

# ***Construction and Implementation of Urban Color Planning System in Economic Development Zones Embodying Regional Characteristics***

—Taking Hong'an as an example

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**Abstract**—Domestic cities focus on economic development in economic development zones, which ignores the regional characteristics of cities while pursuing economic benefits and construction speed. Taking urban color planning of the Yu'er Temple area in Hong'an Economic Development Zone as an example, this paper constructs an urban color system which focuses color combinations effect. The color system, based on the in-depth investigation and analysis of natural color, human color, current architectural color and public color intention of the Xiaer Temple, is divided into five levels for planning control. Corresponding color control requirements are proposed for buildings with different functional requirements.

**keywords**—Economic Development Zone; Color planning; Construction and implementation; Architectural color

## I. INTRODUCTION

The color of city, a unique imprint of a city as well as an important carrier reflecting natural and historical characteristics of the region, represents character of the city and reflects the quality of life and the city's visual environment that urbanites pursue. How to realize harmonious and orderly color of the city and strengthen the regional culture and location of the city under the premise of keeping urban culture diversified and diverse is one of the problems that need to be solved urgently in urban construction. Relevant research on urban color issues have been conducted in some cities. Beijing began to implement the "Regulations on the Maintenance and Maintenance of Building Facades in Beijing", and decided to use the gray, strong, atmospheric, elegant and harmonious urban color tone to make it clear; Harbin determines beige and white as the main color of the city to reflect the charm of "Oriental Moscow"; Chengdu also sets the main color of its city as light gray to reflect the characteristics of the famous city of Bayu.

## II. KEY POINTS AND DIFFICULTIES IN COLOR PLANNING ECONOMIC DEVELOPMENT ZONES

In the process of construction of economic development zones with economic growth as the main appeal, due to the differences in various corporate cultures and industrial types as well as the pursuit of construction speed, the color of the city

often presents a monotony of "one thousand cities" or a disorder of "colorful"[1]. The main difficulties in color planning in economic development zones are mainly reflected in the following aspects. The first is the positioning of urban color. Color has a sense of belonging to culture. It accumulates the content of society in the real environment, showing many specific meanings of regions, ethnic groups and human civilization. It is not just a single visual experience. Secondly, there is a lack of scientific, reasonable and effective planning methods and management standards for urban color. Moreover, the connection between urban color planning and statutory urban planning is insufficient. Although many cities in China are paying growing attention to the construction of urban environment color, there are not many that are implemented.

## III. URBAN ENVIRONMENT COLOR RESEARCH

### A. Natural Environment Color Research

As the background of the city, the physical properties of the sky color are the basic conditions for determining the color of the building. After field investigation and sampling, it was found that the sky color of the Yuer Temple area was cold, the brightness was medium, and the chroma was low. Urban soil, as a raw material for local building materials, has a direct impact on the color of building materials. After field research and sampling, the soil color of the Yuer Temple area is warmer, medium brightness and medium chroma. As the background color of the urban construction and the main landscape elements, the color of the building should be in harmony with the color of the vegetation. After field investigation and sampling, it was concluded that the vegetation color of the Yuer Temple area was warmer, the brightness was higher and the chroma was lower. The color of natural building materials is an important part of determining the color of the city. The stone of the children's temple has a warm color and a cool color. This is a very unique resource. The color of the cool color is high and the chroma is low; the color of the warm color is high and the chroma is medium. "Peacock Green" has become famous in the world, and the color of warm color stone is prominent in the natural background but not abrupt. After a survey of the natural environment color of the Yuer Temple area, it is concluded that the temple is a city in the

shadow (a medium-bright city on a sunny day). The architectural color of the children's temple in the whole should be a unified effect. The dark color of the middle and low brightness should be the disabled color, and the unique color of the soil and stone can be used as the characteristic color.

#### *B. Human Color Research*

In the course of field research, the project team had the privilege of discovering two relatively intact villages. The combination of architectural form and building materials has its own unique flavor, such as the combination of cold and warm colors. Building materials are taken from the local area, such as "peacock green" stone, clay-fired bricks, clay added to glutinous rice, etc., reflecting the aesthetic and cultural atmosphere that has been handed down over the years.

#### *C. Citizen Color Intention Survey*

Through interviews with surrounding residents and understanding of residents' attitudes towards life, they are enthusiastic, straightforward and simple. The architectural colors of the beloved are generous and clear, and the living environment of hope is clean and bright.

#### *D. Current Architectural Color Study*

Color has its own characteristics, and it is also the transmission medium of cultural information, including the connotation attached to it in the process of human city construction[2]. Architectural color occupies a dominant position in the urban landscape series. Architectural color directly affects people's intuitive impression of building elements. Some survey results show that human sensitivity to color is 80%, and sensitivity to form is 20%. Therefore, the architectural color should be the protagonist of urban color, and its proper handling directly affects the urban color. The topography and geomorphology of the Yuer Temple area is patchy and the vegetation is good. However, due to the atmospheric pollution caused by large-scale urban development, the light environment in this area is a city with low illumination. Combined with color theory research and field research, it can be concluded that the architectural color of the city of Yu'er Temple should be unified as a whole, and the unique stone and soil color are characteristic colors.

### IV. URBAN COLOR CONTROL SYSTEM

On the basis of in-depth research and comprehensive analysis, we try new methodology and construct a city color system based on the effect of color combination. That is to say, according to the degree of influence on the urban color image, the five levels of planning objectives, planning principles, banned colors, feature colors, and recommended colors are planned and controlled. In the process of implementing management, the color is quantified by using the "commonly used architectural color 02J503-1" as a tool. According to the actual situation and needs of the Yu'er Temple area, the planning goal of "clean and warm, fresh and deaf children" was put forward.

#### *A. Planning Principles*

1. Incorporate into nature, promote the harmony between the color system of the Yuer Temple area and the sky, mountain and earth; 2. Continue regional architectural culture

and strengthen the use of local building materials; 3. The architectural color should be coordinated with the building function; 4. It is convenient for planning and implementation management. The difficulty of color planning lies in management. The common architectural colors using national standards will unify color management standards.

#### *B. Disable Color*

The principle of banned color scheme in the construction of the Yuer Temple area is that the architectural color and the natural color are harmonious, and the overall effect is unified. The color that cannot form a unified effect in the construction environment of the Yuer Temple area is the prohibited color. In the "Common Architectural Color 02J503-1", dark color with brightness lower than 4.0 and the color with a chroma above 9.2 are applied to the buildings within the entire range of the Yuer Temple area.

#### *C. Planning Feature Color*

The colors that can appear in the natural environment and local dwellings that can carry humanistic features in the specific light environment of the Yu'er Temple area are characteristic colors, which appear in specific positions in specific combinations. This feature color is based on dwelling. When public building uses the characteristic color, the chroma can be adjusted appropriately, but it should still conform to the original plan. Feature color must be applied in the key areas of the main urban area, but the specific location and application area are not specified, and it is recommended in other areas of the main urban area.

#### *D. Planning Recommendation Color*

According to the construction status and development needs of the Yu'er Temple area, this study divides the building types into six categories: residential, commercial, public (except commercial), industrial, warehousing, municipal facilities, etc., and puts control requirements on advertising color. We introduce the color control of residential buildings as an example. Hue range: R, YR, Y, GY, G. Brightness range: 4.5-9, when the application area exceeds 30% of the wall or roof, the brightness should be greater than or equal to 6; when the number of layers is greater than 10 or the volume ratio is greater than 3, the brightness should be greater than or equal to 7. Chroma range: 1.6-9.2, when the application area exceeds 30% of the wall or roof, the chroma is less than 7[3]. Residential buildings with landmarks in the planning area, important residential buildings must use recommended colors, and recommended colors are also recommended in other areas.

### V. IMPLEMENTATION MANAGEMENT

There are three important levels in the planning of our country: the overall level of urban master planning and zoning regulations plan; the meso level of control detailed planning; the micro level of constructive detailed planning[4]. The preparation of color planning should be based on the principle of "macro grasp, mesoscopic control, and micro-guidance", and be incorporated into the statutory planning system to form a layered control system that is closely integrated with management. At the macro level: we should pay attention to the study of key historical factors[5] such as urban historical context and regional characteristics, determine the methods

and methods of urban color work based on the characteristics of the city, and propose the control principles and requirements of the influencing factors. At the micro level: at the design level, strict color requirements are imposed on building entities and public spaces for key sensitive areas; At the management level, the planning management department can refer to the control requirements proposed by the meso level for the development unit, clarify the design conditions of each block, and submit it to the development and construction unit together with the architectural design conditions.

#### VI. CONCLUSION

The construction of urban color planning system should explore the control and guidance methods of urban color from the macro, meso and micro levels on the basis of fully understanding the elements of urban color. Urban color planning at different scales can be based on overall regulation and division. The principle of highlighting the tendency and partially highlighting the characteristics is incorporated into the corresponding statutory planning system. The implementation management of urban color planning is the key to implementing planning. The Planning Management

Department should formulate urban color management regulations to provide a basis for planning implementation management. At the same time, implementation and management is a long-term complementary and perfect process, and corresponding management regulations should be formulated according to the urban needs of different stages.

#### REFERENCES

- [1] Peng Cheng. A preliminary study on the contemporary urban color planning model. Changsha: Central South University, 2001. Lin Liwei, Shen Shan. Progress and Prospects of Urban Planning Evaluation in China[J]. Shanghai Urban Planning, 2009(6): 14-17
- [2] Wu Songtao, Xu Beijing. Research on the Compilation of Color Planning for Urban Construction in China. Proceedings of the Annual Conference of China Urban Planning, 2006.
- [3] Huan Di. Research on color planning of domestic waterfront cities. Tianjin: Tianjin University, 2007.
- [4] Cheng Wei. Preliminary Study on Urban Color Planning Management—Taking Zhuzhou City as an Example. Changsha: Central South University, 2010.
- [5] Wang Jinghong. On the Deep Learning of Color Geography—Light Environment. Architecture and Culture, 2009(8): 56-57.