International Journal of Technology 14(6) 1196-1205 (2023)
Received May 2023 / Revised September 2023 / Accepted September 2023

International Journal of Technology

http://ijtech.eng.ui.ac.id

Exploring the Evolution and Inheritance of Traditional Chinese Architectural Forms in Jiehua

Yan Wang[1,2], Peter Charles Woods[1], Ah Choo Koo[3*]

[1]*The Design School, Faculty of Innovation and Technology, Taylors University, 1, Jln Taylors, 47500 Subang Jaya, Selangor, Malaysia*
[2]*Jiangxi Institute of Fashion Technology, Nanchang, 330201 Jiangxi, China*
[3]*Faculty of Creative Multimedia, Multimedia University, Persiaran Multimedia, 63100 Selangor, Malaysia*

Abstract. Jiehua, a unique ancient Chinese art form, uses measuring tools to depict architectural themes. Traditional architectural forms in these paintings have been a focal point for experts in Chinese architecture. Despite emerging studies highlighting the value of exploring these ancient architectural forms, few studies have analyzed the internal forces behind the development of ancient Chinese architecture through Jiehua paintings. However, this is vital for studying the continuity of contemporary Chinese architectural culture. This study aims to explore the elements crucial to the evolution and continuation of traditional Chinese architectural culture in contemporary architectural design by analyzing the evolution of traditional Chinese architectural forms within different historical periods and their historical causes. An in-depth literature review enabled the selection of 12 representative Jiehua paintings from various historical periods as samples. The evolution of traditional Chinese architectural forms in these paintings was documented using visual observation methods, and Panofsky's theoretical framework of iconography was used to help explain and understand the historical causes of ancient Chinese architectural forms. The study results show that regional cultural conditions significantly impact traditional Chinese architectural forms, and the main elements affecting the expression of architectural locality include geography, cultural traditions, and economic development. This finding will shed light on the inheritance of traditional Chinese architectural culture and the innovative direction of contemporary architectural forms.

Keywords: Chinese architecture; Evolution; Historical causes; Jiehua; Regional culture

1. Introduction

Natural In the past decade, with the heightened awareness of cultural heritage preservation and the emphasis on principles of sustainable architectural development (Petti, Trillo, and Makore, 2020; Bakar and Cheen, 2011), the architectural design field has witnessed many new challenges and opportunities (Wang, Shi and Zhou, 2020). To create buildings that are more imbued with humanistic concern and social responsibility, an increasing number of researchers have turned their attention to traditional indigenous architecture in search of continuity in architectural culture (Hou, 2022; Clarke, Kuipers, and Stroux, 2020; Li, 2019). Unfortunately, the traditional ancient architecture in China mainly

*Corresponding author's email: ackoo@mmu.edu.my, Tel.: +60383125544; Fax: +60383125554
doi: 10.14716/ijtech.v14i6.6673

employed wooden structures, and many of these ancient buildings have either disappeared over time or only remnants remain. Only a portion of ancient Jiehua paintings have documented them (Yu, 2023; Gibbs, 2018). Such a situation brings great difficulties in researching the inheritance of contemporary Chinese-style architectural culture.

Jiehua is a form of ancient Chinese painting that depicts buildings, boats, wheeled vehicles, and other human-made architectural subjects (Ren, 2020). This intricate art is crafted using various measuring tools, including line brushes, rulers, compasses, and squares (Wang and Li, 2021). The term 'Jiehua' encompasses both the subject matter and the painting technique itself. The structure of the painting is calculated to give an exact and realistic representation of the form of the building, similar to Western engineering drawings, depicting the primary forms of traditional Chinese architecture from different historical periods (Cheng, 2022; Kleutghen, 2015; Zhu, 2011).

Previous research has amply demonstrated that Jiehua paintings have recorded traditional architectural forms since they appeared (Wang and Li, 2021). Many of these paintings are based on actual historical buildings, providing a reliable source of information for the modern understanding of ancient Chinese architectural design (Ren, 2020; Zhu, 2011). Consequently, considering the potential of Jiehua paintings, the research asserts their significant value in uncovering the intrinsic drivers of ancient Chinese architectural development and fostering the continuity and growth of contemporary Chinese architectural culture. In order to better facilitate the sustainable development of traditional Chinese architectural culture in the present day, this research aims to achieve the following two objectives: first, to identify the evolution of traditional Chinese architectural forms within different historical periods; second, to investigate the historical reasons for the formation of traditional Chinese architectural forms.

2. Methods

This research employs a qualitative research approach to achieve its research objectives, aiming to gain a deeper understanding of the influence of culture and history on the field of architecture and to explore the inheritance of contemporary Chinese architectural culture. This study comprehensively reviewed the relevant literature describing traditional Chinese architecture in Jiehua paintings, including recent and classic literature. The literature selection process was based on several parameters, including relevance, citation count, publication source and reputation, as well as the academic background of the authors. It was conducted through searches in databases such as Google Scholar, Web of Science, and Scopus. In the first step, a systematic search was conducted utilizing a funnel approach with the following keyword combinations: 'Jiehua OR Chinese AND painting,' 'Chinese AND historical AND architecture,' and 'traditional AND architectural AND image.' The time frame was limited to the period from 2018 to 2023 to ensure timeliness, and the results were sorted based on the relevance of the documents in order to obtain a wide range of search results. For the second step, the EndNote bibliographic management software was utilized to eliminate duplicate documents from various databases. The search was optimized using keywords such as 'regional AND culture AND traditional AND architecture' and 'evolution AND inheritance AND traditional architecture', and valuable literature was filtered according to the number of citations. These keywords were selected based on a thorough understanding of the research topic, encompassing various facets of the evolution and preservation of traditional Chinese architecture. In the third step, publications were selected based on their sources and reputations, as well as the academic background of the authors, in order to ensure the quality and credibility of the

final literature.

Furthermore, this study adopted the purposeful sampling method and carefully selected 12 representative paintings from different historical periods as research samples. High-resolution images of these paintings have been publicly accessible through the "Art Database" of the Chinese Treasures Museum, available on their official website (China Treasure Network, 2023). These paintings cover not only different types of buildings, such as palaces, courtyards, and dwellings, but also the different characteristics of northern and southern architecture in ancient China. The design of this strategy aims to fully reflect the evolution and development of architectural forms across different historical periods, ensuring the representability and uniqueness of the samples.

2.1. Visual Observation Method

In this step, paintings were acquired from the above steps and observed on high-quality digital images to document the evolutionary process of traditional Chinese architectural forms. Visual observation encompasses various aspects, including architectural forms (layout, structural types, roof shapes), architectural details (windows, doors, staircases, railings, columns), decorations (colors, murals, carvings), and surrounding landscapes (gardens, ponds, courtyards). Using NVivo software, every architectural element in each painting was annotated, and content with similar themes or meanings was grouped under the same code. These codes were established using NVivo's coding tools. Subsequently, the coded content was compared and integrated to identify emerging themes and categories. By leveraging NVivo's query and reporting functionalities, visualized themes can be generated, facilitating comparative analysis of architectural characteristics across different dynasties and tracing the evolution of architectural forms.

2.2. Panofsky's Theory of Iconography

This research drew upon the theoretical framework of iconography, as elucidated by art historian Erwin Panofsky, to aid in analyzing the historical factors underpinning the evolution of traditional Chinese architectural forms. Panofsky emphasized three levels or horizons of interpretation within artworks: pre-iconographic meaning, iconographic meaning, and iconological meaning (Bohnsack, 2019).

The first level emphasizes the images are purely perceptual, devoid of specific cultural or historical context, such as the shapes, sizes, colors, materials, and other inherent architectural attributes depicted in Jiehua's painting. The second level involves the identification of symbols, symbols, and cultural elements in artistic works. The decoration, pattern, and combination of the building in the painting may contain rich cultural and symbolic significance, which is closely related to Chinese religion, philosophy, historical events, or social values. By decoding these symbols, we can have a deeper understanding of the cultural connotations of traditional architecture. The last level delves into artistic works' cultural, historical, and philosophical backgrounds. It explores how the architectural forms depicted in paintings reflect China's religious beliefs, philosophical ideas, and societal values. Understanding the deeper meanings conveyed by the context of Jiehua paintings helps us reveal the profound cultural impact of traditional architecture and connect the architecture to the history and spirit of China.

Finally, this research synthesizes the results of all data analyses and draws conclusions about the evolution of traditional Chinese architectural forms and their historical causes. Additionally, it also discussed the crucial role of the evolution and continuity of traditional Chinese architectural culture in contemporary architectural design, promoting the sustainable development of Chinese-style architecture.

3. Results and Discussion

3.1. Historical Evolution of Architectural Forms in Jiehua Paintings

Jiehua, developed from Chinese landscape painting during the Sui (581–618) and Tang (618–907) dynasties, received its name "Jiehua" during the Five Dynasties period (907-979). As a form of architectural painting with specific techniques and norms, it appears in the book "Yingzaofashi" (YZFS) (Guxi, 2022), a work on ancient architectural engineering compiled by Li Jie, an official of the Northern Song Dynasty (960-1127) (Hang, 2022). Many renowned painters in history, who were also architects and craftsmen, used rulers to ensure the proportions of the buildings depicted in their paintings were accurate (Wang and Li, 2021; Zhu, 2011). Based on the rigorous painting style of Jiehua paintings (Ren, 2020), the visual observation method adopted in this research was applied to the 12 selected paintings from different periods. Table 1 lists the development and change process of traditional Chinese architectural forms in Jiehua paintings from the Sui Dynasty (581–618) to the Qing Dynasty (1636-1912), including the four aspects of the building: pedestal, body, roof, and architectural layout.

Table 1 The development and change process of traditional Chinese architectural forms in 12 Jiehua paintings

Time	Jiehua Painting	Pedestal	Body	Roof	Architectural layout
Sui Dynasty (581–618)		Pedestal with balustrade	Red house body, non-removable Zhiling window, covered with curtains instead of doors	The roof with double eaves and nine ridges	Siheyuan-style building layout
Sui Dynasty (581–618)		Ordinary pedestal	Non-removable Zhiling windows, no doors	Xuanshan-style roof made of thatch	A two-courtyard residence
Tang Dynasty (618-907)		Ordinary pedestal	Red house body, lattice windows and doors	Double-eaved and single-eaved Xie-shan style roofs	High and low courtyard layout
Tang Dynasty (618-907)		Ordinary pedestal	Non-removable Zhiling windows, no doors	Double-eaved Cuan-jian style roof, Xie-shan style roof	Orderly and well-structured palaces complex
Northern Song Dynasty (960–1127)		Pedestal with balustrade, Xumizuo pedestal, compound pedestal	Covered with curtains instead of windows and doors	Cross ridge and double-eaved roof, Xie-shan style roof	Asymmetric palace structures, constructed along the mountainside

Time	Jiehua Painting	Pedestal	Body	Roof	Architectural layout
Southern Song Dynasty (1127 – 1279)		Compound pedestal	Detachable lattice doors and windows	Double-eaved Xie-shan style roof	Pavilions built in accordance with the mountains
Yuan Dynasty (1271-1368)		Compound pedestal	Detachable lattice doors and windows	Double-eaved Xie-shan style roof, glazed tile decoration	Palaces complex constructed on a high platform overlooking the water
Yuan Dynasty (1271-1368)		Compound pedestal	Sliding lattice windows, no doors	Double-eaved Xie-shan style roof with cross ridge	A three-story courtyard-style palace built relying on the mountain
Ming Dynasty (1368-1644)		Compound pedestal, burdensome carving	Sliding full-body lattice doors and windows	Xie-shan style roof, glazed tile decoration	Palaces with symmetrical layout, constructed on a high platform
Ming Dynasty (1368-1644)		Xumizuo pedestal, burdensome carving	Detachable lattice doors and windows	Xie-shan style roof, glazed tile decoration	Palace buildings using eight pillars and beams
Qing Dynasty (1616-1912)		Compound pedestal, Xumizuo pedestal	Detachable full-body lattice windows, no doors	Double-eaved Xie-shan style roof, helmet-shaped roof	Combination of different architectural forms, symmetrical layout
Qing Dynasty (1616-1912)		Xumizuo pedestal	Detachable full-body lattice windows, no doors	Cross-shaped Xie-shan style roof, double-eaved Xie-shan style roof, helmet-shaped roof	Palaces built relying on the mountain, symmetrical layout

*Reprinted with permission from the Chinese Treasures Museum online for the paintings.

Combining the information presented in the above table, as anticipated, the architectural representations within the Jiehua paintings largely reflect the developmental trajectory of ancient Chinese architecture.

3.1.1. Architectural forms of the Sui Dynasty

During the Sui Dynasty, the architecture usually used a pedestal with a balustrade or an ordinary pedestal as the foundation to enhance structural stability, resist moisture erosion, and create a dry living environment. The emergence of double-eaved and nine-ridge roofs during this period reflected the prevailing craftsmanship and aesthetics. High-grade buildings were often showcased with red coloring, a practice that continued into the Tang Dynasty. Square-sectioned wooden lattice windows, vertically arranged and known as "Zhiling windows," exemplified Northern architectural characteristics (Feng, 2017). These windows, affixed to walls, could be covered with paper or curtains to provide

insulation against the cold and windy Northern climate, serving both practical purposes and enhancing architectural distinctiveness.

3.1.2. Architectural forms of the Tang Dynasty

Tang Dynasty architecture focused on topographical customization, unlike the traditional courtyard arrangement of the Sui Dynasty. In the architecture of the Tang Dynasty, we can observe the outline of the "Dou-gong" under the eaves. Dou-gong is a unique component of traditional Chinese architecture, with unique structural and aesthetic values that enhance stability and contribute to distinctive aesthetics. In addition to changes in the roof, styles diversified, encompassing not only double-eaved roofs with nine ridges but also Cuan-jian style roofs, enriching architectural variety and artistic expression.

3.1.3. Architectural forms of the Song Dynasty

The Song Dynasty represented a prosperous period in the development of Jiehua, encompassing both the Northern and Southern Song Dynasties from 960 to 1279 AD. During this era, the architecture in Jiehua's paintings displayed a high degree of rationality, emphasizing precise proportions. A notable feature is the prevalent use of the "Xumizuo" pedestal in the architecture. Originally introduced from India as bases for Buddhist statues, these pedestals gradually evolved into supports for more prestigious palace architecture (Huo, 2020). Adopting "Xumizuo" pedestals enhanced architectural stability and visual appeal and showcased the Song Dynasty's openness to and innovation in incorporating foreign cultural influences.

3.1.4. Architectural forms of the Yuan Dynasty

The Yuan Dynasty witnessed significant developments in Jiehua. It adopted Li Gonglin school's ink and line drawing techniques, improving architectural modeling skills. Most depicted architectural complexes were situated near water or mountains, emphasizing local adaptability. The pedestal began to integrate the three forms of the common pedestal, the Xumizuo pedestal and the pedestal with balustrade, to form a composite pedestal with stronger decorative meanings and the general characteristics of multi-ethnic cultural cultures (Yu, 2023). Double-eaved Xie-shan style roofs were quite common, and based on the patterns depicted on the roof ridges, it can be inferred that some buildings began to utilize glazed tiles as decorations (Wang, 2020). Notably, sliding lattice windows replaced disassembled ones, enhancing convenience and aesthetics and showcasing the Yuan Dynasty's architectural advancements.

3.1.5. Architectural forms of the Ming Dynasty

As literati painting gradually dominated the artistic mainstream, the Ming Dynasty (1368–1644) witnessed a decline in Jiehua paintings. In these artworks, the decorations and carvings adorning the foundations of the buildings became more intricate, and the use of glazed tiles for decorative roofing became increasingly prevalent. Palace buildings featured symmetrical layouts and eight-pillared structures, enhancing their solemn atmosphere. Sliding lattice windows and fully detachable square-grid doors and windows allowed for greater adaptability to seasonal climate variations, preserving both functionality and aesthetics. Paintings from this period provide invaluable historical and cultural insights, enhancing our understanding of Ming Dynasty architectural styles, aesthetic preferences, and court culture.

3.1.6. Architectural forms of the Qing Dynasty

During the Qing Dynasty, Jiehua was renowned for its grand and spectacular large-scale paintings, which indirectly showcased the prosperity of society at that time. In the portrayal of palace architecture in these paintings, buildings were constructed against the backdrop

of mountains, demonstrating bold combinations of architectural forms and symmetrical layouts, reflecting the magnificent style of architecture. Roof designs, in addition to the common double-eaved and cruciform-shaped Xie-shan style roofs prevalent in Qing Dynasty architecture, witnessed the occasional use of the rare "Kui" roof. The distinctive "Kui" roof featured an armor-like structure atop the building's roof, representing a unique roof design rarely found in ancient Chinese architecture, albeit appearing sparingly in particular palaces and temples.

3.2. The Historical Causes of the Evolution of Architectural Forms

From the perspective of architectural forms in different historical periods, the evolution of traditional Chinese architecture can be primarily attributed to a combination of factors rooted in the social and political backdrop, economic considerations, and cultural influences.

The Sui and Tang dynasties were a period of feudal centralization of China's grand unification, with political development nearing its peak. This political background promoted the prosperity of palace architecture under the imperial power, reflected in the high platform base and ornate roof design in Jiehua. In addition, the prosperous economy of the Sui and Tang dynasties provided abundant resources for architecture, making it more delicate and durable. Cultural factors are also expressed in the architecture, especially the introduction of Buddhist culture, which influenced the form of architectural decoration and pedestals.

The Song Dynasty was the golden age of China's feudal society, with relative political stability and social prosperity. Neo-Confucianism had already developed into mainstream academic thought, and its representative, Zhu Xi, advocated the theory of "investigating things to attain knowledge" (Liu, 2021). This idea promotes the development of architectural and drawing technology, representing China's wooden structure building theory books "Mu Jing" and "Yingzao Fashi" (Ma, 2020; Feng, 2017). Since then, each part of the building has a uniform shape regulation, and the efficiency and practicality of people's construction of houses have been significantly improved.

The Yuan Dynasty, which followed the Song Dynasty, was a multi-ethnic dynasty established by the Mongols. With the opening of the Silk Road and frequent commercial activities, the economy of the Yuan Dynasty developed greatly. Jiehua paintings from this period depicted architecture that was more intricate, diverse, and larger in scale compared to the Song Dynasty. There was an emphasis on portraying buildings' complete structural and stylistic aspects (Wang, 2020). In the representation of building materials, spanning from the Northern Song Dynasty to the Yuan Dynasty, the prevalence of glazed tile roofs in Jiehua paintings became evident. Simultaneously, advancements in building technology and science and technology played a pivotal role in ushering in new architectural styles during this period.

The Ming and Qing Dynasties were a prolonged period in Chinese history characterized by economic prosperity and social stability. Due to their substantial financial resources, rulers emphasized constructing palaces and gardens, providing abundant architectural examples depicted in grand-scale Jiehua paintings. In terms of politics, absolute monarchy reached its peak, and the ruling class, in order to maintain social order, imposed strict hierarchical regulations on architecture. For example, as stipulated in "Ming Huidian," officials were prohibited from using Xieshan-style and double-eaved roofs for their residences (Kleutghen, 2015). Consequently, in Jiehua's paintings, one could often discern the social hierarchy and the occupants' status based on elements such as scale, roof design, ornamentation, pedestals, painting, and color. To summarize, traditional Chinese architectural forms are the product of socio-political, economic, and cultural interactions.

3.3. The Historical Causes of the Evolution of Architectural Forms

In tracing the developmental history of ancient Chinese architectural forms and the factors influencing their evolution, one crucial aspect that cannot be ignored is regional culture. Regional culture encompasses the spiritual ability and material achievements cultivated by the inhabitants of a particular area over an extended period as they adapt to their environment and way of life within the local conditions (Yu, 2021; Naquin, 2018). Although the style of traditional Chinese architecture has not changed dramatically in the process of development, it should not be overlooked that China is a vast country, and the location of the capital city of each dynasty is not the same in history, which leads to different characteristics of architectural forms due to geographical differences. Three factors are involved: geographical environment, cultural tradition, and economic development.

Firstly, the geographical environment has been crucial in shaping traditional Chinese architecture. China's geography is highly diverse, encompassing arid regions in the northwest, humid areas in the south, and abundant coastal zones, each with distinct climates and natural surroundings. This diversity influences architectural design and structure (Cao and Yang, 2023). For instance, in the cold and dry climate of the northern regions, buildings often incorporate railings on pedestals to enhance stability and protect against ground moisture and dampness. Conversely, in the hot and humid climate of the southern regions, architecture emphasizes ventilation and moisture resistance, employing compound pedestals and removable lattice doors and windows to adapt to local weather conditions.

Secondly, cultural tradition is a significant factor in traditional Chinese architectural forms. Each Chinese dynasty has left a unique cultural heritage, which is evident in the symbols and colors used in architectural structures and decorations. For example, during the Tang Dynasty, China had cultural exchanges with neighboring countries, resulting in a fusion of native Chinese, Central Asian, and Indian influences. This can be seen in the grandeur of the palace architecture, characterized by bold colors and intricate patterns that create an opulent atmosphere. While the Song Dynasty emphasized practicality and harmony with the natural environment in their architectural designs. They adjusted the use of wooden structures to make buildings more compact, reflecting a sense of lightness and elegance.

Thirdly, the economic development of each region also determines the different forms of traditional Chinese architecture. In regions with higher levels of economic development, buildings were usually more luxurious and exquisite, with more elaborate carvings and decorations reflecting symbols of wealth and social status. In contrast, architecture may be more austere and functional in areas of relative economic hardship than lavishly decorated. In addition, building technology is often based on economic development, and the level of building technology influences the appearance and structure of buildings to some extent.

Considering these three factors and the current trends in contemporary Chinese-style architecture, this study suggests three essential interventions to promote the inheritance of traditional architectural culture. First of all, architectural designs in different geographical settings need to be adjusted according to variations in climate, topography, and available resources. Using suitable building technologies and materials is essential to enhance energy efficiency and comfort (Whulanza, 2023). Besides, China has 56 ethnic groups with different cultural traditions in different regions. Architects can retain the significance of local traditional architectural elements and decorative symbols to emphasize the heritage of traditional culture. Lastly, economic development performance

in different regions should be fully considered, and corresponding architectural strategies should be developed accordingly (Tereshko and Rudskaya, 2021). In economically disadvantaged areas, encouraging the reuse and recycling of building materials can address energy consumption and cost issues. Promoting innovative and high-tech architectural designs in affluent urban areas can enhance building quality and sustainability while preserving traditional cultural elements.

4. Conclusions

This research not only elaborates the evolution of traditional Chinese architectural forms, but also provides a guiding direction for the inheritance of Chinese-style architectural culture. An in-depth analysis of traditional architectural forms from different historical periods in China reveals that traditional Chinese architecture, while maintaining a consistent symmetrical layout, has undergone an important evolution from simple to complex architectural forms, from singularity to a diversity of roof styles, and from fixity to flexibility of doors and windows. This evolution has been influenced by a combination of social and political backgrounds, cultural conditions, and economic conditions. At the same time, it also reflects the critical role of regional culture in architectural development, including geography, cultural traditions, and economic development.

Although this study has made many efforts towards preserving and innovating Chinese architectural culture, there are still numerous issues in this field that require further investigation. Future research may include, but is not limited to, exploring the interventions and effectiveness of inheriting contemporary Chinese-style architectural culture; evaluating the inheritance and innovation practices of Chinese architectural culture in real cases, and conducting comparative studies between the inheritance and innovation of traditional Chinese architectural culture and other countries. The in-depth exploration of these domains will provide valuable insights for architects and society at large, ensuring the continued preservation and development of humanity's rich traditional architectural heritage.

References

Bakar, A.H.A., Cheen, K.S., 2011. Sustainable Housing Practices in Malaysian Housing Development: Towards Establishing Sustainability Index. *International Journal of Technology*, Volume 2(1), pp. 84–93

Bohnsack, R., 2019. Iconology and Documentary Method in the Interpretation of Divergent Types of Visual Materials. *In:* The SAGE Handbook of Visual Research Methods, pp. 398–410

Cao, Y., Yang, Z., 2023. Research on the Method of Integrating Traditional Regional Culture into Modern Architectural Planning and Design. *In:* Proceedings of the 2nd International Conference on Culture, Design and Social Development (CDSD 2022), pp. 251–257

Cheng, Y., 2022. Reevaluating the Six Mapmaking Principles (Zhitu Liuti) and the Square Grid System (Jili Huafang). In: *Nonscientific Traditional Maps of China: A Study of Traditional Chinese Mapmaking. Singapore: Springer Nature Singapore*, pp. 37–71

Chinese Treasures Museum, 2023. Chinese Treasures Museum. Available Online at https://g2.ltfc.net/home, Accessed on October 10, 2023

Clarke, N., Kuipers, M., Stroux, S., 2020. Embedding Built Heritage Values in Architectural Design Education. *International Journal of Technology and Design Education*, Volume 30, pp. 867–883

Feng, J., 2017. Chinese Architecture and Metaphor: Song Culture in the Yingzao Fashi Building Manual. In: *University of Hawaii Press*, pp. 1–13

Gibbs, L., 2018. Reformulating Architecture's Past through Drawing: Surveying Chinese Architecture in the 1930s. *Franklin University Switzerland*, Volume 5, pp. 36–44

Guxi, P., 2022. Yingzao Fashi: The Book and Methodical Issues for Studying It. In: *Routledge Handbook of Chinese Architecture*, pp. 87–100

Hang, T., 2022. Beside Yingzao: An Index of Chinese Building Traditions. *Masters of Environmental Design Theses,* pp. 32–41

Hou, X., 2022. The Manifestation of Traditional Chinese Architectural Language in Modern Architecture. Available Online at https://www.archdaily.com/993220/a-new-account-of-the-architecture, Accessed on October 10, 2023

Kleutghen, K., 2015. Imperial Illusions: Crossing Pictorial Boundaries in the Qing Palaces. In: *University of Washington Press*, pp. 3–23

Li, G., 2019. The Innovative Expression of Chinese Traditional Culture and Art in Contemporary Architectural Design. *PhD thesis, Universitat Politècnica de Catalunya, Barcelona*, pp. 102–187

Liu, S. Y., 2021. Aesthetical Meanings of the Central Notion Ti Ren in Cultivation Theory of Neo-Confucianism. *Journal of Literature and Art Studies*, Volume 11(1), pp. 71–78

Ma, P., 2020. The Political Symbolism of Chinese Timber Structure: a Historical Study of Official Construction in Yingzao-fashi. *PhD thesis, UNSW Sydney, Australia*, pp. 1–15

Naquin, S., 2018. The Material Manifestations of Regional Culture. *Journal of Chinese History*, Volume 3(2), pp. 363–379

Petti, L., Trillo, C., Makore, B. N., 2020. Cultural Heritage and Sustainable Development Targets: a Possible Harmonisation? Insights from the European Perspective. *Sustainability*, Volume 12(3), p. 926

Ren, B., 2020. The Water Mill: Authentication and Analysis of an Ancient Chinese Jiehua Painting. *PhD thesis, University of Glasgow*, pp. 42–65

Tereshko, E., Rudskaya, I., 2021. A Systematic Approach to the Management of a Construction Complex under the Conditions of Digitalization. *International Journal of Technology*, Volume 12(7), pp. 1437–1447

Wang, G., 2020. Civil Engineering, Brick and Tile, Stone and Iron, Glaze, Color Painting and the Annual Ring of Chinese Architectural History. *Oriental Architectural Heritage (00)*, pp. 1–8

Wang, G., Li, J. 2021. Research on Ancient Chinese Boundary Painting. In: *China City Press; China Architecture and Building Press*, pp. 102–106

Wang, X., Shi, R., Zhou, Y., 2020. Dynamics of Urban Sprawl and Sustainable Development in China. *Socio-Economic Planning Sciences*, Volume 70, pp. 100736

Whulanza, Y., 2023. Cohering Existing Technology with Greener and Modern Innovation. *International Journal of Technology*, Volume 14(2), pp. 232–235

Yu, L., 2021. Analysis of the Influence of Regional Culture on Chinese Contemporary Architectural Design. *Create Living (02)*, pp. 53–54

Yu, L., 2023. Painting Architecture: Jiehua in Yuan China, 1st Edition. In: *Hong Kong University Press, Hong Kong*, pp. 1271–1368

Zhu, G., 2011. Interfacial Boundary Painting: Traditional Architectural Design Expression. Furniture and Interior Design, (06), pp. 50–51