Evolution of the motor yacht superstructure: relations between habitable plant and environmental context

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**Abstract.** The motor yacht, in the course of its evolution in the modern period, ever since it has become an element of serial production and therefore of global diffusion, has profoundly retraced its typological identity: its external conformation has become over time an identifying element of the more different ways to conceive and decline yachting. By virtue of a principle closely related to social factors, its formal definition initially relates to styling and aerodynamics, for the only factor that presupposed a totalizing sporting experience, even in its aesthetic celebration: dynamism. The superstructure becomes precisely the field of choice through which this character find aesthetic definition. In its evolutionary path the recreational cabin cruiser will progressively move away from the boundaries of the mere stylistic research that had characterized nautical production for several decades, to retrace the typological boundaries in eminently functional terms. In recent times, it has become the interpreter of a complete evolution, not limited only to the formal- aesthetic field. It rediscovers its essence of habitable structure and, as such, its contiguity with the productive and research sectors related to the theme of the "habitable machine". The superstructure of the modern boat represents an "interactive envelope", almost completely losing the self-referential definition, limited to the aesthetic field, which it had in the past. It becomes a technological envelope, with a complete interface with the environmental context; it is a metaphor for a possible transformation of the pleasure boat, which rethinks its relationship with the sea: passing from a consumerist phase to a more thoughtful one that respects the environmental resource. In the deck system, the original split between the interior and the external context – in particular, between the perimeter casing and the parts of the layout – is now increasingly attenuated on the basis of a progressive connection between these components: in the organization of a system, or of an increasingly complete interaction among heterogeneous elements. The superstructure then is no longer an isolated shell, but an integrated complex, dynamically adaptive with respect to environmental variables, and interactive with respect to the various parts of the set-up complex. It is the organism that regulates the functions and interactions of the living cell (understood as a complex object) in which the aesthetic apparatus has been progressively relativized. From this point of view, the nautical object could be seen as an evolved industrial product, as a significant field of application of heterogeneous specialties: the superstructure and the main deck become instruments of connection between the housing activity and the environmental context, in the multitude of aspects that the modern conception of life on board underlies. In the typological complexity the role of the project assumes a decisive importance, since, besides a formal and functional ideational tool, it becomes the programmer of the confluence of specific aspects. The excursus also aims to analyse the evolutionary process of the "total" project, which could be seen in its composition as a continuum, increasingly oriented to environmental compatibility and - from the point of view of optimization of resources - to the adoption of innovative manufacturing processes, technologies and materials. The result is the synthesis of a confluence of multiple specialist areas, some traditionally connected to the nautical sector, some unprecedented ones, others shared with different design and production sectors.

**Keywords.** Yacht, pleasure craft design, interior decor, style.

# Introduction

The design of the modern boat stands as an overall management tool, both of the aspects relating to the "habitable machine" and of those of the "sailing machine". It becomes a place of total experimentation, thus overcoming the limits of a mannerist compositional approach - aimed primarily at the aesthetic-functional sphere - to become more and more innovative: that is, capable of dominating technological evolution, finalizing it to the many themes linked to the modern housing concept, then according to a holistic vision of the project. Modern design discipline widens its boundaries, progressively losing that limited sectoral conception that is typical of traditionalist practice, and adds new conceptual dynamics aimed at exploiting the potential of the system that the entire industrial sector, as a whole, subtends. In its definition, different disciplinary competences now come together, each with an autonomous evolutionary heritage - due to the sectorial specialization of modern industry -, each aimed at a wider range of possible applications.

The pleasure craft becomes a territory of shared experimentation of materials, methodologies and construction technologies. It is the place where experiences and contributions from multiple project sectors converge, mainly linked to the world of industrial product, automotive and architecture. Specifically, the project of the main deck of the modern motor yacht becomes the field of application of multiple disciplinary specificities, such as the study of the integration of industrialized components, the furnishing system, internal climate regulation, surface screening systems perimeter. In addition to this, there is the distribution study aimed at ensuring the continuity of the distribution system and the surrounding environment, which together with the sophisticated self-handling systems of the surfaces, make the main deck an increasingly versatile element, which in the transformability of the parts has found an additional benefit for the liveability on board at 360 °.

The modern boat is therefore a summary of technological contents, both as regards the propulsive part and as regards the housing part. In its essence as a complex artefact, it is the expression, now much more clearly than in the past, of an increasingly interdisciplinary synthesis aimed at optimizing the system’s potential. The set of solutions and applications that find place in it often represent the ultimate evolution of the state of the art in the disparate fields of technological research, for example: in the air conditioning of environments, in windowed surfaces, in thermal and acoustic insulation of the casing perimeter, in domotics, in the application of eco-friendly construction materials. In addition to these elements, which directly affect the housing system, there are devices related to the technical nautical field. Although indirectly they affect the liveability on board. Among them, we mention for example: the adoption of lightweight structures, systems for the production and accumulation of alternative energy, propulsion systems with low environmental impact [8]. the adoption of an efficient thermos-acoustic insulation system.

This complexity has imposed a new design vision, now extremely polyhedral and interconnected. In consideration of an increasingly advanced and specialized construction process, as well as characterized by a high degree of serialization, production optimization is increasingly expressed in cross sectoral, or in the adoption of industrialized components and construction systems whose field of application, sometimes, it is not for the exclusive use of the nautical industry. The introduction of the serialized element in nautical design thus opens up to the themes of systemic vision. In fact, on the one hand, it implies a certain formal homologation due to the common components used[[2]](#footnote-2), while on the other hand it introduces a series of qualitative and economic advantages. With regard to these last aspects, we refer to the traceability of the components of the building, and to the programming of the resources that - thanks to the outsourcing - the shipyard can allocate to the most relevant aspects of the core business of its production activity. The formal characterization of the serialized product, compared to the traditional artefact, relies on diametrically different compositional logics. In this case, in fact, the design focuses on the adoption of unavoidable formal constraints, given by the characteristics of the industrialized components. Their integration into the overall project will involve a series of implications, especially from the formal point of view; therefore, the aesthetic definition takes place through a series of precise measures, concentrated on the customizable parts of the building, through stylistic devices and customizations, which - from a cost point of view- have a limited impact on economies of scale. In this way the approach to the aesthetic definition of the boat - and of the superstructure in particular - undergoes a substantial metamorphosis, in relation to the evolution of the reference constructive models. Initially, in fact, the traditional methodology involved an autonomous morphological characterization, independent of external factors, entrusted exclusively to the design and construction methods of the individual shipyard. This view completely defined the general configuration of the project, deriving from an individual interpretation of the form-function relationship of the entire building, for which the stylistic motifs of the single model expressed the constructor's identifying connotation and the conceptual vision of the designer. Over time, with the leaving by shipyards of the constructive principle to unit for the reasons of the expansion of production, the construction plant loses its sartorial dimension and consequently the compositional freedom that determined the absolute expressive variety within the same type of membership. The serial construction on mould undoubtedly constituted the point of no return for a process that, from the formal point of view, has progressively determined the passage from the individual configuration, for which the single model had its own expressive synthesis, to the typological configuration, in which the aesthetic characterization refers to a codified reference canon. If the morphology of the typology constitutes the effect of an increasingly constrained design process in the characteristic connotations in relation to the increasing level of industrialization and by virtue of the serialized components adopted in it, the superstructure becomes the aesthetic element through which this trend is readily apparent.

# Methodology: evolution and trends

This intervention aims to re-read the superstructure of the motor yacht and its distribution system not only from the stylistic point of view, but also through the analysis of the correspondence between form and function: the profile of the boat becomes an expressive instrument of the compositional hierarchy between the parts of the housing apparatus.

 The excursus thus becomes a valid opportunity to retrace the compositional evolution of the motor yacht, in the aesthetic comparison between the examples of the most significant historical ages. The aesthetic-representative role played by the superstructure is therefore evident: it is therefore useful to analyse how-in this sense- it has evolved.

 First of all in its task of transmitting through the form the character of the boat, and therefore its functional and performance peculiarities. Secondly, in its intelligibility, that is in the ability of clearly indicating a correspondence between the aesthetic apparatus and the functional areas. Finally, in its distribution function, that is, as a means of connection between the internal settings and the external areas of pertinence. In relation to this last aspect, the bridge is the subject of a continuous evolution over time, conforming differently: from the disjoint and composite set of origins to the organised complex - homogeneous and integrated - of recent specimens.

 This transformation is the result of the passage from a compositional logic characterized by the additive process [13] - for which the different housing components of the deck alternate in the sequence of individually terminated cells - to an integrated vision of the project, characterized by a process of fusion between the various components of the board space [1]. Over the decades, the compositional logic of the distribution system has changed profoundly. For different orders of factors, specifically: the design methodologies, the socio-economic conditions, the cultural references, the osmotic relationship between the nautical design and the sectors adjacent to it, including that of fashion, and finally but not least the same concept of housing, whose reference standards have always influenced the space on board the boats.

Over the years, the main deck design changes significantly, identifying in its evolution a series of configurations, typical for the reference period: the space is  [constantly reconfiguring](https://context.reverso.net/traduzione/inglese-italiano/It%27s%2Bconstantly%2Breconfiguring) in accordance with the conceptual parameters borrowed from the architecture, with reference to the contemporary models.

In its formal evolution, the space delimited by the envelope of the superstructure characterizes itself according to compositional logics, which are sometimes antithetical. In fact, at first it was the era of transition from artisanal technology to industrial technology, characterized by the sequential combination of regular and geometrically concluded volumes: in this type of composition the design of the windows precisely described the subdivision of the inner areas. Then, with the growth of the construction technique of fiberglass, we came to the period of curvilinear forms in which the different habitable volumes of the main deck merge into a single continuous element, whose profile impresses thank to the dynamic cuts of the windows that follow one another and sometimes overlap independently of the partition of interior spaces. In this case, the bodywork became an expressive vehicle - through a repertoire inspired by the organic forms - of the themes of dynamism, in accordance with the contemporary aesthetic-sociological aspects linked to the phenomenon of motor boating. The space on board - in its current configuration - rethinks fairly the relations between the parts, thanks to a changed vision of the pleasure craft and motor cruise, in particular: the concept of form evolves in the close relationship with the usability of the designed object. *Stylist* gradually loses its emotional impact to make way for the usable form: *smart* is the watchword that underpins the design choices of the distribution system, now increasingly integrated into the volumetric complex of the superstructure and, more generally, of the main deck. The latter now come as a complex - mutable, transformable, adaptive - compatible with the many activities that contemplate domestic everyday life, together with the recreational purpose of on-board life.

In modern motor yachts, the living space extends its functionality through the perimeter casing, which becomes the link with the surrounding environment: therefore, the superstructure is increasingly performing the complicated task of regulating organism, or rather of adaptive tool to the changing environmental and climatic characteristics. It is no longer just a physical separation - as happened in the past - between inside and outside but an interactive complex, integrated with the technological functionalities of an increasingly sophisticated housing apparatus, also thanks to the help of home automation. It loses the primitive static connotation of volumes concluded in the combination of solid and windowed surfaces, to articulate itself in a dynamic sequence of convertible perimeter surfaces, by virtue of the different possible spatial configurations that the living space can nowadays represent. In addition, the simultaneity of multiple conditions of use for the same multi-faceted and multitasking space represents its added benefit.

From the formal point of view, the superstructure of the modern motor yacht appear deconstructed - with respect to the original configuration - now characterized by the transparency of the perimeter surfaces, with design solutions that tend to dematerialize the built volume, splitting it into two main parts: the structural *exoskeleton* [4] and the windowed casing. From the functional point of view, this effect identifies even more the main deck as a distributive mediation space, in this case: between the different areas of the interior, between the internal and external parts, between the entire living deck arrangement and the surrounding environment. The adoption of transformable systems improve these peculiarities: from furnishing to general outfitting. The latter increasingly provides for the adoption of automated mechanisms, capable - in order - of extending the potential of the on-board space. In particular, they tend to improve accessibility to the sea and bathing, expand the walkable surfaces of the bridge [10], and reduce visual barriers to increase the panoramic view, thus improving the environmental perception of the different areas of the living deck.

# Aesthetic evolution of the superstructure in the serial production era.

The classic American-inspired motor yacht included a volumetric arrangement of the superstructure still conformed to the type of Fast Commuter. A central wheelhouse cabin resting on the bridge deck, connected aft and forward by two windowed “deckhouses laying on a lowered half-bridge. Compared to this formal structure dating back to the 1930s, the formal variations are mainly determined, over the decades, by the types of connection between the lateral and horizontal surfaces of the deckhouse, the respective radii of curvature, the use of surfaces double-curved - in the 1950s - compared to the flat and square ones of the primordial specimens.

In the nautical production of the 1970s the influence in the compositional aesthetics of the construction type of marine plywood is visible, whose imprint remains even when the shipbuilding industry evolves in the switch to the moulded fiberglass construction system. Taut geometric lines characterize the side view, bounded by clear contour lines. The general geometry of the perimeter casing highlighted sharp edges, the almost total absence of curvatures of the side surfaces and by the clean cut of the junctions between the vertical and horizontal surfaces. The composition takes place through an additive logic of the surfaces that make up the side profile, which generate parts at different heights but still lacking the transversal hierarchical order, which distinguishes the vertical partition through base, intermediate and top block.

From the functional point of view, distributive innovation of the Mediterranean motor yacht involves the resolution of the promiscuity of on-board living areas inherited from the Fast Commuter type.

The fragmentation of the functions of the living and the sleeping area definitively solves through a rationalization by macro areas, defined in the vertical compartmentation: the half bridges disappear in favour of the overlapping main levels developed continuously from stern to bow. By virtue of this vision, the superstructure becomes the envelope of the living area, which by its geometrical regularity is more like an architectural residential space than a traditional nautical space. Regular and rectified spaces, which contemplate a different type of furniture inspired - in aesthetics and construction - to the domestic model, impose a different conformation of the perimeter casing. Moreover, the new distributive configuration proposes, in the articulation of the areas on board, the same relationship between the parts of the residential space, which presupposes a different relationship between interior and exterior and therefore a new partition between solids and voids of the perimeter surfaces.

 Shape. Thanks to the new distribution concept, the advent of typological innovation, that led to the definition of the "Mediterranean-style motor yacht"[[3]](#footnote-3), was the protagonist of a radical change in the general on-board layout, as the volumetric relationships between the hull and the superstructure varied, and its longitudinal extension increased in relation to the overall length. In the *med-style* motor yacht, the side definitely shows the prevalence of the closed surfaces respect to the transparent ones.

The body built presents a scaled composition, from bow to stern, based on the overlap of the decks. The main bridge was splitted into two parts on different levels: the forward one, lying above the lower deck and extending beyond the middle boat, and the aft one, lying on the same level as the cockpit and above the engine room. On the upper deck, there was the flying bridge, whose longitudinal extension ended, ahead of it, above the wheelhouse, while abaft it ended in a canopy that covered the aft veranda.
In the aesthetics of the profile, the bulwark of the flying bridge - connected at the front of the pilothouse roof - realigned the altitude difference between the different volumes of superstructure. From the compositional point of view, the windowed parts initially had a limited extension in relation to the surface of the reference environment, thus responding to properly architectural criteria. Over the years, their shapes take on more and more dynamic cuts with shapes that vary from the trapezoid to the quadrilateral with inclined sides forward. The compositional logic developed at the beginning of the 1970s thus marks the paradigm of the design process of the motor yacht, particularly in relation to the development of the superstructure. In this age, the interiors of the main deck influenced by their conceptual architectural origin, denoting a composite nature in the furnishing components, with a clear separation between the different areas of the main deck, since the principle of integrated space was still from to come.

During the 80s, the front of the superstructure becomes rearmost, conferring - together with a greater inclination of the windscreen - to the profile of the superstructure an aerodynamic cut. This aesthetic effect becomes a characterizing element of the category, which thanks to the evolution of the hulls, the evolution of the engines and the use of a lighter construction material - such as fiberglass - is justified by an effective performance increase. The dynamism in these years becomes a distinctive element of the image of a typology that tries to overcome the compositional limit given by the imposing volumes of superstructure that dominate the line of the saddle tank. From this point of view, the windows become an important design means, which together with the moldings are tools that highlight the plasticity of the shapes of the built volume. On the basis of the compositional experiences gained by the pioneers of the new design order, the profile of the superstructure is now characterized not only by a changed relationship between “solid and void” of the lateral surface, also for the cutting of the windows, which now appear thinner and longer. The aesthetic effect produced by the formal combination of the side windows - the rear one with the forward one - enriches the composition of the side profile and identifies a new compositional element: the inclined connecting mullion. Thus, the solid parts of the side profile acquire a growing compositional importance: treated as bodywork elements, thanks to the moldings that highlight a vertical hierarchy of the superstructure body. The composition for interconnected blocks with different widths replaces the one based on a single cut out volume, with a "scalar" composition - typical of the previous decade -. Now the volume of the flying bridge is no longer a jutting lid, but an articulated element - often aligned with the side - integrated into the body of the superstructure. This new vision is the expression of a synthesis of heterogeneous design matrices: the architectural one, with references to the prolonged cut of the "ribbon windows", and the automotive one, due to the plasticity of the shaped sides, in reference to the contemporary stylistic canons[[4]](#footnote-4). The cuneiform geometries and the taut, almost angular, shapes characterize the general lines of the boats of this age[[5]](#footnote-5). This aesthetic trend will become even more explicit during the 90s, when the previous formal experiments will consolidate in the common practice of a “stylistic mannerism”. For which, in the composition of the bodywork, the front base volume degrades on the deck with a cuneiform line with a wide convex curvature: while the rear part increases the height towards the stern by incorporating the side windows. The upper portion of the superstructure, the one that houses the flying bridge, becomes an element visually detached from the context and incorporates, on the fore, the ribbon windows of the wheelhouse. Curved lines appear for the first time, especially in the development of the front windshield, which begins to lose the traditional appearance of a multi-faceted sequence of flat surfaces surrounded by intermediate frames. The grooves, the volume changes and the relative reflection lines, the chromatic variation, constitute the new compositional repertoire that inaugurates a new phase for the motor yacht. In this era, it became the interpreter of a hedonistic conception through the celebration of a new *decorativism* of the exteriors, aimed at supplanting the rigorous *geometrism* of the previous decades.

Regarding the formal evolution, the vertical composition of the built body now focuses on the combination of the two main elements: the base, which incorporates functional elements such as the side openings and the forward sunbathing platform, and the top shell, containing in a single element the front shield of the wheelhouse - including the windscreen - including the flying bridge casing.

The lateral aesthetics of the superstructure stood out for the innovative proportions between the front and rear windows, whose joining element is no longer a vertical surface, but a slender, extremely inclined mullion, which also constitutes the upper edge of the base block. The same flying bridge loses its image as an element laid on top of the deckhouse to become a visually integrated element in the building block. This protrudes only in the rear portion - in continuity with the cantilevered part above the veranda - through the full-width side wings that accentuate the aesthetic dynamism of the superstructure and, functionally, increase the habitability of the upper deck. The new aesthetic configuration of the profile consequently entails variations in the distribution system of the main deck: in fact, thanks to the new partition of the side windows, the previous perimeter constraints that determined the rigid subdivision for functional parts are lost. The continuous windows, similarly to what happened in the architectural field, permit a distributive freedom that, together with the changed production and market logics, allows for levels of customization of the main deck unthinkable before then[[6]](#footnote-6). The motor yacht of the new millennium stands out in the formal exercise through the accentuation and exasperation of predetermined stylistic features. The taut and square lines softened in the surface junctions are now supplanted by curved lines and convex surfaces. Attention shifts from the general volumetric composition to the sophistication of surface modelling. The moldings, which usually constitutes a mean to accentuate a superficial disconnection, is now an element characterizing the aesthetics of the bodywork, now defined in the double-curved surfaces. Formal opulence becomes the stylistic imprint of the motor yacht of this period, all teaches about a new interpretation of pleasure craft. Appearance and image play an essential role in the modern conception of life on board and cruising. The motor yacht, through its own aesthetic-figurative apparatus, becomes a vehicle that represents a social status, marked by the economic ease that the industrialized world is experiencing in this age. The shapes of the superstructure thus appear sometimes redundant in the sequence of stylistic features and in the plenty of curved motifs from zoomorphic inspiration. I.e. the windows become portions of the circle, or lunettes that intersect and overlap each other, creating a juxtaposition with the solid parts of the superstructure, with effects that recall the forms of nature: from the waves of the sea to the dorsal fins of the fish fauna. The diagonal mullion, a separating element between the side windows, sometimes turn into a characterizing sign that extends aft becoming the support for the cantilevered terrace of the flying bridge. Concerning the distribution, the aft sliding glass door, extended transversely, favours the continuity between the internal living area and the aft veranda.

In the period between the first and second decade this stylistic verve still seems to have lost its inspirational impulse, aided by the effects of the economic crisis that has deeply touched nautical production, because of a global phenomenon. From a sociological point of view, the conception of boating thus changes, tending now to distance itself from the obsession with speed and the need to impress at all costs. The pleasure-boat cruise is no longer a celebration of luxury and opulence tout court but, thanks to a matured awareness of modern boating, it tends to favor on-board living qualities. Comfort and habitability therefore influence the aesthetic standards, leading to overcoming a stale style based on the exaltation of aerodynamics. The aesthetics of the profile of the superstructure thus adapts to the different concept of the living on board freeing itself of those stylistic trappings that could hinder the revolution of the use of the main deck, based on the principle of continuous liveability, both longitudinal and transversal. This feature implies a reconfiguration of the distribution system, through a planimetric arrangement of the living room furnishings, able to favor complementarity and the interface between inside and outside. Secondly, this principle reflects on the characteristics of the perimeter shell of the boat, transforming the habitable cell into a permeable and ductile space. Over the last decade, nautical production in the medium sized motor yacht sector has demonstrated an unexpected aptitude for innovation through the formal redefinition of the superstructure. The panoramic views, the total liveability of the entire deck plan, the commutability of the living areas, and the transformability of the perimeter surfaces become the main components of a new design logic, aimed at enhancing the habitable machine, thus breaking up the boundaries of an aesthetic order now become conventional and self-referential. The side windows become a single continuous element, no longer composed through the diagonal mullion. The latter, in relation to the distribution of the interiors, is now just a stylistic tinsel interfering in the interface with the surrounding environment. The lowering of the threshold line becomes an important solution to improve internal panoramic views, especially from the salon seats. Laterally this choice affects the line of the hull profile through corresponding reduction in height of the side bulwarks. As far as the relationship between opacity and transparency is concerned, the trend foresees a prevalence of the latter, with the shell that decreases and the glass surfaces that expand, even in the horizontal parts. The transparency of the perimeter casing is also justified by the functional permeability, thanks to the introduction of increasingly wider side openings. These, by means of modern sliding or "folding" opening systems, allow an absolute continuity between the different areas of the main deck. The modern constructions know a further progress in the compositional evolution of the superstructure with the splitting of body shell from the glass casing.

 The exterior apparatus of the boat, in this way, loses its unique configuration, to acquire a transformable one, by virtue of the convertibility of the deck and the multiple outlines that it can take depending on the contingent conditions of use: enclosure completely closed, partially open, veranda. Complete this aim the transformability of the sides of the hull, with the aid of automated handling technologies.

# Conclusions

In conclusion, the deck historically appears as a privileged seat of the main interactions of life on board. It together with the superstructure constitutes the representative element through which the boat aesthetically transmits its own characteristics of sailing machine, a living machine, means of socialization, communicative tool of a social status and consequently of a conception of yachting. His constructive apparatus, as a composition of volumes and alternation of closures and transparencies reflects a conceptual change that took place over the decades, determined by the combination of factors. The influence of fashions, sociological factors, stylistic evolution, the changed concepts of use of the recreational craft and - last but not least - the technological and constructive evolution, and the relative economic and productive implications (in the mutation of the shipbuilding activity and business dynamics), have profoundly influenced its conception. For this reason, we cannot consider the motor yacht deck space solely analysing the individual subjects involved in realization of the final product. On the other hand, it is also simplistic to explain the complexity of the motor yacht phenomenon only under the sectorial point of view of the mere aesthetic-formal aspect. In light [of](https://context.reverso.net/traduzione/inglese-italiano/of) the [above](https://context.reverso.net/traduzione/inglese-italiano/above), the development of the theme proposed in the paper uses the historical excursus to identify the elements that condition the aesthetics of the superstructure. Consequently defines - in the analysis of the changed conditions of use - the different relationships between the parts of setting up, with reference to the evolution over time of the concept of cruising in the context of the motor-boating and related themes. The evolutionary theme is therefore developable in an overall vision that reflects the actual holistic essence that led to the passage of this particular typological specimen from a simple artisan creation to a complex industrialized product.

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2. In this regard, think of the openable window surface systems, the transformable systems of the aft platforms, and the tiltable sidewalls. Such systems, albeit in a reduced manner, allow a customization for the different models that adopt them. As serialized elements, however, they provide the same superficial developments for housing structures; the sharing of such technical devices inevitably leads to a perceptible aesthetic-formal analogy. [↑](#footnote-ref-2)
3. M. Musio Sale, Yacht Design, Il Mediterranean Style pgg 67-73 [↑](#footnote-ref-3)
4. I.e. the different Akhir series designed, between the 70s and 80s by the architect Pier Luigi Spadolini for the Cantieri di Pisa, a forerunner in the design research of a new compositional methodology especially aimed at aesthetics expressiveness of the envelope, in the combination of parts of the bodywork characterized by the "volumetric subtractions”. Thanks to an innovative aesthetic approach, the imposing volume of the body built resting on the deck is dematerialized, and the recessed surface parts generate shadows that integrate with the voids of the windows, giving the plant formal lightness and horizontality. [↑](#footnote-ref-4)
5. In fact, compatibly with the production technology of moulded fiberglass - already widely adopted by most shipyards - curvilinear connections there only adopted for constructive reasons, i.e. extraction from moulds, and not for aesthetic reasons.

 [↑](#footnote-ref-5)
6. At the end of the 1990s the distribution typology of the open space spread, which characterizes a new configuration of the living, less divided into functional diversification and freer in the reduction of the bulkheads between the different environments. This will involve innovations in the field of interior design, which, on the other hand, will have to face the theme of the aesthetic continuity of the installation. [↑](#footnote-ref-6)