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HBRC Journal

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FULL LENGTH ARTICLE

The post-disaster temporary dwelling: Fundamentals of provision, design and construction



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Received 22 February 2013; revised 3 May 2013; accepted 4 June 2013

KEYWORDS

Temporary dwellings;
Quality;
Management;
Contextualization

Abstract Temporary dwellings constitute a crucial step of recovery and reconstruction in the post-disaster aftermath. The importance of temporary dwellings stems from the role they play in incubating people and providing a habitable environment while the outcomes of a disaster are being assessed and then rectified. The main aim of this paper is to set a series of guideline recommendations which can lead the process of successfully providing, designing and constructing temporary dwellings of quality while being sensitive to contextual issues and while aiming for significant cost, efforts and time savings.

Methodology and paper structure: The methodology adopted by this paper is based on the multidisciplinary investigation of the subjects discussed. The paper takes into consideration that the issues under examination are multifaceted while being associated with certain needs and having their own implications and criteria to be successfully achieved. To this end, the paper's methodology elaborates on the discussions made in terms of economic, socio-cultural, ecologic, temporal and technical considerations and circumstances. The research methodology employed in this paper also strives to be comprehensive in the sense of covering a wide range of topics on the qualitative, managerial, contextual and best practices' fronts. The scope of discussions widens up to include basics and general concepts and then narrows down to focus in depth on the investigated subjects.

In employing the adopted methodology of research, the paper commences by a literature review which aims to set the basic terms and concepts. Consecutively, the paper sets the basic foundations to the provision, design and construction of temporary dwellings. The discussion widens in scope to analyze the qualitative aspects related to the management of temporary dwellings. This part constitutes the basic guidelines which support the following discussions made in the paper. As the subjects keep on unfolding, the concept of contextualization is elaborated with the issue of 'sensitivity' to local conditions and circumstances as a prime focus. The paper finally proceeds to analyzing a

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Peer review under responsibility of Housing and Building National Research Center.



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number of important qualitative aspects related to the design and construction of temporary dwellings with a special focus on temporary houses. The discussion is emphasized through examining several examples to clarify the various needs and implications of the qualitative aspects under investigation. The overall research outcome of the paper is expressed in a number of findings and recommendations in correspondence to the paper structure.

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Introduction

Temporary dwellings are a common key player in disaster scenarios. The provision and deployment of temporary dwellings in sites are executed after the strike of a disaster during the emergency, reconstruction and rehabilitation phases to incubate the affected people from the onset of a disaster until permanent housing solutions are available. Earlier to this, preparing for the provision and construction of temporary dwellings in similarity to their design process optimally takes place in pre-disaster (pre-event) phases when resources and efforts are allocated in preparation for the outcomes of future disaster events. The main considerations related to these processes are strongly argued to be quality oriented and include for instance materializing the users' requirements into a solid coherent solutions of quality as well as achieving minimum negative environmental impact in all stages. The provision of temporary dwellings is about the prompt readiness and availability of the dwellings to affected people as well as the absence of conflict between the different parties providing the dwellings (represented in the easy distribution of units of similar or at least close standards). On a similar note, the main considerations of the construction process of temporary dwellings include ease of assembly/deployment in sites, affordability and targeting communal participation in the construction process.

All of these considerations relate directly to the overall quality of temporary dwellings. For example, communal participation helps establish a strong identity relationship between the occupants and their new dwellings. Similarly, affordability of the dwellings is a main issue that has to be addressed especially in economically vulnerable disaster communities. To investigate the relationship between the notion of quality

and the concept of post-disaster temporary dwellings; the later are first defined and categorized in order to be examined in terms of the qualitative consideration of their provision, design and construction.

Definitions and categorization of temporary dwellings

Temporary dwellings can be defined as structures to incubate people living in communities which have been affected by a disaster (commonly referred to as disaster survivors). A temporary dwelling's settlement is the urban complex resulting from erecting temporary dwellings along with other services (educational, health, etc.) to serve the disaster affected community [1]. The need for temporary dwellings is urgent when disaster survivors cannot live in their previous residences and while the acquisition of new permanent houses is not yet achieved. In a disaster management scheme (typically planned, designed and planned by governments in preparation for a disaster event and its outcomes), the application of temporary dwellings comes in the post-disaster phase simultaneously while the recovery and reconstruction strategies are being implemented to overcome the losses induced by a disaster. Nevertheless, planning for the provision, design and construction of temporary dwellings is ideally executed in the pre-event 'preparedness' phase of efficient disaster management when various resources are being allocated and plans are being prepared to deal with the disaster aftermath. There are two distinct categories of temporary dwellings used after disasters:

- (1) Temporary shelter (Fig. 1): This may be a public shelter, refuge at friend's house, a shelter under a plastic tent or any other prefabricated enclosure. Temporary shelters



Fig. 1 (Left) Temporary shelters on their way to Louisiana, USA to house families made homeless by hurricane Katrina (Right) Polyurethane igloos used as temporary shelters in Nicaragua in 1976 [4].

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