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Exploration on the Design of Mobile Ecological Building in the Qinliang Mountain Area

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Abstract This paper explores some strategies and concepts, for the design of mobile ecological buildings in the Qinling mountain area. The special environmental features of the Qinling Mountain area are first introduced, based on which general strategies, which emphasize structural portability and space flexibility, for the design of buildings in such areas are provided; the merits of the selected type of structure as well as the possible operation/function of the external and internal movable walls are then discussed in detail; The direction for further exploration in the relevant area is also recommended.

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First page example

Exploration on the design of mobile ecological building in the Qinliang Mountain area

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Keywords: mobile building, ecological building, design, mountain area

Abstract. This paper explores some strategies and concepts, for the design of mobile ecological buildings in the Qinling mountain area. The special environmental features of the Qinling Mountain area are first introduced, based on which general strategies, which emphasize structural portability and space flexibility, for the design of buildings in such areas are provided; the merits of the selected type of structure as well as the possible operation/function of the external and internal movable walls are then discussed in detail; The direction for further exploration in the relevant area is also recommended.

Introduction

Along with social and economic development, people conduct more and more activities in the mountain areas in recent years, for vacation activities, scientific investigation and natural expedition, etc. Therefore more attentions need to be paid on buildings in such area. This paper explores some strategies and ideas for the design of mobile ecological building in the Qinling Mountain area, the overall concepts and design drawings of which have been awarded the Golden Prize in the 2010 China National University Environmental Protection Technology Creative Design Competition (Fig.1).



Fig.1 perspective view of the design

Environmental analysis

The climate of Qinling Mountain Qinling Mountain, the dividing line of warm semi-humid monsoon climate and north subtropical humid monsoon climate^[1], is located in the south area of Shaanxi province of China, where the landform is extremely complex, and the vertical climate also changes a lot. Annually average temperature in this area ranges from 11 to 15.6 degrees centigrade, annual precipitation ranges from 669 mm to 1274mm, and annual sunshine hours ranges from 1270hs to 2015 hs. The main possible meteorological disasters are mountain torrents and floods caused by rain storm in summer^[2].

The terrain of Qinling Mountain With its crisscrossed valleys, large ranges of areas, luxuriant vegetation, and complex terrain permeating with one another, Qinling Mountain area is seen as a natural laboratory for the research of the origin, development and succession of species in the Eurasia area and for the research of the transitivity and permeability of many ancient animals^[3].

Biological diversity A huge number of creatures have been found living in the Qinling Mountain area, including 722 kinds of vertebrates, 3436 kinds of spermatophyte, 3358kinds of

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