

Assessing Suitability of Earthbag Technology for Temporary Housing: Sustainability Challenge

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Abstract : In emergency situations, it is fundamental to provide with a safe shelter to the population affected. However, the lack of resources and short time often represent a barrier difficult to overcome. A sustainable, rapid and low-cost construction technique is earthbag construction. This technique has spread as an alternative to the construction of emergency shelter, social housing, and even ecovillages. The earthbag construction consists of introducing soil in degradable bags that are stacked to form adobe structures. The present study aims to assess characteristics of the earthbag construction technique based on sustainability requirements and features of other methods used for temporary housing. In this case, after defining the sustainability criteria and emergency situation necessities, this study compares earthbag construction with other types of prefabricated temporary housing. Finally, the most suitable conditions for applying this technique based on the particular local properties and second life scenarios of superadobe temporary housing. The results of the study contribute to promote the earthbag and superadobe techniques as sustainable alternatives for temporary housing. However, the sustainability index of this technology highly depends on affected local conditions and characteristics. Consequently, in order to achieve a high sustainability index, emergency managers need to decide about this technology based on the highlighted results of this study, attention to the importance of specific local conditions and next functions of temporary housing.

Keywords : temporary housing, temporary shelter, earthbag, superadobe, sustainability, emergency

Conference Title : ICNHD 2018 : International Conference on Natural Hazards and Disasters

Conference Location : Amsterdam, Netherlands

Conference Dates : November 05-06, 2018