Reflection - the relation between design and research

Terrie van den Brink

Tutors: Theo Kupers, Ferry Adema and Pierijn van der Putt
TU Delft, Architecture, chair of Dwelling
May 24th 2018

Introduction

This is a reflection on the research and design process and the relationship between the two parts. More information about the research can be read in my P2 research book. All the sources of the literature and illustrations can also be found there. First I will reflect on the relation between the design and my research, thereafter I will answer graduation specific questions.

Introduction to the project topic

There is an increasing amount of young families that leave the big cities. Amsterdam has the highest number of all cities in the Netherlands. The main reason for leaving is the extension of the family (or plan to), which results in new requirements for the house and living environment. Most families want to stay in the city but can't find a house that meets the new requirements. They look for more space, a safe environment for children to play in and an affordable price. This is not possible in the current housing market of Amsterdam.

The literature part of the research looked into the reasons for young families to move out of Amsterdam and the living needs of young families. Besides this six case studies have been selected and analyzed to find common features in family housing design. This research resulted in information and suggestions that served as input for the family dwelling complex that can contribute to young families staying in the city. The information and suggestions form the design solutions for the project and are combined in a diagram. Here the different aspects of a family friendly environment in a city are explained based on of three scale levels: the neighbourhood, the building and the dwelling scale. The design solutions are further divided into six topics: safety, facilities, playing and interaction, supervision, space and identity.

The design site of this family complex is at the Tweede Weteringplantsoen. It is located at the Singel-belt of Amsterdam, which forms the border between the inner city and the rest of Amsterdam. The design on this location creates a perfect balance for families that want to enjoy the city life and have a safe environment for children.

Reflection on the research types

The research consists out of three main research types. The literature research, the location analysis and the case study. These types of research have been done at the same time, parallel to each other. This had effect on the other types of research, mainly on the case study. During the period of making the requirements and defining the research questions for the case studies not all the information from the literature study was available yet. If the case study was done after the literature study was concluded there would be different questions. The (case study) research questions could have been more specific for certain aspects of family house design.

The literature research focusses on the current situation of young families in Amsterdam, the problem statement, the target group analysis and on the literature about families living in the city. I'm aware that with time this research could have been more extensive and different literature could have given new understandings or more specific elements could have been analyzed. Although more research could have

extended the information, I think the realized research is a good representation of the topic to answer the research questions. It forms a good base for the design.

The case study has been executed in a group of three students with interests in family housing. I think this is a very big advantage over an individual case study. First of all has a group more time to analyze other cases, which results in a more complete conclusion. However very importantly the research is more objective, because the research questions and the means of illustrating is created in a way that represents the ideas of three people. Subjective topics or conclusions will be filtered out and this makes the case study more general applicable. This is why all three of us can use the results. Although the result of the case study is the same, each of our designs of our family complex will be very different. First of all because the case study is only a part of the whole research and the design locations are different. But most of all the influence of the architect will prefer certain aspects of

Windows increase in size

Top

Middle

Plinth

Strong horizontal division

Brown brick stones and white seams

White decorative bands

Strong vertical division

Big windows

Belgium hardstone band

Division between houses

Research: Additional research for facade design

the case study results more and focus on other elements that create a family environment in the city.

The literature study showed that the most important aspect of the location is the availability of the right facilities. Other aspects of the location analysis were more general knowledge about the design site, history, mass, sun (shade), sound and safety. On this front the location analysis could have been more elaborated. In the design phase (after P2) some elements where

still missing. For example the facade design needed more input from the context. For this not only the direct surroundings where important, but also the general Amsterdam facades could be used. A second aspect is the design of the squares, more research about the playground in Amsterdam was conducted to create a more substantiated square design.

Another type of research that I used during the design process is research through models. The current facade was chosen by making different options of the facade in models. The models showed a 3D impression of how the end result could be. I think this study fitted very well with the facade, because the facade uses difference in depths.
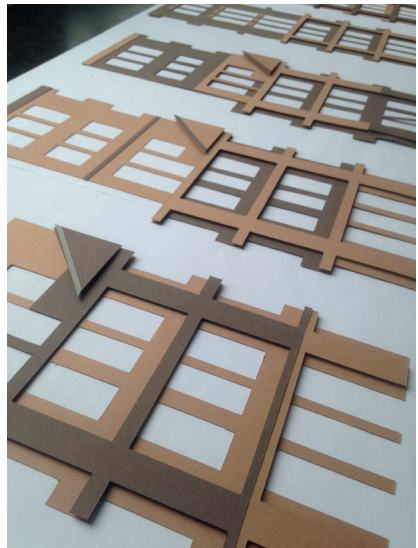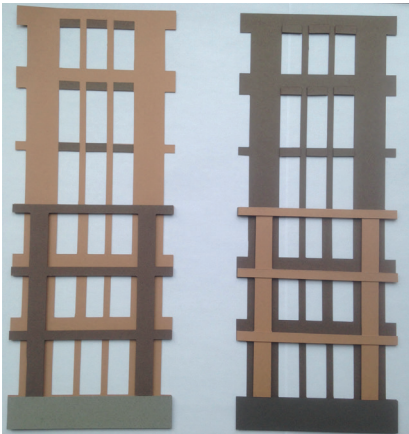
Research: Additional research through a model study of the facade.

Reflecting on the conclusion (type)

Already in the beginning phase of the research the conclusion type and the connection with the following design was a point of importance. The conclusion forms a framework with design solutions to which a design can be tested and checked. However more importantly does the conclusion also provide a starting point for the design.

This is why there is a very strong connection between the research and the design. The conclusion of the research is an overview of design solutions, which can be used in designing a building for young families in the city. These design solutions cover six important topics that are important to create a safe environment for young families: safety, facilities, playing and interaction, supervision, space and identity. Case study analysis, literature analysis and a (specific) location analysis formed the basis for the design solutions of the research. The conclusions are divided over three different scale levels, which are used when designing a building: the scale of the urban context, the scale of the building and the scale of the dwelling. By using the same three scale levels in the research the information from the research can be directly transferred into the design.

Although the conclusion of the research can be used as a direct input for the design, the design (on the same location) can be made very differently by different people. The conclusion of the research forms a broad spectrum of design solutions which can be interpreted differently by other designers. A combination of different design solutions will result in a different design. More research of different case studies and literature can increase the amount of design solutions. Especially more research in topic specific element can add design solutions to the overview. Although I believe that the current design solutions form a good basis for the design. The use of the design solutions can differ depending on the urban context, the architect and the 'building question' (and client). This design is my interpretation of the design solutions for this specific location.

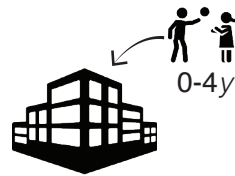# Reflecting on the relation between the conclusions and the design

The six topics of the research are the leading topics in the design. I will explain per topic how the research conclusion (design solutions) and the design are related.


Research: Playing away from traffic

Safety

The first aspect of the design solutions is safety. The research showed that a division of spaces will create a safer feeling. Also creating wide sidewalks and the use of boundaries to create safe spaces are design solutions which can be used in the design of a building for young families. This is translated to the design by creating safe spaces on different levels of the building, on both the urban scale and the building scale. The spaces are closed in by different building elements, which together create the building complex.

Research: Conclusions case study analysis: providing space to play in the building
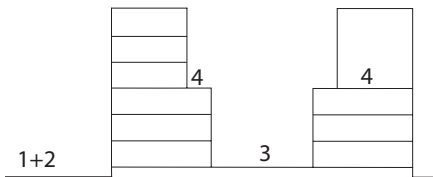
Design: Playing areas on different levels of the design.
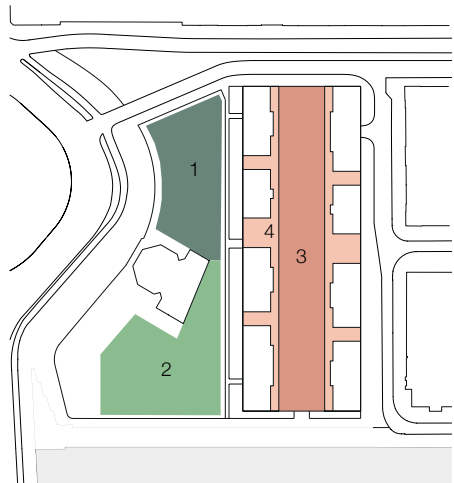
Design: Playing areas on different levels of the design (on urban and building scale).

Facilities

The second aspect of the design (and research) are the facilities that should be available in the surrounding of the design. The literature research showed the range of action of children in different age groups. Depending on the facilities that are available in these different ranges the location is more suitable for young families or not. The choice of the location for the design is for this aspect very important. In the case study analysis the different cases were tested on their location. The three ranges of action and the facilities are plotted on the building site to test the suitability of the location.

The research showed that the location of the Tweede Weteringplantsoen offers the needed facilities in close proximity of the design site. The missing facilities, like parking space for bicycles and storage has been added to the design.

Research: Conclusions case study analysis

Research: Facilities in the different range of actions. Case study: Kolenkithuis, Amsterdam
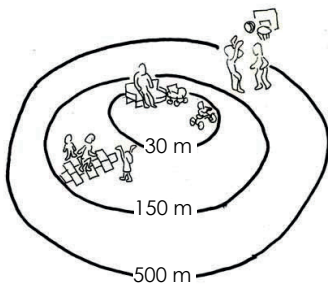


Research: Range of action of children

Design: Facilities in the different range of actions. Project site: Tweede Weteringplantsoen

Playing and interaction

The next aspect in both the research and the design is playing and interaction. This is a very important aspect of the design. The research showed the importance of spaces for children to play outside and meet each other and the lack of those spaces in the current streets of Amsterdam, mainly because of the high amounts of traffic. On the other hand are children very resourceful and don't need playing grounds to play outside. A wide sidewalk can provide enough space for children to play, and street element like benches, bicycle racks or fences can be used as playing object by children. This double use of elements was a conclusion in both the case study analysis and the literature analysis.

Research: Double use of street elements
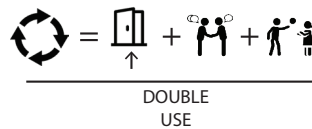


Research: Conclusions case study analysis

Research: Wide sidewalks for children to play
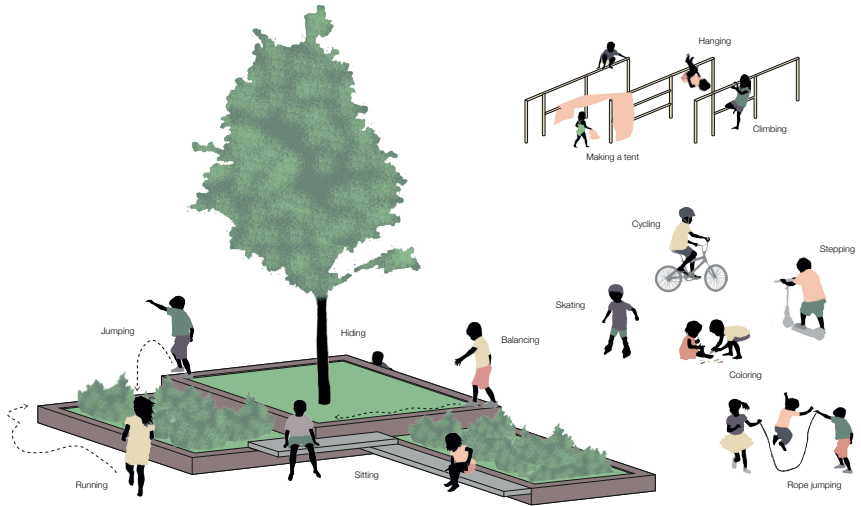
Design: Double use of elements and ways to play on the big square

The design creates a lot of different types of playing areas within the building complex (inside and outside). The raised square in the design functions as a schoolyard which is a meeting point for children and parents, and separates the street, parking and the playing areas. The circulation space is used as a important place to meet each other and play (double and triple use).

The double use of things became more important throughout the design process. More research during the design process showed that the playgrounds of Amsterdam in the '50, '60 and '70 of Aldo van Eyck are made with the intention to allow for multiple types of usage for a single object.
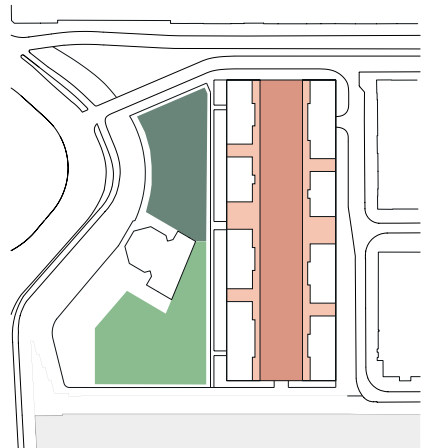

Design: Different types of spaces for children to play.

A neighborhood with a lot of families provides a place where children can meet and play, but also the parents can meet and help each other when necessary. The case study analysis showed that new designs combine the private and collective outdoor spaces to enhance the connection between the residents. They have no fenced private outdoor space (like balconies), instead the galleries are wider and can be used in multiple ways. In the design the private and collective outdoor spaces are combined to create a strong community where families can help each other.

Research: Conclusions case study analysis: combining private and collective ourdoor space.
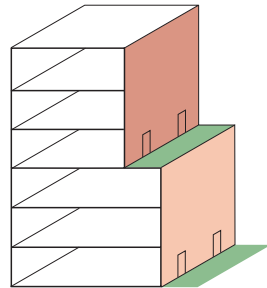

Design: Gallery (and square) and private outdoor space are combined.

Supervision

The forth aspect of the design solution is supervision. The solutions to allow for this are: facilities for parents at the playgrounds, supervision from the gallery, an inner courtyard and a good view from the dwelling to the 'play areas'. This resulted in the design in a building complex with galleries on the side of the communal square in the middle (with small squares on the gallery). Also the orientation of the dwelling is focussed on the inner square. The inner raised square has supervision from the building blocks on both sides and only small exits. The design of the square with sitting elements also allows for parents to supervise on the street.

On the urban scale the park directly on the west side of the building complex benefits from the building because it is more protected and supervised. The pancake restaurant serves as a good facility for parents to sit (and supervise) while there children are playing in the playground or the park.
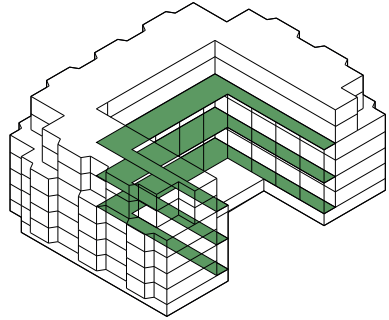
Research: Courtyard type to enhance supervision. Case study: Wisselspoor, Leuven.
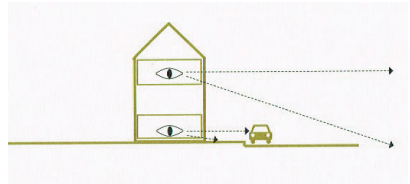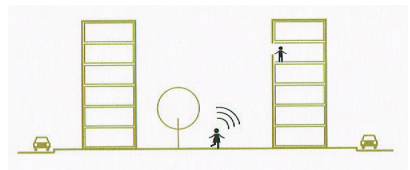
Research: Viewlines from building onto playing areas
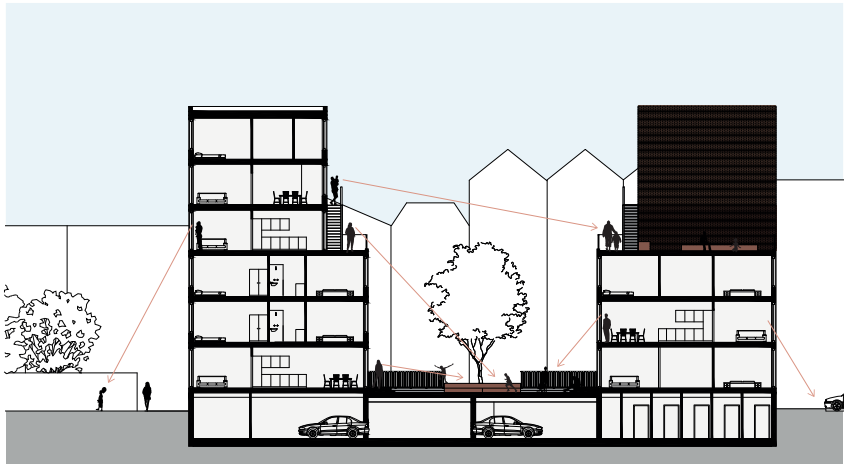
Design: Sight lines from dwelling, courtyard and gallery onto the different spaces where children can play.
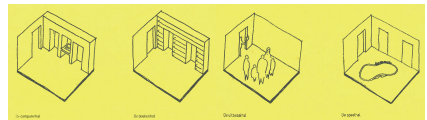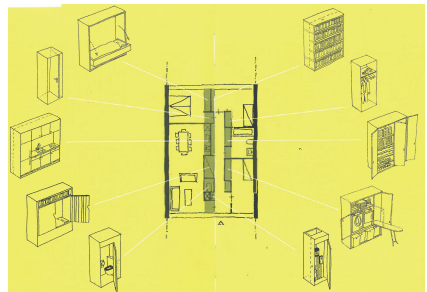
Space

The fifth aspect is space. Both space for children to play outside and enough space for young families inside their dwelling. This point is closely connected with the playing and interaction aspect and how to create spaces for children to play in a building complex. This topic has become one of the most important aspects of the building. The design provides safe spaces above ground level and in circulation space. By creating these spaces children can move around and explore the building freely and safely. The presence of the different spaces on the different levels is also visible in the section of the facade.

Closing in on the dwelling scale the design solutions from the research have given a few requirements for the dwellings. For example to make a lot of rooms, use rooms for multiple types of activities and provide privacy. The case studies showed that many dwellings use a strong separation between the public and private rooms. Besides this are (some of) the case study plan layouts used as the start for the dwelling plans of the design.
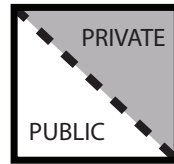

Research: Design solutions case study: seperation public and private.

In the design the wide gallery and square can be used for the extension of the living space of the dwellings, to provide the idea of a bigger dwelling area. Extra research during the design period showed that in the 19th century this was also done in the workers district of Amsterdam, because the houses were very small.
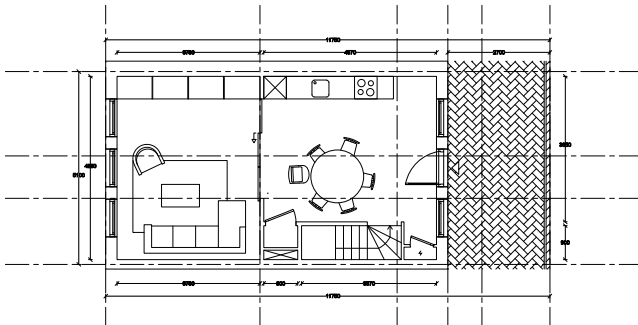

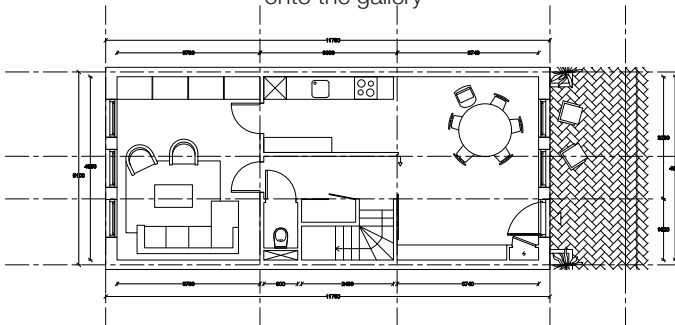Research: Design solutions dwelling layout.
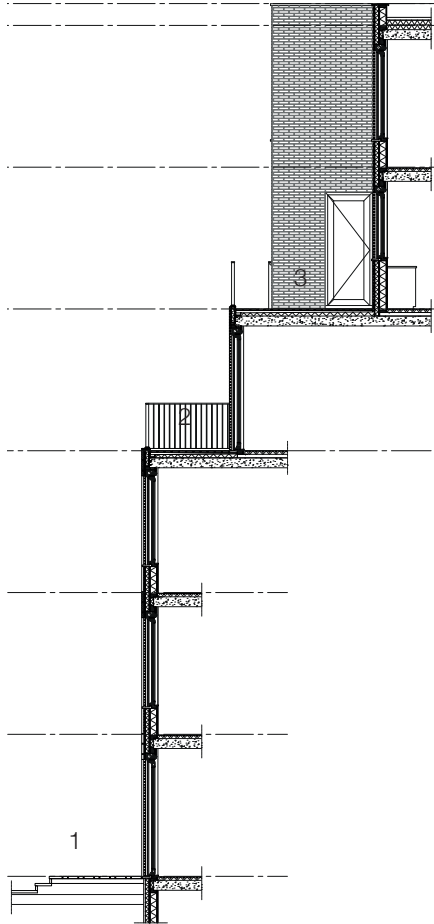
Design: visibility of different levels in a
facade section.

Research: 19th century, extension of the living space onto the street.

Design: extension of the living space onto the gallery

Design: extension of the living space onto the square

Identity

The last aspect of the research and design is the identity of the building. The case study research showed that a strong identity of the building helps the way finding of children. The facades in the context have aspects of the typical canal houses of Amsterdam. The design uses these grids and proportions but creates a new style. Secondly provides the shape of the building a different form within its surroundings.
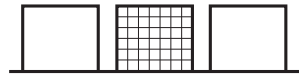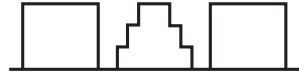
Research: creating an identity for the architecture of the building
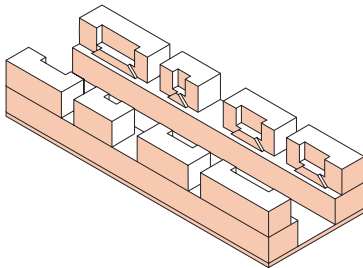
Design: building form

Research: facade and building shape of the surrounding buildings

Design: brick colors in facade

Aspect 1 - The relationship between research and design

The most important relationship between research and design is the use of the design solutions of the research conclusion directly into 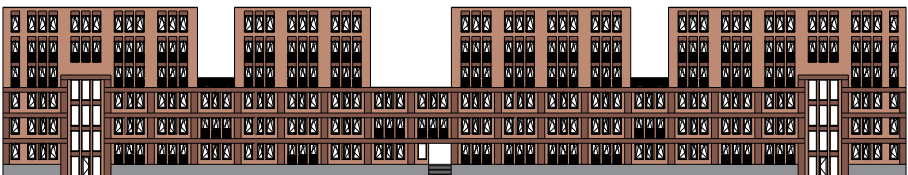the design. The conclusion of the research is an overview of design solutions that can be used in designing a building for young families in the city. Depending on the urban context, the architect and the 'building question' different solutions from this research can be chosen to create different designs. The design solutions were a good starting point for the design process. The research concludes with six important aspects within the topic of designing a complex for young urban families. More reflection about these aspects in relation to the design can be found in the main reflection about the relation between research conclusion and design. In this reflection the relation will be further explained and there are examples to show in what way, what I have learned during the research, is translated into the design.

In some aspects the research wasn't sufficient enough. These aspects have been researched later during the designing process. These topics are also raised in the main reflection.

Aspect 2 - The relationship between your graduation project, the studio topic, your master track, and your master program.

The Dutch housing graduation studio focusses on a future orientated building complex at the Singel-belt in the city center of Amsterdam. In my project for young urban families I react on the current development that young families leave the city. To decrease the number of families leaving in the future new types of buildings need to create a better living environment for young urban families. For this not only the dwelling layout is important, but also the relationship with the surrounding context. My graduation project shows rules and guidelines an architect can use for the design of a family housing complex in the city center of a big city (not only Amsterdam). Although the research focusses on the living quality of young families some of the conclusions could also be used in other types of architecture to create a safer environment for children in the city.

Aspect 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 your work.

The approach used in the dwelling studio is very effective and clear. By analyzing other projects in a case study analysis you can understand and learn from precedents. The challenging parts of this approach are the choice of the cases and the choice of the elements that the cases will be analyzed on. When the chosen cases have no overlapping elements with the research topic the results will not suffice, and when the chosen elements that are of interest for the research are not connected with the topic or not analyzed and illustrated in the correct way the results will also not help in the design.

With this in mind I believe that by doing the case study analysis in a group of three people with the same interests in family housing, we did a more objective study and have more trust worthy results. The cases had to be approved by three people instead of one and when making the research questions and choosing the means of illustrating the research and results three people had to approve. This results in a more objective case study analysis and these results can thereby also be used by other interested parties. My design is an example of how to use the research conclusions.

Although case study analysis are a big part of the dwelling studio, a case study analysis can not be the only research method used for the graduation research. For the input of a case study analysis there needs to be knowledge about the subject. A literature study will help to understand what you want to analyze in the cases. Besides this the location itself will also provide information for the design, and therefor a location analysis is another research method used in the project.

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

From different perspectives there is the need to keep families in the city. The majority of the families would like to stay in Amsterdam, the vinex locations are beginning to run out and the cities require the young families, because it is good for the diversity and economy of the city. The research combines all the knowledge and creates an overview of possible design solutions. Not every location and situation is the same, which means that not all the solutions can be used everywhere. The research suggest design solutions that can be combined in different ways, so it will create a wide range of possibilities for designing for family housing. This range of solutions has the possibility to grow over time, with

new research. The design shows an example of how to combine the design solution from the research into a building complex for young families in Amsterdam. So the project combines general design solutions with a location specific design as result.

In the research question I look for design solutions. Rather that naming all the design solution in a text that people need to read, I chose to provide a diagram with all the design solutions, for a large part illustrated, which shows a quick overview of the possibilities. Not only will this make the result of the research more transferable, but also easier to add new findings.

Aspect 5 - Discuss the ethical issues and dilemmas you may have encountered in (i) doing the research (ii) elaborating the design and (iii) potential applications of the results in practice.

The research is focussed on a specific target group: the young families. With this target group I have eliminated other groups like singles or elderly. But because the research showed that especially young families are struggling to find a house in Amsterdam I think this will provide a more equal balance in the households in the future. Within the target group there is not one type of young family and not every family has exactly the same needs. The general needs of young families will be similar and the design reacts to the different types of families by creating different types of dwelling to provide space for every type of family.

The main ethical issue I have encountered is the current playground that has to be reduced for my family complex. The dilemma in this is that on one hand I want to create safe playing spaces for children, and on the other hand I will reduce the current playing area for the children in the neighbourhood. The new urban design will add more space to play onto the location and it was very important that the playground didn't disappear completely, because it adds value to both the neighbourhood and to the new building complex. The design of the building also creates a lot of playing space. The raised square in between the buildings creates a safe environment that has a lot of social control and supervision from the dwellings. This area can be used during the day by every child in the neighbourhood. The scape of the building block also allows for more playing area on the first layer of the building. These areas are meant for the residents of the building complex. This results in a design that gives safe playing spaces back to the neighbourhood and for the residents of the building itself.