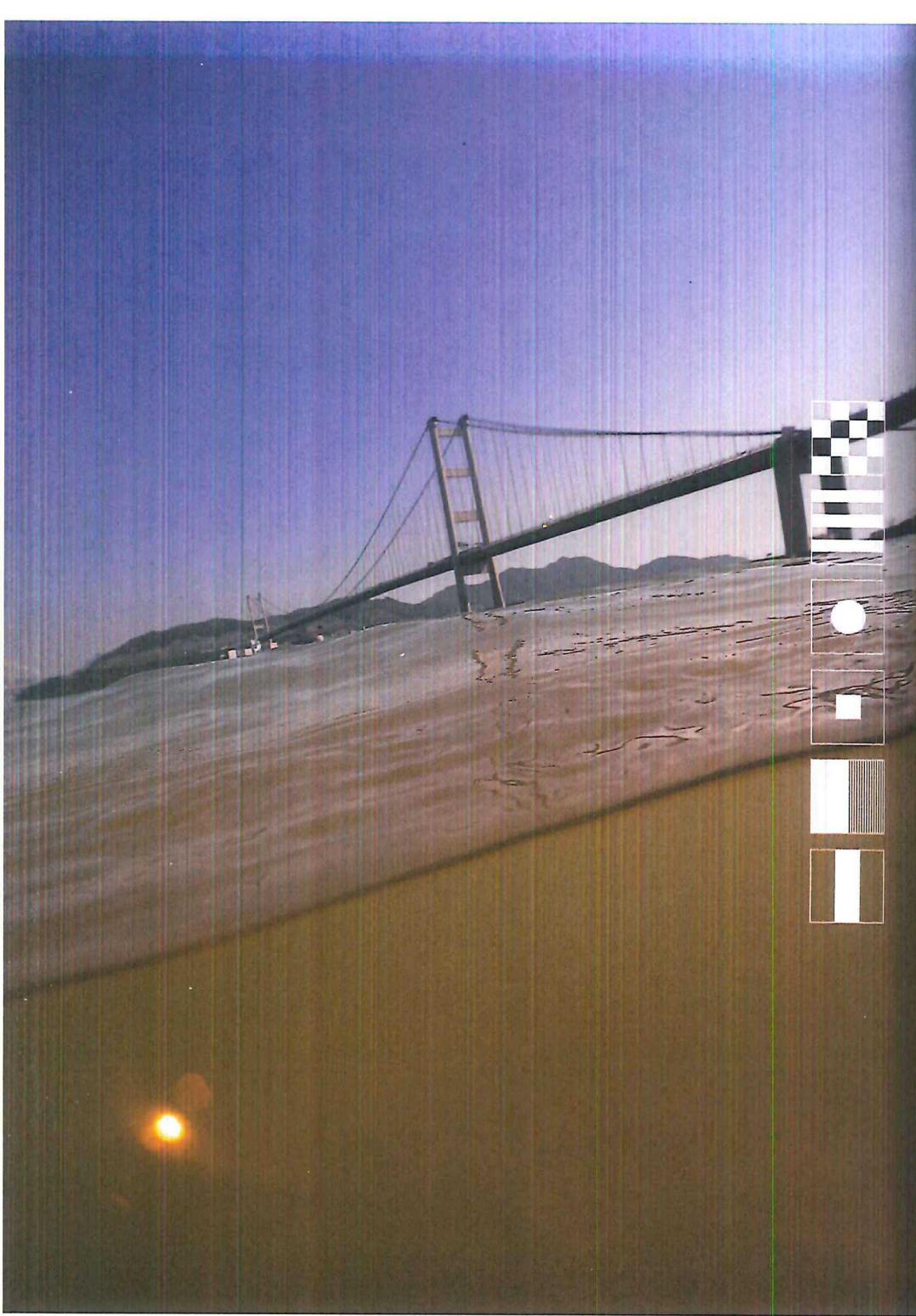


**PIONEERS IN THE
MARITIME SECTOR**

SHIP 2040

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DESIGN

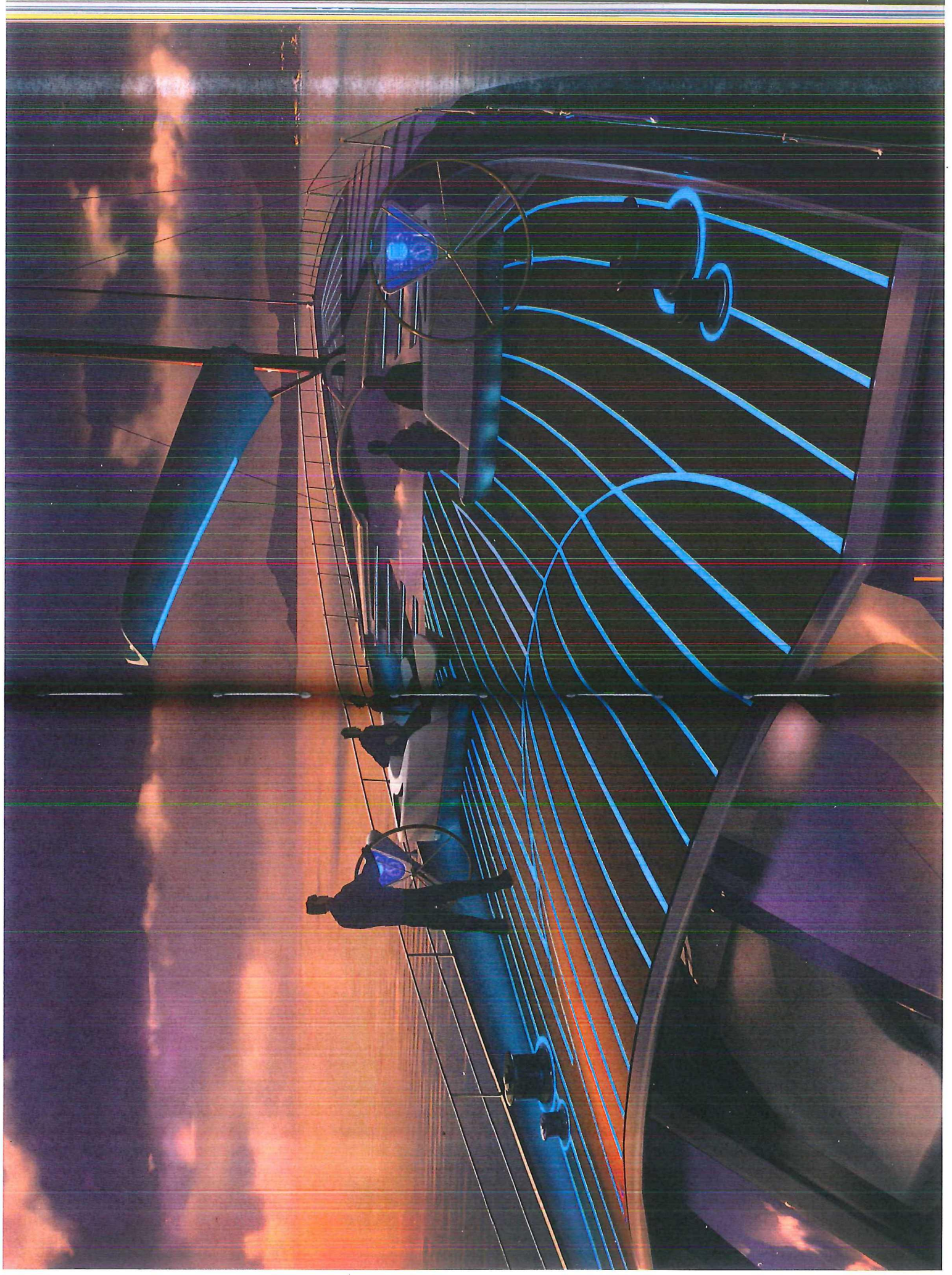
THYS NIKKELS

"The customer determines what the future will look like"

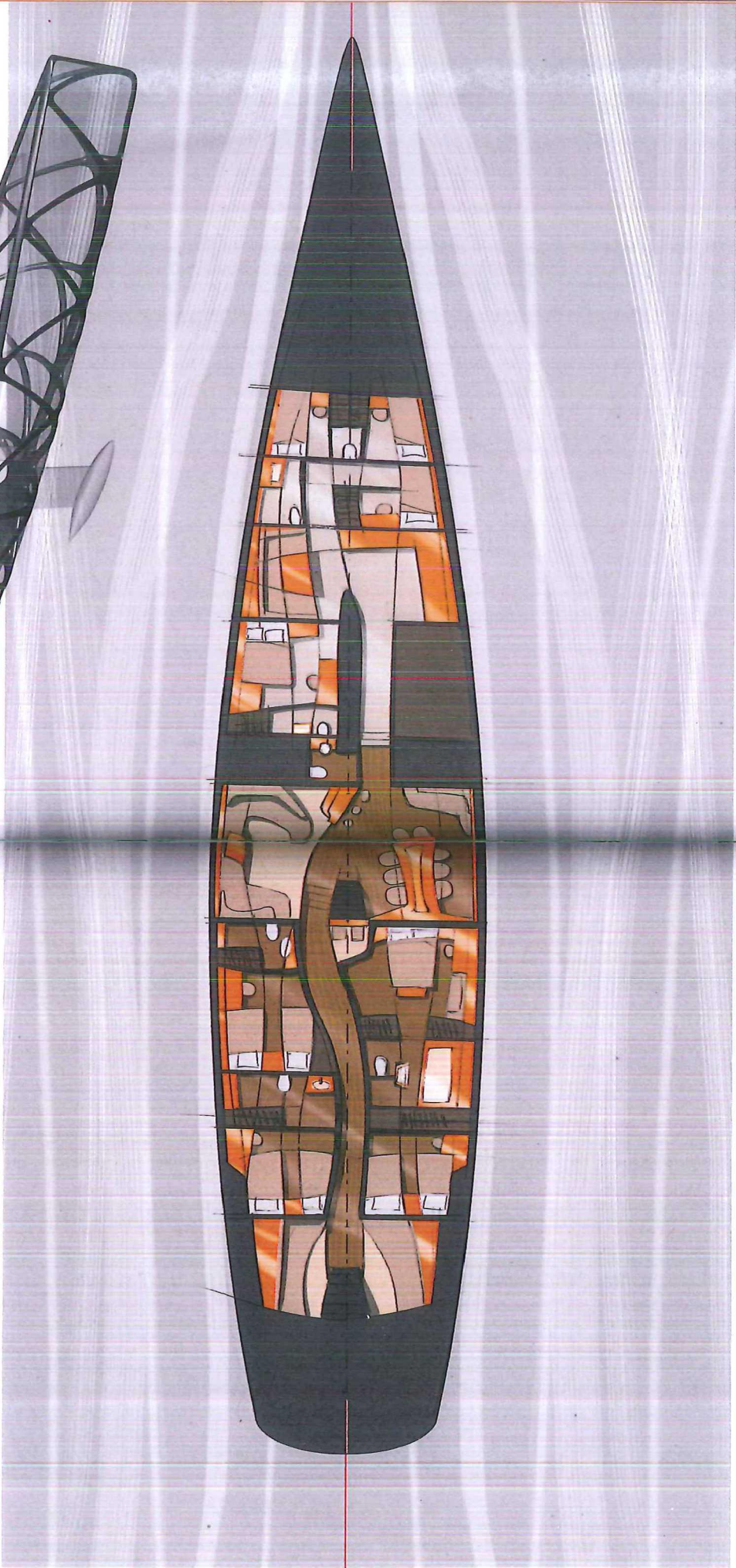
Futuristic; that could well be the description of the Exo concept sailing yacht. It is about huge glass windows all around, allowing greater amounts of light into the yacht's interior. The new 46-metre concept Exo is the result of the partnership between Claydon Reeves and Dykstra Naval Architects. It reflects Dykstra's vision of what the sailing yacht of the future may look like. Dykstra Naval Architects MD and Naval Architect Thys Nikkels adds: "We combine the customer's sailing experience with our expertise."

People who mention the company name of Dykstra, mean 'sailing' or, in the words of Thys Nikkels: "We are busy with anything that sails; something between 4 metres and of 140 metres length."Dykstra is the architect

of vessels such as the Rainbow Warrior and the Maltese Falcon. Nikkels stresses the fact that Exo is a kind of study platform, aimed to put new ideas to the test and to experiment with innovative parts. "It is quite simple: the customer determines precisely what the future will look like. We will have to continuously adapt things we devise today, to gear them up for the future. Dykstra is positioned in the niche of classically rigged yachts with an ageless beauty. As a rule, they look like yachts of the last century, equipped with much wood. However, we experiment continuously with modern insights on techniques and design. The Exo concept should be respected in that way. We add things of importance to us onto this concept, and add what we hear about our clients' sailing experiences."



DESIGN



A different way of water sensation Nikkels gives a practical example about the subject: "Many clients tell us that they hardly use the lower salon, as they have the feeling to be locked in as in a cellar. We have worked towards their input, that is reflected in Exo. The lower salon and the room on top are combined to a large open space in the ship, with much glass in the hull. It does not only provide a nice view, but also a different sensation of the water that flows along the glass."

GLASS PANELS

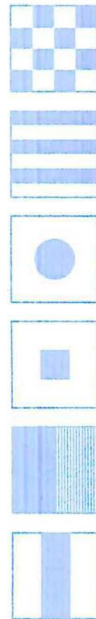
The glass is the most striking aspect of the Exo concept. The research on the glass construction is thoroughly done. Nikkels explains: "Together with the Elise Leichtbau department of the Alfred Wegener institute, we monitor each and every force a yacht undergoes. Based on the forces that act between them, an optimal construction has been devised, in which the heaviest forces are dissipated by the skeleton of the hull. In between the parts, large, flexible glass panels can be fitted, that do not need to respond to longitudinal strength."

TECHNIQUES AND ENERGY

It is not only the organic design that makes Exo out of the ordinary. Nikkels says: "Naturally, we also look into technical innovations for

the 46 metres long yacht concept. One can think of retractable propulsion installations, such as propellers, the lift keel and sail rigging systems. We designed the Dyna-Rig automated sail system for the Maltese Falcon. It needs just one push of a button to unfold its sails within six minutes."

It is just one example of innovations that Dykstra explores. "Many interesting things are happening in the field of the designing processes. There are advanced calculation tools that can calculate and monitor fuel use and much more. There are also developments concerning generating and storage of energy. An example is that we apply solar cells on deck of smaller vessels. As it is, we also experiment with integrating solar cells in a sail. Besides this, there are ongoing fast developments in optimising batteries, hydrogen cells, and wind and water generators. To my mind, the most energy saving can be found in the capability to sail without a propulsion engine. That is why we particularly focus on that. Small energy reductions can be realised by cooling of rooms in an alternative way, through which you do not need to use the air condition system, being one of the main energy consuming devices on a yacht."



DESIGN

INNOVATION STATEMENT

The sailing yacht of the future: integrated energy generating and smart systems

An automated sailing system, an open deck, and many glass windows, thus creating light rooms: in this way, the sailing yachts of the future provides the best sailing experience when Dykstra Naval Architects and designer Claydon Reeves have it their way. They invented the Exo concept, including these characteristics. They develop systems for energy generating and energy storage, that will make a combustion engine redundant. It can be done through energy generating from the propeller or integrated solar cell on deck, glass or the rigging system. The sailing yacht of the future also has systems that provide feedback about performances and powers in the rigging system and the construction.

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