

The Thinking about Water-Enjoyable-Space Design of Urban Waterfront Landscape

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Abstract. The water-enjoyable-space design is the sticking point of Urban waterfront landscape design. The article has proposed the design idea of Urban waterfront landscape which makes the ingenious combination of the ecological landscape functions and the recreation functions a precondition, follows the multi-sensory observation of landscape and takes the secure design as guarantee so as to provide systematical theoretical guidance for the waterfront projects of Urban waterfront landscape further.

Because of the nature of human hydrophilic, people in the waterfront space want to carry out a variety of water for the object of recreational activities and awareness appreciation activities. As the main feature of urban waterfront landscape, hydrophilic design is an important standard to test the whole landscape design results.

Present Situation of Water-Enjoyable-Space Design Of Urban Waterfront Landscape

By surveying the types of hydrophilic activities、 content and space satisfaction in the large number of waterfront scenic spots in north China, finding that although a large number of urban waterfront landscape design in many areas have made great achievements, but the hydrophilic-themed projects are not to understand and analyze the landscape from the perspective of "people" but to improve the visual effects of landscapes. It is concluded that the current water-enjoyable-space design of urban waterfront landscape mainly has the following problems:

Design does not take water as the prerequisite

The development of many hydrophilic design projects is not based on the water quality in the waterfront space, so it would be a fake to set recreational projects in the areas where turbidity and odor are scattered. In addition, many commercial games everywhere, such as shooting, riding, electric toys and so on, flooded with a large number of hydrophilic areas, which are not in harmony with the waterfront, and have a certain impact on the realization of hydrophilic design.

Design content is too stereotyped

Many design of urban waterfront landscape blind to take some of the classic cases at home and abroad as a sample, do not take local natural conditions and regional characteristics as consideration, so that the result of the design is stereotyped being lack of practice local features.

Design concept is monotonous

Many ideas of hydrophilic design only stay in the form and material changes, lack of interactivity and experience, can not be designed to give visitors a full range of sensory enjoyment.

Facilities are not perfect

Many hydrophilic designs lack the necessary safety measures, sanitary facilities and barrier-free design, and cannot be reliably guaranteed for the realization of hydrophilic activities.

Water-Enjoyable-Space Design of Urban Waterfront Landscape

"The premise of the success of environmental design must be the idea that the designer establishes the service for the user's behavior, and the design process is actually to explore how to meet the needs of this behavior." The present hydrophilic design of urban waterfront landscape has many undesirable phenomena, which is linked with the lack of consideration about the intrinsic needs of

the design users and the relationship between human behavior and the natural environment . However, at present, the lack of systematic idea guidance about hydrophilic design of urban waterfront landscape is the crux of forming such problems in China.

Views on Hydrophilic Design of Urban Waterfront Landscape

The hydrophilic design of urban waterfront landscape needs to understand and analyze landscape from the angle of "human". However, the realization of "people-oriented" should be based on the full respect and protection of the natural ecology, and it is necessary to deal with the organic combination of ecological and recreational functions. Under this premise, we must try to establish affinity relationship between human and water, and form a hydrophilic overall environmental structure. The construction of this structure should be based on human perception and experience of water environment, which comes from various senses of the human body, namely sight, hearing, touch, smell and taste. In addition, the hydrophilic activity in the waterfront space is a kind of recreational activity which crosses the medium with certain risk, taking the necessary safety countermeasures to ensure the safety of the visitors ' activities is the most important; At the same time, waterfront space is a typical urban open space, its hydrophilic design should embody absolute fairness and sharing, and should pay special attention to barrier-free design.

The Content of Hydrophilic Design of Urban Waterfront Landscape

The hydrophilic design of urban waterfront landscape should be based on the organic combination of landscape ecological function and recreational function, and based on the comprehensive experience of human body. Its specific content is explained as follows:

Based on the Organic Combination of Landscape Ecology and Recreational Function

The ecological and recreational function of landscape is the two basic attributes of landscape construction, and it is the macroscopic idea of transcending function, the organic combination of which has a precondition for the hydrophilic design of urban waterfront space. The first step to realize the organic combination of landscape ecology and recreational function, first of all is to locate the waterfront space according to the diversity of urban water types, and restore the waterfront style of many natures by planning and design. Secondly, in the determination of the ecological basement, the logical relation and scheme conception of the recreation design are determined by the criterion of the behavior of tourists being able to participate in the ecological system healthily. Finally, based on the investigation result of waterfront space water area and regional environmental potential factors, this paper conceives the most grounded gas and the most meaningful hydrophilic activity type and innovates the waterfront landscape theme by excavating the local cultural elements .It is concluded that the main types of hydrophilic activities for waterfront areas usually include: activity type, natural ornamental type, natural contact type, leisure walk type, large-scale cultural entertainment and commemoration celebration activity type, recreational sports type, etc.

Based on the Experience of Multiple Senses of Human Body

The human senses mainly include sight, hearing, touch, smell, taste and other aspects, in order to fully meet the needs of these sensory different levels of hydrophilic recreational behavior, urban waterfront landscape hydrophilic design should take a variety of countermeasures and methods.

Visual

Vision is the main perception of the outside world for people, and the satisfaction of visual perception is the basis of design. On the basis of vision, the design of hydrophilic water should pay attention to the following points: First of all, we should strengthen regional governance with watershed as the center, establish and perfect municipal waste, sewage and waste water treatment system. At the same time, consideration is given to the demonstration and experiment of comprehensive treatment measures such as water diversion, dredging, aeration and reed bed. Then comprehensively restore the waterfront ecosystem and create a fresh and natural water effect, which is the premise of realizing the multi senses hydrophilic design. Second, the planning should pay full attention to the shore line of the bump and fluctuation changes, so that in the form of natural integration with the water body and rhythmic beauty, at the same time in some node processing, there should be enough water interface and water point. Third, under the premise of ensuring

reasonable pedestrian path planning, the slope of the embankment section should be taken from horizontal to horizontal line of sight downward 70° to ensure that the hydrophilic distance of people's psychology and the complete continuity of water vision, the available section forms including slope type, stair type, arc surface type and so on. Four, according to the water quality situation, the surface of the water can be properly decorated, such as "surface paving", the preservation and cultivation of native aquatic plants, set up "refuge", and so on, these methods can not increase the interesting to the water, but also can play a very good ecological role. Five, hydrophilic design should flexibly arrange landscaping techniques such as borrowing scenery and scenery in Chinese classical gardens, and apply them to the relationship between man and scenery, between man and man, between scenery and scenery so that the participants and the surrounding form a connection of "looking and being seen", increasing the interesting and artistry of the landscape visually. Six, some areas of hydrophilic design can be used for reference and water culture-related allusions for the subject matter, such as "Together", "Drink", "vicissitudes", "Shirung" and so on. For these subjects with strong cultural connotations, the designer can use the modern design techniques appropriately to perform, and skillfully create the plot space which has the strong humanities characteristic and the whole landscape coordination. For example, "Ink Landscape"-Beijing Chaoyang Park Plaza and the Armani apartment complex, this project are designed aiming Chinese landscape art as inspiration, through the architecture and landscape design to reproduce the "peak, Jian, brook, Stone, Valley, forest" and other natural forms and space. The base on the north side of the park adjacent to the surface of the asymmetrical twin towers, such as two mountain peaks, straight and upright on the lake, and waterfront environment, add to the cultural charm of the landscape.(refer with: Fig. 1)



Figure.1 Chaoyang Park Square and Armani apartment building group

Auditory sense

Hearing can play a visual auxiliary function, in the range of vision, hearing can arouse people's attention. The ingenious use of auditory design can give the environment a different taste. On the basis of hearing, the hydrophilic design should pay attention to the following points: First of all, the hydrophilic design should be combined with the maintenance of the ecological balance of waterfront, so that all kinds of living things in the waterfront can be free to grow in the water, so as to hear from the waterfront life full of vitality of the natural sound. Secondly, we can get different types of flowing water sound by opening low shallow stream, setting type spur dike and

constructing ornamental type drop on the basis of large water. These measures can not only become an important part of hydrophilic design, but also add fresh and harmonious natural water sound to the hydrophilic environment. Third, the use of artificial audio equipment supplemented by landscape background music, so as to create an infinite flavor of the waterfront sound environment. The implementation of this measure, on the one hand, should pay attention to the music type choosing elegant song, on the other hand should pay attention to modelling and material which should be combined with the natural environment. Four, apply some local cultural characteristics of the unique sound to waterfront landscape to increase cultural atmosphere, such as the West Lake, "South screen late Clock", "Liu Lang Wen Ying", but which are rare.

Tactile sensation

Sense of touch is the most direct perception of the outside world, so using tactile elements to design, not only to make people more realistic experience of design, at the same time the psychology of tourists will play a very strong role in pleasure. On the basis of tactile, hydrophilic design should pay attention to the following points: First, use drainage water. Hydrophilic design can be used in spacious areas suitable for the waterfront, and bring water to the shore so that it becomes a static shallow pool or artificial streams. And through landscape sketches and other design techniques such as the underwater pavement, small fountains, to guide people into the water, Wade, observation, capture and so on, so as to provide more open hydrophilic space for visitors. Second. Build a hydrophilic platform. For the slow and relatively narrow water flow, the method of extending the platform into the water can be used to form a pro level table without affecting the water conservancy workers. These pro-level stations can achieve fishing, resident, ornamental and other relatively static hydrophilic activities. In addition, the pro-level platform and the small dock can be designed in the appropriate lots to assist visitors to realize the kinesthetic experience by boat tour. Third, to provide natural experience of hydrophilic activities. Select some hydrophilic areas of the ecological bulkhead, spur dike and other water measures, supplemented by security design, can achieve the most simple hydrophilic activities such as observation, throwing, catching, splashing so on. These recreational activities, derived from human nature, can give visitors the greatest emotional release. Four, draw lessons from water conservancy machinery. In some waterfront areas with a deeper culture, reference may be given to some of the local ancient water conservancy machinery, such as water, orange Gao, water keel, water rollover, etc. The use of these mechanical modelling can be created to become hydrophilic facilities and setted in the water so as to entertain visitors and increase the design of cultural flavor.

Smell and taste

Sense of smell and taste is the important feeling of human beings to know things. Although the two sense influence slightly , but if can be fully considered in the hydrophilic design, it will strongly change the mood and psychology of tourists. According to the smell and taste, the hydrophilic design should pay attention to the following points: First of all, the smell of local vegetation and some plant-specific flowers, will bring visitors the most healthy sense of smell and taste enjoyment, so we should preserve and protect the local vegetation in the waterfront area .And properly plant a small amount of ecological adaptation, easy maintenance, pleasant fragrance of flowers, trees to beautify the environment, which can provide a good sensory experience space for visitors' sense of smell and taste, and play a positive role in regulating the physiological status of tourists. Second, some chemical means can be used to integrate some harmless and natural aromatic chemicals into the hydrophilic olfactory experience. For example, a small lake surface is integrated into harmless *Osmanthus fragrans* in artificial atomization system. When the atomizing landscape is produced, the fragrance and taste of *Osmanthus fragrans* and olfactory experience can not be intoxicated.(refer with: Fig. 2)Third, in some areas of the waterfront area, a snack with regional characteristics can be introduced under the premise of meeting the requirements of environmental protection and sanitation, and the catering building with landscape should be designed. In the hydrophilic recreational sports, tasting the characteristics of food, can not only satisfy the sense of smell and taste but will temptate and anticipate psychology.



Figure.2 A lake-atomized landscape with scented Osmanthus

Based on the human senses such as sight, hearing, touch, smell and taste, it will provide various methods for hydrophilic design of urban waterfront landscape. But in practice, in order to arouse the visitors' senses enthusiasm, these methods need to carry on the effective choice and the synthesis. However, the final selection of the hydrophilic activities plan and how to combine them should be decided on the one hand according to the specific environment, natural and humanistic needs, and on the other hand, it will mainly depend on the designer's comprehensive quality and design level.

Security Design

As the main security design of the waterfront landscape hydrophilic activity, the safety countermeasures and barrier-free design of hydrophilic activities are mainly composed.

A security strategy for hydrophilic activity

For the establishment of hydrophilic activities in waterfront space, consideration should be given to the safety factors such as preventing the occurrence of water side accidents. In principle, they are not set up in areas where the water level is deeper, the flow rate is larger and potentially dangerous. If necessary, we should take the necessary safety measures. Its main contents include: First, carefully conceived waterfront cross-section of the shape, as far as possible to adopt a gentle slope slopes and set the slope of the road at the embankment slope so that people will not suddenly fall into the water. For the slope with a larger slope, the use of non-slip materials for easy walking surface surfacing. Second, the hydrophilic design for people to play should choose the shallow water flow in the area. Third, where there is danger of drowning, need to set up protection measures including: safety fence (height is 1.1 meters, fence column interval is less than 0.11 meters), tightly planted shrubs, shrubs and the combination of stone treatment while are not rich in landscape environment, but have the effect of scope definition.

Barrier-Free design

The barrier-free design of waterfront space should refer to the relevant specifications of landscape design and barrier-free design in macroscopic planning. However, to truly embody the fairness and the sharing of the design, it is necessary to fully understand and understand the disabilities in the use of the facilities will encounter what difficulties, based on more of the barrier-free design for details, proficient in detail. For example, the Chicago Riverside landscape Belt, the barrier-free trail and the new waterfront edge create a continuous experience of Lake Street, and create a background for future development at key intersections, providing the same waterfront landscape experience platform for all kinds of people.(refer with: Fig. 3)



Figure.3 The Chicago City Riverside landscape with barrier-free walking system

Conclusion

The hydrophilic design of urban waterfront landscape, comprehensive environmental protection, engineering technology and art design and other factors is a typical field of combining science and art. However, its essence lies in the logic and innovation of unity in seeking change and change. In the long road of design, we still need to continue to explore and summarize through a lot of practice, upgrade the theory and method of hydrophilic design, and further open up more avenues for the research of urban waterfront landscape design.

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