grace under pressure

investigating a design response in event of disaster

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Study Leader: Nico Botes

Studio Master: Jacques Laubscher
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: Nico for your passion and enthusiasm encouraging me to dream every step of the way.
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Architecture for Humanity believes that "...where resources and expertise are scarce, innovative, sustainable and collaborative design can make a difference."

A study of local context has revealed that universal relief strategies are failing to meet the needs of those who have just lived through the traumatic experience of losing their primary dwelling.

Whereas conventional ‘donor’ structures may economically shelter the body, they neglect to address issues of home and belonging.

The hypothesis argues that shelter after disaster is not just a temporary solution but rather a ‘starter kit’ with the potential of becoming a home.

Hence shelter is the beginning of a process, that involves first a sign of the event of dwelling before it can host a more complex scope of concerns.

While acknowledging that the design cannot be site specific, the proposal responds to regional disasters within greater Tshwane region, through a comprehensive investigation of context, climate and selected case studies.

Set within the reality of monotonous modular design the project seeks to provide a flexible and innovative shelter typology that can remain on site, providing a period of grace. Thus enabling the displaced to focus on rebuilding their homes without living with the fear of their tent being reclaimed.

The project conducts a critical investigation into rapidly deployable structure. The object of the study is to highlight the potential of cardboard as an alternative building material.
The phrase ‘grace under pressure’ was first made famous by Ernest Hemingway, when asked in an interview to clarify what he meant by ‘guts’ [courage]. It was recently reinterpreted by Paola Antonelli in the title of her catalogue essay for the SAFE: Design Takes on Risk exhibition held by the Museum of Modern Art [MoMA]. She explains ‘grace’ as elegance and questions the role of aesthetics in the design of emergency solutions.

This thesis pursues ‘grace under pressure’ in a quest to elucidate why so many goodwill projects in aid of disaster relief have not met the ideals they set out to achieve.

Figure 01 illustrates that often, despite the best of intentions, the grace provided today becomes the obstacle of tomorrow, whether it be through inadvertently creating dependency relationships, or through imposing universal solutions that cannot relate to local needs. It is clear that a comprehensive understanding of situation and context is required for an appropriate sheltering response to develop.

Many of us can identify with the experience and shortcomings of, for example, finding a book when designing a library, or walking through a city when designing a master plan. The author cannot claim to understand the experience of surviving a disaster and in that sense can not identify with being a victim of such circumstances. But most can identify with the deep desire to help but being unable to do so when confronted with someone in need. This serves as the motivation for the research topic.

During the winter recess the author had the opportunity to take part in Global Studio 2008. This international collaborative provided a platform for first hand experience in working with communities in Diepsloot, Gauteng. During that time initiatives where undertaken to improve living conditions in the informal part of Diepsloot. Because of severe overcrowding the area is especially vulnerable to informal settlement fires, as well as flash floods and water-borne diseases carried by the Jukskei River.

The participation provided valuable insight into the local context and building practices that often aggravate the hazardous conditions in places where disasters most often strike.

1. The first published use of the phrase was in a letter dated April 20, 1926 which Hemingway wrote to F. Scott Fitzgerald. However, the phrase became famous after it was used in a profile piece written by Dorothy Parker for the New Yorker, 30 November (1929:28-31).

2. Wosk (2007:93)

3. Image description by Aaron Goh for the 2007 ShelterMe competition: Goh (2007:1of 5) [redrawn by author]
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The activity of design is not limited to architecture alone. It is the one act that all creative professions have in common. Yet every profession aligns the activity of design with the objectives inherent in the discipline. It is therefore necessary to clarify both the meaning of design and how it relates to Interior Architecture.

In his book, The Synthesis of Form, Christopher Alexander quotes D’Arcy Thompson as a foundation for his discussion of form. He states that ‘to design is to give form’ and goes on to define form as “an abstract diagram of forces” [context].

This is in essence what makes the activity of design so complicated as it hinges on the ability to identify and interpret context.

Design can be defined as the act of giving form; the purpose of design is to add value depending on the objectives set out by the discipline concerned. Interior Architecture is a fairly young discipline in the profession of Architecture, but it is gaining ground and is in the process of finding its own identity. It was thought appropriate to issue Interior Architecture with its own document of identity to provide the user with the established principles posited by this particular profession as taught by the University of Pretoria.

The topic of emergency shelter has long been discussed by architects and industrial designers, but not often developed with an interior architectural approach. Designing for disaster is similar to that of designing for an event; only this event is an unfortunate one.

This thesis builds on the premise that interior space is not an optional addition to, but rather the critical completion of architecture.

When space is quantitatively assigned as 3.5sqm per person, without considering the potential of the interior volume, the premise of efficiency is contradicted. It can be argued that the necessary extension into interior space could aid in mitigating both the physical and psychological losses that follows a disaster.

Shelter can be so much more than bare enclosure. Even with a limited budget the design of the interior space has infinite potential.

The temporal and micro scale of interior architecture has the benefit of experimentation and of testing the often conservative practices of architecture. This in turn affords the thesis opportunities to develop an alternative approach to meet the quantitative and qualitative needs pertaining disaster relief operations.

1 Alexander (1964:15)
2 vide (3.4:11)
The thesis forms a bridge between two official research fields of the Department of Architecture at the University of Pretoria: Applied Technology and Product Design, and Housing and Urban Environments.

HOUSING AND URBAN ENVIRONMENTS

The unpredictable and undeterminable nature of disasters necessitates a different response than that of design in the built environment. It moves into the realm of portable architecture that, despite not being bound to place, can still convey meaning and be contextually relevant. Any temporary solution essentially becomes the precursor to the transitional and permanent settlement of the individual/community in need.

In the aftermath of a disaster space is a valuable resource. The project investigates methods of enabling efficient yet adaptable enclosure that takes into account realities such as phasing, privacy, variety and integration.

Likewise, the design of the interior should address issues such as economy, accessibility, ergonomics and flexibility. The perception that limited funds means poor quality should be challenged and content should be created that caters for the needs of all the sectors of the target population.

Such a response requires the introduction of an industrial design process to architecture.

APPLIED TECHNOLOGY AND PRODUCT DESIGN

Architectural product design is arguably more comfortable with exploring new or alternative technologies that offer innovative applications when applied across disciplines.

Shelter can be seen as architecture in the form of a product. The proposed solution would benefit greatly from employing key elements of the product design process such as: material exploration, manufacturing, economy, packaging, logistics, storage and assembly.

There are several recurring themes in Designed objects of the 21st century driving the design of future objects, they are: ‘the potential of new materials; the effects of new technologies, the need for simplification, emotionalism (the psychological aspects of design); and the tendency towards either individualistic or universal solutions.’

The thesis aims to apply research on product design and alternative materials to the requirements of a temporary housing typology.

It is by focusing on the similarities that the separate discourses evoke that analogies may emerge to inform and strengthen possible solutions.
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