

A Brief Introduction of Shan-Shaan-Gan Guild Hall

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Abstract: Kaifeng is a capital of eight dynasties with many cultures. Therefore, the architectural style in Kaifeng has both exotic and local features. The Shan-Shaan-Gan Guild Hall was built by rich merchants in Shanxi, Shaanxi and Gansu. The surveying and mapping of Shan-Shaan-Gan Guild Hall tells its internal architectural layout, architectural style and decorative features. The author focused on its various roof forms and learned about building construction techniques, building structures and roof waterproofing of traditional buildings, which will provide reference to the research of traditional buildings.

1. Basic Information

Located in Xufu Street, Kaifeng City, Shan-Shaan-Gan Guild Hall was built in the Qianlong reign of Qing Dynasty. It is located in the former site of the descendants of Xu Da, a famous person in Ming Dynasty. It is a guild hall built by wealthy merchants from Shanxi, Shaanxi and Gansu to protect their own interests and make friendly contacts with people from the same village. That's why it was named Shan-Shaan-Gan Guild Hall. In 2001, the hall was included in the fifth batch of national key cultural relics protection units. Its total area is 3,629m² with 1,882m² building area. It includes a variety of architectural types, including screen wall, festoon gate, theater stage, memorial archway with six pillars, five roofs and three gates (it is also called chicken claw memorial archway), and joined-roof hall. The hall has preserved the architectural style in Qing Dynasty.

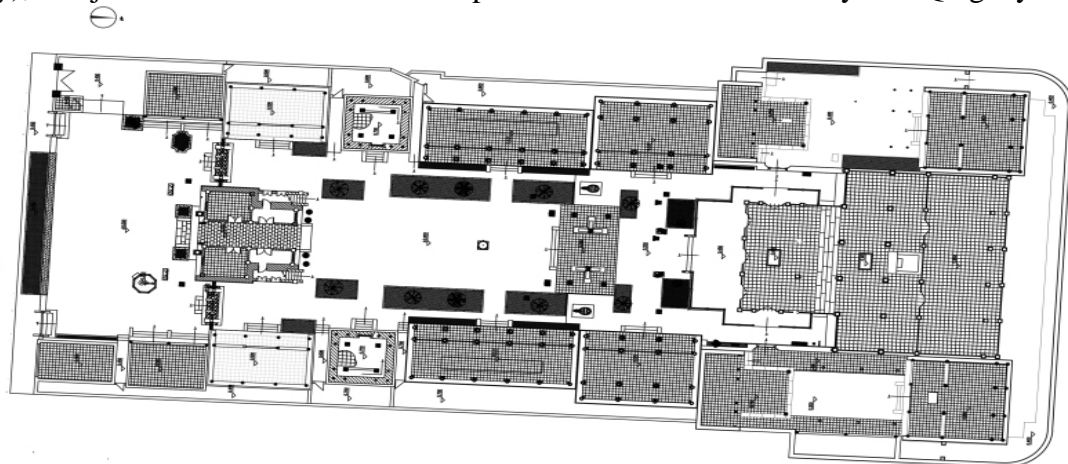


Figure 1 General map

It can be seen from the general map (figure 1) that the overall courtyard pattern is a miniature of the traditional Chinese courtyard. The building is symmetrical along the central axis and the overall layout is rigorous and regular. There are three courtyards from the south to the north. The first one courtyard or the entrance courtyard has screen wall, theater stage, three three-bay wing rooms with two sides against hills in the east and west and two festoon gates. Walking through the theater stage, visitors can see the second courtyard or the middle courtyard, which is composed of the bell and drum towers in the east and west, side rooms and the memorial archway. The main courtyard is

enclosed by the memorial archway, the side rooms in the east and west, and the main hall. The whole courtyard changes its scene at every turn and step. The wing gate of the front courtyard is connected with the festoon gate of middle courtyard to the chicken claw memorial archway. These nodes not only play a guiding role, but also is a separation point in the spatial sequence. The yard is not large, but it always attracts the tourists' sight and guides traffic flow, making the space more hierarchical and deep.

2. Main Buildings

The screen wall is located at the southern end of the central axis of the courtyard, which plays a certain visual shielding role and reduces the connection between the external space and the internal courtyard. The black-brick screen wall is arranged along the street in a line shape, whose length is 16.54m, thickness is 0.65m and height is 8.95m. The base is made of blue stone, with the body of the screen wall on it. The north and the south sides are decorated with peonies and steaks like a Chinese character of "hui" . The back and the front are inscribed with Chinese character of "disheng"(a sacred person) and "zhong, yi, ren, yong" (loyalty, faith, benevolence, courage) with 18 Chinese dragon-shaped brick carvings. The upper is the hip roof with cyan glazed tile and the eave is covered with tile carvings. As shown in the figure 2-3:

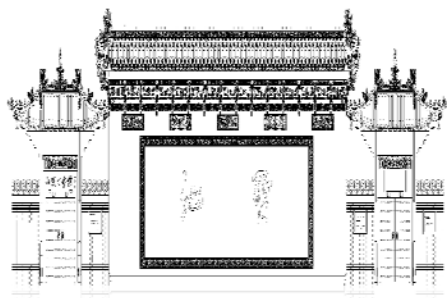


Figure 2 The screen wall and the south side of the wing gate

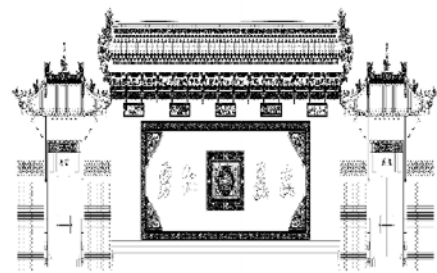


Figure 3 The screen wall and the north side of the wing gate

The gates on both sides of the screen wall are named "wing gates" because they are like two wings. The screen wall and two wing gates form the shape of a Chinese character of "shan" (mountain), which together form the facade of the hall. The two wing gates are symmetrically arranged with the same shape. The bottom is the drum-shaped bearing stone; the middle is the stone gate and the roof is gable and hip roof. The total height is 7.8m. The eleven brackets are arranged tightly under the eaves, making the eaves large. Under the brackets are two stone gates with a height of 2.52m. The gates are nailed with copper nails and auxiliary head rings. The wing gates are fixed with 1.66m drum-shaped bearing stone , making it firm and beautiful.

If the screen wall and wing doors are the guide of the hall, the theater stage is the first highlight of the courtyard. The theater stage is not the original one in the hall which was demolished in 1954. The existing one was removed here from Temple of Hephaestus as a whole. There are two floors in the theater stage. There are three open rooms respectively in the width and depth in the first floor with a north-south passage for people to walk in the middle. From the outer stone ladder, visitors can get on the second floor. The stage consists of two parts of flush gable roof and gable and hip roof.

The theater stage is connected to the first courtyard and the second courtyard. The second courtyard is arranged with the bell and drum towers in the left and right sides, and five-bay side rooms with flush gable roof in the east and west. The bell and drum towers are double-eave gable and hip roof, and the side rooms are flush gable roof. The sparrow brace on the side rooms is unique. The exquisite wood carving is definitely not easily copied by the machine. It shows the development level of the carving process at that time and craftsman spirit. The Buddhist stories, legends and idiom stories on it are vivid. The second highlight of the courtyard is memorial archway with six pillars, five roofs and three gates. On the flat surface, it looks like two triangles

and two chicken claws, so it is aliased to the chicken claw archway. The roof of the fancy building is even more unique, as shown in Figure 4.

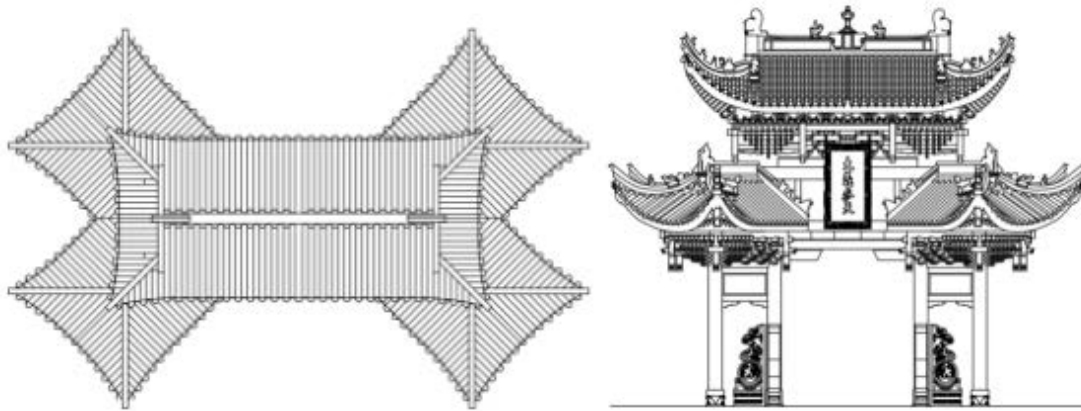


Figure 4 Memorial archway

Passing through the memorial archway, visitors reaching the main hall with gable and hip roof hall, round ridge roof hall and flush gable roof hall. The three buildings are combined by joined roof. The roof can be seen from the sectional view of the hall. From the south to the north, the form is flush gable roof, round ridge roof and the gable and hip roof. The gable and hip roof hall is wide and deep with three rooms respectively and no corridor. It is built with column grid pillars. The main hall line is mainly used for display. The east side is the urban models of Kaifeng City in recent years and the west side is the ancient city models of Dongjing in Song Dynasty. The round ridge roof hall has five rooms in the width and one room in the depth. The middle part is the golden image and the incense case of Guan Yu (a Chinese hero). The historical photos of Kaifeng is set around the hall. The Kaifeng City Tower model is on the east side and Kaifeng Pagoda is in the west side. The two towers stand in the north and south of Kaifeng City, from which you can see the history and architectural achievements of Kaifeng. The main hall has five rooms in the width and three rooms in the depth. The centre is the model of Riverside Scene on the Pure Brightness Festival, surrounded by historical photos of Kaifeng. It can be said that the entire hall is mainly arranged around Kaifeng's history, urban planning and architecture. It has got rid of the limitations of traditional architectural space and created a larger indoor space. The exterior of the building is more grand, more continuous and ritual.

The main hall adopts the joined roof with connecting the gable and hip roof, round ridge roof and flush gable roof. The connection method of the three halls is a typical combination of joined roof. It belongs to a hall with a joined round ridge roof. Usually, it is two halls that are combined. It is still relatively rare for three halls like the intact joined roof of Shan-Shaan-Gan Guild Hall.

3. Roof Forms of the Building

There are various roofs of the Shan-Shaan-Gan Guild Hall. From the south to the north are the hip roof of the screen wall, gable and hip roof of the wing gates, combined roof of flush gable roof and round ridge roof of the theater stage, double-eave gable and hip roof of the bell and drum towers, double-eave gable and hip roof of the memorial archway, and the joined roof of main hall and side yard. The roofs are rich in style and orderly. The roof not only shapes the rich architectural images, but also shows the hierarchical sequence of the building. It becomes more and more attracting with the courtyard spatial sequence. The roof is mostly made of green and gray glazed tiles. The color is limited to the building grade specification. The choice of tile can effectively carry out the roof drainage of the building. The reasonable material makes the building still preserved for centuries.



Figure 5 Joined roof with flush gable roof and round ridge roof



Figure 6 Joined roof with round ridge roof and gable and hip roof

4. Architectural Details

There are many decoration details of a building from its pedestal, body to the roof. The Shan-Shaan-Gan Guild Hall is exquisite from a far or near view, like the vintage wine waiting for people to taste. There are Wenshou (a traditional Chinese architectural component), birds, beasts, ridge tiles, the dripping shape and arches on the roof. The body embraces Chitou (a part reaching out the wall), sparrow brace and the door and window lattice. The gate is carved with lattice and column base style. The height and style of the base is different. The wood carvings, brick carvings and stone carvings in the building are the three best known carvings of the Shan-Shaan-Gan Guild Hall. Stone carvings are often used for easy-to-wet wall foundations, column foundations, and drum-shaped bearing stone with bold and unconstrained carving techniques and different carving themes in different position. Stone carving not only considers the material properties of the stone but also echoes the surrounding environment. It is said that the stone carving is the unity of functional beauty and form beauty. Brick carving is mostly used for screen wall, chitou and ridge. Some show the grass, flowers, birds and beats in the nature. Some are the abacus and account books. Wood carving techniques are diverse. The embossment, piercing engraving and hanging sculpture make the limited space full of possibilities. By studying the various details, we can find a lot of historical value of the building, including its aesthetic value, cultural value and spiritual value. At the same time, we can understand the decoration process and the specifications of various components at the time to provide reference for the repair of the ancient buildings with the same type at the same time.

5. Roof Waterproofing of the Building

The roof of the Shan-Shaan-Gan Guild Hall has various forms. It can be said that the long-term preservation of the building is inseparable from the quality of the building itself and the structural design. The uplift of the eaves makes the rain water not erode the building and it plays a vital role. Structural waterproofing is the main measure for waterproofing of traditional buildings.

China has a long history in architecture. Waterproofing can be said to be a major problem in architectures. With the development of various aspects in society, waterproofing technology is also gradually optimized. The traditional building roof waterproofing mainly adopts the drainage measure, a kind of structural waterproofing. In addition to the structure, the materials used in the roof, different construction processes, regular maintenance in the later period and the geographical location will affect the waterproofing of the building.

In ancient times, there were no tiles. The roof materials were mostly branches, straws and mud. During this period, the slope of the roof was adjusted to guide the direction of the water. The appearance of the tiles in Western Zhou Dynasty marked the new era of the roof. In the era, there appeared more and more roof forms, such as flush gable roof, overhanging gable roof, gable and hip

roof, and hip roof. The waterproofing is getting better and better, and the slope of the roof is gradually decreasing. But the structure is mainly used for drainage. With the gradual development of materials, asphalt, cement and some chemical building materials have emerged slowly, which has made a major breakthrough in building waterproofing. The buildings have taken waterproofing measures as the main way with drainage measures. The development of materials has promoted the development of building waterproofing. The rational use of related materials and construction techniques can be said to be an important measure to strengthen the waterproofing of traditional building roofs.

The roof of a traditional building will accumulate dust, leaves and weeds. The growth of weeds will fundamentally change the soil in the roof, causing voids and soil loss. Even worse, it will affect the quality of the wood. In the long run, it will cause the looseness of the tile. Therefore, the regular cleaning and maintenance in the later period is also an important part of strengthening the waterproofing of the traditional building roofs.

6. Summary

According to the field survey and mapping, the article analyzed the layout, architectural style, roof forms and roof waterproofing of traditional buildings with studying the joined roof of the main hall. This will help people understand the artistic value, emotional value and architectural value of the Shan-Shaan-Gan Guild Hall. Its spatial processing techniques, rich architectural forms and ingenious treatment of waterproofing and drainage of building roofs are worth learning and research.

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