

# ACQUIRING A YACHT

You've just been through 1,000-plus pages and many thousands of photos and drawings discussing the issues involved in going cruising. Obviously finding the right combination of design, construction, equipment, and budget for your intended cruising plans is one of the more complex equations which you'll have to solve in this life.

When the time comes to put this data to work, sometimes the task can seem overwhelming. There are so many trade-offs involved even where budget is not an issue.

But where financial constraints are present, the decision on what to go for can be even more complex.

In the section that follows we've divided the data into five categories: used vessels, new production boats, semi-custom projects, full-custom builds, and do-it-yourself projects. We'll try to give you a logical approach to dealing with the issues in each of these scenarios.

## BUDGET

When the time comes to quit dreaming and take action, the first question is going to be the right vessel. This is very much a process of elimination, with budget being the first and (usually) biggest hurdle.

Throughout this book Linda and I have stressed the concept of comfortable cruising, which starts with being *mentally comfortable* with your budget situation. If you have too much money tied up in your floating home, or have the bank as a partner, cruising is going to be a lot less fun. It is always better to go with a less expensive vehicle — one that you can afford with ease.

There are several basic rules we've learned over the years that assist you in treating a boat as an *investment*. First, always look for value as opposed to flash. Fancy brand names won't get you off a reef, or keep you comfortable in a real blow, or reduce your maintenance headaches. I'm somewhat suspicious of builders who find it necessary to incessantly promote their products. Someone has to pay for those costs. Word of mouth is a much more efficient means of advertisement.

Second, as someone who has worked on dozens of large yacht projects, many with multi-million dollar budgets, I can tell you unequivocally that the best projects, be they small or large, are always the ones done on the tightest budgets. When the budget is tight, the owner tends to concentrate on the essential needs, leaving the frills off, or at least for later.

## Wait to Spend!

Which brings us to a final budget point. Regardless of your budget situation, or whether your building a new boat or buying used, *it is always best to spend some cruising time aboard before making changes or adding other than essential gear.*

I guarantee you that whatever you think is a worthwhile investment today, you'll have different priorities after a couple of months of cruising.

Toss in the fact that new gear is always coming into the marketplace, and it quickly begins to make sense to wait as long as possible before investing in other than the basics.

In many cases the best program is to get a very basic, simple boat now. Use it until you are ready for some serious full-time cruising, and a few months before you are ready to depart get started on adding to your equipment list (leaving adequate time for a shakedown, of course).

## USED

While we've made part of our living selling new boats for the past two decades, I will tell you that a good used boat is almost always a better *investment* than a new boat. Today, at the end of the 1990s, you can buy a well-equipped 50-foot (15.4m) yacht from the late '60s or early '70s for a third to a half of what a used 40-foot (12.3m) boat from the '90s costs. Assuming the boat is structurally sound (and the odds are the older boat will be better built than the modern vessel), the older boat is going to be faster, safer, more comfortable, and probably more fun than the newer, more expensive yacht.

Going against the current fads also makes sense. One type of boat may be hot where another with nice lines and sturdy construction isn't in vogue. Guess which is going to be the better buy?

## Cosmetics

Don't let cosmetics turn you off. The best way to buy a used boat is to find a sound hull, good layout, with trashed interior and exterior. Paint, cushions, and elbow grease can turn a boat that looks like a dog into a beauty, saving thousands of dollars in the process. Sometimes it will be better to do the minimum necessary to get yourself seaworthy, then go cruising for a while, ending up in a less expensive country in which to complete your rehabilitation project.

## Size versus Equipment

At some point you'll have to make a decision on boat size versus gear. You can frequently buy a substantially larger boat if it's kept simple. A *loaded* 40-footer (12.3m) will frequently cost more than a simple 50-footer (15.4m). The larger boat is going to be very much more comfortable. When there are budget constraints, and there almost always are, go for the simple bigger boat. Finally, timing can be critical. Lots of people buy boats and let them sit at the dock. They get into a cash bind. Maybe the boat market is slow. Being there at the right moment, cash in hand, can be a big help for both you and the selling party.

## Your Boat as an Investment

Most folks think that owning a boat is a good way to waste money, and for many that is correct. But it doesn't have to work that way. If you buy right and are judicious with what you do and how you do it after purchase, it's frequently possible to at least break even and sometimes make money on your floating *investment*.

One of the major areas where people go wrong with buying a used cruising yacht is in analyzing the cost of outfitting. Even if you've bought your boat efficiently (i.e., gotten a good deal), it could easily double your investment to get her ready for offshore cruising. The list goes on and on, and even eliminating the major items you are still left with a bunch of smaller bits and pieces. The costs eventually add up to a substantial, even staggering sum.

When you are evaluating various used boats the best approach is to work up a spreadsheet with a detailed list of all the gear you think you'll want to have aboard. Then, using a West Marine or similar catalog, price every item, right down to shackles, pieces of hose, etc.

Check each prospect against your spreadsheet. You may be surprised to find that the ultimate good deal is priced a little more fully than some other boats but has such a load of gear aboard that it is really a better bargain.

## Ex-Racing Yachts

Retired racers frequently make excellent cruisers at a very moderate cost. There are several key issues, however which have to be addressed for this to be true.

First is structure. You will want to be sure that the boat is heavily built. The flyweight IOR and IMS flat-out racers are so lightly built that you simply cannot make any sort of a mistake with them. And when you are cruising you are going to make mistakes.

Next, the rig has to be manageable shorthanded. This is not so much a size issue as it is an engineering concern. If the rig is dependent on correct usage of the running backstays and checkstays, then you will need to modify the rig or put a new one in the boat. This is usually a very costly operation. One exception is where it may be possible to take in-line spreaders, sweep them aft 10 or 12 degrees, and thereby gain enough extra column support so that the runners are no longer critical. This will involve making new spreaders, or at least modifying those on the existing rig, and moving the chainplates. The latter may be a large project. But sometimes it can be easily accomplished.

The final issue is the keel and its attachment. Draft is going to be deeper than you might otherwise want. Within reason this can be lived with. However, you need to be sure that the keel is attached well enough so that you will not have problems when you run aground now and then.

Older racing yachts, designs that did early Whitbread races, those built in aluminum, and CCA racers from the '60s and '70s usually make the best candidates.

If the interior is full of pipe berths, with only modest ambiance, fear not. At the right price this lack of amenities rapidly falls into the background, when you are anchored in a lovely tropical lagoon. After you've cruised for a while you can always add a bit interior if the fancy strikes you.

## Evaluating Sail Inventories

When you look at the sail inventory that comes with your boat, keep in mind that sails can be easily re-cut to be used for other purposes. If you have a couple of mainsails, it may be possible to take one and turn it into a trysail. Perhaps you have a large, light genoa with too much overlap for cruising. By changing the luff you can reduce the LP and raise the clew, turning it into a good reaching sail. Many times lightweight racing sails, which are past their prime in terms of performance, make excellent light-air sails for cruising.

The key issue with all sails is the condition of the fabric. If the fabric has not been sun-damaged, you can always re-stitch and/or re-cut to get the strength and shape back, saving a pile of money in the process.



*Intermezzo* anchored in the lagoon at Cocos Keeling in the middle of the Indian Ocean. *Intermezzo* had the long, graceful overhangs of the CCA rule era. This is a lovely boat to look at but compared to a non-rule boat she was slow, wet, tender, and a lot of work to keep moving. Still, the price was right when we were looking, and she got us safely around the world.

## **INTERMEZZO**

*Intermezzo* is an excellent example of the used-boat philosophy. When we first made plans to go cruising I had several criteria for a yacht. First was a budget, including an equipment list of what I considered minimum gear for our purposes. Second, I wanted a stock boat that would have a ready resale market should we change our plans. Third, I wanted the largest yacht we could afford and handle. Beyond these basic parameters and that of a “modern” design, we had no prejudices.

In 1975 there weren't nearly as many choices available on the market as today. Economics and practical experience forced us toward ex-racing yachts with good inventories. The IOR racing rule was just really coming into its own and the late designs of the Cruising Club of America rule were selling at a big discount.

I'd been scanning the magazines, calling brokers, and visiting marinas for some months when I returned home from a New York business trip in May 1975. A new issue of one of the yachting magazines had come in my absence, and I eagerly turned to the brokerage pages. My business had finished early on the East Coast, and it was midday in Los Angeles as I scanned the ads looking

for our new yacht. Something caught my eye, and I called a Newport Beach brokerage firm. No, that vessel wasn't what we wanted, but the broker had another....

It had been a long week and I didn't really want to go into the office. Linda and I had a quick bite, jumped in the car, and as an excuse to get away for a drive, went to Newport to see another "deal."

*Intermezzo* lay at the dock behind her owner's home. Her brightwork gleamed, stainless and chrome were polished, and she looked huge. She was heavier than we had wanted, with a displacement of 35,000 pounds (15,870 kg), and she had the long overhangs common to most of the light-weather racing designs of the CCA era. Her accommodations were laid out strictly for racing, with seven bunks and two heads all in the center of the boat, the fine ends not being good for anything but appearance. Her equipment list, including 24 bags of sails, was extensive — and the price was very right.

We made an offer, subject to the owner's permission to inspect the vessel ourselves over a two-week period, prior to survey.

I went down with a sailing friend, Rob Sjoestedt, and literally took her apart. We checked the entire hull-to-deck bond, all wiring and plumbing, every inch of bulkhead bonding, through-hull fittings, chainplates, rigging, mast tangs, the works. I had never seen such a well-built "production" boat in my life.

A sailmaking friend, Swede Johnson of Baxter and Cicero, told me she'd been built on a special basis for a well-known racer during the last of the "factory-team era" in the late 1960s. That accounted for the structure. But I could hardly believe she had ever been really pushed. Swede, having done some miles on her himself, assured me she'd been sailed hard, even though she didn't show it. All the more to her credit.

We had a formal survey done, which she passed with flying colors, and it was time to go to the bank.

## First Sail

Linda, the children, and I handed over our check to the brokers, and we were off for Catalina.

What a thrill it was to sail down Newport Harbor for the first time at the helm of *Intermezzo*. I'd covered the same water hundreds or maybe thousands of times in dinghies and racing boats, but there was a difference from the deck of a 50-foot (15.4m), soon-to-be-cruising yacht.

I reviewed her characteristics as we moved along. She was 50 feet (15.4m) on deck (57 feet/17.5m overall counting the boomkin and bowsprit) with an "extreme" yawl rig to take advantage of the free sail area under the CCA rule in the mizzen staysail. Built originally by Columbia Yachts to a Bill Tripp design, she had the typical CCA look of her day. There was no denying she was fast in her conditions — light airs. An impressive string of victories against top Southern California competition attested to that. She was narrow by today's standards at 12 feet (3.7m), and had a waterline of 36 feet (11.1m) when loaded for cruising. There were 15,000 pounds (4,615 kg) of lead ballast encapsulated in her solid-fiberglass keel. The deck was balsa-cored forward, with two layers of 1-inch (25mm) plywood sandwiched between three laminates of fiberglass aft to take winch loads.

Underwater she had what was then called a fin keel, with a detached spade rudder, heavily supported. Designed for racing in light airs, she sported a very tall rig and, by the standards of her day, a minimum wetted-surface hull design.

These last two attributes were very beneficial in most of our cruising, since we encountered winds in the 8-to-12-knot range more than anything else.

The trade-off for the speed in the light airs and low wetted surface was lack of interior volume. While she had a moderate displacement (heavy by today's standards), the hull volume was deep and in the center of the boat. Her ends were fine, without much room or living or storage. She had the power and comfort at sea of a 50-footer (15.4m), but the accommodation volume of a modern 40-footer (12.3m). Considering our intended usage and budget, it was an excellent compromise.

## The Rig

Her rig could best be described as a double-headsail sloop with a mizzen stuck onto the back end. The mizzen looked very pretty, and it was an excellent place for the radar she carried, but it had running backstays and the 7-foot (2.15m) boom extended past the stern almost 4 feet (1.2m).



The galley aboard *Intermezzo* was quite compact, but this didn't seem to slow the cooks down a bit. The sink is to the left in the photo, on the aft side, just off the centerline. Thanks to the height above the waterline and closeness to the center of the boat when heeled, flooding on starboard tack was never a problem. There is storage under the deck, outboard of the counters. The stove, while mounted outside, was at least installed so that you could lean against the aft drawers when heeled to port. The fridge box is to the right. We installed a small separate freezer in New Zealand.

There were a couple of nice features to this galley. One was the raised sole, under which resided a large fuel tank. This enabled us to see out of the doghouse windows. The other were two large opening ports at the front end of the dog house which allowed a lovely breeze to flow through.



Here's a photo of the nav area.. From this angle you can get a feel for the work area. The highly slanted desk was a pain to work at. If you were trying to do a sight reduction, the tables had to be held in place and then moved for the next bit of data. The seat was quite compact and, with a pillow behind your back, reasonably comfortable when heeled to starboard. You could brace your feet against the galley fridge box when heeled to port.

Notice how the drawers and doors in both photos have hooks to keep them shut at sea.

Swede Johnson, who had helped design the rig, counseled getting rid of it. As it turned out, he was absolutely right for cruising, but she looked so nice with it back there, and after all, it might come in handy someday. So we left it in.

Once out of Newport Harbor we set course for Long Point on Catalina Island and sat back to see how the Benmar autopilot would behave. With a light seabreeze blowing we were ambitiously carrying our heavy no. 1 genoa, big staysail, full main, and mizzen. As the breeze built with the afternoon heat we pulled down the mizzen, then staysail, and finally took a reef in the main. Soon we were furling sails in the lee of Long Point after averaging almost eight knots on the wind. I was impressed.

### Sail Inventory

With only three months to go until our projected departure date, we listed what we would have to do to prepare the boat for shorthanded sailing. First, I would have to make some choices in sail inventory. It simply wasn't possible to carry her full 24-bag wardrobe with us all the time. There would be no room left for the peanut butter we knew we'd have to have aboard.

We eventually set-

bled on taking a light no. 1 genoa (3.5-ounce high cut) and its matching 2.2-ounce staysail. The heavy no. 1 was cut down to make a 6.5-ounce working jib of short overlap, good for sailing in and out of tight spots if we had engine trouble, and well proportioned for poling out when running. The 3/4-ounce drifter and its wire luff stayed aboard and saw many thousands of miles of action both running and reaching. This would frequently be carried to leeward of the main, freed off at the head in blooper fashion. The 8.5-ounce no. 2 heavy genoa stayed with us as a primarily upwind sail. At 540 square feet (51 square meters) we could stow it without too much difficulty, and it also served well in a breeze downwind or reaching with the big staysail set underneath. There was a heavy no. 3 jib, and we made a survival jib of 50 square feet (5 square meters). For the forestay we made a 10-ounce storm sail that would balance nicely against a double-reefed main or the mizzen.

There were two racing mains to select from. We chose the “heavy” main, cut for San Francisco Bay racing. I reasoned it would be used mainly upwind, and here its flatness would be a help. I didn’t expect to use it much off the wind. That was a big mistake, as we soon found that rather than twin jibs we carried a light no. 1 on the pole and the main, with occasionally the drifter to leeward. Many were the times I rued selling our light-air main.

There were two mizzen staysails and a mizzen spinnaker. We took them all but used primarily the 3/4-ounce mizzen staysail.

*Intermezzo* had come to us with five spinnakers, and I had initially decided to sell them. During a club race, however, Linda, the children, and I had no trouble flying the spinnaker, so we decided to take one along. We chose a 1.5-ounce crosscut for strength and ease of flying, and we were glad to have it.

We found that the mizzen was rarely used, and then usually only in the lightest of wind ranges. If the mizzen staysail was set and we forgot to rig one of the running backstays, the mast could come down. After almost making this mistake, we cut the mizzen boom down so a standing backstay could be used, consigning the mizzen to service as a steadying sail at anchor. To ease the chattering when swinging in a breeze, we had the sail fully battened, which did an excellent job of quieting it down.

During the balance of our long weekend at Catalina we decided on several major pieces of gear to purchase: a windvane to back up our autopilot, an Omega set to help us with sightless days in the Pacific, and roller-furling gear for the forward triangle.

We initially chose an RVG vane. This unit, with its permanent in-the-water installation, skeg, and trim tab–operated rudder, looked good, but couldn’t really handle *Intermezzo* at speed. We exchanged it for a servo-pendulum–style Aries in French Polynesia, which did an excellent job as long as there was some breeze. A Roach Omega that was simple to operate was picked up and, considering where we were going without insurance, inexpensive. At the time we felt the \$1,600 price tag a good investment, but today, of course, we could buy ten GPS’s for the same money. For roller-furling gear we went to the Mariner company and got one of their hank-on furling systems. We put this gear on both the headstay and forestay and were pleased with the help it gave us in handling our big sails.

## Getting Ready to Cruise

Back again in Los Angeles after our first weekend out, we went through *Intermezzo*, clipboard in hand, making a list of what gear should be replaced. The batteries were getting toward the end of their life-span, so they were exchanged for another bank of two D-8s. Heat exchangers on the 50-horsepower Isuzu diesel were changed to cupro nickel; a second alternator was added, as was a second set of oil and temperature gauges that could be seen from the navigation area. We installed a halon manual fire-extinguishing system in the engine compartment under the main cabin sole, an extra electric bilge pump, and a 60-gallon-per-minute (235 liter) Jabsco pump for damage control on the front of the engine. We added a wire jackstay that ran on the deck from one side of the cockpit around the forestay and back to the other side of the cockpit, a collision patch (made from two layers of neoprene-impregnated nylon with flexible closed-cell foam sandwiched in between), soft wood plugs for all the through-hull fittings, and a permanent radar reflector.

It soon became apparent that I wouldn’t be able to disentangle myself from business commitments as readily as I’d hoped, and with the weather patterns being what they were, we were com-



*Intermezzo* came to us with two pilots berths per side in the main saloon (a typical CCA racing layout of that era). With two little girls and two adults, we had more berths than required.

The bunks were cozy, with plywood leeboards to keep you in place. In the event of a severe knockdown you'd probably stay in the bunk rather than being flung across the cabin. But sleeping that high above the pitch center exacerbated motion and the bunks lacked good ventilation (except from small fans we installed.)



The boat originally had the main saloon table mounted on two pipes which ran from the sole to the deck with the center of the table right in the middle of the saloon. You would lift up a leaf (or two) and seat yourself on the port and starboard settees to eat. The visual impact was negative in the extreme.

We took out the posts, took out the two pilot berths, and pushed the settee well outboard. What had been the bottom of the pilot berth became the lower bookshelf you see in this photo. To the right, not shown here, where your feet would have gone, was a small open locker into which our radio gear was installed.

We took the original table and cut it down and then rotated it 90 degrees as you see here. The impact was startling. The boat looked at least twice as big as before the makeover. We did lose two pilot berths, but we still had more bunks than we could use even with guests aboard.

mitted to another year of preparation.

During this period we decided to modify *Intermezzo's* interior to make her more suitable for cruising shorthanded.

Working within the guidelines of what had already been built on the production line, and keeping all the basic structural elements intact, we were able to make substantial changes for minimum cost. Forward, where there had been two fore-and-aft single bunks that covered sail-stowage bins, we were able to build a large, full-size double bunk athwartships. There were two heads amidships, which we felt to be an extravagant use of space, so in the starboard one we left the basin intact but removed the toilet and added six extremely deep shelves to form our "pantry." It was valuable, easy-access storage, built in such a way that the shelves could be removed and the space converted back to a toilet.

The main saloon was more of a challenge. She had a traditional ocean-racing layout of two pilot berths to a side with a settee below (also used as a bunk) and a double wing table in the middle. The table was supported by 2-inch (50mm) vertical aluminum pipes. Given her 12-foot (3.7m) beam, it was a tight area, and anyone subject to claustrophobia would have

been in trouble in spite of the light-painted paneling and teak trim.

Our solution was to remove the forward port pilot berth, pull out the support poles, and cut down the table. The port fore-and-aft settee then had an athwartships running seat added to it along the forward bulkhead to form an L-shaped seat, and the table was placed on a single pedestal off center. This made a tremendous difference in the floor space available and opened up the saloon visually to what seemed like double the previous space. It had the added advantage of making access to the "engine room," located under the saloon floorboards, a lot easier.

In the galley we built several lockers into the foot area of the after port pilot berth, and a lift-up shelf alongside the companionway.

The navigation station to starboard, opposite the galley, with its quarter-berth under the cockpit, was left as it was.

The modifications were accomplished for 200 commercial man hours and a modest amount of material. Linda and I did the required paint and varnish work to match up the new materials.

On deck we found the basic racing-cockpit layout excellent. There were Barient 32s for primary winches, 28s for secondaries, and 16s for use on the vang and/or the mainmast running



We started out with a conventional cockpit. It was large, held several tons of water when filled, and opened up to a very exposed companionway of significant size. The vulnerability of this layout bothered me.

In New Zealand we decided to do something about it. The original cockpit was covered over from coaming to coaming, creating a bridgedeck and double cabin below.

To make a sailing cockpit we cut out the small afterdeck and extended what had been a separated steering area aft.

When we undertook this very large project, one driving force was the desire to give the kids a place of their own.

We found enough space under the coamings for a full-sized double bunk, with your body running athwartship. At the head of the bunk was a small seat, and outboard of this a series of drawers. There is also a small bookshelf (very handy for dolls and toys) on the aft bulkhead.





We improved our resistance to heavy weather and gained inside space. However, there were some major negatives. I could figure no way to work in a dodger for the cockpit due to the mizzen boom. Worse, we had to traverse this open bridge deck when going aft to adjust the windvane or read the taffrail log.

While we did enjoy the benefits, and it probably helped our resale value, I would not have done this a second time around. Part of that decision is due to the time we lost cruising while this work was underway.

could use a mixer or blender in the galley and run a powerful 110-volt-AC vacuum cleaner. It would also handle my power tools, albeit with some difficulty.

### **New Zealand Changes**

Throughout the initial stages of the trip we were pleased with our improvements. But a period of idleness in New Zealand got us to thinking about some additional changes, and we ended up doing a major renovation of the interior.

In the main saloon we removed the port side aft pilot berth altogether, as well as the old bench seat. Along the hull we built in a 14-foot (4.3m) double bookshelf. Where the forward end of the bunks had been, outboard of the port head, we put our radio gear, where it would be dry in any conditions imaginable. A new settee was built alongside the hull, which gave us a lot more room at the table and opened up the saloon visually. In the galley we tore down the fridge, reinsulated it, and completely redid the compressor, holding plates, and related hardware, adding a small freezer in the process. The freezer proved to be a valuable asset, and we were sorry we hadn't made it larger than its 2 cubic feet/57 liters (which held 100 pounds/45kg of carefully packed meat).

backstays. The halyard winches for headsails and mainsail (no. 22 Barients) were on the mast, except for the main halyard winch, which was a reel-winch design with which I would never ship again.

The Barients chain drive on the mast made setting pole height very simple.

We consulted Swede Johnson about a storm trysail and decided that instead we would put a third reef in the main and heavily reinforce the head. The third reef had a permanent pendant rove when at sea, but fortunately we seldom saw conditions that forced us to use the reef.

We acquired a 14-foot (4.3m) "pulling boat" in fiberglass, an 8-foot (2.4m) inflatable (later sold), and enlarged our propane-gas capacity to 10 gallons (38 liters), stored on deck. We added a McCulloch brushless alternator driven by a 4-horsepower Briggs and Stratton single-cylinder gas engine for backup. We stowed it below, after carefully cleaning out its self-contained fuel tank.

The interior cushions were all recovered with a combination of grained vinyl on one side and an industrial-quality synthetic fabric on the other. At sea we left the vinyl side up and saved the less practical but more luxurious fabric side for port.

A minor addition that was to have a major impact on our comfort and convenience was a Tripp 500-watt, 12-to-110-volt inverter. With this, Linda

We made major changes to the after end of *Intermezzo*. I'd been seeing all the space in our huge cockpit and lazaret as a liability in the Indian Ocean. We'd also found that in extreme heavy going, it was difficult to keep the large companionway hatch watertight.

So we embarked on an ambitious project to create an aft stateroom from the old cockpit, making a new cockpit farther aft where the mizzen mast and lazaret had been. This seemingly impossible task was accomplished with relative ease by using the existing cockpit coamings as cabin sides. Over this was built a multilaminate plywood and teak roof. The old cockpit sole, back as far as the cockpit divider, became an athwartships double bunk and the children's stateroom. The companionway hatch stayed the same, but the bottom three feet of it was permanently blocked off to give us a much more secure interior.

The mizzen mast was moved forward from its extreme aft position to the end of the new "bridgedeck" over the now aft cabin, which put it just in front of the helm. *Intermezzo* was thus transformed to a ketch, and the resulting mizzen, now enlarged to 120 square feet (11.6 square meters) still fully battened, became a much more useful sail.

An all-teak cockpit was built into the old lazaret/helmsman area. The seats were 6 1/2 feet (2m) long, giving us more fore-and-aft seating than before, but a much narrower cockpit. We solved the problem of cockpit drains with two large pipes fiberglassed from the back of the well directly through the transom, above the waterline.

Aside from the additional interior space and drier hatch opening, we found two very interesting advantages. First, we had an excellent seat for keeping watch on top of the bridgedeck with our feet down the companionway. It was high enough to give us good visibility seated, and it was relatively dry and physically secure. Second, we found the bridgedeck area got a lot more use than the cockpit in nice weather.

The negatives came in sitting outside in foul weather. We no longer had the protection of the big dodger that had covered the companionway and forward end of the old cockpit. So nobody went on deck if it was wet unless they had to.

The aft cabin, fridge, and saloon projects were accomplished in 900 man hours, and Linda and I once again did the finish work.

With the Indian Ocean ahead and a lot of miles left to go, we replaced the lower standing rigging on the mainmast as well as some of the tangs. Other tangs had shown signs of elongation on the mast and to these we added welded bearing washers.

The last change we made was in the sailplan. An extra tang was added 8 feet (2.4m) above the old inner forestay position. A new forestay was made and longer pendants made up for the running backstays, which were also moved 8 feet (2.4m) up the mast. On this higher staysail stay we were able to set our no. 1 working jib. This enabled us to carry a light no. 3 on the headstay with the no. 3 as a staysail rolled up, and to change down in headsail size by using our roller furling gear. We also found that the no. 3 could be flown to leeward when the no. 1 was on the pole to weather broad-reaching or running. In Mauritius, preparing for the last heavy weather toward Africa, we put the old rig back, which provided better mast support and gave us back our permanently rigged storm staysail. We thus had the capability of picking the ideal rig for either the heavier winds of the high latitudes or the lighter trade-wind conditions.

These changes took us to the end of the trip. They made *Intermezzo* a much more livable yacht, easier to handle, and definitely safer. The cost was moderate for what it accomplished in relation to the investment we had in *Intermezzo*, and we ended up with a heavily built, well-tested vessel, outfitted much the same way as we would have done had we started from scratch with a new yacht. At the same time we were increasing resale value.

*Intermezzo* did have a couple of bad points. One was her draft. While it was never a major headache, as we have pointed out already we did have a couple of close calls that would have been avoided if she wasn't quite so deep. She was extremely quick on her passages, but she was also tender. This made it necessary for us to do quite a bit of sailhandling. Of course, I liked to push the boat, so the extra work was somewhat of my own doing. Finally, the long overhangs typical of the CCA era that look so graceful are the pits when beating into a head sea. She hobbyhorsed a lot. And while we could make reasonable progress upwind, the crew really paid a price.

If we had it to do again there's little we would change. *Intermezzo* is still out there cruising.

## NEW PRODUCTION

Buying a new production boat rarely makes sense. Why spend all that money when, if you find a boat that is a couple of years old, you can save a substantial percentage of the price, not to mention the headaches of commissioning?

There are only a couple of reasons I can think of that make sense. The first is if you are getting something you really want that is simply not available on any other basis. The second is if you've always wanted a new boat and this is a way of getting some pleasure from that hard-earned pile of freedom chips.

Whatever the reason, keep in mind that in most cases you are only starting with the initial contract price. The total cost of outfitting can easily add another 15 to 40 percent to the total cost.

To make a realistic assessment of total cost we suggest using the same method as with evaluating a used boat. Make a list of everything you can possibly think of, and then go down the list and price every item that is going to be required. Better to be realistic in front.

Any time you are buying new in the marine business you need to be concerned with the financial stability of the company building your boat. The norm is to ask for a substantial down-payment, and then progress payments leading up to the final payment on delivery. If the company with whom you are dealing goes broke, where does that leave you?

There are ways you can protect yourself discussed later on. For now, keep in mind that the marine business is a high-risk industry and the rate at which companies come and go is staggering. It is not unusual to find many well-known companies in a financial struggle, so take care.

### “Percentage Boats”

As we've mentioned before, most production boats are rarely used. When they are used it is usually for a weekend or two a year in some cruising local with moderate conditions. As the boats are not stressed by repeated usage or heavy weather, the builder looks at his experience base and finds no structural problems.

Competition being what it is, the typical builder then surmises he can shave a little here and a little there. Another few years go by and nothing bad happens. Phew, we got through that one okay.

Pretty soon some more material is cut out, and on and on. Then along comes a buyer who wants to head offshore.

He/she asks the salesman, is this boat okay to go across an ocean? “Just look at our ads,” comes the reply.

So these folks buy the boat, get caught in a gale and find that the deck and hull flexes, there are all sorts of leaks, and if you happen to hit a rock and bust out the bottom of the hull, well, that is severe abuse.

The warranty may even cover you. But that isn't much solace when you are stuck in the middle of a gale.

What you need to realize is the management in the marine industry thinks that competitive economics and market demographics force “successful” builders to build as light as possible so they can survive.

If you are using a boat for local cruising this is fine. There is probably no need to make the extra investment required for a boat built to offshore standards.

But if you are heading offshore, make sure that the scantlings being used by the builder are up to your requirements.

### A New Paradigm

Linda and I don't agree with the above approach. Not only does it result in poor boats, but it doesn't make good business sense to me.

Why would you buy a new boat when you can purchase almost the same thing used for much less money? It doesn't make sense. And the boat business, worldwide, has been struggling for years with this problem. There's not enough incentive to buy new, so most people dip into that huge pool of existing used boats.

But what if a manufacturer offered you watertight bulkheads for safety and to isolate the odors of stored gear? And then he added to this some extra reinforcing laminate around the keel, the bow area where impacts occur, and perhaps the turn of the bilge where you tend to lie when heeled over on the beach?

You are now looking at a boat that is significantly safer and stronger in all regards than what you can buy on the used-boat market. The additional cost? Probably less than 3 percent of the purchase price. Would you pay that extra 3 percent? You bet, and so would a lot of other folks. Here would be a reason then to buy new.

Lest you think this is idle talk, we took just such an approach when we did our Sundeer production series. In just over 20 months we sold 26 boats between 67 feet (17.5m) and 56 feet (20m). One of the main reasons I feel we did so well, in a downmarket no less, was the fact that we put our budget where it counted, into structure first. The sales record of the Sundeer Series speaks for itself.

## SEMI-CUSTOM

Semi-custom usually denotes a situation where an existing set of molds is available. The basic design and tooling costs have been already amortized or are spread over a series of boats so you save a few bucks on the front end. You start out with an existing, known hull shape. You can look at examples of the builders art, and decide what you want and don't want.

The build cycle is much quicker.

If you really like the hull shape and feel the builder can execute your desires efficiently, this approach can make financial sense, especially if you are staying with mostly standard elements and only customizing a few items.

However, if you are making your dream boat fit an existing hull for the sake of saving a few bucks on the tooling, you should be aware that in a full-custom project, especially with larger vessels, the cost of the design and basic hull structure is rarely more than 25 percent of the total cost. Even if you increase these costs by, say, 50 percent, you are only increasing the total cost of the project by 12.5 percent. Now this can add up to a bunch of money, but if you are spending a huge pile anyway and making some big compromises to fit an existing mold, it may be better off in the long run to go custom from the start.

## CUSTOM

Custom building is a lot like young love. When it goes well, it is pure bliss. When it doesn't — pure hell!

Having been involved in dozens of large custom projects all over the world I can tell you that it is possible to do it and have fun, but you have to be very, very careful. The norm is for the parties to end up highly frustrated with each other, the boat very late and way, way over budget.

What are the key ingredients to doing this right? The first is a good designer who knows where the costs are buried in a boat and how to design around them to achieve what he and you want, without major sacrifices. Small details that look insignificant can add enormously to the total cost.

The second ingredient is a builder who is familiar with the type of boat to be constructed, with some degree of management skills (sadly, this may be the hardest thing to find). Most important is a builder who has a reputation for honesty and integrity.

The third factor is an owner who knows what she/he wants, establishes the guidelines at the beginning, on paper, and then lets the design/build team get on with executing the dream.



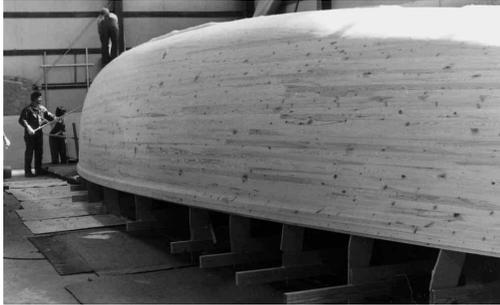
A builder used to doing one-off projects in fiberglass can quickly build a male plug, over which a fiberglass hull can be laminated. This typically adds less than 5 percent to the total cost of a custom job compared to using an existing tool.

This series of shots and those on the next page are at ScandiYachts in Finland. They were building several 62-foot (19m) yachts for us.



If the owner is constantly changing his mind, even on small things, the rhythm of the job is upset and costs begin to escalate. Changes are costly beyond belief.

Spelling out in writing the details of the boat and who is to do what is critical in order to establish for the builder what his task is, as well as to tie down the cost of the boat. In the succeeding sections we'll go into all of these issues in much more detail. Suffice it to say for now that building a custom yacht is one of the most complex endeavors you can conceive of. Having a carefully thought-out plan, with things spelled out in writing, is an absolute must.



The plug skeleton is planked in timber of light-ply veneers, then faired, painted, and coated with mold release. The laminating crew then goes to work laying up the hull over the male mold. The break-even point, where it pays to go to a proper production tool is usually around four to six hulls. Working over a male plug leaves a very smooth, fair interior. However, the exterior requires a lot more work than a part that comes out of a female production mold where the exterior is ready to go.

## WHERE THE MONEY GOES

Before going farther, let's analyze the cost make-up of different types of yachts.

### High-Volume Production Builders

Take a typical production builder. Keeping in mind that most builders do not make money (in fact most probably lose money!), the allocation of cost might go as follows:

Bill of materials — 20%

Direct labor and shop overhead — 20%

Overhead, marketing, warranty, and "profit" — 40%

Dealer markup — 20% (includes freight, commissioning, customer discount, and some service work)

Remembering that the profit is rarely, if ever, present, it is interesting to note that only 20 percent of the total goes into materials and 20 percent into labor. The majority of the costs are associated with the marketing, selling, and management of the business.

### Design Costs

Design costs can vary a lot. It is a question of how much work you want the designer to do and how much is to be left to the yard's discretion. Often, a yard will give you a design/build contract, where the yard controls the design process. If you trust the yard, this is often the most efficient way to go.

When you hire your own designer in advance, and then have the project bid out, the design package can run anywhere from a low of a couple of percent of the total cost to as high as 20 percent. The higher figures normally involve project-management functions where the designer is your representative on the job.

### Nonproduction Projects

With small builders these costs will break out differently. Labor costs tend to be much higher as they are building one or a few at a time. For the smaller builder to succeed he has to have minimal overhead.

The model that works the best for us is to have a couple of good buddies run the show. Both spend most of their time in the shop, with one of the two handling the bookkeeping chores when he/she has to.

The shop is usually simple and inexpensive and rarely heated. The owner's cars are old, the machinery probably bought at auction. In this type of situation you know the money that is spent mostly goes into the boat. It better, because with a small operator building one or two boats at a time, the man hours will easily be *four to six times* what an efficient production builder puts into a boat.

For a full custom design we've found it is usually best to have one small outfit that fits the above model do the hull, and another, along the same lines, do the fit out. Of course, this requires much more involvement on the part of the owner.

On the other hand, if you want the entire project in one set of hands, you begin to have to look at larger yards. Larger yards mean more overhead. This translates into higher labor rates and usually less productivity per man hour.

Take a large custom-yacht project. A big, fully integrated yard might take 50,000 man hours (say, for an 80-foot/24.6m vessel) to complete a given project. The labor rate might be US\$40 per hour today, if you were building in the U.S. A smaller outfit might do the same project for \$35 per hour, but take 65,000 hours. Or, they might charge less per hour and take 40,000 hours.

Productivity varies so much from yard to yard that it is hard to know in advance, unless you've gone through the cycle before.

With most semi-custom and custom projects done in small yards, the total costs typically break down about as follows:

Bill of materials — 35%

Labor — 50%

Overhead and "profit" — 15%

To this you would add your design fee if this were a custom project, sails, and personal gear (dinghies, safety, foul-weather gear, etc).

## Hull and Deck Costs

If you look at the hull and deck only (before tanks, structure associated with the rig, fins, or deck houses) you will find that it represents less than 20 percent of the total contract and probably less than 16 percent of the finished boat on most custom and semi-custom builds.

The obvious conclusion is that if one is careful with the design, the hull can be lengthened, significantly adding to potential boat speed, comfort, and living room, without a significant increase in overall cost. However, for this to be true the design has to be carefully worked out so that cost centers, other than the hull and deck, do not rapidly escalate.

## Displacement

With typical production boats, costs are very much a question of displacement. The heavier the boat, the more it costs. This assumes that the extra displacement is in structure to support the increased displacement and larger gear.

Just the opposite is the case when you try and build light and strong. In this situation light is likely to be way more costly than heavy.

Since we like very strong boats but dislike unnecessary weight, we usually set a budget per pound that we're willing to tolerate to save weight in the boat.

Sometimes it is less costly to build lighter. Take the propulsion system, for example. For a given engine and drive system and a certain size of hull, the horsepower required is a function of displacement. If you can lighten the boat up a bit you may be able to get the same cruising speed with a smaller engine, smaller prop, and less fuel (or leave the fuel tanks the same size for better range).

## Stability

Another major contributor to cost is stability. The higher the stability, the bigger the rig components, sails have to be made from heavier fabrics, and deck hardware all must go up in size.

Since the bulk of hardware is produced for small-to-medium-sized boats, once you get out of this size range the costs can escalate geometrically.

Take a turnbuckle as an example. A turnbuckle that is adequate for 7/16-inch (11mm) wire might cost US\$50. However, a turnbuckle for 1/2-inch (12.6mm) might be two and half times this cost. The same is true of everything else in this size range.

If you are keeping an eye on budget, one of the most efficient ways to do that is to watch your stability levels. At the same time, one of the ways to get the most boat for the money is design so that you are in the upper end of the range that given hardware specification will handle structurally.

## Bill of Materials

In small-to-medium-sized yachts the basics in the bill of materials (excluding rig and hull structure) are pretty much the same. Most yachts have a water heater, freshwater pump, bilgepumps, galley sinks, fuel and water tanks, and basic electrical panel. This is true regardless of the size (within reason).

As a result you get better value when you put this basic bill of material to work in a larger vessel. On the other hand, if you take the larger hull and fill it with more “things,” then the cost will go up in scale with the hull.

## Labor Content

On production yachts, labor content is very much a function of boat size and weight. However, in custom work, labor content is much more a function of how many joints there are in the joiner-work, how efficient the space is to work in for the crew building the boat, and how much gear is installed.

None of these issues are related so much to size as they are to working space and efficient layout. It is frequently possible to save labor hours on a custom yacht by giving the various trades more space in which to do their jobs. This only applies when the temptation to fill the space with additional cabins or pieces of gear is resisted.

Let’s take the engine room as an example. A large engine room, one that is easy for the plumber, mechanic, and electrician to work in, is much more efficient to build than one that is extremely tight.

If you have a 50-foot (15.4m) yacht with very tight engine room, you will find it less expensive to build the boat if you add 6 feet (1.8m) to the length, devoting all of the new space to the engine and machinery. The cost of the extra hull material, and the labor to construct it, is nothing compared to the wasted man hours spent on an engine space that is too tight.

You get a boat that is longer, faster, more comfortable, and less costly, plus an engine room that is much easier to work in. The only caveat is with stability. If the lengthened hull throws you into a higher stability plateau and requires the next size up in rig, rigging, and deck hardware, you will lose on the financial end. So it may be necessary to reduce hull-form “inertia” to keep stability in the same range as with the shorter hull.

This game of working area versus hull length is complex. But when played correctly, it yields much more boat for the money.

## Finish

Finish is one of the most difficult areas to define. What is a yacht-quality finish? How many flaws are tolerable? Just how high does the gloss have to be?

On the budget front, costs escalate exponentially with quality. A lovely looking mat-varnish finish (which hides a lot of woodwork and varnish flaws) can be done for a third the cost of a high gloss, done to perfection.

Is it worth spending three times as much money on paint and varnish? Will anyone else, besides a professional, be able to tell?

In the absence of a specific reference the best way to approach this is to find a completed yacht, the finish of which you admire, and say “Here is what I want, and what will this cost?”

And then ask what a better or slightly lower quality finish will run.

On our custom yachts it is not unusual to spend as much as 10 to 12 percent of the total labor budget on the interior varnish work, if a high-gloss LPU is being used.

## Complexity

Here is where we get into the area of experience and gut feel. In a simple yacht if you add a single accessory — say, a diesel heater — it is relatively easy to calculate the extra hours it takes to install the required gear.

However, as more and more gear gets added to the boat, it gets more and more difficult to fit in things. The plumbing and wiring runs begin to interfere with each other, and access is more difficult for the gear being added.

All of this interferes with the other trades trying to get their work completed.

At a certain, hard-to-define point the complexity factor starts to increase costs on a logarithmic basis. Where adding a given system on a simple boat, with lots of space, might add US\$500 to the bill, on a complex boat that same system might add US\$5,000!

Many builders do not recognize this. As a result, when the owner comes along and asks about adding this or that, they charge a price that is way too low. The boat slips behind its completion schedule, and the job begins to lose money. The builder can't figure out what went wrong.

While this is very hard to quantify specifically, I have seen it happen many, many times. I can't give you any specific guidelines besides this: Keep it as simple as possible. If you are going to add complexity, wait until you've used the boat a while and make sure that extra stuff is really necessary. If you can do without, you'll save a ton of money in front, and lots of maintenance hassles later on.

## Changes

A job that runs smoothly develops a rhythm all its own. The guys in the crew sense things moving quickly forward. They take pride in what they are accomplishing. If you stop this rhythm with changes, perhaps removing something that's already been installed which is not quite right, there is a huge, indirect cost that you cannot quantify but that is never the less very real.

Moral sags, the job drags on, and the true cost of that change in direction is many, many times what you imagined.

To avoid this problem we always work our design problems out on paper with our clients. If they are unsure of the paper concept, we'll arrange for timely mock-ups to be built. However, once the job is rolling, there is no turning back.

If you maintain a certain amount of discipline in this regard, you will end up with a much less expensive yacht.

## MAXIMIZING YOUR RETURN

While most people don't look at their yachts as an "investment," we do (and we encourage our owners to do so as well). If you treat it the same way you would any other investment, you'll end up with the boat costing less to own and get a much higher return when the time comes to sell it.

And while you do own the boat, there will be a lot less frustration associated with the "fun" of cruising!

The basics are really pretty simple. The first rule, which we've been stressing over and over, is keep the boat as simple as possible. Now simple is a relative term. But if you look at each dollar you spend on the boat the same way you would investing in a piece of office equipment or a real estate investment you'll do fine.

If something is going to be used frequently and it gives you pleasure on an ongoing basis, or performs some needed function on an ongoing basis it probably makes sense to have aboard. But if that same piece of gear is rarely used, why "invest" in it? It ties up capital, doesn't give you a good rate of return, takes up valuable space, and probably doesn't work as well as it should since it is used intermittently.

The second investment rule is to bid as large a hull as practical, within a given stability range (as previously discussed), and then put the minimum into it necessary to do the cruising job intended. With the hull costing such a small portion of the total budget, if you give everyone in the crew more room in which to work, they will get their job done quicker. This is true for all trades. Carpenters, engineers, and electricians all work faster when they aren't falling all over each other.

If you take a 50-foot (15.4m) interior and systems and drop them into a 65-foot (20m) hull, you will find that the labor actually goes down, just as long as you don't add any complexity. The only costs which do go up are those associated with finishing, as this is pretty much based on surface area.

Next, do everything possible to get the project finished quickly. The faster the job goes, the less it costs, and the sooner you get to use the boat. Have a tight schedule and stick to it.

Finally, avoid adding all sorts of electronics and other high-tech gear, at least until you've lived with the boat for a while. First, because whatever you buy today will be obsolete before the boat is launched. Second, because you rarely recoup 25 percent of what you invest in this sort of thing. The same applies to specialty toys like dinghies, outboards, etc. While some of this is a necessity, buying the best-quality but simplest gear usually makes sense. It lasts longer and you'll take less of a depreciation hit when the time comes to sell the boat.

## BUSINESS ISSUES

Most of the folks who acquire the resources to buy or build a large yacht do so with a lot of business savvy. Yet when the time comes to get into the nitty gritty details of the business arrangement, a common sentiment is “I do this all day long; I don’t want to bother with it while building my dream boat.”

This approach frequently leads to an unhappy and costly experience. It is much better to treat the boat like any business project. Do your “due diligence” in front, cross the T’s and dot the I’s.

## REAL-WORLD EXPERIENCE

It’s a term used loosely in the marine industry — experience. It has ramifications that go way beyond its mundane sound. Experience is what makes the difference between an exceptional yacht and an average vessel. It helps the designer make those thousands of decisions and trade-offs we have discussed. It makes it possible for the boat builders to find the best spot for your refrigerator compressor where it will stay dry, be easy to service, and be quiet.

Wherever you go in the marine industry, whomever you talk with time and again, you will be told how experienced someone is. Sadly, most of the people you will deal with will appear to be experienced, but in reality they may be just a step above you, and not the person of thousands upon thousands of sea miles you might hope.

The problem begins in the very structure of the marine business. Contrary to what a lot of people think, it’s a lousy way to make a living. As a result, most of the designers, builders, and tradespeople you will meet don’t have all that much time to gain the type of experience they need. They are restricted instead to feedback from their clients.

### Racing Experience

One exception is in racing. Designers usually try to get aboard their newest designs in the regattas. It gives them direct feedback, and it never hurts to be seen where the action is. This allows them the most up-to-date ideas on deck layouts and other go-fast ideas. But a racing boat is one of the easiest types of design commissions. The only question involved is the type of racing she is cut out for and whether there are to be any amenities. As a result, the trade-offs in design are more a question of numbers and ratios, and while the ultimate success or failure on the racecourse is the final judge of the design construction package, it is a much simpler commission to execute than a full-on cruising yacht.

### Cruising Experience

Experience in cruising can be divided into three categories:

First you have the racer with good concepts about going fast, sail handling, and rigs.

You have those who get away for the occasional weekend, perhaps a couple of weeks strung together once every other year, and maybe a transatlantic or transpacific voyage at one point in a lifetime.

The third type of experience comes from living on a day-to-day basis on a yacht.

The short duration type of sailing with a home ashore to come back to and a mechanic at the marina to fix the problems tends to make the owner overlook little inefficiencies in the yacht because they don’t seem important in a short term context. If the refrigeration system runs two hours a day, doesn’t everyone’s? You don’t get the time afloat to compare all the thousands of details that make up a successful yacht.

When I decided to go ocean cruising in a serious manner, most people would have said I had a tremendous amount of sea time. I had been cruising all my life (34 years at that point), had been on all sorts of vessels, from beautiful Alden schooners to some of the fastest sailing yachts in the world. My total sea mileage was somewhere in the 90-to-100,000-mile range, and included a bunch of heavy-weather bluewater stuff that makes good stories at the yacht-club bar. There were several dozen week or two long cruises hither and yon as well. I had operated a small boatyard, built boats, even designed several. When we bought our first serious bluewater yacht to be used for an extended cruise in 1976, I felt reasonably qualified to make the judgments necessary to make her into the vessel of our dreams.

In addition I was a good interrogator. And putting this facility to work I talked with people up and down the West Coast that had “been there” in cruising parlance. I gathered data on all manner of subjects, and with this information coupled with my previous experience, I proceeded to make changes and outfit *Intermezzo* for our South Pacific voyage.

What I didn't realize at the time was that while I was well qualified to make decisions on a "vacation" boat, I didn't have the background to go out and start putting together our dream off-shore cruiser — a vessel that would be our home, as it turned out, for the next three-and-a-half years.

As our own experience broadened with full-time cruising, I began to learn that a lot of input I had picked up from my interrogations along the dockways had been faulty. Not that people gave me deliberately bad data. It was just that their own fund of knowledge, against which to base their valuations, was limited. Therefore the feedback was not of the best quality. And I didn't have the background to recognize that at the time.

Most designers and builders are somewhat in the same situation. They have to make a living at their trade and don't get the chance at full-time day-to-day living with their creations. They are dependent on feedback, just as I was, and most of it is not that good.

Once a person has spent six months living aboard full time, with routine and not-so-routine maintenance, putting up with some of the trade-offs, experiencing heavy weather offshore, it is much easier to relate to what it truly takes to make an all-around yacht.

Occasionally you will run into someone who has been a professional skipper or done extensive voyaging. In that case, you can be reasonably assured that within the modern context, he is experienced.

Now that we've covered the general categories, let's list a few specifics. First, what sort of crew experience are we talking about? Most yachts today, other than those that are racing, sail with small crews, perhaps just a couple. Do your design and building partners have shorthanded off-shore time?

Next is heavy weather. How much time at sea in gales or storms, hopefully with a wind-against-tide situation is there? While most of today's yachts made with modern materials and techniques are a lot safer than those of previous decades, there's nothing like a full-fledged gale off the coast of Hatteras or one of the other great capes, to teach someone a healthy respect for Mother Nature.

Maintenance is another category. Any experience dirtying the hands in the engine room?

Last, what is the range of the type of boats they have sailed at sea? Sailors tend to be a pretty conservative lot, and most people who have made a long voyage in a heavy-displacement double-ender will tend to stay with that design. On the other hand, if you have sailed a variety of designs and types, you will be able to borrow the best attributes of each for your particular design project, hopefully staying away from the bad points in the process.

Does the all-around, unbiased, heavily weathered sailor still exist — the sailor for all seasons? There are a few, but most of them aren't sitting behind a desk. As a result, you will in all probability be thrown with your limited experience in with a gang that has a small leg up on you. Take what they say with a grain of salt, keep an open mind, and be wary of dogma.

## THE NAVAL ARCHITECT

Whether you decide to custom build or modify a used or stock boat, the odds are at some point in your yachting experience you will be dealing with a naval architect. Your relationship with the firm you choose and the work they do will have a direct impact on the completion time of the project, its costs, and resale at a later date.

The N.A. can play a series of different roles in the project. He may be drawing up plans to modify an existing design or used boat for you. In this case his and your options will be limited, and while it's frequently best to work with the firm that did the original design, it's not mandatory. In this case, one of the most important considerations is location. How easy is it for you and he to get together, and can he get to where the work is being done to check on it from time to time?

When you consider a custom design, many more factors enter into the equation. Reputation, familiarity with the type of design you want, location, costs, scheduling, and supervisory capacity all have to be taken into account. If it is a racing boat you are after, the design firm's current crop of winners may be the biggest influence on your decision.

### Understanding the Profession

It's important to understand a little about the profession of naval architects as it applies to yachting. As with many "professions" to the layperson observing from outside, there is a certain mystery and aura surrounding the creative processes which eventually lead to the birth of a beautiful yacht. In reality, the naval architect will have (perhaps) some formal training and direct experi-

ence and work with arithmetic, paper, pencil and computer all day. The “creativity” comes in problem-solving, making decisions about trading one thing for another in the design process, and coming up with the “concept” that eventually turns into your dream yacht.

### Establishing a Concept

Once established, the “concept” can be expanded or contracted and modified to suit individual requirements. Whether the concept and its resultant look are a by-product of racing rules, or a design concept that has proven itself over the years, most established design offices are known by this “look.” An early ‘70s Sparkman & Stephens IOR yacht such as *Puffin* will have many siblings. Some may be a little beamier, or with a taller rig, or longer, but with the distinctive and attractive sheer that marks that design type. The Alden bow and stern went unchanged from the early ‘30s through the early ‘50s, and who would mistake a Phil Rhodes motorsailer?

If your heart is set on a certain type of design, you will probably want to work with the design firm that developed it in the first place. Of course, any designer can generate the look you are after, but sometimes between the two-dimensional small-scale drawings and the final product in full size, something goes astray.

Conversely, if you are after something different, you will have to investigate the range of designs your prospective firm has done carefully. Once you break from the accustomed mold there are some risks, and more creativity is required. A look through the types of designs will give you an idea of flexibility of the people you are working with. Consider a designer such as Bill Garden for the moment. To the mass yachting public he is known for his heavy displacement cruising ketches such as the ubiquitous Porpoise Design. But two decades ago Bill designed the then radical *Zia*, a ULDB 65-foot double-ender for a husband-and-wife team to sail. His sleek motorsailers such as the 90-foot *Shalimar*, have been among the most successful brokerage yachts in history.

### Drawing Detail

Many naval architects today draw up a set of lines plans, a rig drawing, and interior layout, and leave the rest, including most of the engineering, to the builder. If (and this is a big if) you have complete faith in the builder and sparmaker’s integrity and capabilities, this approach can work out. It is important to remember that the builder’s experience may be limited to vessels of a certain type and if yours is substantially different there can be risks. You also run the risks of “extras” for unanticipated problems, most of which should have been worked out on paper beforehand.

On the other hand, firms (and a firm could be one person) that are trained engineers as well as naval architects are capable of drawing up a complete set of drawings and specifications. This approach is more costly initially, but the end result is usually a better overall design and less cost. It’s a lot less expensive to work out problems on the drawing board than inside a partially completed hull. With a complete set of drawings it is also easier to tie down a firm price contract, without extras.

In deciding on which firm to work with there is one initial decision to make. That deals with firm size and reputation. Dealing with a large firm such as Sparkman & Stephens or John Alden will allow you to draw upon years and years of experience. From this experience is developed “office practice.” “Office practice” is a synthesis of current and historic experience to develop norms for structure and other design parameters.

In a large firm such as S & S there is a management team that you will work with on your office visits. The management will take your ideas and develop them into a design concept from which the hands-on people will sit down and draw up preliminaries. Throughout the project the management team looks over the shoulder of the designer(s), checking detail and making suggestions on such things as ventilation, deck layout, rig proportions, etc. It is in effect, a design by committee.

The negative of this approach is two-fold. First, it is expensive, but then a thorough design if done with a minimum of error is the best investment you can make. Second, it puts a layer of management between you and the people actually doing the design. If you are doing something that is more or less standard this will be fine, and the actual double-checking procedure that takes place is a benefit. On the other hand, if you want to depart from the norm, the inherent conservatism of this approach may make it difficult to achieve your desired results.

An awful lot of the decision-making process at this point depends upon your own experience and abilities. If you really know what you’re after and have worked with new designs before, you

can go with the larger more conservative firms or with an individual.

Most yacht designers on their own at one time trained at larger firms, many of them at S & S Dave Pedrich, Johan Velnzin, Angelo Lavaranos, German Frers, and Gary Mull are but a few who were trained by Rod and Olin Stephens. Working with an individual designer is a one-on-one relationship and, if the chemistry is right, can be a very rewarding experience. In addition, the lower overhead reduces costs. In some instances the individual designer may actually be more conservative than the more established firms, as a mistake could ruin his practice.

I have had yachts designed both ways. We recently did a 79-foot motorsailer with Sparkman & Stephens, and while she was something of a departure from their norm, it was a good experience. We went to them with some definite ideas which at first they weren't sure about. After reviewing the concept and doing some preliminary arithmetic they felt that the design could be done within their very conservative office practice. I have also worked with individuals such as Angelo Lavranos in Cape Town, South Africa. Angelo was trained by Angus Primrose in England and S & S in New York. When I met Angelo he had been on his own for a few years. After several conversations I knew that he knew his business, and since we were going to have a boat built in Cape Town, gave him the design commission.

In both cases, with the large firm and the individual practice, the design came out as we had hoped and within the original budget.

## Engineering Approach

One of the design functions that varies widely is the office approach to engineering structural requirements. A designer or builder, working with a known type and within size parameters previously dealt with, will have history and feel to go by when sizing structural members. When you deviate from this experience, feel and past history loses some of the value, although they are still an important part of the chemistry.

Such a departure calls for pure engineering, and while this may sound pretty impressive, it's really just a numbers game. What is important is the analysis of how the loads occur, and a knowledge of simple ways a yard can build to compensate for them.

There is what I call good engineering practice. This refers to the use of simple methods of solving structural engineering problems, without inducing the need for complex quality-control procedures at the yard level. If your engineering depends upon exact tonnage execution by the builder, he may miss by a little. A couple of years down the road that miss might cause your rig to go over the side.

An example would be the use of welding on primary structures, let's say mast tangs. There are many ways that the books will show you welding will work, if it's done right, but without X-raying welds, stress-relieving them, and general care, they might fail at a later date. Welds put into a shear load are much safer than those used in tension.

This know-how, finding safe ways of solving engineering problems is a rare talent. It takes an engineer who knows his numbers, and who has a great deal of exposure to the "real world" of the builder's shed. You can rely on the builder to some extent as well.

Naval architects with this ability are a rare breed. And many of them are not qualified at structural engineering. That doesn't mean they can't turn out a good design. It does mean, however, that there exists a certain amount of risk that you have to allow for. Time may show that something has to be done over, perhaps a little stronger.

## Compensation

There are three ways that N.A.'s charge for their services. They may have a set price for a design, charge a percentage of the building costs, or work on an hourly rate. If the latter, it will usually be broken down into several categories such as draftsman, engineer, and management time. They will usually want an engagement fee or retainer for the initial work, and payment as the design progresses.

## Engagement Letter

You will want to establish exactly what the N.A. is to do in your engagement letter. The breakdown usually goes as follows:

1. Preliminary plans
2. Preliminary specifications
3. Arrange for budget quotes from bidding yards

4. Lines plan
5. Appendage plans (keel and rudder)
6. Construction plan with details of how the vessel is to be built
7. Spar/sail and rigging plan

Some naval architects don't specify the spars required and allow the sparmaker to do this based on data supplied by himself. I prefer to have the N.A. specify the spars in advance and to make sure that the sparmaker falls within those parameters.

8. Joinerwork details (interior cabinetry, bulkheads, and trim). Note: this may only be a rough if you're using an interior designer. In that case, the interior designer and N.A. will work together on bulkhead location and any other structural details.

9. Deck plan
10. Machinery layout
11. Electrical, plumbing, schematics
12. General specifications

Looking over this list will give you an indication of how extensive the job can be, which brings us to another point. While building from a complete set of drawings and specifications is the least risky way to go, it rarely happens in practice. The builder will normally work from his bid set, start lofting when line plans are received, and go from drawing to drawing as work progresses. This frequently leads to production problems at the N.A.'s. They start out in good shape, but then fall behind on drawings. If this occurs it will cost you a considerable sum, as the builder becomes inefficient, having to solve complex problems over the phone, or even stopping work waiting for drawings.

As a result, if you start work with partially completed drawings, it's a good idea to make sure you have a firm commitment from the N.A. on a drawing schedule.

There is one other approach we haven't discussed yet. That is where you go to a builder about a package and he engages the N.A. to come up with a design. This happens quite frequently, and can lead to a package price that is very attractive. Along with reduced price, it reduces the risk to you of a builder/designer foul-up and the attendant costs. On the other hand, you have to be careful that the end product will meet your original parameters. Here the best insurance is the current reputations of both builder and designer.

### Potential Problem Areas

After telling you that a complete design package is good insurance, let me now tell you about one of the problems. If you are working with an experienced yard that is used to building in one method, and the drawing shows another, it can be costly. Solving complex design detail two-dimensionally on paper will occasionally yield a result that looks good on the drafting table, but doesn't work very well in the building shed. At this point the yard and designer have to have some discretion. And, there will be calls back and forth asking for changes to simplify building, while remaining within the original design parameters.

It is also important, if you have a particular yard in mind when the detail drawings start, to get the yard and N.A. together. There are many ways to approach each design problem and to achieve the desired result. Framing a metal boat is one example. The designer can design with transverse framing, longitudinal framing, or a combination of the two. It's all a question of what the yard is used to. The choice of approach will rarely affect the performance of the yacht.

In the final analysis, much of the decision-making process will narrow to gut feel. Who will you feel comfortable working with? It is in effect, the beginning of a complex love affair with your new yacht.

## SELECTING A BUILDER

Picking a builder for a totally custom yacht, a modified production, or a straight production involves many of the same elements as deciding which "brand" of used boat to buy.

To begin with you must consider the resale value of the name, and its relationship to the true current value of the yachts being produced. Builders go through cycles of life, as do individuals. At some point they're up and doing good-quality work at moderate prices. Historically it is not unusual to find a top builder of the previous decade now turning out average work, but charging for top quality based on their old reputation.

The key is to identify the true value or quality that you will be getting, making sure you are on the right side of the “cycle.”

Next to be considered is familiarity with the type of vessel you will be building. An old-line traditional yard may have difficulty in adapting to a modern, sleek cruiser/racer. The building skills may be there, but will their hearts be in it as well? More specifically, there are a number of key aspects to evaluate when looking at different builders.

Price is only one ingredient in the equation. Just as you will be wary of paying too much, be careful about really cheap deals. There is a certain amount of fixed costs in every project. Raw materials are going to vary a little, but labor man hours, overheads, direct labor compensation, and profit, of course, vary with yard efficiency.

### **Yard Efficiency**

Efficiency will vary from yard to yard. It is affected by the weather in the building region, the physical facilities, labor productivity, and management skills. In colder climates heating expenses during winter construction can be astronomical. But for fiberglass construction and good paint and varnish finishes, climate control within the building shed is essential. Another aspect of efficiency is management. Perhaps the single most important ingredient in the cost of a yacht is the scheduling ability of her builders. Keep in mind that the management team of the builder will be juggling eight or ten different trades, all trying to accomplish work at the same time, and interfering to some extent with one another. Frequently one trade can't get on with its work until some other operation is complete. That's one of the reasons custom-boat building can drag on for so long. Production-boat builders have the practice of doing more or less repetitive work over and over, and if they are going to survive in the open market, they will have gotten their scheduling down to a fine art.

### **Overhead**

Overhead structures also vary and in the final analysis can be the largest single cost component. If you are dealing with a yard that has top and middle management, accountants, salespeople, and secretaries, each productive worker has to generate a certain amount of income to cover these nonproductive workers' salaries. One of the reasons big yards are more expensive is exactly this overhead situation. Rent is another component. A “good” location right on the waterfront of a big city will have to generate enough income to the owners to keep it from being turned into a high-rise office building or condominium. On the other hand, many builders are located in the country or suburbs, away from the water and have substantially less rent to pay.

### **Small Yards**

There are small yards in many parts of the world with perhaps one person in the office, a yard foreman or manager, and the rest productive workers. If this is coupled with a low-overhead location and you can get a building slot tied down, the odds are it will be less expensive and better quality. Better quality because the budget will be available for materials and man hours rather than for overheads.

### **Dealing with an Individual**

The last type of builder to consider is the individual, working on small premises with a few men to assist. Frequently this can be the most rewarding of all building situations. The cost-to-quality ratio is affected very little by nonproductive management or overhead. There will frequently be a history of successful yachts to look at and owners to chat with. The big risk is what happens if the “key” man becomes ill or incapacitated in some way? Is your project left in the lurch? It's always a risk.

### **Productivity**

In many circumstances the productivity of the people working on your vessel will vary greatly. Familiarity with the type of project will affect this, as will the way the yard management handles their people. Once you get away from a strictly repetitive project, the opportunity to take one's time on the job increases. Those doing the work must be committed to doing the job not only correctly but quickly as well. I have seen a project built in one yard take 13,000 man hours to complete, and when built in another take 25,000. The difference is mainly the attitudes of the workers, and the way they are managed. An experienced owner can take a walk through a yard on two or three occasions to get a feel for productivity. Listening to the banter back and forth, looking at the

work areas, watching how people respond to the coffee break and lunch bell all tell you much of what you need to know about productivity.

## Cleanliness

Cleanliness is another aspect to consider. Some yards and employees are scrupulously clean. That's difficult to achieve in the marine business. Others are like a pig sty. That indicates to me lack of pride in work and fire hazard. It appears to cost money to keep a yard clean. This means the men have to knock off work a few minutes early each day to clean up, and perhaps a full-time man might be used just to vacuum, sweep, and remove trash. But in the long run it pays off.

## Thinking Costs

A final thought on costs. When it is all said and done, once you move away from a strictly production boat the greatest cost will be that associated with "thinking." Each time a carpenter, plumber, electrician, or mechanic does something he has to consider where to do it, consider later maintenance and removal (you hope), and a variety of other factors. There may be some "cut and try" involved to get things just right. Frequently the first approach won't work. Then there are the other interfering aspects to consider. Each time you mount a deck fitting you have to work out a backing block, get the load into something structural, consider any wiring in the overhead, and the way the finished interior will look. All those factors could affect one padeye. Multiply that by a thousand and you'll see why the thinking aspect of your custom work will make it so expensive.

There are several ways to cut this time and cost. The first is by using a yard familiar with the type of the vessel you're building, including the equipment specifications she will be carrying. Next, make sure to spell out clearly your own specifications and criteria for decision-making when trade-offs arise. If an architect is employed, the quality and detail of his drawings will affect things. Finally, having your own man on the job or an expert consultant involved can also help in some situations.

The main thing is to make it possible for the yard people to go directly from task to task with a minimum of time, ensuring all the while that the job is done correctly.

## Fire Hazard

Fire hazard is something always to keep an eye on. Boatbuilding operations, especially those dealing with fiberglass, are a high-risk business. While you'll be covered by insurance, it would be a disaster to have your project interrupted by fire. And it's rare that a builder completely recovers from a bad fire.

Your naval architect will also be able to give you a feel for the yards you are looking at. Usually he or she will be aware of the type of problems that may have occurred in the past.

## The Key Man

When you evaluate the yard there may be an individual or team of people you meet that really impress you. It is not unusual to make it a contract condition that certain personnel will be assigned to your project, and not be removed until their work is completed. This designated supervision clause is frequently resisted by yards, as they like to have maximum flexibility in assigning their people. It assures you, on the other hand, of having the best people dedicated to your project until the end.

## Talk to Previous Clients

The last, and possibly best, way to check out a yard is to talk with previous owners who have built there. Bearing in mind that it is rare for a custom or semi-custom yacht-building relationship to go smoothly, look for certain things:

1. Was the yacht completed on time?
2. Was the budget adhered to?
3. Were there inordinate delays due to conflicts with other yachts or scheduling mistakes?
4. Did much of the work have to be done over? (There is always something that must be done again.)
5. Was the yard management fair and honorable in any "extras" they asked for, and were they "reasonable" negotiating them?
6. Would the owner go back again for a new boat?

Before completing your investigation, take the time to do a little financial checking. The yard should furnish you with their banking connections and a list of major suppliers. It is usually best

to have your bank do the checking, as they will get a straightway answer. Keep in mind that you will be given the best lenders and they and the bank will want the yard to get your contract. A general review of credit-house clearing data for lawsuits and payment history is also in order. A series of suits or indication of stretch payables is a warning signal. A lot of yards build beautiful yachts and lurch from crisis to crisis. The key is to evaluate the risks, take what precautions may be deemed necessary to safeguard your interest, and proceed with your eyes open.

In the final analysis, yacht buying is such an emotional issue, and many builders are in the business for love rather than money, it will be hard to make a businesslike choice. If you have a well-honed instinct it maybe well to follow it. Gut feel, after checking all the factors, is usually the way the final decision is made.

## FOREIGN YARDS

Building overseas under certain circumstances can yield positive rewards. It can result in a substantial savings, potentially better quality, at somewhat lower prices, and interesting cruising for sea trials.

Let us start out by saying that there exist in some parts of the world custom builders who are as capable as anyone of producing a first-class yacht. In some cases it is possible to buy a real custom yacht at a production-boat price.

The single biggest determiner is currency exchange rates. If you are holding dollars and the dollar is strong relative to the other currencies, there could be tremendous advantages to buying abroad.

### Exchange Rate

One of the problems to be faced is that while you may make your contract at an advantageous exchange rate, when the time comes to pay for it, things may have changed. In this case, there are several ways you can protect yourself.

The first is by purchasing enough foreign currency necessary to cover your contract at the time you sign up. These funds can then be deposited in that country or in an offshore bank with facilities to generate interest on the funds. Interest rates usually have an effect on relative currency value, and in some cases it may be better to hold off purchasing the foreign currency with a low interest rate until later.

Next, you can buy forward cover contracts in many currencies. These commit a third party to deliver to you at some point in the future the contracted amount of foreign currency at the rate of exchange set at the time the contract is entered into. It prevents loss or gain from fluctuations in the currency markets.

You can ride the fence, so to speak, keeping an eye on rates of exchange and waiting until later to cover yourself. Or, many times, you can make your contract in your own currency.

### Other Risk Factors

When looking into various parts of the world for builders aside from currency advantages, there may also be bonuses in yard overheads, productivity, and quality. Old-world craftsmanship does exist in some parts of the old and (new) world. On the other hand, there are yards in some countries that have labor problems and overheads to match our own country's worst.

Don't be bashful about asking not only labor rates, but how many hours a yard expects to take building your vessel. A look at the management team and some inquiries about taxes and rent are also in order so that you can evaluate the situation thoroughly.

If the initial economics look good and you want to go foreign, there are a whole series of factors to consider. One must look at the local political situation to be sure that a modicum of stability — both political and economic — will reign while your project is under way. In virtually any country there is always some risk. Consider what would happen if the situation began to deteriorate. If your vessel has hull and deck complete and engine in place and the rest of the gear close by, it is frequently possible to launch early. This is to be done as a last resort and is not something you would expect to do, but worth considering in the back of your mind.

The foreign legal system must be carefully evaluated. Most don't differentiate between local and overseas litigants. But it is best to make sure that the law and the defect enforcement apply equally to all. Then be sure that your contract is written on a thorough basis that will cover you in the foreign legal system.

## Financing Options

Financing can be a big plus when building offshore. Some governments offer incentives for exports in this manner, and with yachts a time frame of two to five years is normal, usually at 3 to 5 percent under prevailing world market rates. That can make up to a 30 percent effective cost reduction in your yacht. These financing plans usually require a bank guarantee or letter of credit to secure the lender. They can sometimes take several months to get into effect, and if it's a major determinant in your decision, be sure the builder has a formal okay before you sign up.

It is also possible to obtain lower borrowing costs in a foreign country than at home without government assistance. A few years ago when prime interest rates in the U.S. were at 20 percent they were 13 percent in New Zealand. You could earn 18 percent return on Eurodollar certificates with your cash, using these as collateral for a 13 percent loan in New Zealand. Some banks with sophisticated international departments can transfer funds overseas to correspondent banks in a few hours. On the other hand, it can sometimes take weeks. If you will be dealing with cash transfers be sure to stipulate that the transferring bank fax their correspondent with instructions to in turn fax the receiving bank, and notify the payee. Obtain the fax number directly from your bank and send it along to the payee on the other end to check. Some banks love to "lose" your funds for a while, earning interest on your money while the people on the other side wait for it.

Bank transfer costs, and currency costs vary. Check before you send funds to be transferred to a new currency on what the buy and sell rate is. On wire transfers in most parts of the world it should not be over 1/4 percent of the total transaction, but banks have been known to ask as much as 1.5 percent from the unwary.

## Supplying Raw Materials

In order to ensure that the best materials are used, and perhaps to save yourself some money, it may be necessary to send most of the materials directly to the builder. Smaller yards with limited purchasing power will sometimes have higher costs than you will buying through a discount. Other large yards won't allow the practice or will charge a mark-up on all materials brought in by the owner. That's something to be negotiated in advance.

Once you start to consider shipping overseas, you will want to decide on containerized freight or what is known as break bulk (i.e., individual shipments). A customs broker will usually handle all the details of paperwork, clearance, certificates of origin, bills of lading, and booking the shipment. They will be able to advise you the best method of shipment.

Inquire carefully about the different freight tariffs in use, the notes on each tariff, and how your materials will be sent. As an example, your entire shipment can go as marine hardware "NOS" at a low rate. On the other hand, some of it might go as household items or plastic at a rate three times as high. This is where the broker earns his money. But sometimes they forget who they are working for, so a little checking is in order.

All the materials for a 50-foot yacht, including personal effects, except for hull and interior materials (wood-fiberglass materials) would take less than one-third of a 20-foot container. You will usually pay a minimum of 70 percent of the container rate. But it may still be better in the long run than shipping individual crates.

Materials shipped into the foreign country may have dutyable goods included. In most cases, when these are being brought in for a yacht being built for export they are duty-free. However, some countries will require a bond for the amount of duty, or even the cash, until such time as the yacht actually leaves. These requirements seem to be somewhat arbitrarily enforced, and it's best to have the builder check beforehand and advise you. You will need to advise him of the shipment coming, carrier, arrival date, and what is included. He will have to have the original bills of lading to claim the shipment on his end.

## The Bottom Line

In the final analysis it is usually the bottom line that dictates where to go. In addition to the straight contract of any special financing deals available you will want to add into the costs of the following:

1. Freight on goods shipped
2. Broker's fee
3. Bank fees for transferring funds
4. Exchange of currency fees

5. Letter of credit or banker's guarantee fees
6. Air fares
7. Getting the boat home
8. Cleaning up after shipment
9. Insurance on overseas passages
10. Local attorney and possible accountant's fees
11. Hotel, food, transportation on visits

The language gap will have more or less bearing on your decision, depending upon the type of building project. If you are doing a ship in Holland, whatever you need to discuss can be handled by management, and they all speak English. Feadship has been building the same type of yachts for several decades, so communication is not overly critical. On the other hand, if you are building a highly customized cruising yacht that requires a lot of your input, building in a small, efficient yard that doesn't speak your lingo on the ship floor may be a mistake.

It is dangerous to generalize about people or countries, but certain national tendencies do exist, particularly in the construction business. Be sure you investigate these carefully, and be prepared for them if you decide to build where they manifest some negative (from your standpoint) characteristics. There are places in the world where it is possible to get a lot of boat for the money, but the questionable ethical and building practices make it a risky venture, especially if you are a one-shot customer.

## QUALITY

Virtually every advertisement one reads in the yachting world speaks of "old-world craftsmanship" quality in materials, heavy construction, yet the precise definition of quality is relative — relative to your own experience and that of the builder, and relative to the environment in which your yacht must operate. Quality on the sheltered waters of Long Island Sound in the summer has a far different ring than an autumn gale off Cape Hatteras in the Gulf Stream.

Nowhere does the old adage about beauty being only skin deep apply more than in yachts. Aesthetics are important, but what will affect your safety, and the cost of running your yacht goes much deeper than that.

Without a lifetime of sailing experience and the exposure to many yachts, some of them of real "quality," how will you determine if you're really getting what you are after? This depends upon the project. Buying a used boat is the easiest. Her record on the resale market and with boat yards will tell you a lot. Just looking at the way things are done, the condition of her gear, the wiring, and the plumbing will give you a feel. Then, dealing with a completed product you can enlist the aid of professionals as long as they know what quality really means.

Don't be fooled by shiny paint. A couple of cans of spray paint, thrown on a newly cleaned engine will do wonders for the engine compartment, but what's underneath that paint is what you are really concerned with.

Buying a new boat gets more complicated. Here the track record on the vessel may be limited, so we are back to builder's reputation, and are you on the reputation-building side of the cycle or are they living off past glory, at your (potential) expense? A surveyor can be employed to check things out, but again today, so much is relative and the current definition of quality may be open to debate.

Custom work takes us into a different realm on quality. Here we are starting off from scratch, and many builders will have a quality level to match your pocketbook. Many of the comments that apply to custom work also apply to used or new boat construction, just a little less so.

### Specified Quality

To begin with, the specifications cover the definition of quality, the arbiters of quality, and the details. I divide this into three fundamental sections:

1. Structural quality related to safety and inherent longevity of the vessel
2. Functional quality, related to the use, maintenance, and longevity of the ship and its systems. This would include plumbing, electrics, machinery, etc.
3. Aesthetic quality of paint finish, varnish work, joiner details (woodwork), and other finish items.

In some areas, reaching toward the top of the level increases costs out of proportion for the end product, unless you are an absolute perfectionist. For example, in fairing and painting topsides on

a custom metal hull, you can get a 95 percent finish easily. This will look great from a dinghy or at the dock. But if you are standing in a shipyard, looking up in flat light, it might look pretty rough. Ninety-five out of 100 people would never know the difference, but you might. That last 5 percent could double the man hours involved in this stage of operations.

On the other side of the coin, look at wiring. Here the use of tinned fine-strand wire will increase the material cost maybe 75 percent for wire. That's a fraction of a percent of the total cost of the vessel. Five years downstream, when an electrician at \$85/hr. or more spends a couple of days hunting down a resistance joint, you will have just spent the difference between really doing it right and doing it the ordinary way. We have found by experience that the least expensive way may not always be the cheapest in the long run. Quality can be substantially improved with modest cost increases in carefully defined areas. Long-term maintenance and resale value benefit, and the result is, in the end, less costly.

### **Structural Quality**

Structural quality is a question of sailing grounds and your bent of mind. Most production yachts built today simply would not stand up to the pounding they would take if sailed off Cape Town near the Cape of Good Hope, in the Tasman Sea, or other such areas. But they don't sail in those areas. They sail for the most part in the Chesapeake Bay, the Sound of Long Island, or the Catalina Channel, or maybe the Mediterranean. Manufacturers simply cannot afford to build ultimate strength vessels and compete with those that do not, but advertise the opposite.

This is where your whole approach to sailing and background at sea come in. If you have never experienced the full fury of a bad gale off Cape Hatteras or other great capes, you will be more ready to play the percentages. And the percentages are pretty good. Most good boatbuilders' products will, for the best part, stand up to the bad weather they are likely to encounter. Maybe once in a lifetime of voyaging they might not be equal to the task. Are you willing to go to sea risking that once in a lifetime? Most are. On the other hand, you may want the best level of security you can get. That means maybe going a little smaller, or leaving off some electronics to put more budget into the structure.

The actual costs of building a bulletproof vessel are not that much greater. The real cost comes in hull materials, and this usually represents less than 8 percent of the finished product. So if you increase your material content by 25 percent you might only increase the overall cost 2 to 3 percent, even allowing for a little more labor. And a 25 percent increase in hull material, judiciously used, can make a 100 percent difference in structural security.

### **Subcontract Quality**

As you get into your subcontracting trades there is one example of surface quality: neatness. If your subs are sloppy, chances are the work that you can't see will also be poorly done. Another aspect of this is accessibility. Can you get at various pieces of gear to service it without tearing the vessel apart? How easy is it to remove and work on? Remember if you're paying someone downstream an hourly rate to work on a pump, and he spends half a day just getting to the pump, it becomes hard on the budget.

Finish quality is easier to define and work with. Materials again are of paramount importance to longevity, but the final product is a direct visual judgment, subject to easy comparison. For joinerwork and varnish finish, we find it helpful to specify that a sample of work be completed on board. That remains in place for the owner, architect, yard workers, and management to look at and match as they go along. That way, right from the beginning, everyone knows what they are working toward.

### **Hull Finish**

Hull finish and other paint work is more difficult. Another vessel can be used as an example, or a similar non-nautical reference. Since there is always the possibility of dispute, it may be a good idea to make the architect the final arbiter of finish quality, within the guidelines laid down in the specifications or contract. With a molded hull the job is a lot easier. The mold itself can be inspected before starting the construction process. This black, mirrorlike surface will reflect exactly what you will see when the hull is removed from the mold.

Bear in mind that dark colors are much harder to work with than light, and the higher the gloss the more fairing required.

In the final analysis, it's the little quality touches in a yacht that make the difference between a "normal" vessel and one that is outstanding. These touches can result from a very modest expenditure, provided that good planning and attention to detail are coupled with men who take pride in their work.

## Testing

There are several inexpensive and relatively available tests that may be used to check the structural integrity of various sections of your hull.

If you are having a metal hull built, portable X-ray equipment should be brought to the site, at the direction of the architect, to check the welds for porosity and penetration. X-raying can also be used to check end fittings on tangs and other welded structures on the rig of older boats. Ultrasound testing is also used for this purpose.

Audio gauging is also used to check hull thickness. Usable with both metal and plastic, it will give you a highly accurate reading of thickness at various points on the hull.

With fiberglass laminates, if you're heading toward high-strength, low-weight structures you may want to check the reinforcement-to-resin ratio. This is done by taking core samples of the laminate and burning away the resin, weighing before and after in a laboratory. Lloyds Bureau of Shipping, the American Bureau of Shipping, and the French Veritas Bureau are all engaged in checking quality in one form or another in the yachting business.

Their services vary somewhat but basically follow a similar course. To begin with, your design can be checked by them for compliance with their safety and structural requirements. This is a two-edged sword. The standards drawn up have been developed with the aid of the marine industry and are designed to cover a whole range of designs with basically the same formula. If you have a 40,000-pound 50-footer, or a 25,000-pound 50-footer, you will need the same structure to meet the rating agencies' criteria, when obviously the loads are substantially different.

Once past the design check, the bureaus will supervise construction on a more or less detailed basis, depending upon what type of certificate you want and what the costs are.

An example of how far you can go is to have the bureau check the quality of the metal to be used in your hull, at the source. We were quoted a very reasonable figure by the ABS for checking the physical properties and chemical content of the aluminum in one of our vessels built in South Africa. They actually had a man at the extruding plant on the day the material was rolled. The same services are available in a variety of different forms for other materials.

The individual offices can also check as the vessel is built that her construction is in accordance with the plans and specs if you so contract.

If you decide not to use a rating service, you can still request marking and test certificates on your raw materials. Both aluminum and steel mills will supply, at a marginal extra cost, test reports showing the chemical composition and structural properties of the materials they are supplying. If you're using a special resin, perhaps a flame-resistant system, you may want to have a sample laminate tested for flame spread to be sure it meets the requirements you have. The test is easy to run and inexpensive.

We feel that spending a few hundred dollars on test certificates of raw material, at the beginning of a project, is a good investment. They rarely show anything but the right results. But what if the wrong materials were used by mistake, and you didn't find out until the vessel was finished? What a disaster!

## THE OWNER

Seen through the eyes of the design/building team, the owner frequently appears to be a dreamer, with more money than good sense yet unwilling to spend for the important aspects of the project, while throwing funds away in areas of insignificance. A majority of boating projects, regardless of type, end up with the owner saying "never again," and those doing the work for him scratching their heads and wondering why they are in such a crazy business.

Having been on both sides of the fence, it is possible to empathize with the designers, builders, and tradesmen, in many instances as well as understand the problems faced by the owner. From my own experience and the comments of friends in the business, I have outlined some of the problems they frequently encounter. In almost every case, it is a matter of misunderstanding fundamentals that creates the friction. Hopefully, by presenting the "other side's view" of you, the owner, it will help those of you entering into a project to be more aware of some of the pitfalls.

## Making Up Your Mind

The single greatest complaint is about the inability to make up one's mind. Lack of decisions in many vital areas prevents work from progressing on schedule, which disrupts efficiency. Men may have to be reassigned to other work while the answer is forthcoming, and when they return to your project there is a learning curve to be paid for. Who should pay? The yard or architect will frequently hide the cost, but it is there nonetheless.

Changing your mind part way through is a common occurrence. Since it is difficult to visualize from two-dimensional drawings what things will look like in place, changes are the rule rather than the exception. But while the changes are being discussed and thought out, perhaps even mocked up temporarily, the crew is inefficiently employed. When these changes occur at the drawing board, they are much easier to deal with, although they still cost money.

"Crazy" ideas frequently occur to owners, and when these are insisted upon, the yard or architect sometimes feels that their very reputations are at stake. If a major blunder occurs in a sea-going craft, regardless of whether it is the result of an over-ambitious owner, the builder and designer bear the brunt of public condemnation.

For many years the office of Angus Primrose has had to deal with the unhappy words of Sir Francis Chichester about the *Gypsy Moth V* they designed for him. Yet the very factors that made Chichester so upset were caused by specific requests he had made of the designers, and which they were unable to talk him out of.

This does not always mean that new ideas that are resisted by the design/build team don't always work out. I have been involved in a number of projects over the years that made designers or builders unhappy because they hadn't done anything like it before. Yet the end product was very successful. Whichever the case may be, even if you know it will be successful, understand that the others involved are worrying about their future reputations if it doesn't turn out for the better.

## Supply Your Gear on Time

It's the norm for owners to supply a certain part of the gear aboard their boats. Having it there on time obviously is important. Equally important is being sure that the proper manuals and installation data is on hand. Yards are forever running into problems for lack of key owner-supplied gear. Again delays, and who pays for them? If that gear doesn't work properly, don't expect the yard to make good on it if they didn't get a profit in the purchasing in the first place.

## Stay Within the Chain of Command

In most building yards there is a definite chain of command. It irritates yards and management and confuses the workers to have the owner requesting changes or giving directions to the workers when they should be deciding with their project manager or job foreman. In some cases, the request may be executed without other people on the team knowing about it, causing delays or conflict with other aspects of the project.

## Scheduling Impacts Costs

The one consistent complaint from all builders is that owners rarely realize the delicate balance between scheduling productivity and cost. Upsetting these balances — and it happens on every project — is costly. When the time comes to settle accounts at the end, the costs seem all out of proportion to the small changes that took place months ago. As a result the yard is left with a bad taste having had to fight for what they consider fair extras, and not getting the full amount due, while the owner feels he has been ripped off.

Related to this is the biggest complaint of architects, which relates to the frequent reluctance of owners to allow them to do a complete job on the drawings and specifications. When this lack of a complete job results in problems later on with the builder (translation — cost overruns — delays) the architect sometimes bears the brunt of the complaints.

## RESALE

Resale is the single largest cost center to be concerned about in any boat project. Whether you're building new, buying used, or doing something in between, eventually you want to sell your yacht. At this point, her characteristics that first attracted you are going to have to attract another owner. And on this attraction rests the major costs of yacht ownership.

Many things affect resale, and unfortunately, not all of them have to do with quality construction, design, or seaworthiness. If you are checking out the used-boat market, you will notice that comparable 40-footers may have widely differing prices, based on the aftermarket's perception of their inherent value. The most important ingredient is prior history of resale prices. If other yachts of a type have held their value in real terms (adjusted for inflation), then a similar vessel may benefit, even if she doesn't deserve to.

This holding of value is affected by many factors. Marketing and public awareness are two. If a boat has been touted in the press for years as a superior-quality ocean passagemaker and looks salty (as opposed to being truly seaworthy), it may do well on resale.

### **Brokerage Perception**

The perception in the brokerage community, where a majority of used boats are sold, is also important. If brokers feel a certain design or type is hot, they will push it more and directly or indirectly advance its sale and price. There is a story amongst brokers of how Henry Hinckley would buy up any of his used boats that came on the market at too low a price to keep the resale value up. This not only helped other used-boat owners, but enabled him to charge higher new boat prices. And while there is no denying that Hinckley built excellent wooden boats and good fiberglass yachts, there had to be more than direct quality involved to bring double or triple the price used that other comparable yachts would bring. In stock boats, marketing and aftermarket support are critical to resale value.

### **Custom Pedigree**

Once you begin to look at used custom yachts or consider building, different parameters enter into the equation. The first is pedigree: the designer's and the builder's. If they have a long history of successful, quality yachts, it will reflect on resale value. It may be touted by the brokers above all other aspects. And while it's not necessary to have a marketable pedigree to get a fine yacht, it is important in resale.

### **Earning a Name**

There are other ways for a yacht to earn her pedigree besides using big-name yards and designers. Many exquisite vessels are built every year, without benefit of these names. But to earn a pedigree the yacht will have to have been a successful racer or perhaps have some ocean crossing to her credit. Yachts are occasionally built by knowledgeable owners under close scrutiny, in low-overhead, unknown yards. It's usually the case here that the funds saved go back into the yacht in the form of inherent quality and equipment. If the owner is knowledgeable, the end product may be better than anything the highest priced, most pedigreed yards and designers could produce.

A yacht's history is important to her resale. Has she been a successful charter yacht? Perhaps she has circumnavigated? Has she done a stack of transocean voyages, or made some excellent shorthanded passages? These accomplishments not only speak of the yacht's potential in an eloquent manner, but give her an aura of seaworthiness and excitement that other yachts, having led more mundane existences, don't possess.

Taking the time to look at the used-boat market in several parts of the country will go a long way toward establishing in your own mind what good resale criteria are.

If you're custom building or modifying a yacht, you will want to keep in mind the tangible, physical aspects that create a good resale market.

### **Features**

An interior layout that appears spacious and functions well is important. Vessels that don't appear chopped up into little segments usually fare well. Charterability also has to be considered on interior layout, and while you may not want a strictly charter-oriented arrangement, if your yacht is 50 feet or over, the possibility of her use later on in the charter trade is an important consideration.

Building materials are also important and will vary with the type of yacht you are contemplating. Ferrocement is out in terms of resale or insurance. A beautiful, well-built wooden yacht will be lucky to sell for one half a fiberglass counterpart. If there is some special romance involved with the particular wood boat, she will do better.

Fiberglass, properly done, has probably the best resale value in the States. With the advent of linear polyurethane paints, even the dingiest hull can be made to look better than new. Aluminum and, to a lesser extent steel, are well received in Europe on small boats and in the States on larger craft.

The potential good looks of your intended vessel are also significant. If you are thinking about a low-maintenance cruiser you may want to paint the teak, or look for a yacht without extraneous wood. But when the time comes to sell, regardless of how impractical it is, you may want that varnished teak back.

Appearance is important in other respects. A handsome vessel in a contemporary sense is important. The appearance of machinery, wiring and plumbing to casual inspection is also critical. Sometimes what appears neat and orderly may not be as convenient or efficient, but you must have the potential for orderliness in these areas to help resale.

## Equipment

The type of equipment aboard is another consideration. You will rarely receive much of a return on “accessories” added to the yacht. But some gear, such as roller furling, wind vanes or pilots, help sell.

An interesting phenomenon in most of the yacht-buying public is the inability to see how easy some additions and/or changes are to make. If you’re selling a 45-footer with air-conditioning but no generator, the prospective buyer may not realize that the big chunk of room next to the main engine is especially for a generator necessary for running the air when anchored. When the time comes to sell, you may want to add some of the “must” gear before putting your yacht on the market. Even if you don’t want it yourself, some of these things should be allowed for in your initial plans, with an eye toward the future.

Some yachtsmen have reached the point in life where they can afford exactly what they want — and to hell with resale. It’s a position to be envied, but does raise the overall cost of the yachting project considerably. On the other hand, if one is careful with the various factors involved, negotiates wisely in purchase, and has a reasonable economic climate at the time of sale, the basic buying power of the investment in the yacht can be preserved.

## SPECIFICATIONS

A good set of specifications defines for the owner, the builder, and the designer just what everyone is working on. The specs should be simply written and should define your project as clearly as possible.

If you are working with a yard in whom you have faith, it is sometimes better to define things in a general way, leaving the small details open, so that the yard can meet your requirements efficiently. This avoids a situation where a particular piece of gear has been spelled out in great detail but won’t really work well in practice.

Most builders and designers have their own specification forms. Following are two examples of what we’ve used with our clients in the past.

### Production-Boat Specs

With a production boat you have a chance to see and touch a similar product. You are pretty sure of what you are getting. As a result, most builders tend to use very condensed specifications. This gives them a maximum amount of leeway, which is good for their efficiency.

However, as the purchaser you need a document that goes with your contact that clearly spells out what you will (and won’t) be getting for your money.

### Custom-Boat Specs

With a custom or semi-custom project it is wise to be much more precise. The odds are things will be more complex than in a production project, and without a floating yardstick to guide you and the builder, the specifications become the bible.

In the appendix is a generic spec for one of our large custom projects, in this case an 80-foot (24.3m) motorsailer similar to our *Beowulf*. This spec is the result of a long definition process between ourselves and a very experienced, detail-oriented owner.

## CONTRACTS

Buying or having a yacht built is generally one of the most expensive things you will ever do. It can be a complicated transaction with a number of potential pitfalls. Good sense dictates that the contractual arrangements clearly be spelled out in writing.

I like to treat the contract documents as a guideline, and in the event of problems a last line of defense. One should never go into a contracting situation expecting to have to fall back on the written document in a legal sense. Yet it remains important to view it in the same manner some impartial judge might at a later date.

The guideline aspect cannot be overemphasized. Building a yacht frequently involves a long period of time. During that time some of the individuals with whom you are dealing may change. Perhaps the economic climate shifts, or certain materials become scarce. A well-written contract will help those most intimately involved with the building process chart the proper course for the project. Before going further, let me emphasize that I am not a lawyer. However, I have been involved in negotiating contracts for many years in the marine and other fields. The concepts and details presented are based on much experience, some of it learned at the bar of justice. If the approach seems overly thorough to some, it is because experience has taught us the hard way to be as complete and detailed as possible in the beginning. Once the contract documents are negotiated and signed, they will be filed away and with luck, never looked at again.

The single most important aspect about a written contract is the people who stand behind it. If you are dealing with dishonorable people, no matter how well you tie things down, if they decide to make your life miserable they will succeed. Since most build or buy for pleasure, it is desirable to keep your relationship with others on the yachting team amicable. The best guide to this is not only a good contract, but good people on the other end.

To underline some of the contractual points we will make, let us give you a practical example from firsthand experience. We were involved in negotiating the building of a large aluminum yacht in South Africa. This was the second vessel we had built with the people in question, and while the scope of work and corporate entity was different, the people involved were the same. The first time around the attorney on the other side had been what I would call a "sharp character." He had tried to draw up a very one-sided document favoring his client. Reading this I was a little put out, but our attorney eventually got things turned around into a fair agreement. That agreement was very thorough, and had in a form that worked in South African judicial system.

Because the first time around involved only hull construction, with not a great deal of monetary risk to ourselves, we were not overly concerned with the people we were dealing with. I felt they had some financial problems perhaps of cyclical nature, but I didn't think it would affect us. The first transaction went smoothly. At the end there were requests for extras, as they had done the work on a tight price. However, the contract was clear on this point and since no extra charges were contracted for, the original price stood.

While I did some financial checking on the company when I initiated negotiations, I wasn't able to talk to any other yachting clients. Well into the first hull contract, a business acquaintance mentioned one of his friends had a great deal of trouble with the people with whom I was dealing. Since we were almost through with our project, it didn't bother me.

The second contract was for construction of a complete vessel. It was a fixed-price agreement and was divided into a hull and interior contract. There was also an arbitration clause in case irreconcilable difference arose.

Toward the end of the building period I was informed that the vessel would be ready for launch and sea trials in a week. Accordingly I made plans to fly down to inspect her and conduct sea trials.

Upon arrival I found that the vessel was at least a month away from completion, and that no great effort was being made to get her completed. (She was already late at this stage.) I was then informed that the builders wanted an extra compensation for the work they had done. The reason for getting me down early was to discuss this.

There was no provision made for extras unless they had been authorized in writing; with the exception of two minor areas, none had been authorized. When I asked the amount, I was given some vague "estimates." I felt they were not entitled to anything, but said I would consider it when presented with documents. Things went on for a few days with no real effort being made toward finishing the vessel quickly or presenting me with details of the claims.

I went to my attorneys and on their advice had a demand letter drawn up advising the builder that if he didn't finish his work promptly, we would seek redress for damages on late delivery. Then I was informed by the builder that they would sit on the boat as long as it pleased them.

"It would take you years to get the boat through the courts," they said. And unless I gave them what they wanted, they would take just this course. Since by then we had an enormous investment in the project, that would have been a financial disaster for us, and they knew it. At the same time we were presented with a completely fabricated request for extra payment.

They alleged the original contract and purchase order were only "guidelines" for pricing and not binding.

Here is where we start getting into the interesting part. Even though the original agreement had been drafted in a thorough manner, by highly qualified attorneys, the builders could still allege what they liked. Eventually we might win, but in the meantime there would be expensive delays and the turmoil of litigation. I was then advised by our attorneys that under local law if we agreed to post a bond for the amount in dispute, they would have to give us the vessel. We offered this along with having the matter arbitrated. They rejected the offer. Their next step was to up the ante by increasing the amount in dispute with additional invoice fabrications.

Under South African law there is a process called urgent appeal. This allowed us to go to court and ask for an order directing the builder to give us the vessel subject to our posting a bond. Under normal circumstances, that would have been the end of the game. However, these people then filed documents alleging that they owned the yacht despite what our contract stated. Our counsel told us that even though their defense was spurious and the documents may have been fabricated, the damage had been done. They had clouded the issue sufficiently so the judge could not let us have the yacht.

What the judge did do, much to the surprise of our antagonists, was schedule a full-blown trial about eight weeks hence. As a result of that and enormous expense of time and money (perhaps increasing the overall project costs by over ten percent), the court order finally gave us possession.

Had these same tactics been tried in other countries, especially the United States, they probably would have been successful in prolonging the litigation. In the end, the judicial issue would have been resolved in our favor, but we would have had to give in to what in effect amounted to blackmail because we couldn't afford to have the yacht tied up while we waited.

The moral here is once again, the contract is only as good as the people who stand behind it. No matter how clearly it binds the parties, if someone is out to get you and is unscrupulous enough about the way he goes about things, he probably will succeed. Buying a yacht is a very emotional act. Some highly sophisticated businessmen, even attorneys, have entered into enormously expensive projects on not much more than a slip of paper. In many instances this works out fine, but occasionally it doesn't. If things do go wrong, it can be very expensive. When you finally have made up your mind to jump, take a step backwards, look clearly at the issues, ask yourself if you have checked out the people with whom you will be dealing, and then go forward with a clearly written contract.

### **Basics of a Good Contract**

We will discuss three types of transactions: used yachts, new construction of production vessels, and custom work. The agreements for all of these involve certain common rules.

1. The agreement must be legally binding in the jurisdiction in which it must be enforced. In some countries this may involve special government stamps, notarization, a witnessing procedure, or other specialized procedures. Generally in the United States all that is required is a contract in writing and signed by the party to be charged.

2. The parties to the agreement must be able to enforce their rights. While this may sound self-evident, it may not always be the case. If you are a foreigner, with no domestic domicile, there may be lengthy and cumbersome procedures to establish your right to enforce agreement.

(Note: Certain countries make it possible for a foreigner to be detained during a legal fight if he doesn't possess assets in the country in which the fight is taking place. This detention can range from a loose house arrest until a bond is posted to outright time in jail.)

The procedure has been used, or abused, on occasion, as a means of shakedown. You may want to have a clause inserted that the other parties give up these rights. If you are doing business as a

corporation or partnership, certain formalities must be observed. The corporation usually must be qualified to do business in the state where it sues. Certain partnership documents may have to be filed. Even an individual who does business under a trade name may have to follow certain procedures or be barred from maintaining a lawsuit.

3. The corporation's taxes must be paid. As an example of what happens when a company is delinquent, a California corporation where taxes are not paid may be suspended, with the result that it cannot even defend a lawsuit, much less prosecute one.

4. The contracting parties will have to be defined. Exactly what is the name of the entity building the boat? What is the name of the person or entity paying for the boat? The identities of the partners must be spelled out precisely.

The simplest contract to execute involves buying a used yacht. It usually includes a deposit and a written offer to the seller. Your deposit funds are held in trust or escrow by either the buying or selling broker, depending on regional practice.

Your offer must contain all the financial details, including price, payment terms, and a time frame for payment and delivery. The offer will normally be subject to survey and trial sail. If the survey is unsatisfactory, negotiations can take place to amend the price, or you can walk away from the project, taking your deposit with you. Who pays for the cost of survey and haul-out depends on your offer, but normal practice is for the potential buyer to pay.

The trial sail is just that — a sea trial. And if you don't like the way she behaves you can back out.

Assuming you are going ahead, the final transfer of ownership can be handled by the brokers among themselves acting as your agent; by a third party, such as a bank trust department; or by a formal closing attended by yourself and any other interested parties.

Ninety-nine out of 100 times the offers, sale documents, and other related paperwork are handled on standard forms provided by the brokerage firm. It's not unusual for the firm to be paid the entire contract price of the vessel into their trust account, and to act for you. But who are these people who are acting in a fiduciary manner? What if they are in financial difficulty? Is it a trust account in reality, or just a common account commingling the broker's money, as well as yours? What is your position if your judiciary, the broker, goes bankrupt? Bankruptcy is unlikely, but it does occur and is happening more and more. Even though you may have funds in a trust account, it might take a bankruptcy trustee months to sort things out.

So the first questions to ask are: who is handling your funds, what is the firm's position, do they maintain segregated trust accounts, how credit worthy are they, and what happens to your money if things go wrong? At this stage we are talking about the 10 percent deposit. As the size of the vessel and the amount of money involved becomes greater, you want to be more careful about with whom you are dealing. There are many old-line reliable firms in the brokerage community, but there are also some new outfits with good intentions but insufficient capital. The latter may be able to serve your interests well, but the actual handling of funds might better be done with an outside third party, perhaps a bank trust officer as mentioned earlier.

Next comes the closing, the consummation of the sale. You will want to be sure that when you hand over full payment you receive good and clear title to your new vessel. I prefer to be there myself. The question of good and clear title can be difficult. Many federally documented vessels or those flying foreign flags are easy to check for liens or other charges against the vessel. You will want to be sure that whatever procedure is appropriate is attended to. If there is some question, it may be wise to request a certain amount of money to be held in trust pending resolution of a clear title. In many parts of the world when an owner runs up a bill against his vessel, the bill is due by the vessel rather than the owner. So if you are buying a used vessel, your contract should contain at least the following clauses and terms (in addition to the notes already mentioned):

1. Recital of the full purchase price
2. Payment terms and conditions
3. A breakdown of any retained funds, pending resolution of clear title and of surveyed items.
4. Details of type of survey to be performed and any special expected results.

5. The closing date
6. The time period the other side has to accept your offer
7. A trial sail provision
8. A recital of who pays for the survey and attendant costs
9. A procedure for closing, the type of documentation on title you desire, and who pays for the costs of obtaining same
10. A breakdown of any dispersal of funds from the proceeds to brokers or other interested parties.
11. Any special conditions covering equipment included (there should be a full inventory of what you expect to get with the vessel) delivery point, and when delivery is to be made. If there are any oral understandings, reduce them to writing. This is imperative. Generally an oral understanding will be inadmissible to vary or contradict the terms of a written agreement. Be sure that you have in writing their acceptance of your offer or finally negotiated package.

## Buying New

Buying a new yacht out of a dealer's inventory is fairly close to buying a used yacht. In this day and age you may still want to have a survey of structural fitness. The financial deposits you may have to put up while options are being installed or modifications made should be a clear goal of the agreement. Always try to look at the agreement from the standpoint of something going wrong.

Another clear aspect should be warranty claims. Details of what is covered and how the warranty problems will be rectified should be clearly spelled out. Once again we must emphasize that it is whom you are dealing with that is most important, especially when it comes to warranty.

I would break warranties down into the following categories:

1. Structural defects
2. Rigging defects
3. Defects in machinery and equipment
4. Electrical defects, including chafe
5. Finish problems, including osmosis of fiberglass laminates, gelcoat deterioration, and other external finish problems
6. Leaks from windows, hatches, deck fittings, chain plates, and hull-to-deck joint
7. Underwater leaks from throughhulls, keel bolts
8. Plumbing problems, including chafe
9. Access for equipment maintenance.

The price should be clearly spelled out, including any commission charges, freight, taxes, duties, or any other "extras." At the time the purchase is negotiated, all conceivable changes, modifications, and extra equipment should be agreed upon. It will be a lot less expensive before you sign the contract than afterwards. Each and every detail should be clearly spelled out.

The contract for buying a boat out of dealer inventory should spell out the following:

1. Complete price including all extras, taxes, or other charges
2. Delivery date
3. Payment terms with provision for the escrowing of funds by a third party, if it's deemed important
4. Specifications and all equipment to be aboard
5. Warranty clauses in as much detail as possible
6. Definition of the written form title will take, and provisions that it be clear of any liens (the vessel will probably be pledged to a bank or other financing company as collateral for floorplan loans)
7. Any special conditions, understandings, or promises made during the negotiating period. Don't rely on memory. If someone's committed to something, it's important enough to have it tied down in the contract.
8. Any survey conditions.

## Dealing with a Production Manufacturer

When you move on to buying a vessel from a manufacturer (perhaps still through a dealer) and the vessel has yet to be built or completed, the equation gets one step more complicated. The risks also escalate, as there is another step of fiscal responsibility you have to worry about. Also the basic question of what you are getting is even more important, since you can't see the boat beforehand.

Because you will be dealing with a builder and dealer of established reputation, the odds are you will also have seen samples of the type of yacht you will be purchasing. This will help you formulate in your own mind any special changes you want and the level of quality to expect. A good set of specifications still helps tie down details. Most stock manufacturers use abbreviated specifications. Your own propensity for detail, the reputation of the people involved, and the type of work you have already seen will help you decide if a more detailed set of specifications is called for, as we suggest for custom work. The most serious question to be addressed will be payment terms.

## Progress Payments

It's not unusual for a builder to request and receive a deposit with the order, partial payments, and final payment before the yacht leaves the factory. In this case, should a financial problem occur with the builder, your contract had better be very clear on ownership rights and where your funds have gone.

If the legal jurisdiction you are working in has provisions for ownership of partially completed work, and if such a clause is included in your agreement, you may be deemed the owner of the hull subject to payment of any funds due. This would make you a secured creditor. In this case, should a financial problem occur eventually, the receiver, or perhaps new owner,s would have to deal with you on the uncompleted portion of your contract. You would avoid becoming a general unsecured creditor, which usually leads to a major loss. But you will incur attorneys' fees: it may be difficult to make the partially completed yacht seaworthy, and many months of discussion with the liquidators will delay things further. It's a rare occurrence, but one that you should nonetheless plan for if funds are paid in advance of receiving the completed vessel.

Another aspect to consider is Lloyds, American Bureau of Shipping, or Veritas Certificate of Compliance for your yacht. Many builders advertise in compliance with or better than a given set of standards. They even offer a certificate at extra cost. But when it comes right down to delivering, it's not an easy thing to obtain.

Having a rating-bureau certificate can mean increased resale value. It does generally (but not always) mean you have greater assurance that your yacht will meet minimum standards. Rating-bureau certificates should be carefully considered on larger yachts. They are not, however, in and of themselves, a way completely around shoddy work.

Deadlines are another aspect to tie down carefully. I like to have them divided into a series of categories: hull starting date, hull completion date, deck in place, interior work and machinery complete, launching, completion of trials. A provision for making up lost time with a larger crew or overtime (at no cost to you) may also be included.

To recap on buying a new boat through an established, prudent builder, the contract should include these items plus the following:

1. Detailed delivery conditions
2. Ownership provision for partially completed work
3. Details with respect to rating-bureau certificate
4. Payment schedule
5. Detailed specifications including details on any customization work to be done
6. A proviso that no extras will be charged without written authorization, and a detailed basis of how these will be accounted for

## Custom-Yacht Contract

Custom building involves a more complex contracting situation. The very nature of the process of custom-yacht building will give rise to disagreements among the participants, and a clearly defined means of resolving these disputes is a must. The financial involvement and attendant risks

are greater for all concerned. While the owner will want to be as fully protected as possible, the yard will also need protection. As we have discussed elsewhere, there are many ways that an owner can cost the yard enormous sums of money. And, where a production builder may be able to sell a partially completed yacht (if the owner has backed out), a custom yard may find it next to impossible to find a buyer for a partially completed specially designed hull.

I have spent time on both sides of the fence. And while at the present time my sympathies lie more with the owner than the yard, I have spent enough time building for others to recognize the yard's need to be protected. To be workable any contract must be fair to both parties and provide for both their special needs. As you read through the following material, some sections may strike you as being too much on the builder's side, but I have put them in for a reason. The builder's attorneys, if they're on their toes, will ask for them in any case.

At the beginning, let us make a division between the contract itself, and the specifications which are usually incorporated into the contract. The contract governs the actions of the parties involved from a procedural and business standpoint. The specifications detail how the vessel is to be built. In cases where the two overlap, with slightly different meaning, the normal rule is that the specifications should be the governing document.

The outline below does not include all the "boilerplate."

1. The architect, contracting parties, and any attached documents should be defined. This is a must. Without it the contract may be unenforceable.

2. Any special terminology used in the contract should be defined. A "definition" sections should be included.

3. The specifications and their prominence, must be discussed.

4. A brief description of the vessel and a list of the drawings should be a part of the contract. If the drawings are incomplete, it should be so noted, in which case if there is an eventual dispute between the drawing and specifications (which should be complete), the specifications will be used as a reference.

5. Building schedule broken down into as much detail as possible.

6. Provision for making up any delays that may occur through use of increased manpower or overtime. If the project is behind, the yard is to bear the cost, or if delays are due to the owner, he shall pay the cost. Often "hypothetical situations" can be inserted to clarify what might be otherwise ambiguous language.

7. The yard may want a separate clause governing losses due to inefficiency if the owner caused delays, necessitating overtime or rescheduling of manpower.

8. Nominated supervision that the yard is to have on the project if required.

9. Owner's access to the project. Some yards prefer to restrict unlimited access to "reasonable" access so as not to cause too much disruption in their work schedule.

10. Owner's representative on hand, if anticipated, should be spelled out. If he is to have final authority over changes in quality, change orders, and extras, this must be delineated.

11. Quality standards and any certification required (also partially covered in specifications).

12. What equipment the owner shall be entitled to furnish. In some cases it may be possible to furnish almost all materials. Spell out if the yard is to receive a surcharge for handling owner-supplied materials.

13. On owner-supplied materials, who is to coordinate and pay for receiving, passing through customs, brokerage, shipping, and related.

14. Special subcontractors to be used by the builder at behest of owner should be spelled out.

15. Warranty: Should cover the various factors in detail or be very general (latter is preferable in many cases), and provide for how and to whom and at what address notice is to be given of a warranty problem, what actions the yard must take to correct the problem, and if it doesn't, how the owner is authorized to make corrections for the account of the builder. It is not unusual to have a joint payment set up after a certain amount of time between owner and yard. We were involved in the contract on a large cutter built in New Zealand some years ago. In this case, we had concern about gelcoat blistering or the "pox" as it is commonly known. The yard doing the work for us, Salthouse Brothers, had not had a problem, but other New Zealand builders had. They were concerned about their exposure to having a problem fixed in an expensive U.S. yard, while on our side

we had the same worry, although from a different perspective. The situation was resolved so that the costs of any repair up through a year after leaving New Zealand waters would be split between the owner and yard. To minimize costs, the yard would have the right to have the work done with their supervision in a “do-it-yourself” yard. As it turned out, the pox did exist, the yard exercised its rights, sent a man over, and the problem was quickly and reasonably resolved.

16. Ownership: If a progress payment schedule is included, the contract must provide for ownership of the vessel to lie with the owner subject only to unpaid invoices. The lien rights of suppliers and other authorities must be clearly understood. In some cases, once material has been incorporated in a vessel, the individual supplier loses his rights to enforce a lien against the vessel. In other legal jurisdictions they don’t lose the right until payment is received. Be sure to understand these legal points carefully and provide for lien releases from any suppliers or subcontractors that might have a claim, each time a payment is made. The question of ownership should also be clearly examined. If the law does not vest this concretely in the buyer after payment, then stay away from any form of payment prior to delivery.

17. Performance: You must deal with the yard’s performance and breach of it including time to correct a breach after being given notice. It’s desirable to incorporate a clause giving you the right to cancel upon such an uncorrected breach and remove the vessel to have her completed elsewhere — a last-resort step. It also may be possible to include a clause that states that upon breach you may utilize the yard’s tools, equipment, premises, and manpower to complete the yacht.

18. Performance, by the owner, will state conditions about payment, delivery of drawings and materials, and what damages are to be paid, if any, by breach of the owner in these various cases. Usually applied to just failure to make payment on time, it is not unusual to have severe liquidated damages involved for the yard. Liquidated damages are a different breed of cat.

19. Delivery penalties: The question of late-delivery damages is double-edged. You want some bit on the delivery sections, but you also want the job done right. I like to have a section involving a late-delivery claim, but exercise it with discretion. One exception is when weather patterns or other considerations force you to have a fixed delivery date. Delivery is usually defined as completion of sea trials — that is, when the vessel is finally completed and ready to sail on her first passage.

20. Insurance: The yacht and any special equipment should always be insured. The owner should also be held harmless from any lawsuits arising out of the yard’s building, the vessel as a result of third-party actions for damages. It is normal to request that the insurance company name you as a co-insured on a loss page and reasonable notice of any default or failure to pay on the policies, in which case you have the ability to pick up the insurance. Who pays for insurance is a negotiable issue. About half the time it is paid for by the yard.

21. Storage of owner-supplied equipment in a locked or bonded store room is usually done by the yard at no cost.

22. Extras: More sleep is lost by both yard management and owners over this subject than any other. I prefer to have a completely tied down contract with no extras, however, as a rule, there are always some. The “extra” clause should state that written authorization must be received before starting anything outside the scope of the contract. At this point the yard and owner should agree in writing on the amount. Otherwise a formula for costing extras out should be included. It should be broken down as follows:

a. Hourly rates for each category of worker

b. Cost of materials, plus a profit percentage of materials. Again, an illustration or “hypothetical” written right into the agreement will be helpful.

It is not always possible to have a fixed price, and some alternate methods of doing custom work are discussed in the chapter on pricing custom vessels.

23. Acceptance of the yacht should be carefully delineated. The yard will want the architect or the surveying body to have final say in the event of any disputes. You want to make sure that whoever has the final say will be truly impartial and not beholden to the yard.

24. Disputes: I prefer binding arbitration with a set time-frame for getting the procedure started and completed. The findings should be final and complete and have the force of the law. It will save substantial sums of money in the event of a dispute. Informal or formal arbitration may on

occasion be spelled out for the architect to decide on. In this cases, his proximity to the building will be important. The arbitration clause must be carefully drafted to cover all the potential disputes.

25. Documentation: As part of the final acceptance you will want complete and proper documentation from the yard and any governmental bodies as is required to register the vessel in her home port.

26. Price: The elements of the price must be carefully spelled out in a number of respects.

- a. The basic price
- b. Any special additions or basis for paying for items not included at this time.
- c. The inclusion or exclusion of costs for delivery to dockside, setting up for sea trials, loading if required onto transport, supply of cradles and traps and general preparation for transport, delivery on her own bottom if required, insurances, taxes, duties, or special levees (or exclusion thereof, which is the way we like to have it, since you are never sure what may crop up — and the yard generally knows).
- d. treatment of extras
- e. percentage overrides, if any, on materials supplied by the owner.

27. Payment guarantees by the owner: It is not uncommon for the yard undertaking a project to request the owner to furnish either a suitable banker's guarantee or letter of credit, in the amount anticipated to be drawn upon by the yard in agreed amounts. This guarantees the yard that the funds are available for them to complete the project once they start it. The terms should be carefully drawn to ensure that the work has been completed before funds can be drawn.

28. Performance or completion bonds: Larger, well established yards may be able to supply a bond that provides you with a certain amount of security in the event of the yard's failure to perform. The actual percentage of the bond and its terms are subject to negotiation and will vary widely from 100 percent to ten percent with insolvency or receivership being the usual means of triggering the bond's effectiveness. The cost of the bond will have to be negotiated at the contract-signing time.

Having read the last lists of information, let us now tell you that a majority of all custom yachts are contracted for on a simpler basis. Many yachts costing hundreds of thousands or millions of dollars have been built pursuant to three-page contracts. In some cases, if the yard is experienced, financially sound, and able to estimate accurately exactly what is involved, the project will be a success. If anything goes wrong, however, or there is an ownership or management change, it is better for all concerned to have the details spelled in advance. This goes for yard management as well as the owner.

## SEA TRIALS

For the new-yacht purchaser, detailed sea trials are an important ingredient to a successful start in ownership. These trials provide all parties with a chance to check out the yacht, make adjustments as required where it is efficient for the builder to do so, and still convenient for the owner.

It is in the interest of boat owner and builder to make sure that everything is in top working order before the new yacht leaves the builder's care. This minimizes the builder's warranty problems and reduces the owner's frustration of having to deal with a less-than-perfect yacht.

If you are buying a used yacht, a detailed set of trials in addition to the normal sailing trials will tell you a lot more about your prospective purchase.

And, if you are getting ready to set out on a long cruise and don't have many hours of experience on your vessel, these trials are a good way to find out the problems that may be lurking before they catch you in some out-of-the-way anchorage.

The overall goal of the sea trials is to determine that each piece of gear aboard functions properly within the normal parameters for that type of equipment.

There are three levels of data to be determined. First is the basic operating mode for a given piece of equipment. This means noting starting, stopping, and proper function under static conditions (at the dock). Next, proper installation should be determined. Checking vibration and noise levels, looking for chafe which will cause problems later, and determining ease of access for future maintenance all are considerations.

Last, we have loaded trials where equipment is utilized for lengthy periods of time at varying levels of load to determine that everything functions the way it should under actual usage. Time is important at this stage. The more the better. Time lets equipment move around and be subject to the various stresses of operation. Careful inspection afterwards will yield many answers to how well equipment performs, and if there are hidden problems that may develop more fully with usage.

A properly conducted, complete set of sea and dock trials can take from a day or two for simpler yachts to several weeks for larger, more complex vessels. With a used vessel, equipment is already broken in and trials do not have to be so time-consuming.

The following specific recommendations are based upon our experience as both a yacht owner and a builder of many large yachts.

During the trials the owner or his or her representative should be present, along with personnel from the builder (or brokerage firms if a used yacht).

Starting at the dock, the main engine should be run in forward gear for two-hour periods at one-quarter, one-half, and three-quarters throttle. Then it should be put into reverse at one-third throttle for a further two hours. Watch for vibration, proper action of flexible exhaust connections, and shaft alignment, while checking on prop noise and vibration. Temperature and oil pressure should be within the range specified by the manufacturer, especially under higher throttle settings. Notice the amount of cooling water flow. Be sure that dock lines are well secured and that the hull is properly fendered. Remember that the hull will surge forward and twist inward under forward thrust so more fenders may have to be placed forward (and later aft) than is normal.

Each generator should be run under load at 50 percent, 75 percent and 100 percent of capacity for two hours at a time. Again note engine, oil, and water readings and coolant flow and check that voltage and cycles per second are okay at various loadings. If an automatic shut-down is provided in case of heat or oil pressure failure, simulate this requirement to make sure the system works.

The refrigeration system should be pulled down and then cycled on a daily basis during the entire trial period. A minimum period for this should be a week. Note the time it takes for pull-down after the first cycle, and check for frost on the suction line (the larger of the two tubes or hoses coming from the cold plates) beyond the confines of the refrigeration box. Watch for compressor knocking due to liquid freon, and check the sight glass to be sure the right amount of freon is in the system. At the end of trials check for freon leaks.

The air-conditioning system will go through a similar checkout on both heating and cooling cycles. It is not a bad idea to have this equipment running all during trials, on shore power when necessary. Look for the same things as with refrigeration, with the addition of a check on the drainage of condensed water from the evaporators (cooling coils).

Fill and then empty the freshwater tanks with the pressure pumping system at least three times. Check all pressure connections for leaks. This means hose connections at T's under the floorboards as well as more accessible connections. Note that automatic pressure switches work for shut off and that heat sensors shut down the pump when tanks are empty and the pump is running dry. Check pressure saltwater pump in the same way.

Bilge pumps should be checked for automatic operating by allowing fresh water into each watertight compartment. At least 20 cycles should be run. Note that the float switch begins operation at the right level and that it allows the pump to suck the compartment relatively dry. Check out high-water alarms at the same time, and be sure the manual overrides on the pumps work properly.

Manual bilge pumps should be operated to see that their location is easy to use, even in a sea-way.

If there is a large damage-control pumping system, be sure that it operates into each watertight compartment.

The steering system should be run hard over to hard over for 40 cycles by hand and then by autopilot, with the engine in gear at half-throttle. Be sure that the emergency tiller is stowed in a handy spot and that it operates without obstructions.

Ground tackle should be tried out and checked to make sure the anchor stows without damaging the bow and that the chain flakes down by itself without having to have a crewmember knock down chain piles.

Roller-furling gear should be checked a dozen times to be sure that it rolls neatly and that the rope or wire leads onto and off the roller drum properly. Check hoisting to be sure the halyard swivel runs smoothly.

Spinnaker-pole gear needs to be run in and out ten times to check leads, ease of operation, and to familiarize the new crew with the gear.

With electrical and electronic gear there are two levels of testing. First, you are looking to make sure that the equipment functions on its own. Second, you are looking for interference from other gear. Perhaps the alternators create static on the radio, or the autopilot interferes with the loran-C receiver. Run each piece of equipment individually to be sure it operates properly, then run it all together to check for interference. Miscellaneous gear such as fans or lights should be operated for at least two hours a day for three days. Other electronic gear should be allowed to operate all during sea trials. However, be sure to turn the electronic gear on and off a dozen times a day to see if there are warm-up problems.

Shore power should be hooked up, checking the vessel for polarity and load-carrying ability.

DC electrical systems and AC systems should be checked for ground faults and/or shorts or leakages. If it is a metal hull, the hull must be checked that it is isolated.

With a metal hull, initially and at the end of sea trials, check for electrical isolation and that the cathodic protection is working properly.

Watertight integrity must be tested. Hard rain is the best test for leaks. Barring this, every fitting, hatch, and port at the deck level should be deluged with a heavy-duty hose. A high-pressure wash down is even better. Inside the vessel, all lockers and other storage areas should be empty. Placing paper towels in each likely leak spot will leave telltale signs, after testing, as to whether or not you are truly watertight.

Once dock trials are completed it is time to go to sea for a final check. The engine should be run under power for two hour stretches again at one-quarter, half and three-quarters power settings. A final full speed run for 15 minutes should be made. The reverse should be checked by going from 1/2 forward to full astern half a dozen times.

Steering should be checked by going hard over to hard over for ten cycles at half to three-quarters throttle; under hand and then autopilot. In reverse, at one-quarter throttle let the steering run so the rudder fetches up against its stops a dozen times. When you return to the dock, be sure to look at steering-cable tension and the condition of the rudder stops.

Sailing trials are then conducted, hopefully with some breeze, while each sail is set, fit, shape and lead noted. Roller-furling gear should be used at various sailing angles and in varying wind strengths, and conventional reefing gear should be tried out.

When you return to the dock a final inspection needs to be made. Once again look at prop-shaft alignment. Check all oil, water, and fuel lines for evidence of leakage. Review wires and hose for signs of chafe. Check exhaust lines for vibration damage and leaks. Look at and around V-belts for signs of fuzz, or wear on the belt edges — both are a sign of misalignment.

Finally, have a look at the engine and generator exhausts and be sure they are clean. Deposits of soot can mean loading problems.

With a thorough set of trials completed, all the parties concerned know the condition and operation of the yacht. Proper sea trials help take the tribulation out of yacht ownership. It's a nice way to start off a new relationship.

## FORMS OF PAYMENT

Letters of credit and banker's guarantees are frequently used in many aspects of boat building. To those unfamiliar with their use they seem to involve dozens of irrelevant and confusing details, but in reality they are quite simple. Proper use of these instruments can protect you and those to whom they are assigned.

### Letters of Credit

Letters of credit or bank guarantees are basically the promise of one bank to pay another bank subject to certain terms and conditions contained in their documents. From a practical standpoint, the banks use standardized forms and usually only transmit the varying details. Their use can vary from the purchase of winches to a complete yacht's financing. As with contracts, their wording is

subject to negotiation and needs to be fair to both the issuer and the recipient. The latter is looking toward this instrument as a means of guaranteeing his payment as long as he fulfills his contractual obligations. It's normal when this approach is used for a complete yacht that the builder go to his bank with the documents and obtain a loan, based on his performance in the past and the guarantee of payment.

This approach to overall finance ensures the buyer that the builder will only receive payment after he has completed his work, on time, and with the necessary approvals. The builder will be faced with paying the costs of his interim finance — that is, the funds required to finance him between when he starts your project and when he collects his money. These charges will be passed on to you. The actual cost of these charges will be reduced by the interest your funds earn while they are waiting for payment at the end of the building project.

As an example, let's say that a builder in France has to pay 10 percent interest on his money for interim finance. You place your letter of credit through a New York bank, which requires some form of collateral as security. Since you already have the cash saved up, you put this into a money-market fund pledged as security to the New York bank. The return on the money-market fund is 7 percent, so the actual premium you have to pay is 3 percent. That, plus the cost of the letter of credit, would be termed a form of insurance. If anything goes wrong with the builder, your funds are totally safe.

The letter of credit will have a maximum amount stated on it for the project. It may also have some form of a pricing formula involved. Next, there will be a delivery date, and a date by which the letter of credit must be exercised. Unless you authorized its extension, once expiry has been reached, the LC is rescinded and the guys on the other end are out of luck. It is normal to have the expiry date quite a bit beyond the expected delivery date, perhaps with a penalty clause that deducts a certain amount for each day after expected delivery the vessel is late as an incentive to keep the project on schedule. On an expected 12-month building project, an 18-month expiry date would be in order.

Next will be detailed the type of documents required to collect against the LC. In the case of a complete yacht, this will be in some form of builder's, surveyor's or architect's certificate that the vessel is in accordance with plans and specifications. If she is to be shipped to you as well, the documents may also require the original on-board bill of lading, copies of insurance for shipment, and proof of freight pre-payment, if that is part of the contract.

It is also possible to write an LC or guarantee in such a manner as to allow partial drawings, as progress goes along. This puts your money at risk if the builder fails, but it is frequently done where you have confidence in those you are dealing with. In this case again some form of certification is required that the work has progressed to the point where the drawing is in order. An architect's or surveyor's certificate is normally used.

Letters of credit are used to finance shipments of materials as well. This guarantees a supplier that he will get his money, and it guarantees you that your goods will be shipped, on time, or the supplier doesn't get paid. The terms and conditions are the same, however, you will have to stipulate if you will accept a partial shipment. In many cases, where you are shipping materials overseas, the cost of packaging and clearing will be too high to make it economical to have more than one shipment so you will not want to allow partial shipments.

Some banks are quite used to working with letters of credit and guarantees. Others are not. It is best to find one that has experience in these transactions, as there can be some frustrating slip-ups on occasion. Normally establishment of the LC is a prerequisite of the yard starting your project so you will want it done in a hurry. Have the bank *wire* the LC to the waiting bank, and ask the receiving bank to advise by fax or immediate phone the recipient (yard) that the LC has been received and the terms and conditions. It is not unusual to have your bank send the LC by fax in which case it is received instantaneously at the other end, only to have it lie in somebody's basket for a week before the people actually looking for it are informed.

As a double check, I like to get the LC number and special routing data, in case it doesn't go directly from bank to bank, and copies of the actual paperwork. That way I can send along the data to the intended recipient so he can check on his end. If you are in a hurry, ask the bank to include

instructions to those on the other end to fax back that they have notified their client of receipt.

## Bank Guarantees

A bank guarantee is much the same as an LC and in some cases it is used interchangeably. At other times it works as a straight guarantee, which a letter of credit can also do.

An example might be where you wish to use the financing in a local market to help pay for the project since it is cheaper than at home. The local bank will want some form of credit guarantee. In this case a banker's guarantee or LC will be established from your home base to the foreign one to guarantee your loan.

## Sight Drafts

Sight drafts are a completely different animal, and are used with suppliers of materials. It is a form of COD but takes a bit more trust on the part of the supplier. Basically, he takes your order, ships the material, and then sends the bills of lading and an invoice or sight draft to your bank for collection. Once the draft has been paid, the bills of lading are turned over to you and the material can be collected. The risk to the supplier is that if you don't collect the materials he may be stuck with materials a long way from home, possibly manufactured to your specifications, with the thought of having to bring them back.

The advantage to you and the supplier is that it eliminates a step of paperwork, the cost, and time loss involved with it.

Banks generally charge between 1/2 percent to 1 percent of the value of an LC or sight draft for establishing it. This cost is normally levied only once, even though the document may be open for several years.

To recap then, when establishing your letter of credit, try to deal with an experienced bank, and be sure to do the following in your instructions:

1. Include payment details, amount, currency and who pays any special costs associated with the LC or its use
2. Carefully delineate the documents required to draw against the letter of credit
3. Note if insurance papers, freight prepayment, or any other specialized actions have to be taken
4. Establish a final date by which the LC must be acted upon and/or the vessel shipped or completed sea trials
5. Advise the banks at both ends if you want rapid processing to fax notification and confirmation.

## PAYMENT SCHEDULES

It is not at all unusual to pay for a yacht on a percentage of completion basis. At the start a deposit may be given, then at specific intervals along the way, funds are transferred to the builder.

Since many well-established, quality builders don't have the capital, or the borrowing capability to finance your project, it's a system you may be forced to adopt.

Before getting into different types of payment schedules, let us discuss the risks involved. As we have noted elsewhere, boatbuilding is not the most profitable industry around. Most people in it do it for love (even if they don't realize it!). As a result of this, and the fact that many builders are not the best business people, the bankruptcy rate is very high. You want to be protected contractually if you will be advancing funds, being sure that you have good title to hard assets should a problem occur. If the local legal system doesn't provide for this, be very careful about whom you deal with and how the funds are handled.

Next, if a builder has a normal business practice, gets a large deposit with the order — say one-third — and he has this from many clients, then he is working with other peoples' capital. The following payments will keep him ahead on a cash basis of what he has really spent, right through the end. If this is the case, and he is doing well financially, all his suppliers should be getting their money promptly. If they are extending longer than normal credit, or if he isn't discounting his bills with prompt payment, it is a good sign that regardless of what the books say, the builder's financial condition may not be the best. A check with the local credit agency will reveal a past history of payment problems and litigation. The latter is also a signal that there may be financial problems. When you ask the builder for a list of credit references, don't get just two or three. The

average builder will deal with several dozen suppliers. Check at least ten for payment history, current payment practice, and amounts owed.

Everybody likes to work with the other guy's money. It leaves yours tucked away for a rainy day. It's human nature to try to negotiate the best possible cash flow, and if you can get ahead of the other guy — that is, do the project with his money — yours (if you really have it) can be earning interest and reducing costs. The trick is to be fair. If you're dealing with a builder who needs the cash flow to keep working, you want to stay even and be sure the funds you disperse actually go towards the bills incurred on your project.

There are two basic ways to approach these payments: three or four lump sums at certain stages of work, or a more detailed break down with the builder providing back-up for each draw.

### Basic Payment Schedule

Of the simpler method the following are some examples. This system is used by several sailboat builders.

1. Five percent on signing
2. Five percent on firming up specifications and options
3. Twenty percent when hull is about to start
4. Thirty percent when hull, deck, bulkheads are in place
5. Thirty percent on launching
6. Ten percent on completion of sea trials

A number of large motoryacht builders work as follows:

1. Five percent on signing
2. Twenty percent on completion of complete contract and specifications
3. Twenty-five percent when keel is laid
4. Twenty percent when hull has been plated and main engines installed
5. Twenty percent when deck has been laid and superstructure mounted
6. Ten percent on completion of sea trials.

In this case, the builder normally buys all the materials for the project right in front, so there is a heavy up-front cash cost.

### Detailed Payments

On the other hand, you may want to be more conservative and have a more detailed breakdown, especially if dealing with a smaller outfit. This is more troublesome for you and the yard, but has the advantage of letting both of you know if there is a problem budget-wise, in time for some corrective action to be taken.

Materials are to be paid for by the owner upon receipt of invoices from the supplier. If things are really tight at the yard, you may want to pay the suppliers directly. The yard will always have some material in inventory, and this should be an agreed-upon amount paid at some convenient point, usually after construction has begun.

Each subcontractor will also be billing, and these can be paid upon presentation by the yard, or to the subcontractor directly.

The yard's work is generally divided as follows on hulls:

Fiberglass hulls

1. Hull laminate in place
2. Bulkheads in place
3. Deck molded and in place
4. Keel and rudder fabricated and in place

Metal hulls

1. Lofting
2. Framing
3. Plating
4. Welding outside
5. Welding inside
6. Deck structure
7. Keel, rudder, ballast

### 8. Miscellaneous work

Interior works are generally divided as follows, regardless of the type of vessel. (Note: Some items will vary — for instance, bulkheads — but it will average out.)

1. Bulkheads
2. Rough furniture (this is the basic plywood structure of cabinets, bunks, tables, shelvings, etc.)
3. Cabin soles
4. Cabin ceiling
5. Trims (teak or other hardwood trims)
6. Locker doors
7. Main doors (to cabins and heads)
8. Tables, ladders, and other miscellaneous items
9. Paint inside of lockers
10. Varnish
11. Drawers
12. Hull siding (panels or battens, or fabric)
13. Formica work (galley, heads)
14. Refrigerator/freezer boxes and doors
15. Install lights, electrical plugs, electronic and other gear
16. Miscellaneous work inside
17. Deck structure (cockpit coamings, dorade boxes, gear boxes)
18. Deck hardware
19. Teak decks
20. Transport, launch, rig and sea trials

In addition to these categories you will have specialty subcontractors or if the yard is doing this category of work directly, the following:

1. Electrical system
2. Engineering (engines, generators, shafting, rudder installation, etc.)
3. Plumbing
4. Refrigeration and air-conditioning
5. Spars

On budgeting we give some ideas on relative values so you can have an idea of what is a fair allotment to each category. Be aware that the yard may need to have partial payment in many of the categories, so each month you may want to agree on a percentage that has been completed against each value. Take wiring as an example. Say you have a 40-footer being built, and wiring or electrical work is supposed to be US\$25,000. At the sixth month of work the conduit is in, the wires pulled, but the control panel and miscellaneous hook-ups are still to be completed. That's about 40 percent of the way through, so you would pay the yard US\$10,000 of the total electrical fee at that point.

### **Cost Plus Fixed Fee**

There is one other somewhat unorthodox approach to consider. If you know and trust the people you are dealing with, and if it is very difficult to tie down a tight cost for the boat a cost-plus-fixed-fee method sometimes works well. One approach I like is to negotiate a monthly fee for overhead, a fixed fee which includes the profit for the project, and payment of the actual direct salaries and material costs associated with the builder. It removes the risk from the builder so he can give you a very tight figure. While you pick up the escalation risk, you will pay less for overhead. When you have to decide if you want to put another two or three coats of varnish on the interior you will be looking at an hourly rate of less than half the norm.

## **CLASSIFICATION SOCIETIES**

Classification societies such as Lloyds, American Bureau of Shipping (ABS), and Birske Veritas (DnV) are basically set up to survey and classify shipping. However, they all participate to one degree or another in yacht certification as well.

A caution — before you sign up to spend a bunch of money, take a close look at the rules, how they are administered, and the weaknesses in the system.

One problem with straight society rules as they apply to yachts is that they're frequently behind the times on technology, or are captive to a certain group of designers, or don't make sense for the average cruising boat.

Lloyds, for example, until recently did not recognize the value of cored fiberglass hulls.

ABS scantlings are denoted for "racing yachts." If used to the letter of the rule, they produce yachts that are sound in normal situations, but that are lacking when the chips are down. So when you see an advertisement that says a boat "exceeds" ABS requirements, take it with a grain of salt. In recent years, ABS "approval" has become a marketing tool, not to mention a way for a builder to legally cover his rear. In theory, the builder submits a complete set of plans to the ABS, which then checks them to ascertain that they comply with the pertinent rules and are therefore safe for offshore work.

However, as we've already discussed numerous times, there are many weaknesses in the ABS rule. Although the rule makes sense as a starting point, a boat built strictly according to ABS will not, in most cases, be strong enough for those mistakes that normally come with cruising. We prefer to use multiples of the rule in various parts of our structures. For example, in the area of the keel structure we typically engineer to four times the ABS requirement. Rudders are usually around twice ABS.

### **Building Under Supervision**

It is frequently possible to engage the services of a surveyor to keep an eye on your project during its construction. This can be a good way of ensuring yourself about some aspects of quality. It also helps with paperwork for progress payments.

However, regardless of the label involved (ABS, Lloyds, etc.) the survey is only as good as the attention and knowledge of the surveyor doing the work. If the surveyor's primary experience is with ships, he will not be of a lot of value on a small yacht.

In fact, I would rather have a surveyor who was a technically qualified independent than one without credentials but affiliated with some big-name organization.

Some years ago, a client and friend of ours had a large aluminum sailing vessel built under ABS supervision in the Far East. The building situation didn't work out, and he negotiated an arrangement with the yard to remove the vessel and have it completed in New Zealand.

Bearing in mind that construction was under supervision, including numerous x-rays of welds, he wasn't overly concerned with quality. When work started in New Zealand, however, all sorts of problems were found with welding, resulting in huge costs to correct the work. Between x-rays and supervision, this was theoretically impossible. But it happened. I'll leave it to your imagination to figure out how.

In another situation, we were getting ready to sea-trial one of our designs that had been built under supervision — at significant cost. Before we had even begun trials, and while we had a long list of items to which the builder needed to attend before the boat was ready for sea, the surveyor proudly handed me the approval plaque. The watertight bulkheads were not even sealed at this point!

To repeat, in the final analysis, the surveyor's integrity and experience in your type of vessel are critical.

### **ABYC Standards**

The American Boat and Yacht Council (ABYC) is an industry group that develops and publishes standards for construction. These cover all sorts of vessels, from dinghies to large yachts. Much of the material makes sense. Even more of it has little or no bearing on what it takes to make a proper cruising yacht. However, in the U.S., manufacturers typically play by ABYC rules in order to cover themselves legally.

### **Keeping Your Certification Up to Date**

If you do build under survey, you may want to keep your survey up to date. In some cases this can result in significant insurance-premium savings. Before choosing a classification society be sure to check their ongoing survey requirements and the costs thereof. These vary quite a bit from one organization to the next.

## REGISTRATION

There are various ways to register your yacht. Everything from a local (state) registration number, through a national document to a foreign flag is a possibility.

### U.S. Flag

If you are building in the U.S. and wish to have a federal documentation number, it is typically easiest to use a documentation service. These folks will gather together the necessary paperwork and deal with the Coast Guard directly. Time frame for receiving a document varies, but can run anywhere from 30 to 120 days.

On the other hand, if you are building in foreign waters and want a U.S. flag, it can be much more difficult to get your documentation completed (although not impossible).

It is frequently possible to make your voyage back to the States with a “builder’s certificate.”

### Foreign Flag

Flags of convenience have been around for a long time, and many of our clients take this approach to registration. Typically this is with a British flag (which brings with it the ability to obtain a reciprocal cruising permit in U.S. waters).

Most British flag authorities, such as the Cayman Islands, require the vessel be owned by a local company, which is set up in your name.

There are advantages and disadvantages to this approach. Because each situation varies, we suggest you consult with legal and tax experts in the field to see if this makes sense for you.

### Official Measurement

Most foreign flag countries require some form of an official measurement form on which to base their certificate. This is typically prepared by the American Bureau of Shipping, for which they charge a fee in the range of US\$500. You will want to arrange for this before taking delivery to expedite the paperwork process.

### Marking Certificate

Some government bodies will require a carpenter’s marking certificate. Form requirements vary with government jurisdiction. In the case of most British entities, they want the ABS or Lloyds surveyor to fill out a form stating that the ship’s markings (i.e., official number, name, and home port) have been properly applied.

You will need to arrange for this to take place before or during commissioning. Otherwise, logistics with the surveyor get difficult.

## SALES TAX

Sales (and other) taxes vary with local. In general we’ve found that regardless of where a vessel is built, if it is for export to another country, local taxes do not apply. In some cases you have to file forms to get the taxes back before leaving.

In the U.S. sales tax can be a huge issue. You will want to make sure that you take delivery in such a manner as to make it unnecessary to pay sales tax in the locale where the boat is being built.

## A WORD ABOUT SCHEDULING

Building a yacht, even a production-line vessel, on a “schedule” is somewhat of an oxymoron. There are so many variables involved, from the myriad of suppliers to the variety of options on your boat and the boats on the line ahead of you, that it is the norm for schedule to slip.

On one hand, the builder wants to get the boat to you as quickly as possible. On the other, you both want to be sure the boat is done correctly before it leaves the plant. So, take the delivery dates you receive with a grain of salt. They may or may not be met.

It is best to avoid making commitments with friends and family, and buying advance purchase airlines tickets until everyone involved is *certain* that the schedule is close enough so that the projected dates are *reasonably* accurate. This will save all sorts of frustration toward the end.

## COMMISSIONING

The commissioning process is usually spelled out in the contract documents or specifications, if it is included in your contract price. It is the norm with custom and semi-custom projects to have sea trials completed before you accept the vessel.

However, with production boats commissioning is frequently done by the owner, sometimes with the assistance of the dealer.

The process can be done quickly or drag on and on. It's very much a function of the complexity of the boat, how well the builder has done his job in the first place, and your approach to the process.

With a medium-size custom project it is not at all unusual to spend between 1,000 and 2,000 man hours on this process. Of course, this includes a lot of fine tuning, working with recalcitrant electronics, and spending hours and hours running various systems to make sure that everything functions as planned.

Once the systems end of the boat is stabilized, you then need to look at trial sailing. While there may be a strong desire to bring along a big crew of friends, we've always found it best to get familiar with the boat with the smallest number of folks aboard that is practical.

It is going to take more space to maneuver until you get to know the boat, things will take longer, and it is safer to have only experienced folks aboard during this time.

Once this phase is over, our strong suggestion is to take the boat out and use it, before doing anything else in the way of adding gear. Get some real-world cruising hours on the boat, close to the builder and/or home. You are bound to come back with a list of things that don't work just correctly.

### Launch Party

You may want to have a launching party for family, friends, and the building crew if the boat is a custom or semi-custom project. There are several approaches to this.

One way is to christen the boat and have the party coincide with the first time your new yacht hits the water. Of course, this means that the boat will not have its spars in place.

The other approach is to drop the boat in the water, get the spars into the boat, and do the basic commissioning. Then, when everything is ready, have the party with the boat in ready-to-sail condition.

### Avoiding the Boatyard Blues

There is nothing so frustrating in all the world as wanting to be sailing while your new yacht sits high and dry in a yard while the commissioning process drags on and on. Everything seems to take longer than it should. Work progresses at what appears to be a snail's pace. If a launch party has been planned, as the date nears the boat may not be ready, causing still further anguish. If this happens to be taking place during the best sailing season you can be sure those summer plans are going to come unglued.

To repeat what we've already said, our experience over many years is that the very best way to handle this is to get the boat into the water and sailing as quickly as possible. Do the absolute *minimum* required to achieve your initial aims.

Then put some miles on the boat. Get used to how she sails and handles. Become familiar with the systems and standard sail-handling gear.

After you've spent time aboard at anchor, under power, and offshore, you will be much better informed to make decisions on additional equipment and special commissioning projects which are right for your needs.

This approach also has the advantage of allowing you to schedule the most convenient time (for you and the yard) for the work to be done.

Unless you are absolutely 100 percent certain you want or need a particular piece of gear or project done, wait until you've used the boat. In the final analysis, the simpler you keep the boat, the less maintenance and frustration you will have over the years (this applies to options, too!).



We like to throw a party for the yard crew and their families. This usually features a barbecue of some sort. This little pig attended the launch of the first *Sunder* 64.

## BUILDING IT YOURSELF

Less than one out of ten do-it-yourselfers who start from scratch ever complete their project. Of this small percentage, at the most 30 to 40 percent actually go cruising. These are pretty poor odds.

In addition, building yourself typically ends up costing a lot more than you figure. The bill of materials is much more extensive than most folks realize, and you are buying at around twice what an established builder will pay.

It is not at all uncommon to have a home-built project, after years of effort, end up costing more for materials than one could have purchased a used boat (perhaps in need of some care).

The average semi-custom yacht, in the 50-foot (15.4m) range, can easily absorb 10,000 to 12,000 man hours (or more), and this is with professionals doing the work. Even if you give up every weekend and evening, it will take five to ten years to put in this many hours.

And, if you are inexperienced, as most home builders are, you are going to waste thousands of hours and a ton of money on ideas that won't make sense to you once you're out in the real cruising world.

You are much, much better off buying a used boat that has been thrashed cosmetically and then spending your time getting it cleaned up. In the end, you will be sailing years sooner, with a fraction of the investment, and when you're finished be able to sell the boat for what you've invested (plus a little for your time if you've bought wisely).

Okay, I've gotten that off my chest. If you cannot be dissuaded otherwise and are determined to do it yourself, then let me suggest that you do the absolute *minimum* necessary to get into the water and go cruising. Get the hull watertight, throw in a temporary interior — the type of thing that can be done in a few hundred hours — and get out on the water.

Take your partially finished dream for a three-month-to-a-year cruise. Use the boat, recharge your psychological batteries, figure out what it is you really want to do with the boat, and then come back and put in the fancy stuff. Whatever you do when you come back, I guarantee you that it will be different than if you'd made those decisions before obtaining some real-world experience.

There is one situation where folks seem to do okay at do-it-yourself projects. This is where the builder has already been out cruising, knows exactly what he wants to do, and comes back and does it.

We know of several projects of this nature that have been completed in two to three years, on an efficient cost basis.



The boat that started it all! This is the sailing dinghy that hooked Alghis on the concept of sailing (being rowed by his partner, Mary Van Dyke).

### Laila N

We'd been cruising in the Sea of Cortez for a couple of months when we felt the urge for the city lights. The wiles of La Paz beckoned, and before long *Sundeer* was anchored off of Marina Palmyra and we were heading ashore in the dink.

After a lunch in town and some grocery shopping in the local "mercado," Linda and I once again found ourselves walking the docks of Marina Palmyra.

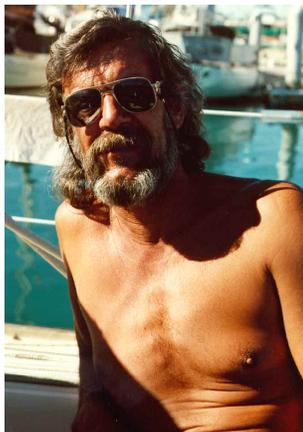
To those of you not familiar with the Sea of Cortez cruising scene this little marina is a local institution. You can find just about any kind of cruising yacht tied

to the docks there. Everything from the fanciest to the most basic. Boats from different parts of the world, too.

Walking down the dock toward our dinghy one boat caught my eye. It was *Laila N*, a Corbin 39. It wasn't the design, as we'd seen a few of these boats before. No, it was something about the way the boat was put together. She was just a little different in a lot of small ways. Different in a very positive sense.

So we stopped to look more carefully as we are wont to do, and before long we were deep in conversation with Alghis Barbutas, her owner. It turns out we'd cruised to many of the same

Alghis Barbutas, making up for five years of construction time in the frozen Canadian north!



Alghis even made his own turnbuckles. *Laila N* is rigged with 5/16-inch (8mm) wire on all shrouds so that one size of replacement wire fits all around. I would not recommend Nicopress terminals for this type of installation, but with 20,000 miles on it it is still okay.

*Laila N* has a variety of interesting details worked into the construction. How about this permanent boarding ladder in the topsides. Not only a convenience, but a safety feature as well.



places. After launching on the Great Lakes he'd sailed down the Mississippi River to New Orleans. Then on to Jamaica, through the West Indies and back to Florida for a work stint. After building up the cruising kitty, it was off to Panama, the Galapagos, Marquesas, Hawaii, then Vancouver and down the West Coast to the Sea of Cortez.

When we found out that Alghis had actually built this boat from a kit, while working as a construction superintendent in northern Canada, our interest increased.

Alghis has been partners in a small powerboat with a friend. When this was sold he kept the dinghy, turning it into a sailing dink for the short Canadian summers. This lit the fire. He eventually decided to build himself a sailboat and go cruising (where it was warm!). Without any prior experience, he set out to find himself a kit.

After a year of looking at used boats, visiting builders, kit sellers, and self-finishing yards, he settled on a hull and deck from Corbin.

This design is 39 feet (12m) long, 32 feet (9.8m) on the water with a 12-foot (3.7m) beam. She displaces 22,000 pounds (9977kg) and draws 5 feet, 4 inches (1.64m).

With no experience and only a couple of books to guide him, Alghis built almost all of the boat and gear aboard, right down to his rigging screws, hatches, and portholes.

He spent five years on the project, working nights, weekends, and vacations. In this time he put in 5,000 hours of work, a very quick build for someone without experience.

We asked Alghis what advice he had for others contemplating a home-building project. His first comment was about the building schedule. He felt that five years was way too fast. He said, "If you are taking on the project by yourself, allow ten years. This way you won't be frustrated by lack of progress, which was a big problem for me."

"Every year I think I am going to launch in September or October. Then the holidays would roll around and I still wasn't finished. I would get very depressed and walk away from the boat for a few days or weeks. I can see why so many people give up and never finish."

Alghis felt that the best thing to do was periodically walk away from the boat "until the drive to finish comes back."

I asked Alghis if he'd do it again. His first reaction was "No!" But then he went on to say, "I can't see myself ever selling this boat. I have no major regrets. There are a few things I'd do differently, but they are not great."

He did say that after working in a boatyard in

Florida for a year he realized how much time he could have saved if he'd had this experience before starting on the boat.

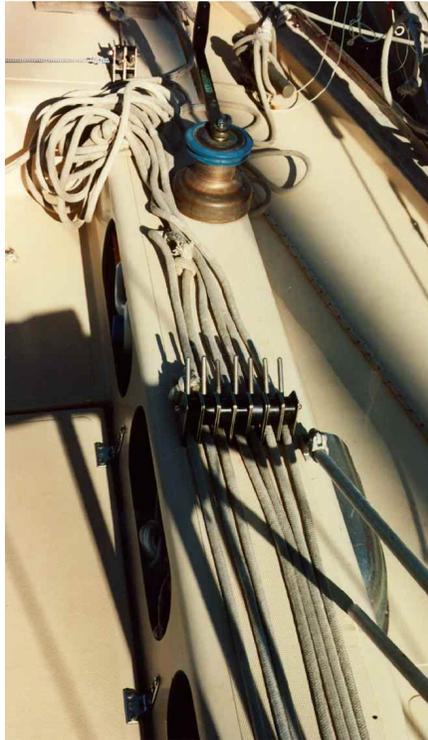
Alghis had these comments for those following in his footsteps. "Building the boat yourself can spread the cost over a number of years. You can save and then spend as you go. Toward the end you can live aboard and save even more." (He did this the last two years.)

"Concentrate on one part of the boat at a time. Go step by step. Check things off the list so that you feel you are accomplishing something instead of saying, my God, I've got thousands and thousand of hours left to go."

"What I really like about my boat is that I know exactly what's in the boat. I still have my sketches and drawings of everything aboard. I looked at a lot of used boats and wouldn't have known how to fix most of the things aboard."



The hull-to-deck joint (on the inside) is fiberglassed over the bolts to make sure it is watertight. The lifeline stanchions are very heavy-duty and do not leak (left photo).



There are only two winches aboard. Almost all halyards and control lines lead to them via jammers. The same two winches are used for headsails.

Alghis has sailed a lot of miles without any form of add-on self-steering, no vane, and no pilot. Upwind he lets the boat sail herself. Under power he steers. And when reaching or sailing downwind he sometimes rigs a staysail sheet to the tiller (which requires frequent adjustment).

The most interesting feature below was the forward facing stove, mounted on a full gimbal. Because you are facing fore-and-aft when working at the stove a sudden lurch to leeward will not toss you into the hot surface. This is a much safer arrangement than when the stove is outboard and sometimes to leeward.

The saloon (right) is nicely done, with high fiddles on the table. Note the use of tongue and groove siding for bulkhead finish. This is a very quick system for covering lots of surface area.



## Eos

Linda and I first met Dean Vincent while sailing across the Indian Ocean aboard *Intermezzo*. Dean was a part of our daily SSB chat group, and after discussing everything from the dinner menu to the weather for the better part of six weeks we were pleased to have an “eyeball” (as they say in ham-radio land) anchored in Gran Baie on the lovely island of Mauritius.



The original *Eos* was a ferrocement version of the 38-foot (11.7m) Bill Atkins–designed *Ingrid*. We first met her 25-year old master, Chip Vincent, in Mauritius, in the Indian Ocean.

*Eos* was a ferrocement version of the Atkins designed *Ingrid*. Dean had picked up the partially completed boat quite inexpensively — someone else’s dream gone sour was now his dream come true.

She was finished off with just the bare essentials. But Dean, at the age of 25, had already been cruising for several years.

He eventually made his way back to California, via the bottom of Africa (we shared one memorable gale together off the bottom of Madagascar). The next time we saw Dean was in San Diego. We’d just completed the outward track of our circumnavigation when he hailed us from the dock at the San Diego Yacht Club.

We hadn’t talked for almost two years at this point, but it seemed like just days ago that we’d both been fighting the elements in the Indian Ocean, while checking in periodically with each other on the SSB.

Dean had acquired a Coast Guard ticket and was driving various tourist boats in San Diego harbor, saving his money for the next *Eos*.

Some time later Dean called to ask what I thought of the Eva Hollman design *Sunset Boulevard*. I told him what I knew, that she was a breakthrough boat in a lot of people’s minds and that I thought the design, perhaps with a bit more rocker, would make an excellent cruising boat.

Dean arranged to have a hull and deck built locally in unidirectional glass over a foam core. He found a low-overhead builder to put the hull and deck together at a price he felt he could not duplicate himself. He was better off, he told me, working to make money while this phase of the project was completed.

Then he’d put in the barest essentials in the interior so that he could live aboard, thereby cutting his land based overhead, and continue to work on the boat during evenings and days off.

*Eos II* is 49 feet (15.1m) long, 42 feet (12.9m) on the waterline, with a beam of 14 1/2 feet (4.5m) and a draft of 6 feet (1.65m). Displacement is 25,000 pounds (11,337kg), of which 12,000 pounds (5,442kg) is outside ballast. She has enough extra foam in her construction to make her positively buoyant in the event of serious breach of the hull.

During the three years Dean spent working on the boat he acquired a cast-off raceboat rig, including standing rigging and sails for a pittance. As soon as the boat was basically ready to head to sea, he called to say goodbye.

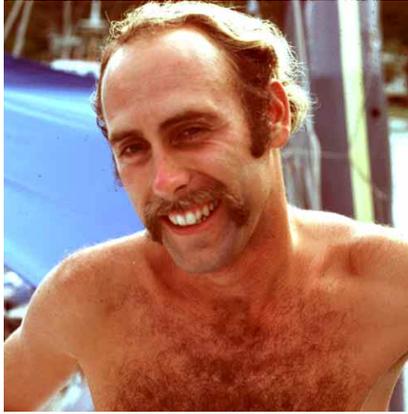
“I’m tired of the rat race here in San Diego” was his first comment. “I’ll finish the boat while I’m cruising. Why waste the time and money sitting here at the dock when I could be working on the boat in Polynesia?” That logic sure sounded good to me.

Since that time Dean has sailed *Eos II* through the South Pacific and up to the Philippines, where he sat a while finishing off the boat. During this spell he found himself a permanent crew and ended up in a state of marital bliss.



*Eos II* was of unidirectional glass and foam construction to an Eva Hollman design. Note the “back staysail” being flown from the backstay as a riding sail.

Dean Vincent would now be considered a professional cruiser. He's been able to put the skills he learned to work building a lovely yacht and running commercial boats for others.



The end product of this effort is a very quick, no-nonsense cruising boat, efficiently home built for a majority of the project. The fact that Dean could do the job so quickly and efficiently, having fun cruising during part of the building cycle, was due in large part to his previous experience circumnavigating.

Now, I'm not going to tell you to sail around the world before starting to build your own boat. But I will say again, a little real-world experience goes a long way toward ensuring an efficient and successful outcome!



Priorities: After a place to sleep the most important thing on *Eos II* during her early days was an efficient work space (upper left). She has a large galley (surprising for a singlehander) with the main engine located under the galley counter (middle and lower left photos).

The main saloon has a bench seat to port (above and a settee (C-shaped) to starboard. The master suite is forward, with a head compartment ensuite.

The nav desk is located aft by the companionway. While Dean was watching his budget carefully, he did opt for a Furuno radar, something he considers essential for singlehanded.

*Eos II* was launched in 1985 with the interior being finally completed in 1990, many thousands of enjoyable cruising miles down the track.



## OPERATING EXPENSE

The cost of owning and operating a yacht varies widely. On large, complex yachts it is not at all unusual to find annual operating expenses running 10 to 15 percent of the total cost of the yacht. On the other hand, once we've been through with the boatbuilding phases on our own vessels, we've rarely spent more than one percent of the total investment in annual upkeep — usually half this.

### Major Cost Issues

What it costs to own a given yacht is a function of many factors. Some of these are physical, having to do with the size of the vessel in question, its age, and how it is outfitted. Other issues revolve around your style of cruising. For the purposes of the discussion which follows we'll ignore the life-style related costs, and concentrate only on those that apply to the boat itself.

#### Size

Size plays a part in some cost areas and a small part in others. For example, in small-to-medium-sized yachts there almost always is a water heater, pressure-water pump, bilge pump (or pumps) stove, and basic electronics.

On these basic items, size does not affect cost. On the other hand, when the time comes to find a dock, haul out, and paint the bottom, or deal with sail repair or replacement, costs are very much a function of size.

#### Access

In the long run, systems access has a major cost impact. If you have good access then preventative maintenance is easier to practice. This allows you to catch problems before they become costly. And when the time comes to do a job, it can be done efficiently.

Stories about spending \$2,000 in a boatyard to repair a \$200 pump due to lack of access are legion.

#### Righting Moment

Stability or righting moment has a direct impact on the size of your deck hardware, rig, and the required weight of sail construction. As the RM increases, so too will the costs associated with maintaining this part of your inventory. Since the rig rarely requires work (unless it has seen many thousands of miles and the standing rigging is ready for replacement), it is the sail inventory where most of the money goes.

If you tell your sailmaker to build you sails with larger reinforcements out of a somewhat heavier weight of cloth, you will have significant savings over time. Building really good sails usually costs about 10 to 20 percent more. It is well worth the investment.

#### Normal Wear and Tear

The normal wear and tear that comes with using a boat, even one that is cruising full time, is typically a pretty small part of the total budget. If you keep an eye on your maintenance schedule to stay ahead of problems, keep up with chafe on your sail inventory, and sail with a reasonable degree of prudence, costs will rarely relate to miles sailed.

#### Sitting Impact

On the other hand, a yacht sitting at the dock unused is like a taxi meter in traffic. Inactivity tends to create mechanical and electrical gremlins. Parts corrode and freeze. When the time comes to operate a given piece of gear, it doesn't cooperate.

I feel strongly that a well-prepared yacht that spends most of its life in a sensible cruising mode will have less maintenance overall than one that spends its life unattended at the dock.

#### Who Does the Work?

One of the biggest cost issues is going to be who does the work. If you are familiar with your boat and have basic skills, you should be able to handle just about everything. This includes the fridge system, diesel engine, and basic electronics (fancy electronics are usually better left to the techies).

You have an advantage of knowing how things work, where the wires and plumbing run, and what the symptoms were that led to the present problem.

On the other hand, if you bring in someone from the boatyard, he has to be brought up to speed. There are probably idiosyncrasies in your systems which he'll have to trace out. It will probably take three or four hours of figuring out what is happening for every hour spent actually solving your problem. All of this, is, of course, taking place at some huge hourly rate.

While you may not now know the basics of the fridge, diesel, and electrical systems, they are not that difficult to master. A week or so of learning now will save you thousands and thousands of dollars later, not to mention a lot of frustration.