

Paweł K. Kryński
st. no. 4521048
pe.krynski@gmail.com

research tutor:
Pieter Stoutjesdijk
architecture tutor:
Roel van de Pas
building technology:
Mauro Parravicini

Delft University of Technology
Department of Architecture
Architectural Engineering
Graduation Studio



Architecture for Emergent Craftsmanship

Digitally manufactured
customizable and reconfigurable
workshops for makers

Motivation to choose AE studio as the studio for finalizing my education derives mostly from my passions and fascinations. These can be defined in the domains of creative building and making, inventing and new technologies. This mixture implemented in architecture can be found in the AE studio what my project and my impression as a graduating student prove.

As both MSc1 and MSc2 was composed of mostly my own work and my own time management it was a great lesson not only of the Architect profession, but also a lesson about myself. This year did not only teach me about researching, implementing results into architecture and technical solutions. It made me understand what are my preferences in architecture, the style of working of my liking and my work planning skills.

reflection paper
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what is the relation between research and design in the graduation project?

AE Studio puts a really strong emphasis on research, therefore the whole first semester is dedicated mostly to that.

As an architecture-maker myself I focused on needs of my peers in a broad spectrum. I interviewed many designers, makers and artists and visited their workshops, studios and offices. That part of research was aiming at understanding the maker movement and needs of those people and their aspirations in workplaces in the age of collaboration of many and 4th industrial revolution. This part of the research was fundamental and findings from it influenced majority of the decisions made for this project. Databases made for all makers interviewed and workshops visited became a sort of a handbook with requirements for the building design. The plan assembly process and all workunit configurations are a result of indepth analysis of all makers data and translation into a building plan, which can be modified and grows over time.

The next part of the research touched mass customization. The variety and diversity of needs of the target user was so broad that it needed some response in approach and design results. Since this project was aiming at utilizing digital fabrication from the beginning (as makers use those tools already, what adds open source availability as well) mass customization was an obvious ingredient. This part in particular allowed for understanding how broad the meaning of mass customization is and how different approaches can vary. As a result, I was able to choose the most valid one and implement it in the designed building system.

The last part allowed for choosing the most promising technique of digital manufacturing and the most sufficient material combination. During the second semester and work on the building system I made something completely different from what I was expecting in the beginning. That made me realize

not only how wide is the variety of outcomes when working with digital fabrication but also how flexible CNC milling technology and friction locks joinery can be. Apart from researching in traditional ways like reading, experimenting etc. i had priceless chances to partake in assembly of projects which used similar technology to mine:

- Nadia Remmerswaal's CAST Formwork System,
- PD Lab,
- Pieter Stoutjesdijk's Haiti Shelter assembly.

Even though at first I didn't even imagine to plan including this scale testing into my research it became as important to my experiences as all the other studies conducted during work on this project. Those hands on experiences allowed to understand best how the technique works in 1:1 and what should be taken care of in my own design.

what is the relationship between the theme of the graduation lab and the subject/case study chosen by the student within this framework?

Architectural Engineering Graduation Studio focuses on developing technical fascinations and translating them into different building scales. AE Studio operates in three subtopics: Make, Stock and Flow. Within those subtopics there is a variety of sites to choose for a graduation project. My project theme is classified as Make. The specific framework for each project in this case is very individual and depends mostly on the author.

In my case however, this close connection to technology was visible from the very beginning. The storyline through which I went with my research was aimed to be comparable to product development

strategies which was also a quality learned from my tutors. From the very beginning I was focused on the target user, tools for realisation and behaviour in time of the whole design. I was encouraged to test my solutions at every stage and prototype as much as possible what was the best evaluation of any design, and what is irreplaceable in Make theme. There is no other way to realize about some issues with the design than actually make it and use it.

Also, working with a project from the Make group I was able to realise how technical solutions (hardware) can influence and curate the use and social conditions (soft-

ware) in a building. I was able to discover another face of the Pieter Stoutjesdijk's phrase - the Master Builder. In this case, the MB is not only the one that knows everything about the building and is responsible for all processes concerning a creation of a building. In my case, thanks to the designed building system and the user experience I was also able to predict the use and behaviour of the building in time, in an environment which is extremely fluid and organic. The building system allows for flexibility and freedom but on the other hand limits the user to a certain extent, so that the result is not random but efficient.

what is the relation between the methodical line of approach of the studio and the method chosen by the student in this framework?

From my point of view the Make line of approach was completely different from what I usually used in design. The fact that the process was reversed - both research and design started from details which later allowed to compose a building - was very challenging at the beginning. However, it was reward-

ing, as firstly a well thought building system was developed and secondly, it was proven to meet all the requirements when become assembled into a building. So the architectural, final design was in this case an evaluation of the technological part of the approach.

what is the relation between the project and the wider social context?

The initial thoughts about this project come from the economical shifts in recent years which changed many professions, especially the creative branch. This project is in a way an answer to the exiled designers who didn't have a place designed for them but were reusing spaces which were hardly meeting only their basic requirements. In other words it is now the user who adapts to the workplace, whereas it should be the opposite.

Recent changes in technology and development of tools which allow

for rapid prototyping and quick access of manufacturing complex designs bring open source solutions closer to a common user. Production of goods becomes scattered and diversified and so should architecture follow.

Even though this project aims at a specific group of users the designed building system is universal and can be used for any other purpose. Any environment which needs and open source reconfigurable system for creating tailor made spaces can make use

of it. Added to that, recent trends in the building market often suggest architects that buildings today should be designed as if they had no specific function to serve. This is a result of the radical changes in use of buildings - tenants change so often along with the purpose of a building that as an effect an extreme flexibility is needed. In case of this project, maximal flexibility is a fundamental value to answer, therefore is also answers these trends, but from a completely different angle.



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