

Superyacht

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EXTERIOR SPACE

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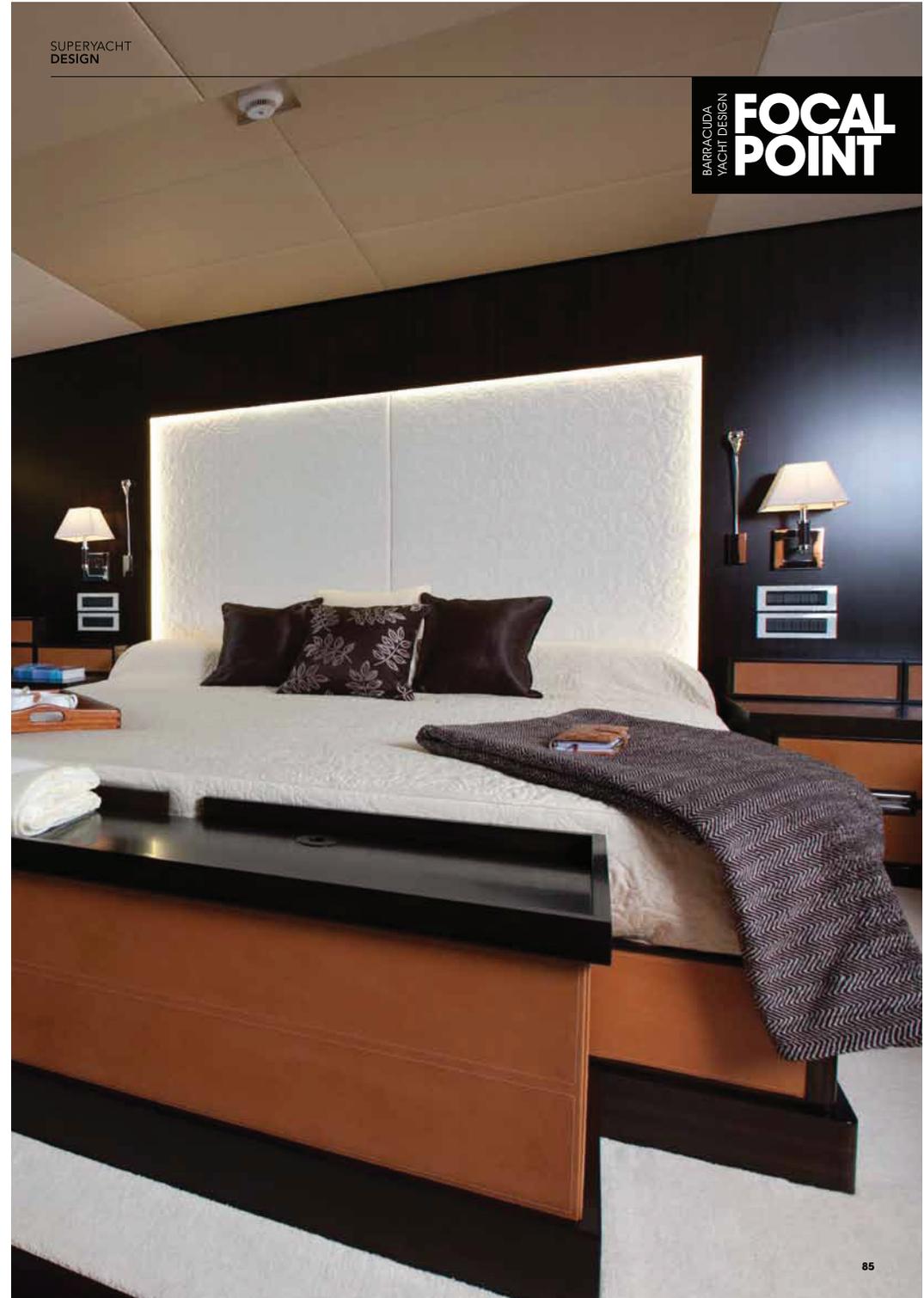
A collaboration of minds in one studio, SYD visits Redman Whiteley Dixon.

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WINDOWS OF OPPORTUNITY

Akalam is a classic 32-metre sailing yacht designed by Barracuda Yacht Design to be sleek on the water and completely timeless. But as SYD discovered on a recent visit to the Pendennis marina in Falmouth earlier this year, *Akalam* is far from predictable. Designer and naval architect Iñigo Toledo and his team have pushed design and engineering boundaries to give this sailing yacht some of the largest rectangular hull windows ever seen on a sailing yacht of its class. SYD caught up with him to discuss the finer points of this defining feature.



The Barracuda team began designing *Akalam* over five years ago and according to Toledo, while the size of the design grew from 28-metres to 32-metres, the overall look of the yacht evolved very little over that time.

"I think that yachting needs more boats like this," he declares. "A bit more serious, a bit more honest." Established by Toledo in 1989, the Spanish studio has a history of creating classically-styled motor and sailing yachts, both production models and custom builds. With its graphite black hull and matching carbon rig and cream painted superstructure, *Akalam* is a sleek and progressive sailing yacht but it does not look like a 'design experiment'.

"Our aim wasn't to make any major design statements," explains Toledo. "We wanted a boat that is valid now and will still be valid in 20 years. It is a respectful design."



It would be a mistake to assume Toledo's appreciation of what he describes as "a respectful design" has resulted in a standard sailing yacht that doesn't test the limits of design and engineering. Quite the opposite is true, in fact. One *Akalam's* defining design features is its unusually large rectangular windows. According to Toledo, the owner wanted to make the most of the striking vistas while under sail by creating the best possible views of the outside from within. While large areas of glass are no longer an unusual feature in large sailing yachts, increasing the size of windows—and consequently the size of the holes in the hull—raises several issues from an engineering perspective.

One of the first priorities for Toledo was to determine the amount of reinforced plating the hull would require, ensuring the typically 'soft'

sides of the yacht would not bend under the stresses of sailing. In a process of 'material compensation', Barracuda created reinforcements in the areas immediately surrounding the windows to bring the integrity of the hull back to the point before the holes were cut.

"The second concern was to work out how stress from the rigging and mast compression combined with the bending and twisting that occurs when a yacht is pounding through waves, could be diverted away from the area of the windows," says Toledo. "As a yacht bends, the force effectively compresses the deck and a high proportion of the load is absorbed along the sheer line and deck edge."

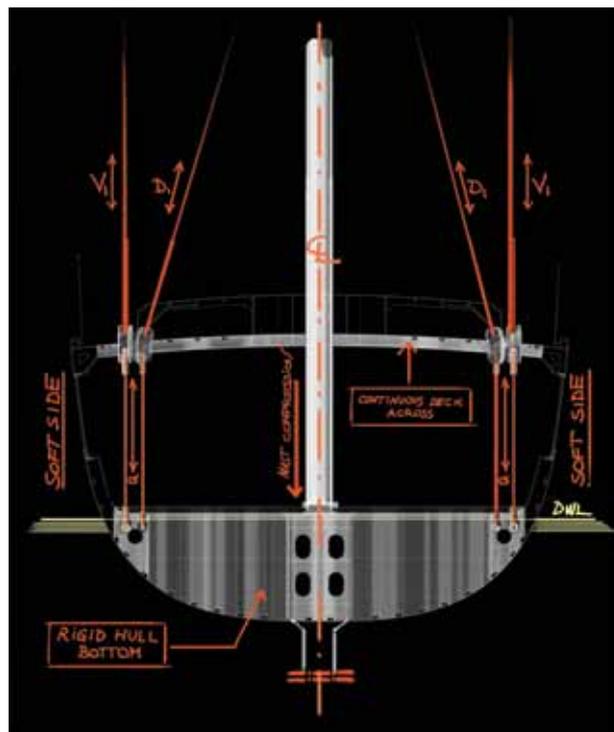
Toledo likens this effect to when a container ship is fully loaded and the imperative is to ensure the deck edges are suitably reinforced. By including a structural double-bottom aluminium box in the very lowest section of the hull, it has been possible to divert stress away from the windows. The shrouds have been brought inboard and rather than terminating at deck level at a point on the outside of the hull, they continue down into the hull and attach to the box.

"Creating this so called 'soft-section' outside of the spreaders has successfully isolated the window area," says Toledo. "An additional benefit has meant the side decks are less obstructed by the D1 (lower shroud) and V1 (cap shroud) than they might be on a more conventionally-rigged yacht." As for any disadvantages to this unusual shroud configuration, Iñigo maintains there is only a marginal increase in mast compression.

The glass used for the windows was supplied by Technoglass in Switzerland and is double-glazed, laminated and chemically toughened. Toledo describes the glass as effectively "floating in rubber"—plenty of Sikaflex helps transfer all of the stresses onto the structural aluminium beams.

You would expect there might have been some difficulties convincing the classification societies, but Toledo assured us that it was easier than he expected: "At Germanischer Lloyd our primary point of contact was already known to me from my work on the 2007 Desafio Español AC Campaign, so we were on the same wavelength with our thought processes," he explains. "That certainly helped."

This did not mean the process was entirely straightforward though, as *Akalam* required significantly more survey check-ups than standard, due



not only to the windows, but also to the large cut-out resulting from the required size of the pilothouse.

For Toledo, the time, effort and innovation needed to include the large windows has certainly been worth it. "It is up to designers like us to push boundaries and create new sensory experiences that are practical and able to stand the test of time," says Toledo. "I think we have genuinely achieved that with *Akalam*."

Akalam's hull windows that seem to blend into the graphite black paint, make a really striking exterior. Inside, the light streaming in from the windows combines with the yacht's 7.6-metre beam to make *Akalam* feel much larger than her 32 metre LOA. While the windows offer undeniably incredible views, the most spectacular effect comes when the yacht is sailing upwind. The leeward windows become partially immersed beneath the sea and the water can be seen rushing past as the yacht is heeled over.

"It's hard to explain in words, but anyone who has sailed on board *Akalam* will tell you that such is the sensory effect we've achieved with the windows, we may see a trend for similar designs start to emerge," concludes Toledo. "I believe that any owner experiencing this will not want to give that up." ■