

A WRINKLE IN TIME



SH47

TIRANA 2020
SUADA DEMA

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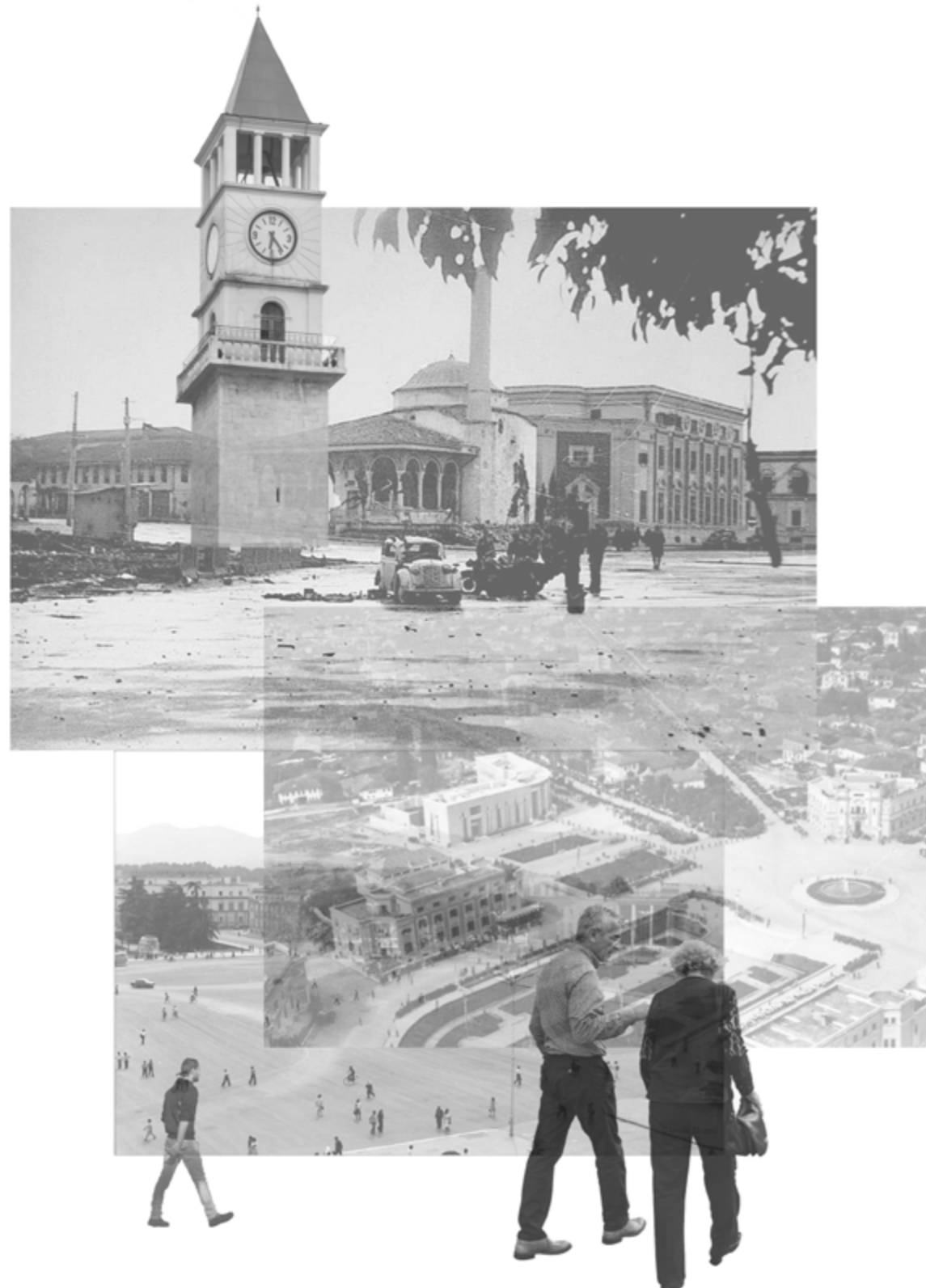
Three decades after the fall of communist regime , Albania is still experiencing significant changes, a process that is being represented mostly in its capital. Tirana is the fastest growing city in the country with thousands of people opting for studying and working there every year.

Tirana is the center of architectural and cultural development of the last decades featuring modern spaces designed by the world's most prominent designers and artists. The city is a spatial diary of many different influences including modern , post-modern , as well as earlier influences by italian urban planning.

Being a capital under rapid development since the fall of the communist regime in the 90s the albanian capital is experiencing a need for new urban sustainable growth strategies.



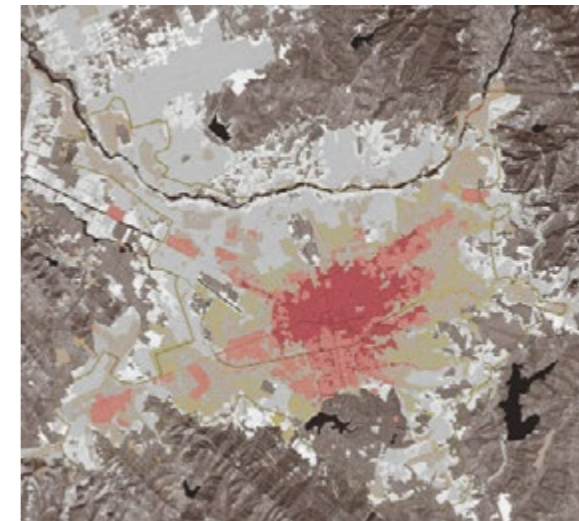
Facade poster for an exhibition in National Museum . Albanian for " Diary of a space"



Tirana architecturally represents the superimposition of different styles and movements that were deeply influenced by each historical phase from old mosques and churches to the western European inspirations on urban planning and modernism's simplicity of concrete facades. The piazzas and the parks remind one that



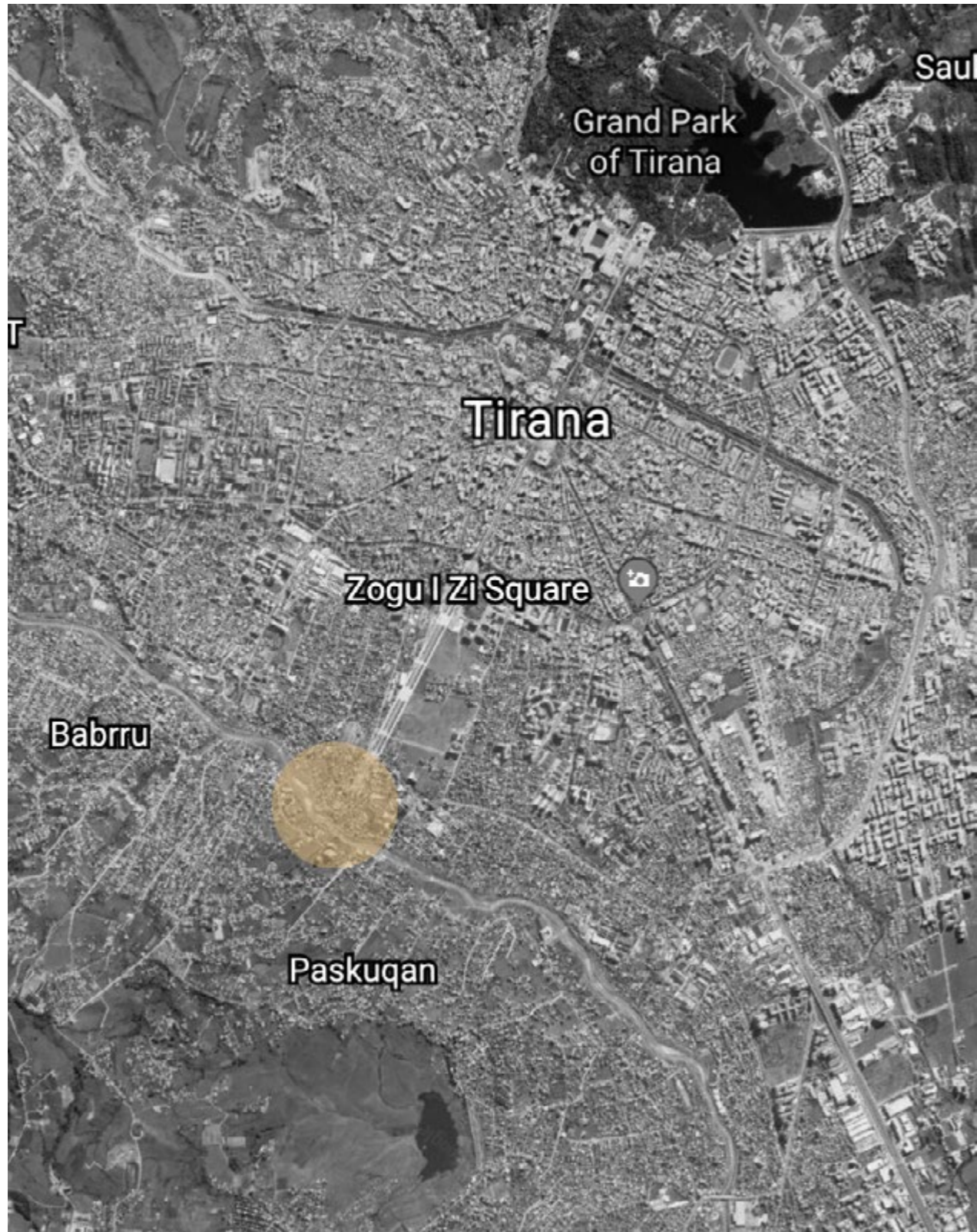
Map of informal settlements in the last decade



Expansion stages of Tirana



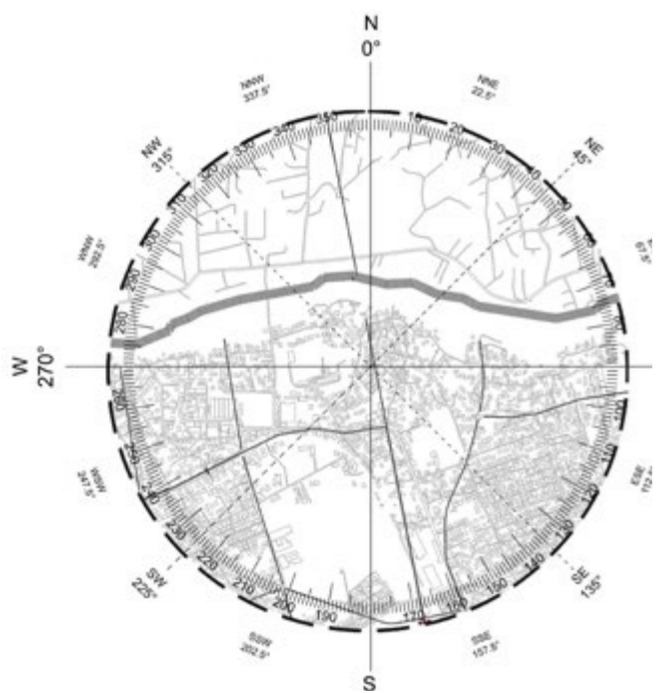
Density of population map



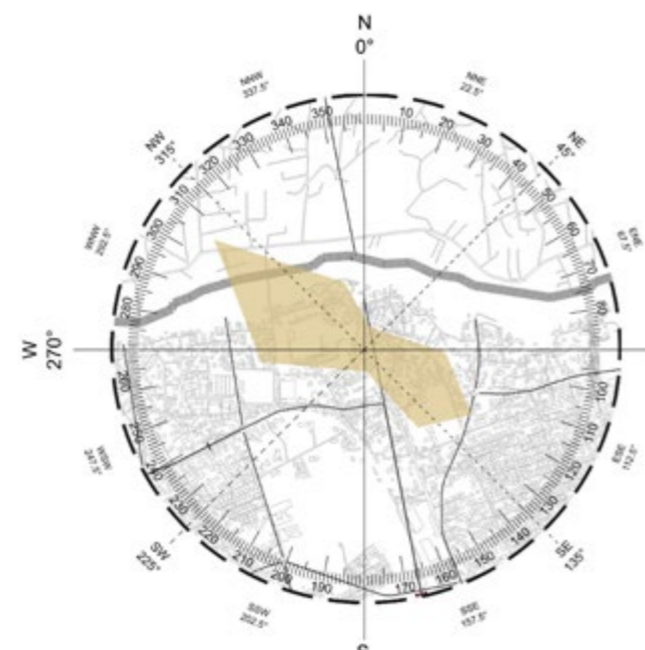
The site is located near the north river of Tirana which makes for an environment used for informal settlements and wastelands. The main axis of the city connects it perpendicularly to Lana river in the city center and the Grand Park of Tirana. The main aim of the project is the revitalization of the north river surroundings making the intersection a new node of attraction for the city , emphasizing the urban spine and becoming the start of future sustainable growth . The function of the building as an institute of technology and digital arts responds to the young potential Tirana has and their focus towards new opportunities in the field of technology.



The area near the selected site is currently a wasteland and is used for informal settlements . The lack of infrastructure makes this area quite unreachable despite being located along the main axis of the city . The boulevard connecting the city center with the river will serve as the main element of revitalizing the area and turn it into a new node in the main urban spine. The plan involves new residential areas replacing the informal ones, new ways of public transport and a new grand park for Tirana's citizens.



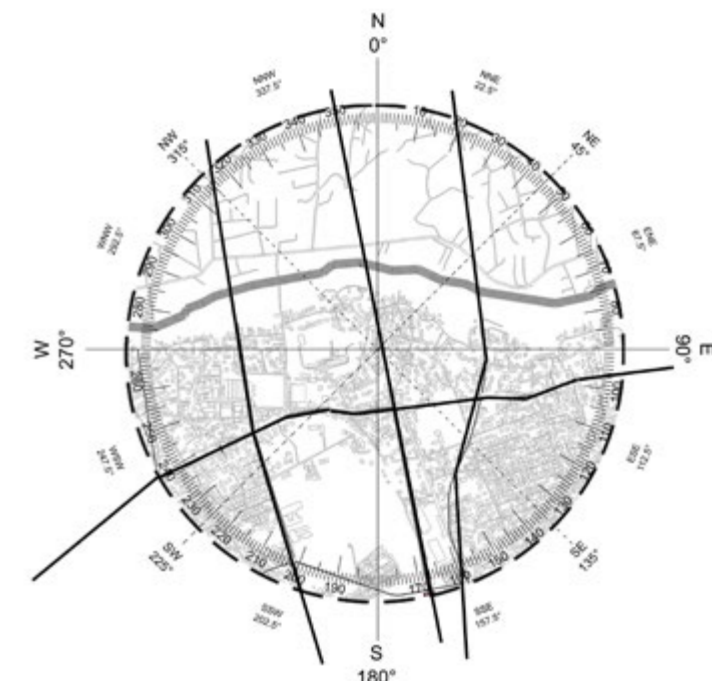
River-boulevard intersection



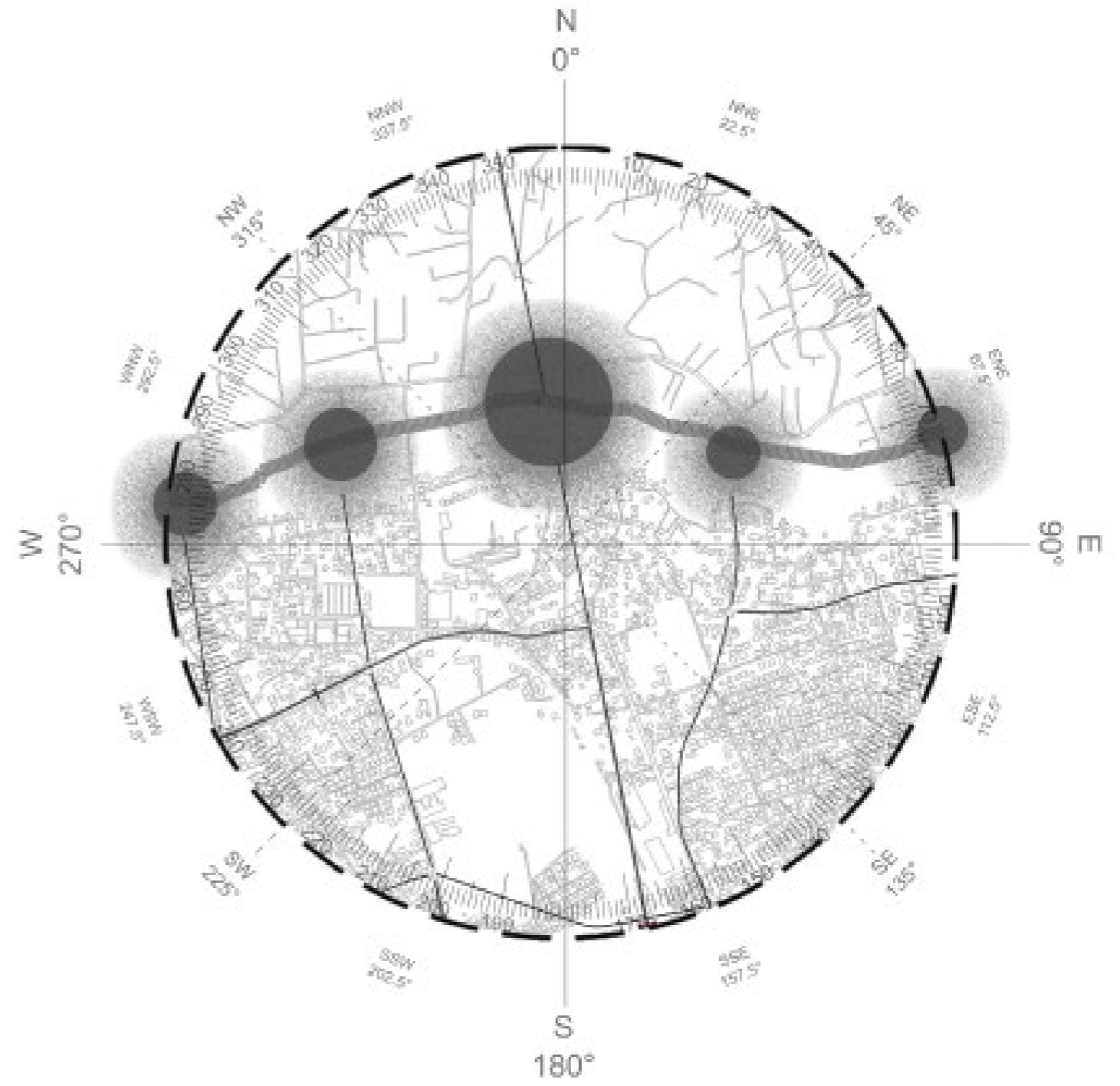
Wind rose graph



Sun path



Accessibility

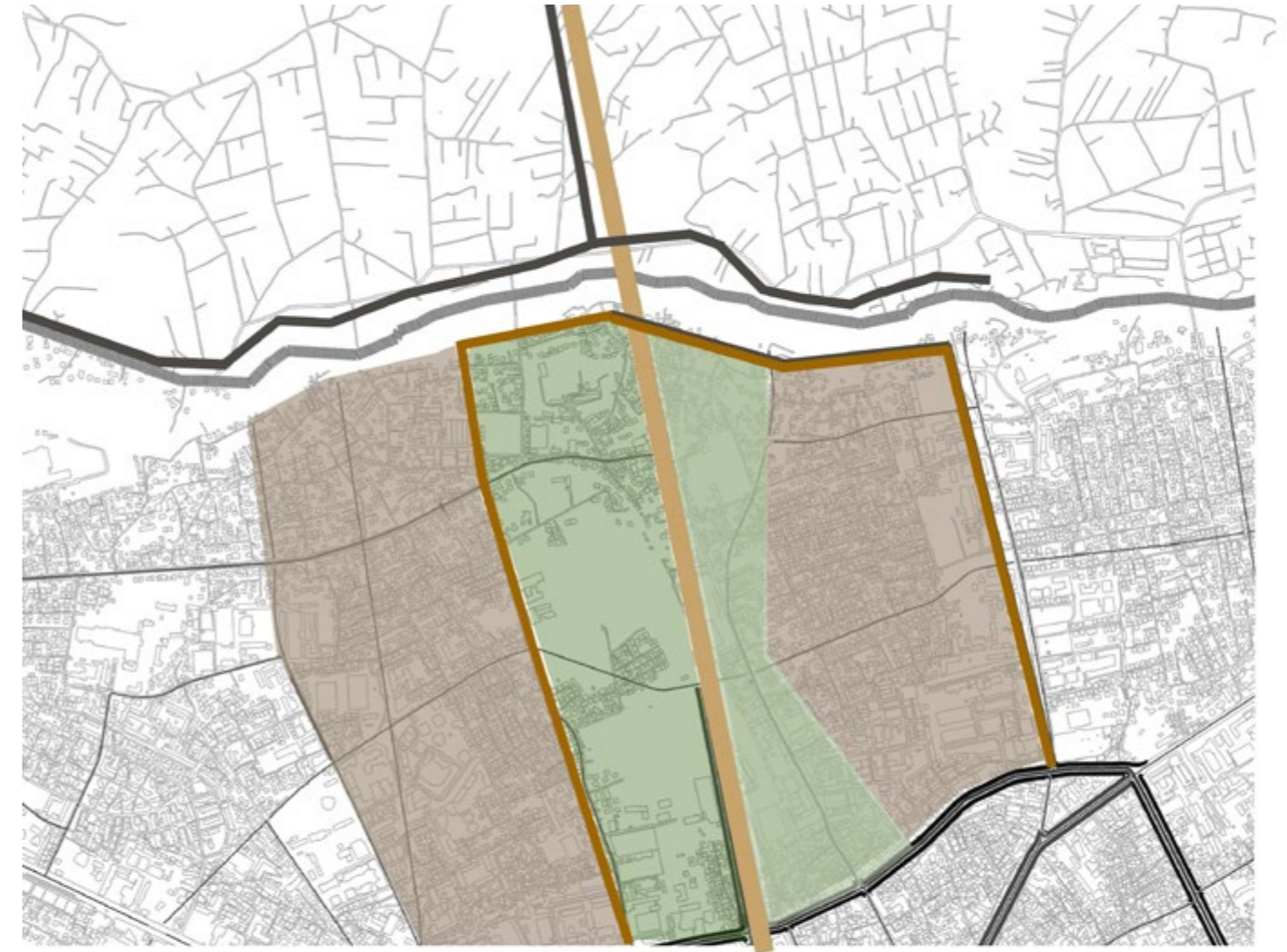


intersection nodes



Intervention area diagram

One of the main aims of the intervention plan is creating a second node along the main north - south axis that will lead to a sustainable expansion through the boulevard. The current wasteland displays a lot of potential for a new urban attraction especially for new parks and recreational spaces.



- New park
- Tramway
- New residential complex
- Reoriented car road

POINT FRASIER WETLANDS PERTH , AUSTRALIA

Stormwater wetlands are constructed stormwater management practices, not natural wetlands. Like ponds, they can contain a permanent pool and temporary storage for water quality control and runoff quantity control. Wetlands are widely applicable stormwater treatment practices that provide both water quality treatment and water quantity control. Stormwater wetlands are best suited for drainage areas of at least 10 acres. When designed and maintained properly, stormwater wetlands can be an important aesthetic feature of a site.

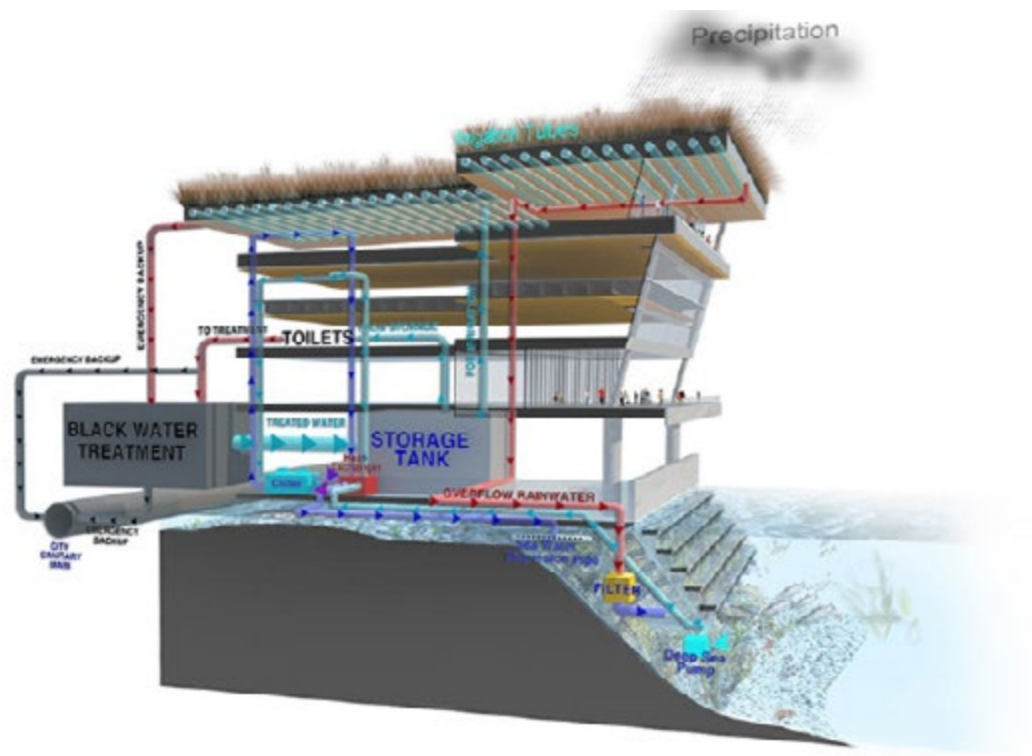


Stormwater Management: The Point Fraser site receives stormwater runoff from an 18 hectare (44.5 acre) catchment within the Perth Central Business District. Previously, untreated stormwater flowed directly into the Swan River, carrying high concentrations of nutrients, contributing to algal problems, as well as heavy metals, into the middle estuary. The site currently treats off-site and onsite stormwater via a series of innovative wetlands, vegetated swales, and pervious walling.



VANCOUVER CONVENTION CENTER , CANADA

The world's first LEED Platinum convention center, Vancouver Convention Centre West fully integrates the urban ecosystem at the intersection of a vibrant downtown core and one of the most spectacular natural ecosystems in North America. The culmination of two decades of planning and redevelopment for its waterfront neighborhood, the project weaves together architecture, interior architecture, and urban design in a unified whole that functions literally as a living part of both the city and the harbor.



The design approach encompasses at once a single building and a new urban district, creating an ecologically connected experience that embodies all the diverse elements that define its local and regional location. Energy and water flows are controlled through high-efficiency systems and holistically integrated with local resources.

- Predicted Energy Use Index (EUI): 100 kBtu/sf/yr
- Energy use reduction from baseline: 60%
- Predicted Water Use Index (WUI): 7 gal/sf/yr (total site)
- Water use reduction from baseline: 73%
- % precipitation managed on site: 100%
- % waste water reused on site: 100%



SEOUL , SOUTH KOREA

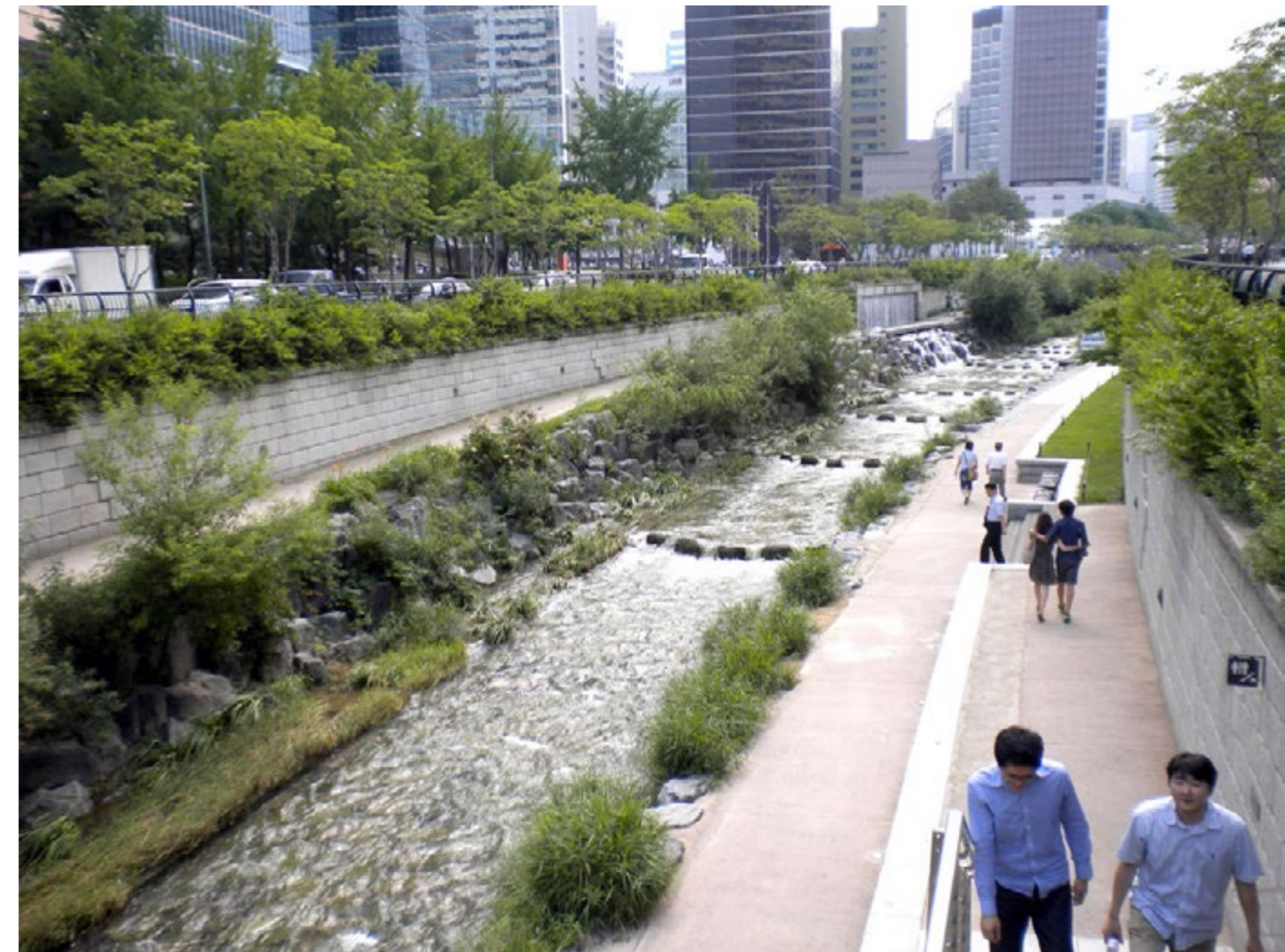
The stream was opened to the public in September 2005 and was lauded as a major success in urban renewal and beautification. However, there was considerable opposition from the previous mayoral administration of Goh Kun, which feared gentrification of the adjacent areas that housed many shops and small businesses in the machine trades.

Creating an environment with clean water and natural habitats was the most significant achievement of the project. Species of fish, birds, and insects have increased significantly as a result of the stream excavation.[6] The stream helps to cool down the temperature on the nearby areas by 3.6 °C on average versus other parts of Seoul. [7] The number of vehicles entering downtown Seoul has decreased by 2.3%, with an increasing number of users of buses (by 1.4%) and subways (by 4.3%: a daily average of 430,000 people) as a result of the demolition of the two heavily used roads.[8] This has a positive influence by improving the atmospheric environment in the region.

The project attempted to promote the urban economy through amplifying urban infrastructure for a competitive city in the business and industrial area centered on the stream. The urban renewal project was the catalyst of revitalization in downtown Seoul. Cheonggyecheon became a centre for cultural and economic activities.

Cheonggyecheon restoration work brought balance to the areas south and north of the stream. During the modernization era, downtown Seoul was divided into two parts, north-south, based on their features and function. The restoration helped to join these parts to create a new urban structure connecting the cultural and environmental resources in northern and southern areas of the stream (Hwang n.d.), resulting in a balanced and sustainable development of northern and southern areas of the Han River.

The project sped up traffic around the city when the motorway was removed. It has been cited as a real-life example of Braess' paradox





THEORY

URBAN REGENERATION

- new housing
- economical increase
- encourage more business activities
- more public space

LANDSCAPE URBANISM

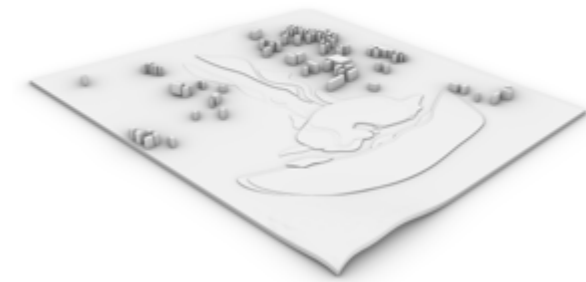
- an approach to the organization of the design of human habitat based upon the existing landscape form and not on architectural form.
- an ecological approach to human habitat that is process focused and contextually sensitive to ecological functions.
- human-space integration

NEW URBANISM

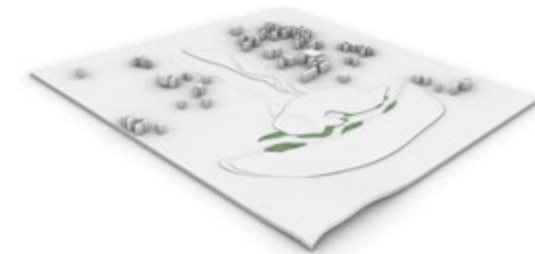
- walkability
- connectivity
- mixed-use
- human sensitivity

SMART GROWTH

- minimized urban sprawl
- urban centers
- existing infrastructure usage
- sustainable development



The initial intervention increases the level difference between the river and the surroundings making the land less vulnerable to immediate flood risk.



The wetlands not only function as sponges in case of heavy raining but they also provide a new environment for the ecosystem development and wildlife cultivation.

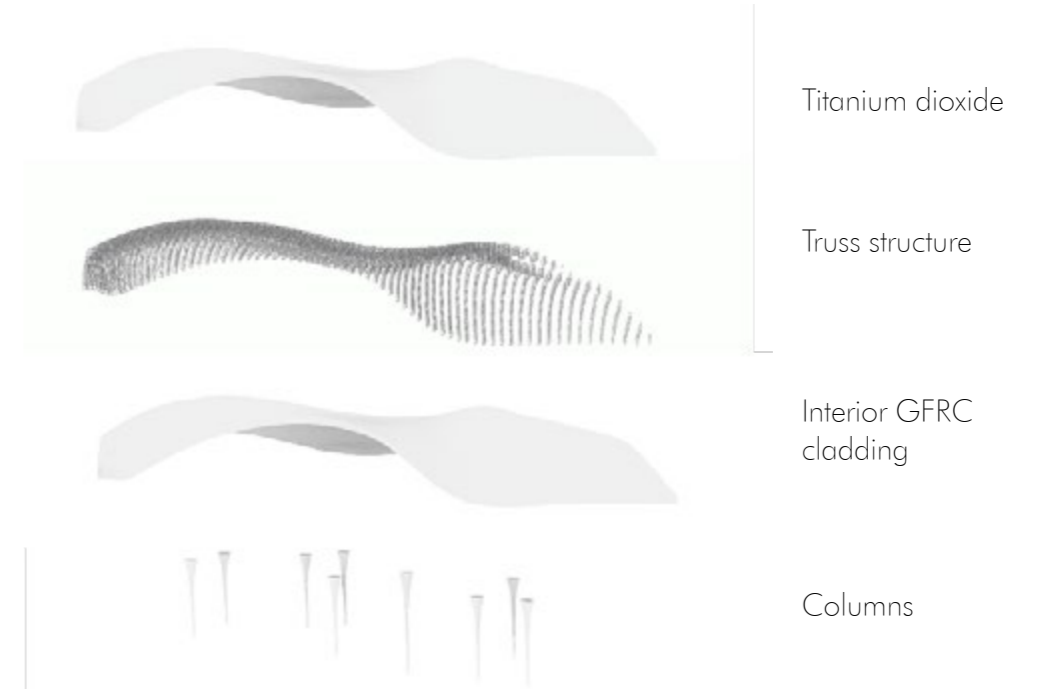


The area beyond the river is planned to resemble a forest, making the surrounding land more resistant towards flood and providing a space for both people and wildlife. The intention of the new masterplan is a new urban oasis for Tirana.

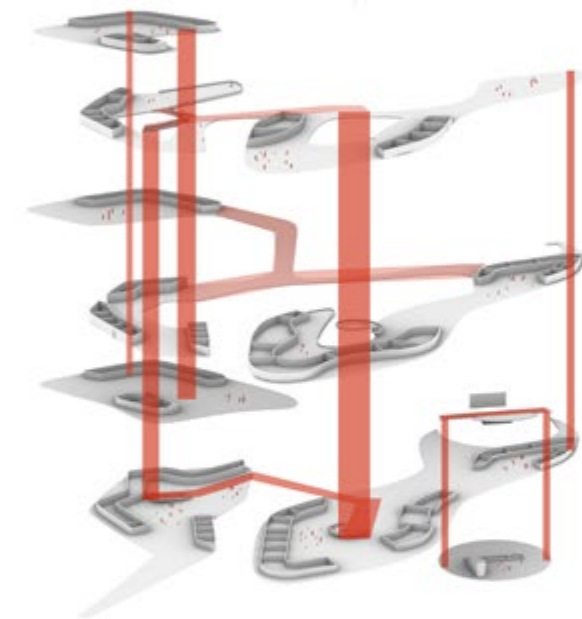


MASTERPLAN

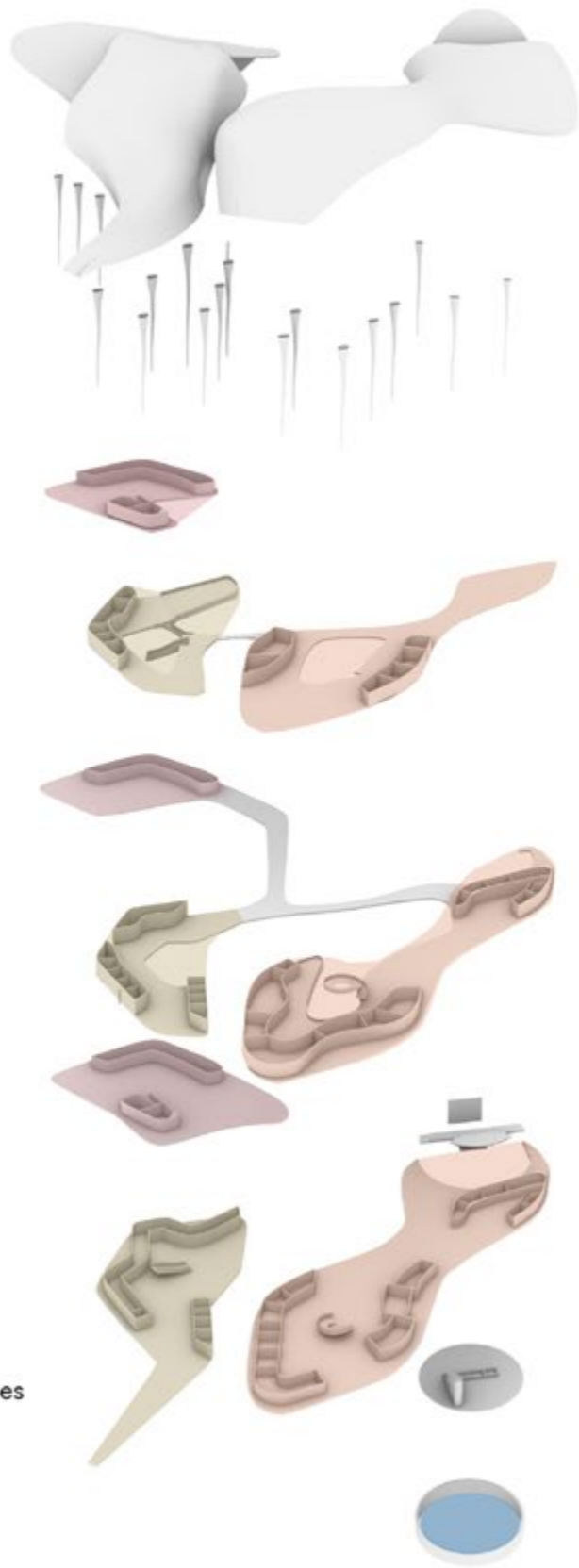
The focus of the masterplan is creating a interconnection between landscape , the building and the river itself. The building becomes crucial part of the axis , enhancing it and defining the landscape.



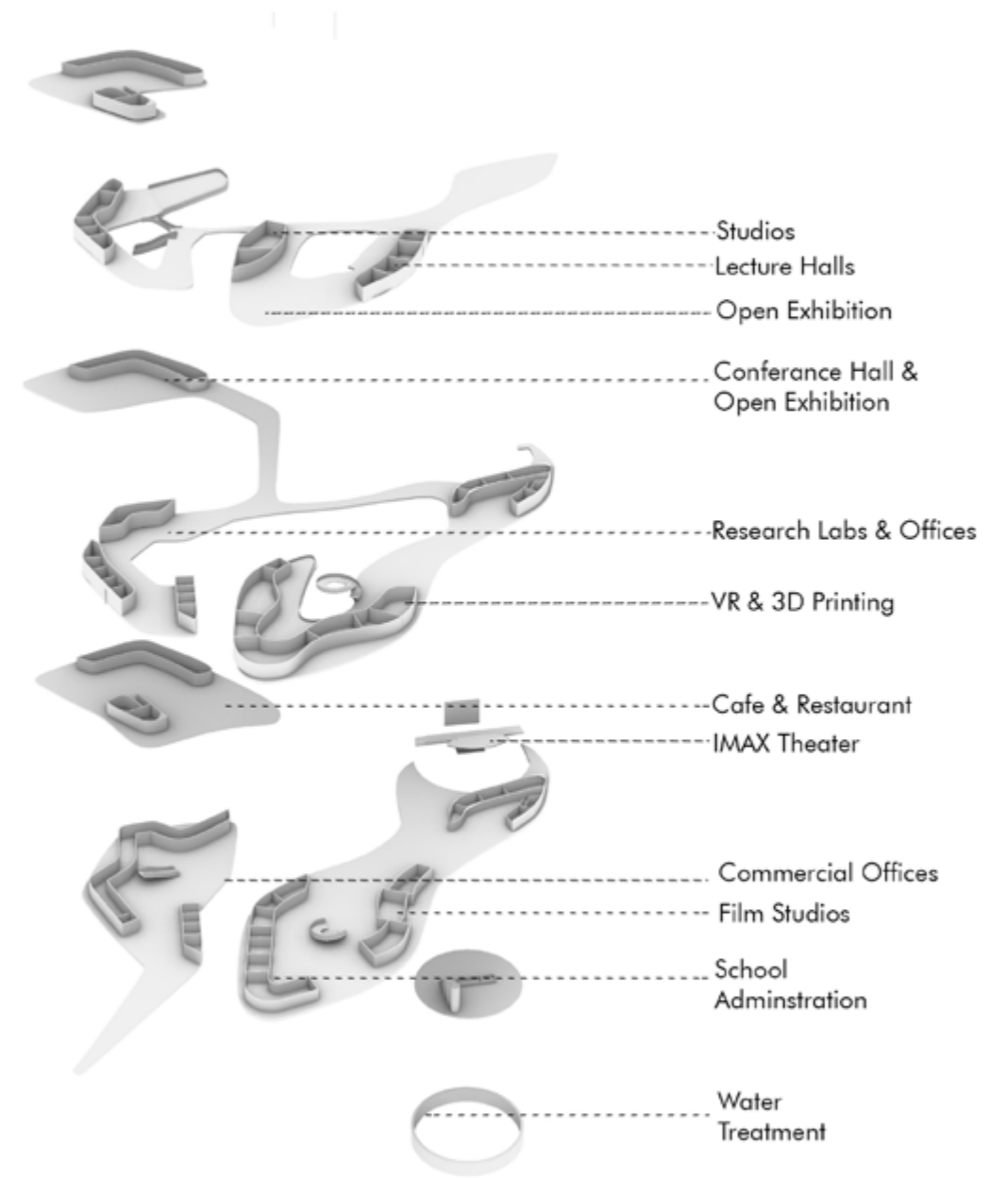
Structural diagram



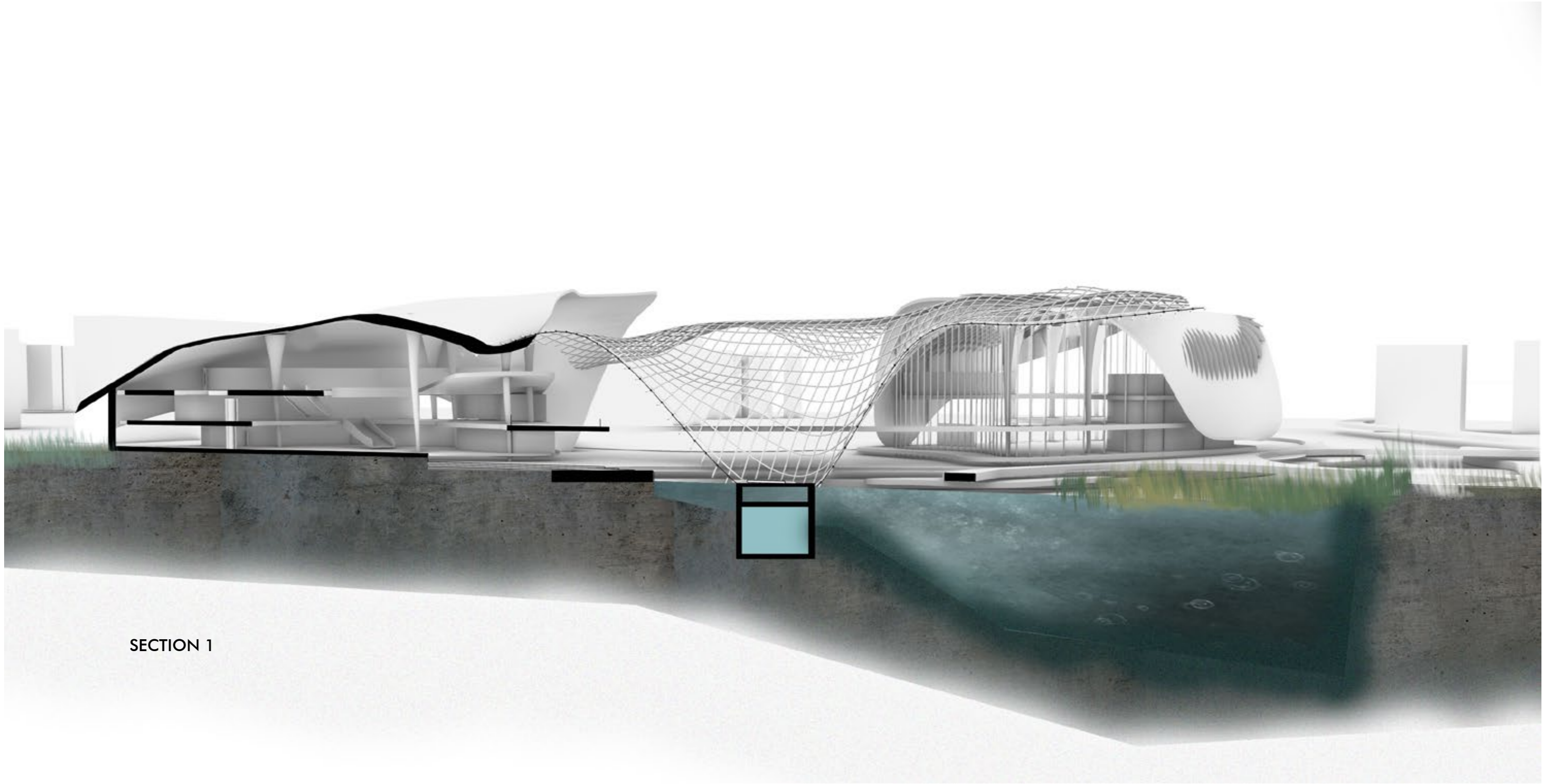
Circulation diagram



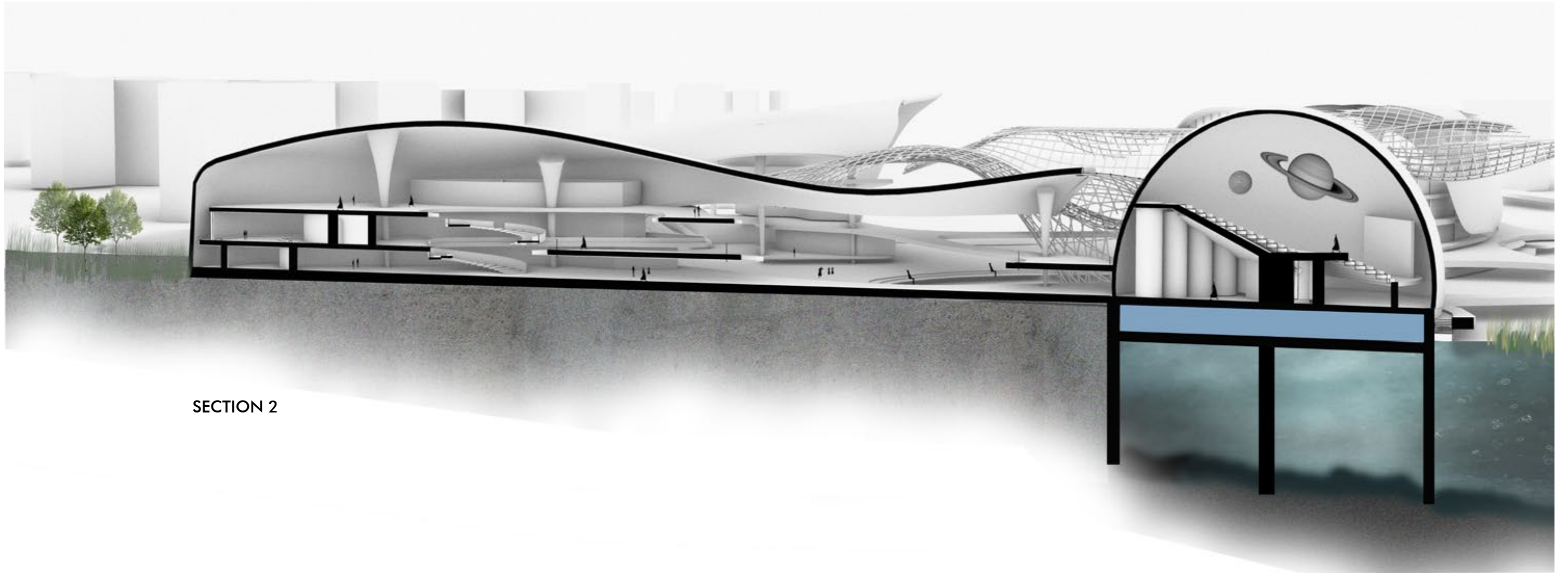
- Public Spaces
- Offices
- Educational Classes
- Water Tank



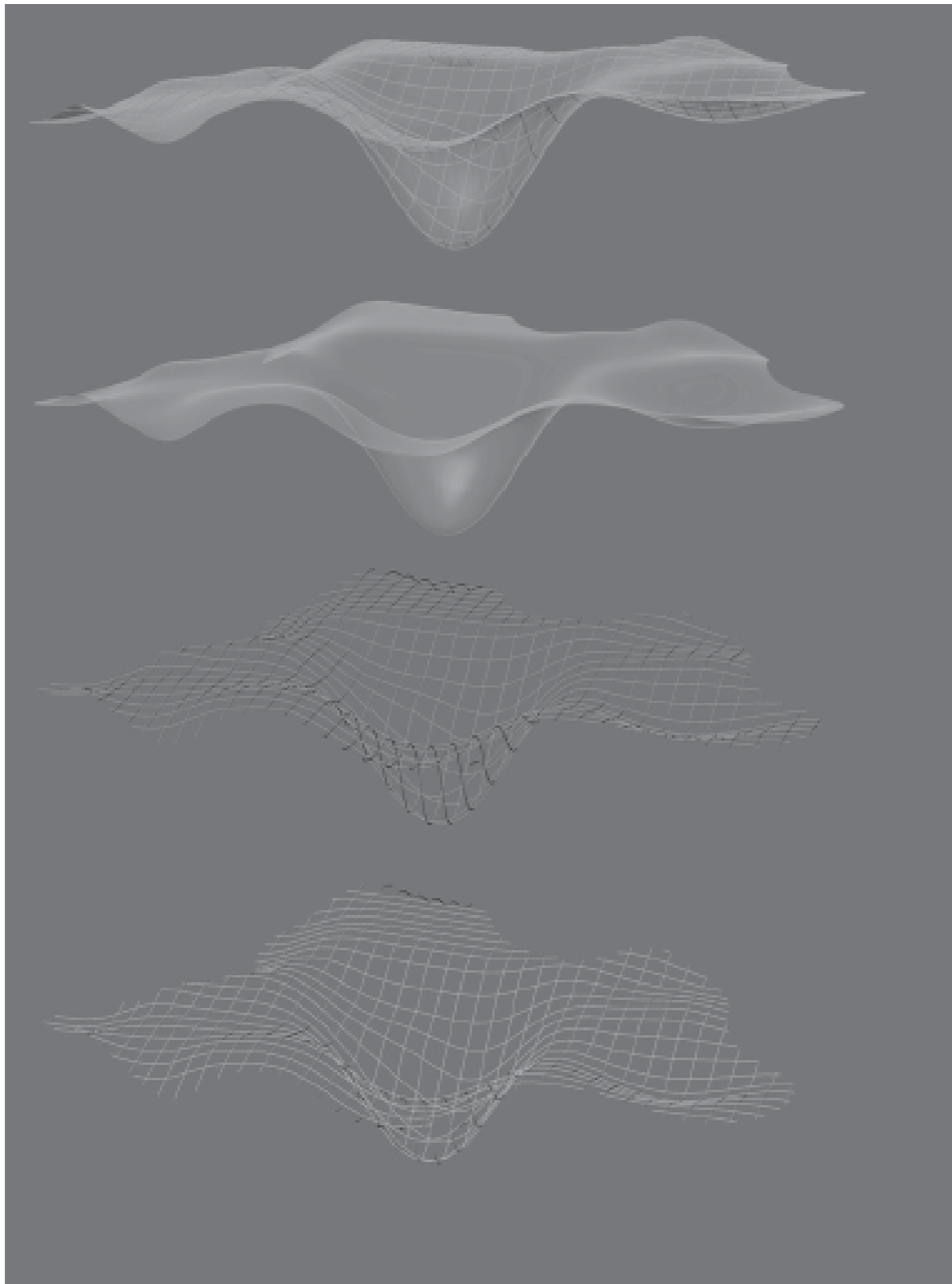
- Studios
- Lecture Halls
- Open Exhibition
- Conference Hall &
Open Exhibition
- Research Labs & Offices
- VR & 3D Printing
- Cafe & Restaurant
- IMAX Theater
- Commercial Offices
- Film Studios
- School
Administration
- Water
Treatment



SECTION 1



SECTION 2



The shell is a structure composed of the steel diagrid , polycarbonate panels , translucent solar panels and water pipes for water harvesting.

SUSTAINABILITY



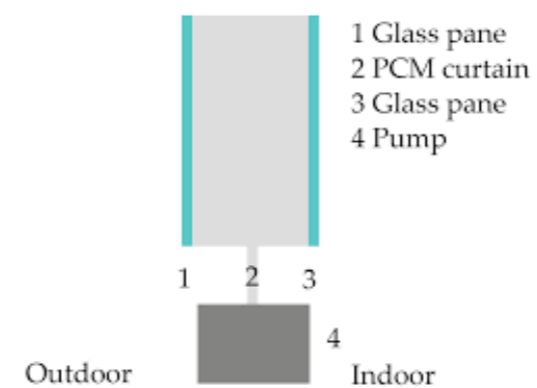
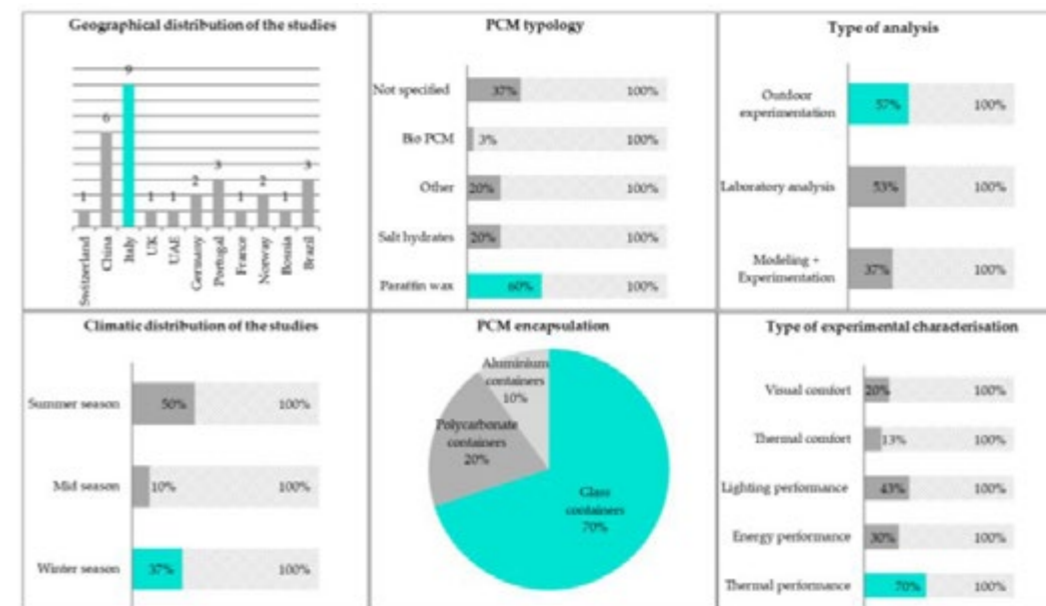
The PCM makes for insulation and passive cooling and heating. Energy is stored for multiple functions.



The shell pipes collect the stormwater which is stored in underground tanks. The humid and rainy weather will make for efficiency in water usage.



The translucent panels in the shell collect solar energy in order to provide electricity for the building.

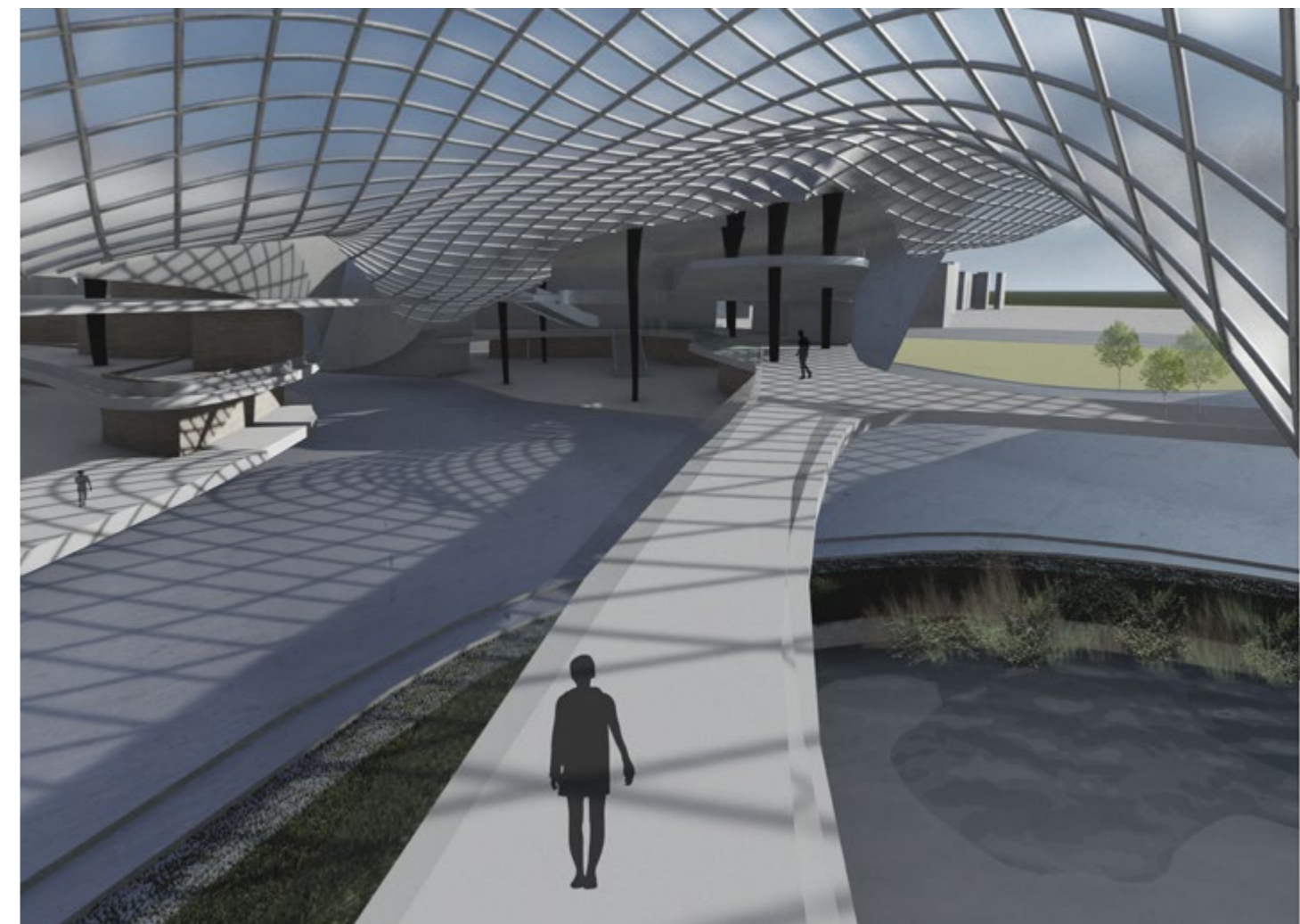


Benefits

- insulation
- stores energy for later use
- passive heating and cooling
- aesthetic effect
- translucency eliminates direct light
- biodegradable material

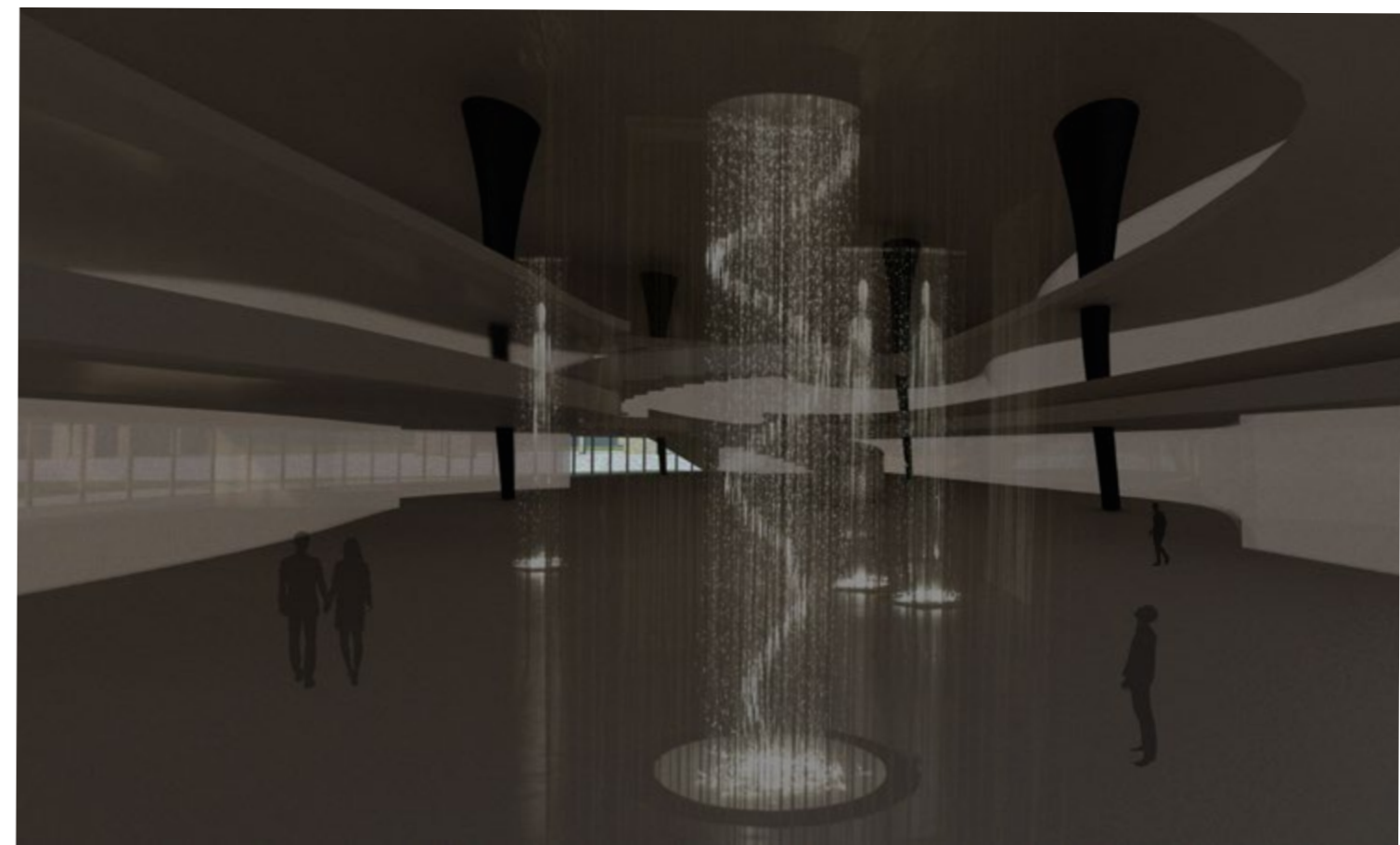


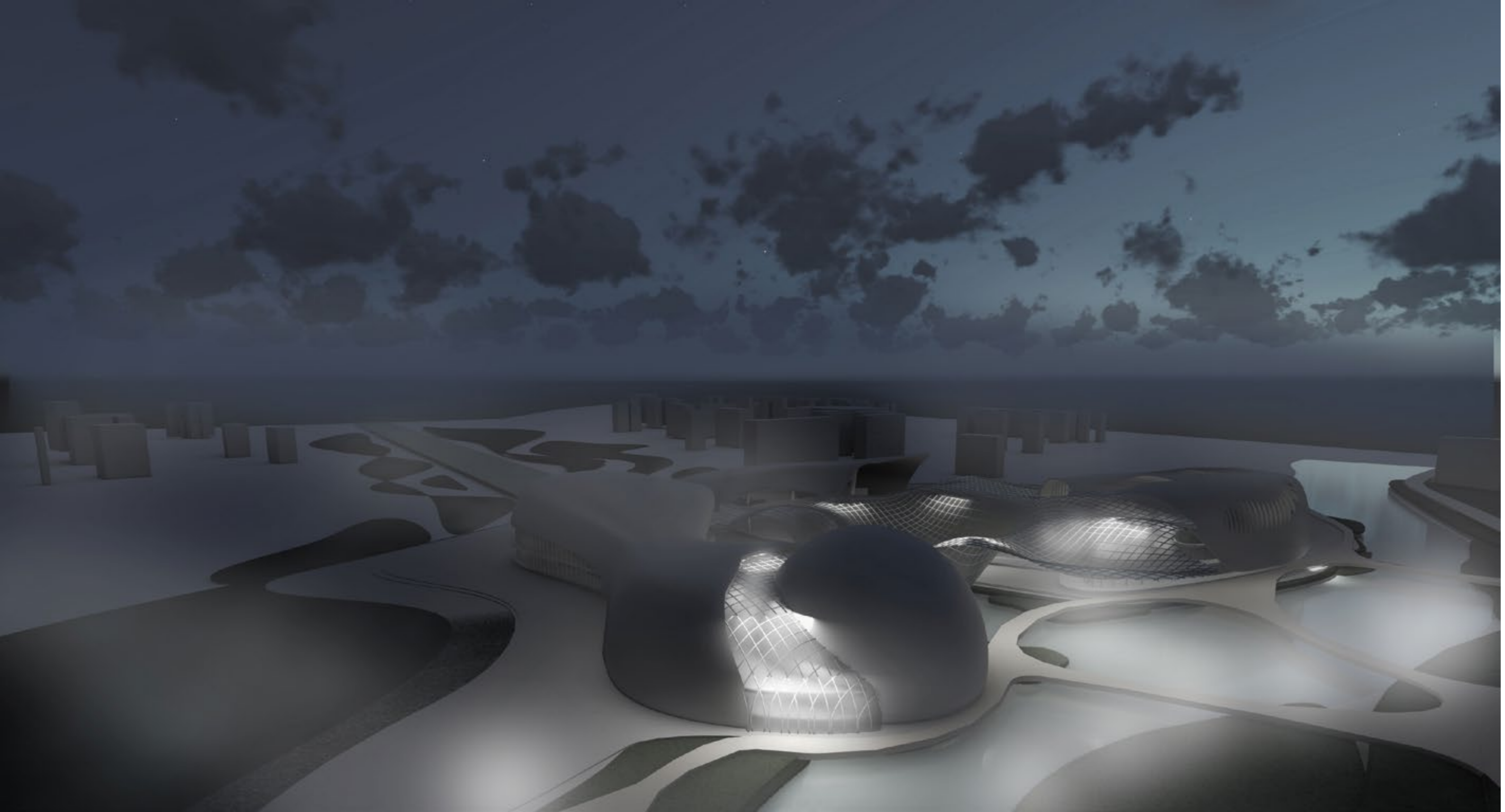
The shell is inspired by the rug concept , a space definition related to the earliest settlements in the city closely related to the local tradition. The landscape imitating floating rug creates under it an urban living room for people to be closer to the natural surroundings. The shell is stitched to the roofs of the main buildings creating a special connection between interior and exterior.





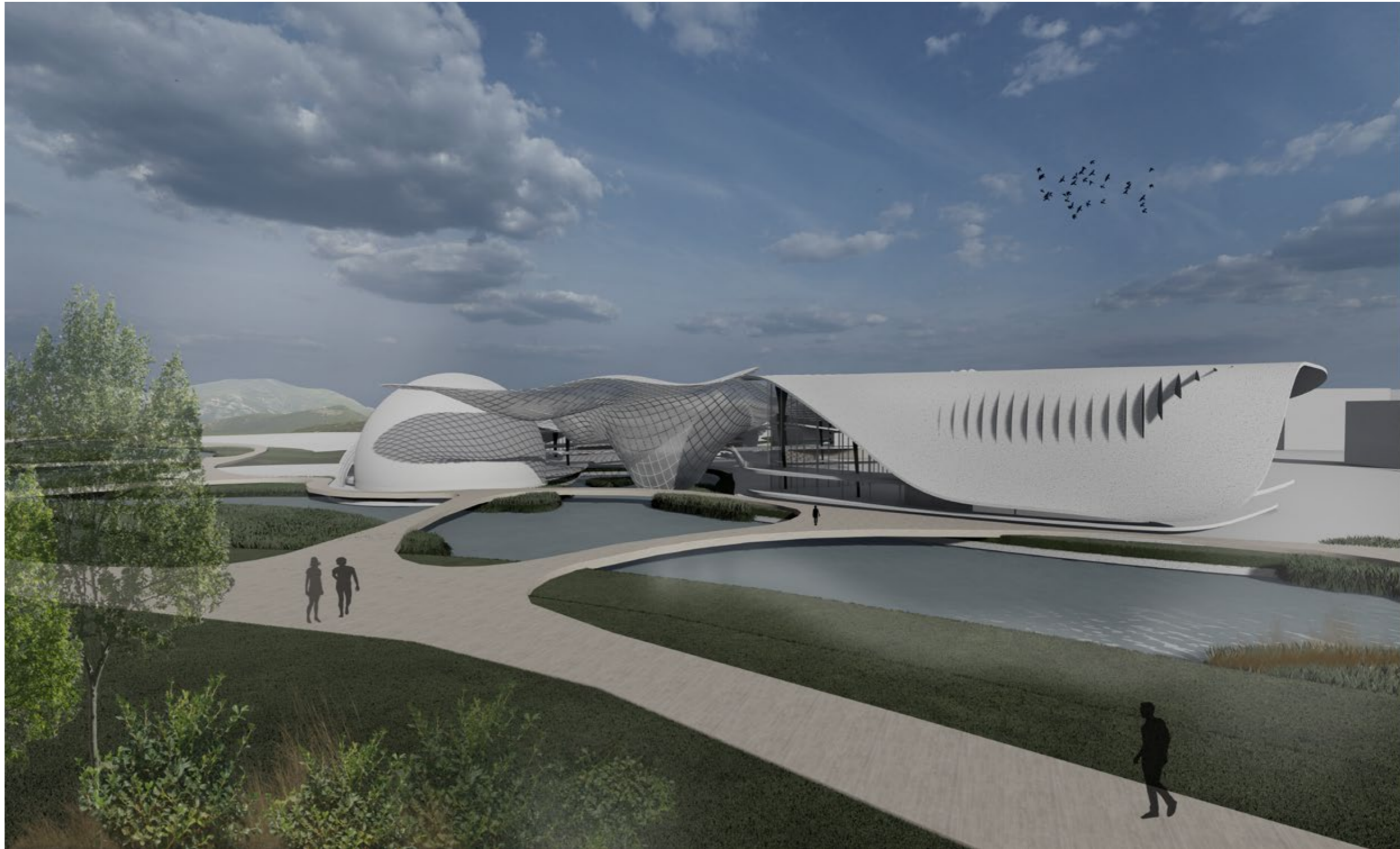
The daylight exposure is one of the main elements of the design defining the relationship between the interior and exterior depending on the functions. The open exhibition spaces receive northern light filtered through phase changing material (paraffin wax). The film school atrium does not receive direct sunlight in order to provide a space for digital exhibitions.





When combined with fiber optics the translucent paraffin wax can also create opportunities for lighting during the night. The shell and the IMAX entrance create the view of a floating light in in the river .

The connection of the building and the river varies is immediate as the building itself is part of the sustainable system including the water collection and treatment plant. The riverbank is altered to enter the space under the shell creating a close relation between the interior spaces and the landscape.



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