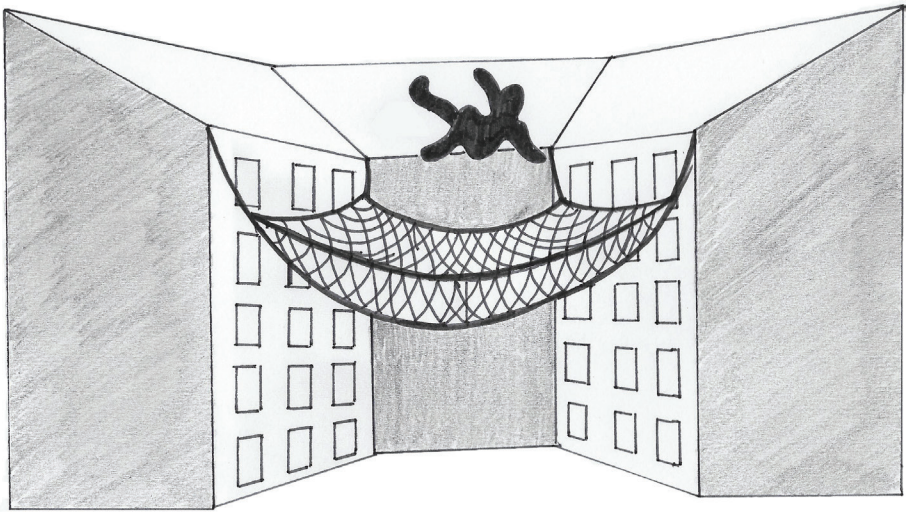


# The Safety net

Reflection



Reflection

Dutch housing graduation studio  
Architecture and Dwelling  
Faculty of Architecture and the  
Build Environment  
TU Delft

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Date:

December 2018

# The Safetynet

Reflection

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## 1. The relationship between research and design

The relationship between research and design is a complicated one. In architecture, research does not result in one solution, as it does with math or physics, it results in options from which I can choose. What I choose is based on a combination of ratio and intuition, therefore it is impossible to leave my own preferences out. If ten architects make a design based on the same research, there will be ten different designs.

It differs per person how much is based on ratio and how much is based on intuition. It even differs in a project, some choices are made with more rational arguments and some with more intuition.

The research I do for architecture is meant to use in the design. It is never an aim in itself. For example, my literature study was meant to understand the target groups and to know what the shelter should provide. The case studies were meant to find what flexibility principles I could use and what the advantages and the disadvantages are. The site analysis was meant to learn about the surroundings and see what would fit there and how to use the site in the building. Later on, I searched for possible building materials, the needs of services and I calculated the needed technical space.

## 2. The relationship between graduation topic, studio topic, master track, and master programme

The name of the studio of Dutch housing is 'between standard and ideals'. We were asked what our utopia would look like. Mine would be an inclusive city, a city that belongs to everybody and where everybody could find their place. In my utopia, we would take care of each other, especially when things go wrong. So I chose for a shelter for people in a crisis situation as my graduation topic.

The master track Architecture wants us to: 'develop innovative building projects that use design as a means to deal with the technical, social and spatial challenges encountered in the built environment' (TU Delft, nd). My project deals with the social challenge that more people become homeless due to external factors by providing a temporal dwelling for those in need. It deals with the technical challenge that the built environment can't keep up the change of modern society by providing as much flexibility as possible. And it deals with the spatial challenge of the density of Amsterdam by providing a dense residential building.

The master programme Architecture, Urbanism and Building Sciences wants us to 'create integrated solutions for the built environment and explore innovative ways to create more sustainable development' (TU Delft, nd). Sustainability is an important theme in my project, it could be found in all the layers of my design. However, it is not a theme on its own, it is integrated into the architecture, the social goals and the technical challenges.

### 3. The relationship between the graduation project and the wider social, professional and scientific framework

In the introduction of my research report, I explained that in Amsterdam more and more people become homeless due to a divorce, a calamity in their house or an economic setback. It is very hard to find a new dwelling even if priority is granted. In fact, this is not only a problem in Amsterdam but throughout the Netherlands. The shelter I designed would be useful in all bigger cities in the country.

The design I made is specifically for this location, but the principles of the flexibility can be transferred to other types of buildings. Especially the principle of combining apartments and the sliding walls which grants the flexibility within the apartments themselves.

On the other hand, the round form of the building could be considered. Although it caused some challenges in the design, it granted a lot of advantages as well. For instance thanks to the round form and the fact that only the façade and the core were constructive, the floor plan was completely free, there is no corner solution needed and the whole plan can rotate inside the façade. There is less space needed for the circulation and you can always flee in two directions. The latter one is useful for fire, but also since the target group is a rather vulnerable group. It is and feels safer when you know you could run two ways.

### 4. Discussion of the ethical issues and dilemmas that I have encountered in doing the research

At the beginning of my research, I made the decision to name three target groups I wanted to accommodate. This decision was ethically seen very hard to make, because why should I only accommodate these groups and not everybody who lost their dwelling due to a crisis situation. This decision was made for practical reasons, I wanted to know what the future residents needed, but to find out I had to know who the future residents would be. The needs of these chosen target groups were very similar and would probably meet the needs of all people in crisis situations. So after all, the target groups named are more examples than the exclusive future residents.

Another ethical dilemma is between protecting the vulnerable future residents and giving them openness and light that is so desired in dwellings nowadays. Especially for the future residents that are going to a divorce, this protection may be needed when the ex is bothering or stalking them. This means for example that the residents shouldn't be too exposed, so smaller windows will be required and the façade shouldn't reveal the interior of the dwellings. However, too small windows could lead to the feeling of being locked up and the anonymous façade undercuts the identity and familiarity of the dwellings. The design should therefore always be on the thin line between protection and prison.

## 5. Elaboration on research method and approach chosen by the student in relation to the graduation studio methodical line of inquiry

In the studio of Dutch housing, topic research is a significant part of the graduation project. I chose my graduation topic in the first weeks and started the research right away. Just before the P1, I chose my location and after P1 I started my site and plan analysis. In the end, the topic research and the site and plan analysis were of equal importance.

Through my own experience, I know this is not the case in all the studios of architecture. In the graduation project of Heritage and Architecture, research is integrated in a completely different way. In Heritage and architecture, the analysis of the existing building is the major research in the graduation studio. This is of course very important since the project is to transform this building. However, this leaves almost no time to research the chosen topic and a plan analysis is not required.

To analyse the research methods and approaches I used during this project, I listed all the information I gained during this project chronically in figure 1. However, not everything is research. There is a difference in research and searching, for me that difference is that with searching the result can be used directly in the design. With research the result can only be obtained when several search results are combined; I have to do something with the results before I can use it.

There is also the difference between research and calculation. True, I need to use the results of the search before I can use them in my design, but the calculation is a given formula. The formula doesn't alter per project, only the parameters of my design do. So the search is to the parameters of my design, which can't be found in scientific resources but only in my design itself.

	research?	method
1 visual essay	yes	observation
2 problem analysis	yes	descriptive research
3 historical study of shelters	yes	literature research
4 study of the future residents	yes	literature research
5 study of Maslow and needs	yes	literature research
6 comparison with women's refuge	yes	literature research
7 study of the needs of single future residents	yes	literature research
8 plan analysis	yes	case study
9 site analysis	yes	descriptive research
10 study of precedents	no	searching
11 designing	yes	experimental research
12 study of cores	yes	case study
13 study of the need of services	yes	survey
14 dimensioning of the shafts	no	calculation
15 dimensioning of the windows	no	calculation
16 study of possible façade materials	no	searching

Figure 1: list of studies,  
source: authors  
creation

In research and searching, there is another distinction to make, namely the distinction between searching with a specific question and searching without knowing what you're looking for. The later one is also called serendipity. This phenomenon is, for example, commonly found in the search for precedents.

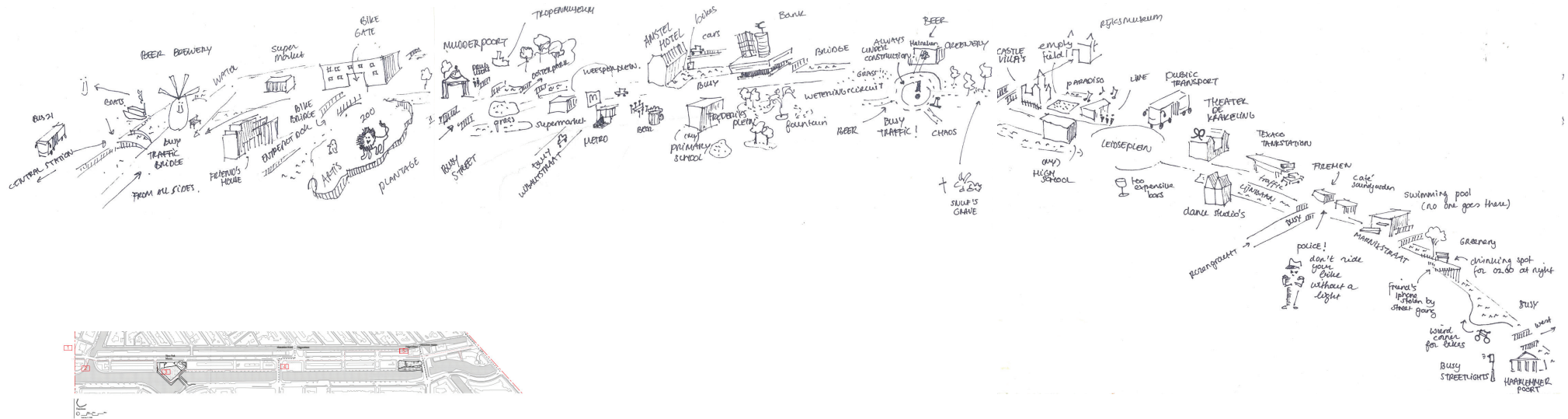
To analyse what study is scientific and what not I can start with the fact that the study must be research to be scientific, so study 10 and 13 up to 16 can't be scientific. Furthermore, according to van der Voordt (1998), scientific research has to meet 5 criteria; it has to be methodical, objective, verifiable, valid and reliable and of scientific relevance. Methodical means that the research has to be efficient and effective. Objective means that no personal opinion or value-judgement will be added to the research. Verifiable means that the rapport should provide insight into the research plan, analysis of the material and the interpretation, so other scientists could repeat the research. Valid and reliable means that the research measures what should be measured and if the research is repeated, with the circumstances unchanged, it should give the same results. Scientific relevance means that the research should provide innovation or exploration of the development of theories, new methods or techniques of research, policy tools or product development.

## 5.1 Observation

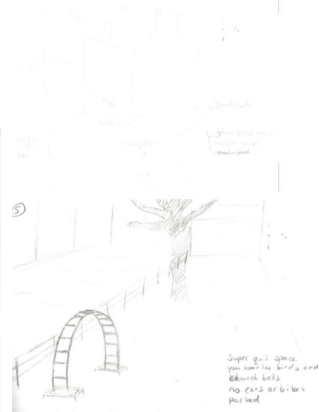
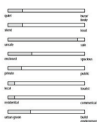
The visual essay is a research focused on the phenomenology of the location in Amsterdam. On February 13th we visited the location in groups and we looked for the experience of the place. We didn't know what we would find, so in this research, serendipity plays a big role. The first group focused on photo's, what can be seen, the second group focused on sketching and notes, the interpretation and what can be felt, and the last group focused on sounds, what can be heard.

This visual essay is not methodically, we all went to the location without a clear plan and just analysed the location. Afterward, we found out that we all walked somehow the same route and we agreed that we would analyse the same places. The observation is not objective at all, it was even asked to be subjective, to describe our own experience, this was the aim of the analysis.

The visual essay is valid, but not verifiable or reliable, when someone wants to repeat the observation, he will find other results than we did since the city is constantly changing. We went on a Tuesday morning between 11 and 16 o'clock in the winter, it was 2 to 6 degrees and the sky was clear and sunny. When someone would walk exactly the same route but only one hour later, he would have already other results let alone if someone walked the route in summer time or night.



LOCATION 1  
KEYWORDS  
Modern luxury  
Quiet  
Nice living space  
Sound of church bells



Above: figure 2:  
mental map of the  
location, source:  
Liesbeth Faber, 2018  
Left: figure 3 and  
4: sketches of the  
location, source:  
collaboration of Josien  
Gankema, Thaisa de  
Boer, Jino Fattah,  
Liesbeth Faber and  
the author

We could argue if the visual essay is of scientific relevance, it could be seen as an exploration of a new method and technique of research. Each observation, photo, sketch, and sound, is already been executed before, but I don't know if they were ever combined.

Nevertheless, I couldn't call this research scientific since four of the five criteria are not fulfilled. However, this research was never meant to be scientific. Earlier analyses of the location were available, so we got the rare opportunity to analyse the location in a different way. I always wanted to make such an observation, but never got the time to do it, so it was very nice to be able to perform this research in my graduation project.



## 5.2 Case study

For both the plan analysis and the study of cores I used the research method of the case study. With the plan analysis I wanted to gain insight into the possibilities of making dwellings flexible before I started designing. With the study of cores, I struggled with the core in my own building, since I wanted it to be circular and to accommodate the stairs and the elevator and so I searched for options for circulation cores in central buildings. In both case studies, I had a clear idea in what I would find, so there is no sign of serendipity in this research.

Both case studies are methodical, I had clear questions and tried to answer these in all the projects in the same way.

Both case studies are objective as well, I just wanted to know the possibilities, I had no personal preferences for the results.

These case studies are also verifiable, I provided insight into the research design, the analysis of the material and the interpretation and so the research could be repeated.

These case studies are valid, but the reliability of the plan analysis is a bit questionable. I wanted the case studies to be profound, so I had to choose a limited number of cases. The research would be more reliable when more cases were analysed. Furthermore, I chose these cases based on their flexibility while I wanted to research the flexibility of the cases, this is a bit dubious. I enhanced the reliability of my study of cores by analysing far more cases. I chose the cases also more randomly, but still, they were all central oriented buildings.

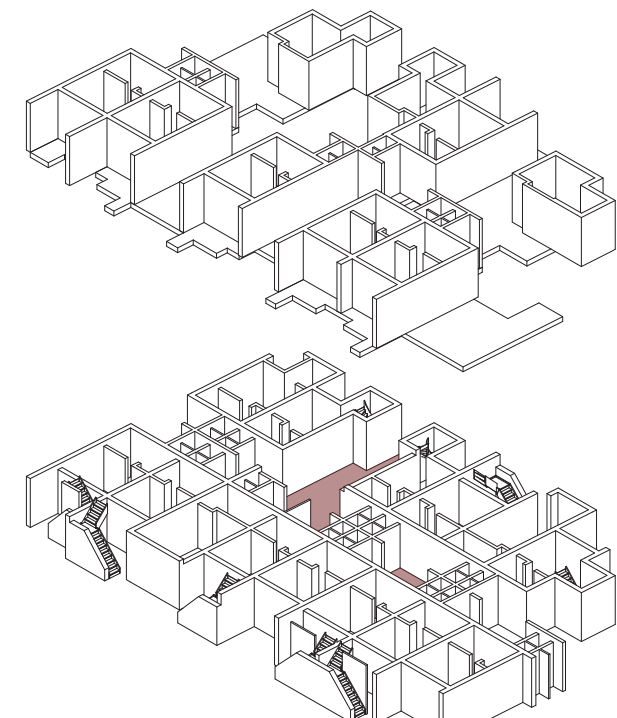
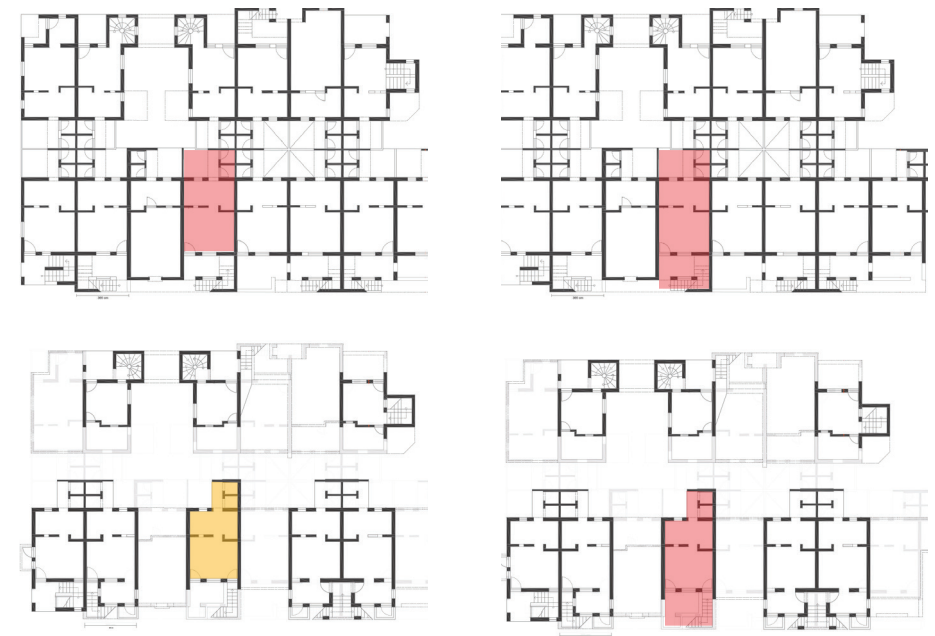


Figure 5: plan analysis Aranya  
source: authors creation

These case studies are both of scientific relevance, they both contribute to the exploration of product development; the plan analysis in flexible buildings and the study of cores in circular buildings.

All the criteria are fulfilled except the questionable reliability. The selection of the cases is hard to make reliable when I want to research the flexibility in buildings, the buildings should be flexible in a way. If I would select a building that is not flexible at all I can't find the principles of flexibility. So the selection will always be a bit dubious. Nevertheless, the reliability will be enhanced if more cases were analysed and therefore I state the plan analysis is not scientific and the study of cores is.

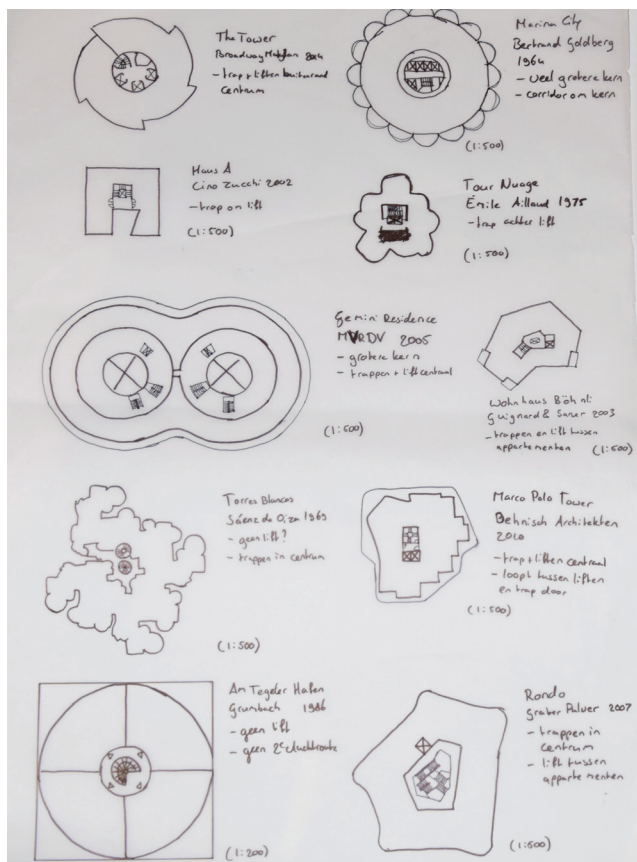


Figure 6: study of cores  
source: authors creation

## 5.3 Site analysis



Figure 7: site of the project  
source: authors creation

The site analysis can be described best as a descriptive research. In this research, I analysed the site and the surroundings. I looked for general information, like the history of the site and what functions are situated in the surroundings, but also for more specific information, like the architectural style of the buildings surrounding the site and the insolation. In fact, I searched for everything that could be of influence on my design. This means that I didn't know on the forehand what I would find and so serendipity has again a part in this research.

The site analysis is done methodical, I used the same underlay as much as possible so the analysis would be comparable and in the different sub-questions, I answered the questions in the same way.

The site analysis is objective, I tried to focus on what could be found in the surroundings and not my interpretation of it.

The site analysis is also verifiable, my research is transparent and can be repeated.



- storage
- shops
- horeca
- office
- dwelling
- other

Figure 8: site analysis, functions ground floor: authors creation

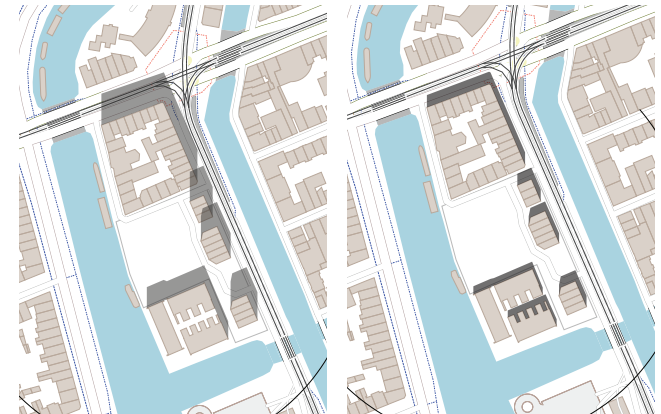


figure 11: site analysis, insolation source: authors creation

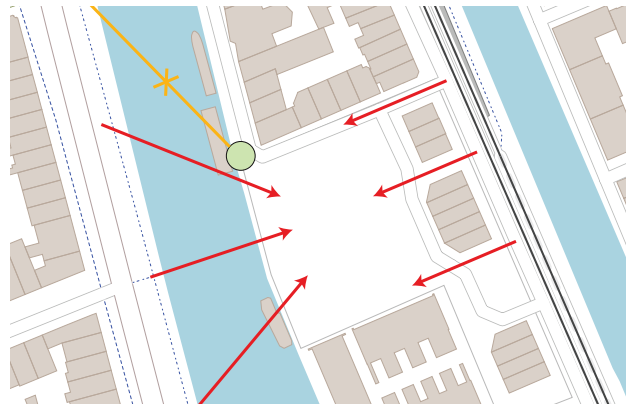


Figure 9: site analysis, sight: authors creation

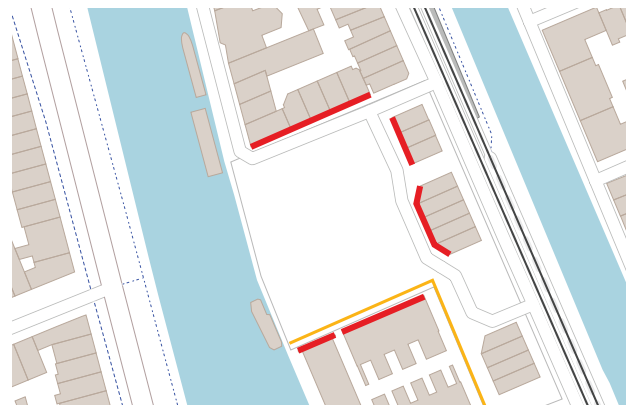


Figure 10: site analysis, closed facades: authors creation

Furthermore, the site analysis is valid, but the reliability is a bit questionable. When another architect would repeat this research, he would find the same results when he analysed the same aspects. Only, there is a chance he would analyse other aspects. What I chose to analyse is partly personal preference; what will I use in my design, what is of influence on the design?

At last, the site analysis is not of scientific relevance. It doesn't contribute to the development of theories or policy tools. It is a long known research method without new techniques. It is an exploration of the product development, but only for this particular design, it can't be used for other sites.

Only three out of five criteria are fulfilled and so the site analysis is not scientific.

## 5.4 Experimental research



Figure 12: in yellow experiments for the core of the building in magenta experiments for the floor plans, source: authors creation

In the first chapter of this reflection, I explained my point of view in the relationship between research and designing, but I think design itself can also be seen as research. When I'm designing, I gather, process and analyse information. The research question is how to develop a building that meets the brief. There are sub-questions like what is a good floor plan, what should the façade look like, how many collective spaces I needed, etc. Some of the questions are answered with the earlier mentioned research, some of them are answered by research through designing.

This research through designing can be seen as experimental research. Several hypotheses are tested and the best one is chosen using ratio and intuition. Sometimes I didn't know what I was looking for and so the serendipity plays a part in designing as well.

If I experiment on one part of the design, it can be called methodical without a doubt, but if I look at the whole design, all parts are connected and one experiment influences the other. It is impossible to design in one 'line', there are always loops where you go back to the other experiments. Nevertheless, in a literature research I go back and forth between different studies as well and still, this can be called methodical. Therefore, I state that experimenting is also methodical.

Experimental research in design is not objective. When I pick the best result of the experiment, this choice is based on ratio and intuition, some are based more on ratio and some more on intuition, but I'll never choose something I don't like.

The experiments are not verifiable, although I keep all the experiments in case I want to reconsider an option. The analysis of the experiments and the interpretation are not clearly shown, only for the ones I chose.

The experiments are valid, but not reliable. When someone wants to repeat the experiment it is most likely that he or she will come up with different ideas and will choose other options. This is where creativity and intuition is shown most explicitly.

The experiments are of scientific relevance, they contribute to the innovation and exploration of product development in architecture. With only two out of five criteria complied, experimenting can't be seen as scientific.



Figure 13: experiments for the facade, source: authors creation

## 5.5 Survey

Waar woont u/ woonde u ten tijde van de situatie?

Beantwoord: 33 Overgeslagen: 0

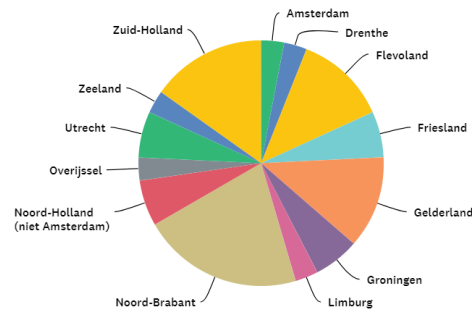


Figure 14: question 3 of the survey: Where do you live/ did you live in time of the situation, source: authors creation

On the ground floor of the buildings, I wanted to make collective services, like a childcare, a legal advisor, a financial advisor. Only I had no idea what my target groups would need or want. I couldn't find literature about this, neither could I find a research into the needs of this target group. So I decided to start my own research by making a survey.

In this survey, I asked general questions to be able to analyse the results and some in-depth questions about the needs. The most important question was: What services do you need and where should they be situated? For this question I made a list of possible needs and gave the participants the choice between; I need this in the building, I need this in the surrounding and I don't need this. Furthermore, I asked if they would use a collective living room and if they wanted the target groups to be mixed in the building or to be divided.

The result was not what I expected it to be, only this is not serendipity. In this case, the result was the opposite of what I expected, but it was no coincident

that I found it.

The survey is methodical, it took some time to get a reasonable number of participants, but the program I used was very efficient and the analysis was effective.

The survey is objective; the questions were objectively asked, the participants were anonymous and my own preferences had no influence on the results.

The survey is verifiable as well, my research design, analysis of the material and my interpretation are insightful, so the survey could be repeated. The survey is valid and reliable. Since I wanted to research the needs of a select group of society and my main goal was a global view of the needs, I needed between 18 and 65 respondents. With this survey, I got 33 respondents, so according to Baarda and De Goede (2001, p168), my survey is reliable.

At last the survey is of scientific relevance. It contributes to the innovation of the development of theories by adding a new research into the needs of possible future residents.

Given that all five criteria have complied, I state that the survey is scientific.

Beantwoord: 33 Overgeslagen: 0

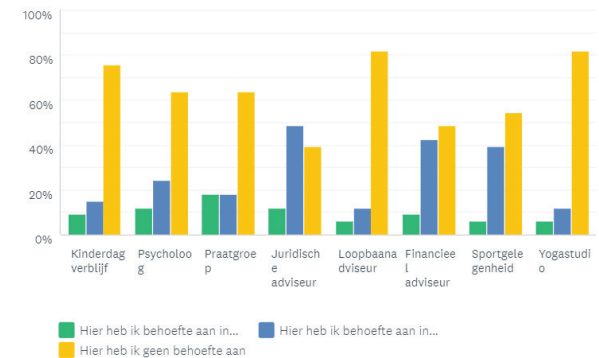


Figure 15: question 6 in the survey: what services do you need? source: authors creation

## 6 Conclusion

In architecture, research never results in one solution, always in options where I can choose from. In some cases, it seems to be one solution, like with the research to the needs of the future residents. The result of this research was a list of needs that the design should provide, nevertheless, these needs can be provided in so many different ways.

Figure 16 shows the conclusion of the analysis of the research during my graduation. It shows that only half of my studies can be seen as scientific. If this was the research of a graduation in medicine, I would fail. However, architecture is not only made with science, it needs creativity as well. It should be a balanced combination of the two since it can't be made without either one of them.

Lately, there are a lot of discussions about whether the degree of an architectural study should be Master of Science or Master of Arts. In the UK, for instance, the degree is Master of Arts, in the Netherlands, it is Master of Science. Experiences of fellow students learn that the study architecture in the UK is more focused on the creative part of the profession and in the Netherlands it is, in comparison, more focused on the technical part of the profession. I think this was the decisive argument to call it art or science.

Either way, I would have studied architecture no matter what degree it wears. In the end, the title architect is far more important to me than the degree of Master of Science.

Figure 16: conclusion of the studies  
source: authors creation

		research?	method	serendipity	scientific
1	visual essay	yes	observation	yes	no
2	problem analysis	yes	descriptive research	yes	yes
3	historical study of shelters	yes	literature research	no	yes
4	study of the future residents	yes	literature research	no	yes
5	study of Maslow and needs	yes	literature research	no	yes
6	comparison with women's refuge	yes	literature research	no	yes
7	study of the needs of single future residents	yes	literature research	no	yes
8	plan analysis	yes	case study	no	no
9	site analysis	yes	descriptive research	yes	no
10	study of precedents	no	searching	yes	no
11	designing	yes	experimental research	yes	no
12	study of cores	yes	case study	no	yes
13	study of the need of services	yes	survey	no	yes
14	dimensioning of the shafts	no	calculation	no	no
15	dimensioning of the windows	no	calculation	no	no
16	study of possible façade materials	no	searching	yes	no

## Appendix 1: sources

Unknown, "Msc Architecture, Urbanism and Building Science," TU Delft, no date. <https://www.tudelft.nl/onderwijs/opleidingen/masters/aubs/msc-architecture-urbanism-and-building-sciences/>

Theo van der Voordt, "Methoden en technieken van onderzoek," Delft: Publikatiebureau Bouwkunde, 1998

Dr. D.B. Baarda and Dr. M.P.M de Goede, "Basisboek methoden en technieken," Groningen: Wolters-Noordhoff bv, 2001

## Appendix 2: questions survey

Wat is uw geslacht?

Beantwoord: 33 Overgeslagen: 0

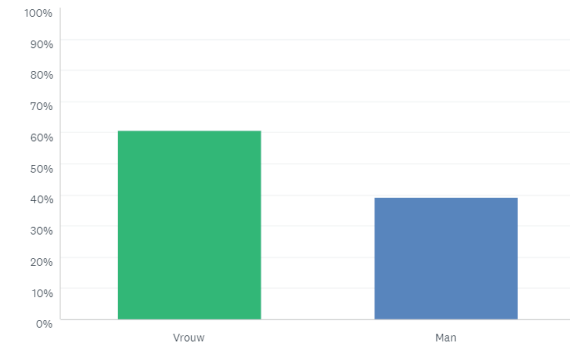


Figure 17: question 1 of the survey, source: authors creation

Waar woont u/ woonde u ten tijde van de situatie?

Beantwoord: 33 Overgeslagen: 0

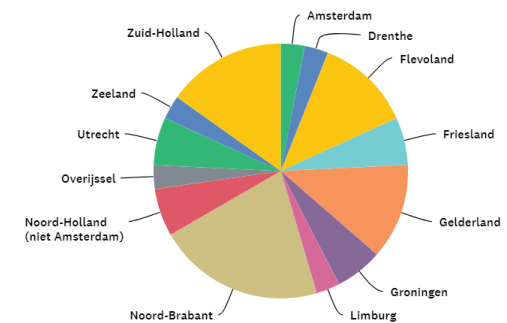


Figure 18: question 3 of the survey, source: authors creation

Heeft u/ had u ten tijde van de situatie thuiswonende kinderen?

Beantwoord: 33 Overgeslagen: 0

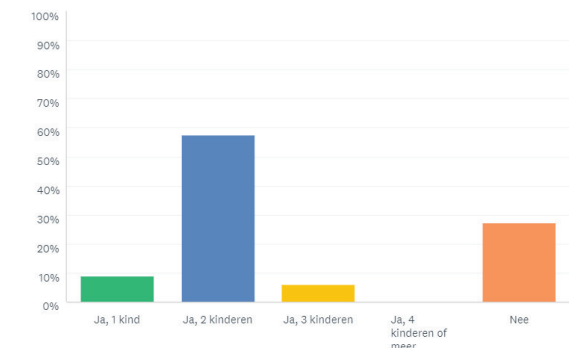


Figure 19: question 4 of the survey, source: authors creation

**Welke situatie is bij u van toepassing?**

Beantwoord: 33 Overgeslagen: 0

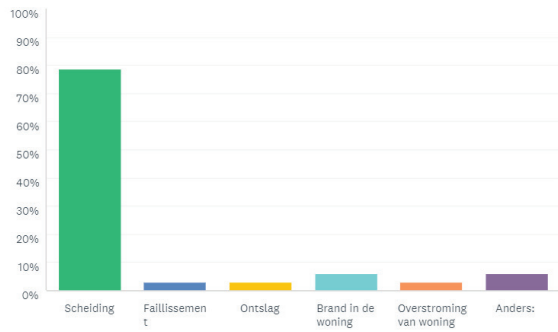


Figure 20: question 5 of the survey, source: authors creation

Aan welke voorzieningen heeft/ had u behoefte en waar zouden deze gesitueerd moeten zijn? (Waarschijnlijk staan niet alle voorzieningen waar u behoefte aan had in het lijstje, wilt u daarom alle voorzieningen die missen invullen bij anders en daarbij aanduiden of u deze in het woningcomplex wilt of in de omgeving?)

Beantwoord: 33 Overgeslagen: 0

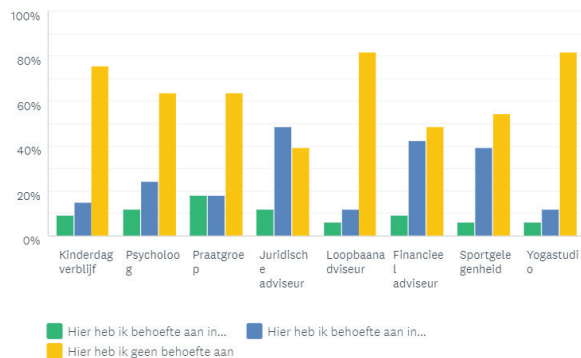


Figure 21: question 6 of the survey, source: authors creation

**Welke stelling is bij u van toepassing?**

Beantwoord: 33 Overgeslagen: 0

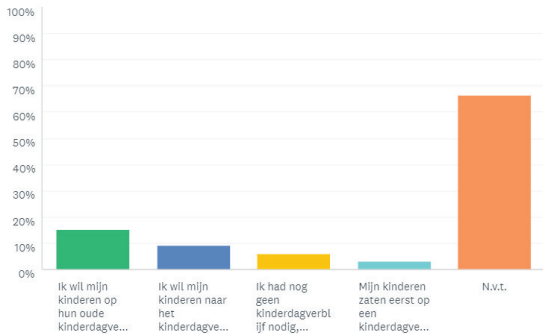


Figure 22: question 7 of the survey, source: authors creation

**Ik zou het vervelend vinden als mijn burens me naar binnen zien gaan bij:**

Beantwoord: 33 Overgeslagen: 0

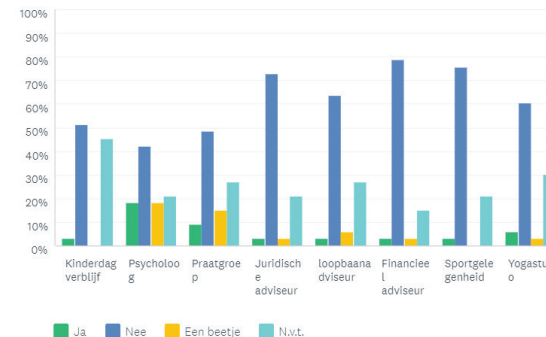


Figure 23: question 8 of the survey, source: authors creation

In het woningcomplex komen ook gezamenlijke woonkamers. Deze zijn extra, want elk appartement heeft een eigen woonkamer. De gezamenlijke woonkamers zijn bedoeld voor wanneer je even niet alleen wilt zijn. Voor wanneer u wilt praten met uw burens, welke in ongeveer dezelfde situatie zitten als u. Zou u gebruik maken van deze gezamenlijke woonkamers?

Beantwoord: 34 Overgeslagen: 0

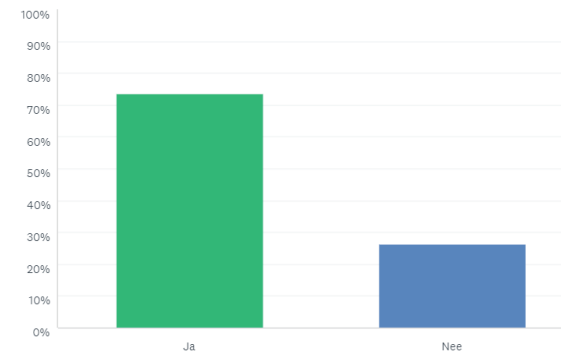


Figure 24: question 9 of the survey, source: authors creation

Zou u liever in een vleugel van het gebouw wonen waarin iedereen hetzelfde meemaakt als u, of zou u liever hebben dat iedereen gemengd wordt? (denk aan een scheiding vleugel, een faillissement vleugel, een ontslag vleugel etc.)

Beantwoord: 34 Overgeslagen: 0

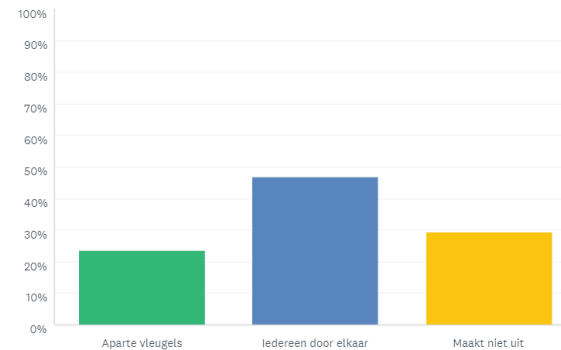


Figure 25: question 10 of the survey, source: authors creation



Amanda Schuurbiers