

Superyacht

INTERIOR DESIGN

EXTERIOR SPACE

CREATIVITY AND ARCHITECTURE



DESIGN

DOMUS DESIGN

Nick Candy talks about Candy & Candy's approach to both residential and yacht design.

Page 16

IN BUSINESS

Ludger Dohm reveals how three heads are better than one at Vedder Finest Interior.

Page 35

MOOD BOARD

NEW! The thought processes and inspiration that go into designing high-end carpets.

Page 58

CASE STUDY

Rhoades Young Design explain how technical know-how is as vital as creative flair.

Page 66

MAST NEW

The topic of antenna design and its importance in achieving the finished look of a superyacht exterior is often discussed amongst the design fraternity. MTN Satellite Communications strives to improve broadband communications on board in hand with the designer's aesthetic intentions. Derik Wagner, managing director of MTN's Yacht Services, shares his thoughts.

During innovation in the superyacht industry paves the way for advancements in aesthetic excellence, not to mention the fun factor with spas, gyms, beach clubs, games rooms, deluxe toys and other features that owners and charter guests have come to expect. The yachting media is awash with such visually stunning concepts and the satellite communications industry has no wish to discourage this kind of innovation. This is one reason why we like to work with designers from the start of a project, rather than after the process has taken hold. Sometimes domes and antennas do not even appear on the original sketches or renders, but the painstaking process of planning the communications system is essential in order to deliver impeccable connectivity at sea. It can make or break a yacht project.

Owners and guests always want full use of their laptops and other mobile devices at sea, just as they would at a land-based resort or hotel, especially if they also use the yacht as a mobile office. If they cannot browse the internet, send and receive emails, or conduct an uninterrupted phone conversation while on board, it could have a negative impact on their overall cruise experience, or even their business interests. Charter guests do not want to wait until they get home to upload, send or post photos from a destination—they want to do it in real time as it happens. A superyacht can have all the cutting-edge design features in the world, but word will quickly get around if the communications access is not up to scratch.

To avoid this, designers must partner with the antenna manufacturers and satellite network providers that have proven experience with VSAT (very small aperture terminal) projects. Designers do not command a professional level of expertise in VSAT communications technology, nor should anyone expect them to—it's not a core function of their job. All the more reason why they have to rely on the players who do have this knowledge and bring them on board at an early stage in the design process. To this end, we have developed product specification documents for satellite communication, design and integration, written with designers and builders in mind.

The documents aim to help these people understand and overcome common problems associated with positioning VSAT equipment. A properly functioning VSAT system involves an abundance of cables, switches, routers and wireless access points, which are carefully installed to provide connectivity that extends throughout the vessel. The antenna has to

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point at a satellite 22,300 miles above the Earth's equator without interruption, no matter on what course the ship is heading or what might stand in the way. We have found that dual antennas—capable of automatically and seamlessly switching communications between each other—are a great help in eliminating outages due to obstructions. All of this must be coordinated with the land-based teleport antenna station, which beams signals to and from the onboard VSAT terminal and satellite.

Unfortunately, when it comes to positioning antennas, generally the designer wins. A typical example is when the antenna is hidden away between other domes and masts, which might be appealing to the designer's eye, but is not much use for good satellite reception. In worst-case scenarios, the system will need to be redesigned—always a costly and time-consuming exercise. But our job is not necessarily to look at a new yacht design and provide a dozen reasons as to why the satellite communications will not work. Instead, we look at a blueprint and come up with ways to integrate the antenna and other communications equipment, disguising it as much as possible within the exoskeleton and the designer's aesthetic intentions. For example, you can design a mast made of fibreglass or a similar composite material to house two antennas. The antennas look through 'windows' in the mast for their satellite signal, and RF switching technology can automatically switch between the antennas to maximise uptime. The guests do not even notice that the equipment is there.

It is one thing to propose and install this kind of stealth installation, but then it has to be rigorously tested and validated until we know that it works. With any vessel, there will always be some interference and blockage issues—that is simply the reality of yachting life. But with adequate forethought and good design, these problems can be minimised and reliable satellite communications guaranteed.

TO DOWNLOAD MTN'S PRODUCT SPECIFICATION DOCUMENTS, GO TO WWW.MTNSAT.COM

AZURE YACHT DESIGN & NAVAL ARCHITECTURE HUGO VAN WIERINGEN

Azure Yacht Design & Naval Architecture, in cooperation with Oceanco, has developed a proposal to reduce the mast clutter on yachts. Most of this visual 'noise' comes from navigation and communications equipment and Azure has found a solution with its Covered Antennae Project (CAP). As director Hugo van Wieringen explains, the initial premise of the concept was to design an integrated communications and radar housing that would bring a number of aesthetic and practical benefits.

The idea stemmed from the fact that at Azure we are keen to challenge our own assumptions of what a radar/communications mast should look like. We normally spend considerable time on the design of the masts of our yachts, and yet the truth is that with the plethora of communications and navigation kit, the mast usually ends up being one of the most visually cluttered (although

admittedly impressive) parts of the yacht. With aesthetics in mind, we set out to see whether a housing that contained as many of the communications and navigation systems as possible was feasible. After conversations with the suppliers of this equipment, we ensured the viability of the concept.

It requires the same attention to detail in the relative positioning of the individual pieces of electronic kit as we give to conventional masts, so that they do not interfere with each other or cast undesirable 'shadows', but the end result has other benefits aside from cleaner styling. The CAP has the bonus of making maintenance and servicing much easier. It also means upgrading and repositioning the individual items is a simpler process. Arguably, the CAP can also provide better protection from extreme weather and some nominal improvement in aerodynamics, although we should make it clear that the pursuit of ultimate efficiency

is not the main goal of this design.

The complete housing would be made of composite materials (as are most of the normal housings of communication domes, antennae and radar), which could be shaped in a form that complements the styling of the yacht.

Not all items can be housed inside the CAP. Some antennae, such as weather fax and SSB, for instance, and other items like navigation lights, searchlights and cameras are better off placed inside clear housings.

Azure believes that a yacht fitted with a covered antennae housing will have a very clean and distinctive look. However, this idea is not limited only to futuristic designs; with suitable tweaks, it could also lend itself to classic or historic vessels.

