

A Brief Discussion on the Landscape Balconies of New Buildings

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Abstract: With the acceleration of urbanization and the improvement of people's living standards, people have increasingly higher requirements for the living environment, especially in the design of outdoor balconies. However, existing landscape balconies generally suffer from insufficient shading and rainwater drainage problems, which affects people's living experience. In response to this problem, this article proposes a new design scheme for building landscape balconies to solve the existing problems of landscape balconies. This design plan fully considers the user's usage needs and scenarios, improves the use value and comfort of the balcony through technical means, and achieves intelligence and functionality.

Keywords: Landscape balcony; Intelligence; Functionalization; Market analysis

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1. Project background

Balconies are an extension of the interior of the building. It is a place where residents can breathe fresh air, dry clothes, and place potted plants. Its design needs to take into account the principles of practicality and beauty. There are generally three types of balconies: cantilevered, embedded, and corner ^[1]. Balconies allow residents to carry out various activities, such as basking in the sunlight, breathing fresh air, conducting outdoor exercises, watching flowers, enjoying the cool air, and drying their clothes. If arranged well, they can also be turned into pleasant small gardens, allowing people to appreciate nature without leaving home. People can experience the loveliest colors in the world and breathe the fresh, floral-scented air.

There are some shortcomings in the current landscape balconies of buildings. Some balconies are open, and the sun is relatively strong in summer. They lack a shading mechanism, which blocks part of the sunlight and allows people to rest comfortably on the balcony. Secondly, whenever it rains, a large amount of rainwater accumulates. Not only is there too much water on the balcony floor, but part of the rainwater cannot be stored for watering the plants ^[2].

Therefore, it is necessary to build a landscape balcony. The research and development of new building landscape balconies is of great significance. Through technological innovation, realizing the intelligence and

energy-saving potential of balconies can improve people's user experience, protect the environment, and save energy. As an important decoration and facility that can increase living space, improve the living environment, and allow enjoyment of natural scenery, the balcony has become an important aspect of modern architectural design. As people's demands for comfort and beauty increase, traditional landscape balcony designs can no longer meet their needs. Therefore, designing new architectural landscape balconies has become a hot topic and development trend in the current architectural design industry ^[3].

2. Market situation

Nowadays, people have higher requirements for the living environment. They hope to rest on the outdoor balconies and enjoy the beautiful scenery. However, in the existing landscape balconies, problems such as insufficient sunshades and rainwater accumulation affect people's usage experience ^[4]. Therefore, there is a huge market demand for an architectural landscape balcony that can solve these problems.

Firstly, the sunshade mechanism is an important function on the landscape balcony. It can block the sun, protect people from direct sunlight when resting on the balcony, and provide a comfortable resting environment. Most landscape balconies currently on the market do not have sunshade mechanisms, and there is a huge demand for landscape balconies that can provide sunshade functions ^[5]. Secondly, rainwater accumulation on the bottom of the balcony is another problem requiring resolution. Since the existing landscape balcony does not have an effective drainage system, rainwater easily accumulates on the bottom of the balcony, causing problems such as water accumulation and the breeding of mosquitoes and flies. Therefore, there is also a large market demand for landscape balconies that can solve the problem of rainwater accumulation. In addition, while people enjoy the beautiful scenery, they also hope to avoid the wind. Therefore, there exists a huge market demand for landscape balconies with wind-shielding functions. This kind of architectural landscape balcony has the functions of a sunshade mechanism, a drainage channel, and a windshield, which can provide a comfortable resting environment and solve the problems of existing landscape balconies.

3. Market prospects

According to market research report data, the global architectural landscape balcony market size is expected to reach US\$13.73 billion in 2023, gradually rising at a compound growth rate of 6.5% annually ^[6]. At the same time, with the improvement of people's living standards and the enhancement of environmental awareness, the requirements for architectural landscape balconies have gradually shifted from simple aesthetics to practicality and environmental protection. Design solutions in architectural landscape balconies have become a popular research object in the industry ^[7]. Therefore, the design scheme of this project will fully meet market demand and industry trends and have high market competitiveness.

4. Project features and advantages

4.1. Project features

"Building Landscape Balcony" combines the rain-shielding roof with the landscape rest balcony. When the sun is scorching, the roof can be lowered to block the sun as needed. When it rains, part of the rainwater in the balcony can reach the reservoir through the water tank. In this way, water can be used for watering landscape plants, realizing the circulation of water resources, breaking through the limitations of traditional balconies, and achieving new environmentally friendly functions.

4.2. Advantages

(1) Technical advantages

This building combines the ornamental value of traditional balconies with today's new trend of intelligent furniture, diversifying the balconies. The waterproof membrane of the sunshade and the protective handrails are all detailed features.

(2) Functional advantages

Based on the "people-oriented" design principle, the building integrates intelligence, functionality, and comfort to provide people with a more convenient lifestyle and a more comfortable experience.

(3) Environmental protection advantages

When it rains, the water trough on the balcony will quickly collect and store rainwater in the water tank. When necessary, the rainwater can be pumped out to water the plants, which saves household water and prevents water accumulation on the balcony, and water resources can be effectively used.

(4) Advantage of caring

A remote control controls the building's sunshade to care for older people and people with special disabilities. When the sun is blazing, the sunshade can be lowered promptly and effectively to block the sun, giving the owner maximum comfort.

(5) Price advantage

This building is an innovative balcony based on the traditional balcony. The balcony itself has a certain technical and financial foundation. However, we only improved the functionality and intelligence of the balcony. To a certain extent, the renovation cost will be higher than that of the traditional balcony. Developing a new building product is much cheaper.

(6) Beautiful and novel features

Traditional balconies are too restrictive and regular, while the new type of landscape-style balconies have more decorative functions, are more novel and eye-catching, and are the craze pursued by young people in the new era^[8].

(7) Fashion

The balcony is a small semi-open space in a home. If used properly, it can even become a small garden. This new type of balcony gives people a fashionable feel just by its appearance.

5. Product introduction

This product discloses a building landscape balcony, specifically related to the technical field of landscape balconies, and includes a building body. One side of the building has an ornamental balcony and a rain-shielding ceiling. The top of the ornamental balcony is fixedly installed. There are protective handrails, a partition board is fixedly installed on the inner wall, and a drainage channel is provided inside the partition board. The bottom surface of the inner cavity of the ornamental balcony is provided with a slope plate and a water storage tank, and the water storage tank is located on one side of the slope plate. The top surface of the slope plate is paved with a waterproof membrane, and the inner wall of the water tank is removably installed with a slag filter. The top surface of the space board is provided with a micro water pump, and one side of the micro water pump is fixedly connected with a water suction pipe. The suction pipe extends to the inner cavity of the water tank. A first starting box, a second starting box, and a third starting box are fixedly installed on the top surface of the rain-shielding ceiling. A reduction motor is provided inside the second starting box. The output end of the reduction motor is fixedly connected to a driving wheel. A movable roller is fixedly installed on the inner wall, and a sunshade is connected around the outer wall of the movable roller. The internal mechanisms of the first

starting box, the second starting box, and the third starting box are the same, and one end of the reduction motor is electrically connected to a remote control. A fixed column is installed on the top of the ornamental balcony, and a windshield is installed on the outer wall of the fixed column. There are two windshields, one side of one of the windshields is movable with a door-blocking latch, and one side of the other is fixed with a locking pin. A sewer pipe is provided on the inner wall of the partition board, and a blocking body is provided on the inner wall of the sewer pipe. The blocking body is used to block the water inlet of the sewer pipe.

When the sunshine is scorching, the remote control can be used to start the reduction motor. The reduction motor rotates with the driving wheel and the movable roller, thereby hanging the sunshade down. It can block part of the sunlight and make people feel comfortable and rest on the balcony according to actual needs; when it rains, part of the rain will not accumulate on the balcony floor. By setting up a space board with a drainage channel, the rainwater can quickly fall from the drainage channel onto the slope plate. Due to gravity, the rainwater falls into the storage tank inside the water tank to store rainwater; the rainwater can also be filtered using the filter screen. The rainwater can also be pumped out through a micro pump to water the landscape plants on the balcony. Placing plants on the balcony can not only increase the building's overall beauty but also allow absorption of sunlight, and rainwater can be used to irrigate the plants so that they will grow better. By opening the windshield, one can better appreciate the beautiful scenery, and through the cooperation of the door-blocking latch and the locking pin, the windshield can be closed tightly, serving the purpose of blocking the wind.

6. Conclusion

This article proposes a new design scheme for building landscape balconies, given the problems existing in current landscape balconies. This solution fully considers the user's usage needs and scenarios, improves the use value and comfort of the balcony through technical means, and achieves intelligence and functionality. This design scheme has multiple functions, such as sunshade, drainage, and wind protection. It can provide a comfortable rest environment and solve the problems of existing landscape balconies. There is a huge market demand for architectural landscape balconies that can solve problems such as insufficient shading and rainwater accumulation.

By combining the ornamental value of traditional balconies with the new trend of intelligent modern furniture, balconies are diversified, providing a more convenient lifestyle and a more comfortable experience. At the same time, this kind of balcony also has significant advantages in environmental protection, realizing the recycling of water resources.

To sum up, this new building landscape balcony design scheme can effectively solve the problems of existing landscape balconies, meet market demand, and have high market competitiveness. At the same time, this solution also has various advantages, providing users with a more comfortable and environmentally friendly experience. Therefore, this design scheme has broad application prospects in modern architectural design.

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Disclosure statement

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