

# Research on the Protection and Utilization of 20th Century Architectural Heritage in Beijing: Taking Medical Buildings as an Example

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**Abstract:** *The protection and reuse of architectural heritage has become increasingly important, with China's architectural heritage gaining global attention. Medical buildings are crucial to people's livelihoods, and many 20th century examples in Beijing still serve their intended functions. However, there are few documented cases regarding the protection of medical buildings in theoretical and case studies of 20th century architecture in Beijing. It is important to prioritize the protection of 20th century architectural heritage in Beijing's development, proposing targeted protection and utilization models. This article focuses specifically on the former sites of Beijing Union Medical College Hospital, Beijing Tongren Hospital, and Beijing Friendship Hospital as prime examples to analyze problems in their protection and utilization. Strategies for protecting these medical buildings and expanding ideas for better utilization are proposed.*

**Keywords:** *Beijing 20th century architectural heritage, Protection and utilization, Architectural complexes, Medical buildings, Protection strategies*

## 1. Research background and research objectives

The 20th century heritage is the witness of the bright culture of the 20th century, the 20th century is the fastest-changing era of human civilization, the 20th century architectural heritage represents the 20th century development process of cultural intermingling, the actual evidence of historical events. For our new China, the 20th century represents an even more extraordinary significance. In the 20th century, our country made a historical leap from the traditional agricultural civilization to the modern industrial civilization. China's 20th century architecture records China's footsteps and visualizes China's development in the 20th century to the world. This paper takes the old Beijing stable door street endowment post as a sample, through field visits research endowment station inside and around the space status, system analysis of the entrance of endowment post space, public space, living space three levels for the influence of aging, on this basis, and put forward more reasonable endowment post update strategy, rich streets inside the elderly material and spiritual life.

China's 20th century heritage protection ideology was formed in the 1850s, initially to protect "revolutionary cultural relics". To protect "revolutionary cultural relics", after the 1880s, the content is more and more extensive, 1982 promulgated the "Law of the People's Republic of China on the Protection of Cultural Relics". 2005 Beijing Municipal People's Congress Standing Committee to consider the "Beijing Municipal Historical and Cultural Cities Protection Ordinance" in 2008, the Chinese Society of Cultural Relics, President of the Shan Jixiang, in the "20th century heritage Protection" book put forward four proposals to strengthen the protection of 20th century heritage<sup>[1]</sup>, guiding the protection of more than a decade so far, marking the formal start of the protection of China's 20th century architectural heritage. Jin Lei scholars in the "new era of ten years of architectural heritage protection and development" proposed from the new ideas, new methods, new perspectives to sort out and observe the concepts and innovations of the relevant issues<sup>[2]</sup>, so as to explore the cultural heritage of China's architectural heritage of the new arguments, new ways. In the "20th century architectural heritage protection can not be separated from the urban renewal policy", it is pointed out that the strategy of urban renewal not only requires the protection of legislation<sup>[3]</sup>, but also lays the foundation for the protection of architectural heritage, and the urban renewal and heritage protection are complementary to each other. In the "urban development can not be separated from the construction of cultural protection", it is pointed out that the promotion of legislation is the legal basis for the

protection of architectural heritage<sup>[3]</sup>, but also a kind of protection for the industry to regulate the behavior, and to better promote the urban construction from the legal level to promote the implementation of urban renewal strategy. Prof. Chang Qing in “A Glance Back - The Paradigm of China's 20th Century Architectural Heritage and Its Veins” looks back at the formal veins of China's 20th century architectural heritage with a predominantly ephemeral narrative interspersed with co-temporal analysis<sup>[4]</sup>. The integration of foreign architectural features with the needs of modern Chinese architecture through the study of modern Chinese architects reflects the creative emotion and exploratory spirit of the whole generation of architects who are obsessed with retaining historical memories and transforming local traditions into modernity. Wei Hongye, in “Research on the Development of Modern Hospital Architecture in Beijing (1861-1952)”, comprehensively and systematically combed the development of modern hospital architecture in Beijing between 1861-1952<sup>[5]</sup>, and analyzed its development characteristics in depth with typical cases to provide guidance for the future construction of hospitals. Zhang Yingtao and Shan Linlin in “Research on Digital Experience Design Strategies for Architectural Cultural Heritage” have made a comprehensive analysis of the development of modern hospital architecture in Beijing between 1861 and 1952. Architectural heritage protection puts forward innovative strategies through digital technology<sup>[6]</sup>, the architectural protection of better use of scientific and technological means, for the digital experience better applied in practice, to promote the application and development of digital technology for architectural heritage protection.

To summarize, the 20th century architectural heritage protection strategy has been continuously improved in the development process, and urban renewal has been promoted through heritage protection<sup>[7]</sup>, and the architectural heritage protection has been continuously improved through the efforts of architects from legislation to implementation, and from strategy to execution, but the protection of medical architectural heritage still needs to be continuously strengthened.

With the progress and development of China's cultural heritage, the connotation and extension of the concept of “heritage” has been continuously expanded. As a new branch of architectural heritage branch, the conservation and utilization of 20th century architectural heritage has received extensive attention from governments, scholars and the public. From 2016 to 2024, the Chinese Academy of Cultural Heritage has announced nine batches of “China's 20th Century Architectural Heritage”, in which 900 properties are listed. This not only shows that the awareness of 20th century heritage conservation in China has been significantly raised, but also reflects that the relevant conservation work in China has shifted from the stage of initiative to the stage of research and initial implementation of specific sub-projects, and that all the work is being pushed forward intensively.

As an important part of the architectural heritage of the 20th century, medical buildings are not only an important part of the history and culture of the city of Beijing, but also a historical witness to the development of human society. Therefore, the value of Beijing's 20th century medical architectural heritage is to ensure the originality and integrity of these buildings by studying and conserving them, and to enable them to continue to be used and passed on.

Through the research on the conservation of 20th century medical buildings in Beijing, combined with the existing results of the research on the conservation principles and concepts of 20th century architectural heritage, the research on the rational utilization methods of general historical buildings, and the research on the historical information and conservation techniques of Beijing's 20th century architectural heritage<sup>[2]</sup>, it is possible to provide the 20th century architectural heritage with suggestions on the conservation and utilization strategies for specific types of buildings. This paper takes three 20th century medical buildings, the former site of Peking Union Medical College Hospital, Beijing Friendship Hospital, and Beijing Tongren Hospital, as examples to explore how to balance history and reality in conservation and utilization to achieve sustainable development.

## **2. Hospital Complex Analysis**

### ***2.1. The former site of Peking Union Medical College Hospital***

The former site of Peking Union Medical College (PUMC) Hospital is located at No. 9, Dongdan Sanjiao, Dongcheng District, Beijing, built in the 1920s, which is an important witness to China's modern medical history [8]. The building complex is in the shape of “U”, which consists of a building, a gate building (Figure 1), a ward building, a study hall and so on.

In terms of protection and utilization, the former site of Peking Union Medical College Hospital has already had better protection measures<sup>[4]</sup>. Cultural relics conservationists have carried out

comprehensive repairs and protection of the building, restoring the building's exterior walls, roof, wooden doors and windows and other parts. At the same time, the old site was utilized to complement the new compound of the Union Hospital (Figure 2), which became a cultural landscape within the medical treatment [8].

However, there are some problems in the process of conservation and utilization. First, the conservation measures of the old site have been affected by the natural environment and tourism. The gatehouse, building, and ward building in the hutong lot have been damaged by tourists' trampling and painting; second, the change of architectural space inside the complex has had a significant impact on the original layout and function of the complex.



*Figure 1: Gate of the former site of Concordia Medical College*



*Figure 2: Inpatient building at the former site of the Concordia Medical College*

In order to solve these problems, a multifaceted strategy should be adopted: on the one hand, the protection of the old site should be strengthened and the cultural literacy and responsibility of tourists should be improved; on the other hand, it is recommended to increase the cultural inheritance and utilization within the hospital, emphasizing the harmonization of the protection of the medical cultural heritage and the development of modern medical science.

## **2.2. Beijing Friendship Hospital**

Located in Xicheng District of Beijing, Beijing Friendship Hospital was built in 1959, formerly known as Soviet Red Cross Hospital. The building's most characteristic feature is its majestic shape, with vermilion red exterior walls, the building shows the characteristics of the times and is a witness of Sino-Soviet friendship.

With the development of the city, Beijing Friendship Hospital has undergone many alterations, so that the building has compressed a large number of use function space, resulting in tensions in building space and use function, leading to the loss of the use value of the building and the value of the humanities and spirit [2].

In response to these problems, the following suggestions should be made: to reorganize the building's architectural space and use function, so as to make the building full of life again as much as possible; while presenting the history (Figure 3), it should also pay attention to the modernization and development of the building, so as to realize the dual purpose of serving the public.



*Figure 3: Youyi Hospital Outpatient Building*

### **2.3. Beijing Tongren Hospital**

Peking Tongren Hospital was founded in 1886 (Qing Guangxu 12) and its old building possesses historical value. As a representative of modern church hospitals, Tongren Hospital's early buildings were of eclectic architectural style. For example, in 1903, the middle building was built, using brick and wood mixed structure with western-style arched doors and windows, combined with the hospital's corridor-style medical function layout, the roof is in the form of a sloping roof, which is a manifestation of the early functionalism and pragmatism, the building materials used are green bricks and gray tiles, and the architectural details are matched with the traditional Chinese patterns. It is an excellent example of the combination of Chinese and Western traditional styles.

The ward building designed by Dongri Zhao in 1954 in the reconstruction and expansion of the building utilized the modernist architectural style, with simple square-shaped blocks, open glass windows with standardized ward layout (Figure 4), marking the transition of traditional medical buildings to modern medical care in New China.



*Figure 4: The former gate of Tongren Hospital*



*Figure 5: Tongren Hospital Complex*

In 1990, the outpatient building was expanded, and the designers utilized the “neo-classical” style combined with modern medical needs, using glazed tile sloped roofs and vermilion lacquered corridors that echoed the historical building, and adding new elements such as glass curtain walls to give the building a new look (Figure 5), problems such as aging of facilities have become today's heritage issues, and the building space and functions can no longer meet modern medical needs.

In view of these problems of Peking Tongren Hospital, we can realize the dual purpose of architectural function and spatial repair on the basis of preserving the original appearance by retaining the architectural style, focusing on the use of function, and moderately expanding the volume of the building.

### 3. Preservation and Reuse

#### 3.1. Example of the renovation of the Concordia Hospital

The remodeling of the old site of the Union Hospital has gone through a multi-year process of planning, design and construction. The purpose of the renovation is to combine the original old hospital site with the functions of a modern museum, in order to highlight the irreplaceable and important position of the Concordia Hospital in Chinese medical history and culture.

The process of remodeling is as follows:

① Planning and design phase: Before the remodeling, the Union Hospital underwent a long period of planning and design to ensure the smooth progress of the remodeling. The renovation plan needs to take into account the history and cultural value of the original building, as well as the exhibition needs and modern management requirements of the museum, in order to retain the original design style and characteristics of the building, but also to meet the needs of modern facilities.

② Overall architectural renovation: during the renovation process, the building was dismantled, reinforced and remodeled<sup>[7]</sup>. In order to meet the needs of the museum, the original wards and treatment rooms and other areas were transformed into exhibition halls, libraries and offices.

③ Interior renovation: Through the renovation and design of the interior, the exterior and interior space of the building were reshaped, and the light and ventilation conditions were increased to enhance the museum's display and visitors' experience.

④ Installation of equipment: In the process of remodeling, the museum installed advanced equipment such as lighting, multimedia displays, audio interpretation, and intelligent guides so that visitors can better understand the history and culture of Union Hospital.

⑤ On-line operation: After years of planning and construction, the renovation of the old site of the Union Hospital was officially opened to the public in 2006, and is now one of the main places for tourists to visit and learn.

Overall, the renovation of the old site of the Union Hospital is an important project with historical significance and cultural value<sup>[8]</sup>, combining the original hospital site with the functions of a modern museum, which not only protects and inherits the history and culture of the development of modern medicine in China, but also provides tourists with a better opportunity to learn and understand the history of medicine. With its long history and rich cultural heritage, China needs the joint efforts of the whole society to effectively protect the historical and cultural values of these medical buildings<sup>[9]</sup>, so that they can exist permanently and continue as the heritage of human civilization.

#### 3.2. Beijing Friendship Hospital

The former site of the Friendship Hospital has been listed as a Beijing cultural relics protection unit and included in the list of 20th century architectural heritage. At present, the Beijing Municipal Government has repaired and protected the former site of the Friendship Hospital, and the original buildings, facilities and historical relics have been preserved and restored. The site has become an important witness and cultural heritage in China's modern medical history.

In order to protect the former site of the Friendship Hospital, the Beijing Municipal Government has taken a series of measures, including:

1) Repairing and reinforcing the building to protect the structural safety and historical appearance of the building;

2) Restoration and protection of historical relics, such as stone carvings and murals;

3) Establishing a specialized management institution responsible for the daily management and maintenance of the former site of the Friendship Hospital;

4) Formulate relevant protection plans and standards for the unified management and protection of the former site of the Friendship Hospital.

Through the above measures, the Beijing Municipal Government is committed to protecting the cultural heritage value of the former site of Youyi Hospital<sup>[10]</sup>, so that future generations can better understand and inherit the history of the development of modern medicine in China.

### **3.3. Beijing Tongren Hospital**

The former site of Peking Tongren Hospital is a building of historical value and cultural significance, which has been listed as a Beijing cultural relics protection unit and a national key cultural relics protection unit. In order to protect this important cultural heritage, the Beijing Municipal Government and relevant departments have taken a number of measures to repair and protect it <sup>[10]</sup>. For example, protective walls have been constructed around the old site, buildings have been reinforced and repaired, and some areas have been opened for tourists to visit. Specific measures to protect the old site of Beijing Tongren Hospital include the following:

#### 1) Guarantee of relevant regulations and norms

As a national key cultural relics protection unit, the former site of Tongren Hospital is protected by national laws. At the same time, regulations such as the Beijing Municipal Regulations on the Management of Cultural Relics Protection, as well as the norms and requirements of the relevant cultural and tourism departments <sup>[11]</sup>, also provide protection for the protection of this old site.

#### 2) Strengthening Repair and Maintenance

In order to protect the old site, Tongren Hospital has carried out repair and maintenance on it many times, including the maintenance and repair of buildings, gardens and fire prevention. At the same time, regular annual inspections of all buildings and equipment and facilities at the old site are conducted to ensure its safety, stability and durability.

#### 3) Building museums and cultural education bases

Protecting cultural heritage also provides visitors with better opportunities to learn and understand the history of medicine. China's long history and rich cultural heritage require the joint efforts of the whole society to effectively protect the historical and cultural values of these medical buildings <sup>[12]</sup>, so that they can exist permanently and continue as the heritage of human civilization.

Tongren Hospital established the Museum of Integrated Chinese and Western Medicine in the old site to explain, promote and popularize the history and culture of the old site. At the same time, the old site has been identified as a national patriotic education demonstration base, which regularly carries out cultural and educational activities to raise public awareness of cultural heritage protection.

#### 4) Standardized management and supervision

Tongren Hospital has established a standardized management and supervision mechanism to strengthen the protection and management of the old site. Ensure its safety and long-lasting preservation of cultural values. At the same time, for plans involving alteration and development of the old site, Tongren Hospital will also conduct a strict review and follow relevant regulations and norms for approval and management <sup>[13]</sup>.

Maintaining the status quo by repairing and protecting historical buildings better showcases architectural features and architectural culture, and provides new ideas for the cause of architectural conservation. Better display of architecture and cultural heritage, the cultural heritage will be inherited and protected <sup>[14]</sup>.

## **4. Architectural heritage conservation measures**

In the process of 20th century architectural heritage conservation, many experiences of the previous generations have been summarized to accelerate the cause of architectural heritage conservation. Promoting the process of 20th century architectural heritage protection requires the cooperation of many aspects<sup>[14]</sup>. Increase the protection through the legal level and legislative protection. Cultivate people's awareness of protection and promote the process of protection for all. In order to protect the historical value and cultural heritage of these Beijing twentieth-century medical architectural heritage, a full range of protection and repair work is needed. Protection work can be carried out through the following aspects:

#### 1) Historical and cultural protection laws and regulations protection:

The government can strengthen the repair and protection of these medical buildings through the formulation and implementation of laws and regulations to ensure the integrity and sustainability of their historical value and cultural heritage. Cultural Heritage Bureau and Professional Institutions

Protection .

2) Cultural heritage assessment

The State Administration of Cultural Heritage (SACH) and professional organizations can appraise and assess the buildings to determine their historical and cultural heritage value, and develop specifications and conservation plans for the buildings to ensure the integrity and sustainability of their historical value and cultural heritage.

3) Maintenance and Repair.

The government can formulate a detailed maintenance and renovation plan to maintain the original historical and cultural appearance of the building, and use the same materials as the raw materials as much as possible for renovation to restore the original state.

4) Cultural and Educational Promotion.

The government can use these buildings for cultural education promotion to show the public their historical value and cultural heritage value, guide the public to emphasize and protect these buildings, and improve the public cultural quality.

In conclusion, with its long history and rich cultural heritage, China needs the joint efforts of the whole society to effectively protect the historical and cultural values of these medical buildings, so that they can exist permanently and continue as the heritage of human civilization.

## 5. Conclusions and outlook

### 5.1. Conclusion

In this paper, the conservation and utilization of 20th century buildings is discussed by taking the former site of Peking Union Medical College Hospital, Beijing Friendship Hospital and Beijing Tongren Hospital as examples. By analyzing the conservation and utilization of the ancient buildings of these three medical buildings, we can find that proper conservation and effective utilization can make an important contribution to the sustainable development of urban culture<sup>[7]</sup>.

With the challenges and opportunities in conservation and utilization, we need to establish a long-term and sustainable conservation and management mechanism. We should strengthen the laws and regulations on cultural relics protection, study the theories and methods of cultural relics protection, and strengthen the cultivation of cultural relics protection professionals so that they can better lead the work of cultural relics protection and promote the healthy and orderly development of the cause of cultural relics protection<sup>[14]</sup>.

### 5.2. Innovative points of the thesis

1) Discussing the characteristics of medical buildings in Beijing 20th century architectural heritage, briefly outlining the status quo of medical architectural heritage use in Beijing 20th century architectural heritage at the present stage, and putting forward preliminary suggestions for its protection and reuse measures.

2) Conduct a comparative analysis of the former sites of Peking Union Medical College (PUMC) Hospital, Beijing Friendship Hospital (BFH) and Peking Tongren Hospital (BTH) by analyzing the literature and research. The current situation and the protection of the examination.

3) Proposed measures for restoration and repair · determined the protection and utilization of the program, for the future protection and utilization of the 20th century medical architectural heritage provides a reference basis.

### 5.3. Shortcomings and Prospects of the Study

This paper has not yet taken into account the cost problem when proposing specific measures and protection strategies, the strategy in digital protection is not enough to consider, and the protection strategy proposed for the protection of the building complex still has limitations and cannot achieve the degree of complete protection. The solutions proposed in this paper have little impact on the conservation strategies of the medical buildings still in use, and the conservation and reuse of 20th

century architectural heritage requires the cooperation of the government, the planning department, the design department, and all sectors of the society to solve the problems that exist in practice, which is the only way to ensure that the conservation and utilization of the 20th century architectural heritage will be carried out in a practical manner. The preservation and utilization of Beijing's 20th century medical architectural heritage will provide new thoughts and ideas for contemporary medical architectural design. It will also help to promote the protection of heritage and provide new impetus for the continued development of cultural heritage protection.

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