

Research on the Concept of Landscape Design -- Taking Beijing Olympic Forest Park as an example

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Abstract. Urban forest park is a part of urban public green space, which provides people with daily leisure and entertainment activities, and plays a role in beautifying the urban environment and perfecting the ecological pattern. In this paper, the Beijing Olympic Forest Park as an example put forward the park. Forest landscape design should follow the following principles: 1, respect for the natural and human characteristics of the city, the combination of the two so that the landscape. The design conforms to the local natural and cultural characteristics. 2, practice ecology, green, environmental protection, conservation design concept.

Keywords: Landscape; Landscape Design; Design Concept.

1. Introduction

The city park embodies the quality of life of the city, the design concept, is the symbol of the city culture, the microcosm of people's life, is the carrier of the city's historical accumulation, cultural connotation. In recent years, the development of urban parks not only pay attention to fine design, quality improvement but also promote the harmonious coexistence of people and nature, ecological win-win situation and humanistic care. As the state increases its investment in urban public construction, the number of urban parks in China is increasing year by year. The construction of urban parks and the life of residents have a close relationship, is the urban public space where people socialize, and the quality of space is related to the health of citizens' sports and social stability and harmony [1]. With the rapid development of social economy and the acceleration of China's urbanization process, people's ecological and aesthetic needs for living and working environment are constantly increasing, which not only requires the natural ecology and fresh air of the environment but also has high requirements for the visual aesthetic, artistic form and psychological mood of the landscape environment. From the perspective of ecological civilization, landscape design has entered a brand-new stage of development, ecological environmental protection, green energy conservation has become an important principle of landscape design, garden designers should use green building technology, building reuse technology, etc. in the design, to achieve the humanization and integration of landscape. While meeting the needs of human interaction and human interaction, we should optimize the function of the garden as far as possible and realize the effective use of the landscape and natural resources, to construct a complete ecosystem, realize its energy and maintenance problems through landscape design, and make the landscape more sustainable. Form a landscape design concept system with the ecological environment, social environment, and human life living in harmony[2].

How to integrate the concept of humanities and ecological planning into the design of the landscape, so that landscape better service people's lives has become a hot topic in academic research. Taking the Olympic Forest Park as an example, this paper studies in depth the principles to be followed in landscape garden design. This paper is divided into four parts, the first part introduces the research background of this paper, the second part summarizes the literature on landscape design, expounds the definition, function and classification of landscape. The third part will be the Olympic Forest Park as a case study of the park's design concept and layout. The fourth part summarizes the full text and puts forward the principles that garden landscape design should follow.

2. Literature Review

This chapter introduces the definition of landscape garden and the necessity of constructing a landscape garden and focuses on the definition and application of ecological landscape design.

2.1 Definition and Principle of Landscape Design

Landscape design refers to the process of creating beautiful natural environments and living and recreation areas by using garden art and engineering techniques in a limited area by transforming the terrain, planting plants, creating buildings and arranging garden roads[3]. Landscape design needs to follow the following principles: 1, regional. The prerequisite of landscape design is the need to combine the characteristics of the natural environment in the area where the garden is located, according to local conditions, according to snob guidance, according to the actual situation of urban geography, climate, environment design and planning. 2, public. The modern landscape is mainly for public places to provide leisure and entertainment, so in the process of design and construction to fully consider the actual needs of different groups of people[4]. 3, To create a diverse landscape system so that the landscape has a variety of places, diversity of functional experience. Taking into account the color, form and style of landscape, to provide people with a richer space experience, through the construction of a multi-level spatial layout, increase the service functions of landscape , such as ecological display education space, physical and mental grooming space, sports and fitness space, to provide fishing, swimming, beach entertainment, running, cycling, walking, square dancing and other activities, to add fun to people's lives, enrich people's social environment, for people of different ages to provide a variety of social public activities platform. 4, scientific. The design of landscape not only needs to maintain the balance of the urban ecosystem, but also needs to show the city's geographical features, local conditions, is the people who understand nature, understand the city in which they live on the green platform. Therefore, in the design and construction of natural ecosystem science and urban history and culture should be combined. 5, practicality. Practicality is mainly reflected in the following levels of landscape garden design includes more leisure areas and amusement facilities, and these facilities should be arranged in the location of people's play, while the shade facilities are complete, and then enhance the comfort of the people's experience[5]. The practicality of gardens has increased people's participation. For example, in some characteristic fruit gardens, it not only provides a beautiful ecological landscape for the city but also creates a space for people to experience harvest, enhancing the characteristics of the garden[6]. Modern landscape garden design pays attention to the coordination of garden economic benefits, practical value and aesthetic value, and is committed to creating a pleasant artistic space.

2.2 Classification and Function of the Landscape

The landscape consists of soft and hard landscapes. Soft means water, trees, wind, rain, sunlight, sky, etc. in nature. Hardness refers to paving, walls, railings, landscape construction, etc., usually created by humans. Soft landscape can play the role of viewing, group view, shade, dividing space, preventing soil erosion and beautifying the ground in the garden and building environment[7]. In modern society, the buildings can be described as diverse, new types of buildings are constantly produced, in the garden of the buildings are colorful. The elements of landscape include natural landscape elements, garden engineering elements and overall layout. Natural landscape elements such as mountain landscape: mountains are the skeleton of the landscape water, water landscape: the water landscape is the blood of the landscape, is the living conditions. Astronomy, Meteorological Landscape: Astronomy, Meteorological Landscape increases the visual effect of the landscape; Garden engineering elements such as terrain, the terrain is the basis of garden space composition, and garden nature, form, function, the effect has a direct link, involving the garden road system, architecture and buildings, plant configuration layout, is the key to garden design; Bridges: bridges connecting and separating water surfaces[8].

Garden landscape is conducive to improving and improving people's living standards and living environment, is conducive to the sustainable development of the city, wind and sand, water and soil conservation, adsorption of dust, sterilization, reduce noise, adjust the climate, maintain ecological balance, promote the physical and mental health of residents[9]. This paper holds that the construction of the landscape has the following functions: 1, enrich the city's appearance and construction, increase the visual beauty. Landscape design is to paint on the earth, through plant community, water, garden architecture, terrain and other elements to shape in line with people's living, entertainment, leisure needs of the place. Plants are the main body of landscape design, giving people the feeling of beauty, meteorological changes in plants, so that plants produce different changes, increase the landscape effect. 2, purify the air. A landscape garden system is called a "natural filter", in a certain concentration range can absorb harmful gases in the air, such as sulfur dioxide, etc. , reduce the concentration of harmful gases in the air. At the same time, the landscape system has obvious blocking and filtering effect on the smoke and dust in the urban air and can filter 80% of the pollutants in the atmosphere[10]. 3, improve the city's small climate. The small climate mainly refers to the local climate caused by the difference in the surface properties of the formation, which plays the role of cooling in summer and insulation in winter. 4, reduce noise. Noise is a kind of environmental pollution, the Beijing Municipal Environmental Protection Bureau received 40% of the reported calls for noise pollution, landscape system reduced noise intensity, the noise has a reduced effect. 5, as a disaster prevention shelter. The garden landscape construction of modern city not only has the effect of beautification, but also has strong practical value, and is an emergency shelter in a city[11].

3. Case Study

Urban forest park is a part of urban public green space, which provides people with daily leisure and entertainment activities, and plays a role in beautifying the urban environment and perfecting the ecological pattern. As an integral part of the construction of the city's basic environmental facilities, the urban forest park, with its unique functional and complete facilities construction, not only meets the needs of people's integration into nature, daily movement and so on, but also the city's business card, showing the degree of development of urban construction, the degree of protection of the ecological environment. Among the park construction standards stipulated by the state, the city park is a public green space with a good environment, complete facilities, recreational play, scientific education and physical exercise. Taking Beijing Olympic Park as an example, this paper first introduces the general situation of Beijing Olympic Park and then analyzes the characteristics of landscape design.

3.1 Introduction to Beijing Olympic Forest Park

Beijing Olympic Park is located in Chaoyang District of Beijing, located at the northern end of the central axis of Beijing City, north to the south bank of the Qing River, south to The North Tucheng Road, east to Anli Road and North Chendong Road, west to Lin Cui Road and North Chenxi Road, covering a total area of 11.59 square kilometers, is the core area of the 2008 Olympic Games, focusing on most of the main Olympic venues and Olympic Village, the International Radio and Television Center and other important venues. The south is the Olympic center area, concentrated in the national stadium, national swimming center and other sports venues, the northern plan for the Olympic Forest Park, covers an area of 680 hectares, is a natural landscape, vegetation-based, sustainable development of the green ecological zone, Beijing's central area and the outer edge of the green barrier, not only beautify the environment but also maintain ecological balance. The planning and design of Beijing Olympic Park follow the traditional design ideas of ancient China, combining man and nature, and on the basis of safeguarding the function of Olympic venues, giving a new extension of the central axis of Beijing, so that the central axis of the city and the natural integration of the mountains and forests.

3.2 Analysis of the Design Characteristics of Beijing Olympic Forest Park

Beijing Olympic Forest Park is an important landscape background of Beijing Olympic Park, is a multi-functional ecological area, is a landscape and leisure garden full of sentiment, it is positioning as "the city's green lungs, people's healthy forests and rest of nature" after the Olympic Games, Beijing Olympic Forest Park is open to people, with the role of improving the Beijing environment, improve the city function, improve the quality of the city, is a model of modern urban forest park, is a natural and cultural heritage. The design of the Beijing Olympic Forest Park has the following characteristics.

(1) The function is clearly positioned.

Beijing Olympic Forest Park is divided into two parts, the northern part of the park is based on dense forests mainly ecological sources, to maximize the protection of natural features, vegetation formation of the slightly undulating terrain and small creek landscape, to protect and restore the ecological-based, this area has fewer facilities, for visitors to take limited flow measures for animals, plants growth, reproduction to create a good environment. To the south of the park is an eco-forest park that builds landscapes with large natural landscapes and creates a natural, poetic, atmospheric spatial landscape. At the same time, taking into account the leisure and entertainment functions, set up a variety of service facilities and scenic spots. For people to provide a good ecological leisure environment, divided into the entrance gate area, the main mountain scenic area, the main lake scenic area, the status quo forest area, wetland scenic area and so on.

(2) Combine nature with humanity to highlight the Chinese temperament of Beijing Olympic Forest Park.

The planning and design of Beijing Olympic Forest Park combine cultural landscape, ecological landscape, natural landscape, characterized by landscape pattern, the main mountain, in the southwest of the main peak planning sub-peak, enriched the mountain effect, in the south-east of the main peak, the main lake and other parks connected to the lake area planning a series of small islands, small islands, rich in the level of water features, while increasing the sense of mountain. In the wetland area at the southwest end of the main peak, a small mountain is built, as the rest of the main peak, the west side of Anli Road has done micro-terrain treatment, the ecological corridor extends northwards, forming a low hill. Beijing Olympic Forest Park combined with the high and northeast terrain conditions in the southwest, full water system resources, to build the main lake as the main water surface of the "dragon head" water system pattern, forming a "dragon water system" of the overall landscape intention. The park's mountains, wetlands, hills, lakes, canals are interlaced, forming a picture, creating a "people in the picture" atmosphere, the essence of the traditional Chinese mountains and rivers. The pattern of symmetrical distribution highlights the concept of "central axis symmetry" in the traditional Chinese architectural layout. In the heart of Beijing's Olympic Forest Park, this kind of sculpture about sports is scattered, highlighting the Olympic concept and humanistic mood. At the same time, the park's transportation, service facilities, sports equipment, urban furniture, logo guidance, lighting system, intelligent management system, emergency shelter system design, convenient for people to visit, improve people's leisure and entertainment comfort.

(3) Adhere to science and technology first, ecology, energy conservation, environmental protection concept throughout.

Beijing Olympic Forest Park to ecology, green as the basic concept, to maximize the protection and use of existing lake canals, micro-terrain fluctuations and other existing topographical conditions, as far as possible to retain the original natural landscape, vegetation, the pursuit of natural beauty. At the same time, a large number of scientific and technological achievements, so that landscape construction and science and technology perfect combination. 1, artificial wetland treatment system, its main function is through the new type.

Landscape composite vertical flow into artificial wetland engineering technology deep treatment of recycled water and recycled lake water, the Olympic Forest Park every day from the Qinghe sewage treatment plant to introduce recycled water, from the main lake to draw lake water into the southern artificial wetland treatment, enhance the reliability of pure water, provide quality water for

the park, water treatment function and landscape effect combined. 2, the establishment of a rainwater collection system. Combining typography, topography and water conditions, the rainwater harvesting system is constructed for greening, irrigation and road spraying in the park, and the rainwater utilization rate in Shi Park reaches 95%, effectively dissociation of water resources, and the efficient utilization of wastewater and the water cycle inside the park are realized. 3, sewage treatment system, the use of MBR biofilm treatment technology, bio-rapid water treatment technology and biodegradable fecal treatment technology, to achieve zero discharge of sewage in the park, sewage recycling. 4, the park building enclosing structure using insulation technology, set insulation, load-bearing, decoration in one, the park 21 buildings have used the ground source heat pump system, to achieve clean and environmental protection, energy-efficient goal. The landscape gallery of the Olympic Forest Park is a non-polluting green energy source that uses the "photovoltaic effect" of solar cell semiconductor materials to convert solar radiation into electricity. Beijing Olympic Forest Park landscape design everywhere highlights the green, ecological, environmental protection design concept, service functional area design to science and technology-led, to create an energy-saving, efficient public service system and landscape system.

(4) Respect nature and protect the diversity of species.

Beijing Olympic Forest Park's landscape design to respect nature as a prerequisite, in the planning and design, simulation of Beijing's local ecological environment and the combination of plant natural community laws, the use of a variety of methods to form a variety of unique plant landscape community, by more than 100 species of a total of 530,000 trees, more than 80 species of shrubs and 102 species of plants composed of the near-natural forest system[12], the construction of Swift Tower, through human intervention, to create a suitable environment for swifts to live in the rich plant species, The construction of the park as a source of plants and animals accelerates the material circulation and energy transformation within the park, accelerates the naturalization process of the park, makes the park's ecosystem evolve into a virtuous circle, realizes multi-species, and enhances the value of the park's ecological services.

4. Summary

Taking Beijing Olympic Forest Park as an example, this paper studies the principles to be followed in landscape design. 1, respect for the natural and human characteristics of the city, the combination of the two, so that the design of landscape in line with the local nature, cultural characteristics, rather than the same, representing the city-style, become a local landmark. 2, practice ecology, green, environmental protection, conservation design concept, build multi-functional leisure area, to meet people's growing material and cultural needs, more importantly, highlight the ecological function of the landscape. The research of landscape design in the future should explore the planning and design strategy of landscape gardens on the basis of considering the ecological environment comprehensively.

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