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Study on the Green Design Strategies of “Neo-Vernacular Architecture”

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Abstract

With the green building research rising in these years, the rational mode of human beings and nature in China traditional architecture, which contains rich experience about ecological design, should be re-examined. The green design strategies of neo-vernacular is also becoming more and more important so we have to pay real attention to. This article demonstrates an integrated ecosystem approach in a design process of a neo-vernacular architecture called Xijie in the hope of providing certain reference and help for similar study.

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1. Introduction

The Chinese vernacular architecture has special research value and practical significance in the fields of architectural aesthetic, geographic, folk-belief, regional culture and so on. At the same time, vernacular architecture gradually formed its own characteristics over its long history which include functions, practical and economical, environment-friendly and so on, and especially low-technology ecological measures and experiences which are worth using for reference and learning. Therefore, in neo-vernacular architecture design, designers should not only give building a form and a meaning of culture, but also use its "low-technology ecological" strategies. In the design process of a bidding project called Xijie in Wuhan International Garden Expo (Fig. 1 to Fig. 4), a series of such green strategies were used. This article tries to analyze and summarize these green strategies in hot summer and cold winter areas, and to provide reference for related studies.

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Fig. 1. Aerial view of Xijie bidding project-1



Fig. 2. Aerial view of Xijie bidding project-2



Fig. 3. Aerial view of Xijie bidding project-3



Fig. 4. Aerial view of Xijie bidding project-4

2. Analysis of Technique

Architectural technology is related to materials and construction. Consequently, more attention should be focused on the question of “where to build and how to build”. Close relationship between architecture and location is obvious, relate not only to local characteristics, but also to the climate adaptation of the building. In the design process of a bidding project called Xijie for the 10th International Garden Expo in Wuhan, we substantially studied the local climatic characteristics, chose suitable strategies, and finally explored an integrated approach in the whole design process (Fig. 5).

2.1. Climatic characteristics in Wuhan

Wuhan is located in hot summer and cold winter zone. Climatic condition is very bad which is different from other regions of the same latitude in world. The main weather feature in Wuhan can be summarized as follows:

2.1.1. Extreme high temperatures in summer

Summer climate can be characterized with extreme high temperature in Wuhan. Due to the low latitude, solar radiation is very strong in the summer. In July, the temperature is usually 2°C higher than other regions with the same latitude, which might be the hottest area besides desert and arid zones in this latitude.

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