

The Application of the New Naturalistic Concept in the Design of Flower Borders

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Abstract: With the improvement of people's aesthetic needs, flower border design is more often used in the improvement of the landscape environment of places. In the landscape environment of museum buildings, good flower border design can make the landscape and architecture more harmonious, and more ecological planting methods can make the atmosphere of the landscape stronger. This article takes the construction of the landscape environment of the museum building as the target orientation, and takes the new naturalism as the theoretical support, and takes the landscape design of the World Irrigation Engineering Heritage Exhibition Centre in Ningxia Diversion Ancient Irrigation Area as the research object, based on the habitat conditions of the northwest aridity, to explore the new naturalism flower border design concept and the design strategy of flower landscape in the external environment of the museum building. The article is guided by the principles of locality, science and art, and concludes that the use of neo-naturalist design techniques can create an ornamental landscape that emphasizes architectural culture. This is then confirmed by case studies and further explores the positive effects of ornamental grasses on the landscape design of museum exteriors. The findings of this study will expand new perspectives on the design of museum exteriors and provide a reference for the design of exteriors of similar buildings.

Keywords: Museum Architecture, Yellow River Diversion Irrigated Area, The New Naturalism, Flower Border

1. Introduction

Donald Preziosi, a renowned museum theorist, has argued that museums can be a dominant feature of the cultural landscape and that we can generate a fundamental vision of our historical origins through the museum ontology. Therefore, when designing the exterior environment of the museum, we always excavate the cultural context in which the building is located, hoping to integrate multiple cultural elements such as region, ethnicity and history in the design and presentation. [1]

The design of museum architecture is closely linked to the natural, social and cultural environment in which it is located. Museum architecture has a unique design aesthetic, and it is a cultural landscape in the environment, a spiritual coordinate and cultural guide for a city. Therefore, the spatial planning and landscape design of the external environment of the

modern museum is particularly important. [2]

The main aim of the new naturalist design is to create an emotional connection with the viewer through design, "planting design as an art form; adapting to nature". Using the 'softness' of plants to weaken the 'hardness' of the building, the new naturalist design concept is used to create a cultural landscape, highlighting the architectural theme and manifesting the cultural connotations. [3]

2. Basic Understanding of Museum Architecture and New Naturalism

2.1. Museum Architecture

Museum architecture refers specifically to public buildings

dedicated to museums, whose main function is to collect, store, study, display and exhibit objects or specimens related to nature, history, culture, art, science and technology. It is open to the public, provides services for social development and is aimed at learning exchange and education. [4]

2.2. The New Naturalism Concept

The concept of new naturalism originated in Western Europe, and William Robinson's "Wild Garden" first introduced the design concept of "naturalism". With the development of this planting concept was proposed and researched and developed around the 21st century by Professor James Hitchmough, an expert in ecological planting, who believed that selecting native herbs in a small environment to form a community grouping and combining ecologically relevant principles with aesthetically relevant functions to form a natural landscape capable of self-reproduction and self-replacement. [5]

2.3. Characteristics of New Naturalistic Planting

The greatest advantage of ecological naturalistic planting is that it is lower in cost and input than other types of plant communities, and has a high ornamental value, strong landscape periodicity, and no artificial artifice, but a strong sense of atmosphere and place. [6]

3. New Naturalism Configuration Principles

3.1. Principle of Regional Culture

When designing the building body of the museum, some design techniques will be used to integrate cultural elements into the building, and correspondingly, the design of landscape plants should follow the principle of regional culture and fully exploit the native flowering plants, native plants after selection and domestication, can better adapt to the local environment, the native flower border plants not only have a strong adaptive capacity, but also has a strong local cultural plot. It was said in the book that "regional color is actually a sentiment, a feeling, it is not a style". Regional culture is a feeling, which we should configure and enjoy flower border plants on the premise of respecting the local regional culture and historical background when designing. [7]

3.2. Scientific Principle

The selection of flower border plants should not only pay attention to its beautiful ornamental effect, but more importantly, follow the principle of scientific configuration, which should be designed and planted according to the principle of "appropriate to the place, function first, and distinctive seasons". Reasonable selection of plant species in the landscape must analyze the environmental factors, as well as the growth characteristics of plants and surrounding plant communities.

3.3. Artistic Principle

The new naturalistic flower border design is not as simple as urban greenery planting, but should follow the principles of "change and unity", "proportion and scale", "balance and stability", "rhythm and cadence" and other aesthetic principles. The different leaf color, leaf shape, plant height, plant shape, inflorescence and other ornamental characteristics of ornamental grasses are used for reasonable configuration, and the fluttering flakes soften the lines of the building, integrate architectural space with landscape space.

The artistic principles of flower border plants mainly include color coordination, height staggering, texture balance, distinctive seasons and other characteristics.

4. Application of New Naturalistic Flowering Plants Design in the Project

4.1. Background

In order to promote the systematic protection of the Yellow River cultural heritage, to tell the "Yellow River story", and to deeply explore the value of the Yellow River history and culture, the construction project of the World Irrigation Engineering Heritage Exhibition Center in the Ancient Yellow River Irrigation Area has been the "golden business card" of Ningxia.

The project is a concrete practice of thoroughly implementing the spirit of the important speeches of national leaders from the perspective of protecting, inheriting and promoting the history and culture of the Yellow River, and it is also a need for the construction of a pilot area for ecological protection and high-quality development of the Yellow River Basin in Ningxia. [8]

4.2. Project Positioning

The construction of the World Irrigation Heritage Exhibition Centre in Ningxia's Yellow Diversion Irrigation District is a project that recounts the past, present and future of the district. It is a living room of world water culture in Ningxia, featuring the Yellow River civilisation as the base for dialogue with the world's river water culture, in order to highlight the origin of water conservancy and civilisation, the development between water conservancy and mankind, and the profound connotation of water conservancy and life.

4.3. Landscape Design Concept

The project belongs to the museum type building. When the landscape plan is conceived, the beauty of the architectural lines should be fully demonstrated, and the "trinity" of architecture, environment and landscape should be created to create the intention of "Ningxia landscape". Combined with the extraction of the elements of "river, mountain, sand and field" in the natural characteristics of Ningxia ancient irrigation area, the water system landscape design of the site takes the spirit of the Yellow River as the

core, and the architectural shape is sometimes like mountains and valleys, sometimes like water waves, the roof greening and garden green space constitute an open scene filled with thousands of hectares of fertile fields, gravel plazas and paths are inspired by the unique style looming in the northwest sand plains. Thus, the integration and symbiosis of architecture and environment is achieved.

4.4. Design of New Naturalistic Flowering Plants

New naturalism design is inspired by nature, or "the way of nature", the concept of nature is not deliberately imitated, but inspired by nature. The planting design is designed to relate to the museum venue and to make people think. When the museum itself is a cultural landscape, the planting should be designed to soften the architectural environment, enhance its decorative qualities, and thus "add to the museum building".

Through the preliminary research of the project, the new naturalistic design form was determined, hoping to create a healthy and livable environment for people, and the plant species were grouped into plots, selecting "high-impact, low-input" plant species, using the least amount of resources to maintain their growth, and ensuring that the project environment is low maintenance under the premise of ecological stability.

4.4.1. Selection of Flowering Plants

The abstract is a brief introduction of the paper. It should include 200-400 words with no formulas, pictures, tables, superscripts or subscripts. Ningxia is an inland region, located in the northwest of China, with a relatively dry climate and an average temperature of 24°C; sufficient sunshine, strong evaporation and large temperature difference between day and night, with 3000 hours of sunshine throughout the year. Sufficient sunshine is suitable for the growth of ornamental grasses, and the planting design of flower border is mainly based on ornamental grasses.

4.4.2. Keywords

- (1) The mutual complement of ornamental grasses and architecture

The planting design should highlight the character of the building itself, Ornamental grass plants have a softness to their plants that ethereal and beautiful posture, and have rich color and other characteristics. According to the connotation of the building itself to choose, the Yellow River diversion ancient irrigation area museum is a building with Chinese landscape style and no lack of modernity, the surrounding planting of Imperatae, Mangying barley grass and Rabbit Pennisetum can show the quaint and historical sense of the building, relatively close to people planting iris, shooting stem and other plants with short plants and small volume to create a relaxing and pleasant visual effect. [9]

- (2) Clever combination of ornamental grasses and scenic stones

Many scenic rocks are designed in Ningxia project, the placement of scenic rocks can increase the natural interest,

the softness of ornamental grasses contrasts with the hardness of scenic rocks, increasing the layering of the landscape, when combined with rocks, different ornamental grasses are selected to match according to the shape, color and texture of scenic rocks, the species with bright leaf color and inflorescence characteristics figure out can be selected more, so that the visual focal point can be formed [10], when combined with scenic rocks, select the ornamental grasses such as Ophiopogon, Miscanthus sinensis and other low caespitose ornamental grasses, can be planted before the scenic stone, or planted in the gap, so that the landscape node design is delicate and vivid natural.

- (3) Ornamental grasses at the entrance to create a sense of natural atmosphere

Entrance landscape has strong guidance, and is also the iconic node of a place, how can people be attracted quickly no matter walking, or car traffic? In the steel and concrete city life, people long for nature, but the block hedges and pruned and shaped ball shrubs in the city landscape design have strong artificial traces. [11] In the "Shih-Shuo Hsin-Yu: A New Account of Tales of the World", Emperor Wen of Jin said, "You don't have to be far away from where you know your heart. When the forests and waters are shattered, you will have your own thoughts, and feel that birds, beasts, birds and fish come to their relatives by themselves." The ornamental grass is slender and soft in shape and unique in color. It is planted in patches at the entrance. The unique color matching and rhythmic demeanor make people feel more relaxed, and are attractive to tourists both in terms of visual effect and inner feeling. Plant low ornamental grasses such as pennisetum, blue fescue, etc. together with sedum, Iris lactea Pall., etc., to create a landscape entrance full of harmony and nature. (Figure 1)



Figure 1. Rendering of ornamental grass at the entrance (Image source: author's own drawing).

4.4.3. The Artistic Feeling Created by Flower Border's Plants in the Project

The Museum of the Ancient Yellow River Irrigation District has a beautiful architectural flow, with the overall architectural shape inspired by the undulating miniature landscape, achieving a state of symbiosis with the environment. The design of ornamental grass softened the hard lines of the building, and the slender and soft texture and colorful inflorescence of the leaves swayed in the wind,

holding up the museum like flowing water, the floating of ornamental grass softened the hardness of the building and softened the edges of the hard landscape pavement. Ornamental grasses are generally low, so they do not block the view of people and do not affect the indoor lighting. And it creates a wild and natural feeling, giving people the artistic feeling of enjoying oil painting. [12]

Danish landscape designer Jens Jensen (1860-1951) wrote in his book "Sifting": "Nature brings us unlimited information in different moods throughout the year. In the depths of the primordial, there are hidden secrets of the meaning of life and the infinite meaning. This is a hidden creativity." [13] The author believes that in many projects we care a lot about seasonal changes "four seasons of greenery and flowers". However, the demise of plants in some projects is also an artistic feeling, such as the outdoor landscape of the Erlitou Xiadu Site Museum. [14] The architectural design is coordinated with the overall style of the site area, respecting the original ecological visual experience of the countryside, designing terraces, planting ornamental grasses, and setting off the building to create a special atmosphere of secluded, ancient and traceable. [15]

In the planting design of this project, we also hope to "use the power of nature to create a scene in our hearts". When the plant stops growing and withers in winter, it is still ornamental. The inflorescence of *Pennisetum alopecuroides* and *Miscanthus sinensis* can survive until the next year, and the fusion of the withered plant and the snow in winter will bring a different artistic feeling. The tenacity and strictness of "the wildfire can't be burned, the spring breeze blows again" also indicates that life is endless. This new naturalistic planting design concept also gives landscape people a new way of thinking. (Figure 2)



Figure 2. Effect of ornamental grasses at the entrance (Photo source: Self-drawn by the author).

5. Conclusion

The new naturalistic design concept is recognized by more and more designers, ornamental grass planting design is also applicable to a variety of places, this paper takes the landscape design of the World Irrigation Engineering Heritage Exhibition Center in the Ancient Yellow River Irrigation Area in Ningxia as an example, to explore the application of ornamental grass in the museum exterior environment, through the analysis of research, it is concluded

that the method of naturalistic design is suitable for the external environment of cultural buildings such as museums, also confirmed the application of ornamental grass to the architecture is really icing on the cake. It is hoped that this study will bring inspiration to people and make naturalistic planting design available to more designers.

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