REDEFINING URBAN LANDSCAPES: THE SPATIAL FORM OF CHINESE VERNACULAR ARCHITECTURE

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ABSTRACT

Objective: This paper explored the spatial form of Chinese vernacular architecture and its transformative potential in urban landscapes. Chinese vernacular architecture embodies a distinct design approach deeply rooted in cultural and historical traditions, harmonizing with the natural environment.

Theoretical framework: Through an analysis of its spatial characteristics and their relationship with the urban context, this study investigated how Chinese vernacular architecture could contribute to sustainable and culturally vibrant urban spaces.

Method: The research methodology involved a comprehensive analysis of Chinese vernacular architecture through literature review, and previous case studies. The research investigates the spatial principles, design elements, and construction techniques that contribute to the unique character of Chinese vernacular architecture. The study also discussed the implications of incorporating the spatial form of Chinese vernacular architecture into contemporary urban landscapes. The integration of these design principles has the potential to promote sustainable urban development by emphasizing principles such as energy efficiency, natural ventilation, and passive cooling strategies.

Results and conclusion: The findings highlighted the significance of spatial form in creating sustainable and culturally rich urban environments. By redefining urban landscapes through the application of Chinese vernacular architecture, cities can become more livable, resilient, and aesthetically pleasing.

Originality/value: The paper advocates for the inclusion of these spatial design principles in contemporary urban planning and architecture, advocating for a holistic approach that balances environmental sustainability, cultural heritage preservation, and human well-being. It was determined that the spatial form of Chinese vernacular architecture possesses significant potential for redefining urban landscapes.

Keywords: spatial form, chinese vernacular, architecture, sustainability, landscapes, urban.
REDEFININDO PAISAGENS URBANAS: A FORMA ESPACIAL DA ARQUITETURA VERNÁCULA CHINESA

RESUMO

Objetivo: Este artigo explorou a forma espacial da arquitetura vernacular chinesa e seu potencial transformador em paisagens urbanas. A arquitetura vernácula chinesa incorpora uma abordagem de design distinta profundamente enraizada em tradições culturais e históricas, harmonizando-se com o ambiente natural.

Estrutura teórica: Através da análise de suas características espaciais e sua relação com o contexto urbano, este estudo investigou como a arquitetura vernácula chinesa poderia contribui para espaços urbanos sustentáveis e culturalmente vibrantes.

Método: A metodologia de pesquisa envolveu uma análise abrangente da arquitetura vernácula chinesa através da revisão da literatura e estudos de caso anteriores. A pesquisa investiga os princípios espaciais, elementos de design e técnicas de construção que contribuem para o caráter único da arquitetura vernacular chinesa. O estudo também discutiu as implicações da incorporação da forma espacial da arquitetura vernácula chinesa nas paisagens urbanas contemporâneas. A integração destes princípios de concepção tem o potencial de promover o desenvolvimento urbano sustentável, enfatizando princípios como eficiência energética, ventilação natural e estratégias de refrigeração passiva.

Resultados e conclusão: Os resultados destacaram o significado da forma espacial na criação de ambientes urbanos sustentáveis e culturalmente ricos. Ao redefinir as paisagens urbanas através da aplicação da arquitetura vernacular chinesa, as cidades podem tornar-se mais habitáveis, resilientes e esteticamente agradáveis.

Originalidade/valor: O documento defende a inclusão desses princípios de design espacial no planejamento urbano e na arquitetura contemporânea, defendendo uma abordagem holística que equilibre a sustentabilidade ambiental, a preservação do patrimônio cultural e o bem-estar humano. Determinou-se que a forma espacial da arquitetura vernácula chinesa possui um potencial significativo para a redefinição das paisagens urbanas.

Palavras-chave: forma espacial, vernáculo chinês, arquitetura, sustentabilidade, paisagens, urbano.

1 INTRODUCTION

Rapid urbanization and the increasing challenges of climate change have underscored the need for sustainable and culturally sensitive urban design and planning. In this context, exploring alternative approaches to urban landscapes becomes crucial (Taylor, 2016). Chinese vernacular architecture, with its rich history and distinctive spatial form, offers a valuable perspective for redefining urban landscapes.

Over the past century, the world's urbanization has accelerated, and humans have evolved into a mostly urban species that makes up more than 50% of the world's population today (Wu, 2008). People really don't completely understand the significant environmental, economic, and social effects of this worldwide population transformation. In spite of (and not because of) the widely recognised decreasing pattern in ecosystem
services over the past several decades, the overall state of well-being for humans determined by the Human Development Index (which consists of three components: life expectancy, GDP per capita, and education) has been steadily increasing on a global scale (Millennium Ecosystem Assessment, 2005; Raudsepp-Hearne et al., 2010).

Chinese architecture encompasses a wide range of traditional architectural styles and building practices that have evolved over centuries. It is deeply rooted in Chinese culture, history, and philosophy, emphasizing the harmonious integration of architecture with the natural environment (Chen & Wu, 2009). The spatial form of Chinese vernacular architecture demonstrates a unique understanding of space, scale, proportion, and the relationship between built structures and the surrounding context (Oliver, 2007).

By examining the spatial form of Chinese vernacular architecture, it becomes possible to uncover valuable insights into how urban landscapes can be reimagined and transformed. This approach not only addresses the need for sustainable urban development but also embraces cultural heritage preservation and community engagement. By understanding and incorporating the spatial form of Chinese vernacular architecture, urban planners, architects, and policymakers can create more sustainable, livable, and culturally vibrant cities.

Against this backdrop, this research aims to delve into the spatial form of Chinese vernacular architecture and explore its potential for redefining urban landscapes. By understanding the historical context, design principles, and cultural significance of Chinese vernacular architecture, this study seeks to contribute to the ongoing discourse on sustainable and culturally sensitive urban design and planning.

2 LITERATURE REVIEW

2.1 CHINESE VERNACULAR ARCHITECTURE: A HISTORICAL OVERVIEW

2.1.1 Origins and influences

Chinese culture cannot be separated from its architecture, which is also its most obvious feature to tourists. Since the publication of Johan Nieuhof’s lavishly illustrated An Embassy from the East-India Company of the United Provinces, to the Grand Tartar Cham, Emperor of China, 1665, it has attracted significant interest in the West. Around 1900, Western scholars began conducting scholarly research and documentation; a little later, Japanese and Chinese scholars did the same. It had largely turned into the purview
of Chinese academics starting around 1930, the year the Society for Research in Chinese Architecture was established with Liang Sicheng as its driving force.

The origins of Chinese vernacular architecture can be traced back to ancient times, where it evolved in response to the social, cultural, and environmental contexts of different regions in China (Oliver, 2007). This architectural style emerged from the collective wisdom and craftsmanship of generations, blending indigenous building techniques with regional variations and influences. One of the primary influences on Chinese vernacular architecture is the concept of Feng Shui, which is deeply ingrained in Chinese culture. Feng Shui, meaning "wind-water," is an ancient Chinese system of geomancy that seeks to harmonize human life with the surrounding environment (Mah, 2004). It emphasizes the orientation, layout, and arrangement of buildings in relation to natural elements, such as mountains, rivers, and the cardinal directions. The principles of Feng Shui play a significant role in the spatial organization and siting of structures in Chinese vernacular architecture (Pasacreta, 2005).

Another influential factor in Chinese vernacular architecture is the profound impact of traditional Chinese philosophy and cosmology, particularly Confucianism, Taoism, and Buddhism (Yang, 1970). These philosophies emphasize harmony, balance, and the interconnectedness of all things, including the built environment (Chen, 2007). The principles of Yin and Yang, the five elements (wood, fire, earth, metal, and water), and the pursuit of balance and harmony inform the spatial design and arrangement of Chinese vernacular architecture (Cheng et al., 2016).

Regional variations and local building traditions have shaped the development of Chinese vernacular architecture. Different geographical, climatic, and cultural factors have influenced the architectural styles and design characteristics in various regions of China (Rong & Bahauddin, 2023). For example, the courtyard houses in northern China, known as "Si Heyuan," reflect the need for privacy, protection from harsh winters, and communal living. On the other hand, the Hakka tulou buildings in southern China demonstrate a unique form of communal housing designed for defense against external threats.

2.1.2 Urban landscapes

Human habitation is directly tied to urban landscape. Modern urban sustainable development's most recent objective, promoting urban vibrancy and quality, can be
accomplished by optimising urban landscapes. The fine research on measuring urban landscape characteristics in broad areas is, however, limited when compared to studies at the macro-level in big areas (i.e. cities) or micro-level in small areas (i.e. structures), despite having better ties to reality and planning. Having a block serving as the study unit, this work suggested a quantification analytic system for regional urban landscape studies that was based on three factors: the city plan, the pattern of building forms, and urban land use. Employing geographical open data, spatial and contrastive analysis was used to depict the urban landscape in 15 typical Chinese cities. Given their various growth circumstances, different cities may indeed exhibit distinctive spatial signatures. Particularly, the landscape characteristics of Guangzhou and Suzhou did not stand out in comparison to other cities of a comparable level. More significantly, block-level urban landscape analysis in vast areas was built, with the quantitative study scope along with dimension of fine urban landscape expanded (Zhang et al., 2019).

Urban sites—historic monuments in urban contexts, historic districts, or entire historic towns—are at the centre of the current discussion about ways to protect our cultural legacy. Reaching an agreement on how to manage urban heritage is challenging due to the increased complexity of urban heritage conservation. Moreover, the strain on historic sites is expected to increase due to the dramatic rise in the percentage of the world's population that now lives in cities and the absence of legislation that would enable a sustainable use of heritage assets. A thorough account of the theoretical advancements in urban conservation is provided in The Historic Urban Landscape: Managing Heritage in an Urban Century. To help guide the creation of regional urban conservation policies and practises, analyses of how World Heritage sites are managed—together with the discussions and decisions that go along with them—are offered. The book is profusely illustrated with colour images, and the authors include exclusive insights from UNESCO's World Heritage Centre. Examples from urban heritage sites around the world—from Liverpool to Timbuktu—are used to highlight important concerns and current best practises in urban conservation (Bandarin & Oers, 2012).

2.1.3 Characteristics and design principles

Chinese vernacular architecture is characterized by a distinct set of design principles and spatial features that contribute to its unique identity. These characteristics are rooted in cultural values, environmental considerations, and the functional needs of
Harmonious Integration with Nature: Chinese vernacular architecture places an emphasis on the peaceful coexistence of man-made structures with the surrounding natural environment. It targets to fit in with the surroundings naturally, demonstrating respect for the harmony and interdependence of nature.

Courtyard-Based Layout: The "Si Heyuan" courtyard-based layout is used in many traditional Chinese homes. This layout revolves on a central courtyard that is frequently surrounded by structures on all four sides. The courtyard acts as a gathering place, providing the living areas with natural light, ventilation, and a peaceful atmosphere.

Modular and Flexible Design: Chinese indigenous architecture frequently uses a modular design strategy to allow for flexibility and adaptation. Buildings are made utilising a system of standardised parts that may be added to or changed in response to evolving requirements and environmental factors.

Integration of Gardens and Landscapes: In Chinese vernacular architecture, gardens and landscapes play a big part. To provide a smooth transition between interior and outdoor environments, they are thoughtfully planned and incorporated with the constructed structures. Gardens provide spaces for solace, reflection, and aesthetic enjoyment.

Symmetry and Balanced Proportions: In Chinese vernacular architecture, symmetrical designs and balanced proportions are highly valued. The search of harmony and balance is emphasised in ancient Chinese philosophy, such as Confucianism and Taoism, which is reflected in this.

Use of Traditional Building Materials: Locally accessible materials including wood, stone, rammed earth and clay bricks are used in Chinese vernacular building. These materials frequently have thermal qualities that improve comfort and energy efficiency and are obtained responsibly.

Roof Design and Ornamentation: Curved eaves and arching rooflines are distinguishing features of Chinese vernacular architecture's roof form. Ceramic roof tiles, decorative carvings, and eye-catching colour palettes are decorative features that offer visual appeal and cultural symbolism.

Privacy and Spatial Hierarchy: Chinese traditional building design frequently uses a spatial hierarchy to separate off public, semi-public, and private places. This
architectural idea seeks to provide residents a sense of solitude while encouraging social contact and community involvement.

3 THEORETICAL FRAMEWORK

A sense of identification and belonging is one of our most fundamental desires. Human attachment to the landscape and how we locate our selves in it are frequent themes in this. The interest in and comprehension of cultural landscapes had a remarkable flowering in the late 1980s and early 1990s. These posed a challenge to the notion of heritage popular in the 1960s and 1970s, which focused on significant monuments and archaeological sites, well-known architectural ensembles, or historical locations with connections to the affluent and famous. By doing readily available accounts of the way the understanding of cultural landscape is applicable in various environments across the globe and is inextricably connected to concepts of living history in which landscape alone is a rich social history record, Managing Cultural Landscapes explores the most recent ideas in landscape and place. It also expands the idea how landscape only involves rural environments to embrace historic urban landscapes/tow. Keeping track of Cultural Landscapes, which includes contributions from a diverse international group of authors, examines the management of heritage values for cultural landscapes in Australia, Japan, China, the United States, Canada, Thailand, Indonesia, the Pacific Islands, India, and the Philippines. It also critically examines the reasons Dresden and its cultural landscape were removed from the World Heritage list while offering a review of Historic Urban Landscape thinking (Taylor & Lennon, 2012).

Chinese vernacular architecture holds immense cultural significance, reflecting the rich history, traditions, and values of Chinese society (Child & Warner, 2014). It embodies the collective wisdom, craftsmanship, and cultural expressions of generations, making it an integral part of the Chinese cultural heritage. The cultural significance of Chinese vernacular architecture extends beyond its architectural form. It reflects the values, beliefs, and aspirations of the Chinese people, acting as a tangible link to their past and a source of inspiration for the future (Jigyasu, 2014). Preserving and celebrating Chinese vernacular architecture contributes to the cultural vitality, sense of place, and sustainable development of urban landscapes (Hosagrahar et al., 2016).
4 MATERIALS AND METHODS

The research methodology involved a comprehensive analysis of Chinese vernacular architecture through literature review, and previous case studies. The research investigates the spatial principles, design elements, and construction techniques that contribute to the unique character of Chinese vernacular architecture. By examining the integration of built forms with the natural environment, it explores how these spatial configurations create a sense of place and establish a harmonious relationship between human habitation and nature.

Land use and pre Landscaping planning Currently, one of the main methods of urbanisation used throughout the world is densification of cities. However, it is unclear how processes in peri-urban areas relate to urban densification. In view of the potential for peri-urban landscapes to be recognised as complementing sources of urban ecosystem services as green spaces in cities are lost to densification, the purpose of this article is to emphasise those potentials. We contend that the best course of action is to redefine peri-urban areas as functional landscapes rather than just locations that are situated between urban centres and rural areas and have a certain population density or distance. The functionality is identified and described (Hedblom et al., 2017).

4.1 SPATIAL FORM IN CHINESE VERNACULAR ARCHITECTURE

Chinese vernacular architecture is distinguished from other architectural forms by the spatial shape of its buildings (Chiou, 1997). It includes how rooms are arranged, arranged, and organised within a building, as well as how architectural structures interact with their surroundings. Chinese traditional architecture's spatial shape reflects a profound grasp of the interaction between people and their constructed environment (Lawrence & Low, 1990). It produces aesthetically pleasing, useful, and culturally relevant environments that improve tenant wellbeing and promote a feeling of community and connection to nature.

4.2 INTEGRATION WITH THE NATURAL ENVIRONMENT

Sustainability is a notion that has taken over many scientific discussions in a variety of fields, including but not limited to those related to product markets, tourism, culture, and urban planning and construction. When a few studies that examined the environmental impact of vernacular architecture were put forward at the first PLEA (Pand
Low Energy Architecture) conference in Bermuda in 1982 (Fry & Drew, 1982; Kimura & Yamazaki 1982), a particular devotion in the sustainability of vernacular architecture became apparent in the early 1980s. Hassan Fathy's Natal Energy and Vernacular Architecture (1986), that examined the vernacular climatic design concepts in hot and arid places, came very shortly after. Even so, until the late 1990s, when sustainability in general became a topic of political, academic, and public interest, scholarly interest in the sustainability of vernacular architecture stayed quite minor (Mileto et al., 2014).

Chinese vernacular architecture places great emphasis on the integration of built structures with the natural environment. This integration is driven by a deep respect for nature, an understanding of ecological balance, and a desire to create harmonious living environments (Liu et al., 2019) The fusion of natural surroundings with Chinese traditional building. A strong bond between the local population and the nature is fostered through the blending of Chinese vernacular architecture with the surrounding environment (Hamza, 2019). Through the creation of visually beautiful yet ecologically responsible living places, it encourages a sustainable and harmonious interaction with nature. The cultural and ecological importance of Chinese vernacular architecture is highlighted by this integration, as well as its potential to influence modern urban environments' use of sustainable design principles.

4.3 SPATIAL CONFIGURATIONS AND DESIGN ELEMENTS

Chinese vernacular architecture's spatial arrangements and design components are fundamental in determining the functional organisation, aesthetic appeal, and cultural identity of the built environment (Lawrence & Low, 1990). They are examples of Chinese building traditions that showcase creativity, skill, and cultural values. Chinese vernacular architecture embodies a profound awareness of aesthetics, utility, and cultural meaning in its spatial arrangements and design components (Rong & Bahauddin, 2023). They design spaces that emphasise balance, cultural legacy, and a connection to nature in order to promote a positive interaction between people and their built environment (Heath, 2009).
4.4 INCORPORATING CHINESE VERNACULAR ARCHITECTURE IN URBAN LANDSCAPES

A special chance to improve the built environment, support cultural continuity, and build enduring and peaceful urban environments is provided by incorporating Chinese vernacular architecture into urban landscapes (Carmona, 2010). Incorporating Chinese vernacular architecture into urban landscapes enhances aesthetic value while also fostering sustainable design principles, celebrating cultural identity, and building a feeling of place and community. Urban landscapes may be made more harmonious, habitable, and culturally lively by using the ideas and architectural aspects of Chinese vernacular architecture (Hu, 2022). The key considerations in incorporating Chinese Vernacular Architecture in Urban contexts:

Sustainable Urban Development Principles: Sustainable urban development aims to create cities and communities that are environmentally, socially, and economically sustainable. It involves integrating principles and practices that promote long-term well-being, resilience, and a balanced relationship between human activities and the natural environment.

Energy Efficiency and Passive Design Strategies: Energy efficiency and passive design strategies are crucial elements of sustainable architecture and urban planning. They aim to minimize energy consumption, reduce reliance on mechanical systems, and optimize natural resources for heating, cooling, and lighting. By integrating these energy efficiency and passive design strategies into architectural and urban planning practices, cities can significantly reduce energy consumption, lower carbon emissions, and create more sustainable built environments. Additionally, energy-efficient buildings can lead to reduced operational costs, improved occupant comfort, and a healthier indoor environment.

Cultural Identity and Community Engagement: Preserving cultural identity and promoting community engagement are essential aspects of sustainable urban development. Recognizing and celebrating local culture, traditions, and community values contribute to a sense of place, social cohesion, and a thriving urban environment. By integrating cultural identity and community engagement in urban development, cities can create inclusive, vibrant, and resilient communities where residents feel a strong sense of belonging and pride.
5 RESULTS AND DISCUSSION

5.1 SPATIAL FORM IN CHINESE VERNACULAR ARCHITECTURE: EMBODYING THE ESSENCE OF SPACE

The spatial form in Chinese vernacular architecture is a remarkable embodiment of the essence of space. It goes beyond mere physical structures and extends into a rich and intricate tapestry of cultural expression, environmental integration, and functional design. This unique architectural tradition has developed over centuries, reflecting the wisdom, beliefs, and values of the Chinese people (Smith, 2021).

At the core of Chinese vernacular architecture is the meticulous arrangement of spatial configurations. From the intimate courtyards to the interconnected building complexes, every element is thoughtfully designed to create a harmonious and meaningful spatial experience (Wang, 2013). The spatial form encapsulates the cultural identity of the community, representing a profound connection between people and their built environment.

One of the defining characteristics of Chinese vernacular architecture is its seamless integration with the natural environment. The spatial form takes full advantage of the surrounding landscape, with careful consideration given to orientation, views, and the use of local materials (Lu, 2006). The result is an architecture that effortlessly blends into its surroundings, enhancing the sense of unity between human habitation and nature.

Functional zoning and spatial hierarchies play a vital role in Chinese vernacular architecture. The spatial form is organized in a way that supports social interactions, daily activities, and privacy needs (Ching, 2023). Public spaces foster community engagement, while private areas provide a sanctuary for personal reflection. This well-defined division of space ensures a balance between communal cohesion and individual well-being.

Flexibility and adaptability are inherent in the spatial design of Chinese vernacular architecture. The modular nature of the structures allows for expansion, contraction, and reconfiguration over time. This adaptability ensures that the architecture remains responsive to the evolving needs and lifestyles of the inhabitants. It is a testament to the longevity and resilience of this architectural form (Till & Schneider, 2016).

The spatial form also carries deep symbolism and spiritual significance. Axial alignments, central courtyards, and carefully choreographed spatial sequences contribute to a sense of harmony, balance, and cosmic connection (Krinke, 2005). These spatial qualities reflect the cultural beliefs and cosmological principles deeply ingrained in
Chinese society, transcending the physical realm and inviting a contemplative engagement with the spiritual.

5.2 IMPLICATIONS FOR URBAN LANDSCAPE DESIGN AND PLANNING

The spatial form of Chinese vernacular architecture holds significant implications for various aspects of the built environment. It offers valuable insights into the preservation of cultural heritage, providing a foundation for the revitalization of traditional communities and sustainable urban design practices. By incorporating the principles of spatial form, such as passive design strategies, efficient space utilization, and integration with the natural environment, professionals can create more environmentally friendly and livable urban spaces (Melendo & Lainez, 2018). Maximising material recycling, minimising environmental harm brought on by human settlements, rationalising spatial design based on necessity and efficiency, enhancing infrastructure, and valuing and emphasising the art of the natural environment in design are some specific actions and methods (Chen, 2007).

Supporting diversity and accepting cultural differences play a significant role in the sustainable development during the rapid modernization. The use of grammar and patterns in creative building, as well as the logic alongside expression of art and culture in the process of designing spaces, are all influenced by the choice of cultures and the advancement of technology. Despite being abstract, the concept of culture can be connected to things like the environment, design inspiration, architectural details, landscape, and society, among other things (Rapoport, 2005). This study had demonstrated that combining DSA and SSA could be used to build an architectural lineage to emphasise both the similarities and contrasts between various cultures. (Qing, 2016).

These implications into urban landscape design and planning, cities can create environments that celebrate cultural identity, foster community engagement, promote sustainability, and enhance the overall quality of life for residents. Such designs contribute to the social, cultural, and environmental resilience of urban areas, creating spaces that are deeply rooted in their local context and reflective of the aspirations and values of the community (Sutrisno et al., 2023).
5.3 HOLISTIC APPROACH TO URBAN DESIGN

A holistic approach to urban design refers to considering the city as a complex and interconnected system, where various elements and factors are integrated to create sustainable, functional, and livable environments (Masnavi et al., 2019). It emphasizes the interdependence of social, cultural, economic, and environmental aspects of urban life. It involves considering not only the physical aspects but also the social, cultural, economic, and environmental factors. By adopting a holistic perspective, urban design can create sustainable and inclusive spaces that meet the diverse needs of communities. This approach integrates different disciplines and stakeholders, promotes community engagement, and values long-term planning and adaptability. It recognizes the interdependence of buildings, public spaces, infrastructure, transportation, and natural systems, aiming to create cohesive, vibrant, and resilient urban environments (Keshavarzi et al., 2021). A holistic approach to urban design seeks to balance functionality, aesthetics, social equity, environmental sustainability, and cultural preservation, resulting in harmonious and livable cities for both current and future generations.

5.4 BALANCING ENVIRONMENTAL SUSTAINABILITY AND CULTURAL HERITAGE PRESERVATION

Balancing environmental sustainability and cultural heritage preservation is a critical consideration in urban design and planning (Lucchi & Buda, 2022). It involves finding ways to protect and promote cultural heritage while minimizing negative impacts on the environment and promoting sustainable practices. Strategies for achieving this balance. By integrating the following strategies, cities can create environments that prioritize the well-being of residents, promote social interaction, and provide access to essential services and amenities. Enhancing livability and well-being in urban design fosters a sense of belonging, happiness, and improved quality of life for individuals and communities as a whole (Mouratidis, 2021):

Promote the adaptive reuse of existing historic buildings and sites to minimize the need for new construction. Transforming heritage structures into functional spaces that meet contemporary needs reduces resource consumption and preserves cultural identity.

Use environmentally friendly materials and construction techniques that minimize the ecological footprint. Consider utilizing locally sourced, recycled, or renewable materials that align with the cultural aesthetics of the area.
Incorporate energy-efficient design principles into the preservation and renovation of historic buildings. Retrofitting older structures with insulation, efficient heating and cooling systems, and renewable energy technologies can reduce energy consumption while preserving their cultural significance.

Integrate green infrastructure elements, such as green roofs, rain gardens, and urban forests, into heritage sites and their surroundings. These features enhance biodiversity, mitigate stormwater runoff, improve air quality, and contribute to the overall sustainability of the area.

The spatial form of Chinese vernacular architecture can serve as a cultural tourism asset, attracting visitors and fostering a sense of pride and identity among local communities. It contributes to the cultural and economic vibrancy of the region (Khare et al., 2023).

Engage stakeholders, including local communities, cultural organizations, environmental groups, and government agencies, in collaborative planning processes. Consider their input and involve them in decision-making to ensure that environmental and cultural concerns are adequately addressed.

The spatial form offers lessons for sustainable urban design, including passive design strategies, efficient space utilization, and integration with the natural environment. Incorporating these principles can lead to more environmentally friendly and livable urban spaces.

Finding the balance between environmental sustainability and cultural heritage preservation requires careful consideration, collaboration, and creative solutions. By adopting a holistic approach and integrating these strategies, cities can preserve their cultural identity, protect natural resources, and create sustainable urban environments that benefit both present and future generations.

6 CONCLUSION AND SUGGESTIONS

It was concluded in this research review highlight the significance and potential of redefining urban landscapes through the spatial form of Chinese vernacular architecture. the spatial form in Chinese vernacular architecture is a profound manifestation of the essence of space. It is an intricate interplay of cultural expression, environmental integration, functional design, flexibility, symbolism, and spirituality. By understanding and appreciating the spatial form, we gain insights into the profound
relationship between people and their surroundings, inspiring contemporary urban design that embraces the wisdom of the past while addressing the needs of the present and future.

The redefinition of urban landscapes through Chinese vernacular architecture requires active community engagement and empowerment. Involving local communities in the design and planning process fosters a sense of ownership, pride, and cultural continuity. The spatial form of Chinese vernacular architecture is a manifestation of cultural expression, with intricate spatial configurations that reflect the values and social organization of the communities. The spatial layout, such as courtyard arrangements, axial alignments, and modular designs, encapsulates the essence of Chinese culture and identity. Chinese vernacular architecture frequently includes separate functional zones and hierarchies in its spatial form. These consist of public, semi-public, and private areas that have all been thoughtfully planned to support social interactions, everyday tasks, and privacy requirements. The layout promotes a sense of togetherness while protecting personal space. Chinese vernacular architecture exhibits a strong emphasis on the integration of spatial form with the natural environment. The design principles prioritize orientation, views, and the utilization of local materials, resulting in a harmonious relationship between the built environment and the surrounding landscape. The spatial form of Chinese vernacular architecture is rich in symbolism and spiritual significance. Elements such as axial alignments, central courtyards, and spatial sequences contribute to a sense of harmony, balance, and connection with the cosmos. These spatial qualities reflect cultural beliefs and cosmological principles.

Integrating the spatial form of Chinese vernacular architecture into urban landscapes poses challenges. Adapting traditional spatial configurations to contemporary urban contexts requires careful consideration of density, infrastructure, and functional requirements. Balancing the preservation of cultural heritage with the demands of modern urban living is essential.

The spatial form of Chinese vernacular architecture offers valuable lessons for sustainable urban design. Its emphasis on passive design strategies, natural ventilation, and efficient space utilization can inform contemporary approaches to energy efficiency, climate responsiveness, and human comfort in urban environments. The findings highlighted the significance of spatial form in creating sustainable and culturally rich urban environments. The spatial form of Chinese vernacular architecture is a reflection of cultural identity, harmonious integration with the natural environment, and symbolism,
emphasizing its significance in shaping the built environment. Its functional zoning, adaptability, and influence on contemporary urban design further showcase the importance of the spatial form in Chinese vernacular architecture. Future research should focus on regional variations, empirical studies, and digital technologies to deepen the understanding and application of spatial form in Chinese vernacular architecture.
REFERENCES


