

Reflection

Project: Future proof buildings, sustainable refurbishment of 1960's high rise residential buildings.

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Project result

To determine if the project is a success a few things have to be taken into consideration. The project revolves around the question of what a good living space is and when is it sustainable. Many aspects of a good living space are quantifiable for example the technical performance and the environmental impact of a dwelling can be estimated, there are minimal spatial requirements and even financial performance can be predicted.

However, the quantification is much more complicated for the social and aesthetic elements concerning a building. What is seen as a good place to live at a certain time might not be so a few years later and the fact that a certain building or place is desirable does not only depend on the building itself but also on its surroundings and personal preference.

Meeting the technical, environmental, financial and spatial demands does not automatically ensure that the quality of a dwelling is good and certainly not over longer time spans. An important aspect therefore is being able to adapt a building over time to comply with new demands and trends.

Because the design is part of a refurbishment project and the original buildings were not designed with the goal of adaptability in mind keeping these buildings up to date over longer time spans can become quite a challenge. It is therefore very important to consider if it is in the long term more beneficial to keep the existing buildings and invest resources and materials into making them comply as good as possible to current standards with the risk that they are still suboptimal, versus a replacement strategy that includes designing a new building that is up to current standards, and is designed to easily be changed over time.

In this project it was chosen to keep the building to see what was possible in order to help decision making about what to do with a building when it is no longer up to date. This to make a well-founded decision considering all the qualities that are necessary for a well-functioning building (technical, social, financial, environmental and spatial).

The final decision to choose for the add-on refurbishment strategy depends on the timespan in which the building is still expected to function and the condition and location of the current

building. The approach is best suited for a building that is in a good condition and is in a desirable location.

For this specific project the addon solution was chosen over the wrap it strategy and façade replacement strategies even though these were also viable options, because it is a complete approach that targets the same challenges as the other two options but also has the possibility to add space to a dwelling and more drastically change the appearance of the flat. The choice for the addon is a long-term approach that tries to extend the lifetime of the building maximally in order to preserve the already available resources and reduce the energy consumption of the building. However, in the case that the situation changes, and it is decided that the building has to be demolished, the addons can quickly be demounted and reused on a different flat while maintaining their value and this is where I think that the real strength of this project lies.

The relationship between research and design

At the start of the project the initial focus was on designing circular climate systems for buildings. After consulting my tutor, I chose post WW2 high-rise residential flats as building typology to experiment on. My main question was: Why are buildings not being built or refurbished in a more circular and environmentally sustainable way.

As I got into the research of the 1960 high-rise residential flats I realised what a huge potential they have into contributing towards a more sustainable building stock. But also, that their success did not only depend on the environmental sustainability but also very much on the social and financial sustainability factors that I did not take into account at the start. This caused me to move away a bit from the circular design strategy and focus more on the overall sustainability of the building. My main question shifted to how to reach an overall sustainable solution for these types of flats.

By choosing for the neighbourhood Poptahof, Delft as a case study site and one of the flats I pass by daily as case study project, my drive to come up with a good solution for the post ww2 high rise flats increased. One of the conclusions that came up while doing the research is that even though many of the post war flats look similar they all require a case specific approach and one generic solution was not going to work. This highlighted how important it is to have an overview of the sustainable refurbishment options available for high rise post ww2 residential flats in order to make the right decisions. While doing research the option of a sustainable addon for the buildings came up as an interesting option to further examine so I decided to focus the design part of the project on this addon to see if it was possible to meet the sustainable demands for a gallery flat by making use of an addon. So, in this case the research was very valuable for choosing the direction of the design.

The relationship between the theme of the graduation lab and the subject/case study chosen by the student within this framework (location/object)

The theme of the graduation lab is the sustainable design graduation studio and the focus of this project is on sustainable climate and façade design. The chosen case study is a refurbishment project for a 1960 high-rise residential building. Within this project there is enough space to come up with sustainable solutions for the climate systems of the building

and also sustainable solutions concerning the façade of the building. As there are many aged high-rise residential flats currently in the Netherlands in need of refurbishment finding a sustainable solution to do this fits very well within this graduation lab.

The relationship between the methodical line of approach of the graduation lab and the method chosen by the student in this framework.

The first part of the project followed a design by research strategy followed up by research by design for the second part of the project. The design by research was necessary to further explore and demarcate the subject of the graduation and to find out what possible solutions could be used for the design phase. In the second part of the project research by design is used. With this method, several design options are explored and compared to see which one best fits the demands that were established during the first part of the project. I think in essence this method is solid, the only downside is that a lot of research has to be done before the actual designing starts. This can have the effect that sometimes the research done is not directly relevant for the final design. On the other hand, the research done beforehand can give a very good basis for the design by explaining why certain choices are made and why the specific design is chosen.

The relationship between the project and the wider social context

The research done for this graduation project is relevant to the wider social context because a more sustainable way of designing, constructing, using and disposing of buildings is required. This is important as it allows for the reduction of greenhouse gasses, to comply with climate agreements, reduce the threat of material scarcity, minimize pollution of the environment and the earth, be energy secure without the use of endless and polluting sources and meet the current needs without compromising the needs of future generations.

As this research, will give an overview of the possibilities to refurbish a high-rise residential building in the Netherlands in a sustainable way it will contribute towards reaching the goals mentioned above by providing guidelines for how to refurbish a high rise residential building in a sustainable way.

The research is also relevant in the wider social context because the guidelines it provides to refurbish old buildings will lead to maintaining a high-quality building stock which is something that the entire society benefits from.

This is important as there are currently many aged buildings and all humans deserve a good quality space to live in. By choosing for refurbishment not only the quality of the building will be improved but also the quality of life of the inhabitants and even the neighbourhood. Benefits of refurbishing the building instead of demolishing and replacing them are that energy, materials and resources can be spared which in turn contribute to a sustainable society.