Pushing the boundaries of regulations: The X Pagoda

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Discover how RINA overcame regulatory challenges to bring Stefano Pastrovich's innovative X Pagoda vessel to sea

As the lines between superyachts and passenger cruise ships continue to evolve, new projects emerge redefining what luxury experiences at sea look like. One such project is the X Pagoda, a **unique passenger vessel designed by Stefano Pastrovich**.

The design's vision and the novel combination of technical features challenge the regulatory frameworks and push the boundaries of what's possible. This project requires from a Regulator perspective an open-mind approach, innovative thinking and curiosity to explore new unchartered waters.

Traditionally, vessels operating with paying guests on board fall under strict regulatory categories based on the number of passengers and

type of hull construction:

- Passenger Ships (with more than 12 passengers): these typically have steel hulls and must comply with stringent international safety standards like SOLAS (Safety of Life at Sea). Instead, “Passenger Yachts” will be compliant with the relevant Safety Code in conjunction with the selected Class Rules for passenger ships.

- High-Speed Crafts (HSC) (with more than 12 passengers): aluminium multihulls designed for specific routes without overnight accommodations.

- Yachts (with less than 12 passengers): these can be steel or aluminium and must comply with yacht-specific safety codes for unlimited navigation.

However, **the X Pagoda does not fit into any of these categories**. And she does not want to.

With the ability to **accommodate 20 to 30 passengers**, the vessel is designed to offer more accommodation space than most yachts of this size, while **avoiding the restrictions placed on larger passenger ships**. Built entirely from aluminium, this sleek 59-meter catamaran promises not only a low draught meaning access to shallower waters, but also significantly more guest areas compared to a traditional vessel of the same length and purpose. To further enhance the experience on board, the superstructure is supported only by structural pillars, with the living spaces above the deck exclusively enclosed by large floor-to-ceiling glass windows.

RINA was requested by Pastrovich studio, the designer and promoter of the project and his partners composed by Chartwell Marine, the naval architect; G Martines Design, the interior/exterior design technical office; Wolf the visualisation agency, to carry out a preliminary feasibility study for the project with considerations to the regulatory framework by the chosen Flag: Malta. It is important to note that Malta's relevant regulations are almost entirely based on SOLAS for passenger ships with 12 to 36 passengers, with specific alternatives for requirements that are not entirely suitable to a yacht.

Therefore, the **"regulatory challenge"** that RINA was asked to consult consists in the applications of the following technical and safety requirements for an aluminium catamaran:

- The application of a Safety Code for passenger yachts that refers to SOLAS particularly regarding fire protection standards (e.g., the steel equivalent criterion and material restrictions).

- The application of the SOLAS stability criteria for passenger ships

normally applied to monohull vessels to a catamaran.

- The application of ships structural requirements for unlimited navigation.

Class Society plays a key role in assisting the Design Team during the initial phases of the project in liaising with the Flag State to define the design criteria needed to meet the required equivalencies. Special consideration for this project was given to the following identified key critical areas amongst others:

- **Structural fire protection**: Identification of elements required to be made of steel vs elements that can be considered steel equivalent, evaluation of areas to be insulated with main criteria for insulation principles, establishing key characteristics of interior materials.

- **Stability performance**: Definition of probabilistic or deterministic criteria and number of compartments to be considered flooded.

- **Structural integrity**: Definition of superstructure pillar structural requirements, evaluation of requirements for the glazing, evaluation of structural performance due to global loads acting on a multihull platform.

- **Mean of escape**, lifesaving equipment and accommodation design criteria (i.e. Marine Labour Convention).

X Pagoda is an innovative project that needs to leverage established regulations for certain type of vessel into a new and different type (normally subject to different rules and restrictions): to achieve this result, close collaboration between the Class Society and the Flag State is crucial to determining which criteria are suitable and for which areas alternative designs are required. This is the only feasible approach to propose different solutions from the prescriptive requirements of

SOLAS.

Furthermore, given that this is such a unique project and that the application of Flag State codes for Passenger Yachts (including Malta's) is relatively recent compared to the Safety Codes for yachts carrying up to 12 passengers, the analysis of this project could lead to interesting proposals for amending the Flag Code.

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