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## Architectural analysis and design of urban planning exhibition hall based on four design elements

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# Architectural analysis and design of urban planning exhibition hall based on four design elements

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**Abstract:** Planning exhibition hall is a kind of comprehensive exhibition space, which undertakes many functions such as planning, exhibition and education. Urban planning exhibition hall is a kind of architecture rising in recent years. Its theme is urban planning. Its content is the process of urban historical evolution. It is an effective way of urban propaganda and local culture dissemination. This paper studies the architectural design of the urban planning exhibition hall, and puts forward the design of the exhibition hall based on the four elements of the exhibition hall design. It has important practical significance to design a multi-functional urban planning exhibition hall which is in line with reality of the city itself.

## 1. Overview of urban planning exhibition hall

China's urban planning exhibition hall started relatively late. After entering the 21st century, the construction and opening of Shanghai urban planning exhibition hall is the first urban planning exhibition hall in China. In the following decade, the construction of urban exhibition hall flourished, and some cities have built unique urban planning exhibition halls. Urban planning exhibition hall is developed and flourished on the basis of modern urbanization process and public participation consciousness. It has many functions, such as: it can promote the development of the city[1].

Urban planning exhibition hall is very different from art gallery and memorial hall. It has close connection with all aspects of the city. It is usually built on the main space and time node of the city, and it is the city pair. An important platform for foreign exchange can directly promote the development of cities. Urban planning exhibition hall is a kind of public building, which can display the spirit of the times of the city[2]. In the construction, we need to take into full account the city's humanities, geography and social atmosphere, showing the positive and humanistic spirit of the face, showing the characteristics of the spirit of the times of the city. Compared with museums, art galleries, science and technology museums and memorial halls, urban planning exhibition halls have obvious advantages in terms of content, expression, interaction and site atmosphere. Their orientation is to serve the public, provide information related to urban development and planning, and display pictures, models and scene restoration. These can be better understood by the public, so that the public has an intuitive and comprehensive understanding of the city[3].

## 2. Architectural design analysis of urban planning exhibition hall

### 2.1 Site selection design



Site selection is the first step of architectural design of urban planning exhibition hall, which decides the success or failure of exhibition hall construction. Although there is no fixed model for site selection, reasonable location can be determined according to certain rules and comprehensive consideration of various factors[4]. Specific principles are as follows: centrality principle, which is applicable to central divergent or grid cities. In such cities, there is usually a master. To the central area, its radiation attraction is the strongest.

Choosing it as an urban planning exhibition can ensure that the exhibition hall can play its full role, such as Beijing Urban Planning Exhibition Hall. The principle of balance is that in urban development, it is not advisable to expand blindly and unilaterally[5]. It is an important trend for the healthy development of cities to divide urban areas rationally according to the different functions and emphases. Cities will embody multi-centres, such as Shanghai, which are the main and four sub-structures. It is a balanced distribution mode. For such cities, urban planning and exhibition halls need to follow the balanced distribution[6].

In addition to the above principles, urban planning and exhibition hall buildings also need to consider factors such as urban constraints, traffic conditions, future expansion, preservation and transportation of exhibits and cultural attributes, so that the exhibition hall can better serve the public and the future development of the city.

### *2.2 Layout design*

In the layout design of urban exhibition halls, we need to start from the actual situation of urban planning, the relationship between buildings and cities, and so on. We should make the following aspects clear: clear zoning, avoid interference between each other. In the partition design of urban planning exhibition hall, giving priority to definite partition of inner and outer areas is to manage and use the inner and outer areas independently so as to avoid confusion, clarify the streamline of audience, exhibits and staff, and prevent inconvenience caused by cross-roads.

Considering the internal and external environment comprehensively, the design of definite zoning does not mean the absolute separation of the two[7]. It is necessary to consider the internal and external environmental factors from the overall perspective, including the external surrounding road conditions, the internal exhibits entrance and so on, to design the internal and external exhibition venues and entrances, to ensure the complete functions of each zoning, and to meet people's needs for sightseeing and leisure.

### *2.3 Functional design*

In the architectural design of urban planning exhibition hall, the exhibition hall should have its basic service functions, such as display function, interactive communication function, audience service function, storage function and office management function, so that the exhibition hall can operate normally, meet the various needs of the public, and ensure the role of the exhibition hall to play.

### *2.4 Streamline design*

Streamline design is an important part of the architectural design of urban planning exhibition hall, which can be divided into external part and internal part.

In the design of the external shunt line, the first is the lobby, which should be as concise and smooth as possible, with clear guidance and less cross-repetition of traffic, taking into account both horizontal and vertical traffic. There should be a consulting desk, rest and waiting space, as well as a baggage office near the lobby. Second, enter the hall, according to the situation; choose corridor, hall or front hall streamline mode, to be directly adjacent to the exhibition room, spacious space, and easy access. Third, the exhibition hall, with large space ratio, is designed from the aspects of sequence, selectivity and systematic ness of visits. Fourth, the audience service facilities, in the hall, hall location, set up a variety of public needs of service facilities, for large and medium-sized urban planning exhibition halls, each floor of the exhibition area should be equipped with toilets.

In the design of the internal shunt line, one is the internal entrance, usually far from the public entrance, separating the flow of people and logistics, the width of the logistics corridor should be enough to ensure the smooth entry and exit of exhibits; the other is the administrative office room, which should be close to the internal entrance to facilitate contacts with foreign personnel, and to facilitate contacts with the storage area and display area, so as to facilitate the good opening of work.

### *2.5 Space design*

In space design, the requirements of different regions are different. When designing, we need to do the corresponding design according to the requirements. The main contents are space design of exhibition room, public space design and space environment design. There are the following aspects in detail.

*2.5.1 Space design of display room.* First of all, to achieve the combination of display space and exhibit characteristics, according to the different exhibits, the designer should choose the appropriate exhibition mode, highlight the exhibit content, especially the special size exhibits, and focus on the characteristics of exhibits. Secondly, to create a good viewing environment, the display area is usually divided according to the type of exhibits, and the best viewing methods of different exhibits are also different. Therefore, it is necessary to combine the characteristics of exhibits to create a good viewing environment for the audience, such as hanging exhibits. It is necessary to design a large space so that the audience can observe the whole scene. Finally, space organization should be done well. Display area does not have strict requirements on size, shape and modulus. Rhythmic organization and free organization can be adopted to combine display space to achieve good space design effect.

*2.5.2 Public space design.* Public space refers to the area where the public passes by and stays outside the exhibition area and office area. Its space design mainly includes two parts: traffic space design and service space design. In the design of traffic space, the orderliness of public visits can be guaranteed through the design of independent traffic space, combined traffic space, corridor and staircase, and the artistry and interest of public visits can be added. In the design of service space, it is necessary to set up an independent living service space attached to the traffic space from the perspective of convenience, according to the various needs of the public, so that the public can rest and alleviate fatigue.

*2.5.3 Space environment design.* The most important part of space environment design is lighting environment, including functional lighting and other non-functional lighting for display. The lighting sources include natural lighting, artificial lighting and so on. In lighting environment design, priority should be given to natural lighting. Artificial lighting should be adopted for exhibits that need to create special sensory atmosphere. The organic combination of natural lighting and artificial lighting should be well done. While meeting the lighting requirements of exhibits, artificial lighting should be minimized to save energy.

## **3. Pavilion design based on four elements**

The design of exhibition hall is formed by thematic elements and design creativity, in which decoration and general construction are simpler than these two points, and creativity is a conceptual vocabulary, so it focuses on introducing the design of exhibition hall from the aspect of design elements of exhibition hall.

### *3.1 Pavilion design and culture*

The value culture of the exhibition hall is embodied in the recognition of the customers. Only when the customers recognize us can we have the value significance of our existence. Therefore, in the design of the exhibition hall, the most easily neglected and the most important factor is people[8]. The designers of the exhibition hall always design the exhibition hall from the aspects of the appearance and application of the exhibition hall, regardless of the size, content, environment and theme of the

exhibition hall. Change, only permanent, has always been designed with people as the ultimate goal. Therefore, in the exhibition hall design, the greatest artistic element is the human element, as shown in figure 1.

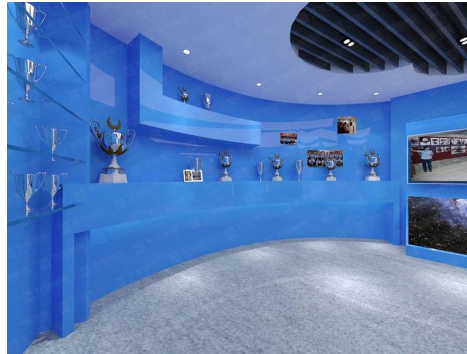


Figure 1. Cultural elements in the design of the Pavilion

### 3.2 Pavilion design and society

Today, when human beings are squeezing resources so severely, the concepts of sustainable development and green economy need to be deeply rooted in the minds of designers, especially for exhibition designers, because the designed works serve human beings. It is beyond reproach that planning is a social activity, and only planners with a sense of social responsibility can design them. Successful works are calculated. Correspondingly, the commodities are safe, environmentally friendly and humanistic, as shown in figure 2.



Figure 2. Social elements in pavilion design

### 3.3 Pavilion design and science and art

As shown in figure 3, the importance of science and technology to the design of exhibition halls is obvious. Comparing prehistoric commodities with modern commodities, we can find that every human break through science and technology can bring about profound innovations in design. Similarly, these innovations promote the progress of science and technology. Moreover, with the development of science and technology, new subjects are constantly put forward for planners. Therefore, it is necessary for Pavilion planners to be scientifically forward looking; otherwise their planned works will expire quickly.

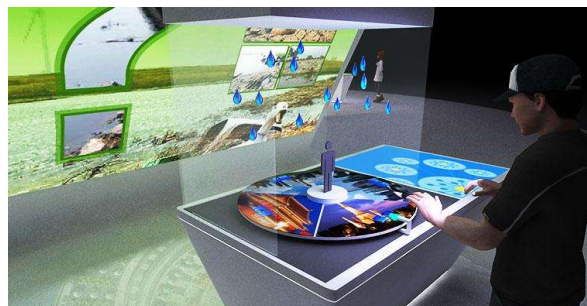


Figure 3. Scientific elements in the design of the Pavilion

### 3.4 Pavilion design and painting

Painting is enlightenment for us to understand art. Painting is a knocking brick for us to grasp art. Painting is a mentor for us to comprehend art. For every designer, no matter what you design, painting is the foundation, and it is natural to embody painting elements in the design of the exhibition hall, as shown in figure 4.



Figure 4. Painting elements in pavilion design

## 4. Conclusion

In the development of modern cities, the role of urban planning exhibition halls is becoming more and more prominent. Building exhibition halls that conform to the city's own characteristics has become an important part of the work of urban government departments. Therefore, it is of great practical significance to study the design of urban planning exhibition hall, to understand the design elements, to do a good job in site selection, layout, function and space design, and to improve the level of architectural design and construction of urban planning exhibition hall.

## References

- [1] Tang, N. R. (2015) Analysis on the design of urban planning exhibition hall. *Art Technology*, 04: 52–54.
- [2] Shen, Y. J. (2015) Reflections on how urban planning adapts to urban development. *Doors and Windows*, 11: 33–34
- [3] Fu, W.J. (2018) Brief introduction of the impact of smart city development on urban planning. *Intelligent Building and Intelligent City*, 07: 28–30.
- [4] Li, L.X. (2017) Discussion on the role of urban planning in urban development. *Research on Urban Construction Theory*, 35: 43–44.
- [5] Hu, P., Zhou Y.N. (2018) Analysis of exhibition hall architectural design based on regional cultural characteristics. *Chinese and foreign architecture*, 09: 164–166.
- [6] Guo X.Y. (2018) Innovative design of pavilion space based on the presentation of theme connotation. *Art Work*, 04: 100–102.
- [7] Meng J. (2017) Discussion on the application of intelligent innovative exhibition design—take the Audi wisdom pavilion as an example. *Computer Knowledge and Technology*, 26: 27–29.
- [8] Jiang, J.P. (2018) Research on the expression of regional cultural attributes of contemporary cultural architecture. *Building Materials and Decoration*, 15: 23–24.