

# Modern Inheritance Strategies of Chinese Traditional Architectural Culture Thought

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**ABSTRACT.** *This paper analyzes the three major ideological systems that affect the traditional Chinese architectural culture: functional thoughts, ritual thoughts and philosophical thoughts of the unity of heaven, earth and human beings, and the concrete design methods of these three thoughts in concrete implementation. Based on the practical cases involved by the author: campus planning and architectural complex design in Nanjing University of Science and Technology in Jiangyin city, this paper discusses the modern inheritance strategies of traditional architectural culture in the new era. Including the harmonious coexistence of architecture and environment, the clear distinction between architecture and space, the humanistic spirit of space, etc. The aim is to emphasize that in the future China's urban and architectural design, more attention should be paid to the inheritance and development of China's excellent traditional architectural culture.*

**KEYWORDS:** *Chinese traditional architectural; architectural culture; ideological systems; modern inheritance; architectural design*

## 1. Preface

China's traditional architectural culture has a long history, with the replacement of the old and the new progressing step by step and innovative development based on inheritance and preservation. Most of the ancient Chinese cities were expanded or renewed at their original sites. For example, Chang 'an City in the Western Han Dynasty was built at the location of Xingle Palace in the Qin Dynasty, Chang 'an City in the Tang Dynasty was renewed on the basis of Daxing City in the Sui Dynasty, and Beijing City in the Ming Dynasty was rebuilt on the basis of Khanbaliq, etc[1]. This enabled the excellent layout and architectural features of the old city to be preserved in the renewed city, and on this basis, improvements and developments were made to finally form its own style, and the architectural culture would not have faults. Even if the newly-built city in the new site, such as Khanbaliq, its street system characteristics also inherit the street system already existing in Lin 'an City in the Southern Song Dynasty. China's traditional architectural culture has become an important part of the world's architectural culture, connecting the old with the new and continuous.

Since the reform and opening up, looking back at the rapid modernization process of Chinese cities and buildings, due to the great influence of western modern architectural thoughts, there has been an international style that ignores the local traditional cultural characteristics and moves towards unification. It is common for cities to demolish and renovate large buildings in an attempt to modernize, cities and buildings have lost their original regional cultural characteristics. Most of the modernization of cities and buildings only focus on the appearance of modernity, with buildings competing for beauty. Architecture and environment are out of harmony, space tends to be similar, and spiritual attributes are not considered enough, resulting in fragmented urban space and collage of eastern and western elements (Fig.1). However, the precious historical experience of Chinese traditional architectural culture has not been inherited, which is really regrettable.



*Fig.1 Collage of Urban Chaos*

OMA Architecture Office website, <http://oma.eu/>

Many architects and architectural critics have also reflected on international modern architecture and discussed the real purpose of architecture. Peter Buchanan questioned the development of modern architecture in “The Big Rethink “. He thinks that modern architecture pays too much attention to paradigm and standard and ignores regional environment, humanistic environment and place spirit. This kind of architectural design and space usage is unsustainable [2]. This is also a problem that we need to pay attention to as architects. Facing the current situation, can the future development of cities and buildings learn from the excellent experience of Chinese traditional architectural culture? The answer is yes.

## **2. The Guiding Ideology Systems of Chinese Traditional Architectural Culture**

Chinese traditional architecture contains rich cultural connotations. The ideological system guiding the development of architecture is mainly represented by Guan Zi, which pursues functional thought, ritual thought and philosophical system of pursuing the unity of heaven, earth and human beings [3]. These thoughts guide all aspects of urban and architectural design, from the location and planning of the

city to the layout and design of buildings. From material selection, decoration and details of single buildings to landscape gardening and landscape management. It is precisely because of this set of guidelines that the design has been carried out all along that the ancient Chinese architecture has the characteristics of being good at the overall momentum of buildings and harmonious coexistence between architecture and nature. This is very different from the characteristics of western classical architecture based on ancient Greek philosophy. The latter focuses on the appreciation of single buildings and emphasizes the ability of human beings to transform nature. Buildings with superior scale and great construction difficulty become monuments of human wisdom.

This paper analyzes the design methods of the the important thought of Three Represents system, which affects the development of Chinese traditional architectural culture, one by one in the specific practice process, and attempts to explore the modern inheritance strategies of Chinese traditional architectural culture thoughts by taking a recent architectural practice case: campus planning and architectural complex design in Nanjing University of Science and Technology in Jiangyin city.

### ***2.1 Functional Thought-Adjust Measures to Local Conditions***

In the actual construction of ancient cities and buildings, although there are related works, such as “Kao Gong Ji” (author unknown) in the Spring and Autumn Period, “Yingzao Fashi” (by Li Jie in 1103 A.D.) in the Song Dynasty and “Rules of Engineering Practice” in the Qing Dynasty (by Qing Ministry of Industry in 1734 A.D.), they do not stick to the rules in practice and often adjust measures to local conditions according to the natural and social environment of specific projects. According to the capital construction requirements recorded in Rites of Zhou ·Art Observation·Craftsman, the city has a square shape and the imperial city is located south or north of the city center. However, more capitals, such as Dongjing City in the Northern Song Dynasty, Lin 'an City in the Southern Song Dynasty and Nanjing City in the Ming Dynasty, all made specific countermeasures according to the terrain conditions and the social and economic development mode at that time. During the construction of Lin 'an City in the Southern Song Dynasty, due to the terrain restrictions and the economic development factors at that time, besides the irregular shape of the city itself, the most important imperial city was directly located at the southernmost end of the whole city, with a large central comprehensive commercial area at the northern end [4]; The Imperial City of Nanjing City in the Ming Dynasty was located in a corner on the east side of the city due to the terrain [5]; Even for the newly-built Khanbaliq in the new site, due to the influence of Taiye Lake and other water systems, the planned central axis in the south half and the geometric central axis in the north half will be staggered [6] (Fig.2).



*Fig.2 The Location of Miyagi City and Imperial city in Lin 'an City in Southern Song Dynasty, Nanjing City in Ming Dynasty and Khanbaliq*

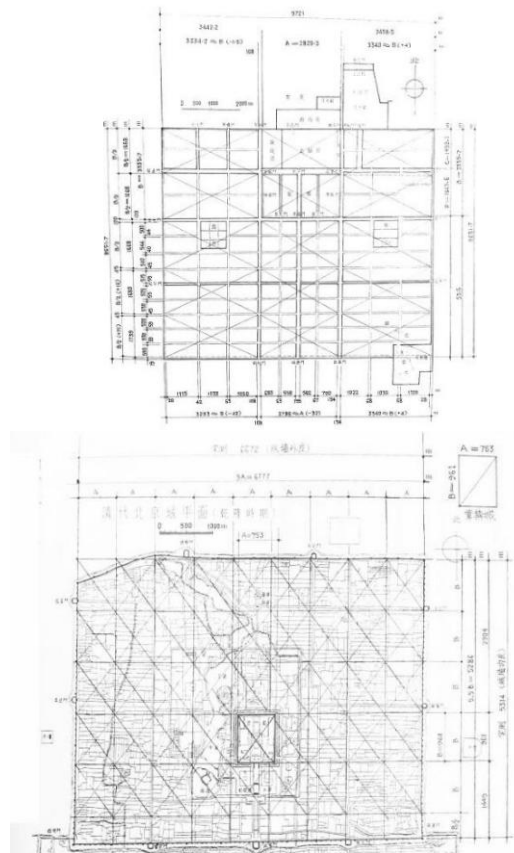
The Lin 'an city in the Southern Song Dynasty Fig.

### **2.2 Ritual Thought-Application of Modulus**

The ritual thought runs through all aspects of the life of the ancient Chinese people, and on this basis, a social order with the rank of superior and inferior is constructed. In architectural design, apart from the differences in shape and materials, the control of the relationship between the whole is realized through the use of large and small modules. The application of modulus can make the primary and secondary of different buildings and single buildings clear and set off each other. On the premise of ensuring the harmonious and unified relationship of the whole building, it can highlight the main buildings and enhance the overall

momentum effect.

Fu Xinian, an architectural historian, introduced in detail the planning and design of buildings in ancient China in his book “Research on Urban Planning, Architectural Complex Layout and Architectural Design Methods in Ancient China”. From the capital city planning to the design of single courtyards, there is a design method that takes the width and depth of the main buildings (such as Miyagi in the capital) or buildings (such as the main hall) as the basic module to control the size of the whole buildings [7]. For example, Chang 'an city in Tang dynasty and Khanbaliq, the length and width of the whole capital city have an expanded modulus relationship with the length and width of Miyagi city (Fig.3).

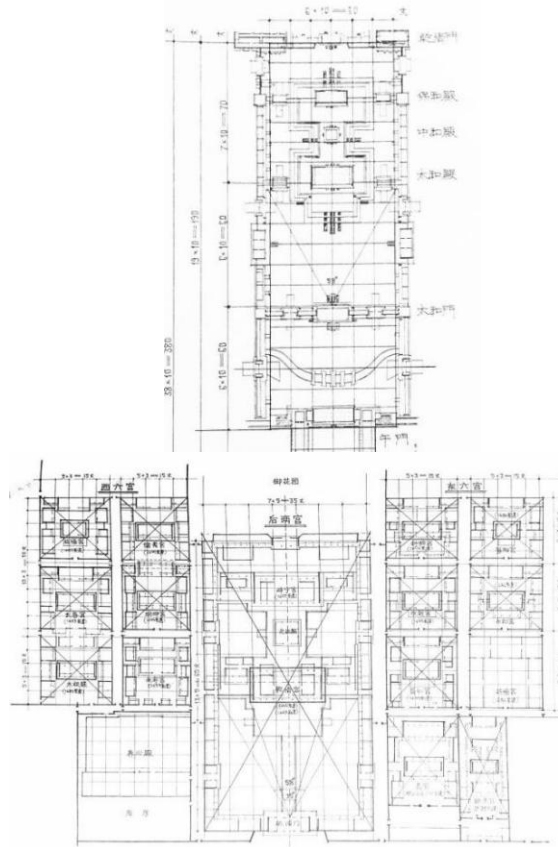


*Fig.3 Modulus Relationship between Chang 'an City in Tang Dynasty, Khanbaliq City and their Miyagi Cities*

*Khanbaliq in the Yuan Dynasty Fig.source: Fu Xinian.*

In the layout design of specific buildings, according to the level of each building group, the square grids with different sizes are selected correspondingly for modulus

positioning. The application of modulus makes the whole building complex, buildings and space have a certain proportion relation with each other, the space has clear primary and secondary, and the scale is coordinated and unified. Taking the design of Miyagi City (Also called the Forbidden City) in Ming and Qing Dynasties as an example, The three Royal palaces in the Outer Court (the Hall of Supreme Harmony, the Hall of Middle Harmony and the Hall of Preserving Harmony) use the largest 100 feet (about 33.3m) grid module to control the scale of the complex because it is of the highest grade. The shape of the Three Rear Palaces in the Back palace (the Palace of Heavenly Purity, the Palace of Earthly Tranquility, the Hall of Union) for the emperor and the queen to live in is the second, with a grid modulus of 50 feet (about 16.7m). The Six Eastern Palaces and the Six Western Palaces for the princess to live in are ranked again, and the minimum grid modulus of 30 feet (about 10m) is selected (Fig.4).



*Fig.4 Modulus of Peking's “ the Three Royal palaces “ , “ the Three Rear Palaces “ and “ The Six Eastern Palaces ,the Six Western Palaces “*

Large and small grids make different buildings have different spatial

characteristics and scales: the Outer Court part is the center of the whole capital city, which is located in the center of Miyagi with its majestic and cool exterior image, laying the overall tone of the city; The Six Eastern Palaces and the Six Western Palaces, with small space scale and strong life atmosphere, are suitable for functional use. This sequence has a strong sense of priority from beginning to end, with prominent themes. Just think, if every building adopts the highest grade, competing with each other, the effect will be greatly reduced. This is similar to Christian Norberg-Schulz's view in his book "Spirit of Place" that space is a sense of place and different places endow different space characteristics [8]. Space has its main and secondary aspects, which complement each other.

### ***2.3 Philosophical Thoughts of the Unity of Heaven, Earth and Human Beings-The Spiritual Attribute of Space***

What is architecture? The Yellow Emperor's Homework Sutra (the time and the author are unknown) says: Housing is the key to adjust the balance of yin and yang, which is related to people's normal life, the rise and fall of their career, good or bad, so the quality of housing is the foundation of human survival and development. Under the theory of yin and yang in ancient China, architecture was regarded as the hub of the connection between man and the world, not just a machine for living. It shows that in ancient times, architecture had very important social attributes [9].

The most important thought of ancient Chinese philosophy is the unity of man and nature. The guiding principle of "Modeling Heaven and Earth" has emerged in urban planning and architectural design, adding a strong Humanism to ancient Chinese architecture [10][11][12]. It is embodied in urban planning and architectural design. The orientation, name, form and decoration of buildings correspond to the elements of heaven and earth, endowing buildings and spaces with spiritual attributes, forming unique architectural aesthetic tastes and creating a completely different architectural culture from other nations. This idea has many disputes due to superstitious colors in its concrete practice, but the theme is to attach importance to the spiritual construction of buildings and to emphasize the satisfaction of people's spiritual needs in buildings.

### **3. Modern Inheritance Strategies of Architectural Culture: Taking Campus Planning and Architectural Complex Design in Nanjing University of Science and Technology in Jiangyin City as an Example**

This paper selects a practical case in which the author participated: the campus planning and architectural complex design of Nanjing University of Science and Technology in Jiangyin city as an example to discuss the modern inheritance strategy of traditional Chinese architectural culture and try to provide some reference for future modern architectural practice.

The project is located in Jiangyin City, Jiangsu Province, and is a sub-campus of Nanjing University of Science and Technology. The project uses 733,000 m<sup>2</sup>, with a

construction area of 300,000 m<sup>2</sup>.

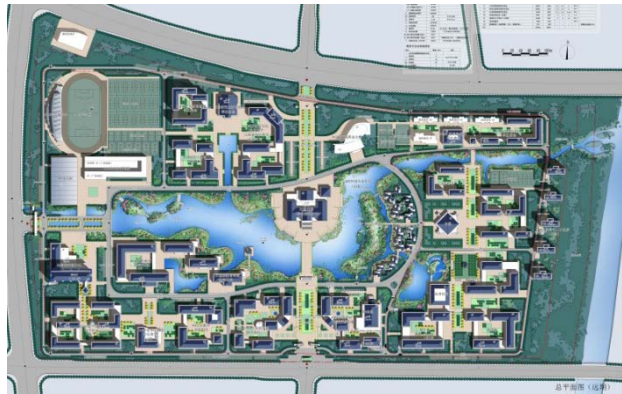
### 3.1 Campus Planning

Jiangyin City, located in the southern part of Jiangsu Province of China and at the northern end of the Taihu Lake water network plain, is a typical water town in the south of the Yangtze River.

Nanjing University of Science and Technology was founded in 1953. Its predecessor was the Artillery Engineering Department of the Military Engineering College of the Chinese People's Liberation Army. It is a science and engineering school with a military background. However, the new site is located in the beautiful and comely Watertown. The starting point of this design is how to coordinate and coexist the masculine military school image and the tactful and penetrating water village characteristics.

#### 3.1.1 Environmental Analysis-Harmonious Coexistence of Architectural Environment

The shape of land is regular and the terrain is flat, and the current situation is a wasteland with a flood discharge canal running through the east and west, dividing the land into two parts: the north and the south. After fully analyzing the current situation of land use, the design re-integrates the element of flood discharge canal into the campus planning to form a large landscape water body in the center of the campus, echoing the characteristics of water villages in Jiangyin area. Except that the main entrance requires the necessary ceremonial central axis, the buildings of other colleges are flexibly arranged according to the water system (Fig.5).



*Fig.5 Planning Flexible Layout According to Water System*

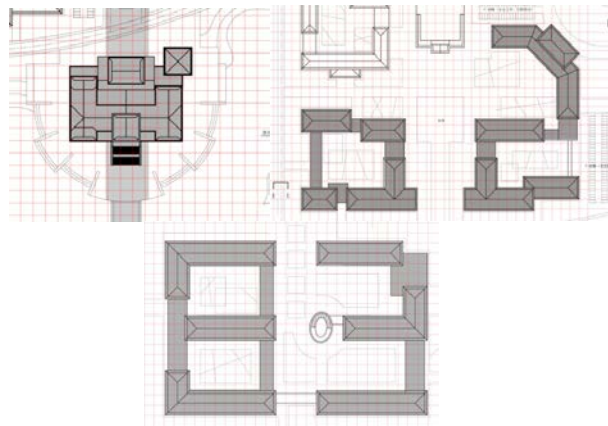
#### 3.1.2 Modulus Selection-Clear Primary and Secondary to Grasp the Whole

The north-south main axis selects the largest 10m×10m grid module, and places the most important library of the whole campus in the center of the central axis,



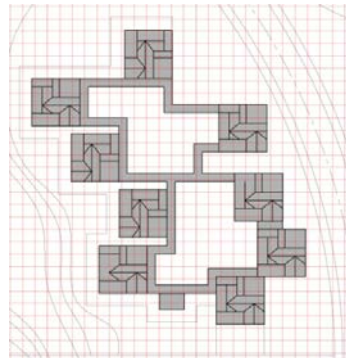
creating the image of grand atmosphere at the main entrance, laying the foundation for the military school characteristics.

Each secondary college district chooses a slightly smaller  $8\text{m} \times 8\text{m}$  grid module to control the building scale to create flexible and interesting teaching space for students. In the living area: teachers and students' dormitories choose a  $6\text{m} \times 6\text{m}$  grid module to reduce the space scale again and add life flavor (Fig.6).



*Fig.6 Selection of Grid Modulus for Library, College Area and Living Area ( $10\text{m}$ ,  $8\text{m}$  and  $6\text{m}$  respectively)*

It is worth mentioning that in the design of the expert apartment, the minimum grid module of  $3\text{m} \times 3\text{m}$  is selected and the elements of classical Jiangnan gardens are incorporated into the design to create a habitable, playable and impressive living area with Jiangyin traditional characteristics (Fig.7).



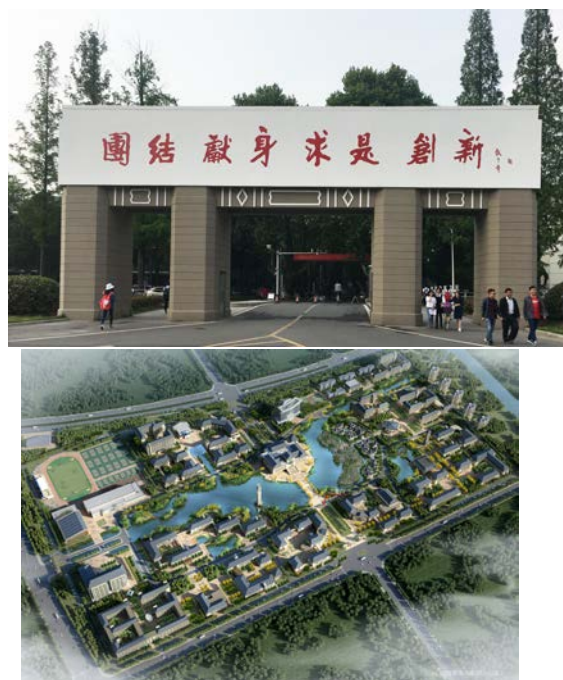


*Fig.7 The expert apartment has a 3m grid module and has the characteristics of Jiangnan gardens.*

The whole campus plan lays down the heroic characteristics of the military school with a large-scale main entrance sequence and a library. The small-scale expert apartment reflects the tactfulness of the water villages in the south of the Yangtze River. The transition between the two also includes a middle-scale teaching area and living area. The whole plan has clear priorities and emphasizes the overall atmosphere.

### 3.1.3 Spiritual Continuity -- Humanistic Spirit of Space

From the beginning of its establishment, Nanjing University of Science and Technology shouldered the mission of strengthening the national defense cause. Although the conditions were difficult, teachers and students went up in spite of the difficulties and made contributions to the country. At first, campus buildings were mostly in the style of the Republic of China. Among them, the “Er Dao” gate was the spiritual buildings of the school, similar to the Tsinghua gate in Tsinghua University, which encouraged students not to disgrace their mission and to study hard. After investigating the history of the school's predecessor and the spirit of school, we have realized the importance of continuing the spirit. For this reason, the overall style of campus architecture is determined to be partial to that of the Republic of China style, and is re-expressed by modern methods. Before the main axis of the north-south entrance and the library, the design once again restored the Psychic Elemental of “Er Dao” gate and became the spiritual continuation of the old campus (Fig.8).



*Fig.8 “Er Door” gate and the Republic Style of Overall Campus Architecture*

In order to adapt to Jiangyin's regional characteristics, the design refers to the 10-scene technique of the West Lake and 50-scene technique of the Jichang Garden. According to the characteristics of the campus landscape, four scenes of the campus are also selected: lotus in Qushui, ivory tower sound, cedar forest orchid fragrance and bridge pavilion facing each other, which add elegant charm of Jiangnan gardens to the school environment and reflect Jiangyin's regional characteristics.

#### **4. Conclusion**

Chinese traditional architecture contains rich cultural connotations. The relationship between architecture and environment, the overall view of architecture, and the strong humanistic characteristics it embodies still have practical guiding significance for today's architectural practice. In practice, architectural design is coordinated with the natural and human environment of the land. According to the characteristics of the group, select the appropriate module to control the scale of the building and grasp the overall spatial effect. Pay attention to the humanistic care of architecture and meet people's spiritual needs. This can better reflect the architectural charm of Chinese characteristics than merely designing the appearance of traditional buildings. Of course, the Chinese traditional architectural culture is also extremely inclusive. Other advanced cultures can still be absorbed and

introduced. They can be integrated and innovated on the basis of inheritance to form modern Chinese architecture with national characteristics.

## 5. Conclusion

Peter Buchanan thinks that the future development direction of architecture is the selection and application of effective technologies, sensitivity to history and context, accuracy in form and detail, and support for green agreements [13]. China's modern architectural design should also enhance its sensitivity to history and context, so as to enable excellent culture to continue and be inherited.

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