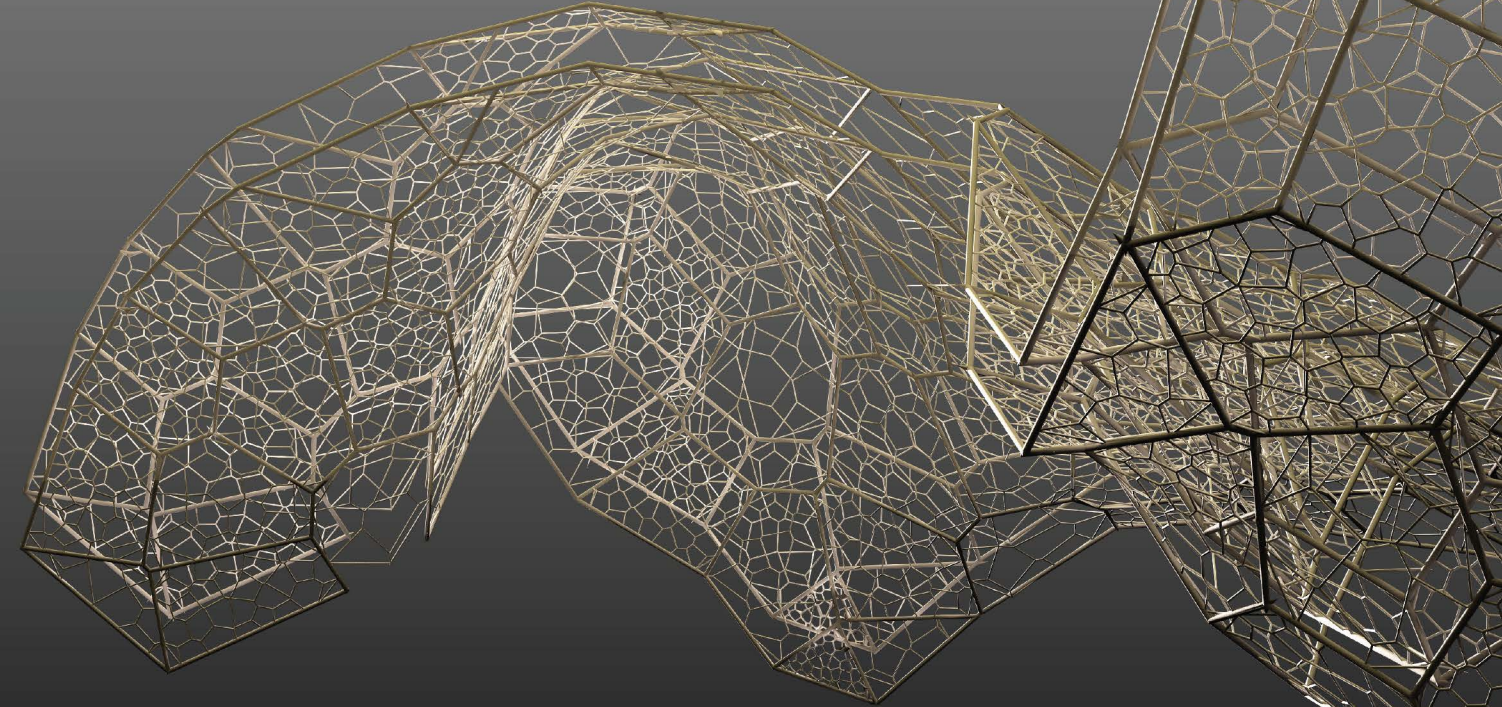


Undergraduate Architecture Portfolio - Kutay Mert Kilcioğlu

KUTAY MERT KILCIOĞLU

Undergraduate Architecture Portfolio

2 0 1 2 - 2 0 1 7





# Kutay Mert Kilcioğlu - CV

## Academic

2012-2017 / Bilkent University, Ankara, Turkey  
Department of Architecture, Architecture, CGPA: 3,27/4

Student Assistant November 2015 / -

2008-2012 / Turhan Tayan Anatolian High School, Bursa  
2000-2008 / Inal Ertekin College, Bursa

## Professional Practice

Eray / Carbajo Architects

New York City, New York

June 2015- August 2015, May 2016- August 2016

### Position Held:

Architectural Intern in charge of design visualization and rendering, schematic design, construction documents, physical and digital model making, digital fabrication.

### Project Involvement:

Wychoff Avenue Renovation- NYC  
Cucina Bene Restoration- Wall Street, NYC  
CASA Lucho y Sole Botello - Zaballa, Argentina  
Bornova Municipality Building Competition- Izmir, Turkey  
YAC Competitions- University Island Competition

Sözüneri Architecture&Engineering

Bursa, Turkey

May 2015- June 2015

### Position Held:

Architectural intern in charge of observing and checking through the works done in construction site. Involve construction work in a basic level.

### Project Involvement:

Construction site of new Anti-Smuggling and Organized Crime Department of Police Office of Bursa, Turkey

## Honors + Awards

2016 - Finalist of the S.ARCH International Architecture Award / Conceptual Design

2016 - ARCH-317 Selected Project by the Dean- Will be permanently constructed to the campus in 1:1 Scale.

2016 - Bilkent University High Honour Certificate

2015 - Arch 202 Architectural Design Studio Project exhibited in Architectural Student Projects Exhibition "Basamaklar"

2015 - Bilkent University Honour Certificate

2014 - Bilkent University Honour Certificate

2014 - Awarded a "Model Making Workshop Runner up" in Bartlett Summer Foundation For Hidden Library Project, September, UCL, London.

## Certificates

2016 - Certificate of participation in Architectural Association Amazon Visiting School, 22-28 August 2016

2014 - Certificate of participation in the 2014 Bartlett Summer Foundation, UCL, London, England.

2014 - Participation in the workshop "The Protection of Open Air Structures" directed by Axel Nielsen, Ankara.

2013 - Participation in diction, oratory, micro body language and Professional communication training.

2013- Participation in a symposium and a workshop "Introducing The Protection of Architectural Heritage" directed by Axel Nilesen, Ankara.

## Publications and Activities

Editing and co-authoring " Sancak/Sustainable Urban Prototype " - a collection of 3rd year architectural design projects done in Bilkent University - 2015

Bilkent Design Days Coordinator - Design and Architecture Society member

3D Modelling and digital visualization of Dutch architect Willem Marinus Dudok's proposal for İzmir municipal theatre Colloborative work with Delft University- Holland

## Software

Rhinoceros 3D 5.0  
Grasshopper, Panelling Tools, T-Splines  
Autodesk AutoCad  
Autodesk 3DS Max  
Autodesk Revit  
Adobe Photoshop  
Adobe Illustrator  
Adobe InDesign  
Adobe AfterEffects  
Adobe Premiere Pro  
V-Ray

## Travel

Austria	Hungary
Bahamas	Italy
Belgium	Montenegro
Canada	Netherland
Czech Republic	Norway
Denmark	Russia
England	Slovenia
France	Spain
Greece	Sweeden

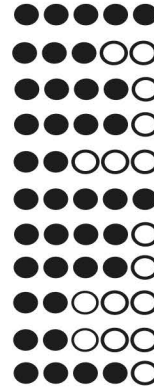
## Contact

mert.kilcioglu@gmail.com

+90 537 394 55 78

<https://tr.linkedin.com/mertkilcioglu>  
<https://mertkilcioglu.wordpress.com>

Cumhuriyet mah. Gazi cad No:46/2  
Nilüfer/Bursa



## References

### Mark Paul Frederickson

PhD Leed AP, Director of Tejido Group  
mpf@email.arizona.edu

### Meltem Gürel

Founding Chair, Associate Professor  
mogurel@bilkent.edu.tr

### İnanç Eray

Partner of Eray/Carbajo Architects  
i@eraycarbajo.com

### Glenn Terry Kukkola

Instructor at Bilkent University  
glenn.kukkola@bilkent.edu.tr

# Contents

## 01 Serpentine Project

Arch 301: Architectural Design Studio III  
Finalist Project in S.Arch International Conceptual Design Award  
Instructor: Mark Paul Frederickson

## 02 Hacibayram Religion Center

Arch 302: Architectural Design Studio IV  
Instructor: Glenn Terry Kukkola

## 03 AA vs Amazonas

Architectural Association Amazon Visiting School.  
Instructors: Nacho Marti, Marko Brajovic

## 04 3. Istanbul Design Biennial

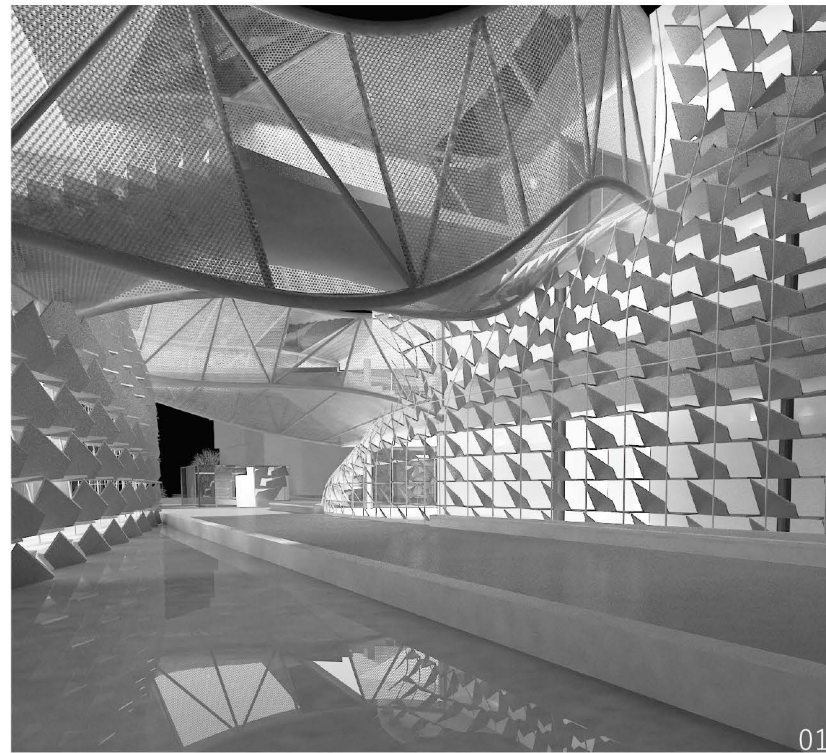
Selected project by Bilkent University for an exhibition in 3. Istanbul Design Bienal.  
Instructor: Yasemin Kaygusuz

## 05 Pavilion for Student Council

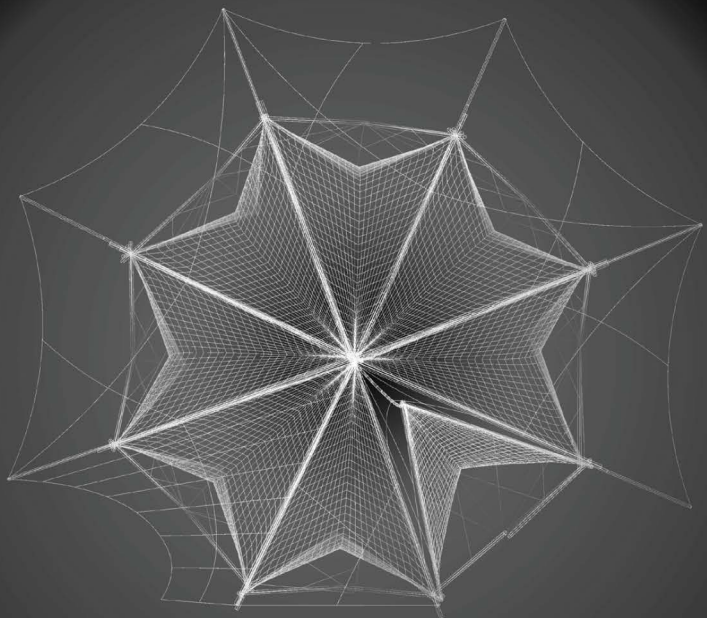
Arch 317: Parametric Design Studio  
Selected Project by Dean to be constructed in campus  
Instructor: Burcu Şenyapılı Özcan

## 06 UCL Workshop

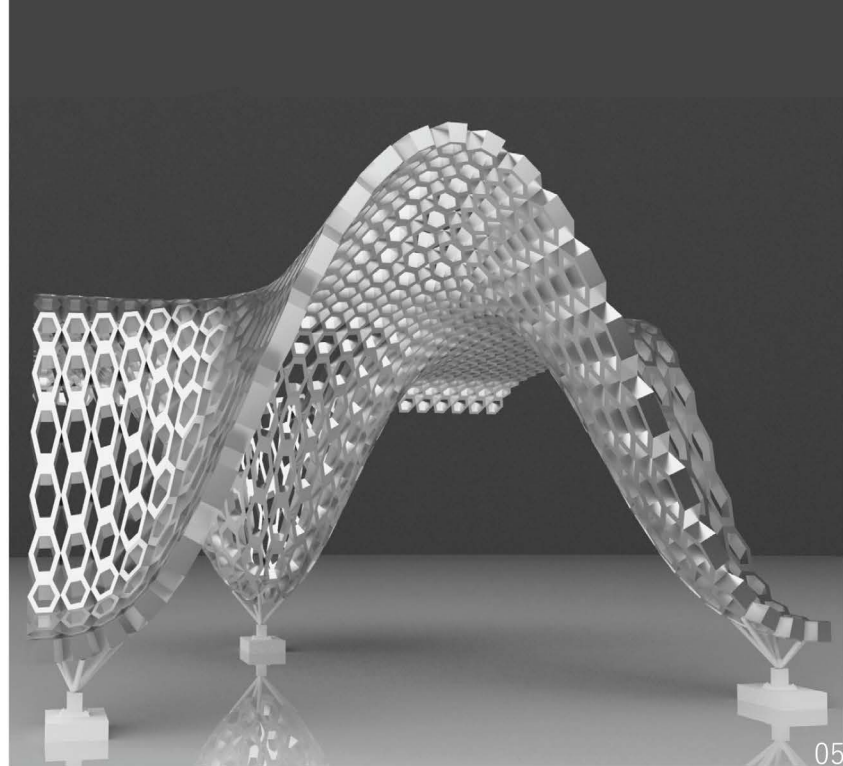
Selected projects done in summer workshop in Bartlett / UCL  
-Pig Suit  
-The Hidden Library ( Awarded as “Model Making Workshop Runner up” in Bartlett )  
-River Bus for Thames  
Instructor: Carlos Jiménez



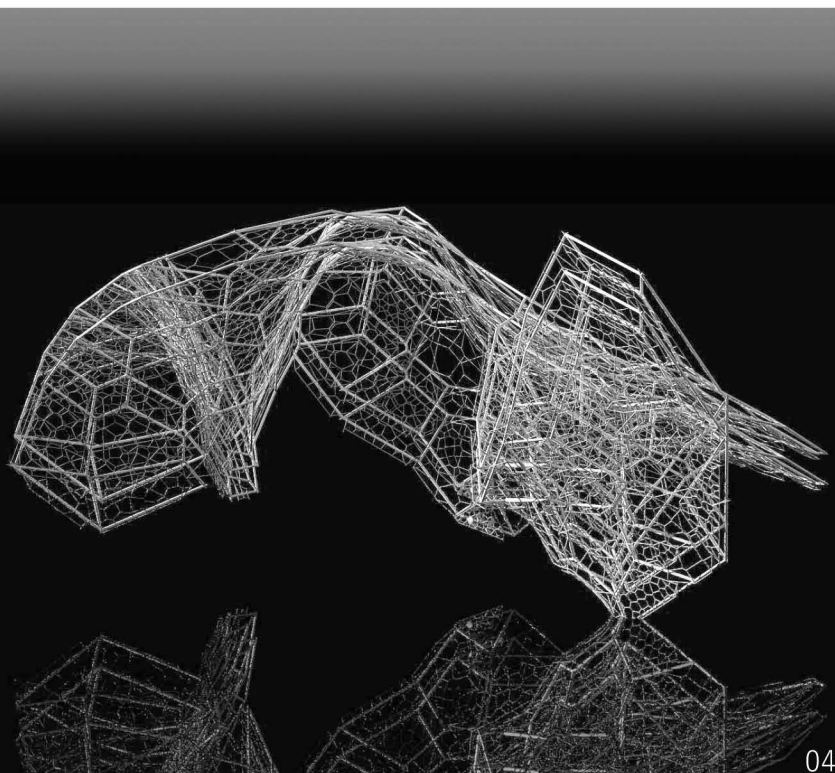




03



05



04



06



# 01 Serpentine Project

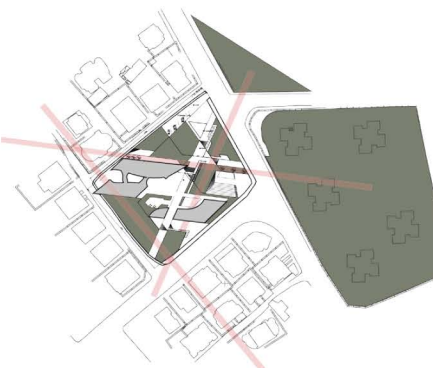
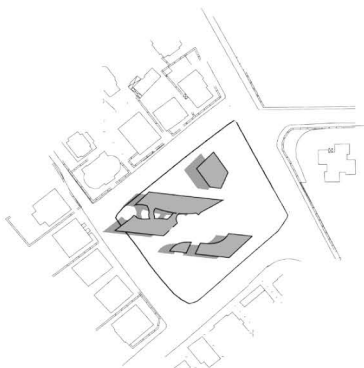
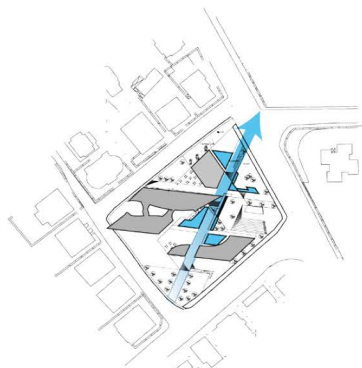
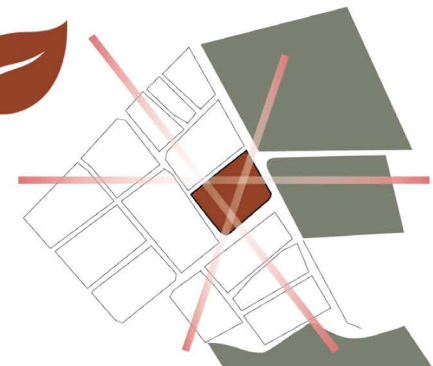
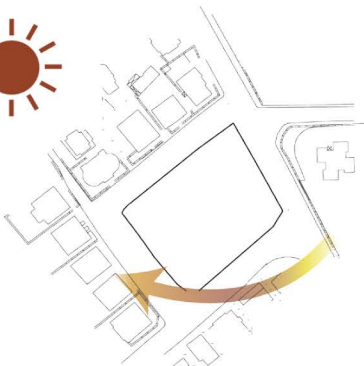
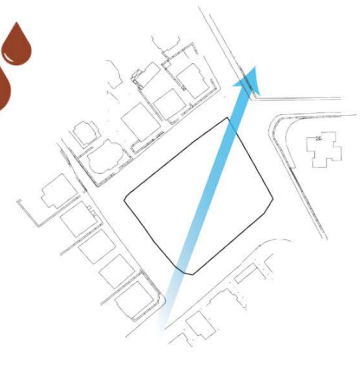
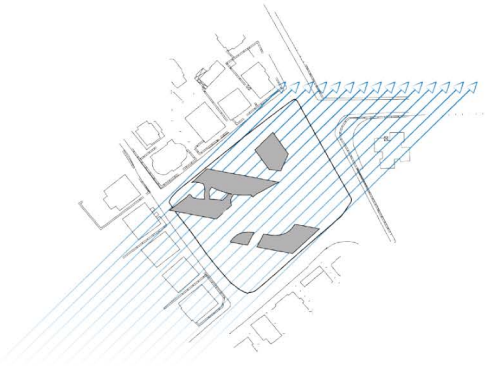
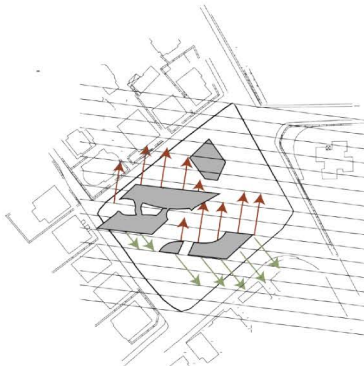
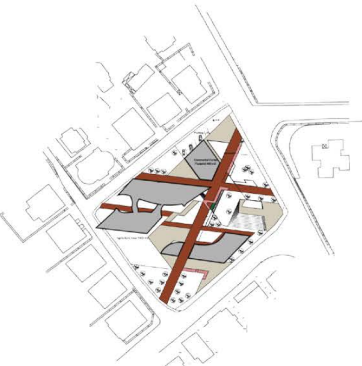
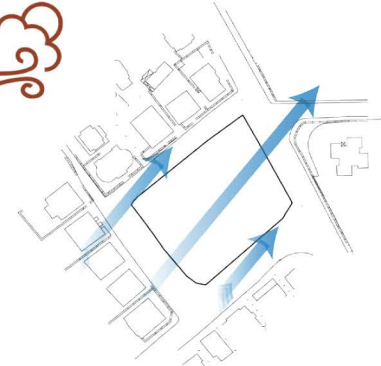
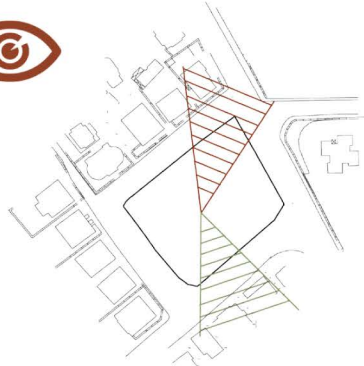
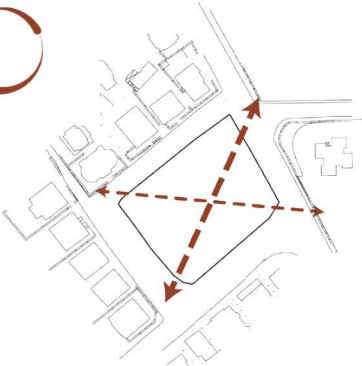
The image is a detailed architectural rendering of the Serpentine Project. It depicts a large, multi-level interior space characterized by its intricate, geometric facade. The walls and ceiling are composed of numerous triangular and polygonal panels, many of which are perforated, creating a complex, screen-like effect. A prominent feature is a large, curved, dark-colored structure that arches over a central courtyard area. The lighting is soft and diffused, highlighting the textures and shadows of the architectural elements. The overall atmosphere is one of modern, industrial design with a focus on light and space.

Serpentine project is a co-housing design which aimed to integrate people to one another as well as to their surroundings. Economical, environmental, cultural, functional and aesthetical values were considered. Architectural design should enhance existing ecosystems while creating opportunities for a meaningful social exchange and dialogue. While doing so, design should be able to identify and create aesthetic sensibility while taking historical and cultural aspects of the region in consideration, thus creating a vision of the future.



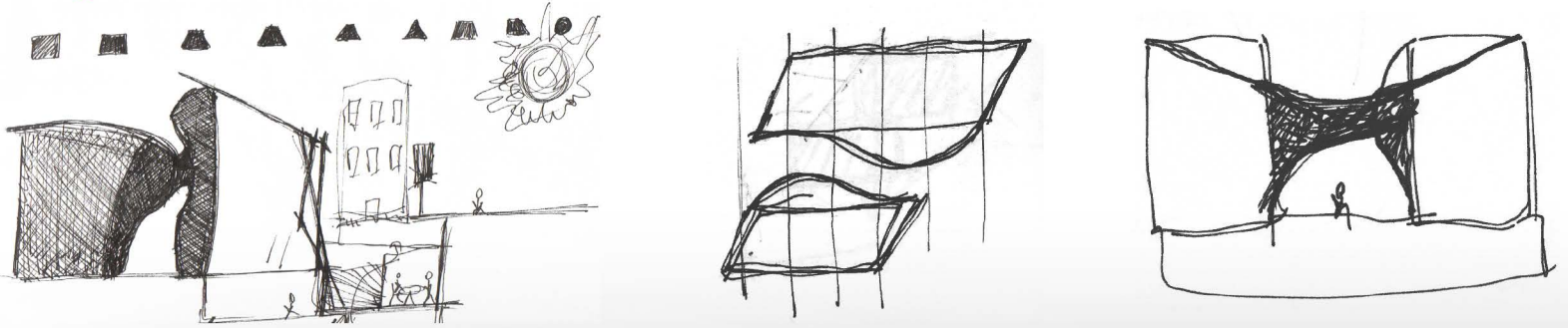


# Sources of Forms





## Design Process



A site plan should respond to its surroundings, while maintaining the functional requirements of the site itself. Grid lines were taken as references and were drawn in accordance to the sun, the direction of the wind, main roads, green areas, buildings nearby as well as the most compelling views.

There is a visual difference between the exterior and interior façade since the design is aimed to create a contrast between the surrounding and the interior through behavioral change. The alterations seen in the design are directly reflected onto the functional performance of the building. The underground parking is of great importance as it acts as a tool that connects the users of the residential through external vertical circulation elements such as elevators and stairs.



# Floor Plans



Ground Floor Plan

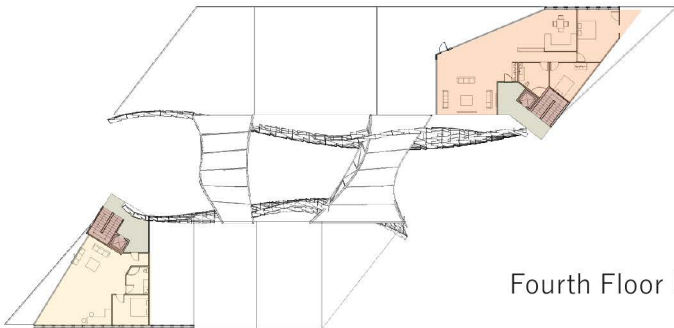
First Floor Plan



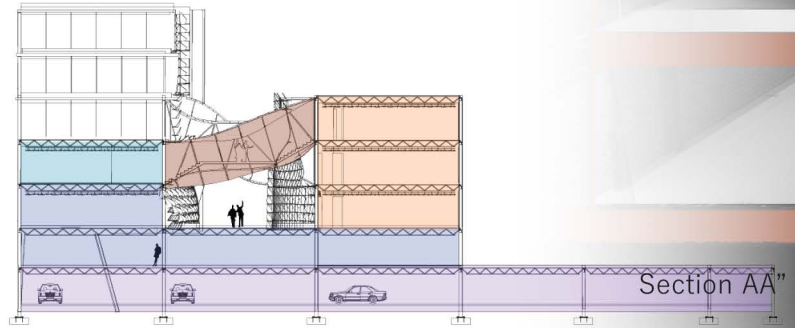
Second Floor Plan



Third Floor Plan



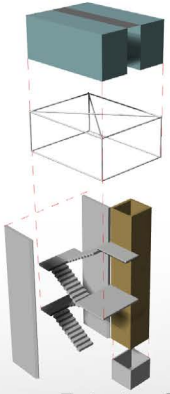
Fourth Floor Plan



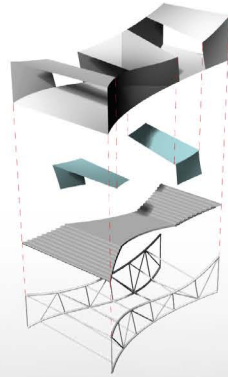
Section AA



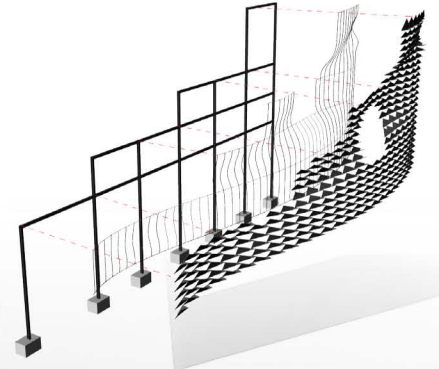
Perspective Section



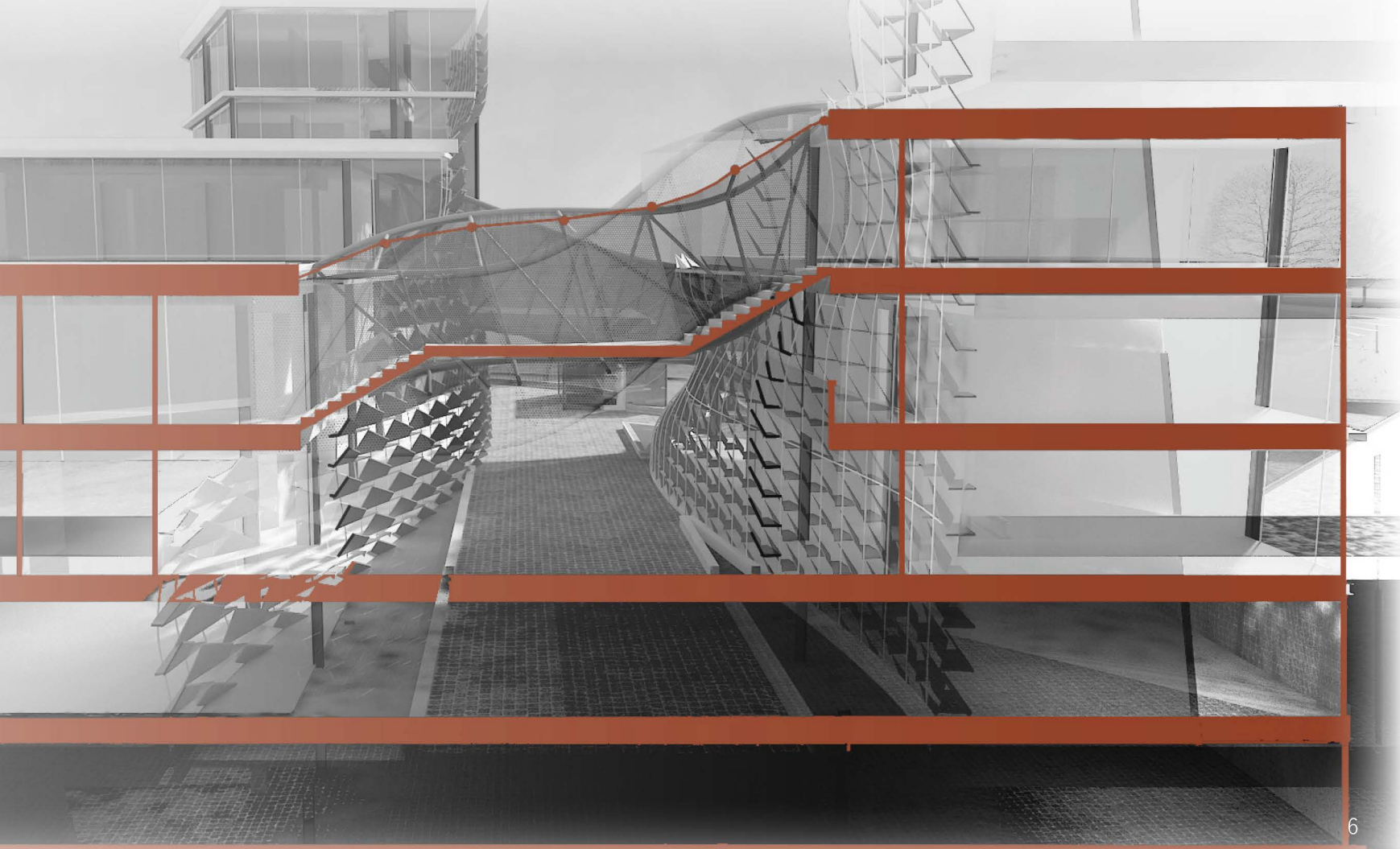
Exterior Stairs



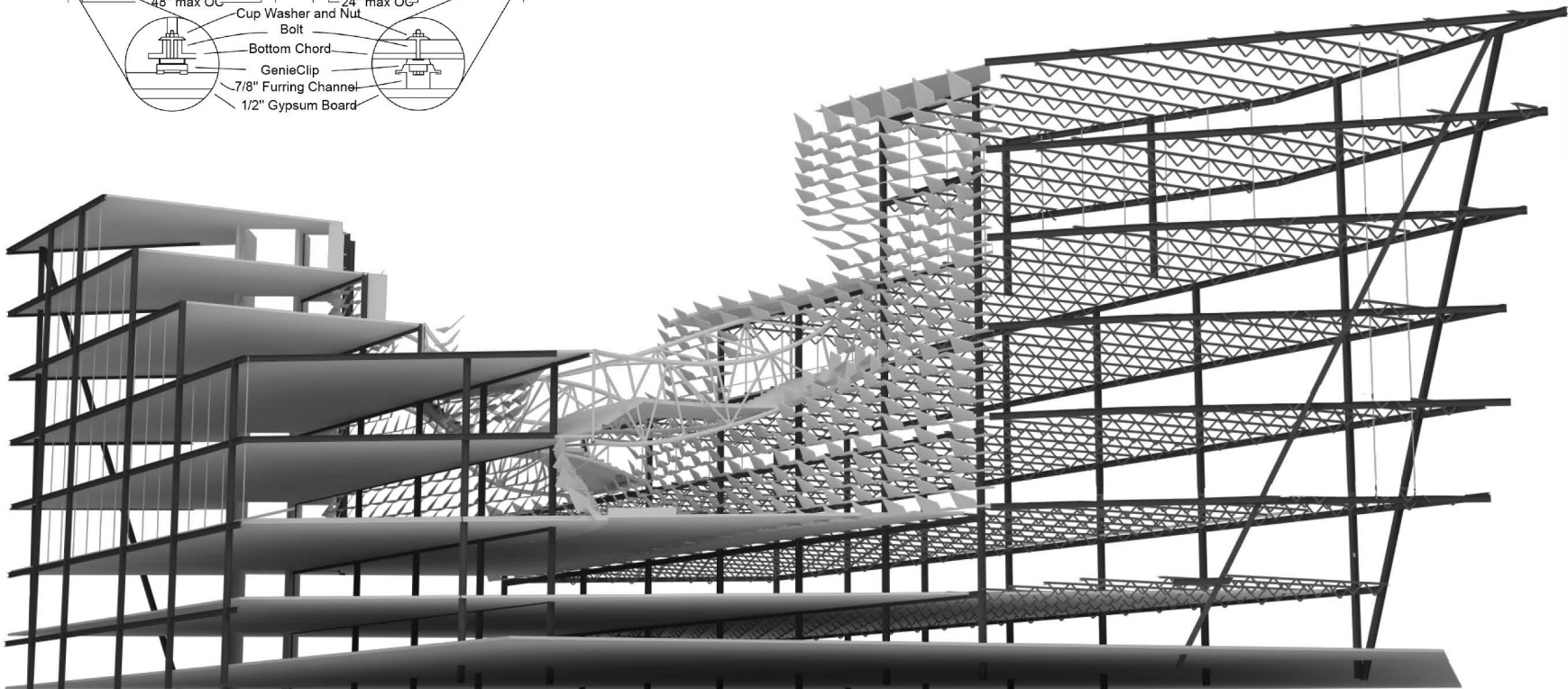
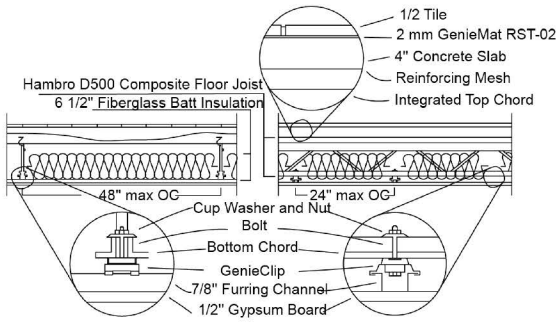
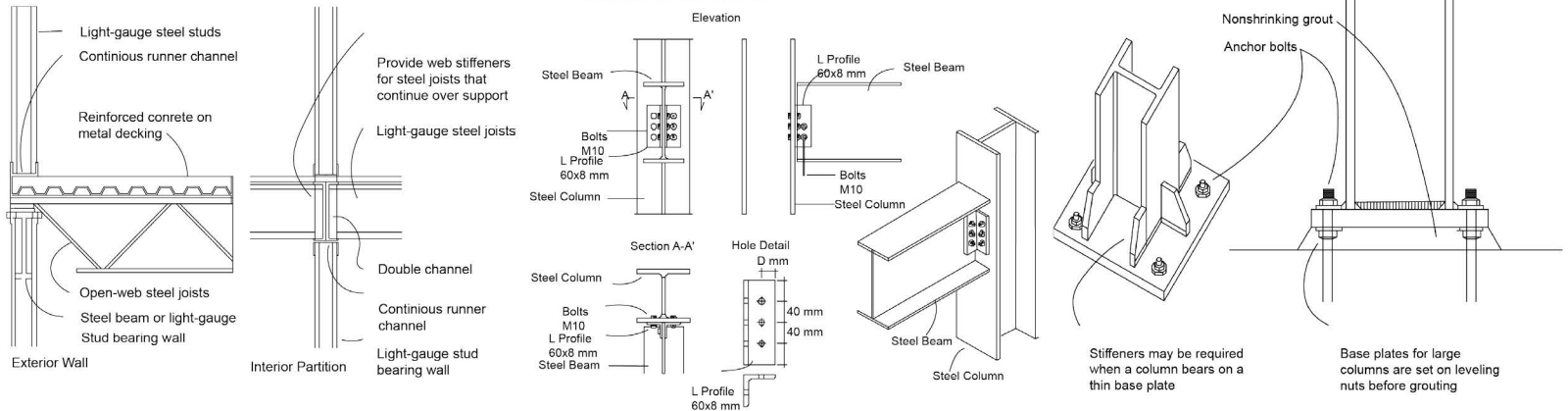
Structure of Bridges



Connection of Panels

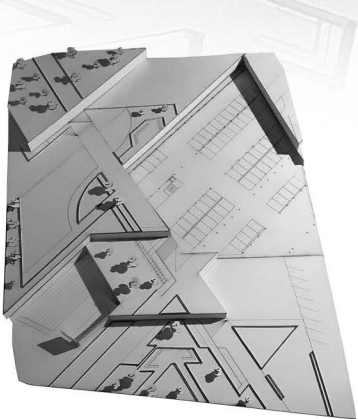
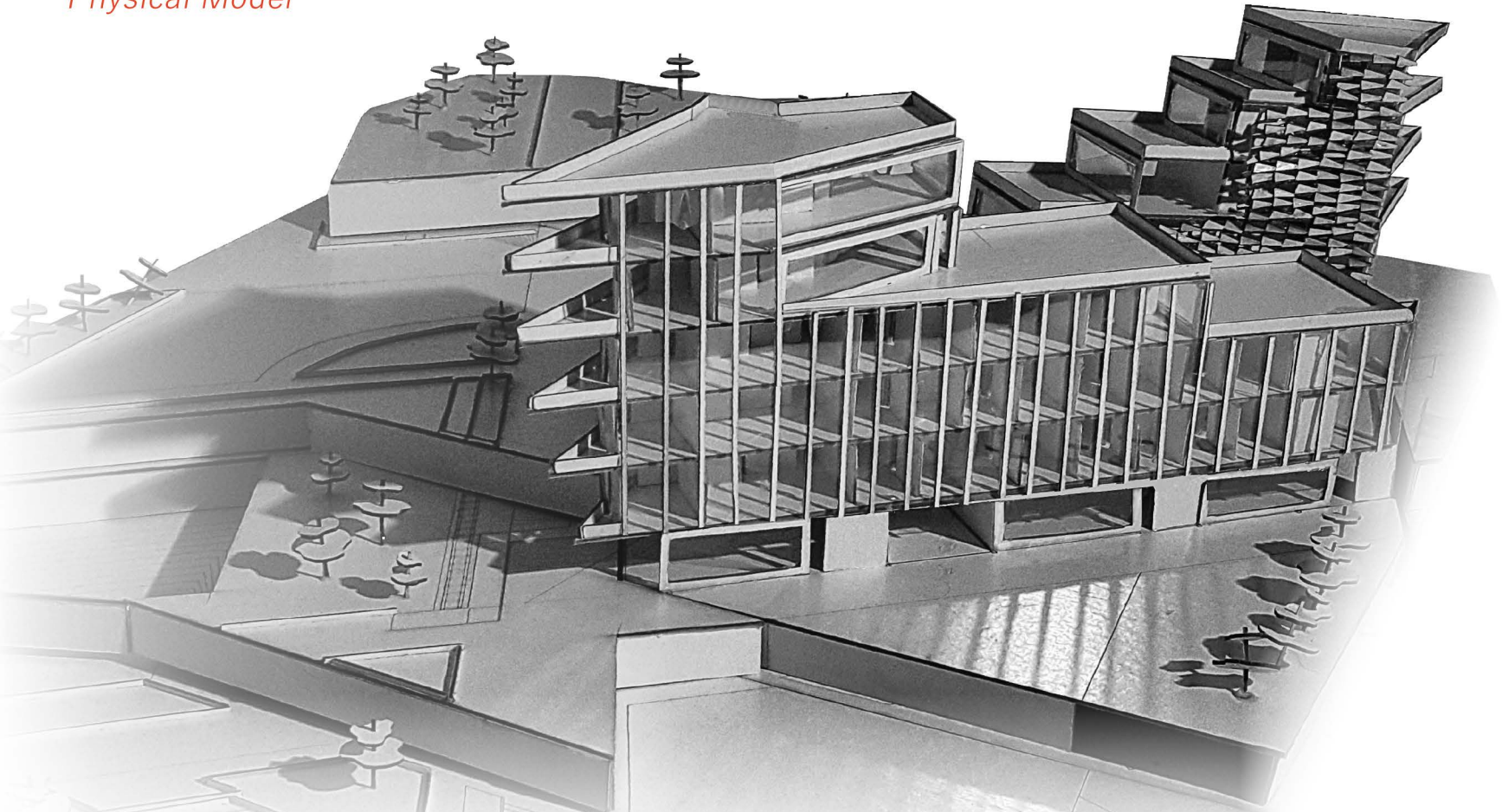


# Structure

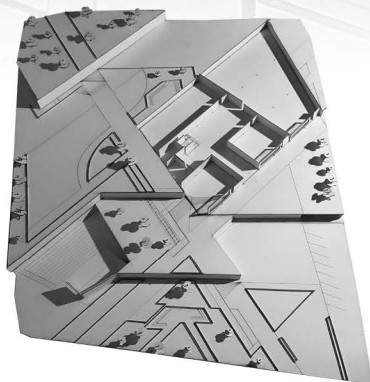




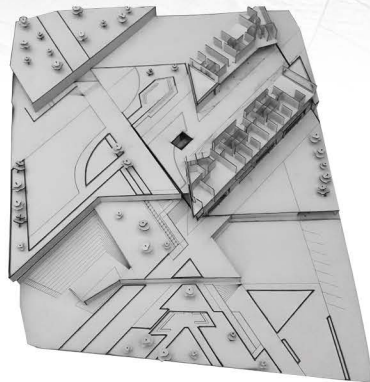
*Physical Model*



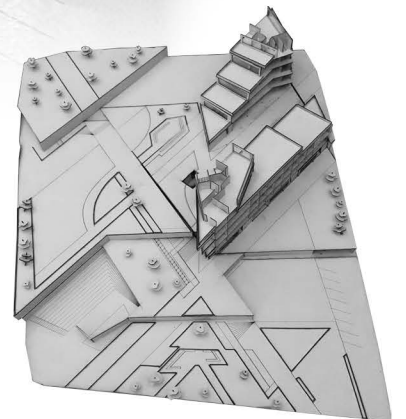
Underground Parking Lot



Commercial Level



1st Floor

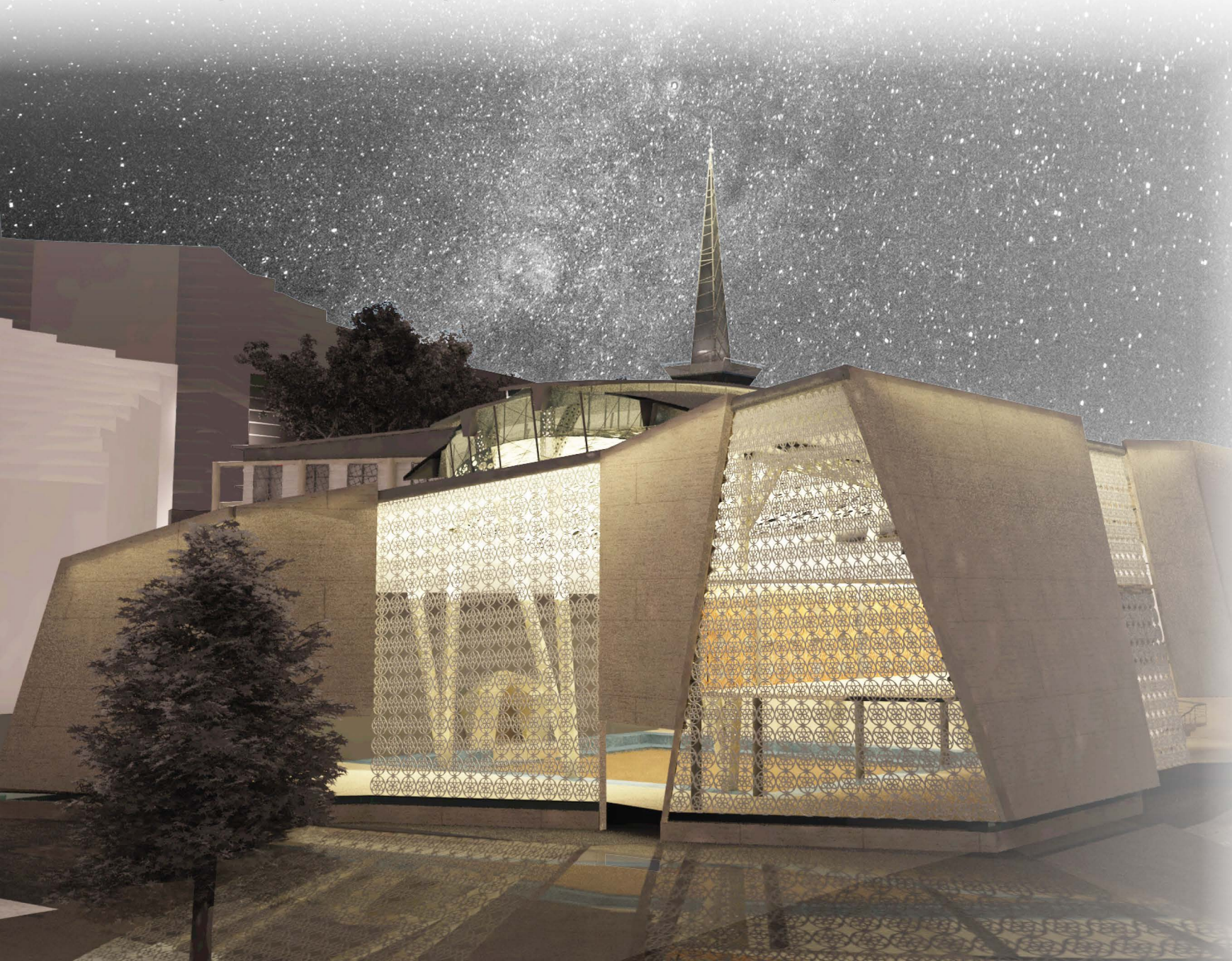


4th Floor 8



## 02 Hacıbayram Religion Center

The main objective of the project was to re-systematize the given area which is located in a very historical and multi cultural region of Ankara, that inhibits a dense variation of functional areas. Initially, a master plan with all these variations and different-functions was designed and later on the Religion Center was chosen as a focus of the project.







Traditional  
Ankara Houses



High Income  
Level



Wood, Plaster,  
Tile



Slum



Low Income Level



Mud, Brick, Wood  
Plaster



Apartment Buildings



Middle Income Level



Concrete, Stone  
cladding, Brick,  
Plaster



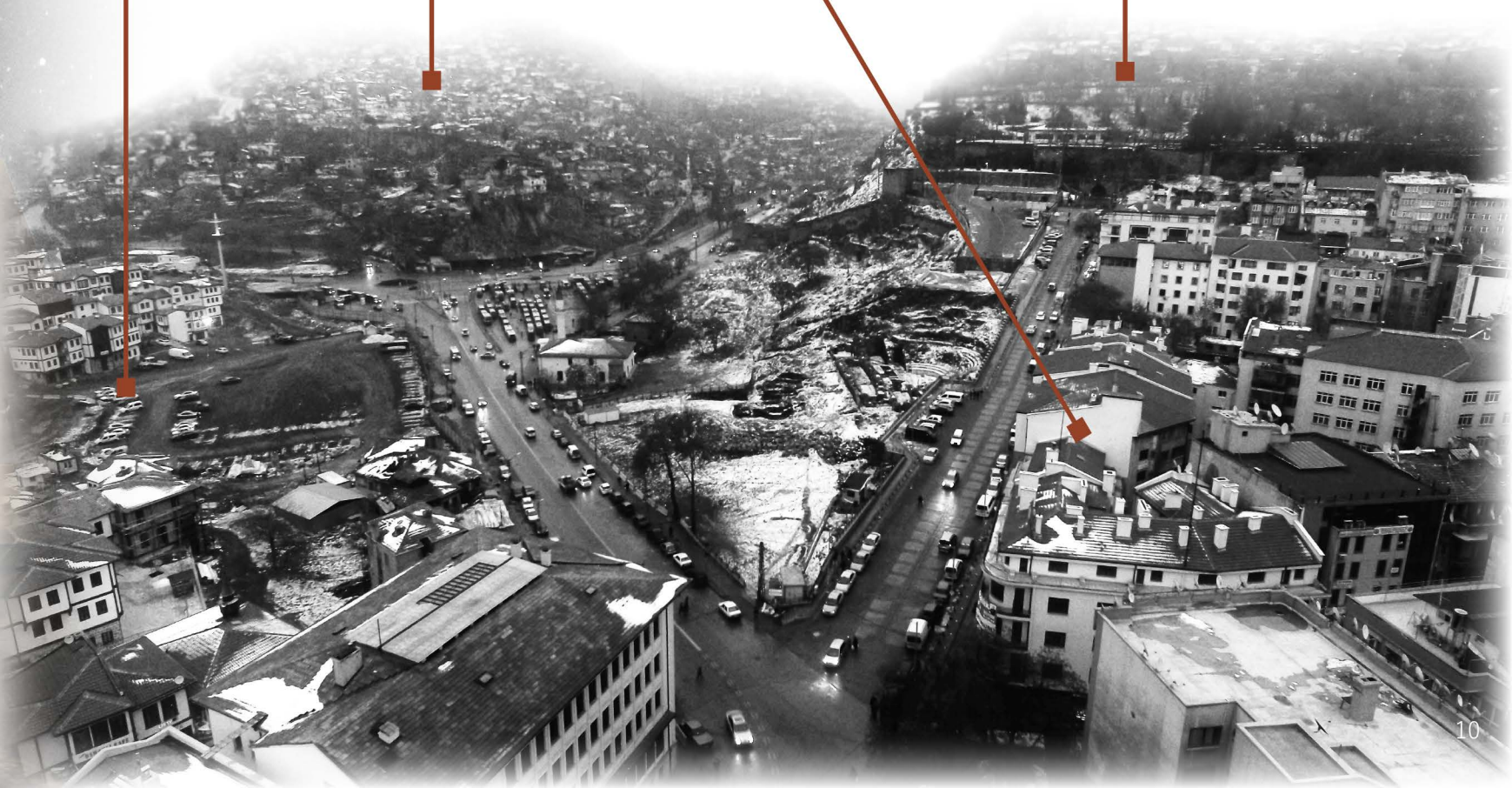
Historical Castle  
District



Low income Level

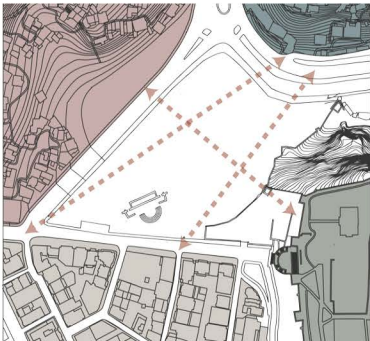
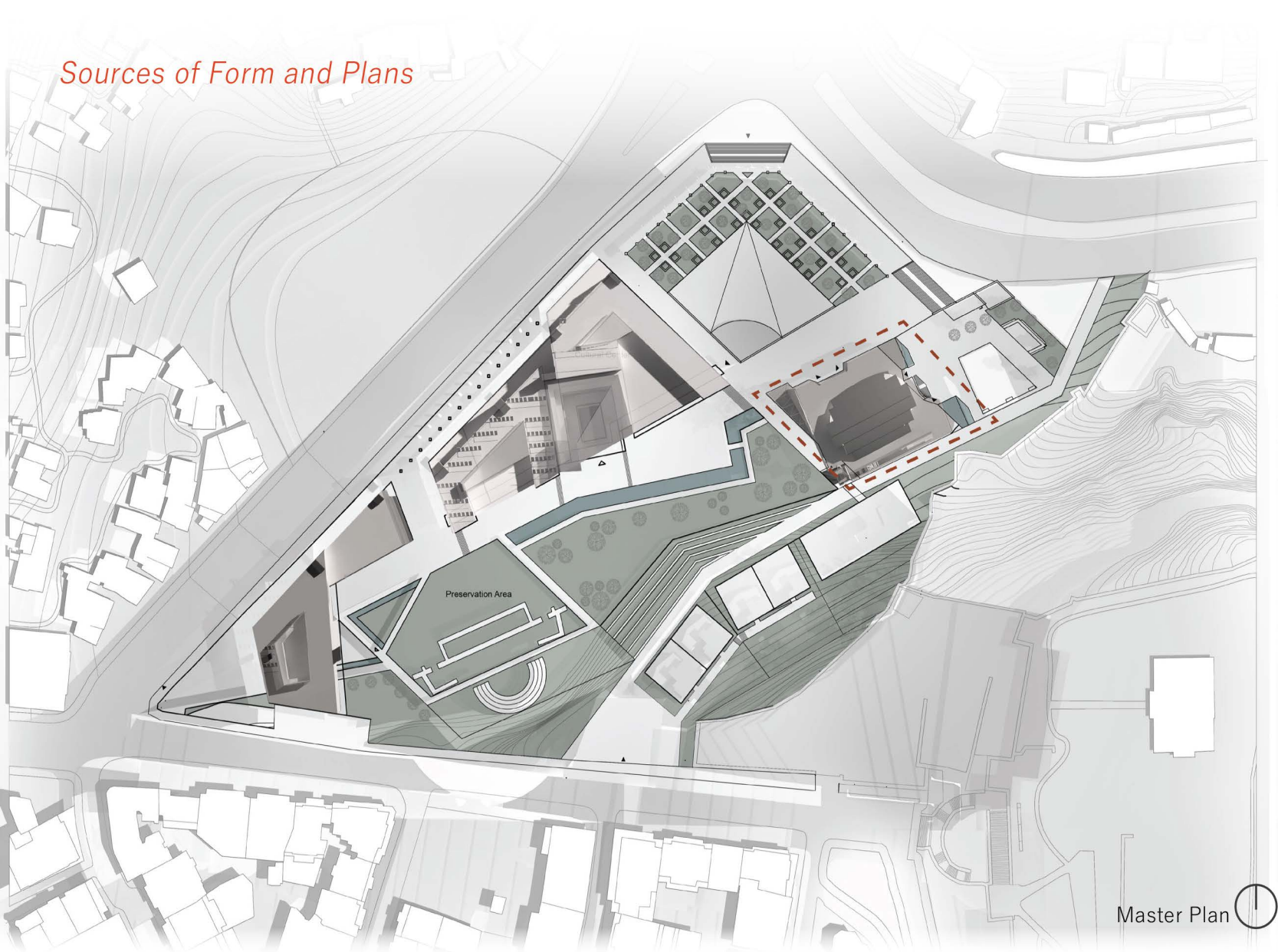


Stone, Mortar

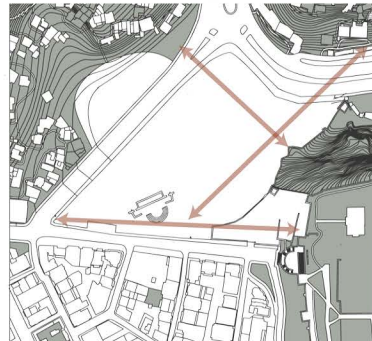




## Sources of Form and Plans

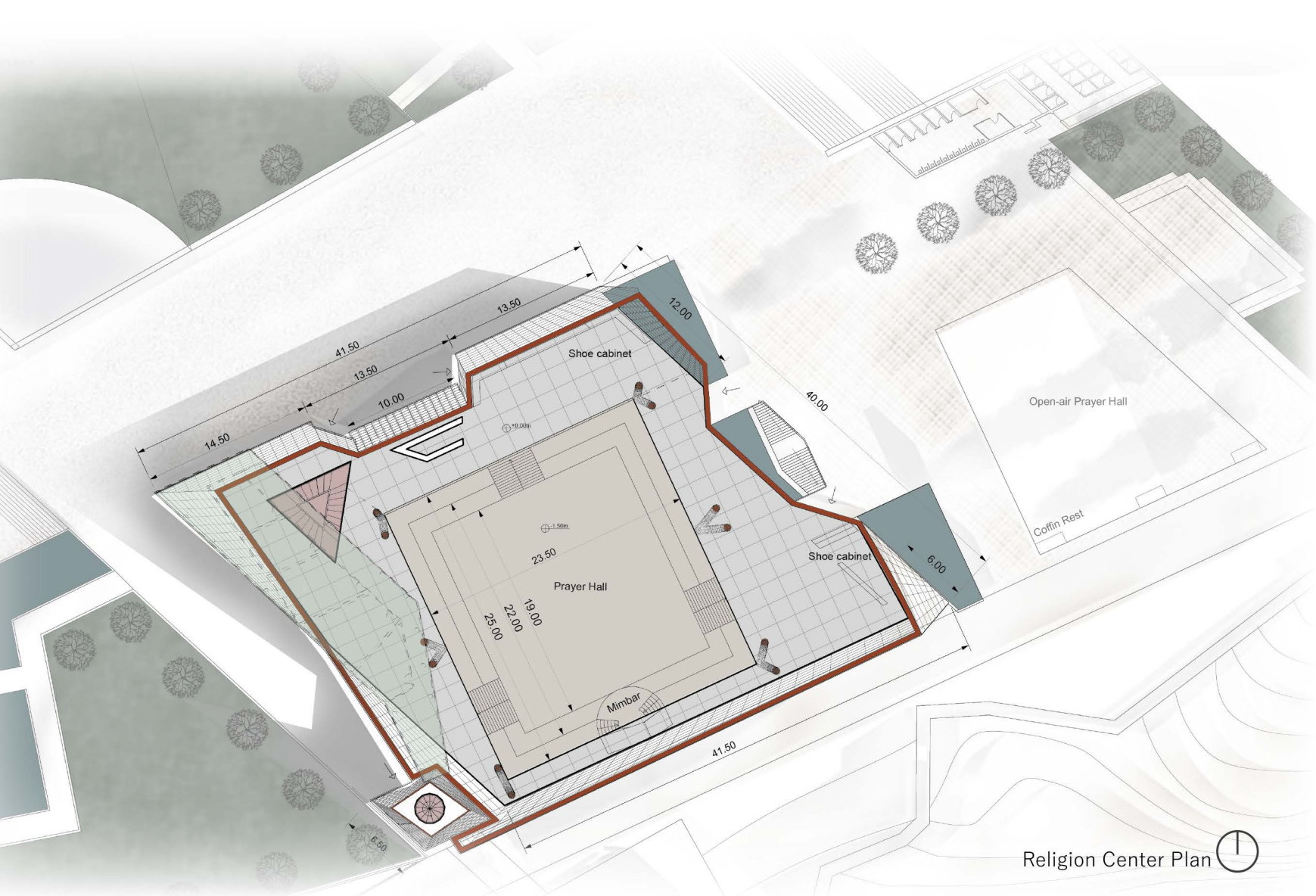


1- The main circulation axis is arranged in such a way that invites multi-cultural people into the site.

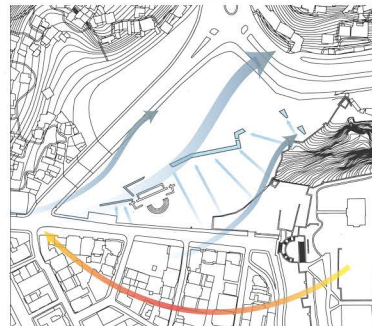


2- The continuity of the green areas enables the further development of such an ecosystem and can be regarded as a starting point.



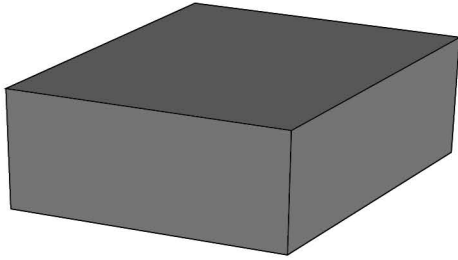


3- The orientation of the religion center carries great importance as it should be visible from numerous directions and extensive distances. Therefore, the surrounding buildings are placed accordingly.

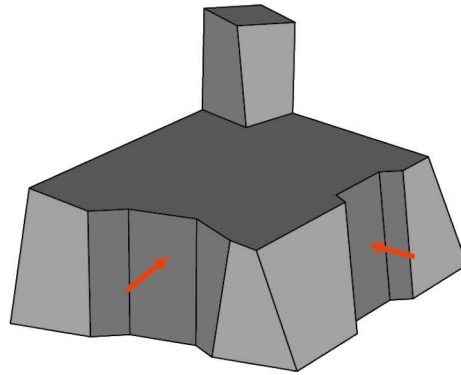


4- Factors such as wind, natural water and sunpath are taken in consideration while designing both the religion center and the surrounding buildings.

# Design Process



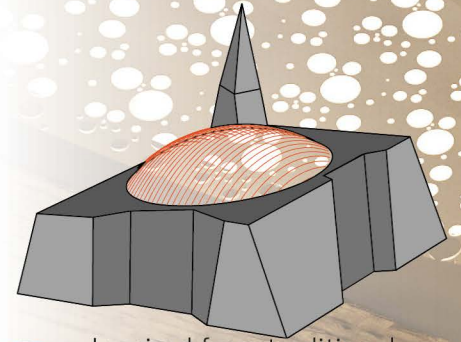
Initial form extracted from the Master Plan.



Twisting the form according to South-East ( Qibla direction)



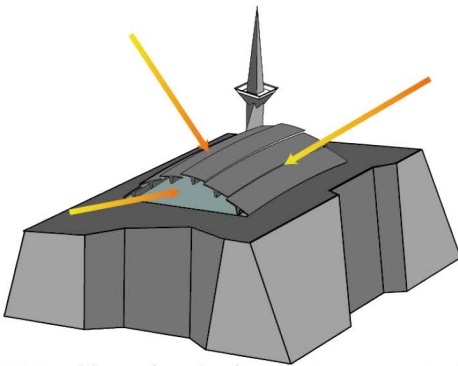
Indicating Entrances



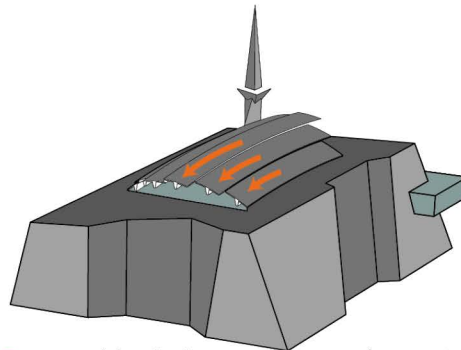
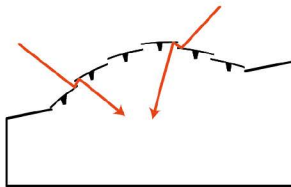
Inspired from traditional architecture.  
Re-interpretation of the domical structure.



Positions of pray used as a design inspiration.

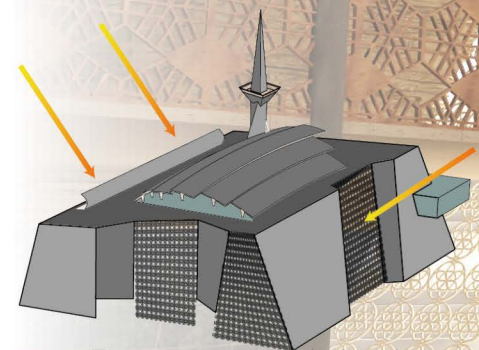
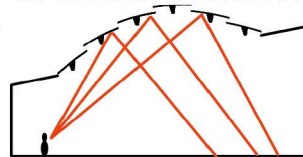


New domical structure created with pre tensioned beams. Structure allows sun light to penetrate to the interior.



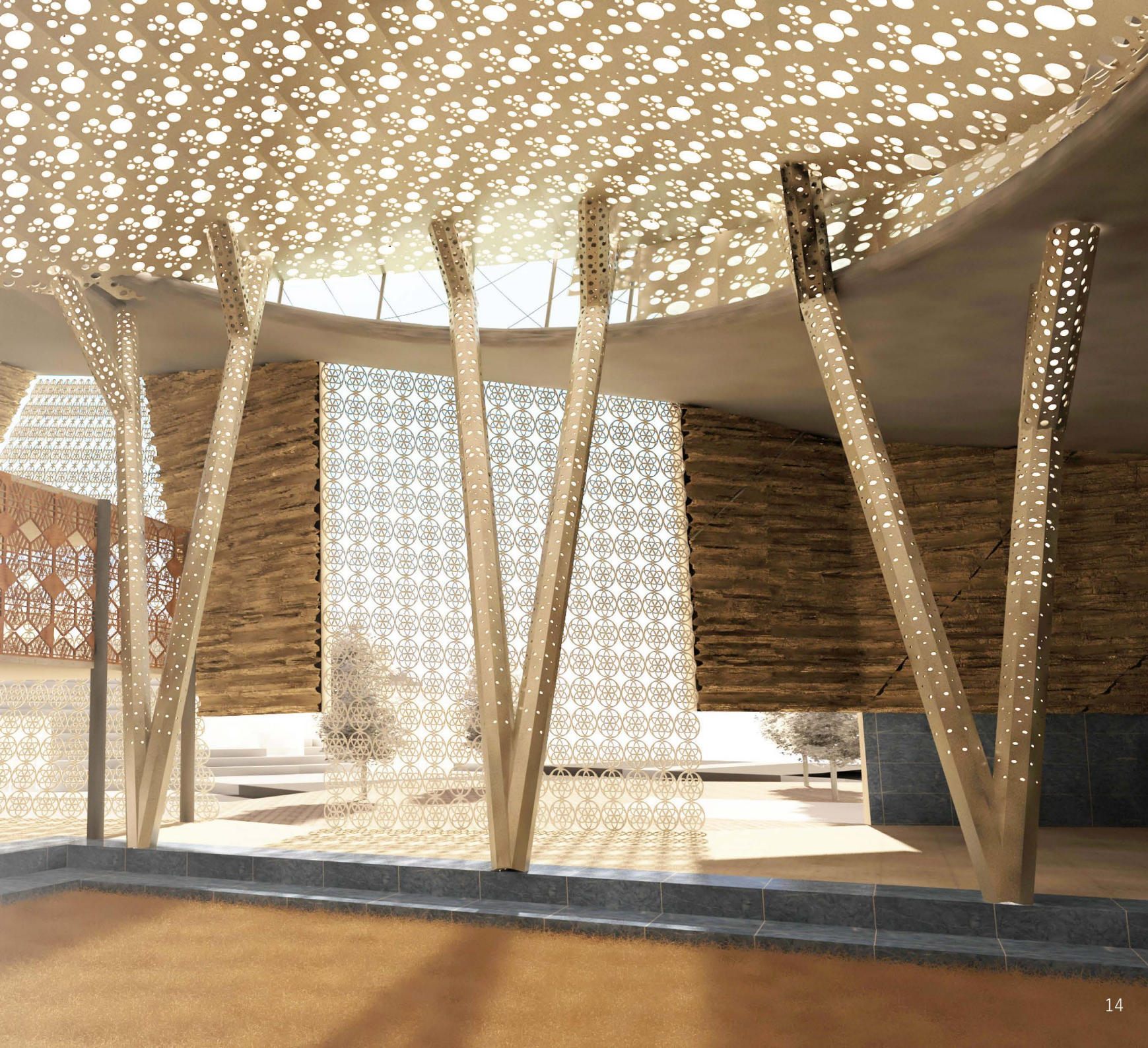
Music is a common element in all religions, which is also an inspiration element for form of the roof.

Roof as an acoustic element in design.



Transparency added with patterns in order to increase the relationship between the interior and the exterior.







*Plan & Perspective Sections*



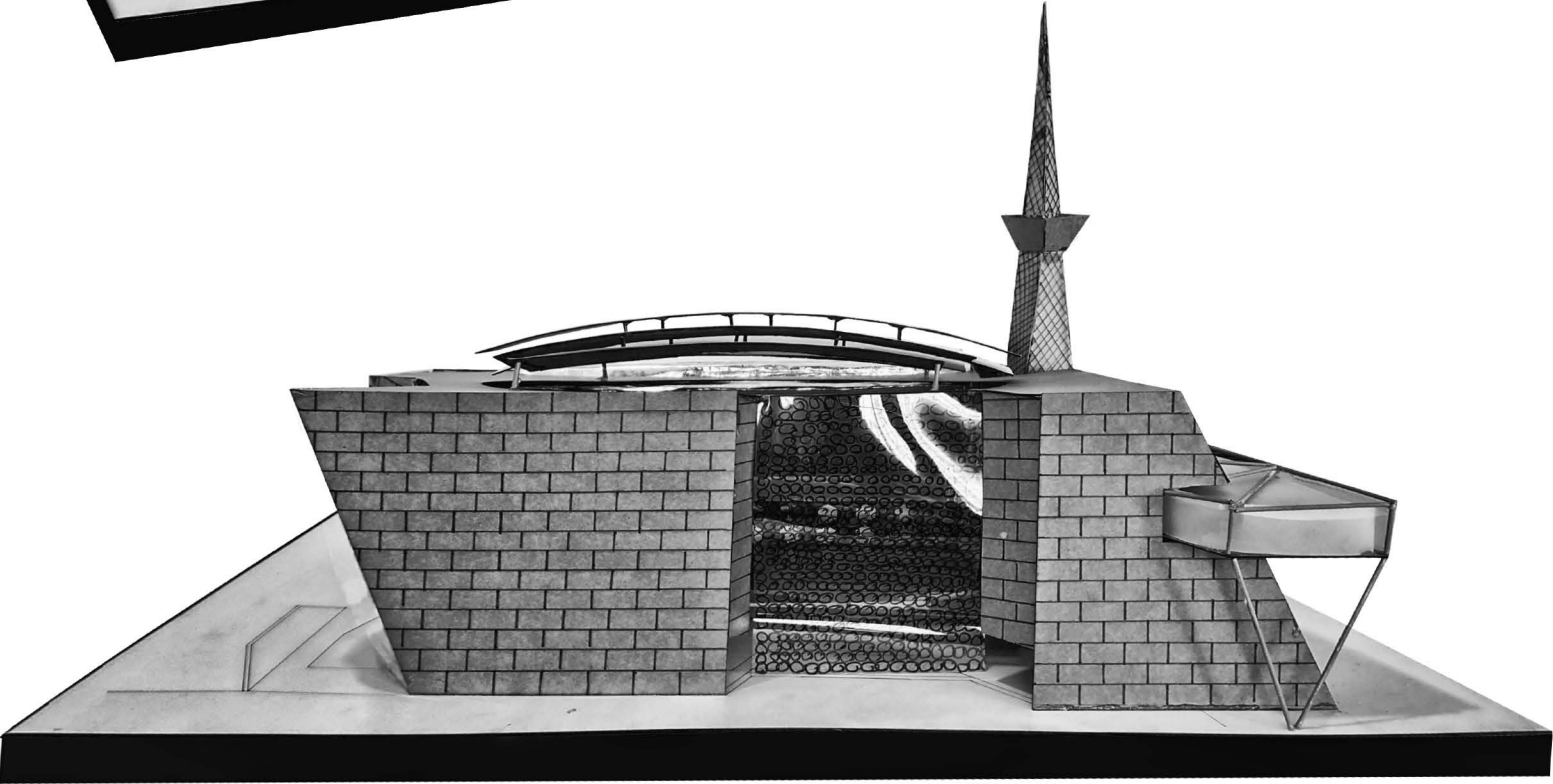
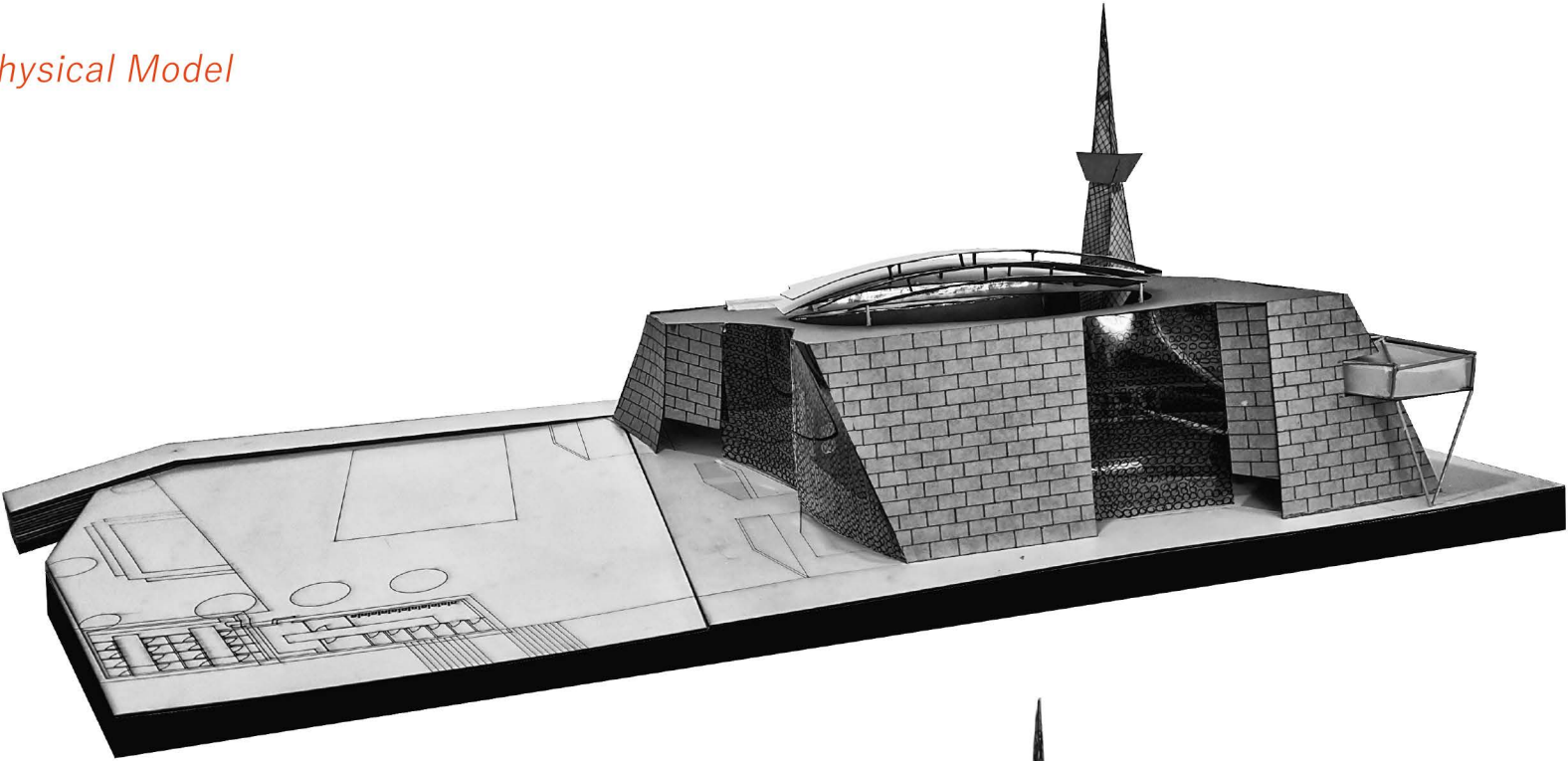
Section AA'



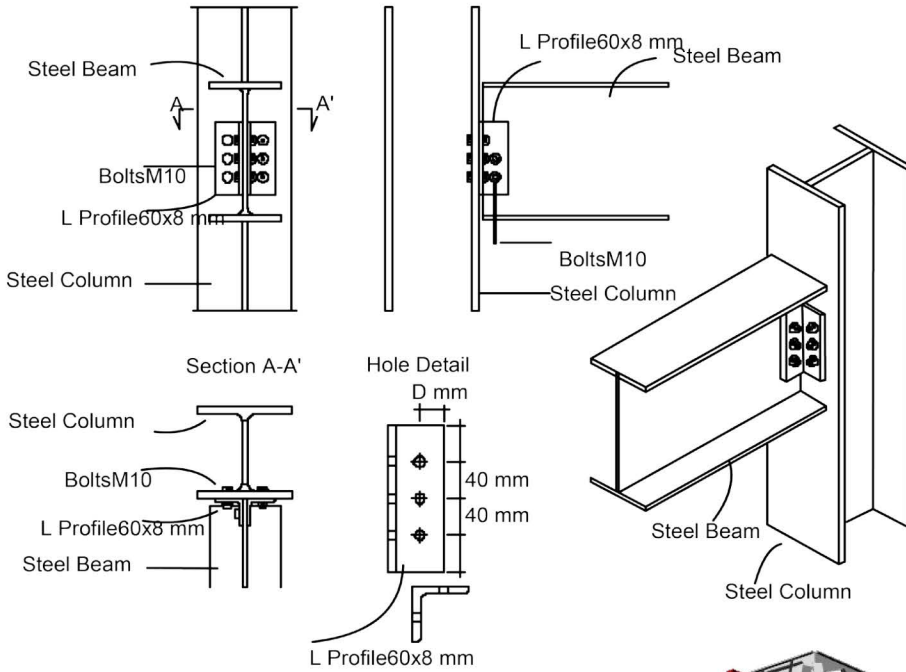
Section BB'



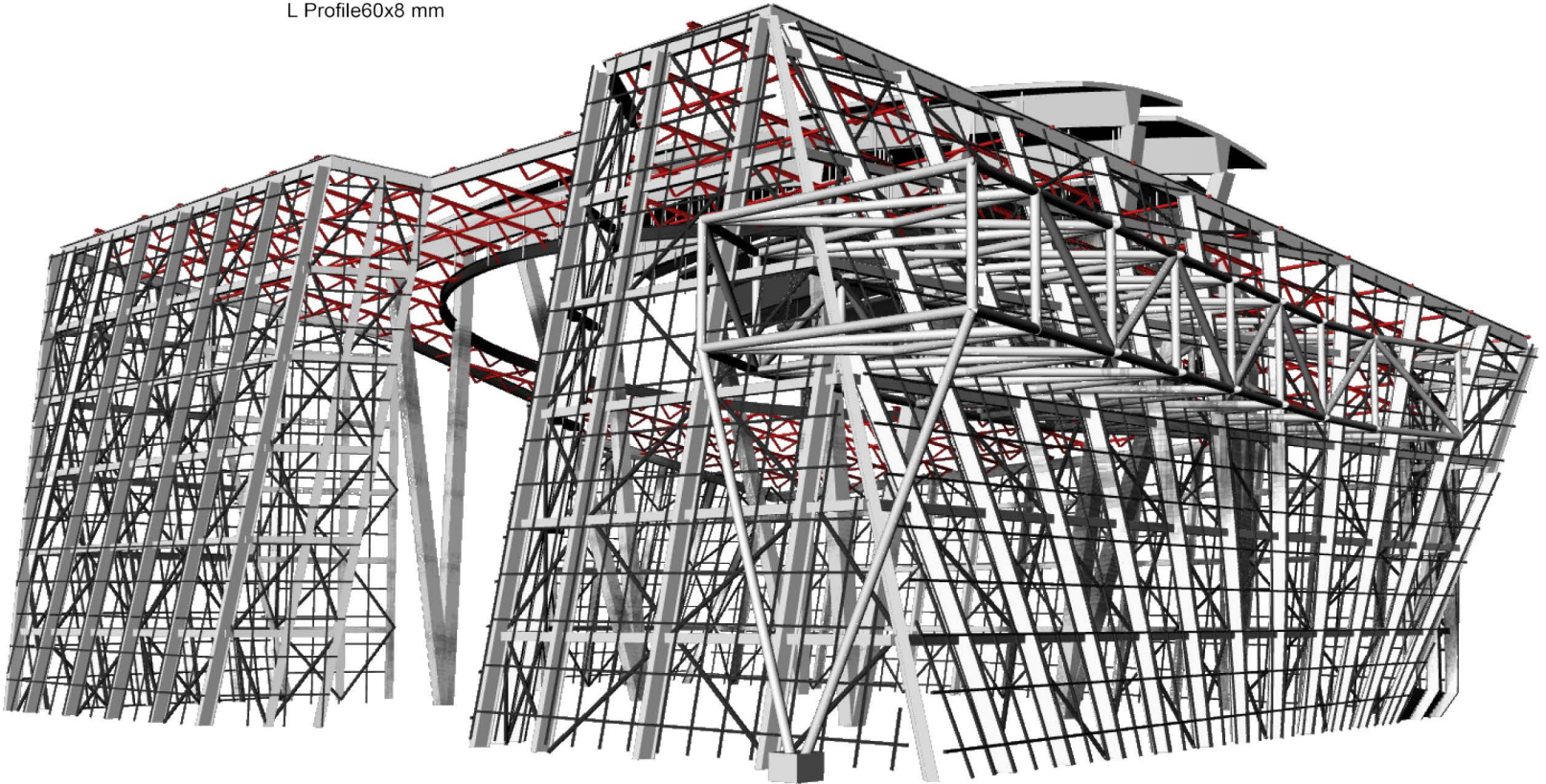
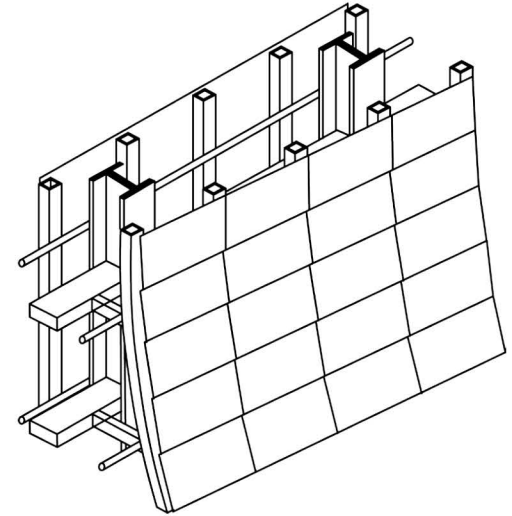
*Physical Model*



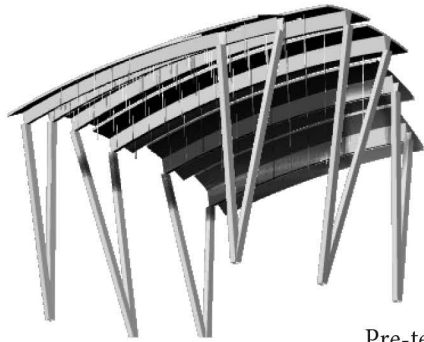
# Structural Design



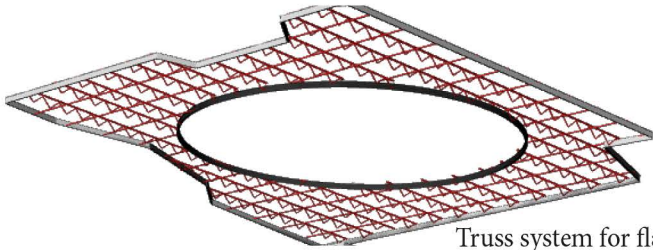
Isometric view of the facade showing the separate substructure, loadbearing layer, external layer and its substructure



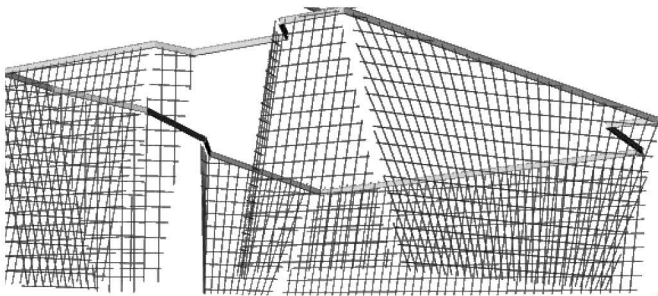




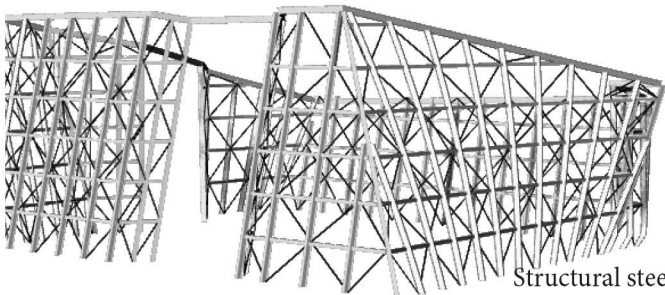
Pre-tensioned beams



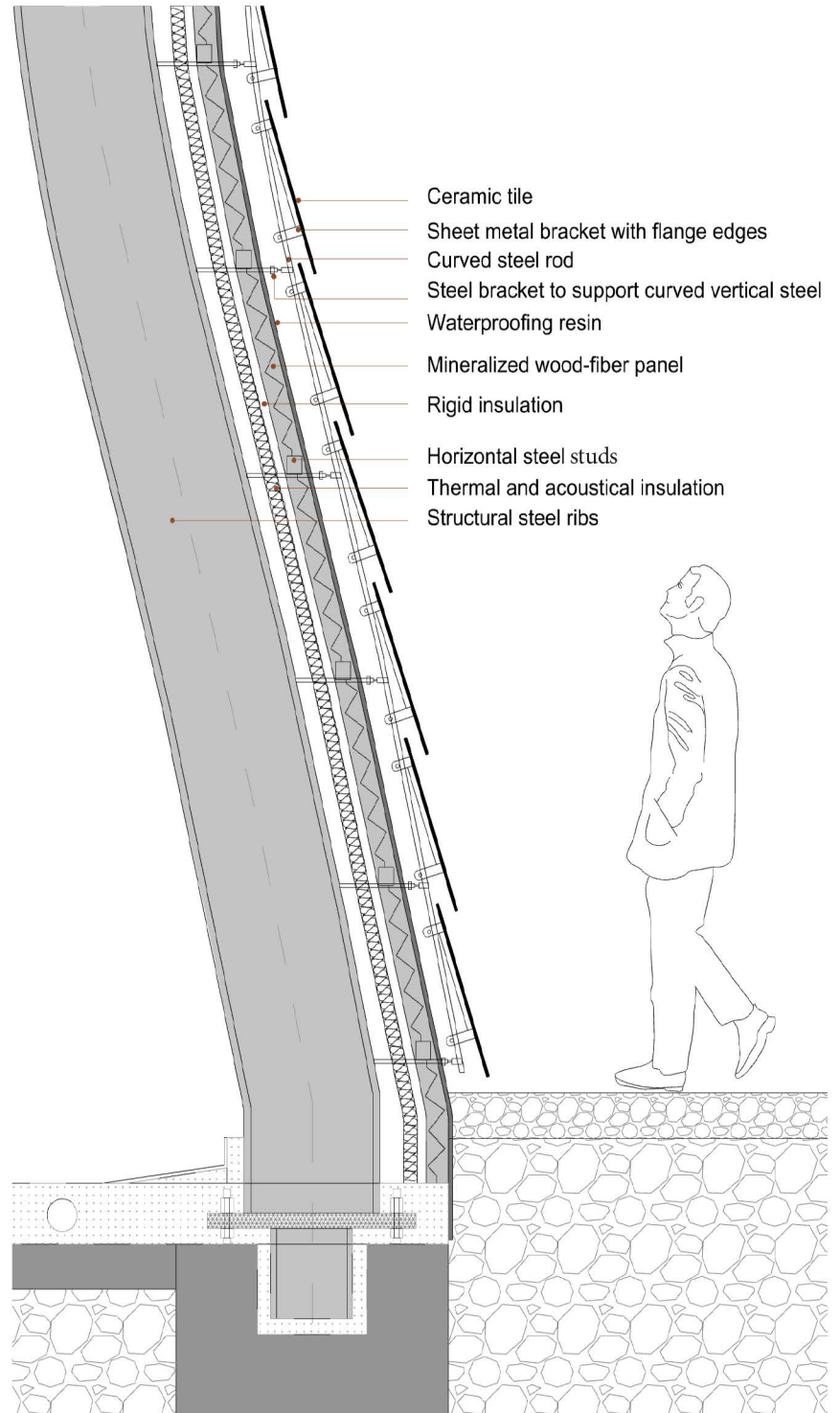
Truss system for flat roof



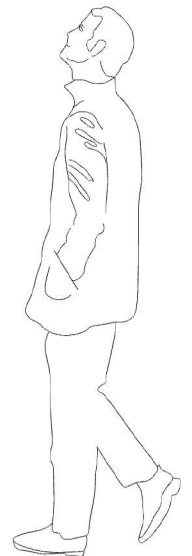
Steel studs



Structural steel ribs



- Ceramic tile
- Sheet metal bracket with flange edges
- Curved steel rod
- Steel bracket to support curved vertical steel
- Waterproofing resin
- Mineralized wood-fiber panel
- Rigid insulation
- Horizontal steel studs
- Thermal and acoustical insulation
- Structural steel ribs





### 03 AA vs Amazonas

Nature has been designing for 3.8 billion years. One of the most intense examples of nature's creation is the Amazonas. The analysis this specific region brought various factors to our attention. With the use of tension and compression forces a structural unit was created and further developed through its duplication with resulted in a complex structure. Materials that the nature offers were selected to be implemented to the structure. In addition, a biomimetic approach enhance the design and made it more user friendly. The way in which the Nabibian beetle collects water was transferred to the design by the use of vapour harvesting meshes that also acts as mosquito nets.





# Movable Structural Component



Position 1



Position 2

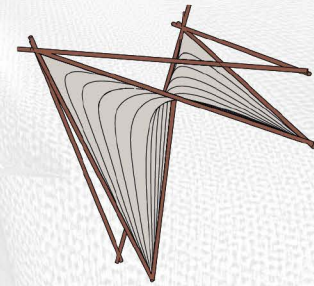


Position 3

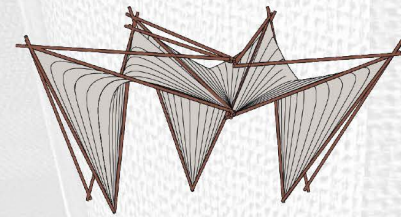


Position 4

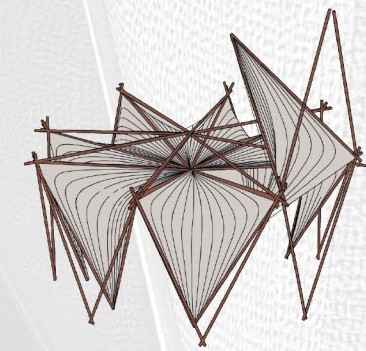
# Component Base Design Process



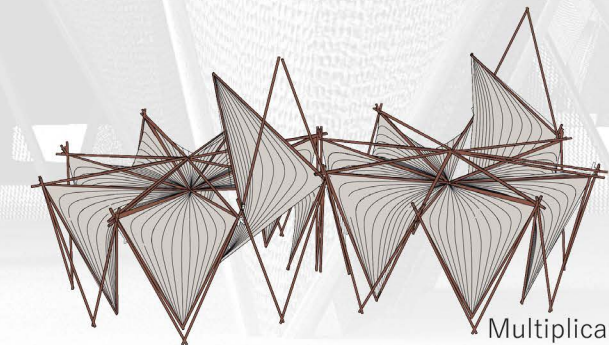
Structural Component



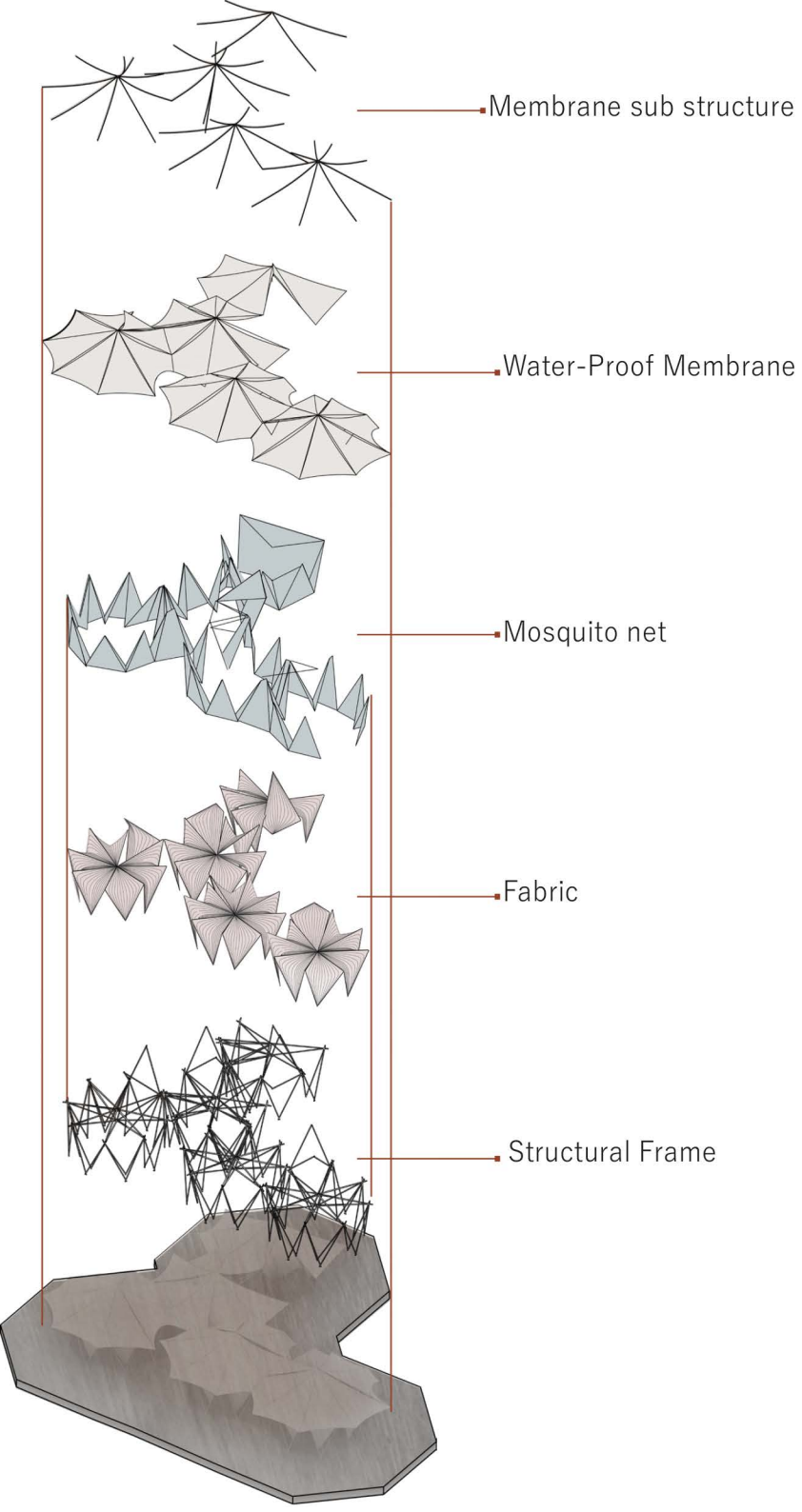
Multiplication of Component



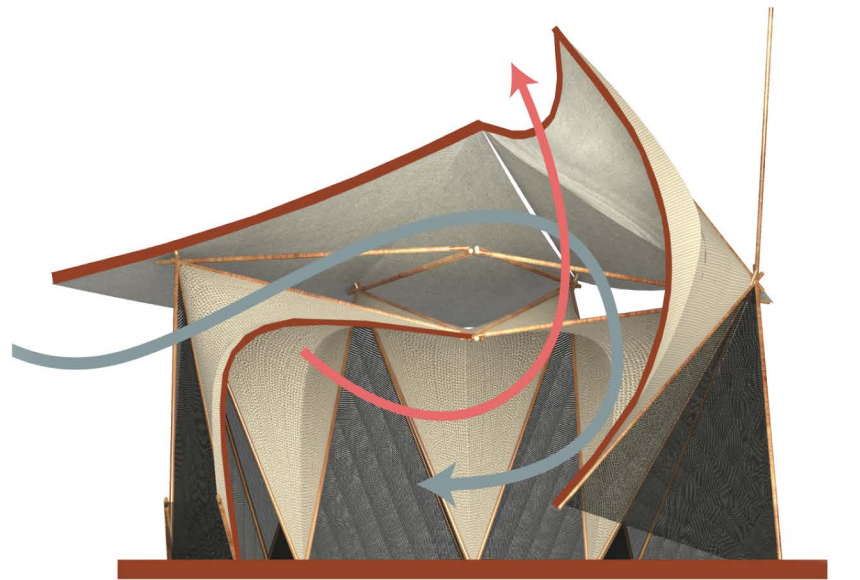
A Module



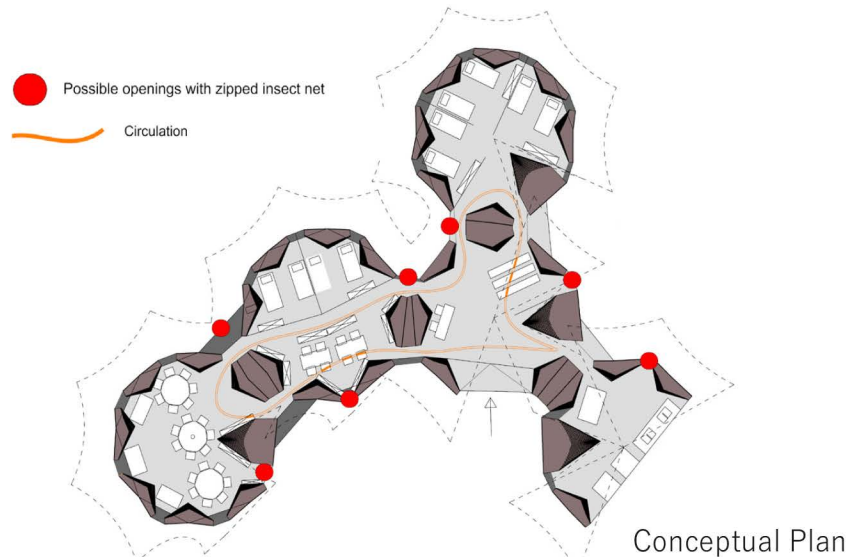
Multiplication of Modules



Perspective Section



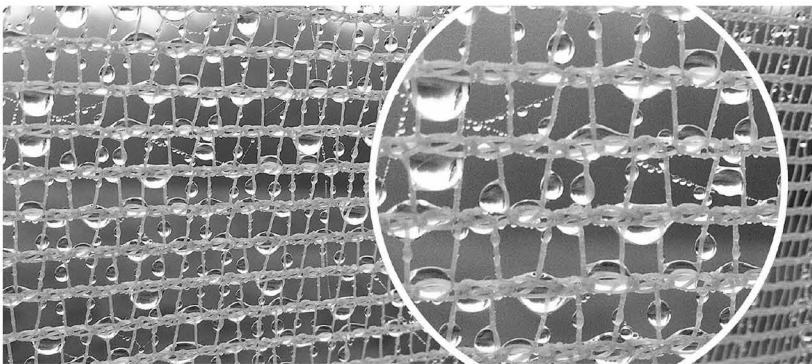
Interior air ventilation



Conceptual Plan



# Biomimicry



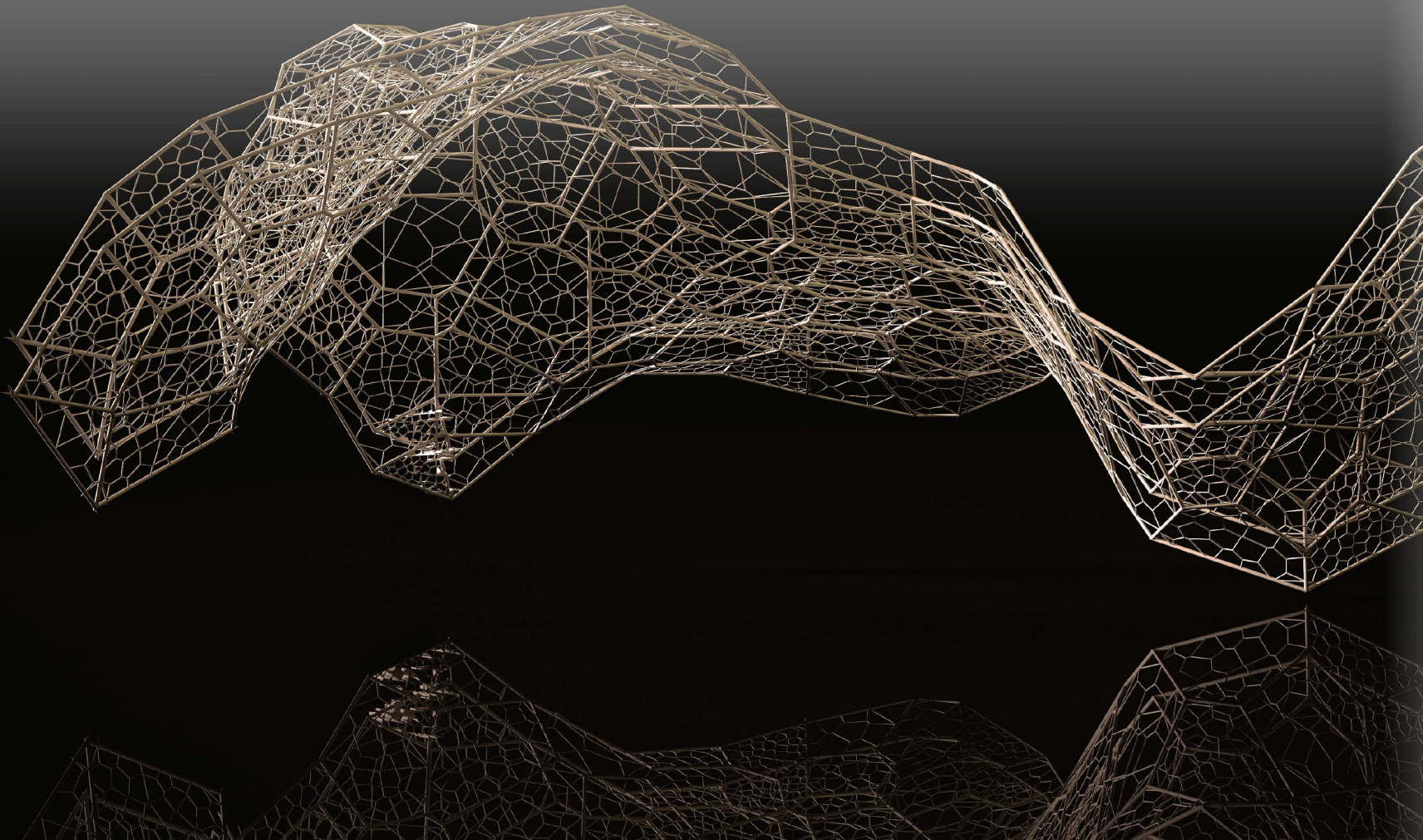
Nabibian beetle which lives in the desert is challenged with capturing water in a very arid climate. The beetle addresses this challenge by gathering water from the air by nanoscale bumps that covers its wing. Same strategy applied to this design. Two layers of moisture harvesting mesh is used as an mosquito net as well as a water accumulation element.

In the Amazon rainforest, we searched how nature has evolved in order to respond to the problems we face in architecture and endeavored to grasp its functional aspects. It was then concluded that the plus like form of the tree served a structural function, whereas the form of the nests were much more protectional.



## 04 3. Istanbul Design Biennial

This project was initiated under the question of “Are we human?”. The principle of Genius Loci was thoroughly analyzed in the fundamental stages of the design process. Amasra was chosen as a location for the design to be placed in. The context of the region plays a significant role in the design process as the hierarchy of the stones located on the site were conceptually implemented into the form. The continuity of the form is intentionally interrupted with the use of gaps that allow the user to observe and experience Amasra in an exceptional perspective. The form is organized in such a way in which it directs the movement of the user, consequently drawing their attention to the desired details.





# Design Process



A Rock



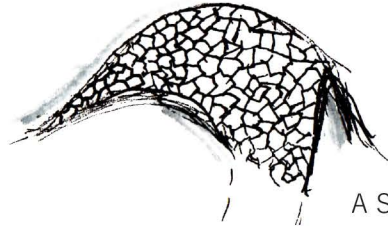
Group of rocks



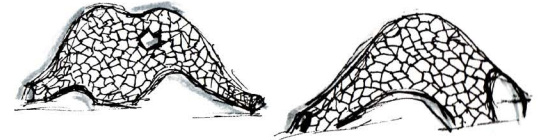
Environment



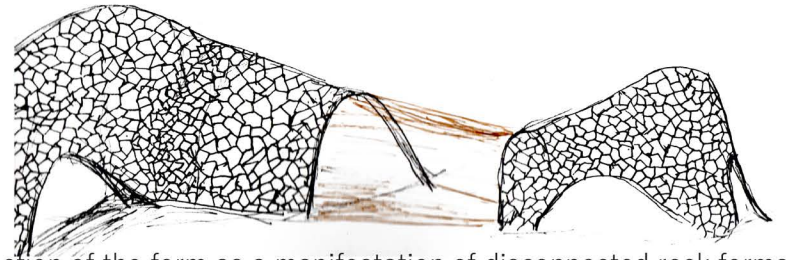
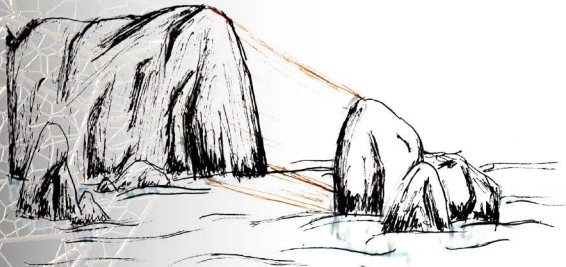
A Unit



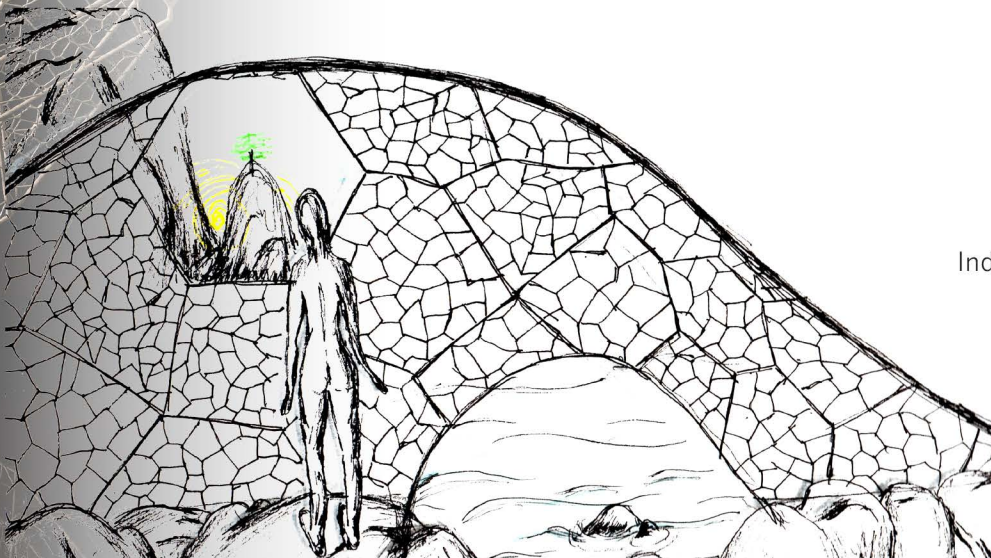
A Station



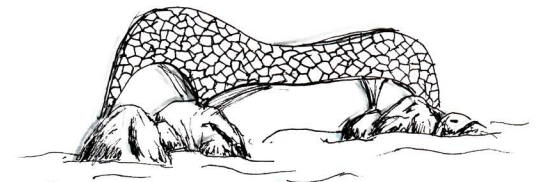
The Form



The disconnection of the form as a manifestation of disconnected rock forms

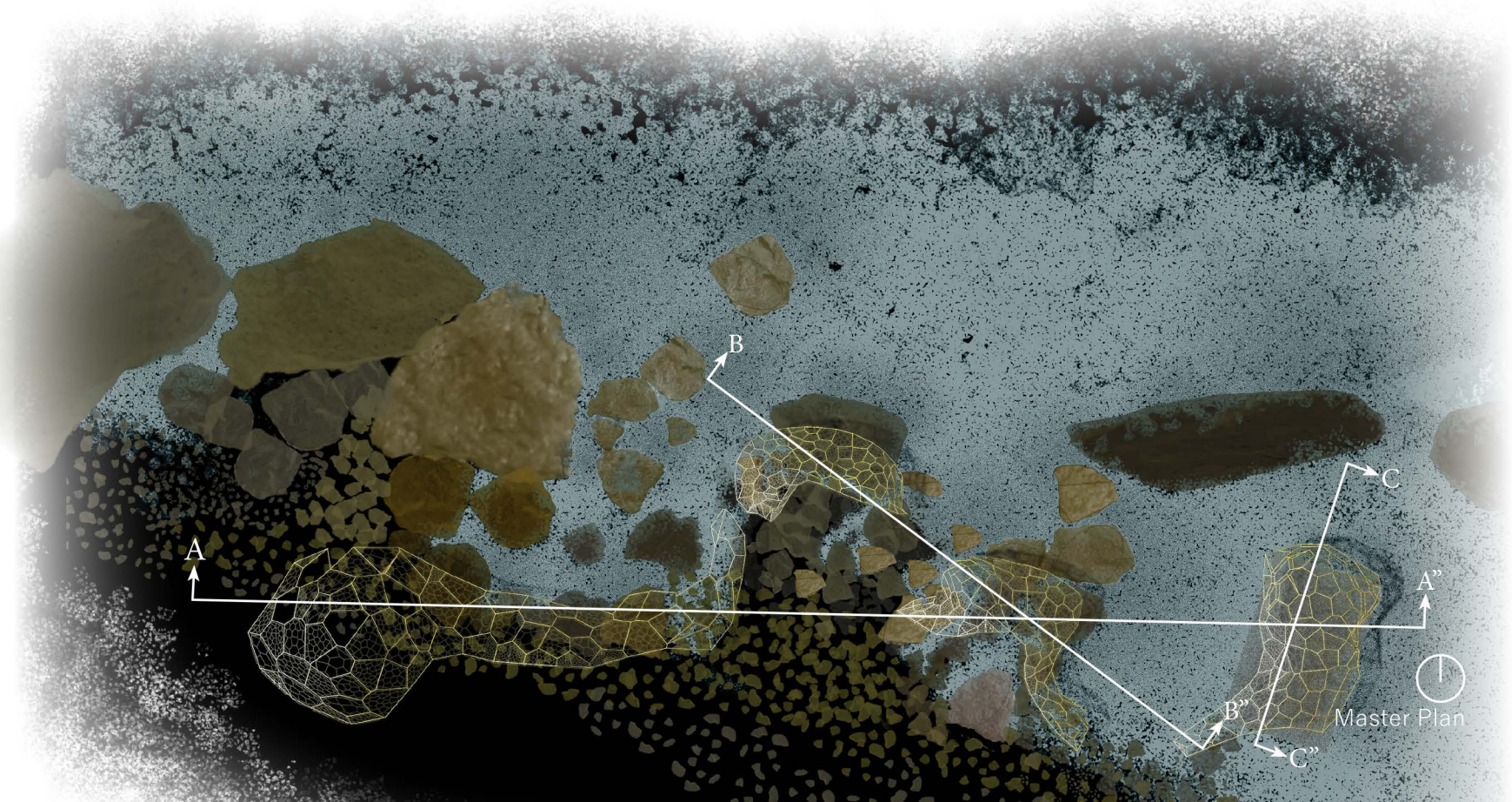


Indicating certain viewports by the distortion of form



Cultural and natural experiences through frames







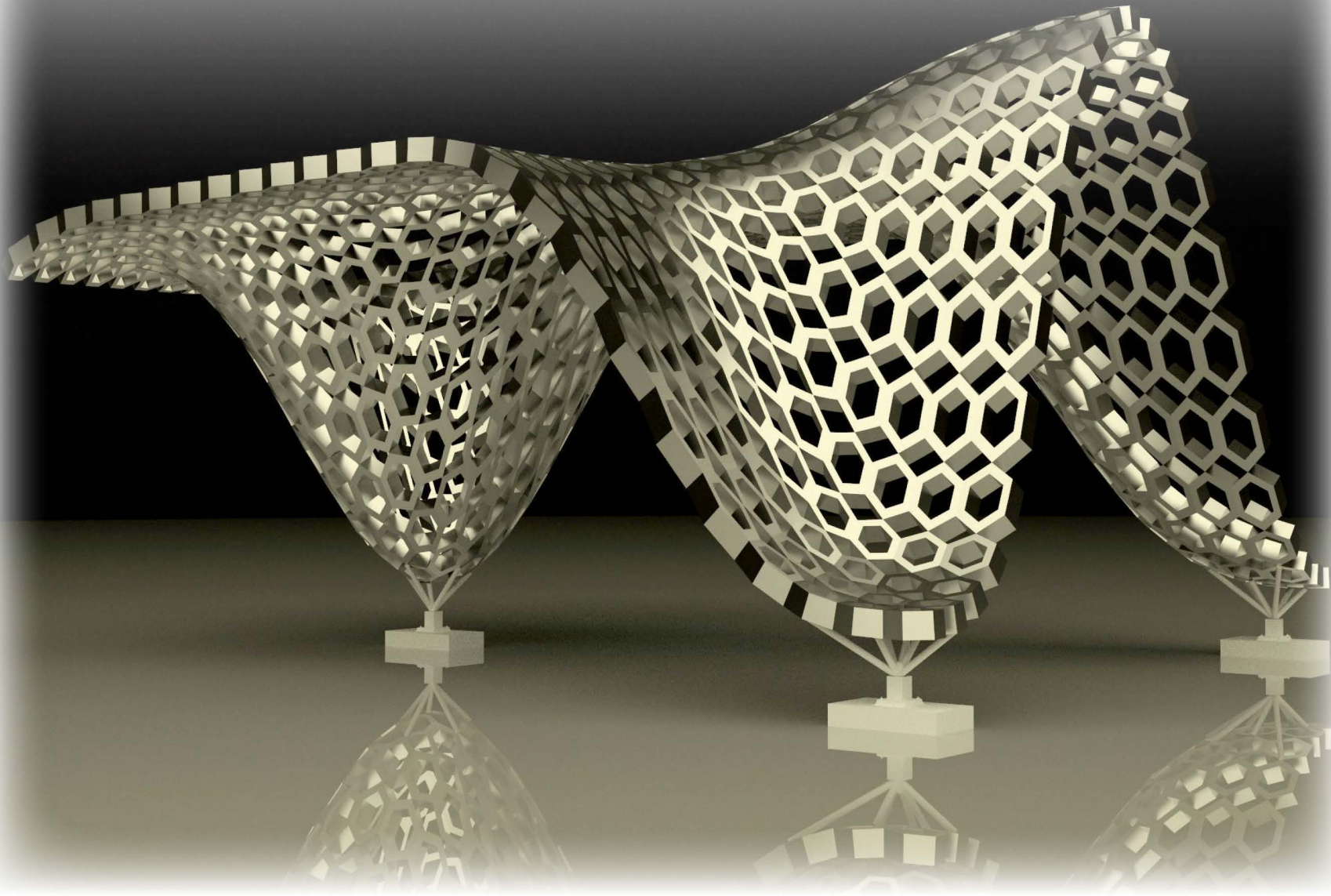




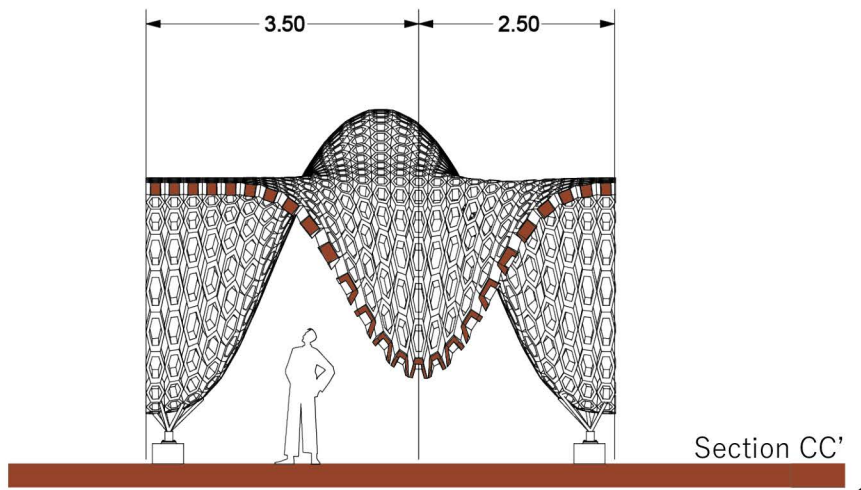
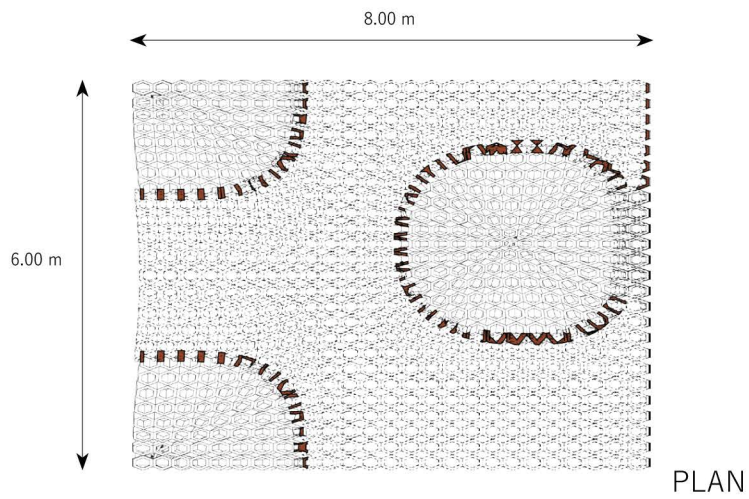
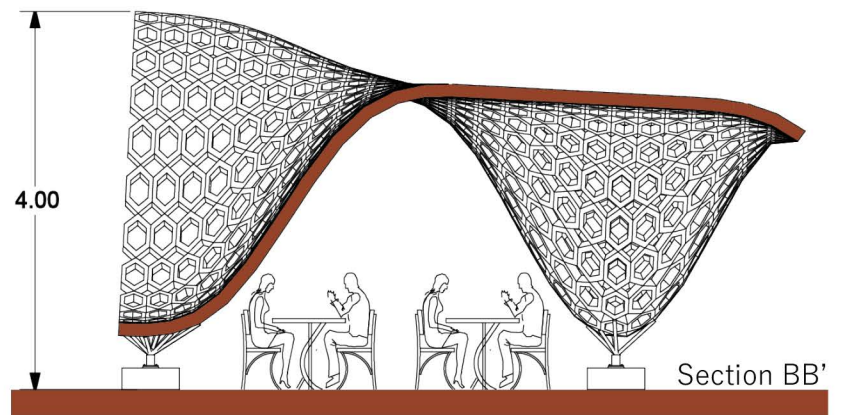
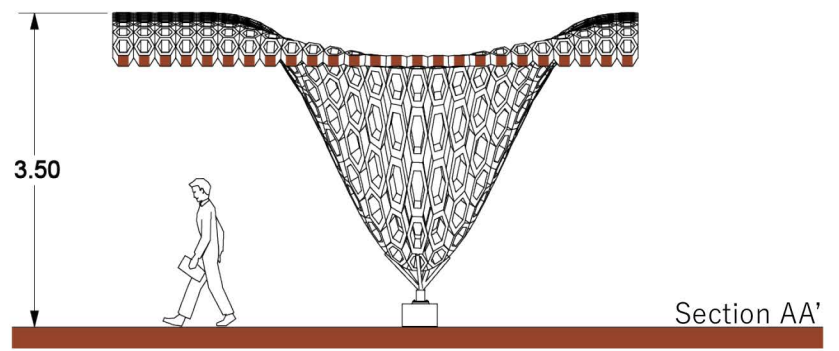
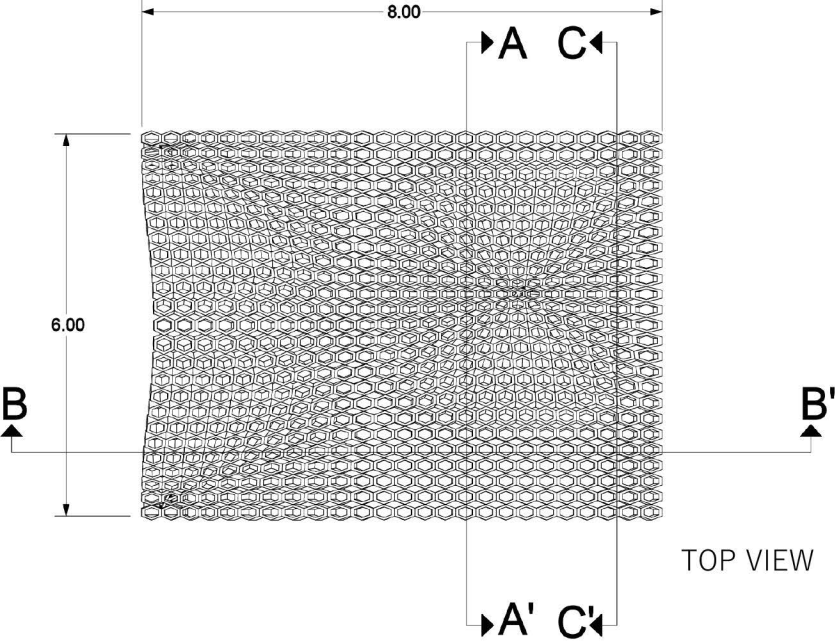
## 05 Pavilion for Student Council

The project is about designing a temporary semi-closed structure for the Student Council of Bilkent University. The council comes up with various activities during the year. These activities include selling tickets, promoting student gatherings, etc. The structure needs to be self-standing on the ground, high enough to inhibit 5 people at a time.

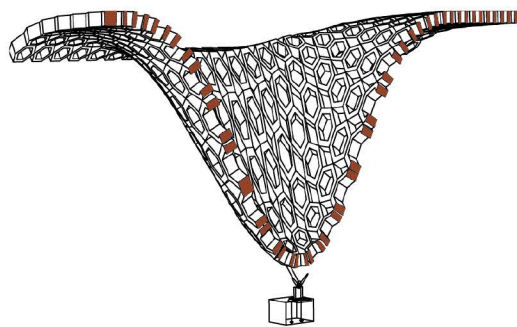
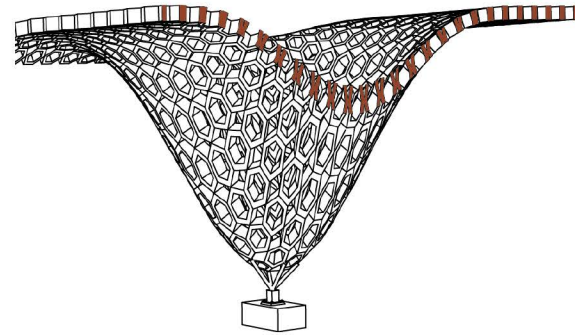
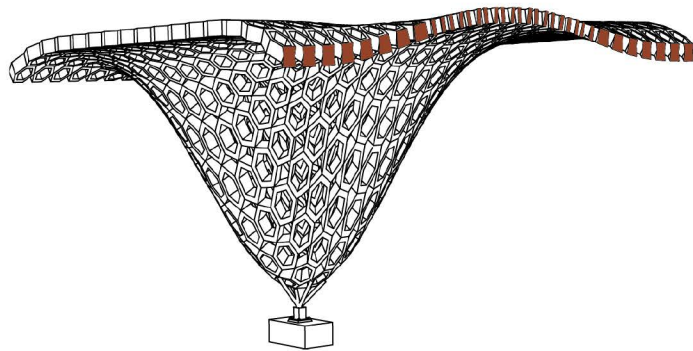
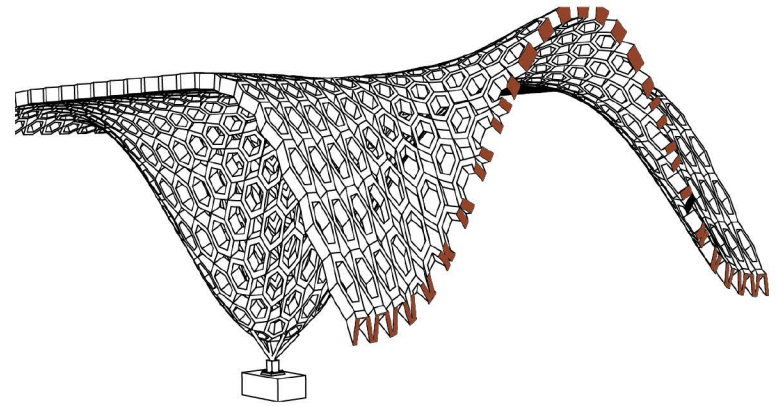
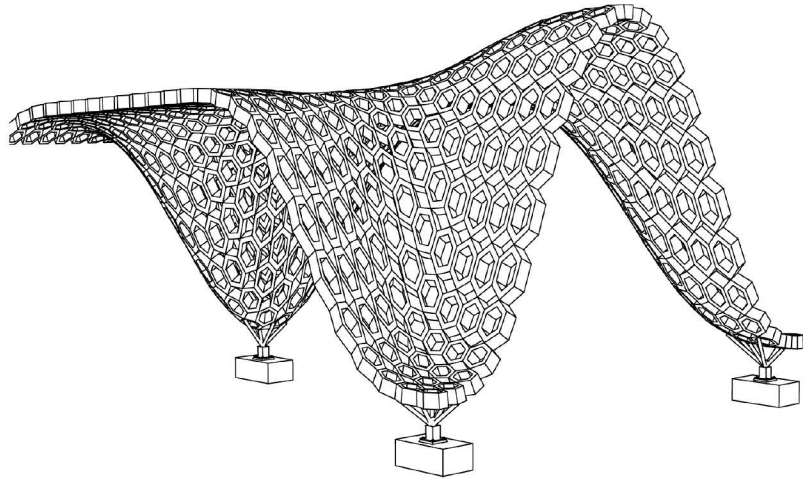
During the architectural exhibition in the University, this project is selected by the Dean of the faculty, to be built permanently in the university campus in a 1:1 scale. Afterwards necessary alterations and structural experiments were done and a second proposal was made and it is planned to be built in the 2016-2017 Spring semester.







## Form Analysis

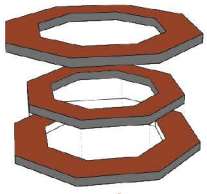


Hexagons can be produced from steel and welded together. However, my budget was very tight so I preferred to use plywood as a construction material. All hexagons are 3 layered and there is a steel connection inside of them which adds extra strength.

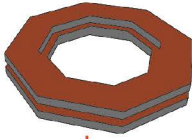
In order to achieve the intended structure first a reference structure that consists of the screw connection of hexagons is needed. Afterwards this reference structure that will act as a mold will be removed.



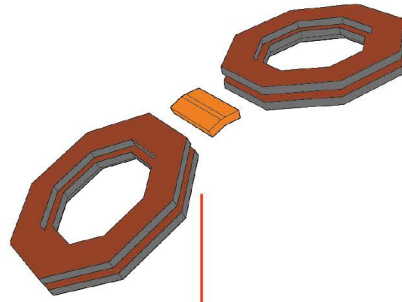
# Structural Method



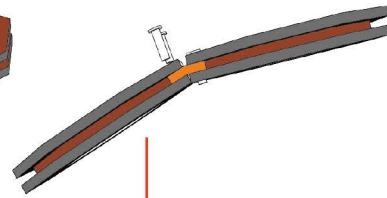
3 Layers of hexagon



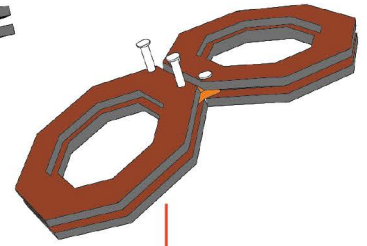
One Unit



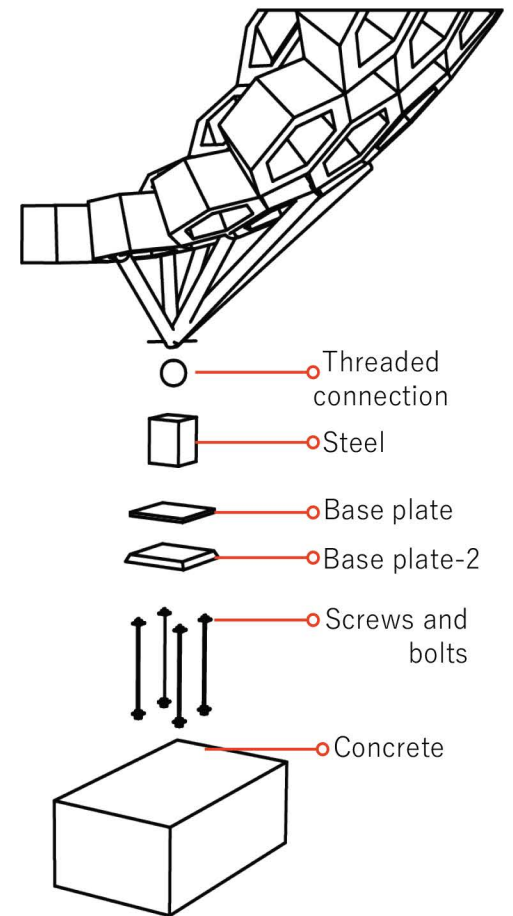
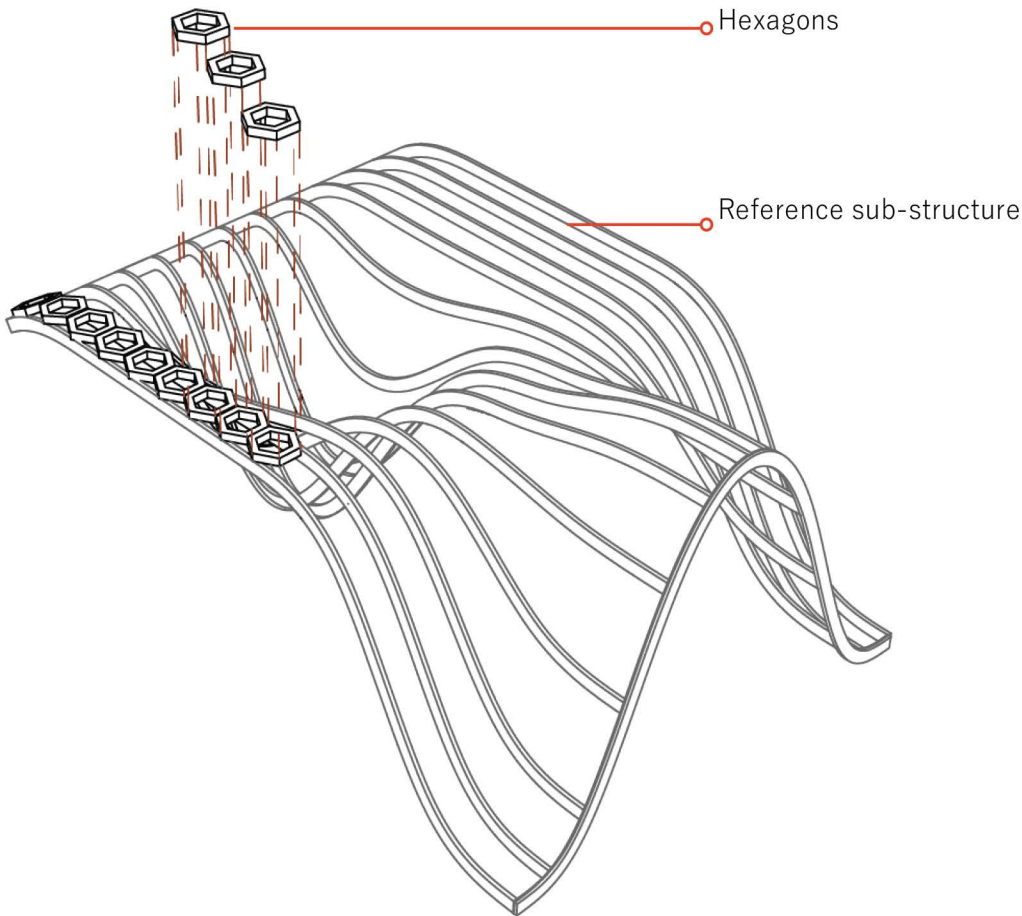
Steel Connection between units



Connection of 2 units with exact angle



Screwing Units together

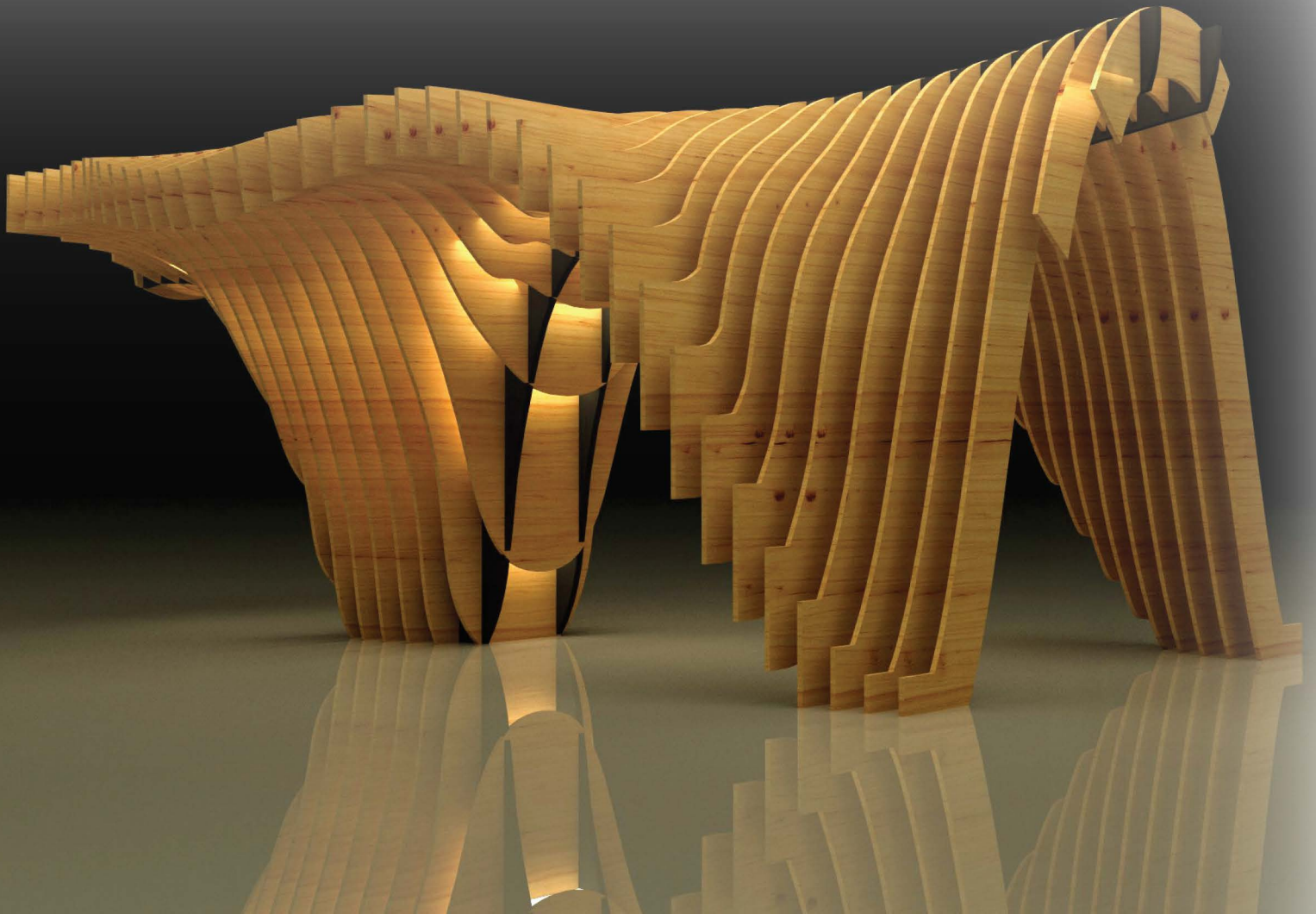




## 05 Pavilion for Student Council- Option2

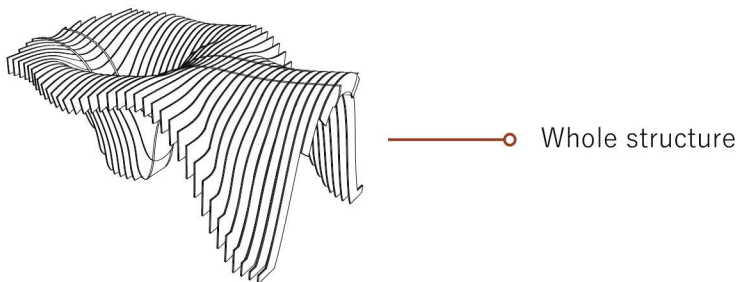
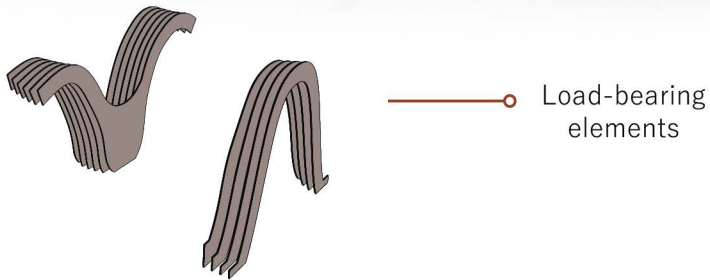
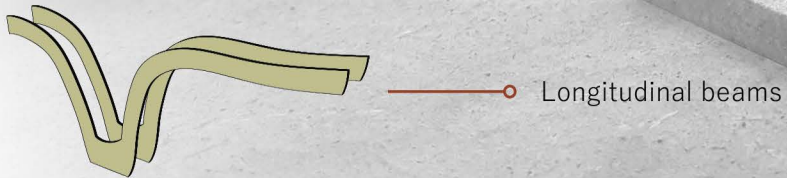
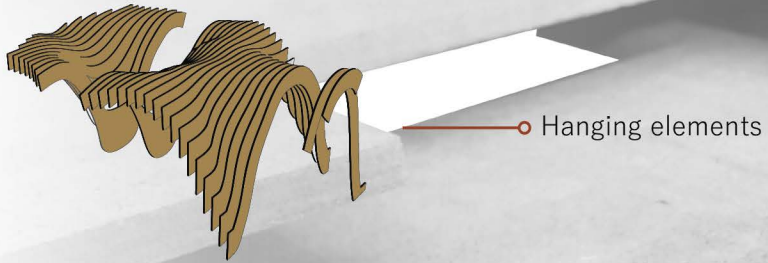
For the first option, since all the units and joints are different from each other, and it was costly, I came up with a more simplified geometry. Instead of a waffle system I decided to distribute the load among 2 spines (long curved beams) which are 2 times thicker than the other stabilizing elements.

The advantage of this design is the fact that it eliminates wind loads in one direction which is the most important problem during designing. It also creates enough shade under it, when oriented according to the sun. Due to less connection points and simple installation the costs were significantly decreased which made the design a much more preferable one.





## Structural Components

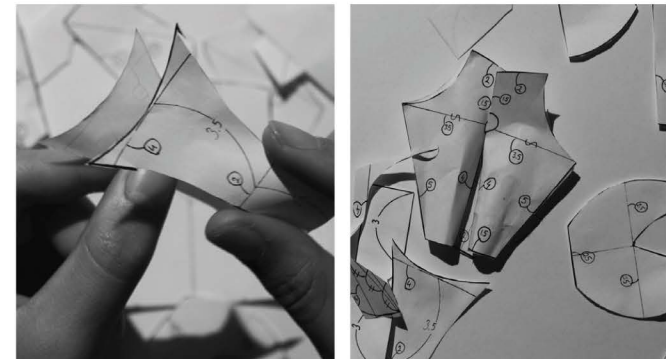
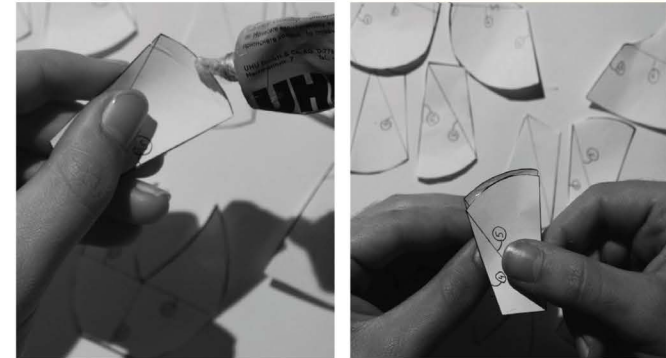
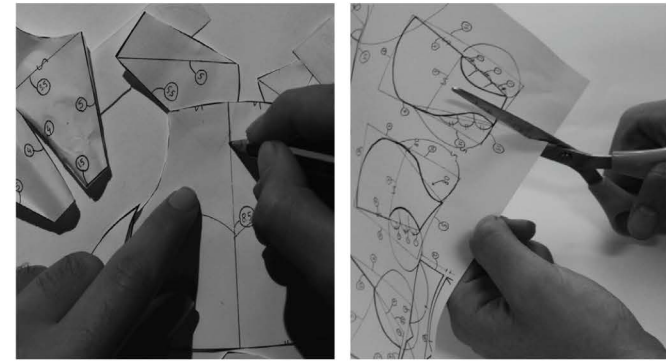
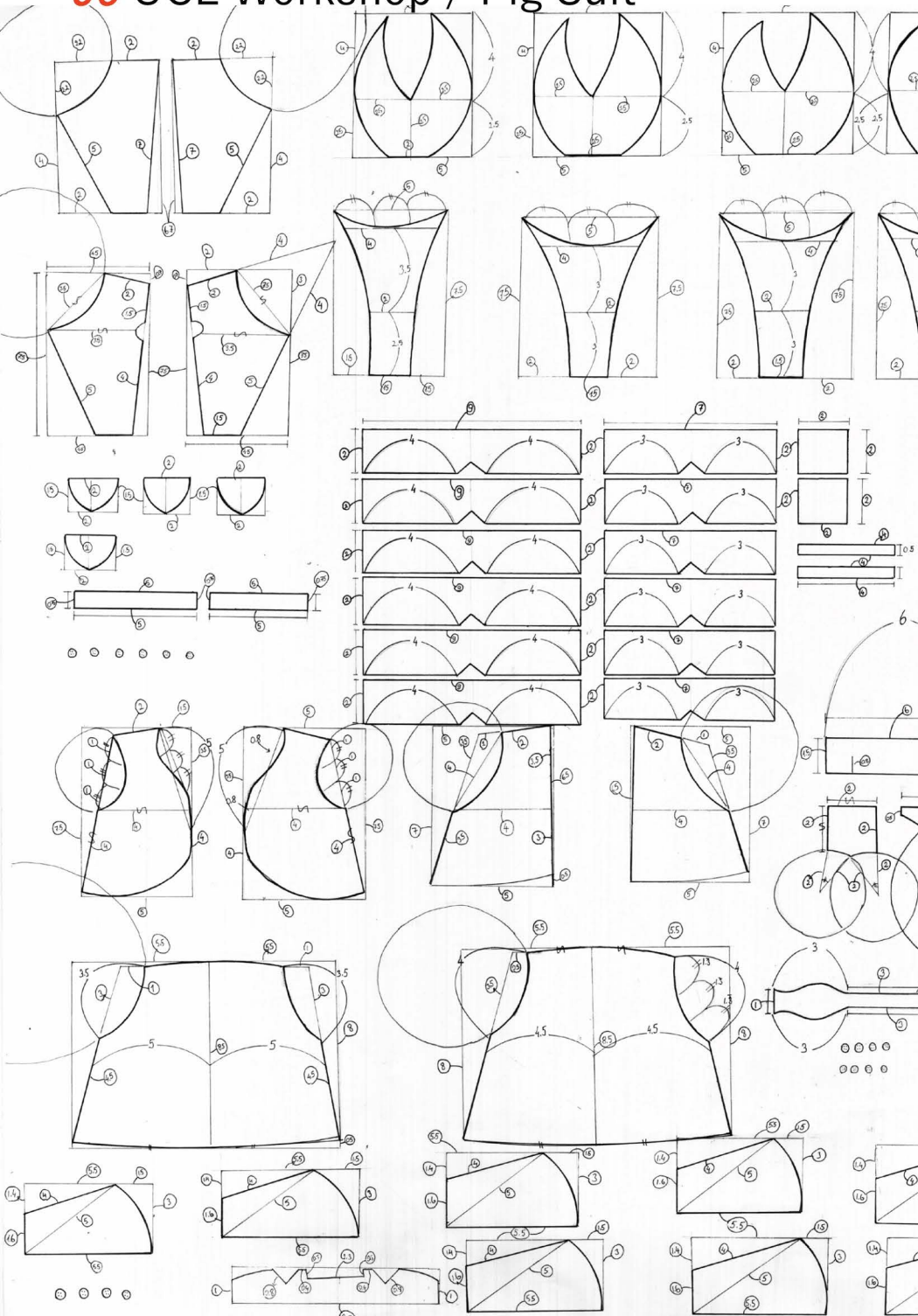


## Component Connections





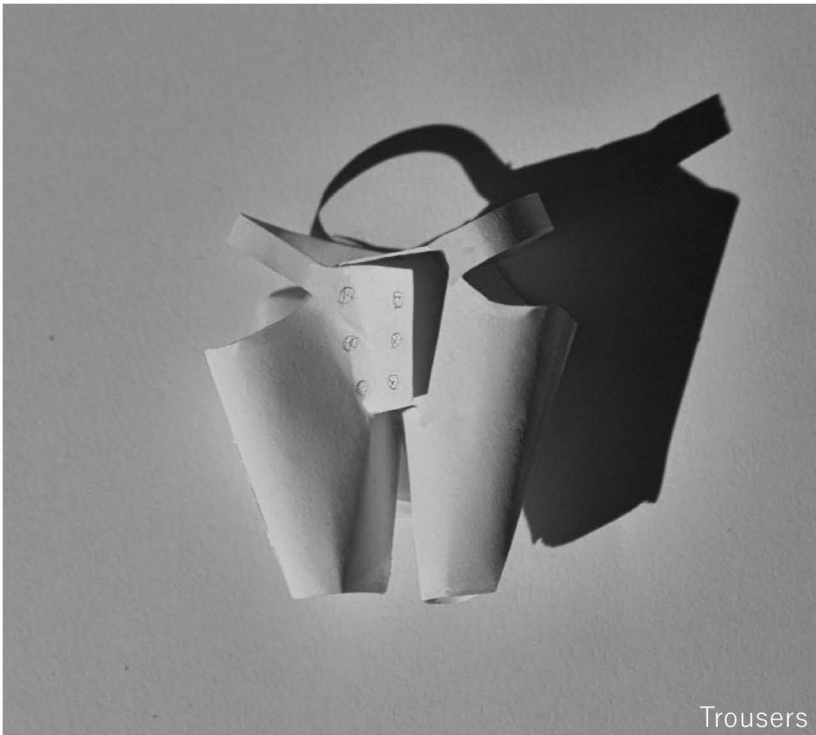
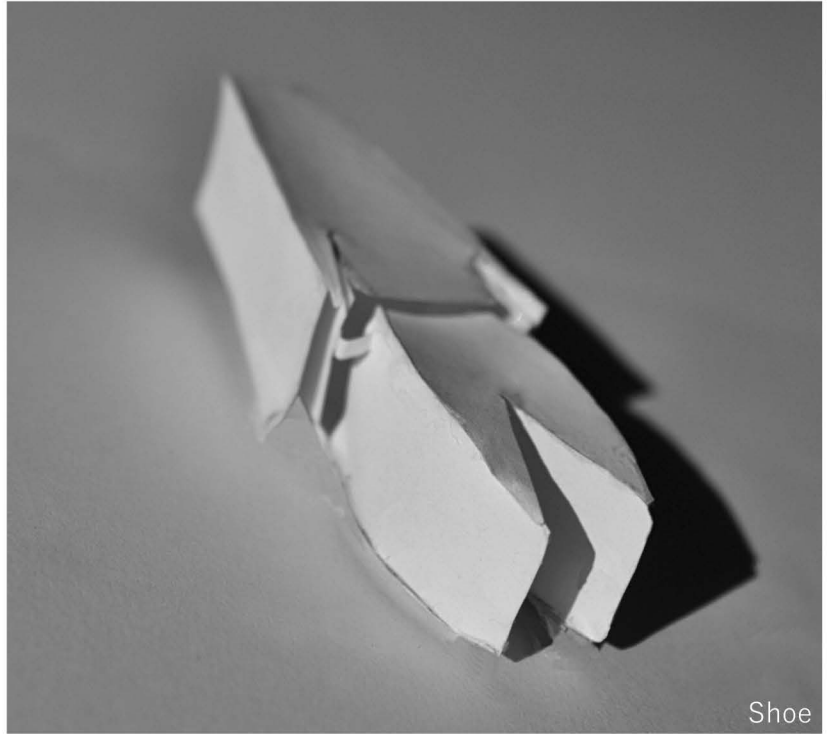
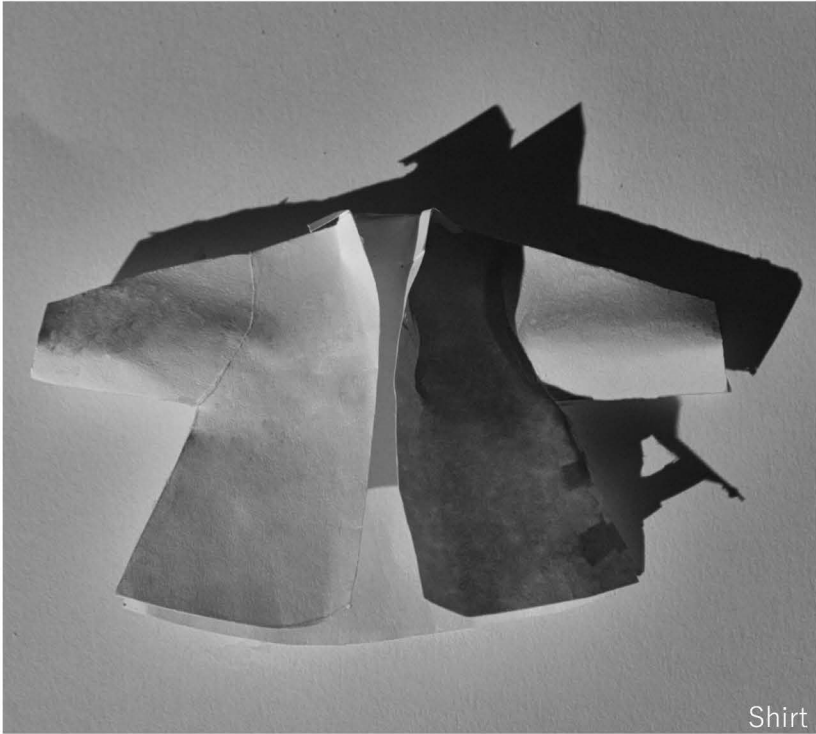
# 06 UCL Workshop / Pig Suit



Designing a sewing pattern in a pig proportion inspired by George Orwells book called Animal Farm.

Every single piece is designed and collect in one drawing.

Final Pieces





## 06 UCL Workshop / The Hidden Library



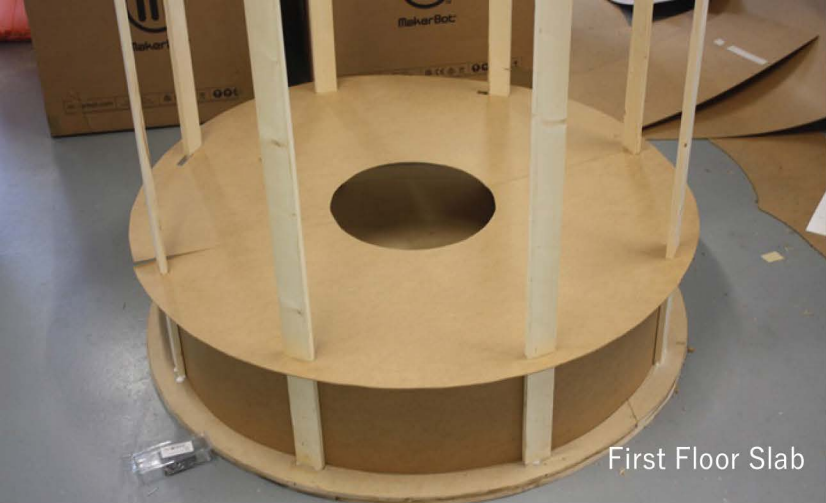
It's year 2100. Human population reached an all-time high. Problems such as overcrowding, noise pollution, extreme weather conditions are having massive impact on societies.

A working environment for academic community within a cramped environment for young student population is designed. Quiet, peaceful space for study and read is envisioned.

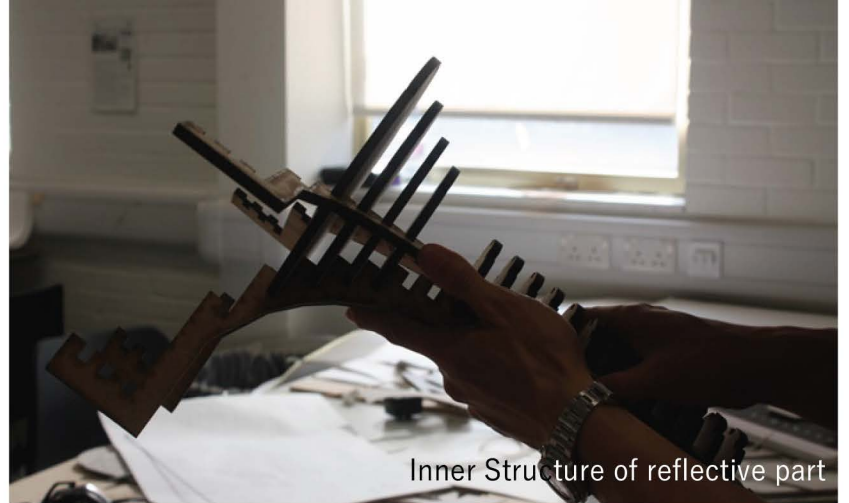
The concept of ideas are based on the occupation of a large area underground in order to avoid endanger the nature and green spaces in the city centre just in the need to meet the public's desire for a private spot.

The goal was to fully illuminate underground with direct sunlight and it's reflections from mirrors that would cover a certain area of the structure.

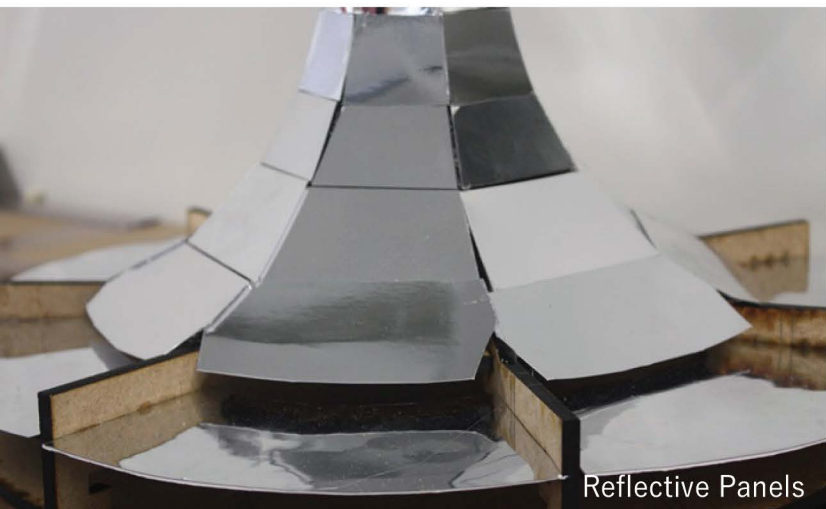




First Floor Slab



Inner Structure of reflective part



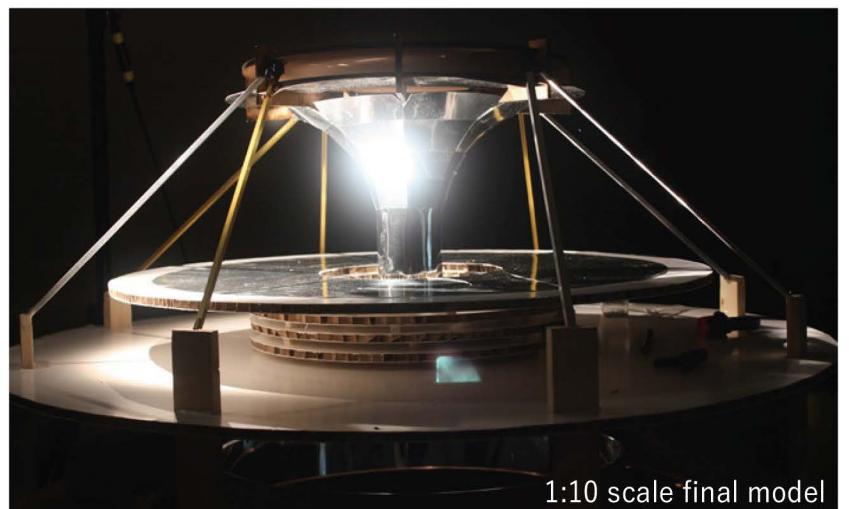
Reflective Panels



View from inside



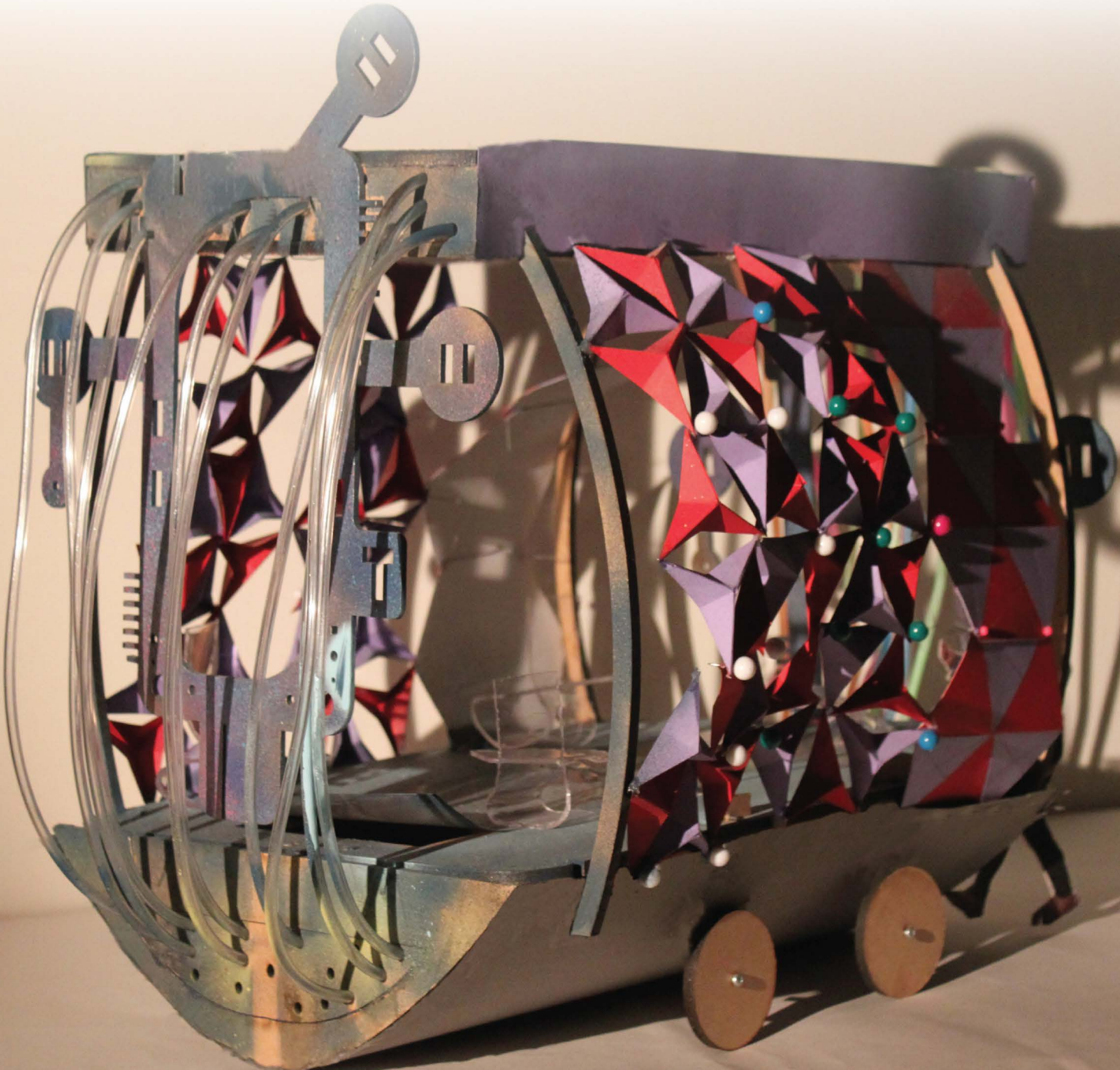
Hanging Structural system



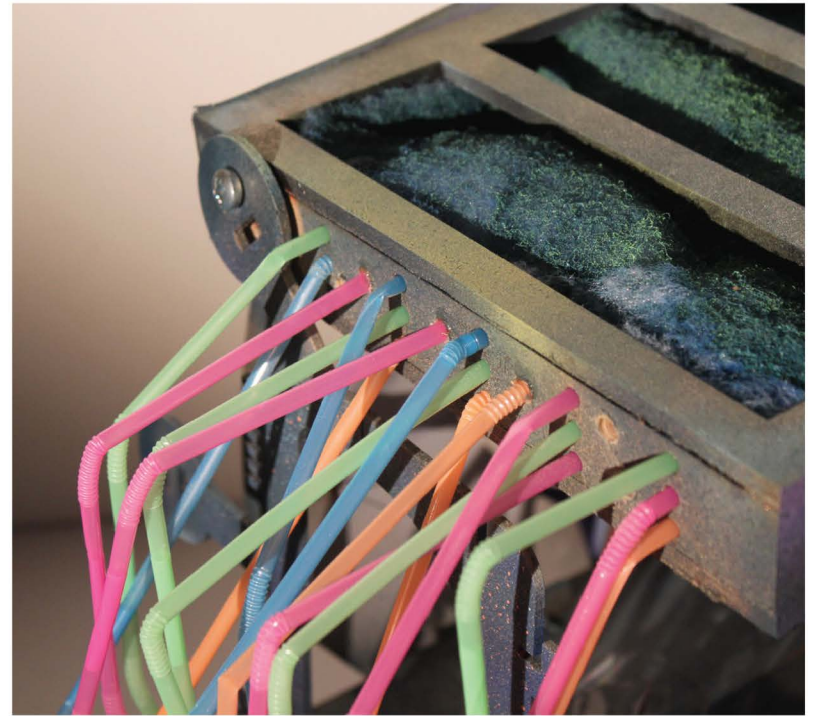
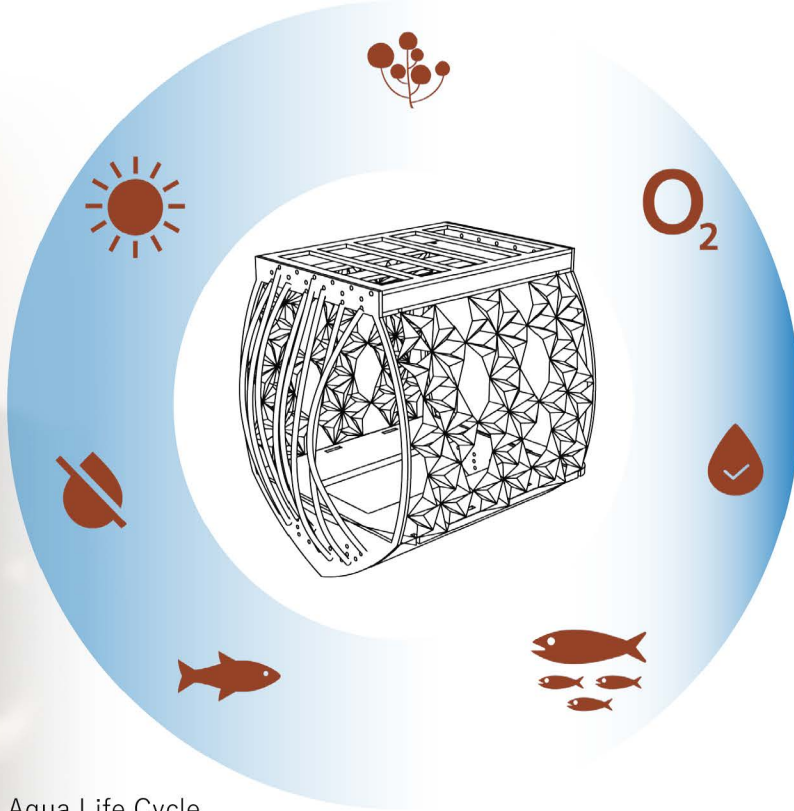
1:10 scale final model



06 UCL Workshop / River Bus for Thames







### Aqua Life Cycle

In 2100, when all lands are occupied by the buildings and due to the ongoing increase of human population we are going to start occupy seas.

This project is about a conceptual design for river bus that will use in Thames river for transportation. It is aimed to help cleaning eco-system while maintaining the transportation features.

The workflow of the design is,

- 1- Transferring the river water to the top part of the ship.
- 2- Algae production in the roof part.( Dirty water+ sunshine)
- 3- Oxygen production. ( The result of photosynthesis that algae made.)
- 4- Feed the fishes. ( Algae are one of the best food source for fishes.)
- 5- Increase the oxygen percentage within the water.

