

Application and Exploration of Design Aesthetics in Ship Interior Design

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Abstract: With the rapid development of society and the continuous improvement of people's quality of life, people's pursuit is constantly changing. The early ship interior design was limited by many factors, and designers paid less attention to the ship interior design, which led to the old ship interior design. With the continuous development of social economy and the enrichment of material and material aspects, on the premise that aesthetics meets the current functional requirements, the society puts forward more requirements for other aspects of product design aesthetics. This paper introduces the development of ship interior design, and summarizes the connotation and principles of interior design. At the same time, based on the basic principles of ship interior design, the innovation and optimization methods of the whole ship interior design are discussed and explored. Based on the design aesthetics, the new ideas and methods of cabin design are discussed. In order to improve and perfect the design concept and ideas of ship interior design based on design aesthetics, and enhance the overall effect of ship interior design; Create a more scientific, green, modern and comfortable marine living environment.

1. Introduction

Due to the particularity of the navigation profession, the crew lives in a special environment composed of the special natural environment of the sea and the special artificial environment of the cabin [1]. At present, the habitability of ship interior plays an increasingly important role in the overall performance of ships. Good cabin layout design, reasonable man-machine interaction, efficient design tools and scientific design methods can greatly improve the overall level and effect of ship interior design [2]. As a means of transportation at sea, the ship's scale and shape characteristics are restricted by many aspects. Generally, the inner cabin space of ships is concentrated, low and narrow, and many engineering ships are more special-shaped. Ship interior design is an integral part of ship design and the design of the relationship between space and people. Therefore, the built-in design has duality. First, the design of technical performance should strictly abide by various specifications of shipbuilding [3]. Second, the design of beauty must abide by the law of beauty, and explore people's various beautiful hearts and beautiful requirements. Ship interior design is different from general artistic creation. Art creation is an independent, pure and high-level aesthetic creation activity, and the creator can do whatever he wants. The ship interior design is aimed at fully meeting the physiological and psychological needs of the crew in the specific space environment given by the hull structure and electromechanical layout.

With the improvement of people's living standard, the requirements for the aesthetics and practicality of the ship's accommodation are getting higher and higher. This requires the ship's interior design to develop in the direction of technicality, standardization, practicality, orientation and aesthetics [4]. Traditional ship interior design can no longer meet people's aesthetic needs. Ship interior design must adhere to the people-oriented design concept, and play the role of color psychology in ship interior design [5]. The ship interior design should really take people's feelings and needs as the core, mainly from the crew's work needs and living needs, design the moving line layout of functional cabins, design the color configuration of working cabins, living cabins and public cabins, and further enhance the ship interior design effect. Color plays a role in changing or creating a certain style in ship interior design. Different color environments will have different stimulating effects on the crew's physiology and psychology, thus bringing different influences on the crew's work efficiency and life [6]. Beauty is an aesthetic concept based on functionalism,

which mainly provides functional guidance and technical support in design. It is the most basic and important component of product design [7]. Design aesthetics is an applied aesthetics subject developed by deeply integrating aesthetic principles with design theories and applications in modern design, and integrating aesthetics and art research. Based on the theory of design aesthetics, this paper discusses the design of ship interior.

2. Connotation of ship interior design

Because of the particularity of living and working environment, crew members have unique psychological characteristics. In order to relieve the psychological pressure of the crew, promote the mental health of the crew and realize the psychological harmony of the crew, it has become an important issue to maintain the stability of the ship and ensure the safe driving of the ship [8]. The general layout design of the deck plane of each cabin is called zoning. Whether it is the division of superstructure or the overall division of all kinds of cabins on other deck planes, fire separation must be the basic principle. Practicality refers to the use value of the ship's interior, and the designer should meet the two needs of designing the ship. First, the ship's work needs during navigation; second, the crew's daily life needs for living, activities and rest. Generally, the inner cabin space of ships is concentrated, low and narrow, and many engineering ships are more special-shaped. It has a great influence on the layout optimization of these rooms, not only to meet the daily functional requirements, but also to make rational use of the limited space of the rooms. The wallboard system and insulation materials of the cabin together form a cabin space that meets the design requirements. The doors and windows of the cabin need to form a complete fire protection system with the cabin wall panel, and at the same time, it can meet the requirements of escape of victims and rescue of rescuers in critical situations [9]. Ship interior design is an organic combination of cabin function design and cabin form design, and an organic combination of engineering technology and interior art. This paper is mainly based on the principle of ship interior design, aiming at improving the effect and utility of ship interior design. By perfecting the knowledge system of ship interior design, improving the process and method of ship interior design, strengthening the development and application of interior design tools, quoting new design concepts, etc. Gradually establish standardized, scientific and rational interior design standards to meet the needs of human psychological and physiological health in offshore working environment.

3. Ship interior design based on design aesthetics

3.1. Basic principles of ship interior design

The general principles of ship interior design are applicability, comfort, rationality and safety. In the design, the functional requirements of the cabin and the users' hobbies and habits should be fully considered, and how to effectively integrate the use requirements with the cabin functions should be thoroughly studied. Applicability and standardization is the first criterion of ship interior design. Here, the interior design should not only meet the requirements of technical specifications, but also meet the requirements of International Maritime Organization (IMO), flag countries, classification societies, etc. On the basis of meeting these requirements, the selection of materials, design and construction methods, manufacturing processes, combination forms, connection structures and fixing methods should also meet the conditions. It is the basic basis for the design of the ship's interior. The implementation of the specification will ensure the life safety of the crew during the sea voyage, and the operator must abide by it. Comfort is the advanced criterion of ship interior design. It is a development direction of modern ship cabin design and a higher level standard of design [10]. Old-fashioned ships only meet their basic functions and requirements. With the development of cabin design towards the high standard of luxury, comfort and safety, it reflects the change of modern people's values.

And aesthetic orientation are the high-order criteria of ship interior design. On the basis of meeting the basic requirements of cabin functions, it carries out artistic innovation and treatment on

the internal environment of the ship, increases the aesthetics and artistry of the cabin space, and enhances the overall decoration and beautification effect of the cabin. The key of ship cabin design is that the internal space and environment can effectively serve the cabin function, maximize the use function of the cabin, and at the same time, integrate various formal beauty into the internal function. In addition, safety is the most important issue in cabin design, because the safety of a ship is directly related to the lives of crew and passengers. The cabin should be designed to meet the daily work, leisure and entertainment needs of the crew, and also meet the safety requirements such as escape and life-saving in case of emergency. In addition, the robustness and durability of ship equipment, as well as the stability and anti-sinking when encountering wind and waves are all safety categories.

3.2. Aesthetics of ship interior design

Ship interior design has strict technical and technical requirements. Its design is completed by formal drawings. At the same time, the ship interior design is a highly normative design work, so the establishment of a complete knowledge system library is a solid foundation and powerful guarantee for improving the design level. To carry out interior design, we should carefully digest the layout of living quarters, study whether the layout conforms to the requirements of the specification, and whether the layout meets the relevant requirements of the specification and flag-flying country. The detailed design workflow of ship interior is shown in Figure 1.

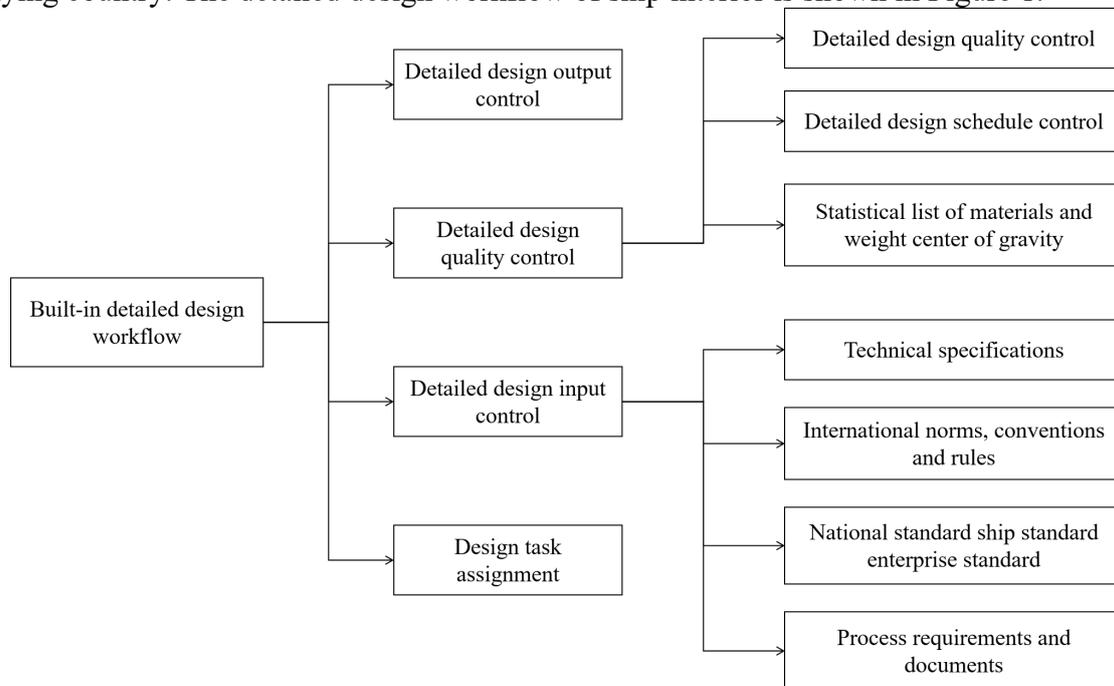


Figure 1 Workflow of detailed design of ship interior

In daily life, the feelings brought by the environment are mainly transmitted through color, and the environmental color is the most intuitive impression to people. When designing the interior colors of ships, designers should analyze the working characteristics of each ship's staff, and choose the color matching according to the nature and characteristics of each post. The living room of a ship is generally small, and the internal environment is usually unobstructed. On the basis of drawing lessons from the design of land screen in the senior bedroom, creative screens can be added to the crew's activity space and rest space. One side of the public space is embedded with TV, and the rest space is designed with artistic modeling. On the one hand, the two spaces are effectively separated; on the other hand, the form design of the screen echoes the cabin style, and the function, form and cabin environment form an organic whole. For the interior design, we can sort out the important specifications from the aspects of ship type, flying the national flag, etc. to form a comparative checklist. On the one hand, you can quickly and effectively consult the contents of relevant norms, on the other hand, you can quickly distinguish the similarities and differences of

different norms. The design of crew living area should be improved as far as possible under the condition of ensuring the minimum living conditions of crew. Residential area design is divided into areas, parts and floors according to different grades. The public design should meet the needs of the crew's national habits, cultural accomplishment and living standard.

4. Color psychology of working cabin

Color design is the most expressive and infectious important component. It mainly produces a series of physiological, psychological and similar physical effects through people's visual feelings, thus forming rich associations, profound meanings and symbols. In the design of ship interior, the equipment layout in the cabin should not only realize its basic functions, but also embody the basic principles of aesthetics, such as the rational layout of various ship equipment and furniture by controlling the proportion, lines, materials, structural forms and colors. In terms of color matching, designers can use ergonomics to match a variety of colors together, so that ship workers can better devote themselves to their jobs, make ship workers feel warm, and then improve their working enthusiasm. The workflow of cabin layout design is shown in Figure 2.

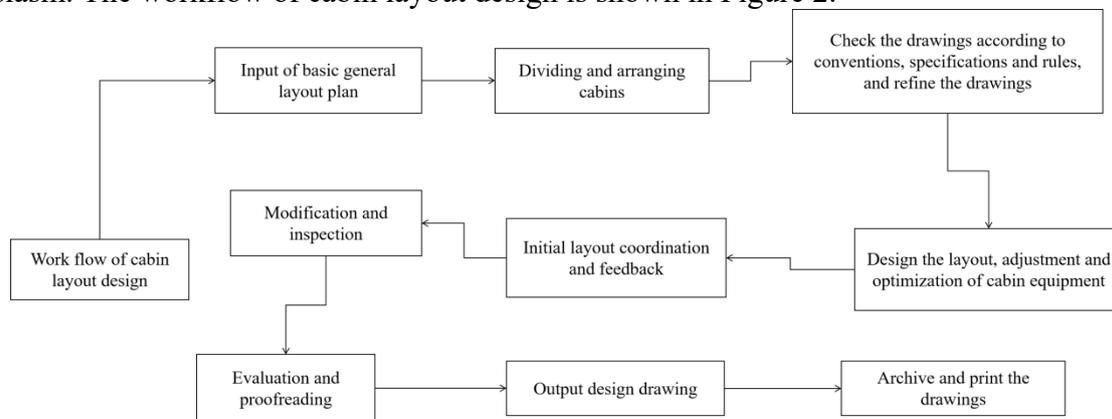


Figure 2 Work flow of cabin layout design

Clever application of the contrast of different colors, textures, light and shade and texture in cabin interior design can often produce very vivid and vivid effects; It can quickly attract people's attention and interest, and strongly stimulate people's visual senses to achieve unexpected visual effects. In addition, the color characteristics can be used to change the size and height of cabin space in ship interior design. For example, due to the limitation of size in ships, when the clear height of the cabin is relatively small, the size of visual space can be improved by using the sense of distance of color. The ship is a kind of transportation tool, so it is necessary to set aside the activity space in the ship. The design of the ship's operation room should be close to the color design of the house, and the color matching should be combined with the actual needs of the ship's staff. The color matching methods of the operation rooms with different functions are different, so as to play the role of color in the ship's interior design. Reasonable and scientific application of color can also overcome the unfavorable factors in the ship's external environment, achieve harmony and unity between the external environment and internal feelings, make people happy physically and mentally, and play an important role in improving work efficiency and quality of life. For the cabin design, we can also combine the green design concept, use new interior materials for advanced design, optimize the function distribution and combination in the cabin space, advocate healthy color configuration design, and promote the continuous integration with the natural ecology.

5. Conclusions

With the increasing number of ships, ships become an important means of transportation, and the interior design of ships has a great impact on the safety of ship driving. Modern ship's interior is developing towards safety, comfort and luxury. Modern development determines that the superior cabin design should proceed from the scientific aesthetic view, and comprehensively apply the

knowledge of aesthetics, architecture, environmental psychology and ergonomics to design the structural arrangement, functional realization and artistic aesthetics of the cabin, so as to create a beautiful and comfortable cabin that can give people a pleasant feeling in spirit and psychological aesthetic satisfaction. This paper introduces the development of ship interior design, and summarizes the connotation and principles of interior design. At the same time, based on the basic principles of ship interior design, the innovation and optimization methods of the whole ship interior design are discussed and explored. Based on the design aesthetics, the new ideas and methods of cabin design are discussed. The overall coordination and comfort of the environment is the soul of the ship's interior environment design, and the design aesthetics is the guiding principle and realization method to lead the cabin environment to achieve the organic integration of coordination, comfort and beauty. It is believed that with the progress and innovation of design concepts, design methods and design tools, the idea of ship interior design will be broadened, pushing the ship interior design to a higher level and dimension, creating a more scientific, green, modern and comfortable marine living environment, and realizing the efficient integration and unification of people, ships and the environment.

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