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Revitalizing Urban Interfaces through Historical Spaces: An Exemplification from the Renovation of Pukou Railway Station Area, Nanjing, China

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ABSTRACT

This research delves into the significance and methodological approaches concerning the conservation and regeneration of historical facilities and spaces in contemporary urban environments through the lens of the conservation and regeneration project of the Pukou Railway Station Historic District in Nanjing. The study underscores the imperative of respecting, protecting, and revitalizing historical facilities and spaces. The refurbishment of old facilities, employing the most apt technologies and methods, accomplished a commendable balance between economic investment and efficiency. Respecting all historical textures and contexts is foundational to the preservation of the historical appearance of districts. The project, through the refurbishment of historical buildings and cautious design of new constructions, ensured a harmonious coexistence of old and new elements, thereby enhancing the cultural essence of the historical district architecture. The conservation and regeneration project of the Pukou Railway Station Historic District in Nanjing offers a beneficial case on managing historical facilities and spaces, showcasing how, through rational technical measures and respect for historical context, historical spaces can be revitalized, providing rich cultural and spatial resources for modern cities.

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1. Introduction

This study is spatially focused on the Pukou Railway Station area in Nanjing, Jiangsu Province, China, a locale where history intertwines with modernity. Nanjing is a city of profound historical and cultural significance, tracing back to the era of Six Dynasties and serving as the capital during the Republic of China. Geographically nestled by the Yangtze River and connecting the estuary to the vast north, Nanjing's pivotal role in transportation is manifested not only through its navigable waterways but also through its terrestrial transit corridors. By the late Qing Dynasty, the convergence of Jinpu and Huning Railways in Nanjing denoted it as a crucial nexus between northern and southern China. This infrastructural decision, influenced both by the Qing government's strategic considerations and foreign powers, underscores Nanjing's crucial role in bridging China's southern and northern regions.

The aim of this study is to systematically explore and document the multi-faceted historical and cultural layers of the Pukou district, encompassing aspects such as social history, industrial development, architectural heritage, urban space, and ecological environment. By tracing the cultural and historical evolution of the Pukou Railway Station area, the research seeks to provide a comprehensive understanding of its past, present, and future, ultimately laying a foundation for its protection and utilization.

Central to this investigation is the historical significance of the Pukou district, particularly in the wake of the modern development spurred by the Jinpu Railway construction, which led to urban rise and prosperity around the railway station. This paper delves into the intricate cultural tapestry of the Pukou Railway Station area, unraveling its cultural narrative over time and mapping out the cultural trajectories within this space and time, identifying key cultural intersections from the past to the future. Furthermore, based on historical research, this study will integrate historical cultural resources with urban design, transforming historical events and spatial elements into meaningful place spirits and landmarks. The Pukou area, as an important historical and cultural zone in Nanjing and a connection point between the cultural veins of the north and south banks, will play a crucial role in this regard. Future development and activities in the area will be deeply informed by its history, influencing site imaging, signage, and architectural design, closely related to historical exploration.

Therefore, this introduction aims to emphasize the comprehensive analysis of the Pukou Railway Station area's cultural, historical, and spatial dimensions, guiding its future development and conservation, within the broader context of Nanjing's historical and geographical significance.

1.1. Historical Evolution of Jinpu Railway

The conceptualization of Jinpu Railway in the late 19th century until the completion of Pukou Railway Station in 1914 marked Nanjing as a significant juncture in the north-south transit route. Over time, Pukou Railway Station transitioned from a bustling transit hub to a cultural leisure spot, becoming an emblem of collective urban memory. The railway's inception in 1898, the zenith of the station in 1914, and a brief resurgence in 1985 [1] reflect the metamorphosis of Nanjing across different timelines in terms of transportation, urbanization, and cultural synthesis (Fig. **1**).

1.2. Historical Architecture and Urban Interface Construction in Pukou Railway Station Area

The Jinpu Railway and Pukou Railway Station symbolize not only the transit nexus of Nanjing but also the testament to the city’s historical, cultural, and modernization journey. The transformations around the historical buildings and the ferry ports near Pukou Railway Station depict Nanjing’s endeavor in both preserving historical and cultural heritage and propelling modern urban development (Fig. **2**). Our studio’s renovation work on the Pukou dock and waiting halls represents not only reverence for history but also a redefinition and optimization of the urban water system interface [2] (Fig. **3**). Moreover, the enclosed square of Pukou Railway Station forms a significant boundary of urban space, manifesting not merely the continuity of transit function but the exposition of city’s history and culture [3].

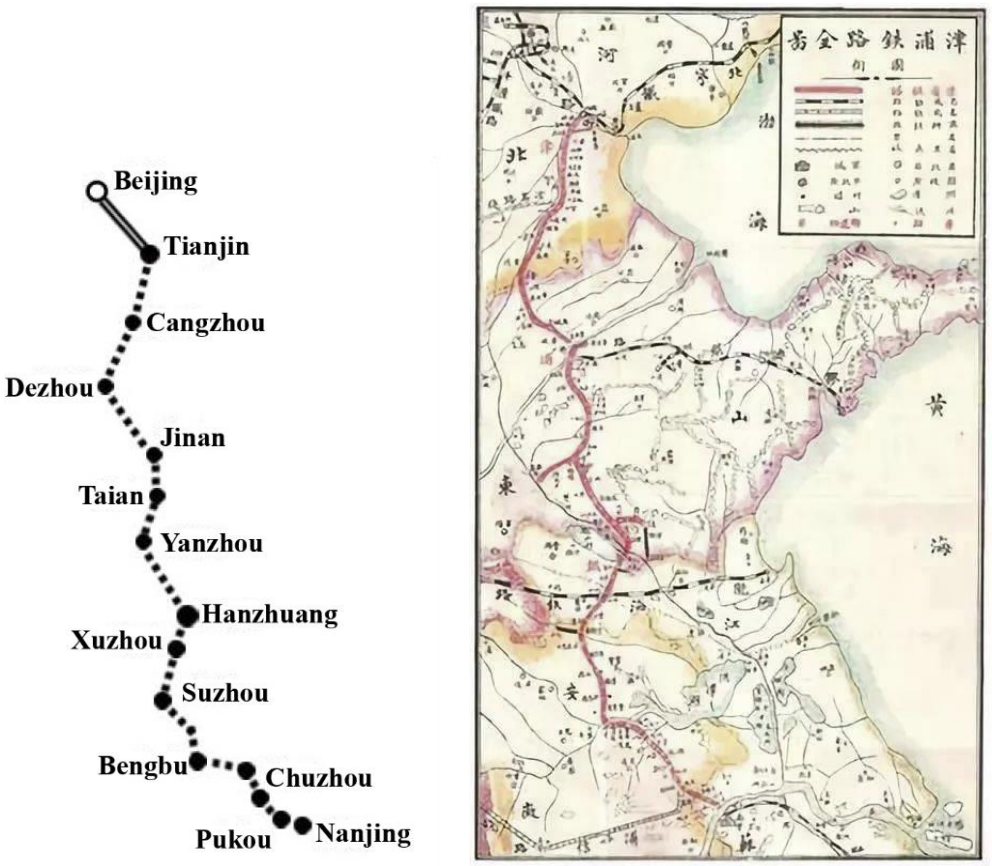


Figure 1: Full line map of Tientsin-Pukow Railway (*Source: Nanjing Xiaguan History Exhibition Hall*).

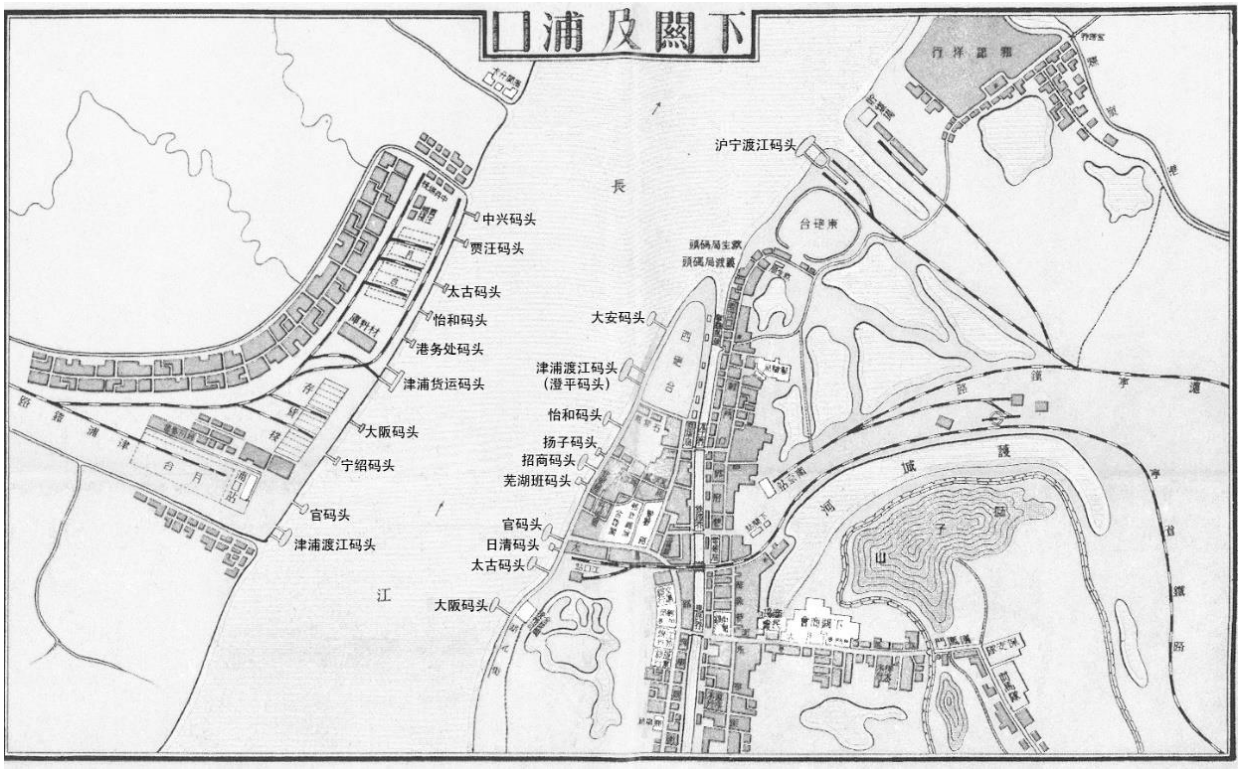


Figure 2: Nanjing port area map in 1927 (*Source: Nanjing Xiaguan History Exhibition Hall*).

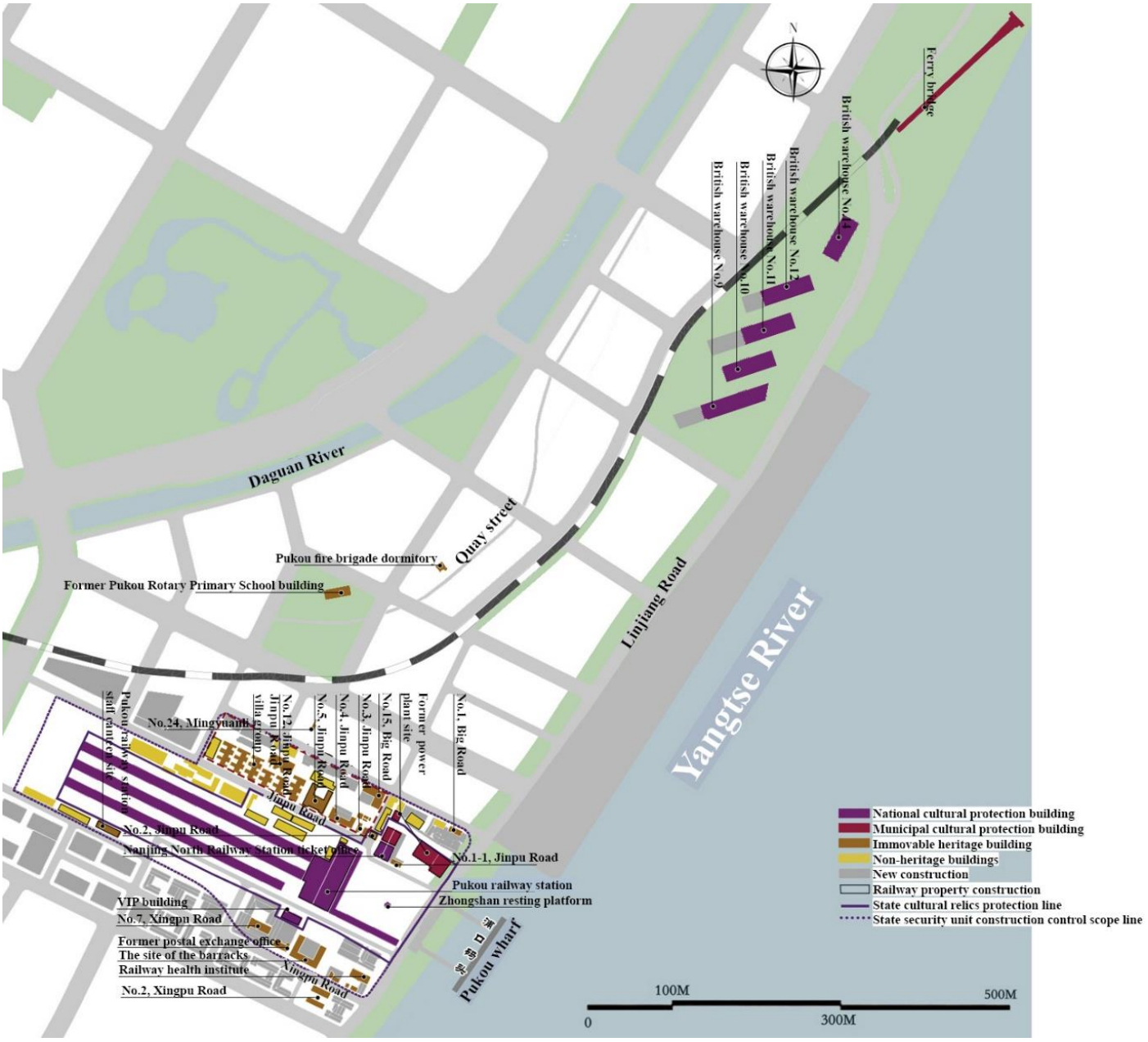


Figure 3: Current general plan of Pukou Railway station area (*Source: Zhouqi Studio*).

1.3. Urban Renewal and Spatial Design Challenges in Contemporary Context

In the current epoch, urban spatial design and public service demands are held to higher standards [4]. The significance of historical preservation and urban cultural heritage continuity is increasingly highlighted, yet existing protection regulations fall short in meeting contemporary preservation and development needs [5]. In recent years, the occurrence of illegal demolitions and destruction of historical buildings have necessitated new standards and requirements for historical building preservation [6]. From the National Cultural Heritage Administration to local heritage bodies, clearer planning and concepts have been developed for the renovation, preservation, and utilization of historical areas. At this juncture, maximizing the protection of historical remnants has become a primary principle, with notable advancements in renovation requirements and techniques for historical buildings, and a clearer conceptualization for the design of new constructions.

2. Methods and Materials

2.1. Methods

The Pukou Railway Station preservation and regeneration project, a cornerstone in the development of Nanjing's Jiangbei New Area, employs a comprehensive, interdisciplinary approach. Beyond conventional renovation, the project seeks an equilibrium between historical authenticity and contemporary utility. This endeavor involves an extensive literature review, analyzing both historical documentation and modern urban development theories, to understand the station's significance in the broader context of Nanjing's evolution. Meticulous field interviews and on-site inspections were conducted, gathering crucial historical data from the Second Historical Archives of China and Nanjing Municipal Archives. These efforts were augmented by Professor Zhou Qi's studio research team, who undertook in-depth surveying and analysis of the station's architectural heritage in the absence of original blueprints. Incorporating the methods outlined into the context of the Pukou Railway Station project, the approach extends beyond mere physical restoration. Maintenance and monitoring ensure ongoing care and assessment of the site's condition. Reinforcement and repair work focus on structural integrity, respecting the building's historical context. Construction of protective facilities and environmental remediation are pivotal in preserving the site's heritage while adapting to modern urban needs [7]. Elevating the entire structure addresses issues related to rising ground levels, and the addition or expansion of buildings is conducted in a manner that harmonizes with the historical surroundings. This holistic approach embodies a comprehensive strategy for urban heritage conservation, blending preservation with contemporary urban development. Their work laid a robust foundation for the renovation, incorporating insights from urban planning, historical preservation, and architectural innovation [8]. This comprehensive methodological framework ensures that the project not only revitalizes the physical structure but also rejuvenates the station's role in the urban fabric of Nanjing, respecting its historical legacy while adapting to modern-day needs.

2.2. Historical Materials

The Onset of Modern Urban History in China: The period around 1910 marks the preliminary initiation of modern urbanization in China. At this historical juncture, with the establishment of one of the earliest railways during the Late Qing Dynasty, modern transportation facilities—Pukou Railway Station and Jinpu Railway—emerged, significantly altering the relationship between the two banks of the Yangtze River. The Yangtze River, traditionally viewed as a natural barrier, transformed into a crucial transportation conduit with the advent of modern transportation infrastructure. Under the connectivity of Jinpu Railway, the transportation interactions between the south and north of the Yangtze River became increasingly close [9], and the routes to significant northern cities like Beijing and Tianjin became more accessible. However, a pivotal node in this transportation network was the ferry dock, which played an indispensable role in bridging transportation across the Yangtze River and connecting the north-south transportation routes. Pukou Railway Station, as an essential origin point of this transportation line, became a significant transit hub for people traveling northward, and to some extent, propelled the evolution of the surrounding area's, and even the entire Nanjing’s urban spatial structure. The establishment of the ferry dock enabled individuals to traverse the Yangtze River more conveniently from the south to the north, and further onward to Beijing, Tianjin, and other places (Fig. **4**). This emerging transportation node, with Pukou Railway Station at its core, gradually fostered a dockyard-centric urban space, forming a unique urban spatial structure with significant historical, cultural, and social values. It provided invaluable experiences and insights for subsequent urban development and spatial design endeavors.

The history and modern reinterpretation of Pukou Railway Station unveil a narrative of urban spatial design intertwined with cultural heritage, showcasing how Nanjing embraces modern challenges while safeguarding its rich historical legacy. This area bore witness to numerous significant historical events of modern China and served as a crucial transportation hub connecting the north and south banks of Nanjing, especially before the Yangtze River Bridge was opened. It stands as not only a vital historical and cultural tourism resource in the Nanjing area but also an important carrier for connecting the cultural veins of Nanjing across the north and south banks.

Figure 4: People waiting to board the train at Pukou Railway Station (*Source: Bai Jia Hao /Wind blowing and grass saying*).

The Pukou Railway Station, initiated in 1908 under British supervision and situated at the southern terminus of the Jinpu Railway, became a pivotal transportation hub in modern China (Fig. **5**). Its main building witnessed many significant historical events, such as the "Feng'an Ceremony" of Mr. Sun Yat-sen in 1929 (Fig. **6**). During the Sino-Japanese War and the Cultural Revolution, the main building was subjected to bombardments and fires, resulting in severe damage. Numerous historical figures and events are closely associated with this place. By 1969, with the opening of the Yangtze River Bridge [10], Pukou Railway Station gradually lost its transportation significance until the last train departed in 2004, marking the end of its passenger service era. Nevertheless, Pukou Railway Station and Jinpu Railway hold a pivotal position in the centenary history of Chinese railways, representing a significant milestone in the history of Chinese national industry [11].

Figure 5: Scene along Pukou Railway Station in 1920s (*Source: John Swire & Sons Ltd, 2007*).

The current Pukou Railway Station area encompasses the main station building, ancillary facilities, the electric power plant sector established in 1923, senior staff residences built in 1911, and the ferry bridge constructed in 1930, forming a compact community centered around the railway station. These constituents not only comprise crucial elements of the Pukou Railway Station area but also significant segments of Nanjing's cultural and historical display belt, linking the rich historical narrative of the Nanjing area and adding a unique historical and cultural imprint to modern Nanjing [12].

Figure 6: Pukou Railway Station Building in 1930s (*Source: Jinpu Railway Yearbook).*

The historical facade of Pukou Railway Station area faces Xiaguan across the river, with its riverfront exhibiting a vivid tableau of Republic era social figures and cultural life, extending the cultural and historical display belt of Nanjing's main urban area to Jiangbei New Area. This area provides significant historical and cultural tourism resources for Pukou [13], serving as a critical carrier for connecting the cultural veins of Nanjing across the north and south banks. Its geographical location holds significant implications for the construction of Nanjing's cultural axis, offering valuable practical experiences for historical and cultural preservation as well as modern urban renewal in Nanjing [14].

Faced with modern urban renewal and spatial design challenges, the protection and regeneration project of Nanjing Pukou Railway Station area has gradually clarified its planning and operational methodologies, striving to find a balance between preserving authenticity and introducing commercialization [15]. Through renovation of historical buildings and area renewal, efforts are being made to protect historical heritage while meeting the public service demands of modern society. Moving forward, the Pukou Railway Station area will continue to serve as a significant carrier for urban development and cultural heritage in Nanjing, offering references and insights for urban renewal and historical preservation in Nanjing and broader regions.

3. Results

3.1. Renovation Project

The development of the northern part of Nanjing, especially around the Pukou Railway Station area, has been relatively slow compared to the southern part. Due to the lack of large-scale urban construction activities in and around this area, along with the jurisdiction of the railway station and related lands being transferred to the railway department post-establishment of the People's Republic, this area remained largely unaffected by the urbanization process. Consequently, urban spaces including streets, buildings, and squares have retained their original form and appearance over the century, showcasing a commendable state of historical preservation (Fig. **7**). However, on the flip side, due to long-term underdevelopment, this area has lagged in the urban renewal process of Nanjing.

The necessity for renovation stems from several considerations: firstly, with the rapid urban development and the burgeoning tourism industry along the Yangtze River, the river has transitioned from being a historical natural barrier to a golden tourist waterway (Fig. **8**). However, the existing dock buildings and their interior facilities have become outdated with limited functionality, and the current ferry services are unable to meet modern usage and tourism development needs [16]. Secondly, from an urban spatial design perspective, the outdated urban interface in this area significantly hinders the region's renewal and development, necessitating a renovation to accommodate the continuous urban development and modernization demands. Therefore, the renovation of the Pukou Railway Station area and its vicinity aims

not only to enhance the functionality and services within the region but also to promote integration with other areas of Nanjing, propelling the continuous renewal and optimization of Nanjing's urban spaces.

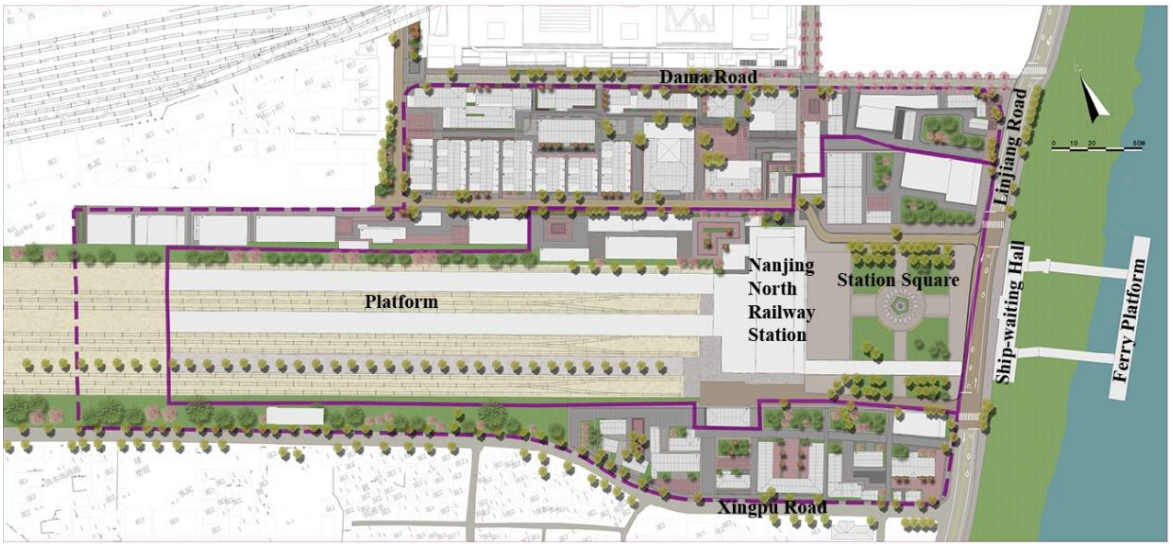


Figure 7: Axis relation of Pukou Railway station area in General plan (Source: Zhouqi Studio).

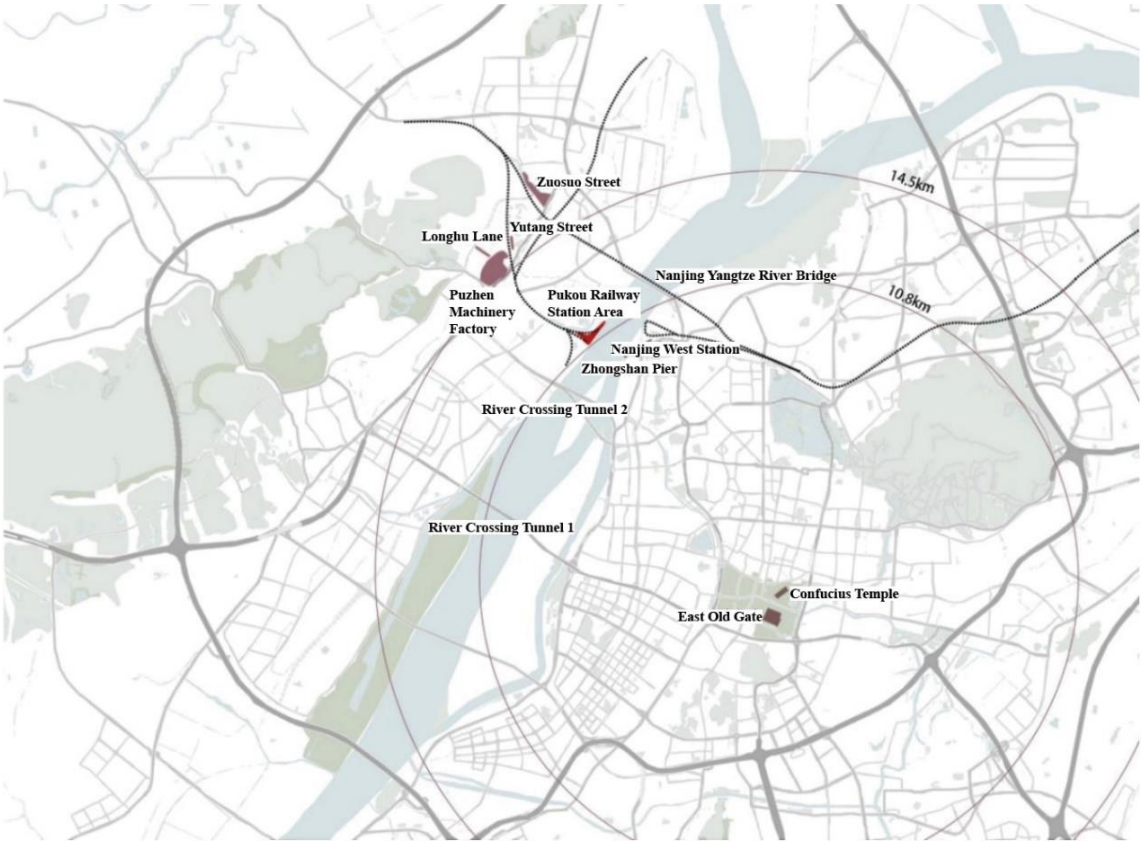


Figure 8: The relationship between the historical feature area of Pukou Railway Station and the current situation of Nanjing main urban area (*Source: Zhouqi Studio*).

3.2. Activating the Water-Land Interface

In urban spatial design, the activation of water-land interface areas is crucial. A profound integration and renovation of water spaces and plaza spaces can not only enhance the functionality and usability of the area

but also enrich its cultural significance and community vitality. The primary objective of this renovation project centers on activating the water and land spaces in the Pukou Railway Station area, with the aim of creating a comprehensive urban space imbued with liveliness and cultural depth [17]. The project employed two principal strategies. Firstly, environmental remediation addressed the degradation from human activities, with a focus on preserving heritage values and historical aspects during both construction and operation [18] (Fig. **9**). Secondly, the elevation of historical buildings, necessitated by rising ground levels and the consequent risk of flooding, involved a meticulous process of structural lifting. This elevation strategy, ensuring the integrity and safety of the buildings, was implemented through the use of lifting jacks, pre-stressed reinforcement bars, and comprehensive monitoring of structural strain and displacement [19]. From Fig. (**10a**), it can be observed that, prior to renovation, the square in front of the train station was cluttered with an abundance of mid and lower-level shrubs, leading to visual congestion. The functional utility of the space was limited to basic transit, with a scarcity of hard surfaces suitable for pedestrian activities and resting facilities. Additionally, the connectivity between the sheltered walkway and the square was weak, impeding the integration and permeability of these two spaces. Conversely, as depicted in Fig. (**10b**), the renovation approach not only preserved the upper-level large trees in the original square but also eliminated the mid and lower-level shrubs, thereby enhancing the continuity between the square and the dock space. Furthermore, the unobstructed sightlines in the square and the paving design surrounding the spirit-quieting platform (which incorporates historical events) have further intensified the sense of history in the place (Fig. **10**).

(**a**) (**b**)

Figure 9: View of the square in front of the railway station (**a**) before transformation; (**b**) after transformation (*Source: Zhouqi Studio*).

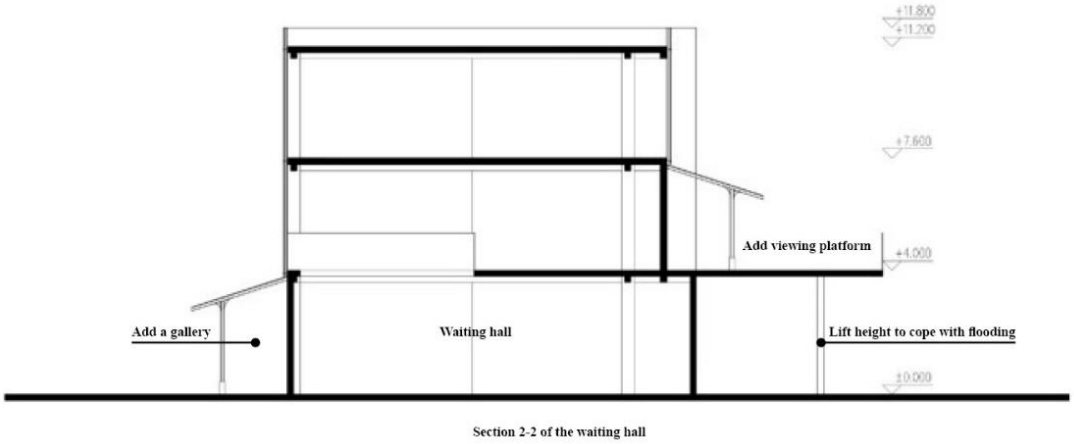
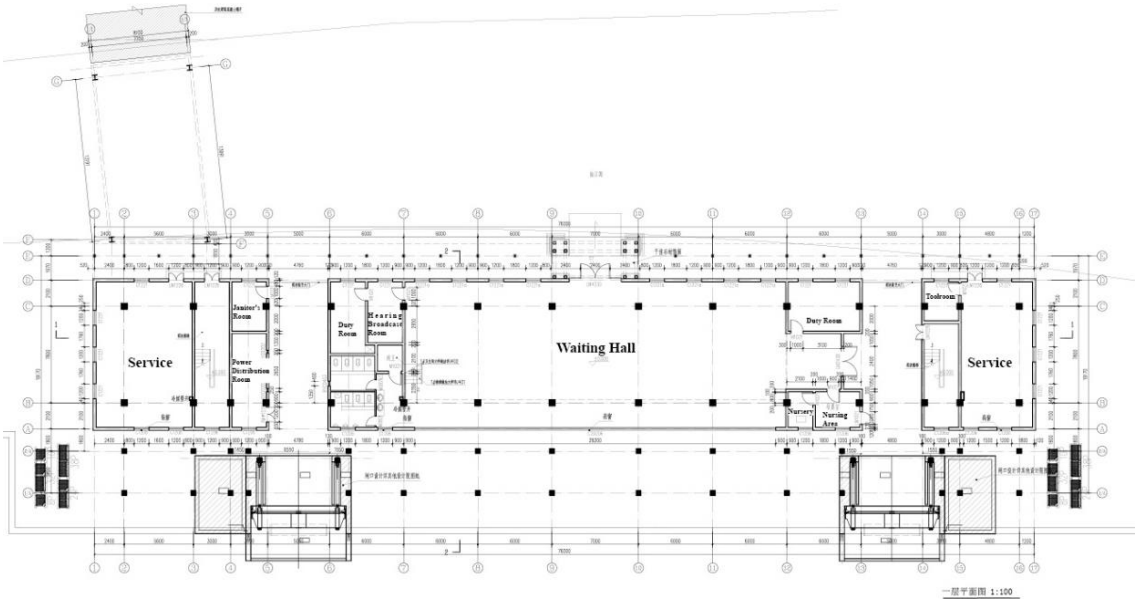


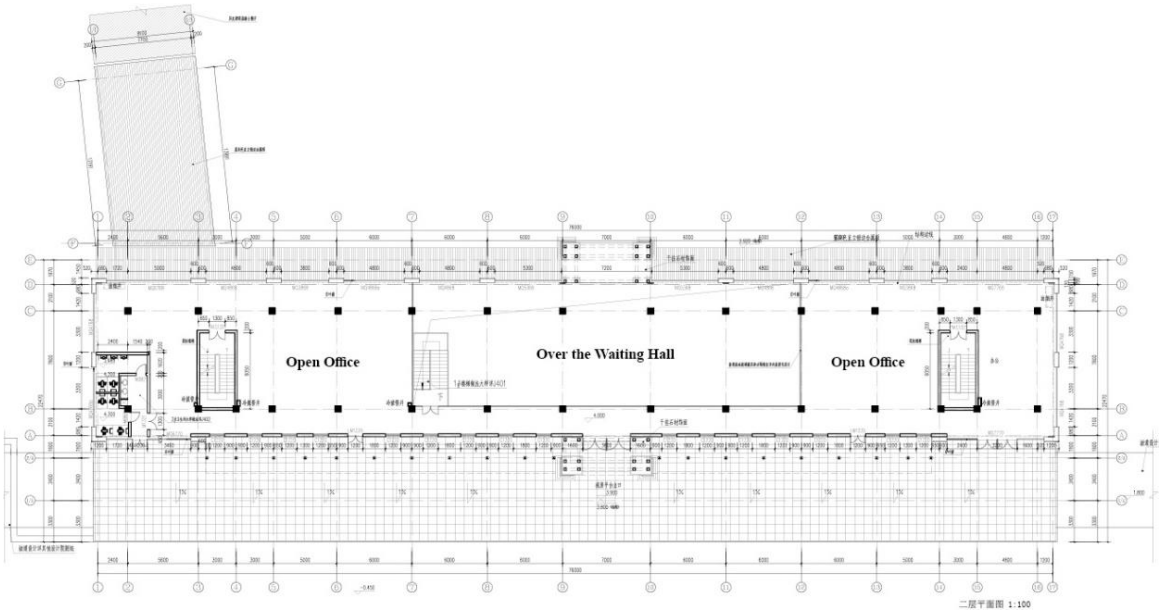
Figure 10: The elevation strategy which can ensure the integrity and safety of the original building (*Source: Zhouqi Studio*).

The means to achieve this objective include the addition of a variety of service spaces to cater to the needs of different demographics and improve the overall service capacity of the area. For instance, the

establishment of a mother-and-child room provides convenience for young families [20], while the setup of a kiosk facilitates daily life within the area. As shown in the floor plan below (Fig. **11**), the provision of reception



(**a**)



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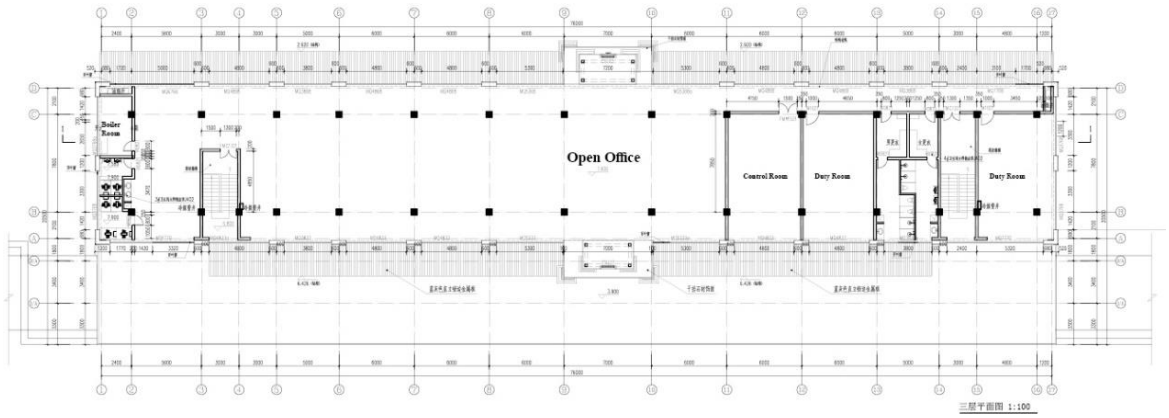


(**c**)

Figure 11: Plan of each floor of the ship-waiting hall: (**a**) First floor; (**b**) Second floor; (**c**) Third floor (*Source: Zhouqi Studio*).

rooms and restrooms, among other basic facilities, enhances the comfort and usability of the area. Through rational spatial planning and the introduction of additional functions, the quality of services within the area can be elevated, injecting new vitality into the renovated area, and thereby propelling the social, cultural, and economic development of the region [21].

3.3. Technical Measures

3.3.1. Maximizing the Preservation of Historical Remnants

The preservation of historical buildings extends beyond merely protecting designated heritage structures. As time progresses, a temporal and spatial distance arises between new and old constructions, which, through juxtaposition, facilitates a deeper understanding of the interplay between modernity and tradition, thereby enhancing the appreciation of the cultural essence embodied within the architecture of historical areas. The maximization of historical preservation at Pukou Railway Station is structured around three pivotal strategies: the construction of protective facilities, structural reinforcement, and targeted restoration efforts [22]. These initiatives are crucial in ensuring the integrity and enduring legacy of the station's historical remnants, while simultaneously adapting to contemporary preservation standards.

1) Protective Facility Construction: This involves adding protective features to ensure the safety of both the architecture and individuals. Measures include establishing safeguarding structures and protective canopies over sites to mitigate natural or human-caused damages. In cases where existing buildings cannot be utilized, new constructions are considered, designed to harmonize with the historical ambiance [23] (Fig. **12**).

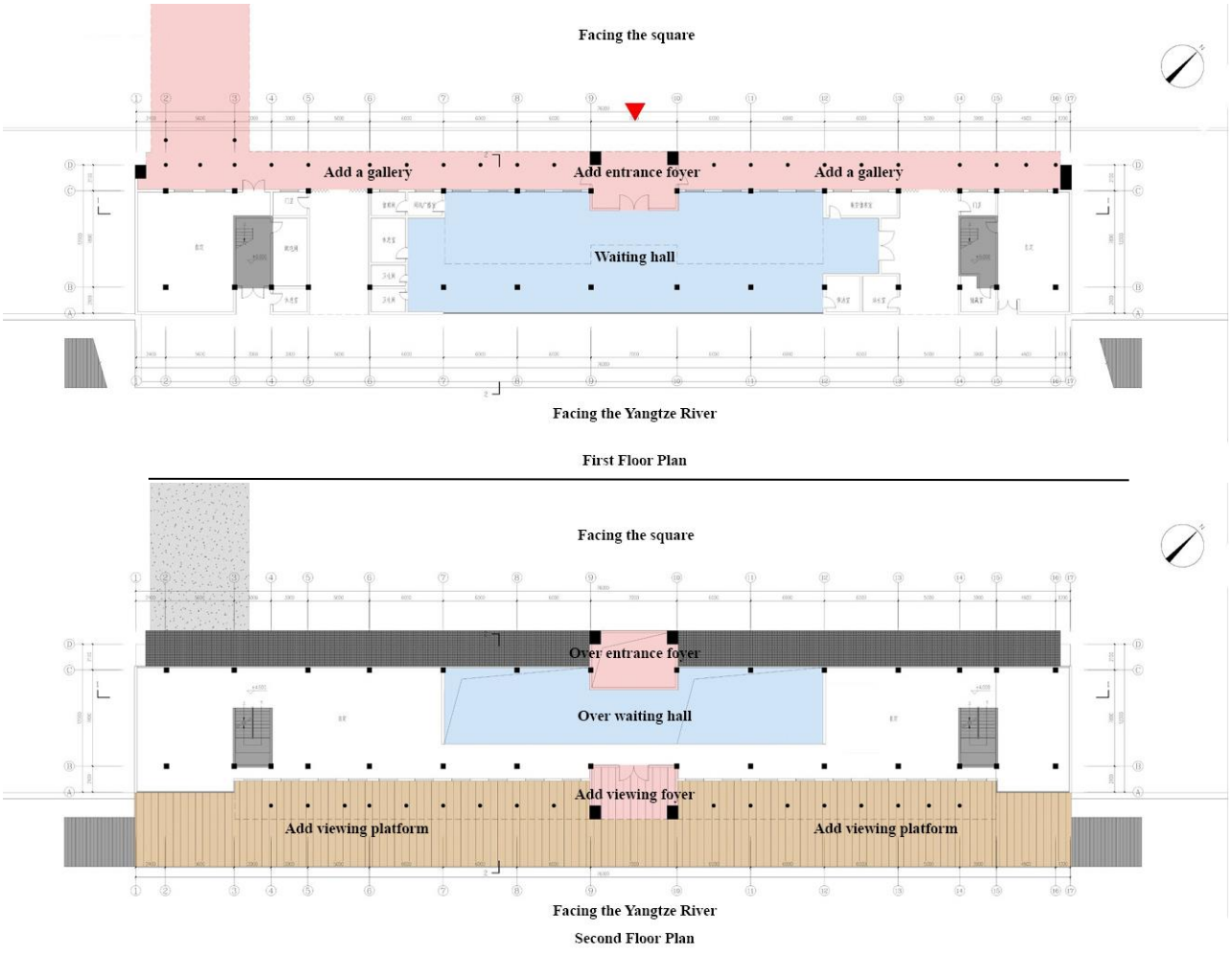
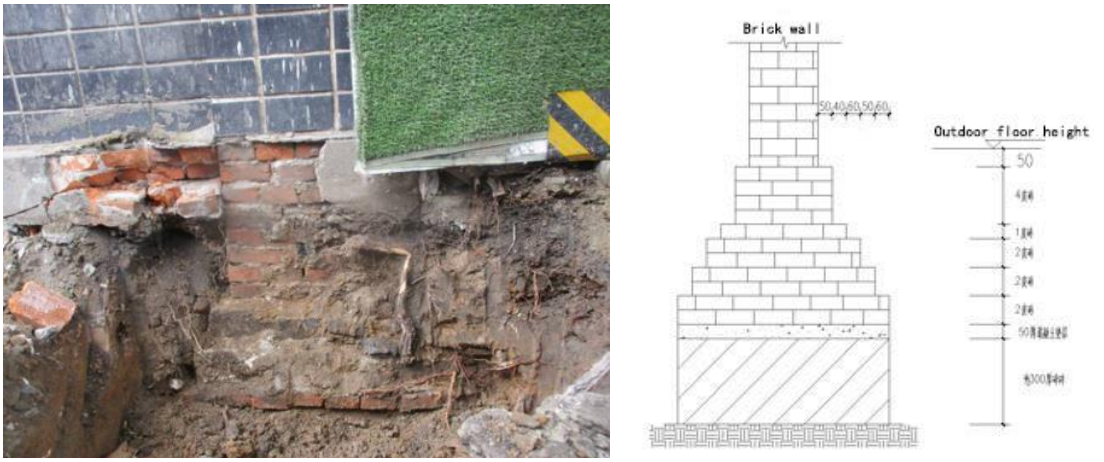


Figure 12: Add protective features to ensure the safety of both the architecture and individuals (*Source: Zhouqi Studio*).

2) Reinforcement: The process involves strengthening structurally unsafe elements to restore safety, with careful attention to not alter the building's stress distribution or cause new damages. Reinforcement is done considering the overall aesthetic, with non-temporary measures clearly marked to avoid misinterpretation. For Pukou Railway Station, foundations were reinforced by widening the base area of the original brick strip foundations, and load-bearing walls were strengthened with reinforced mortar layers, maintaining the original brick wall load-bearing and wooden frame system. (Fig. **13**) Damaged wooden components were replaced with new materials matching the original specifications, and rusted iron parts were treated for corrosion [24].

(**a**)



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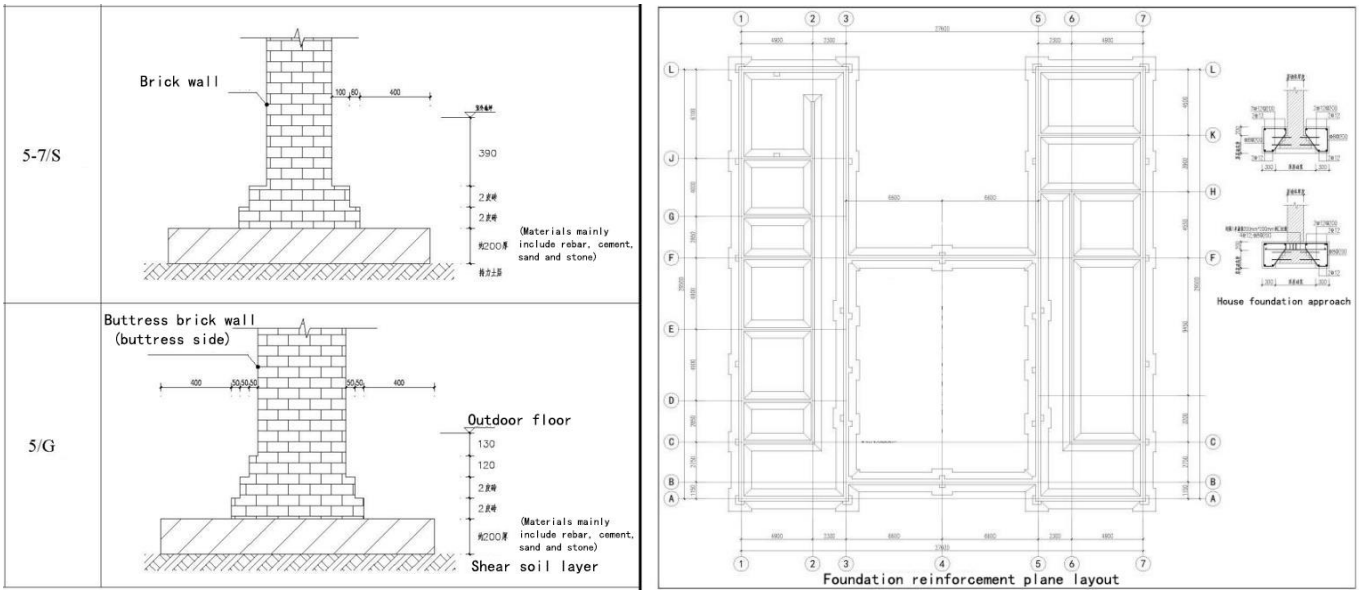

Figure 13: Building foundation reinforcement practices (**a**) original foundation; (**b**) the reinforcement design (*Source: Zhouqi Studio*).

3) Restoration: It includes both general maintenance and focused repair work. General maintenance involves rectifying structural issues and repairing damages, while focused repair includes restoring structural stability and repairing or replacing major missing elements. Full dismantling methods are used cautiously, ensuring that valuable structures, components, and traces from different periods are preserved. Restoration is based on ample evidence, and auxiliary buildings are only dismantled if necessary for the safety of the main structure, with restoration to their original state afterwards [25].

These measures ensure the structural integrity and historical authenticity of Pukou Railway Station, embodying a balance between conservation and modern requirements.

3.3.2. Regulations for New Constructions within Historical Areas

Although new constructions are permitted within historical areas, the emergence of "faux antiques", i.e., new constructions imitating the style of historical buildings, is strictly prohibited to avoid confusion between the new and the old, and the loss of historical authenticity. New constructions must possess clear identifiability, while maintaining a subdued, humble, and understated demeanor, ensuring that historical buildings remain the focal points within the historical areas. Despite the incorporation of new technologies and materials in new constructions, the end aesthetic should harmonize and integrate seamlessly with existing historical structures, thereby preserving the overall ambience and cultural ambiance of the historical area (Fig. **14**).

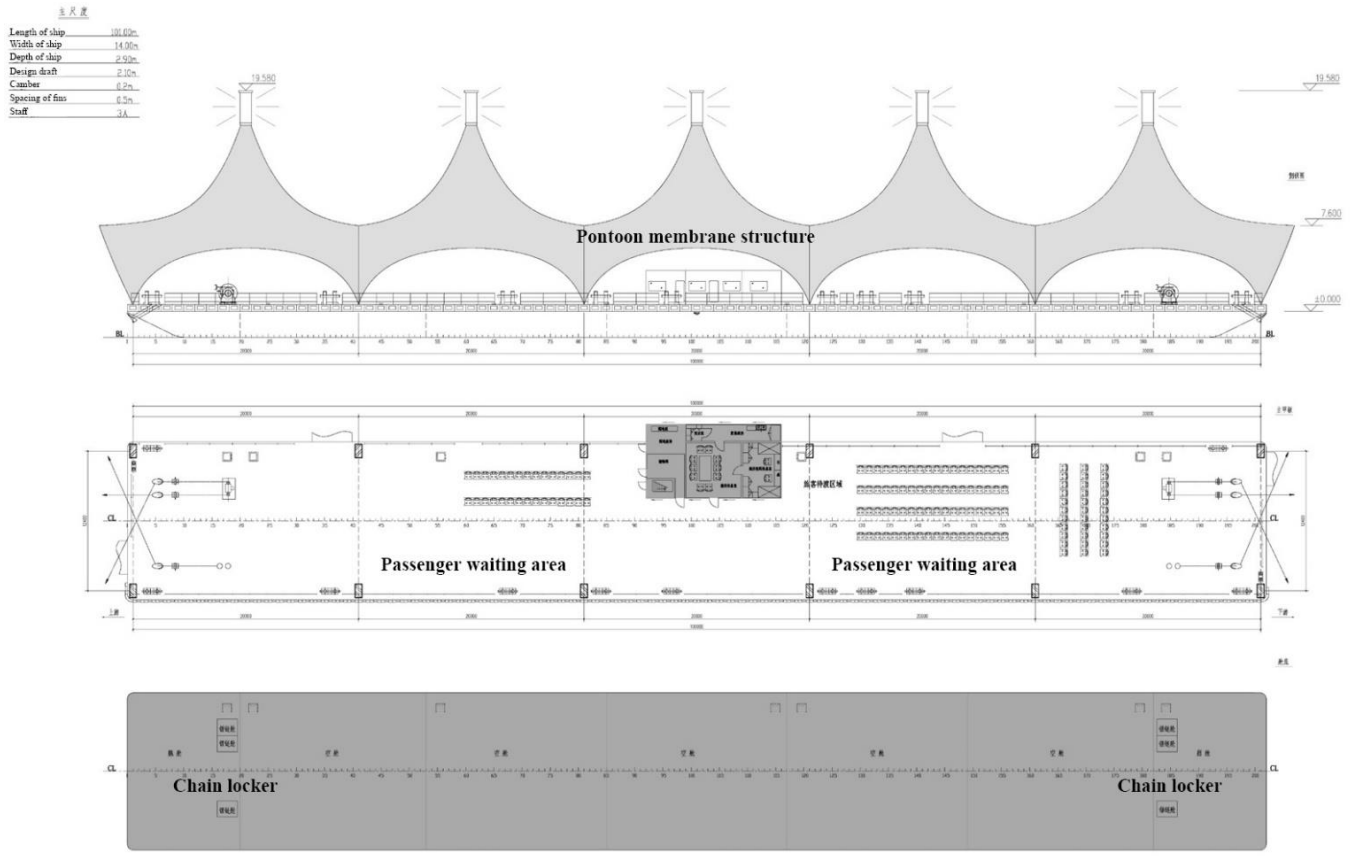

Figure 14: New floating pier plan and facade (*Source: Zhouqi Studio*).

As illustrated in Fig. (**15**), the newly constructed floating dock and the original waiting hall of the historical building exhibit distinct differences in form, color, and material. (Fig. **15**) This distinction has accentuated the recognizability of the historical architectural elements. Moreover, the newly built floating dock effectively addresses the challenge posed by the fluctuating water levels of the Yangtze River.

3.3.3. Advancements in Restoration Techniques for Historical Buildings

There has been a significant advancement and understanding in the restoration techniques for historical buildings. Appropriate restoration techniques allow for the preservation of the cultural characteristics displayed by traditional buildings within the historical area. For functionalities and layouts that cannot meet developmental needs, new technologies and materials are utilized for modification, achieving a balance between respecting tradition and reflecting modernity. Due to the dilapidated state of old buildings prior to restoration, lacking sanitary facilities, obsolete plumbing, and decayed foundations and flooring, the essence of the restoration entails new constructions from the foundation, plumbing, to the roof, barring the exterior walls. For the retained fair-faced exterior walls, in emphasizing historical significance, developers

coordinated with archives to obtain the original blueprints signed by foreign architects, adhering to the specifications therein for restoration, maintaining the original appearance as closely as possible. The cost of this special restoration project significantly exceeds that of new constructions.

Figure 15: Comparison between new floating dock and waiting hall (*Source: Zhouqi Studio*).

3.4. The Results of Remodeling and Renovation

During structural modifications of the building's body, efforts should be made to preserve the existing state, such as the restoration of the 7-meter height difference floating dock (Fig. **16**), and the implementation of a membrane structure canopy to provide shelter at the waiting dock platform.

Figure 16: The rendergraph of floating pier along the river after renovation (*Source: Zhouqi Studio*).

Passageway connecting the platform to the waiting lounge (Fig. **17**).

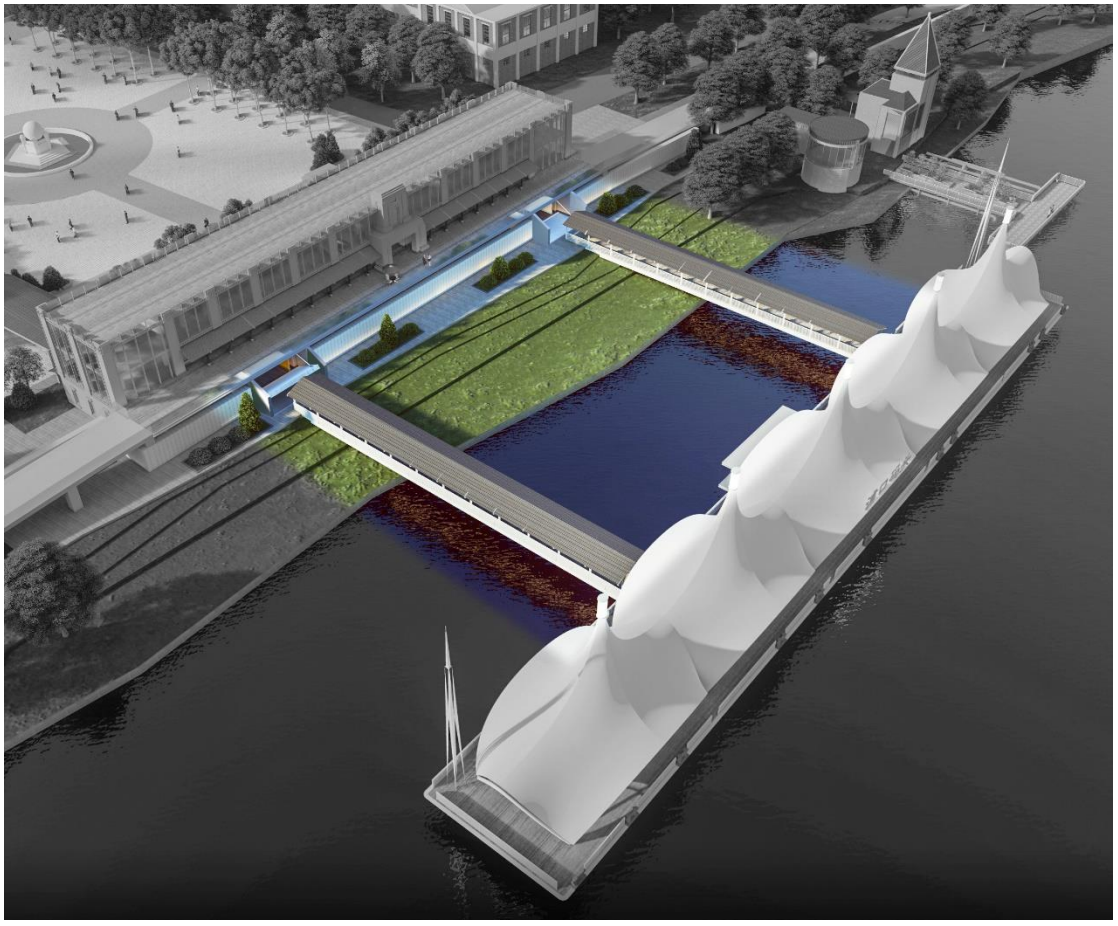

Figure 17: Bird's-eye view of transformed channel (*Source: Zhouqi Studio*).

Partial renovation of the waiting hall structure — structural replacement, expansion of internal and external spaces, facade transformation using new technologies and materials, enhancing identifiability (Fig. **18-21**).

Figure 18: The rendering of the north facade after the renovation of the ship-waiting hall (*Source: Zhouqi Studio*).

(**a**) (**b**)

Figure 19: Comparison of the north facade of the waiting hall before and after renovation: (**a**) Before transformation; (**b**) After transformation (*Source: Zhouqi Studio*).

Figure 20: Rendering of the south side after the renovation of the ship-waiting hall (*Source: Zhouqi Studio*).

(**a**) (**b**)

Figure 21. Comparison of site scape before and after wharf reconstruction: (**a**) Before transformation; (**b**) After transformation (*Source: Zhouqi Studio*).

4. Discussion

The research team undertook a systematic approach for this work. The process commenced with a protection and repair study, initiated upon the request of the owner [26], involving a detailed analysis of the feasibility and rationality of the project. This encompassed a thorough investigation into the building's history, including construction timelines, architectural changes, and ownership transitions, using extensive archival research.

Additionally, a current status survey was conducted, focusing on structural mapping and damage assessment. This involved precision measurements and the use of advanced technologies like laser range finders to ensure accurate data collection, especially in inaccessible areas. The structural safety appraisal, conducted by qualified entities, provided essential data for subsequent structural designs, ensuring the residents' safety. Furthermore, the project included a value assessment of the historical building, considering its social, historical, scientific, and artistic significance. This evaluation aimed to determine the scope and intensity of the preservation efforts and the possibilities for repair and transformation. The design phase of the preservation and rehabilitation involved creating detailed drawings and documents across various specialties, ensuring alignment with preliminary design depths. The construction process required careful selection of contractors, application of materials and technologies, and continuous on-site guidance to adapt to emerging challenges during the restoration [27].

In summary, this comprehensive methodology effectively combined historical analysis, modern surveying techniques, safety assessments, and value evaluation [28], culminating in a well-informed and context-sensitive restoration design. This approach not only preserved the architectural integrity of Pukou Railway Station but also enhanced its historical and cultural significance in the urban landscape [29].

Delving deeper into the discourse, this paper specifically analyzes the impact of the design methodology on the Pukou railway station project. It critically examines how the selected design strategy influenced both the site and the building itself, highlighting its central role in achieving the project's objectives. This includes an in-depth exploration of the design’s implications for revitalizing urban interfaces through historical spaces. The Pukou railway station historic area, epitomizing modern Chinese railway and industrial architecture, underlines the significant value of historical facilities and spaces. This area, marking the seamless integration of trains to ferries, showcases a blend of diverse architectural styles from various countries, reflecting advancements in modern industrial technology. It holds immense historical and spatial memory, enriching the placial spirit of the region and providing invaluable empirical material for historical research.

In terms of cultural preservation, the design approach at Pukou Railway Station has played a pivotal role in reinvigorating the area's historical narrative. By preserving architectural elements and integrating them with contemporary interventions, a dialogue between the past and present is created, enriching the city's cultural fabric. This approach respects the site’s historical authenticity and offers a sustainable model for cultural heritage preservation amid urban expansion. Concerning community engagement, the design has cultivated a sense of ownership and pride among locals. Community-centric spaces within the project have encouraged resident participation, fostering a cohesive and vibrant community. This engagement ensures that revitalization efforts resonate with the community's needs and aspirations. Furthermore, the impact of the design on broader urban development is significant. The project has stimulated surrounding urban development, attracting investments, and fostering economic activities while preserving the area's historical and cultural (Fig. **22-23**).

5. Conclusion

The conservation and regeneration project of the Pukou Railway Station Historic District in Nanjing has provided valuable insights into the significance and management of historical facilities and spaces within contemporary urban environments. The core findings and inferences of this study are as follows:

Figure 22: Aerial photo of Pukou Railway Station before its renovation in 2020 (*Source: Zhouqi Studio*).

Figure 23: Overall bird's-eye view of the renovation plan of Pukou Railway Station (*Source: Zhouqi Studio*).

Respect and Protection of Historical Resources: The project underscored the utmost importance of respecting, protecting, and revitalizing historical facilities and spaces. By adhering to the principle of minimal intervention, these spaces were rejuvenated, serving as vital links between the past and present. This not only enriched the cultural heritage of the city but also provided historically-resonant cultural venues and spaces for modern urban life.

Utilizing Suitable Technologies to Refurbish Old Facilities: The refurbishment of old facilities with the most suitable technologies and methods achieved a commendable balance between economic investment and efficiency. This balance, evident not only in specific technical measures but also in overall planning and operational approaches, offers valuable references for similar projects in the future.

Preserving Historical Texture and Context: Respecting all historical textures and contexts is fundamental to the preservation of the historical appearance of districts. The consideration of cultural and behavioral aspects became a crucial part of the project, aiding in the creation of modern living spaces imbued with a sense of history. Through the refurbishment of historical buildings and cautious design of new constructions, a harmonious coexistence of old and new elements was ensured, thereby enhancing the cultural essence of the historical district architecture.

Value of Case Study: The conservation and regeneration project of the Pukou Railway Station Historic District in Nanjing provides a beneficial case on how to handle historical facilities and spaces. It demonstrates how, through rational technical measures and respect for historical context, historical spaces can be revitalized, providing rich cultural and spatial resources for modern cities.

In summary, the project not only successfully preserved and regenerated the historical district but also provided a valuable model for the conservation and revitalization of historical facilities and spaces in contemporary urban environments. This rewritten conclusion integrates the key findings and inferences of the study, emphasizing the importance of respecting, protecting, and revitalizing historical resources, while also highlighting the value of the case study for similar projects in the future.

Conflict of Interest

The authors declare no conflict of interest.

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