

P4 REFLECTION PAPER

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My graduation project focuses on making middle-rent homes in existing social rental homes in Amsterdam Nieuw-West, in which the amount of social rental housing is maintained. In Amsterdam there is a growing shortage of middle-rent homes for starters. As a result, people stay longer in a social rented homes while these homes often no longer meet the changing needs. A large proportion of the residents live too large or too small. The aim of this design project is to promote the flow of social rent to middle rent so that starters do not leave the city. In Nieuw-West about 60% of the social rental is walk-up apartments. That is why I decided to make a design for these apartments in Nieuw-West. The walk-up apartments on the Maassluisstraat were chosen for the design project, because of the high number of houses and part of these blocks have already replaced with new buildings.

Today, walk-up apartments do not meet the future required energy performance. In my opinion, the existing buildings first have to be improved before we realize new buildings. In addition, the existing post-war apartments are problematic: Due to the monotonous floor plans, they no longer provide the various housing needs of today's users. Residential surfaces must therefore be flexibly arranged and adapted. In combination with the focus on circular buildings, leasing offers the solution. Building materials can be reused, adapted and recycled in a closed circular system. My research is therefore about the potential of leasing for a modular interior system.

The relationship between the graduation subject and the studio

The aim of the Architectural Engineering studio is to integrate technical solution into an architectural design. The studio is a 'bridging' between architecture and technology. Architectural Engineering has three main topics, which can be chosen in the introduction week: Make, Flow and Stock. In addition, you can choose from 6 different locations. On the basis of a chosen combination of this framework, a student can develop his own subject in the first two weeks of graduation. The choice of the student is related to his own technical fascinations. My thesis topic began with Make in conjunction with the Marine area in Amsterdam and transform an existing building with a flexible, adaptable interior. Eventually I started to focus on Amsterdam Niue-West, because I wanted to design a building system for a much larger-scale problem; the transformation of existing post-war houses.

The relationship between the research and the design

Architectural Engineering distinguishes itself from other studios by setting a research question in addition to asking a design main question. The research focuses on an essential technical aspect of the design. By implementing the results of a scientific research in the design, we can speak of 'Research for Design'. My research focused on mapping theoretical factors that determine the potential of building leases for modular building systems:

“What can the building environment learn from other disciplines, to develop a lease based modular building system?”

The question stemmed from the fact that other sectors are already making more use of leasing, compared to the building environment. Firstly, a theoretical framework has been drawn up, where the building environment differs from other sectors in various aspects. These aspects were used to compare different lease products and non-lease products (but which are potentially and interesting for the research) with a case study and a matrix. The outcome of the research are 5 important aspects that have to be taken into account when designing a modular building system. The most important outcome is that leasing in construction only becomes interesting when a construction system is made with parts and materials of different life cycles.

The relationship with the design is the technical and practical translation of these factors. By using the research results, the factors, in the technical development of the modular building system, a relationship is made between research and design.

Elaboration of the research method in relation to the studio methodological research line

The methodological research line already starts with a technical fascination in this studio. The students try to find a location with a problem, which they can solve with their technical fascination. My technical fascination is modular building systems and use of existing buildings and materials. To optimize the reuse of materials, it is important to create a strategic business plan. Leasing offered me the solution because it is a manageable business structure, where it is possible to bring products back to the manufacturer for recycling, upgrading, reuse and repairs. In this way there is no more waste of materials and the circular circle is closed.

After my P2 presentation I got the feedback to make a technical translation of the research results in the building system. I did this by doing reference studies on existing building systems and other principles (such as the business plan of the Circular Kitchen at TU Delft). I also started sketching and designing to be able to answer these aspects as questions. So I did a study how the 5 aspects of the research could be implemented in the design. The most important design decision is that the interior system is made up of standard elements and custom-made elements. This allows the user to choose his own finish. As a result, the finish can be recycled or reused after the resident moves, while the core has a longer lifespan.

Relationship between the project and the social, professional and scientific framework

The design that was created is a strategy to transform existing walk-up apartments into homes, with which it is possible to house different users with different housing needs. These homes no longer meet the energy requirements and the living needs of the users.

During the graduation project, it was concluded in various studies and analyzes of Amsterdam Nieuw-West that there is a weak social composition in this area. The area, which is part of the Amsterdam Expansion Plan (AUP), is characterized by a high corporation property, above-average poverty, the sorting out of the urban design and the design of the quality of life.

By realizing the middle rental homes, starters no longer have to move out of the city. As a result, Amsterdam is less likely to lose its identity as a city, the diversity of the population composition. By housing a diversity of users, transforming the walk-up apartments in such a way that the street becomes more lively again, this project is an example for other existing apartments.

Discussion ethical problems and dilemmas in the research, elaboration of the design and the potential application of the result in practice

At the beginning of February, I had my P2, after which I started working for six months at an architectural firm due to private circumstances. In the summer holidays I picked up my graduation project again. Despite the fact that I had a lot of interest in the project, I had a difficult start, because I had to get used to self-study again. This stopover also had an advantage. I could watch my project zoomed out, while I was still in the middle six months earlier. This allowed me to view my own project more critically and also saw new possibilities.

From the summer holidays it was difficult for me to design effectively. After the stopover, I first wanted to have all the design assumptions and rules for the design clear for myself, before I actually started designing. However, architecture does not work that way. It is a process in which you design while doing studies and research. Design studies allow choices to be made and other options excluded. I therefore do not see designs as a timeline in which one simply converges and then diverges, but that these phases are interconnected at different frequencies.

During the development of the design I also noticed more and more problems and questions. In addition, my main problem, the shortage of middle-rent homes, was also a domino effect of multiple problems. What went wrong with the process first was that I started to design from the new issues and problems, while I strayed from the main starting point. I have learned from this that it is important to make clear design objectives and starting points, and that this should lead the design process as a red line when making design choices. The problems and issues that arise are important, but not primarily.

The final design can be seen as a methodical approach to post-war apartments in Amsterdam. It offers the solution of a sustainable approach, whereby the character of the walk-up apartment is maintained. In addition, the houses can also be adapted to the changing needs of the users and the future household proportions. I have been able to apply my fascination in this design project, with which I solved the problem: Resolving a shortage of middle-rent houses with existing walk-up apartments. With the construction system, various households can be accommodated from the social rent and middle rent. The last part of my graduation project, the run-up to the P5, I want to elaborate the project aesthetically (rendering, scale models and drawings) and improve the attention points at P4.