

Research on Planning and Design of University Pioneer Park

-- Taking Zhaoqing College Pioneer Park Planning and Design as an Example

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Abstract

The rapid development of the city and the advent of the Internet climax have brought vitality to the development of the e-commerce industry and cultural and creative industries. The increase in the size of online shopping users and the increase in e-commerce platforms have brought new economic impetus to the society, and the development of e-commerce parks has grown stronger. The cultural and creative industries combine innovation with entrepreneurship and are loved by more and more entrepreneurs. Various regions or universities have planned to build cultural and creative parks. The development and construction of e-commerce parks and cultural and creative parks are receiving more and more attention from the state and society. This article will take Zhaoqing E-commerce Park and Cultural and Creative Park as an example to discuss the planning and construction of the park. As the main park in the Science and Technology Park of Zhaoqing University, E-Commerce Park and Cultural and Creative Park play an important role in demonstrating the connotation of the park and embodying the culture and local culture of the park. Its planning and design will directly affect the construction and development of the science park and the environmental landscape. quality. How to plan and construct two major parks, integrate its connotation with local culture, and at the same time reflect the environmentally friendly design spirit is the purpose of this study.

Keywords

Creative park; landscape environment; planning and design.

1. Introduction

The establishment of the University Pioneer Park is the starting point for Zhaoqing to implement the Party Central Committee's development strategy of "mass entrepreneurship and innovation". It is the strategic need for Guangdong to explore new urbanization roads and promote regional coordinated development. It is also Zhaoqing's ability to improve industry and population concentration. Enhance comprehensive competitiveness and achieve inevitable choices across development. Planning and building the nightmare space Double Chuangang is conducive to creating a good environment for innovation and entrepreneurship, which is conducive to attracting high-end talents to celebrate innovation and entrepreneurship, to break the bottleneck of Zhaoqing's development, accelerate the development of modern service industry, promote the transformation and upgrading of Zhaoqing's industry, and take a new city. We will develop the road of development, enhance the vitality and motivation of economic development, and realize the leap-forward development of Zhaoqing's society and economy; help protect and utilize Zhaoqing's ecological resources, integrate resources, expand urban development space, and form a new growth pole for economic development.

2. Project Background

Zhaoqing E-Commerce Park and Wenchuang Park are two important parks of the University Science and Technology Park of Zhaoqing University. The parks of the China-Pakistan Software Park and the Arkang Ark have initially formed a “booting-incubator-accelerator” form of entrepreneurial incubator chain. At present, the buildings in the two parks are temporarily built, and the layout of the park is single, which does not highlight the characteristics and connotation of the park. Therefore, it is necessary to redesign the two parks.

3. Status Analysis

3.1. Location, Terrain Analysis

The E-Commerce Park covers an area of approximately 4,525 square meters, and the Cultural and Creative Park covers an area of approximately 5,100 square meters. The park is located close to the city center, north of Beilingshan Forest Park, and south is Qixingyan Scenic Area. Therefore, the park not only has the location, transportation, supporting facilities, etc., but also has the talents and intelligence resources of the colleges and universities in Zhaoqing and the unique North Ridge. The advantages of the mountain ecological environment. The topography of the area where the park is located is to construct a denuded mountain, with the east-west trend as the main body. The location of the two parks is relatively flat. Zhaoqing belongs to the subtropical monsoon climate, with an average annual temperature of 21.9 degrees Celsius. The daytime sunshine is sufficient. Because it is located under the Beiling Mountain, the temperature difference between day and night is slightly larger than that of the urban area. The average annual rainfall is between 1610 and 1615 mm. The rainy season is mainly concentrated in summer and the rainfall is large. Overall, Zhaoqing has a good environment and is suitable for entrepreneurial entrepreneurship.

3.2. Analysis of the Current Situation of Buildings

The buildings in the E-Commerce Park and the Cultural and Creative Park are temporary buildings with long strips. This type of construction period is short, fast and low in cost. However, the park has a common architectural form, a single layout, and lack of cultural characteristics. Whether it is from the perspective of architectural landscape or practical, it does not meet the characteristics of the park.

3.3. Analysis of Vegetation Status

The plants in the E-Commerce Park are dominated by evergreen and native tree species. At the entrance, there is a tall tree arborvitae. Under the tree, low shrubs and safflowers are placed. At the junction of the park wall and other buildings, there is a small green area with several small trees and shrubs to cover the wall and the wall outside the building. The green space lacks accessibility. The green area in the park is small, but the plants in the park are growing better.

The plants in the Cultural and Creative Park are also dominated by evergreen and native tree species. There are flower ponds in front of the building. There are ash and safflowers in the trees, and there are dozens of trees, including Dawang Coconut, Big Leafhopper, and Melaleuca. And casuarina. Because the building is on the side of the road and close to the train track, it produces more dust, car exhaust and noise. Due to the scarcity of greening, dust, automobile exhaust and noise have a greater impact on the park (Fig 1.2).



Fig 1. The current situation of the Pioneer Park



Fig 2. The current situation of the Cultural and Creative Park

3.4. Status Layout and Partition

The E-Commerce Park and the Cultural and Creative Park are located on the north and south sides of Beiling Road. The two parks are opposite each other. The functional zoning of the E-Commerce Park is planned to be the six basic spaces of the entrance landscape area, the central plaza area, the recreation and entertainment area, the ecological green area, the ecological parking area and the office area (Fig. 3). The road planning in the park is single, and the park has only one southeast direction. Entrance and exit, and a security booth. The parking lot is located outside the entrance and exit of the park, and there are fewer parking spaces to meet the demand. And the vehicle is directly exposed, lacking shade and visual obscuration.

The functional zoning of the Cultural and Creative Park is planned to be two basic spaces for the office area and the parking area. The park faces the road. Noise and dust are inconvenient for the staff of the park and affect the quality of the landscape. The roads are not well set up for people and vehicles, and the road traffic is slightly messy. There is no zebra crossing or pedestrian bridge in the middle of the road for pedestrians to pass, and the two parks lack mutual accessibility. And people flow, traffic flow is dense, there are certain security risks.

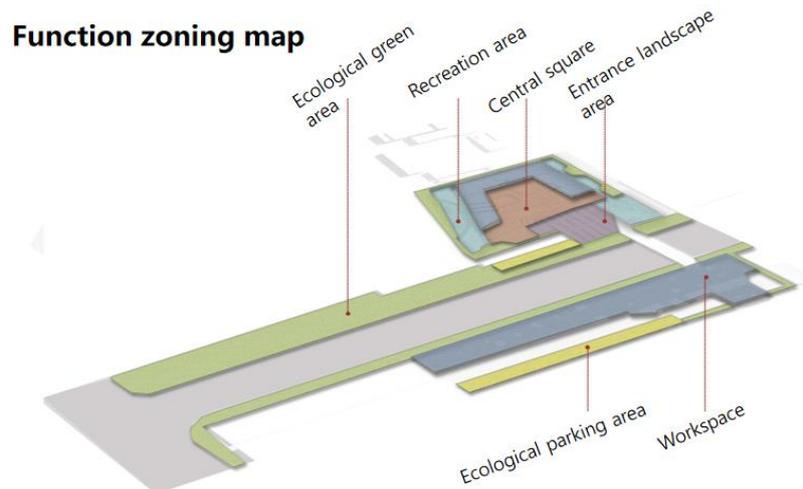


Fig 3. Function zonging map

4. Planning and Design Principles

4.1. The Principle of Combining Culture

E-Commerce Park and Cultural and Creative Park are part of the Zhaoqing College Student Science Park. Because the geographical location is adjacent to the university campus, compared with other science parks or industrial park landscapes, the landscape design in the university science park needs to pay more attention to the combination of campus culture and park culture [1].

4.2. Times Science and Technology Principles

E-commerce and cultural innovation industries are the products of the era of social science and modernization. The landscape of the park should reflect the artificial traces while pursuing natural harmony [2], creating a space full of modernity. Site design, service facilities, etc. should reflect more technical.

4.3. Principle of Spatial Diversity

Whether it is an e-commerce park or a cultural and creative park, the production and practice of the industry requires high-intensity mental activities [3], and more needs to be discussed and exchanged at work or in leisure. Therefore, this requires different spatial forms in the park to meet the different needs of people. In the design, it is necessary to combine the special characteristics of the venue and people's needs, and create three types of space: private negotiation space, semi-private communication space and open gathering space.

4.4. Landscape Ecological Principles

The staff in the park are mainly engaged in high-tech, entrepreneurial and innovative industries, so an ecological and landscaped landscape environment is indispensable [4]. E-Commerce Park and Cultural and Creative Park are adjacent to the beautiful Zhaoqing College, north of Beilingshan Forest Park and south of Qixingyan Scenic Spot. By virtue of the good ecological environment of Zhaoqing College and Beilingshan Forest Park, the natural conditions of the park are unique. The design should combine artificial factors with natural factors [5], and use the unique natural environment to create a green park.

4.5. Artistic Principles

Both the e-commerce park and the cultural and creative park are products of the new era and are synonymous with the Internet, high technology and innovation. This requires the landscape

and architectural style of the park and the meaning of the park to be interesting [6], forming a certain visual impact.

4.6. Humanity Principle

Both the e-commerce park and the cultural and creative park need to meet the living needs of internal staff and external visitors, so they need sound supporting facilities and corresponding recreational space.

5. Overall Concept

5.1. Concept A

Combining the seasonal characteristics of plants with the characteristics of plants' own flowers, leaves and fragrances, creating a rich landscape of gardens in time and space, giving people a beautiful enjoyment. In time, all seasons, different plants can see flowers, leaves, smells, and enjoyable colors. In space, the upper layer of arbor, the middle layer of grass, the lower layer of herbs, and the combination of arbor and shrubs form a flora (Fig. 4). To optimize the environment and clean air.

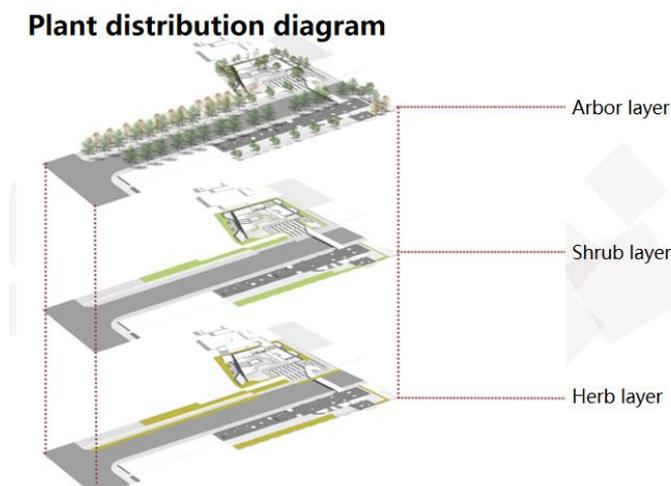


Fig 4 .Plant layering map

5.2. Concept B

Extract the relevant theme elements of the e-commerce park, such as the first letter "E" of the integrated circuit and e-commerce park, and abstract it as the design element of the park venue and architecture. (Fig 5)

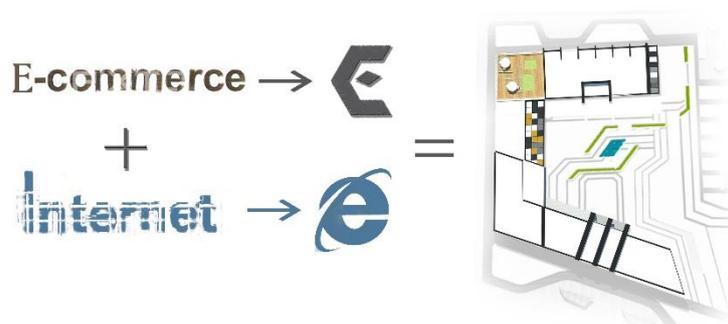


Fig 5. Program derivation process

5.3. Concept C

The pedestrian bridge is designed on both sides of Beiling Road to ensure the flow of people and vehicles, which not only ensures the smooth flow of motor vehicles, but also facilitates the passage of pedestrians between the two parks, and greatly reduces the traffic safety hazards. As a bridge connecting the parks, the pedestrian bridge symbolizes the bridge between technology and innovation.

5.4. Concept D

In the design of the site, it is necessary to combine ecology and technology to reflect the concept of a green park. The combination of natural and artificial measures allows rainwater to accumulate, infiltrate and purify in the design area [7], applying the collected rainwater resources to plant irrigation or other places where it is needed to form a virtuous circle and protect the ecological environment. Ecological parking lots, ecological tree pools, etc. can be designed in the park.

6. Specific Planning and Design

6.1. Overall Layout

The e-commerce park takes the park building as the main body, and the central square is the main landscape node. The greening and rest places are set up around the building to form a "back" shape structure. Through the ring garden road, the nodes and greening are penetrated. Make the relationship between the main building and the group organization more unified (Fig 6).

The Cultural and Creative Park site is located on the side of the road and is strip-shaped. The building is dominated by buildings. The roof of the building is a fold-shaped sloping roof. The roof is shaped like a undulating mountain range of the North Ridge Mountains. The landscape of the park is combined with the streetscape to form an open space landscape. Use noise boards and plants in the park to reduce the noise and dust generated by the surrounding environment.

The E-Commerce Park and the Cultural and Creative Park are interconnected by pedestrian bridges to form a landscape of the bridge with the characteristics of the park.

Design master plan

1. Central Square
2. Water View Wall
3. Electric Business Park
4. Central Pool
5. Roof greening
6. Roof garden
7. Ecological retention belt
8. Thinking room
9. Coffee break park
10. Pedestrian bridge
11. Ecological parking lot
12. Landscape green space
13. Beiling Road
14. Wenchuang Garden



Fig 6. Creative Garden Master Plan

6.2. Partition Detailed Design

The e-commerce park consists of an office area, a central square area, a green landscape area, a recreation area, and a brainstorming area. Centered on the office area, the office building is set up to undertake office, research and development, production and other functions. The central square area is located in the open space in front of the building, and it is responsible for the functions of distribution, leisure and park focus. The recreation area is designed to blend with the green landscape area, designed around the main building, forming a semi-enclosed form, taking on the functions of rest, entertainment, viewing and greening. The brainstorming area is a characteristic division of the park. The small space forms a private space, which provides people with a place to stimulate thinking. People can negotiate and communicate within it.

6.3. Architectural Layout and Design

The e-commerce park campus has a "concave" shape, and the architectural shape is derived from the E-commerce initial letter "E" in the e-commerce park. The building consists of two parts, the left side of the building has two floors, and the right side of the building has three floors, forming a patchwork style. The middle is covered with a colored glass corridor, and the building is equipped with floor-to-ceiling glass to maximize the view of the park. At the same time, vertical greening is designed on the building wall, and roof greening is designed on the roof to solve the problem of building insulation and shading (Fig. 7).



Fig 7. E-commerce park architectural renderings

The roof of the building in the Cultural and Creative Park is in the form of a broken-line sloping roof. It is inspired by the North Ridge Mountain in the north of the park. From the front and side of the building, the roof looks like the undulating mountains of the North Ridge. At the same time, a circular lighting opening is arranged on the roof to increase the indoor lighting and reflect the architectural art. The building has three floors, and some of the first floor is an overhead floor that can be used to set up a rest facility.

6.4. Road Layout and Design

Beiling Road runs through the interior of the Science and Technology Park. The E-Commerce Park and the Cultural and Creative Park are located on both sides of the road and connected by pedestrian bridges. The main park road inside the E-Commerce Park is a folding line garden layout. The building center is a hard square. People can visit the park through the garden road. There are also landscape nodes on the side of the road to satisfy the man. And work needs. The road inside the Cultural and Creative Park is in a straight line between the building and the parking lot. The linear layout fits the architectural form and conforms to the shape of the site.

6.5. Square Design

The E-Tech Park office building is the core of the park. The front square landscape requires a serious but comfortable environment. It extracts the integrated circuit elements associated with the park theme and abstracts it into polyline lines, which are integrated into the square paving design. The design-inspired lines in the paving tiles reflect the sturdy and serious sense of the square and echo the theme of the park. There is also an ecological strip tree pool in the center of the square to separate the square from a small enclosed space. The tree pool is shaped like a bird, which means that the e-commerce industry is a sunrise industry and is flying high. The design of the ecological tree pool not only enriches the spatial diversity, but also increases the greening of the square, while also collecting the rainwater in the square. The sign wall in front of the square has a pool, which can soften the hard landscape and enhance the intimacy and comfort [8]. The square is interspersed with a simple three-element combination of paving, water and greening to achieve this effect.

6.6. Planting and Design

In the E-Commerce Park, plants with seasonal characteristics can be seen all year round. In spring and March, you can see white magnolia, purple magnolia, Japanese cherry, yellow-flowered Suzuki, etc.; The flowering plants such as the national carp and the phoenix tree can be seen in the autumn, and the variegated leaves such as autumn maple and sorrel can be seen from September to October; the flowering plants such as camellia and camellia can be seen from October to December. Design vertical greening on the building wall to solve the problem of building insulation and shading. At the same time, it can also design a green roof and form a multi-level green space structure in space. The vertical greening of the wall uses plants that can be managed extensively. In order to enrich the color of the park and enhance the visual effect, choose *Photinia frondosa*, Phnom Penh, safflower, safflower, and other color leaf plants [9]. Roof greening can be selected from plants such as Dwarf Lagerstroemia, Forsythia, Buddha Grass, and Snakeweed [10]. The greening main body of the park is three types: upper (roof), middle (building facade) and lower (ground). These greening methods are cross-infiltrated to form a layered garden landscape, which gives people a beautiful enjoyment. It not only solves the problem of building insulation, but also greatly improves the green coverage of the park.

Planting sound-absorbing and sound-insulating plants in the park of cultural and creative parks, such as son-in-law and sea paulownia; planting plants that can absorb dust and automobile exhaust, such as mango trees and oleanders, to weaken the passage of cars and trains. The noise and dust.

6.7. Garden Design

Thinking Room—Thinking Room is a small private communication space with blackboards, tables, chairs and other facilities. It is placed in a suitable location in the park to keep the surrounding environment quiet, so that people can negotiate and communicate freely. Interfering while enjoying the beautiful outdoor scenery (Fig8).



Fig 8. Sketch design

6.8. Public Space Design

The public space in the E-Commerce Park is divided into private space, semi-private space, and open space. The private space is mainly composed of the garden sketching room, which provides a quiet environment for people to communicate creatively and explore the semi-private space. Enclosed by plants, there are tables and chairs inside for people to conduct business negotiations, outdoor office; open space and the central square of the park, there is a tree pool for people to rest, the open space is serious and friendly. The feeling is convenient for makers to conduct entrepreneurial gatherings and business exhibitions.

In the Cultural and Creative Park, the open space is mainly open space, and the semi-open space refers to the overhead section of the building. In this space, rest facilities can be set up to meet the needs of the rest and office.

6.9. Rainwater Garden Design

First, set up an ecological parking lot in the E-commerce Park and the Cultural and Creative Park. Compared with the traditional parking lot, the ecological parking lot is more green and more tolerant. It is a green parking lot. The permeable planting brick bioretention belt is used to collect the surrounding rainwater, and the collected rainwater can be used to irrigate plants [7]. Second, the tree pool of the park is designed as a stagnant ecological tree pool, which can collect rainwater from the square. Thirdly, the roof of the e-commerce park is designed as a green roof, and green vegetation is planted on the roof to absorb the excess rainwater runoff during the rainy period, and the rainwater is purified and filtered by the plant roots, and finally discharged into the rain bucket for storage and reuse.

7. Planning and Design Summary

In the planning and design of the park, the concept of ecology and culture, through architectural design and garden design, is well integrated into the park, which not only reflects the principle of low carbon and environmental protection in the park, but also conforms to the cultural image of Zhaoqing. Through the rational planning of the road system, the parks of the College Student Science Park are connected to each other. Make it more integrated and systematic. In addition, a variety of activity spaces have been created in the park to meet the different needs of people, making the park more humane.

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