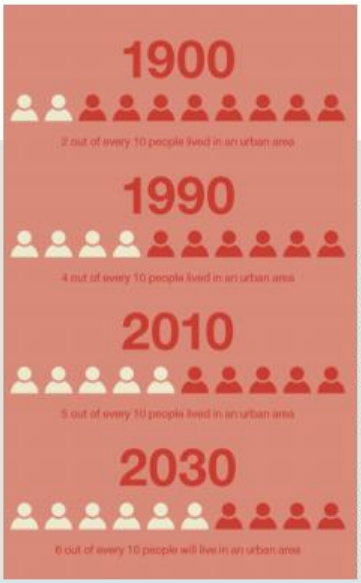
SHARED LIVING IN THE 21ST CENTURY

LİVEABILITY
SUSTAINABILITY
AFFORDABILITY

HOME
PRIVATE
RELIEF

WORK
ECONOMIC
ENGAGEMENT

LEISURE
SOCIAL
INTEGRATION



IMAGINE, Issue 2 by SPACE10 X Urhent.Agency

LIVEABILITY

A liveable environment needs to suit our unique needs, adapt to the pulse of daily life and offer us the support systems and social life we seek.

- Cross-generational shared living communities in the hearts of our cities.
- Flexible homes for life.
- Shared facilities and services.
- A digital platform to help you keep your home at your fingertips.

SUSTAINABILITY

- Integrated solutions like water harvesting, renewable energy, local food production, and localised composting.
- Shared resources. Instead of every household having to buy and store the same items—like that drill for that once-a-year job—the project suggests we share one between many.
- Homes made out of cross-laminated timber.
- A modular building system, where almost all building components and materials can be disassembled and replaced, reused and recycled over the lifespan of the building.

WORK BECOMES FLUID

EDUCATION GO VIRTUAL

WORK IS
DISTRIBUTED
WHILE THE WORK FORCE IS
DECENTRALIZED

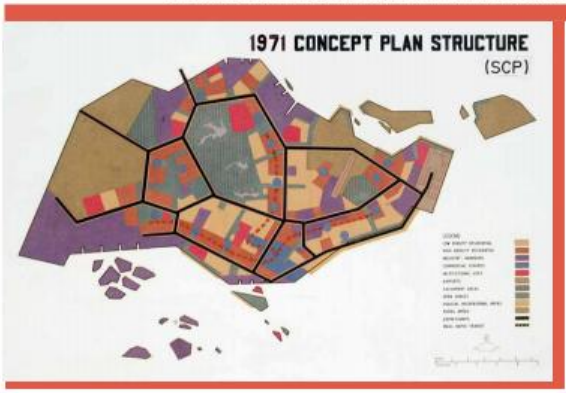
WHAT IF FUTURE HOUSING AND WORKSPACE FOR DIGITAL NOMADS ARE BASED ON MOVEABLE AND TRANSFORMABLE SPACE SHARING?

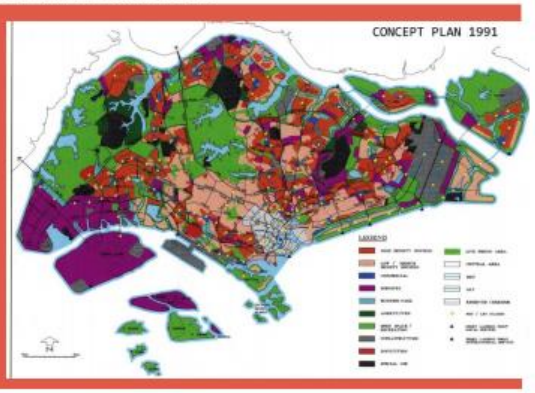
BUILT ENVIRONMENT

Singapore is a country with an area of more than 680 km2 and a population of almost 5 million. Singapore is a city state with one of the highest population densities in the world. This densely populated city state has set itself the target of realising an ambitious and comprehensive programme to increase sustainability and quality of life. It is the main commercial area excluding the land integrated with resorts such as Marina Bay Sands or iconic touristic attraction points as Gardens by the Bay. It becomes a destination of digital nomads since it integrates business and tourism.

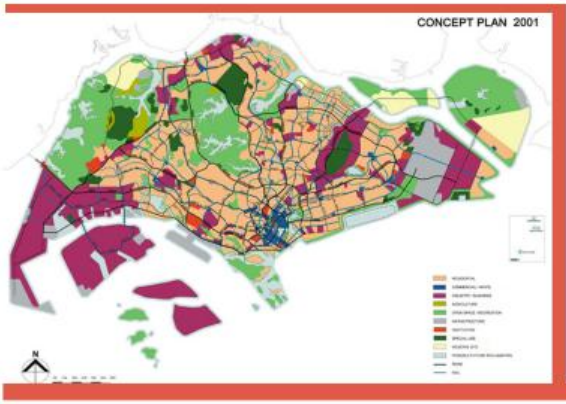
https://www.ura.gov.sg/Corporate/Planning/Concept-Plan/About-Concept-Plan

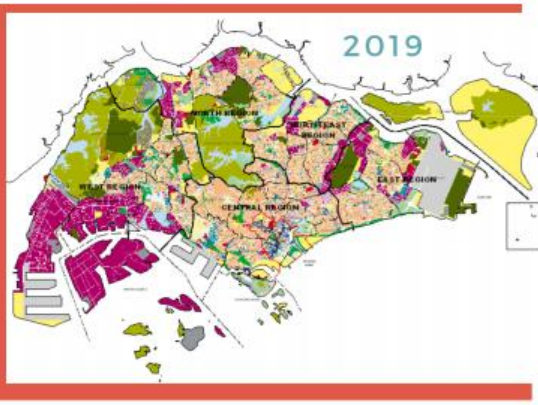
GARDENS BY THE BAY

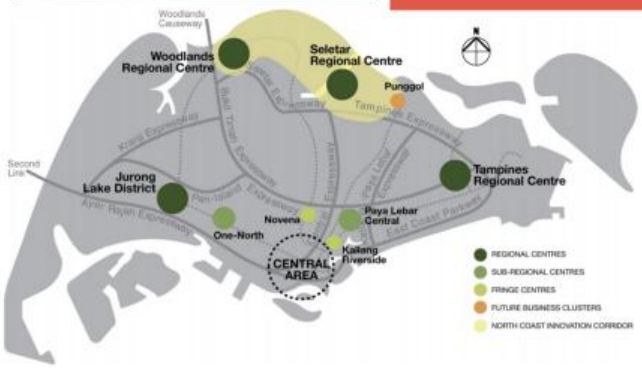




MARINA BAY SANDS







CENTRAL AREA

In this concept plans and masterplans it is possible to see how the organization of the central area map has changed during the time: in the 1956 map it is possible to see how the use of land is mainly residential, while the commercial side isreally restricted. In the 1980 one can see how a business-oriented area (enframed in red) has started to grow.

POTENTIALS AND PROBLEMS

POTENTIAL FOR NEW HOUSING & MIXED USES

OPPORTUNITIES FOR SUSTAINABLE ISLAND LIVING & LEISURE

MORE WATERFRONT RECREATION, PIERS, MARINAS, & SAILING CLUBS

EXPLORE NEW TYPOLOGIES AND PEDESTRIAN-FRIENDLY NEIGHBOURHOODS

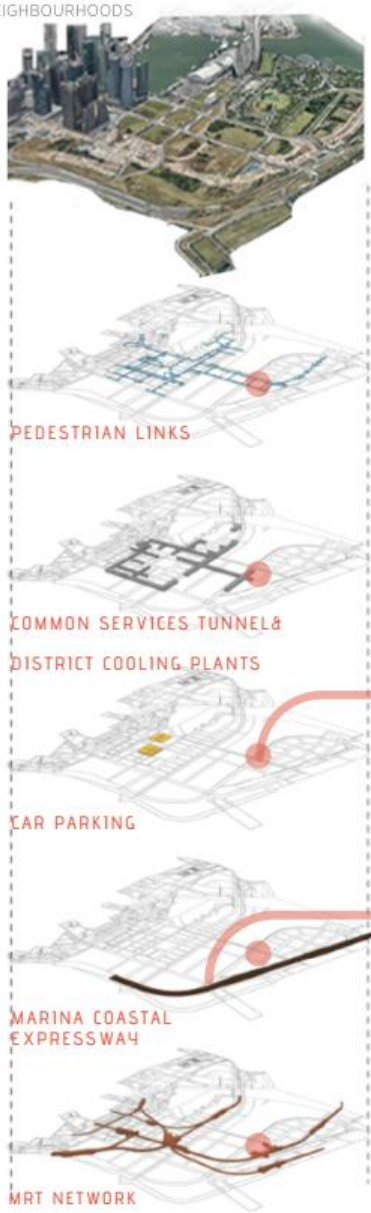
A LIVELY MIXED- USE RESIDENTIAL DISTICT

The problems facing Singapore are diverse in nature:

- Its sources of DRINKING WATER are very scarce.
- Singapore has virtually no RAW MATERIALS in its own ground. This is more of a problem in this age in which raw materials are becoming scarce all over the world and prices are rising as a result.
- Singapore is situated in a delta and is continually threatened by FLUCTUATING WATER LEVELS.
- The population is relatively highly educated compared with other Asian countries, and they have HIGH DEMANDS IN TERMS OF LIVING CONDITIONS.

THE SITE

The site is strategically selected in the area having majority of office buildings. It is the main commercial area excluding the land integrated with resorts such as Marina Bay Sands. The site is accessible from all four sides.



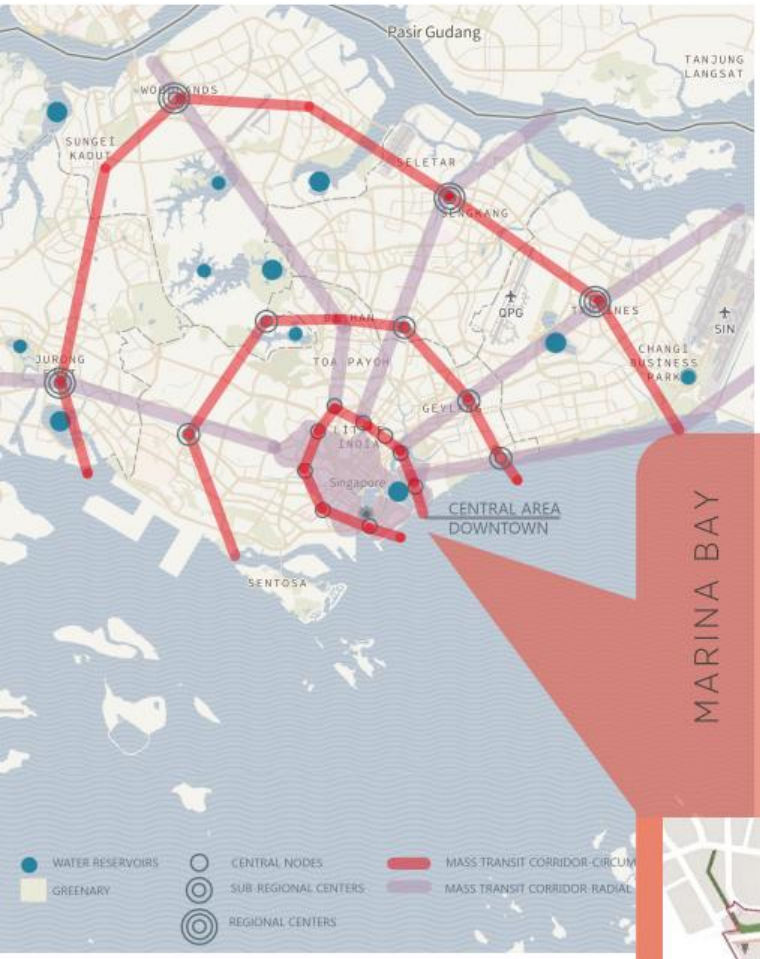
Land in Singapore may be limited, but employing innovative strategies will help optimize space to meet our growing needs.Siting uses such as utility plants underground frees up precious land for multiple uses. For example, placing a 230kV substation underground frees up more than 3 hectares of land for other uses.

Created green walkway will be combined with the bicylce stations and kinetic roads.

PROPOSED AUTOMATED CAR-PARK UNDER THE BUILDING

According to the future masterplan stragety of Singapore, Marina Bay Interchange Station is located.

The site is directly connected to two major MRT (Mass Rapid Transit/Subway) lines and assuch reduces CO2 emissions caused by individual traffic.



CENTRAL AREA - ECONOMY

Singapore's goal is to ensure that the measures taken to solve these problems result in the highest quality of life of any Asian city. This refers to a sustainable and intensively used city that is green and clean and offers an excellent infrastructure. By increasing the city's level of sustainability, Singapore will also realise high quality in spatial terms, allowing for continued prosperity and growth in the future.

MARINA BAY

Even though the site is located in the close proximity of number of offices and hotels, it still remains little isolated from hustle-bustle of the city. Providing a peaceful working environment. The site is mostly flat, with a slight undulation. There is easy access to major roads and public transport.

CENTRAL AREA HAS THE CAPACITY TO PROVIDE 30% MORE OFFICE SPACE IN THE NEXT 15 YEARS

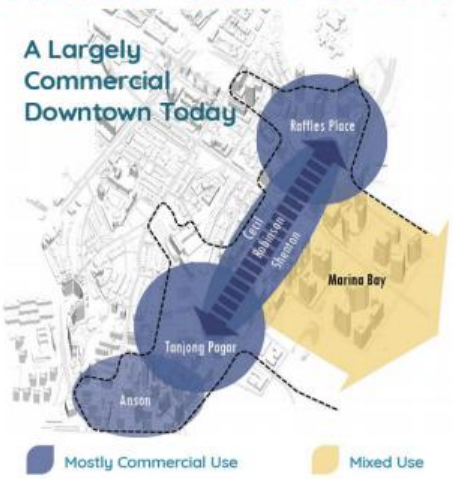
Streetscape improvements along key streets will create more inviting, mobility-friendly, and greener streets, linking Rail Corridor to the CBD. Shops, eateries and amenities will front these key streets. Perfect for those coffee runs or quick errands on the way home from work.

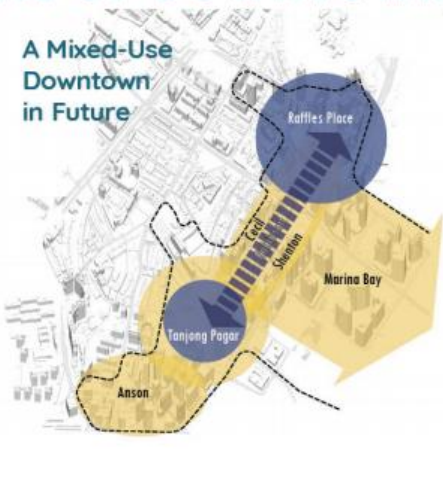
Courtyards and pockets of open space will serve as outdoor 'living rooms' for communities to gather. Some offer spaces for events while others are a relaxing respite from the hustle and bustle.

https://www.ura.gov.sg/Corporate/Planning/Concept-Plan/About-Concept-Plan

Land reclamation through landfill was employed moderately to provide more land along the coasts for housing, commerce, and industries in the 1970s. To date, Singapore has seen a 24.4% increase in land size after several land reclamation projects through the years. The government also laid out an extensive land reclamation project in several parts of Singapore, estimated to end in 2030 and provide more residential, industrial and military spaces for future use.

MIXED-USE POTENTIAL OF DOWNTOWN

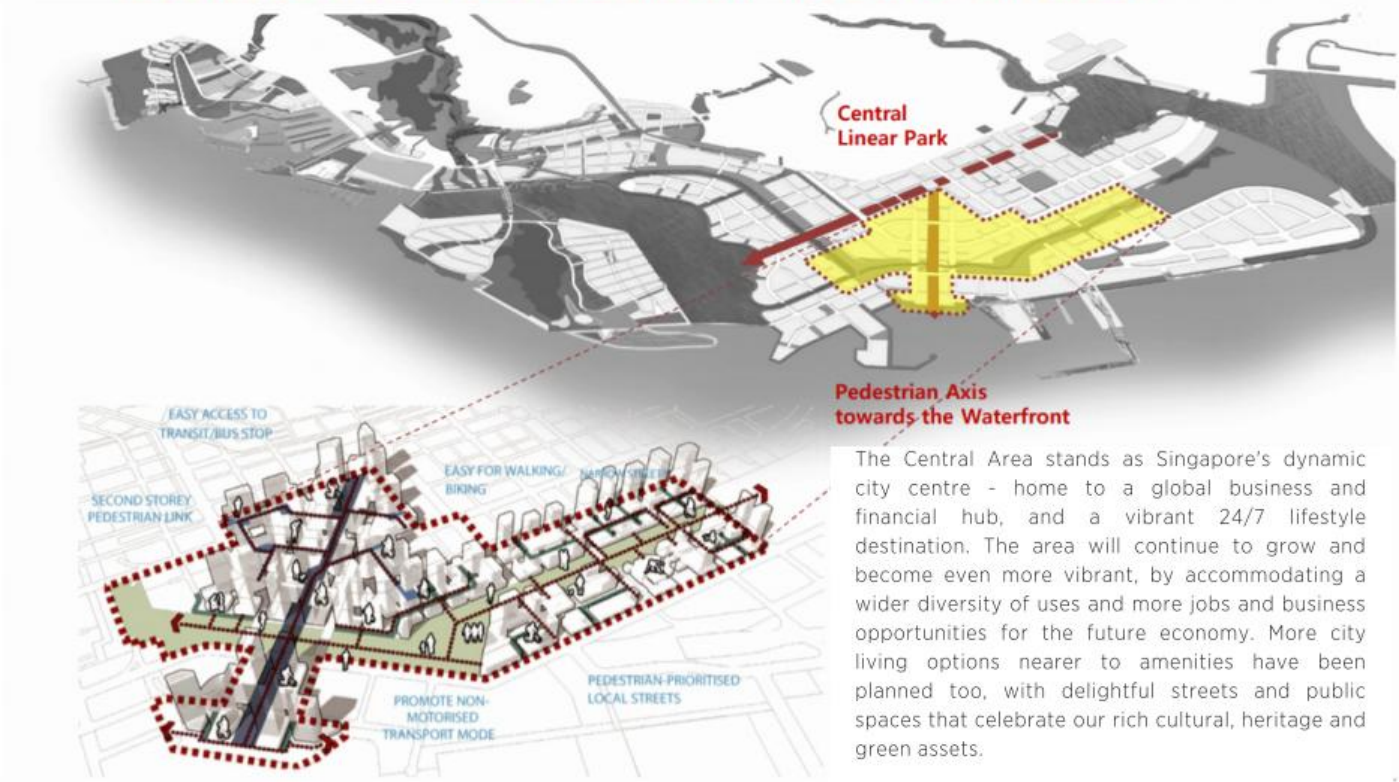




02
DESIGN
STUDIES

To protect the water and vegetation systems two major axes are propesed to connect eco-systems.hls new axls could be deslgnated as a car-free zone, thereby, creatlng opportunltles for vlbrant street llfe.

EXPAND THE NETWORK OF PUBLIC SPACES



The Central Area stands as Singapore's dynamic city centre - home to a global business and financial hub, and a vibrant 24/7 lifestyle destination. The area will continue to grow and become even more vibrant, by accommodating a wider diversity of uses and more jobs and business opportunities for the future economy. More city living options nearer to amenities have been planned too, with delightful streets and public spaces that celebrate our rich cultural, heritage and green assets.

CONNECT GREEN AND WATERFRONTS

The Nomad House extends the green axis of Downtown in a spiral motion towards the sky.

THE PUBLIC SPACE IN CLUSTERED LAYOUT

The public spaces are surrounded by the buildings in grid layout, to create enclosed and proportional open spaces.

INACCESIBLE PUBLIC MARINA

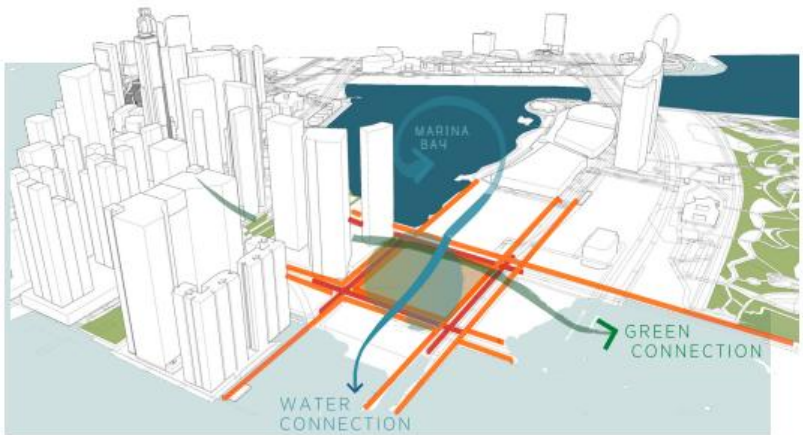
Marina Reservoir at the center of Marina Bay could be defined as an inaccesible public realm which is main focal point of downtown.

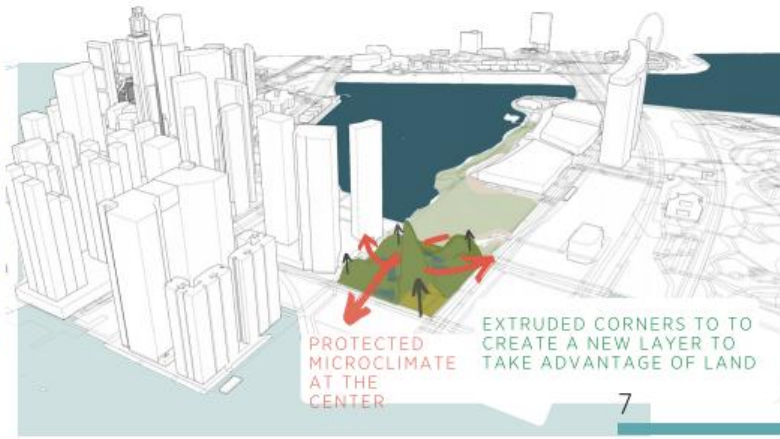
NON-ENCLOSED PUBLIC REALM

Public garden bocemes a popular and touristic recreation area with its open concept to the surrounding. It has a potential of connecting with the green corridors in CBD.

MICROCLIMATE

The main strategy is driven by the water and green axes. These axes intersect in the middle which makes the center of the site open and preseved. The biodiversity garden creates a comfortable micro-climate and will serve as a large public plaza. System connect to link the four corner of the site which ties into the concept of the structure: to fuse multiple parts of the building to blur the separation between interior and exterior.



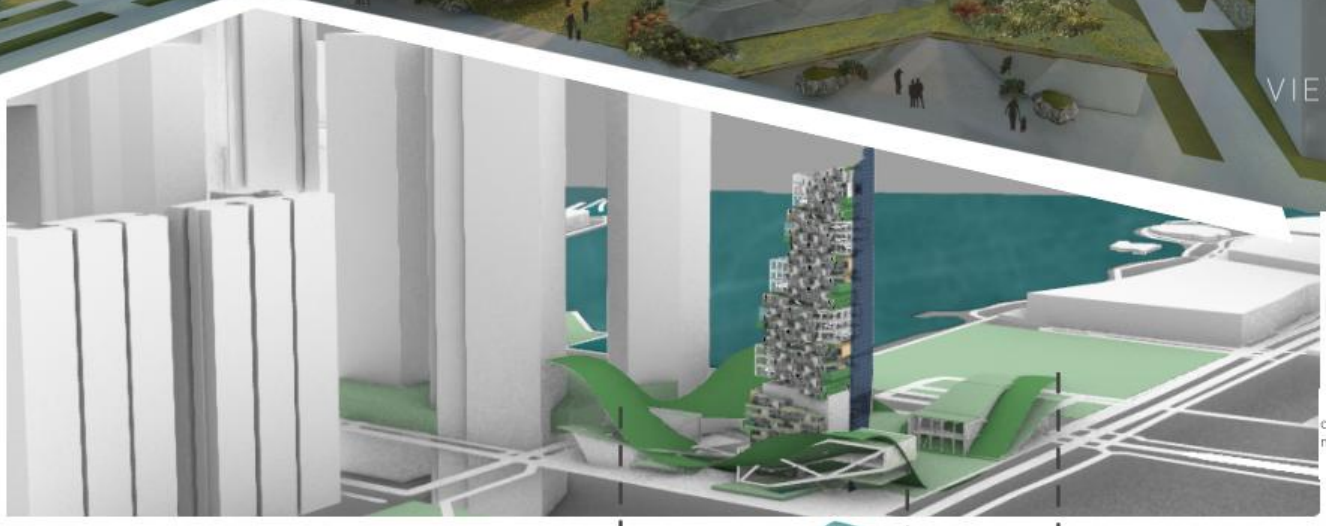


CONTEXTUAL RESPONSE

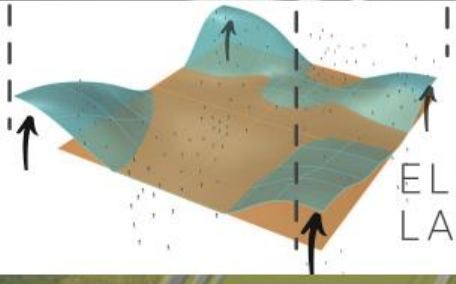
OF SUPPORTING PROGRAM AND PUBLIC LANDSCAPE CREATING MICRO-CLIMATE

The elevated land functions as a park with a large stepped and ramped topography that becomes both a resting and active place. In such an environment, overshadowing is not a problem, as shade is welcomed; external high-rise spaces are comfortable.

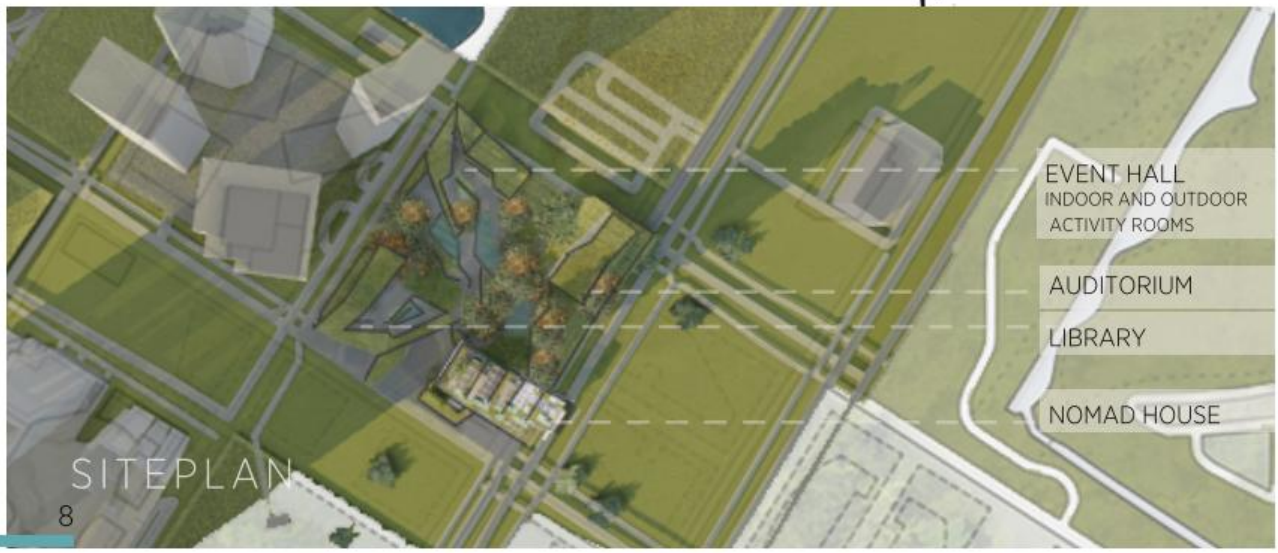
VIEW FROM MARINA



The presentation of the soil, by creating an elevated covered street as a base, enables the local plants, animals and micro-organisms to grow and evolve as a part of the urban park. Biodiversity garden creates a comfortable micro-climate in the heart .



ELEVATED LANDSCAPE



SITEPLAN

MODULAR
compatible with "constant migration" trends

VISIONARY
futuristic and evolving with time

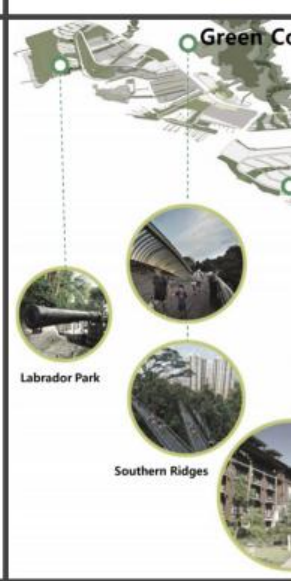
COMMUNITY
having communal spaces for social integration

BALANCE
able to accomplish work, life and leisure balance

BIOPHILIC LIVING TOWER

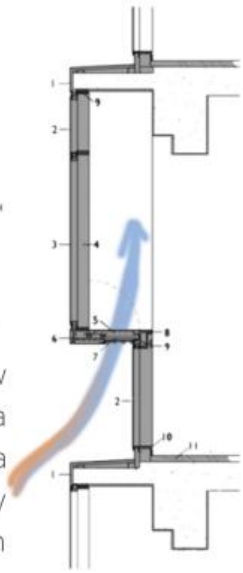
A verdant tower of green in the heart of Singapore's dense Central Business District, Nomad House is a prototype of land use intensification for the urban tropics. Unlike the sleek and sealed skyscrapers that evolved out of the temperate west, this tropical "living tower" offers an alternative image to the sustainable technology of the genre.

A series of different strata, each with its own sky garden are created. These additional "ground" levels allow generous public areas for recreation and social interaction throughout the high-rise, despite the inner city high density location.



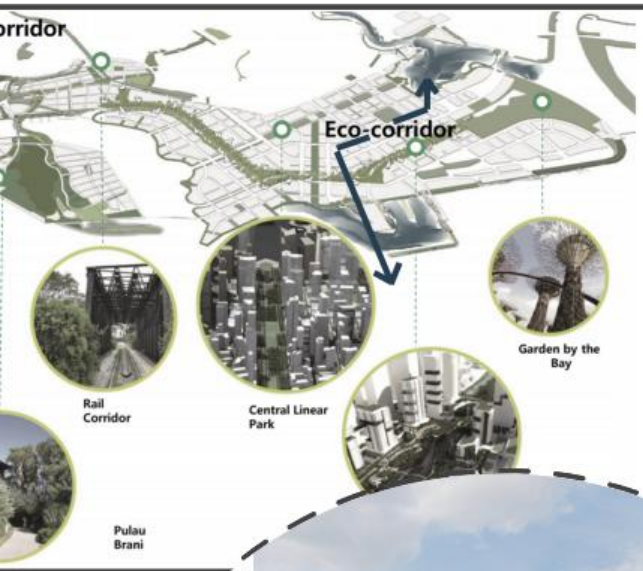
LEGEND

1 ALUCOBOND SHEET FOR LEDGE
2 FIXED TEMPERED GLASS
3 OPEN-IN CASEMENT WINDOW
4 STEEL MULLION
5 PERFORATED ALUMINUM FIXED TO HINGED FRAME WITH INSECT SCREEN BETWEEN (CLOSED POSITION)
6 MDF BOARD SLIDING (CLOSED POSITION)
7 SAFETY BARS
8 'L' STEEL BRACKET
9 HANDLE WINDER
10 TIMBER LINING
11 PARQUETRY FLOORING WITH MARINE PLY UNDERLAY

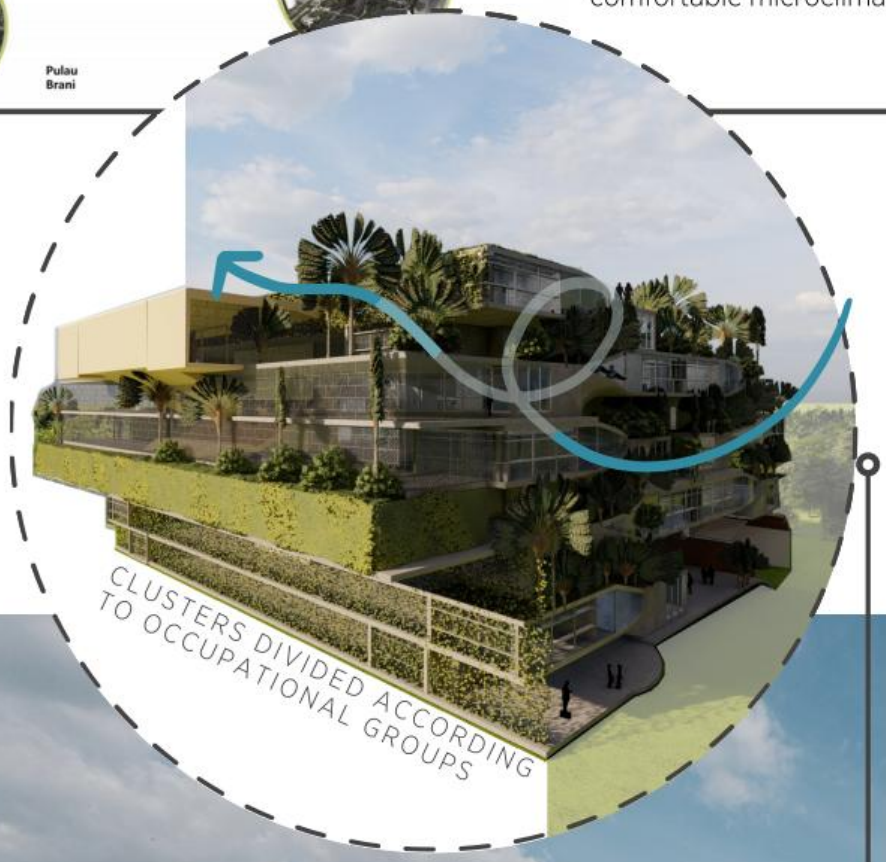


MONSOON WINDOW

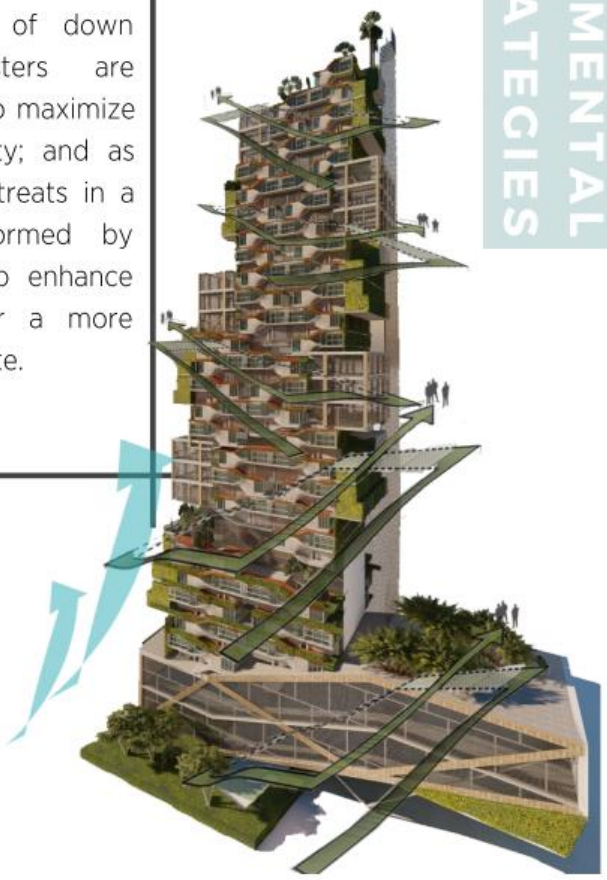
In this tropical climate; hot, humid and rainy, the window designed according to monsoon climate is based on a traditional device used in the longhouses of Indonesia, a horizontal opening allowing breeze without rain. A bay window is developed incorporating a sliding aluminium shelf operated by a wider.



Sky gardens with lush vegetation serve as fresh air graps and minimise the impact of down drafts. Village clusters are conceived as 6 levels to maximize integration and visibility; and as the building rises it retreats in a parabolic way , informed by aerodynamic studies to enhance the air circulation for a more comfortable microclimate.



CLUSTERS DIVIDED ACCORDING TO OCCUPATIONAL GROUPS

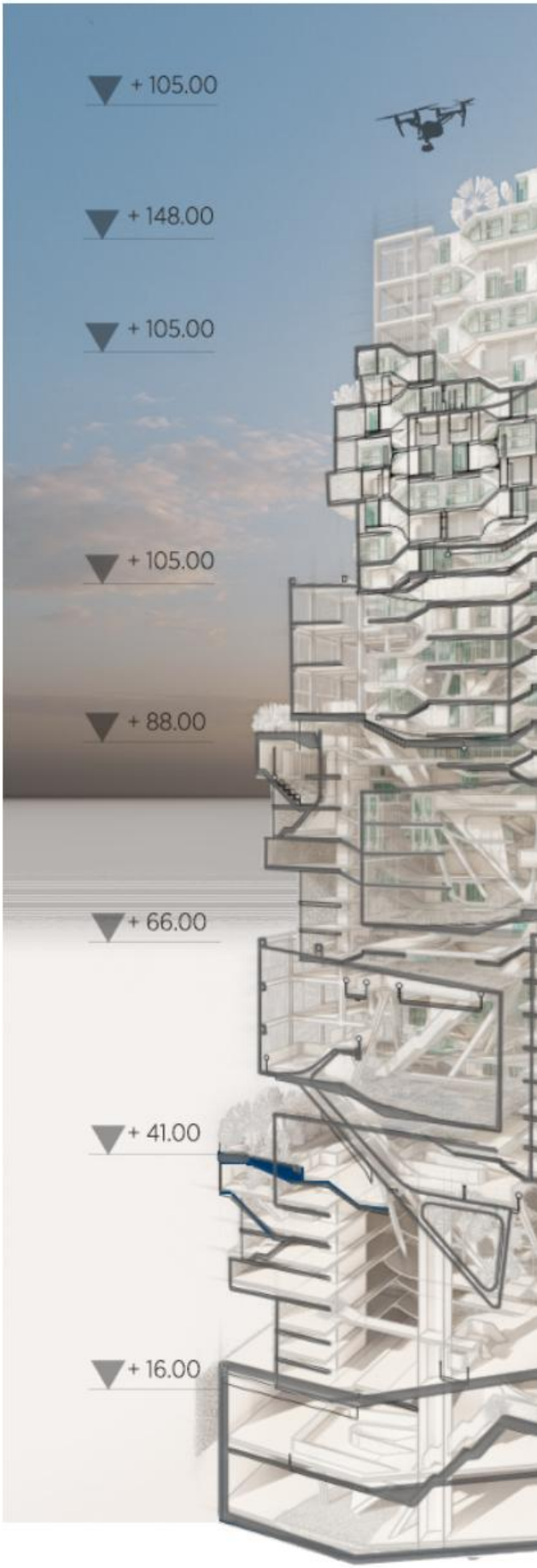


GREEN STRATEGY

VIEW FROM SOUTH-WEST

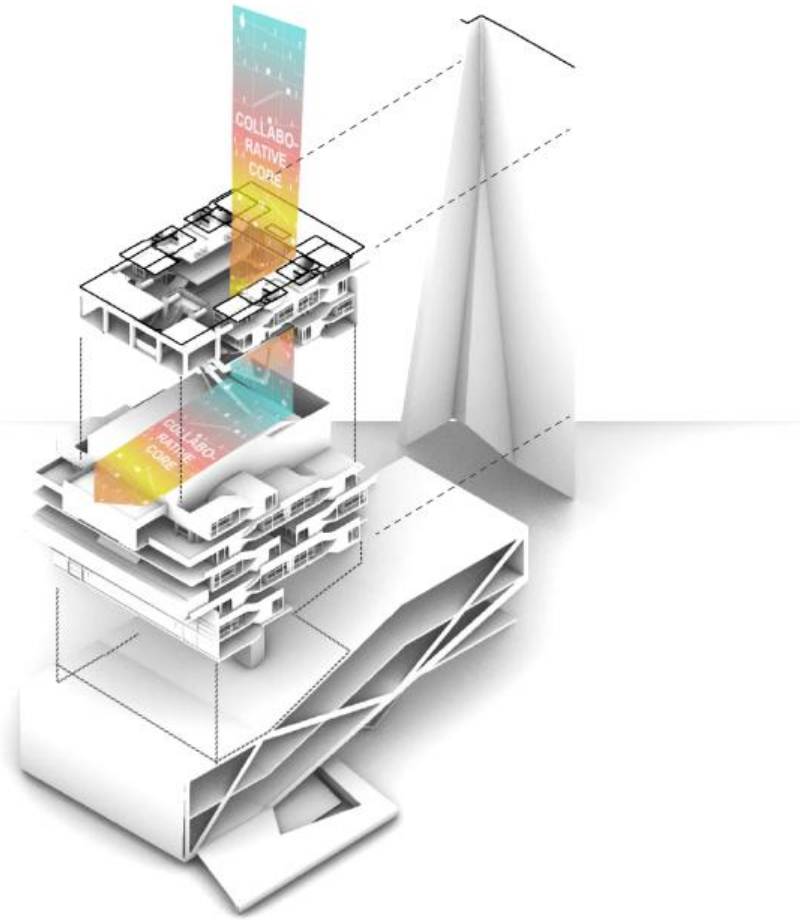
USER GENERATED PROGRAMATIC DIVERSITY

RESULTING IN AN EMERGENT AS WELL AS DYNAMIC MORPHOLOGY CONTINUOUSLY CHANCING IN RESPONSE TO USER NEEDS

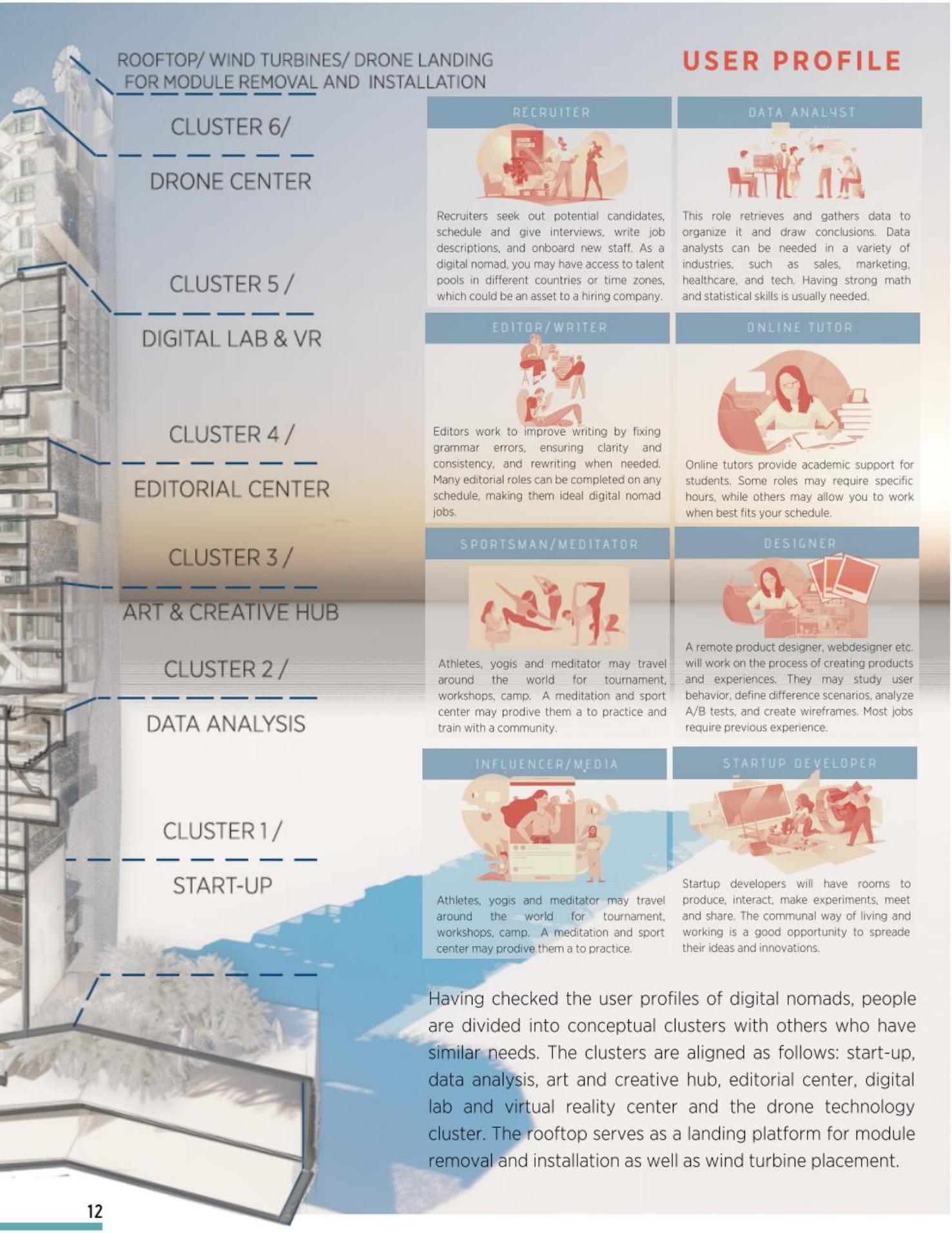


COLLABORATIVE CORE

As a continuation of the public center on the ground volume, the central void of the building is formed by creating atriums and observation decks so that users can transform spaces according to their needs.The flowing circulation scheme applied in the living unit is reflected on the terraces, floors and vertical circulation, allowing the floors to be connected to each other in a flow. The living units form the outer façade of the mass in the form of a gridal cover, while the interior is devoted to cultural activities and common work spaces.



While rigid from the outside, the picture is quite different inside the clusters: the living units specifically programmed space is pushed to the sides, thereby establishing an expansive core that is collaborative and soft which can be described as "universal space".



USER PROFILE

RECRUITER

Recruiters seek out potential candidates, schedule and give interviews, write job descriptions, and onboard new staff. As a digital nomad, you may have access to talent pools in different countries or time zones, which could be an asset to a hiring company.

DATA ANALYST

This role retrieves and gathers data to organize it and draw conclusions. Data analysts can be needed in a variety of industries, such as sales, marketing, healthcare, and tech. Having strong math and statistical skills is usually needed.

EDITOR/WRITER

Editors work to improve writing by fixing grammar errors, ensuring clarity and consistency, and rewriting when needed. Many editorial roles can be completed on any schedule, making them ideal digital nomad jobs.

ONLINE TUTOR

Online tutors provide academic support for students. Some roles may require specific hours, while others may allow you to work when best fits your schedule.

SPORTSMAN/MEDITATOR

Athletes, yogis and meditator may travel around the world for tournament, workshops, camp. A meditation and sport center may prodive them a to practice and train with a community.

DESIGNER

A remote product designer, webdesigner etc. will work on the process of creating products and experiences. They may study user behavior, define difference scenarios, analyze A/B tests, and create wireframes. Most jobs require previous experience.

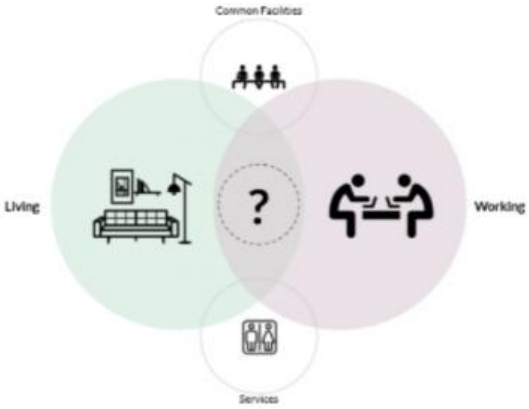
INFLUENCER/MEDIA

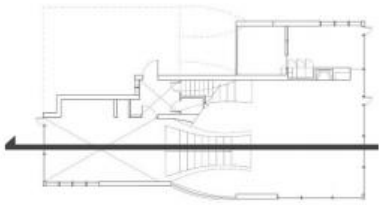
Athletes, yogis and meditator may travel around the world for tournament, workshops, camp. A meditation and sport center may prodive them a to practice.

STARTUP DEVELOPER

Startup developers will have rooms to produce, interact, make experiments, meet and share. The communal way of living and working is a good opportunity to spreade their ideas and innovations.

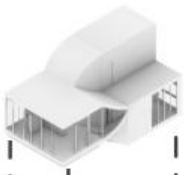
Having checked the user profiles of digital nomads, people are divided into conceptual clusters with others who have similar needs. The clusters are aligned as follows: start-up, data analysis, art and creative hub, editorial center, digital lab and virtual reality center and the drone technology cluster. The rooftop serves as a landing platform for module removal and installation as well as wind turbine placement.





PLAN

SECTION

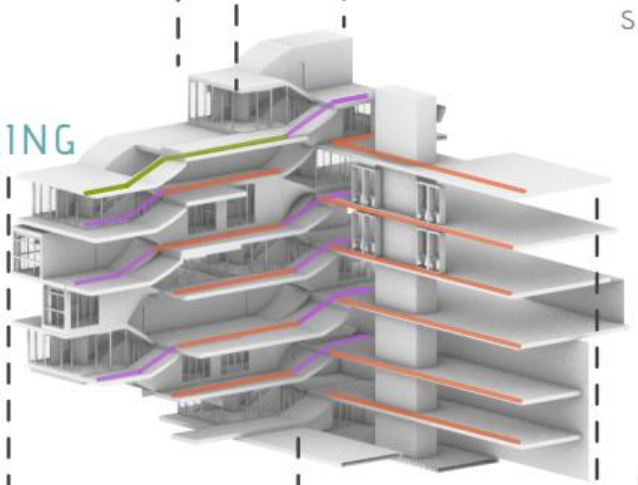


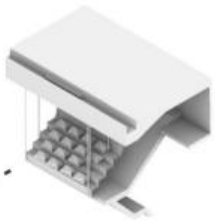
LIVING/WORKING UNITS

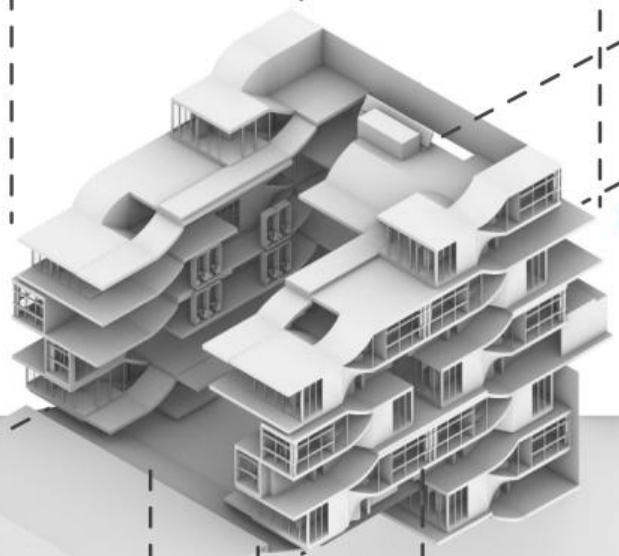
HOME
PRIVATE RELIEF

WORK
ECONOMIC ENGAGEMENT

LEISURE
SOCIAL INTEGRATION

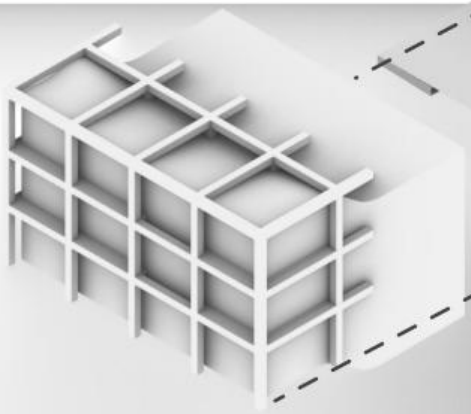


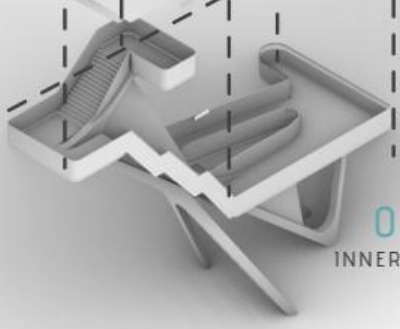




CREATIVE HUB
AUDITORIUMS
CO-WORKING ZONES

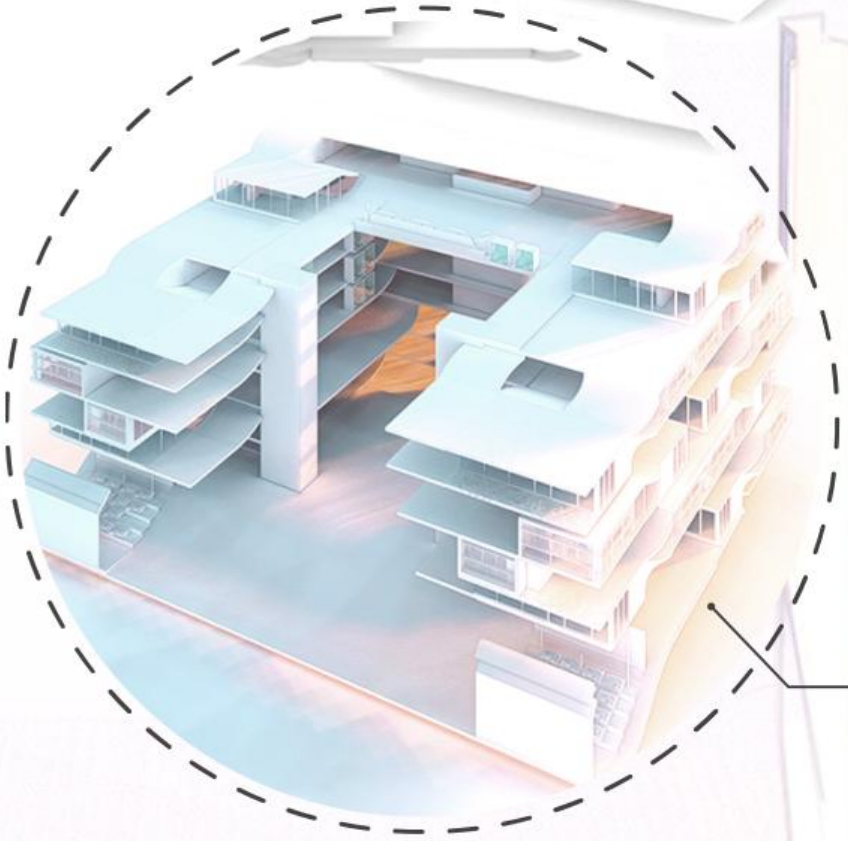
CULTURAL HUB
MULTI-PURPOSE HALL
BIOPHILIC WORKING MODULES

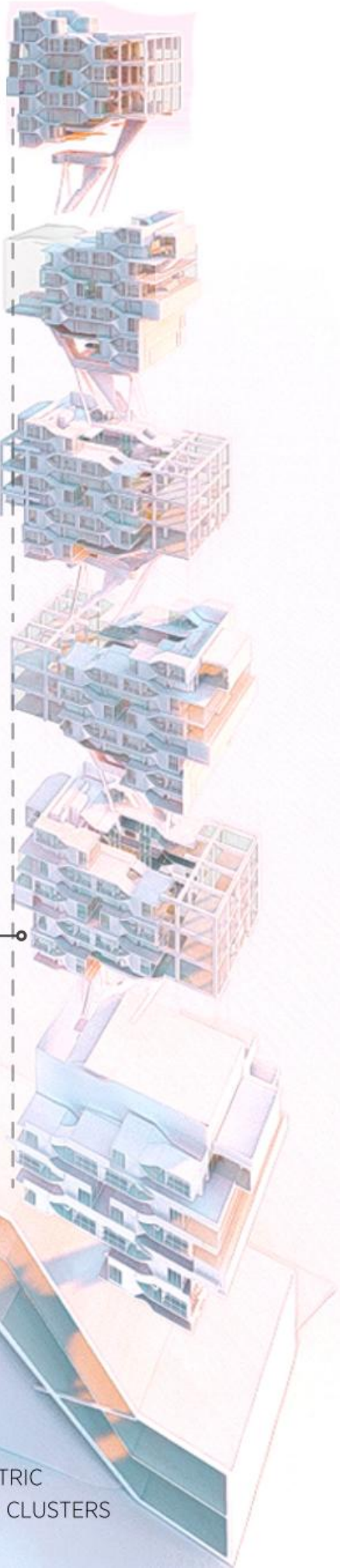




OBSERVATION DECK
INNER CORE SERVING FOR CIRCULATION AND COLLABORATION

SCHEMATIC PLAN





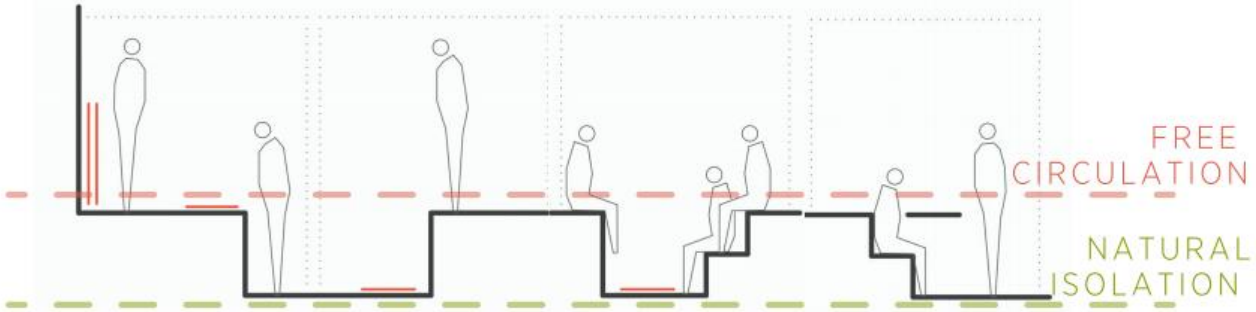
With the help of this modular system the design achieve applicability at universal level. Although Singapore Downtown area is mostly dominated by skyscraper typology, it is possible to see various building types as well.It aimed to provide a high quality living environment by offering a wider choice of housing options, and also sought to transform Singapore into a global financial hub by setting aside land in the city centre to support the growth of financial and services sectors.

AXONOMETRIC
EXPLODED CLUSTERS

NOMADIC FEATURE

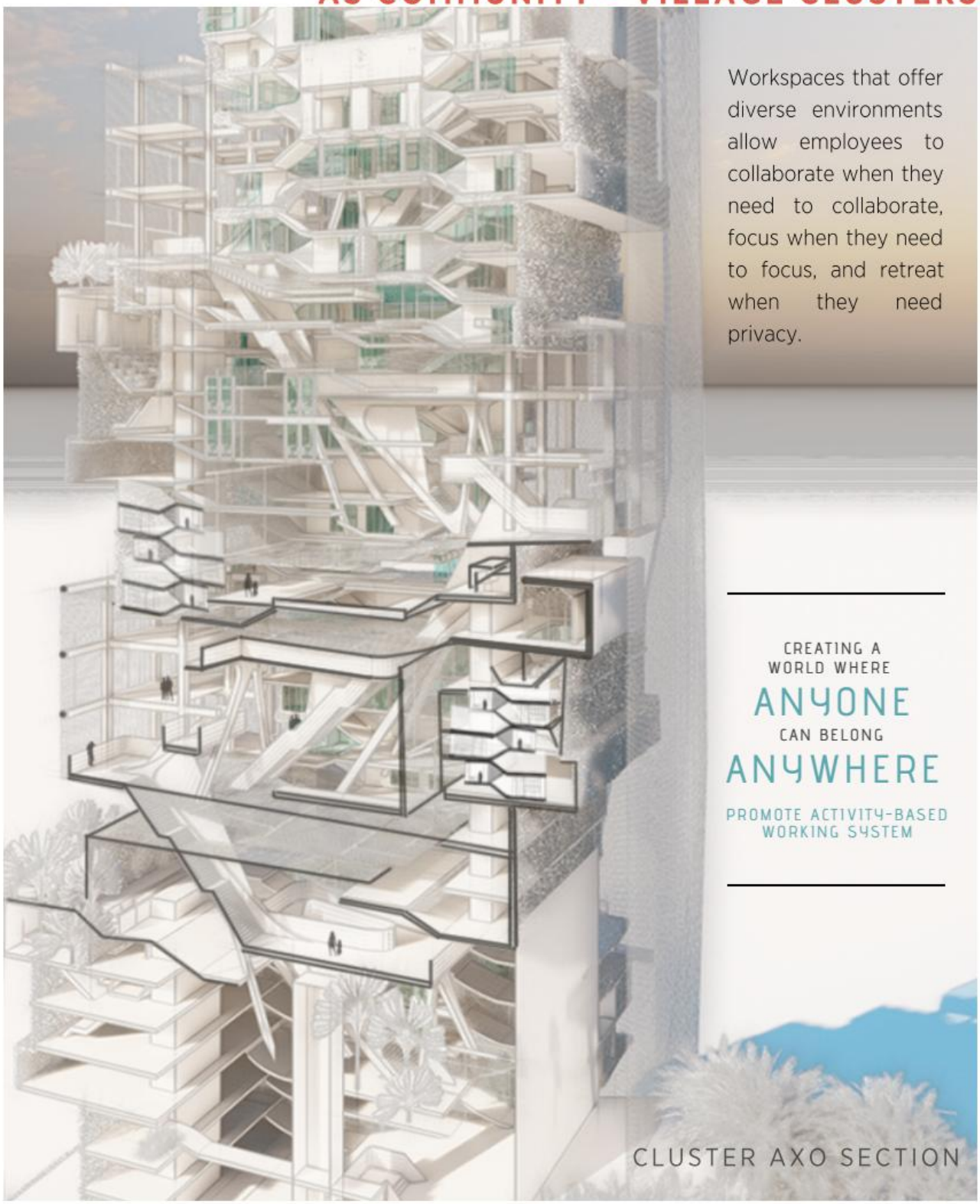
DESIGNING MICRO-NEIGHBOURHOODS IN A HYBRID PLAN

It was needed to design a space where flexibility of working in motion and accessing the whole volume instead of using a limited area is possible. The concept was based on the suggestion of establishing a platform where it is possible to expand the possibilities instead of using a desk that limits the size of the usuable space and accessibility. The aim is to free the actions of sitting, working while in motion, leaning, meeting, easily accessing the equipment, and observing the integrated nature from different distances. Instead of defining the locations of the actions. It was intended to increase and diversify the p of interactions of the users with each other and the space.

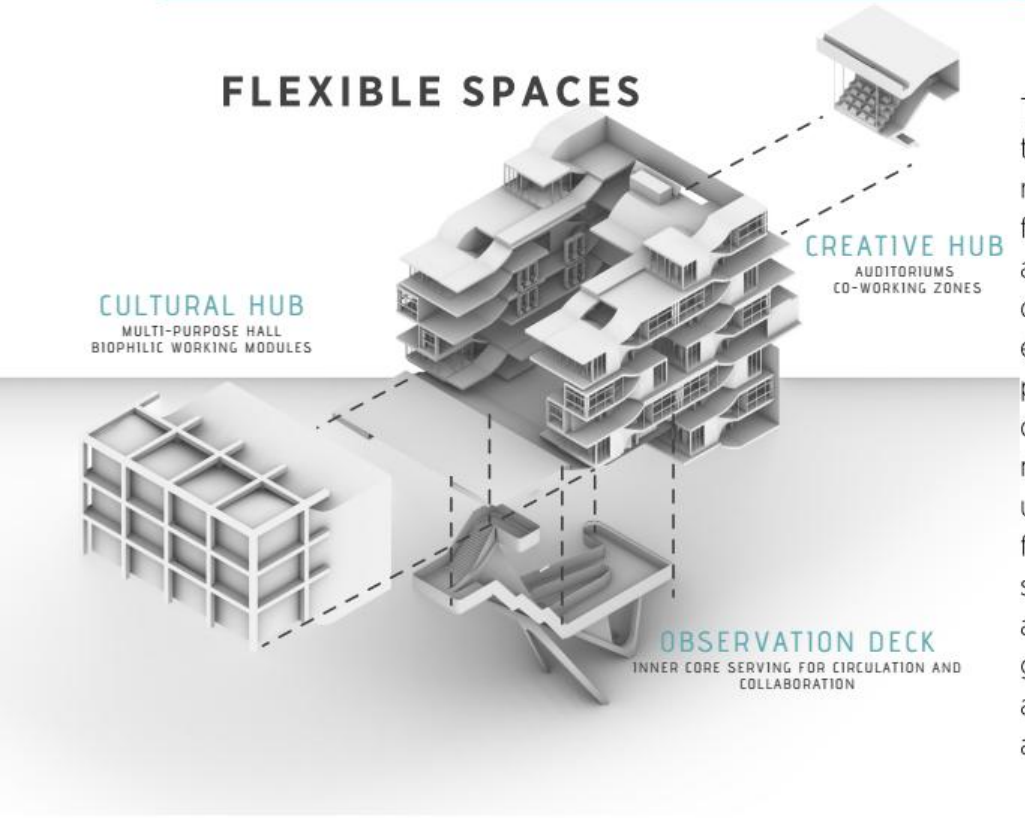


CO-WORKING ZONE FOR DIGITAL NOMADS

INDIVIDUALS COMING TOGETHER AS COMMUNITY - VILLAGE CLUSTERS



The idea is to give the residents a chance to truly get to know each other in an informal setting. Having checked the office user profiles, people are divided into conceptual clusters with others who have similar needs. While common areas can vary according to the needs of these groups, living units are designed as standart modules.

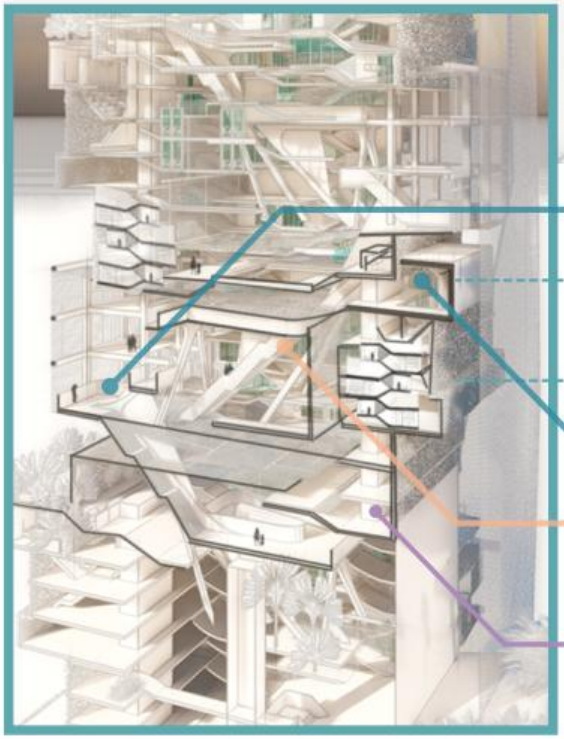


This model discusses how the technology, people and nature will interact in the future. The creative hubs and working spaces for digital nomads are examples of flexible future proofed office, because the design can fit more staff or more servers based on unexpected needs. These free plan designed flexible spaces and equipment allow individuals and groups to share ideas anywhere and anytime.

CREATIVE HUB FOR DIGITAL NOMADS

VERTICAL SKY CORRIDOR

The section demonstrates how even though the tower is dived into clusters of different interests and agendas, there is still a consistent flow between them. They are connected via the central observation decks and stairs which create a vertical sky corridor.



CULTURAL HUB

MULTI-PURPOSE HALL

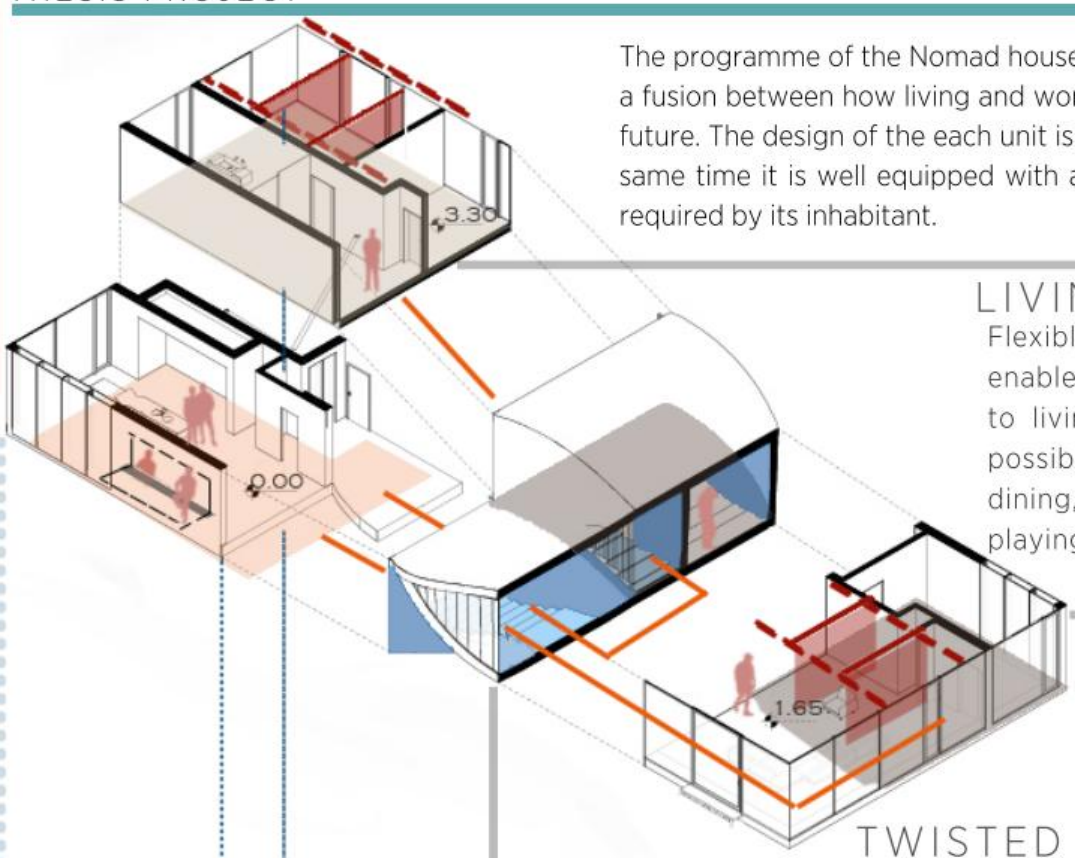
LIVING UNITS

CREATIVE HUB

OBSERVATION DECK

VERTICAL CIRCULATION
ELEVATOR AND STAIRS

The programme of the Nomad house is conceived as a fusion between how living and work will overlap in future. The design of the each unit is compact, at the same time it is well equipped with all the essentials required by its inhabitant.

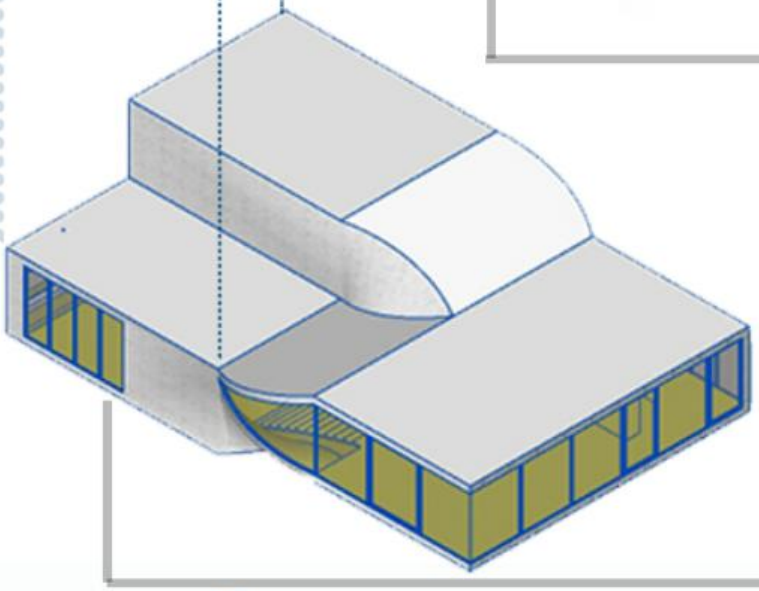


LIVING UNITS

Flexible walls enables movability to living sapces. It is possible to separate dining, sleeping and playing areas.

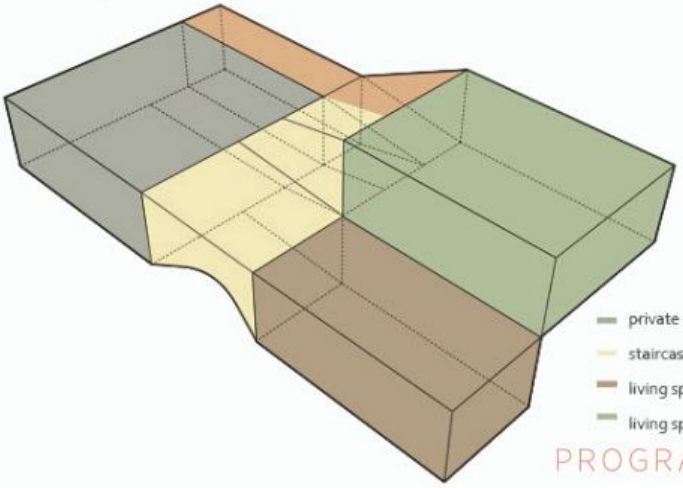
TWISTED SURFACE

Staircases twisted surfaces create space to share, store, play, plant and exhibit.

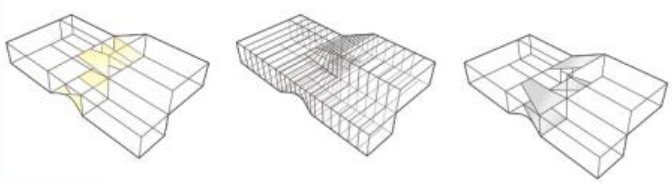


PRIVATE OFFICE

A separate room with large windows and, blackout curtains and comfortable furniture. Since the office has a separate entrance, private meetings can be held in this section in case of isolation. Since the office can be accessed from these two living spaces, it is also suitable for different working partnership scenarios that digital nomads may encounter,

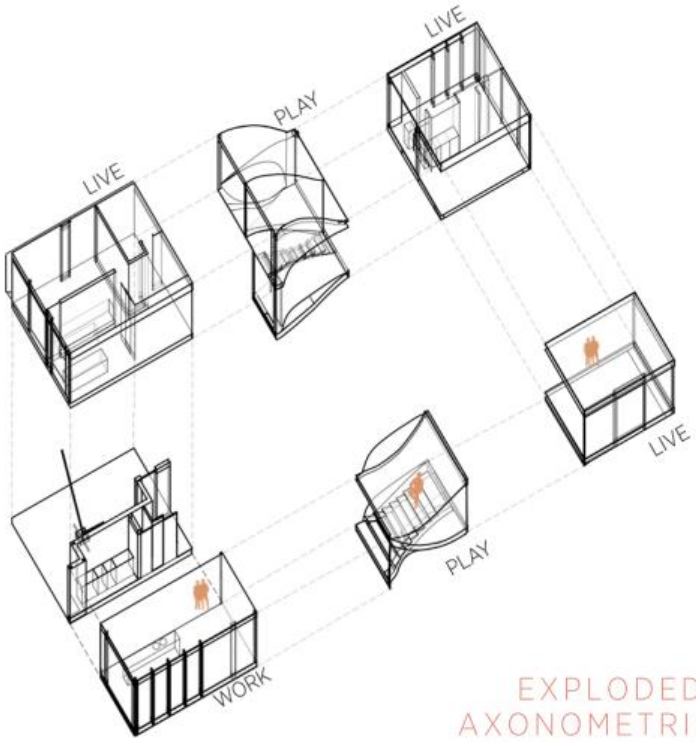


PROGRAM DIAGRAM

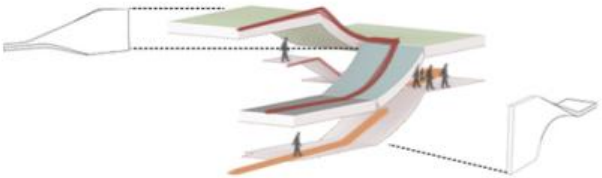


SURFACE DIAGRAM

It works in a gridal system that all the modules are digitally pre-fabricated using computer numerically controlled technology. This is how it contributes to the lifestyle of these nomads and make the design futuristic and evolving with time.

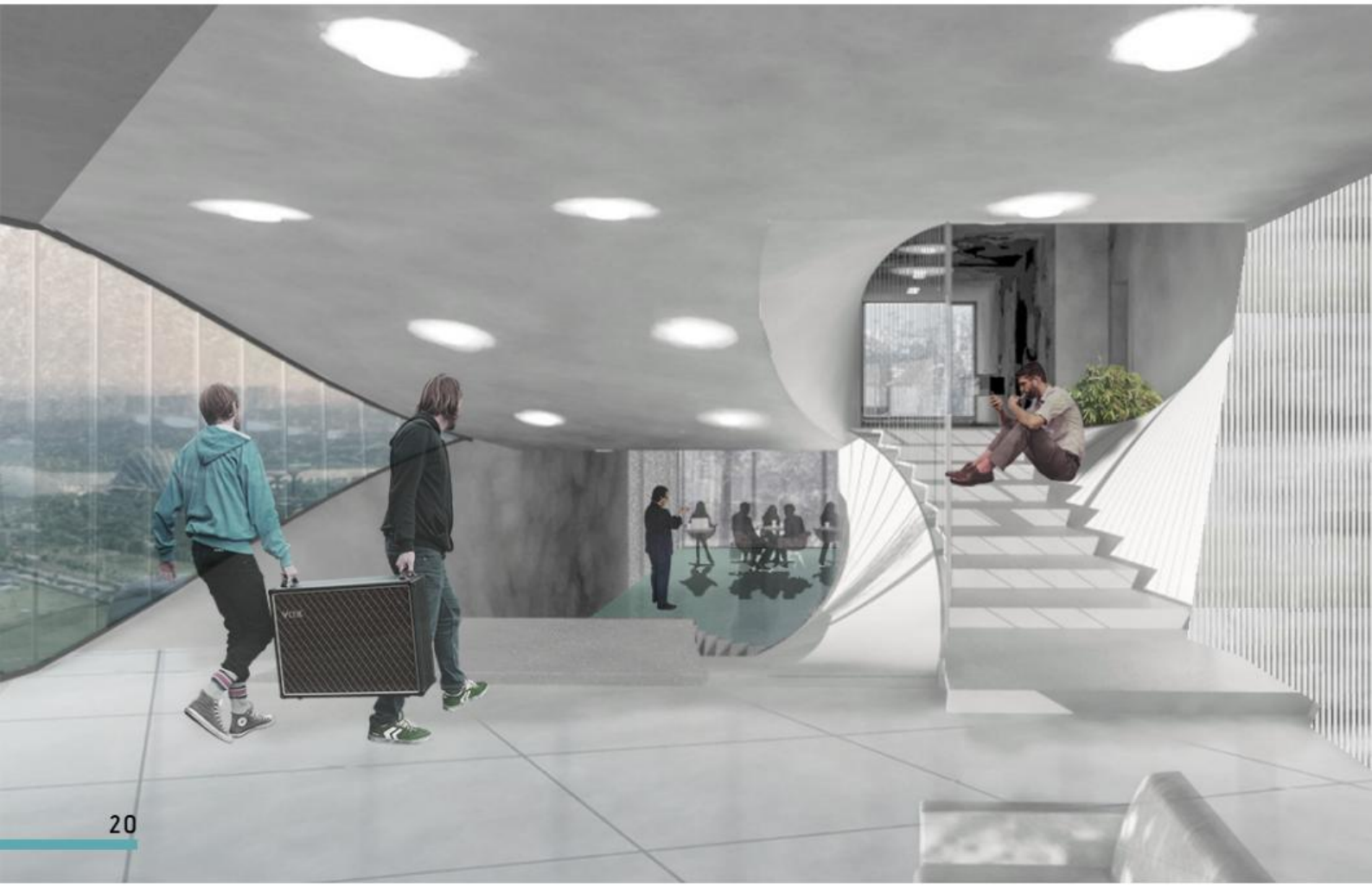


EXPLODED AXONOMETRIC



CIRCULATION DIAGRAM

SECTIONS



SINGAPORE BUILDING TYPOLOGIES

After war, SIT built mostly 2-room and 3-room, but 4 - room flats were built too. In Alexandra North, Silat Estate and Tiong Bahru.

1940

Linear slab blocks (corridor style) 10 storeys usually with 12 units per floor, 40% 1-room, 30% 2-room, 30% 3 room, 4-room introduced in 1967.

1960

1980s towns were composed by slab blocks with 10-13 floors, 10 car 12 units per floor, 25-storey point blocks. Executive Apartement / Maiisonnette introduced in 1984.

1980

First 40-storey complex(Toa Payoh Towers) early 2005. DBSS 2006, COMPLETED IN 2009. Registration for flat suspended in 2002. NRP introduced.

2000

1930 1950 1970 1990 2010

2-storey terraced houses, 3/4 storey walk-up flats, and since 1950 7/9-storey high rise flats, plus one 14-storey block built in Queentown in 1954.

Terraced houses, Jalan Bahagia (in Whampoa, 28 blocks, 200 units). Stirling Road) in Queentown, 13 blocks, 84 units.

HUDC introduced massive slab block majority 10-16 storeys with 14-18 units per floor, point blocks majority 25 storeys, and 4-storey blocks with shophouses.

SERS introduced HUDC _ EC. Majority of blocks range between 10-16 storeys, some up to 30 storeys. Multi-storey carpark introduced Jumbo Flaht.

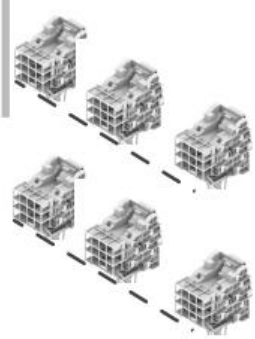
First 50-storey public housing completed in December 2009 (Pinnacle). 3Gen introduced via Sky Terrace , Last HUDC to go through SERS.

With the help of this modular system, the design achieve applicability at universal level. Although Singapore downtown area is mostly dominated by skyscraper typology, it is possible to see various building types as well.It aimed to provide a high quality living environment by offering a wider choice of housing options, and also sought to transform Singapore into a global financial hub by setting aside land in the city centre to support the growth of financial and services sectors.

MEGASTRUCTURE POSSIBILITY

HIGH RISE POSSIBILITY

LOW RISE POSSIBILITY



TOWNHOUSE POSSIBILITY

İlayda Kalkan

FLOATING CITY

ILAYDA KALKAN

CONTENT

SITE INFORMATION: As many places in earth the roosevelt island is facing with sea level rising.

Case review: the project is about creating self sufficent floating city that can be usable in emergency times but also with its systems, it serves an environmentally friendly, permanent function too.

Problem conseptualization: in order to continue living with the same existing conditiones, people need to be able to live on water after the sea level rising and project is going to offer them what they need in that situation.

THE ROOSEVELT ISLAND

FLOATING CITY

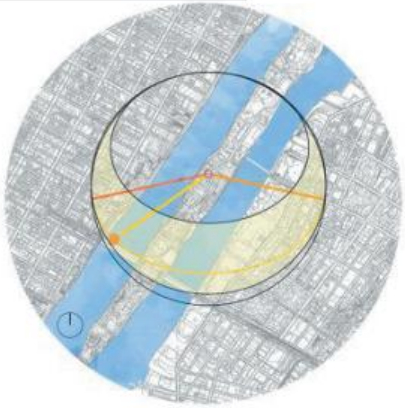
The project is about creating new living habitats on water for people. It is main function is to be used in emergency times, in this case the rising water levels, for people to continue their living conditions. In order to keep the average existing living conditions and not to be foreign-dependent, the project will be self-sufficient. Beside of the emergency time usage, the project also be function for normal times. It is going to have connections with its located site by sharing and serving its products from self sufficient systems.

As a location, project is going to be located at The Roosevelt Island New York, USA. Since there are many places on earth where is in danger and going to be face with water level rise, this project will be a prototype, an example, for other locations. In order to be usable for different locations, the project is going to be adaptable with its addible and take off parts.

SITE ANALYSIS

ENVIRONMENTAL DIAGRAMS

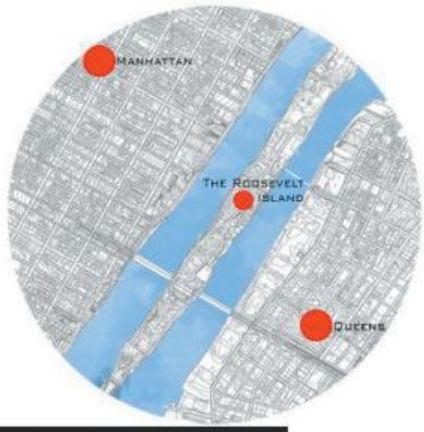
WIND DIRECTION



SUNPATH DIAGRAM

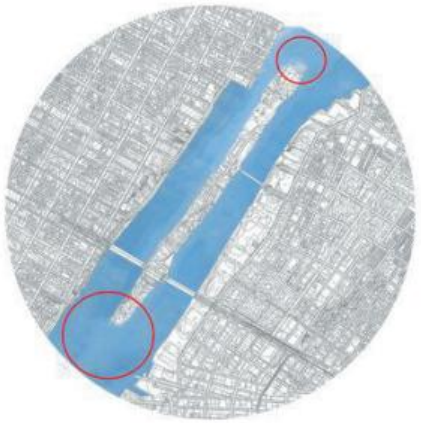
The Roosevelt Island is in the middle of East River. It has climate that is sunney in the summer maximum temperature 23 C and in winter it is rainy and windy with minimum -2 C. For wind it is differentiates in year but the main axe of it is South east- NorthH west and the avarage speed of it is 2 m/s.

WATER LEVEL DIAGRAMS



LOCATION

PREDICTED WATER LEVEL

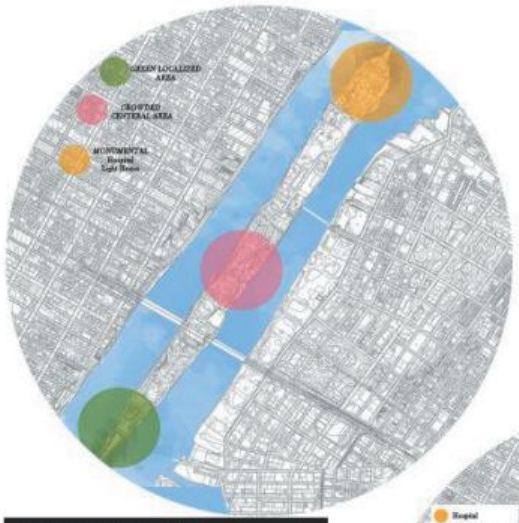


WATER LEVEL NOW

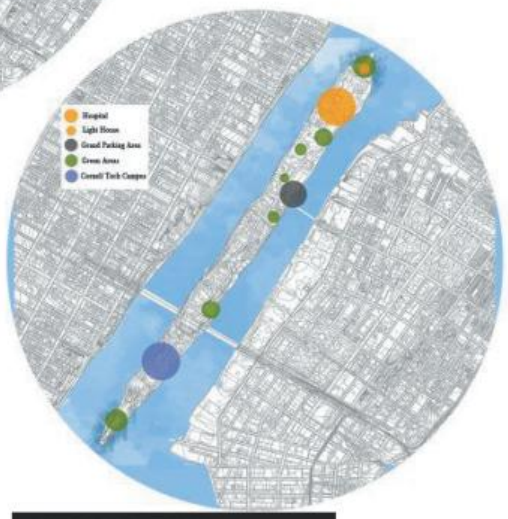
The Roosevelt island is located New York City between Manhattan and Qeens. It is one of the places that is facing with sea rise. And from the researches it is found that it will be facing withthis problem in the future even more.In the future around 2050 and 2070 the island will be submerge as whole but the most but now and the close future the most in danger part of the island is southern part and in close future sea level will be rise at least 5 or 6 meters.

NODE DIAGRAM

The building and the functions in the roosevelt island is mostly commercial and public spaces. There are less private accomodation units on the site. In the North part of the site there is an abonded hospital which used to be work as treatment of variola. Close to it there is a light house which is a landmark for the island. with these the north part of island is a memorial Ffeature. the center of the island has trasnportation stops such as subway and ferry also with a grand parking. Also has other spaces such churh, gallery and cafes. On the south part there Cornell Tech located like a campu and at the end of the island has large green spaces.



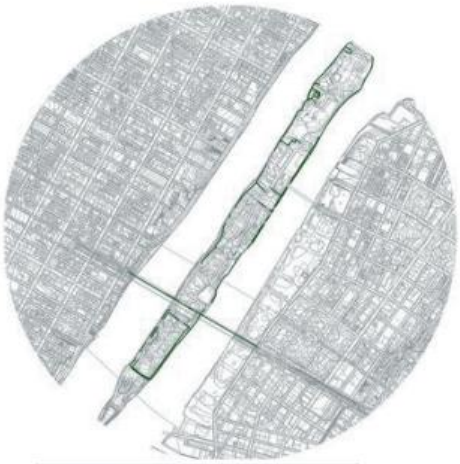
GENERAL ZONES



DETAILED ZONES

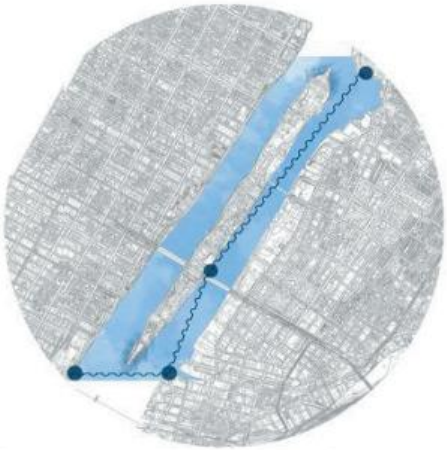
TRANSPORTATION DIAGRAMS

MAIN ROADS



BIKE ROADS

PUBLIC TRANSPORTATION ROADS



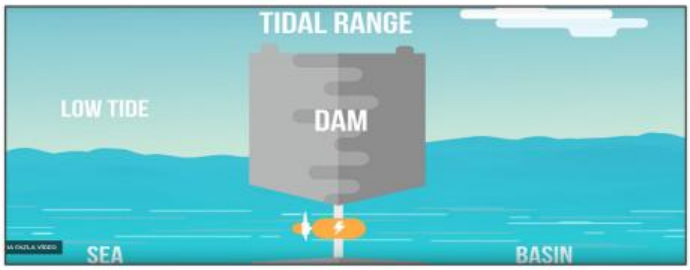
FERRY ROADS

The Roosevelt Island is very developed in transportation it has two important bridges connecting the Manhattan and Queens; ed koch queensbro bridge which is two sided and roosevelt island bridge which ends with a grand parking in the island. Both of the bridges has for both vehicle and pedestrian. in addition to these routes a public transportation route is defined with subway. In the island it is possible to ride bike almost all around the coastline.
On water transportation is also exist there is a ferry terminal which has connections with Astoria on the North, Long island city on the South west and FDR Dr east. In addition to these a tramway is also exist on the island.

ENERGY SYSTEMS

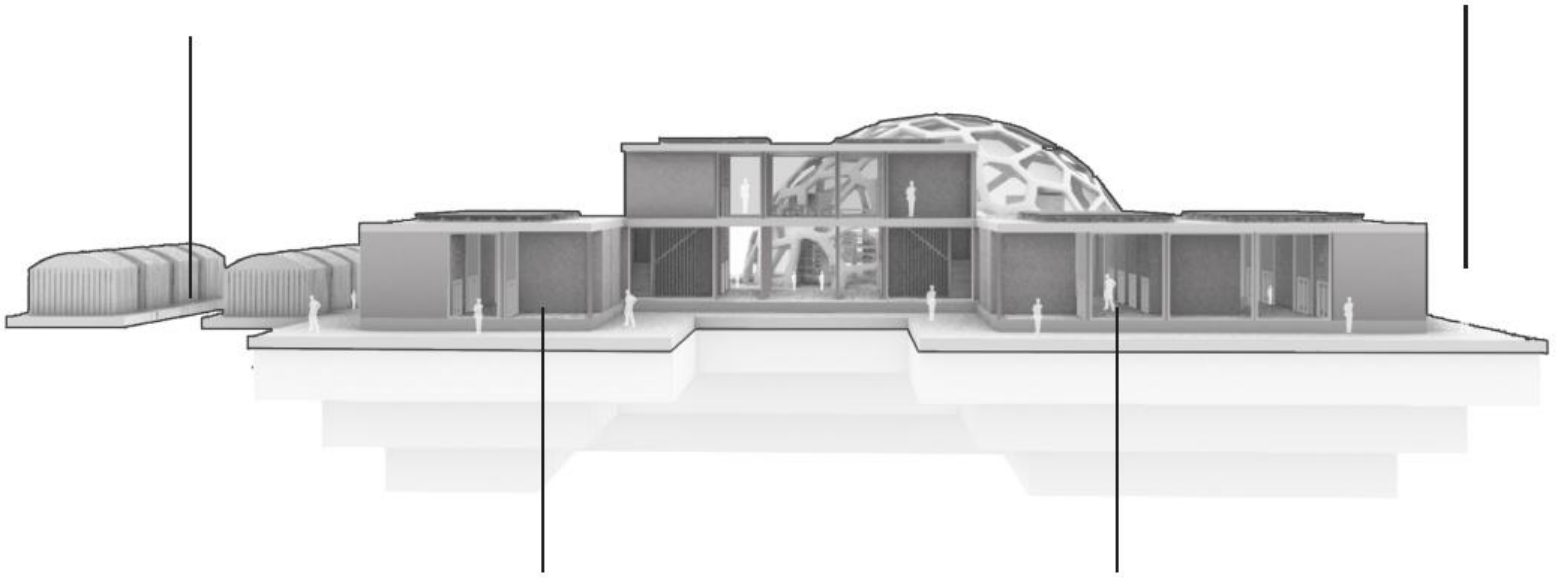
TIDE WAVE ENERGY

Tidal power or tidal energy is the form of hydropower that converts the energy obtained from tides into useful forms of power, mainly electricity. Although not yet widely used, tidal energy has the potential for future electricity generation. Tides are more predictable than the wind and the sun.



FLOATING SOLAR PANELS

Floating solar refers to a solar power production installation mounted on a structure that floats on a body of water, typically an artificial basin or a lake. Two systems can be distinguished: FPV or Floating photovoltaic: uses photovoltaic panels mounted on the platform. Floating CSP or Floating concentrated solar power: uses mirrors that redirect the solar power to a tower.



ALGEA BIOREACTOR

An algae bioreactor is used for cultivating micro or macro algae. Algae may be cultivated for the purposes of biomass production (as in a seaweed cultivator), wastewater treatment, CO2 fixation, or aquarium/pond filtration in the form of an algae scrubber. Open reactors are exposed to the atmosphere while enclosed reactors, also commonly called photobioreactors, are isolated to varying extent from the atmosphere. Specifically, algae bioreactors can be used to produce fuels such as biodiesel and bioethanol, to generate animal feed, r to reduce pollutants such as NOx and CO2 in flue gases of power plants.

AQUATIC BIOMASS

Algae and aquatic biomass has the potential to provide a new range of "third generation" biofuels, including jet fuels. Their high oil and biomass yields, widespread availability, absent (or very reduced) competition with agricultural land, high quality and versatility of the by-products, their efficient use as a mean to capture CO2 and their suitability for wastewater treatments and other industrial plants make algae and aquatic biomass one of the most promising and attractive renewabl sources for a fully sustainable and low-carbon economy portfolio.

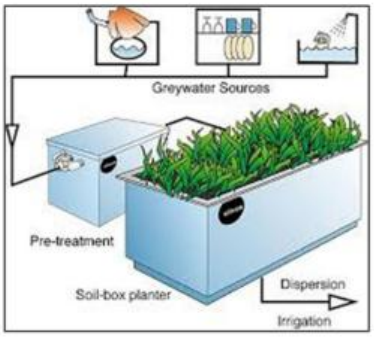
FARMING AND WATER SYSTEMS

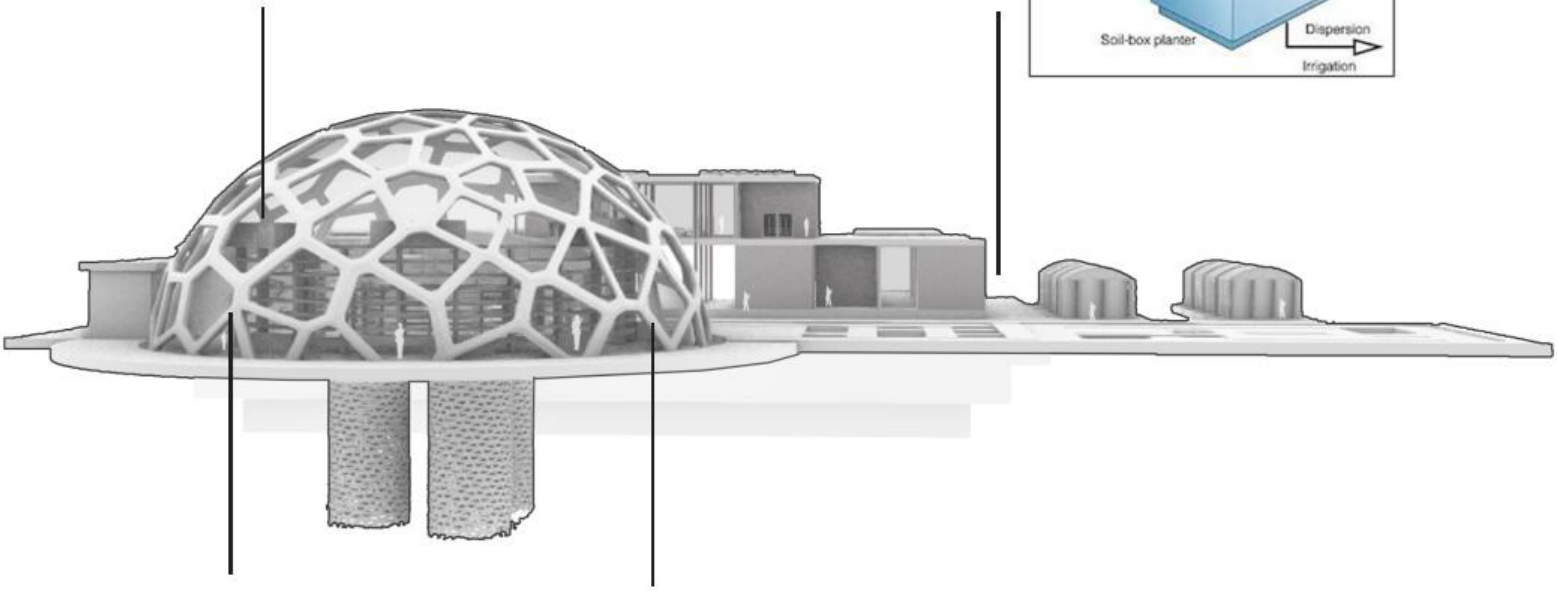
VERTICAL FARMING

Vertical farming is the practice of growing produce in vertically stacked layers. The practice can use soil,hydroponic or aeroponic growing methods. From the vertical farming case studies 50sqm, 30 storied vertical faming systemcan fed 50.000 people. From this case a 3 storied system can provide nutrition for more than 1000 people.

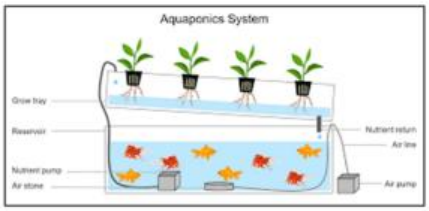
GREY WATER TREATMENT

By definition greywater is generally waste water from showers, baths, basins, and washing machines. Typically aerobic and biological treatments are used as primary greywater treatment to remove dissolved and suspended biological matter, followed by ultra-filtration to prevent particles, bacteria and viruses of passing through.





AQUAPONICS

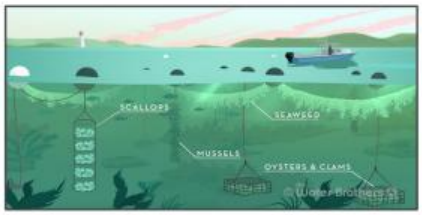


Aquaponics is a sustainable method of raising both fish and vegetables. Furthermore, with this type of indoor farming, you grow substantially more food with less water and land. The aquaponics tanks needs 190 lt and more water inside. Tanks weight has ratiow with the lt it has, 1 kg per litre.

FLOATING DAIRY FARMING

The case study that is a built floating dairy farm in Rotterdam can have 32 cows in a 1.200 sqm.Daily at average they can produce 1000 lt milk. From the researches the avarage daily milk consumption of a family is 3(1/4) lt.

3D OCEAN FARMING



3D ocean farming is a simple, replicable type of ocean farming which uses the entire water column to grow restorative species. It has a small footprint, because we grow vertically, and has a low aesthetic impact, too.

ZONES AND SUGGESTED TREATMENTS

ZONE-1 Manhattan Side

The Manhattan Side has a two three-laned road at the shore. Behind of the road, the city has mostly have high rised buildings which are being used as working spaces.

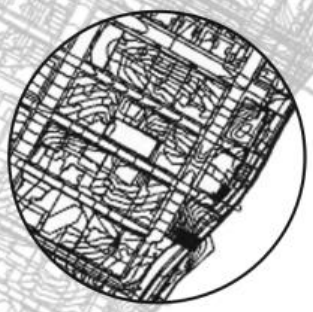
ZONE-2 Floating City

The Floating City will be located at the Southern part of The Roosevelt Island. It is going to have two groups one will be located the shore facing to Zone-1 and the other one will be the opposite shore facing to the Zone-3. Both of the groups will be collaboratively work with the zones and also with the island by using the green are on the island as a connection to the Cornell Tech and the rest of the island.

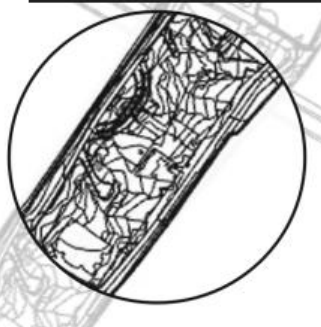
ZONE-3 Queens Side

The Queens Side has a park at the shore and the behind of the shore there are mostly low rised buildings. Mostly these buildings are functioned as residentials some of them has working spaces as function.

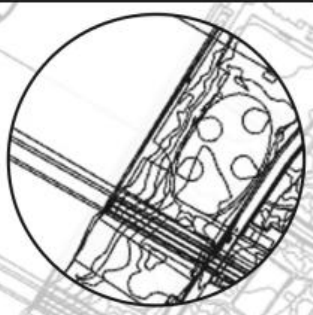
ZONE-1



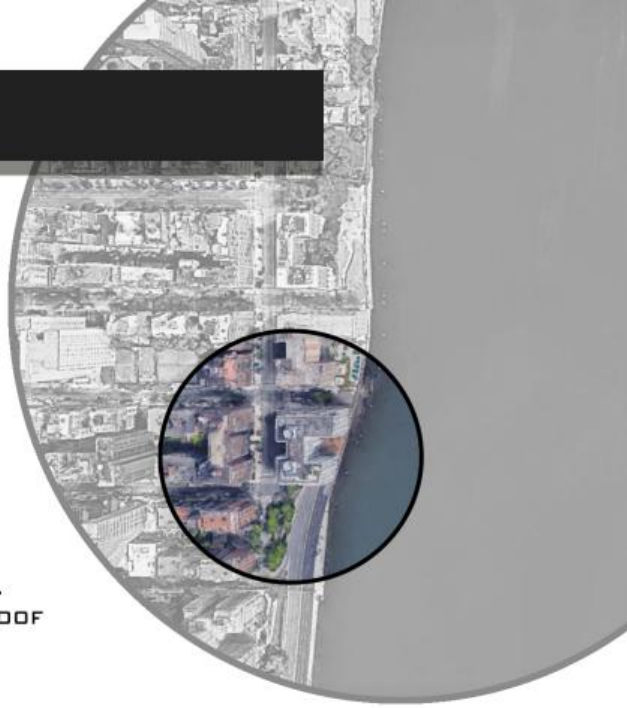
ZONE-2



ZONE-3

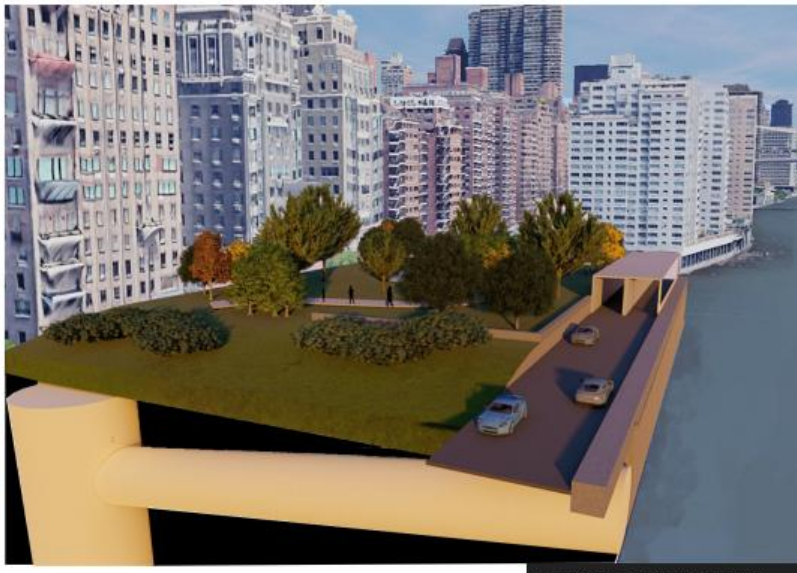


ZONE-1 MANHATTAN SIDE



THE MANHATTAN SIDE RESPECT TO THE ISLAND IS SELECTED AS ZONE-1. AT THIS SEA SHORE, THE EXISTING SITUATION OF THE WATER LEVEL IS AT THE SAME LEVEL WITH THE ROAD. IN ORDER TO PROTECT THE INNER SIDES AND BLOCK THE RISED SEA LEVEL, TWO STRATEGIES ARE SUGGESTED. ONE OF THEM IS PUMPING THE WATER WITH POTWS WHEN IT STARTED TO RAISING. THE OTHER TREATMENT IS PUTTING A SEAWALL. THE SEAWALL WILL BE CURVED RATHER THAN VERTICAL. WITH THIS THE WALL WILL NOT BE BLOCK THE VIEW AND ALSO SERVE PEOPLE A SOCIAL SPACE TO USE. IN ADDITION TO THESE FLOOD PROOF BUILDING CAN BE DONE AS A STRATEGY AT SOME PARTS OF THE SHORE WHICH IS ELEVATING THE BUILDING SO IT DOES NOT GET EFFECTED BY THE RISED WATER LEVEL. SOME OF THE BUILDINGS CAN BE REFUNCTIONED AND USED AS FLOOD PROOF SINCE THEY ARE ALREADY BEEN ELEVATED.

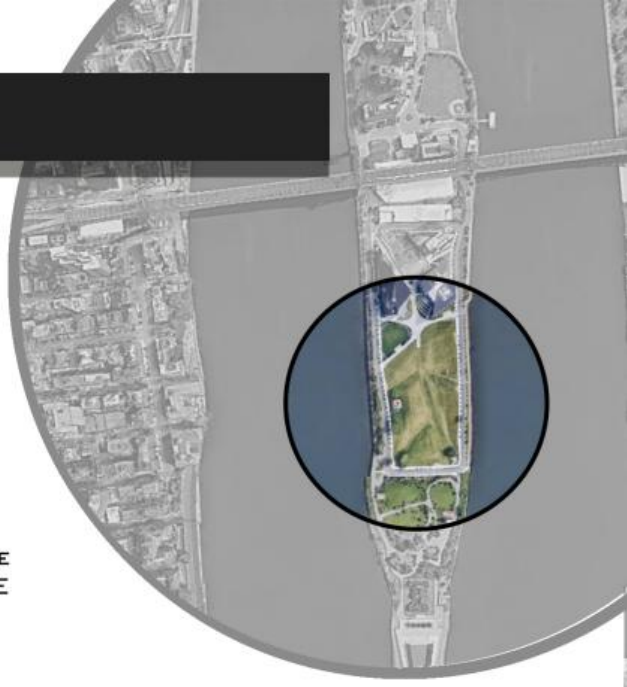
EXISTING SECTION



POTW SUGGESTED SECTION

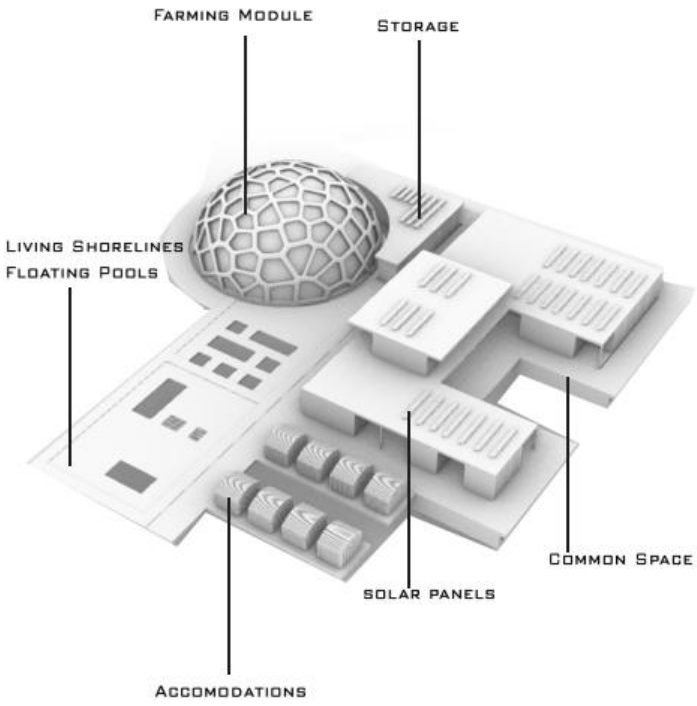
SEWALL SUGGESTED SECTION

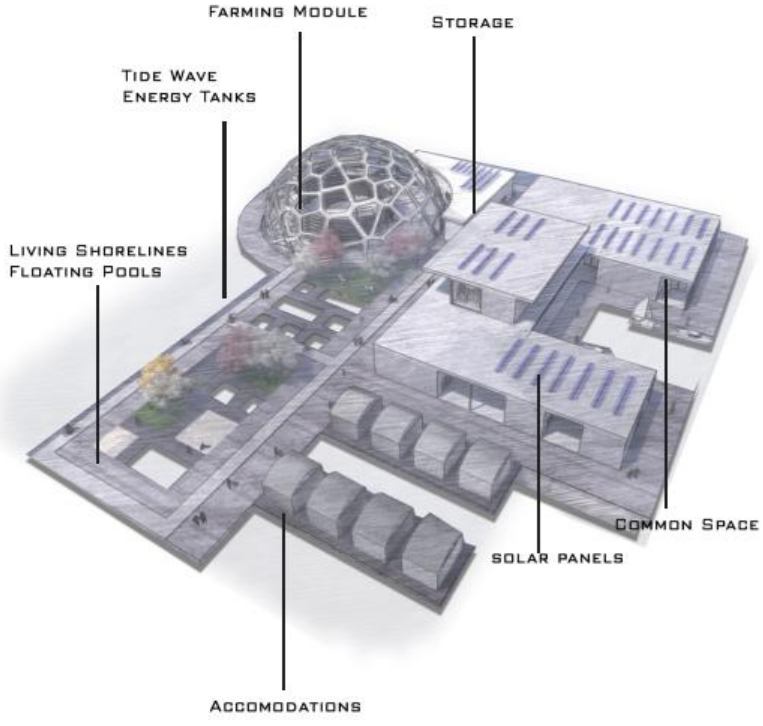
ZONE-2 FLOATING CITY



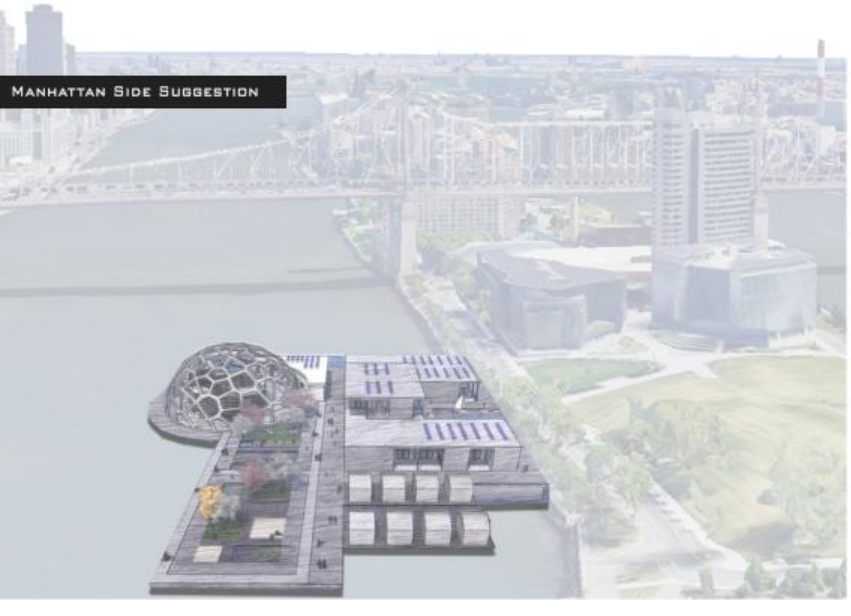
ZONE-2 IS THE TWO SIDES OF THE ROOSEVELT ISLANDS SOUTH PART INCLUDING THE GREEN SPACE AT THE MIDDLE. THE FLOATING CITY WILL BE LOCATED AT THE BOTH SIDES AND IN NORMAL (LONG-LASTING) TIMES IT WILL WORK COLLABORATIVELY WITH THE ISLAND AND IN THE EMERGENCY SITUATION THE ACCOMODATION UNITS WILL GET INVOLVED AND OPEN TO USE. IN THE NORMAL TIME, CITY WILL HAVE CONNECTION WITH TWO SEA SHORE WITH DIFFERENT TRANSPORTAIONS ANDA ALSO WITH THE ISLAND. EACH GROUP WILL CONSIST OF FARMING AND ENERGY MODULES WITH ACCOMODATIONS. BESIDE OF THESE THERE ARE GOING TO BE LIVING SHORELINES FOR CREATING HABITATS AND SOCIAL SPACES FOR PEOPLE LIKE FLOATING POOLS. SOME PARTS OF THE MODULES WILL BE MADE FROM ETFE WITH A STEEL SKELETON FOR A LIGHT AND EASY CONSTRUCTION.

ONE UNIT



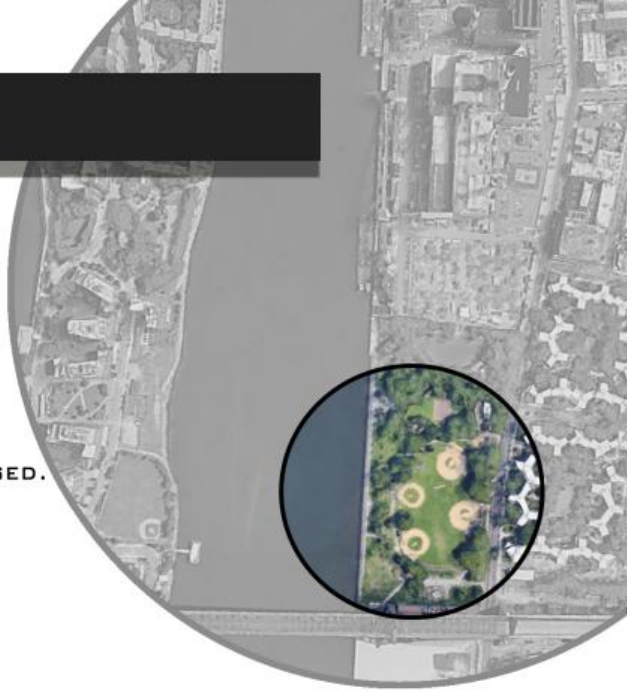


MANHATTAN SIDE SUGGESTION



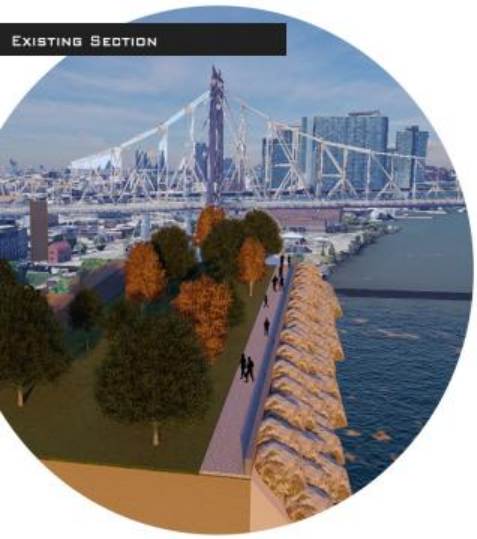
QUEENS SIDE SUGGESTION

ZONE-3 Queens Side



Zone-3 is located at the Queens, Queensbridge Park. At this seashore the water level is same with the park, having a rocky place between the park and water. At here the suggested strategy is having a raised harbourwalk and draw it back a few meters. With this strategy the park will keep its existance and people still be able to use it. Just the harbour walk will be raised in order to prevent water to infiltrate when its level raised.

Existing Section



Suggested Section

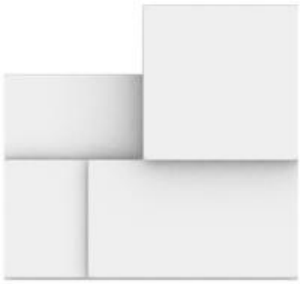
Sugessted Section

Existing Section

FORMS

FORMS & SETTLEMENTS

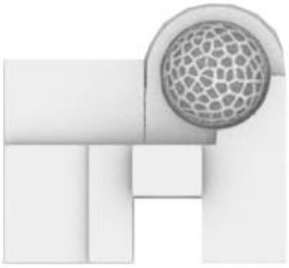
FORMS



THE FORM OF THE UNITS ARE MADE BASICALLY RESPECT TO THE NEDED ZONES ;

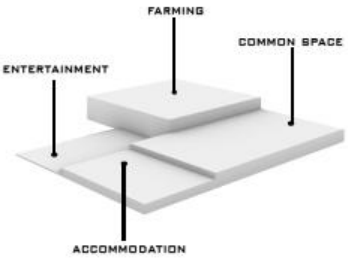
1. ENTERTAINMENT OUTDOOR
2. FARMING
3. COMMON SPACE
4. ACCOMODATIONS

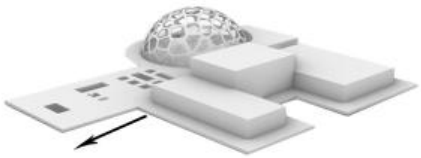
FOR THE SECOND DECISION THE FARMING UNIT BECOME CIRCULAR BECAUSE OF THE SHAPES OMNI-DIRECTIONALITY AND MAKING THE MASS TO HAVE AN EASY MOBILITY. ALSO A N INDENTATION IS MADE AT THE COMMON SPACE TO SERVE AS A PORT, BUT SURROUNDED WITH MASES IN IRDER NOT TO DRAG WITH WATER FLOW.



FOR THE LATER DECISION THE COMMON SPACE IS DIVIDED TO THREE PARTS. THE MIDDLE PART IS ELEVATED TO BECOME CREATE AN OPEN CONECTION SPACE AT AT THE BOTTOM FROM LAND TO FARMING AND ENTERTAINMENT.

FOR THE LAST DESICIONS, THE ENTERTAINMENT SPACE IS EXTEND BEACUSE OF THE OPENABLE DECKS OF FARMING UNITS. A STORAGE IS LINKED TO FARMING UNIT.





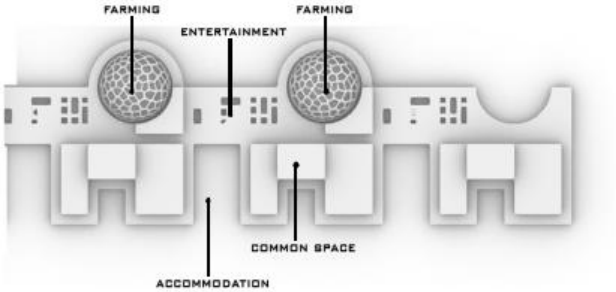
SETLEMENT COMBINATIONS

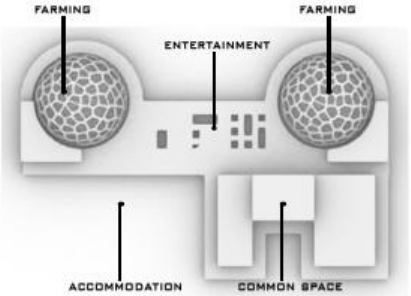
ONE UNIT RELATED TO THE SITE. THE COMMON SPACE IS FACING TO THE LAND. ACCOMMODATIONS ARE LOCATED AT THE SAME DIRECTION WITH THE WATER FLOW.

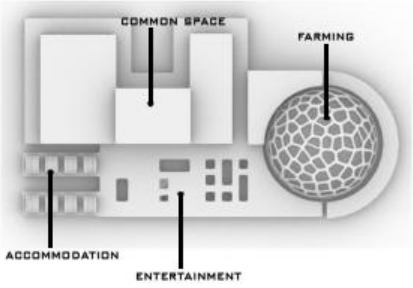
THE SPACES BETWEEN TWO FARMING UNITS ARE SCALED RESPECT TO THE MOVEABLE PLATFORMS OF FARMING UNITS.IT IS ONE OF THE SETELEMENT COMBINATION.

THE SUITABLE SETTLEMENT FOR THE ISLAND CAN BE THE ONE AT THE ABOVE. DIFERENT FARMING SYSTEM UNITS, ONE COMMON SOACE AS A NORMAL TIME SERVING. ACCOMODATIONS ARE LOCATED WITH THE SAME DIRECTION WITH WATER FLOW.

OTHER SETTLEMENT OPTIONS





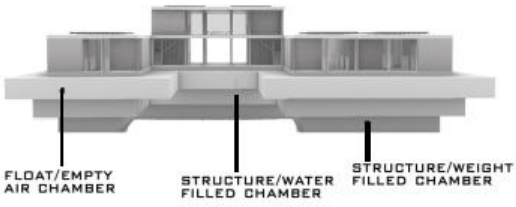


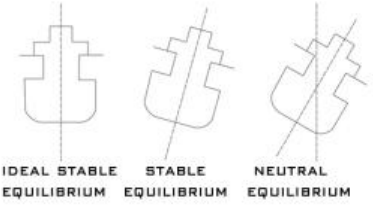
COMMON SPACE

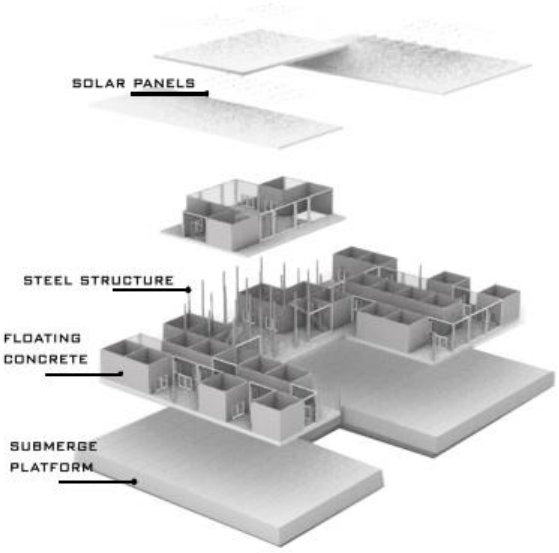
COMMON SPACE

CONSTRUCTION & MATERIALS

The submerge part of the common space is working with the same principle of ships. It has three layered platform; air cahmber, water filled chamber and weight filled chamber. For the materials; it has steel structure frames with floatable concrete for its light weighted and easy constructibility.

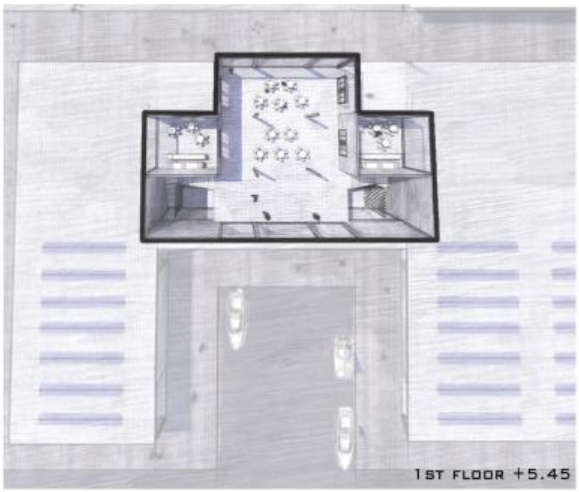






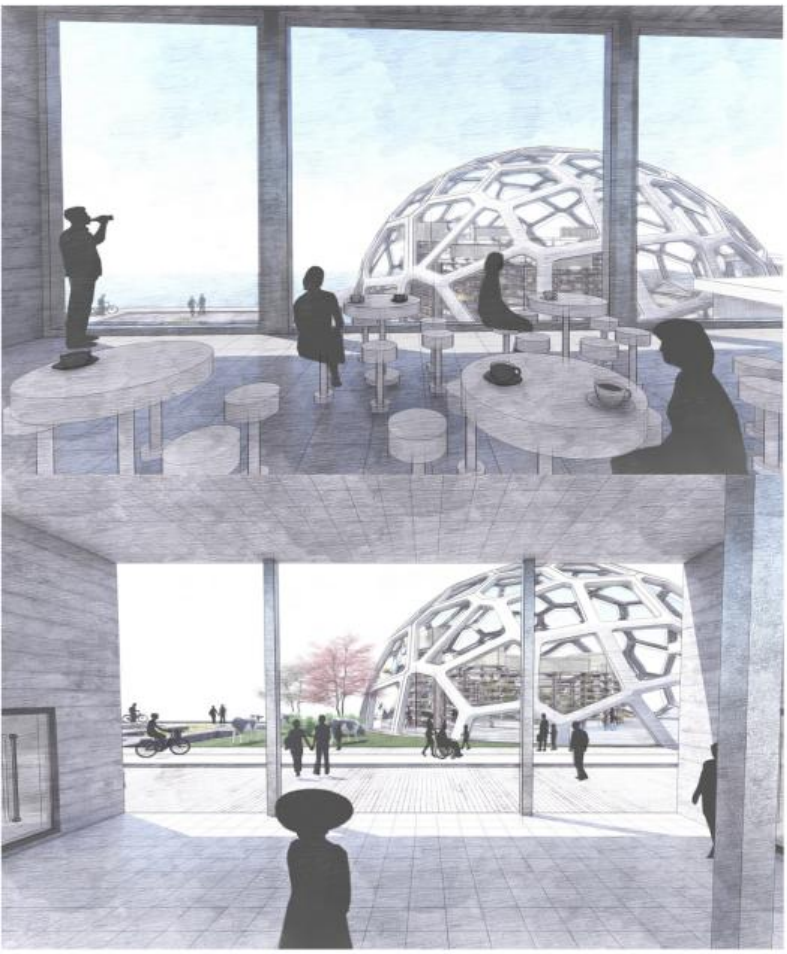
PLANS

For the plans, the building has a simple grid plan. For this prototype it has shops, cafes, storages and dining halls (other functions may added related to needs of the site or people). which may be can used with different funtions in emergency times. later some parts can be turn into health and education center. With the simple plan, the spaces are able to transform with different dimentions for different functions and used for needed spaces in different locations.



SECTIONS

VIEWS



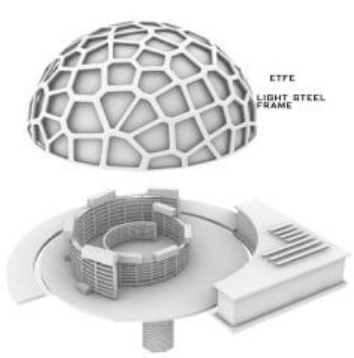
SECTIONS

FARMING UNITS

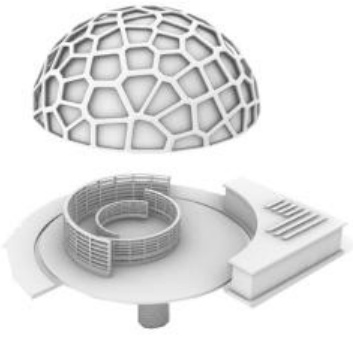
FARMING UNITS

FUNCTIONS & MATERIALS

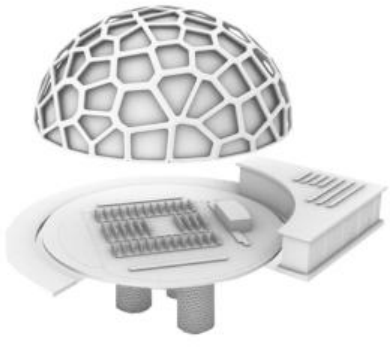
MAINLY THERE ARE FOUR FUNCTIONED FARMING UNITS; VERTICAL FARMING WITH RAIN WATER HARVESTING, VERTICAL FARMING WITH AQUAPONICS AND DAIRY FARMING. AND AT THE BOTTOM OF EACH THREE THERE IS 3D OCEAN FARMING. MATERIALS ARE FOR DOME ETFE AND LIGHT STEEL STRUCTURE AND FLOATING PLATFORMS.



VERTICAL FARMING WITH RAINWATER HARVESTING



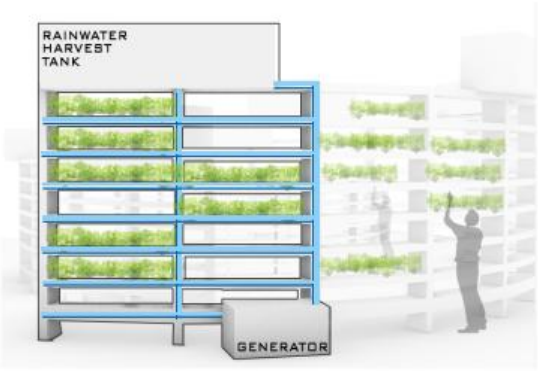
VERTICAL FARMING WITH AQUAPONICS



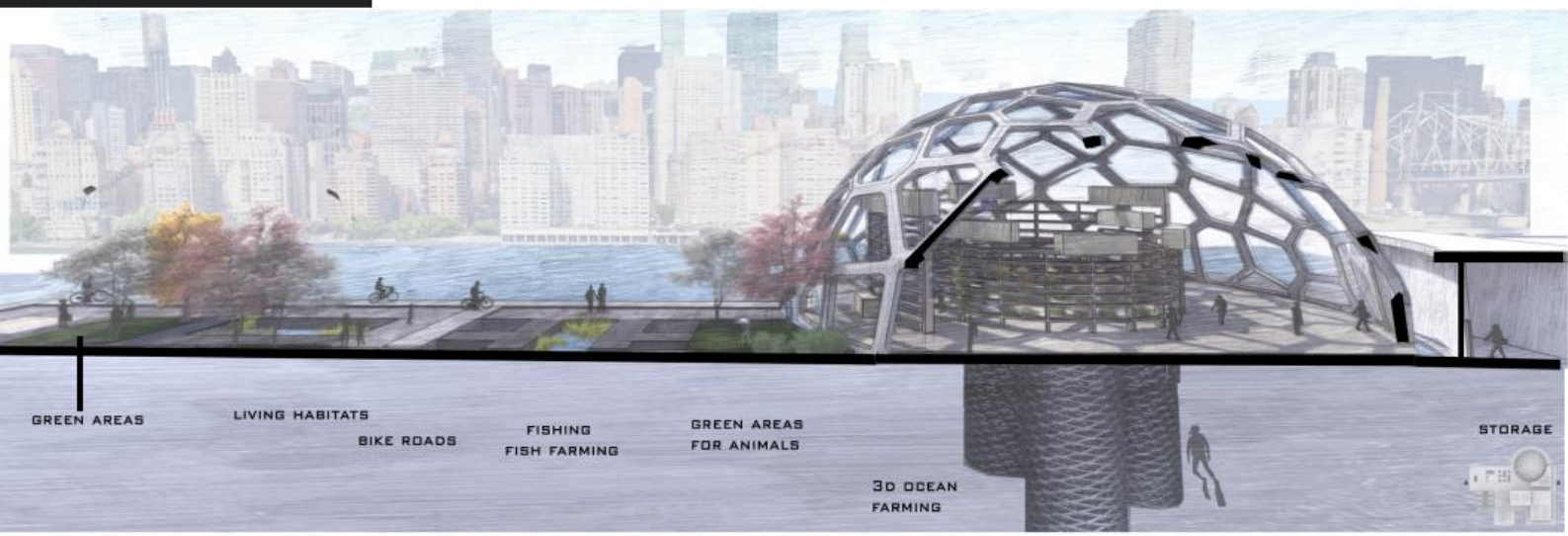
DAIRY FARMING

FUNCTIONS & MATERIALS

FOR THE VERTICAL FARMING UNITS; THE FIRST SYSTEM IS WORKS WITH RAINWATER, IT DOES NOT NEED ANY SOIL AND USES THE RAINWATER TO WATER ITSELF, PIPES THE GENERATED WATER FROM GENERATOR TO EVERY UNIT. FOR THE SECOND SYSTEM, IT WORKS WITH AQUAPONICS, PLANTS PROVIDES CLEAN (O2) TO FISH WATER AND FISH PROVIDES FERTILIZER TO PLANTS WITH THEIR WASTE.



SECTION AA'



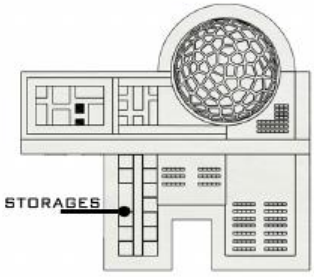
INTERIOR VIEW

ACCOMMODATIONS

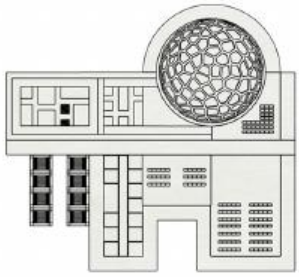
ACCOMMODATIONS

CONSTRUCTION

During the normal times accommodation units will stay unconstructed in the storages of common space. In an emergency time, they will be constructed and attached with platforms. Their count can be increase or decrease related to need.



PHASE 1, NORMAL CONTIDIONS

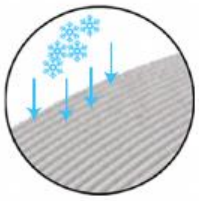


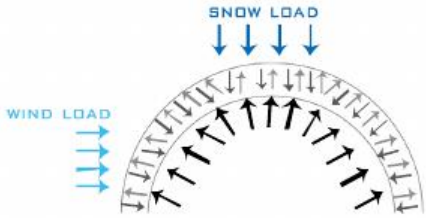
PHASE 2, EMERGENCY TIMES

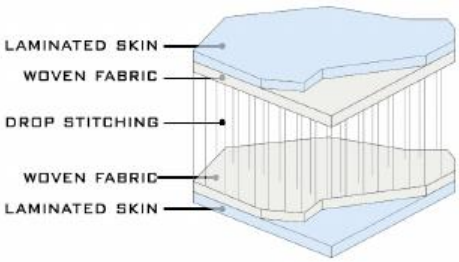
PLAN OF A UNIT

MATERIAL

AIR INFLATABLE STRUCTURE
DROP STITCH TECHNOLOY
The Drop stitch technology, it is fast to inflate and deflate which gaves an easy constructibility. With the materials quality there is no needed continious pump system to keep the structure inflated.It is snow and wind load resistant material. It also has a support capability that the interial can be divided with handed curtains or panels. For the energy if it is needed the elastic solar panels can be attached to the surface.

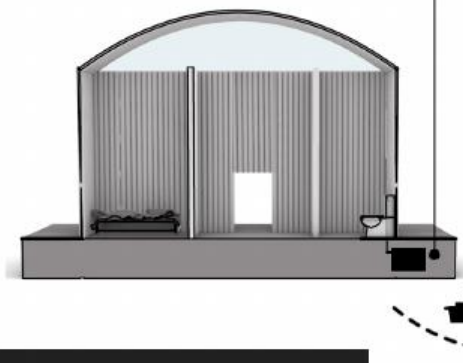






WASTE & FERTILIZATION

The bathroom wastes of units will be used for fertilization. There is going to be a system used in caravans (tanks) that collects stool.



these tanks wills be emptied with boats and carried out to the storages next to farming units. At there they are going to be left to composed piles for micro&macro organisims to break down it to simplest components. And at the end it becomes human manure.

After it become a fertilizer. It can be used for dairy farming cows feeds. or green spaces at the entertainment zone.

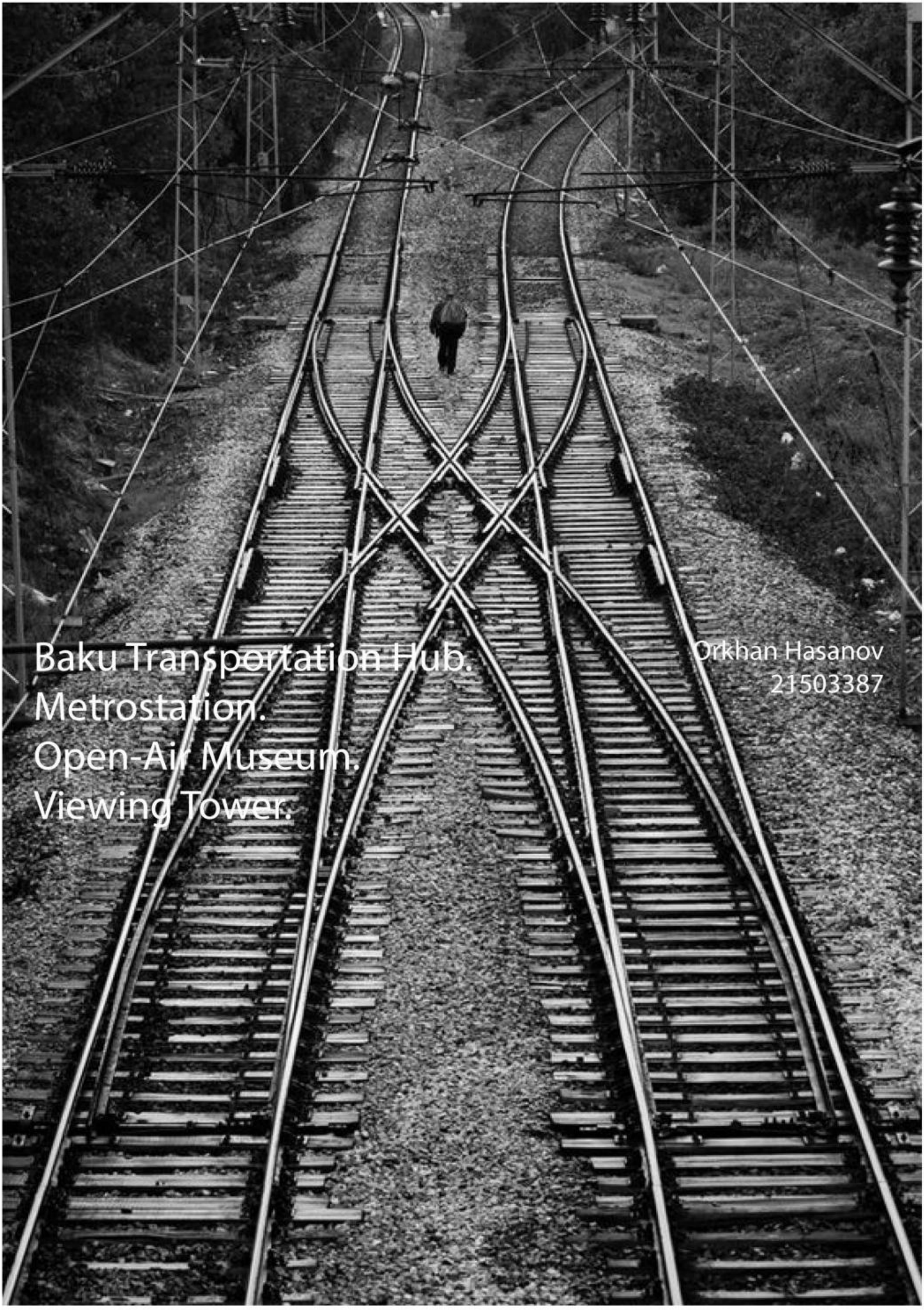
SECTION AA'

Orkhan Hasanov

ARCH 402 ARCHITECTURAL DESIGN VI.

THESIS PROJECT.

CONTENT



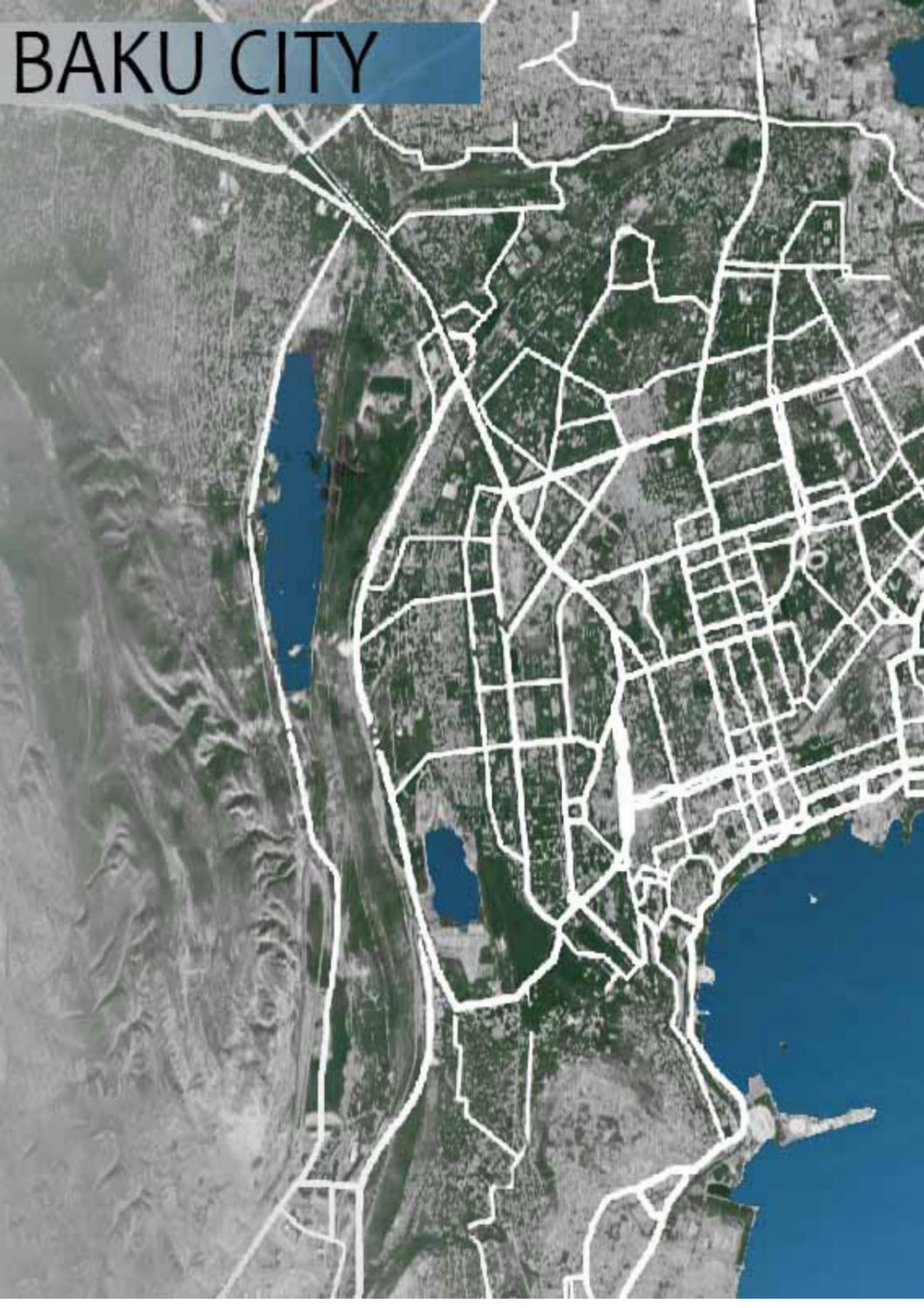
Baku Transportation Hub.
Metrostation.
Open-Air Museum.
Viewing Tower.

Orkhan Hasanov
21503387

Transportation Hub , Metro Station and Open-Air Railway Museum

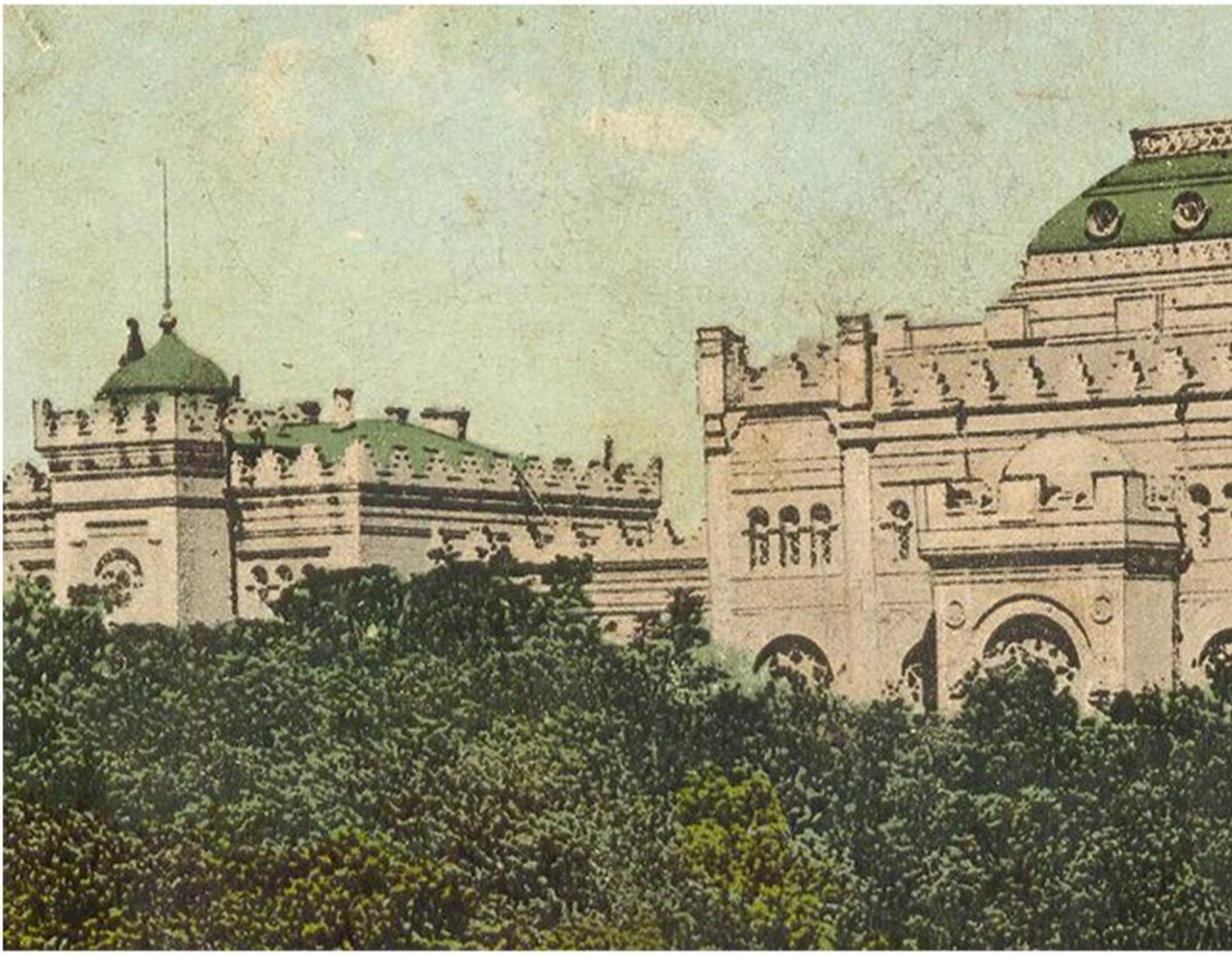
The site was selected based on many criterias. Such as the location, the traffic problem present in the surrounding, social problems, environmental problems and the historical value of the area. The project includes in itself two building complexes which are Metro Station and Transportation Hub, ıncluding the park . By designing these buildings i want to establish better connection between east and west parts of the city and better traffic junction.

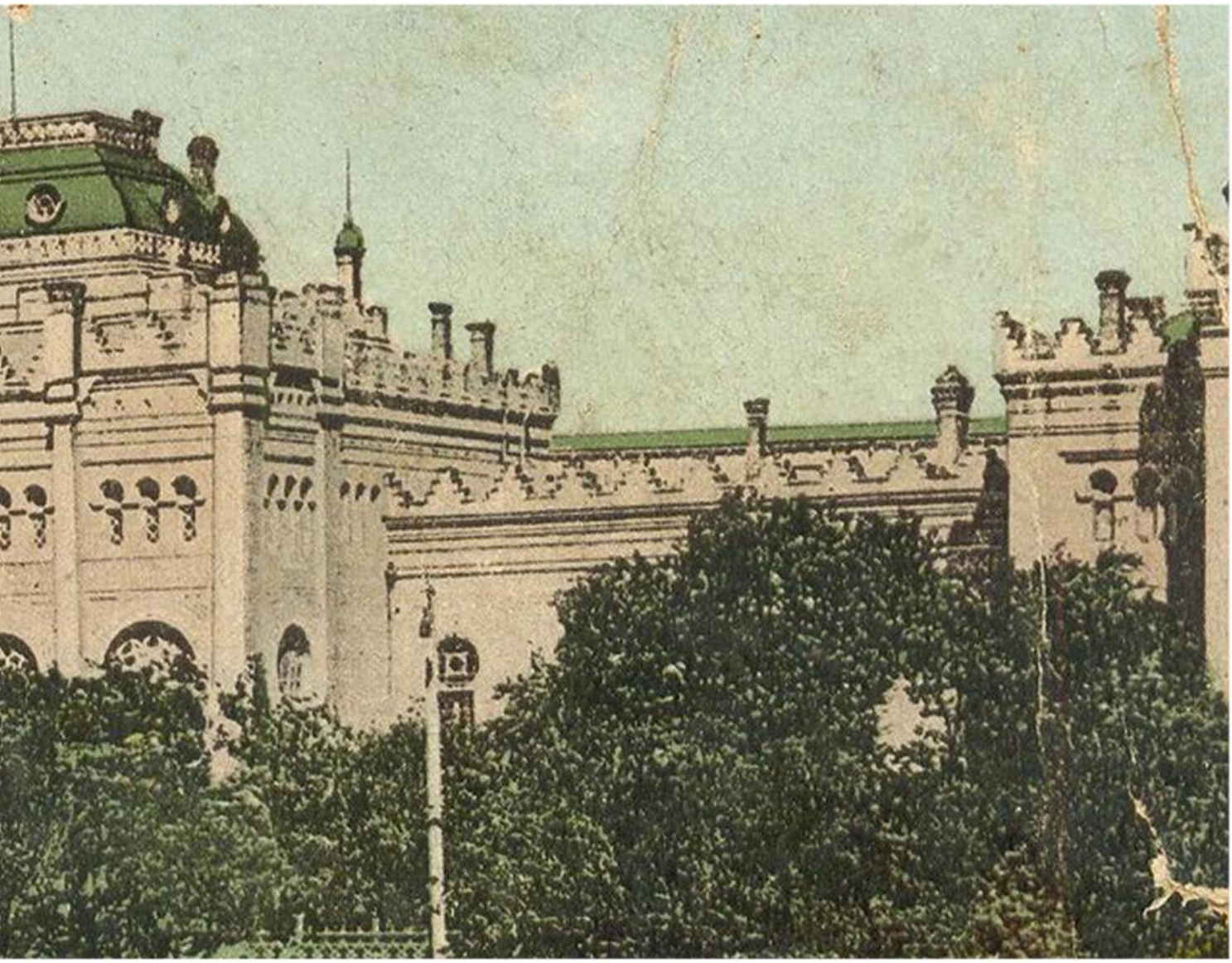
BAKU CITY




EXISTING RAILWAY STATION
OLD
CITY.
MAIDEN
TOWER.
PARK

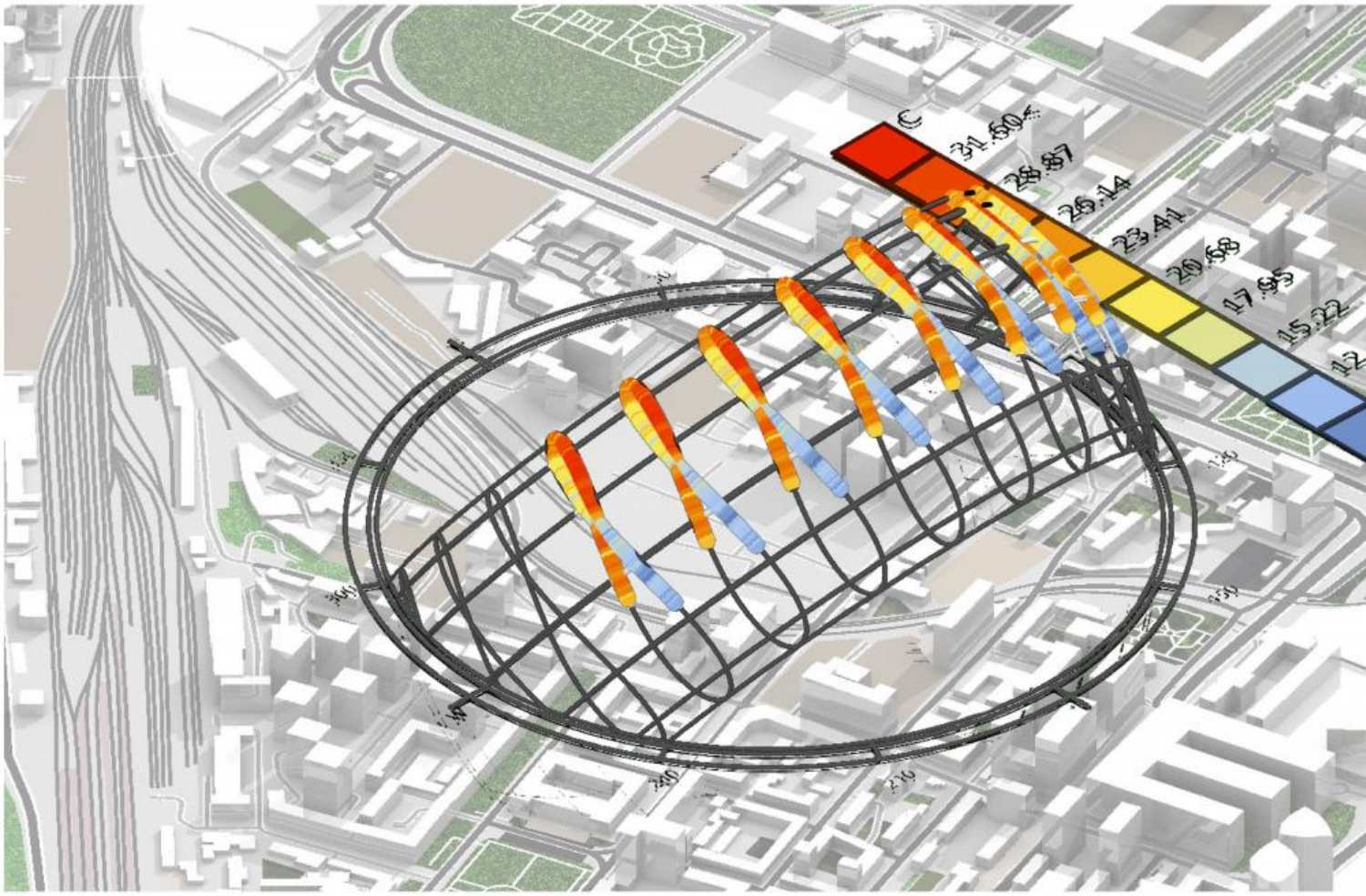

HAYDAR ALIYEV
CENTER.
SUPREME COURT.
CASPIAN SEA
CRESCENT BAY.
BOULEVARD.
N
FOCUS AREA.

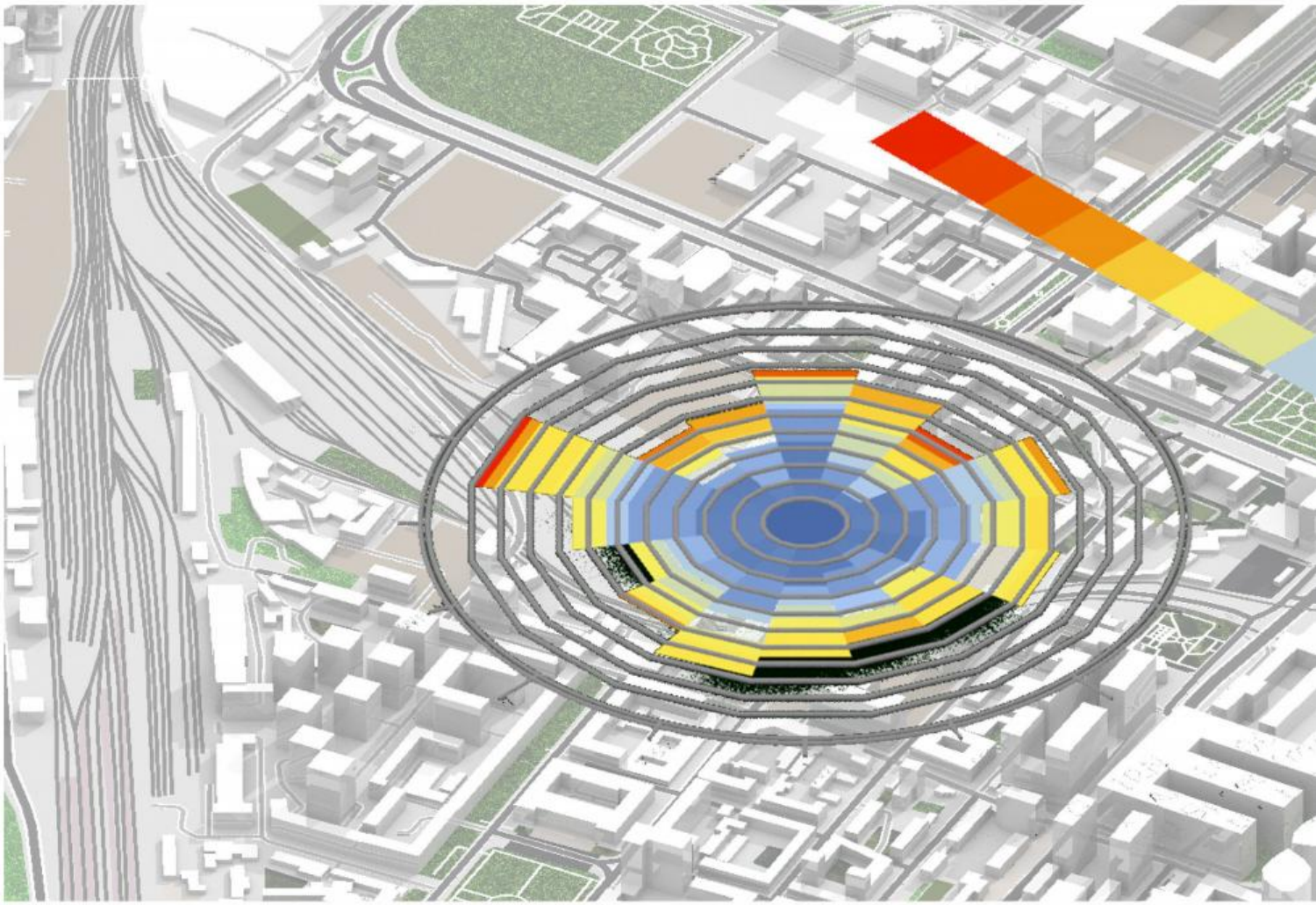


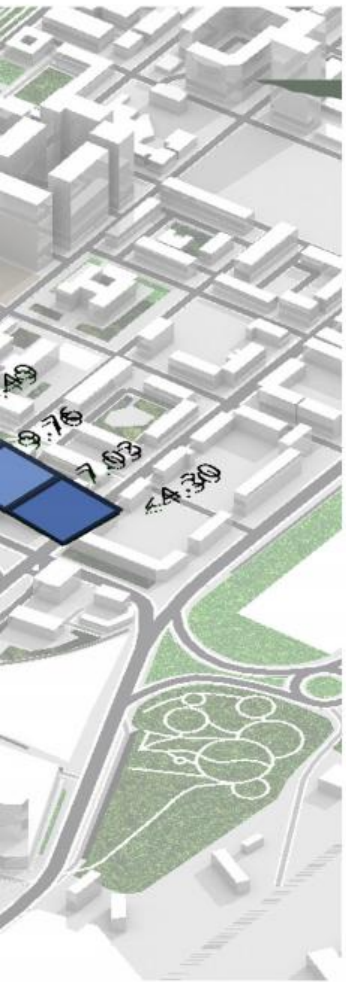


Baku Railway History.

The construction of the first railroad and its subsequent developmet in Azerbaijan were directly linked to the transportation of the oil on the Absheron peninsula has been known since ancient times. The Baku oil had for a long time been extracted in an unsystematic manner and had been used mainly for lightening and treatment purposes in Azerbaijan, the Middle East and central Asia, Rusiia, and even India.


31.50
28.87
26.14
23.41
20.68
17.95
15.22



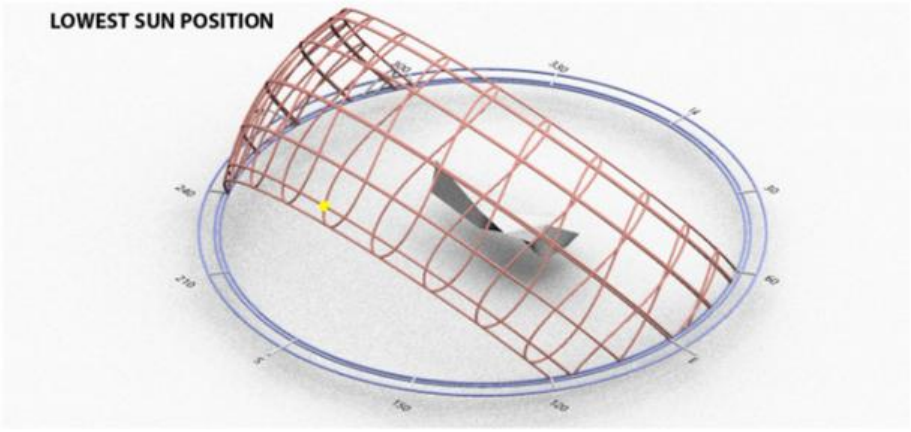


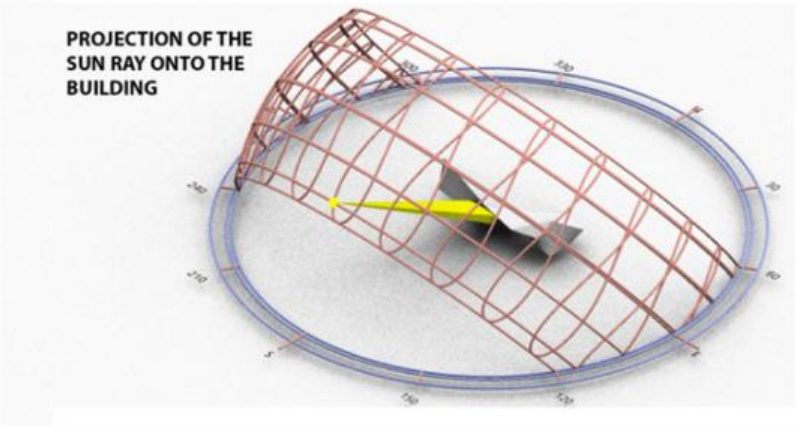
Environmental Analysis

This solar radiation represents the annual average solar radiations and solar angles throughout a year. A chart

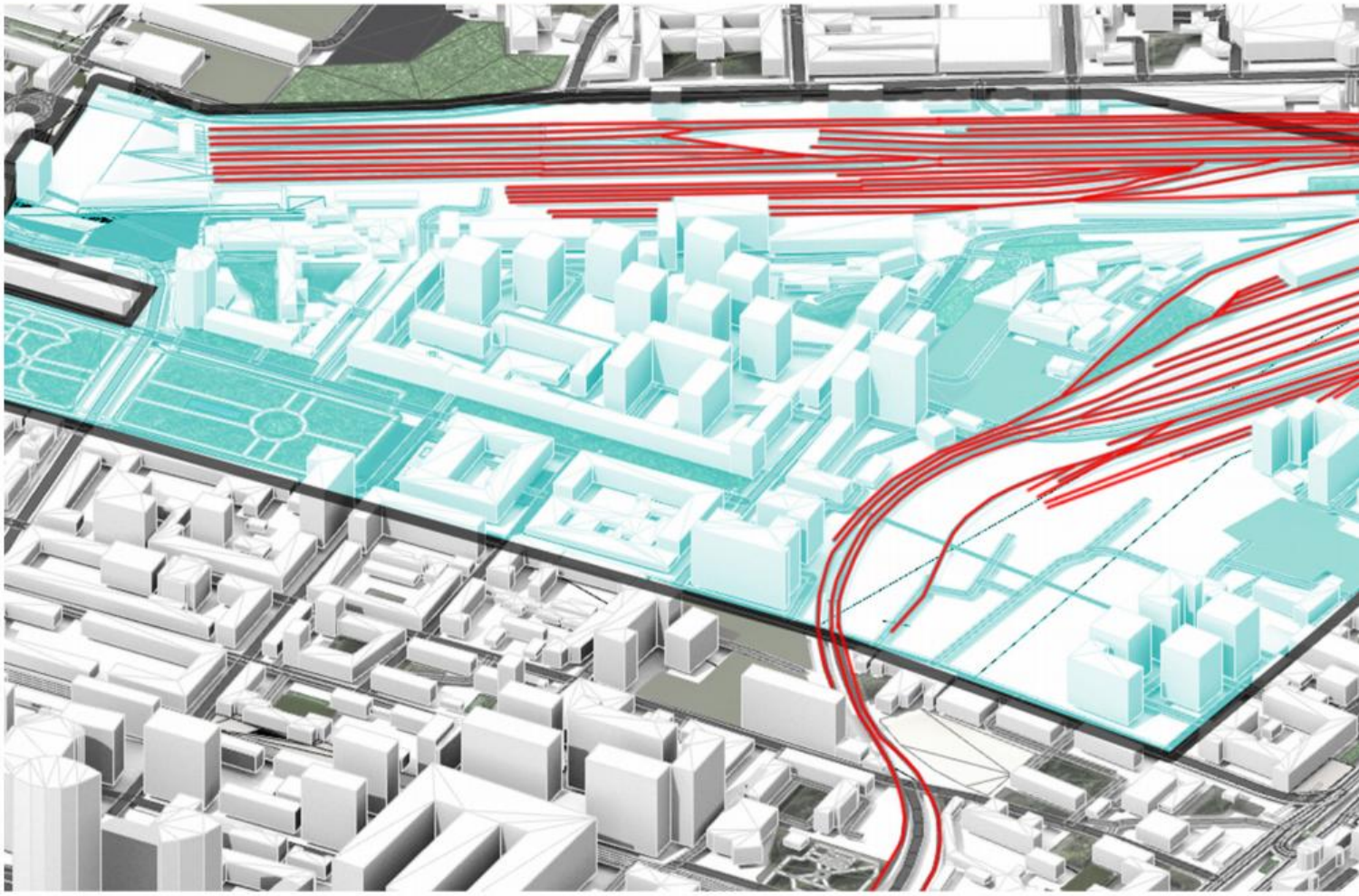
shows the average temperature for every month and season of the year. Max average temperature is 31.60 C, Min

average temperature is 4.30 C degrees.

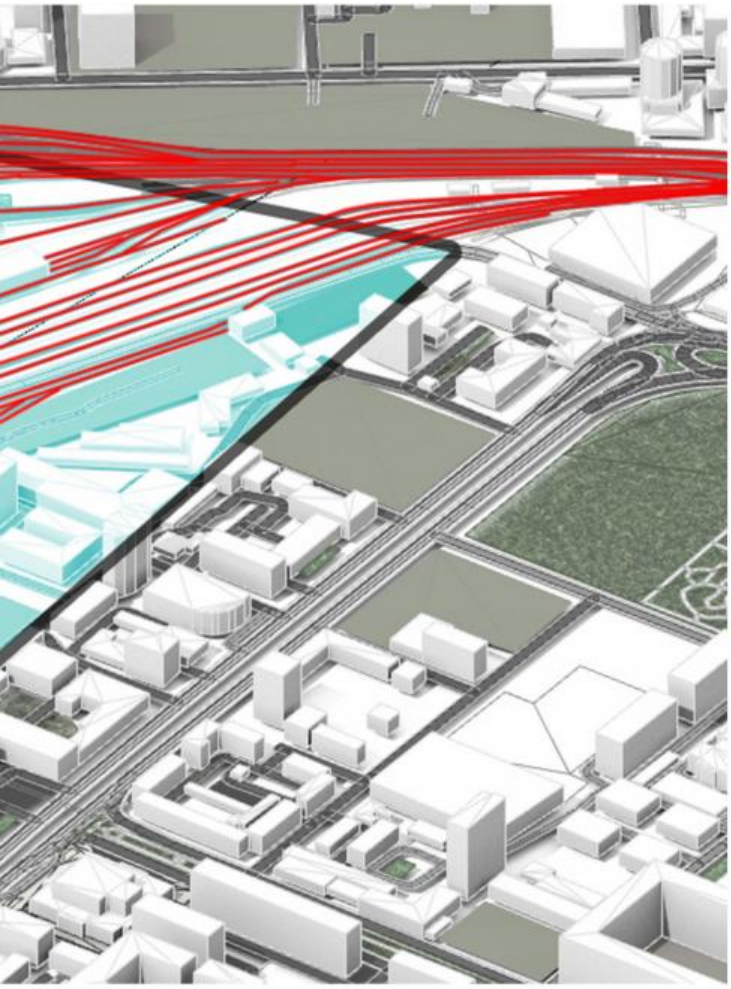




Wind is one of the things Baku is famous for, even the name Baku means 'Windy City' from translation from old language.
Wind is strong throughout all year. Most strongest wind streams are from north-west and south-west from the sea.
The cart represents the max and min wind speeds.
As mentioned before wind of baku is one of the strongest.
Max wind speed is more than 15m/s
Min wind speed is less than 1.5m/s



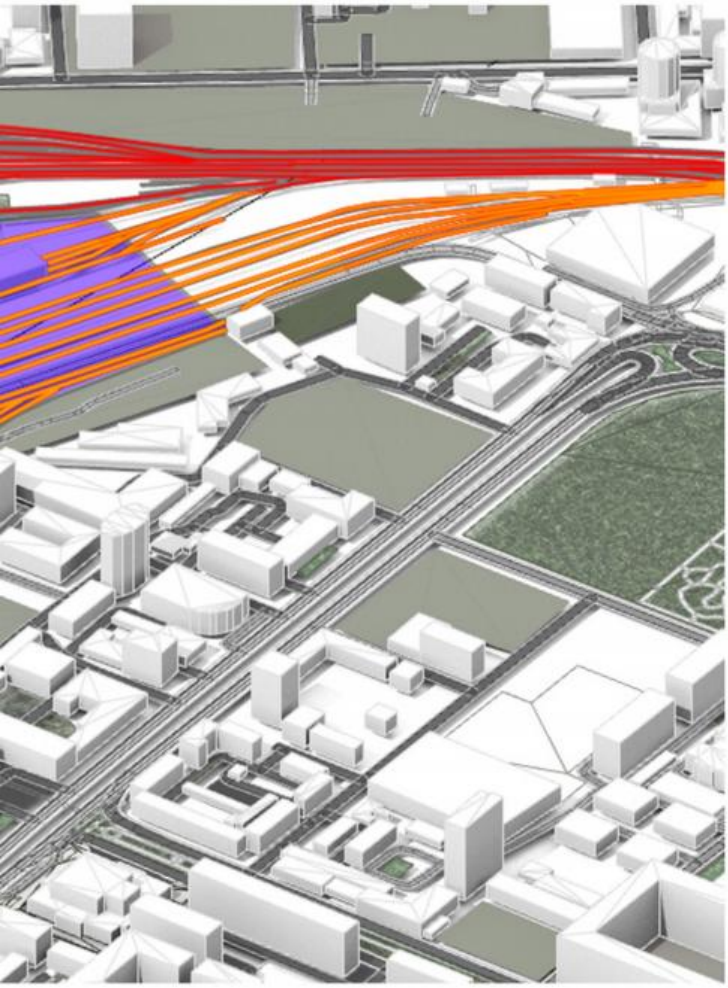

1
2
3
4
5
6



Transportation Zone

Existing Railways

In freight traffic, the exportation of oil from the oil wells from Baku at the Caspian Sea to the Georgian port of Batumi at the Black Sea forms an important share of the rail transport in Azerbaijan: The freight market share of the Azerbaijan State Railway was 21% in 1999.



Buildings And Area Under Supervision Of Railway department

Used Railways

Abondoned Railways

1- Exsiting Railway Station with the extention
2- Railway Hospital
3- Railway Park
4- Railway Administrative Department
5- Train Repair and Parking Area
6- Slums.

Traffic and Logistics Problem

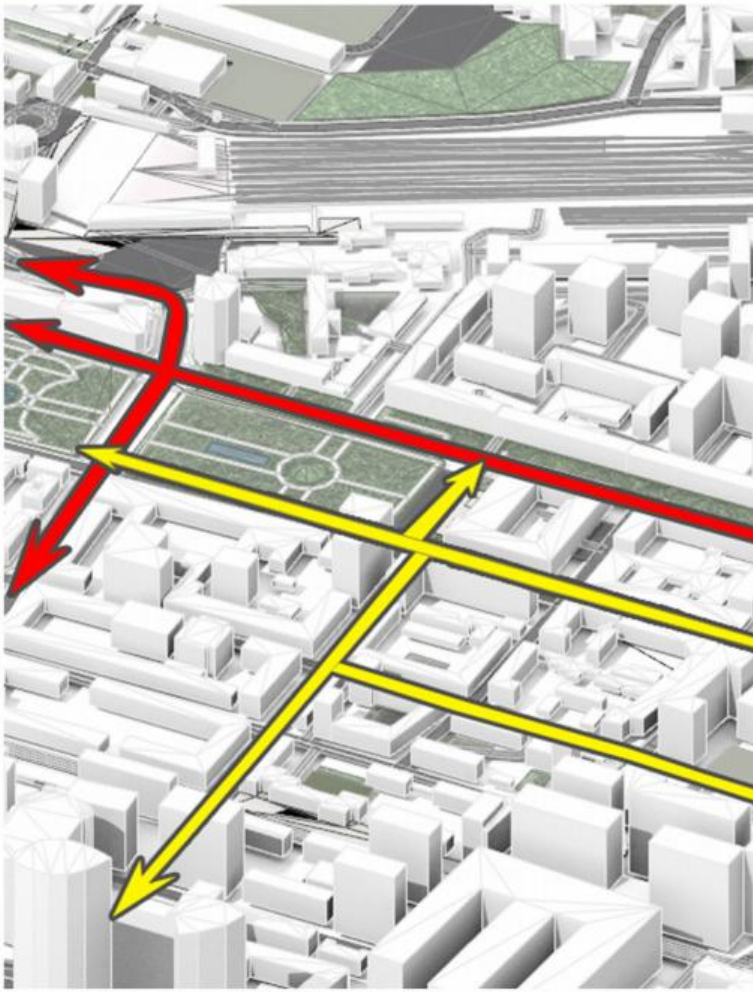
Main roads

Secondary Roads

Focus Area

As the road system was developing and eveolving. Many new landmarks gained good access by the road system. Even though the focus area of mine remained unseen and abaondoned.

Roads just pass by the area without interracting with it due to its reputation of being underused.

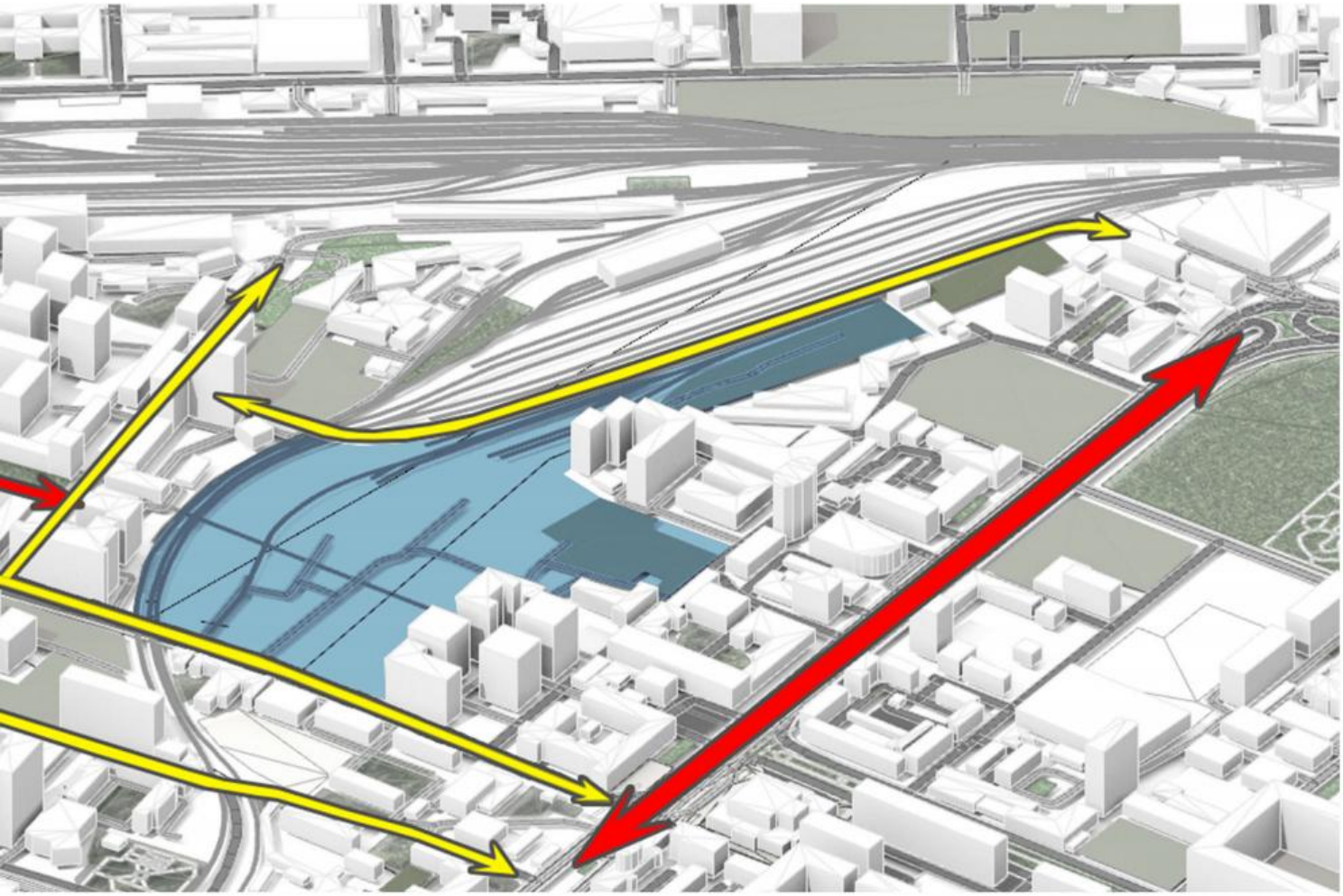


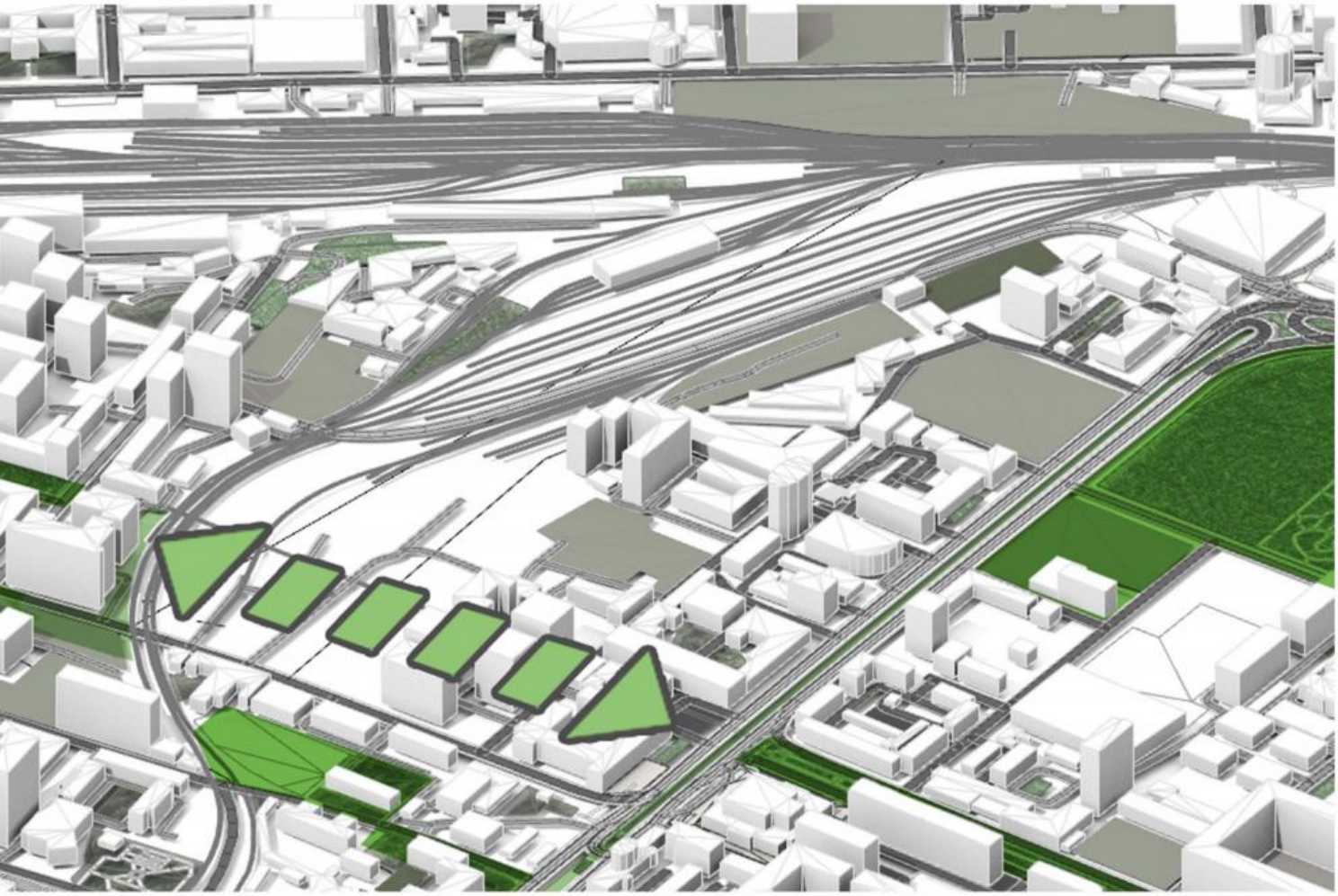
Green Lane

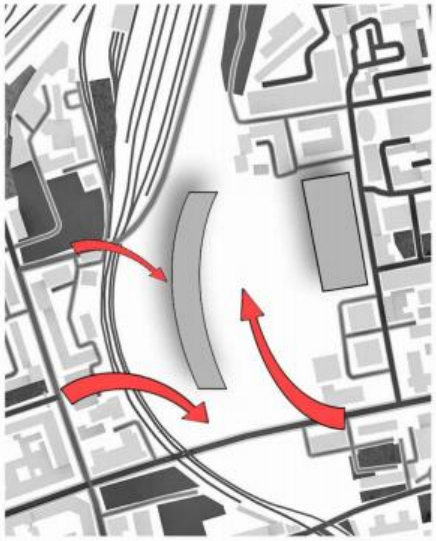
Through west to east part of the city passes big and wide green finger. Connectig main landmarks and regions of Baku City center.

That green lane is being interrupted by the time it aproaches the site.

By adding reasonable and usable for everyone parks and green lanes the continiuty can be revived.

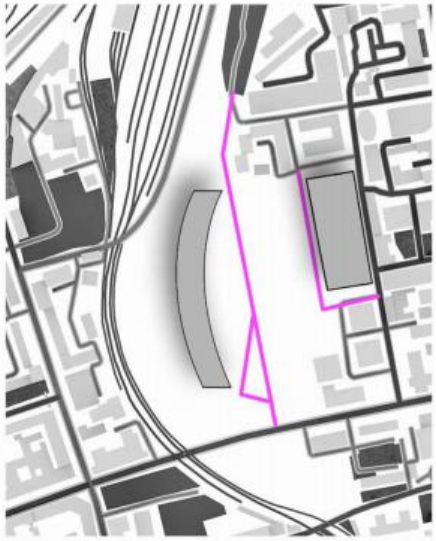






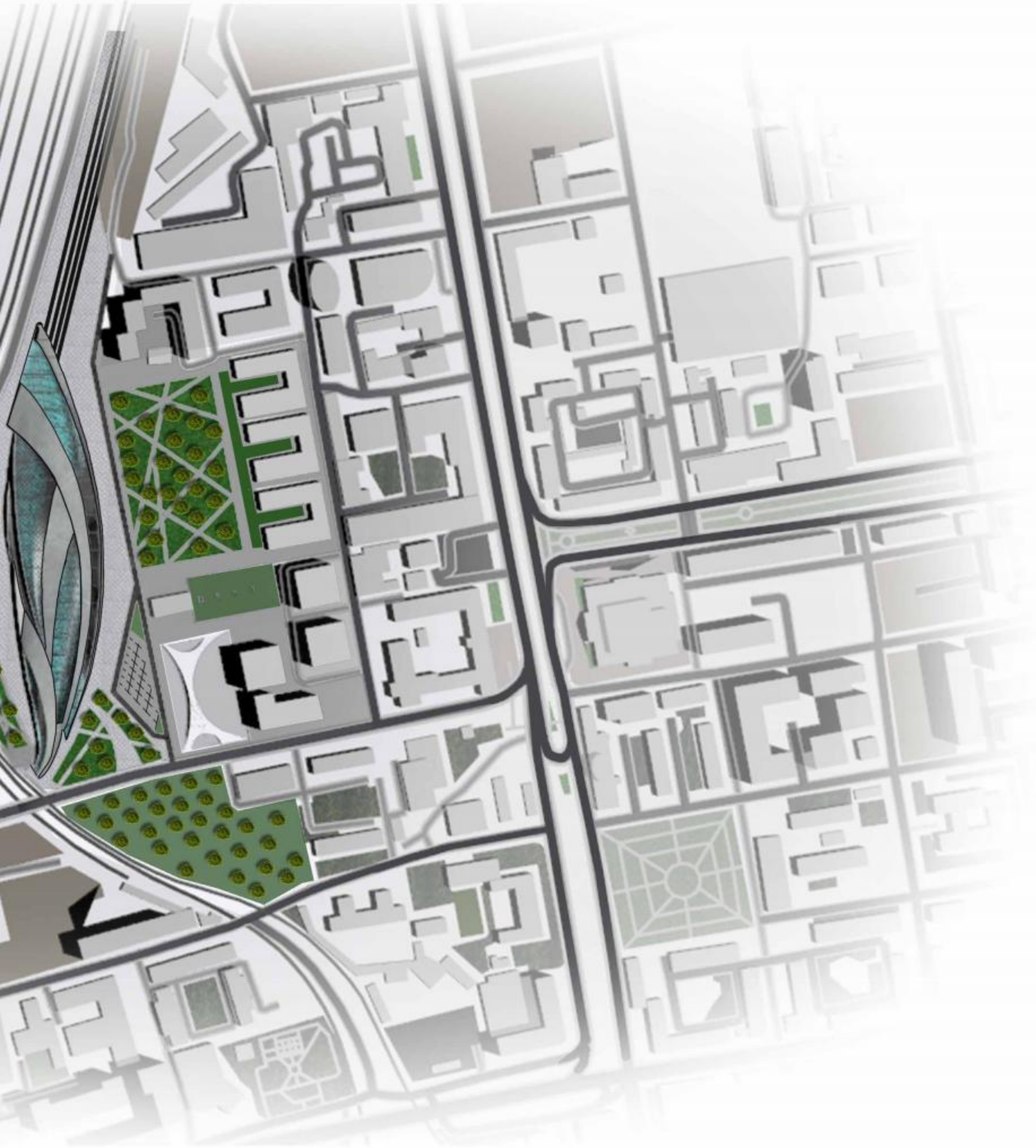
Access to the site

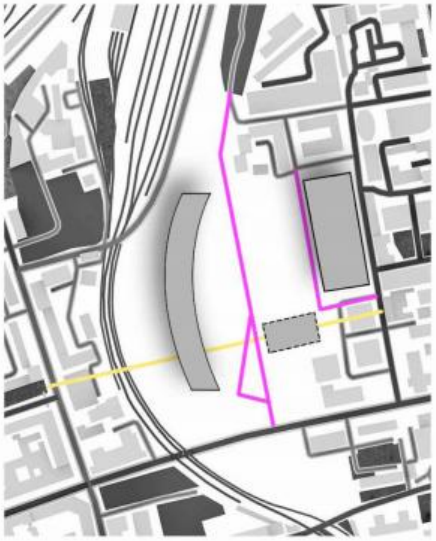
Both pedestrian and vehicle access



Creating additional roads

Connecting to the main roads and creating new circulation system

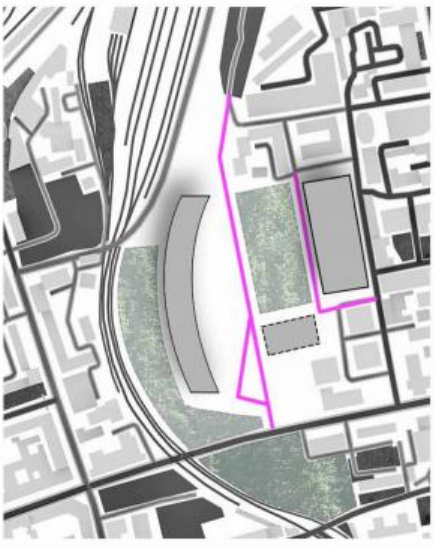




Placement of Metro Station

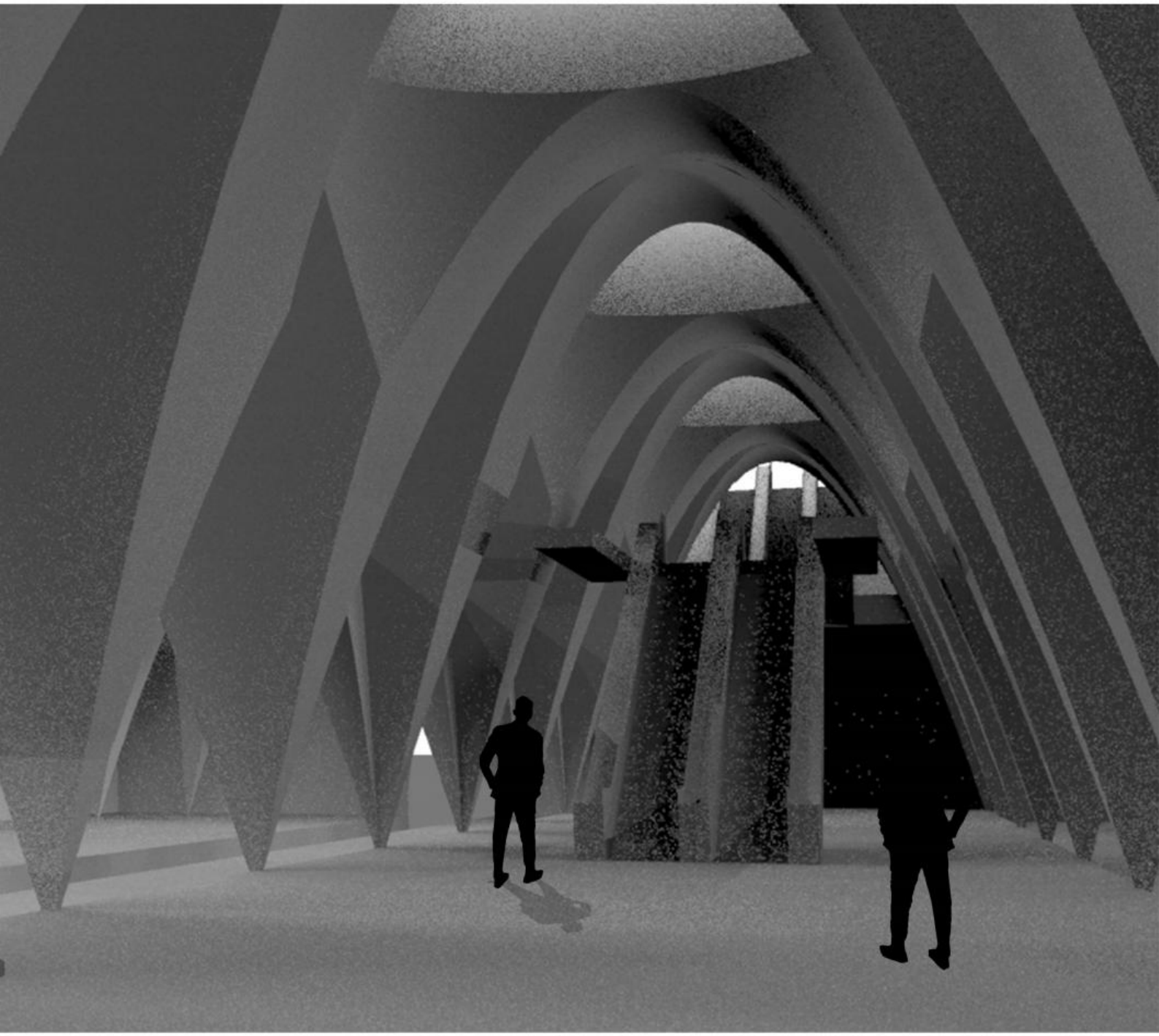
Yellow line respresents existing metro line

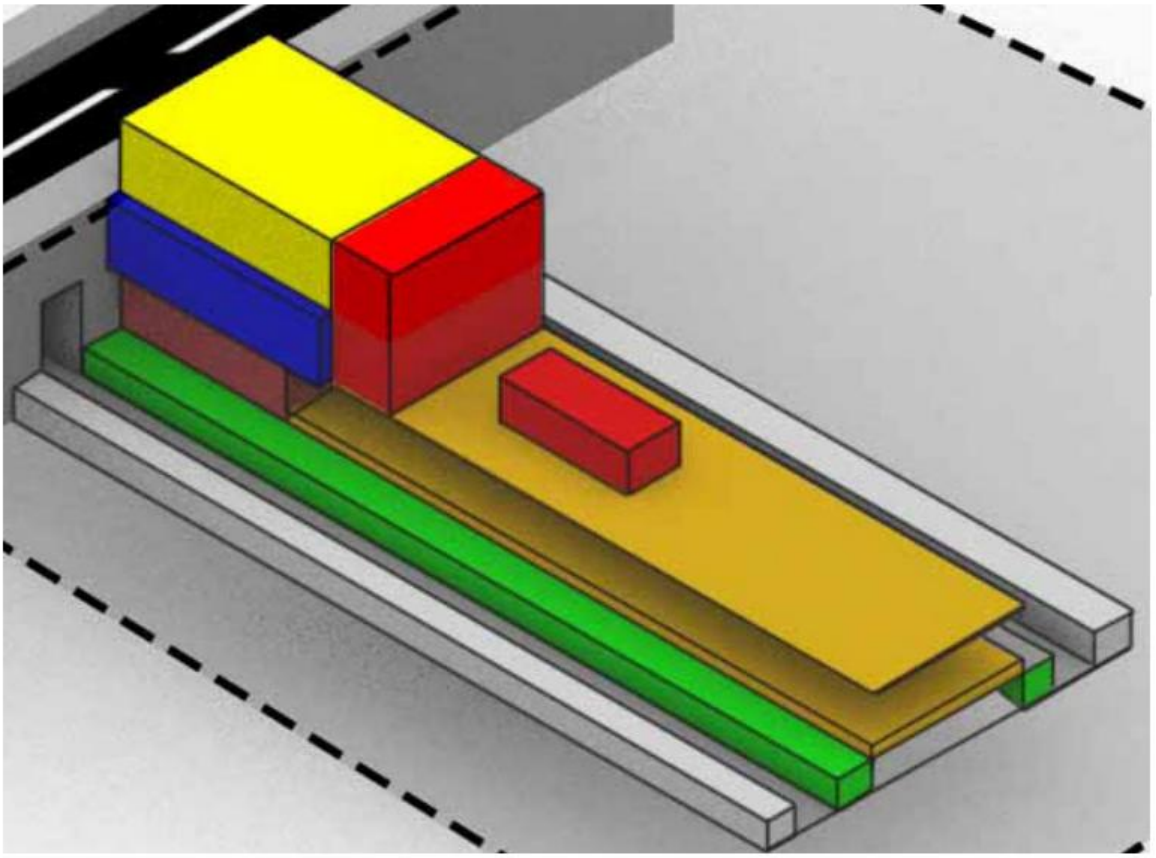
And possible placement of metro.



Green Areas

Green areas define parks and open air railway museum.

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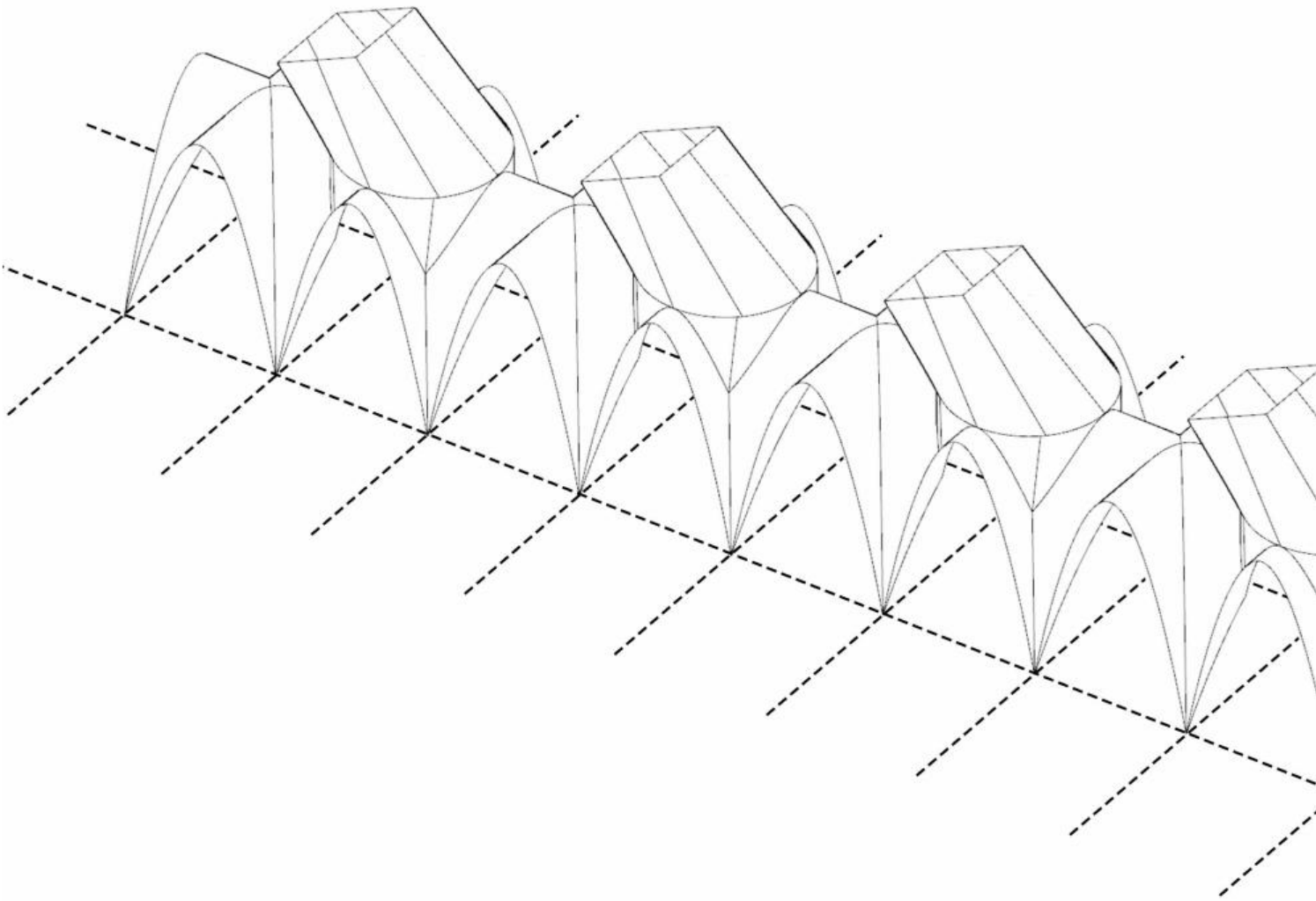


ation

nce Hall

orms

nistration Office

ns

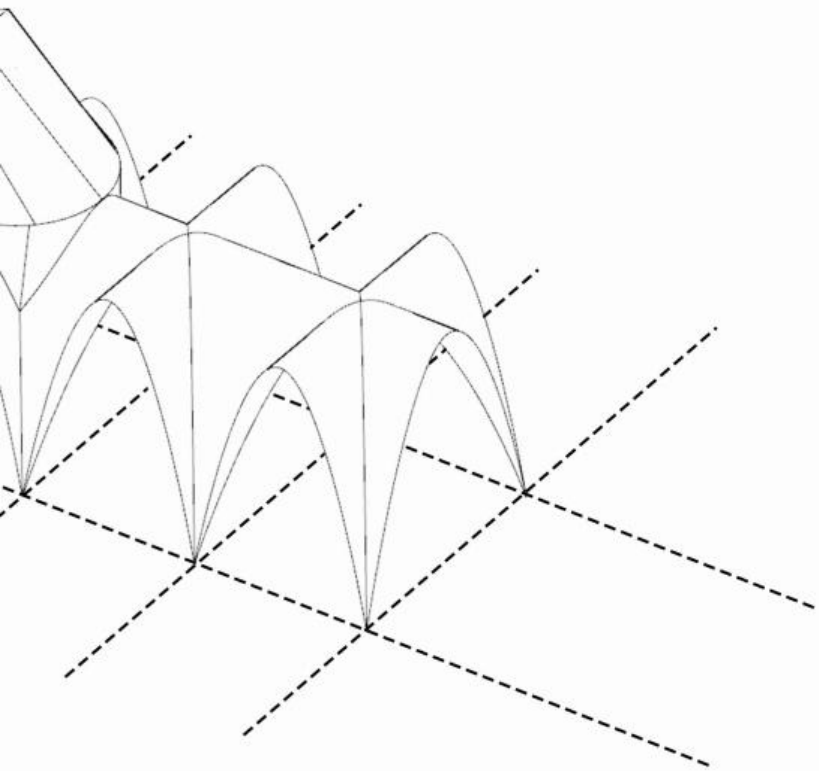
anical and Electrical Rooms

The spatial diagram represents the spaces and the volumes of those spaces.

Metro Station is 2 story building

Entrance floor consists of entrance hall and security.
-1Floor is Ofiices of the Metro Station
-2Floor is mostrly Perons and Electrical and Mechanical rooms.

Structure of Underground

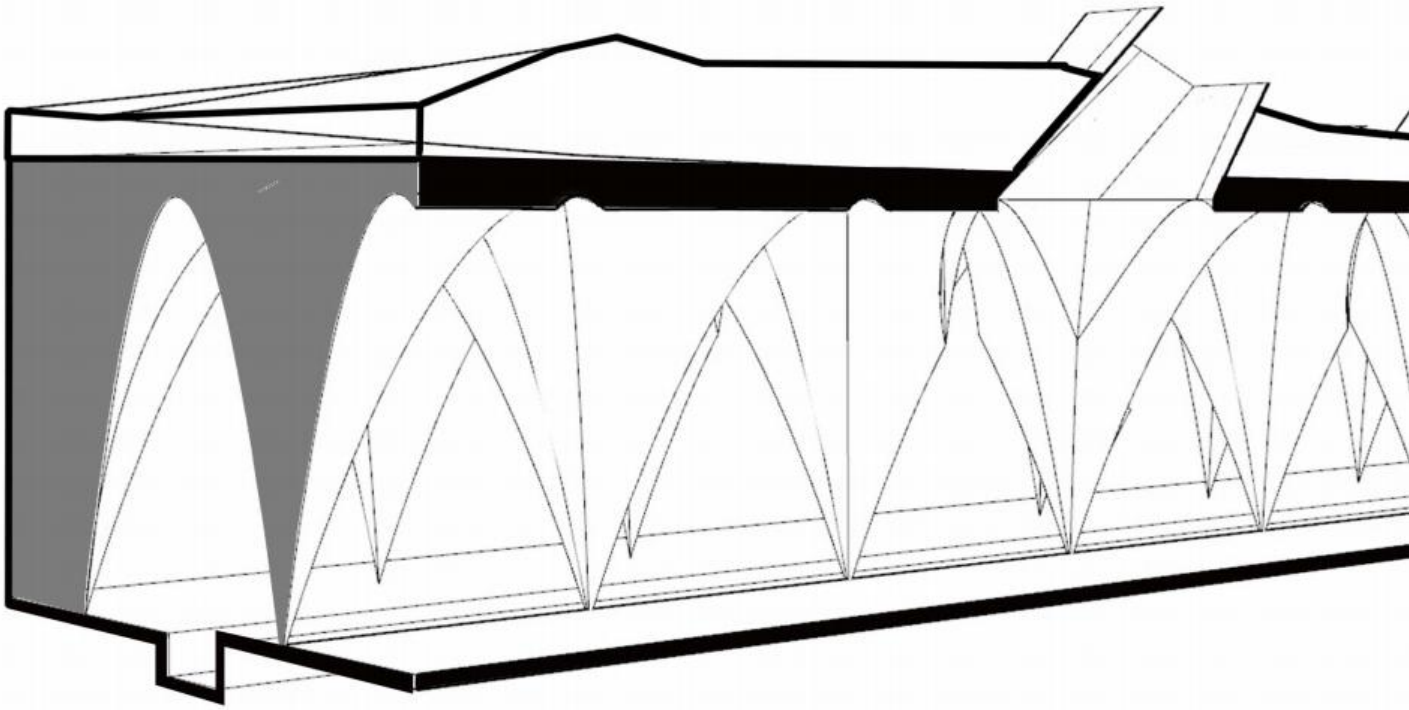


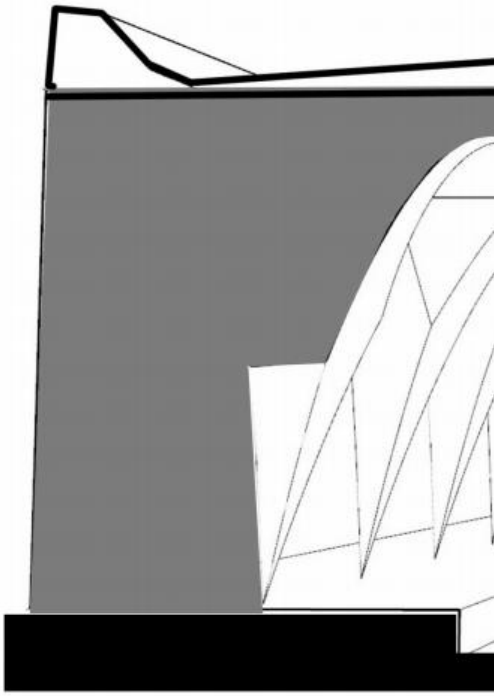
Structure is vaulted structure Vaults and Arches are decided beacuse its one of the most optimal structural system for the underground

For ventilation and lighting purposes wells are put on the pendentives of the vaults.

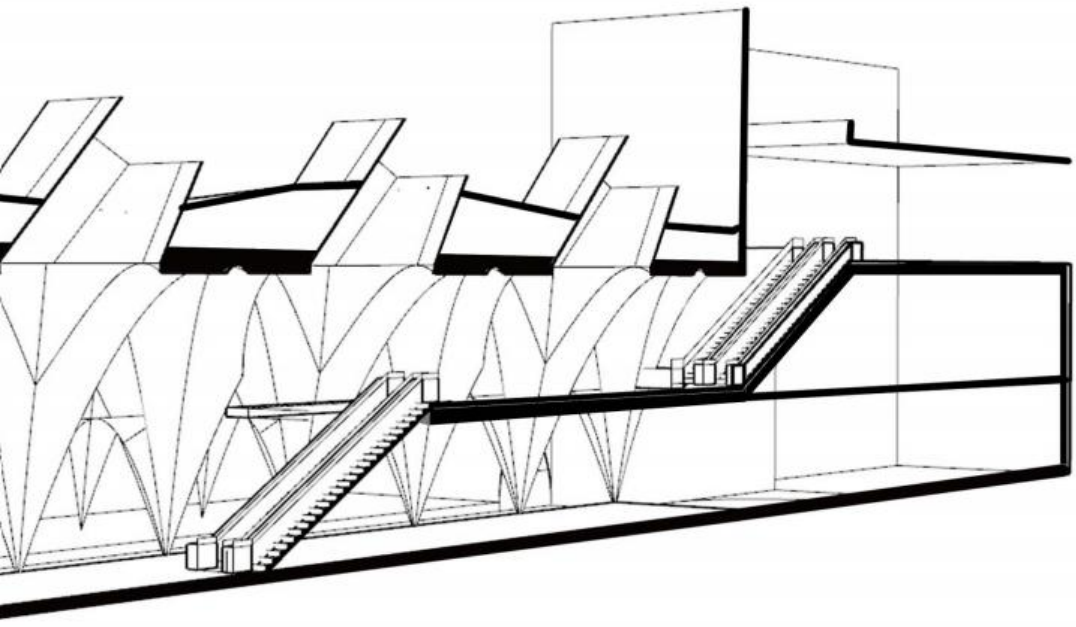
Those wells let the fresh air circulate in and minimize usage of artificial light.

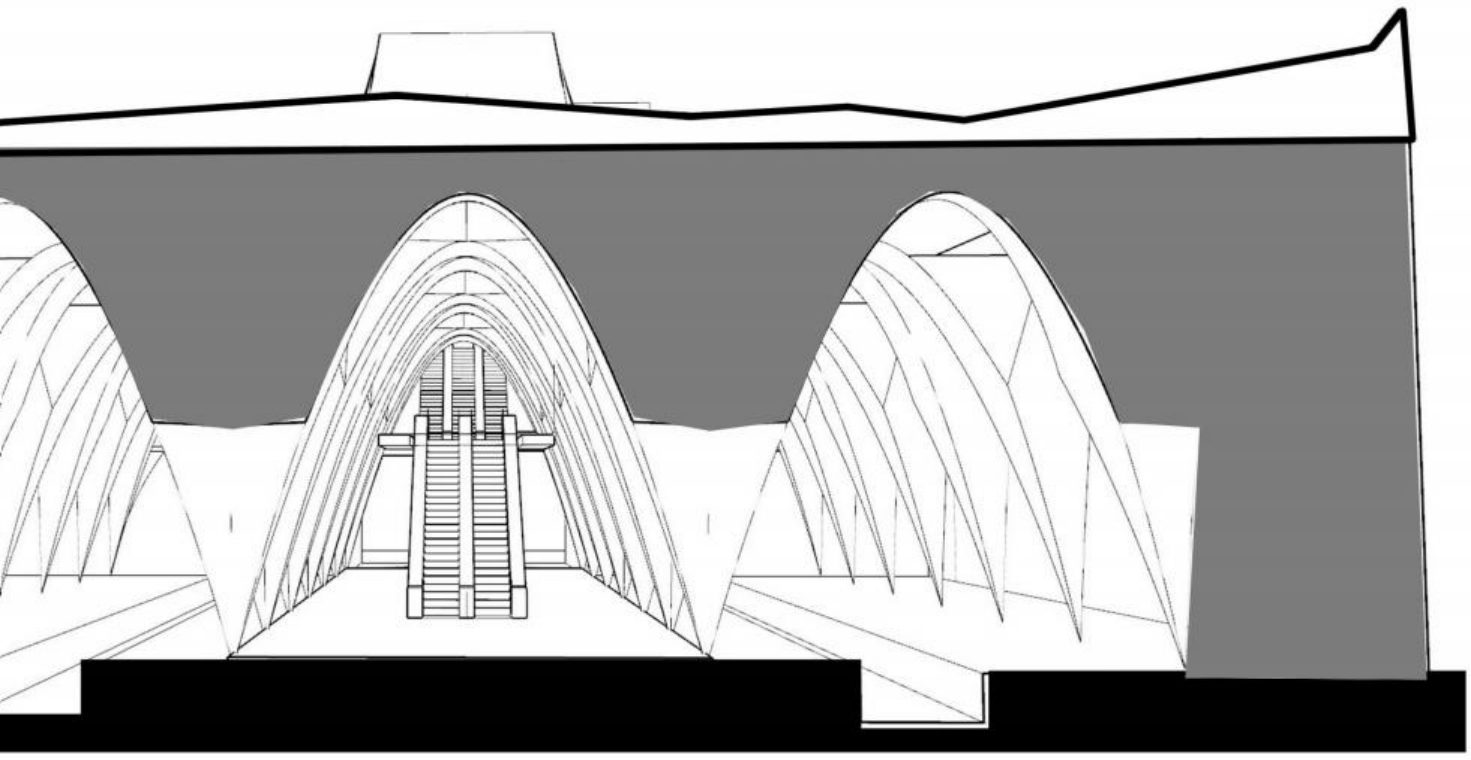
LONGİTUDİNAL SECTİON



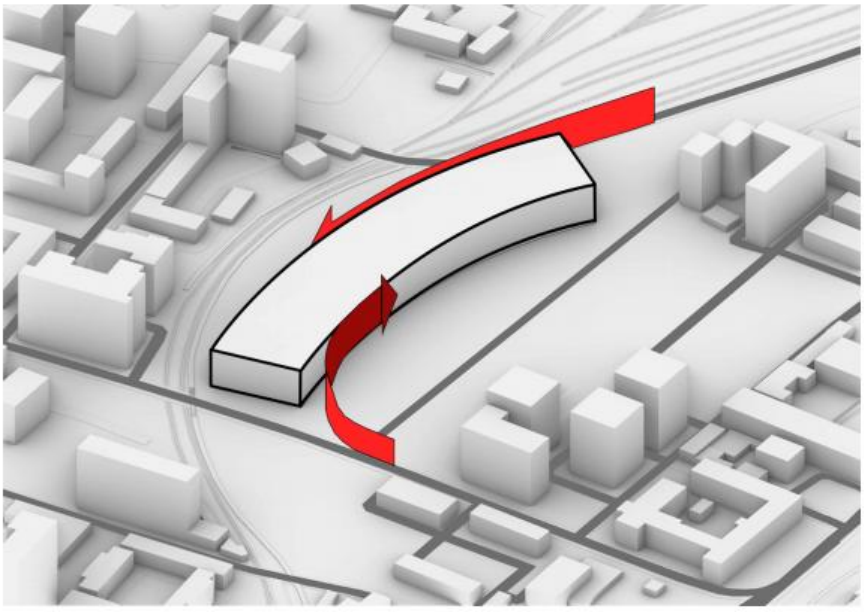


CROSS SECTİON



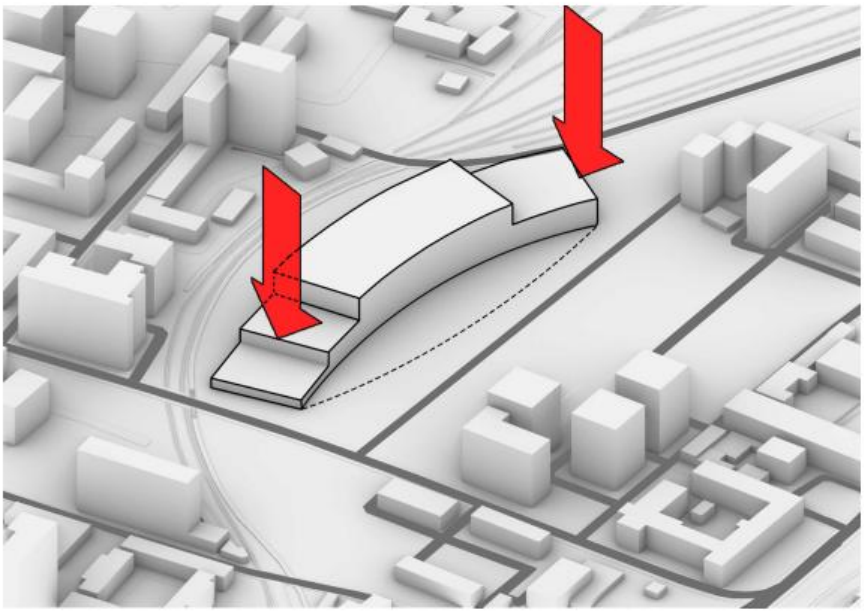



3093
3093



1St STAGE

Shaping the building by the way people will approach the station.



2Nd STAGE

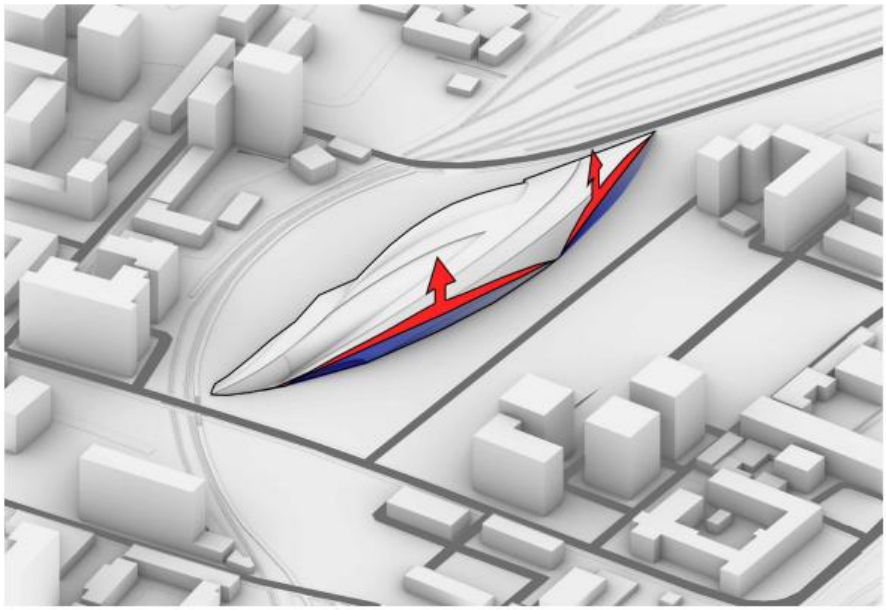
Leveling building height lowering edges and increasing the height of the cental gallery.

3Rd STAGE

Creating shell envelope over the mass

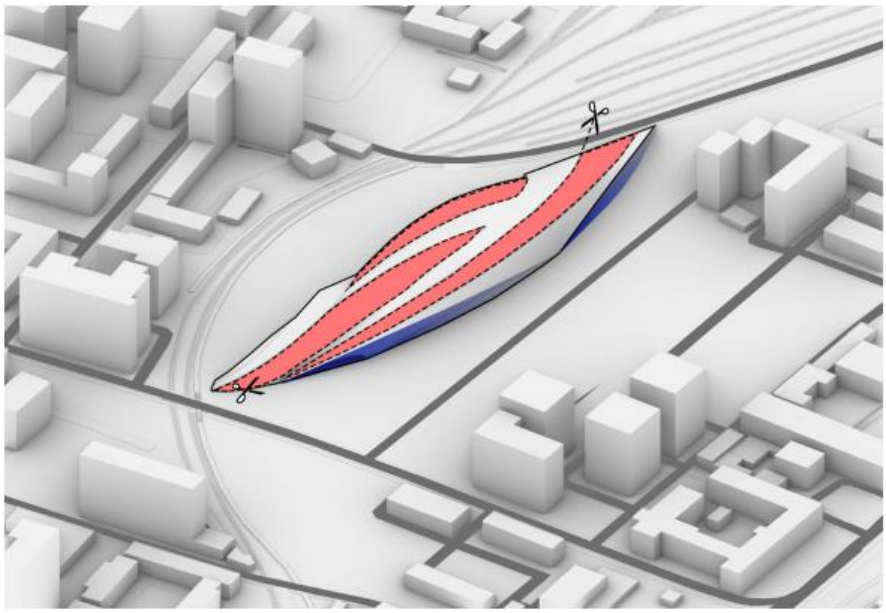
4Th STAGE

Creating openings for the entrances and departure of the trains.



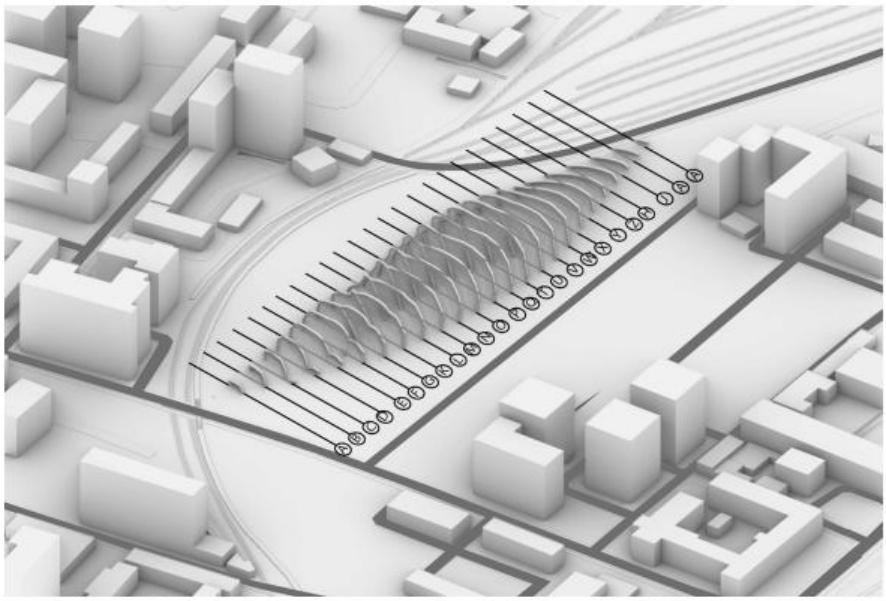
5Th STAGE

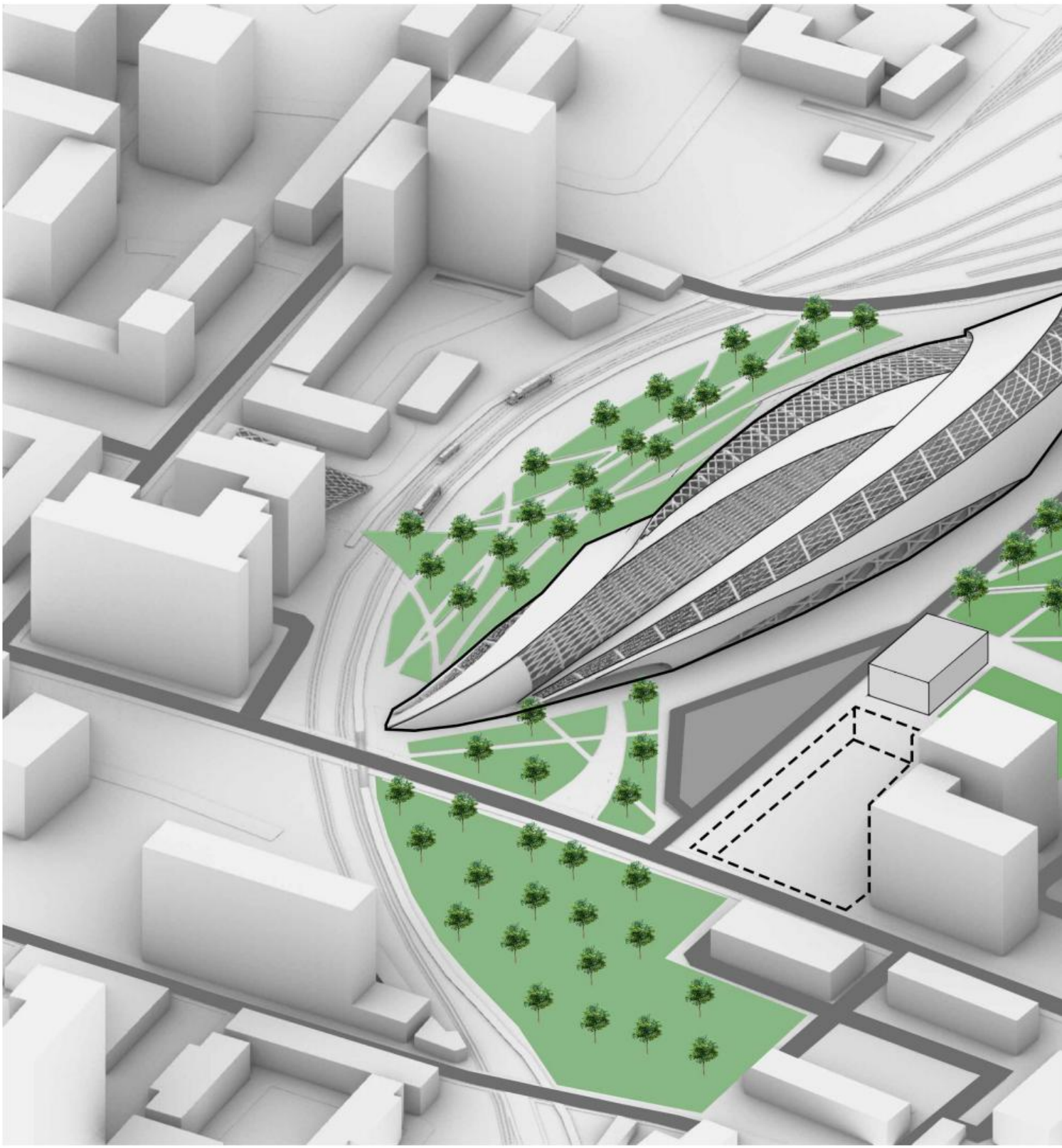
Creating opening on shell envelope to give access to solar rays and wind circulation



6Th STAGE

Making structure by creating series of portals.

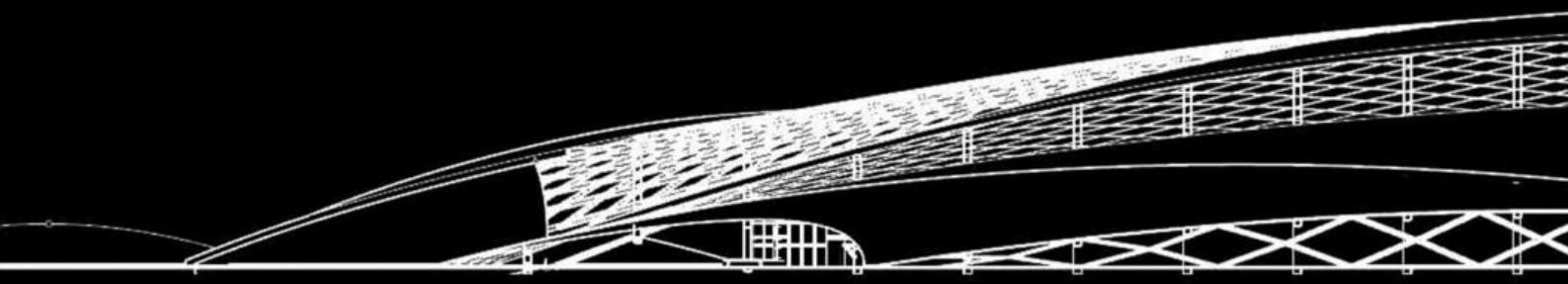




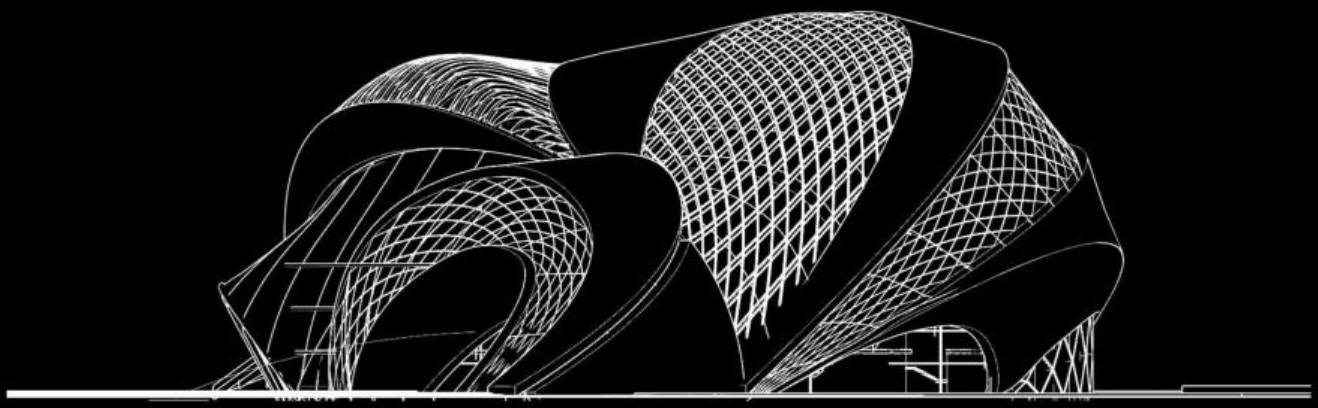
The last but not the least stage

The 7Th Stage is to regulate the greenery area so that. the green area
wouldnt just work as park but also as an open-air museum and passage
way to the building and the surrounding

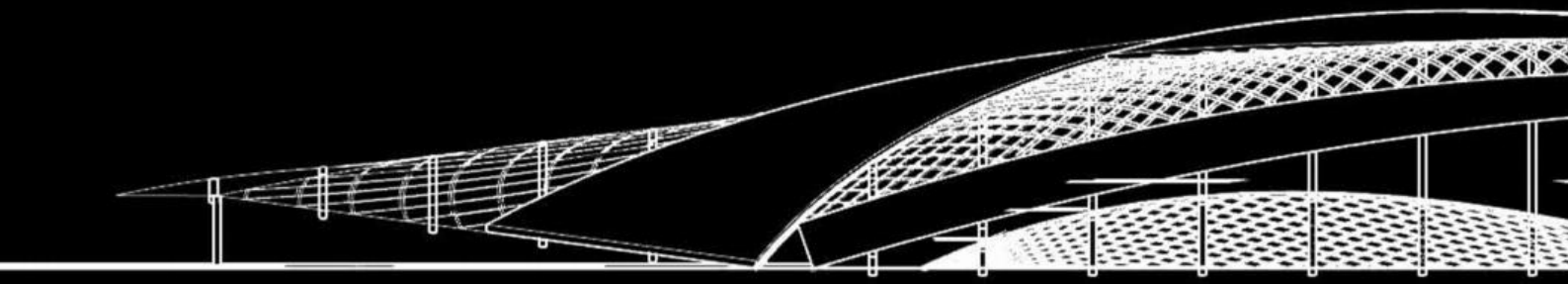
The green areas inculde an Open-air Railway History Museum
Skateboard Park, Park for the residences of the buildings nearby and



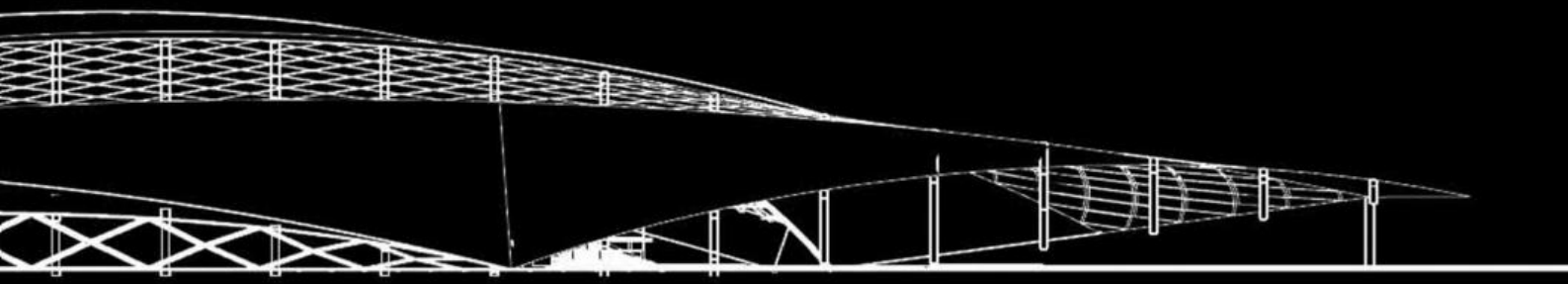
EAST ELEVATION

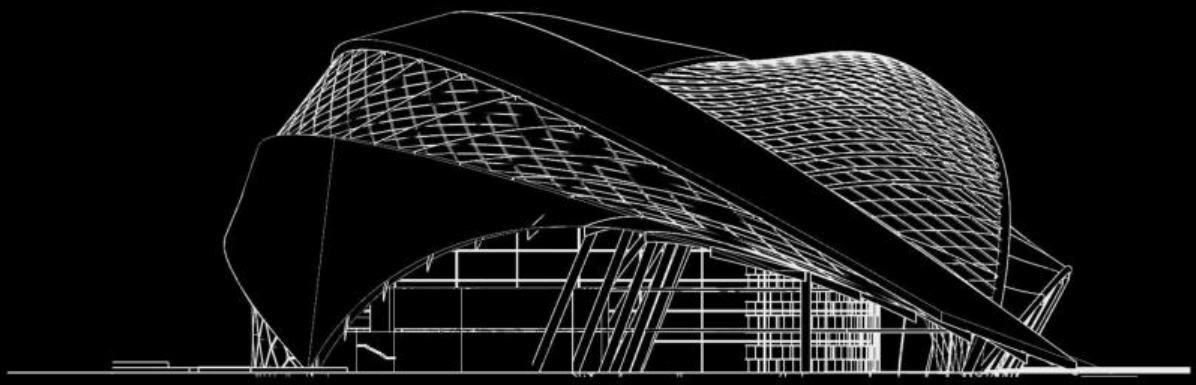


SOUTH ELEVATION

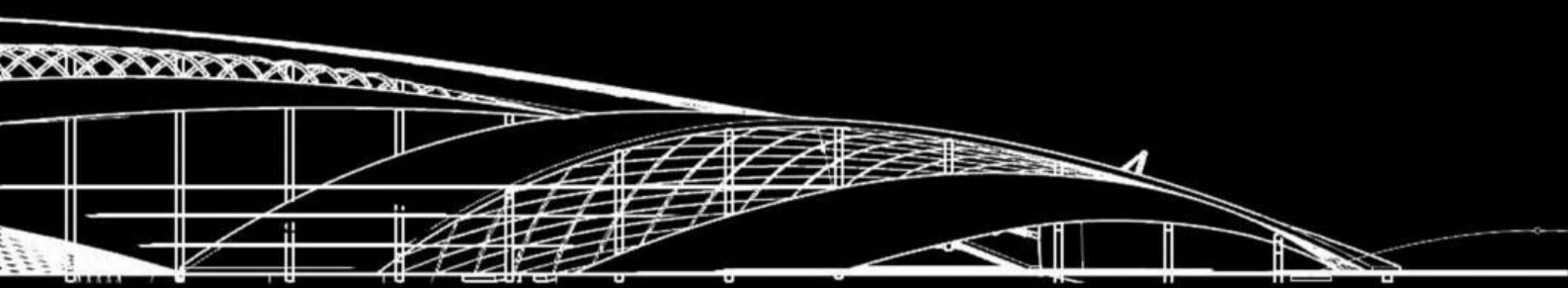


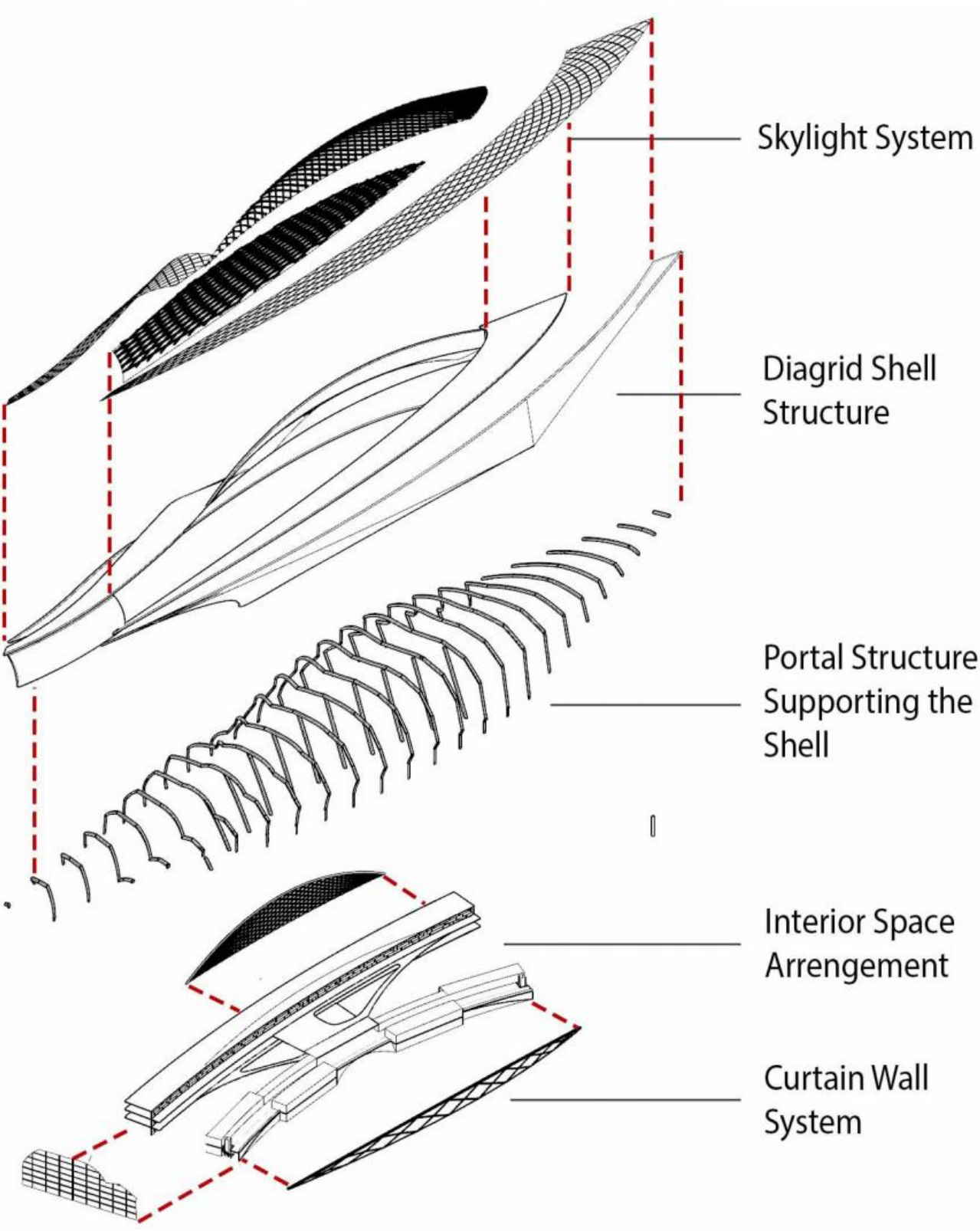
WEST ELEVATION

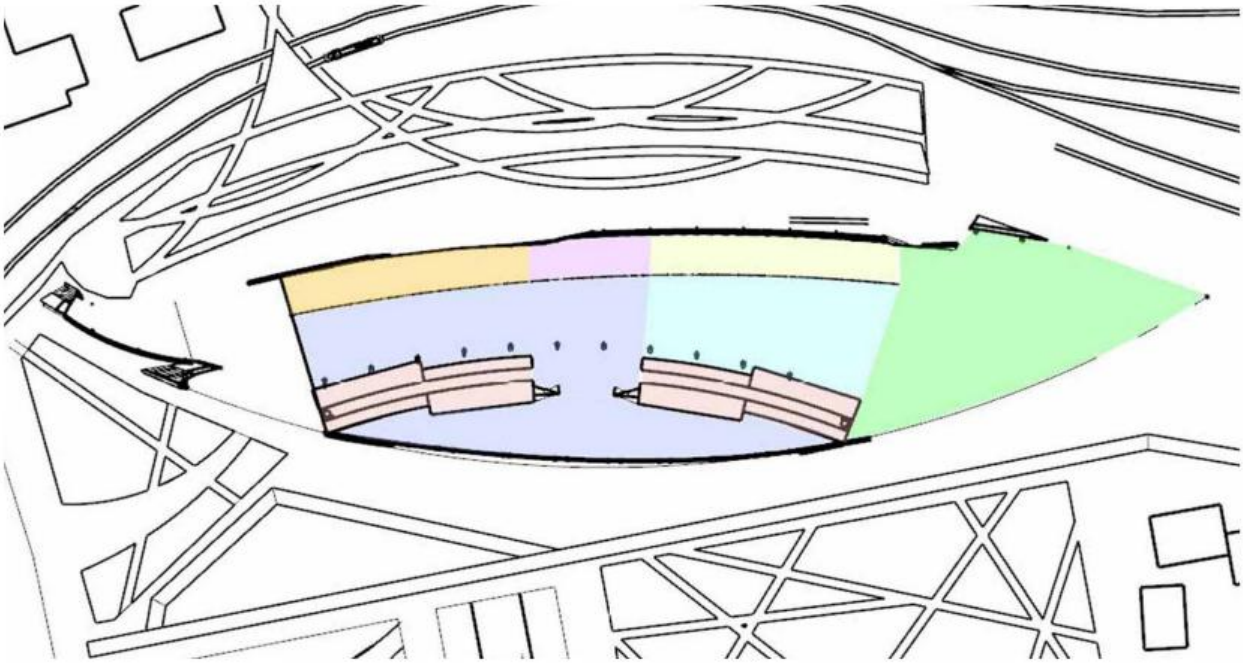


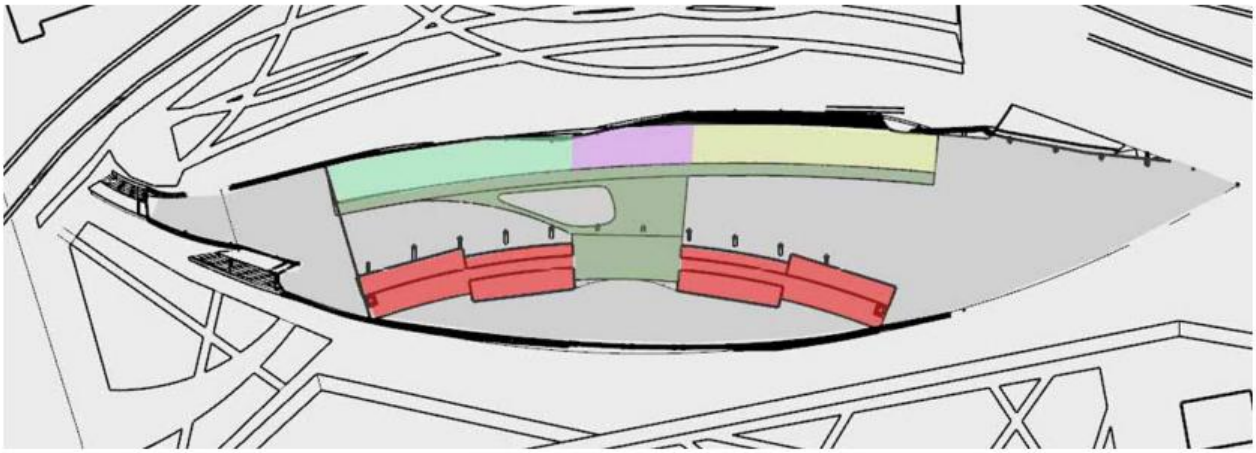


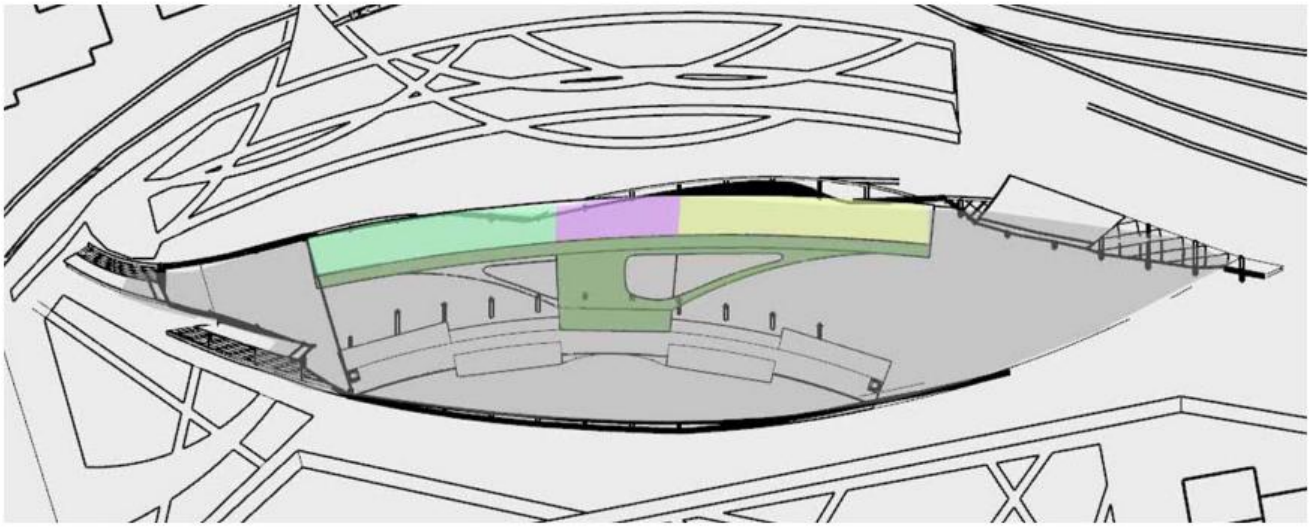
NORTH ELEVATION

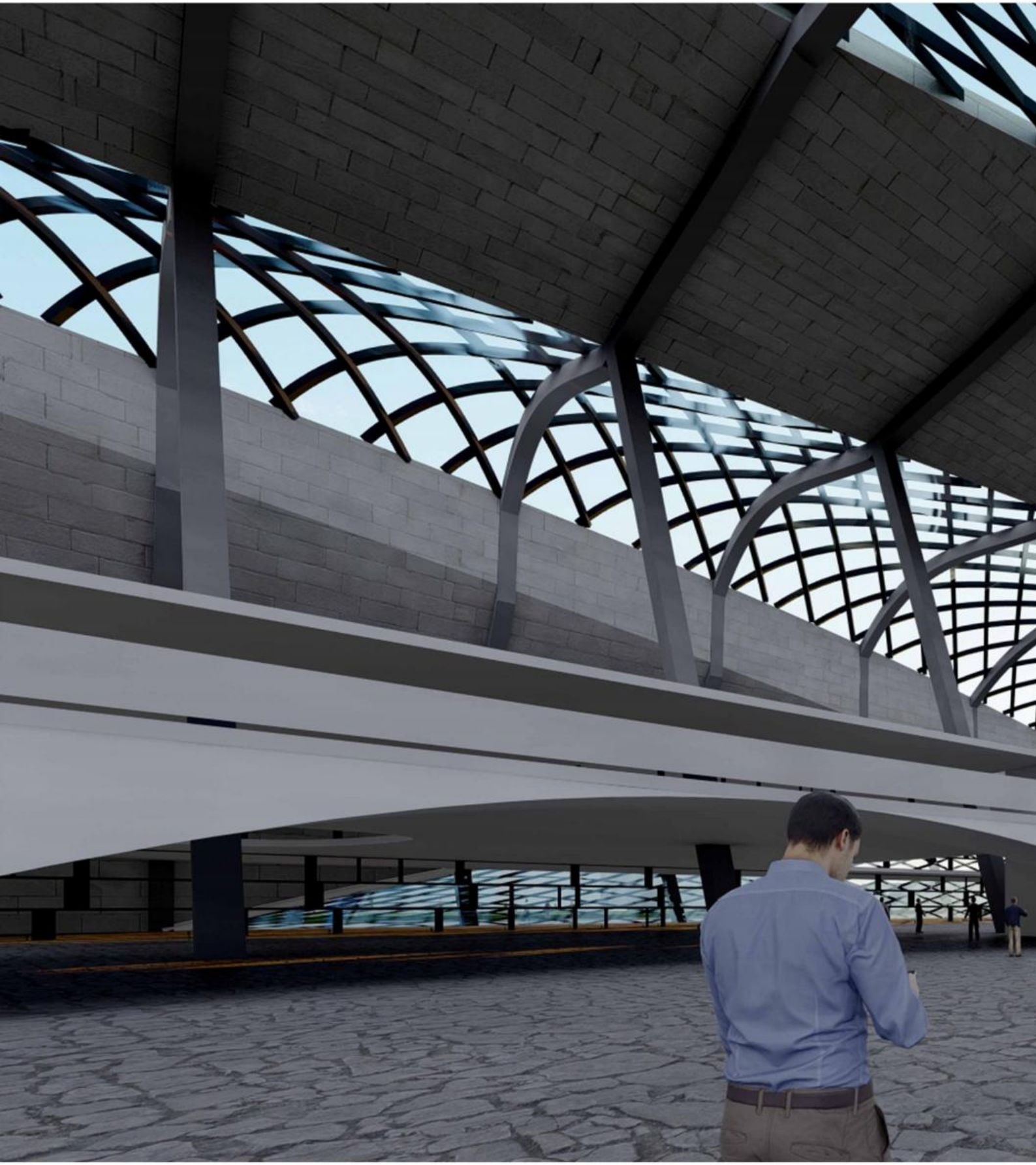


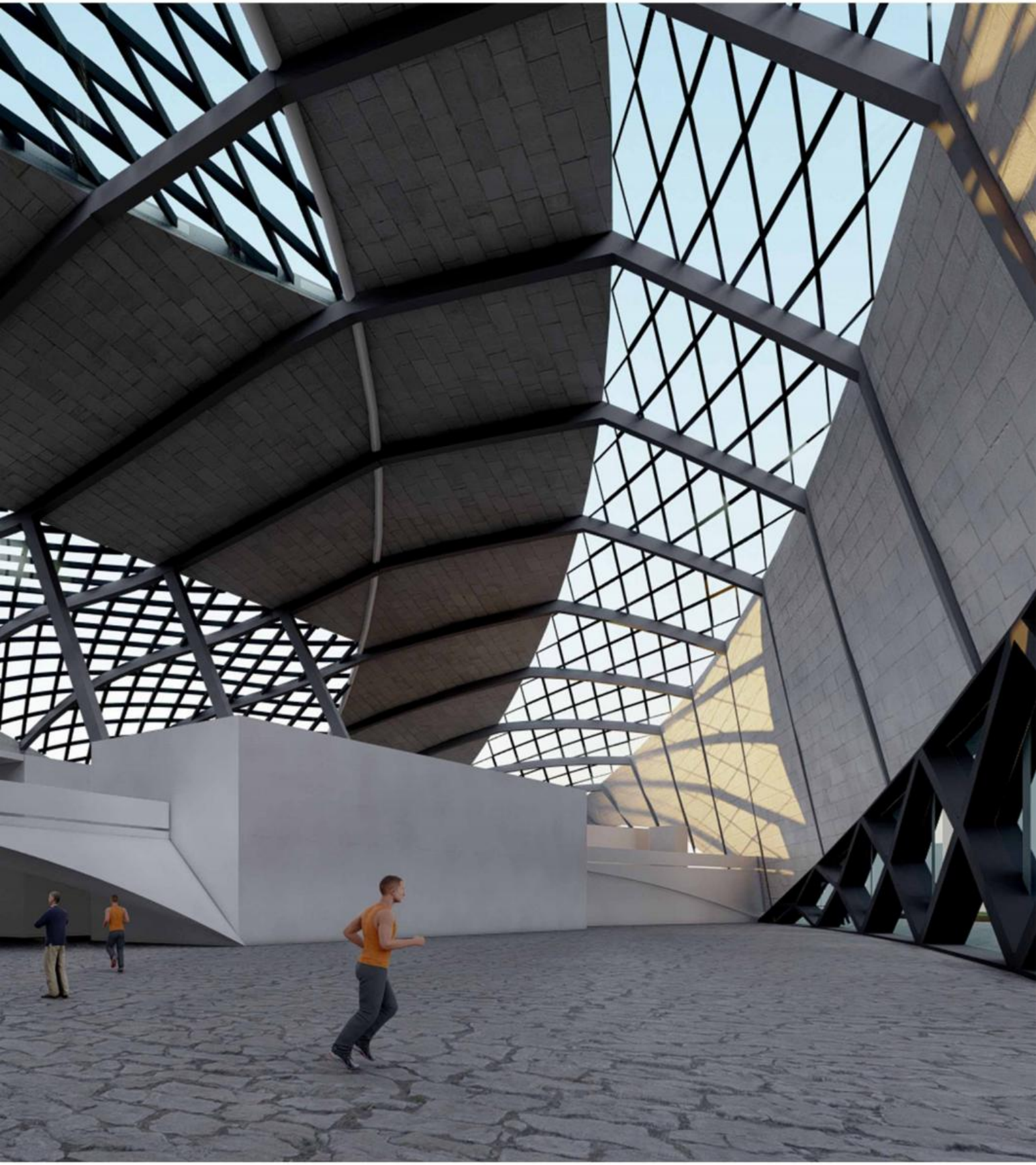

Skylight System
Diagrid Shell Structure
Portal Structure Supporting the Shell
Interior Space Arrengement
Curtain Wall System









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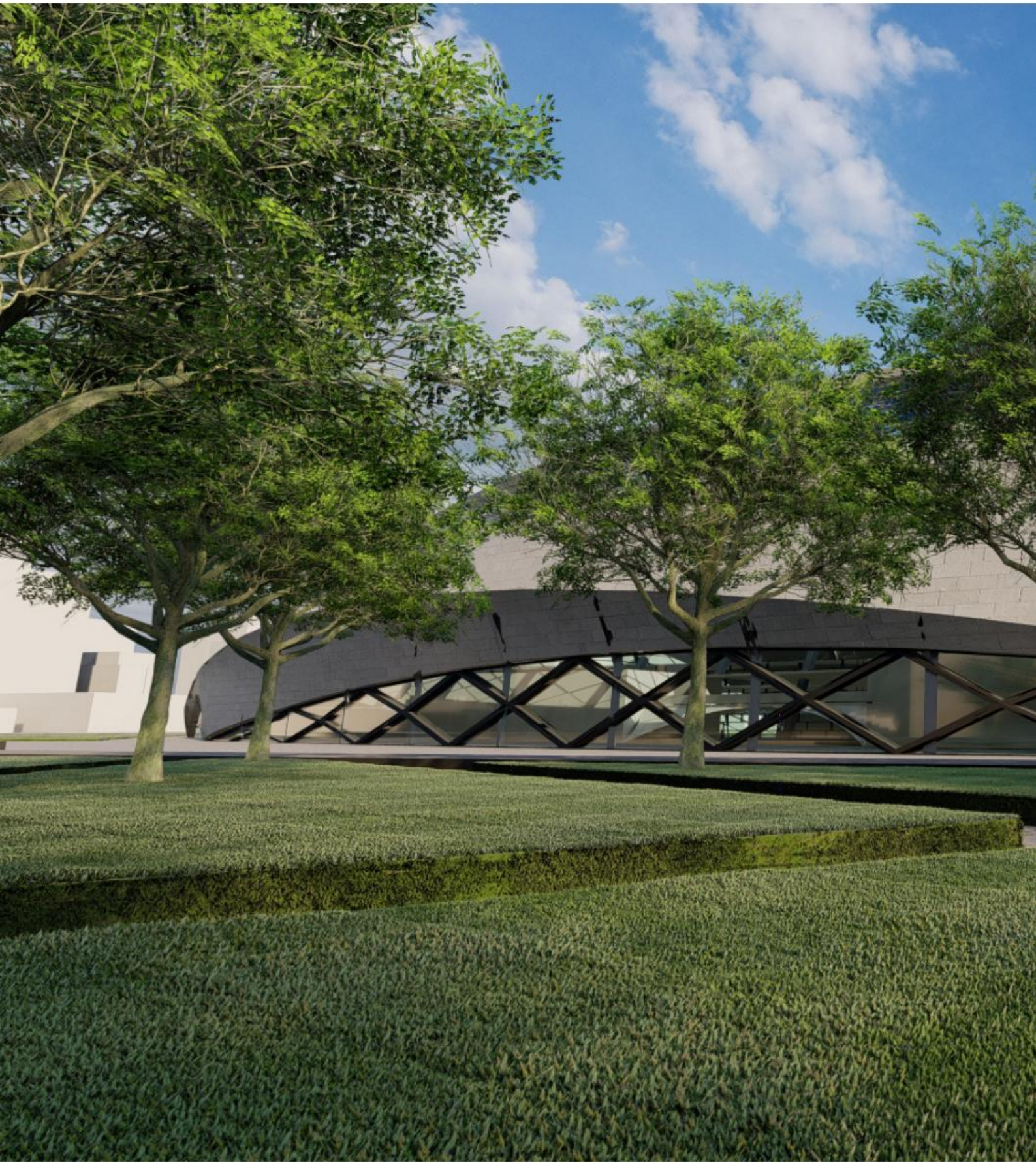
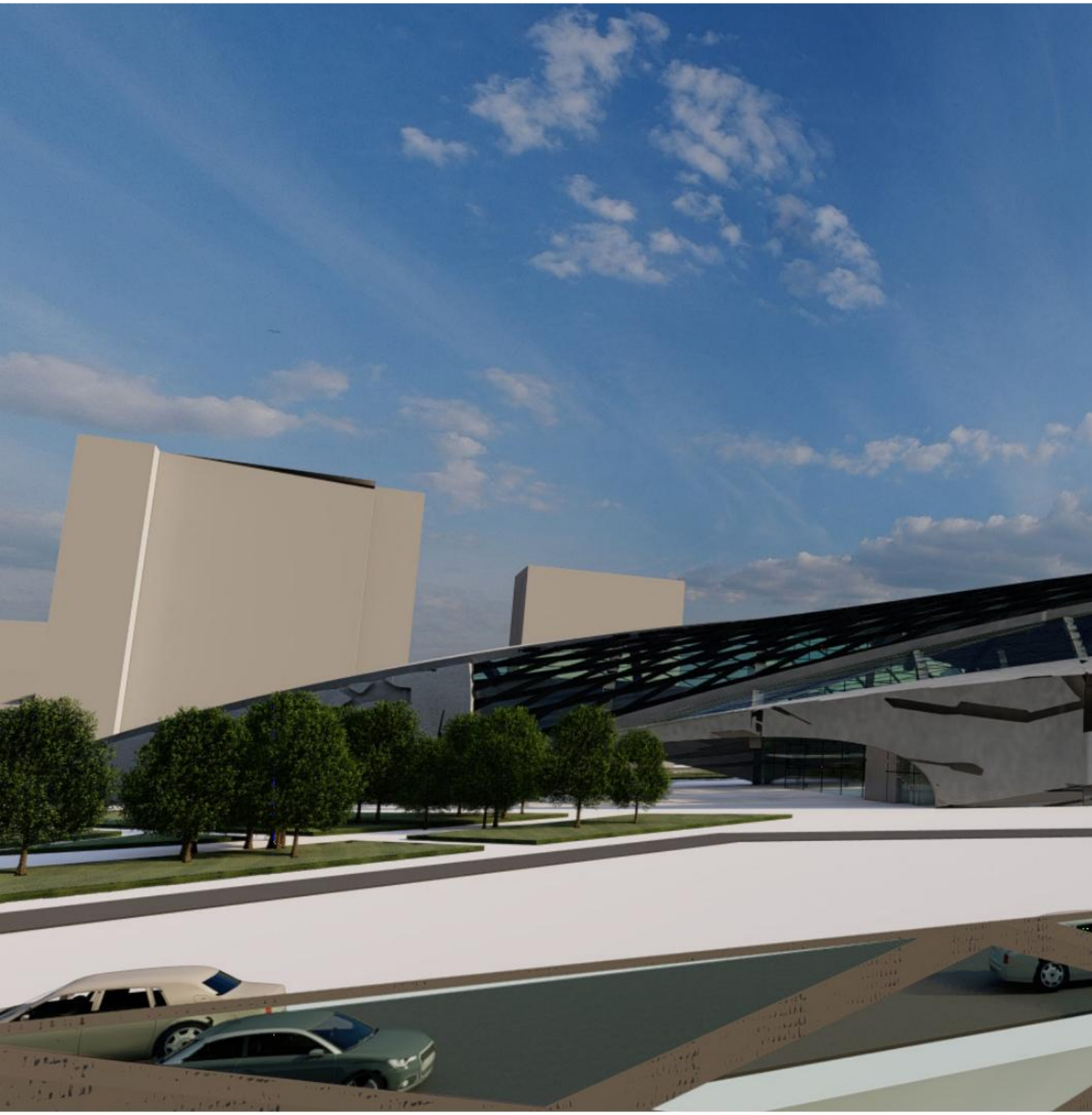
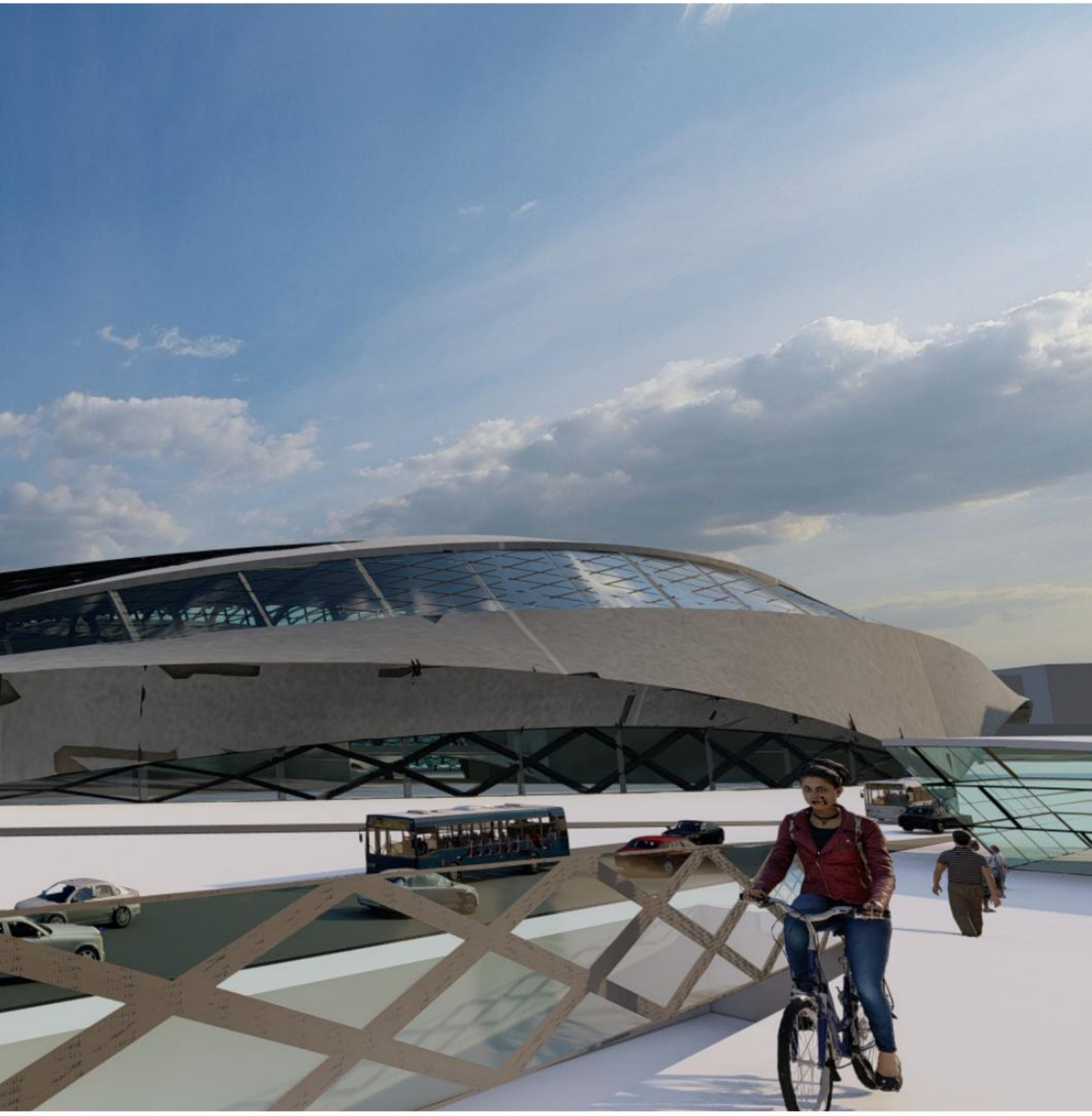






Öykü Su Ökkan

INNOVATION FACTORY

REVITALIZATION OF INDUSTRUAL SITE FOR SUSTAINABLE DEVELOPMENT OF URBAN FABRIC

ÖYKÜ SU ÖKKAN

REVITALIZATION OF INDUSTRUAL SITE FOR SUSTAINABLE DEVELOPMENT OF URBAN FABRIC

INNOVATION FACTORY

ÖYKÜ SU ÖKKAN

District of Elliðaárdalur is 20 minutes train ride away from central Reykjavík, Iceland. The concrete silos in the site is a reminder of the history of the district which is being transformed into the Innovation Factory. Social, economical and environmental sustainability are key aspects of the design. The site and close surrounding are highly detached and lack the formation of a community. The project aims to revitalize the district to generate a space of encounter for the society aswell as a tourist attraction to cultivate the local economy and create job opportunities to sustain a healthy environment.

Innovation Factory

REVITALIZATION OF INDUSTRUAL SITE FOR SUSTAINABLE DEVELOPMENT OF URBAN FABRIC
INNOVATION FACTORY

This 2.853m² plot is characterized by landmarks, a 40 meter tall concrete silos which form a part of a 1.641 m² industrial complex which used to house a cement factory. The site is today still used as a storage for gravel but the whole build structure is abandoned except for the buildings interior structure and machines. It is an important landmark seen from multiple locations in the city, perfect reminder of the past role of this neighborhood as an industry area and a gateway into the new future urban area of Bryggjuhverfi Vestur.

The plot is located in the new Bryggjuhverfi Vestur district which is a part of a transformation of Reykjavík´s brownfield area of Elliðaárvogur and Ártúnshöfði. An area that will soon get a very well deserved transformation from being an important industrial area to a quality urban area filled with vibrant life.

The site enjoys an ideal central location within the new area of Elliðaárvogur and Ártúnshöfði. It is nearby the ocean with well-connected bike paths to other parts of the city and will even be better connected when the new (BRT) City Line will launch its first phase near the site.

The site will be transformed into Innovation Factory which will respect industrial heritage of the site yet propose a new scheme for innovation and research along with Icelandic goals for industry 4.0. The aim is to propose a building scheme that will be pioneer for nordic context. The new scheme will transform the site as well as the surrounding becoming an attraction for workforce, residents and tourists. Therefore, the activity is supported by residential zone, mixed use development, ecological preservation zone, the hub, fish market, ferry terminal and sports facilities. The toxic site resulted by cement activity is aimed to be decontaminated and the extension of delta which is the habitat of birds, plants and vegetation restored.

The strategy is preserve, access, adapt, propose and sustainable growth. Ecologic restoration is one of the main goals of the project which questions the bond between nature and innovation meanwhile taking human on focus.

Urban Memory Reykjavik, Iceland

800s **First Settlement**
People of Nordic origin settled in Iceland in the ninth century, naming it the last country in Europe to be settled.

874 **The farmshed**
Reykjavik was simply a farmstead.

1381 **Danish Reign**
Iceland fell under the control of the Danish king.

1780 **Industrial Revolution**
The industrial revolution came late to Iceland in the 1780s. The process of urbanization was very slow until the second part of the 19th century, partly because of laws which put restrictions on the freedom for people to move from farms to the new fishing villages

1839 **Urban Planning Efforts**
Town planning and building mandate was established. A Building Commission was established with the power to plan streets as well as to approve new buildings.

1912 **Urban Planning & Wellbeing of Inhabitants**
The first article in Icelandic on town planning theory emphasized that physical form of towns have profound effects on health and spiritual wellbeing of the inhabitants.

1916 **Continuous Low Rise**
Main concerns were the conditions that led to the big fire in 1915, the lack of sophisticated physical planning and the lack of knowledge concerning sanitation engineering. Built environment focused on continuous rows of low rise houses, instead of the traditional small detached houses which characterized Reykjavik at that time, with regard to shelter, sunlight and lower construction- and infrastructure cost.

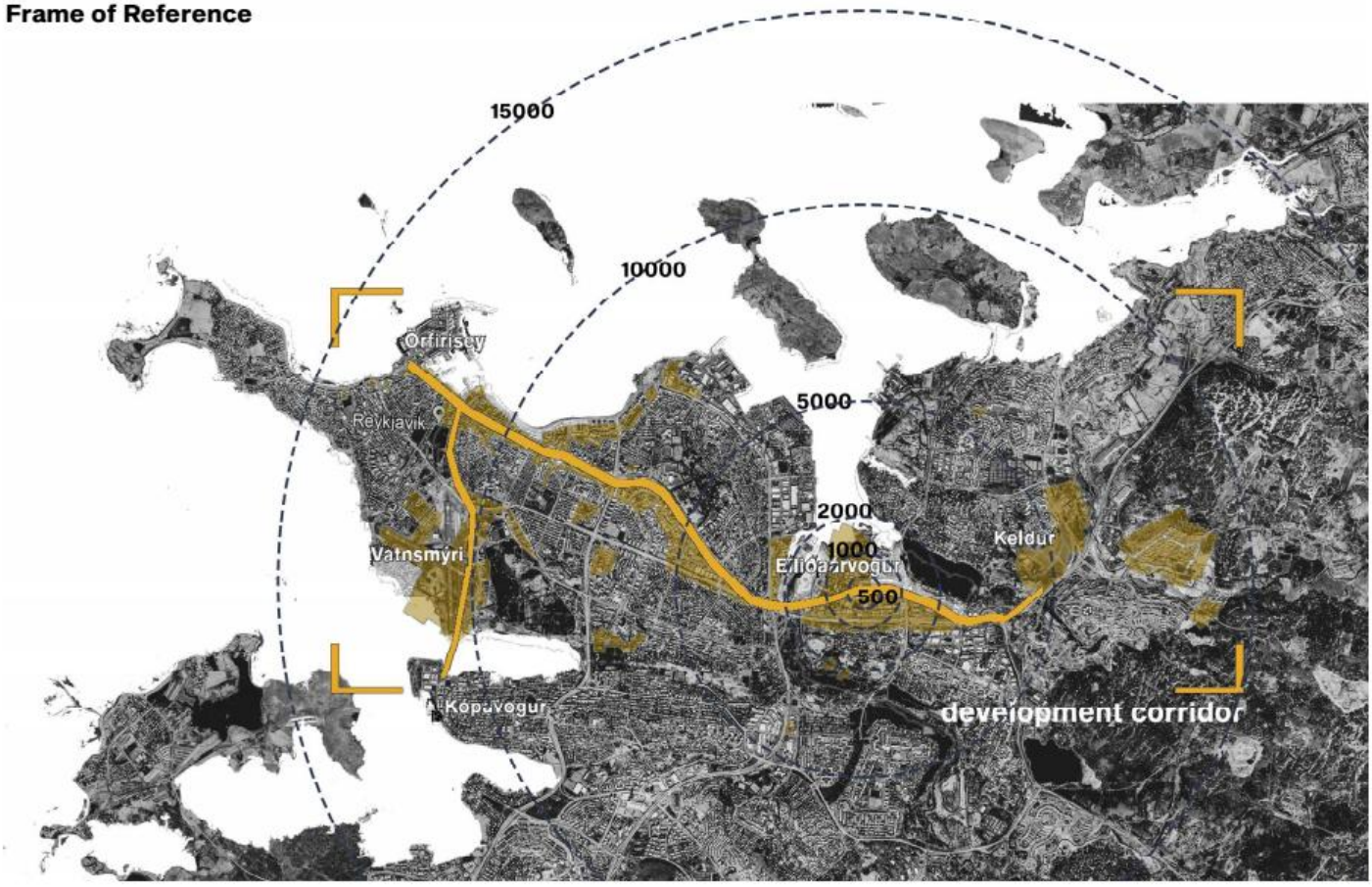
1944 **Independence**
Iceland gained its full independence and established the Republic of Iceland

*****The fact that the industrial transition happened so late in Iceland had certain consequences for the urban form of Reykjavik which bypassed the 19th century in terms of urban precedents. Reykjavik went directly from being a small fishing village with detached wooden houses into being a modern town planned according to the principles of the English garden city movement.**

1962-1983 **The Reykjavik master plan** 1962–1983 was based on a region-wide land use survey, followed by a traffic survey, and a traffic forecast based on an origin–destination gravity model.
Some of the main criticisms of this plan were on the **heavy emphasis on the private car over public transport**, over-emphasis on **land use separation** and **lack of working areas in the suburbs**, creating a **heavy west–east traffic** and taking most of the **north coast with its beautiful view** to for harbour activities.
In the 1980s the City Planning Office started to work on Neighbourhood Plans, based on **division of the City into nine parts**. These plans have become very popular as they are worked out in close co-operation with neighbouring organizations recommending, for example, **improvements in open areas**, **preservation of old city quarters** and **traffic safety**. The neighbourhood plans are maps with planning guidelines in A1 format on a scale of 1:5000 which people understand much better than the land use map of the comprehensive plan on a scale of 1:20000

1990 The international ideology of global environmental concern reached Iceland in the late 1980s and early 1990s. It had become obvious that the 1960 policy of **uncontrolled private car usage**, with **little support for other means of transportation such as buses or bicycles**, had negative side effects. The rate of traffic accidents continued to rise and more and more complaints about **pollution from cars**, especially **noise and air pollution,** were received by the city authorities. **Roads and parking spaces** were taking up more and more land in Reykjavik
As Iceland has very few industries that pollute the environment, the image of the country, as well as the capital, is one of **clean air and unspoiled environment**.
A more efficient and environmentally friendly transportation system is desired. To follow up on these goals three action plans have been worked out and were published in 1998. They are **(1) Traffic and environment; (2) Open area (paths and recreation); and (3) Houses and neighbourhood preservation.**

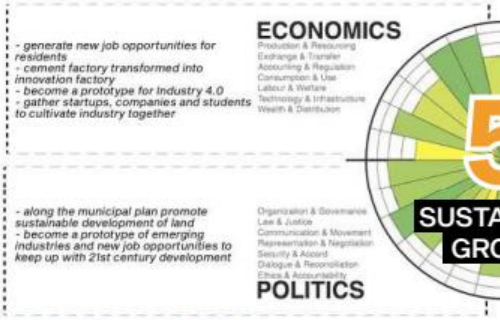
Frame of Reference



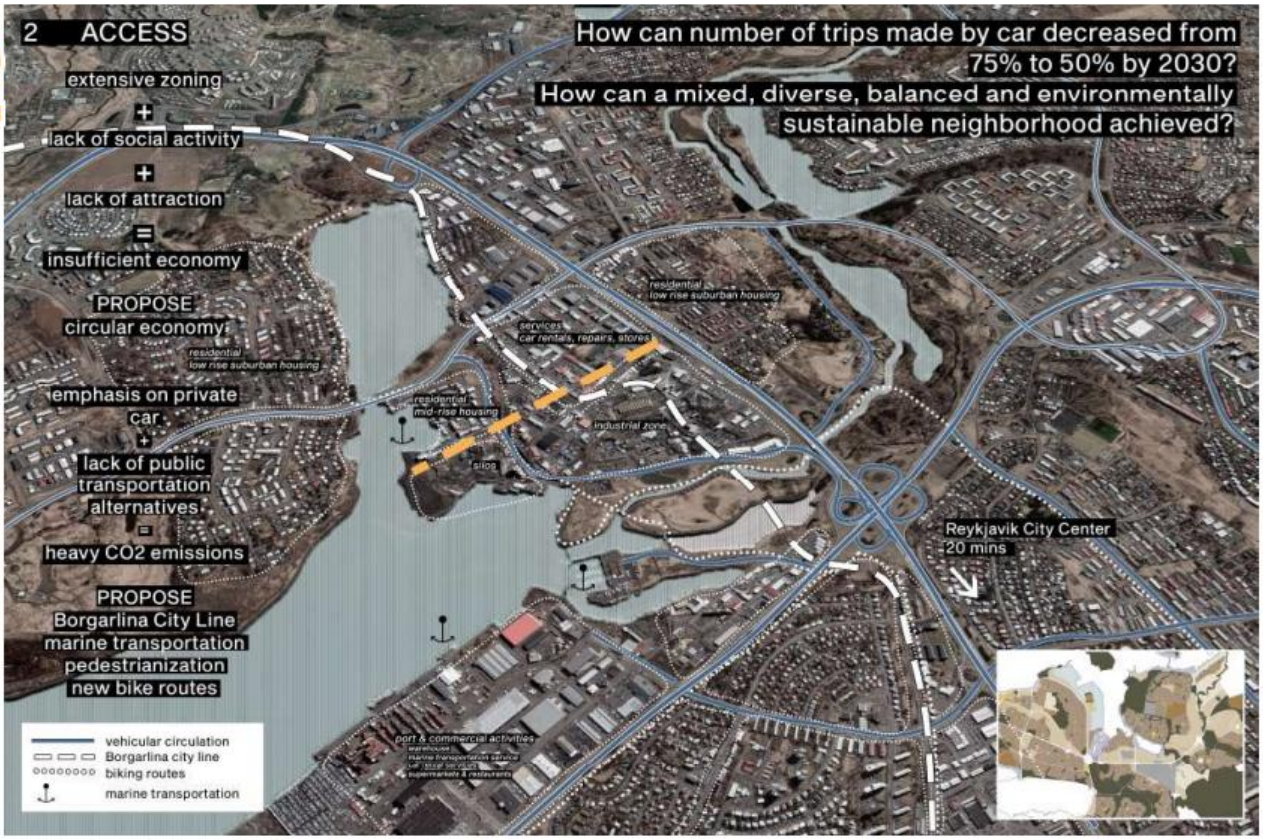
The project site is situated along the **development corridor** in **20 minutes distance** from the city center. The development corridor is the **main city axis** where urban development efforts are pursued from city center towards suburbs. **Borgar-lina city line**, which is a sustainable electric bus line, moves along this axis to connect the city with the left out land.

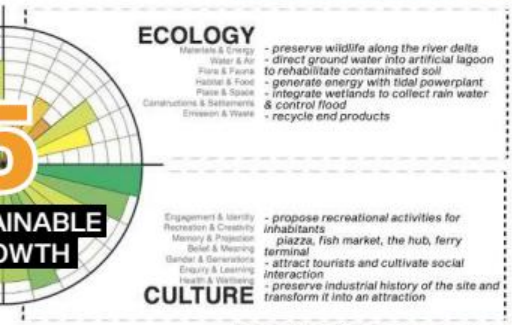
The **strategy for revitalization** of the site is a five step process consisted of **preservation**, **access**, **adaptation**, **proposition** and **sustainable growth**.


1 PRESERVE
How can green spaces be utilized for all seasons to cultivate maximum social activity for residents?
1
existing GREEN AXIS of Elliðaá river
+
INTEGRATE wetlands
=
PRESERVE wildlife
+
ACT as an urban sponge
+
PROTECT against heavy rain and flooding
elliðaá river
Geirsnef is an ore that stands between east and west Elliðaár west of Gelgjutanga and east of Artúnsholt. It is the habitat of many bird and plant species and a prefered destination by dog owners for leisure. Also, the river is suitable for salmon fishing.
Geirsnef


- generate new job opportunities for residents
- cement factory transformed into innovation factory
- become a prototype for Industry 4.0
- gather startups, companies and students to cultivate industry together
ECONOMICS
Production & Resourcing
Exchange & Transfer
Accounting & Regulation
Consumption & Use
Labour & Welfare
Technology & Infrastructure
Wealth & Distribution
- along the municipal plan promote sustainable development of land
- become a prototype of emerging industries and new job opportunities to keep up with 21st century development
Organization & Governance
Law & Justice
Communication & Movement
Representation & Negotiation
Security & Accord
Dialogue & Reconciliation
Ethics & Accountability
POLITICS
SUSTA
GRO


3 ADAPT
How can challenging environmental conditions be utilized for habitable social spaces?
3
Iceland is the only country in the world which obtains 100% of its electricity and heat from renewable sources.
87% from hydro-power
13% from geothermal
trasportation & infrastructure costs & efforts for energy?
can TIDE be an alternative source of energy
800 mm annual precipitation,mostly rain
can RAINWATER be filtered through the green corridoor to be utilized for the zone
limited sun, hardly shows up in winter, 6 hours during summer
temperature ranges 0-15°C
sea temperature ranges 5-10°C
tide: 4 m daily
coastal flood: 3.34 m
sea flood: 4.5 m
water level rise: 6m in 100 y
contaminated soil due to industrial activity
water level rise projection
Geothermal Energy World Potential


2
2 ACCESS
How can number of trips made by car decreased from 75% to 50% by 2030?
How can a mixed, diverse, balanced and environmentally sustainable neighborhood achieved?
extensive zoning
+
lack of social activity
+
lack of attraction
=
insufficient economy
PROPOSE
circular economy:
residential
low rise suburban housing
emphasis on private car
+
lack of public transportation alternatives
=
heavy CO2 emissions
PROPOSE
Borgarlina City Line
marine transportation
pedestrianization
new bike routes
residential
low rise suburban housing
services
car rentals, repairs, stores
residential
mid-rise housing
industrial zone
silos
Reykjavik City Center
20 mins
port & commercial activities
vehicular circulation
Borgarlina city line
biking routes
marine transportation


ECOLOGY
Materials & Energy
Water & Air
Flora & Fauna
Habitat & Food
Place & Space
Constructions & Settlements
Emission & Waste
- preserve wildlife along the river delta
- direct ground water into artificial lagoon to rehabilitate contaminated soil
- generate energy with tidal powerplant
- integrate wetlands to collect rain water & control flood
- recycle end products
AINABLE
OWTH
Engagement & Identity
Recreation & Creativity
Memory & Projection
Belief & Meaning
Gender & Generations
Enquiry & Learning
Health & Wellbeing
CULTURE
- propose recreational activities for inhabitants
piazza, fish market, the hub, ferry terminal
- attract tourists and cultivate social interaction
- preserve industrial history of the site and transform it into an attraction


4
4 PROPOSE
The proposed site has the perfect opportunity to showcase sustainability and creativity with focus on the sustainable method of rethink, reduce, reuse and recycle. The programme should be addressing this thinking as well as the current Redevelopment Plan of transformation in the area with a focus on creating a livable, friendly and diverse area that emphasises on sustainable solutions. The site is in the perfect location where the nearby nature can flow into an urban project so utilizing the closeness to a green area, the river and the ocean is a top priority.
Due to global warming and melting of polar ice reserves nearby, 6 meter water level rise is expected in 100 years. Also, there is up to 5 meter tidal difference on daily basis. To make use of water, a sponge basin surrounding the land is proposed. This way, the rising water is filtered and transported to underground water reserves for utilization throughout the site. The promenade is designed as a multi layered terraced system for maximum connection with water and functioning.
Water is also utilized for activities such as salmon fishing and canoeing to provide leisure activities for the residents and workers in the zone. Water is a space of encounter.
sports facilities
residential
the hub
mixed-use
recycling center
ferry terminal
fish market
innovation factory
lagoon
Borgarlina City Line
offices
tidal powerplant
The site was consisted of commercial & industrial based development. Most of these buildings (excluding the ones that have landmark value) are demolished and transformed into mixed-use/ residential development. The waterfront and silos are transformed into innovation factory, co-working zone and incubator for startups to emphasize the change of industry and generate a spot of activity for the whole neigborhood and city.

Masterplan

The site is situated in a critical spot as a result of the **existing green axis** of Ellidaa river. The river creates a **delta** "Geirsnef" which is the **habitat** of many bird, fish and plant species besides being a significant destination for the locals with salmon fishing activities. The project seeks to **utilize green spaces** to cultivate maximum social activity for residents. The existing green fabric is integrated with **wetlands** where existing wildlife is preserve and utilized as an **urban sponge** to protect the land against heavy rain and flooding. This way, the rising water is filtered and transported to underground water reserves for utilization throughout the site.

Wrong urban planning decisions of previous decades resulted in problems such as extensive zoning, lack of social activity for locals and lack of attraction for tourists. This resulted in **insufficient economy** which is incapable of being up to date with 21st century. Therefore, the proposition aims to generate a **mixed, diverse, balanced and environmentally sustainable neighborhood** with emphasis on public transportation. Pedestrianization, biking, marine transportation along with Borgarlina city line are encouraged.

Iceland is the only country in the world which obtains **100%** of its electricity and heat from **renewable** resources such as hydro-power and geothermal. Yet transportation and infrastructure of these resources also result in effort and energy. The challenging conditions of the site: heavy **precipitation**, 4 meter daily **tide**, coastal **flooding** are utilized with the **tidal power plant** and a strategy for **soil decontamination**. Wetlands, clean water lagoons and tidal powerplant create **a system for adaptation**.

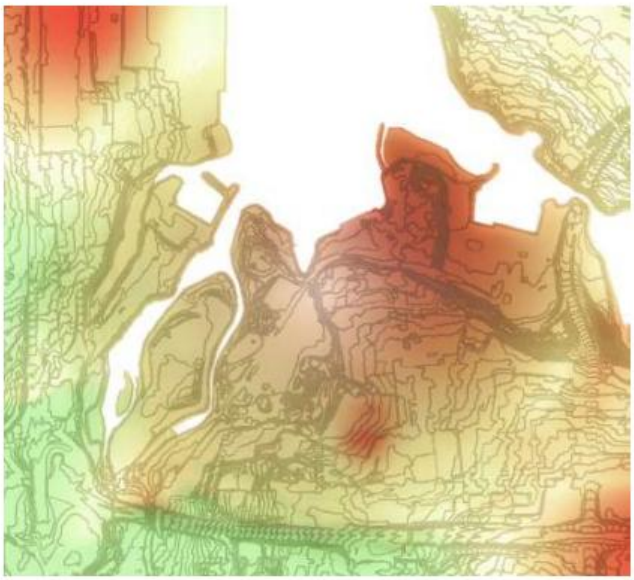
Urban Diagrams

1. Proposed vs.Existing Diagram

2. Circulation Diagram

3. Flood/Tidal Diagram

4. Land Contamination Diagram



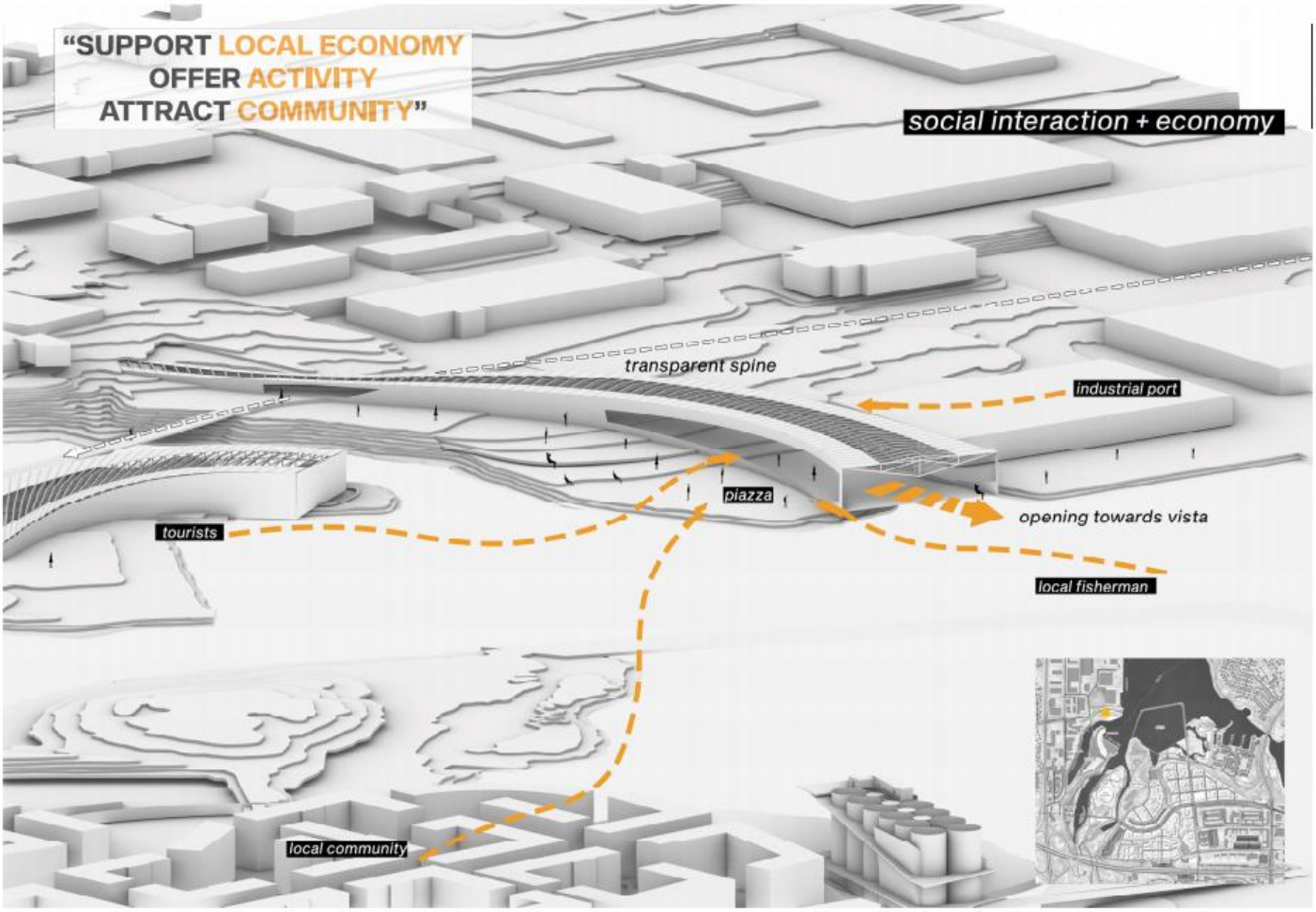
The site **was** consisted of **commercial & industrial based development**. In this proposal most of these buildings are planned to be transformed into a **residential zone**. The waterfront and silos are to be transformed into the **Innovation Factory** and **manufacturing laboratories** to emphasize the change of industry and technological development along with Icelandic goals. **Recycling center** already present is preserved. The delta is preserved and a **hub** is proposed for recreational activities such as workshops and a wildlife observatory. The area with slower water current is transformed into **watersports facilities** for canoeing and fishing. Old yacht docks are transformed into a **ferry terminal** integrated with low rise **mixed use development.** At the location closest to the industrial port the **fish market** is situated to create a space of encounter for local industries, residents and new coming workforce.

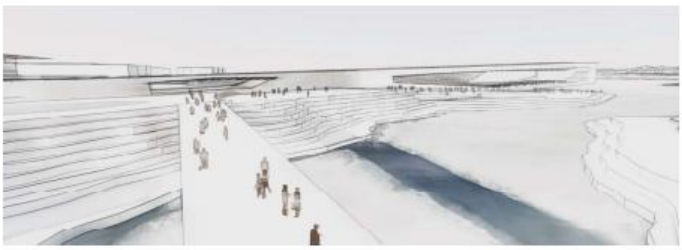
The project seeks to achieve **sustainable growth** in economics, ecology, politics and culture. It seeks to generate new job opportunities for residents and qualified workforce meanwhile preserving the wildlife along the river delta with ecological restoration goals. Along the municipal plan it aims to become a prototype of emerging technologies.

The masterplan shows **underground water collection** in residential zone which is directed to the lagoons. **The postindustrial landscape is aimed to be decontaminated with directing of this water flow into the land from lagoon. Water is utilized as the skeleton of the proposition.**

1. *FISH MARKET*

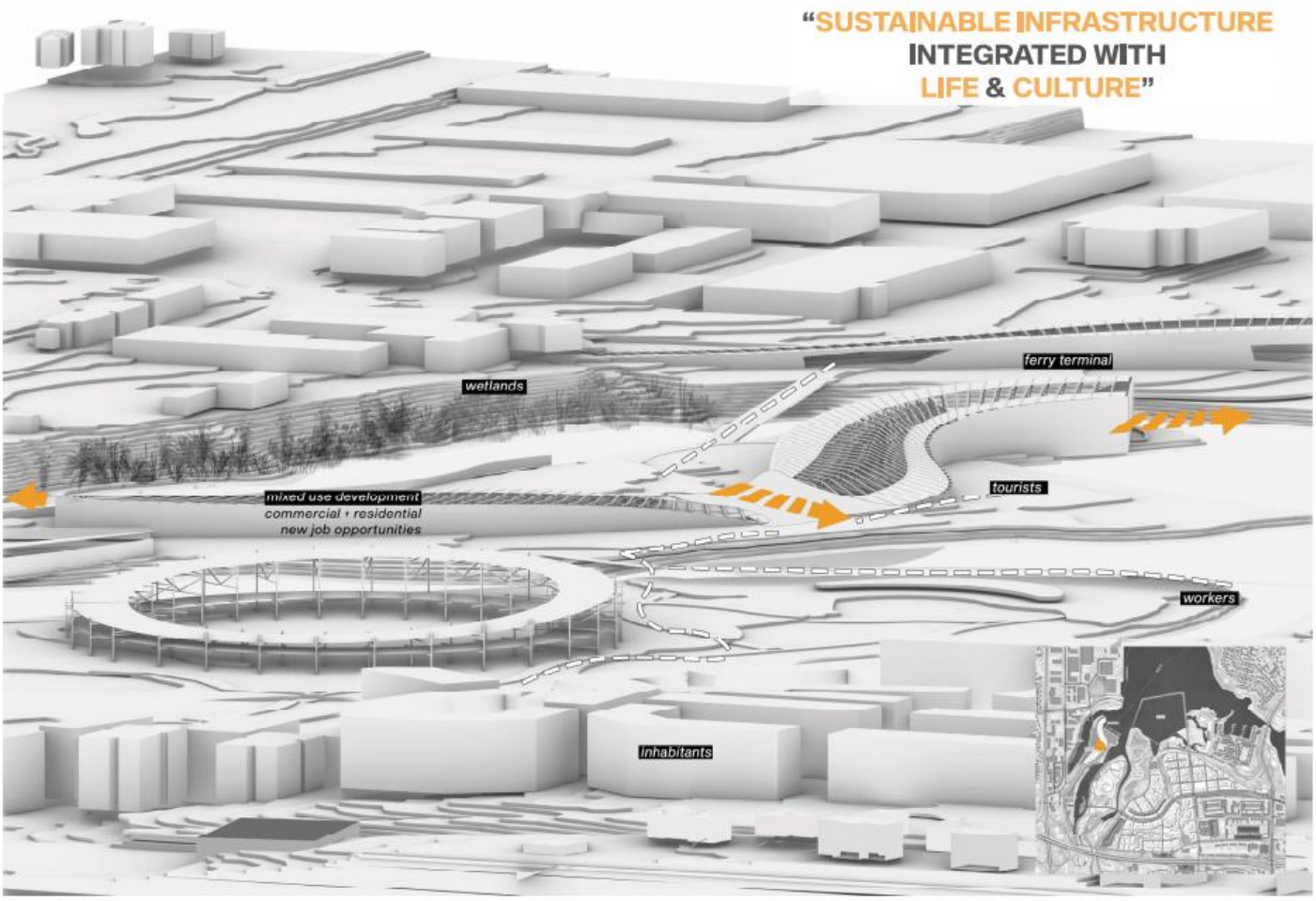
Fish Market is a spot of social interaction and economic activity for tourists, local community, local fisherman and industrial port. It is filled with light with the transparent spine opening towards the vista. The waterfront piazza is a spot of festivals, concerts and outdoor gathering.

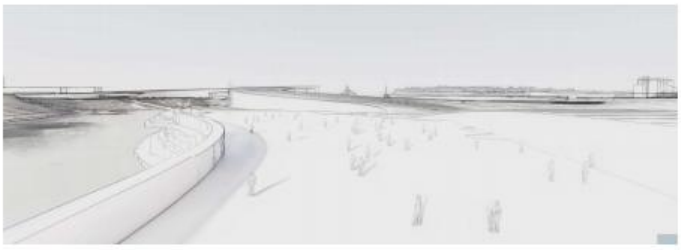


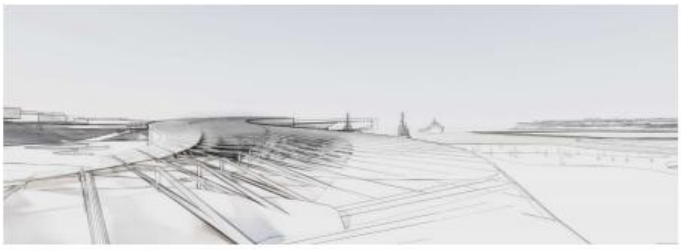


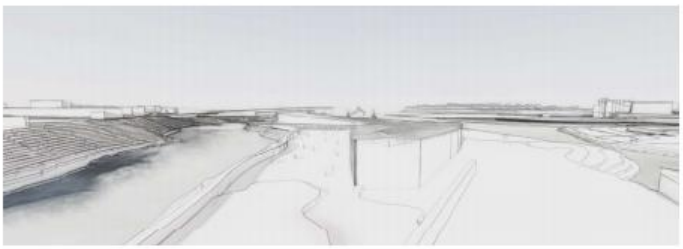
2. *FERRY TERMINAL & MIXED USE DEVELOPMENT*

The ferry terminal is integrated with mixed use development and proposes an alternative spot for activity and marine transportation.



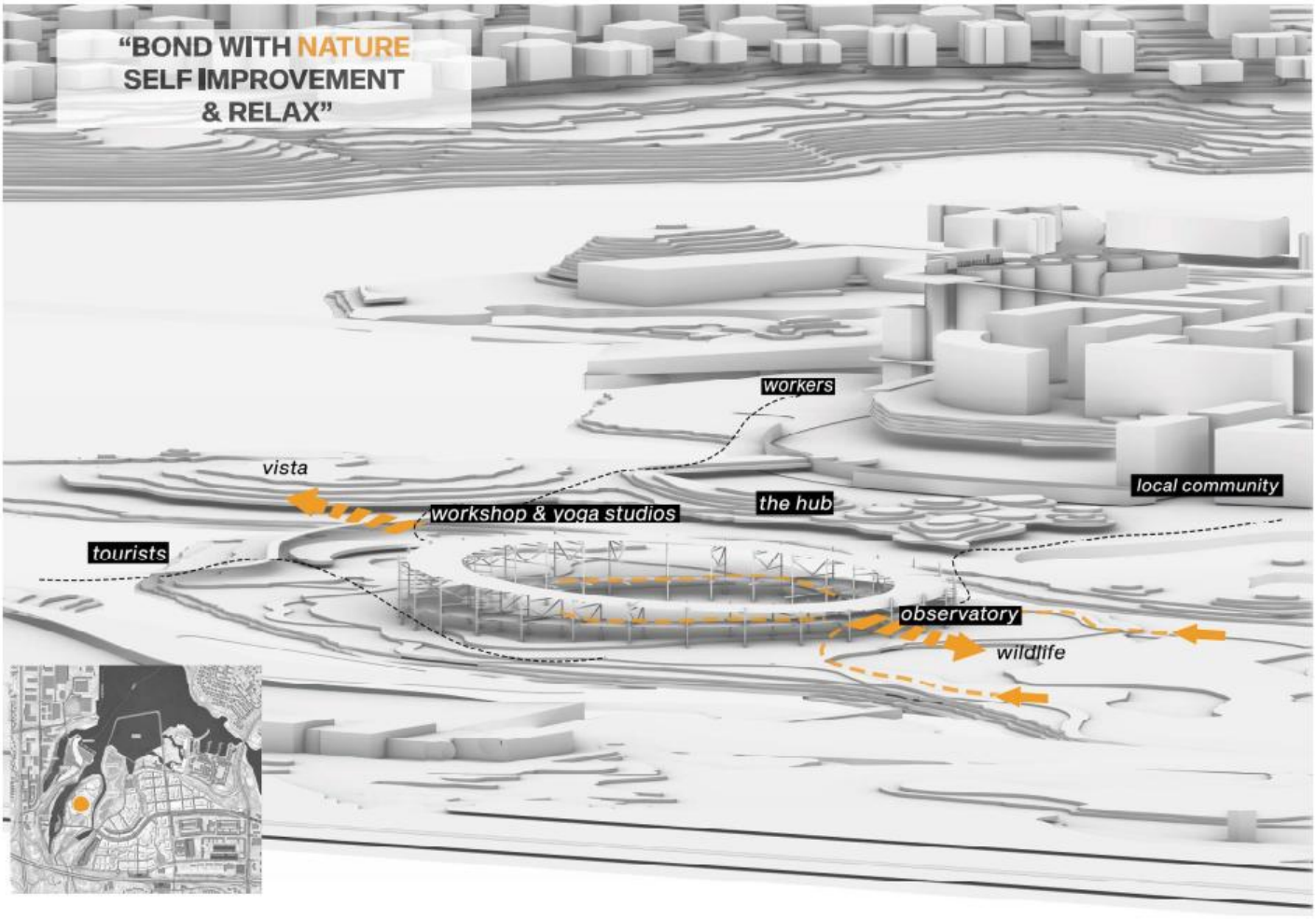


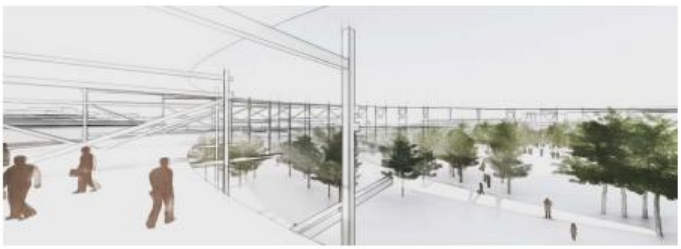




3. *HUB*

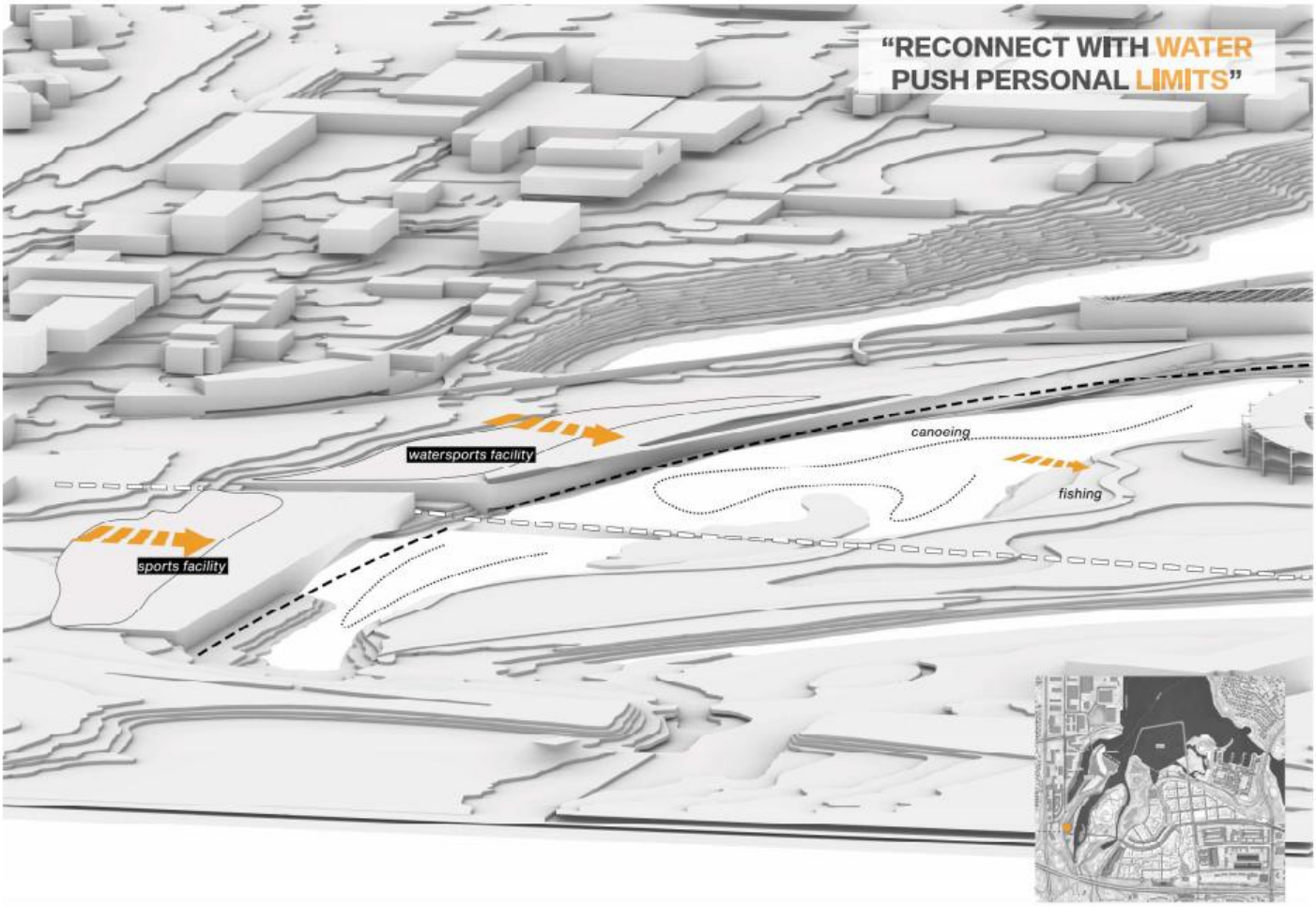
The hub is a light structure placed on the ore. It hosts workshop & yoga studios along with a wildlife observatory.

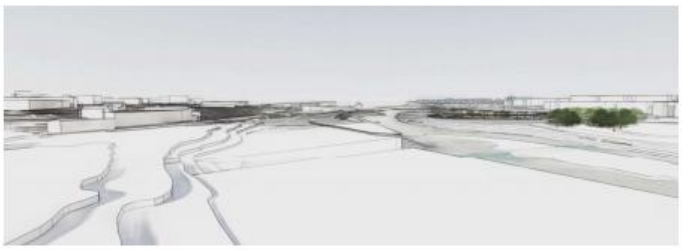




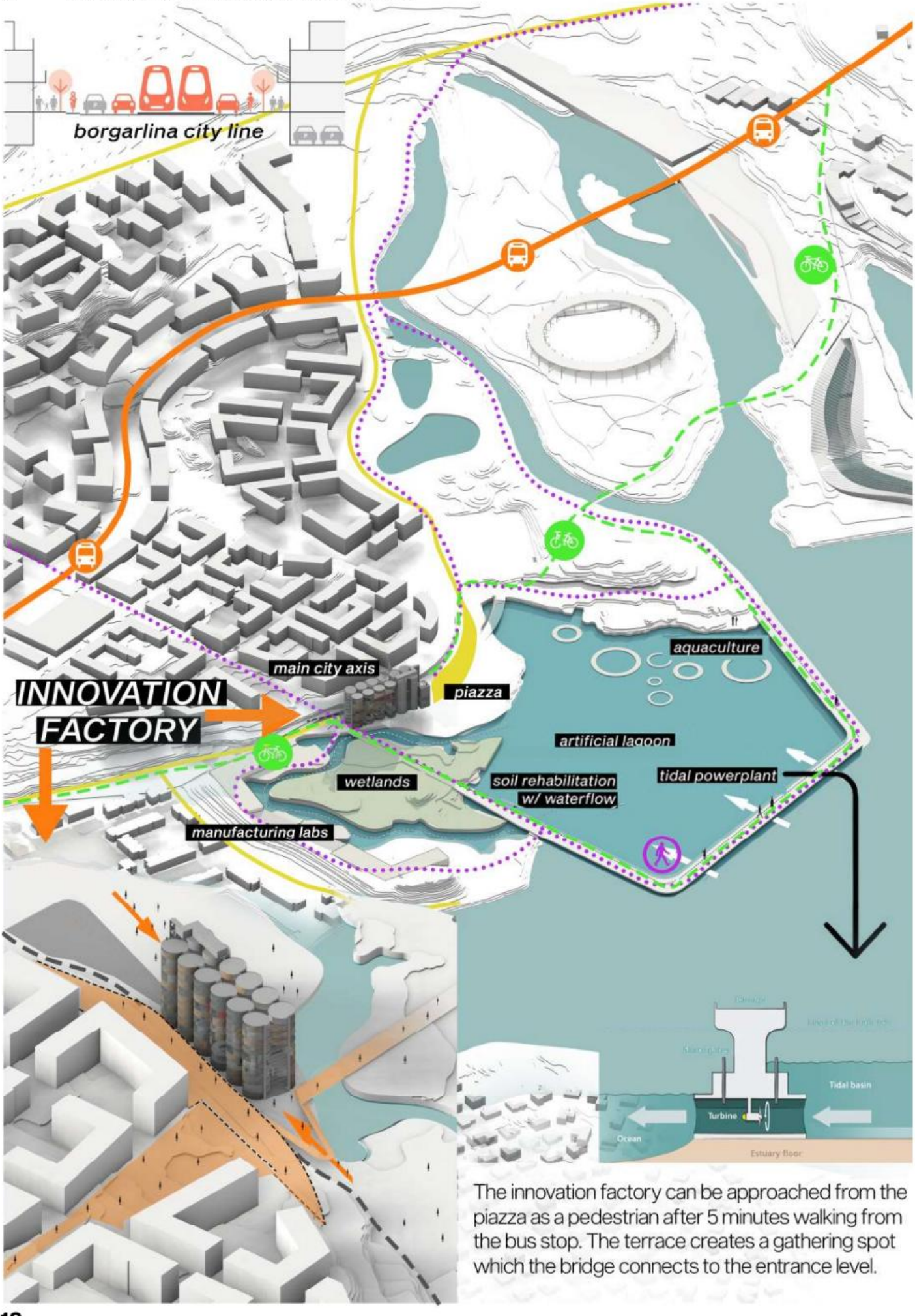
4. SPORTS FACILITIES

Sports Facilities are placed in the low current zone for canoeing, fishing and recreational activities. It is fragmented into two by the Borgarlina city line.





5. LAGOON & INNOVATION FACTORY



The innovation factory can be approached from the piazza as a pedestrian after 5 minutes walking from the bus stop. The terrace creates a gathering spot which the bridge connects to the entrance level.

figure 1: the fourth industrial revolution

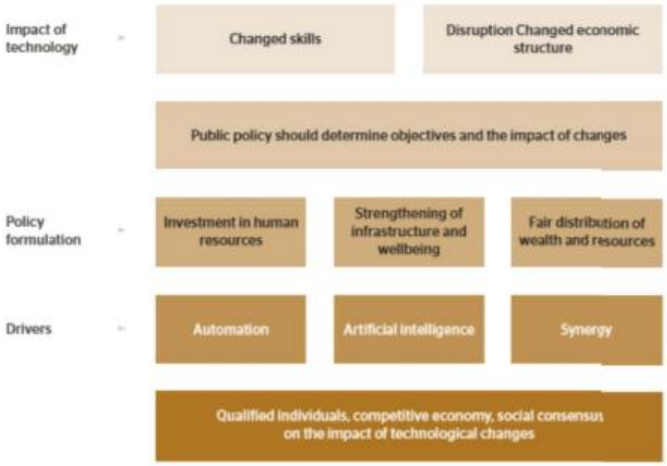
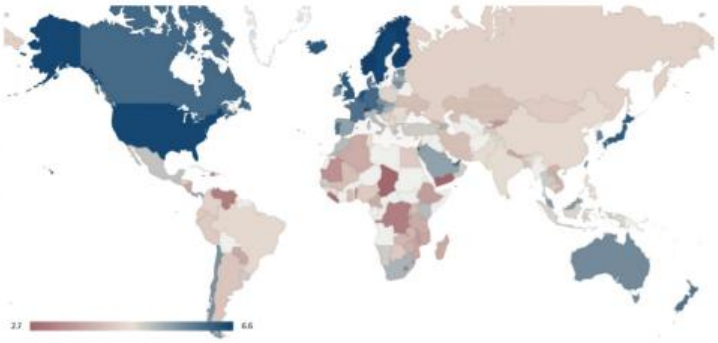


figure 2: access to the worlds latest technology



Iceland and the fourth industrial revolution, Report
Government of Iceland
Prime Minister's Office
https://www.government.is/lisalib/getfile.aspx?itemid=3fe9f512-eff4-11e9-944e-005056bc530c

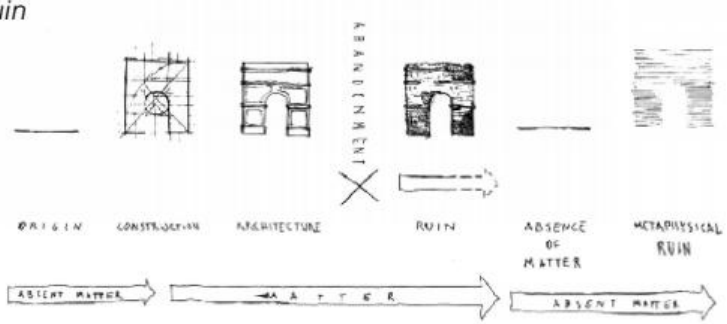
The building program is choosen along the goals of industry 4.0 of Iceland and inustrial heritafe of the district.

1940s,
original cement silos

2020,
10 silos demolished, 2 remain

2030,
innovation factory

concept: metaphysical ruin



The innovation factory is significant for the project as it holds the **memory of the industrial heritage** of the site. The lagoon creates a system with **tidal powerplant** for energy generation, **aquaculture** activity, and river for **soil rehabilitation** integrated with **wetlands**. This system will gradually transform the contaminated landscape into a **natural landscape**.

The cement factory is transformed into the Innovation Factory along the goals of Iceland for **fourth industrial revolution**. Iceland has access to the worlds latest technology therefore should be a **pioneer in adaptation to emerging technologies**. Changed skills in the work force put heavy emphasis on **automation**, **artificial intelligence** and **synergy**. The industrial land which is left over and ghosted nowadays is proof that industry is changing.

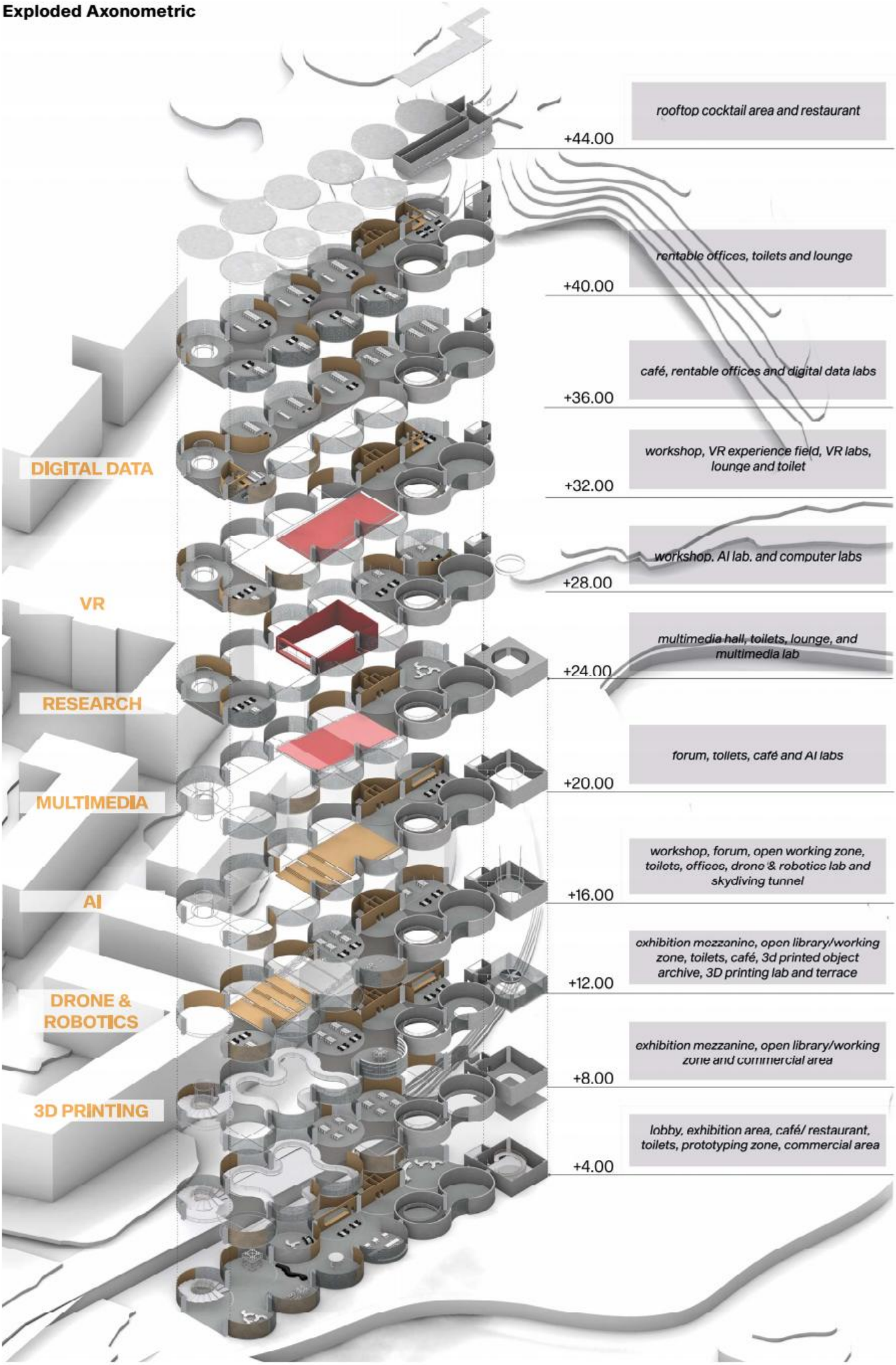
The building concept is inspired by Italian artist **Edoardo Tresoldi's metaphysical ruin**. 10 silos which are currently demolished are recreated as a **shell** for the building to host the new program.

North Elevation

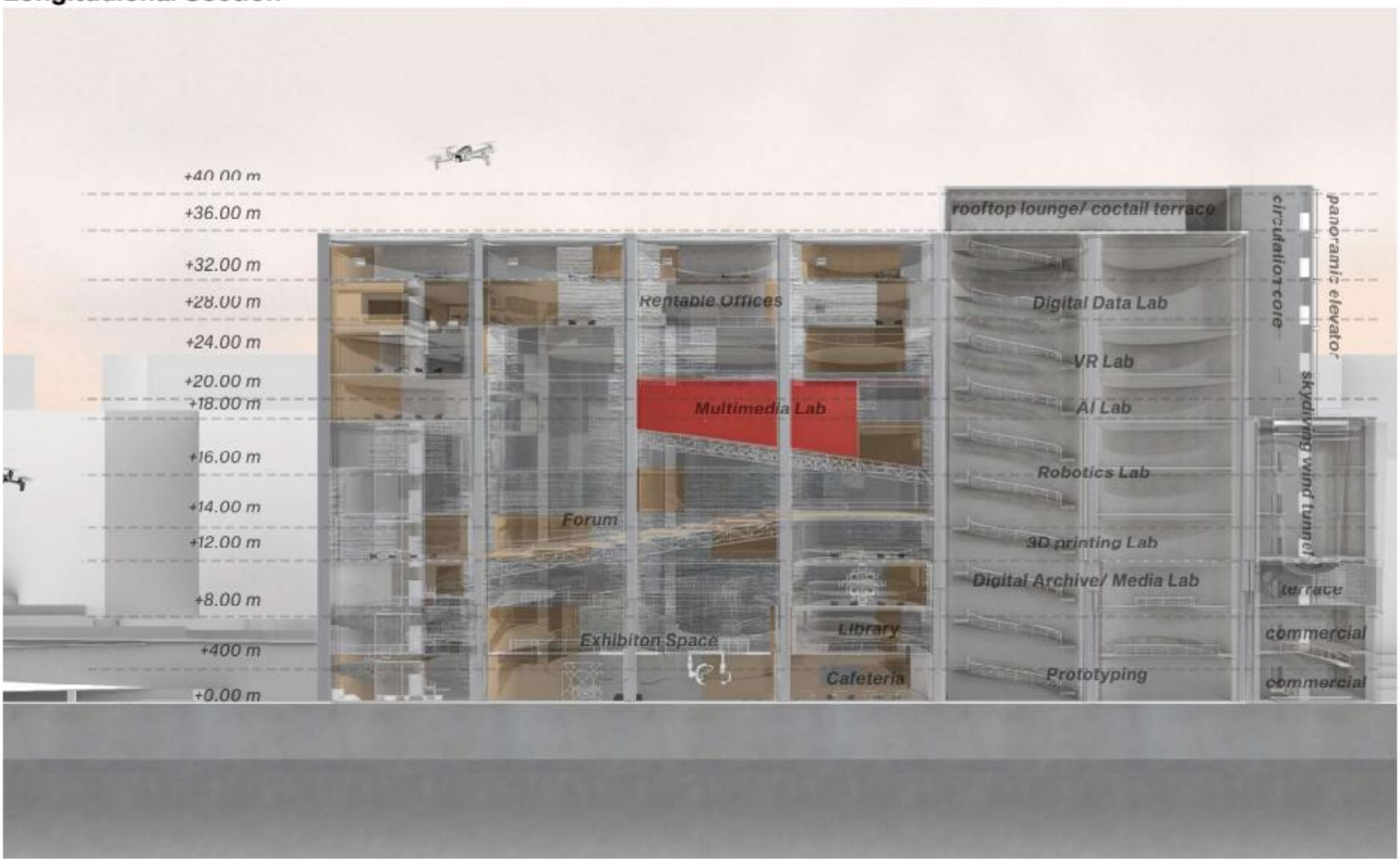
East Elevation

West Elevation

Exploded Axonometric

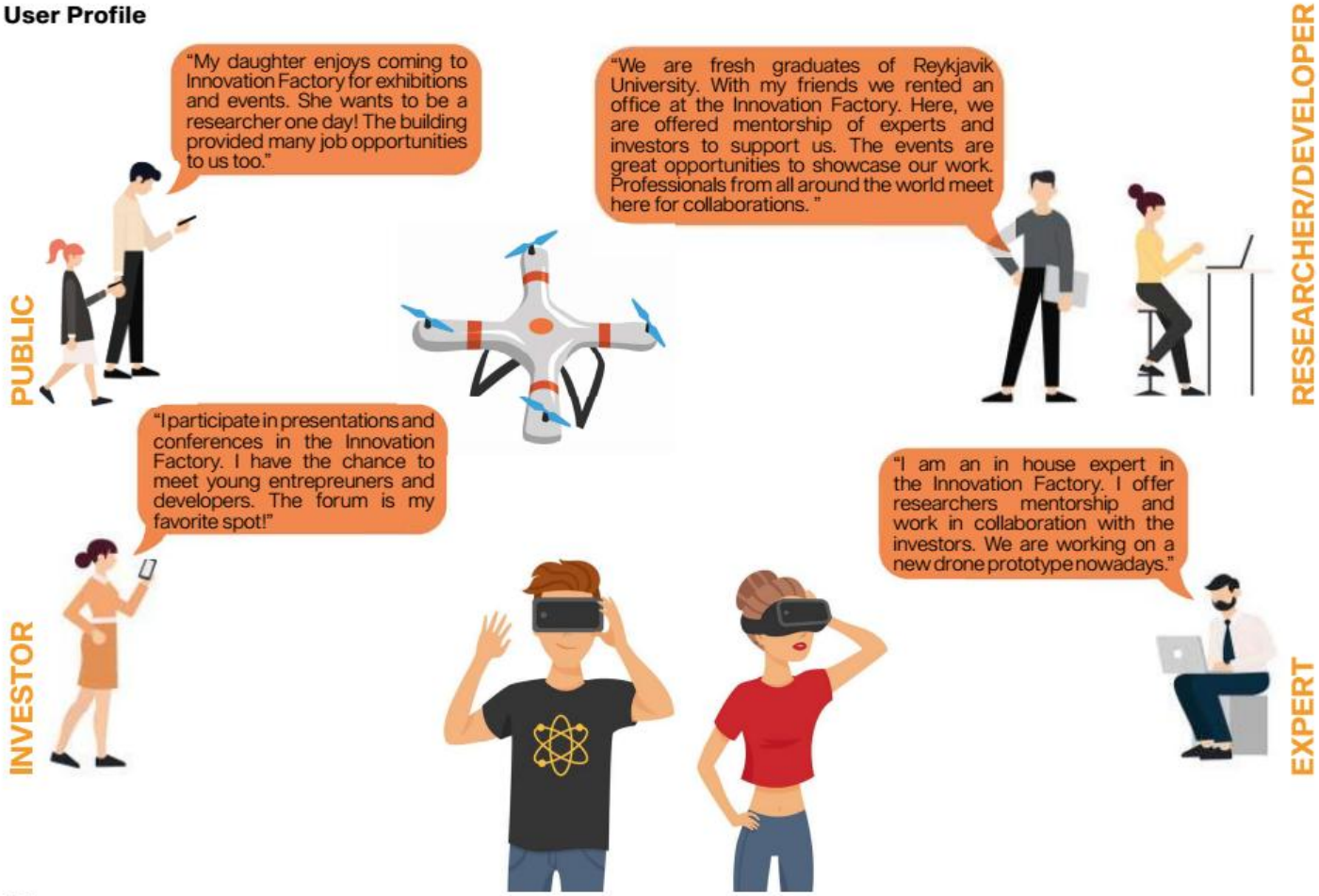


Longitudional Section

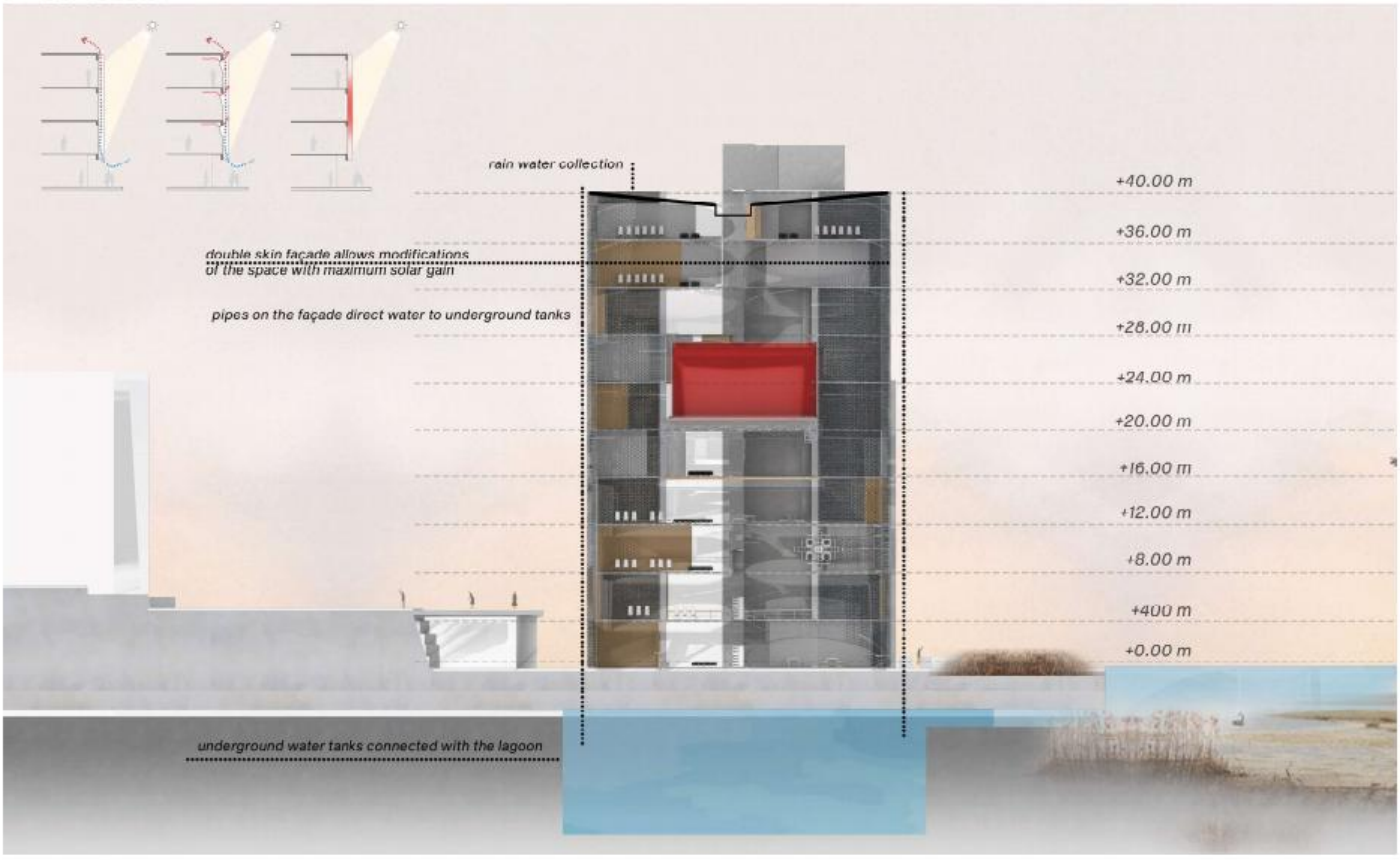


The section is designed with the intention of **maximum interaction** and **visual encounters**. The **public**, **developers**, **experts** and **investors** will come together to produce technology and innovation together. The forum maximizes these encounters to **raise curiosity towards research**.

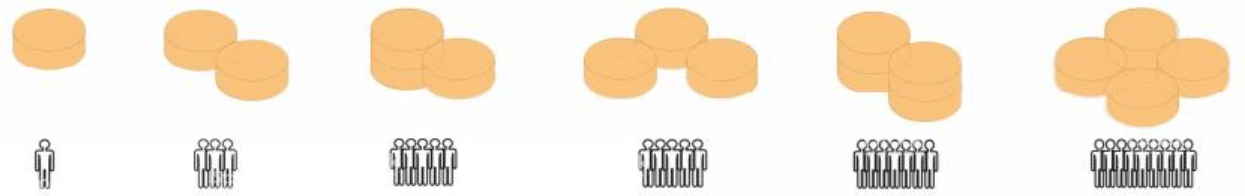
User Profile



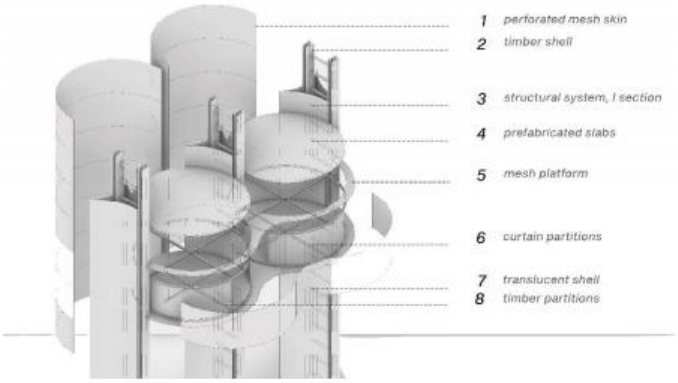
Cross Section

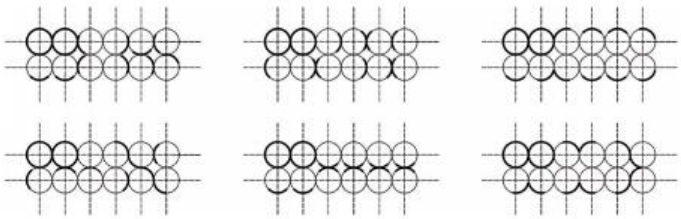


Rainwater is collected from the roof and directed through the building with the pipes on the façade into the underground water tanks. **Underground water tanks** are connected with the **lagoons**. **Double skin façade** of the building allows modification of interior space with maximum adaptability. The façade is also **dynamically changing** to adapt extreme climatic conditions of Iceland.



Structural Axonometric





INFINITE OPPORTUNITIES

The structure allows the **units** to be **merged** and **dispatched** for the needs of the user for the activity.

The building is planned to propose **modular units with rotating interior solid timber panels and curtains**. This movement is legible from the façade creating a living organism shaped by its occupants.


"a space to
EXHIBIT
and offer
VISUAL
ENCOUNTERS"
EXHIBITION AREA


"raise INTEREST on various LEVELS"
EXHIBITION MEZANINE


“MEET, COLLABORATE, DEVELOP”
FORUM


“feel the
MEMORY
and
PROGRESS”
PROTOTYPING


"INDIVIDUALS
coming together to form a
COMMUNITY
to move forward"
VR EXPERIENCE AREA


"SPLIT or MERGE units
according to your NEEDS"
RENTABLE OFFICES

RENTABLE OFFICES

NIGHT VIEW

Sara Mandou

ARCH 402 ARCHITECTURAL DESIGN VI

THESIS PROJECT

CONTENT

The Revitalization of Homs, Syria Post-Traumatic War Rehabilitation Complex and Residential Revitalization.

SARA MANDOU

The Revitalization of Homs, Syria Post-Traumatic War Rehabilitation Complex and Social Development Centers

SARA MANDOU

After the Syrian Civil War, Homs, a city in the Mid-region of Syria, has been nearly demolished. Thirty-Five to Forty percent of the city is destroyed and 1 million civilians had fled the city. My Proposal is to revitalize a region and distribute nodes around the whole city for re-developing the social psychology of the people who have experienced war. As a result, there will be the main site that will contain several facilities/functions such as the main Rehabilitation Complex that shall include: Aquatic Rehabilitation Centre, Psychological Centre, Natural Meditation Centre, Animal Aided Therapy and Interactive Rehabilitation Centre. Moreover, Social Development Center, Data Center, and Revitalizing the residential areas around the site with interaction of urban farming as a strategy of interaction with nature.

INTRODUCTION

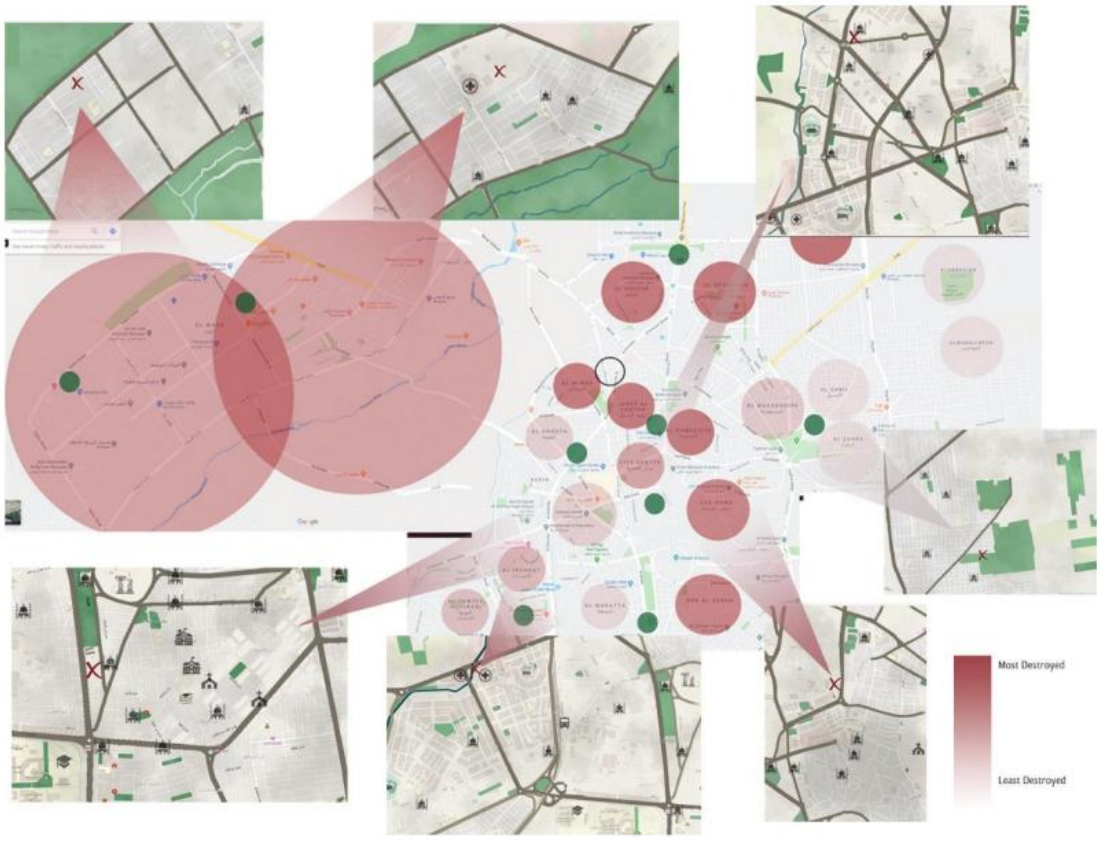
Homs, located in the mid-region of Syria, is the 3rd largest city and the largest governate in Syria. Its geographical location makes it important as it is the intersection of the trade route.

It is located between the outlines of the coastal range and of the side of the Mediterranean Sea; it is famous for the Orontes River (Assi Nehir). It receives dry gusty winds.
Homs has hot summer climate with strong breezes in the Summer and dry cold in the Winter.

Homs, which is an industrial city, is famous for oil refinery and agricultural market of wheat, barely, lentil, sugar, cotton, and liquor industry.

In 2011, Homs had an estimate of 1,767,000 inhabitants; today 1 million flew giving an approximate of 760,000. Approximately, 35 to 40 percent of the city is destroyed including areas like Jourret Al Shayah, Al Kussor, Al Khalidye, Al Bayada, Al Mimas, Al Hamidye, Old Homs, Bab Al Sebaa, and Al-Waer partially,

PLAN STRATEGY



Destroyed Areas

The Plan Strategy of working the project was to start looking into the city scale; that is not only revitalizing an area, but the whole city as an initial strategy. First, a study was made, as shown in the figure above, about the destroyed areas. Second, based on the level of destruction, (Dark Red, Med Red, Soft Red) a center will be placed in an area that combines 2-3 districts. Those nodes are encircled in green in the figure above. Those nodes will be either rehabilitation center, social development center, or social center (community center).

The functions of those will be assigned based on how destructive the area is; in this case the rehabilitation center to the dark red spots.

After locating the nodes and assigning their function. The next step was to do some site analysis.

SITE ANALYSIS

When locating the nodes, function analysis was made for each area in order to assign the node in a suitable area.

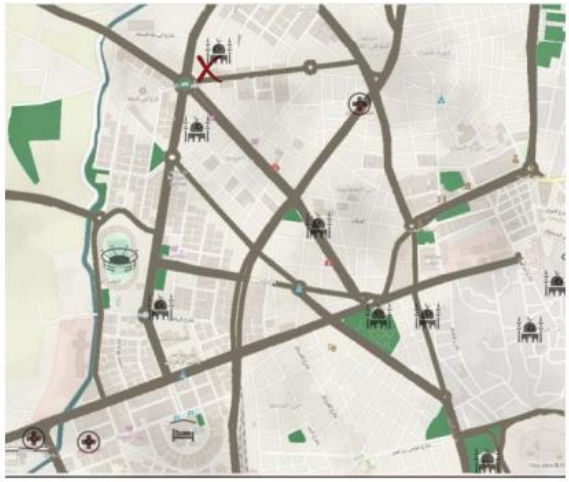
Al Waer 1 Social Center

Al Waer 2 Rehabilitation Center

Al Waer's area was quite destructed but one region is better than the other; that is Al Waer 1. Al Waer is the newest part of Homs and is 70% Residential and 30% Commercial. The node of Al Waer 1 is located in a hospital complex to facilitate the access to it. On the other hand, in Al Waer 2, it was a teacher chamber building which got destroyed; as a result, it will be restored to a rehabilitation center.

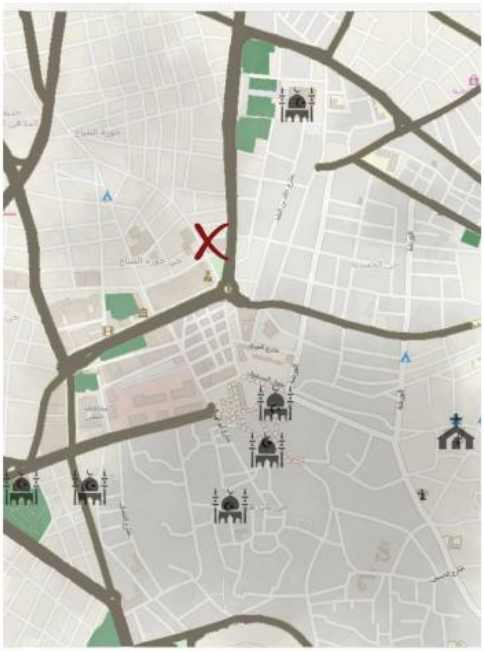
East Side of Homs Social Center

This zone was the least destroyed almost not destroyed. As a result, a community social center will be located near a commercial complex zone. This zone is almost 80% residential and 20% commercial.



Middle West Region Social Center

It is the city center of Homs, being the least destroyed and the most expensive area right now, a social community center will be located in the first round about in an abandoned building that will be restored to this function. This area is 75% residential and 25% commercial.



Eastern Part Rehabilitation Center

This area holds the old authentic ruins of Homs and makes it valuable historically; however, mostly destroyed. Rehabilitation center will be placed near a park. This zone is 80% commercial and 20% residential.

South East Part Social Development Center

This zone being partially destroyed and partially standing. A Social Development Center will be placed. This zone is 70% residential and 30% commercial.

Mid Region Rehabilitation Center

This node has been located near a park which will help revitalizing it too by replacing the center there. This area contains 70% of residentials and 30% commercial.

TYPOLOGY

In Homs, the typology as shown; was 4-6 floor high alongside with long terraces. As traditions it was common to have gardening in the terraces in some houses. Moreover, the wooden shutters are essential and almost everywhere. Flat roofs are most common and, in the ground floor, it is common that there's a garden for them.

Those figures, on the left and above, illustrate the current situation and the typology in the site of interest. The three cases of different situations.

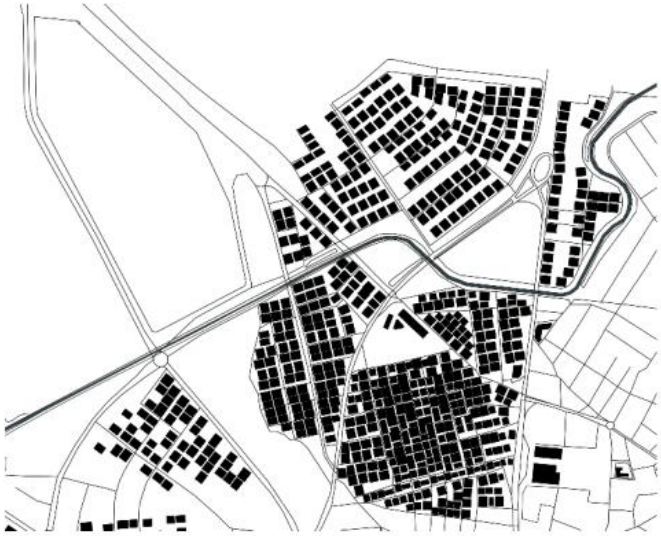
The left above is the first case which is a 5-10 percent destroyed and can be easily restored with some retouches.

On the other hand, the bottom left figure is 2-3 floors destroyed and only the ground along with the first floor exists.

At last, the figure above has two cases, the first on the left is completely demolished and destroyed while on the right, the façade is demolished and here the first 3 floors are still.

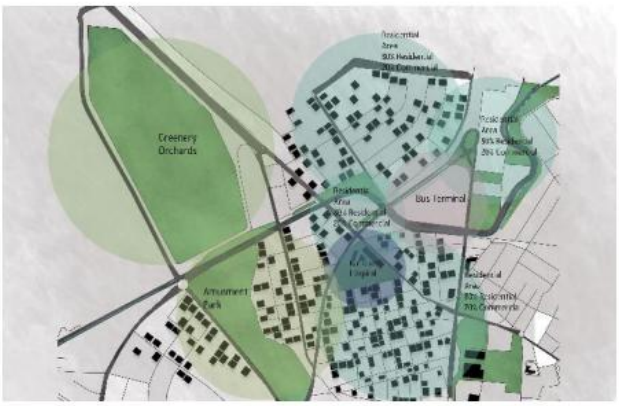
Later on, in the proposal each case in this typology study will configure a new solution to preserve, restore, replica, reconstitution, and/or rebuilding again.

ZONING



The Figure above shows the figure ground relationship before the war. As seen, it is very dense.

The figure on the right illustrates the zoning before and after the war with the current figure ground relationship. As seen, before the war, the current site was a bus terminal between cities and suburban areas around the country. On the west are the densest green areas, private orchards and the greenery amusement park, whilst on north and south are the 80 percent residential and 20 percent commercial area. Moreover, the national hospital lies on the mid region. Not to mention that there lies the Orontes River that runs from Turkey till Lebanon.



On the other hand, the post war zoning will include the revitalization of the residential areas and the commercial too. Moreover, most importantly, the Orontes River will undergo several new strategies to revitalize it and make it more sustainable and used by the people

REVITALIZATION STRATEGIES

Initially, in a bigger scale. The area around the site, residential, should be restored and should have strategies to revitalize the area all around.

The Residential area has been planned evenly having greenery such as parks, green houses, and cultivated buildings.

In the figure below, the strategy is clear by keeping the existing grid and distribute the new buildings, restored, and greeneries around the districts.

For the greenery strategy, the figure on the next page illustrates the movement between the neighborhoods using different methods as mentioned above.

The outcome of it is for people to harvest their own food, for the new buildings there will be a harvest core and green house

In almost all neighborhoods, there are greeneries distribution to revitalize the ecosystem, sustain the environment, and create economic use for sustainability of the user to harvest his own vegetation, as shown in the figure below.

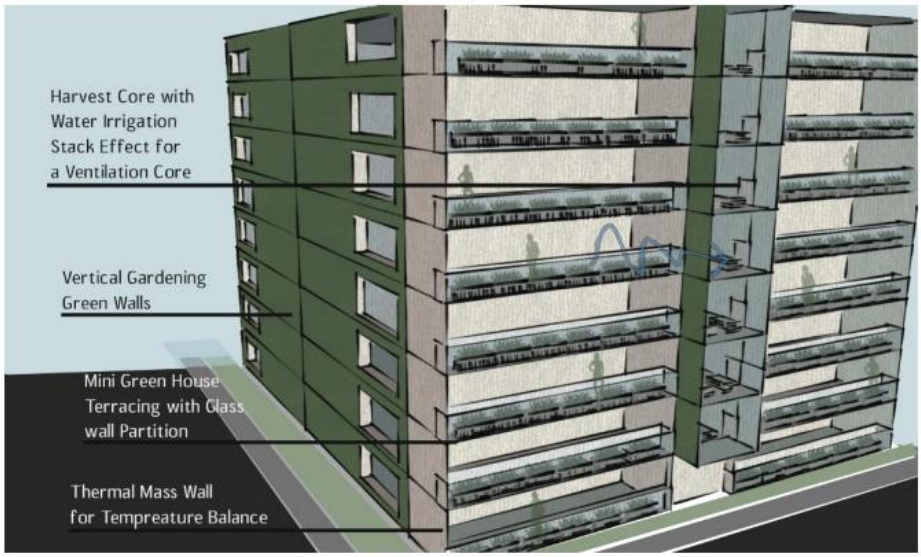
The figure on the below is the cultivation building; it is connected to a restored residential through bridges. It uses the aquaponics system to harvest the vegetables. This strategy aims to make use of the damaged building and attains economic sustainability

Some of the restored residential were previously almost in the ground, as a result, from an environmental approach terraced farming building is being introduced for both economic sustainability and maximizes daylight in the greenery fingers.

Restored Residential infographic is shown below.

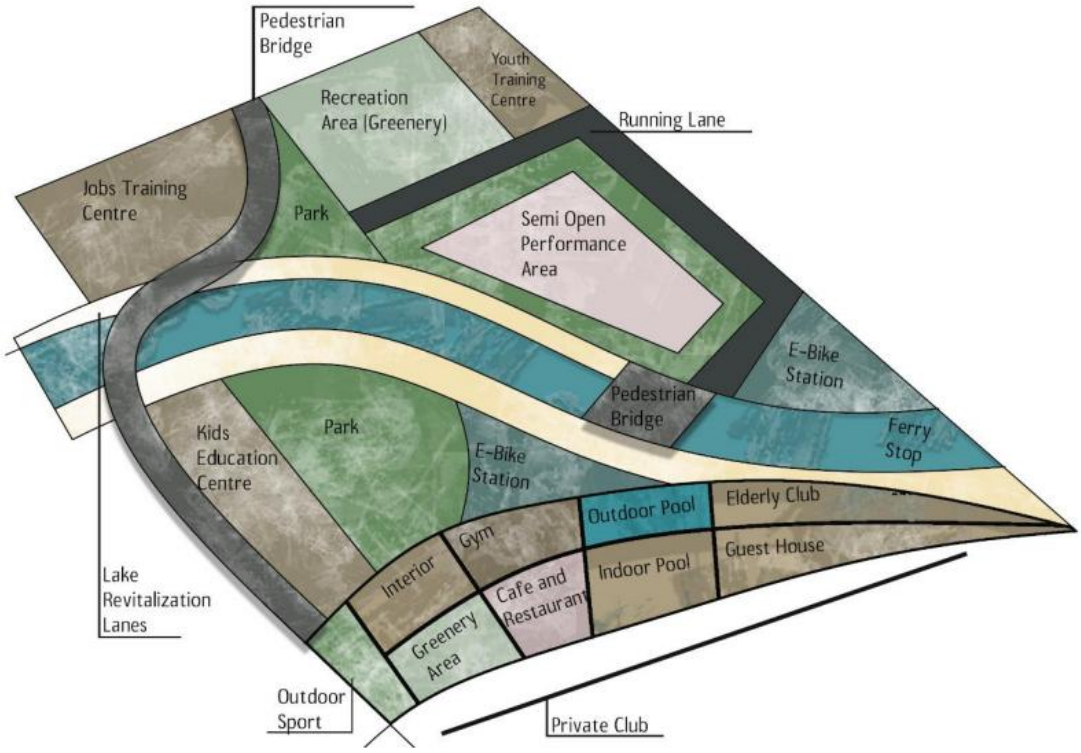
The figure on the right illustrates a scene of the green house method in the residential area. The green house shall act as a social zone, economic benefit, and adding greenery to the neighborhood.

Moreover, the left figure illustrates the park greenery strategy that benefits in human sustainability as a gathering point for the next generation, social sustainability as a social meeting zone, and greenery node in the neighborhood.



The infographic above shows the new building strategy that contains more floors than the usual floors previously; the reason is to increase the capacity of the residentials especially that the greenery strategies consumed existing building footprint for people who use to reside in.

The building works through the old typology of a Syrian residential; however, the additional strategy is to use their terraces as a small green house that can be folded with glass partition in the harsh weather. In the middle will be an access from the terrace to the harvest core for the irrigation and the users own use.



For the River Revitalization, it was also connected to the issue mentioned earlier for connection of the districts and remove the social inequality that was created before. As a result, the schematic strategy was created below to add several facilities and make people socialize further and educate the kids, youth, and adults for new futuristic job opportunities.

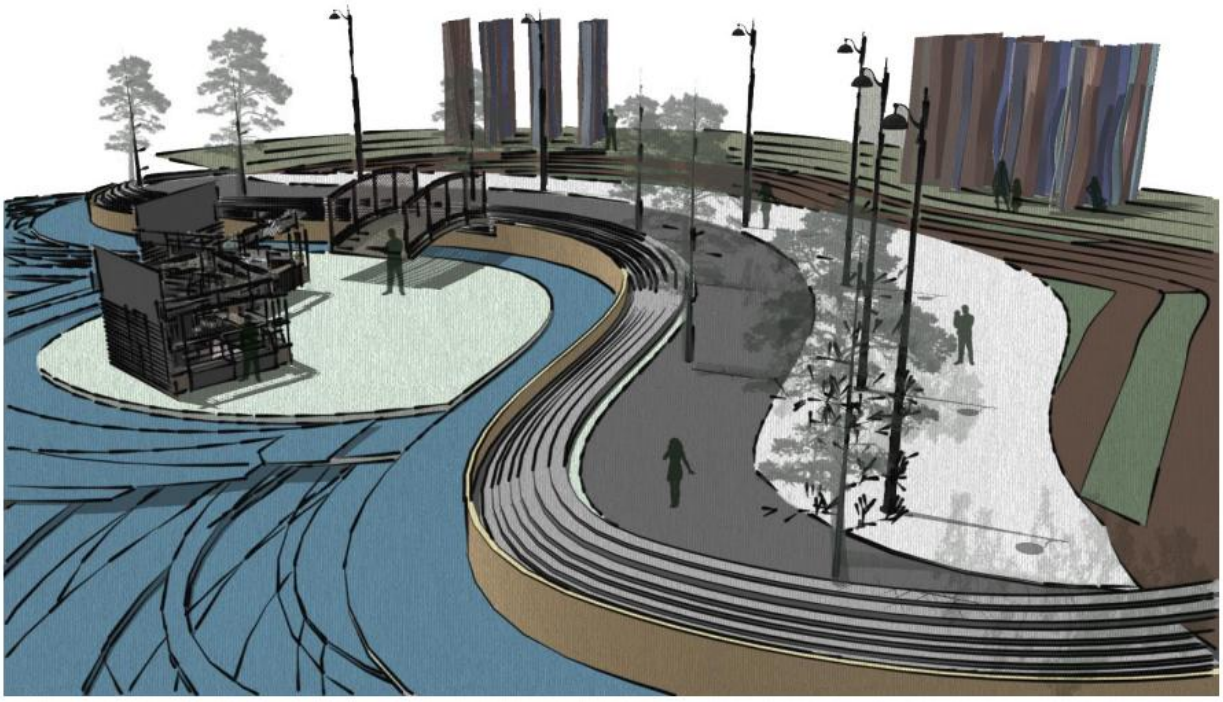
Moreover, a creation of free spaces for youth hobby practices was also applied in recreational areas and open performances space. Consequently, parks on both sides are created.

On the other hand, connections between the 2 zones on both sides of the river are facilitated for easier connection and faster pedestrian transportation.

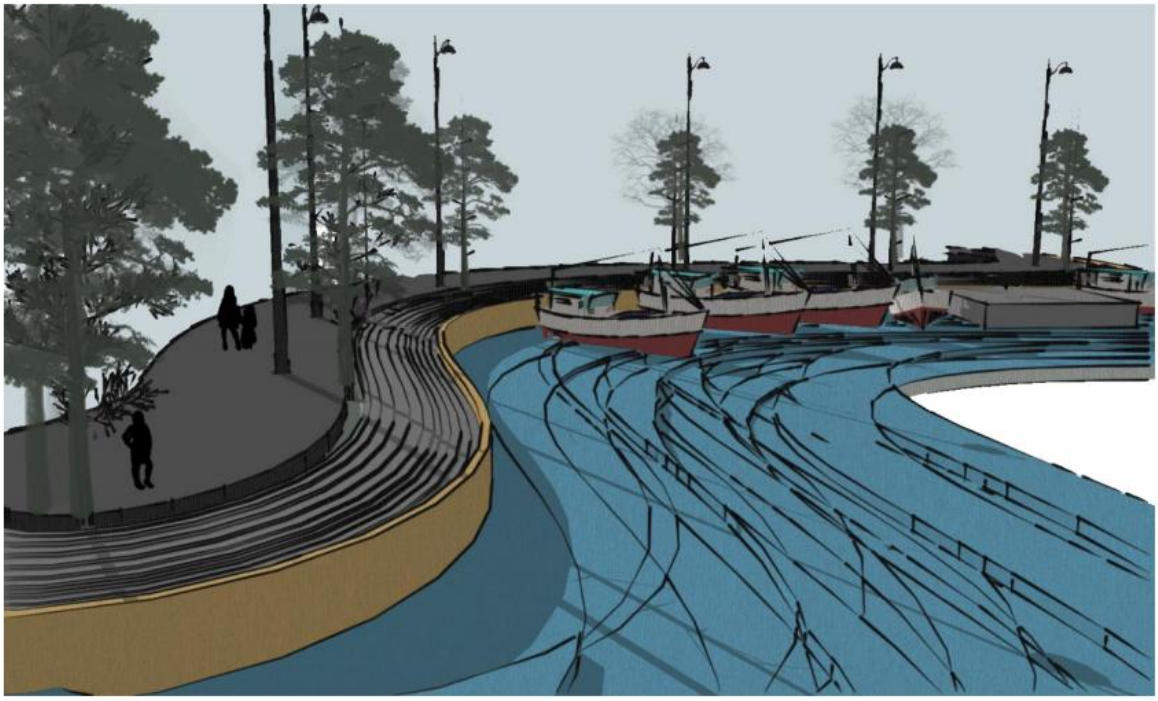
Finally, a sport multipurpose club is added for several ages and including several activities to connect different social stages of people together.

Finally, for the river revitalization lanes, several ideas are put such as the e-bike station that will be easy for bikers to use and park in the bicycle lane, the ferry station is also added for an addition of transportation and to make use of the river in a more innovative way. A seating promenade all along the river is also added for experiencing the serenity or the social interaction of people along the river. Some areas also have kids playing areas that will be shown in the coming infographics and figures.

This area in the figure is referred back to page 8 which is the zone encircled in red in the preliminary masterplan figure.



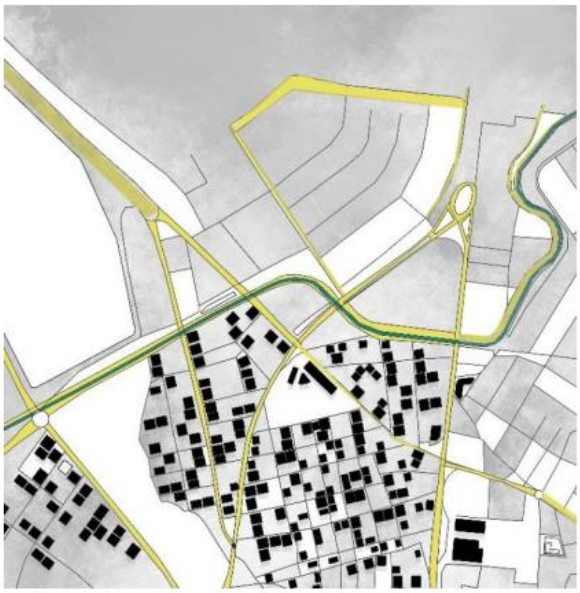
In the infographic above the illustration of the river revitalization strategy is shown. It starts by having the river banks for biosystem, in the middle is an infill land for kiosks use. Next lane is the stairs promenade for seating. The upcoming lane is the kinetic bicycle lane that will use the kinetic energy to lighten the lightning rods on the next lane. The wooden deck lane is for walking with addition of greenery strips and beside is the greenery lane for children to play while adults are walking beside.

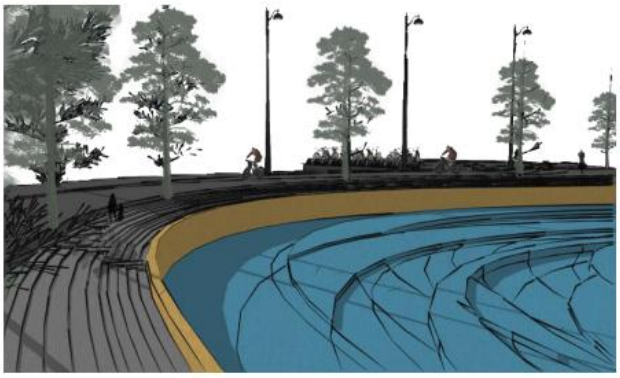


In the infographic above shows the ferry landing/parking that also has the stairs promenade running through, alongside the pedestrian walking lane.

Moreover, the next figure shows the bicycle stop and the lane more vividly

In the figure below is a reminder to illustrate the vehicular road before and the figure on the right is the pedestrianization strategy along the site and specifically along the rehabilitation complex and the river on both sides.





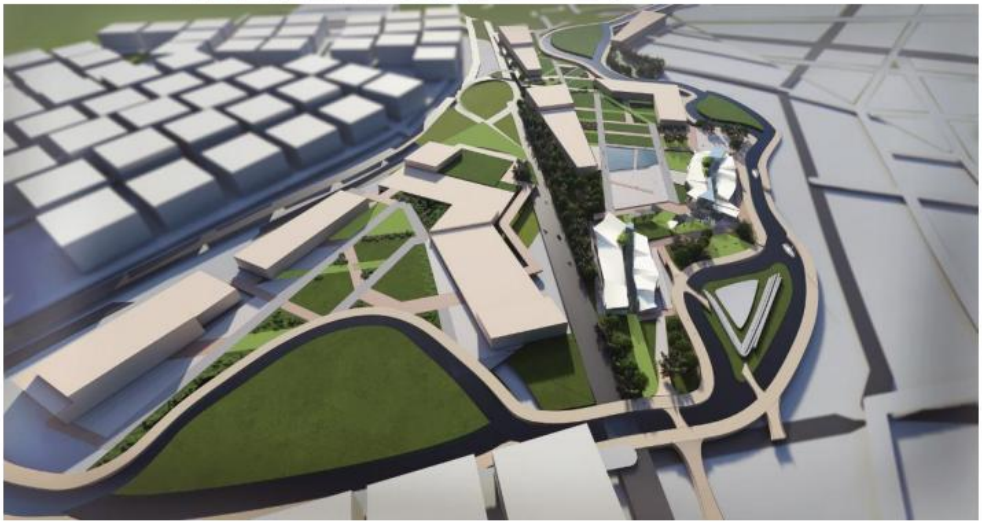
As shown, the scene below also still has the stair like promenade for seating. The bicycle lane is of kinetic tiles for initiating energy to lighten up the street lighting rods on its next lane.

After executing the residential area, the masterplan phase of the psychological complex starts alongside developing several environmental strategies that some of them will be applied in the new residential buildings.

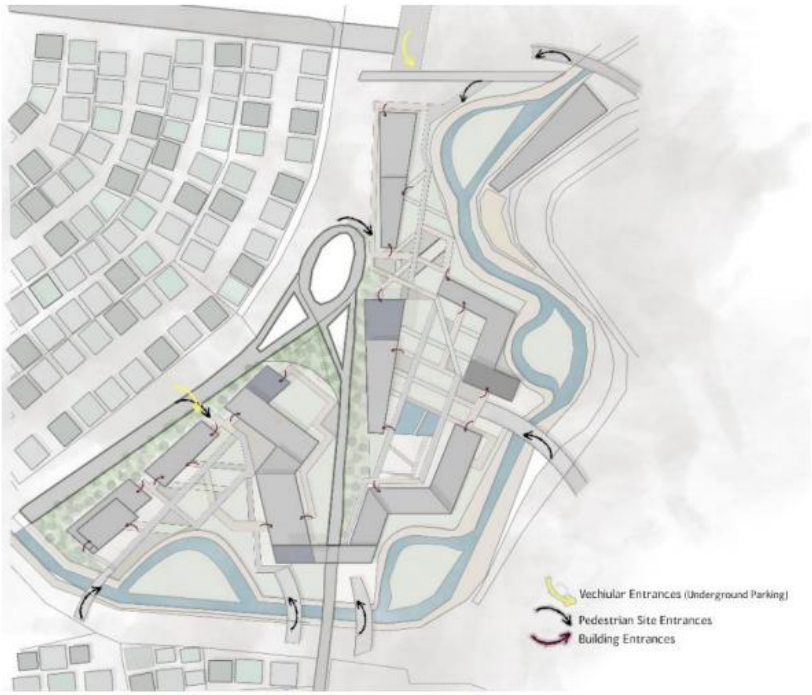
MASTERPLAN

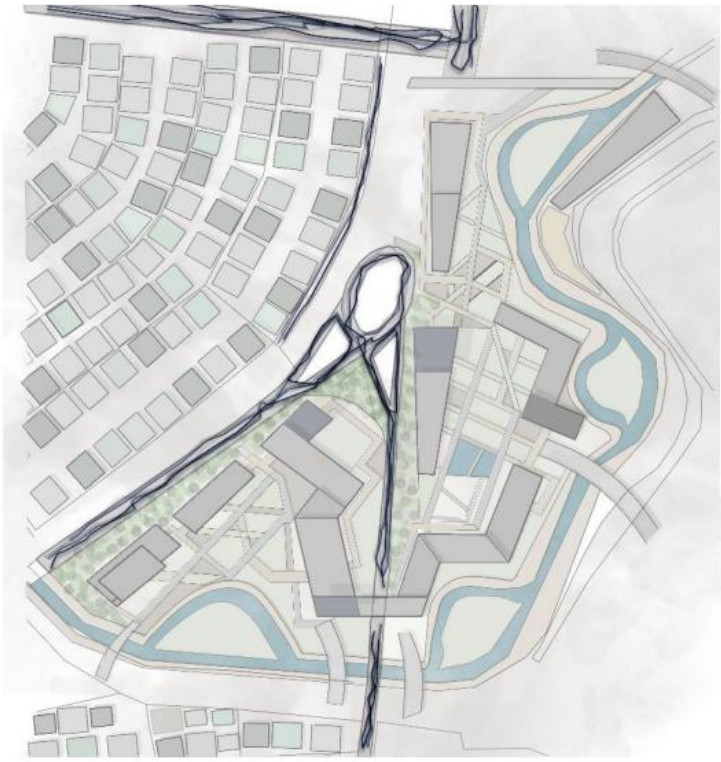
The masterplan is located in previously open-air rented bus stations that is now abandoned and lies in a very distinctive roads that are one of the main roads in Homs. Moreover, most importantly, the Orontes river's core in Homs is in the site's area. This shows the reason of the site's choice. As previously mentioned, the process of river revitalization is ongoing around the psychological complex. Nearby the psychological complex and on the lane of the river are social center, data center, and a library.

As shown below is the masterplan. Developed there several strategies, initially river banks are created for biodiversity and self-cleaning through it in the river. Next are the introduced revitalization technique of the river lanes on both sides. Moreover, bridges are created over the river for connecting both sides in a pedestrian manner and to approach the site too. Moreover, car underground parking is introduced and will be further shown in this booklet.



Site Entrances

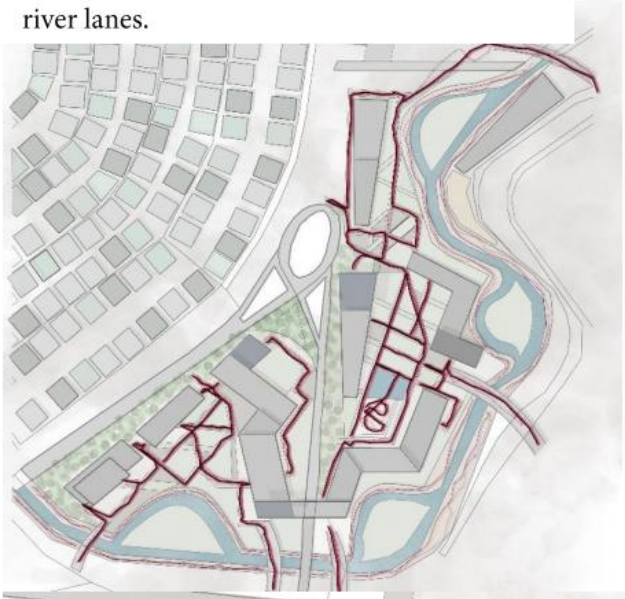




Circulation

On the right shows the first category of circulation way, the vehicular. However, in the midway between the 2 parts of the sites an interruption is created, partial underground road, to not interrupt the site's flow.

Right below, is the pedestrian possible circulation and interaction within the site and around the river through the new introduced river lanes.



Below left, is the bicycle circulation which runs along both sides of the river, for both the site users and the public users on the below side of the river.

On the left is bicycle lanes that are around the river.

This figure illustrates all the ongoing circulation that were shown previously. Creating several new methods of transportation helped in easing social interaction that was lost during the war

Environmental Analysis

Below is the environmental analysis which will clarify the choice of building placement in this manner.

As clear the major winds come from the west, from the Mediterranean Sea and minor winds are from southwest. Moreover, lots of the building façades face south. Later in this document shall be introduced environmental systems to aid natural functions in the

Moreover, the pink arrows illustrate the traffic and the noise around the site.

In the next page, will be several methods to block the noise around the site.

Noise Control

For the noise control, several methods are applied to block the traffic noise around the site.

Initially the buildings near the roads have a setback of 25 meters with a heavy greenery tree buffer zone. Another technique for sound isolation from the roads is to have the building as a buffer zone; however, for not having commotion in the buildings in the side of the roads, the circulation areas will be on the very left sides which are near the vehicular roads near the site.

Since, circulation cores are already noisy locating them in the left side will be very beneficial for aiding the sound isolation. Moreover, some of the masses have higher heights than others to block the noise around the site which will be shown in the next figure.

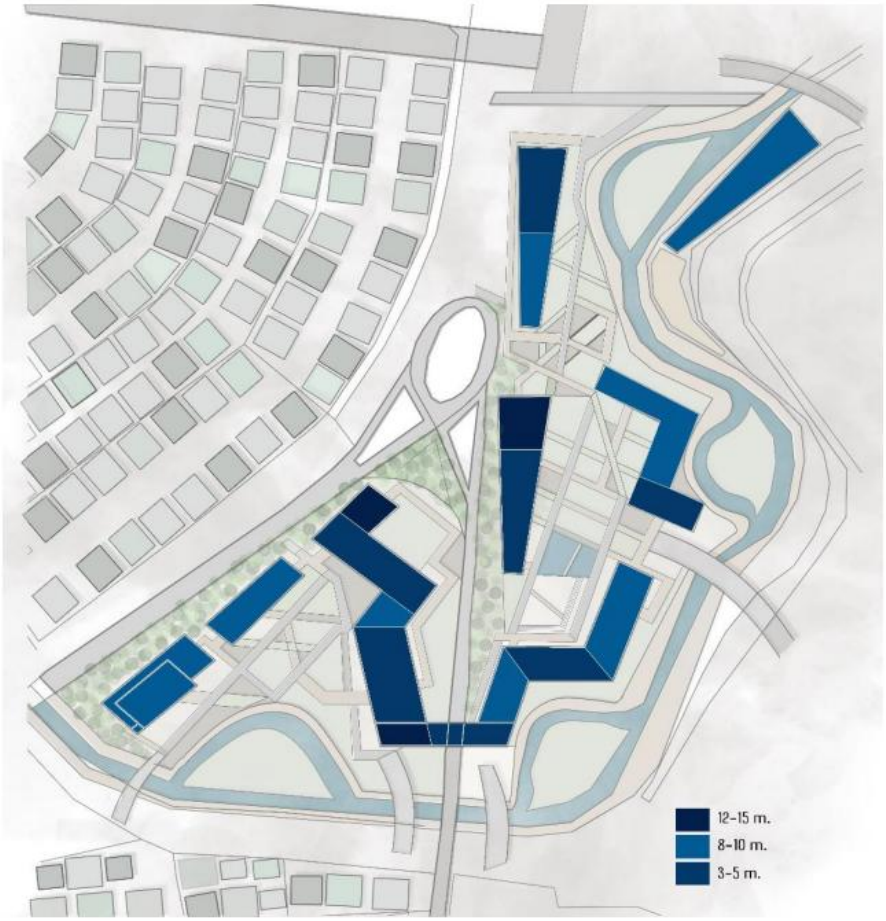
The last technique is the Green Roads which includes the Forest or Ecological Corridor as for noise reduction technique and one of its huge pros is having a creation of biodiversity around.

Aerial View with the green noise buffer barrier on the west of the site

Heights and Shadow Study

Below, is the approximation of heights in each building. Moreover, the diagram shows how the higher masses are places to block the noise as mentioned in the previous page.

In the right figure is the shadow study of the masses.



Public-Private Zoning and Greenery

In the right figure, is the greenery landscape is show. It varies between hardscape and softscape green; alongside some greenery strips and vast green areas. On the other hand, the pavements vary between light and dark stone pavements and wooden decks.

Below is the public and private zoning that is divided into public, semipublic, semiprivate, and private. The private zones are inside the site, the semiprivate area is mostly near the outdoor performance area beside the interactive center, the semipublic is near the left part of the site, the data center and part of social center, and the public zone is the library and the social center's other side.

Functions

As show above is the function diagram. Number one is located near the river and connected to the social center as the interactive rehabilitation is the last stage before the social center; moreover, it is beside the public area which is helpful since the open performance area is related to the interactive center; the open performance area is controlled and will be partially open for the public.

Number two is located near the road since its functions are meant to have higher heights and has most of its function in closed spaces.

Number 3 is the located near the intense greenery area and beside the river as it is the mediation genre which is required in this facility.

Number 5 is located a little off the site since it is pet therapy which needs more freedom and bigger spaces than others; the end of it is the horse stable area.

The psychological hospital/center is mostly located in the quite part of the site as it is required in the beginning stage of the therapeutic process. Moreover, it is nearby the car parking entrance and the main site entrance.

On the other hand, is the social center, 6, which is basically the interaction with the public and social gathering places. As mentioned, part of it is for the psychological complex and the other is opened for the public.

Vertical Circulation Cores

In the figure above is the vertical circulation core in each mass.

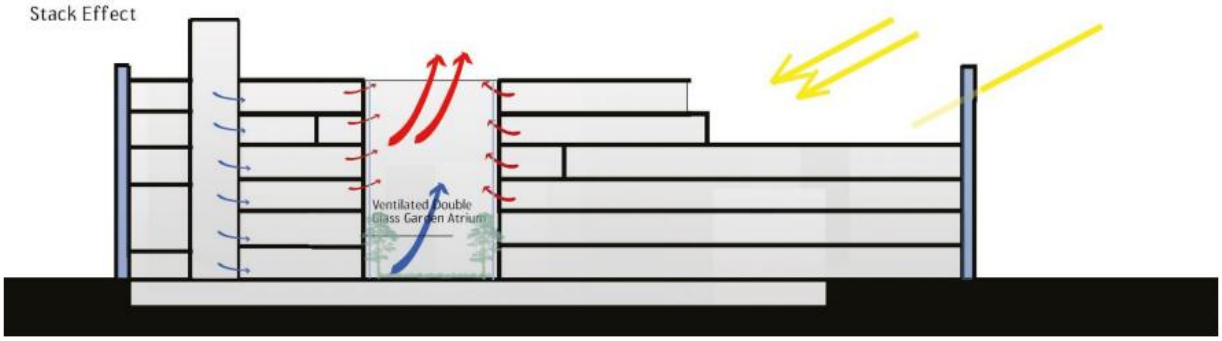
Number 7 is the data center which collects all the information and the statistics around the rehabilitation, social development, and social centers nodes that are around the city in most districts.

The library is introduced as a method to pull people in this site from the residential area across the strategies in page 11

ENVIORMENTAL SYSTEMS

In this part, there will be environmental strategies that are going to be applied in the masses that fits. The environmental system is adjusted based on what the site needs and what can be taken advantage from the environment in the site.

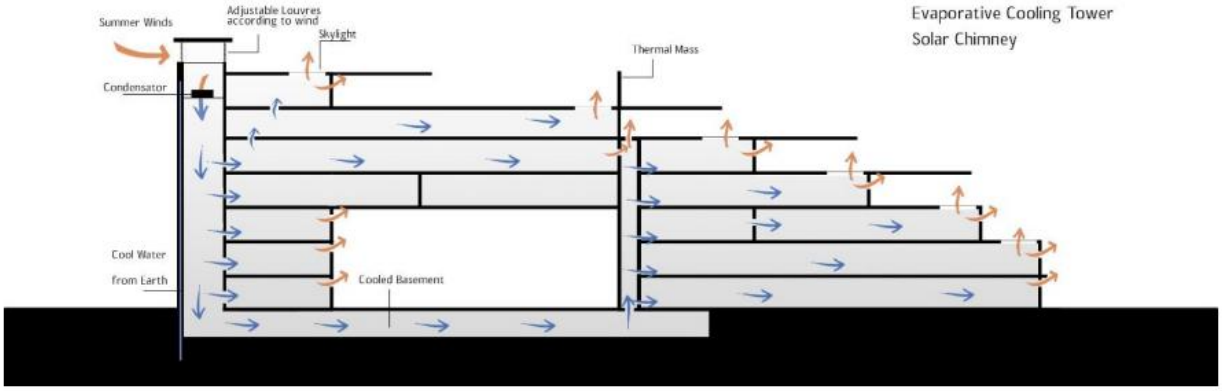
Below is a representation of stack effect that can be applied in all masses that have atriums and the towers that will get the cool breezes inside the mass. The ventilated double glass atrium will help releasing the hot air outside.



Cross ventilation is occurred within the urban scale and in the buildings. For the urban scale, the wind coming from the west that enters to the site and by the mass articulations, the cross ventilations are occurred.
For the buildings, cross ventilation is occurred by placement of the windows on needed places.
Also, there are the solar chimneys on the buildings that catches breezes coming from the sea and distributes the air through shafts in the buildings.

Below is a representation of the evaporative cooling tower, solar chimney which a passive solar heating system that will regulate the temperature. This system is applicable in the hospital and the masses nearby the highest points of the building.

Furthermore, the filters in the solar chimneys takes the humid in the air and distributes the air as fresh dry air through the shafts by the help of cold water placed in the filters.

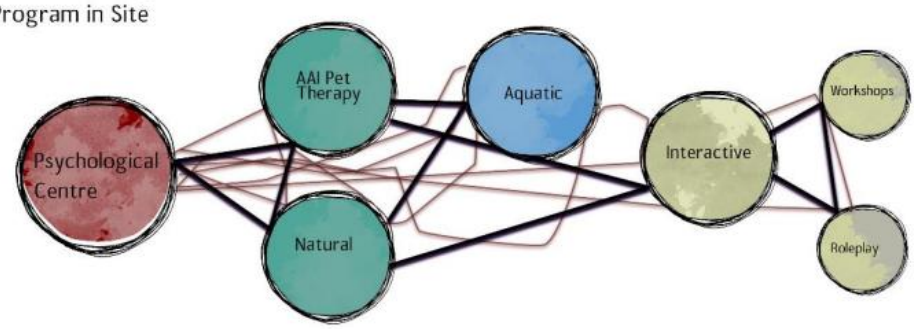


Below is a representation of the vertical double skin façade system that will be used in the buildings.
In the facades double skin walls will be used to shade the building and ventilate the building, which here will be almost all the masses. On the right side of the building there is the buffer system to decrease solar gain in the façades facing south and west mostly.

Vertical Double Skin Facade System

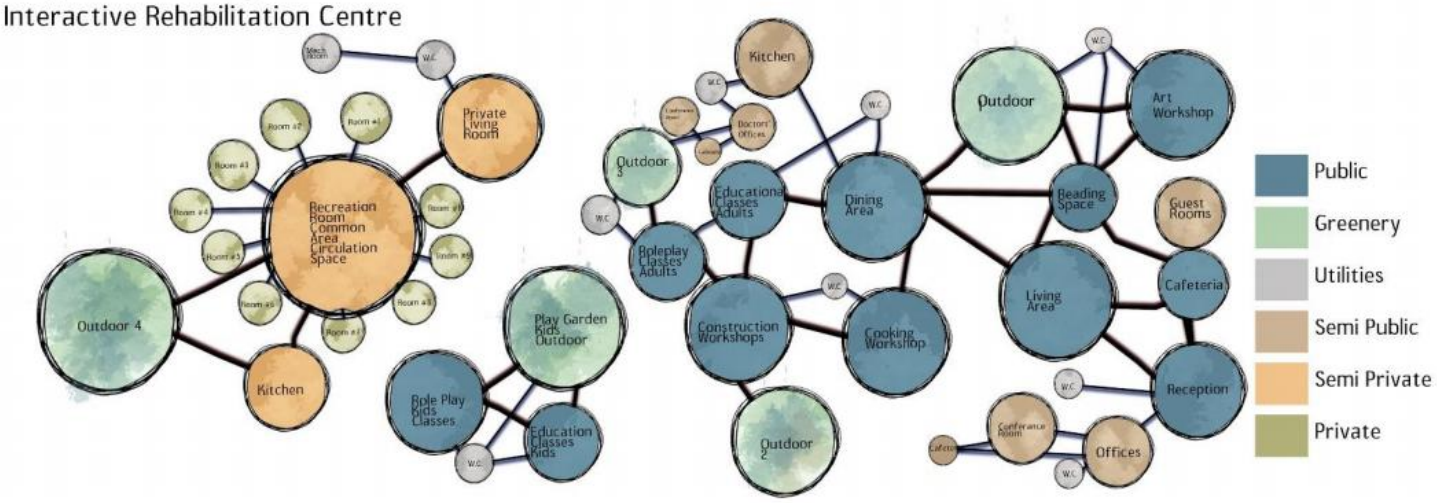
FUNCTION PRORAMS

Program Bubble Diagram
User Program in Site

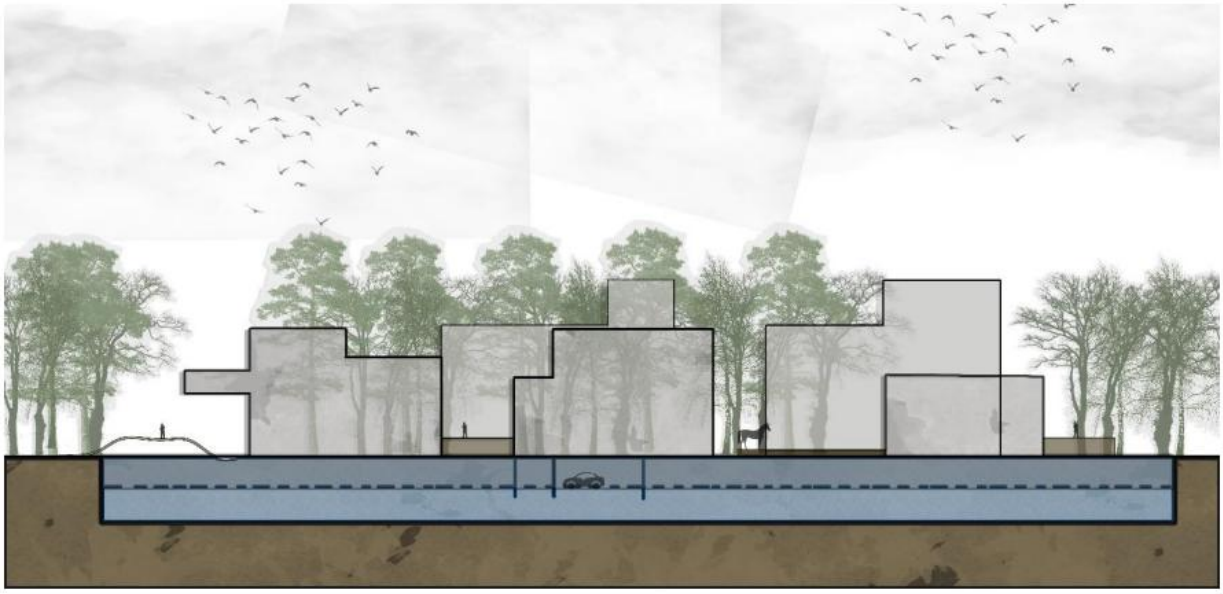


Above is the function program illustrated for the user process in the complex. Moreover, as clear shown it is never ending process in one phase. All phases go back to the psychological center.

Program Bubble Diagram
Interactive Rehabilitation Centre



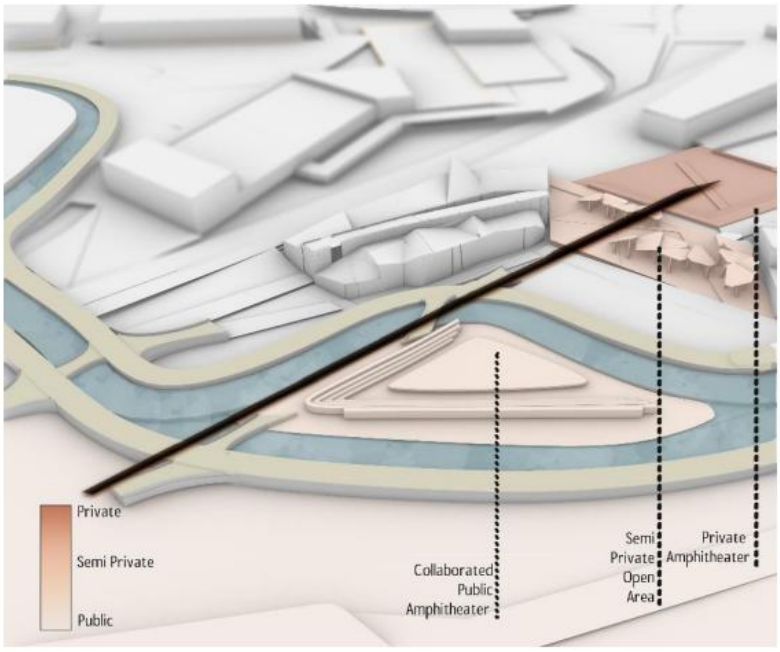
SITE SECTION



INTERACTIVE REHABILITATION CENTRE

Above is the axonometric view of the site which is beside the river and at the beginning of the site entrance at the south. Moreover, one can see the exterior amphitheater that is done on the wet land between the riverbank and the original runway of the river.

AXIS AND ACCESS

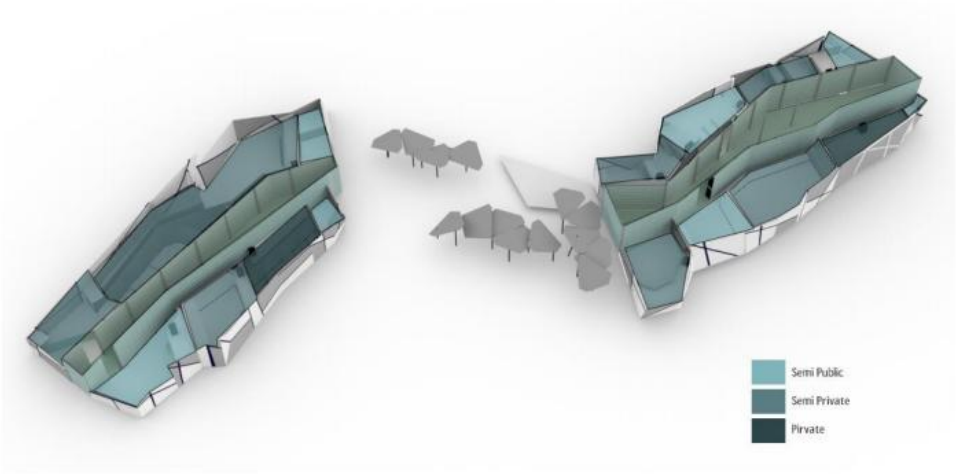


The figure above shows the public private axis created throughout introducing the bridge and using the wet land encircling the river as an amphitheater that public users can interact with the users inside the site to promote social interaction.

Moreover, the diagram shows how to access the interactive center with several interaction with the public and on the other hand interacting only with the users inside the center in the private amphitheater.

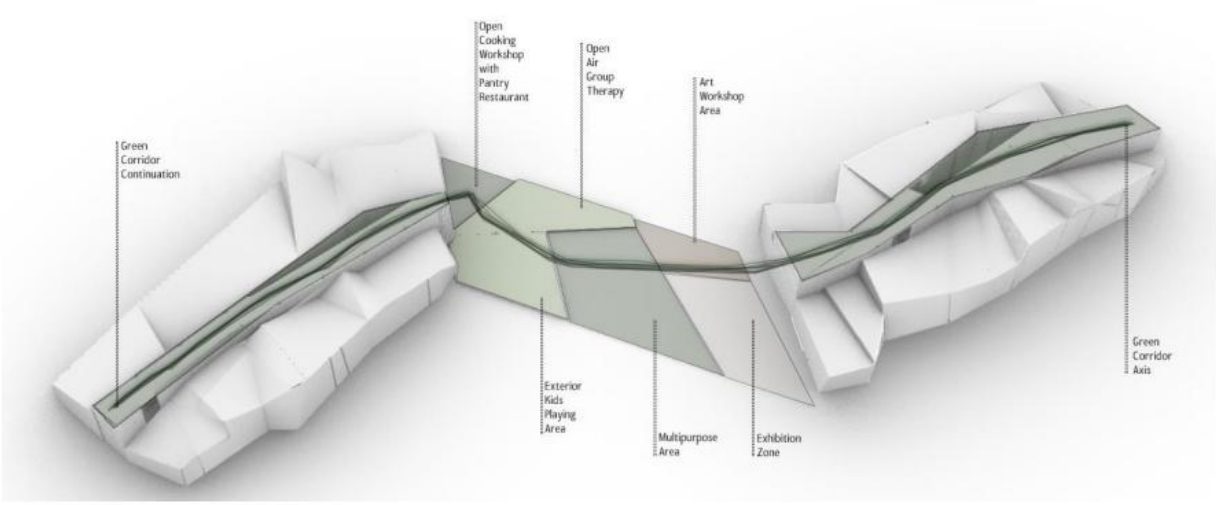
View from Amphitheater

Public-Private Zoning



The diagram above illustrates the public and private distribution of the interactive center. The interactive center is divided into three parts: the right building has most calm activities like art workshops and group therapies the middle region which is open area that exhibits several open-air activities and the left has mostly the noisy workshops such as cooking and construction workshops.

Greenery Development

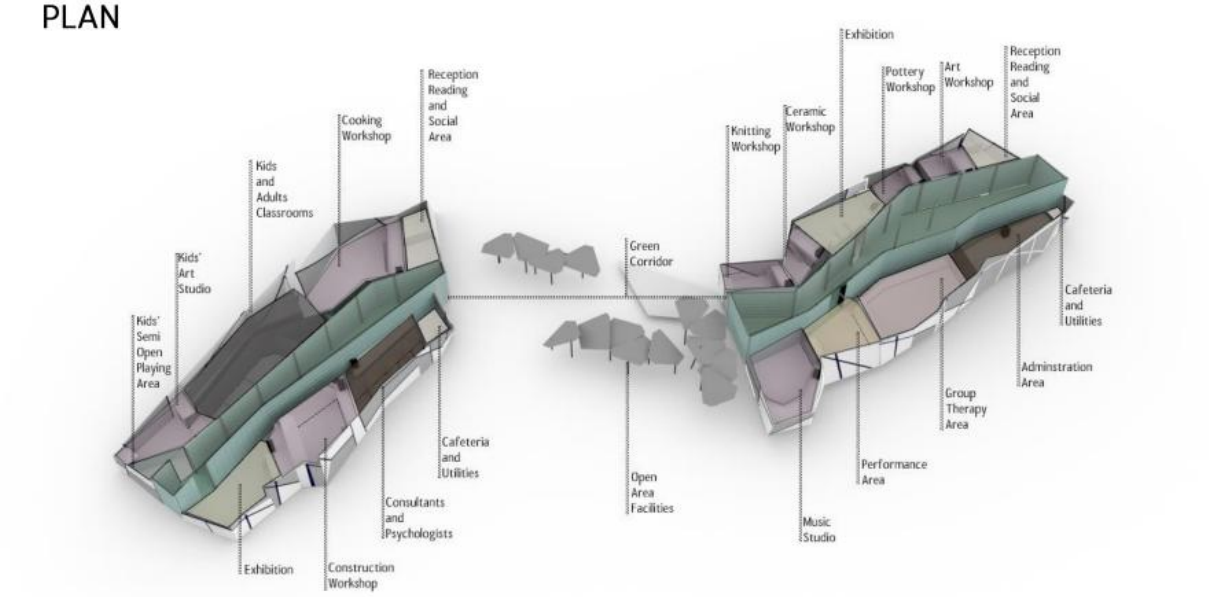


The figure above illustrates the green finger development around the building. As per to the bigger scale's concept of green finger. Developing it inside the center has given several advantages; a) clearly seeing the circulation route, b) developing more interesting interior for the users to feel inside secured while the green corridor gives the outgoing atmosphere at the same time, and c) it creates good pros for environmental aspects which will be shown in later pages.

The render above shows the green corridor and the bridging that connects two sides of the building. The green corridor helps in making the user feel safe that he/she is inside building but at the same time the user feels that he/she can go outside with being safe.

Whilst, the below render shows the open-air area that lies between the 2 buildings. This area presumably will be the next stage of the user when he/she wants to be more outgoing and undergo the interior workshop activities outside. Below is an example of open-air painting workshop with the exhibition area covered by the canopy.

PLAN



The figure above shows the plan functions diagram. Functions are chosen based on what people would like to experience alongside with traditional elements that the culture is famous for.

Moreover, the interactive center accommodates all ages with different interests that suits most ages in order to include social interaction that was lost during the war.

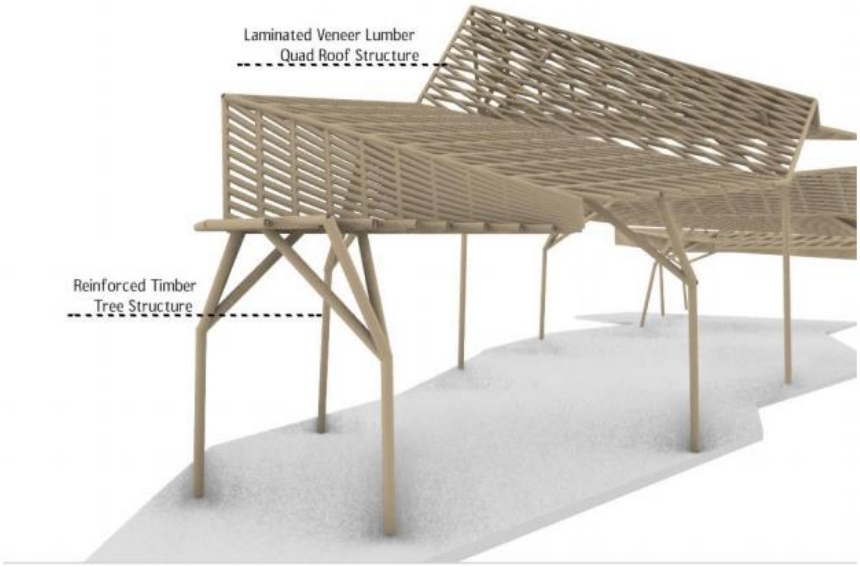
Main facilities include art workshops such as: art, ceramic, knitting and pottery, music studio, group therapy, kids' art studios, construction, and cooking workshops. Moreover, public areas to express what the users have done in the workshops/studios in exhibitions and performance areas. Alongside, administration areas and consultants/psychologists' areas.

Interior View of the Exhibition Area

Interior View of
Cooking Workshop

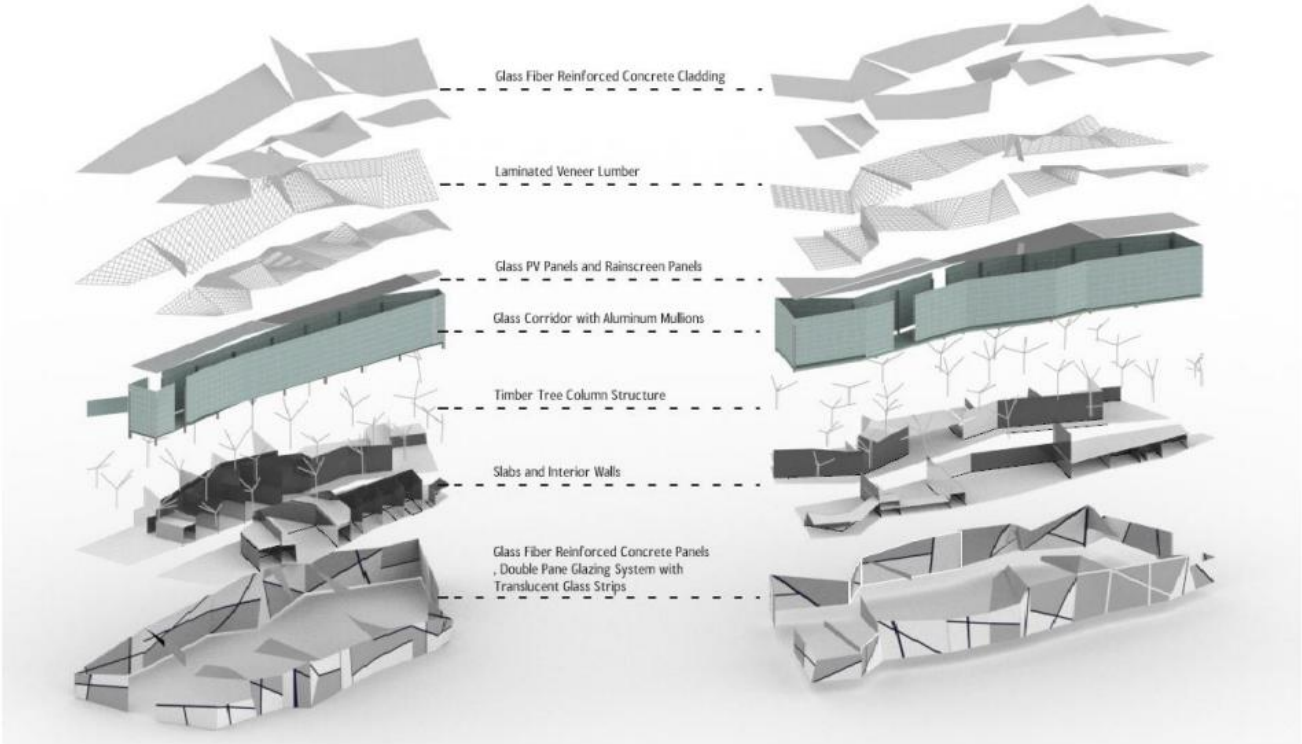
Interior View of the
Group Therapy

STRUCTURE SYSTEM and DETAILING



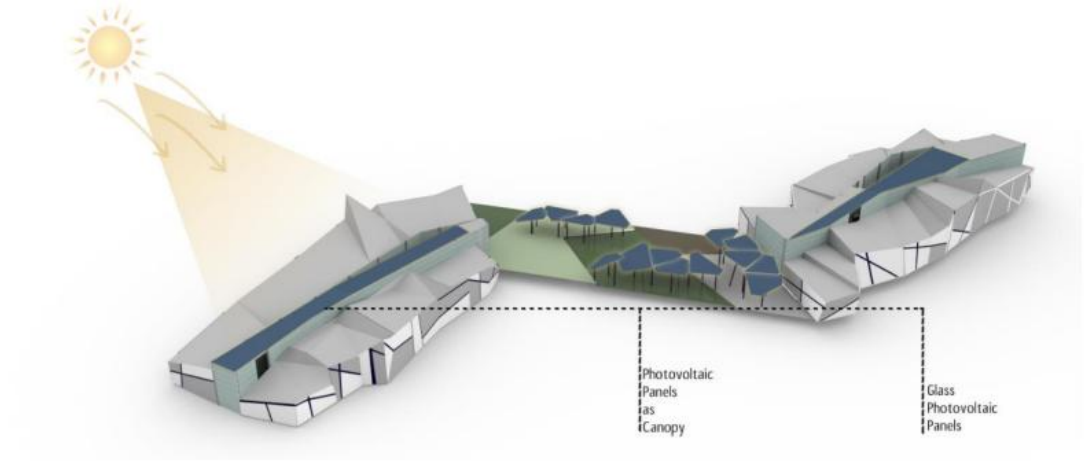
Above is the structure diagram, the system used is both timber tree column with the roof is timber quad grid system. Finally, the roof develops LVL Timber Roof to maintain heat inside.

Moreover, below is the axonometric exploded diagram of the center which helps one to understand the materials chosen and the formation of the masses.



ENVIOROMENTAL SYSTEMS

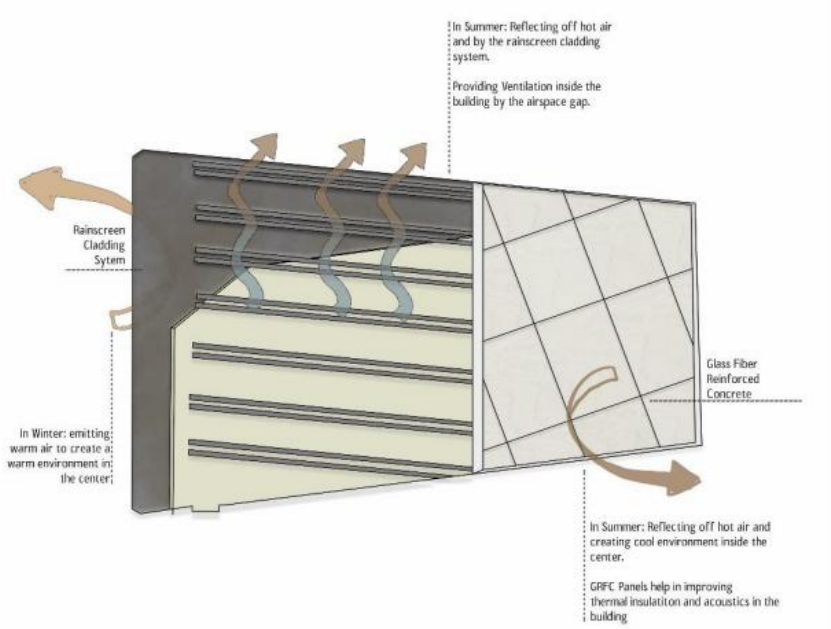
Photovoltaic Systems



The PV Panels are used in two places. Initially, it used in the public area as canopy systems in the areas it needs most: Open group therapy, multiuse area, and open-air exhibition.

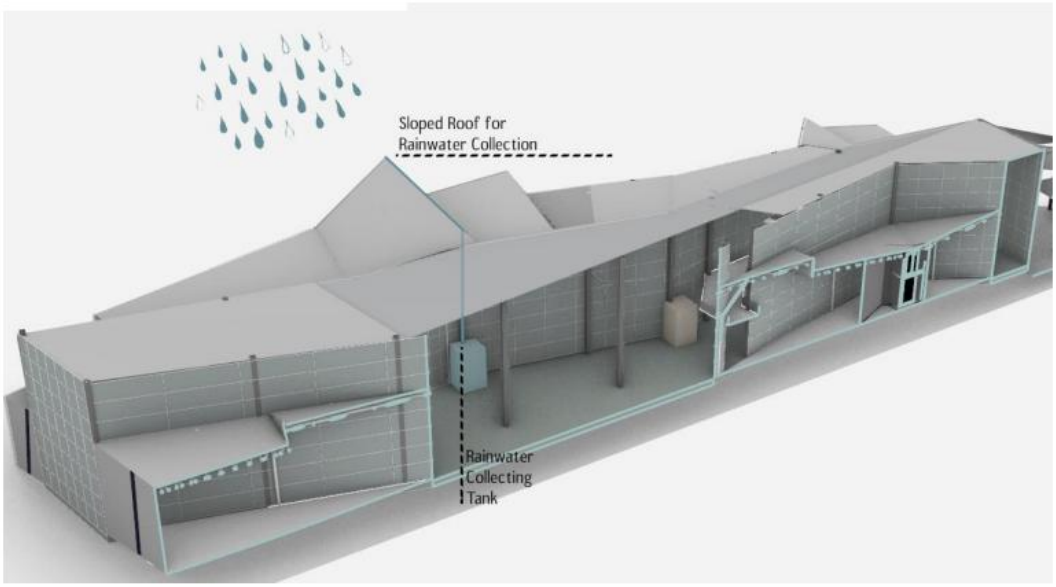
On the other hand, they are used in the ceiling of the green corridor to create a pleasant luminated area at dark with energy efficient use. As shown in the below render the PV panels canopy luminating at night.

Material System



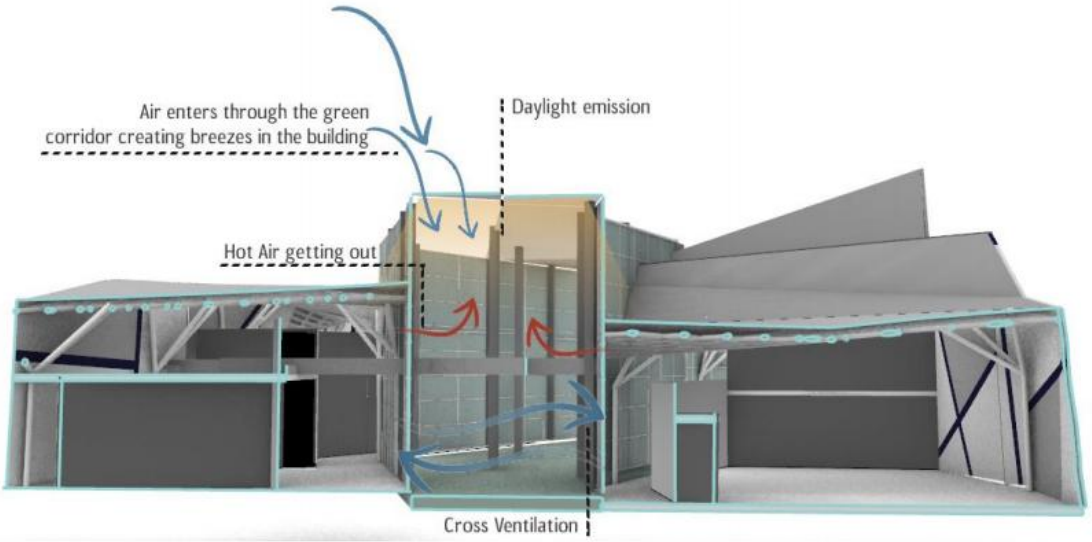
The façade and the roof system inhibit Glass Fiber Reinforced Concrete which has several advantages such as high tensile strength, doesn't rust or corrode, flexible, and fire resistant.
Moreover, for the façade as shown above it depicts rainscreen system beneath the GFRC which helps in thermal insulation, ventilation, good for load bearing; it; moreover, it avoids humidity, improves thermal and acoustic insulation and has high energy efficiency of controlled heating which is so beneficial for the area and function depicted.

Rainwater System



In the previous page a diagram of rainwater collection is shown. Sloppiness of the roof helped in the rain way to collect water in the tank.

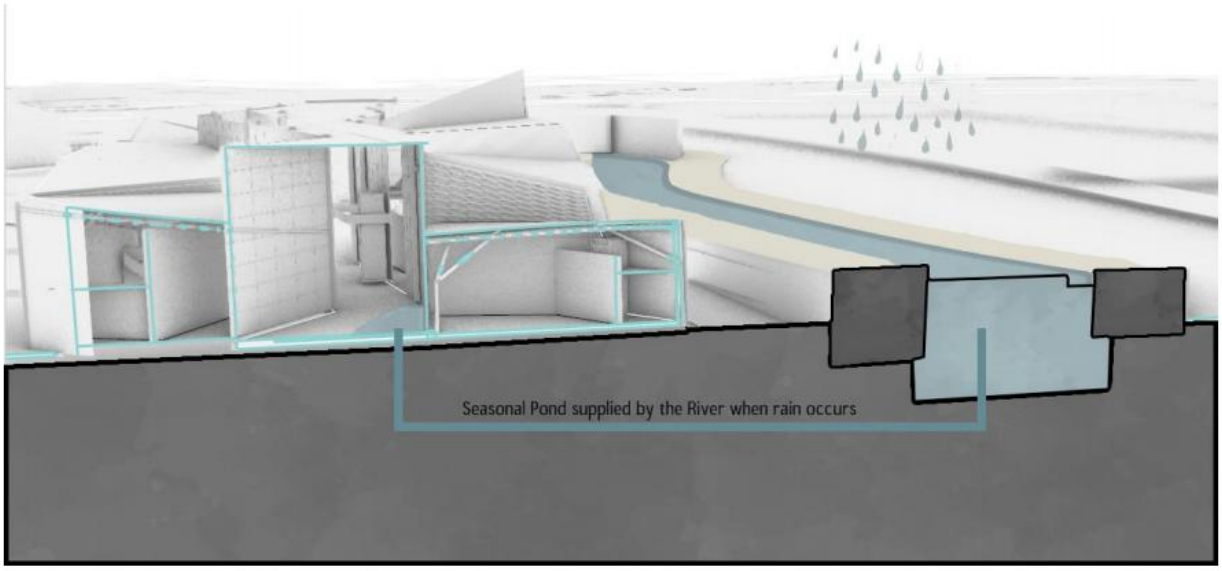
Stack Effect



In the above diagram, one sees the advantages that the green corridor helped in achieving such as the cross ventilation, the breezes that enters easily whilst the hot air going outside.

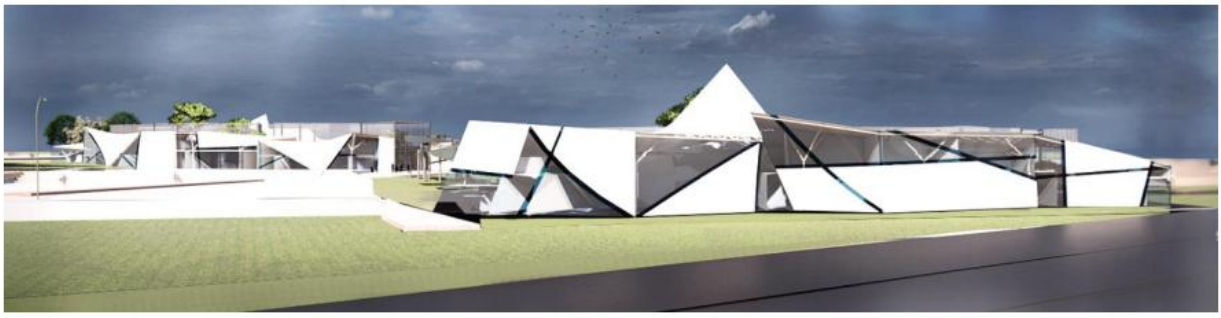
Seasonal River Usage Efficiency

As previously mentioned, nearby the site lies the Orontes River that seasonally gets rainy and flowy throughout the year as a result, in the green corridor, there is a hallow area of gravel that accommodates water which will be connected to the river.



Consequently, when the water of the river is rich enough the pumping flows till the hallow area of the water inside the corridor. This aims establishing conservation of water and decrease the use of artificial water.

ELEVATIONS



Street Side's elevation

West Elevation

Lake Side's elevation

East Elevation

SECTIONS

Longitudinal Section

This longitudinal section allows one to see the green corridor with the relation of the masses and the greenery around the side.

Furthermore, the transversal section shows the relationship ongoing inside between the masses and the green corridor. It also illustrates the method of connection it creates inside the corridor.

Transversal Section

NIGHT VIEW

Further Information

https://sarahsameer98.wixsite.com/mysite

For further information please visit this site which contains more details and sketches.