THE AQUATELIER

An advanced aquatic eco-habitat where humanity begins to coexist in a symbiotic relationship with nature. A complex that includes labs, workshops, and living spaces, designed to raise awareness among the youth about ocean preservation and drive them to ake action.

o The Guardian of the Sea, dedicated to the rescue and safeguarding of marine creatures as well as restoring their habitats while collecting, processing, and reuse of plastic waste in an effort to combat environmental harm.

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Project's Name

The Aquatelier

Award's category :

Description





Problem Statement

The impact of human activity on the ocean is expanding over time, significantly and regrettably. We extensively extract resources from it, overutilize its offerings, and subsequently deposit trash and toxic waste. This relentless behavior poses a substantial threat to the Earth's most diverse ecosystem, potentially leading to its destruction. The repercussions of such devastation can, in turn, manifest in the form of natural disasters induced by climate change, further exacerbating the adversities that we, humans, will have to confront.

Should we reconsider the term SYMBIOSIS in the context of marine life and the ocean? This implies that while we draw resources, we also safeguard and foster the environment, thus providing marine species the opportunity to flourish concurrently with our societal progression.



cleaned the surface, but dumped tons of garbage, plastic waste into the ocean polluted the ocean with tons of wastewater, spilled oil from oilfield are causing many marine creatures to stand on the verge of extinction have talked a lot about dying animals in polluted oceans, but the actions we have taken are vague

It is time for us to consider living in SYMBIOTIC relationship with nature



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Architectural Concept Solution: SYMBIOTIC ARCHITECTURE

Concept's notion inspiration



Concept progress

The beaver assumes a crucial role as a keystone species, exerting significant influence on its ecosystem.

Through the construction of dams using branches and trunks, they create expansive lakes, fortifying their habitat against the force of water currents. In this process, they inadvertently forge a unique biome, fostering an environment where various species can coexist harmoniously alongside the beavers, promoting their collective prosperity.

Humans, as the planet's most intelligent creatures, possess the potential to be a keystone species. In this role, we can safeguard and support other species, promoting harmonious coexistence and shared growth. By constructing a living, learning, and working space that protects us against natural disasters while conducting research, learning about marine life, and training each other on means of protection, we can create a sustainable ecosystem where all species can thrive together.

Coral surface



Description

Concept's form inspiration



Coral reefs are among the most crucial elements of marine biodiversity. They serve as vital habitats for numerous species, providing a conducive environment for their survival. Additionally, coral reefs contribute to the formation of the foundation of continents.





A building that sustainablely living in sybiotic with the ocean

Sun-Wind analysis

The shell's top will be made of transparent solar glass, absorbing sunlight to generate electricity while still allowing light through for indoor plant growth.

Cooler oasis space for parks and vertical garden

The symmetrical and dynamic shape of the building allows the wind to pass through it easily and smoothly, exerting less force on the building structure.

The wind flow splits and reunites when it passes through the canals among the three foundation blocks.



Mobility diagram



ploded diagram

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Photovotaic shell, Controlable opacity using Electricity

Light weight Carbon steel frame, strong bond

Light weight, UHPC(Ultra-High Performance Concrete)

Parks and planting areas Fresh vegetables and Halophyte

Wave elliminator With renewable energy storeage inside

Disaliation area and Fresh water storage area Accessing stairs

Habitat for planktons A nutritious living environment for seacreatures

Floating foundation Waste , sewage management and buoyancy cabins

The whole bulding









Stacked 3D floor plans

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3D section



Structure

The upper section of the building's structure, constructed from a graphene carbon steel frame, seamlessly integrates with the lower part comprising a carbon-fiber concrete foundation. This union results in the formation of a singular and rigid structure







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Transparent Solar glass Turns invisible light into Electricity Controlable Opacity Observavtion Station Connected to the renewable energy storage, which runs inside the wave eliminator <u>Wave eliminator</u> Conference Aula Underwater lab Ballast Tank

Habitat for planktons and other marine creatures







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Training to raise the awareness of young generation and teach them the skills needed to help the marine animals. Conference Aula interior view



A green and dynamic space with flowered bushes and aeroponic towers.

Jogging and bicycling loop.





Description

Award's category :

Architecture and Innovation for the Sea Grand Prix Award



Dwelling spaces with indoor plants

Modern gyro stabilizers, equipped with gyroscopes, actively control precession, adjusting their orientation based on device rotations. This key technological advancement significantly enhances their efficiency under diverse conditions.

Gyro stabilizer

Three primary gyro stabilizers are fitted onto the three axes of an equilateral triangle foundation block. Integrated with AI and Machine learning, they detect micro rolling motions and self-adjust to counteract them, ensuring building



Watertight feature







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Ecological Footprint

Positive Footprint.

The AQUATELIER is a research, learning, and training facility for the young generation who will initiate a new era where humans live in a symbiotic relationship with nature. This lifestyle strengthens the bond between us and the ocean, wherein we support each other to move forward and thrive.

We harvest resources from the ocean and in exchange, we provide new homes for marine creatures under controlled conditions. Furthermore, we continually monitor all of their habitats to assist in rescue efforts when needed.

The AQUATELIER will gather all the available methods and new techniques of rescue and protection of the sea, and deploy them on a large scale with the help of well-trained volunteers and professionals. Additional activities may include controlling the water temperature of a coral habitat, creating more habitats for plankton and marine animals, and so on.



Renewable energy harnessing

The building operates entirely on electricity, which is harnessed from sunlight, ocean wind, tidal energy, wave energy, and hydro engines. This will reduce carbon emissions to the lowest level, creating a greener ecological footprint.

The transparent solar glass shell of the building will absorb all the invisible light considered harmful to the human body while still allowing visible sunlight to pass through.

Other renewable energy harnessing devices will be installed around the building.

The water circulation in the entire building is a closed system, so there is no waste released into the sea. All water will be reused in the irrigation system.

Oceanic trash eating robot



Suffered marine animals rescuing boat





Floating Wind harnessing wall



Floating Spine-Like Device Generates Sea Waves Into Electricity

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Tidal Turbines That Are Safe for Marine Life





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