



The Renovation of Fulong Pagoda Park's Landscape Design Using New Light-Storing Self-luminous Materials in Rural Cultural Construction

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Abstract. Fulong Pagoda Park's rural cultural construction incorporates both ancient pagoda culture and the most modern self-luminous environmental protection elements. The major topic of the visual guidance system is Fulong Pagoda Park, and other design principles include the "micro-renewal" design idea, people-oriented, natural landscape, humanistic landscape integration, and cross-fertilization of new materials and technology. The principles of "people-oriented design," "fusing new materials and technology," and "integrating natural and humanistic landscapes" are the cornerstones of the park's architecture. The project serves as a model for rural cultural construction that is "ecologically sustainable," "experienceable for the elderly and children," "cultural heritage sustainable," and "industrial developmentally."

Keywords: Design · rural culture · Fulong Pagoda Park

1 Introduction

Currently, the most important component of the rural design is the development of rural culture. Our focus long ago was primarily on the physical shape of buildings, housing function, and aesthetic form, ignoring rural culture. If we analyze its cultural characteristics from the inside out, we can only develop the countryside in a way that is enduring, inheritable, and produces "a thousand villages with a thousand faces" [1]. Therefore, an essential part of changing rural design is exploring the rural culture. Using the landscape design transformation of Fulong Pagoda in Shipai Town, Dongguan City, we examine the experience of establishing the rural culture and provide examples for other villages in this study.

2 Research Path of Rural Culture Construction

What is rural culture? The idea that rural culture is a distinct cultural form that emerges unintentionally in a particular area community with a shared culture is prevalent in many

literary works [2]. The majority of our country is made up of rural areas like this one. Rural culture is somewhat more regional and diversified than modern metropolitan culture. The villagers are the principal subjects of this essay's analysis of rural culture, which looks at their way of life, morals, and other facets of their traditions. Achieving a rural renaissance and successfully promoting rural social development requires the establishment of rural culture. Rural construction is mostly driven by cultural construction, which may contribute to its sustainable growth.

This paper's research goal is to observe the demands of villagers for the development of rural culture and to investigate design expressions that can communicate what villagers want and what society requires from a design perspective. The first step is to examine the design elements that can be applied in Fulong Village, such as the lion dance tradition and the ancient pagoda elements, and then translate these design expressions into those that are acceptable to contemporary young people by using modern techniques; the second step is to examine the characteristics of the local population, thoroughly investigate their needs, and identify the commonalities among those needs. The second is to examine the traits of those living close to the base, thoroughly investigate each person's requirement and identify its defining characteristics. The third step is to do thorough literature research on the subject, compile outstanding cases that have undergone a successful transformation, and then apply the design strategies used in the cases to the rural culture construction of Fulong Village. The fourth step entails investigating new materials for rural landscape renovation design and utilizing new materials and technology to produce fresh remodeling concepts for rural landscape renovation and new results.

Rural cultural creation is a crucial step toward achieving rural rejuvenation and has the potential to significantly advance rural social development. The inner motivation for rural construction is a cultural construction, which can help it flourish sustainably.

3 Fulong Village's Current State of Rural Culture Construction

The largest administrative village in Shipai Town is Fulong Village, which is situated in the center of the town. It has a total area of 5.9 Km², 13 natural villages, 5,998 residents, and a population of more than 20,000 foreigners. The Northern Song Dynasty built the original Fulong Pagoda, which was later restored. The pagoda has five stories and is known locally as Wenge. The ancient pagoda park is located in Shi Pai Town and has an area of about 44,000 Km². It is better landscaped, has two fish ponds west of the village, is on the south side of Shi Pai Avenue, is on the east side of the Fulong Ancient Pagoda Road, is easily accessible by traffic, and is rich in resources near the north side of the Lingnan Traditional Residential Villages. The land's east side is home to Shipai Town's farmer's market and modern residential neighborhood, which both have dense foot traffic. On the north side of the site is the Lingnan traditional residential village, which has preserved a fairly intact Ming and Qing period residential complex. With a maximum height difference of 1.2 m, the park is high in the west and low in the east. The site's major scenery is a tall, lush forest on the west side.

Traditional village culture is prevalent in Fulong Village. On the one hand, the site's north side has a long-standing traditional residential village that has preserved the production and daily life of the residents of Fulong Village since the Ming and Qing periods.

Traditional street configurations and architectural features are the material representations of Fulong Village's history and culture, and they must be urgently investigated and passed down. On the other hand, the lion dance in Fulong Village, the most popular folklore activity in South China, represents the villagers' hopes for the future of their way of life by symbolizing the eradication of misfortunes and the wishing for good fortune. Each lion dance, which is a traditional pastime and a kind of social organization in and of itself, draws men, women, and kids from the community to participate, which helps to bring them together and foster cohesion.

Through interviews with residents after multiple visits to Fulong village, we discovered that there are issues with the cultural infrastructure of the community: the village's current public cultural service facilities are not "completely exploited." Although the village has constructed a cultural square, a farmhouse, and other public cultural service facilities, there are currently issues like low utilization rate and supply and demand mismatch. The fracturing of cultural inheritance is the most evident symptom of the rural human ecological catastrophe. On the one hand, rural people are confronting a cultural psychological crisis, while rural life is facing a cultural ecological disaster. Fulong Village is surrounded by factories and foreigners, which has made spiritual unease and cultural worry become unavoidable issues in the countryside. On the other side, the nighttime village guide system is not visible and has a poor recognition rate because Fulong Village is situated in Shipai Town.

4 The Design and Alteration of the Landscape in Fulong Pagoda Park

In Fulong Village, the Ancient Pagoda Park is a notable cultural landmark. The park, which at the time was Dongguan City's largest village park (culture square), was established on November 12, 2004, with "Fulong Pagoda" as its focal point. It has a stage, lighting, and sound systems, a basketball court, a cultural service center, and other amenities. The hub of Fulong Village's cultural activity is Pagoda Park.

4.1 Design Concept

The Fulong Village design idea Using the design principles of micro-renewal and acupuncture design approaches, Guta Park will comprehensively study the cultural resources of Fulong Village, conduct research on the actual needs of locals and international visitors, and connect these demands.

According to in-depth site analysis, some locations with a low construction difficulty, a limited scope of alteration, and a significant influence are chosen for design renovation and upgrading, which can serve as the final touch for Guta Park. To address major issues, the landscape design program focuses on the interaction between the overall park organization and traffic flow, static and dynamic partitioning, etc. The design will energize the site and transform the previous lack of energy in the spatial shape, much like the "acupuncture" design of traditional Chinese medicine. We concentrate on the behavior and activity scenarios of the elderly and youngsters during the design phase so that they can roam freely and have fun on the site. The requirements of both the

young and the aged will be satisfied in this regard. The site's accessibility has been improved so that visitors with disabilities can take in Guta Park's scenery just as readily as able-bodied individuals.

To promote "industrial growth," "experience for the elderly and the young," "cultural lineage sustainability," and "ecological sustainability" Demonstration and rehabilitation project for rural rejuvenation.

Environmental sustainability: Natural and renewable materials, including wood, are used to construct the landscape facilities. To expand the site's capabilities, the principle of micro-renewal is also utilized while maintaining the existing vegetation.

Both young and old can experience it: Since the base is situated in a busy pedestrian area and the majority of the residents are young children and the elderly, the landscape design of the base prioritizes the safety of nighttime travel while also adding aesthetic interest by using neon materials.

To build the cultural memory of base inhabitants and strengthen the regional cultural identity of both local villagers and foreign residents, the cultural features of Lingnan homes in the base are investigated, applied to the environment, and used to influence the base's design.

Combining cultural and creative industries, rural cultural revitalization, environmental preservation, and energy-saving materials can all be used to expand industry and promote the long-term sustainability of rural culture.

4.2 Design Principles

The principle of people-oriented. The core of "human-centeredness" is to respect and affirm the value of human beings as the subject of all cognitive activities [3].

After researching the demands of various users, the reconstruction plan for Fulong Gupta Park took all of these differences into account. Fulong Gupta Park's experiences may generally be broken down into three groups. The local villagers of Fulong Village, who have been living here for generations and are extremely aware of the historical changes in Fulong Village, fall into one of several categories. The second category consists of long-term foreign residents who rent near Guta Park and work in the local factories. Tourists or bystanders who remain just briefly make up the third group. As a result, the venue takes into account the usage of these three groups of people at various points and designs certain scenarios specifically with more people's comfort in mind.

Combination of the natural landscape and humanistic landscape. By distilling the distinctive features of Fulong Village's culture, separating the village's history and customs since the modern era, and identifying the culture that can best capture Fulong Village's spiritual outlook, emotional homecoming, and ability to adapt to modern lifestyle. The Qilin culture and the prehistoric pagoda culture were taken from Fulong Village as being the most representative cultures. To construct a rural cultural square that is uniquely Fulong Village, we must methodically take into account the utilization of these two cultures in our design for this site-specific design culture.

New materials and technologies are cross-pollinated. This design problem can be effectively solved by incorporating new light-storing self-luminous materials into the program's design. The problem of rural night lighting is solved by utilizing the lowest transformation cost. The material can make each guidance sign in the rural road guidance

system at night by storing light from the sun and reflecting light from the surrounding environment. Fulong Village now has a more humane, functional, energy-saving, aesthetic, efficient, and comprehensive village road guidance system thanks to the new light-storing self-luminous material.

4.3 Design Modification

Art Route: The Design Process and Scheme

The design plan for Fulong Village Guta Park examines the site's current issues, such as the absence of barrier-free access, the announcement seat set's poor ergonomics, the lack of night illumination, etc., based on a preliminary thorough investigation. Following that, we organized the site's existing resources, including the open natural water on the south side and the dense woodlands and open space beneath the forest. We can leverage these as advantageous circumstances for the design. The fundamental framework of the design plan is therefore established based on the current issues and advantageous site factors. The underwood of numerous towering trees on a beach is connected by a floating belt, which is also an art project. As a result, even in the hottest summer and fall months, the seating and vignette installations will be shaded by trees, maintaining a cooler temperature than the surrounding area and providing visitors with a pleasant experience. The program's seats are made of a novel, dependable, and environmentally friendly material that is chosen concurrently. To broaden the site's cultural focus and create a rural cultural park that belongs to Fulong Village, the traditional cultural components of Fulong Village are added to the chairs (Fig. 1).

The site's circulation is robust because the "red ribbon" connects the northern and eastern entrances and uses a connected flow design for the site's overall traffic flow. Additionally, the red punch card artwork on the north side of the entryway may be internally illuminated at night, acting as both supplemental lighting and a wayfinding device for visitors coming from the north square to the location. This red hue is both

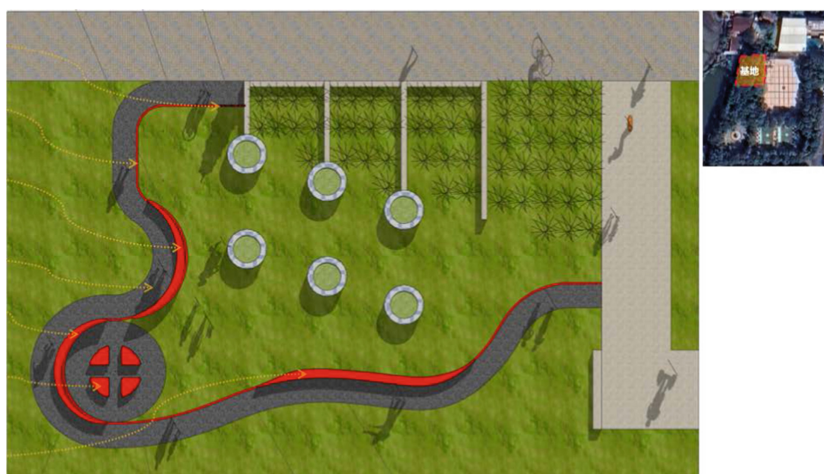


Fig. 1. Floor plan

distinctive and eye-catching. The artwork takes on the form of the Fulong Pagoda's outside contour, mirroring the landmark of Fulong Village, while the artwork's internal pattern is an image of the Fulong Lion Dance, showcasing the distinctive cultural aspects of Fulong.

The self-luminous substance is spray sprayed on the surface of the red-shaped seat, whose theme color mimics the art punching equipment, and whose graphic is the Fulong Village logo's auxiliary graphic. Such self-luminous material can absorb the sun's energy during the day and create a soft light at night, enhancing the experience while providing some amusement. The shaped seat features a backrest in the vicinity of the circular node, enabling individuals to sit with somewhat more comfort. At noon, visitors to the farmers' market on the park's northern edge can take a little nap on the chairs.

The four fan-shaped chairs are arranged in a group in the center of the park's circular area. They are made of the same material and color as the shaped "floating belt" seats, and the corners have been rounded to prevent child bumps from injuring anyone. The space is rather crowded, where people may talk face to face with the elderly while also allowing kids to play shuttle activities. Also, the tallest trees in the area are located there, the area experiences cool hot weather, and the temperature is suitable (Fig. 2).

Process Route: Material Selection - New Light-Storing Self-luminous Materials

Light-storing self-luminous materials, also referred to as photoluminescent ultra-long afterglow storage materials, no power self-luminous materials, and long afterglow luminous materials can still emit light even after being exposed for a brief period to sunlight, ultraviolet light, stray light, and other visible light. Its self-luminous property is a light that results from the process of absorbing light energy, storing that energy, and then converting that light. Light-storing self-luminous materials not only can save electricity resources, but also can become the emergency lighting source to prevent fire, and has wide application value [4].

A bright road was constructed in Finland using luminous cement, which stores energy by absorbing both daytime sunlight and nighttime light. It is easier to drive at night and there are fewer accidents when there is night lighting to illuminate different types of road



Fig. 2. Bird's eye view

markers used to demarcate lanes and identify sections. As can be shown, the problem of visibility for rural night guidance can be resolved by using the light-storing self-luminous material in the design of a rural night road guiding system.

Public amenities, warning signs, and public information guidelines—such as the use of self-luminous safety signs—meet the demand for rural road illumination at night while also conserving energy and improving the surrounding landscape.

Cross-Fusion: Light-Storing Self-luminous New Materials + Rural Culture Construction

Each guidance sign in the rural night road guidance system can be seen by reflecting light from the surrounding environment thanks to the use of reflective materials. Meanwhile, the choice of patterns, combined with local culture, improves the interaction between scenery and people and also carries out the crucial task of constructing rural culture. For Fulong Village, the novel light-storing self-luminous material offers a system for guiding rural roads that is more complete, beautiful, effective, and energy-saving.

If further development is required and the directional signs are required to be visible at night, they will be paired with landscape lighting, outdoor lamps, and lanterns to demonstrate the viability of this novel idea. The ingenious use of a solar power generating system was used in the design of the combination of landscape lights to provide nighttime electricity, making it more eco-friendly and energy-efficient.

5 Conclusions

To meet the many functional needs of the villagers and serve as a rural cultural park, Fulong Pagoda Park's design and renovation must be specifically adapted to the environment and the unique characteristics of Fulong Village. It also serves as an important material carrier for rural cultural displays. The park will be transformed into one that is "ecologically sustainable," "experienced by the aged and the young," "can continue to preserve cultural treasures," and "can develop the industry." Park for the presentation of rural cultural construction. Using the knowledge of art disciplines to empower the cultural square, increase the function of guidance, increase the function of night lighting, enhance the visual artistry, improve the cultural square leisure and entertainment, and improve the function of parent-child interaction, is abstractly extracted from the excavated regional culture and applied to landscape design, carrying out the important task of rural culture construction.

The development of rural culture is crucial for creating a happy community in the modern period. Three points can be summed up as follows: First, the rural value hierarchy is modified, with emphasis placed on the spiritual civilization of the rural culture rather than the previous material civilization [5]. Boost rural culture's cultural self-assurance. Encourage the villagers' cultural growth and ancestry awareness to create an internal drive for rural culture construction. Second, integrate art, design, and technology into the new socialist countryside while focusing on integrating rural cultural traits. Let the villagers take pleasure in the most recent advances in art, science, and technology. Thirdly, it understands the marriage of long-term and effective governance. Effective governance requires that landscape vignettes be prepared for subsequent management

at the preliminary design stage, which is necessary for governance efficacy. Effective governance is the foundation of rural revitalization and its primary motivation.

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