



WHAT DOES YOUR
FREEDOM
LOOK LIKE

THE GOAL

The concept for our FC 51' aluminum Catamaran is that we wanted a vessel that could explore the San Juan islands and head up the inside passage to Alaska while being as comfortable as possible. We are currently working on an enclosure for the back that will help keep the weather out and heat in.

FREEDOM UNLEASHED AND READY TO SAIL THE HIGH SEAS

Freedom starts with the vehicle to take you to those out of reach places that others only dream of exploring. We know this well for it's our goal as well. So we started thinking.... Maybe there are a few people out there likeminded and maybe we should be sharing our vehicle design to help others succeed in their goals.

So, this is what we have decided to do. Coming this summer of 2023 we will be able to offer our CAT with a price point, options list & build timeline from a well know U.S. reputable builder that has been in the business for 40 years. Until then you can certainly contact us so you can get to know us and you can ask some questions that you may have. Let's talk about what we can do for you!

Contact our design office:

SHANKWEILER DESIGN
design@shankweilerdesign.com



FC-51' EXPLORATION

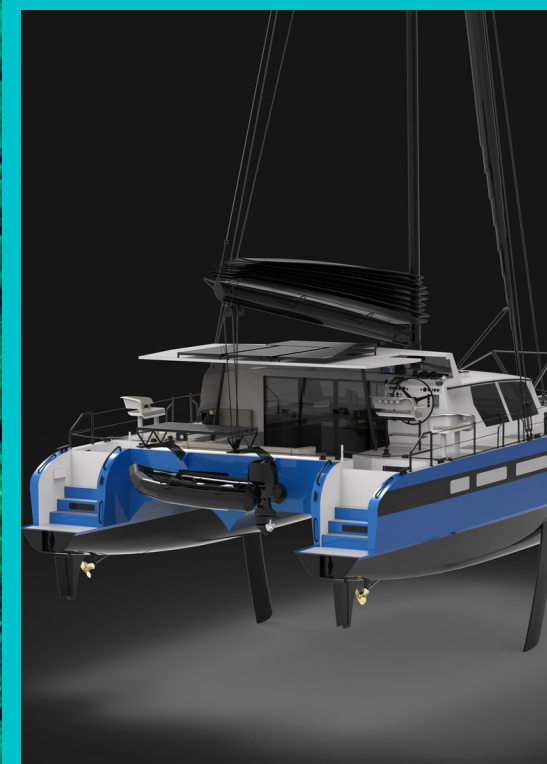
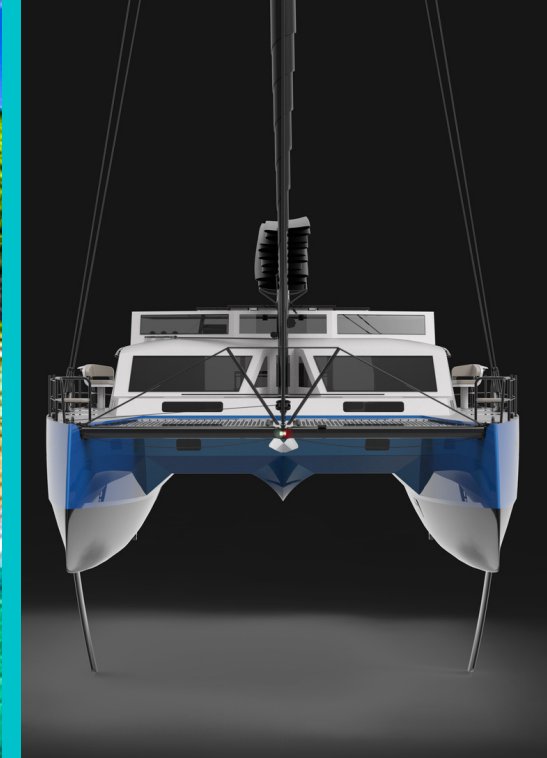
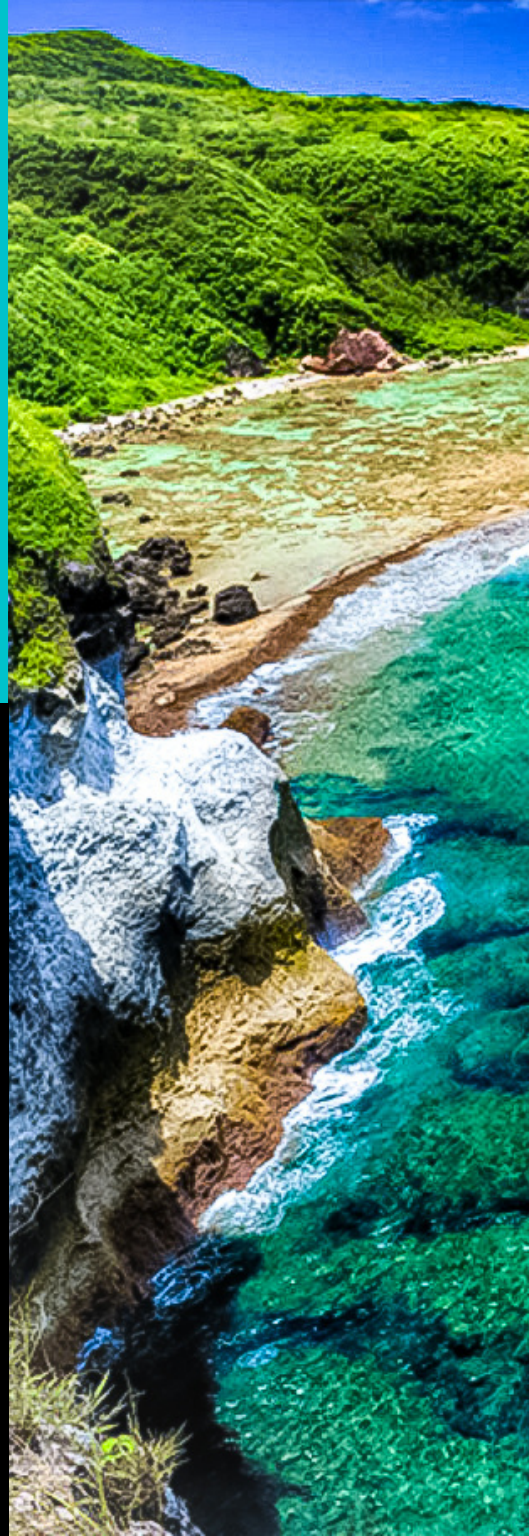
You need a comfortable exploration vehicle that can perform well on the open ocean that you can feel confident in while making it a breeze to operate and keep your family and friend's safe. That was our goal!

We had the same thoughts and here at Shankweiler Design we have spent the past couple years designing the FC-51' to meet more demanding safety measures. Well it's finally here! This is very much customizable and we are happy to work with you to meet your requirements.

WHAT'S INCLUDED ALL DEPENDS ON YOU:

It really all depends on what you are using your CAT for right?

Are you a weekend sailor or using it as a liveaboard in a marina? Or are you ready to sail fulltime alone or with others onboard? We need to talk with you a bit to know how you will use the CAT and what you will require on this CAT. It's different for everybody and of course this will reflect the overall cost of the CAT. Let's talk! Just email us at design@shankweilerdesign.com.



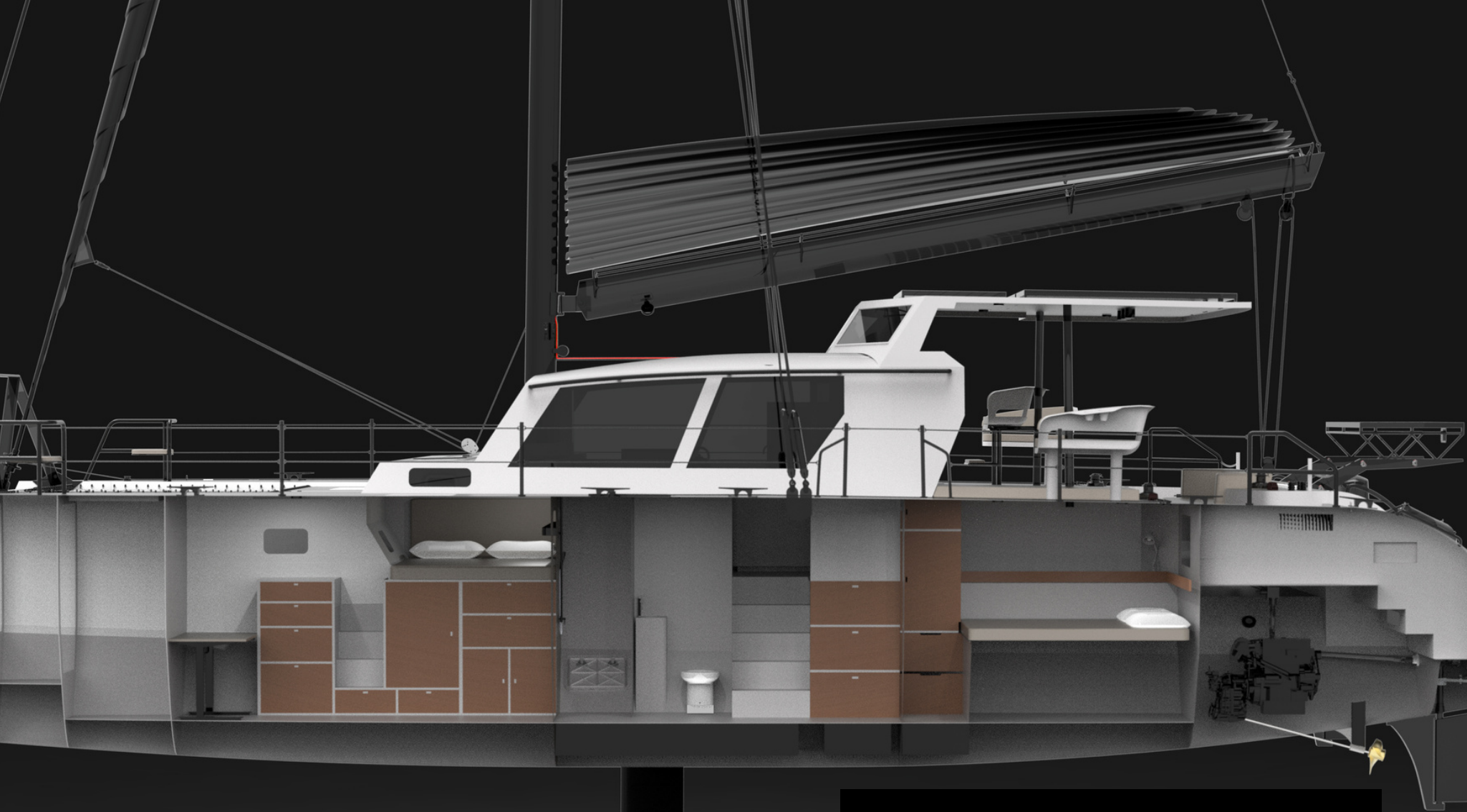


FC GALLEY & SALON

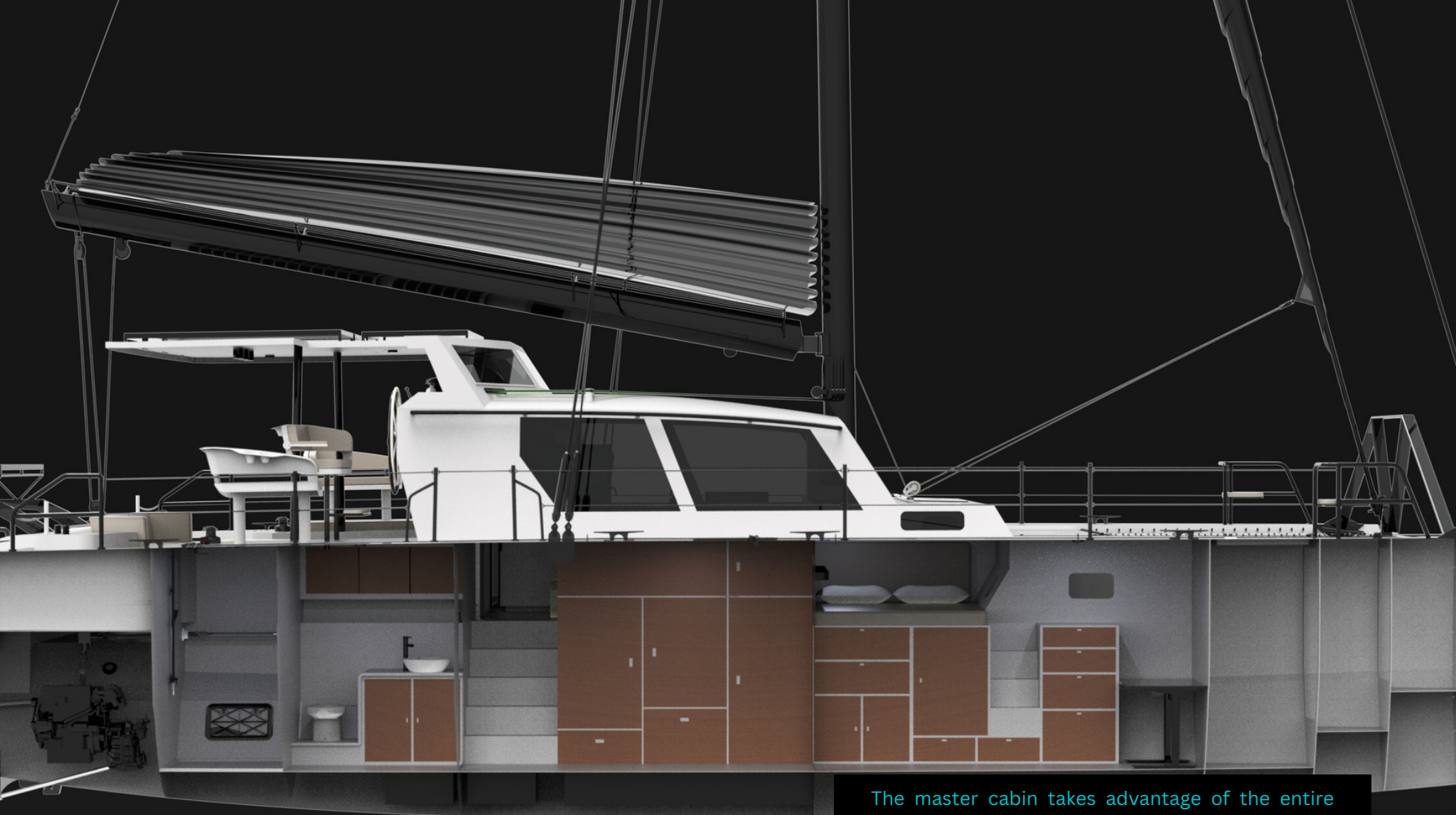
What we have decided on works for us although you may want a spin on it adapting your ideas. Here is what we have done and why.

-Maximizing galley space is the utmost importance for storage and refrigeration which is paramount for any of the scenarios you may have for planning your trip. The question is what are you going to set the CAT up for? Maybe both the weekend cruiser hosting parties as well as for grabbing the family to set sail for a couple months last minute.

-This layout includes some additional safety features. By having the half window enclosure on the portside we have stopped any water ingress from coming into the salon & galley. This was important to us while still having half of the area able to open completely for all the obvious reasons. We also increased our storage capacity greatly.



The port side hull has the same high quality layout to include two cabins on each end of the hull with a shared bathroom & shower in the middle. This design covers everything from your own personal adjustable desks, airflow, aircon, heating, lots of storage, watertight compartments as well as watertight doors to compartmentalize the sections of the hulls in case of an emergency breach in the hull. All materials used are fire retardant and anything used that is not like a mattress you will be made aware of.

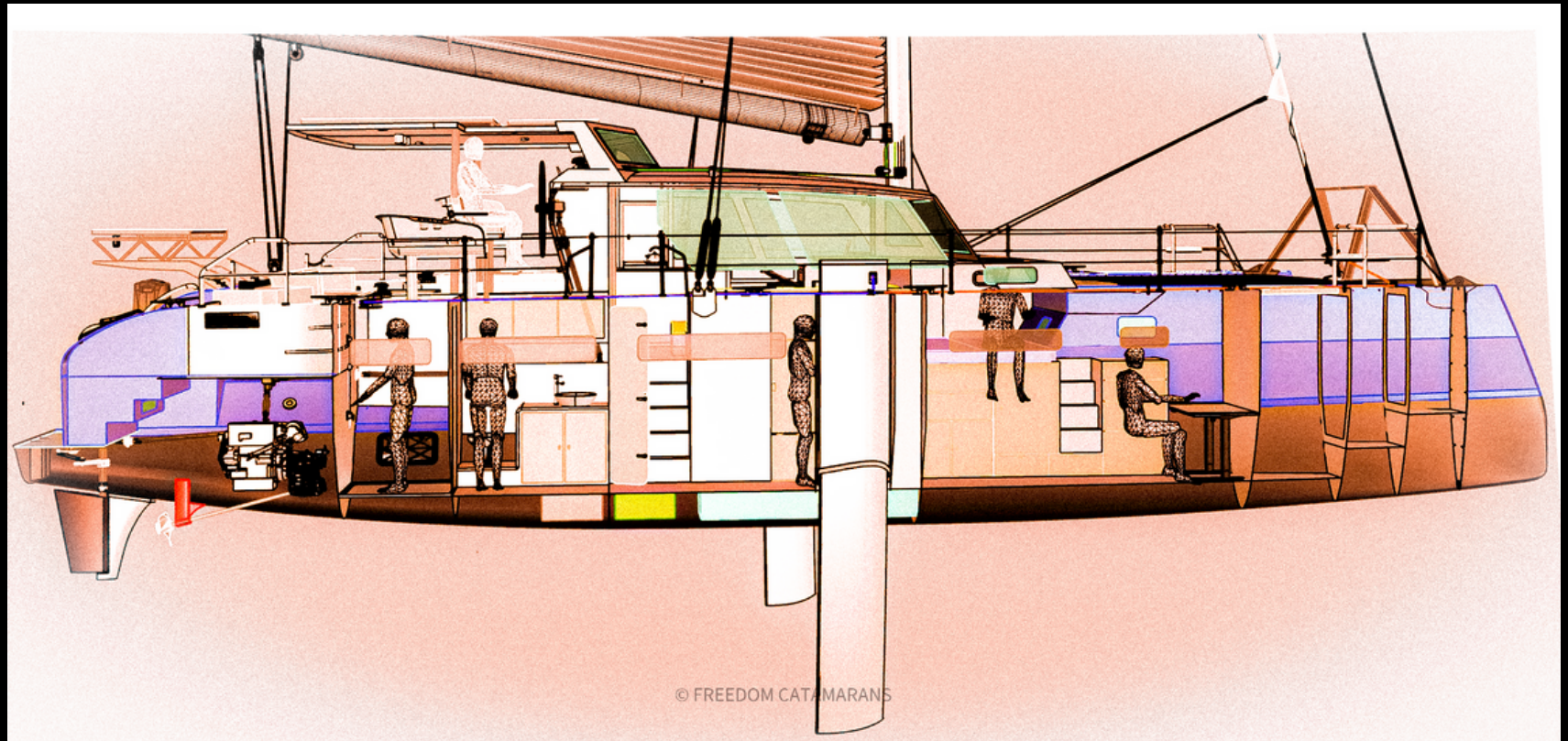


The master cabin takes advantage of the entire starboard hull. This design simply covers everything we can think of from airflow, aircon, heating, storage, watertight compartments as well as watertight doors to compartmentalize the sections of the hulls in case of an emergency breach in the hull. You have a nice big shower and bathroom as well as your own private study adjustable desk. All materials used are fire retardant and anything used that is not like a mattress you will be made aware of.

FC-51' Aluminum Cat **STRB MASTER CABIN**

WHEN YOU NEED A LITTLE PRIVACY

Here is a example of a 6' person in the master cabin. You have lot's of head room and space for relaxing.



FC 51 FOOT ALUMINUM CAT

Port cabin

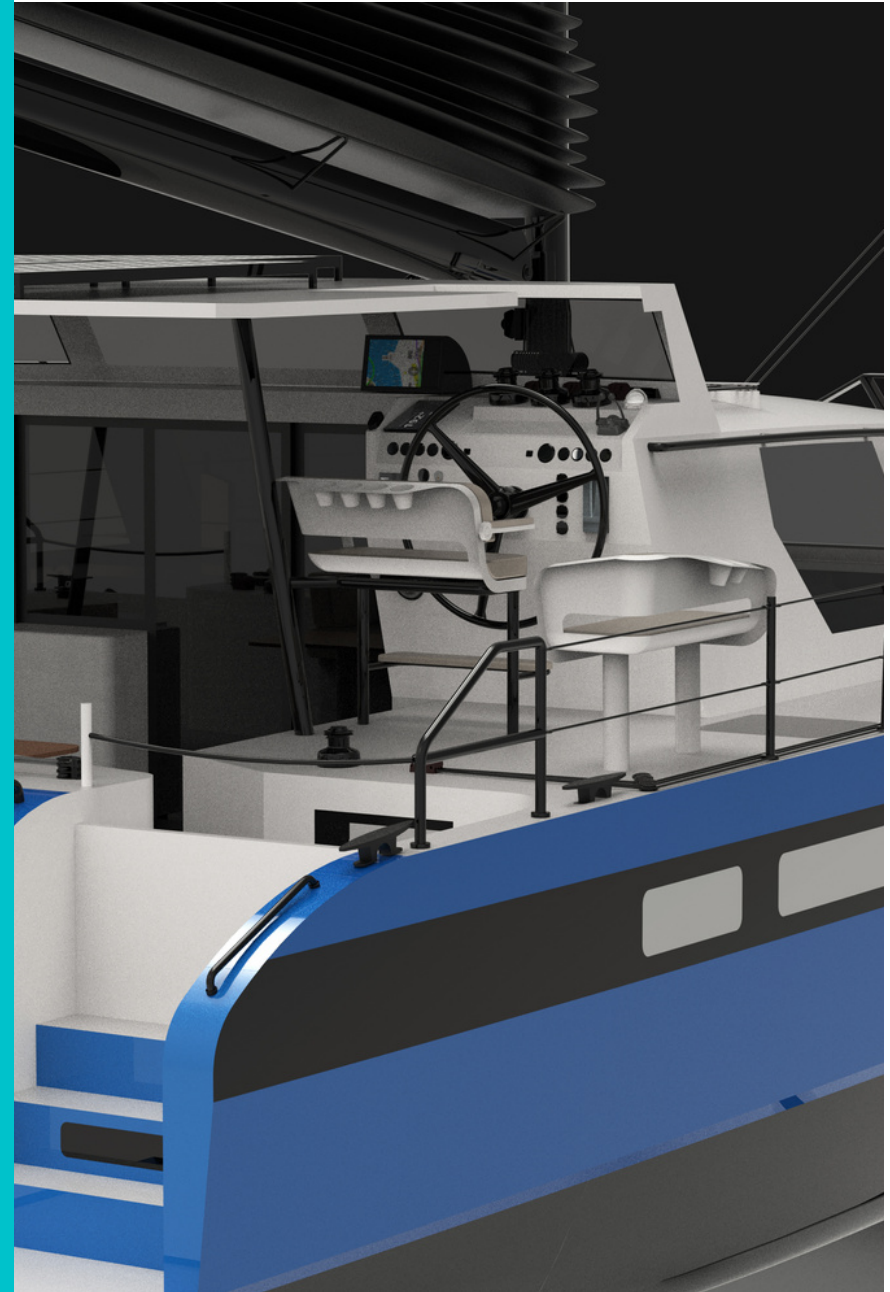
Keeping it clean and simple with options for aircon or natural airflow.



FC HELM

Let me explain in bullet points for what the operator has around him-

- Everything coming back to the helm is the goal.
- Easily steer the boat and maneuver the engines and or sails.
- All navigational electronics are an arm's length away.
- Eight (4 port & 4 STRB) high bilge alarms (visible / audible) in individual watertight compartments and manual & automatic bilge pumps.
- Emergency fuel shut offs located in easy to reach areas close to the operator.
- Fire suppression system easily accessible for the operator. Fire extinguishers as well.
- Mechanical gages for ease of replacement.
- Mounted VHF and a handheld VHF radio.
- Optional heating fan that blows on the operator's body in two areas (high & low).
- The front operators' windows open for unobstructed wind flow.
- Stereo system that you can isolate your speakers to only the operator's station to minimize any noise in other areas.
- Night time red or blue lighting for operations.
- Mechanical cable shifters for engine control for reliability and ease of replacement.
- Jefa transmission steering for ease of minimal maintenance and superior reliability. Easily engage the emergency steering in the need to steer with one rudder.
- Jefa auto pilots (2) with an electric clutch to disable areas of the steering not needed to reduce amperage on the auto pilot and torque which will end up increasing the life span of the auto pilot.

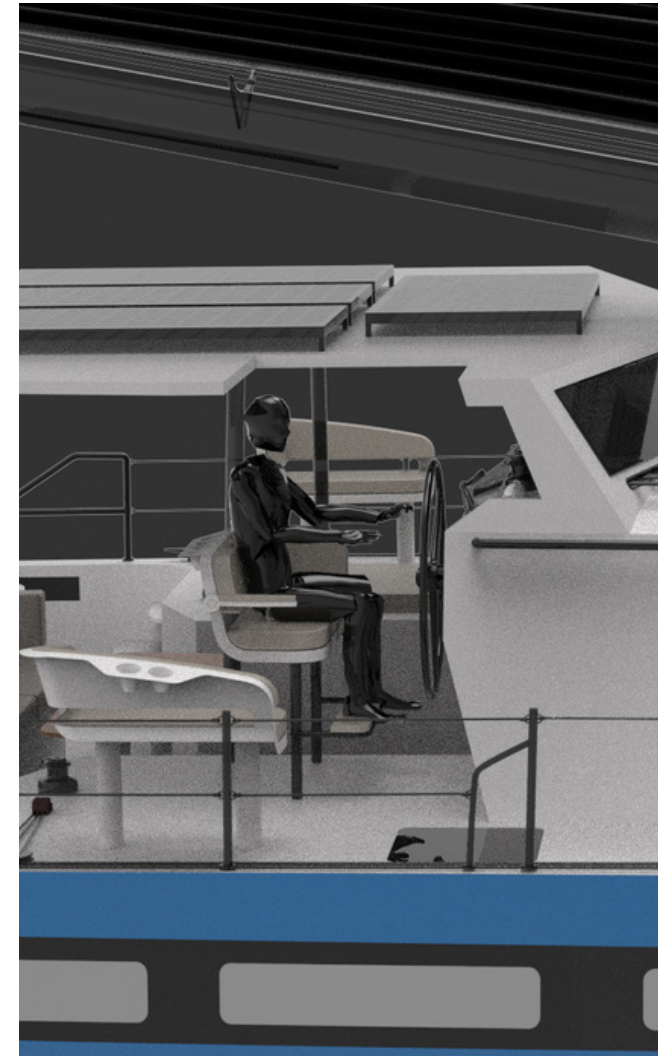
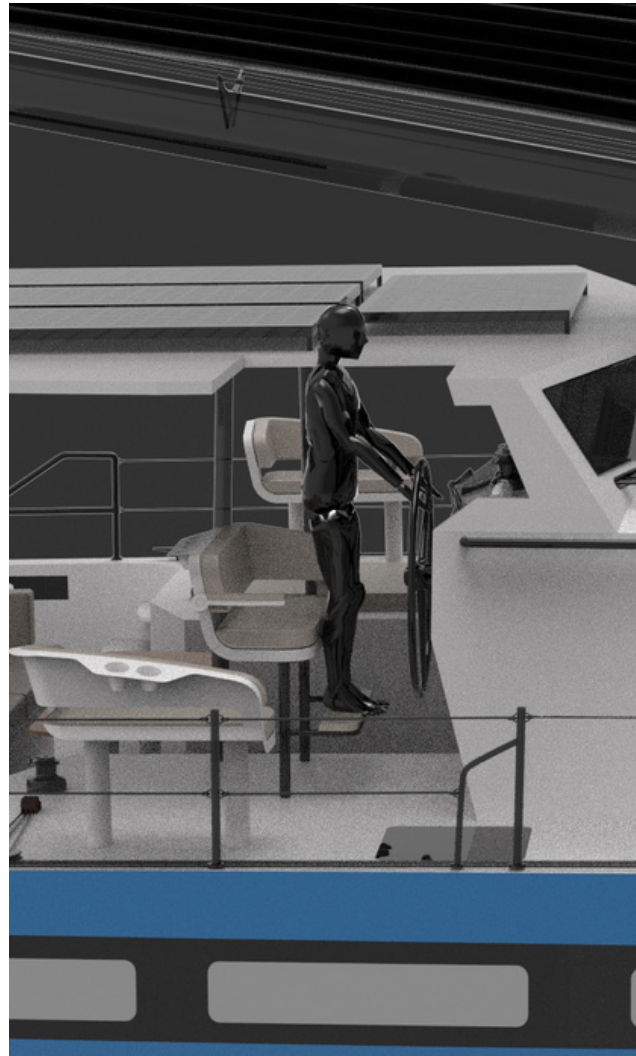
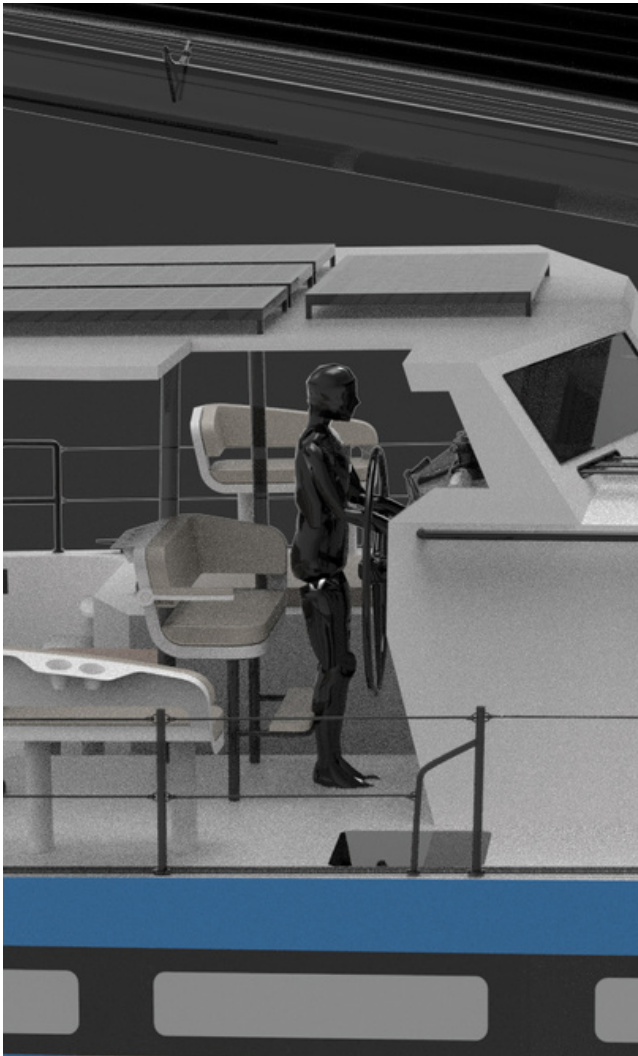


There is an overhead sliding safety glass closure to keep you out of the weather.

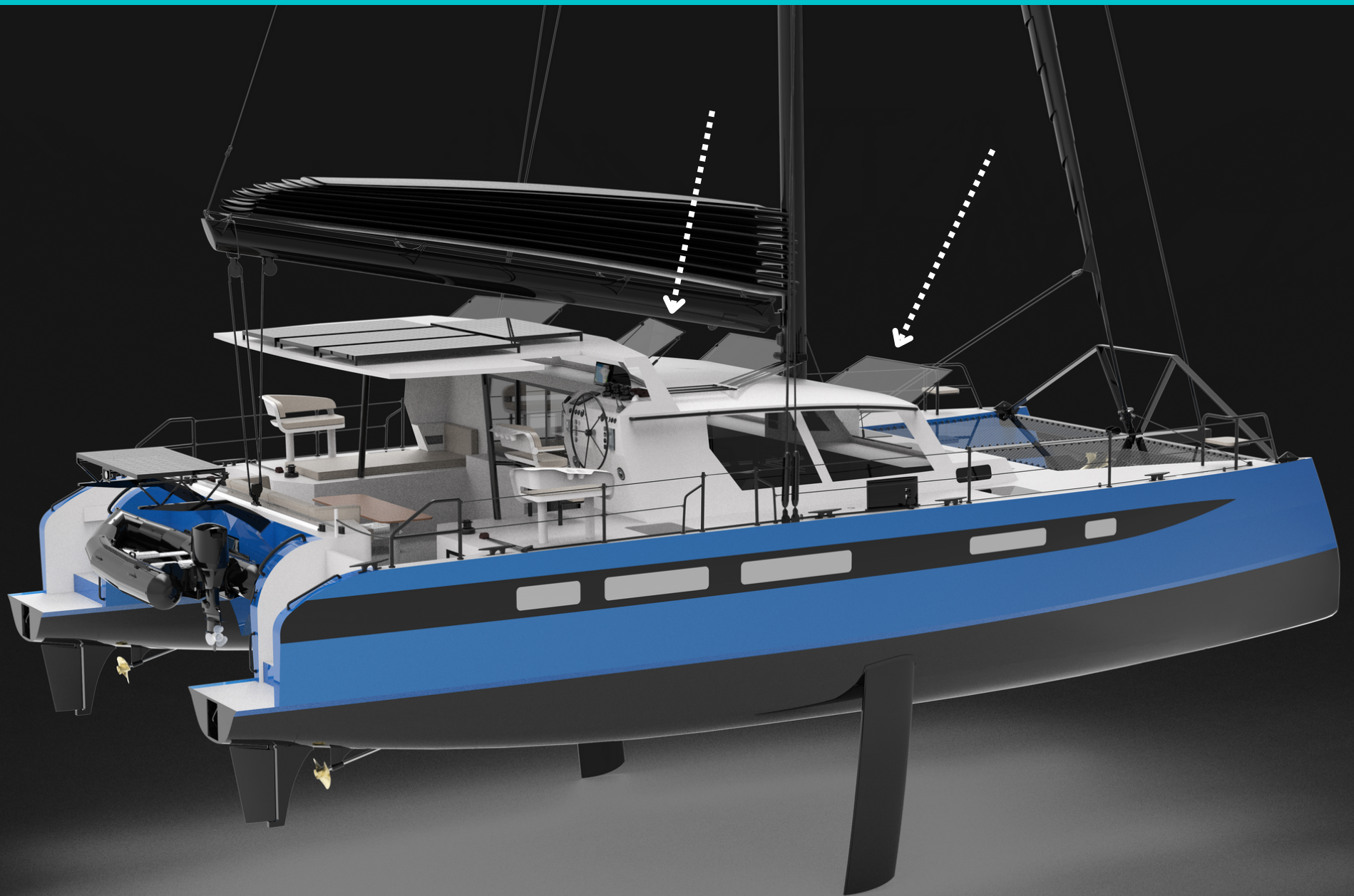
FC 51 FOOT ALUMINUM CAT

Helm Station Visibility

All the windows on the CAT are safety glass!

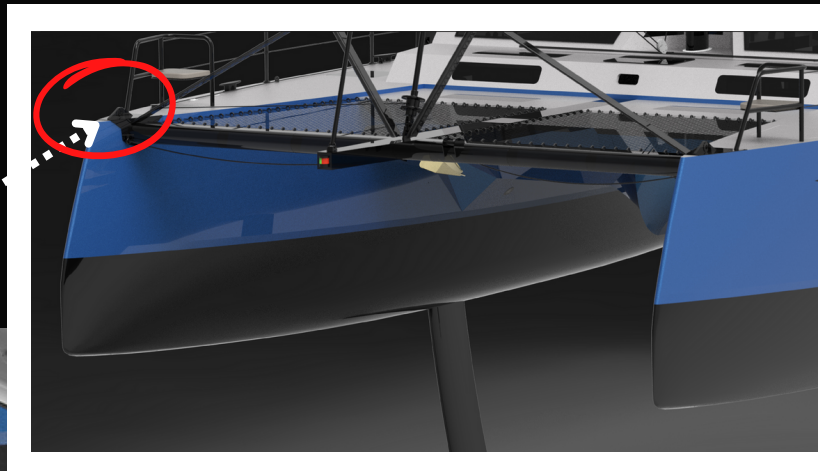
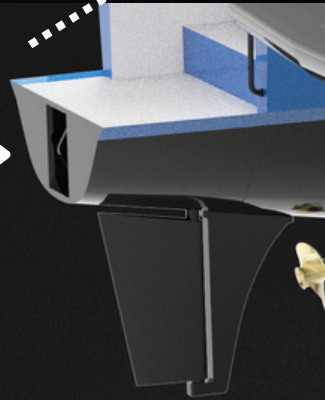


SAFETY GLASS WINDOWS OPEN FOR ADDITIONAL AIRFLOW



REINFORCED FULL RUDDER SKEGS

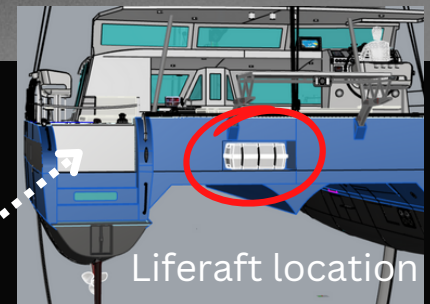
Emergency towing points on stern & bow



One of the most important mechanical designs on a boat that you will be cruising on with family and friends is to ensure that you have the most reliable steering system together with a bullet proof rudder design.

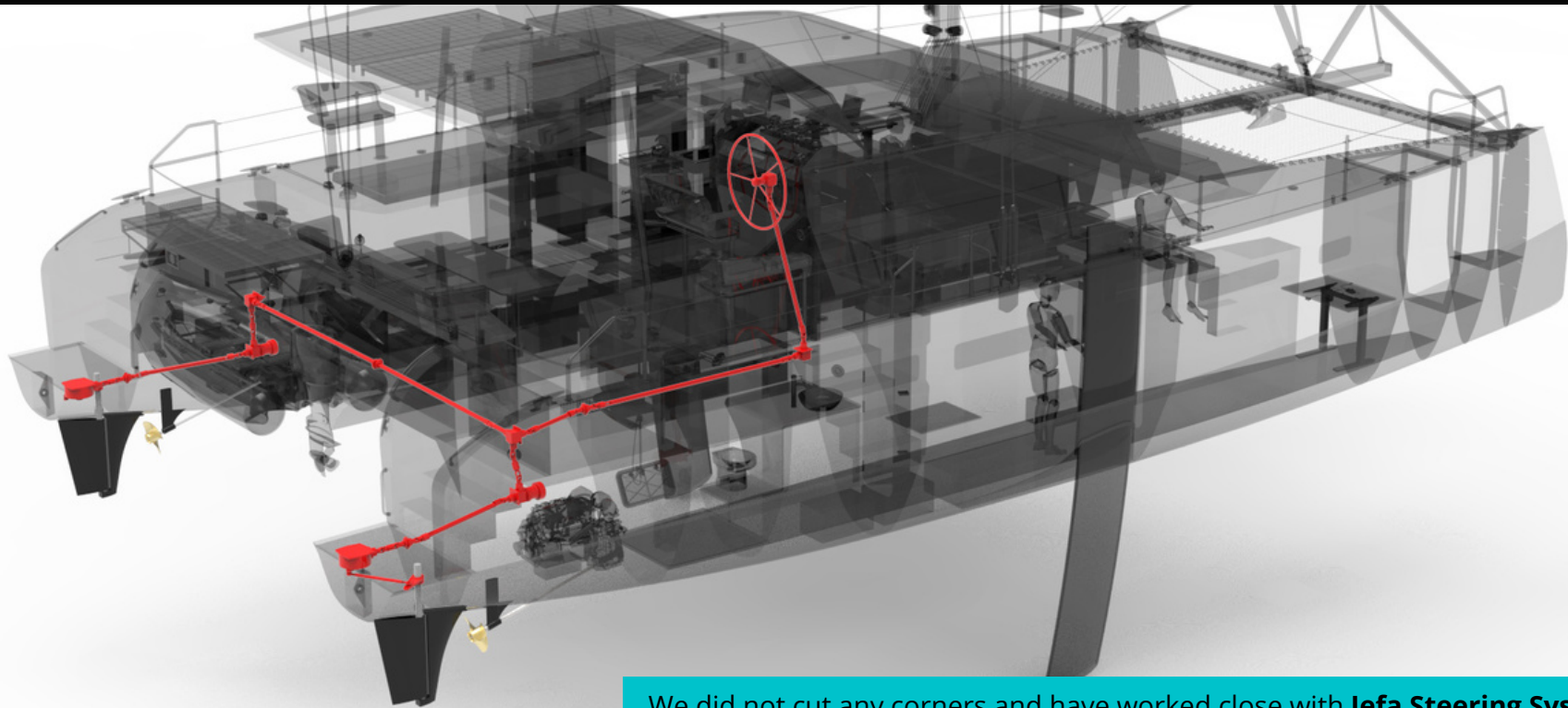
FC-51 is equipped with reinforced full rudder skegs with in water removable bearing system for easy maintenance. With the bluewater sailor in mind the skegs leading edge is angled to reduce the risk of any debris getting caught up on the rudder and or to reduce any impact in the case you hit anything.

V-DRIVE SHAFTING



Siding boards that block off the stairway when needed

TRANSMISSION STEERING

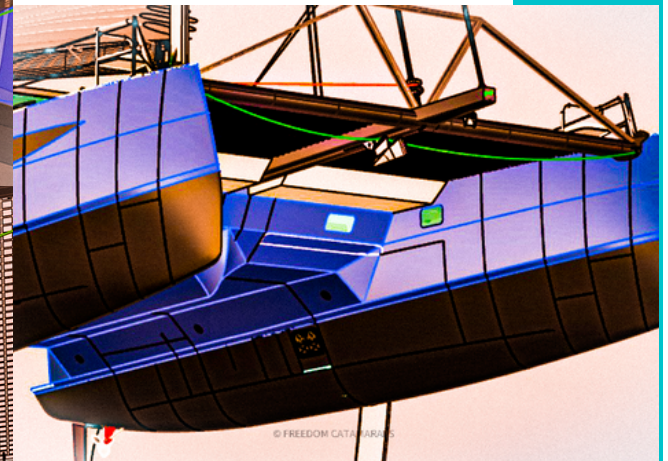
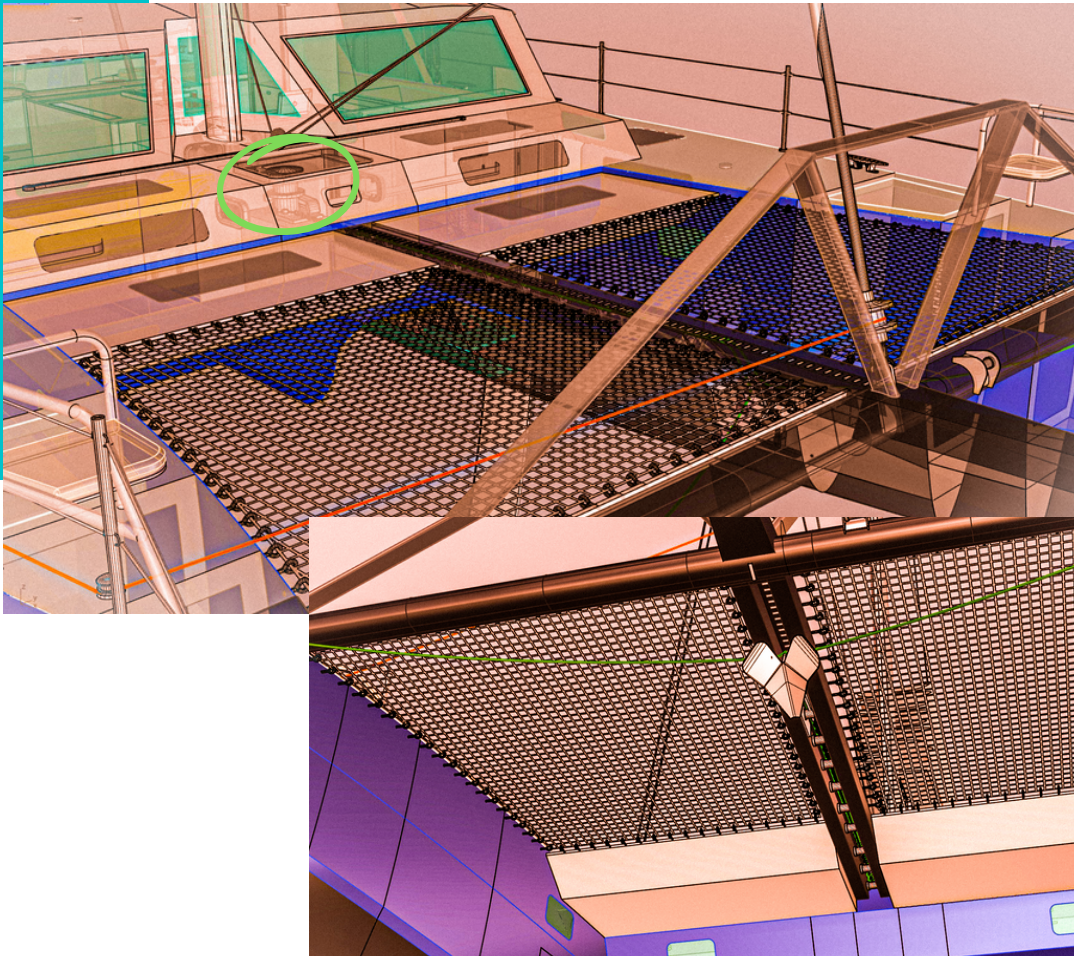


We did not cut any corners and have worked close with **Jefa Steering Systems** engineers to provide the highest quality and reliable transmission steering design integrated with their two custom autopilots for redundancy. This system comes standard on the catamaran (No sprockets, chain or wires). The emergency steering system can be easily secured by the operator of the boat in the case you need to steer with one rudder and still have your autopilot.

Simplicity and maintenance friendly is the goal! It honestly didn't take much thought to know the direction we needed to go, for it's what we needed on our liveboard CAT.

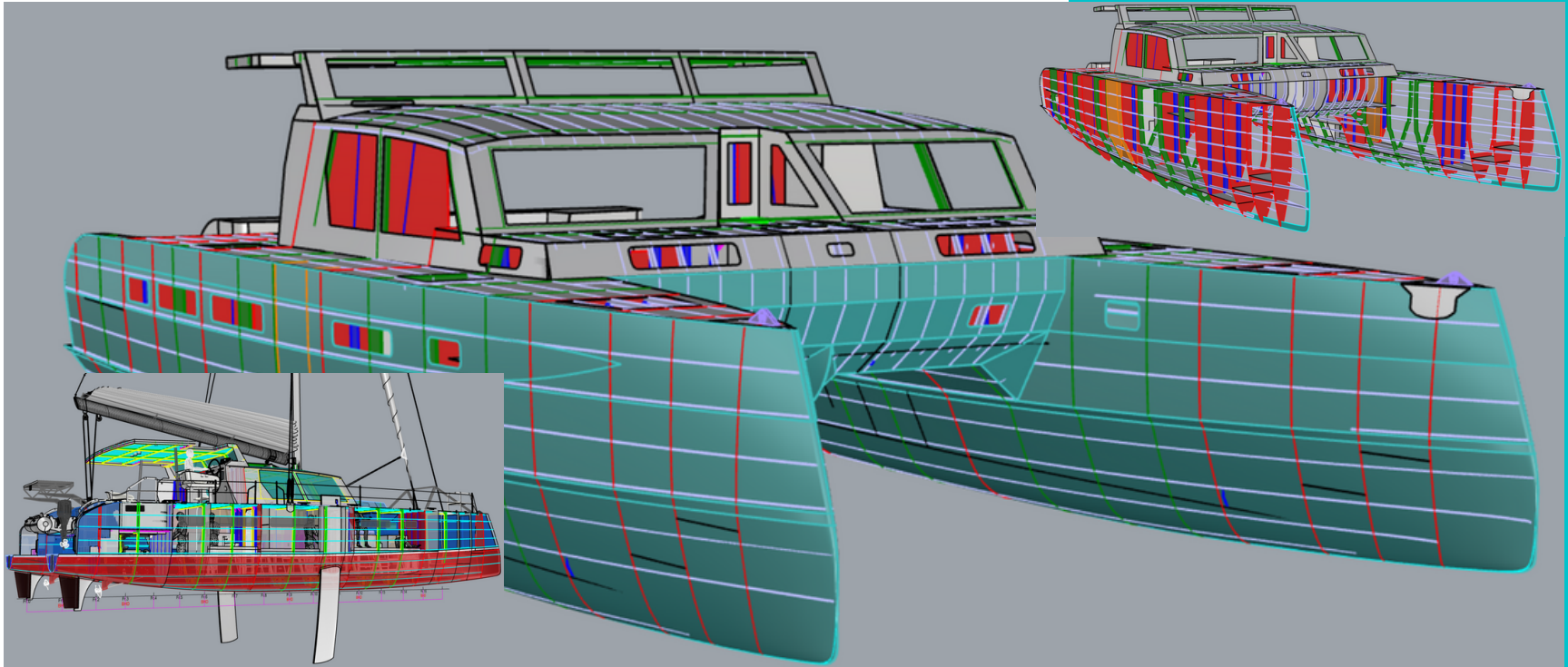
ANCHOR SYSTEM

The anchor system is designed so the bridal is easily secured when not in use and or attached to the chain when deployed by remote. The windlass is protected from the environment with easy access to wash down.



STRUCTURAL

FC-51' Aluminum Cat



The structural framing is over designed using certified (third party shipping society approved) marine grade aluminum. Our Shankweiler design team have been sailing commercially for 30+ years on the high seas and are U.S. Coast Guard licensed Captains / Engineers. Our Naval Architect has done the engineering calculations to meet or exceed U.S. Coast Guard commercial vessel regulations, ISO 12215-5 under Category "A" Oceans (hull scantling with 15% overkill) & CE (EU) standards for superior durability & safety.

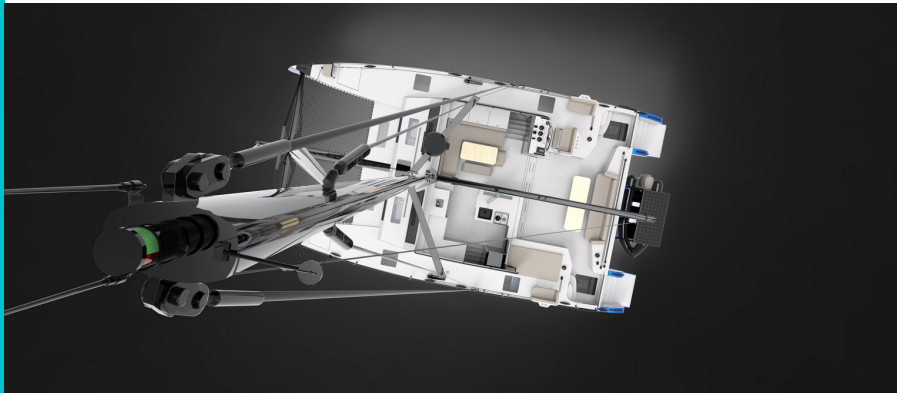
This is the engine we are using for the following reasons:



Although you can certainly use whatever engine you want in the boat to include a V-drive and or a hybrid electric drive which we are currently getting quotes on to have this option as well. This is what we have right now and this is why-

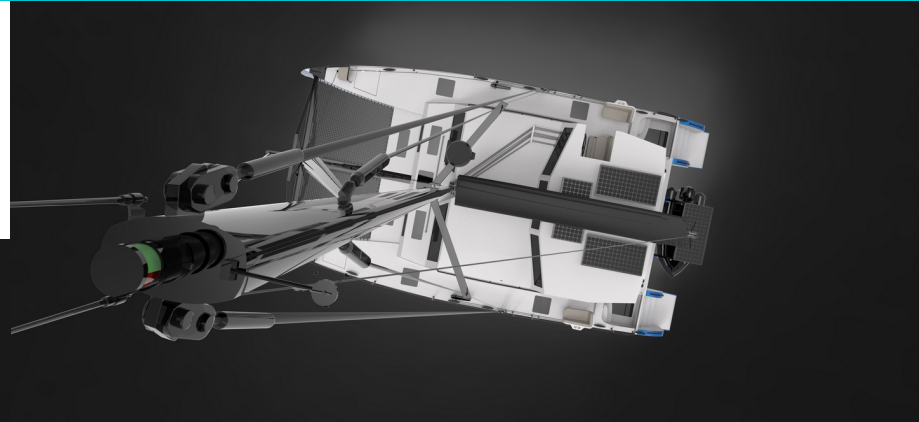
- 1. For over 30 years we have worked fulltime in the commercial industry on boats and know what engines you want to entertain and others you want to think twice about. We have worked with Helmut Marine since the 90's and their customer service is beyond reproach. One thing to have is a great engine but if you don't have the support your not going to do so well out there when you need it. You will be short on time and limited on communications so this is why we choose the Volvo Penta D2-60 from Helmut Marine. We will be glad to even communicate directly with them for you for we are a 24/7 support team for our customers.*
- 2. We have operated the 200+ HP Volvo engines for many years and they are tough. These particular engines we are using don't include all the electronics either making them easier to work on.*
- 3. We are currently making a great option for a hybrid system so stay tuned.*

FC-51' ALUMINUM CAT ELECTRICAL SYSTEM & HOW WE DEAL WITH ELECTROLYSIS



We are designing the FC-51' catamaran to have a Victron 24 VDC & 110/220 AC electrical system using lithium batteries and solar to match your needs. Customers will have their own consumption requirements depending on what they use the boat for and how much power they need (the weekend sailor will not use as much power as the liveaboard fulltime sailor) which will determine the cost of the system as well. We are happy to work with you on this to meet your requirements.

The system comes with a detailed electrical schematic drawing that is easy to read. We follow guidelines from ABYC and CFR's Title 46, parts 166-199, Subchapter T (USCG). The electrical system is verified by a licensed 3rd party marine electrical company and installed by them.



Victron Electrical System (Our System)-

24VDC / 110/220AC

5KW Victron inverter

800 amp hours of lithium batteries (24VDC) approximately

Up to 2700 watts of solar (approximately)

Using breaker system on the AC & DC so easier to identify where the problem is.

Alternators (100 amp) on each engine so you may not need a generator.

The following is all necessary for protecting your hull and to minimize stray voltage problems-

Use a single point negative ground for DC. All electrical equipment is connected to both battery terminals. This will electrically isolate from the hull and all the boat equipment that uses electrical power, including the controls and exhaust system.

Single wire equipment like sending units for example are isolated from the hull and have a ground wire back to the negative terminal.

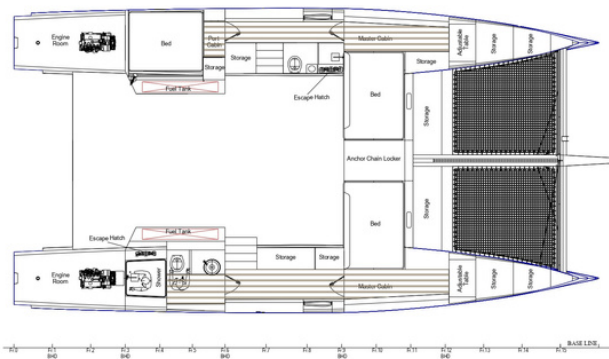
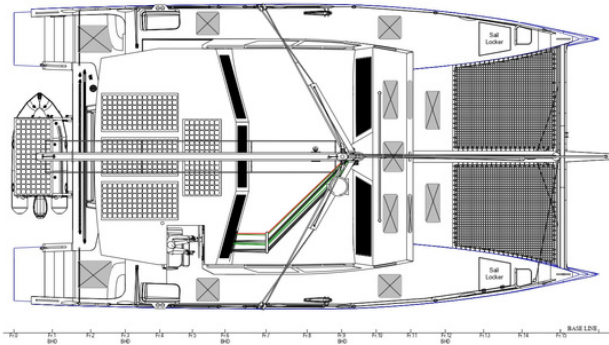
The hull acts as the bonding conductor and is only active in the event of a short circuit which can be monitored. It is never used as a common ground to carry any current under normal conditions! This protects the crew onboard. Run all shore electrical power through an isolation transformer (the idea is to isolate the shore power including the ground wire from the hull) as per ABYC E-11 AC & DC.

Insure you have a good barrier coat of aluminum spec bottom paint and sacrificial zinc anodes (welded on the hull with aluminum mounts) for stray currents / electrolysis.

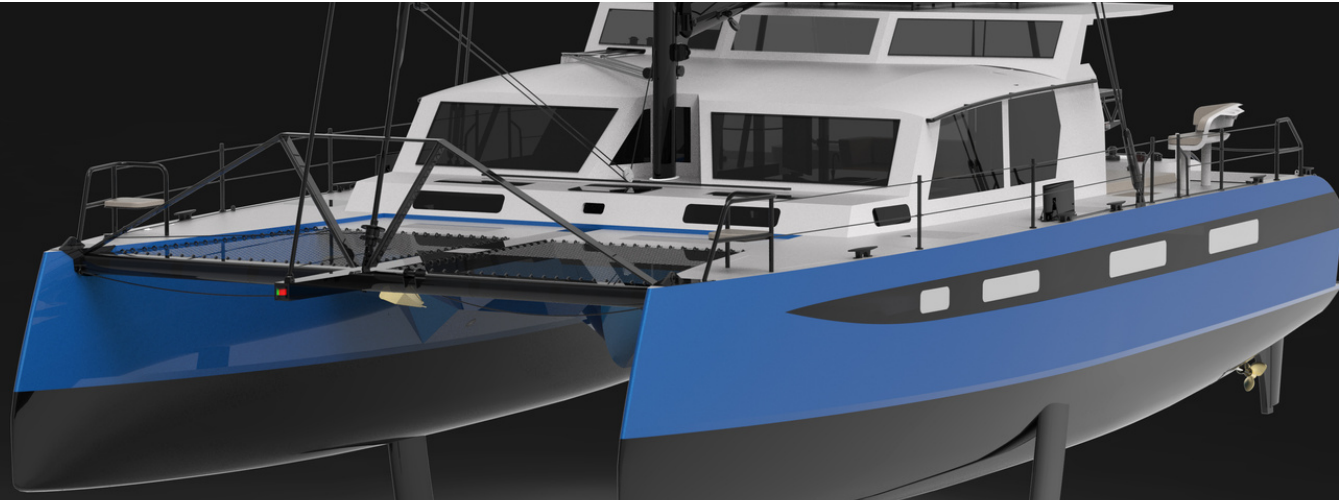
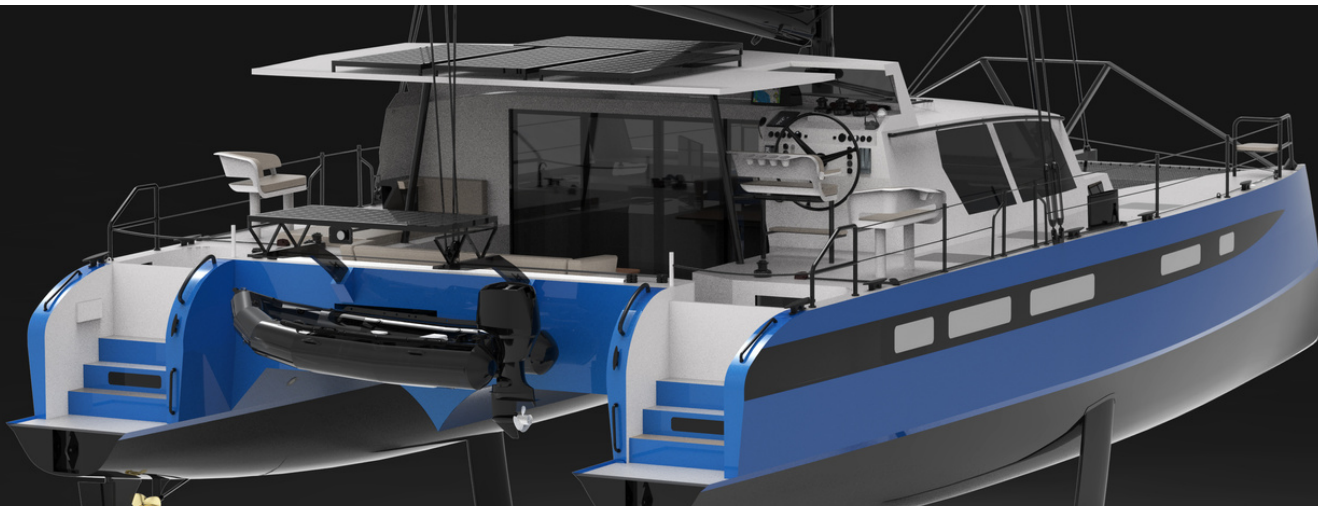
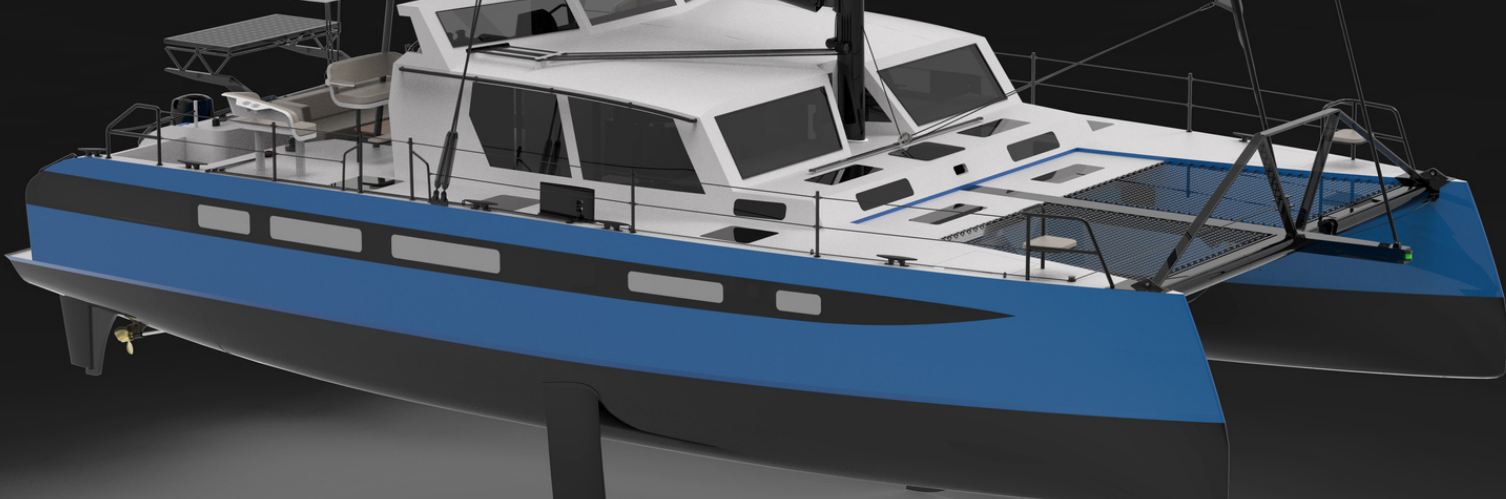
Using USCG approved marine grade UL listed wiring with PVC coating and install rubber grommets for any wiring passing through metal bulkheads (plastic zip ties as well for securing).

FC 51 FOOT ALUMINUM CAT

Specification:



Material	Aluminum
Length Overall	51'0" ft / 15.54m
Waterline Length	50'0" ft / 15.24m
Beam	26'3" ft / 8.01 m
Bridge Deck Clearance	3' ft / 0.92 m
Air draft	82'4" ft / 25.09 m
Draft (Boards Up)	3.2' ft / 0.98m
Draft (Boards Down)	8'11" ft / 2.72 m
Light Displacement	9.6 Tons
Max Displacement	16 Tons
Main Eng- Volve *2	60 HP
Fuel Tank	2 * 100 Gal + 2 * 150
Freshwater Tank	2 * 100 gal
Blackwater Tank	2 * 16 gal
Graywater Tank	2 * 16 gal





Contact us



Freedom Catamarans & Shankweiler Design

Please feel free to ask us any questions-

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Please note: All specifications are subject to change without notice because of the availability of materials and other factors.