



Research on the Watchtower Architecture of Overseas Chinese Hometown in Tangjiawan, Zhuhai – Taking Huitong South Watchtowers and Huitong North Watchtowers as Examples

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ABSTRACT: The architectural design of the watchtowers in the hometown of overseas Chinese in Tangjiawan was affected by social environmental factors and historical factors, which well adapted to the climate of the Tangjiawan area and formed a unique architectural style, representing the characteristics of history and culture at that time. This paper analyzes the architectural function, use function and architectural form of Huitong South watchtowers and Huitong North watchtowers, and preliminarily discusses the regional characteristics of watchtowers in the Tangjiawan hometown of overseas Chinese.

Keywords: Tangjiawan, Watchtowers in Hometown of Overseas Chinese, Huitong Village

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INTRODUCTION

In order to protect the personal and property safety of the parents in their hometown, overseas Chinese have designed blockhouses with multiple functions of defense, residence and risk avoidance by learning from the architectural style of their country of residence; Advanced building materials were introduced and these fortress buildings were built. The blockhouse is tall and solid, with steel doors and windows and thick walls. It is used to prevent bandits and floods.

Most of the blockhouses and villas built in ancient villages were made by rural craftsmen. Referring to the design sketches of overseas Chinese, they skillfully embedded traditional architectural elements and local customs, creating a unique and beautiful village landscape of the Diaolou group. Its ingenious architectural wisdom and art have won the praise of "three masters and seven craftsmen".

METHODOLOGY

Through the method of on-the-spot investigation and architectural drawing analysis, this paper studies the scheme of the watchtower architecture of Huitong South watchtowers and Huitong North watchtowers.

Huitong Village

Huitong village is located to the southwest of Tangjiawan Town, Zhuhai City, and to the north of the Phoenix Mountains. The village is built close to the mountain, surrounded by green mountains on three sides. The front of the village is flat and open, and the lotus pond is sparkling, forming a "back to the mountain and facing the water" trend. In the village, ancient banyan trees are whirling, palm trees are towering, camphor trees and kapok trees are full of shade in the village. The watchtowers and ancestral halls are built side by side, "three streets and eight Alleys", which are in a straight line, and the green brick and grey tile courtyards are neatly inlaid in them like chess pieces. The ancient charm of the Social altar and gate square that have gone through the wind and rain still exists. The inscriptions of "ziji in the North Ring", "cangming in the South control", and the inscriptions of "wind rises" and "cloud flies" show the aspirations and courage of our ancestors and highlight the charm of Lingnan culture.

Over the years, Zhuhai governments at all levels and all sectors of society have attached great importance to the protection of Huitong ancient village. The Zhuhai high tech Zone has held exhibitions with the protection and development of the ancient village after 10 years of "embroidery effort". In recent years, it has scientifically planned the Rural Revitalization work, coordinated the Rural Revitalization and urban development, and optimized public cultural services. Today's Huitong village is endowed with a new connotation of "university town". Together with the brand activities of the art festival, it highlights the characteristics of the times. The ancient village sings new songs, glows with new opportunities, and its unique artistic atmosphere attracts tourists from all over the world. Huitong beauty is better today than in the past, and the future is worth looking forward to.

BLOCKHOUSE IN THE HOMETOWN OF AN OVERSEAS CHINESE

Reasons for blockhouse construction in hometown of overseas Chinese

Watchtowers are a special type of vernacular architecture, which is a tower - type building integrating residence and defense. Watchtowers integrate traditional rural architecture and Western architectural culture, and architectural elements reflect a variety of exotic styles, such as Greece, Rome and Islam. At the end of the Ming Dynasty, wars were frequent and society was turbulent. At the end of the 19th century, many villagers went to the United States to seek gold or Southeast Asia to seek development in order to escape the war. At the same time, the war also gave birth to a large number of bandits, specifically targeting them to rob their homes. For this reason, the overseas Chinese remitted money, and even transported steel and cement from abroad to build blockhouses to protect themselves. Because it is located in a water town, the watchtowers have the function of climbing to avoid danger temporarily when a flood comes, so there is a watchtower fever. The building height of the blockhouse is higher than those of ordinary dwellings, and the walls are also thicker and stronger. The windows are smaller than that of ordinary dwellings and are equipped with iron fences, which are conducive to preventing bandits. At the four corners of the upper part of the watchtowers, there are often cantilevered turrets, which are commonly known locally as "swallow's nest". Shooting holes are set on the walls of the corner fortress and the blockhouse, which is convenient for attacking the enemy in defense.

Watchtowers in Huitong village and overseas Chinese hometowns

The two watchtowers are located on the north and south sides of Huitong village street, close to the north and South gates. The North watchtowers are five stories tall and rectangular, covering an area of 31.7 square meters. The fourth floor platform is semicircular. The wall of the third floor has an iron Western clock on both sides. The South watchtower is located on the south of the village street and it is a rectangular arc-shaped two-story building. It covers an area of 57.1 square meters. From the appearance, the North-South watchtowers are Western-style bell towers, but their internal structure and function are Lingnan watchtowers. This kind of foreign architectural art is drafted into village construction, and such blockhouses are rare in Zhuhai. These two watchtowers, built in the Tongzhi period, have indeed played a role after completion. During this period, due to social corruption and rampant bandits, villagers had to build watchtowers to protect their homes and resist the enemy. In Huitong village, which is located in a remote area, every time there is a robbery by bandits, the villagers will strike the Gong as a sign and quickly concentrate on the watchtower to escape, shelter and resist. It, together with gates and fences, constitutes a safety barrier for Huitong village.

Architectural characteristics of blockhouses in overseas Chinese hometowns

In terms of building materials, watchtowers can be divided into four types: stone buildings, brick buildings, rammed earth buildings and concrete

buildings. Stone towers are distributed in low mountains and hills, and locals call them "stone towers". Some walls are built with processed stones, some are built with natural stones, and the stones are filled and bonded. At present, there are 10 stone towers in Kaiping, which are relatively rare, accounting for 0.5% of the total number of blockhouses. Brick buildings are made of bricks and are distributed in hills and plains. There are three types of bricks used in brick buildings: one is red bricks fired by the local method of the Ming Dynasty, the other is green bricks from the Qing Dynasty and the Republic of China, and the third is modern red bricks. Among them, the blue brickblockhouse includes three types: inner and outer green brick, inner cement outer green brick and green brick masonry. Blockhouses built with red bricks fired by early indigenous methods are rare at present.

Rammed earth buildings are mainly distributed in hilly areas, with Chishui town and Longsheng Town as the majority. Locals call them "mud buildings" or "yellow mud buildings". Although this kind of building is made of soil, it is still very strong after decades of wind and rain erosion. There are 100 existing blockhouses, accounting for 5.5% of the total number of blockhouses.

Concrete buildings are widely distributed in plain and hilly areas, also known as "Shimi building"s, which were mostly built in the 1930s, and their shape especially reflects the characteristics of the combination of Chinese and western. The whole watchtower is made of cement (generally imported from Britain, then known as "hongmaoni"), sand, stones and steel, which is solid and durable. Because cement needs to be imported and the cost is high, in order to save materials, some blockhouses use wood for the floors. At present, there are 1474 existing concrete buildings in Kaiping, accounting for 80.4% of the blockhouses.

According to the use function of watchtowers, it can be divided into three types: multi building, and watchtower. The buildings are built behind the village and are jointly funded by the whole village or several households. Each household is divided into one room for temporary escape from floods or bandits. Its shape is simple, closed, with little external decoration and strong defense. Bell tower first appeared, with 473 existing, accounting for about 26% of Kaiping watchtowers. Most residential buildings were built after the village and were built solely by wealthy families. The residential building perfectly combines the two functions of the watchtowers : residence and defense. It is generally tall, with open internal space and complete living facilities. The shapes of residential buildings are relatively diverse and elegant. On the basis of meeting the defense function, they pursue beautiful shapes and often become landmark buildings of villages.

The watchtower is generally built at the entrance of the village or on the hills and banks outside the village. The watchtowers are tall and upright, and are often equipped with searchlights and alarms, so as to detect the enemy situation in advance and give an alarm, so as to meet the needs of joint defense in surrounding villages. The watchtower appeared the latest, and there are 221 existing watchtowers, accounting for about 12% of Kaiping watchtowers.

ANALYSIS OF ARCHITECTURAL ART OF HUITONG SOUTH WATCHTOWER

Building layout

In the early years of the Republic of China, thieves swarmed, and "Xiangshan county annals" recorded that "bandits were rampant and looted, from the countryside to the city, in groups in the daytime, which was never seen before." Hong Kong compatriots in Huitong village were very concerned about the safety of their hometown. In 1918, they donated money to build two blockhouses "Fengqi" and "Yunfei" respectively in the north and south of Huitong village, and asked Mo Rongshen, the then governor of Guangdong, to inscribe an inscription to resist bandits and revitalize the village.

In 1918, he donated money to build two watchtowers "Fengqi" and "Yunfei" respectively in the north and south of Huitong village, and invited Mo Rongshen, the governor of Guangdong Province, to write an inscription to resist bandits and shake up the village's prestige.



Figure 1. Aerial Photo of Huitong South Watchtower

Figure 2. Front View of Huitong South Watchtower

Huitong South watchtower is one of the "Fengqi" buildings, located at No. 1, Lane 1, Huitong village, Tangjiawan town. It was built in 1918 by Huitong villagers with donations for the villagers to protect the village and resist the enemy. Huitong South watchtower has the architectural characteristics of a combination of Chinese and western. It was announced as an immovable cultural relic in Zhuhai high tech Zone in November 2011, as an immovable cultural relic in Zhuhai in July 2012, and as the seventh batch of the cultural relic protection list in Zhuhai in March 2018 Bit.

Huitong South watchtower faces south. It covers an area of 51.7 square meters. The South watchtower is in an arc shape and it is two stories high. A semicircular lookout platform is set on the top of the half building, and shooting holes and windows are set around it. The front of the watchtower is made of "wind rising" gray sculpture. Embedded in a three-sided iron clock made in Britain, it has the architectural characteristics of a combination of Chinese and western.



Figure3. Aerial photo of Huitong South watchtower
 Figure4. Front view of Huitong South Diaolou Street

Watchtower buildings are generally three to five floors, most of which are five to seven floors. Because they are similar to watchtowers, they are locally called watchtowers. But Huitong South watchtower has two and a half floors, which is related to the overall building height in the south of Huitong village at that time, and also related to the number of contributions.

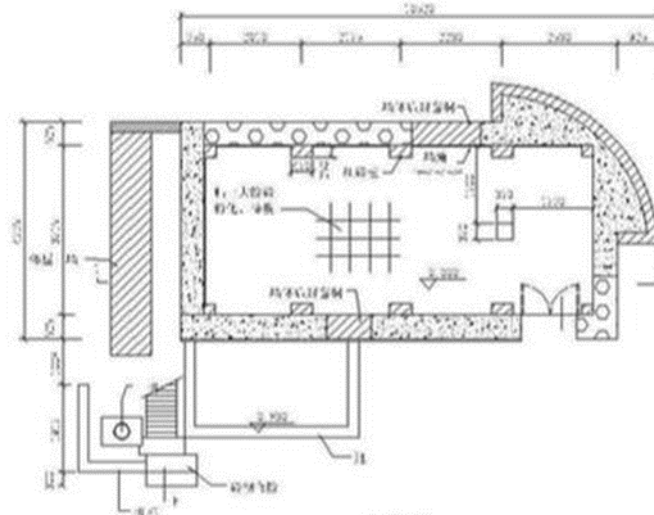


Figure5. Plan of Huitong South Watchtower

Use function and architectural form

Before the early years of the Republic of China, the main defense facilities of Huitong village were walls and gates, and the lotus pond in front of the village also played a role in protecting the village river. In response to the looting of bandits, strengthening and improving gates and walls can indeed achieve certain results. However, this method is expensive and the effect is not very significant. In the early years of the Republic of China, Diaolou, a strong and durable building with both attack and defense, gradually came into people's view. Although the cost of Diaolou is not cheap, its defense performance is good. People are willing to invest in the construction of Diaolou in order to protect the safety of villages and their own lives and property. In addition, there were many Chinese businessmen and overseas Chinese in Huitong village at that time. In order to protect the village and their own safety, these people became investors. The most important group is building blockhouses. Diaolou is also increasingly playing an important role in the

defense of Huitong village. The watch-style dwellings did not appear in modern times. As early as the early Qing Dynasty, there were Diaolou, a special building, in the villages around Jiangmen, Guangdong Province. According to the county annals, the Diaolou was generally the tallest building in the village at that time. It not only protected the village in times of war and chaos, but also became a refuge for villagers in rainy seasons.

Watchtower buildings are generally three to five floors, most of which are five to seven floors. Because they are similar to Diaolou, they are locally called Diaolou. However, Huitong South watchtower has two and a half floors, which is related to the overall building height in the south of Huitong village at that time and the amount of capital contribution.

The function of the Huitong South watchtower is: the ground floor for storage, stacking water tanks and glasses and as a kitchen. People living on the second floor put food. The top floor is for young people to watch and guard. At ordinary times, the watchtower is idle. In the case of an emergency or in the evening, all families will live in the tower to ensure safety.

From the perspective of architectural form, watchtower is basically a single building. Its biggest feature is that, according to the wishes of investors, different foreign architectural styles can be selected and combined with traditional architectural elements to form a whole. These architectural elements of different styles and schools coexist harmoniously in the watchtower, showing their unique artistic charm. The plane layout of Huitong South watchtower is similar to the traditional bamboo tube house, but the internal separation is relatively flexible. To the top floor to do a half-back platform, played a watchtower role. In addition, small holes are chiseled on the wall surface and the floor slab of the external return and cloister, which are used as gun holes. People in the blockhouse can see the movement outside, and can shoot from all sides in case of an emergency. When the robbers reach the gate of the blockhouse, they can also shoot down from the small hole on the floor. Generally, there will be enough grain stored in the blockhouse, which can be firmly guarded according to the building.

The exterior modeling of Huitong South watchtower is divided into three parts, namely, the building body, the cantilever platform and the roof top. The building is a solid body, with small square windows or narrow windows around, which can be ventilated, daylighting and ventilation, and the shape is solid and stable. Make the platform into a solid and open a small window. Above the platform is the platform, also known as the terrace, with a physical fence outside. In addition to the arch hemp, there are protruding observation platforms at the four corners for the convenience of defending the enemy. The roof of Huitong South watchtower is a simple and practical flat roof, which increases the observation surface on the one hand and saves the cost on the other hand.



Figure6. Exterior Facade of Huitong South Watchtower

Analysis of architectural art of Huitong South watchtower

Building layout

Huitong North blockhouse is the "Yunfei" building mentioned above, located at No. 5 Huitong street, Huitong village, Tangjiawan town. It was built in the seventh year of the Republic of China (1918) and was donated by villagers together for the purpose of protecting the village and defending the enemy. Huitong beidiaolou has the architectural characteristics of a combination of Chinese and western. It was announced as an immovable cultural relic in the Zhuhai high tech Zone in November 2011, as an immovable cultural relic in Zhuhai in July 2012, and as the seventh batch of cultural relic protection units in Zhuhai in March 2018. In 2013, Tangjiawan town was selected into the first group of special commemorative stamps of the "ancient town of China" with Tongtong watchtower as the representative landscape.



Figure7. Aerial Photo of Huitong North Watchtower

Huitong North watchtower sits from southeast to northwest. It is 6.3 meters long and 5.4 meters wide, with a building area of 34 square meters.

The watchtower is rectangular, with four floors, shooting holes around, windows, wooden ladders leading to the top floor, and a semicircular lookout platform on the fourth floor. The front of the watchtower is made of "cloud flying" gray sculpture, embedded with two iron clocks. Compared with Huitong South watchtower, Huitong North watchtower has more floors, more

complete functions and more exquisite decoration. However, they also have some commonalities in facade modeling, that is, they are "platform type" watchtowers. The characteristic of the platform watchtower is that there is no protruding roof on the top of the building, but a flat roof with parapets, which looks open in shape. On one or more sides, there are overhanging platforms, light overhanging platforms, parapets with rich shape changes, highly decorative mountain flowers, neat doors and windows, simple building bodies and other elements together form a concise and generous platform blockhouse.

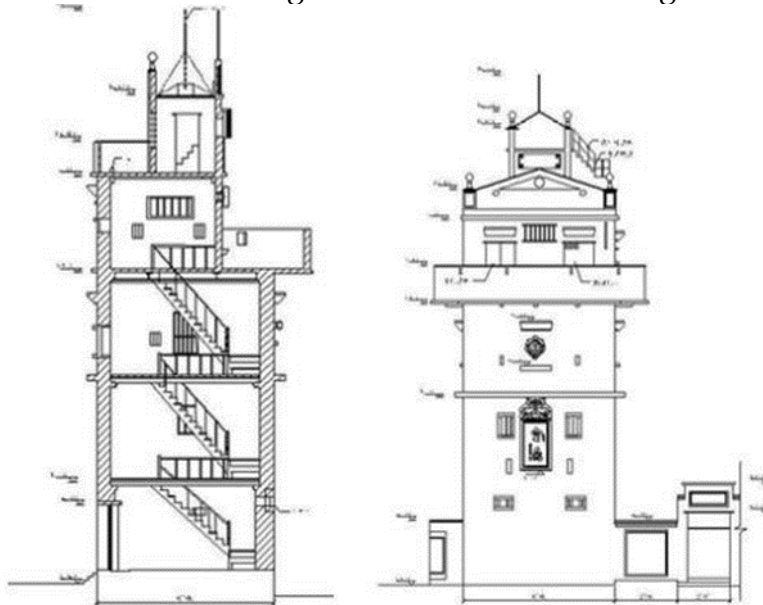


Figure8. Section of Huitong North Watchtower
Figure9. Elevation of Huitong North Watchtower

Huitong North watchtower is a reinforced concrete structure, located on a stone base about one foot high. The moldings on each floor and the window lintels on both sides of the middle and lower floors bring some liveliness and vitality to the elegant building. The overall shape of the blockhouse is relatively unified. There are protruding defense platforms at the two corners of the semi-circular platform in front of the fourth floor, and the solid breast boards of the platform are decorated with regular geometric moldings. The part of the roof, as a whole, is a flat roof with retreating tables, surrounded by solid guardrails. Gables are added to the top floor, and the facade of the flat is topped by the Square Pavilion. The geometric shapes of the mountain flowers are made of red bricks, and the line feet are combined with the white outer wall, which is quite decorative.

The overall function of Huitong North watchtower is the same as that of the Huitong South watchtower, but the use function of each floor is adjusted according to the specific space: the bottom floor is used for storage, water tanks and glasses are stacked, and it is used as a kitchen. People living on the second floor put food. 3、 The fourth floor is for young people of all households and it is used as lookout guards.

The appearance of Huitong north watchtower is divided into three parts, namely, the building body, the cantilever platform and the roof. The building is a solid body, surrounded by rectangular small square windows for ventilation, lighting and ventilation, with a solid and stable shape. The semicircular cantilevered platform is made into a solid body. Above the cantilevered platform is a platform, also known as a terrace, with a solid fence outside. The corners on both sides of the semicircle are cantilevered for about 0.6 meters to be used as a protruding Observatory, so there is no longer another "swallow's nest". The cantilever part of Huitong North watchtower is a single-sided arc cantilever, and the stone wall railing is made of red bricks. The outer side is decorated with geometric moldings according to the law formed by the arrangement of stone columns. The shooting hole set on the solid wall fence board is also decorated with a pick-up table, and the bottom edge of the hole is 50cm-70cm away from the ground. This height is just enough to meet the requirements of half squatting shooting, and the fence board can protect the shooter. The mountain flower in the North watchtower of Huitong is the most obviously westernized part, which is located in the center of the top of the watchtower. Shanhua, a building component, is often used as a decorative means in western architecture. However, the double-layer mountain flowers in the North watchtower of Huitong echo up and down. At the same time, the mountain flowers used in the North watchtower of Huitong have a strong decorative art style, the shape is basically triangular, and the decorative part uses a lot of gray sculptures of geometric figures. This shows that the villagers at that time advocated Western novelty decoration, and the craftsman's psychology of being innovative.



Figure 10. Exterior Facade of Huitong North Watchtower

CONCLUSION

The watchtowers in the hometown of overseas Chinese in Tangjiawan highly integrated the local natural elements and folk customs with the architectural culture of different countries, nationalities, religions and schools, greatly enriched the local architectural pattern of Qin brick and Han tile, and had a profound impact on the construction of village civilization. This architectural style integrates the needs of the owner's aesthetic taste and responds to the changing visions of the people in the hometown of overseas Chinese. While

being influenced by western culture, the watchtowers have maintained good national characteristics of architectural culture and inherited and carried forward excellent traditional culture. The building of the watchtowers reflects the social background and people's wisdom in solving problems at that time, and has made a great breakthrough in adapting the building to the local environment.

ADVANCED RESEARCH

This paper studies the watchtower architecture of overseas Chinese hometown in Tangjiawan, Zhuhai. However, each region has its own architectural identity and different cultural heritage. Our current direction in the future can only be borrowed from historical villages of the same type or buildings in the same area. This is also a limitation. In the future, you can also try to add quantitative research methods to make design decisions more scientific.

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