

# Research on the design of caring aged Park-----Take the design of the old community park as an example in ShanTou

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## Abstract

The old fitness park is to serve the elderly population based on the park planning and design is the focus of community park design. According to the current situation and problems of ShanTou characteristics and base of old community park, discusses the design principle of the old fitness Park, to the elderly as the native medicinal plant, combined with physical and mental the characteristics of the elderly in the community activities and the requirements of the law, focusing on creating a healthy, ornamental type from the ecological environment, function zoning, landscape architecture, terrain, roads and other aspects of the plant landscape in ShanTou park are suitable for the old landscape ecological planning and design, to create a happy life for the elderly.

## Keywords

Elderly community park; health care; planning and design.

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## 1. Project profile

### 1.1 Current background

Aging refers to the relative increase of the aged population in the proportion of the total population, which makes the whole population structure of the society present an aging state. With the rapid development of economy, the progress of social conditions and the quickening of the pace of life, the problem of population aging has become a common concern all over the world. China is one of the countries with the fastest growth rate of the elderly population in the world. The problem of population aging has become more serious. By the end of 2015, the number of elderly people over 60 years old in China has exceeded 220 million, entering a deeply aging society.

In Europe and the United States, great importance is attached to the active environment of the elderly, and the concern for the elderly is realized by strengthening the outdoor space environment design. In Asia and Japan, it was particularly outstanding in 1985, when Gao Baozhen was in our country. Guo Ling put forward barrier-free environment design [1], Zhang Wenying and others put forward the significance of inclusive design to the construction of the elderly society. In recent years, researches on the park for the elderly have mostly stayed in theory, and the exploration of design practice is particularly rare. Therefore, the practical exploration of the design of the suitable community park is of great significance to the research of the aged society in China.

With the rapid development of urbanization and the increasing aging of the population, how to improve the living environment and the well-being of the elderly has gradually become a subject of great concern. And the elderly community park is the concept of extension under this environment. The establishment of the elderly community park is to meet the physiological and safety needs of the elderly, but also to let the elderly meet their social needs and respect their needs. Make him old and happy.

Taking the design of ShanTou elderly community park as an example, combining the needs of old people's heart and activity, adopting local health care plants, and applying the theory and method of ecological design, This paper studies the plant landscape design of the healthy activity space of the suitable old park, focuses on the construction of the plant community such as health care type and ornamental type, and builds the suitable old type community park<sup>[1]</sup>, in order to provide the basis and reference for the construction of the suitable old park.

## 1.2 Regional context

The design base is located in the southwest coast of ShanTou city, between the equatorial low pressure zone and the subtropical high pressure zone, the climate is mild and humid, the sun is abundant, the summer is rainy, the weather is cool in autumn, the winter is warm, and there is no obvious Greater Cold. The average sunshine duration in ShanTou city is 2000 ~ 2500 hours, the average annual rainfall is 1300 ~ 1800mm, and the average annual temperature is between 18 °C and 22 °C. From the climate According to the investigation statistics, ShanTou City is now over 60 years old 640000 people, accounting for the city's total population of 11.810, the city has entered the ranks of the aging population of the city. Along with the whole economic center of gravity moving eastward in ShanTou city, the urban area of ShanTou has gradually formed two parts of east and west areas, and the marginalization trend of west district (old urban area) is obvious. This phenomenon leads to the population of western urban district being mostly old people. In the present urban pattern, the elderly community park is lacking. The design practice of the old community park in West of the city makes up for this gap.

## 2. Analysis of site potential

The design base is located at the southwest side of the old urban area and under the bridge connecting the north and south urban areas of ShanTou City. The base was formerly known as the site of XiDiao Park in ShanTou City. It is now deserted, but it has witnessed the change of times in ShanTou from fishing villages, wharves to ports and commercial ports. Bearing the history of ShanTou for several hundred years, it is of great historical value. With the eastward shift of the city's center of gravity, the site has been idle for many years and is overgrown with weeds and is now a wasteland surrounded by multiple residential groups. West, south of the waterfront, the second largest river in the eastern part of GuangDong-Rong River, wide view, with the potential to build a suitable for the elderly community park.

According to the survey, the population density in this area is large proportion of the elderly, nearby also lack of suitable places for the elderly. Based on the plot, the community park is especially necessary to plan leisure, entertainment, fitness and other activities for the elderly, which is also in line with the contemporary values of caring for the elderly.

## 3. Design discipline

### 3.1 Principle of sound accounting

The first element of the design is to ensure safety, including the safety of the outside environment and the psychological safety. The environment safety means that the environment of the park should protect the personal safety of the elderly, such as the garden road should not be too narrow, too rugged, the turning angle is too urgent, the Road tiles can not use slippery and too concave and convex materials; the hydrophilic area needs to be set up. Protection facilities; plant configuration selection of plants for human health. Psychological safety refers to the design to ensure the sustainability of the space, to avoid discomfort or discomfort for the elderly, to create a healthy and comfortable environment for the elderly, and to rediscover the fun of outdoor activities.

### 3.2 Ecological principle

Respect nature, adjust measures according to local conditions, construct artificial ecosystem by ecological principle. Ecological design follows the principles of localization, conservation, naturalization, evolution, universal participation and integration of nature and man, emphasizing reduction, reuse and recycling [3]. With the aim of constructing the ecological structure of stable and sustainable development, the landscape can be constructed by means of topographic changes and plant encirclement, and finally the overall optimization of landscape ecological structure can be achieved by the way of mutual infiltration, influence and promotion of greening.

### 3.3 Aging principle

As the foothold of design, we should have a better understanding of the physical and psychological scale changes of the elderly in the design scale, and the use of space should be more flexible and creative while satisfying the basic functions. The core value of establishing the global concept of aging design is to provide a leisure environment for the elderly and the people who are getting older.

### 3.4 Regional principle

Give full play to the characteristic culture of ChaoZhou and ShanTou in GuangFu area, excavate the potential cultural resources, combine it with the design theme, let the old people fully feel the familiar local characteristics, and relax more easily in the stroll garden.

## 4. Design Scheme of Shantou Old Community Park

### 4.1 Design concept

Design theme "Haiyun sunset", select the most beautiful sunset view of the land, extract the most beautiful landscape "Haiyun" sunset", but also symbolize the elderly's happy old age, as the theme of the age-appropriate community park artistic conception. Combing the unique texture of the site, it looks like water droplets, and then combined with ChaoShan "sea culture" to extract the wave curve elements, forming the texture of the suitable old community park.

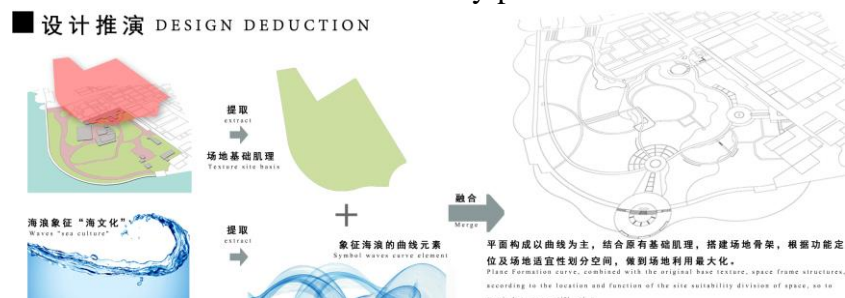


Fig1. Design extrapolation diagram

#### 4.1.1 A comfortable community park

The site of the design base is to provide a leisure, gathering, entertainment, living space for the elderly in the community. Under the rapid pace of life, the establishment of the community park is convenient for people to relieve the mental stress and eliminate the feeling of fatigue in their hearts. At the same time, community parks have created "third-class places" for residents outside their homes and workplaces.

#### 4.1.2 An old green space

Aging design is the focus of attention in many countries and regions at present. The design goal of the park is to make the community park more suitable for the elderly, and from the perspective of the elderly, the design is suitable for the elderly. Through space function division and plant selection to create a green space suitable for the elderly to experience and experience.

#### 4.1.3 A reappeared memory of the old city

Considering that the site of the design base was formerly the site of Xidi Park, the park witnessed the early historical and cultural process of ShanTou, but over time, the site of the park gradually became an old urban area, and the younger generation did not know the history of the land, The old park is becoming the memory of the older generation. On the one hand, the construction of the suitable community park is to give full play to the advantages of its position, on the other hand, it is to inherit and carry forward the excellent local characteristic culture and reproduce the old urban context memory.

#### 4.2 General layout

This scheme emphasizes the basic function of the community park in the overall layout, fully meets the needs of the elderly people's life and rest, reasonably utilizes the land resources in the design plot, and forms the pattern of combining artificial and natural. The design adopts the landscape structure of "one ring, two axes, many nodes", through the "T-shaped" landscape axis to guide the main landscape nodes, ensure the continuity of the landscape space, take the main garden road as the circular landscape slow moving system, Each branch node is connected together to ensure the rationality of the space organization. According to the different needs of the elderly, the park is divided into static space and dynamic space, private space, semi-public space, public space, etc. In the form of nodal belt line and line belt plane, the nodes, circular roads and functional partitions are arranged rationally in the form of points, lines and surfaces to form a unified whole.(Fig 2)



Fig 2 master --plan

#### 4.3 Functional partition design

##### 4.3.1 Main entrance square -- Hai Yi square

The square is located at the main entrance. It adopts regular geometric composition to meet the basic needs of gathering and distributing the aged people, and at the same time, it focuses on the characteristics of the decline of the body function and the deterioration of the perceptual ability of the elderly, which highlights the historical characteristics of the Chaoshan area. It is indicated that the entrance of the park integrates the traditional history and culture of Chaoshan (port opening culture, overseas Chinese culture, park predecessor history culture, etc.) through the landscape elements such as pavement style, landscape wall, sketch and so on. Build this space into a leisure cultural activity space. The north and south sides of the square are hydrophilic, creating a visual impact on the elderly through regular pools and natural streams. Different visual feelings, convenient for the elderly to identify the entrance, not easy to lose their way.

#### 4.3.2 Secondary entrance square——Haiyun Square

The square is located at the north side of the secondary entrance, the square is close to the water as a whole, and has an arc hydrophilic platform. The square has an open space and can be used by the elderly for leisure and light sports. This space belongs to a dynamic space, convenient in this morning exercise, the square east side set up along the street fitness facilities and the basketball court, takes this square as the starting point, drives the surrounding space the use, causes this one area to be completely active in the function. In addition, the square at the secondary entrance is also designed to facilitate rapid and healthy access to the park for the elderly.

#### 4.3.3 Main node square——Listen to the sea square

The square mainly meets the needs of the elderly people's fitness and performance. According to surveys, older people do not like particularly quiet environment, they come to the park for leisure, fitness activities. A particularly independent and quiet environment increases the loneliness of older people, who want to participate in activities that meet their belonging and love needs [1]. From the design point of view, the area of the block located on the south side is large, and the height difference is excessive through the radial area of 40 meters. The space inside the park is combined with the flood prevention embankment, so that the flood prevention embankment is combined with the square, and the height difference between the flood prevention embankment and the beach under the embankment is utilized. To extend the space and open up the landscape The line of sight also enriches the change on the vertical plane, breaking the original coastline. The square has greatly increased the hydrophilic space of the elderly, also for the elderly, the sea, the sea to create a unique platform. It also provides the elderly with a variety of activities, so that the elderly can perform square dance, calligraphy, Wushu practice and so on. The square around the square. Designed as a forest space, it can provide rest and communication space for the elderly (Fig 2 ).



Fig 2 Landscape node diagram

#### (4) Elderly healthy horticultural plantation

Gardening plantation is one of the main forms of "horticultural therapy". The landscape design of the old community park by horticultural therapy is the characteristic landscape of the old park. In the edge of the community park, it is easy to manage, high survival rate and common native plants. Vegetable and fruit, such as Shantou can choose egg flower, Magnolia and other flowers, Chinese cabbage, empty cabbage and other vegetables, longan, litchi, banana and other fruits. The old people are involved in planting management, such as sowing, cutting, thinning, weeds, fertilization, pruning and so on, so that the old people are planting vegetable flowers. In the process of grass labor, we talk about family, exchange experiences and experience, increase the fun of life, reduce its loneliness and loneliness. Harvest, let the elderly get satisfaction, rediscover the sense of achievement, realize the old people have a gain<sup>[1]</sup>. At the same time, labor exercise the body, improve the body immunity, delay aging.

#### (5) Other regional spatial design

In addition to the above main nodes, according to the different usage habits and interests of the elderly, the park has designed other landscape spaces in different areas, including the small garden at the secondary entrance, which is connected with the streets outside the garden to become a semi-open

resting space. It is convenient for the old people to play cards, chess, chat and walk the bird together. At the same time, this kind of space also provides the activity space for the old people to take care of children and the family gathering. Connected with the eastern street, a platform for the elderly to do simple fitness exercises was set up. The platform was equipped with a variety of simple fitness equipment and rest facilities. In the middle of the park, a large accessible lawn was set up and the surrounding area was open. Trees and shrubs are enclosed to form a semi-enclosed space to create a green space for rest; near the lawn, a number of rest platforms are set up for the elderly to rest, read and so on; and below the southwest side of the park, Design combined with embankment to create another landscape platform, and the bank in the same horizontal line, its role is to form a different position of the landscape line of sight, the elderly can look at the relatives fishing boats, recall the past.

Demolish the original temporary buildings and dangerous houses inside the park, retain the entrance to the north side and build a public toilet, so that it is integrated with the overall design style of the park; set up a toilet near the entrance for the elderly to see as soon as they enter the park. And convenient for the elderly to achieve. This can not only solve the elderly toilet problem, but also enrich the garden landscape.

#### 4.4 Road layout and design

The road layout of the park aims at the decline of body function and forgetfulness of the elderly, and has special demand for light and heat environment. According to Zhai's survey of Garden Road, the tree-lined road, flat, garden seat ring, the garden road with distance identification is more popular with the elderly people <sup>[6]</sup>. The space pattern in the garden is divided into three levels. The first is the ring main garden road running through the whole garden. Its function is to connect the whole garden and keep in touch with the outside traffic, so as to ensure that the roads are more recognizable and do not create obstacles for the elderly. The width of the main garden road is 4.5 meters, and there are no steps, no obvious height difference, so that the elderly can visit the whole garden on a safe and comfortable garden road, and at the same time, The main garden road and the main nodes in the garden are related to each other, forming a landscape slow moving system; second, the secondary garden road, whose function is to build the whole road skeleton, unify the whole park with the main garden road, and combine the steps and platforms along the way. Trestle, garden chair and other facilities, improve the accessibility of the landscape, also due to the design thinking of aging, secondary garden road at the same time to ensure the width of the road and walking comfort; third, each node within the walkway, Its function is to make it convenient to walk inside the node. Design an easily identifiable, caring elderly community in terms of overall hierarchy and garden road details Garden

In addition to being easy to distinguish at the garden road level, the identification of each road is equally important for the elderly. In the design of the tree-lined road, the selection of plant species, configuration and presentation form are different for each garden road. In the selection of plant species, red, pink, yellow and other warm tone plants as the main tone, close to the elderly and reduce the loneliness of the elderly. Pay attention to the choice of aromatic plants and take into account seasonal changes to make the elderly feel happy after smelling incense and form a safe and comfortable environment as a whole. For example, there are Magnolia, Bauhinia, Cinnamomum camphora, Acacia, Metasequoia, Eucommia ulmoides, Honeysuckle, Privet Tree and so on in spring. All of them have health care and therapeutic effect on human kidney, liver, spleen and so on, most of them can guide the old people, happy heart and spleen <sup>[1]</sup>. At the same time, a large number of medicinal land cover and flowers, seasonal changes are diverse, leaves are rich in color, tree shape, leaves, flowers and fruits have a lot of considerable, through scientific and reasonable plant configuration <sup>[7]</sup>, along the way a feature, not only make the elderly easy to identify, Also can make the garden effect more affectionate and comfortable.

#### 4.5 Design of site Sponge system Transformation

In order to reduce the maintenance cost of the old park, the sponge system was added to the base, and the Rain Water was used to collect and recharge, which greatly reduced the maintenance cost of the park. The design base has a large terrain reconstruction. A stream running through the park is introduced to the east side of the block. The stream shape adopts the natural curve shoreline to enrich the landscape elements of the garden, and a section of the stream is used to transform the constructed wetland landscape. Reflect the ecology of the design; backfill the excavated part of the stream to other areas of the park to form microtopography, such as gentle slope with different height difference and undulating lawn, etc. Fill out the sand beach around the embankment to strengthen the stability and expand the area of the beach, and plant Planting a variety of aquatic plants, soil and slope protection, through the combination of plants to break the monotonicity of rigid flood control embankment, improve the landscape effect also increase flood control effect, improve the overall ecological environment. At the same time, the new wetland system can facilitate recreational activities such as fishing for the elderly.

#### 4.6 Health care plant landscape design

In terms of plant landscaping, according to the characteristics of declining physiological functions and decreased resistance of the elderly, we should fully grasp the characteristics of the climate environment and soil resources, and create a healthy, safe and healthy environment-friendly community park. To help the elderly to regulate their bodies and minds, summer and old age.

In plant selection, (1) focus on the selection of health plants. Selection of germicidal and medicinal plants to provide a healthy space for the elderly, so that the elderly recuperate. (2) strengthen the selection of aromatic plants. Through fragrance, stimulate the olfactory of the elderly, pleasure the body and mind of the elderly. (3) clear plant color. Make full use of the plant color of each season, while satisfy the old person to appreciate, guide, help the old person to distinguish the direction<sup>[1]</sup>. (4) take the native plant as the main body, the imported medicinal plant as the supplement, ensure the stability and sustainability of the artificial plant community; At the same time consider the elderly people for plant health care, fragrance, color needs. Right site The original plants with landscape value are preserved and combined with all kinds of newly planted plants to form a new green environment. In terms of design techniques, landscape techniques such as solitary planting and cluster planting are used to create space. Plant levels are divided into three levels: Joe, shrub and grass, so that medicinal plants can be planted in the park to play their health care functions(fig.3).



Fig. 3 Aerial view of Community Park

### 5. Conclusion

The aging population is becoming more and more obvious, and it is more urgent to build an inclusive community park for the elderly. Through the practice of the elderly community park project, this paper studies the physical and mental needs and behavior habits of the elderly, utilizes the health care function of medicinal plants, strengthens various landscape elements to mark the landscape, perfects

all kinds of facilities, and builds a harmonious community park environment. Let the elderly enjoy a happy old age.

### **Acknoedgements**

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