REFLECTION PAPER

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My graduation project is a solution of shelter which designed for semi-arid climate zone. The reason for choosing this topic and context is due to the fact that I born and grown in one of this climate region with high risk of the earthquake. We were trained on how to facing the unpredictable emergency, but we have no idea what life would be after the earthquake. Now as a role of the architect, I did one-year research and design on this topic and obtained much knowledge about the post-disaster construction.

For the research, I mainly dive into vernacular buildings in semi-arid climate region in Asian and Europe, and thanks to the research, the results became the guideline of the design. And there were some other researches started together with the design which in order to solve some specific design problems such as material properties and settlement planning regulations etc.

The design took another half year. The final product is a simple rounded dwelling unit with two layers of corrugated wall filing with soil collected nearby settlement. In such combination, I want the shelter in low energy cost, easy assemble and high living quality at the same time.

In this reflection paper, I would like to summarize and reflect on my design as well as my working method.

RELATIONSHIP BETWEEN RESEARCH AND DESIGN

In aE graduation studio, the research starts a half year ahead of design. It provides strong design evidence and technical support. In the first half year, I mainly dived vernacular buildings in a certain climate zone. The research result derives their principles and apply into the temporary shelter design. the research of vernacular building was one of the most important topics which guided my design for the whole graduation year.

Some other researches were between the process of the design. All these research came up with real design problems, especially technical issues. Such as choosing a way to make a strong and lightweight structure to support the wall. The research dive into various of materials and the way of making them, cost and properties. The result
leads to a unique designed aluminum extrusion. All these researchers were connected to a specific design problem. Comparing with research on the vernacular building which directing the design, these researchers directed by design.

THE RELATIONSHIP BETWEEN THE GRADUATION TOPIC, THE STUDIO TOPIC AND MASTER TRACK AND PROGRAMME

The studio of Architectural Engineering is relatively a technically innovative and creative studio. It concerns about resources, energy, environment, economy etc. This studio seeks for innovative and inspiring architectural solutions for social and environmental issues throughout all scales.

Flow, make and stock are the guiding approach of the studio. My graduation project involves both flow and make. In flow that we design buildings as structures interwoven with their wider system, the flow in my design is to think about the way to save the cost and energy of transporting and producing, which by means of combine the prefabricated materials and local materials; Make is about new production methods the use and development of materials and systems for existing and new applications. In my case, choosing material cleverly and assembly technique is important.

RESEARCH METHOD AND APPROACH IN RELATION TO STUDIO

The Architectural Engineering focused on technology innovation on architecture, part of the theme is discussing how environment physically affecting the building. In my graduation project, the major research topic is about the effect of climate condition on small buildings, and how to improve the indoor thermal performance mainly on the passive way. To study this effect I start my research with vernacular buildings.

The main research method on vernacular buildings is based on literature, through the findings, the study from the aspect on geography, climate, city/village context, building scale, form, material, opening, and heating. The principles will be derived from each location. In the end, through the comparison and analysis, principles can be applied or transformed into the modern technology which easier for contemporary industrial manufacture.

RELATIONSHIP BETWEEN PROJECT AND SOCIAL, PROFESSIONAL, SCIENTIFIC FRAMEWORK AND TRANSFERABILITY OF PROJECT RESULTS

My graduation project is intended to design a type of shelter that can provide a comfortable living condition for users. In existing shelter design and products, the
literature shows that large numbers of them do not make people feel comfortable physically and psychologically.

In order to improve all these issues, my strategy is to respect the advantage of industrial production and locally available resources to solve both transportation limit and thermal performance issue. The assumed result of the design is to use same effort of normal shelters and achieving a better quality.

ETHICAL ISSUES AND DILEMMAS WHILE DOING RESEARCH, ELABORATING THE DESIGN, AND POTENTIAL APPLICATIONS OF THE RESULTS IN PRACTICE

The scheme of aE graduation studio is to start with research and then gradually begin the design in the middle of the process. And it makes the research result became an important factor that influencing the final design. In some way, it leads to a result that the outcome may differ from the image we had at the beginning.

When elaborating on design, there were some decisions need to be made, such as to sacrifice either nice architectural quality or the budget. Usually, these specific issues revel only in the middle of the design, and it these issues might change original concern of the design.

This temporary shelter is based on reality, a prototype can be built easily, however, the limitation is that some component needs a large amount of production to reduce the cost. Hopefully, in the future, this design can have a chance to be built and prove that the living experience is good. All in all, my purpose is to design is to improve the existing shelters and might have some potential value to apply in reality.