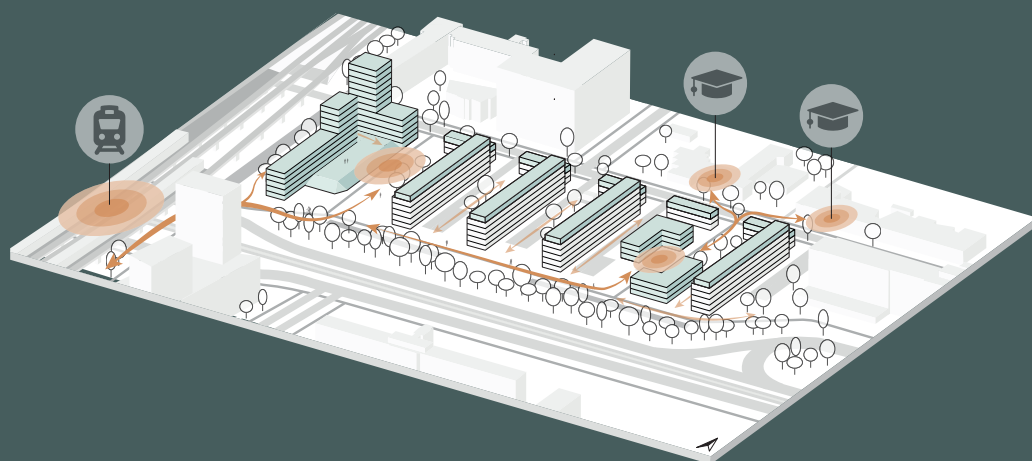


REFLECTION

Beyond monotony: Transforming post-war porch flats in Amsterdam Nieuw-West



AR3AH105
Graduation Studio - Resourceful Housing
Adapting 20th century heritage

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REFLECTION

Introduction

The graduation studio for the direction Heritage & Architecture is called Resourceful Housing – Adapting 20th century Heritage. The studio focusses on the neighbourhood of Amsterdam Nieuw-West, also known as the Western Garden Cities. The Western Garden Cities are an elaboration of Cornelis van Eesteren's Algemeen Uitbreidingsplan (Expansion Plan) from 1935 which was executed after World War II. Although this city district has recently been listed by the National Cultural Heritage Agency of the Netherlands because of its meaningful urban plan, it is facing many problems like squalor, crime and social problems. The housing stock is obsolete, both architecturally and physically. Together with the pressing housing crisis and the urgent need to transform existing buildings to efficiently revitalize the city district, makes this area an ideal location for research and design.

The research originated from an analysis of the current problems in the neighbourhood. Due to a growing demand for housing, there is a housing crisis in the Netherlands, which is a problem on national scale. More housing is needed and the housing stock is currently monotonous and is outdated. In addition, there is a demand for circular solutions. The problem of the housing shortage and the demand for circular solutions is applicable to the housing stock of Amsterdam Nieuw-West. The most common building typology in this city district is the porch flat. It is the repetition and recognisability of these residential buildings that allows for a set of guidelines that help to improve these buildings. Therefore I wanted to dive into the porch flats and come up with guidelines that help to improve this typology while respecting the heritage status of the neighbourhood and utilizing adaptability for circularity reasons. The research question is formulated as follows: *What design guidelines can be employed for the transformation of post-war porch flats in the Western Garden Cities of Amsterdam while utilizing adaptability?* The outcome of the research are design guidelines, visible in the research report, and can help as a first step towards the redesign of porch flats in Nieuw-West. The outcome of the research could then be implemented in the design phase as a basis for the design.

The design case is located at the Johan Jongkindstraat (figure 1), close to Lelylaan station. The plot has 6 porch flats with a residential function and 5 smaller buildings with both a residential and public function. The design project forms the location in order to implement the design guidelines provided by the research and forms an example of how to transform in Amsterdam Nieuw-West. This reflection will dive further into relations, limitations and dilemma's about the research and design.



Figure 1: Post-war porch flats, Johan Jongkindstraat (own images)

REFLECTION

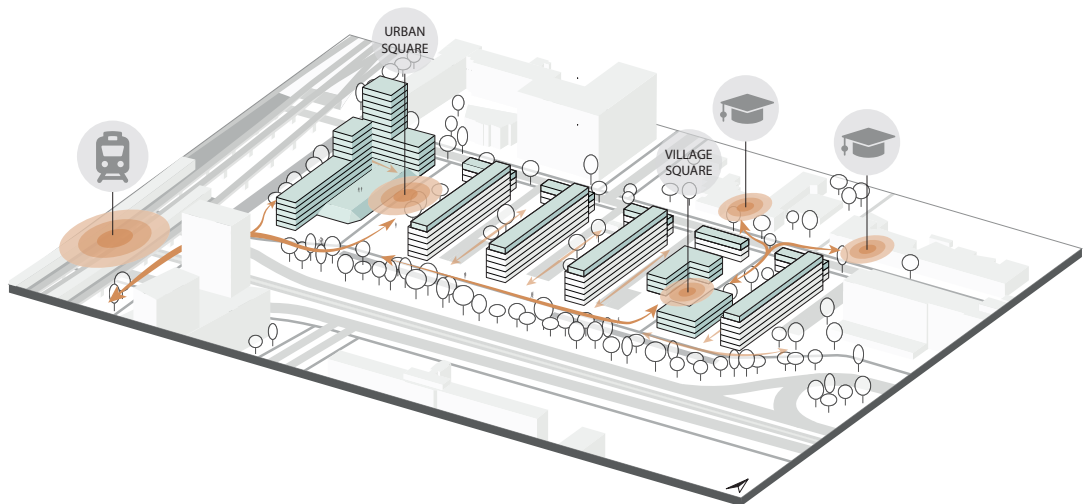
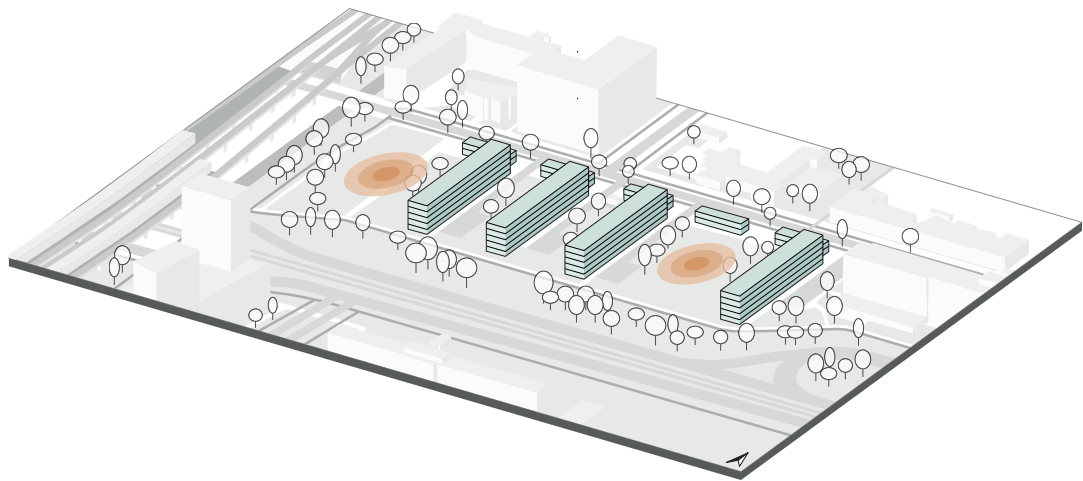
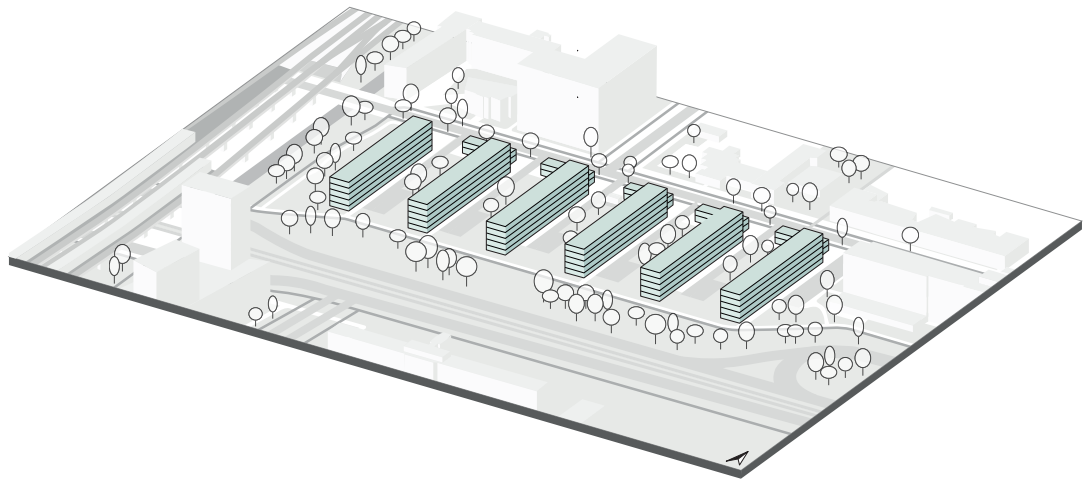


Figure 2: Urban interventions (illustrated by author)

REFLECTION

Relation between the graduation project and studio

The heritage studio has two challenges, namely (1) dealing with the housing crisis and (2) the circular economy. In doing so, heritage makes the connection between these two challenges.

The research connects to this by partly tackling the housing crisis by giving a strategy of adding volume and increasing diversity. In addition, circularity is included by using the existing housing stock, thereby reducing the amount of construction material produced. Next to this, circularity is also about future-proofing the building stock. Here, it is important to examine the heritage value, but also that interventions will not cause problems. These design strategies given in the study cope with the vision and needs of the neighbourhood. But alongside this, they also have a form of adaptability in them which means that changes made will contribute to the vision of the future. Adaptability ensures that much can be done in the future with small changes, thus promoting the circularity and resourcefulness of the project.

The design is an elaboration from the research and implements many strategies that came from that. For the design, I looked carefully to the guidelines from the research and made them location specific. With multiple interventions and even demolish and new-built, the project relates to the graduation studio by looking into the heritage of the buildings. The façade for example is seen as a characteristic element from the post-war time period. New interventions take the heritage into account, with the use of wood as new building elements. Material use was a very important aspect in order to remain and even showcase the heritage of the old buildings. This is visible in figure 3, where the existing buildings get a new gallery construction and roof extension. Also, the new roof extensions have a green roof detail where green will indicate the top of the building. This refers to the old, as the old also has a thick roof detail. The new buildings relate to the old by reusing the façade tiles on the ground floor, and brick on the upper levels with some wooden details. Also, the project deals with the housing crisis, as the monotone dwelling plans changed to a wide variety from ground bounded homes to couple apartments. The total addition for only dwellings with this transformation is about 8000 m². Circularity is promoted by reusing the concrete facade tiles, a lightweight timber frame roof extension, a gallery construction with simple wooden joints and adjustable floorplans.



Figure 3: (from left to right) Existing facade, transformed facade, new building urban square, new building village square

REFLECTION

Relation between the graduation project and research themes

Next to the relation between graduation project and the studio, the research and the design case are also relatable to most of the research themes of the faculty. The themes are: (1) sustainable urbanisation, (2) healthy cities, (3) heritage with value, (4) climate adaptation and energy transition, (5) digitalisation and artificial intelligence and (6) circularity in the built environment. The research relates to the theme heritage with value, as the research looked into the heritage status of the Western Garden Cities and how to transform. Next to this, it also looked into circularity and sustainable urbanisation by looking into future-proof building interventions that suit the transformation of porch flats in the area. The design case further addresses the research themes by relating to healthy cities by improving living qualities of the inhabitants, by adding more qualitative green, create more social safety and enhance the community feeling. Climate adaptation is also a very important point, also related to the adaptability part of the research. The design case has interventions that will help the project to be climate adaptive when weather circumstances change in the future, water collection by retentions roofs or adding semi-paved pathways are some examples. Circularity will be achieved by reusing façade tiles of the demolished flats and the gallery addition and roof extensions will be made out of a timber frame construction. However, I still demolish two buildings which is not very circular. With a careful consideration and site observation I decided to still do it. The reason was to make this project an example of how to use the design guidelines from the research with a variety of small and large scale interventions. When transforming other porch flats in the area, it is not specifically necessary and maybe even not possible to demolish and built new. This is important to keep in mind.

From research to design

From the beginning of this graduation studio, I already tried to make the connection between the research and the design. The diagram I made in the beginning shows this relation, see figure 4. The research looks into two main categories, the principles of the Western Garden Cities and adaptability strategies that can help to transform buildings. Alongside this, after choosing a design case, I did a value assessment and further analyses into the building, situation and technical aspects. After I finished the research and the analysis of the design case, the two could be combined by using the design guidelines. But this wasn't as simple as it seems, figure 5 shows a first concept design by just implementing the strategies, like adding volume, adding a gallery and connect the plinth to the surroundings. This shows that the research offered quite static results and a generic approach. This first concept included many guidelines from the research but wasn't site specified for the location yet. This immediately revealed that the guidelines are indeed no definite answers and need to be adjusted to the specific case. This was also one of the main comments after the presentation, that I need to dive further into the surroundings and look into different scenarios for the transformation and maybe even partly demolition of these porch flats. The design project will make the design guidelines from the research more practical and give insights into the implementation of the results. This feedback helped me to develop more design ideas related to the site and exploring a variety in scenarios. I made many different sketches for the volumes of the new buildings, the sections of the existing flats and the experience of the space. The decisions I

REFLECTION

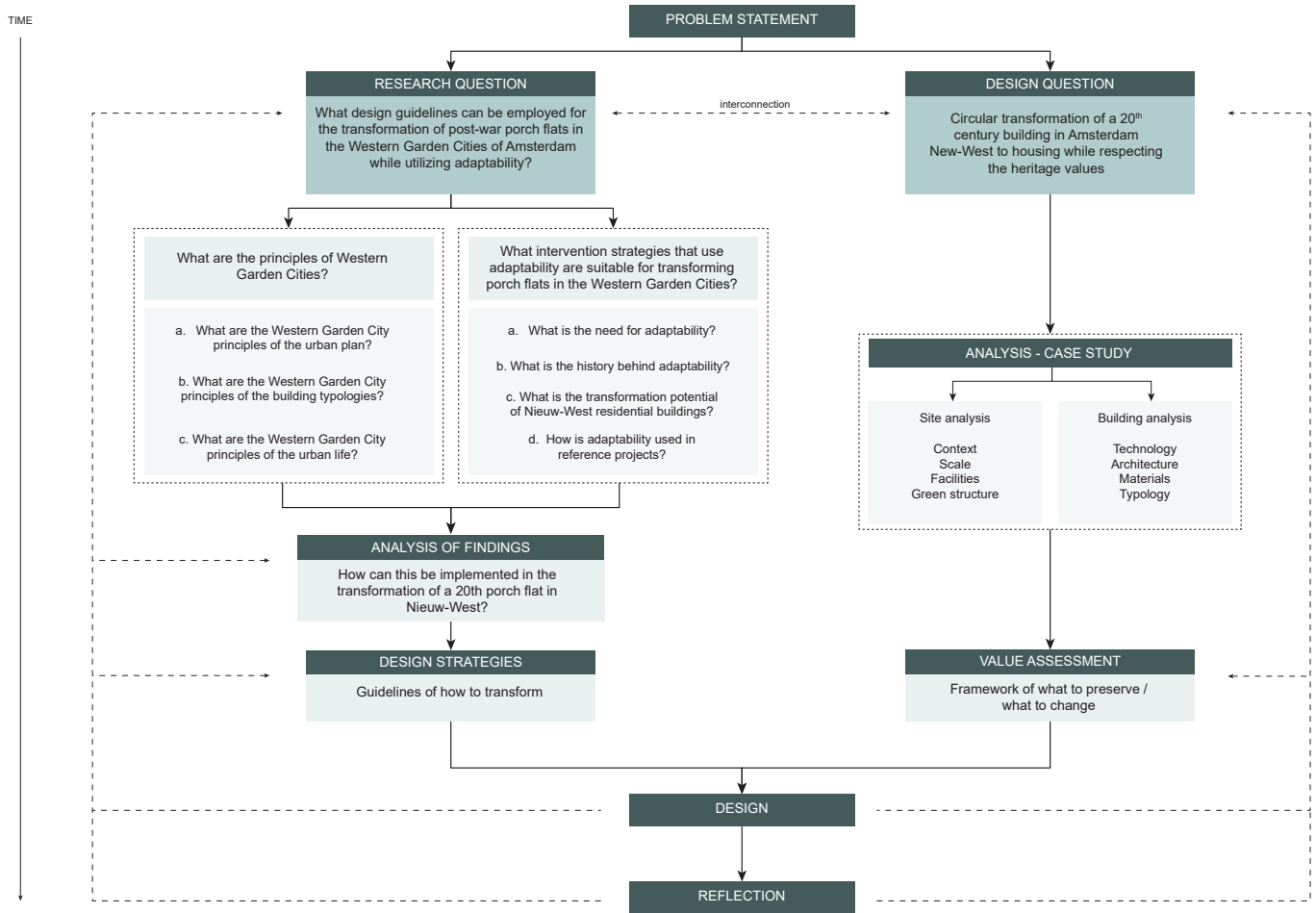


Figure 4: Diagram of research and design (illustrated by author)



Figure 5: Urban diagram after implementing design guidelines from research (illustrated by author)

REFLECTION

made are based on the research and how it fits within the context of this case. The volumes for example are chosen because of sunlight. Next to that, I also wanted to create a landmark by giving the new building on the urban square 12 floors, so that people can see it from the train station for example and this invites people to use the public spaces and shops on the ground floor. Figure 6 below shows the key aspects that explain the design. The sub aspects can be linked to the design guidelines from the research. Where the first three aspects are related to the heritage and the fourth aspect to the adaptability part. This image shows the relation between the research and design and how the guidelines are categorised and implemented. Because the project is very big and contains many interventions, it was needed to make an image like this to explain the design decisions. Connecting to the train station and schools are location related interventions. Also, preserving the characteristic façade is a preservation strategy that is applicable for these kind of tiles, as it is a material that indicates the time period of the building. Thus, the design guidelines of the research are implemented, but some are added to this specific location in order to give quality to the project.

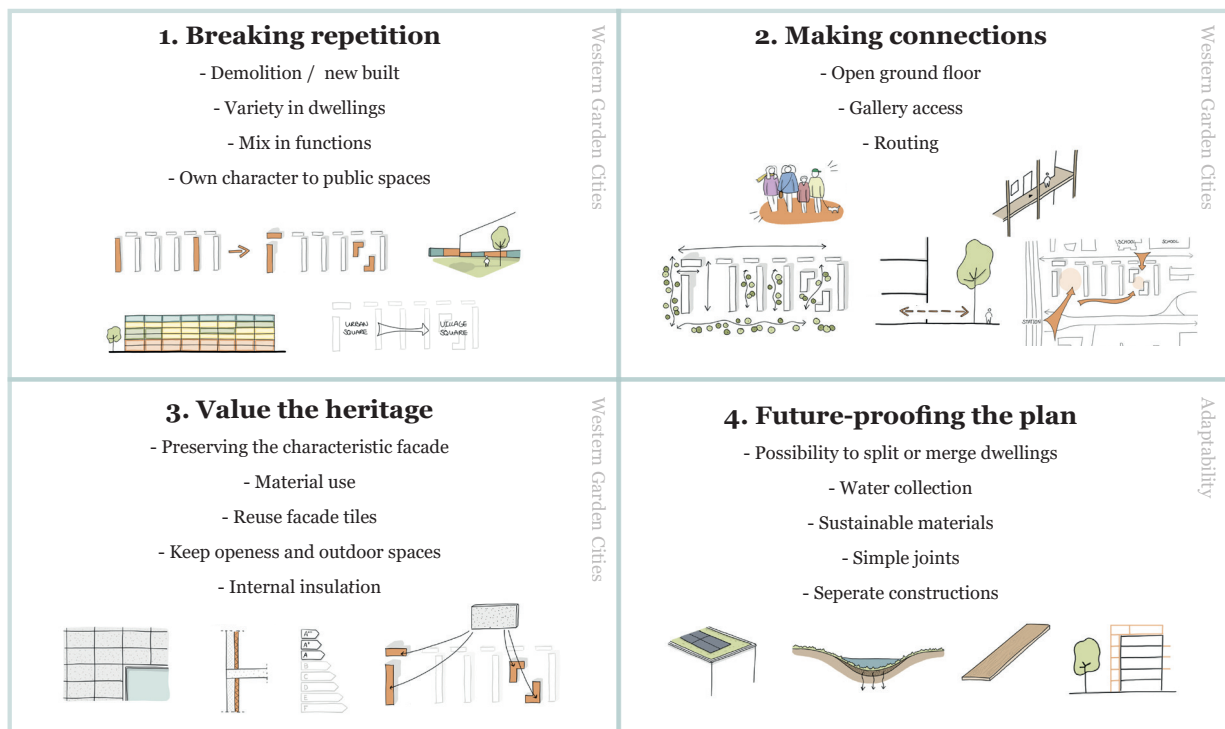


Figure 6: Key aspects of the design (illustrated by author)

Reflection on methodology & process

The method I used for the research was mainly a combination of literature review and a comparative study. This gave many insights into the Western Garden Cities, different opinions and the use of adaptability in buildings. However, I quickly noticed that there was limited information available about the integration of adaptability in existing buildings. The existing literature and available case studies provided a foundation, but there exists a gap in comprehensive guidelines for incorporating

REFLECTION

adaptability in to the post-war porch flats. This limitation emphasized the need for further exploration during the design phase. Also, the scope of the research could benefit from an expansion of reference projects. A broader pool of cases enrich the understanding of design strategies and offer diverse perspectives on the implementation of adaptability. Next to that, it is also essential to be careful when looking at the results of the research. The research offers guidelines rather than definite answers. The proposed guidelines stand as potential pathways towards the revival of the neighbourhood and adding adaptable techniques, but they are not complete or conclusive. The trustworthiness of the results depends on understanding that these guidelines are more a flexible framework for exploring ideas rather than strict rules. These limitations of the methodology were important to keep in mind while designing.

During the design process, I noticed that it took getting used to moving from the research to the creative thinking process again. Ideas for the design came but there was no specific direction for the redesign yet. After a second site visit with more focus on surroundings, sightlines and public spaces, my vision became clear. Alongside this, it worked to make visualisations of the problems, values and opportunities of the porch flats and its surroundings. From this came a first draft of a master plan in which the two schools on the north side and the train station on the south-west side could be connected (figure 7). Also diversity could be created by demolishing two buildings and placing new ones. The side of the station thus becomes more urban and the side of the two schools becomes more village-like. The values of Western Garden Cities, such as having different routes, community-based living environments and intensive use of space were added to the design. Because of this, I found that the research was very helpful, by exploring the principles of the Western Garden Cities, I could come with appropriate solutions for the transformation of these porch flats.

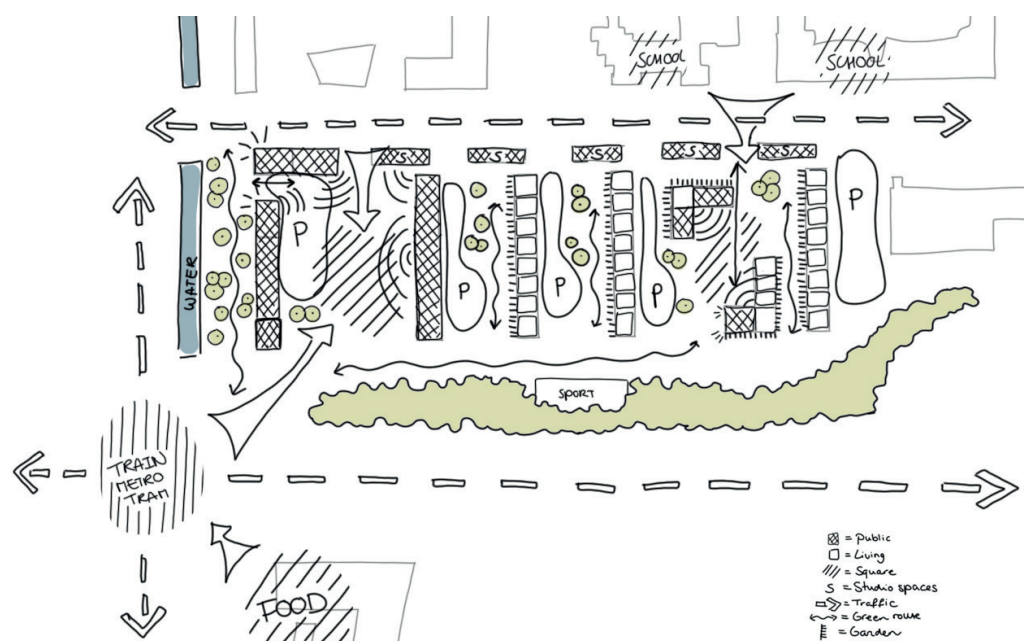


Figure 7: Concept map (illustrated by author)

REFLECTION

Design dilemmas

During the design phase there were also many challenges and dilemmas that I faced. The biggest one was in the first part of the design where I made a decision on demolishing two porch flats. This has of course a large impact and is not very circular, but the reason I wanted to do this was to make this project more challenging, seeing what is possible and also show the possibilities and the added value that it can give by doing it. This also relates to my idea behind this project, because I want this project to be an example of how to implement the design guidelines of the research on different scales. The design guidelines from the research differ from small scale interventions like adding a mix of functions or diversify floorplans to larger scale interventions like breaking the repetition by building new and adding a roof extension. Adding a gallery also came from the research, this has to do with adaptability because it can easily be demounted, the façade is easy to clean and tiles can easily be replaced. Next to that it has more advantages, like making it wheelchair friendly as the porch access will be removed, creating more space inside the building, having more contact with people and having more eyes on the street in order to make a connection between the building and the surroundings. However, a gallery also has negative aspects, there will be for example less privacy and a gallery can be a very long walking route to your home. The positive values outweigh the negative values in this case. The length of the flats is not very long and I made accesses on both ends of the flat to minimise walking distances and minimise the number of people that will walk past your window. Also, I made small holes in the gallery in front of bedroom windows so that people can't stand directly in front of the window.

Next to this, there was also the dilemma of parking. The parking places are in front of the existing flats and the walking distance to the front door is very minimal. However, this of course can hinder the sight and the appearance of the courtyards. It was difficult to make a decision on what to do with these parking places as there is very limited space in the surroundings to make parking places. For the urban square, I could make parking on the ground floor with a floor deck on top. The cars are not visible in this square. Also in the village square, the cars won't be very visible as the buildings are L-shaped and facing each other which makes smaller intimate courtyard in between. I decided to keep the parking places as they are for the remaining ones. This was a difficult decision but it won't be realistic to make underground parking, the soil is too wet and it is hard to explain for adaptability and circularity reasons. This also indicates that this decision was based on the research, where adaptability is very important.

Another dilemma that I faced were the brick façades on the upper floors of the new buildings. For heritage reasons I wanted this in brick, to refer to the old buildings by using the material from the ground floor on the upper floors and the concrete tiles on the ground floors of the new buildings. However, brick has a quite high carbon footprint and is not demountable. Therefore I opted for demountable bricks and I came with two options. The first option had thicker bricks and less aluminium profiles and the other option had very thin bricks but a lot of aluminium profiles. I decided to use the first option, because aluminium also has a very large carbon footprint and the thicker brick stones are more suitable for higher buildings and have more thermal mass.

REFLECTION

Academic and societal value, scope and implication of the project

The research and the design are intertwined, with the design being an elaboration of the research and here with being able to support the research and its results. The design has a wide variety of interventions that make it visible what is possible within the values of Western Garden Cities. The research has shown that Western Garden Cities are valued in different ways, with some keen to see everything demolished and others keen to preserve everything. In the academic field, there are many different opinions on preserving or demolishing the post-war buildings in this area, but there is no overarching idea on how to transform. Here, the research and design can provide a step in the right direction and serve as an example of how existing structures and buildings can be transformed into a more attractive and pleasant living environment while keeping the existing visible and even emphasising it through the use of the right interventions and right use of materials. The design guidelines provide a practical framework for subsequent transformations in similar contexts of porch flats.

The project also addresses pressing social problems such as housing shortage and urban decay in the Western Garden Cities by proposing strategies for revitalizing the existing housing stock and improving living conditions for residents and visitors. Also, the airy buildings, like these porch flats of the design project, are being valued by some people. However, the municipality wants to make space for a new road and demolish them. With this design, I support the people with a positive opinion, although it aren't many, and show the qualities that it can bring without destroying it all. In the design I also promote a more community based environment, because this vision of the past is lost and people have more individual patterns. By giving courtyards their own identity, adding communal functions, making more elements in the public space that enhance meeting people and adding a gallery, I will support more interaction between residents and visitors.

Ethical considerations were environmental responsibility. I minimize the environmental impact by prioritizing sustainable materials and construction methods. Also inclusivity is important, design interventions ensure that all residents, including disabled people, have access to public spaces and other functions.

Transferability of the project

The design guidelines from the research are a combination of interventions strategies that have emerged from positive and negative values of the area. They are linked to adaptability to future-proof the buildings and keep up with changing dynamics in social and economic patterns. The research could be relevant because much research has been done on the Western Garden Cities and various interventions and opinions of critics have been given, but there was never a clear picture on the best method of preserving the heritage and the transformation of this. The outcome of the research and final design could be beneficial as a starting point for the transformation of porch flats. However, the design showed that these generic guidelines still need to be refined and should be tied to a specific design case. That is the reason why the research also benefits from the elaboration of the design as the design can form an inspiration and example of how to transform while respecting the heritage of the buildings and principles of the neighbourhood while adding adaptable techniques.

The interventions that I made in the design, like the roof additions, gallery structures, ground-bounded dwellings and demolishing two flats and adding new

REFLECTION

buildings will be an example of how to add quality to the built environment while respecting the heritage. When transforming other porch flats in the neighbourhood, these interventions can be used to see the possibilities. Not every porch flat is for example suitable for ground-bounded dwellings as the floor height is too small. And next to this, it is not necessary to demolish in all the cases. With this design, I wanted to show the possibilities from the small to larger scale. Small-scale interventions like merging dwellings or adding mixed functions can also help to already revive the area a bit. But this design shows that also large interventions can really add value to the neighbourhood and that connections can then be made with surroundings.



Figure 8: Project sections, existing situation (top) and new situation (bottom)
(illustrated by author)

REFLECTION

Figure list

1. Post-war porch flats, Johan Jongkindstraat (2024). Own image.
2. Urban interventions (2024). Illustrated by author.
3. Facades of the design project (2024). Illustrated by author.
4. Diagram of research and design (2023). Illustrated by author.
5. Urban diagram after implementing design guidelines from research (2024). Illustrated by author.
6. Key aspects of the design (2024). Illustrated by author.
7. Concept map (2024). Illustrated by author.
8. Project sections (2024). Illustrated by author.

Reflection

June 2024

Master track Architecture
Heritage & Architecture Department
Graduation studio: Resourceful Housing, Adapting 20th Century Heritage
AR3AH105 | 2023/2024

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