

Shallow Theory of Bridge Aesthetics

Di SHI

Chongqing Jiaotong University, Institute of Civil Engineering and Construction, 400074, CHINA

Abstract: In this paper, the concept of the bridge aesthetics has carried on the simple narrative, emphatically introduces the design principle of the bridge aesthetics, and puts forward some requirements for the development of the bridge aesthetics.

Keywords: Bridge Aesthetics; Design principle; Shallow theory

1. Introduction

As the human society to raise the level of material civilization and spiritual , civilization for the requirement of the bridge is no longer confined to simple cross functional requirement, but the pursuit of a more perfect form of bridge, and make its artistic value, in order to meet the requirements of people mental health. In the process of bridge design, bridge requires not only meet the requirements of various specifications but make it more beautiful line and in harmony with the surrounding environment. It is inevitable to promote function, the combination of technology and art in the design of Bridges. Only in this way ,we can design the bridge with a good visual appreciation value.

For non-professional designers, the judgment of a bridge from people first is whether its modelling is exquisite, and whether the surrounding environment harmonious, secondly to think: we think that the focus of the design personnel structure whether meet the requirements of bearing capacity and meet the requirements of its durability, and so on. A beautiful bridge often is a beautiful scenery in the city, and even become a city landmark. As a bridge designers, therefore, must have certain knowledge of the concept of the bridge aesthetics.

2. Concept

With an integral bridge technology, the bridge aesthetics seek engineering and the unity of spirit, can be summarized as: technical quality is the premise, unified quality for beauty, beauty of subordinate quality. That is to say, bridge design should fully meet the engineering specification, appearance and morphology as far as possible perfect and coordination with the environment. As German railway engineer Lu Ke Wei DE said: "In order to design beautiful bridge ,we must closely combine with the science and art."First is the so-called beauty, technology beauty, is the technology and the unity of beauty, it produces in the process of the bridge design.

Bridge beauty of technology including "form", "function" and "environmental factors coordination beauty" three

elements. These three elements should be equal and unified relationship.

Mr Tang huan cheng repeatedly mentioned in his book the unity of the three is the most important attributes of beauty: the perceptual (feel) and rational unified (consciousness);The unification of the objective and subjective, that is, the human and the nature harmonious and unified, and the unity of form and content or the unification of the shape and function.

3. The Design Principle of the Bridge Aesthetics

3.1. Diversity and Unity

Variety of relative surface is a simple, unified the relative surface is not unified, discrete, chaos, the relative surface is whole and disorderly. The category of Chinese aesthetics theory of diversity and unity "and" relationship."And" is the coordination of diverse things, "with" is only a single unified."And with" argument tells us that a single bad, to diversity. Variety is not desultorily, requirements and unified. Unity is to coordinate harmonious.

"And" and "with" is not relative to surface."And" relative surface is depression, "with" the relative surface is different. With in the same in different, different, difference and can convert each other. Right bridge approach of bridge construction, the lower part of upper structure, beams, columns, piers, and Taiwan, such as rail itself is varied, should be unified to the functional requirements of the overall. It is different in seeking, seeking unity variety. Bridges in many of the same component or a variety of similar Bridges with the novelty and shall be unified in change. So, when the change is given priority to, a law of beauty is the unity of; When the unification is given priority to, the beautiful rule is to make the change.

3.2. Balance and Harmony

Bridge as a stress structure, must satisfy the balance of power. Its shape modelling to obey the law of mechanics, give a person with security and stability. Also, handle the balance between security, function and economic, do

"make, reasonable layout", avoid wasting, and coordinated in the surrounding environment.

3.3. Proportion and Scale

The so-called "proportion" generally includes two aspects: one is bridge construction as a whole or partial itself the size of the relationship between length, width and height, Second, the bridge construction the whole and local or regional and local the size of the relationship between each other. In three-dimensional space is the proportion of harmonious relations, is the indispensable important features of bridge beauty, Plato also said "proportionate form is beautiful". It has stipulation for the formal beauty of bridge construction.

The so-called "scale", is a bridge construction as a whole or partial and the relationship between the people common some architectural details. Scale is closely related to the proportion of the other features. Scale this feature enables the building presents appropriate or expected of a certain size, this is a unique feature.

3.4. Symmetric and Asymmetric

Asymmetrical similarity in line or surface on both sides of the correspondence, is an effective technique for beauty. As the structure of the bridge is commonly used in modelling way, there are many kinds of, its implementation methods such as mirror symmetry, translational symmetry, rotational symmetry, crystal symmetry, body symmetry, completely symmetrical, incomplete symmetry, and some combinations, and so on.

Symmetry is not the only form of beauty, indiscriminate, blind pursuit of symmetry, only deteriorates and inflexible, asymmetric structure sometimes more economic, better integrated into the surrounding environment.

3.5. The Rhythm and Cadence

The rhythm of rhythm is the most simple, rational composition; Rhythm is a rhythmic repetition and change, rich perceptual component, rhythm and tone can cause the resonance of the physical and psychological, resulting in a beauty. Rhythm refers to the architecture of a building shape changes in an organized and regular repeat, change form with repeated rhythmic sense of rhythm.

Conclusion

Bridge aesthetics is a multi-level and multi-angle complex subject, the ultimate goal of its design research is to get the most out of the bridge itself and the surrounding environment and aesthetic effect and function of resources, it is to keep the bridge function mechanism, construction technology and form aesthetics, materials research tradition, but also can reflect The Times and local cultural background, in order to with the time development and human adapted to the higher requirement of the environment quality. For the requirement of increasing the bridge aesthetics, reflects the people in your life to improve after demand for bridge landscape features and aesthetic value. As a bridge engineer, have the responsibility to strengthen in the initial stage of design aesthetic concept, with a beautiful and able to bear or endure look bridge satisfy people desire. Aesthetic consideration should not violate the basic principles of technology security, application and economic; Similarly, in according to the technical and economic standard options should not be a departure from the aesthetic target.

References

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