



P R O J E C T
BEYOND
A RELAXED AERIAL EXPERIENCE

ALAN CHACKO ZACHARIAH



IDEA

CONNECTED BY NATURE



A SUSTAINABLE FORM OF AERIAL TRANSPORT THAT CATERS THE NEEDS OF PEOPLE SEEKING A SLOW AND RELAXING TRAVEL EXPERIENCE WITH SCENIC VIEWS FOR UPTO 8 PASSENGERS.

2040

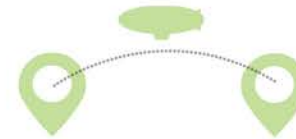
The designated year of operation



Semi-Rigid, Semi-bouyant Hybrid Airship



Holistic Space For Wellness & Tourism



5-7 hours journey time, 300 miles maximum travel radius

OBJECTIVE

OPEN - FEEL



The use of more transparent surfaces to provide a connection with nature.

FREEDOM



Freedom to move and to sit. Flexible interior seating for maximized user experience.

BIOPHILIC



Use of natural materials and plants in interior "nature as a healer".

RESEARCH

VEHICLE TARGETED FOR NORTH AMERICA IN THE YEAR 2040



WHY?

NORTH AMERICA



The biggest **UAM** market by 2023



79.6 million international visitors

5G

Largest Developed 5g market



28.9% of the global wellness market

WHY?

2040



Global urban population to rise to **65%**



Electrification of Airships by **2040**



Mental wellbeing to be a serious issue



Sustainable solutions to achieve **net zero**

WHY?

AIRSHIP

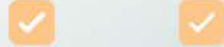
VTOL VS AIRSHIP

AS A SUSTAINABLE AND RELAXED FORM OF TRANSPORT

Vehicle type -



Price -



Slow Speed -



Low Noise -



Low Emission -



Low Maintenance -



SUSTAINABLE



RELAXED JOURNEY

HOW?

THE JOURNEY



HOME



AIRSHIP HUB



DESTINATION


Book at the nearest hub among the many in the city, pick a destination choose either drop-off or round trip



MAP OF CALIFORNIA

AIRSHIP RANGE FROM HUB

 Airship hub

 Maximum travel radius of **300mi**

PERSONA



MARK (50) AND HIS FAMILY

Reason for travel:

On a family vacation to North America, wants a unique experience.

Adventurous - Open-minded - Fun loving - Optimistic

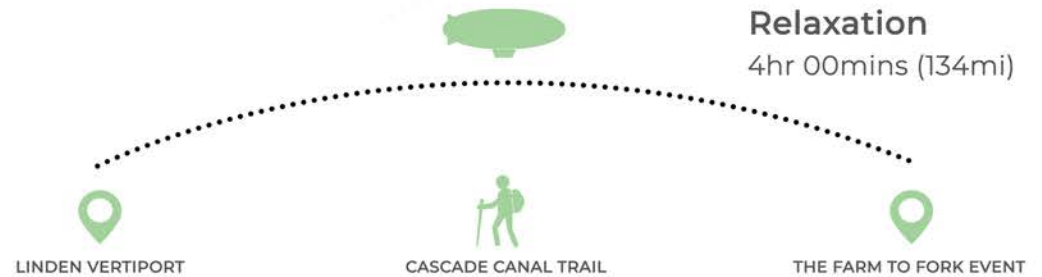


ADAM (25) AND HIS FRIEND

Reason for travel:

Wants a escapism from his work related stress, he wants a relaxed journey that promotes his wellbeing

Aspiring - Introvert - Perfectionist - Good-natured



USER EXPERIENCE



ENTRANCE TREE STRUCTURE



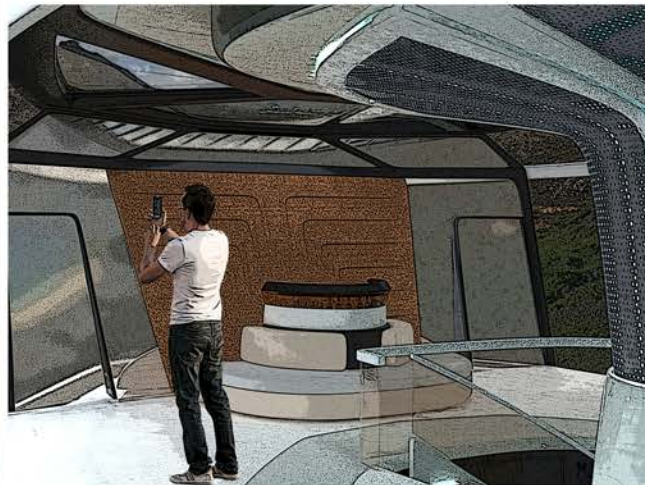
A FOOD ELEVATOR DELIVERS FOOD FROM TOP CAFE



SEE THROUGH CEILING IN MIDDLE STRUCTURE THAT SHOW THE TOP MOST STRUCTURE



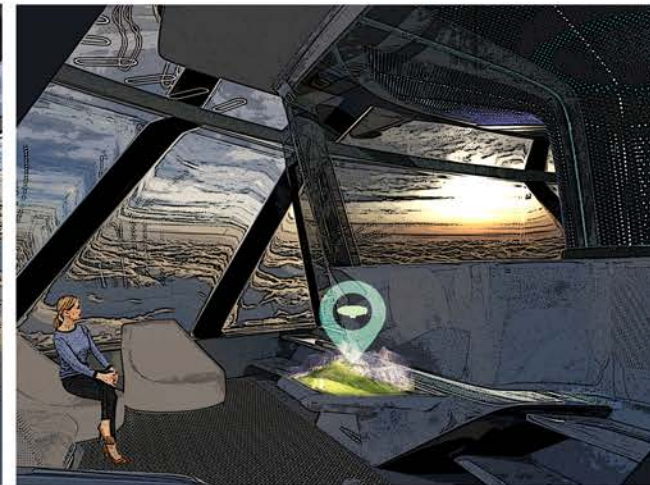
BALCONY VIEW



TOP FLOOR WITH CAFE AND A CENTRAL TREE STRUCTURE THAT VISUALLY DOCKS TO EXTERIOR



RELAXED CORNER WITH AN SILENT ATMOSPHERE



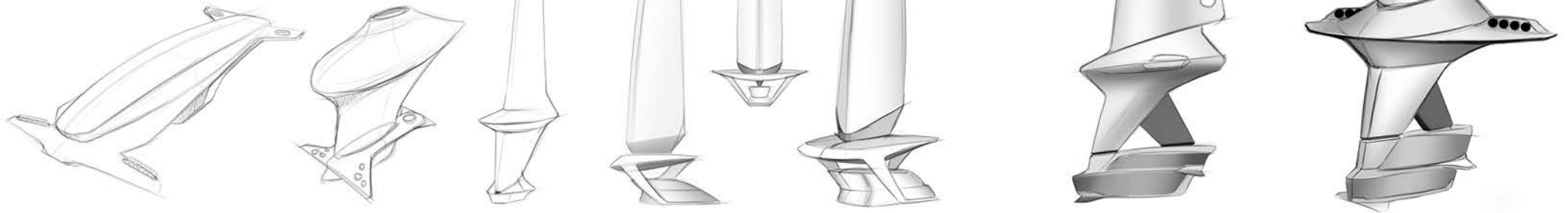
PRIVATE AREA PASSENGERS ENGAGE WITH HOLOGRAPHIC TABLE



EXTERIOR EXPLORATION



AVANT-GARDE
BOLD
LIGHTWEIGHT

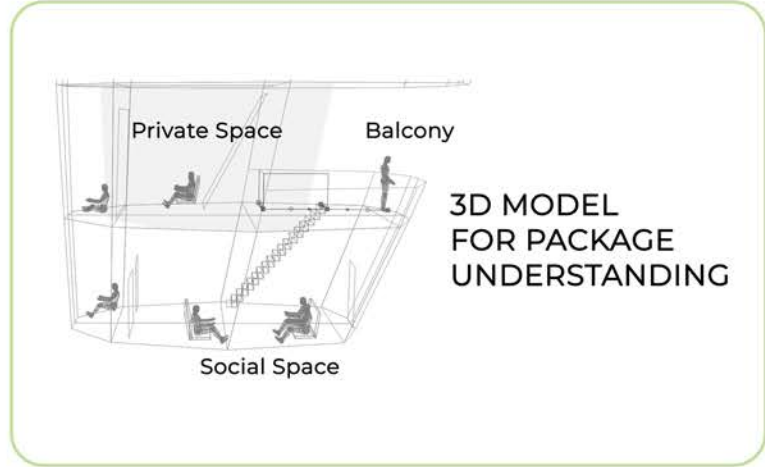


HORIZONTAL FORM
TRADITIONAL AIRSHIP DESIGN

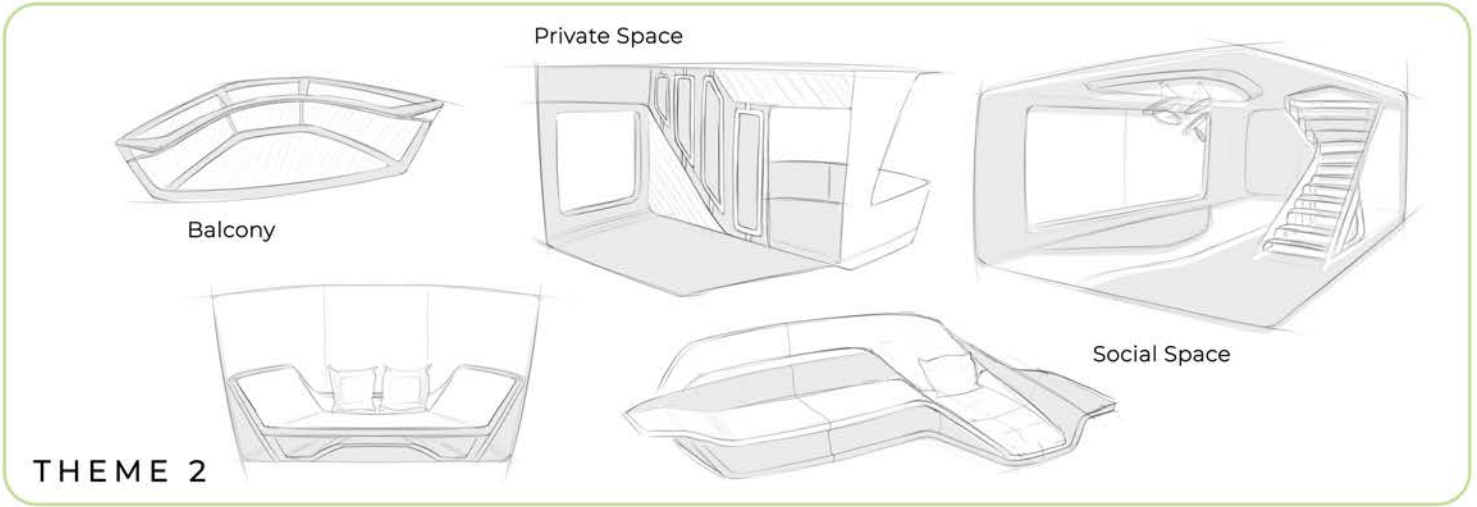
VERTICAL FORM
LESS SURFACE ON GROUND

INTERIOR EXPLORATION

OPEN FEEL - RELAXING - BIOPHILIC

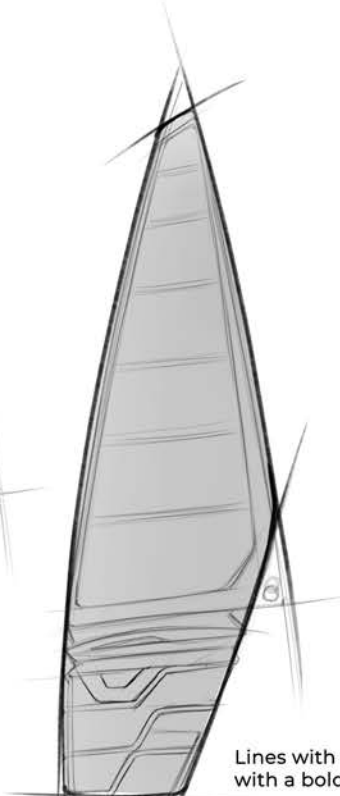
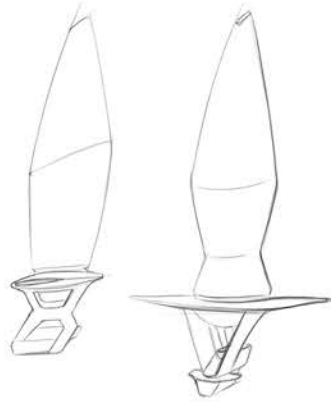
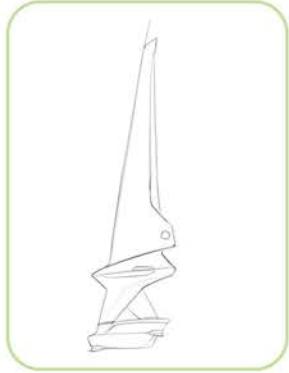


COSY - ELEGANT - FREEDOM



EXTERIOR FORM DEVELOPMENT

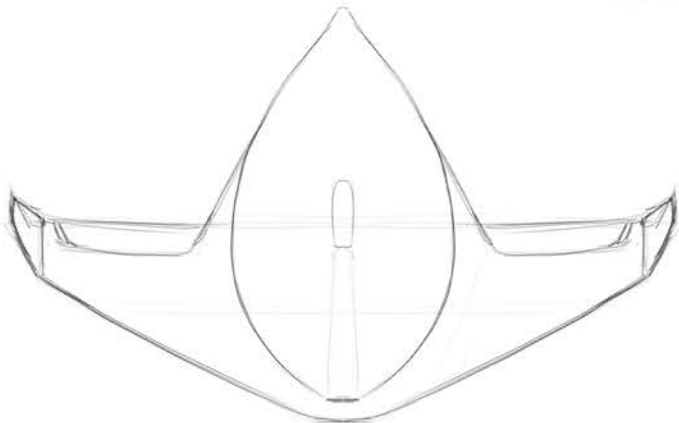
KEYSKETCH



Lines with tension
with a bold stance

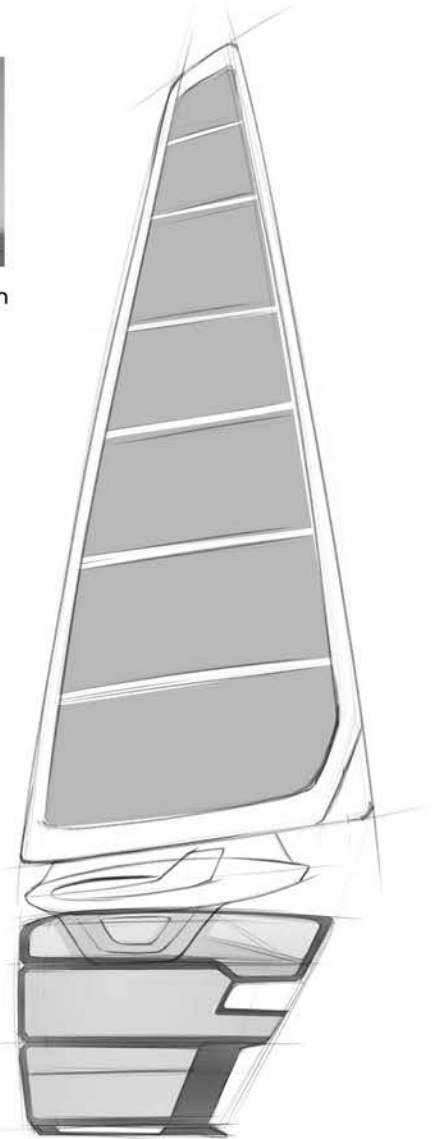


Sail Inspiration

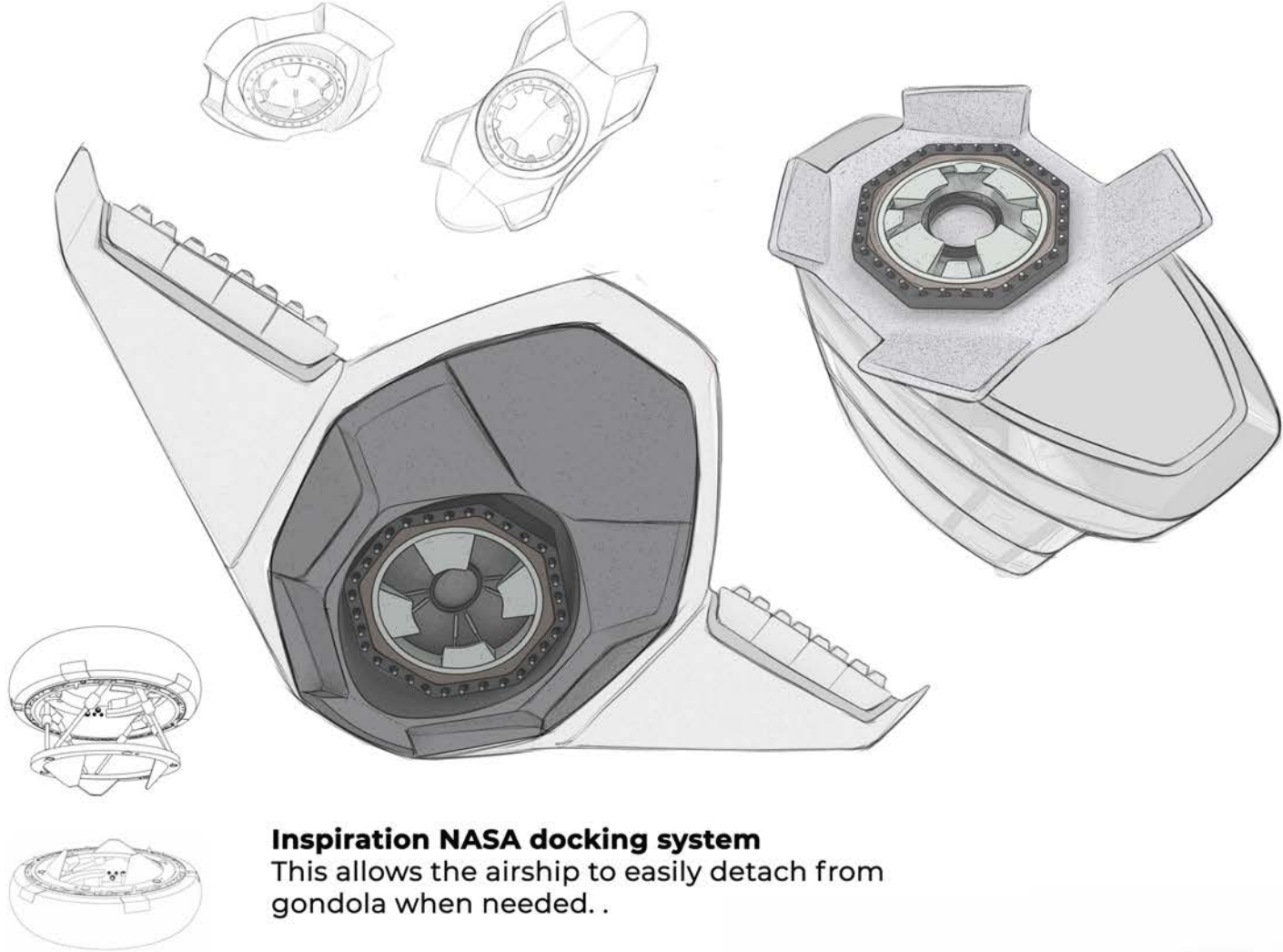


DESIGN IDEA

The final design takes the bold and relaxed feel of the keysketch along with the aerodynamic feel of the sail.

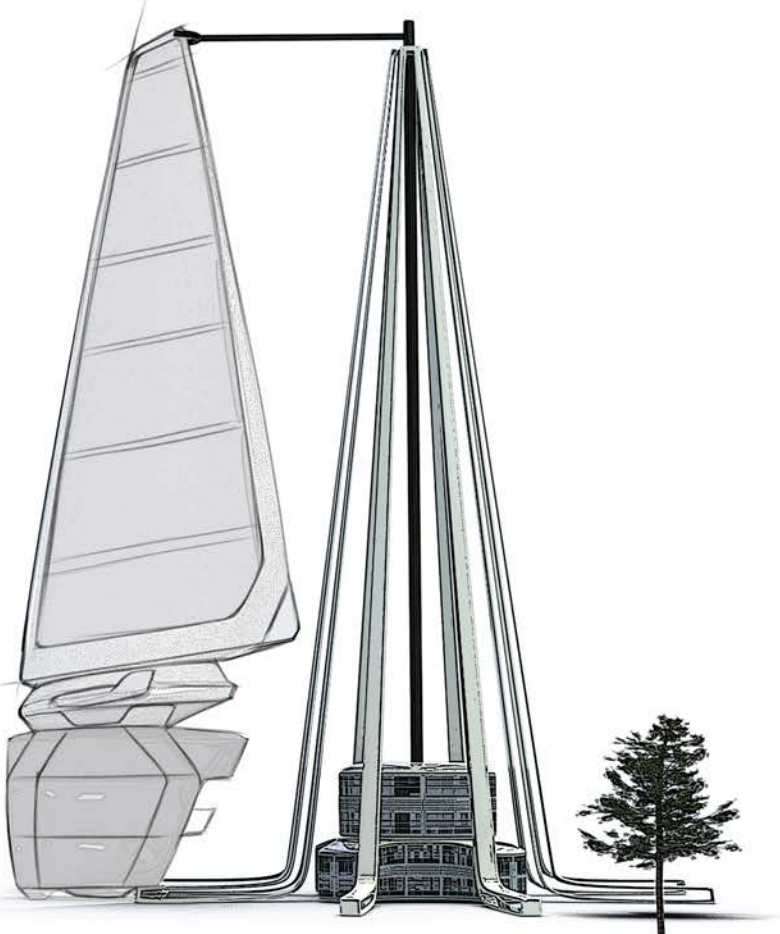


EXTERIOR FUNCTION DEVELOPMENT



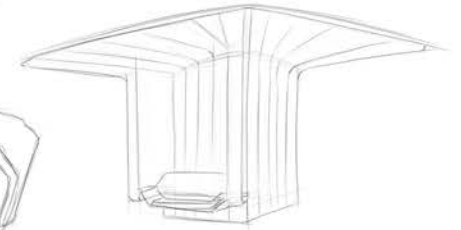
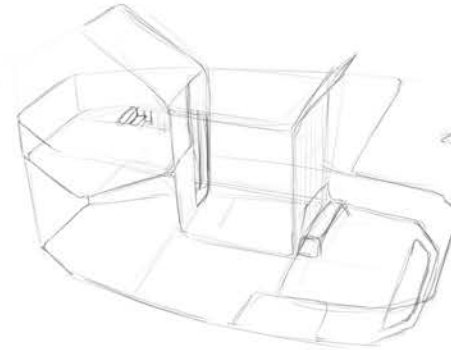
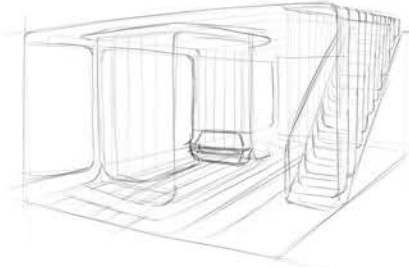
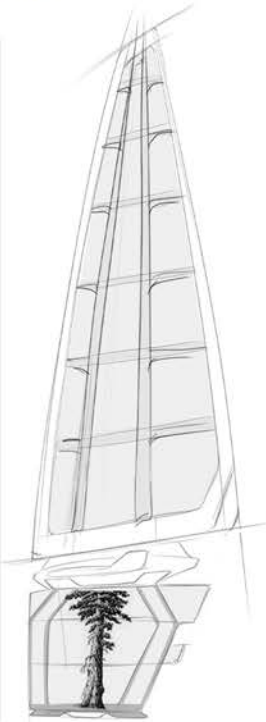
Inspiration NASA docking system
This allows the airship to easily detach from gondola when needed..

AIRSHIP HUB
How the airship docks onto the supporting architecture for passengers to board

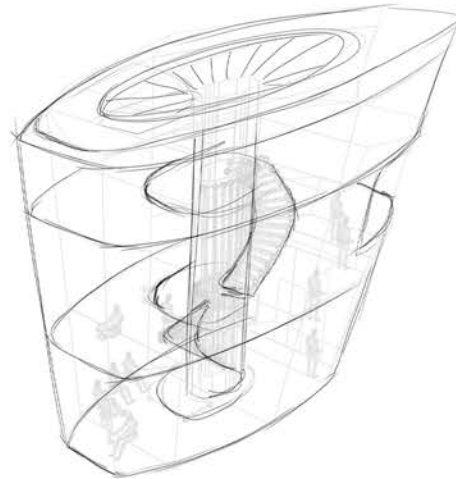


INTERIOR THEME DEVELOPMENT

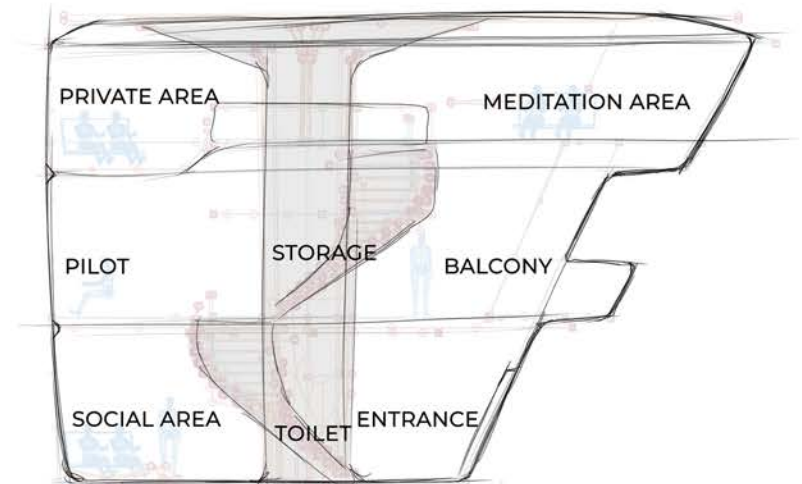
BIOPHILIC THEME



Initial thumbnail sketch with a tree structure on the side looks visually unbalanced



Thoughts on having the tree structure in the center to strengthen the theme further and visually more balanced



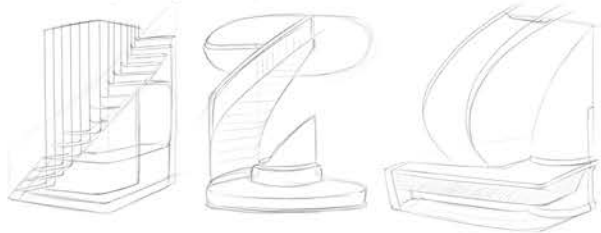
Quick deck layout using 3D before starting further detailed development

REDWOOD TREE INSPIRATION

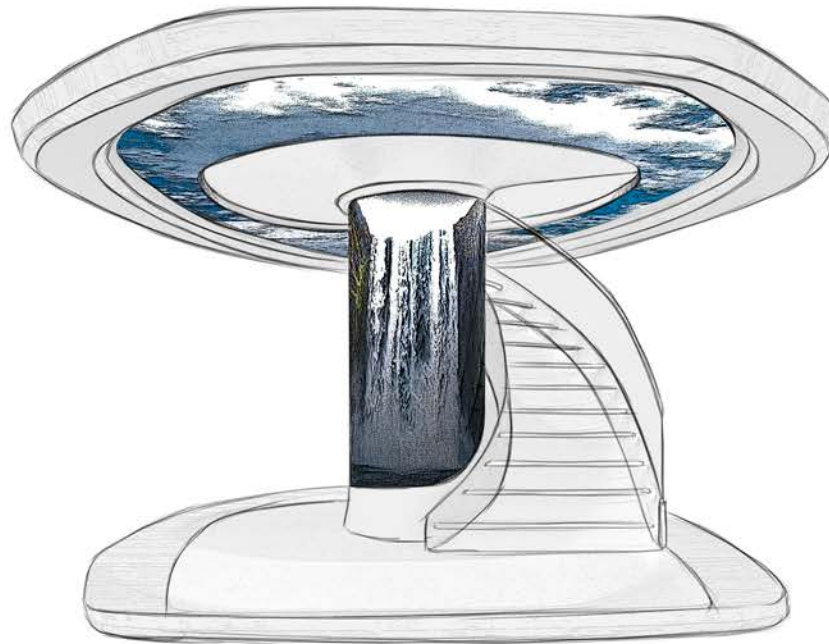
Redwood trees are well known for their height commonly found in California. The idea to bring in that theme of having **an interior tree structure that also forms the central framework of the envelope.**

GROUND FLOOR DEVELOPMENT

Ideation's to combine the central structure with a lounge seat or with a cafe. (became visually congested)



CENTRAL TREE STRUCTURE AS
A DIGITAL DISPLAY

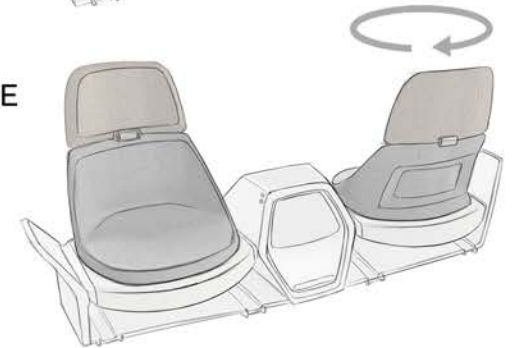


The idea of single seating units that can transform to change the seating view from facing inward to facing outward.

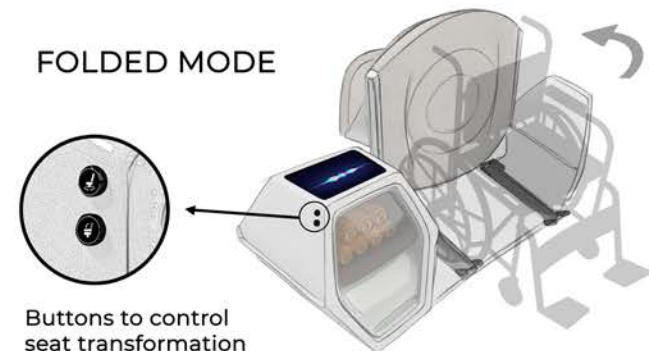
NORMAL MODE



ROTATED MODE

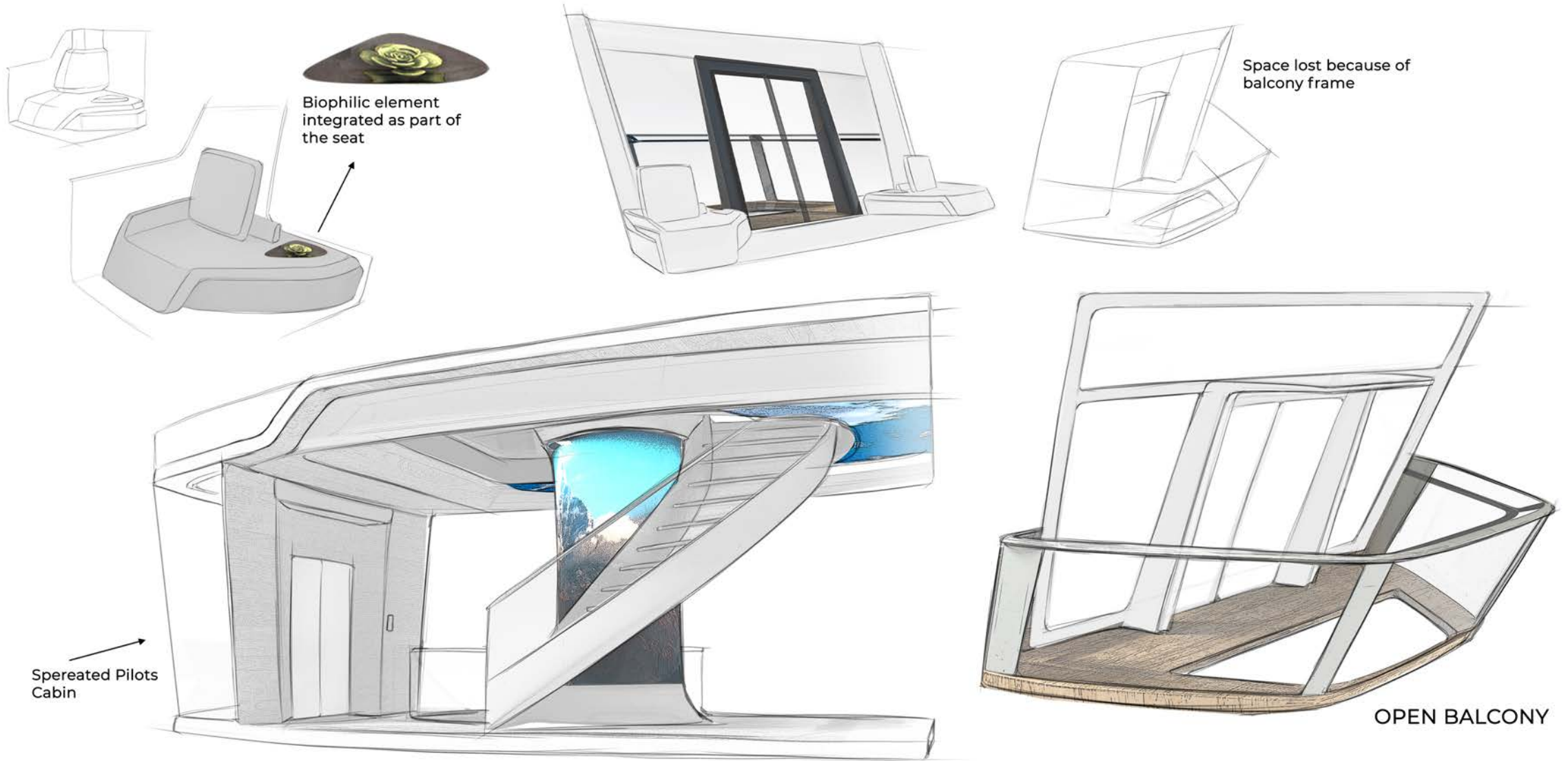


FOLDED MODE



Buttons to control
seat transformation

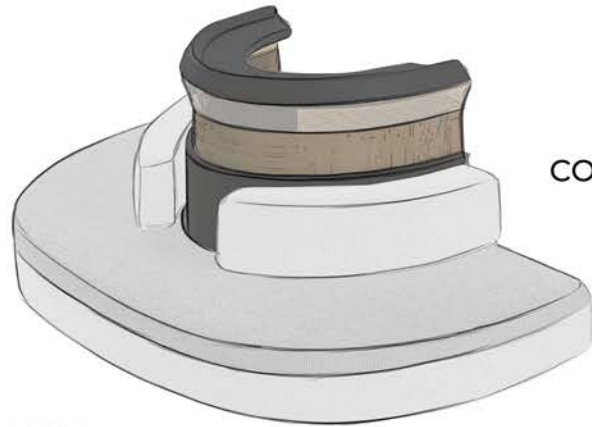
FIRST FLOOR DEVELOPMENT



SECOND FLOOR DEVELOPMENT



Cafe inspired by emirates bar

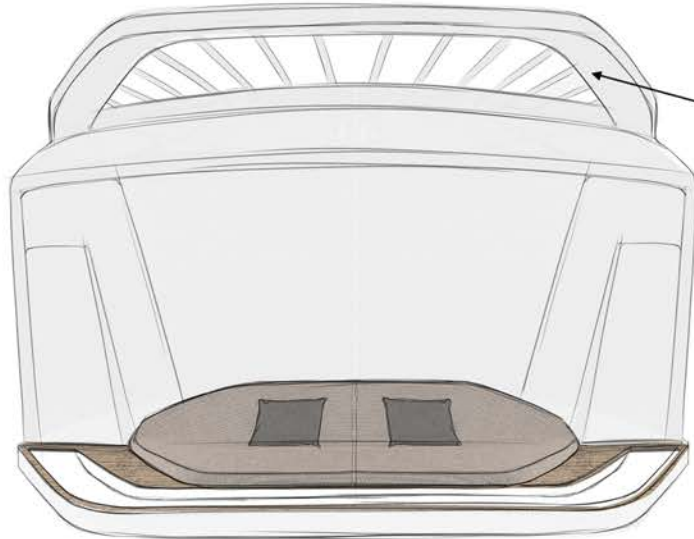


CAFE
+
COMMON AREA



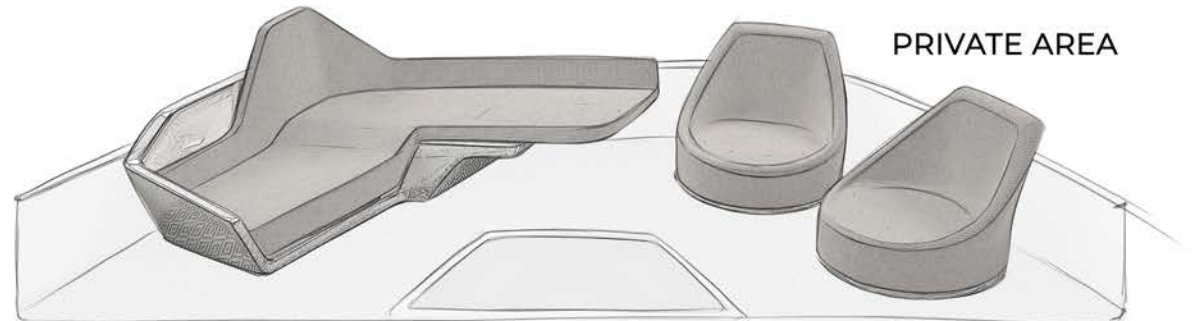
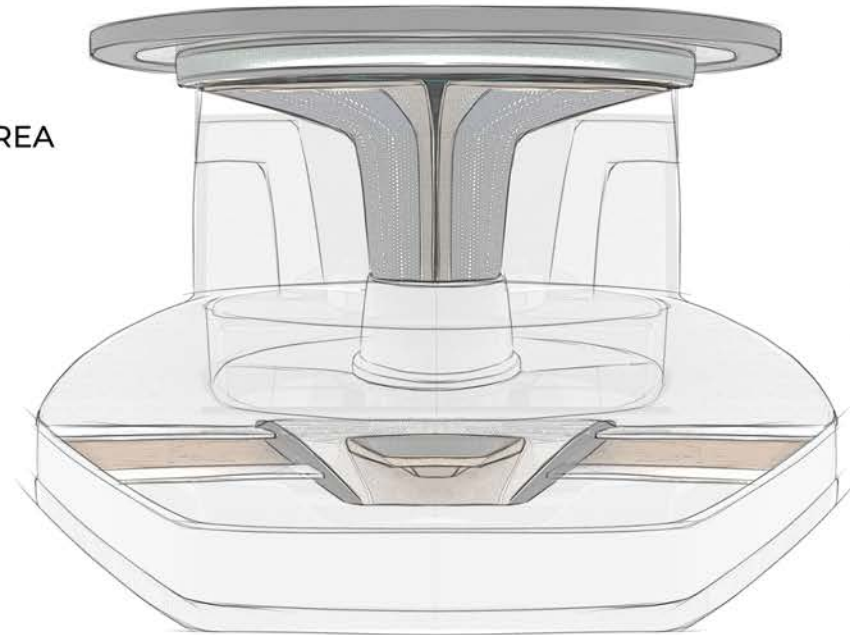
The top part of the tree structure is inspired by the German Pavillion structure

RELAXING AREA



Use of roof pattern to give a nice biophilic shadow in interior

An area enclosed with acoustic materials for a clam environment



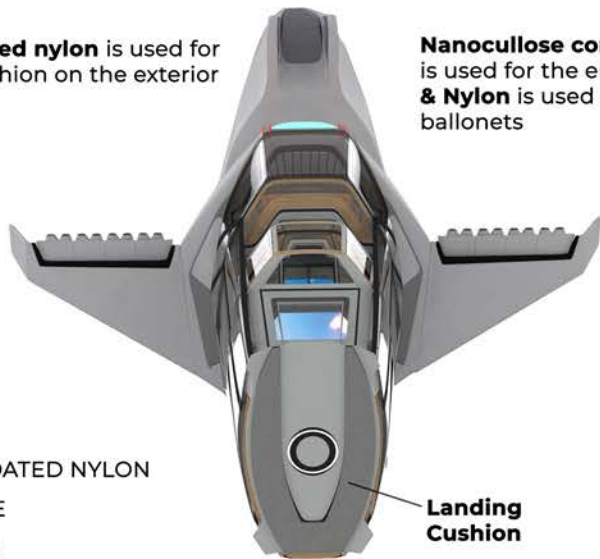
PRIVATE AREA

A COSY FLEXIBLE SEATING LAYOUT WITH HOLOGRAPHIC TABLE IN MIDDLE

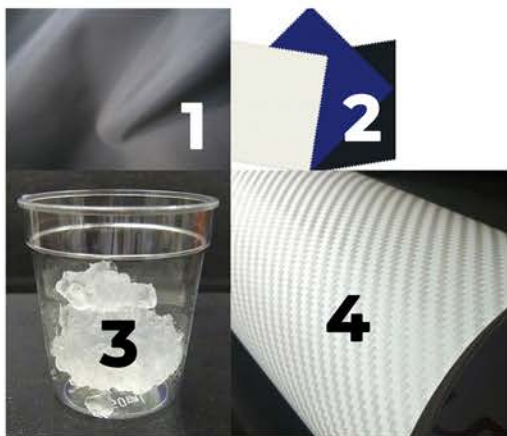
EXTERIOR CMF & HMI

Neoprene-coated nylon is used for the landing cushion on the exterior

Nanocullose composite is used for the envelope & **Nylon** is used for the ballonets

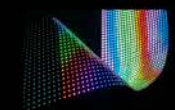
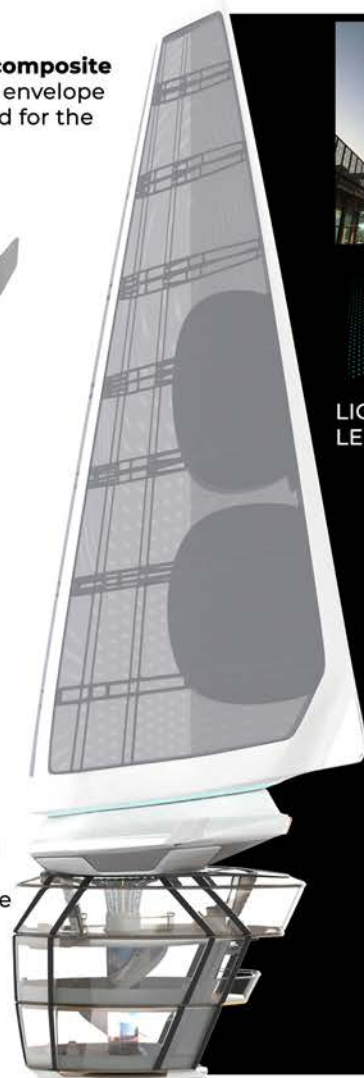


- 1 NYLON
- 2 NEOPRENE-COATED NYLON
- 3 NANOCULLOSE
- 4 CARBONFIBER



Landing Cushion

Carbon fiber is used for all the main structural parts of the exterior



LIGHTWEIGHT LED TECHNOLOGY

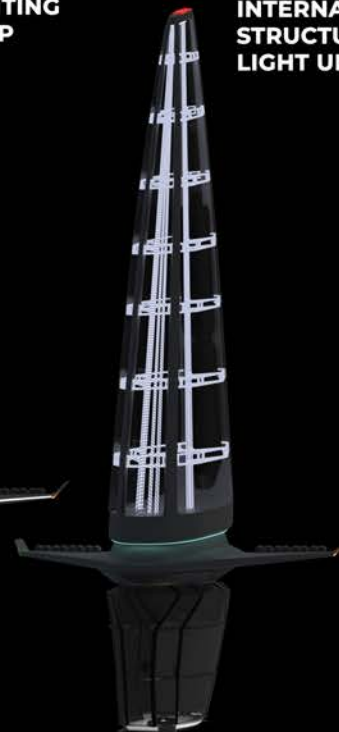
Exterior user interaction is achieved with the help of an intelligent LED lighting system that can be programmed for different variations. Inspired by the lighting in Burj Khalifa.

TYPES OF VARIATION

LIGHTING STRIP



INTERNAL STRUCTURE LIGHT UP

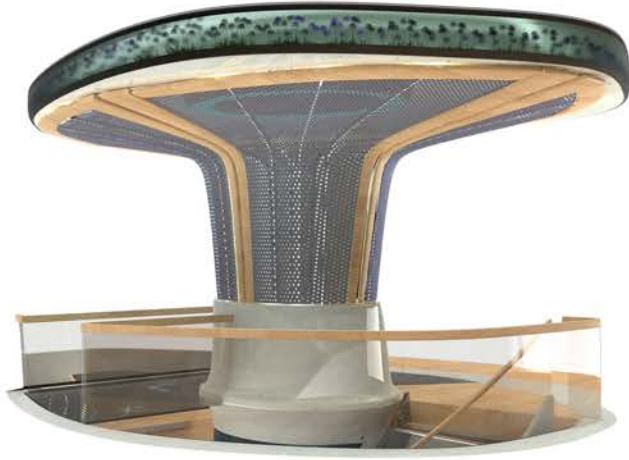


ADVERTISEMENT BOARD

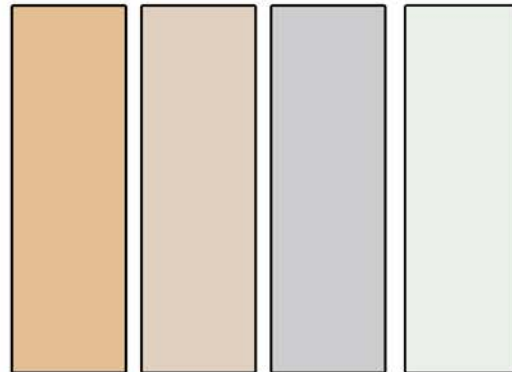


INTERIOR CMF

Obscure glass used to create a biophilic element in the interior that is visually relaxing.



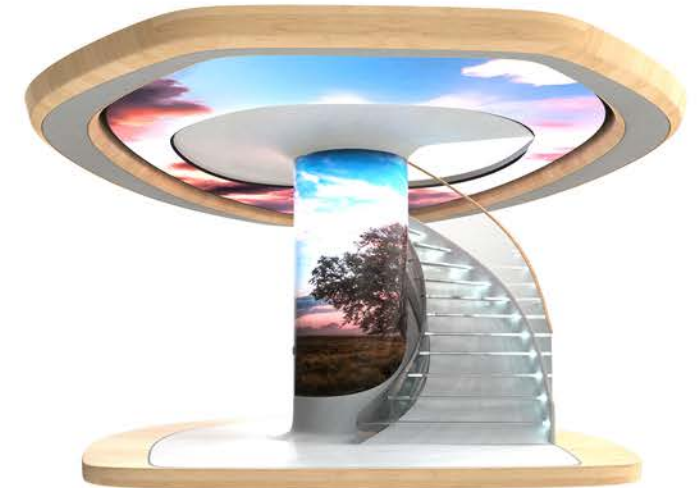
Acoustic Cork wall & layered Polycarbonate material used to create a soundproof ambience in the meditation / relaxation area.



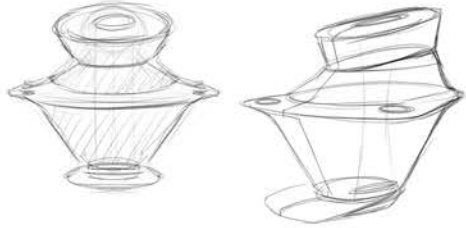
Tencel Lyocell fabric & recycled plastic used in the all throughout the interior with a combination of light colours.



Polycarbonate used as a substitute glass through the interior & **Bamboo Wood** used in the flooring and ceiling patterns .



INTERIOR HMI



Drone?

The initial idea of a drone as a form of user experience to deliver food. But could create an obstacle for the user to move freely and also the noise would be unpleasant for a wellness journey.

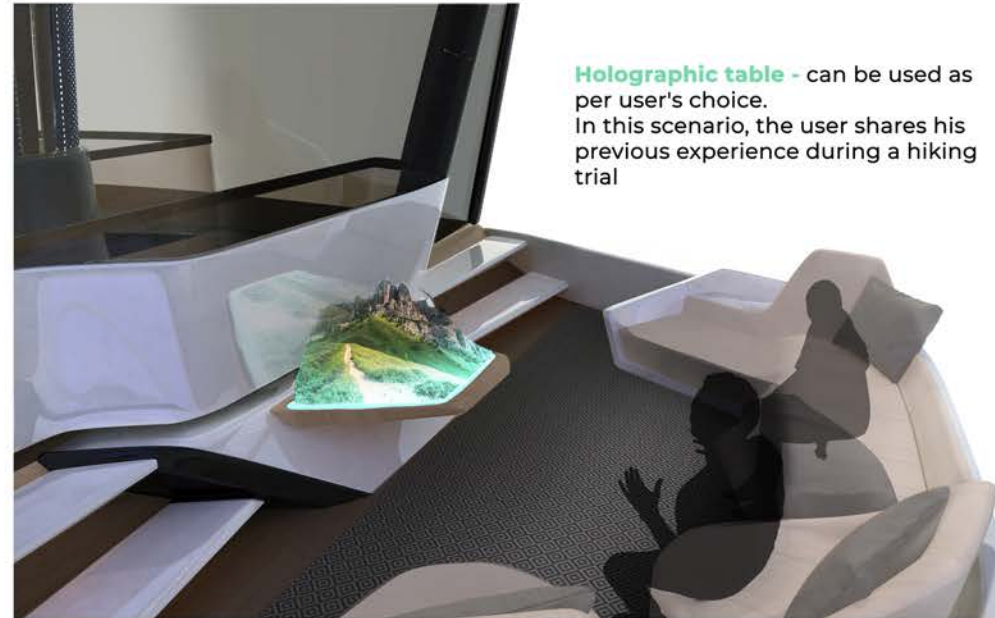


The food elevator interacts with users using lights.

The main interior HMI theme is **the tree structure and the ceiling has a digital display** that can create a welcoming ambiance based on the journey. also, it could project the main landmarks as the airship travels above them

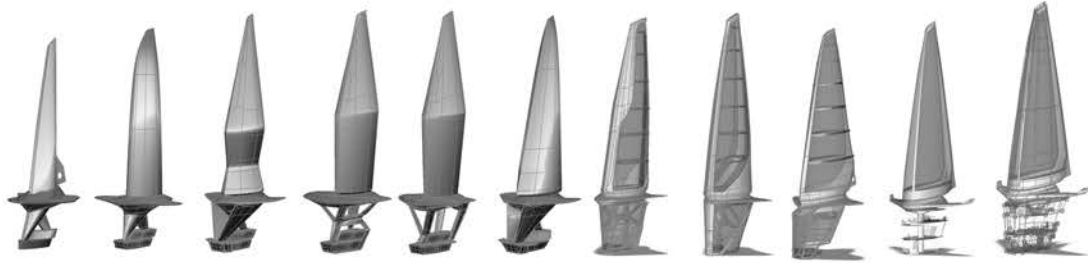


The display & seat buttons are used to transform the seats and to interact with the vehicle.

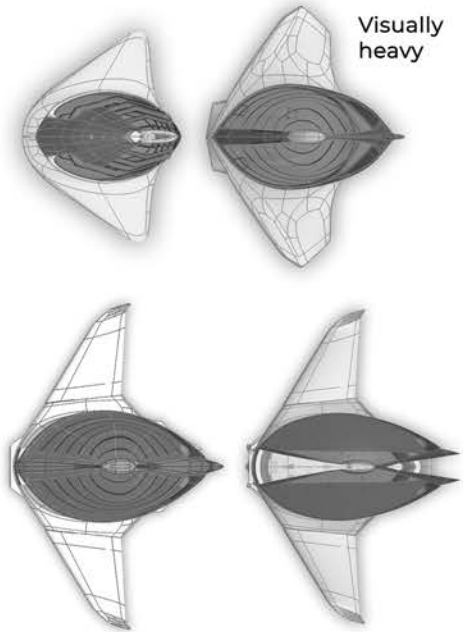


Holographic table - can be used as per user's choice. In this scenario, the user shares his previous experience during a hiking trial

EXTERIOR 3D DEVELOPMENT



Exterior design design development to get a nice aerodynamic form.

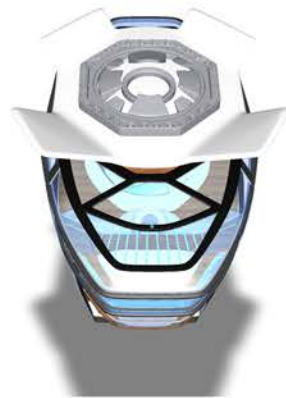


Visually heavy

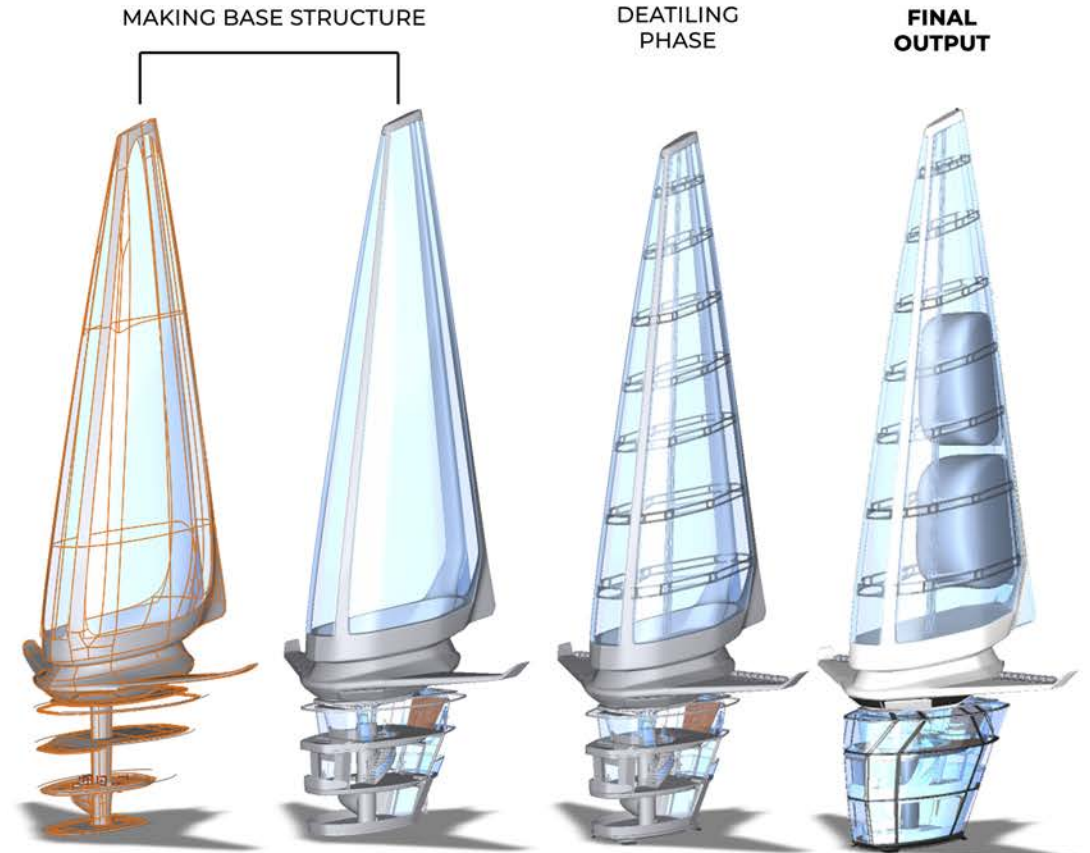
Making top view more aerodynamic



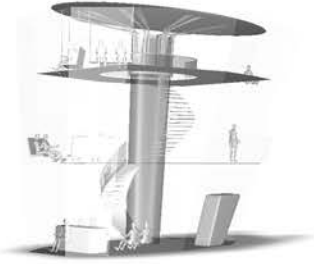
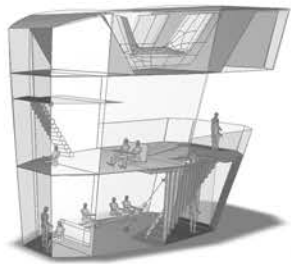
**DOCKING SYSTEM
DETAILED
DEVELOPMENT**



FINAL DEATILED MODEL JOURNEY



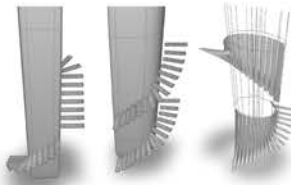
INTERIOR 3D DEVELOPMENT



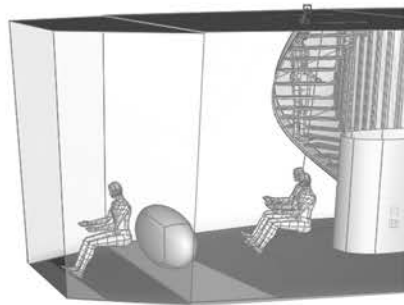
OLD

NEW

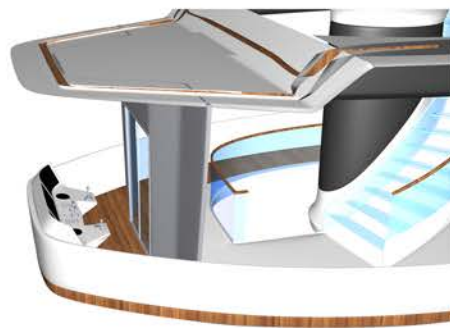
Removing any extra design elements that I had from the bottom of the stairway gave interior space.



Initial interior visualization and ideation on interior layout and staircase shape



OLD

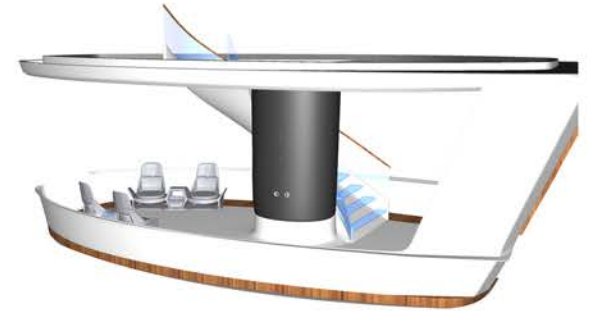


NEW

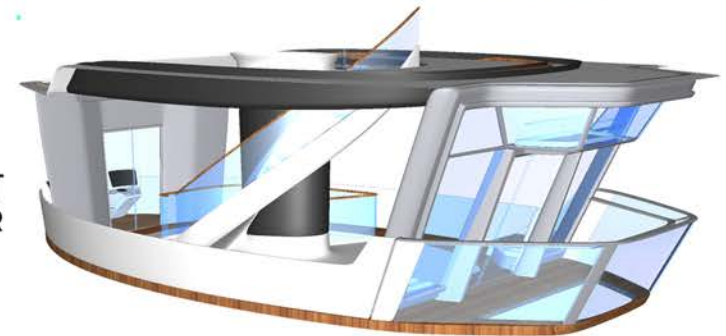
The decision to shift the pilot cabin to the first floor to avoid the bottom floor being too busy

FINAL DEATILED INTERIOR DECK VIEWS

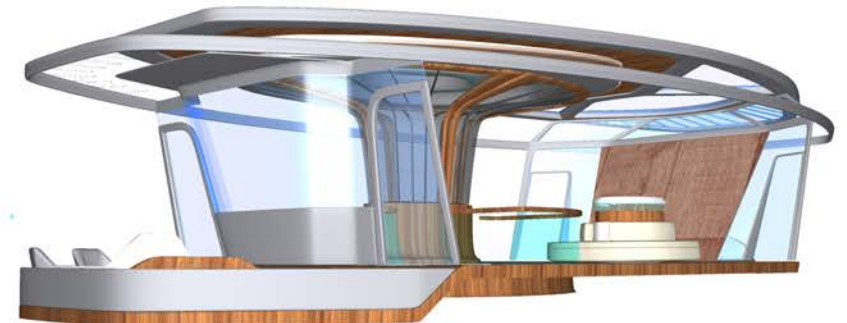
GROUND FLOOR



FIRST FLOOR



SECOND FLOOR



TECHNICAL CONTENT

LIFTING MECHANISM

Ballonets, ducted vector thrust & aero lift

AIRSHIP TYPE

Semi-rigid hybrid airship

PROPULSION

Electric

FLYING SYSTEM

Semi-Autonomous

LIFTING GAS

Helium

RANGE

5-7 hours

SPEED

Crusing speed 50mph

PASSENGER CAPACITY

2 crew + MAXIMUM 8 PASSENGERS



Lillium inspired ducted vector thrust

ENVELOPE DIMENSION

Length = 14.2m

Width = 9.2 m

Height = 48.6m

Volume $\approx 6349\text{m}^3$



APPROXIMATE CALCULATIONS



2019 30RD White Hawk Trailer

Length = 10.7m

Width = 2.4m

Height = 3.4m

Construction = Aluminium

Dry Weight = 3002kg



My Airship Gondola

Length = 9.4, 12.8, 15m

Width = 6m, 7m, 8m

Height = 3.5m

Construction = Carbon fibre
(~42% lighter than aluminium)

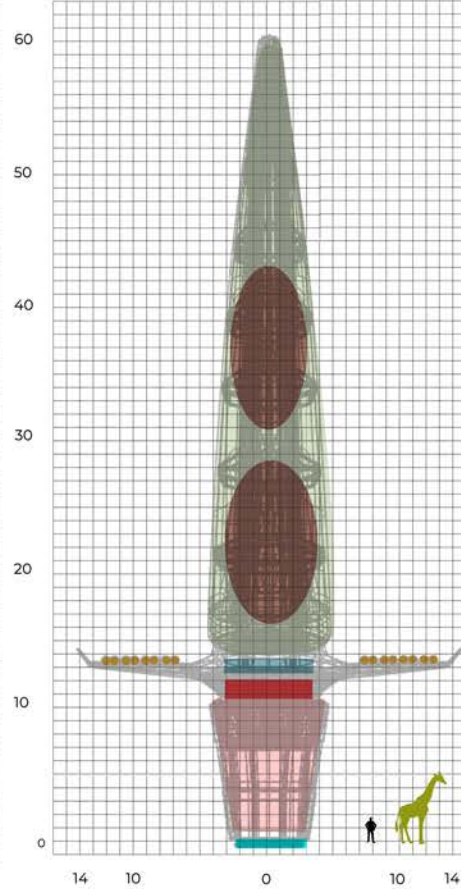
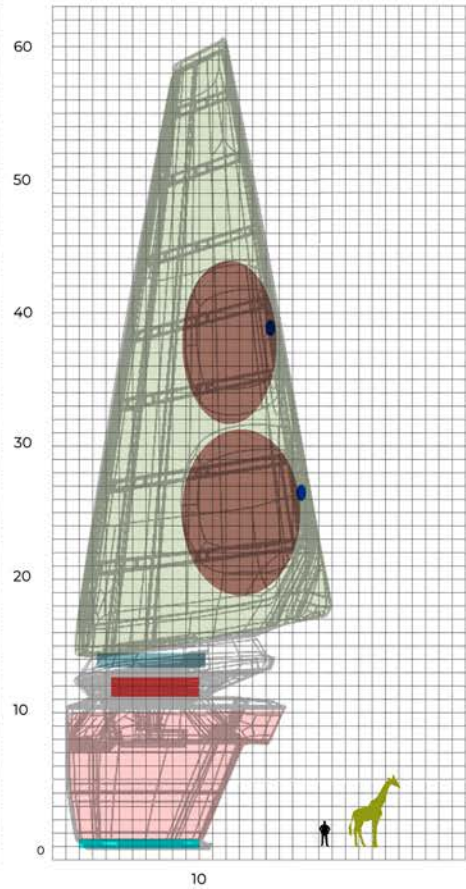
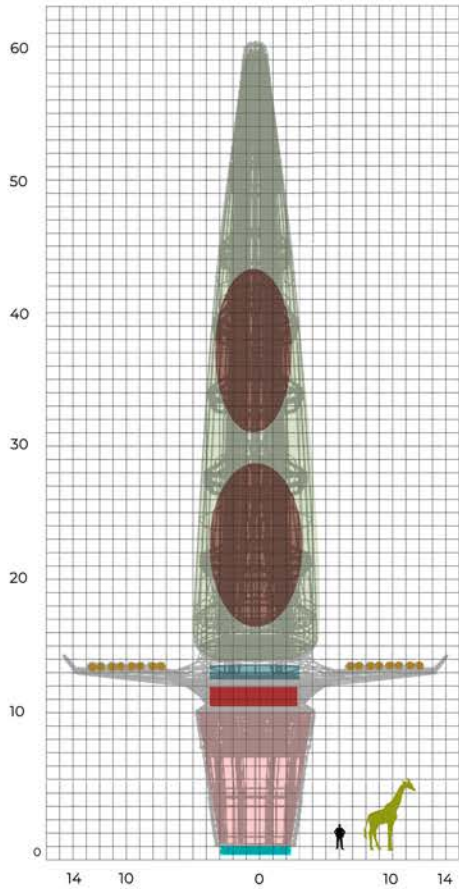
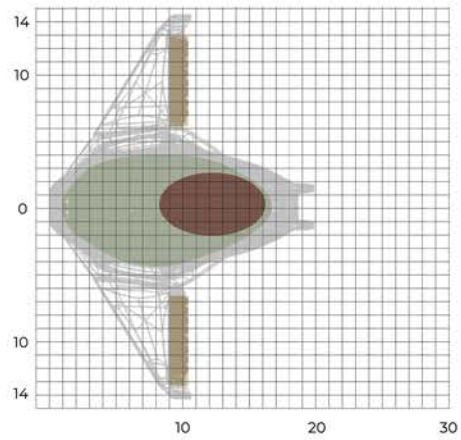
Total Dry Weight = ~6148kg

VOLUME OF LIFTING GAS

Assuming for every 1kg we need $.96\text{m}^3$ of gas for lift



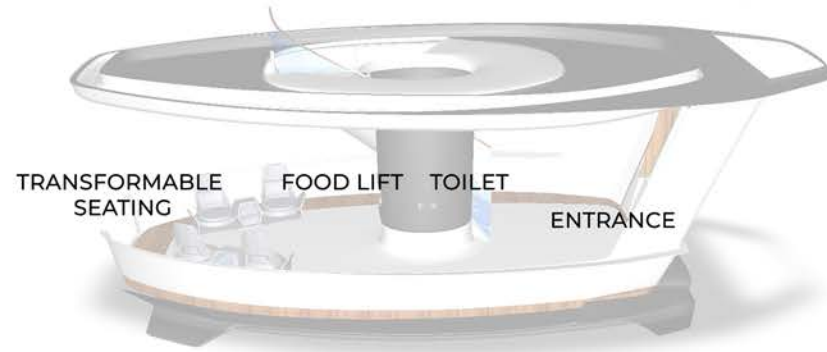
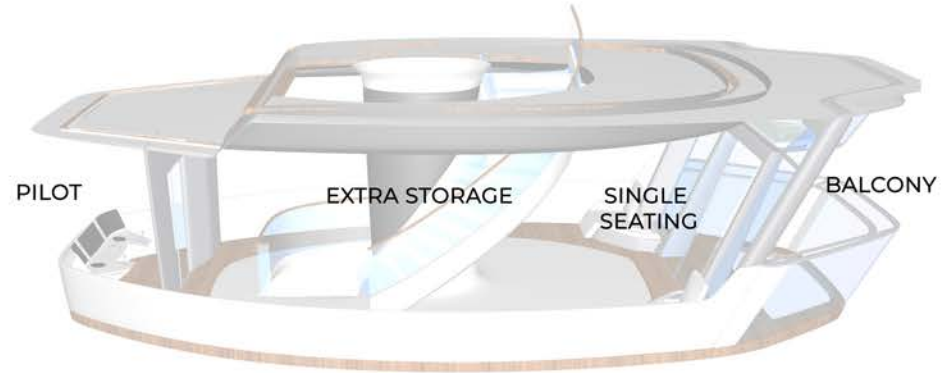
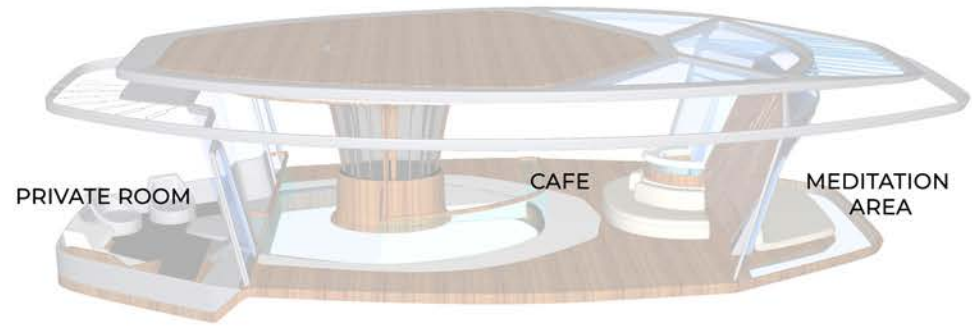
For a weight of ~6148 we would need 5875m^3 of helium for lift which is equal to 25359 (30 inch balloons)

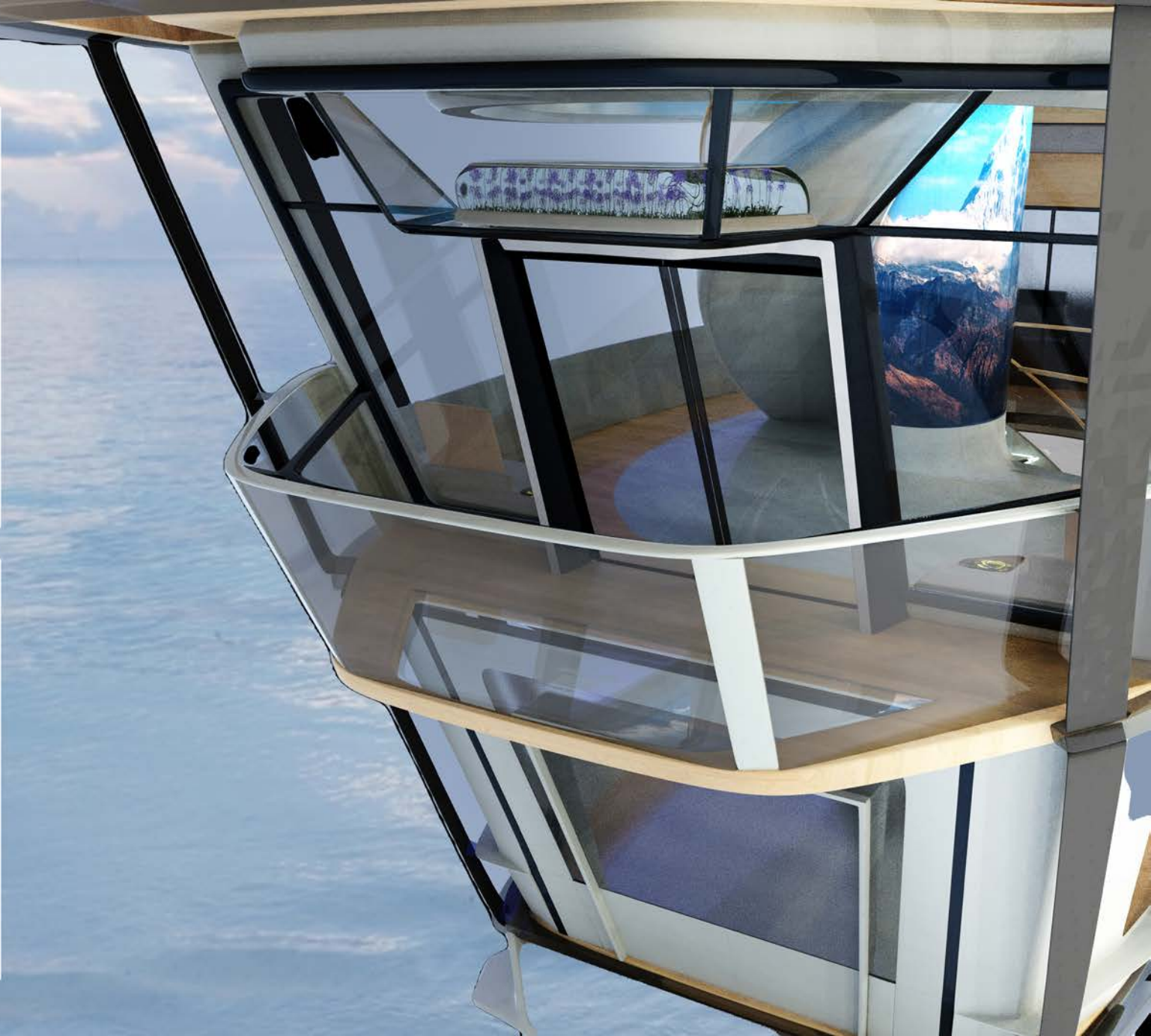
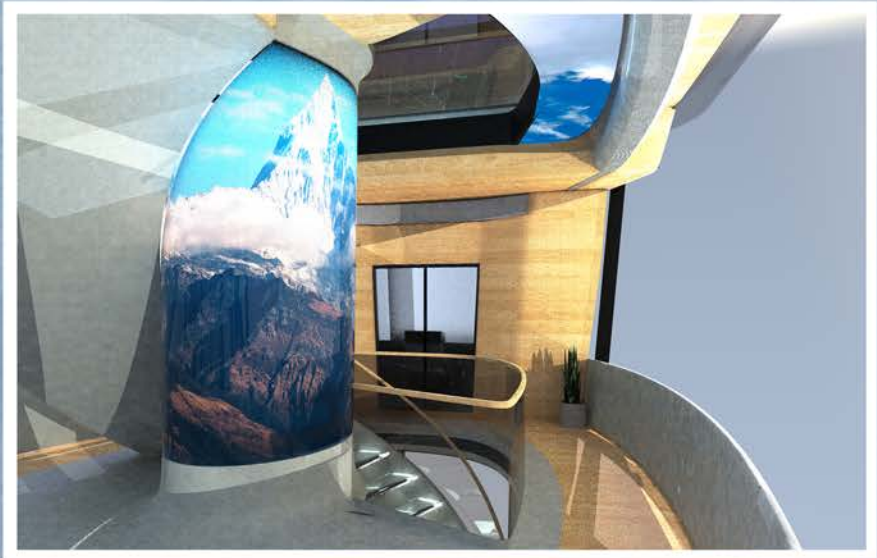


PACKAGE DRAWING

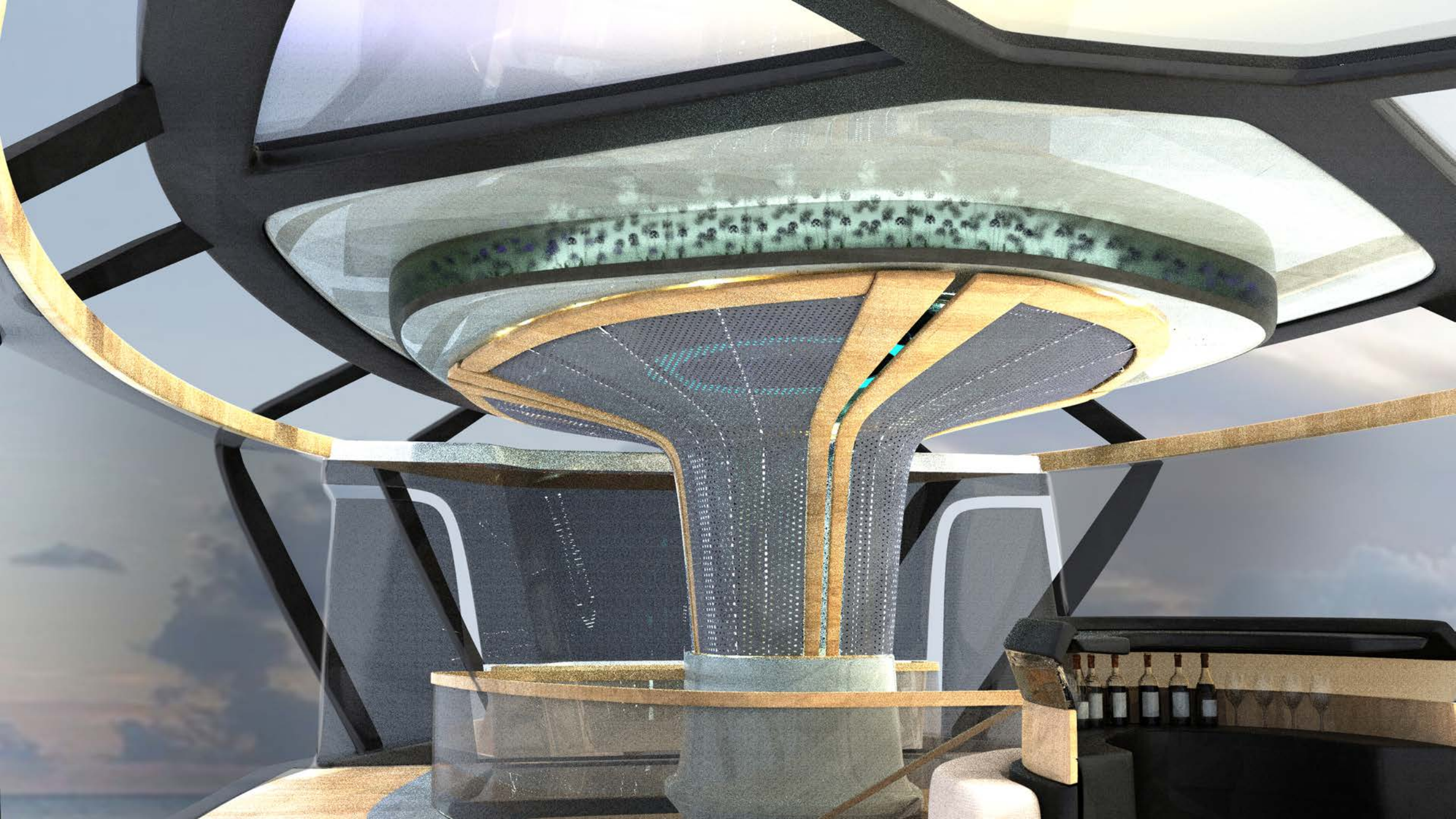
- INTERIOR CABIN
- HELIUM
- BALLONETS
- VECTOR THRUST
- BATTREY
- LANDING CUSHION
- AIR VALVE
- DOCKING UNIT
- GIRAFFE
- PERSON

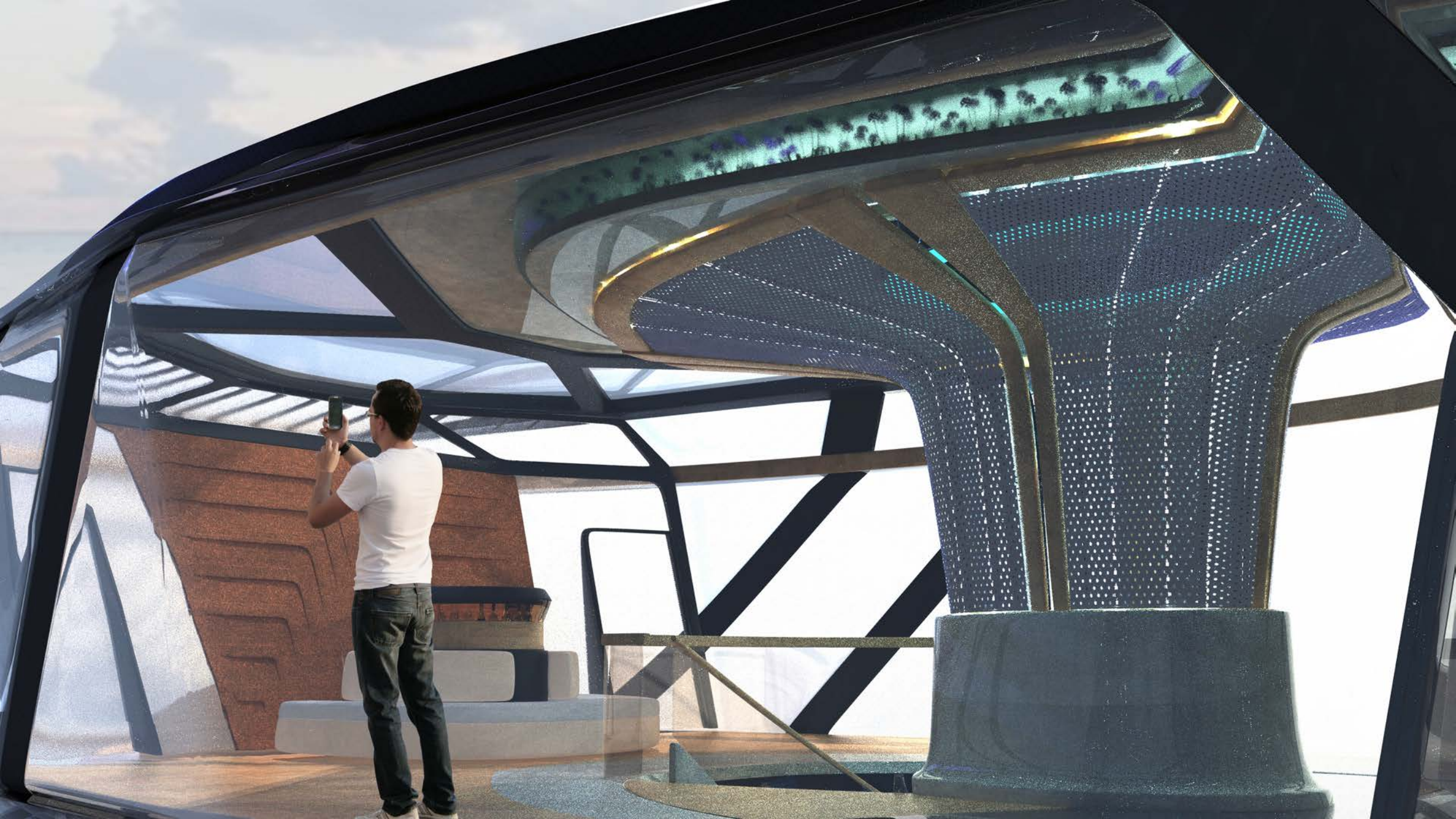
BASIC FLOOR PLAN







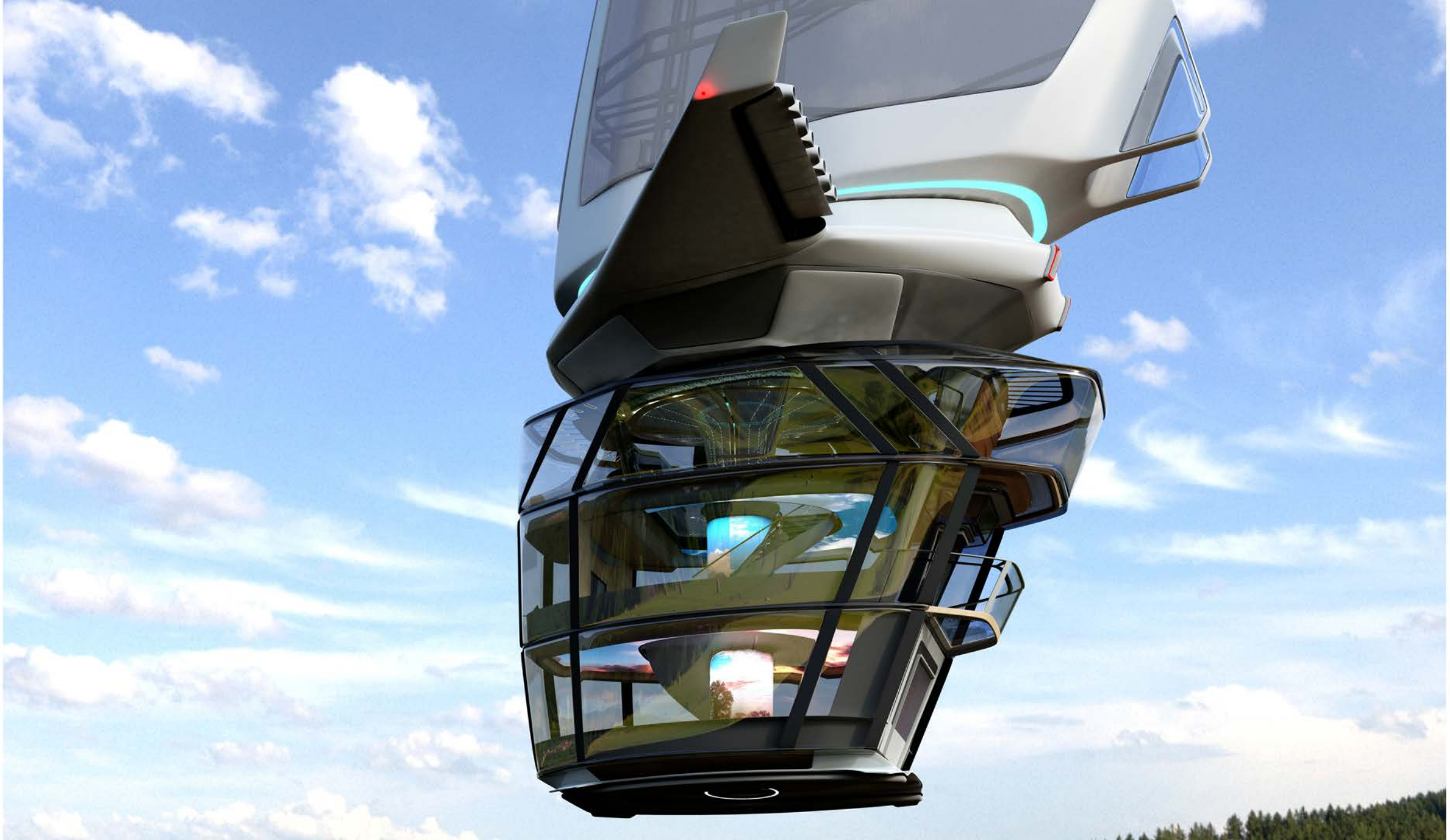












And the journey continues.....

THANKYOU

