BILKENT UNIVERSITY
DEPARTMENT OF ARCHITECTURE

ARCH 402 : ARCHITECTURAL STUDIO VI

BİLKENT ÜNİVERSİTESİ
MİMARLIK BÖLÜMÜ

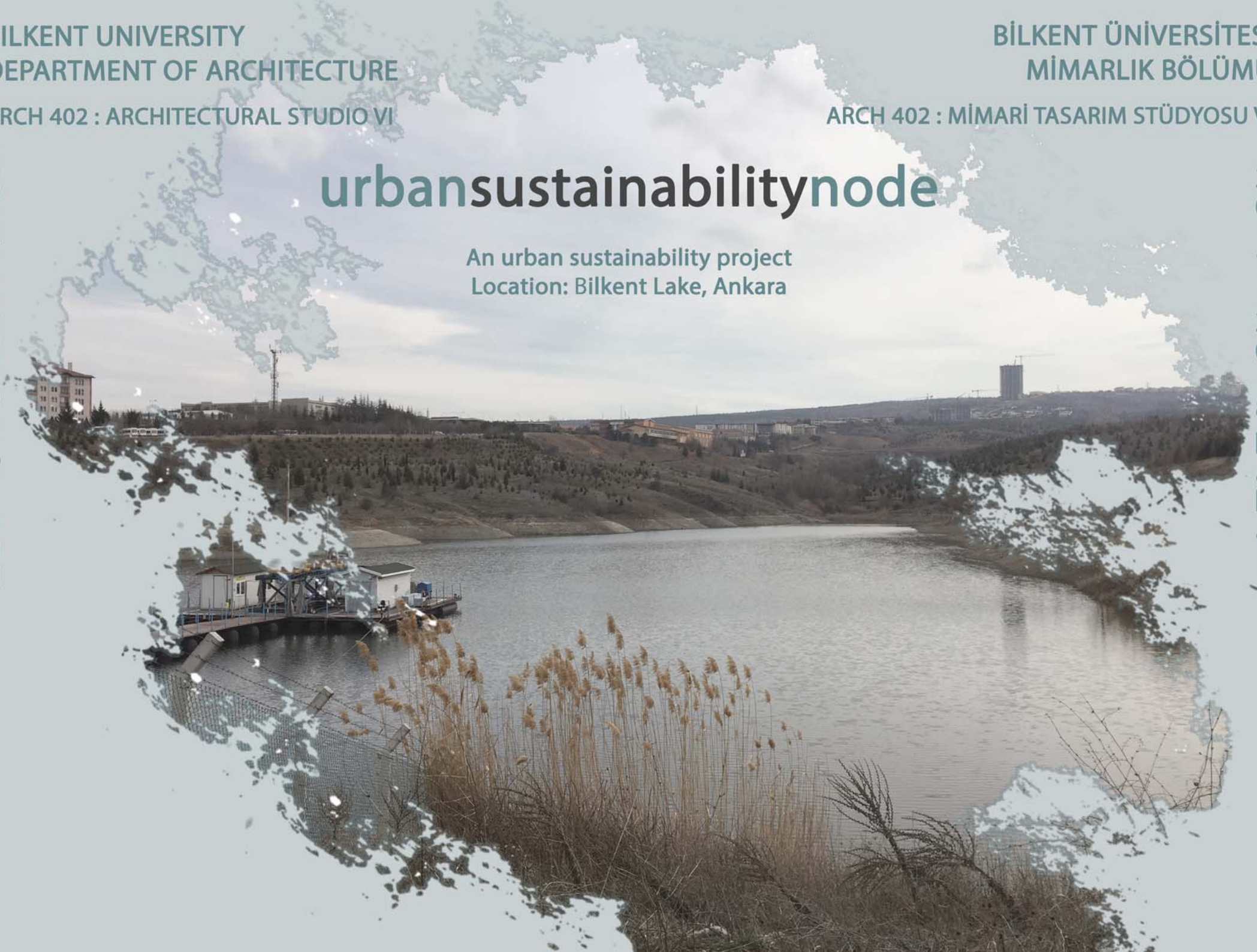
ARCH 402 : MİMARİ TASARIM STÜDYOSU VI

2017-2018 spring

urbansustainabilitynode

An urban sustainability project
Location: Bilkent Lake, Ankara

2017-2018 bahar



ARCH

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PREFACE

The capital city of the Republic of Turkey, Ankara, is one of the most important cities in terms of economics, culture and education. Bilkent university, being one of the most important educational hubs in the country, has always urged its students for creative ideas in future developments. As the architectural department of the university, we have chosen Bilkent's artificial lake and its nearby surroundings as our new area of architectural creativity. We strongly believe that this particular site is an important zone to work as a connection between the existing urban developments of the city with nature. Therefore, a detailed and delicate design approach to preserve nature and connect it to humans is intentionally attempted.

The book contains architectural approaches to the site by representing problems and solutions. A collection of different architectural ideas from students, in collaboration with architectural critics from other visiting architects has lead us to a master plan design which main aim is to respond to site's need both architecturally and environmentally.

The purpose of the book is to present a collection of architectural works that is started as a collaboration of 14 architecture students with one finalized master plan. This master plan applies only to our specific site, but the approach behind it can be applicable to any site. Main themes as economics, socio-culture, urbanistic, aesthetics and more importantly environmental considerations have been filtered layer by layer to create the optimal solution to the site. The overlapping layers with their distinctive constrains were a challenge for the group, but several group discussions where facts and arguments were the leading characters of the conversation, lead to a better understanding of the site. Therefore, every design decision has been a reflection of rational choices where sustainability was the main word, rather than egoistic and expressive desires.

Design constrains and time, so far have played a role in making our work harder, but at the same time triggered us to a more detailed research. A variety of architectural considerations, as mentioned previously, made us research on different topics such as flora and fauna, biodiversity, water harvesting, energy producing etc. as mentioned in case studies section. Architectural references play an important role in presenting ideas, but at the same time need to be relevant to natural conditions of the site so it can be applicable. Our research process so far, has mainly been focused on the intangible side of architecture, because we believe that the environmental issues are a priority to this site and not only. By doing so, we are leaving space for future architectural explorations individually, where sustainability will be the key word as well.

PREFACE
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INTRODUCTION

History and Socio-Cultural Context

INTRODUCTION

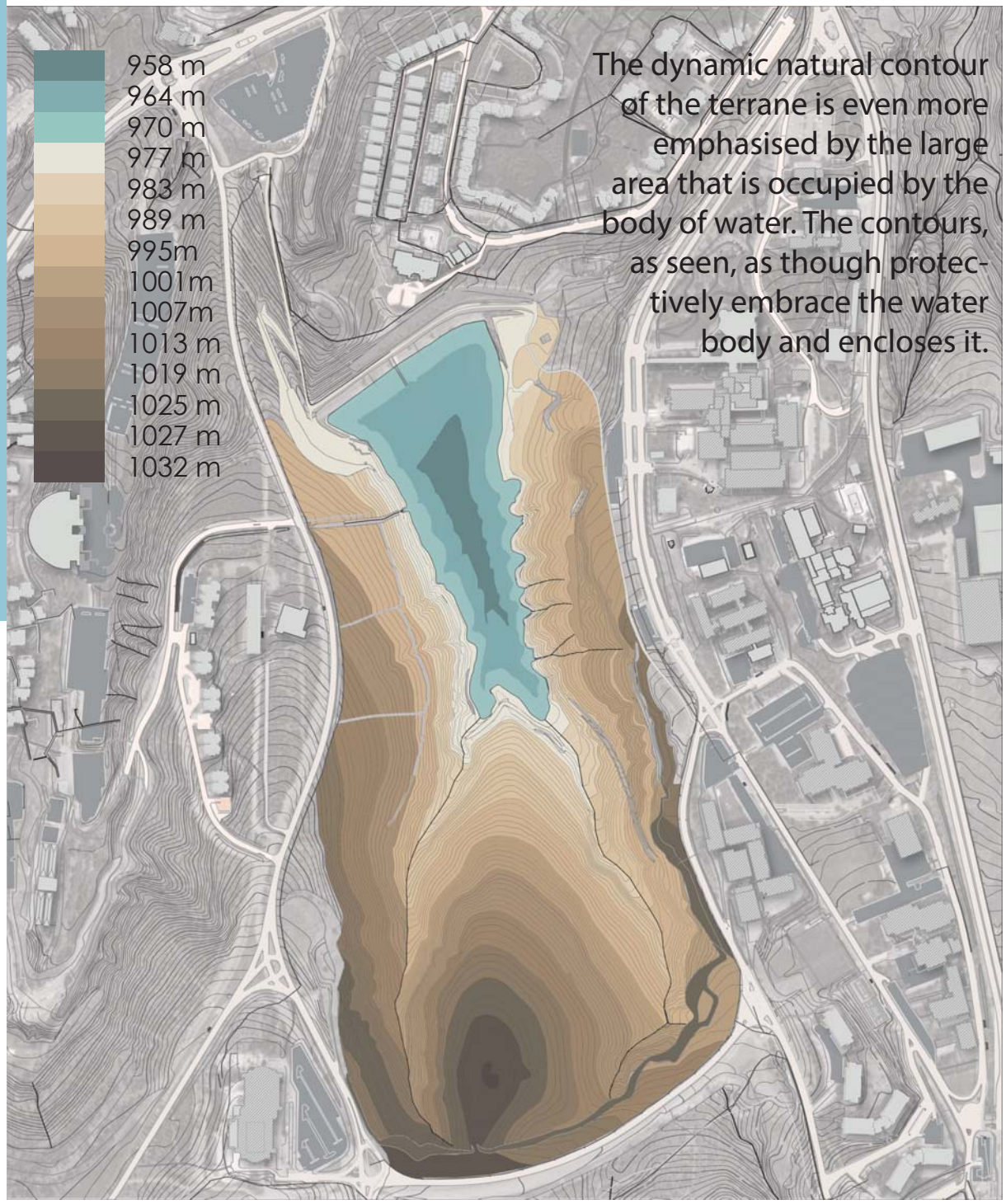
This project is the means to revitalise the region in order to enhance and portray a sustainable lifestyle within a closed community. The site is central to not only Bilkent University, but to the relationship between three vital universities and academic communities in Ankara. Therefore, the main concept of this project is to create a masterplan such that re-establishes the area as a central hub which aids in bonding these communities and creating options for further sustainable alternative as an initiative to conserve and respect the inhabiting natural organisms.

Ankara,Turkey 1

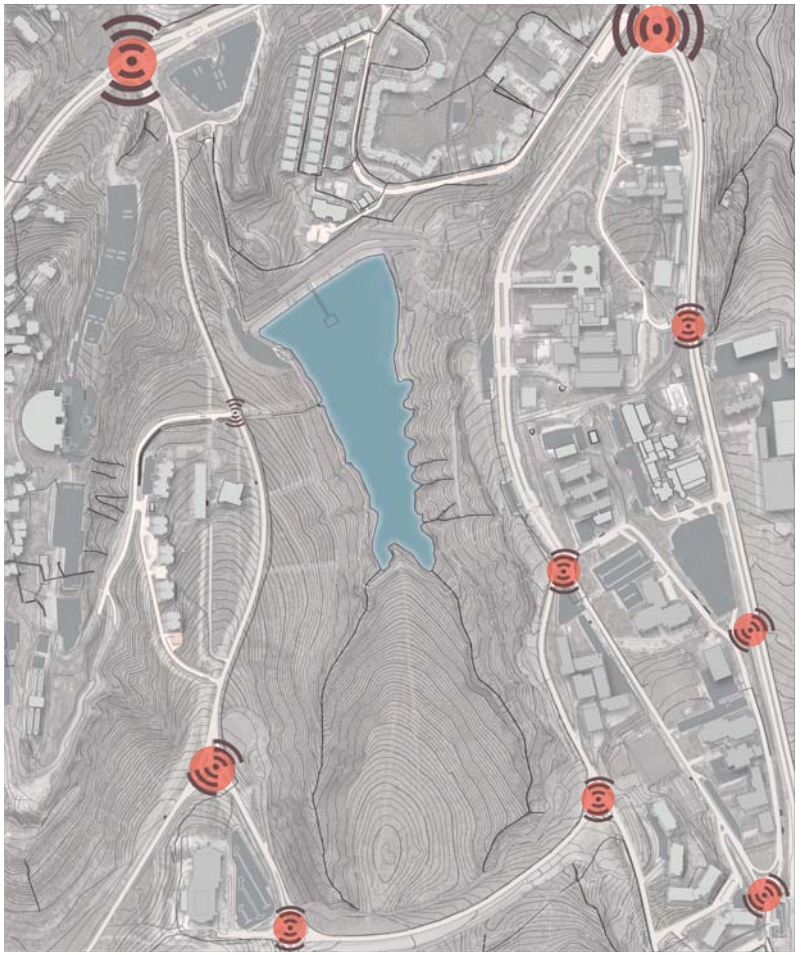
Bilkent, METU,Hacettepe 2

Bilkent Lake 3

SITE ANALYSIS

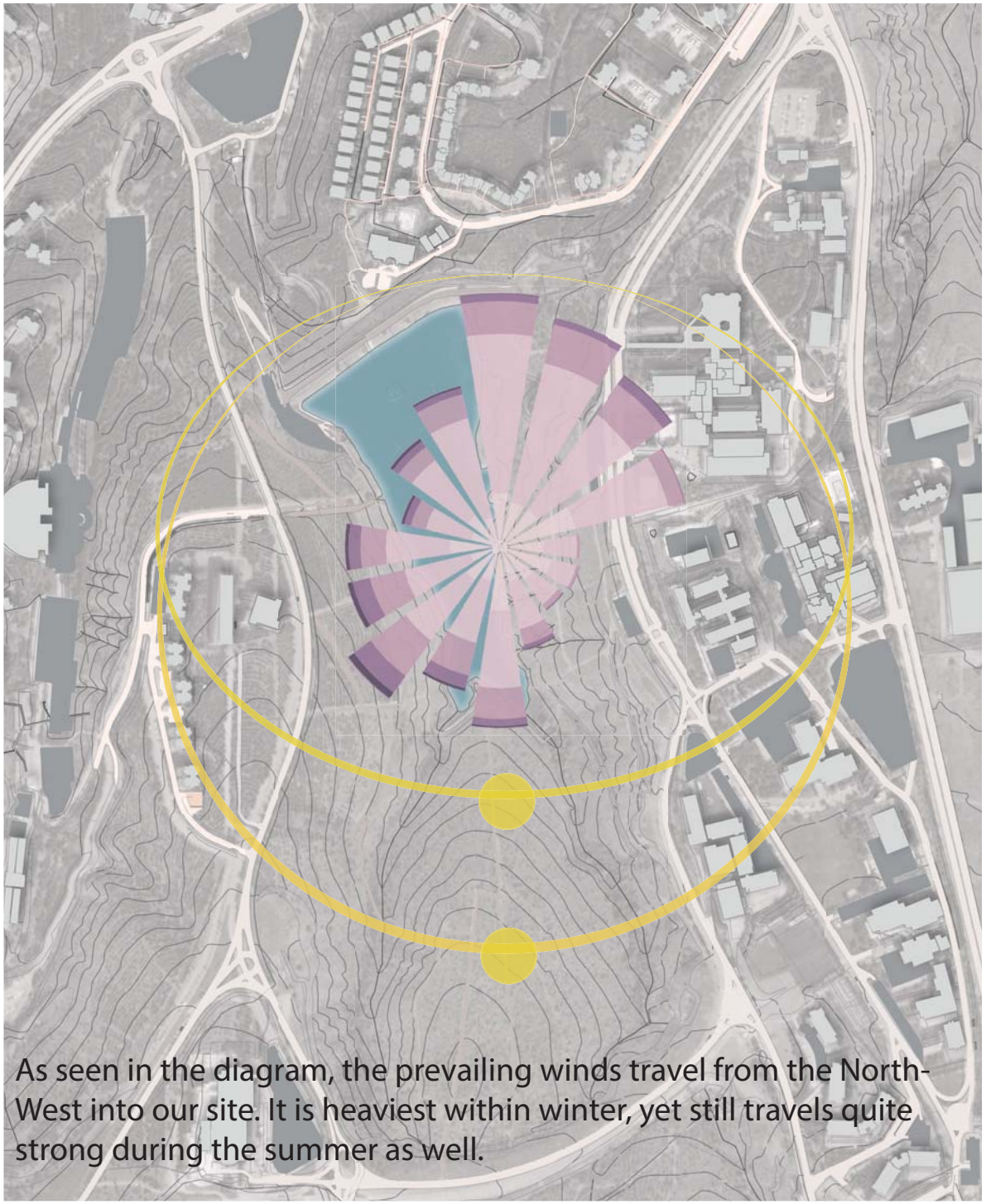


TOPOGRAPHY



NODES &NOISE

The noise sources have been identifies as such within the region. The highly commercial area due North is the highest area in car and people density not only due to the shopping centre, but also due to the fact that the main entrance to the university is there. Therefore, the traffic within the proximity of that area is extremely congested; thus, the noise level's escalation.



As seen in the diagram, the prevailing winds travel from the North-West into our site. It is heaviest within winter, yet still travels quite strong during the summer as well.

SUN & WIND

FUNCTIONS

- COMMERCIAL
- RESIDENTIAL
- SPORTS FACILITIES
- EDUCATIONAL
- CAR PARK
- HOTEL
- GOVERNMENTAL

LAKE
PRIMARY ROADS
SECONDARY ROADS

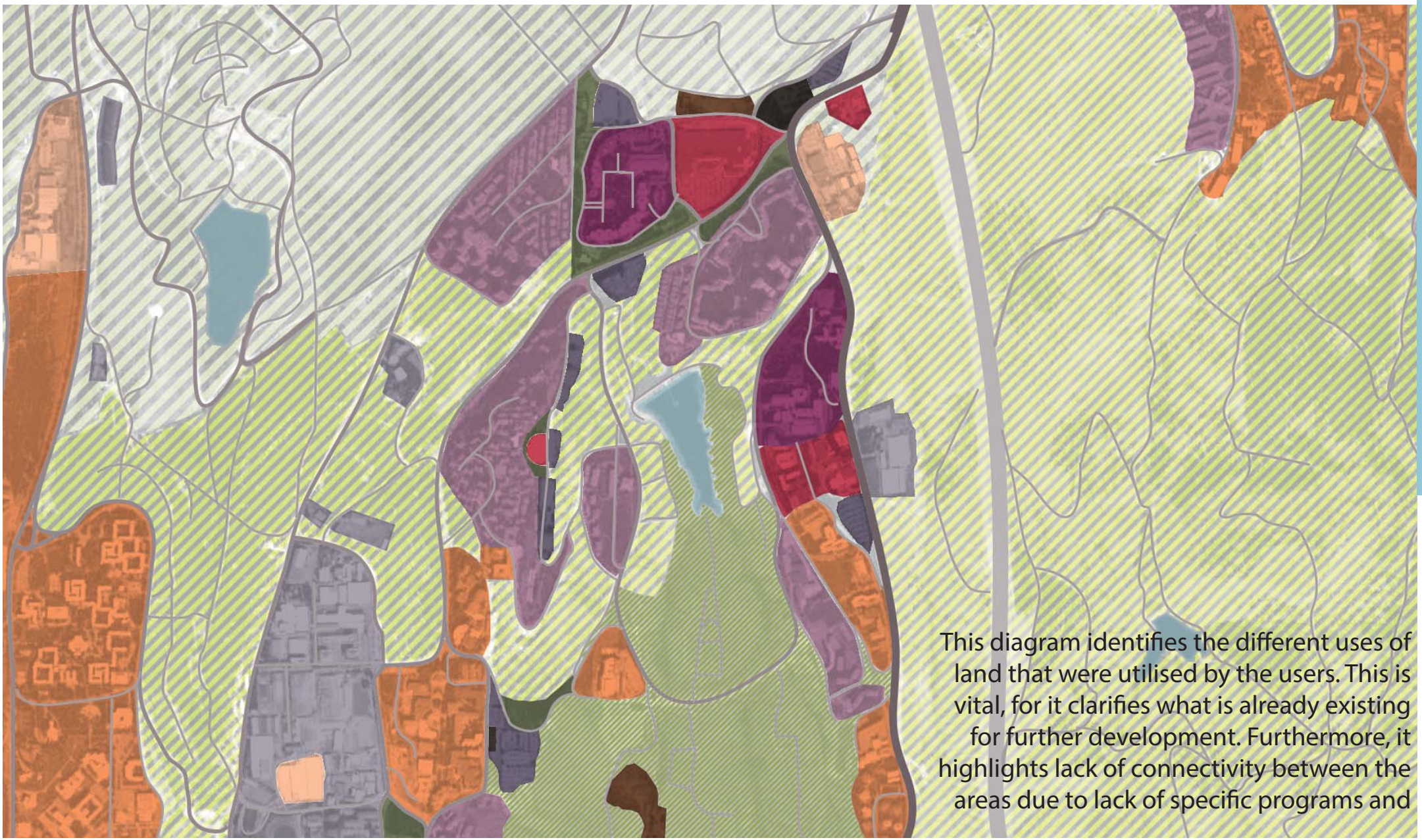
As previously stated, the identification of existing site routes, especially vehicular, is vital in order to aid in the clarification of the main issue, 'why is the site not visited by more users?'

CAR ROAD

LAKE
PRIMARY ROADS
CAR ROAD
MAN INDUCED USES
RIPARIAN
GROUND COVERS

As this diagram shows, there are three main types of vegetation: riparian, softly landscaped (by the simple placement of foreign vegetation), hardly landscapes (in which includes paving for users). It is imperative to recognise this due to the issues that adding or removing certain built environments that will raise.

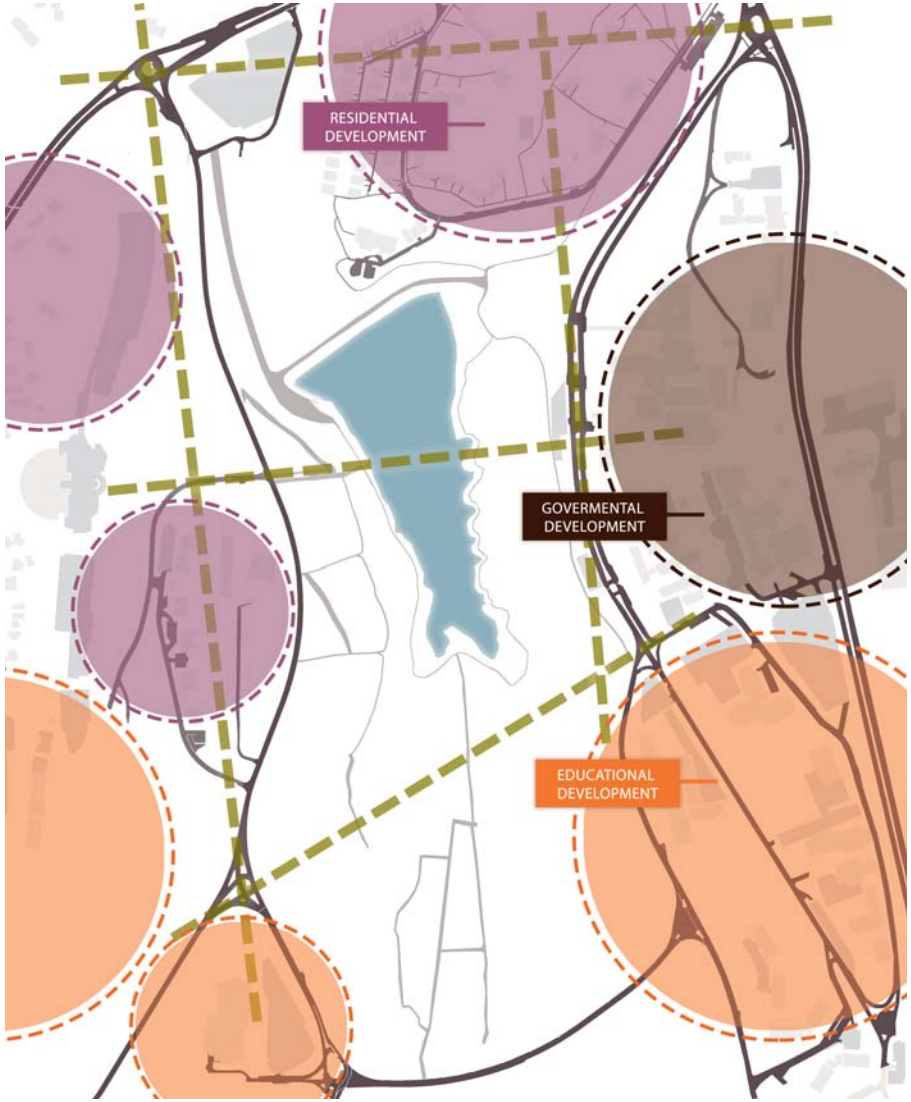
GREENLANDS



This diagram identifies the different uses of land that were utilised by the users. This is vital, for it clarifies what is already existing for further development. Furthermore, it highlights lack of connectivity between the areas due to lack of specific programs and

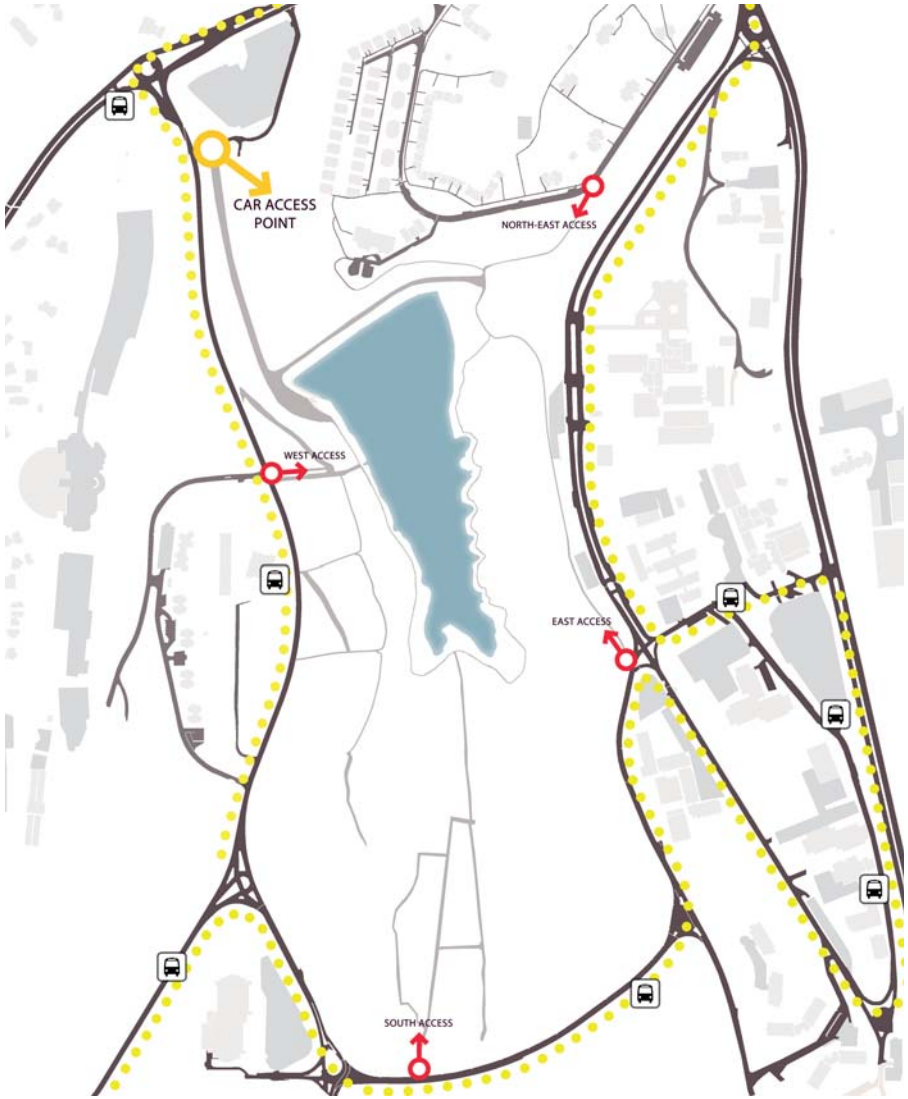
LANDUSE

- PRIMARY ROADS
- CAR ROAD
- MAN INDUCED USES
- RIPARIAN
- GROUND COVERS
- SPORT FACILITIES
- EDUCATION
- CYBERPARK
- RESIDENTIAL
- PARK
- LAKE
- COMMERCIAL
- GOVERNMENTAL
- WASTELAND
- RELIGIOUS CENTER



NEIGHBOUR CONTEXT AND AXES

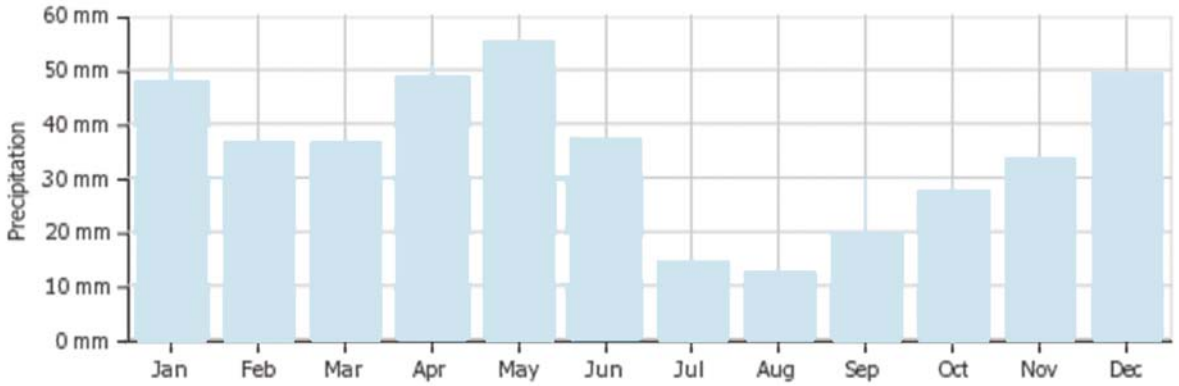
This diagram brings to light the functions of the directly adjacent built environment. It, furthermore, aids in the understanding of what the crucial needs of the users are in order to augment a better connection between the community.



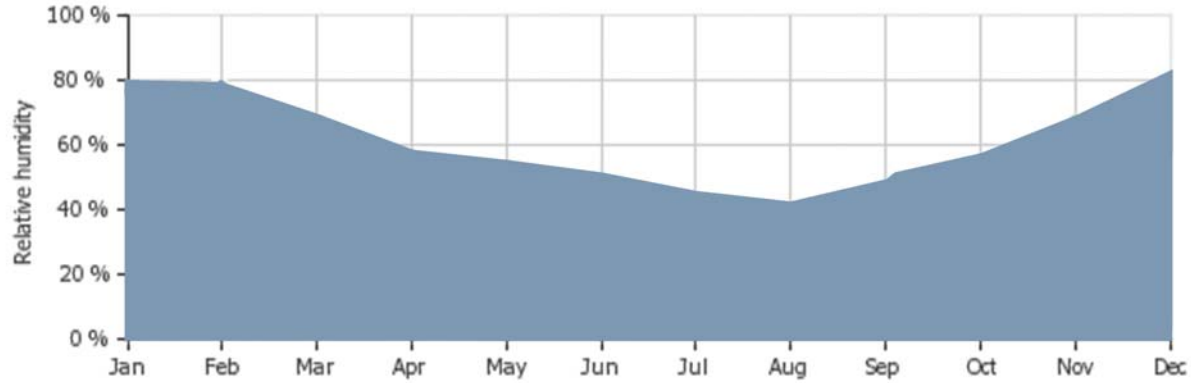
TRANSPORT AND ACCESS

The existing access to the site, as seen, is not sufficient enough to house the influx of people that are proposed by the masterplan. The little to none existing routes and passages have stripped the people from the site itself. For, people only proceed to go to a place if there is a road that leads to it.

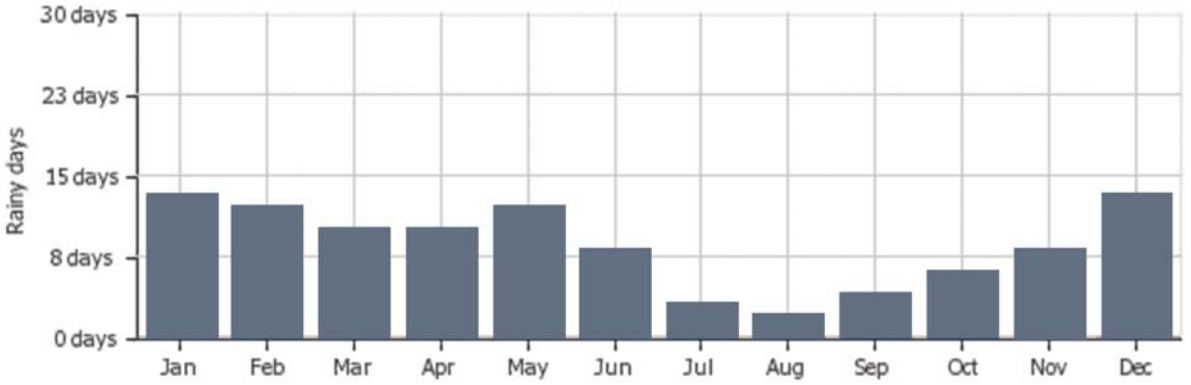
PRECIPITATION

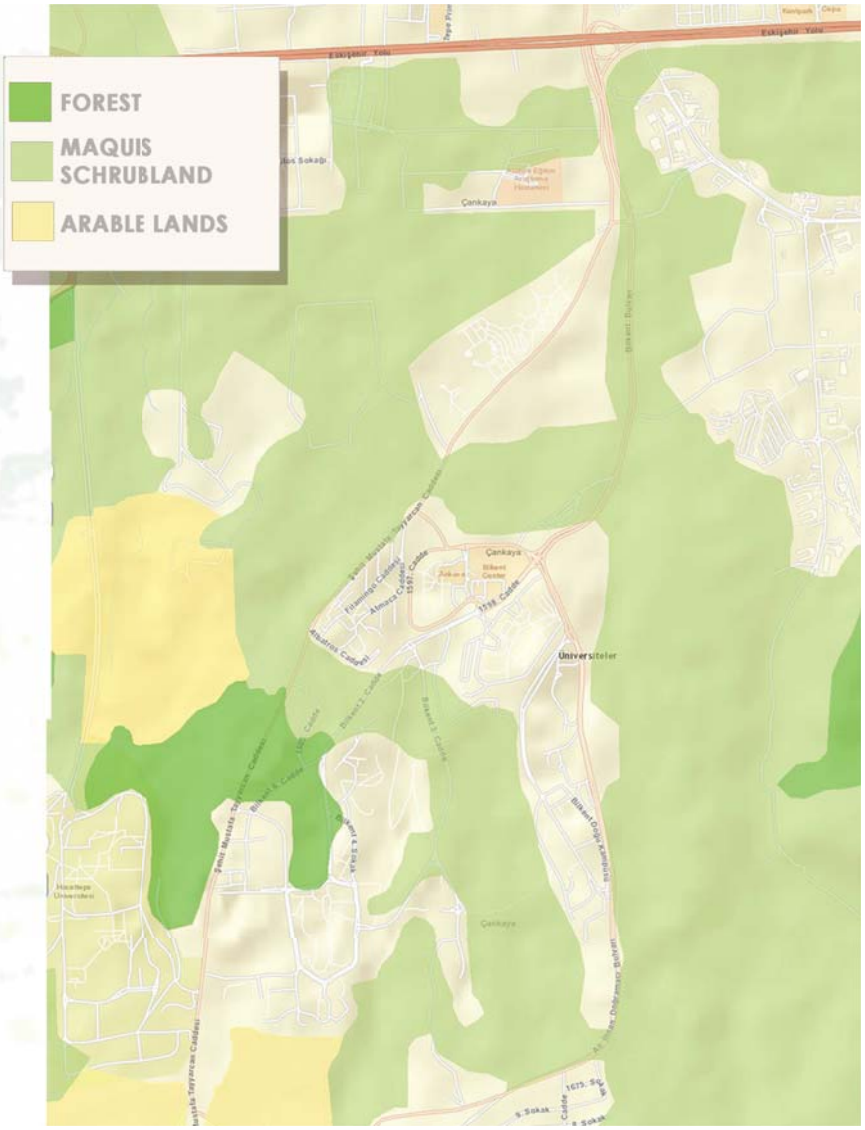


HUMIDITY



RAINY DAYS





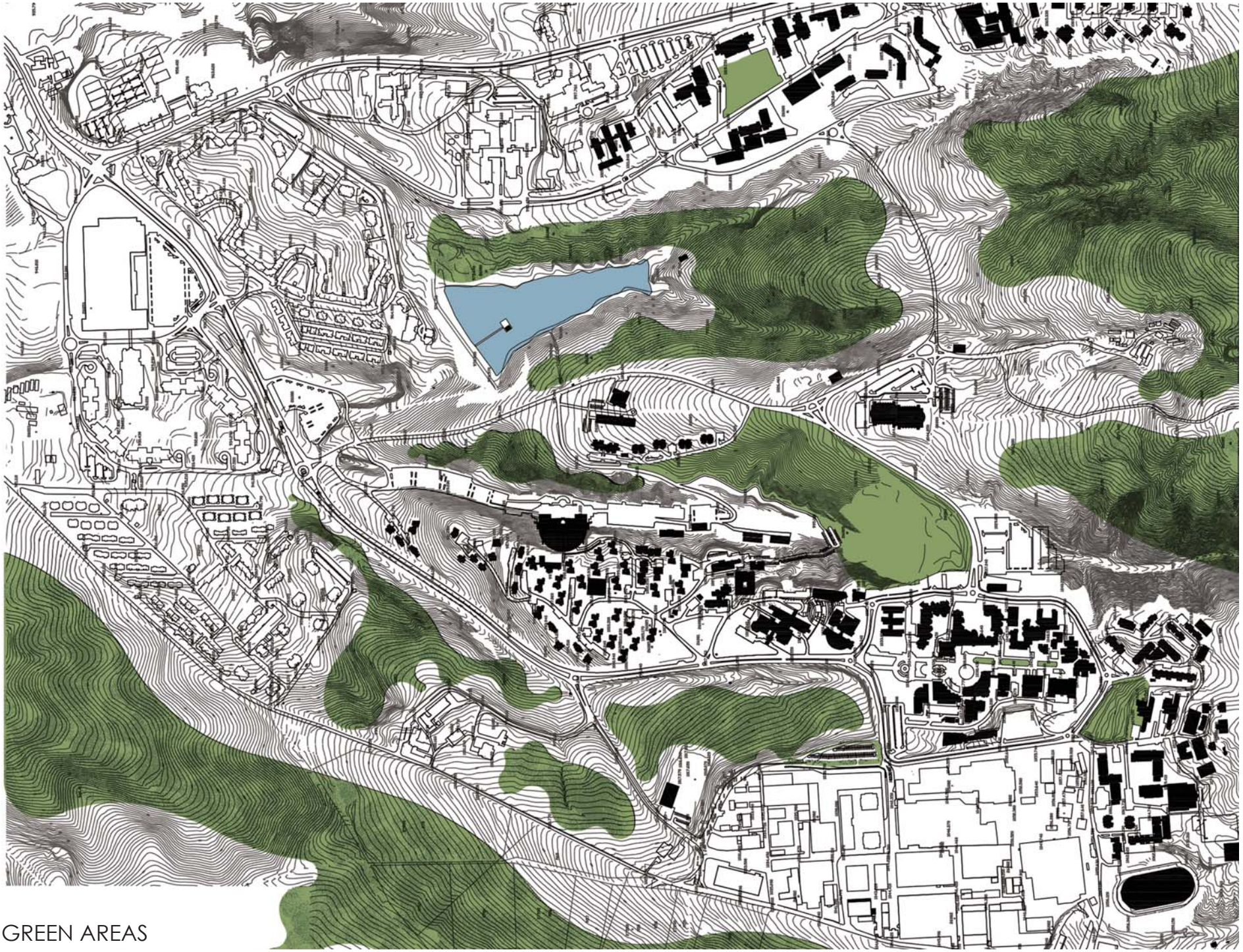
SOIL CHARACTERISTICS

These areas generally have a powerfull connections between hard surface and green area. These areas contain various plant species. There is a direct proportion between plant diversity and field use. These areas have a enough connections between hard surface and green area. These areas contain varıous plant species but there is no enough connections or keeping ın the background. These areas don't have a enough connections between hard surface and green area. These areas contain generally conifers. Although there are places where the green is the busiest, they are the least used areas because of not having connection.

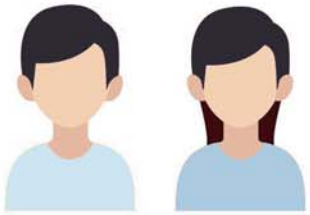
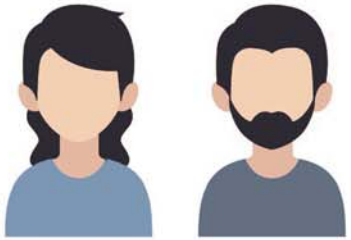
OPEN SPACES

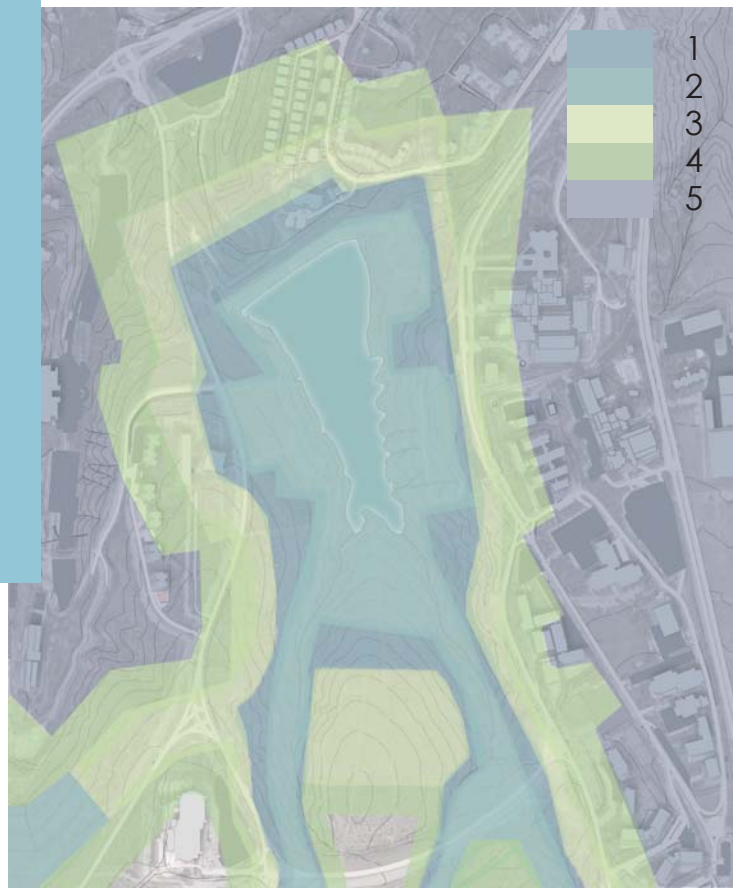
GREEN NETWORK

There is a green belt that starts from metu and continues with hacettepe university.
If we think about Ankara, Bilkent and its surroundings play an important role in terms of green space creation.
There are no trees near the lake because there is erosion in very close regions of the lake.
There is little afforestation in the valleys of Bilkent. The reason for this is that there are rocks near the soıl surface.
No green infrastructure.

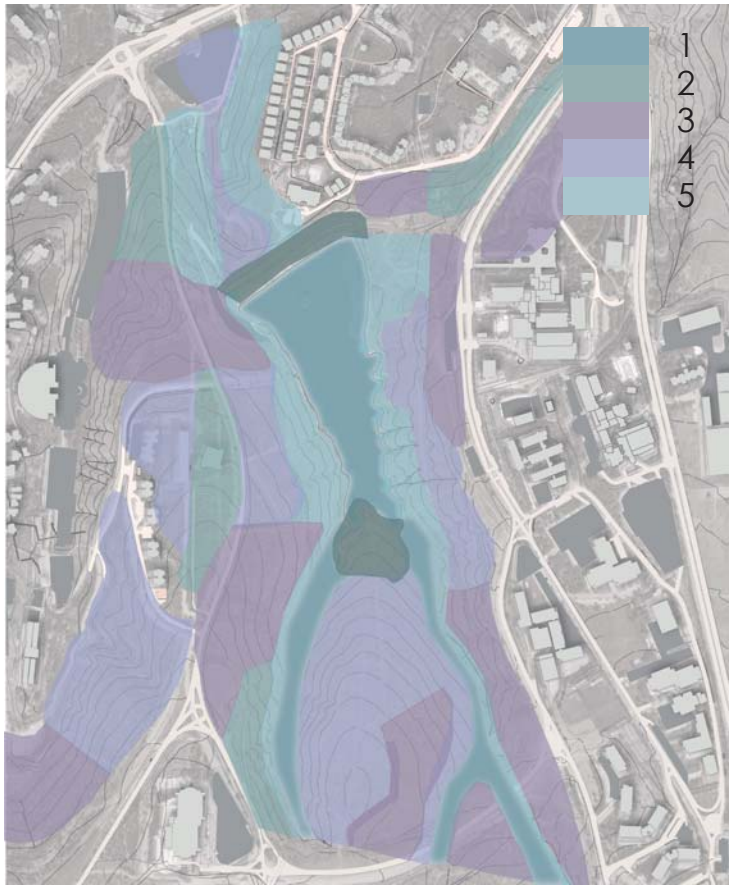


GREEN AREAS

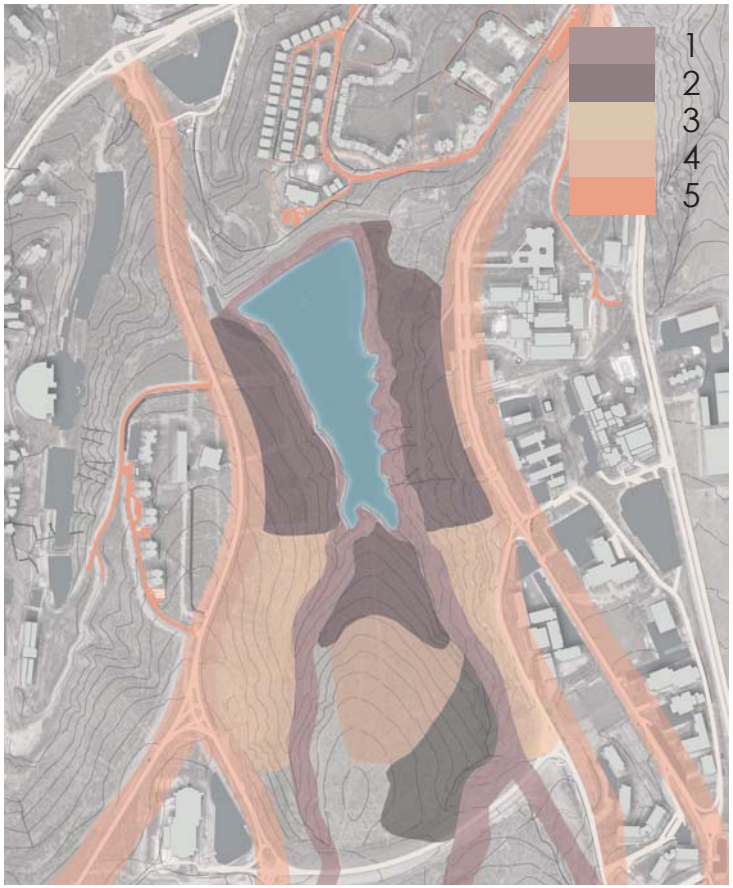
USER PROFILE	MAIN ACTIVITIES	SPACES / FEATURES NEEDED
 CHILDREN	Education- Studying Residential Playing Relaxing Exercising	Study Areas Housing Playground Seating/Pavillion Running/Bicycle Track
 YOUNG ADULTS & PROFFESIONALS	Education- Studying Residential Relaxing Exercising Dining	Study Areas Housing Seating/Pavillion Running/Bicycle Track Dining Area
 GRADUATES & CAMPUS MEMBERS	Working Residential Relaxing Exercising Dining	Study Areas Housing Running/Bicycle Track Dining Area



ENVIRONMENT + AESTHETICS



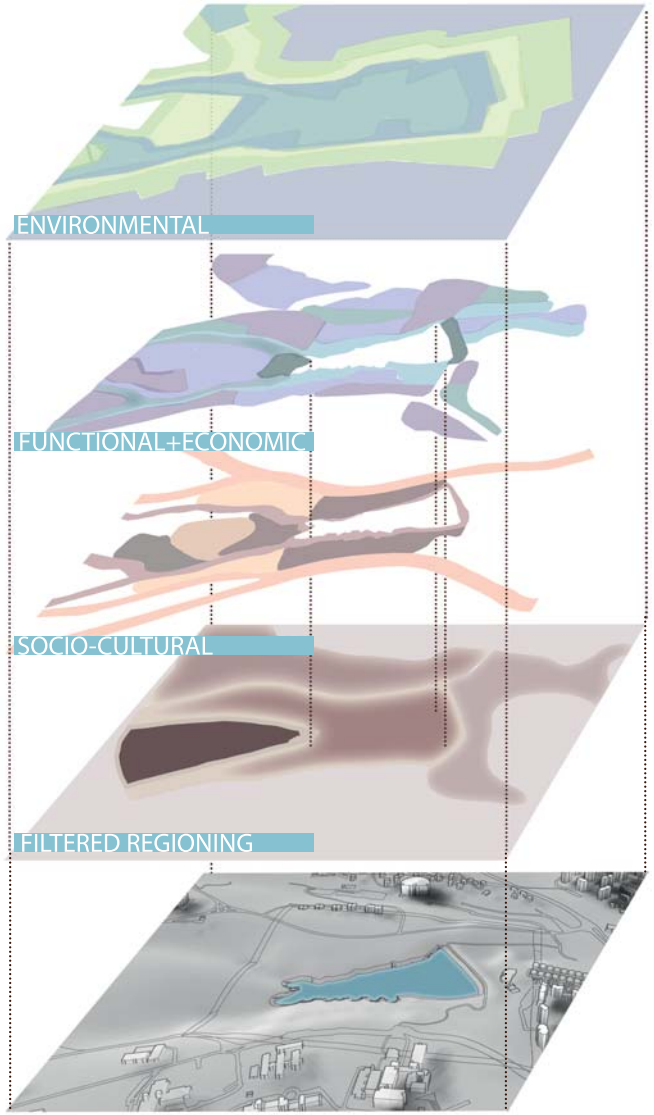
FUNCTION + ECONOMY



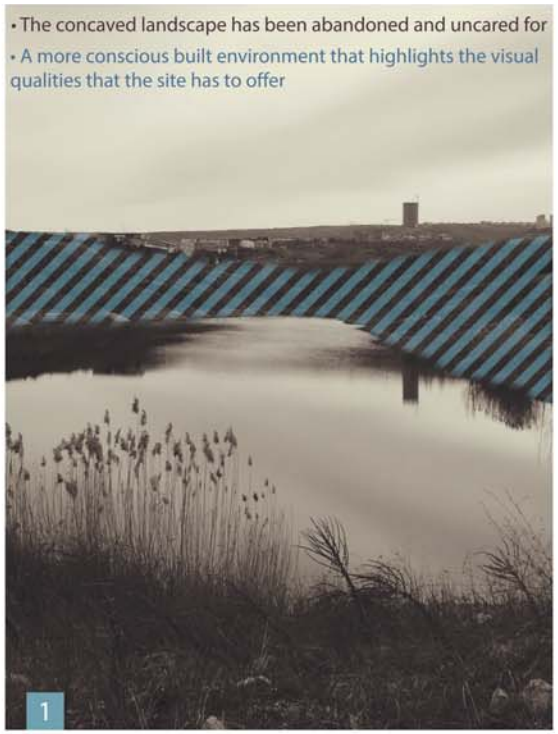
SOCIO-CULTURE

The design approach to the masterplan was done in a systematic layering system. The areas were identified based on the collection of data under five fundamental categories: function, socio-culture, environment, economics, and aesthetics. Integrating this data clarified approaches that can be utilised to accordingly proceed with a quality masterplan.

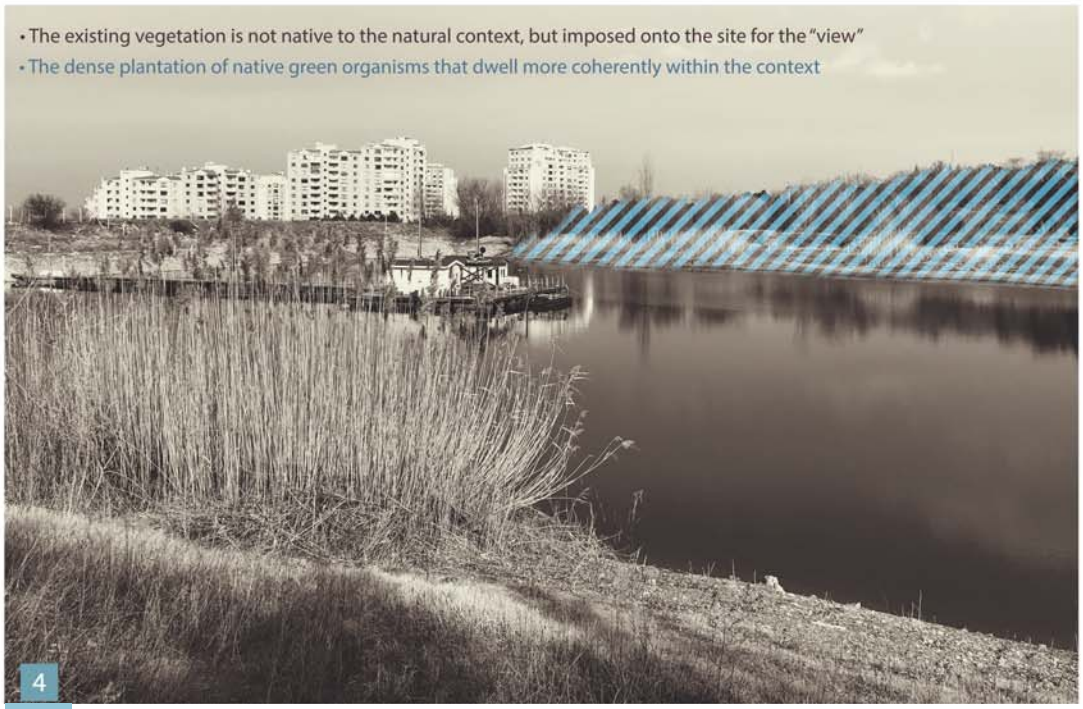

FILTERED ZONING
REGION 1
REGION 2
REGION 3
REGION 4
REGION 5

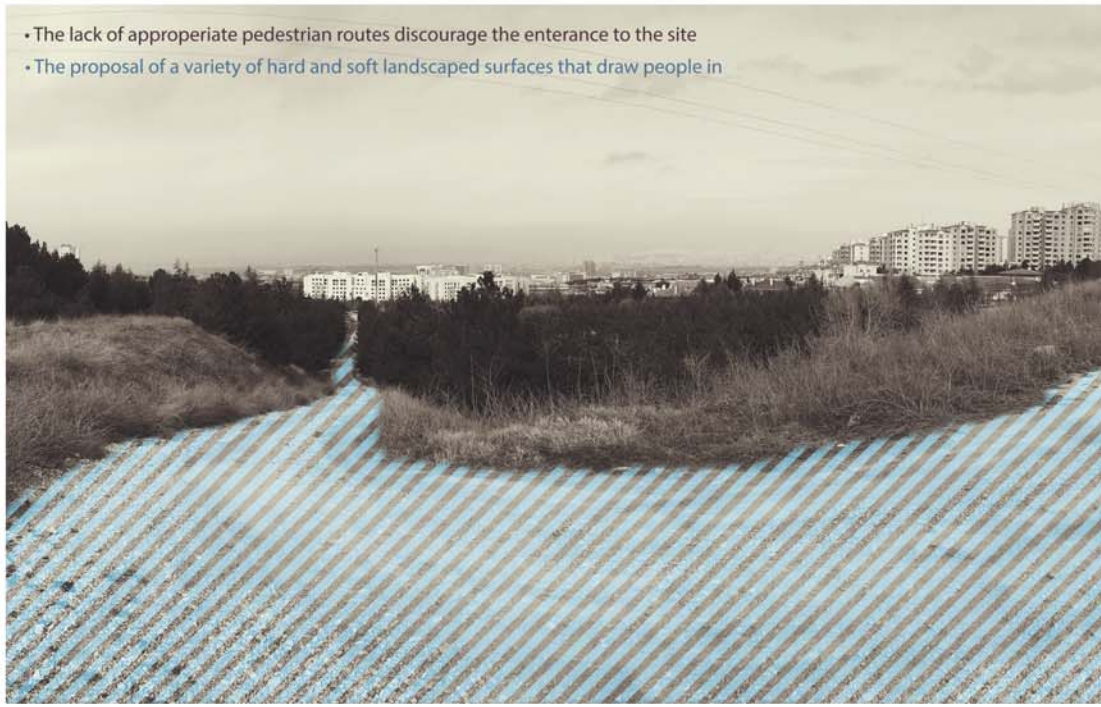

ENVIRONMENTAL
FUNCTIONAL+ECONOMIC
SOCIO-CULTURAL
FILTERED REGIONING


1
2
3
4
5
6


• The concaved landscape has been abandoned and uncared for
• A more conscious built environment that highlights the visual qualities that the site has to offer
1

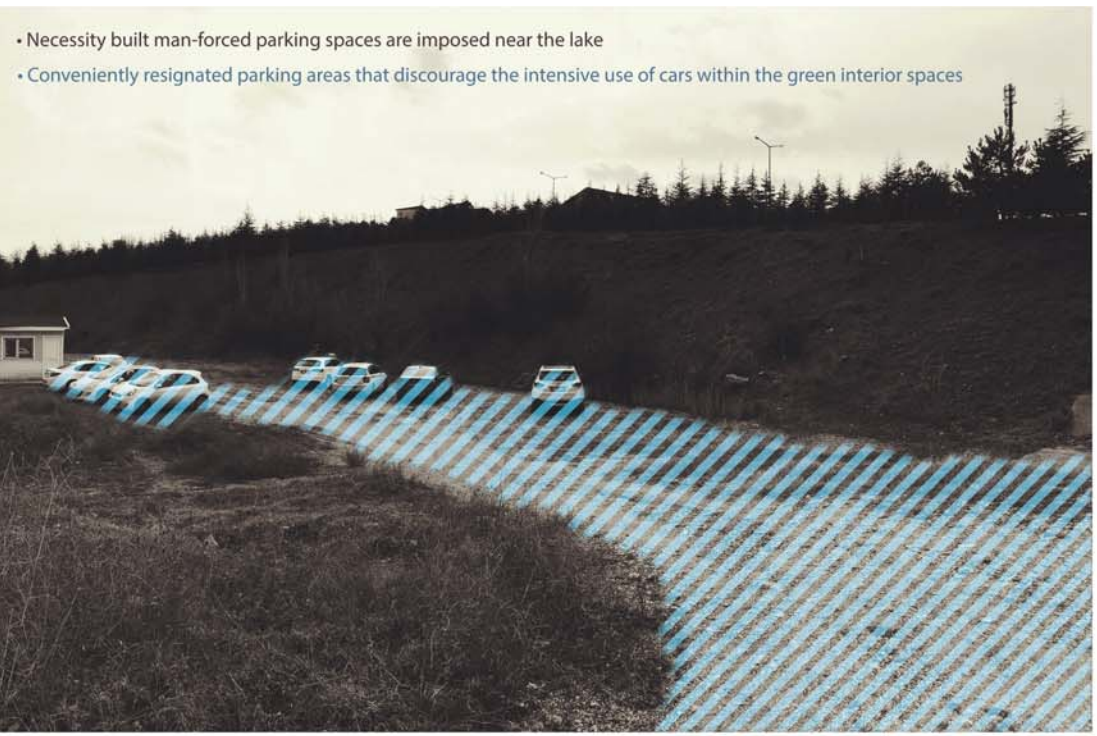

2


• The existing vegetation is not native to the natural context, but imposed onto the site for the "view"
• The dense plantation of native green organisms that dwell more coherently within the context
4


• The lack of approperiate pedestrian routes discourage the enterance to the site
• The proposal of a variety of hard and soft landscaped surfaces that draw people in

• Necessity built man-forced parking spaces are imposed near the lake

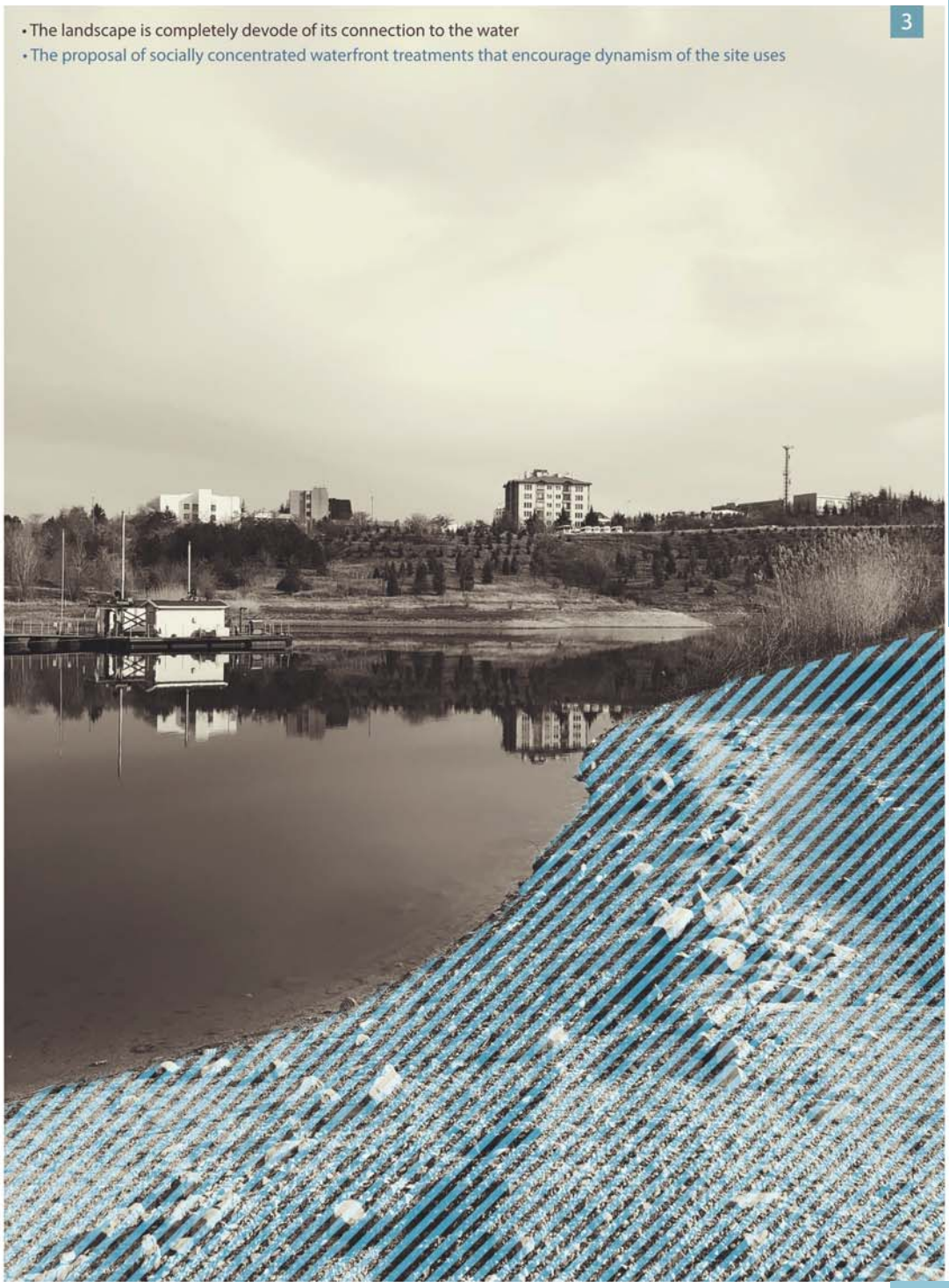
• Conveniently resignated parking areas that discourage the intensive use of cars within the green interior spaces



• The landscape is completely devode of its connection to the water

• The proposal of socially concentrated waterfront treatments that encourage dynamism of the site uses

3



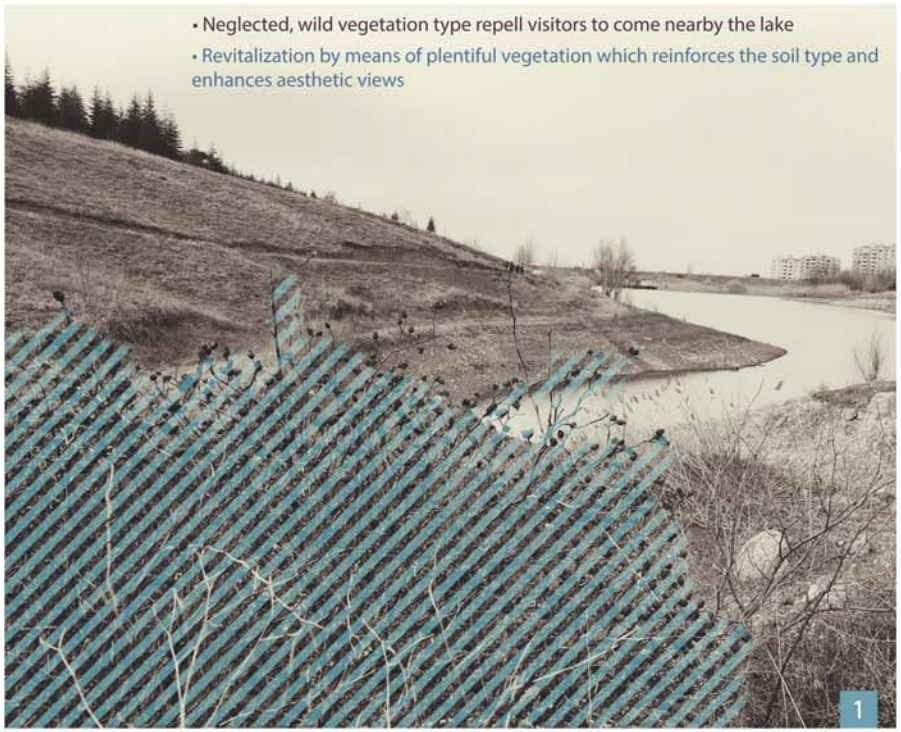
5

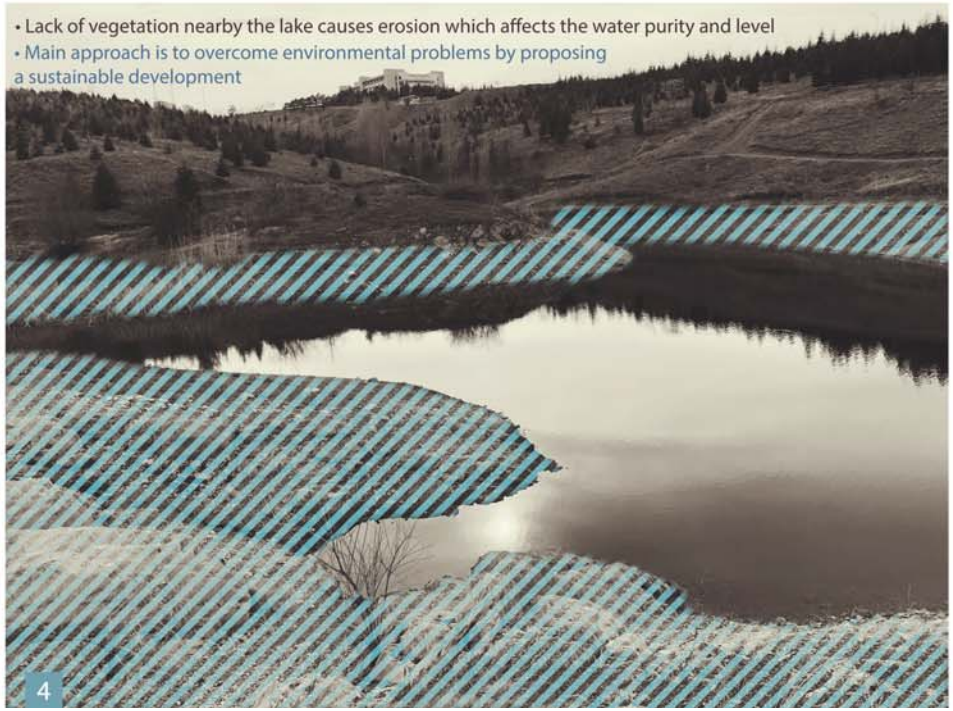
• This port is highly disruptive of the natural context

• The architectural renovation of a center that occupies the same program but is integrated within the natural context

6


3
4
5
6
2
1

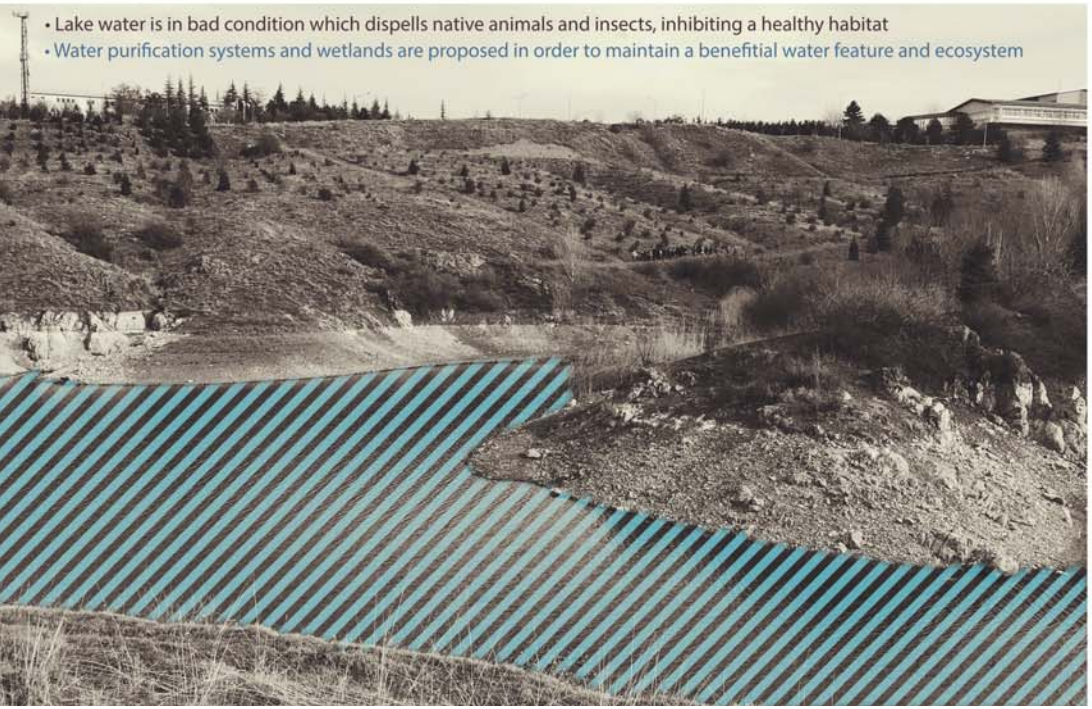

• Neglected, wild vegetation type repell visitors to come nearby the lake
• Revitalization by means of plentiful vegetation which reinforces the soil type and enhances aesthetic views
1

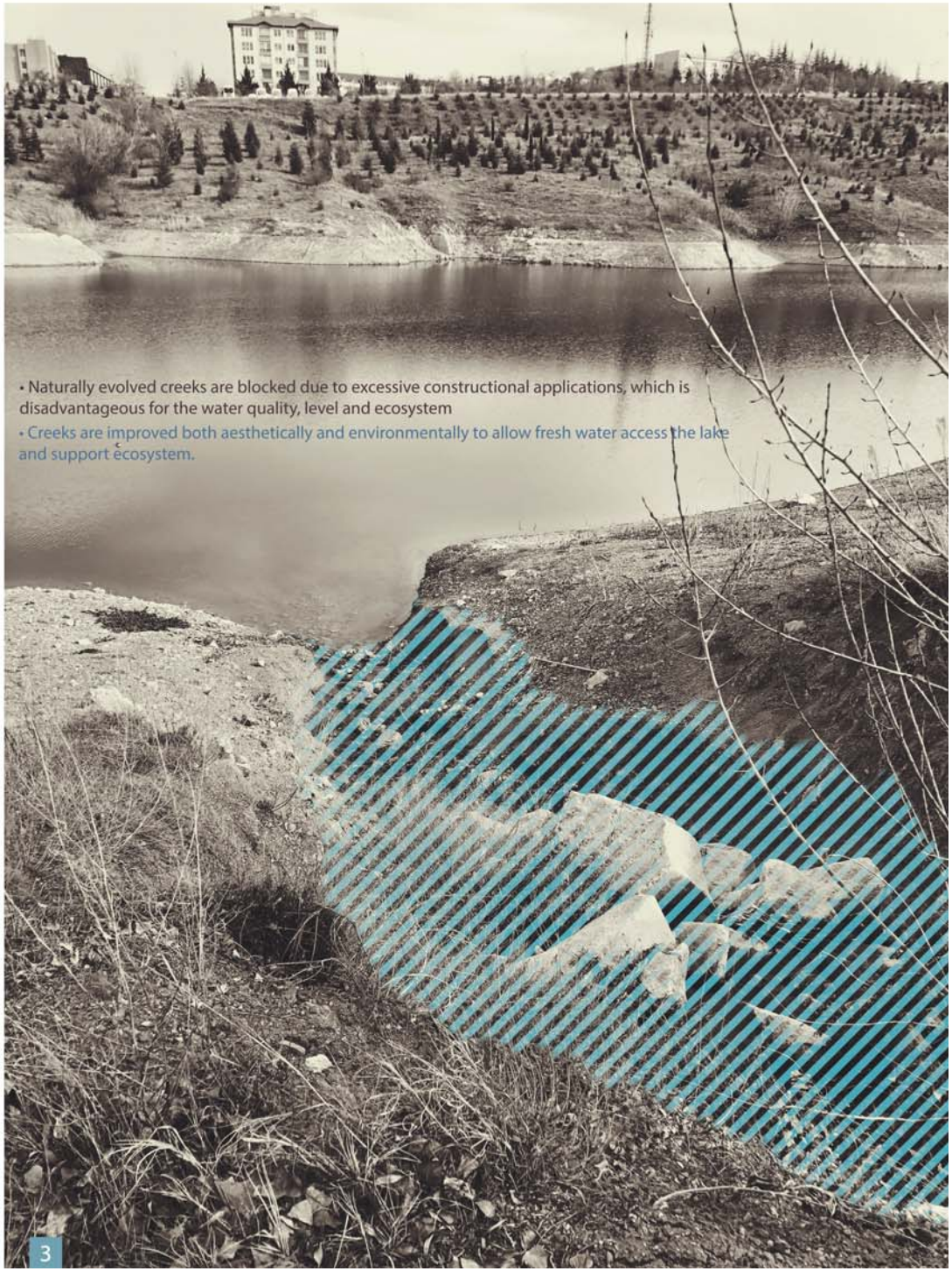

• Lack of vegetation nearby the lake causes erosion which affects the water purity and level
• Main approach is to overcome environmental problems by proposing a sustainable development
4


• Dense plantation is disadvantageous for the long-term lifetime of pine trees
• Replantation will be applied regarding an appropriate distance between plants to encourage biodiversity and vegetation quality
5


6


• Challenging pedestrian circulation around the lake, which is the significant feauture of the site
• In order to maintain a direct access and convenient circulation, paths are improved, elongated and pedestrianized
2

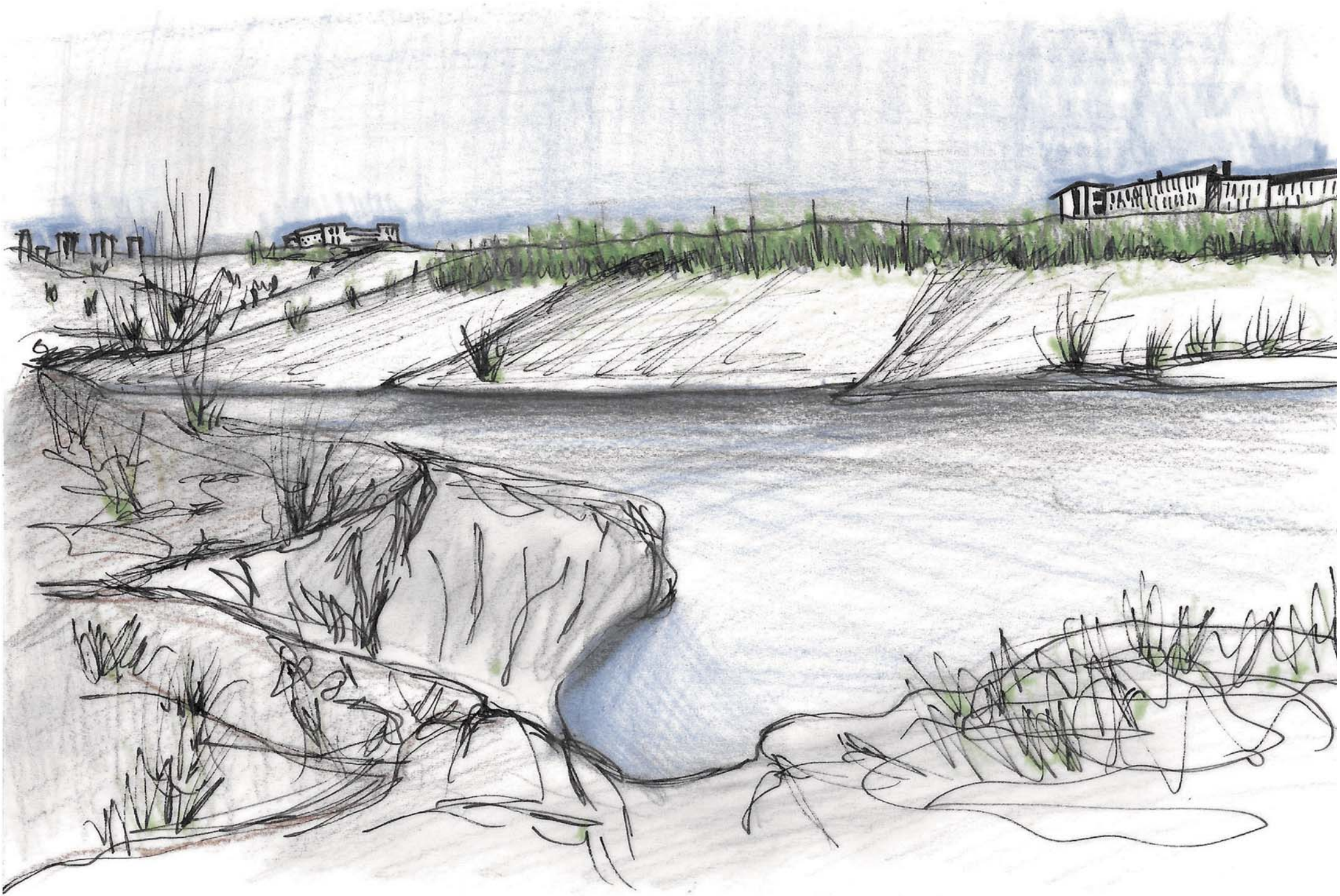

• Lake water is in bad condition which dispells native animals and insects, inhibiting a healthy habitat
• Water purification systems and wetlands are proposed in order to maintain a benefitial water feature and ecosystem


• Naturally evolved creeks are blocked due to excessive constructional applications, which is disadvantageous for the water quality, level and ecosystem
• Creeks are improved both aesthetically and environmentally to allow fresh water access the lake and support ecosystem.
3

The importance of site documentation and site analysis cannot be denied. Except for taking pictures, creating conceptual sketches is also an important way of making site documentation. Sketches, as mentioned above are one of the main elements used for a conceptual understanding of the site. We used sketches in order to have clear ideas about the site analysis. They mainly consist of areas that contain special natural and man made features that should be considered and analyzed not only for the master plan proposal but also for the future design proposals. Elements like existing buildings-nature relation, creeks, biological conditions of lake, types of plants and their diversity, water flow, and water conditions in different points of views obtain crucial importance in the site analysis we did.

Apparently sketches helped us to highlight all of this elements and to visually explain and understand their importance. In the following figures different drawing techniques can be seen, the reason of this difference is to show and emphasize different points of view in terms of perception and explanation of the context.

Emphasizing the difference, we also tried to show the recognizing of the characteristic morphology or concept and maintenance of the site while at the same time stripping away the shadows and excess elements. It is a reciprocal process where details isolated at the beginning of the drawing return at the end to give importance to where we want to focus the attention and what we want to put a greater emphasis on. Basically exhibiting different sketching techniques shows the conceptual journey each one of us had through the site.

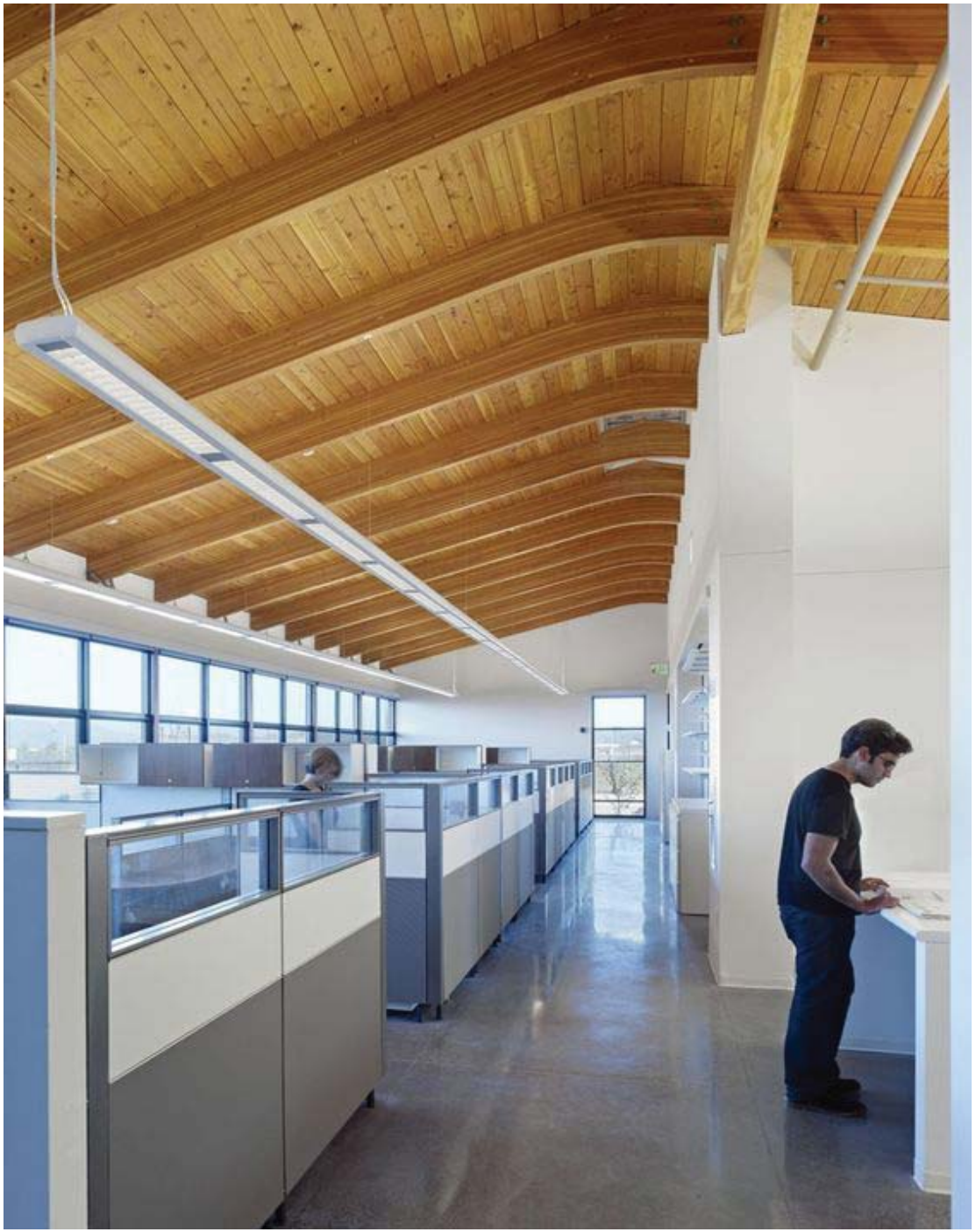


CASE STUDIES & LITERATURE REVIEW

A_Water Resort Centre
_City of Wastonville and Pajaro Valley Water Management Agency
_WRNS Studio
_Watsonville, CA

The new Watsonville Area Water Operations Center supports the larger Water Recycling Project, a joint effort of the City of Watsonville and the Pajaro Valley Water Management Agency to provide recycled water to farmers throughout the coastal areas of South Santa Cruz and North Monterey counties. The focus on water as a finite, invaluable resource drove every aspect of design, from material selection to site development. Sustainable measures throughout the project design work in harmony with this idea, leveraging all potential opportunities for free cooling and natural ventilation. In occupied spaces, water flows through radiant tubes underneath the floors to provide heating and cooling. Rainwater flows from eaves, down rain chains, into swales and then is carried to retention basins where it is detained and treated prior to infiltrating the groundwater system. Native

Photograph by WRNS Studio



Photograph by WRNS Studio

and drought-tolerant plantings, requiring less than 70% of typical water usage, are watered only when recycled water is available. To further display water as a seasonal resource connected to the local agricultural growing season, water is supplied to a tiled water feature only when recycled water is available to the site. The wastewater treatment plant recharges the region's aquifer with 4,000 acre-feet of water for irrigation annually and significantly reduces wastewater discharges into the Monterey Bay National Marine Sanctuary. In addition, the building, its systems, and its surrounding land are intended to educate the public through exhibition and guided tours on the issues of water, energy management, and air quality.

RESULT:

Within our project, we have proposed water recycling and water management centres in order to purify the body of water that has been used, contaminated, and abandoned by its surroundings. Since the body of water will be the main source of water into our site, it has to be maintained and we felt that this case study was extremely sufficient in order to show us an example of sustainable water purifying and recycling for the entire region.

B_ Ostim Eco-Park Technology and Development Centre
_Roland Barthofer
_Ankara, Turkey

ABOUT:

This Eco-Park for sustainable research and technology was constructedasanewcentreforthecreationofrenewableenergy and advanced environmental enhancement technologies.

The man conceptual design for Ostim Eco-Park was to create a congenial space for the users while minimising the carbon footprint on nature. By designing strong intersections between man-made and natural elements, they strengthen the program's relationship with its immediate surroundings.

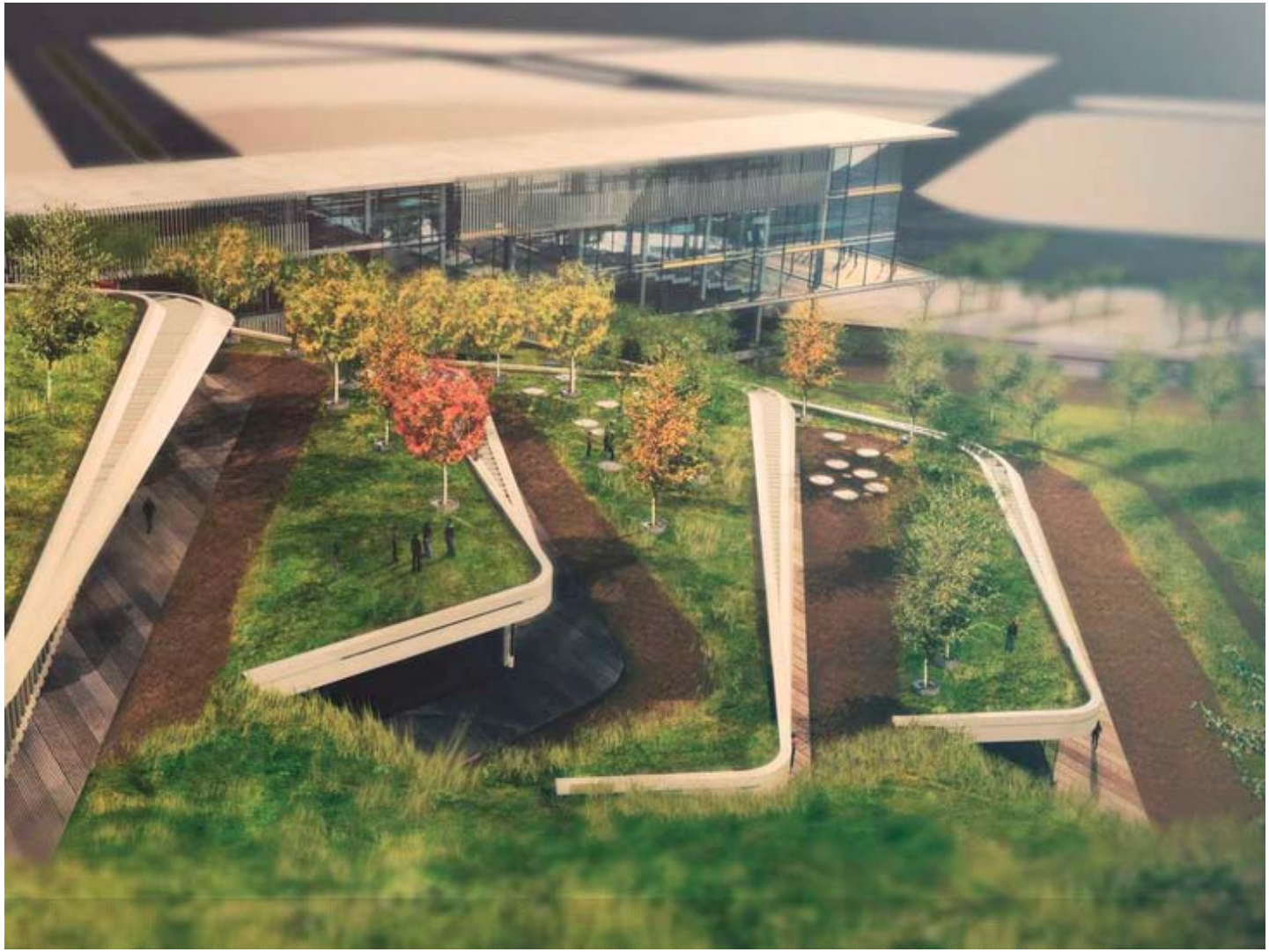
The terracing building acts as a monumental entity within the region.

RESULT:

Within our site, we have proposed a centre that encourages biodiversity and provides enhancement to the habitance of the natural ecology. There also exists a very vast

Renders by Roland Barthofer team

contoured terrane that is a keypoint in the design concept of this particular case study as well. We would also like to utilise the current landscape in order to lessen the carbon footprint of our structures that are already meant to help the natural habitat.



Renders by Roland Barthofer team

C_ Jardi Botanic de Barcelona
_Carles Ferrater
_Barcelona, Spain

ABOUT:

This botanic garden contains plant collections of all the Mediterranean climes of the world. Within this space, the bodies of plantation have been accustomed to climates that are similar to their native climates. The arrangement of the different species creates a natural integration as do phyto-episodes. The main aim of this is to construct a dynamism between the different organism in order for them to become more self-sustaining. Due to the dynamic contours of the site, unique habitats have been created according to the different organisms. Furthermore, the design itself is set against the hillside in order not to change the natural earthing of the site. Within the highly green site, a large supply of water is needed. This water is extracted from a subterranean source that is available near the site.

Photographs by Equip del Museu

Photographs by Equip del Museu

RESULT:

We promote biodiversity of living organisms for the site. The native living organisms that are currently in our site are uncared for and are in danger. We can utilise the categories these landscape architects used to maintain the organisms at a secure space.

Photographs by Equip del Museu

D_ Sunken Bridge/Moses Bridge
_RO&AD Architecten
_Halsteren, Netherlands

ABOUT:

As opposed to other 'conventional' bridges available within the area, this structure is not visible beyond a certain interval. This, therefore, has enhanced the visual quality of the space by making it a unique area in which children and pedestrians could experience water within a very high proximity of it. Furthermore, it has created a pure relationship between the user and the surrounding nature.
The bridge is segregated from the adjacent water by retaining walls that are constructed from processed timber that will further resist decay. In addition to that, the timber gives a sturdy and stable visual effect against the dynamic nature of water; thus, creating an environment that builds trust within the user in regards to the unpredictable characteristic of nature.

Photographs by RO&AD Architecten

RESULT:

The water body within our site lies in between two sloping terranes similarly to this one. This case study will be used as a reference to connections that will facilitate the relationship between one side of the bank to the other. It also creates a very strong physical connection between the user and the water body. That way, the water can be an element in which brings people closer to nature.

Photographs by RO&AD Architecten

E_ Dongqian Lake Project
_HASSELL Studios
_Dongqian Lake in Ningbo, China

ABOUT:
Due to intensive touristic influx, riversides were suffering from severe pollution that impacted waterways and the biodiversity of the region. The viability of the touristic sector is heavily counterdepeindent on the healthy natural environment as a main attraction. Therefore, the Ningbo Planning Bureau asked architects worldwide to propose a solution that is high in touristic accommodation, yet, is both sustainable and environmentally friendly. Hassell proposed this scheme of 'man-built islands' in order to develop a sustainable tourism approach to the region where people can have a vital interaction with the immediate environment around them. The region has water embedded in their culture where they use water for three main purposes:
1_Water for survival
2_Quality water for thriving
3_Re-balance of water for re-use

Renders by HASSELL Studios

The scheme includes an operational system that highlights the islands' relationship to water. This includes the enhancement of the local fishery industry by combining it with the natural water circulation system within the islands. The key enhancements in the region are: water purification, the ability to re-develop local businesses and industries, and to keep the vitality of the lake's industrial heritage for future generations. The main island is created using the local lake's dredging soil, while the smaller islands are floating structures. These smaller islands move positions based on how many visitors come and the program they have set for that particular day. The islands provide a recreational sense and enhance touristic approach of the region.

Renders by HASSELL Studios

RESULT:

The sustainable 'floating island' concept from this in which brings in sustainable tourism in a way in which would not harm any of the vegetation or cause any pollution within the lake is what we adopt from this case study. Within the artificial lake in our site, we need it to economically thrive and be used and this sustainable idea of a floating island in which people can enjoy their time is perfect.

Renders by HASSELL Studios

F_Riverside Walk
Enhancement Strategy
_Burns + Nice
_London, United Kingdom

ABOUT:

Burns+Nice were asked to propose a plan in order to enhance the quality of human activity along the infamous Thames River in Central London. The area is from Victoria Embarkment to Tower Pier. They proposed a more thorough version of the prominent open corridor that stretches on and connects different sectors of the first zone in London. It composes of 16,000m2 of open space and protects the River Thames' shore-life for wildlife which was highlighted by Nature Conservation committee. The strategy proposes a very high quality space and environment which deals with a mixture of private and public spaces incoherence to each other. The main aim of this proposal was to connect the highly metropolitan London City to the beautiful nature that is impose by the river in its centre. This strategy provides for: More spacious walkways that connect large areas to encourage people to use cars less,

Renders provided by City of London

public art and free exhibition and event spaces for everyonetouse,andmoreopenspacetoincreasegreenery and soften built environment alongside the banks.

Renders provided by City of London

RESULT:

This reference will be utilised for our riverside treatment. The riversides in our project in general are compiled of green buffer spaces in order to lessen the contamination that people and built environment do to the rivers. However, using this as reference, we can provide spaces for people to have various activities and still enjoy the river without harming it. This will make the riverside treatment a very dynamic activity space.

Renders provided by City of London

G_Playground in Belleville Park
_BASE Landscape
Architecture
_Paris, France

Renders provided by BASE

ABOUT:

In order to create a space that encourages imagination and is pleasurable for children, BASE proposed this playground that is located in Paris, France. BASE conducted a workshop that included 'opptimum users' such as adults and children that were to utilise such a space in that area. "Our work then consisted in synthesising and interpreting the public's expectations to provide a spatial response both truthful and original," as stated by the designers.

The focal point of this proposal is the 'playhouse'. The playhouse was constructed in order to have a translated depiction of dwellings within nature, "a tree dwelling, a troglodyte, a forest, etc."

Photographs provided by BASE

RESULT:

Within our site plan we have proposed various areas in which families, specifically ones with children, can utilise due to the adjacency to various residential areas. This way, the neighboring users could also come within our site and have an area in which they can enjoy time with their families. The slopy terrane of our area also directly references such projects

Photographs provided by BASE

H_Flussbad
_Jan and Tim Edler of realities:united
_Berlin, Germany

ABOUT:
Within the center of historic Berlin, realities:united propose a dynamic open space for mixed programming and usage in order to revitalise that once space that has been abandonded due to the important surroundings. The area in which they are building this project on was completely free of tourists in contrary to the block next to it in which tourists poured. It is also adjacent to the Spree River within inner Berlin. This project was meant to give away the essence of the historical center and for them to integrate the 'lost spaces' within the historical centre to it and make them all a whole.

RESULT:
Our area within the site is also abadoned by the surroundings. When looking at some of the density diagrams, one can easily see how the adjacents zones have a high influx of people, yet our site does not. This

Photographs provided by Realities:united

could be a good reference in order for us to include a lot of people in and attract users into our site.

Photographs provided by Realities:united

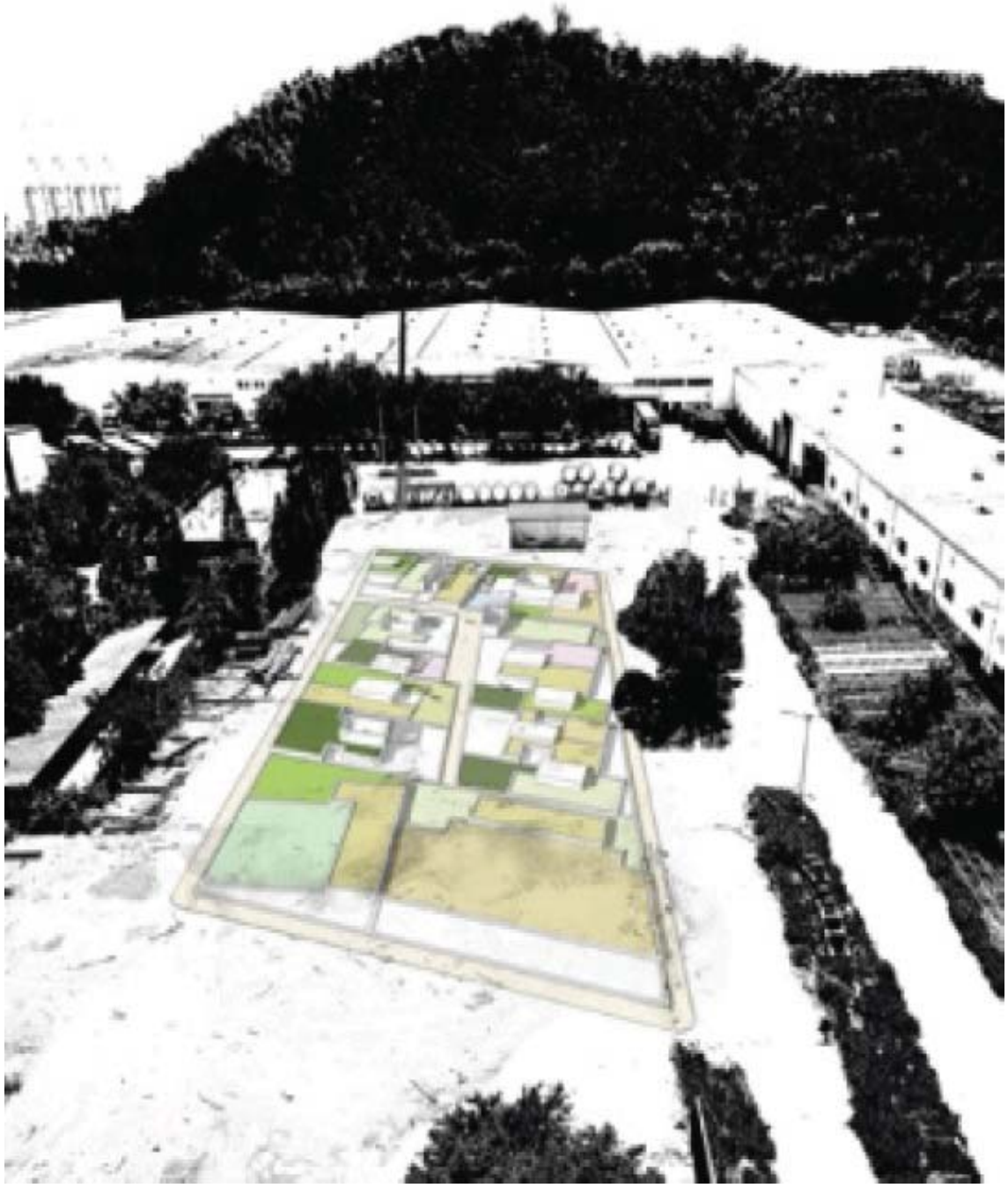
I_Gallery of Value Farm
_Thomas Chung
_Shekou, Nanshan, China

ABOUT:

The architect's goal and objective with this project was to encourage urban farming within cities in which people could collectively and as a community work and socialise. They main design concept was an arrangement that is derived from rooftop gardening. The introduced the first prototype in a highly industrialised area in the centre of a disused industrial land in Shenzhen. The project has been called 'rooftop planting plots" as though they are farming land plots.

RESULT:

We propose within our site an area in which could have farming plots. These plots can integrate into the larger urban masterplan. The plantations can be utilisied in organized activities in which people living in the area are able to have their own micro community.



Drawing by Thomas Chung's Team

J_AlmenBolig+Affordable Housing Proposal
_JAJA+ONV
_Copenhagen, Denmark

ABOUT:

This project consists of 3-400 units of dwelling scattered within specific zones within Copenhagen. The architects proposed a large variety of housing typologies that propose a free and flexible deisgn within each specific space. The users area free in order to add anything within their own space. They offer 8 typologies that way it will be as low in price as possible.

RESULT:

This project inspired us to propos affordable housing within our masterplan. Since we are in an area highly populated by students, graduates, staff and faculty and since Bilkent is far away from the city center where most people reside, we propose affordable housing for students and graduates that do not have enough means in order to live in quality with little money.

Drawing by JAJA + ONV

Render by JAJA+ONV

RECOMMENDATIONS

-Emphasize multiple-benefit landscape treatments and 'green infrastructure' improvements.
-Create landscape-based water quality treatment at majör confluences of the river to treat pollutans carried by tributaries
-Continue development of non-motorized transportation and recreation elements including bike and pedestrian pats and multiuse trails in the river right-of-way and its tributaries
-Create a variety of public spaces, including small pocket parks, natural areas, and urban plazas and civic spaces, in ' reclaimed' areas of the channel
-Improve water quality and provide fish passages, ladders and riffle pools that would support desirable fish species.

MASTERPLAN


LAKE
PROPOSED BUILDING
MULTI-USER PATH
(PEDESTRIAN, BIKE,
SERVICE)
HARD SURFACE
EXISTING BUILDINGV
CAR ROAD
SECONDARYCAR ROAD
GREEN AREA
CAR PARK

ZONE 1

Aroundtherethesignificanceistoprotectthecommonlivingspace while making eco-accommodating structures and capacities, for instance, water purification, planting endemic vegetation, power plants will be in this area. This territory is likewise utilized as center conveyance point for tourists and understudy who are working or individuals who simply need to visit the eco-friendly site.

ZONE 2

Since this zone is revolved around the lake it comprises of the most significant territory for development. In this zone, primary functions are commercial and educational buildings. The issue about developing here is the need of feel way to deal with making an effect here.

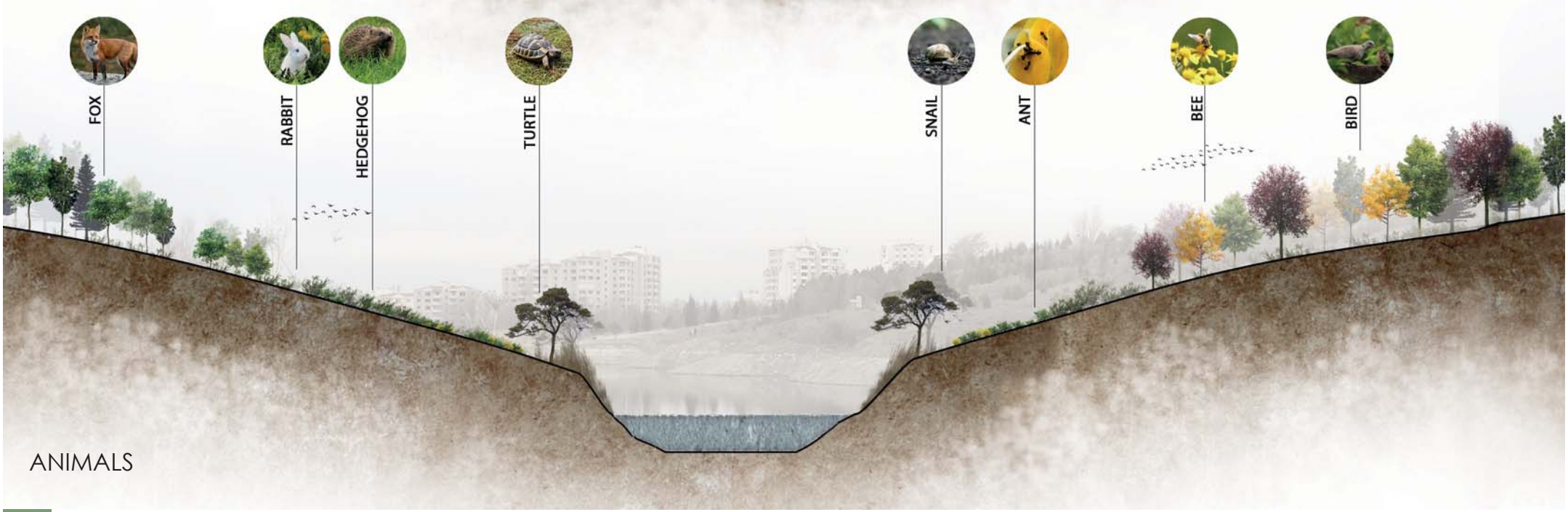
ZONE 3

Around there, greenery, and assortment of green life is protected for both making rooftop cultivates and to square disintegration and loss of soil. It could be seen that growing the MayFest greenery to make rooftop cultivating to contribute environmental life in Bilkent while being the scaffold between the zone and the school life is this zones strength.

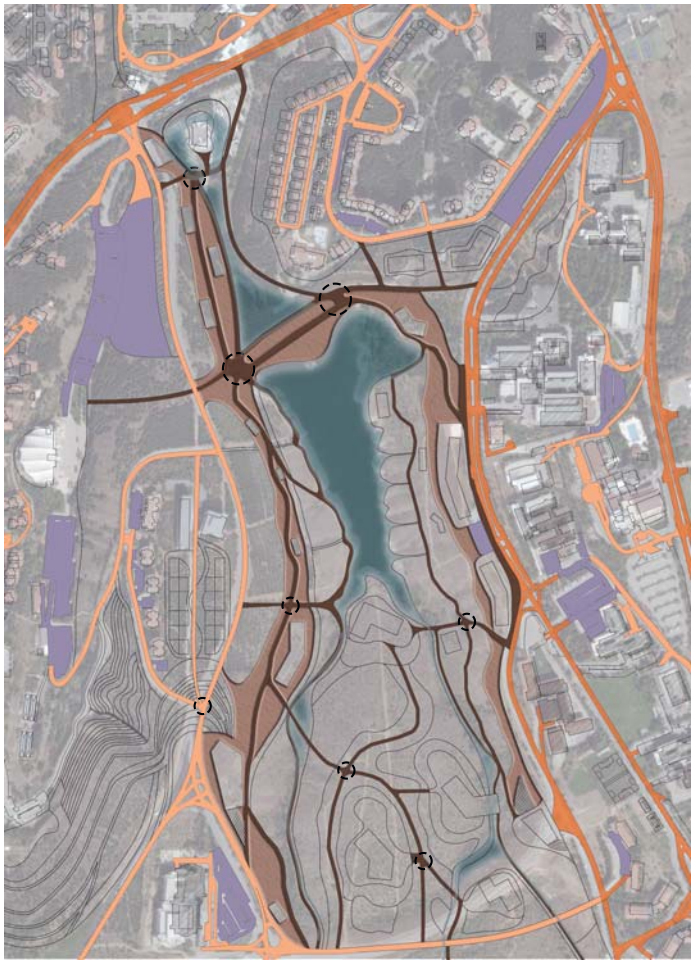
ZONE 4

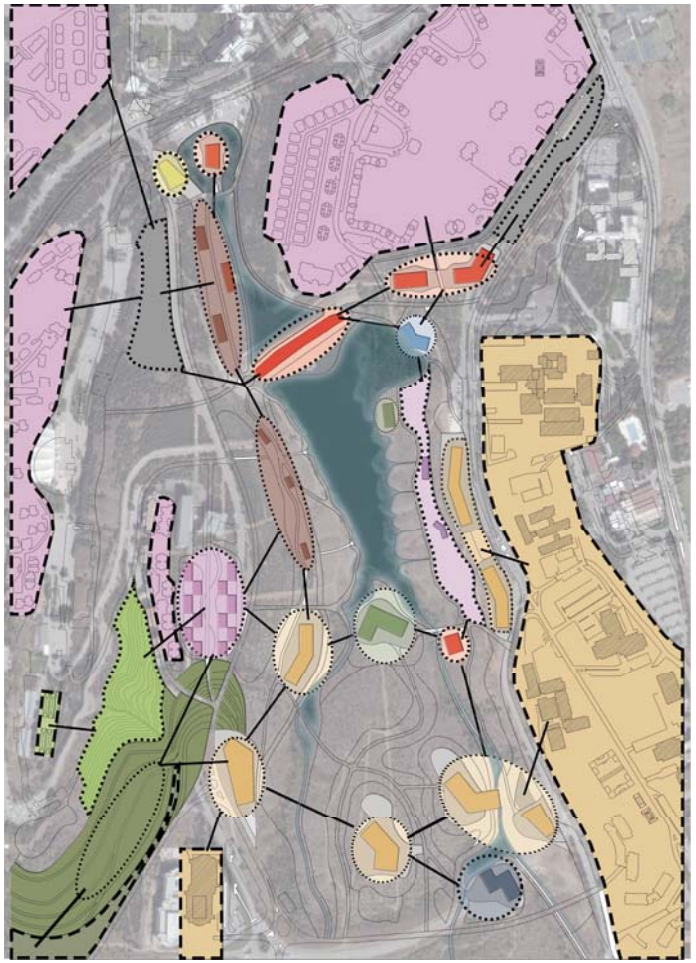
Since the territory isn't notable and well-known, this zone is the vital development that we made with a specific end goal to promote the lake and its substance around the Bilkent and Ankara. Growing the lake through the Bilkent center which makes an invitational axe that pulls individuals from the Bilkent center. Additionally, this part embraces the initial introduction for guests to feel the territory, commercial structures, eateries could be found around there.

PLANTING



ANIMALS





BUILT MASS

- DESIGN SURFACE
- BUILT AREA
- LAKE

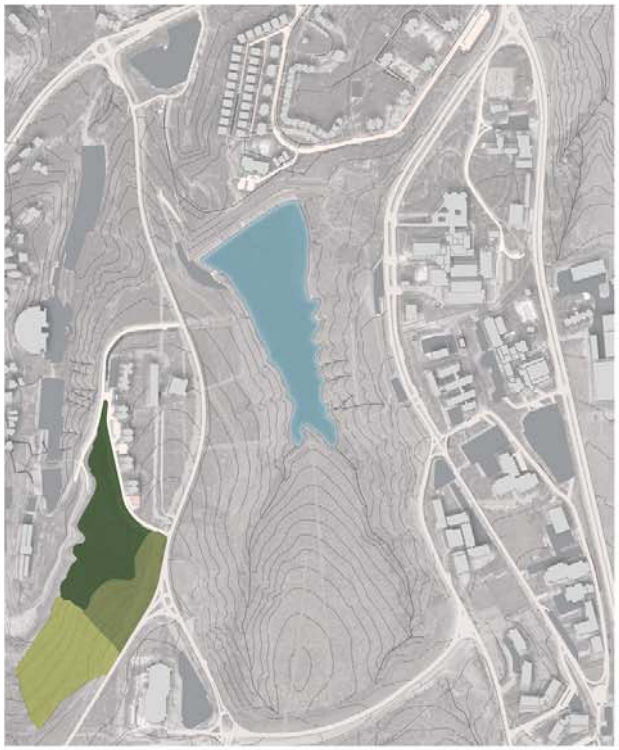
CIRCULATION

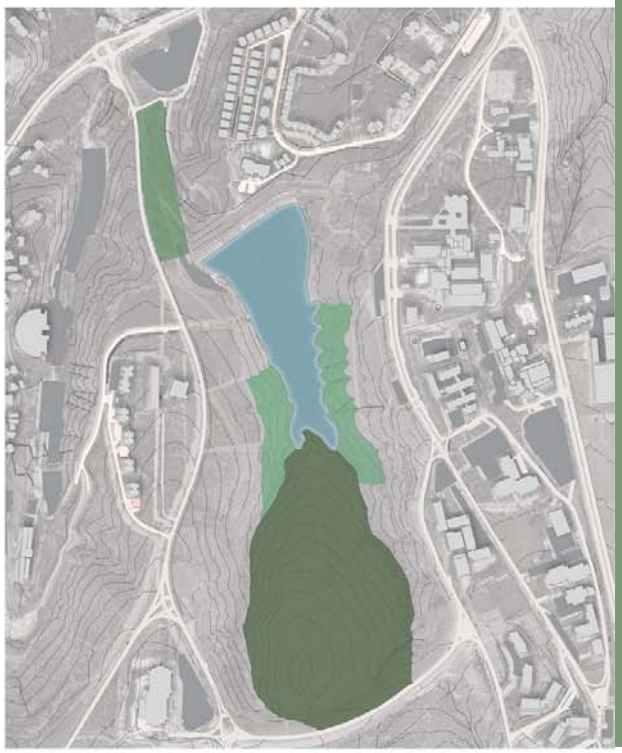
- MAIN CAR ROAD
- SECONDARY CAR
- MULTI-USER PATH (PEDESTRIAN, BIKE, SERVICE)
- CAR PARKS
- DESIGN SURFACE
- PEDESTRIAN HUB

FUNCTIONS

- RESIDENTIAL
- CONTOUR FARMING
- ROOF FARMING
- EDUCATION
- LOCAL COMMERCIAL
- AQUAPONIC CENTER
- COMMERCIAL
- ICE RINK
- SERVIVE AREA & INFO
- EXISTING
- PROPOSED

The proposed functions aid in creating more of a cycle rather than singular functions. These programs rely on one-another in order to enhance the sustainable lifestyle quality of the region. They provide good infrastructure, healthy environment, sustainable income and still conserve the existing habitat.





PLANTING

1A. Salvia Officinalis

1B. Europs pectinatus

2A. Armeria maritima

2B. Festuca ovina

3A. Iris germanica

3B. Gaura lindheimeri

4A. Acer platanoides 'Crimson King'

4B. Hemerocallis fulva

5A. Tilia tomentosa

5B. Lavandula angustifolia

6A. Betula utulis

6B. Kniphofia uvaria

7A. Cedrus libani

7B. Senecio cineraria

8A. Pinus nigra

8B. Thymus serpyllum

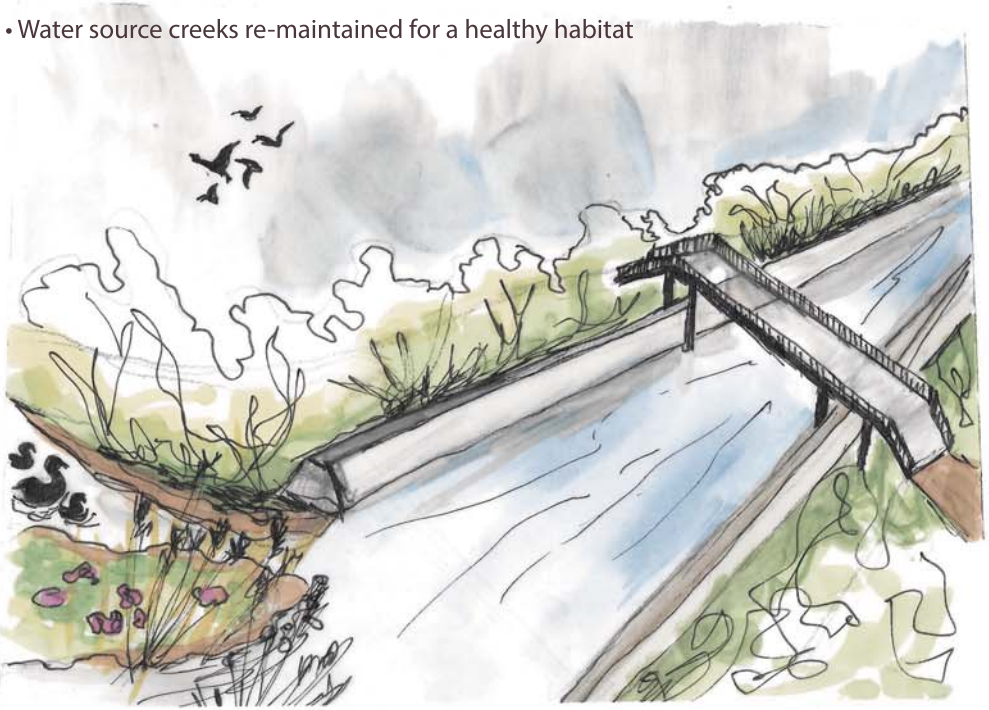
9A. Quercus robur

9B. Vinca major

• Multi-user path (pedestrian, bike, service)

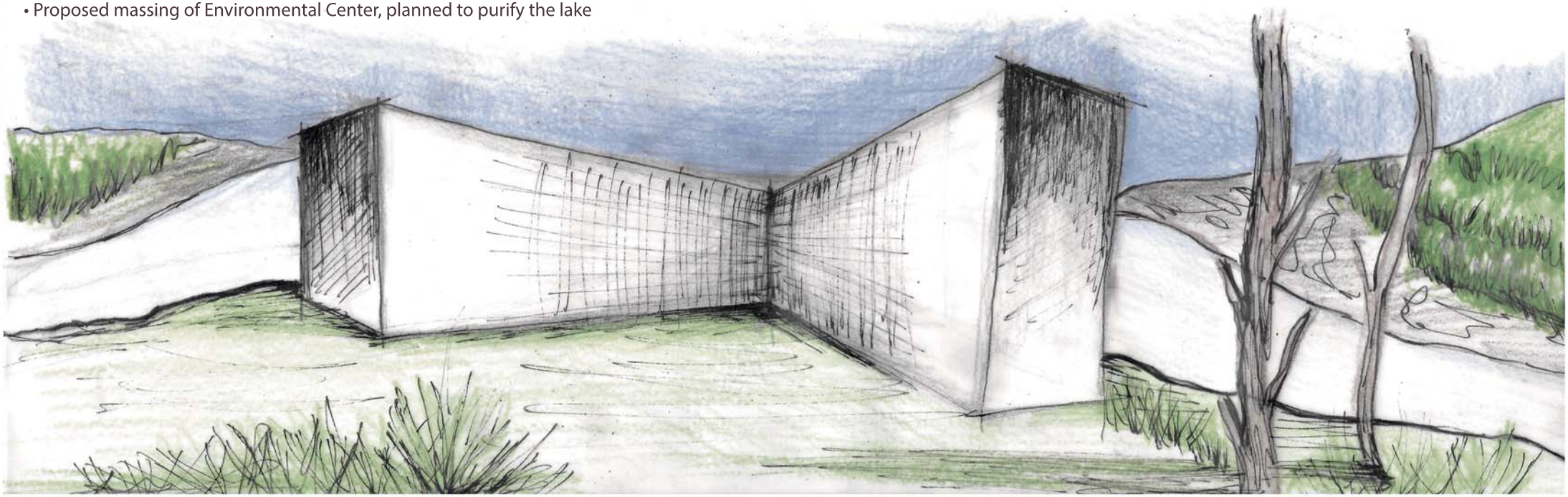
• Affordable housing units for campus users

• Water source creeks re-maintained for a healthy habitat



• Pathway, lake and building relation

• Proposed massing of Environmental Center, planned to purify the lake



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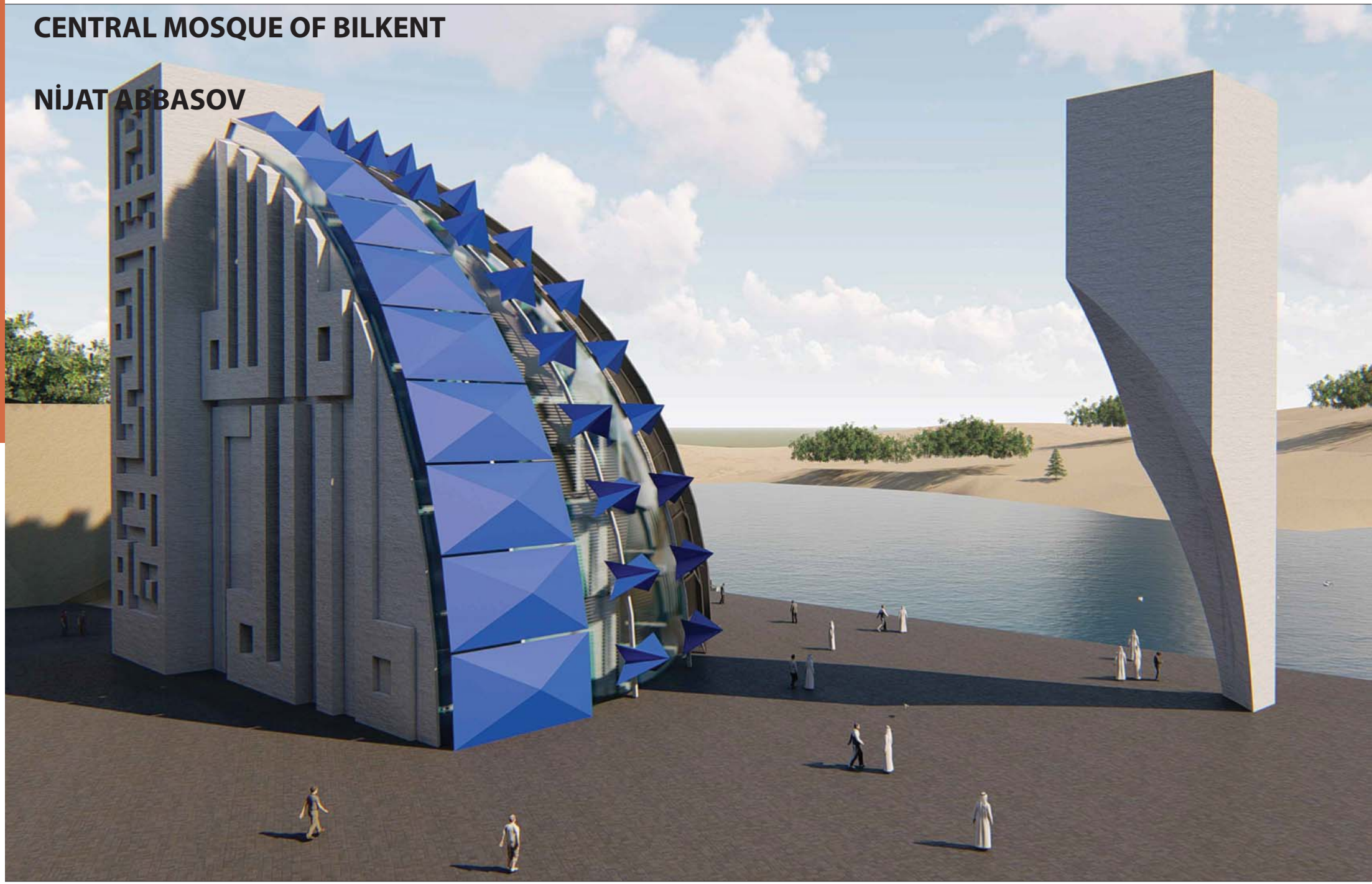
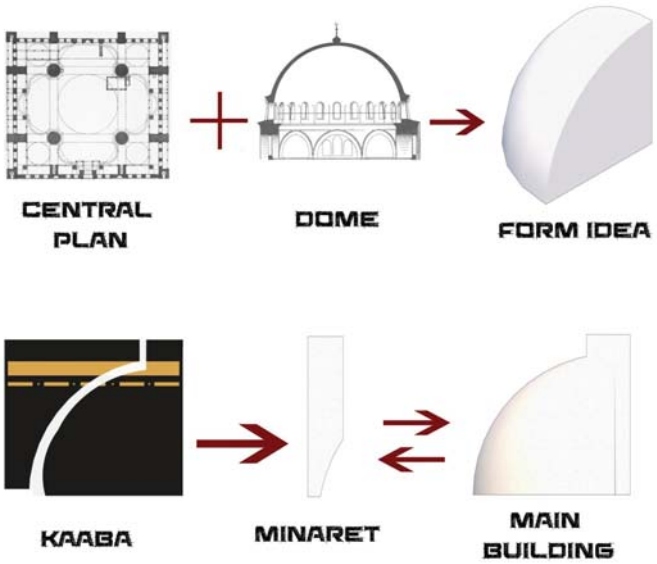
PROJECTS

CENTRAL MOSQUE OF BILKENT

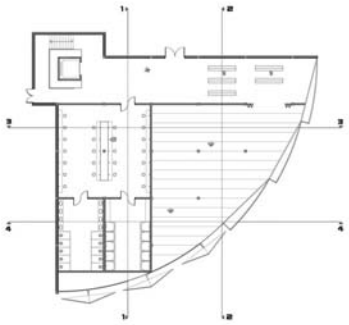
NİJAT ABBASOV



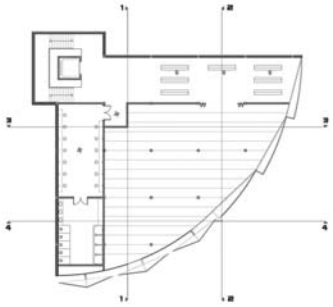


Because common area is designed for 3 universities- Bilkent, Hacettepe and METU, the combination of Mosque and Religious faculty would be proper to this area. First 3 floors are used as mosque, first floor for female part, other 2 for male part. Last three floors are used as faculty of religion, that has classrooms, offices for instructors, conference hall, library and computer lab.

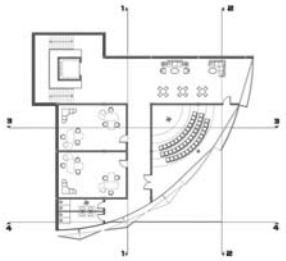
The main idea is to lose typical mosque shape and form but to develop cultural design ideas. To establish gender equality in the mosques, to make women come to mosque and pray here is another goal. Thus, there is not proper design ideas and use model of a mosque in the Quran, design ideas occurred from the functionality and need of use. Combination of dome and central plan is the main design idea. Then to form the minaret Kaaba is used as a concept idea. If form of the building and shape of minaret are joined, the form of cube is appeared, which refers to Kaaba, the most important place for Muslim people.



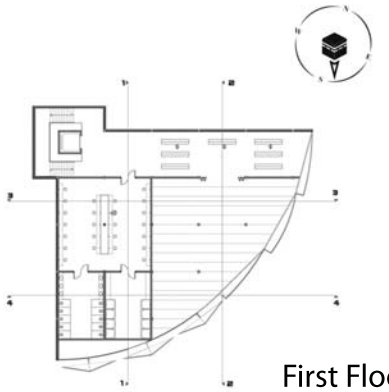
Ground Floor Plan



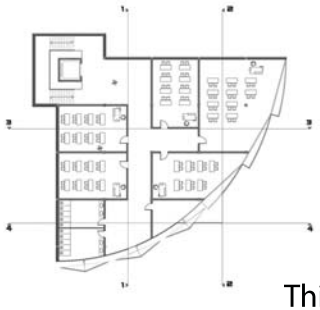
Second Floor Plan



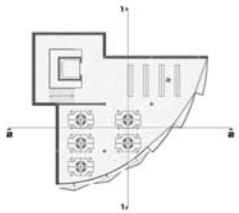
Fourth Floor Plan



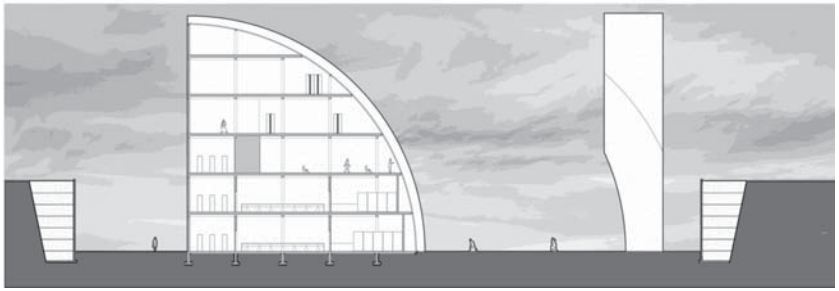
First Floor Plan



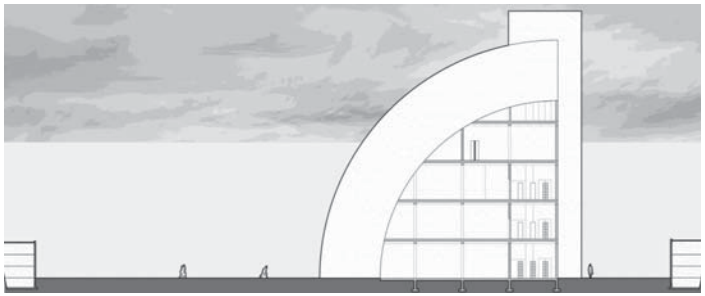
Third Floor Plan



Fifth Floor Plan

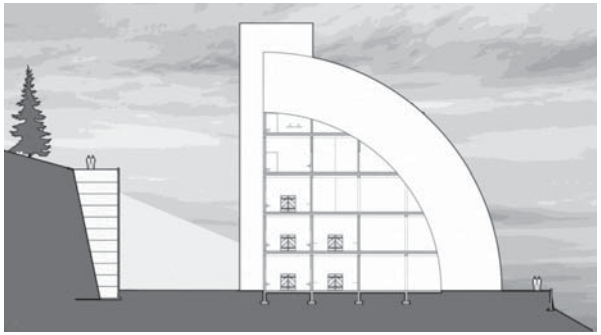


Section 1-1



Section 2-2

Section 3-3



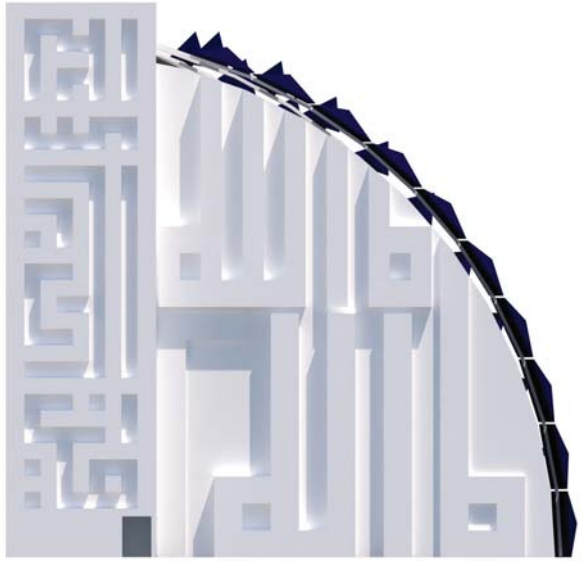
Section 4-4

North-East Façade

Double skin façade for getting indirect sunlight to interior spaces

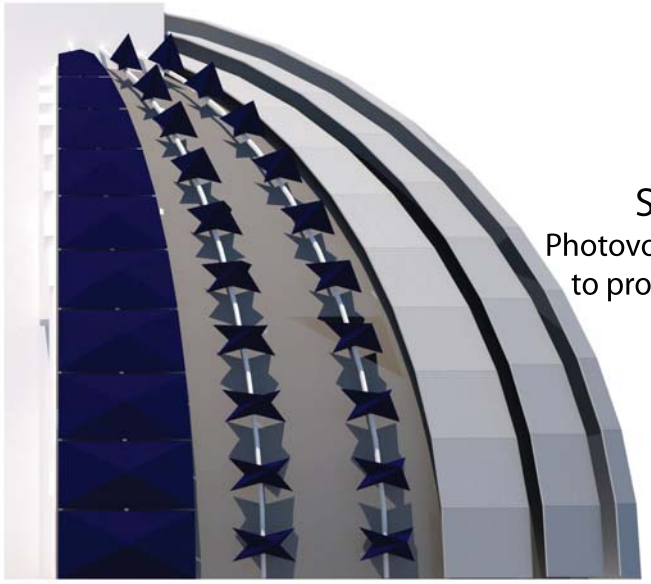
North-West Façade

Left horizontal:
-Muhammad is Allah's messenger
Right vertical:
In the name of Allah, the most gracious, the most merciful



South-West Façade

Right horizontal:
-There are no gods, but Allah
Left vertical:
All gratitude belongs to Allah, the creator of the universe

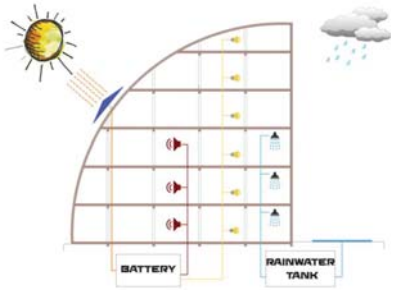


South-East Façade

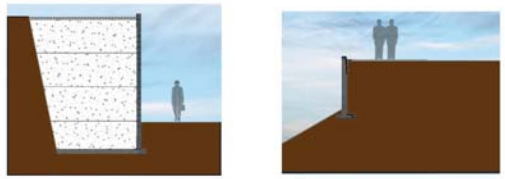
Photovoltaic umbrella façade details to produce energy from sunlight

Diagrams

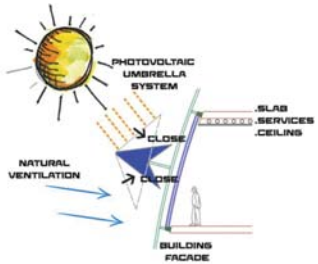
Exploded axonometric
structural drawing



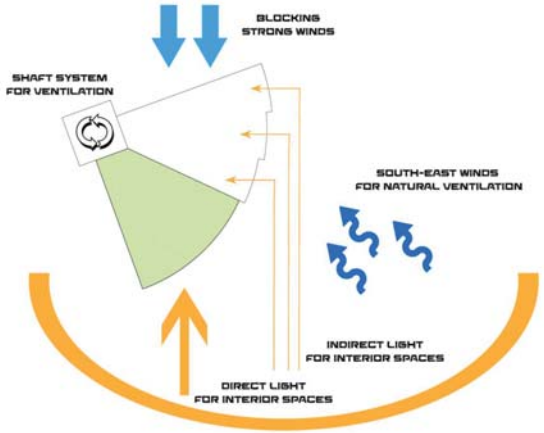
Environmental
systems design



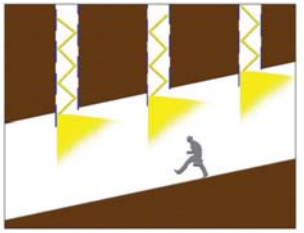
Retaining wall
structural drawing



Photovoltaic umbrella
façade detail

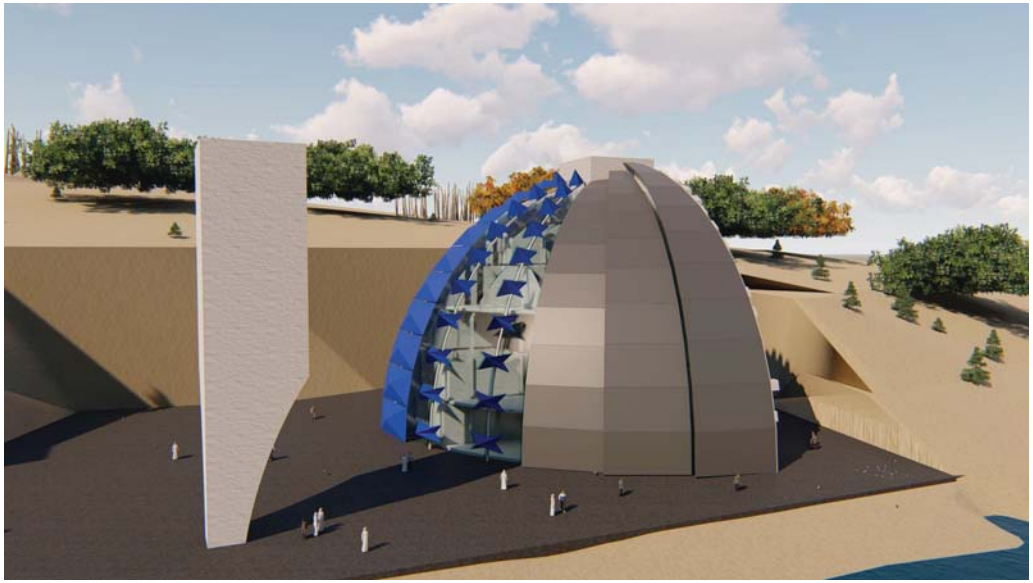


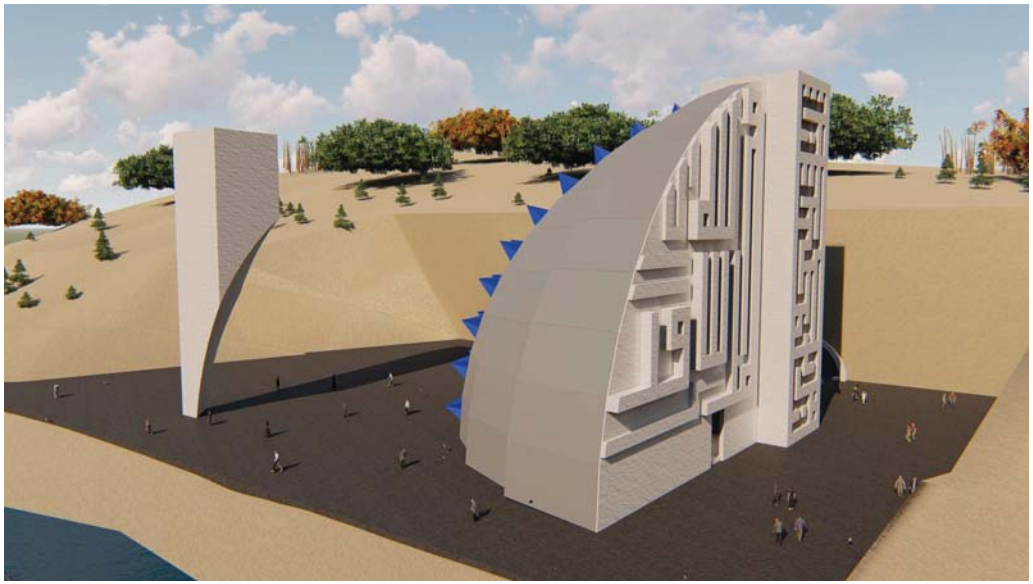
Design based on
site analysis



Tunnel natural
lighting system

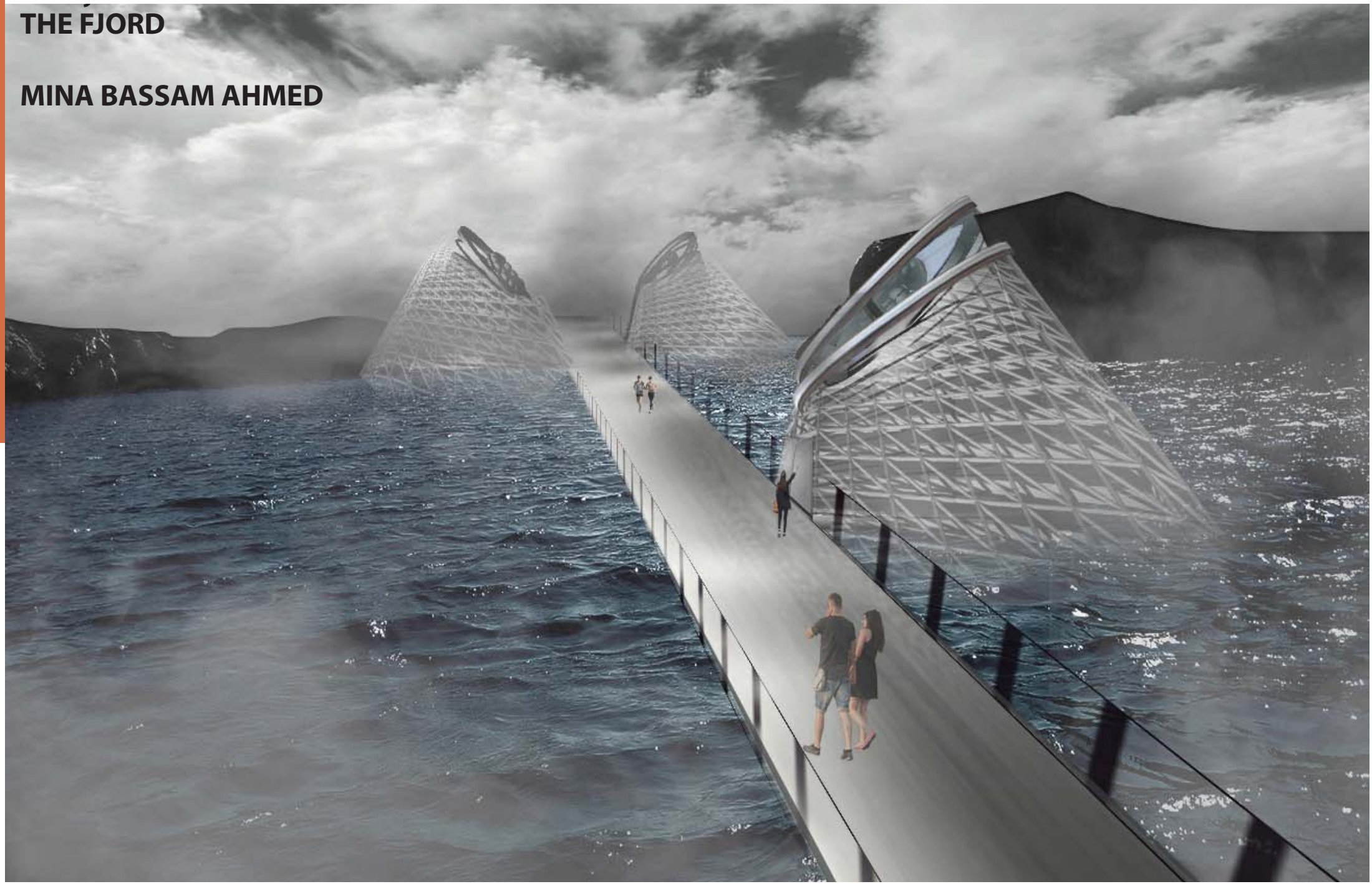
Renders





THE FJORD

MINA BASSAM AHMED



Process within Verticality

My Building is a prototype for a bio-genetics lab where master students in chemistry and biology can conduct experiments on algae and refine it in order for the algae to not only produce energy, but to also create healthier alternatives for the lifestyle of the people around.

LEARNING

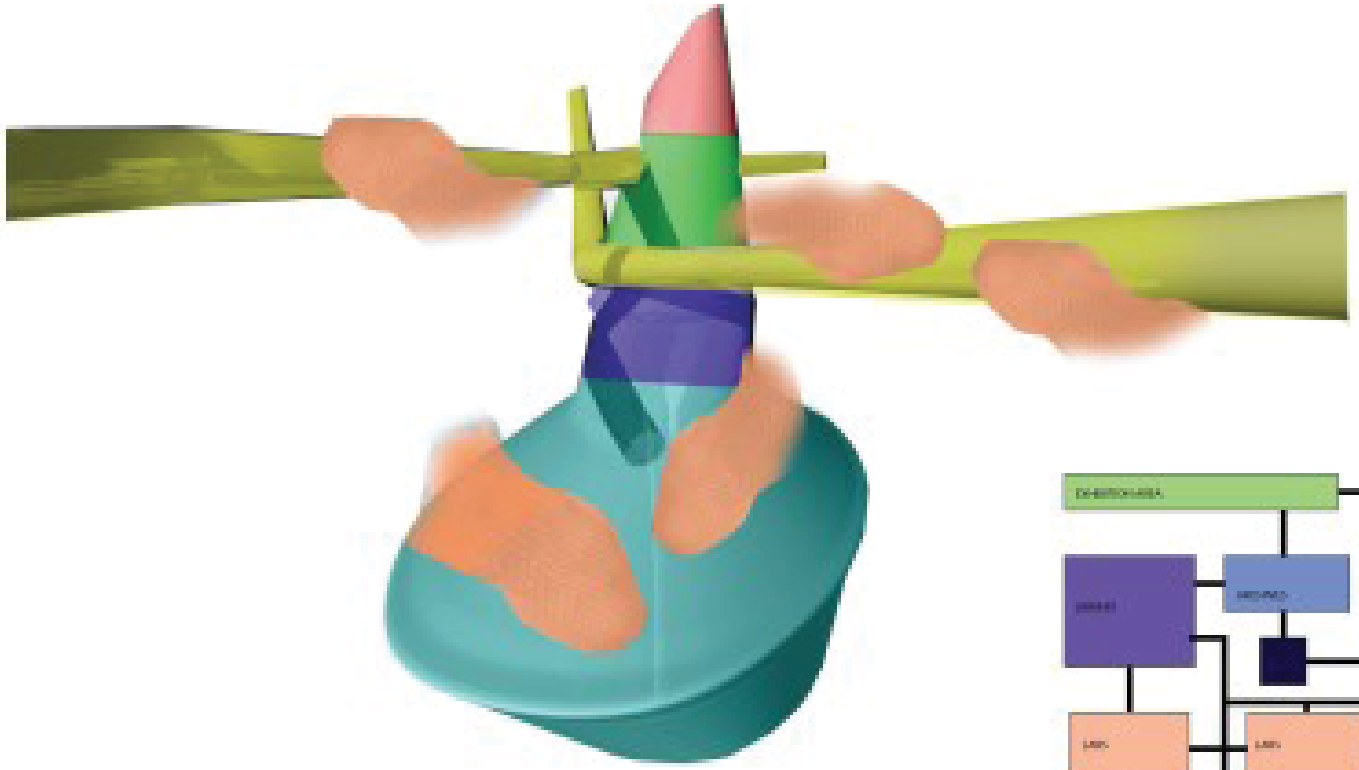
EXHIBITING

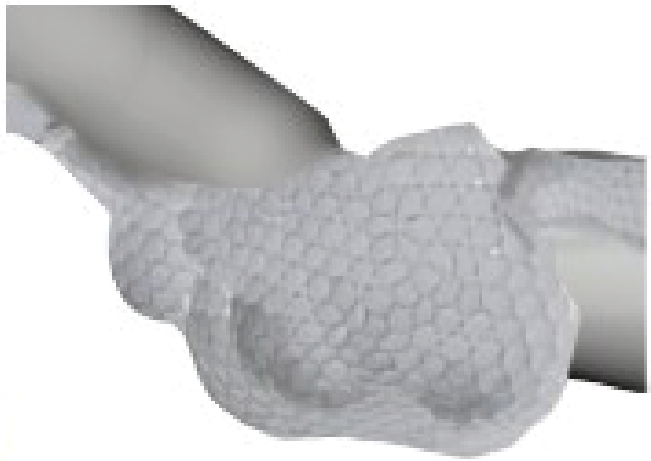
PROCESSING

HARVESTING

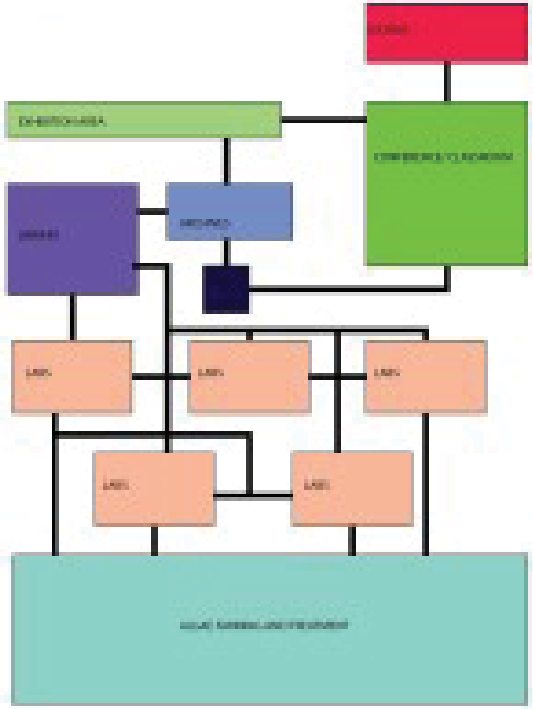
My buildind is located underwater and stretches out on the lake as seen in the masterplan. The reason for that is because the natural lake already produces healthy algae due to it previously being a part of a series of marshlands. It also gives a chance for the centre to conduct more experiments using water such as the graywater cleansing. It will also not disturb the view of the lake.

Function Diagram



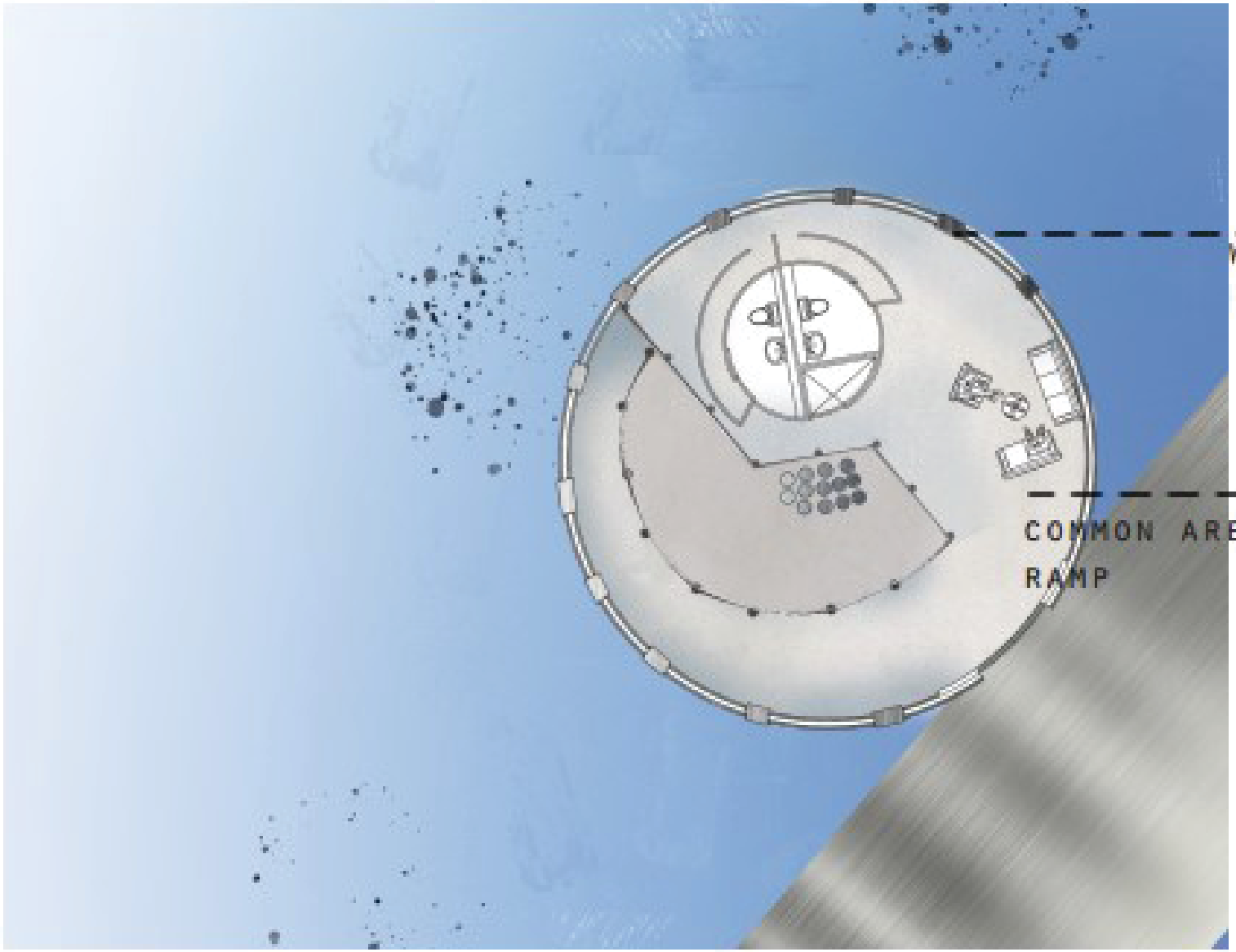


Spaces are bubbled with prefabricated inflated plastic due to its durability and lightness underwater



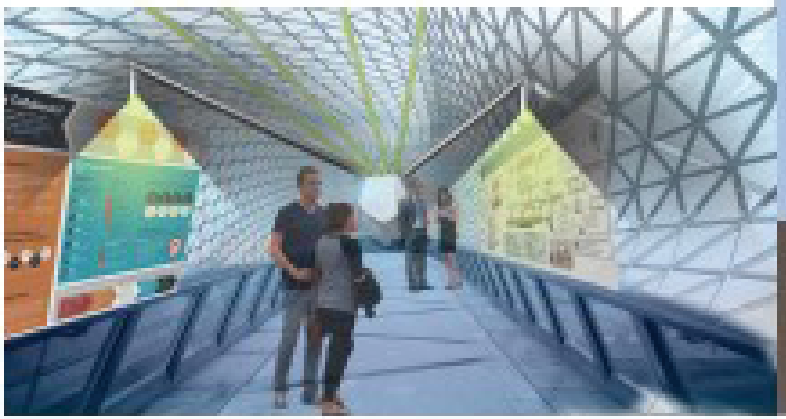
Plans: Ground Floor

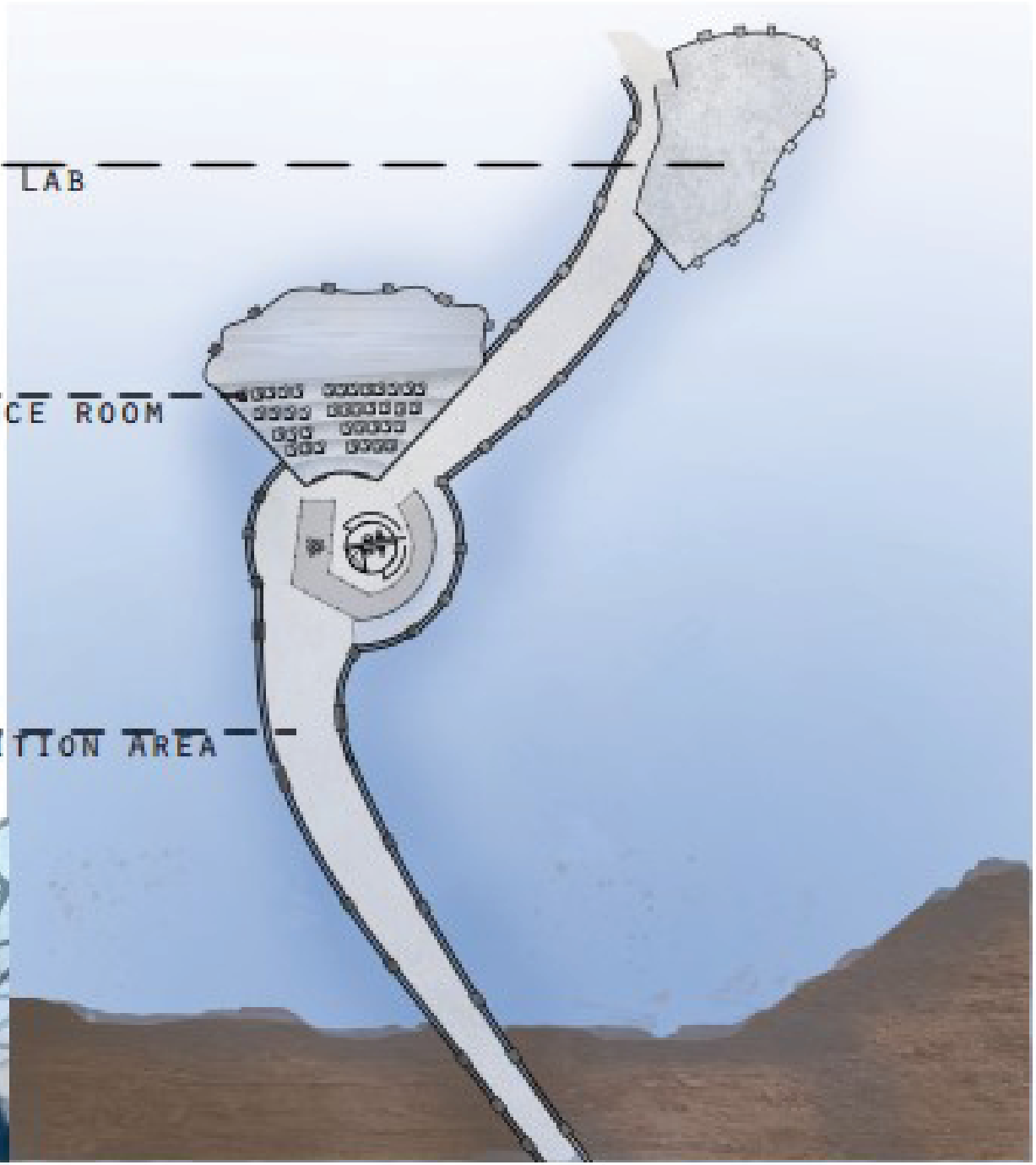
Scale: 1.100



Plans: -1 Floor

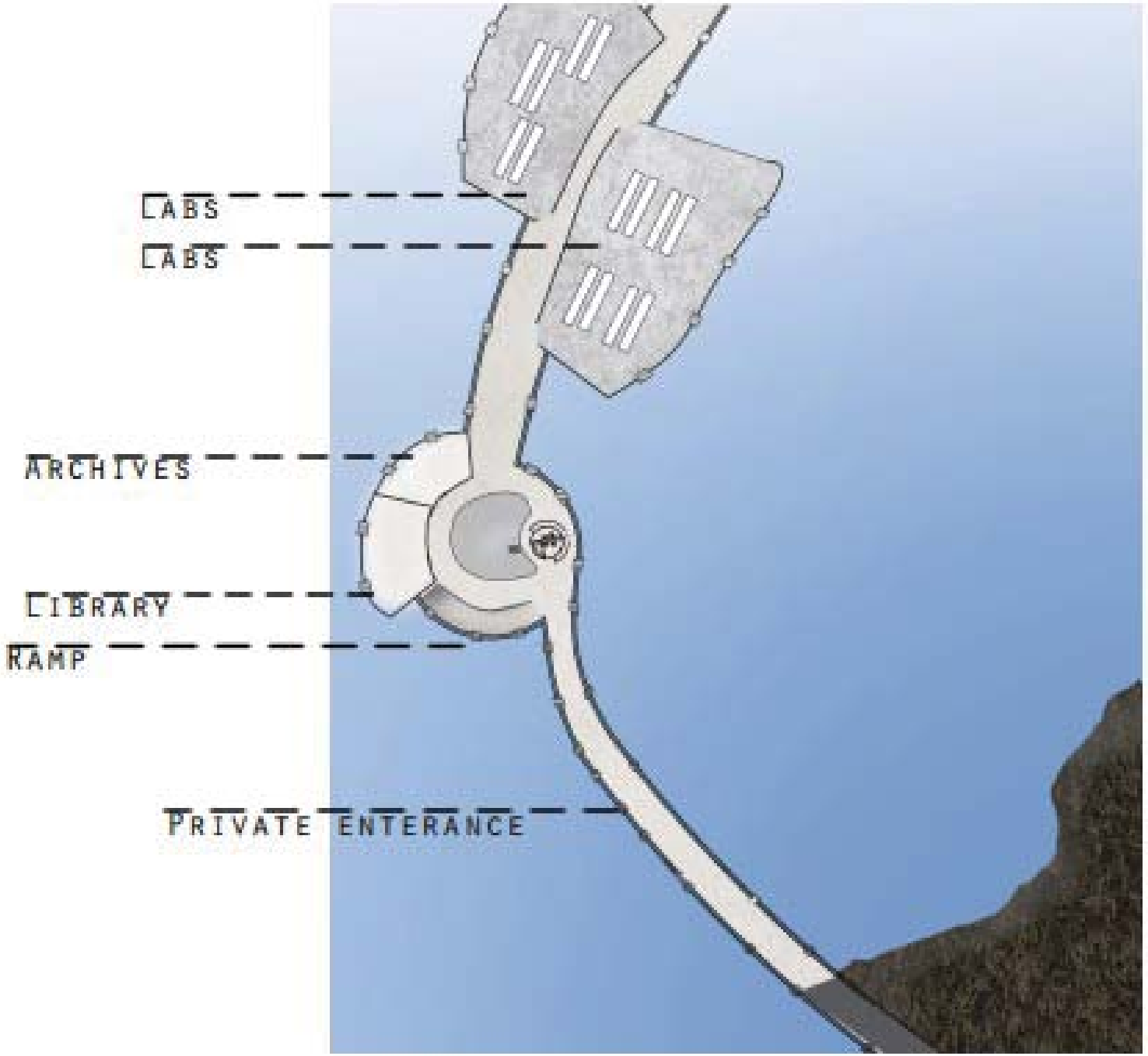
Scale: 1.250





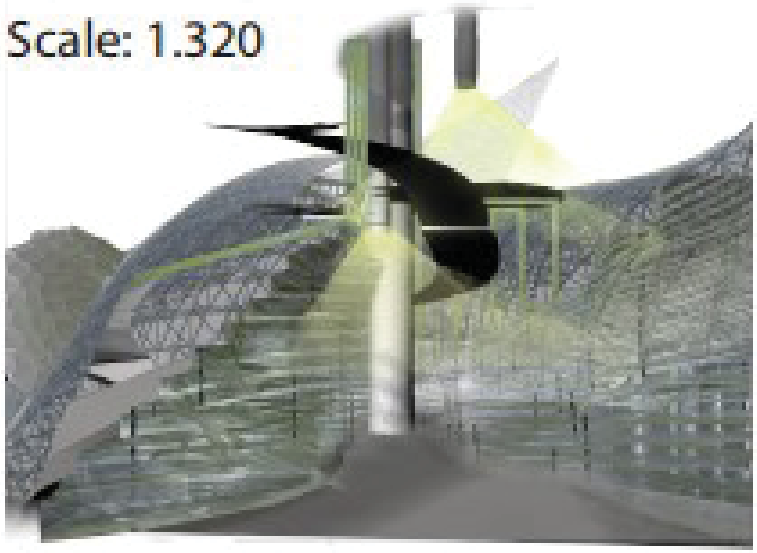
Plans: -2 Floor

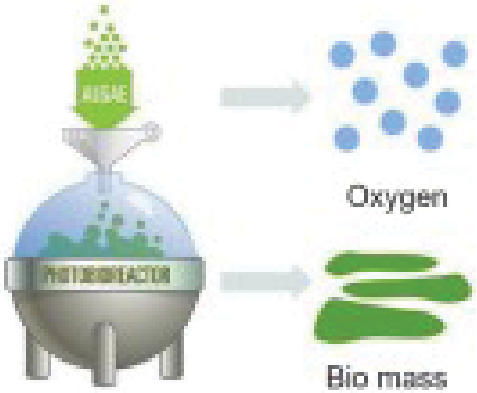
Scale: 1.300

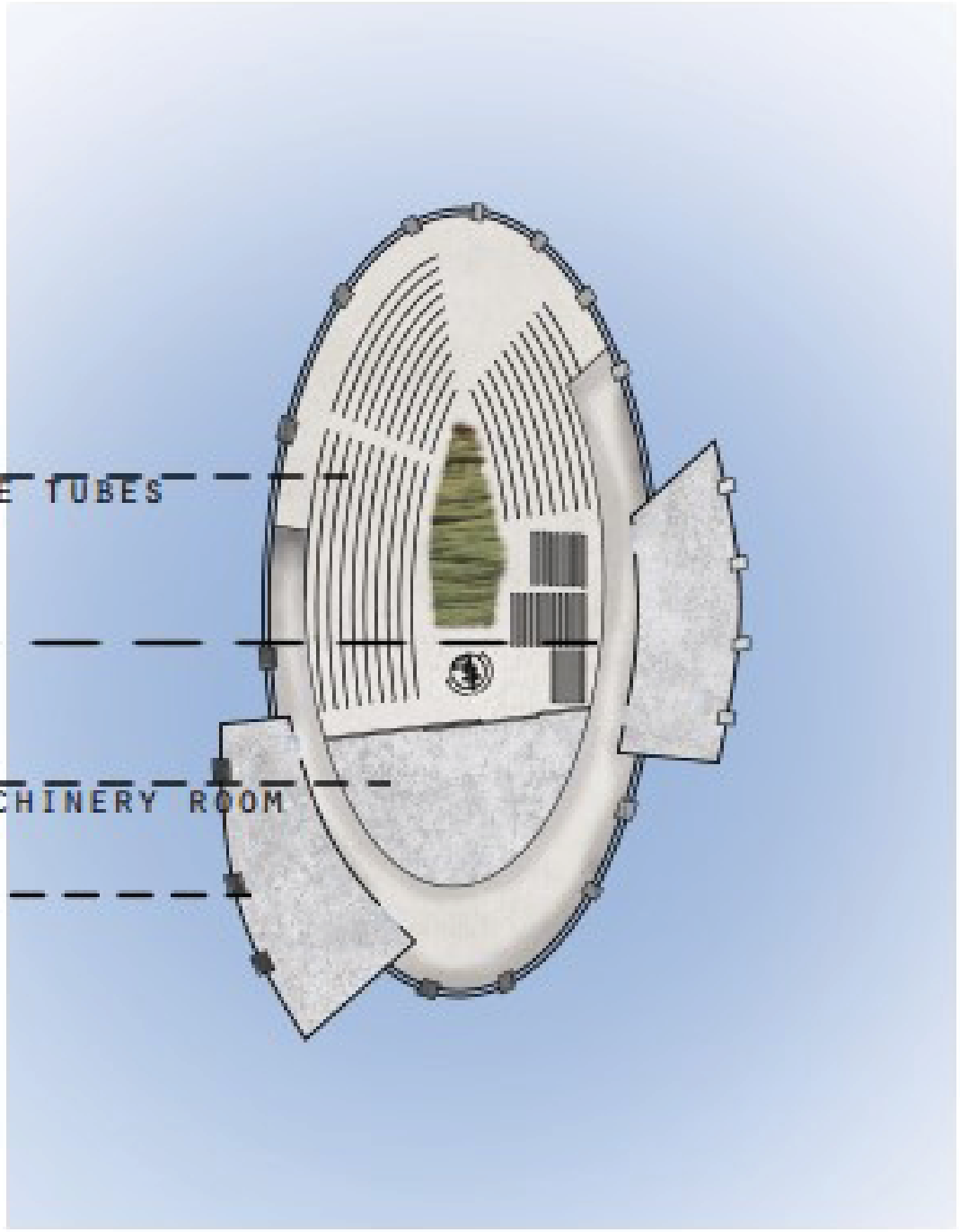


Plans: -3 Floor

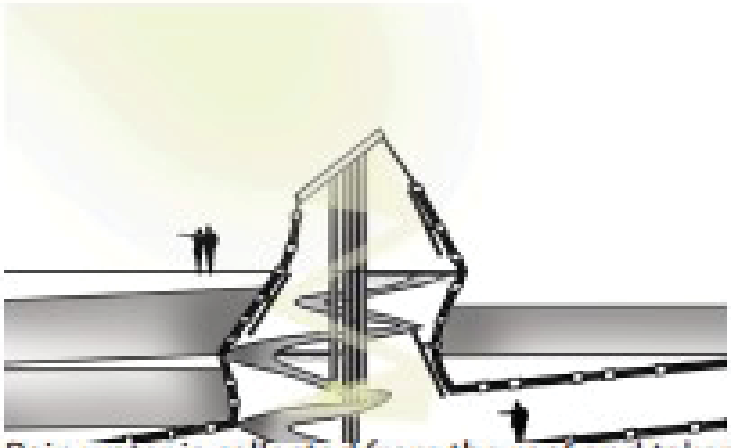
Scale: 1.320



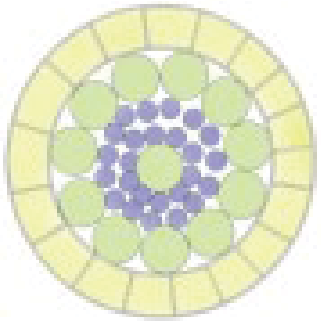




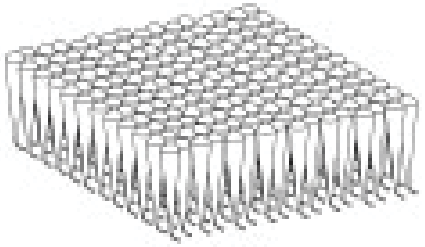
Section and Diagrams: (scale : 1.350)

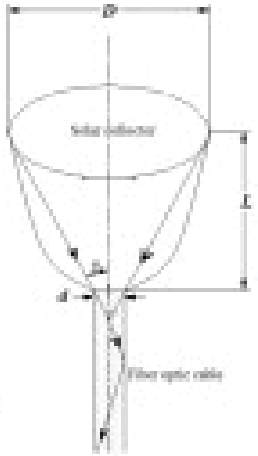


Rain water is collected from the roof and taken down for clarifying with algae. the dark blue water tanks are the main water storage and they provide hot and cold water as shown in the diagram.



Sun Fibre optic collectors





Sun Fibre collectors are passive light bulbs that collect and concentrate sunlight and distribute them. At night, they have transformers and they turn into led lights,thus not needing a second light source.

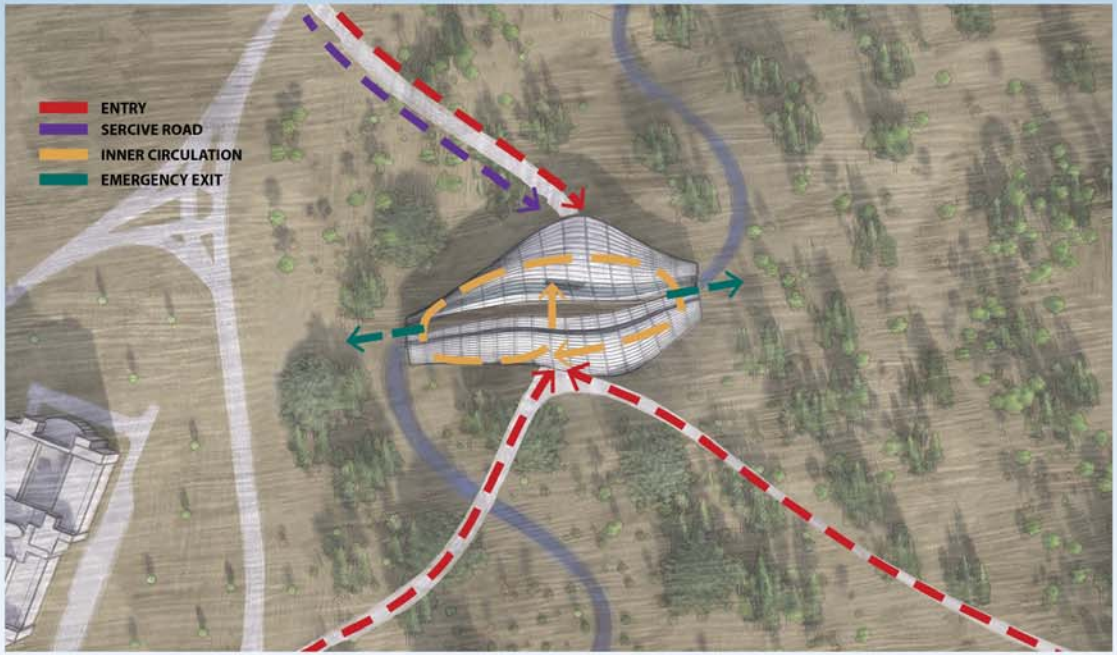
Wind coming from north

PLANTAGON AQUAPONIC CENTER

KEMAL ARDA ALKİN

EDUCATIONAL AREA PLANTAGON RESIDENCIAL AREA

WIND DIRECTION ENTRANCE PATH SUN PATH WATER FLOW

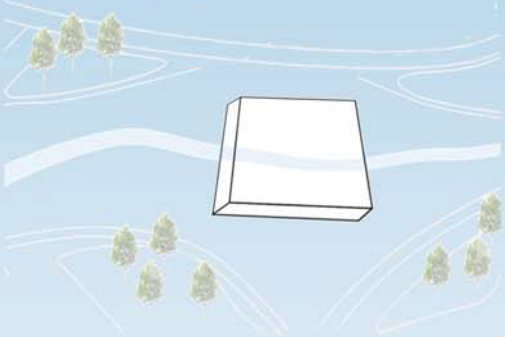


SITE CIRCULATION

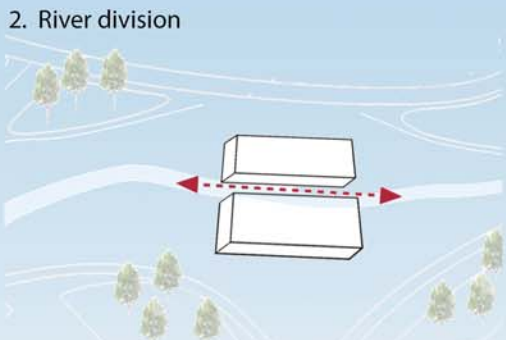
Plantagon aquaponic centre is located in Bilkent University, surrounded by residential blocks, school housing and governmental buildings, furthermore building is designed to serve all off the community located around the building to maximize the environmental awareness and to teach people the unkown benefits of the aquaponic centre, building contains conferance hall, offices and vertical gardening system.

MASS DIAGRAM

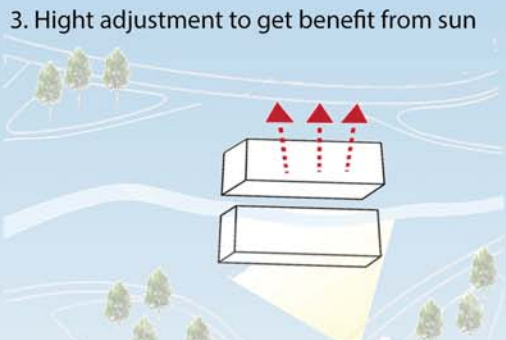
1. Current Placement



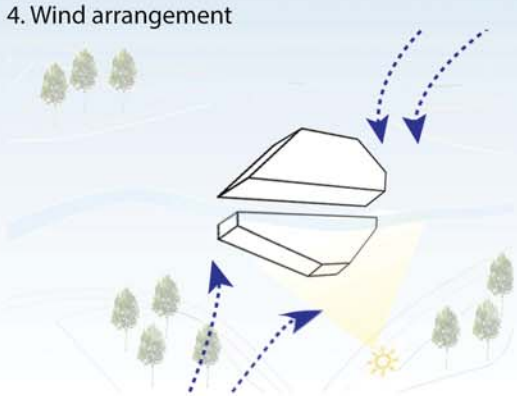
2. River division



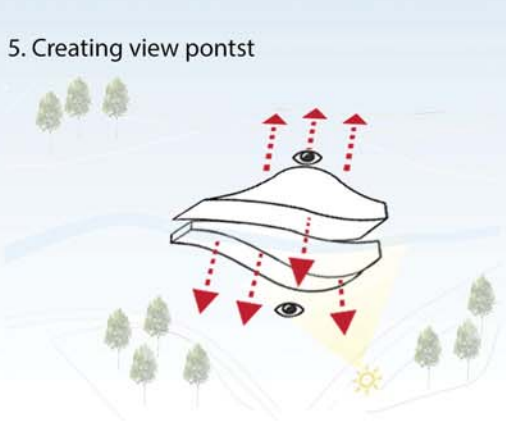
3. Hight adjustment to get benefit from sun



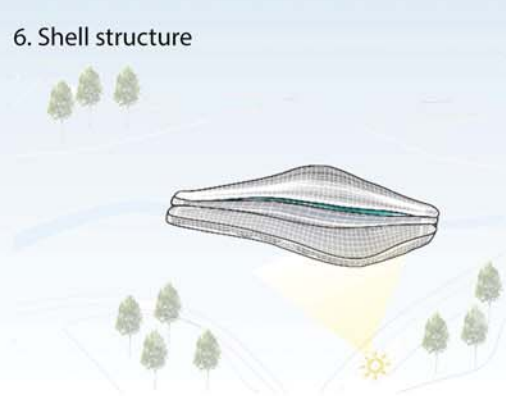
4. Wind arrangement



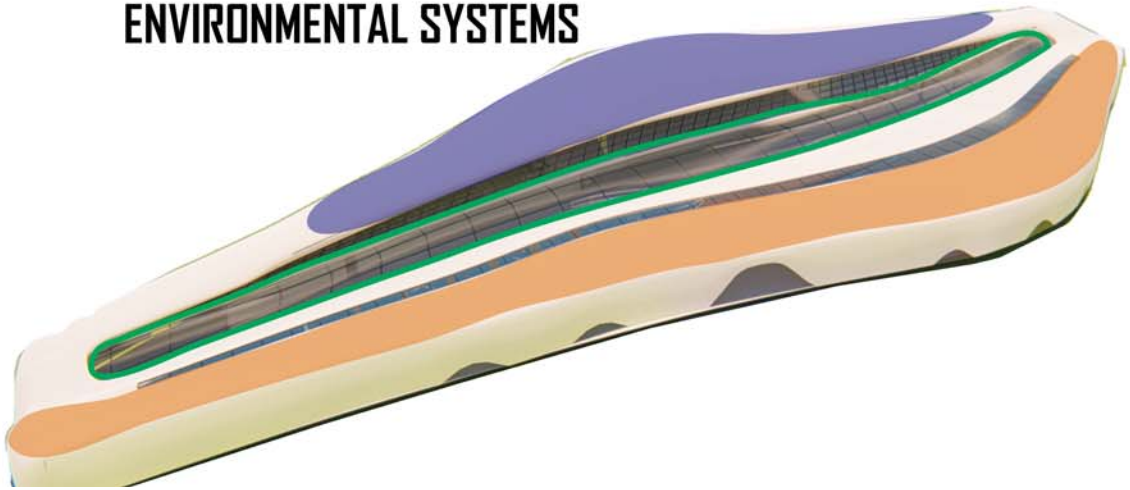
5. Creating view pontst



6. Shell structure



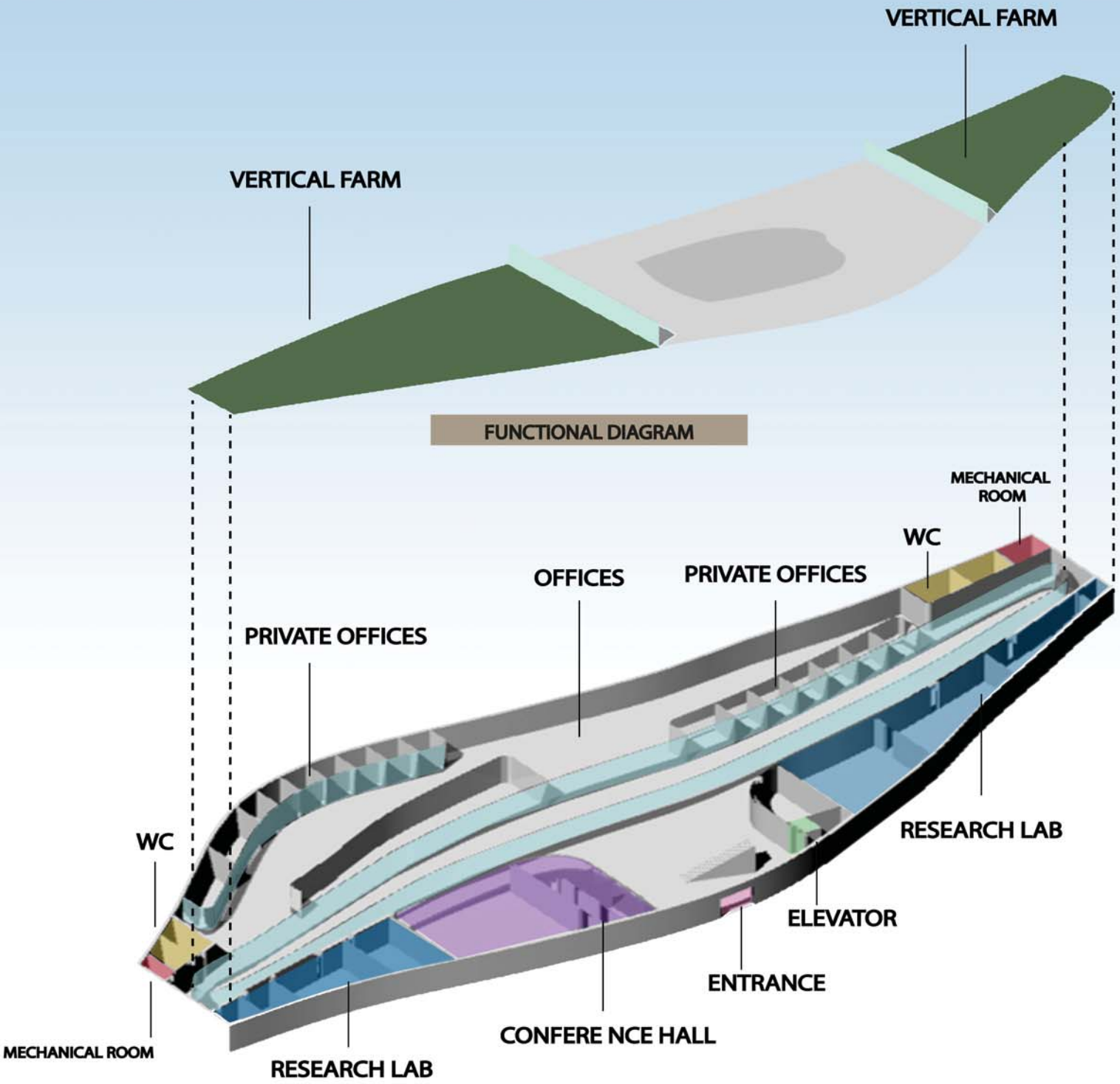
ENVIRONMENTAL SYSTEMS



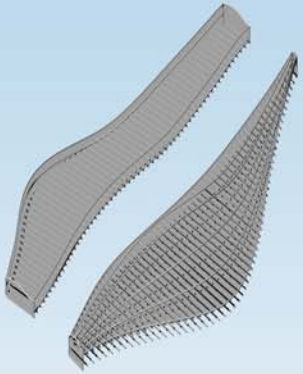
RAIN WATER DRAINAGE

SOLAR ENERGY

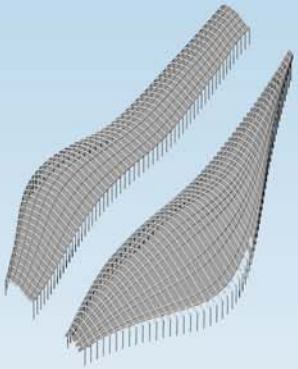
WIND BREAKER


VERTICAL FARM
VERTICAL FARM
FUNCTIONAL DIAGRAM
MECHANICAL ROOM
WC
OFFICES
PRIVATE OFFICES
PRIVATE OFFICES
WC
RESEARCH LAB
ELEVATOR
ENTRANCE
CONFERE NCE HALL
MECHANICAL ROOM
RESEARCH LAB

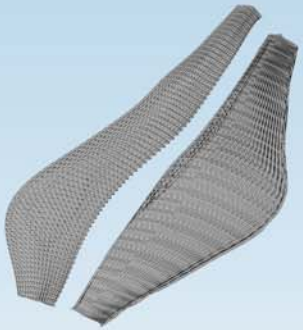
STRUCTURAL DIAGRAMS



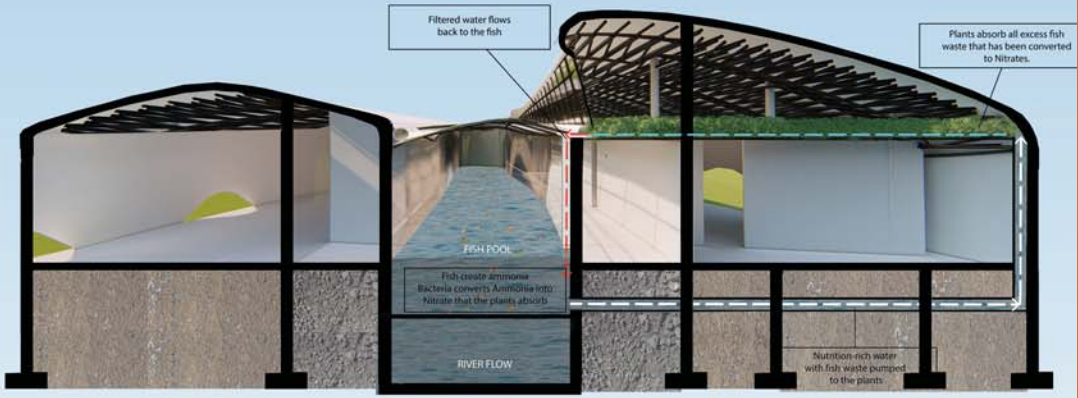
FOOTING AND PRIMARY BEAMS

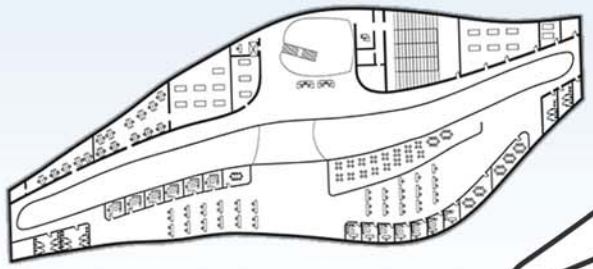


SECONDARY STRUCTURE

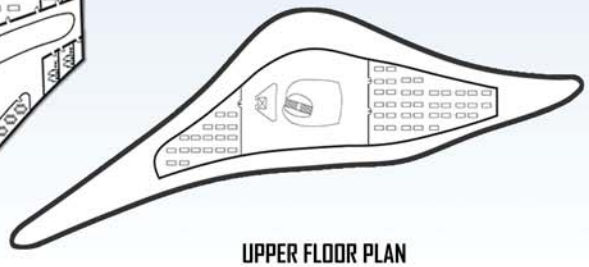


TRUSS STRECTURE SYTEM



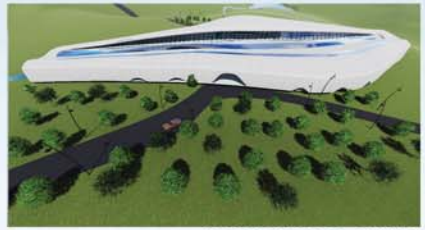


GROUND FLOOR PLAN



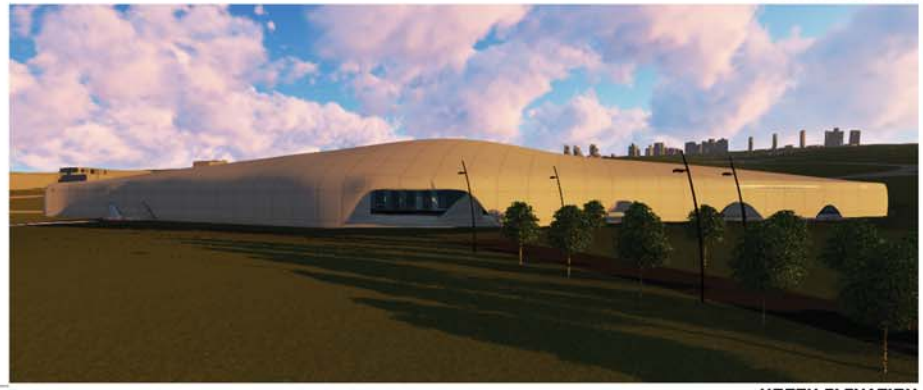
UPPER FLOOR PLAN

OFFICE ENTRANCE

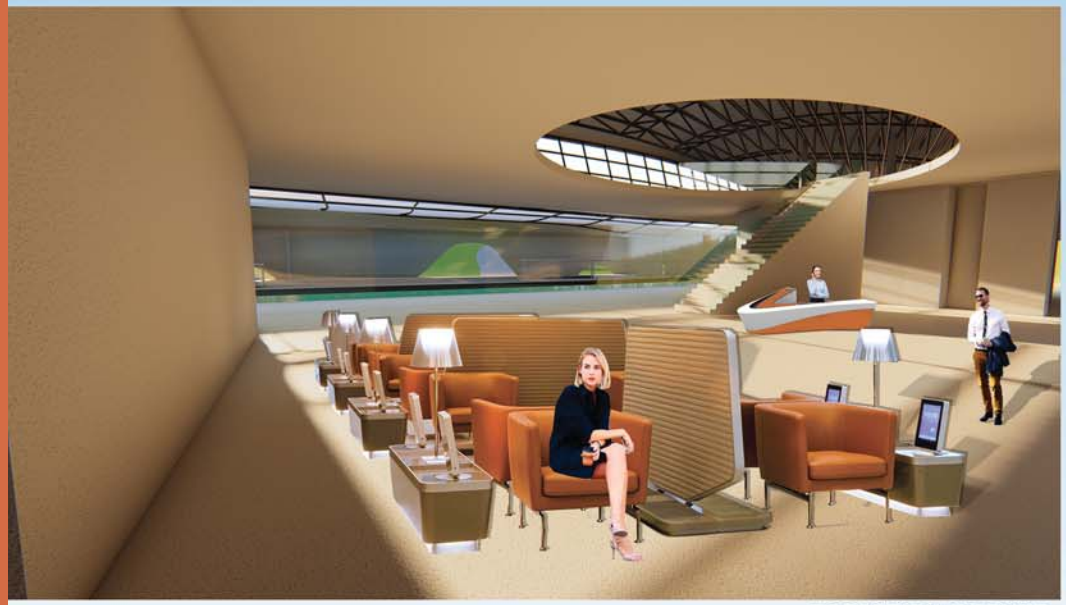


AERIAL RENDER - SOUTH

SOUTH ELEVATION



NORTH ELEVATION

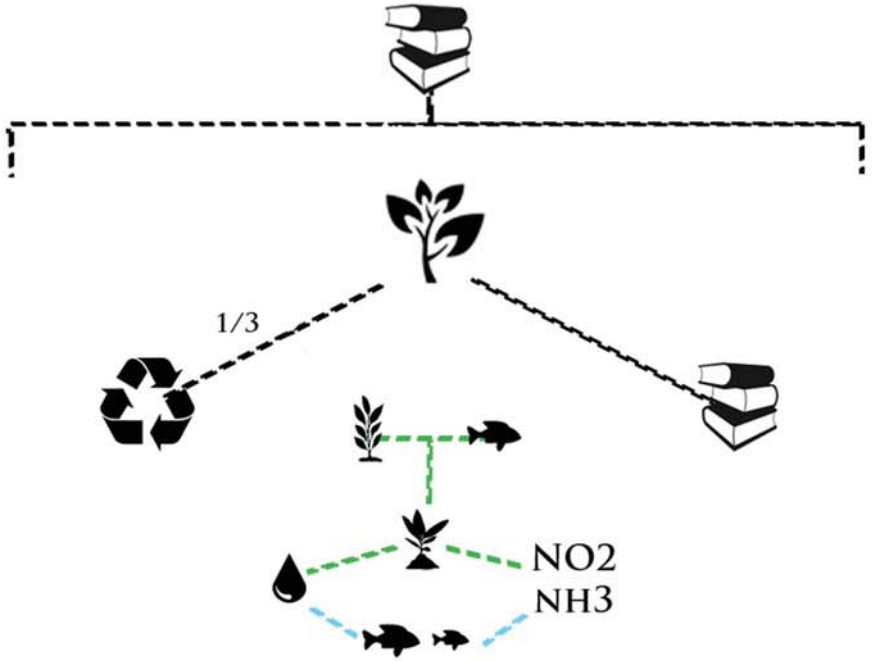


RECEPTION & FOYER

GREEN HOUSE

AQUAPONIC AND RECYCLING CENTER

PERİN BİLİCİ - ROZHIN NAEEMAEE



AQUARECED:

A STEP TO A MORE SUSTAINABLE FUTURE.

A AQUARECED CONSISTS OF AN AQUAPONIC CENTER, RECYLING AND EDUCATION CENTER.

IT AIMS FOR A SUSTAINABLE LIFE AT THE MOMENT AND FUTURE BY EDUCATING AND ENCOURAGING MORE PEOPLE.

ORDERING SYSTEM

ENVIRONMENT: WATER PURIFICATION, 20% LESS WATER CONSUMPTION AND INDEPENDENT FOOD PRODUCTION SYSTEM

FUNCTION: WORKS AS GATHERING SPACE FOR SCHOOLS AND HOUSINGS (S & H)

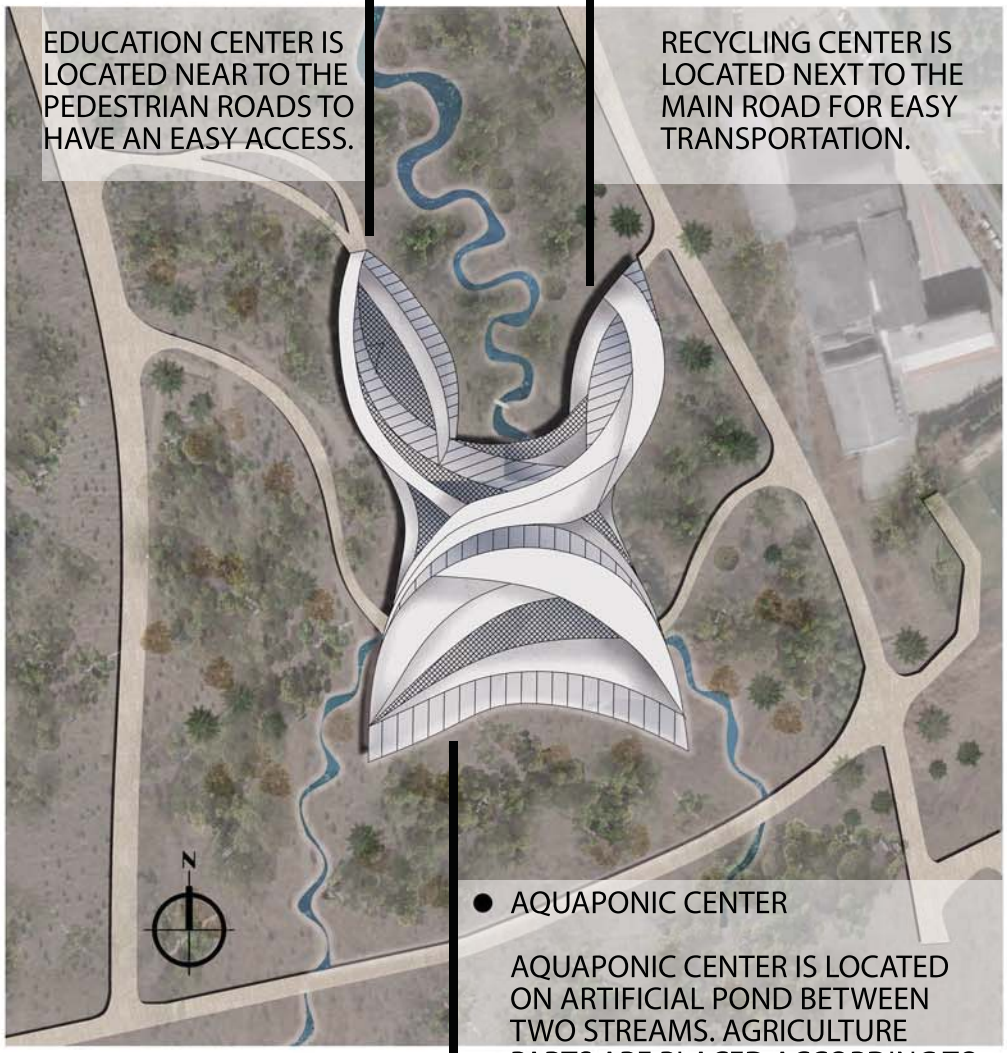
ECONOMY: FOOD PRODUCTION, RESEARCH CONDUCTION, AND LESS WATER CONSUMPTION

SOCIO-CULTURE: ENCOURAGE FOR SUSTAINABILITY, EDUCATE, AND CREATE SOCIAL SPACE

AESTHETIC: BLENDING INTO NATURE

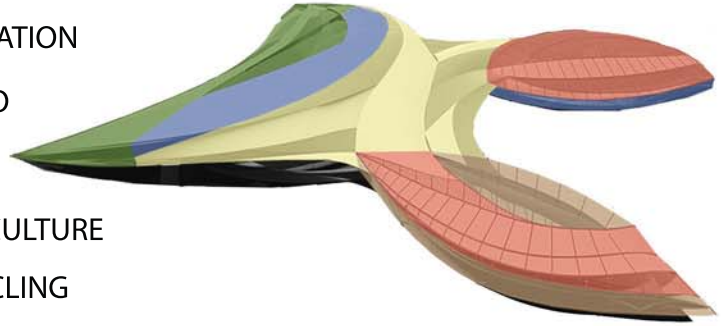
MASTER PLAN

SITE PLAN

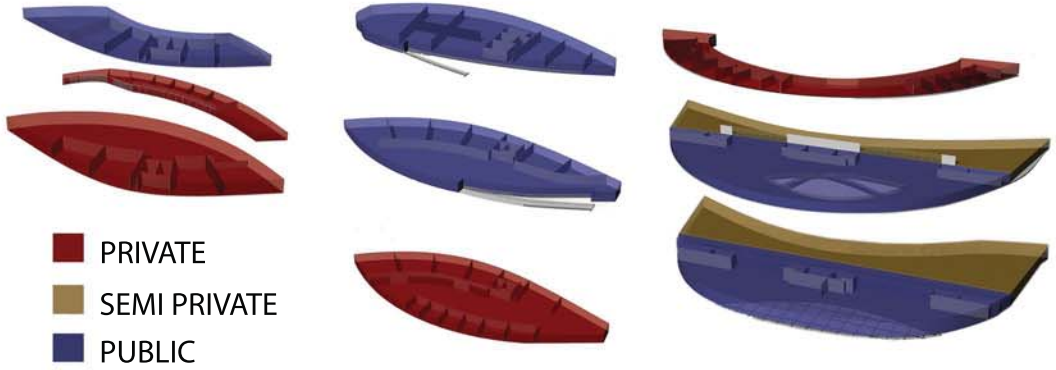


GENERAL FUNCTION

- EDUCATION
- MICRO
- LAB
- AGRICULTURE
- RECYCLING

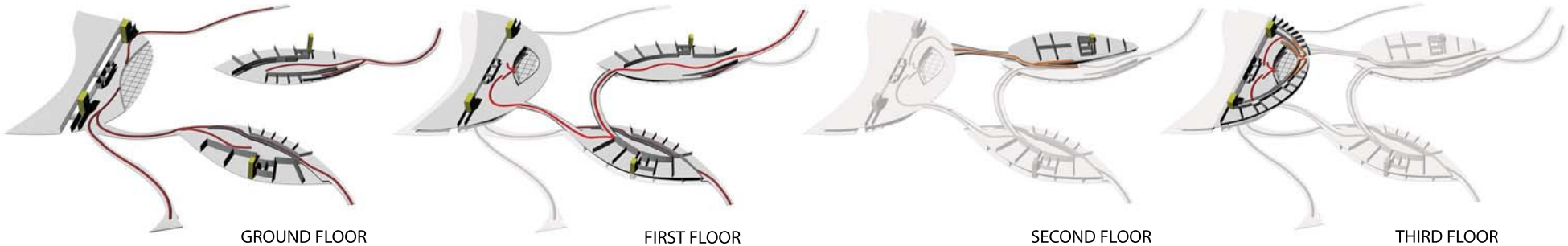


PUBLIC - PRIVATE



- PRIVATE
- SEMI PRIVATE
- PUBLIC

CIRCULATION DIAGRAM



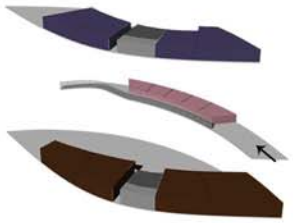
GROUND FLOOR | FIRST FLOOR | SECOND FLOOR | THIRD FLOOR

- HORIZONTAL CIRCULATION
- VERTICAL CIRCULATION

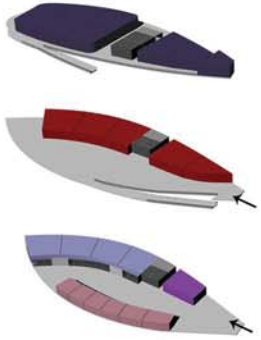
FUNCTION DIAGRAM

- AGRICULTURE
- WORKSHOP
- OFFICE
- LAB
- MEETING ROOM
- PROCESSING STORAGE
- WC
- STORAGE
- TRANSITION

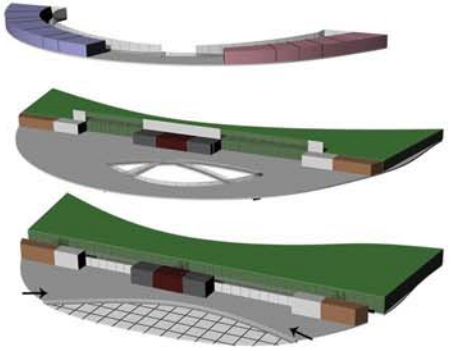
RECYCLING CENTER



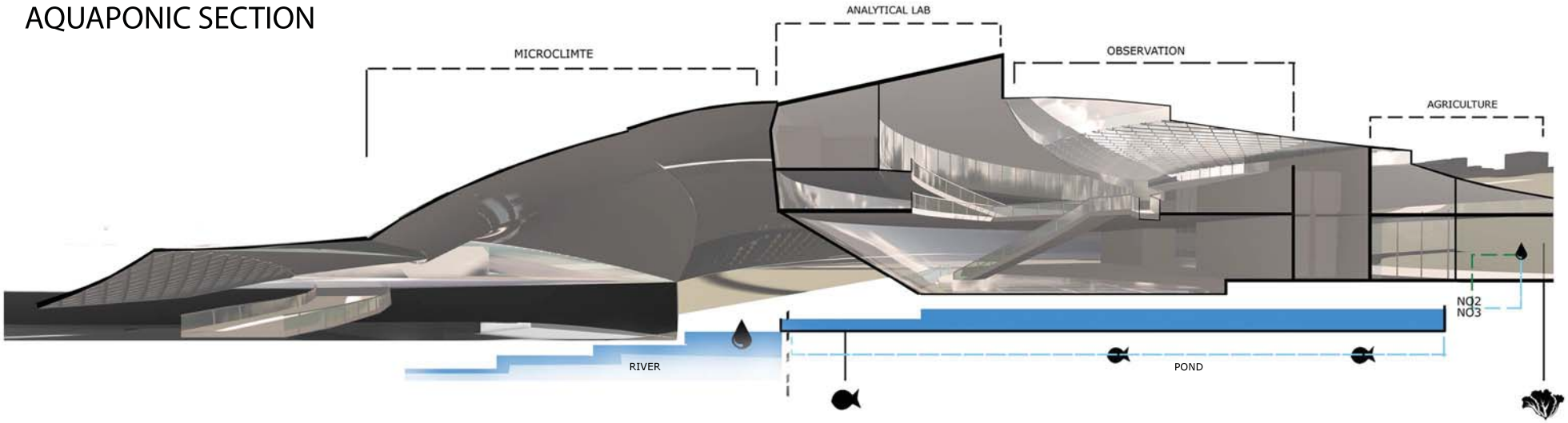
EDUCATION



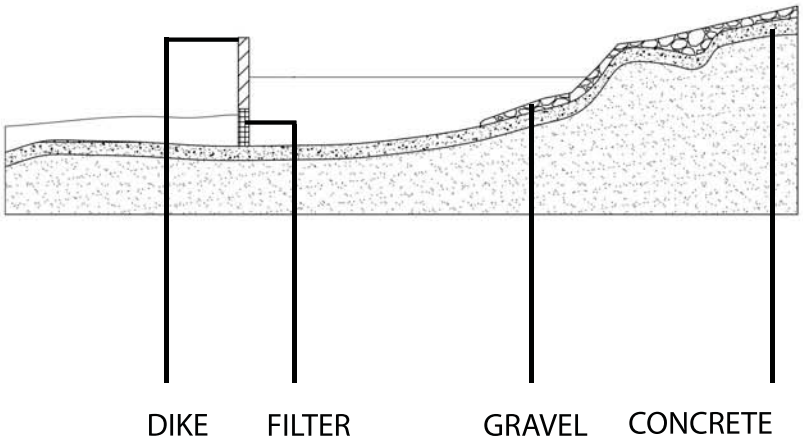
AQUAPONIC CENTER



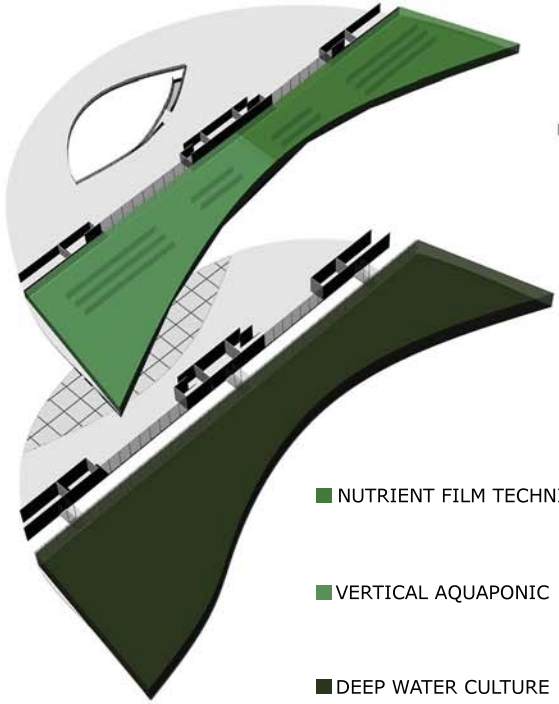
AQUAPONIC SECTION



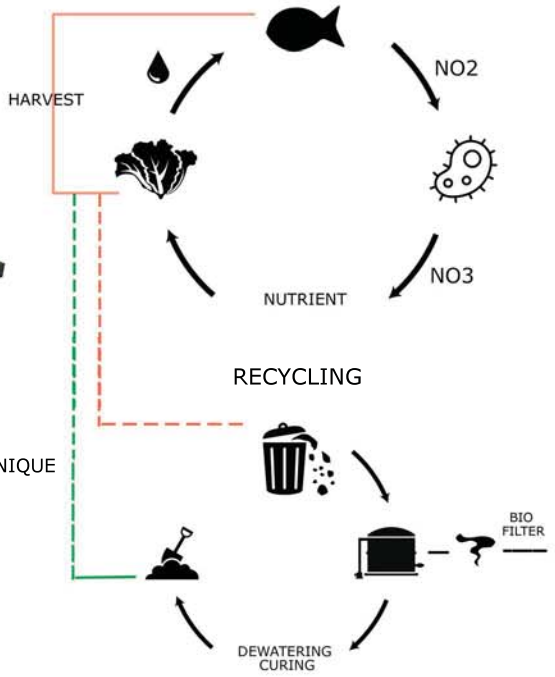
POND & RIVER CONNECTION



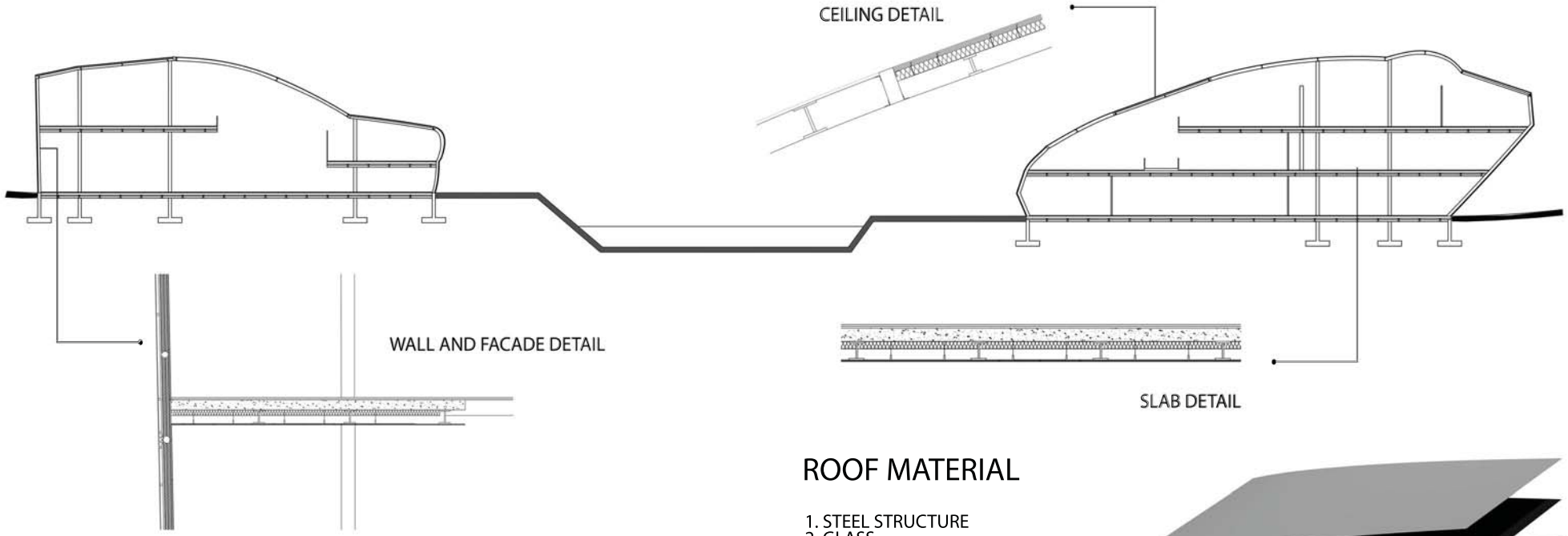
TYPES OF AGRICULTURE



AQUAPONIC

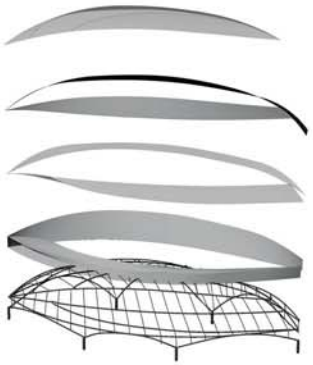


SECTION FROM EDUCATION AND RECYCLING CENTER

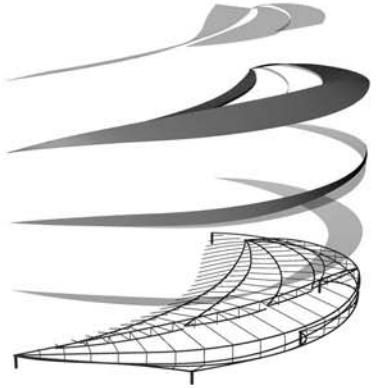


STRUCTURE

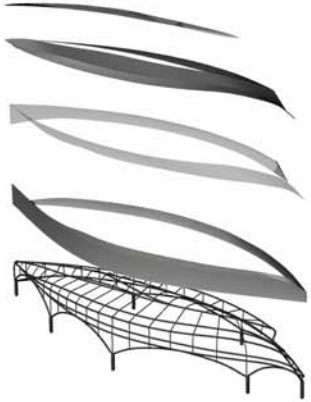
RECYCLING CENTER



AQUAPONIC CENTER



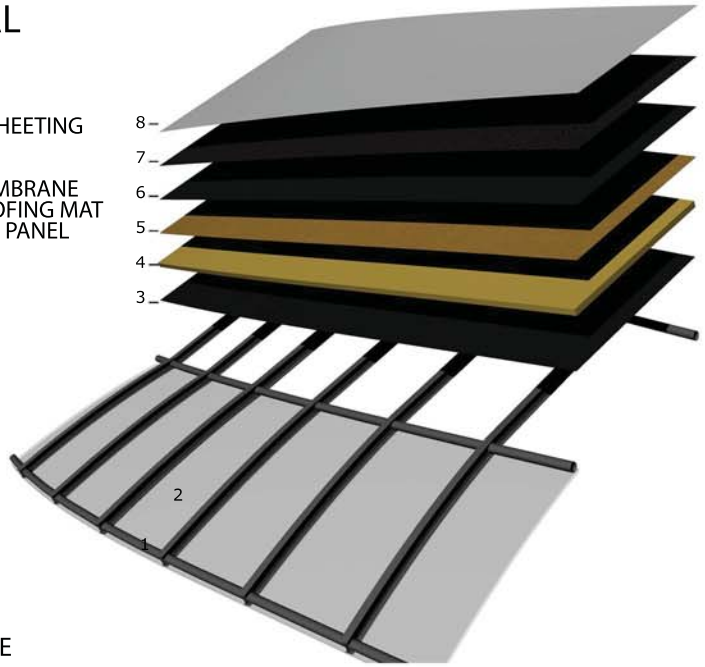
EDUCATION



- FIBERGLASS
- STEEL STRUCTURE

ROOF MATERIAL

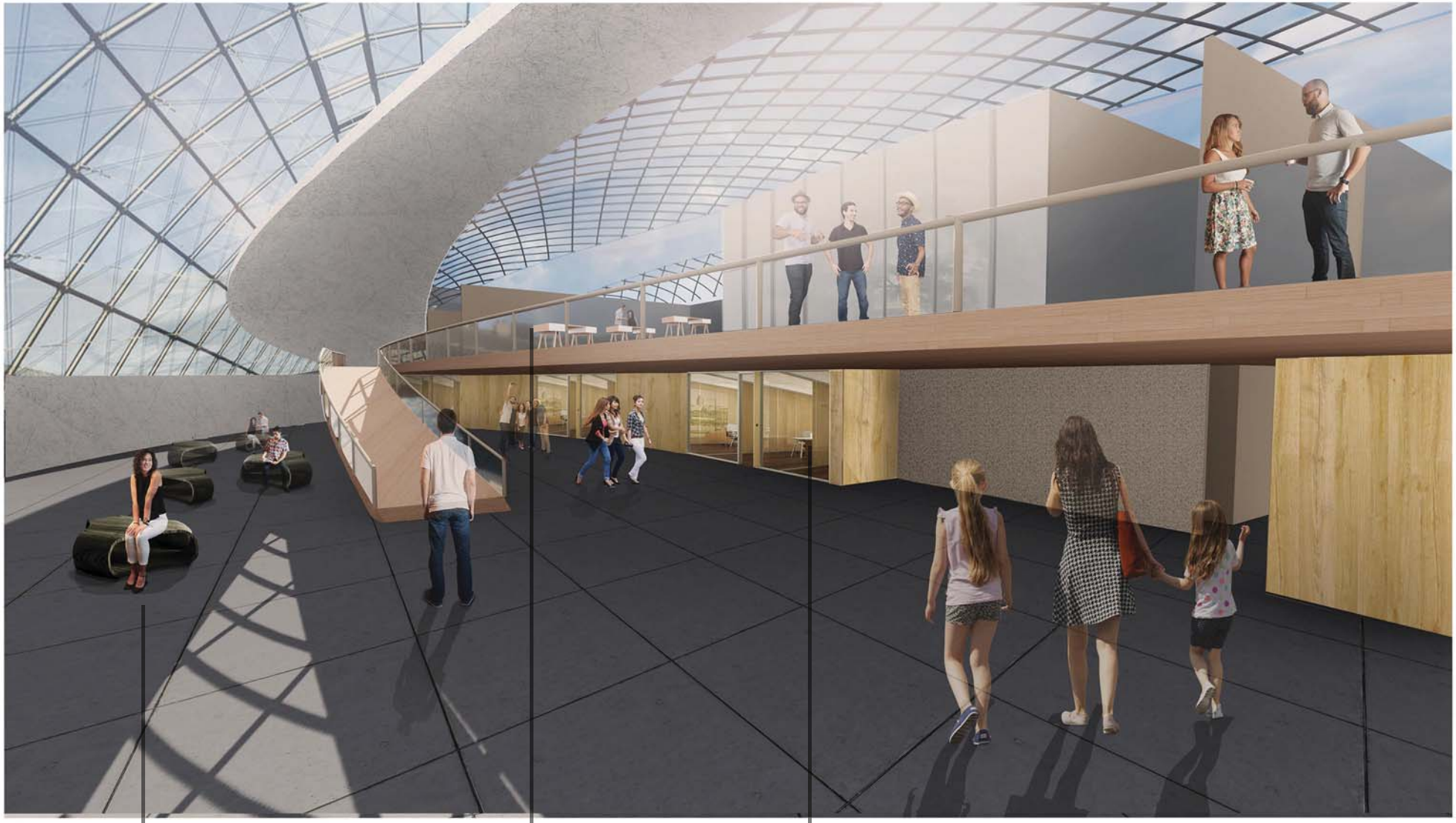
1. STEEL STRUCTURE
2. GLASS
3. CORRUGATED STEEL SHEETING
4. INSULATION
5. MDF PANEL
6. WATER PROOFING MEMBRANE
7. STUDDED SOUND ROOFING MAT
8. FIBER GLASS ROOFING PANEL



AQUAPONIC CENTER

DEEP WATER CULTURE

●AGRICULTURE PART ●TRANSITION ●POND ●GATHERING SPACE



●GATHERING SPACE

●WORKSHOPS

●MEETING ROOMS

EDUCATION CENTER

FIRST FLOOR

BRIDGE CONECTION BETWEEN
●EDUCATION AND RECYCLING CENTER

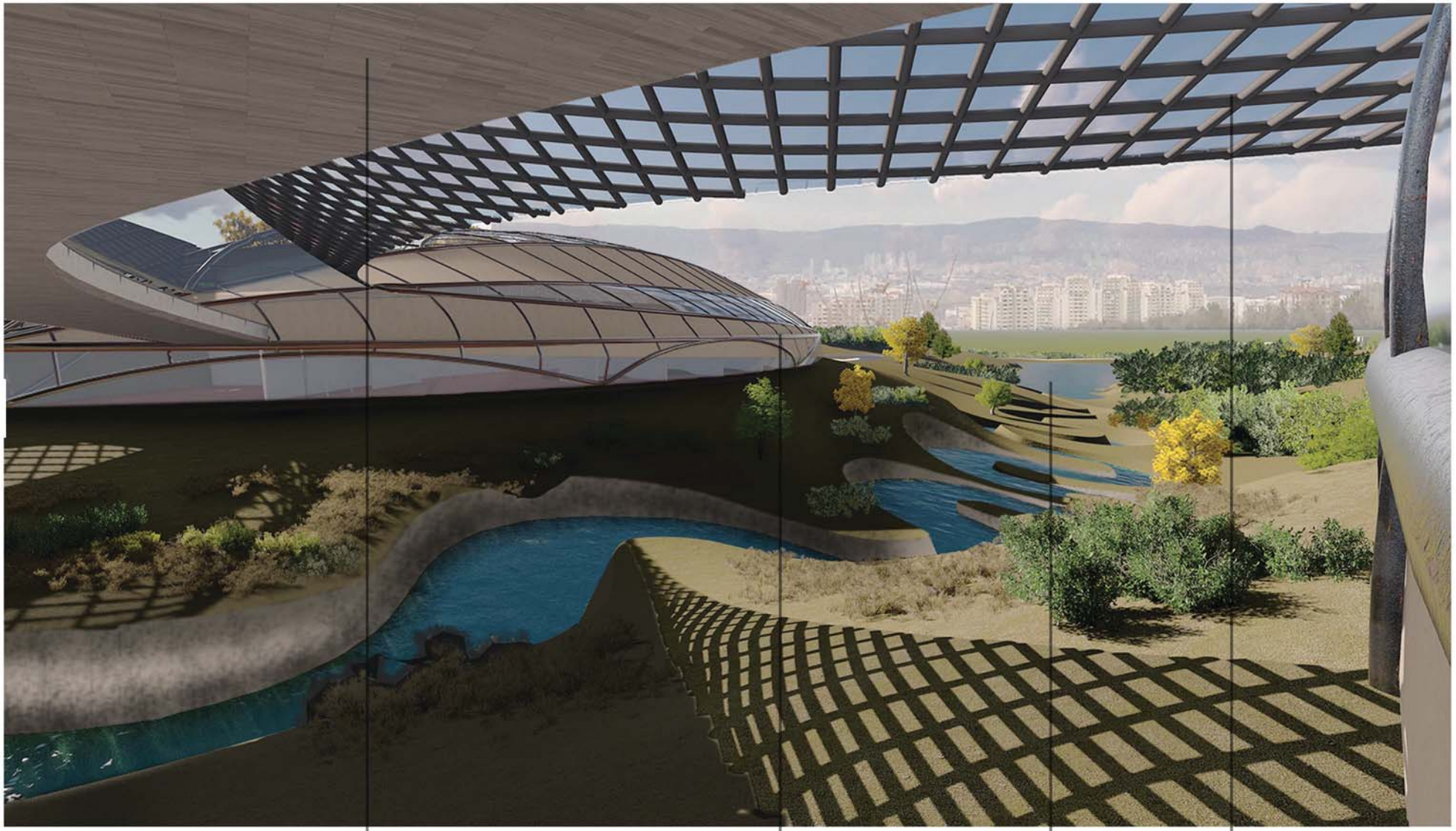
●OFFICES

●PROCESSING

●WORKSHOPS

RECYCLING CENTER

PROCESSING



EXTERIOR VIEW

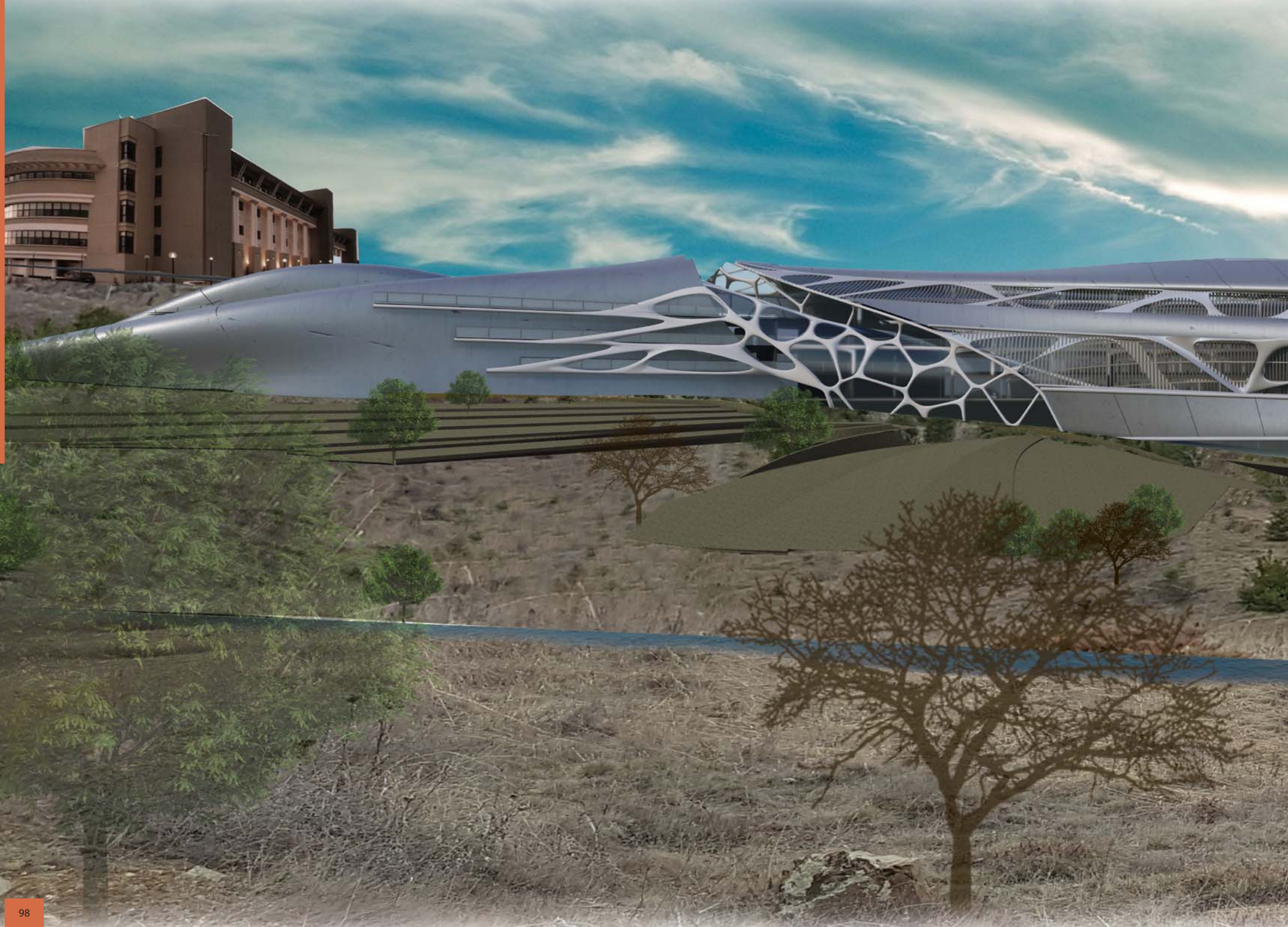
FACING THE LAKE

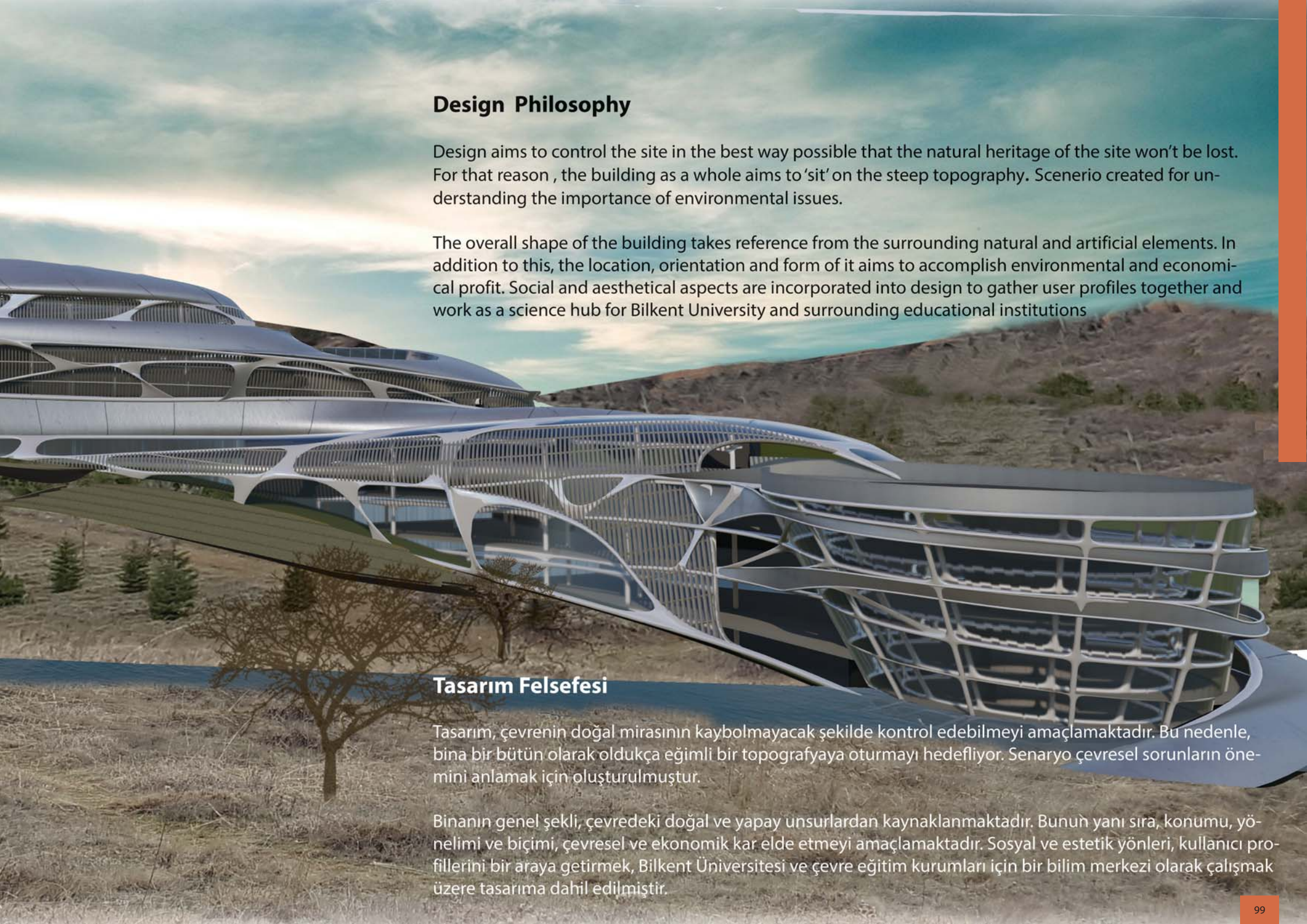
BRIDGE CONNECTION BETWEEN EDUCATION AND RECYCLING CENTER

EDUCATION

LAKE

MICRO





Design Philosophy

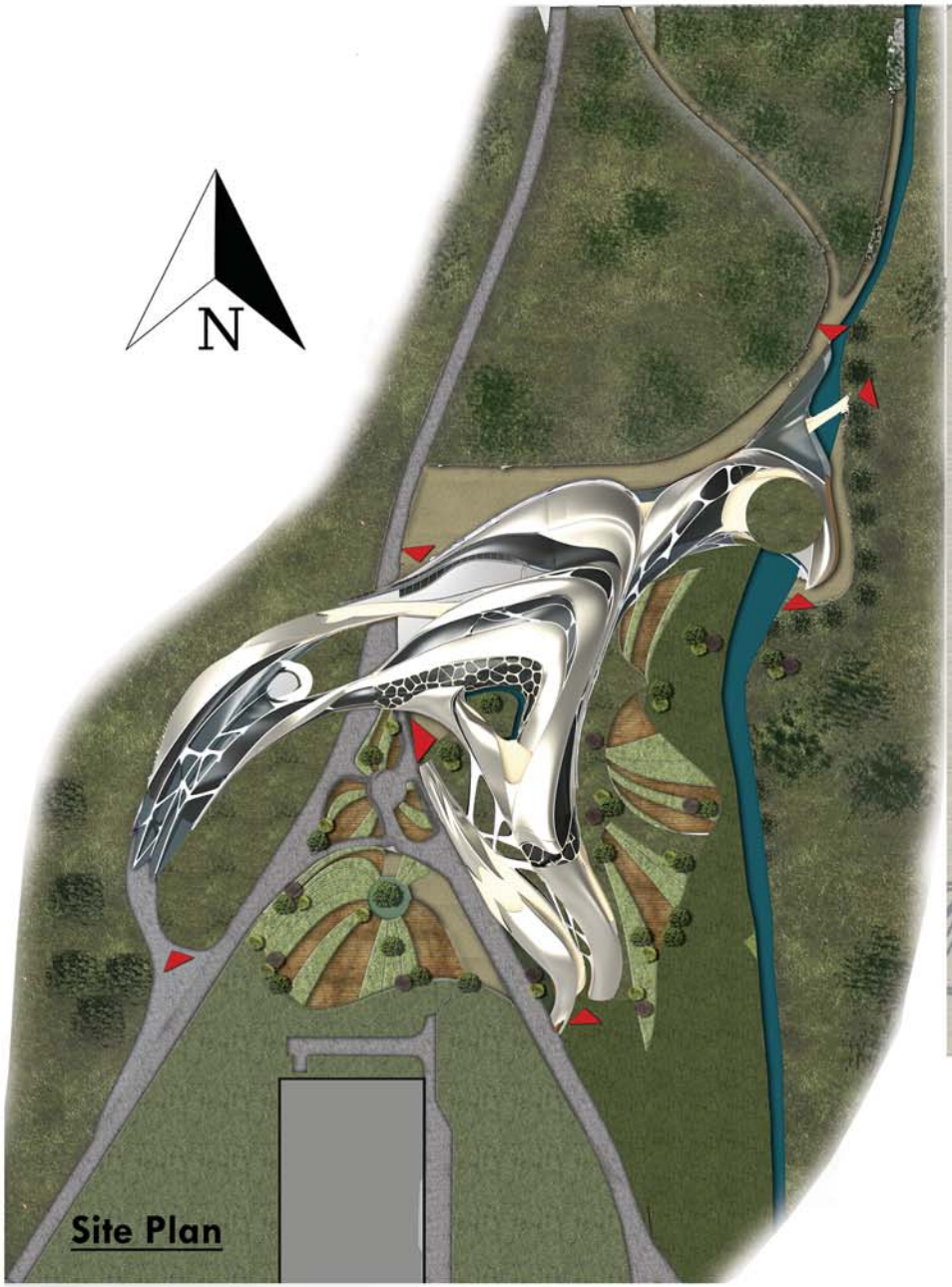
Design aims to control the site in the best way possible that the natural heritage of the site won't be lost. For that reason , the building as a whole aims to 'sit' on the steep topography. Scenerio created for understanding the importance of environmental issues.

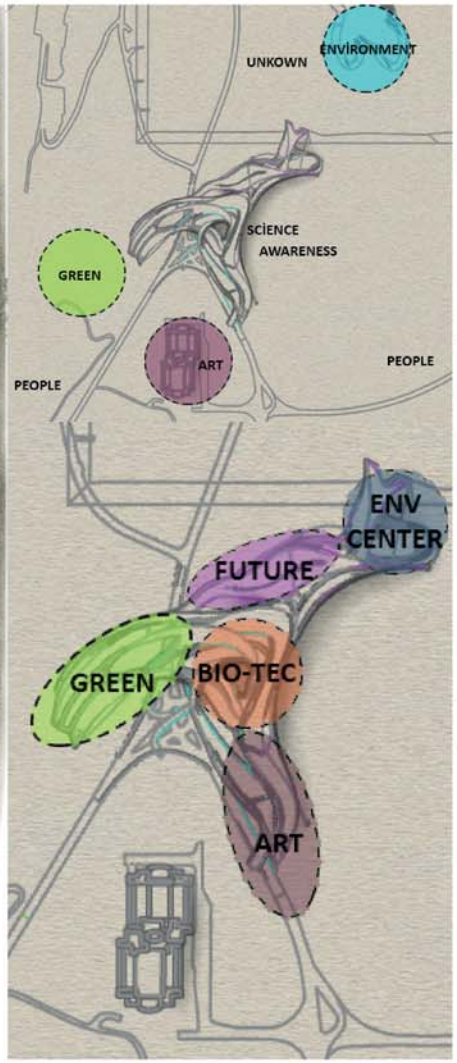
The overall shape of the building takes reference from the surrounding natural and artificial elements. In addition to this, the location, orientation and form of it aims to accomplish environmental and economical profit. Social and aesthetical aspects are incorporated into design to gather user profiles together and work as a science hub for Bilkent University and surrounding educational institutions

Tasarım Felsefesi

Tasarım, çevrenin doğal mirasının kaybolmayacak şekilde kontrol edebilmeyi amaçlamaktadır. Bu nedenle, bina bir bütün olarak oldukça eğimli bir topografyaya oturmayı hedefliyor. Senaryo çevresel sorunların önemini anlamak için oluşturulmuştur.

Binanın genel şekli, çevredeki doğal ve yapay unsurlardan kaynaklanmaktadır. Bunun yanı sıra, konumu, yönelimi ve biçimi, çevresel ve ekonomik kar elde etmeyi amaçlamaktadır. Sosyal ve estetik yönleri, kullanıcı profillerini bir araya getirmek, Bilkent Üniversitesi ve çevre eğitim kurumları için bir bilim merkezi olarak çalışmak üzere tasarıma dahil edilmiştir.





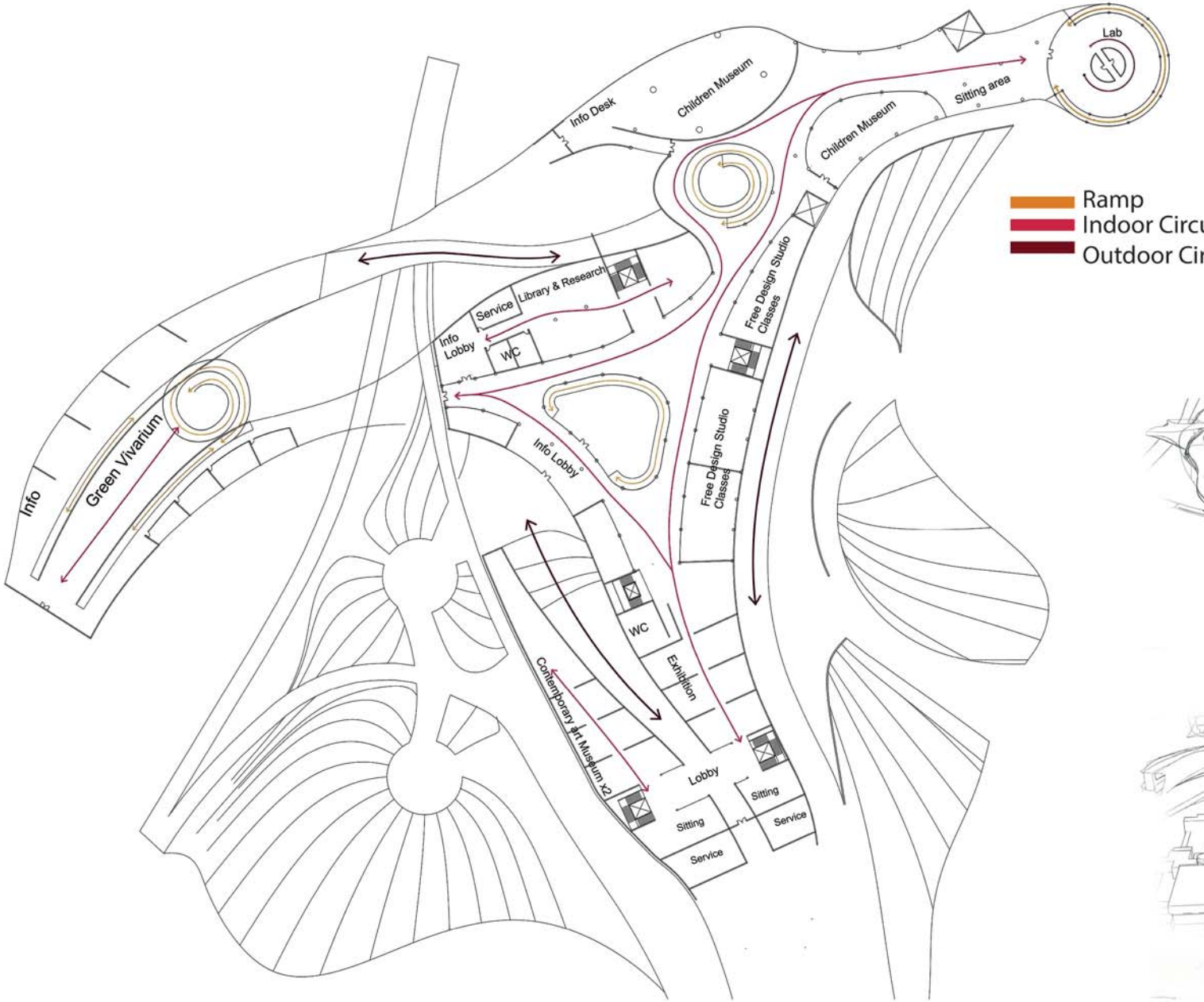
Design Philosophy

Bıo Technology Center aims to research about understnading of behaviour of biological life forms to contribute environmental construction purposes and scenerio ends with Environmental center creating new materials for construction. Those important functions merging with childrens who are our future to create early awareness and be interested by science and sustaniable design of any kind to live for a better world.

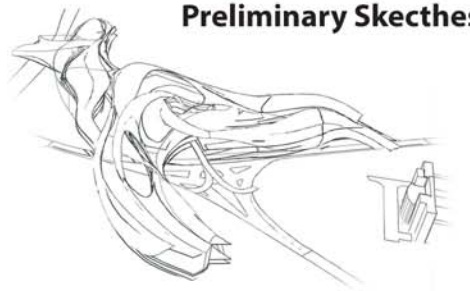
Masses following topography to create a complex unit
Different views creating different spaces with visual interaction.
Courtyards as a design feature which helps environmentally
More freedom of material choices because of context.

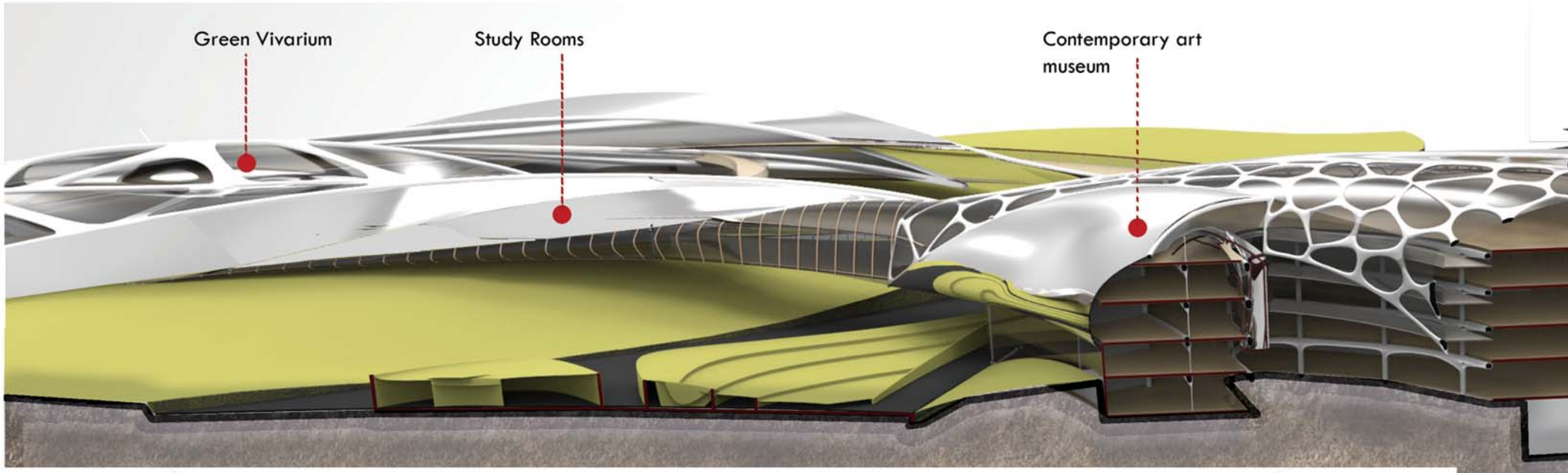
Design Methodology

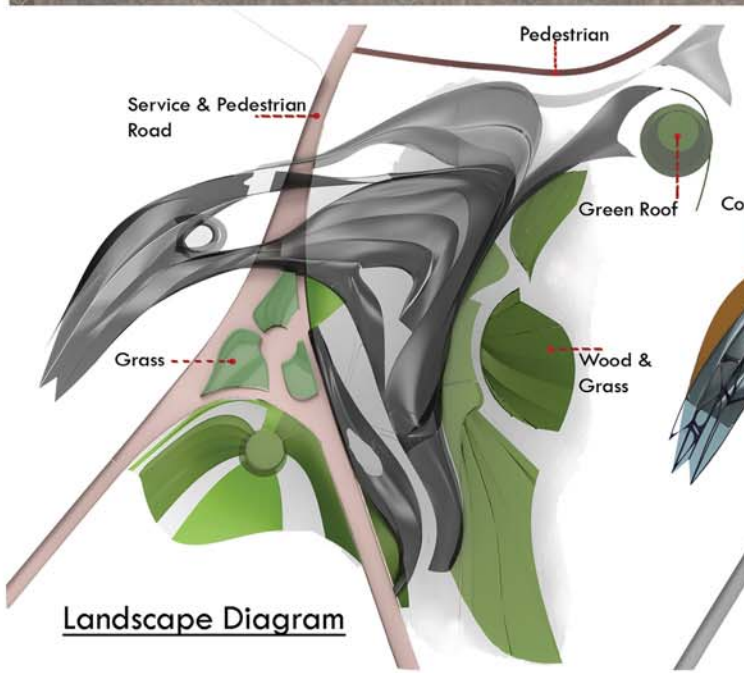
Understanding the context and being aware of natural features of the site, lead us to our first design proposals which continued throughout the journey. These principals helped us choose functions, form, structure and materials that would fit together as a unit and show our approach.



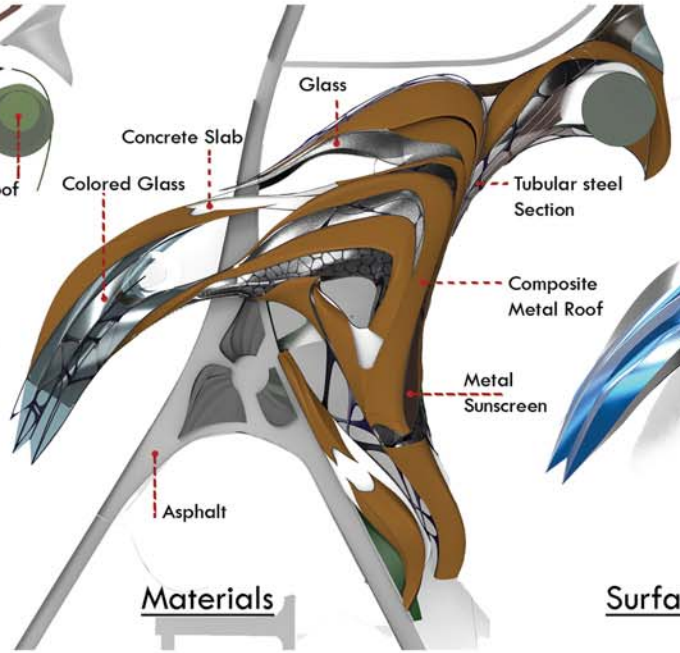
Preliminary Skecthes



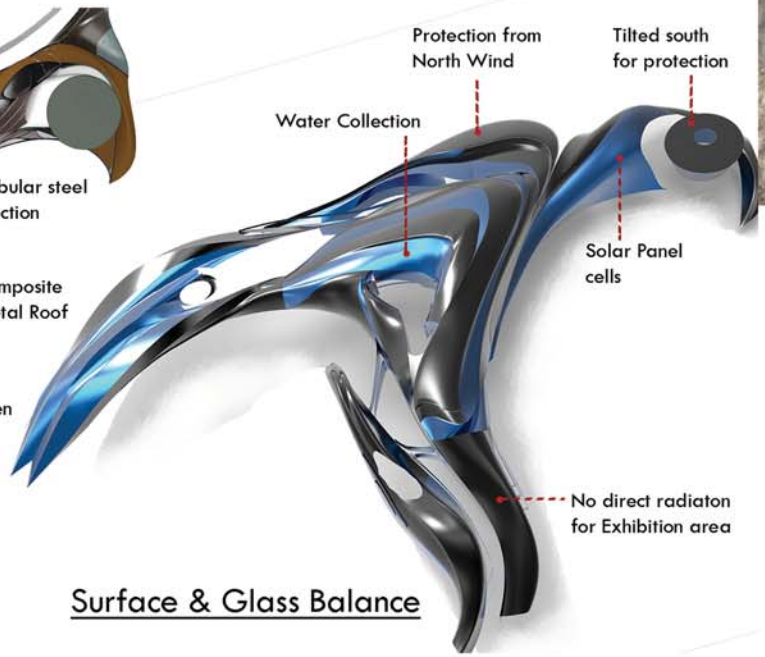




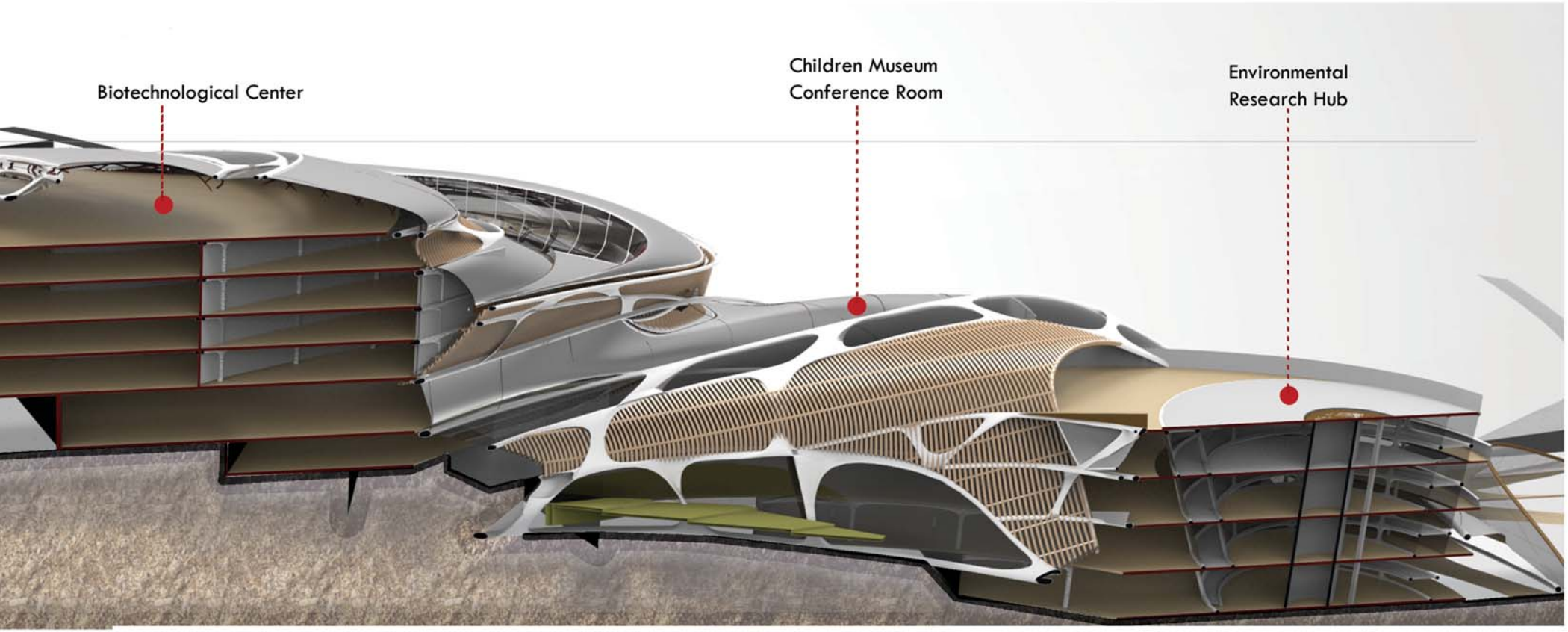
Landscape Diagram

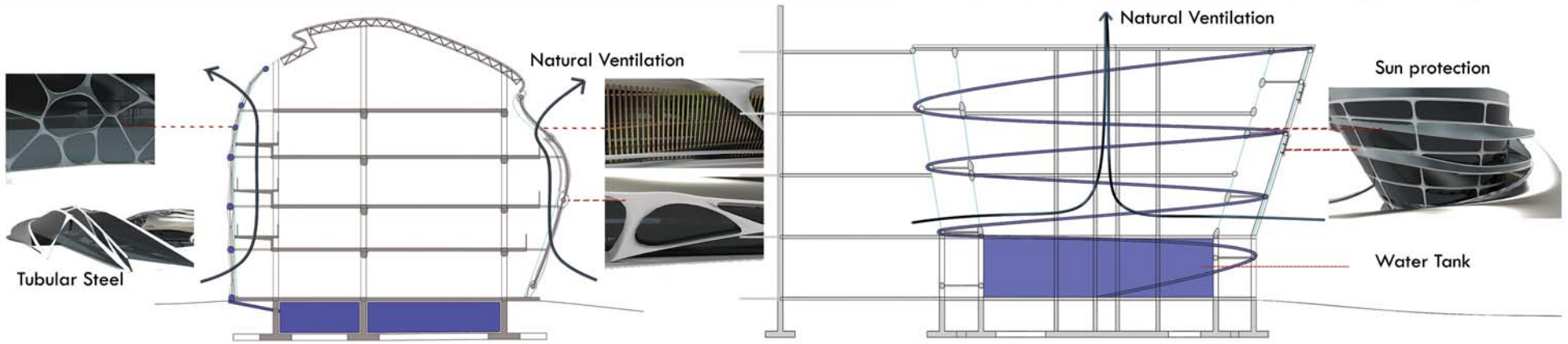


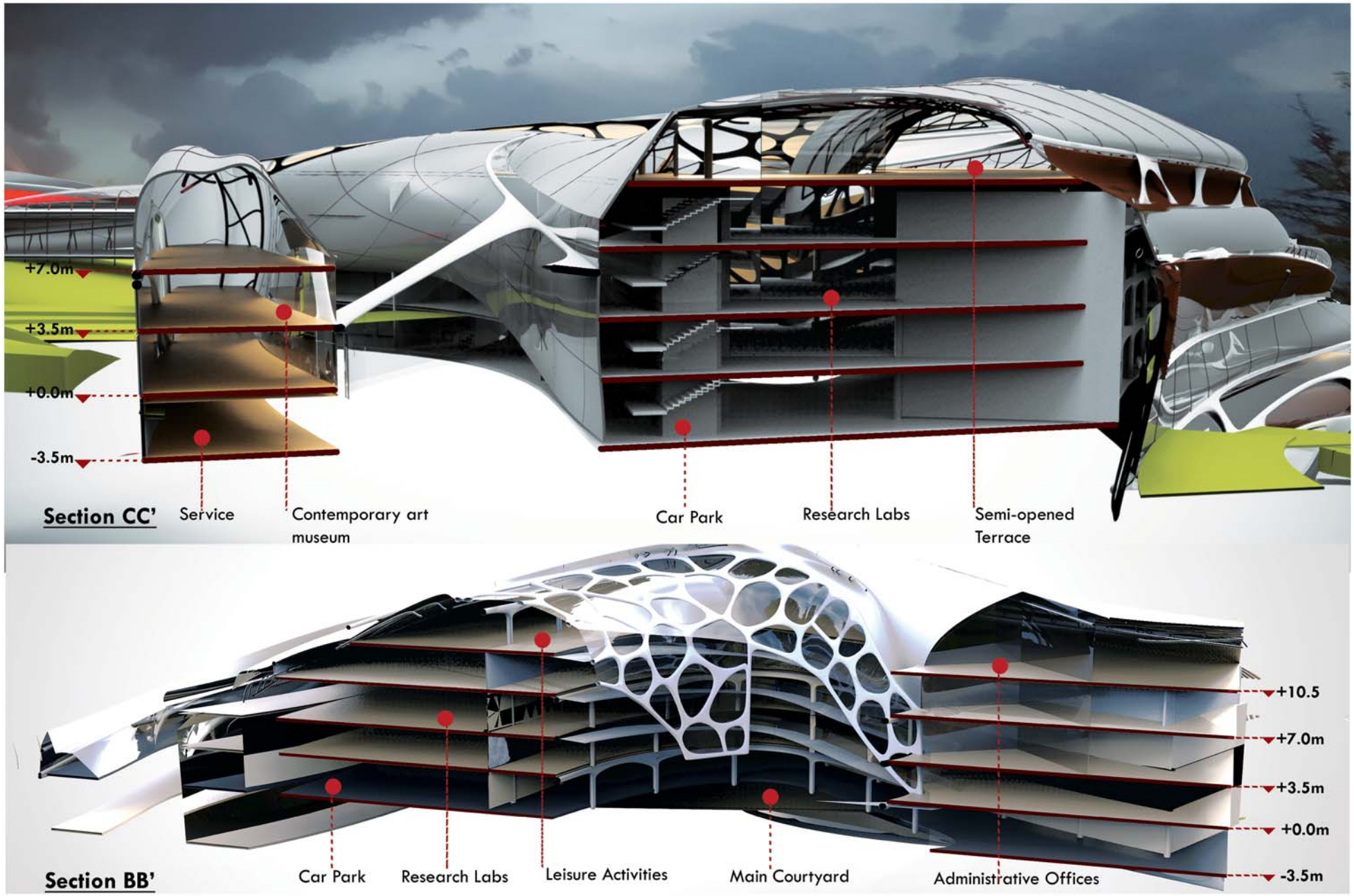
Materials

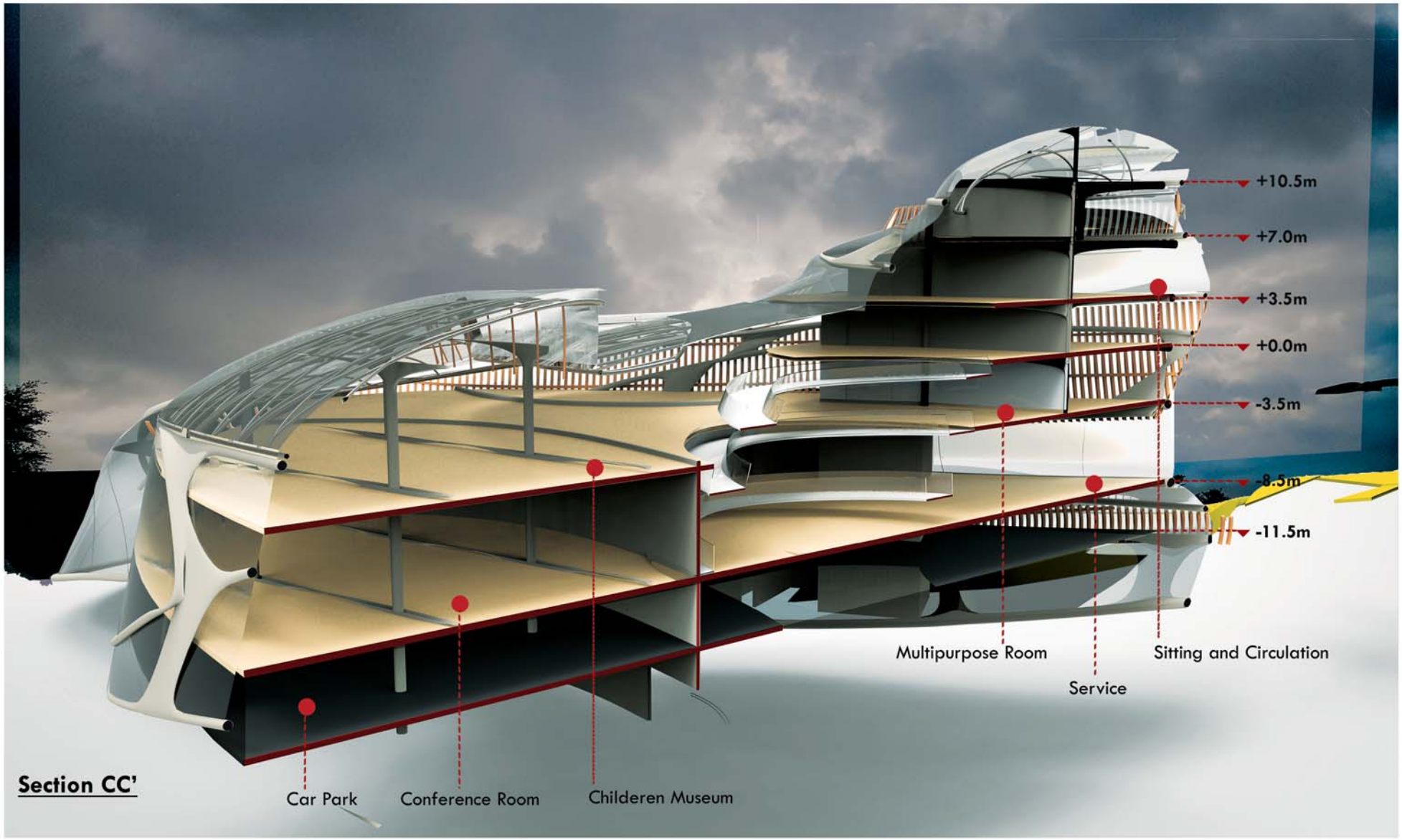


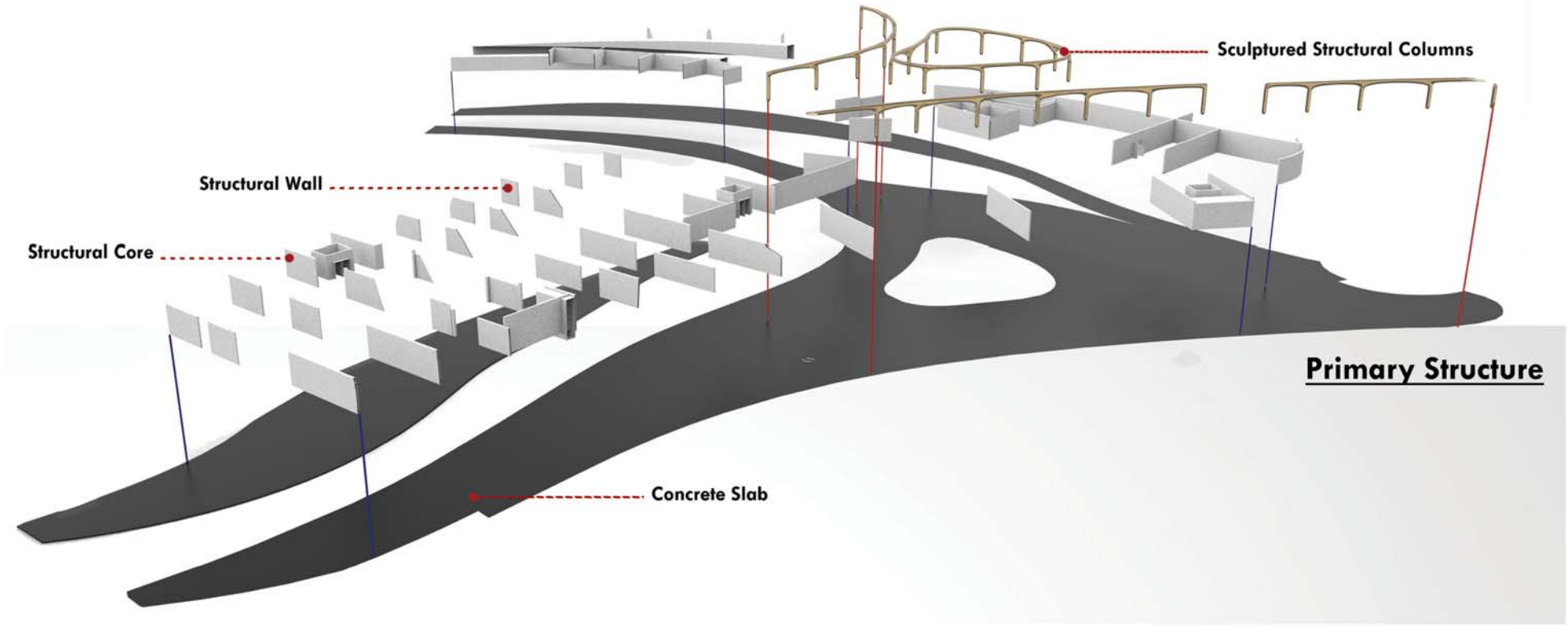
Surface & Glass Balance

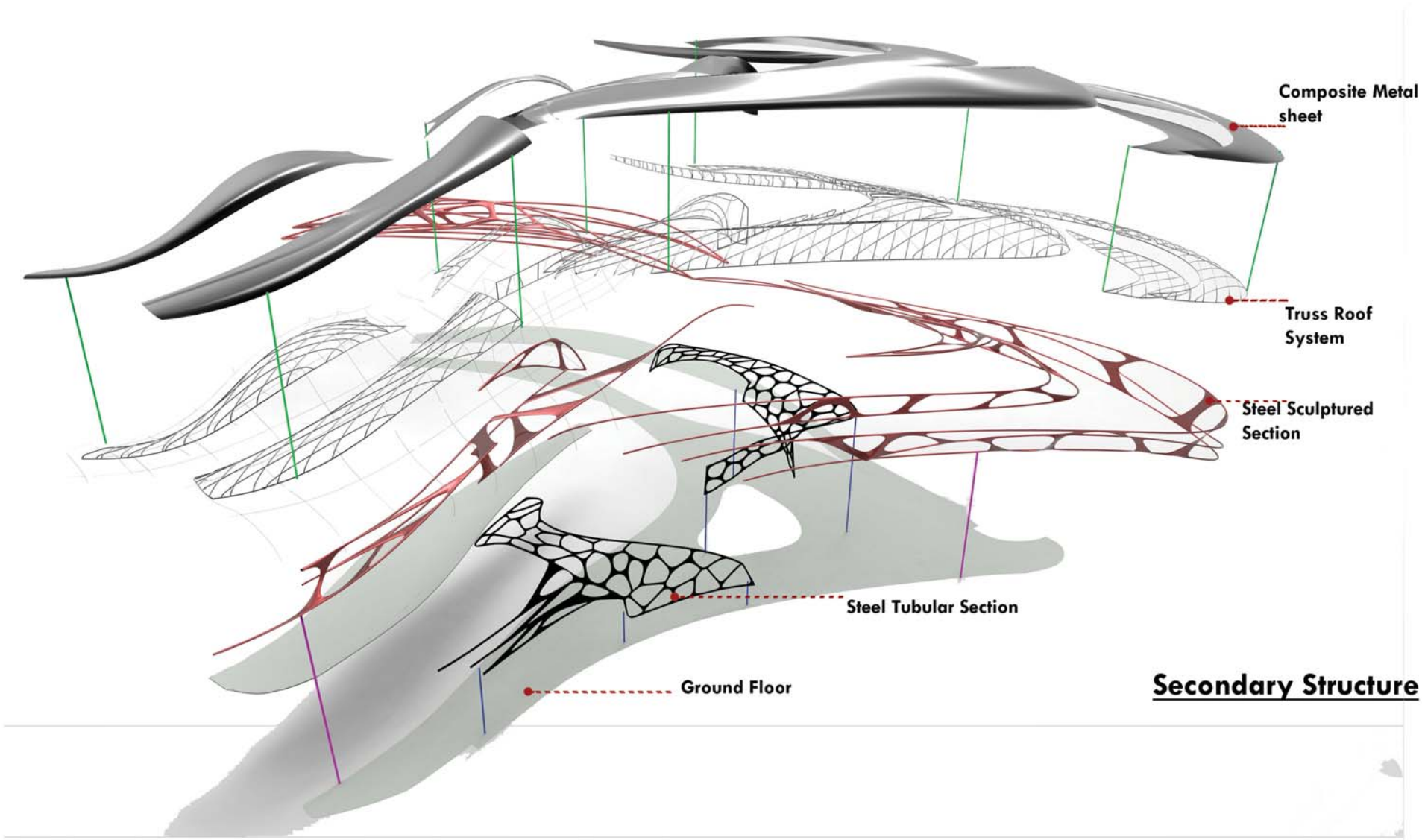

Biotechnological Center
Children Museum
Conference Room
Environmental
Research Hub

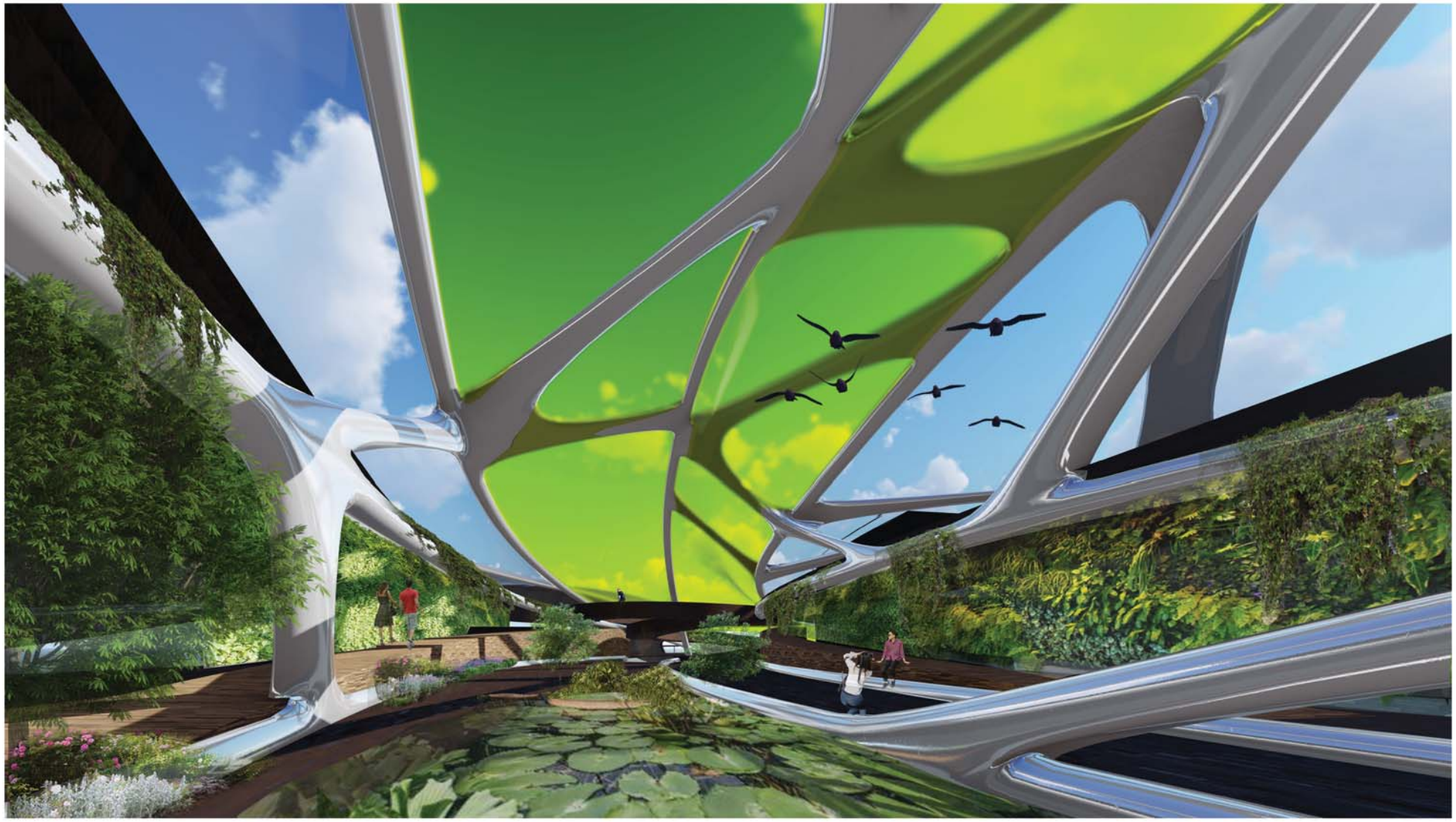

Natural Ventilation
Tubular Steel
Natural Ventilation
Sun protection
Water Tank


+7.0m
+3.5m
+0.0m
-3.5m
Section CC'
Service
Contemporary art museum
Car Park
Research Labs
Semi-opened Terrace
+10.5
+7.0m
+3.5m
+0.0m
-3.5m
Section BB'
Car Park
Research Labs
Leisure Activities
Main Courtyard
Administrative Offices


+10.5m
+7.0m
+3.5m
+0.0m
-3.5m
-8.5m
-11.5m
Multipurpose Room
Service
Sitting and Circulation
Section CC'
Car Park
Conference Room
Childeren Museum

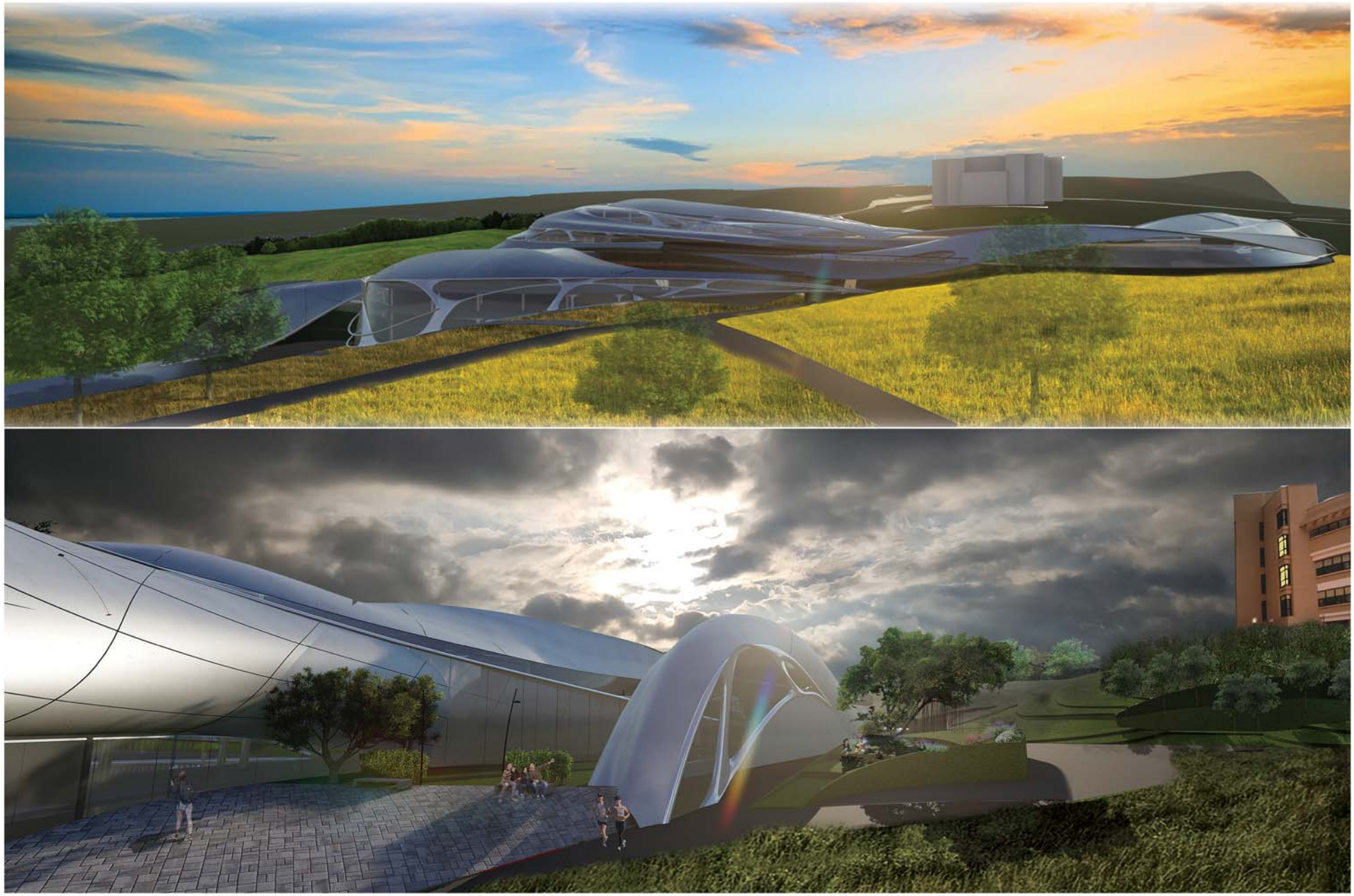

Sculptured Structural Columns
Structural Wall
Structural Core
Concrete Slab
Primary Structure

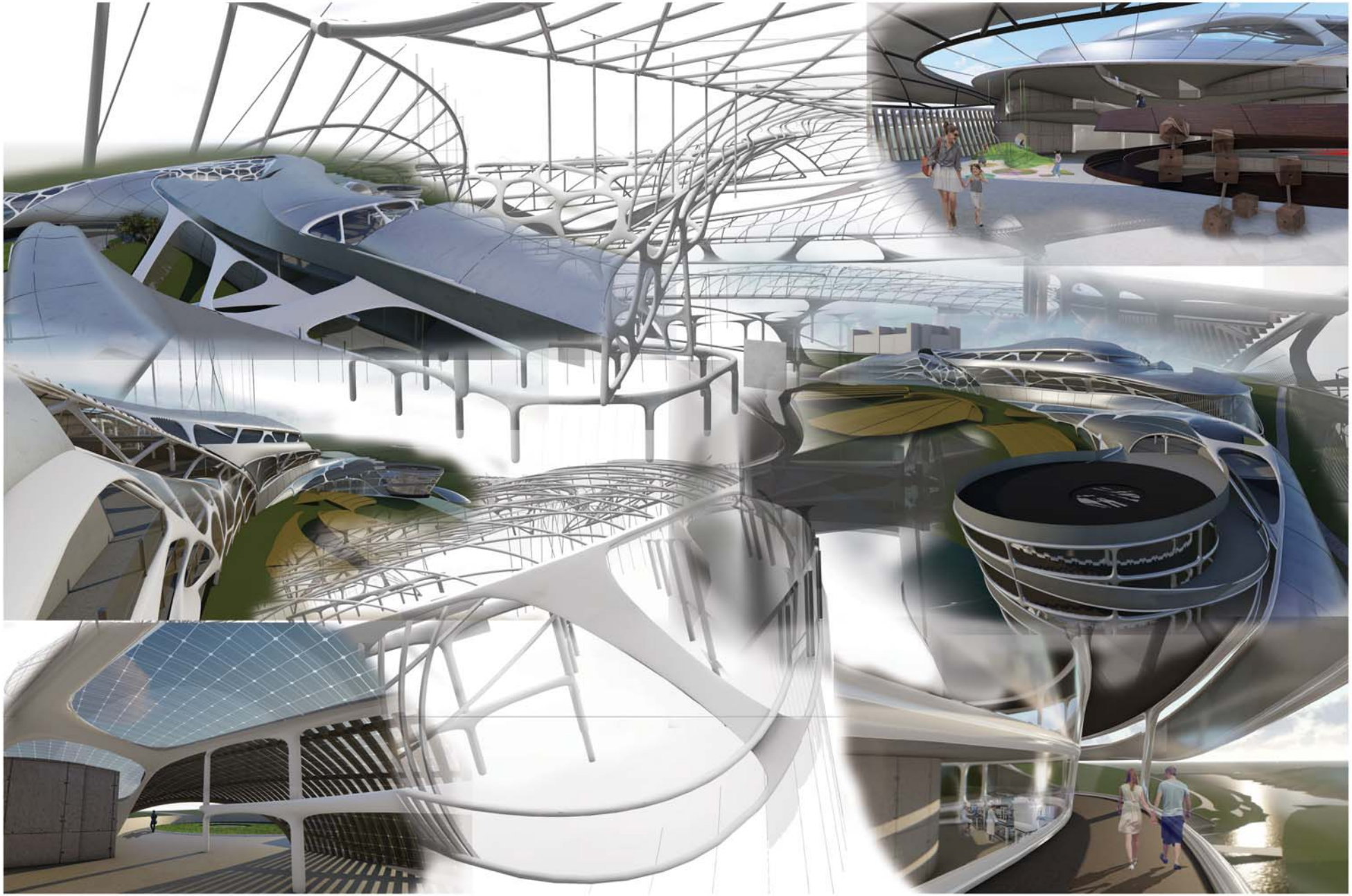

Composite Metal sheet
Truss Roof System
Steel Sculptured Section
Steel Tubular Section
Ground Floor
Secondary Structure



Greenery as an important part of design, both functionally and aesthetically.
Green Vivarium: Scientific Research and permanent green corridor.
Using green as a transition space from existing natural vegetation to a more scientific approach.

Green Courtyards working as natural microclimates, rainwater drainage systems and social hub.





SCHOOL OF ARCHITECTURE AND URBAN DESIGN

LARA ERGÜR

SYSTEMATIC APPROACH FOR DESIGNING

There are five ordering systems while designing being: Environmental, Functional, Economical, Socio-Cultural and Aesthetical aspects. During the design process of the masterplan, all of these aspects were taken into account separately then filtered to get an optimal idealized design for all of the aspects.

The area is designed to be an urban sustainability node having a relation with the surrounding facilities, responding the needs in all aspects and to be a transition zone between the nature and urban fabric.
The individual work is based on the masterplan studies, responding the challenges and opportunities of it.

The major drivers of choosing this particular location are as follows:
- The topography, environment and combination of several elements such as water and land makes the zone very challeging as well as unique.
- The water element in the creek that end up in the lake, forms a natural scene for the structure which combines the natural elements smoothly with built environment. In fact, both natural and manmade environment compliment each other flawlessly.
- The School of Architecture and Urban Design to be erected in this unique location would actually create a natural transition and bridge between the campus and the zone considered in the masterplan.

The existing roads that have been used over the years are being kept as they are in order not to intervene with the natural development of the region.

The natural flow of the water through the creek is kept in its natural bed. However, some additional elements are being designed in order to utilize the water element to the fullest extend both virtually and functionally as well as to control the flow of the water to prevent seasonal flooding.

TASARIMDA SİSTEMATİK YAKLAŞIM

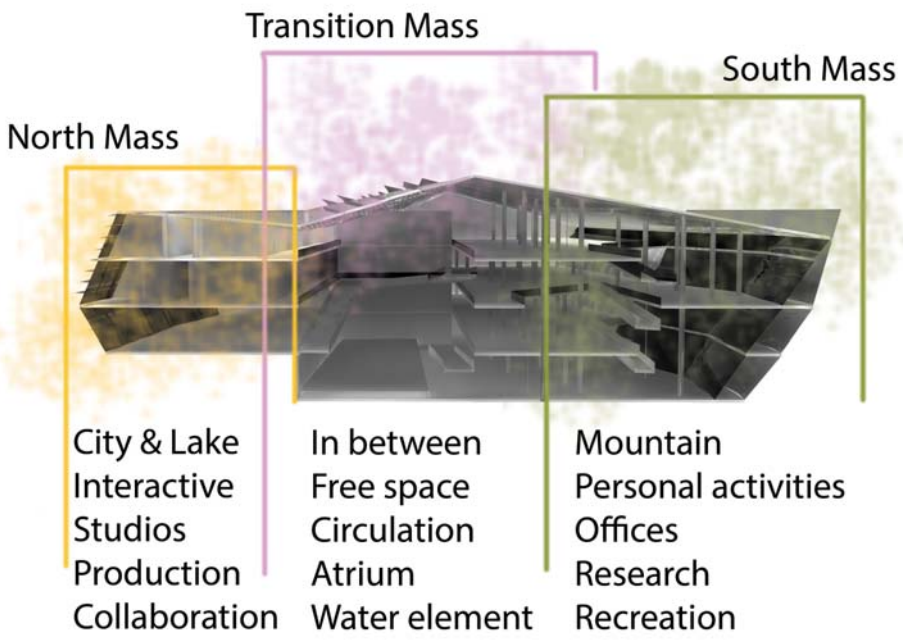
Tasarım yaparken beş düzen sistemi vardır: Çevresel, Fonksiyonel, Ekonomik, Sosyo-Kültürel ve Estetik yönleri. Masterplanın tasarım süreci boyunca, tüm bu yönler ayrı ayrı dikkate alınarak filtrelenerek tüm yönler için ideal idealize tasarım elde edildi.

Bölge, çevredeki tesisler ile bir ilişkisi olan, tüm yönleriyle ihtiyaçları karşılayan ve doğa ile kentsel doku arasında bir geçiş bölgesi olabilen bir kentsel sürdürülebilirlik düğümü olarak tasarlanmıştır.
Bireysel çalışma, masterplan çalışmalarına dayanmakta, zorlukları ve fırsatlarına cevap vermektedir.

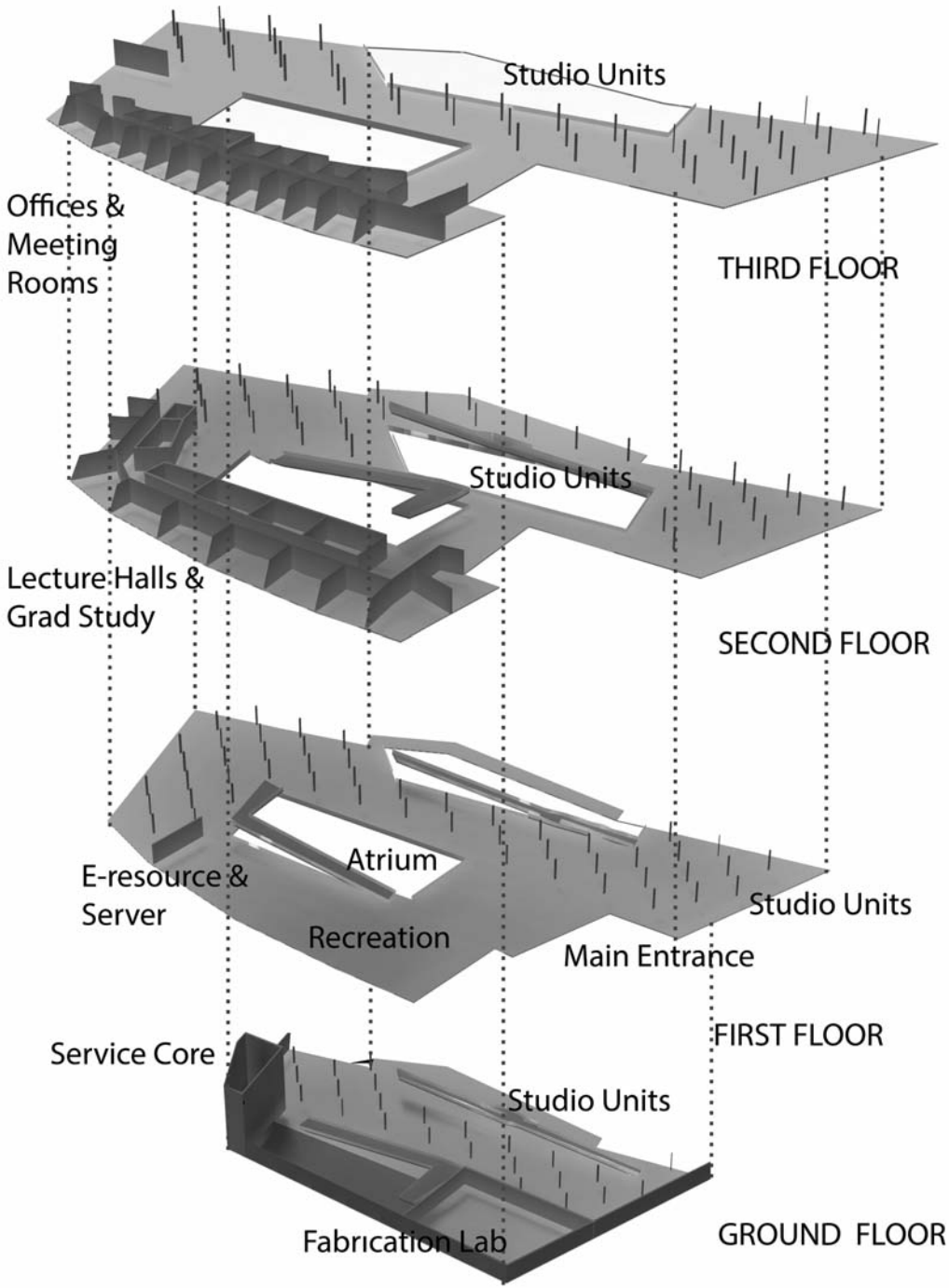
Bu özel konumu seçmenin başlıca etkenleri şöyledir:
- Topoğrafya, çevre ve su ve toprak gibi çeşitli unsurların birleşimi, bölgeyi benzersiz kıldığı gibi çok zorluyor.
- Dere içerisinde bulunan ve gölün içinde yer alan su elementi, doğal unsurları yapılı çevre ile sorunsuz bir şekilde birleştiren yapı için doğal bir manzara oluşturur. Aslında, hem doğal hem de insan yapımı çevre birbirini kusursuz bir şekilde iltifat eder.
- Bu eşsiz mekana dikilecek olan Mimarlık ve Kentsel Tasarım Okulu, aslında kampüs ile ana planda göz önünde bulundurulan bölge arasında doğal bir geçiş ve köprü oluşturacaktır.

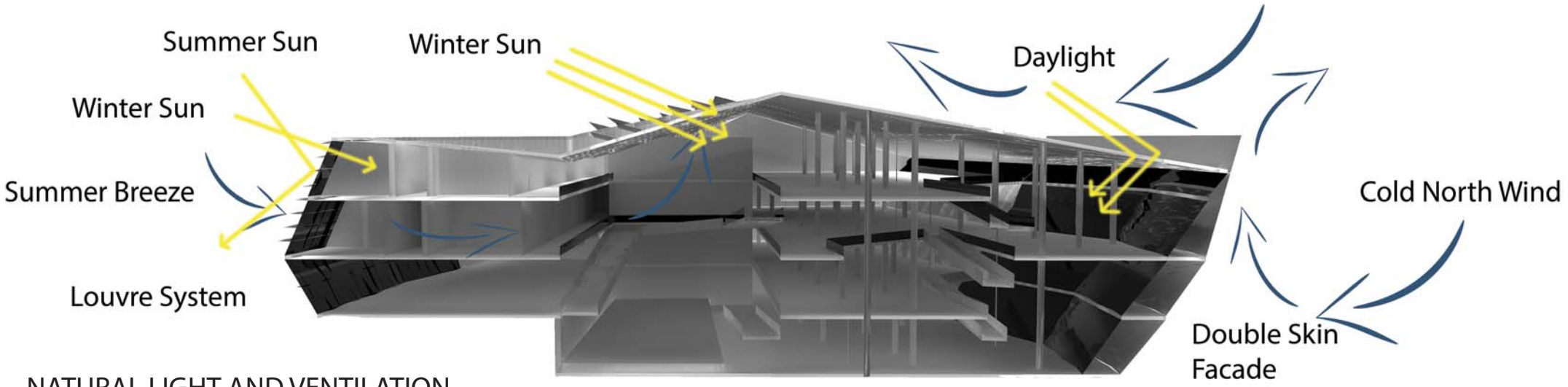
Yıllar boyunca kullanılmış olan mevcut yollar, bölgenin doğal kalkınmasına müdahale etmemek için olduğu gibi tutulmaktadır.

Dere boyunca suyun doğal akışı doğal yatağında tutulur. Bununla birlikte, su elemanını hem gerçek hem de işlevsel olarak sonuna kadar kullanmak için ve mevsimlik sel oluşumunu önlemek için suyun akışını kontrol etmek amacıyla bazı ek elemanlar tasarlanmaktadır.

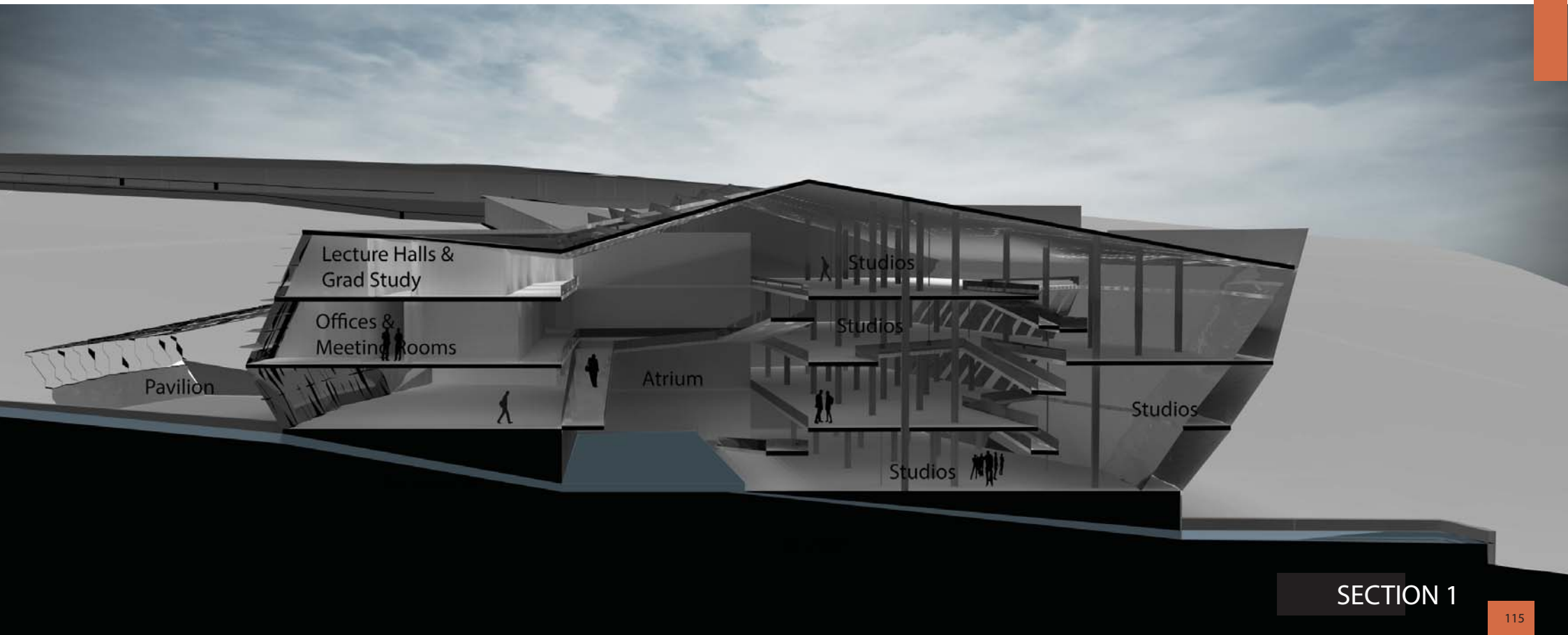


EXPLODED AXONOMETRIC PLANS



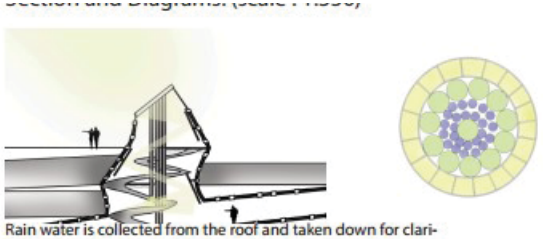


NATURAL LIGHT AND VENTILATION

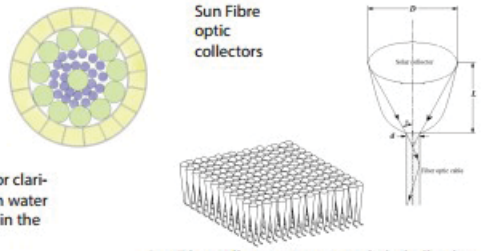


SECTION 1

NORTH ELEVATION



Rain water is collected from the roof and taken down for clarifying with algae. the dark blue water tanks are the main water storage and they provide hot and cold water as shown in the diagram.



Sun Fibre collectors are passive light bulbs that collect and concentrate sunlight and distribute them. At night, they have transformers and they turn into led lights,thus not needing a second light source.

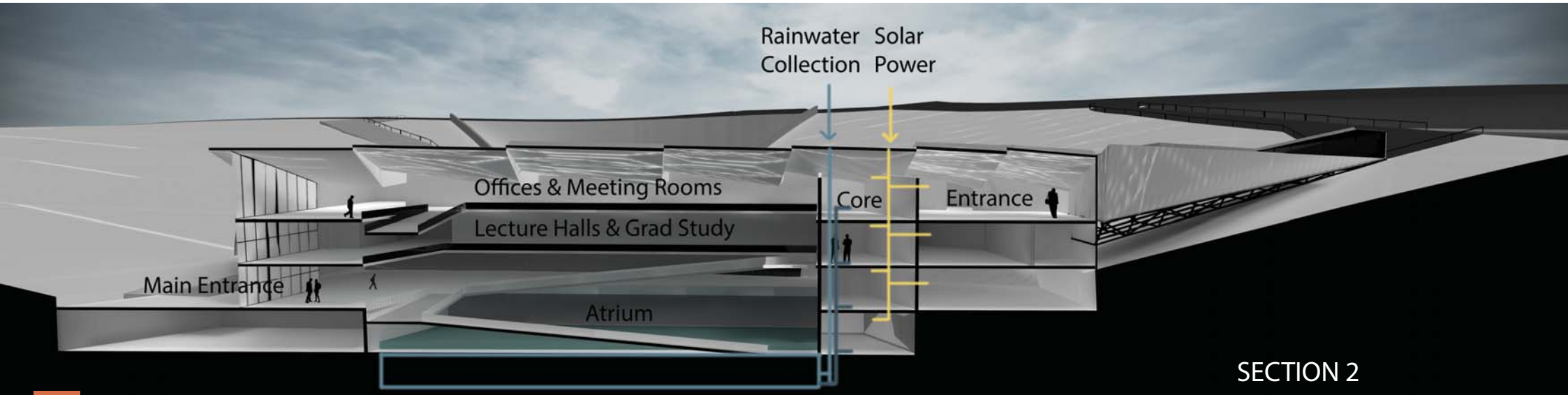
ATRIUM SPACE

BUILDING FEATURES

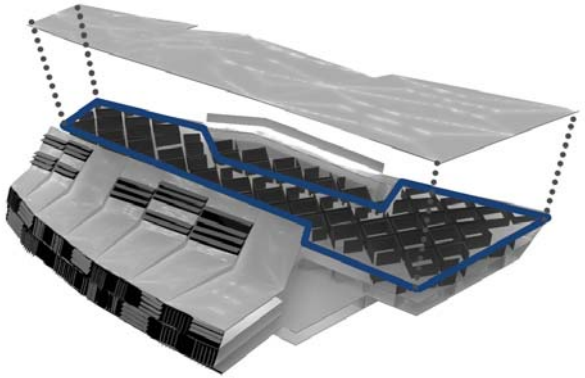
The faculty building aims to be a prototype of what is being thaught and how the future buildings should be. It integrates ecologically sustainable features, uses local material and blends to where it is located.

The building is located on top of an existing creek, being able to control it and make use of it on environmental basis. The water running down the creek is passing through a manmade dam before it reaches to the building, losing its strength. The pool on the ground level of atrium space is filled with the water of the stream and then released to reach the lake.

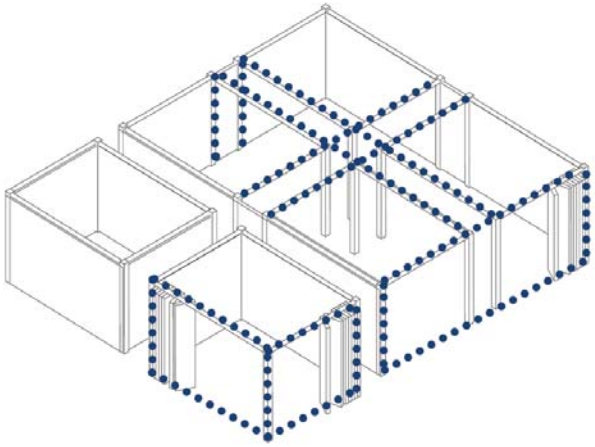
The building contains solar panels on top, providing energy. Also the rainwater is collected through the green roof and recycled. The core is the main hub to achive this where all the service facilities are located.



SECTION 2



STRUCTURE OF UNIT SYSTEM



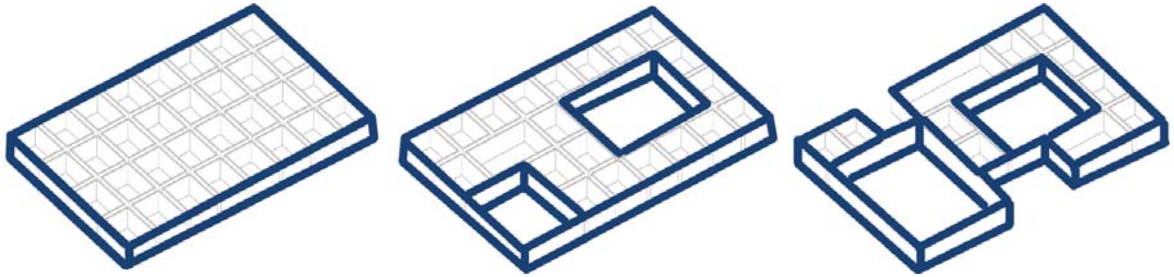
VERTICAL STUDIO SYSTEM WITH HIGH TECH EQUIPMENTS

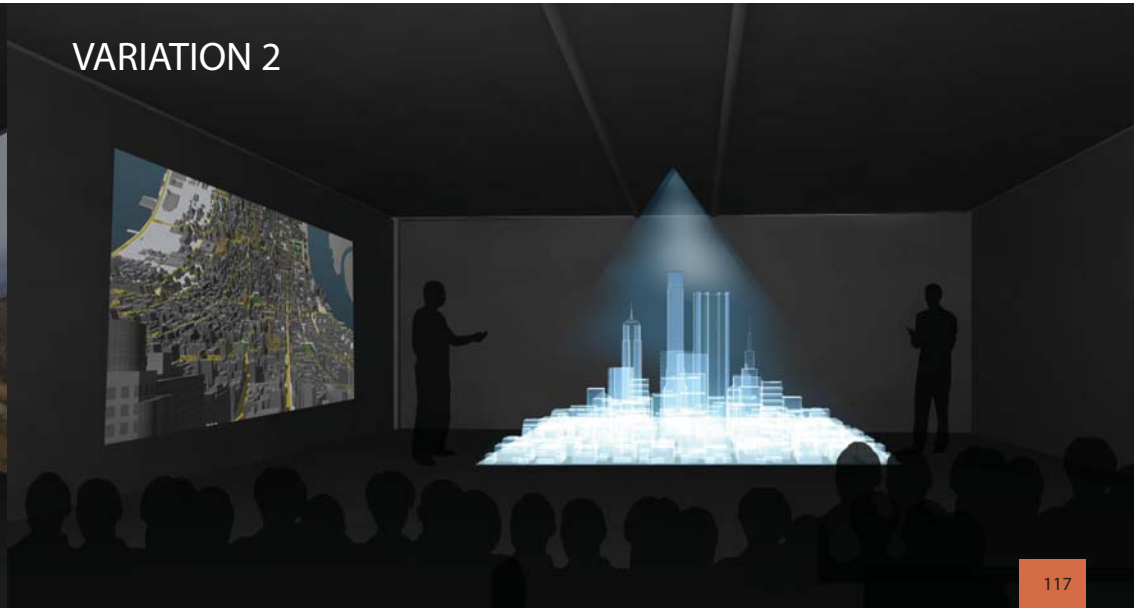
The future of architectural education and design is based on highly technological equipments, generative design and vertical studio system where collaboration is encouraged in between different cohort groups.
The plan of the studios will be based on a grid system where the movable panels are fully equipped with screens and devices to design digitally on holograms.
The spaces can be enlargened depending on the number of people and the activity performed.

A NEW WAY TO VISUALIZE ARCHITECTURE: HOLOGRAM

There is a new way to visualize architecture and communicate its design. It is a new method which comes in the form of the "holographic architectural representation system". The advantages to the holographic presentation system are many. In fact, the following are just a few: Easy to store and travel with, Full color: you can see materiality in the model, Fast to produce, Can use channeling feature: allowing up to four images on one holographic print.

UNIT SPACE OPTIONS: EXPANDING TYPOLOGIES





EAST ELEVATION

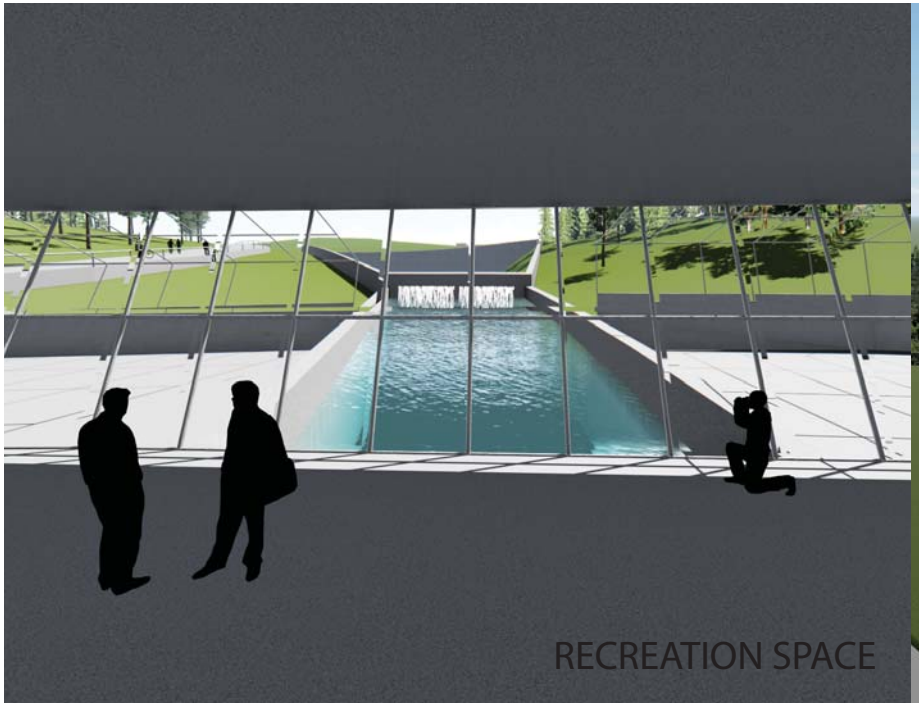
The existing road is slightly rerouted to pass by the water reservoir ending up at the main entrance of the building. The topoghraphic characteristics are being kept in order not to intervene with the existing landscape as much as possible. The road leads to an open square to which the main entrance is neighbouring.

WEST ELEVATION

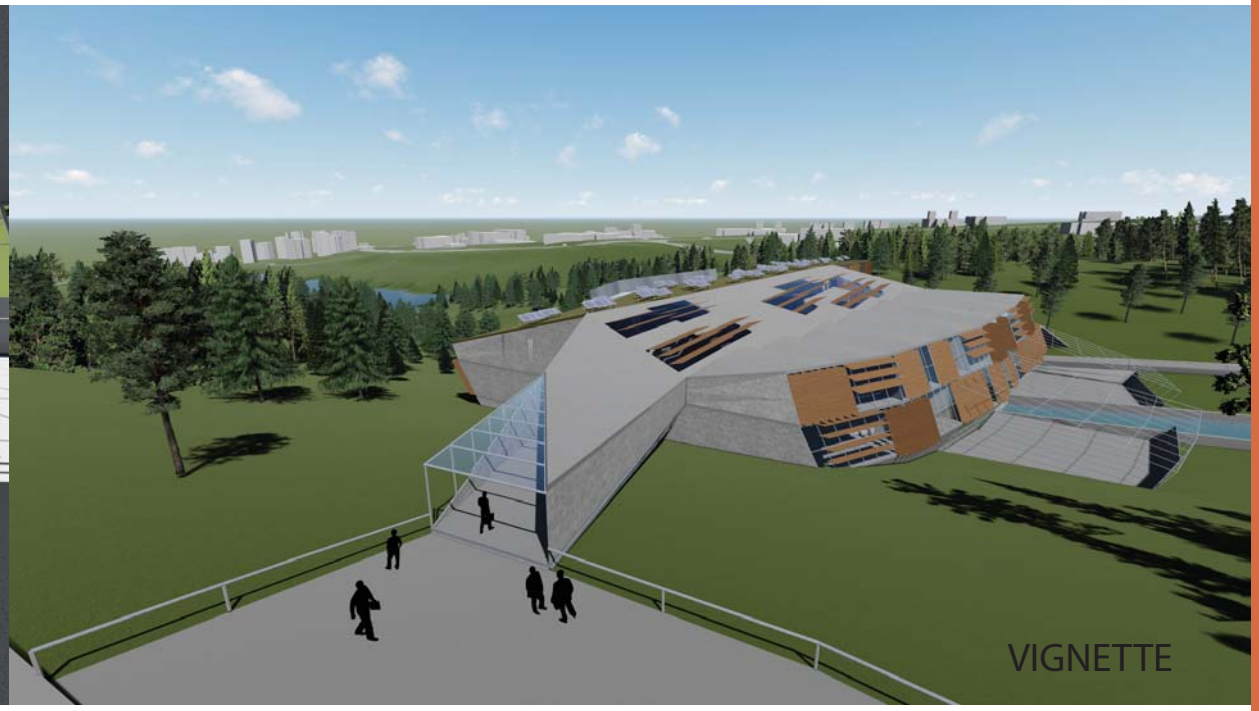
A quasi tunnel bridge on the other side of the building- connects the building with the carpark. The tunnel structure forms an enigmatic atmosphere. This structure is connecting to the top level of the building with the existing road.

SOUTH ELEVATION

The South facade of the building is designed considering mainly the sun orientation. The louvres covering the glass facade, are planned to be flexible and adjustable as per the season and the hour of the day in order to control the quality of the light in the building. The North facade, on contrary has limited amount of glass windows to minimize the heat loss and optimize the light.

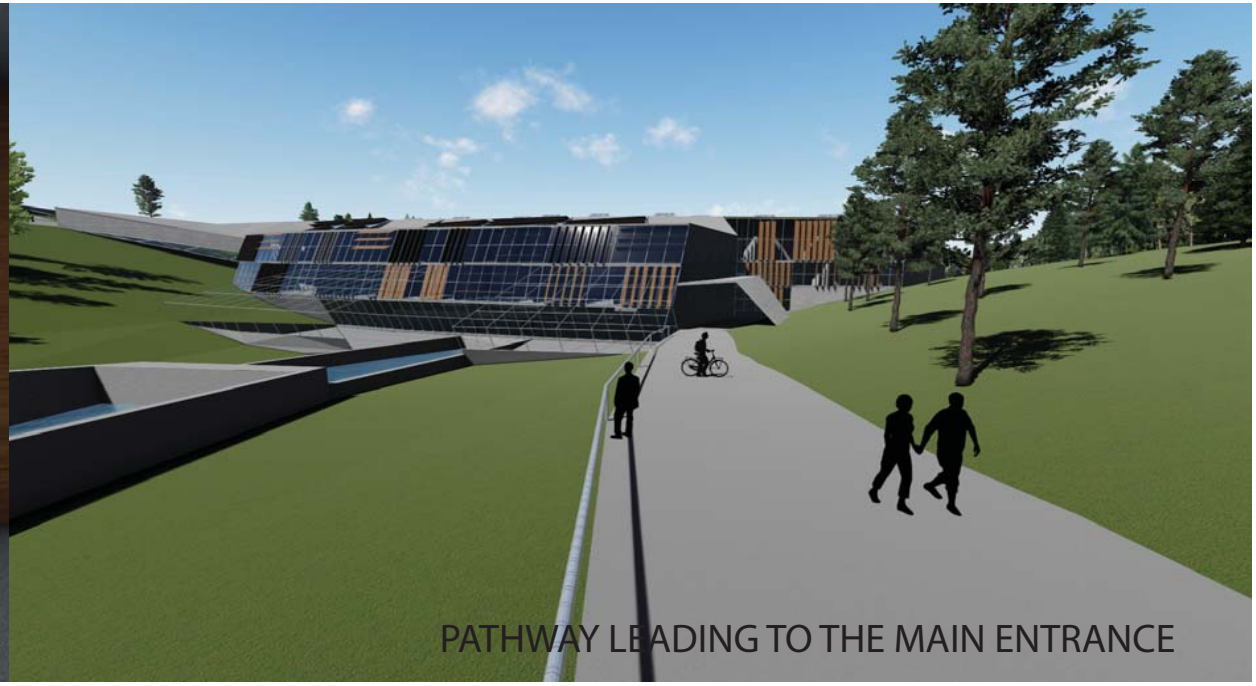


RECREATION SPACE



VIGNETTE

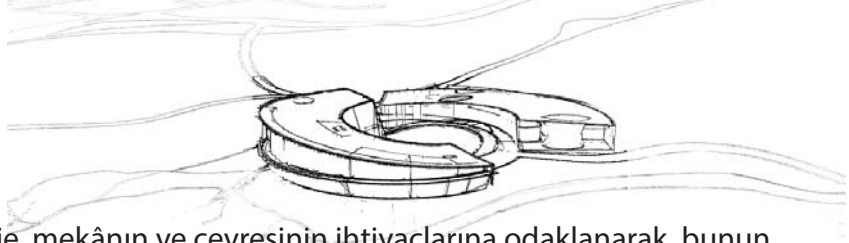
LAKE VIEW FROM THE STUDIO



PATHWAY LEADING TO THE MAIN ENTRANCE

INNOVATION AND SCIENCE HUB

SENA DENİZ GÜLSOY



The project focuses on the needs of thr space and its surrounding, responding the challenges and oppurtunities of it. Regarding to the researches, there are three innovation centers in Turkey; hence this is the first inovation and science center in Ankara. One of the main point of this design is to refer to each age. Even it is more open to the students, bussiness men can also take advantage from this building. This project is more detailed and comprehensive technology center than Teknokent in METU.

The building is located at the center of the site and the main loop is defined where buldings are evolving around. Innovation is not a linear process that follows a singular systematic approach. Turning ideas into pioneering innovtions requires a systematic approach, so does it is a journey in a loop. Each space is inspired from one another.

The main approach is transition in the team masterplan, there is a relation between spaces: public to private. Between two masses and among floors, there is a flow of journey: creation, study, research. The main concept of the design is openness which is both in terms of view and literal. This center is a local, regional and internatonal center of education and culture. The design and activities will invite from the world to work, study and be creative.

The highlighter environment in the design is the “Garage”. The Garages are focussed on intense idea-generation and spaces where the users can invent their own rules for collaboration.

The design has humongous concrete column structures, carry wide spans. Slabs are shaped with respect to topography lines, bended. Columns are also acts as rain water collectors, which carry water to the laboratories. These environmental analytical research labs produce clean watera and revitalize lake diversity within innovative examinations and works.

What makes the design hilarious is the colored stainless glass. It maintains an experience of space. Usage of colors enhances thinking, creaivity and cognitive skills. Architecture is completed with the experience of space. Materiality and use of natural light are of great importance in the design.

Proje, mekânın ve çevresinin ihtiyaçlarına odaklanarak, bunun zorluklarına ve fırsatlarına cevap veriyor. Araştırmalara göre Türkiye'de üç yenilik merkezi var; bu nedenle bu proje Ankara'daki ilk inovasyon ve bilim merkezi olucak. Bu tasarımın ana noktalarından biri, her yaşa hitap etmesidir. Öğrencilere daha açık olsa bile, iş adamları bu binadan da faydalanabilir. Bu proje ODTÜ'de Teknokent'ten daha detaylı ve kapsamlı bir teknoloji merkezidir.

Bina, arazinin merkezinde yer almakta olup, ana yolun etrafında gelişen binalar ile tanımlanmaktadır. İnovasyon, tekil bir sistematik yaklaşımı izleyen doğrusal bir süreç değildir. Fikirleri öncü inovasyonlara dönüştürmek sistematik bir yaklaşım gerektiriyor, bu yüzden bu bir döngü içinde bir yolculuktur. Her alan birbirinden ilham alır.

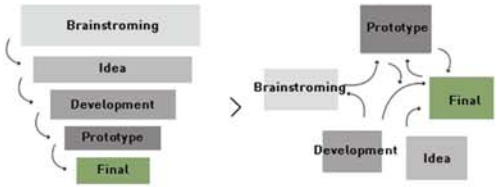
Ana yaklaşım, takım ana planında geçiş, boşluklar arasında bir ilişki vardır: kamudan özele. İki kitle arasında ve katlar arasında, bir yolculuk akışı vardır: yaratma, çalışma, araştırma. Tasarımın ana kavramı, hem bakış açısından hem de anlam bakımından açıklıktır. Bu merkez yerel, bölgesel ve uluslararası bir eğitim ve kültür merkezidir. Tasarım ve faaliyetler dünyadan çalışmak, incelemek ve yaratıcı olmak için davet edecektir.

Tasarımdaki vurgulayıcı ortam “Garaj” dır. Garajlar, yoğun bir fikir nesline ve kullanıcıların işbirliği için kendi kurallarını icat edebilecekleri alanlara odaklanıyor.

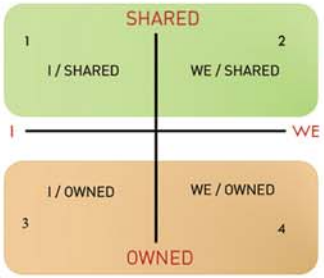
Tasarım, çok büyük beton sütun yapılarına sahiptir, bunlar geniş açıklıklar taşır. Levhalar topografya hatlarına göre şekillendirilmiştir, bükülmüşlerdir. Sütunlar aynı zamanda laboratuvarlara su taşıyan yağmur suyu toplayıcıları olarak görev yapar. Bu çevresel analitik araştırma laboratuarları, yenilikçi araştırmalar ve çalışmalarda temiz deniz suyu üretmekte ve göl çeşitliliğini canlandırmaktadır.
Tasarımı eğlenceli kılan, renkli paslanmaz camdır. Bir mekan deneyimi yaşatır. Renklerin kullanımı; düşünme, yaratıcılık ve bilişsel becerileri geliştirir. Mimarlık mekân deneyimi ile tamamlanır. Tasarımda materyal seçimi ve doğal ışığın kullanımı büyük önem taşımaktadır.

WHAT IS AN INNOVATION CENTER?

Innovation is not a linear process that follows a singular, systematic approach.



what do we share?
what do we own?

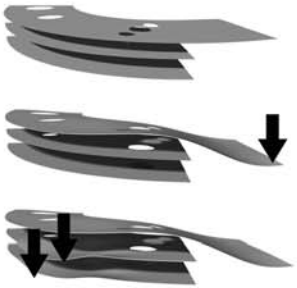


Start-ups
Developing a beginning → Needs more educational advice
ideas
Beginning a creation

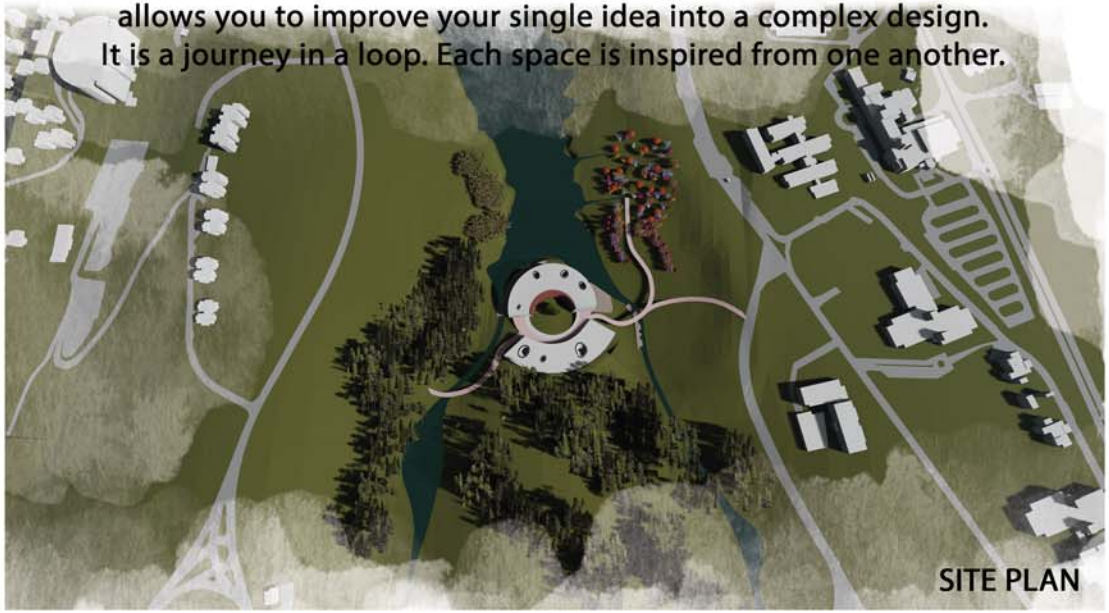
turning ideas into pionerring innovations

Developing an idea → now you have an idea and want to develop more

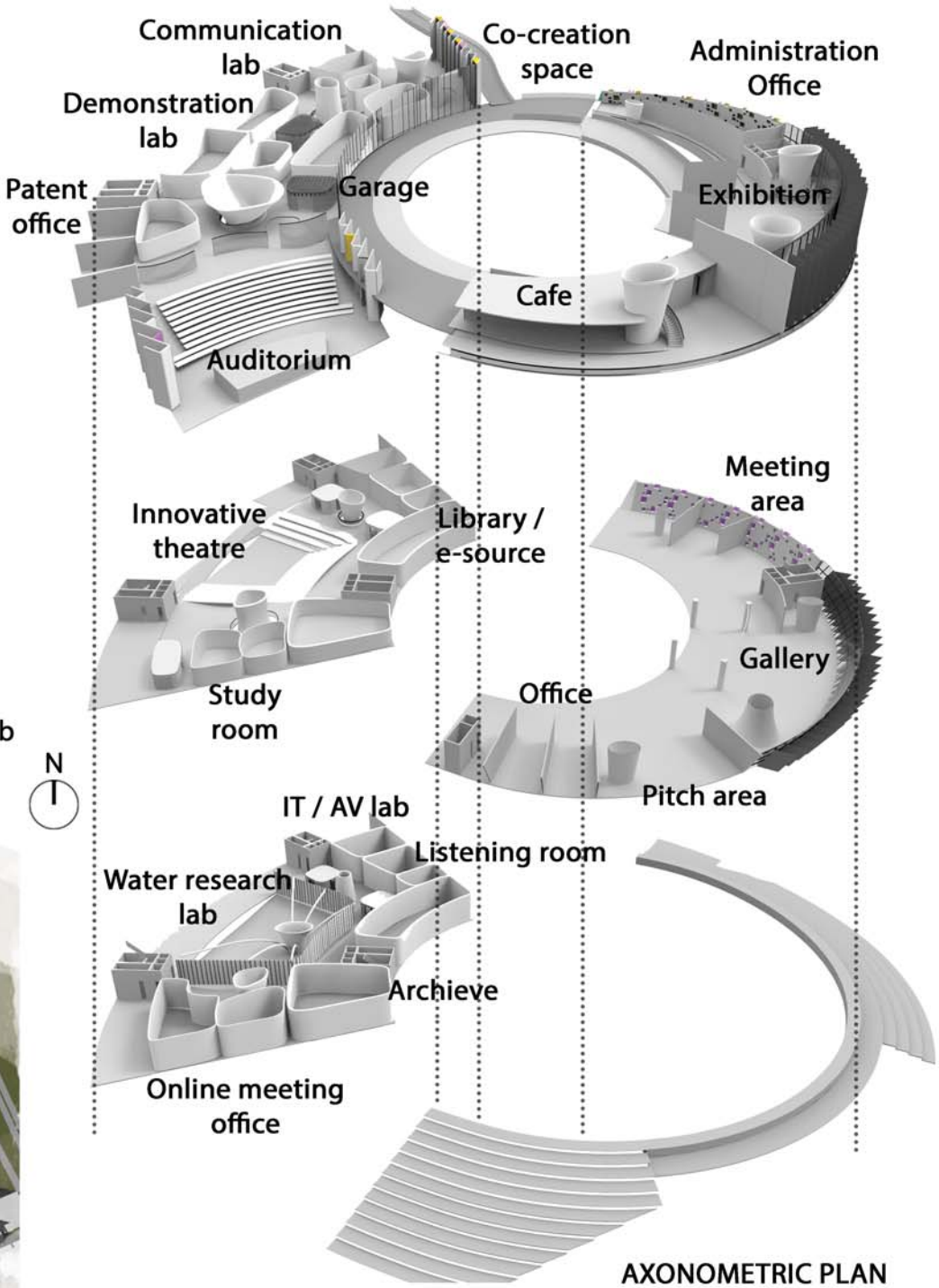
Concrete slab shaping according to topography lines



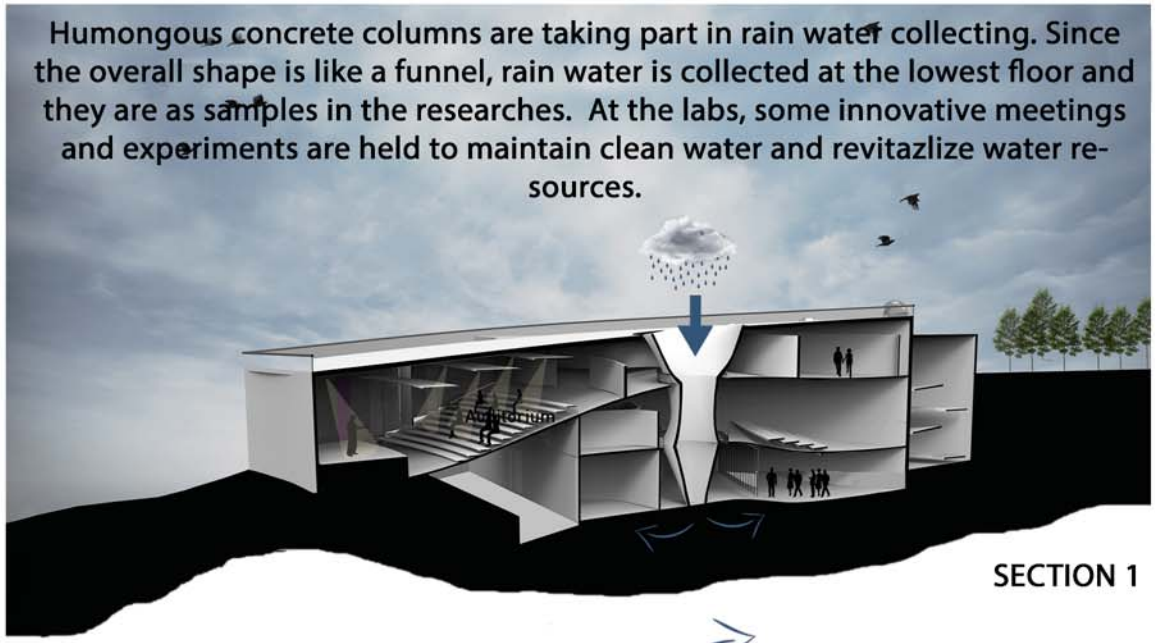
Buildings are evolving around the main circulation. Innovation & Science Hub allows you to improve your single idea into a complex design. It is a journey in a loop. Each space is inspired from one another.



SITE PLAN

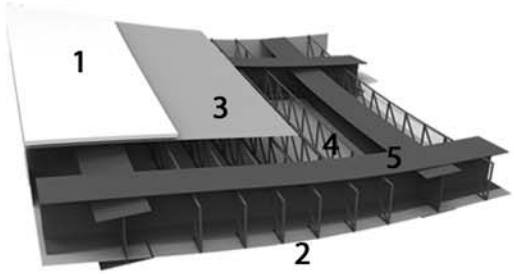


AXONOMETRIC PLAN

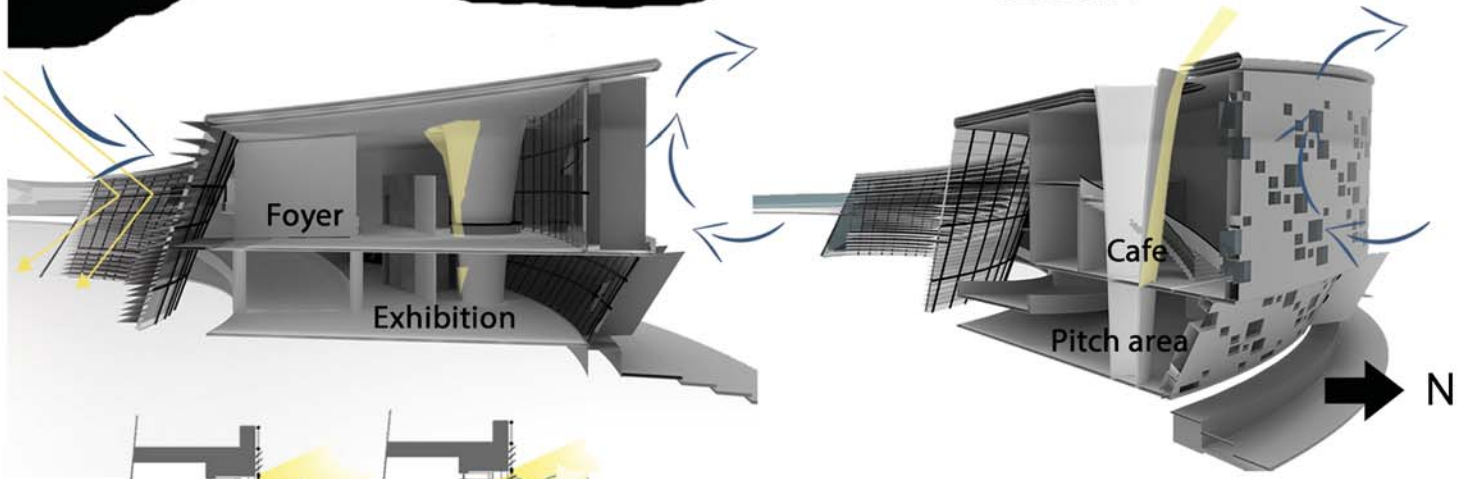


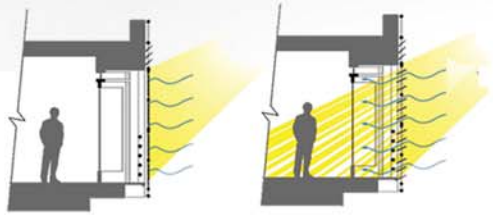
SECTION 1

Floor construction:
1. Sprayed plaster
2. Expended metal fine-mesh reinforcement shell
3.Sprayed insulative concrete
4.Prefabricaed steel reinforcement
5.Steel frame



Column-slab construction:
Humongous columns and bended slabs have a common system which is continous and allows flexibility. The system is responsive to its environment since the slabs are following the topography lines.





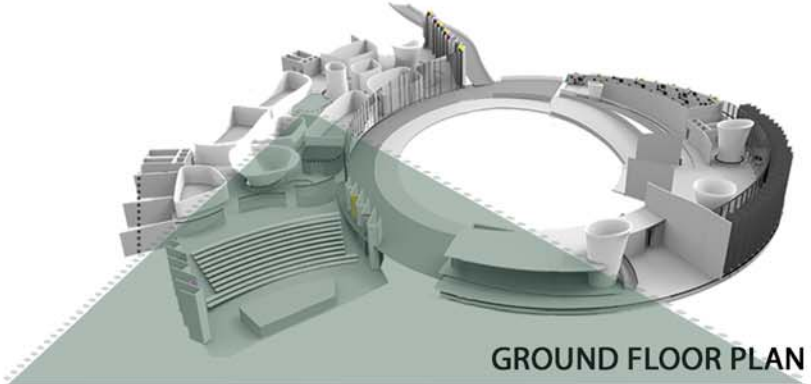
Thermal wind

Solar

Façade treatments:
In order to control the natural light and wind, deep windows and both horizantal and vertical louvres are used.
North façade:
Foyer is flexible with the help of kinetic vertical louvre system which is responsive to the wind strenght.
Cafe, administration spaces are more enclosed with the concrete wall which has deep windows to control both light and wind. They are colorized in order to have different experience of space everytime.


WEST ELEVATION
FRONT ELEVATION

The garage is a well-known architectural frame for many of the world's most successful entrepreneurs, and the concept of innovative garages has been a reference point from the beginning. Steve Jobs and Steve Wozniak built their first Apple computer in a garage. To foster the same kind of entrepreneurship, and to invite users to 'think outside the box', Innovation & Science Hub will consist of several un-programmed rooms – known as Garages. The Garages are focussed on intense idea-generation and spaces where the users can invent their own rules for collaboration.

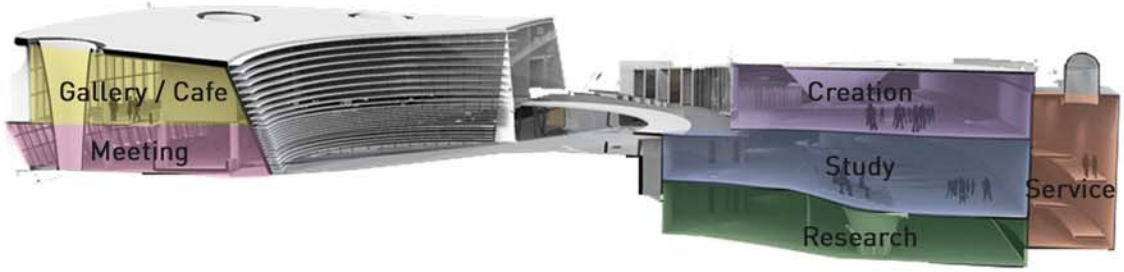


GROUND FLOOR PLAN

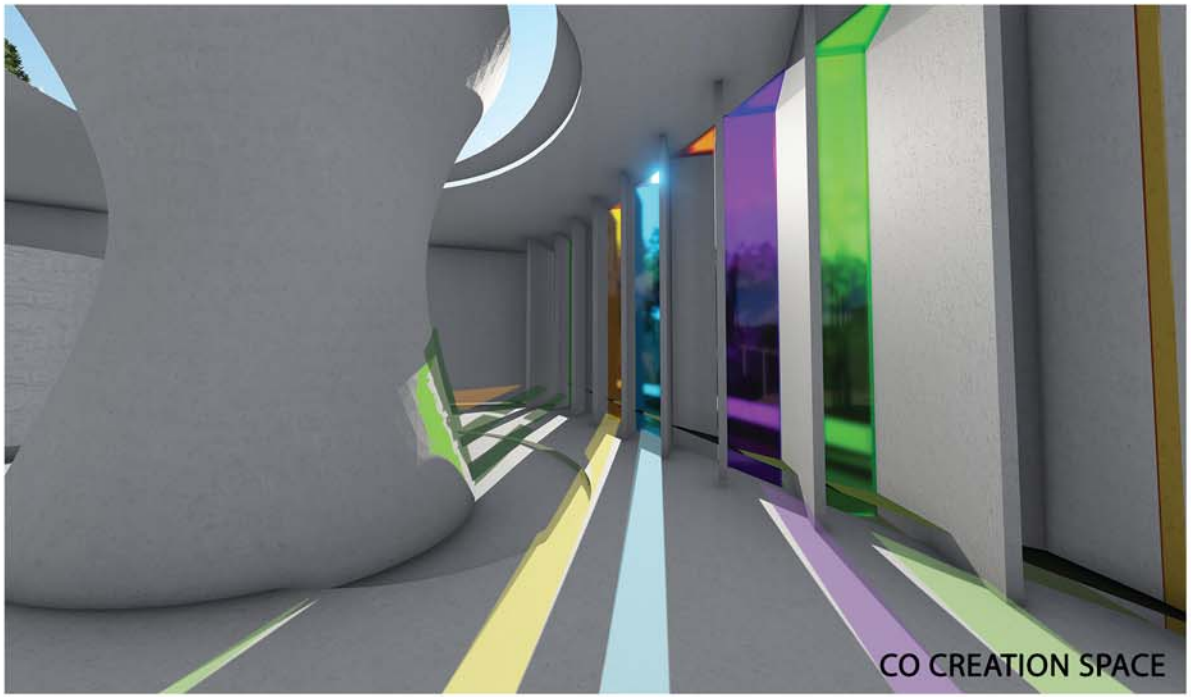
GARAGE 1

GARAGE 2

There is a transition between spaces: from public to private
- Gallery and creation spaces includes cafe, foyer, reception, various types of studios and auditorium.
- Study and meeting spaces are spared for teaming and studying.
- Research space is limited with specific functions where IT / AV labs and water innovation labs are located.

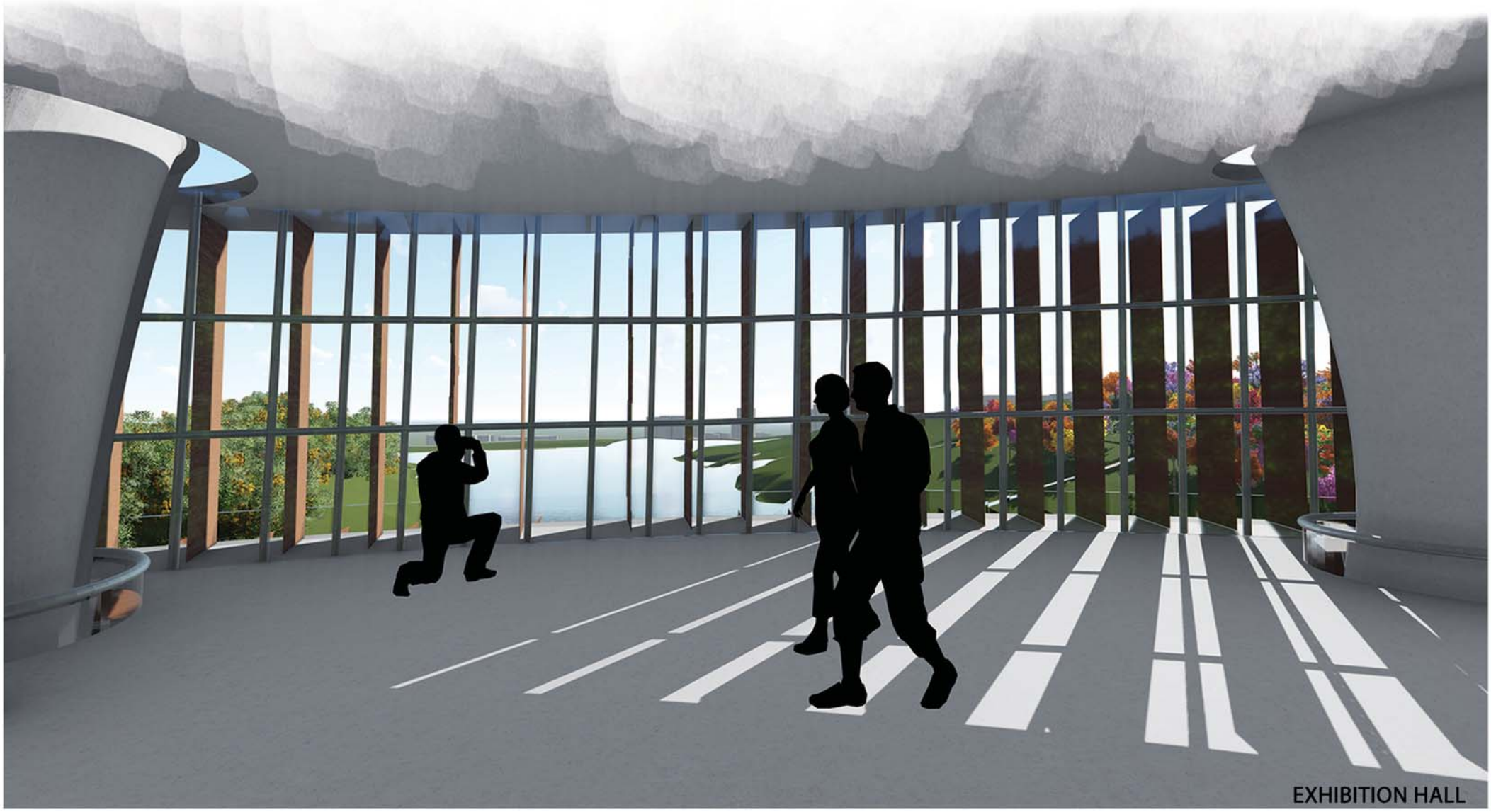


Materiality and the use of natural light are of great importance in the design of the hub. Reflections off of the colored stained glass of the skylights shine upon the exposed concrete walls of the living space giving color to the space and signaling the motion of the sun through the day.



CO CREATION SPACE

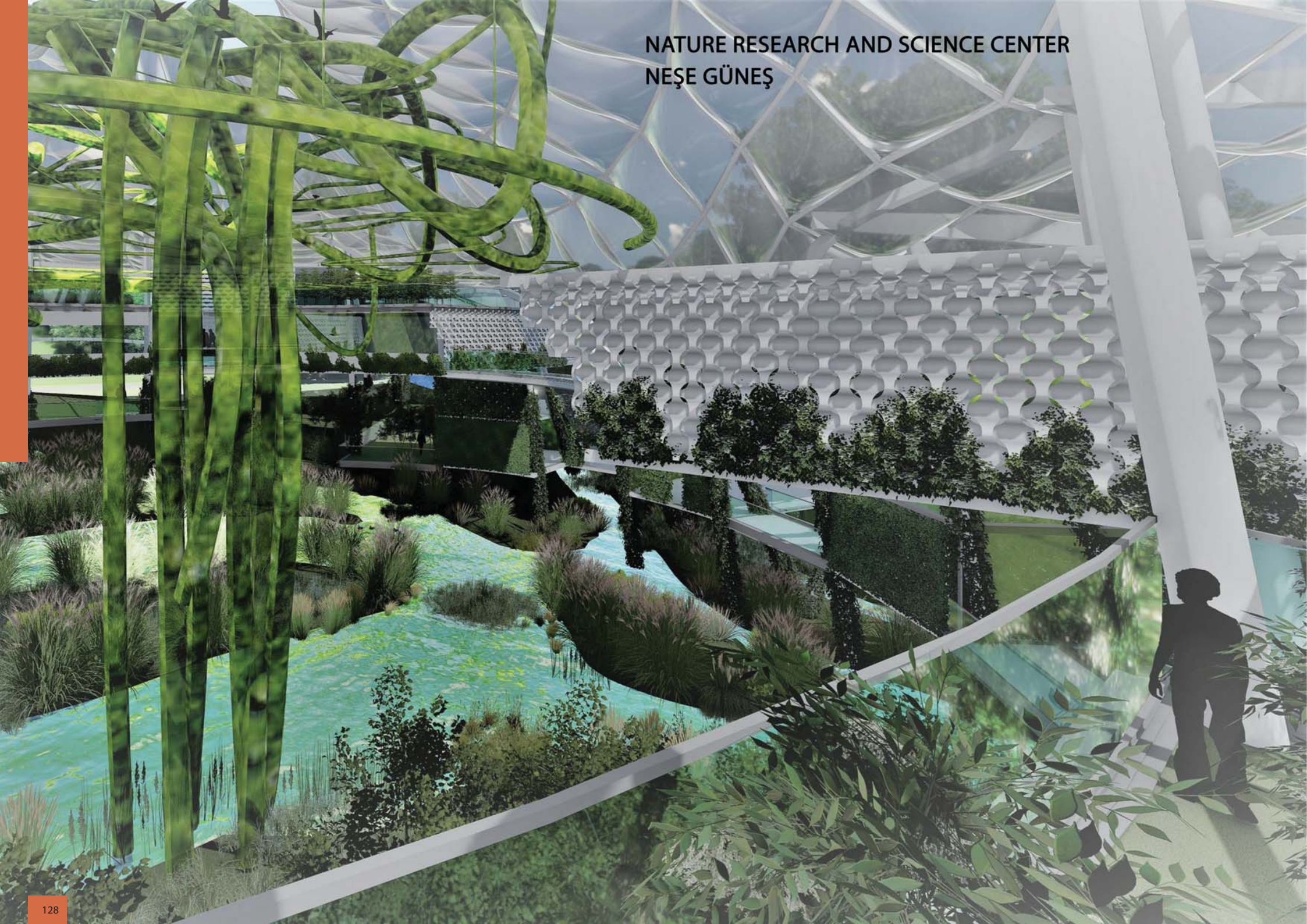
"Openess" is the key of this design. It has two distinctive terms: physically and literally.
Physically: Front mass is open to the view and itis sensible. Functions are allocated in the front mass is more open than the other spaces.
Literally: This hub is open to everyone, to every idea at everytime.



EXHIBITION HALL


LANDSCAPE

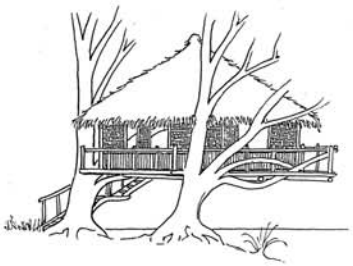

COURT

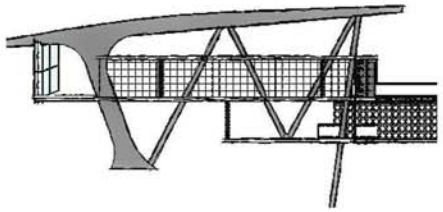


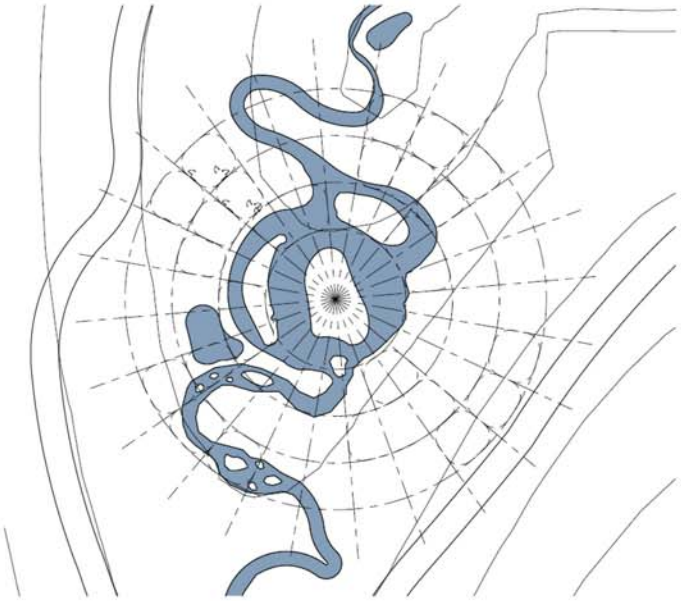
NATURE RESEARCH AND SCIENCE CENTER
NEŞE GÜNEŞ

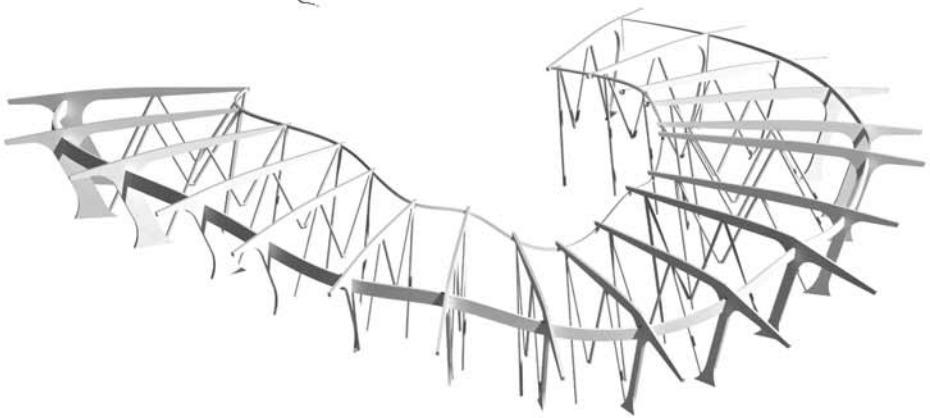
The Project is located next to Bilkent Lake.There are two main stream that support the lake.The Project is design at the wetland are which is fully elevated construction. Function of the design is Nature Research and Science Center where plant, microworld and water creatures are studied. Design is started with the idea of wetland's wildlife island and a central grid around this island. With this idea, strategy of the design become modular architecture with elevated units.Rigid frames are designed which is inspired by threehouses. These rigid frames are placed according to grid to carry the units. This system helped to create low impact at the ground which is important issue for wetland which provides a liveable place for different plants and animals.All the rigid frames have different sizes and slopes according to sun wind and access at the site. Circulation of the units happens w,th ramp system which surrounds all the site. Furthermore People can enjoy the lake view while they are walking on these ramps. The most challenging part of the projects is a fact that wetland needs specific climate conditions, whole system is covered with ETFE at the top. Rigid frames are covered with curtain walls ad cinetic panels at the one side. At the south part there are operable ETFE panels which makes system work for four seasons. At the senter, where system get too much sunlight there are algi farming tubes that are carried by ETFE's skeleton system. These tubes change the light and atmosphere at the area and these tubes goes under the water to transfer the energy.

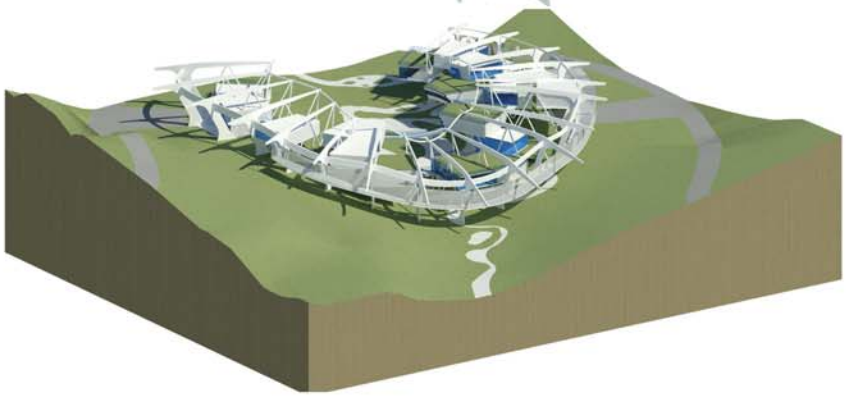
Proje, Bilkent Gölü'nün yanında yer almaktadır. Gölleri destekleyen iki ana akarsu vardır. Proje, sulak alandaki tasarımdır. Tasarımın işlevi bitki, mikro dünyası ve su canlılarının çalışıldığı Doğa Araştırmaları ve Bilim Merkezi'dir. Sulak alanın vahşi yaşam adası ve bu ada çevresindeki merkezi bir grid sistemi tasarımın başlangıç noktasıdır. Bu düşünceyle tasarımın stratejisi yükseltilmiş ünitelerle modüler bir mimariye dönüşür. Ağaç evlerden esinlenilmiş rijit çerçeveler tasarlanmıştır. Bu sert çerçeveler üniteleri taşımak için grid sistemine göre yerleştirilir. Bu sistem, farklı bitki ve hayvanlar için yaşanabilir bir yer sağlayan sulak alan için önemli bir konu olan zemin üzerinde düşük etki yaratılmasına yardımcı olmuştur. Tüm rijit çerçeveler, güneşe rüzgâra ve sahadaki erişime göre farklı ebat ve eğimlere sahiptir. Ünitelerin sirkülasyonu, tüm alanı çevreleyen rampa sistemi olur. Ayrıca insanlar bu rampalarda yürürken göl manzarasının tadını çıkarabilirler. Projemin en zor kısmı, sulak alanın belirli iklim koşullarına ihtiyacı olduğu gerçeğidir, bu yüzden tüm sistem en üstte ETFE ile kaplıdır. Rijit çerçeveler, bir tarafta perde duvarları ve reklam panelleri ile kaplıdır. Güney kısmında, sistemi dört mevsim çalıştıran ETFE panelleri bulunmaktadır. Sistemin çok fazla güneş ışığı aldığı yerde, ETFE'nin iskelet sistemi tarafından taşınan alg tüpleri bulunmaktadır. Bu tüpler bölgedeki ışığı ve atmosferi değiştirir ve bu tüpler enerjiyi aktarmak için suyun altına girer.

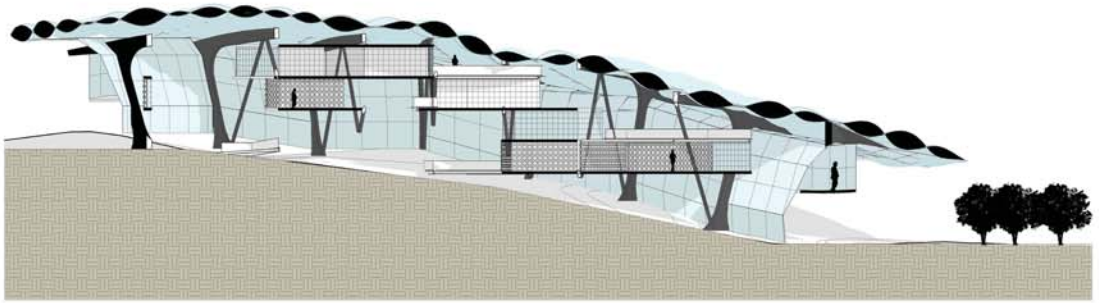


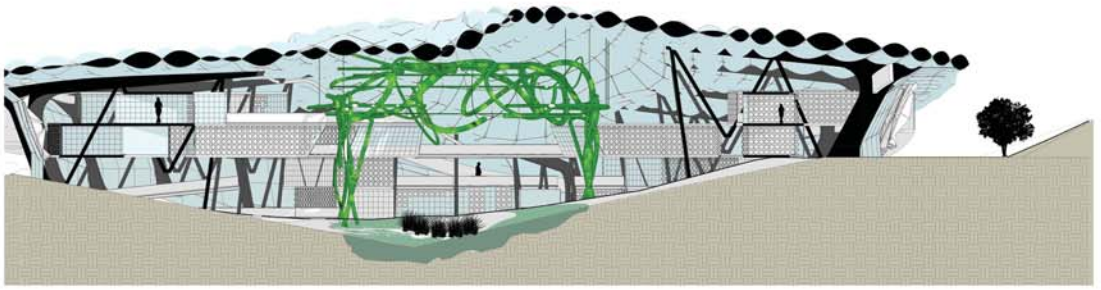


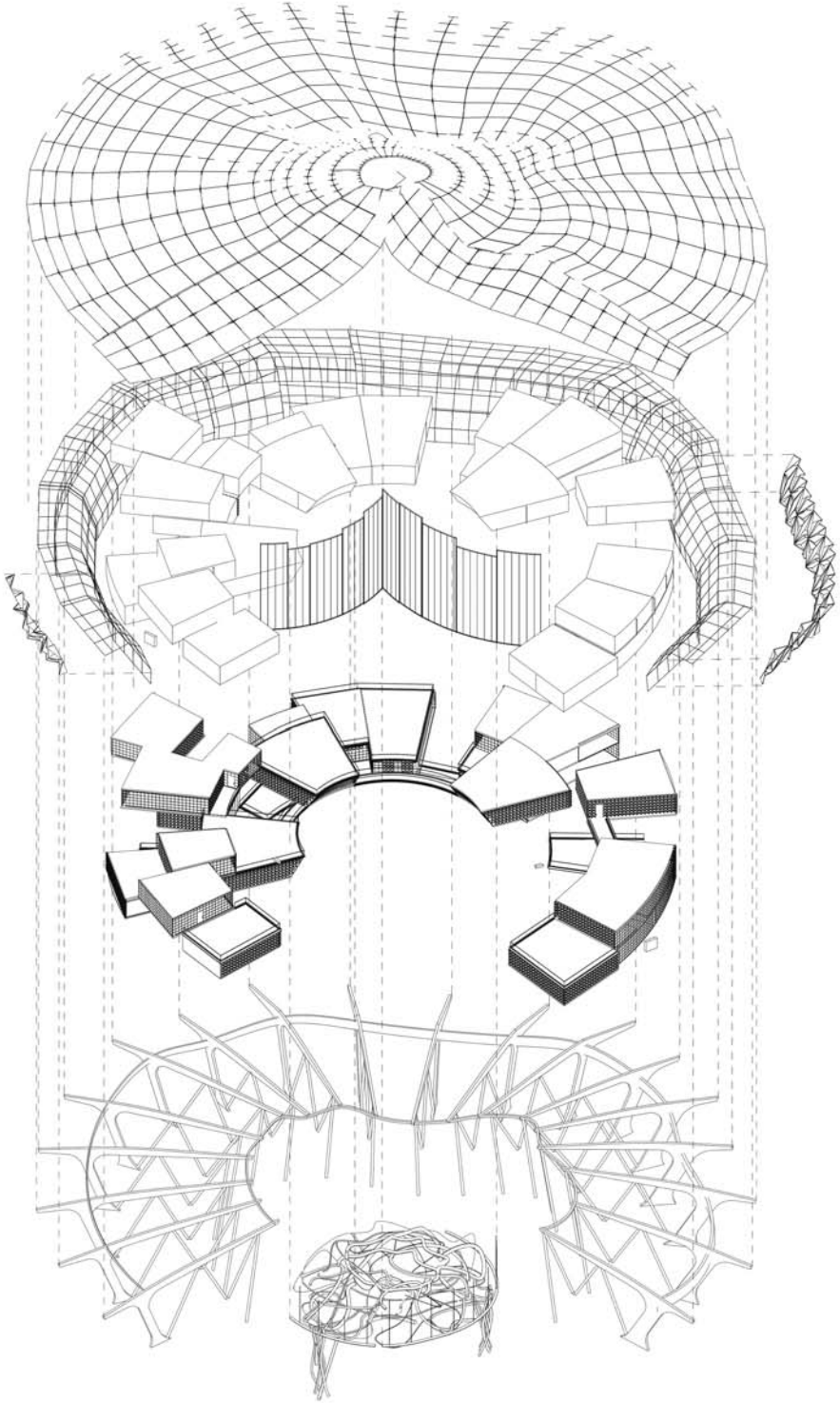


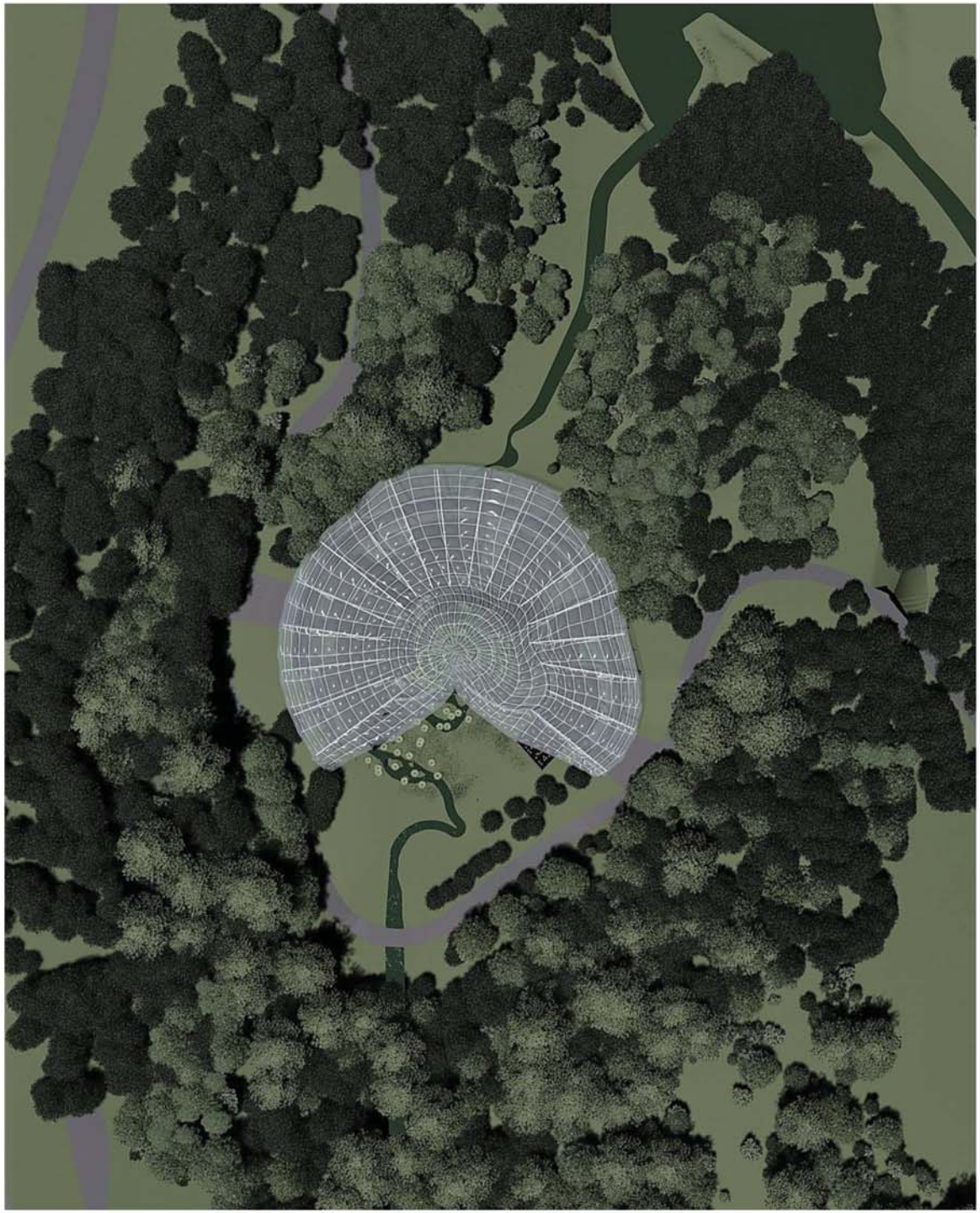


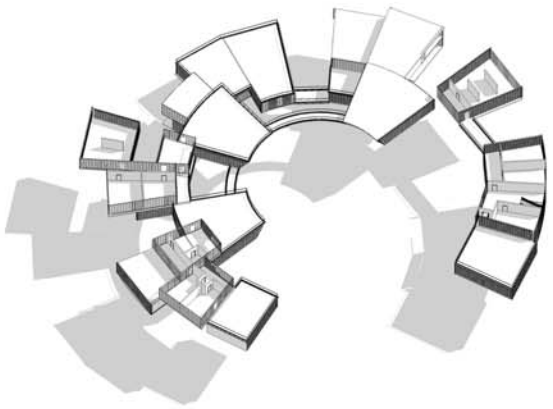


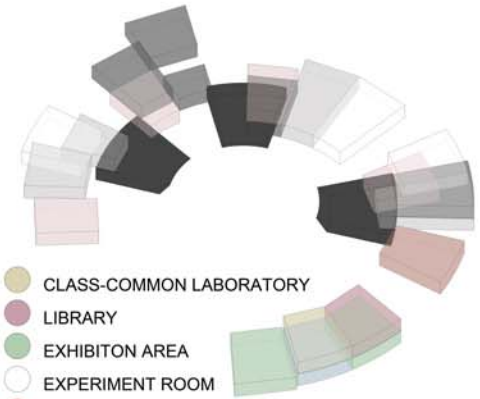


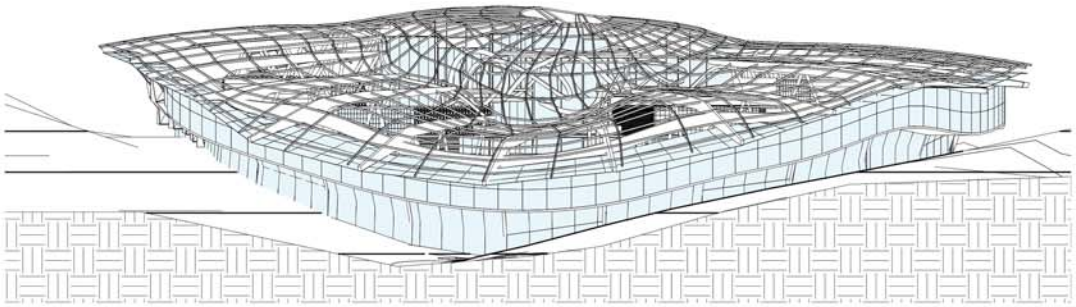


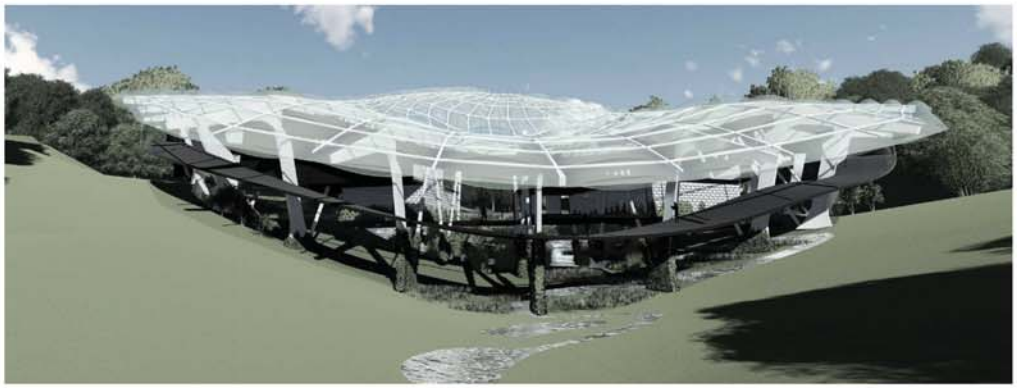


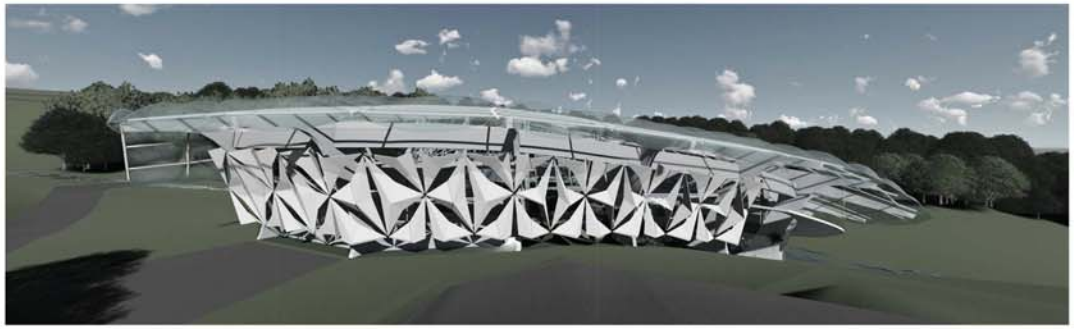


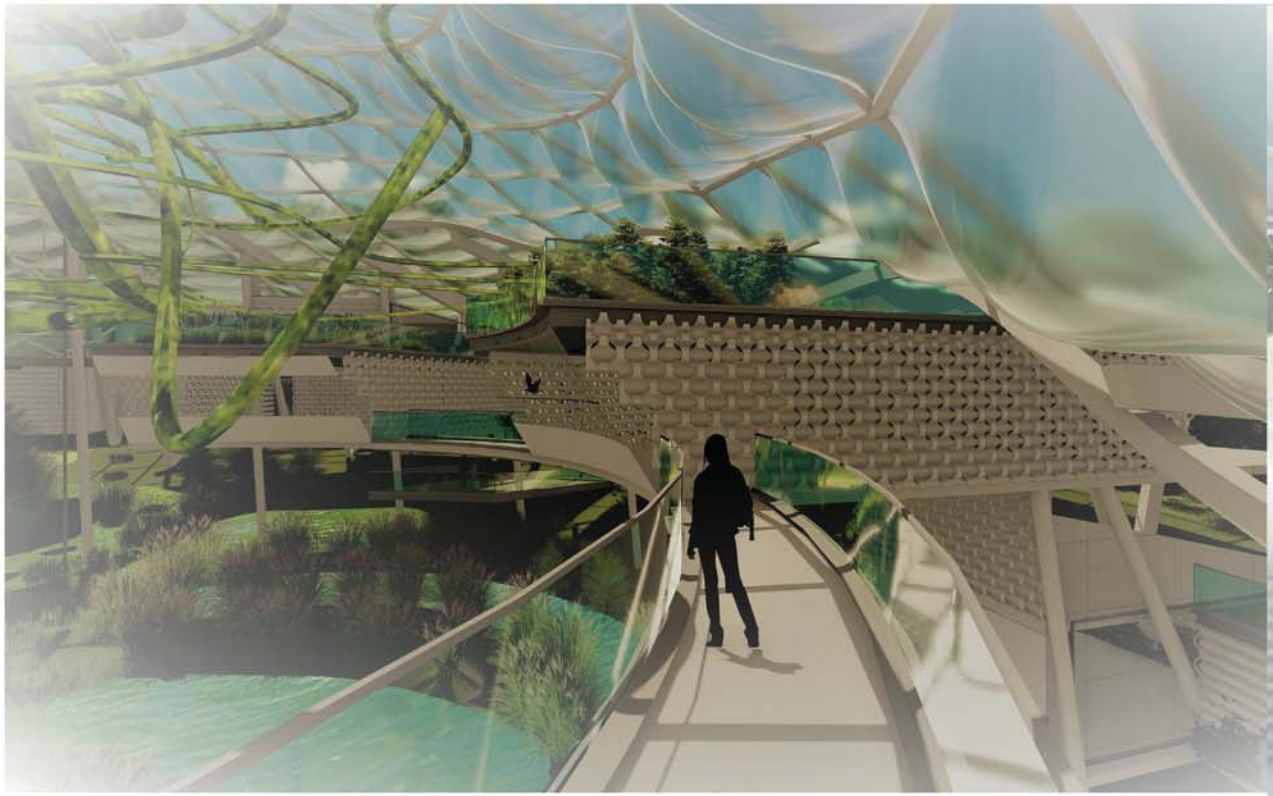


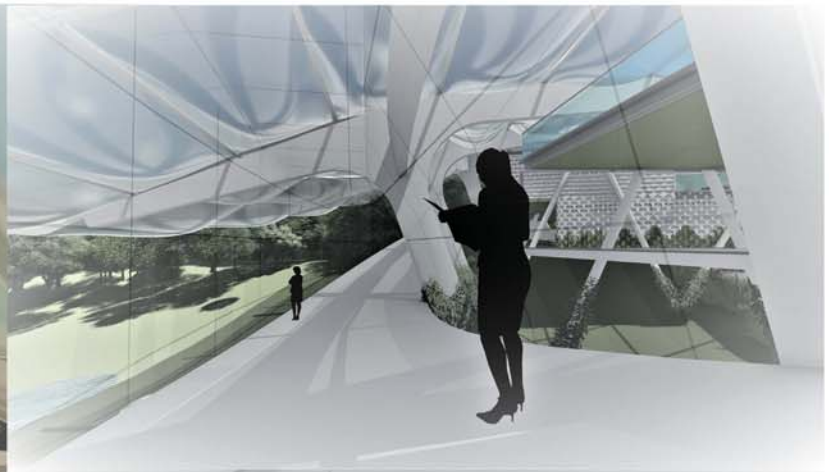

CLASS-COMMON LABORATORY
LIBRARY
EXHIBITON AREA
EXPERIMENT ROOM
MULTIFUNCTIONAL ROOM
LABORATORY
LAB OFFICES-LAB SUPPORT
RESEARCH ROOM

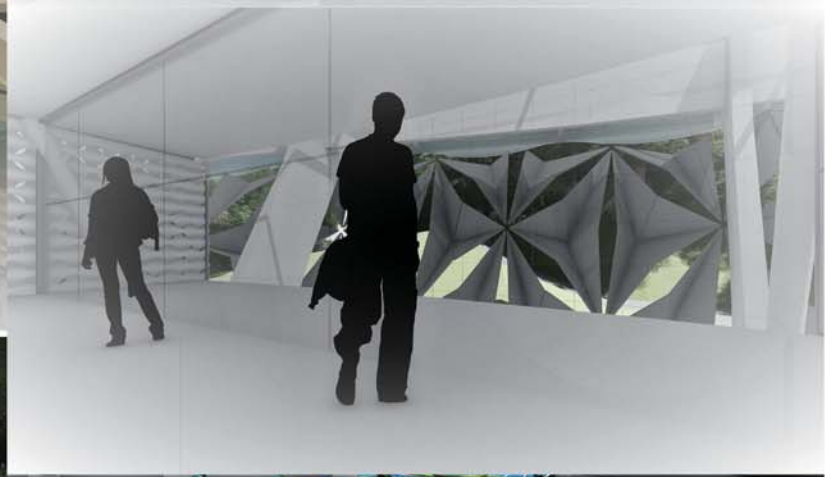


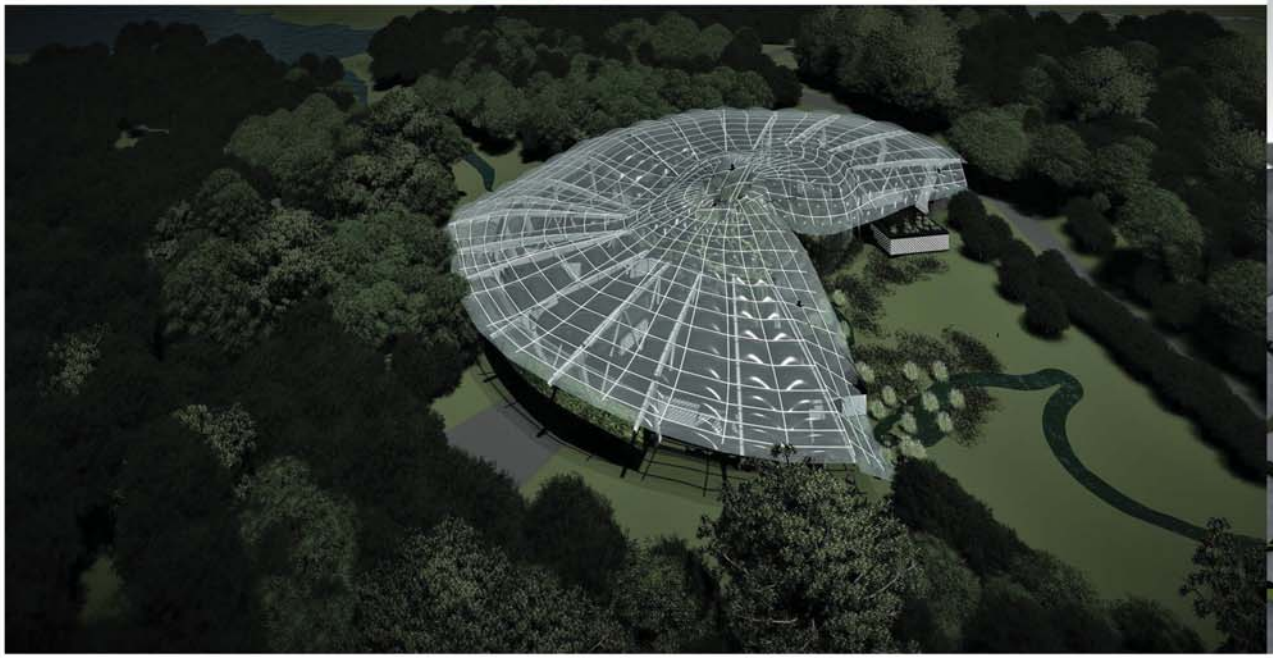


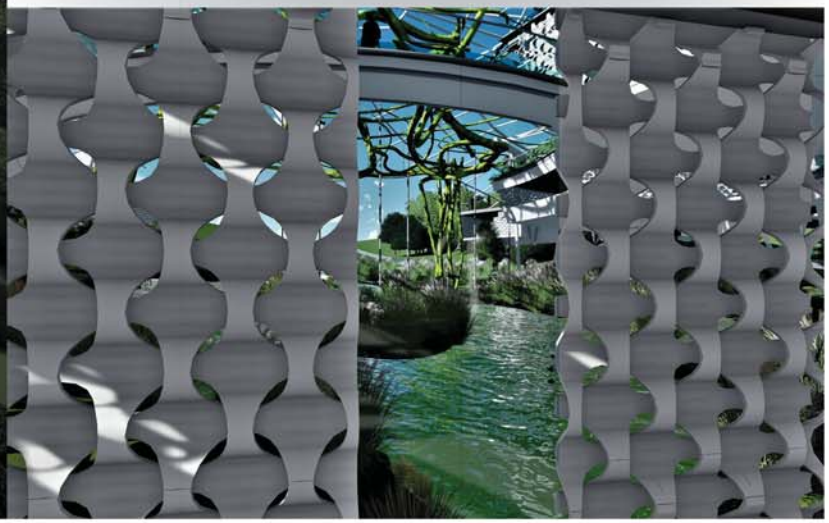






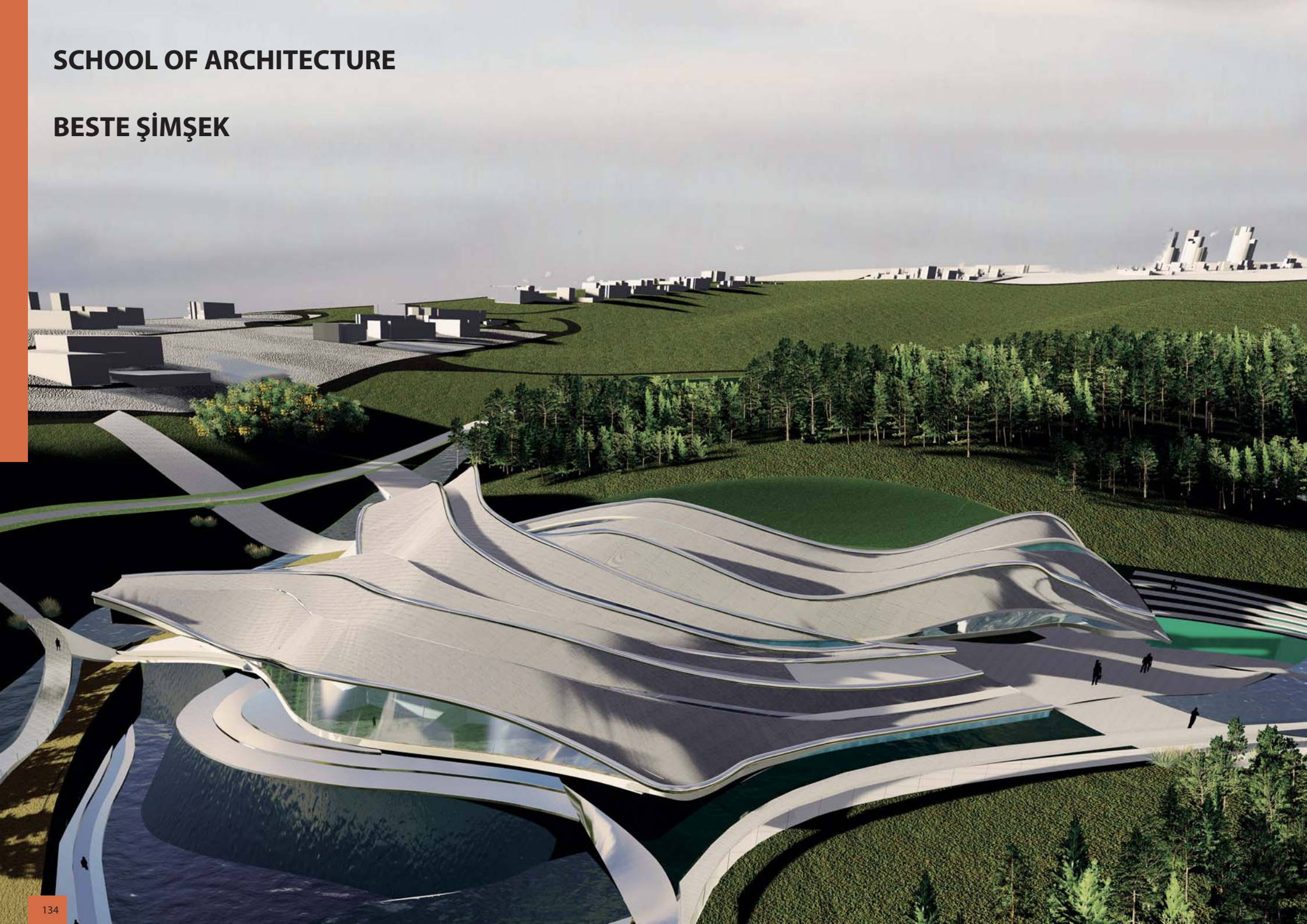






SCHOOL OF ARCHITECTURE

BESTE ŞİMŞEK



"architecture as applied research"

The subject of design is a school of architecture. School is designed to teach and practice sustainable architecture of a systematic and integrated approach comprised of 3 steps; design, research and production.Therefore; the building itself is designed as an example of sustaianble architecture based on the requirements of 5 ordering systems;environment, functionality, economy, socio-culture and aesthetics.

DESIGN

RESEARCH

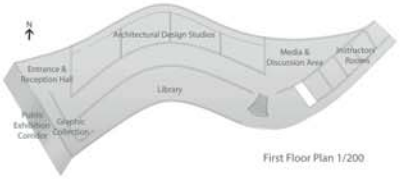
PRODUCTION

EXHIBITION

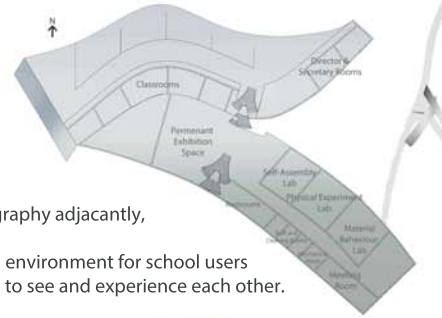
transitional,continous,moving

"uygulamalı araştırma olarak mimarlık"

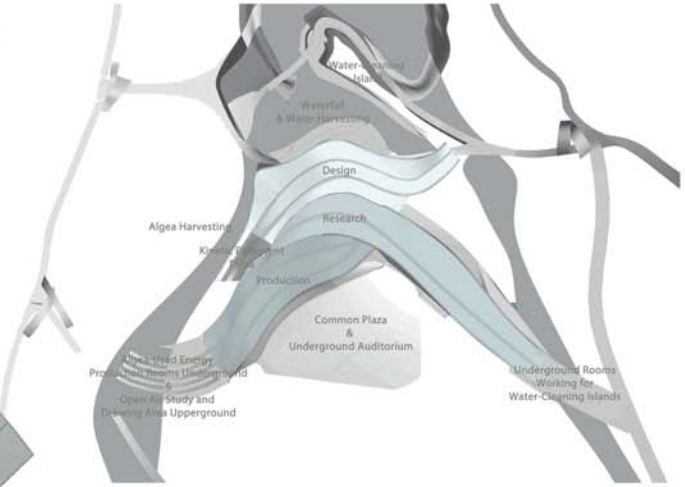
Tasarım konusu bir mimarlık okulu. Okul, 3 adımdan oluşan sistematik ve entegre bir yaklaşımın sürdürülebilir mimarisini öğretmek ve uygulamak için tasarlanmıştır; tasarım, araştırma ve üretim. Binanın kendisi 5 düzen sisteminin, çevre, işlevsellik, ekonomi, sosyo-kültür ve estetiğin gereksinimlerine dayanan, sürdürülebilir mimarinin bir örneği olarak tasarlanmıştır.



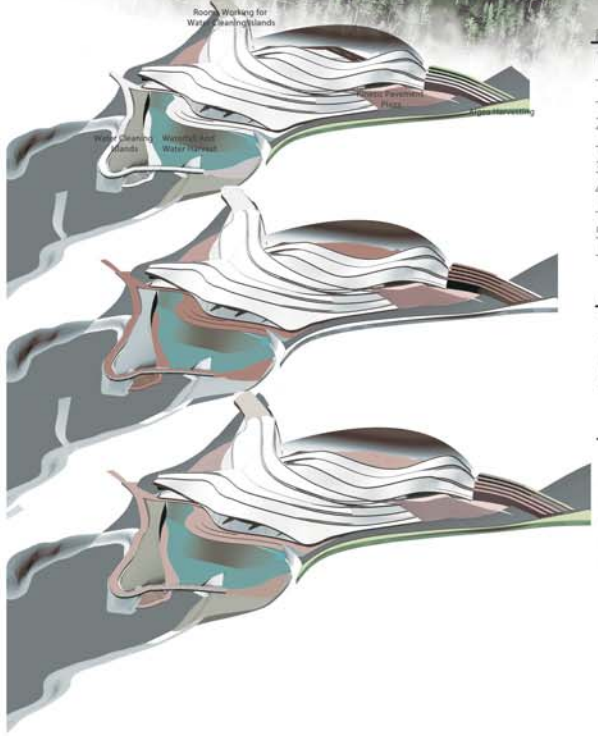
First Floor Plan 1/200



Second Floor Plan 1/200



Floor slabs are placed to the carved topography adjacantly,
not on top of each other,
to create an open and integrated working environment for school users
where most of the activity spaces are able to see and experience each other.



Environmental

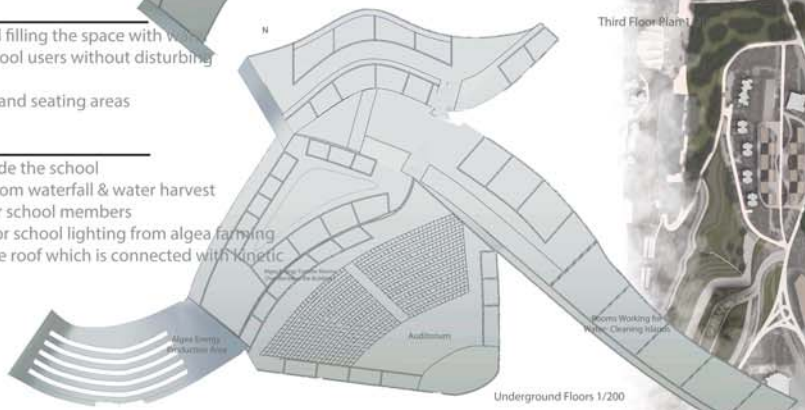
1-Carving the cape and filling the space with water
-creating a microclimate
-seasonlly used water harvesting space
2-Waterfall
-energy production
3-Water Cleaning Islands
4-Algea Farming
-Energy Production
5-Kinetic Pavement Floored Plaza
-Energy Production

Socio-Cultural

1-Carving the cape and filling the space with w
-a private space for school users without disturbing the main water body
2-Lake-view platforms and seating areas

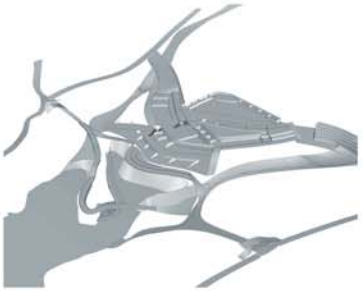
Economy

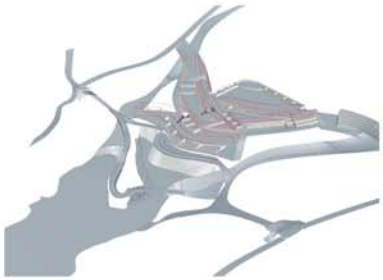
1-Recycling rooms inside the school
2-Energy Production from waterfall & water harvest
3-Job opportunities for school members
4-Energy production for school lighting from algea farming
5-Energy transfer to the roof which is connected with Kinetic pavement plaza



Underground Floors 1/200

Third Floor Plan 1





West

East

North

South

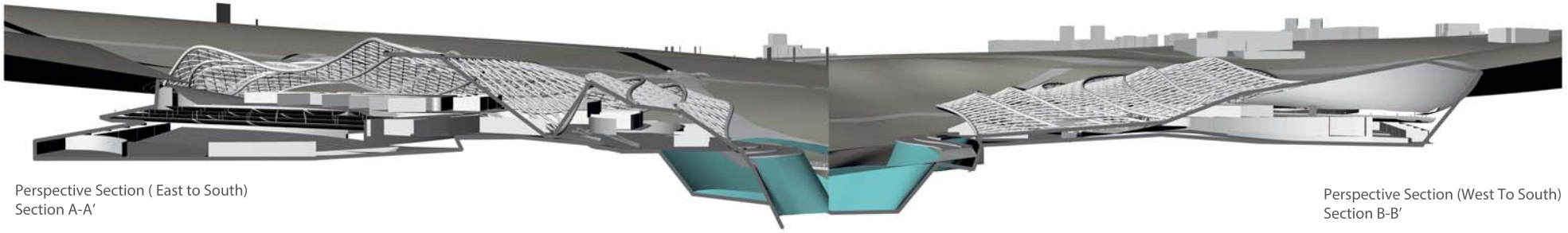
Topography is carved to place floor slabs to create better natural heating conditions, and to use the topography as 'thermal mass'.
Hill located at the south side of the building blocks most of the natural lighting, therefore; a roof system that carries a set of skylights is proposed as the solution.
Following the traces of interior walls curves are placed into floor slabs and extruded in 5 different heights:
0-3 : First Floor
3-6: Mezzanine Space
6-7:-
7-8.5: Skylight Reflectors
8.5-9: HVAC
These curves are turned into surfaces by using 3 different types of curves : 3 point curve, 4 point curve, 5 point curve
Skylight reflectors are placed under each skylight in the interior.
Roof is tilted into south to catch natural light and summer breeze and is closed in the north to block the north wind.
Space frame is proposed as the structural solution.

North Elevation

West Elevation

South Elevation

East Elevation

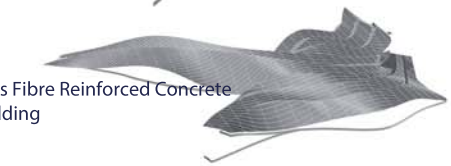


Perspective Section (East to South)
Section A-A'

Perspective Section (West To South)
Section B-B'

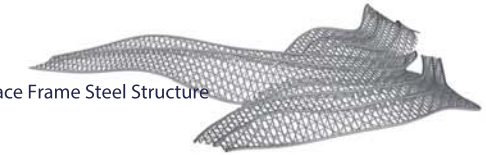
Skylight Reflector Glass

Skylight Reflector
Truss Structure



Glass Fibre Reinforced Concrete
Cladding

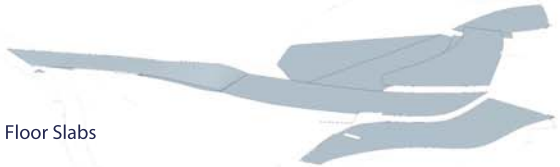
HVAC Spaces Under Each Roof Panel



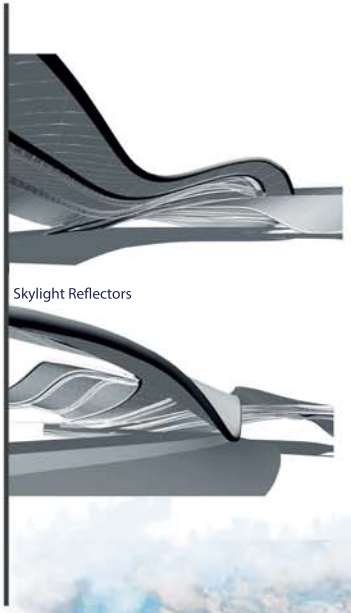
Space Frame Steel Structure

Low-E Glass

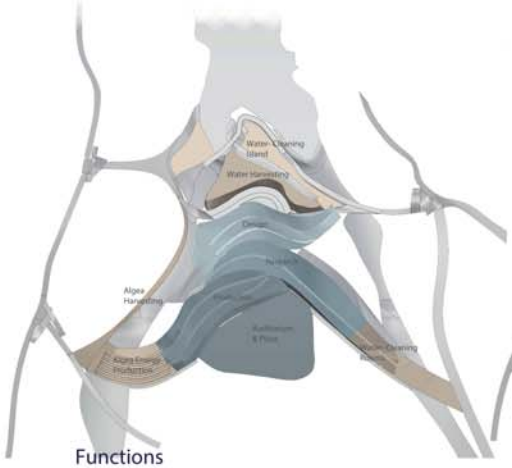
Interior Walls



Floor Slabs

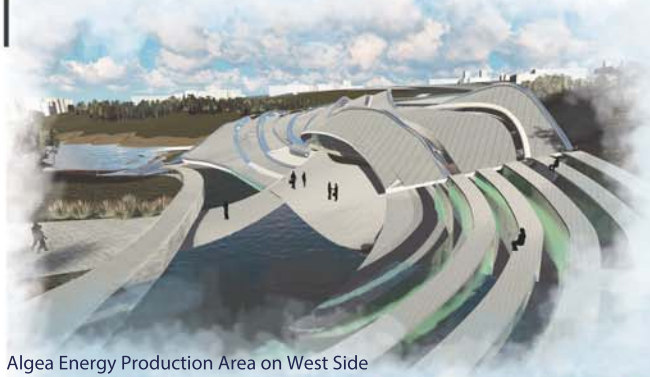


Skylight Reflectors



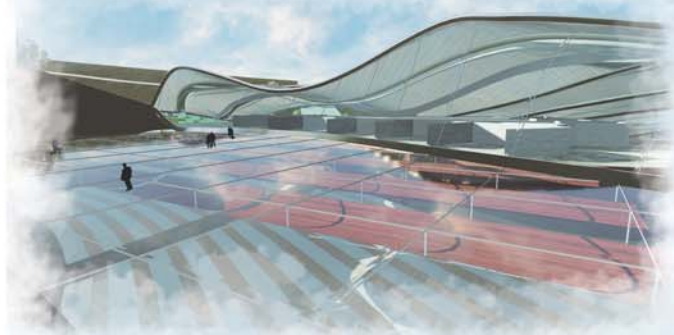
Functions

Interior & Exterior
Circulation

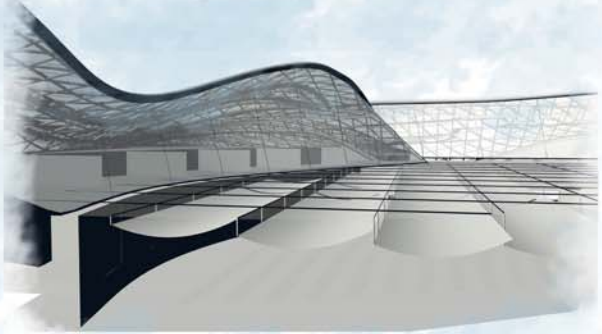


Algea Energy Production Area on West Side

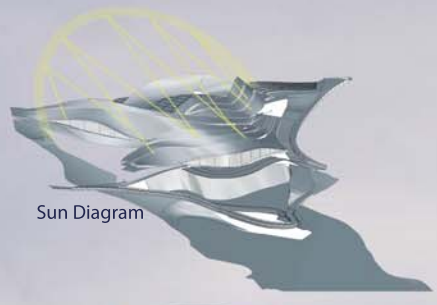
Roof is tilted to south to catch natural light & summer breeze
& closed at north side to block north winds



Glass Floor Plaza at South Courtyard & Auditorium Underground

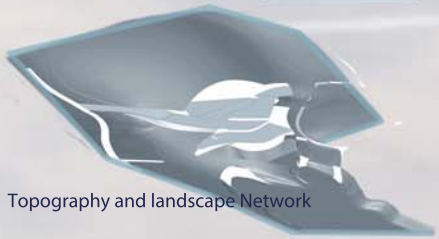


Double Glass Wall System on South Facade to naturally heat and light
the building



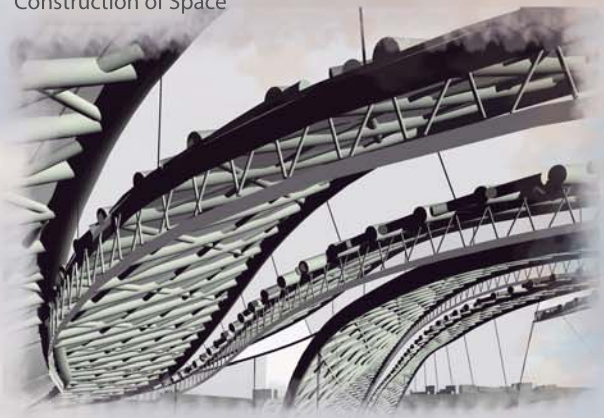
Sun Diagram

Wind Diagram

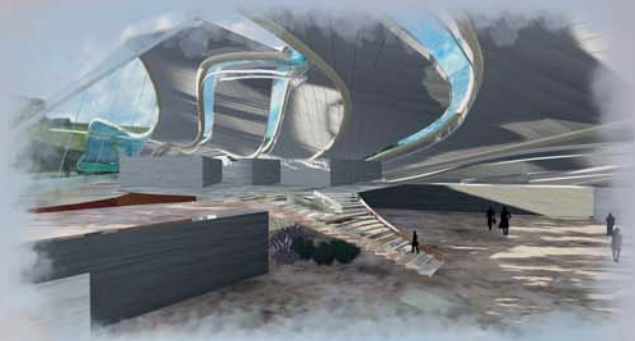


Topography and landscape Network

Construction of Space

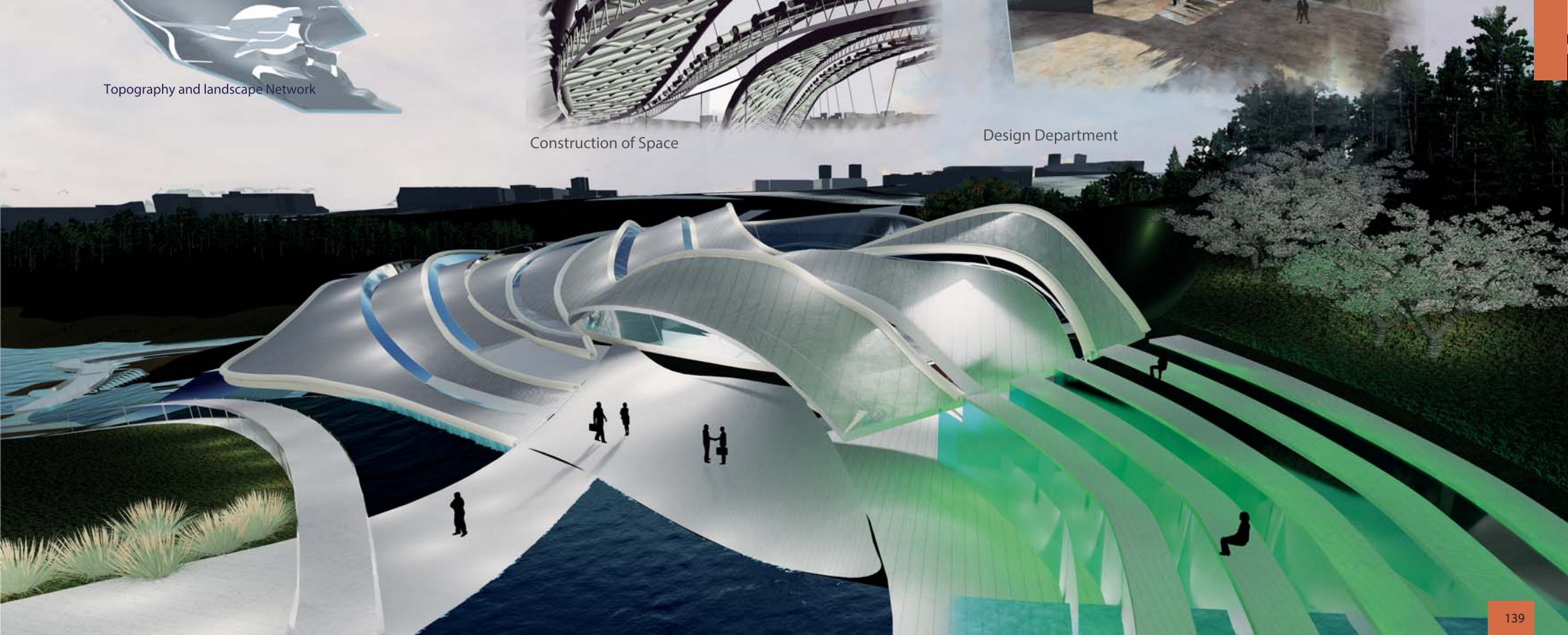


Construction of Space



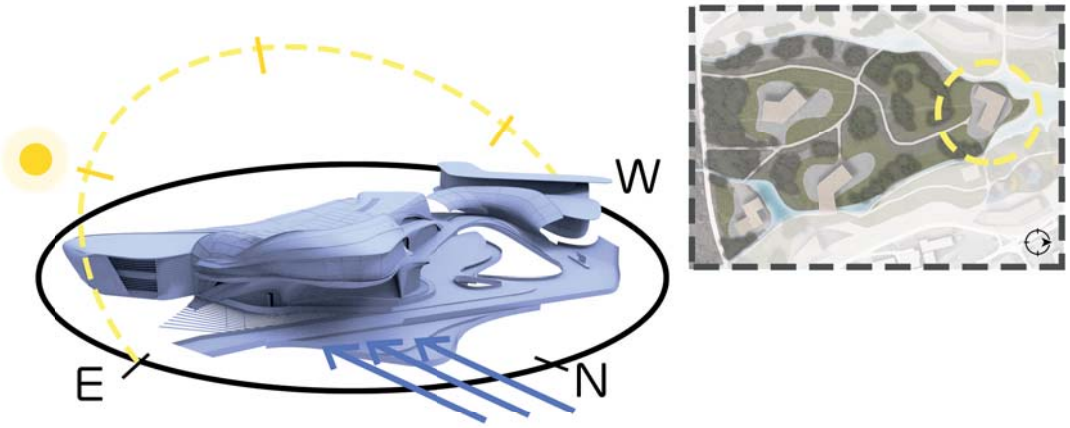
Production Department

Design Department

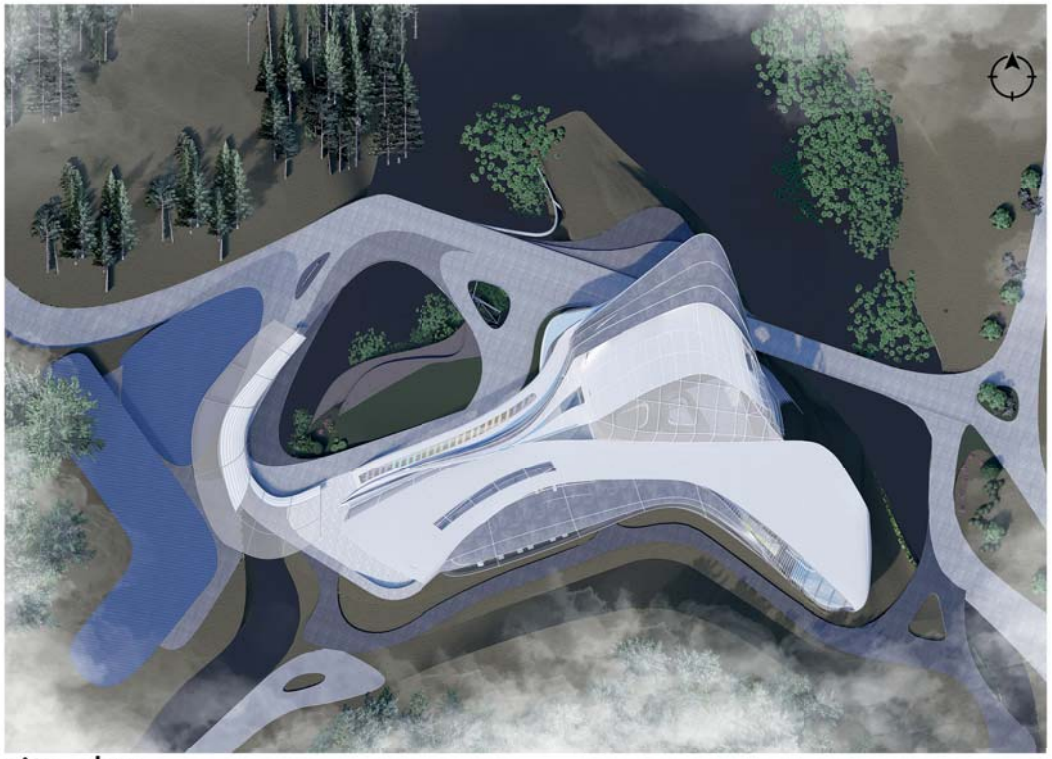


BIOMEDICAL RESEARCH CENTER

DİDEM ÜYETÜRK



sun orientation & prevailing wind

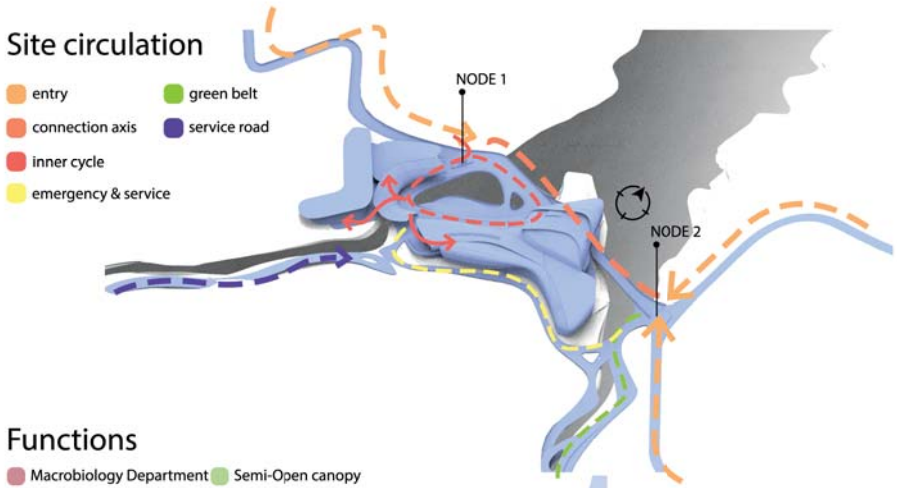


site plan

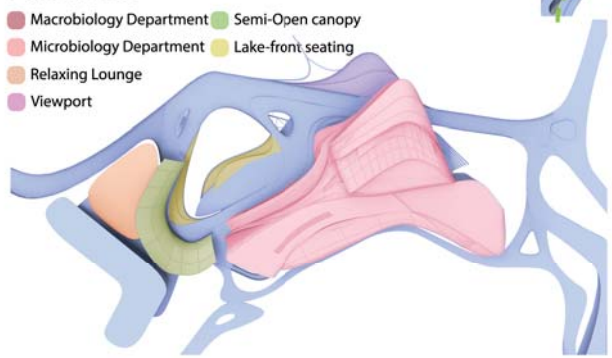
The Biomedical Research Center is a comprehensive design in terms of answering expected acquiries of Zone 1and necessities of the user profile. Depicted site potentials have enhanced the maximum relevance of this organic shaped research center within the surrounding environment and the Bilkent University campus. Different from the usual research centers, this proposal responds to many significant aspects. Regarding the ordering systems filtering approach, site is located on one of the nodal points of the masterplan. The unique area has the potential to provide neighboring zones with access which allows for a transitional space of circulation. Extended river stream corridors on both sides invite natural habitat and more socializing outdoors for site users. The natural forces of wind, sun and water have influenced the functional division and the form, on a benefitial basis, the forces are also used by sustainable features of the project. On socio-cultural aspect, the research center complex is designed for campus members, scientists & researchers of Bilkent University & nearby campuses. Since Zone 1 is programmed by scientific utilities, the center is to be used for current and future researches in health sciences. In the case of aesthetic, the form development has the approach of blending with the topography. Organic, smooth edges are preferred also as response to the biology-related programme. Lastly, wide perception of the surrounding environment is benefitial to use the inspirational lake of Bilkent.

Biyomedikal Araştırma Merkezi, Bölge 1'in beklenen edinimlerini ve kullanıcı profilinin gerekliliklerini cevaplamak açısından kapsamlı bir tasarımdır. Tasvir edilen alan potansiyeli, bu organik şekilli araştırma merkezinin çevre ile Bilkent Üniversitesi kampüsünde azami ilgisini artırmıştır. Alışılmış araştırma merkezlerinden farklı olarak, bu teklif birçok önemli hususa cevap vermektedir. Sıralama sistemleri filtreleme yaklaşımı ile ilgili olarak, arazi ana planın düğüm noktalarından birinde yer almaktadır. Benzersiz lokasyon, geçişli bir dolaşım alanı sağlayan, komşu bölgelere erişim sağlama potansiyeline sahiptir. Her iki taraftaki genişletilmiş nehir akıntısı koridorları, doğal yaşam alanını davet ediyor ve site kullanıcıları için dışarıda daha fazla sosyalleşiyor. Çevresel etkenler olan rüzgarın, güneşin ve suyun fonksiyonel bölünmeyi ve cephe formlarını etkilemiştir, fayda temelinde, etkenler aynı zamanda projenin sürdürülebilir özellikleri tarafından kullanılıyor. Sosyo-kültürel açıdan bakıldığında, araştırma merkezi kompleksi kampüs üyeleri, bilim insanları ve Bilkent Üniversitesi'ndeki ve yakınlardaki kampüs araştırmacıları için tasarlanmıştır. Bölge 1 bilimsel amaçlara yönelik programlandığı için, merkez, sağlık bilimlerinde güncel ve gelecekteki araştırmalar için tasarlanmıştır. Estetik bakımdan, form geliştirme topoğrafya ile harmanlama yaklaşımına sahiptir. Biyoloji ile ilgili programa yanıt olarak organik, yumuşak kenarlar tercih edilmiştir. Son olarak, arazinin sahip olduğu geniş açı çevresini ve ilham veren Bilkent gölünden faydalanmak için avantajlıdır.

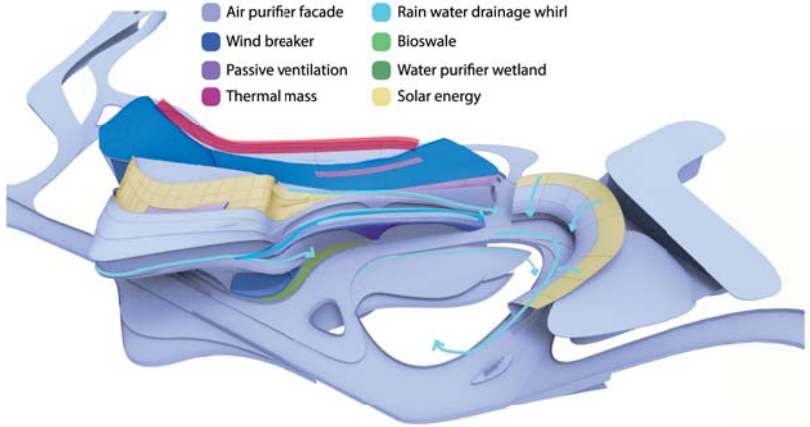
Site circulation

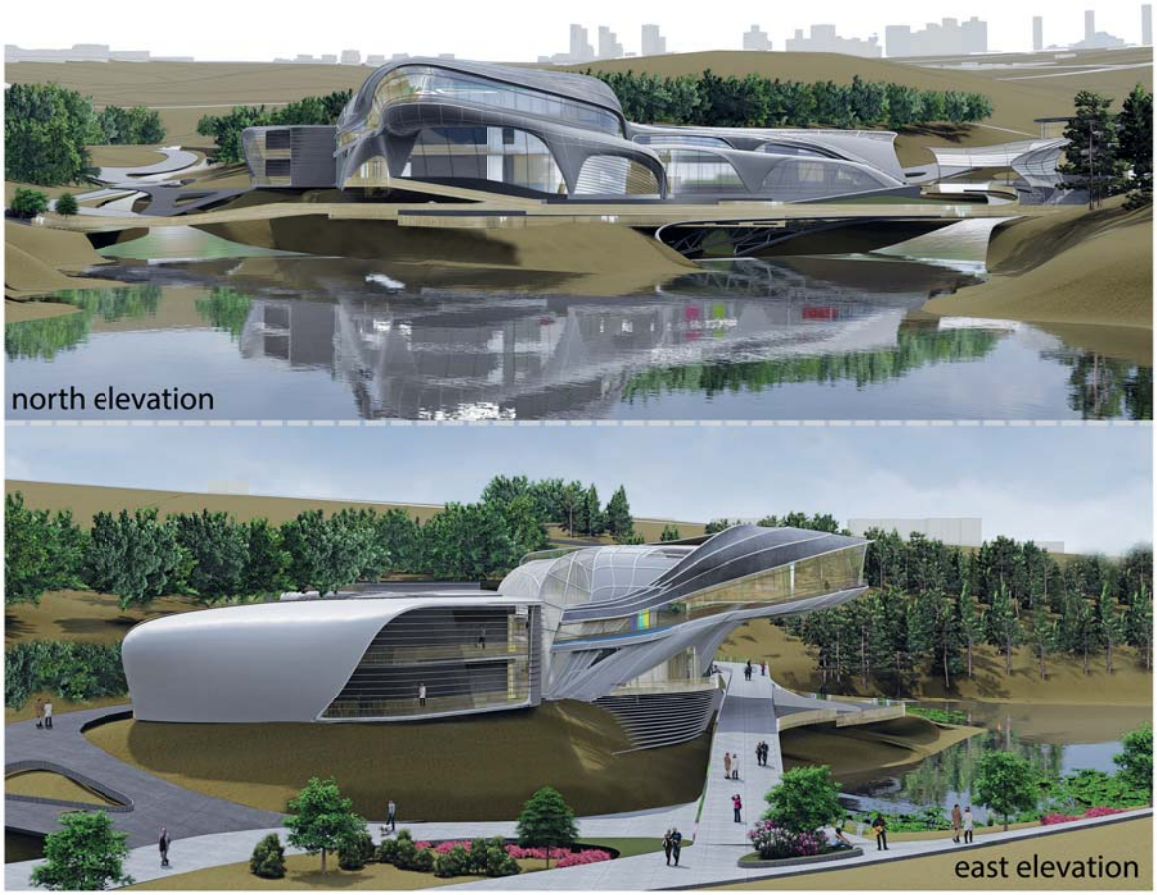


Functions

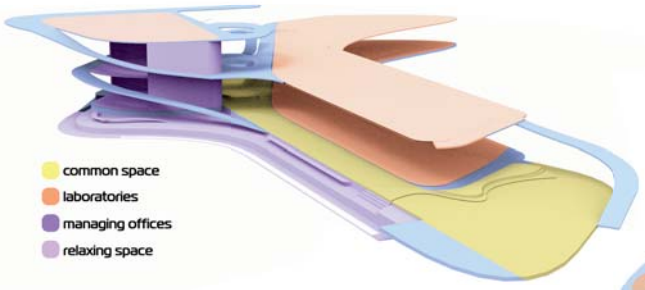


Environmental strategies

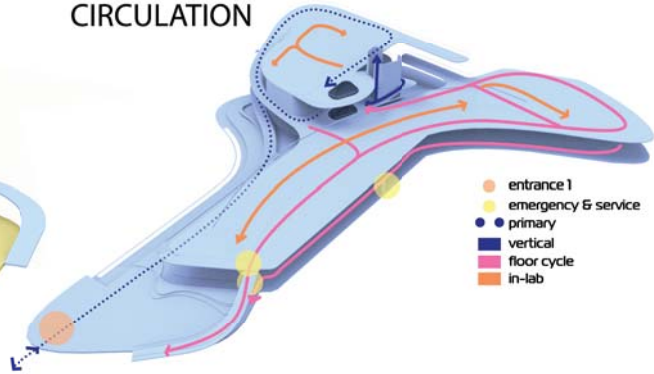




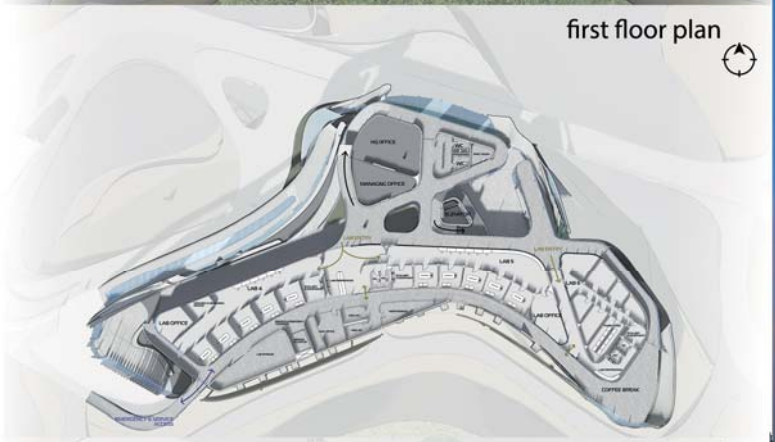
FUNCTIONAL PROGRAM

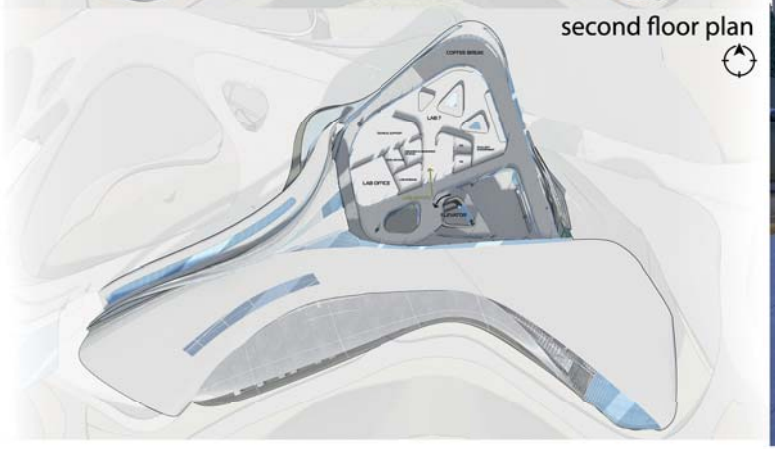


CIRCULATION



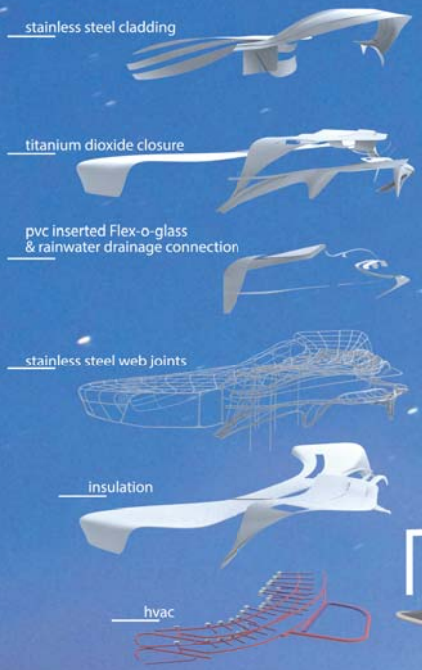

ground floor plan


first floor plan

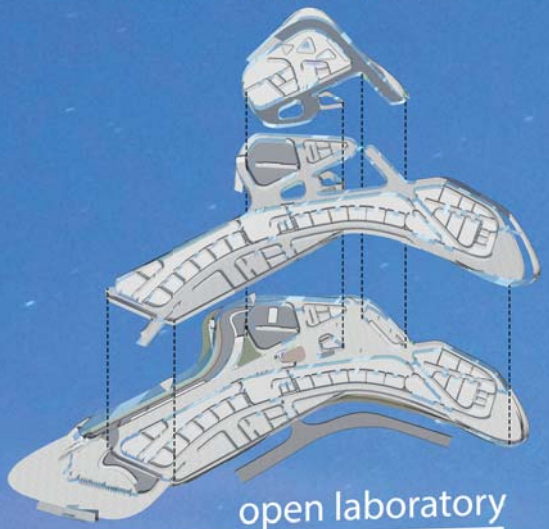

second floor plan

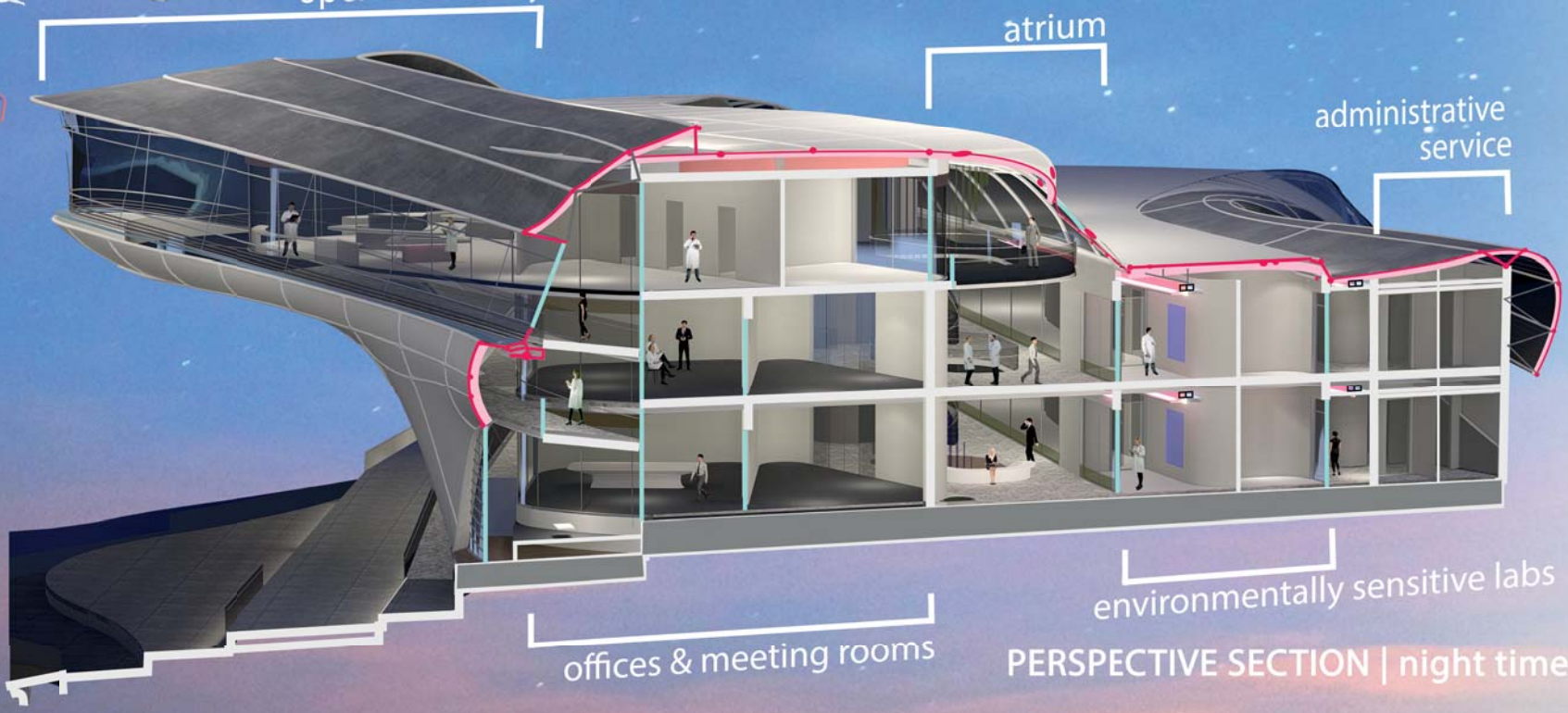

FORM GENERATION
• organism | the processive
• skin | the protective
• evolution | environmental response
ENVELOPE COMPONENTS
titantium dioxide cladding
stainless steel cladding
argon gas in-fill double pane glass
rain water draining perforated zinc screen
structural steel
aluminum louvre
BIOMEDICAL RESEARCH CENTER

EXPLODED STRUCTURAL SYSTEM

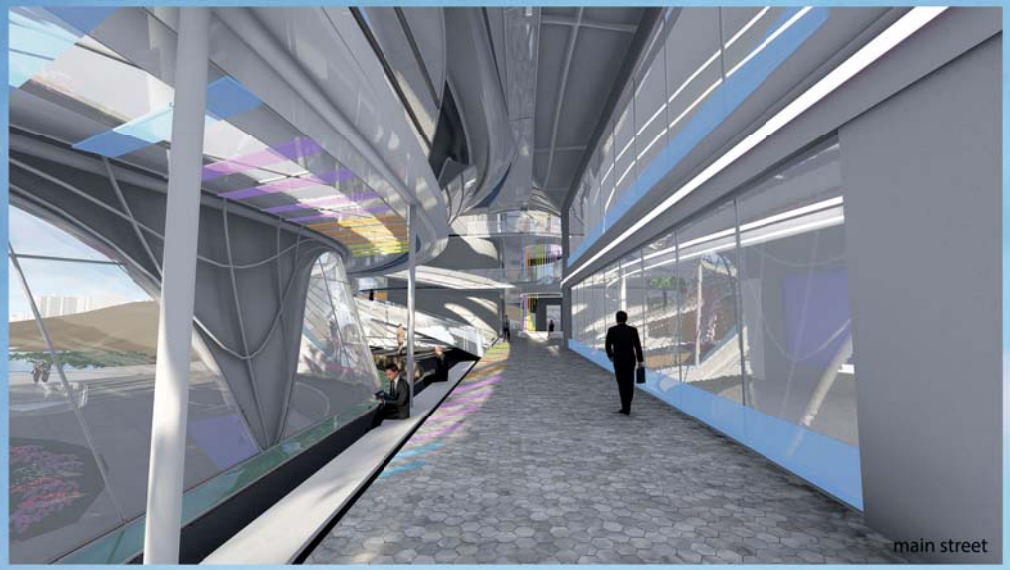


AXONOMETRIC FLOOR PLANS

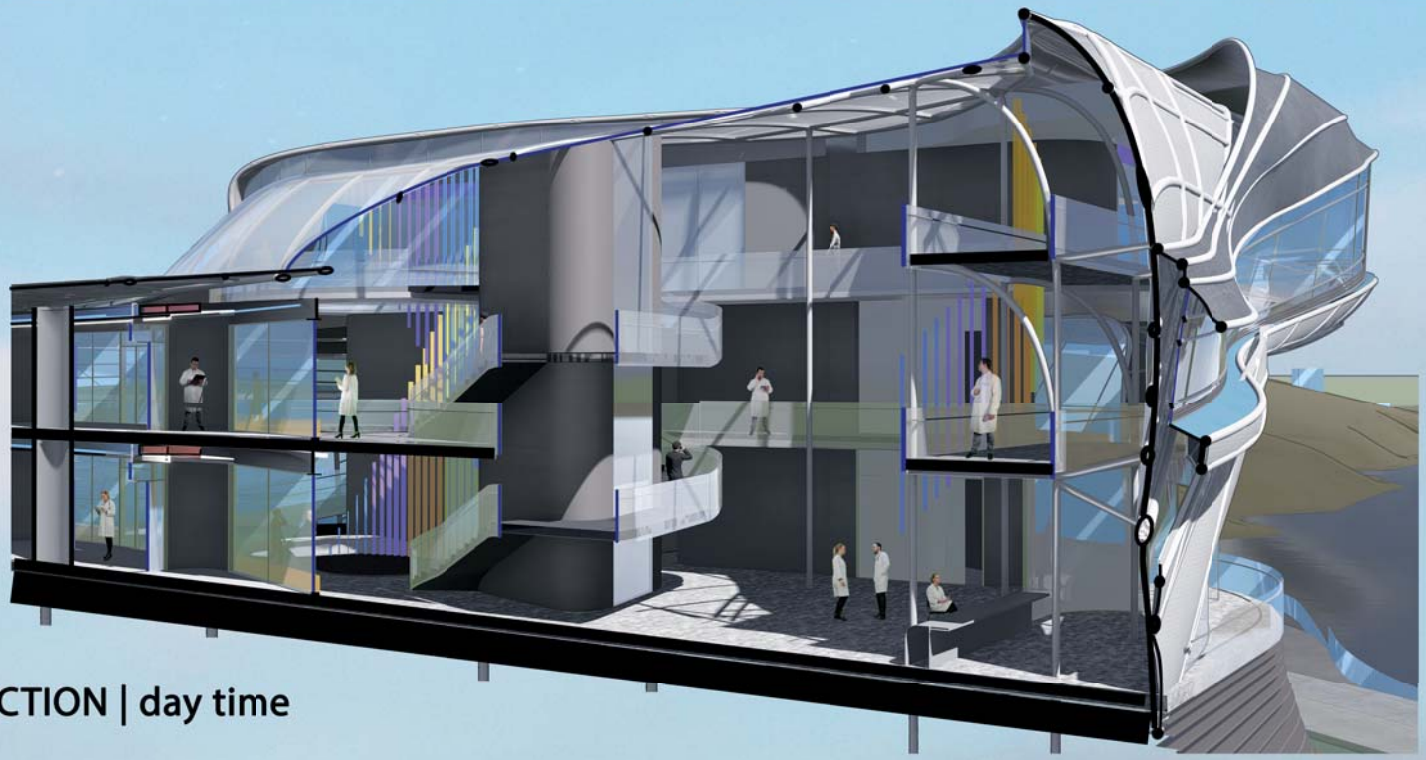




PERSPECTIVE SECTION | night time


main street


whirling steps



PERSPECTIVE SECTION | day time

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