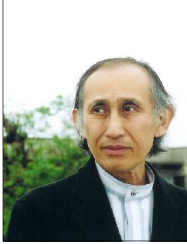


A Study on the Design Flexibility of Yao Dong Underground Dwellings in China



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ABSTRACT

The Chinese Yao Dong underground dwellings in loess land are categorized into the pit and hillside types. In the current study, thirteen Yao Dong villages have been selected and analyzed in terms of plans and forms. The former is constructed by excavating a pit approximately 10-m-square and 6m deep pit in loess and making caves on the four sides of the pit to form a dwelling space. The latter makes use of mountain slopes to carve out caves, usually characterized by a series of caves in a line. While the existence of locational variations in loess properties imposes structural constraints on such factors as pit depth and cave dimensions and clearances, the dwellings show surprisingly little formal variations even where freedom of design is allowed. Examination of survey results revealed that the division of occupational functions and the level of financial capability had considerable impacts in this regard.

The Yao Dong design rarely goes beyond unified patterns despite the freedom allowed. Still, there seems too little design variation, considering the fact that the villages are scattered over a more extensive area than others. Besides internal and customary factors that play major roles, the properties of the loess soil, which serves as the main construction material, seem to be imposing design constraints here.

KEY WORDS :

Yao Dong, loess land, Underground dwellings, Design Flexibility