

# Cultural Complex Design from the Perspective of Urban Renewal: A Case Study of Incheon Geomdan Cultural Complex in South Korea

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**Abstract** Urban development should rely on the form of architecture, and incorporating urban planning concepts into architectural design can better assist urban construction. Taking the design of Incheon Geomdan Cultural Complex in South Korea as an example, this paper analyzes how to reflect urban planning elements in architectural design, and studies the role and value of cultural complex architecture in urban development from multiple perspectives such as culture, ecological environment, and public space. It hopes to gain more research and design ideas to promote the development of cultural industries in the region, leverage the advantages of regional cultural formats, and create new cultural settlements in cities.

**Keywords** Urban renewal, Cultural complex, Development, Ecology

**DOI** 10.16785/j.issn 1943-989x.2024.3.019

Since the 1980s, urban planning and construction have become the theme of urban development in Asian countries, with economic development occupying the main part of urban development. With the progress and development of technology, the original urban layout and construction can no longer meet the needs of urban residents. The expansion of the new urban area and the renovation of the old urban area are urgent.

Taking South Korea as an example, the capital Seoul has become the region with the most concentrated economic, cultural, political and other resources in the country since the 1950s. The population size has intensified and expanded, with less than 1/100 of the country's land area, 1/5 of the population, over 1/5 of the economy, and over 2/5 of public institutions. Due to the limitations of early urban planning, infrastructure construction and public spaces were unable to meet the needs of urban development. After entering the 21<sup>st</sup> century, the problem of "big city disease" in Seoul has become increasingly serious. Balancing the development of different spatial regions and decentralization has become the main theme of Seoul's urban construction. In the process of incremental urban renewal, maintaining a unified architectural style and upgrading urban functions is the main challenge faced by design.

## 1 Research background

With the continuous advancement of globalization, the development of cities is no longer only reflected in changes in urban texture, but is concentrated in changes in urban context

and culture. For large and medium-sized cities, they face new problems in urban planning under the background of urban renewal. Urban renewal is constantly changing urban culture while changing urban form<sup>[1]</sup>. For the regional characteristics of architecture, cultural complex architecture is not only one of the main carriers of regional architectural culture, but also a "new business card" for urban development.

A cultural complex refers to a comprehensive building unit formed by the integration of two or more different types of cultural functional units into one building, which integrates multiple functions into one. It has the characteristics of organic complementarity of functions, intensive and efficient space, fuzzy intersection, rich three-dimensional transportation, and unified overall design, and has significant contemporary advantages. The composite design of cultural complexes is essentially a composite design in terms of function, space, form, and other aspects, transforming the city from independent functional integration to a comprehensive and multifunctional architectural complex. This is the difference between it and general cultural buildings, and also the difficulty of design. This can save urban resources, optimize operating modes, achieve sustainable development of cultural buildings, and also meet the "one-stop" needs of citizens for cultural life.

Incheon Geomdan Cultural Complex project is located in the central area of the Geomdan New City construction of Incheon, surrounded by densely populated residential areas and close to the main urban road, with convenient transportation. There are no large industrial

factories around the land, and it is located on the urban green axis planned for the new city, with significant geographical advantages. The construction goal will include a library and museum to meet the reading, leisure, rest, stay, exhibition, and visiting needs of surrounding residents. The newly built cultural complex is expected to become a new urban cultural business card, leveraging regional historical, cultural, and geographical advantages, shaping the image of urban cultural settlements, promoting the integration of surrounding cultural and tourism industry resources, forming a cultural industry matrix, and strengthening regional competitiveness. The new urban cultural complex is a new form of architecture that integrates multiple single functional buildings together<sup>[2]</sup>.

## 2 Shaping of ecological environment

The elevation difference between the site and the surrounding mountains is moderate, and there is no obstruction to the urban landscape. In the planning of the new city, the urban green axis is an important aspect that reflects the ecological city. As one of the carriers of regional culture, the Geomdan Cultural Complex will implement the design principles of ecology and livability, introduce the urban green axis from the outside into the interior, and make the building a part of the green axis, forming an organic element of the ecological city. As a landmark building in the region, the Geomdan Cultural Complex aims to present the urban development concept, which is to plan the city

based on the ecological environment, improve the overall and coordinated urban planning, and achieve the goal of harmonious development of social economy and ecological environment<sup>[3]</sup>. There are two green parks around the site. According to the upper-level plan, two ecological corridor bridges will be built to connect to the site. The relationship between the site and the surrounding environment should be handled in accordance with the principles of integrity and coordination, integrating the building into the green landscape and guiding tourists to naturally enter the interior of the building through paths such as the lake trail and streets. Moreover, it should transform the green layout of the site from two-dimensional level to three-dimensional level, so that the environment inside and outside the “red line” is integrated and unified, forming a complete lakeside landscape belt with the lake shore.

### 3 Public space design

Public space should naturally connect with urban transportation, enhance transportation accessibility, and become another node in urban transportation. For cultural complex buildings, public space is the nesting of functional space and transportation space. Balancing the relationship between functional space and traffic flow lines enables traffic flow lines to become carrier of embodying spatial characteristics and enhance spatial connectivity. Traffic flow is embedded into the design of architectural landscape, and the building is open to the environment and tourists, stimulating the vitality of the site and integrating it with the building itself. Through “urban micro renewal”, inefficient and negative space is transformed into positive and energetic space<sup>[4]</sup>. The traffic flow line consists of square space, corridors, and outdoor platforms. When considering the orientation of the square space, the main direction of the crowd should be considered to attract and divert the crowd to the greatest extent, reduce the density of urban traffic, and alleviate urban traffic pressure. The functional blocks are connected with the transportation space to form the form blocks of the building. The blocks are scattered and arranged within the site, connected by the central public space with multiple functional areas. The design purpose is to strengthen the concentration of the public space and reduce mutual interference, thereby solving the problem of resource allocation. An independent and highly unified complex building is designed, ultimately forming a common system of internal space and driving the

improvement of space utilization efficiency<sup>[5]</sup>.

### 4 Extraction of cultural elements

Distinctive cultural identity is a prominent feature of urban cultural complex space<sup>[6]</sup>. The humanistic spirit foundation of urban regionalization is its historical and cultural environment, which has an important impact on the spatial form, environmental shaping, and cultural continuity of the city. A city must have a cultural identity. In urban planning, attention should be paid to its regional characteristics and cultural expression, as well as its historical context, in order to promote and continue it.

The plot where the Geomdan Cultural Complex is located has a profound historical background, and there are some ancient city ruins within the site. The exterior of the building embodies ancient cultural elements such as white walls, glazed tiles, and sloping roofs (Fig.1). The building adopts the same style of sloping roof and is covered with full green glazed tiles, showcasing a sense of historical thickness. For urban development, the infrastructure is gradually improving, and the division of urban areas is becoming clearer, but the preservation of original historical and cultural achievements is decreasing. The architectural design of cultural complexes has always been endowed with complex “semantics” in the past<sup>[7]</sup>. The cultural complex itself has the function of spreading culture and cultural education. Historical elements are extracted and used into the expression of architectural facades, enriching the content of urban landscapes, and preserving the architectural cultural characteristics of Korean architecture blending with the natural environment. The Geomdan Cultural Complex is one of the nodes in the entire urban context, forming a belt around the city with other cultural and entertainment buildings. On the entire urban cultural industry belt, there are education and entertainment industries distributed. The existence of cultural complexes is conducive to integrating cultural industry resources and constructing new industrial formats. Integrating architecture with the surrounding environment, controlling the height of buildings, and organically combining urban cultural industry belts with urban green axes is conducive to the integration of culture and tourism, allowing urban memory to penetrate into the urban texture and integrate into the urban context.

### 5 Space sharing along the street

Geographical location can not only determine weather factors, but also architectural

form factors<sup>[8]</sup>. Urban street view is one of the concrete manifestations of urban development. By changing the traditional entrance design and utilizing elements such as squares and outdoor large steps, the entrance of the site is “hidden” within the urban street view. Architecture should reflect the principles of public and openness, and the street facade of the building should be connected and communicated with the urban street scenery. Urban public space is an open space between urban architecture and the main body. It is not only a leisure place for the general public, but also a public place for various public welfare performances and exchanges, providing people with high-quality services<sup>[9]</sup>. The square, green space, and urban pedestrian walkway within the open space are connected, making the square space within the site a part of the urban public space and enriching the configuration and combination of urban public spaces (Fig.2). The entrance space has been converted into a public space, enhancing the fun and fluidity of the external space. As the public space enters the interior of the site, the obstruction of vision gradually disappears, and multiple visual corridors run through the entire site, releasing the extensibility of the entire space in both horizontal and vertical directions. The internal and external spaces of the building are interconnected, and the building and the waterfront space create a “facing relationship”, allowing the waterfront space to echo the exhibitions and leisure spaces inside the building. The urban public cultural complex has achieved intensive utilization of urban public cultural resources and land resources within a limited time and space, stimulating the diversity and vitality of urban public cultural life<sup>[10]</sup>.

### 6 Conclusions

The design of cultural complexes expresses the design concept of openness, sharing, and ecology, which requires in-depth research and consideration from the following aspects:

(1) The cultural complex architecture integrates multiple functions, and the design needs to comprehensively consider regional needs. As one of the core areas of regional construction, it not only represents the collection of advanced cultural industries in the region, but also serves as a source of urban vitality and diversity of public activities. In the process of urban development, the construction of cultural complexes should be endowed with new content as the demand for urban construction changes.

(2) The construction of cultural complexes requires a significant amount of land,



Fig.1 Bird's-eye view



Fig.2 First-floor plan

economic, and human resources. When choosing construction land, it should consider the advantages of location development and positioning. The design of cultural complex architecture needs to extract classic cultural symbols from the region as the design language, to better interpret and inherit the historical context of the region, and create a regional cultural business card.

(3) In the design of cultural complex buildings, it is necessary to consider the influence of regional culture and climate on the building. The Geomdan region is greatly affected by the northwest wind from the sea, so designing the space with the building shape facing northwest as a green space and square space can reduce the impact of the monsoon on the building.

**References**

- [1] Liang, P. (2023). Analysis of urban renewal design path from the perspective of cultural heritage. *Theoretical Research in Urban Construction*, (29), 17-19.
- [2] Li, H. M. (2020). Research on the design of urban construction cultural complex. *China Construction Metal Structure*, (11), 80-81.
- [3] Gong, Z. J. (2023). Research on ecological city planning in urban planning and design. *China Construction*, (4), 93-95.
- [4] Liu, K. (2022). Research on the integrated design strategy of cultural architecture complex. *Theoretical Research in Urban Construction*, (30), 49-51.
- [5] Liu, K. (2021). Architectural design and urban planning under the new situation of urban renewal. *Housing and Real Estate*, (21), 107-108.
- [6] Liu, H. L. (2020). Research on the design of urban construction cultural complex. *China Construction Metal Structure*, (7), 40-41.
- [7] Xing, H., Wang, L. (2021). Discussions on common strategies in cultural complex design practice. *Zhejiang Construction*, (2), 7-10.
- [8] Zhan, F. Y., Luo, Z. Z. (2022). Research on the design strategy of regionality in cultural complex. *Urbanism and Architecture*, (17), 133-137.
- [9] Wang, X. Q. (2023). Exploration of urban design strategies in urban renewal. *Stone*, (10), 58-60.
- [10] Dang, Y. T., Zhang, Y. & Xiao, Y. F. et al. (2023). Intensiveness, synergy, sharing, and green research on the design strategy of urban cultural complex guided by architectural programming. *Architectural Journal*, (2), 98-104.