

A perspective of authenticity degree on the protection of traditional dwellings in ethnic community: The case of the Ma house in Songzhou ancient city

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Abstract. As a provincial level historic city, Songpan County in Sichuan Province has a history of more than two thousand years. Locating in the border of three provinces, Songpan was inhabited by multiple ethnic groups. The leading culture here has experienced the baptism and influence of various ethnic cultures such as the Diqiang culture, Mongolian culture, and Tubo culture, and it was not until the Tang Dynasty that the harmonious scene of the coexistence of various ethnic cultures began to be dominated by the Central Plains culture. This research took the Ma house in Songzhou ancient city in Songpan County as the object, which is a representative of local Hui people's traditional dwellings with a history of three hundred years. Many factors have led to unsystematic protection and renovation to it, and the traces of time was superimposed on it. Therefore, starting from the authenticity degrees of historic building, this paper identified and analysed the timeliness value and spatial value of the Ma house by combining the full information cycle of historic building, which provided a new method and more rational view for the research of historic dwellings.

1 Introduction

With the acceleration of urbanization and the rapid development of economy, ethnic villages in ethnic minority community are being impacted and affected by extraneous culture. On account of insufficient investment, inadequate management, natural and historical reasons, and so on, ethnic villages are facing severe challenges. Therefore, the culture of some traditional ethnic villages is dying out with each passing day. This challenge also find expression in architecture—a large number of historic buildings have disappeared in the renewal and reconstruction of the city; under the influence of time passing, natural disasters and man-made disasters, historic buildings have been repaired and mixed with various eras and ethnic groups styles, losing part of their authenticity. More and more attention has been paid to the importance of historic building protection, and it is urgent to strengthen its protection and development.

2 Basic conception

In the dimensional structure of traditional village protection, the protection degree should be evaluated from four dimensions, the degree of integrity, the degree of active state, the degree of inheritance and the degree of authenticity. Authenticity has always been a key conceptual issue in the protection of architectural historical heritage. As a term, Authenticity contains the dual meaning of authoritative and original, and the objects it refers to involve not only historical heritage such as

cultural relics and buildings, but also extend to natural and man-made environments, art and creation, religion and legends, etc.

For a work of art, heritage building or historic site, authenticity means that the information used to determine the significance of cultural heritage is true. Therefore, the authenticity degree is the embodiment and expression of the degree of authenticity.

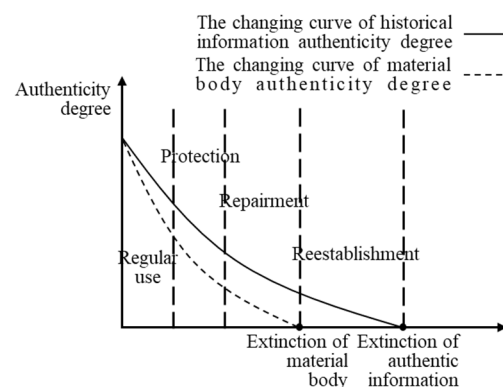


Fig. 1. Variation Diagram of Authenticity Degree [4]

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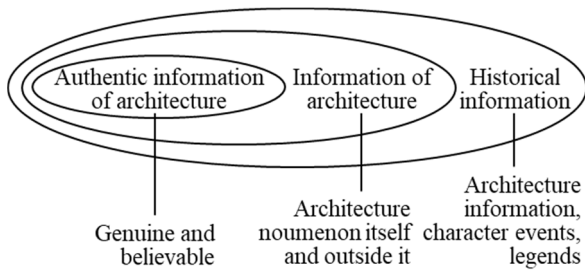


Fig. 2. Information Relationship Diagram[4]

3 Research object

This research focused on the Ma house in Songzhou ancient city. Songzhou ancient city is located in the east-central part of Songpan County, Aba Tibetan and Qiang Autonomous Prefecture, Sichuan Province, in the upper reaches of the Min River. Songzhou ancient city belongs to the northeast of Aba Prefecture, and is more than 300 kilometers from Chengdu city. The pattern of the ancient city has very distinctive characteristics, and a street system with North Street, Middle Street, South Street and Gulou East Street and Gulou West Street as the main structure has been formed in the city, which is in line with the typical small town street pattern of mainly developing around one or several main streets. At the same time, Songzhou ancient city has a long-term history of ethnic migration. The ethnic minorities in the city are mainly from the northwest region, and after continuous development and integration, the Tibetan, Qiang, Hui and Han ethnic groups in the city have been living together for a long time, influencing each other and integrating with each other, giving birth to a strong local style and national culture. The buildings in the city are mainly based on the Hui people and Han people's architectural style, colourful and detailed, full of exotic style. However, due to the bombing incident, most of the historic buildings in the ancient city were destroyed, and after many renovations and reconstruction, a large amount of new pseudo-classic architectures appeared in the city. As one of the oldest houses in the city that has been preserved for 300 years since the bombing, the Ma house records the story of Songzhou ancient city and the Ma family in the language of architecture.

The Ma house belongs to a Hui people family surnamed Ma, with a total of seven members in the family, six of whom have moved out of the old mansion, leaving only one person in the city to guard this ancestral home. The main body of the building is 300 years old, and the former Prime Minister of Malaysia has visited the house. As a result of that the local government has not carried out systematic protection measures and provided subsidies for the homestead, the Ma family themselves have been responsible for the long-term repairment and protection of the Ma house. In order to keep warm, they have replaced the windows of the building, added wooden panels to the internal walls, and the door leaf has been newly replaced. In order to supplement the lighting of the attic, several tiles on the roof were replaced with light-transmitting tiles. The building is partially reinforced, and the wood is

repainted every two to three years to ensure that the wood is resistant to corrosion and insects. This situation brings two sides, on the one hand, man-made and unprofessional renovation measures may cause damage to the original appearance of the building, and at the same time have certain impact on the authenticity of the building. On the other hand, this restoration is to protect the structure of the historic building, increase its durability and service life, and give the building the colour and characteristics of different periods the ancient city. We believe that this also falls within the verifiable range of authenticity degree.

4 Research method

In the preparatory stage, we carried out basic data collection and literature research. Then we conducted on-site investigation in the Ma house, and finally sorted out and optimized the measured survey results. In the data collection stage, we completed the drawing of the general plan by means of horizontal control survey, vertical control survey, broken step survey, and general plan production. The measured survey of the single building Ma house mainly uses traditional measurement methods, UAV photography data collection and building interior photo collection methods, and measured the basic information of the Ma house. Through the cooperation and supplement of a variety of measurement methods, we completely recorded the current situation information of the historic building, realized the three-dimensional digital reconstruction of the historic building, and drew the general plan status measured survey drawing, architectural plan, architectural elevation, architectural section and component large sample drawing, so as to establish a digital archive for the historic building.

5 Data analysis

5.1 Site layout

The entire layout of the ancient city is axisymmetric, with the main road as the axis and the two sides symmetrical. The historic building area lies in the northeast of the ancient city and in the commercial area, with the newly built commercial building on its west and north sides, and its south and east sides facing the street, across the street is a leisure square to hold large-scale events and an ancient city wall dating back to the Ming Dynasty. The historic area appears a straggling layout, and the Ma house situates in the east side of it, near the road. There is an open courtyard called *Yuanba* on its south side that can be used as a front yard to guide people into the historic building.

5.2 Plane relation

The house has existed for over 300 years, during which it was maintained by painting to prevent insects and corrosion, adding exterior wall clapboards, etc. But the overall spatial pattern has not changed. The plane is similar to a square, and the space is divided according to

the size of the column grid. Through actual measured survey, it was found that the building has three floors, two courtyards, and the whole is oriented north-south.

Entering through the low wooden doors on both sides is the basement floor, about 0.5 meters in height, which is a semi-underground storage room to store livestock feed and farming tools, and the space is not divided. The first floor is the main living space of the Ma family. The space is divided into living room, master bedroom and two second bedrooms according to the position of the pillars, while auxiliary spaces such as the toilet and kitchen sit outdoors. The layout is centred on the living room, and the bedrooms are arranged around it, roughly on the west and north sides. The attic on the second floor is all storage rooms, and the wooden window on the south side with a ladder is used as the entrance and exit. The spatial division also refer but not according to the column centreline, and the whole is divided into three rooms.

5.3 Main architectural form

From the perspective of construction technique and architectural style, it should belong to the northwest Sichuan Hui people's residential style. The whole Ma house also combines the Han people's residential style, and employs a form of all-wood frame and tenon through type structure, with a layout consisting of two standard rooms and a type of beam frame called *Sijieliang*. The roof adopts the type of overhanging gable roof and is tiled with small grey tiles. On the edge of the roof are special grey tiles called *Dishui* to guide rainwater, and the edge is 7.2 meters long, 2 meters wide. The main ridge of the roof is nearly 6 meters high, so this relatively large depth creates a towering slope roof. The fairly long shoulder eaves of the slope roof produce a spacious space of eaves gallery, which embodies the characteristics and cultural connotations of the traditional residential shape and structure. Follows the principle of adaptation to local conditions, this simple and elegant construction with a pleasant scale is a typical traditional northwest Sichuan dwelling.

5.3.1 Structural composition

The Ma house is composed of columns, square-columns and short columns. The column or short column head is directly supported without beams, and the square-column passes through the column to form a grid structure. The main components of the tenon through type wooden frame are columns, sandalwood hangings, square-columns, *Qianzi*, rafters, etc., of which the hangings and *Qianzi* mainly play the role of connecting columns in the width space.

Besides the structure framework, wood is also used in the outer maintaining structure, interior partition, detailed component, interior and façade decoration or fitting-out work, furniture, etc. However, the overall style of the house has changed a lot from the original appearance. For instance, the interior and exterior wall panels have been repainted so the original colour is indistinguishable. And compared to the traditional tenon through type building,

the Ma house has an additional row of transoms under the floor slab of the second floor.

5.3.2 Basement

There is a small basement built at the bottom of the dwelling, with an internal height of about 1 meter. There are two entrances, one is on the front and the other on the side. The entrance position is raised to prevent rainwater from pouring in. The basement was originally employed to raise cattle and sheep, but now it is used for firewood.

5.3.3 Wooden component decoration

The wooden components of the house are big and thick but with fine workmanship. The appearance is repaired by the aborigines, painted with yellow and red paint every two or three years. The double shoulder eaves in the front of the overhanging gable roof are about 1.4 meters high, but the craftsmanship is rather rough—their appearance maintains a natural wood texture. The short columns are carefully carved, showing the grain of geometry and plant with extremely delicate knife techniques. The exquisite construction of the fine components of the doors and windows, the soft carving on the sparrow brace, the opportune embellishment of the decorative cylinder, the simple wooden enclosure, the soft slope shape of the slope roof, and the courtyard environment enclosed by the external rough stone wall, all of these reflects the simple and elegant spiritual pursuit of the house owner.

5.4 Decoration art

5.4.1 The roof ridge

On the ridge where the slopes on both sides meet, tiles are piled up high to prevent rain leakage at the joints. In place of the statue of Chi tail normally used at both ends of the ridge in ancient buildings, tiles are stacked up in the middle of the house ridge to create an extremely decorative commanding point called *Taisui*, which has the symbolic meaning of blessing peace.

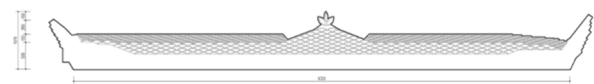


Fig. 3. The Roof Ridge

5.4.2 The Bofeng board

The two ends of the roof protrude beyond the gable, and at the junction set the *Bofeng* board, which is nailed to the top of the purlin with wooden strips. This can not only shield the joints of the purlin head, but also avoid the sun and rain of the sandalwood, thereby prolonging the life of the roof.

5.4.3 The Hanging fish

Hanging fish is the decoration hang from the midpoint of the inverted V shaped *Bofeng* board. And the triangular moiré decoration arranged along the slope on both sides is called *Recao*. For this kind of craft, the book Construction Method in Song Dynasty, written by Li Jie, has recorded that Hanging fish makes the *Bofeng* board more solid, but they are also works of art, beautiful in shape, gorgeous and elegant. Because the pronunciation of the word fish is similar to left in Chinese, standing for abundance, and also because fish is related with water, while water is to overcome fire. According to this book, most Hanging fish have petal or moiré patterns, which can often be seen in architecture in county of Sichuan. This is the architectural aesthetic orientation orally passed down to the present by generations of craftsmen.

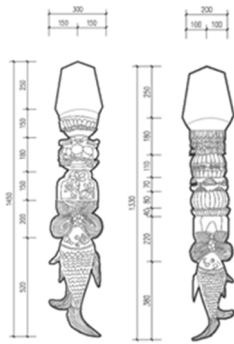


Fig. 4. The Hanging Fish

5.4.4 The Gua column

The Gua column is a relatively short column, evolved from the skids. Situating in the superstratum of each beam frame, it is used as the load-bearing component to support the upper beam. Gua column is carved by local carpenters, and each of them has a different pattern with its own unique style.

5.4.5 The sparrow brace

The patterns on the windows include bats, fish, etc., which represent beauty. However, many windows were broken because time has passed. And fewer craftsmen stick to making window grilles, while the aborigines are also reluctant to apply for professional repairs. So most damaged windows are replaced with modern style windows.

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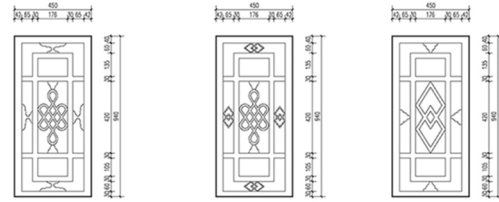


Fig. 5. Window Grilles

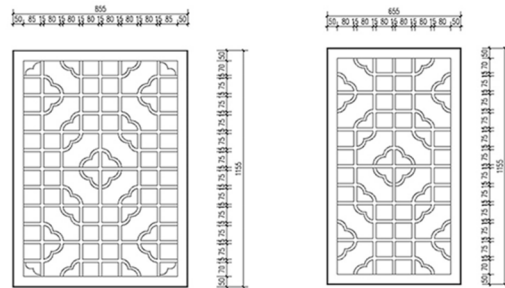


Fig. 6. Window Grilles

5.4.7 Dishuiwa (Dishui tiles)

The tiles at the front of the eaves are divided into two types, one is round or semi-circular, with the arc-shaped tile facing downward; and the other is triangular or Ruyi-shaped, with the arc-shaped tile facing upward. The former is called *Wadang* and the latter is called *Dishuiwa*. The lower end of *Dishuiwa* has a drooping cone-shaped thing and will be placed on the cornice when covering the roof, which can guide the rainwater to flow down and keep the wall clean. Lotus is painted on *Dishuiwa*, meaning blessings and good luck, and the word luck written on *Wadang* in Chinese characters also means this.

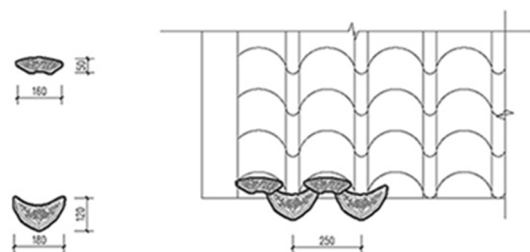


Fig. 7. Wadang and Dishuiwa

In general, from the perspective of authenticity, the Ma house still has high original characteristics of the historic building, and only has a little change in architectural colour, façade windows, the bottom of the second floor, etc. From the view of historic building protection, part of

the windows on the façade of the building should be renovated to make the Ma house have a higher historical authenticity.

6 Conclusion

After field research, we used the conception of authenticity degree to discuss the preservation degree of Ma house and estimate its historical value and protection methods. Applying the conception of authenticity degree on the protection and evaluation of historic building can help to coordinate the relationship between urbanization and historic building. And this research process also provides a reference for other renovation project. It should be pointed out that the house renewal and renovation project in ethnic community involves numerous interest groups, and appeals of local people and non-native people change with the fluctuations in policy and transition of environment in different development phase. That's what this paper didn't take into account, so it needs further study on how to dynamically determine and updating the authenticity degree.

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