

Architectural Style of Traditional Manchu Residence in Liaoning Province, China

Dan Yang¹, Yao Fu² and Mahito Nakazono³

¹ Doctoral Course, Graduate School of Science and Eng., Yamaguchi Univ.

² Professor, Collage of Architecture and Planning, Shenyang Jianzhu Univ. Dr. Architecture

³ Professor, Graduate School of Science and Eng., Yamaguchi Univ., Dr. Eng

Abstract

This paper defines the characteristics of traditional Manchu residence in Liaoning Province of China, and the ultimate purpose is providing the construction rules and theoretical basis for the retention and inheritance. Through the search of literatures and fieldworks, the rules of housing layout and architectural characteristics of traditional residence are defined. Firstly, site selection principle is setting the backside of house against the mountain and the face of one towards water. Courtyard layout looks simple and one longitudinal axis controls the spatial sequence, green can adjust micro-climate. Secondly, *Pocket House* that has a heating brick bed named *Wanzi Kang* is main plan style, so the cross sea chimney stands on the ground by the house sides. Wooden pillars are wrapped in mud wall and ceiling shape is like boat bottom.

Keywords: Liaoning Province, Traditional Manchu residence, Architectural style

1. Introduction

Manchu culture is an important part of the Chinese culture and its birthplace is Liaoning Province. Manchu people have been living in cold mountainous area since ancient times and deeply influenced by Shamanism, which formed their original residential style. But traditional Manchu residences were gradually disappeared in past twenty years, so their retention and inheritance are becoming an urgent research topic. The study of traditional residence is not for archeology but to understand which characteristics are Manchu's that is no longer confused with other national characteristics.

2. Regional situation in Liaoning province and the historical and cultural background of Manchu.

Liaoning province is located in the southern of Northeast China, population is 43,746,000(as of 2010) and the provincial capital is Shenyang city. The climate is temperate zone continental monsoon climate that the sunshine is abundant and it has four distinct seasons. The historical heritage is rich that the human had been lived here as early as the

Paleolithic age. And the National feature of forming a inhabit characteristic is that the Han nationality and national minority live together. Manchu population is the second largest in the 55 minorities in China. China has 12 Manchu Autonomous Counties and Liaoning province includes 7 that accounts for more than 50% of the Manchu population. The living way of Manchu ancestor has been continuously improved. From *Sushen* and *Yilou* times they lived in the nest and cave, after lived in the semi-underground house in *Wuji* and *Mohe* times, until the *Jurchen* time they formally built surface structures (Table 1).

3. Manchu building layout of village

3.1 Site selection principle

In a long-term evolvement, Manchu inherited ancient geomantic omen, and formed the principle of site selection that "near water is fortunate, near mountain is rich". Such as *Xinbin* county of Liaoning Province, many villages are relying on mountains to keep out cold northwest monsoon in winter, and getting fresh cool breeze from water in summer. Buildings gradually rise with mountains, so the layout not only broadens their sight, but also not blocks sunlight (Fig.1).

3.2 Building group layout

Manchu residences are generally arranged along the east-west trend road, the characteristic of this

Table1. Manchu and residence development

Time	Name	Living form	Remarks
-BC260 Han Dynasty ago	肃慎 Sushen	Live in nest	Summer in the nests, winter in the caves, deep cave, with the ladder in and out, Gathering and hunting.
BC260-AD220 Han Dynasty	挹娄 Yilou	Live in cave	
AD386-534 The Wei Dynasty	勿吉 Wuji	Live in nest	Village Frame structure, half on the ground floor. Hunting and agriculture.
AD618-907 The Tang Dynasty	靺鞨 Mohe	Live in cave	
AD960-1125 The Liao Dynasty	女真 Jurchen	Birch house	Appeared surface structures, the most remarkable characteristic is people sleep, rest and diet all on the heated Kang. Agriculture and animal husbandry.
		Live on the ground	
In the late Ming Dynasty	女真 Jurchen	Mud-walled thatched cottage	It formed a mud-walled cottage, the ring kang has been near to today's. Influenced by Han culture, gradually formed Manchu residence characteristics.
		Ring kang	
In 1635 Qing Dynasty	满洲族 Manchuria race	Typical form of Pocket house	The first two types are the traditional forms, and there were many in the past; the third type was less before but now there are a lot.

layout is that buildings are in good direction, and it helps them to get sunshine, natural lighting and ventilation conditions in winter. Due to the influence of superstitious beliefs in feudal society, people make their gates protruding a little than neighbors in order to obtain Yang-qi that is called "press a head", so both buildings and roads form a bent form.

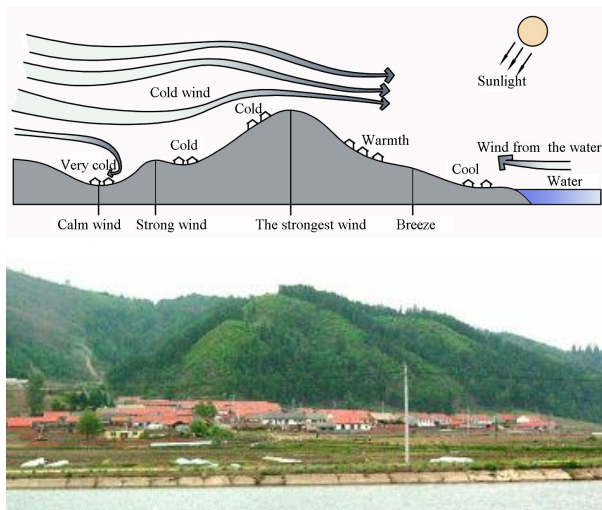


Fig.1 Site selection

3.3 Courtyard layout and characteristics

(1) Courtyard elements

Manchu courtyard has a long history, from Nurhachi that first built the ancient city-Fo Ala, the courtyard layout have been recorded, but the layout

was very freely and haphazard. With constant influence by the Han culture, they formed three-section compound and quadrangle which is similar to Han culture. The courtyard generally has a principal room, two wing-rooms, and a rod-style gate, and Solon pole is set in the south-east of it, Maize building is at east or west in front of principal building, and backyard has a vegetable garden (Fig.2).

A family generally has a yard wall known as

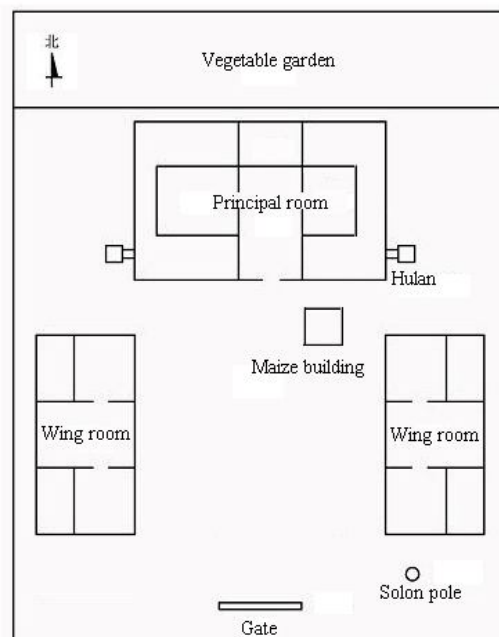


Fig.2 Courtyard



Fig.3 Zhangzi



Fig.4 Gate



Fig.5 Solon pole



Fig.6 Hashi

“zhangzi”, walls are lower and most are made of palings and wood. The characteristics are that it facilitates ventilation, suits to grow vegetables and fruits. Moreover, “zhangzi” would not block line of sight, therefore it’s only a limit of space and the transition from inside of courtyard to outside is natural (Fig.3).

Gate includes “rod” and “house” types, and it is usually wide and high for the cart can easily come in and out. It locates on the central axis. Rod type structure is simple and inherent (Fig.4).With the development of society, improvement of living standards and accumulation of private property, except basic usage requirements, the gate and wall also have a symbolic meaning that they symbolize the owner’s social status and economic strength by their size and materials.

Solon pole is erected to worship and very high, so it gradually became a symbol of Manchu house. Solon pole is made of good pine log which is chosen by the host in mountain forest, and locates in the southeast corner of courtyard. It is about ten-feet tall, a bowl of thickness, about a foot from the top it has a tin bowl putting grains for crows and magpies that reflects the bird worship of Manchu Shamanism. Three stones are placed as the base and the meaning is said to exorcise evil spirits (Fig.5).

Maize building is called “Hashi” by Manchu, it is like a room and is supported with four stakes. It is higher from the ground so it can keep the maize from mice, livestock, poultry and moisture. Also vehicles and farm tools can be placed under Hashi. The size of Hashi is decided by the richest harvest and it is in a prominent position which can reflect the certain amount of harvests of the year. The life is considered good if it is full of corn and the life is suspected poor when it is empty. People also place the hope of ample food and clothing in it (Fig.6).

(2)The characteristics of courtyard layout

In Manchu residential courtyards, the principal room is primary that is located on the central axis and the construction is relative grandeur. Inner courtyard wing-rooms arrange at the principal room sides and the height is lower. The construction of wing-rooms and other rooms in outer courtyard are simpler. This layout that primary and secondary are clearly defined reflects the status idea in Manchu.

The plan has a simple organization rule, most courtyards are one or two layers, and few

dignitaries’ have more than three. Each has only one longitudinal axis and the spatial sequence rule presents one directional development in depth and no transverse side-yard.

3.4 Adapting to the environment and adjusting the microclimate

In a long-term, Manchu residence selected a typical site form that fronts water and with hills on the back, they can get fresh cool breeze in summer and mountains keep out cold northwest monsoon in winter. Buildings gradually locate along with the mountain’s land level that not only broaden their sight but also accept sunlight and buildings all face south for getting more sunshine in winter. Courtyard size is wide but houses are small-scale, so the whole layout looks simple and loose and can absorb sunlight better in cold winter. They are the embodiment of adapting to the environment in Manchu residence.

The green (Fig.7) to adjust micro-climate can

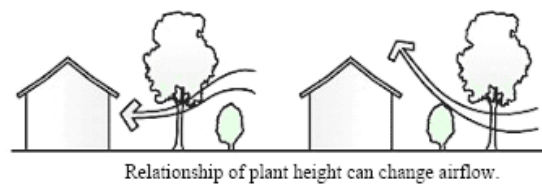
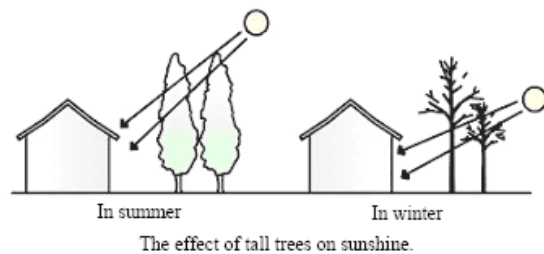
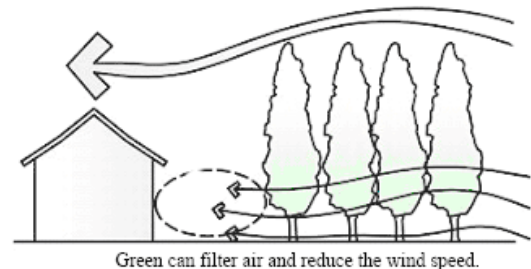


Fig.7 Green

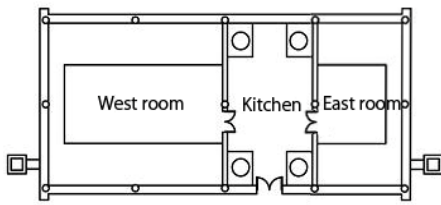


Fig.8 Pocket house



Fig.9 Wanzi kang



Fig.10 Wosaku



Fig.11Cradle

easily weaken the problem that lack of technical means causes poor quality of living environment. For a long time, Manchu summed up some collocation regularity between house and tree, including tree height, density, locational planting. For example, *Zhao house* in *Xinbin* county, tall trees are planted at the north of the principle room, it effectively resisted the cold winds in winter. In some cases, people plant tall trees in the middle of courtyard, they are shady and cool in summer and in winter they don't block the sun because leaves had fallen.

4. The characteristics of Manchu residence

4.1 The plan rules

(1) Pocket House.

The principle building of Manchu residence generally has three to five rooms, and it faces south, the door is at the eaves wall of the first or second room of east side, all west side rooms are linked up as one room, that is like pocket-shape, so this plan type is commonly known as "Pocket House"(Fig.8).

General layout is that there is kitchen after entering the main door, through the kitchen's west wall's door there is bedroom, some kitchens have two doors at the west and east walls, that forms a symmetrical layout which is called "opposite house". Because the west room is warmer, it is called "higher house" where the elder and worshipping ancestor live in; and the east room is called "lower house" where younger generation lives in. Advantages of this layout are as follows, Firstly, the cold-proof is good that kitchen has a function as the buffer before entering bedroom, and it not only meets the usage requirements but also ensures the warmth of the west and east room, secondly, all west side rooms are connected, so the indoor area is enlarged.

(2) Wanzi Kang.

The main feature of Manchu indoor layout is a heating brick bed that surrounds the three sides of room, it is known as "Wanzi kang". Because cold winter period is long, the heated kang is an indispensable heating facility. The south and north kang are also called "opposite kang", they are the main places of living and sitting. Because *Wosaku* is enshrined on the west side wall and it is very sacred,

so the west kang is also called "*Buddha kang*", that is the place of putting offerings, people can not sit and put sundry, otherwise they would be regarded not respecting for ancestors (Fig.9).

Wosaku enshrines on the west wall of the west room, which sets rack on the west wall, shelves a board, and puts the ancestral box on it. Inside the box, ancestor's pictures and genealogy that records family history and ancestral achievements are treasured and very sacred. The lucky paper-cut that pastes on the board is known as "full color" (Fig.10).

Wanzi kang form directly affects the pattern of the Manchu indoor furnishings. The wooden cabinets are placed on the *Kangshao*(near the gable end)of north and south kang, that also is known as "quilt grid" which people put cloths in and stack beddings, pillows on the top. The incense burners, candlesticks are placed in west kang and south kang is the place where people sit and sleep, and it places kang table, sewing basket, smoke basket and brazier for heating in winter. If family member is more, on the kang a board with pasted paper which is called "soft partition" is set in order to avoid living



Fig.12 Facade



Fig.13 Hulan



Fig.14 Door



Fig.16 Concave niche

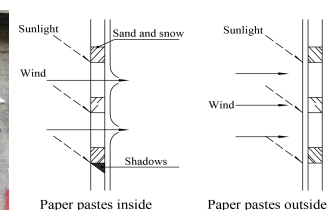


Fig.15 Window

inconvenience. Above the kang edge, there has a “mantle pole” for hanging curtain, it is folded up in day and put down in night, both shielding and windproof.

On the ceiling above the south kang, there ties a horizontal wooden pole that is called “offspring rafter” for specially hanging cradle. Cradle is a convenient tool for parenting. Manchu ancestors hunt in the forest in ancient times and putting children on the ground was not safe then they hung them on the trees, so the custom that children slept in cradle was gradually formed. Cradle is very convenient and mother also can free a hand to work (Fig.11).

4.2 The elevation rules

The facade divides into roof, wall body and base, the proportion of roof and wall body is roughly same. Wall is thick so it seems very stocky and heavy and gives people a warm feeling in winter. *Cross-sea* chimney locating at the gables appears uniform, and it forms a unique spatial rhythm of Manchu residence. Using a large number of blue bricks and gray tiles, exterior color is simple and steady (Fig.12).

Cross-sea chimney that is called “*Hulan*” by Manchu, Kang and stove compose three heating elements. It is independent and most are on the gable side that is one strange in Manchu. Earlier, the roof materials were birch bark and thatch, and the wall was built of wood. If the chimney is located in the wall or roof, it would easily cause a fire or rain and snow seep in and rot the wood in the room. Locating it on the gable side can reduce the pressure of the chimney on roof and save the indoor space that chimney occupies, and also can extend the fire paths, so the fire heat can evenly spread over the Kang. Also the facade forms a unique space rhythm in Manchu residences (Fig.13).

Streaky gable is another characteristic. Because brick price was higher before, in order to reduce the costs, the gable not all used brick but mixed with irregular stones. Later this practice became a

decorative way.

Windows and doors also have characteristics. Usually the door in the front eave wall is double-deck. The outside door's upper part is similar to the window lattice and pastes paper which can increase the brightness of the kitchen and the under part installs board, that is commonly known as “ventilation door”. Outside door opens outward, inner door is two leaves that are opposite opening (Fig.14). Removable window is a major feature. It consists of upper and under sashes, the upper sash can be hoisted with a rod supporting or a hook hanging on the ceiling, Manchu used roe deer's legs as hook before. The under sash can't hoist but pick, so it is called “removable window”. The paper pasting outside of window is one strange, this is a way Manchu ancestors obtained in the process of overcoming the heavy snow and sandy wind conditions. The paper is a special “hemp paper”, the tensile force of it is very strong. It can avoid sand and snow accumulating on the window frame, not easy to be blown broken, and also can increase the window paper's light-receiving space, and prevent damage when people open the window (Fig.15).

Concave niche is one feature of the wall and the usage and position are different due to the difference of custom. In *Xinbin* area, in the principle room it worships the *Buddha* mother and usually installs on the east side of the front eave wall; in *Xiuyan* area, it puts into grains to worship crows and magpies, and usually locates on the house-style door's west wall. Some houses have no concave (Fig.16).

4.3 Section and spatial characteristics

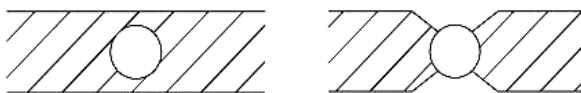
The relationship between wall and column of Manchu residence is different from Han's, the thickness of wall is greater than the column diameter, so columns are wrapped in the wall. The performance of keeping warm is good, and it can protect column from external force damage. The disadvantage is that when the temperature of indoor

Table 2. Building materials most in use

Materials	Advantages	Disadvantages	Application position
Stone	Durable, withstand voltage, waterproof, fireproof	Transportation and processing inconvenience; too weight	Wall foundations, column bases, steps, walkways etc.
Wood	Technology is mature, lightweight, easy construction	Fireproof and moisture proof performance is poor	Carpentry work Joinery work
Mud	Local materials, low cost, fireproof, saving energy.	Waterproof poor, wall thick,	Construct wall, wall and roof materials
Brick	High water absorption	Easily broken.	Wall
Grass	Good insulation, low cost, light weight, easy to process	Only use with other materials, maintenance materials.	From wall to roof, kang

and outdoor varies greatly, condensation would appear in the wall, and column would be damped. Han opens a gap when build walls in order to prevent them rotten, wooden columns are exposed but the performance of keeping warm is weak and easy be damaged (Fig.17).

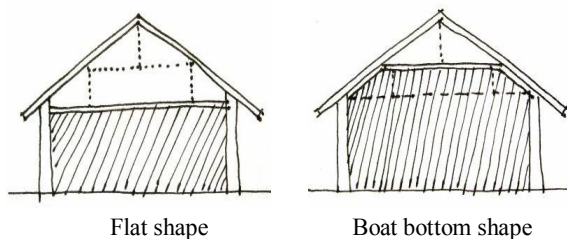
As winter is cold, Manchu residential interior generally makes ceiling, between roof and ceiling an independent space is formed in order to stop cold. Some houses put sawdust or wood ash on it to cold-proof, and paste several layers of paper under the ceiling. The form includes two types of boat bottom shape ceiling and flat ceiling (Fig.18).



Manchu

Han

Fig.17 Relationship between wall and column



Flat shape

Boat bottom shape

Fig.18 Ceiling form

4.4 Architectural materials

Making use of local materials is a very important construction method of Manchu, and they choose the heat storage materials to meet the need of seasonal temperature changes. The performance and application of main materials are listed in Table 2. The main materials are stone, wood, mud, brick and grass. The advantages of stone are durable, withstand voltage, waterproof and fireproof. About brick, the advantage is high water absorption. Wood and grass are lightweight and the technology is mature so the construction is easy. Mud is a local material of low cost and fireproof. But these materials also have disadvantages. Stone is too weight, so the transportation and processing are inconvenient and the brick is easily be broken. The wooden performance of fireproof and moisture proof is poor.

5. Conclusion

(1)Liaoning Province is the foundation of the Qing Dynasty for thousands of years, while the Manchu residence here had been constantly

changed and improved, and it gradually formed distinctive architectural features. (2)Setting the back of house against the mountain and facing towards water, the courtyard layout looks simple, wide courtyard has only one longitudinal axis controlling the spatial sequence and green layout method. They all reflect the traditional Manchu residential layout characteristics. (3) The plan, elevation and section of traditional Manchu residence all have original national features, *Pocket house* is the main plan style, *Wanzi Kang* of the house is a heating brick bed that surrounds the three sides of room and the cross sea chimney stand on the ground by the house sides. Streaky gable is built of brick and stone masonry for reducing the costs and wooden pillars are wrapped in mud wall.

6. References

- 1) Yue Tong. Manchu in diagrams. Liaoning national publishing house. 2009
- 2) Xiaoshi Han. Manchu residence and folklore. Shenyang publishing house. 2004
- 3) Bochao Chen. Manchu dwellings characteristics. Proceedings of architectural history. 141-152.2002 (02)