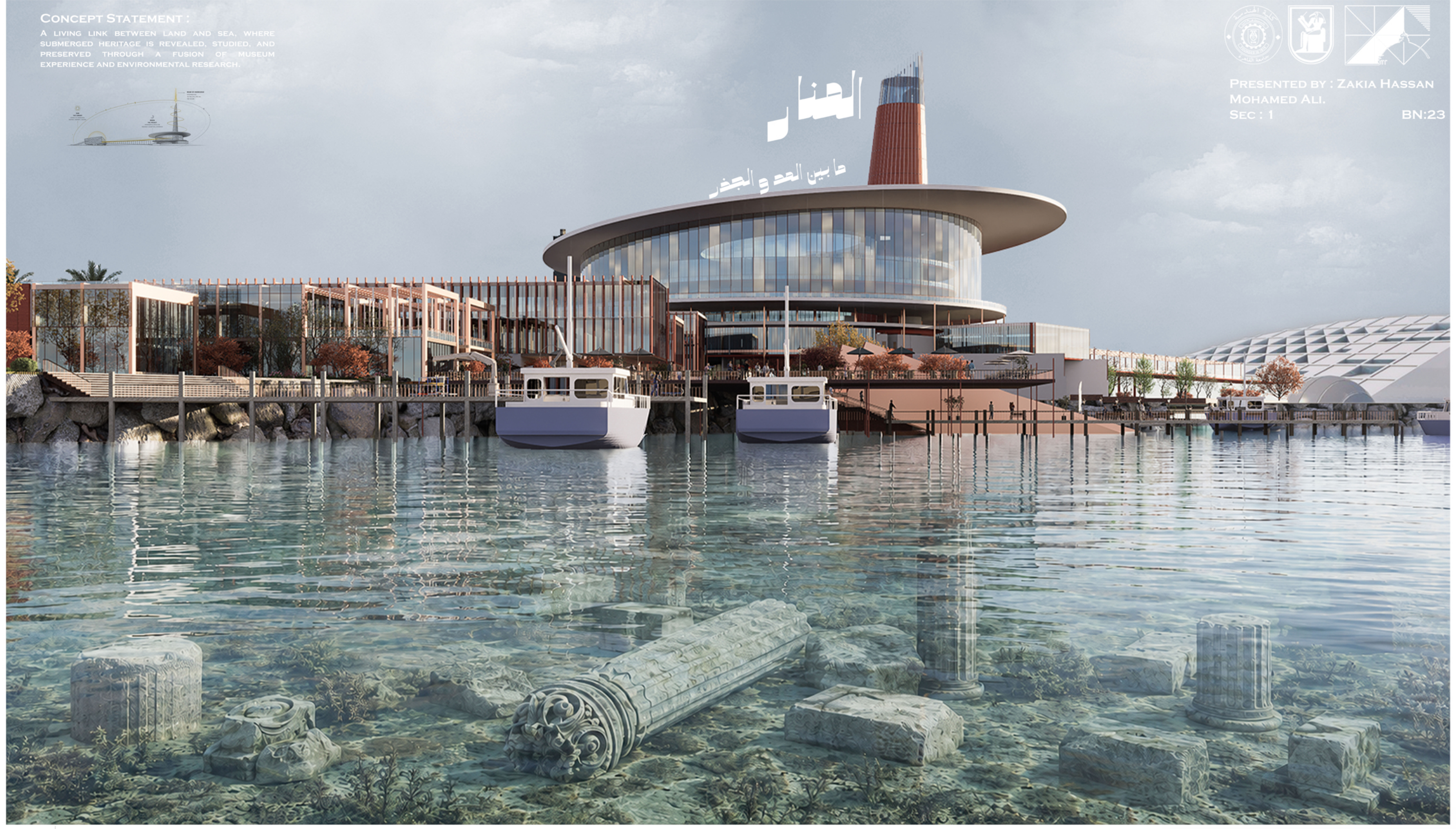


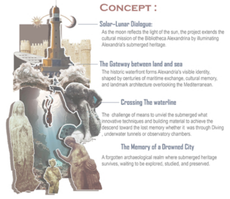
Concept Statement :

A living link between land and sea, where submerged heritage is revealed, studied, and preserved through a fusion of museum experience and environmental research.

المنار

ما بين المد و الجذر

Presented by : Zakia Hassan
Mohamed Ali.
Sec : 1
BN:23



Concept :

Solar–Lunar Dialogue:
As the moon reflects the light of the sun, the project extends the cultural mission of the Bibliotheca Alexandrina by illuminating Alexandria's submerged heritage.

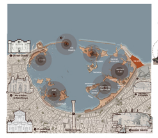
The Gateway between land and sea
The historic waterfront forms Alexandria's visible identity, shaped by centuries of maritime exchange, cultural memory, and landmark architecture overlooking the Mediterranean.

Crossing The waterline
The challenge of means to unviel the submerged what innovative techniques and building material to achieve the descend toward the lost memory whether it was through Diving , underwater tunnels or observatory chambers.

The Memory of a Drowned City
A forgotten archaeological realm where submerged heritage survives, waiting to be explored, studied, and preserved.

Site Analysis :

The site is located within Alexandria's Eastern Harbor, one of the most archaeologically significant submerged landscapes in the Mediterranean. Positioned between the Qaitbay Citadel and the Bibliotheca Alexandrina, it lies at the intersection of the ancient royal harbor, military port, and the remains of the Pharos district. This unique setting embeds the project within layers of Ptolemaic, Roman, and Islamic history, establishing a direct relationship between the contemporary city and its submerged heritage.



The Layered History Of Alexandria

Alexandria's layered history has created a rich cultural legacy along its coastline. Over centuries, earthquakes, coastal change, and maritime activity submerged many of these traces, forming a unique underwater heritage landscape.

- **Roman Era**
  Cosmopolitan expansion: theatres, baths, and harbors added layers of infrastructure, leaving a legacy of engineering and urban order.
- **Islamic Era**
  Reoccupation and fortification: thick stone walls and citadels reflect defense, resilience, and adaptation of the ancient city fabric.
- **Muhammad Ali / Cosmopolitan Era**
  Revival and hybridity: brick, pitched roofs, and hybrid classical-Islamic forms express Alexandria's cosmopolitan identity and layered memory.

- **Hellenistic Greek Era Era**
  The city of Alexander the Great — a center of knowledge, geometry, and monumental architecture, much of which now rests beneath the sea.
- **Coptic / Early Christian Era**
  Spiritual and introspective: sacred spaces moved underground, preserving knowledge and belief within dim, contemplative architecture
- **Contemporary Era**
  Modern recognition of the past: the Bibliotheca Alexandrina and ongoing archaeological rediscovery reconnect the city with its submerged heritage.

Targeted Users :

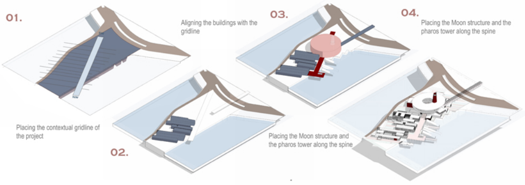
Researchers & Underwater
To explore , Document and understand Underwater Heritage.

Tourists
To expierence and appreciate underwater heritage responsibility.

Local Community
To reconnectt with their lost history , understand and strengthen cultural identity.

Heritage Protection & Policy Actors
To Preserve , manage and ensure the sustainable protection of underwater cultural heritage .

Form Generation :

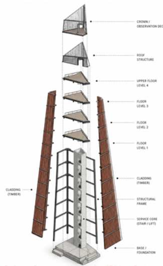


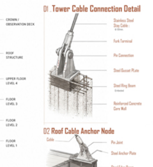
01. Placing the contextual gridline of the project

02. Aligning the buildings with the gridline

03. Placing the Moon structure and the pharos tower along the spine

04. Placing the Moon structure and the pharos tower along the spine


CROWN / OBSERVATION DECK
ROOF STRUCTURE
UPPER FLOOR LEVEL 4
FLOOR LEVEL 3
FLOOR LEVEL 2
FLOOR LEVEL 1
CLADDING (TIMBER)
CLADDING (TIMBER)
STRUCTURAL FRAME
SERVICE CORE (STAIR / LIFT)
BASE / FOUNDATION

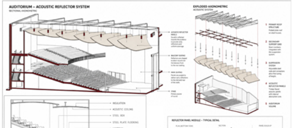


01 . Tower Cable Connection Detail

Stainless Steel Stay Cable :
Fork Terminal
Pin Connection
Steel Gusset Plate
Steel Ring Beam
Reinforced Concrete Core Wall

02 Roof Cable Anchor Node

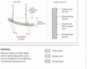
Cable
Pin Joint
Steel Anchor Plate
Steel Edge Beam
Roof Slab
Secondary Roof Slab



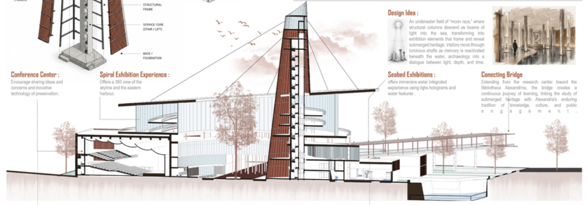
AUDITORIUM – ACOUSTIC REFLECTOR SYSTEM

EXPLODED AXONOMETRIC

SECTIONAL AXONOMETRIC
INSULATION
ACOUSTIC CEILING
STEEL BOX
STEEL PLATE FLOORING
HANDRAIL
STEEL WIDE FLANGE
STEEL I-BEAM
AIRCONS OUTLET
AIR DUCT
ACOUSTIC BOARD
ALUMINIUM T-BAR
GYPSUM BOARD
REFLECTOR PANEL MODULE – TYPICAL DETAIL



Design Idea :
An underwater field of "moon rays," where structural columns descend as beams of light into the sea, transforming into exhibition elements that frame and reveal submerged heritage. Visitors move through luminous shafts as memory is reactivated beneath the water, archaeology into a dialogue between light, depth, and time.



Conference Center :
Encourage sharing ideas and concerns and inovative technology of preservation.

Spiral Exhibition Experience :
Offers a 360 view of the skyline and the eastern harbour.

Seabed Exhibitions :
offers immersive water integrated experience using lighs holograms and water features .

Conecting Bridge
Extending from the research center toward the Bibliotheca Alexandrina, the bridge creates a continuous journey of learning, linking the study of submerged heritage with Alexandria's enduring tradition of knowledge, culture, and public engagement.

Sustainability Knowledge Exchange :
Facilitates collaboration between researchers, UNESCO experts, and institutions to develop sustainable preservation strategies.

Environmental Education :
Raises awareness about climate change, ocean conservation, and submerged heritage.

Marine Ecosystem Protection :
Supports conservation of underwater heritage and surrounding marine habitats.

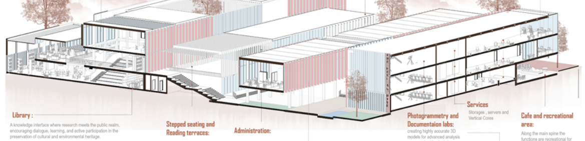
Passive Environmental Design Strategies
using orientation, shading devices, and shaded courtyards to achieve passive thermal comfort in a coastal environment.

Identity Reconnection
Rebuilds the emotional and cultural link between people and their submerged past through immersive spatial experiences.

In Situ Heritage Viewing
"Protection through preservation, not extraction."

Sustainable Tourism :
Promotes responsible cultural and scientific tourism with long-term environmental benefits.

Research & Innovation :
Advances scientific research on marine conservation and climate adaptation strategies.



Outdoor reading Courtyard :
extend the library into the landscape, providing informal environments for reading, reflection, discussion, and engagement with the waterfront setting.

Divivg Center:
providing training, equipment, and guided access to submerged heritage sites while promoting marine exploration and conservation.

GIS and Environmental observation labs:

Library :
A knowledge interface where research meets the public realm, encouraging dialogue, learning, and active participation in the preservation of cultural and environmental heritage.

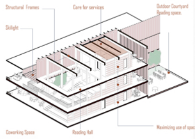
Stepped seating and Reading terraces:

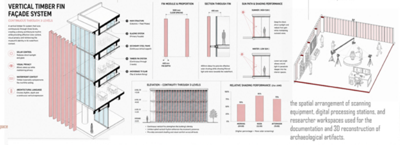
Administration:

Services
Storages , servers and Vertical Cores

Photogrammetry and Documentaion labs:
creating highly accurate 3D models for advanced analysis across scientific disciplines.

Cafe and recreational area:
Along the main spine the functions are recreational for the public use

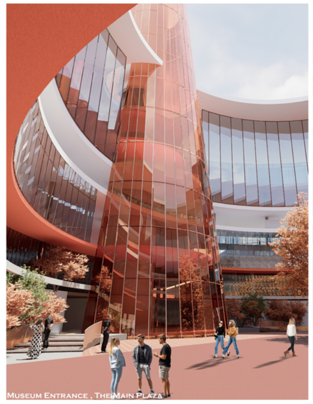

Structural Frames
Core for services
Outdoor Courtyard Reading space.
Skilight
Coworking Space
Reading Hall
Maximizing use of space



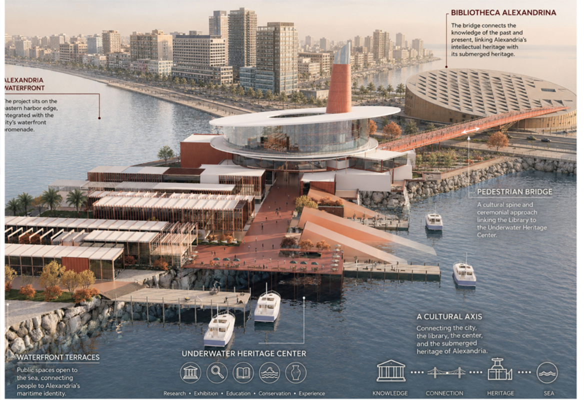
VERTICAL TIMBER FIN FAÇADE SYSTEM
CONTINUOUS THROUGH 3 LEVELS

FIN MODULE & PROPORTION
SECTION THROUGH FIN
SUN PATH & SHADING PERFORMANCE
ELEVATION – CONTINUITY THROUGH 3 LEVELS
RELATIVE SHADING PERFORMANCE

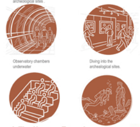
the spatial arrangement of scanning equipment, digital processing stations, and researcher workspaces used for the documentation and 3D reconstruction of archaeological artifacts.



Museum Entrance , The Main Plaza

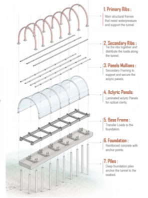

BIBLIOTHECA ALEXANDRINA
The bridge connects the knowledge of the past and present, linking Alexandria's intellectual heritage with its submerged heritage.
ALEXANDRIA WATERFRONT
The project sits on the eastern harbor edge, integrated with the city's waterfront promenade.
PEDESTRIAN BRIDGE
A cultural spine and ceremonial approach linking the Library to the Underwater Heritage Center.
A CULTURAL AXIS
Connecting the city, the library, the center, and the submerged heritage of Alexandria.
WATERFRONT TERRACES
Public spaces open to the sea, connecting people to Alexandria's maritime identity.
UNDERWATER HERITAGE CENTER
Research • Exhibition • Education • Conservation • Experience
KNOWLEDGE
CONNECTION
HERITAGE
SEA

Underwater experience Axtivities :


Walking through the archeological sites .
Exhibitions underwater.
Observatory chambers underwater
Diving into the archealogical sites.

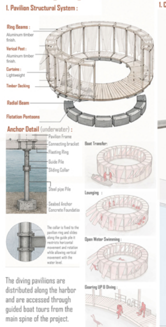
1. The History Tunnel:

"A transitional tunnel linking land and submerged heritage, guiding visitors into the underwater archive of memory.it is designed as a reinforced, pressure-resistant structure while allowing controlled visual and spatial experience

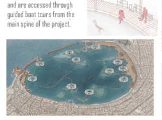

1. Primary Ribs :
Main structural frames that resist waterpressure and support the tunnel.
2. Secondary Ribs :
Tie the ribs together and distribute the loads along the tunnel.
3. Panels Mullions :
Secondary Framing to support and secure the aclyric panels.
4. Aclyric Panels:
Laminated aclyric Panels for optical clarity.
5. Base Frame :
Transfer Loads to the foundation.
6. Foundation :
Reinforced concrete with anchor points.
7. Piles :
Deep foundation piles anchor the tunnel to the seabed.

2. The Floating Diving Pavilions:

1. Pavilion Structural System :

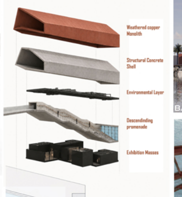

Ring Beams :
Aluminum timber finish.
Verical Post :
Aluminum timber finish.
Curtains :
Lightweight
Timber Decking
Radial Beam
Flotation Pontoons
Anchor Detail (underwater) :
Pavilion Frame
Connecting bracket
Floating Ring
Guide Pile
Sliding Collar
Steel pipe Pile
Seabed Anchor Concrete Foundation
The collar is fixed to the pavilion ring and slides along the guide pile it restricts horizontal movement and rotation while allowing vertical movement with the water level.
Boat Transfer:
Lounging :
Open Water Swimming :
Gearing UP & Diving :

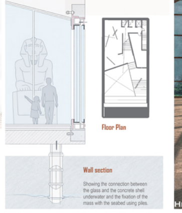
The diving paviliions are distributed along the harbor and are accessed through guided boat tours from the main spine of the project.



The Sinking Chambers

1. Chamber Structural System :

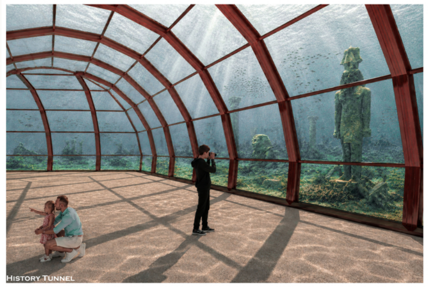

Weathered copper Monolith
Structural Concrete Shell
Environmental Layer
Descendinding promenade
Exhibition Masses



Floor Plan

Wall section
Showing the connection between the glass and the concrete shell underwater and the fixation of the mass with the seabed using piles.

Back Elevation From



History Tunnel

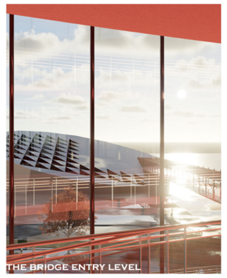
Excavation Preporatory Deck

End of the Journey

Promenade and Diving Deck

Diving Center

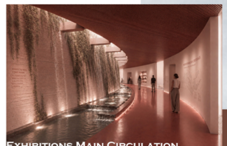
Spiral Exhibition Exhibition



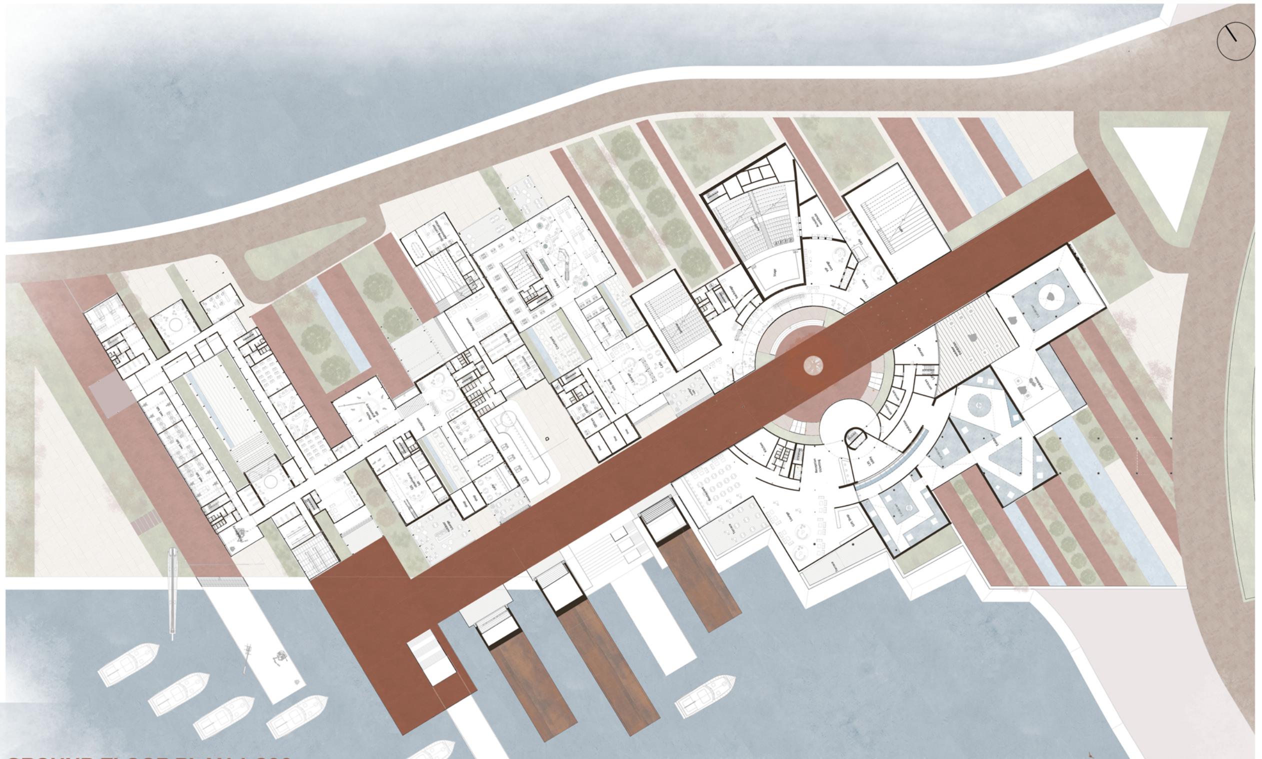
The bridge entry level

Sea bed Exhibition

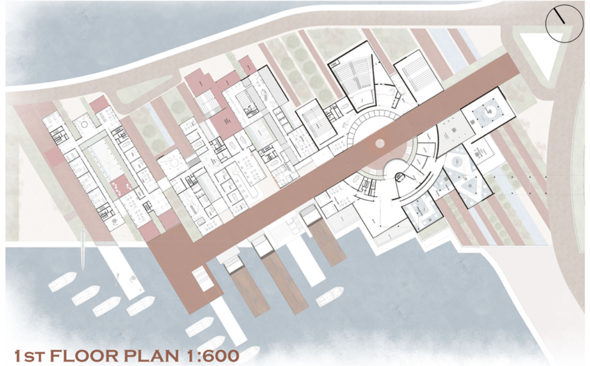
Terrace view into the east harbour



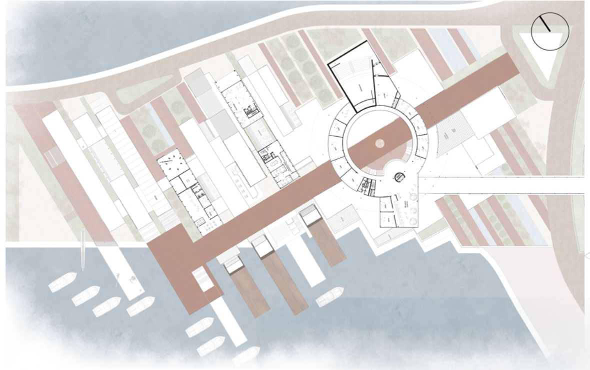
Exhibitions Main Circulation



GROUND FLOOR PLAN 1:300

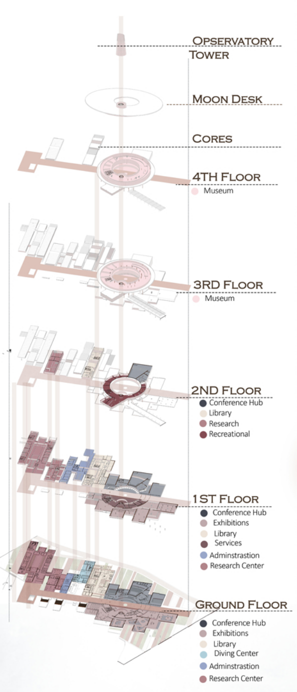


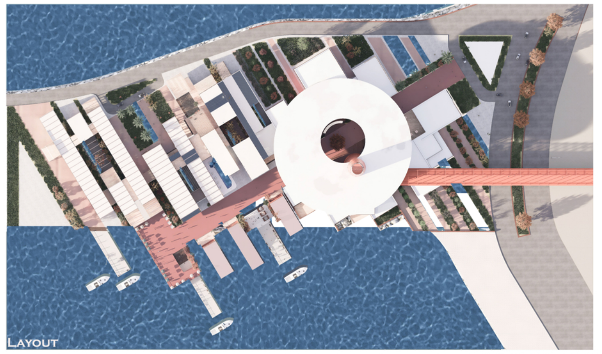
1st FLOOR PLAN 1:600



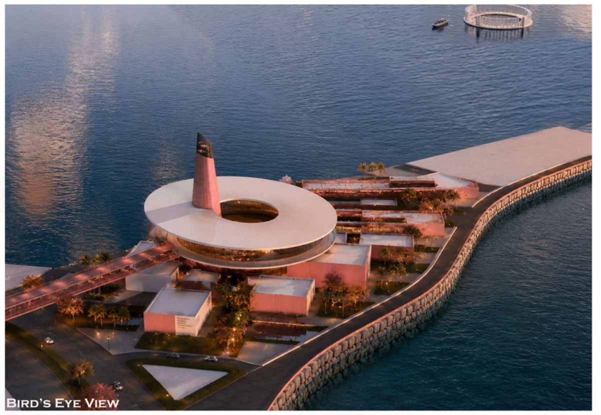
2nd FLOOR PLAN 1:600

Exploded Diagram

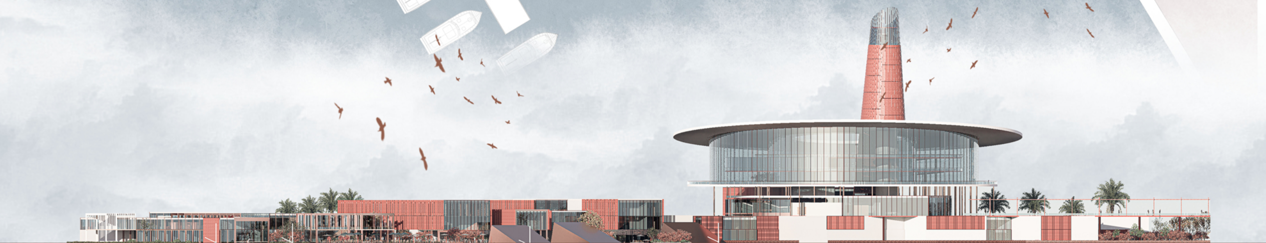

Opservatory Tower
Moon Desk
Cores
4th Floor
Museum
3rd Floor
Museum
2nd Floor
Conference Hub
Library
Research
Recreational
1st Floor
Conference Hub
Exhibitions
Library
Services
Adminstrastion
Research Center
Ground Floor
Conference Hub
Exhibitions
Library
Diving Center
Adminstrastion
Research Center



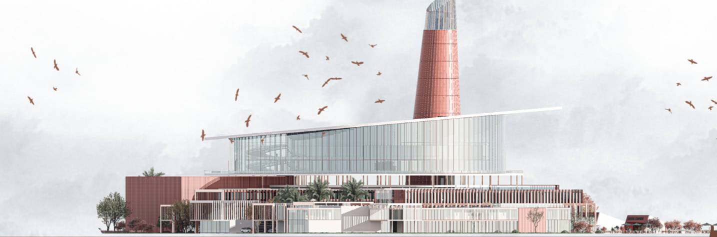
Layout



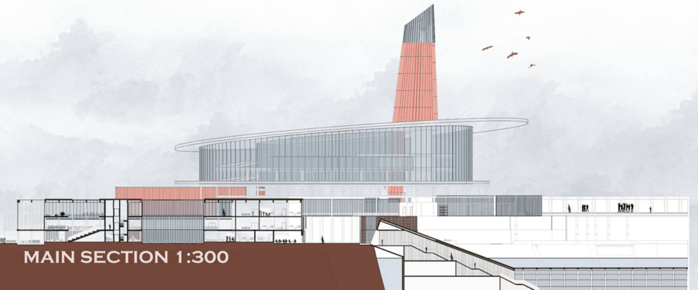
Bird's Eye View



MAIN ELEVATION 1:300



SECOND ELEVATION 1:300



MAIN SECTION 1:300