

# ***Institutional Architecture and Spatial Transformation in Modern Yuncheng: Taking the Hedong Salt Administration Audit Sub-bureau and Hedong Middle School as Examples***

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**Abstract.** Drawing on field investigation, historical documents, and spatial analysis, the paper explores how reforms in the salt administration and educational systems reshaped local architectural forms during China's period of social and institutional transformation. The study identifies two distinct modes of spatial transformation. As a newly established administrative institution, the Hedong Salt Administration Audit Sub-bureau adopted a purpose-built architectural model characterized by Western-style spatial organization and functional zoning, reflecting the administrative and residential needs of foreign personnel involved in salt management. In contrast, Hedong Middle School evolved through the gradual expansion and adaptation of the traditional Hedong Academy. Although the original courtyard layout was largely retained, the introduction of classrooms, laboratories, dormitories, and sports facilities transformed the former academy into a modern educational campus. The comparison of these two cases demonstrates that architectural space was not merely a passive physical container, but an active medium through which institutional change became spatially visible.

**Keywords:** Yuncheng, salt economy, institutional architecture, spatial transformation

## **1. Introduction**

Salt has historically functioned not only as an essential commodity but also as a strategic economic resource in China. As one of the country's most important salt-producing regions, the Hedong Salt Lake occupied a significant position within successive dynastic administrations, which maintained control over production and circulation through urban fortification and institutional governance. Within this historical context, Yuncheng gradually emerged as a specialized urban center serving salt production, administration, and transportation.

The expansion of the salt industry stimulated population concentration and promoted the development of commerce, transportation, services, and education, ultimately shaping a regional urban system centered on salt administration. The urban spatial pattern and social organization of Yuncheng were therefore deeply conditioned by the salt economy, which constituted the primary driving force behind the city's historical development.

From the late nineteenth to the early twentieth century, China underwent profound institutional and social transformation amid the combined pressures of global modernization and domestic crisis. Fiscal difficulties accelerated reforms in salt administration, while the educational system shifted from traditional academies to modern schools characterized by new curricula and pedagogical methods. These institutional transformations not only reshaped patterns of social organization but also generated new architectural typologies and spatial practices.

Existing scholarship on modern Yuncheng has primarily focused on the economic history of the Hedong salt industry and its influence on urban development. Research on modern architecture has tended to emphasize stylistic evolution and typological classification, while studies of institutional reform have concentrated on administrative and educational restructuring. Comparatively little attention, however, has been devoted to the relationship between institutional transformation and architectural space through the analysis of specific buildings, particularly within the context of a salt-oriented city such as Yuncheng.

The establishment of the Hedong Salt Administration Audit Sub-bureau and the transformation of Hedong Academy into Hedong Middle School provide concrete examples of how institutional modernization reshaped local architectural space. The former embodied the implementation of a modern administrative system, while the latter reflected the restructuring of educational institutions. Drawing upon architectural morphology, spatial analysis, archival research, and Lefebvre's theory of the production of space, this study examines how institutional reform became materially expressed through architectural transformation. In doing so, the paper offers a localized perspective on urban transformation in modern China.

## **2. Salt economy and institutional transformation**

### **2.1. The Hedong Salt Lake and the urban development of Yuncheng**

The historical formation and urban development of Yuncheng were closely tied to the Hedong Salt Lake, whose salt economy played a decisive role in the city's spatial expansion and institutional growth.

In order to supervise production and regulate taxation, a relatively mature salt administration system had already emerged in Yuncheng during the Yuan dynasty and was further standardized throughout the Ming and Qing periods through the establishment of specialized administrative institutions [1]. The long-term operation of this institutional system not only consolidated state control over salt production and circulation, but also contributed to the gradual formation of Yuncheng as a salt-oriented administrative and commercial center.

The prosperity generated by the salt industry also stimulated the development of local education. Educational institutions serving the children of salt workers and merchants gradually formed a system known as Yunxue. According to exhibition materials from the Yuncheng Salt Culture Museum, although Yunxue primarily functioned as a specialized educational system associated with the salt industry, its curriculum largely followed that of conventional state-sponsored academies [2]. This indicates that the salt economy influenced not only urban growth and administrative organization, but also the formation of local educational structures.

### **2.2. Transformation of the modern salt administration system**

From the late Qing period onward, reforms in China's salt administration became increasingly intertwined with foreign financial intervention and state fiscal restructuring. During the Yuan Shikai

administration in particular, the salt industry, as one of the country's primary sources of tax revenue, became deeply entangled in negotiations with foreign powers. Reform of the salt administration system consequently became a prerequisite for securing international loans, leading to the establishment of the Salt Administration Audit Office [3].

These reforms fundamentally transformed the operational structure of salt administration. Western influence became increasingly visible in management systems, technical procedures, and personnel organization. More importantly, the introduction of foreign administrators and modern bureaucratic practices generated new spatial and architectural requirements for administrative institutions.

Within this context, the Hedong Salt Administration Audit Sub-bureau in Yuncheng emerged as a direct spatial manifestation of institutional modernization. Its architectural form reflected the interaction between imported administrative models and local building traditions, revealing how institutional restructuring could be materially expressed through architectural space.

### 2.3. Educational reform and the transformation of traditional academies

Alongside administrative reform, the educational system also underwent significant restructuring during the late Qing period. In 1902, the Qing government promulgated the *Imperially Enacted Regulations for Schools*, which promoted modern educational concepts such as subject-based curricula and classroom instruction. As a result, many traditional academies across China were gradually transformed into modern schools adapted to local conditions.

Following the abolition of the imperial examination system, the educational system associated with salt administration underwent institutional reorganization. Yunxue was renamed Hedong Commercial School, while Hedong Academy was subsequently restructured into Hedong Middle School [2].

This transition represented more than a simple change in institutional name or educational content. The introduction of modern educational methods also transformed patterns of teaching organization and spatial use. Traditional academy architecture, originally designed around ritual hierarchy and classical learning, could no longer adequately accommodate the functional requirements of modern education. Consequently, educational reform necessitated substantial spatial adaptation and architectural reconfiguration.

### 2.4. Institutional transformation and architectural space

The reforms in salt administration and education demonstrate that institutional transformation was not limited to organizational restructuring or administrative change, but was also materially embedded within architectural space. The establishment of new institutional systems frequently generated corresponding spatial forms and architectural typologies.

In Yuncheng, the Hedong Salt Administration Audit Sub-bureau and Hedong Middle School respectively represented administrative and educational forms of institutional architecture. Despite belonging to different institutional systems, both buildings embodied the spatial consequences of modernization. The former adopted architectural elements associated with Western administrative buildings and emphasized functional differentiation, whereas the latter retained the traditional courtyard framework while gradually reorganizing internal spatial functions.

From the perspective of Lefebvre's theory of the production of space, architectural space should not be understood as a passive physical container, but rather as an active product of institutional power, social relations, and everyday practices. The transformation of these buildings therefore

reveals how institutional modernization reshaped local spatial structures through continuous processes of adaptation, negotiation, and reconstruction.

### 3. The Hedong Salt Administration Audit Sub-bureau

#### 3.1. Historical context and institutional background

In the early twentieth century, reforms in China's salt administration system accelerated under the combined pressures of foreign debt secured through salt taxation and the growing involvement of foreign personnel in administrative affairs [4]. During this process, salt administration gradually shifted from a decentralized traditional structure toward a centralized and institutionalized bureaucratic system.

As an important agency responsible for tax collection and supervision, the Hedong Salt Administration Audit Sub-bureau emerged directly from this institutional transformation. The building therefore represented more than a functional administrative facility; it embodied the spatial consequences of modern bureaucratic restructuring within the salt administration system.

#### 3.2. Spatial organization and functional structure

The Hedong Salt Administration Audit Sub-bureau consisted of two parallel buildings symmetrically arranged along an east–west axis and oriented toward the south. Both structures were two-story buildings elevated on brick-and-stone foundations approximately one meter in height (see Figure 1).

Unlike traditional administrative compounds organized exclusively around governmental functions, this complex integrated office space, residential quarters, and facilities for everyday life within a unified spatial system. The integration of administrative and residential functions reflected the operational characteristics of the modern salt administration system and distinguished the building from conventional official architecture in Yuncheng.

The spatial arrangement also reveals a more flexible relationship between public administration and private daily life. Rather than maintaining the rigid spatial hierarchy commonly found in traditional official compounds, the building adopted a comparatively open and functionally differentiated layout shaped by modern bureaucratic practices.



Figure 1. Hedong Salt Administration Audit Sub-bureau

### 3.3. Architectural language and spatial experience

The architectural language of the Hedong Salt Administration Audit Sub-bureau displayed strong Western stylistic influences. Arched openings, vertically proportioned windows, and wraparound verandas introduced a visual vocabulary rarely seen in traditional Chinese administrative architecture (see Figure 2).

The extensive use of openings enhanced interior illumination and produced a more permeable spatial environment than that found in conventional official compounds. The verandas functioned not only as circulation corridors, but also as transitional spaces mediating between interior and exterior environments. These semi-open spaces contributed to a layered spatial experience that blurred the boundary between administrative activities and everyday residential life [5].

Internally, fireplaces and chimney systems reflected the adaptation of the building to Western residential practices, while variations in interior finishes suggest differentiated functional uses across individual spaces. Together, these features demonstrate how modern architectural ideas were localized within the urban context of Yuncheng through spatial adaptation rather than direct stylistic imitation.



Figure 2. Hedong Salt Administration Audit Sub-bureau

### 3.4. Hybridization of Chinese and Western architectural traditions

Although the Hedong Salt Administration Audit Sub-bureau incorporated numerous Western architectural elements, it retained certain features of traditional Chinese construction, most notably the four-sloped roof covered with gray tiles. This combination reflected both practical adaptation to local environmental conditions and the continued symbolic authority associated with official architecture.

The resulting architectural form embodied a process of negotiation between imported institutional models and local building traditions. Rather than fully replacing traditional architectural practices, modernization in this case emerged through selective adaptation and spatial hybridization. The building therefore represents an important example of how institutional transformation reshaped architectural space in modern Yuncheng while remaining embedded within local cultural and constructional contexts.

## 4. Transformation of Hedong Academy into Hedong Middle School

### 4.1. Spatial order of the traditional academy

Before its transformation into a modern school, Hedong Academy functioned as a traditional educational institution organized around Confucian learning and ritual hierarchy. Its spatial structure reflected the educational philosophy and social order embedded within the traditional academy system.

The architectural complex adopted a conventional courtyard layout characterized by axial symmetry and hierarchical spatial organization (see Figure 3). Educational activities were concentrated within enclosed courtyards that emphasized discipline, ritual order, and collective learning. This spatial arrangement reinforced the authority of classical education and reflected the close relationship between architectural form and traditional institutional culture.

As one of the most influential academies in the Hedong region, the building represented a mature example of traditional educational architecture prior to the modernization reforms of the late Qing period.

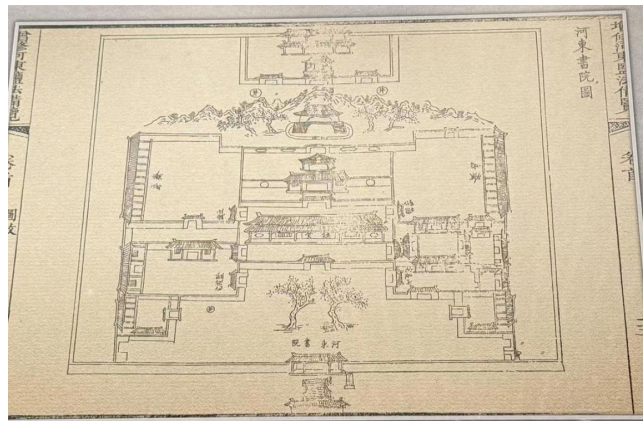


Figure 3. Hedong Academy

### 4.2. Educational reform and institutional transformation

During the late Qing reforms, the traditional academy system gradually gave way to modern schools influenced by new educational concepts and institutional models. The abolition of the imperial examination system accelerated this transformation and fundamentally altered the organizational structure of education in Yuncheng.

Within this context, Hedong Academy was restructured into Hedong Middle School. This transition represented more than a change in institutional identity; it reflected the broader shift from classical education centered on moral cultivation toward modern education oriented around specialized knowledge, scientific instruction, and standardized pedagogy.

The emergence of modern curricula and teaching methods also generated new spatial requirements that traditional academy architecture could no longer adequately accommodate. Educational reform therefore became directly linked to architectural adaptation and spatial reorganization.

### 4.3. Spatial adaptation and functional reorganization

Unlike the newly constructed Hedong Salt Administration Audit Sub-bureau, Hedong Middle School emerged through the gradual adaptation of an existing traditional academy complex. Rather than completely replacing the original spatial structure, the transformation proceeded through selective modification and functional expansion.

Although the original courtyard framework was largely retained, the introduction of classrooms, laboratories, dormitories, libraries, and sports facilities significantly altered the functional organization of the campus (see Figure 4). Educational space gradually shifted from a ritual-centered environment toward a system emphasizing specialized instruction, scientific education, and student life [6].

The addition of dormitory buildings further transformed the relationship between education and everyday life. Unlike traditional academies, where educational activities remained relatively separate from students' daily living spaces, the modern school introduced a more integrated campus environment combining teaching, residence, and extracurricular activity within a unified spatial system.

At the same time, the incorporation of sports grounds reflected the growing importance of physical education within modern educational philosophy. These new facilities introduced forms of openness and collective activity rarely emphasized within traditional academic space.

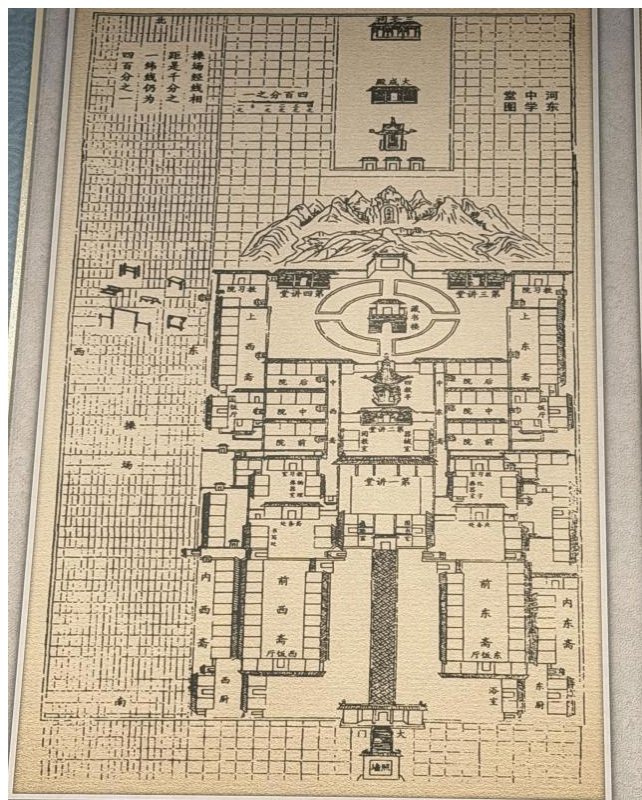


Figure 4. Hedong Middle School

### 4.4. Continuity and transformation in educational space

The transformation from Hedong Academy to Hedong Middle School demonstrates that educational modernization in Yuncheng did not occur through complete spatial rupture, but through a process of

adaptive transformation grounded in continuity.

Traditional courtyard structures, hierarchical spatial relationships, and elements of local architectural culture remained embedded within the campus, even as modern educational functions were gradually introduced. The resulting spatial form therefore embodied both continuity and change, revealing how modern educational institutions in local Chinese cities negotiated between inherited architectural traditions and new institutional demands.

Rather than simply imitating Western school models, the transformation of Hedong Middle School reflected a localized process of modernization shaped by existing architectural conditions and regional educational culture.

## **5. Comparative analysis of institutional architecture in modern Yuncheng**

### **5.1. Comparison of spatial transformation methods**

Although both the Hedong Salt Administration Audit Sub-bureau and Hedong Middle School emerged during the modernization process of late Qing and Republican China, their approaches to spatial transformation were significantly different.

As a newly established administrative institution, the Hedong Salt Administration Audit Sub-bureau adopted an entirely new architectural form influenced by Western administrative architecture. Its spatial organization emphasized functional differentiation and the integration of office and residential functions, reflecting the operational requirements of the modern salt administration system.

In contrast, Hedong Middle School developed through the gradual transformation of the traditional Hedong Academy. Rather than completely replacing the original architectural structure, the modernization process proceeded through continuous adaptation and expansion. While the traditional courtyard layout was largely preserved, new educational facilities were gradually introduced to meet the needs of modern teaching.

These differences indicate that institutional modernization in Yuncheng did not produce a unified spatial model. Instead, different institutional systems generated different approaches to architectural transformation.

### **5.2. Comparison of spatial functions and architectural forms**

The differences between the two buildings were closely related to their institutional functions and architectural characteristics.

As an administrative institution responsible for salt management and taxation, the Hedong Salt Administration Audit Sub-bureau emphasized administrative efficiency and functional organization. The building integrated office space, residential quarters, and auxiliary living facilities within a unified spatial system. Architecturally, it displayed strong Western influences through elements such as arched openings, verandas, fireplaces, and large windows, which introduced spatial characteristics rarely found in traditional official architecture in Yuncheng.

Hedong Middle School, by contrast, primarily served educational purposes. With the addition of classrooms, laboratories, dormitories, libraries, and sports facilities, the campus gradually evolved from a traditional academy into a modern educational environment centered on teaching and student life. Although modern facilities were introduced, the original courtyard structure and overall spatial framework were largely retained.

This contrast demonstrates that modernization in Yuncheng did not simply involve replacing traditional architecture with Western forms. Rather, architectural transformation developed differently according to institutional function and practical needs.

### 5.3. Institutional transformation and spatial evolution

The comparison between the Hedong Salt Administration Audit Sub-bureau and Hedong Middle School demonstrates that institutional transformation had a direct influence on architectural space in modern Yuncheng.

The modernization of salt administration promoted the emergence of new administrative spatial forms, while educational reform gradually reshaped the spatial organization of traditional academies. Although the two buildings followed different paths of transformation, both reflected the close relationship between institutional change and spatial evolution.

From this perspective, architectural space should not be understood merely as a physical container, but also as an important medium through which institutional transformation became materially expressed.

## 6. Conclusion

This study examined the relationship between institutional transformation and architectural space in modern Yuncheng through the cases of the Hedong Salt Administration Audit Sub-bureau and Hedong Middle School. By analyzing the processes of salt administration reform and educational modernization, the research explored how institutional change influenced the spatial evolution of local architecture during China's period of institutional and social transformation.

The study shows that the Hedong Salt Administration Audit Sub-bureau and Hedong Middle School represented two different approaches to architectural transformation. As a newly established administrative institution, the Hedong Salt Administration Audit Sub-bureau adopted a newly constructed architectural form characterized by Western-style spatial organization and the integration of administrative and residential functions. In contrast, Hedong Middle School developed through the gradual transformation of the traditional Hedong Academy. While the original courtyard layout was largely preserved, modern educational facilities were continuously introduced to meet the functional requirements of modern education.

The comparison between these two buildings demonstrates that institutional transformation had a direct impact on architectural space in modern Yuncheng. Different institutional systems generated different spatial forms and modes of architectural adaptation according to their functional requirements and historical contexts. The modernization of architecture in Yuncheng therefore did not simply involve the replacement of traditional forms by Western architecture, but rather developed through processes of adaptation, integration, and spatial reorganization.

At the same time, the study indicates that architectural space should not be understood merely as a physical carrier of institutional activities. Instead, it also functioned as an important medium through which institutional transformation became materially expressed. Through the spatial evolution of institutional architecture, the broader process of modernization in modern Yuncheng became visible within the built environment.

Due to limitations in available historical materials and field investigation conditions, this study still has certain limitations. Future research may further expand the range of case studies and explore the relationship between institutional transformation and architectural space in other types of

modern institutional buildings, thereby contributing to a more comprehensive understanding of local urban modernization in modern China.

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