

Reflection Document

Information

Name	Qi Gao
Student number	4739183
Studio	Architectural Engineering/Amstel III
1 st tutor	Mauro Parravicini
2 nd tutor	Engbert van der Zaag
3 rd tutor	Pieter Stoutjesdijk
External examiner	Daniëlle Groetelaers

This reflection document will explain the aspects as provided in the Graduation Manual to look back into my project to assess if the research and design are integrated and the ambitions are being achieved.

The relationship between research and design

In the first semester, this Amstel III studio was collaborated with visiting professor Kasper Jensen from 3XN architects and GXN innovation. Therefore, our first research stage as a group, was to make general study about the context of Amstel III and aspects of circular building technology. In the middle of first semester we started our own research topic, but because of the difference between topics, it was mostly developed after the booklet Upcycle Amstel being finished.

After four months of research, our group finished the research booklet Upcycle Amstel. My research in this book mainly includes evaluation on the vacant buildings in the area and estimate the material stock of the buildings. This part of research helped me on making a reasoned choice for a case study building.

It also provided me interests of finding a method of treat a vacant building as a structure for a user-oriented infill system. By studying and visiting many latest projects in the circular building topic, I choose to study building flexibility as my personal research topic.

The programme part of my research mainly focused on the personalized spaces that flexibility can bring to the users. I studied about how building program for certain user (students) can be divided into separated function which can be related to certain elements or space. In this research process I also realized that flexibility means not only the movement of building elements but also the adaptivity to different function, users and time period.

The technical part of my research mainly focused on the relationship between circularity, flexibility and the end-users. The relationship between circular and flexibility in my project lays on reversible elements and reuse old structure. And the relationship between flexibility and end-users in my project is customized room types and adaptive public spaces. Started with reversible connections of enclosure elements in my research paper, I got more familiar with the current state of art and difficulties of reversible buildings. Studying small scale of flexibility helped me with different kinds of connections in the later design phases.

The relationship between my graduation project and the studio topic

The Architectural Engineering studio gives me as researcher and designer opportunities to find questions and explore integrated solutions. What's more, many problems that this studio focus are closely related to society and people, such as sustainability, circular economy, climate and health, etc. When be more

specific to the Amstel III studio, circular building concepts became especially significant. My graduation project is trying to find one answer for how to promote circular building in a larger scale. I found that focusing making more benefits to the end-users might be a solution to the goal.

The methodical line of approach

My result of research and design produced both outcomes on specific cases and context, as well as generic principles and prototypes for the vacant office buildings. There for my research semester could naturally transit to the design semester by choosing materials and connections according to the specific context.

The methodology for my research was literature research, case study and modelling test. The aim of literature and case study is to find out what is already scientifically researched about flexible building system, modular building elements and recycling material. With a better understanding of their advantages and shortages can we start to develop design prototypes and use models to test the feasibility for building and applicability for Amstel III context.

The project in a wider social context and the potential applications

Today in Netherlands and many other countries, people are still facing the problem of house shortage and building vacancy problems. My project can give a solution for reuse the vacancy structures and adding living program in a sustainable manner. In the aspect of circularity, material shortage calls us for reusing elements and recycling materials from the current building stock. My project shows practical examples in both making reversible building

components and recycling demolished building materials into new construction product. More importantly, the project itself aims to make a scenery of involving end-users into small scale producing, assembly and disassembly of building elements, which can bring more educational and social benefits for a circular future.

Conclusion

I really enjoyed the process of my graduation project. My research and design have both important social and technological aspects which makes archiving the architectural result quite complicated. However, this process taught me how to continuously development the design with a strong concept in heart. Though I got some confusion in the midway, after the P2 retake I found myself could focus more on key aspects. I think these experiences will benefit a lot in my future work and study.

I want to thank Mauro Parravicini for helping me translate my design ambitions into more realistic results, for teaching me ask more critical questions to myself to make better design decisions. Thank you, Pieter Stoutjesdijk, for patient guidance on my personal research in a short period, for the critical advice on my approach in the design phases. Thanks to Engbert van der Zaag for introducing me to many basic but important aspects of architecture design, for helping me to strength my design in technical ways. Finally, thank you the whole Amstel III team, I will always remember the inspiring discussion in the group and the spirit of exploring and solving problems.