

Analysis and Research on Color System of Architecture

Bo Liu

Wuchang University of Technology

Corresponding E-mail:164613497@qq.com

Keywords: architecture; color; influence factor; design; systematic analysis

Abstract. Architectural color is an important visual element for people to feel the perception of the urban environment. In this paper, it takes the basic concept and combination of color research as the breakthrough point, with the help of the interpretation of the basic theory of architectural color, on the basis of analyzing the influence factors of the architectural color, so as to have a systematic analysis on the architectural color.

In the process of the rapid development of the urbanization in China, with the emergence of a large number of construction projects, although there are many excellent architectural color designing cases, there still may be existing some bad architectural color designing works due to the following reasons such as : the increase of design, design personnel itself is uneven, especially for the general architecture, some of them were designed by the new designers, therefore, there may be existing bad color designing effect because of lacking experience. At the same time, the architectural design can be acted as a part of the city, the architectural color should reflect the characteristics of the city. The architectural color design itself should cover many subjects, which undoubtedly will increase the difficulty of the architectural color design.

Basic Concept and Combination Requirements of Color Research

Color can not only play the role of decorating environment, but also can convey the information of environment from the physiological level to the psychological level, the formation of the environment can affect the user's comfort and aesthetic degree.[1] The basic characteristics of color has three elements: hue, lightness and chroma, these three aspects are interrelated and coordinated with each other, which can have a sense of beauty and be in line with the needs of environmental color system. Colors in nature can be divided into two categories: namely no color category and color category. No color category refers to black and white, as well as the various shades of gray, while all the other colors belong to color category.

The Basic Theory of Architectural Color

In the practical application of color, the architectural color can occupy a large proportion. Buildings, building environment, and even the whole city can not be separated from the relation with color.[2] The architectural art is a form of art, which is the soul of the form of architecture, but the influencing power of architectural image can not entirely depend on the shape, which should be the unity of the three aspects, namely, shape, color and quality. Architectural color science is the comprehensive application of architectural technology and color aesthetics.[3] "Color impression system" is the standard of the classification of the psychological feeling induced by color. It can take the changes of the cold and warm as the horizontal axis, taking the changes of soft and hard as the vertical axis, so as to set up a coordinate system, which can be shown in Fig. 1.

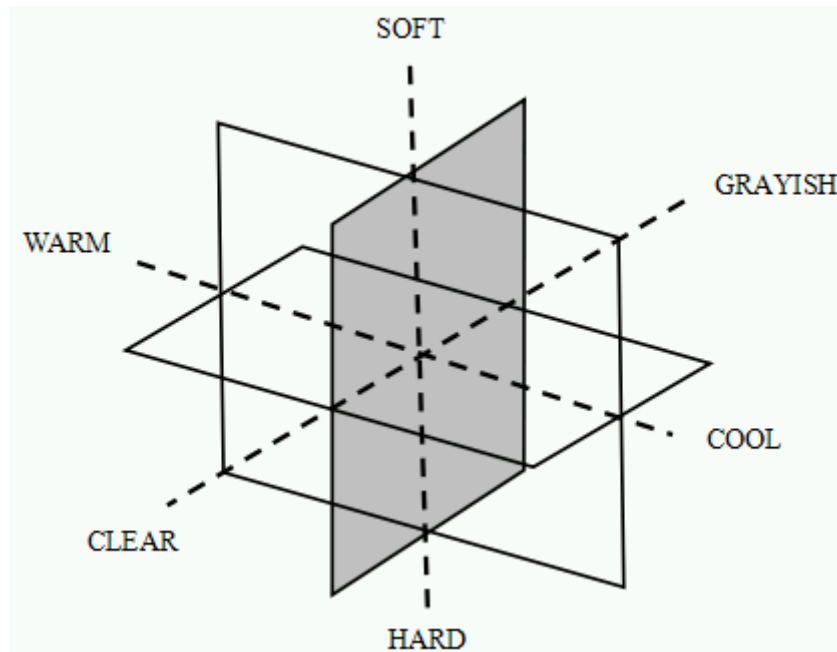


Fig.1. The Basic Frame of Color Impression System

Light and Architectural Color

In architectural design, light is considered as an essential factor to design material, many designers think that designing space is actually designing light. Light has a very strong plasticity, it can enrich the space level, shape the space scale, so as to create the characteristics of space.[4] The color of object is derived from the color of light source, which also depends on the choice of the different nature of the object's absorption and reflection ability. (light source color and color of objects, shown in Fig. 2), since the color of the object is affected by the color of the light source, and the object in the environment can be transmitted or reflected different colors. What we see the architectural color is the concentrated expression of light source color, building solid color and environmental color in the construction.

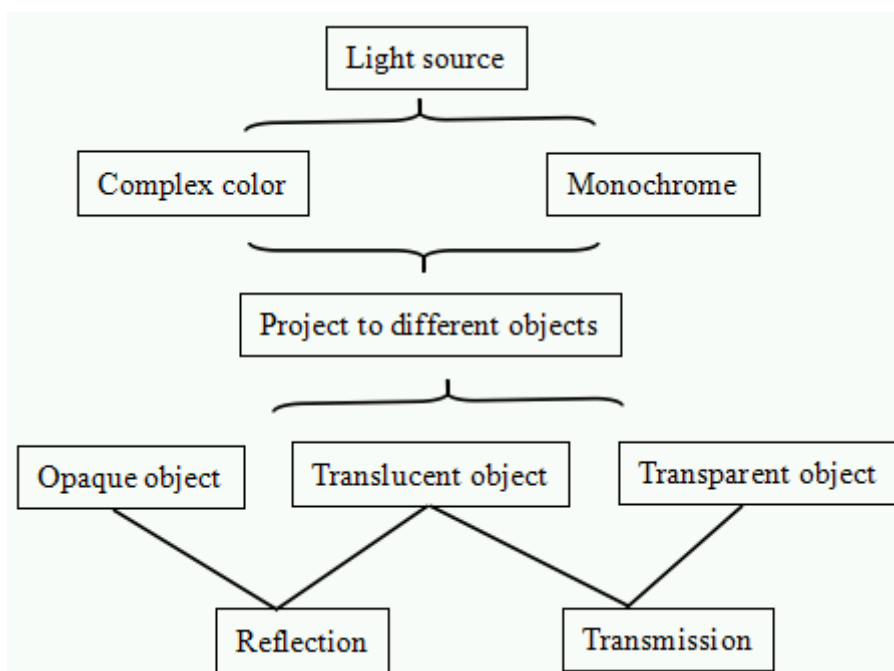


Fig. 2 The Relationship between the Light Source Color and the Object Color

Analysis on the Influencing Factors of Architectural Color

There are many factors that can affect the architectural color, which includes political factor, social factor, cultural factor, geographical and technological factors, and so on. These factors are integrated together that can affect the formation and design of architectural color. Therefore, in the discussion of a specific architectural color, people can explain from many aspects of the usage of color.[5] Among these factors, there are often a number of factors that can act as the main factors, which can play a clear role in the residential architectural, which can be shown in Fig.3.

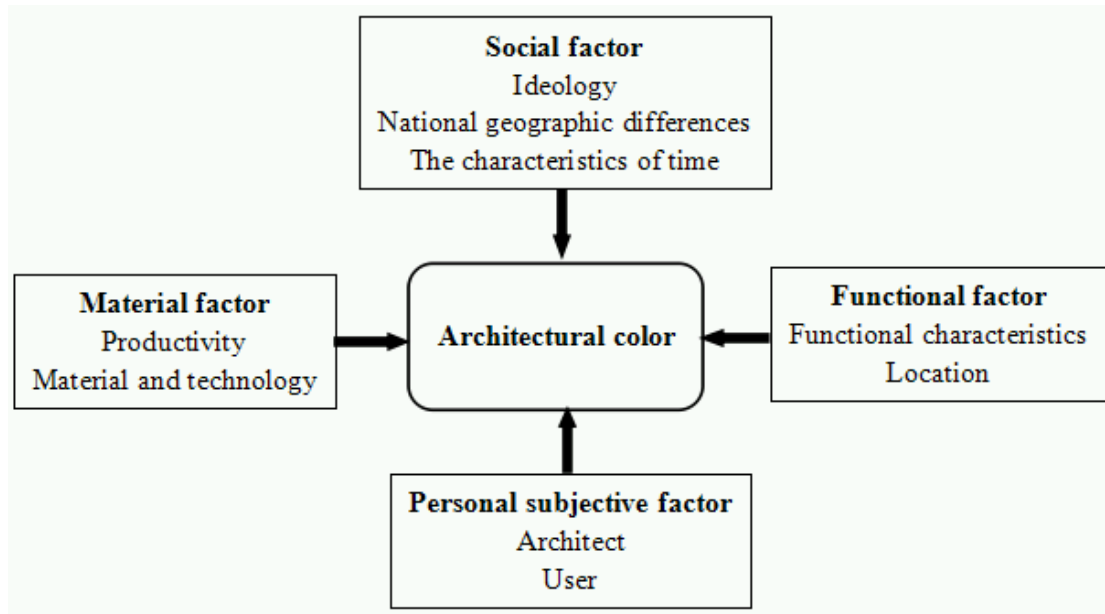


Fig. 3 All Kinds of Factors that Affect the Architectural Color

Function of Modeling

Color is a kind of visual element, one of the most important functions in architecture is in the form of a building. At the same time, color is one of the important methods to form the building. Compared with shape, color can play more expressive role, which can constitute the first impression to the building, giving a direct visual experience for people. In residential buildings, the form of the building often has less changes because of the demands of function, plus the form is very single, at this time, the role of color is particularly prominent. Some characteristics of color, if it can be used properly, it can enrich and perfect the form of the construction, such as the advance and retreat sense of color, sense of expansion and contraction as well as sense of severity and so on. Due to the characteristics of color, color is not rigid or planar in the eyes of the people, instead, it is vivid and solid, which has sense of warmth, weight and so on, so as to make color become the most active, most rich expressive means and factors in art design. Therefore, when color is used in the construction, it should consider not only the characteristics of color but also should consider the own characteristics of construction, which can make the performance of the two aspects achieve mutual promotion and make complement for each other.

Enrich the Spatial Level

When building modeling is restricted by many aspects, such as the restriction of geographical conditions, the influence of building materials and the influence of construction technology. It will bring some difficulties to create the image and space of the buildings. For example, the large area of the real wall can make the construction space appear monotonous, dull, however, the use of color can improve the space ratio, so as to increase the level of space and enrich space, which can make up for the lack of perfect shape and weaknesses. At this time, the changing law of the space perspective changes and sense of color can play the largest role. The changing law of the space

perspective of color can refer to the phenomenon that with the increase of space distance, the color relation have gradually weakened. For example, the near color can feel warm, the far color can feel cold, the near color is bright, while the far color is far color is fuzzy, etc.. Not only the shape can change the perspective phenomenon, but also color itself can have the basic law of spatial perspective phenomenon.

Function of Distinction and Identification

The adjustment of color can not only change people's understanding to architecture and environment but also can change the memory. In modern society, there are full of standard components, standard building materials, and similar high buildings and urban landscapes. And the residential construction are in the same form, the change in architectural form is relatively small. In such an environment, it is difficult to identify buildings from form or shape, while color can become the important approach for cognition and recognition, because the characteristics of rich color and ever-changing color.

Function of Emotion

Under the influence of the psychological attributes of color, the color of residential buildings can have a direct influence on the emotion and psychology of people. For different buildings, people have different psychological needs for the color. The residential buildings designed by smart architect designers will often take the psychological needs of the occupants into consideration, through designing color to create a stable and peaceful, fresh and crisp, or quiet and elegant environment.

Conclusion

Architectural color is an important visual element for people to perceive the urban environment, which is an important part to express the architectural language; among them, the architectural color which is very rich in style and connotation with the concept of historical buildings can affect the city's whole regional culture and historical context. At the same time, it can show the characteristics of the city, which can become the important part of the city, meanwhile, it can become the carrier of people's emotion and memory.

Reference

- [1] Harold Liton. 2003. Color in Architecture. Mc Graw-Hill Professional Publishing. Pp:42-46.
- [2] Osgood, C. E., Suci, G. J., Tannenbaum, P.H. 1957. The measurement of meaning. University of Illinois Press. pp:31-75.
- [3] Spearman, C. 1904. General intelligence: Objectively determined and measured. American Journal of Psychology. vol.15, pp:201-293.
- [4] Ed taverne, 1992. The color of the city, Longman, pp:42.
- [5] Galen Minah. 1996. Reading Form and Space; the Role of Color in the City. Architectural Design. pp:37.