MSc4 Graduation studio Dwelling Dutch Housing

Between standard and ideals
The future of housing in The Netherlands

Live longer at home

A design for elderly people and elderly people with dementia

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Reflection report

MSc4 Graduation studio Architecture

Dwelling - Dutch Housing 2019-2020

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Live longer at home

A design for elderly people and elderly people with dementia

REFLECTION REPORT
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TU DELFT
Architecture, Urbanism and Building Sciences
Chair of Dwelling
Dutch Housing Studio 2019/2020

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December 2019

Preface

During my graduation year in the Dutch Housing Studio, chair of Dwelling, the focus was on the actual and relevent problem(s) of dementia; the way of living when people get dementia and the kind of place to live, in particular for elderly people. While prognosis shows an enormous increase of elderly people and people with dementia in the next twenty years, there is a lack of pleasant elderly housing and care houses. Because of these facts, the following research question was introduced: *How can architecture provide a dementia friendly living environment in which elderly people and elderly people with dementia can live (longer) at home?* The past year, I worked on a design that responds to this questions and tries to come up with new insights for these highlighted problems.

In this current world where people getting older and older, the amount of people with dementia are increasing enormously while the quality and availability of care and housing for these people are decreasing. Shortage of pleasant housing, care and caregivers, together with the high pressure on those caregivers are a few of the most important issues nowadays.

There is a need for well designed living environments for elderly people and elderly people with dementia. With the building I designed, I respond on the question of how to design a dementia friendly living environment for elderly people and elderly people with dementia. Hereby it creates the possibility for the elderly and those of them who developed dementia, to continue their life in their own, familiar and trusted house and living environment.

The past year, research and design were constantly overlapping and alternating each other. Different types of research gave me new information, knowledge and insights about this topic, ending with a building. With this report, I am reflecting on the used research methods and the design process. Hereby, the scientific literature of Van Dooren (2013) and Van der Voordt (1998) will be an leading aspect during this reflection. By reflecting on my own process, I will be more aware about my process of research and design, the kind of (used) research methods, point of approvement and the value of researc for the design. This obtained knowledge will develop my design and research process for future projects.

January, 2019

Jeroen Ezink

Content

Introduction

By writing this reflection paper, as part of the education at the TU Delft, I have arrived to the last part of my study carreer at this university. This last period consisted of a year designing my graduation project and doing a lot of research, which is a very important aspect of the graduation year. By doing well-defined and well-based research, it develops and allows my final design to become more advanced. Which shows and defends my design choices and shows the development of my project. Where in the first half year of graduation a 'Research Report' was handed in, which consist of precedent analyses, conceptual design ideas and personal topics, the second half year is focused on the actual design. Although there is no requirement for any written papers or products, research will still go on untill the end of the graduation. During this period, research and design will stay close together. Developing a well-defined and well-based project. Different types of research made it possiblle to constantly enhance my project. Making modifications, sometimes without knowing what the result would/could be.

Research is an important aspect of the education programm of the TU Delft, faculty of Architecture. It shows and supports the design decisions which makes the final design explicable and defensible.

During the graduation year, I have done multiple types of research. In this reflection paper I will show, discuss and reflect on those I have used during my design process.
To structure the various ways of research methods and the influence of each on my design process, this reflection paper is based on the basis of five generic elements, described by Elise van Dooren (2013). These five generic elements consist of (Van Dooren, et all., 2013):

-Experimenting; process of diverging and converging
-Guiding theme; inspiring direction, helps to create a coherent and consistent result
-Domains; work fields
-Frame of reference; the broader context, references/library
-Laboratory; visual language of sketching and modelling

Hereby, the scientific literature of Van der Voordt (1998) will be integrated in this reflection.
Finally, this report will end with a reflection on four other questions as part of this graduation track, focused on the relationship between research and design in a wider context.

Life of an architect - Source: https://nl.pinterest.com/reisatx16/rei/

Research and Design

Experimenting

The process of designing is first and foremost a process of exploring and deciding, 'experimenting'. It is conducting experiments and learning about the consequences and implications of these experiments. 'Schön (1985) describes this process of conducting (small) experiments as 'experimenting' and as 'making a web of moves' whereby the moves construct new meanings and intentions' (Van Dooren et al., 2013). In short, experimenting is one of the most important aspects during the design process. It is about making new moves to come up with new insights, created by reflecting on these moves and asking questions such as 'why, what and which'.

Different kind of methods were used during my design process. From making quick sketches to get an overview of my ideas about the project, till making sketch models to research different kind of design options. In particular, the use of sketch models were important to make it possible to experiment and research new moves and ideas for my design. Some of these moves and ideas appeared as potential ideas at first. However, after researching it with the sketch models, some of them became less interesting or controversial. As mentioned above by Van Dooren, it was important to ask myself the 'why-, what- and which-'questions to make the right design choices.

As shown in figure 1 (Van Dooren et al., 2013) the way of experimenting in a design process is non-linear. Hereby, Atman and Turns (2001) came up with the insight that it is important for students to learn about the experimental aspect

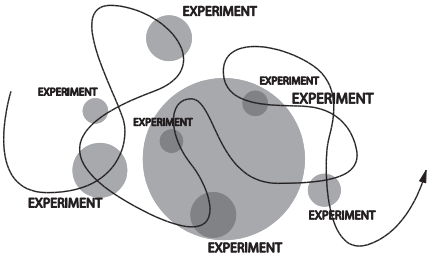

Fig. 1 (Van Dooren et al., 2013). The non-linear way of experimenting

during a design process. According to them, "students have a lot of misconceptions about the design process. This creates that students have a more linear way of designing whereby they are focused on one possible solution, without considering alternatives such as professional designers are working."

"Students have misconceptions about the design process, such as come up with 'perfect' solutions, solving all aspects and problems at once. In general, students work in a more linear way and are focused on one solution" (Van Dooren et al., 2013).

By reflecting on my design process, it is interesting that these five generic elements of Van Dooren were already introduced in the Bachelor during the AC3-course. By looking back on my reflection paper of that course, it shows me an almost linear process of designing. Hereby, I wrote to have the challenge to come up with a more non-linear design process during my master-courses.

By reflecting on this graduation course, I could conclude that 'having a more 'non-linear' process during the design process' is improved, but not as much

that it would meet the professional working standards of Van Dooren. The experiments executed in this project were, partly based on the frame of references. This means that some aspects were already based on preferences and ideas of what I should reach with my design.This makes the way of ‘non-linear’ designing less strong. For example,
the experiments with the lay-out of the facades. As shown in figure 2, different kind of lay-outs were researched by experimenting with various positions of the bay windows. However, the choice of using bay windows was already made because of my starting points and frame of references. This makes the ‘non-linear’ process less non-linear. It is partly ‘already decided’.

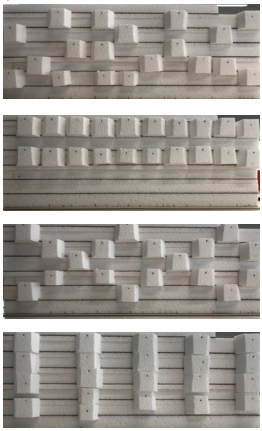

Fig. 2. Research of the lay-out of the facade with bay-windows

However, as a result of the quick start of this graduation course, this process became more ‘non-linear’. Different kind of building masses were researched by experimenting with various forms and heights (fig.3). Only framed by single starting points and needs for my target group, the research for the building mass was non-linear and based on experimenting new forms by constantly reflecting and analysing the experiments.

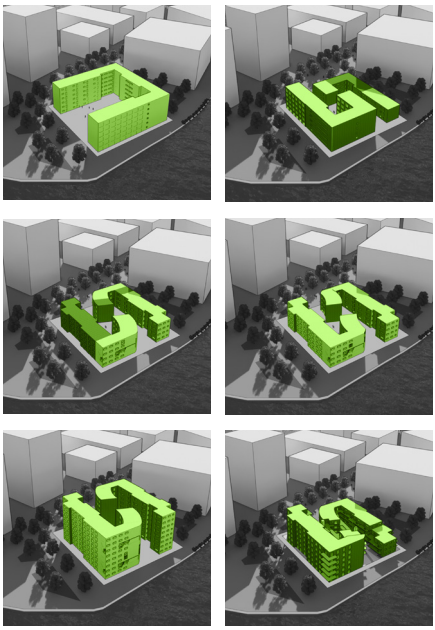

Fig. 3. Overview of experimenting with various building masses

The design process of the sketch models, which shows the lay-out for the facades, and the way of designing during the crash course were both a ‘non-linear’ process. Besides that, the sketch models ,used in the next phase of the design process, showed also a ‘non-linear’ process of designing. Figure 4 shows the research of different adjustments to come up with building forms and designs for the circulation in the building.

The images above shows an experimenting way of designing by moving, removing and replacing masses to come up with new building forms.

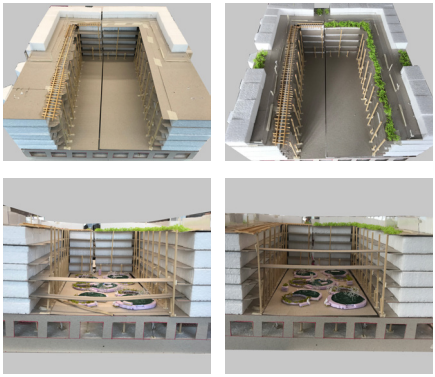

Fig. 4. Overview of non-linear designing by using sketch models

Each building mass was reflected and analysed to make the right decision.

In general, the ambition to develop a more ‘non-linear’ design process has resulted into improvements on both experimenting as designing. However, when holding on to the criteria of Van Dooren, the way of designing is still not at the level of experimenting as professionals do. Despite that, experimenting was something I used during my whole design process, from the start till the end and helped me to organise my ideas.

At least, by reflecting on my own design process based on the generic elements of Van Dooren, I also developed some critical opinions about the way of thinking of Van Dooren. In my opinion the level of experimenting will not be that ‘non-linear’ as shown in fig. 1 and explained by Van Dooren.

According to me, the design process is always (partly) influenced by personal preferences, ideas and your own frame of references. By reflecting on my own level of experimenting, it became clear that the way of experimenting was also (partly) connected with or based on the frame of refences, an other generic element noticed by Van Dooren. Experimenting new moves by using sketch models were partly inspired by references, for example the process of experimenting the lay-out of the facades, the circulation/wander and the design of the garden. Where Van Dooren shows the five generic elements as seperated elements, I used the different elements more as overlapping elements and not a single elements. An aspect which Van Dooren forget to mention.

Where Van Dooren is mostly focused on the design aspect, it is also important to reflect on the research aspect and how both aspects are/were connected during the design process. Van der Voordt (1998) describes in his paper ‘Methoden en technieken van onderzoek’ five research criteria which are required for scientifically based research. Van der Voordt described these five criteria as; (1) methodically, in which way the researcher could develop his research in an effective and efficient way, (2) objectivity and freedom of value, the researcher should leave the personal values and meaning out of the research, (3) verifiability, the research should be clear for other parties, (4) validity and reliability, make sure what is meant to measure is measured, (5) scientific relevance, the research should contribute to further development.

As part of the generic element ‘Experimenting’ the research tool of making sketch models was mostly used.

It gave me the possibility to research different kind of shapes, forms and expressions. But how valuable are these ways of research. As Van der Voordt mentioned, is that scientific research should be objective, intersubjective objectivity (Van der Voordt, 1998). However, in my opinion, general architecture is never really objective. By giving different kind of designers, architects of students the same design assignment, each of them will come up with various designs. That is because architecture is not defined by right or wrong answers or ideas. It is influenced by own experiences, the upbringing environment and intuition. Architect Lundin (2015) describes it as ‘an expression for a kind of knowledge that is hidden from our immediate consciousness’.

The scientific value of ‘experimenting’ by using sketch models could not totally be seen as an objective way of doing research. With the same starting points, other students or designers could come up with completely other designs, which makes this way of doing research not objective. It is influenced by intuition, by your environment and the already received knowledge. Personal preferences for architecture or styles could never completely be left out from the design process.

Guiding theme

"*A guiding theme, also named a concept, is the way in which the designers sees or frames the design siuation at hand. Designing is a process of naming and framing, of attending to matters and of making a context to work with them*" (Van Dooren, 2013). The guiding theme creates a design direction and helps with making decisions during the design process to develop identity, character and a coherent whole (Van Dooren et al., 2013).

Since the start of the graduation track, the guiding theme kept my brain restless. The decision of which theme I wanted to pursue, was made fast. Nonetheless, that same decision created a lot of questions. What kind of project should it be? What kind of building would complement the theme? Who are involved in my design process? What are the wishes and needs for this target group now, and would these change in the future? Why is this location good for this theme? All kind of questions kept popping-up. Questions which were important to make sure every detail would complement the eventual guiding theme.

All these questions that needed to be answered, made it frustrating that the guiding theme that needed to be formed, was so 'hard-framed'. The target groups, elderly people and those of them with dementia, made it difficult to develop first ideas. Those ideas had to suited for both of these target groups. Luckily, after doing research, practical and theoretical, site visits and researching the relevance and the most important aspects of both target groups, it became more clear what the guiding theme/concept should be.

The first (single) aspects were found, which could form a coherent whole at the end of the graduation track.

In the process of choosing a guiding theme, there was one topic that kept coming up: dementia. A 'hot-topic' at that time but also a topic I can relate to in a personal matter, since this disease has occured in my own family. The relevance of the shortage of caregivers, well designed housing for elderly people and the increasing amount of (elderly) people with dementia were the starting points to develop a coherent story. The target groups, were elderly people and elderly people with dementia. Hereby it turned out that I should specify my topic to 'normal' living area and not a carehouse. I also specified my target groups to elderly people with dementia in general. Of course there are different forms of dementia. However, in the time frame that has been given, focusing on dementia in general was the better choice.

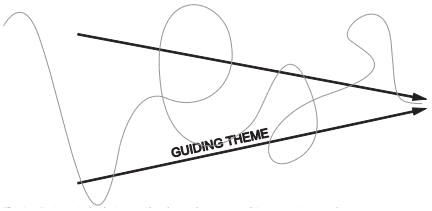

Fig. 5. Designing is a process of naming and framing, of attending to matters and of making a context to work with them, a guiding theme (Van Dooren et al., 2013)

The development of the guiding theme was a process of trial and error. As visible in figure 5, the guiding theme develops in time, by amplifying and specifying. By asking myself constantly why I made specific choices, it helped me to come up with a coherent story at the end.

"All the different phrases for what we call the guiding theme illustrate that the character of a guiding theme may vary. The guiding theme may be a quality, an image, a meaning, a material fascination, a functional theme or a kind of 'form language'. In fact different 'variations' often come together in the guiding theme" (Van Dooren et al, 2013).

By doing theoretical research, such as reading books, newspapers, articles and watching the news, I obtained more information and knowledge about my topic and the relevance of it. By coming up with articles, aspects of books and fragments of the news, I was able to discuss my topic and relevance with other students and teachers. It also helped me with framing my topic, relevance and target groups. It obliged me to explain my relevance and ideas properly.

Fig. 6. News articles concerning my topic, relevance and target group (ltr: Parool, 2016. AD, 2019. Parool, 2018. Parool, 2014.)

Besides these kind of research, also the conversations with people who were not familiar with architecture or this topic were important. I had to explain my relevance and ideas in a structured way to make it understandable for these people. By showing my design to these people, I became aware of some 'misstakes' in my design. For example the playfull character of the baywindows, each orientated on another position on the facade. The feedback of the 'unknown architectural people' were '*busy character, not clear lay out, gives me kind of stressfull feeling, too much is happening'*. All very valuable feedback for me as a designer. It could have been the same feedback as given by the future target group, who is in need of a relaxing, clear and recognizable environment.

Conversations with (professional) caregivers and architects who where specialized in this topic, were very important for my process. But so were the conversations I have made with the elderly people who were dealing with the first phase of dementia. By talking to people from different angles, I obtained knowledge from different kind of field and experiences. By talking with the caregivers, I became aware of the routing: the importance of sightlines and the connection between spaces, which play a big part in the life of an elderly person with dementia. By talking with the architects, it became clear which aspects are possible in practice and which were too idealistic. The knowledge and experience of the professionals obtained me more insight about the importance of contrasts, use of colours and materials, but also the lay-out of the building mass. The conversations with the elderly people who were within the first phase of dementia gave me the insights of how these people live with dementia. What are their routings, and how do they experience certain elements such as colors, interaction between rooms and the connection between spaces and

outdoor spaces.

These conversations gave me more insights and knowledge about the lay-out of an appriopiate dwelling, the use of colors, the connections between spaces and the ‘required’ functions and atmospheres.

Out of these conversations, the lay-out of the building mass and its dwellings, together with the target groups were the most important aspects for the guiding theme. But, also the location and orientation of the project were important elements for the guiding theme to come up with a coherence story.

The get an insight and grip on the location of the project, the first thing I did was visiting the location. During this site visit, elements were documented by making pictures, (short) movies and handmade sketches. At home, I tried to visualize my first impressions and ideas of this location by making quick sketches. It was a location surrounded by a large area of water,a lot of ‘low’ buildings (mostly offices) and added by a heavy industry, which could be found at the opposite side of the location. “*I experienced the location as a relax and calm environment with little traffic. It is a windy, open and spacious location, enclosed by the industry and city center at the side of the project location”.*

Furthermore, drawings were made to analyse the location. Based on the knowledge of books and the history maps on the internet, analytical drawings were made to get grip on aspects such as; the wind and sun orientation, development of the location, excisting buildings, roads, accessibility, views and amenities.
With this information, starting points were made for the orientation of the ‘new urban masterplan’.

The target group, location and the lay-out of the building mass and dwellings became my guiding themes. Hereby, I have to perceive that these aspects were most used during my project, whereby other smaller aspects were also part of the guiding theme. This supports the opinion of Van Dooren that the guiding theme is ‘a train of thoughts, developing in time’.

The guiding theme was a process of trial and error, of reflecting om my design choices and getting in contact with different kind of people. My guiding theme has started with the search of finding ideas. Ideas which became clear and coherent during the process, as a result of research and controversations with different people. The guiding theme was developed by the search to certain qualities, which were analysed and transformed to architectural qualities.

With the guiding theme, target group and location, I was able to make the right decisions for the design by reflecting on each of my choices, keeping the requirements and wishes of my ‘guiding themes’ in mind, made sure I would not lose control of the topic and the choices. It gave me guidance when I threatened to lose control of the topic and the choices. When reflecting on the guiding theme, I was able to support or weakenn certain choices.

By reflecting on the research, the guiding theme has two faces. According to Van der Voordt (1998), the guiding theme is not objective and has no freedom of value. The theme of the project is chosen, based on personal experiences and interest. That means that I have noticed already the positive, but also the negative aspects about this theme, dementia. As a result, personal preferences and wishes are taken into the project, consciously or unconsciously, which made the project less objective.
In addition, there is no 'freedom of value' within this theme. For instance, when the research shows an outcome that people with dementia should be locked up, I will never allow or introduce it in my own project, because of personal preferences and the level of humanity in the project. Certain outcomes could be left out of the project, which harms the 'freedom of value' within this theme.

On the other side, this guiding is theme is also valid and scientifically relevant. Because what is meant to measure is measured. Conversations with various people who are involved in this theme, and the research based on literature, news and journals make it possible to validate the output of the research. Besides that, it is also scientifically relevant, because this research and design assignment during the graduation contributes to a relevant and social problem in The Netherlands. It contributes to further research about new/improved ways of living for elderly people and elderly people with dementia, in the same building.

In short, the guiding theme, mentioned by Van Dooren (2013) has two faces. At the one hand, the theme is not objective an has no freedom of values, this is because of personal preferences and humanity. On the other hand, this theme is scientifically relevant and valid because of the openness of the conversations with the various groups and the scientific research. Which both contribute to further research of this guiding theme.

Domains

An architect has to deal with various topics during the design process. These topics can be divided in so called ‘domains’. These domains can be divided in five main-domains: “(1)form and space, (2)material, (3)function, (4) physical context, and (5)social, cultural, historical and philosophical context” (Van Dooren et al., 2013).

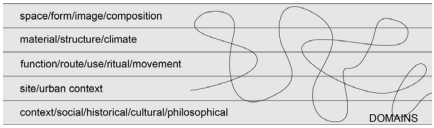

Fig. 7. The five different main-domains described by Van Dooren (2013)

Each move, made in a certain domain, has its influence on all the other domains. Hereby it is difficult to oversee and, at the same time, work in all the different domains. It is simply not possible to process all information given to us. That is why it is important to pick out the valuable aspects, needed for the project (Schön & Wiggins, 1992).

During the graduation track, I was not aware that I was working within different domains. The working method I used, was learned during my bachelor period at the TU Delft and the first year of the master. When reflecting on my work method of this graduation year, it becomes clear that I have even simultaneously worked within the different domains. Hereby, some of the possible solutions were not used during the design process, but were the start for further research or a means to increase the amount of knowledge about a certain topic. This helped me to discover the different relations between the five ‘main-domains’, as been described by Van Dooren. Valuable knowledge, which helped me by the design process of my graduation project.

For example the relations between the domain of ‘form and space’, and ‘function’. The sizes of the dwellings, the different spaces within the dwellings, the lay-out of the dwellings (with minimal use of walls and doors) and the sizes of spaces and entrances were very important for my targetgroups. By working at both domains simultaneously, these aspects could be discovered and designed in a proper and integral way. Different kind of literature, such as Het ontwerpen van woningen’ of Leupen and Mooij (2008), ‘The housing design handbook’ of Levitt and McCafferty (2019) and ‘De menselijke maat’ of Haak (2005), were used to come up with the right sizes and distances. With this information I obtained knowledge about designing for elderly and those who are disabled. Knowledge like minimum sizes and measurements of spaces and furniture.

Knowledge about elderly people with dementia was obtained with the book ‘Dimensie voor dementie’ of Nillisen and Opitz (2013), the reader ‘Toolkit dementievriendelijk ontwerpen’ of KCWZ (2018) and several websites. The different knowlegde together, made it possible to work at various domains simultaneously. For instance the domain of ‘form and space’ and ‘function’.

The atmosphere, sizes, dimensions and spaciousness of the building and the dwellings are important design aspects for both targetgroups. Different sizes of

dwellings offer the possibility to present housing for different households. A part of the dwellings is smaller than 50 sqm, and other dwellings are around the 70 - 90 sqm. Each of these dwelling types offer the same atmosphere of living, in a spacious and understandable way for elderly person and those with dementia. Sightlines play an important role for the spaciousness and atmosphere of the dwelling. With a well-defined lay-out of the floorplan, a dwelling can have a minimal amount of walls and doors. This creates a spacious and open dwelling. To come up with a standard floorplan, different kind of perspectives were researched. Figure 8 shows the conceptual sketches of several floorplans. It shows the relationships between spaces in a dwelling, based on different perspectives; elderly people, those with dementia, caregivers and the connection with the surrounding and daylight.

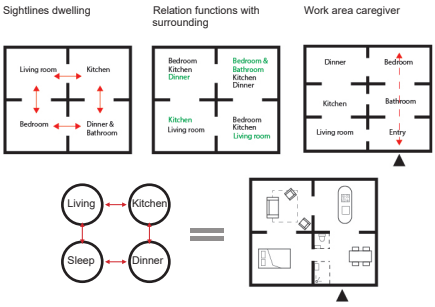

Fig. 8. Conceptual sketches research relations between different functions dwelling

With this research, I was able to design a ‘main-floorplan’ with a standard lay-out. The different functions were organized and connected with eachother, based on the wishes and needs of both target groups. Based on this standard floorplan, different variations could be made for each dwelling type. Because of this, all the dwelling types are qualified for both target groups.

Besides the domains of ‘form and space’, and ‘function’, also the domains of ‘material’, and ‘social and cultural’ were important during the design process. It is important to be aware of the wishes and needs of the future residents and households. What kind of households are expected in the future (in 30 years) and what are there wishes and needs? During the design process, already for the P2 presentation, I was considering and investigating which kind of households for elderly people should be designed in the future. How many one-person households? How many two-persons households? And what are the expectations of the amount of elderly people and those with dementia, in The Netherlands and Amsterdam?
By taken this into account, the social and structural domains came together at the same time.
As a result, the building must be transformable within it lay-out of the floorplans. This means, transformable in the sizes of dwellings. If there is a need for more one-person households, the building must be able to offer this. Larger dwellings should be transformed to smaller one-person dwellings and vice versa. This means that the structure of the building should provide a certain level of flexibility. The structure of the building is designed as a flexible system whereby certain (non load-bearing) walls

can be removed. This ensures that the dwellings are suitable and pleasent for both target groups and households, also in the future. This make it possible to create three smaller dwellings out of two larger dwellings, and vice versa.

During my design process, all the five domains, noticed by Van Dooren, were used. Sometimes, I was not aware that I was working on the different domains. By reflecting on my process, I realized this. Sometimes I worked on a single domain each time. However, I can conclude that most of the time I worked on various domains simultaneously. It made me aware of their underlying connections/ relations with eachother and the need of working at various domains at the same time. To make an integral and proper story and design. It helped me to keep moving during my process and not get stuck by certain problems or cases.

In my opinion Van Dooren forget to mention other aspects which are important for the design and the process. Van Dooren shows the five domains in which designers and architects has to work and to work on simultaneously to develop a coherent design. "*A move informed by an intention, formulated within one domain, has consequences in all other domains*" (Schön & Wiggins, 1992). Van Dooren talks about the practical, social, historical, functional and spatial domains and makes it appear that these are the only domains which are important during the design process. She forget to mention the domain of 'financing'. Only at the end of the master graduation track, a bit of financing is involved in the design process. During the other years at the TU Delft, the aspect of financing is not taken into account. Remarkable, because money for the project and the costs are important aspects for the design in practice. Something Van Dooren and the TU Delft forget to mention and teach.

According to Van der Voordt (1998), the process of the research is a process which is controllable. By doing research about the square meters, lay-out of the floor plans and the use of recognizable materials, a clear and understandable process has been made. This knowledge is obtained by reading journals, scientific articles and books, but also by reading research booklets of Alzheimer institutions. With this kind of research, the outcomes are controllable and could be done by other people in the same way.

However, the level of 'freedom of values' and 'objectivity' are debatable. Again the personal preferences and experiences have influence in the research and design process. On the one hand, the research is done in an objective way. Several reference projects, with the same themes, are researched. But these reference projects are based on personal knowledge, positions and preferences. This dichotomy is underlined by Van der Voordt (1998): '*full objectivity is hardly achievable*'.

In this reflection, the research is done in an almost objective and controllable way. However, because of the personal preferences, positions and experiences,

the value of objectivity and the level of ‘freedom of values’ will decrease. Research of reference projects and scientific literature underlines the scientific level of this research and the controllable of this process. While the personal aspects make it more subjective.

The outcomes of this research are usable for further research and for other projects. For example the research for a dementia friendly lay-out for the floorplans are based on scientific literature and research of other projects with the same theme. It is scientific substantiated. The way how it is done can be done in the same way by other people. Hereby, personal preferences could have there influences in the outcomes. If people do not like certain outcomes, they will lose or forget it and continue with the other outcomes. Because of the scientific level of this research, the difference in outcomes will be minimal.

Frame of references

As architects and designers, we can obtain already a lot of knowledge from the world around us. "*Designers talk, sketch and think in patterns, in what is often called 'precedents' or 'references"* (Van Dooren et al., 2013). All the precedents together forms the 'frame of references'. This frame is built over the years by searching, collecting and analysing these precedents and enables an architect and designer to see a new situation and come up with innovative or new solutions.

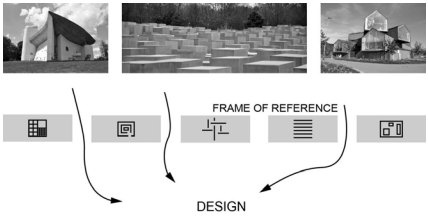

Fig. 9. Scheme of the 'frame of references' by Van Dooren (2013)

Personally, the domain of the 'frame of references' is the most well-known domain, but probably also for the other architecture students. As student of architecture, I am visually orientated. One of the first tasks I do is to search for examples (references) to come up with ideas for the design. Also during the graduation year, 'precedent research' was something I used a lot by collecting and analysing references (excisting knowledge). Besides my personal input, it was also a required part of the research phase. In the research phase, untill the P2 presentation, I had to research and analyse four existing and comparable projects. Projects with the same themes; including collective spaces, circulation and dwelling sizes.

By analysing these existing projects, I gained knowledge which became the starting points for my design. These were variations based on the existing elements. To analyse the different aspects, I used various techniques; floorplans, sections, diagrams and axonometrics. By analysing the four projects seperately, I was able to compare the projects with eachother and to come up with conclusions. Conclusions suchh as usable design tools and which not.

"One of the paradoxes of creativity is that, in order to think originally, we must familiarize ourselves with the ideas of others..." (Lawson, 2006).

One of the first important themes during the analysis of the reference projects was the design of the circulation inside and outside the building. In particular for both target groups, the possibilty to walk around and wander are important for the physical and mental health.
Another important design element found in the reference projects was the use of wide galleries and/or corridors, and the connection between the different parts of the galleries. These elements are also recognizable aspects in my project. Because of these wide galleries, the residents are able to create their own spaces with plants or seats. It creates a so called 'natural transition zone' between the collective circulation system of the galleries and the private zone at their frontdoor. Because of these functions on the gallery, it will stimulate the social interaction within the residents.

The connection between the different parts of the gallery makes it possible to walk around and keep wander. That is an important element, in particular for elderly people with dementia. It will slow down the process of collapsing of the brains.

Additionally, the analysis of the outside spaces in the projects together with the sizes of the dwellings and clusters were important aspects.
Some of these projects were also used in the later design process to obtain further knowledge about the lay-out of the facades and the floorplans.

Fig. 11.Analysis of the elevated living area and the outdoor space at project De Componist, used in my project.

Besides the analysis of projects to obtain information and knowledge, also the collection and search for illustrations and images are an important aspect of the 'frame of references'. During the whole process, I used images to come up with ideas and examples of the practice. Different kind of methods were used. From using the internet by searching on google and pinterest untill the glance through articles and journals. The platform of Pinterest is an interesting and effective way of collecting various references for different topics. By searching on certain key-words, this platform comes up with an endless amount of examples. By clicking on certain images, the other key-words connected with these images, leads you to other examples. Sometimes examples you did not expect.
However, this is also a negative part of this platform. By endless searching, because of the different key-words, it is easy to lose yourself in the search for examples or 'perfect fitting' images which are not on that platform.

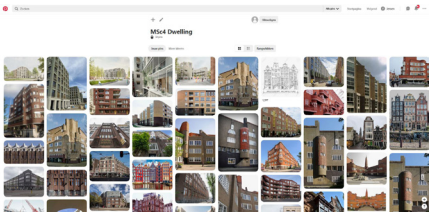

Fig. 12. My Pinterest 'pin-up' page of the MSc4-track

Besides the research via internet, journals, articles or analysis of projects, also the real world can helps in upgrading the domain of the 'frame of references'.

In particular, Amsterdam, nearby my own living area, and Delft offer me various projects with examples of typically Dutch brickwork facades and bay-windows. By cycling from the station to the faculty, various houses have different kind of bay-windows which obtain me new insights and references. By walking through Amsterdam, I was fascinated by the different kind of 'Amsterdamse school' architecture. By looking around, I gained new information, insights and knowledge about the various lay-outs of the facades, bay-windows and the used colours for the facades.
With having conversations with professionals and non-professionals about architecture, in particular about the 'Amsterdamse school' architecture, I obtained also knowledge, without looking to images or analysing projects.

At least, excursions will also help in upgrading the 'frame of references'. Despite the fact that our excursion to Brussel was a bit out of time, it still gave me new information, insights and ideas for my own project. For example, every single bay-window had my interest in Brussel. It was interesting that a lot of these bay-windows had other materialization or colours compared to the facade. This is an element which I have also introduced in my own project, by characterizing the three levels within my project, from public level, to living levels and dementia level. A variation on the difference of colours of the bay-windows in Brussel.

In short, the domain of the 'frame of references' is an important element in my design process. I was constantly using this domain, from the start untill the end. Own experiences, analyses of projects and collection of images are part of my 'frame of references'. During the time, this domain is updating itself. And as already described in the chapter of 'experimenting', this domain of references served also as contribution for the domain of 'experimenting'. Some of the 'experimenting elements' were based on the knowledge gained from the domain 'frame of references'.

By reflecting on the research aspect of the 'frame of references', the level of objectivity is direclty debatable. The way of doing research is controlable. Based on certain starting points, various references will pop-up. However, the frame of references is based on personal experiences, positions, style and wishes. It is a subjective element, based on personal aspects instead of an objective research element. This makes it less controllable. When other students will have the same starting points, they could easily come up with other references, because of their own experiences and their own library of references. This makes the 'frame of references' a subjective element in my own research process. Besides that, the 'freedom of values' is also debatable. If people do not like certain aspects or styles, they will not make it part of the research. That makes it possible that everyone could come up with different research outcomes, even by having the same starting points.

Laboratory

The last element of the five generic elements, noticed by Van Dooren (2013) is the element about laboratory. This generic element is a kind of tool or language to make your ideas, as designer or architect, more clear for other people. By making (physical) models and sketches, various ideas can be made specific in order to make your ideas clear, understandable and debatable for conversations. Van Dooren (2013) explained it as *'engineers have laboratories for experimenting. Designers have their own laboratory for the process of experimenting: the language of images'*.

The influence of sketching during the design process is bigger than I thought before. It is the most easiest way to visualize the ideas and make them understandable for other people, including myself. Personally, it helped me to arrange my ideas and to have an overview of all different options and their impact. Most of these sketches were fast made hand-sketches. Meant as material to start a conversation and debate about certain design options.

For instance, the lay-out of the floorplans was sketched a lot to visualize and research various design options. By sketching the different ideas, the options became debatable. It gave me an overview of what was interesting to use. Also the design ideas from which I already knew that these were not interesting, were drawn. By doing this, single elements based on these ideas can lead to new ideas or research aspects for other ideas. By investigating why certain design ideas are not interesting for the design, the good and the bad options can be noticed and used for further research. New sketches comes up with new ideas and works in the same way as the word web I made for the research of the name of my project; each word will create an overview of new (single) words.

Fig. 13. Use of 3D software to research several facade options

However, the process of research and design is not only based on sketching and making models. Also the influence of the 3D computer models are important during the design process. To become more concrete and in detail, it is necessary to work more precize. The computer model shows the measurements and the sizes of the design and makes it noticable if something fits or not.

By making a 3D computer model, I gained (new) insights about certain spatial qualities within my building. But also about the sizes of the building and certain areas and rooms. Also the use of Virtual Reality helped me during my

research of certain design aspects. For instance, the experience of the building mass from the outside and the inside of the building block. By researching it with Virtual Reality, I obtained insights of how different options were experienced on eye-level.
Also the use of the physical sketch models were important during this research. Nonetheless, it gave me less precize insights about the consequences of certain design options. Besides the use of 3D computer models, I also prefer to keep working with physical models because of the simplicity of the use of these models. It is easy to use as research tool to start a conversation about design options and shows easily the consequences.

In particular during the first phase of the design process, the use of physical sketch models was important for my research and design process. By working with this sketch model, it was easy to adapt different design options and to start talking about these options. For instance, the design of the inside world with the communal garden, the columns and the routing via galeries was done by researching different options in the sketch model. Because of the sketch model, I was able to research and see the different dimensions, proportions of the open spaces and to come up with creating a human scale in this inside world. The columns were made of wood sticks and were easy adaptable which made the research of the different measurements and proportions of these columns more easy. Different kind of options were researched because of

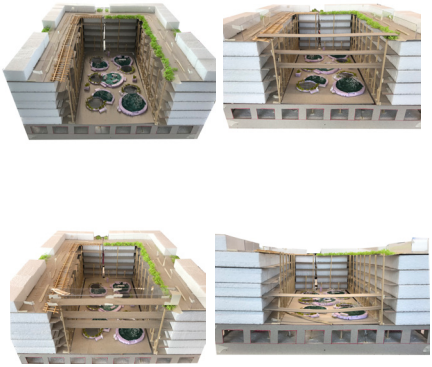

Fig. 14. Different variants of researching the communal garden with its circulation and proportions of the columns

this adaptable sketch model. Because of this, different design options were tested and photographed to come up with the most interesting variant.

In this current age, the use and possibilities of the digital world has become enormously. Also in the world of architecture, where the use of the computer is indispensable. By reflecting on my process, I became aware of my own way of designing. Hereby, I realized that, already in an early phase of the design, the computer was introduced in my design process. Because of the tutoring sessions of both tutors during this graduation year, the use of the handsketches and physical (sketch) models became important again. In the beginning, I was a bit sceptic about it. But by reflecting on my process and the choices I made for my design, the influence and value of the handmade models and sketches became clear for me again. Hereby, the interaction

between both tools, the manual and computerized products worked really good for me. By using the manual tools, I was able to research different ideas in a fast and easy way. By making my design more precize, the use of the computer was important to make clear if the ideas were fitting or not. Even in a half age, the manual tools will still be used in architecture, to research in a fast and easy way.

During my design process, I used several drawing techniques, from 2D software till 3D software. For the conceptual phase of my design project, I used the 2D software AutoCAD. I already worked with this software for a couple of years and it gave me freedom to research several variations. Because of the lack of the 3D options and by handdrawing each line, it is maybe not the most efficient programm to work with. However, it gave me confidence to think carefully about each line I drawn. After the P2, I moved to the 3D software of Revit. I already used this programm a couple of times during my bachelor and saw the benefits of this programm; it translates the 2D drawings directly to a 3D model. In the beginning, it gave me a lot of stress to get the programm under control again. But halfway, I get used to this programm and worked very good with it. Even though some people and students clarify Revit as a programm which lacks your freedom of designing, it is in my opinion a lack of knowledge from them, how the programm should be used.

The interaction of the different tools, from manual tools like handmade sketches and physical sketch models, till the digital computer models, worked best for me to show my ideas, the possibilities of my project and to express it in the right way. In my opinion, I will always use both tools simultaneously during my carreer. Because the manual and digitalized tools are closely linked together.

By reflecting on the research aspect of the ‘laboratory’, there are three aspects of Van de Voordt (1998) which could be introduced; freedom of value, objectivity and verifiability.
The ‘freedom of value’ is debatable by this generic element. Certain elements, which are not tolerable in advance, will not be drawn or researched. This means that not all principles will be researched, which lacks the ‘freedom of values’.

Also the ‘objectivity’ is debatable. On the one hand, the use of handmade sketches and physical models are objective ways of doing research. It is clear what is drawn/made and what is researched. It is noticable which conversation can be done about that topic. On the other hand, the use of this generic element as research element is not objective. The ideas which are shown in the sketches or models, are or could be based on personal preferences, backgrounds or intuition. However, this is sometimes hard to trace. This makes ‘laboratory’ as research aspect subjective instead of objective. Hereby, the ‘verifiability’ is also debatable, because it is not always clear how a designer has come up with these ideas and sketches, which makes it less verifiable for other people.

Life of an architect - Source: https://nl.pinterest.com/reisatx16/rei/

Who am I as a designer?

Who am I as a designer?

By reflecting on my own research and design process, it becomes clear that various research methods were important for the development of my project. A few conclusions can be made for the typical aspects of my project.

The design at the end of this graduation year is not only developed by various ways of doing research. Other aspects, such as personal preferences, experiences, but also intuition had an important role during the research and design process. As already mentioned in the different paragraphs of the five generic elements, each designer, student or architect has its own personal belongings, experiences and preferences. This means that everyone has another design approach, based on the personal aspects. As a result, each design project will have various results and outcomes which result in different kind of projects, within the same design assignment. Groeneveld (2006) described in his paper that '*each person its own frame of reference and thinking is developed based on the personal experiences and backgrounds. The understanding of an assignment or situation will always be created based on the projection of how a certain person the assignment/situation interpretates.This makes it possible that each assignment/ situation can differ'*.

By reflecting on my research and design process, it became clear for me that I discussed the various research and design elements seperately. However, it became clear for me during this graduation course that each research method is closely connected to eachother. By researching and designing on different fields simultaneously, a more coherent project will be developed. The one research method with its outcome can lead to other questions which can be researched and answered by using other research methods. By using these different methods into one project, it became more clear for me how essential a coherent and based reseach is for the design. Some of these research methods were more used during my design process, while other methods were less or not used.

By looking back at previous courses, model making was always a research method which I totaly lacks. I only presented architectural models during my presentations, and did not use it for study or research. Because of the way of education of my both tutors, it became clear for me how essential and necessary the use of model making is. Also during the research and design phase. Because of doing it, much more design issues became clear and made it possible to talk about it in an easy and fast way. I could definitely say that my graduation tutors have opened up my eyes. Sometimes, 3D programms are easier to use, but could make it harder to explain and to research certain ideas. During my career, I will be sure that model making keeps an important research aspect in my design process.

At least, reflecting back on the scientific research paper of Van der Voordt (1998), he notions five elements to conclude if a research process is scientifically.

By reflecting on my process, I can conclude that there is definitely a level of objectivity on my research and design process, but also in architecture. As already mentioned above, the level of objectivity is debatable. In my opinion, architecture is also a workfield of subjectivity, based on personal backgrounds, experiences and references. This means that it is almost impossible to get an total objective design. During research, personal preferences or belonging can influence the outcomes. For instance, as a student, designer or architect certain aspect do not like, it can be left out of the research which makes the outcomes more subjective.
On the other hand, there are other research methods which makes architecture more objective.

However, in my opinion, the subjective aspects of architecture characterizes this workfield in creativity and personal interest compared to other disciplines, with less personal frame of references in their workfield. Architecture will always consist of a level of subjectivity.

Life of an architect - Source: https://nl.pinterest.com/reisatx16/rei/

Retrospect

Retrospect

1. The relationship between research and design.
The last part of this reflection paper consist of a retrospect by answering five different questions of research and design, based on the graduation manual. In general, this reflection paper has gained me the insights of my own research and design process and the interwoven relation between both. By doing grounded and interwoven research, the design could be developed in a more coherent way. The final design of the graduation track consist of all the outcomes I found during the research whereby the research and design were working together and could not be seen as seperate aspects. I can conclude that the way of teaching during the graduation track has made me aware of the value of research, the relation of research and design, and the need of grounded research and arguments. Hereby the research and design are interwoven with eachother, inseparable. Research is a crucial tool that architects always should use to come up with answers to all different aspects/issues of architecture.

2. The relationship between the graduation project, the studio topic, master track and master programm.
The graduation studio, Dutch Housing Dwelling focusses itself on the topic how the future inhabitants will or should live in the city in the future. It is based on realistic aspects and reality based. The topic I have chosen for my graduation is based on this principle, and on my personal interest. The topic of my project is related to future problems in The Netherlands and Amsterdam; the shortage of housing for elderly people and those with dementia, together with the expected increase of people with dementia. Hereby I constantly asked myself the question 'what is needed in the future?' and took a time span of twenty years. An example of this future related aspects is the flexibility of the lay-out of the dwelling types. Because of the lay-out and the used structure, it is possible to change the amount of one-person and two-persons households to the amount which is needed in the future. The Dwelling studios accentuates the role of the single dwelling as part of a bigger environment, the building itself but also the direct surrounding and the city. Hereby, my design; housing for elderly people and those with dementia, responds to the current and future problems, the shortage of well designed dwellings for people with dementia, the shortage of housing for elderly people and the expected increase of eldery people and people with dementia. Without these dwellings, there will arise a problem, not only for these target groups, but also for other target groups who cannot find a house because the elderly people will still live there. It will create a huge impact on the society. This is an example of how a single dwelling can have a bigger influence on a larger scale, even on a city scale.

With my graduation topic, I was able to think about the future challenges for housing and how to respond on certain problems, nowadays and in the future. By thinking in an innovative way, combining two different target groups and let them live longer at home, a new way of housing for elderly and those

with dementia is researched and designed. Innovation, sustainability, social problems, urbanisation were aspects, researched during this track as part of the Master programm of the TU Delft.

3. Elaboration on research method and approach chosen by the student in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work.

The first half year of the graduation studio had a very strict and busy schedule, which I personally very liked. By having a strict and clarifying schedule, it helped me by understanding the expectations of the tutors and the course track. Moreover, it helped me also by imaging what should be done every week and the process of my project, if I was still at schedule or not. Because of the fact that research was the mandatory approach of the first months, I really liked that there was enough time in the schedule for these research period. By having this time, the research could be developed in a coherent and well founded way, an important aspect for the further design.

The period after the P2-presentation was less strict in my opinion. The schedule was less busy, compared to the period before the P2. This as result of the less contact hours by having one course instead of different courses at the same time. Personally, it helped me by making steps in my design process. I was able to continue my work, without having other courses or tutoring sessions at the same time. Sometimes, by having troubles or questions, it was hard for me to have a tutoring sessions at the end of the week. By making this reflection, I became aware that it is hard for me to put certain aspects away if I am in trouble with that and to continue working on other aspects.

By reflecting upon the scientific relevance of my work, it is in my opinion always debatable within the field of architecture. As already mentioned in this reflection paper before, the field of architecture consist of a large part of subjectivity. Architecture consist of scientific research, which makes it scientific, but also always influenced by personal interpretion, preferences and backgrounds. My tutor, Van der Putt, told us always an anecdote about a friend of him which studied mathematics. That is a workfield, consisting of a lot of objective research. By doing calculations, it is objective and controllable by other people. There is a less grey area. But by studying architecture, this grey area is much larger, which makes architecture always a kind of personal interpretation of the architect itself, despite the scientific research which is done.

4. Elaboration on the relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results.

Obtaining knowledge is one of the main aspects of the research together with gaining information and inspiration from excisting projects which can be

inplemented in my own design project. My final design is a result of personal preferences, background, experiences and interpretations. Personal experiences of how elderly people live in carehouses because of my grandmother who had dementia, together with literature studies, reference projects, news articles and conversations with different kind of people, were the foundation of my project. I drawed up on excisting knowledge and information and tried to combine this in a new and innovative way.

The past year, I have developed my knowledge about architecture, by obtaining new information, references and insights. Consciously or unconsciously, I will take these new information and insights with me during my career. Besides that, my project can also be seen as a source of inspiration for other people and designers. Because of the relevance of my project, this theme is a hot topic nowadays. Together with the shortage of care and housing, this way of combining two, ‘new’, targetgroups together in a special way, can be the foundation for new insights and projects. For instance, already the architectural firm Wiegerinck Architecten is interested in the outcomes of my research and design and already asked me to give them a presentation after my graduation presentation. They are interested in my new way of thinking by letting people with dementia living at home, at the same house and same environment in different levels.

The target groups and the building itself were the most important aspects during my design process. Hereby the location was also important, because of its waterfront and green environment, but not that much as the other two themes. The underlying principles and patterns for the routing, entrances, wander, levels of living, the lay-out of the dwellings and the organisation of the building are based on the target groups mostly, and less on the location. These new way of patterns can be inspiration for new projects, in a different city. For instance, the use of an elevated living area with a common garden, public functions on the ground, the gradations of city scale and phase of dementia and the organisation of the building (routing, access, social interaction).

5.Discuss the ethical issues and dilemmas you may have encountered in doing the research, elaborating the design and potential applications of the results in practice.

One of the first dillemmas within my project was the fact if elderly people and elderly people withd dementia wants to live together. Do the ‘mental health’ elderly people be confrontated with the fact of dementia and its influences. For this ethical issues, I have read a lot of news papers and journals and took the statistic of the expectations about housing shortage, caregivers and carehouses with me and made the conclusion that informal care is the new way of living in the future. Besides that, when people already live together for several years, people are well known with eachother. This makes the step to give care or help your neighbor, more

easy if they get dementia.

The other dilemma was the pressure or difficulty a topic such as dementia can bring with it. To design for a target group like this, you are related to a lot of emotional and mental developments anc changes during the last years of their live. Besides that, not one of the people with dementia have the same disease development. By realizing it, it gave me the pressure to come up with the perfect design, with is almost impossible. A friendly and interesting design is at this moment the most realistic challenge. A design which brings positive impacts to these people, even by having one of the most terrible diseases a person can have.

The last ethical issues during my design process was the fact how I could make an interesting design for both elderly people as elderly people with dementia. How do I protect myself to create a design for only dementia or only elderly people. By asking myself constantly questions such as if an design aspects has positive influences for both groups, it helped me to make outthinking decisions.

In my graduation project, I have shown a numer of relevant topics, such as the shortage of housing for elderly peope and people with dementia, the shortage of care and the expected increase of elderly people and people with dementia. With the research during this year and the critical view on the outcomes, I have confidence that my project is a relevant project for further, future research and practical use. With this project, I hope that I can contribute to a new way of living for elderly people and people with dementia, within a dementia friendly living environment, in a pleasent, affordable and carefull environment. I hope that people become aware of the current and future problems of dementia and elderly people, together with the shortage of housing and care and the benefits and new insights of this concept design. My graduation projects is hereby a contribution to a new way of living for elderly people and elderly people with dementia.

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Between standard and ideals

Jeroen Ezink
4287754

MSc4 Dutch Housing Graduation Studio 2019-2020
AR3AD131 Dutch Housing Studio

Reflection report

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