

7 Questions you should ask every boatbuilder

1. Coring

What kind of coring do you use in the construction of the hull and deck?

2. Steering

What kind of steering system is installed on your boat? Is it shaft, wire or hydraulic steering?

3. Propulsion

Do you install shaft drive or sail drive? Where are the engines located?

4. Rudders

How do you protect your rudders from impact? Are they skegged?

5. Rub Rails & Toe Rails

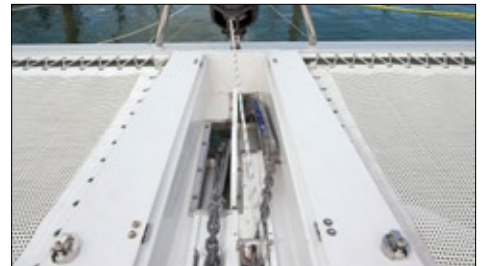
What's going to protect my boat when I'm tied up at a concrete fuel dock? Is there a rub rail on your boat? How about a toe rail?

6. Battery Bank

What is the capacity of your battery bank? How many amp hours will it provide?

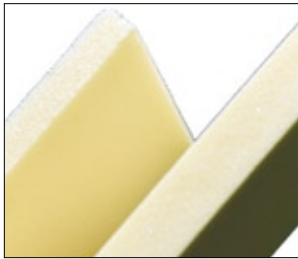
7. Anchors

Is the boat designed to accommodate more than one anchor?



1. Coring

Coring is a structural stiffener sandwiched between two layers of fiberglass skin. Coring is particularly important to a catamaran builder because of the need to create stiffness with reduced weight.



Most production catamaran builders choose to build their hulls and decks using balsa coring, which is made of balsa wood cut across the grain in thin slices to expose the end grain fibres. Balsa core is well known for its high resistance to compression.

Antares chooses to use a product called Core-Cell in the hull and deck construction. Core-Cell is a high-density foam core known for its impermeability to water, toughness, light weight and resistance to impact.

Resistance to Water Absorption

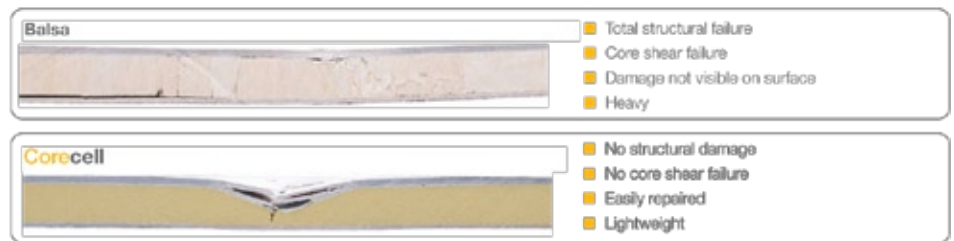
Core-Cell foam core is a closed cell structure that will never rot or absorb water. Balsa core, on the other hand, shows its weakness when exposed to water. Balsa will soak up water from any small cracks or weakness in the skins and has no resistance to water permeability. This leads to rot, loss of structural integrity, weight gain, and undermines the longevity and resale value of the boat.

Core-Cell has been used and extensively tested in marine environments and shows no loss in strength after soaking in water.

Toughness and Impact Resistance

The core needs to have enough elasticity to absorb impact and maintain the bond to the skin. The Core-Cell foam core acts as a shock absorber that supports the outside skin from severe impacts and protects the inside skin by dissipating the impact load over a wider area.

While Balsa core may be stiffer, it is also brittle. Brittleness leaves the core vulnerable to crack spread as the sandwich panel continues to flex on impact. Another symptom of impact is de-bonding. Core-Cell foam bounces back to shape after impact, ensuring the bond is not broken. Balsa core, on the other hand, will de-bond from the skin. Due to its compression strength, there is little outward damage visible on the exterior skin. What happens instead is the end grain splits parallel to the grain, causing localized delamination as illustrated below.



Builders wishing to build long-lasting boats choose performance composite foam core throughout the structure.

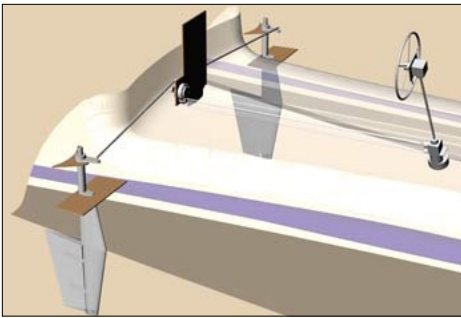
It is obvious that construction materials chosen by the manufacturer clearly betray the intentions of the builder. At Antares Yachts it is our expectation that in 30 to 35 years from now, the catamarans we build today will still have the original engineered properties. Perhaps the best evidence of longevity and quality of construction is in the resale value to the boat.

The question remains, why are so many catamaran builders using balsa coring in the construction of their boats? Maybe the answer lies in the simple fact that on a cost basis, balsa coring is the cheapest option of any of the materials available on the market.

2. Steering

Shaft Steering vs. Wire and Hydraulic

Antares Yachts uses a premium Whitlock Mamba™ shaft and gearbox system. The gearbox converts rotary motion to transverse motion, which moves the tiller arm. This shaft and gearbox system is superior to other steering systems such as wire or hydraulic in terms of precision, feedback and integrity.



The Whitlock Mamba™ shaft and gearbox system

The Antares' shaft steering system can withstand the heaviest water conditions, making steering more responsive under any circumstance. It is ideal for a blue water cruising yacht. The robust system also means that there is virtually no maintenance whereas wire and hydraulic systems require frequent inspection and maintenance.

Ordinary catamarans typically use either a hydraulic or wire steering systems. The hydraulic system has no master spoke and will have a certain amount of leakage or hydraulic slip, and in a marine environment, is susceptible to corrosion.

Because of the nature of the wire system which is susceptible to stretch and friction, steering under heavy seas is often less responsive, is less robust, tends to stretch and requires more inspection and maintenance throughout its lifetime.

3. Propulsion

Shaft Drive vs. Sail Drive

Antares Yachts uses a shaft drive propulsion system. A sail drive is a relatively complicated piece of machinery. They are relatively vulnerable and are subject to the usual wear and tear plus the aluminum is vulnerable to corrosion that occurs from continuously being submerged in the water.

One of the advantages of placing the shaft drive where we did, amidships, is that we are able to have the shaft exit where the keel meets the hull at a point where disruption to flow would be minimized – which is advantageous to minimize drag.

The catamarans reactive behavior fore and aft in rough sea conditions can be influenced by weight distribution. By concentrating the tanks and engines close to amidships, we reduce pitching and ensure that the boat can rise up and over waves with undiminished speed and comfort. The engine placement itself, is in a strong area of the hull where all the structural components converge.

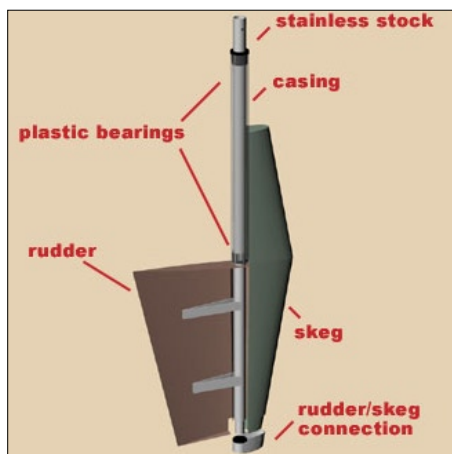
Once again, we must question the motivation for so many catamaran builders who choose sail drives, and again the answer may lie in the fact that it is an inexpensive approach to propulsion.

4. Rudders

In real world cruising there are crab traps, fishing lines, logs and rocky seabed, this means that the rudder needs to be protected. At Antares Yachts, we've done just that.

The engineered rudders on the Antares catamaran are custom built. The two sides of the rudder are constructed from fiberglass with a core center. This core center significantly reduces the weight of the rudders.

The skegs make the rudder stocks resistant to bending and allow us to use a lighter stainless steel stock without any sacrifice to strength. In the absence of a skeg, the stock material would have to be stronger and therefore heavier, but would remain vulnerable to bending.



Rudder construction at Antares Yachts

Not only does this construction method allow Antares Yachts to keep weight off the catamaran, its primary function is to protect the rudder.



As demonstrated by one of our Antares owners, the first point of impact when hitting the seabed is the fixed "sacrificial" keel. Erin and Chris Miller own Antares hull 4409 - *Barefeet* and had the unfortunate experience of hitting a rock while cruising near Nantucket. They write: *"Any time you hit a rock at 9.5 knots with full sail up in 20 knots of wind with a following current, crush your keel (note photo) and suffer ZERO structural problems you are both lucky and have a good boat."*



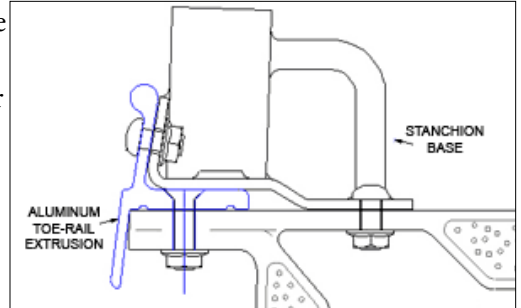
The extent of the damage - shattered fiberglass on the hollow starboard keel

While the fixed keel is an integral part of the hull construction, a barrier between the hull and the hollow keel prevents any structural damage to the hull upon impact. If *Barefeet* had continued to bounce off the seabed, the most likely scenario would have been that the skeg would have taken the impact leaving the rudder undamaged. And when your cruising in the open ocean, an emergency tiller is useless if you don't have a rudder.

Hull 4201 - the first Antares 42 sitting on the fixed keels and skegged rudder.

5. Rub Rails & Toe Rails

On the Antares catamaran, the widest part of the hull is intentionally at the sheer line. We wanted the external flange hull/deck joint to be the farthest projection on the boat. In the event that you are moored next to a pillar or pier and the fenders move (and you know they will), the strong hull/deck joint construction would be the first thing impacted. That in combination with the rub rail situated on the stiffening ridge on the hull, are your first line of defence against concrete fuel docks and pillars.



As an experienced builder of cruising catamarans, we are always astonished to see boats built with no defense against their hulls and the real world.

The hull/deck joint is your first line of defence against concrete fuel docks and pillars.



The toe rail & rub rail on the Antares extend further out from the hull and protect your hull from impact against a concrete dock or pillar



The competition: this is what stands between you and the concrete fuel wall - **nothing**



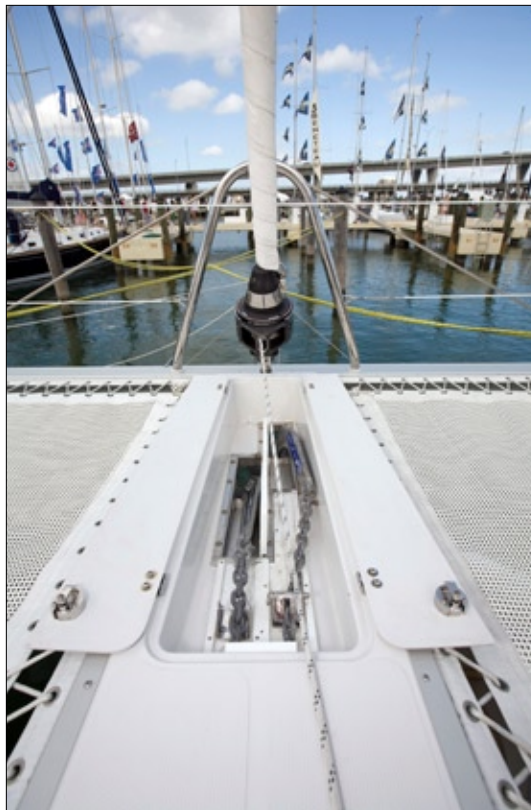
6. Battery Bank

Any long distance offshore cruiser recognizes the importance of a substantial house battery bank. As a builder experienced in building boats for liveaboard cruisers, the capacity of the battery bank is a critical issue. Antares Yachts provides a standard 780 amp hours, which is considered essential to cruisers on extended journeys. Our competitor's standard capacity averages about 350 amp hours or less.

7. Anchors

A serious cruising yacht needs to be equipped with more than a single anchor. It is important that provisions for a second anchor be built into the design from day one. There needs to be a second anchor roller, a compartment for the chain and rode and access to a common windlass.

Unlike the Antares that makes provision for a second anchor, other catamaran builders do not. It could cost you a significant amount of time and money to equip your catamaran with a second anchor after the fact, and the installation may be less than ideal.



Not all catamarans are created equal:

The definition of an *owner's version* catamaran isn't just about less beds and heads. Some catamaran builders make an owner's version by simply eliminating heads or reconfiguring cabins with no improvement to construction quality. At Antares Yachts we believe that if you buy a catamaran for personal extensive cruising and do not intend to place it into a charter program, you're concerned about the quality of construction.

After asking these seven questions, it becomes clear that a catamaran's design and construction methods are the first clear indication of the manufacturer's intention.



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