NO.108

ZEYNEP INANC

FINAL MAJOR PROJECT 2017/2018

CONTENTS

When considering ARCHITECTURAL AND DESIGN PRINCIPLES that are of great importance to me, there is a strong connection between PEOPLE and EARTH that cannot be ignored. My goal within my architectural profession and education thus far is to focus on intensions which create spaced which are sensitive and well designed for both people and the environment that surrounds us. I give importance to WELL CONSTRUCTED and thoughtful ENVIRONMENTAL and INNOVATIVE creations, so I find myself constantly exploring new MATERIALS.

My aim is to create and design spaces which are EXEMPLARY and LONG LASTING. I have a respect for our planet, and I have strong beliefs that as designers, we should be concious of it and try to save and conserve it for future generations. Therefore, SUSTAINABLE DESIGN is the main starting point of my designs. Sustainable design is not only for the ENVIRONMENT but also it is ECONOMICAL reasons for long term.

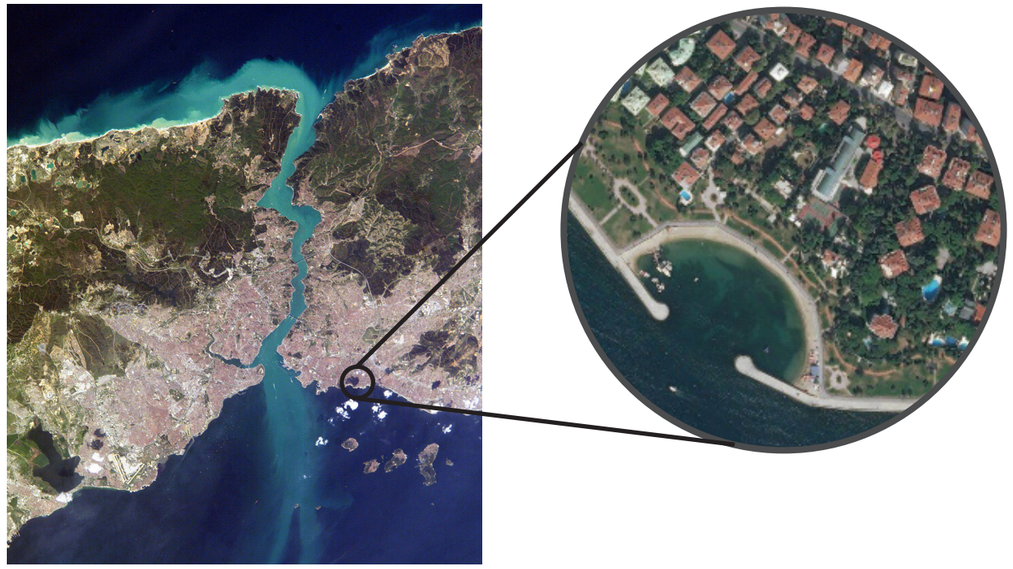
When I start designing, clients are always at the heart of the process. I like to COLLABORATE with others, using my CREATIVITY to create USEFUL yet beautiful spaces and conscientiously design every DETAIL with them, and of course with the planet in mind at all stages.

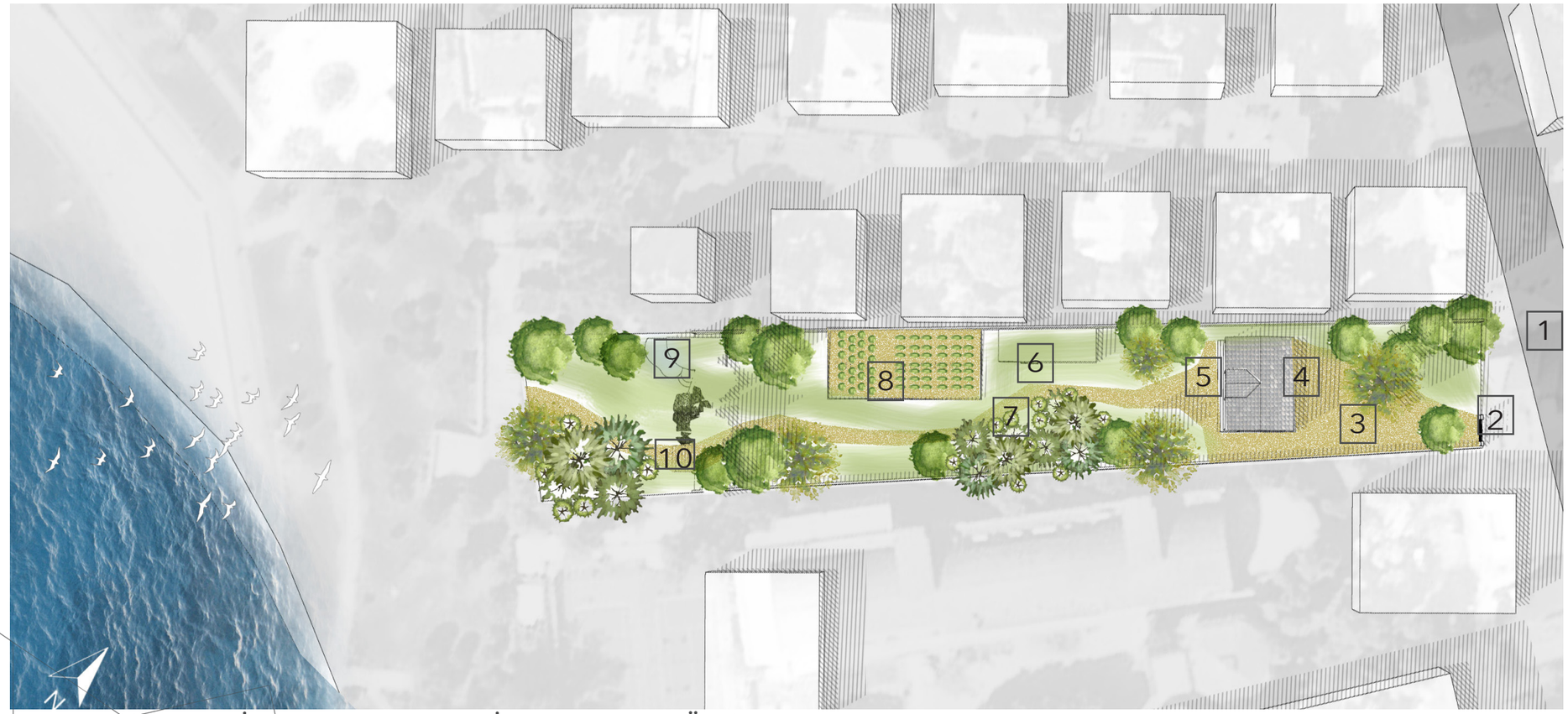
MANIFESTO

TO CREATE A SPATIAL PROPOSITION FOR A NEW EXHIBITION CENTRE WHICH SERVES MULTIFUNCTIONAL PURPOSES IN PURSUIT OF DISPLAYING INFORMING AND CREATING WORKSPACES FOR PROFESSIONALS AND WIDER PUBLIC.

HOW TO ENCOURAGE AND RAISE AWARENESS OF THE IMPORTANCE OF SUSTAINABILITY AND BIOMIMICRY IN DESIGN AND ARCHITECTURE THROUGH CREATING SPATIAL PROPOSAL WHICH ARE THEMSELVES EXEMPLARY IN ISTANBUL?

BRIEF & RESEARCH QUESTION





The site is located in Asian side of Istanbul. It is between Marmara Sea and Bagdat Boulevard which is one of the most popular avenues' in Istanbul. However, this precious land is derelict. Even though it is owned by an Architect.

Just like everywhere in Istanbul, pollution has an impact in the side. Not only air pollution, but also noise is so loud.

The North side of the building heads to very busy road while, South side has tranquality with the view of sea and the park which is just infront of the land.

ADDRESS: OP. CEMİL TOPUZLU CADDESİ NO:108 KADIKÖY / ISTANBUL

SITE

THE TRAFFIC IN FRONT OF THE ENTRANCE DOOR. 1

ENTRANCE DOOR. 2

VIEW FROM ENTRANCE. 3

PINK OLD HOUSE. 4

FRONT VIEW OF PINK HOUSE. 5

SECURITY HOUSE. 6

GARDEN. 7

GROWING VEGETABLE FIELD. 8

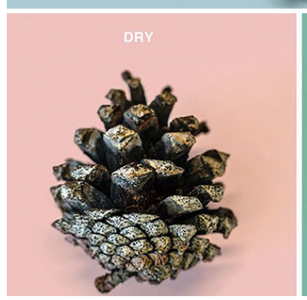
POOL HOUSE. 9

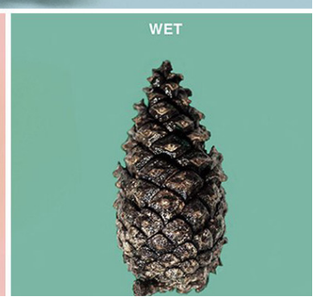
BACKYARD TO ENTRANCE VIEW. 10

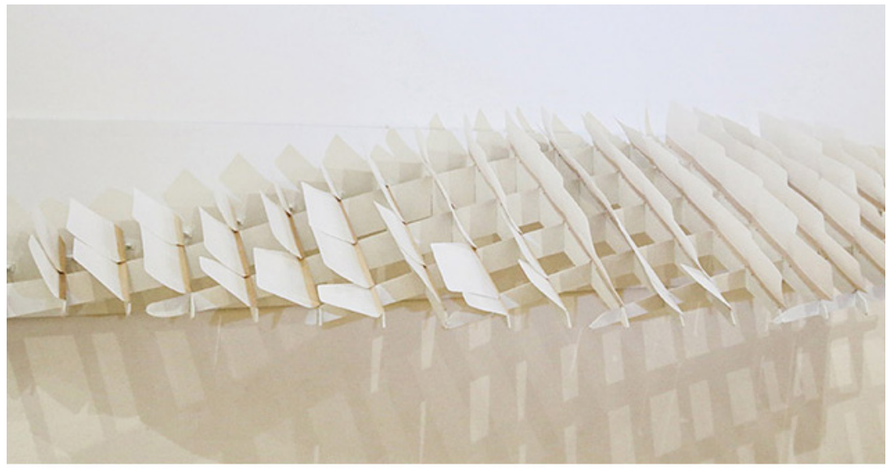
SITE PHOTOS

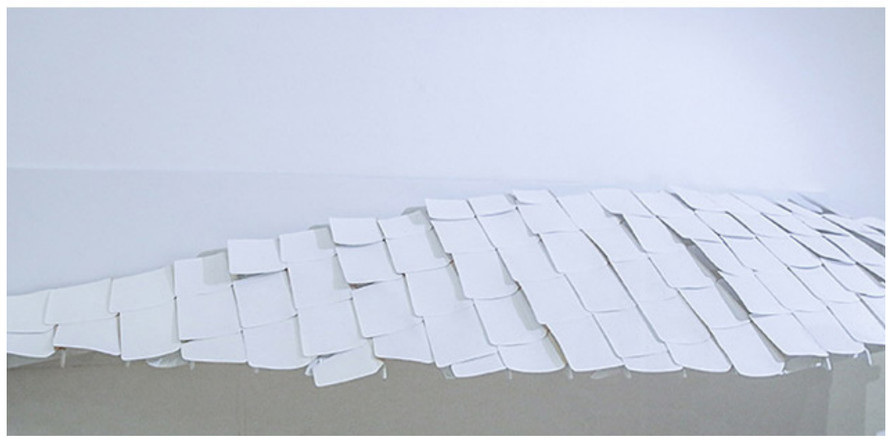
BIOMIMICRY

is the imitation of the models, systems, and elements of nature for the purpose of solving complex human problems; biomimicry in architecture and manufacturing is the practice of designing buildings and products that simulate or co-opt processes that occur in nature.









CASE STUDY

As nature has the answers to all of life's problems, Chao Chen creates biomimetic water-reactive shelter using pine cones. In order to protect and release its seeds, the cone has the ability to open and close its surface in reaction to water. its outer layer has a higher hygroscopic expansion ratio than the inner therefore causing, when dry, it to elongate outwards and release its seeds amidst optimum conditions.

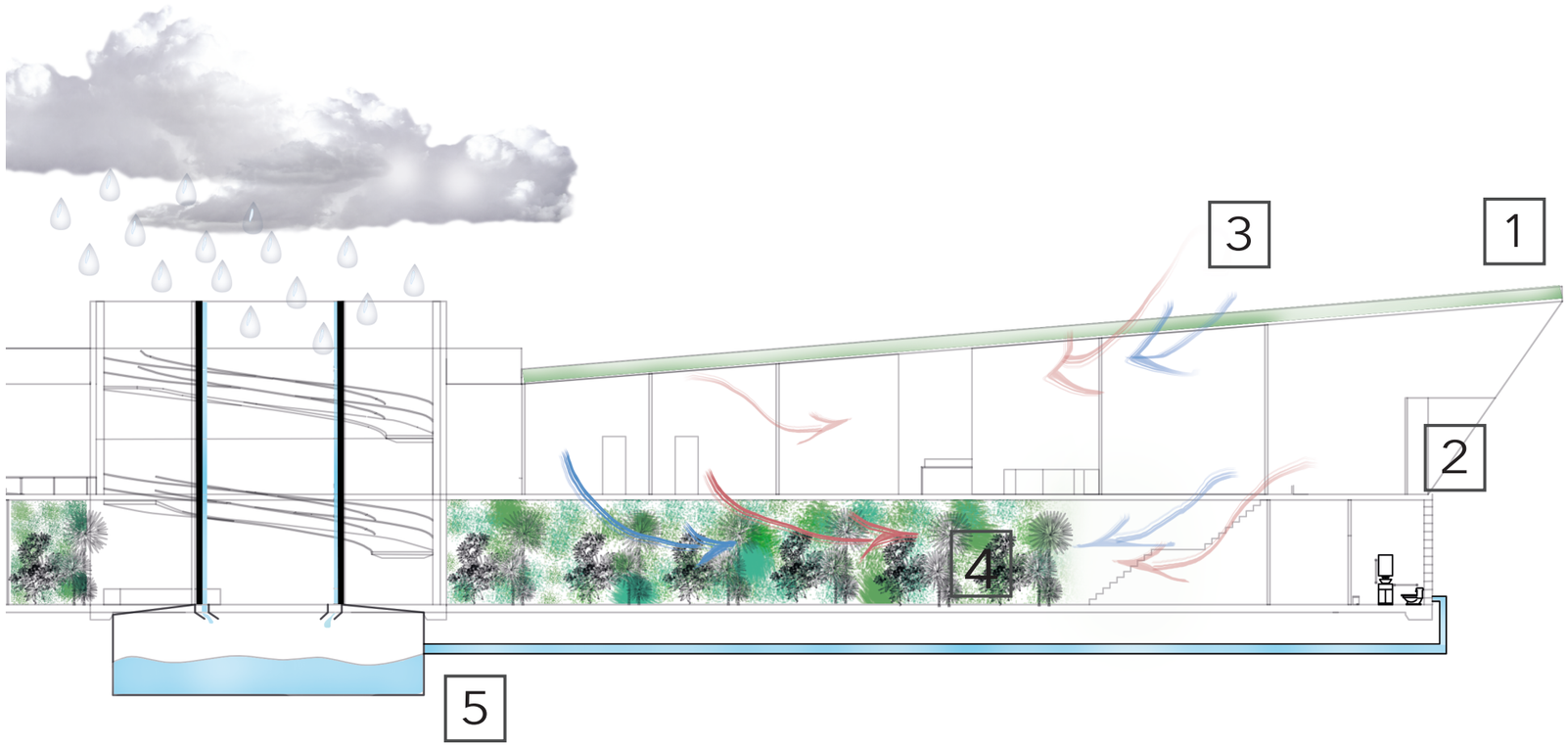
Chen, who is getting his masters in product design at the RCA, used that information to create a laminate made from fabric, a thin film and veneer that reacts to water the same way. When the veneer takes in water, the fibers expand perpendicular to the grain, elongating and curving the material just like the shell of a pine cone.

Chen developed a Water-Reacting Shelter covered in laminated tiles that open up on sunny days, but stack on top of each other to provide shelter when it starts to rain.

CONCEPT - BIOMIMICRY

SUSTAINABILITY IN ARCHITECTURE

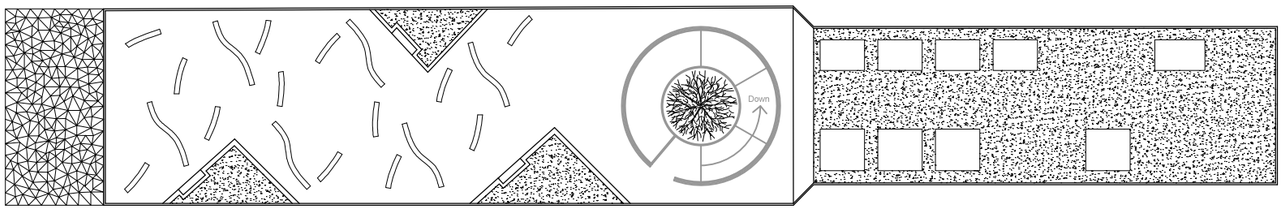
is aims to use only environmentally friendly techniques and materials during the building process. It also seeks to minimize the negative impact of buildings through efficient energy consumption and development space. The philosophy is to ensure that the actions taken today don't have negative consequences for future generations and comply with the principles of social, economic and ecological sustainability.



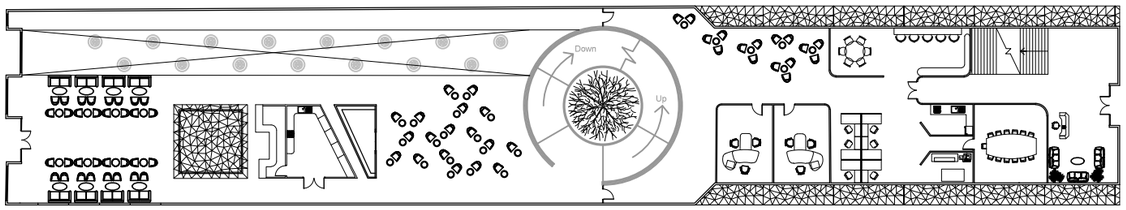
1- GREEN ROOF make a contribution to the building insulation reducing heating or air-conditioning costs.
2- BIOMIMETRIC CANOPY for underground natural cross ventilation and sunlight.
3- Strategic placement of AUTOMATIC AWNING WINDOWS, enhance to natural ventilation to cool the building and have sunlight
4- GREEN WALLS, cleaning the indoor air, balancing humidity and lifting the spirits.
5- RAINWATER COLLECTION, pump to landscape and toilet use.

SUSTAINABILITY - CONCEPT

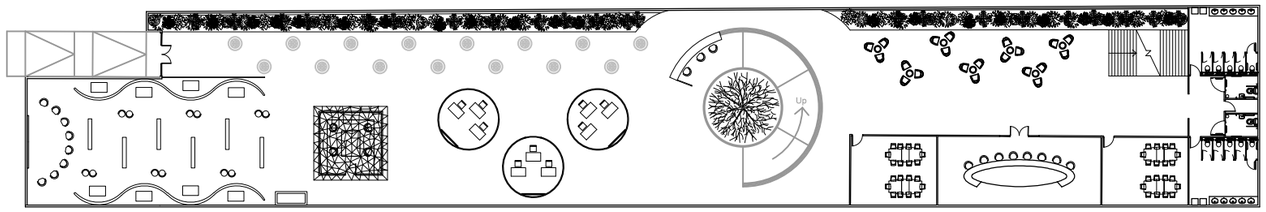
ROOF PLAN



GROUND FLOOR

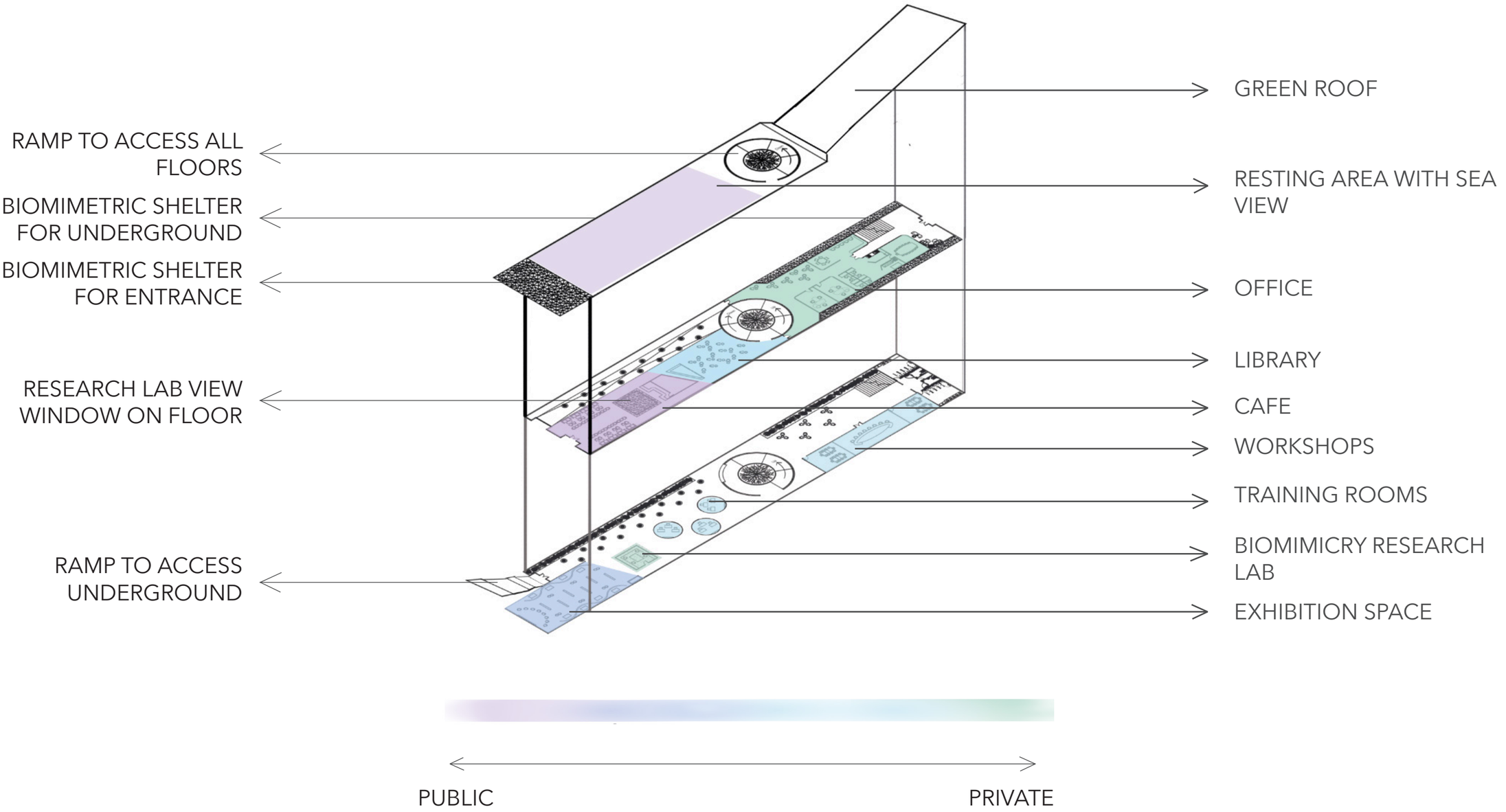


UNDERGROUND FLOOR

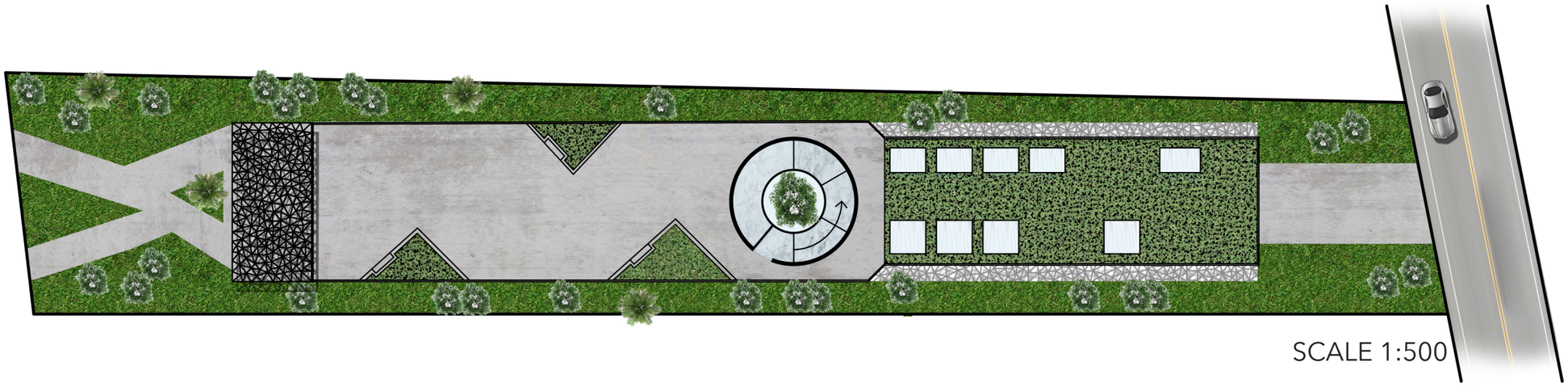


SCALE 1:500

PLANS



USAGE OF SPACE



SCALE 1:500

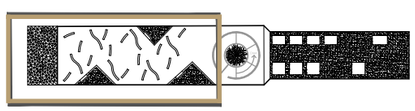
LANDSCAPE PLAN

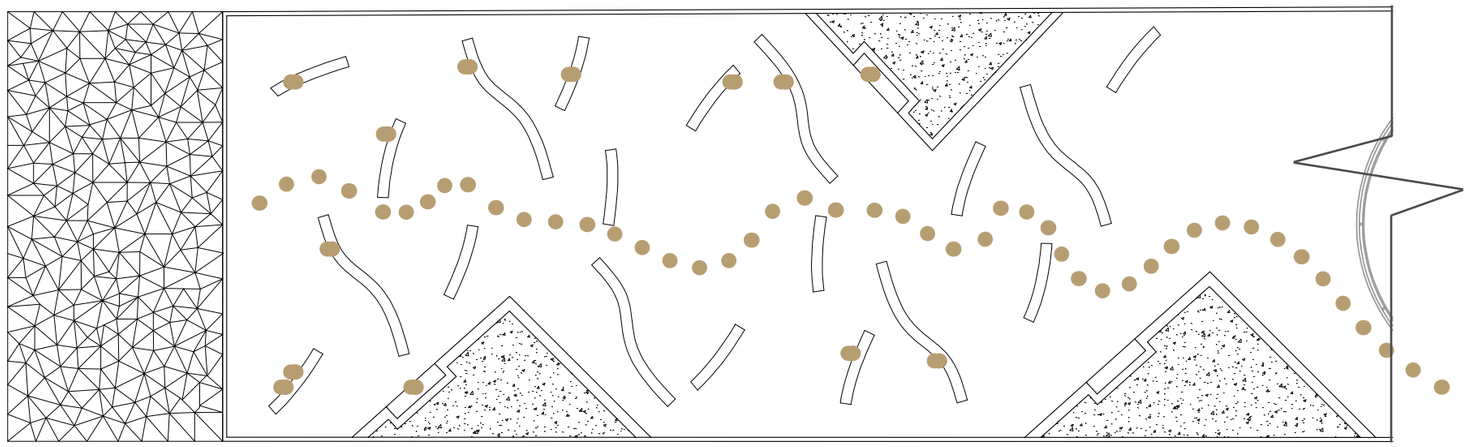
While landscape planıng my focus is on lanscaped rooftop. that will help to promote biodiversity, combat pollution such as noise, trap dust and recycles $Co_{2.}$

Visitors can access to roof top and have a resting with the sea view.

CANOPY & ROOF SEATING

visitors and workers can go to roof and have a rest at the great view of Marmara Sea. Also there is a biomimetric canopy, to protect ground floor entance from rain water, which is mimic to pine cone movements with out any mechanism.

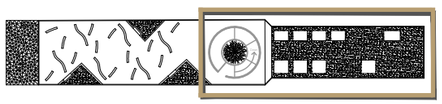


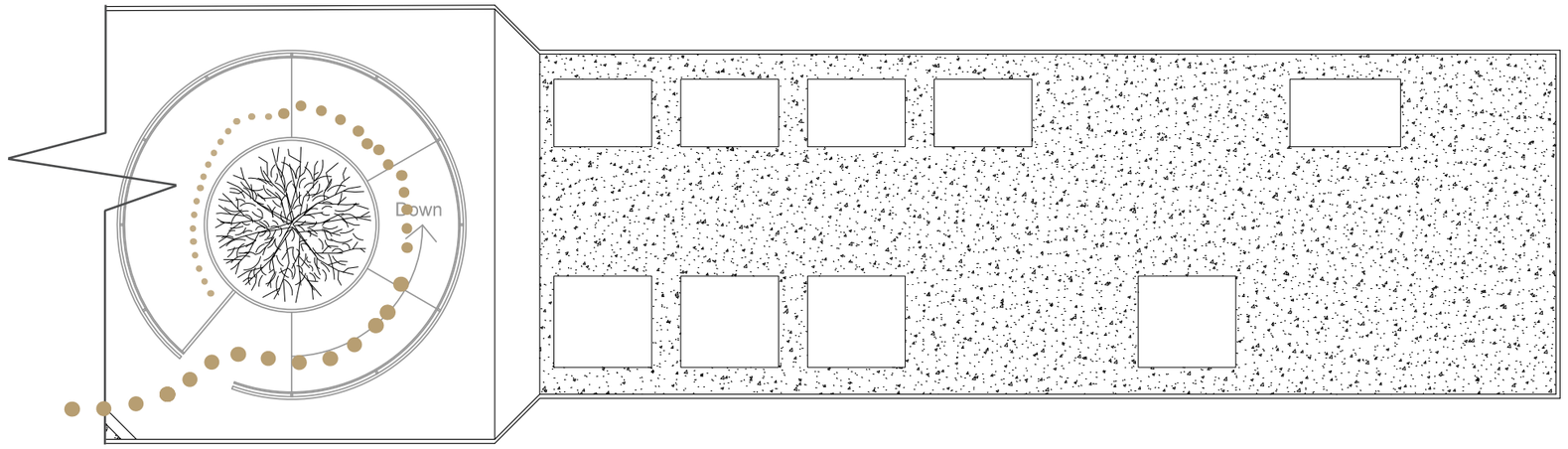


SCALE 1:200

GREENROOF

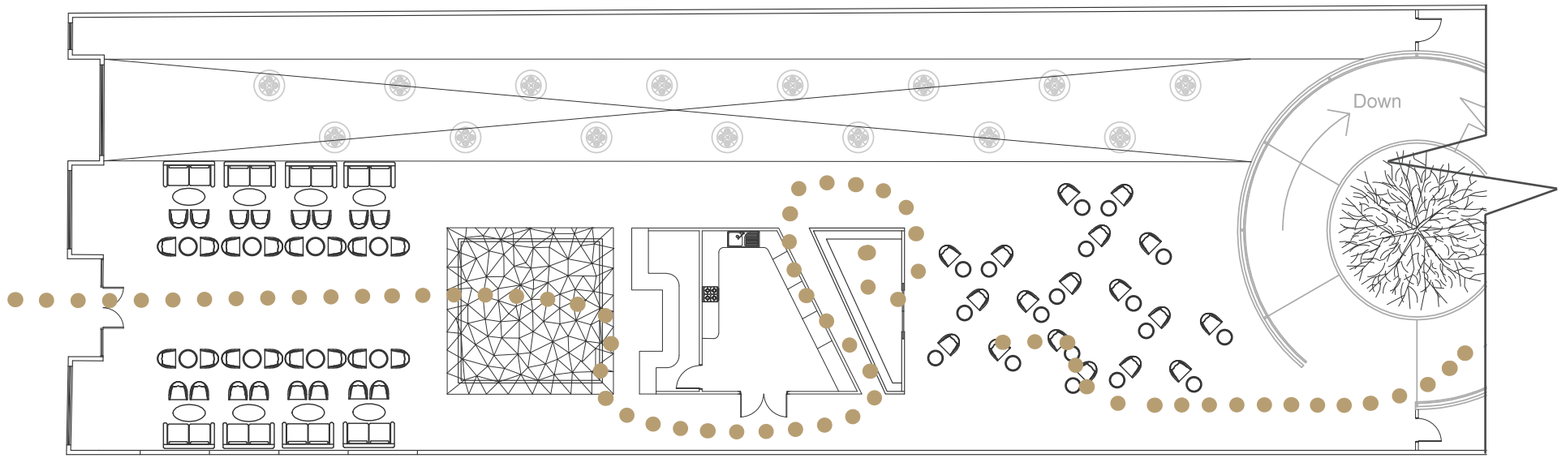
green roof is not for walking on it, for maintenance use only. Some parts of the green roof used for natural sunlight and air to get inside.
Ramp will allows visitors to get on the roof.





SCALE 1:200

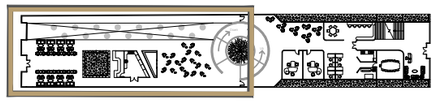
ROOF PLAN

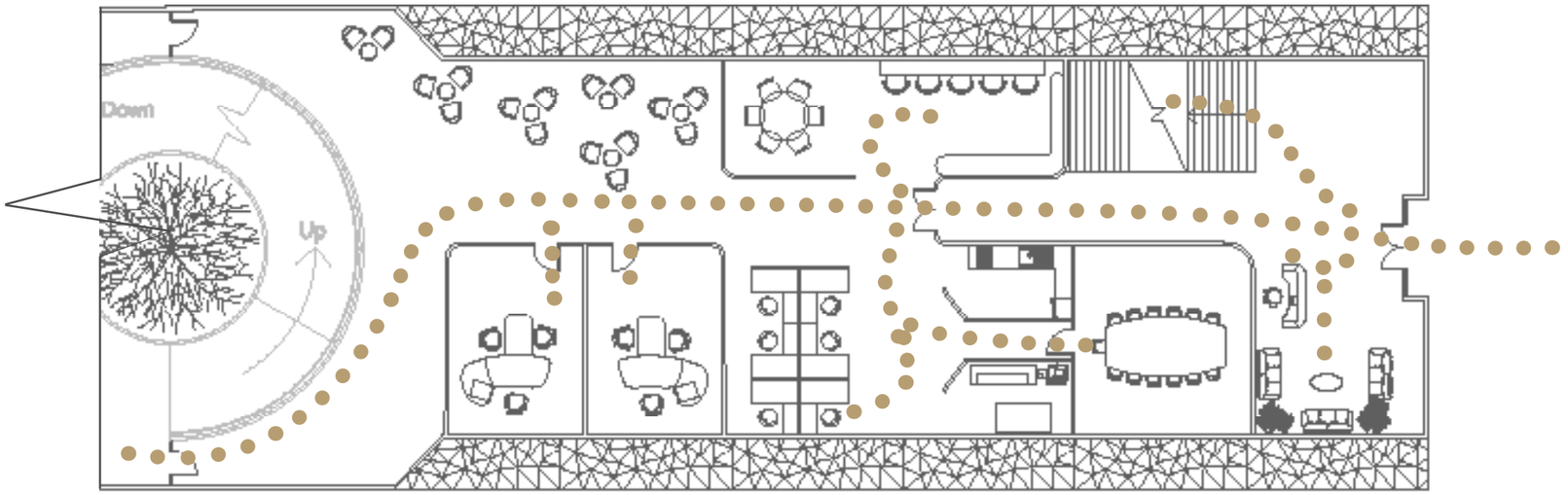


SCALE 1:200

CAFE & LIBRARY

cafe has it's own entrance, after walking through research labs' glass, visitors can have their coffee and they either go to cafe or library space which is tranquil and well for reading and researching.

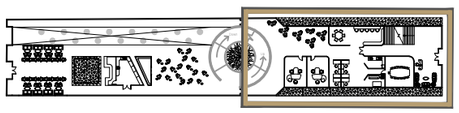




SCALE 1:200

OFFICE

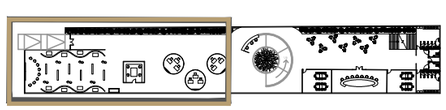
office entrance can be used by visitors too. They can use the stairs to go exhibiton space, workshop and training rooms.

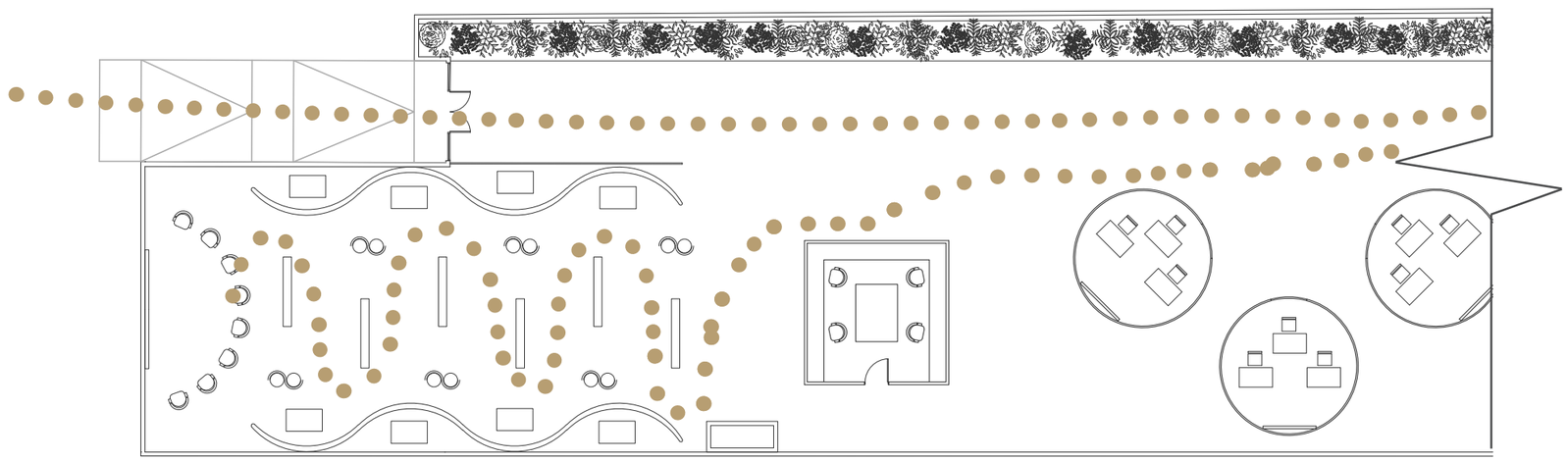


GROUND FLOOR PLAN

EXHIBITION, RESEARCH & TRAINING ROOMS

Exhibition entrance slope, let visitors to have their tickets and take some information from reception and then they can visit exhibition and also they can watch what researchers doing. Also there are training rooms for small groups.

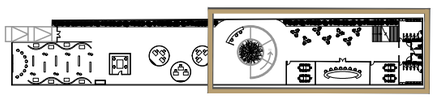


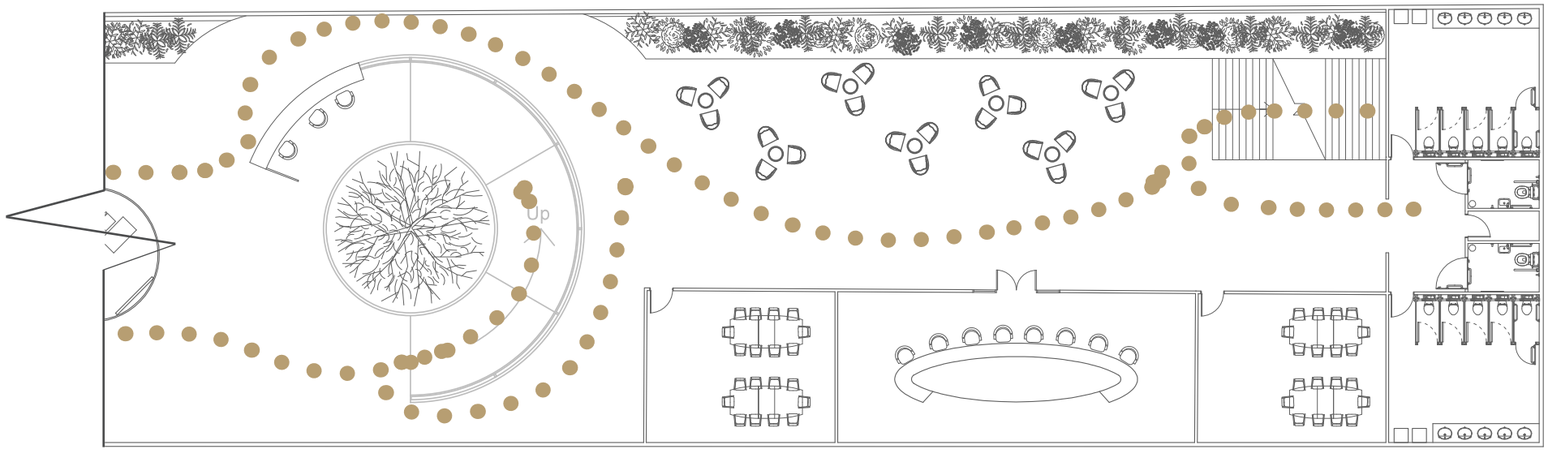


SCALE 1:200

WORKSHOPS

by using stairs visitors who, get in from office enterance, can go exhibition space, workshops and training rooms. Also by using ramp they can go library and cafe.

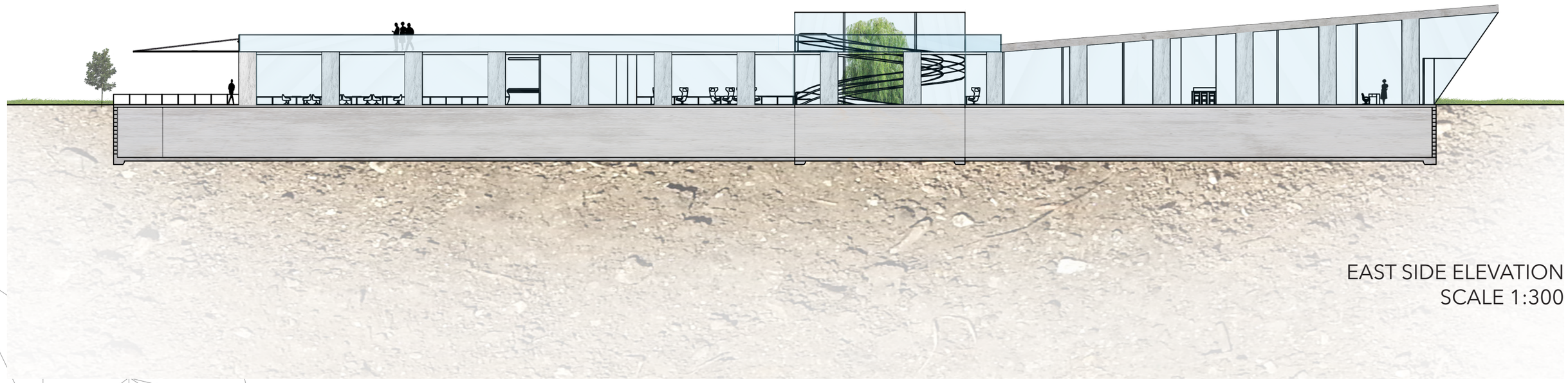




SCALE 1:200

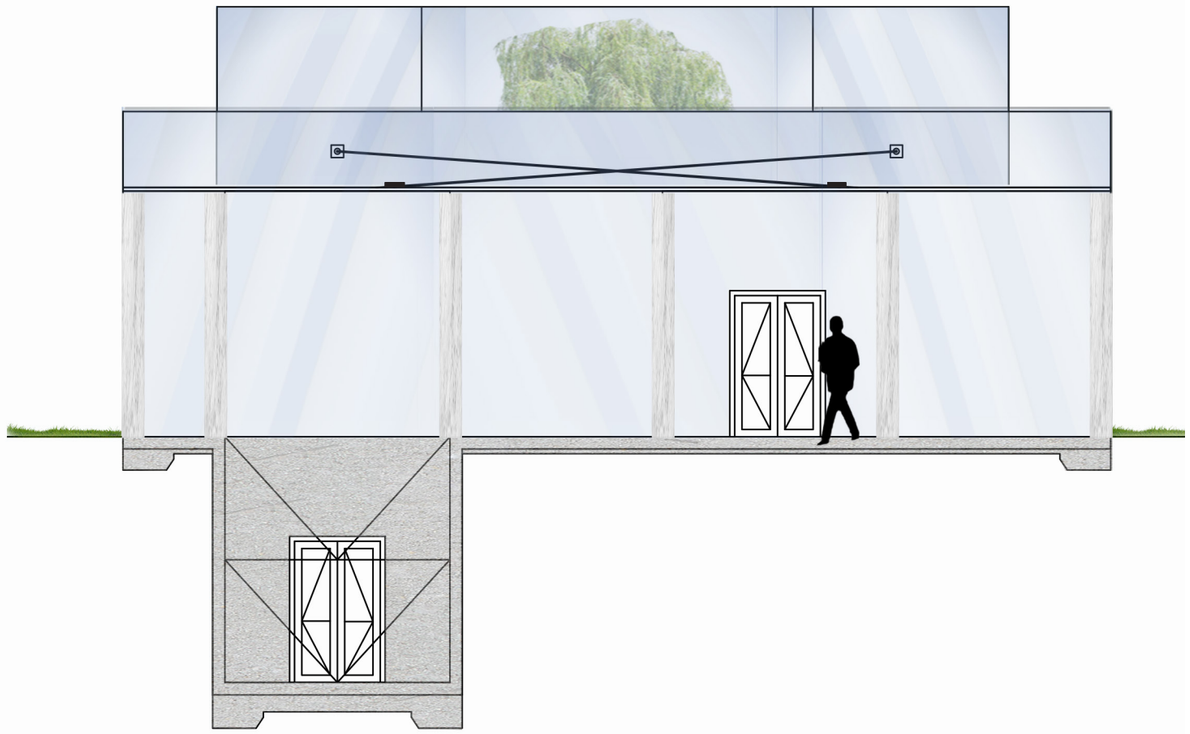
UNDERGROUND FLOOR PLAN

Trees surrounds the glazed building to enhance the natural atmosphere in the space. Glazing lets the sunlight in and that encorouges the workers to work more productive.

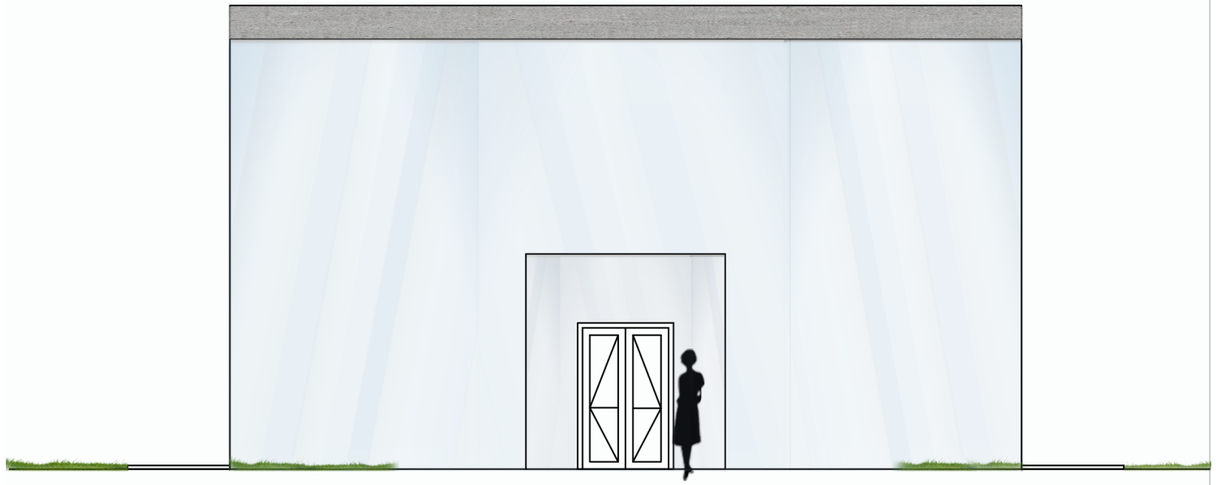


EAST SIDE ELEVATION
SCALE 1:300

ELEVATION



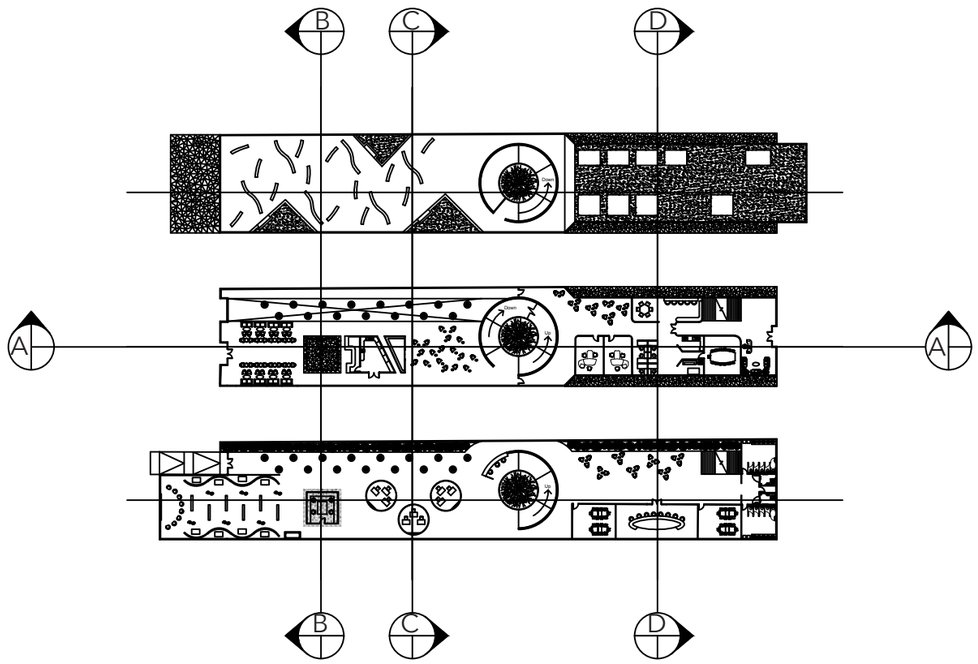
SOUTH SIDE ELEVATION
SCALE 1:100



NORTH SIDE ELEVATION
SCALE 1:100

ELEVATIONS

There are 3 different entrances. From South entrance you can either go down with ramp for exhibition center or use ground floor entrance to go directly to cafe or library. On the other hand visitors can use the North enterance which is not only for office users. Although with the ramp on the middle is allows to access to all levels.

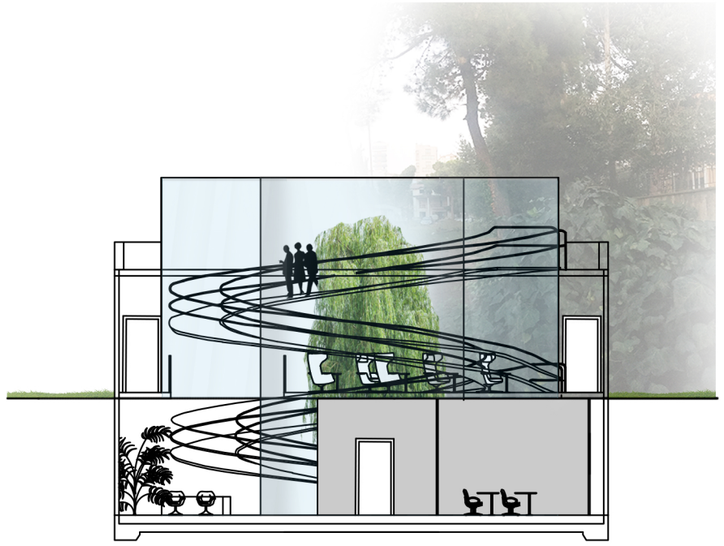


SECTION CUT PLANS
SCALE 1:1000

SECTIONS

SECTION A
SCALE 1:300

SECTION B
SCALE 1:300



SECTION C
SCALE 1:300

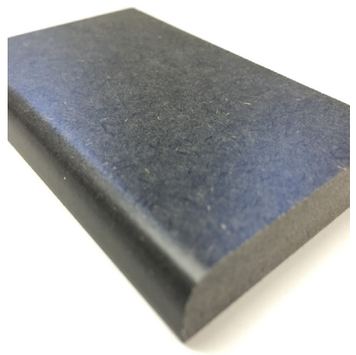
SECTION D
SCALE 1:300

SECTIONS

BAUX Acoustic Panels

is an environment-friendly, recyclable material made from wood wool, cement and water. The natural components together provide many benefits; lower energy costs, a reduced environmental impact and a stable indoor climate.

Will be used for INTERNAL WALLS.



VALCHROMAT

is an innovative product that combines the natural features of wood to the brightness of colours and, because of its unique flexibility, allows exploring the third dimension, the beauty of textures and the best of engineering.

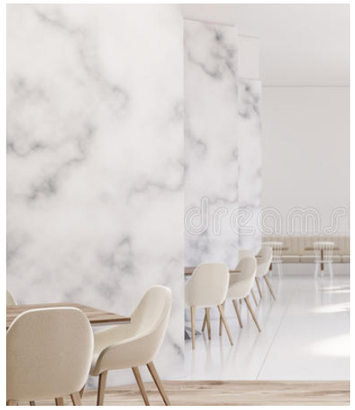
Will be used for FLOORING.

RICHLITE

is an incredibly durable, extremely versatile, and highly sustainable material made from resin-infused paper. Richlite's surface texture comes from the natural variation in the way fibers lay within the paper.

Will be used for FURNITURES.

MATERIALS

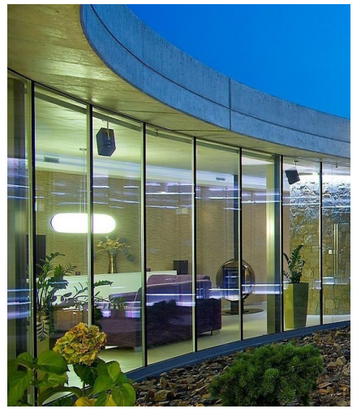



POLISHED CONCRETE

PIGMENTED WHITE TO MIMIC MARBLE

contains no Volatile Organic Compounds (VOCs) which makes it an environmentally friendly surface. There are no coatings applied, such as epoxies, urethanes, or waxes. There is no slurry or hazardous waste.

Will be used for INTERIOR AND EXTERIOR WALLS.




GLAZED FACADE WITH SOLAR CONTROL COATING

Triple Glazing is designed to provide high thermal insulation, keeping inside warmer and saving money on heating bills. Structurally supported by low iron glass beams, that allows optimum light ingress and views.

By using a Solar Control Coating on glazing:
Reduce Solar Gain whilst maintaining light transmission and clarity
Reduce cooling costs in high glazed spaces
Balances the internal temperature.

Will be used for FACADE.


AWNING ROOF WINDOW

is an environment-friendly, recyclable material made from wood wool, cement and water. The natural components together provide many benefits; lower energy costs, a reduced environmental impact and a stable indoor climate.

Will be used for ROOF WINDOW IN OFFICE.

MATERIALS

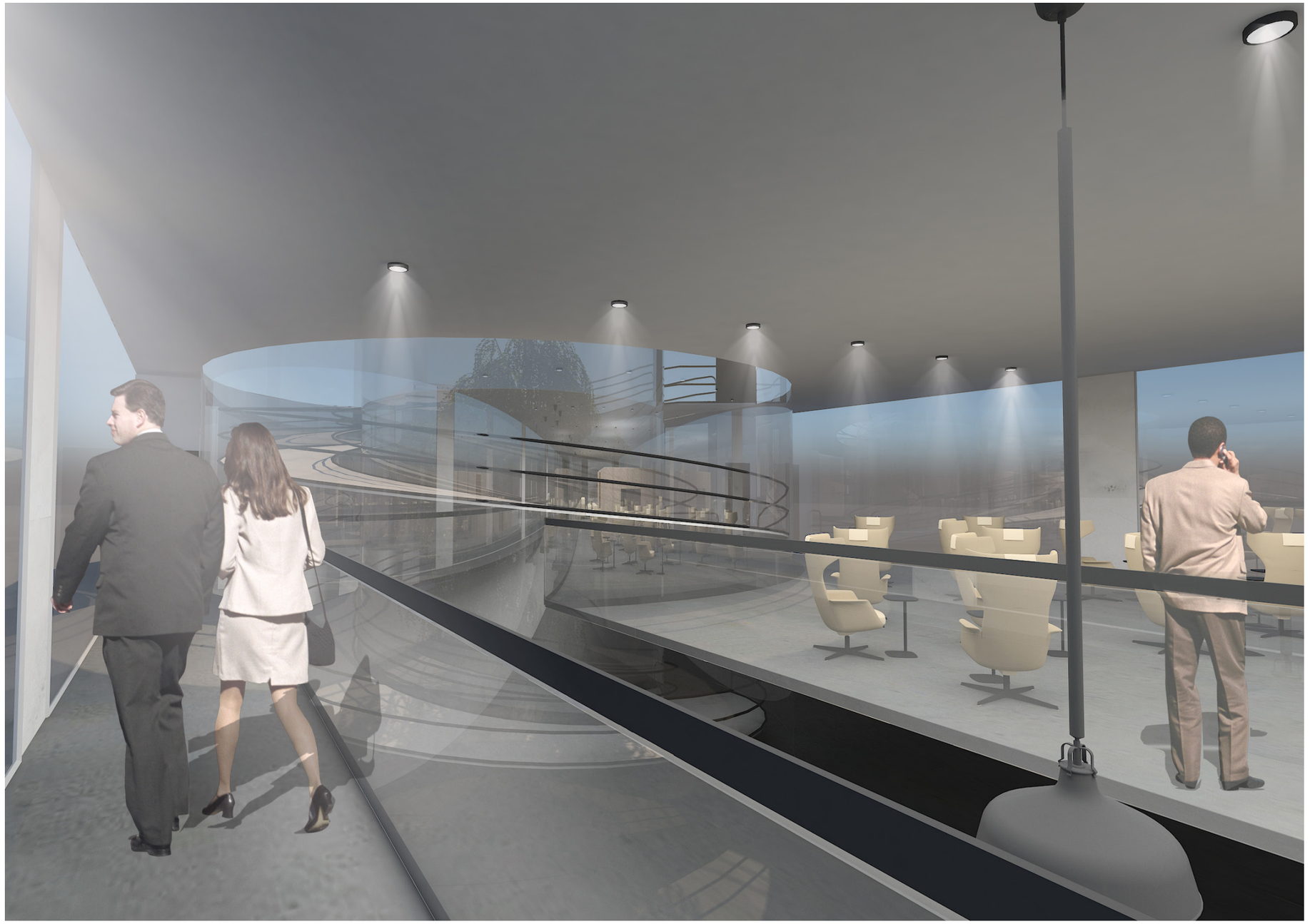
Refer to this view the void of the underground floor gives the relexing feeling of the high ceiling with the green live wall on the side, the exhibition visitors on the lower floor doesn't feel like they are under the ground. On the other hand the view clearly shows the multifuntionality of the building by illustrating cafe, library and the ramp.

VISUAL

As seen on the visual cafe users walks through the specially designed glazed floor which is for especially biomimicry researchers and underground to have sunlight. Also it aimed to encorouges consumers to have an idea and to grab their iterest about biomimicry, as they can clearly watch the scients.

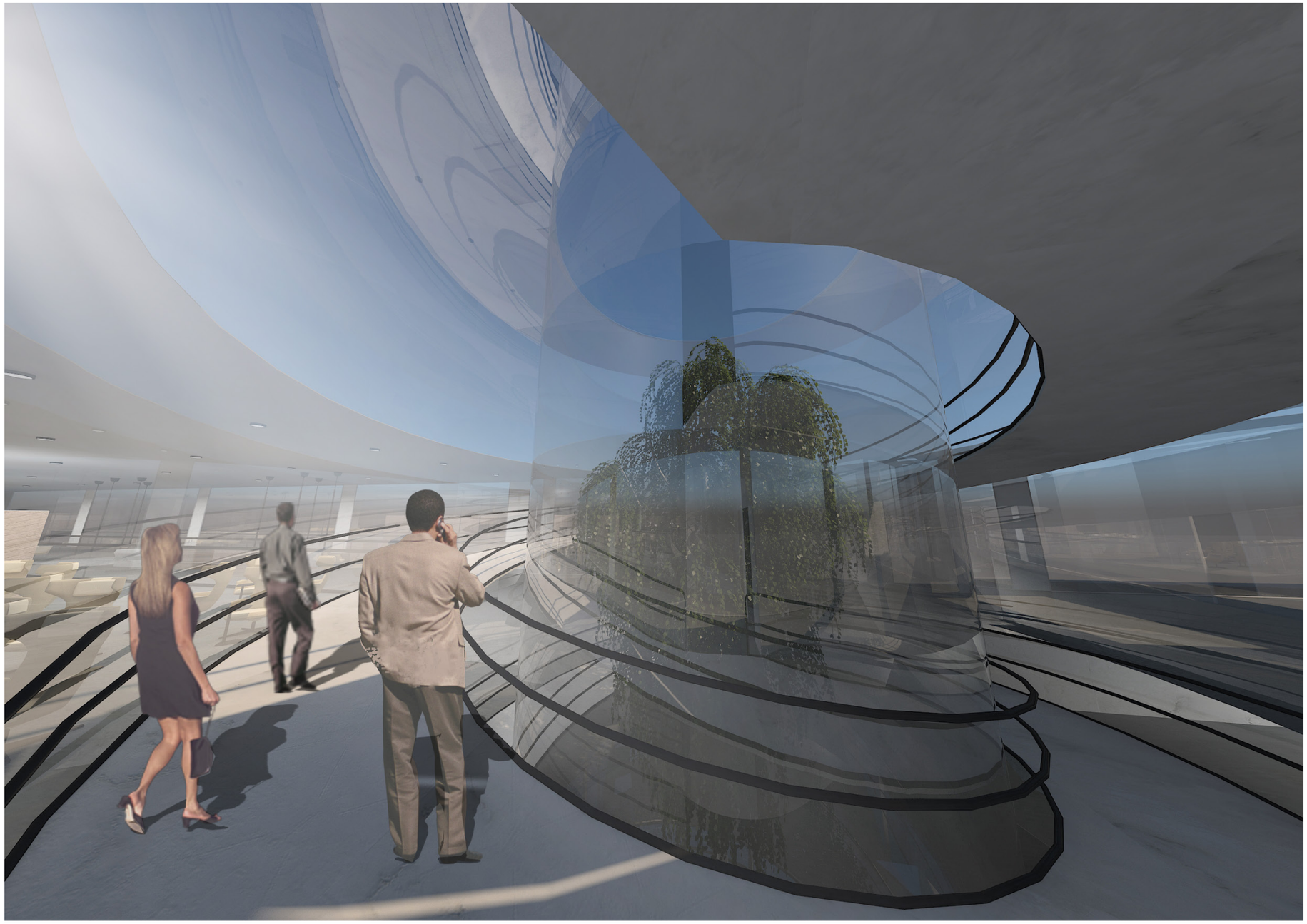
The Baux material is the reason of the sereneness with in the space which is located just behind the cafe. These 100% recyled acoustic panels used for absorbing noise.

VISUAL



The curve of the ramp gives minimalistic aesthetic to whole the building.

VISUAL

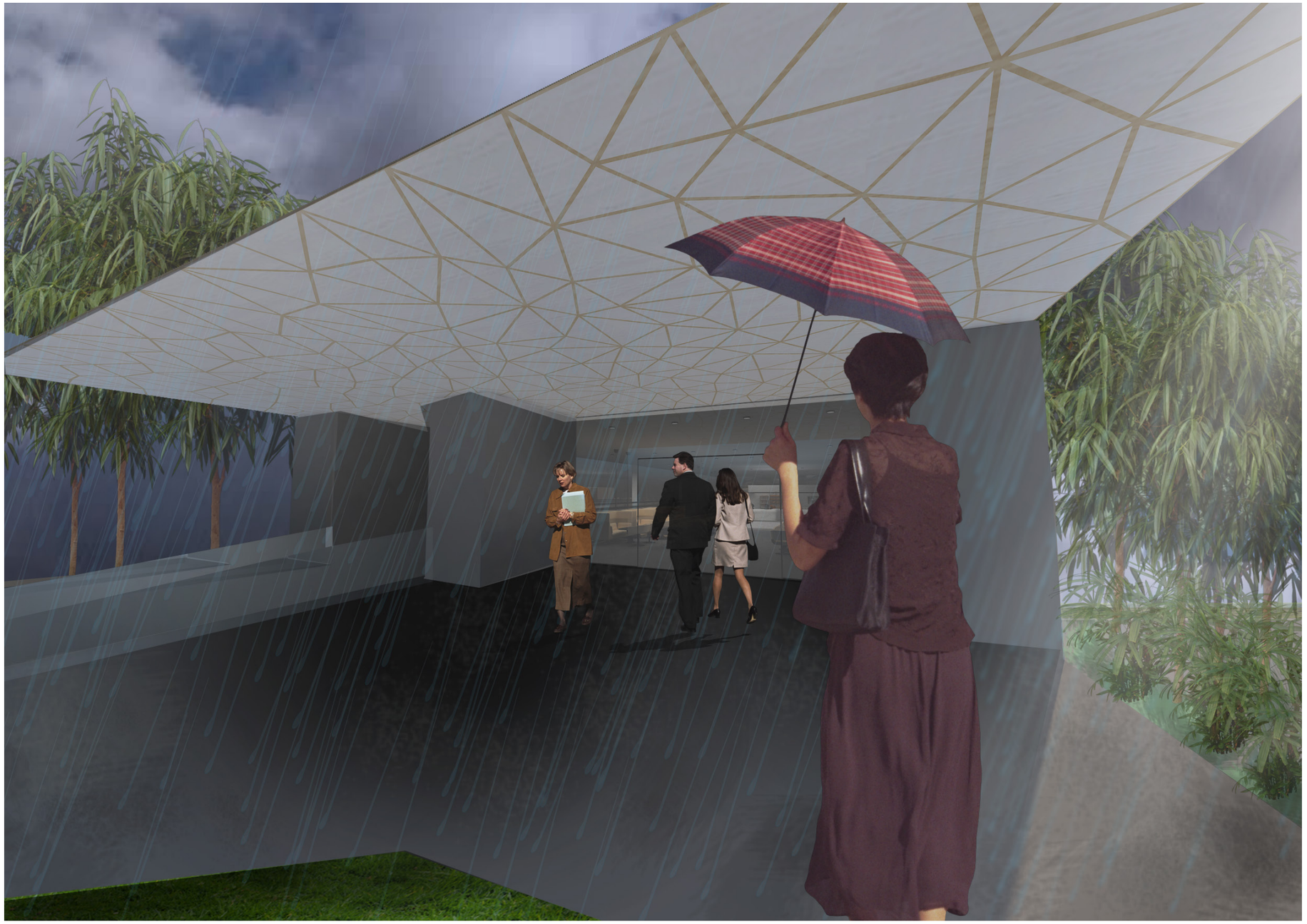


To create the perception of a natural habitat feeling, the saved tree from demolishment is used in the middle of the ramp. The tree located inside of a slinder which doesn't has top on it. With the open rooftop of the slinder tree will live long and the rain water will be collected to use for pump to landscape and toilet use.

VISUAL

This impressive entrance specially designed for the architecture office users. But with the stair to under ground visitors can visit exhibition space and other facilities down there.

VISUAL



As seen on the image, the rain reflected biomimetric canopy closed by itself and protects everyone from rain.

VISUAL

Reverse to picture on the left, the image shows that how the canopy decorates shade on the floor on a sunny day.

VISUAL 07

The angled glazing with the canopys at the sides has an effective view. The canopies designed for cross ventilation in the underground level with the natural sunlight in. As South side entrance canopy, these ones has the same feature.

VISUAL

sunlight from the roof window has a big rool in office design. With the natural lighting workers will keep being healty and alive.

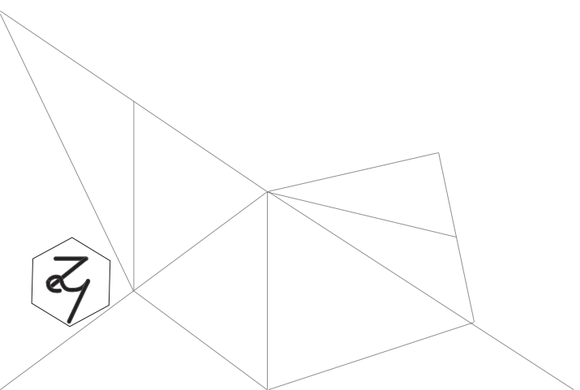
VISUAL

The aim of collective workspaces are for increase the creativity and success.

VISUAL

The image shows the atmosphere of the exhibition space. It is minimalistic and clear. The stands, goes all the way with drawing ways around prototype showcases. The Glasses at the middle are to exhibit posters and give a direction to the flow of exhibition.

VISUAL



-Janine M. BENYUS, Biomimicry (New York: Harper Collins,2002)
-Ilaria MAZZOLENİ, Architecture Follows Nature (Boca Raton:CRC Press,2013)
-Michael PAWLYN, Biomimicry in Architecture (London:RIBA,2011)
-Stephen R. Kellert, Judith H. Heerwagen, Martin L. Mador, Biophilic Design(Canada: John Wiley & Sons,INC, 2008)
-https://www.baux.se/woodwool-tiles-parallelogram/
-http://www.valchromat.pt/gama.aspx?menuid=963&eid=3058
-https://www.ecosupplycenter.com/brands/richlite/
-https://livingroofs.org
-https://www.archdaily.com/769820/chao-chens-pinecone-inspired-material-reacts-to-water
-https://inhabitat.com/astonishing-water-sensitive-building-material-acts-just-like-pine-cones/
-https://www.designboom.com/design/chao-chen-biomimetic-water-reaction-material-pine-cones-06-30-2015/
-https://www.rca.ac.uk/students/chao-chen/
-https://www.livescience.com/54979-what-are-algae.html
-https://www.dezeen.com/2017/09/10/ikea-space10-algae-producing-pavilion-copenhagen/

BIBLIOGRAPHY