Rethinking the reproduction and innovation of modernism in China through Kunio Maekawa's residential district planning in Shanghai

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Abstract

This paper investigates Kunio Maekawa's contributions to urban construction through two residential projects in Shanghai, initiated by different clients and yielding varied outcomes. The planning of the Oriental Development Company residential district showcased the designer's avant-garde understanding of modernist urban planning theory and reflected his aspirations for Shanghai's urban development at the time. The Hua-Hsing Commercial Bank residential district, which was successfully realized, demonstrated Maekawa's skill in adapting modernist principles to meet the local context and urban planning needs of Shanghai. The analysis focuses on the realized Hua-Hsing Commercial Bank residential district, exploring how Maekawa's designs fostered community interaction and social cohesion. The project underscored his innovative integration of public spaces within residential districts, which not only enhanced the residents' quality of life but also strengthened community bonds. These spaces were thoughtfully designed to balance high- density housing with accessible communal green areas, reflecting a sophisticated understanding of the interplay between architecture and urban living dynamics. By examining these projects, the paper highlights Maekawa's significant impact on urban development and modernist architecture in Asia, particularly through his thoughtful approach to designing community-oriented living spaces in rapidly expanding urban environments.

Keywords
Urban history, Residential district planning, Modernism, Shanghai, Greater Shanghai Metropolitan Plan

How to cite
Shao Shuai, "Rethinking the reproduction and innovation of modernism in China through Kunio Maekawa's residential district planning in Shanghai". In Ian Morley and Hendrik Tieben (eds.), *International Planning History Society Proceedings*, 20th IPHS Conference, "The (High Density) Metropolis and Region in Planning History," Hong Kong, 2 - 5 July, 2024, TU Delft Open, 2024.

DOI: 10.7480/iphs.2024.1.7602

INTRODUCTION

Urban development in China from the early 20th century until the founding of New China had a significant influence on contemporary urban planning. During this period, diverse urban and regional planning practices were observed in Chineses cities, primarily due to the absence of a common construction code. This fragmentation resulted from the central government, regional authorities, colonies, and concessions each pursuing divergent development strategies. The residential construction under various planning strategies exhibited differences concerning different builders (government or enterprises), residents (Chinese or foreigners), purposes (for workers or middle-to-high income groups), and scales (individual houses or residential districts). Shanghai became a national leader in urban planning and development, largely due to its unique position in trade and diplomacy. The early modernization of Shanghai's urban landscape was propelled by concessions from the British and French. This influence compelled the Nationalist government to introduce the "Greater Shanghai Plan" in the 1920s, aiming to comprehensively enhance the city's infrastructure and expand its urban framework. This plan laid the foundation for major urban development initiatives at Wujiaochang region, located northeast of Shanghai's city core, following Japan's occupation.

The Wujiaochang region was primarily planned to meet the living and working needs of the Japanese community in Shanghai[1]. The Wujiaochang region also functioned as an experimental venue for Japanese designers. Development corporations, backed by the Japanese government, not only constructed urban infrastructure but also established numerous residential districts. Among these, the Oriental Development Company residential district and the Hua-Hsing Commercial Bank residential district, both designed by Kunio Maekawa, showed avant-garde modernist concepts. After a two-year tenure at Le Corbusier's studio, Maekawa became one of the pioneering architects to introduce and embrace modernism in Japan. His architectural endeavors, extending into the 1980s, played a pivotal role in shaping a uniquely Japanese modernist movement. Despite the popularity of modernism in Europe and America by the 1930s, its adoption in Asia, especially in mainland China, was significantly limited. Although some Western architects and Chinese architects with international expertise had begun exploring this style on the mainland[2], complete examples of modernist architecture — from the planning of residential districts to the design of individual houses — remained scarce. Additionally, Maekawa's two residential district plans, developed concurrently with the urban planning of the Wujiaochang region, exemplify the designer's vision for modern urban forms at the time. These plans illustrate Maekawa's forward-thinking approach and his ability to integrate modernist principles within the specific context of Shanghai's urban development.

Previous research conducted by Chinese scholars has primarily focused on Kenzo Tange, who was influenced by Kunio Maekawa, as well as on Maekawa's house served as a model for contemporary Japanese architecture[3]. Japanese scholars focused on Maekawa's architectural achievements within Japan, viewing him as a pioneer of modernist Japanese architecture. Or focus on his identity as a disciple of Corbusier to analyze the process of modernism entering Japan[4]. In recent years, Hiroshi Matsukuma has conducted comprehensive studies on Maeka-

wa's entire career and architectural output, highlighting the various challenges he faced throughout different periods. Scholarly analyses have also been conducted on the building processes and architectural principles depicted in the blueprints of the Hua-Hsing Commercial Bank residential district[5]. However, as a Japanese architect who worked in mainland China, there remain insufficient discussions regarding his approach to designing living spaces within modern urban settings and the broader impact of his work on Asia.

METHODS

Aside from a few government-directed initiatives for welfare housing and governmental servants, most residential construction in China since the late 19th century has been driven by profit-oriented real estate developers. To minimize costs, these projects often compromise on building quality and location. Conversely, colonial powers frequently incorporated urban planning within their colonies and concessions to enhance their local influence.

This essay delves into the 1938 "Greater Shanghai Metropolitan Plan," exploring the strategic orientation and developmental objectives set by the Japanese government for the Wujiaochang region to understand the role of the residential district within the urban framework. The "Greater Shanghai Metropolitan Plan" is closely related to the residential districts made by Maekawa. It examines Maekawa's specific design and zoning proposals, highlighting the modernist urban intentions.

This paper utilizes a range of sources including construction photos, photographs taken by residents during their occupancy, floor plans, and master plans of the Hua-Hsing Commercial Bank residential district preserved at the Japanese National Archives of Modern Architecture. It focuses on the relationship between the residential district and urban planning, the utilization of residential courtyards, the layout of the dwellings, and their impact on community development. This analysis will elucidate how Kunio Maekawa integrated modernist architectural concepts into his exploration of urban environments in Asia, providing insight into his approach to adapting modernism within distinctly Asian urban contexts.

"GREATER SHANGHAI METROPOLITAN PLAN"

As the nation's primary port for international trade, Shanghai was undeniably China's economic center in the early 1920s. However, concessions led to an uneven urban layout, inefficient traffic patterns, and a lack of well- coordinated municipal infrastructure. Following discussions and the establishment of the Urban Construction Committee by the Nationalist Government in 1927, efforts were made to seek new solutions. In July 1929, a new area in the northeast (today's Wujiaochang region) was selected for development. The following month, the "Plan for the Central District of Shanghai City" was released[6], which included recommendations such as improving canal transportation, restructuring the road network, and classifying lands according to their intended uses. These initiatives collectively formed what was

known as the "Greater Shanghai Plan." Although the war halted the plan in November 1937, several of its components were implemented, enhancing Shanghai's infrastructure development.

To create a new urban plan for Shanghai, the Japanese Cabinet Office dispatched a team of twelve, including the head of city planning, Seiji Nakajima, and urban planning experts Eiyo Ishikawa and Tatsuo Yoshimura, from May to November 1938[7]. This marked the first time Japan had directly sent a team of urban planning specialists to China for an in-depth study. In March of the same year, this team merged with another group responsible for the development of Shanghai's port, initiating the creation of a comprehensive urban plan for the city.

Developing the "Greater Shanghai Metropolitan Plan(Figure 1)," the team expanded upon the "Greater Shanghai Plan." This plan extended north, encompassing the Wusong area, with a total planning area of 57,430 hectares. The first phase included 7,759 hectares, adhering closely to the principles outlined in the "Greater Shanghai Plan". The Qiujiang Wharf area, evolving into a major commercial dock, was designated to become the central district of the new area, focusing on administrative departments and commercial zones. The administrative center was designed to project two main thoroughfares to the west and southwest to create a striking urban landscape. One thoroughfare aimed directly at what is today the intersection of Songhu Road and Zhengli Road, connecting to the railway station. The other was planned to extend from Wujiaochang along Siping Road towards the southwest. To facilitate direct transport links to the Japanese mainland, the plan also proposed the construction of industrial complexes and the development of a port at Wusong, located to the north.

Compared to the "Greater Shanghai Plan," the "Greater Shanghai Metropolitan Plan" introduced more specific building restrictions. Architect Tatsuo Yoshimura, utilizing his professional expertise, proactively initiated these regulations, without government directives. These included detailed guidelines for housing development, rental systems, and architectural form criteria tailored for each designated land use area. The land allocated for construction, comprising residential and multi-tenant areas, was initially distributed with 43% classified specifically for residential purposes[8]. Within this classification, residential zones were further divided into first- class and second-class categories; first-class residential areas were generally reserved for single-family or two- family residences, whereas second-class residential areas were designated for multi-unit dwellings.

Factories were positioned on the west and north sides, situated upstream of the Suzhou River and downstream of the Huangpu River towards Pudong. This placement was influenced by factors such as the prevailing wind directions, which help dissipate waste emissions, and the logistical advantages for industrial transportation. First- class residential areas were developed away from the industrial areas, situated near green spaces like Wujiaochang or Zhabei. Planning maps show Wujiaochang's encompassment by a circular green belt, which is flanked by large-scale commercial areas along the roadsides. Consequently, the neighborhoods proximate to Wujiaochang square are considered among the most desirable residential areas in the new district.

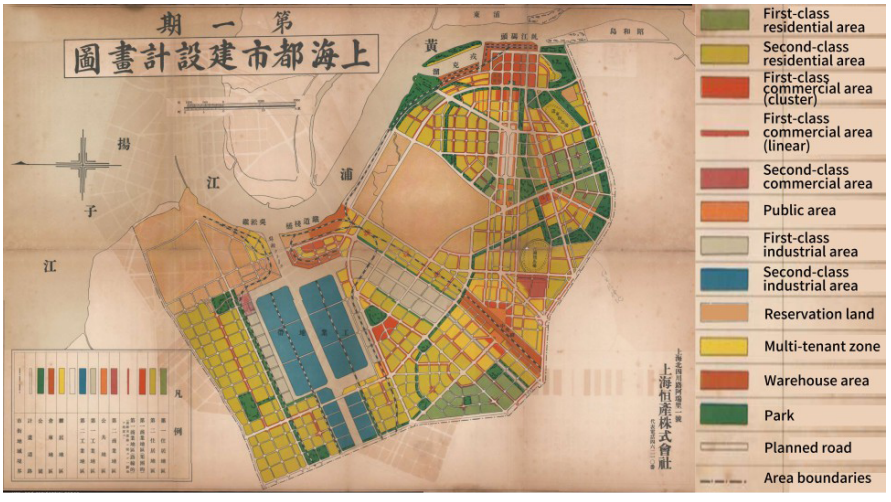

Fig. 1. The first phase of "Greater Shanghai Metropolitan Plan."

The multi-tenant areas were designated for the residential use of Chinese residents. Architectural planning was managed by Yoshimura, who conducted detailed investigations of the Lilong[9], a traditional Shanghai neighborhoods, and incorporated them as the foundational design element for these multi-tenant areas. Predominantly, these neighborhoods housed laborers and dock workers, with their locations close to railroad stations and ports to accommodate the residents' employment needs. However, due to challenging environmental conditions, the living standards in these areas were generally below par, reflecting the harsh realities faced by the inhabitants.

THE ORIENTAL DEVELOPMENT COMPANY RESIDENTIAL DISTRICT

The residential construction in the Wujiaochang was not completed during the Nationalist Government's tenure in Shanghai; aside from public structures, the majority of the area remained undeveloped. The "Greater Shanghai Metropolitan Plan" aimed to establish first- and second-class residential areas targeting middle-class and upper- class individuals employed in government agencies, banks, and offices. These residences were allocated a higher budget compared to worker housing in Manchuria, resulting in superior construction quality and better infrastructure.

Kunio Maekawa, who had recently founded his studio in 1935, was facing limited job prospects. The onset of the War in 1937 led to significant military expenditures, causing a downturn in construction activities within Japan. Seeking to expand his firm's presence internationally, Maekawa was receptive to opportunities abroad. Following the completion of the general urban planning in Shanghai in February 1939, Maekawa's University of Tokyo classmate, Yoshimura, invited him to Shanghai to assist in designing the residential section[10]. Maekawa readily accepted this invitation, eager to explore new architectural challenges and expand his practice.

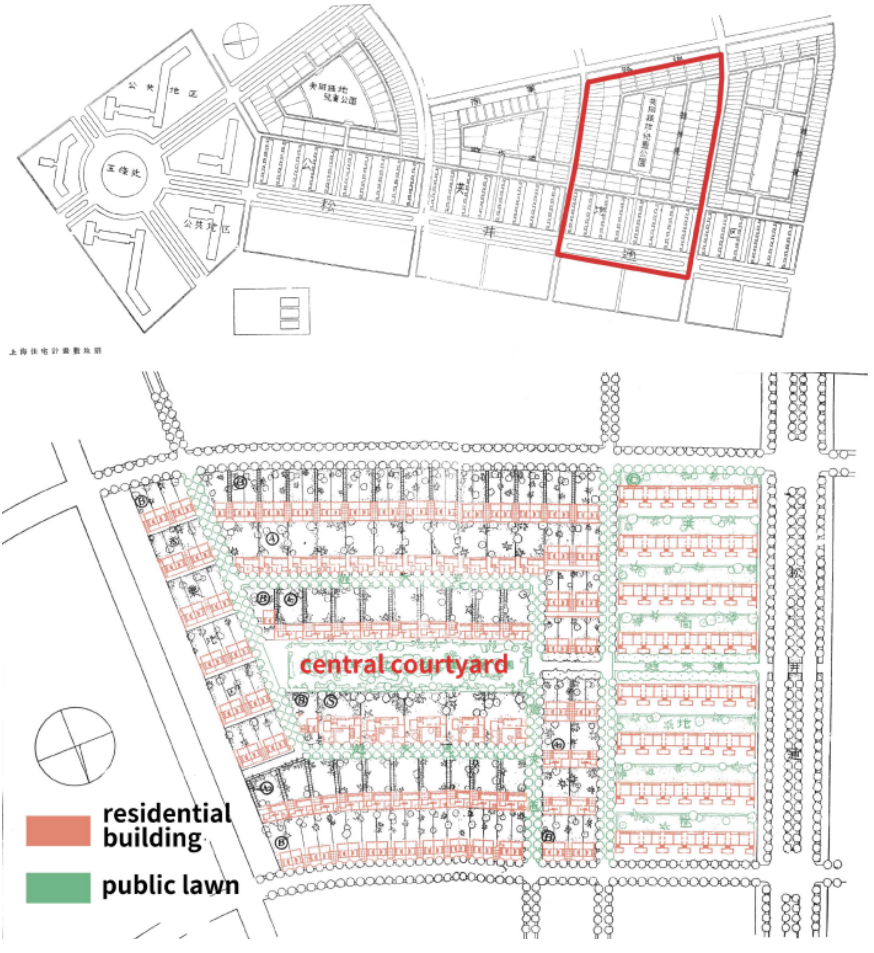

Fig. 2. master plan of the Oriental Development Company residential district. The central courtyard becomes the public space of the low-rise residential district. The green promenade between the multi-unit dwellings is open to the outside, connecting the main road and the residential district.

The Oriental Development Company was initially slated to purchase land in the Wujiaochang region to construct a substantial residential neighborhood aimed at Japanese immigrants. The plan included 32 multi-unit dwellings and four first-class residential districts on the east side of Matsui Road(Siping Road now), all designed by Maekawa (Figure 2). The first-class residential districts primarily featured detached single-family or two-family villas with outdoor courtyards. The plan of these houses drew heavily from traditional European and American villa styles, with bedrooms located on the second floor and living rooms and dining rooms on the first. The facades of these houses were characterized by large horizontal windows that incorporated modernist elements. Additionally, it emphasized the development of communal spaces within the community, as seen in the central courtyard of the first-class residential district, which was influenced by the garden city theory.

During his tenure at Le Corbusier's studio, Maekawa focused on residential projets, including the minimal housing scheme exhibited at CIAM. In a September 1939 article, Maekawa observed that Shanghai was a well- developed city with many high-end residential built by the British and French. If builders follow the example of constructing numerous low-rise residences in the suburbs of Tokyo, it will deviate significantly from the original vision of the new city planning and may not be as appealing to locals as the concessions or older parts of the city[11]. Notably, Maekawa designed thirty-two three-story multi-unit dwellings for common people in an area originally intended for public use fronting the main road. To enhance urban aesthetics, he opted for a layout of parallel residential buildings interspersed with green promenade, aligning these with the green belts along the main roads to create an orderly and open streetscape. This approach diverged from the traditional European landscape avenue planning, which uses vast parks or planting roadside trees to create landscapes. Maekawa's strategy reflects his vision for modern urban planning, closely aligning with Le Corbusier's concept of the Radiant City, where green spaces are seamlessly integrated with multistory housing units[12].

The Oriental Development Company residential district was predominantly composed of low-rise housing due to the material and technological limitations prevalent in China. Kunio Maekawa critiqued the term "first-class residential districts" and expressed his dissatisfaction with developers and decision-makers who lacked an understanding of the Chinese environment[13]. Taking these considerations into account, he went on to design the Hua-Hsing Commercial Bank residential district, incorporating adjustments that better suited the local context and constraints.

THE HUA-HSING COMMERCIAL BANK RESIDENTIAL DISTRICT

Similar to the Oriental Development Company but with a stronger focus on the Central China region, the Central China Development Co. was established after Japan conquered Shanghai in 1937 to consolidate its control and expansion in China further. Shanghai Hengchan Co., a subsidiary of this corporation, was tasked with managing the land development rights and acquiring land in the Wujiaochang region. The Japanese government handed over the main development tasks of Shanghai to the Central China Development Co., and the Oriental Development Company was only required to participate as a shareholder[14]. Finally, Maekawa's plan for the Oriental Development Company residential district remained unrealized, existing only on paper.

The Hua-Hsing Commercial Bank residential district was smaller in scale than the Oriental Development Company residential district, but Maekawa's understanding of China and Shanghai had expanded. He was trying to explain housing in contemporary cities from an additional Asian viewpoint. It demonstrates his deeper comprehension of Asian conditions and also shows how he has thought about and interpreted Asian modernism. In May 1939, the Nationalist Government and several Japanese banks collaborated to establish the Hua-Hsing Commercial Bank. Following the acquisition of land in the Wujiaochang region, the bank planned to build dormitories for its employees on this site. Kunio Maekawa's younger brother, Haruo Maekawa, was once a subordinate of Kaheita Okazaki, the president of Hua-Hsing Commercial Bank. Therefore, through Haruo Maekawa's introduction, Okazaki commissioned Maekawa Kunio to design dormitories between May and July 1939[15].

Fig. 3. Location of two residential districts. The location of the Hua-Hsing Commercial Bank residential district is based on the "Land Transfer Map in Wujiaochang region" published by Shanghai Hengchan Co..

The Hua-Hsing Commercial Bank residential district project, with a site area of approximately 30,000 square meters and a substantial budget of 5 million Japanese yen (560 million yen today). It marked Maekawa's first completed project in mainland China, to which he devoted considerable attention, relocating six employees to Shanghai in August 1939 to set up a local studio. The design phase spanned six months, beginning in the summer of 1939 and concluding in January 1940 when construction commenced. By October 1941, the first phase of construction was completed. The residential district was divided into two sections: 101 units for Japanese residents on the eastern side, and 92 units for Chinese residents on the western side. These two sections, totaling 15,000 square meters, were situated 340 meters apart (Figure 3).

The Japanese residential district was divided into two parts: a large central courtyard was encircled by three- story buildings on the east side. On the west side separated from the east by a street, there was only one residential building. Every unit provided a courtyard that buffered from the road. The courtyard on the east side, measuring 4400 m^2 (Figure 4), is similar to the first-class residential district in the Oriental Development Company but much bigger. Since the residential buildings are all three-story, and each household does not have its own independent courtyard, the central courtyard has become the spatial and functional core of the entire residential district. Each building featured one entrance facing it, except for the one on the east, which had openings on both the front and back sides. It aimed to create a secluded community area primarily for the use of the residents, fostering a sense of community while maintaining privacy.

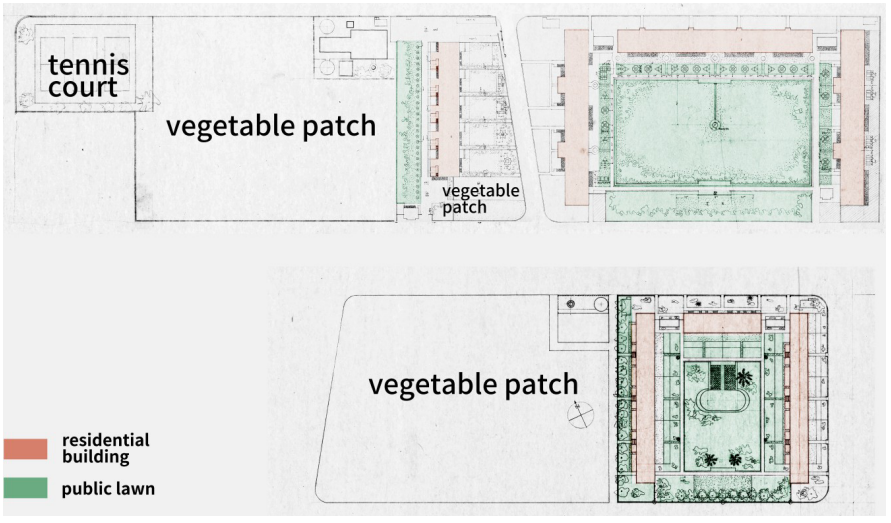

Fig. 4. master plan of Japanese residential district(up) and Chinese residential district(down)

Maekawa's attempt at designing this enclosed residential district was not simply a reference to Shanghai's traditional residential form. The Immeubles-Villa designed by Le Corbusier in 1922 had a perimeter of 400× 200 meters (Figure 5). The Hua-Hsing Commercial Bank residential district was less than half this size. Despite this difference, the Immeubles-Villa also featured a large central courtyard within the enclosed residential building, with direct access to the courtyard from the first floor. Although the Immeubles-Villa was never constructed, one of residential unit(The Pavillon de l'Esprit Nouveau) was exhibited at the Exposition des Arts Décoratifs in Paris in 1925. Maekawa had participated in a project designed based on this Pavillon while working at Le Corbusier's studio[16]. It can be inferred that he was very familiar with the Immeubles-Villa and was deeply influenced by it.

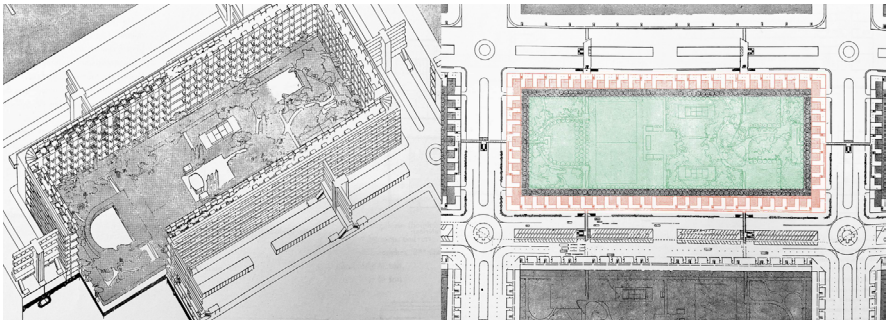

Fig. 5. Axonometric drawing (left) and First floor plan of Immeubles-Villa(right)

Additional children's facilities were later constructed on the south side, and a fountain was positioned to the north of the courtyard. It not only provided a play space for the children but also served as a venue for community events such as sporting competitions and fire drills (Figure 6). However, due to Japan's disadvantageous position in the war by the time the dormitories were completed, the construction progress in the Wujiaochang region was slow. This situation inevitably limited the range of activities available to the residents. Historical photographs show that bank workers and their families engaged in various community events. Besides these group activities, the courtyard also hosted family-oriented events such as flower viewing and picnics. Testimonies from employees suggest that staff actively participated in these community gatherings, highlighting the space's role in strengthening Japanese community connections. Large vegetable patches have been cultivated on the westernmost sides of the two residential districts. For high-income bank clerk families, getting food is not difficult in Shanghai. These vegetable patches provide residents with more opportunities for leisure activities. Joint management of vegetable patches is also an effective means to maintain the community further.

Everything revolved around the courtyard, whether it was the company's major public events, small private gatherings of several families, or the children's specific recreational activities. Neither Okazaki's photo albums nor other sources document any events occurring in the Chinese residential district. Despite the area of this courtyard is only 1980 m^2, there is no statistical difference in population between the two sides. This suggests that larger events are more feasibly held on the east side. Additionally, the Chinese residents likely have more opportunities to participate in social events outside of the Wujiaochang region compared to the Japanese residents, who may not be as familiar with the local languages and cultural contexts.

It is evident from comparing the house layout on the two sides that the Chinese residences lack the highest quality A-type houses, and each one is smaller than the Japanese (Table 1). C-type are similar in size and configuration, revealing how the designer addressed cultural differences between China and Japan and the intended lifestyle of the residents. Japanese C-type features an entrance hall at the entry point and a small light court in the middle. There is also a loft living room at a half-story level in Japanese style. This layout not only meets the demands of contemporary living but also retains the essential spatial elements of traditional Japanese residences, harmonizing modern requirements with culture.

Fig. 6. Various activities taking place in central courtyard. Sports competitions (left), picnics (middle), fire drills (right).

	Japanese					Chinese			
house type	A	B	C	D	E	B	C	D	E
area (m^2)	307	193	169	110	100	180	140	75	70
story	3	2	2	1	1	3	2	1	1
total number	5	16	16	16	12	8	12	16	14
bedrooms	6	3 /4	3	2	1	4	3	2	1
Japanese-style rooms	3	2	2	1	1	2	1	1	0

Table 1. House type information statistics

Although Chinese housing features a relatively simple spatial configuration, the plan considers the Chinese lifestyles. Chinese housing includes one Japanese-style bedroom, whereas Japanese housing has two, each with 4 bedrooms. The living room and kitchen are positioned near the entry to facilitate hosting and greeting guests. Additionally, the bedrooms on the second level are larger, clearly delineating private areas from guest quarters. The shared drying laundry on the second floor is larger compared to those in Japanese housing and accommodates two households (Figure 7). It is suitable for Shanghai's humid climate, which is adapted to local environmental conditions.

Maekawa innovated with several technical construction approaches during the building process. He chose not to use traditional Japanese wooden structures or reinforced concrete structures. Instead, aligning with the hybrid construction techniques typical of Shanghai's Shikumen architecture, the building utilized wooden roof frames supported by brick walls. Maekawa later incorporated this method into the construction of his own residence "Kunio Maekawa House" (Figure 8). This can also be verified from interviews with employees who participated in the project at the time. The roof slope of both is 26.6 degrees, and the construction method of the joints of wooden components is basically the same. It's just that the scale of Maekawa House is smaller, so the size of the components is reduced. Part of the external staircase leading to the entrance to the residential building uses precast concrete technology on an experimental basis. This attempt demonstrates Maekawa's exploratory spirit and the construction experience accumulated by the studio. The same staircase made of precast concrete elements appeared in a 1958 apartment project "Harumi Apartments".

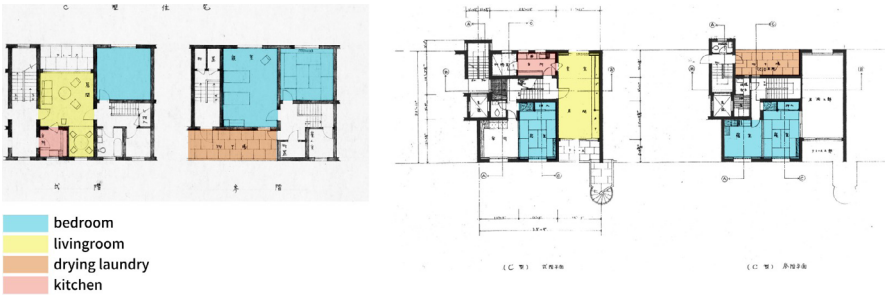

Fig. 7. C-type layout. Chinese housing has a living area of 140 m^2 (left). Japanese housing has a living area of 169 m^2 (right).

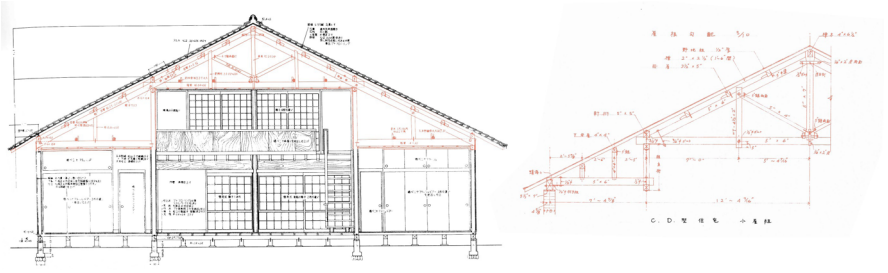

Fig. 8. Section of Kunio Maekawa House(left). Roof section of C/D-type residential building(right).

CONCLUSION

The two residential planning projects in Shanghai by Kunio Maekawa could be viewed as his initial forays into contemporary residential design and urban planning. Unlike his later designs in Japan, Maekawa's work in Shanghai was crucial in his exploration of modernism tailored to Asian residential traditions. At that time, many modernist designers envisioned the modern city with high-rise apartments replacing low-rise houses amid urban expansion and population growth, integrating large green spaces seamlessly with living areas. What sets Maekawa apart is his approach to considering the combined residential and urban design. In addition to focusing on the metropolitan landscape, he paid meticulous attention to the public spaces and daily activities of residents within the neighborhoods. His works in Shanghai melded practical function with community building, providing a blueprint for modernist architecture that was not only more livable but also deeply sensitive to the unique social fabric and environmental context of Shanghai. This approach exemplified a compassionate and practical modernism, distinctively suited to the challenges and opportunities of the time.

The vision for the future living conditions of the majority in modern cities can be observed in the bank dormitory housing, which targets middle-class residents as opposed to the more commonly constructed worker housing or villas of the era. Creating comfortable living spaces for a large population within a constrained land area requires maintaining strong community bonds within the residential district. Undoubtedly, the Hua-Hsing Commercial

Bank residential district exemplifies how to design a public space that meets the needs of the entire district while respecting the distinct living cultures of its residents in Asia.

A significant challenge in contemporary neighborhoods is how to host communal events effectively. All the residents are affiliated with the Hua-Hsing Commercial Bank, which is why display a strong sense of community. This collective consciousness facilitates the development of an internal community and the organization of numerous public events. However, the sustainability of the community cannot be ensured without adequate spaces designated for such activities. The courtyard is central to the area and is designed to be enclosed, allowing various groups to use it.

The Hua-Hsing residential district documents are still being sorted, and discoveries are expected in the future. Based on this survey, future research subjects are to expand the scope to the relationship between the Hua-Hsing Residential Community and the Wujiaochang region; and comparisons with residential planning designed by Chinese architects at the same period.

ACKNOWLEDGEMENTS

I would like to take this opportunity to express my gratitude to National Archives of Modern Architecture, MAYEKAWA ASSOCIATES, ARCHITECTS & ENGINEERS, and others for their generous cooperation in this research. This work was supported by the research grant of Hosei University Young Researchers Joint Research Project, and JSPS KAKENHI Grant Number 23K26288.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author.

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Figure 1 Shanghai Hengchan Co., *Overview of Shanghai New City Construction Plan* (Shanghai: Shanghai Hengchan Co., 1940)

Figure 2 Kunio, Maekawa. "Shanghai." *Modern Architecture*, no,4(September 1939): 36–39.

Figure 3 Shanghai Hengchan Co., *Overview of Shanghai New City Construction Plan* (Shanghai: Shanghai Hengchan Co., 1940)

Figure 4 *East residential district courtyard*, 10 March 1941, JP 24, 24-84-98, MAYEKAWA ASSOCIATES, ARCHITECTS & ENGINEERS., National Archives of Modern Architecture, Tokyo.
A residential district courtyard, JP 24, 24-84-101, MAYEKAWA ASSOCIATES, ARCHITECTS & ENGINEERS., National Archives of Modern Architecture, Tokyo.
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Figure 6 Hua-Hsing Commercial Bank Committee. *the Hua-Hsing Commercial Bank memoir*. (Tokyo: Hua-Hsing Commercial Bank Committee, 1964)

Figure 7 *Layout of east residential district* , 5 November 1940, JP 24, 24-84-94, MAYEKAWA ASSOCIATES, ARCHITECTS & ENGINEERS., National Archives of Modern Architecture, Tokyo.
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