



# PORTFOLIO

Ali Alabeedi | Selected Projects 2019-2023

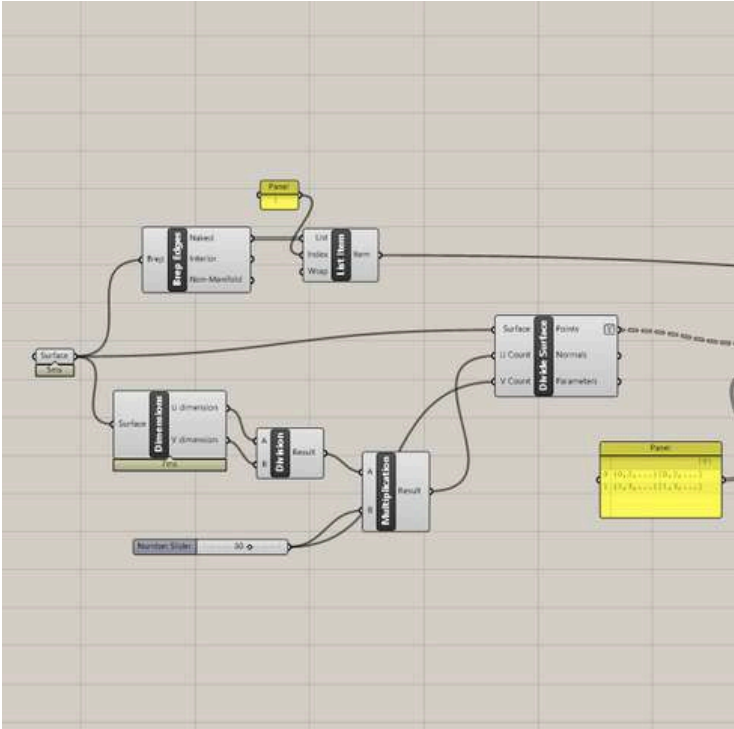
# TABLE OF CONTENTS

Page

# 01-02

**About me.**

Cover Letter & My website.



Page

# 07-16

**MGCG**

Museum & Waterfront.  
Tools: Rhino inside Revit, Grasshopper, Galapagos, Lunchbox Ladybug, Butterfly, CFD.  
Rendered: Vray/Lumion.  
Post-production: Photoshop.



Page

# 23-28

**4 Green.**

Greenhouse & Restaurant.  
Tools: Rhino, Grasshopper.  
Rendered: Vray/Lumion.  
Post-production Photoshop.



**GEN-ART.**

Abstract generative artwork - All geometries are generated by Grasshopper script.

Page

# 03-06



**L Steps**

Residential Building.  
Tools: Rhino inside Revit, Grasshopper, Galapagos, Ladybug, Honeybee, EvoMass, Butterfly, UTCI.  
Rendered: Blender.  
Post-production Photoshop.

Page

# 17-22







Page  
**37-44**

**Do.Re.Me**

Music School.  
Tools: Rhino, Grasshopper with Ladybug and Honeybee, UTCI.  
Rendered in Vray.  
Post-production Adobe Photoshop.



Page  
**49-50**

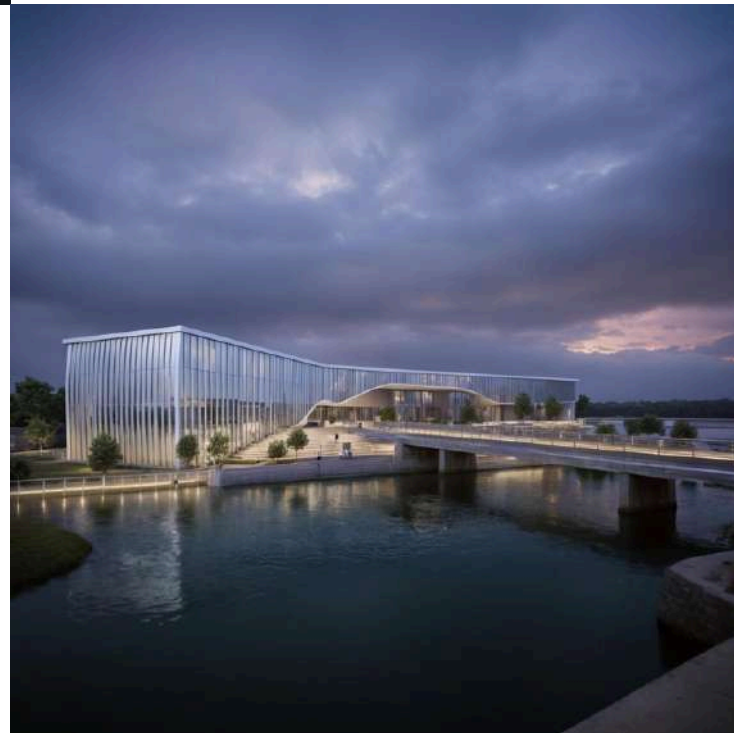
**Blend In, Stand Out**

Residential building and facade design.  
Tools: Rhino, Grasshopper with plugins.  
Rendered in Vray / Post-production Adobe Photoshop.



**The Creative Containers.**

Youth Center.  
Tools: Rhino, Grasshopper, Kangaroo, Parakeet, Physics, Lunchbox.  
Rendered: Vray./ Post-production Adobe Photoshop.



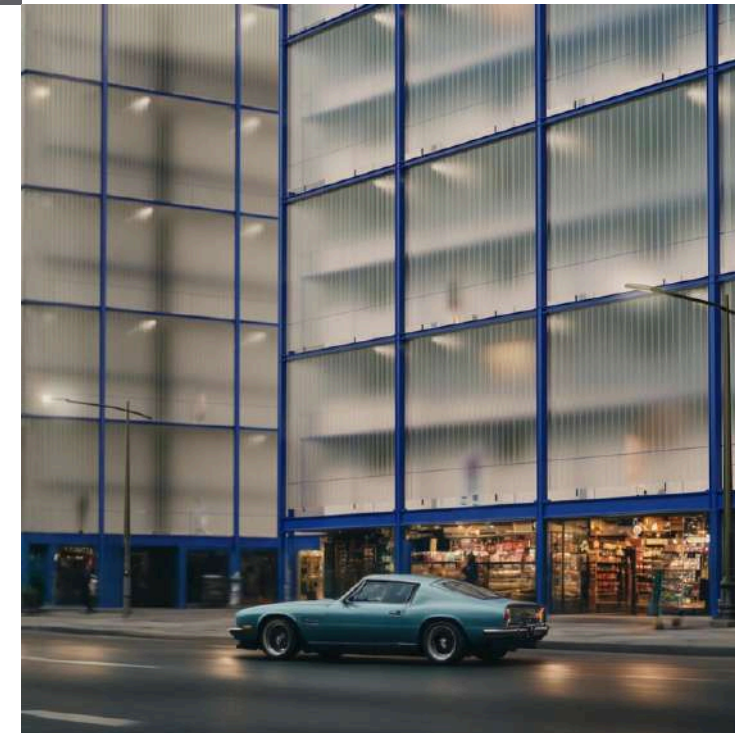
Page  
**29-36**



**The Spider web.**

Structural Pavilion Design.  
Tools: Rhino, Grasshopper with Lunchbox, Kangaroo, Weaverbird, Voronoi 3D Autodesk Structural Analysis.  
Rendered in Vray / Post-production Adobe Photoshop.

Page  
**45-48**



**The Wavy line.**

The Generative Urban Design.  
Tools: Rhino, Grasshopper, Anemone, Pufferfish.  
Rendered: UN5./ Post-production Adobe Photoshop.

Page  
**51-58**

# ABOUT ME

My journey in art and architecture began at the Fine Art Academy. After studying art, I discovered a deeper passion for architecture. Upon completing my courses at the Fine Art Academy and becoming a certified artist, I pursued further education in Architecture Design, Computational Design, and Building Information Modeling (BIM). I found myself learning most of the needed software to present my projects artistically with ArchViz. This blend of artistic intuition and architectural precision has enabled me to manage all phases of architectural projects, from concept to execution.

From the beginning of my architecture studies, I have been introduced to Information Architecture, working on various projects that leverage new technologies in Architecture and Design. The process of gathering data from the real world and using it in the digital space has been a topic of excitement and focus for me, driving my interest in pushing the boundaries of what's possible in design.

Being half Polish and half Libyan, I have had the unique experience of being raised in both cultures. This background has given me a deep understanding of both Arab and European building codes, as I have studied and worked within both frameworks. This dual perspective has enriched my learning, providing me with a comprehensive understanding of different architectural standards and practices. It has enhanced my capability to handle the design and supervision of architectural and technical buildings through to completion.

I had the pleasure of working as an Architecture Assistant for about 3 years in Poland with the international company MTDI. This role gave me the opportunity to contribute to diverse and significant projects across Europe, Ukraine, Asia, and India. These experiences enriched my understanding and practical skills in global architectural practices. Additionally, I have designed my own "Architecture" and "Interior Design" projects, leading them through the process of execution for city plans under construction in Libya, Poland, Hungary, and the USA.

Currently pursuing a Master's degree in Computational Design, I am committed to continuous growth in architecture. I believe in the importance of exchanging knowledge and skills with industry leaders for mutual success. So I want to join a firm where art, design, sustainability, and technology flow parallel. I seek a place where I can contribute my skills and learn from your team's experience, designing beautiful, functional, and environmentally forward-thinking architecture.





*Ali Alabeedi*

[www.alabeedi.com](http://www.alabeedi.com)

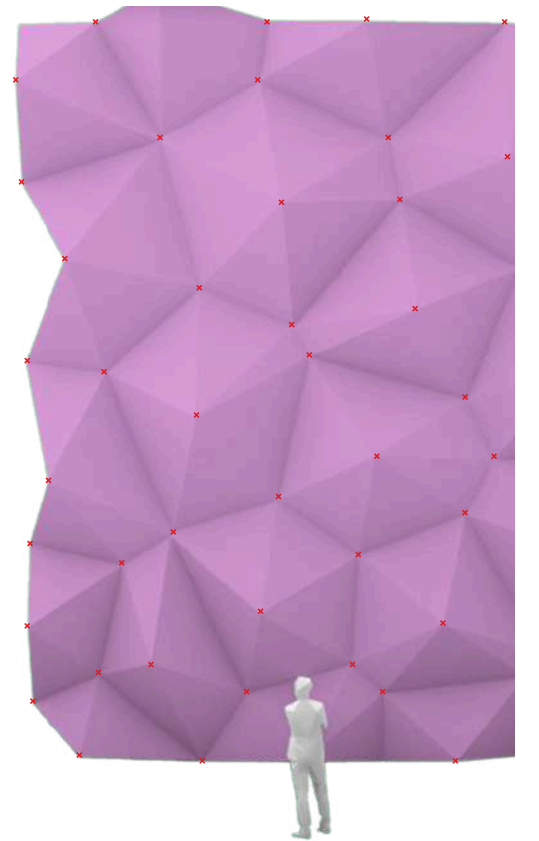
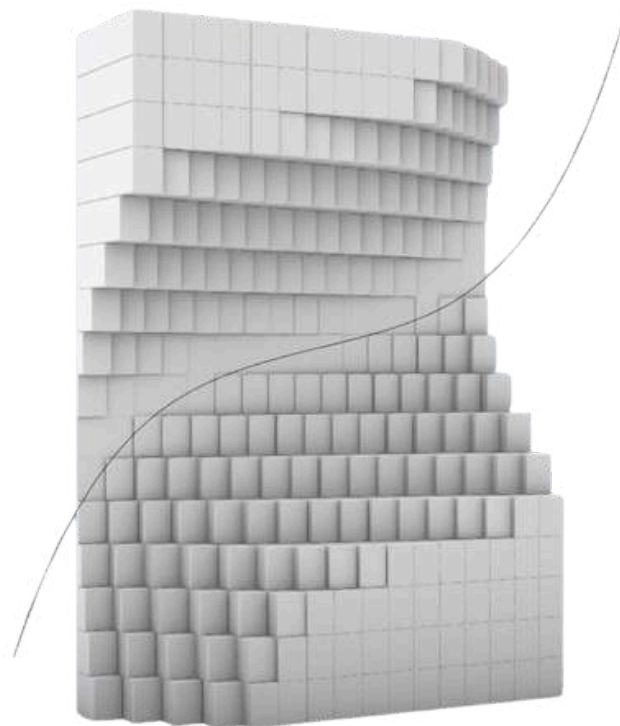
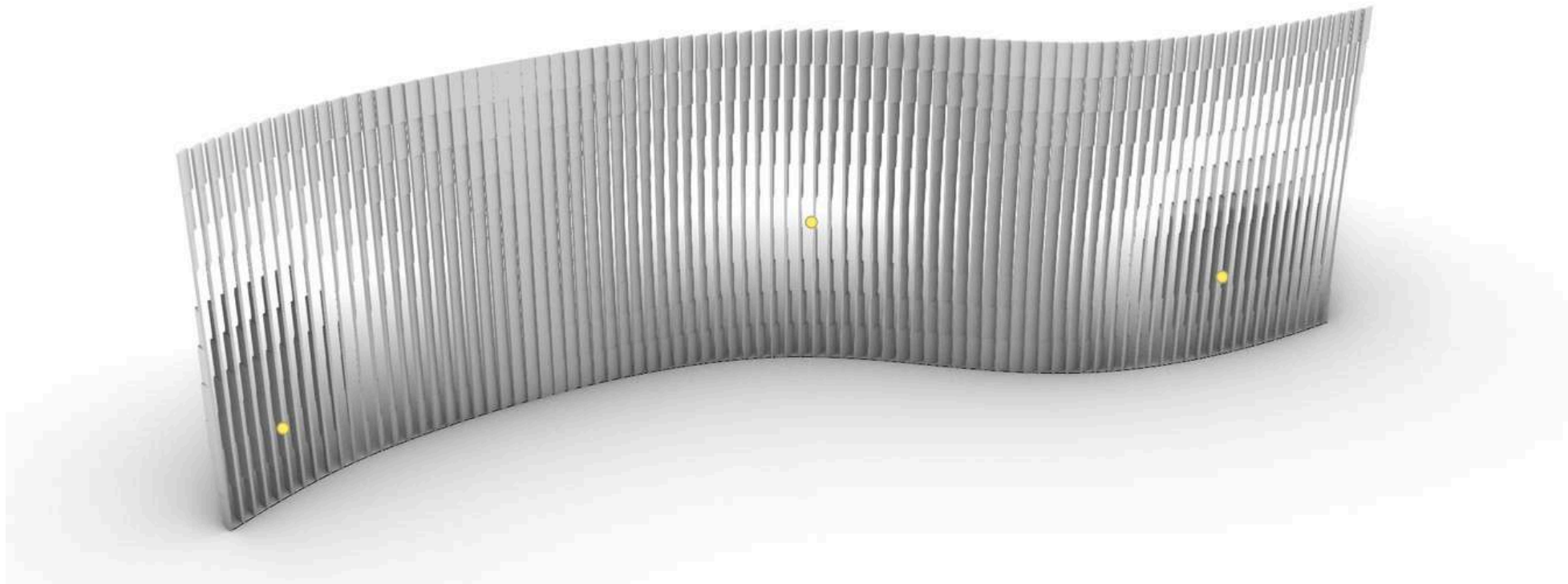
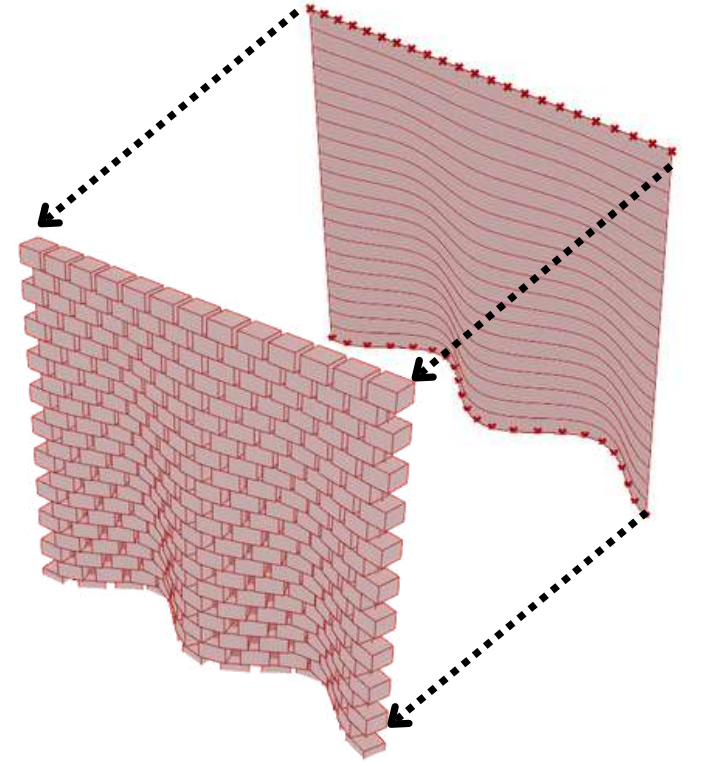
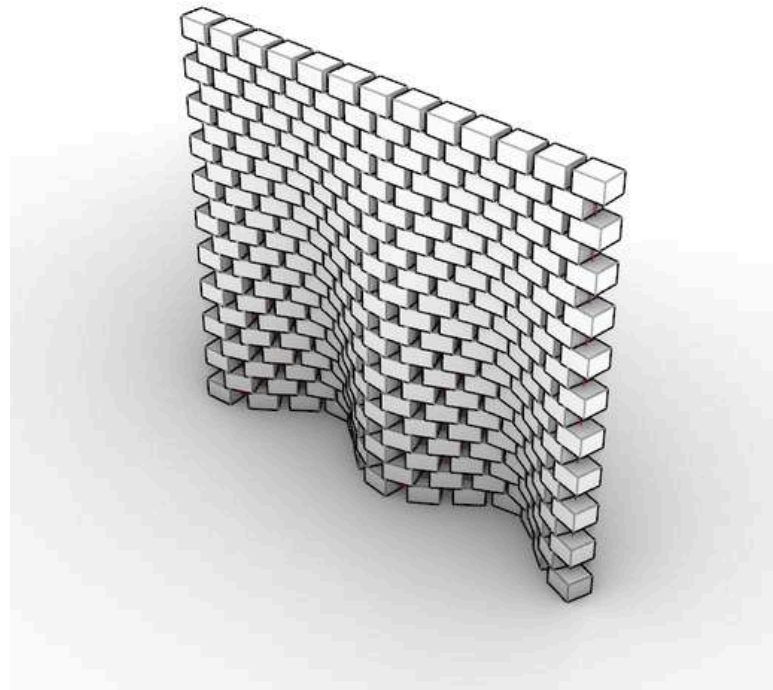
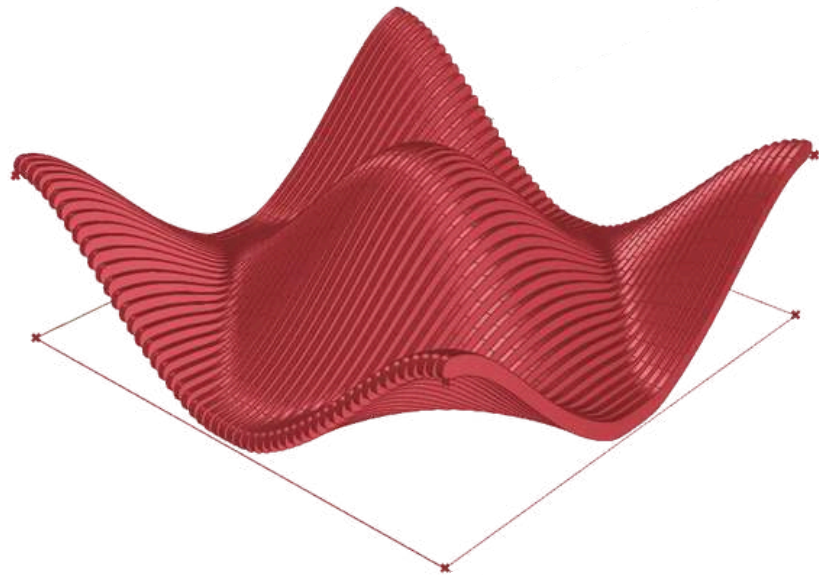
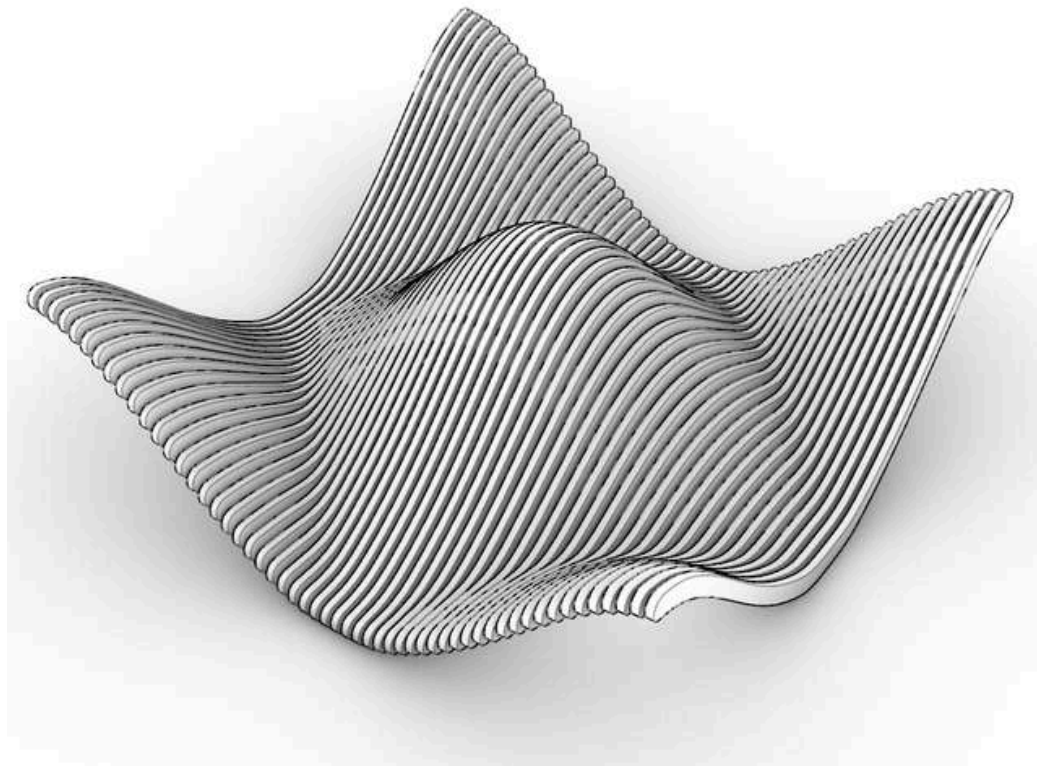
Architect | BIM | Computational Design | Archviz.



### GEN-ART

Abstract generative artwork - All geometries are generated by a script, not modeled manually. Private project

Tools: Rhino+Grasshopper, V-ray

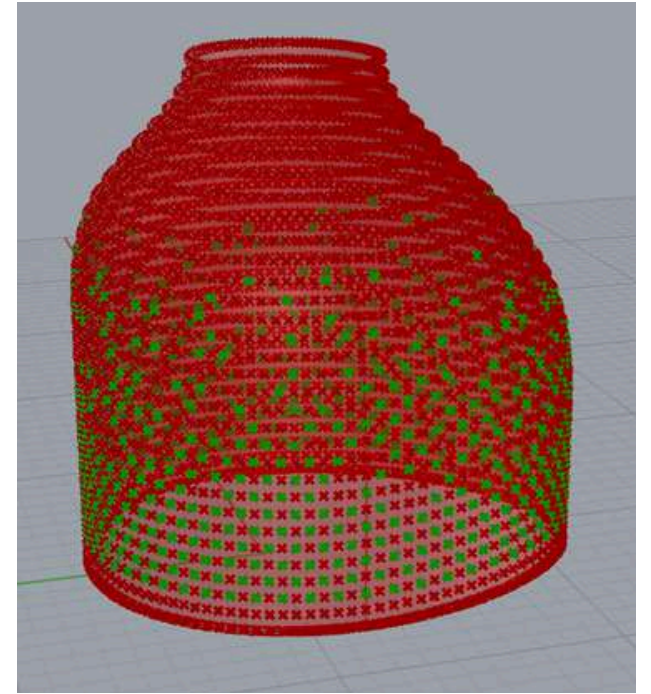
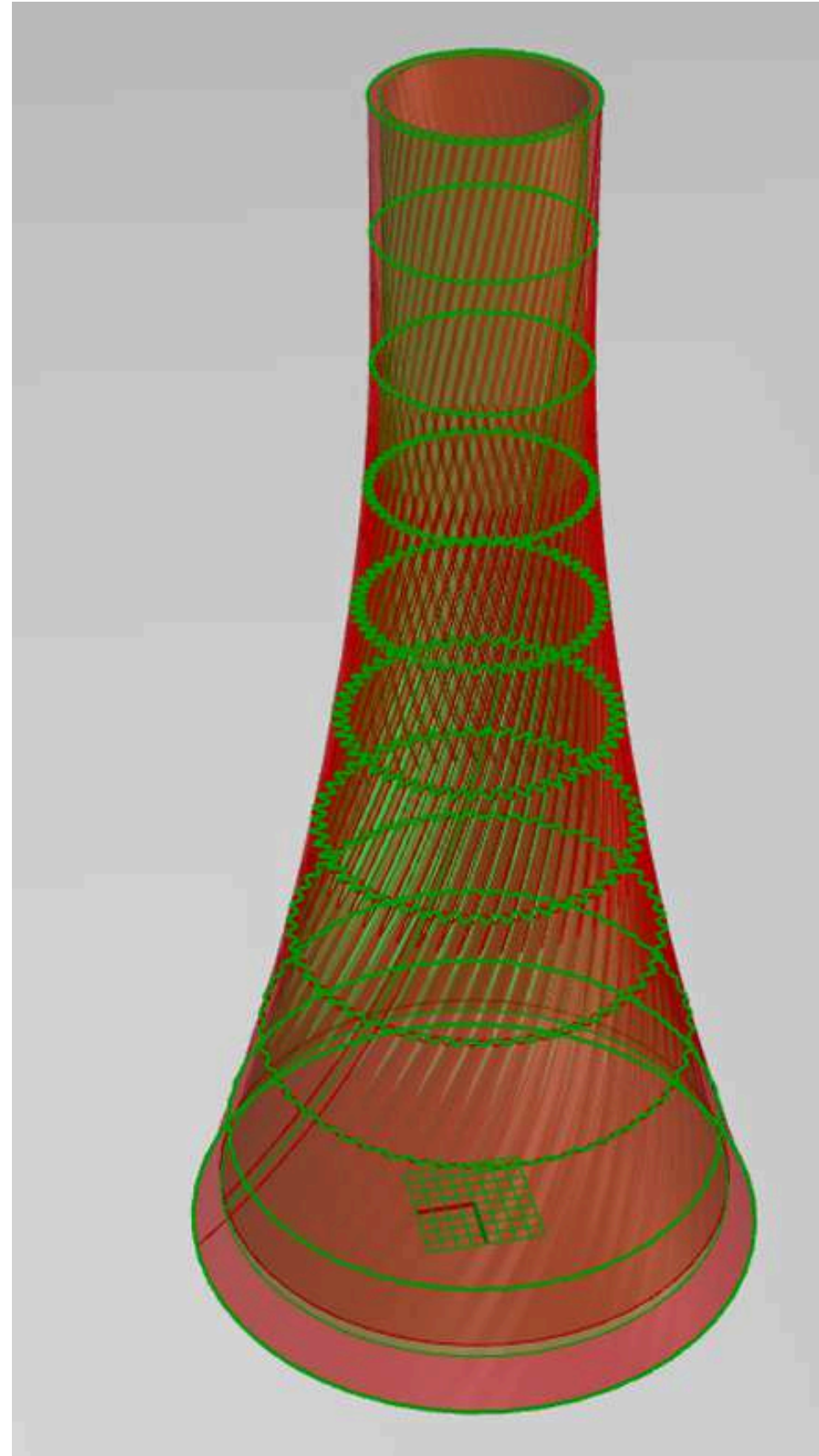
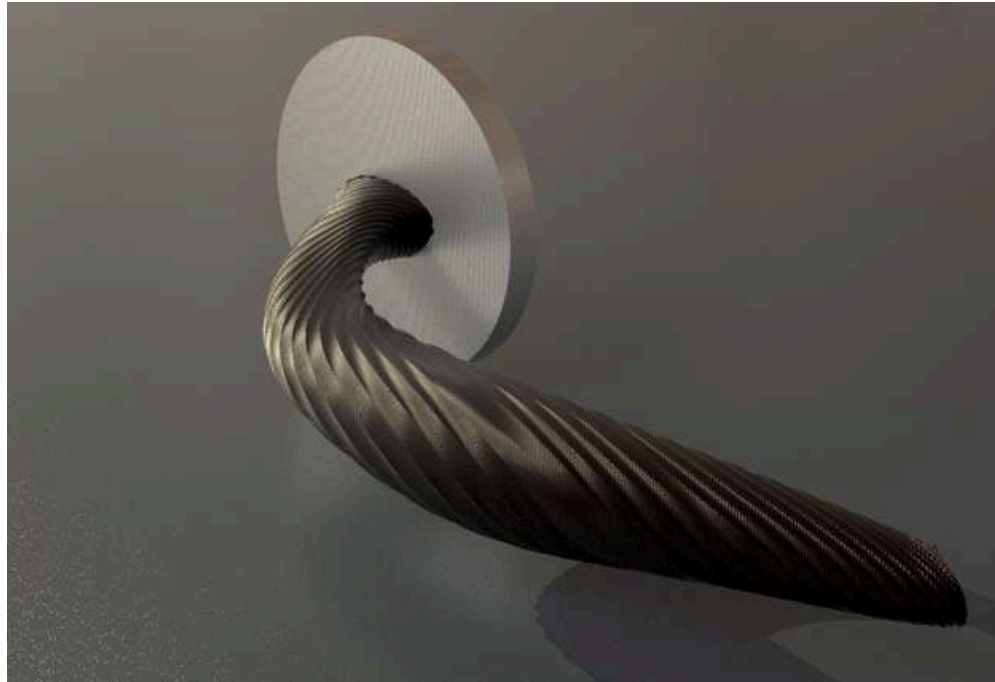
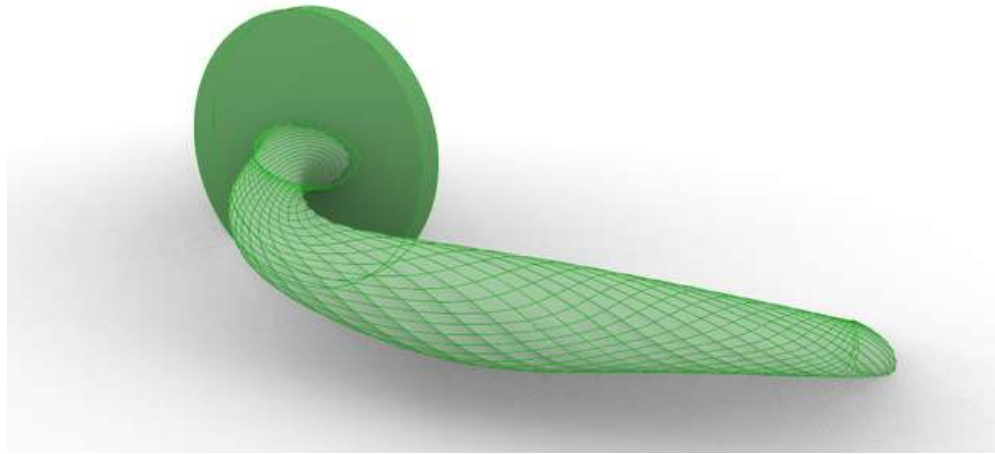
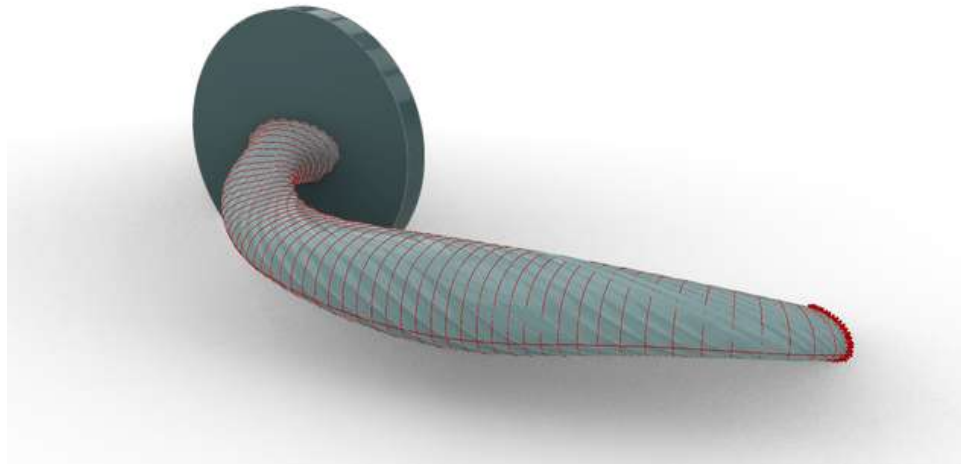


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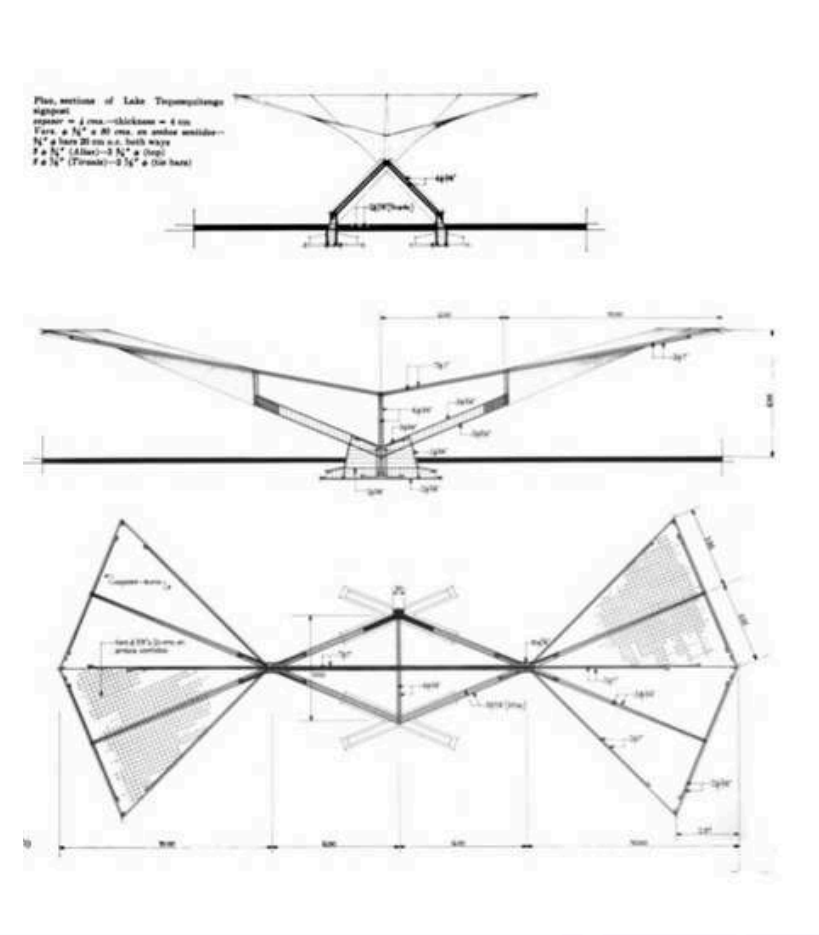
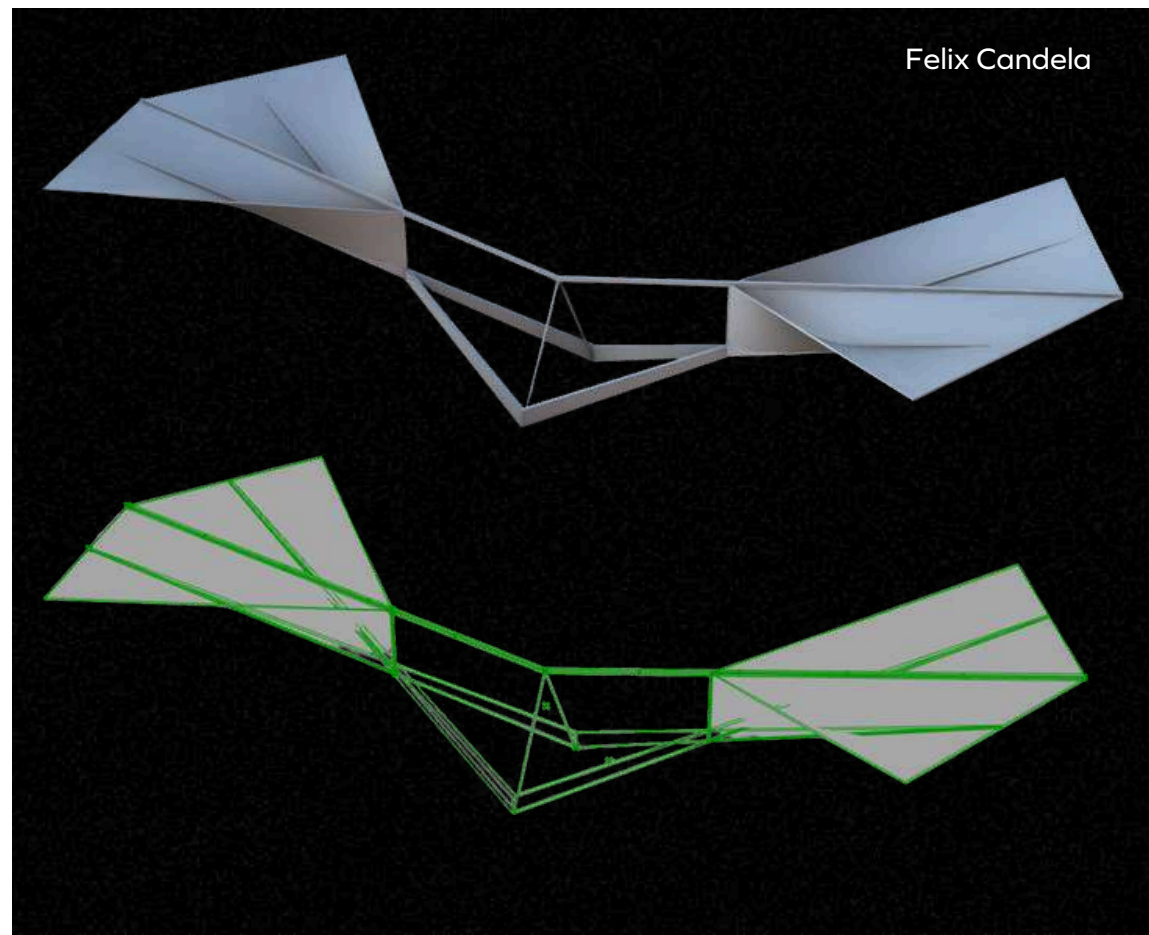
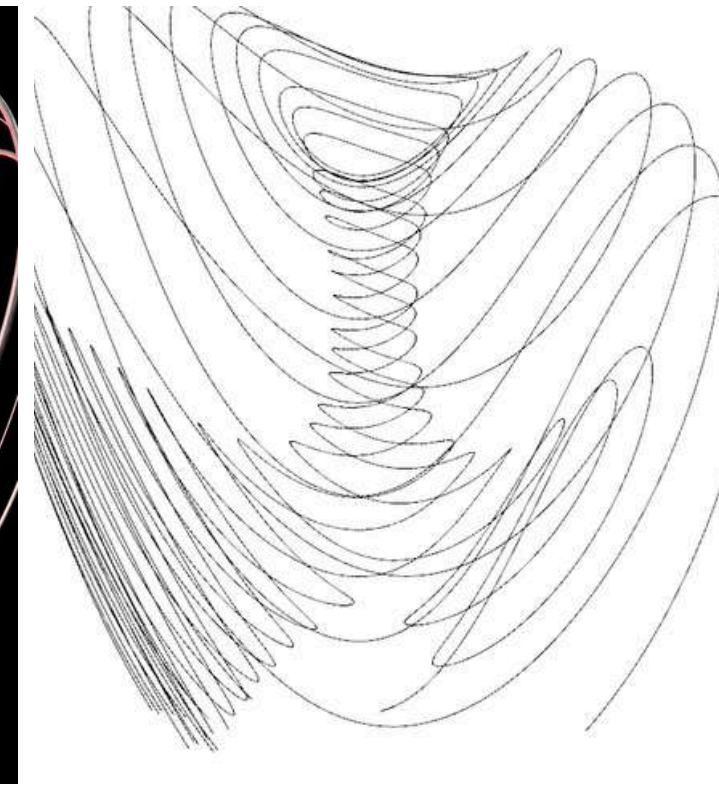
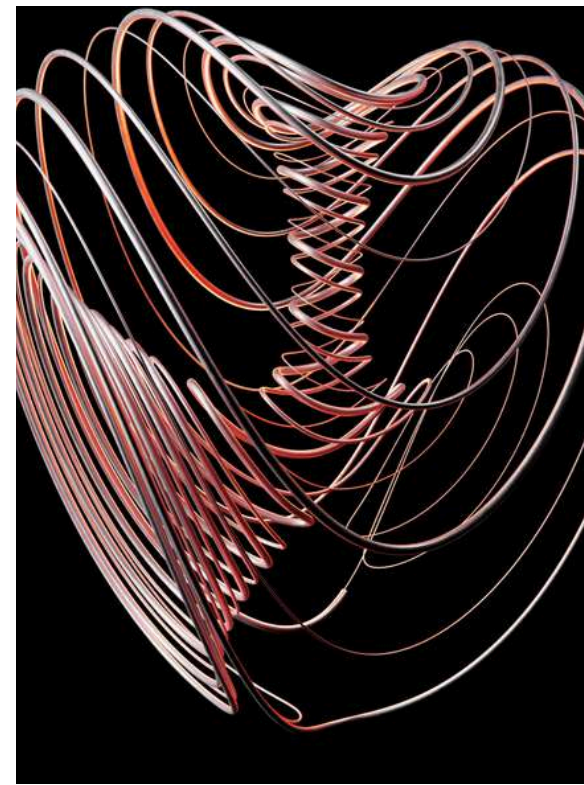
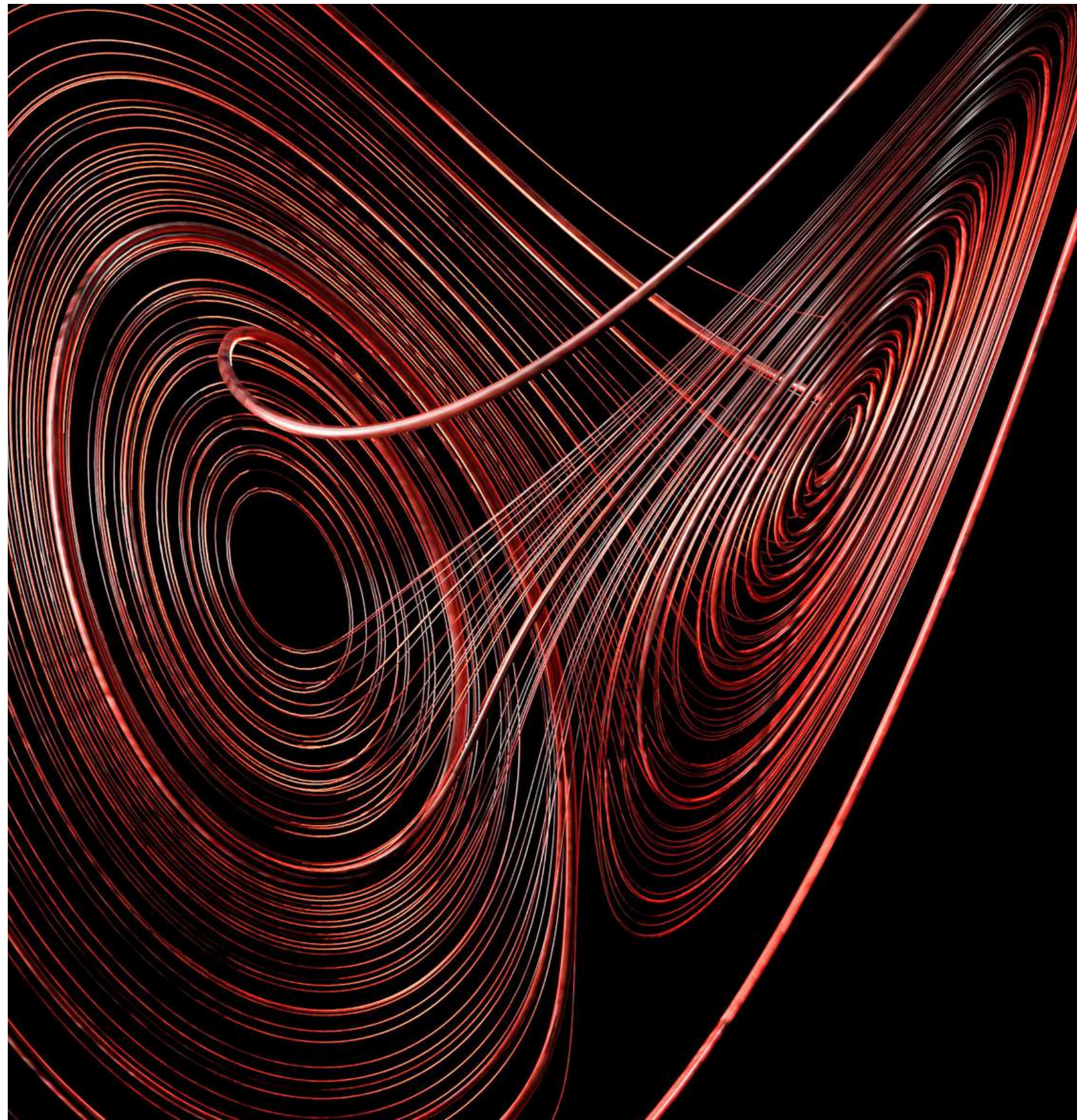


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Abstract generative artwork - All geometries are generated by a script, not modeled manually. Private project

Tools: Rhino+Grasshopper, V-ray





## GEN-ART

Abstract generative artwork - All geometries are generated by a script, not modeled manually. Private project  
Tools: Rhino+Grasshopper, V-ray





Front view of building showing at night the facade is illuminated from behind, accentuating the line-work of the pattern and the larger apertures.

## Informations about the project:

MGCG / Museum of Golden Cultural Gate - Museum & Waterfront.

2022 graduation project.

Tutors: Prof. Dr. hab. inż. arch. Elżbieta Dagny Ryńska, Sławomir Kowal, Ibrahim Lasfer.

Area: situation map 3000m<sup>2</sup>

Location: Benghazi, Libya.

Tools: Rhino inside Revit, Grasshopper, Galapagos, Lunchbox Ladybug, Butterfly, CFD.

Rendered: Vray/Lumion / Post-production: Photoshop

“**Realizing Libya lacks a museum** meeting global standards, So that was my graduation project and from Warsaw University of Technology, I returned to Benghazi with a dream to rebuild and revitalize. The Libyan government took my project, considering it in the city's development plans. This achievement is a testament to the education and support I received in Poland. Together, we're transforming Benghazi, moving from revolution to evolution”



## The Museum of Golden Cultural Gate - MGCG

### Overview of the Architectural Design:

Not having a single museum in Libya inspired me to design a museum representing the rich history of its east, linked to the waterfront. The chosen area of my design is a special place on the east side of Libya it is set amidst the old town near the lighthouse, where the discovery of the 4 Seasons mosaic happened, which inspired me also in my design. By having sustainable roof garden, prioritizing ramps, elevators, and special areas, ensuring accessibility by foot, bike, special needs, or car it puts it under the "Design for All." This museum's voice is pivotal in preserving Benghazi's heritage known before as Hesperides, home to the grand temples of Apollo and Zeus, the lost Golden Apple Tree gardens, and more... I think presenting this globally fulfills a collective dream.

### Overview of some researches ive done in the area:

In my research for this project, I stumbled upon an intriguing discovery that greatly influenced my design approach. I found that the area surrounding the chosen plot boasts a fascinating mosaic pattern known as the "4 Seasons." This discovery sparked my imagination and served as a powerful source of inspiration for many aspects of the project's design.



Birds eye view of the chosen Area and chosen plot - Before

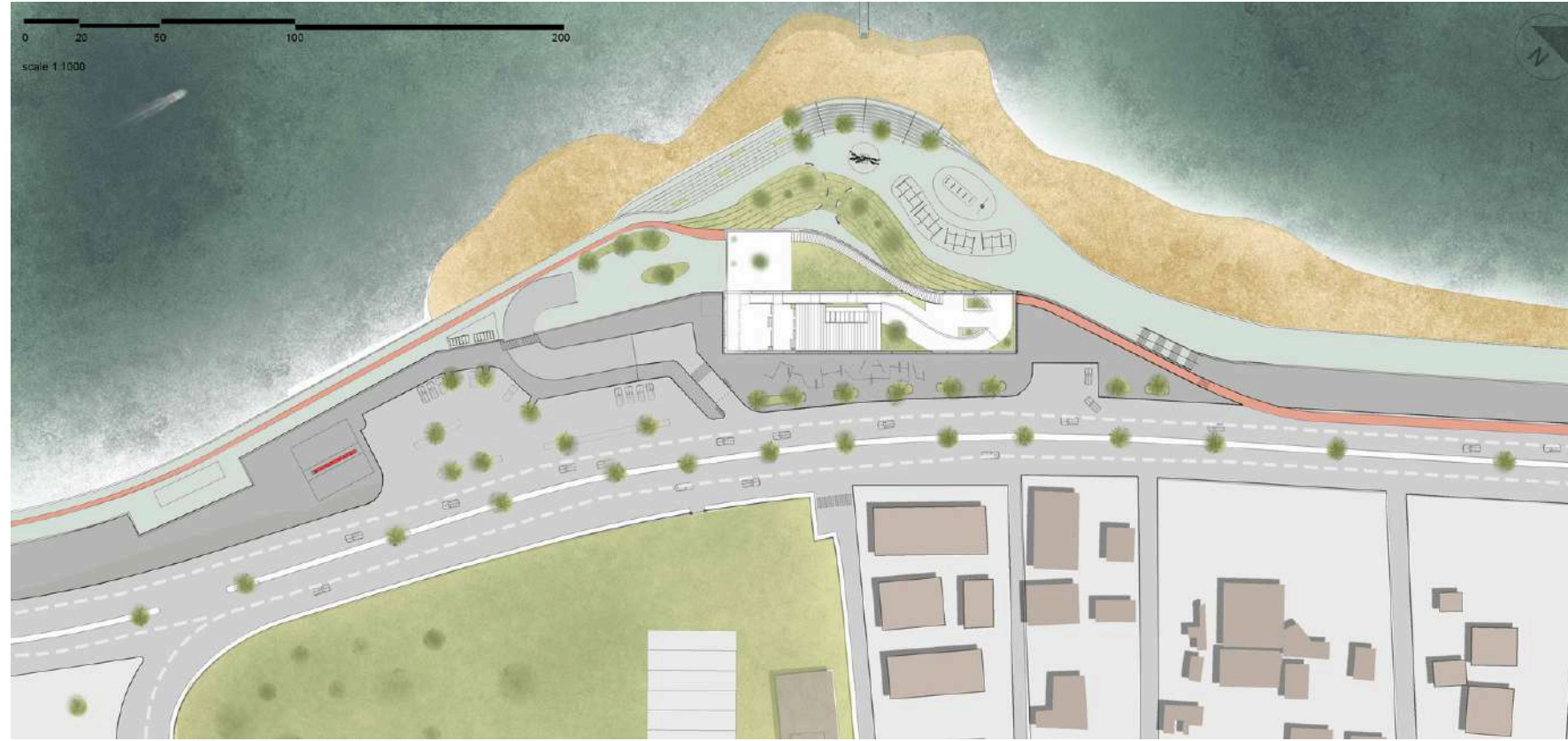


Birds eye view of photomatch of the design in the chosen plot - After





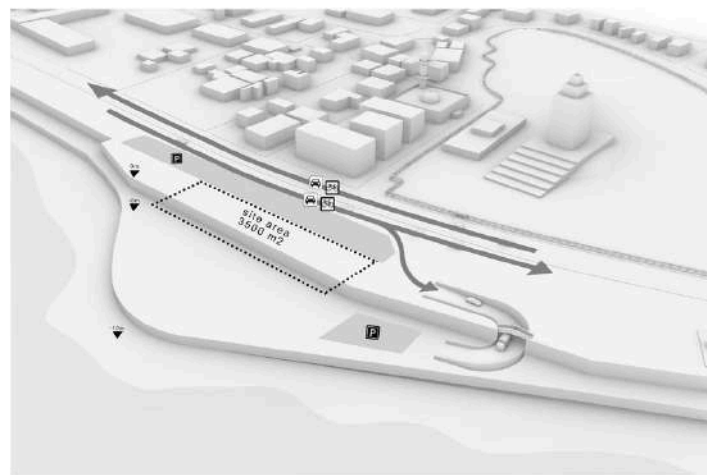
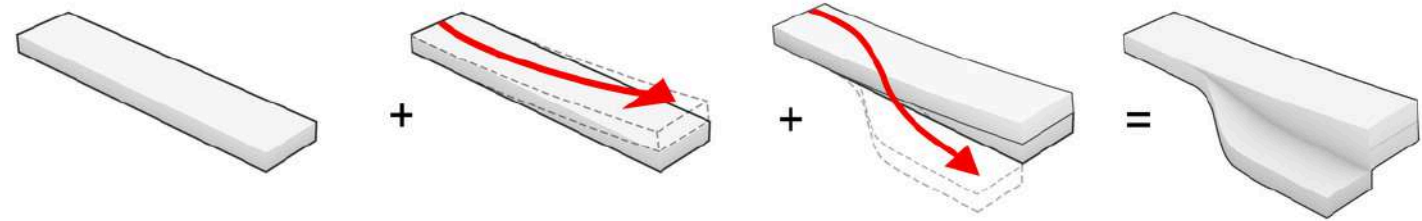
**Siteplan:**



**Aerial Perspective of the Selected Area and Surroundings with Design Integration:**

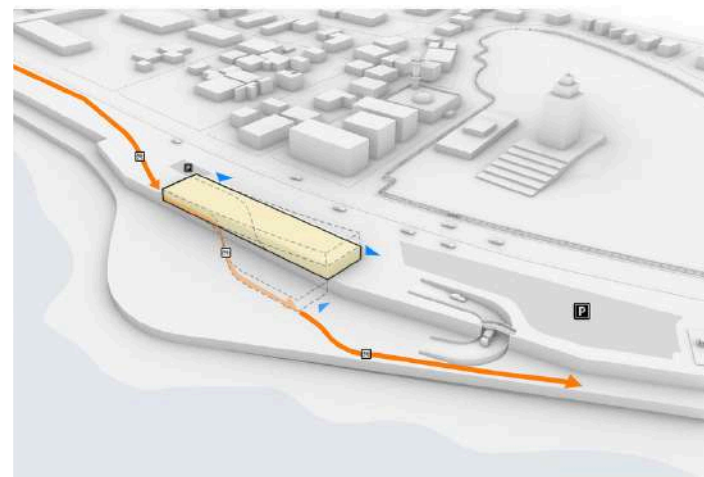


**Concept design / Diagram:**



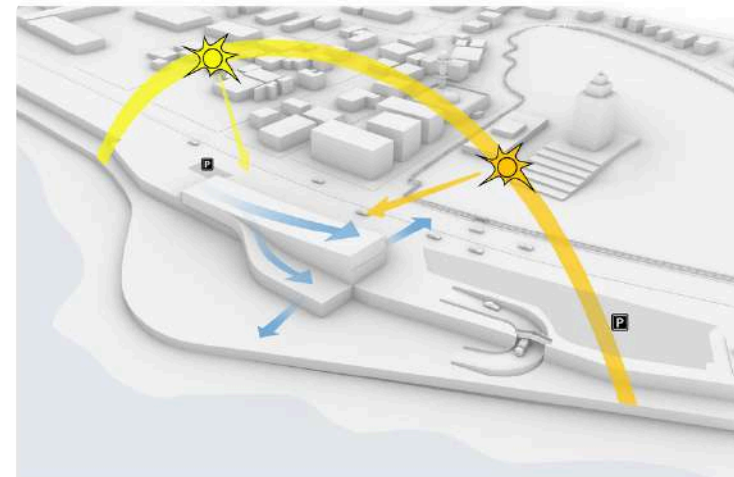
**The site**

The site is the centerpiece of the waterfront of Benghazi located nearby the Mediterranean Sea. Its area approx. 3500 m2 and situated in a terrain with a -6 meter height difference. The compact urban site is bounded by roads on the side with an existing parking and a ramp that takes you down to the -6m area, yet it is raised up 4 meter higher from the sea level. It is directly connected to the plaza - one of the major public spaces - and will therefore be closely associated with urban life in Benghazi.



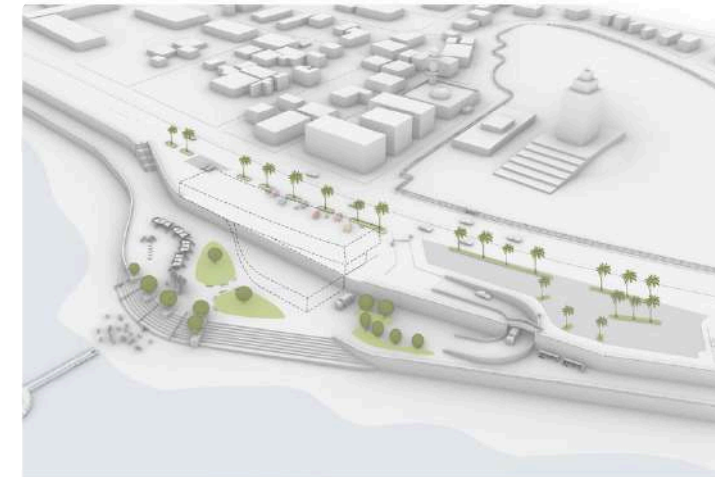
**The building**

The building based on 2 shapes divided with level differences for the following reason: The main simple rectangular prism placed on the ground level perfectly matching with the surrounded buildings and covered with the facade pushed up to make the building more interesting and to provide perfect view to the old town. The ground floor connected with a curved shape to the -2 level including a safely separated bike path with strong glasses, which itself a pavilion that allow the people to cross the building with their bike and provide for them the ability to see the functions of the building with a wonderful view to the sea. The entrance of the building divided in a rectangular way to ensure a balanced access to the main areas.



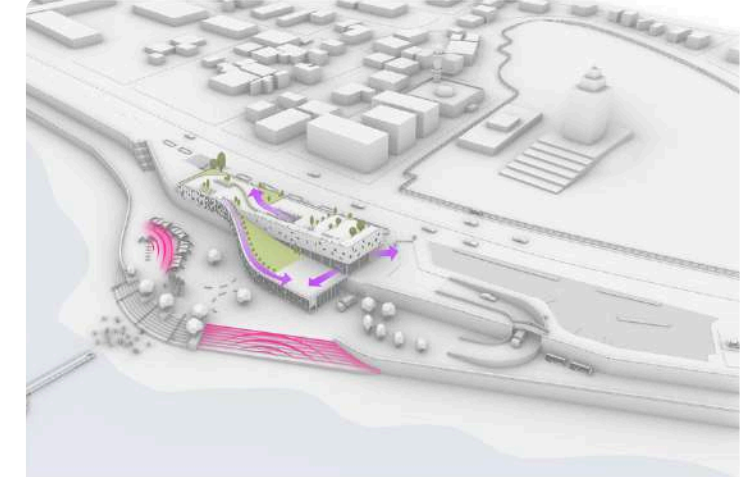
**Solar Orientation and view**

The building has an ideal orientation towards the sun. Due to the azimuth of the sun, the long south facade facing the old town does receive much direct sunlight during the summer months. The limited length of east and west elevations helps reducing the solar heat gain from the low morning and evening sun and contributes to optimizing the energy performance. The west side has a great view of the Mediterranean sea. The north side of the building has a perfect connection with the light house and offer a panorama of the old town framed by the other buildings. The roof access provides an astonishing view to the city nearby.



**The landscape**

This surface, embedded into the existing natural landscape will be developed and designed with a well organised green area and other landscape elements to provide shadow. The site will be filled with public areas for recreation, interaction, and relaxation while boosting local biodiversity and creating welcoming outdoor atmosphere.



**The plaza and connections**

The new Gastronomy Open Ecosystem waves and recesses at -2 level to create a sheltered plaza that welcoming the citizens of Benghazi and food lovers from all over the world. Accessible roofscapes will bring public life to a new level, creating a loop and ensuring a dynamic path that guiding the community through the building and allow to reach all area.



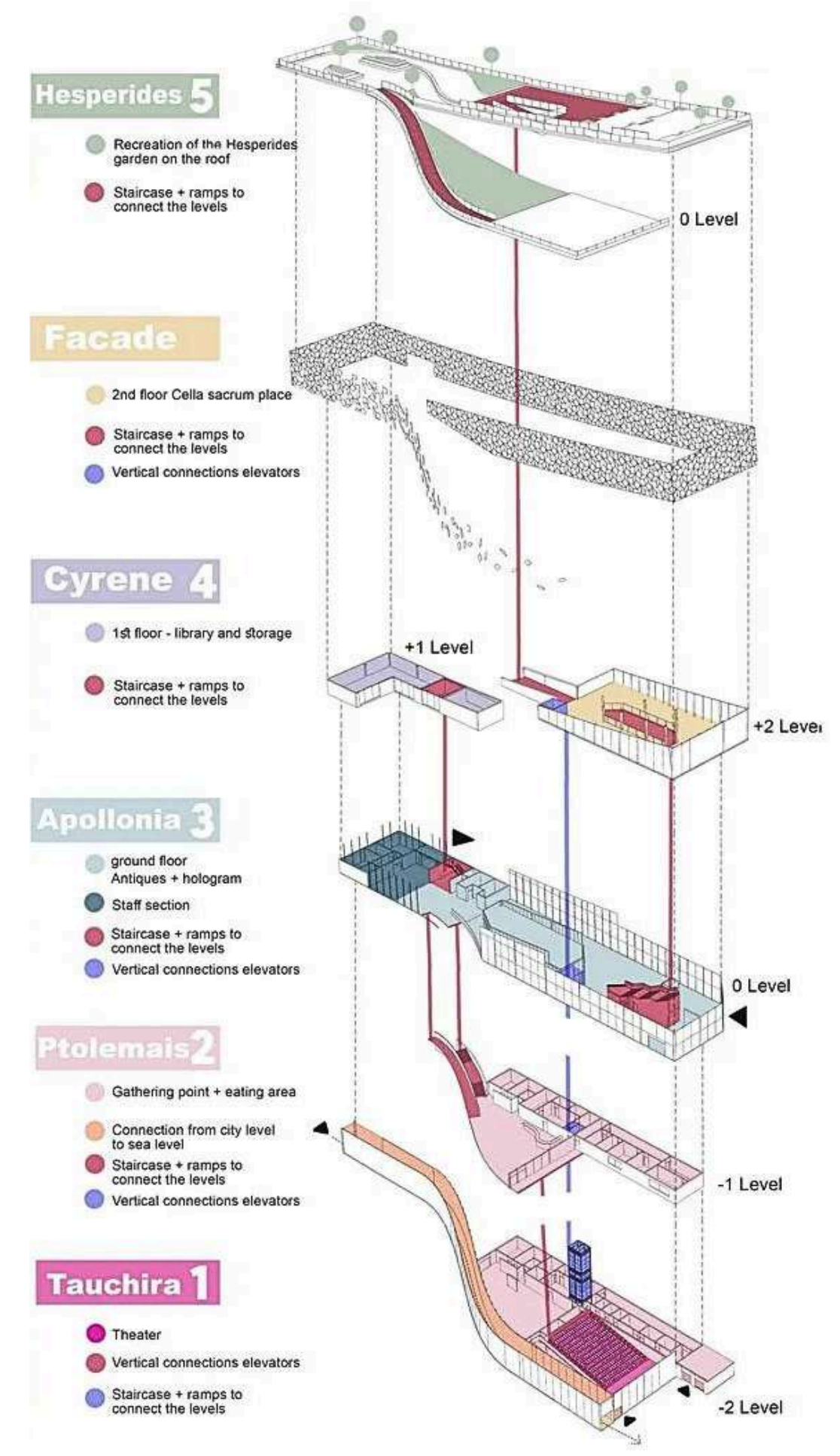
**The conceptual design:**

Inspired by Libya's Golden Ages, I designed a museum celebrating the Pentapolis, the five ancient cities of the east. Drawing from mythology and history, the museum's centerpiece is Benghazi, once Hesperides. It showcases the cultural riches of Cyrene, Apollonia, Ptolemais, and Tauchira. From trade in Benghazi to philosophy in Cyrene, visitors journey through the region's legacy, connecting with its vibrant past.

**The Pentapolis**, a term that refers to the eastern part of Libya that was known in history as Cyrenaica and is now Barqah. In Greek, Pentapolis means "five cities," which are:

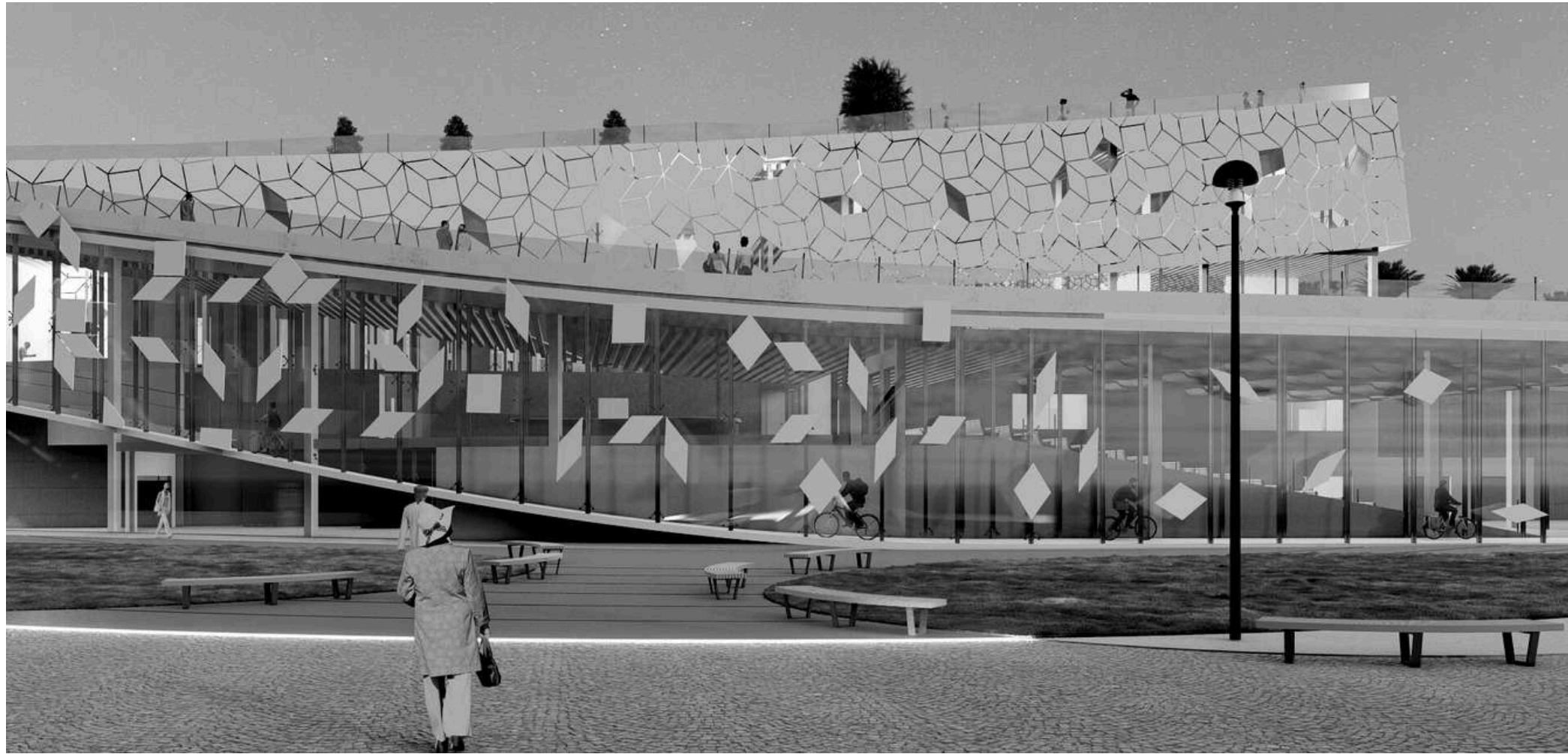
1. **Hesperides/Berenice (now Benghazi):** A well-known ancient Greek/Roman port and trade center.
2. **Cyrene (now Shahat):** The oldest and most important of the five cities, renowned for its Temples of Apollo and Zeus. It was a significant and intellectual cultural center, home to many philosophers.
3. **Apollonia (now Susah):** An ancient port of Cyrene. The city is home to art, theaters, and religious sites.
4. **Ptolemais (now Tolmeita):** The city was once the capital of Cyrenaica. It had a significant position in ancient history.
5. **Tauchira (now Tobra):** A notable ancient port city. Its ruins feature an impressive acropolis, theaters, and Byzantine churches.

**Pentapolis Storyboards**, adding some replica historical stone carving panels along the sidewalk path next to the museum to illustrate the story of Pentapolis. It can invite passersby to be educated while walking beside the museum, thereby increasing the likelihood that visitors will enter the building to gain a deeper understanding of the eastern Libyan history of Pentapolis.





Sea-level view showcasing the landscape, stage, cafeteria, museum, sustainable roof garden, and the connections between them:



Street level view, shows stone carving panels along the sidewalk path next to the museum to illustrate the story of Pentapolis.



Street-level view of the pathway to the roof garden, museum exit/entrances, and the lighthouse with old town behind.



Sea-level view showing the connection of the five levels with the lighthouse in the background.

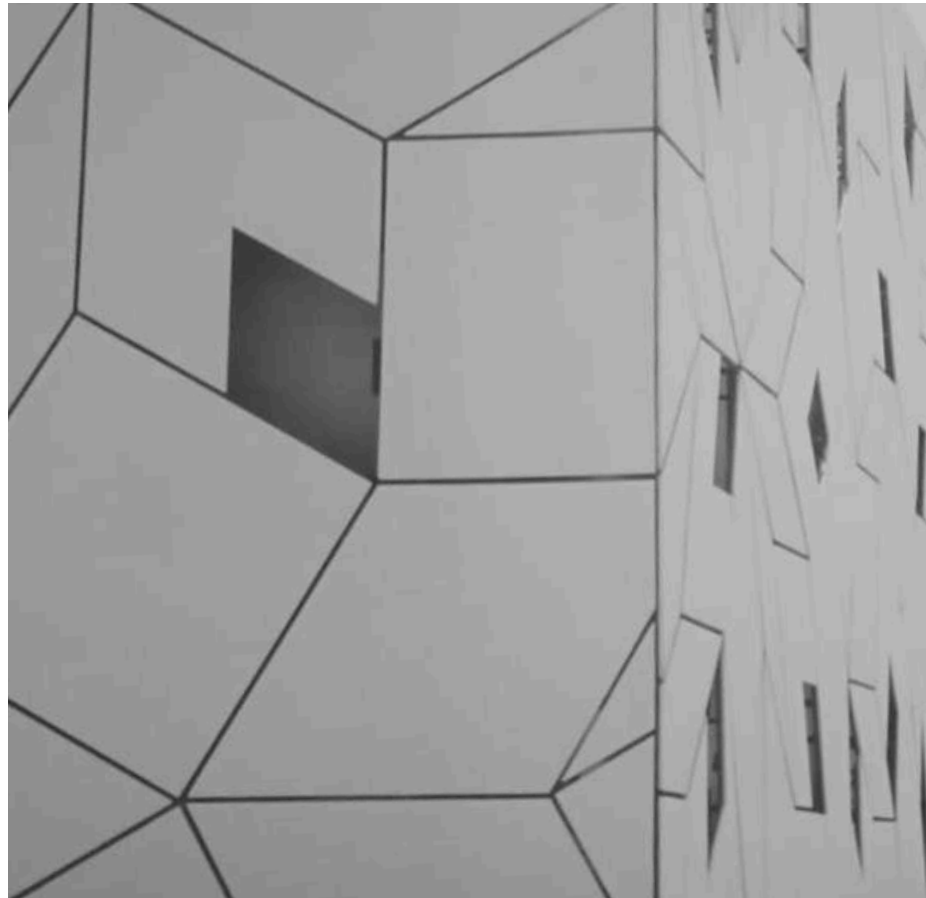




Final look of the facade design with the main entrance



Details of the facade as it wraps the corners of the building

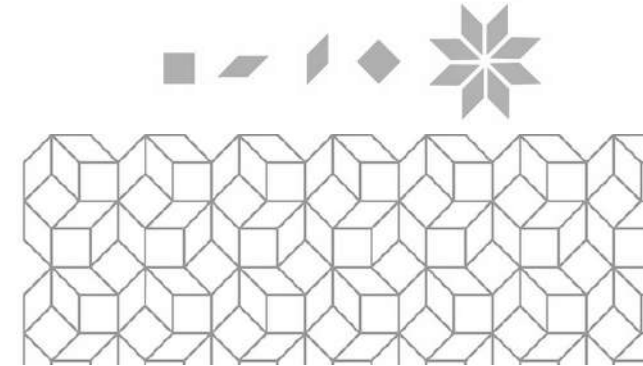


### Overview of the Façade Design Process:

The facade honors Libya's heritage for the iconic 4 Seasons mosaic pattern discovered in the same area of the chosen plot.



Using Rhino+Grasshopper, Algorithmically described "types" of main shapes of the pattern in cad.

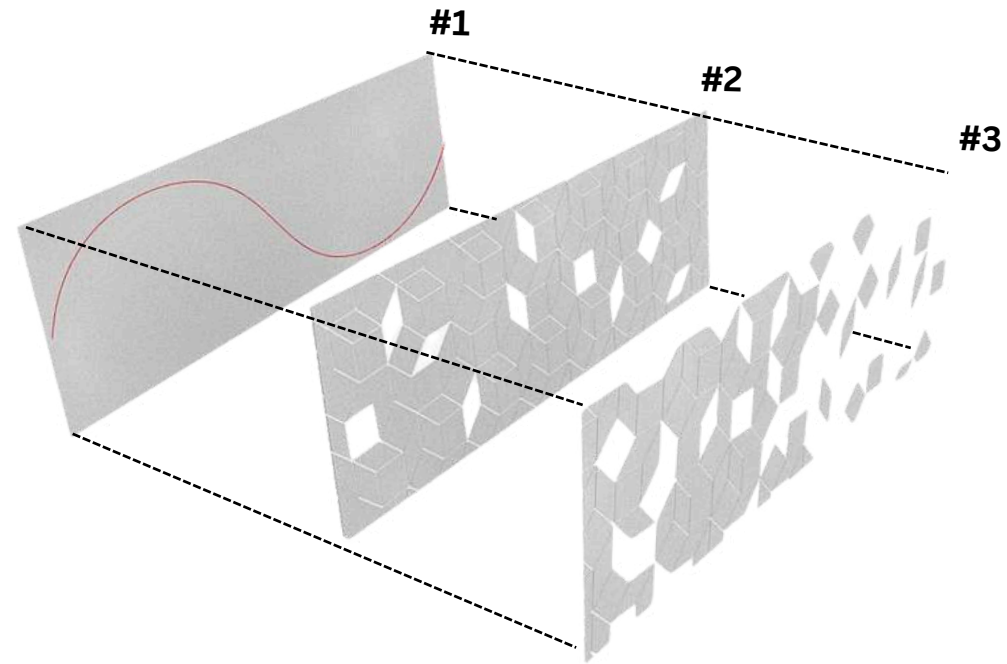


Additionally, leveraging the potential of integrating this discovery into the script I've developed, we can dynamically adjust various parameters based on the sun's movement within the chosen plot. By incorporating this functionality, the script can automatically generate facade designs that respond intelligently to the surrounding environment.

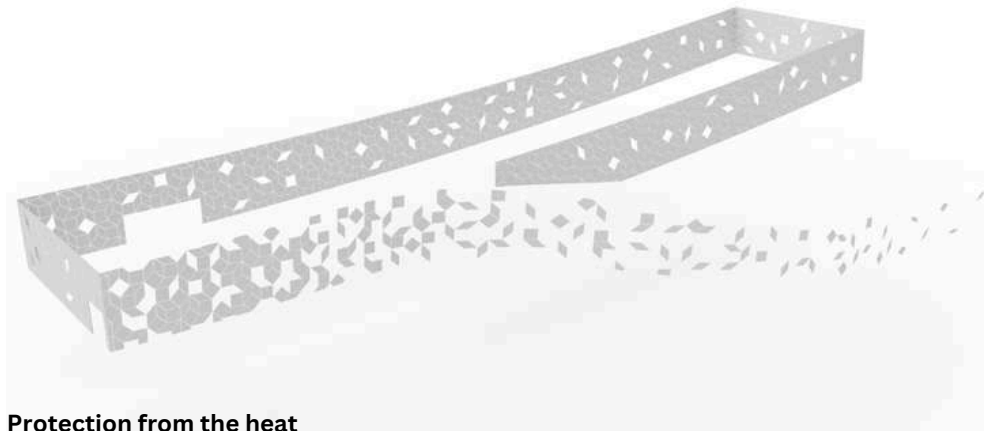
The curve enveloping the building's surface, controlled by the script in Rhino Grasshopper, acts as a guiding framework for the placement of attractors. These attractors, influenced by the sun's trajectory, dictate the distribution of design elements across the facade. As the sun moves throughout the day and across seasons, the facade adapts accordingly, ensuring optimal performance in terms of both aesthetics and functionality.

This innovative approach not only enhances the visual appeal of the building but also maximizes its efficiency and integration with the natural surroundings. By seamlessly blending design principles with technological advancements, we can create a truly dynamic and responsive architectural solution that resonates with its context and purpose.

### How we can control the facade design by the curve around the building:

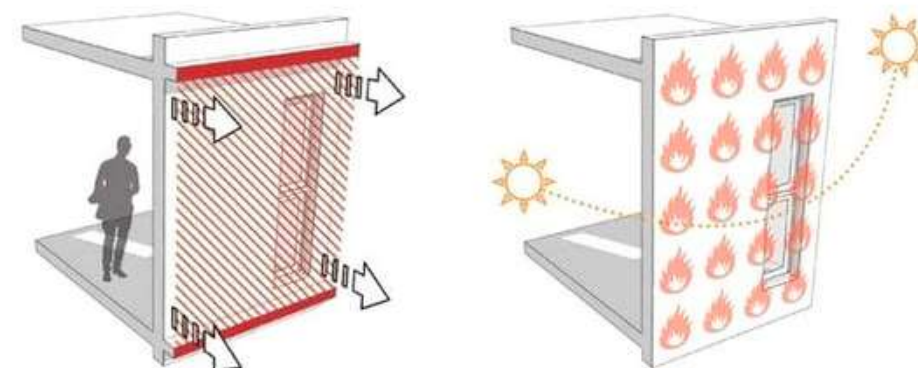


### Final look of the facade design:



### Protection from the heat

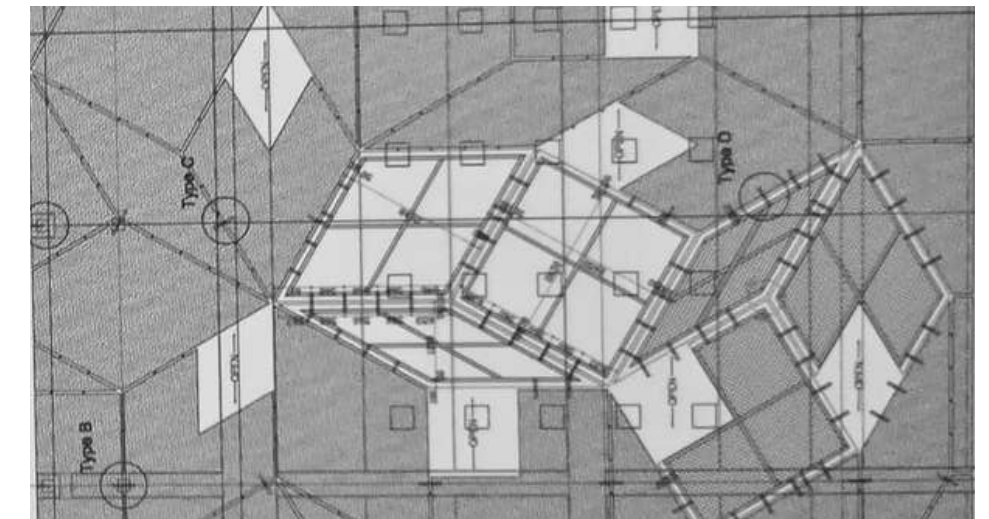
A solution to reduce the heat gain manifested itself in the form of a wall along the north, east, and western sides of the building skin cladding is an extension smart concrete slab at every level, 200mm projected concrete nlb. .



### Axonometric section A-A of the facade

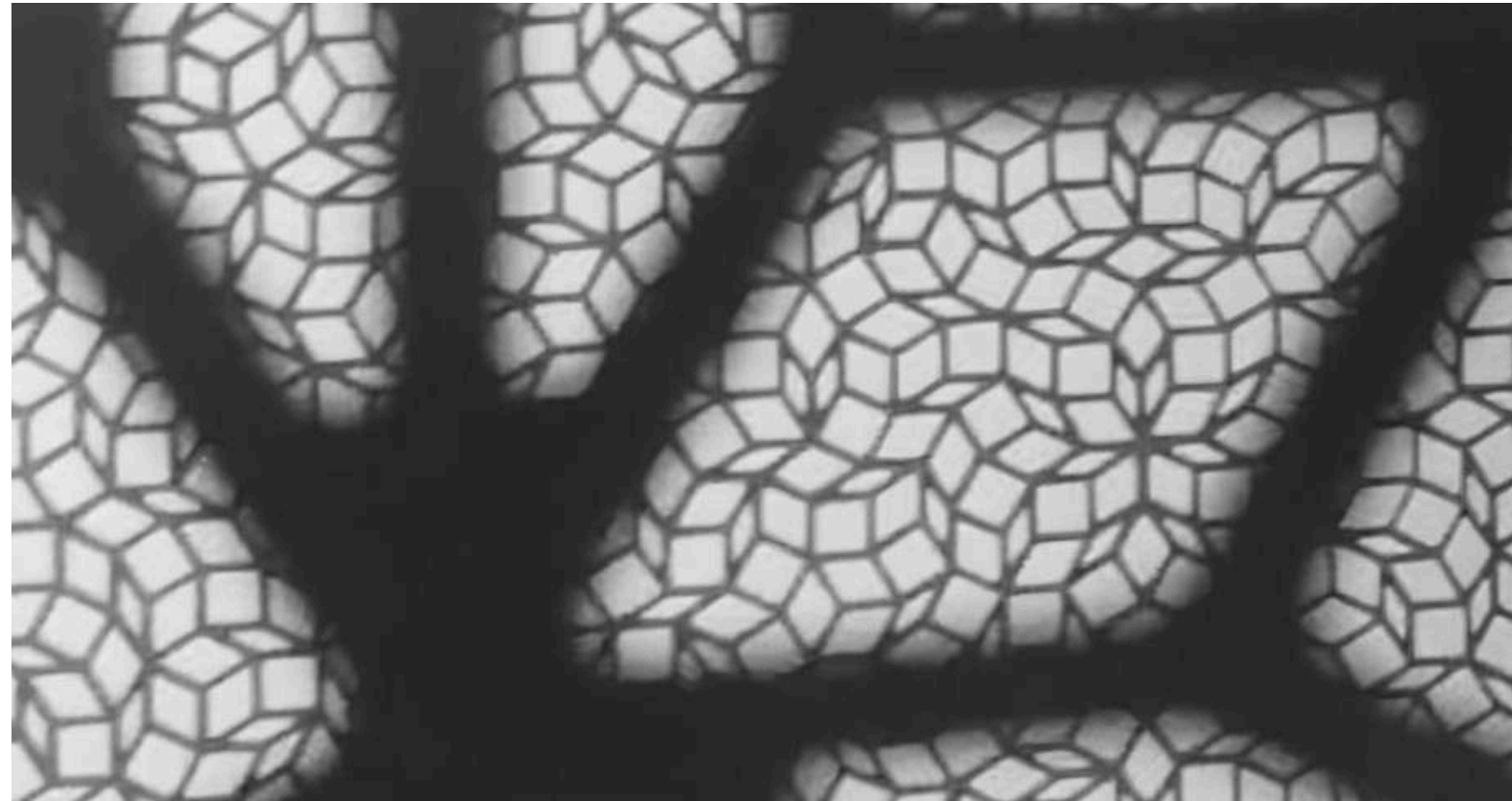


- Plan of the named facade parts to clip them together.
- This plan makes the work easier during the construction.

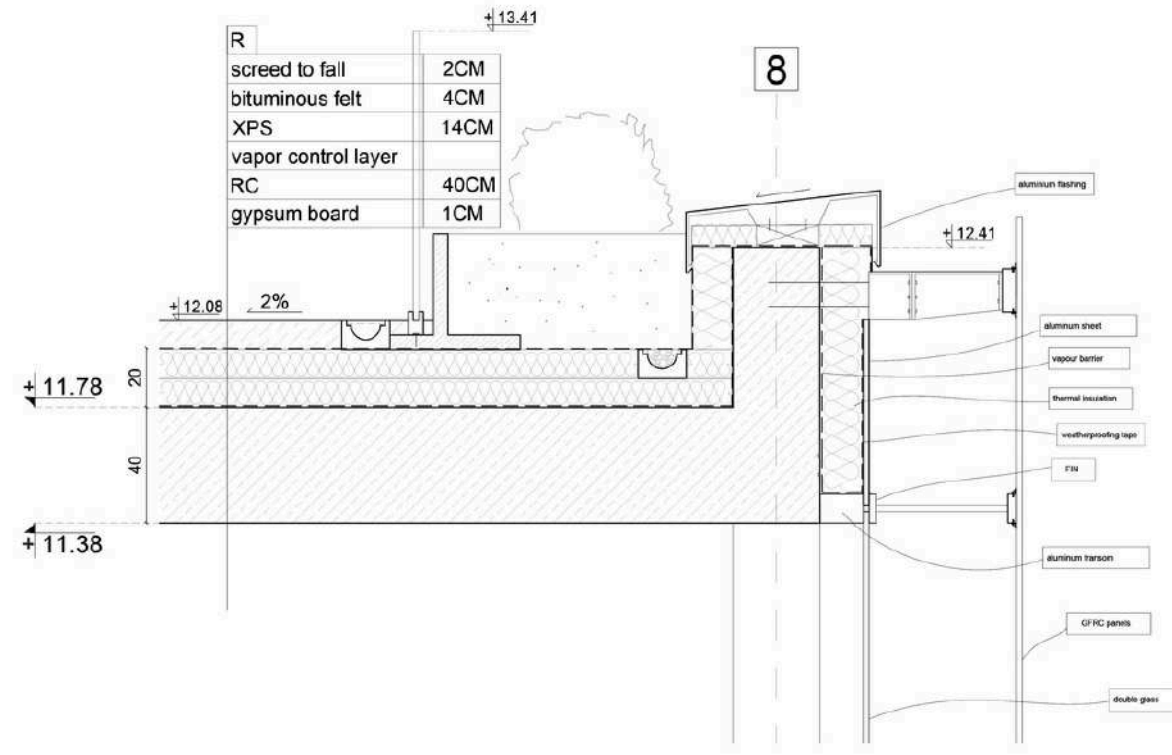




Detailed ref of the interior pattern

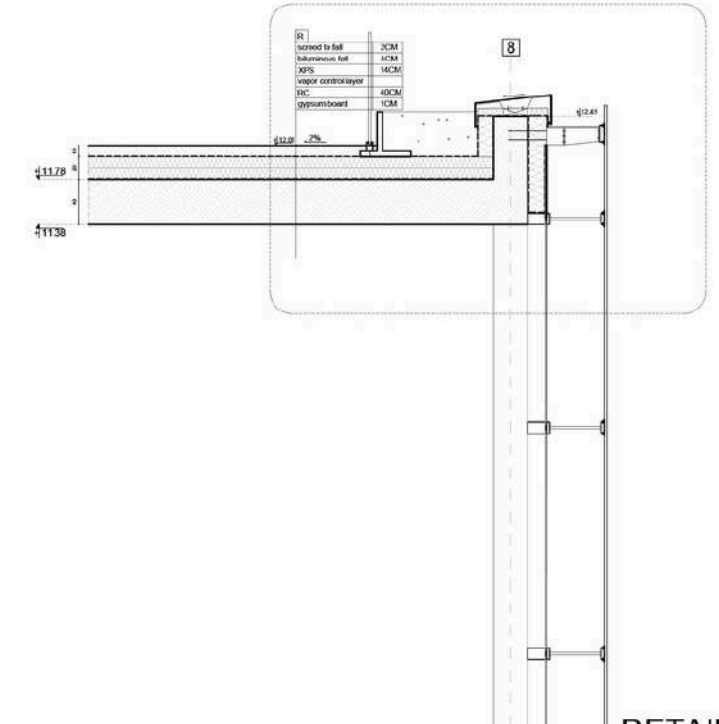


DETAIL A - CURTAIN WALL / ROOF CONNECTION, SECTION VIEW scale 1:20

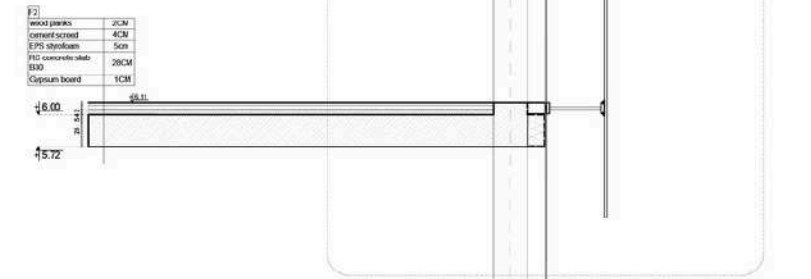


SECTION A-A  
SCALE 1:50

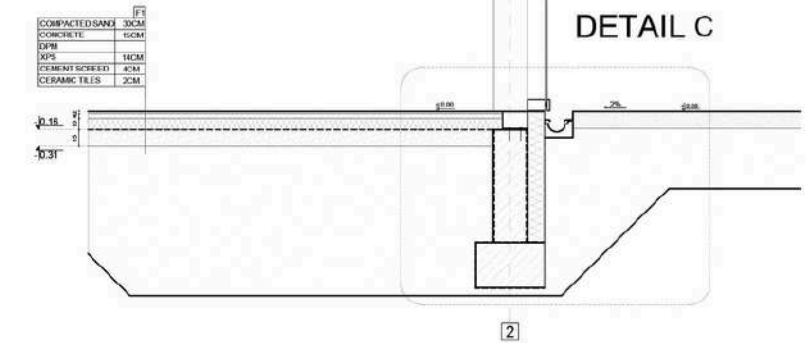
DETAIL A



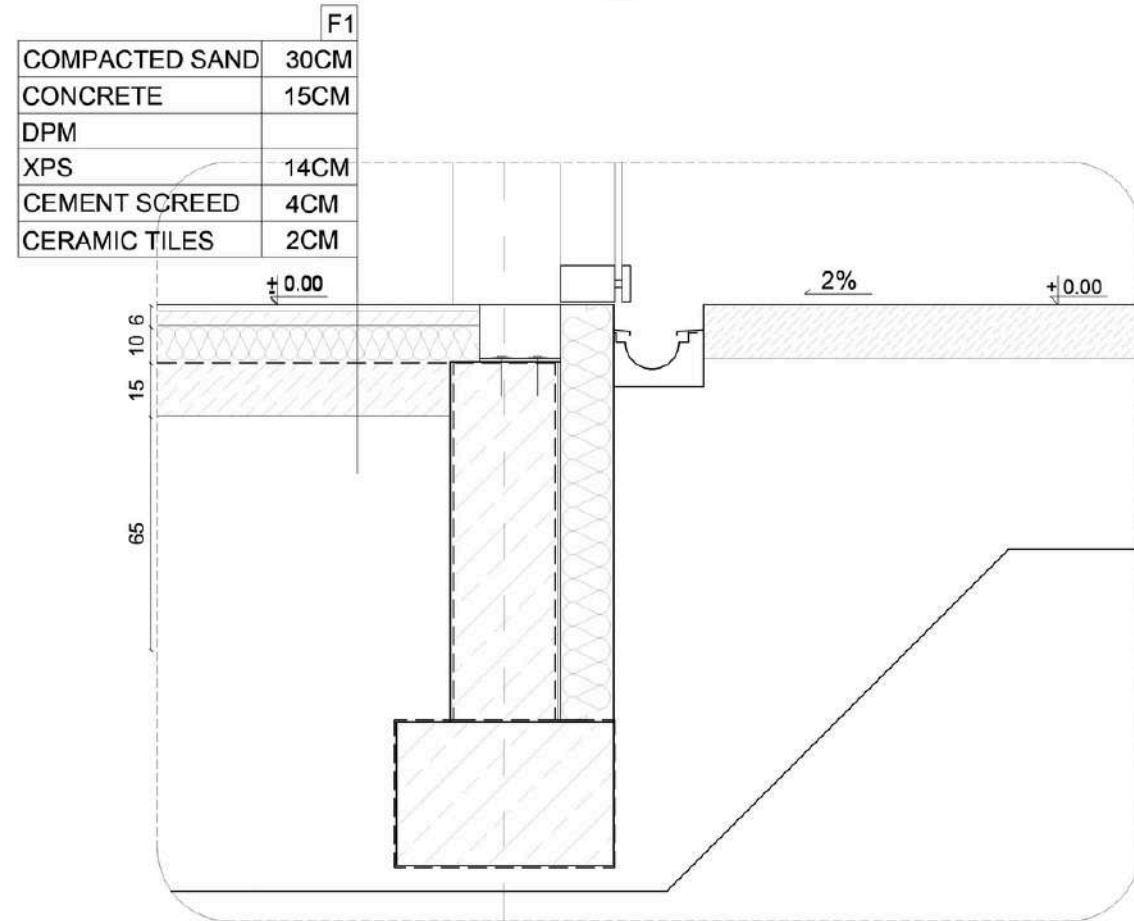
DETAIL B



DETAIL C

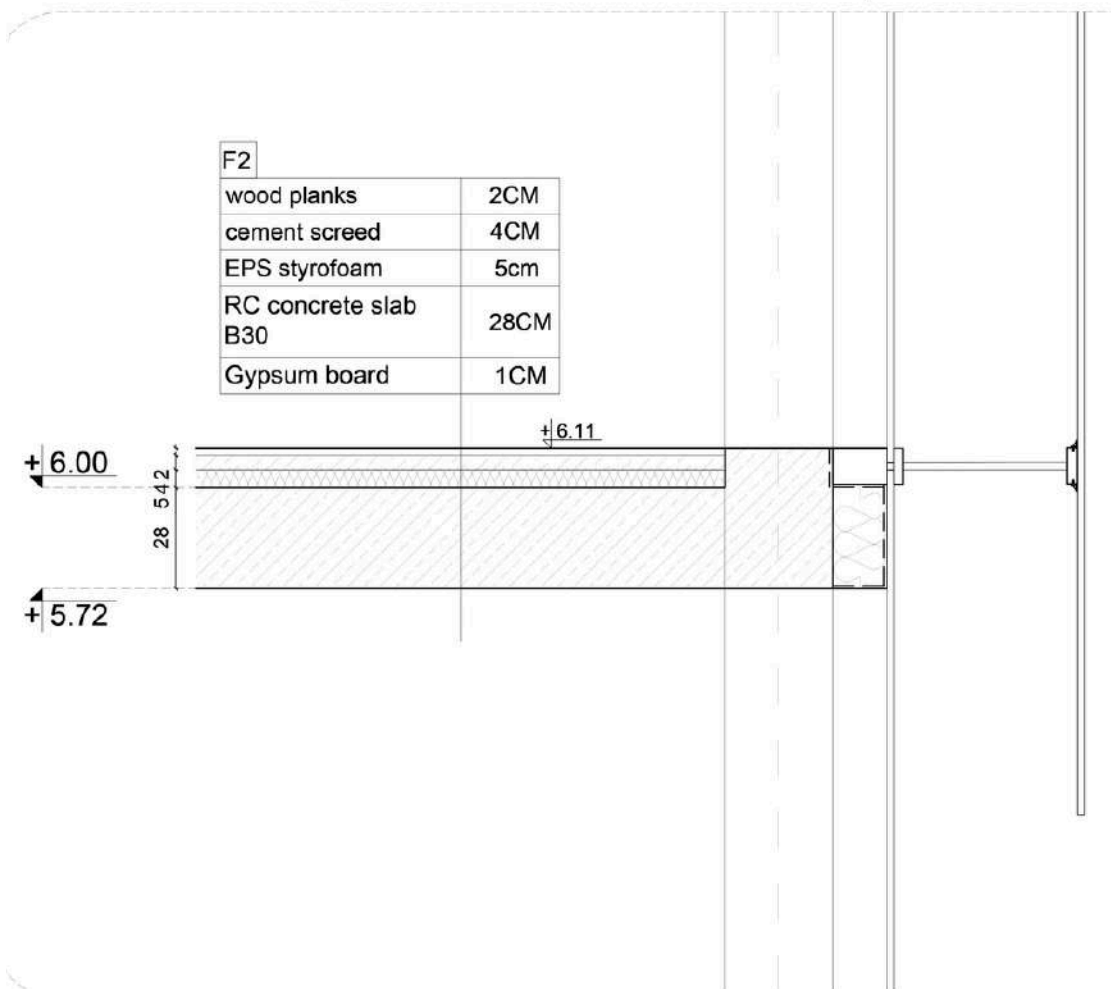


DETAIL C - CURTAIN WALL CONNECTION TO THE GROUND NEAR THE ENTRANCE, SECTION scale 1:20  
VIEW



2

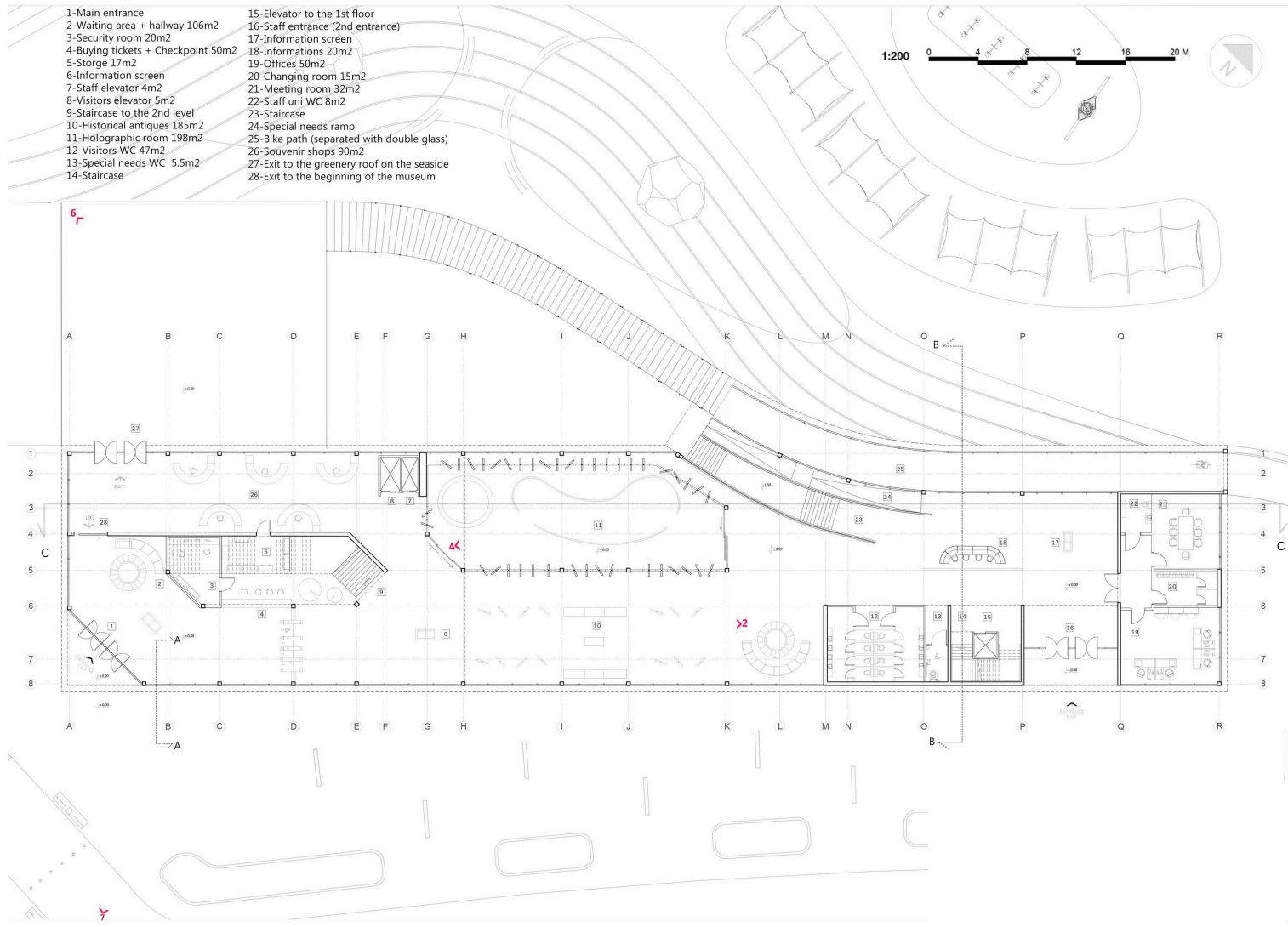
DETAIL B - CURTAIN WALL CONNECTION TO THE SLAB ON THE 2ND FLOOR, SECTION VIEW scale 1:20





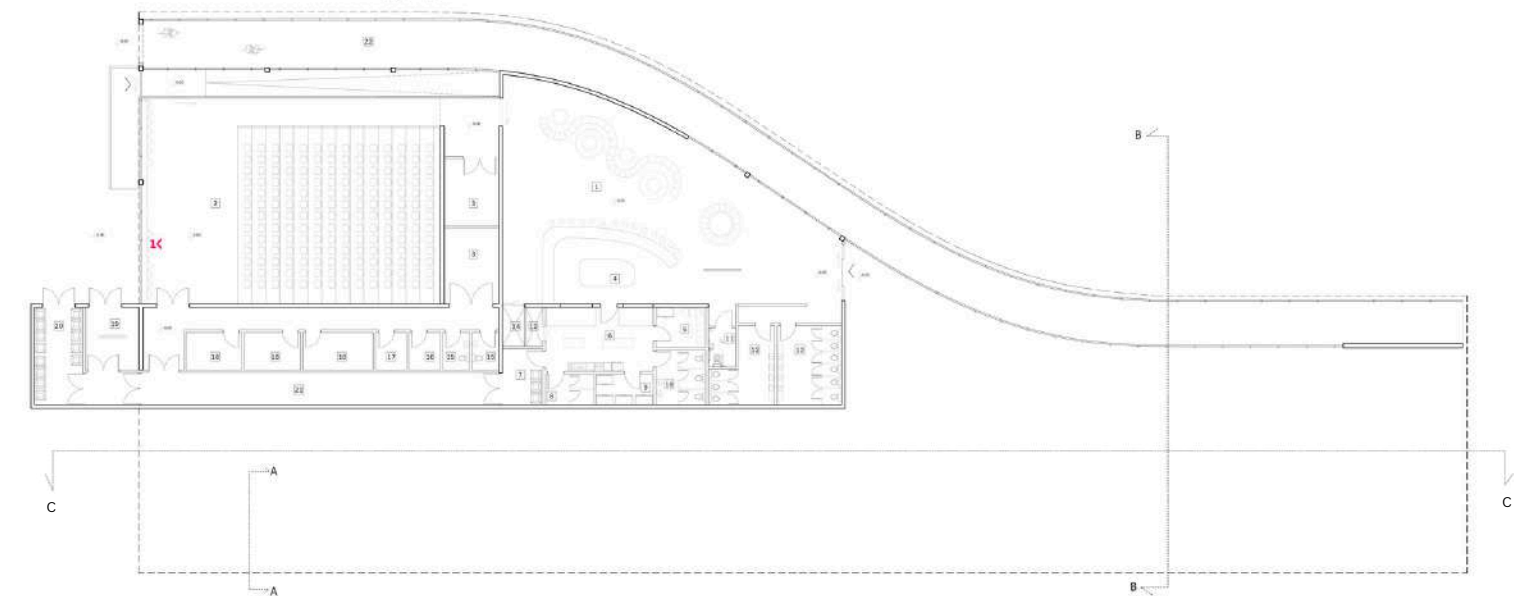
**GROUND FLOOR - Total floor area : 1765m2**

- 1-Main entrance
- 2-Waiting area + hallway 106m2
- 3-Security room 20m2
- 4-Buying tickets + Checkpoint 50m2
- 5-Storage 17m2
- 6-Information screen
- 7-Staff elevator 4m2
- 8-Visitors elevator 5m2
- 9-Staircase to the 2nd level
- 10-Historical antiques 185m2
- 11-Holographic room 198m2
- 12-Visitors WC 47m2
- 13-Special needs WC 5.5m2
- 14-Staircase
- 15-Elevator to the 1st floor
- 16-Staff entrance (2nd entrance)
- 17-Information screen
- 18-Informations 20m2
- 19-Offices 50m2
- 20-Changing room 15m2
- 21-Meeting room 32m2
- 22-Staff uni WC 8m2
- 23-Staircase
- 24-Special needs ramp
- 25-Bike path (separated with double glass)
- 26-Souvenir shops 90m2
- 27-Exit to the greenery roof on the seaside
- 28-Exit to the beginning of the museum



**-2 FLOOR - Total floor area : 1150m2**

- 1-Traditional restaurant and Cafeteria 270m2
- 2-Theater for 182 seats - 310m2
- 3-Storage 20m2 - 18m2
- 4-Serving bar
- 5-Staff eating room 10m2
- 6-Kitchen 34m2
- 7-Garbage room 11m2
- 8-Staff changing room 7m2
- 9-Storage + Fridge room 9m2
- 10-Staff WC 10m2
- 11-Special needs WC 5.5m2
- 12-Visitors WC 20m2 - 20m2
- 13-Staff elevator 4m2
- 14-Visitors elevator 5m2
- 15-WC 10m2
- 16-Water 6m2
- 17-Electricity 6m2
- 18-Changing room for performers 11m2 - 11m2 - 13m2
- 19-Ventilation room 17m2
- 20-Collecting garbage room 23m2
- 21-Hall way 115m2
- 22-Bike path



**View from The Hologram showroom as a replica of Tauchira (now Tocra) - View 4**



**View of the gallery room replica of sacred part of Cyrene (now Shahat) - View 2**

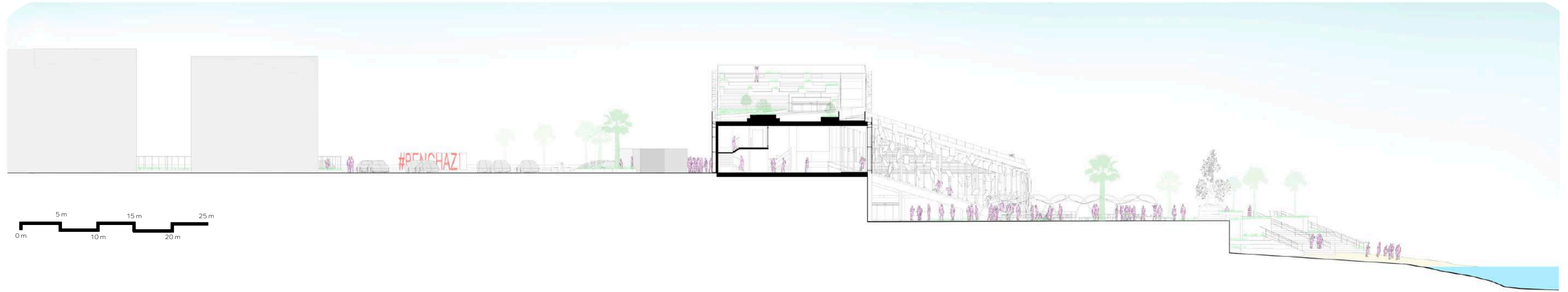


**Replica of the famous Apollonia theater (now Tolmeita) - View 1**





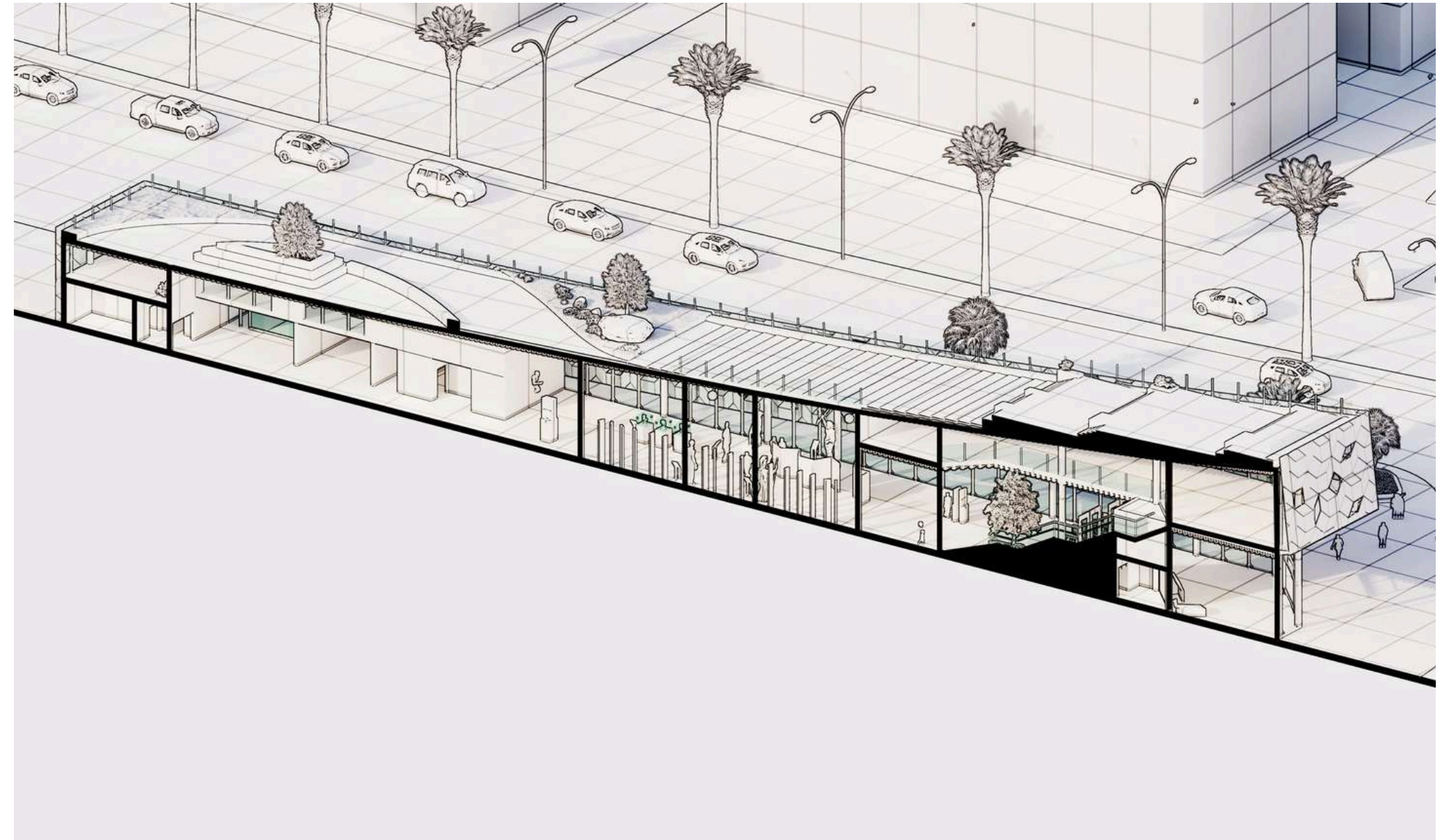
West south - Sections B-B:



Axonometric view:



Axonometric Section C-C:

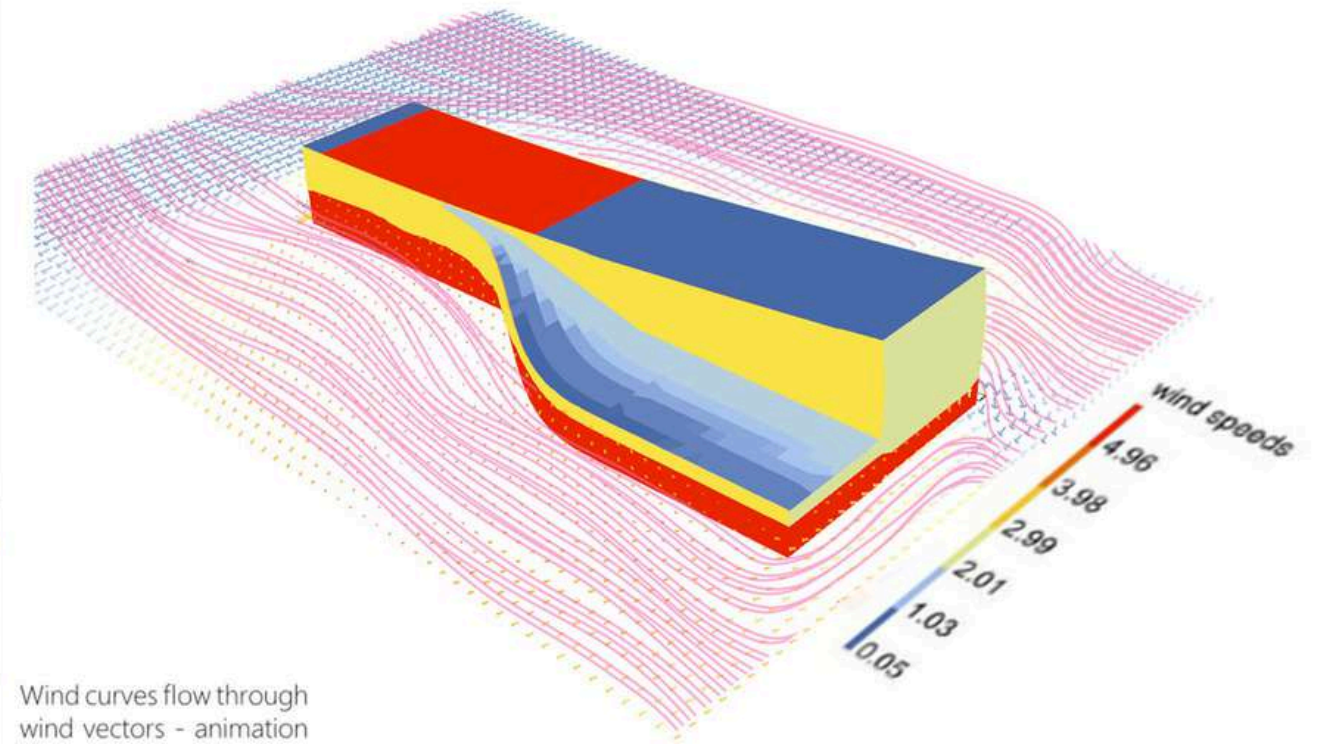
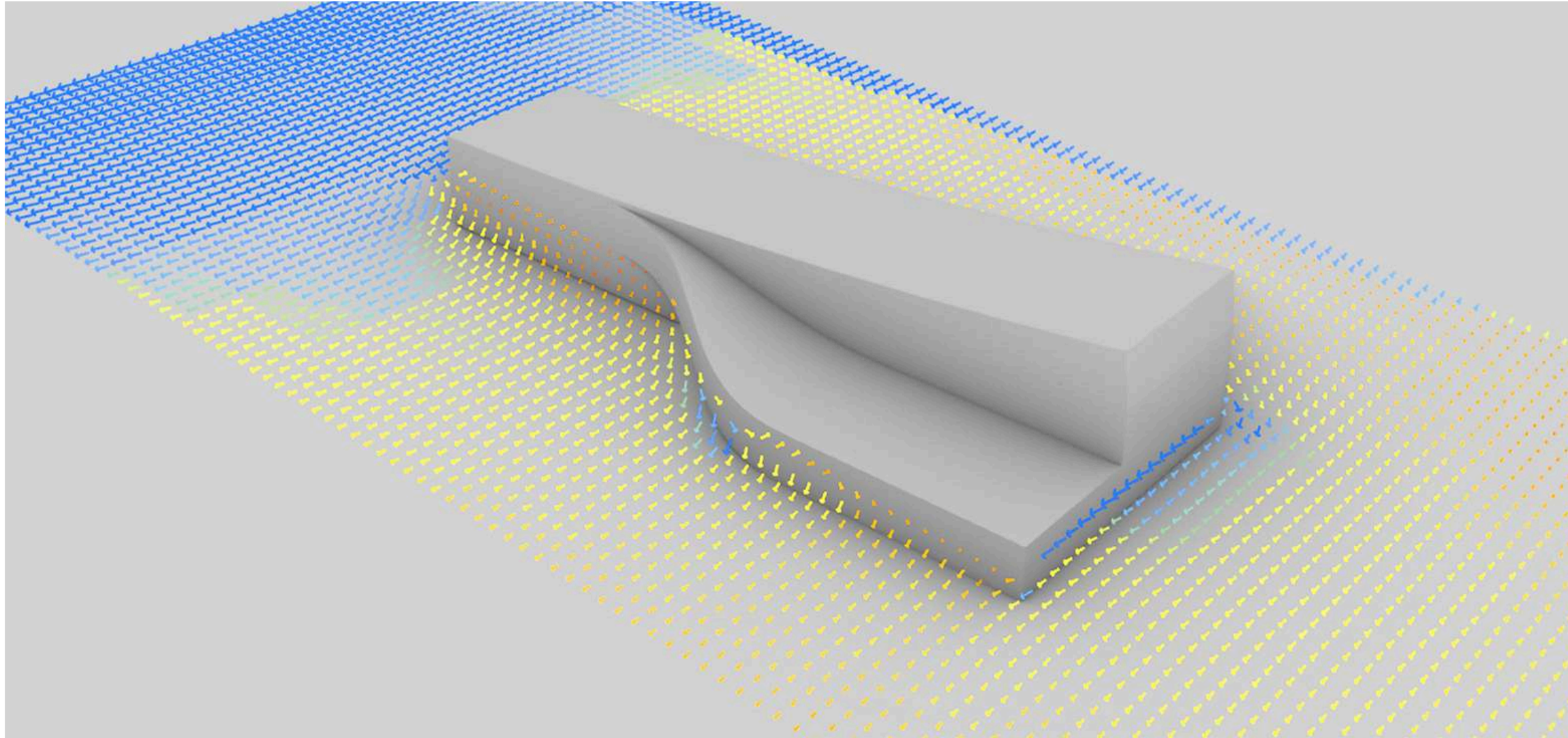




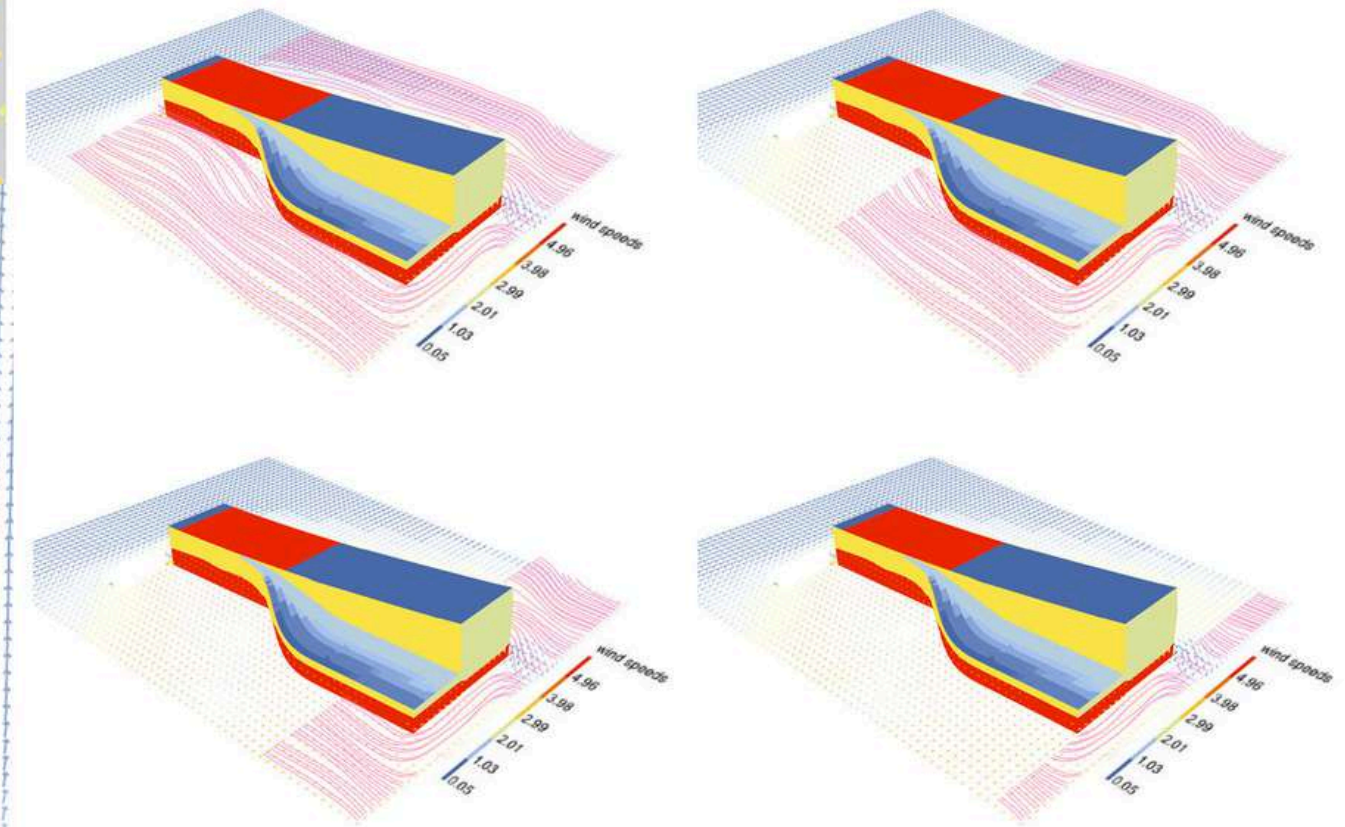
The building form not being quite regular raised questions how would it affect the wind conditions around it and inside it's semi-public square that is carved from inside. Conducting a Computational Fluid Dynamics simulation inside Grass hopper with Butterfly plugin gave some idea about how the wind would behave and where are the places that should be taken into consideration.

Tools: Rhino+Grasshopper, Ladybug & honeybee, Butterfly CFD.

CFD simulation solution wind CFD Wind Tunnel vectors

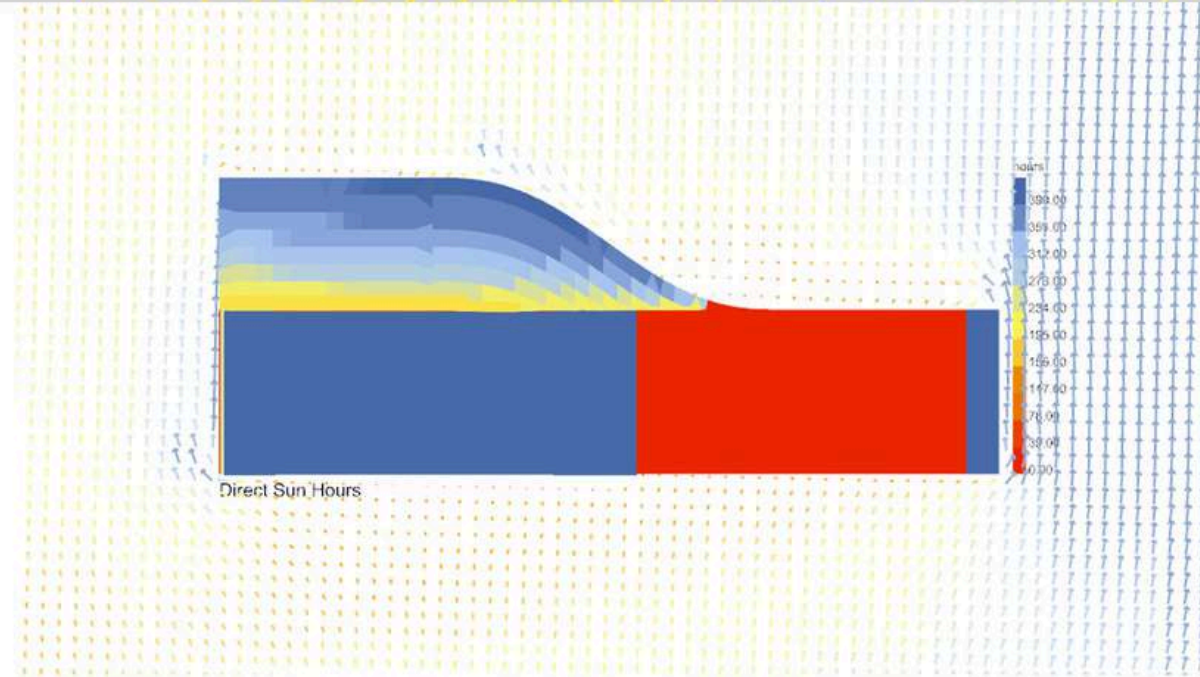
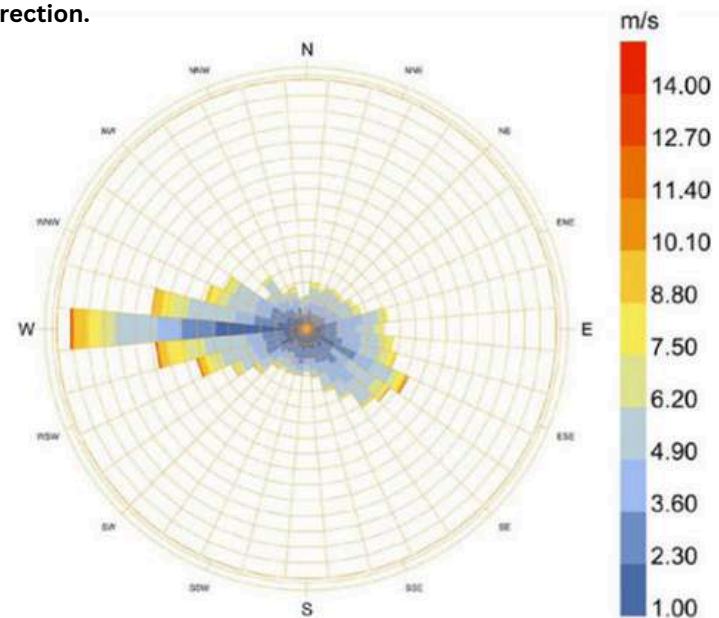


Wind curves flow through wind vectors - animation frames. Axonometric view.



Wind rose visualisation of the most common wind direction.

Wind speed m/s  
city: Benghazi  
Country: Libya







Human Eye Perspective: Revealing Street Connection, Spotlighting Building Design & Rental Potential of Shops Beneath Apartments.

## Informations about the project:

L steps - Residential Building.

2022 Individual Work.

Location: Poland, Warsaw, at Arabska 8 Street.

Area: situation map 2181m2

Residential Building.

Tools: Rhino inside Revit, Grasshopper, Galapagos, Ladybug, Honeybee, EvoMass, Butterfly, UTCI.

Rendered: Blender / Post-production Photoshop.

**"Integrating Apartment Building with Shops** Beneath Apartments in the Ground Level for Rental Potential & Underground Parking. This proposal is designed for the Residential Building at Arabska 8 Street, Balancing Functional Requirements and Distinctive Polish Design Codes."



# Exploring Architectural Blocks options in Poland: From Concept to Creation of Our Unique L shape, Stepped Block Residential Building.

Tools used to generate forms: Rhino+Grasshopper- EvoMass.



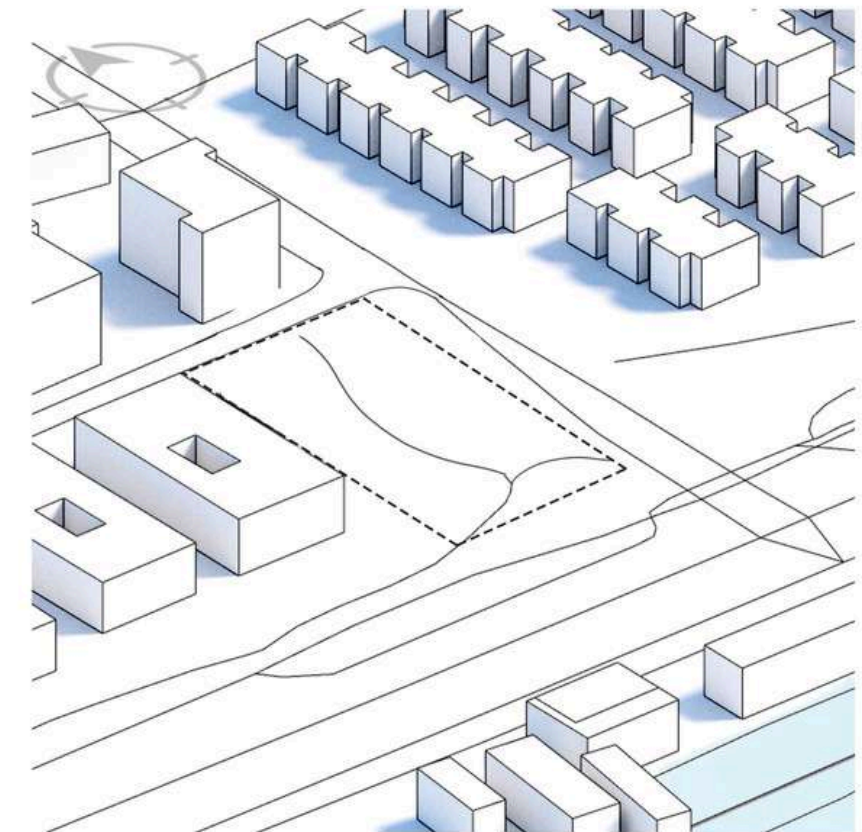
Site plan and section of ground floor plan.



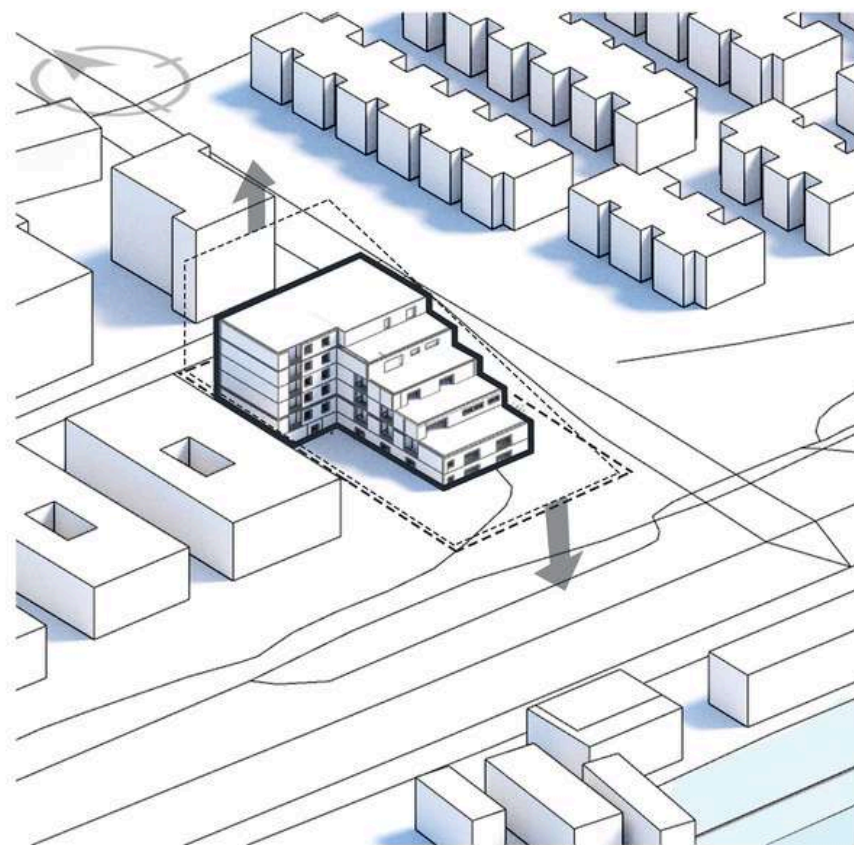
- Trees
- Plot boundary
- Vehicle access
- Playing area
- Designed Building
- Green area
- Paved area
- Entrance

AREA OF PLOT	2181 m2
AREA OF BUILDING	4544.76
FAR	2.08
GAR	0.3

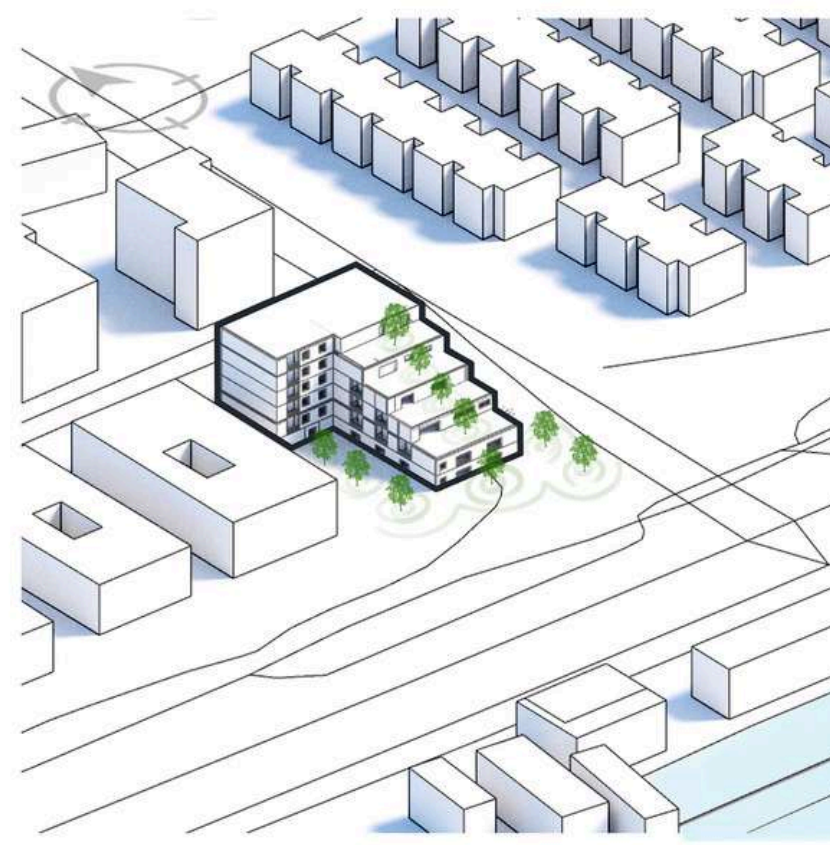
	PLAN	
M1	12	23%
M2	13	25%
M3	8	15%
M4	12	23%
	45	



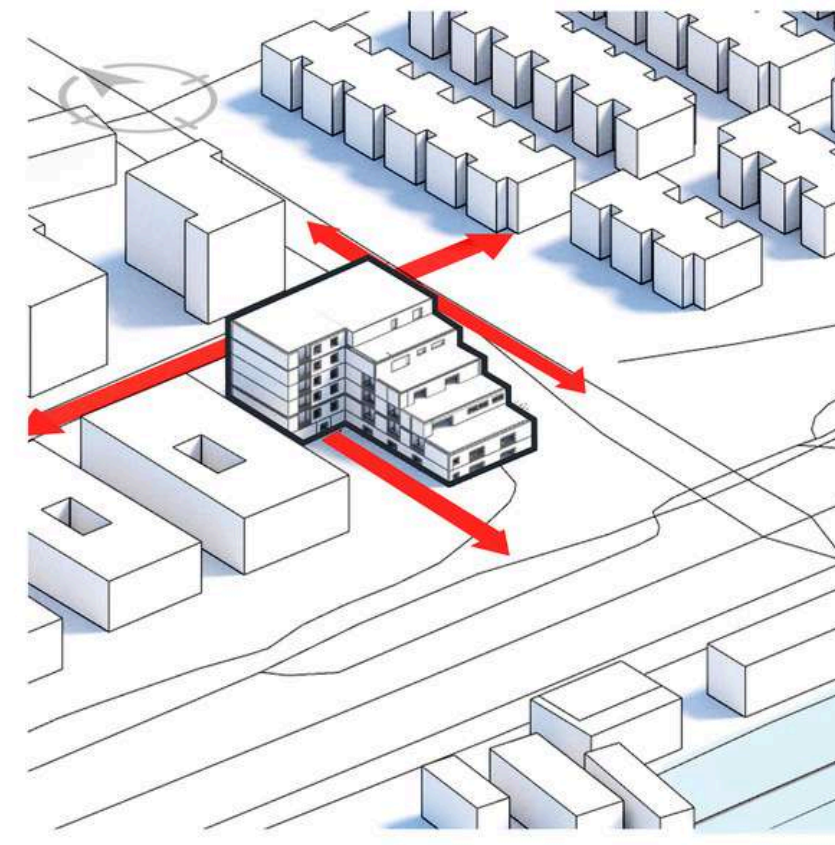
SITE



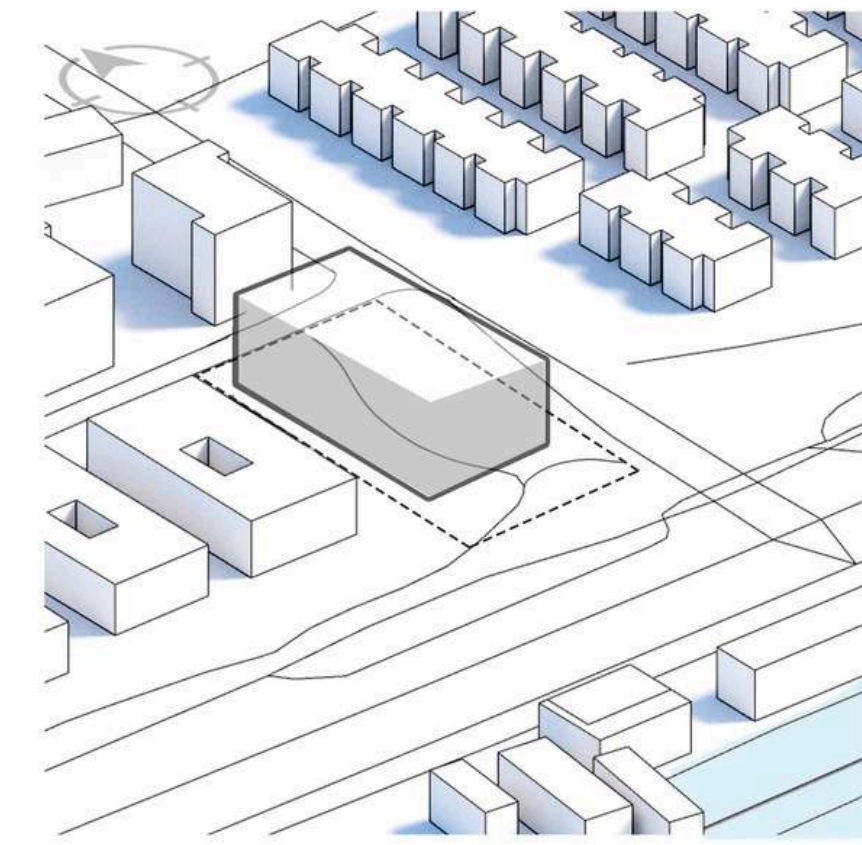
DESIGNED BASIC VOLUME



GREEN SPACES



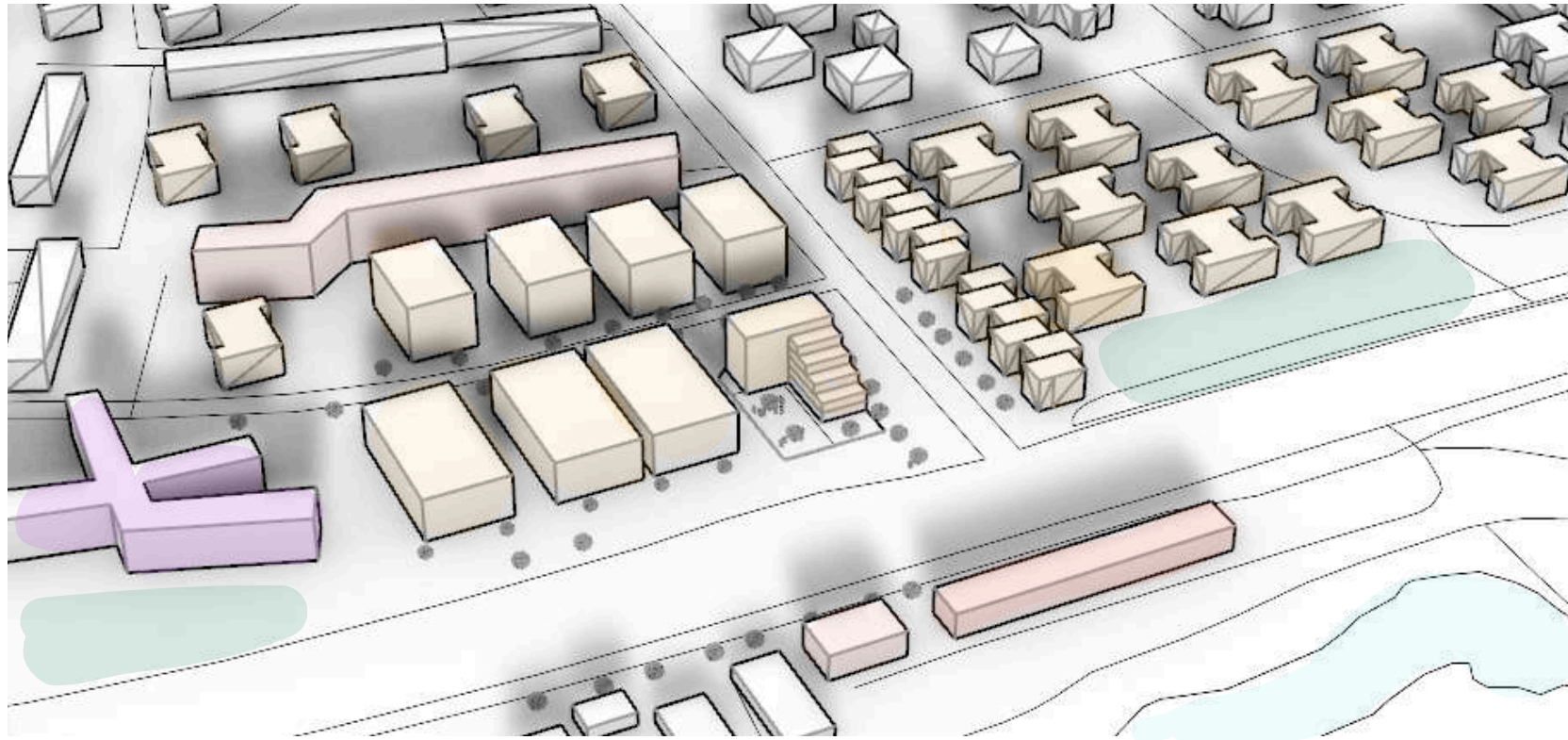
AXIS / CONNCTION



BASIC VOLUME



Axonomic view of the chosen plot + surroundings - Tools: Rhino+Grasshopper, Ladybug, Butterfly CFD.

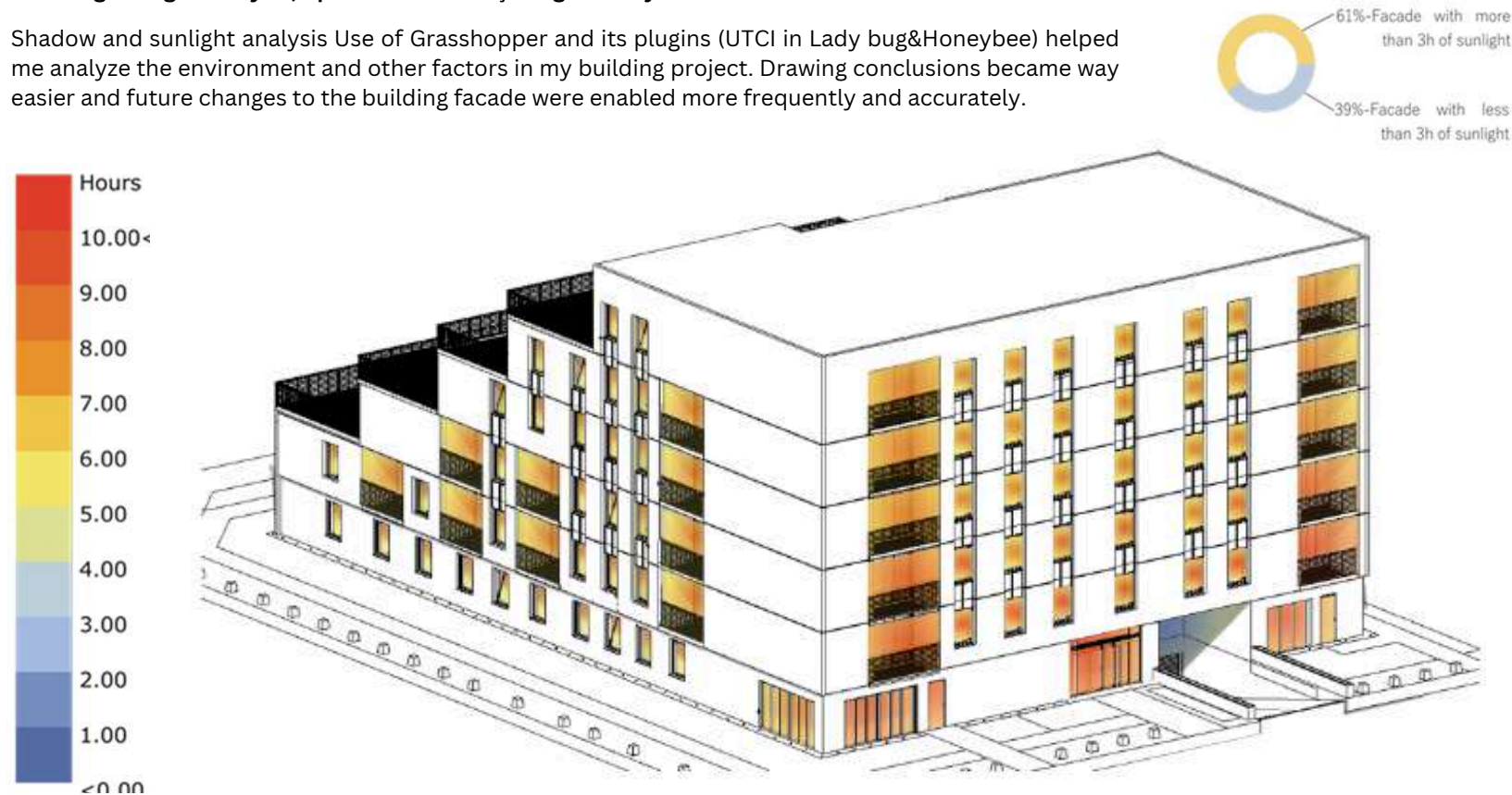


- Residential Area
- Commercial Buildings
- Public Hospital
- Water Surface - Lake
- Public Park

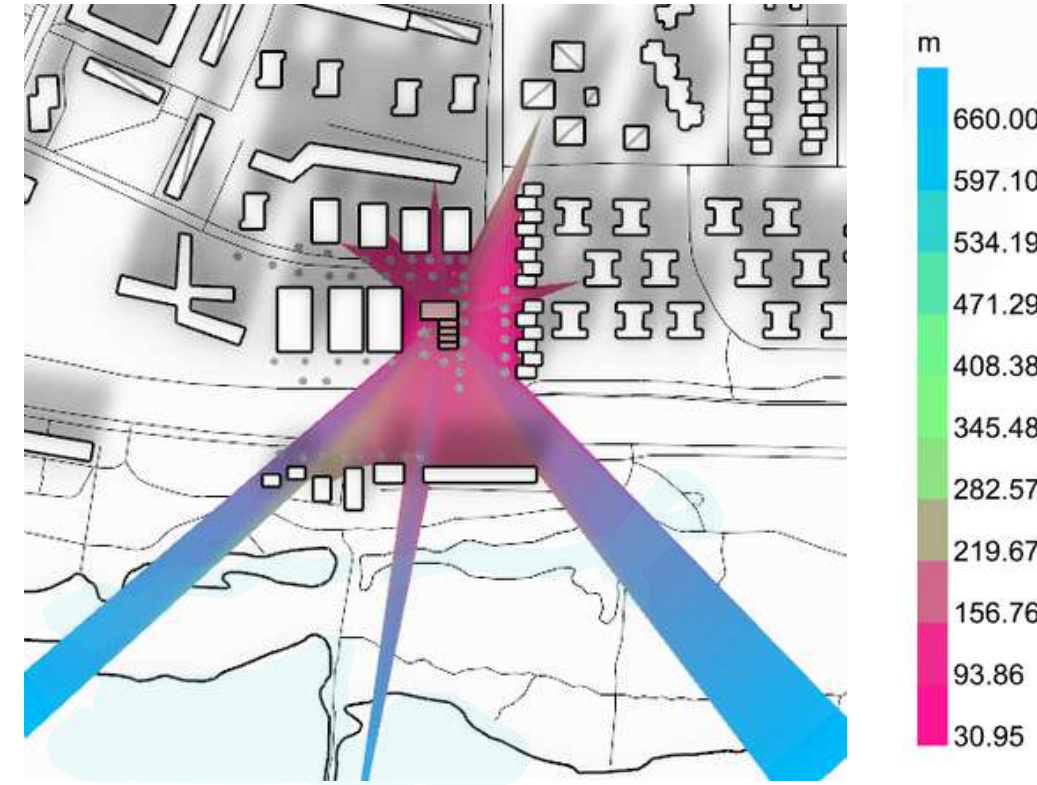
**The chosen plot is near residential, a commercial buildings, a public hospital, a lake, and parks, the building offers diverse views and convenient access to essential amenities.**

Building sunlight analysis, optimization of façade geometry.

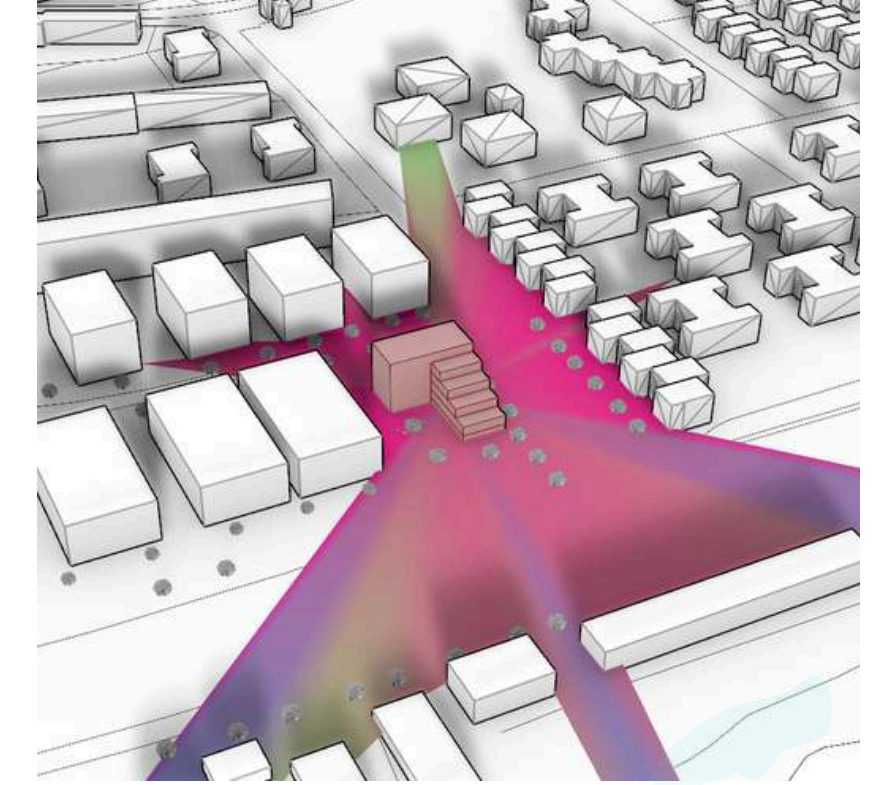
Shadow and sunlight analysis Use of Grasshopper and its plugins (UTCI in Lady bug&Honeybee) helped me analyze the environment and other factors in my building project. Drawing conclusions became way easier and future changes to the building facade were enabled more frequently and accurately.



Top View analysis of 1m- 12 meter height

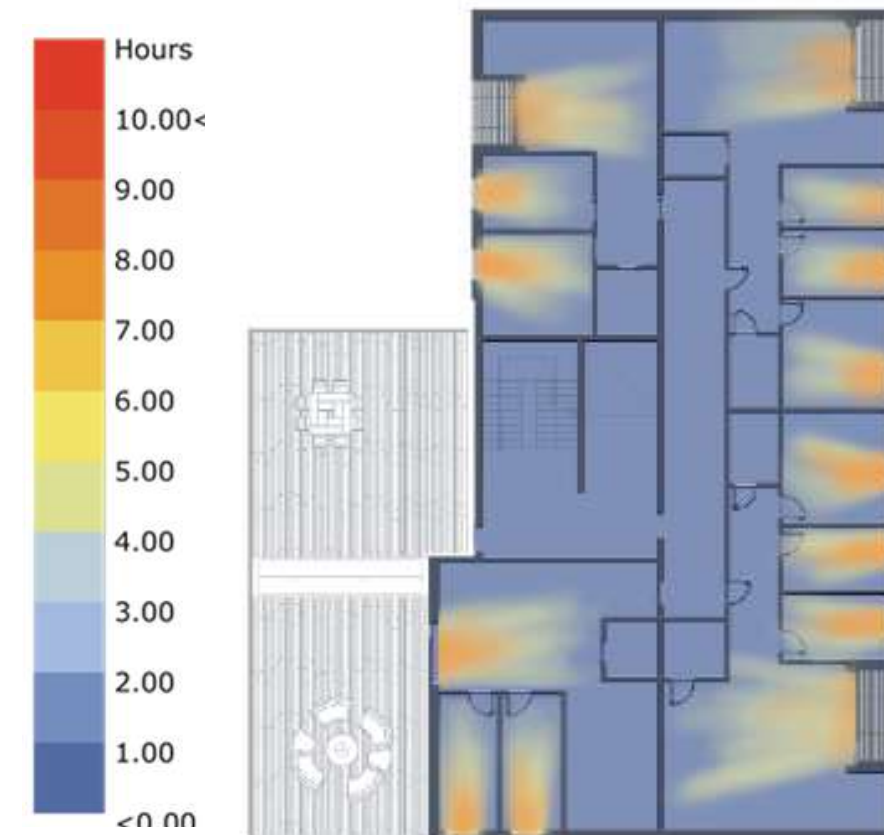


Axonomic View analysis of 1m- 12 meter height

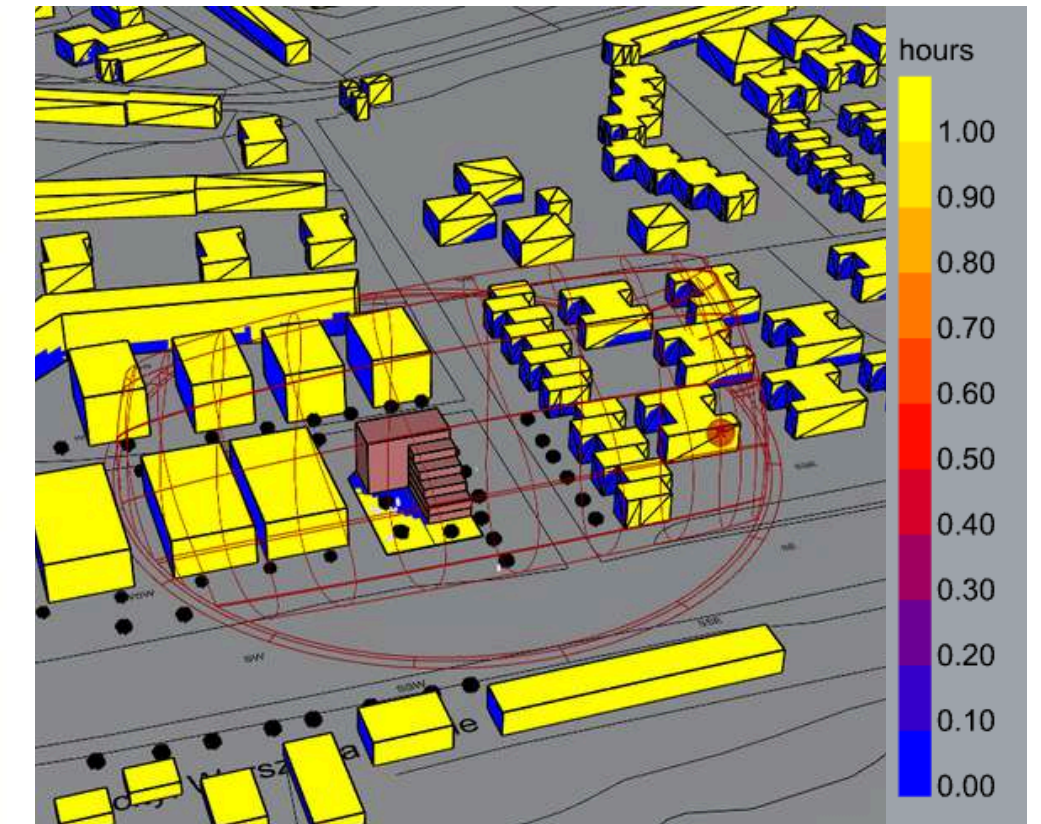


Windows and balconies from 1 to 12 meters in height offer varied perspectives, enhancing visual connections and maximizing appeal at all levels. Ground-level elements (1-3 meters) foster community interaction and immediate engagement with the surroundings. Mid-level placements (4-8 meters) balance privacy with broader views, ideal for living spaces. High-level (9-12 meters) balconies provide panoramic vistas, allowing views of the lake. Beyond 12 meters, the views expand to a 180-degree panorama, creating a retreat-like feel. This approach integrates buildings contextually, framing views of landmarks and natural features. Varied heights add architectural interest, optimizing natural light and ventilation for improved comfort and energy efficiency.

Interior sunlight analysis, optimization of the 5th floor interior design.



Optimizing natural light and shading of surroundings.





Internal Courtyard Perspective.



APARTMENT BUILDING | UL. ARABSKA 9 | WARSAW

NORTH ELEVATION | 1:150



APARTMENT BUILDING | UL. ARABSKA 9 | WARSAW

SOUTH ELEVATION | 1:150



APARTMENT BUILDING | UL. ARABSKA 9 | WARSAW

EAST ELEVATION | 1:150



APARTMENT BUILDING | UL. ARABSKA 9 | WARSAW

WEST ELEVATION | 1:150



Street-Level Apartments windows on the right, Unveiling Connections with Bike Path and Sidewalk.



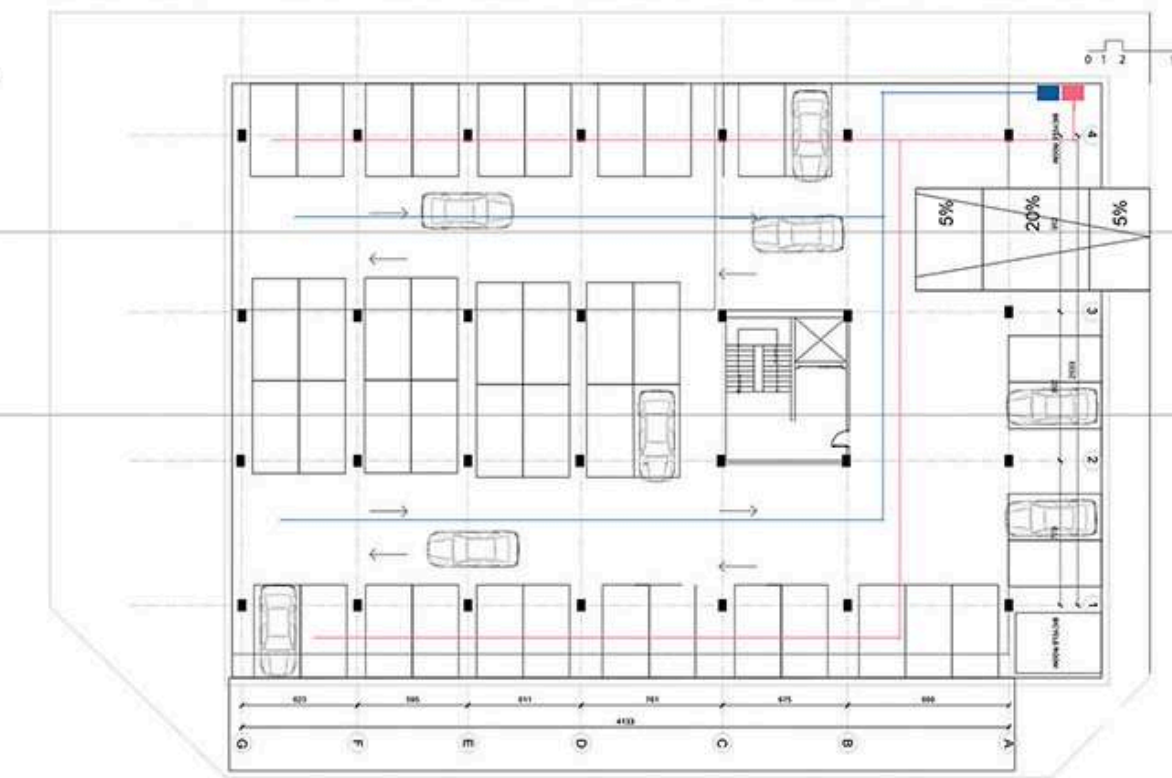
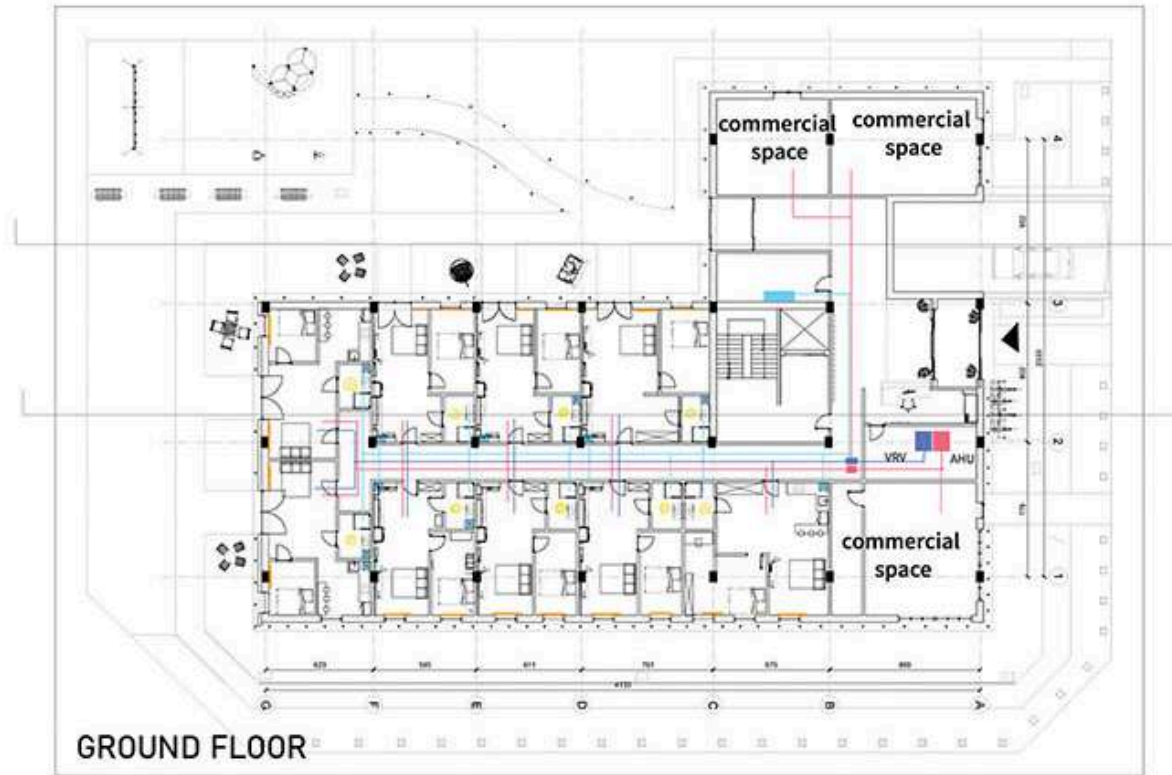
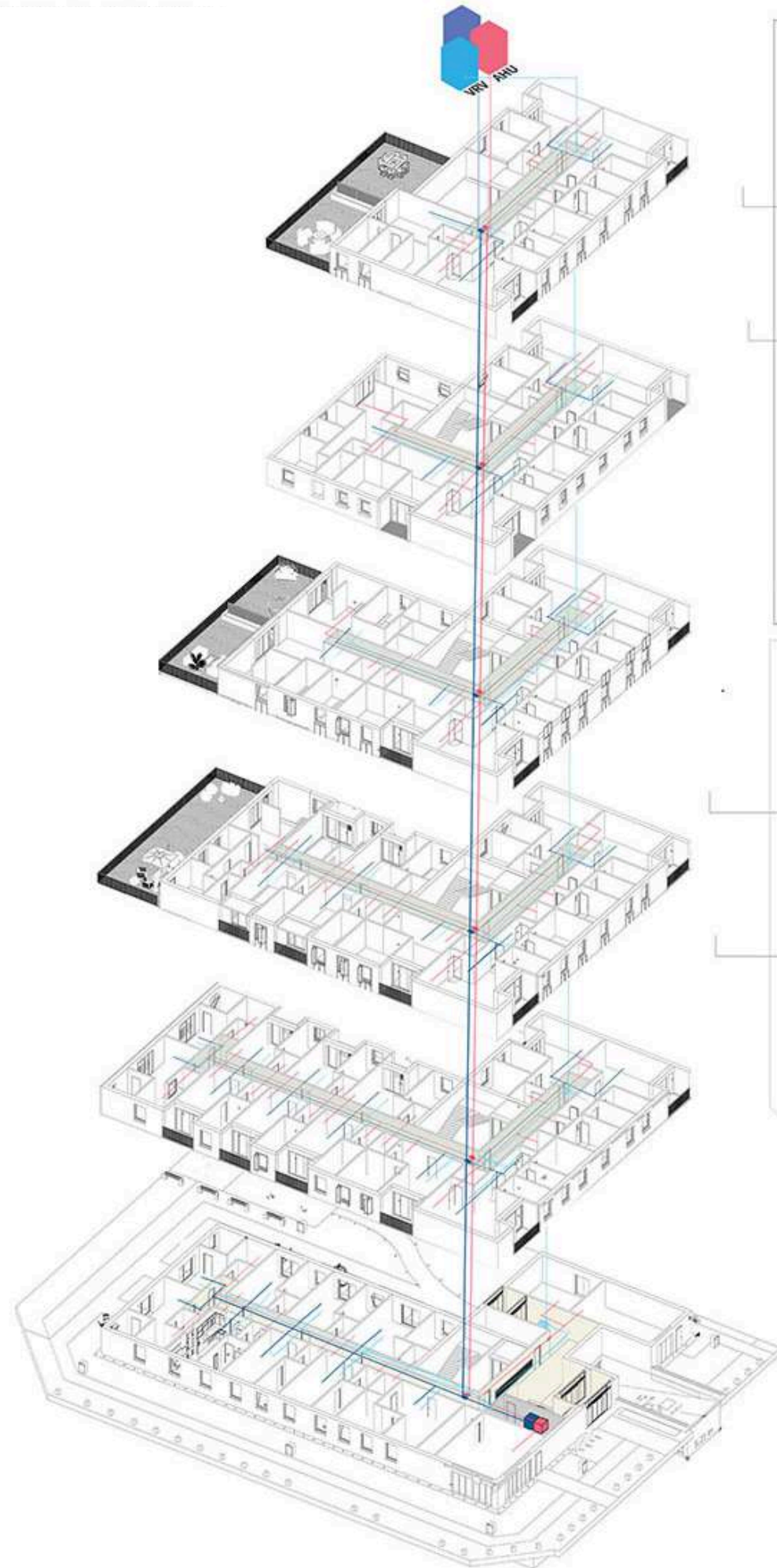


# Building services:

Design Optimization, Galapagos, Rhino, Grasshopper.

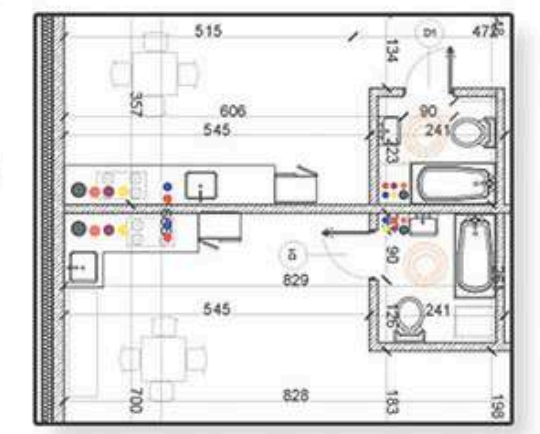
Optimizing design genomes using Galapagos in Grasshopper for Rhinoceros allows for the creation of efficient and innovative building infrastructure. This process reveals the intricacies of heating, cooling, ventilation, water, and electrical systems. From cozy warmth in winter to refreshing coolness in summer, these systems create an environment conducive to work and relaxation. Ventilation ensures fresh air circulation, while water systems provide essential hydration and recycling for sustainability. As day turns to night, electricity powers our modern lives, from lighting to digital connectivity. Each layer intertwines to shape a sanctuary of comfort, convenience, and sustainability, uncovering the essence of modern living.

In the layout of the five floors, along with the ground floor and underground parking, the interconnected layers of heating, cooling, ventilation, water, and electrical systems become apparent. Each floor plan meticulously illustrates the intricate connections for supply and return in these systems. From the ground floor bustling with activity to the serene upper floors, the design ensures seamless integration of these vital systems. Adhering to regulatory standards, it optimizes comfort and sustainability throughout the building, creating a cohesive and efficient infrastructure.



- Heat Return Recovery
- Sewage System
- Return Heating
- Heating
- Return Hot Water System
- Hot Water
- Cold Water
- Mechanical Air Exhaust Vertical Connection
- Mechanical Air Supply Vertical Connection
- AC System Vertical Connection
- Mechanical Air Exhaust Horizontal Connection
- Mechanical Air Supply Horizontal Connection
- AC System Vertical Horizontal Connection
- Indoor heater / radiator
- Floor heating

### HOT - COLD WATER & SEWAGE SYSTEMS



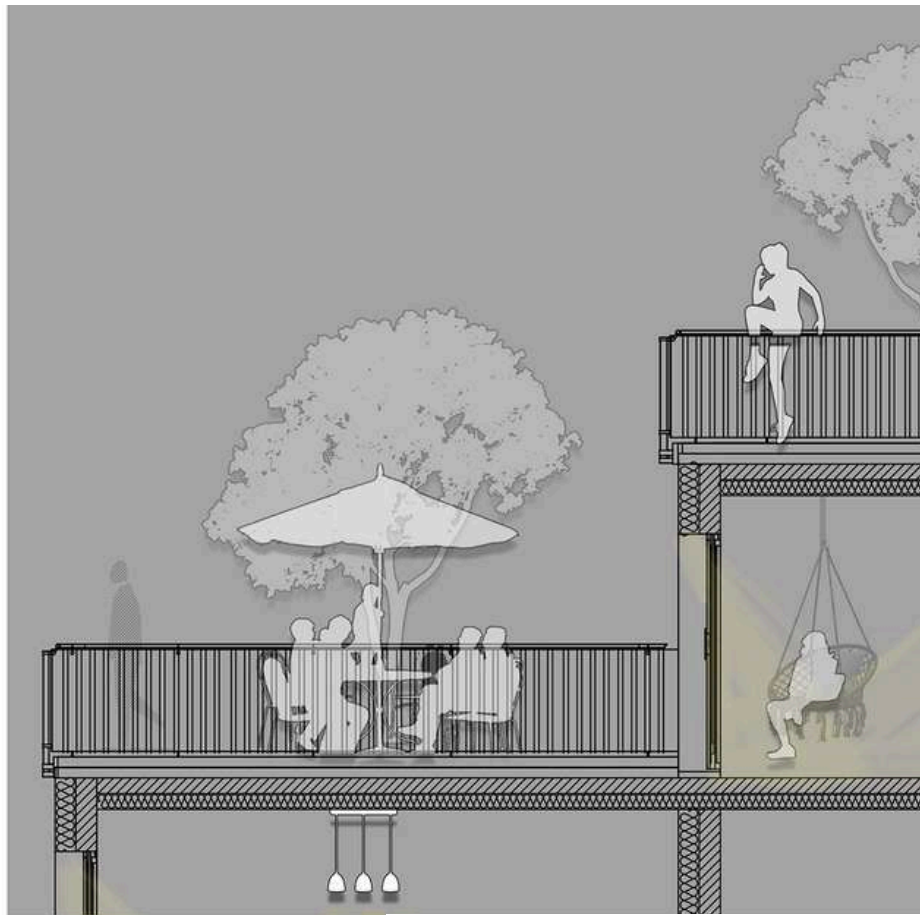
### RESIDENTIAL AREA

APARTMENT AREA (m2)	BUILDING AIR USAGE			
	VOLUME (m3)	SUPPLY (m3/h)	EXHAUST (m3/h)	MULTIPLICIT Y
1	42	115.1	160	1.4
2	60	164.4	220	1.3
3	35	95.9	160	1.7
4	60	164.4	265	1.6
5	60	164.4	265	1.6
6	31	84.9	100	1.2
7	60	164.4	250	1.3
8	75	205.5	470	2.3
9	42	115.1	160	1.4

FOR THE AVERAGE APARTMENT 45KW OF THE HEAT GAINS.  
 THE PROVIDED SOLUTION FULLY FLAT CASSETTE VRF IV 40A FXSQ-A  
 OUTDOOR UNITS FOR THE WHOLE BUILDING 121,2KW OF THE HEAT GAINS  
 THE PROVIDED SOLUTION: 2X VRF HEAT RECOVERY + HEAT PUMP 22U RYYQ-U /RXYQ\*U  
 2X60+120KW



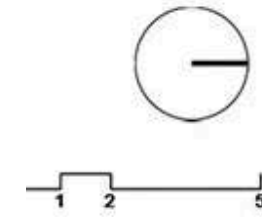
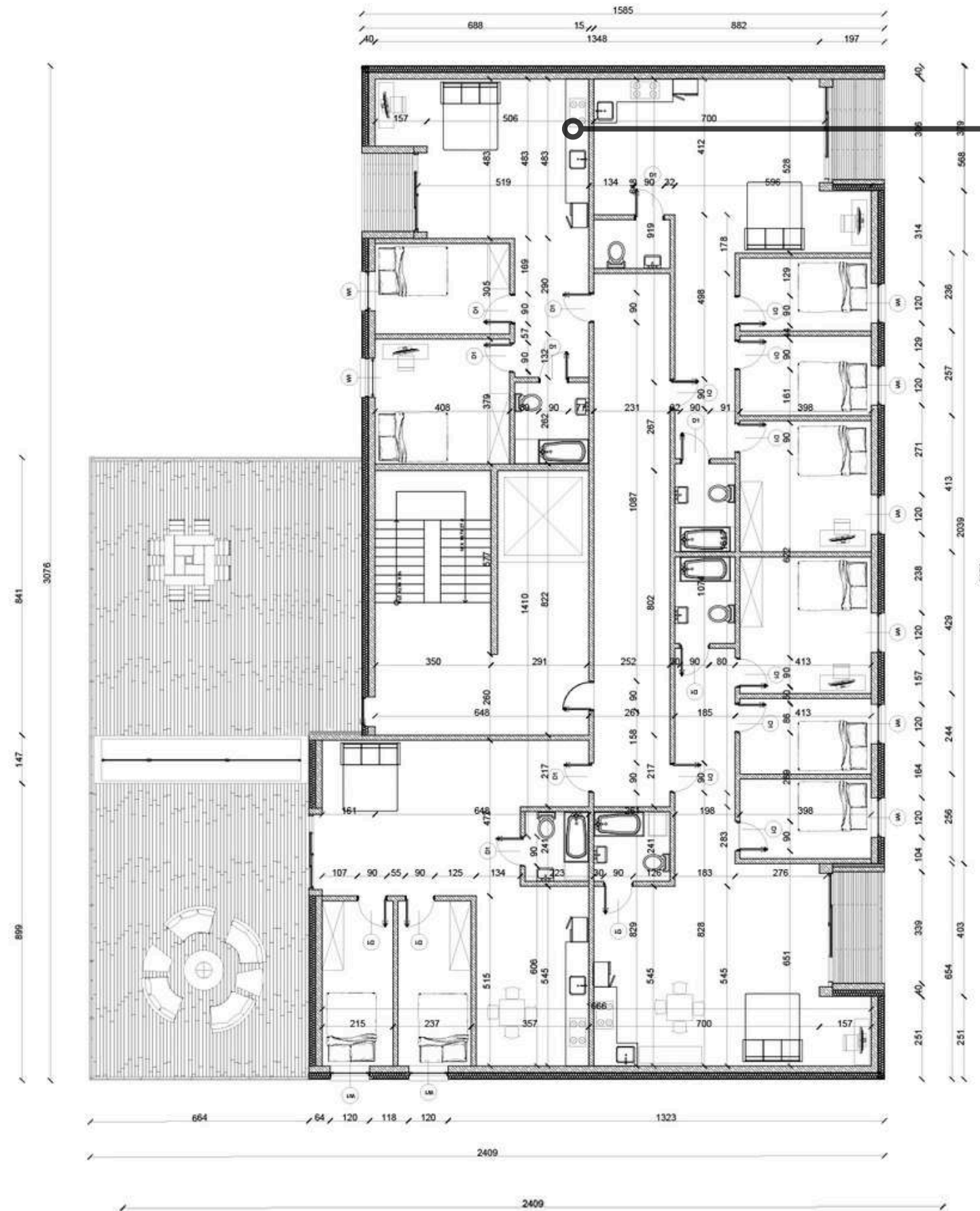
Facade details



FACADE DETAIL | 1:50

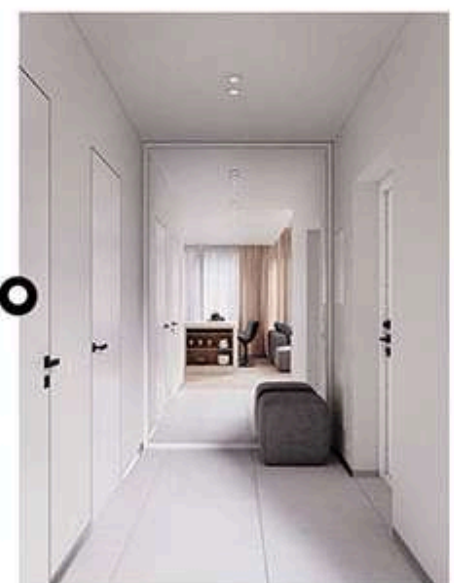


The chosen 5th floor to be presented with a chosen apartment:



5th Floor

Interior Renders of the Chosen apartment  
Rendered: Blender







Human-eye perspective of the greenhouse restaurant reveals the two main entrances and the integration with the interior greenery.

## Informations about the project:

The 4 Green - Greenhouse / Restaurant.

Archdaily competition.

Year: 2021.

Location: Iceland.

Area: situation map 2000m<sup>2</sup>.

Team: Ali Alabeedi / Mohammed Ali Al Saif.

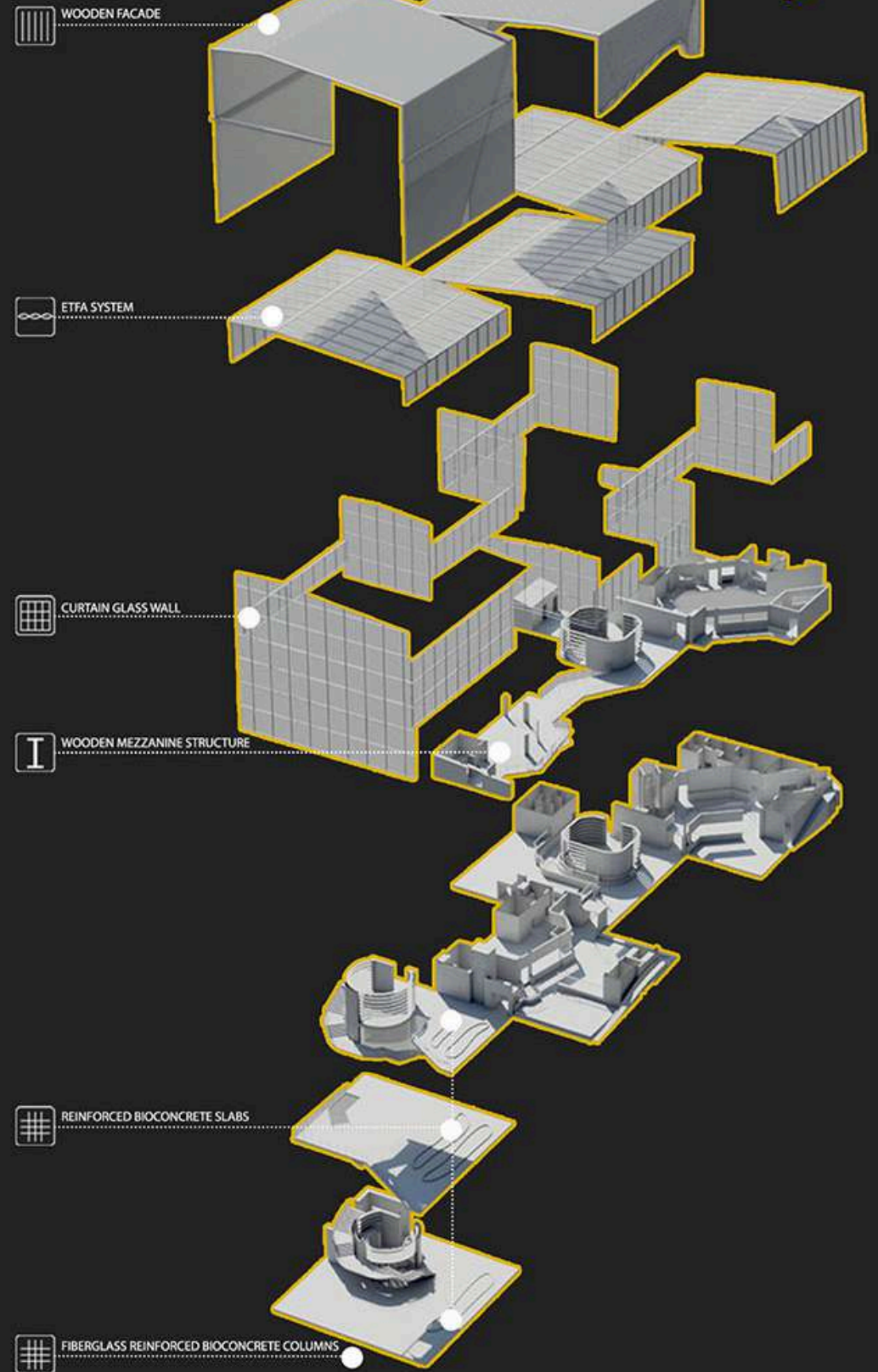
Tools: Rhino, Grasshopper with plugins, Vray/Lumion,  
Post-production Adobe Photoshop.

“**This Greenhouse Restaurant** in Iceland is designed to highlight the unique solar patterns that significantly impact the four seasons, presenting various challenges. So we offer a solution in our design. The building is divided into four sections, each replicating a different season with corresponding fruits and vegetables. Visitors can enjoy fresh produce and varied climates regardless of external weather. The stylish restaurant serves dishes made from on-site harvests and features large windows overlooking the greenhouse. Beneath the building, an aquarium and vertical farms create a serene dining ambiance and ensure sustainable produce supply. This project combines seasonal replication, vertical farm-to-table dining, and beautiful, eco-friendly design”



The design layout:

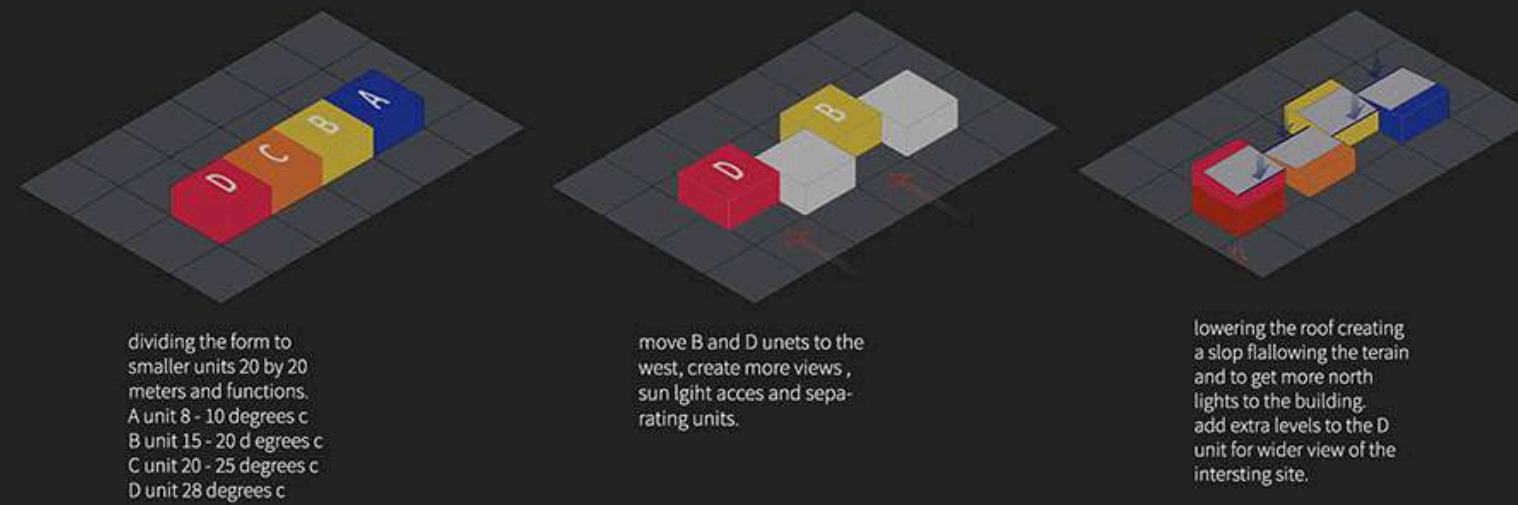
AXONOMETRY VIEW



Axonometric view:



Diagram / Concept:



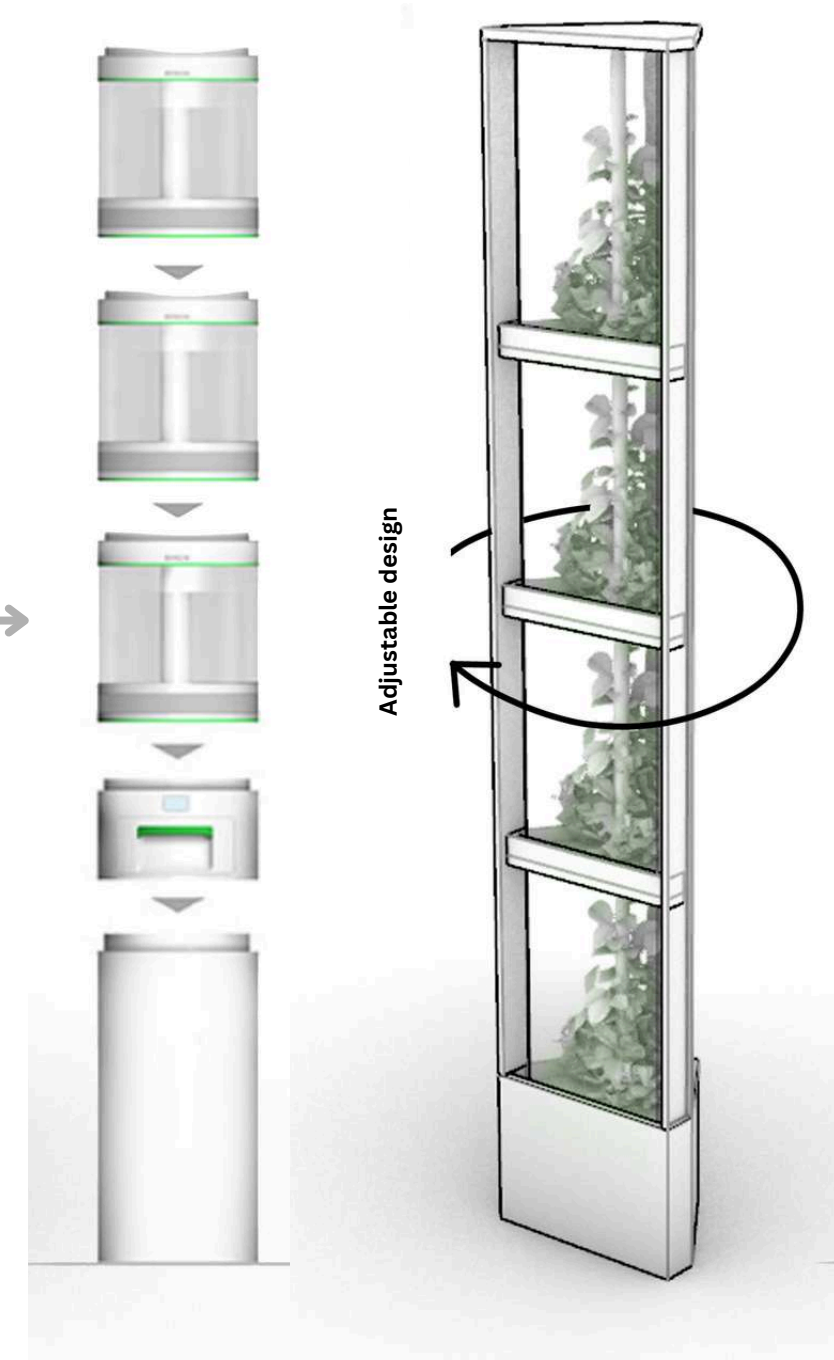
Site Plan / Futuristic Development







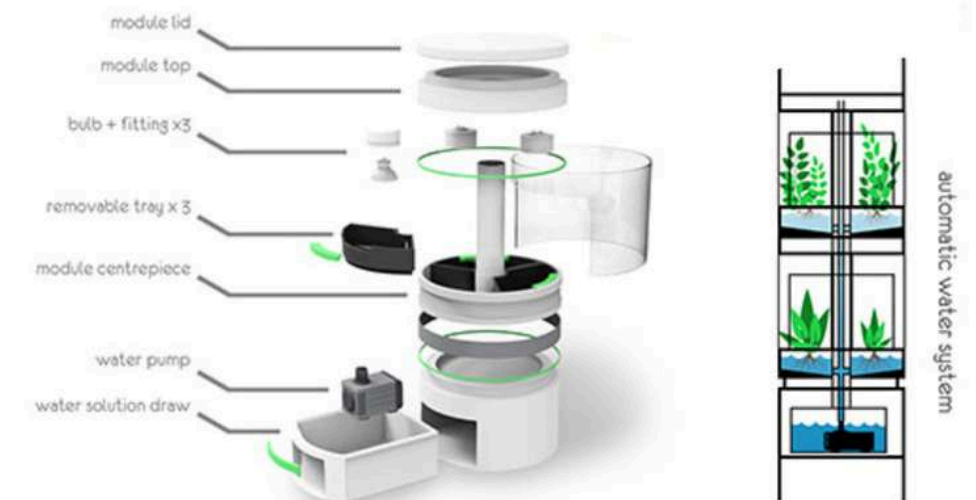
HYDROPONICS FACADE



Sustainable Facade view Designed with Grasshopper Script Incorporates Vertical Farming and Modular Hydroponics.

## Information about the smart facade design:

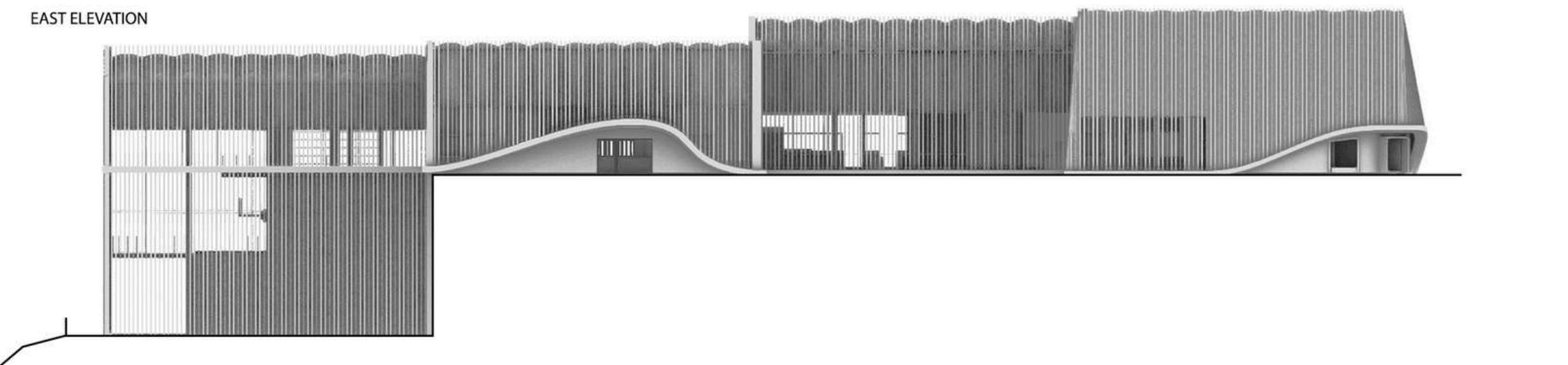
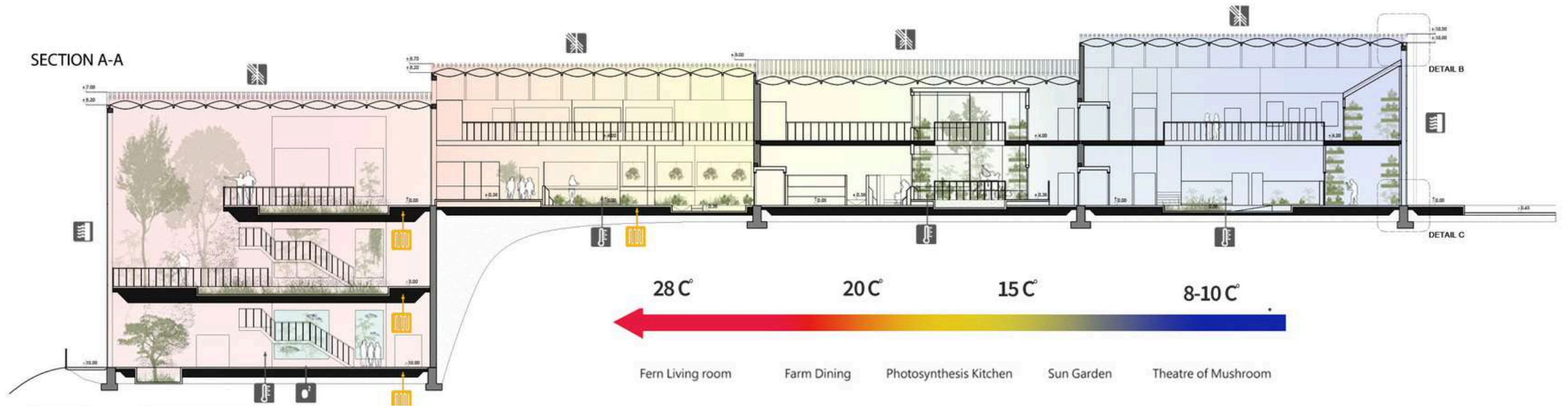
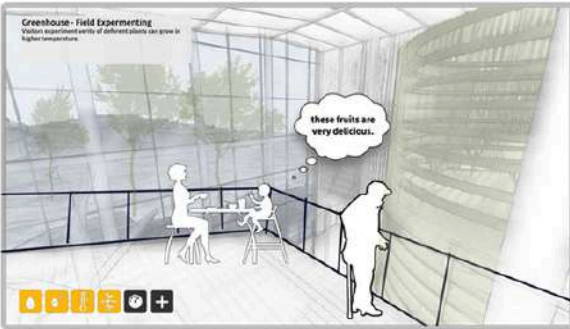
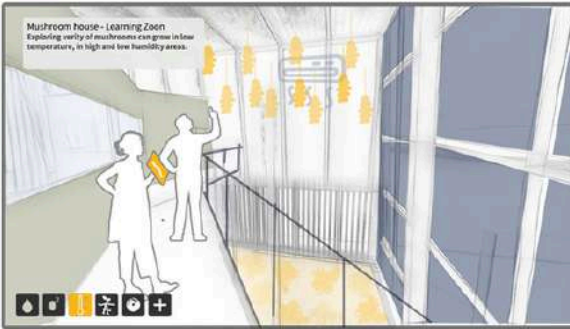
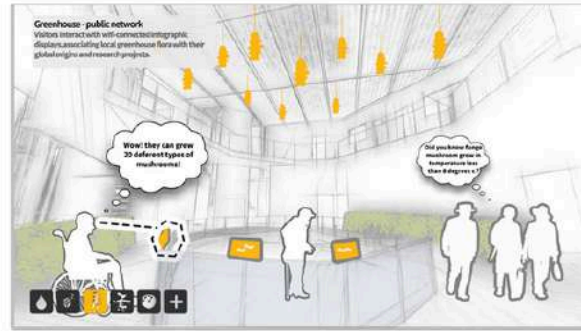
As the entire building embodies smart design with numerous vertical farming systems and sustainable architecture, we decided to extend this sustainability to the facade. This idea was generated by a script using Grasshopper in Rhino. Inspired by large-scale vertical farming systems, Stem is a modular indoor appliance designed for growing small plants. This automated hydroponic system allows users to cultivate herbs and vegetables effortlessly, providing timed watering cycles with minimal maintenance. Its modular sections can be added or removed to fit any space or requirement. In addition to its practical benefits, Stem is environmentally conscious, being made from sustainable materials like Zeoform.





# STORY

Through The Important Features Of The Building



# STUDIES

The Main Features Of The Building

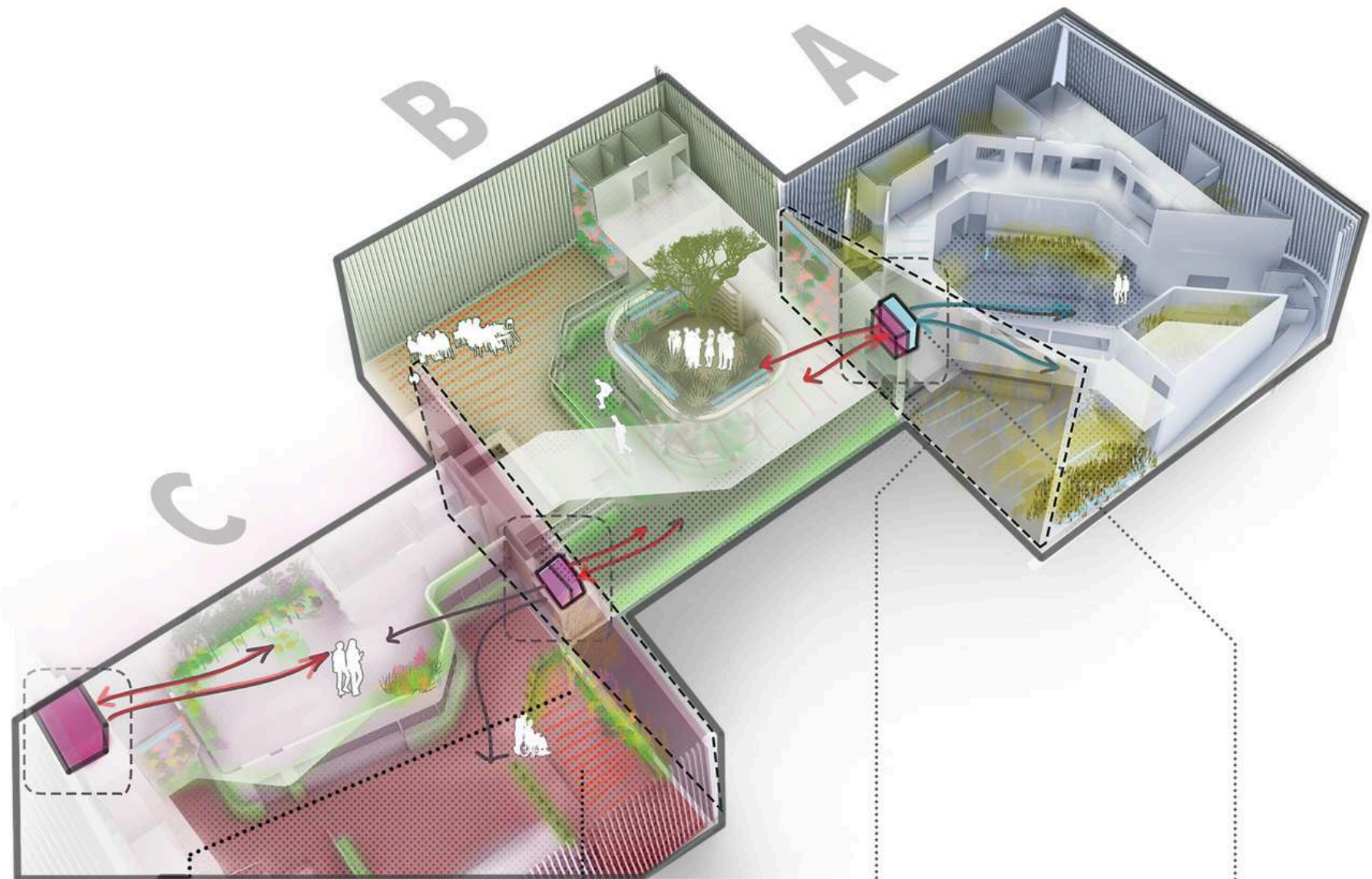
	Prototype	Pattern	Light	Temperature	Humidity	Function	Activity
Fern			Shadow	28°C	85-95%	Learning Space	Plant workshop
Hydroponic vegetable			Led	15-25°C	60%	Kitchen	Food education workshop
Mushroom			Dark	8-12°C	85-95%	Stage	Show
BIO FISH TANK [aquaponic]			Led	20-28°C	90%	Recycling water	Seve plants

# IDEAS

of different surfaces



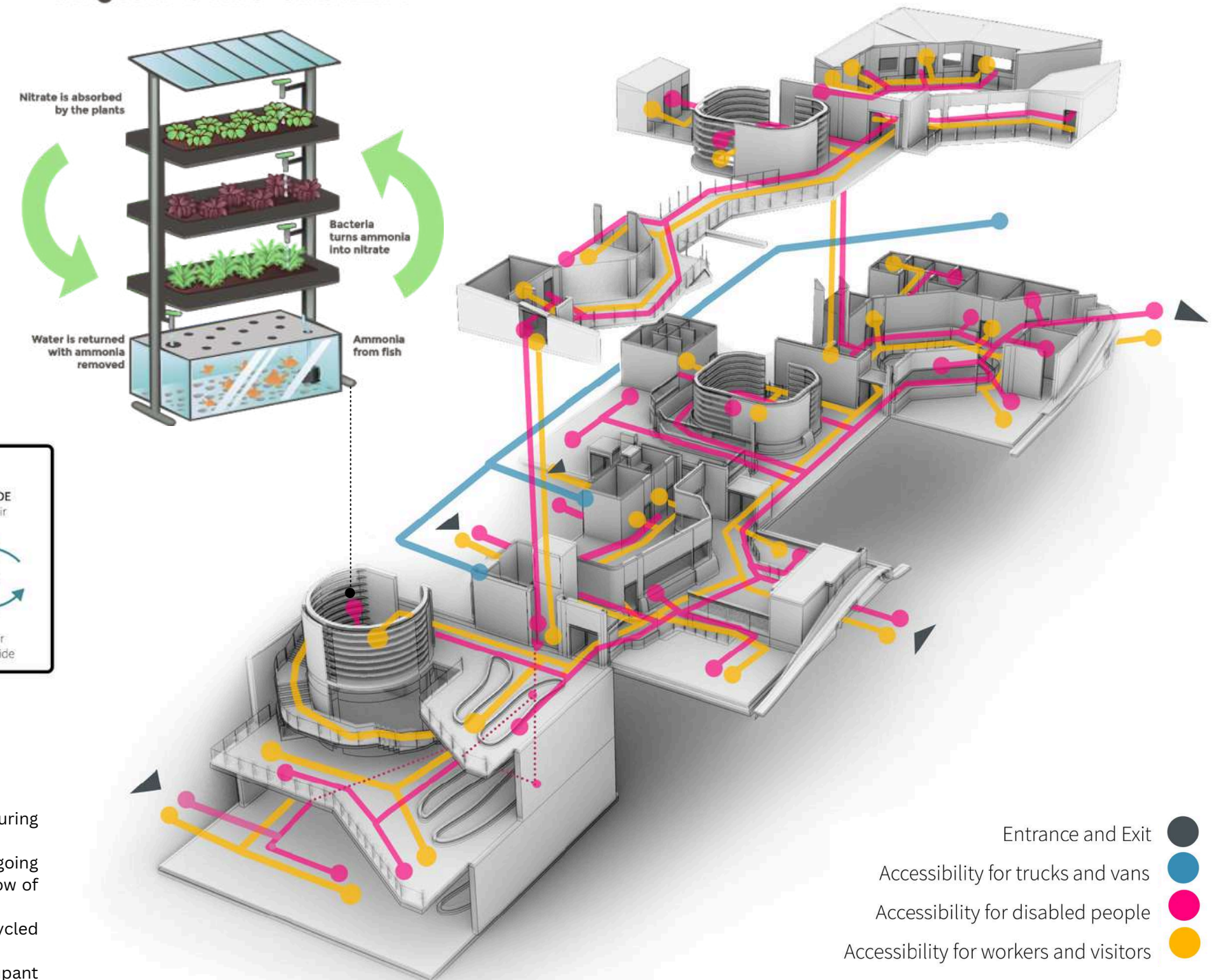




**Aquaponic system:**

At the culmination of our architectural vision lies the heart of the building - an aquaponic system that serves as a captivating centerpiece next to the restaurant. Here, guests can enjoy their meals amidst the serene beauty of underwater life and verdant vertical farming. With wide pathways, ramps, and elevators strategically placed throughout, the building is designed for accessibility, ensuring that all visitors can navigate comfortably. Through expansive viewing panels, diners are treated to a mesmerizing underwater vista, fostering a deep connection to the natural world. Above, lush greenery cascades from vertical farms, providing a stunning backdrop to the aquatic scene below. As guests savor their meals, sourced from the freshest vegetables and fruits grown on-site, they do so in a space that embodies inclusivity and environmental consciousness. This unique dining experience is a testament to our commitment to design for all, inviting everyone to share in the wonder of this extraordinary setting.

**AQUAPONIC SYSTEM**



**Local Comfort: Radiant Paths**

Vertical fern wall features, provide local cooling and humidification control in the wet biome, as in the rest of the project all water is recycled rainwater and melted snow.

**Local Comfort: Radiant Paths**

**winter:** tubing in the paths carries sustainably generated geothermal heat to the interior of the building, this forms a net-zero heating system along with the geothermal perimeter fin tubes heats this extraction of ground heat is balanced by summer use.

**summer:** cool water from the geothermal system lowers the temperature of the slab, the high rate of passive ventilation makes this local cooling the most effective way of increasing comfort for visitors and researchers.

**Energy-Efficient Ventilation**

**Energy Recovery Units** in each unit recycle ventilated thermal energy to heat the greenhouse and provide fresh air when the vents can't be opened, in the summer they serve to circulate air preventing plant pests and disease.

INSIDE Warm stale air

OUTSIDE Fresh air

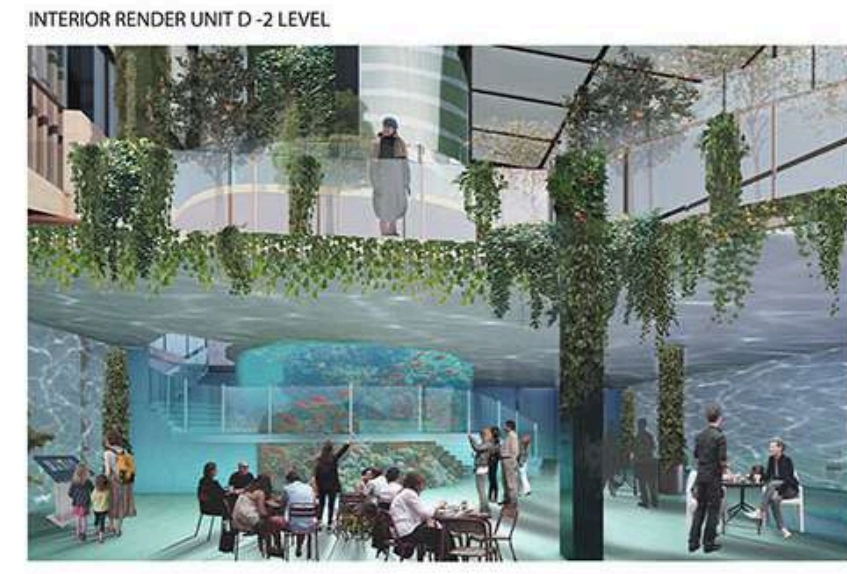
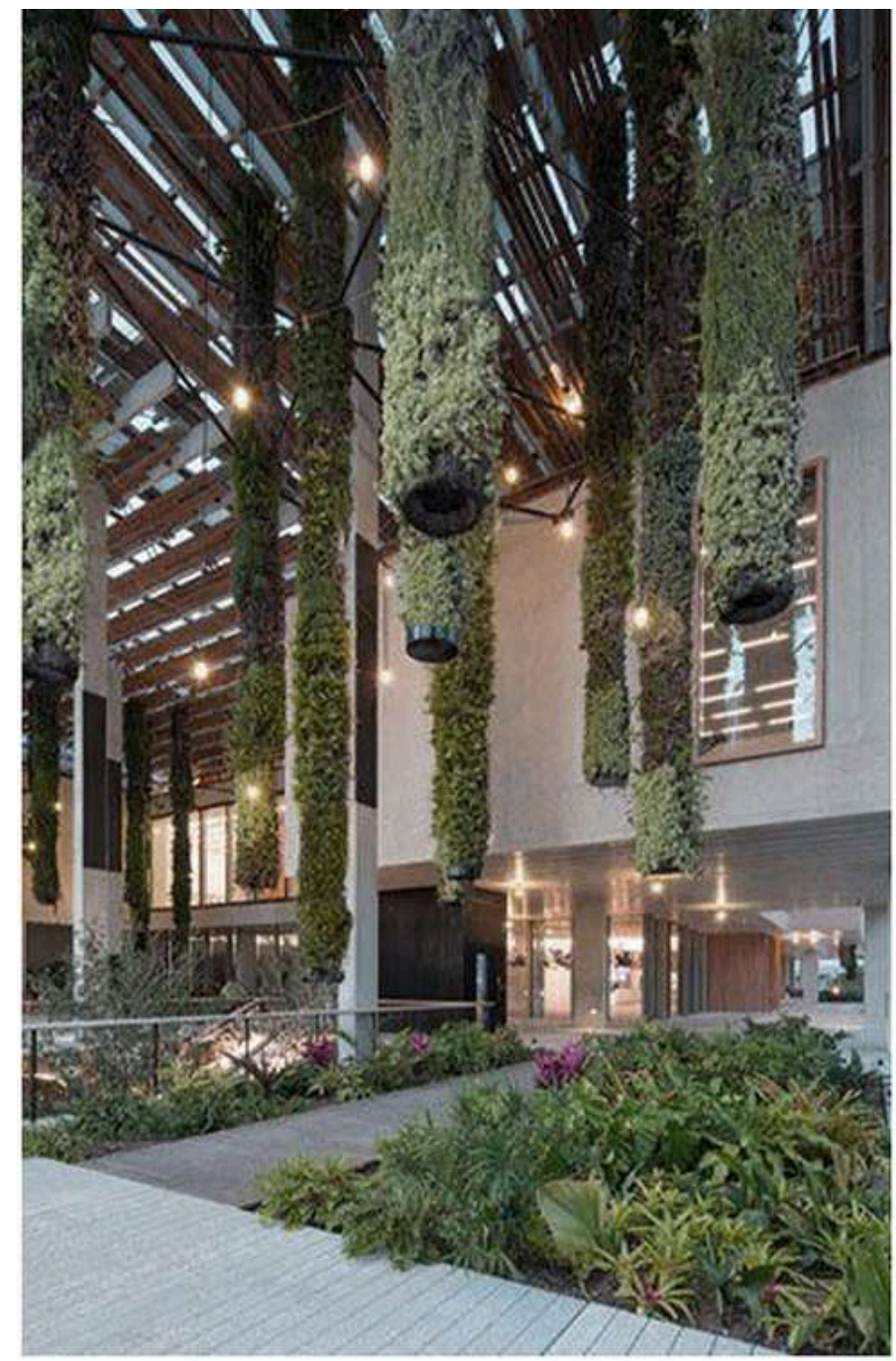
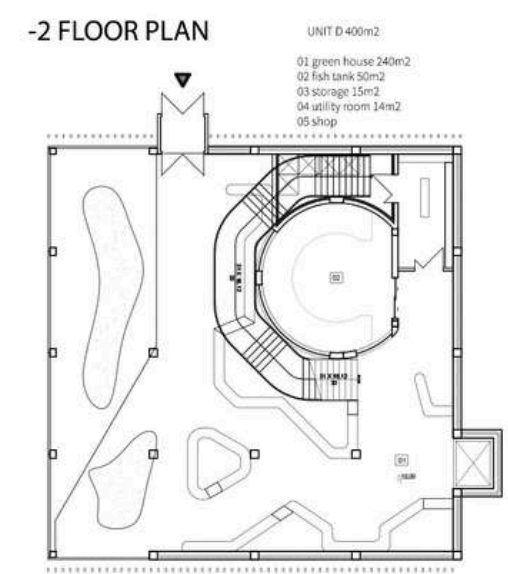
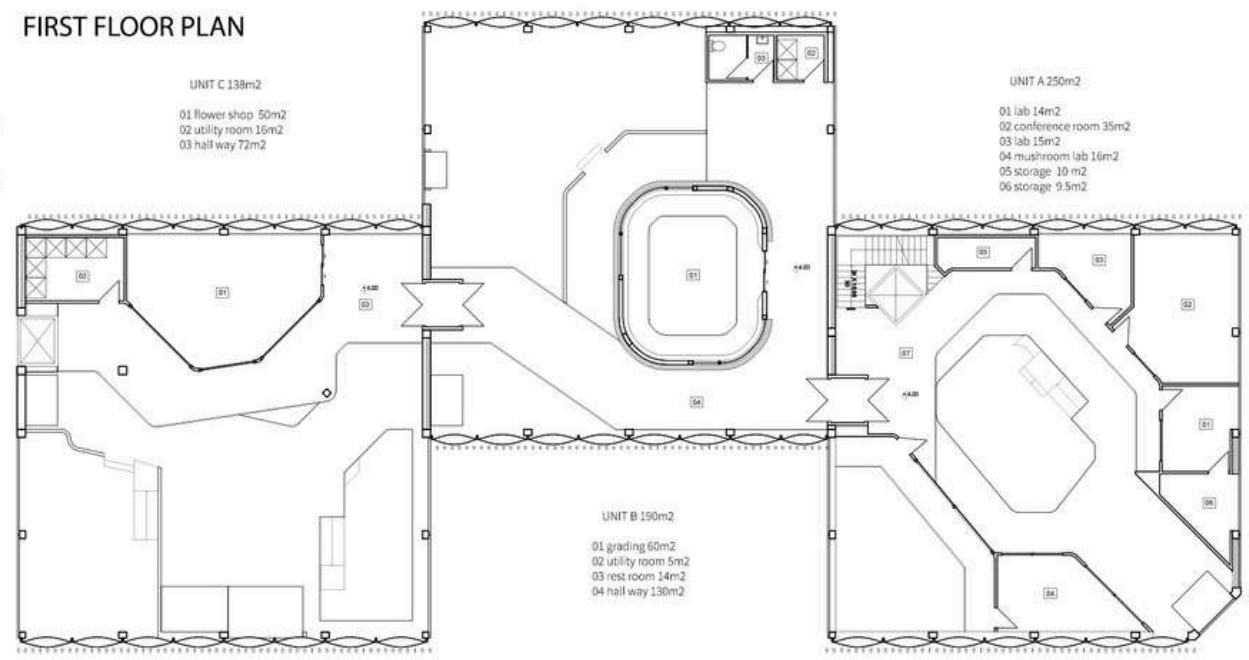
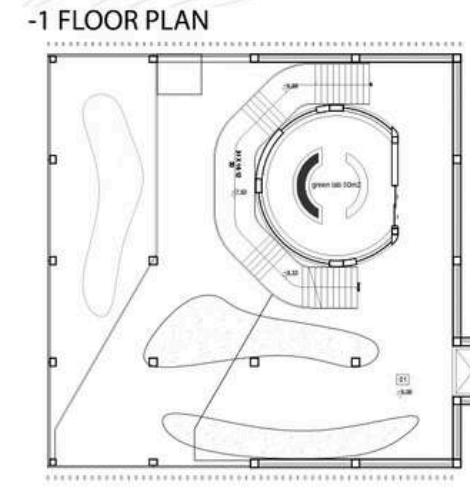
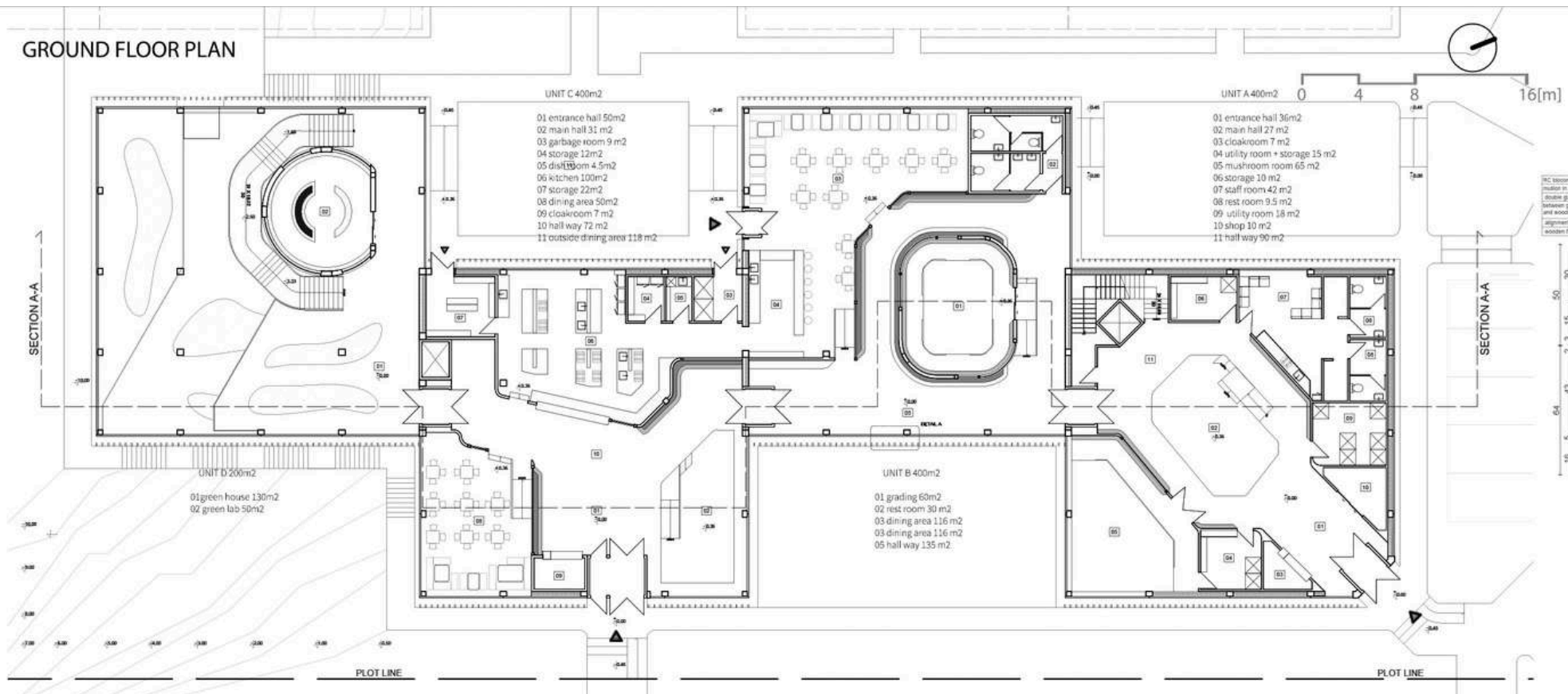
Pre-heated fresh air

Stale air to outside

**Energy-efficient ventilation recovery units:**

Incorporating energy-efficient ventilation recovery units both outside and inside the building is a strategic approach to maximizing energy savings while ensuring optimal indoor air quality. Externally positioned ventilation recovery units utilize ambient air to pre-condition incoming fresh air, capturing and transferring the thermal energy from outgoing stale air. This process minimizes the energy required to heat or cool incoming air, reducing the building's overall energy demand while maintaining a constant flow of fresh air. Internally installed ventilation recovery units further enhance energy efficiency by recapturing thermal energy from exhaust air within the building. This recycled energy is then used to pre-condition incoming fresh air, resulting in additional energy savings and a more sustainable indoor environment. By integrating both external and internal ventilation recovery units, the building can achieve superior energy efficiency, reduce operating costs, and promote occupant comfort by providing a continuous supply of fresh, pre-conditioned air while minimizing heat loss or gain.









An eastern view showing the courtyard entrance, connected by a ramp leading to all levels.

## Informations about the project:

The Creative Containers - Youth Center.

Archdaily competition.

Year: 2021

Location: India, Pune.

Area: situation map 750m2.

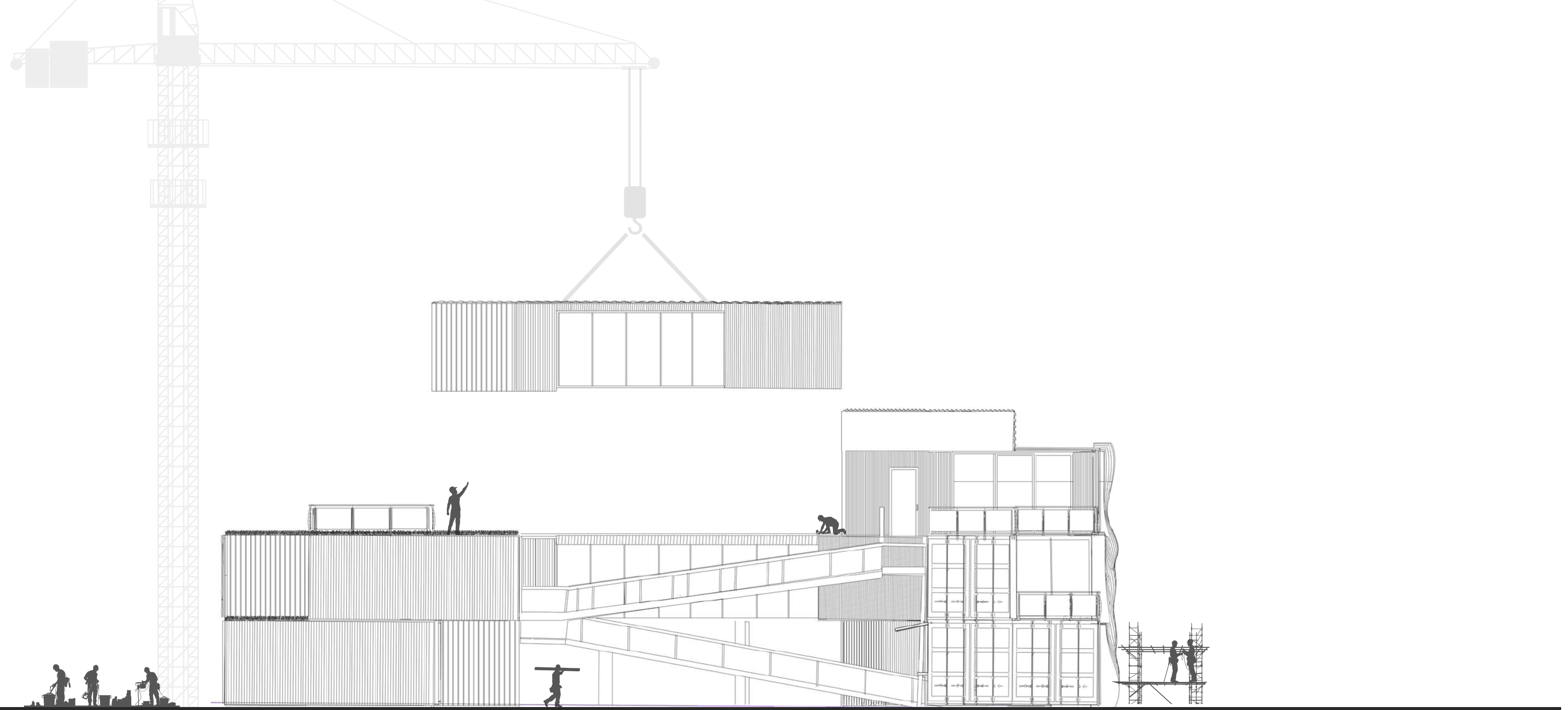
Team: Ali Alabeedi / Paweł Tryzybowicz / Malik Elfallah

Tools: Rhino, Grasshopper, Kangaroo, Parakeet, Physics, Lunchbox.

Rendered: Vray./ Post-production Adobe Photoshop.

“**This Smart Design** journey began with the competition, which ignited our vision for the untapped potential of the reuse of the shipping containers and the plot with its surroundings. Our proposed concept not only reimagines space but also fosters a sense of harmony and functionality. From the inviting features and solutions to the Indian culturally-inspired courtyard pavilion, every element is meticulously designed to enhance user experience. Embracing sustainability at its core, our design integrates eco-friendly smart materials, recycling initiatives, and advanced technologies. But perhaps most importantly, our commitment to "Design for All" ensures accessibility and inclusivity for everyone. Welcome to a new era of architectural excellence and social consciousness for all creatives.”





An eastern side view, showing how easy is the stacking of shipping containers vertically using a winch with the help of the workers.

### **Stacking Containers: A Faster, Cheaper, Smarter Solution it can Redefines Construction Dynamics:**

This streamlined process not only showcases the efficiency of container assembly but also highlights its superiority over traditional brick construction in terms of ease, cost-effectiveness, and speed. With the precision of the winch and the expertise of the workers, containers are effortlessly aligned and stacked vertically, forming the building blocks of a remarkable structure. The simplicity and speed of this method significantly reduce construction timelines, offering a swift and efficient alternative to conventional building practices.

Moreover, the cost-effectiveness of container stacking presents a compelling advantage, as the affordability of shipping containers makes them an economical choice for construction projects. By leveraging this approach, developers can achieve substantial savings without compromising on quality or durability.

In essence, the eastern side view of container stacking serves as a testament to the ingenuity and practicality of this construction method. It demonstrates how the seamless integration of technology and skilled labor can revolutionize the building process, offering a smarter, cheaper, and faster solution for creating innovative architectural spaces.

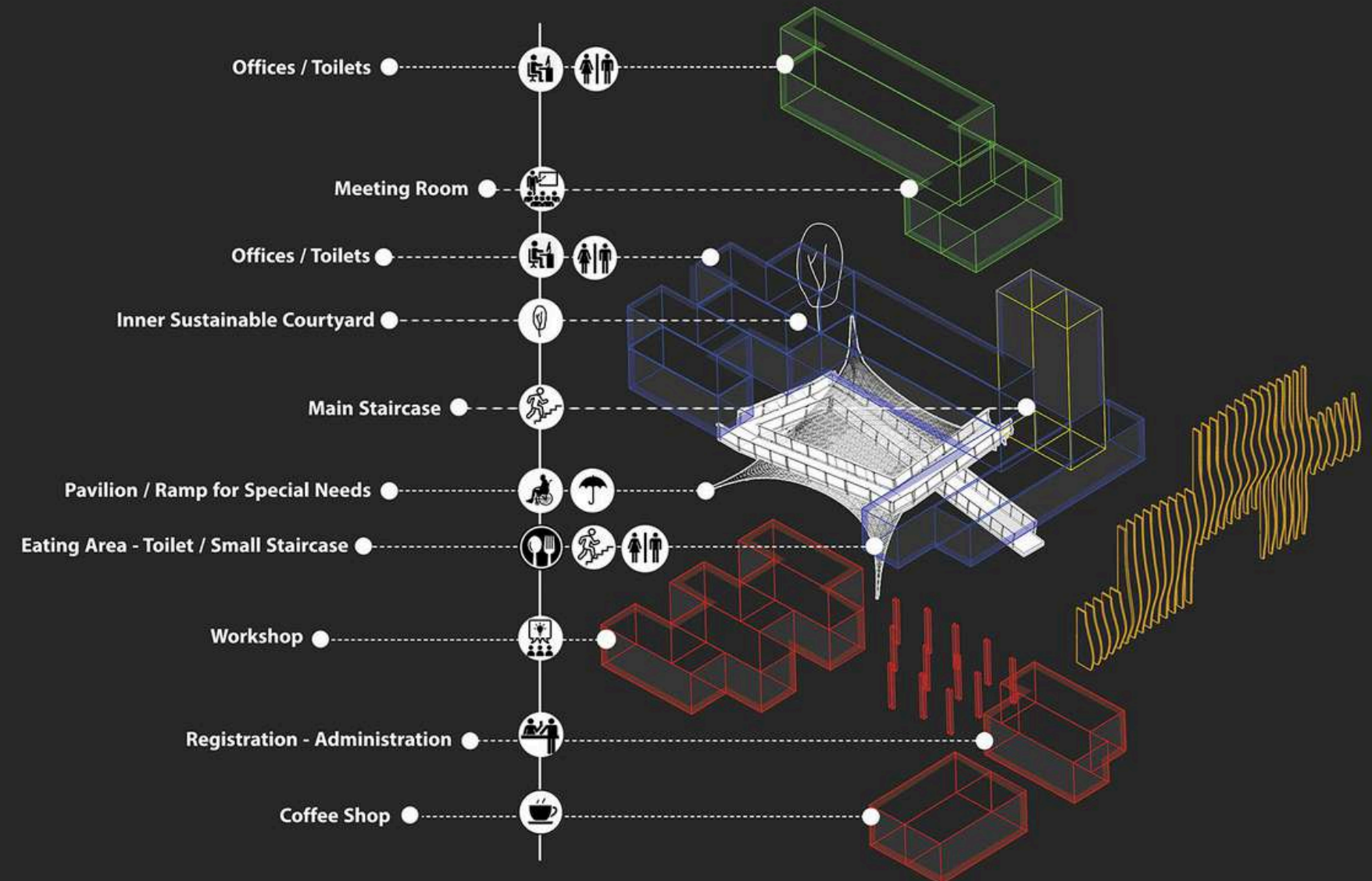


The main entrance to the central courtyard with the ramp leading to the 1st/2nd level.



## The design layouts:

The design layout features a coffee shop and registration room at the entrance, leading to activity areas, workshops, and kitchen, and eating spaces. Toilet facilities are strategically placed for convenience. A courtyard with a pavilion adorned with Indian-inspired patterns adds cultural charm. Accessibility is ensured with ramps for special needs individuals, alongside stairs and an elevator. Sustainable design solutions include eco-friendly materials, recycling initiatives, and smart materials. Meeting rooms cater to collaboration, while computational design solutions optimize functionality using Grasshopper Python scripts. Offices offer dedicated workspaces, complemented by thoughtfully designed landscape features. and the most important thing, This design we made sure to be “Design for All”

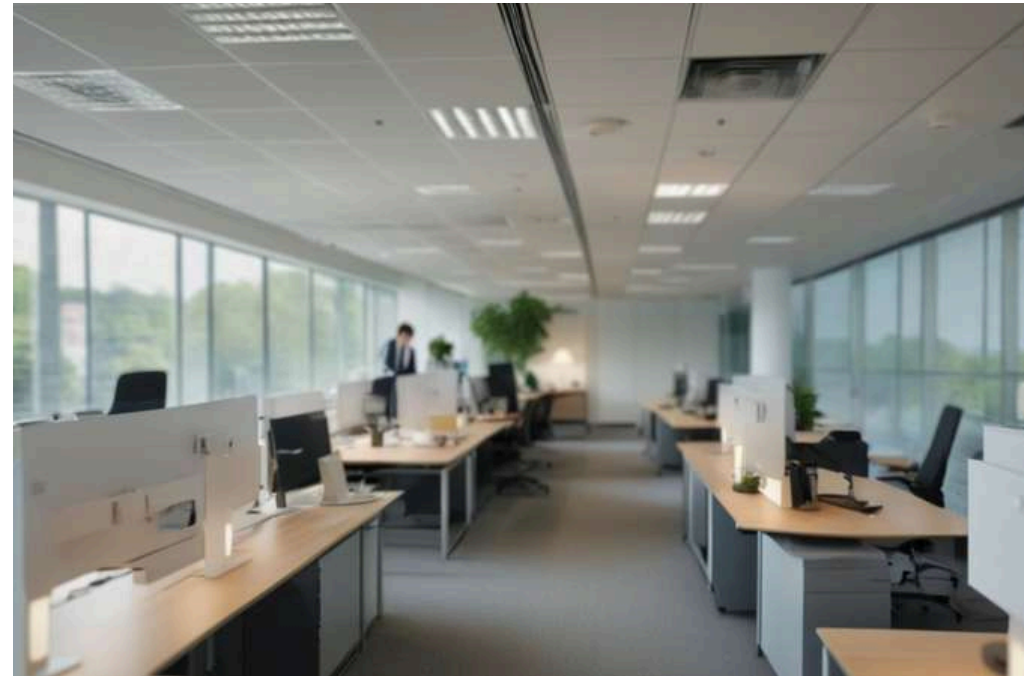




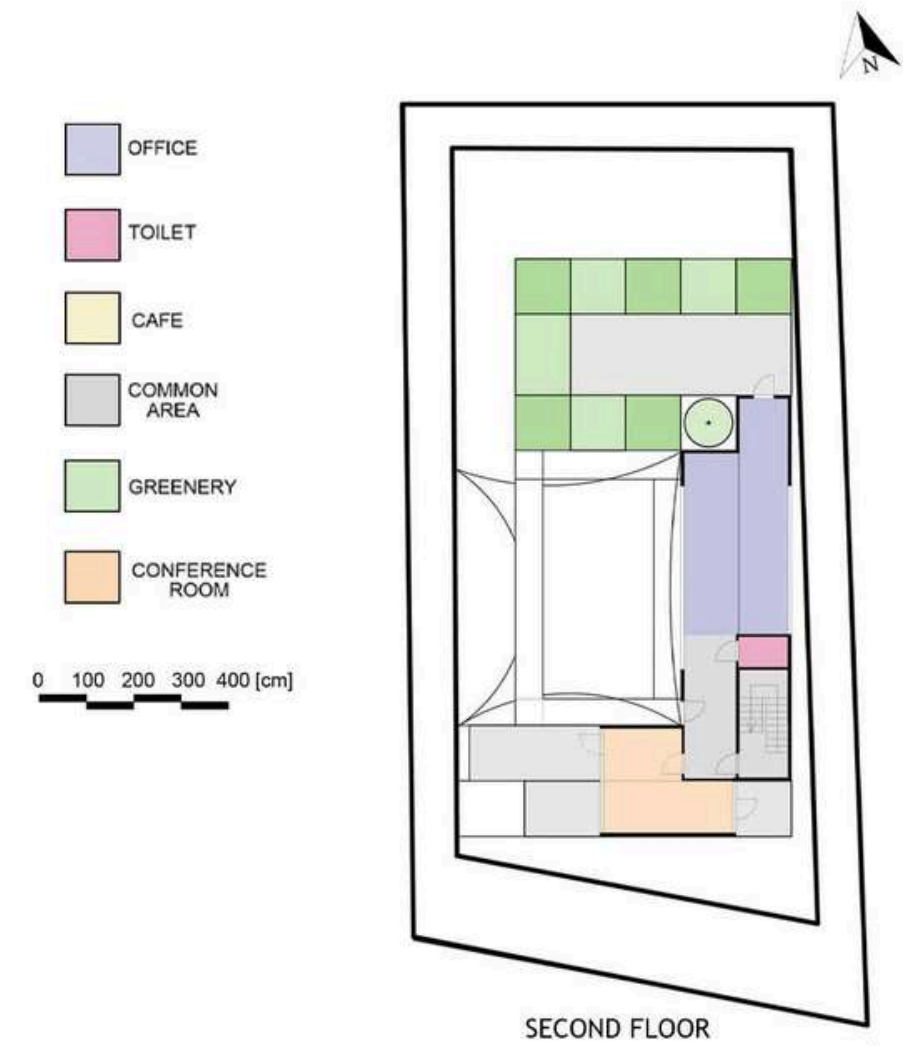
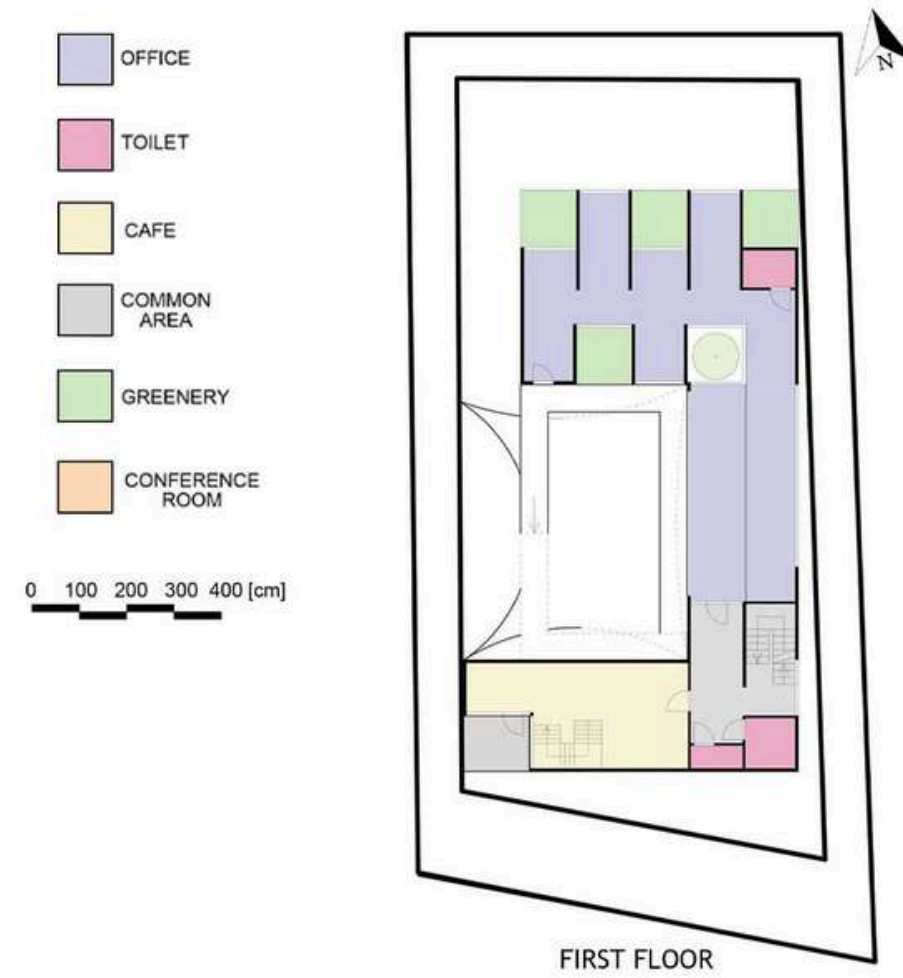
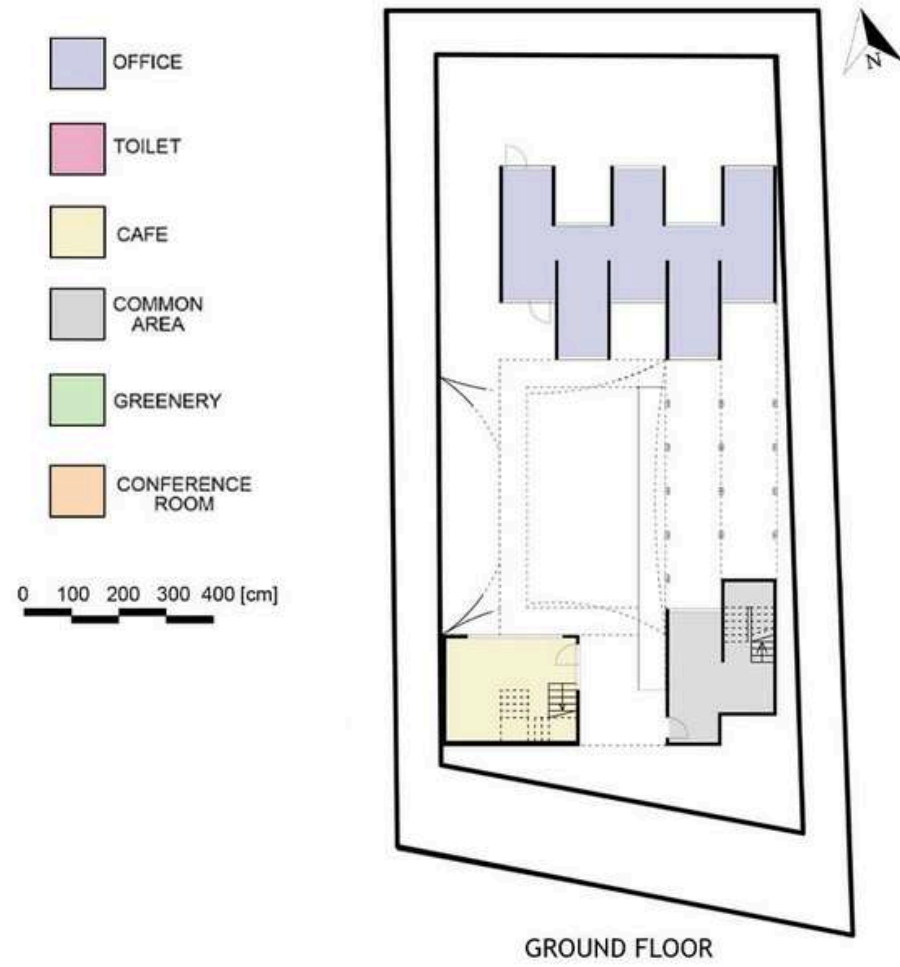
The workshop



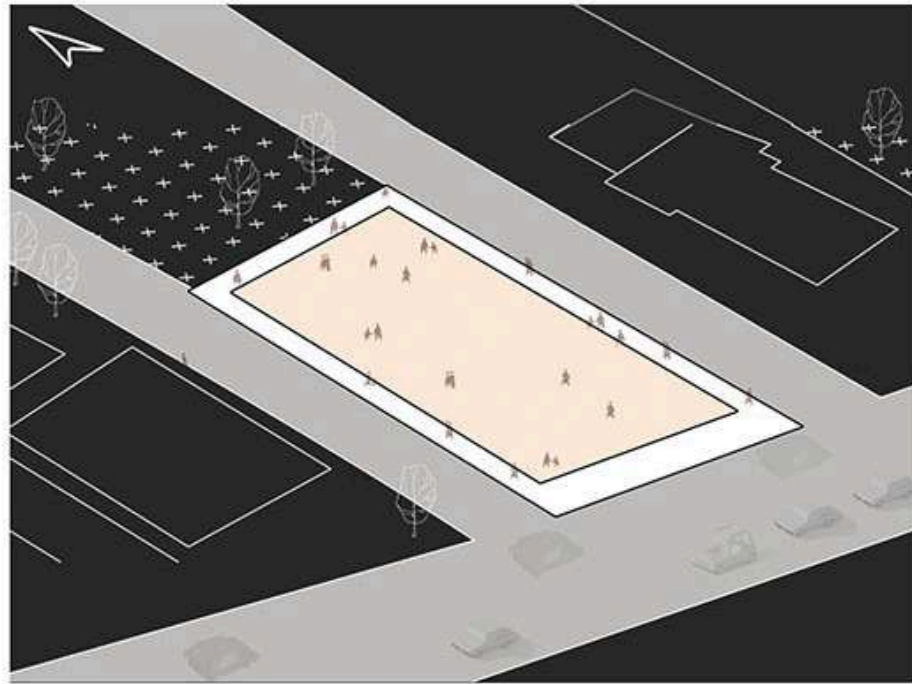
The offices



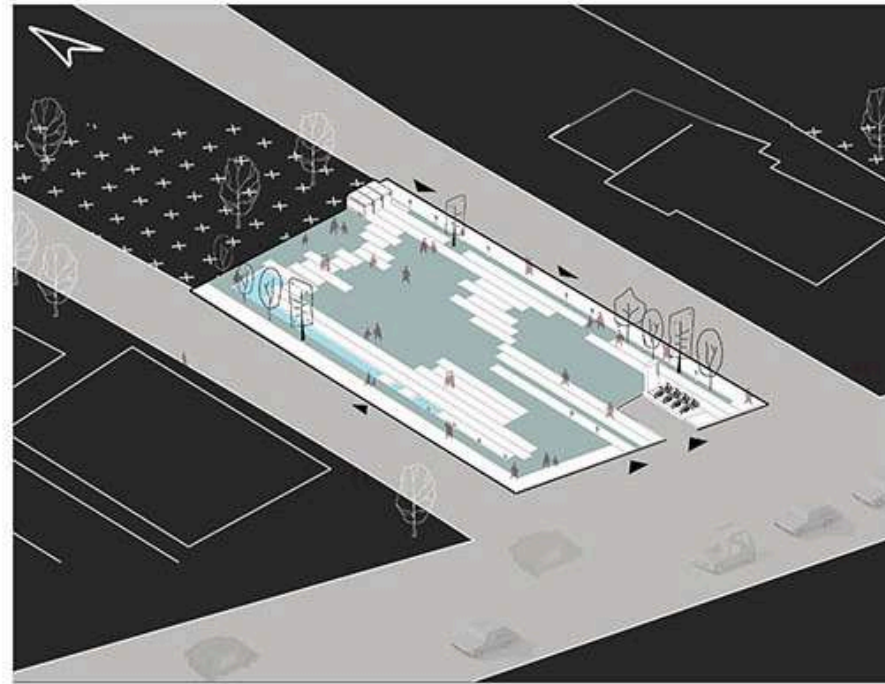
The back view of the workshops



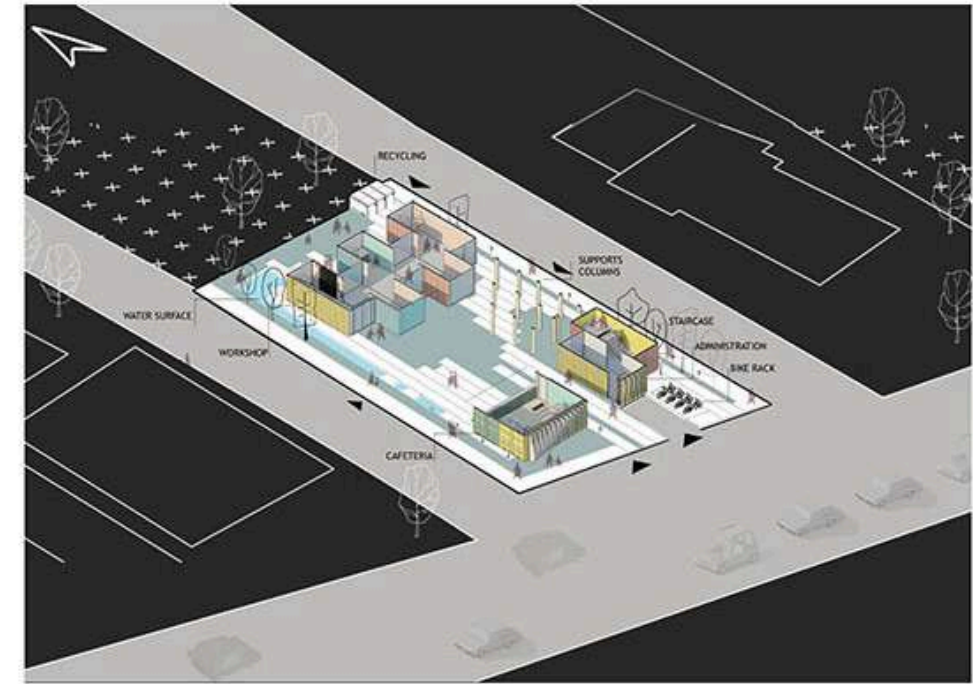




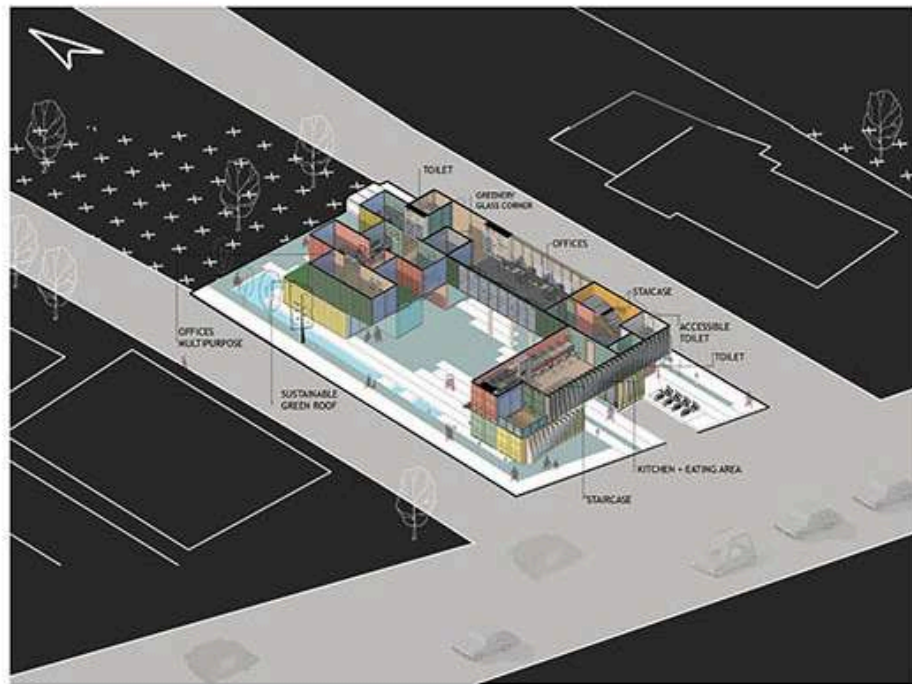
The existing site plan before the design



Site plan with the landscape design



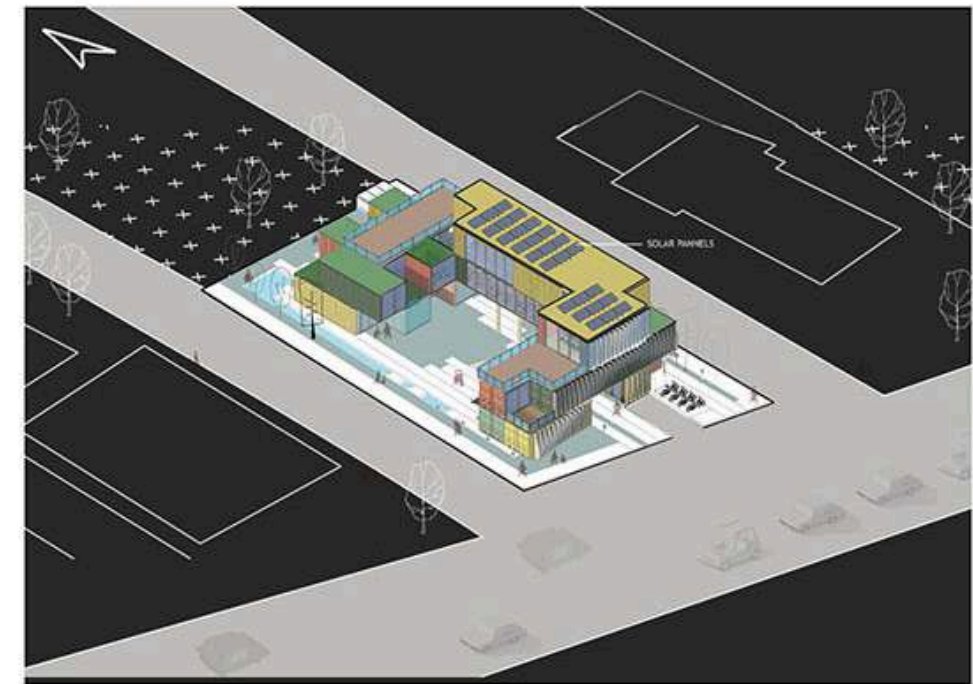
Axonometric section of the ground floor



Axonometric section of the 1st floor



Axonometric section of the 2nd floor



Axonometric view shows the solar panels on the roof



### Pavilion design generator:

Creating an Indian culturally-inspired courtyard pavilion begins by drawing primary lines and points in Rhino to outline the structure's framework. These values are imported into Grasshopper, where tractor points are defined to influence the geometry, creating dynamic and responsive interactions. Using Kangaroo Physics in Grasshopper, the form-finding process simulates physical forces and constraints, such as tension, compression, and gravity, to evolve the design naturally. This approach ensures a structurally sound and aesthetically pleasing pavilion, echoing traditional Indian architectural elements and fostering a culturally rich and inviting space.

### Ramp + railing design generator:

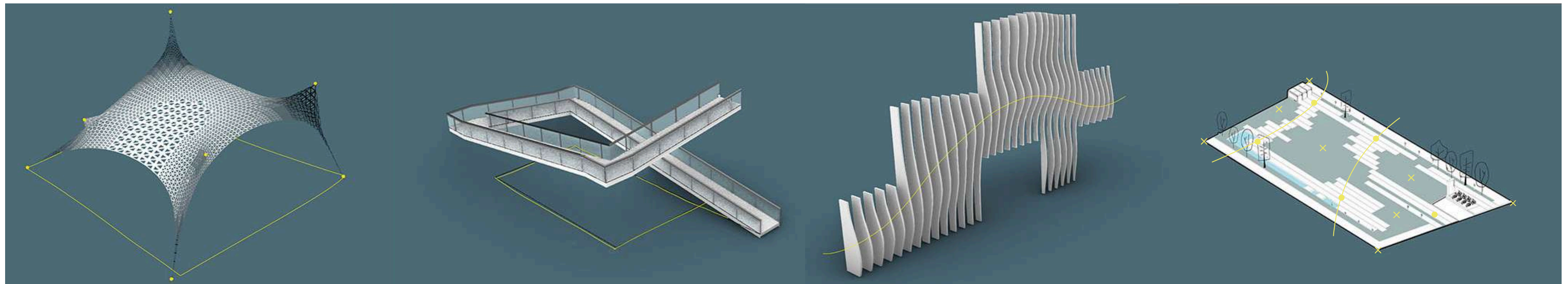
Creating a ramp that spirals from the entrance around the pavilion and through the inner courtyard begins with drawing points and lines in Rhino. By assigning correct height values from the starting point to the upper levels, these lines define the ramp's trajectory and elevations. Importing these values into Grasshopper, a script is used to generate the design, ensuring smooth transitions between levels and an accessible, fluid pathway. This computational approach allows for precise control over the ramp's slope and alignment, seamlessly integrating it with the pavilion's architecture.

### Facade design generator:

Creating a facade design using leftover shipping container parts involves first drawing points and lines in Rhino to outline the structure. These lines are imported into Grasshopper, where a curve attractor script is applied to generate ribs that act as noise reflectors and sun shaders. The attractor curves influence the rib spacing and orientation, optimizing the facade's performance in shading and sound reflection. This computational approach allows for a sustainable design, repurposing container materials into a functional and visually striking facade.

### Landscape design generator:

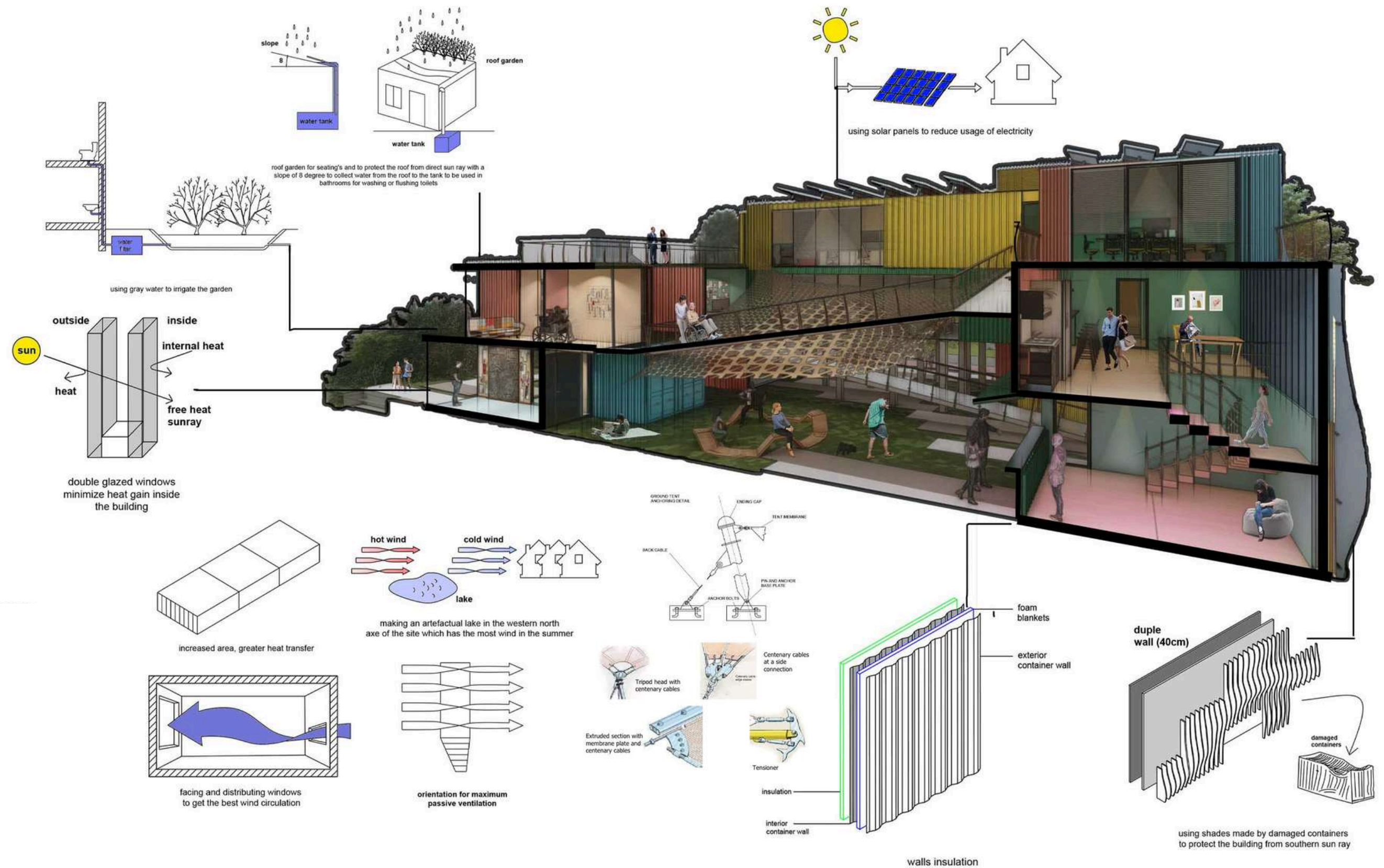
Creating a landscape design involves starting with points and lines in Rhino to define key areas and pathways. These values are then imported into Grasshopper, where a landscape design generator script is used. This script dynamically arranges elements like plants, pathways, and water features based on attractor points and curves, optimizing spatial relationships and aesthetic appeal. This computational approach ensures a harmonious and functional landscape, seamlessly integrating natural elements with the designed environment.





## Smart and Sustainable: Innovative Solutions with Shipping Containers:

- Addressing the challenges of material scarcity, we've innovatively repurposed shipping containers to create prefabricated spaces for our project.
- These modular units, easily assembled on-site, overcome construction limitations. To combat heat transfer, smart materials are incorporated into the building to regulate indoor temperatures, while the roof shelters offer versatile living spaces, creating inviting terraces and balconies. Steel plate louvers provide rain and sun protection while promoting natural airflow.
- Inside, containers are merged to form spacious layouts, with ample natural light from full-height windows and sliding doors.
- Original container elements, such as doors and cut-away sections, are repurposed as functional shutters, enhancing privacy and shading. The metal surface is left exposed and painted for cohesion. This sustainable solution champions affordability and ease of construction, creating an eco-friendly gathering space for youth community innovation.
- Furthermore, the building is a fully smart and sustainable design, incorporating various features to minimize its environmental footprint.
- These include the use of recycled materials, installation of solar panels for renewable energy generation, harvesting and reuse of rainwater from the roof, and implementation of passive design strategies to optimize natural ventilation and lighting. Additionally, damaged containers are repurposed to reshape the facade, adding an aesthetic and sustainable element to the building's design.







### Converting damaged shipping containers into a facade design:

The facade design repurposes damaged shipping container parts, utilizing laser cutting to create parametric shaders and noise reflectors. Points and lines are drawn in Rhino to outline the facade, and Grasshopper scripts generate a pattern of ribs influenced by attractor curves. This approach combines sustainability with functionality, enhancing the facade's aesthetic while providing effective shading and noise reduction.



+



=







The music school proposes a bridge to link the isolated plot with the street, improving connectivity, while its bioarchitecture form and facade blend harmoniously with the surroundings.

## Informations about the project:

Do.Re.Me - Music School

Warsaw city plan competition - University student project.

Year: 2021

Location: Poland - Warsaw.

Area: situation map 8000m<sup>2</sup>.

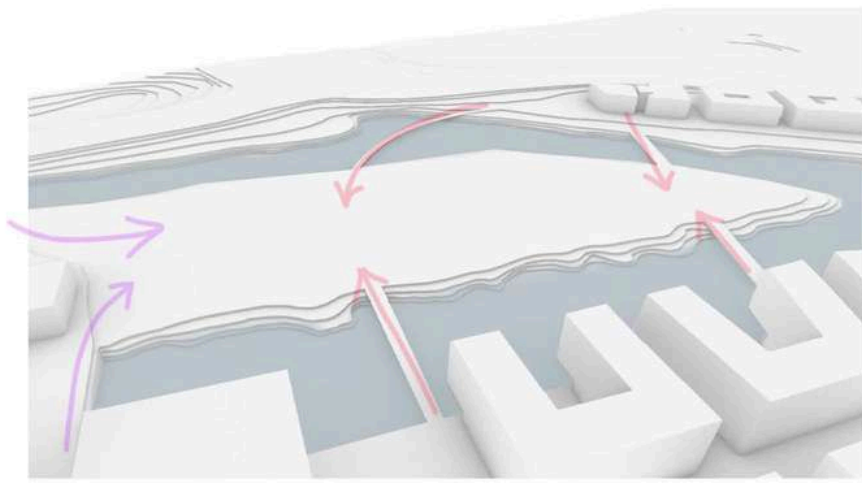
Tools: Rhino, Grasshopper with Ladybug and Honeybee, UICI.

Rendered in Vray.

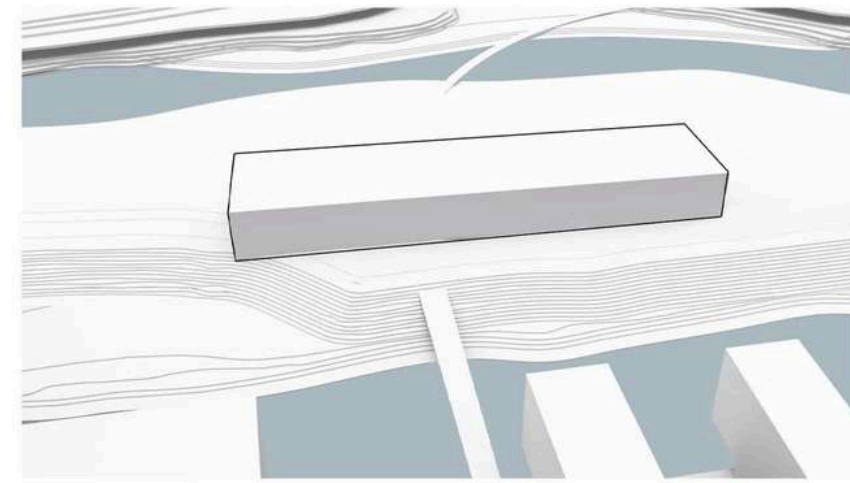
Post-production Adobe Photoshop.

“**This Bioarchitecture** proposal for the music school located on Port Praski Street in Warsaw, Poland, is inspired by the country's rich musical heritage and its renowned musicians, including Frédéric Chopin, Krzysztof Penderecki, and Henryk Wieniawski. This project draws heavily on natural elements, as the selected plot was chosen to emphasize an organic yet minimalist design that harmonizes with its surroundings. The building's form reflects the wavy water surfaces that surround the area, a feature integrated into both the facade and the parametric design, adhering to principles of bioarchitecture”

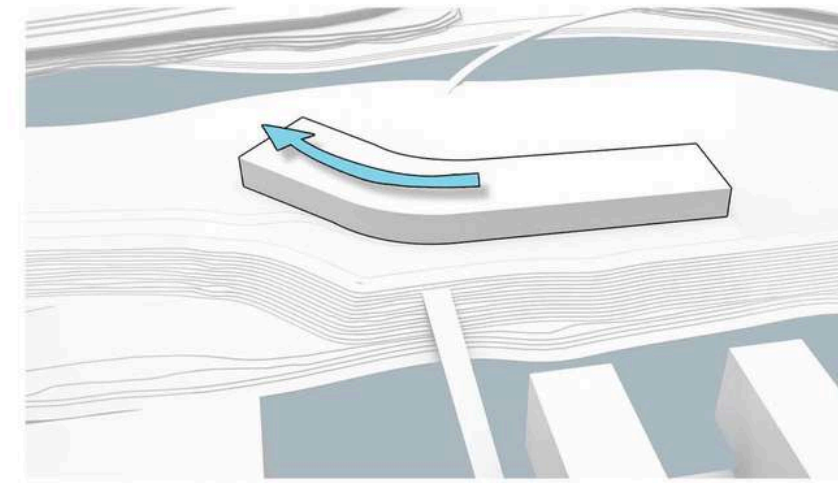




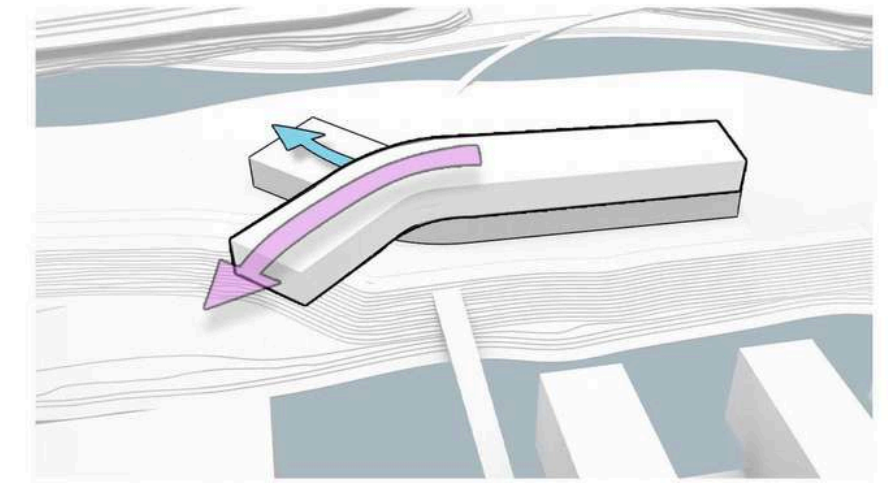
**the chosen site**  
 surrounded by the water and greenery,  
 it has a perfect view all around the area and  
 it can be an inspirational place for an artist,  
 this plot also has 2 main axis pints and 4 bridges



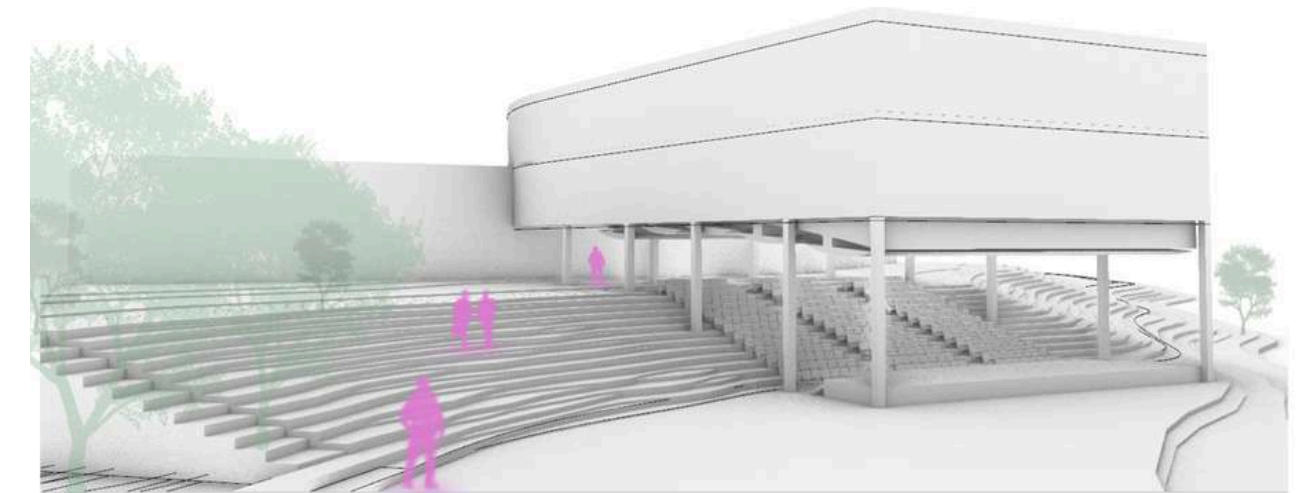
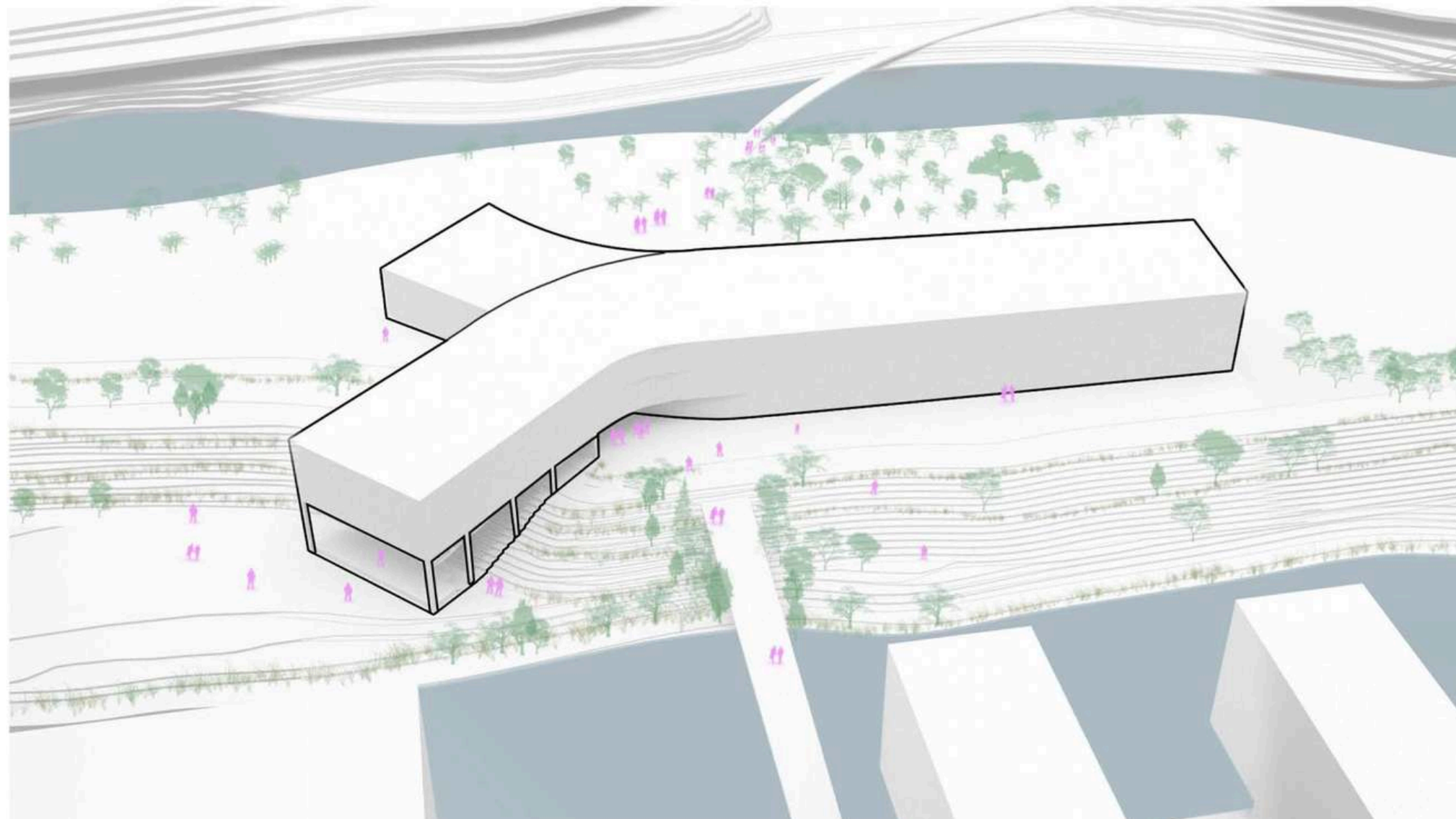
**basic shape volume**  
 this is the basic massing before  
 designing it according the site analysis



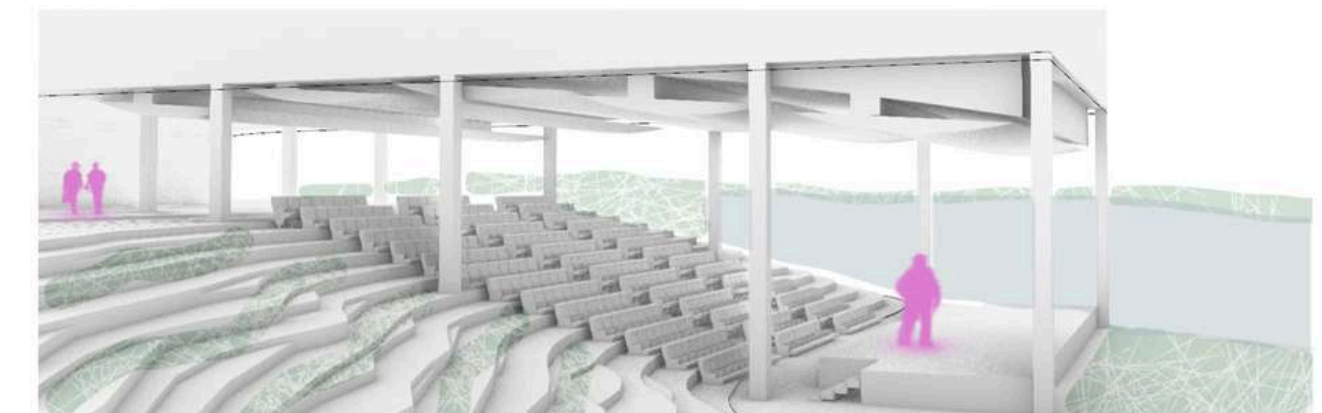
**uses**  
 by breaking or slicing the the straight mass  
 to give it the curve shape according to the rotation  
 of the axis pint from the bridges and main axis pints



**2nd use**  
 and also to orient the building to face  
 the sun and get more sun to the building,  
 as you can see now all the classes will  
 be facing the sun for the whole day



my proposal to have the theater stage open to out door with the connection to the greenery  
 and the water to create the gate between the nature and the artist to open the locked doors  
 for the inspirational things and maybe by adding a folded glass walls



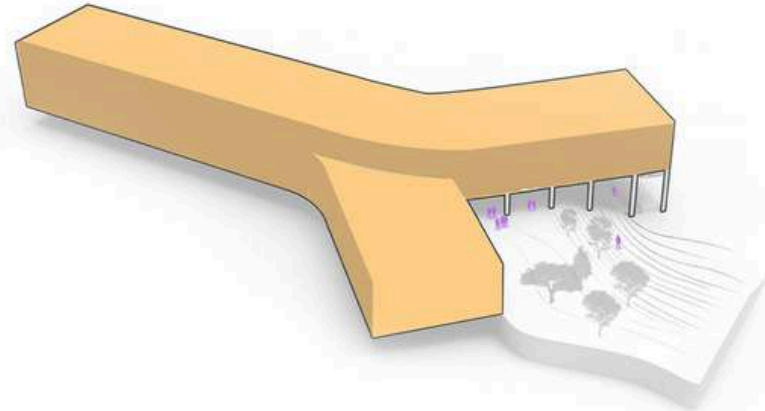
s you can see i played with the terrain to create this seats from the terrain levels



**Element**

**Facade**

To design a motion controlled building envelope.

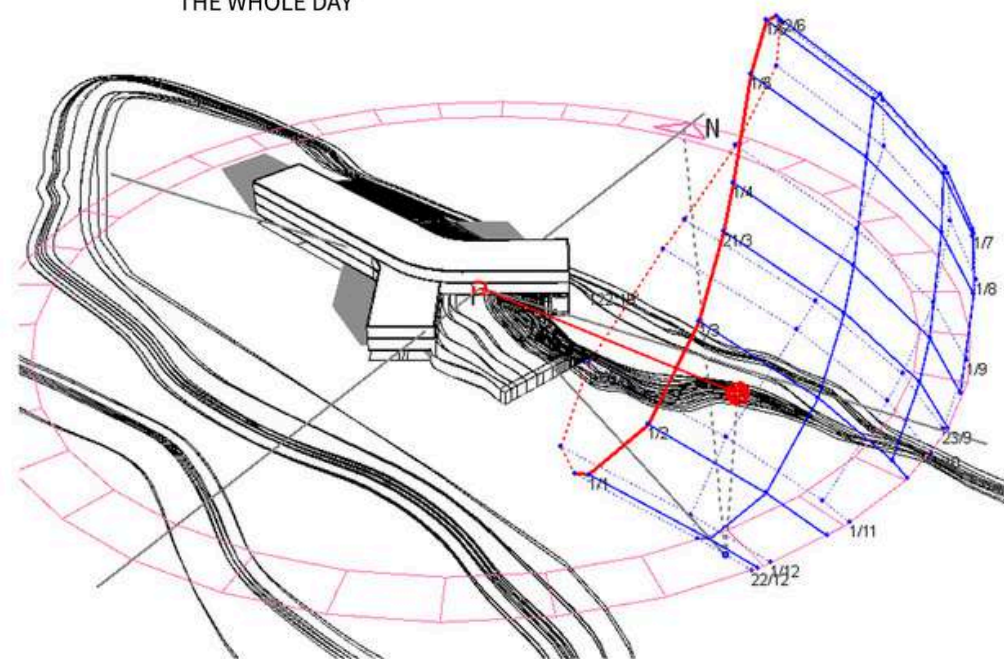


**Building Typology**

**Corporate**

Comfortable working environment which includes light, temperature and ventilation. It can also include breakout spaces for relaxation.

THE ORIENTATION OF THE BUILDING AND SOME STUDIES OF THE SUN FOR THE WHOLE DAY



Time between 6am to 9am

**Location**  
Port-praski  
Poland warsaw



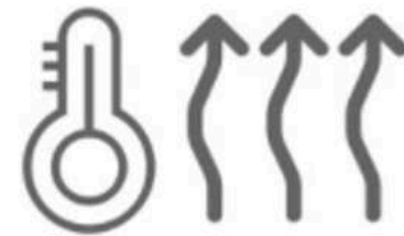
in winter the weather so cold and rain with wind



The place located in a noise place surrounded by trams and main road

**Issues of the location**

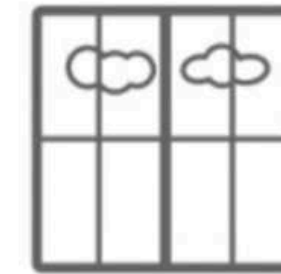
- Climatic



Excessive heat due to hot and dry climate

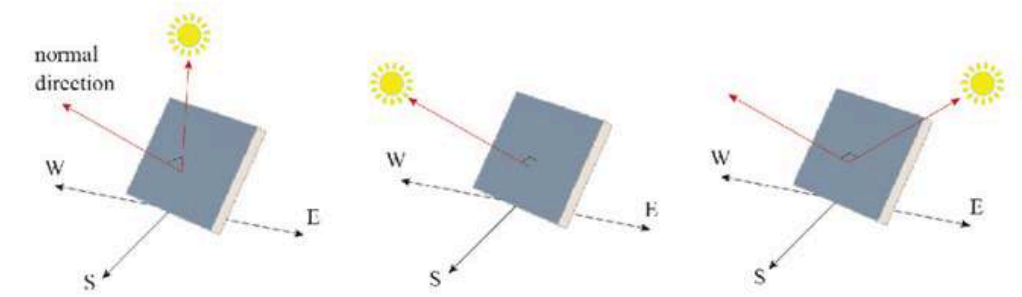


Usage of artificial lighting due to inefficient management of incident daylight

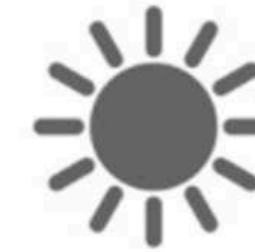


view from the building

- Functional



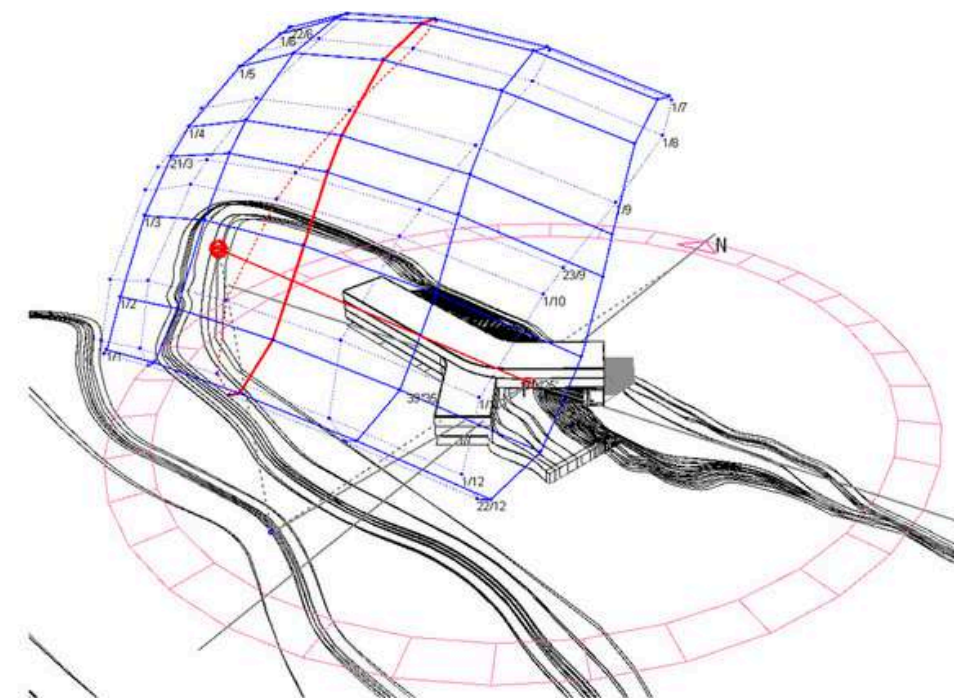
**Advantages of the location**



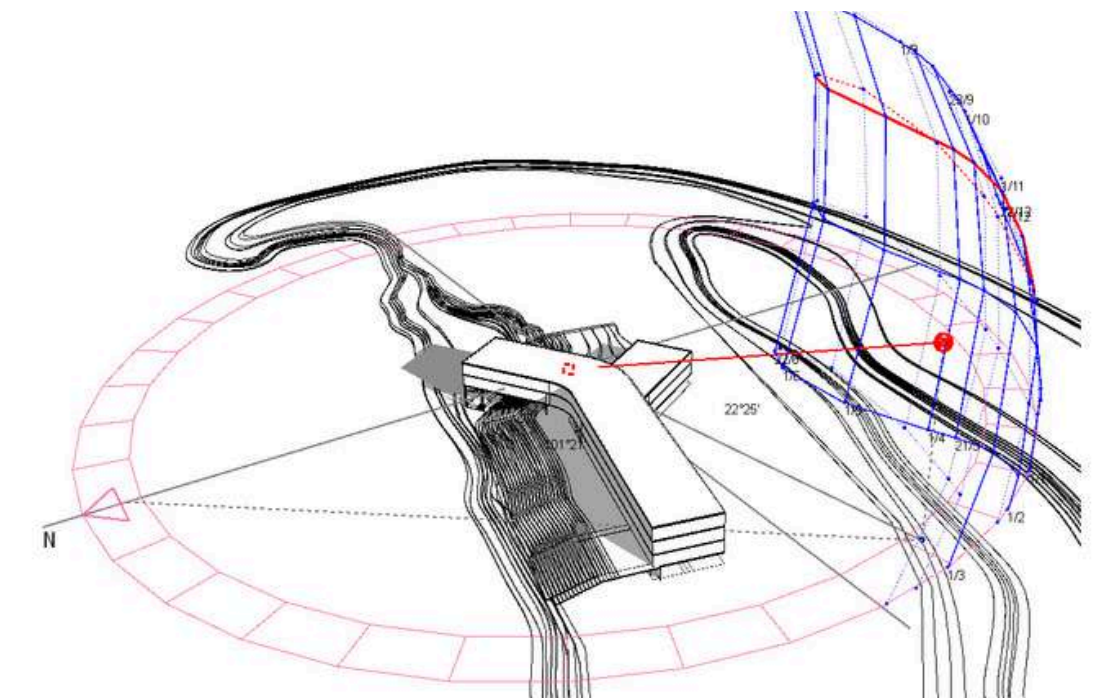
Receives large amount of daylight across the day and year.



Upcoming corporate hub

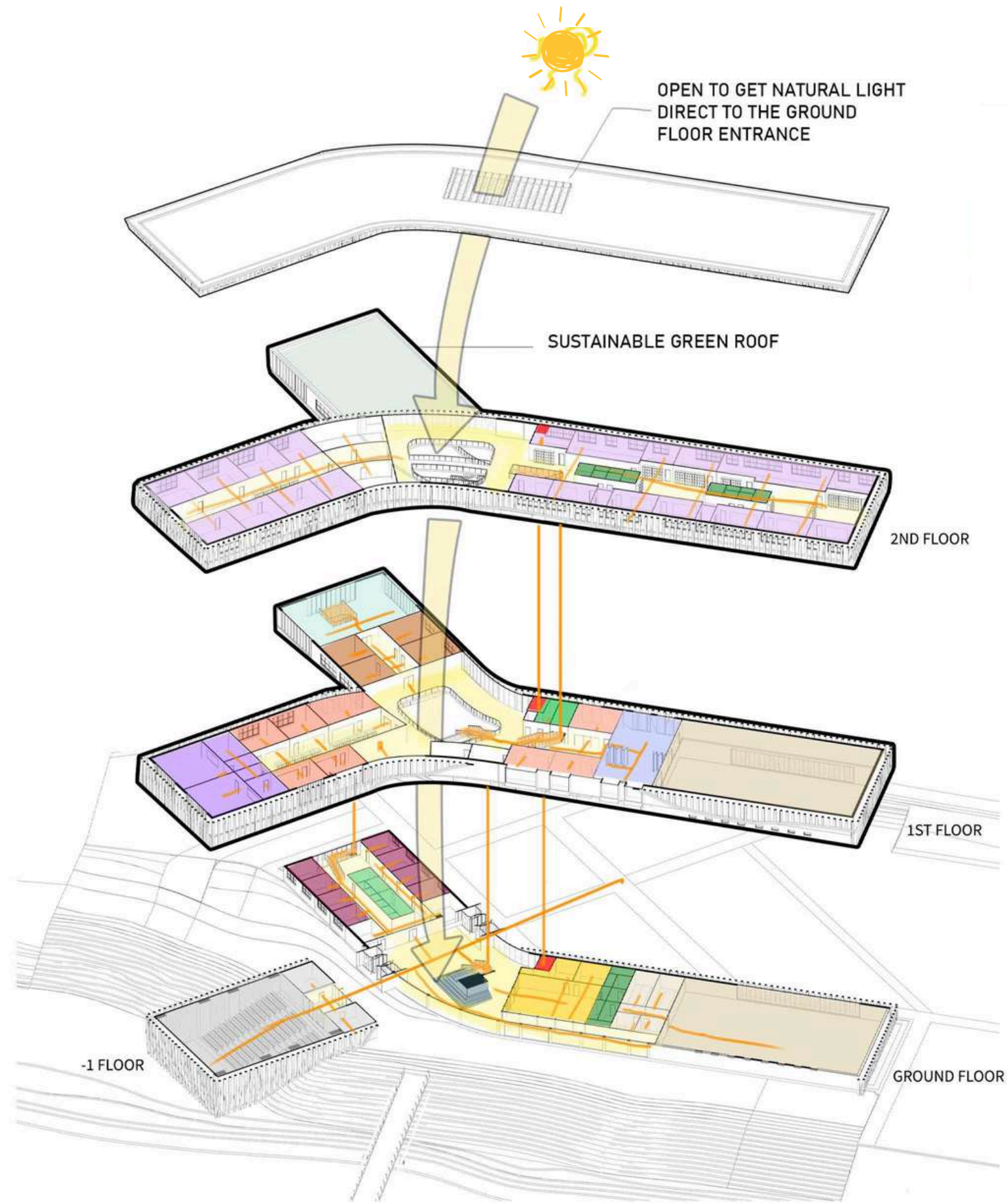


Time between 9am to 14:00



Time between 14am to 17:00

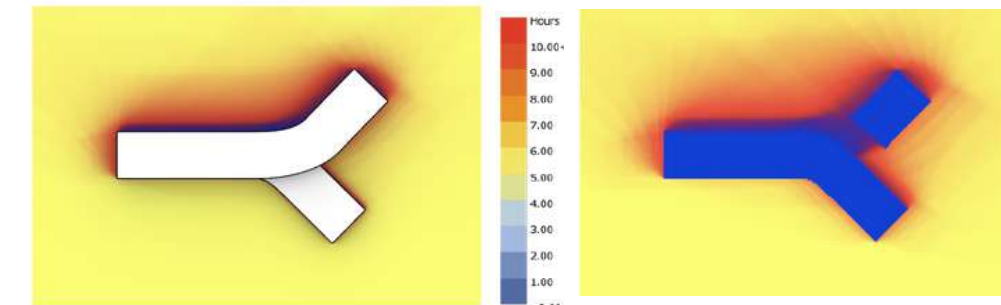
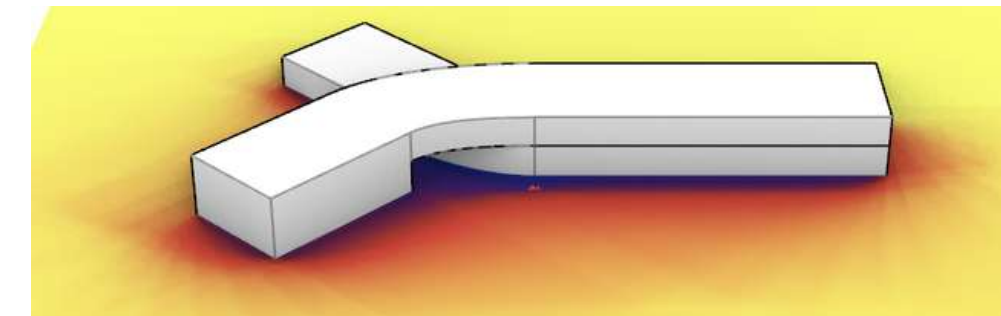




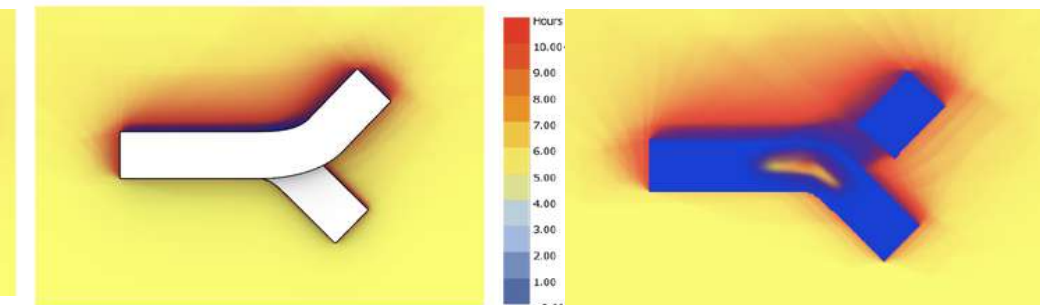
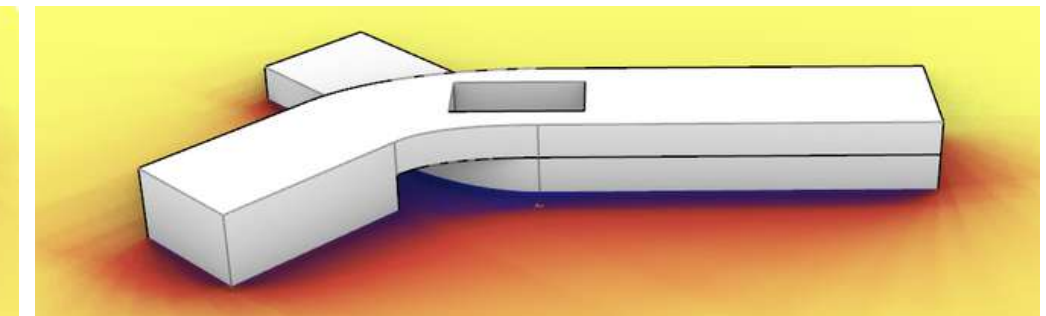
## Shadow and sunlight analysis

I conducted a shadow and sunlight analysis of the building, both with and without roof openings, to observe how sunlight interacts with the space and assess its potential benefits. Using Grasshopper and its plugins (Ladybug and Honeybee), I was able to analyze environmental factors and other aspects of the building project. This made drawing conclusions significantly easier and enabled more frequent and accurate adjustments to the building's openings.

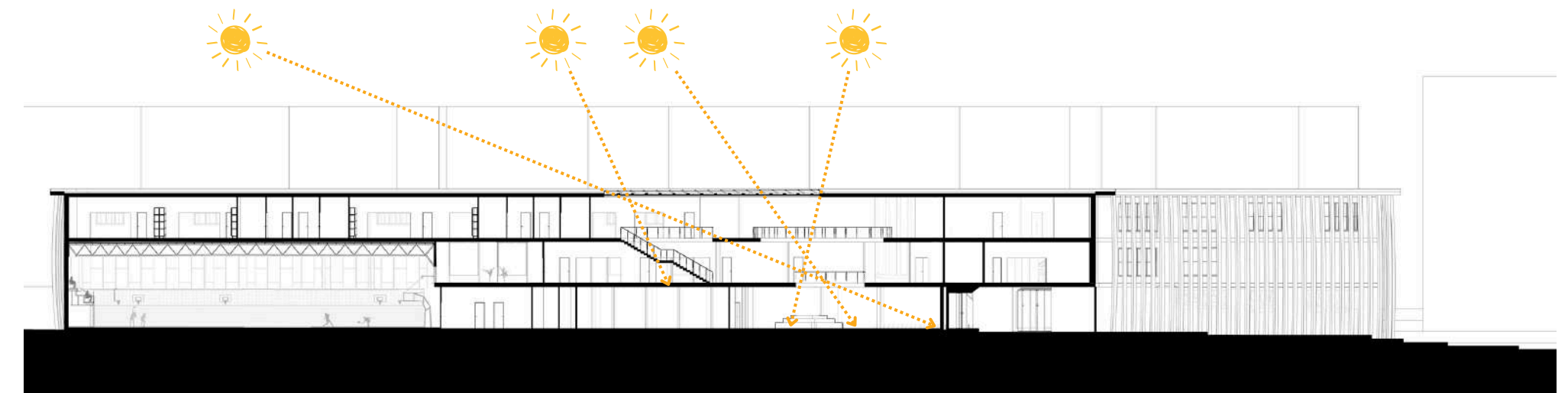
Without the roof openings



With the roof openings



Section A-A demonstrates where the sunlight penetrates and reaches:



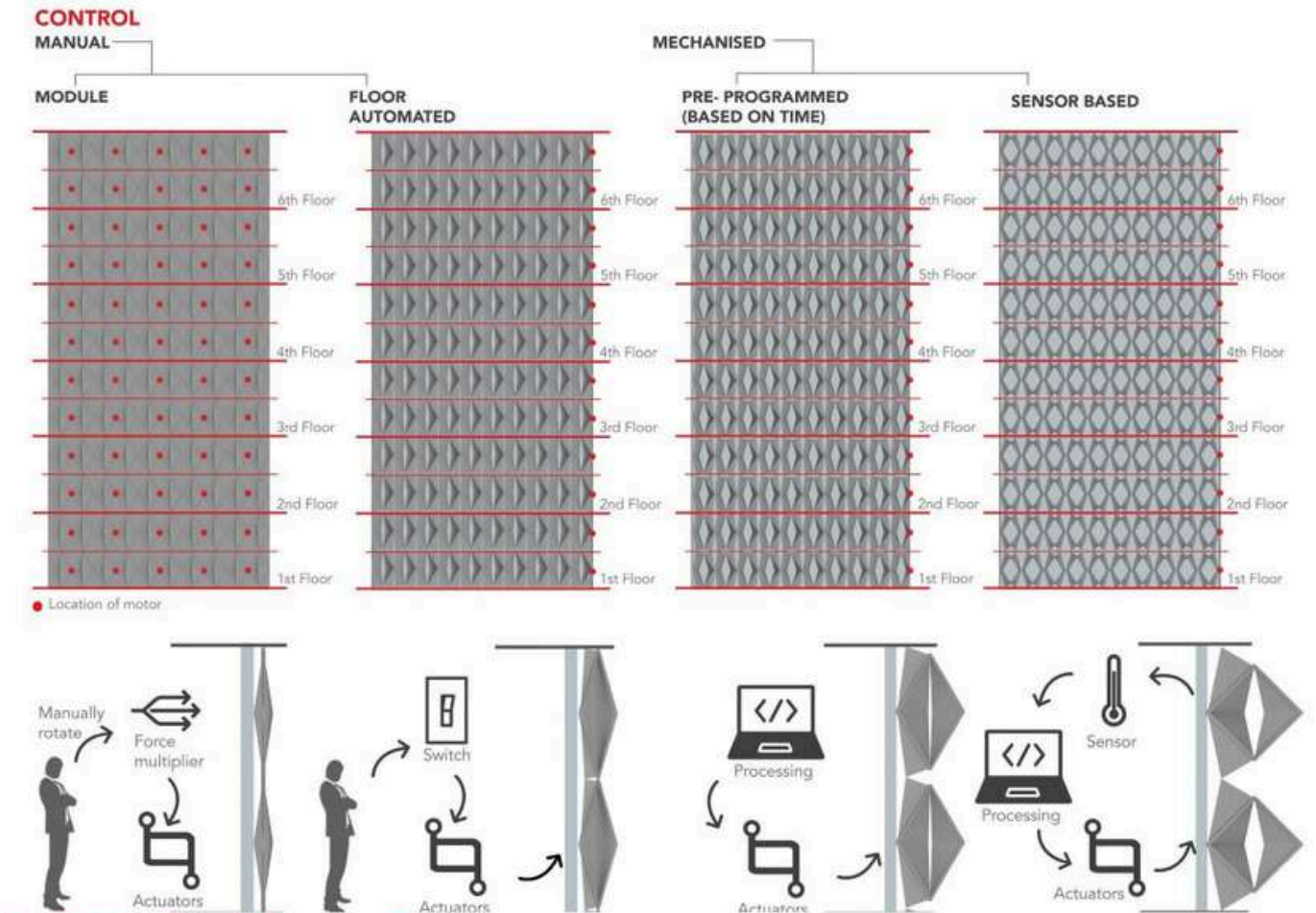
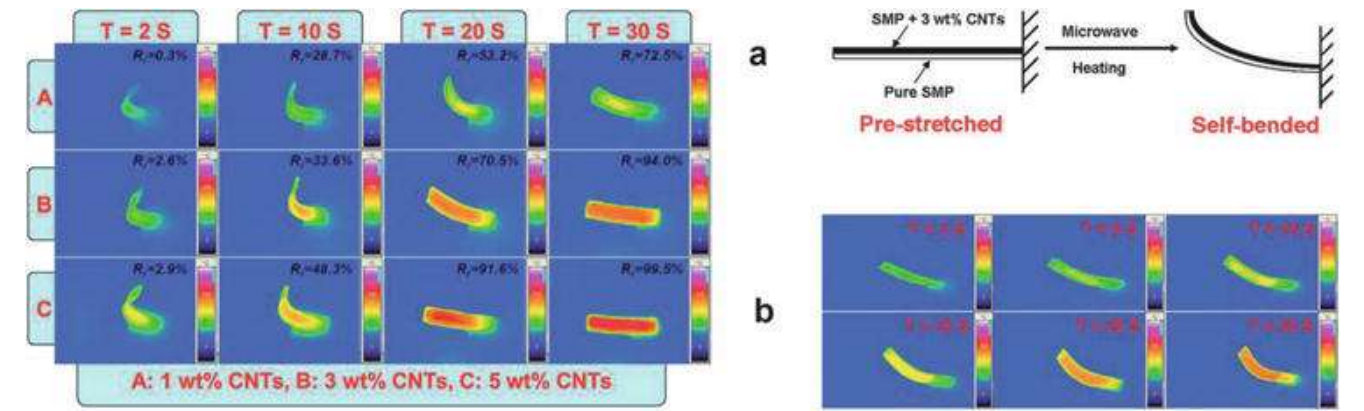
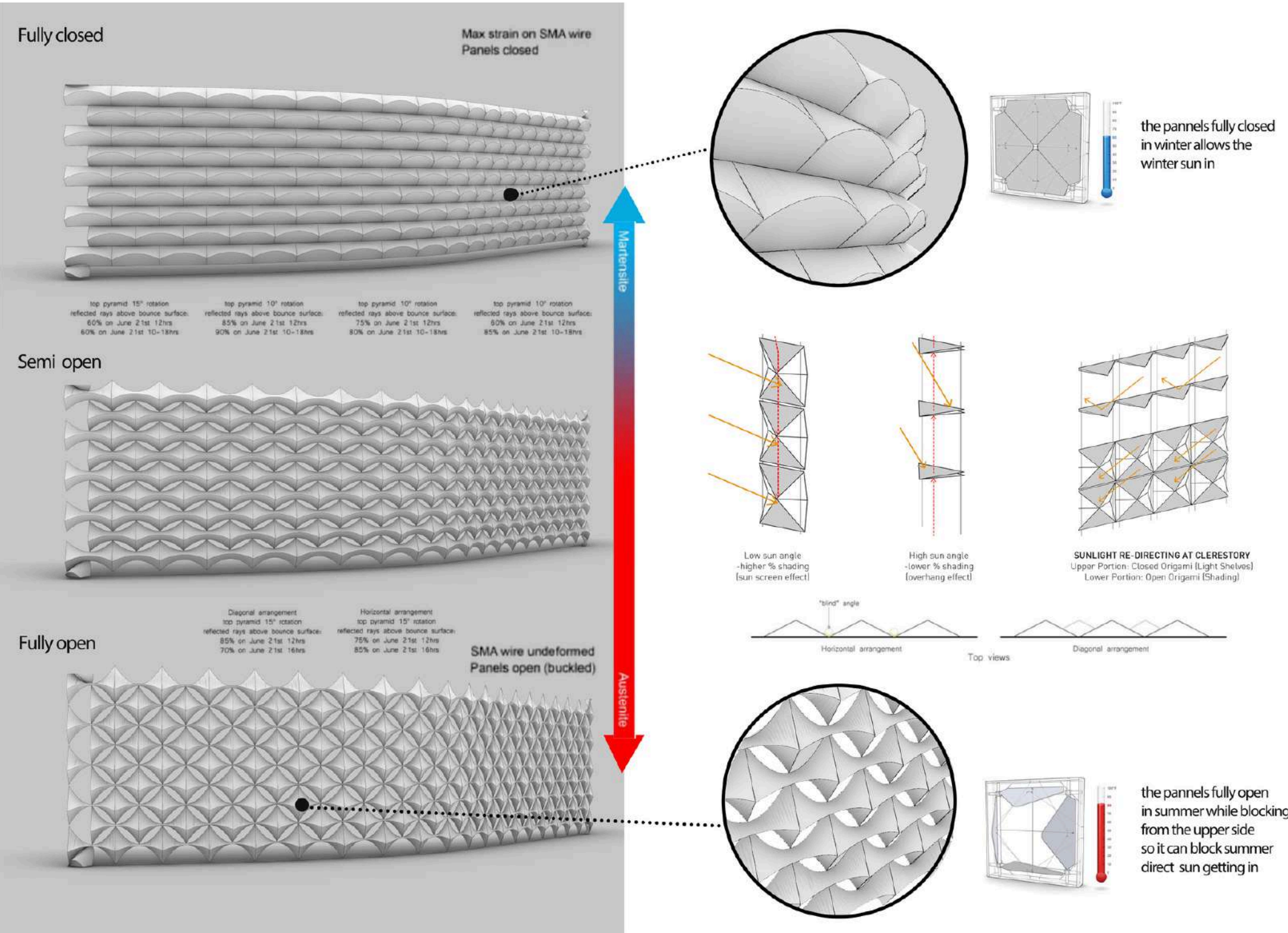
- Music theater stage   ● Cafeteria   ● WC/ TOILETS   ● Shower/changing room   ● Sport facilities
- Staircase   ● Sitting area   ● Common area   ● Elevator   ● Offices and registration   ● Music recording studio
- Computer lab   ● Music classes   ● Educational classes   ● Library and quiet zone   ● Dancing room



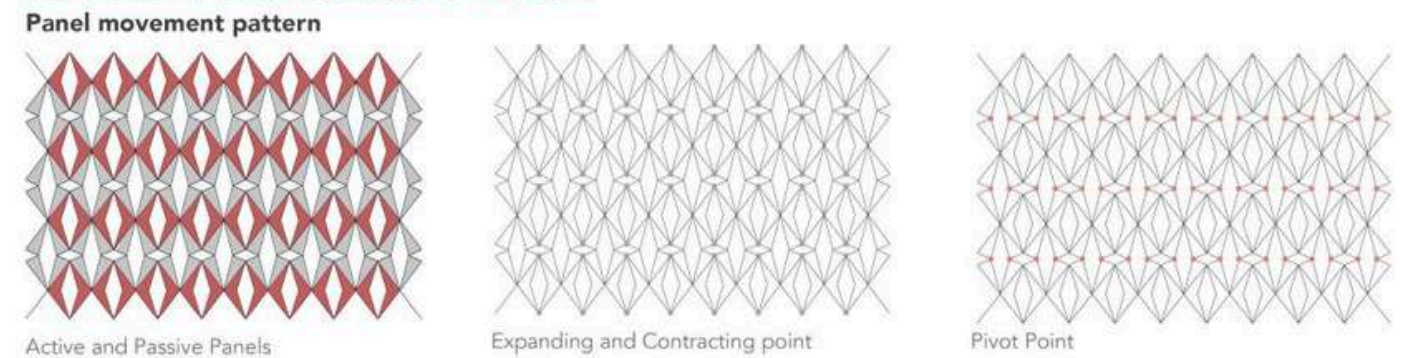
# Designing the facade proposal #1

Given that a significant portion of the building is covered with large windows, sunlight can become problematic during certain times of the year, particularly in summer. To address this, I've explored various facade solutions to create a smart, responsive system that can adapt to changing conditions.

One option involves using a smart facade equipped with retractable elements made from advanced materials. These elements can open and close automatically, controlled by intelligent systems with memory functions that adjust based on the time of day and season. This adaptive facade ensures optimal light and temperature control, enhancing comfort and energy efficiency.



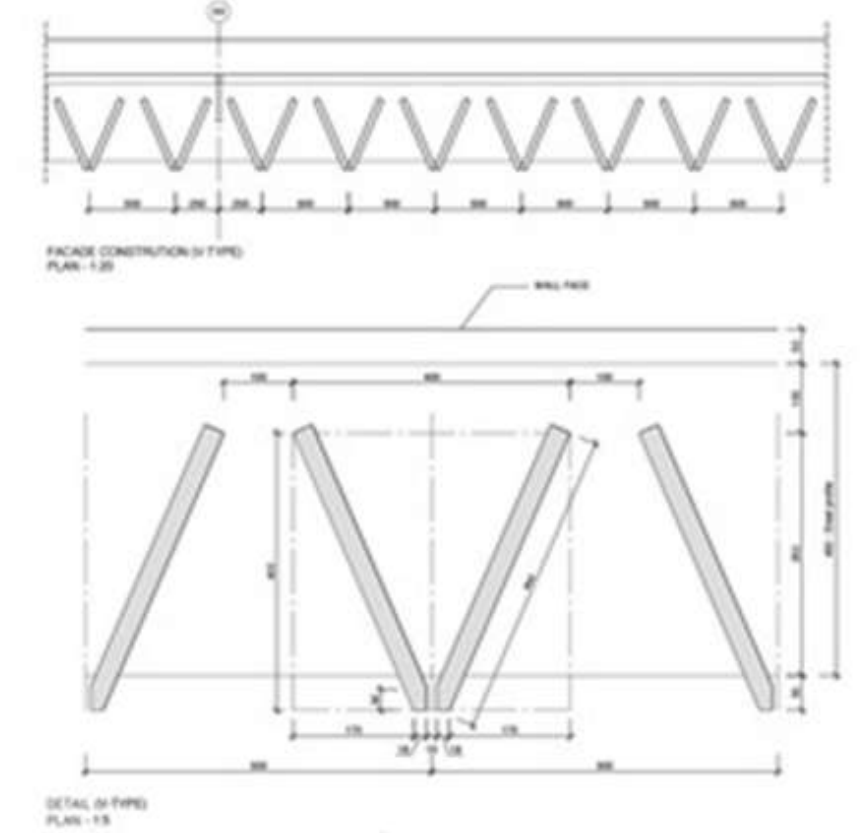
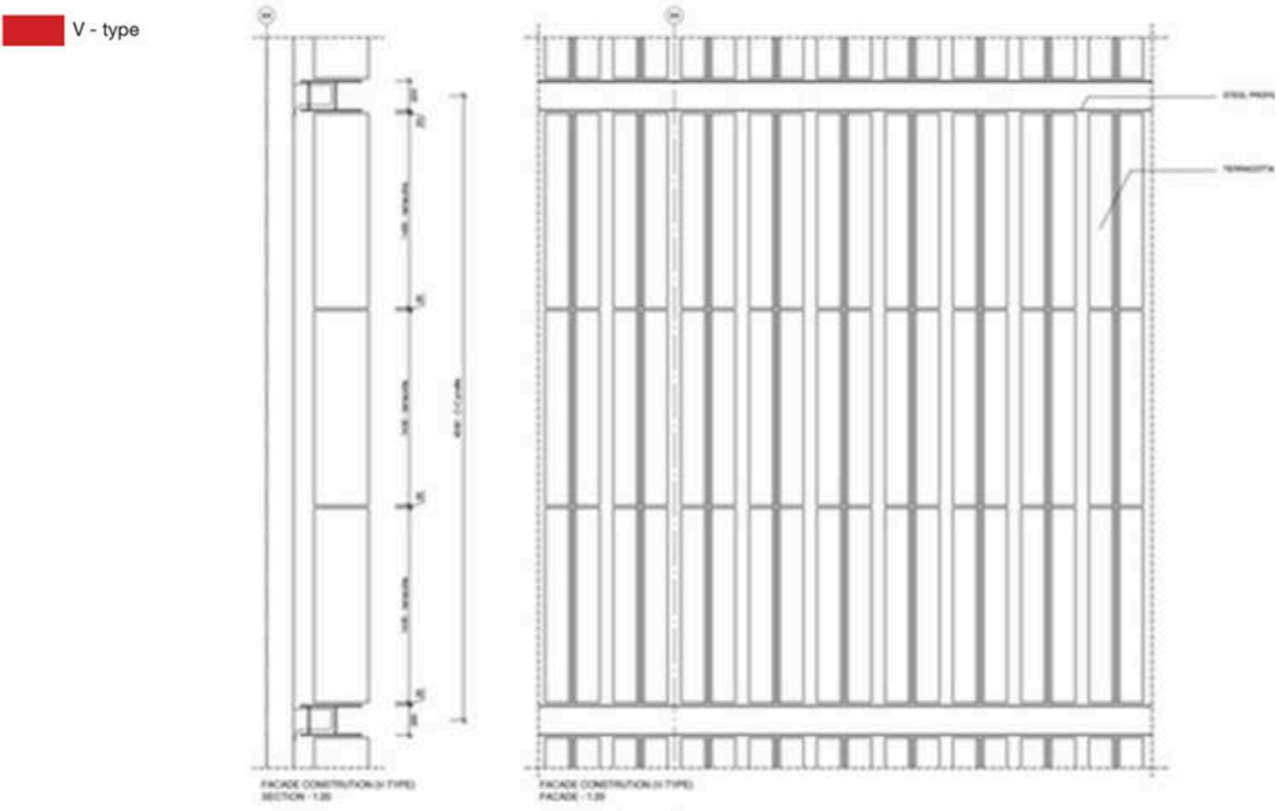
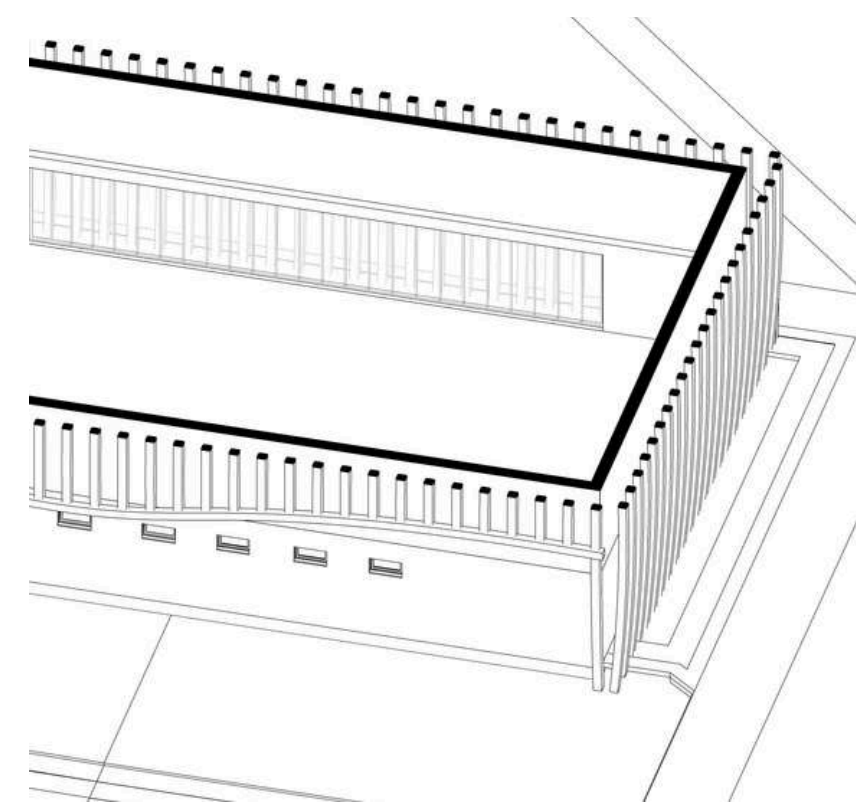
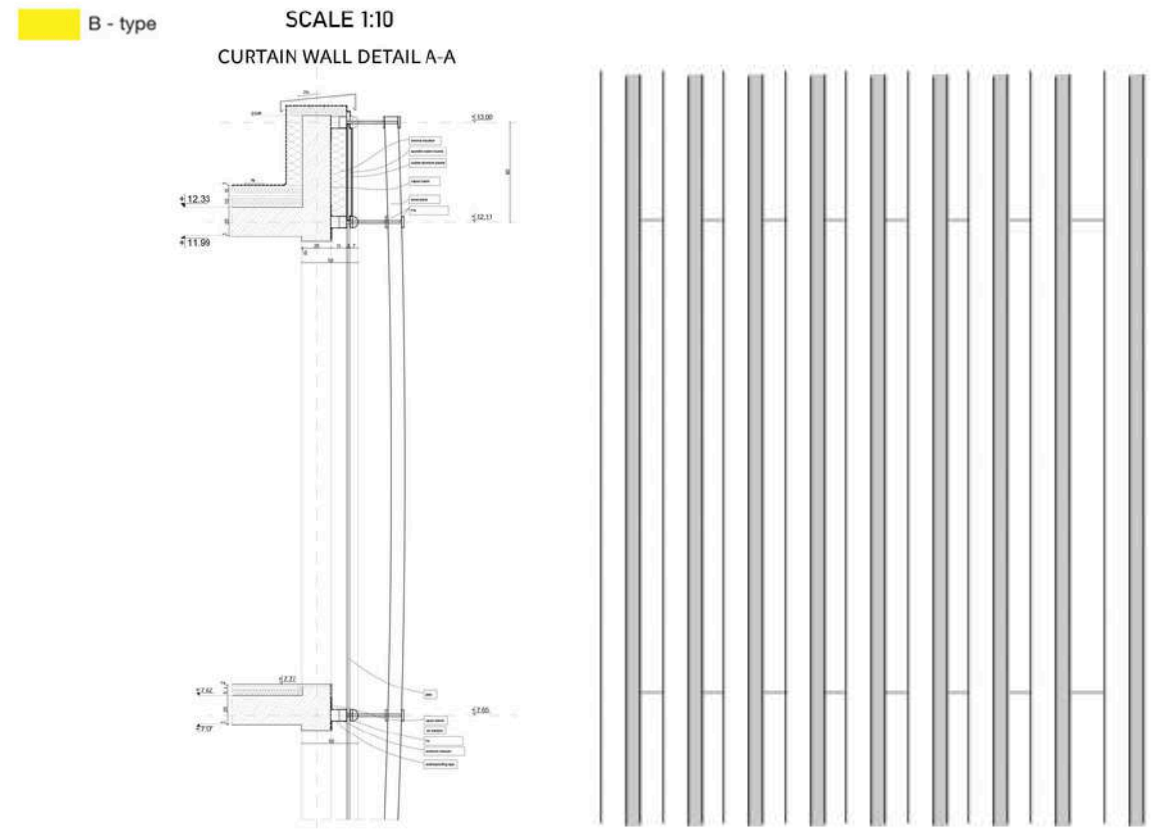
## Module Attachment Pattern





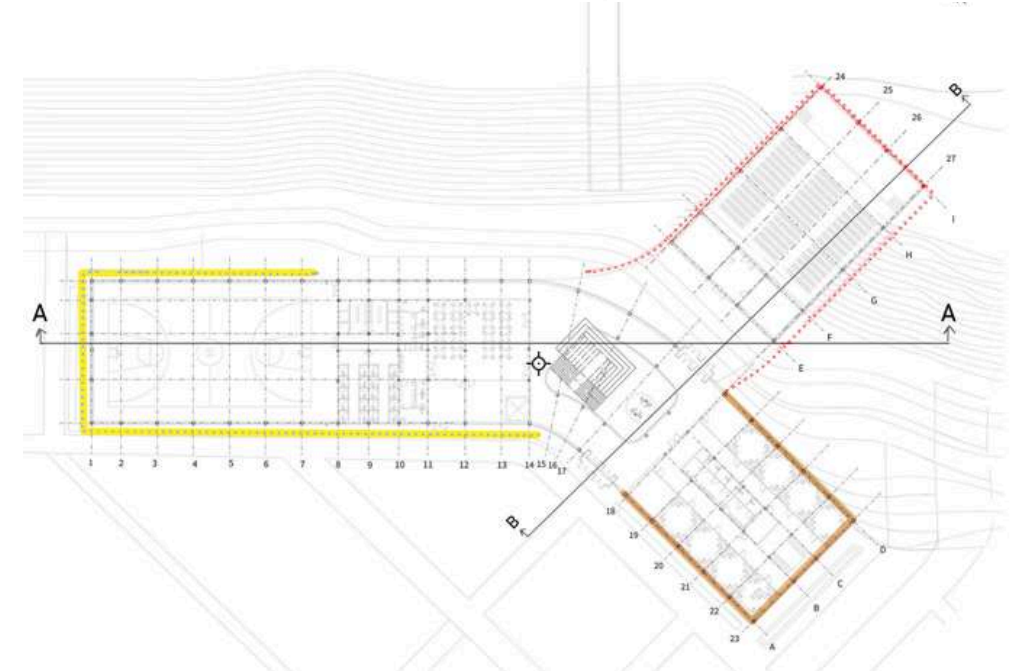
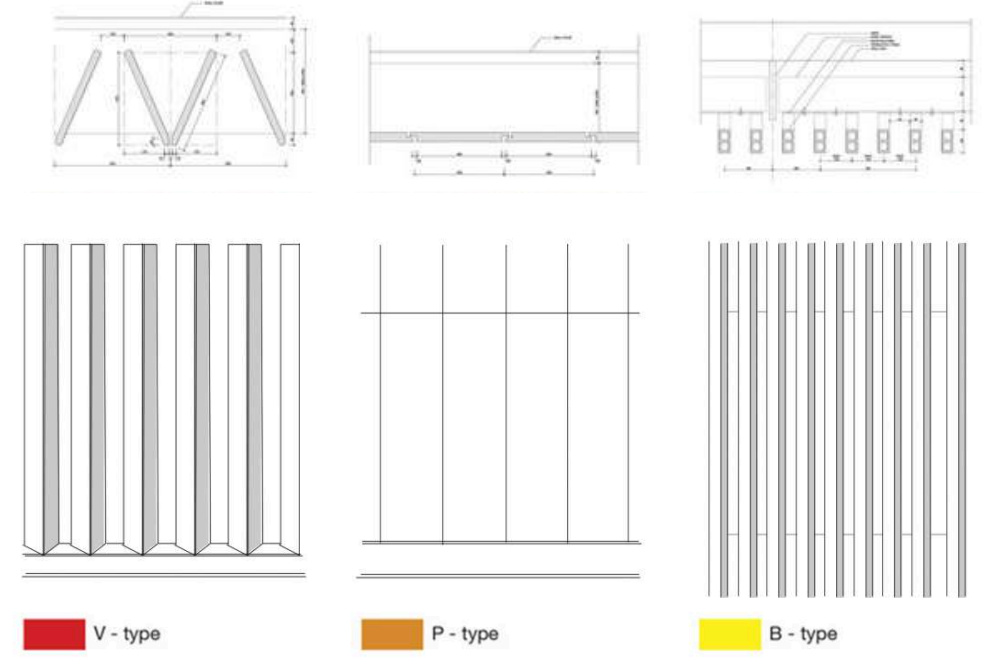
# Designing the facade proposal #2 with 3 types of Terracotta cladding:

There are three types of terracotta panels that will clad the different parts of the building (see colored plan below). **1- V-type:** On all the curved facades in the two lower volumes. **2- P-type:** On the north facade in the area of the main entrance. **3- B-type:** On the top volume of the building.

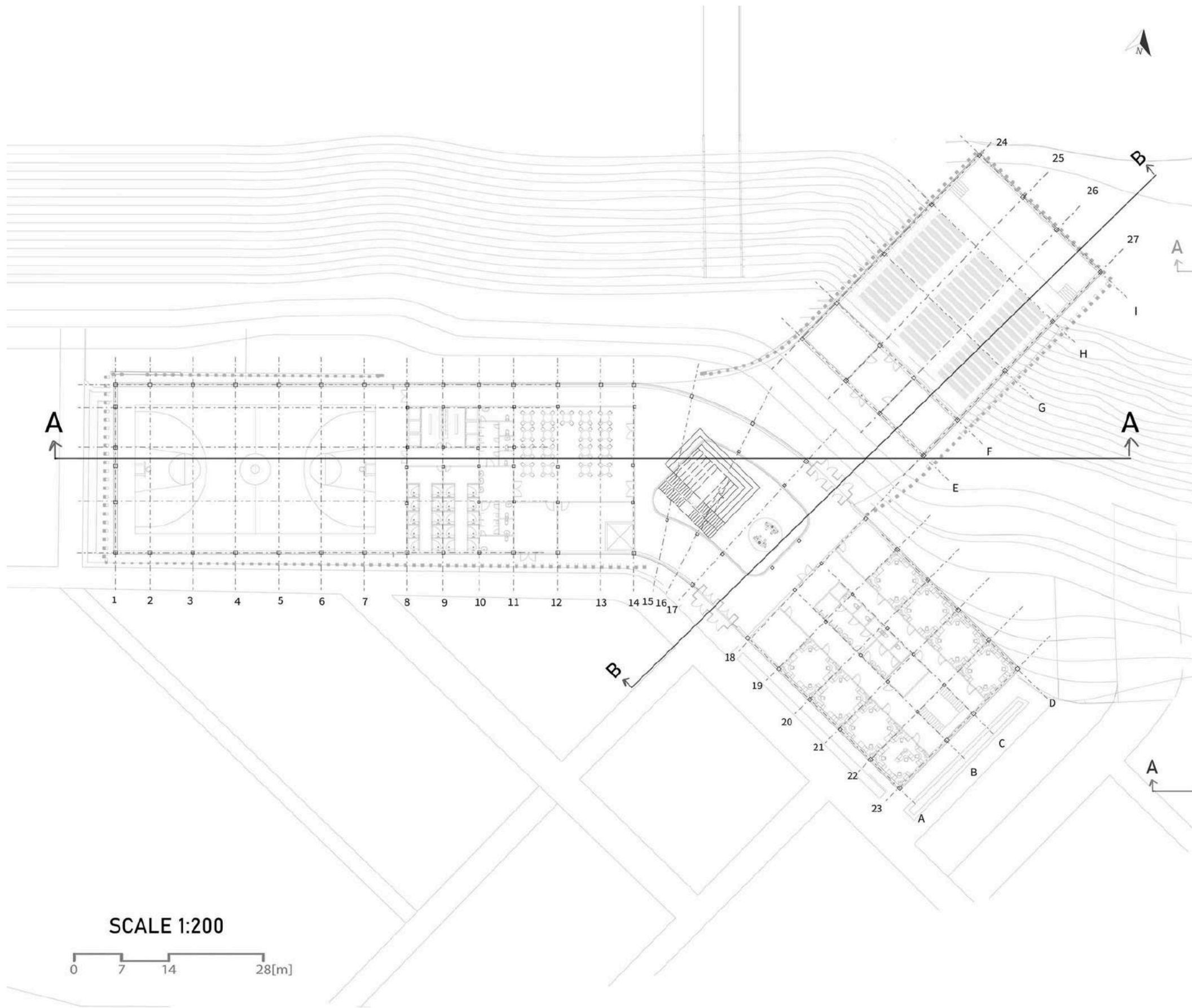


## 3 types of Terracotta cladding

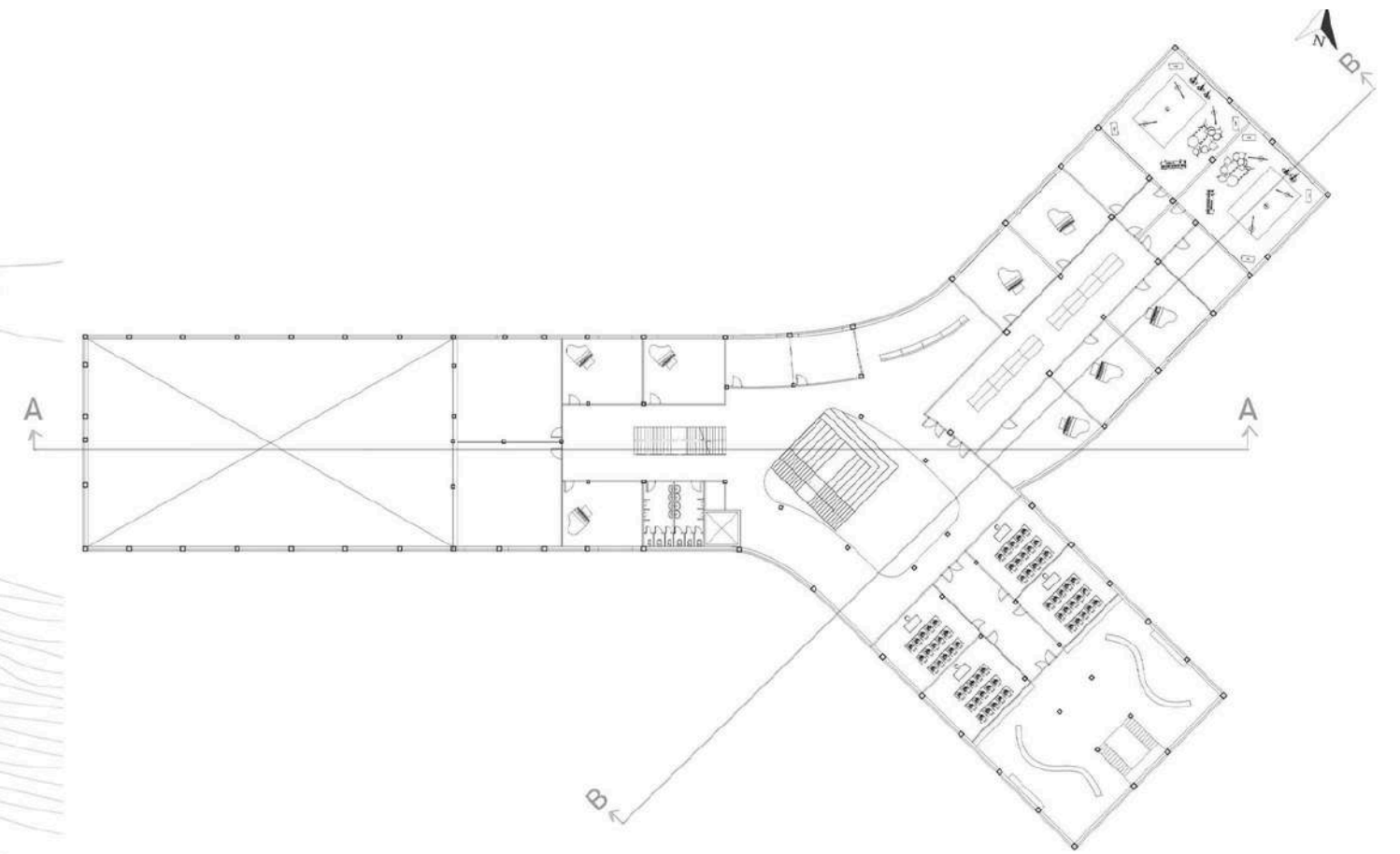
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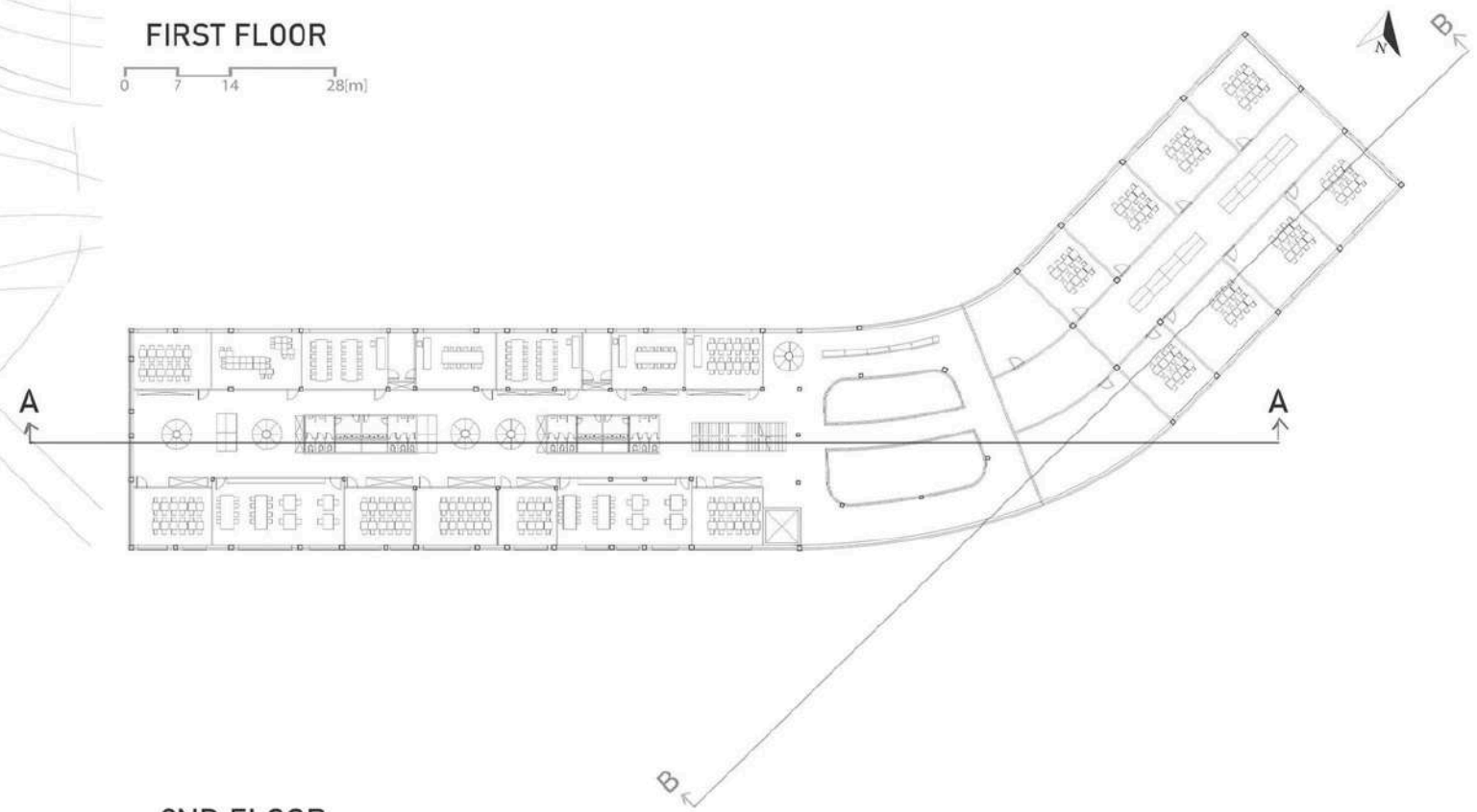




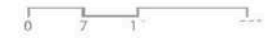
SCALE 1:200



FIRST FLOOR



2ND FLOOR





**Musicians' Practice Room**



**Musicians' Practice Room** This room in the music academy is a dedicated space where musicians gather to practice their instruments. It is fully soundproof, ensuring complete isolation from external noise and disturbances. The room boasts exceptional acoustic design, creating an ideal environment for clear, crisp sound production and optimal audio fidelity. The interior is thoughtfully designed with materials and configurations that enhance sound quality, making it perfect for both solo practice and ensemble rehearsals.

**Main central Entrance with Staircase and Multipurpose Area**



**The heart of the building**, the entrance and main staircase lead you to the upper floors. From the entrance, you can observe the seamless connection extending upwards, with the staircase situated to the side. There is an internal connection to all levels, allowing easy access throughout the building. Natural light floods the space, creating a bright and welcoming atmosphere, harmoniously blending the interior with the outside surroundings. Beneath and adjacent to the stairs lies a versatile multipurpose area, perfect for various activities and gatherings.





Image depicting the 3D printing of the model.

## Informations about the project:

The Spider web - Structural Pavilion Design.

Archdaily competition.

Year: 2022

Location: Hungary, Budapest.

Area: situation map 800m<sup>2</sup>.

Tools: Rhino, Grasshopper with Lunchbox, Kangaroo, Weaverbird, Voronoi 3D

Autodesk Structural Analysis.

Rendered in Vray / Post-production Adobe Photoshop.

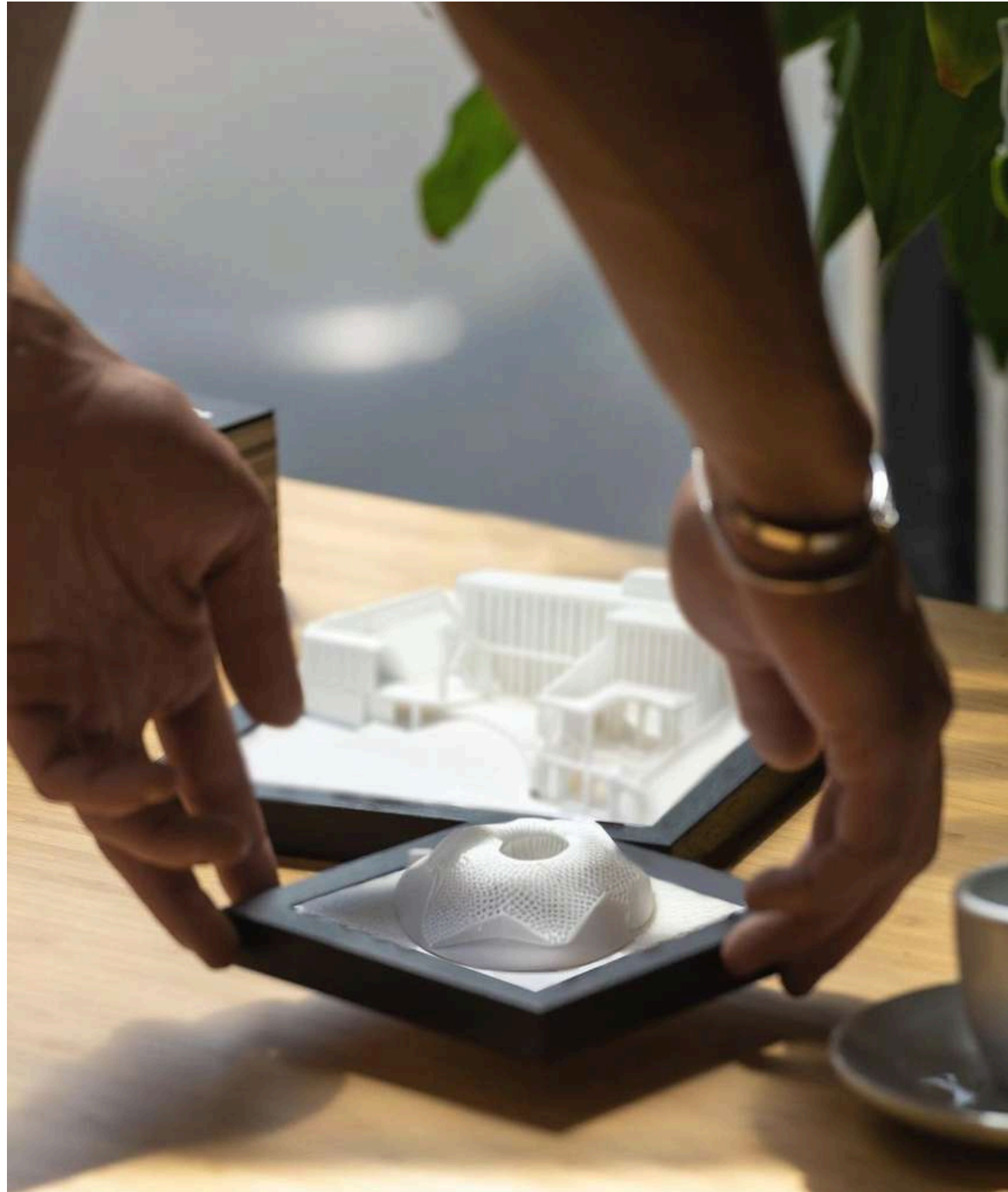
“**This Structural Design** project showcases the robustness of my structural design skills, particularly in utilizing Autodesk Structural Analysis and the Kangaroo plugin within Grasshopper. Through meticulous planning and execution, I managed the design process of a pavilion, demonstrating proficiency in both conceptualizing and implementing structural solutions. By leveraging advanced software tools, I ensured that the pavilion's design not only met aesthetic requirements but also prioritized structural integrity”



## Autodesk Robot Structural Analysis

Here, we witness the application of structural design principles in action, as exemplified by the utilization of Autodesk Robot Structural Analysis. Through meticulous examination, we ensure that the structural integrity of the design withstands various loads. As demonstrated, the design successfully passes this rigorous evaluation, affirming its stability and reliability.

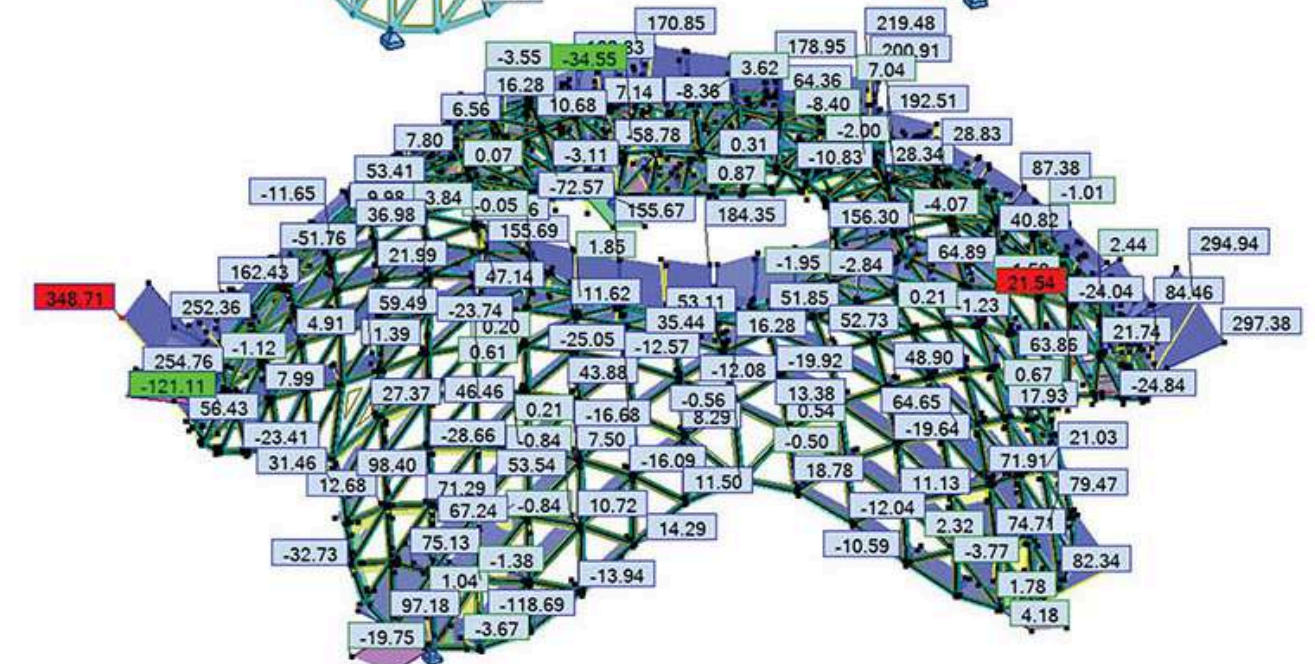
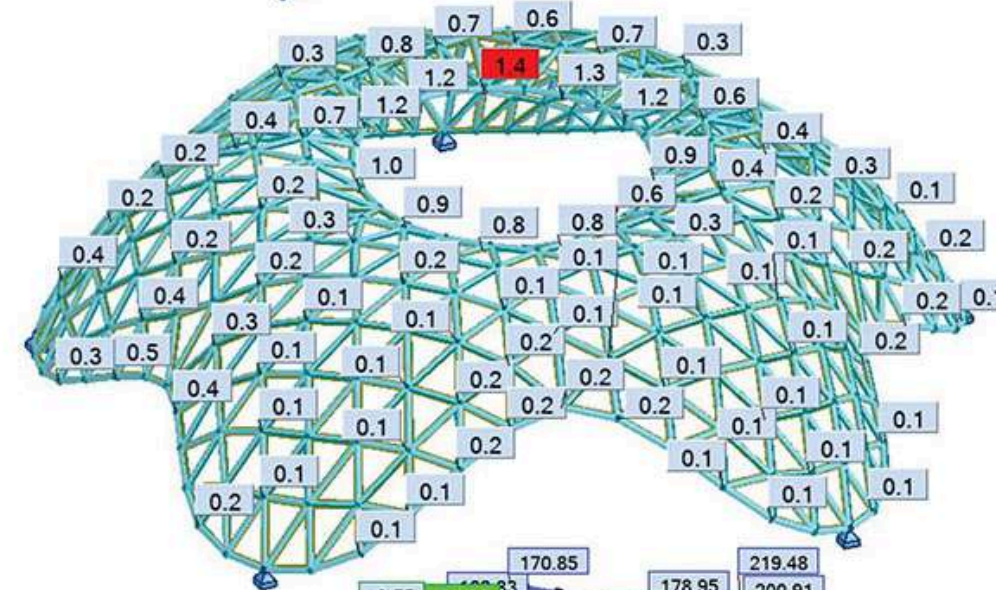
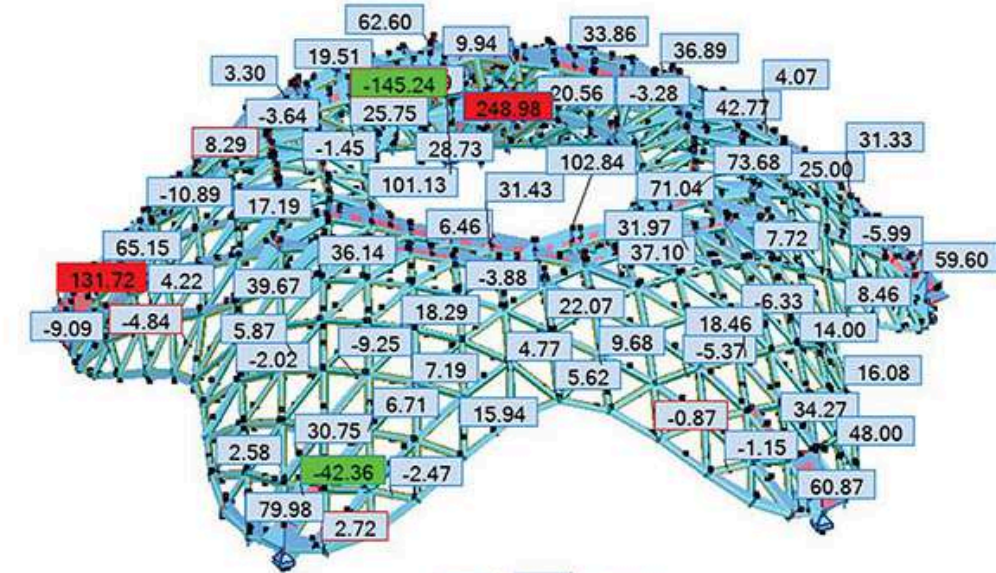
Image depicting the 3D printing of the model.



┌ S min. 500MN/m<sup>2</sup>  
└ Max=131.72  
└ Min=-145.24  
┌ S max. 500MN/m<sup>2</sup>  
└ Max=248.98  
└ Min=-42.36  
 Cases: 6 (COMB1)

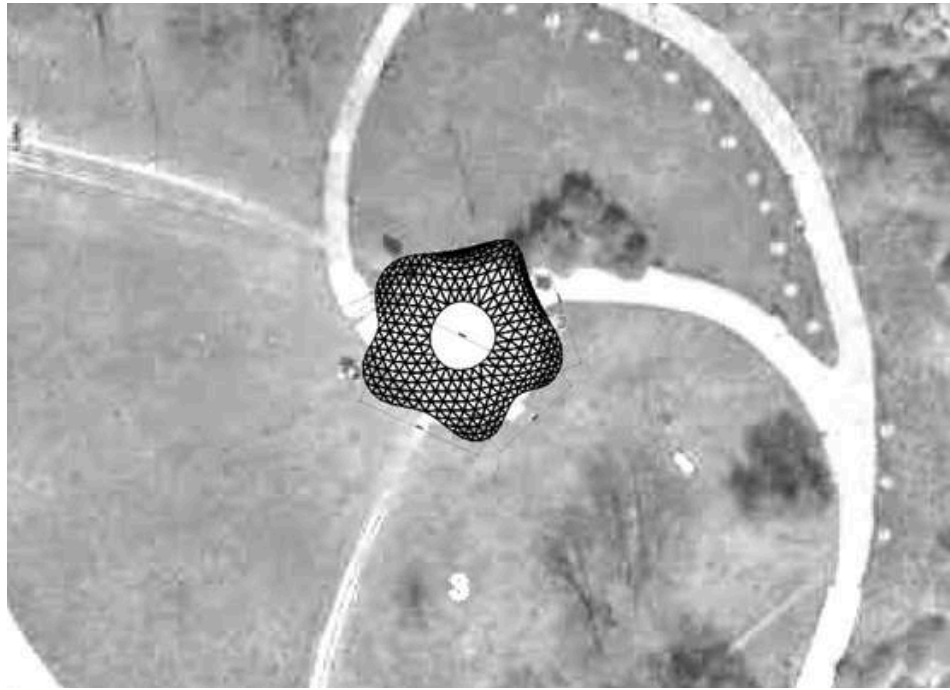
┌ Dis 100cm  
└ Max=1.4  
 Cases: 7 (COMB2)

┌ Fy 20kN  
└ Max=21.54  
└ Min=-34.55  
┌ Fx+c Fx-t 200kN  
└ Max=348.71  
└ Min=-121.11  
 Cases: 7 (COMB2)

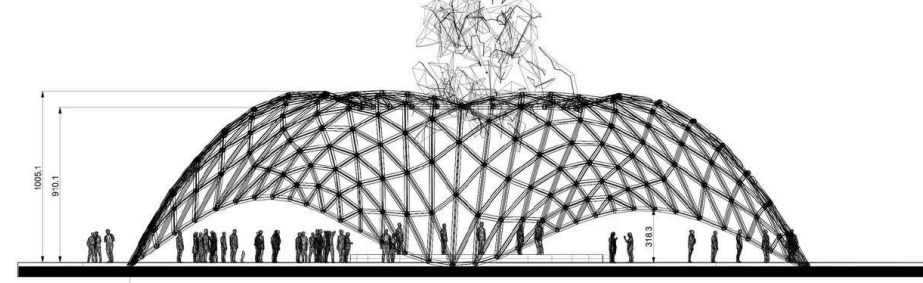




Site map

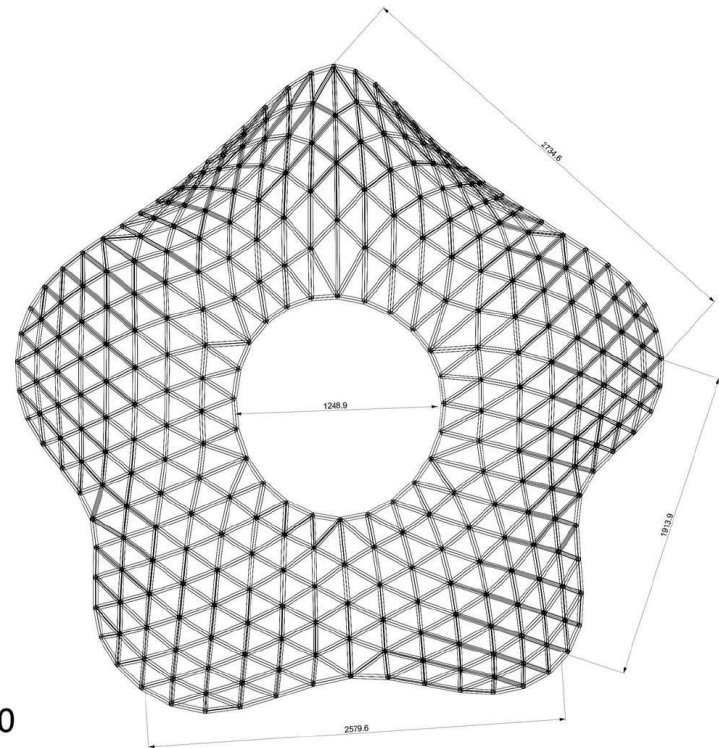
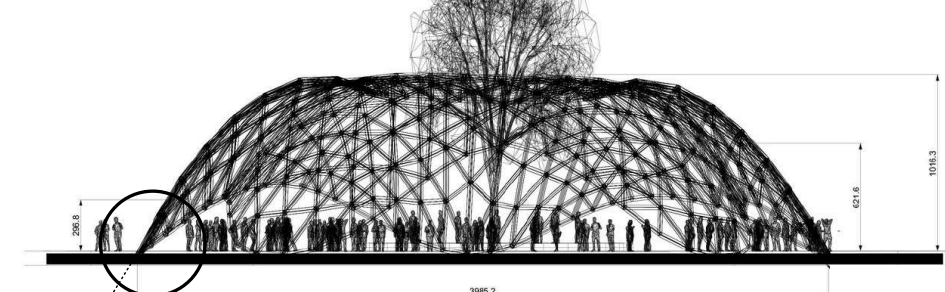


1:200

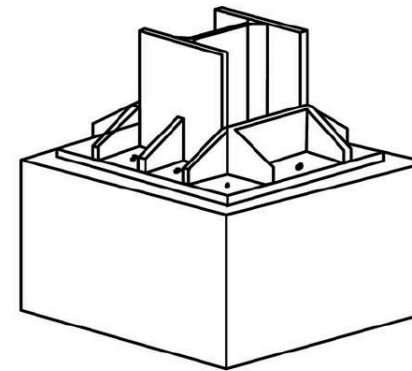
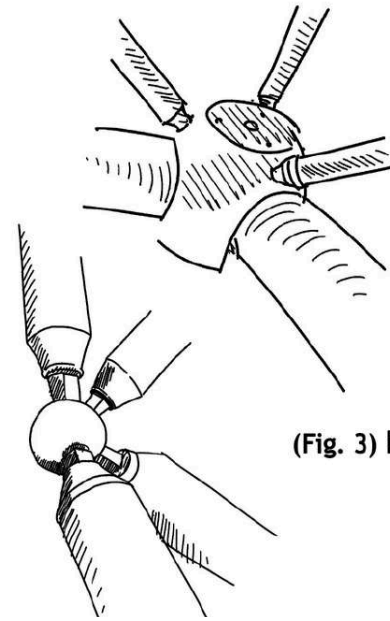


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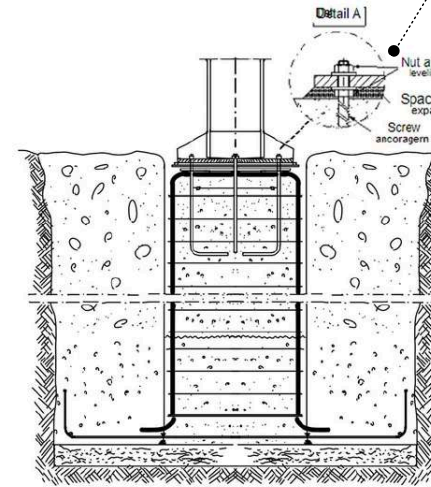
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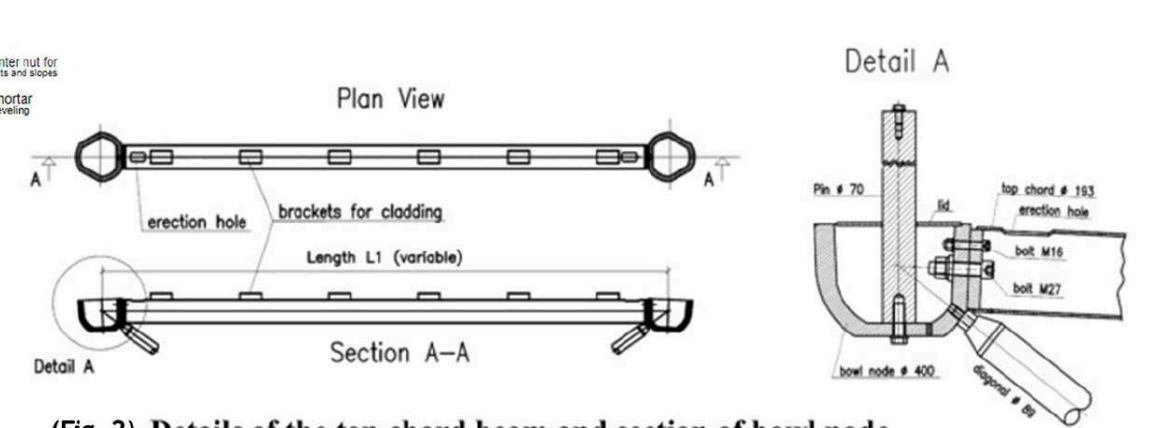
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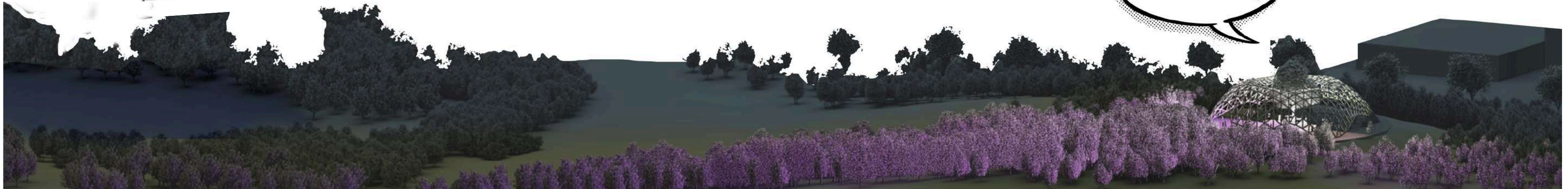
(Fig. 3) BOTTOM CHORD AND DIAGONALS



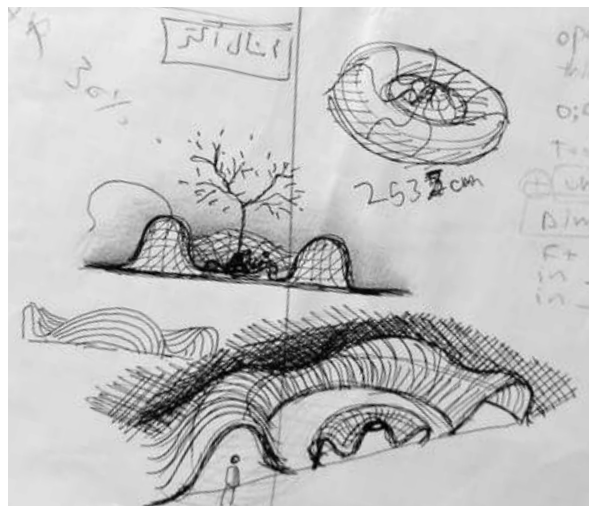
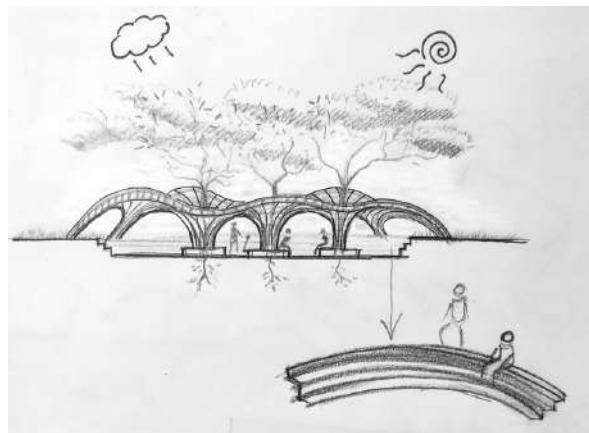
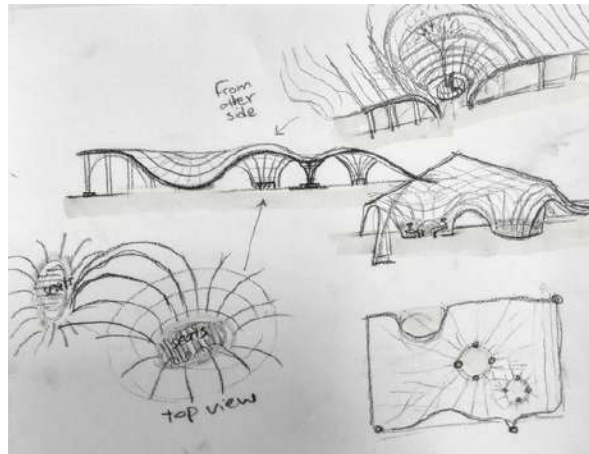
(Fig. 1)



(Fig. 2) Details of the top chord beam and section of bowl node



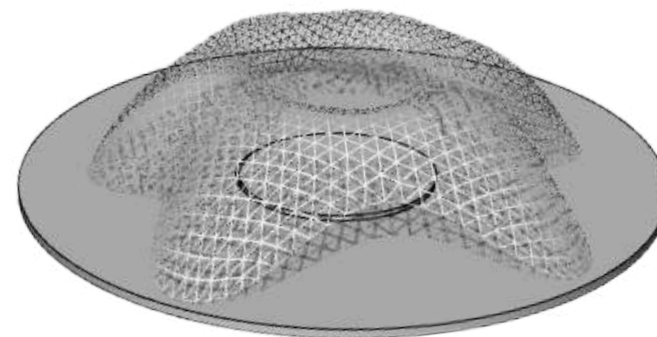
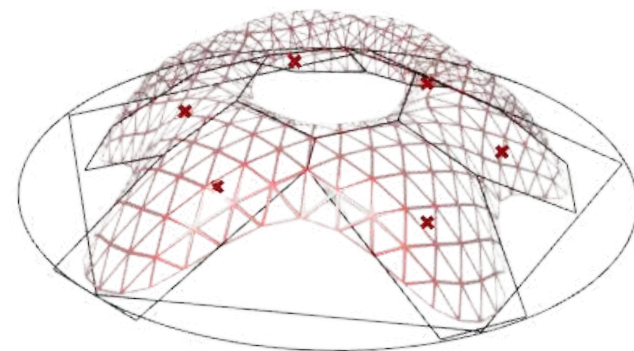
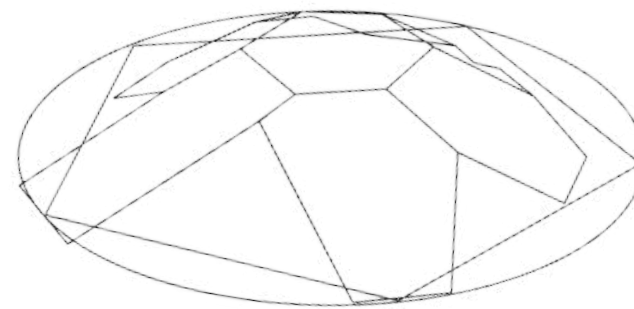




## From Sketch to Script:

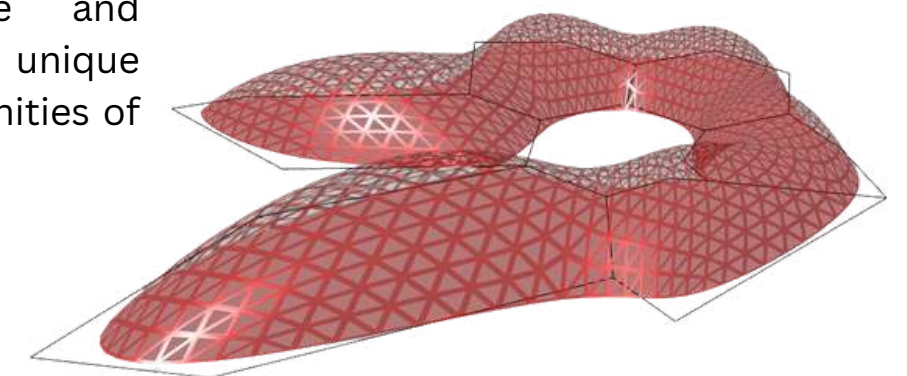
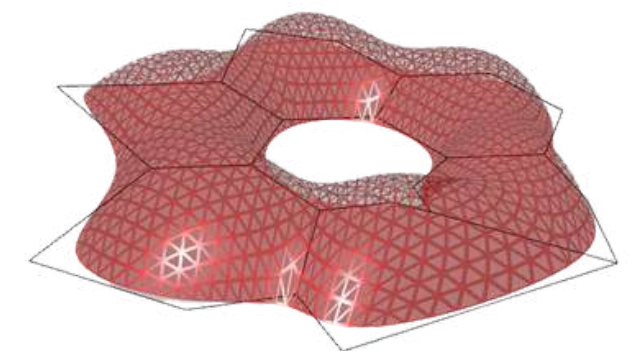
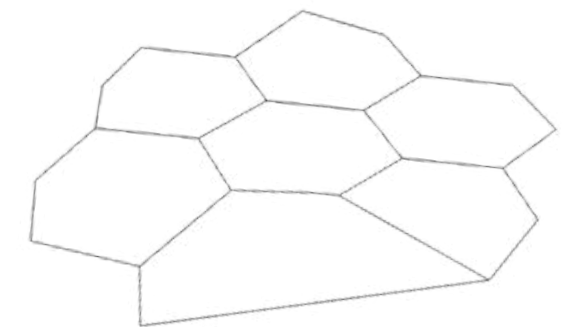
In my design process, I begin with the raw expression of my ideas through hand sketches, capturing the essence of my concepts on paper. These initial sketches serve as the foundation from which I explore and develop multiple design iterations. As I refine my ideas, I transition to digital tools such as Grasshopper, utilizing plugins like Lunchbox and Kangaroo within Rhino's Grasshopper environment.

With Grasshopper's parametric capabilities, I translate my conceptual sketches into dynamic digital models. The combination of Grasshopper's flexibility and the functionalities of Lunchbox and Kangaroo allows me to experiment with different design variables and structural configurations, pushing the boundaries of what's achievable.



One of the most exciting aspects of this process is the development of a single script within Grasshopper that can generate countless design variations based on my conceptual sketches. This script serves as a powerful tool for exploration and ideation, enabling me to generate and evaluate numerous design options efficiently.

Through this iterative process of sketching, digital modeling, and scripting, I bring my conceptual ideas to life in a dynamic and iterative manner. The result is a rich and diverse range of design solutions that are both innovative and responsive to the unique challenges and opportunities of each project.







This view showcases the frosted PVC facade, providing privacy while staying connected to the street. Below, potential rented shops enhance the streetscape.

## Informations about the project:

Blend in, Stand out - Residential building and facade design.

Year: 2024

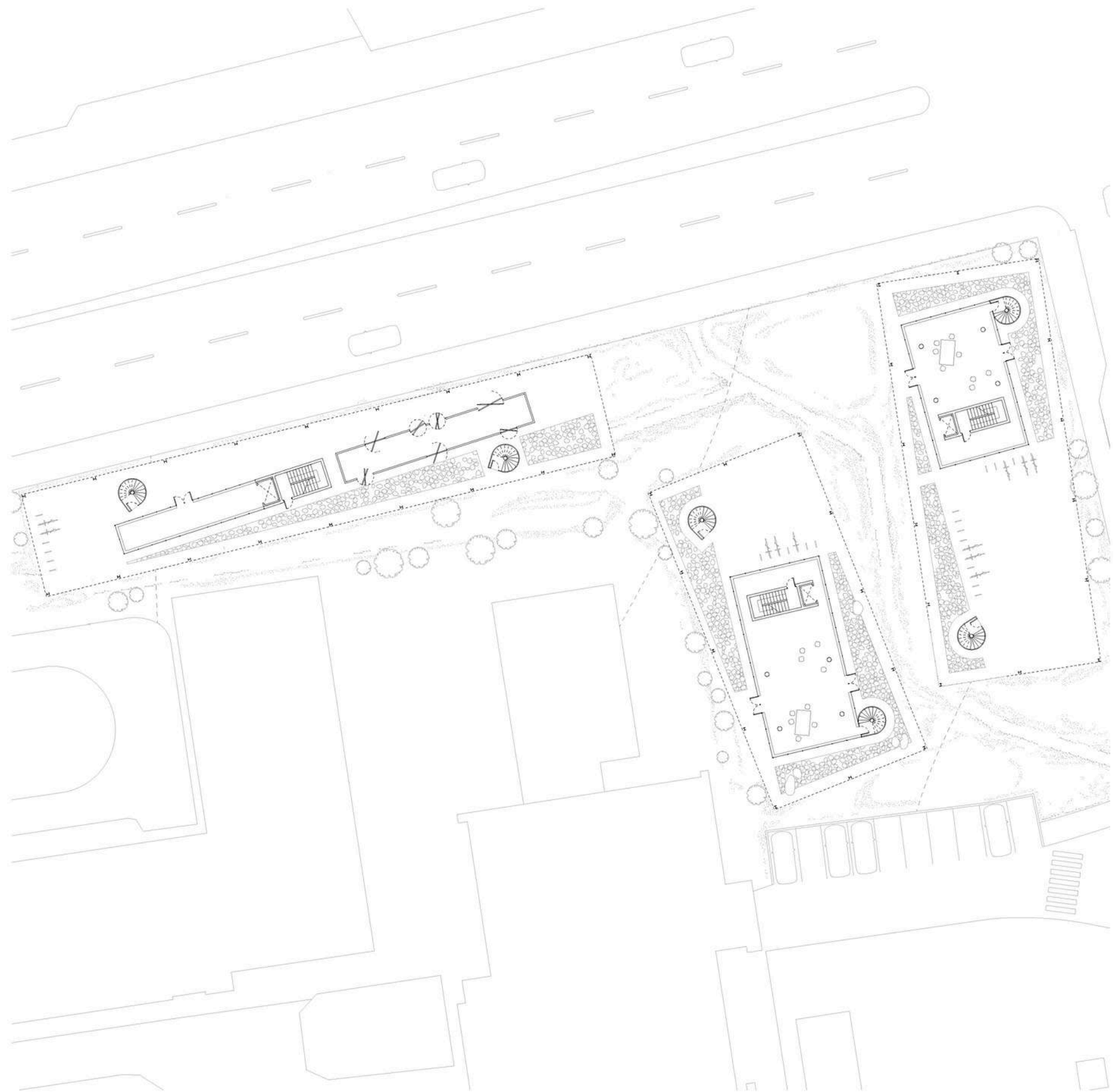
Location: Australia..

Tools: Rhino, Grasshopper with plugins.

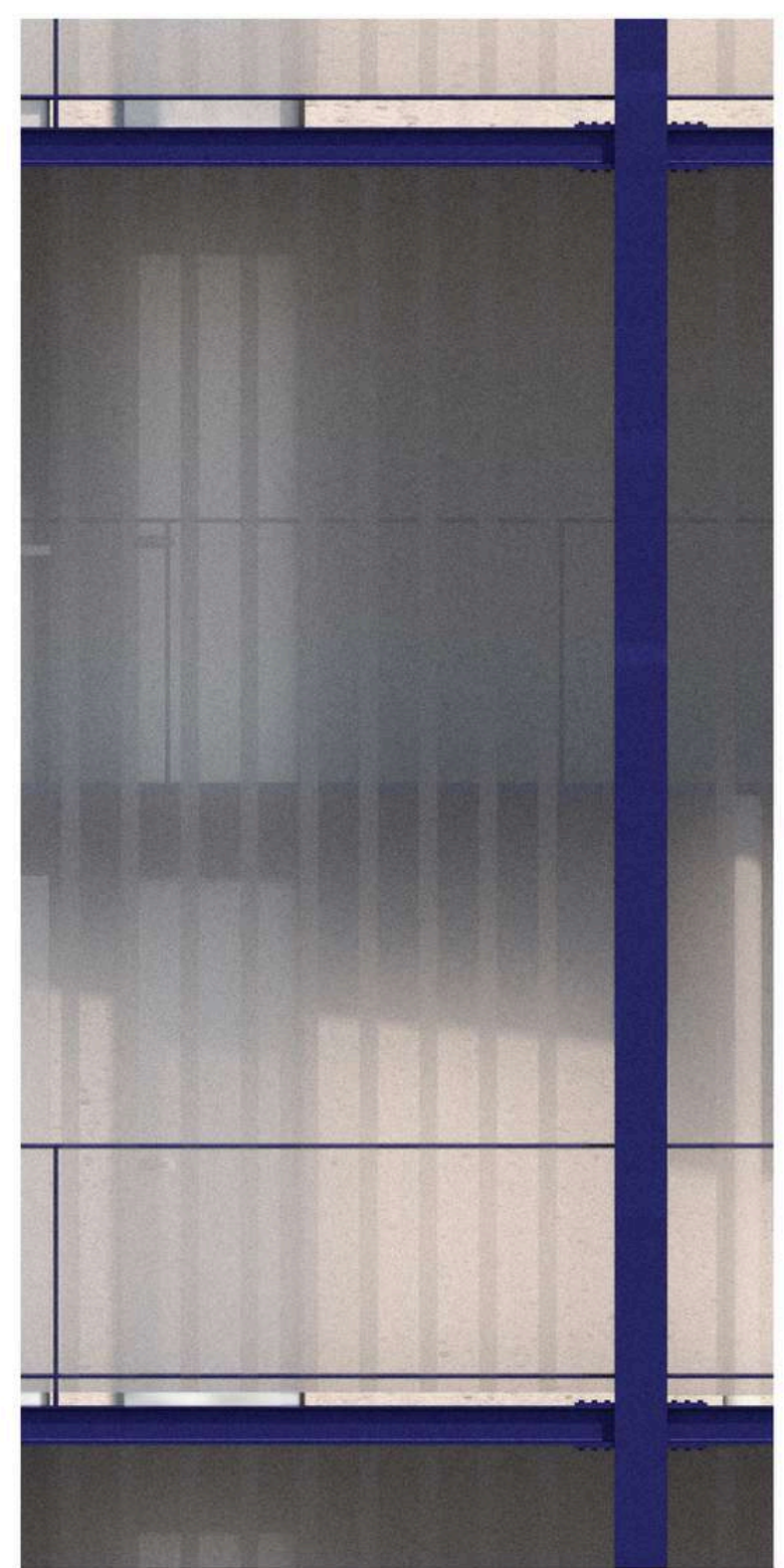
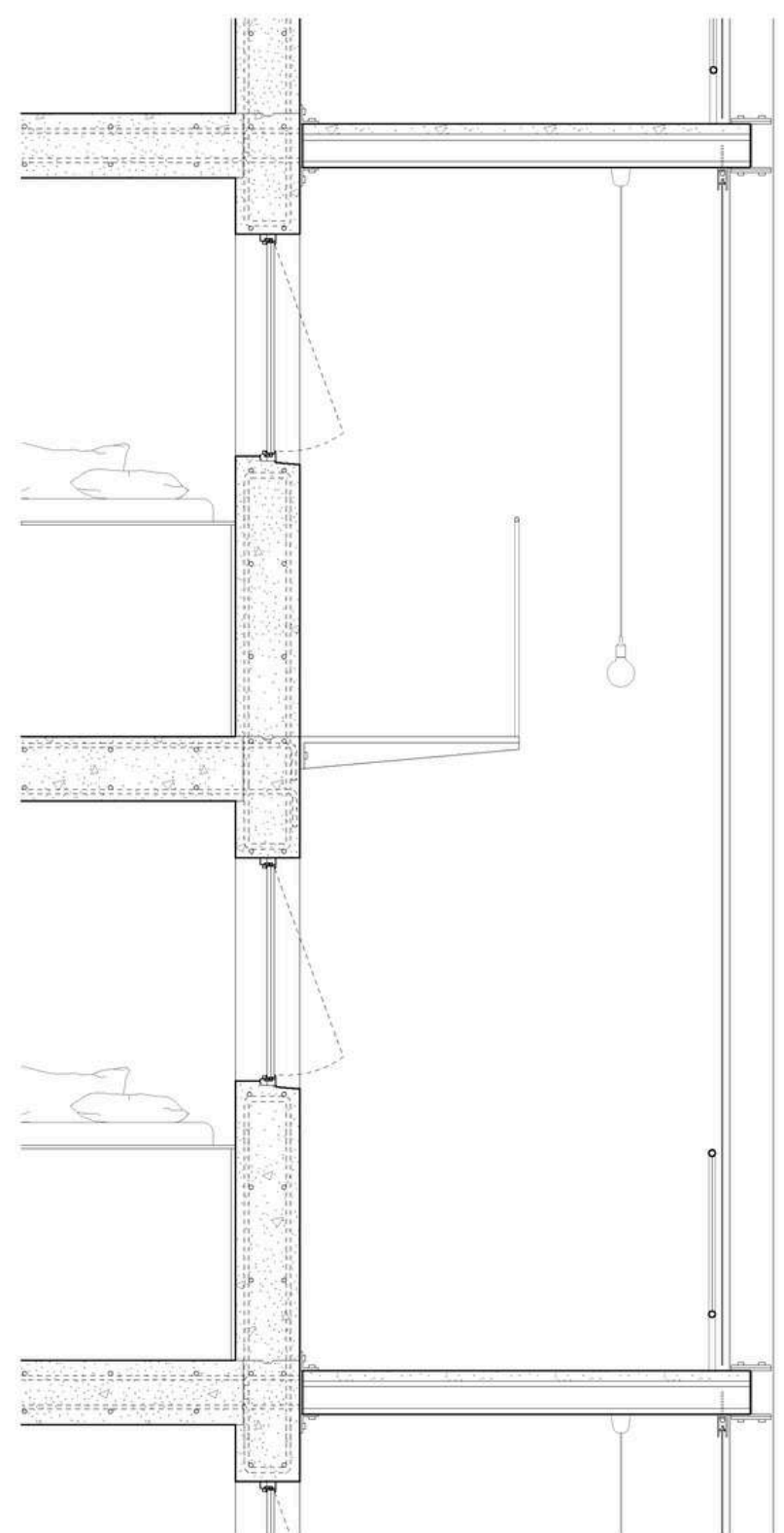
Rendered in Vray / Post-production Adobe Photoshop.

“**Blending In, Standing Out** with this proposal in Australia. This project carefully blends with the local architectural landscape, the design prioritizes both functionality and aesthetics. In response to the client's request for privacy alongside open spaces, PVC frosted material is strategically incorporated into the facade, creating a balance between intimacy and connection to the outdoors. Through meticulous attention to detail and consideration of client preferences, this design embodies a vision for modern living tailored to the Australian context.”





Ground Plan 1/250



Facade Detail 1/20







A view from the project's center highlights residential buildings while connecting the main street to Praga's public park and the nearby lake, enhancing connectivity and quality of life.

## Informations about the project:

The Wavy line - Generative Urban Design.

Warsaw - Praga city plan competition - University student project.

Year: 2021

Location: Poland, Warsaw/ Praga.

Area: 50 Hectares.

Team: Ali Alabeedi / Mohammed Ali Al Saif/Paweł Tryzbowicz.

Tools: Rhino, Grasshopper, Anemone, Pufferfish.

Rendered: UN5./ Post-production Adobe Photoshop.

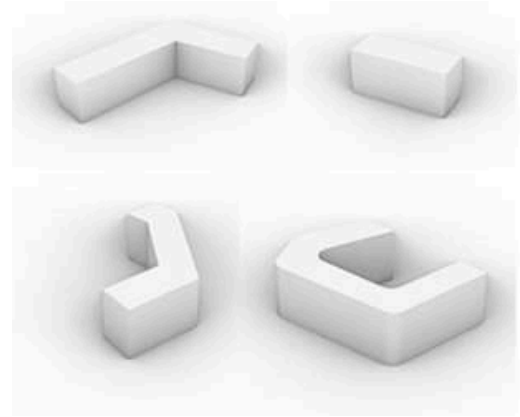
“**The Generative Design** of a 50-hectare parcel has been earmarked for urban development. Recognizing the opportunity to contribute to this transformative endeavor, as a student at WUT and my group I proposed spearheading its design. However, seizing the initiative, I leveraged my expertise to craft a tailored script, harnessing technology to generate innovative urban planning suggestions. Through meticulous analysis and the seamless integration of advanced tools, I identified the optimal blend of elements to shape this urban landscape, ensuring a harmonious fusion of functionality, sustainability, and aesthetic appeal”



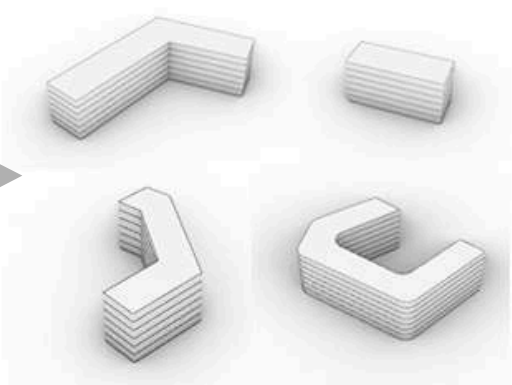
# GENERATIVE URBAN DESIGN

Utilizing generative design skills in Rhino Grasshopper scripting, buildings are conceived along any curve, offering flexibility in shape and curvature. With precise control over parameters or the option for randomization, each structure takes on a unique form, tailored to specific project requirements. Furthermore, the scripting enables the generation of trees, seamlessly following the curves to integrate natural elements into the urban landscape. This innovative approach not only streamlines the design process but also allows for dynamic and organic compositions that harmonize with their surroundings.

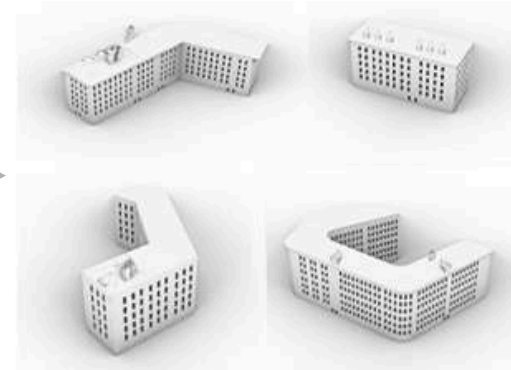
1- Algorithmically described "types" of buildings. With possibility to change any parameter ex. height, segments, number of chimneys etc.



2- Optional sophistication - adding windows. (Significant increase in computing time).

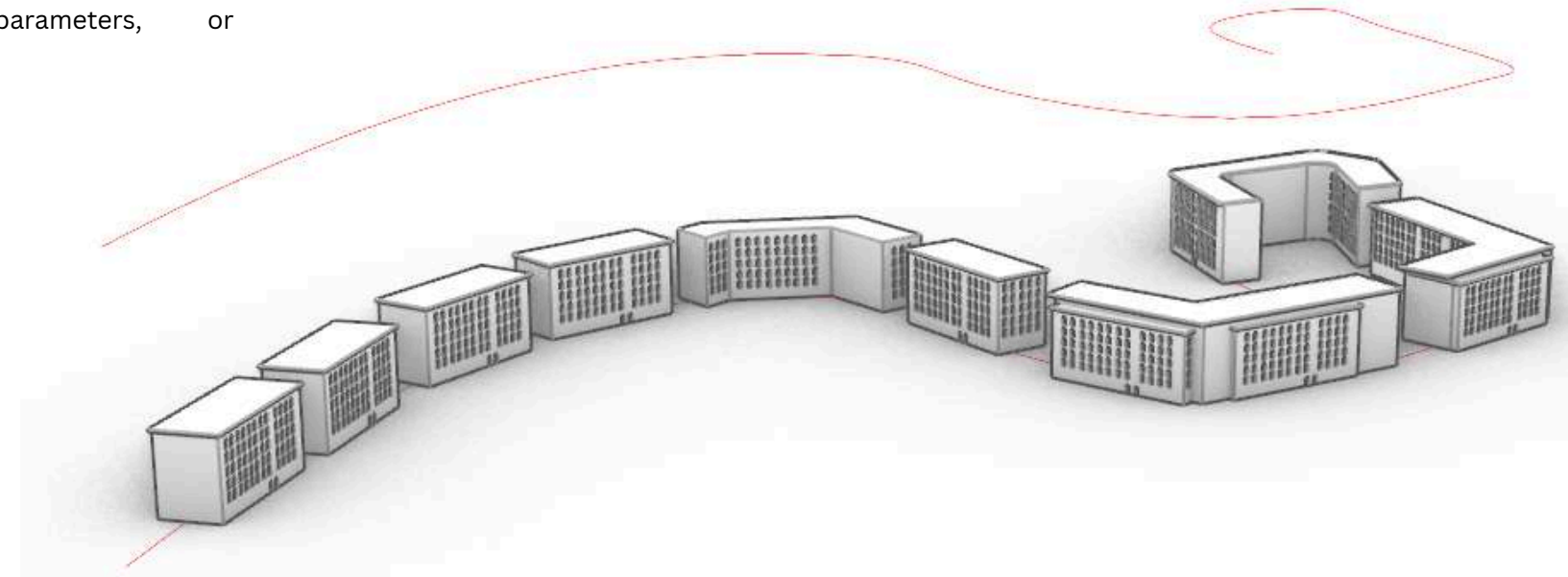


3- Optional sophistication - adding windows. (Significant increase in computing time).

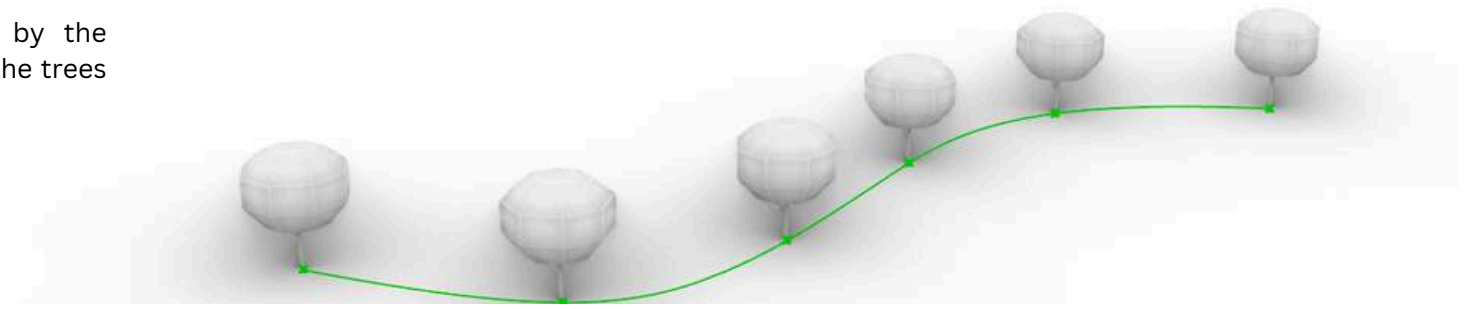


4-Buildings defined along any curve with virtually any curvature, further control of parameters, or randomization.

- Curve
- Buildings defined along the curve



5-The trees were also generated by the script, following any curve to have the trees following it



■ Curves generating trees ■ Curves generating different urban forms.





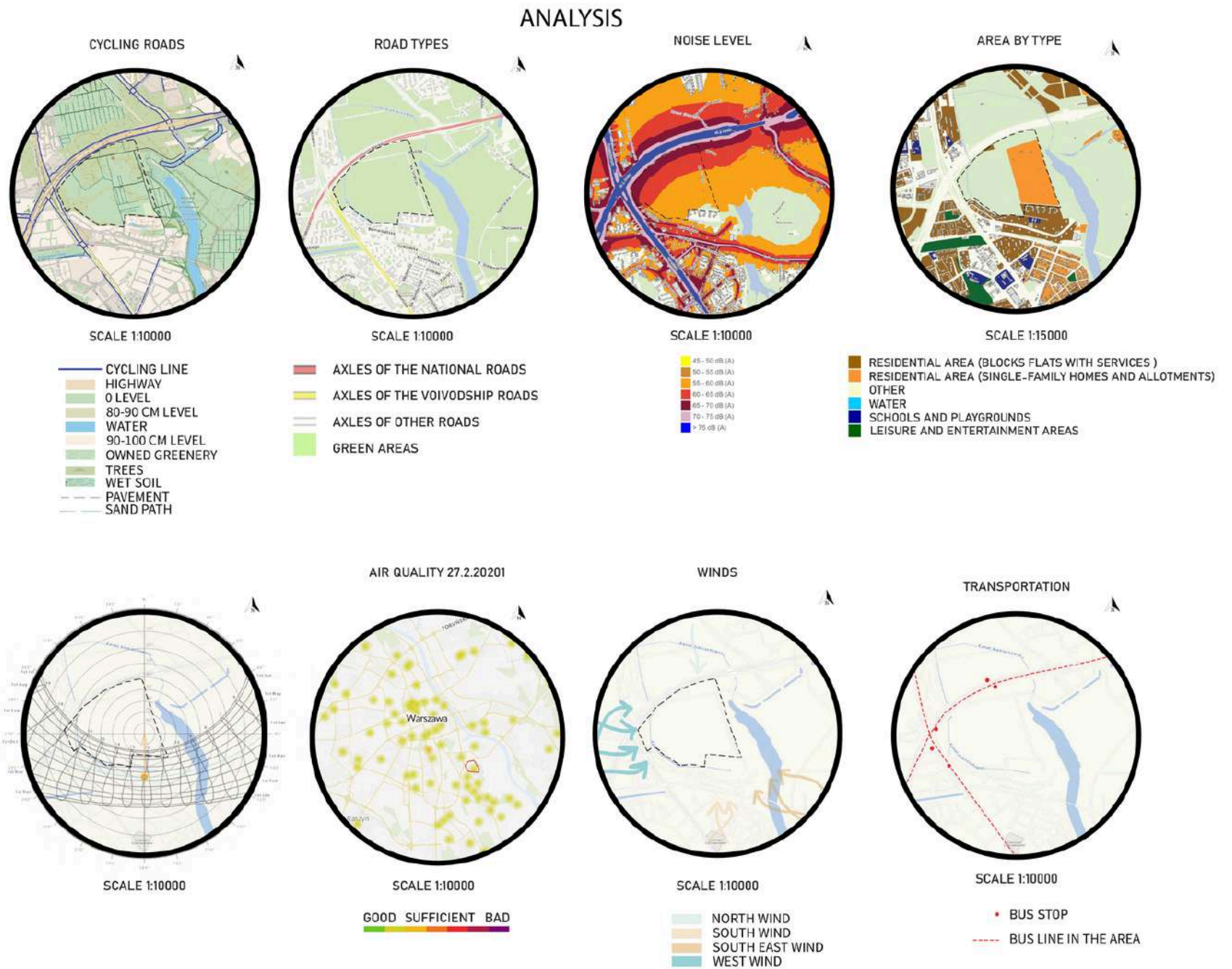
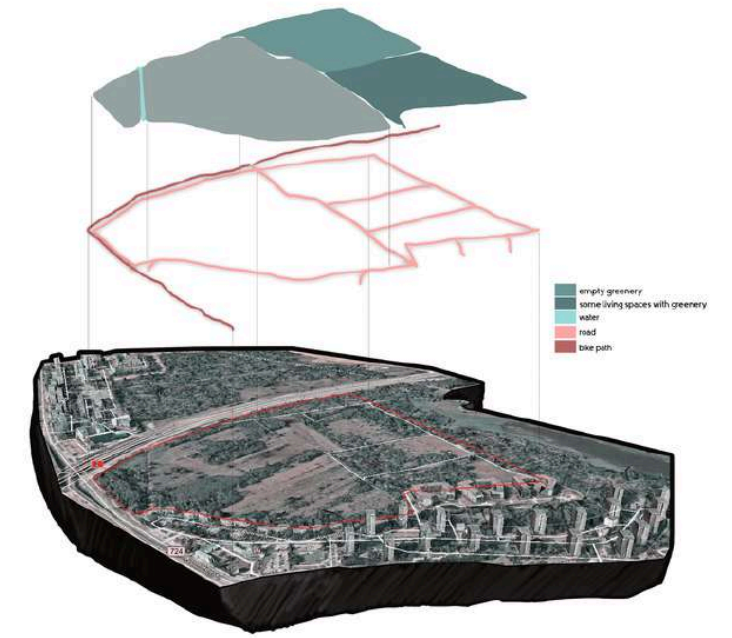
# Curvy Connector: Redefining Urban Connectivity:

We centered around a dynamic curvy line that seamlessly links Praga's public park and lake to the main street and entrance of the new development. By strategically placing commercial buildings and lush greenery, we've effectively shielded the residential areas from noise pollution. Meanwhile, the residential buildings, situated towards the rear, offer picturesque views of the lake, with their height gradually tapering towards the riverbank, creating a harmonious blend of functionality and aesthetics.



# Integrative Analysis: Shaping Tomorrow's Urban:

Delve into the intricacies of urban planning with a comprehensive analysis of the 50-hectare canvas. From road types to cycling routes, air quality to transportation lines, this holistic examination provides invaluable insights to inform and inspire your design proposal.

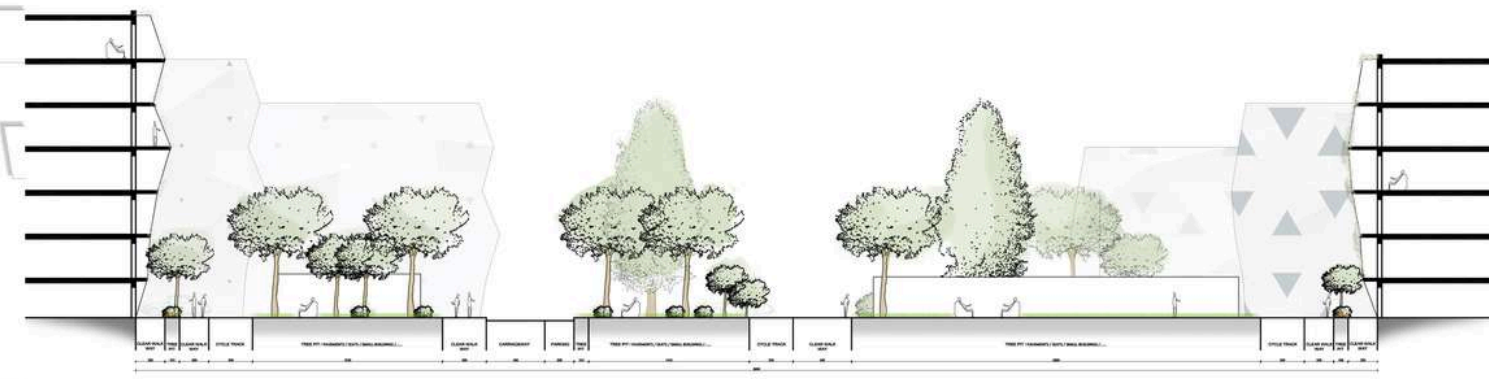




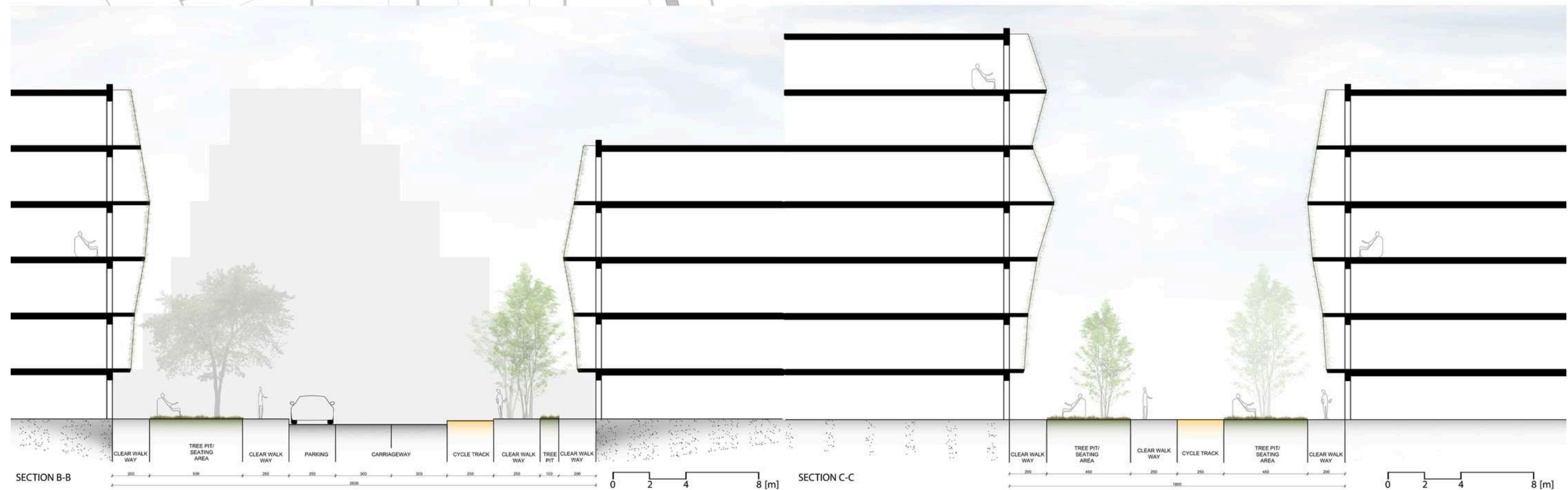
# DETAILED DRAWINGS



DETAILED PLAN



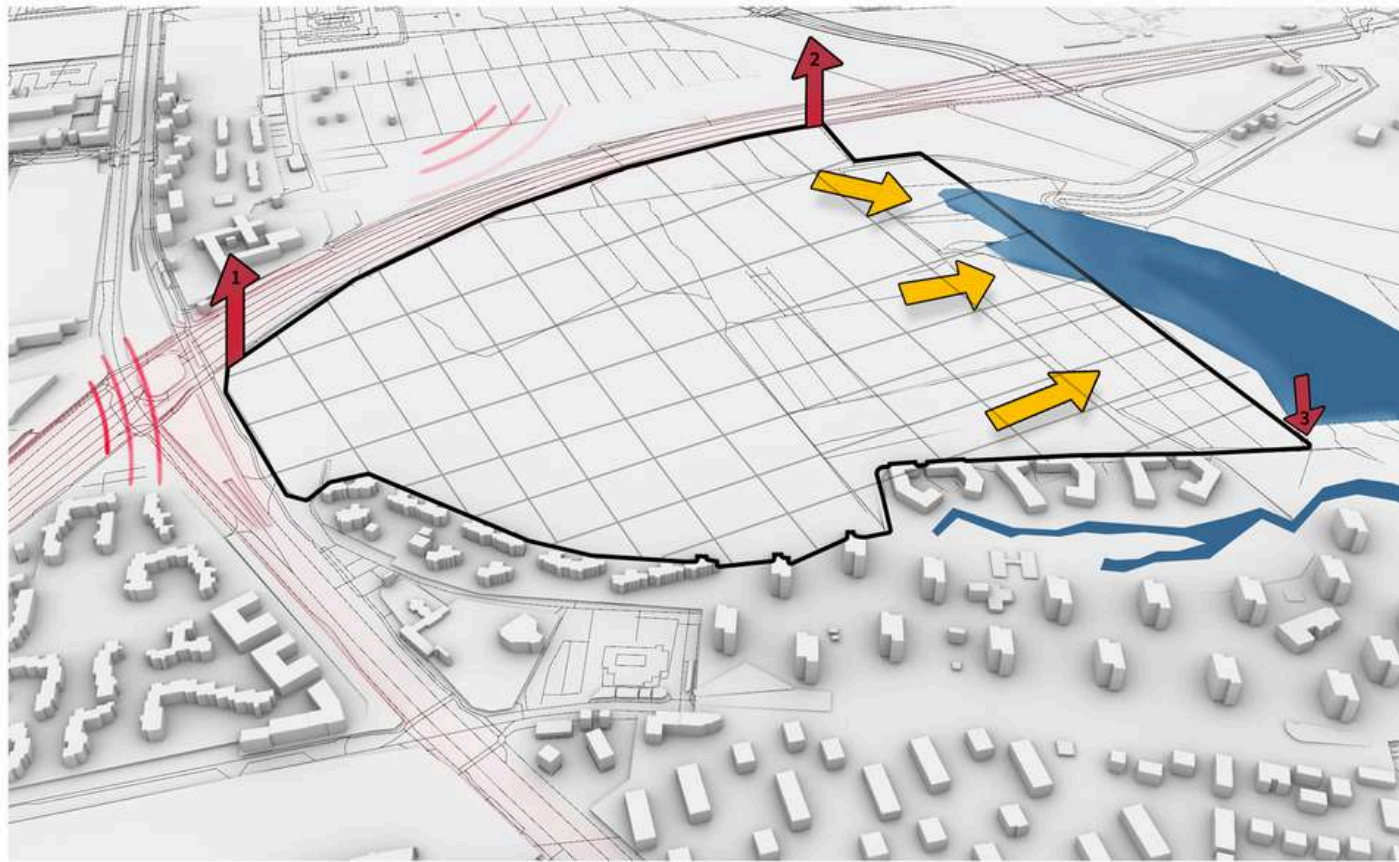
SECTION A-A



SECTION B-B

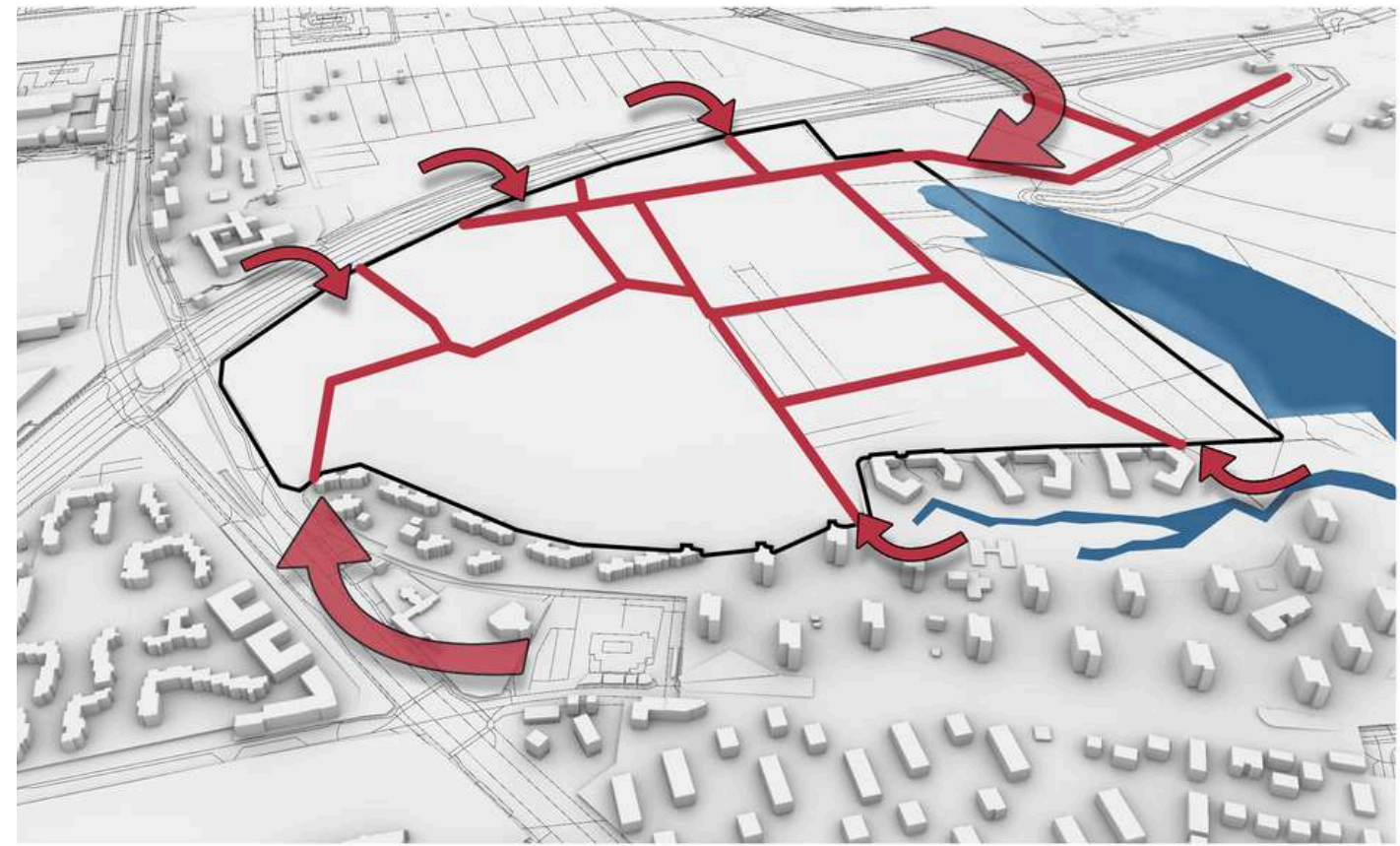
SECTION C-C



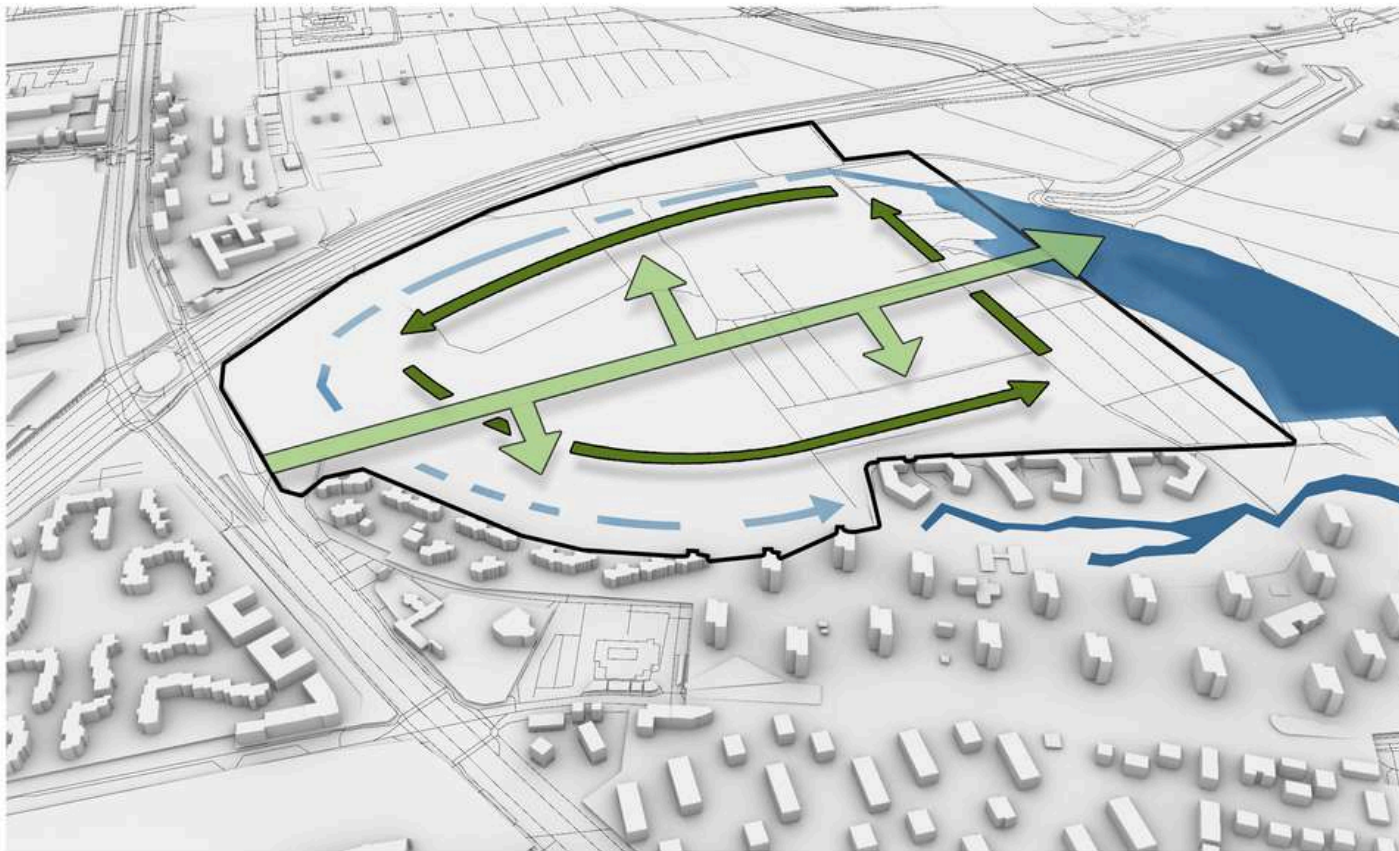


according to the site analysis, we noticed there is some noise coming from the 2 main streets because of the traffic lights, so we suggest make some differences in the heights in number 1,2 of the office buildings facing the noise so it will block the noise to keep the calm residential area in the middle. and we also propose to make the part that facing the beautiful view to the water as the yellow arrow by making the height of the residential building as the red arrow shows number 3.

Designing using the Grid module can be replicated to form an urban characterized by a variety of neighborhoods. Each district is connected by perimeter vehicular roads, pedestrian trails, and slow mobility networks. The MAIN Central path By distorting the grid, the central courtyard is enlarged to create a large plaza or park that can function as a city-wide public space, with markets and multipurpose zone



existing connection in the site plan, we noticed there are 2 main access points and 4 small access points



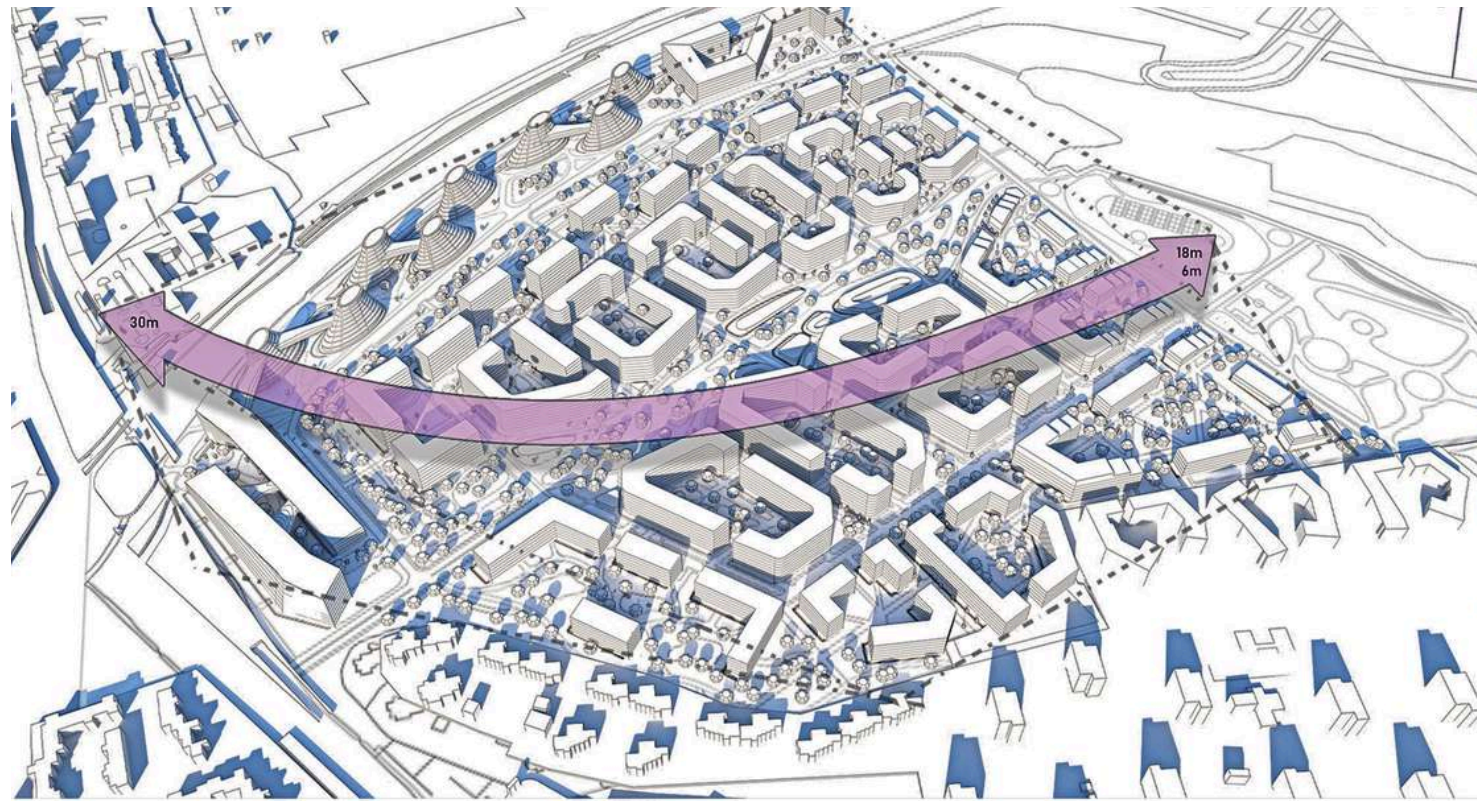
by dividing the grid and have this central park we created a magnificent sustainable connection from the main street through the market and the residential buildings to the summer sport part next to the attractive water point. we also thought that we can create a greenery loop around all over the place to connect everything and recycle the oxygen in the area with the beautiful trees and water surfaces



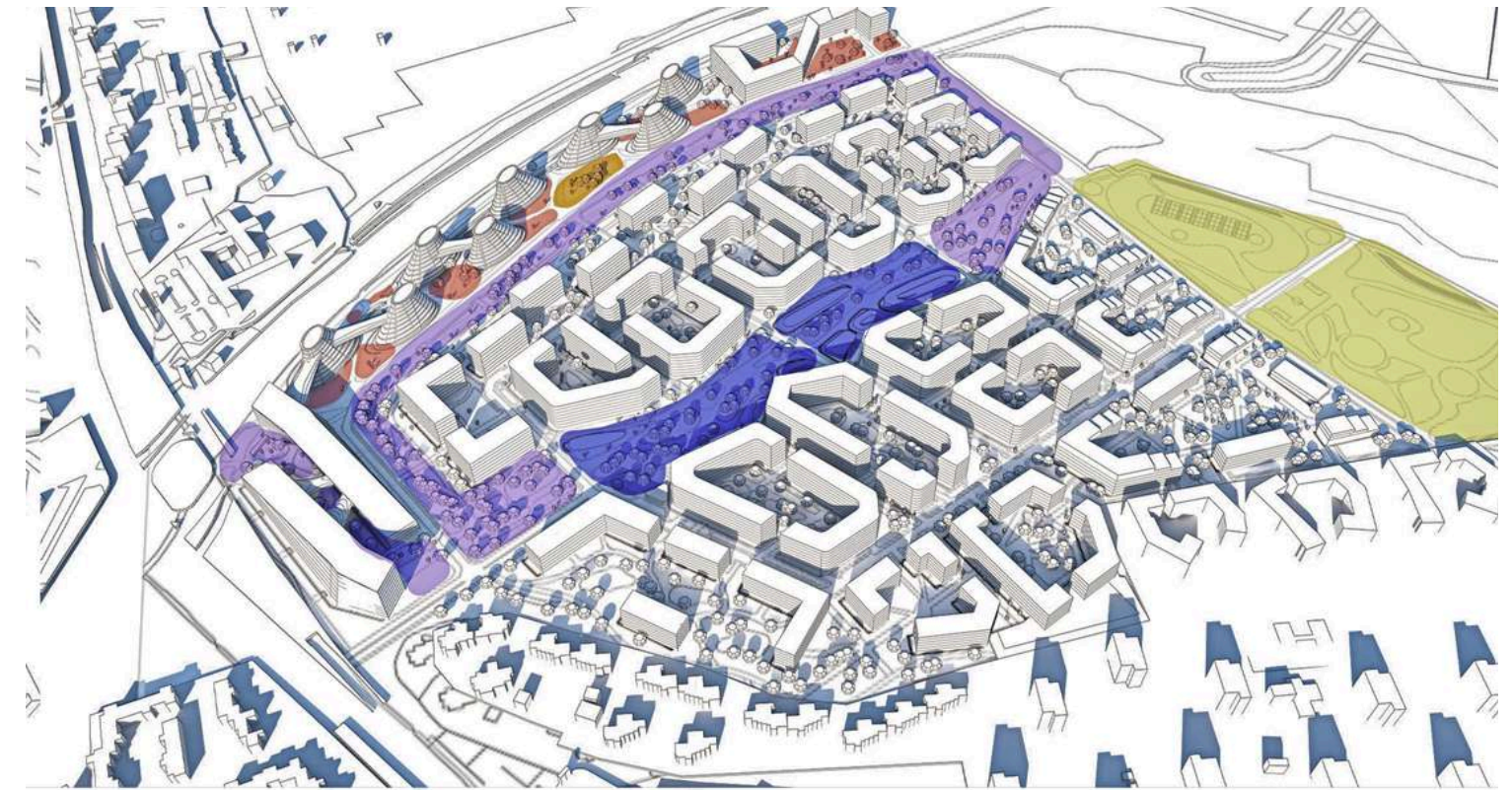
- Existence bike path
- Designed bike path
- Nextbike station

MOBILITY TYPES Today is typical streets are simultaneously shared by vehicular, pedestrian and other mobility types. The road space is mostly dedicated to car traffic and parking lanes, while pedestrians occupy a minor portion of the street section. The Woven City treats each mobility type equally, creating three separate and different streets.

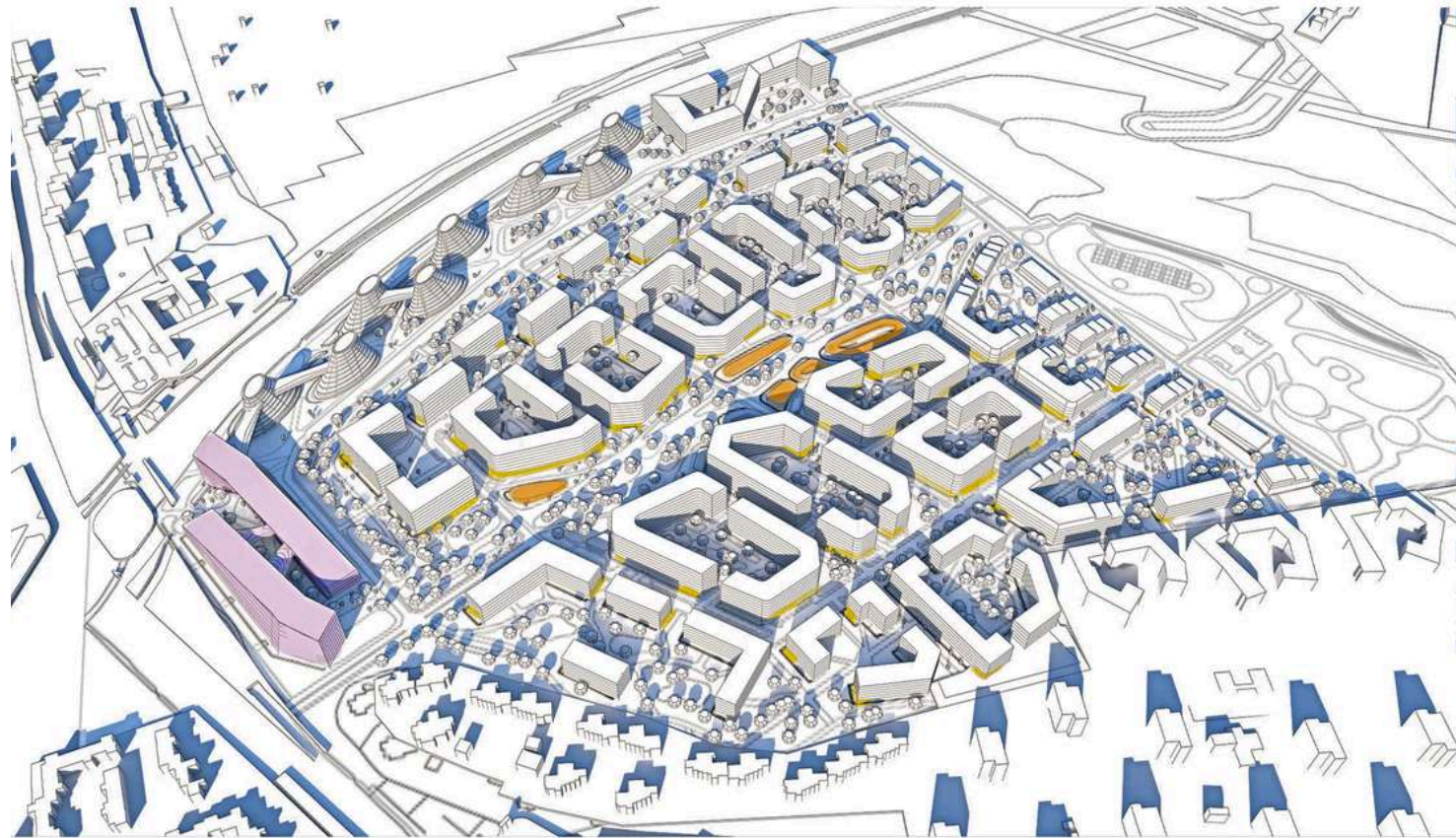




we propose to swap volumes between blocks to provide views for all buildings closer to the riverside creating differences in the heights of the whole buildings starting from the mall 30m and it goes lower to the riverside view to 18m with the roofscape concept 6m



● welcome areas / multipurpose use ● community central park / market ● summer facilities ● meeting points ● open outdoor theater stage

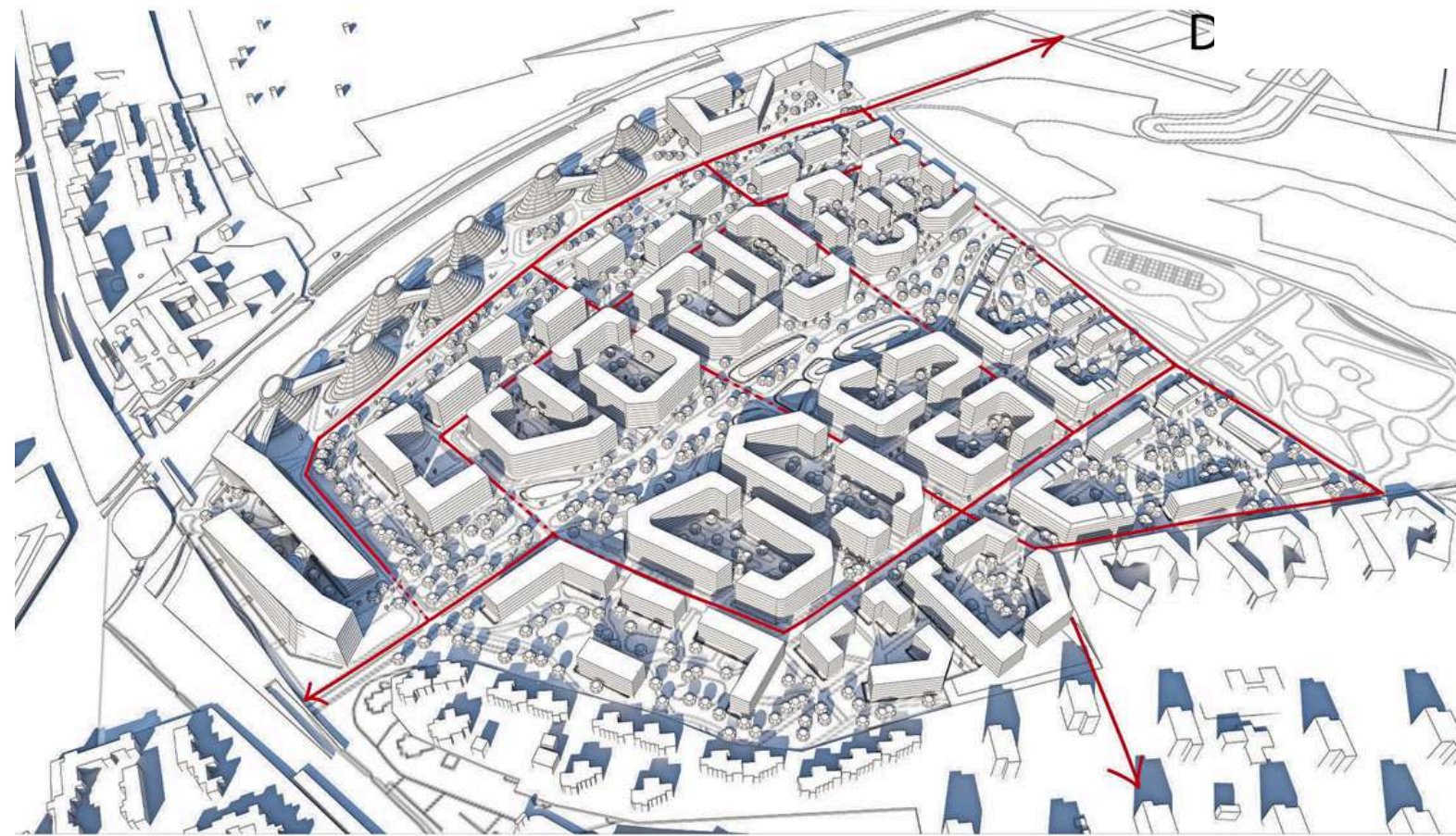


● commercial building ● central market buildings ● service shops



green spaces  
there is a strong connection and continuing between the central park/ markets and the residential buildings  
● open green areas ● private green area





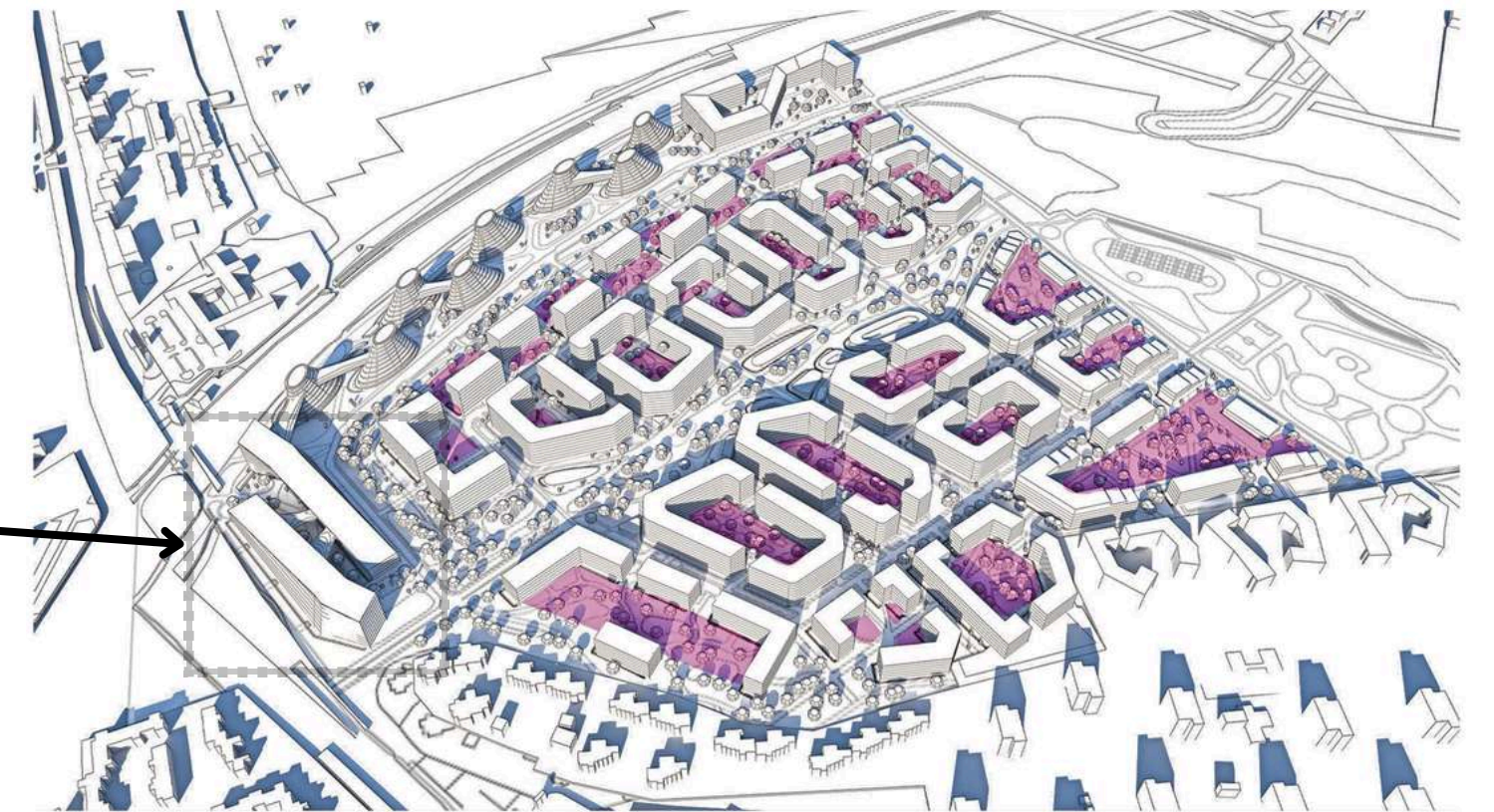
car axis/connection  
the urban mesh has a great impact on the design and therefore the connection has to be maintained



creating a site-wide accessible from the central park to connect everything

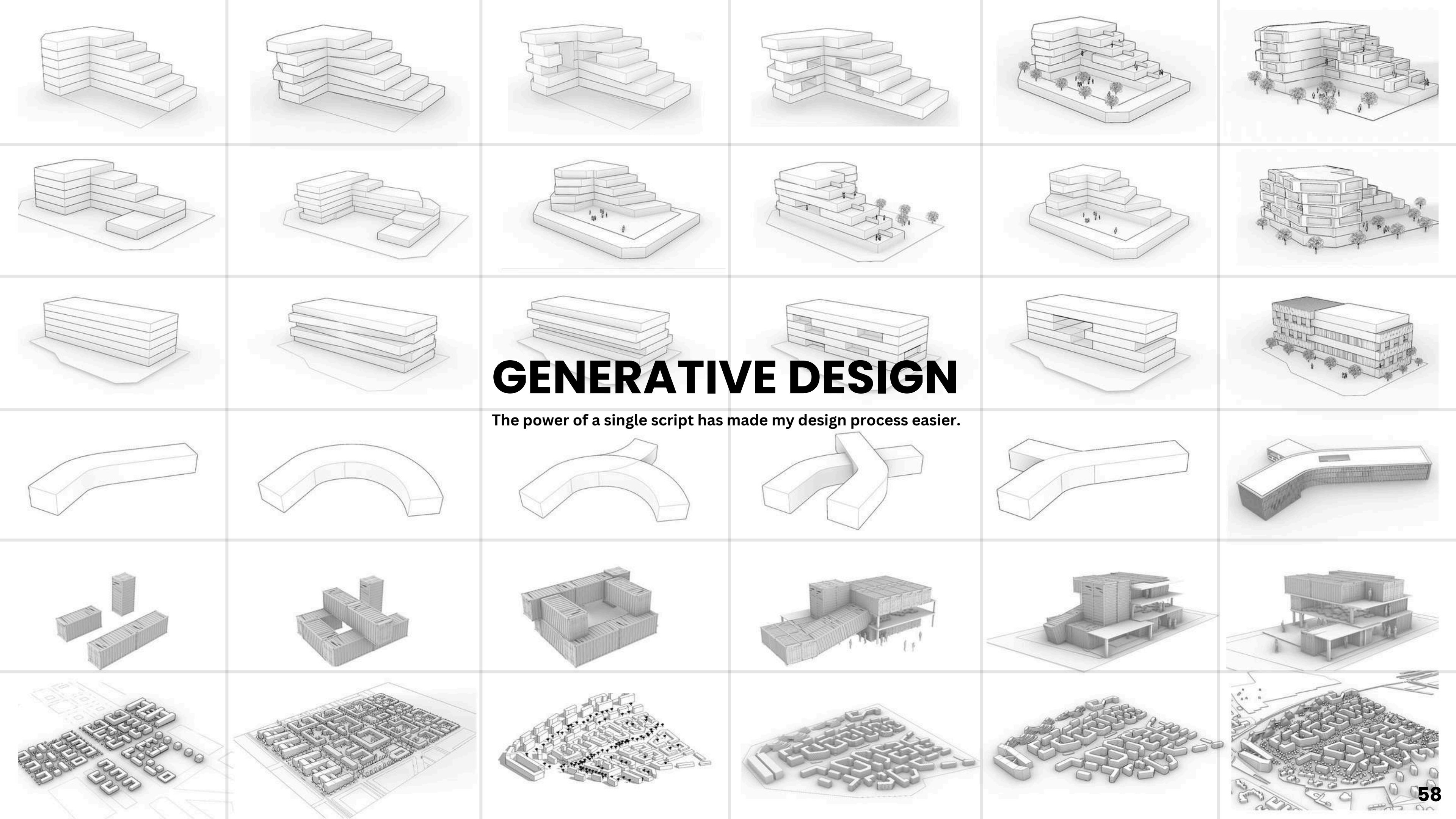
● pedestrian path

● straight path - pedestrian path + bike path + slow caryge way



neighborhood plaza  
breaking the corners with those residential buildings it allows to generate a public plaza.  
a space to contemplate the buildings and their surroundings with with playing areas.





# GENERATIVE DESIGN

The power of a single script has made my design process easier.





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