Chapter 2
“Implantation” Cases

2.1 Kaiping Diaolou and Villages: An Mixture of Chinese and Western Architectural Art and Charm

Location: Kaiping, Guangdong Province
Key Geographical Concept: Defense and openness

As a World Cultural Heritage site with symbolic and historical characteristics, the Kaiping Diaolou combines Eastern and Western architectural styles by integrating the functions of living, defense, and aesthetic appreciation.
Note The base maps in the location map are from the websites of the National Administration of Surveying, Mapping and Geoinformation. (see http://unn.people.com.cn/mediafile/200607/14/F200607141610331489926345.jpg, http://unn.people.com.cn/mediafile/200607/14/F200607141540432633643981.jpg). The same base maps are also used in the following location maps for other cases.

Geomorphologic Features
The Kaiping area is located in south-central Guangdong Province and southwest of the Pearl River Delta, through which the Tanjiang River travels from west to east. The terrain slopes from both sides in the south and north to the river valley, with more hills and plains in the eastern and central region and more mountains in other areas. The Baili, Baizu, and Liangjin Mountains are located in this area. Low-lying plains less than 50 m in elevation comprise 69 % of the county, whereas another 29 % of the area is hilly. The Tanjiang River Basin and its branches constitute waterways that cross 95 % of the county area (Editorial Committee on the Kaiping County Records 2002: 171–173) (Fig. 2.1).

Climatic Features
Influenced by sea wind near the South China Sea, Kaiping is within the southern subtropical monsoon zone, with a mild climate and plentiful precipitation. Winter and summer are distinct, and the rainy season lasts from April to September.

Cultural Features
Kaiping is a famous hometown of the overseas Chinese in Guangdong Province. After the First Opium War (1840–1842), social unrest increased, and fights commonly
occurred between the Hakka people and the indigenous people in Kaiping. During this time, Chinese laborers were recruited by the United States, Canada, and other countries, making Kaiping a famous hometown to large numbers of overseas Chinese and their compatriots from Hong Kong, Macao, and Taiwan. Foreign influences introduced by the overseas Chinese greatly contributed to the multi-cultural characteristics and mixture of Chinese and Western architectural art in Kaiping (Fig. 2.2).

As a multiple-story tower architectural complex that integrates defense and residence together (Liu 2010), the Kaiping diaolou evolved from the warning turret in ancient China under the influence of Western architectural art. There are over 1,800 diaolou in Kaiping County, mainly distributed in Tangkou, Baihe, Changsha, Shuikou, and Chishui and other places occupied by overseas Chinese and individuals from Hong Kong and Macao (Editorial Committee on the Kaiping County Records 2002: 268).

First built in the late period of the Ming Dynasty (1368–1644), the Kaiping diaolou was closely related to its natural surroundings and local historical and
cultural backgrounds. The villages and towns in the central plains around Kaiping used to experience flooding during typhoon invasions in summer and autumn. Such extreme natural and geographical conditions forced residents to construct buildings with more stable architectural forms (Fig. 2.3). This area was also characterized by poor security due to its location on the borderline area of Xinhui, Taishan, Enping, and Xinxing counties. Within this context, Kaiping County was established with hopes for peace in the sixth year (1649) of the Qing Shunzhi. The diaolou at that time adopted a relatively simple masonry structure that was constructed with building materials such as stone, sanhetu, blue brick, red brick, etc. The Yinglonglou is the earliest diaolou in Kaiping, which is located in Sanmenli Village, Chikan, and was built by the Guan clan during the Ming Jiajing’s reign (1522–1566). Most existing Kaiping diaolou were built between the end of 19th century and first half of the 20th century, a period of booming construction but social chaos, with rampant bandits. Under such severe circumstances, returning overseas Chinese raised funds for the construction of diaolou to ward off bandits, which significantly improved local public security (Zhang 2002).

**Extended Reading: Hometown Culture of the Overseas Chinese**

With a superior geographic location and convenient transportation, Kaiping is widely associated with other areas around the world. Even before the First Opium War, the tradition of working abroad was popular among individuals in Kaiping. In the 1850s, because of rural overpopulation and land shortages, many residents migrated to the United States and Canada to build railways and mine gold. These individuals became the first “Chinese laborers abroad” to make a living for themselves, and later, some return to China, bringing Western customs and culture with them back to the countryside. According to

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1 *Sanhetu*, a mixture of lime, clay, and sand as building material.
information recorded in *Kaiping County Records* in the Republic Era (1912–1949 in Mainland China), the residents of *diaolou* enjoyed Western clothes and food, emphasized freedom of marriage, and changed the tradition of worship from bended knees to bowing. Imported products, such as phonographs, radios, clocks, and thermoses, were also popular, and the language was deeply influenced by English, which was mixed into daily expressions. Presently, the number of overseas Chinese and compatriots from Hong Kong and Macao in Kaiping is more than 700,000, even higher than the current population in local villages, making it “the hometown of overseas Chinese”. The colorful architectural art of the Kaiping *diaolou* is a physical manifestation of Chinese and Western cultures in the modern countryside, as demonstrated by the warm reception of Western culture by common Chinese citizens (Zhang 2004c).

*Diaolou* appeared in large numbers during the construction of villages by returning overseas Chinese, who imported cement into China. This new material could accelerate construction and make the construction more stable, which contributed to the prosperity of *diaolou* at that time. These buildings ranged from four to nine stories tall, with internal beams and floors reinforced by concrete and walls more than one meter thick, sufficiently sturdy to retain their original appearance, even through the buildings’ baptism in war.

The *diaolou* is primarily composed of three parts: the body, an overhanging corridor, and the roof (Wang and Xie 2006) (Fig. 2.4). The storage room is located at the base of the tower; the middle levels provide hiding room for the old, young, and women; and defending young men live at the top and keep watch. Shooting holes, which are angled from wide inner bases to narrow outer windows, are carved into the four sides of the overhanging corridor. The upper part of the four corners was frequently built with cantilevered enclosed or semi-enclosed angles (known as the “swallow shelter”), which was uncommon in earlier times but later became more prominent in polygonal brick buildings, European fortress-style cylindrical towers and other Western building elements. The windows of *diaolou* are smaller

*Fig. 2.4* Plan, elevation, and section drawings of a Kaiping *diaolou*. For defensive purposes, the architectural design is simple, with a massive wall that effectively defends against enemy fire and a five- or six-story height, which enables defenders to observe enemy positions in the surrounding environment. *Source* Zhang (2002: 6)
than those of ordinary residential architectures and secured with bars, sashes, and iron window shutters. The corner towers have shooting holes angling forward and downward (Fig. 2.5) to attack enemies invading the village from a superior position. Every floor also has shooting holes, improving defense.

As the most decorative parts of diaolou, the overhanging corridor and roof significantly express its architectural art and cultural connotation, incorporating the traditional Chinese firm-mountain-sloped roof and pavilion, the Western architecture of ancient Rome-style ornament, medieval-style castles and cathedrals, and elements from Singapore and India (Zhang 2004b). The diaolou also reflects the Baroque style of typical Western architectural tower design. The Chinese knot, Chinese characters of “love and fortune,” and the Dragon and Phoenix patterns are commonly engraved on the upper part of the watchtower’s parapet wall, demonstrating its national style. The most common diaolou is the combination of Chinese and Western styles, ranging from those with Western-style pillars and a Chinese hexagonal-pointed roof, in which the main ridge tapers to a top point, to those with Western-style platforms and Chinese round pointed pavilions, displaying contrasting styles (Fig. 2.6).

**Fig. 2.5** The towering diaolou is useful for observing and attacking the enemy, and its roof is built with holes for effective gun placement. *Source* Photograph by Fang Wang

**Fig. 2.6** A Western-style body structure: the platforms and windows are decorated with the traditional Chinese elements. The diaolou reflects the clever combination of Western culture and vernacular customs led by overseas Chinese. *Source* Photograph by Mingming Li, provided by Lin Yan
In terms of function, the Kaiping *diaolou* can be classified into three categories: residential, communal, and watch towers (Wang and Tan 2005) (Fig. 2.7). The residential towers, built by rich businessmen returning from overseas (Wang and Tan 2005), resemble the Western-style houses and serve the function of residence.

**Fig. 2.7** Three types of *diaolou*. Upper The residential towers are known as “living-style *diaolou*” and were constructed in a diverse array of styles. *Middle* The communal towers are large public buildings constructed with the funds raised by the entire village. *Below* The watchtowers at the village entrances are tall and slim, primarily functioning as defense. *Source* The first two photographs by Jikang Kuang, the last one by Fang Wang.

In terms of function, the Kaiping *diaolou* can be classified into three categories: residential, communal, and watch towers (Wang and Tan 2005) (Fig. 2.7). The residential towers, built by rich businessmen returning from overseas (Wang and Tan 2005), resemble the Western-style houses and serve the function of residence.
and defense. The Mingshilou Building in Zili Village, Tangkou (Fig. 2.8) is typical of this type of diaolou and remains remarkably intact. Built together by several households, the communal towers were intended for temporary shelter, whereas the watchtowers were used for defense warnings and usually located at village entrances.

The rich history and architectural aesthetics of the Kaiping diaolou serve as proof of Chinese incorporation of foreign cultural elements in modern times. In 2007, the Kaiping diaolou and Villages were nominated as World Cultural Heritage site. Due to wide distribution across many complicated geographical areas, the Kaiping diaolou is difficult to renovate. In light of all of these factors, the preservation of this cultural heritage, especially repair work for buildings that have overseen so much history and improvement of their benefits for the local economy and culture, should be prioritized (Zhang 2004b).

**Geographical Interpretation**

The Kaiping diaolou displays the fruitful achievements and close cultural exchanges between Chinese emigrants and other nationalities in modern history. Originally built for defense, these buildings also embody multi-cultural and open-minded elements, perfectly integrating functional practicality, natural adaptability, and aesthetic sensitivity. The Kaiping diaolou is a unique architectural monument to the overseas Chinese culture that has also greatly enriched history and culture.

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**Fig. 2.8** The Mingshilou building in Zili village, Tangkou, showing a typical residential tower. Its sixth floor includes a pavilion with six Ionic columns connected by a Roman arch, topped by a Chinese-style hexagonal-pointed roof with glazed tiles. *Source* Photograph by Mingming Li, provided by Lin Yan
2.2 Ruins of St. Paul’s in Macau: A Hybrid of European Renaissance and Oriental Features

**Location:** Macau  
**Key Geographical Concept:** Cultural mixture among the different ethnic groups

As a modern coastal colony, Macau stands at the forefront of Western religious cultural infiltration into China. Throughout centuries of cultural mixture among the different ethnic groups, Chinese cultural symbols have gradually been embedded in the exotic Western architecture.

**Geomorphologic Features**  
Macau is located on the southeast coast of China on the west bank of the Zhujiang River estuary. In 1866, Macau carried out such a ceaseless land reclamation project that the area of the island domain has continuously expanded, creating a relatively flat island terrain.

**Climatic Features**  
Located to the south of the tropic of cancer and the intersection of the mainland and the surrounding sea, Macau falls within the subtropical oceanic climate zone, featuring warm summers with abundant rainfall in the monsoon regions. More specifically, the winter here is warm; the summer is hot, rainy and humid; the autumn is sunny but not hot and at an ideal humidity level, which makes it the most comfortable and pleasant season.
Cultural Features
The rise of Baroque architecture in Rome in the 16th and 17th centuries, along with the spread of Catholicism in China, contributed to the building of the Cathedral of St. Paul in Macau by the missionaries. Owing to its location next to the famous St. Paul’s College, people have often referred to the chapel as “St. Paul’s Church” (Xu 2005). It was seriously destroyed in a fire in 1835; only the anterior wall remained, which quite resembled a Chinese memorial archway and was renamed the Ruins of St. Paul. Regarded as a hybrid example of European Renaissance and Oriental architecture, the church is well known in Southeast Asia, not only as a model of the mixture of Chinese and Western cultures but also as a witness to Macau’s history through centuries of vicissitudes.

Macau is located on the southeast coast of China, 2,600 km from Singapore in the southwest and only 1,200 km in the southeast from Manila, the capital of the Philippines. In the 16th century, the Portuguese continued to explore the southeast coast of China after occupying the Malacca of Malay Peninsula. Later, in 1557, they obtained the rights to settle in Macao, from which time Macao’s local trade developed so rapidly that it became the communication center between the Eastern and Western cultures (Liu and Chen 2005). The exchange and collision of these two cultures created diversity, cultivated symbiosis and fused Eastern and Western styles. Moreover, the multi-religious culture is a very unique feature of Macao, with Han Buddhism, Taoism and folk religious groups originating from China along with Catholicism, Christianity, and Islam imported from overseas.

The spread of Catholicism in Macau can be traced back to the construction of the first church in 1565. In 1601, the original church was destroyed, and the priest Carlo Spinola developed a preliminary design for the Cathedral of St. Paul. From its official beginning in 1602 to the completion of its facade in 1637, China’s first baroque architecture witnessed the heyday of the Jesuits (Liu and Chen 2005) and represented the highest level of Catholic art in the Far East. The majestic construction, the gorgeous modification and the sophisticated equipment are best among the churches in the Far East region (Wang 1998). Owing to its importance, it is mentioned in the book Ao Men Ji Lue. Currently, the Ruins of St. Paul’s are the most prominent symbol of Macau and a must-see sight for celebrities and tourists when visiting Macau (Fig. 2.9).

The Cathedral of St. Paul has undergone an arduous and tortuous history. In 1580, the priest Miguel Ruggieri (1543–1607) built a small church for the Macau people to worship, Our Lady, which later was changed into a church institution by another priest, Fr. Alexandre Valignano (1538–1606). According to related records, the Society of Jesus built this seminary on the highlands of Macau, generally accommodating 60 people, who mainly taught science, research methods, and

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2 Ao Men Ji Lue, literally Records of Macao, the first Chinese official systematic record of geography, history, culture and people in Macau, was written by two Chinese immigrants, Yin Guangren and Zhang Rulin, in 1751.
theology. The educational outcomes of this seminar were fruitful, producing numerous successors to the doctorate degree (Wang 1998). This chapel is the predecessor of St. Paul’s Church, which later was unfortunately destroyed in two fires. During the third renewal of Jesuits in 1601, the collection of contributions was strongly supported by the Portuguese merchants and the religious people of Macao, which led to a deliberate reconstruction design. Currently, there still remains a stone carving in Latin in the right corner of the Ruins of St. Paul, which in translation reads as follows: “Macau’s contribution to the reverend Blessed Virgin, 1602”. The name “St. Paul” (Saint Paul) is derived from the name of the first Catholic missionary saint who came to preach in the East. The fort connected to the left part of the church is also known as St. Paul’s Fort.

The reconstruction of the Cathedral of St. Paul was not stopped until 1637; this was mainly due to Macau’s key role in the spread of Catholicism in the Far East, later granting the church its importance. Unfortunately, the endless conflicts between Jesuits and Roman Curia in the 18th century resulted in the formers’ forced dismissal in January 1835; St. Paul’s Church was completely destroyed by an accidental fire caught by the munitions. According to records of the Overseas Colonial Bureau, “it was six o’clock when the fire broke out …by only quarter past eight the entire Cathedral of St. Paul had gone with the wind”. The ruined site was converted to a graveyard for believers, and the bell behind the original church was removed to mark an obituary notice until 1854. In 1878, the Portuguese Viscount Paco d’Arcos renovated the Ruins of St. Paul’s by relocating the graves and rectifying the venue by planting flowers and a lawn to protect this historic site.

As a foreign religion, Catholicism did not spread easily in Macau. The Cathedral of St. Paul was rarely mentioned in ancient Chinese records, and Chinese people seemed to have a strong prejudice towards the Portuguese and Catholic culture.

![Fig. 2.9](image_url) The Cathedral of St. Paul is a typical Baroque-style Catholic church, and only its front wall remains today. It is located on a high platform, delivering a sense of dignified majesty. By standing in front of the church and looking up, the scale and momentum of this building—along with the historic grandeur contained in its construction—can still be vividly experienced as if the church were intact and undamaged. Source Photograph by Lu Jin, provided by Fan Yin.
This was once illustrated by the Portuguese saying that (Wang 1998), “during the construction of the St. Paul’s Church, wooden planks must surround the site from all sides so that outsiders cannot get a glimpse of the construction. As a result, the Chinese suspected that the Portuguese were building a secret fort”. After completing this church, the farmland behind it was trampled by horses when troops were stationed here; thus, it is possible that the several subsequent fires were lit by the farmers as a form of revenge.

**Extended Reading: Catholicism in Macau**

The Portuguese played an important role in the spread of Catholicism, although they never became the true masters of this land. The construction of St. Paul’s Church was based on the religious requirements of the Jesuit’s localization; thus, its design encompasses the characteristics of Eastern culture and the acceptability of Catholic architecture. For instance, considering its location, the church sat north facing south, which contrasted from the European churches that generally sit east to west but is consistent with the most suitable direction of traditional Chinese residences. As a typical Italian Baroque structure, the whole church made extensive use of curves and hook faces based upon the classical style, with rather complicated and extremely refined decorations. Eastern decorative motifs were also absorbed into the details of the design, including Chinese and Japanese traditional patterns, which later became typical of Eastern Catholic buildings (Fig. 2.10).

**Fig. 2.10** As a Catholic church, St. Paul’s Church is a Baroque paradigm. Although it differs from the usual Baroque buildings in terms of its use of sculpture and form, it bears Eastern characteristics; therefore, a combination of Western Baroque architectural style and Eastern artistic elements have been achieved. *Source* Photograph by Lu Jin, provided by Fan Yin
Similar to the needs of doctrine propaganda by means of drawings and sculpture by European medieval churches, the Ruins of St. Paul’s uses the architectural expression of narrative (Liu and Chen 2005), which could be referred to as “Bible on stone” (Wang 1998). This “Bible” was built in beige granite, approximately 24 m in height and 23 m in width, falling into five layers divided by horizontal cornices and nine rows separated by vertical pillars (Fig. 2.11). From bottom to top, there were successively distributed the Ionic columns, the Corinthian columns and the combinations, resembling Roman architecture in their design, which proceed from large to small and from simple to complex; the nether two layers were rectangular, whereas the top three layers were solely for decorative purposes and composed of a triangle.

The first layer of the existing Ruins of St. Paul’s acted as the entrance to St. Paul’s Church. There are three rectangular gates, and the main entrance is in the central gate, separated by several Ionic columns. On the lintel extending over the main entrance is written “Mater Dei”, which means Mother of God, and the letters “IHS” engraved on both side doors refer to the Society of Jesus.

The second layer adopts the Corinthian columns with the same arrangement as the first flower, which divides the facade into three arched holes and four stone shrines containing rounded sculptures of bronze statues (Fig. 2.12)—namely, St. Francis Xavier, B. Lviz Gonzaga, St. Ignatius Loyola and St. Francisco de Borgia from east to west. These figures were Catholic martyrs who performed
missionary work in the East and consequently were revered by believers as saints. Both sides of the panels next to the central hole are decorated by bas-relief with palm tree patterns.

The third layer constitutes the most beautiful layer of the entire Ruins of St. Paul’s, which is also the main layer reflecting the idea of Catholicism. The bronze statue of Our Lady Assumed into heaven is in the middle of the stone niche (Fig. 2.13), surrounded by decorative patterns of roses and lilies, representing the purity and holiness of the Virgin Mary. Next to it, there are six symmetrical angel

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**Fig. 2.12** At the background of the rocky material substrate, the arch exhibits an architectural style of bronze sculptures. *Source* Photograph by Haoyang Dou, provided by Xiaofei Hao

**Fig. 2.13** The Ruins of St. Paul’s are featured in its exquisite sculpture. The Madonna on the third layer surrounded by angels and decorated with roses and lilies is a holy and pure religious symbol. *Source* Photograph by Xiaofei Hao
sculptures, taking turns praying, blowing horns and burning incense when seen from the top down. Nothing is more interesting than the penetration of the Eastern expression of art in these angels with the Lucky Cloud under their feet (Liu and Chen 2005). Religious patterns are engraved on both sides of the stone niche (Fig. 2.14), with “the tree of life” located on the east and “the fountain of life” on the west, both of which stem from the Biblical story of Eden. In addition, the seven-arm candelabrum is carved on the small clapboard at the bottom as a symbol of Christ’s miraculous brightness. Further to the west, there is a pattern portraying an ancient sailing boat protected by the Virgin Mary, which expresses the blessings of the harbor city and its navigational role to travelers, especially missionaries. The relief on the east panel of “the tree of life” is called Our Lady Riding the Dragon Head, deriving from a medieval mythological story about the killing of a magic snake (Wang 1998). The transition from a rectangle to a triangle is accomplished by large tracts of scrolls connecting the steeples on the second floor and the overhanging eave on the third floor; in addition, there are images of a heinous devil stabbed by an arrow, entitled in the Chinese characters “鬼是诱人为恶”, which means “Ghost induces people to do evil” on the west side (Fig. 2.15). Conversely on the east side, the pattern is a lying human skeleton with an arrow and sickle, with the saying in Chinese characters “念死者无为罪”, which means “Even the guilty person, when he is dead, also forgives him”. In fact, the Ruins of St. Paul’s, for the first time in Chinese history, introduced the skeleton and the devil as ornaments decorating a public building, completely out of submission to the Middle Ages in
Europe. The two “oriental laughing lions” on the end symbolize the spread of Catholicism in the East.

The fourth layer of the Ruins of St. Paul’s uses composite columns without decorations on their foundation. The Christ icon was placed on the central shrine, with the earth (no longer existing) in hand. The decorative chrysanthemums made by Japanese craftsmen and the torturing instruments of Jesus were engraved on each side of this icon, with the former representing purity and sacredness and the latter including a ladder, a whip, the sponge dipped in vinegar, the banner of the Roman Empire, the thorny crown, an awl, nails, spears and pliers (Liu and Chen 2005). There are also two angels on the panel of both sides; the one on the west side is carrying the Cross of Crucifixion, whereas another one is holding the Stakes of Crucifixion, with a carved rope and a bunch of wheat curved on the outer arch panel. The wheat symbolizes the death of Christ with the saying: “If a kernel of wheat falls to the ground and stays alive, it remains only a single seed. However, if it dies, it produces many seeds”. Used as channels for cleaning purpose, there are also secret tunnels connecting the third and the fourth floors, leading straight to the top.

The Ruins of St. Paul’s has a triangular top, with a brass cross on its top end symbolizing Catholicism. The dove in the center of this triangle represents the Father, surrounded by the sun, the moon and four stars, in accordance with the Catholic statement: “the Father lives in the domain of sun, moon and stars”. The eastern decorations add to its radiance, illustrated by what Peter Mundy said upon his arrival in Macao in 1637: “The wood carving came from the Chinese craftsmen, and the traces were painted with gold color … gorgeous and exquisite” (Tang 1999). Moreover, the bronze statues on each corner of the Ruins of St. Paul’s were manufactured by the copper plant in Macao.

The Ruins of St. Paul’s is highly significant to Catholicism and fully deserves the title of “Bible on stone”, which incisively and vividly reveals the doctrine of

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**Fig. 2.15** Chinese characters mixed with Western sculptures and Greek columns on the third layer; this is the most vivid blending of Chinese and Western cultures.  
*Source* Photograph by Qi’an Ding
Jesuits. The *Macau Review* once remarked on it as follows: “This is a carved theological stone, combining all of the saints, especially the Virgin Mary Lord … on the top level, the sages are doing their work; on the sub-layer, Jesus Christ is cultivating people by undertaking suffering and overcoming the devil; on the middle layer, people receive gifts from the Virgin Mary to achieve eternal life based upon the strength derived from her. In this case, salvation means God bestowing soul to the common people by virtue of Jesus’s merit; two levels below, the masses of ordinary people are saved with the help of Virgin Mary and other two saints” (Wang 1998).

The Ruins of St. Paul’s stands high from the ground (Fig. 2.16). The stone steps in front of the church were built in 1640, whereas the original construction did not include this. These steps can be divided into six layers, with each including eleven steps and stone railings on both sides. The stone steps and the main entrance are not completely aligned with the axis of symmetry, but this is difficult to detect in practice.

**Geographical Interpretation**

Taking advantage of the cultural tolerance in the colony, the Ruins of St. Paul’s has integrated Chinese cultural elements into a baroque Catholic church. As a unique work of art, this architecture records the vicissitudes of Macau as a modern coastal colony in the past centuries. It survived numerous catastrophes and brings together multi-ethnic cultural characteristics, which results from the conflict and fusion of Chinese and Western cultures; it showcases the imperfect beauty of its history and cultures to the whole world.
2.3 Hainan Arcade Architecture: Presenting the Tropical Customs of Southeast Asia

Location: Hainan Province
Key Geographical Concept: Architectural responses to hot and damp weather

Hainan arcade architecture has been known as an excellent building form for avoiding sunlight and rain in hot and rainy climates; this architecture embodies the characteristics the southeast Asian architecture.

Geomorphologic Features
With Wuzhi Mountain located at the center, Hainan Province has high elevation in the middle and low elevation on all sides. Mountains, hills, mesas, and plains form an annular geomorphology surrounding the whole province, with mountains and plains accounting for 38.7% of the region. Hainan is a suitable location for constructing arcade buildings.

Climatic Features
The arcade is located at a zone of tropical monsoon oceanic climate, where the weather is warm and dry in spring, hot and rainy in summer and frequently affected by hurricanes and rainstorms in the fall. This climate zone is characterized by non-uniform raining timing: rain occurs seasonally with a variety of rain-types and high storm intensity (Hainan Provincial Records Office 2004: 13). Additionally, the
annual daylight hours are abundant, at approximately 1793–2580 h. In such conditions, arcade buildings perfectly satisfy the necessity for avoiding the plentiful sunlight and rainfall in Hainan.

**Cultural Features**
As a traditional architecture integrating both Eastern and Western cultures, Hainan arcade architecture strongly embodies the characteristics of southeastern Asia. Located on the main road linking the east, west, and south Asia, especially the Malaysian peninsula, has uniquely fused various Eastern and Western architectural features. Together with the influence of the oceanic climate, arcade architecture addressed this environment. In the 19th century, overseas Chinese brought this architectural concept to Chinese coastal areas, including Hainan Province, and eventually formed unique arcade style buildings (Lin and Xu 2004) (Fig. 2.17).

First appearing in modern times in southeast Asia, the arcade is a type of building with has a corridor along the first floor, enabling individuals to stroll through. As the bond between the East and West, Malaysia played an important role in forming the arcade pattern and is also one of the earliest countries to accept different architectural styles and technologies from various traditions, such as European porch pattern buildings, the Indian Chaitya arch, and the *zhutong* building in the Guangdong Province of China. Different building styles from various cultures all amalgamated in this unique geographical location. Hainan arcade architecture embodies a distinct characteristic of southeast Asia and fuses both European and Chinese cultures. *Source* Photograph by Jian Liang

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3 *Zhutong Building*, lit. a building type, such as a bamboo tube.
The arcade architectures are lined up along the street, and the connected corridor serves as a continuous walkway. Source: Photograph by Jian Liang

essentially served in shaping the arcade buildings in southeast Asia (Lin and Xu 2004). After endorsement of the Treaty of Tientsin, Haikou City became an administrative trading port of Chinese coastal area. Among the individuals working between southeast Asia and mainland China, many were Chinese sailors or other members of ship staff who introduced and spread southeast Asian culture into China (Wiesman and Luo 1994). The arcade style architecture was first introduced to the coastal southeastern Chinese region and further spread to inner mainland areas. Presently, the arcade has become the main building form in the Lingnan region of China.

Because arcades are mostly used as commercial buildings along the street, their architecture is also referred to as commercial arcades, which are commonly two or three floors, with the first floor for commercial use and the second and third floors serving residential or warehouse purposes. The ground floor is designed as continuous colonnades connecting the street and includes a corridor that is hundreds of or a few thousands meters in length (Fig. 2.18). These corridors can be sorted into two types: continuous convex awnings along the street or having the first floor set back, leaving space for the concaved corridor (Wiesman and Luo 1994). Similar to the southeast Asian climate, Hainan’s climate is rainy and hot. Arcade architecture addresses the problems of excess rain, sunlight, and transportation.

Extended Reading: Architectural Culture in Southeast Asia

One key word to summarize southeast Asia is “diversity”. The coexistence of the land and islands, mountains and flats, tropical and subtropical climates, migration of various ethnic groups and communication between cultures all promote the development of diverse local customs and culture in southeast...
Asia. The distinctive southeast Asian culture is also reflected in the architecture, which is affiliated with an oriental architectural system and does not only exist in a few political or geographical districts. The region’s architecture can be divided into two parts: one in the southeast Asian continent, east to the South China Sea coast, west to the Irrawaddy River in Burma, south to Malaysia and north to the Chinese Yangtze River and another in the southeast Asian islands, including Taiwan, Hainan, the Philippines, Indonesia, Malaysia, and other islands in the Pacific Ocean, such as Ryukyu Island (Wang 2008b).

Compared with other areas, the arcade architecture in Hainan appears to be more delicate, artful, and diverse, which also embodies Southeast Asia style (Figs. 2.19 and 2.20). For example, in the capital city of Hainan, Haikou, the traditional local streets are built in the original Chinese style, a combination of the European-Asian Renaissance style and Baroque style, and the southeast Asian style. Except for the traditional Chinese style buildings without extra decoration, the other buildings are neatly ornamented and have gorgeous facades, the primary elements of a traditional local street. The base of the arcade architecture is mostly built using the beam-column structure, with some cases of arch-column structure. The facade windows are in various styles, including Arabian and Indian (Fig. 2.21). The eave’s parapet walls are essential in differentiating the various building styles of European-Asian combinations. In the Renaissance style buildings, the parapet wall

**Fig. 2.19** The upper floors of the arcade architecture are commonly equipped with three side-by-side windows. The lintels of the windows are connected in a continuous arch, providing the facade with a more rhythmic quality. *Source* Photograph by Fang Wang
Fig. 2.20  The concaved verandas on the second and third floors create an effect of fluctuating the facade surface. Source Photograph by Fang Wang

Fig. 2.21  The Chaitya arch windows of a building in Zhongshan Road are of typical Indian style. Source Wiesman and Luo (1994: 131)
is equipped as a short wall or lined bannister along the cornice (Fig. 2.22). The short bannisters are commonly shaped into a column or vase, and there is a distinctive decoration in the middle, highlighting the center of the façade (Fig. 2.23). In the

**Fig. 2.22** In the Renaissance style of European and Asian combination, this parapet wall features a bannister along the cornice. *Source* Photograph by Fang Wang

**Fig. 2.23** A bas-relief ornament in the center of the parapet wall. This finely sculptured craftwork creates gorgeous and delicate scenery, which expresses a style of southeast Asia. *Source* Photograph by Fang Wang
Baroque style architecture, the parapet wall is designed as a pediment form, some of which imitate a low but soft Italian design, whereas others are more sharp and towering, similar to Dutch and Belgian examples (Fig. 2.24). As the most distinctive and creative style in the traditional streets of Haikou, the southeast Asian style has circle or elliptical holes in its parapet wall to reduce wind pressure, performing ideally in Hainan’s weather, which is windy for half a year and struck by hurricanes eight times annually (Wiesman and Luo 1994) (Fig. 2.25). Various

Fig. 2.24  The Baroque style of European and Asian combination is expressed with a parapet wall designed in a pediment form. Source Photograph by Fang Wang

Fig. 2.25  The southeast Asian style in Haikou City: the holes in the parapet walls could prevent strong wind pressure and frequent hurricanes from damaging this architecture. Source Photograph by Fang Wang
parapet walls compose the vivid, vigorous, elegant, and diverse skyline in this area (Fig. 2.26).

Although arcade architectures are common in Hainan, they are built in different styles. Among the preserved arcade buildings of Hainan, Haikou City emphasizes luxury, and thus, the sculpted ornaments on buildings are complex. Integrating a range of traditional Chinese designs, arcades in Danzhou City are more grandiose and always use simpler ornament designs, whereas Wenchang City arcades use a gorgeous, elegant, and bland Rococo style outlines (Peng 2010) (Figs. 2.27 and 2.28).

**Fig. 2.26** Although there are various parapet walls of different shapes, they still form a unified whole in the expression and color tone, which compose a vivid, vigorous, elegant, and diverse skyline. Source Photograph by Fang Wang

**Fig. 2.27** An arcade in Puqian Town, Wenchang City, in a Rococo style, which is more complex and fine in its design compared with the Haikou style. Source Photograph by Fang Wang
Most arcade architectures were initially built near the port, which later became the commercial space under the background of China opening to the rest of the world in the modern era. These buildings formed a distinctive open street culture over the past 100 years. The arcade space provides an affable and reachable space and effectively avoids a depressive and uselessness atmosphere (Chen 2010) (Fig. 2.29), which also minimizes the interference of the main street and forms a

Fig. 2.28 A traditional arcade in Puqian Town, Wenchang City. Source Photograph by Fang Wang

Fig. 2.29 The eaves corridors of the arcade architecture can be utilized as an extension of the first floor, attracting individuals and enhancing commercial opportunities, and can also be used as a temporary commercial space for peddlers. Source Photograph by Fang Wang

"Implantation" Cases
relatively private and safe active space (Tang 2005). These spaces satisfy the necessity for various daily activities of the nearby inhabitants (Fig. 2.30). Every evening, the inhabitants can dine or talk in the arcaded spaces, which gradually become a part of the daily habitat of tropical monsoon marine climate zone and represent the harmony of the local commercial and social cultures (Wu 2008a).

**Geographical Interpretation**
As an adaptation to the wet, hot, and rainy climate in Hainan, the arcade architectures create a public place for local people to communicate. The publicity and openness of this space significantly reflects the essence of the Hainan arcade architecture.

**Fig. 2.30** The corridor space is a shared outdoor space for inhabitants and serves as a recreational space and space for people to communicate. *Source* Photograph by Jian Liang
2.4 New-Style *Shikumen* of Shanghai: *Jiangnan* Residential Architecture with a Western Charm

**Location:** Shanghai  
**Key Geographical Concept:** Influence of foreign cultures

The new-style *shikumen* of Shanghai was designed during the First World War due to the extensive invasion of foreign cultures at that time. To address the demand of city life and local culture, its style, construction, decorative elements, and materials were changed many times, absorbing the culture of modern western buildings. Therefore, the process aided the Shanghai-style architecture in developing into a fusion of Chinese and Western architectural traditions.

**Geomorphologic Features**  
Apart from a few hills in the southwest, Shanghai has a relatively flat terrain that is suitable for construction, and the *shikumen* architecture is located here.

**Climatic Features**  
Shanghai belongs to the north subtropical monsoon climate zone, which features four distinct seasons, abundant rainfall and sunshine, and a pleasant temperate climate. The gable roof of the *shikumen* architecture is designed for providing shade and rain drain.
Cultural Features
First built in the 1860s, the lane architecture in Shanghai can be divided into old-style shikumen, new-style shikumen, new-style lane, garden-style lane, community lane, and many others. After the successive uprising movements of Small Swords Society (approximately the 1850s in Shanghai)⁵ and Taiping Heavenly Kingdom (1851–1864),⁶ a large number of wealthy merchants moved into the Concession District, causing foreign businessmen to start building many contiguous wooden houses to rent. These houses later were changed into a masonry-timber bearing structure to be protected from fire hazards (Chen and Zhang 1998). Since then, Shanghai’s real estate industry has vigorously developed.

In the middle of the 19th century, due to the drastic changes of social and economic structures in China, the urban population increased significantly, and the living mode gradually changed from single-family houses to relatively compact and economic lane houses. Shanghai, with the fastest growing economy in China, was the most prestigious place to live, and shikumen in Shanghai became representative of that era’s housing style.

Shikumen architecture originates from a combination of the traditional residential architecture in the Jiangnan region and the European townhouse and adopts a masonry-timber structure instead of wooden structures, which took the form of a two-story building to protect against moisture. The entrance of its residential unit used a stone arch decorated with triangles or a half-moon shape door on the top (Li 2006). During the First World War (1914–1918), Shanghai’s population increased to two million. With the influence of a wide invasion of Western culture, the housing market changed dramatically, which led to the emergence of the new-style shikumen (also known as improved shikumen lane house) in the 1910s. To meet the more economic and practical housing needs and the more Westernized aesthetic tendency, the new-style shikumen’s architectural elements, decorations and structures have changed compared with the old style.

Compared with the old lane house, the new-style shikumen is bigger, and some clusters can even combine hundreds of buildings. There is a clear functional division between the general lane and sub-lane, with the former connecting with external roads and the latter leading to each house. Within the lane, row-like European townhouses remain. To ease the increased residential pressure, the new-style shikumen tends to be more compact and neat in its row layout, with two or three stories on average, and providing a well-lit space (Fig. 2.31).

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⁵Small Swords Society, a secret underground anti-Qing Dynasty government organization in the Qing Dynasty (1644–1911).
⁶Taiping Heavenly Kingdom Movement, a massive peasant uprising in southern China from 1851 to 1864 against the ruling Qing Dynasty government that was led by Hong Xiuquan (1814–1864).
The new-style shikumen uses a structure of reinforced concrete and most of the load-bearing brick wall, which improves the load-bearing capacity and enables adjustments to the inner structure. Additionally, the apartment with a patio has many similarities to the layout of a Western house; thus, their styles could have developed simultaneously and merged with each other (Sun 2007). In the layout of units, the old-style shikumen inherits the Huizhou style architectural features but covers a relatively small area and costs less than a Western-style building (Feng 2009). In general, the internal structure of old-style shikumen is extremely similar to the Huizhou style. However, the material of its door was changed to stone, and the forecourt was changed into a patio, forming the structure of the two layers: three kaijian and two wing-rooms (Fig. 2.32), as well as other versions. Generally, the

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Fig. 2.31 As the largest old-style lane in Shanghai, Siwenli Lane covers 4.66 ha and includes 706 two- or three-story shikumen buildings with a masonry-timber structure. It can be divided into east and west sections by Xinzha road. West Siwenli Lane was built in the third year (1914) of the Republic Era, belonging to the late old-style shikumen architecture, whereas the East was built in 1918 and belongs to the early new-style shikumen period. The entire lane uses a row layout; the main road is 5 m in width, and the access road is 4 m in width. Approximately ten independent apartments constitute a single building. The middle of each row is a single kaijian with dual kaijian wing-rooms at both ends. Source Chen and Zhang (1998: 14). Note Kaijian, also known as miankouo, is a unit to measure the width of the building, which refers to the distance between two columns in the frontage of the traditional Chinese wooden architecture

The Junyili Lane in Tianmu East Road was built in 1929 and covers an area of 0.81 ha. There are eight households of single kaijian, 38 households of dual kaijian and five households of three kaijian. The drawings show the first and second floor plans of a three kaijian, whose mean area is 266 m², with the “patio-parlor-back patio-kitchen” symmetrically distributed along the axis. A garret is located above the kitchen and back wing-rooms of the second floor. Source Cao (2004: 64)

The long-strip patio in Xintiandi Lane is small but necessary in the wet weather of Shanghai. At 1 m in width, this space can provide light and ventilation to some extent. Source Photograph by Fang Wang

main house with two floors is situated in the front, and the rest of the house with one floor sits at the back. This structure makes shikumen backward and symmetrical layer-by-layer. The miniaturization of the family unit during the Republic Era (1912–1949 in Mainland China) called for economy and relative privacy of the living space, and the shikumen became more practical than the earlier styles. Back wing-rooms were added, and the back patio was compressed into a strip (Fig. 2.33).
To meet the sufficient ventilation and lighting requirements, the height of the enclosure wall was lower. A single or dual kaijian layout was designed. The dual kaijian only retains one side of the front and rear wing-rooms (Fig. 2.34), whereas the single kaijian eliminates the front courtyard and wing-rooms, compresses the depth of the bedroom and reduced the floor height. The new-style shikumen also changed the back sloping roof into a flat roof and added a small bedroom at the top, called a “garret”, which is the biggest difference between the old- and new-style shikumen in terms of the internal structure. The garret is a distinctive characteristic of this new type of house. Overall, the changes of the new-style shikumen reflect the developments of the traditional house, which transforms the space from a hierarchical order to casual and practical (Sun 2007) (Fig. 2.35).

Under the influence of Western culture, the new-style shikumen became more advanced in construction and materials. The gable roof and wall replaced the traditional horse-head wall or cowl-like-hood wall (Fig. 2.36). The materials changed from natural stone to brick. The exterior walls were mostly of water-blue brick, red brick or a combination of both (Figs. 2.37 and 2.38), and the doorframe was made of various materials, such as artificial stone and cobble wall, instead of the originally used natural stone. Additionally, a black lacquer wooden gate was changed to an iron gate. Steel window replaced the traditional wooden window. However, a British dormer window appeared on the top of the facade and attic to enhance light, provide better ventilation, and adjust the room temperature, which is especially suitable for the climate of Shanghai, where summer is hot and wet but winter is dry and cold. The roofs between the garrets use a concrete flat slab surrounded by iron railings and forming a balcony, which results from the changes to the bearing structure (Fig. 2.39).
Fig. 2.35  Plan comparison between the old-style and new-style shikumen. Although these plans are all in three-bay style, the new-style shikumen is greatly compressed in terms of the depth and size of the patio, with one larger entrance patio and one smaller back patio. The latter patio is occasionally compressed into strips to facilitate lighting and connect the attached houses. *Source* Sun (2007: 37)

Fig. 2.36  Section drawing of a residential architecture in Hongdeyi Lane, Zhejiang Middle Road. Built in 1900, this architecture is in the old-style shikumen, with a wood load-bearing structure and a traditional streaky gable as its fireproof wall, which is strongly influenced by the Jiangnan residential architecture. *Source* Wang (1999: 221)
Fig. 2.37  The meeting site for the first national Congress of CPC, located at now No. 76 and 78, Xingye Road. Built in the ninth year (1920) of the Republic Era, this building is in a wood load-bearing two-layer construction, which generally belongs to new-style shikumen. With some old-fashioned design elements, it can also be considered an eclectic style. Its exterior walls are typically newly green and red staggered bricks with embedded powder lines. Source Provided by Yaogen Peng

Fig. 2.38  Shikumen row houses along Yuhang Road. The exterior wall uses a combination of lime-painted bricks and green-red bricks. The attic is on the second floor, with dormer windows opening to the south, which provide a solution to the lighting problem and become a decorative element, highlighting the effect of the shikumen residential building facades. Source Photograph by Kaicheng Jiang, provided by Jixuan Jiang
The *shikumen* households were mostly either traditional *Jiangnan* feudal families or new middle-class immigrants, who were exhausted with the traditional aesthetics and thus more willingly accepted Westernized thoughts and decorative
symbols. This attitude also reflects the mainstream culture of Shanghai. Therefore, more Western architectural styles were adopted in the new-style shikumen, creating a distinctive difference from the appearance of old-style shikumen. The lintel of the old-style shikumen often imitates the door capped with carving grey tiles in the traditional architecture of the Jiangnan region, whereas new-style shikumen commonly replace it with geometric floral decorations (Fig. 2.40), similar to the decorative pediments on the doors and windows of Western architecture. These decorations form different styles and are the most distinctive part of shikumen buildings. There are also European-style pilasters with Western decorative floral moldings on both sides of the doors (Fig. 2.41). Occasionally, Chinese carved bricks in the wooden structure also appear (Fig. 2.42). Because of the reinforced concrete load-bearing structure, it is possible to build a solid connective space between the two rows of houses. Downward stairs act as a longtang[^8] for vehicles, and the upward stairs act as a living space, also referred to as “gate-houses” (Fig. 2.43). The top of the channel commonly has an arch-like shape (Fig. 2.44). Gate-houses, which links two rows of houses along the street, naturally become the external entrance of a lane and another decorative feature on the facade of the new-style shikumen, which is usually tall, striking and sophisticated. Above the channel, there is always an inscribed board. Considering its cost, the external decoration of new-style shikumen is not overly complicated, combining a

[^8]: Longtang is a type of lane in Shanghai. Communities are centered on a lane or several interconnected lanes.
considerable number of simplified forms of moldings (Fig. 2.45) and flat-top shapes (Fig. 2.46). *Shikumen* can fully demonstrate the good fusion of Eastern and Western architectural cultures and provide a new type of residence with contemporary and historical sense (Zhou 1997).

The transition of the *shikumen* from the old style to new style is the concrete manifestation of the change of residential culture in Shanghai under the particular social context. It contains a sense of “compatibility” and the Eastern “Western
Fig. 2.44  No. 181 Xintiandi North Lane in Tangcang Road. In a narrow lane, the gate-houses successively link the second floor of the two rows of houses. The surfaces of the channels are decorated with an arch decorated with red bricks. Source Provided by Yaogen Peng

Fig. 2.45  The gate-house in Sanyili Lane, Xuchang Road. Built in 1927 and serving as the entrance to the lane, this gate-house is the locus of external facade decorations. Its wall is nearly three stories high and serves as a simplified redesigned version of the original complicated European-style. The second floor facade opens to the street through latticed arched windows, and the wall is decorated with red horizontal strips. The wall above the door is painted with a vertical strip. All of these are simplifications of typical columns and bricks. Source Photograph by Kaicheng Jiang, provided by Jixuan Jiang

living style”, which is one of the most important traits of Shanghai-style culture (Lin 2006). The new-style shikumen in Shanghai varies with the geographical characteristics and changing living demands, whose development is also a
Fig. 2.46 Many gate-houses have a flat top. Walking through the gate-houses, individuals can experience a scene full of life. The spaces under the gate-houses are transitional, successfully separating and connecting the external public spaces from and to neighborhoods’ semi-public spaces. Source Photograph by Fang Wang

consequence of balancing the ideas of traditional and modern, Western and Eastern. The style is the outcome of collective choice, whereas the original creation was inspired by the region and era.

Extended Reading: Shanghai-Style Architectural Culture
Shanghai-style culture is based on traditional Chinese culture, which also integrates the essence of the Western culture, the Wuyue culture⁹ and some other Chinese regional cultures created in this region. Thus, Shanghai-style culture eventually formed a unique culture that was compatible, radical, romantic, open, and carefree (Lu 1999). Shanghai-style architecture is a derivative of the Shanghai-style culture, which is a manifestation of the Chinese nation integrating the regional culture and selectively absorbing advanced foreign architectural cultures. Shanghai-style architecture is compatible, innovative, and diverse (Jiang 2006) and at its core, people-oriented.

⁹See: “Extended Reading: Kingdom of Wuyue and Buddhism” in Sect. 2.5 of Volume 1 Geo-Architecture Wandering in the Landscape.
Geographical Interpretation

The old-style shikumen originates from the traditional residential architecture of the Jiangnan region, which is fit for the local climate. The new-style shikumen began to include advanced structures and materials after Shanghai opened to Western culture. To meet the needs of development, the structure, and layout of shikumen was adjusted by combining both Eastern and Western architectural elements, forming an eclectic style that significantly satisfied the requirements of modernization and westernization. Therefore, shikumen forms many unique Shanghai-style architectural symbols that represent locals’ lifestyle and realizes the transformation of the Westernization of architecture, as demonstrated by practicality and compatibility.

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