

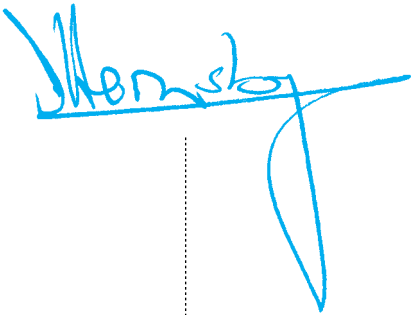
SUPERYACHT DESIGN

INTERIORS ■ DESIGN ■ EXTERIORS ■ ARCHITECTURE ■ SPACE



Q7

GUEST SUITE



Ian Hornsby
TECHMAN



Gary Grant
GARY GRANT DESIGN



Peter Symonds
SIGMUND YACHT DESIGN



Adam Lay
ADAM LAY STUDIO



Four guest commentators present frank yet considered opinions on design-related topics of their own choice.



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COLLABORATIVE CONTROL IAN HORNSBY

Fast and efficient communication is key to ensuring a yacht project is built on time and to everyone's satisfaction. To facilitate the dialogue process and provide a centralised information resource, Ian Hornsby launched Techman Hub, a collaborative software platform used to manage all phases of the life of a superyacht. During design, construction and refit, the Hub provides all the teams involved with a central, secure platform to share information, manage contacts, allocate tasks, access documentation and schedule meetings.

There are many horror stories of large custom yachts building from the wrong versions of drawings and the knock-on effect of having to rework the design. The design phase is always going to be a challenge when the owner, naval architect, managers and the designer perhaps live thousands of miles apart in different countries. All too often, email is the uncertain glue that holds this relationship together. The object of this article is to shed some light on the shortcomings of design-by-email and explain that an alternative is already available to the enlightened.

There are two points to make in this short analysis. Firstly, most parties are unaware of the internal waste of time that email represents. Secondly, the daily email dialogue is perhaps the most cumbersome and inefficient way to proceed. Designers all use CAD, email and FTP sites these days and such technology certainly has a useful

role to play, but what is also clear is that the creativity of the designer is often not matched by the business skills that design houses could and should adopt.

Each new project represents a temporary gathering of notables who have their own tools and methods for organising drawings, elevations, GAs and their revisions. This is obviously not going to change, nor should it. What we are discussing here is the communication between these notables, not how they work internally. Confusing the picture is that the project itself is not a business entity with its own server, methodology, rules and business practices. We must 'handle' the information flow and try to make some logical sense out of the myriad of paper, email, CDs, web information and other data that describes the yacht.

Since the client has the most to win or lose from errors, confusion and delays, it makes perfect sense that the project has a cunning plan to keep all its balls in the air. Sadly, this is not usually the case. The information snowball runs downhill apace and then starts to spin out of control, usually two or three months before the launch. The burden is on all parties to convert the paper designs into a living breathing yacht, followed seamlessly by sign-off and final commissioning. If you are thinking that this is only about a site where the design team can upload and revise their drawings, think again. Every email with an attached new diagram, plan or concept creates a job for each of the recipients. Do you read it and file it? Where? Do you notify someone else? Who? Or do you action it yourself? How? Every drawing triggers at best an approval process, at worst an endless email thread amongst a group of interested parties. This process is far

better handled centrally. Let's not forget that while the client wants the yacht in time for the summer season, you as a designer or shipyard manager want to make a profit. Moving towards the centralised collaboration model creates sought after efficiencies, speeds up the process and establishes an important 'decision tree' that we may need to call on when spring comes and goes and the client still has no yacht.

Of course, this virtual meeting room has some cost. Who should bear it and, most importantly, who should drive it? We could look to the shipyard as the primary information generator and to their ISO 9001:2008 commitments to customer satisfaction. Some shipyards and management houses are starting to take this approach. I would argue that it all comes under the banner of Customer Care/After Sales, and let's not forget that 'after sales' should kick in when the ink is dry, not when the keel gets wet!

Design houses are very focused on internal process so as to meet drawing deadlines and react to ever-changing client requirements, but there are seldom tools like this in their cupboard. So that leaves the temporary 'Project Team' holding the baby, although this pulled-together group of players is not normally chosen for its background in business process management (which is in fact the hidden title of this article). So when you start a project, form a team that has a collaborative information hub and which agrees some basic ground rules for the exchange of that information. Appoint a 'champion' to make it happen and assign the cost to the project, or share in its set-up and operating costs. Only then is it time to start building.

www.techmansoftware.com



MAST-ERLY METHODS GARY GRANT

The creative integration of electronic hardware and new materials into the design of the mast of a vessel, along with the use of aerodynamic forms, is a recognised signature element of Gary Grant Design (GGD), whose latest project is a 50-metre motoryacht for Heesen. “The visual clutter of the antenna farm on many of today’s luxury motoryachts often distracts from their character and stance,” notes Gary Grant. “We seek out and are alert to the opportunities that advanced technologies, including composite materials, can provide.”

Phase array satellite antenna technology will soon replace the quintessential dome-covered dish and what is now perceived as a prestigious mushroom collection, will appear outdated, if not obsolete. It is important to note that satellite antennas available today can receive and transmit in high definition with a unit that is no more than five inches or less than 13cm thick, which makes the physical unit virtually invisible to the viewer when recessed flush into the deck. The antenna automatically acquires and tracks the desired satellite using open-loop and closed-loop tracking algorithms, interfaces to the user’s modem installed in the vessel and provides continuous broadband connectivity (voice, video and data) while underway without antenna-deployment delays.

“The antenna performs on high-earth orbit satellites in the KU band, which are located 27,000 miles high,” explains Paul Pazzaglini of P&L International, which last year announced its ZipPhaser II, a breakthrough maritime satellite communications system for high-speed Internet broadband that maximises the

efficiency of satellite capacity support for small-profile antennas. “The orbit is fixed over each geography and the range of one satellite can cover one quarter of the earth. The number of high-earth orbit satellites operating in the KU band today exceeds 400 satellites with total earth coverage. To have true global coverage and seamless antenna integration with coverage around the world, whether it be on land or water, takes a combination of phase array technology and automatic beam switching. The aerospace engineers work as a team in developing technology that will work in 30 years’ time and they have to be prepared for future enhancements on the ground, which means that systems on the ground will eventually catch up with what has been launched into space.”

New materials also mean designers can simplify the mast form and eliminate the clutter. The X and S band radars, for example, can be placed inside the mast wing and support. This is what we did when designing, engineering and building 41.5-metre Adler II our signature design built by Vectorworks back in 2005. The latest quartz glass and resin composite technology, coupled with precision tooling, allowed the fabrication of microwave-transparent mast elements. Crucially, that means no mast shadow issues for radar or sitcom antennae.

Another and much appreciated benefit of building and designing in composites is the opportunity to optimise the structure by varying the skin strength and thickness to keep it in line with structural analysis requirements. The structural weight savings, combined with those of using a phase array system in place of a dish, can amount to over 65 per cent—a significant reduction, especially on faster planning yachts.

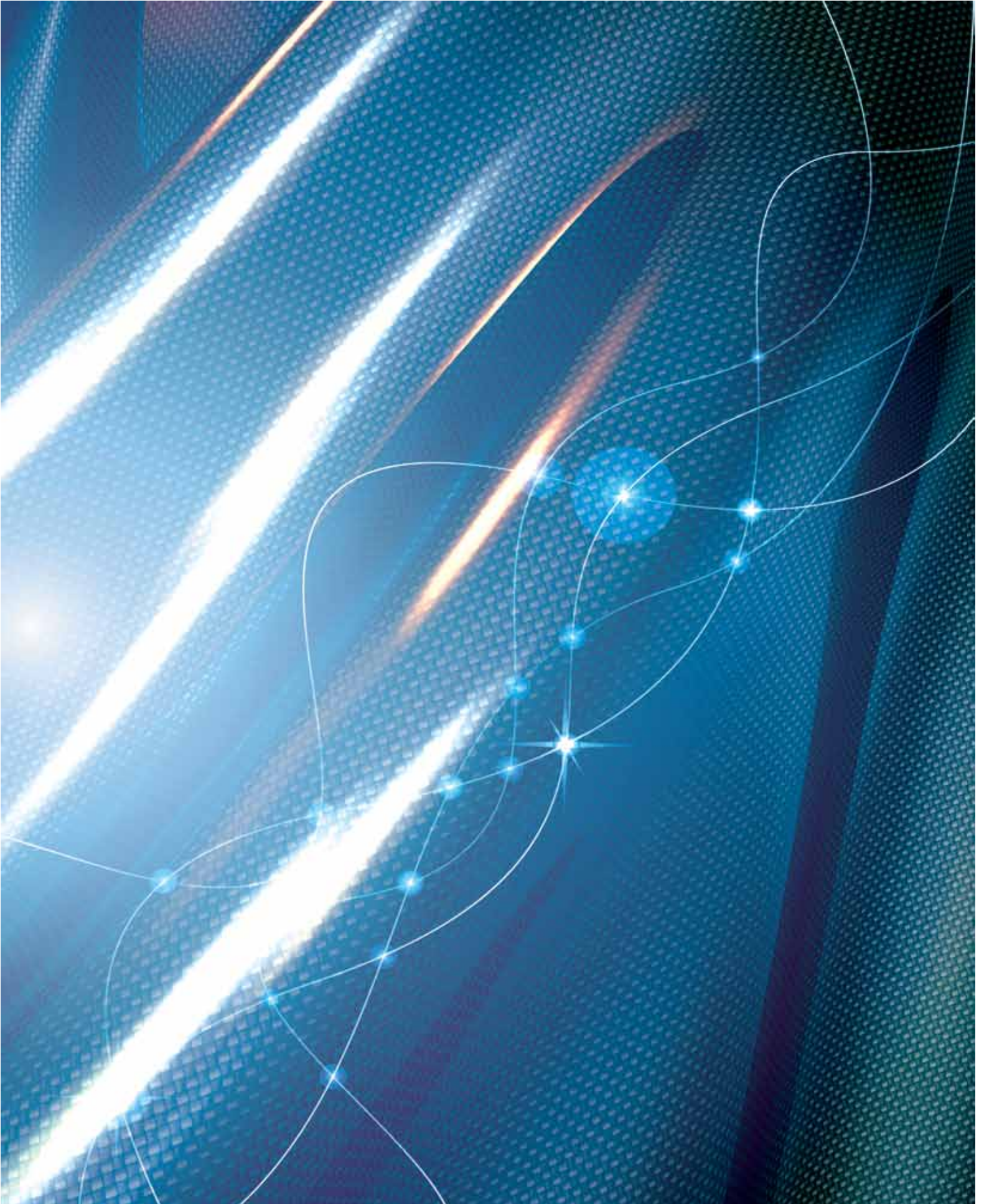
By using advanced composites, the designer can find more exotic and fluid solutions that may include aerodynamic and cantilevered forms. Should the shipyard require an alloy or steel primary structure, complex forms that may require transparency can be mechanically and chemically bonded with high-strength adhesives specifically designed for dissimilar materials.

This means the mast elements can be seamlessly integrated into the form of the vessel without undue complexity or adornment. When carefully planned and executed, the results are elegant and unpretentious.

Mast wings, support and appendage geometries are best created using precise NACA low-speed air foil sections. This provides a high degree of integrity to the overall design of the vessel and reduces air flow resistance, noise and, in some instances, can improve the comfort levels in open areas such as sun decks when the vessel is underway by managing air flow to avoid exhaust fumes. It is easy to see how the development and understanding of airflow dynamics has impacted aircraft, automotive and high-speed rail design. There is no reason why the same insights cannot benefit the superyacht industry. Anyone who has been on the open deck of a vessel travelling at even modest cruising speeds will understand that in many cases aerodynamic solutions in the design stage are worthy of consideration.

As with any new product design, there is always room for unique and unusual features when they are tempered with purpose and function that will give the final design a longer life and result in a vessel that is easy on the eye. That said, it is paramount that creature comforts are not driven by the exterior envelope. The ultimate reward for the designer is the process by which we find a balance between art, science, comfort and functionality in a simple and elegant form—a difficult task, but well worth the effort.

www.amsgrant.com



MATERIAL OPPORTUNITIES PETER SYMONDS

Peter Symonds founded Sigmund Yacht Design in 2010 along with colleague Olivier Dorrell. With backgrounds in automotive design, both are accustomed to working with the latest styling trends and avant-garde solutions, but when Peter made the move into yacht design he was surprised at how yacht builders are ahead of car manufacturers in their use of advanced composite materials. The aerospace industry, however, still leads the way.

Pressed steel has been the material of choice for mass production cars. Over the last decade, the use of aluminium has increased as its properties are superior to steel in nearly every way for car manufacturing. Most important is the density of aluminium: 2700 kg/m³ compared to 7850 kg/m³ for steel. Tensile strengths of 195 N/mm² and 430 N/mm² respectively are nominally similar, especially when compared to the tensile strength of carbon-reinforced fibre (1400 N/mm²). Aluminium, although expensive to extract, is readily available, more malleable than steel and non-corrosive, which makes it ideal for building cars. The reality, however, is that the car industry has been slow to adopt new materials.

The civil aviation industry has always needed to innovate simply to remain in business. Since the 50s, it has developed newer and better alloys and paved the way for use of exotic materials such as titanium. Recently Boeing has made breakthroughs in very large scale carbon-fibre moulding

(CRP). The benefits of CRP are clear as it has a density of just 1500 kg/m³ and a massive tensile strength of 1400 N/mm², in addition to excellent non-corrosive properties and fatigue resistance. The industry has used CRP for decades, but new from Boeing are the processes for manufacturing large-scale sections of fuselage and wings in one piece of up to 40-metre without cracking.

From a yacht designer's position, this breakthrough provides opportunities. Both the aerospace and superyacht industries share low volume and/or bespoke production of very large products, as well as products of comparable value, quality and the flexibility to implement new materials. New techniques and state-of-the-art materials are what make the yacht industry so relevant for designers. I believe the advantages of large scale CRP production is transferable to the yacht industry. Due to the size and cost of a bespoke yacht, this innovation from Boeing is perfectly suited to building yacht hulls and superstructures. It means less restriction on hull shapes and superstructures, while fewer bulkheads are required due to the massive increase in structural integrity, meaning more open interior spaces and the planning flexibility normally associated with land-based architecture. The weight saving can translate into increased stability, efficiency and sea-keeping and improves the quality of the overall design. It also gives the designer the chance to be clever with interior systems; for example, the integration of acoustic damping and fire prevention into the bulkheads or hull itself.

Other significant points to consider are the lack of maintenance involved,

thanks to CRPs durability and non-corrosive characteristics. CRP is straightforward to finish and paint, whilst alloys require expensive treatments before finishing, which can increase the quality of the final yacht. Building a yacht from large moulds will also visibly reduce the imperfections typically found using metal panels and filler on the final product and minimise expensive finishing processes.

There are issues to be overcome by yacht owners, designers and shipyards before these advantages can be enjoyed. The first is time, because it will take a few years before such processes become mainstream. The material itself also presents difficulties, especially the more exotic titanium-weave variety, due to its manufacturer prioritising it for defence purposes. Moreover, CRP photo-oxidises and cannot be left unpainted or unrepaired for long. Even after an estimated US12 billion dollar programme by the aerospace industry, the process of making large CRP sections is new and therefore risky, which is likely to dissuade potential clients.

In the car industry, the ability to make plastic pedal boxes that are lighter and cheaper than metal has been available for some time, but not a single manufacturer wants to be the first to risk using one; the same will be true of yacht hulls from large section CRP.

The aerospace industry has taken the challenge and produced a superior product. The opportunity is also there for yacht builders to follow suit.

www.sigmundyachtdesign.com



FREE PITCHING

ADAM LAY

After graduating from Coventry University, chartered designer Adam Lay of Adam Lay Studio worked with John Munford for eight years before setting up his own practice in 2003. In response to the SuperyachtDesign Summit and accompanying article in Q3 on Intellectual Property Rights (IPRs), he presents his own views on the issue of free pitching.

A client's wife once said to me "I like a man who speaks his mind." I was asked by her husband to sit in on three pitches by three residential and hotel sector interior design companies to win a new yacht project they were planning. Following the three pitches, we sat in a café and I was asked what I thought. I decided honesty was the best policy and said that I felt all three had failed to design adequately for the marine environment and that they should employ an experienced yacht designer. It could have gone one of two ways, but I am happy to say that I won the contract. I felt bad for the three companies who had clearly put a lot of time and effort into trying to win the project.

Free pitching is when a design company produces work free of charge for a new client, often in advance of meeting them and fully establishing the brief, in order to win a new contract. This is sometimes requested by the project manager, broker or other 'introducer', by the client, or is completed at the discretion of the designer in an attempt to show willing and to demonstrate what he or she is capable of.

There are, however, significant dangers in taking this approach. A considerable amount of work can go unrewarded, but also original ideas run the risk of being incorporated into the client's final design. Not only does the author of the design go unpaid, the client effectively gets the ideas for free and another design company gains the ongoing work and the potential headache of having to incorporate ideas by another designer. In extreme cases, a client could obtain free ideas and go to a shipyard direct, thereby avoiding designer fees altogether.

The problem is a lack of understanding of our profession by those who encourage the practice. Ideas, or Intellectual Property, is what designers sell and represent their core value. "The impression that ideas come out of nowhere to eccentric or flamboyant individuals, and the notion that it is purely the execution of the idea that is deserving of time and effort, is an omnipresent problem for designers throughout the world attempting to make a living from honest labour," wrote Rick Monro MCSD in an article in the *Chartered Society of Designers* magazine Volume 20.

Protecting your intellectual property is difficult even when a designer is engaged and working to a contract, and it does nothing to combat the cheapening of design as a profession—not helped by a profusion of design-related instant makeover shows on TV—to engage in free pitching. In a perfect world, no designer would give away free design, but ironically, commercial realities come into play with the perception that free pitching has the potential of putting one company ahead of another. The only solution, therefore, is that designers self-regulate and agree not to participate in free pitching. Instead, we should all be encouraging potential

clients to make their decisions based on our back catalogue. After all, you wouldn't ask a plumber to install one radiator free of charge so you could inspect his work prior to paying him to install your entire central heating system.

Most successful, experienced yacht designers will have an extensive back catalogue and our personalities and 'house styles' (where applicable), will be well-known in what is a very small industry. For those clients who may be looking for reassurance that they are employing the right company and would like to see a proposal, our solution is to make a small package of work available for a nominal fee following the initial pitch. This work is fully protected by a contract and refundable against the full contract should we be fortunate enough to win it. This ensures we are paid for our efforts, we don't feel hard done by should we lose the contract and our intellectual property remains protected. In my experience, this is accepted as a fair and logical engagement by potential clients and they also respect this more commercial, business-minded approach. We designers are all in this together and we need to look after not only ourselves and each other, but also our profession.

www.adamlaystudio.co.uk