

POLITECNICO DI TORINO
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Master of Science in Architecture
Honors theses

Folding unit. Modular system for emergencies

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Every year the world is the stage of 400 calamitous events, caused by human actions and natural phenomena.

Two recent emergencies led me to the idea of writing this thesis; the devastating earthquake and tsunami in Japan and the North African refugees' wave in Lampedusa.

March 11, 2011, a day I will remember since I boarded on a flight directed to Tokyo, in order to participate to a workshop on modular, transportable and transformable architecture. A workshop in the end I couldn't participate to, due to the dramatic events that affected the entire country. This catastrophe addressed me on the topic of emergency; indeed I thought about joining the emergency topic and the one I wouldn't have analysed during the workshop.

This architectural area which is based on the short time use of the building, which in the end appear in the form of temporary repairs. Usually they are systems dry assembled that have to provide a roof for people and could be houses, offices, common areas, but still temporary. Since the emergencies are not easy to predict the possible scenarios are many and the buildings have to be easy to carry, easy to transform and simple.

Those principles led the research made in thesis in the different areas.

The Unità Pieghevole's project, a modular system for emergencies, has in fact addressed my curiosity towards all those aspects that affect and determine the configurations of the temporary architectures.

The management of minimal spaces has been a fundamental issue to analyse, together with the transportation and the elimination of these units after having achieved their main goal.

In fact some of these units are employed in other emergencies, or used as temporary units (in fairs) or stored.

This last problems, the transportation and the production time, have been the starting points of my line of thought during the project of as preassembled and folding structure.

Starting with the idea of the usual container and maintaining the best features, I thought about compressing it, to make transportation easy and storing space efficient.



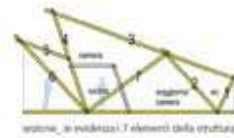
I look for inspiration all around me in all the folding objects we use every day. The beach chair, the camping chair, the clothes hanger... They are all light objects with a structure that allows folding and then, are easy to carry.

“Folding objects, like chairs and beach chairs, reading stand or music stands, and so on, are a broad interesting set for a designer. All these objects are used to reduce the space occupied both for transportation and storing. An object (with the same features) shrinkable for space efficiency.”

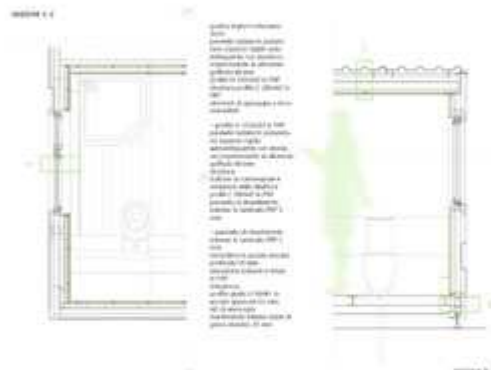
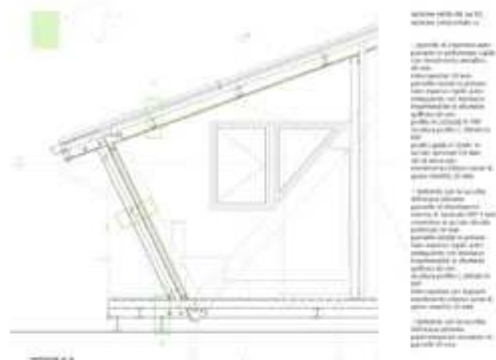
Bruno Munari, “Da cosa nasce cosa”

From the marriage of these two structures I managed to project a modular folding structure for emergencies.

This project allows to create a structure that ensures in short time a temporary housing solution for people who lost their houses. The complete module will be easy to build in few days with few simple actions. Thanks to its simplicity it can be build also by the same people that are going to live inside it.



This kind of dry structure led me on the project and the innovations aspects, in fact research has been made on the use of light but resistant materials like FRP (Fiber Reinforced Polymer) used for the structure of the kernel.



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