

Innovative Research on Landscape Design of the Yangtze River Mountainous Basin

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Abstract:

China embraces both a vast territory and abundant landforms, with a mountainous region accounting for 69% of its total area. Being a kind of architecture constructed based on the natural and unique beautiful landforms of China, the mountainous architecture reflects people's love of nature, the expectation of integrating into and harmonizing with nature as well as the inner sincerity for returning to nature. The space pattern of the architecture in the environment is what reflects best the earth's landscape. Such a reflection lies in the following aspects: the first is the focus of the planning layout on the utilization of the natural environment as well as the formation of the casual atmosphere; the second is the pursuit of the silent fusion, or the pursuit of artistic conception, between the landscapes through the appearance of the architecture; and finally comes the harmony between the architecture and the local culture, or a penetration into and exploration of the local culture, which fuses the architecture into the land and into the historical vicissitudes. This is also the objective for the design of the public architecture, which means to satisfy the human needs and achieve sensory enjoyment as well as highlight the culture inheritance, only by such kind of design, can a new ecological landscape with emotions be alive.

Keywords:

Tourist Service Area, Space Pattern, Landscape Innovation

1. Introduction

Following the increasing development of China's economy, people's material needs have been promoted from "Food, Clothing, Housing and Transportation" to a height of spiritual entertainment. In an era when we are fed up with the call of "Reinforced Concrete" city, batch after batch of Folk Custom, one by one "Agritainment", Back to Village and other amusing terms have been sought after by many people. People want to return to nature, to seek for the natural ecological environment of green mountains and clear waters. With the rapid process of reclaiming lakes and paving the way, people are increasingly longing for nature and setting off holiday frenzy.

Nowadays, cultural tourism has gradually become a popular way of travel. The establishment of various scenic spots and the application of more and more star-rated tourist areas are the symbols of cultural tourism, which also show people's strong

desire for nature. Under the pressure of fast-paced life, it is difficult for people to have a quiet and peaceful attitude to face life, and this pressure also proves that there is a contradiction between technology and nature today, that is, the chance of integration into nature becomes less, it has become difficult for people to get physical and mental liberation from nature, so cultural tourism has become a new opportunity for people to get in touch with nature.

The main purpose for this Paper is the design of landscapes and resorts. Nowadays, the fast-paced life of the society makes people less and less exposed to nature. People are more and more depressed in the “Reinforced Concrete Forest”, so their demand for nature has gradually become an emerging market, more and more natural resorts have emerged, with their landscape design also becoming a research direction. And following the booming of the theme of holiday industry in response to the country's development, the space for its value enhancement will also become larger and larger, by studying the reflection of the space pattern in the mountain resort structures, the way natural landscape and local culture are expressed in the landscape design, this Paper makes more case studies for the landscape space pattern design of the mountain theme resorts.

2. Combine Landforms in the Design

The landforms have their respective patterns, and each pattern is unique. The landscape creation that caters to people's needs is infused with the designer's feelings. Infuse own passion based on the temperature of the geographical environment, the inherent characteristics of the climate, features of the soil and mineral resources, the growth of animals and plants as well as a wide variety of animals and plants, are interweaving together to give more inspiration. Water, water level, the texture of water and the structure of the mud layer underwater. Soil, the texture of soil, the degree of acidity and alkalinity of the soil, the degree of weathering, and the difference in mineral content. Together with the footprints of human, the imprints in history. Becoming every and each element for the exploration and inspiration of the younger generation of designers.

While the structures and landscapes on landforms cannot appear separately. Just like the unexpected emerging when an individual leaves the group and cannot integrate with the world. The structures must be coherent with the landscape, landforms and other environments. It is worth noting how to place structures into the landscape. How to make the structures with emotions and stories, how to use local resources efficiently, how to design the harmony between human and nature, what kind of design can impress the viewers, how to have the symbol mark without losing the natural fusion, and, how to make reasonable and streamlined visitors landscape visions and so on. In this “Box” era, the cement cubes of reinforced concrete have gradually produced vision fatigue. More people yearn for the pastoral nature, it is nothing more than the mind of looking for the nature of the roots, and the pursuit of returning to nature. This design is based on the natural mountain topography, the innovative use of water berths, the division of landscapes, the creation of landscape nodes and interesting projects, the use of water resources from all angles and reuse so as to achieve the fusion of human and nature in nature.

The shapes are from the environment and cannot exist independently. The shapes of the pattern and structure of the landscape, in the process of construction and design, will be mixed or blended with more people's understanding of it. Now that it is in an

art student's perspective to study environmental art design and architectural design, when designing the landscape, designing the main building and surrounding communities, it should not be just a mechanically repeated square box, other than a high-speed snack, and should focus on design, such as the spirit of the work as a whole, to interpret them. What we should consider more is a rationality, more of a kind of experience in which tourists are integrated, that is, how to integrate the subject matter from the architecture to the structure for a better understanding and a better extension of the environment by the subject architecture, what size of the architecture should be so that it embraces a cultural mark, how an iconic architecture, sculpture and subject may be impressive as well as other series of issues.

A subject, which is separated from the surrounding environment and has no cultural characteristics, loses the meaning of its existence. Architecture must be dependent to the environment, incorporating the designer's emotions and the characteristics of the environment. On the contrary, a work without symbolic features is like a child without a name, or the products produced by a factory can be placed at will, losing its peculiarity, resulting in the loss of interest of tourists, hence causing the absence of the purposed yearning for the site.

According to the results of the bottom-up comprehensive natural disaster zoning, combining with the distribution law of natural disasters in the Yangtze River Basin (that is, according to the basic rules of the top-down comprehensive zoning, while referring to the natural environment and socio-economic background of the Yangtze River Basin), the comprehensive natural disaster area of the Yangtze River Basin has been divided, and the characteristics and divisions of each division have subtle differences due to the different terrains. This design takes as an example the narrow strip at the east of Yichang, south of Daba Mountain and Tongbai Mountain as well as north of Jiangnan Hill in Guizhou Plateau - known as the "Yangtze River Basin Sub-region".

3. Analysis of the Birth of Architecture at Site

The paper focus on the landscape architecture in the landscape design. This is a vocabulary from the West, which means that for large landscape sites, the larger scale space, the word "landscape design" is not suitable for explaining the art of geographical environment. Its more appropriate Chinese meaning should be "land scenery architecture." Landscape Architecture is the science and art of land analysis, planning, protection, design, management and restoration as defined by ASLA (American Society of Landscape Architects). It constitutes the three human settlements construction aspects together with architecture and urban planning.

3.1. The Fusion of Architectural Form and Landforms

The first way with the foundation is the fusion of the main body of the architecture and the topography of the landforms. The perfect fusion of the architecture and the topography allows the architecture's rigid visual perception and natural landforms to be perfectly blended to make the architecture's rigid structure and the body merge into one; the fusion consists of two ways: to shelter the soil on the architecture as well as to reconstruct the soil structure. First of all, the sheltered architecture, as its name implies, refers to a way of combining the effects of architecture and land as a whole. The main architecture is placed in the earth to maintain the basic line curve of the earth, maintaining the continuity of the natural form and the natural earth layer, thus

greatly reducing the distance between the building form and the earth landscape, which is smoother and more natural. The cave dwellings in the mountainous areas of Shanxi are the wisdom left by the predecessors for us, and they also embody the Chinese people's idea of unity between nature and nature and coexistence with nature. There are also many cases in contemporary architecture, such as the “Big Military Museum”. It infuse the large volume of architecture through the outer skin, so that the main body is covered and wiped away by the larger volume of the body, but highlights the "inclusion" of the nature and the traces of the earth's surface.

3.2. Isomorphism of Architecture Form and Topography

Integrating the architecture into the landforms, if the landscape is in a large volume, it is also economically and technically expensive; at this moment, a new architectural form and topography are formed, and the evolutionary method is more abundant. The overall flow line of the architecture is combined with the mountains to form a large body, which gives the connection between the landscape and the main architecture when ensuring the harmony of the main land landscape and the architecture body. Focusing on details from culture and travel as well as from the form and volume. For example, the Rokko Mountain Residence in Japan. Based on the handover of the mountains and the peaceful land, using the natural curves, and the raised sections are suitable for the construction of horizontal architecture; for example, in the gorge valleys and other areas with large depressions, some concentrated volume construction can be done on both sides of the mountain wings.

3.2.1. Low Pro-Water Area - Water House

It features the light floating surface, like the water houses dancing one by one with ripples, supporting with fine wood strips to reflect the lightness and romance of water.

3.2.2. The Middle Area - Tea Room

The public service architecture between the two upper and lower lines of hotel rooms is embedded in the slopes in the form of a flat slope. Viewing from the road, it is a leisure platform, and viewing from the side, it is a jungle that coexists with nature, mitigating the sense of existence of the architecture. Middle area — the coffee shop is also the public service architecture between the two upper and lower lines of hotel rooms. Only that it is located at the end of the middle area, meanwhile, it has the vertical traffic function of addressing the height difference of more than ten meters, becoming the link between the upper and lower guest rooms; therefore, it is grounded on a single slope, which is conducive to cleverly facilitating traffic and constructing high and low undulating touring path.

3.2.3. Higher Area - Resort Hotel

The overall architecture is designed on the combination of layers and platforms in harmony with the mountain. At the higher parts of the architecture, a slightly steep single-slope form is used to give the building a sense of depth, and to reflect the sense of growth of the architecture in nature through the contrast between the real and the virtual, meanwhile to radiate a sense of overlooking, as if the conversation between the mountains and the distant view, enabling the architecture with expression.



Figure 1. Fusion of structures and terrain.

3.3. Material Fusion: Integration of Architectural Materials and Land Texture

Integrating with the texture of land is a land attribute of architecture and nature and a master-slave relationship. Visually, the three aspects of architecture, the earth's landscape and nature, or man-made and original scenes, create a kind of obedience, which is closer to nature in terms of visual perception. The entire innovative design plan is divided into six steps:

i. Overall landscape layout. Based on the geographical environment of the block, combining with streams, mountains, houses and terraces, this unique landscape of gentle slopes shapes the beautiful landscape of the passenger service area.

ii. Sorts out the main secondary landscape corridor. Based on the original slope trend, the site layout will be set up, and a first-level waterfront view area and a second-level main activity area will be established. Meanwhile, conduct water management and water landscaping, and the slow slope of the rear terraces of the architecture form a large landscape pattern.

iii. Define the primary and secondary landscape nodes. Through the use of the terrain, the positioning of the large-scale situation is determined according to the primary and secondary landscapes. The main architecture is planned on the west side, with a gentle terrain, and more reasonable streamlined main moving line.

iv. Create a viewing space. The topography of the architecture and surrounding structures, distinguishing the viewing area, creating a layered and scattered view, the viewing platform of the main architecture is the highest point to cater to the situation.

v. Create a scenic traffic stream network. Based on the unique geographical features of the whole layout, according to the gathering characteristics of the rainwater flow, the resource of "Water" is skillfully used to best explain the "Water" from the expression technique and the internal system.

vi. Combine the terrain to make rational use of water resources. Based on the original highway as the main tourist entrance, refine the two main line transportation systems. Then add secondary transportation streamline based on the needs of the landscapes to guide the tourist moving line.

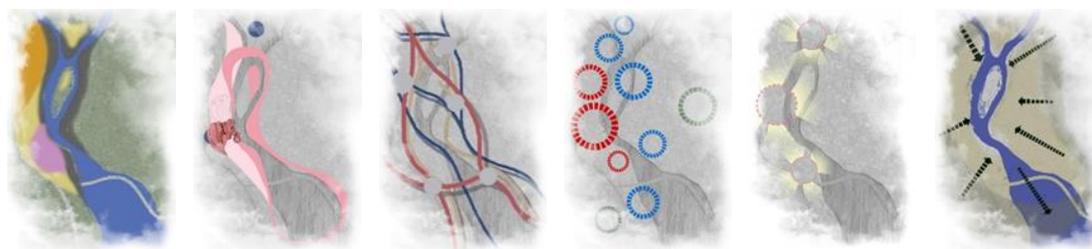


Figure 2. Geographical analysis.

3.4. Landforms and Design Combination

From the above, the most typical combination with people is that designers integrate emotions and ideas into the landscape design. When new demands arise in

our lives, we need to consciously use the accumulation of years and the precipitation of life to form the art of nature in order to obtain a better experience. Unlike all arts, land art is not only integrated into life but also serves "people-orientation", but don't forget that all the roots come from nature. A stable foundation enables an architecture to stand for thousands of years, a loose foundation eliminates the sense of use and the quality lifetime. How can a designer to better integrate into the earth, combine the terrain in the earth art design, link with the regional culture, and relate to the needs of people to construct a smooth and harmonious design? When we fully realize the importance of art, we integrate the concept of earth art into it and integrate it into the planning function to achieve the perfect combination of aesthetic needs and functional experience.

The location of this design is in Yichang City, Hubei Province, the city sits on the north bank of the Yangtze River and the east exit of the Three Gorges. In ancient times, it was called "Yi Ling", which comes from the well-known lyric of "the water flow become smooth here, the mountains become hills here", and it is also the birthplace of Chu culture. This design extends its exploration through the two aspects of "mountain shape" and "river water" and carry out innovative research on the local landscape. The entire innovative design in the use of the mountainous landforms is divided into six steps:

- i. Determine the volume of the architecture, sort out the site environment and determine the primary and secondary landscapes.
- ii. According to the topography, divide the main structure into protruded and recessed two parts. Infuse structures into the mountains, easier to integrate into nature and building nature together. The protruded area is the main architecture site, with more water sceneries and as the core area, the recessed area is the main landscape leisure activity area, surrounded by hillside woods, worthy of its name of the Good World.
- iii. Due to the changing climate of the mountain, there is much rain. At the architectural level, it is reduced to form a natural rainwater landscape. In the landscape layout, several rain shelter structures are distributed in the middle.
- iv. In the main landscape area, a multi-class level of ups and downs of the play path is set up. Ingeniously restore the terraced landscape for a better fusion with the terrain. Meanwhile, the deformation of the structure extends the building into the natural environment to form a co-structure.
- v. The main landscape area links with the terrain streamline, twists the linear streamline and conforms to the situation by the differences of heights. Increase the pro-water area for further fusion.
- vi. Extend the landscape outward in the landscape area, set the rest corridor, slope viewing and other sceneries to achieve the "mountainous landforms echo" effect. Provide visitors with a multi-angle viewing area and a wider range of conveniences.

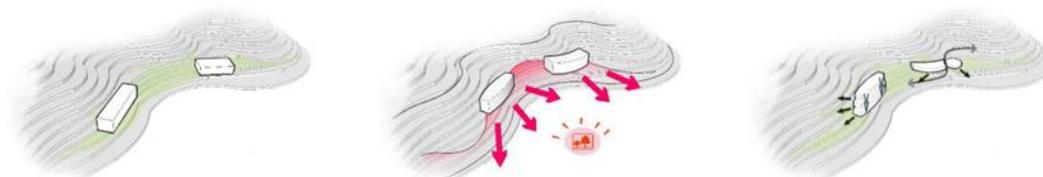




Figure 3. Evolution of the shape of the building.

4. Use of Water

Following the extensive urbanization, in this era of reinforced concrete, returning to nature has become a desire and a trend as well. Besides landforms, the use of water resources and the creation of water features have gradually been recognized by people. The following Figure 4 shows the full-year analysis of water level changes in the Yangtze River Basin. In which we can see that water resources bring invisible nutrients and natural landscapes, although they cause natural disasters as well. How to make more rational use of the wealth that nature gives us is also the purpose of this Paper. Water is the origin of all things and the material basis on which people depend for survival. On the one hand, it is the use of water resources, we should save resources and use efficiently, on the other hand, we need to integrate water into design works, and how to adapt to nature and fuse into nature will also be a thoughtful topic. Nowadays, more and more designers pay attention to the use of waterscapes, and take local culture as every and each element in the garden landscape, thus obtaining a good landscape effect.

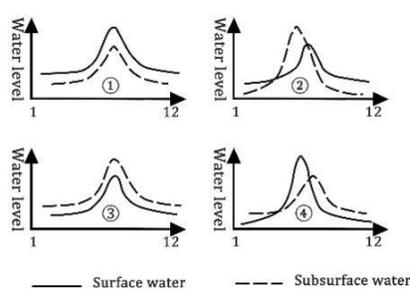


Figure 4. The water level of the four seasons.

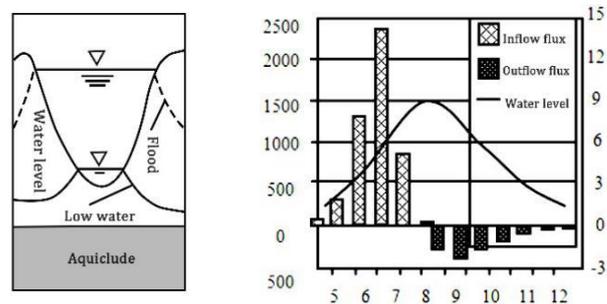


Figure 5. The water level of the year.

4.1. Overall 3D Dynamic Applications

Based on the overall planning needs and landscape layout, form a water dynamic line when the waterscape is created, so that it has the dynamic effect of the streamline, and people feel the aura of the design. The dynamic streamline of the design is not only the sharp lined architecture, but also the melodious curve. Highlight the fluidity of the nature of water, and strive to integrate the waterscape into the overall landscape, in an aim to drive alive the structure and the surrounding sceneries, enabling a moving and live landscape thought the use of water. Realize the 3D sensory experience of water.

4.2. Internal use of Partial Highlights

In the landscape design, the crystal element of the waterscape can also play a finishing touch. Designers can use modern technology to start with various sensory

experiences of smell, hearing and visual lighting. For example, the Hanxiu Lighting Exhibition in Wuhan combines the reflections of river water with the magical and beautiful, and another example is the large water waterfall outside the architecture, and then washes into a fountain, the gate is also the embodiment of the life of a solid architecture.

4.3. Innovation Design with the Combination of Landscape and Water Level Difference

The overall landscape design is located in an area with the fusion of mountains and rivers at Yichang East Station in Yichang City. Nearly everybody knows about the Three Gorges Dam in Yichang. The water level difference caused by the rising and decreasing water level in the local waters is very large. In 2017, the water level difference has reached 3.85 meters, which has become the innovative use for this design. The distribution of precipitation in Yichang City during the year is featured in uneven distribution throughout the seasons, and the amount of rainfall changes is increasing. The annual water discharging and water retention of the Three Gorges Reservoir makes the water level difference in Yichang's downstream waters very obvious. This innovative design focus on the resources utilization by using the different water level differences in seasons. The resource utilization mentioned in this paper is not the pure circulation of water resources, but more lies in the soil and fertilizer brought by the river; in the seasonal waterfront of each season, planting seasonal ornamental flowers can form scenic spots, and the water level can be used; the level of the cover and the degree of cover of the water in contact with the water surface gives visitors a novel sensory experience of "different seasons". The use of nutrient soils with water level changes in river water to plant landscape crops, while fully utilizing the difference between water level and the height of contact of structures, enable the innovative design not only achieves artificial "circulation", but also creates a good green ecological environment.



Figure 6. Water level difference innovation design.

5. Conclusions

This design strives to infuse into nature and achieves the realm of harmony between man and nature by using the characteristics of the terrain and conforming the terrain from the landscape and the structure perspectives. The fusion with the structure is realized through the main architecture, the wooden plank road, landscape vegetation and other parts. On the other hand, this design uses the use of water level difference to make innovations play a role in better demonstrating the mobility of water and making better use of the wealth that nature brings to us. The main innovative design studies in this Paper are divided into the following sections: dependent terrain (the landscape vegetation uses the original terraced streamline, a little artificial structures and local rough stone pavement), innovative architecture (through the fusion of layers of the local canyon rock, the nature of the landscape and the environment), the use of

innovative water bodies (through the water level difference of the Yangtze River, the use of water level changes to transform the landscape architecture and water to form a changing landscape experience, on the other hand, the use of water resources to plant ornamental flowers in each period) and humanization plaza (the division of the square block through the curve, the configuration of the hedgerows in the joint part for break and stay).

As a tourist's entry into the tourist destination, from the sensory experience and the stay experience, the tourist service area will reflect the characteristics of the local culture to the passengers, whether it is economic strength or human history and culture. It is a topic worth exploring for how to better understand the local culture as well as convey and infiltrate to tourists the information more directly.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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