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Research on style control in planning and designing small towns

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Abstract

With the rapid development of extensive urbanisation in the pursuit of refined quality, the management and control of architectural features in small towns have become more and more prominent, especially in the period when the planning system is nearly complete. Most small towns are still in the low efficiency or lack of the environment has become an important obstacle to the inheritance of traditional architectural style and the shaping of individual characteristics in small towns. How to provide a refined, comprehensive and efficient building style management and control system for managers, planners and subsequent architectural designers is particularly important for reversing the current disadvantages of small town style management and control. This article is problem-centred and conducts in-depth analysis from the aspects of style control ideas and style division control, trying to find a practical way of urban style control, hoping to benefit the urban development in the modernisation boom.

Keywords: small towns, style, planning and design, control, problem-oriented

1 Introduction

The construction of urban characteristics is an important part of a country's new urbanisation development, and it is of positive significance to the great rejuvenation of the Chinese nation. After years of development, although the country's urban construction has achieved initial results, it often overlooks the city's history, culture, style, environment and regional characteristics. The phenomena of 'one thousand cities, one side', 'cultural context' and 'pursuing the great ocean' are still severe. Under the background that the shaping of urban features has received greater attention at the national level, 'protecting green mountains and green waters, continuing historical context, and shaping urban characteristics' have become one of the main principles of urban space construction. Therefore, in the process of planning reform and exploration, it is particularly necessary to highlight the characteristics of the city.

Small town is a new planning area between city and traditional town. The appearance of small towns is an important manifestation of the characteristics of small towns, the crystallisation of economic development and

Fig. 1 Planning and control system of small town style.

cultural changes, and the comprehensive product of natural resources, historical cultural resources and social resources, making small towns more distinctive and recognisable. Since the reform and opening up, with the advent of the era of globalisation and the continuous advancement of urbanisation, the construction of small towns in China is changing rapidly. While the style of small towns is undergoing drastic changes, it is also facing a crisis of gradual weakening of local and traditional characteristics [1]. Problems such as the destruction of the natural environment, the imbalance of form and structure, the convergence of styles and features, and the loss of historical and cultural characteristics of small towns are endless. How to protect and develop small towns with high-quality natural environment, rich humanistic environment and characteristic artificial environment in the process of urbanisation and rural revitalisation strategy implementation has become the focus of all walks of life [2]. The shaping of the style of small towns is precisely by integrating the landscape pattern, continuing regional context, refining characteristic elements and controlling the spatial form, forming a small town style image with a good ecological environment, rich cultural connotation and harmonious living space, showing the characteristics of small towns [3].

In the context of the new urbanisation and rural revitalisation strategy, the construction of small towns is required to be transformed into a 'local' and 'inherited type' and based on the necessity of style planning and the role of non-qualitative character status, a more in-depth control plan for the style of small towns research. This article starts with the style analysis and the composition of the style element system, and at the same time, based on the organic correlation between the style elements, and discusses the expression methods of the protection and reproduction of the style elements of small towns, so that the natural environment, human environment and artificial environment of small towns are coordinated. Continuation and characteristic [4]. Then, in accordance with the different spatial scales, control objects, depths and requirements of the style elements of small towns, a multi-level style planning control system of macro-structural planning control, meso-zoning control guidelines and micro-element control details are constructed (Figure 1). It establishes a multi-level small town characteristic style planning system to control structural planning at the macro level. At the same time, to avoid the disadvantages of traditional small town style planning that are difficult to deepen and implement, it follows the control of detailed planning and introduces control guidelines, and compiles it at the medium and micro levels. The zoning control guidelines and element control rules decompose and implement the macro-level planning control intentions into the specific control content and requirements of each area and each element, and ensure that the control content and requirements of each level of the style planning are connected and continued within the system. To effectively control and guide the orderly shaping and development of small towns at all levels, it is expected to provide experience and reference from similar planning practices.

2 The style and composition of small towns

Based on the analysis of 'wind' and 'appearance', combined with the disciplinary foundations of landscape, architecture, morphology, ecology, etc., it is determined that the style system of small towns is composed of human environment, natural environment and artificial environment styles. The principles of ecological priority, cultural heritage protection, overall coordination and individuality are considered, and specific elements are selected.

The humanistic environment is the 'gene' of small towns. It has unique characteristics, that is, people have no self, and people have self-excellent characteristics. It is the inherent wealth of small towns that can be acquired, like a brand, which has been since the day the small town was formed, along with its growth and enrichment. The excavation of the humanistic environment is an important way to shape the characteristic spiritual places of small towns, reflect value, show historical connotation and enhance competitiveness.

The natural environment is the 'substrate' of small cities and towns. It is the regional and main feature of the natural background and landscape of small cities and towns. The rational use of natural landscape elements has a positive effect on the formation of a good small town landscape. Grasping the natural environment of small towns and integrating nature with small towns is an important part of shaping the style of small towns.

The artificial environment is the 'foundation' of small towns, which is integral and vivid. It is an important part of small towns and reflects the overall subjective and visual impressions of the physical space carrier of small towns. The excavation of the artificial environment reflects the characteristics of the folk customs and the characteristics of the times in small towns. It is closely related to the daily life of residents and is the carrier of cultural connotation.

3 Principles of planning and designing small towns

The description and improvement of the style of small towns is a process of conceiving from virtual to real. It has clear visualisation of image and logical thinking. When the designer participates in the style design activities under the comprehensive environmental improvement, the material form of the small town can be taken into account. The separation, integration, optimisation and reconstruction of the visual form of construction and the expression of visual symbols, and its creative principle are the concentrated expression of the designer's will, with aesthetic appraisal, creative ability, logical relationship and artistic beautification response [5]. Its form is combined with conceptual expression, making it brand new through practical operations.

In the process of environmental improvement tasks in small towns, the design of the style must be combined with science and aesthetics, construction and design, and the style of the small town must be built into a suitable space form that is respectable, liveable, enjoyable and accessible. The below are principles in design that are followed:

1. The principle of overall optimisation: The visual structure and function should be considered in a unified manner, and optimisation and coordination should be made through practical factors in several aspects between the building interface, street scale, public space, municipal facilities and supporting facilities.
2. Functional and practical principles: Adhere to the green and sustainable concept, combine function and aesthetics, and achieve the unity of space, aesthetics and function.
3. System integration principle: The style is the comprehensive carrier of the material form of small towns, involving the coordination of natural, space and social styles. On the basis of emphasising the overall optimisation of style and appearance, the comprehensive principle of each component must be considered.
4. The principle of cultural protection: Ensure the transmission and continuity of regional culture such as historical buildings, historical figures, historical events, historical cultural relics, etc.

4 The expression method of small town style elements

4.1 System integration and reconstruction of style elements

The element system of small town style is composed of natural, artificial and humanistic environmental elements. Among them, the artificial environment is the material carrier of the humane environment and the humane environment is the spiritual direction of the artificial environment, and both exist in the background natural environment. Therefore, the protection and reproduction of style elements is not only aimed at a single physical space, a certain culture or the natural environment of a certain area, but emphasises the connection and symbiosis of these three and finally forms a natural-humanistic-artificial network. In the state of association, the three elements achieve communion through mutual restriction and interaction, and they ultimately determine the image of the small town. In physics, the synergistic effect means that two or more components are added together to achieve an effect greater than the sum of the effects when each component is applied separately. The same is true for the elements of the style of small towns. The main point of coordination is to obtain the optimal effect by identifying the characteristics of each element and the synergy between them [6].

4.2 Refinement and continuation of humanistic environmental elements

To inherit regional history and culture, show local folk customs and create new organic connections, it is necessary to conduct an in-depth analysis on the extraction and continuation of the historical and cultural elements contained in it in the early stage of construction and to explore the relatively isolated traditional culture of the small town. At the same time, in the process of small town construction, the traditional cultural atmosphere is implanted in a specific space, which not only strengthens the cultural connotation but also increases the sense of history of the small town and improves the quality of life in the small town [7]. The texture of small towns is a spatial pattern gradually formed by its precipitation and accumulation in the process of historical development, and it is a spatial reflection of the evolutionary process of social structure [8]. This requires that in the construction of small towns, the overall style, spatial pattern, cultural customs and traditions of the small towns should maintain a good stability and avoid disconnection of the cultural texture.

4.3 Protection and utilisation of natural environment elements

The natural environment has an important influence on the formation of the initial spatial pattern of small towns. The two have a clear relationship between the map and the bottom. They not only provide a long-term ecological environment for small towns but also retain the traces of residents' activities for each development period of small towns [9]. Many existing small towns with distinctive features are located in geographical areas with good natural conditions. The site selection is based on natural elements such as mountains and rivers. During the construction of small towns, the principles of ecology and nature should be followed, and they should be skilfully used in the large natural resources, inherit the characteristics of the natural environment. The core of the reshaping of mountain landscape in small towns lies in the construction of a continuous ecological network, which connects the originally freely dispersed and spatially divided mountains through artificial means to produce the effect of 'showing mountains, entering mountains, and stringing mountains'. Reasonable protection and utilisation of water elements will help improve and enhance the environmental quality of small towns [10]. Based on the role of water body elements and the needs of residents, the methods of ecological treatment of water resources are divided into two points: building waterfront ecological revetments and increasing the diversity of waterfront space. In addition to mountains and rivers, vegetation landscape is another important part of natural environment elements, which is conducive to dressing up small towns and beautifying the landscape of small towns, and has plasticity, reflecting the location and climatic conditions of small towns to a certain extent. Different geographical environments create unique local characteristics of vegetation and enhance the recognisability of small town landscapes.

Fig. 2 Network model of small towns in ecological series.

4.4 Hierarchical representation of artificial environment elements

In the spatial structure of the style system of small towns, the artificial environment is the dominant element. The protection and reproduction practice of the style elements of small towns focuses on the excavation of the material style features of the small towns, and the material style features are not just the elements of the style and features. Simple addition, but in a specific natural environment and humanistic environment, the small town pattern, landscape sequence, green space system, skyline outline and buildings are organised through the methods of ‘yingcheng’, ‘lohas’ and ‘plastic scenery’ hierarchical protection and reproduction of artificial environmental elements such as environmental furniture.

The natural landscape of small towns, spatial and geographic relationships, regional relations for social and economic development and related planning are all key factors in establishing the pattern of small towns. The natural environment that small towns depend on is unique, with exclusive landscape pattern, topography and vegetation. From the basis of the composition of the small town space, the regional relationship of social and economic development determines the development direction and basic morphological characteristics of the small town space, and the relevant planning determines the spatial relationship between the new and old urban areas of the small town. Therefore, the overall pattern of small towns should be integrated with ecological concepts, forming a network model of ecological series (see Figure 2).

The landscape sequence organisation of small towns directly reflects the overall style and image of small towns, expressing the sense of sequence, rhythm and continuity of small town spaces. From the point-line-plane sequence structure, it mainly includes three parts: landscape node, characteristic path and landscape interface. The use of dotted lines, lines to promote surface and point-surface combination can enhance the recognition of landscape sequence, which is conducive to the formation of a complete and rhythmic image of landscape organisation. Therefore, the characteristic organisation of the landscape path first sorts out the relationship between the path and the node, and it uses good natural factors to grasp the overall structure and forms a characteristic organisation in an orderly manner. The changing and interesting space is conducive to the perception of abundant landscape resources (Figure 3).

The important goal of the style planning of small towns is to achieve the harmony and unity of the natural

Fig. 3 Schematic diagram of the organisation of the landscape sequence.

Fig. 4 Schematic diagram of system construction of green space pattern.

spatial structure of small towns, using the ‘patches-corridor-substrate’ model in the theory of landscape ecology to establish a good ecological network system. First, the integrity of the background ecological environment, the matrix, should be protected, and ecological corridors connecting small towns and the surrounding natural environment should be built, connecting the complete or scattered green patches in small towns, so that they can establish an echo with the natural landscape surrounding small towns relationship, so as to better create a good natural style of small towns. The systematic construction of the green space pattern refers to the improvement of the ‘green nervous system’ of small towns and the shaping of the green space pattern of small towns. It can be divided into four processes: ‘separation’, ‘corridor’, ‘exhibition network’ and ‘embellishment’ (Figure 4).

Skyline contours can be divided into natural and artificial skylines. The two echo each other in space. According to the spatial position relationship of the two skylines, they are divided into four forms of expression, ‘disconnected’, ‘occluded’, ‘relative’ and ‘similar’ (Figure 5). The first two ignore the interrelationship between the building and the mountain, and the resulting landscape shape lacks aesthetics, whereas the latter two coordinate the spatial correspondence relationship well, and the architecture and the mountain are better carried out from the pros and cons. The reshaping of the contour is more ornamental [11]. The control of the skyline should start with the natural geographical environment characteristics of the area, combined with the general rules and control regulations of small towns to control the height of the regional buildings, and show that the building groups are in the background of distant mountains, rivers and lakes. As a close-up composition, it forms a harmonious and graceful curve.

5 Multi-level small town style planning control system

Based on the hierarchical and complex nature of the system theory, it can be seen that for the construction of small towns, different spatial scales, control objects, depths and requirements need to be controlled, and the construction method is analysed through problem-oriented, holistic concept, zoning control and sub-element-guided construction methods. Establish a multi-level small town style planning control system, including macro-level structural planning control, meso-level zoning control guidelines and micro-level control element control rules at the level. Using research methods that combine macro-analysis and micro-analysis to strengthen the

Fig. 5 Schematic diagram of the relationship between the building and the mountain profile.

connection and continuity of planning control content between the three levels, it is necessary to focus and distinguish, and to handle the corresponding relationship between the style planning control system and the existing planning system to enhance the unity, integrity and operability of the system.

5.1 Macro-level structural planning control

Macro-level structural planning control can be regarded as strategic planning control. It comprehensively grasps the development positioning and goals of shaping the overall style of small towns at the macro-level and clarifies the style and pattern. The macro-level control content covers the overall shape of small towns. Various important style elements are refined and summarised to establish the structure and zoning of small towns and put forward as control and guidance requirements for important contents that form characteristic styles such as landscape sequence, green space system, skyline and building height.

5.2 Meso-level zone control guidelines

Zoning control at the meso level can be regarded as operational planning control, based on structural control at the macro level, while coordinating the guidance requirements of characteristic elements at the micro level and considering how to implement it in specific operations. The control content is mainly based on the compilation method of the control rules and guidelines.

Combining qualitative and quantitative methods, from the five aspects of style positioning, land construction, landscape system, architectural form and environmental art, the macro-level style control objectives are refined and implemented into each style zone, and the control guidelines are the forms that give clear guidance.

5.3 Micro-level element control rules

Element control at the micro level is to conduct detailed control guidelines on specific elements. The characteristic style control plan of small towns not only is oriented towards the construction of small towns and districts as a whole but also focuses on the recurring style symbols in the style composition of small towns, that is, the iconic elements. The specific control is based on the content and requirements of zoning style control, including architectural style control, colour control, environmental sketch control, sign system control and lighting system control, and it further implements the small town characteristic style control and guidance requirements on a micro scale.

6 Discussion and conclusion

This paper studies the structure of the small town style system based on natural, humanistic and artificial elements, and it derives system integration and reconstruction, the extraction and continuation of human environmental elements, the protection and utilisation of natural environmental elements and the development of artificial environmental elements from the included content. It advises to hierarchically reproduce the four as-

pects of the protection and reproduction methods of style elements, build a multi-level small town characteristic style planning system framework, try to command the overall style structure intention at the small town level and carry out detailed control guidelines for the style division at the district level. At the element level, the iconic elements of style and appearance are shaped and grasped, so as to realise the all-round system control and guidance from the whole to the partition, and then to the elements. This systematic and elemental style control research is an innovation in planning methods, which improves the control, operability and implementability of style planning, to provide useful reference for the style planning and construction of other small towns.

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