

Influencing Factors, Challenges and Future Development of Pocket Park Design

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Abstract. In the development of modern cities, a new type of urban space called pocket park is increasingly used. Although the concept of pocket park has been put forward for a long time, its concept and design factors are constantly changing with the development of the times. This article hopes to discuss the design concept of pocket park and the factors to be considered in the design to provide some reference for designers. Pocket parks should be designed without changing the local structure as much as possible and incorporate the specific needs of local residents. It is also important to grasp nature. Pocket park will form an independent ecosystem in the city to absorb greenhouse gasses and reduce pollution, providing sustainability for the city. Pocket Park will provide urban residents with an opportunity to contact nature. Let cities and nature coexist. The specific influencing factors of pocket park are the specific needs of the local people, the objective geographical conditions of the region and the local culture. The specific challenges of pocket park design are how to make rational use of the existing space and how to combine nature with the city. In the future, designers should consider how to build a pocket park that meets the needs of people and conforms to the local characteristics and culture to add more features and functions to it. This article expects that the development and design of modern cities will make more use of pocket parks, an effective and environmentally friendly space, to make urban space more interesting and beautiful.

Keywords: Pocket park, urban, challenge, future development.

1. The design of pocket park and its influencing factors

In the development of modern cities, a new type of urban space called pocket park is increasingly used. Pocket park refers to a small-scale urban open area with an area of less than 1 square hectare. It is scattered in various areas and corners of the city and serves local residents. Public, open, convenient and practical are the prominent characteristics of pocket park. A big difference between the pocket park and the normal park is that the normal park is a park with concentrated functions built by using the large-scale open space of the city, while the pocket park is a patchy scattered park built by using the corner space or abandoned space of the city. It is small in size and distributed in the corners of the city. Any abandoned or hidden open space can be built into a pocket park after planning. Therefore, pocket parks can effectively integrate space, make urban space more flexible, and greatly improve the utilization rate of urban space. This planning method is an effective solution to cope with the increasing urban population [1]. Of course, pocket parks are not applicable in any region. Pocket Park is more for densely populated urban areas than for the countryside with lots of vacant land. It will also face various problems during construction. Pocket parks need to be designed and reconstructed as far as possible without damaging the overall structure of surrounding communities or roads, which may cause some unavoidable obstacles in some areas. At the same time, the construction of pocket parks may not get as much investment as normal parks, and even sometimes it is a voluntary action, which may also lead to financial constraints. However, these defects also constitute the characteristics of the pocket park on the other hand.

Although pocket park was proposed in the 1960s, it was not widely used in many cities until the 21st century. This is also directly related to the economy, population and culture of different regions. There have been many research reports on pocket park since it was put forward, but with the constant changes of the times, the form and concept of pocket park are also updating and developing. In this era of accelerating pace of life, it is necessary to discuss the design concept, challenge and future development trend of pocket parks.

This article discusses the design concept of pocket park and its influencing factors. And through the New York Paley park this specific design case to analyze it and the inspiration to designers. In the end, the paper discusses the challenges and development of pocket parks in the future society.

2. The design of pocket park and its influencing factors

2.1. Design concept of pocket park

Pocket Park is like a miniature normal park in the community, but it can also meet people's different needs. Its existence should serve people of all ages. However, due to the limited space, diverse user needs and changes all day long, conflicts sometimes occur between different groups. Therefore, when organizing the pocket park, the designer must always formulate a delicate balance behavior so that all groups can coexist peacefully. The difference between pocket park and ordinary park lies in scale, management and enclosure wall [2]. Pocket park is small and has no fixed management and enclosure wall; Normal parks are large-scale and have fixed management and enclosure walls. In terms of management, the pocket park is not managed by special personnel. This is also determined by its function. Pocket park is a place for people to have a short rest, such as taking a walk, playing with their children, and stopping by. It needs to find a way to meet people's needs in as small a space as possible, and there is no need for special personnel to manage the opening hours [3]. The planning and design of ordinary parks should be guided by certain scientific, artistic principles, combine landscape construction with functional zoning, and organize plants, water, rocks, buildings, etc. according to the principles of garden art. All of this requires daily management to maintain its original design function, otherwise it will be chaos over time. Whether there is an enclosure wall is the main difference between a pocket park and a normal park. Pocket park is definitely an open space without an enclosure wall. And normal parks must have walls, which is also for the convenience of management. Pocket park bears the daily communication and social activities of a large number of local people. The small space bears a comprehensive function. Without walls, it can not only broaden the vision but also facilitate people's access. This is also a good way to relieve the pressure of high-density construction on people with its own more intimate scale, and it is more in line with the rhythm of life in modern cities. Fig. 1 shows the changes of pocket park before and after.



Figure 1. Pocket park before and after [4]

Pocket park is usually located near residential communities, commercial streets and main roads. The core idea of pocket park is not to interfere with the surroundings. The design of pocket parks should consider the differences from traditional parks. Give priority to the traffic and pedestrian needs. It is not allowed to use the complicated and lengthy roads of traditional parks, nor to design overly complex curved roads and branches in pocket parks. It requires designers to use existing sites and roads to design as shown in the above image. The designer can make an abandoned site take on a new look by arranging and placing some simple objects and plants reasonably. The design of the pocket park tests the designer's grasp of space.

2.2. Example of pocket park design

The first pocket park appeared in Europe after World War II. As the city began to recover from the massive trauma brought by the war, the restrictions of money, labor and building materials forced the city construction to rely on cheap and simple solutions. These restrictions have facilitated the conversion of heavily damaged sites into small public parks, which is also related to people's desire for peace after the war. By the 1950s, the first batch of pocket parks appeared in the United States as adaptations of these small European parks (Fig. 2) [5]. Inspired by the readjustment of urban space, the first batch of architects proposed to carry out experimental construction in abandoned areas of several big cities. These small urban spaces serve as low-cost interventions to improve the quantity and quality of community gathering spaces and entertainment facilities in dense urban areas. Parley park is the first pocket park in the US, located at East 53rd Street, between Madison and Fifth Avenue in midtown Manhattan, New York City. It is a busy commercial block. Designed by the landscape architectural firm of Zion Breen Richardson Associates, it opened on May 23, 1967 [6]. Parley park is often considered one of the best urban spaces in the United States. The park covers an area of 390 square meters, with ventilated trees, light furniture and simple spatial structure. A 6.1-meter-high waterfall with a capacity of 6800 liters per minute flows across the back of the park. The waterfall in the park occupies about 20% of the ground and wall area, and its sound can be heard from the sidewalk. Its volume is as high as 90 decibels, which is enough to drown out traffic and urban noise, as well as the conversations of people around it [7]. Users are free to move chairs and tables closer or farther from the waterfall to choose the noise level that best suits them. It also allows them to choose between different thermal environments because the waterfall significantly cools the air. The fun of the waterfall itself attracts children to play in the fog, splashing water onto the ground, creating a multi sensory experience and enriching the universal existence value. The construction of the waterfall helps to amplify its impact on space. Create a rough surface texture with a large number of unique materials vertically downward. The rough surface produces the impact of water flow, which increases the visual effect of sound, fog and features. Spotlights on both sides of the wall highlight the texture and depth of the water. The park is surrounded by walls on three sides and faces the street on the fourth. The walls are covered with ivy, and the crown of trees above is formed by honey locust trees. The directional wall design of the park also plays a key role in its success. Because in spring and summer, from noon to afternoon, the space has sunlight passing through loose leaves and creating dancing shadows on the cobblestone ground. Combined with the ivy covered high wall, this makes the light and heat of the whole space have an impact. The ability to move tables and chairs according to shadow and glare patterns also helps occupants to enjoy and use space. The consideration of seasonal changes moderates the changes in temperature and sunshine, and links the residents with the natural sunshine cycle that occurs throughout the year. Wheelchair ramps are located on both sides of the four steps leading to the park, rising from the sidewalk level.

The park displays a unique blend of synthetic materials, textures, colors and sounds. Barbed wire chairs and marble tables adopt a simple style, and the ground is rough granite paving stones, extending from the sidewalk to the roadside. Honey locust trees are planted at intervals of 3.7 meters [8]. The green of the ivy covered side wall allows people to feel the breath of nature in the busy city. The analysis of a large amount of data and the use evaluation from tourists show that there is a strong correlation between the determined Pro biological mode and the increase of physical and mental health of park visitors. Common phrases used to describe parley park include the feeling of oasis in the city and the huge urban waterfall. These comments on the park express the collective change of tourists' mood, increased happiness and decreased stress. There are a lot of green plants in the park. The tourists feel comfortable and can close their eyes and gaze at the waterfall to make the noise of the nearby streets disappear. Their sense of security shows that this park is indeed a place for people to relax and relax. This is what Parley Park was designed to do, creating an oasis in the city in the busiest part of New York City. Its design and influence provided important reference and learning value for us later designers, and gave residents in New York City a brand-new life experience.



Figure 2. New York Paley Park [5]

3. Design Considerations

The renovation of the abandoned space in the pocket park should meet the specific local needs and be carried out according to the needs of the environment and people. The layout of the park should be reasonable and simple. During the construction process, the number, location and overall style of pocket parks on each road shall be considered. The construction style should match the surrounding environment. The construction style, layout form and scenery configuration of the park should be further combined with the current site conditions, organically combined with and matched with the overall surrounding environment and architectural features, and the design theme should be determined according to local conditions, so as to form a pocket park with local environment and design characteristics. The arrangement and selection of plants should be adapted to local conditions, so that tourists resting here can feel the natural atmosphere without interfering with the traffic and facilities of the city itself. If it is a publicly owned pocket park, try to use local plants to reduce the cost and risk of plant maintenance. The cultural elements of the city should be preserved. Pocket parks in different regions are designed in accordance with local cultural characteristics. It is also important for the utilization of water. The movement and sound of water flow can bring special environmental experience to users. Seasonal and natural water resources are used for replenishment and recycling. The design of the park also needs the support of the local people. Designers can investigate and study the elements that people in the local community want in the form of online questionnaires to bring local residents a pocket park that meets their needs. The management and maintenance of pocket parks in the later period should also be considered, and the two different ways of volunteerism and compensation can be combined for later maintenance.

4. Challenges & Future Developments

Although historically speaking, pocket parks are not a new thing in urban construction. But pocket parks are becoming more and more popular in the development of urbanization. Pocket parks can be precisely planned and sometimes just community made. Abandoned or irregularly shaped plots are very suitable for these miniature masterpieces of landscape architecture, many of which provide ideal environments for local relaxation and enjoyment [9]. Because of their small scale, pocket parks are often designed to serve super local populations and purposes, so they may be more able to meet the needs of users, serving as places for them to enjoy lunch or rest on various tables and benches. In contrast, the pocket park in the residential area may pay more attention to children in the surrounding area and provide them with a structure where they can play. As a multifunctional and cost-effective public space, pocket parks may replace most amusement parks and parks in the city in the future. In

addition to helping the community and urban construction, the pocket park can also provide ecological help, create an independent green space, and separate itself from the busy steel city. An independent ecosystem will be generated and developed in a small park, which can attract a large number of wild animals in the city. Although these small parks are usually used by humans, animals can also settle here and form a symbiotic relationship with humans [10]. They can also alleviate the environmental pressure of large parks and add green in this era of environmental protection. Their environmental benefits, economic potential to attract new enterprises and residents, and good public health image have made many urban planners and landscape designers think about how to create a niche environment. The design and construction of this environment fully meet the needs of local users. With so many possibilities and potentials, it's easy to see why pocket parks are thriving in many urban centers around the world.

5. Conclusion

Pocket park plays an increasingly important role in modern urban construction. It is gradually replacing the role of normal parks in the city and changing people's lifestyle imperceptibly. Through the pocket park, the steel made city and nature can be better combined. So as to form a diversified and more environmentally friendly city. In the design of pocket park, the designer needs to maximize the use of existing space without changing the overall structure around. Investigate the needs of local people for pocket parks, and meet and balance the needs of different people. In the future society, more and more pocket parks will appear in cities, which will become an important part of our life to improve the quality of life. In the future, designers should consider how to build a pocket park that meets the needs of people and conforms to the local characteristics and culture to add more features and functions to it. At the same time, let more areas accept the pocket park as a space in the city. This article provides some suggestions for the design concept of the pocket park and the places to be considered when designing the pocket park.

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