Architecture for Humanity: Shipping Containers as Swiss Army Knife

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Abstract

Surplus commercial shipping containers have re-gained popularity among developed countries recently and are often associated with fashionable, prefabricated second-homes, hotels, and even cities. However, when applied in the context of post-disaster reconstruction, it takes on a new identity as a heroic, “Swiss Army Knife” equivalent of emergency shelter that offers a potential solution to transitional and permanent housing issues in post-disaster reconstruction.

In 2009, the University of Auckland in collaboration with Architecture for Humanity (AfH) offered a design studio project to develop shipping containers as prefabricated cores that boil down the vital services for shelter and basic off-grid utilities into as small a package as possible. Twelve post-graduate students from the School of Architecture developed a range of ambitious prefabricated core approaches and variations for recent disasters in twelve different locations covering and in as many climates, cultures and materials.

The students faced challenges unique to each situation. Shipping containers were carefully modified for deployment at emergency stage of disaster as a self-sufficient shelter, which was also made adaptable by locals to enable full integration into the urban fabric of their city over time. Local materials and labour may be used to construct structural enclosures and building envelopes, but systems for water, waste, power and ventilation require specialist expertise and non-local components. Prefabricated cores enable such technical systems to be integrated and fabricated off-site and shipped to sites where they can be plugged on-site into a larger building project.

Despite the homogenous beginning of a shipping container (the “one size fits all” approach), the potential to package it with useful components make their deployment in disasters an efficient strategy for humanitarian relief work. Enabling self-sufficiency for disaster survivors from early stages of disaster expedites recovery through empowerment and stability.

Keywords: Shipping containers, prefabricated cores, adaptable design, off-grid systems
Introduction

In the first semester of 2009, a parallel design research studio called the Container Studio was run between the University of Auckland's School of Architecture and Planning, and the University of Southern California (USC), under the guidance of educational outreach staff at AfH headquarters in San Francisco. At the University of Auckland, the research studio dealt with shipping containers as a prefabricated core to be used as a vehicle for humanitarian relief. The concept of a “core” is to provide only the essential but in such a way that other components can be later added to suit the demographics and finances of those receiving assistance.

Twelve fourth year architecture students were asked to address needs identified by AfH with respect to developing standard ISO\(^1\) shipping containers as an approach to humanitarian shelter issues. The research studio served to complement the works of students from USC who were at the time on track to design/build a module for deployment in Haiti, as well as to enrich the database of design solutions to be shared on the AfH's open source design network called Open Architecture Network. While the primary topic of the studio was disaster response, the students were asked to look beyond the initial relief action, directly addressing the question, “what happens after the media leaves the disaster zone?” Is it possible through the application of skilful and thoughtful design to build safer, sustainable, and more innovative structures that become assets to communities while also serving as visual indicators of positive change and recovery? In doing so, the research studio sought to further architectural design and specifically its potential contribution to the humanitarian aid sector globally.

The media focus on the response immediately following a disaster has left a perception of chaos, urgency and teams of medical and search and rescue personnel working frantically. This is interspersed with updates, interviews on the ground and statements by national leaders. And while this is indispensable in emergencies, the hard work of rebuilding communities, livelihoods and its associated infrastructure is not seen. Access to food and healthcare has always been fundamental for survival, but survival for what? One answer might be “family”, or values and beliefs, a fear of death or a shared human condition. But at the centre of this discussion is the family home often referred to in its functional form of “shelter”. The provision of “homes” (as opposed to shelter) has largely remained at the margins of the aid agencies’ priorities. Despite the obvious need in the field, many aid agencies appear to have “missed the bus”, and some have elected to get off. For example, there are no standards or indicators for home, they all relate to m\(^2\) coverage and the relationship

Emergency Relief and Development

As the co-founder of the Auckland Chapter of Architecture for Humanity\(^2\) (AFH), the author has been deeply vested in building a more sustainable future through the power of

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1 International Organisation for Standardisation [http://www.iso.org/iso/home.htm](http://www.iso.org/iso/home.htm) 2010-02-27 @ 1:51pm

2 Architecture for Humanity is a charitable organization that seeks architectural solutions to humanitarian crisis and brings design services to communities in need. The author has been representing the New Zealand Chapter since 2007. [http://www.architectureforhumanity.org/files/2008-2009 Annual Report.pdf](http://www.architectureforhumanity.org/files/2008-2009 Annual Report.pdf) 2010-02-11 @ 5:00pm
professional design\textsuperscript{3}. Over the last ten years, AFH has been challenging the status quo of aid agencies in their approach to post disaster reconstruction and development. A global grassroots movement of designers who provide creative and practical services for people in their own communities as well as those in developing countries abroad, AFH is more than a simple pro-bono organisation. It embraces an open-source model of business\textsuperscript{4}, enabling those in developing countries to implement these design solutions. If emergency relief service providers are seen as the ‘give a man a fish’ school of thought, and the post-disaster development policy makers and planners as the ‘teach a man to fish’ school of thought\textsuperscript{5}, then a sensibly executed architecture in the context of disaster reconstruction could operate as the bridge between the two.

**Shipping Containers**

Containers are by no means a panacea for global shortage of housing, but in this project containers were used as a model to seed change. There are countless precedents for adapting shipping containers as prefabricated modules for housing, and at the time of submitting this paper, Architecture for Humanity is conducting an extensive research\textsuperscript{6} on examples of shipping containers converted as low-cost temporary housing. Replicating a design that was successful in one situation does not necessarily work in another context, but it is possible to inspire new solutions that can be adapted and shared by all, by encouraging designs that are locally inspired.\textsuperscript{7}

**Research Method**

The Container Studio ran for twelve weeks, with a two-week research break in the middle. The first half of the semester was structured to conduct general but intensive research, to gain broad understanding of the issues surrounding reconstruction as well as to gather reliable contextual and technical information. The students were asked to pick a site and a real disaster that occurred in the six months before this project, and this served to hone in their research within a finite timeframe. The second half of the semester was structured to focus more specifically on design development, detail design and implementation of concepts developed from the first half of the semester. The studio was perhaps more prescriptive in direction than others at the School and a number of tools were introduced to give consistency in the level of research and grounding. Nonetheless, the diversity of culture, geography and climates selected by the students produced innovative and unique

\textsuperscript{3} Architecture for Humanity Mission Statement: [http://architectureforhumanity.org/about](http://architectureforhumanity.org/about) 2010-02-11 @ 5:45pm

\textsuperscript{4} They have developed a new copyright licence for developing countries called, Creative Commons Developing Nations License, which “…allows anyone in a developing country to freely use a copyrighted work whilst allowing a licensor to retain full copyright in the developed world.” Source: [http://creativecommons.org/education/architecture](http://creativecommons.org/education/architecture) 2010-02-27 @ 2:03pm


\textsuperscript{6} [http://openarchitecturenetwork.org/case_studies/container_housing](http://openarchitecturenetwork.org/case_studies/container_housing) 2010-02-27 @ 5:42pm

\textsuperscript{7} This introduction was adapted from the original design project brief that was given to students at the University of Auckland’s Advanced Design Studio, Semester 1, 2009.
resolution. This paper used early work by Russell\(^8\) and Feng\(^9\) to analyse the student’s final work. Their work suggests that there are possibly 7 and perhaps 10 patterns that could be critical in shelter reconstruction. The aim of their work was to ascertain how or when a house becomes a home? And consequently their matrix appeared to be appropriate for this studio analysis.

1. Research, Design Tools and Preliminary Design

The students read Ian Davis’ *Shelter After Disaster* (1978), attended a seminar by a reconstruction shelter expert, reviewed various previous uses of shipping containers in disaster relief for precedent, were introduced to various tools for analysis and assessment, and participated in a field exercise erecting a UNHCR tent in the forecourt of the Architectural School at Auckland University. All of these served to “transport” students to their selected emergency context and to move them away from their perceptions of humanitarian assistance (based solely on what they read and viewed via the media) to something with a more realistic and practical grounding. This was reflected in the tools reviewed with students.

![Figure 1 UN-HCR tent assembly field exercise.](image)

1.1. Hofstede’s tool analysis

Cultural alignment is seen as an important and often missed component of shelter. Students were introduced to Hofstede’s analysis on the dimension of cultural scales\(^10\) which was used to compare national profiles against one’s own profile. This was particularly useful in initiating an awareness of the cultural gap between those we want to help and ourselves. For the purpose of this research studio, the students looked at Hofstede’s 5 aspects\(^11\) and reflected on firstly their own assumptions and secondly on the cultural fit of their proposal. It was a useful tool for providing a perspective on cultural dimension in locations particularly where students had not previously established first-hand contact.

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\(^10\) Potangaroa, Regan, e-mail message to author, March 24, 2009 [http://spectrum.troyst.edu/~vorism/hofstede.htm](http://spectrum.troyst.edu/~vorism/hofstede.htm) 2010-02-27 @ 6:30pm

\(^11\) *Ibid.* 5 aspects on Hofstede’s scales are: Power Distance Index (PDI), Individualism (IDV), Masculinity (MAS), Uncertainty Avoidance Index (UAI), Long-Term Orientation (LTO)
1.2. Thermal Comfort in Emergency Shelter

A range of thermal comfort tools\textsuperscript{12} used in the field were introduced to: estimate wind speeds for roof wind load requirement; design for natural ventilation; classification of different building topologies for geographical areas; models for achieving passive solar design; insulation value and infiltration rates of materials to determine heat gain and loss; microclimate created by airflow around screens; optimum orientation and distance between shelters.

1.3. Bioclimatic chart

Used widely by field experts assessing disasters, the bioclimatic chart analyses the existing vernacular structures and the buildings constructed by refugees both as temporary shelter and also for more permanent shelter. The chart is used in conjunction with existing data on a chosen location and assisted students to make a valid case for the modifications and design strategy for the container in various climatic conditions. It is used it to get an idea of what shelter is appropriate climatically rather then rely on hearsay, which according to Regan there is a lot of in the field. It is straightforward and is used by plotting the 4 coordinates formed by temperature and humanity levels.\textsuperscript{13}

2. Analysis and Discussion

The design projects developed over a 12-week period was analysed using the matrix used by Russell et al.\textsuperscript{14} initially developed for evaluation of housing provided for Asian Tsunami beneficiaries in Tamil Nadu, India, based on Jacobson’s\textsuperscript{15} 10 essential patterns of enduring design, and Brand’s\textsuperscript{16} work on how buildings learn. The matrix was originally developed to analyse “the appropriateness of a ‘one-size-fits-all’ house and whether or not these patterns are relevant in an aid situation”, by tracking the extent of modifications made by the inhabitants subsequent to handover by donor agencies. In trimming the original 250 patterns identified by Alexander’s Pattern Language\textsuperscript{17} to just 10, Jacobson argues that “While there may be many dozens, even hundreds of patterns that go into the making of homes, there are only a handful that we now say are essential”\textsuperscript{18}, because “practice has made us realise that the really crucial patterns are far fewer in number than we had previously thought; and that this smaller group of patterns is more powerful than we had previously thought”\textsuperscript{19}. Given the strong emphasis placed on designing with...

\textsuperscript{12} Ibid. ID 117 Reviewed Thermal Comfort in Emergency Shelter formerly Tools of the Trade.doc
\textsuperscript{13} Potangaroa, Regan, e-mail to author, March 24, 2009, Read me Bioclimatic Chart, RedR Australia
\textsuperscript{15} Jacobson, Max, Patterns of Home: The Ten Essentials of Enduring Design, Newtown, CT : Taunton Press, c2002
\textsuperscript{16} Brand, Stewart, How buildings learn: what happens after they’re built, New York, Viking, c1994
\textsuperscript{17} Alexander, Christopher, A Pattern Language: Towns, Buildings, Construction, New York : Oxford University Press, 1977
\textsuperscript{18} Jacobson, Max, Patterns of Home: The Ten Essentials of Enduring Design, Newtown, CT : Taunton Press, c2002
\textsuperscript{19} Ibid.
prefabricated core modules and cultural appropriateness of the schemes, the 10 patterns identified by Jacobson are relevant criteria for analysis.

For the purpose of this paper, only 4 of the most developed design schemes were selected for analysis and injected into the resulting matrix in the results section below. It suggests the following:

- The lack of an exact site hampered the full development of the container studio. This is perhaps not surprising but it did mean that significant assumptions had to be made about the orientation of the container, the logistics required to get it to the site, and in particular its connection to the community of which the family living in it were connected. These are exactly the same issues associated with the “one size fits all” approach.

- This lack of site context made it not only difficult for students to link the inside and outside but also to find any focus for the container as it was not exactly clear where the “action” such as a market, a thoroughfare or gathering points were located relative to the container. In addition, it was difficult for students to find the balance between privacy of the occupants and the community they lived in and also the flow through the rooms of the container. Students handled this subtlety by controlling the site through the use of courtyards and public areas and perhaps the incorporation of simple fencing to control the entry would have been effective.

- Moving away from the issues of site, students did have difficulties addressing the materiality of the container, its roof (as the dominant shelter form), light and the planning associated with any intimacy gradient within the house. This was possibly due to the “core” requirement of the studio.

The analysis was further intriguing in that it produced several typologies not previous identified in the literature which were as follows:

1. Cultural typology where the culture of the location clearly drove its assessment. This is perhaps more common in a rural context.
2. Community versus private typology that would appear to be critical as housing density increases. This would be particularly evident in urban and slum areas.
3. All outside typology which would be the logical resolution of a “core” approach.
4. Holistic typology where several issues are resolved simultaneously.

Research Results

In this section, detailed analysis of the four student projects are followed by illustration of some of their final presentation boards and explanation of their core concepts and design processes explaining the rationale behind their design decision-making. The four projects chosen for discussion are:

1. Afghanistan: Earthquake – by Mark Schmidt
2. Bangladesh and Vietnam: Floods – by Marie-Claire Henderson
3. Indonesia: Earthquake – by Natasha Hutcheon
4. Australia: Bushfire – by Xiaoyi (Sean) Bian
### Table 1. Container Evaluation Sheet

<table>
<thead>
<tr>
<th>Pattern</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>SUMMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhabiting the site</td>
<td>If the form of the house doesn’t begin by responding to the site, house and site may well end up in conflict with each other</td>
<td>Not really placed on a site though village identified.</td>
<td>Not placed on a site, not site specific. Site does suggest it is a dry stream bed?</td>
<td>Has better site definition but not specific.</td>
<td>No site Not site specific, though some attempt in cases. This maybe due to studio set up?</td>
</tr>
<tr>
<td>Creating rooms, outside and in</td>
<td>A lively balance of indoor and outdoor rooms</td>
<td>Yes, good intentions.</td>
<td>Yes, but due to security/cultural requirements</td>
<td>Yes, strong community focus.</td>
<td>Not effectively addressed (weak site context?)</td>
</tr>
<tr>
<td>In</td>
<td>Places that allow you to inhabit the edge, that offer enough exposure to make you aware of your surroundings, and that provide just enough protection to make that awareness comfortable</td>
<td>Yes, but could be thermally hot</td>
<td>No, one is either inside or outside, perhaps culturally driven?</td>
<td>Yes, scheme tried to maximize this aspect.</td>
<td>No, scheme appears to fully open up. Houses generally appear isolated</td>
</tr>
<tr>
<td>Places between refugee and outlook</td>
<td>At its simplest we are inside looking out</td>
<td>No, openings are “blunt” to the outside.</td>
<td>Yes, but more to the interior.</td>
<td>Potentially yes.</td>
<td>No, scheme appears to fully open up. Not fully effective</td>
</tr>
<tr>
<td>Private edges, common core</td>
<td>A good home balances private and communal space throughout</td>
<td>Not clear</td>
<td>Yes, but probably culturally driven.</td>
<td>Minimal due to community focus.</td>
<td>The need for privacy not recognised</td>
</tr>
<tr>
<td>Movement through rooms</td>
<td>Movement through a room affects the room itself</td>
<td>Yes</td>
<td>Intent clear</td>
<td>Yes</td>
<td>All outside Flow through identified</td>
</tr>
<tr>
<td>Composing with materials</td>
<td>Choosing its materials – to support, frame, fill, cover, colour and texture space – is the act of composing the home</td>
<td>Perhaps with tent covering and bamboo</td>
<td>Yes with stone.</td>
<td>Suggestion of different materials</td>
<td>Up market and not clear where the container is? Weak linkage.</td>
</tr>
<tr>
<td>Sheltering roof</td>
<td>More than any other single element, the form of the roof – as experienced both outside and in – carries the look and meaning of shelter, of home</td>
<td>Perhaps but via a secondary roof high above?</td>
<td>No</td>
<td>No</td>
<td>No The shelter of the off was not identified.</td>
</tr>
<tr>
<td>Parts in proportion</td>
<td>A home is a hierarchy of parts in proportion</td>
<td>No</td>
<td>Yes, but probably culturally driven.</td>
<td>No</td>
<td>No All outside. Not addressed</td>
</tr>
<tr>
<td>Capturing light</td>
<td>Good homes capture light – filter it, reflect it – in ways that, no matter the season or time of day, delight their inhabitants</td>
<td>Perhaps</td>
<td>Perhaps</td>
<td>Not addressed</td>
<td>All outside Not addressed</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>Holistic typology</td>
<td>Culturally typology</td>
<td>Community/public versus private typology</td>
<td>All outside typology</td>
<td></td>
</tr>
</tbody>
</table>
1. Arid Afghanistan

The town of Sarubi, north eastern site in Afghanistan that Mark Schmidt worked in is both a challenging and a complex environment to design for, as it deals with both manmade (war) and natural (earthquake) disasters, climatically extreme (large temperature difference during day and night), culturally complex (large nomadic population that have begun to repatriate from surrounding border countries) and logistically impractical. With next to no materials to work with due to heavy deforestation over the years, the only material Mark had to work with was the mud from the ground.

In order to minimise external intervention to the way of life the Afghanis have adopted, Mark proposed a simple skeletal unit that would speed up the building process, add structural reinforcement to mud brick walls that would resist earthquakes, and collapsible so as to enable stacking multiple units to minimise the cost of transportation.

Figure 2 Site analysis and research highlighting issues and responses to site

Another aspect the students were challenged to incorporate in their design project is to enable their deployable container modules to cater to, and evolve along the various stages of post-disaster emergency relief right through to reconstruction.

In the following diagram, Mark demonstrates how the collapsible module would be used at the emergency stage as an aid distribution centre, to a simple residential unit, which could then be added on to using vernacular materials – in this case, the mud bricks – and proliferate over time while the original shell would remain intact as an earthquake shelter.

Over time, where these structural steel cores have been incorporated into vernacular
buildings, the core continues to function as emergency shelters in anticipation of future earthquakes.

Figure 3 Diagram showing progression from emergency relief to reconstruction

2. Temperate Bangladesh

An alternative approach to culturally specific response is to produce a context specific one. In the following example, Marie-Claire Henderson designed for containers for use in two distinctive cultures affected by seasonal floods. One of the key challenges for the students was not only to produce a design that could evolve right through post-disaster relief phases – response, relief, and reconstruction – but also one that was versatile in its application. Marie-Claire focused on Bangladesh and Thailand, which are not only culturally different, but also topologically different: one was a coastal site, and the other was an inland. Her sites of choice presented challenges that brought to the fore the importance of recognising what is socially acceptable and identifying vernacular materials and resources to overcome these social norms.
The container is shipped with basic amenities such as kitchen and toilet facilities in separate areas, various openings for access and ventilation, basic roofing structure, as well as off-grid water and solar energy collection system. The diagram below shows sections through container showing various uses and adaptation of the unit at different stages of its use, using the rooftop space between the shade and the top of container as extra space for rest or recreation, or in the far right hand image, private bedroom. The third image from left below shows thatched roofing that can be readily made by locals to replace the sail. Marie-Claire also investigated different options for assembling and orienting the roof for water collection and different position of containers on the ground.

One of the drawbacks a project of this type is its dissimilarity to surrounding houses where it would be located. One needs to be careful not to exclude, but one also needs to consider cultural implication donor-reliant project model that deployment of self-contained shipping containers would fall under. To be culturally sensitive, the containers cannot
impose western standards to sponsored host countries. As has been the case in projects that had too many such features, the results could backfire. An emphasis was placed throughout this project for students to consider these dilemmas, and to make these deployable units operable in as low-tech and easy way as possible, working on the presumption that majority of the time, the benefactors who tend to be unskilled minors or women.

3. Tropical Indonesia

Shipping containers can offer alternatives to state housing in countries where a vast proportion of population live in informal settlements. Natasha Hutcheon’s response to Indonesian earthquake fills the housing gap in addition to disaster mitigation. In fact, it is tremendously difficult to design shelters spanning wide spectrum of time without carefully considering social, cultural and political factors that affect housing trends in any context. Community empowerment is a central premise and rationale behind these self-contained units, left intentionally unembellished and barren of western ‘luxuries’ (figure 8). The ‘best’ design in this case is the one in which the designer does not impose his/her aesthetic ideals on the end-user, which instead invites the community to make it their own.
Natasha’s project deviates from the micro issues of shelter to macro urban issues of housing, and she proposes a cluster housing scheme based on traditional Javanese courtyard housing model for her new ‘container city’ (figure 9). The ‘container city’ is placed on a reclaimed land between the main port of Java and the temporary housing adjacent to it further south. Over time, Natasha envisages the city to be improvised by the inhabitants, and added on to with local materials, to an extent that it would be indistinguishable from traditional housing.
Developed countries have a different level of expectation to dwellings as compared to those from developing regions, although their response post-disaster may be similar. Xiaoyi (Sean) Bian has explored potential for containers to be transformed into a luxury bach (holiday home) for the Australian outback and bush areas that are prone to bushfire. The shipping container modules are distilled to compact functional units that can be sealed off during the fire, and survive the disaster to offer temporary service units for emergency aid workers and firemen immediately following the disaster. The units are intended to be reusable and reconfigured as a bach and used by holiday makers, the profits of which would be injected back into the system to produce more such units.
Conclusions

The integrated design studio confirmed the near impossibility of designing from a distance, and uncovered many naiveties about shelter provision in disaster affected communities. At the same time, this project reinforced the importance of participatory design, and access to materials that are both culturally and climatically appropriate. Perceived flexibility of modules increased the number of variables, leaving most of the decisions to be left to be made on the ground, reducing effectiveness of prefabricated units. Furthermore, designing at distance inhibited contextual understanding and subsequently led designers to make decisions that were culturally and contextually inappropriate. Nevertheless, the students demonstrated thoughtfulness and reasonable competence in carrying out conceptually complex design that responded to construction, structure, materials and environmental performance appropriate to their chosen site context.

Key Lessons Learned:

- Placing more parameters around site control, such as fencing
- Creating balance between public and private space
- Importance of logistics and how they affect the design outcome
- Usefulness of the framework used to generate research with practical implications
- Development of new and previously not identified typologies or patterns

References


Dr. Regan Potangaroa

Regan is an Associate Professor at the School of Architecture, Unitec, Auckland. However, during the semester breaks he is on standby as a RedR Engineer (refer to www.redr.org) often being assigned to the United Nations in various disaster situations throughout the world. In the last 7 years has worked in Aceh (following the 2004 tsunami disaster), Pakistan (following the Afghanistan conflict and again for the 2005 earthquake), Syria (at the time of the Iraq conflict), West Timor (at the establishment of a separate Timor), West Darfur (at the initial onset of internal conflict) and Geneva (with UNHCR). In all, 16 such overseas assignments. Thus, he brings real world experience and a “sense” of disasters (both natural and man made, emergency and post disaster reconstruction) to the team.

Regan has a Bachelor and a Master’s Degree in civil engineering from Canterbury University, a Master in Architecture from Victoria University, and a Master in Business Administration and a PhD in Architectural Engineering from James Cook University in Townsville, Australia. Despite this academic background, his professional experience has been as a consulting structural engineer of 25+ years experience gained in 13 different countries.

His research interests deal with both the qualitative and quantitative aspects of disasters under the general headings of: Management; Mitigation; Indicators

Furthermore, he conducts research in how to best apply the often difficult lessons learnt overseas to the social and economic landscape of New Zealand.

Ja Yeun (Alexandra) Lee

Alexandra is a PhD Candidate in Architecture at the School of Architecture and Planning at The University of Auckland, New Zealand. She is the founding director of Architecture for Humanity Auckland Chapter (AFH). Alexandra has been deeply vested in building a more sustainable future through the power of professional design. AFH embraces an open-source model of business, enabling those in developing countries to implement these design solutions. Alexandra has a Bachelor of Architecture from her alma mater, in which she spent a year abroad at UC Berkeley, California.

Her research interests are in the areas of:
Architecture for Humanity; Design ethics for the disenfranchised; architectural interventions post-disaster; open source design.

Her current research investigates the role of contemporary architects in the humanitarian aid sector and those who serve the disenfranchised patrons of our urban environment. More broadly, the focus is on social and cultural implications of the built environment in post disaster reconstruction and development, arguing that socially responsible design is an essential ingredient for urban sustainability.