

Climate Responsive Design in Near East and Central Asian Traditional Architecture



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ABSTRACT

Climate responsive design are widely evident in traditional architecture of the Near East and Central Asian countries. Climate responsive design has developed in accordance with a sensitivity to regional contexts and the need of users to conserve natural resources. This kind of approach to design shows a rational way for sustainable use of local construction materials and structures in traditional architecture. Sustainable use of material resources and environmental factors encourage designers and builders to link climate responsive buildings to the needs of users for healthy and comfort conditions. Climate responsive design creates healthy and comfort conditions in buildings by understanding the microclimate and using design strategies and techniques, which is based on natural materials and natural resources. Such traditional design techniques as earth sheltering and using of mud brick structures can reduce heating loads of buildings in winter, as well cooling loads of buildings in summer. This design techniques are effective throughout the year, when some other techniques can be usefull only part of the year.

Earth sheltering and use of mud brick structures are usefull for buildings in which intrnal loads are dominating. In this kind of buildings climate responsive techniques can provide a large portion of the energy required to maintain comfort and health conditions throughout the year. Earth sheltering techniques are usefull for earth covering of the walls in the building and on the roof of the building. The main benefits of earth sheltering include the provision of thermal mass in enveleped structures. Thermal mass is storing heat in the winter and cool in summer time. Earth sheltered thermal mass advantages include dayli and seasonally thermal storage and dampering of temperature fluctuations. The effectiveness of earth sheltering connected with high capacitance of earth to damp heat flow through building envelope. Eart sheltering is also providing wind protection and reducing envelope heat lose.

KEY WORDS :

Earth sheltering, Mud brick, Thermal Mass, Regional Context.