



## Traditions of Siheyuan manor in China's modern architecture

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### ABSTRACT:

The article continues the study of the role of traditions in the development of modern Chinese architecture. The analysis of the most common form of the Chinese people's apartment building (manor) Siheyuan was made. It is shown that today's Chinese architects are turning to this type of national architecture, critically reviewing the historical heritage and formulating a new aesthetics of space; shaping an environment that meets the climatic conditions of the country.

### KEYWORDS:

residential manor Siheyuan; Dougong; architectural traditions of China

### 1. Introduction

For hundreds of years Chinese architecture has relied on tradition. Cities, ensembles and individual buildings until the end of the XIX century were erected according to the laws of the urban planning canon "Kao-Gong-Ji" (III Century BC) (section of the treatise "Zhou-li") and subsequent "additions" to it. These include Li Jie's treatises "Inzao Fashi" (Construction Examples), containing official building codes and rules (1071-1100), "Gongchenzofazzeli" (1734), etc. These canons, codes and rules were used in the architectural practice of subsequent periods, becoming a traditional (ideal) architectural and urban planning model. Despite the use of short-lived building materials, strict adherence to the ancient canon guaranteed the preservation of the traditions in the construction of architectural complexes. Ruined ancient monuments were "recreated" in the same place in the same forms, ensuring the continuity and stability of architectural traditions. This caused dualism in relation to the architectural heritage. On the one hand, due to the use of short-lived building materials, each generation had to repair or rebuild old structures. On the other hand, all newly erected architectural objects or entire cities for centuries reproduced a certain canonical scheme. Therefore, new structures, erected on the ground of the former and in the same forms, were perceived both as traditional (historical) and as modern at the same time. This feature of the formation of architectural traditions, the researcher of Chinese culture N.A. Abramova defined as "the dynamics of the emergence of the new and the preservation of the old in them (traditions – P.Z, N.K.)" [1, p. 7]. At the same time, the experience of the past was also considered in terms of its ability to program the present and future.

The essence of the canonical Chinese architectural tradition was the repertoire of standard forms, the basis of theoretical knowledge and certain practical recommendations. The internal

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springs of the development of each type form was the tendency towards its more thorough study while maintaining the canonical scheme.

One of these "typical schemes" was the architectural form of the Siheyuan 四合院 dwelling. This form was used in buildings for various purposes – from residential complexes to palace ensembles – and, with some modifications, was built in various parts of China. The article discusses the main features of this type of traditional Chinese development and its role in preserving folk traditions in modern Chinese architecture.

## 2. The embodiment of the ethical and philosophical views of Buddhism and Confucianism in the architecture of the Siheyuan home

The urban planning practice of ancient China was based on folk building traditions synthesized in the Taoist teachings of Feng Shui (Wind-water). The study developed the science of geometrisation, which connected the features of the terrain with the position of celestial bodies, magnetic fields, cosmic forces and symbols (Heaven, Earth, five primary elements, etc.) [2, p. 80].

Particular attention was paid to combinations of geometric symbols, most often – a circle and a square (Fig. 1). The square – "yin" – the feminine – meant the Earth, the shape of neighborhoods and urban fortifications. The circle – "yang", – the male principle – symbolized the Sky, determined the plans of palaces, temples, and the main city squares [3, p. 195].

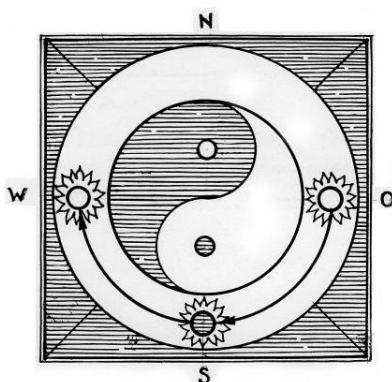


Fig. 1. Chinese cosmogonic symbolism

In addition to the issues of harmonious unity of nature and man, the ancient Chinese builders solved three more important tasks: 1 – in the silhouette of buildings sought to depict the main lines of the surrounding landscape; 2 – emphasize the connection of the interior with the natural environment (garden); and 3 – protect houses from earthquakes. Confucian norms about where this or that family member should live were also taken into account. All these tasks have been successfully solved in the architecture of Siheyuan.

The beginning of construction was preceded by a thorough search for a place and marking of the earth according to the symbolic organization of the Feng Shui space (風水). According to the doctrine, the courtyard of the architectural complex was oriented north-south. The composition of the building was located relative to five cardinal points: center, east, south, west and north.

East signified spring and rebirth; west – autumn and death; south – summer and sun; north – winter and cold; center – off season. The center was considered a place of unity of Heaven and Earth. The internal layout of the house also obeyed the principles of the Chinese founder of Taoism – the philosopher Lao Tzu (V century BC): "The reality of the building is not in the four walls and the roof, but in the inner space intended for life in it ..." [4, p. 218]. Therefore, Siheyuan is an integral part of the surrounding landscape.

### 3. Planning structure, design features and decor

In contrast to the Chinese Sanheyuan house (in which three residential pavilions were built around a rectangular courtyard), in the classical (Fig. 2a) scheme of Siheyuan the courtyard was closed by four pavilions. The entrance to the courtyard was in the southern pavilion; outside the complex of the house was surrounded by a solid wall. In different provinces of China, Siheyuan houses had their own characteristics (Fig. 2b).

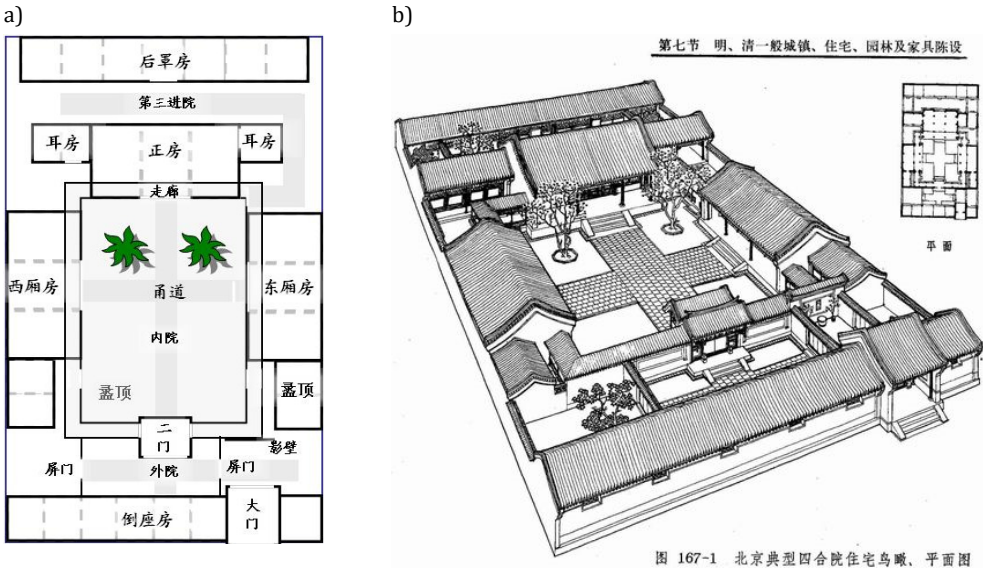


Fig. 2. Scheme of a classical house – Siheyuan (a); a traditional house of the XV century (b)

The entrance is usually located on the southeast side of the complex. The main gate (damen) leads to a small square courtyard, from which a transition to a narrow outer courtyard (waiyuan) takes place. The second gate (ermmen) leads to the courtyard (neiyuan). Behind the second gate there is a screen (inbi), protecting the house from evil spirits (Fig. 3).

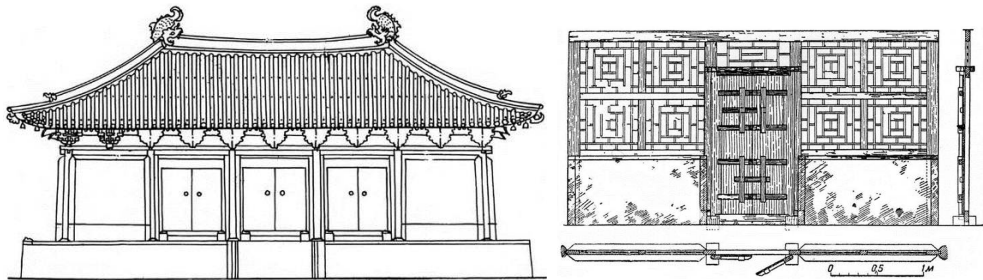


Fig. 3. South facade and inbi screen

Opposite the entrance, on the north side of the estate is the main house (zhengfang), in the central room of which (zhuntang) an altar was arranged to worship the ancestors. The windows of the main house usually face south. Sometimes a low house (huzhjaofan) was erected behind it, and wings (erfan), called “room-ears”, were attached to the sides. Often behind the main house there was a small garden. On the south side is the house (daofofang). Houses are usually

connected by galleries (lan), which perform not only decorative, but also utilitarian functions, protecting the walls of the house and its inhabitants from the sun and rain (Fig. 4).



Fig. 4. Gallery

Between the galleries and the wall in the corners of the house, miniature gardens with stones and bamboo were often arranged. The most elegant was the courtyard in front of the main house, where they tried to reproduce at least in miniature all the necessary elements of the Chinese garden (Fig. 5).

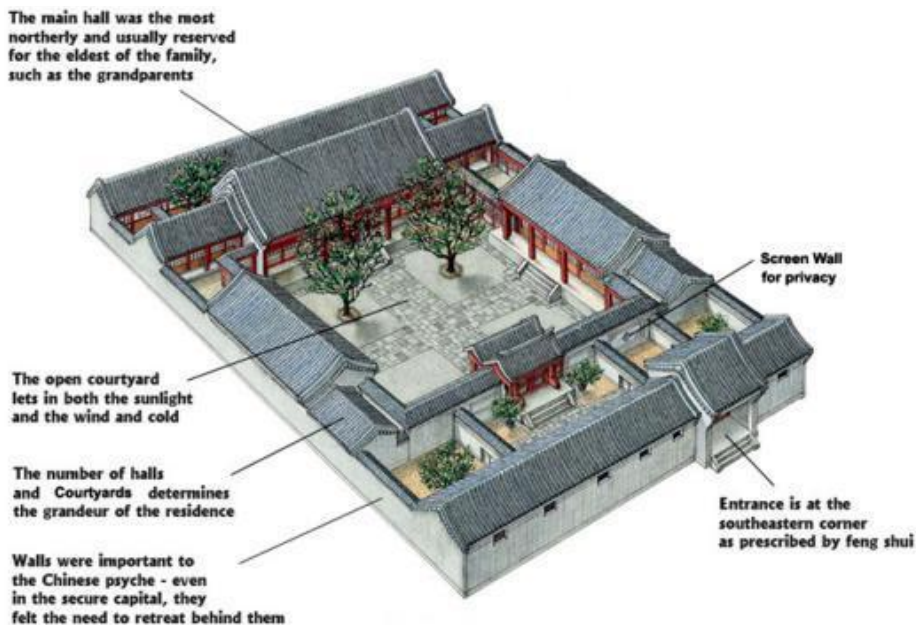
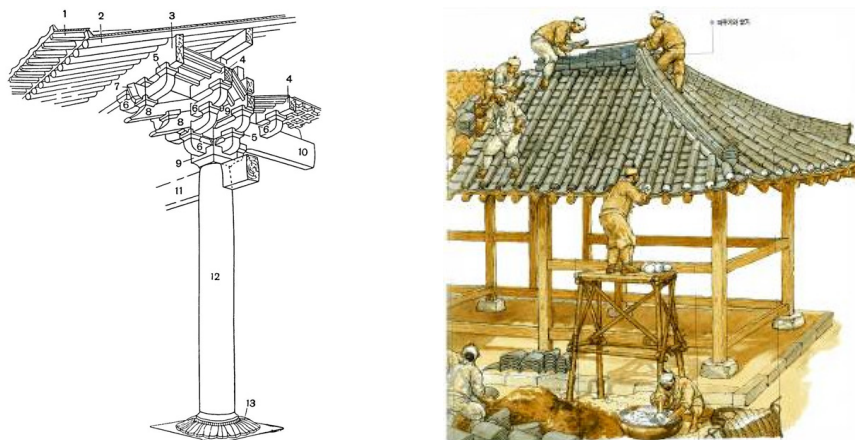


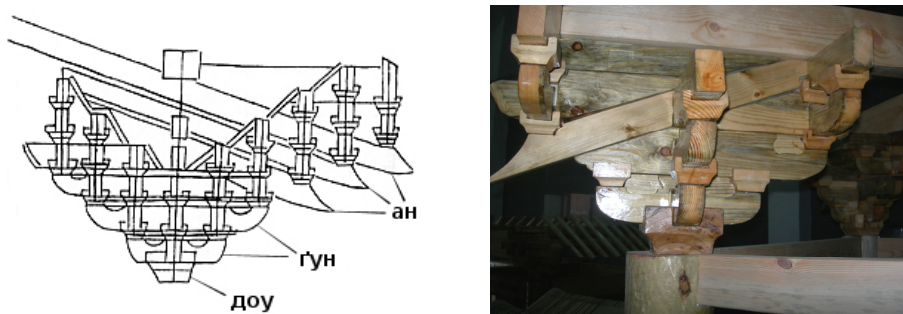
Fig. 5. The main elements of Siheyuan

As a rule, a traditional house did not have a foundation. It was erected on a podium, partially protruding above the ground. The base of the house was a wooden strut-beam frame, where the load from the roof through the system of horizontal beams and cornice brackets (Dougong) is transferred to the columns and then to the pillars (Fig. 6).



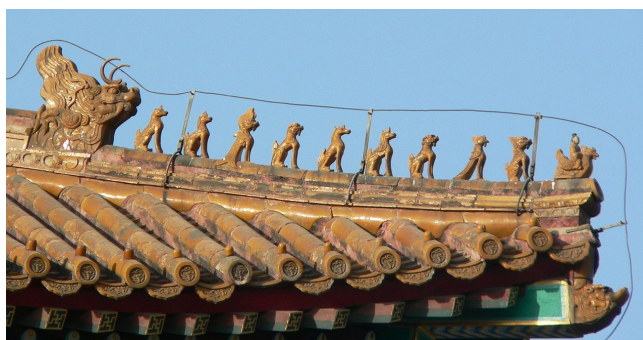
**Fig. 6.** The structural scheme and construction of a residential building

The house had a characteristic curved roof with large overhangs. The roof relied on a sophisticated Dougong system. Dougong is a special system of wooden tier brackets and beams, consisting of two elements: a square support plate in the plan – a bar with bevelled edges at the bottom (dou) and an elongated block, supporting it, with corners rounded from the bottom (gong) (Fig. 7).



**Fig. 7.** Dougong system

The roof is covered with cylindrical tiles. The edges of the ramps are decorated with an odd number of figures of the Guardian Spirits, the ridge ends at the corner with the image of the dragon's head (Fig. 8).



**Fig. 8.** Guardians spirits and dragon on the roof

An important feature of the Chinese home is polychrome. The wooden parts were painted red, the stone base was white, and the tiles were golden yellow, blue or green. Also used were wood and stone carvings, ceramics, and ornament (Fig. 9).

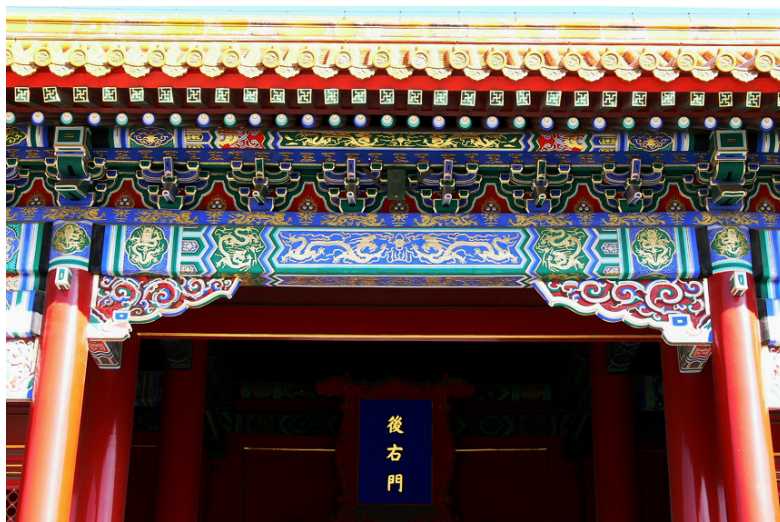


Fig. 9. Polychrome of a Chinese house

By virtue of the foregoing, a Siheyuan Traditional Homestead is a unique example of traditional Chinese culture, which has existed for many centuries. In the XXI century, interest in it is constantly growing.

#### 4. Using the traditions of Siheyuan houses in modern architecture

According to the UN Program, in 2008 there were about 400 000 traditional Siheyuan houses in Beijing. Among them, about 500 have historical and cultural significance. Many of them are used as house-museums of famous writers, musicians and other cultural figures.

Not all traditional residential properties have a modern level of comfort (Fig. 10). Widely used are measures for their modernization or adaptation to new goals [5, p. 79]. At the same time, there was a tendency to build new residential buildings in the Siheyuan tradition. They are one of the most expensive, but the demand for such facilities is constantly growing. Architects offer projects, whose layout is designed to combine the requirements of modern comfortable housing, the traditional lifestyle of the Chinese family and regional culture (Fig. 11).



Fig. 10. Traditional Building Quarter in Beijing



**Fig. 11.** The project of a modern Siheyuan house in Beijing

The 2012 Pritzker Award winner, Chinese architect Wang Shu (b. 1963) makes extensive use of the principles and methods of traditional Chinese architecture. Zaha Hadid noted his work this way: “Wang Shu’s works are distinguished by a combination of sculptural power and contextual sensitivity. The original is how he transforms old materials and motifs into new projects” [6].

The basis of these projects is the appeal to the Chinese tradition of unity with nature, the use of traditional forms and local materials (including from demolished buildings). For example, for the Xiangshan campus of the Chinese Academy of Arts in Hangzhou (2007) the architect used more than 2 million fragments of tiles, left after the demolition of the old quarters of the city. At the same time, the architect strove to create contrasting combinations of various forms and techniques of traditional Chinese and modern architecture (Fig. 12). Thus, Wang Shu wanted to emphasize the situation in many cities in China, where the “colonial” legacy of the era is combined with typical residential houses, made of raw wood and plastered brick or concrete blocks. In fact, the architect created on campus a smaller copy of Chinese cities with a mixture of styles and eras.



**Fig. 12.** The campus building of the Xiangshan School of the Chinese Academy of Arts in Hangzhou

At the Sanhe Residence in Nanjing, Wang Shu designed a concrete roof, which covers the passage between the buildings. It is a “modernized” form of Chinese construction (Fig. 13).



**Fig. 13.** Sanhe Residence, Nanjing

In general, his work embodies the thesis, that “modern and traditional can work together” [7, p. 153, 8, p. 21]. In the article “The poetics of structures from processed raw materials – a world similar to nature” (2012) Wang Shu writes about the need “to put nature above architecture in accordance with traditional Chinese poetics (aesthetics) of buildings” [8, p. 21]. His projects emphasize the desire to embody the idea of “unity of home and garden” [9, p. 100].

## 5. Conclusion

The problem of using folk traditions today is one of the leading challenges in the theory and practice of architecture. Since the 30s of the XX century artistic movement "regionalism" is looking for ways to harmoniously combine nature, traditional forms of architecture and modern technology. A successful solution to this problem, using the principles of folk architecture, was obtained in China. One example is a new found appeal for the forms of a traditional residential building – the estate. Today, the use of typical forms of Siheyuan dwelling in combination with the latest construction technologies clearly reflects the process of mutual influence of folk tradition and modern trends, and helps in solving the problem of identity. The fundamental basis of modern Chinese architecture is the rediscovery and reinterpretation of the traditional building experience, taking into account regional identity. This discovery is accompanied by the formulation of a new aesthetics of space, the complex formation of a spatial environment, that meets natural and climatic conditions. Regionalism and globalization are considered by Chinese architects as components of the overall development process of modern architecture.

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## **Tradycje domu mieszkalnego Siheyuan we współczesnej chińskiej architekturze**

### **STRESZCZENIE:**

Artykuł stanowi kontynuację badania roli tradycji w rozwoju nowoczesnej architektury chińskiej. Przedstawiono analizę najczęściej spotykanej formy chińskiego domu mieszkalnego (dworu) – Siheyuan. Ustalono, że współcześni architekci Chin zwracają się do tego rodzaju architektury narodowej, krytycznie oceniając dziedzictwo historyczne i formułując nową estetykę przestrzeni. One kształtują środowisko spełniające warunki klimatyczne kraju.

### **SŁOWA KLUCZOWE:**

dom mieszkalny Siheyuan; epoka Dougong; tradycja architektoniczna Chin