

# She sells 67 seashells By the sea shore

A future eco-habitat for people living with marine  
未來海洋生物與人們共生的生態棲息地

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Digital Common(s)  
數碼共同體

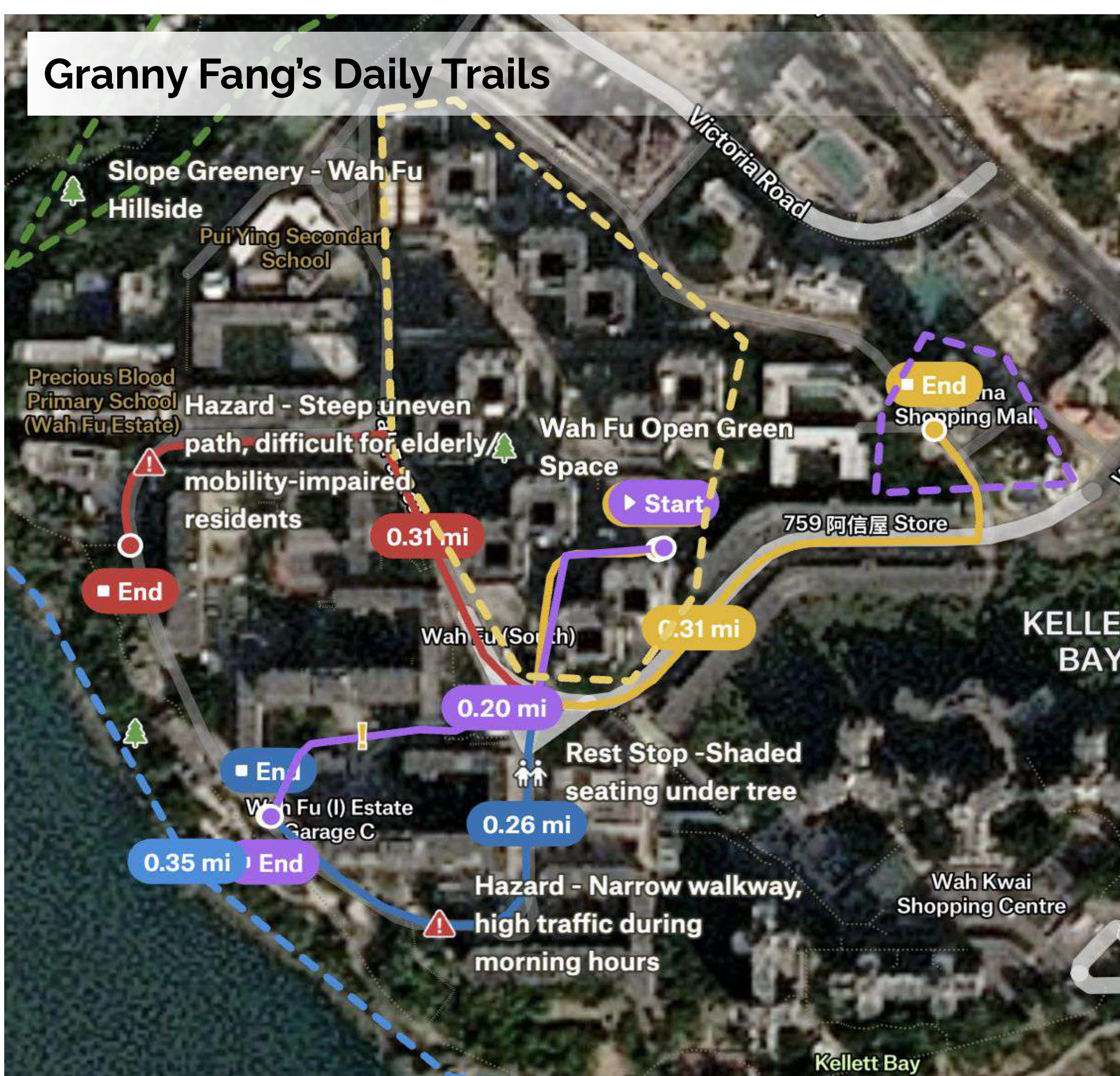




# Elderly living alone causing social isolation

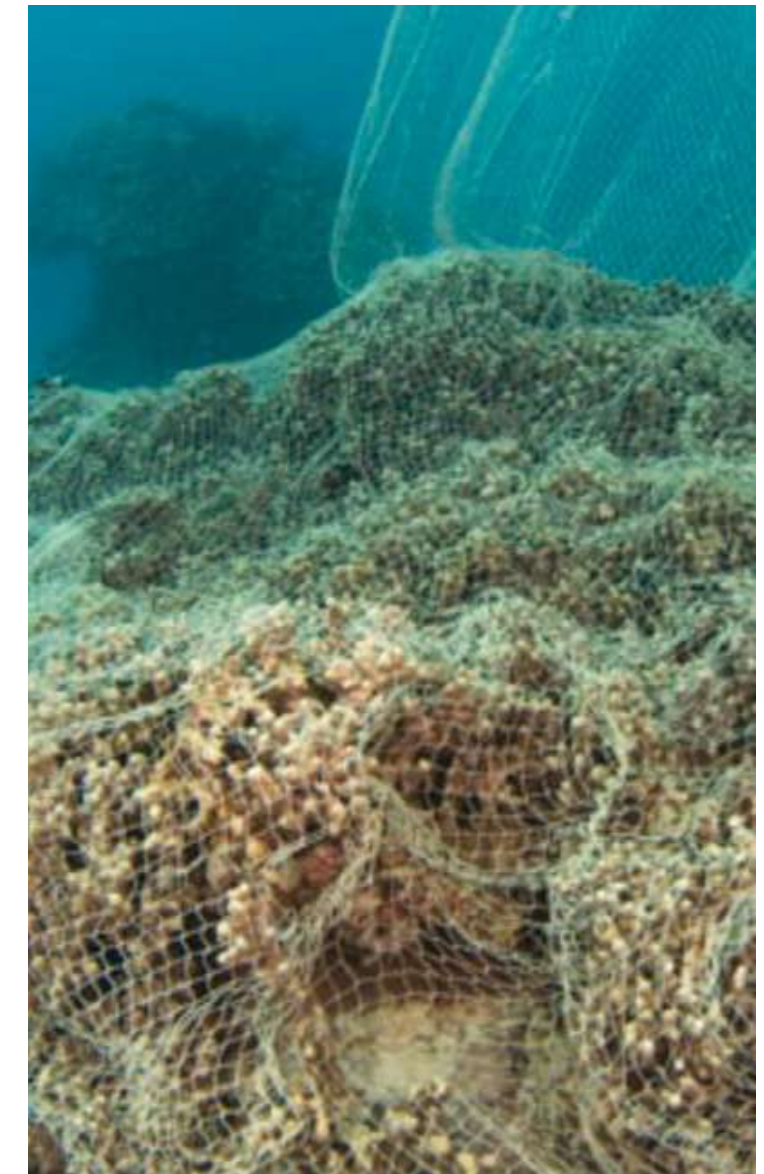


## Granny Fang's Daily Trails



## Parallel Problems For Zebra Coral

- Rising sea temperatures
- Coastal pollution
- Heavy urban sedimentation
- Human disturbance
- Destructive fishing



<https://www.scmp.com/magazines/post-magazine/short-reads/article/3116642/hong-kongs-waters-are-polluted-meet-couple-who>  
<https://www.coralgardening.org/destructive-fishing-practices/>

# 1 Bio-Inspiration



# 2 Floating Architecture



FLOATING OFFICE  
ROTTERDAM

# 3 Coral Nursery

- **Suspended Nursery Frames**

Small coral-growing frames are suspended below the floating platform.

- **Adjustable and Maintainable**

Each frame can be raised for monitoring, cleaning or coral replacement.

- **Sunlit Marine Habitat**

The frames are positioned in shallow, sunlit water and away from the deepest roof shadow.

<https://www.wwf.org.hk/en/?25623/WWF-Hong-Kong-Launches-Pioneering-Reviving-Our-Corals-Initiative>



# 4 Nautilus Shell Roof

- **Curved Wind-Responsive Form**

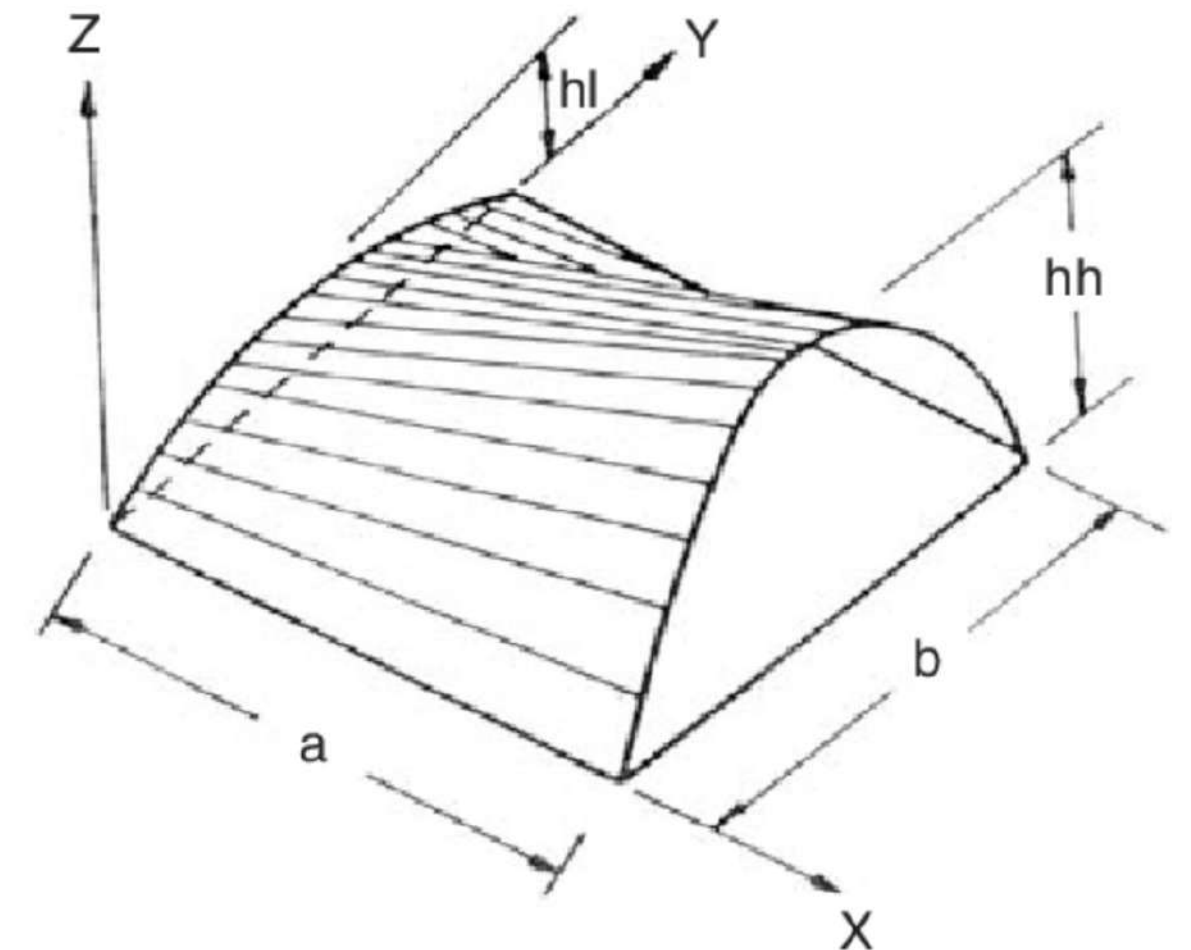
The curved roof allows wind to move smoothly around the pavilion.

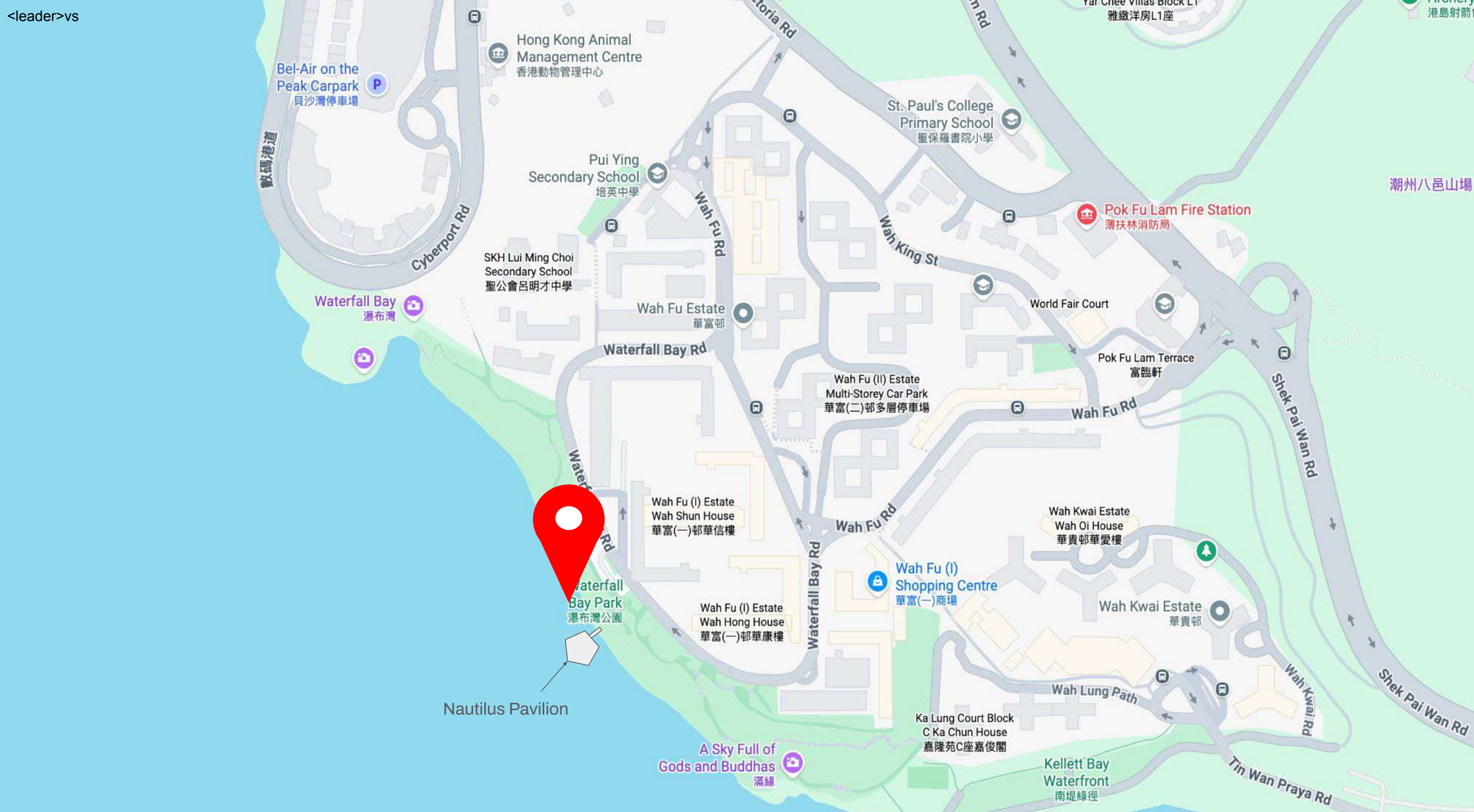
- **Lightweight Perforated Canopy**

Openings reduce visual weight and allow daylight and air to enter.

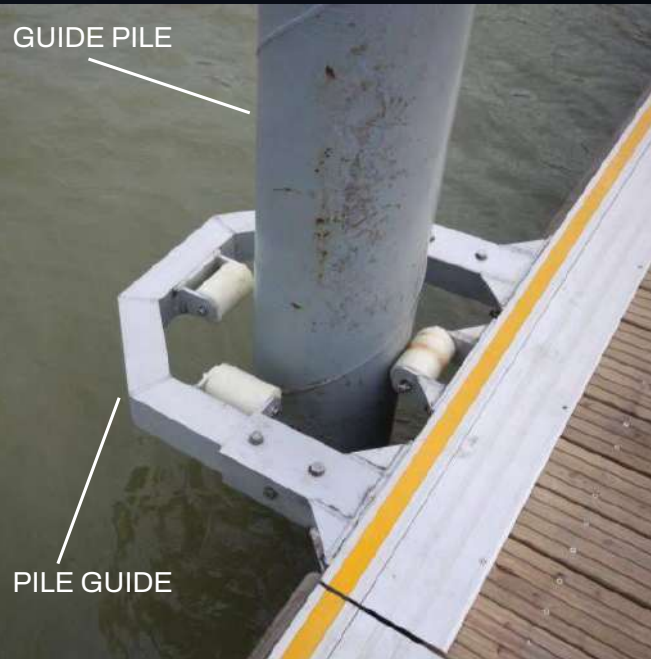
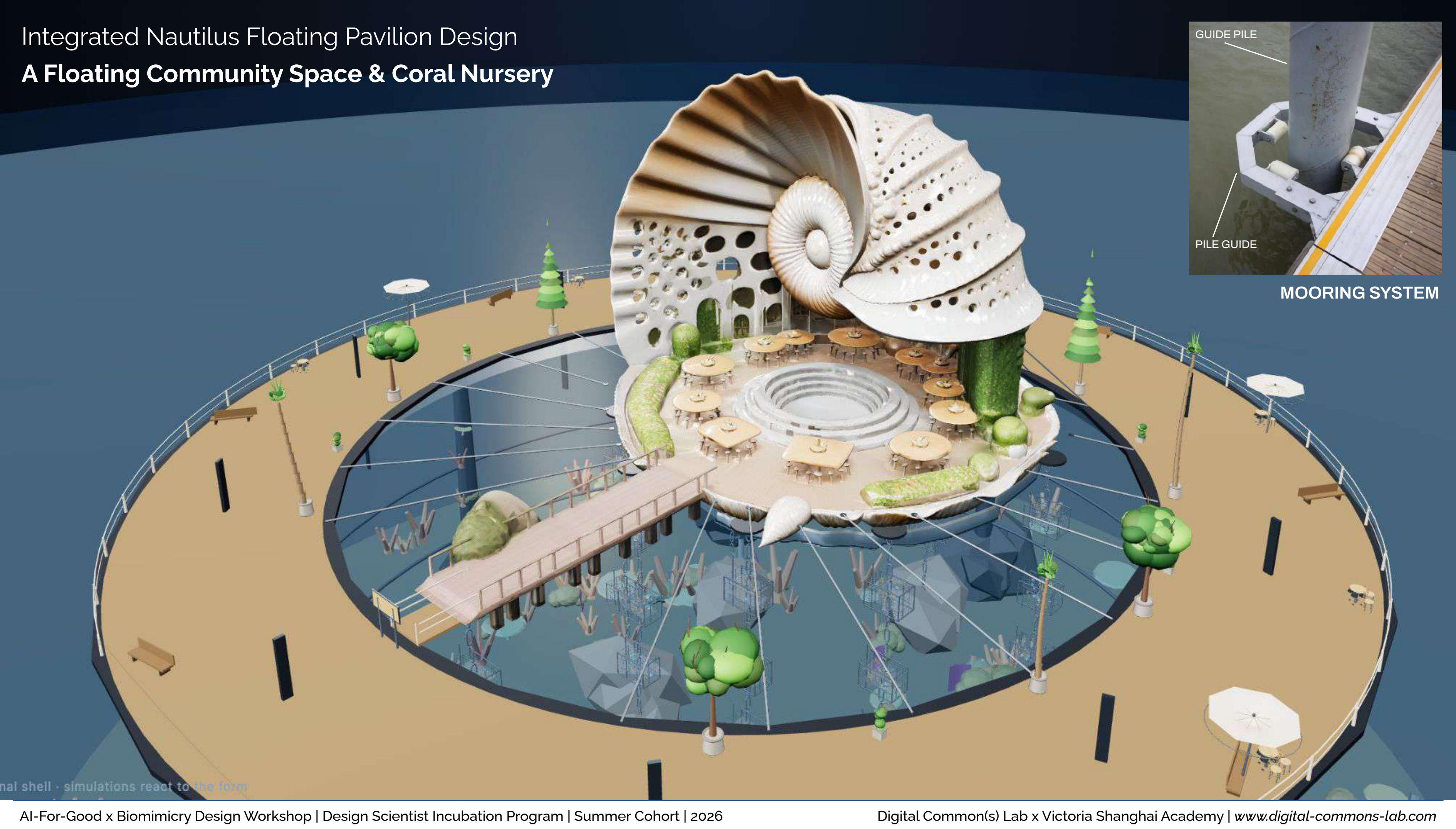
- **Ribbed Structural System**

Shell-like ribs support the canopy and divide it into buildable modules.





Integrated Nautilus Floating Pavilion Design  
A Floating Community Space & Coral Nursery



MOORING SYSTEM

nal shell · simulations react to the form

## ▲ Shaded Deck Experience

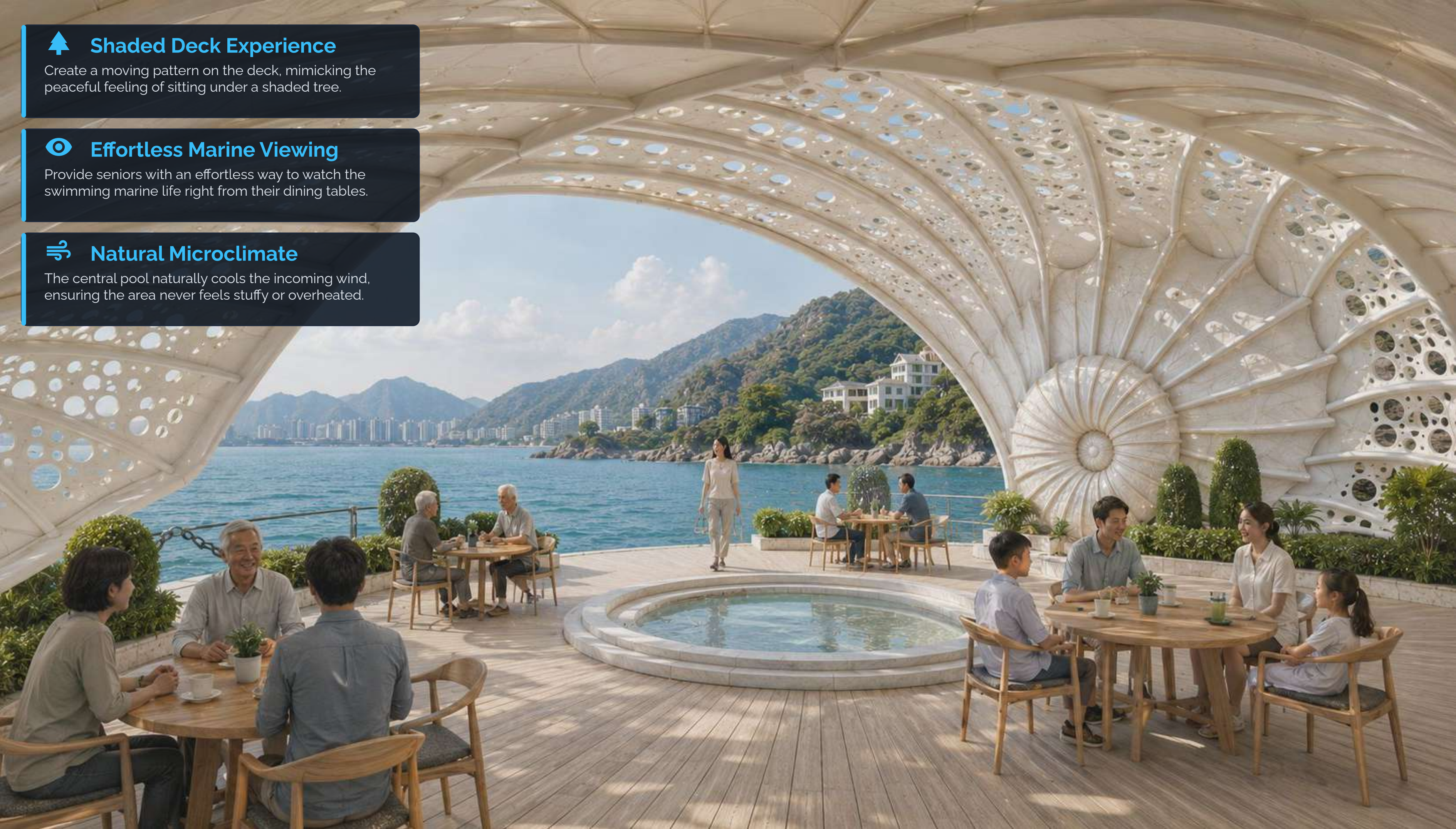
Create a moving pattern on the deck, mimicking the peaceful feeling of sitting under a shaded tree.

## 👁 Effortless Marine Viewing

Provide seniors with an effortless way to watch the swimming marine life right from their dining tables.

## 🌀 Natural Microclimate

The central pool naturally cools the incoming wind, ensuring the area never feels stuffy or overheated.



BASE FORM

Nautilus Pavilion

The original community-gathering shell (untouched). Its form is the architecture — the simulations wrap around, scatter off and absorb into the static shell.

Biomimicry Nautilus logarithmic spiral

|                               |        |
|-------------------------------|--------|
| Overall height                | 22.5 m |
| Shell radius                  | 22.0 m |
| BEM surface panels            | 642    |
| Calm free-stream $V_{\infty}$ | 12 m/s |
| Breakwater coral arc          | R 39 m |
| Mooring columns               | 8      |
| Shell pillars                 | 8      |

INSTRUMENT PANEL

|                         |                       |
|-------------------------|-----------------------|
| Solar elevation         | 67.0°                 |
| Azimuth                 | 75°                   |
| Direct irradiance       | 1000 W/m <sup>2</sup> |
| Surface lit             | 40%                   |
| Peak surface irradiance | 997 W/m <sup>2</sup>  |

shadow

SIMULATIONS

Solar shading ON

Airflow test OFF

Rain & energy OFF

Sound damping OFF

T10 Typhoon test OFF

Clear all sims

VIEW

Mouth Back Top Side

Auto-rotate OFF

Underwater view OFF

Reset camera

ABOUT

BASE FORM

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| Calm free-stream $V_{\infty}$ | 12 m/s                        |
| Breakwater coral arc          | R 39 m                        |
| Mooring columns               | 8                             |
| Chain anchors                 | 8                             |
| Bilge keels                   | 2 fins · 65° cant · full side |

CONTROLS

SIMULATIONS

Solar shading OFF

Airflow test OFF

Rain & energy OFF

Sound damping OFF

T10 Typhoon test OFF

Clear all sims

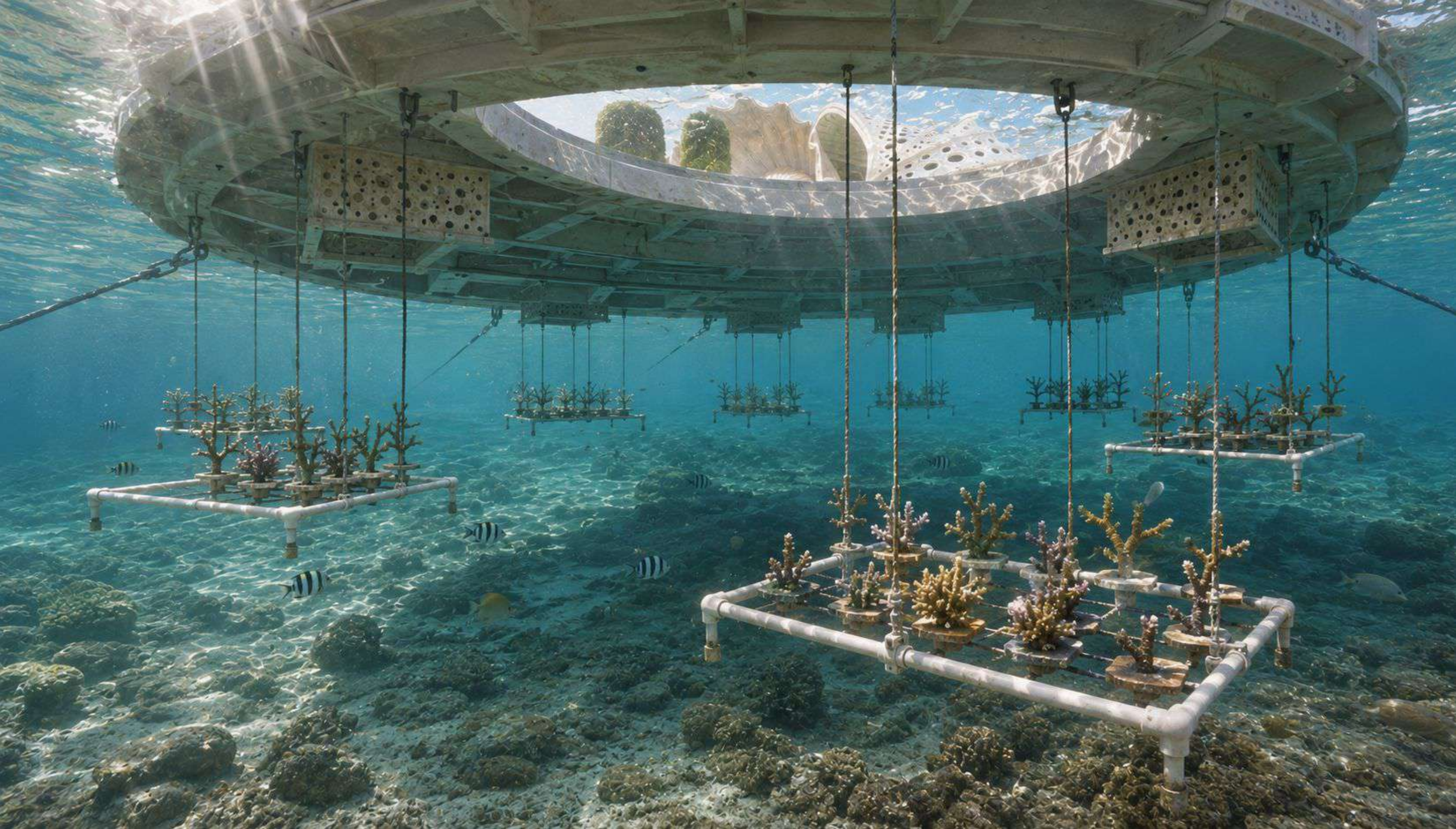
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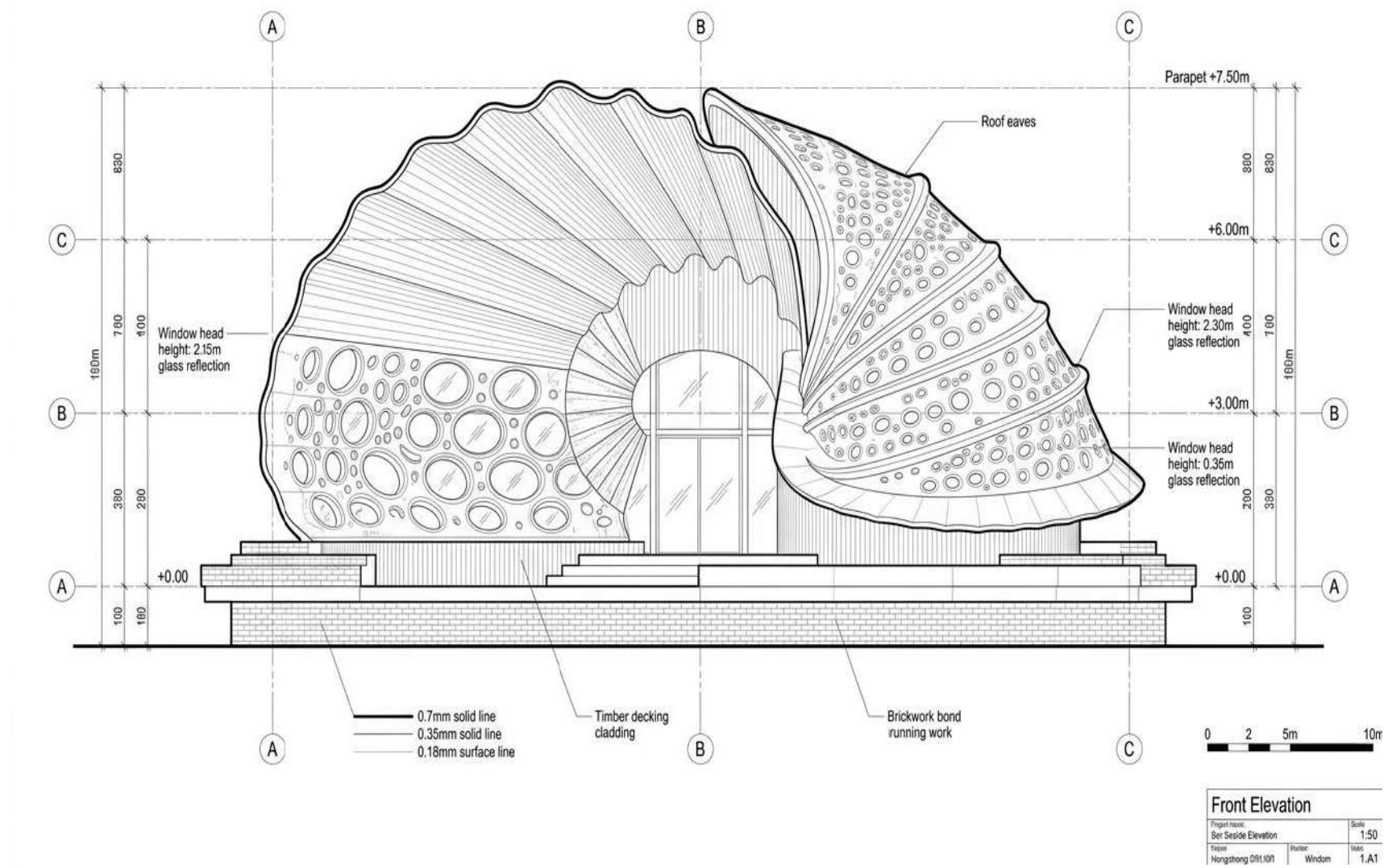
# User activity scenario

- citizens can engage in social activities
  - drinking tea together
  - playing board games
  - having conversations
- this help them relieve stress by providing them a very comfortable space with a beautiful environment
- Showcases cultural importance of our platform during the Festivals.
- Honors local heritage and community traditions.
- Allow residents to connect deeply with their culture
- Transform this architectural space into a meaningful social anchor for the entire neighborhood.

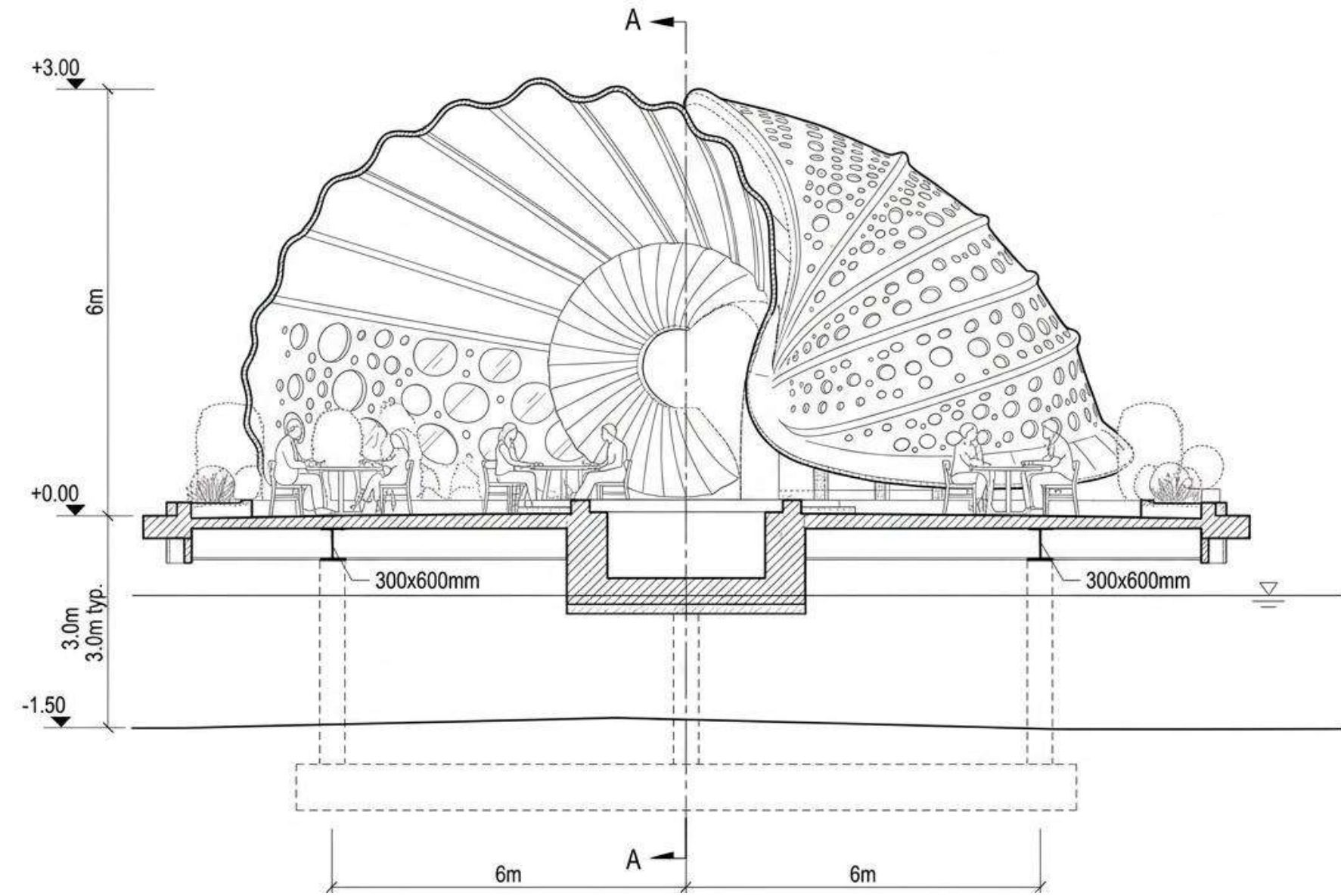




Elevation drawing



Cross section cut drawing



# How the structure withstand typhoons

## Marine Mooring

- **Steel cables:** Tie the platform to the shore and seabed to stop sliding.
- **Floating deck:** Moves up and down safely with waves and tides.

## Wind Redirection

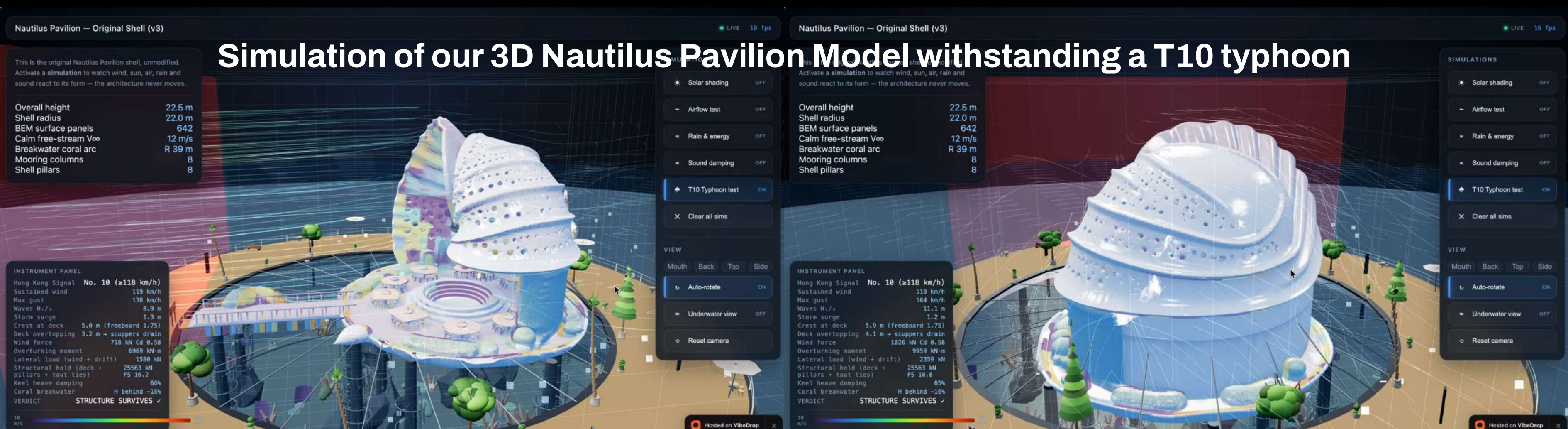
- **Curved shell:** Shapes wind up and around the building to prevent tipping.
- **Perforated skin:** Lets high-speed wind pass through holes to reduce drag.

## Underwater Anchors

- **Coral cages:** Act as heavy weights underwater to keep the platform stable.
- **Living roots:** Growing coral binds the frames to the seabed over time.



# Simulation of our 3D Nautilus Pavilion Model withstanding a T10 typhoon



THE BIGGER PICTURE

# Loneliness Is Not An Outlier

152.5K

people

Elderly living alone in Hong Kong  
(2016 · 13% of seniors)

+54%

increase

Rise in single-person households  
(2006–2016)

450K+

aged 65+

Cannot use smartphones  
— cut off from digital connection

438

cases

Suicides among people 60+ in 2020  
Highest since 1973



老太太卖了  
全世界的贝壳!



# 第三屆 青年建築師計劃



Design Scientist 2026 Incubation Program  
The 3rd Annual Program of The Citizen Architect Initiative



## AI-For-Good 仿生設計夏令營

Artificial Intelligence & Biomimicry Design Workshop | Summer Cohort

