INTRODUCTION

This report forms a reflection on my final graduation design and the way different forms of research played a role in the development of my design. To write this research report and give a proper reflection, it becomes clear that in the first half year research consists mainly of reading literature, searching the internet, reading the newspaper, looking for and analyzing architectural designs and analyzing the location. Therefore, in the first half year research provided me with information but that information was not used directly in the design at that time. Hence in my research report I tried at the end of each chapter to make small diagrams of architectural tools and interventions which in the second half year I could use and implement in my own design assignment.

Just before the P2 and in the second half year, research gets a different role in the graduation process. Now, the information found in the first half year could and should be transferred to your own design. Also at the beginning of the second half year I visited multiple projects in Vienna where I got guided by people living in collective housing projects and even one of the project leaders. This gave me the chance to see and ask which aspects of the design were working and which were not and also was very inspiring for my own design and a good way to kick-start the second half year of graduation.

TIME

START OF GRADUATION
FRAMING THE ASSIGNMENT

LITERATURE RESEARCH
NEWSPAPER / STATISTICS

P1
DEFENITION OF SUBJECT AND TARGET GROUP
PLANANALYSIS
LOCATION ANALYSIS
COLECTING INFORMATION
SUMMARIZING AND CONCLUDING TO ARCHITECTURAL TOOLS AND INTERVENTIONS

P2
RESEARCH CONCLUSIONS
DEFINING A BUILDING FORM
FORM AND MASS STUDIES
LITERATURE RESEARCH
STUDY TRIP
INTERVIEWING VISITING PROJECTS

TYPE OF RESEARCH

Global overview most used methods of research in relation to time
In the second half year, this resulted in different methods of research as now form, material, building regulations and therefore (minimum) sizes of spaces become important but also building techniques, sustainability, affordability and so on. Therefore different forms of research were used such as making mass models, color facade schemes, and looking up information in the “Bouwbesluit”. The latter giving restrictions in your freedom of transferring the architectural tools collected in the first year to your own building design. It doesn’t mean though, that in this phase, you never read new literature or analyse an architectural plan/reference. In this phase the different forms of research alternate and interfere with each other.

In this reflection report I try to explain my design process and by describing different scales, from urban plan to dwelling and furniture scale, I reflect upon the decisions I made, which problems occurred during my design process and the role different methods of research had in resolving these problems and led me to my final graduation design proposal.
Aspect 1 - the relationship between research and design.

I started my graduation process by researching and reading about current (housing) problems Amsterdam is facing. Newspapers, statistics and documents of the municipality provided me information necessary to underline the relevance of my chosen topic, the middle income class leaving the city. Looking more internationally I saw the role and the rise of collective housing forms in order to keep the middle class in the city. Therefore after P1 I took a deeper dive into collective housing design, I analysed historical examples of collective housing and I read literature about how architecture can enhance social interaction in collective housing design. These complexes are focused on adding facilities for the collective so that for example the dwellings can be smaller in size. I summarized my findings in six main aspects that can be seen as ‘architectural tools’:

1. SEMI PRIVATE / BUFFER ZONES
2. CLUSTERS / SMALLER GROUPS
3. SHARED PATHWAYS
4. SURVEILLANCE
5. MULTI-STOREY EFFECT
6. SMALLER PRIVATE SPACE

Despite reading a lot of literature about enhancing social interaction, I was afraid to design a naive building. I did not want to say that with these architectural tools I found in literature, the collective functions in my design would be a “success”. Therefore the plan analysis played an important part in analysing the success of the tools I found as I analysed tool 1 and tool 3. I focused on apartment buildings with collective functions including at least family dwellings as I chose urban middle income families as a target group. I analysed where the collective facilities were located in the building and whether the routing from entrance to dwelling was connected to certain facilities. I also analysed the use of the collective space to see which aspects would be relative to use in my own design.

Two of the projects were focused on just the inhabitants where the other two projects were focused on adding value to the neighbourhood as well. This gave different insights and I saw a clear distinction.
The buildings focused on the collective were closed off from the public, by walls or by a highered main level of the building and therefore more distanced from the public. The buildings focused on adding value for the neighbourhood are more open, consist of multiple building volumes and are surrounded by green collective space. The openness makes it more easy for the public to (feel welcome to) use the space.

My target group is the new urban middle income family and therefore in the first half year, I analysed this group to understand their wishes and needs better according to housing design. On the building block scale families are looking for an urban lee / safe environment for their children to play, with the ability to watch their children from the house. Also a private outdoor space is preferred.

In my own design I also wanted to add value to the surrounding neighbourhood, as well as creating functions for just the collective. I therefore decided to create a shape where the ground floor was also adding value for the public and the collective functions were placed on higher levels of the building. I designed a building with a hook, with the vision that it would create an urban lee - and therefore (more) safe and enclosed environment for playing children with a green play area along the water.
For collective dwelling design, surveillance and visibility to the collective facilities is important as when people see other people using collective spaces, this motivates to use the collective facilities as well and is supposed to enhance the social interaction. Combining the aspects of parents wanting to have visibility to their playing children, I came up with a terraced shape building where people would have their living areas of the house, as well as their private outdoor space orientated to the public green so that parents can watch their children, and people see when other people are using the public space. Also for this reason, a shared pathway along the facilities to the individual dwellings is preferable.

Building shape proposal P2: collective facilities, visibility, shared pathway

In this design proposal at P2, the ground floor level consisted of work-living dwellings (also a desire of new urban middle income families) and public facilities. The collective functions were placed on a higher level as a saw in the plan analysis, to make it more private for the inhabitants of the building. A pathway along the collective functions to each individual dwelling should enhance social interaction between neighbours and the use of the collective facilities as well, also as result of plan analysis findings.

During and after the At P2, I was not happy with the shape. I got different remarks during the P2 which I agreed with, and I was not happy because a lot of my design strategies were not implemented in a way I wanted. In the summer holidays, I got some time to process all the research that I did and realised, that hence creating a opening on the ground floor, I was locking out the people living around the building from the public space I was creating which was the opposite of what I wanted to achieve. I took a step back and looked on an urban scale level what I wanted to achieve and how this could be realised on my specific location, the Groenmarkt. I realised that I had lost some important aspects of the location out of sight so I looked back at the location analysis I did in the first half year.

The location analysis gave me insights in the qualities of the location and aspects I would like to change. For me it was important to give public space back to the neighborhood from this point of view as well. The name already says it, but also
historical research pointed out the public function the Groenmarkt used to have. It used to be a place where people gathered, first as a market square and later there was a public playground by Aldo van Eyk. Sights were used here as well to attract people to the market place and therefore important for the location. In my building proposal at the P2, despite creating an opening on the ground floor level, I was losing the historical sight.

So on multiple points of view I did not make an open enough building, therefore I came up with a new design proposal after the summer holidays. Instead of one terraced building I came up with two terraced buildings placed opposite of each other, still following my design intentions where each dwelling would have their living areas and private outdoor spaces focused to the collective greenery/playground and the other side would be more formal and connecting to the surroundings. Also in this proposal the buildings respect and follow the lines of the historical sights.
The building would still create an urban lee desirable by families, but would be more open and therefore inviting for surrounding inhabitants. The relation with the water was very important in my P2 proposal and therefore I opened the building blocks more to the water.

In the design proposal the collective functions are still placed central in the building and placed on a higher level.

the history of Vienna played an important part in my research and therefore I decided to visit multiple projects. My research focuses on enhancing social interaction and as I wrote, one of my concerns was to design a naive building. Therefore I contacted several people to show me around in collective apartment buildings, giving me the opportunity to ask and see for myself which parts of the building were working, which could have been better and what they would have liked to change afterwards.
Among the projects I visited are the Sargfabrik, a collective apartment building and Am Kabelwerk which is a residential area with multiple collective building designs for different target groups. In my literature research I concluded that visibility / surveillance is important in enhancing social interaction and the use of the public space as well as the routing, this was argued in the Sargfabrik as well. Also the importance of seeing your neighbours when for example they are going to their homes was pointed out.

Therefore I decided to place the staircase and elevator next to the collective facilities so people will walk by the collective facilities before going to their own home. The glass walls provides sights into the collective facilities to enhance the use of the facilities.

Routing turned out to be a main struggle, for me it was important that people would walk past the facilities so this raised the question if and how I would connect the two buildings so it would not be two seperate ‘worlds’. But the main struggle came
from the building regulations. I envisioned one main routing over the building, but as each dwelling needs to have two options to flee within a certain amount of meters, I started struggling with bridges/ routing to connect the two buildings or (hidden) escape stairs, but this meant in many options I drew, that when people would use the stairs that were closest to their home, they would not walk past the collective center of the building hence maybe providing the building of a higher usability. Here I found out that what I wanted to achieve was sometimes conflicting with each other, and I found it hard to decide which aspects (besides the strictness of the building regulations) I should maybe let go.

Therefore I kept redesigning the flee routing and bridges for a long time and finally I came up with one main entrance and routing (shown in red) next to the collective facilities, over the small street two bridges bridges to connect the buildings with each other and at the end of the buildings two escape stairs (shown in green), but hidden and only to use in emergency, so that people would still use the main stairs.

On the dwelling scale, I did research into the housing desires of new urban middle income families. Currentday problem is the lack of appropriate housing for families in the city and therefore in the first semester I did mostly research into this target group. For the dwelling scale I concluded the following most important aspects:

FLEXIBILITY WORK / LIVING ENOUGH SPACE TO PLAY

Also most families experience a lack of storage space. In “Nestelen in de stad”, Keesom (2013) writes about smart solutions for small family housing in cities.
I found this concept interesting for my own design and started thinking of a way where it could be on the one hand resolving the storage space problem and on the other hand give extra flexibility to the dwelling design. I started thinking about changeable parts, which you can change for example when a child moves out or two families are being combined (patch-work families), so that the dwelling becomes more life-cycle-resistant.
I really liked this idea of a flexible furniture design where inhabitants can choose if they would want it in their dwelling or not, but it gave me also a bunch of challenges and restrictions. First I had to find a standard size in which most elements would fit. Also I wanted that each bedroom for all my dwelling types, would be suitable for the furniture element. I choose a standard size of 500 mm, therefore each bedroom should be 2000 mm, 2500 mm or 3000 mm etcetera. The width of the elements are 600 mm, which mostly meant that windows could start from 600 mm of the house separating wall and therefore had big influence on the facade design as well. I also wanted at least one bedroom to have a wall of 3000 mm length, so a proper parent bedroom with a double bed and two wardrobes could be realised. There should also be at least one bedroom of 2500 mm, so the childrens bedroom would also have at least a wardrobe possibility.

I found myself juggling with a lot of restrictions I gave myself and therefore have been puzzling on the floor plans for a long time.

Eventually, I managed to design floor plans where in the living room, as well as in the bedrooms the size would be in multiples of 500, so that the furniture element can be placed.
I also wanted to add flexibility in a way that the amount of bedrooms can be changed after time. I started by designing as much bedrooms as possible with the vision that the more bedrooms, the apartments would suit also large families and therefore would be suitable for most families compositions. But looking into CBS statistics showed that the amount of children per household at this moment in the Netherlands is 1,7, so it would be likely that most inhabitants would prefer one large bedroom and two smaller ones, instead of four small bedrooms. Therefore the floorplans should be designed in a way that it is easy to change the amount of bedrooms.

In “Nestelen in de stad”, the desire of flexible housing plans for families in the city is pointed out and Keesom (2013) gives a possible solution. What became clear to me is that the key lies in designing the fixed elements such as the kitchen and the bathroom in a way that freedom for the flexible walls is provided. Here the fixed elements are clustered together.

Followed by my concept of the living areas orientated towards the living street and playground, I placed the kitchen along the outdoor space and gallery. I placed the livingroom above the kitchen, connected with each other by a vide following the desire of families to have seperated livingroom parts, so for example one child can do homework while the other is playing with toys. I clustered the toilet, bathroom and stairs in a way so that it is possible to make four bedrooms.

After showing this to the tutors, I got the remark that it would give even more flexibility if people would be able to chose whether the living room is above the kitchen or on the same level as the livingroom. I did not think of that option at first as it conflicts with my concept of the living areas, but on the other hand strengthens my concept about flexibility. Therefore in the final design proposal the living room and kitchen are orientated towards the (collective) outdoor space, but the possibility to change this according to people’s personal housing desires is given.
Design: standard version where the kitchen and living room are orientated towards the (collective) outdoor space. The flexible walls are highlighted in red.
Design: possibility of having the living part on the first floor and the bedrooms on the second floor
Material is something that I found hard to decide on. I soon had a vision about the inner part of the building, that it should feel like a living street with greenery, wood, a village-like sphere. The outside should be a contrast with the inside sphere: more formal and connecting to the surrounding buildings. But despite these aims for the facade design, this still gave endless possibilities for choosing materials, window and plint design. Therefore I did different material and color studies with the combination of brickwork (different colors) and concrete.

As I wanted the outer facades to connect to the surroundings, I decided the outer facades should be made of bricks, combining this with the most contrasting inner facade made me choose option two. Still this gave me a lot of possibilities. I always search for a “valid” reason for making design decisions, but I found out here that personal taste and preferences and looking for references also play an important role in choosing materials which I found more difficult as these decisions include mostly no scientific substantiation. For this reason I postponed making a final choice for the materials for certain weeks but then I argued that I had a clear vision for the materials: connecting to surroundings and making a contrast and that designing is not always scientifically explainable. As a designer you are allowed to use your personal preferences by choosing materials connecting to what you want to achieve with your design.
In order for the outer facade to connect to surrounding buildings, which are mainly in the style of the characteristic Amsterdam canal houses, I used multiple aspects in my own facade design such as the horizontal symmetry, brick, a plinth and a recessed roof. For these facades I was looking for a modern appearance but also to connect to the surrounding buildings and therefore analysing and following certain characteristics gave me a lot of input for my own facade design.
The inner facade design includes large windows and folding doors and this design was something I came up with at the beginning of the designing of the floor plans. The outer facade makes a reference to the characteristic Amsterdam canal house. Despite making a contrast in the facade, I was looking for a way that the building would still feel as one building design. I decided to do a model study, to see the impact the facades I designed had and how I could connect the two to each other.

I saw that the inner facades has a strong language of a sort of portal. Despite the different character of the facades I thought that if I would use this language also on the outer facade, the facades would still refer to each other.

Therefore I emphasized the portal shape on the outer facade by the brick design. Some parts of the facade are laid back so that also on this facade the portal shape appears more strongly.
I formed an idea about the inner and outer facades, but the head facades remained a challenge. I envisioned that the outer facade should wrap around the inner “world” I was creating and therefore the head facades are a sort of transition between the inner and outer facade.

The head facades were also more challenging as they have a terraced shape, instead of the rectangular form the inner and outer facades have. I used research by model studies as a way to see the influence of the head facade on the inner and outer facade. I started with the idea that this facade could be of an exception, as the facade shape was different, the window placement could also be different.

Model studies helped me to see the effect this would have on the total building design. I got the remark by the teachers that despite creating the portals, the inner and outer facade still have a different look and with the head facades also having a different character, this would create too much different facades. I agreed with this argument and tried to refer more to the outer facade.
I tested a version with a portal and a version without, but the main conclusion here was that indeed, by following the rhythm of the outer facade, the head facades would add to a more consistent building design.

With the designing and choosing of the facade materials, I also started designing the outside spaces more specifically. In my design I focus on the opportunity of people to meet each other, but I realised I was forgetting an important aspect of the literature research: the transition between the private dwelling and the collective sphere. If people feel they don’t have enough privacy this may have a negative effect on the social interaction in buildings. I looked back at the projects I analysed for the plan analysis and saw that most projects have separations such as fences between the dwellings or even a wall.
This made me realise the importance of a separation between private outdoor spaces again, so I started thinking of ways I could make this separation so that it would fit the facade and dwelling design and have a collective character. I came up with a shared wooden planter in between two dwellings, connected to the pergola I designed, so plants can be used as a division between the dwellings and this would contribute to the sphere I want to create: a green village-like street, with wood and plants growing over the pergola’s.

I also noticed in the plan analysis that different materials can be used to mark for example which zone is private, semi-private, and which one is public. In the Babel project, the material of the gallery/street differs from the private outdoor space which makes clear where people can place there bench or plants for example. I decided to do a material study and see what effect different materials or different stone sizes would have.

The small stone pattern refers to the pattern used on the existing pathways around the building design. Even though in both options there is a division visible, I decided to choose the wooden variant, as it gives a more clear division: wood is for private, stone is for public.
I had a hard time deciding what option I should choose and what sphere I would want the living street to have so I decided to read some more literature again, this time about routing and size of routing. In Privacy Script (2016) the sizes of...

For the design of the outside space on the ground floor I wanted to create different spheres. On the ground floor level this is a small living street, opening up in a green/playground area and finally to a recreational area along the water.

For the small living street I drew different possible ideas. References of living streets in Nieuw Leyden but also in Hamburg when we walked with the guided tour in Valkenried, gave me ideas for my own design. The walk through Valkenried was useful as the street was around the size of the street I was designing, and I could see the influence of the heights of the buildings and the use of the collective street. In both streets, the pathway of the surrounding was the same as the pathway in the living street, making it feel more accessible for the public. As described earlier this is one of my design intentions and therefore I decided to do this as well.

In Valkenried, people have a very small zone as their personal garden, with two pedestrian paths and a broader inner stroke to use collectively. In Nieuw Leyden I saw examples where there was a broader pedestrian zone and bigger personal outdoor spaces. I drew multiple examples.

Living streets in Hamburg and Nieuw Leyden

Design studies
pathways are analysed and H. van de Wal et al (2016) about with which sizes of pathways, people have enough space for a conversation without blocking the way of other pedestrians. I decided that this was for me something that should be possible on the street and therefore gave me a minimum size the path(s) should be.

Next to literature and references I realised I should think more of the consequences the ideas have on the specific location and especially the historical sights I want to respect in my building design. In the example of Valkenried, only on the small pedestrian pathways you are able to look through the street so I looked whether this was possible for the design proposals I drew.

The last two options give the best possibilities of sights to the water, but as the path had to be 2.80 meter, it would be too big to design to pathways and still have an inner stroke and private outdoor space. Also the dwelling have big glass doors and in the proposal 3, more privacy is provided for the dwellings.
SPACE FOR A CONVERSATION

The street is 3 meters, which makes it possible for a small group to have a chat and still make it possible for people to walk by.

PRIVACY VERSUS SURVEILLANCE/VISIBILITY

The dwelling along the street have big folding doors, which in the smaller street part also can result in a lack of privacy, therefore I chose the option of the small garden option so people can use plants to provide a bit more privacy.
Aspect 2 the relationship between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS).

The studio addresses the question of how we want to live in the future and challenges us to think of what the city of the future will look like and what does it need? My graduation project replies to this question by responding to the continuing trend that the middle class, specifically for my project: families, leave the city.

As there is currently a lack of proper housing for families in the city this raised the questions how families want to live in the future and what does the future family look like. Divorces and therefore also patch-work families are becoming more standard and this is why I have tried to design pleasant and flexible housing solutions which are suitable for different family compositions in an innovative way. In the design people are able to change the amount of bedrooms over time with a flexible wall system and I designed a flexible furniture design which has folding up elements to use (small) spaces more efficiently and which can be changed after time. This to achieve sustainability in a sense of life-cycle resistance and innovation in a way that each plan has the possibility to change easily according to different families and desires.

Thinking about the future and responding to this by coming up with innovative, creative and sustainable solutions is something that is stimulated in my specific master track, but in the master in general and even the whole TU Delft as I believe, as well.

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 the work.

During the graduation project and shown in this reflection, different forms of research are used. In the studio, the main focus lies on literature research, to deepen your specific topic, and plan analysis to learn and study existing plans to help answer your research questions. Besides these “fixed” parts, it is encouraged in the studio to use different forms of research that you think would be useful as an extension or additional deepening of your research.

Most of the literature research I did focussed on enhancing social interaction in collective dwelling design. A lot of research is done about how architecture can play a role in enhancing social interaction, hence as in most of these researches is also written, there are also multiple external factors that are influencing social interaction in buildings. These are aspects that you as a designer have no influence on, and involves mostly the inhabitants themselves and their behaviour. Therefore, despite I did a lot of research on the architectural tools that can be used to enhance social
interaction, there are no hard facts to ensure that if you use these tools, the design will become a “success”.

As a result in addition to this literature research I wanted to analyse buildings that used certain tools and look if people were really using the spaces as proposed. I did this by the plan analysis part of the studio but as this concerns mainly looking at floorplans and pictures, I felt the urge to visit the projects and talk with inhabitants about the actual use of the spaces. Therefore as an addition to my research I visited Vienna where I talked with inhabitants and a project leader of certain collective housing projects, to hear which parts of the design worked the way they planned and which parts did not. For me this was a really useful extension of the more scientific part the studio offers before implementing the ‘architectural tools’ in my own graduation 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 project results.

In my graduation project I touch upon the problem of the middle class and family in specific leaving the city, which is a problem in Amsterdam but whilst deepening the subject I noticed that this is a problem which most big cities experience today. In other cities such as Berlin I noticed the trend of collective housing, a major theme in my graduation project, the other major theme is (flexible) family housing. Both aspects are interwoven in the design and mostly unspecific to a location. The proposal for the housing types, as for the communal functions and the vision behind the relation between the dwellings and the collective functions can be used in building design in other big cities as well. I would say that the orientation of the total complex in relation to the sun and the facade design are the most location specific aspects of the project but the global concept and floor plan designs are easily transferrable to a (collective) housing design in an other (western) big city as well.

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

In my graduation design I focus on the problem of the middle class leaving the city. I try to react to this by designing smaller and/or affordable housing solutions, but I am aware that this is not enough to resolve the problem. The problem has the complex character that a lot of housing for this group is being sneaked away by high(er)
income groups and it is hard to make sure that housing designed for the middle income class will remain for the middle income class. Therefore next to my design proposal, also external measures are needed to assure this, which is something the municipality of Amsterdam is working on. There are ideas of regulations so that people living in social housing will get priority in middle income housing or that there will be income limitations. Another big issue is that the rents/housing prices are increasing heavily, making middle income housing shift to high income housing in a short amount of time. These are aspects that I can not resolve in my graduation proposal, since they are highly influenced by political choices. My design is intended to be a contribution to the discussion and implementation of a new type of middle class housing in Amsterdam.