

# *General Layout Design of Luxury Cruise Tourist Activity Area*

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**Abstract:** Learn from the function and streamline analysis method in architectural design, through case analysis, study the general layout design technology of luxury cruise tourist activity area, summarize the general and different setting methods of cruise functional zoning, as well as the streamline design method of cruise cabin floor and indoor public activity space, and find that the most influential factor on the layout of cruise functional zoning is tons. For example, most large and medium-sized cruise ships adopt vertical partition layout, while most small cruise ships adopt horizontal partition layout; while the streamline design presents a design mode that a trunk line connects the main space, and the auxiliary branch line connects the small cabin.

## **1. Introduction**

Luxury cruise is a kind of holiday passenger ship, which can provide tourists with comfortable accommodation environment, a variety of food and rich entertainment facilities. In the past, it was only popular in developed countries in Europe and America, and only a few people in China experienced it. In recent years, with the development of economy, cruise tourism has gradually become a fashionable way of vacation. From the transportation meaning of the word “post”, we can see that luxury cruise ships were the earliest means of water transportation to carry people and goods. Today, its traffic function has gradually weakened. Cruise ship originated from ocean liner, but there are still essential differences between them. The historical development and transformation of this kind of passenger ship can be seen from the comparison between luxury cruise ship and ocean liner.

## **2. Two Basic Functions of Luxury Cruise**

For tourists, luxury cruises are mainly composed of two basic functions: sightseeing, leisure and vacation functions and transportation functions. These two functions support and meet the requirements of tourists for cruise travel at different levels.

### **2.1 Tour Leisure Function**

Cruise line provides tourists with services for tourism, leisure and vacation, including organization of tourism activities, design of product lines, explanation of Tourist Attractions Guide, and places for tourists' leisure and entertainment and recreation facilities, including sunshine deck,

restaurant, bar, coffee shop, fitness activity place, commercial street, theatre, entertainment hall, etc.

## 2.2 Tourism Transportation Function

Cruise ship has the function of transportation to take tourists from one place to another, or to and fro between destinations, in order to complete the process of entertainment, sightseeing and leisure tourism. This function is mainly completed by the ship's mechanical equipment, logistics facilities, and the ship's staff<sup>[1]</sup>.

## 3. Functional Zoning of Luxury Cruise

Functional zoning is the first step in the overall layout of luxury cruise ships. It is necessary to arrange all kinds of cabins such as cabin, restaurant, theater, casino, bar and gym according to the requirements. It is necessary to consider not only the functional requirements of cabins, but also the hull structure, stability and other requirements, so as to form an organic whole with mutual connection and reasonable layout.

### 3.1 General Settings

Due to the limitation of hull form, the functional divisions of luxury cruise ships present great similarity. The layout of most large cruise ships is as follows: cabin is arranged on the lower deck, and the outer side is mainly sea view room, which also serves as inner cabin; indoor activity space is set in the middle of the lower deck, including commercial street, casino, coffee shop, bar, photo gallery, library, Internet bar, etc.; theater and main hall are set at both ends of the lower deck Dining room and other large space rooms<sup>[2]</sup>. The middle deck is the cabin floor, and the balcony room is the main part in the middle, which is also the inner cabin; most suites are located at the stern of the ship, and a few suites are located at the bow or in the middle of the ship. The upper deck is mainly for outdoor activities, including swimming pool, golf course, track, golf course, etc.; there are also indoor rooms, such as gym, dance hall, bar, cafeteria, etc. The traffic core and atrium space are arranged at both ends and middle of the hull.

### 3.2 Difference Setting

The functional zoning arrangement of the internal space of the cruise ship is related to the tonnage, ship type, service object, grade positioning and other factors of the cruise ship. Among them, cruise tonnage is the most important factor affecting the functional layout. The larger the tonnage of a cruise ship, the more functional space it can accommodate, and the more factors and difficulties it needs to consider when arranging its functions. Through the investigation and analysis of the main cruise ships in operation in the world, it can be found that there are obvious differences in the functional zoning arrangement between large and medium-sized cruise ships and small cruise ships. The main performance is as follows: most large and medium-sized cruise ships adopt vertical zoning arrangement, usually the low deck area is the public activity area, the middle deck area is the residential cabin area, and the high deck area is the open-air activity area. The functional zoning of the whole cruise ship presents a sandwich like layout. Small cruise ships usually adopt horizontal zoning arrangement. The front half of the ship (bow) is the living cabin area, and the rear half (Stern) is the public activity area. The arrangement of each deck is similar.

#### 3.2.1 Ocean Mariner

With a tonnage of 138300 tons, ocean mariner is a large cruise ship, and its functional zoning

arrangement conforms to the typical vertical zoning characteristics. The basic situation of functional zoning is as follows: 1) the lower deck area (d3-d5) is theater, banquet hall, Royal Avenue Pedestrian Street, atrium, commercial area, etc.; 2) the middle deck area (d6-d10) is residential cabin area; 3) the upper deck area (d11-d13) is open-air swimming pool, sports fitness, cafeteria, top bar, etc.

### 3.2.2 Odyssey (World Cruise)

Odyssey, with a tonnage of 3.25 T, is a small cruise ship, and its functional zoning arrangement conforms to the typical horizontal zoning characteristics. The basic situation of Functional Zoning: 1) the bow of all deck layers (4F ~ 10F) is the residential cabin area; 2) the stern is the public activity area such as bar, restaurant, theater, gymnasium and open deck area<sup>[3]</sup>.

## 4. Streamline Design of Luxury Cruise

Streamline refers to the activity route of tourists in the luxury cruise. In the general layout stage of the initial cruise design, the architect in charge of the overall design of the cruise tourist area will, under the constraints of relevant specifications, organize the functional modules of the tourist area according to the characteristics of cruise operation, functional requirements, format and ship owner's intention, and plan to meet the operational requirements and meet the tourists' behavior. It can organize different functional spaces organically to meet the needs of catering, consumption and entertainment of tourists. Good functional streamline planning is clear, easy to reach, simple and reasonable, which has an important impact on the quality of cruise tourist area and cruise operation.

### 4.1 Streamline Design of Cabin Level (Standard Level)

The streamline of cabin layer on cruise ship is usually straight line with few bending and breaking, which is the most simple and clear, and meets the requirements of space intensive, efficient and convenient. Combined with the actual situation of the ship, one or more rows of aisles expand longitudinally along the hull axis, with a little change, forming a variety of streamline types.

### 4.2 Streamline Design of Indoor Public Space

The functions of indoor public space usually include restaurants, bars, theatres, shops, casinos, song and dance halls, Internet cafes, libraries, etc. reasonable size and shape should be determined according to the functional characteristics of the room and the requirements for the number of people, and then these rooms with different sizes and heights should be arranged to form a smooth and accessible streamline<sup>[4]</sup>. These streamline forms can be divided into parallel type, series type and hybrid type.

#### 4.2.1 Parallel Streamline

The characteristics of parallel streamline are: Central Street, parallel on both sides. Its scope of application: the ship is large and the width is sufficient; the functional rooms on both sides are small, such as all kinds of duty-free shops, small bars, cafes, libraries, etc.<sup>[5]</sup>.

#### 4.2.2 Series Streamline

The features of the series streamline are: one street connects multiple functional spaces in turn. The scope of application is: the ship is medium or small, the width of the ship is not enough to arrange the rooms on both sides; the space connected in series is generally large, such as song and

dance hall, large-scale lounge, casino, club, special restaurant, lecture hall, T-stage show field, etc. The large space in the middle of the hull sometimes forms a special situation: the streamline is broken in the horizontal direction. For example, when the large space occupying two floors (such as kitchen, show field, etc.) is arranged in the ship, the upper streamline will be divided into two sections. From one end of the ship to the other, you have to go up and down stairs and pass through other deck layers. This streamline form is relatively inconvenient.

### 4.2.3 Hybrid Streamline

The characteristics of hybrid streamline are: series and parallel hybrid, large and small space combination. Its scope of application is: the most common layout forms, such as small functional rooms on both sides of the indoor street, cafes, bars, shops, etc.; large space occupies the whole width of the ship, such as casinos, theatres, large bars, etc., where the past flow of people have to pass<sup>[6]</sup>.

## 5. Conclusion

According to the above statistics and analysis of functional zoning and streamline organization, the general functional design principles of cruise ship are summarized as follows: 1) cruise ship type has a decisive impact on the overall functional design. As the analysis shows, there are obvious differences in the overall functional design between large and medium cruise ships and small cruise ships. Before the overall function design of cruise ship, the type characteristics of cruise ship should be fully considered, and the appropriate layout mode should be selected for its function design. 2) The overall functional design should fully consider the safety of the hull. Due to the cruise function and streamline layout will guide the behavior of tourists, it is necessary to fully consider the stability of the whole hull and the layout of the center of gravity in the design process, so as to avoid the situation that a large number of people gather on one side or one end of the hull. 3) Streamline design emphasizes smoothness and efficiency. Streamline is just like the blood vessel in a cruise ship. Keeping the streamline unobstructed is very important for the healthy operation of the cruise ship. Cruise space is limited and personnel density is high, so streamline design is simple, efficient and logical to avoid redundant streamline layout. Flexible measures should be taken to enlarge the traffic space and dredge the flow of people in the parts and nodes prone to congestion.

## References

- [1] Li Pengfei, Yang Xue hang, Wu Zhaonian, et al. *The finite element analysis process and application of luxury cruise ship based on LR specification [J]. Ship*,vol. 32, no. 1, pp. 101-11, 20210.
- [2] Wu Weiguo, pan Changxue. *Key technologies of large luxury cruise design and development [J]. Ship engineering*,vol. 42, no. 1, pp. front insertion 6-front insertion 10, 2020.
- [3] Li Yi, Sheng Xing, Yang Hu. *The interior design of Baroque / Rococo cultural elements based on modern aesthetics in luxury cruise lines: Taking Venice as an example [J]. Design art research*,vol. 10, no. 5, pp. 24-29,44, 2020.
- [4] Chen Zhitong, liupengxin, zhuyating, et al. *Design and safety analysis of multi occupant lifeboat for large luxury cruise ships [J]. Jiangsu ship*,vol. 37, no. 5, pp. 15-17, 2020.
- [5] Feng Peiyuan, Wu Yongshun, Fengyi, et al. *Experimental study on power increase prediction of POD propulsion luxury cruise in waves [J]. China Naval Research*,vol. 15, no. 5, pp. 11-16, 2020.
- [6] Wang Zhenyu. *Preliminary analysis of disease prevention and control on luxury cruise ship [J]. Journal of China frontier health and quarantine*,vol. 43, no. 4, pp. 248-250, 2020.