

Research on the Architectural Artistic Features of the World Cultural Heritage Kaiping Diaolou

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Abstract: Kaiping Diaolou, a UNESCO World Cultural Heritage site located in Kaiping, Guangdong Province, China, is a unique architectural form that combines defensive, residential, and aesthetic functions. This paper provides a detailed analysis of the types, architectural styles, and functional characteristics of the Kaiping Diaolou, revealing its distinctive artistic features and historical cultural significance. By introducing the number, distribution, and building materials of the diaolou, the paper showcases its broad influence and diversity. It is argued that the Kaiping Diaolou not only holds significant aesthetic and defensive value but also reflects the wisdom and innovation of the Kaiping people in the face of social changes and natural challenges. This research provides a scientific basis and new perspectives for the further protection and inheritance of this world cultural heritage.

Keywords: World Cultural Heritage; Kaiping Diaolou; Architectural Features; Artistic Characteristics.

1. Introduction

Kaiping Diaolou, located in Kaiping City, Guangdong Province, China, is a unique architectural form that integrates defensive, residential, and ornamental functions. It incorporates many elements of Western architectural styles while retaining characteristics of traditional Chinese architecture [1]. From the late Ming Dynasty in China to the 1950s, Kaiping Diaolou underwent several centuries of development, forming a distinctive architectural style. In 2007, Kaiping Diaolou was inscribed on the UNESCO World Heritage List, and its historical, cultural, and architectural artistic values were highly recognized by the international community. Kaiping Diaolou is numerous and widely distributed. According to statistics, there are 1,833 diaolou existing in Kaiping City, mostly concentrated in areas such as Zili Village, Liyuan, and Majianglong in Kaiping City, Guangdong Province. The architectural forms of Kaiping Diaolou are diverse, including defensive diaolou, residential diaolou, and mixed-use diaolou [2]. The main construction materials are reinforced concrete, while some early diaolou used traditional materials such as green bricks and stone.



Figure 1. The appearance of the Kaiping Diaolou.

2. Methods

2.1. Literature Review

This study establishes its theoretical foundation by reviewing a substantial amount of literature on the historical background, architectural styles, and artistic characteristics of

Kaiping Diaolou. The sources include academic papers, monographs, historical archives, and government publications. The literature review not only helps us understand the achievements and gaps in existing research but also guides our fieldwork and analysis.

2.2. Field Survey

To obtain firsthand information, we organized multiple field trips, focusing primarily on several well-known diaolou clusters in Kaiping City, such as the Zili Village Diaolou Cluster, the Majianglong Diaolou Cluster, and the Chikan Town Diaolou Cluster. During the field surveys, we employed the following methods:

a. Measurement and Recording: Using measurement tools (such as laser rangefinders and levels), we accurately measured and recorded the external dimensions, internal structures, and key details of the diaolou.

b. Photography and Videography: We comprehensively photographed the exteriors, interior decorations, and surrounding environments of the diaolou to ensure the acquisition of rich visual data for subsequent analysis.

2.3. Interviews

During the field surveys, we conducted in-depth interviews with local residents, historical architecture experts, and cultural heritage conservationists. Through semi-structured interviews, we collected valuable information about the history, construction process, functional uses, and current conservation status of the diaolou. These interviews provided many details not covered in literature, enriching and adding depth to our research.

2.4. Image Analysis

Using the photographs and videos obtained from the field surveys, combined with computer-aided design (AutoCAD) software, we conducted detailed analyses of the architectural details of the diaolou. The image analysis mainly included the following aspects:

a. Exterior Features Analysis: We categorized and

compared the overall styles, exterior decorations, and material usages of the diaolou.

b. Interior Layout Analysis: Using AutoCAD software, we drew floor plans and sectional views of the diaolou to analyze the internal spatial layouts and functional divisions.

c. Decorative Arts Analysis: We provided detailed descriptions and analyses of the carvings, paintings, and other decorative arts within the diaolou, exploring their artistic styles and cultural significance.

3. Discussion

3.1. Types of Kaiping Diaolou

Based on different classification criteria, Kaiping Diaolou can be categorized in various ways. According to construction materials, they can be divided into reinforced concrete towers, stone towers, brick towers, and rammed earth towers. Based on their functional use, they can be divided into watch towers, guard towers, communal towers, and residential towers [3] [4].

3.1.1. Classification by Construction Materials

a. Reinforced Concrete Towers: These are the most common type of Kaiping Diaolou, mainly built from the early to mid-20th century. The use of reinforced concrete gives these towers higher strength and durability, allowing them to better resist external invasions and natural disasters. The exteriors of these towers often incorporate Western architectural elements, displaying a distinctive blend of Chinese and Western styles.

b. Stone Towers: Stone towers are typically constructed from local stone materials, with thick and solid walls offering excellent defensive capabilities. Stone towers are relatively rare in Kaiping Diaolou and are mostly built in earlier periods. Due to the limitations of materials and construction techniques, the appearance of these towers is relatively plain, but they still hold significant historical and cultural value.

c. Brick Towers: Brick towers are primarily built using blue bricks or red bricks, with heavy walls and stable structures. These towers are mostly seen from the late 19th century to the early 20th century, retaining traditional architectural styles while gradually incorporating modern construction techniques. The architectural forms of brick towers are diverse, including traditional Chinese styles as well as elements of Western architecture.

d. Rammed Earth Towers: Rammed earth towers are the most traditional type of diaolou, using yellow mud or rammed earth as the main construction materials. These towers were generally built in the early stages of Kaiping Diaolou development. Although the construction techniques are relatively simple, these towers are well-suited to local conditions and provide certain defensive and residential functions. The appearance of rammed earth towers is rustic and unadorned, reflecting the wisdom and creativity of the local people.

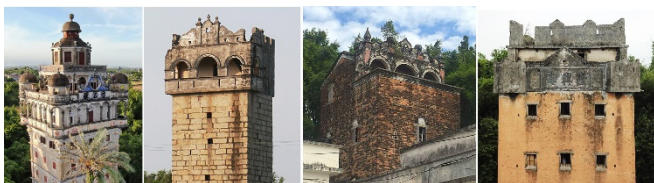


Figure 2. Kaiping Diaolou Constructed with Four Different Materials.

3.1.2. Classification by Functional Use

a. Watch Towers: This type of diaolou is used for

surveillance and issuing alarms, typically located at the entrance of villages. The top of these towers is often equipped with a bell tower or a drum tower, which are used to convey time information or emergency alerts through the ringing of bells or beating of drums. These towers not only serve defensive and watch functions but also become, to some extent, iconic structures within the village.

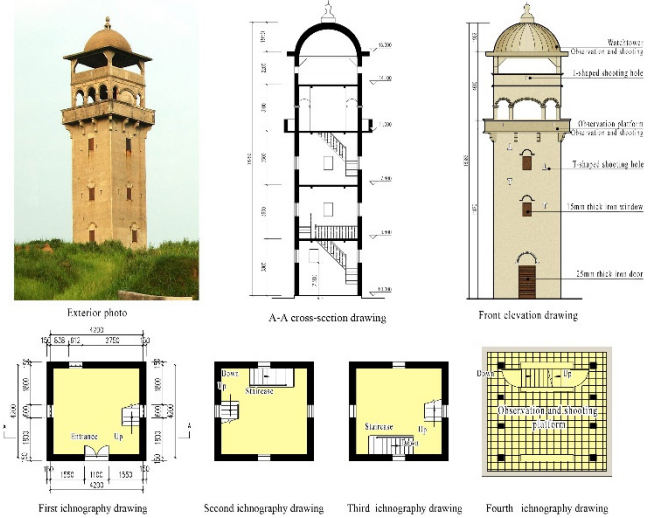


Figure 3. Watchtower-style Diaolou (This is the Diaolou named Fangshi Diaolou located in Zili Village).

b. Private Residential Towers: These diaolou are intended for the residence of individual families, usually built by wealthy families or overseas Chinese. This type of diaolou not only has defensive functions, with watchtowers, gun holes, and heavy doors and windows to effectively defend against external invasions, but also offers residential comfort and aesthetic appeal. The interiors are often exquisitely decorated and well-equipped, while the exteriors frequently combine Chinese and Western architectural styles [5], making them one of the most typical representatives of Kaiping Diaolou.

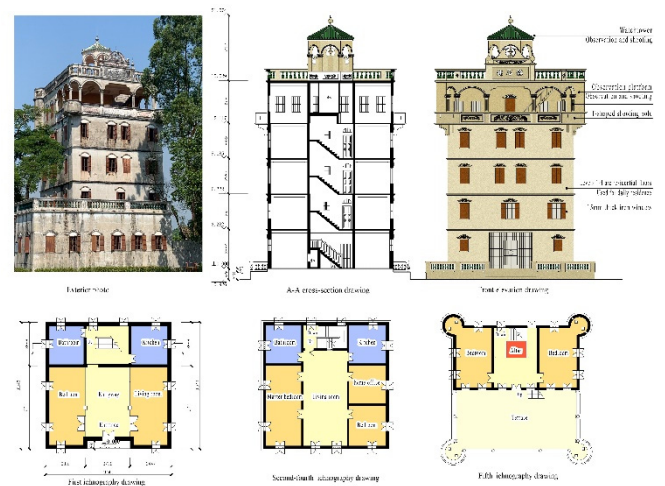


Figure 4. Residential-style Diaolou (This is the Diaolou named Mingshi Lou located in Zili Village).

c. Communal Towers: These diaolou are used collectively by villagers and are usually funded jointly by multiple families within the village. These towers are larger in size, with spacious interiors that include multiple rooms and common areas for villagers to use as refuge and gathering places in emergencies, reflecting the spirit of solidarity and mutual aid in rural society.

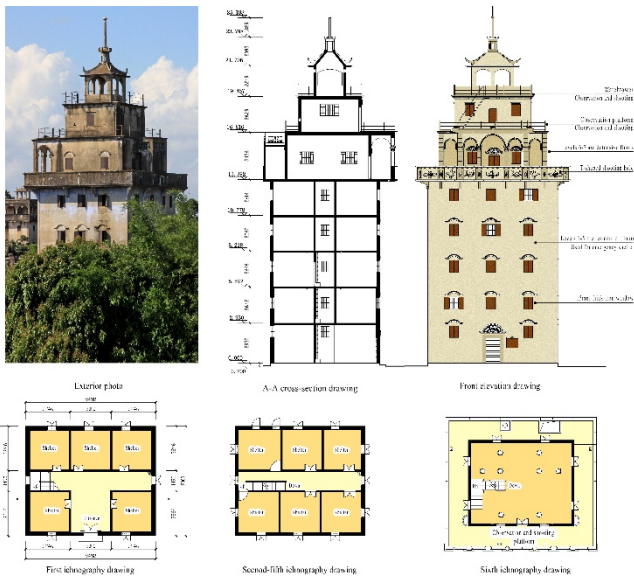


Figure 5. Communal-Use-style Diaolou (This is the Diaolou named Tianlu Lou located in Majianglong Village).

3.2. Functional Summary of Kaiping Diaolou

The functions of Kaiping Diaolou include defense against bandits, flood prevention, and residential use, with the most prominent being defense against bandits. Kaiping Diaolou generally serve as defensive fortifications for the entire village, providing shelters for villagers to evade attacks.

3.2.1. Defense Against Theft and Banditry

According to scholars [6][7], from the late Ming Dynasty to the Republican period in China, Kaiping experienced severe social security issues, with frequent incidents involving bandits robbing villages, kidnapping women and children, and so on. Therefore, the defensive aspects of buildings were particularly emphasized in Kaiping during that time. The defensive functions of Kaiping Diaolou are primarily reflected in their thick walls, watchtowers and lookout holes, shooting holes and gun ports, the height advantage of being built on elevated locations, fire prevention facilities, secret passages and escape routes, as well as sturdy gates and protective measures. These designs enabled the diaolou to effectively resist external invasions and natural disasters, protecting the safety of the residents.

3.2.2. Flood Prevention

According to the "Kaiping County Chronicle"[6], due to the low-lying terrain of Kaiping, typhoons and heavy rains often caused flooding disasters, submerging houses and destroying crops. Kaiping Diaolou, being tall and robust, could provide villagers with refuge from floods. The Yinglong Tower in the Sanmenli village is a prime example of a diaolou with flood prevention functions. According to the "Kaiping County Chronicle", in 1884 and 1908, Kaiping experienced two major floods that submerged the houses in Sanmenli village, but the tall structure of the Yinglong Tower provided shelter for the entire village, ensuring the safety of the villagers.

3.2.3. Residential Function

According to scholars' statistics, there are a total of 1,833 Kaiping Diaolou, of which 1,139 are residential towers, accounting for 62.2% of the total[7]. From these figures, it is evident that residential use is a major function of the diaolou, providing villagers with dwellings that are both comfortable and possess good defensive capabilities. These residential diaolou have relatively large floor areas, approximately 40-70

square meters per floor. Their layouts are similar to modern residences, featuring functional areas such as living rooms, bedrooms, kitchens, terraces, and bathrooms, along with comprehensive drainage systems, catering to the needs of daily life.

3.3. Architectural and Artistic Features of Kaiping Diaolou

Kaiping Diaolou, a unique historical architecture in China, is a product of the integration of Chinese and Western cultures. In the late 19th and early 20th centuries, a large number of overseas Chinese from Kaiping brought back advanced Western construction techniques and concepts, resulting in Kaiping Diaolou displaying characteristics of both functionality and form that blend Chinese and Western elements. Below is a detailed analysis of the architectural and artistic features of Kaiping Diaolou.

3.3.1. External Features of Kaiping Diaolou

Kaiping Diaolou is renowned for its distinctive external features, which not only meet practical functional requirements but also exhibit rich cultural and artistic expressions. The main external features include the following aspects:

a. Towering Structure

Kaiping Diaolou is typically multi-storied, ranging from several floors to over a dozen, with building heights between 10 meters and 30 meters. This towering design not only aids in defense but also provides viewing and lookout functions. Diaolou stands out in the rural landscape, becoming landmark buildings.

b. Distinctive Roof Levels

The roof design of Diaolou varies widely, with some adopting traditional Chinese eaves with upturned corners, and others integrating Western Baroque or Gothic styles [8]. The roofs are distinct in levels, with some having single-layer flat roofs, others multi-layered roofs, and even some with small towers or lookout points on top, adding a sense of dimension and visual appeal to the buildings.



Figure 6. Partial Roof Forms and Observation Platforms of Kaiping Diaolou.

c. Thick Walls

The walls of Diaolou are typically very thick, constructed with bricks, stones, or reinforced concrete, with thickness ranging from 40 centimeters to 100 centimeters. The thick walls not only enhance the building's defensive capacity against bandits and invaders but also improve its wind and earthquake resistance. In the hot summer months, the thick walls help in insulation, keeping the interior cool.

d. Small Windows and Firing Holes

The windows of Diaolou are designed to be very small, primarily for ventilation and lighting rather than entry. The window positions are relatively high, making it difficult to

climb in from the ground. Additionally, the outer walls of Diaolou are equipped with "I" shaped and "T" shaped firing holes, which are small on the outside and large on the inside, allowing defenders inside to shoot out while being hard for attackers to penetrate.



Figure 7. Firing Holes on the Exterior Walls of Kaiping Diaolou.

e. Exquisite Decorations

Despite their primary defensive function, many Kaiping Diaolou also feature intricate external decorations. The outer walls often boast elaborate carvings and patterns that showcase a blend of Chinese and Western architectural art styles [9]. These decorative patterns include traditional Chinese motifs of flora and fauna, as well as Western geometric shapes and religious symbols, reflecting the diverse cultural influences of Kaiping immigrants. Thus, Kaiping Diaolou is also regarded as a fine piece of art.



Figure 8. Colorful Paintings, Grey Sculptures, and Decorative Patterns on the Exterior of Kaiping Diaolou.

f. Defensive Entrances

The entrances to Diaolou are usually concealed and sturdy, often featuring heavy iron doors with a thickness of 20 millimeters to 30 millimeters. Over 100 years ago, ordinary firearms could not penetrate these doors. Additionally, some Diaolou are equipped with iron gates and protective railings. The entrance often has narrow passages or staircases to increase the difficulty of enemy entry and facilitate monitoring and defense by the guards.

g. Surrounding Defensive Facilities

Some Diaolou are surrounded by defensive facilities such as walls, escape tunnels, or independent guard towers, further enhancing the overall defensive capabilities of the Diaolou. In flood-prone areas, there might also be drainage ditches and ponds around the Diaolou to prevent water accumulation from eroding the building's foundation.

From the above analysis, it is evident that Kaiping Diaolou not only possesses unique defensive advantages in terms of architectural functionality but also embodies a blend of Chinese and Western styles in architectural art. These features make Kaiping Diaolou an important example for studying the integration of traditional Chinese and Western architecture.

3.3.2. Internal Features of Kaiping Diaolou

Kaiping Diaolou not only boasts distinctive external designs but also features an internal structure full of ingenuity and thoughtfulness, combining practicality with cultural

characteristics. The following are the main internal features of Kaiping Diaolou:

a. Sturdy Internal Structure

To enhance defensive capabilities, the internal walls and floors of the diaolou typically use thick bricks, stones, or concrete, ensuring the overall building's solidity and durability. The beams and columns between floors are also very robust, capable of withstanding significant pressure and weight.

b. Narrow Staircases

The staircases inside the diaolou are usually narrow and steep. This design not only saves space but also effectively hinders enemies from climbing and attacking during emergencies. The stairs are often made of stone or wood, sturdy and durable, with high railings to ensure safety.

c. Various Defensive Facilities

The interior of the diaolou is equipped with various defensive facilities, including hidden walls, secret compartments, and bunkers. These facilities could be used to hide residents or store supplies during wartime. Some diaolou also feature secret passages for quick evacuation or transfer in emergencies.

d. Living Facilities

The diaolou contains comprehensive living facilities, including kitchens, bedrooms, and storage rooms. The kitchen is usually located on the ground floor, equipped with traditional stoves and storage cabinets. Bedrooms and living rooms are arranged on the middle and upper floors, with simple and practical furniture, mostly made of wood, focusing on the combination of functionality and comfort.

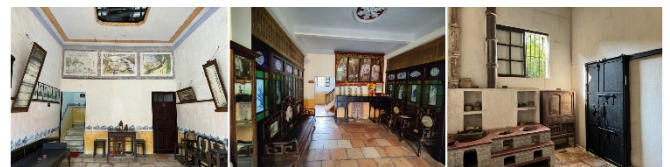


Figure 9. Interior Spaces of Kaiping Diaolou.

e. Family Worship Space

Many Kaiping diaolou have spaces dedicated to worshipping ancestors and deities. This space is usually located on higher floors and includes an altar, incense burner, and shrine. The worship space reflects religious beliefs and is an important part of family heritage, showcasing the traditional culture and spiritual beliefs of the Kaiping people.

f. Ventilation and Lighting Design

Despite the small external windows, the interior ventilation and lighting design of the diaolou are well thought out. The diaolou often features inner courtyards or ventilation shafts, which help air circulation, keep the interior dry and comfortable, and allow natural light to enter during the day, reducing reliance on artificial lighting.

g. Culture and Decoration

Although primarily defensive, the interior decoration of the diaolou is often exquisite. Some diaolou feature intricate wood carvings, stone carvings, and murals, showcasing rich cultural connotations and artistic value[10]. These decorations not only beautify the living environment but also reflect the residents' aspirations and pursuit of a better life.

Through these internal features, Kaiping Diaolou excels not only in defense but also in providing a comfortable living environment, reflecting the wisdom and innovation of the Kaiping people in architectural design. The multifunctional layout, sturdy structure, and exquisite decorations of the

diaolou make it a comprehensive building integrating defense, living, and culture.

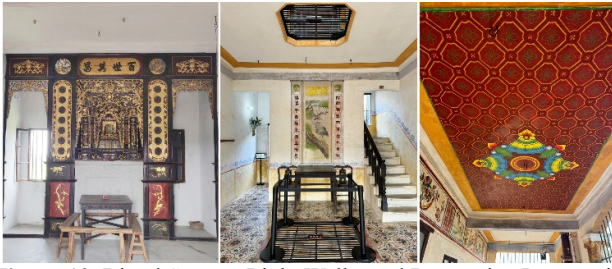


Figure 10. Ritual Spaces, Light Wells, and Decorative Patterns in the Interior of Kaiping Diaolou.

4. Conclusion

Kaiping Diaolou, as a representative of Chinese overseas Chinese culture and vernacular architecture, seamlessly integrates defensive and residential functions, showcasing the wisdom and life needs of the Kaiping people during turbulent times. Its unique architectural style and exquisite cultural decorations not only reflect the deep affection of the Kaiping people for their traditional culture but also provide valuable insights for modern architectural design. The preservation and transmission of the diaolou hold significant importance for global Chinese culture. Through the study of its internal features, we can better protect this cultural heritage and draw inspiration from it for future architectural design and cultural inheritance.

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