

Many disasters, both nature and man-made, render countless people homeless without any medical care, sufficient and clean water, food, decent sanitation or energy supply. Different humanitarian organisations (NGO's) work around the clock to help and rebuild these affected sites. The different NGO's worldwide send different emergency response units, with each their field of expertise, to the affected site. Along these units different relief kits will be distributed to the refugees. Such a kit usually consists of: food/water, cooking tools, medical care and shelters. The emphasis of this research lies on this last topic: Disaster relief shelters.

Sheltering

A decent habitable shelter is a must on every disaster affected site. In such a way that it protects its inhabitants from the harsh external weather conditions, creates a safe environment and restores the dignity of the affected people (FIG 1). It is not just an item that is sent and distributed on site, but it is a well maintained process of rebuilding people's homes from the first stage of temporary shelters until the more permanent houses (FIG 2).

Rebuilding an affected site

In the process of rebuilding an affected site, three different periods can be distinguished: 'temporary', 'transitional' and 'permanent'. The temporary period begins at the moment that the disaster strikes. Quick and performing shelter solutions are needed on site in the first 24 hours to cover the basic needs for the affected people. These shelters need to be as light as possible, must have a straightforward set-up and must be transportable.

The transitional period starts a few weeks after the disaster. The main goal of this period is to provide more robust shelter units which can be adapted to more permanent solutions later on.

The permanent period is the conclusion of the whole sheltering process. The transitional shelters will be converted to permanent houses, suited for each families' needs. It is also at the end of this period that the humanitarian organisations stop their disaster relief and switch over, if it is necessary, to more development aid (FIG 3).

The project S(P)EEDKITS

The main goal of this research is to develop rapid deployable kits as seeds for self-recovery in disaster affected sites. The VUB alongside different organizations throughout Europe will develop a new emergency system of modular rapid deployable shelters, facilities and medical care. The emphasis of this project lies on the mediate relief of the affected people, thus in the temporary period. The newly developed kits must be transportable, modular and adaptable, must have a low cost and must be high-tech in their conception but low-tech in use (FIG 4). Current shelter solutions will be scanned with regard to large transportation volumes and/or heavy weight. Based on this knowledge, new concepts will be developed to drastically reduce the transportation volume and weight. The goal of these kits will be to provide temporary infrastructure, to establish the necessary temporary services and to limit the damage to economic and social fabrics.

The developed kits should provide infrastructure for different purposes, e.g. a hospital, a communication centre, water facilities or sanitation units. In this project, four different basic shelter kits will be designed and analyzed:

- A lightweight safe house unit: this shelter gives coverage for the very first hours and need to be deployed by the communities
- A collective unit: a shelter which can be used for diverse purposes
- A family house unit: this shelter will be used in the transitional period and later, it can be referred to as the first version of a real house
- A robust warehouse unit: a somewhat larger shelter for the humanitarian organizations, it can be used for storage, offices, medical centers, etc.

The project started March 1st 2012 and will end on February 28, 2016.

This project is a collaboration between : Centexbel (BE), Shelter Research Unit (LU), Netherlands Red Cross (NL), Sioen Industries (BE), Vrije Universiteit Brussel (BE), Technische Universiteit Eindhoven (NL), Politecnico di Milano(IT), De Mobiele Fabriek (NL), Waste (NL), Practica (NL), D'Appolonia (IT), Internationales Biogas und Bioenergie Kompetenzzentrum (DE), Milson BV (NL), MSF Nederland (NL) and Norwegian Refugee Council (NO).

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FIG 1: The basic needs of a shelter.

Ref: J.Ashmore, Tents: a guide to the use and logistics of family tents in humanitarian relief, United Nations Publication, OCHA ref nr. OCHA/ESB/2004/19

FIG 2: Rebuilding an affected site after a disaster strikes.

Ref: J., Ashmore, D., Aubrey, T., Corsellis, H., Gloor, P., Manfield, Transitional shelter guidelines, Shelter Centre, <http://sheltercentre.org>

FIG 3: The transitional approach in sheltering.

Ref: J., Ashmore, D., Aubrey, T., Corsellis, H., Gloor, P., Manfield, Transitional shelter guidelines, Shelter Centre, <http://sheltercentre.org>

FIG 4: A possible shelter kit solution based on the research done by Ir. Arch. Jan Roekens

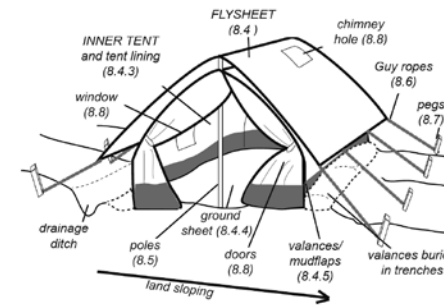


FIG 1



FIG 2

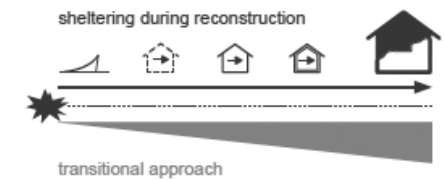


FIG 3

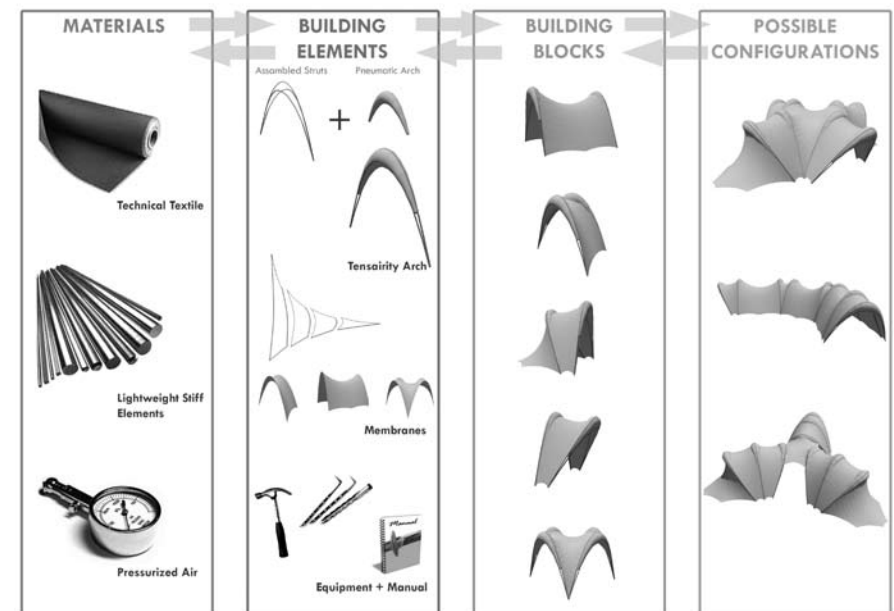


FIG 4