

RESEARCH ARTICLE

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Open spaces as the key to the integration issue of historical site reconstruction projects: a cross-cultural comparison

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Abstract

The reconstruction of historical sites, while a controversial practice, has been common in both Germany and China to mitigate the cultural losses incurred during wars and subsequent redevelopment. This paper contributes to the broader discourse on reconstruction by examining the critical significance of integration between the 'old' and 'new', which means establishing a smooth and close transition between the reconstructed sites and the surrounding urban environment, as well as the key role of open space in facilitating this integration. Through morphological analysis and site surveys, the Yanghe Tower in Zhengding, China, and the *Dom-Römer* in Frankfurt, Germany, are compared in this paper. The comparison reveals that the integration issue related to Yanghe Tower was not adequately addressed because the key role of open space was neglected. This paper also examines the sociocultural factors that influenced the design strategies of the two projects, suggesting that future Chinese reconstruction efforts can significantly benefit from attention to the key role of historical open spaces.

Keywords Open space, Reconstruction, Historical sites, Integration

1 Introduction

This paper examines two case studies: the Yanghe Tower (阳和楼) in Zhengding (正定), China, and the *Dom-Römer* in Frankfurt am Main, Germany. These projects were selected because of their comparable social and economic contexts. Through morphological analysis and site visits, the paper closely examines the design outcomes and strategies of both projects, particularly focusing on whether they have taken the key role of open spaces to adequately address the integration issue. Before the case studies are explored in detail, this introduction provides a necessary overview of the debates surrounding reconstruction. It also clarifies the position, core concepts, objectives, and methodologies of the paper.

1.1 Reconstruction in China and Germany in the past two decades

Over the past two decades, the number of historical site reconstruction projects in Chinese cities has increased as a result of increased government recognition of the value of historical heritage. For example, the projects of Dandeng Gate in Xi'an (2010) and Grand Bao'en Temple in Nanjing (2015) both reproduced historical monuments and their settings with modern materials and languages while preserving their subterranean archaeological ruins (Zhang 2010; Han et al. 2017). The project of reconstructing several landmark buildings in Beijing has continued since 2012, with the goal of restoring the city's 19th-century outline (Liu 2012). The most controversial reconstructions were the series of massive projects in Datong that have been conducted since 2008 and included reconstructing this ancient city's walls, gates, historical neighbourhoods, and several landmark buildings (Wang 2016; Fu and Hillier 2018; Cui 2018).

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Similarly, there have been several reconstruction projects in German cities in the past two decades; these include the projects of *Neumarkt* in Dresden (2008) and the *Alter Markt* in Potsdam (2012), which aroused much attention and debate. These recent practices marked a 'new phase of critical reconstruction' in Germany after the early reconstructions of monuments in the postwar recovery and the subsequent projects that tried to reinterpret the morphological structure at the urban scale (Caja 2017; Chen and Huang 2022). In this most recent phase, the massive volumes of modern functionalist structures erected after World War II were removed and replaced by reproduced historical buildings and urban spaces. The margins of interpretation in this phase 'emerged from the architectural solutions, rather than from the historical morphological structure which followed directly the original one' (Caja 2020).

The historic cities of China and Germany have certain historical contexts in common. Both societies suffered tremendous destruction from the wars; both turned to modern functionalism in the postwar years, which erased the remains of many historic sites; and, as aforementioned, both societies started tearing down the postwar modern structures in the past two decades and reconstructing the lost historical buildings that once stood there. Because of these shared backgrounds, cross-cultural comparisons and mutual references between the abovementioned reconstruction projects were possible. In fact, recognising the similarities between the two societies, scholars conducting relevant Chinese research on the topic of historical site reconstruction have frequently referred to German projects and associated discussions (Gao 2014; Liu and Nepl 2021; Chen and Huang 2022). On the other hand, when discussing reconstruction projects in Germany, some European papers have also considered Chinese reconstruction projects as comparable cases (Caja 2020, 2017).

1.2 Debates on the impacts of reconstruction

Although practically all the aforementioned reconstruction projects in China and Germany have been completed or are currently proceeding with sufficient financial and policy support, the associated controversy and criticism persist. First, the paradox of authenticity (Cecil 2011; McFarland 2016; Čamprag 2017; Fu and Hillier 2018) has provoked criticism since Viollet-le-Duc's idea and practice of re-establishing historical monuments to 'a state of completeness that may have never existed, at any given moment' (Petti et al. 2018). The Venice Charter in 1964 expressly rejected the reconstruction of heritage sites, stating, 'All reconstruction work should however be ruled out a priori' (ICOMOS 1964). Later, international charters and conventions gradually evolved towards a more

permissive attitude towards reconstruction (Cameron 2017; Petti et al. 2018), but strict criteria such as the availability of sufficient documentation (ICOMOS, 2013), the need to restore the cultural identity of a community, and the avoidance of falsifying the overall context (Román 2002) were still set. Furthermore, reconstruction will inevitably erase the trace of a certain period of history and may damage the historic urban landscape, especially those projects involving the destruction of modernist buildings (Čamprag 2017; Liu and Pezzetti 2022a).

In addition to the question of authenticity, the reconstruction of historical sites has also been criticised for its broader social implications. Reconstructions may amplify social inequalities by allowing elites to decide what to reconstruct and how (Harrison 2013). Rebuilding urban fabrics with historical accuracy may deny people the right to participate in the production of their own heritage, impeding 'nonexperts' from voicing their views (Su 2012; Rico 2016). Moreover, when not carried out properly, reconstruction projects may focus on creating an imagined local identity instead of igniting a dialogue on the past and the values of heritage between participants and stakeholders (Legnér 2018).

Nevertheless, many experts and academics have recognised the legitimacy and positive value of reconstruction, both in Chinese and Western contexts (Ruan et al. 2014; Schmal 2019; Chen and Huang 2022; Collotti 2022). Piazzoni (2020) suggested that scholars 'abandon their preoccupation with the inauthenticity of reconstruction' and acknowledge its positive social and emotional values instead of rejecting reconstruction a priori. In China, reconstructing destroyed historic sites is seen as a remedy for the cultural losses caused by wars and social unrest in the 20th century, as well as for the rapid 'modernisation' of old cities after economic reform in the 1980s, which erased many historic sites (Ruan et al. 2014; Guo et al. 2020). Furthermore, it is believed that by reviving the collective memory and bringing back a sense of cultural and historical identity in cities, the reconstruction of historic sites can offset the growing homogeneity of the contemporary Chinese urban landscape (Chen and Huang 2022). In the European context, positive comments have indicated that reconstruction is beneficial for German cities such as Berlin and Frankfurt, where many historical sites were destroyed in the wars and subsequently replaced by modernist constructions (Bodenschatz et al. 2016). Rediscovering urban history by reconstructing the historical sites in these cities is crucial if the residents are to feel a sense of connection to their heritage and identity and be genuinely proud of them. These recent reconstruction projects are able to propose an updated version of the historical image that has been lost since the war (Caja 2020). The reconstructed urban

areas can enable people to negotiate a sense of authenticity and become heritage as much as other ‘historical’ urban fabrics (Piazzoni 2020).

This paper, consistent with the views of the above-mentioned scholars, acknowledges the potential positive value of reconstruction projects. We argue that reconstructing lost historical sites is not only acceptable but also often inevitable, particularly in the context of post-war or postmodernist recovery. However, as architects who are closely associated with traditional architectural and urban practices, we also recognise the significant influence of political and commercial forces on such projects, which can have a negative impact on the historical urban landscape. Thus, this paper aims to contribute to strategies for conducting more ‘responsible’ reconstructions rather than advocating for any reconstruction in general.

1.3 ‘Responsible’ reconstruction

The abovementioned extensive research has demonstrated that although reconstruction projects present inherent contradictions of authenticity and may incur broader social costs, their potential positive significance cannot be overlooked. Thus, the reconstruction of historical sites can be accepted, but only when it is carried out in a manner that maximises its benefits while mitigating the adverse effects, even though these cannot be eliminated entirely. This aligns with the perspective of Ruan, an influential scholar in Chinese heritage preservation, who emphasised that ‘We do not entirely oppose reconstruction, but it must be done responsibly’¹ (Ruan et al. 2014). This paper is established on the basis of this core idea of ‘responsible’ reconstruction.

Thus, how can the negative impacts be mitigated? In existing research, critiques and warnings about the adverse effects of reconstruction often highlight the influence of commercial and political forces. In fact, most reconstruction projects are driven by these forces rather than the voluntary will of residents, as governments and corporations tend to view the reconstruction of historic areas as a tool for revitalising urban economies (Petti et al. 2018). While these forces provide the funding and policy support that are needed to make reconstruction possible, they are also commonly identified as the root causes of negative outcomes such as inequality, inauthenticity, and the disruption of the historic urban landscape (Ruan et al. 2014; Čamprag 2017; Piazzoni 2020; Chen and Huang 2022; Liu and Pezzetti 2022a). Reconstruction projects motivated by the tourism industry may

excessively emphasise the ‘old’ visual effect and invent fake buildings with only stylistic skins (Ruan and Yuan 2010). They could result in the museumification of reconstructed historical places instead of truly restoring urban history or any of the previously listed benefits of reconstruction projects (Čamprag 2017). Commercial and political powers are the very root of the social inequality that the reconstruction project may incur, as they can use reconstructions to marginalise less privileged groups and favour speculative urbanisations to gain the most economic revenue (Su 2012; Charlesworth and Nelson 2012). Thus, if a reconstruction project solely focuses on commercial or political objectives, this irresponsible approach is highly likely to cause the abovementioned negative consequences.

On the other hand, how can the abovementioned positive values of reconstruction be maximised? Architects and academics have provided their own insights. Krier (1984) stated in *The Reconstruction of the European City* that the core of reconstruction was ‘the rediscovery of the typologies and urban spaces of the historic city’ rather than merely historical style elements. Reconstruction ‘does not mean restoring the status quo ante’, according to Kleihues (1984), but rather ‘the examination of the historical development and present condition of the city as well as the expectations of its inhabitants’. Similarly, the Chinese scholar Ruan (2010) emphasised the continuity of urban spaces. A reconstructed area should organically grow from the historical urban structure, presenting diachronic evolution (Ruan et al. 2014). Reconstructed urban fabrics should create an ‘atmosphere that spaces convey by means of their visual and spatial features’, which can enable diverse people to use, share, and ignite a dialogue to negotiate a sense of authenticity (Legnér 2018; Piazzoni 2020). These insights are consistent with the suggestions provided in international charters and conventions, such as the Charter of Riga, clearly stating that ‘the reconstruction does not falsify the overall urban or landscape context’ and that ‘existing significant historic fabric will not be damaged’ (ICCROM 2000).

In conclusion, ‘responsible’ reconstruction involves two essential aspects. First, it is crucial to avoid prioritising political and commercial interests at the expense of cultural and heritage values. Second, the positive values of reconstruction should be maximised by rediscovering urban fabrics that organically grow from existing historical structures to create urban atmospheres that foster diverse uses and engagements.

¹ Translated by the authors from the original texts in Chinese: ‘并不完全反对重建, 但要好好建’.

1.4 The integration issue and the key role of open space

Building upon the insights from existing research, this paper aims to contribute to a practical discussion on the design strategies of ‘responsible’ reconstruction by delving into the crucial issue of integration between the ‘old’ and the ‘new’ as well as the key role of open space in addressing this issue.

When discussing recent reconstruction projects in Germany, Caja introduced the term ‘integration’ of the ‘new’ and the ‘old’ as a crucial issue (Caja 2017), which was also discussed in the other aforementioned critiques and suggestions under various terminologies. Here, integration refers to the establishment of a smooth and close transition between the reconstructed sites and the surrounding urban environment. This requires the careful consideration of spatial, morphological, landscape, and visual continuity between the reconstructed buildings and the existing urban context. This integration forms one of the cornerstones of ‘responsible’ reconstruction, in that it can ensure that the project is an integral part of the living city and remains consistent with the historic urban landscape, preventing the reconstructed sites from becoming isolated commercial enclaves. Thus, diverse users can perceive and share reconstructed historical sites and incorporate them into their urban and cultural identities. This is particularly relevant in the context of reconstruction projects over the past two decades that have involved the demolition of postwar modernist buildings, where the spatial and visual features of the reconstructed areas often differ significantly from those of the surrounding modern structures.

Open spaces should act as an effective tool to achieve this critical integration in historical site reconstruction projects because they are capable of establishing effective transitions and connections between the reconstructed ‘old’ and the preexisting ‘new’ (Caja 2017). Krier (1984) repeatedly highlighted open spaces such as streets and squares as essential tools for reconstructing historical European cities that were damaged by modernist interventions because they can connect the rediscovered ‘old’ areas to the existing city structure. Moreover, Kleihues emphasised reproducing urban open spaces as a crucial aspect of ‘critical reconstruction’ (Bodenschatz et al. 2016). Ruan also highlighted urban spaces rather than merely stylistic decorations as essential aspects of reconstruction projects in China (Ruan et al. 2014).

However, we noticed that not all reconstruction projects utilised open space as a tool to achieve integration, and some even completely disregarded the integration issue. Moreover, this variation in approaches seems to be correlated with the national and cultural contexts in which the projects were situated.

1.5 Methodology

Two recent reconstruction projects, the *Dom-Römer* project in Germany and the Yanghe Tower in China, were selected for this paper to examine their differences in terms of the integration issue. In the comparative analysis, typo-morphological analysis on the basis of the literature, archival data, and site visits by the authors were utilised. As architects with both academic training and professional practice associated with urban cultural heritage, the authors provide a comprehensive perspective on the analysis. However, acknowledging the potential for inherent biases, the comparison also incorporates comments from other experts and findings within the literature to ensure a balanced and objective perspective.

Following the comparative analysis, this paper examines the differences in their design strategies and approaches to open space as the keys to explaining the observed disparities in the integration issue, thereby highlighting the crucial role of historical open space in ‘responsible’ reconstruction. Furthermore, this study explores the underlying sociocultural factors that influence these distinct design strategies.

Importantly, integration is not the sole factor to consider in achieving ‘responsible’ reconstruction. As various scholars have suggested, social equity, inclusivity, authenticity, and other factors significantly contribute to responsible reconstructions. This is a broad and multifaceted topic that needs ongoing research and contributions from various scholars. Rather than providing a broad overview, this paper focuses on a specific aspect of ‘responsible’ reconstruction. By examining and comparing the design outcomes and strategies of two completed projects, this study aims to contribute a detailed and practical discussion to this broader field of research.

2 The two reconstruction projects

2.1 Yanghe Tower, Zhengding, China

Yanghe Tower was first built in the seventh century as the southern gate of Zhengding, a small historic city in Hebei Province, North China. Over the following centuries, the gate underwent several renovations as the city grew, eventually transforming into a landmarking multifunctional tower. In 1933, Yanghe Tower was first recognised as a valuable built heritage by Liang Sicheng (梁思成), a pioneer in the study of traditional Chinese architecture, who praised the Tower as ‘as magnificent as the Arco di Costantino in Rome’ (Liang 1933) (Fig. 1 left). He was delighted by the Tower’s unique T-shaped composition: a rammed earth platform covered by bricks, on top of which stood a wide wooden



Fig. 1 Yanghe Tower, photos. Left: 1933 (Source: Liang 1933); Middle: 1951 (Source: Liu 1951); Right: 2021 (Source: the author)



Fig. 2 Yanghe Tower area, roof plans. Left: 1960, when the wooden hall was destroyed; Middle: 2008, before reconstruction; Right: 2018, after reconstruction (Source: the author based on DOQs from the U.S. Geological Survey and Google Earth images)

hall and two stele pavilions; two archways went through the platform, and between them, an elongate complex of a Guandi Temple² stretched to the south (Fig. 2).

However, owing to the poor socioeconomic circumstances back then, the Tower had already been left unmaintained when Liang encountered it. Many fragile components, such as wooden window frames, were broken or lost (Fig. 1, left). Later, the wooden hall was entirely destroyed during WWII and civil wars (1945–1949), when soldiers occupied the Tower as a defence fort (Fan 2016); the platform survived (Liu 1951) until it was demolished in the chaos of the Cultural Revolution in the late 1960s. There were no longer any signs of the Tower after a few years when the streets were straightened and the area covered the tight texture of simplified courtyards³ (Fig. 2, middle).

² A temple for worshipping *Guanyu* (关羽), a deified military leader from the end of Eastern *Han* Dynasty (3rd – fourth centuries).

³ A type of courtyard houses that are derived from the Chinese traditional type but significantly simplified in its spatial composition, structural framework, and construction technique to adapt to the poor economic condition in the 1970s–1990s.

The idea of reconstructing the Tower was initially suggested in 1999 (Bao 2007) but was not implemented until 2013, when the local government launched an intense urban regeneration campaign to utilise the city's historic assets to grow the tourism sector. As part of the campaign, the Yanghe Tower reconstruction project was carried out from 2014–2017. The project included relocating 98 residences, excavating subterranean remains, rearranging roadways, constructing new surrounding buildings and underground parking lots, and, most importantly, reconstructing the Yanghe Tower (Fan 2018) (Fig. 2, right).

In terms of the architecture of the Tower, the project took a combined approach: the wooden hall was reconstructed 'as it was' using traditional techniques and in almost the same form, dimension, structure, and materials with the help of Liang Sicheng's records; on the other hand, the platform was built into a reinforced concrete shell covered with decorative brick panels (Fan 2018), which protected the subterranean ruins found during excavation. At the urban scale, a completely new morphology was defined, unrelated to the historical morphology. New roads were diverted around the Tower



Fig. 3 Dom-Römer area, view from the Dom tower in ca. 1935 (Source: Max Göllner, © ISG FFM S7A 1998–2192)

instead of passing through the Tower, enclosing a hexagonal square measuring 7,000 square metres. Around the square, a rectangular ‘buffer zone’ was established with new buildings in the courtyard layout and antique-style decorative elements (Figs. 1, right; and 2, right).

2.2 Dom-Römer, Frankfurt am Main, Germany

Dom-Römer refers to the area between the *Dom* (the cathedral) and the *Römer* (the city hall) in the very core of the old city of Frankfurt am Main, Germany. In the past, this area was characterised by highly decorative half-timbered buildings and a compact medieval urban texture (Fig. 3). During WWII, devastating bombings destroyed much of this area, leaving only the *Dom*, the *Römer*, and the *Alte Nikolaikirche* (Old Nikolai Church) roughly standing. In the immediate postwar recovery, monuments such as the *Dom* and several half-timbered houses were restored or reconstructed. However, the *Dom-Römer* area has remained empty because of the constant disputes among various ideas and plans (Schmal 2019).

Early in the 1970s, the area was eventually partly filled by the massive brutalist concrete building of the *Technisches Rathaus* (Technical City Hall) (Fig. 6, above-right). The rest of the area was left void as an open public square. Several other structures were constructed around this open square, and the most notable of these was the elongated volume of *Schirn Kunsthalle* (Schirn Art Gallery), which was finished in 1983 (Fig. 4).

In the 21st century, the city municipality decided that the low quality of the existing urban space and the lack



Fig. 4 Dom-Römer area, view from the Dom tower in 1988 (Source: Bundesarchiv, B 145 Bild-F078972-0001/CC-BY-SA 3.0, CC BY-SA 3.0 de, <https://commons.wikimedia.org/w/index.php?curid=5472041>)



Fig. 5 The reconstructed *Dom-Römer* area, viewed from the *Dom's* tower in 2018, (Source: Silesia711—Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=68429974>)

of reference to the historical centre were inadequate for the city marketing agenda (DomRömer GmbH 2022). More importantly, the tourism sector, promoted by Tourism+Congress GmbH, intended to offset the cold impression of the financial centre by utilising the city core's Gothic image in the Middle Ages as a plus for urban attractions (Ballhausen and Kleilein 2009). In 2011, the reconstruction of *Dom-Römer* commenced, following the demolition of the *Technisches Rathaus*.

This reconstruction project (Fig. 5) involved a combined approach mixing two models: *Nachbauten* (Replicas) and *Neubauten* (New Buildings) (DomRömer GmbH 2014). According to the historical cadastral documents that divided the area into 35 plots (Fig. 6, below), 15 plots were recognised as more significant buildings that should follow the *Nachbauten* (Replicas) model, meaning replicating them to detail using sufficient graphical documents at hand. The other 20 plots adopted the *Neubauten* model (New Buildings), namely, new interpretations with modern architectural languages while retaining the silhouettes and volumes of the historical buildings.

3 Comparison: the integration issue

Many aspects of the two projects have more similarities than differences. Yanghe Tower and *Dom-Römer* were both destroyed in the mid-20th century and then replaced by modernist buildings. Both of their reconstruction projects were motivated by city marketing and tourism purposes and were completed at almost the same time. In terms of individual architecture, the two projects adopted similar approaches that combined replications

and interpretations. These similarities laid a solid foundation for making comparisons between these two projects in terms of their design strategies and outcomes.

Compared with their commercial and political performance, the two projects both similarly fulfilled the expectations of the tourism sector and city marketing. The Yanghe Tower reconstruction is a landmark project of the large-scale urban renewal campaign launched by the municipal authority in 2013 to promote tourism. As the project was completed in 2018, it became the core symbol of the 'Centre of Yuan-Qu Creation', one of the city's 'marketing brands', and boosted the city's mass tourism industry.⁴ Together with the group of historical sites along South Avenue in Zhengding, Yanghe Tower generated considerable income for both the public sector and private businesses.⁵ It is fair to state that the reconstruction of Yanghe Tower realised its economic and political objectives.

The reconstruction of the *Dom-Römer* area was completed and opened to the public in 2018, the same year

⁴ The 'marketing brands' promoted by the municipal government are listed on the city's official tourism promotion website: <http://www.zd.gov.cn/columns/761f6ac4-e450-48fb-a470-10c5ea7c2b3d/202005/07/2dac912c-fe74-41a8-bd77-0046cf5e4180.html>.

⁵ After the shock of COVID-19 pandemic, the tourism sector of Zhengding immediately recovered and boomed. The city got 6.87 million tourist visits in 2021, bringing in a revenue of over 5.47 billion yuan, which increased to over 15 million visits and 11.4 billion yuan in 2023, as recorded by the annual governmental reports: <http://www.zd.gov.cn/columns/46d6e4c8-a7ee-4fbf-a0f0-5389a3095933/202202/07/c4d1d754-5057-47fd-9724-2dd8ae27c1b3.html>; <https://www.sjz.gov.cn/columns/8166f236-f8c8-4504-8077-98e9ec77c1e6/202408/13/8dcc6f4e-cbdc-4104-ab93-b14b9fce5830.html>.



Fig. 6 Dom-Römer area, roof plans. Above-left: 1862; Above-right: 2010, before reconstruction; Below: after reconstruction (Source: the author, based on public domain maps from Ravensteins Geographische Verlagsanstalt, and Google Earth images)

as the Yanghe Tower project. As visitors flocked to this ‘new old city’ (Caja 2020), critics from scholars and professionals also arrived, focusing on the authenticity issue and claiming that the reconstruction was a disastrous ‘mixture of new buildings and new buildings’ (Čamprag 2017; Vinken 2019). Nevertheless, many residents, tourists, and other professionals have also given positive feedback and even praise to the reconstructed *Dom-Römer* (Schmal 2019; Mosebach 2019) because it has given the city an updated identity with historic images beyond the impression of a financial centre, making it much more appealing to tourists (Čamprag 2017; Caja 2020). Some professionals also praised the project as a ‘surprising success’, highlighting the harmonious coexistence of the *Nachbauten* and *Neubauten* buildings in particular (Mosebach 2019). These positive comments revealed that the city marketing purposes of this reconstruction were achieved.

However, when observed through the lens of the urban landscape and morphology, these two projects have significant disparities. The key distinction lies in whether they have successfully rediscovered urban

fabrics that organically evolved from existing historical structures, thereby creating spatial, morphological, landscape, and visual continuity with the surrounding urban environment. Essentially, they approached the integration issue differently. The subsequent subsections explore this disparity in terms of two aspects: the relationship between the monument and its immediate surroundings and the relationship between the reconstructed area as a whole and its urban context.

3.1 Integration between the monument and its immediate surroundings: standing alone vs. closely connected

Throughout its more than a millennium of evolution, Yanghe Tower has always been in morphological continuity with surrounding buildings (Liu and Pezzetti 2022b). Its unique T-shaped layout was the product of such continuity, which also consolidated it in return. On the one hand, the two narrow street spaces stretching from the archways and the transversely arranged courtyard buildings on both sides defined the elongated wedge-like plan of the Guandi Temple south of the Tower; on the other hand, the T-shaped anchored

the whole complex in the surrounding texture (Liu and Pezzetti 2022b).

However, after the reconstruction, such morphological continuity between the monument and its surroundings was fundamentally altered. The new Yanghe Tower stands alone in an expansive open square. The T-shaped layout of the complex becomes unreadable without the surrounding buildings and street spaces ‘squeezing’ it. In particular, the elongated plan of the Guandi Temple to the south would certainly confuse anyone who was unfamiliar with the Tower’s history at first sight: what is it, what is its function, and why is it cramped into such a narrow site while being in the middle of such a vast square? The reconstruction project should have conveyed the historical narrative underlying such a unique urban form, but the stand-alone new Yanghe Tower failed to do so. Additionally, the void of the square significantly diminished the grandeur of the Tower, as recorded in Liang’s photos, in which the Tower prominently stood out over the streets and adjacent courtyards.

Compared with the new Yanghe Tower, the new *Dom-Römer* area better rediscovered the relationship between the monuments and their surroundings. It reproduced the compact medieval urban texture and replaced the disproportionately wide spaces at the side of the *Technisches Rathaus*. Thus, the sky-high Gothic tower found a more suitable setting in the medieval vertical proportion of the urban spaces, defined by rows of tall and narrow façades of the reconstructed houses (Figs. 7 and 8) (Schmal 2019). The reconstruction did not diminish the magnificent view of the monument, nor did it jeopardise the formal logic of individual buildings. In contrast, the spaces of the reconstructed lanes enhance the monument’s mighty visual effects and help visitors comprehend the monument’s logic in its form and position.

3.2 Integration between the project area and the urban context: an estranged unit vs. an inherent urban element

On a larger scale, the two projects’ relationships with their respective urban context also differed when examined as two whole urban components.

In Zhengding, the reconstructed Yanghe Tower, together with its surroundings in the ‘buffer zone’, constituted an estranged unit in the city (Liu and Pezzetti 2022b). The ‘buffer zone’ should have been designed to transition from the reconstructed ‘old’ Tower to the pre-existing ‘new’ urban context; its actual effect was more of a barrier between the monument and the dense texture of simplified courtyards. Once one enters the ‘buffer zone’,



Fig. 7 The Markt in the reconstructed *Dom-Römer* area, 2021 (Source: the author)

they can immediately sense the separation. The different spatial proportions, antique-style decorations, and wide alleys deliberately set to maintain distance from the surrounding residential courtyards all remind visitors of the ‘new-oldness’ of this area. The whole reconstructed area had a hard-edge geometric shape whose morphology had never been observed in the city and was forcefully interposed in a compact urban texture. It is impossible for this area to be reidentified as the historic core of the living city because it is introverted and unable to naturally evolve with the city.

In contrast, the reconstructed *Dom-Römer* was better integrated with the context of the living city, as if the reconstructed area were an inherent element of the city that was not destroyed but only evolved. It would be difficult for anyone, even professionals, to identify the boundaries of the reconstructed area exactly unless they closely examined the plan drawings. Since all rebuilt buildings in *Dom-Römer*, whether the *Nachbauten* ones or *Neubauten* ones, have retained the parcels and silhouettes of the medieval houses, the project presented an impression that this area was never destroyed, but only a portion of



Fig. 8 The Markt in 1908 (Source: Carl Andreas Abt, Public domain, via Wikimedia Commons)

it had been refurbished or replaced. As a result, the history of the area appeared to be continuous, as though the *Technisches Rathaus* had never existed and as if the modern volume of *Schirn Kunsthalle* (opened in 1986, much earlier than the *Dom-Römer* reconstruction project) was the latecomer. Indeed, it inevitably erased decades of history, which is the inherent sacrifice of reconstruction. However, compared with the Yanghe Tower project, the new *Dom-Römer* has made more from this sacrifice by integrating the reconstructed area into the living city because it allows diverse people to better enter and share this 'new-old' area as part of their experience and identity in the city and potentially helps them to negotiate a sense of authenticity (Piazzoni 2020).

4 Cross-cultural discussion: reconstruction of open spaces

As noted in the Introduction, fulfilling only political and commercial objectives does not constitute 'responsible' reconstruction. Consequently, the above comparison suggests that the design strategy of the Yanghe Tower project is less responsible than the *Dom-Römer* project is, primarily because of its inadequate addressing

of the integration issue. The following subsections highlight how their approaches to open space contributed to the disparity of the two projects in addressing the integration issue and then explore the sociocultural factors underlying this disparity.

4.1 Open spaces as the key

The above comparisons have shown how the two reconstruction projects' outcomes differ in their relationship between the 'old' and the 'new'. Given that their approaches to specific buildings share certain common features, such disparate outcomes must be attributed to their respective strategies and approaches to urban open spaces.

In the *Dom-Römer* project, architects have given equal priority to historical open spaces and individual buildings. That is, the goal was not only to reproduce medieval buildings with historical styles but also to utilise these buildings as instruments to define historical open spaces. This priority for historical open spaces provides a solution for integrating the reconstructed area into its urban context. The preexisting buildings on the periphery of the reconstructed area, despite their modern styles and geometrical figures, were all involved in the project's conception to define historical open spaces. For example, the reconstructed buildings naturally framed narrow alleys with the modern structures of *Frankfurter Kunstverein* and *Haus da Dom* (Fig. 6, below); no further interventions were needed since they all conformed to the historic parcels and volumes. A *stoà*-like structure was inserted between *Schirn Kunsthalle* and the reconstructed area, whose height was able to define the medieval vertical spatial proportions and whose column rhythm matched that of the narrow bays of the reconstructed medieval houses on the other side (Fig. 7). This *stoà* established a subtle and permeable transition from the reconstructed historical site to the gigantic modern volume of the *Schirn Kunsthalle* instead of excluding it from the project. Owing to these approaches towards open spaces, the reconstructed *Dom-Römer* area was able to be better integrated with the preexisting urban context.

The Yanghe Tower project involved a different approach, in which historical open spaces were not included in the reconstruction. The role of the reconstructed buildings as spatial definers was ignored, so there was no intention to define historical open spaces with the reconstructed buildings. Instead, all attention was focused on reproducing buildings that resembled ancient styles. The layouts, volumes, and compositions of the once-existing buildings were abandoned, while only the decorative details were retained, creating a 'buffer zone' with no morphological continuity with the

monument or the urban context. Furthermore, the pre-existing simplified courtyard houses surrounding the ‘buffer zone’ were deemed worthless in the project since they could not provide any antique-style elements, while their potential as space definers was also ignored. Thus, these preexisting courtyard buildings were kept apart by the awkwardly wide alleys, leaving no opportunity to integrate the reconstructed area with the preexisting surroundings. Eventually, despite fulfilling political and commercial goals, the Yanghe Tower project failed to address the integration issue, resulting in an estranged unit that refused to interact with the living city.

4.2 Sociocultural factors underlying

To explore this topic further, it should be noted that neither of these two projects was an isolated instance within their respective societies (Ruan and Yuan 2010; Ruan et al. 2014; Bodenschatz et al. 2016; Caja 2017; Cui 2018). These different approaches to using open space to address the integration issue were influenced primarily by underlying cultural and sociocultural forces rather than merely by the personal preferences of the architects involved.

4.2.1 Differences in the cultural role of physical architecture

One crucial cultural factor is that Chinese culture as a whole has never had the habit of registering its history in physical architecture, as was observed by F. Motte (Betz-Bornstein 2012). In the Chinese tradition, keeping the past alive involved a process of preserving memories, images, values, and ideas instead of physical persistence (Pezzetti 2019). Because of such a cultural tradition, the main objective of reconstruction projects in China, such as the Yanghe Tower project, is not to rediscover historical physical urban fabrics and buildings but rather to establish architectural symbols or icons that trigger visitors’ imagination of only the idealised aspects of the past. Thus, that the majority of the effort related to the Yanghe Tower project was unsurprisingly devoted to the solemn monumentality of the Tower, with the goal of producing an exceptional visual effect, perhaps akin to Paris’ *Arc de Triomphe de l’Étoile*. Moreover, the initial proposal to rebuild the tower on a vacant site outside the city walls, which fortunately was not implemented, further underscores the project’s prioritisation of symbolism over actual historical urban fabrics (Bao 2007). However, such excessive emphasis on symbolic visual effects has resulted in the neglect of historical open spaces, ultimately compromising the project’s integration with the surrounding urban environment.

In comparison, in the European tradition, history was registered not only in allusive terms but more importantly, in urban and architectural substances (Caja 2017), which is fundamentally distinct from the Chinese

tradition. Thus, the reconstruction of *Dom-Römer*, similar to other critical reconstruction projects in Germany, aimed at an integrated, reunified historical landscape (Caja 2020) with reference to historical facts and, through such a landscape, finding back the city a historic core.

4.2.2 Impact of economic conditions on architectural ideas

In addition to cultural disparities, another significant factor contributing to the differences between the two projects was the influence of economic conditions on the architects’ architectural ideas. The two societies were in different development stages. Over the past two decades, while the urbanisation and economic growth of Germany has slowed significantly, China has experienced rapid growth and intensive urban sprawl, which has aggravated the impacts of the aforementioned cultural factors on reconstruction projects.

In the fields of city and architecture in China, high-speed growth has been accompanied by the persistent prevalence of functionalist conceptions because their highly economical, efficient, and profitable features are deemed suitable for supporting socioeconomic development in China. The Yanghe Tower project was an embodiment of the impact of this functionalism on the reconstruction project. It recalled the approach to historic monuments in Le Corbusier’s *Plan Voisin*, in which *Palais Garnier* was treated as only an individual building (Fig. 9). They both neglected the historical building’s morphological connections to the original surroundings and established no new morphological connections to

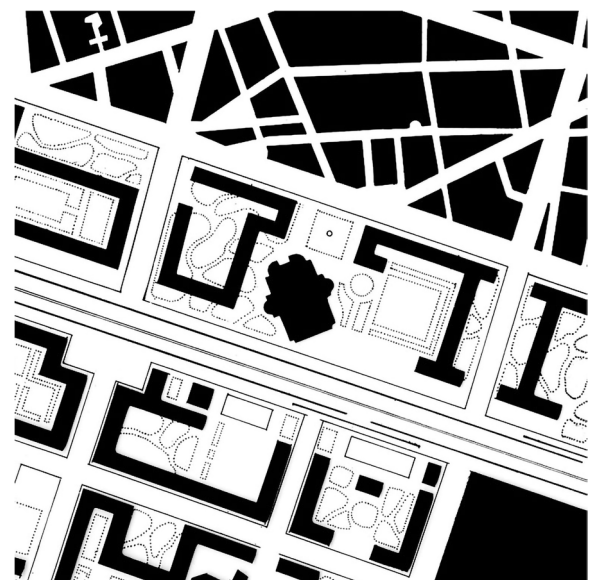


Fig. 9 Le Corbusier, *Plan Voisin*, the section around Palais Garnier, 1925 (Source: Rowe and Koetter 1983, originally drawn by Stuart Cohen & Steven Hurtt)

the new surroundings. Everything was oriented to the solid of individual buildings, with the void of open spaces being only left-overs (1983). The functional purposes of city marketing and attracting more visitors to increase growth in the tourism sector were set as priorities. Even the hexagonal square was also a purely functional arrangement for vehicular traffic rather than a result of any elaborate formal design or historical references.

In Germany, one of the birthplaces of modernist functionalism, many professionals once embraced it during the postwar urban construction boom, when the economic conditions shared common characteristics with 21st-century China. However, years of reflection and criticism led to a reconsideration of modernist functionalism, fostering a more prudent approach to any interventions in the built environment, especially regarding historical settings. Thus, even though the *Dom-Römer* project was clearly driven by the functional purposes of tourism development and city marketing, it has inherently deviated from functionalist principles since the *Technisches Rathaus* was torn down. The architects managed to reach a balance, avoiding these functional purposes from becoming the sole focus and jeopardising the project's value of retrieving the physical historical landscape, in stark contrast to the Yanghe Tower project. The several rounds of design competition and relevant research on the *Dom-Römer* project's design process provide evidence of this careful balancing (Čamprag 2017; Schmal 2019; Balhausen and Kleilein 2009).

The differing availability of archives and documentation also contributed to the disparities between these two projects. The detailed drawings and mapping in historical archives made possible the *Nachbauten* approach in the *Dom-Römer* project. In contrast, owing to the Chinese tradition of textual documentation, the Yanghe Tower project lacked professional graphic archives with respect to the detailed formal features of the Tower and its surrounding open spaces. While Liang Sicheng's brief survey report is a notable exception (Liang 1933), almost all existing documents and studies focused on relevant historical events, famous figures, or legendary stories (Cheng 2017; Fan 2016). This absence of knowledge was undoubtedly one key factor that led to the project's shortcomings in terms of urban open spaces and the integration issue.

5 Conclusion

This paper compared the designs of the Yanghe Tower project and the *Dom-Römer* project through typomorphological analysis, focusing on how they addressed the integration issue. The comparison revealed that the Yanghe Tower project fell short in addressing the

integration issue compared with the *Dom-Römer* project, resulting in a stand-alone monument and an estranged unit isolated from the living city, thus failing to carry out a 'responsible' reconstruction.

A closer examination of the two projects' design strategies revealed that their disparities in addressing the integration issue can be attributed to their contrasting strategies towards historical open spaces: the *Dom-Römer* project sought to re-establish the historical forms of open spaces as a key tool for connecting and transitioning between the reconstructed 'old' and the surrounding 'new'; in contrast, the Yanghe Tower project neglected to incorporate open space as an integral part of the reconstruction design and instead invented novel but estranged forms of open spaces.

The last part of this paper suggested that these differences in design strategies should not be solely attributed to the personal preferences of the architects. Rather, they are deeply rooted in the underlying sociocultural factors within their respective societies, including the different economic conditions and the distinct roles that physical architecture traditionally plays in the two cultures.

In the near future, despite the shortcomings exhibited by completed projects such as the Yanghe Tower, Chinese cities will likely continue to be enthusiastic about reconstructing lost historic sites. This trend is driven by both political and commercial interests, as well as a societal preference to rectify the social upheaval of the last century and strengthen Chinese cultural identity. As Ruan (2014) has argued, reconstruction can be accepted but only when it is carried out responsibly. This paper has expanded upon this assertion by exploring how to leverage open spaces as a key tool to address the integration issue effectively, thereby contributing to the realisation of 'responsible' reconstruction.

This paper does not advocate for a direct replication of the *Dom-Römer* project's approach in urban China. Instead, it emphasises the critical importance of restoring and effectively utilising historical open spaces to address the integration issue in future Chinese reconstruction projects. Traditional Chinese cities and architecture offer valuable inspiration in this regard, where open spaces often hold greater significance than the built structures themselves do, forming the very essence of the urban fabric (Pezzetti 2020). To make use of these inspirations, a comprehensive understanding of the typology and morphology of historical urban open spaces is the crucial premises. Despite the limited sources of graphic records for open spaces in historical documentation, this challenge can be addressed by combining limited data from individual cities with information from numerous analogous urban contexts. This comparative approach can yield sufficient knowledge about the typo-morphological

characteristics of historical open spaces, enabling reconstruction projects to effectively recover the spatial and visual features of the historical urban fabric and thereby facilitating the harmonious integration of 'old' and 'new' elements.

As China's social and economic development gradually transitions towards a postindustrial model, akin to contemporary Germany (Hu 2017), the long-prevailing principles of modern functionalism are facing increasing scrutiny, particularly within the realm of heritage-related projects. The reconstruction of *Dom-Römer* in Frankfurt serves as a compelling example of 'responsible' reconstruction. However, it is crucial to acknowledge that realising 'responsible' reconstruction in the Chinese context is a multifaceted and complex endeavour. Beyond the integration issue explored in this paper, further contributions from other scholars are essential for a comprehensive understanding of this multifaceted challenge.

Abbreviations

ICOMOS International Council on Monuments and Sites
WWII World War II

Acknowledgements

We would like to express our sincere gratitude to the anonymous reviewers for their constructive comments and valuable suggestions, which have significantly contributed to the improvement of our manuscript.

Authors' contributions

QL collected materials of the two projects through site visiting and archival research and wrote the main texts of the comparative analysis. YL conducted the literature review, contributed to preparing the drawings and editing the texts. LP supervised the research and contributed to the analysis of the Yanghe Tower project. All authors read and approved the final manuscript.

Funding

Not applicable.

Data availability

Not applicable.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Competing interests

The author declare that they have no competing interests.

Received: 23 August 2024 Revised: 15 January 2025 Accepted: 29 January 2025

Published online: 19 March 2025

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