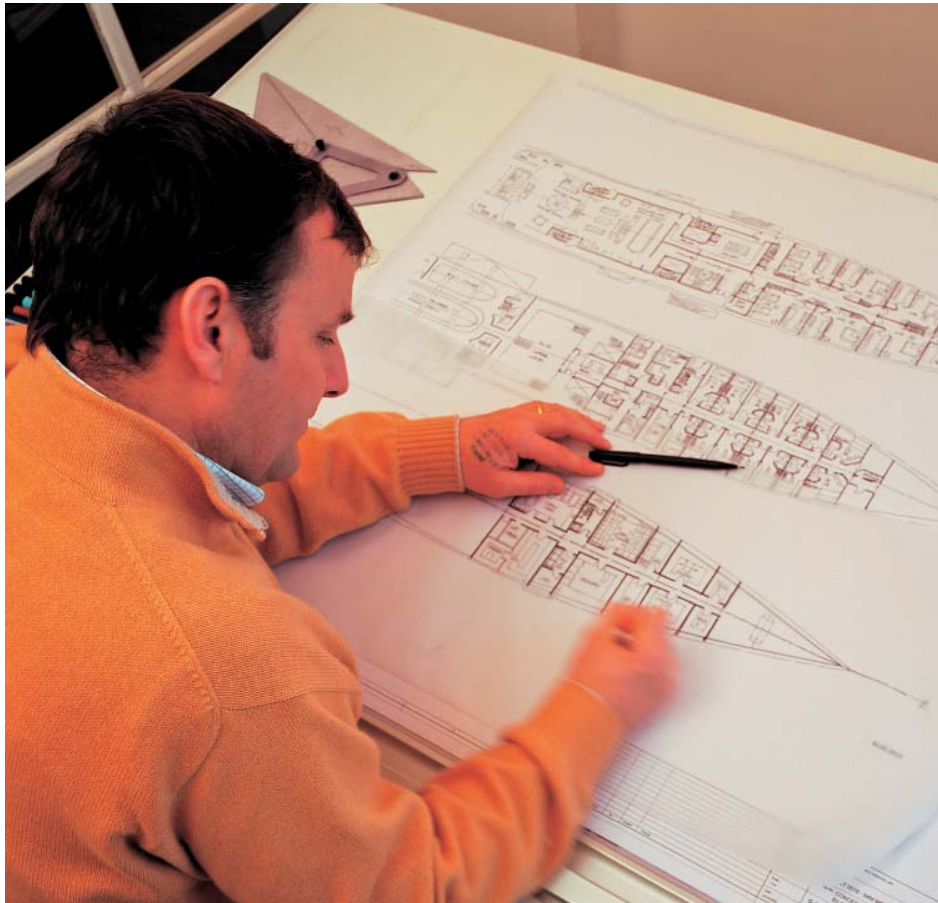


Working it to the Bone

COGITO ERGO(NOMICS) SUM

This issue focuses on The Drawing Board, that is Design; therefore it is appropriate to look at those who are too often ignored or de-prioritised: the operators. Not to enhance crew's work experience for altruistic reasons *per se* but rather enhance it by making the workplace workable and usable, thus positively enhancing the guests' experience. Here a Captain – Michael French – details something of the history and role of ergonomics and makes his case for its proper and frequent application to yacht design and construction. He cites cases and practices from both automotive and cruise industries and asks why we can't follow their enlightened lead in this area more often.



ERGONOMICS IS, PUT SIMPLY, THE study of people's efficiency in their operating environment. It is a relatively modern science said to have originated in the 20th century although reference to the word "ergonomics" has been traced to a Polish scientist as far back as 1857. There is, however, said to be evidence to suggest that the ancient Greeks used what we today refer to as "Ergonomic Principles", in order to design certain of their tools and workplaces. The word is actually based on the Greek words "Ergo" (work) and "Nomos" (law). The science of Ergonomics can be applied to many different types of workplace or operational areas with the goal of providing comfort, safety or efficiency. When applied to the work environment it is the goal of efficiency that is most often sought.



Designers have throughout history been most successful at applying ergonomics to the operations we undertake most. It is for this reason that cars are becoming more efficient, comfortable and user friendly with every model year. In the 1980s the car industry was quite shocked to discover that the myth that more women drivers had crashes was, in fact, statistically correct. On investigating the cause, ergonomic assessments were used and established that the average physical

size of women differed from that of men, to the point that their ability to drive efficiently was sometimes compromised. Vision, reach and comfort were affected detrimentally by the available designs. Have a guess who designed cars at that time? Yes indeed, it was men. Bigger, stronger, longer armed and, in most cases, hairy-er men.

The automobile industry was in fact forward looking in ensuring that gender influences ergonomic design. As recently as 2003, one large motor yacht of note had an escape hatch in the forward part of the vessel that was impossible for the female crew members to open. They simply were not tall enough or physically strong enough to open the hatch at the extent of their reach. During drills the male crew had traditionally always been

there to open the hatch, but, as we know, drills are not the real thing and it took a confident female stewardess to point out the flaw in the design.

It may seem like common sense these days to consider all the different people who may use a given space, but if you are left handed, even today you will find situations that are wanting for ergonomic consideration. Try writing a cheque at the bank and you will find the chain on the pen is often just long enough for a

'right hander' to manage. The point being that despite the science of ergonomics being recognised and respected it only takes a designer who has not experienced a situation first hand to miss its relevance in application. Right-handed designers have been the cause of much profanity in banks across the world.

In the case of yachts, it is relatively few who can actually consider them a workplace and would, therefore, experience efficiency dividends through ergonomic improvement. It is a common misconception (*though not amongst crew – Ed*) that owners, designers, brokers and the like know how yachts operate. Of course many do have some knowledge of the subject, but most are focused on using yachts, not their operation. Liken it to someone who knows a good steak when they taste it, but may not understand the complexities of rearing cattle or managing a successful restaurant. The fact is that yacht operators, or "crew" as they are affectionately known, have very specialist knowledge of their subject and their input could prove useful to many designers, owners and builders of yachts. There is little in the way of a forum for this exchange of information, most probably because the crew are not always treated with the level of respect that would make their comments credible.

The operation of yachts is a very tricky business. A yacht's crew has to deliver unmatched standards of comfort and service in a seamless, organised manner. Timing, planning, experience and hard graft are beautifully combined to give the sense of calm, serene elegance of service that most owners and guests crave. However, on most boats timing, planning and graft can be severely hindered by poor storage or an ill-conceived layout. Such factors can halve or double the efficiency with which the crew can carry out their function. This in turn may have a direct bearing on the enjoyment of the guests on board. The difference

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between a grunt from a stressed crew member or a smile from a crew member on top of their game can make a world of difference to the service atmosphere on board. And let's face it, service is what yachts are about first and foremost.

As yachts have grown in size, so has more physical space become assigned for operational areas, but there is little to suggest that input from the operators of large yachts is informing ergonomic design of smaller or older vessels. Space is the central issue aboard yachts, hence the adage that every yacht is 3 feet too short.

The very reason owners build or buy bigger yachts is to get more space and comfort, so convincing them to assign space to operational areas can be a hard sell. The challenge is, however, to use ergonomics in order to use operational space efficiently, so in some cases operational demands may require less physical space, but more efficient design.

This article is not intended to raise awareness of the plight of the poor crew member, but to point out that it is the crew and the crew alone who hold the key to translate operational needs into ergonomic sense. There are many boats that are difficult to manage or operate through the design of their operational areas. Take, for example, two particular yachts. They actually exist, but their names are not used in order to protect the ignorant. Let's refer to them as boat A and boat B. They are both over 150 feet LOA and of identical naval architecture. Both vessels were built in the 1990s.

Boat A was built in accordance with the designer's tried and trusted design, which was a typical Dutch 'classic'



layout. The design was made with ergonomic consideration of the crew's operation of the yacht. Boat B took the original design, kept the lines but the interior was extensively modified by an 'experienced' owner. He removed the captain's cabin from the bridge deck and reduced the crew accommodation to the extent that there was no room for a laundry. The owner also chopped four feet off the length of the engine room and hacked the galley around in order to fit the extra spacious master suite on the main deck. Work stations and storage areas were later 'tacked on' wherever there was a nook or cranny. These modifications would seem sensible to many, but effectively hobbled the ability of the crew to operate the yacht easily.

The new layout meant that when the chef was cooking there was no access to the crew area without crawling under worktops, which meant in turn that it was irksome every time the crew were needed on deck to attend to the guests. The engine room was particularly difficult to operate and certain parts of the engine room space were poorly maintained and constantly dirty. It also meant that the rebuild and service

costs this poor access caused were huge. The lack of laundry meant that crew cabins had to be used for pressing guests' clothes, thus with guests on board there were always issues as crew did not want the ironing done in their cabin at the cost of their privacy off watch. This led to constant strain between the interior crew and others.

Simple paperwork became a headache as there was nowhere to do it without affecting crew access around the boat. These simple issues caused the crew morale to degenerate to the point that crew turnover became a major

issue. A continual cycle of stressed crew made the yacht difficult to operate and less fun for the owners. The yacht has changed hands a number of times and a prospective new owner is now considering re-designing the vessel back to the spec of her much more desirable sistership.

Boat A, which conformed to the original design, had no such issues. It was not perfect by any means but operational savvy was designed in. It was a boat that was simple to run, easy to operate and has remained in the same owner's hands for many years. Crew turnover is not an issue to this day.

Who could blame an owner for wanting their money to provide the most space for his or her dollar or euro? In the absence of an obvious interface between the users of yachts and the operators of yachts, how else would an owner become informed of the logic of providing a better operational environment?

It seems as though the answer lies with designers and their ability to inform owners impartially of the basic

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ergonomic needs. When a cruise liner is designed, space calculations are based on accepted formulae. For example, if a dining room can seat 150 guests then the galley is designed using a calculation of space based on a set value of the area per person, for the maximum capacity. A work station is designed according to tried and tested parameters; ambient light, the height of the desk, etc. Corridors and access ways and the like all use similar calculations. These are proven standards and avoid compromising style over sense. While the values used aboard large ships may not be directly transferable, the ethos behind this standardisation is something that could be transferable to the design of yachts. It would avoid

the thorny issue of negotiating space requirements for crew.

There is no doubt that yachts are mission specific and are designed primarily for the enjoyment of their users, be they owners or charterers. However, recent concerns over the shortage of crew members in the industry is one reason for an honest look at what makes crew members happy in their workplace. One of the answers is sure to be that not only do crew value their comfort in their leisure time on board, but they also place a value on their ability to operate at their place of work, effectively and efficiently. Yacht crew generally strive to do the best they can, but ergonomic obstacles do have an impact on their output and job satisfaction. Yacht crew are a vital asset aboard any operation and they should have the chance to give valuable input into the yacht designing process; they need only opportunity and a sympathetic ear.

Standardisation may become a phrase that designers add to their yacht design vernacular and with care it may begin to complement common notions of customisation. The commercial design sector may be able to teach yachting a few lessons. Ergonomics is, after all, not an altruistic art, but a science focused on achieving efficiency. The beneficiaries in the end are the owners and guests who will enjoy their yachting experience more. The rest of us who are involved it making that happen are, at the end of the day, all in the same boat.

Captain Michael French

Photos: Justin Ratcliffe/Superyachtart.com, Stef Bravin/ Superyachtart.com and istock.com

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