

Early Integration and Innovation of Bauhaus and Chinese traditional Architectural Spirit — Study on Wang Dahong's Early Design Thoughts in the 1940s and 1950s

Huang Zhuangwei and Zou Guangtian

Abstract—In the 1940s and 1950s, the famous Taiwanese architect, Wang Dahong made a valuable research about modern Chinese architecture. Combined with his Bauhaus design education and that explored Chinese architectural spirit. He left a heritage of buildings with modern architectural spirit and Chinese humanistic charm. It has had a profound impact on the development of ‘Modern China’ architecture in Taiwan after the 1950s. This article will analyze Wang Dahong's early ideas and innovations in architectural design during this period, trying to outline the early combination of Bauhaus and Chinese architectural spirit.

Index Terms—Wang Dahong, Bauhaus, Walter Gropius, modern Chinese architecture, modern architecture in Taiwan.

I. FIVE VISIONARY ARCHITECTURES (WANG DAHONG, 1940S)

The analysis of his ideas and techniques developed in two small housing project (Architect's residence on Jianguo South Road and Luo's residence on Songjiang Road in the 1950s) must be traced back to 1939. In the same year, Wang Dahong graduated from the Department of Architecture of Cambridge University. In 1940, he enrolled at the Harvard Graduate School of Design, where he was taught by Walter Gropius. There, Wang was briefly a classmate of both I.M. Pei and Philip Johnson.

The experience of being directly taught by this first-generation of twentieth century architects has had a profound impact on his worldview and work. ‘The person I miss when I was studying at the Harvard Graduate School of Design is Gropius’ he is the advocate of modern German architecture, famous architect in the world, a social scholar and an educator. In 1920, he had re-searched and built prefabricated houses to raise the standard of living. At that time, Hitler was dictatorial and opposed to modern art and architecture, so Gropius immigrated to Massachusetts in the United States. He built a residential building for private use in Lincoln. The building is small, but it has a great and far-reaching impact on the American architectural community. the influence has always affected the modern American architecture, which in turn affects the design of modern Taiwanese architecture, such as the offices, factories, school buildings, apartments, etc [1].

During the time in Harvard University, he also read Rousseau's writings. He talked about this experience and

said, ‘The most influential writing is his essay Social Contract, in which he describes an ideal society (...) that must conform to Nature (...). Today, human beings have lost their humanity and replaced spirit with matter. Spiritual life was neglected in the pursuit of a rough material life.’

Therefore, it is not difficult for us to understand the pure space and the spirituality that he pursued in architectural creations later. It actually has the dual sources, the liberals of Western enlightenment and the spiritual homes of Chinese traditional literati, ‘Utopia’ and ‘Peach blossoms yard’. The combination of these two thoughts, which has a high degree of commonality, eventually became the philosophical foundation of his design creation.

After graduating from Harvard University in 1942, Wang Dahong became an entourage in the Chinese Embassy in Washington, USA. He returned to Shanghai in 1947, and had been stayed in the United States for more than five years. During this period, Wang Dahong completed five visionary architectures, which are the prefabricated houses published in the *New Pencil point* magazine in December 1943, the post-war residential competition published in the *Art and Architecture* in April 1944, the atrium town house design published in the *Interiors* magazine in January 1945, the bath-room design published in the *Interiors* magazine special issue in January 1946, and the small house co-authored with K.H. Cheang between 1945 and 1947. Although these designs have not been realized, they still can see the direction he had been exploring. The first two designs are concerned with industrial production specifications and modularization concepts. However, unlike Gropius's starting point for using modularization based on large-scale industrial production, what Wang Dahong cares about is how to integrate Chinese cultural spirit into this modern architectural framework and generating logic.

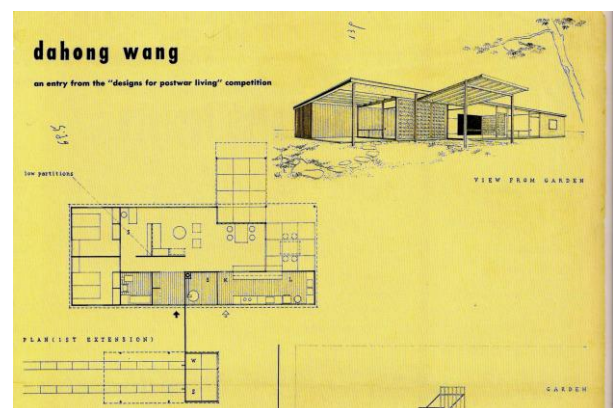


Fig. 1. The post-war residential competition.

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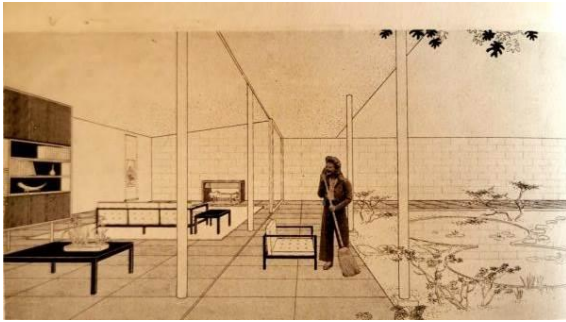


Fig. 2. The atrium town house design.

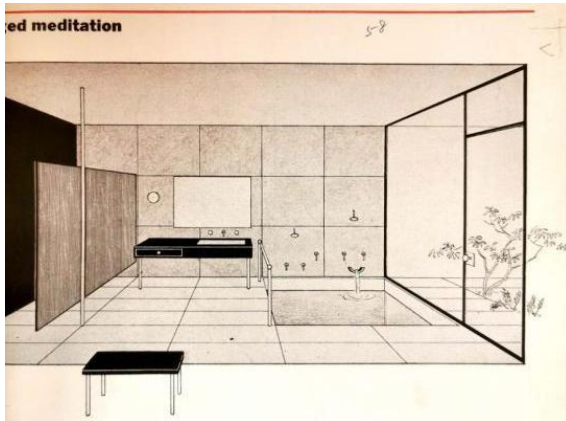


Fig. 3. The bathroom design.

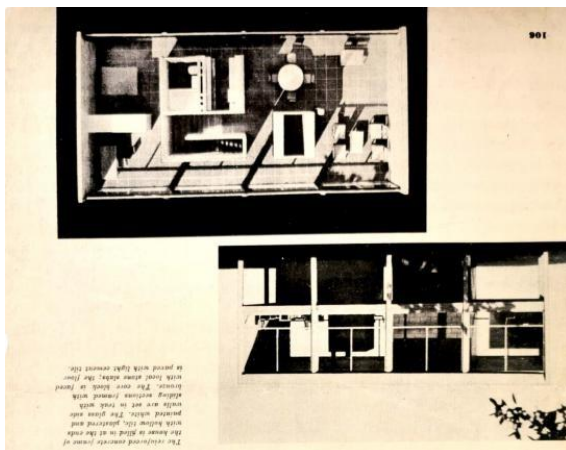


Fig. 4. The small residential design, 1947.

Fig.1-4 Wang Dahong's design schemes in the 1940s

Source: Shyu Mingsong, Wang Dahong Architect

When King Changming promoted vigorously Wang Dahong's house on Jianguo south road, he said, 'While Wang was taught by Gropius, his personal love for Mies van der Rohe was deep' [2]. During the time in the United States, he was exploring how to integrate Chinese culture into the mod-ern architecture, perhaps he 'discovered that Gropius's education was not enough to complete the task, and he could surpass the mission with the help of the ethereal design language from Mies' [3].

Therefore, during the exploration, the exquisiteness and flowing design method from another master gradually becomes the object of his emulation, and of course, it is not a simple imitation, but the practical exploration of adding Chinese elements to this framework continually. When we analyze the last three works, we can see the continuation and progress of his innovative techniques, such as the atrium town house design, Chinese furniture, screens, scrolls and

other Chinese elements are decorated in a way but they are placed in the Mies-style space. The bathroom design uses a sunken bathtub which is different from the West. (This bathtub is also the prototype of the bathtub at his house on Jianguo south road).

The last design, a small residential design in 1947, is a summary of this series of schemes. This is a two-story house with high walls and gardens. On the first floor, in addition to the stairs and storage rooms, it is partially overhead. On the second floor, the storage space facing to the stairs forms a porch. In the design of the space, the stairs, kitchen and bathroom are used as physical space to divide and streamline the whole space. The distance between the inner wall and the floor-to-ceiling windows on both sides in the north and south forms a space that is transparent and continuous, which is obviously affected by Mies. Chinese charm is reflected in the facilities (Wang Dahong also describes their color and texture in detail in the design instructions), such as Chinese vertical lamps with brass brackets, white sandalwood round dining table, teak bed with dark yellow Shandong silk and so on.

These five projects are the prequel to Wang Dahong's series of architectural creations in Taiwan, also are the first experience of the combination of modern architecture and Chinese elements. From these schemes, we can see the Gropius-style modularization and Mies-style flowing space are the basis of his modern architectural design innovation, while the Chinese elements are stuck in the simplification of decorative elements and furniture. This needs to be further integrated into the physical building itself.

II. ARCHITECT'S RESIDENCE, JIANGUO SOUTH ROAD, (WANG DAHONG, 1953)

In 1953, the above paper ideals were finally realized in his house of Jianguo south road. This is the first project after he returned to Taiwan to open an architectural design office. The owner is himself. Therefore, he can fully integrate his thoughts into this design. Today, we directly followed the introduction from Mr. King Changming in the fifth issue of *Architectural Today* published in October 1954, *Introduction to Mr. Wang Dahong's House* to enter this building.

'In the recent years, a new star in the architectural world suddenly shines with the brilliant brilliance of the Free China. That is the Mr. Wang Dahong to be introduced here.

An ordinary high red brick wall and two unpainted narrow courtyard doors... if you stop for a moment, your sight through the sparse trees, and a row of long south-facing floor-to-ceiling windows, you will have been shocked by the mood of the indoor and the outdoor. At this time, a slate paved path leads you into the room.

The entrance is an 8-cun wide vermilion closet, and on the right turning is a spacious living room with a white round dining table surrounded by six red painted round teak benches with black steel feet. In the center of the living room are three sofas and a light marble tea table. On the other side is a long couch with antique cushions and pillows. There is a large gourd hanging from the ceiling, revealing the oriental atmosphere. At the end of the living room, it leads to the bedroom. The most touching thing in the

bedroom is the large round window in the east with a diameter of 5½-cun. The window sash is outside the wall so that the wall can be completely penetrated... There is a door link to the bathroom on the one side of the bedroom. A 7-cun high wall is used to separate the outside kitchen, leaving enough lighting and ventilation space at the top of the wall.

For the selection of color and lighting, he has his own uniqueness. Wang only uses black, white and red, changes in simplicity... Throughout Wang's residence, although the house include the courtyard is only 90 square meters, no matter in design or construction, everything is carefully designed to fully realize the three principles. That is economic, practical and beautiful. It is an in-deed work that spans the times. If there are new buildings in Free China, Wang's residence can be well deserved.'

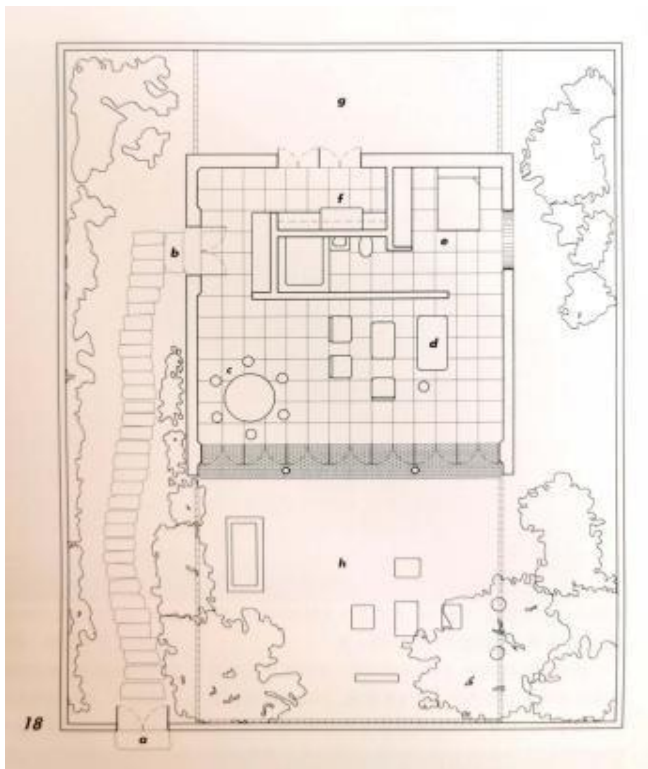


Fig. 5. The plan and real scenes of architect' residence on Jianguo south road.

Source: Shyu Mingsong, Wang Dahong Architect

Today, through the analysis of the plan, space and detail of this house, we can find five innovative elements that originate from the east and west and blend with each other. They are the modulus, the modern flowing space system, the Chinese garden space spirit, the construction details, the color and the touch.

The modulus of Gropius is applied to the orthogonal system formed by square bricks. The flowing space of Mies is constructed in the layers of red brick walls, interconnected but impervious. The space of Chinese gardens is transformed into a spatial and artistic conception. After the turning of the long slate trails, the floor-to-ceiling windows looming between the trees, the red brick walls and the functional blocks, the space becomes wider. Mies's precise pursuit of material construction details is reflected in the modern reconstruction of Chinese-style long doors, push-pull grid windows and red bricks. In addition, the design of color and touch continually from his small residential practice in 1947, white round Chinese dining table, vermilion round bench with black steel feet, red brick wall with plaster, Mies-style long couch with antique cushions and pillows and a gourd hanging on the ceiling. These are full of elegance of the oriental literati.

This masterpiece which combines the modern spirit and Chinese charm has strong innovative features, regardless of its spatial composition or detailed design. The Chinese space spirit and the flowing space of Mies and the modulus theory of Gropius are perfectly combined. It caused great repercussions and became a sacred place for teachers and students of the Department of Architecture. It became a place where many architects accepted "baptism" during their student days [4].

III. LUO'S RESIDENCE, SONGJIANG ROAD, (WANG DAHONG, 1955)

Luo's residence is the second experimental work of Wang Dahong to integrate Chinese-style courtyards and western architectural flowing spaces together.

The building site is located on Songjiang road, Taipei. It consists of two north and south-oriented houses, each with its own roads and entrances. The outside is like the house on Jianguo south road. It is surrounded by red brick walls and they are the shared wall of two buildings connect the yards. The south building is facing south, and the north building is facing south. At the south building, passing through the entrance wall and the front yard, behind the living room and dining room, there is a convex enclosed courtyard. It is enclosed by hollow brick walls and protrudes into the courtyard in the north. The middle wall is high and the walls on both sides are lower. There is a tree in the corner of the courtyard. It forms a nesting relationship with the north courtyard, and it has the artistic conception that a garden in a garden. The north entrance is located on the north outside wall. After entering in the middle of the facade, there is an atrium, a south-facing living room, a terrace and garden outside. The design of two buildings in the north and the south form a method of inside and outside gardens, enriching the layers of space. Modularization, hierarchical, progressive spatial relations, and modern Chinese space techniques in garden-style are similar to the house on

Jianguo South Road [5].

But the biggest difference between these two projects is that the Luo's residence adopts the overall central axis symmetry. We can see that the traditional Chinese ceremonial nature, except the field of gardening, has begun to become an innovative source for architects.

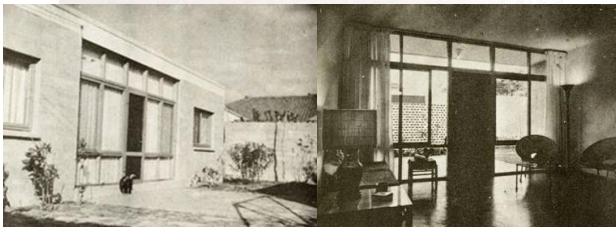
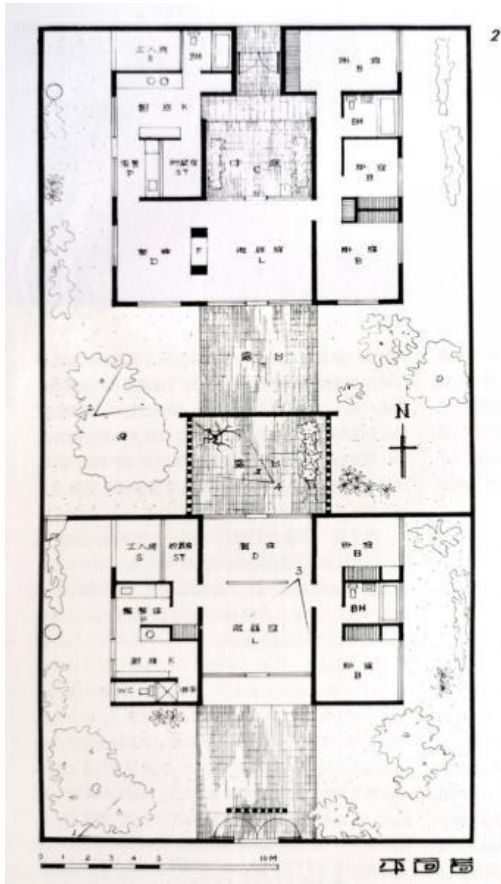


Fig. 6. The plan and real scenes of Luo's residence on Songjiang road.
Source: *Architecture Today*, 1955, 12 (11)

IV. CONCLUSION

The above-mentioned Wang Dahong series of visionary architecture and two small residential designs in the 1940s and 1950s is a valuable exploration and combination of the early Bauhaus and the traditional Chinese architectural spirit. From the generation of Wang Dahong's architectural thoughts, we can see the elegant aesthetic principles, the simple spiritual pursuits and the views of the garden space changes step by step, which correspond to the simple aesthetic principles of modern architecture, the pure space creation and the flowing spatial layers. These works and design ideas had a profound impact on the innovative road

of the modern Chinese architecture in Taiwan after the 1950s, and also laid a solid foundation for the theory and practice in the large and medium-sized architectural works of Wang Dahong, such as the National Taiwan University First Student Activity Center, Songshan Airport and Sun Yat-sen Memorial Hall.

CONFLICT OF INTEREST

The authors declare no conflict of interest

AUTHOR CONTRIBUTIONS

Huang Zhuangwei and Zou Guangtian conducted the research, both of the authors had approved the final version.

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