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Research on the Architectural Features and Artistic Elements of Traditional Buildings in Different Regions of Jiangxi, China

Yingqiu Song [1] and Chenyue Liao [2,*]

[1] Faculty of Education, Shenzhen University, Shenzhen 518060, China
[2] Guangdong Provincial Key Laboratory of Durability for Marine Civil Engineering, College of Civil and Transportation Engineering, Shenzhen University, Shenzhen 518060, China
* Correspondence: liaochenyue2020@email.szu.edu.cn

Abstract: Traditional buildings are a comprehensive manifestation of history, art, and architectural features, and are also a carrier of folk culture, traditional skills, and regional aesthetic tastes. This paper studies traditional buildings and arts from three regions of Jiangxi, including northern Jiangxi, southern Jiangxi, and central Jiangxi. Traditional buildings in Jiangxi Province flourished in the Ming and Qing Dynasties. As Jiangxi is located in the interior of China and is adjacent to many provinces, the architectural art of traditional buildings is greatly influenced by geographical location. Traditional buildings in northern Jiangxi are influenced by Huizhou architectural culture, while those in southern Jiangxi are influenced by Hakka culture. The patio-style buildings and high-lighting buildings that represent the local characteristics of Jiangxi are found exactly in central Jiangxi. The relatively diverse set of architectural features and artistic elements is due to a variety of intertwined regional cultures. Compared with those of the surrounding provinces, the economic level of Jiangxi is relatively underdeveloped, and the local architecture has accordingly formed a restrained, simple, and practical artistic style.

Keywords: traditional buildings; art; cultural heritage; sustainable development

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1. Introduction

Traditional Chinese architecture reflects profound qualities of Chinese culture over the course of its historical evolution and plays a very important role in the inheritance of Chinese culture [1,2]. Architectural art is an important carrier of Chinese culture and an expression of humanistic characteristics. Architecture contains cultural, scientific, historical, geographical, and other artistic elements [3]. Furthermore, from the cultural point of view, we should learn to relate it to sustainability, nature, and the harmonious coexistence between the environment and civilization [4].

The design of traditional Chinese architecture is mainly the responsibility of craftsmen rather than architects. Traditional craftsmen make multi-purpose designs based on the needs of real life. They design the flexible space and reasonable structure to meet the needs of people, which conforms to the concept of the unity of man and nature [1]. Traditional Chinese buildings indicate the relationship between humans and nature, and in turn, reveal profound social and environmental values. People can draw useful lessons to promote sustainability in architecture and urban planning. The historic way of constructing traditional buildings improves comfort in towns, as well as saving energy, thereby reducing the impact of harmful changes [5]. Many studies have found that traditional buildings have good mechanical properties, such as good wind resistance and earthquake resistance, as well as low-energy-consumption designs [2,3]. It was beneficial for ancient people to lower natural disaster risks, and at the same time more fully maintain the environment [6]. In addition, traditional buildings contain rich fine carvings that have been well preserved until today, and are a perfect showcase in themselves and could be exhibited in folk museums, such as

the revered Chen Clan Temple in Guangzhou [1]. This means that the traditional architecture itself has value for artistic research and the practical significance of re-development and utilization. For specific traditional Chinese buildings, due to the vastness of the region and the long development of history, different forms and styles of architectural features have emerged among regions and groups. The fusion of humanities and art, and the combination of architecture and nature, have made traditional Chinese architecture shine. Young et al. [7] found that integration was established via a strong vernacular foundation building on architectural tectonic recognition. Traditional architecture is inevitably regional and local in character. From the point of view of culture, people should fully consider issues, including sustainability, nature, and harmonious coexistence between the environment and civilization. In this way, it is useful and inspirational to modern architects.

There is little research on traditional buildings in specific provinces. Thus, this paper focuses on the traditional buildings in Jiangxi Province. This paper investigates and analyses architectural features by utilizing the methods of fieldwork (a research method that goes deep into the subject of study, collects information by observation, and uses this information to conduct qualitative analysis and explain social phenomena) and literature. From the perspective of art, this paper deeply analyses the architectural features of the buildings in different regions of Jiangxi and reveals how the traditional artistic elements of buildings reflect social customs, cultural context, economic conditions, and aesthetic values in Jiangxi. In order to appreciate the characteristics of traditional buildings in Jiangxi, the architectural features and artistic elements are studied from large to small, from far to near. Undoubtedly, this paper has an important role and far-reaching significance for the study of traditional Chinese buildings.

2. Background Research on Jiangxi Province

2.1. Framework of This Study

Three steps were conducted to investigate and explore traditional architectural features and artistic elements in different regions of Jiangxi. Firstly, based on the history, culture, traditional skills, and regional aesthetic tastes, we divided Jiangxi Province into three regions to study. Secondly, the typical structures, layouts, and styles were analysed to indicate the architectural features through fieldwork. Thirdly, we analyse the artistic elements, showing the characteristics of traditional craftsmanship and human wisdom. The structure of the research is shown in Figure 1.

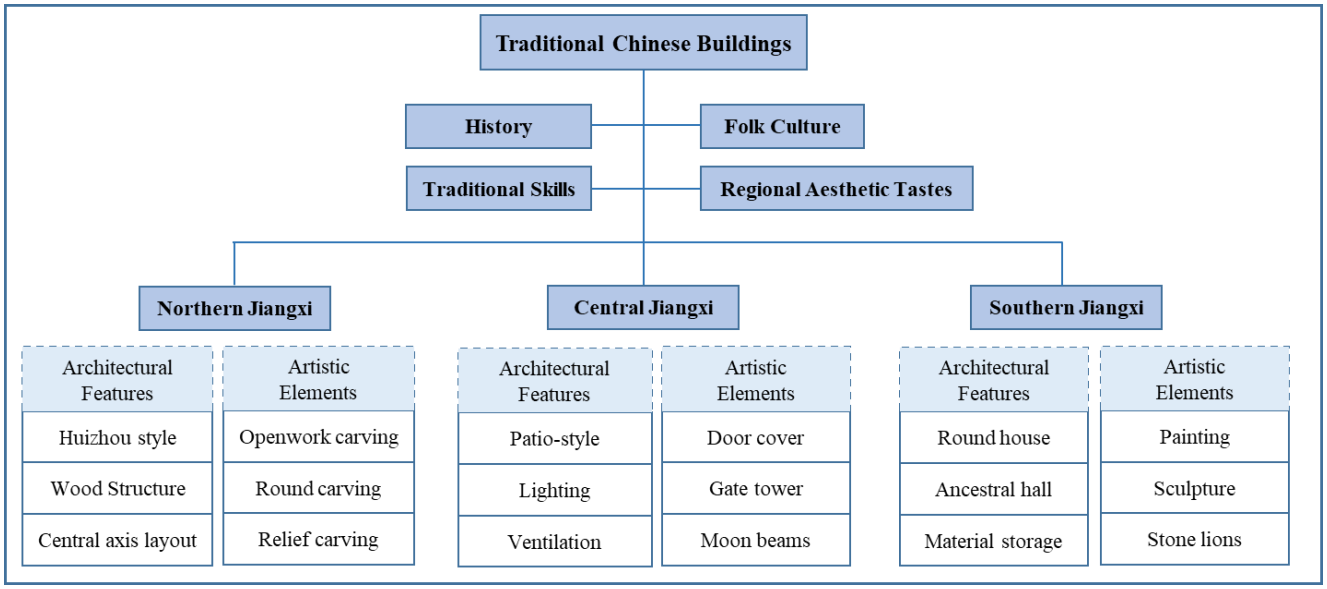


Figure 1. Structure of the article.

2.2. History and Culture

Jiangxi Province is called "Gan" for short, and its traditional buildings can be called Gan-style buildings and Jiangyou buildings. It is an important branch of traditional Chinese architecture. Unlike the traditional buildings in other countries or regions, the formation histories and structural characteristics of the buildings in Jiangxi Province have a unique artistry [8–12]. During the Western Jin Dynasty, the economic centre of China was in the north. From the end of the Western Jin Dynasty to the Sui and Tang Dynasties, the economic centre of gravity began to gradually move south, and Gan-style buildings began to take shape in the Tang and Song Dynasties. Although China's economy developed rapidly during the Tang and Song Dynasties (618 to 1279 A.D.), the merchants of Jiangxi had a low starting point, late development, and relatively weak capital. Compared with surrounding provinces, the economic level was not as well developed, and it not possess thousands of assets like those held by the Huizhou merchants. Anhui Province was a prosperous region, and there were many artisans, as well as leading examples of handicraft skills. Jiangxi also lacked a natural geographical advantage, such as in the Minyue region, which had unique trade conditions, including a location by the sea, well-developed transportation, and a diversified economy. There was no industry in Jiangxi that could establish a monopoly like the Shanxi Province merchants. However, with the rapid social and economic development of Jiangxi in the late Song Dynasty, the popularity of imperial examinations, the rise of Gan merchants, and an increase in the prosperity of people's lives, the construction of Gan-style buildings entered a prosperous period. Gan-style buildings combined geographical features, local culture, and folk customs, and were influenced by the surrounding wealthy provinces. The architecture presented a variety of artistic features. Gan-style buildings flourished in the Ming and Qing Dynasties, forming their own unique and diverse artistic features. They became an important carrier of the Jiangxi culture and economy.

2.3. Geographical Features

We can neither separate History from Climate nor Climate from History. Nature and culture have their own development paths but are ultimately intertwined in an inseparable and enduring way [4]. Therefore, in addition to its rich historical and cultural heritage, Jiangxi Province also has a unique geographical environment. The terrain is dominated by hills and mountains, and basins and valleys are widely distributed. The area around Poyang Lake in northern Jiangxi is a flat plain. The province is surrounded by mountains to the east, west and south. Huaiyu Mountain and Wuyi Mountain are located to the northeast, Dayu Mountain and Jiulian Mountain are located to the south, and Mufu Mountain and Jiuling Mountain are located to the northwest. The Luoxiao Mountains (including Wugong Mountain, Wanyang Mountain, Zhuguang Mountain), among other mountain ranges, have become the boundary mountains and watersheds between Jiangxi and neighbouring provinces [13,14]. The northeast and northwest of Jiangxi are mountainous areas with a large difference in temperature, and the southern area is a basin with more rainfall. Most of the mountains are in the northeast–southwest direction, which controls the development of major water systems and basins in the province, forming a total of more than 2400 large and small rivers in Jiangxi. Jiangxi is a rainy province of China, with an annual precipitation of 1400–2400 mm [15]. Rainwater flows into the Yangtze River, Pearl River, and Xiangjiang River basins, and gradually merges into Poyang Lake, forming five river systems: Ganjiang, Fuhe, Xinjiang, Raohe, and Xiuhe. The water system throughout the province provides conditions for economic and cultural exchange between Jiangxi and the neighbouring Anhui, Zhejiang, Fujian, and Guangdong regions. Therefore, over the course of history, the traditional buildings of Jiangxi have formed a local traditional architectural art form enmeshed with historical culture [16].

According to geographical and social characteristics, the traditional buildings in Jiangxi are divided into three major regions: northern, central, and southern Jiangxi, as shown in Figure 2. There are many provinces bordering northern Jiangxi. The representative cities of northern Jiangxi buildings include Jingdezhen, Shangrao, and Yingtan, where

the artistic features are greatly influenced by the architectural art in Anhui. The traditional buildings in central Jiangxi are not influenced by other provinces, and are the most representative buildings of Jiangxi's style. The representative cities in central Jiangxi are Ji'an and Yichun, where architectural art is relatively restrained and practical, simple, and elegant. Finally, the representative city in the south is Ganzhou, which is also the gathering place of the Hakka people. The architectural characteristics are mainly represented as enclosed buildings with typical Hakka culture.

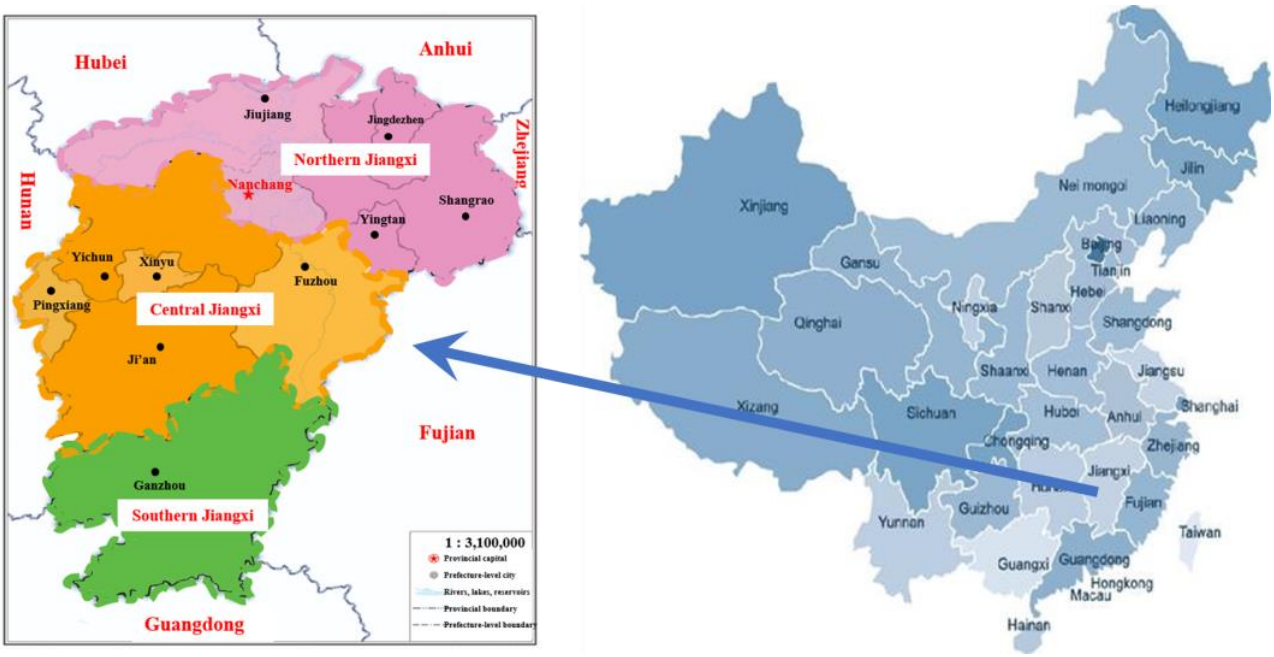


Figure 2. The regional division of Jiangxi Province.

3. Traditional Buildings in Northern Jiangxi

The northern area of Jiangxi is located on the south bank of the middle and lower reaches of the Yangtze River at the intersection of Hubei, Anhui, Zhejiang, and Jiangxi. The landform types are mainly mountains and hills. Mountains account for 36% of the provincial area, including famous Taoist resorts such as Mount Lu, Mount Longhu, and Mount Sanqing. It is also an area rich in forests. According to the public information of Jiangxi, the detailed distribution of natural resources is shown in Figure 3 (the source of information is the Department of Natural Resources of Jiangxi Province). Benefiting from abundant local timber resources, wooden buildings in northern Jiangxi are common. The wood frame materials used in the northern buildings are very particular, and the workmanship is rigorous and fine. The area is also rich in valuable tree species suitable for architectural decoration and carving, such as camphor, sassafras, mulberry, nan, maple, and ginkgo, etc. Due to its geographical location, the culture in northern Jiangxi is dominated by traditional Confucian and Taoist cultures. Traditional buildings in northern Jiangxi have typical Huizhou characteristics. Most of the architectural wood carvings are very exquisite, and the content mostly describes the classics of Confucianism and Taoism with rich patterns and fine carvings.

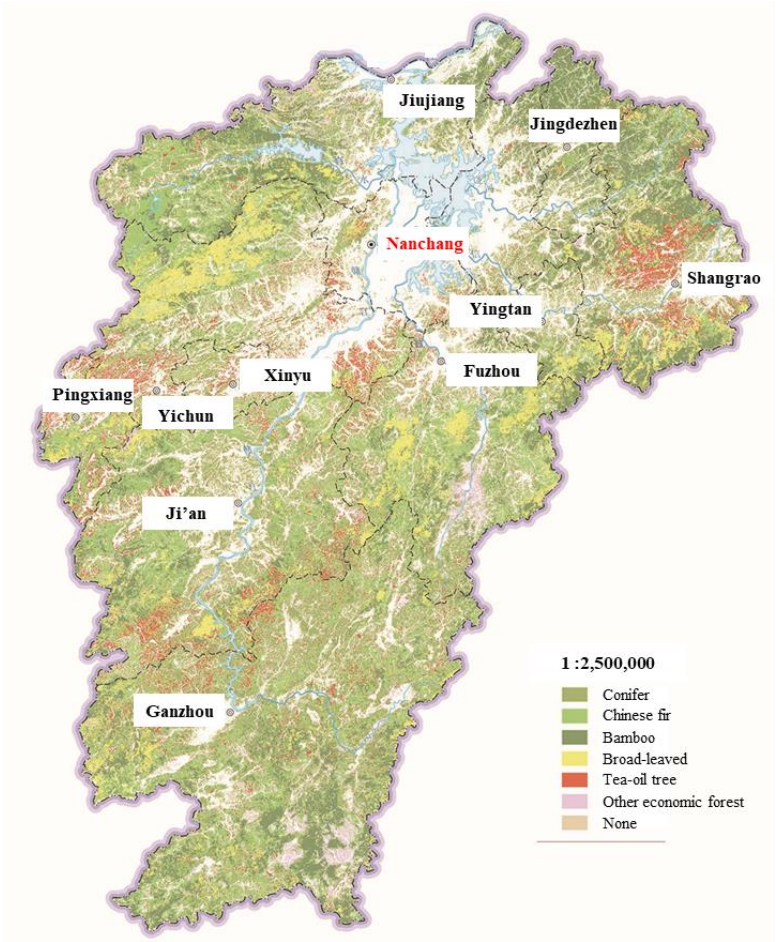


Figure 3. Distribution of forests in Jiangxi Province.

3.1. Architectural Features

After years of development, the model dwelling of northern Jiangxi was established in the Ming and Qing Dynasties. Today, observing the ancient buildings left over from the Ming and Qing Dynasties in the mountainous areas of northeastern Jiangxi and the whole area around Poyang Lake, the architectural features are greatly influenced by the Huizhou style. As shown in Figure 4, taking Likeng Village in Wuyuan, Jiangxi as an example, the original features are well preserved because Likeng Village is relatively remote. The local scholars, officials, and merchants who returned to their hometown built houses to reflect their prestige. The shape and scale of the buildings reveal a rich and elegant atmosphere that is different from ordinary villages. The architectural model is influenced by the concepts of "clan, official rank standard, Huizhou merchants", etc. The phenomena of "Confucians first and then merchants" and "equal emphasis on merchantry and Confucianism" embody the unique Huizhou architectural form. Likeng Village is surrounded by mountains and rivers. The beauty of Huizhou architecture is deeply hidden in quiet and remote places. It is natural, quaint, secluded, and integrates the essence of customs and culture [17]. Specially, He et al. [18] researched water environments as an important design of living environmental space. Use of water environmental spaces in Huizhou architecture has many components, and water environments of various shapes have penetrated into each part of ancient architecture. These factors can be classified into three categories, which are linear factors, spot factors, and surface factors.

Figure 4. Traditional buildings in Likeng village.

At present, the traditional village covers an area of 9.5 hectares, and there are 134 buildings. There are still 130 ancient buildings originally designed to be buildings, including 24 buildings from the Ming Dynasty and 106 buildings from the Qing Dynasty, as shown in Table 1. There are three ancestral halls and nine stone (arch, gallery, slab) bridges in the village dating from the 14th to the 19th century. The Huizhou-style architectural layout of Likeng sits from west to east, and the gate faces north, showing the reverence of the officials for imperial power and the values of loyalty, filial piety, and trustworthiness. The architecture embodies Chinese traditional ritual culture, and the central axis layout is also a manifestation of the Chinese pursuit of the Confucian mean. It presents a special balance and symmetry in spatial aesthetics, which is also representative of the country's traditional spatial aesthetics [19]. Similarly, Wang et al. [20] adopted an interdisciplinary approach and proposed that the traditional Chinese residential space represents two modes of thinking and cultural forms. One is that the residential form reflects the concept of harmony between man and nature. The other is that the pattern shows a standardized way of life and ethical order. The former is influenced by Taoism, which concerns health, wealth, and safety. The latter is influenced by Confucianism, which is the moral ideal of the upper class. At the same time, they are different from the symmetry of Western architectures, without intricate geometric ornamentation and unlimited spatiality [21].

Table 1. Information of Likeng village.

Area Occupancy	Buildings From the Ming Dynasty	Buildings From the Qing Dynasty
9.5 hectares	24	106

Along a central axis, various types of houses are arranged in sequence, showing the hierarchical relationship of the buildings. On this basis, the buildings are staggered and transformed to form different patterns, such as hall-style and four-in-one-courtyard style. There are gardens at the front, back, and at the sides of the buildings. The entire building group is focused on a single centre, with clear primary and secondary axes. The buildings are spread out from the middle to all sides in good order, reflecting a strong cohesion [22]. The Huizhou architectural style has a system of doors and walls which are the mediums of transition between interior and exterior space, and they have a subtle effect on the scale of the dwelling. For example, the gate of Jiamu Hall, as the residence of an official at the centre of Likeng Village, is made of fine-textured water-milled blue bricks combined with brick carvings to form the Wufeng gate tower. The five layers of the frontispiece of the archway

overlap, and the curled eaves are raised high. The doors and ceiling beams are carved with double dragons playing with beads, the tops of the doors on either side are carved with cranes inscribed with "Songhe Yannian", and the birds are deeply carved with patterns of the medicinal fungus, Ganoderma lucidum. The door system of ordinary people is simple and has a sense of affinity to this central aesthetic. The artistic image formed by the gate and its accessories is the prelude to the architectural complex. The three-dimensional door cover is made of blue bricks against a wall with various eye-catching carvings, highlighting the main theme of auspicious wishes and expressing the aesthetic taste of the householder. There is a gate tower on the upper end of the archway, which is mostly a wooden structure carved with various patterns. It often projects out of the wall from the upper end of the door, and the higher position highlights the majesty of the gate, as shown in Figure 5 [23].

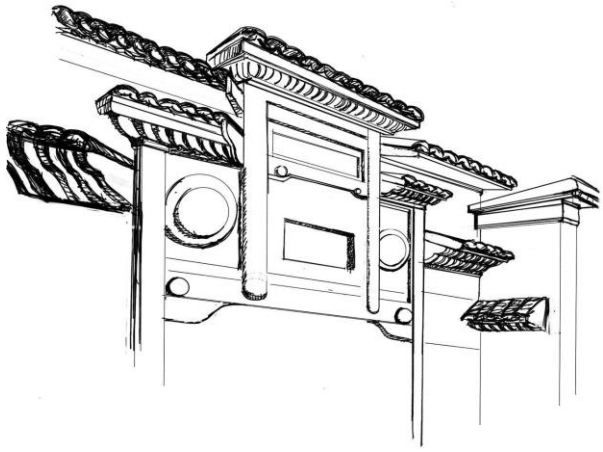


Figure 5. The gate tower of Likeng village.

In general, although Huizhou architecture has had a large impact on the buildings in northern Jiangxi, there are also differences. In terms of planar features, the traditional buildings in northern Jiangxi are mostly irregular in shape, while those in Huizhou are regular. However, the basic composition of both has the open hall (main room) on the central axis, and rooms are arranged on both sides [24]. In terms of spatial characteristics, due to the scarcity of land in Huizhou, traditional buildings are mostly developed vertically, and the second floor can be used for both storage and living. In contrast, the land in northern Jiangxi is relatively rich, and traditional buildings are mostly developed laterally along the central axis, making the internal space wider. Due to height restrictions, the second floor is mostly used for storage, which has developed its own unique architectural features.

3.2. Artistic Elements

The Hui-style carvings on the traditional houses in northern Jiangxi add dazzling brilliance to the buildings, making it both practical and aesthetically sublime. The ingenious ideas of sculptors lends the carvings an active and flowing atmosphere. Techniques such as openwork carving (Figure 6a), round carving (Figure 6b), and relief carving (Figure 6c) are mainly used to decorate gate towers, door covers, windows, screens, railings, and furniture, etc. The beauty of nature is integrated into the sculpture, which also realizes the transformation from natural beauty to artistic beauty. From the Ming Dynasty to the Qing Dynasty, the art of the three carving techniques changed from simple to complex and from plainness to luxury, depicting the beauty contained in social life. The themes of the carvings include the historical figures of Confucianism, Buddhism, and Taoism, flowers and plants, auspicious animals, decorative patterns that imply values like truth, goodness, and beauty, etc. Double-sided reliefs carved on top of reliefs have appeared in the houses of some rich families who had a high demand for exquisite woodcarving, as shown in Figure 6c. The relief is divided into two sides. The front shows the image of the eight immortals, and the back shows the utensils held by the eight immortals. Figure 7 tells the

story of the traditional Chinese Taoist legend "Eight Immortals Crossing the Sea". The Eight Immortals used their own instruments to show their skills and cross the East Sea by using their abilities. Teiguai Li threw his wine gourd, Zhonggli Han jumped on his big palm-leaf fan, Dongbin Li threw his sword, Caihe Lan threw his flower basket, Xiangu He used her lotus, Guolao Zhang went down to the sea on his donkey, and Guojiu Cao took his jade tablet to avoid the water. Finally, the Eight Immortals crossed the East Sea. As a symbol, it implies good luck, peace, and well-being, and expresses a desire for a better life.

(**a**) (**b**) Flower carvings (**c**)

Figure 6. Huizhou carvings of traditional buildings in northern Jiangxi.

Figure 7. The Eight Immortals Crossing the Sea.

Art is sustainable, although the ancient myths and legends are far removed from modern life. Although people in modern society may pursue high-tech and materialistic living environments, the spiritual guidance represented by the Hui-style carving is more precious. Zhao et al. [25] show a significant positive correlation between four influencing factors: the cultural ecology of natural, social and economic development, policies and institutions, transportation, and income, and the interaction between tourism and aesthetics, and the propensity to inherit traditional crafts. Additionally, as a reference, the Hui-style carving can also be copied and utilized in the modern architecture to add some senses of history and humanity.

4. Traditional Buildings in Central Jiangxi

The central region of Jiangxi is dominated by Ji'an, Fuzhou, and Yichun, where the land is fertile and transportation is convenient. It has been the main grain-producing area throughout Jiangxi's history for a long time, and it is the most economically and culturally developed area. As the area where Luling County was located during the Qin and Han Dynasties, central Jiangxi was one of the earliest developed areas in the province and one of the birthplaces of Chinese Zen culture. Due to its long history and numerous literati and celebrities, Jiangxi culture has come to be represented by Zen and Luling culture. Zen Buddhism and Luling culture pay attention to farming and reading inherited texts, advocating philology and philosophy, emphasizing martial arts and justice, and being

generous and tolerant [26]. As an important branch of Chinese culture, Jiangxi culture is a multicultural system that integrates farming, reading, immigrant, religious, industrial, and commercial cultures. The regional cultural contexts, including developed traditional religious cultures, rich "Red Culture", and famous ceramic business cultures, provide a unique cultural background for the inheritance of traditional building culture in central Jiangxi. Chinese regional culture and traditional culture are rich and colourful. The regionality and diversity of the culture will surely lead to prosperity for traditional buildings. In addition, traditional buildings in central Jiangxi are less affected by foreign culture compared to other areas and form the main body of traditional buildings in Jiangxi, which can best reflect the artistic characteristics of the local farming culture. The architectural forms of ancient buildings in central Jiangxi are mostly adapted to the climate, use local materials, and generally feature tile roofs, bucket-type wooden frames for load-bearing brick walls for maintenance, and "horsehead walls" (to reduce fire risk), which are varied, jutting from the roof. The concept of water is more important in farming culture. Most of the roofs of traditional buildings are equipped with patios for ventilation, drainage, and lighting, forming the patio-style architectural feature in which water can return to the hall from all four directions. The influence of Zen Buddhism and Zhuzi neo-Confucianism on the central Jiangxi region is particularly profound, and pragmatic and enterprising values are very distinctive in this region. It can improve people's sense of morality and lead to more natural states of life, because it emphases the practice of kindness and compassion between living creatures. Notably, the ancient people thought of Zen as an idealized view is related to the agendas of spiritual civilization and harmonious society [27]. Thus, the styles of the buildings are full of philosophy and art. Furthermore, these concepts and farming culture are also closely combined in traditional architectural art forms. Most architectural forms are relatively restrained, simple, and elegant, forming the rich, unique, and plain architectural art style in central Jiangxi. It also reflects the fact that the folk customs in this area are simple; people are generally kind, hard-working, and not given to empty chatter. This is the basic folk custom in central Jiangxi, and it is the basic embodiment of the moral character of the Chinese nation [28].

4.1. Architectural Features

The buildings in central Jiangxi are deeply rooted in the soil of ancient Jiangxi culture. It contains the clearest developmental vein, the most varied, and comparatively, the most complete preservation of domestic patio-style buildings. The patio is an important architectural element in the layout of traditional buildings in central Jiangxi. Dwellings with a patio-style layout were originally designed by the earliest residents who were restricted by local customs and psychological and cultural factors. The concept of "water returning to the hall from all four directions" means that all roofs slope towards the patio, and then the rainwater is discharged through the patio. Thus, the patio has become a funnel for the flow of rainwater in traditional patio-style buildings. In feudal society, the patio was the place for the homeowner to make religious offerings and the place of the "Unity of Man and Nature". It embodies the requirements of form, hygiene, and aesthetic psychology from that time. The patio is aligned with the axis of the hall, and the main field of vision in the interior takes the patio as the centre of the viewing axis.

The architectural style of most traditional buildings in central Jiangxi is centred on the patio. The Liu Family Ancestral Hall in Liufang Village, Jiangxi, is a traditional clan ancestral hall built in the 7th year of Ming Hongzhi (1494) that was used by the clan to worship ancestors and sages. The ancestral hall is magnificent and spectacular with carved dragons and painted phoenixes. The golden plaque inscribed with "Famous Patrons of Jiangxi" was bestowed by Zhu Shi, a teacher and scholar of the Qing Dynasty, but today all that remains is the gate tower. The gate tower is magnificent and majestic. The ancestral hall is large in scale, including five buildings and one bedroom. According to the combination of the architectural space of the ancestral hall, four patios are arranged, as shown in Figure 8. The patio of the ancestral hall belongs to the interior space of the dwelling enclosed by the

front hall, rear hall, and other rooms. The rooms are linked by their roofs. The location of the four patios in the ancestral hall is very special. The patios are arranged on both sides of the central axis of the ancestral hall, as shown in Figure 9, which not only meets the requirements of ventilation, drainage and, lighting inside the ancestral hall, but also does not affect the passage of people along the central axis. Meanwhile, it is convenient for large-scale sacrificial activities in the ancestral hall. Zhou et al. [29] explored the correlation between ancestor temple worship sacrifice culture and clan etiquette in traditional buildings of Jiangxi. To some extent, the ancestral hall reflects that the traditional buildings of Jiangxi were used for ancestor worship, as well as religious activities. However, this is different from European religious beliefs, and its rich connotation is embodied in traditional clan cultural ideas such as "blood relationship" and "filial piety". The patriarchal clan had a great influence on the family in ancient China. The popularity of ancestral temples and ancestor worship enhanced the centripetal force and integration force of clans, which is of great significance for inheriting history and stabilizing rural grass-roots organizations [29].

Figure 8. The interior patio of the Liu family ancestral hall.

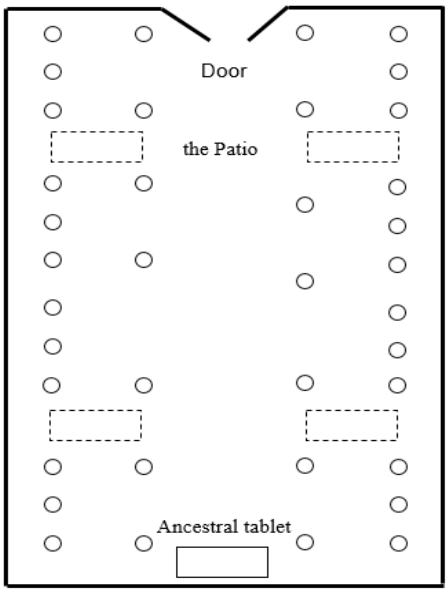


Figure 9. The floor plan of the Liu family ancestral hall.

The traditional patio-style dwelling has existed for a long time because of its unique advantages. In ancient times, people tended to use walls as the protective boundary to isolate themselves from the external insecure and unstable environment. Additionally, walls can distinguish the family area from the external world. The traditional patio-style dwelling is a walled castle where people live in the courtyard. The connectivity and closeness of space meets people's needs for internal life [30]. However, it also has its own defects, which can easily lead to moisture inside the dwelling. Therefore, the traditional patio-style dwelling has constantly been improved and innovated upon. A new kind of courtyard patio dwelling pushes the patio to the outside in Jishui, Anfu, Taihe, and Lianhua of central Jiangxi. The inner patios are moved to outside the door, which combines local architecture with the style of the northern courtyard, and the patios become an activity space for drainage and ventilation, wet or dry. Although the problem of excess moisture inside the dwelling is solved, the courtyard patio dwelling does not receive indirect lighting like the patio-style dwelling. It cannot connect large-scale courtyards or meet the needs of multigenerational families. To solve this problem, the residents of central Jiangxi creatively use roof lighting vents that are locally called the "sky gate". The "sky gate" is a narrow opening in the roof above the outer wall in front of the hall. When the door is closed, it becomes the only place for lighting, sunshine, and ventilation. The traditional buildings in Jintan town, Jishui County, use a "sky eye" instead of the "sky gate" for lighting. Opening a hole directly in the roof facing the sky, the designers of the "sky eye" created better lighting and ventilation [31]. Compared to modern buildings, due to the density of population and the competition for space resources, large open patios are rarely seen in modern buildings. Thus, as an alternative to air-conditioning systems, natural ventilation has been effectively applied in high-rise buildings to reduce energy consumption and improve comfort. For sustainable development, small-area chimneys have been employed to enhance natural ventilation performance in modern buildings [32]. However, this clever ventilation system design has been used for a long time. It can effectively utilize the building space and greatly reduce energy consumption to achieve the sustainable development [33,34]. A lighting design with low energy consumption satisfies people's preferences and conforms to the green ecological philosophy of residents. It reflects the habitability and applicability of the building [35,36]. A good lighting system helps to balance the reduction in energy consumption and the comfort of residents in terms of visual quality. However, compared with the daylight environment, people tend to increase the amount of daylight to gain a wide view inside the building, which is more conducive to performing good life behaviours, such as improving work efficiency and increasing the degree of pleasure [37,38]. The traditional buildings in central Jiangxi take the patio as an architectural core and then derive huge and complex shapes suitable for the development of the clan. It became a unique architectural art form in central Jiangxi.

However, as seen from the designs of traditional Chinese buildings, there are many spatial layouts with courtyards and patios. They all reflect the experience and wisdom of traditional buildings in adapting to the local natural ecological environment and solving the problems of unfavourable elements in the natural environment. For example, for lighting and ventilation, the Beijing Traditional Quadrangle has large courtyards for shading and ventilation; traditional buildings in southern Anhui have narrow and long patios to shade and ventilate; and heated kangs in the northeast and fire ponds in the southwest are designed in order to keep warm in winter. Generally, the thick earth walls of the northern buildings are used to resist the severe cold and isolate the heat, while traditional buildings in the south mostly use eaves, corridors, and cold alleys for ventilation and heat dissipation due to the humid and rainy environment.

4.2. Artistic Elements

Due to the low level of economic development locally, the facades of traditional buildings in central Jiangxi are generally relatively simple, and the key decoration is concentrated at the main entrance. Door covers are commonly used for doors, as shown in

Figure 10. The simplest door cover consists of several layers of moulds with bricks stacked on the top of the door and covered with a tile roof, which imitates the style and luxury of the gate tower. It fully demonstrates the industrious wisdom and artistic creativity of the ancient Jiangxi people. The more common practice is to pick out brackets from the wall, put three small purlins on the eaves, and add the hanging lotus columns. There is also a method where imitation wood structures are made of stone, and "moon" beams are set above the door to support the eaves.

Figure 10. The door covers of a traditional building in central Jiangxi.

The simplicity of central Jiangxi's architectural art is also reflected in the outer walls, as shown in Figure 11. The height of buildings in central Jiangxi is generally lower than those in Huizhou. The decoration of the roof overhangs is simple, and there are no exquisite external windows. Some higher quality buildings use a gate tower at the entrance and usually build the open room with brick or stone. Various architectural components in the interior of the dwelling, such as bucket arches, side beams, column foundations, indoor ceilings, split doors, and windows, often use many exquisite and complicated carvings to form complex shapes, as shown in Figure 12. These decorations are hidden inside the dwelling and can only be seen inside the house, which reflects the philosophy of restraint in the lifestyle of the Jiangxi people. It is the essence of traditional architecture in central Jiangxi.

Figure 11. The traditional buildings in Ciping, Jinggangshan, Ji'an.

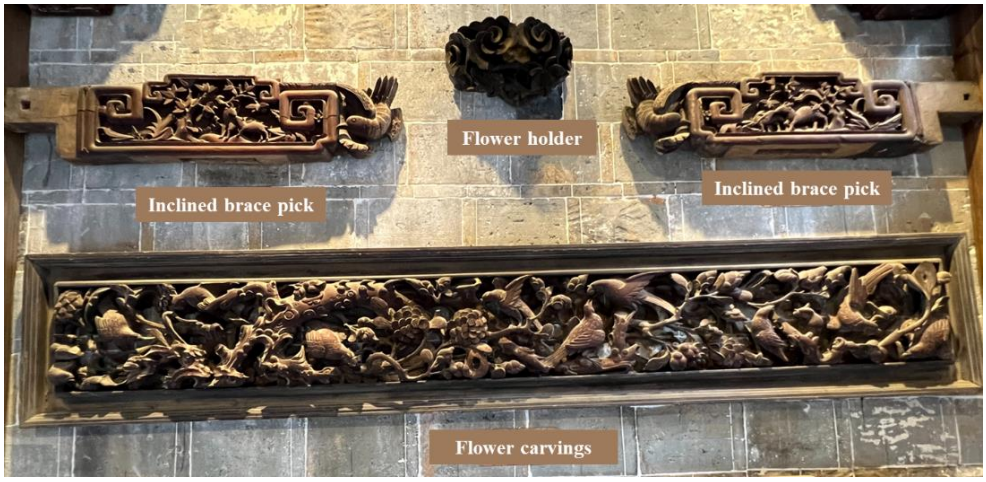


Figure 12. Various exquisite and complicated carvings in the interior of a dwelling.

5. Traditional Buildings in Southern Jiangxi

Ganzhou occupies most of the southern part of Jiangxi. The south of Ganzhou features a stronghold of immigrants in Chinese history. It belongs to the cultural circle of the Hakka people and is one of the three major Hakka cultural settlements in southern China. Hakka refers to Han people who were forced to migrate to the south due to wars and famine from the Jin Dynasty to the Southern Song Dynasty. When local officials in the south registered these immigrants, they set them up as "guests", calling them "customers" or "Hakka". The name Hakka came from this, and they eventually formed unique cultural traditions. Several large-scale southward migrations of the Hakka people were carried out during turbulent historical dynasties. In history, there were five large-scale migrations that gradually formed the Hakka people today. As shown in Figure 13, the Hakka of Jiangxi were mainly formed during the second migration. Migrating people tended to move south with the whole family. Over their thousand-year historical evolution, the Hakka people have continually developed and grown, and still retain their original characteristics today. In different periods, the Hakka people migrated to different regions, forming unique cultures and architectural styles. Hakka buildings in southern Jiangxi have commonality and individuality with those in western Fujian and northeastern Guangdong. The southern Jiangxi area at the border of Jiangxi and Guangdong is located in a remote mountainous area. Due to the dangerous natural environment and turbulent social environment, there is often harassment by bandits and gangsters and clan fights. The reach of the government's legal authority is weak. To adapt to the local natural and social environment, the Hakka people, through long-term exploration and practice, invented the technology of building hard rammed earth walls with fine sands and crushed stones, and have gradually selected and built a form of settlement, the round house, that is suitable for the local environment of southern Jiangxi. Tulou and the round house are both forms of Hakka buildings and have a certain historical relationship with the Hakka migration. Similar to the geometric shape of the Tulou, the round houses in southern Jiangxi have excellent cultural value and sustainability. Its architectural structural model can be replicated and verified in Hakka traditional buildings in western Fujian and eastern Guangdong. It can utilize the surrounding environment and is suitable for human production and life [39–41]. Similarly, the northeastern in China and the nomads in northwest China, they make full use of local forest resources and animal furs as original materials to construct buildings that adapt to the local climate and environment. Undoubtedly, the wisdom of people that have adapted to nature and integrated into society is fully reflected here.

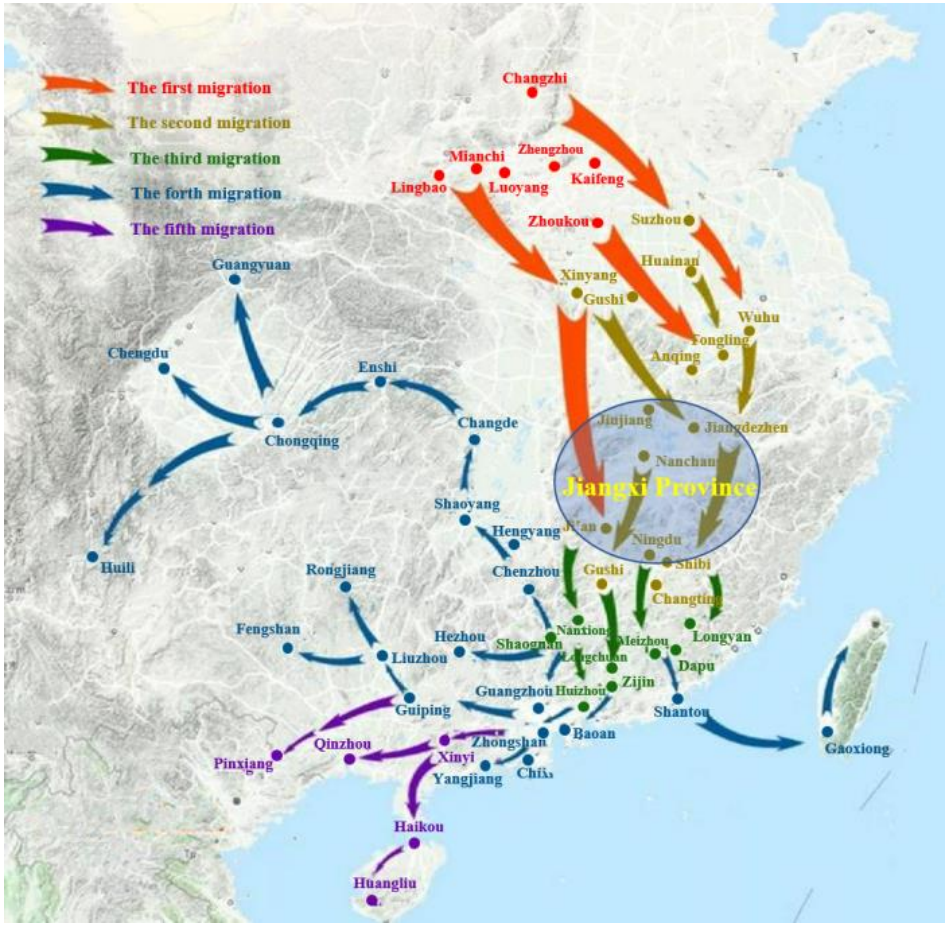


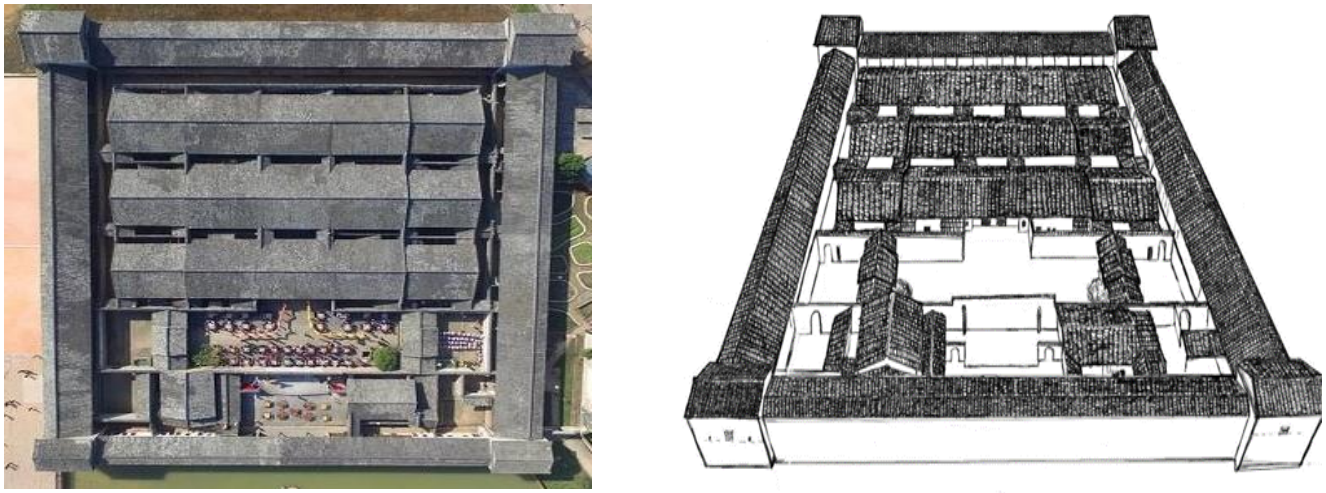
Figure 13. The route of Hakka migration.

5.1. Architectural Features

There are many types of Hakka buildings in southern Jiangxi, and the most typical and regionally colourful is the round house. There are more than 500 Hakka rounds in southern Jiangxi, mainly distributed in Longnan, Dingnan, Quannan, Xunwu, and south of Anyuan and Xinfeng [42,43]. Compared with the round house of the Hakka in western Fujian and eastern Guangdong, it is mainly square. Additionally, it covers a large area, generally no less than 500 square metres, and the larger buildings can reach approximately 10,000 square metres [44,45]. The plan of the round house is mainly rectangular, although some are circular, semicircular or otherwise irregular. Watchtowers are usually set at the four corners or diagonal corners of the round house, as shown in Figure 14. The main structure is distributed in a typical square "Guo" structure. The outer facade is a tall wall with a thickness of more than 0.5 metres, and the maximum thickness can reach 1.5 metres. The façade has no less than two floors of more than 5 metres in height, and the highest façade can be as many as six floors of more than 17 metres. Most of the turrets are one level higher than the outer wall, and the outer wall usually does not have open windows, leaving only holes for looking out and defence [46]. For example, the Yanyi Round House in Yang village has only one or two gates to the outside, and the wall at the gate is thickened with an iron plate latched by a large wooden pole or an iron rod. There are also thick wooden inner gates inside the gates, and some round houses have a hidden funnel on top of the gate. When the enemy would attack by burning the doors, water could be poured through the funnel to put out the fire.

Figure 14. The round house in Xinwei, Guanxi.

On the central axis of the round house, there must be an ancestral hall. It is the most indispensable public space inside the Hakka round houses in southern Jiangxi, where the Hakka people would hold various ceremonies and meetings, as shown in Figure 15. For example, annual ancestor worship rituals and various meetings organized by the clan patriarchs facilitate the daily management of the round house. The ancestral hall is the main place used to maintain the blood relationship between the clans. Usually, the Hakka people are divided into several families and only gather together in the name of extended family during ancestor worship. In the event of war or invasion by foreign enemies, the patriarchs would form a unified fighting group to resist the attack [47]. The residents living in the round house generally have the same surname, and they all share a common ancestor from different generations, so the clan culture can be well inherited. They call each other uncles, brothers, sisters, aunts, and nephews because of their close blood ties. The round house also has the function of material storage, which can be self-sufficient to supply the living needs of the residents. Mostly, the kitchen, woodshed, cattle, and pig pens were on the first floor, and the second floor was used for storage. If something was to happen, people could close the door and live in the round house for 1–2 months.



(**a**) floor plan (from shotting) (**b**) floor plan (from painting)

Figure 15. The floor plan of the round house in Xinwei, Guanxi.

Lowe [45] drew the conclusion that the design of the Tulou reflects three kinds of sustainability. The first is material sustainability. The soil used as a basic building material has contributed to the sustainability of the physical environment. The unique shape provides a cool space in summer and a warm space in winter and reduces the use of energy for people. The second is social sustainability. The Tulou is closed to the outside and open on the inside, creating a secure and unified space for the clan. In daily life, people live in the

building. Additionally, the establishment of ancestral temples strengthens the Confucian code of conduct and social order. The food and water supply in the building ensures the security of the tribe during the conflict. Some buildings also have storage rooms and animal husbandry areas for daily production. The third is spiritual sustainability. The interaction between heaven and earth is reflected in the circular and square patterns of the Tulou, which makes residents constantly aware of their purposeful existence in the universe. Thus, people deeply and constantly think about their roles and responsibilities. The conscious and regular activity of worshiping ancestors connects the relations among family members.

5.2. Artistic Elements

Although the round house is a dwelling with defence as its main feature, it is also a place where the clan lives [45]. The design and construction of the round house must demonstrate the economic strength and cultural heritage of the clan. In addition to considering how to make the round house strong, easy to defend, and difficult to attack, residents also required it to be built grandly and splendidly to reflect structural art, mainly including painting and sculpture. The artistic elements of the round house are mainly manifested in the interior, especially in the square-shaped hall. In the Hakka round houses of southern Jiangxi, the quality of the hall often directly represents the status and honour of the homeowner. Therefore, the Hakka people will spend a lot of money to decorate the doors and windows, the pillars and the bases, and the ceilings in the halls. The central parts, such as halls and side houses, are the most well-decorated in the round house of Xinwei, Guanxi. The colour paintings in Xinwei are mostly concentrated at the bottom of the hall and the porch. The main colours and expression methods are blue flowers on a white background, red flowers on a white background, a "double hook pale colour," yellow stained wood grain, ink colour, line drawings, and red and black patterns. The patterns are decorated with curly grass, peonies, chrysanthemums, tangled branches, flowers, and other patterns. The double hook pale colour is painted on the ceiling and the top of the arch with blue flowers and red flowers on a white background. The content includes historical or mythological stories and is full of strong heaven and earth elements. The paintings are colourful, and attention is paid to vivid images, smooth lines and contrasting proportions. For example, "Queen Mother's Birthday Banquet" and "Eight Immortals Crossing the Sea" are painted on the ceiling. At the same time, the main colours are red and yellow, which symbolise wealth and grandeur [48].

Due to the development and integration of building technology, people use stacked or frame structures to build structures through continuous beams and pillars by combining soil and wood. The creation and development of this component combination mode is not only based on the material itself, but is also based on the natural environment and human behaviour. It can also be understood that this traditional mode originates from the harmonious coexistence between man and nature [7]. Additionally, wood carvings are generally used on beams (as shown in Figure 16a), pillars, railings, doors and windows (as shown in Figure 17), and lattice fans. The content includes ancient myths and customs, animals representing auspiciousness, longevity and wealth, and historical figures such as dragons, phoenixes, lions, and unicorns. The combination of relief and openwork modes can be adopted. The round houses are generally carved with imitation wood arches. The production of the beam frame is very delicate, with hollow carved flowers, cirrus clouds, auspicious animals, and other graphics, as shown in Figure 16b [6]. The pillar foundations, door lintels, and accompanying stone lions mainly use stone carving techniques. The shape of the column base mainly includes representations of "longevity", such as the melon, raspberry, and drum. The relief carvings on door lintels are mainly carved with patterns that imply auspiciousness and safe access, such as elephants, sheep, and curly grass. The stone lions of Xinwei, Guanxi are set on the left and right sides of the entrance of the hall (as shown in Figure 18). The sculptor of the stone lion is ingenious. The male lion holds the official seal under his left foot, which is a metaphor for a man in power. Books, bows and arrows, and copper coins are also engraved under the stone lion, implying that men

can be both rich and noble or both civil and military. The lioness is holding an ingot under her left foot, which is likened to a woman holding wealth [49]. Feminine elements such as combs, fans, and bronze mirrors are also engraved on the bottom, implying the appeal for a better life. Various art forms provide good guidance and reference for the development of modern architecture. For the inheritance and development of traditional buildings, it is also the responsibility and task to further research and understand the traditional culture. The historical and economic value brought by the Hakka round house, supplemented by the Hakka art style, cannot be ignored.

(**a**) the carved wooden beam (**b**) carved flowers and cirrus clouds

Figure 16. The carved wooden beams in Xinwei, Guanxi.

Figure 17. The carved wooden windows in Xinwei, Guanxi.

(**a**) the left lion (**b**) the right lion

Figure 18. The left and right stone lions in Xinwei, Guanxi.

6. Conclusions

Jiangxi has a profound historical cultural and religious heritage. Traditional buildings play an important role in ancient architecture. Studying traditional buildings can make people realize the artistic elements and cultural heritage of architecture. The artistic elements in traditional architecture are not only the embodiment of history, art, and architectural techniques but also the carrier of folk culture, traditional skills, and aesthetic taste. The style carries an expression of yearning for a better life.

(1) According to the geographical location and social culture of Jiangxi Province, the traditional buildings in Jiangxi are divided into three regions: northern, central, and southern Jiangxi. In the developing process of history, the traditional buildings in three regions of Jiangxi Province have formed different architectural art forms.
(2) In northern Jiangxi, owing to the frequent economic exchanges with neighbouring developed provinces, the style of traditional buildings is greatly influenced by Huizhou architecture. The central axis layout embodies a special balance and symmetry in spatial aesthetics. Traditional buildings contain many carved wooden works and natural beauties in order to realize the transformation from natural beauty to artistic beauty.
(3) As the region least affected by external influences, central Jiangxi has the typical characteristics of local farming. The patio dwelling, courtyard patio dwelling and high-lighting dwelling that represent the local characteristics of Jiangxi are adapted to the local climate. Traditional buildings in central Jiangxi are of restrained, simple, and practical artistic styles.
(4) Traditional buildings in southern Jiangxi are affected by the Hakka culture. The Hakka round house is the richest and most representative part of ethnic Hakka traditional buildings in southern Jiangxi. It has both defensive and residential functions, is a living remnant of clan settlements, and reflects traditional Chinese etiquette and ethics.

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