

Research on the Localization of Modern Christian Church Architecture: A Case Study of Hangzhou Sicheng Hall

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Abstract. Christian churches have had great importance in Western classical architecture since the introduction of Christianity into China, which to better integrate into the local community and improve public acceptance, Christian churches were built in China with the characteristics of traditional Chinese architecture. At the same time, it retains the plane shape and spatial sequence similar to that of Western churches and has evolved into the image of "combining Chinese and Western" today. In order to study the localization characteristics of Protestant churches built in Hangzhou, Zhejiang Province under the historical and humanistic background. This paper takes "Sicheng Church", the oldest existing Christian church in Hangzhou, as the research object. Through literature research and field research. Based on the analysis of the development history of the church, the location selection, plane shape, architectural style, and architectural decoration of the church building, the retention and localization characteristics of the church building and their influencing factors are discussed, and the root cause of localization in the Christian mission and church construction is obtained.

Keywords: Christianity; modern; church architecture; localization; Sicheng Hall.

1. Introduction

Hou Youbin's "History of Chinese Architecture (New Edition)" clearly points out that "Modern Chinese architecture is in the transitional stage of carrying on the past and starting the future, and the convergence of the East and the West, and mutual influence." This view has raised the awareness of architectural historians in China about the protection of modern architecture, and the protection of architectural heritage in Shanghai, Hangzhou, Tianjin, and other places is the evidence. As an important type of architectural heritage in modern China, Christian churches are not only historical witnesses to the development of the times, but also physical witnesses to the aesthetics of architecture, and therefore receive much attention, among which the Christian Church Sicheng Hall is an important representative of modern architecture in Hangzhou. 1872, American missionaries and Zhang Chengzhai bought the three-room hall at the entrance of the San Guan Alley in Fengle Qiao Zhi Jie, which is the original site of the present-day Sicheng Hall, and used it as a new chapel as well as a residence for the pastor. The church continued to grow after this. After that, the church continued to grow and through fundraising, the present Sicheng Church was built on the present site [1]. It was completed in 1927 and named "Sicheng Hall" in honor of Zhang Chengzhai. This paper takes Sicheng Hall as an example to sort out and study the characteristics of modern Christian church architecture, such as the "combination of East and West" and "Localization", aiming at affirming the architectural value of Sicheng Hall and analyzing the influencing factors for the development of localization of churches, and finally concludes that Sicheng Hall should be regarded as the "best religious architectural heritage of modern China". Finally, it concludes that Sicheng Hall should be protected as an excellent religious architectural heritage of modern China [2].

2. Preserved Features of Hangzhou Sicheng Hall Architecture

2.1. Flat Shape System

The Sicheng Hall has a horizontal space in front of the sacrificial activity area, and the larger church is also divided into the middle hall and the side corridor, forming a cross-shaped plane, with the vertical and horizontal paths as long as each other (path can be seen in figure 1). There are three main forms of traditional Western churches: Basilica, Centralization, and Latin cross (plane can be seen in figures 2, 3, and 4). In order to comply with traditional teachings, Hangzhou Sicheng Hall also uses this centralized planar shape as the standard for church architecture. In front of the altar, a new hall was built for religious activities, forming a cross shape with vertical and transverse arms of the same length. From above, it looks like a cross. This shape is convenient for religious activities to be held, and it is also considered to be a symbol of the crucifixion of Jesus and has sacred religious significance. However, due to the short construction time, lack of construction funds, and construction material limitations, the plane scale is smaller than that of Western churches. Different from the grandeur of the Western classical church building space, the wide transverse hall and the deep nave make the church give people a sense of oppression, and the Sicheng Hall is small and exquisite, but the five organs are complete.

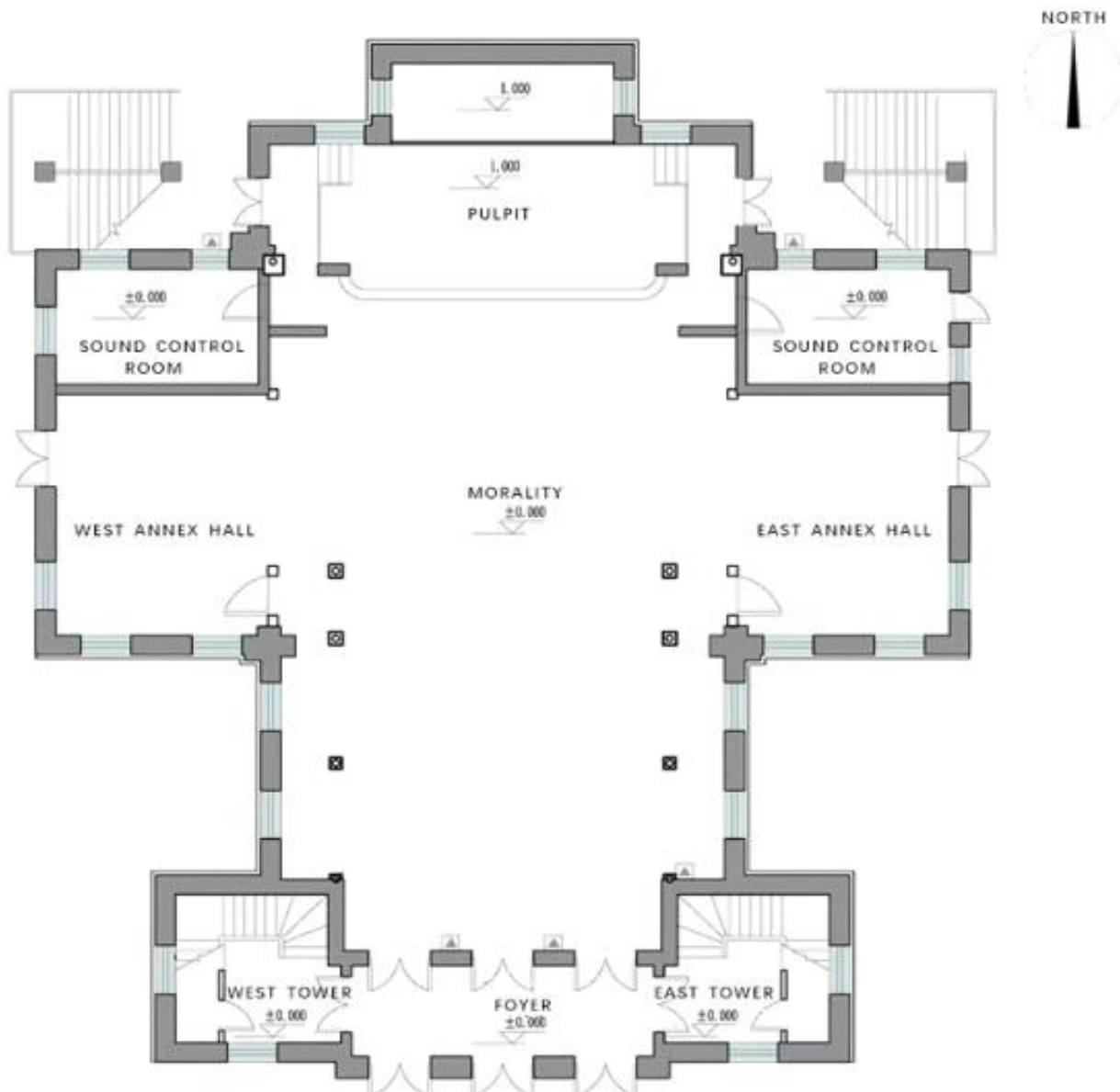


Fig. 1 Schematic diagram of the plane shape of Sicheng Hall.

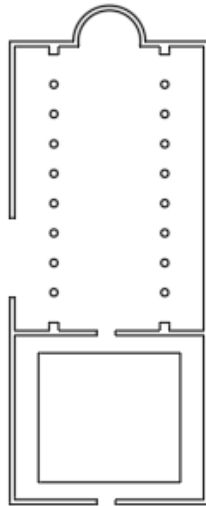


Fig. 2 Basilica Church.

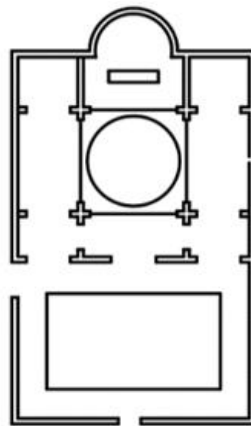


Fig. 3 Schematic diagram of the centralized church.

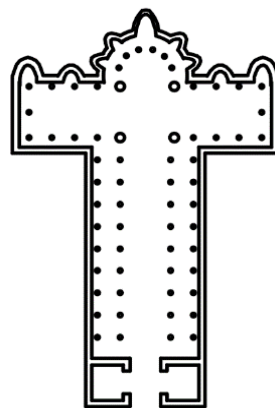


Fig. 4 Latin Cross Church.

2.2. Interior Space

2.2.1. Entrance space

The entrance space of the traditional church, as the porch of the leading part, often plays a transitional role and is generally small in scale (plane can be seen in figure 5). Hangzhou Sicheng Hall follows the structure of traditional religious churches, with porches set up in front of the main entrance and transitional foyer Spaces set up on both the east and west sides. The foyer spaces are complete and independent, and believers can tidy up their appearance in the foyer before worship (plane can be seen in figure 6).

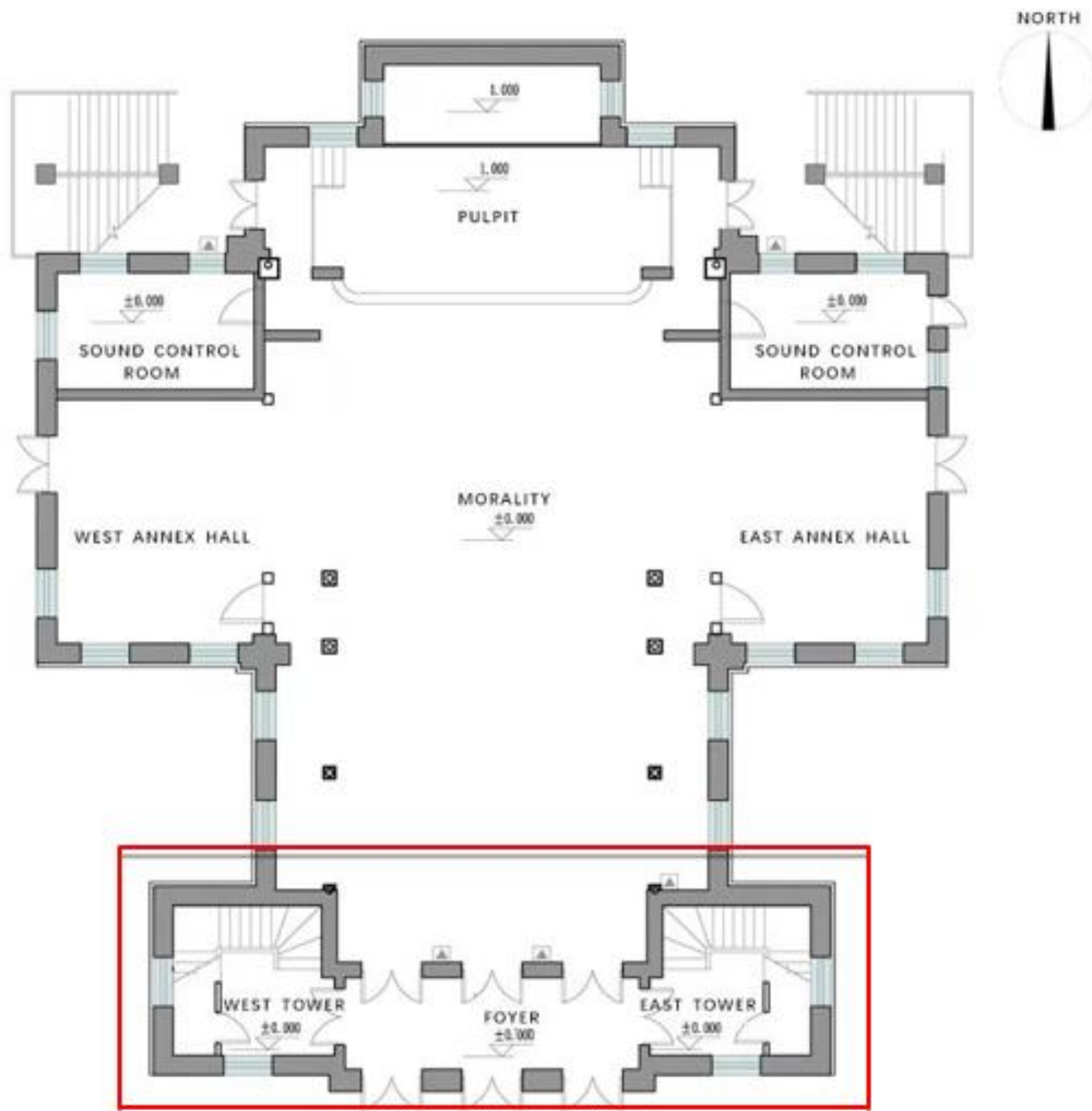


Fig. 5 Space plan of the entrance of Sicheng Hall.

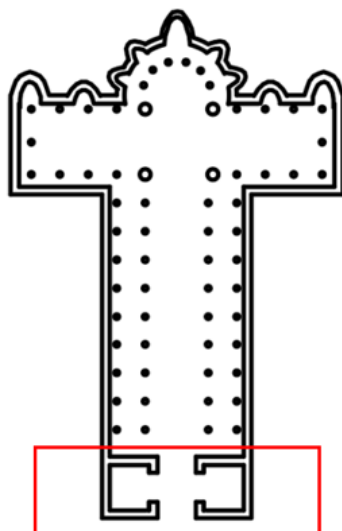


Fig. 6 Space plan of the traditional church entrance.

2.2.2. Spatial sequence

As a representative of Christian churches in modern China, the spatial sequence of the Sicheng Hall retains the axis in the direction of depth, that is, "one path" (plane can be seen in figure 7), which symbolizes and leads believers to pursue the holy path and is the spiritual course of worshippers' admiration for God [3].

In Western churches, the sequence of Spaces presents a zigzag-shaped sequence from the external environment through the porch, atrium, front porch, nave (including the nave and side aisles), and transverse nave, leading straight to the altar of communion (plane can be seen in figure 8). The main spatial sequence of the church has been preserved, including the entrance hall, the front part including the tower, and the worship area including the lobby, annex hall, and pulpit (plane can be seen in figure 9). The core consists of various parts of the worship area, with an axis running through it. When the faithful enter the building, they first pass through the foyer and attached the tower to the main worship area. Ancillary halls on both sides support the middle hall. Due to the small volume of the building, different from the traditional Western cathedral architecture, it does not give people a majestic, tall, and far-reaching feeling, but presents a sense of peace and tranquility. The path points straight ahead in the direction of the podium. The pulpit is the end of the spatial sequence and the central focus of the whole space.

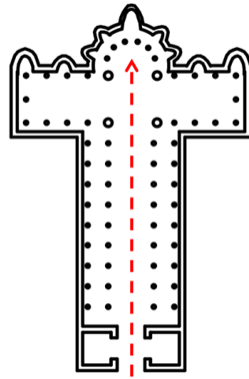


Fig. 7 Spatial sequence diagram of traditional churches.

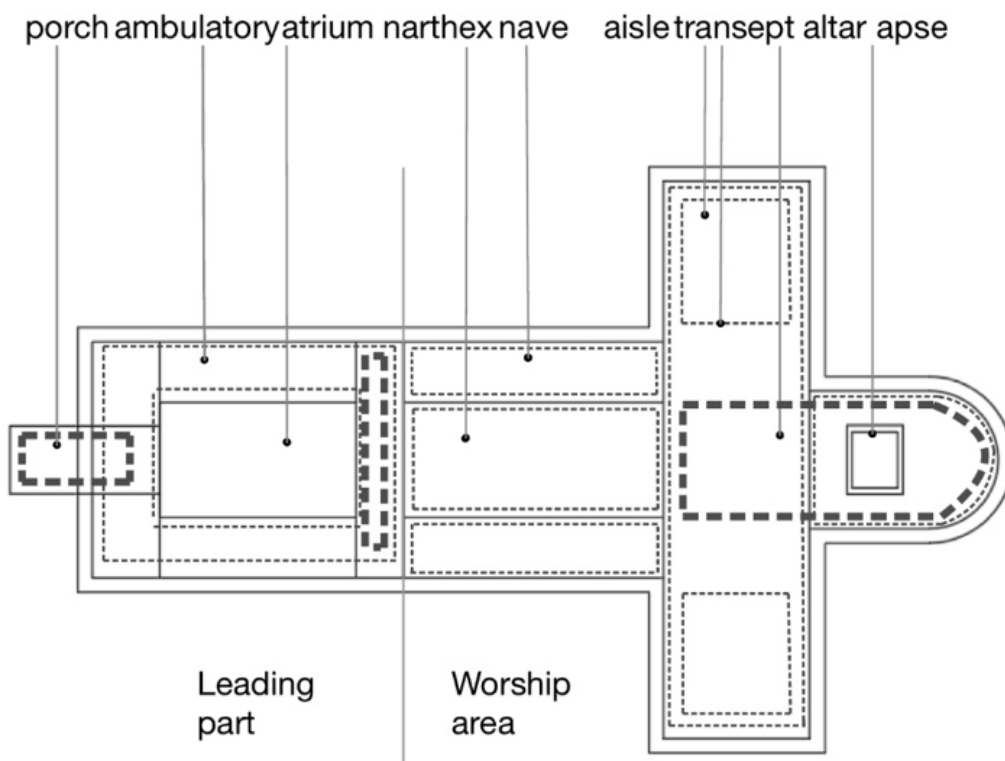


Fig. 8 Main spatial sequence components of traditional churches.

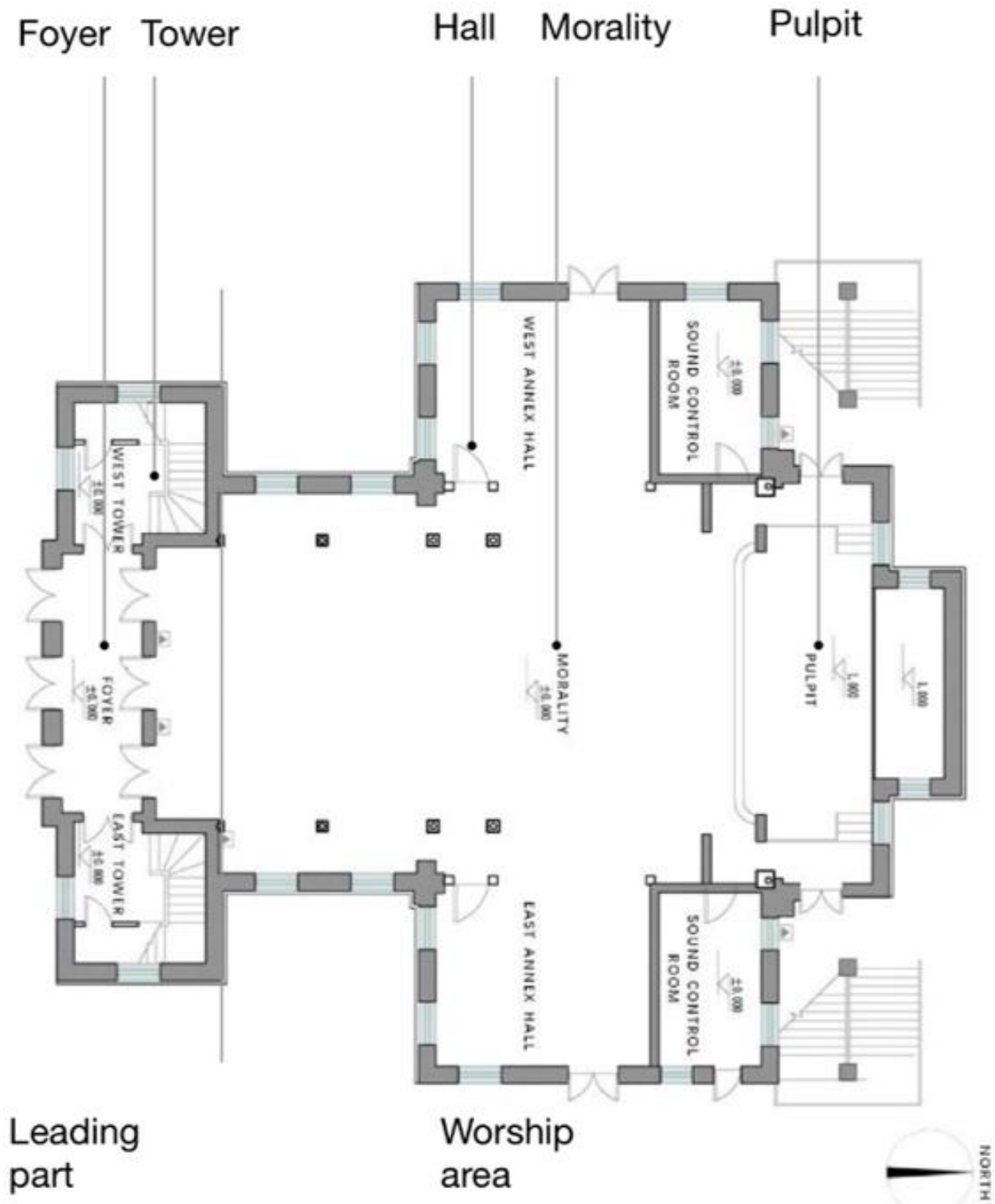


Fig. 9 Components of the main spatial sequence of Sicheng Hall.

3. Research on the Localization Characteristics of Hangzhou Sicheng Hall Architecture

As a typical Christian church, Si Cheng Hall has incorporated Western religious related to designing and constructing culture into its architectural features and construction techniques, reflecting the mutual influence of both Eastern and Western cultures, and the combination of different races, cultures, nationalities, etc. living together of adopted foreign cultures into the Chinese culture.

For the influencing factors of architectural localization, they are mainly divided into the following aspects:

The complex and loose management system of the Protestant Church. Unlike the Catholic Church, which has a well-ordered and hierarchical organization, the Protestant Church, as shown a good example the Northern Presbyterian Church, has a complex and loose management system, with a large number of people, and cannot be controlled by strict religious beliefs and principles. As a result, missionaries were subject to fewer restrictions and could preach peacefully, build churches and preach freely in the local community. When considering the content of their missionary work and the construction of churches, they can make their own choices on the basis of retaining the most basic doctrinal content and adapting to the local conditions.

The missionaries did not have sufficient human and financial resources. As an imported culture, Christianity needs a certain economic foundation to establish itself in China. However, due to the social conditions of the recent wars, it was difficult for missionaries in China to raise large amounts of money to build traditional churches, and they could only rely on the limited financial support of their own religious organizations and local gentry. In order to save money, many religious organizations chose to rent, buy and sell local houses and transform them into religious churches. This constraint was reflected in the small footprints of the churches in China, the convoluted construction process, and the small size of the buildings.

Resistance and rejection of local democracy. At that time, with the rise of nationalism in China and the promotion of Christianity's vernacularization movement, there was a certain degree of rejection of Protestantism and church missions, making it difficult for missionaries to gather the local people for preaching and evangelism. In order to change the negative attitude of the masses, the church gradually changed its traditional missionary policy, changed its hard-line attitude, and took the initiative to integrate traditional Chinese architectural styles into the construction space and details of the church, and gradually localized the church, in order to ease the objections of the followers of Buddhism and Taoism and to integrate it into the surrounding residential environment.

Lack of construction techniques and materials. Western religious churches have mature construction techniques and have formed a complete set of construction systems, whereas foreigners coming to China in recent times have limited funds to build churches and can only employ Chinese workers who lack the relevant Western construction techniques rather than foreign craftsmen, and local craftsmen, even if they have complete design drawings, are unable to understand the inherent craftsmanship, which means that it is not possible to build a church in accordance with the traditional style of Western religious churches. In addition, the stone used in Western churches was difficult to transport to China, and local building materials had to be compromised, preserving to some extent the traces of traditional local architecture.

3.1. Flat Shape System

Most traditional Western churches stand in the center of the city, above the other public buildings and residential buildings in the vicinity, so that people can identify them from a distance, highlighting the absolute sanctity of God and the church. However, the Northern Presbyterian Church, a missionary in Hangzhou, due to lack of funds and small influence, could only choose the inexpensive Fengleqiao Zhijie Sanguan Lane entrance of Hangzhou's old downtown area as the address for the construction of the Sicheng Hall, which was surrounded by other surrounding buildings in the city and did not have the grandiose volume of Western architecture; in order to facilitate missionary work and to expand the number of believers, U.S. missionaries Lai Enzhi and Zhang Chengzhai, among others, located their address in a residential area of Hangzhou.

Gao Manshi, Xu Yitao, "Imported and Local: Translation and Study of the 1926 Manual of Church Building in Northern China Compiled by French Missionaries," makes the following suggestion about the location of churches: do not choose a site in a low-lying place prone to flooding [4]. However, when the Protestant Church of Christ was determining its missionary address, it constantly compromised in the face of Hangzhou's urban pattern, and built the Sicheng Hall on the banks of the

Zhonghe River for the following reasons: Firstly, the Zhonghe River is a waterway connecting the Qiantang River and the Beijing-Hangzhou Grand Canal, and it is a major thoroughfare for the transport of goods by merchants in modern times, which makes it convenient for the transport of church materials. Secondly, it is an important part of the water system of the main city of Hangzhou, and the banks of the Middle River are a place for the public to play and rest, which is not only convenient for communication between missionaries and believers but also conducive to the dissemination of culture. Thirdly, it is close to the water source, providing water for the church's daily life and gradually integrating into Hangzhou's custom of living by water.

3.2. Layout

3.2.1. Orientation

Influenced by the religious doctrine that "the rising of the sun in the east symbolizes the second coming of the auspicious time of the year", or the Jewish pilgrimage to the city of Jerusalem, Western churches generally follow the principle of facing east to west, with the entrance in the west and the altar in the east of the church [5]. For example, the altar of Notre Dame de Paris in France is located in the southeast direction, which is the same as the direction of Jerusalem; and the altar of the Basilica of Notre Dame de la Salle in Italy is located at the east end. However, the Protestant denominations that emerged after the Reformation generally did not adhere to the orientation.

The traditional orientation of Chinese buildings has been north to south since ancient times. Facing south not only meets the building's needs for light and shelter from the wind but is also related to the traditional Chinese culture of feng shui. Therefore, the Protestant Church in China in recent times has basically followed the Chinese principle of orientation, in which the orientation of the Si-Cheng Church is north-south (aerial can be seen in figure 10). On the one hand, because of the loose religious organization of the Presbyterian Church in the United States, it is no longer mandatory to follow the principle of building churches that "sit in the east and face the west" and "face Jerusalem", so that it can be changed appropriately. On the other hand, the Sicheng Hall was built on the architectural pattern of the original Chinese houses, following the traditional orientation of the houses and adapting to the local environment of Hangzhou.

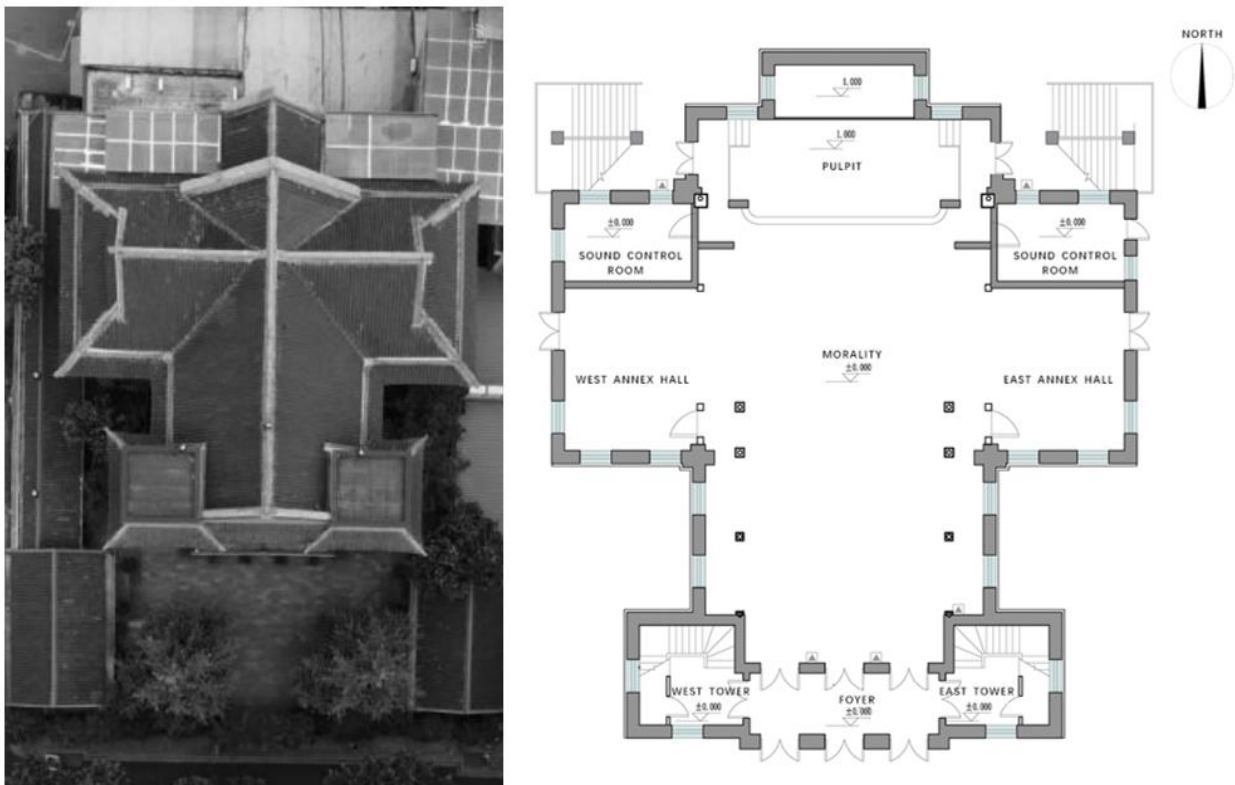


Fig. 10 Orientation of Sicheng Hall.

3.2.2. Building layout

Western church buildings occupy an important political and religious position in Western society, usually located in the core of the city, usually with an open layout, the main entrance of the church is usually built in front of the city public square, with obvious spatial orientation, and the building group is usually led by the sanctuary as the core of the whole building group. However, at that time, the Northern Presbyterian Church was far inferior to the Catholic Church in terms of manpower and financial resources and was unable to build such large churches in the interior of China, so it could only rent local residential compounds as missionary sites, and gradually accumulated wealth and strength in its later development, with some missionaries choosing to transform old compounds into churches, and others choosing to build new churches.

Among them, the construction of Sicheng Hall's course of twists and turns, first of all, the United States Ni Wei Si couple missionaries in Hangzhou Ziyangshan Wang Wang Temple in the Scissors Alley began to preach, and later by the war impact of the missionary cause of obstruction and stagnation; Until the United States in 1864, missionaries Gerning and Zhang Chengzhai opened missionary sites, in Pi Shi Lane, rented a five-room building as a hall of worship. Later, the American missionary Lai Enzhi and Zhang Chengzhai through the collection of funds to buy Fengleqiao Guan houses, the building for the four courtyards, and the front of the flat hall was converted into a chapel, the last three into the transformation of the house as a pastor's residence. Finally, the congregation led by Zhang Baoqing raised funds to build a new church and bell tower on the original foundation of the Fengleqiao Church (which was later demolished due to the widening of Jiefang Road).

Traditional buildings in China generally take a certain building as the base axis to unfold the spatial sequence, take the courtyard layout, the hall, the main room sits in the north and faces the south to highlight the importance of the central axis, the compartments, and the supporting rooms are divided into two sides. For foreign religions, church buildings mostly learn and imitate the layout of local houses. To sum up, the architectural pattern of Sicheng Hall reflects that it is deeply influenced by the traditional courtyards in Jiangsu and Zhejiang regions of China, and it has been rebuilt on the basis of the houses of the Guan surname along Fengle Bridge, using a balanced and symmetrical way, designing along the longitudinal and transverse axes, unfolding with the church as the base axis, with the auxiliary buildings, such as the reception room and the lavatory, located at the two sides, and the church as the main body, and the auxiliary buildings is simplified compared to the main building, which is the most important part of the building, and the overall architecture is economical and practical, with a balanced proportion[6]. The overall building is economical and practical, with balanced proportions, while paying attention to the beauty of form (plane can be seen in figure 11).

At present, the restored Sicheng Hall still retains the courtyard door and compartments. This layout not only reflects the characteristics of Western architecture, but also meets the needs of the rapid spread of religion and church construction at that time, and it provides a useful reference for modern Chinese architecture to explore a new layout.

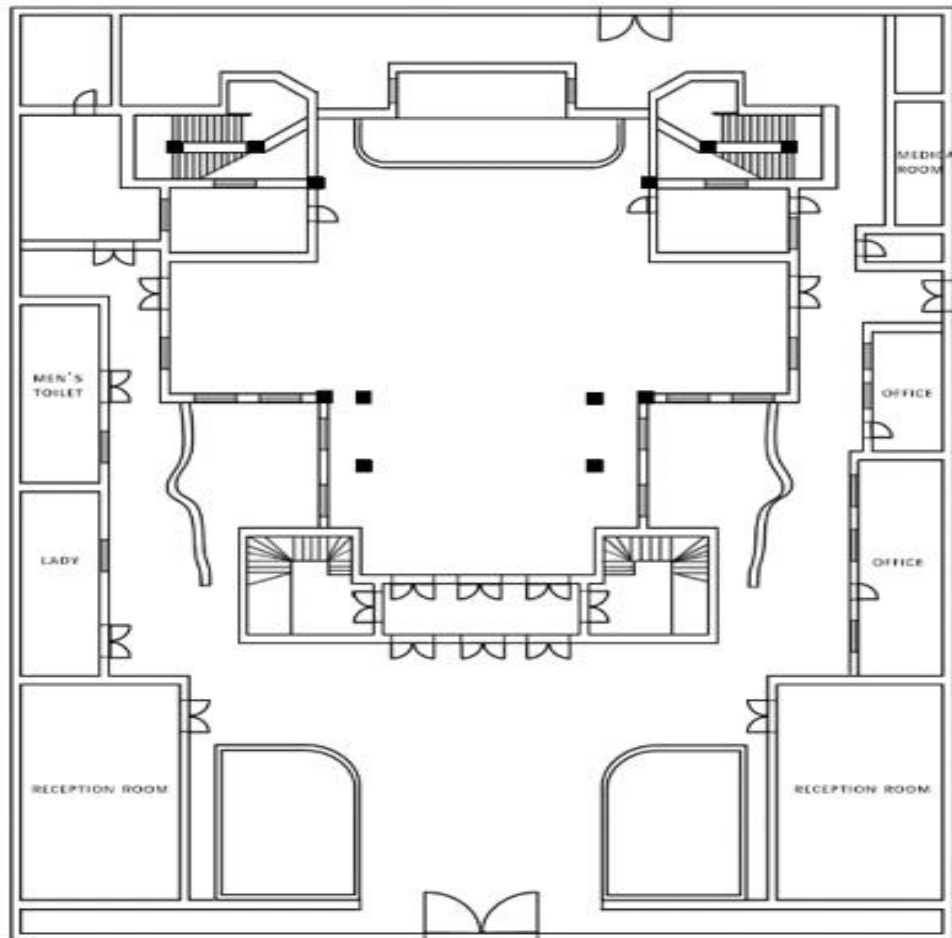


Fig. 11 Architectural pattern of SichengHall.

3.2.3. Architectural style

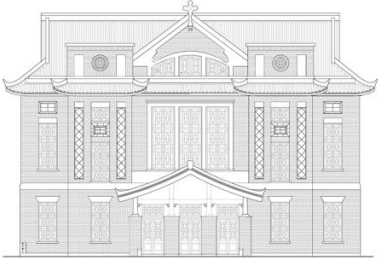
In the middle of the twentieth century, the people had some resistance to Protestantism and church missions, and Western missionaries learned the lessons of failed missions, and in order to better spread the Christian religious culture, when building churches in China, they adopted the strategy of respecting the traditional Chinese culture, began to explore the use of traditional Chinese architectural style in church buildings, and advocated and constructed a number of churches of Chinese and western styles[7]. Since the name of the designer of the Sicheng Hall cannot be examined, it is generally believed that the building should be the work of Chinese folk craftsmen, and in terms of architectural style the Sicheng Hall is basically detached from the style requirements of all kinds of Western church buildings (facade can be seen in figure 12).



Fig. 12 The facade of Sicheng Hall.

The combination of Chinese and Western styles of Sicheng Hall is mainly reflected in the following: the overall building is a mixed brick and wood structure, using Chinese materials such as green bricks, pine wood, and the traditional masonry process of clear water bricks with Chinese door coverings; the roof of the building is a warped gable roof, gable rafters, and picketed eaves; and the front elevation is a vertical three-part composition of the Western classical architecture, and there is still a rounded rose window on behalf of the Western church architecture, as well as a Western tower style staircase, but a large number of Chinese styles and details of the building will be pulled back to the ambiance of the Jiangzhe building [8]. (Features are summarized in table 2).

Table 1. The combination of Chinese and Western features on the facade of SichengHall.

Elevation	Chinese characteristics	Western-style features
	Traditional materials Masonry craftsmanship	Longitudinal three-stage
	Upturned roof Chinese style door cover Prop up the window type	Round rose window Western-style tower style staircase

3.2.4. Localised decoration

As a representative of the East and West architectural style, Sze Ching Tong incorporates a large number of local elements into its architectural decoration, with local traditional decorative details as the main focus, supplemented by the basic features of Western-style architecture.

(1) Warped gable roof

As the most prominent Chinese element, the warped eaves roof of Sicheng Hall adopts the flying eaves, a form of eaves in traditional Chinese architecture, which is one of the most important manifestations of the national style of Chinese architecture [9]. Flying eaves are an important part of the roof shape in traditional Chinese architecture, which not only has the function of increasing light and facilitating drainage but also has the function of light and lively decoration. The eaves of Sizhengtang Church are made of wood according to the support material, which is shown as eaves rafter eaves (eaves can be seen in figure 13).



Fig. 13 Sicheng Hall roof and cornice.

(2) Clear-water brick wall

Sicheng Hall uses green bricks as the main building material, and the whole is a clear-water brick wall with white-grey outlining (the wall can be seen in figure 14). This is because at the end of the 19th century, in order to adapt to the complex requirements of Western-style architectural decoration, green and red bricks as the main material for the treatment of a large number of water brick walls, this type of building in Jiangsu and Zhejiang in the largest number of the performance of the most obvious, and the greatest impact, for this reason, Sicheng Hall also follow the trend of the time, the large number of the use of green bricks to build [10].



Fig. 14 Sicheng Hall clear water brick wall.

(3) Supported window type

Support pick window, also known as the harmony of the window, that is, the upper part can be supported, and the lower part can be taken off. Generally used in homes, apartments, the second room, the tip of the room, and the end of the room between the front gable, a few also have the front and back of the eaves at the same time. In Suzhou and Hangzhou areas of the garden and residential, the support of the pick window is more made of upper, middle, and lower three sections, rich in decoration. The upper, middle, and lower three sections of the branch pick window, also known as the harmony of the window, the upper and lower windows on the fixed, and the middle window can be branched outwards [11]. The use of a large number of windows in Sicheng Hall not only solves the problems of ventilation, lighting, and sound insulation but also embodies the culture of Chinese society and an architectural decorative language, although Sicheng Hall has undergone a number of restorations and remodeling, the characteristics of this window and door have been preserved (wall, supporting window can be seen in figure 15).



Fig. 15 Sicheng Hall clear water brick wall and supporting window.

4. Conclusion

In the process of the development of Hangzhou activities, the modern Presbyterian Church in the United States of America gradually expanded and renovated their churches, and finally formed the Sicheng Hall. In this process, with the influence of local culture and construction technology, it presents the image of "Western and Chinese" style, that is, it retains Western characteristics, but also has local characteristics. This paper mainly forms the following conclusions:

Firstly, in terms of retaining features, Sicheng Hall mainly follows the centralized plane of traditional Western churches, the setting of entrance porches, and the spatial sequence of "one path", which mainly have spiritual symbolic significance.

Secondly, Sicheng Hall was limited by the loose management system of the local church, the lack of financial and material resources of the missionaries, the rejection of the local people, and the construction technology and materials.

In the end, a combination of local construction techniques and materials was adopted to form today's "Western and Chinese" architectural style.

In the future design, we should be based on the local, combined with the local human history, regional architecture is a living architecture, and it is not advisable to rest on its own, for foreign things, we should take its essence, to its bad. Nowadays, new types of modern architecture are also emerging in China, with a strong sense of modernity and science and technology. The combination of Chinese and Western design reflected in the Sicheng Hall discussed in this paper may provide some inspiration for how to harmoniously co-exist Chinese and Western cultures and design local architecture.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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