

LUXURY YACHT INSPIRED FROM  
TRADITIONAL KERALA BOATS

MOBILITY & VEHICLE DESIGN PROJECT III

MVD III-32

ROHIT KARTHA  
146390010

GUIDE : PROF. LANCE RAKE



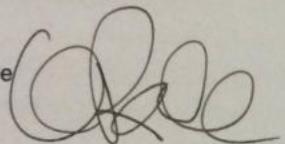
INDUSTRIAL DESIGN CENTRE  
INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

2016

## APPROVAL SHEET

This vehicle design project titled "Designing a luxury yacht inspired from traditional Kerala boats", by Rohit Kartha is approved in partial fulfilment of the requirements for the Master of Design in Mobility & Vehicle Design

Project Guide

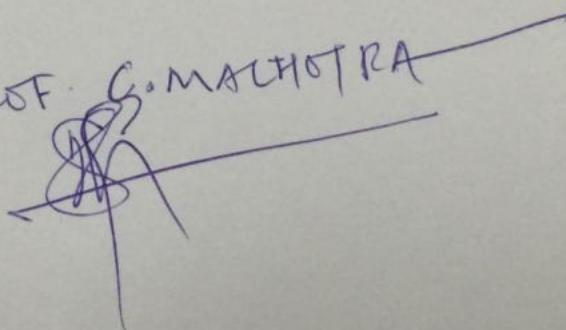


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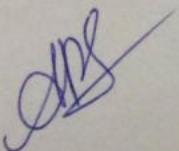
Chair person

Internal Examiner

FOR PROF. G. MACHOTRA



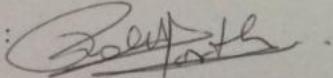
External Examiner



## DECLARATION

I declare that this written submission represents my idea in my own words, and where others ideas or words have been included, I have Adequately cited and referenced the original source. I also declare that I Have adhered to all principles of academic honesty and integrity and have not falsified, misinterpreted or fabricated any idea/data/facts/sources In my submission. I understand that any violation of the above will be cause for disciplinary action by the institute and can also invoke penal action from the sources from which proper permission has not been taken, or improperly cited

Name : ROHIT KARPHA

Signature : 

Roll No : 146390010

Date 30/05/16

## INTRODUCTION

This project deals with the design of a luxury yacht inspired from traditional Kerala boats and Kerala culture and aesthetic. The yacht is intended to usher in a new era to Kerala tourism which will be equipped to handle tourists expecting very high standards of luxury yet want to be immersed in the experience that is Kerala.

The project will follow the design process of identifying a market segment, a potential user, and the need for such a product. Research into tourism trends and papers on expectations and satisfaction of tourists and the essential factors of luxury hospitality will be studied.

The design brief will streamline the process in conceptualizing a yacht with interiors and an exterior inspired by Kerala aesthetic. The proposed design will be a culmination of various factors, studies and iterative concepts that does justice to the brief.



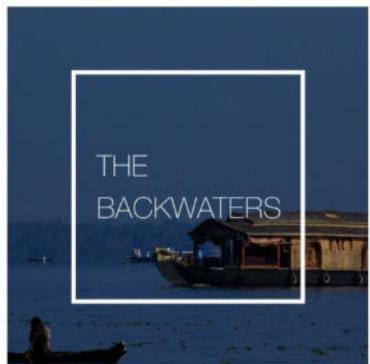
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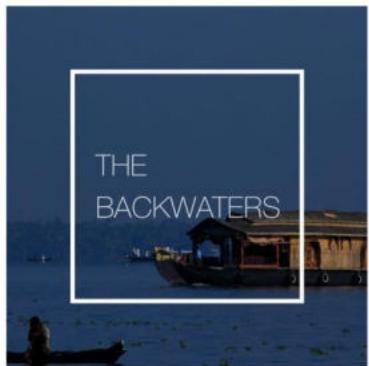
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Image source - [keralatourdestinations.wordpress.com](http://keralatourdestinations.wordpress.com)

Kerala is a state in South India on the Malabar Coast. Spread over 38,863 km<sup>2</sup>, it is bordered by Karnataka to the north and northeast, Tamil Nadu to the east and south, and the Lakshadweep Sea to the west. With 33,387,677 inhabitants as per the 2011 Census, Kerala is the thirteenth largest state by population and is divided into 14 districts with the capital being Thiruvananthapuram. Malayalam is the most widely spoken and the official language of the state.

The region has been a prominent spice exporter since 3000 BCE. In the 15th century, the spice trade attracted Portuguese traders to Kerala, and paved the way for the European colonisation of India. In modern India, Kerala has the lowest positive population growth rate in India; 3.44%, highest Human Development Index 0.790 in 2011, the highest literacy rate; 93.91% in the 2011 census, the highest life expectancy; 77 years and the highest sex ratio; 1,084 women per 1000 men.

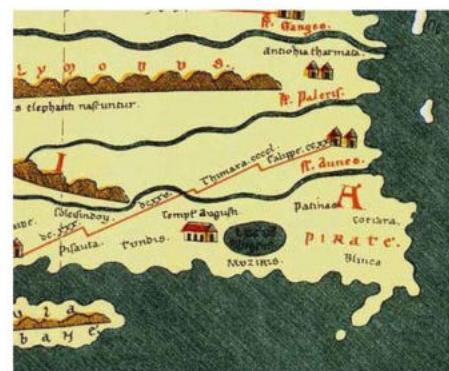


Image source - [live-av.info/kochi](http://live-av.info/kochi)  
[kaidentours.com](http://kaidentours.com)  
[pinterest.com](http://pinterest.com)



Muziris was the most important port in the Malabar coast, which according to the Periplus, abounded with large ships of Romans, Arabs and Greeks. Bulk spices, ivory, timber, pearls and gems were exported from the Chera ports to Mesopotamia, Egypt, Greece, Rome, Phoenicia and Arabia. Kerala was a major spice exporter as early as 3000 BC, according to Sumerian records. Its fame as the land of spices attracted ancient Babylonians, Assyrians and Egyptians to Muziris. In the 3rd and 2nd millennia BCE. According to Sumerian records and Kerala still referred to as the "Garden of Spices" or as the "Spice Garden of India".

Muziris in the *Tabula Peutingeriana*, an *itinerarium* showing the road network in the Roman Empire.



Marco Polo

In 1292 BC, when Marco Polo came to India, he described Indian ships as "built of fir timber, having a sheath of boards laid over the planking in every part, caulked with iron nails. The bottoms were smeared with a preparation of quicklime and hemp, pounded together and mixed with oil from a certain tree which is a better material than pitch." He further writes: "Ships had double boards which were joined together. They were made strong with iron nails and the crevices were filled with a special kind of gum. These ships were so huge that about 300 boatmen were needed to row them. About 3000-4000 gunny bags could be loaded in each ship. They had many small rooms for people to live in. These rooms had arrangements for all kinds of comfort. Then when the bottom or the base started to get spoiled, a new layer would be added on. Sometimes, a boat would have even six layers, one on top of another."



Vasco da Gama landing in Kerala

Around the 15th century, the Portuguese began to dominate the eastern shipping trade in general, and the spice-trade in particular, culminating in Vasco Da Gama's arrival in Kappad Kozhikode in 1498.

Image source - [history.com](http://history.com)  
[wikipedia.org](http://wikipedia.org)

Kerala is one of the most popular tourist destinations in the country. Named as one of the ten paradises of the world by National Geographic Traveller, Kerala is famous especially for its ecotourism initiatives and beautiful backwaters. Its unique culture and traditions, coupled with its varied demography, have made Kerala one of the most popular tourist destinations in the world. Growing at a rate of 13.31%, the tourism industry is a major contributor to the state's economy. Until the early 1980s, Kerala was a relatively unknown destination, with most tourism circuits concentrated around the north of the country. Aggressive marketing campaigns launched by the Kerala Tourism Development Corporation—the government agency that oversees tourism prospects of the state—laid the foundation for the growth of the tourism industry. In the decades that followed, Kerala Tourism was able to transform itself into one of the niche holiday destinations in India. The tag line Kerala – God's Own Country was adopted in its tourism promotions and became a global superbrand. Kerala is regarded as one of the destinations with the highest brand recall. In 2010, Kerala attracted 660,000 foreign tourist arrivals



Image source - [pinterest.com](https://pinterest.com)



THE  
BACKWATERS

The Kerala backwaters are a chain of brackish lagoons and lakes lying parallel to the Arabian Sea coast (known as the Malabar Coast) of Kerala state in southern India. The network includes five large lakes linked by canals, both manmade and natural, fed by 38 rivers, and extending virtually half the length of Kerala state. The backwaters were formed by the action of waves and shore currents creating low barrier islands across the mouths of the many rivers flowing down from the Western Ghats range.

The backwaters have become a magnet for tourist and a hub of tourism over that last few years. Kerala was placed among the '50 destinations of a lifetime' by National Geographic Traveller in a special collectors' issue released just before the turn of the millennium. Houseboat and backwater resort tourism leads the Kerala Tourism to glory







### Shikara

These boats were originally inspired from the Kashmiri boats found in the dal lake, but over time were influenced by the Kerala style of boat design and now are a mix of the two vastly different cultures. They are used to take tourist on short day cruises around the backwaters and can occupy about 5-8 people.



### House boats

Houseboats were traditionally, rice grain barges that were formerly used to transport rice from the wetland paddies to the coast. Made with thatched roofs and over 25 meters long, the boats are quite elegant, and used to be the preferred way of merchant travel prior to the coming of paved roads and motorized vehicles

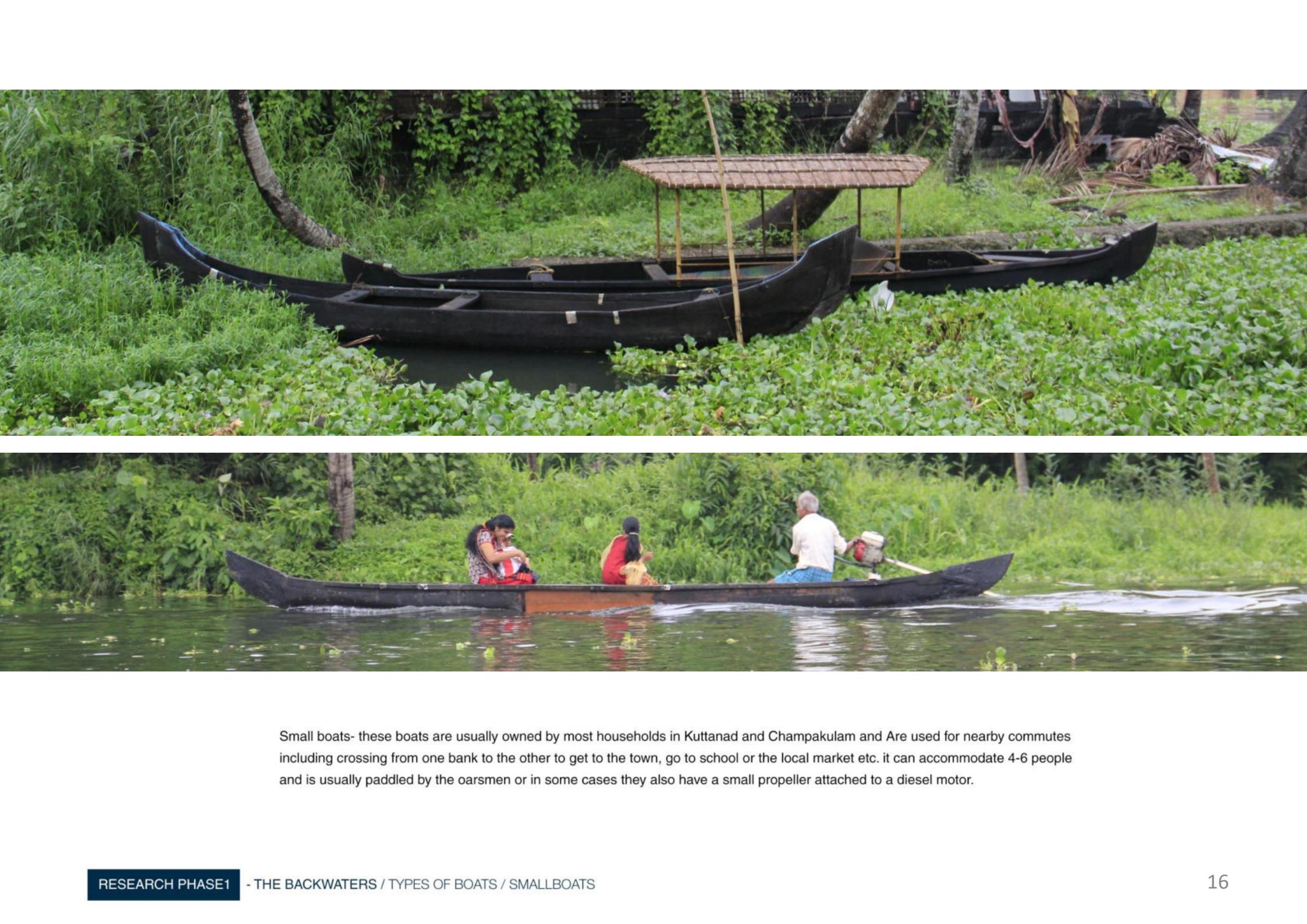
These houseboats can be further sub classified into three different categories based on their size and occupant capacity.

Small house boats- these boats although considered basic, have a bedroom with air-conditioning, modern toilets, an open living room, a kitchen and a balcony. Most of the boats are poled by local oarsmen while some are powered by engines.



Large house boats- these boats are meant typically for larger families or multiple micro families. They usually consist of 2-3 bedrooms with multiple toilets and balconies. They usually are multi-level house boats with stairs to access the upper deck.

Luxury house boats- these are the biggest boats and are usually equipped to handle 30-40 passengers. They have everything from onboard professional conference rooms for MNC meetings to a decked up party area full with dance floors and a bar.



Small boats- these boats are usually owned by most households in Kuttanad and Champakulam and Are used for nearby commutes including crossing from one bank to the other to get to the town, go to school or the local market etc. it can accommodate 4-6 people and is usually paddled by the oarsmen or in some cases they also have a small propeller attached to a diesel motor.



#### Chundan Vallam (Beaked Boat)

known outside of Kerala as Kerala snake boats, are one of the icons of Kerala culture used in the Vallamkali boat race.

Constructed according to specifications taken from the Sthapatya Veda, an ancient treatise for the building of wooden boats, these boats vary from 100 to 138 feet in length. With the rear portion rising to a height of about 20 feet, and a long tapering front portion, it resembles a snake with its hood raised. Hulls are built of planks precisely 83 feet in length and six inches wide. The boats are a good example of ancient Indians' prowess in naval architecture.

Traditionally a boat will be commanded by a Kaarnavan (village leader) with First Adanayampu, and under him there will be three main oarsmen who control the movement of the boat with a 12-foot-long (3.7 m) main rudder-oar. Sitting two to a row along the length of the boat, there will be 64 oarsmen, representing 64 art forms (or on occasion 128 oarsmen). There will be around 25 singers in a row at the middle between the oarsmen. In the middle of the second half of the boat is a platform for eight people to stand from where the cantor will lead the song. They represent the Ashtadikpalakas (the Devas or Gods who guard the eight directions)

## ORIGIN OF THE KERALA HOUSE BOAT

The houseboats you see in the backwaters of Kerala today are a relatively new concept in this part of the world. For a long time up until a few years ago, the backwaters of Kerala were used for transporting farm produce like rice on big boats to the ports and bigger cities in Kerala. This was predominantly because the roads were really bad, but then at some point of time road infrastructure in Kerala became better and it was economical and faster to carry rice on roads using various means of surface transport.

Over time Kerala started getting better roads and the fleet of rice boats became obsolete. Then as the tourism in Kashmir was taking a hit somebody thought why not convert the rice boats into houseboats like the Shikaras and houseboats of the famous Dal Lake. So one by one the rice boats got converted into Houseboats and were rented out to tourists, who lapped up the experience of staying in them and cruising in the backwaters at a leisurely pace slowly watching life in slow motion around them.

Today the houseboats of Kerala have become an integral part of Kerala tourism with boats being made in different sizes and to different requirements.

TOP RIGHT AND BELOW – rice barges being used to transport farm produce from the inland out to port



Image source - [desitraveler.com](http://desitraveler.com)  
[www.keralatourism.org](http://www.keralatourism.org)

## THE HOUSEBOAT INDUSTRY

The houseboat industry is spread out throughout Kerala with hundreds of private owners owning multiple boats that can be chartered; the boats are run and serviced by a crew of not more than 5 people per boat. The crew are in charge of everything from running the boat and its maintenance to hospitality and keeping the boat presentable. A person interested in holidaying in Kerala need only go to one of thousands of online brokers offering houseboat holiday packages. To prevent tourists from getting ripped off on the price, the Kerala tourism department under the state government has its own website offering holiday packages at affordable prices.

Aside from this, most luxury 5 star hotels and resorts have their own fleet of houseboats that are exclusive to guests staying with them, these boats are considerably more expensive but offer a unique luxurious side of the state.



Image source - [www.keralatourism.org](http://www.keralatourism.org)



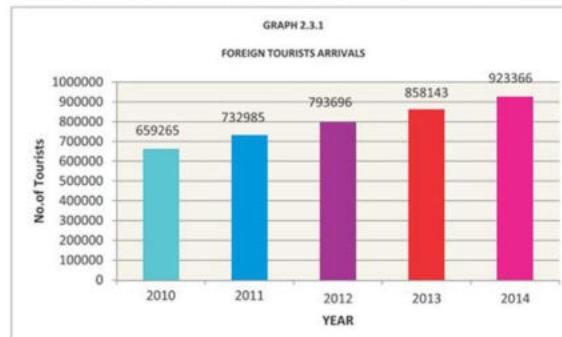


Image source - [www.keralatourism.org](http://www.keralatourism.org)

Kerala's tourism industry records a turnover of Rs. 24,000 crore, with a record 10 lakh foreigners visiting the state – data from 2014

Kerala's tourism industry has netted a record revenue of Rs.24,000 crore, compared to Rs. 22,000 crore the previous year(2013). While #tourist arrivals have topped 1.15 crore this year, Kerala Tourism Secretary Suman Billa estimates that "with the definition of 'tourist' being amorphous, somebody going from Trivandrum to Kochi to visit his uncle for a day or returning from a day's business trip to Delhi, is also a traveller."But taking into account such "definition issues", Kerala gets about 10 lakh foreign visitors a year, and "these are mostly upper-end leisure tourists".Tourism revenues make up for one tenth of the State's GDP, and brought in foreign exchange worth Rs.5,000 crore, the second highest after remittances. The focus has traditionally been on high-end tourism - those who would spend \$100 -plus on a hotel room per night. "For us tourism is just a business like any other. With the time of a traveller being limited you have to get as much revenue as possible," says Billa.In the "classified sector" Kerala has 60,000 hotel rooms, not including home stays and other informal arrangements.

Graph-2 .3.1 shows the growth of foreign tourists from 2010 to 2014



Sl. No.	DISTRICT	NO. OF TOURISTS					Proportion to the total of 2014
		2010	2011	2012	2013	2014	
1	Thiruvananthapuram	204049	224387	242739	268444	289612	31.36
2	Kollam	8211	9317	9976	11403	12467	1.35
3	Pathanamthitta	829	964	1253	1255	1379	0.15
4	Alappuzha	41977	46019	50760	55364	60337	6.53
5	Kottayam	32561	37573	40926	40932	44366	4.8
6	Ernakulam	277675	308674	330390	352314	372997	40.4
7	Idukki	48295	55778	62387	68880	77905	8.44
8	Thrissur	4326	5011	5946	6459	7391	0.8
9	Palakkad	1270	1331	1557	1874	2093	0.23
10	Malappuram	16915	18394	19417	20569	21613	2.34
11	Wayanad	6575	7567	9541	10844	11795	1.28
12	Kozhikode	9017	9892	10476	10489	11313	1.23
13	Kannur	5886	6038	6257	6972	7563	0.82
14	Kasaragod	1679	2040	2071	2344	2535	0.27
Total Kerala		659,265	732,985	793,696	858,143	923,366	100

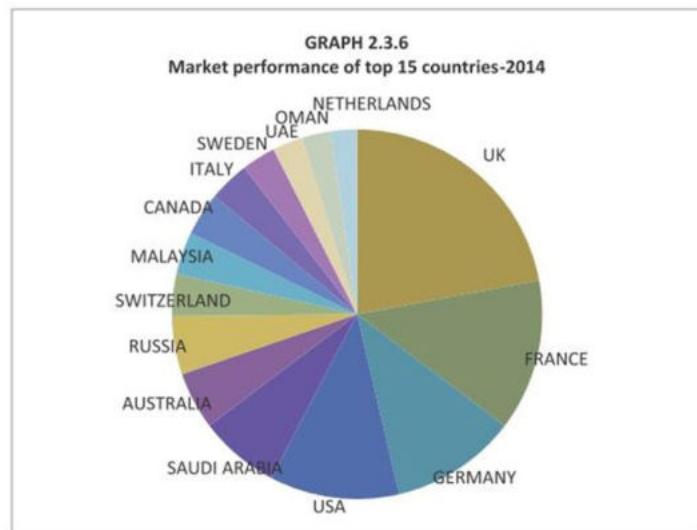
Information source – the annual tourism report available online to download for free on [www.keralatourism.org](http://www.keralatourism.org)

DISTRICT WISE - NATIONALITY WISE STATISTICS OF FOREIGN TOURISTS - 2014

COUNTRY	AFP	FIJIM	IDK	KAID	KLM	KNR	KOZH	KTM	MLP	PLKD	PTA	THSK	TVPM	WTD	TOTAL
AUSTRALIA	1989	14966	4610	296	519	492	338	2849	398	337	79	696	5660	1304	34513
AUSTRIA	592	2347	2856	18	86	112	98	375	32	21	13	154	3984	351	11039
BAHRAIN	237	1808	731	6	21	21	32	217	44	3	4	51	642	234	4051
BANGLADESH	9	356	65	18	28	14	44	32	35	8	2	15	522	21	1169
BELGIUM	875	3985	1964	129	119	121	86	1023	39	19	48	68	2974	536	11986
BRAZIL	28	533	164	7	17	3	6	99	11	0	2	60	1725	13	2668
BRITISH VIRGIN ISLANDS	525	2011	5752	3	283	420	114	850	2	21	74	76	1346	148	11625
BUGARIA	21	89	69	0	0	5	0	28	0	0	0	19	876	46	1153
CANADA	1973	7519	4882	68	342	393	174	2745	255	84	42	341	6165	993	25976
CHINA	218	2356	459	18	99	43	35	313	18	65	17	143	775	189	4748
CZECH REPUBLIC	72	256	149	0	12	32	9	145	0	6	0	47	163	44	935
DENMARK	965	3083	1456	28	331	144	82	746	46	15	14	173	6717	622	14422
FINLAND	102	845	456	7	46	82	24	186	1	4	0	21	3897	122	5793
FRANCE	8027	32620	18415	502	1996	1766	946	7347	405	1243	123	1115	13024	3404	90933
GERMANY	8415	20484	10877	304	1295	2174	405	4569	421	190	45	2096	20280	4143	75698
INDONESIA	34	318	52	1	5	25	14	53	13	0	0	31	534	15	1095
IRAN	62	184	225	0	26	48	14	62	18	4	0	30	650	42	1365

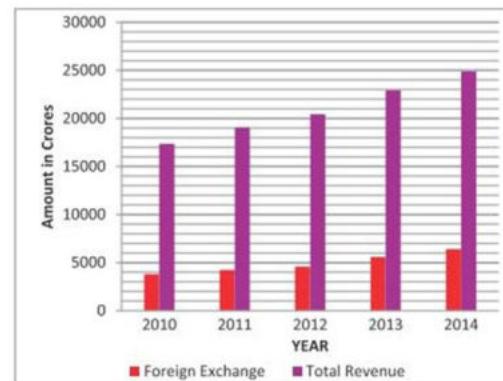
IRELAND	901	2968	1693	54	135	182	96	422	15	6	4	74	3754	191	10495
ISRAEL	920	3269	2962	39	96	412	24	1092	23	3	16	481	1110	158	10547
ITALY	1632	7242	3371	101	315	311	153	1485	40	881	4	357	8197	390	24479
JAPAN	263	4855	584	10	124	319	19	306	8	21	13	94	2134	35	8785
KAZAKHSTAN	26	72	35	0	14	12	0	6	180	8	0	3	837	32	1225
KENYA	53	332	79	3	7	0	18	65	9	1	2	43	325	7	944
KOREA(NORTH)	156	616	850	0	35	18	28	165	5	26	0	5	1053	12	2960
KOREA(SOUTH)	76	1739	175	0	20	14	8	29	6	5	1	4	1450	10	3537
KUWAIT	209	4451	2263	22	55	25	30	615	125	15	3	96	757	64	8730
LATVIA	23	66	204	10	11	4	3	19	0	0	0	22	312	340	1014
LEBANON	35	139	84	0	3	8	14	134	0	0	0	29	495	2	943
MALAYSIA	935	11995	5246	20	408	334	96	883	355	399	12	1182	3352	394	25611
MALDIVES	86	4011	696	0	4	1	75	25	29	1	15	74	6754	13	11784
MEXICO	31	406	207	4	2	2	7	118	1	0	2	9	130	45	964
NEPAL	4	302	40	6	12	6	342	22	34	36	4	0	517	6	1331
NETHERLANDS	776	4858	2704	44	429	278	108	493	27	35	18	92	5320	558	15740
NEWZEALAND	394	2492	462	10	44	108	32	319	14	16	4	37	1760	65	5757
NORWAY	282	1404	602	8	20	46	8	246	12	18	18	22	1404	99	4189
OMAN	370	7246	2587	30	100	288	1436	842	1219	9	79	811	2819	88	17924
PHILIPPINES	45	1020	63	6	8	1	3	105	10	1	6	16	308	14	1606
POLAND	199	2139	801	4	31	96	30	196	18	1	6	36	1178	89	4824

The top fifteen countries have alone constituted 74.35% of the total tourist traffic to Kerala. The ranking of countries according to arrivals during the last three years is given in the following table.



Information source – the annual tourism report available online to download for free on [www.keralatourism.org](http://www.keralatourism.org)

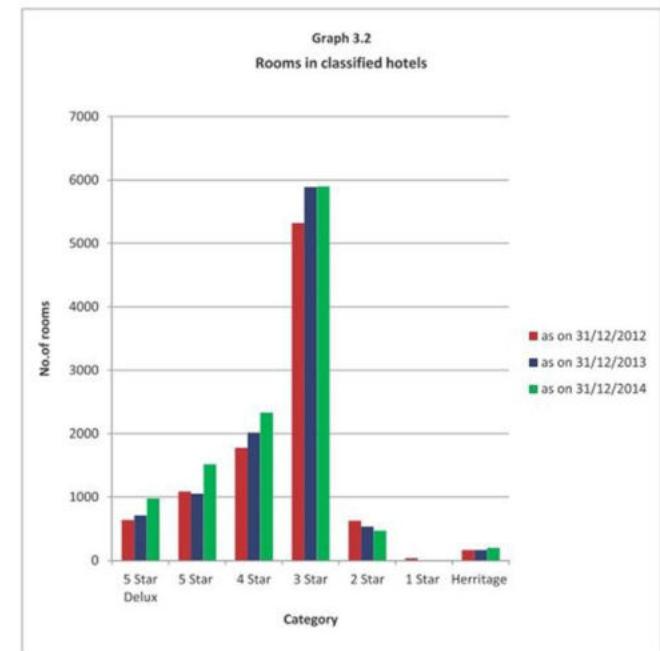
Total revenue generated by the tourism industry in Kerala



Classification of hotels opted by foreign tourists in Kerala

Category of Hotels	as on 31/12/2012		as on 31/12/2013		as on 31/12/2014(P)	
	No. of Hotels	Number of Rooms	No. of Hotels	Number of Rooms	No. of Hotels	Number of Rooms
5 Star Deluxe	7	637	8	709	9	979
5 Star	12	1087	13	1053	17	1516
4 Star	46	1776	57	2016	78	2330
3 Star	239	5321	271	5888	263	5898
2 Star	37	628	33	533	30	469
1 Star	2	34	0	0	0	0
Heritage	12	166	12	166	12	195
Total	355	9649	394	10365	409	11387

Year	Earning(Rs. In crs)	% of variation over previous year
2003	983.37	39.35
2004	1266.77	28.82
2005	1552.31	22.54
2006	1988.4	28.09
2007	2640.94	32.82
2008	3066.52	16.11
2009	2853.16	-6.96
2010	3797.37	33.09
2011	4221.99	11.18
2012	4571.69	8.28
2013	5560.77	21.63
2014	6398.93	15.07



What are the expectations of a tourist holidaying in Kerala?

By going through articles written by tourists and feedback from them about their trip and experiences in Kerala one can get an idea about their expectations from the holiday, what are the standards they require and the experiences they would enjoy.



Image source - [www.keralatourism.org](http://www.keralatourism.org)

Christopher Mathew

Minnesota, United States of America



[Mouthshut.com/alleppyreviews](http://Mouthshut.com/alleppyreviews)

After a big search, I found Amrutham Houseboats are better and my choice was not wrong. I travelled in the month of January with a group of 11 and booked a 4 room boat which is having a deck. I really liked the way they treated us. Food was really tasty and nature beauty at its best and so relaxing. When the boat parked at night, we walked along the village, visited a temple and tried fishing. We enjoyed the night with some Card games and music. Travel started again morning and ends by 9 with breakfast.

Jannet jackson

Birmingham, United Kingdom



[Mouthshut.com/alleppyreviews](http://Mouthshut.com/alleppyreviews)

Excellent Hospitality and service. A Pleasant experience overall. Food, staff and service were remarkable. We stayed for 2 days in luxury super-deluxe category boat which was specially for our booking. Thanks to chef and other crew.

Arvind\_Kotak

Rajkot, India



[Mouthshut.com/alleppyreviews](http://Mouthshut.com/alleppyreviews)

Backwater places are really rare and peace loving people definitely enjoys it the most. It was our third centre in Kerala visit and the most thing I liked about it is the peace & calmness of the place. The Hotel we had stayed was also very lucrative, we had stayed at "Citrus Retreat" just at the shore; where the entry to the Hotel is to be done by a short travel in HouseBoat which is also a unique & joyous experience. And it's the main activity over there is that "doing nothing" and "just relax" forgetting all the daily chores and worries of life. It is said that Allepy is one of the 50 must see places in the world declared a few years back. I did not find any more of Sightseeing places, just we had a 1 hour Sunset House BoatRide in the evening. But more of anything else, the view that we had from the balcony of our room was the upmost. And we had enjoyed swimming in the evening followed by massage, so all in all it was comprehensive. And to summarize, its just that, what I had felt at that place; that next time even if I don't visit at any otherplace and just come over here for 2-3 days, then also it's a nice idea for a good relaxation.

Eugenie Zara  
Gelderland, Netherlands



[Mouthshut.com/alleppyreviews](http://Mouthshut.com/alleppyreviews)

We travelled long way to Kerala. We planned to visit South Kerala which is more fascinating (Recommended by my friends Natasha & Philip) We decided to take a tour on Alleppey backwaters. We found many companies with plenty of offers. We were in a plan of renting a houseboat for 2 nights. At last we chose alleppeyhouseboatpackages.com with a reliable cost and a new boat with good looking interiors. Specially it was very neat and clean. We did enjoyed our backwater trip with the best crew on our boat. We enjoyed with our delicious food and the fish served. Oh! it still in my tongue. Excellent Trip!

Joeese B  
London, United Kingdom



It is no secret that Kerala is becoming one of India's premier tourist destinations, especially after having been listed by National Geographic as one of the top ten 'must see' places on earth.

One of my favourite places in Kerala is Alleppey with its backwaters. This town which is south of Cochin lies on a narrow land spit between the Arabian Sea and the mighty Vembanad Lake. This region boasts an impressive network of canals affectionately known as the backwaters which stretch over 1500 kms interconnecting some 44 rivers as well as lakes and lagoons.

The backwaters provide a lifeline to those good people who live along its banks. First and foremost it provides a means of transportation to otherwise inaccessible areas. The local economy is based on the coconut tree and its various spin offs....coconut oil., coir rope, mats and carpets.

One of the best ways to see this enchanting land is by KETTUVALAM which I can personally endorse as a novel means of transport. A kettuvalam is a large local boat about 67ft long and 13 ft wide, originally used to transport goods and produce. A few resourceful owners have converted their kettuvalams into houseboats for tourist purposes, each boat with at least 2 bedrooms with attached bathrooms, a living room and a kitchen. These boats can be hired on a daily basis with its crew of three who do all the navigating , cooking and cleaning between them.

I spent 2 days on such a boat touring the canals and learned a lot about life in rural Kerala. It was fascinating to see people go about their everyday business....children walking to school who would immediately wave and smile as they saw your boat...housewives washing dishes in the river...fishing, toddy tapping, paddy cultivation....a life far removed from the hassles and stress of modern living. The people I saw were so friendly and so full of life. It is an experience I shall never forget.



## Literature review

Researchers do not agree on how to define the terms Tourist Expectation, Tourist Perception and Tourist Satisfaction.. Akama and Kieti (2003) argue that tourists usually have initial expectations on a service before they consume it. According to Tribe and Snaith (1998), expectations are what people anticipate regarding their experience. Akama and Kieti (2003) hold that suchexpectations are formed through information from advertisements and word of mouth perceptions from other consumers during past experience. Expectations of a frequent consumer of service would rely more on the influence of past experience than sources of information. The four levels of customer expectations are the ideal, predicted, deserved and minimum tolerance. Expectations are always changing because consumers are aware of alternative service providers in the ever-growing industry. Hence, increased competition suggests a need for an improved standard of service. Rodriguez del Bosque, Martin and Collado (2006) add four similar factors to those by Akama and Kieti (2003).These are: past experience, the tourist's level of previous satisfaction with the service, communication from the service provider such as promises and the tourist's perceivedimage of the service.

Zeithaml (1988) believe that a process of judgment is performed during the service delivery process and then once more at the post-consumption stage. The nature of judgment can be subjective, for example two consumers can formulate totally different perceptions of an identical service experience. Customer perceptions of a service are complex judgments and can be modified by factors such as the consumer's mood and/or importance of the encounter.Qu and Ping (1999) also argue that tourist satisfaction can be affected by tourists' initial expectations concerning a destination. Such expectations are influenced by several factors. Firstly, the advertising strategy applied by service providers is important because, if not well developed, it can create expectations that can be difficult to satisfy. Advertisements include brochures, media and informal interactions from friends and relatives (word of mouth advertising). Secondly, experience with similar services and their personnel can cause tourists to compare and make judgment regarding quality. Added to this is the fact thatsome tourists simply expect more service and are therefore likely to set high expectation standards

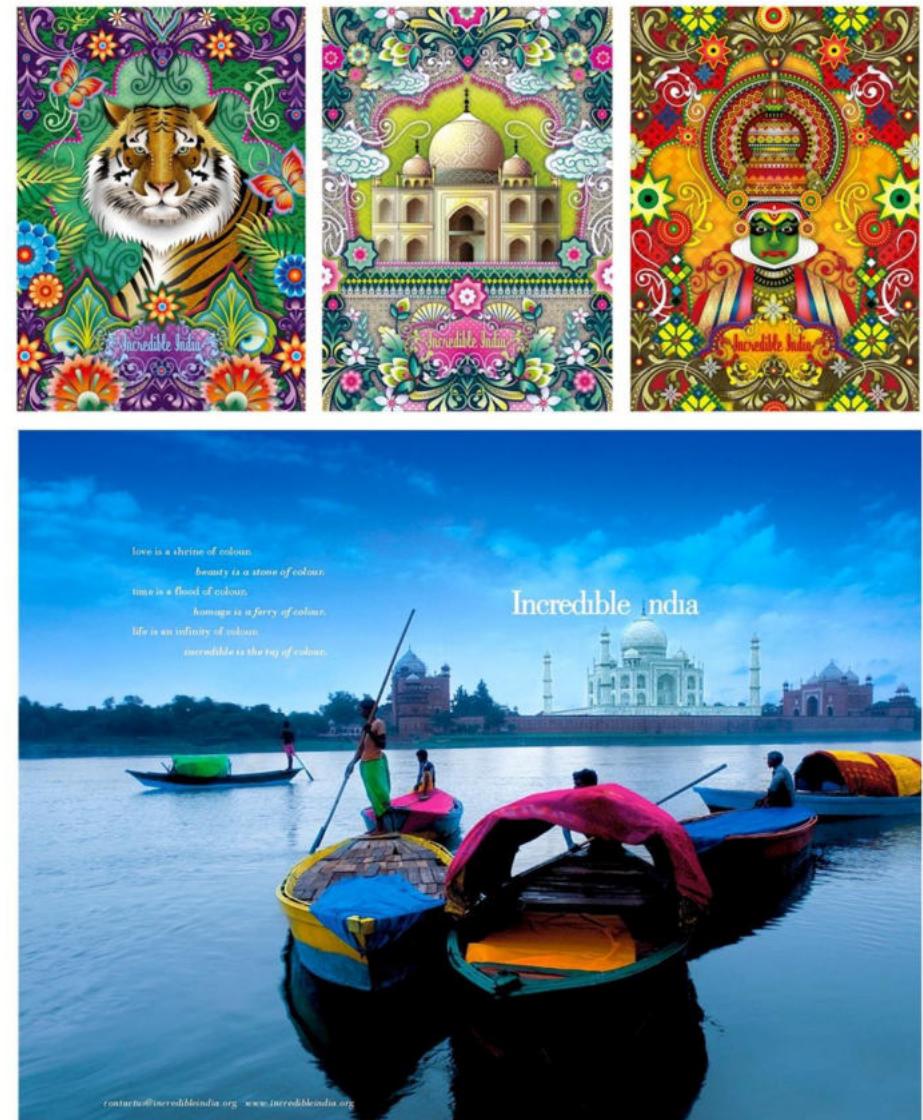


Image source - catalinaestrada.com  
incredibleindia.org

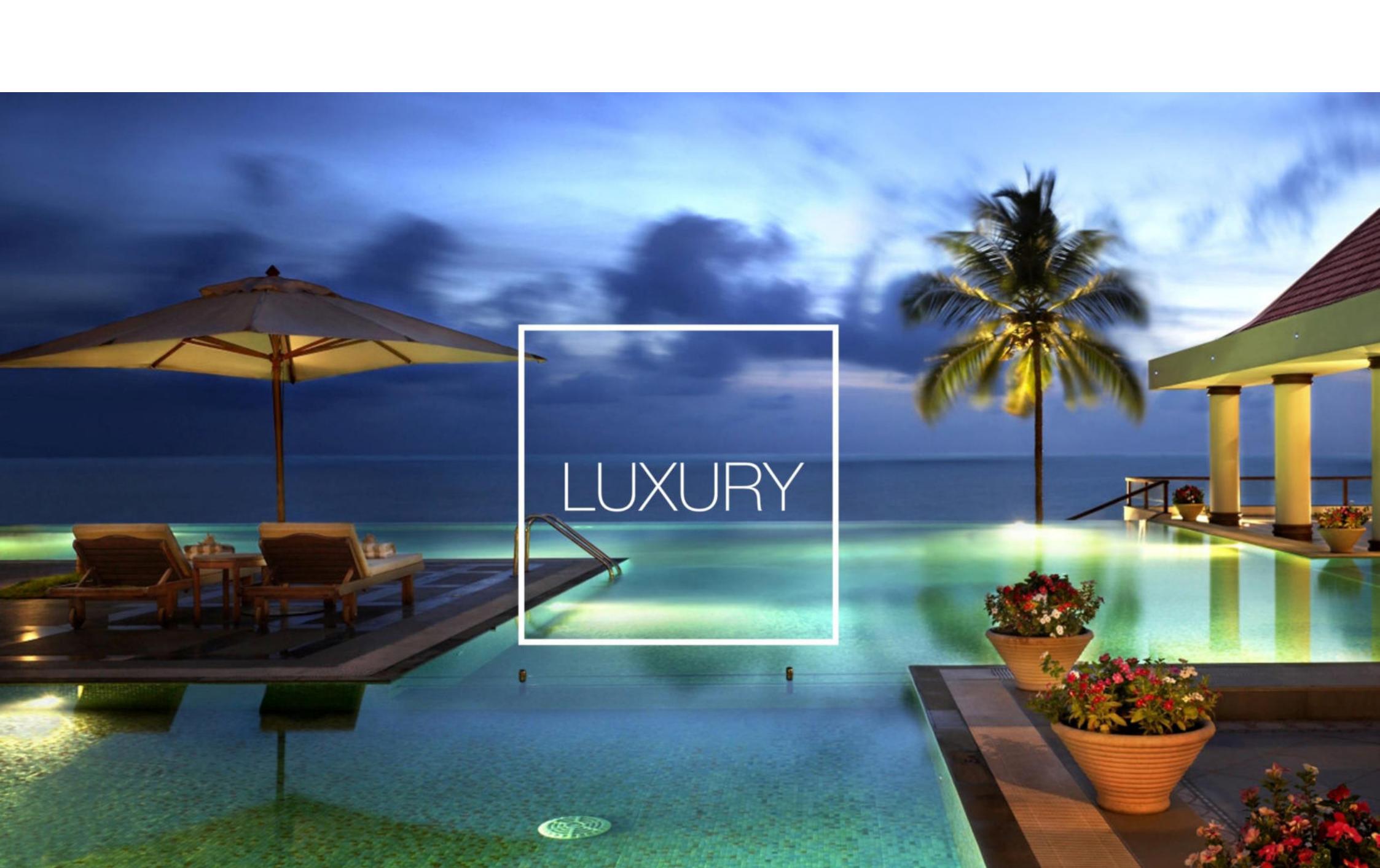


Image of the Leela Kovalam beach resort, Kerala  
Image source - [www.theleela.com](http://www.theleela.com)

Luxury is in the eyes of the beholder

What could be luxury to one need not be the same for another.

While one may wish to paddle around on a small country boat, swaying one's body to the lullaby of a cool breeze and float lazily on the vastness of the backwaters. another may go for a majestic houseboat with all its modern day amenities and enjoy a truly royal cruise. The choice is an outcome of what luxury means to you.

1 --- William(28) and Kate(26) live in London and are getting married in a few weeks, they book tickets to fly to Kerala after their wedding as they would like to have a quiet get away and have heard a lot about the culture, solitude and lip smacking good sea food Kerala has to offer.

Their priorities listed on a scale of importance are,

- Privacy and Solitude
- Leisure and relaxation
- Safety
- Gourmet food and expensive Champaign
- Sunset views over the backwaters from the deck of their chartered boat
- Getting to know the local culture
- Ayurvedic massages

2 --- Robert (45) and his wife of Indian origin Anya (47) live in New York and are travelling to Kerala with their two kids Justin (12) and Eva (7) for a summer vacation. They are in India for a month primarily to visit Anya's parents in Bombay for a few weeks and then spend some time in Kerala.

Their Priorities listed on a scale of importance are,

- Safety
- Leisure and relaxation
- Entertainment for the kids
- Good sea food and red wine
- Ayurvedic massages
- Sunset views from the deck of their boat
- Internet connectivity
- Getting to know the local culture

3 --- Jean Luc (24), his girlfriend Sophie (23), his sister Jacqueline (22) and her friends Pier (23), Lea (24) and Paul (22) are on a world tour covering most places on the national geographic travellers guide and are visiting Kerala for two weeks. They plan on taking a boat out into the backwaters for a few days.

Their Priorities listed on a scale of importance are,

- Adventure activities
- Good food and wine
- Communication
- Safety
- Getting to know the local culture
- Ayurvedic massages

4 --- Liam (57) and Maggie (55) are a retired Australian couple from Brisbane, Queensland Australia. They are also on a world tour and are spending quite a bit of time in Kerala as they both feel at home there and plan on chartering a boat for a week at least.

Their Priorities listed on a scale of importance are,

- Leisure and relaxation
- Ayurvedic massages
- Good sea food and a pint of Fosters
- Safety
- Getting to know the local culture
- Sunset views from the deck of their boat

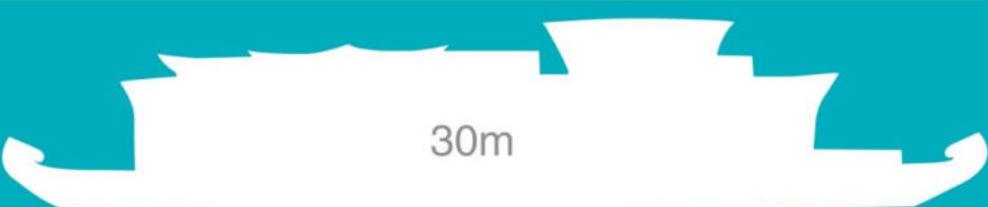
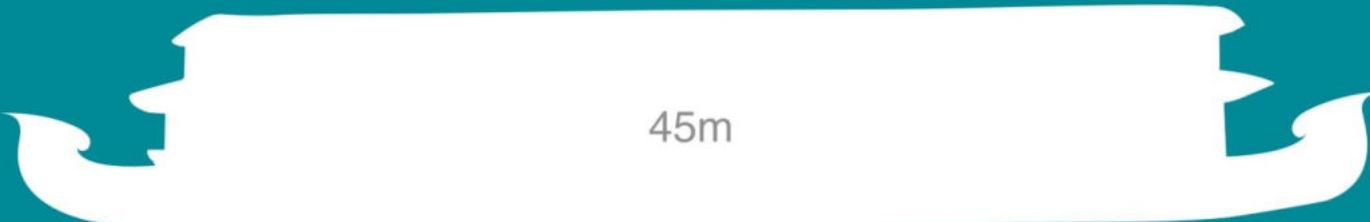
5 --- Kim Seong (32), Lee Chang (31), Park Li (31) and Ryoo (34) are business colleagues of a private Bank on a business trip to India. They are to meet up with an investor from Bangalore over lunch and are looking to impress him big time to sign the deal. They realise what better way to do this than charter a luxury yacht in the backwaters of Kerala and have the lunch meeting onboard.

Their Priorities listed on a scale of importance are,

- Gourmet food and expensive Champaign
- Impeccable service and hospitality
- Ambience and the vibe
- Internet connectivity
- Beautiful view from the deck of their yacht
- Safety



DESIGN  
BRIEF

	3	01 OARSMAN 02 PASSENGERS	3-4m in Length	ROW BOAT
	7	01 DRIVER/GUIDE 06 GUESTS	6m in Length	SHIKARA BOAT
	20m	9	01 DRIVER/GUIDE 01 CHEF 01 CREW 06 GUESTS	SMALL HOUSEBOAT
	30m	15	01 DRIVER 01 GUIDE 01 CHEF 02 KITCHEN STAFF 10 GUESTS	LARGE HOUSEBOAT
<b>NICHE SEGMENT LUXURY HOUSEBOAT // 40m // 15 GUESTS + 7 CREW</b>				
	45m	40	01 DRIVER 02 HELPERS 07 CREW 30 GUESTS	MEGA HOUSEBOAT

## DESIGN BRIEF

Design a backwater/oceangoing yacht (50m in length and 12m across at the middle) that can be the ultimate luxury tourist getaway sailing the Malabar Coast of India.

Occupancy and supplies – 10-15 guests handled by a crew of 7 and adequate supplies to be at sea for at least a month before reprovisioning

Interior – design facades, walkways and rooms to promote seamless people flow, passenger to passenger, passenger to crew and passenger to boat interaction. Take inspiration from the rich culture and aesthetic of Kerala to give an authentic yet modern Kerala vibe.

Exterior – capture the essence of the traditional Kerala boat in an authentic yet contemporary and modern way.

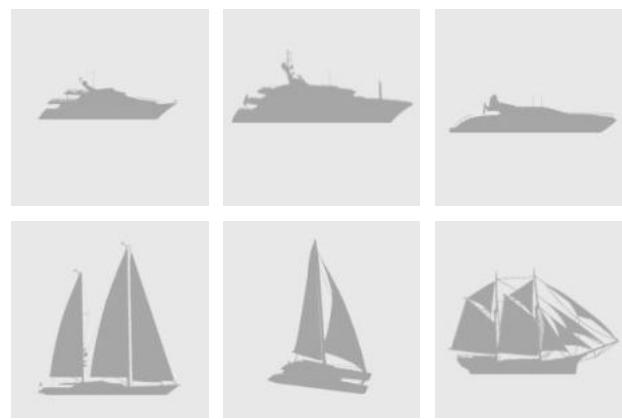
Hull – the yacht can be built around the hull of an existing vessel as qualified naval architects are required to design the hull.



YACHT

**YACHT** /yot/  
Is a recreational boat or ship.

-Defined by Wikipedia, the free encyclopedia





MOTOR YACHT



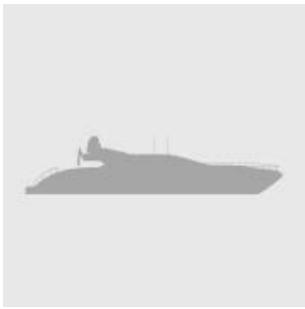
Image source - [sailingeurope.com](http://sailingeurope.com)  
[azimutyachts.com](http://azimutyachts.com)



MEGA YACHT



Image source - [yachtworld.com](http://yachtworld.com)  
[burgessyachts.com](http://burgessyachts.com)



SPEED BOAT



Image source - [riva-yacht.com](http://riva-yacht.com)  
[jimmyrogersyachtbroker.com](http://jimmyrogersyachtbroker.com)



SAIL BOATS



Image source - [burgessyachts.com](http://burgessyachts.com)  
[boatinternational.com](http://boatinternational.com)  
[charterworld.com](http://charterworld.com)



CATAMARAN



Image source - [catamarans.com](http://catamarans.com)  
[burgessyachts.com](http://burgessyachts.com)  
[yachtworld.com](http://yachtworld.com)



CLASSIC SAIL



Image source - [superyacht-times.com](http://superyacht-times.com)

[rtzon.com](http://rtzon.com)

[yachtboatnews.com](http://yachtboatnews.com)

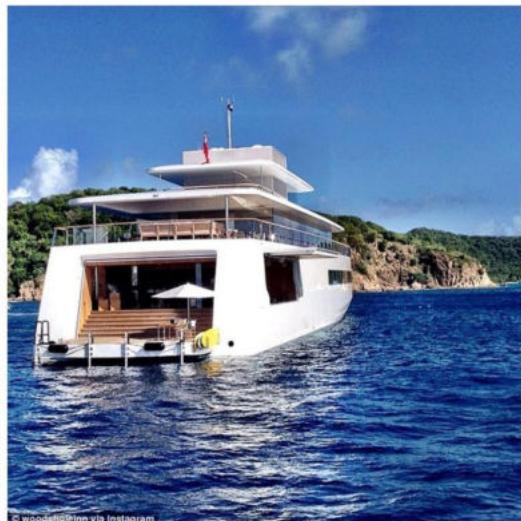


Image source - [sploid.gizmodo.com](http://sploid.gizmodo.com)  
[superyachtfan.com](http://superyachtfan.com)  
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Image source - [charterworld.com](http://charterworld.com)  
[dailymail.co.uk](http://dailymail.co.uk)



Image source - [zaha-hadid.com](http://zaha-hadid.com)  
[archdaily.com](http://archdaily.com)

## Preliminary considerations

Before actually starting the design work, we must have a clear picture of the yacht's purpose: what are the requirements, limitations and objectives of the design?

- Principles of Yacht Design

### Why a Yacht?

The tourism industry of Kerala has grown thus far by repurposing old rice carrying barges as recreational house boats for its national and international tourists. If the industry is to be considered a serious player in the international tourism scene, it requires purpose built recreational boats that cruise the backwaters.

### What is the boats Intended use?

That yacht will be a luxury island in the vast green expanses of Kerala's backwaters. It is intended to be the ultimate tourist getaway for those who can afford it. The boat itself will be seen as a natural part of the backwaters, both when drifting away slowly in the backwaters and when cruising at its top speed along the Kerala coast.

### What will be the local conditions where the Yacht is expected to sail?

The yacht will have two key purposes, one, to drift slowly at speeds of no more than 4 Knots (7 Km/h) along the Kerala backwaters that are a chain of lagoons and lakes lying parallel to the Arabian Sea coast. And two, to cruise at speeds of up to 21 Knots (40 Km/h) in open seas along the Malabar coast and to nearby islands like the Lakshadweep. Hence the boat will be subjected to both fresh water and sea water and will sail both calm waters and turbulent seas.

### Will the Yacht be used exclusively by their private owners, or will they be operated all year round as charter businesses?

Both scenarios are possible

### How many passengers and crew is the yacht expected to carry and subsequently how long can it be at sea before its supplies have to be replenished?

The yacht will carry up to 15 passengers supported by a crew of 7, and is expected to carry supplies to be at sea for up to 30 days before reprovisioning

### What are the economic constraints?

Being a luxury Yacht, economic constraints aren't being considered in the initial design phase.

## INSPIRATION

To draw inspiration from the rich culture and visual aesthetic of Kerala 100 images of different activities, products, colours and visuals are shortlisted to form a mood board. This mood board will be the reference whilst designing the interior and the exterior of the yacht to give it an authentic Kerala feel.





NALUKETTU



The Nalukettu architecture was shaped by Kerala's unique society and environment. A product of an era of warrior-class Nairs and feudal, patriarchal Namboothiris, the foundations of the expansive, aloof structures rested on principles of caste exclusivity, aristocracy, ecological sensitivity, and gender politics.

Nalukettu architecture is basically a rectangular shaped structure wherein four halls are joined together with an inner courtyard called 'Nadumuttam' which faces the open sky. The four halls on the sides are named Vadakkini (Northern block), Kizhakkini (Eastern block), Thekkini (Southern block) and Padinjatti (Western block). Nalukettu also consists of a basement storage room called "Nilavara".

Nalukettu was a typical feature of the Tharavadu houses in Kerala and most of the joint families lived under one roof in such homes. This architecture concept was purely based on Thatchu Shashtra, the Science of Carpentry and Traditional Vasthu.

Image source - [thehindu.com](http://thehindu.com)  
[travelpod.com](http://travelpod.com)  
[pinterest.com](http://pinterest.com)

## Elements of Nalukettu

## Padippura

It is a structure containing a door forming part of Compound wall for the house with a tiled roof on top. It is the formal entry to the compound with the house. At present the door is not there as car will have to enter the house through the entry. Still tiled roof is provided preferably with a traditional type lamp below the roof. Instead of door of entry, we now have the Gate

## Poomukham

It is the prime portico soon after steps to the house. Traditionally it has a slope tiled roof with pillars supporting roof. Sides are open. In the earlier days, the head of the family called Karanavar used to sit here in a reclining chair with thuppal kolambi (Spittoon) by the side of chair. This chair will have long rails on either side where the Karanavar will keep his legs raised for comfortable rest.

## Chuttu verandah

From the Poomukham, a verandah to either side in front of the house through open passage called Chuttu Verandah. Chuttu verandah will have hanging lights in equal distance hanging from its slope roof.

Charupady

By the side of Chuttu verandah and Poomukham, wooden benches with carved decorative resting wooden pieces for resting the back are provided. This is called Charupady. Traditionally the family members or visitors used to sit on these charupady to talk

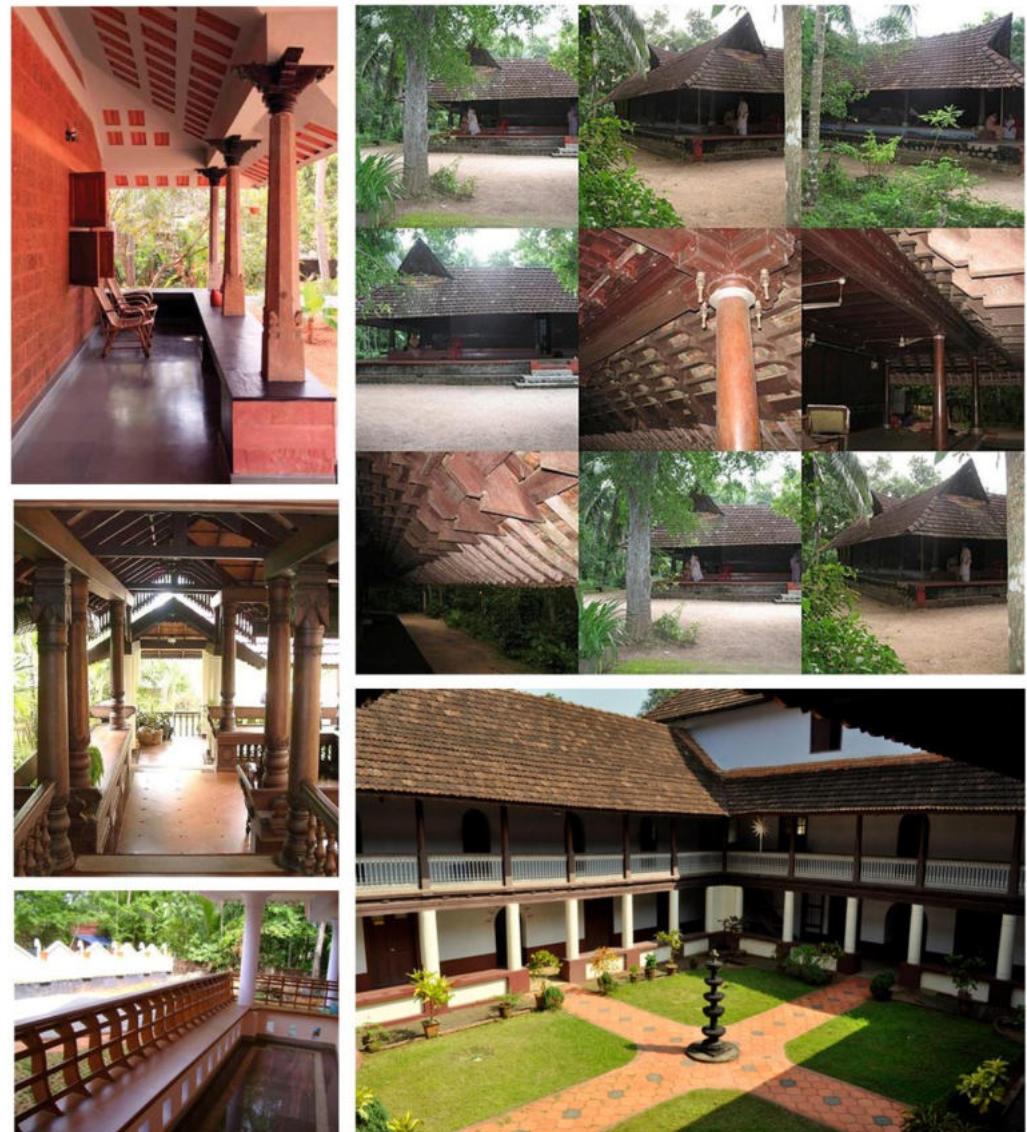


Image source - betterinteriors.in  
Wikipedia.org

#### Ambal Kulam (Pond)

At the end of Chuttu verandah there used to be a small pond built with rubble on sides where lotus or Ambal used to be planted. The water bodies are maintained to synthesized energy flow inside.

#### Nadumuttom

Traditionally Nadumuttom or central open courtyard is the prime center the Nalukettu. There is an open area usually square shaped in the exact middle of the house dividing the house in its four sides. Due to this four side division of the house by having a Nadumuttom. Similarly there was Ettu kettu and Pathinaru kettu which are quite rare with two and four Nadumuttom respectively

Nadumuttom will be normally open to sky, allowing sunshine and rains to pour in. This is to allow natural energies to circulate within the house and allow positive vibrance within. A thulsi or tree will be normally planted in center of Nadumuttom, which is used to worship. Architecturally the logic is allow tree to act as a natural air purifier.

#### Pooja Room

Pooja room should preferably be in the North East corner of the house. Idols can be placed facing east or west and the person praying can face west or east respectively. At present, wooden paneling is done on Pooja room walls and there is a standard design for Pooja room which can be given to clients interested in having traditional Pooja room



Image source - [homemakeover.in](http://homemakeover.in)  
[pinterest.com](http://pinterest.com)



Nalukettu architecture was evolved in the era of feudal lords, Nairs and Namboothiris who were known for their aristocracy and caste dominance. When years passed, these traditional houses were dismantled due to several reasons. The socio-cultural changes was a major cause behind it. With the emergence of nuclear family system, people said bye to the Nalukettu system. The heavy maintenance costs of wood also made many to stay away from it. Lack of skilled carpenters specialized in this genre of architecture was also another reason. As a result, most of the Nalukettu homes were converted to museums, ayurvedic health care centres and home stays. Now, only few ancient Nalukettu homes exist in Kerala.

A proper Thatavad house would not be complete without a "Kulam" or a manmade pond. The architecture of a Kulam is similar to the step wells found in other parts of India but they are not that deep as the ground water line in these regions is not that deep. The Kulam also acts as a communal bath for the Tharavad and a place of relaxation, leisure and fun for the kids.

Image source - [pinterest.com](https://pinterest.com)  
[wikipedia.org](https://wikipedia.org)  
[cleartrip.com](https://cleartrip.com)

Tharavad "Ancestral home" is a system of joint family practised by people in Kerala, especially Nairs. Tharavadu was a legal entity like a Hindu Undivided Family as per Indian Income Tax laws, and was entitled to own properties.

Many Tharavad houses were grand and unique in style and architecture, and many tharavads owned temples, schools, other buildings and vast expanses of land. Tharavad in the past was that they were built always quite deep into the landed property owned by the tharavad and almost in the middle of the main property, never at the edges, mainly for security and military strategy reasons. However as the families grew bigger and more homes were built, in recent times, things have changed.

The Tharavadu house had a unique Kerala style architecture with an inner courtyard or many inner courtyards enclosed within the several large buildings built in the traditional Kerala style, including wells.



Image source - [olappamannamana.com](http://olappamannamana.com)  
[pinterest.com](http://pinterest.com)  
[homestayz.com](http://homestayz.com)

## Traditional boat making techniques

The boats are made of natural products like bamboo, coir and anjili tree wood with cashew oil used to waterproof the wood. Originally all boats were stitched together and not a single nail was used in the whole construction of the boat. Over time many ship yards have started using nails and rivets as it is easier and less time consuming. Modern advances in technology have allowed ship building firms to use fiber reinforced plastic or simply FRP [a composite material made of a polymer matrix reinforced with glass fibers] as a replacement for wood. Large moulds are used to make the FRP hulls of these boats. The advantages of modern FRP hulls include lesser maintenance costs and cheaper manufacturing costs.



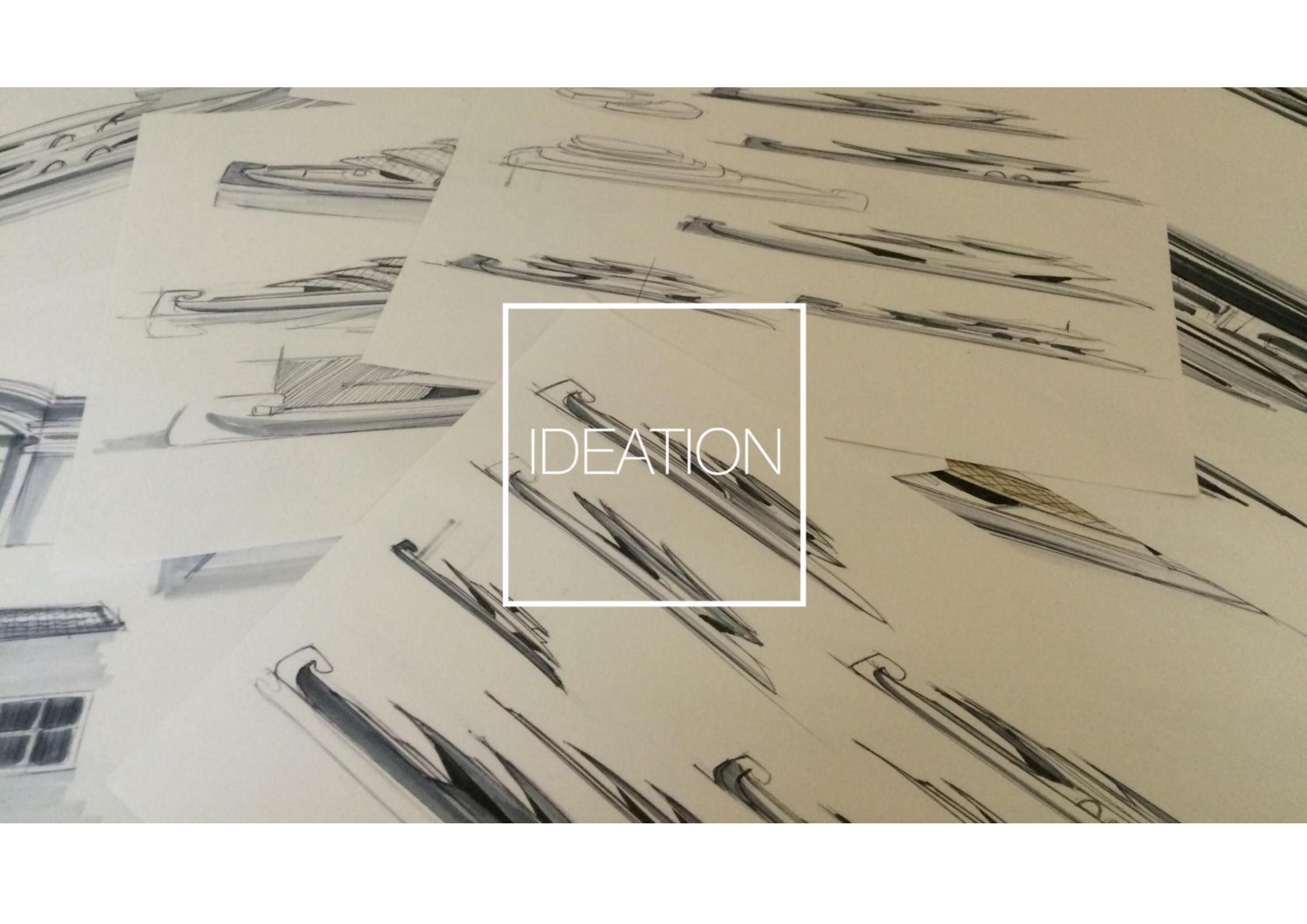
Image source - [themarineinstallersrant.blogspot.in](http://themarineinstallersrant.blogspot.in)  
[backwatercruiz.com](http://backwatercruiz.com)



## LOCAL MATERIALS

The materials that go into the making are local and ecofriendly; bamboo poles, coconut fibre, ropes, bamboo mats, carpets etc. The main wood used is "Anjili" (*Artocarpus hirsuta*). The hull is a series of wooden planks, long cut and carved, tied together using coir with coconut fibers stuffed in between. The hull which is made of hundreds of fine but heavy-duty planks of jack-wood is held together absolutely by coir knots (not a single nail is used). This framework is then coated with a caustic black resin extracted from boiled cashew kernels. And it lasts for generations. The kettuvallam is motorised and is steered in deep waters by means of oars. Long bamboo poles or 'punts' are used to propel in shallow areas. Bamboo beams sprouting off on the sides are used as footholds for the same. Bamboo is used for the framework of the roof and splits of bamboo are used for weaving mat for roofing.

Image source - [wikipedia.org](https://wikipedia.org)  
[dsource.in/resource/saraswathi-veena-making](https://dsource.in/resource/saraswathi-veena-making)



IDEATION



## Interior design of Luxury Yacht - Ideation

### Components of interior

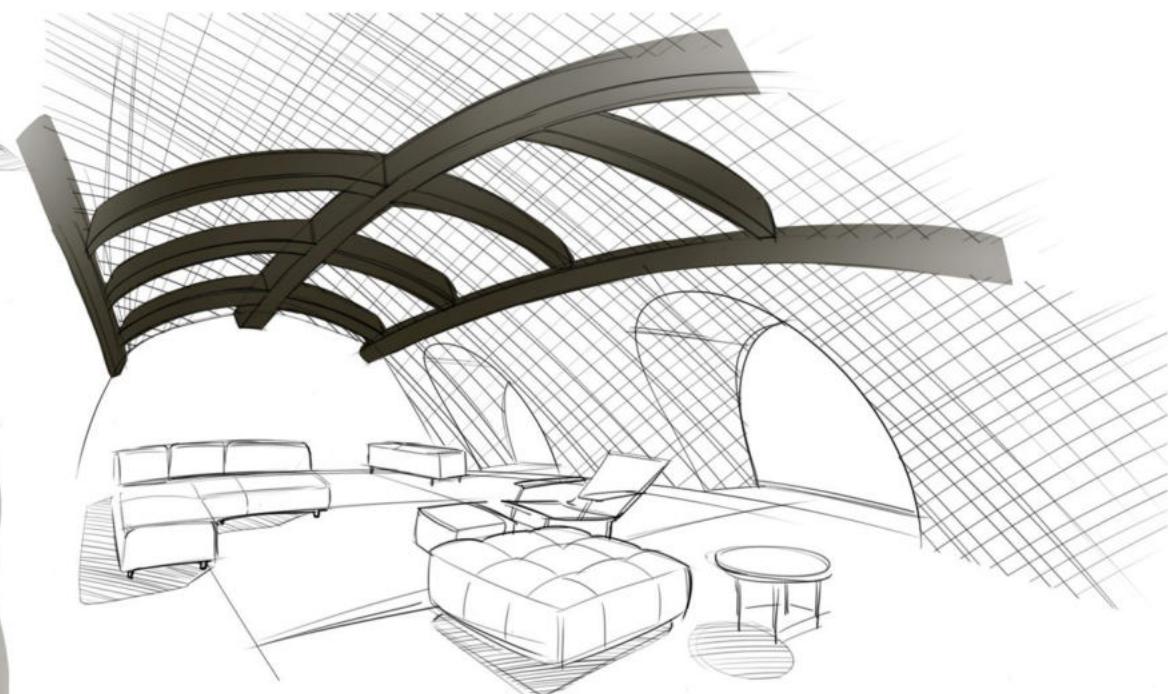
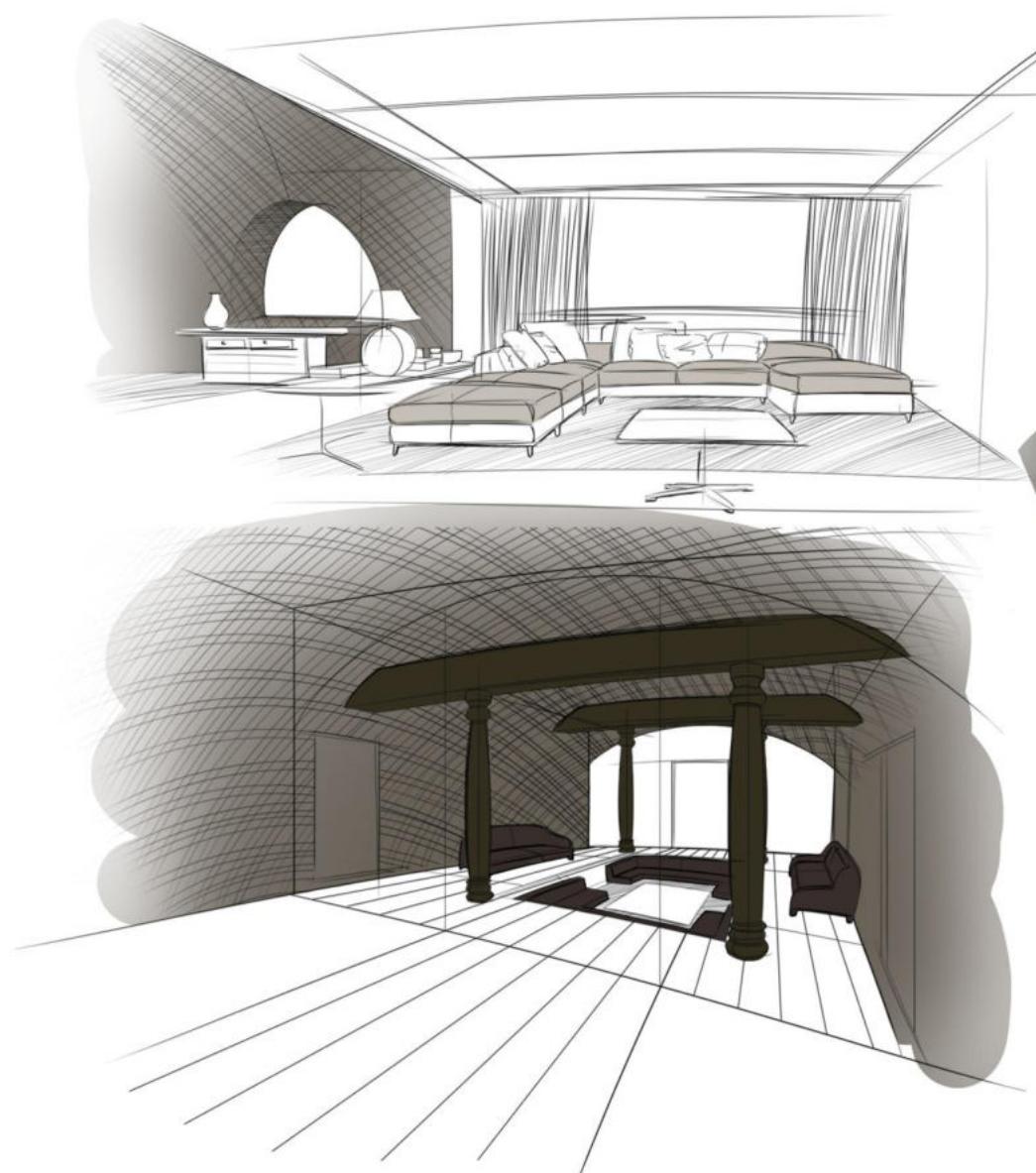
Master bedroom      Sofas  
kids bedroom      Chairs  
Crew bedroom      Tables  
Common area      Aphostory  
Living room      Lamps/shades  
Front Deck      Windows  
Sky Deck  
Pool  
Toilets  
Stairwell  
Kitchen  
Dining area

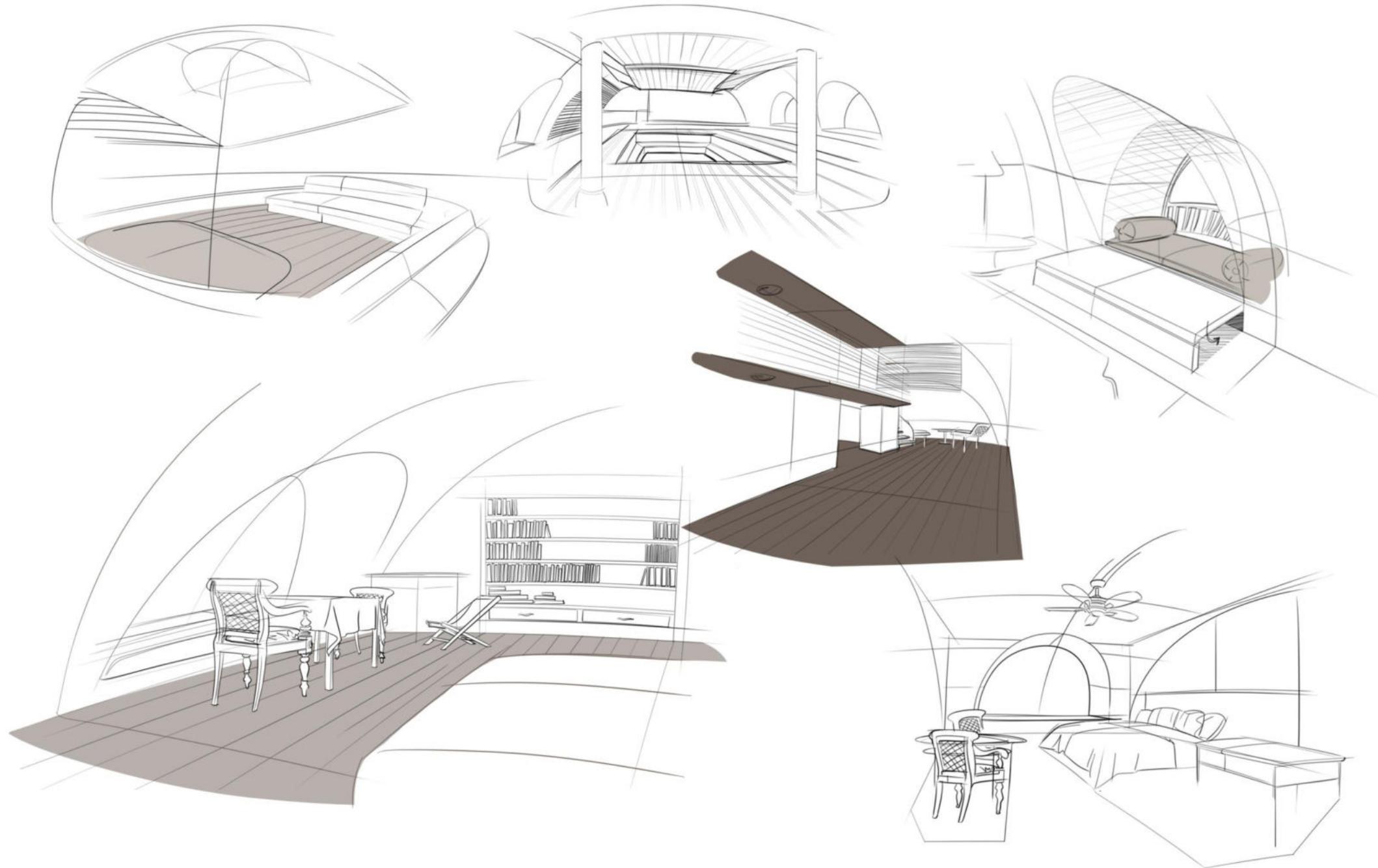
### Interior theam key words

Traditional  
Rustic  
Homely  
Cozy  
Laidback  
The Tropics

## Designer insights

While sketching interior concepts I kept in mind that it was important to give an experience of a traditional rustic Kerala interior but at the same time maintain the standards of interior expected from a seven star hotel. I have consciously tried to not go overboard with the Kerala-ness of the interior as it is easy to mess up the vibe and make the place look like a Kerala museum if not tastefully done.

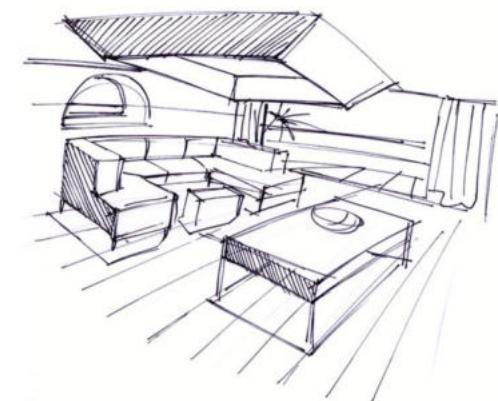
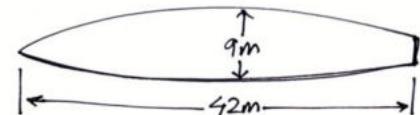
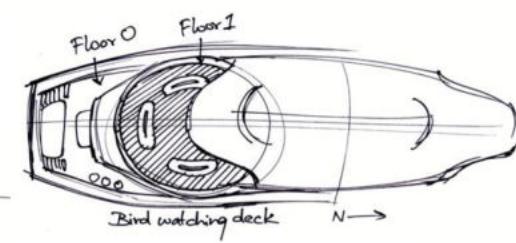
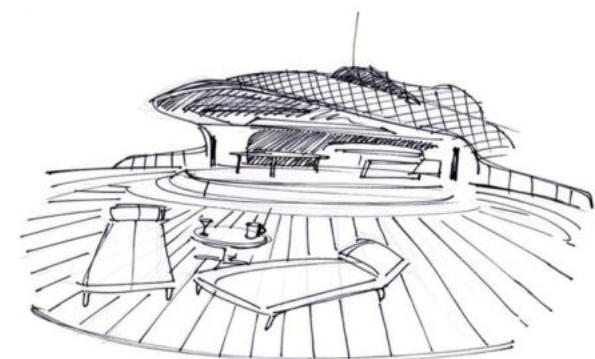
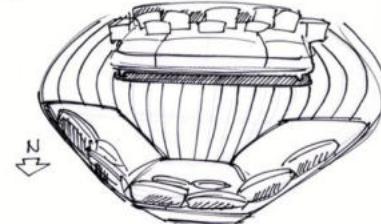
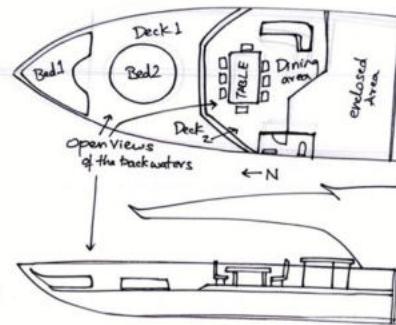
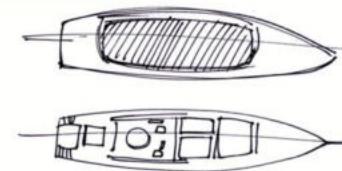
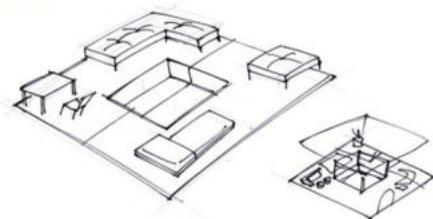
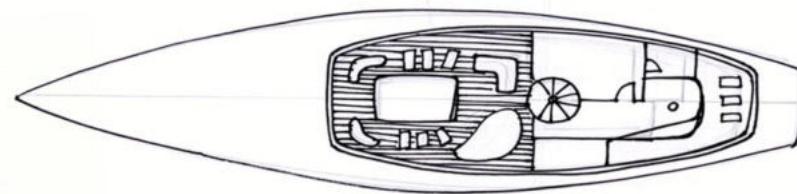
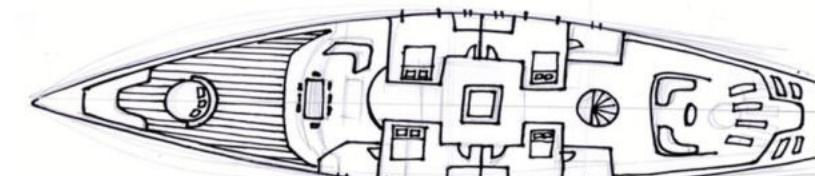
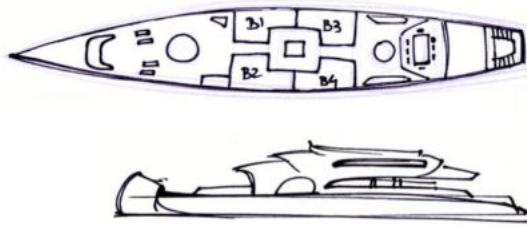
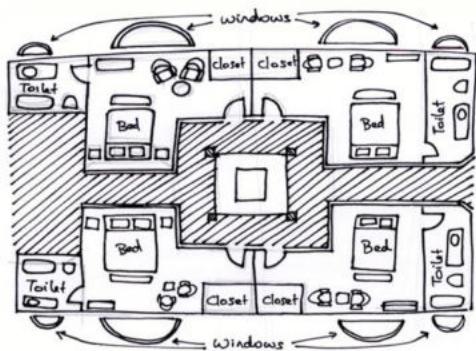
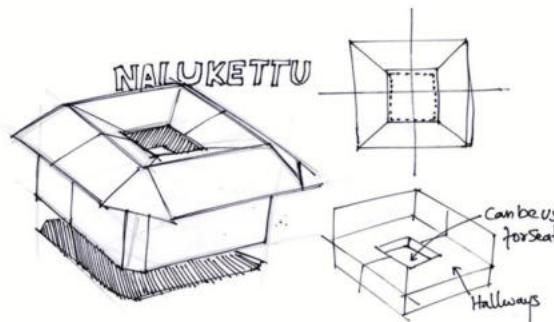


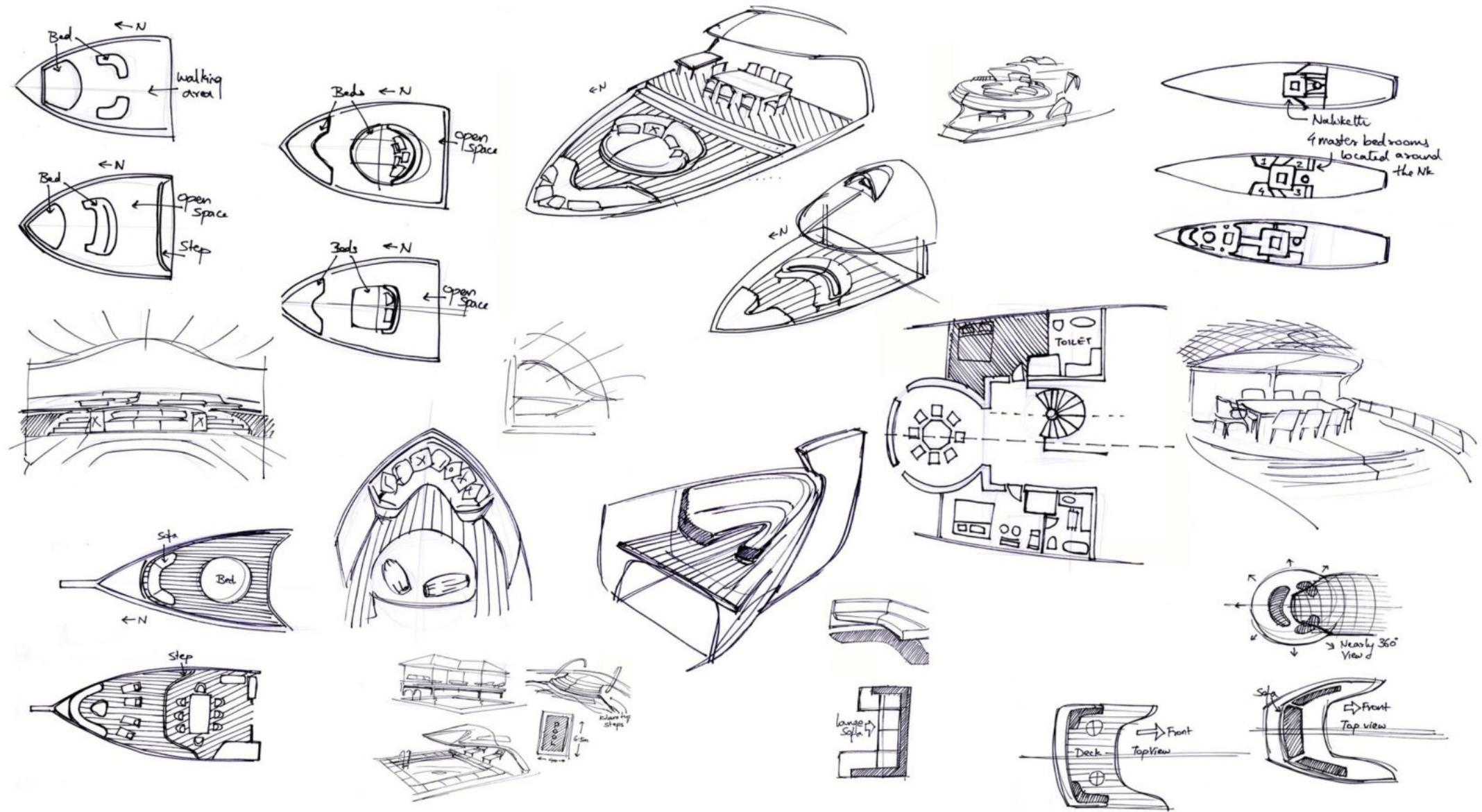




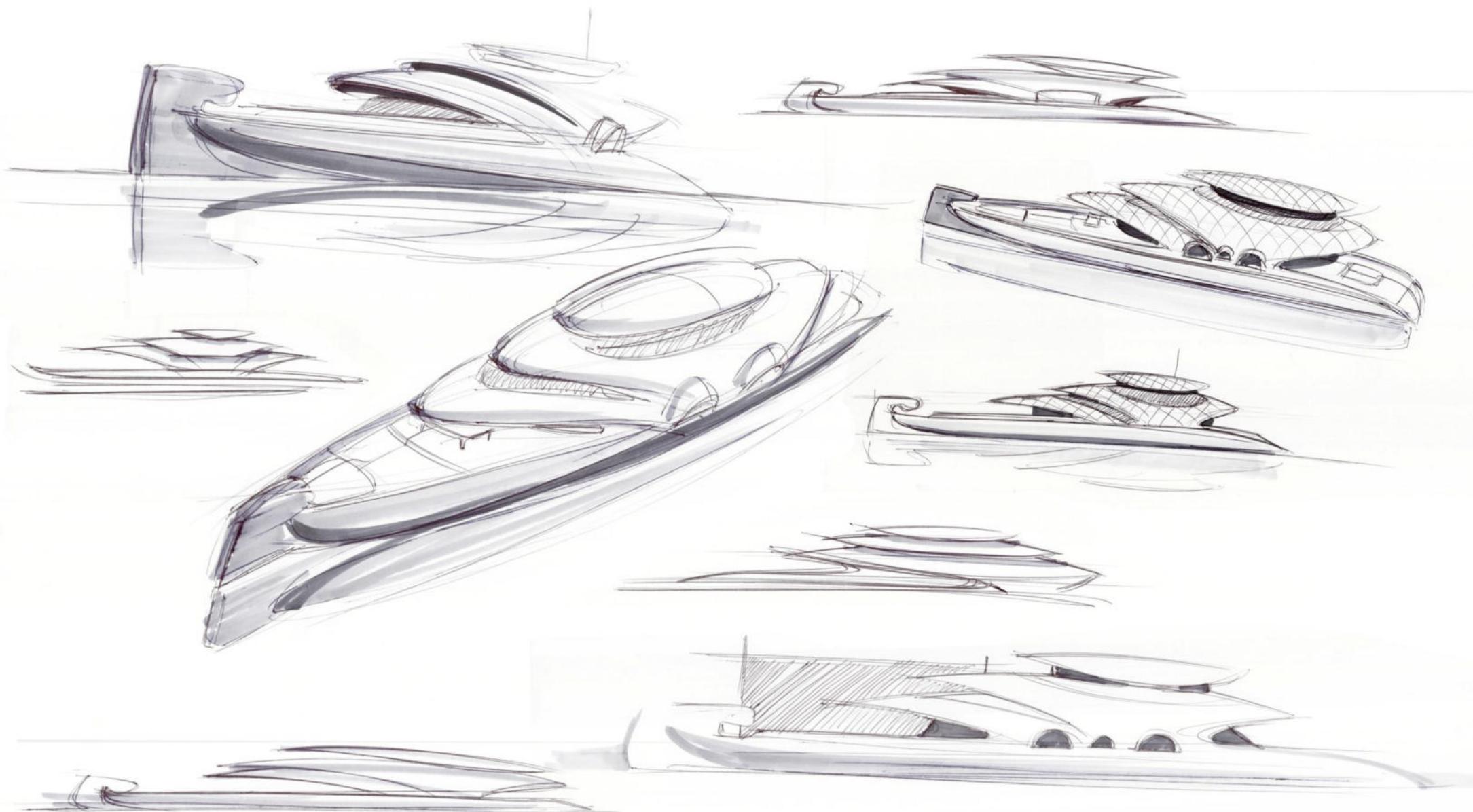
### Designer insights

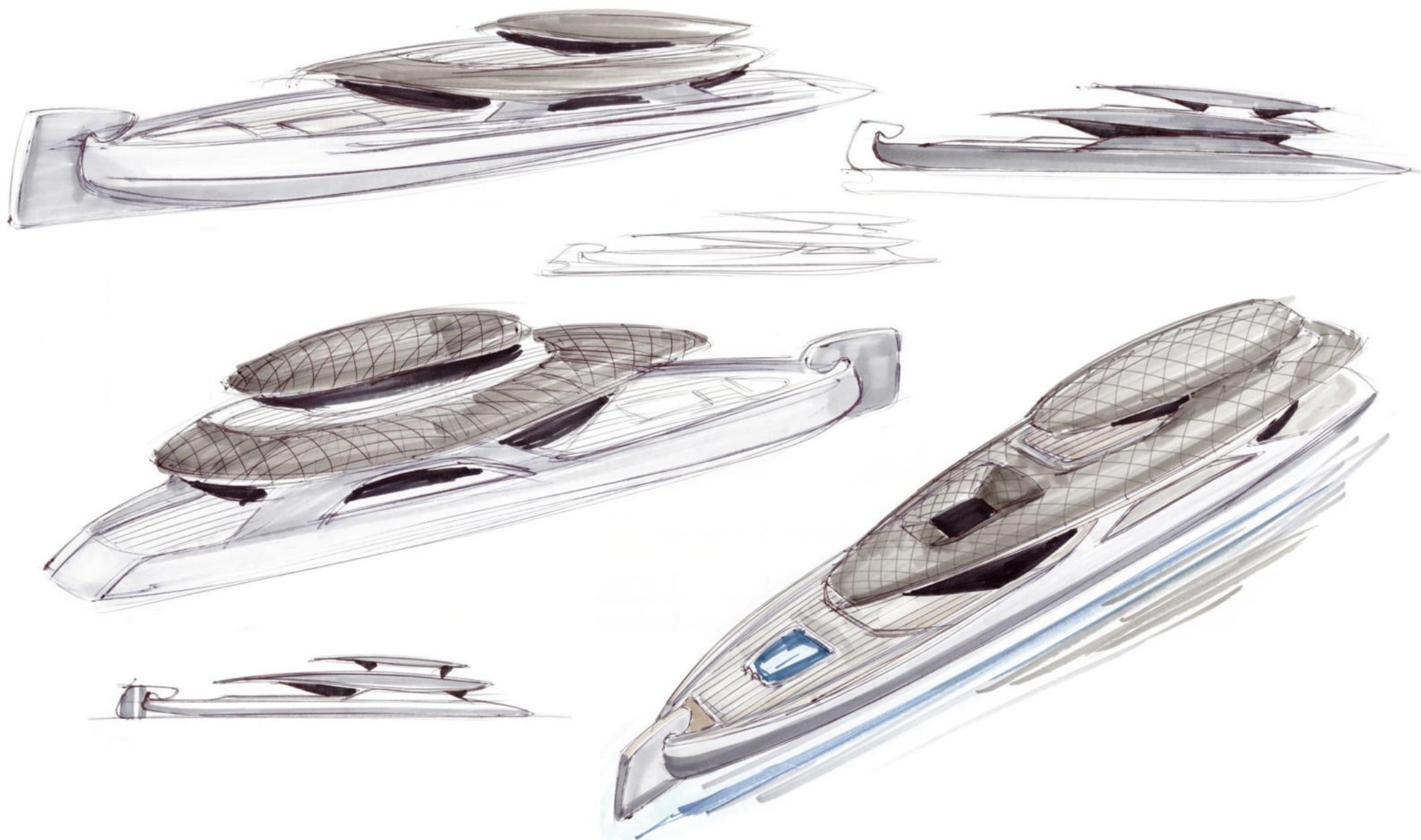
Furniture and upholstery for the yacht is designed with locally sourced materials like bamboo, coir, jack fruit tree wood etc. These materials are complimented beautifully with fine Lenin and high quality fabric to give an authentic yet contemporary vibe.

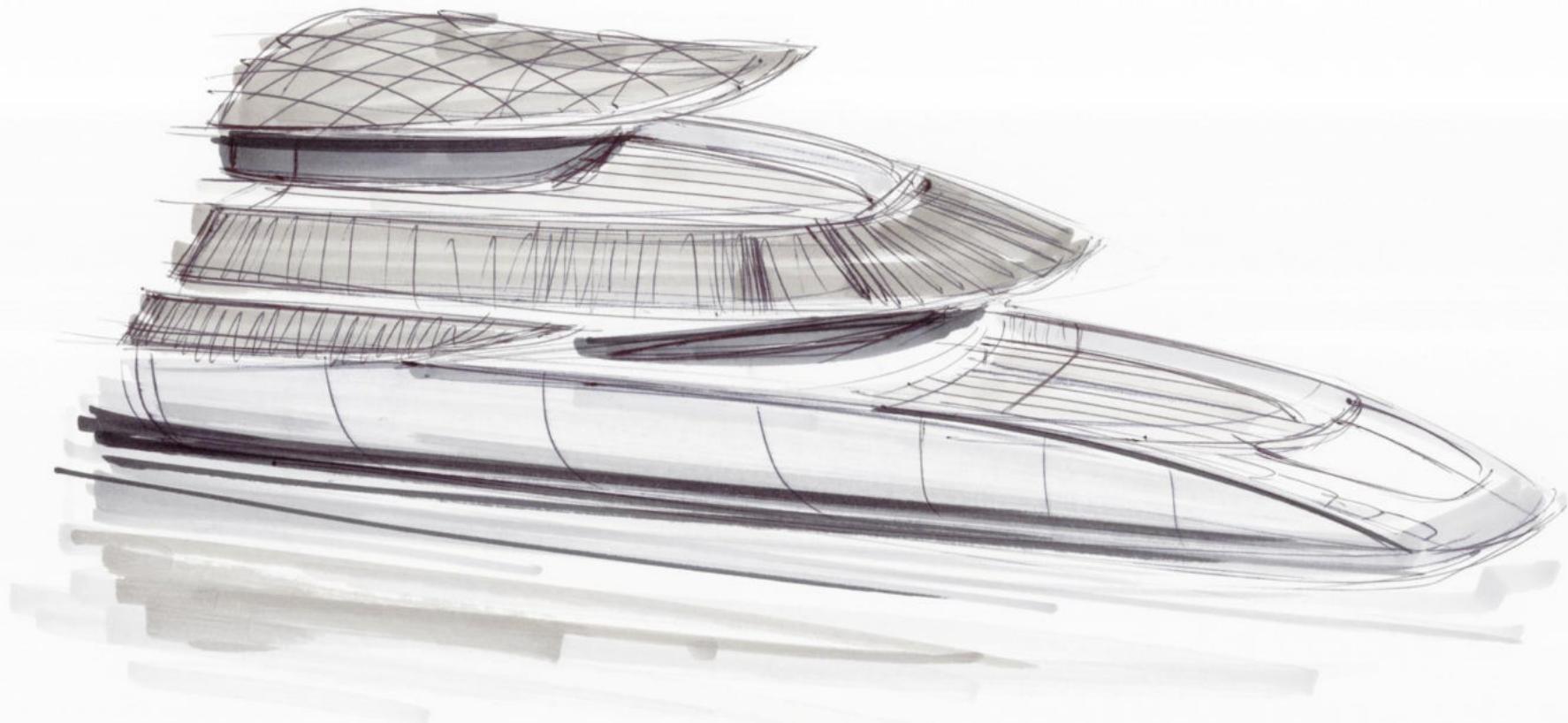


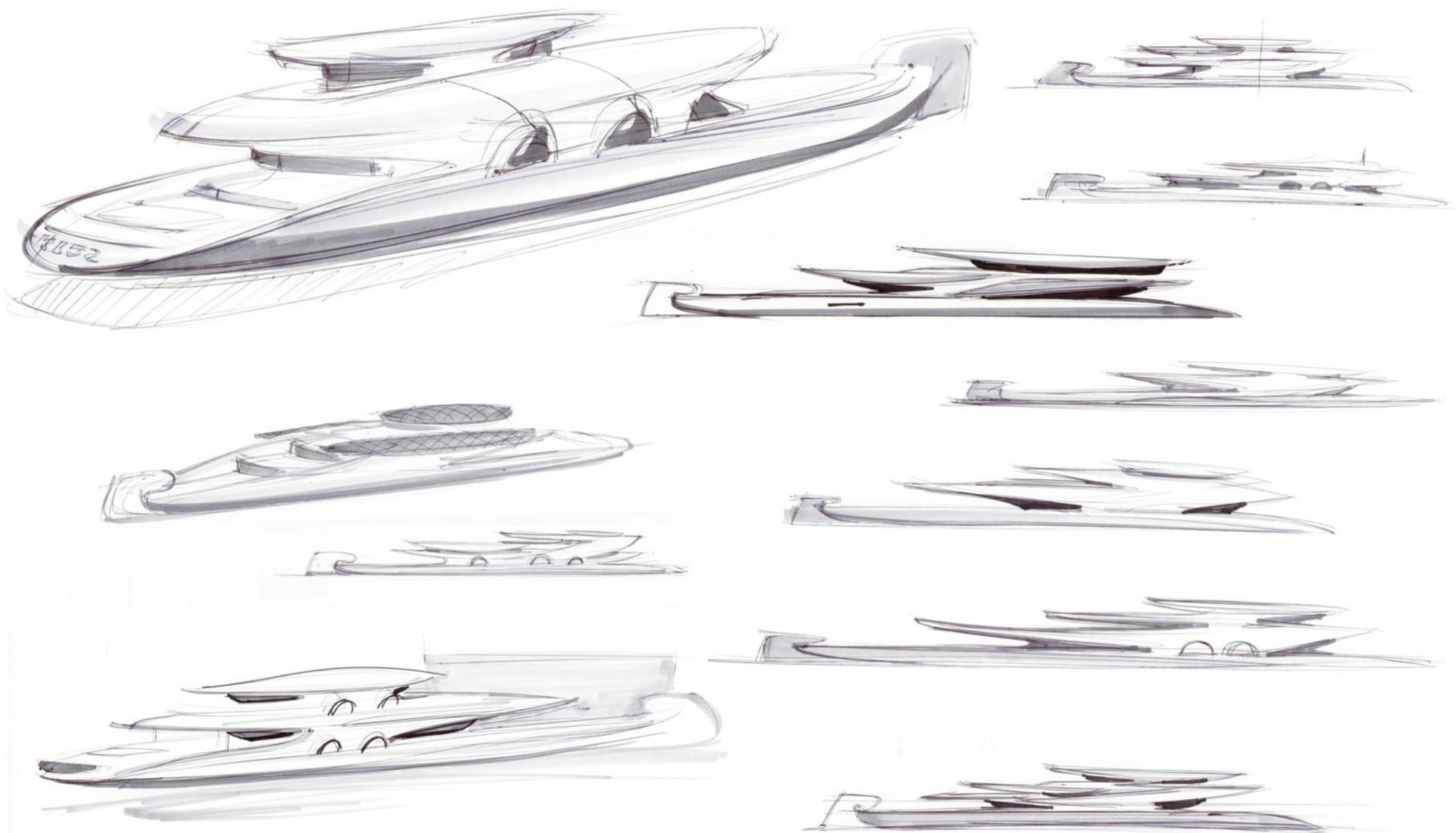


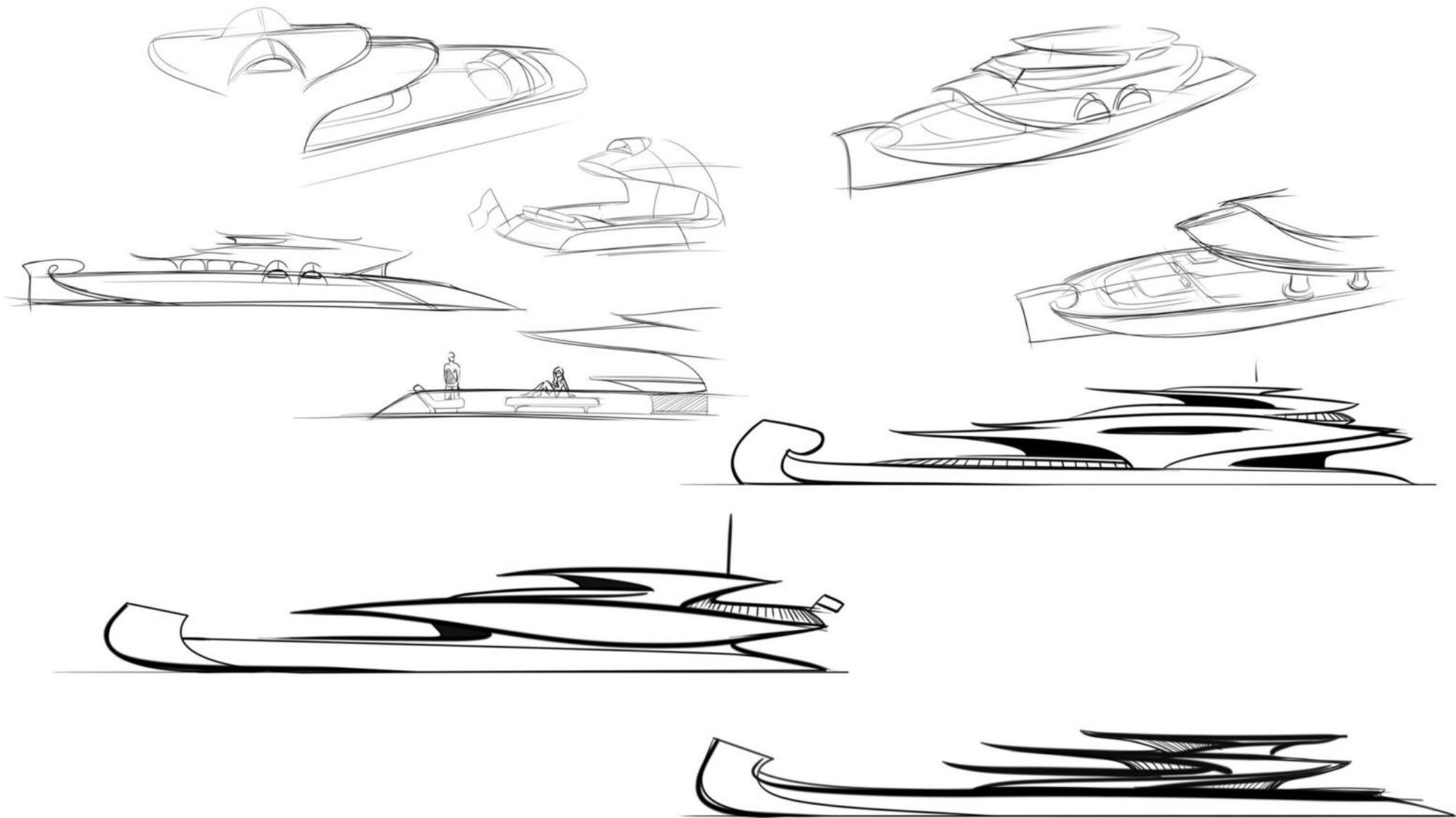










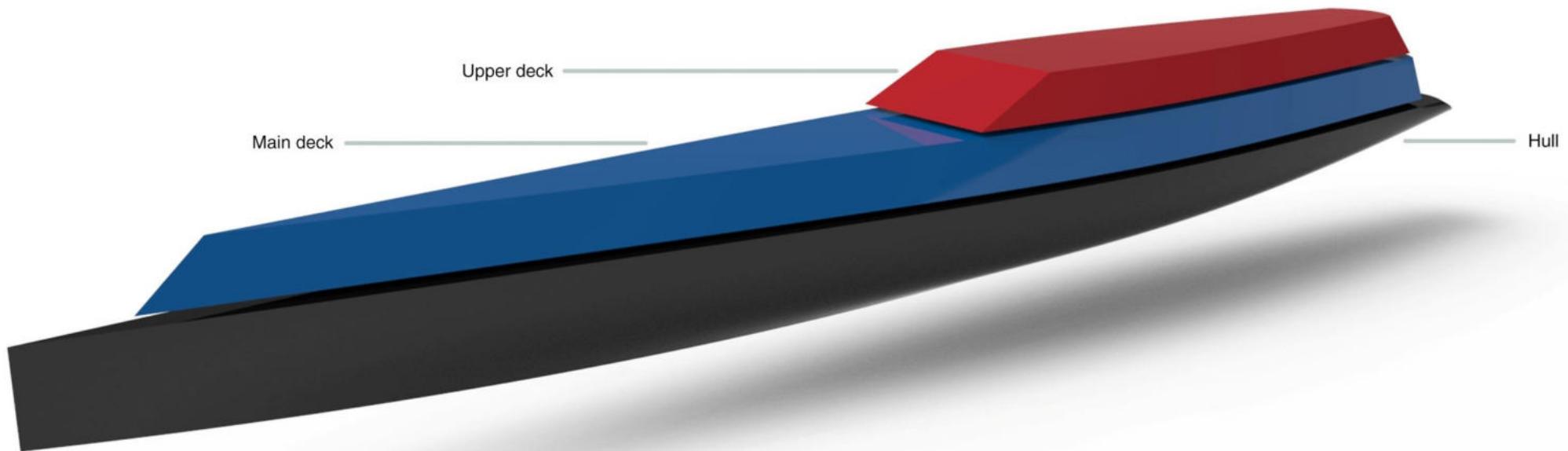




Exterior design of  
Luxury Yacht

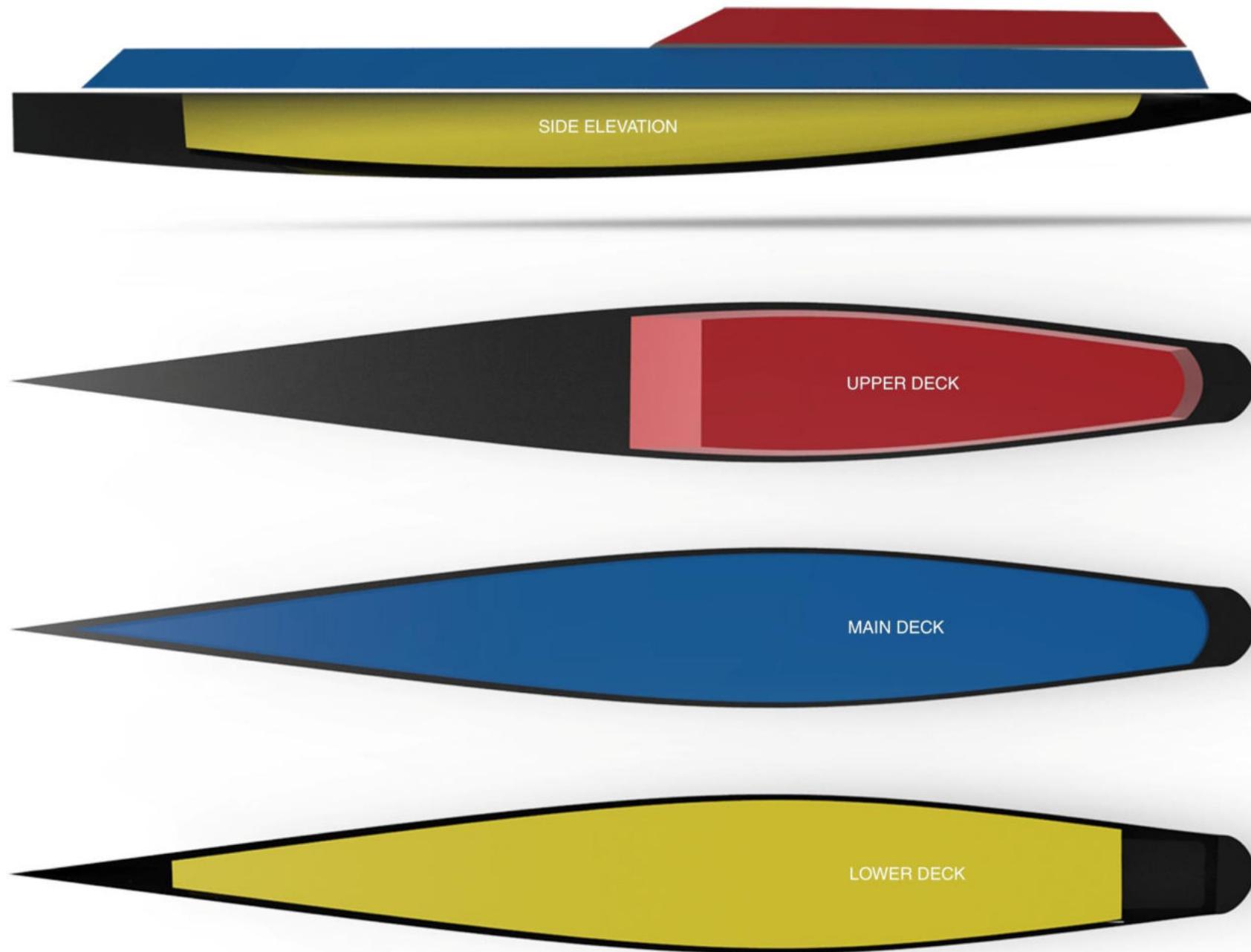


## □ YACHT PLAN ONE

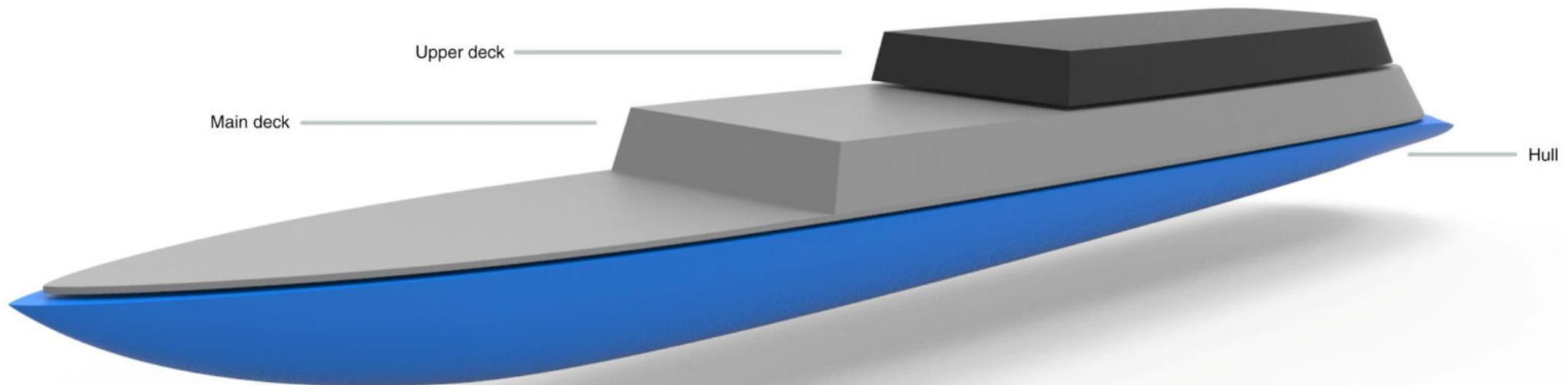


### DIMENSIONS

LENGTH - 50m  
WIDTH - 08m  
HEIGHT - 14m

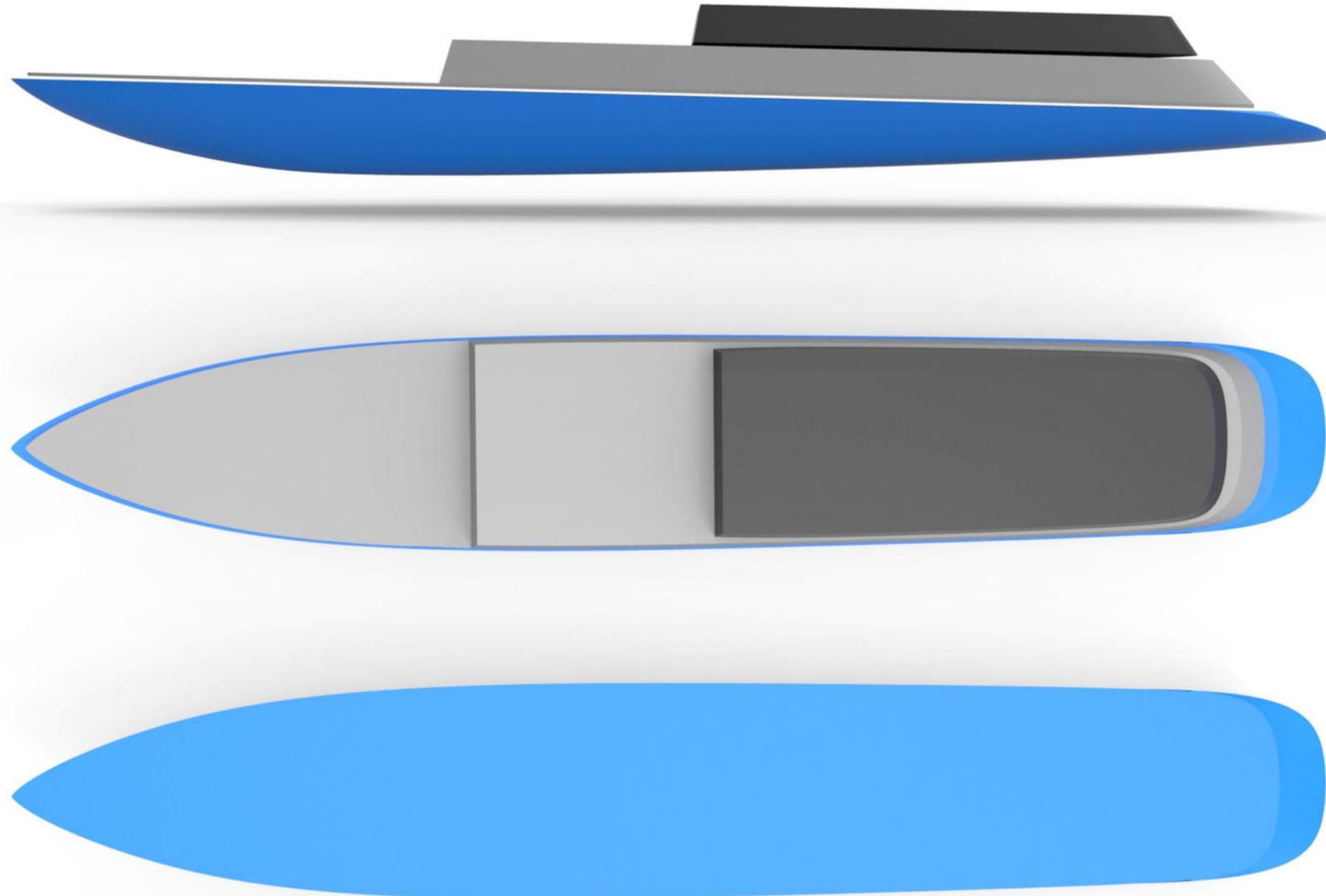


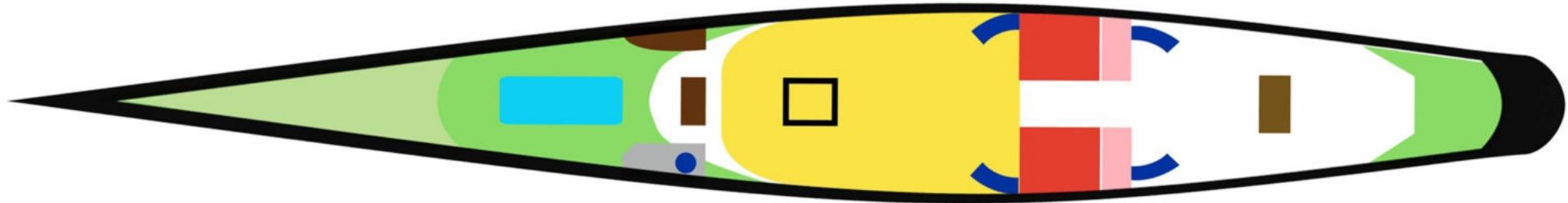
## □ YACHT PLAN TWO



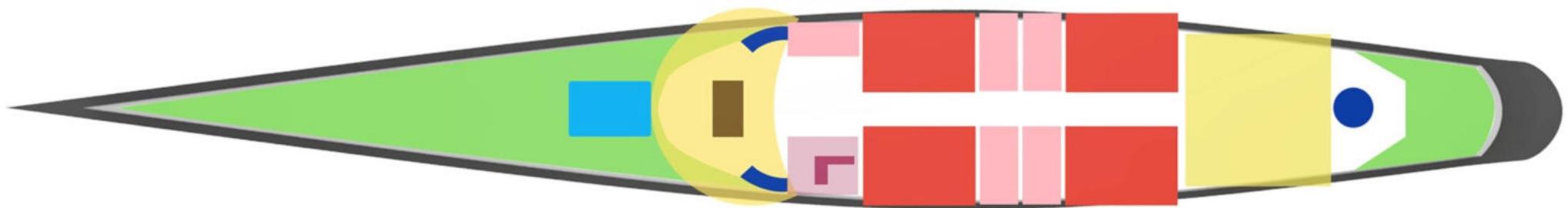
### DIMENSIONS

LENGTH - 50m  
WIDTH - 12m  
HEIGHT - 14m

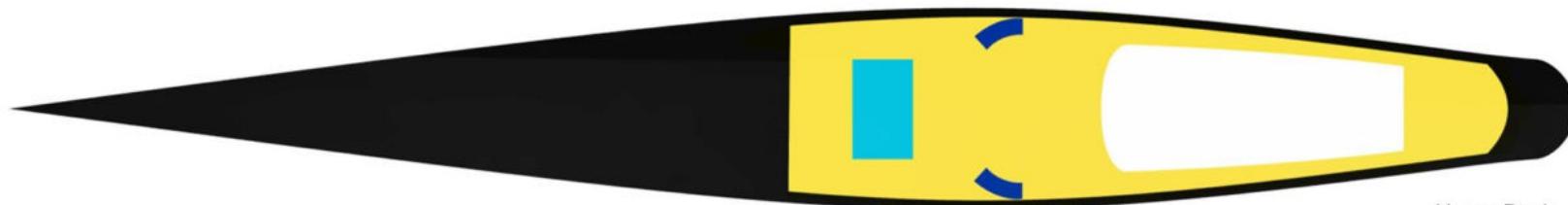




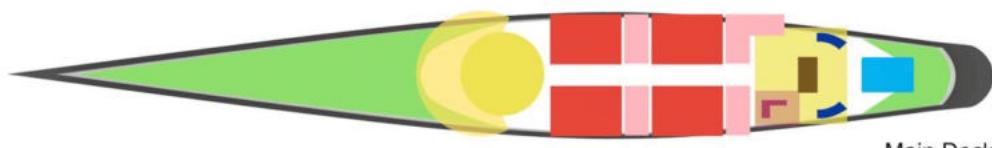
Main Deck



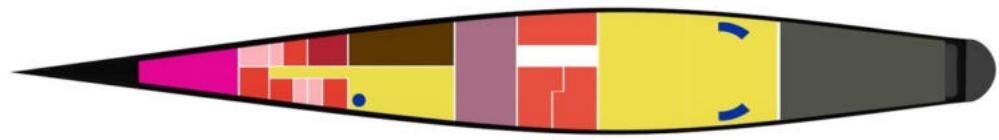
- Open Air Spaces
- Common Spaces
- Pool
- Bedroom
- Toilet
- Stairs



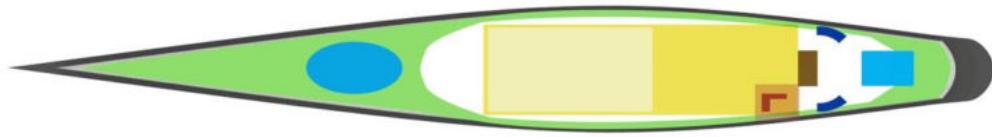
Upper Deck



Main Deck



Lower Deck



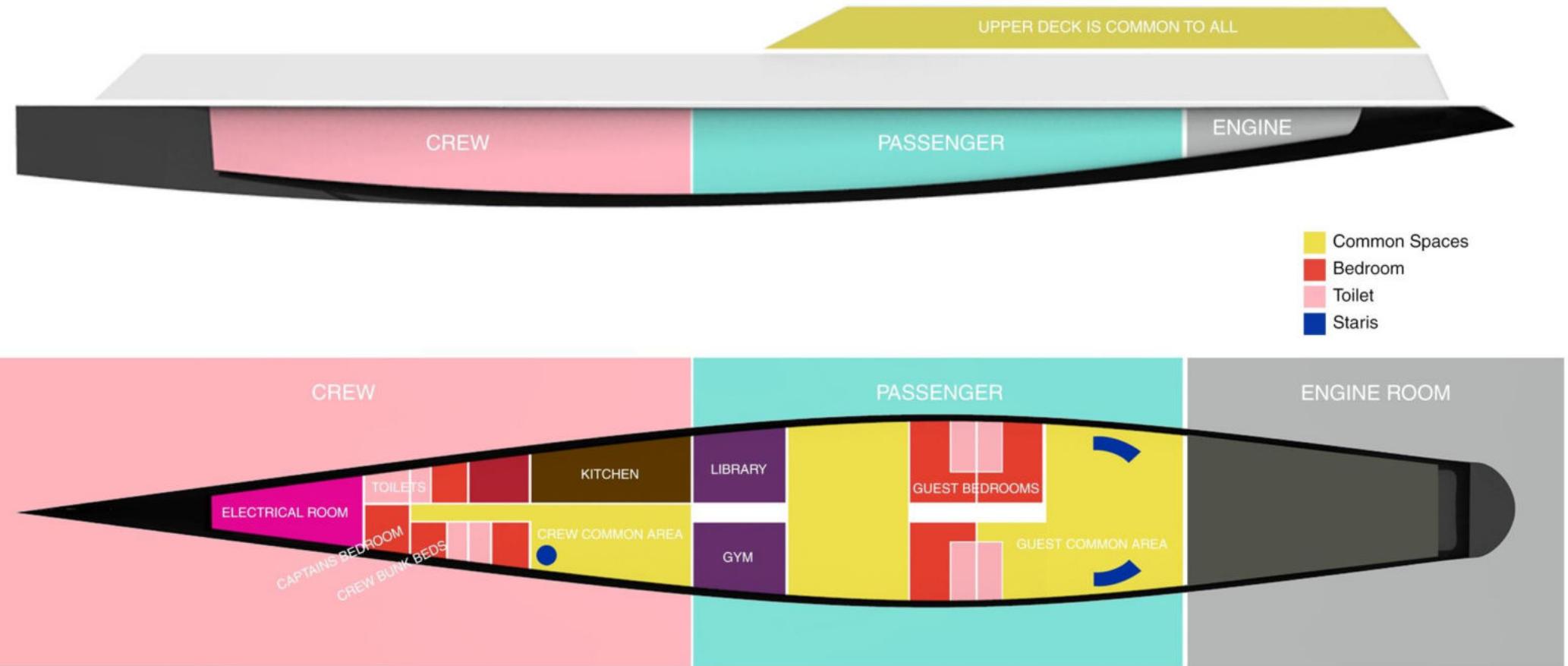
Upper Deck

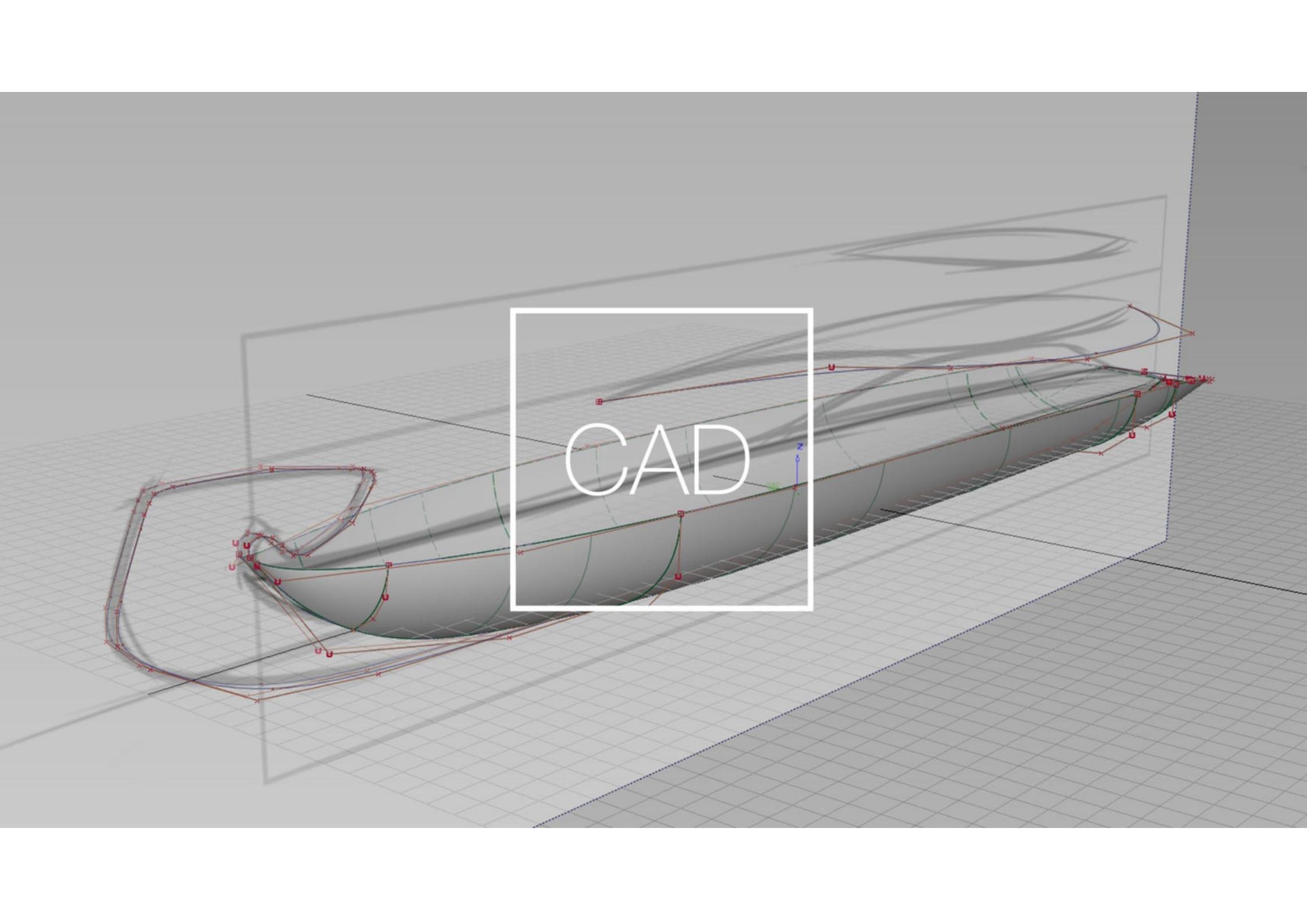


Upper Deck



- Open Air Spaces
- Common Spaces
- Pool
- Bedroom
- Toilet
- Stair





CAD

## CAD

Software used for CAD – Autodesk Alias



THE  
ADAMBARA











MODEL  
MAKING

## MODEL MAKING

Scale of model – 1:50

Materials used – MDF, Woven Bamboo, Modelling Foam, Acrylic, Glass, Metal Wires, and Glue etc.

Possesses used – model will be mostly handmade with the exception of mechanical processes like, laser cutting and 3D printing in some areas.







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