

Reflection P4

5-12-2016

Olga van Tol

4141334

Flexible Vrieheide

In this reflection paper I will reflect on the work I did until the P3 and I will describe how I planned and worked from then on. Firstly the proposed method will be discussed. Then will be described how the process went and how and why this was different from the proposed method. After this the relationship between research and design and between the project and the wider social context will be discussed. Finally, it will be described how from now on will be worked towards the P4.

The method

The original plan was as Follows: The method I propose for the graduation project start is designing a new, wooden façade system. This is a continuation of the research that I did in the first semester ('Renewable, prefab, wooden façade elements for post-war residential buildings in the Netherlands'). This design will be made by sketching and modelling. The results from these sketches are going to be compared to the requirements that are established in the paper.

After this, an architectural design will be made for the renovation of the post-war residential buildings in the neighbourhood Vrieheide. For this, different housing types/options need to be designed for the different users. This will be done by creating conceptual models, made by sketching and modelling. When the conceptual model is ready, the design will be further elaborated with technical drawings that are made in CAD programs.

In addition to this architectural design, an user analysis should is made to find out what the new users (starters, families and elderly) want for their homes and to learn what the requirements are of houses for life (levensloopbestendige woningen).

The implementation of the method

The method that was devised for the design process was applied in a different order than proposed. This is because it was not logical to start with developing the façade system, since not all knowledge to do so were available. Firstly, the needs and requirements of the residents, the accessibility of the building, typology of the houses and floor plans needed to be studied and developed. Therefore, the design needed to start with the user analysis instead of the design of a façade system. When the requirements of the various inhabitants where formed, the different aspects of the buildings –as mentioned above- could be examined. This information could slowly be made into a design for the building.

The method was not only carried out in a different order, there was also added a part to it. Because of the use of existing buildings, the current situation needed to be studied. To achieve a good design for a renovation project, it was important to look at what is already there and to determine how this should be handled too.

Relationship between research and design

The research that was done during the first semester is about renovating residential buildings from the nineteen sixties with wooden façade elements. This study focused on what the quality of the current homes is and discussed how CO₂ neutral wooden facades can be designed.

This research has been incorporated in different ways in the current design. Firstly, the qualities of the existing buildings and neighbourhoods that were studied in the paper have been adopted. Secondly, the accumulated knowledge of wood and the construction of a vapour-open façade are used to create the new façade (Figure 1).

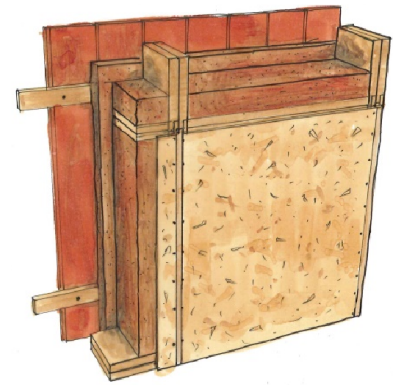


Figure 1. Vapour-open façade.

In the paper, the requirements (Figure 2) and first ideas for a façade system were established. Towards the P3, new ideas for this façade system were developed, although they were not yet elaborated in detail. These new ideas differed from the original plan for the façade system. The first idea was to create small elements (building blocks) and to let people build up their own façades with these elements (Figure 2).

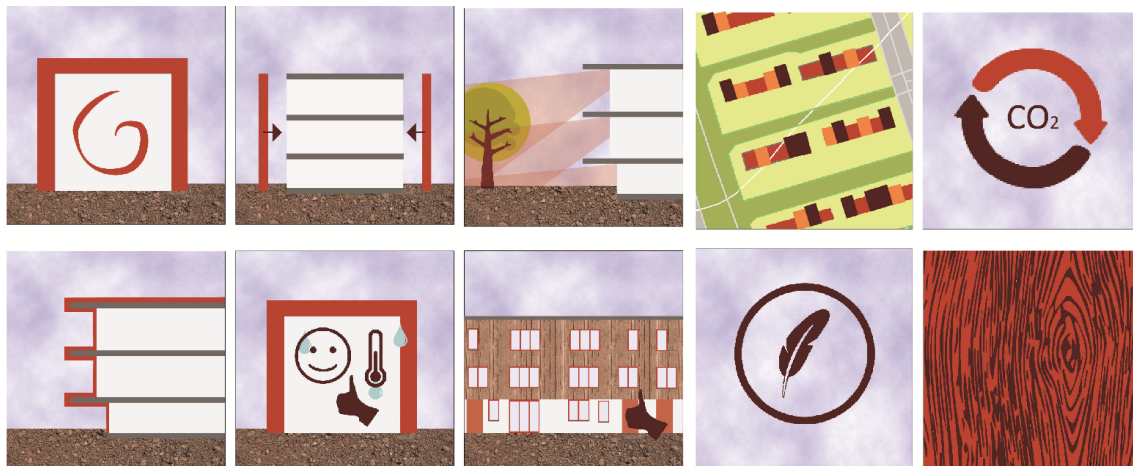


Figure 2. Program of requirements for the façade.

After discussing this with peer students and tutors, I decided to not create such a façade anymore. This is because there have been several projects in the past where architects have given residents the opportunity to create their own façade or create expansions in their future homes themselves, but these projects were never successful.

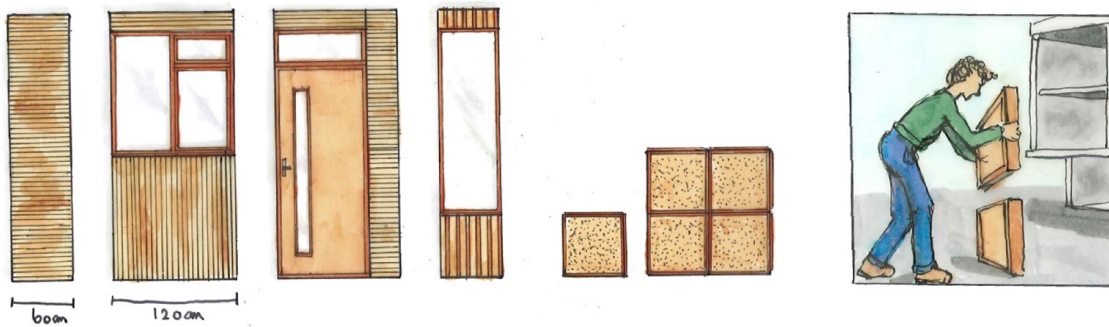


Figure 3. First façade elements idea.

Instead, the façade will be made of one element per home per floor. Within this façade element, different options of openings can be chosen by the resident (Figure 4). These new façades will be added to the existing structure in one part. In this way the building can be renovated fast. Furthermore, all requirements (Figure 2) are adapted in the system.

For the façade system was chosen to use materials that are very common in timber frame structures. More effort could have been made in investigating new materials or methods to create the façade elements.



Figure 4. Different option within façade system.

It can be concluded that all the research has been directly used for the design. Furthermore it formed the based knowledge of the design location and the renovation. Still, there could have been more research towards creating the façade system. For instance into digital fabrication and materialisation with other than timber materials.

Relationship between graduation lab and subject

The studio of Architectural Engineering has three main topics: flow, make and stock. For my research I used existing buildings (stock) and created a façade system (make). Furthermore, I used materials in such a way that the carbon footprint of the project is zero (Flow). This means that all different elements are incorporated in the plan in some way.

Within the studio different project locations were already chosen for the students. This did not mean that the location was already fixed, but that it was made easier to focus on problems of a certain area. This made also it easier for tutors to speak with the students about the locations they chose.

Furthermore, the studio challenges the students to create new things. This was for me the opportunity to use my fascination for wood and detailing and to create a new system that is an improvement of existing systems.

Nevertheless, the studio was less technical than I suspected and therefore my focus was sometimes too much on the making part, so that I forgot the social circumstances of the area.

Relationship between the methodical line of approach of the graduation lab

The first week of the Architectural Engineering graduation studio started with making visible your thematic fascination. From then on it was intended to elaborate this fascination and to choose a location. Tutors were chosen, matching the thematic fascination and the location of the project.

In my case, this started with a fascination for the carbon neutral material wood. The problem is the approach of this fascination. This is because it starts with a solution, namely wood. This is not necessarily wrong, but it blinded me for other materials that also are carbon neutral or carbon negative. This is not in line with the methodical line of approach of the graduation lab.

Relationship between the project and the wider social context

Vrieheide is part of IBA Parkstad, Limburg. This area undergoes various changes; for example, the composition of the population. This is because this is one of the area's where the population of elderly grows. Furthermore, many young people move to the Randstad. This is because the amount of work in the area is not enough for the people in Limburg. Therefore, they search for jobs elsewhere.

In Vrieheide the current housing stock does not meet the requirements of current residents (mainly families), starters or elderly. Therefore, the vacancy rate is likely to increase in the coming years.

This is why for this project it was chosen to create a mixed neighbourhood instead of a neighbourhood with only family houses. Furthermore, different options are made to choose from for the residents. One of these options is to add a workspace to your house on the ground floor. In this way, not only solution to the shortage of suitable housing for different users is proposed, but for the shortage in jobs.

The new façades are created in such a way that they can be renewed and recycled, but also in a way that they can be used for at least 50 years. This way the buildings are more flexible and ready for the future. Because the façade is used to create the new spaces, the buildings can adapt to the needs of the users. Furthermore there is no longer the need for them to leave the area.

Furthermore, there is the known problem of the global warming. As architects, it is our task to make buildings that do not corporate towards this global warming. Therefore, the aim of this project was to create a carbon and energy neutral neighbourhood. This means that the project can be used as an example for other renovation projects. The carbon and energy is processed in all different layers of the

design. For now, the carbon neutrality is mainly in the building materials. The materials that are used are mainly wooden materials, because wood has a negative carbon footprint. Furthermore, green roofs are added to the existing buildings and more green is added to the neighbourhood.

For an energy neutral neighbourhood, solar panels head are used for electricity. Furthermore, the buildings are heated with low temperature heating wall systems. The empty mine shafts close to the neighbourhood are used for this: t provide in warm and cold water to cool or heat the buildings.

Furthermore, different elements from the existing building are be used to create the new buildings, such as the aluminium elements that are window frames in the current building stock.