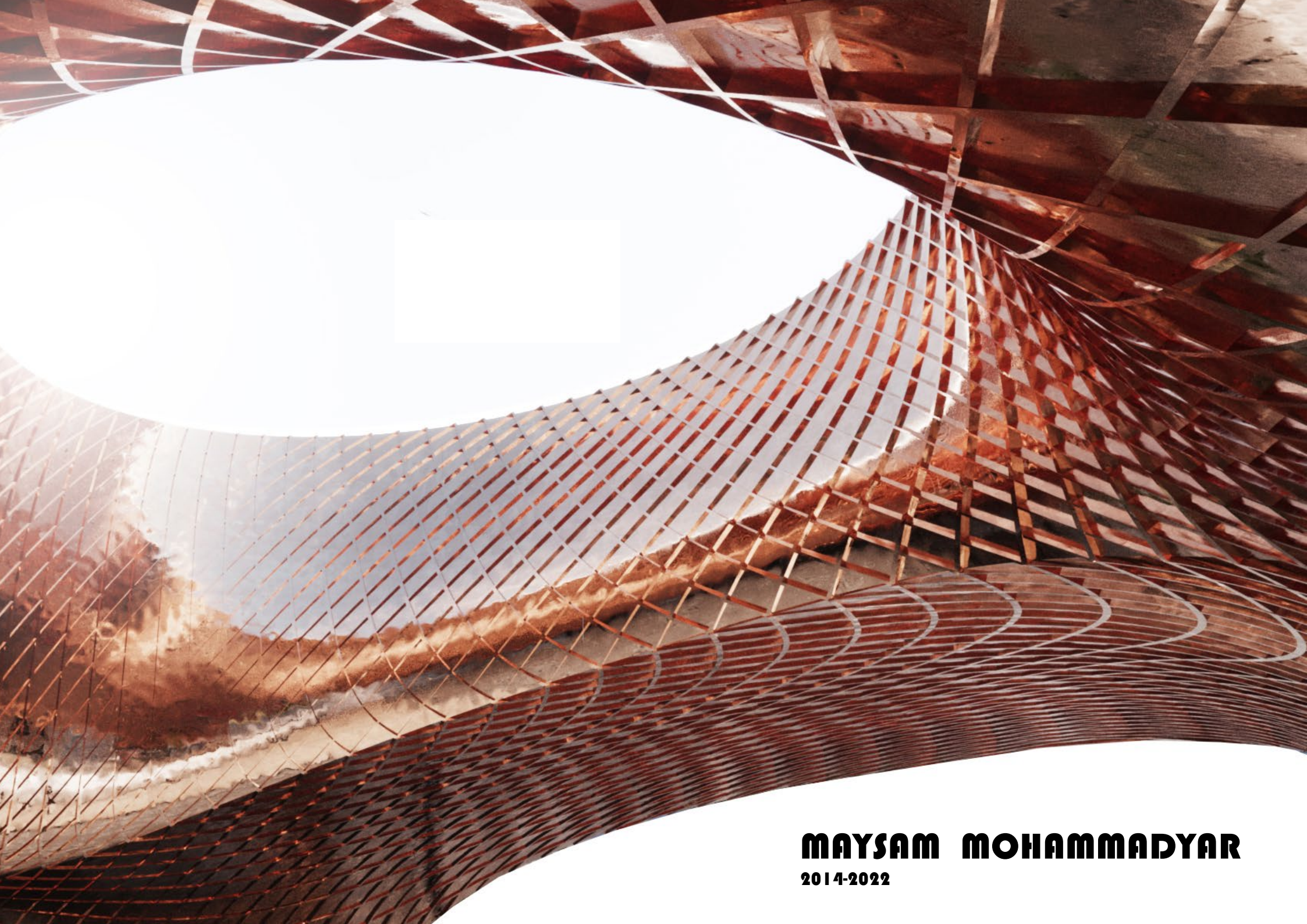


# MAYSAM MOHAMMADYAR

2014-2022

## Education

**Master of Architecture**
(2021- 2023)

**The State University of New York at Buffalo**

**Master of Architecture Engineering**
(2013 - 2016)

**Iran University of Science and Technology**
Tehran, Iran.
GPA: 3.75/4– (17.15/20)
*Thesis Topic*: World Trade Center Tower of Tehran with the Aim of Combination Architectural Form and Structure of Bionic Architecture Approach
Thesis Supervisor: Dr. Ahmad Ekhlasi, Dr. Mohsen Vafamehr
Thesis Grade: 18.75/20

**Bachelor of Architectural Engineering**
(2008 - 2013)

**Bu Ali Sina University**
Hamedan, Iran.
GPA: 3.45/4 – (16.04/20)
Thesis Topic: Cinema Complex in Abidar Mountain in Sanandaj
Thesis Grade: 18.5/20

## References

**Jin Young Song**
- Associate Professor,
  University at Buffalo, School of Architecture and Planning, Email: jsong11@buffalo.edu

**Christopher Romano**
- Assistant Professor.
  University at Buffalo, School of Architecture and Planning, Email: ctromano@buffalo.edu

## Skills

- AutoCAD
- Revit
- 3Ds Max
- Rhinoceros
- Sketchup
- V-Ray
- Adobe Photoshop
- Adobe Illustrator
- Adobe InDesign

## Workshop

- 30 - Day Workshop on Sketching in Architecture, Jun 2013.
- 50 - Hour Workshop on 3Ds Max Modeling and Rendering.
- 8 - Hour Workshop on Architectural Postproduction in Photoshop.
- 20 - Hour Workshop on Advancement in Lightening and Rendering with v-ray
- 24 - Hour Workshop on Forms and Color

## Language

Mother Tongue: Persian
Fluent: English
Fluent: Kurdish

## Work Experiences

**Architectural Designer**
2023- 2024
**Foit-Albert Associate**
Worked on Constructin drawing, Design and Detailing, Site Supervision Utilizing Revit.

**Teaching Assistant**
2022- 2023
**University at Buffalo, School of Architecture**
Arc 442 - Construction Technology
Arc 453 LLB - Structures 2

**Architecture Intern**
2022
**Silvestri Architects, PC**
Drafting architectural plans, Building sections, Designed elevation under supervision of Philip Silvestri

**Designer**
2020
**Tarh-o Nyaresh Gardooneh Mehr**
Working with a team of architects on schematic design, project development, and 3D Visualization.

**Designer**
2017 - 2019
**Aria Green House Office**
Exterior and Interior design including consultation with clients, design concepts.

**Architectural Sketching**
2016 - 2018
**Amood Co**

**Tutor of 3Ds MAX**
2013 - 2014
**Amood Co**

## Awards

- Dean's International Scholar Award, Master's Program, Universiy at Buffalo, Department of Architecture and Planning, 2021.
- Full Scholarship, Master's Program, Iran University of Science and Technology, Tehran, Iran, Department of Architectural Engineering, 2013.
- Ranked 9th among ~50,000 participants in the National Entrance Examination of Iranian Universities for Master of Architecture, Iran, 2013.
- Ranked Top 0.8% among ~260,000 participants in the National Entrance Examination for Iranian Universities, Iran, 2008.
- Student of National Organization for Exceptional Talents High School from 2001 to 2007.

# Selected Works

Maysam Mohammadyar

## A01

**The National Museum of Iran** | 2014
IUST University
Professor: Dr. Ahmad Ekhlassi

## A02

**City Tower** | 2015
IUST University
Professor: Dr. Mansour Sepehri Moghadam, Dr. Farhad Azarmi

## A03

**World Trade Tower** | 2017
IUST University
Professor: Dr. Ahmad Ekhlassi

## A04

**Metro Station** | 2014
IUST University
Professor: Dr. Ahmad Ekhlassi

## A05

**Museum of Water** | 2018

## A06

**In The Green** | Fall 2021
University at Buffalo
Professor: Prof. Jin Young Song

## A07

**Green Reconstruction** | Fall 2022
University at Buffalo
Professor: Prof. Jin Young Song

# A01 National Museum of Iran

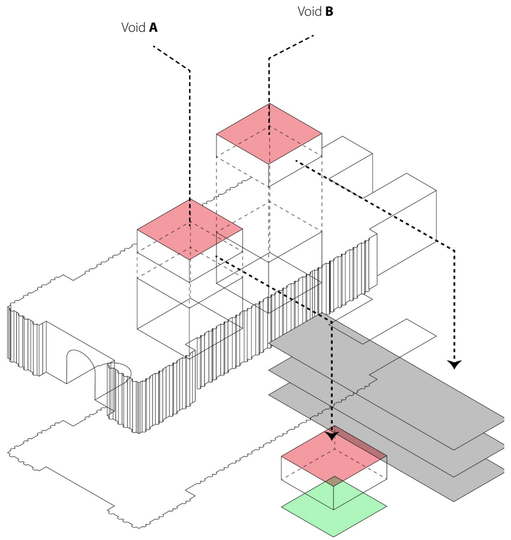
The lost half of Museum

## Project Brief

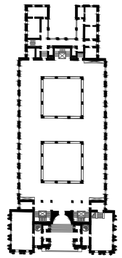
The Studio focused on the development of a new extension to the national museum. In fact, the architecture of the existing museum is a rectangular cube which consists of three parts; its entrance is a huge Sassanid arch that indicates the entrance space and the high, long exterior walls decorated by favorable reddish brickwork. Like Firuzabad palaces, represent its magnificence and elegance within the urban complex. The recessed entrance of museum is the most interesting space embedded in this huge cube.

## Main Concept

The concept seeks to create a love relationship between the old part and the new. The Museum of Ancient Iran finds its lost half in 2020; Therefore, the geometry of empty space and middle part of the museum is used as a heart in the development project. The design seeks to consider the empty spaces of museum solid in the adjacent area (proposed site). It seems that the unfinished story of the Museum of Ancient Iran is being told on the right side of project. A grid organization is employed to carry out the idea.

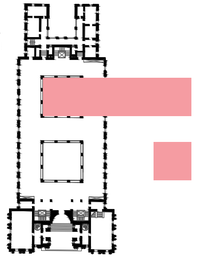


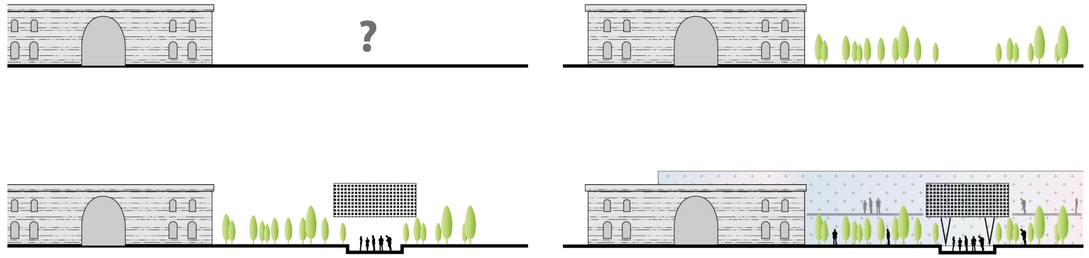

Existing

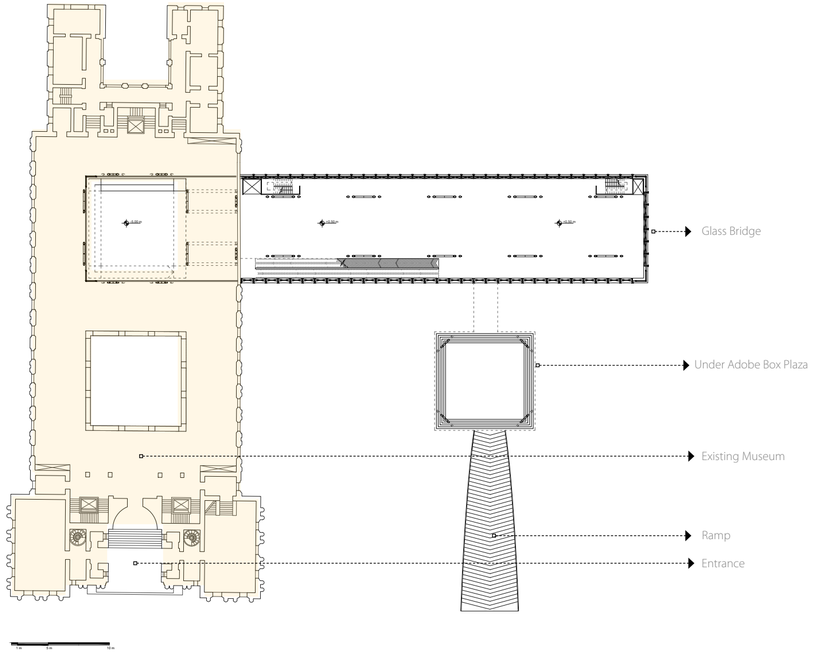


**Proposed**

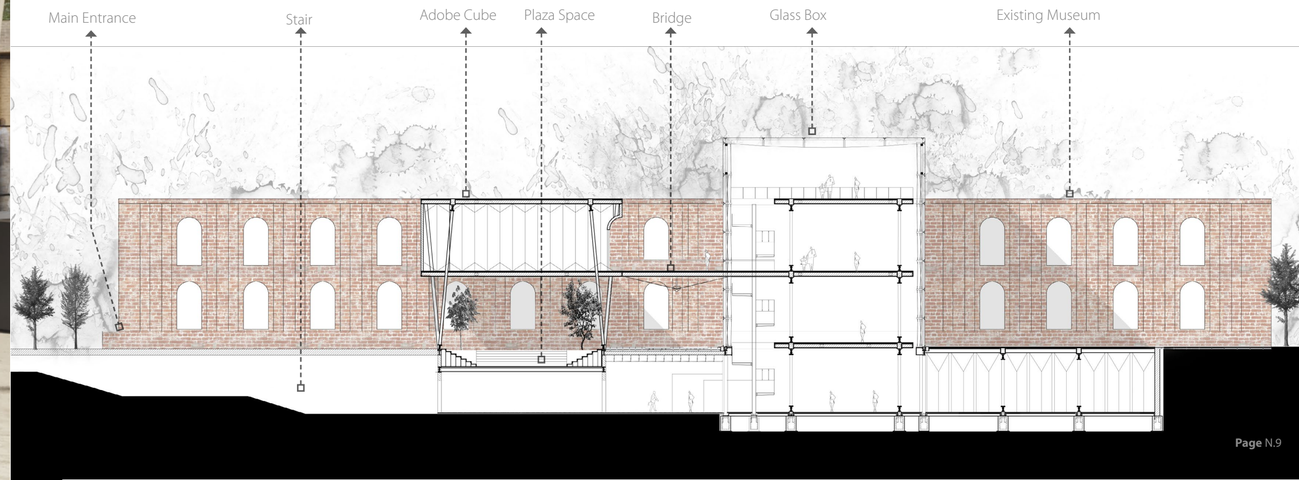
The Love relationship between the old museum and additional parts.




?


Glass Bridge
Under Adobe Box Plaza
Existing Museum
Ramp
Entrance




Main Entrance
Stair
Adobe Cube
Plaza Space
Bridge
Glass Box
Existing Museum

## Cubic architecture

(adobe for exteriors and mirror for interiors)

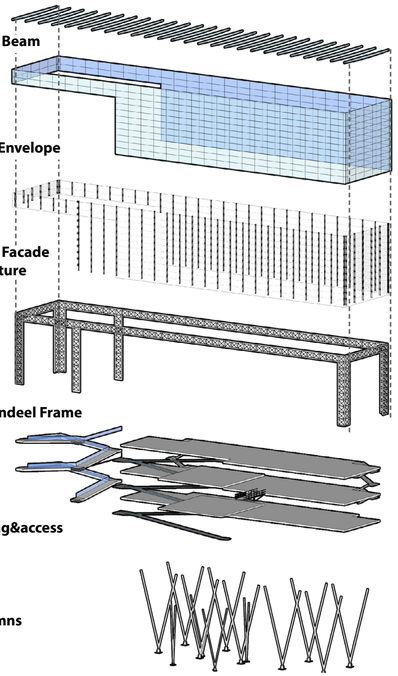
The architecture of this box(mirror hall), which seems like an adobe brick from the outside and a mirror from the inside, represents a manifestation of introversion in Iranian architecture. Located above the urban plaza, this box also serves as a landmark beside the portal of previous museum.
This volume is a glass-structural box which serves as a reflection beside the Museum of Ancient Iran. In fact, it is a linear path along with a reflective surface which shows people an image of adobe cube and previous museum in the plaza through a sequence.

## Curtain Wall

Museum of ancient Iran

Cable structure of glass facade and damper

Vierendeel structure with cable bracing.




Structure + Envelope



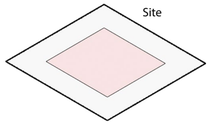
# A02 City Tower

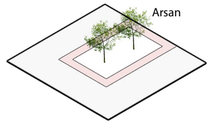
"Arsan" and plaza

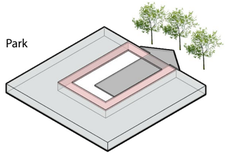
## Project Brief

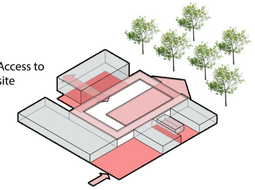
This complex encompasses an office tower, a commercial center, a cinema and parking. The site is adjacent to main main urban artery and a public park.

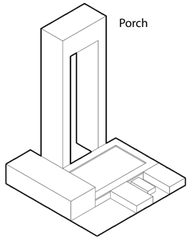
## Design Process

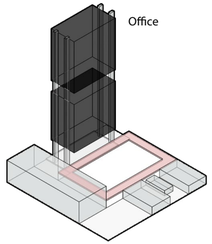


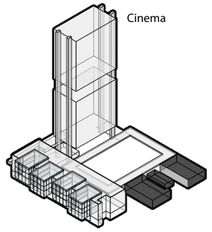



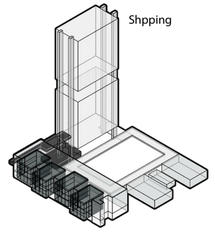



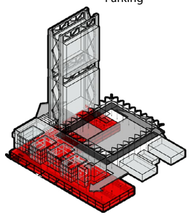



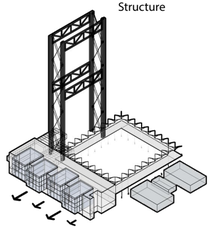



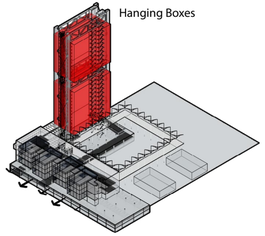



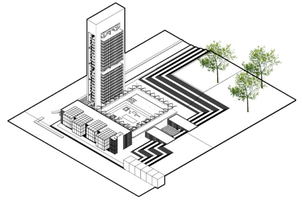



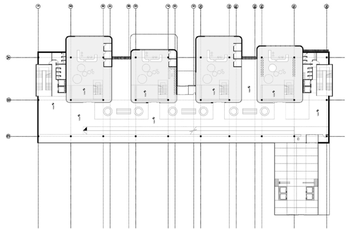


Arsan in the past: Various functions such as mosque, bazaar, bath, mint, etc. were arranged beside each other and formed a complex known as Arsan.

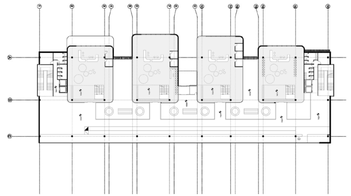
Its in-between space could serve as a plaza. This open urban space leads to more presence of people because it is located next to an important park. In-between open spaces, e.g. Arsans, provide a space for "presence" rather than "passage".

**Tower as Iwan**

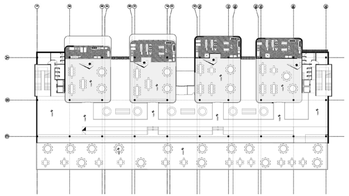
Iwan (porch) and portal used for design of "tower-entrance" Introverted schema of central courtyard that has a semi-extroverted design due to its proximity to the park.



**Ground Floor**
Shopping



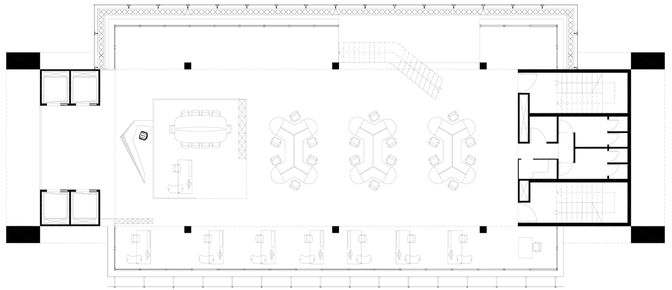
**First Floor**
Shopping



**Second Floor**
Shopping

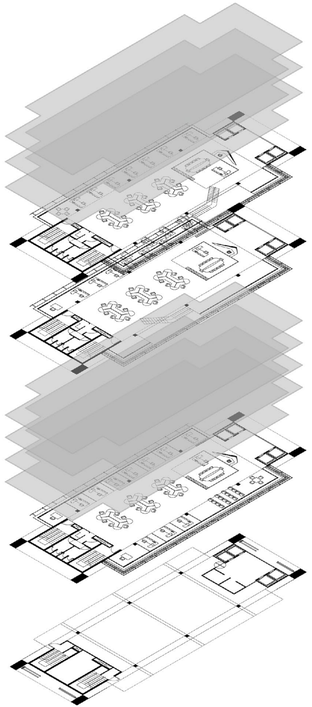
**Typical office Plans**

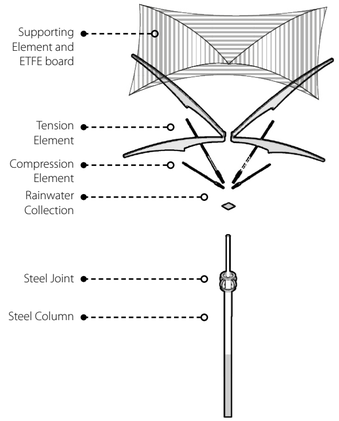
In spatial layout of the offices provides open work spaces, Such as providing transparent spaces between employees and manager area.



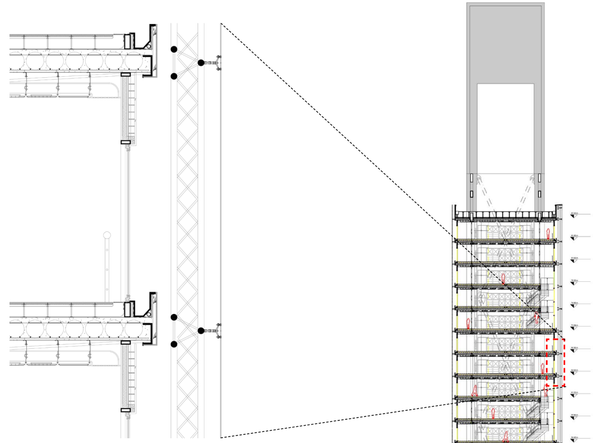
## Office Tower Plan Layout

This tower has 20 floors which have Vertical access to each other by 4 Elevators

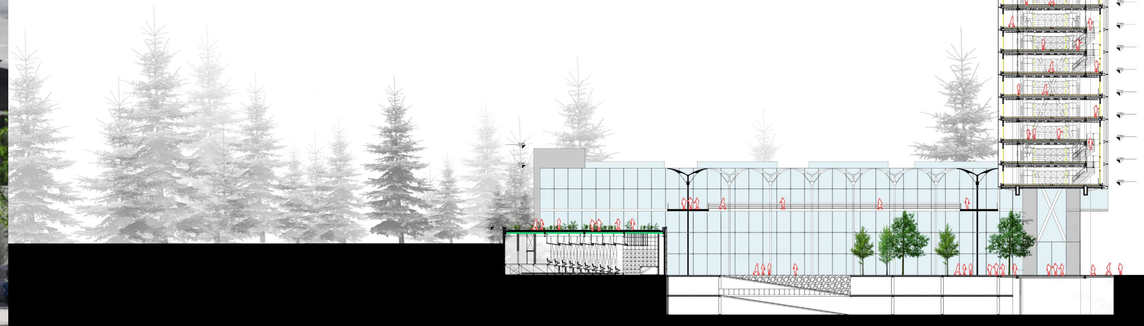





**Detail 02**



**Detail 01**



# A03 Tehran World Trade Tower

**A modern narrative of Shams-al-Emareh in Tehran metropolis**

## Project Brief

If Shams-al-Emareh was a high-rise landmark in Tehran, where would be today's Shams-al-Emareh within Tehran, what would be its form and how would be its function? Can the high-rise bionic tower, or the landmark in Abbas Abad hills in Tehran, respond to the place and time requirements of this building?

Governmental tower and mansion in past Tehran

1865
Shams-al-Emareh

World Trade Tower in present Tehran

1970
Azadi Tower

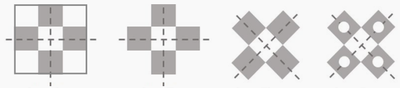
2020
Our Proposal
World trade tower

## Design Process

Unlike its surrounding architecture which ignores and conflicts nature, this bionic tower emphasizes a naturalistic architecture and encompasses four towers established on a podium in accordance with the pattern of "Chahar-Soffeh" (four-platform) houses in Iran. In other words, a modern narrative of Chahar-Soffeh pattern is aimed.

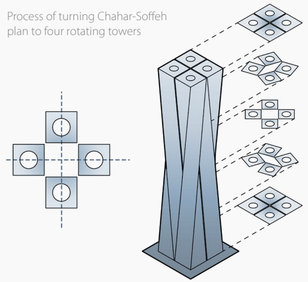
Chahar-Soffeh pattern on Sumerian terracotta bowls

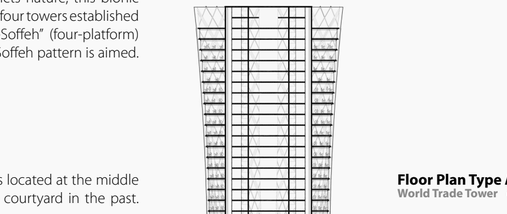
Now, a tower consisting of four towers and four shear cores is located at the middle part of these four Soffehs (platforms) which used to be the courtyard in the past.



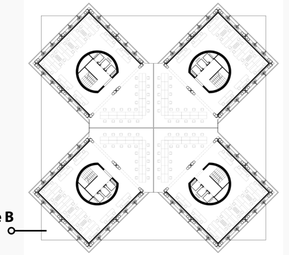
**Step One** **Step Two** **Step Three** **Step Four**

Process of turning Chahar-Soffeh plan to four rotating towers





**Floor Plan Type A**
World Trade Tower



**Floor Plan Type B**
World Trade Tower



**Section A-A Layout**
World Trade Tower

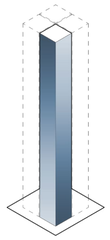
The design of tower follows a rotating pattern with the approach to bionic architecture, i.e. the upper floors are gradually rotated up to 90 degrees and overlook the other side of city. This shows the monitoring pattern of mansions in today's modern language.

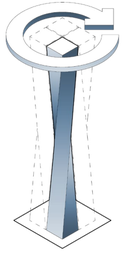
## Bionic Design

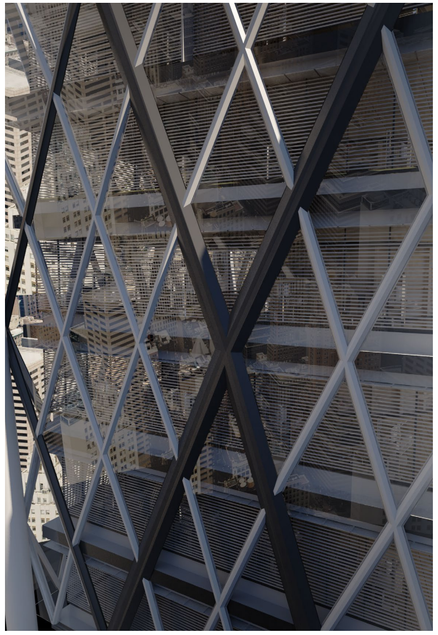
**Reason for gradual rotation of tower :** As explained previously, we employed a bionic and technological attitude toward the design of this complex, in addition to the cultural viewpoint. In the main design of tower building, the rotating pattern of ivy plant crawling around its main core, i.e. the tree, is used. Most architectural patterns are experienced in artistic works and nature before being presented in form of a building. The Chahar-Soffeh pattern is no exception as an archetype.

- Aerodynamic issues
- Bionic issues inspired by ivy plant: Ivy is a spiral climbing plant which crawls around its surrounding tree, so that integrates with it.

- A variety of views and perspectives are provided from the lower to upper floors.

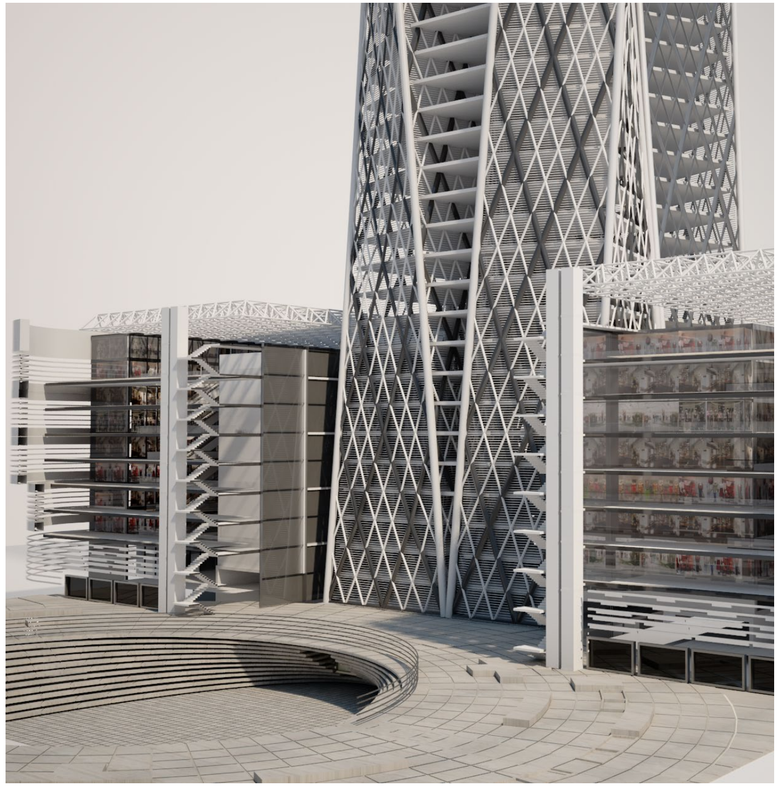




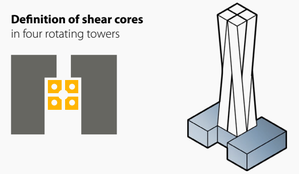


## Spatial Layout

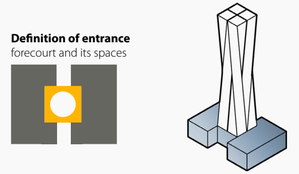
In the past, mansions and Kushks serve as governmental institutions and their upper floors were used for monitoring. The World Trade Tower also comprises two parts; the first part includes a 10-story building as a podium and the second part is a 70-story tower in the middle.



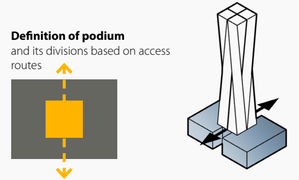
**Definition of shear cores**
in four rotating towers



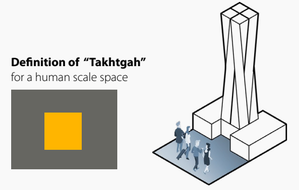
**Definition of entrance**
forecourt and its spaces



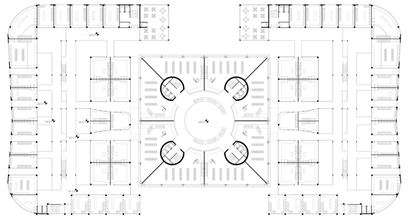
**Definition of podium**
and its divisions based on access routes



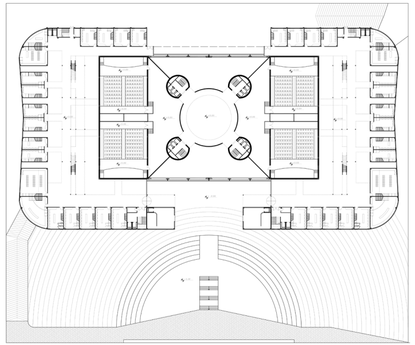
**Definition of "Takhtgah"**
for a human scale space







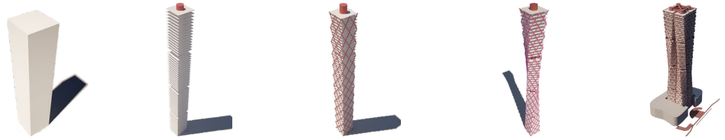
**10th Floor Plan**
World Trade Tower



**Ground Floor Plan**
World Trade Tower

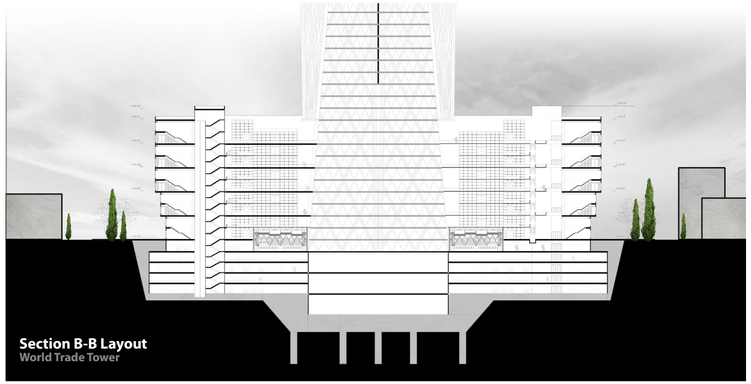
## Structure Design

The form consists of four parts and a central core defines a Soffeh (platform) in each part; since each part has an independent core, all four parts can rotate. Hence the separate rotations provide a beautiful form and create an in-between space with variable area.

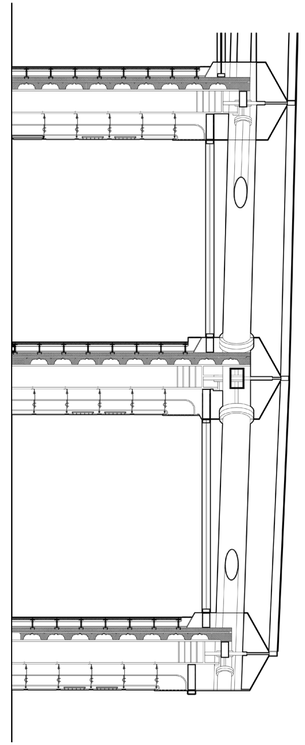


**Step One** **Step Two** **Step Three** **Step Four** **Step Five**

In the last step, the form is put on a huge 10-story podium, as illustrated in Figure 6. The podium is a magnificent pattern in Iranian governmental architecture.

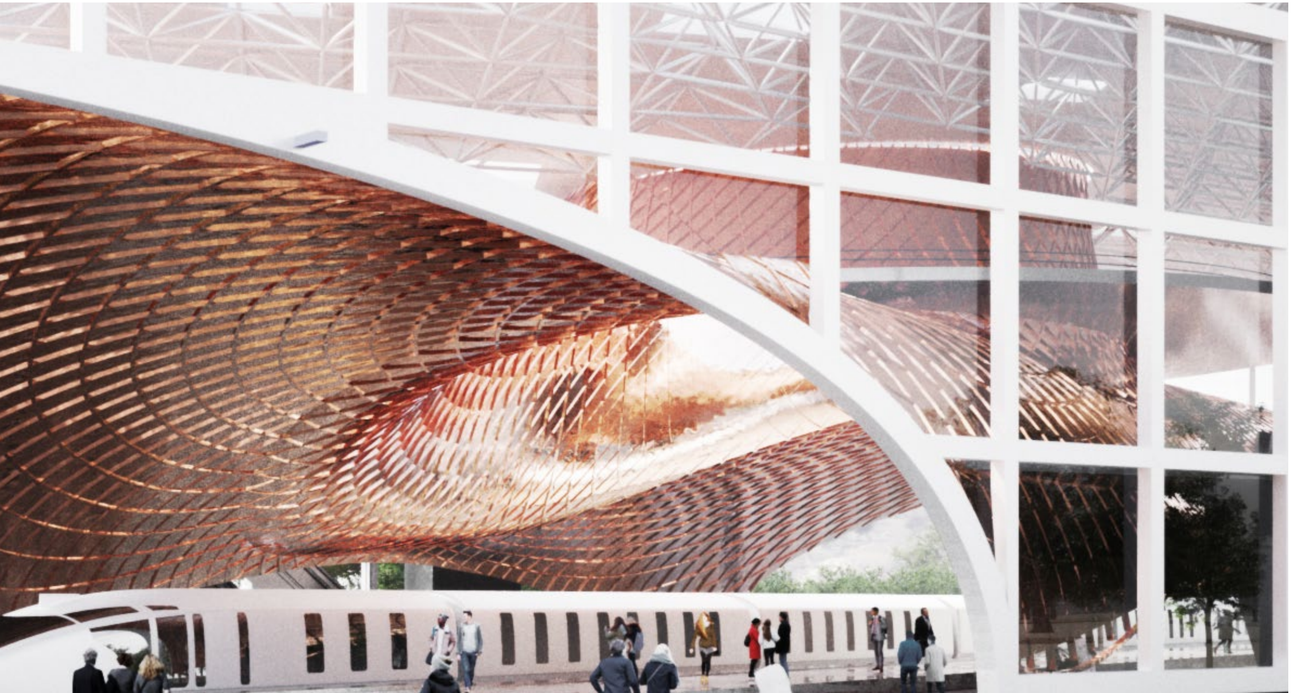


**Section B-B Layout**
World Trade Tower



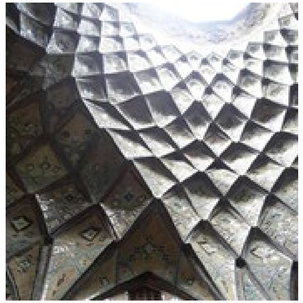
# A04 Metro Station

at Tehran Imam Khomeini International Airport

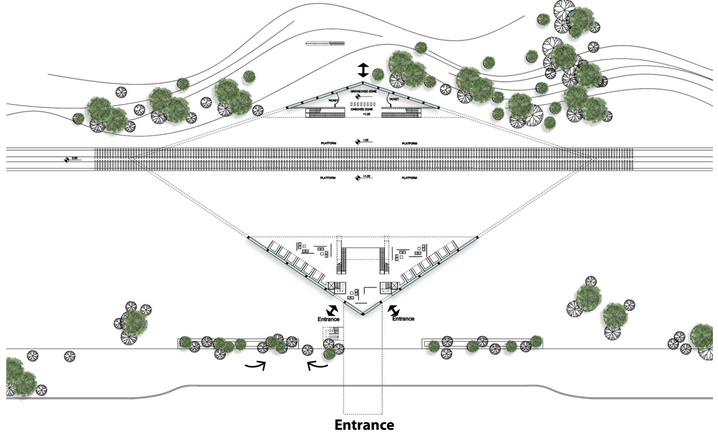


## Main Idea

The geometry of complex, which is based on a kite form, is arranged on the site in such a way that the metro movement and bridge access axes are adapted to the axes of base form, i.e. diamond (which is called butterfly in Iranian-



Since the metro station is especially dedicated to the airport, it is attempted to apply the idea of flight in the design of complex. The childish kite game in that area made us think a bit more about the structure of kite.



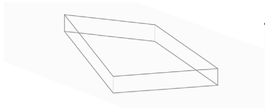

Entrance

## Structure Design

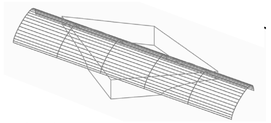
The metro station is designed by the least number of columns using space frame structure for the main roof of complex and lamella structure for the roof of metro movement zone. These structures play an influential role in creating the sense of flight and movement at the station.

## Form Finding Process

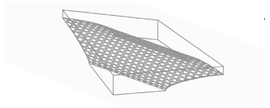
**Metro Station**



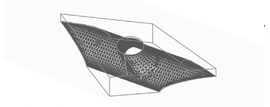
**Step Zero**
Simple shape of volume



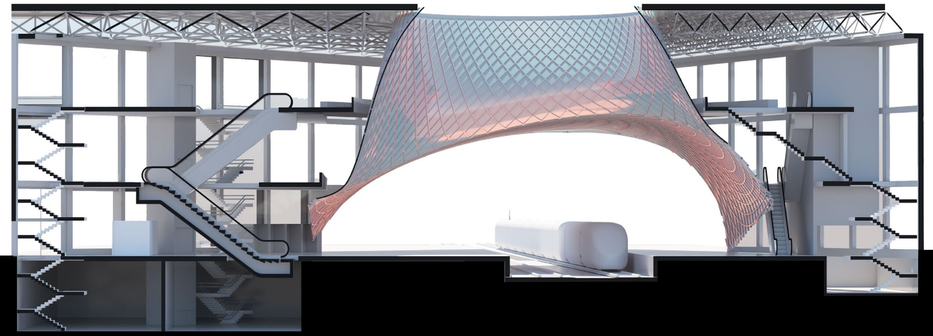
**Step One**
The railway passes from the volume



**Step Two**
The Shape after adding Railway force



**Step Three**
Providing a view to sky

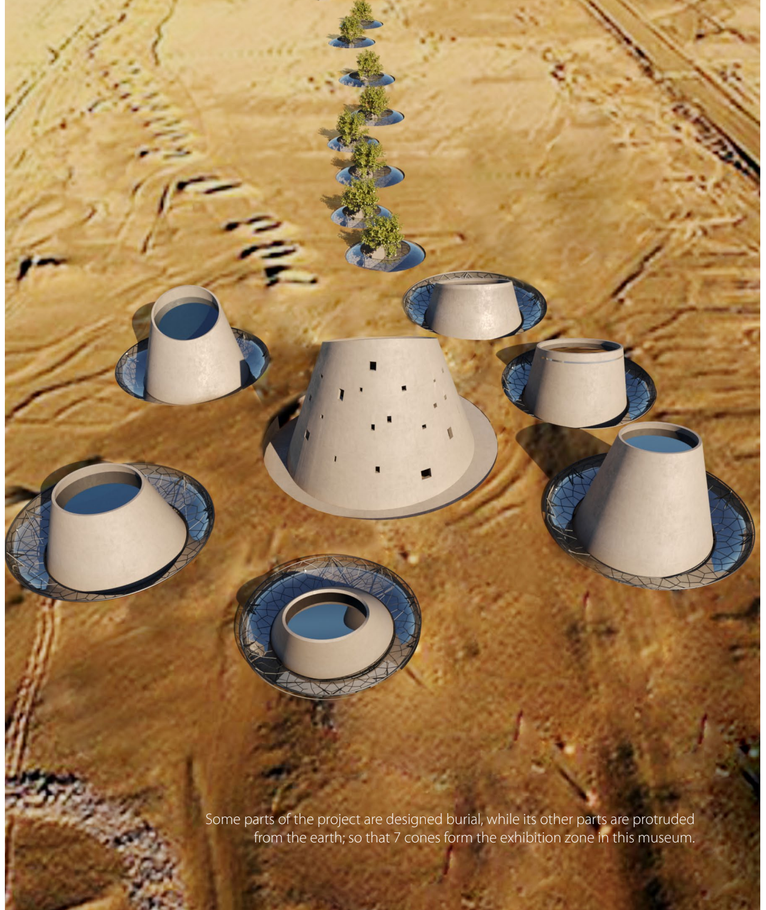


# A05 Museum of Water

in the Lut Desert

## Project Brief

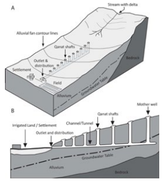
The water and water crisis have turned to an important issue throughout the world. Iran is one of the driest countries over the world, where deserts cover about two-thirds of the total area due to its geographical conditions.
The Museum of Water is designed in one of the hottest places over the world firstly to understand the basics of water and secondly to promote tourism.



Some parts of the project are designed burial, while its other parts are protruded from the earth; so that 7 cones form the exhibition zone in this museum.

## Site Location

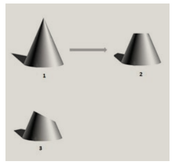
At a suitable point of the Lut desert overlooking the "Kaluts or yardangs" (as shown in the figure), it is aimed to design a project which is visually in harmony with its valuable natural context.



Since the site of project is located beside a historical qanat, the orientation of complex and elongation of site emphasize the qanat axis.

## Design Process

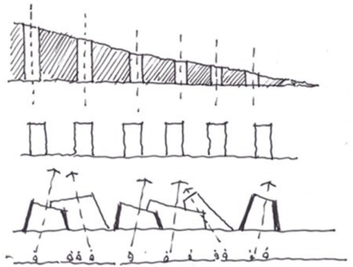
The museum consists of three parts:
The first part includes services and accommodation-ecotourism zones; the second part includes a long path parallel to an old qanat; and the third part includes exhibitions and galleries.



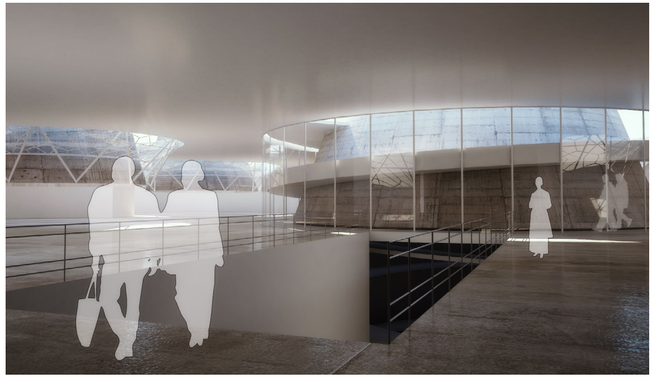
**These cones are formed for two purposes:**

- The reverse qanat shafts are illustrated as the shout of qanat. Hence the top of cones is cut to see the outside.
- It is an abstraction of form of a Kalut in the Lut Desert, which is itself a natural structure.





**A long ramped** path connects the accommodation zone to the exhibition zone and evokes the sense of movement through historic water reservoirs (an old technique to save water) when one moves down.

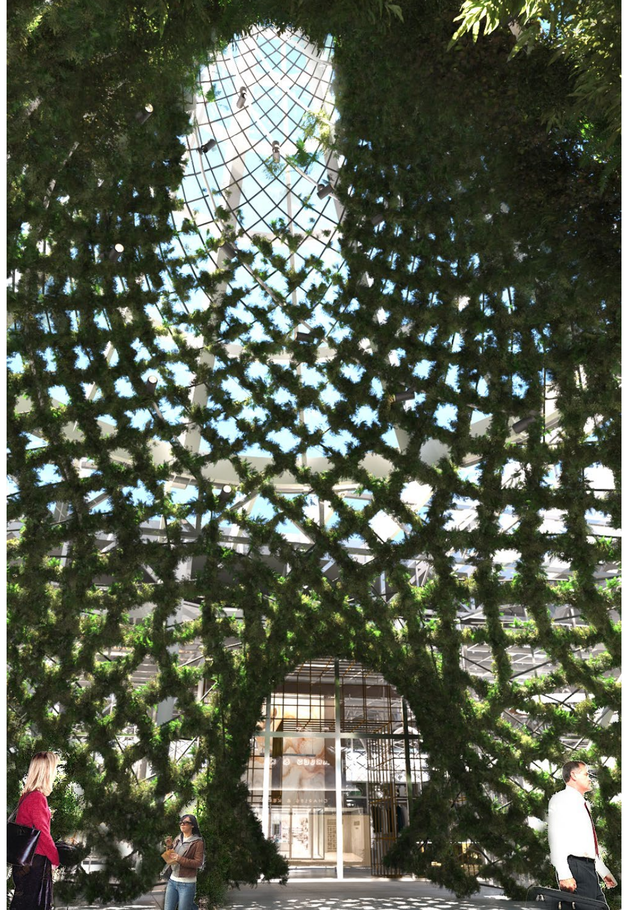


# A06 In The Green

Unexpected encounter of green

## Project Brief

The American mall was once a thriving business that erupted in the late 70s and early 80s. Around 750 malls were built from 1970 to 2000. Today, one in four malls is expected to be closed by 2022. The COVID pandemic, had a major impact on department stores. People were unable to go to stores safely, or legally, due to safety measures and lockdown. This plummeted the sales of shopping centers, while E-commerce sales surged. Department stores that have been repurposed fall into three general categories: warehouse, fulfillment center for online retailer like Amazon, and other traditional retail space, restaurant/apartment. Malls that are located in dense populated areas are likely to get repurposed.

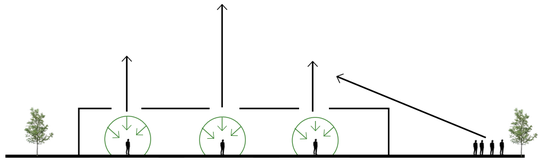




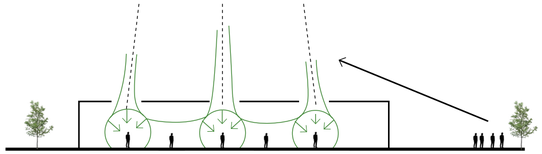
## Design Process

Over the years, various malls and department stores have been on decline. The aim of this project was revitalizing what once used to be the center of urban life by providing an extraordinary experience with unexpected encounter of green. The kinetic movment of organic green walls allow the user to have a direct interaction with the green, while creating a sensorial environment. In spite of that users are staying indoor, the transparancy of this undulating snake shaped green gives the feeling of walking in nature.

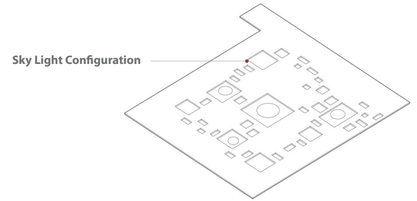
Being In the Green

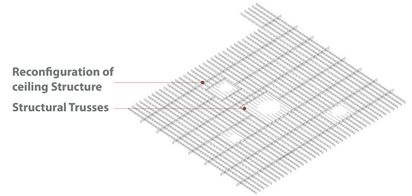


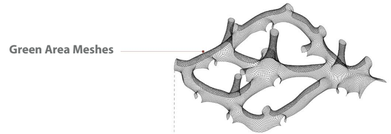
Growing the Green area to attract attention from outside

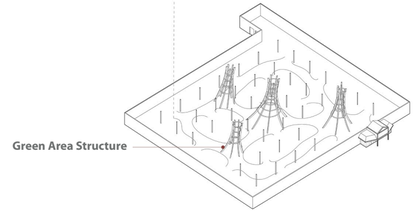


Being in the Green, Showing the Green



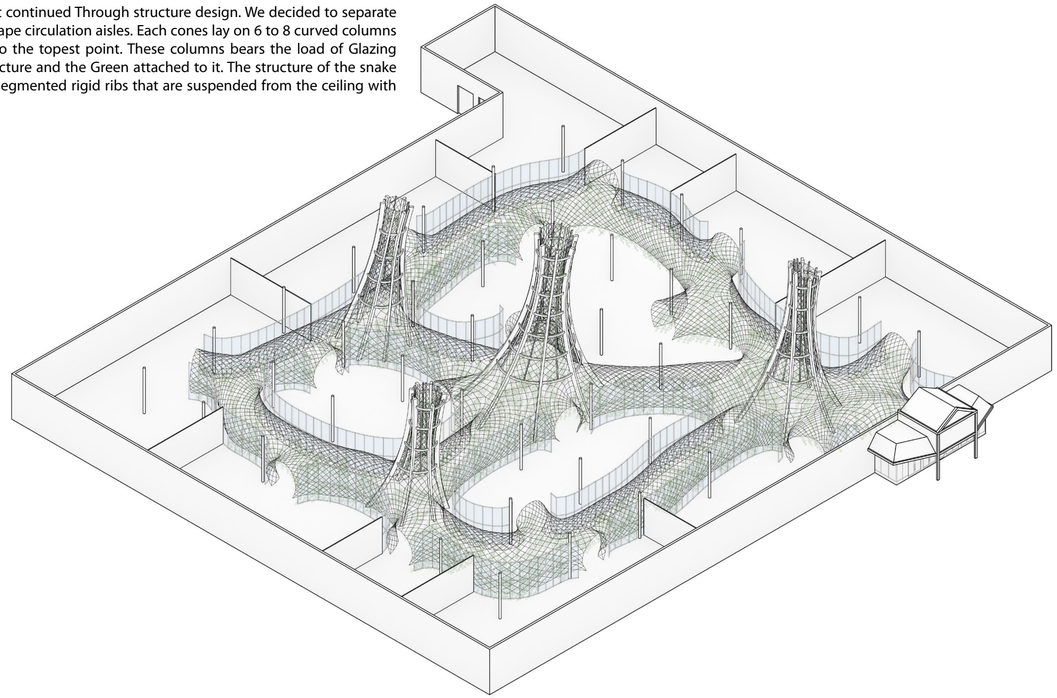



## Structure System:

The project development continued Through structure design. We decided to separate the Cones from Snake shape circulation aisles. Each cones lay on 6 to 8 curved columns that stars from ground to the topest point. These columns bears the load of Glazing system, Green Mesh Structure and the Green attached to it. The structure of the snake shape aisles is consis of segmented rigid ribs that are suspended from the ceiling with tensile cabls.

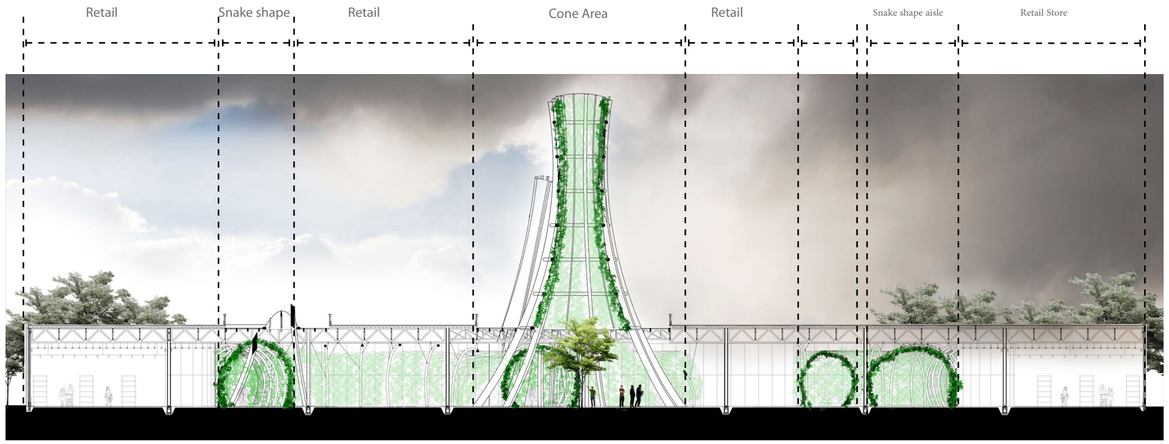


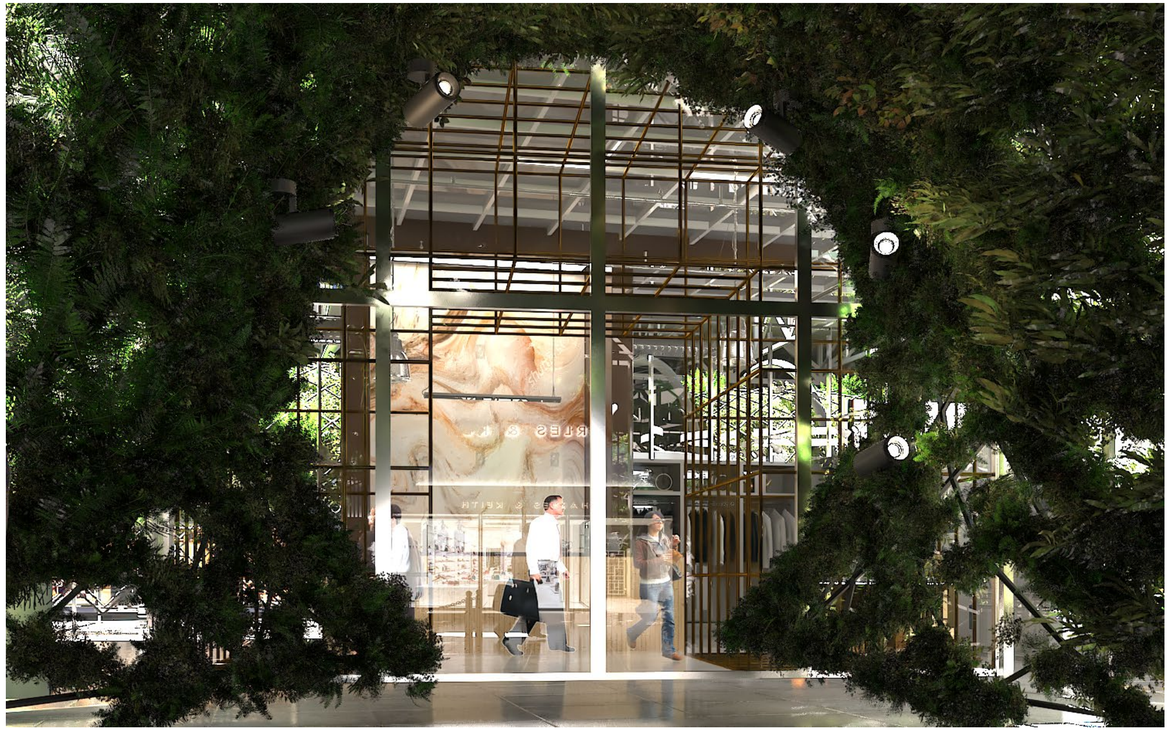
## Axonometric View



## Jakob's Green Façade

A wall system where climbing plants or cascading groundcovers are trained to cover specially designed supporting-structures. The climbing plants are divided into self-supporting plants like root climbers or adhesive-suckers, and plants that need supporting , like twining vines, leaf-stem climber, or scrambling plants. The system that was used is a GreenTrellis Webnet modular system made of stainless steel wire mesh. The spacer and connecting parts form a modular system that can efficiently be scaled to the size of a specific project. The cable diameter and mesh aperture are specially designed for climbing plants loads, due to the density of the green vines on façade.



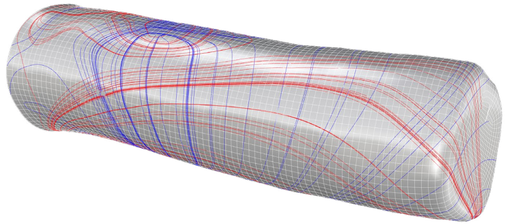


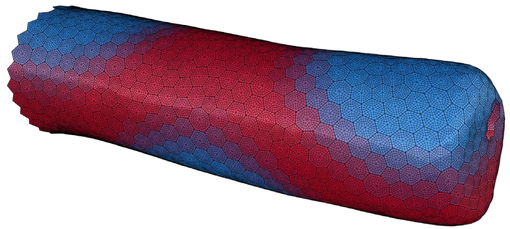
The snake shaped aisle gives an opportunity to the user to interact with the green. Moving lights and shadows will be created on the ground as a result of natural light passing through green meshes. This process gives the sensorial feeling to the people while they are spending their time in the mall. The combination of natural light bouncing off the floor and artificial lighting creats a feeling of being in a forest.

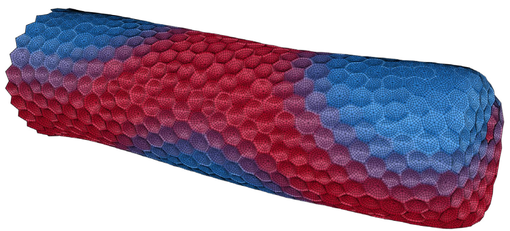
# A07 Digital Texture Remapping

## Project Brief

Our mission in this project was creating a visual representation for our desired finishing technique (Naguri). We began exploring the application of texture remapping process in two different methods. First, utalizing manual techniquese. Second, employ a more automated texturing process to visualize the representative texture map to apply the traditional Japanees finishing to a surface. Following up we were looking to continue the idea of applying a carved texture to the documented logs provided. we then conducted a stress/strain analysis onto the log to locate the areas that are in stress and strain after applying hypothosis forces to these meshes. After conducting this stress/strain analysis we can then apply a gradient pattern on to the mesh, allowing us to replicate a visual analysis around the log to help guide the amount of material to be removed. After applying the gradient, we then focused on replicating the turtle shell naguri onto the log by creating depressions using the centroid of the mesh faces allowing the creation of the sunken/ scooped effect of the texturing technique. After creating this application, we were then able to adjust the change in depth of these depressions, along the pattern of the gradient.

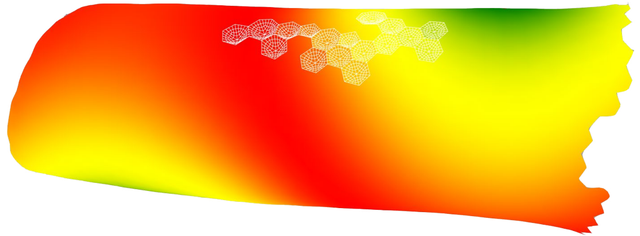


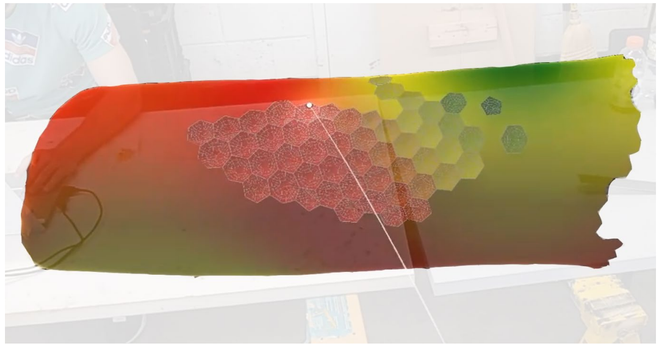




## Real Time Sculpting

In hopes of applying our visual application and new texturing techniques to the HoloLens fabrication process, we began looking into connecting this retexturing technique through utilizing the HoloLens ability to link hand gesturing to incorporate real time carving into the process of fabrication. By introducing this element it allows us to explore the possibilities of the HoloLens in both designing the pattern through augmented reality and also using it as a visual guide to applying the pattern through sculpting.Working with this idea we first began experimenting with VR to Replicate the initial idea of Realtime Sculpting. The application Gravity Sketch an app for the Oculus headset that allowed us to first achieve this Realtime Sculpting technique while we began exploring the possibilities of this action with the HoloLens.

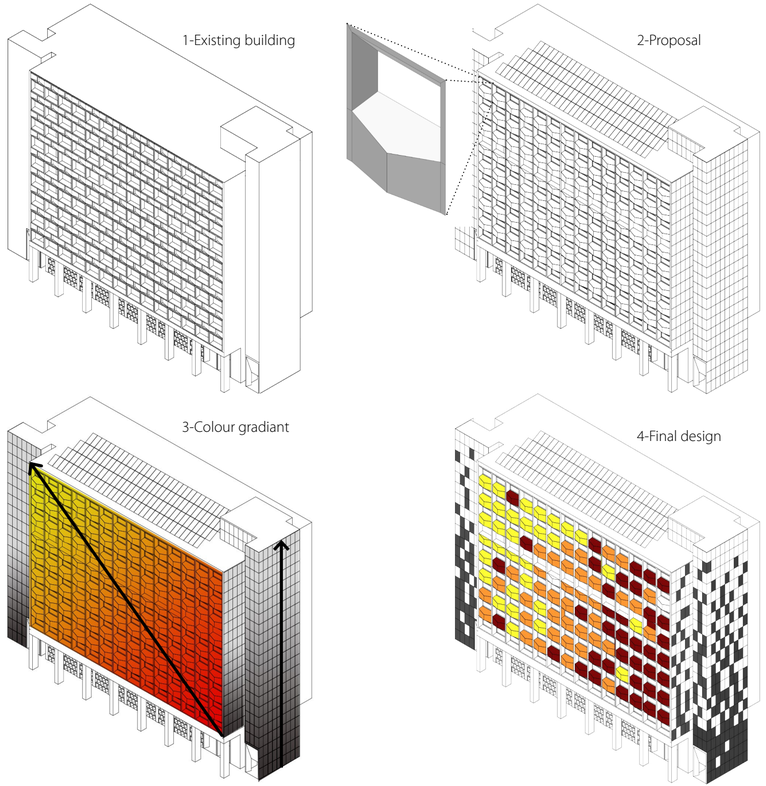




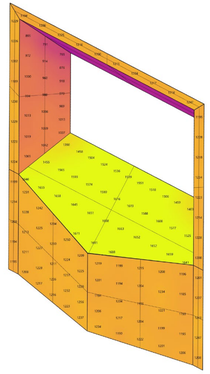
# A08 Green Recunstruction

## Project Brief

Solar facades in general are multifunctional building elements that, along with satisfying construction requirements as primary function, use incoming solar radiation to generate on-site renewable energy and manage solar gains, while also reducing the heating and cooling demands of buildings. As demonstrated by numerous studies and projects, BIPV is the easiest technology to be integrated in facades, suitable for meeting the net zero-energy buildings target. In this project our mission was defined to detect an old building in the north-campus of The University at Buffalo with a potential for facade retrofit argument. by utilizing the climate studio radiation-map analysis we attempted to rethink the facade as an envelop component also as a power generator simultaneously.




Radiation map analysis for a designed panel



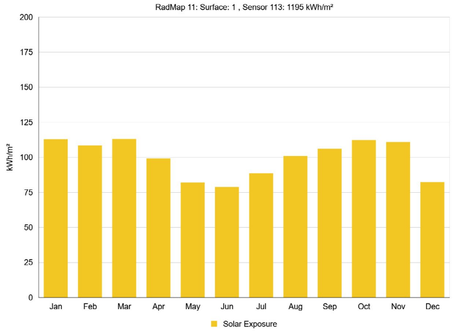
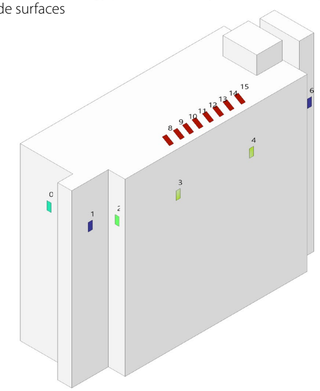
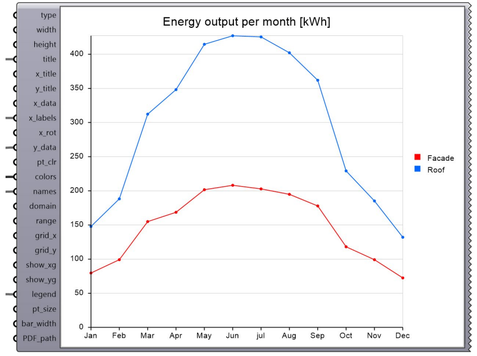


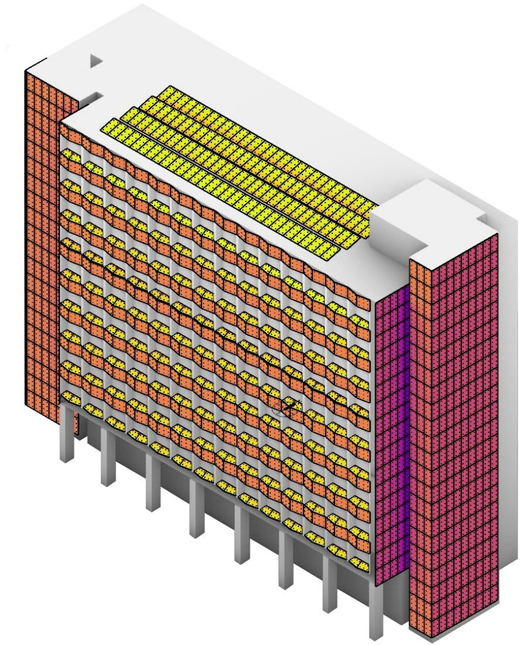

Illustration of monthly energy production analysis for seven sample panels on the roof vs facade surfaces

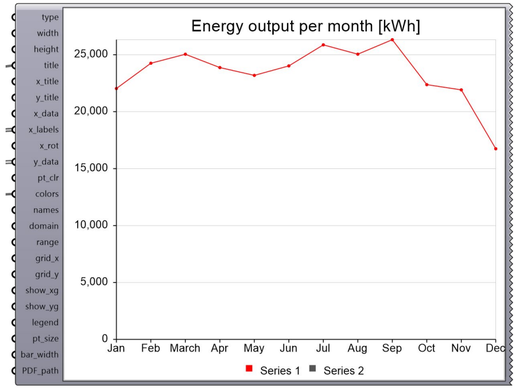


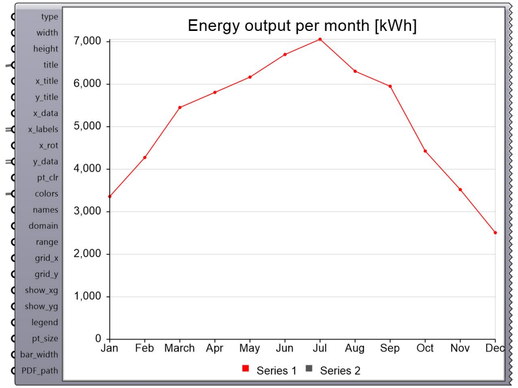


## Total kWh energy production:

Based on the climate Studio anlysis the designed proposal will produce 342,178.769942 kWh per year



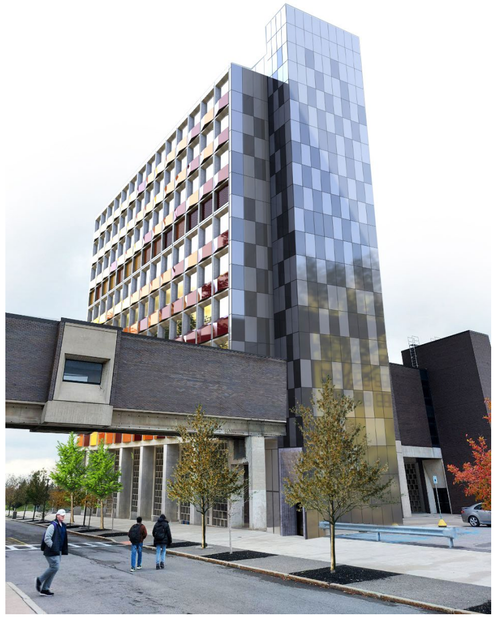





Before

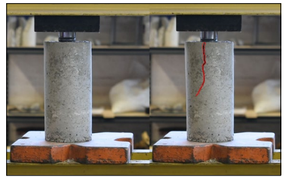
After



# ARC/455 Structure 3

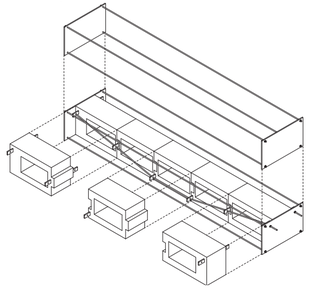
### Core Sample Testing

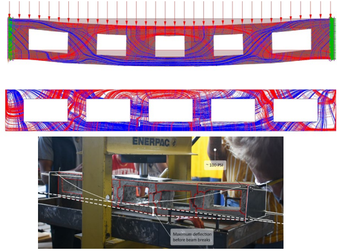
Working in a group of 5 graduate students to test 5 different concrete mixture.



### Beam Design

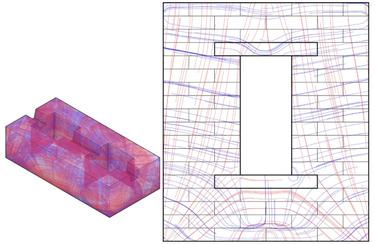
Looking deeper in Vierendeel trusses structure, Trying to Redesign it based on post-tensioning structure strategy, Utilizing Karamba for stress/strain analysis, Making and testing the actual model.





### Rammed Earth Material

Designing the stablized block wall with combination of steel, concrete and earth block system. By combining these systems the blocks strength was tested and they start the goal of defining spaces.

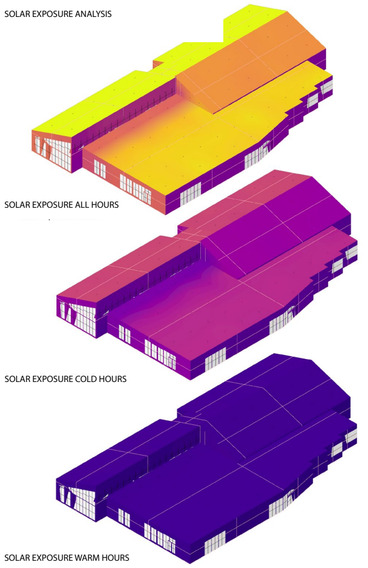


## Environmental System 3:

This course studied the knowledge of environmental systems an energy-informed architectural design process through the use of digital simulation. In this course we learned to assess Lighting quality and quantity, available solar radiation and whole building energy use. The skills taught and thought processess required in the class provide a framework within which students can design for net zero energy building and a lower-carbon footprint.

SYNTHETIS PROJECT

SOLAR EXPOSURE ANALYSIS



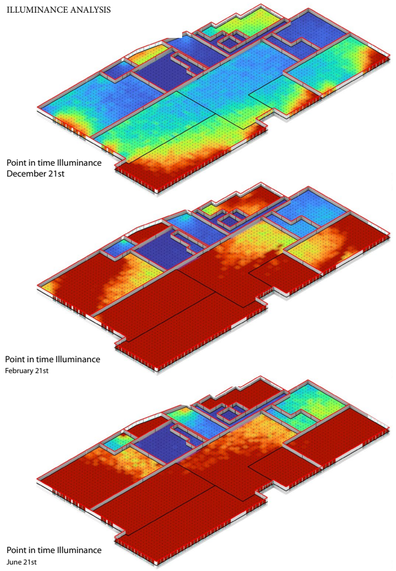
SOLAR EXPOSURE ALL HOURS

SOLAR EXPOSURE COLD HOURS

SOLAR EXPOSURE WARM HOURS

SYNTHESIS PROJECT

ILLUMINANCE ANALYSIS



Point in time Illuminance
December 21st

Point in time Illuminance
February 21st

Point in time Illuminance
June 21st

**Architectural Rendering:**

Location: Lolagar St, Tehran, Iran
This is a nearly 80 years old symmetric alley that is located in one of the old neighbourhood in tehran, and is recorded at cultural heritage organaization.

Software being used:
. 3Ds Max
. V-ray
. Substance Painter
. Photoshop



## Architectural Sketching

Roknolmolk Mosque is a historical mosque in Isfahan. This mosque has been built in Qajar era and is close to Takht-e Foulad. It was built by Mirza Soleyman Khan Shirazi "Roknolmolk", who was a prominent personage in Isfahan. The Portal of the mosque has been decorated with the Roknolmolk's paintings and poems.