

## **The application of computer technology in the design of hospital exterior space environment**

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**Abstract:** The key point of hospital external space environment design is to keep the balance of hospital ecological environment system, by making rational use of natural, artificial landscape and other resources, according to the basic requirements of ecology, culture and publicity of hospital public environment, the integration of hospital building and external space environment is ensured to better meet the public service function of hospital. In order to improve and optimize the design quality of hospital exterior space environment in intelligent design environment, we should adhere to the concept of healthy landscape and give full play to the advantages of computer technology, to explore the design scheme of hospital external space environment based on computer technology.

Key Words: Computer technology; hospital; exterior space; environmental design; applied research

Rehabilitation is one of the important functional requirements of the hospital. We should improve the planning and design of the hospital's external space environment from the standpoint of rehabilitation and health. Under the background of the times, the General Hospital, as a special place to maintain people's health and treat diseases, has been paid more attention to. Modern medical technology and medical model put forward higher requirements for the design of exterior space environment of General Hospital. With the development of modern society, People's life and work conditions are busy and tense, so the incidence of disease is also rising. People realize that environment has an important role for people's psychological and physical health. The design quality of hospital external space environment will directly affect the psychological and rehabilitation status of patients.

### **1. DESIGN REQUIREMENTS OF HOSPITAL EXTERIOR SPACE ENVIRONMENT**

At present, although the architectural design industry of our country has been affected by the economic transition, it is still in the ascendant in the humanization of architectural design, but because of historical reasons, although the humanized design of the hospital building has gradually transferred from the concentration of the architectural image to the use of the external space, however, there are still some deficiencies in the details of the public space, the external space environment and the special psychological needs of the users. Therefore, how to better make the hospital external space design meet the requirements of humanity will be the focus of this article will be discussed.

#### **1.1 OVERALL HARMONY IN THE DESIGN OF THE SPACE ENVIRONMENT**

Color is the language of the space environment, and plays a very important role in shaping the space emotion. The multi-faceted nature of color is applied to environmental design, and its symbolic principle of design means universal application. Reasonable use of color, not only can make the space environment orderly and reasonable, but also make the color itself to show, a good space environment, should be the environment and color complement each other. Space design behavior will undoubtedly experience to the color, light environment design grasp, in the space environment design, its color has become an indispensable factor to create the space environment.

#### **1.2 IN TERMS OF SOCIO-ENVIRONMENTAL RESPONSES**

The overall design of the space environment, the use of reasonable and good color, can not only reflect the local

historical and cultural customs, but also promote the local social progress, because good space design can make people happy, thus, it becomes a good space for local leisure and relaxation, which is conducive to the improvement of the local social atmosphere, and a good overall social environment will naturally be reflected in the design of the local space environment, the color design of the space environment and the social ethos complement each other, thus making the whole society more harmonious.

### **1.3 DEVELOPMENT IN THE USE OF COLOUR**

The application of color in space environment design can reflect a designer's better aesthetic accomplishment and embodiment. In the process of social development, art is developed by continuous innovation and improvement, in the development of color use, we can see that color as a modern space environment design language, its development and application have broad prospects, reasonable color use in good space environment design, not only can make the space environment more pleasant and comfortable, on the other hand, if the existence becomes the classical space environment design model, also may cause the color innovation and the development to reach a new peak.

## **2 COMPOSITION AND METHOD OF HOSPITAL EXTERIOR SPACE ENVIRONMENT DESIGN**

The elements of exterior space design can be divided into hard landscape and soft landscape from the large aspect, and from the material elements, it can be divided into buildings, greening, square pavement and road, architecture structure; In terms of spiritual elements, it consists of cultural (context), historical and other factors. Hard landscape is the use of tangible entities to the exterior space of the surrounding landscape. Including the volume of buildings and structures, color, number of floors, style, internal road plaza material, width, size and vertical design; The form of landscaping (concentration, dispersion, combination of point, line and surface) and the selection of tree species. The layout of the building should be based on the flow lines and functions of the hospital itself, and make use of the alignment of axes, exchange of gestalt Gestalt psychology and the related relationship of the drawing base, so as to form the plane positioning of the main building complex. The clinic building, the ward building and the medical technology room constitute the medical area, and the architectural layout fully considers the proportional relationship among the three. Pay special attention to the shape and size of the surrounding open space. The dimensions of the squares around the outpatient building and ward building should meet the requirements of the line-of-sight design, and should be in harmony with the spirit of the overall urban planning or zoning planning.

The orientation of hospital square should be an important node at the beginning of general plan design, and its design depth should be fully considered the characteristics of the hospital itself, also do not like a piece of open space, without meaning. The design of the main square of the hospital should be grasped from two aspects. On the one hand, the square is mainly for evacuation, while the viewing is supplementary, that is, in line with the function. On the other hand, the main entrance square should not be too large, and strive to make the square to be exquisite and not narrow, to meet the square function. Greening design should have a unified idea of greening design, should not only be the supplement of the corners, such as the choice of tree species, flowers with the style of the central green space and so on. Soft landscape is people placed in the environment, there is a hospital atmosphere rendering, as well as the mood of the feeling. Its constituent elements are: the reorganization and renewal of historical and cultural accumulation in hospitals, and the embodiment of medical culture. The design features of the soft landscape of the outer space, in the final analysis is also the embodiment of hard landscape, but this kind of embodiment is a kind of invisible, can give people the role of Lenovo.

The functional space of different hospitals should have its unique external space personality, the grandeur of the external space of the door and emergency department, the relation with the overall urban planning, the tranquil

character of the stair square of the ward, the quiet character of the hospital The shaping of the courtyard between the modules of the outpatient hospital embodies the humanistic care. The above different functions of the accurate positioning, common form a good external space design. According to the different characteristics of land use in general hospital, the external space should be denser, centralized and decentralized. The quality of the exterior space is directly related to the style, volume and color of the building, and the hospital logo design plays a Zhang Sengyou role in enriching the exterior space. The combination of hospital exterior space and urban planning is the basis of exterior space design, and the uniqueness of regional exterior space design based on it lays the foundation for the success or failure of hospital exterior space quality design.

### **3 THE APPLICATION STRATEGY OF COMPUTER TECHNOLOGY IN THE DESIGN OF HOSPITAL EXTERIOR SPACE ENVIRONMENT**

In the design of hospital exterior space environment, it is necessary to collect information and data, and to transform the collected data into computer language and form computer readable program language. It makes the icons, curves, tables and so on needed in the design of hospital external space environment be able to use the corresponding program to process the data that have been inputted into the computer, the data were analyzed and processed to generate the one-dimensional, two-dimensional and multi-dimensional mathematical models needed for the design of hospital external space environment. Furthermore, the generated data can be stored, which is convenient to extract and use at any time. Another advantage of the data processing technology in the design of a hospital's external space environment is that it is easy to optimize. Only a part of the data needs to be modified and then run, can Be in a short period of time to obtain the required design. In environmental art design, we need to use the computer to calculate, analyze and compare a large number of different schemes, taking into account various factors to select the best scheme; It can store a large amount of design information, no matter whether the information is in the form of numbers, text or graphics, and it is also very convenient and fast to retrieve, the computer does the heavy work of turning the sketch into a working drawing. The use of computers to make graphics, very fast, so that the designer of the design of the judgement and modification work become very fast, using the computer can also effectively deal with graphics, such as editing, zooming, rotating, panning, and so on.

The development of computer promotes people's liberation and improves work efficiency. The auxiliary effect of computer on People's life and work is various. In the design of hospital external space environment, the computer can assist to carry on the high efficiency computation work and the cartography work, realizes to the hospital exterior space environment design the classification storage and the processing, effectively completes to the data processing and so on, these tasks are tedious and time-consuming for people, but computers can be programmed to work in a very short time, which can not only greatly save engineers' design time, you can also improve the efficiency and accuracy of the work. In addition, the computer-aided design can display the design effect more intuitively, which can greatly save the use of natural resources compared with the actual design operation. The greatest advantage of the information age is to be able to reach the scholar do not go out to know the world's effects, fully realize the effect of resource efficiency. The designer stores the program according to certain design rules, standards, data and so on into the computer, and generates the corresponding application program, so that the application program can be used directly by other people. Furthermore, because of the popularity of network, designers can communicate and cooperate with other staff in time when they encounter obstacles in the design process, and finish the design of the hospital's external space environment together, constantly break through existing bottlenecks. In addition, resource sharing can help designers to maximize the use of existing resources, can improve the utilization of resources, and ultimately achieve a win-win effect.

In the context of large-scale hospital construction, the design of the hospital environment is getting more and more attention. Especially in the past, the neglected outdoor space of the hospital has a great influence on the overall environment of the hospital and the psychological influence on the patients and the medical staff. The computer-aided design is to use the computer as a design tool to assist engineers and technicians in their design activities. The computer plays an auxiliary role in the computer-aided design, and it is the human who has the subjective initiative. In the process of design, people should first give full play to their creative thinking activities, plan the contents of the design, perfect the knowledge-based system, and form a more complete design program, then it analyzes and integrates the design schemes, further transforms the mathematical models suitable for computer operation, and designs the corresponding program to analyze these mathematical models. These are prerequisites for effective computer-aided design. After the preliminary preparation, it is necessary to check the whole running process of the design. If there are mistakes in the running process, it is necessary for the designer to debug and modify the computer design program. In the design of hospital external space environment, the most common is the design of two-dimensional, three-dimensional graphics, according to the traditional manual drawing method needs very cumbersome procedures, in order to draw the graphic design needed for the design of the external space environment of the hospital, but when the computer becomes a tool for aided design, design engineers can not only use the computer itself to design the hospital's external space environment, but also use software that can be installed on the computer to design, for example, in the design of two-dimensional graphics, the most commonly used is the auxiliary drawing software AutoCAD, the full use of modern science and technology on the extension of the design workers design methods and methods, enhance the design process of the overall efficiency and accuracy.

#### **4 CONCLUSION**

Hospital architecture as a large number of buildings related to the national economy and People's livelihood has also been a certain development, and for China entering the new century, how to achieve the aim of "Get, use and serve for people" on the basis of humanization in hospital architecture, the characteristics, functions and medical model of hospital are all affected by it. As an architect in the new era, he is faced with both good opportunities and great challenges. By discussing the dehumanization problems existing in the research of hospital exterior space design, taking the psychological and behavioral needs of patients, the main body of hospital exterior space, as the starting point, furthermore, it summarizes the humanized design strategy of hospital exterior space, and provides some theoretical basis and design reference for humanized hospital exterior space design.

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