# Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

## Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

| **Personal information** | |
|---|---|
| Name | Toby van Wijngaarden |
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| **Studio** | | |
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| Name / Theme | Dwelling Graduation Studio – Dutch Housing | |
| Main mentor | Theo Kupers | Architecture |
| Second mentor(s) | Ferry Adema<br>Charlotte van Emstede | Architectural engineering + technology<br>Heritage and Values |
| Third mentor | Pierijn van der Putt | Research tutor |
| Argumentation of choice of the studio | During my master I have chosen design studios that are different from each other to gain as much knowledge as possible and to understand where my interests are laying. With dwelling, a new design assignment will arise that will increase my knowledge and experience which I can use at the start of my career as an architect. During my internship at Roggeveen & Piso Architecten I have worked several times on projects related to Dutch housing and that got my attention, because it has a certain scale level which can be controlled well by an architect. This together with the fluctuation of population (for example with the topic "one million new homes in 2030") causes that the housing typology changes over time and that makes this studio interesting for me. So, I would love to get more experience, because I think I'm going to use it a lot in my future. In other words, dwelling never ends. | |

| **Graduation project** | |
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| Title of the graduation project | Minervahaven water resilient. A liveable and affordable place for starters. |
| **Goal** | |
| Location: | Minervahaven (part of Haven-Stad), Amsterdam, the Netherlands |
| The posed problem, | The rising temperatures due to emitting too much carbon dioxide has many results of which one is that ice is melting rapidly. This results according to Schreuder in a sea level rise of minimal 84 cm at the end of this century in the Netherlands (2019). However, this problem should and only can be solved on a big scale level. Therefore, I assume that it will be solved to prevent that the design site will be flooded. On the smaller scale level, more extreme rainfall will become usual due to emitting too much carbon dioxide. The rainfall itself won't be the problem, but the way we process it. According to Hofman and Paalman the sewage systems can't process all the rainwater at the same time (2014). This problem is recognised by the municipality of Amsterdam by the norms they established for how long water should be retained during extreme rainfall (2017). This topic will be my focus during the design process in order to create a liveable place for now and in the future.<br>Besides the environmental problems we face as the result of emitting too much carbon dioxide there is also a social problem, especially in big cities in the Netherlands. The housing market is stagnating, due to the increase of popularity of the big cities and |

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| | older people not willing to leave their (too) big houses. This results in an increase of the economic value of houses. ANP/DFT mentions a 3,5% increase of the economic value of houses nationwide and in big cities such as Amsterdam, Rotterdam, The Hague, Utrecht and Eindhoven an increase of 7,7% in 2019 (2019). The high housing prices are making it difficult for starters to find an affordable place in Amsterdam. The challenge is to create a bigger affordable housing market for the starters in order to fulfil their demands while being able to live in Amsterdam.<br><br>By reading this it becomes clear that my target group is chosen based on certain problems they have in the current housing market. Therefore, my target group can be seen as a second topic. So, my design proposal will focus on reacting on the extreme rainfall problems and on providing a housing market that is affordable and in line with the demands from the starters. |
| research questions and | Research question in relation to topic:<br>*Where should water resilient measures be taken to help solving the rainwater problems we face now and in the future?*<br><br>Research question in relation to target group (case studies will be used for analysis):<br>*How can compact dwellings be organised while maintaining the quality of living?*<br><br>For every research question I have defined multiple sub questions. These help me having grip on my research to eventually being able to answer the research questions. Some of the sub questions have been answered already through using literature as research method and some sub questions have already been answered by analysing the selected case studies. These researches are included in my research booklet. The remaining sub questions will be answered further in the design process. Research and design will be used together to continue working out my concept. |
| design assignment in which this result. | Design question:<br>*In what way can architecture contribute in designing a water resilient Minervahaven which is a liveable and affordable place for starters?*<br><br>Hypothesis:<br>To give a prediction on the design question, I think that architecture is a tool to unite my topic and target group in my design proposal. Research will be necessary to understand on which scale level which (design) problem can be solved. Making the place liveable depends most on how the environment and building block will be shaped and behave in relation to the rainwater problems. In relation to my target group I think the interior aspect of the dwelling will be important. Focussing not only on creating a compact dwelling, but also on the relation between the functions inside the dwelling and the functions outside the dwelling, mostly as shared spaces, is needed. So, designing on different scale levels is needed to react on the problem statements of both my topic and target group to eventually being able to answer my design question. |

## Process

### Method description

Working towards the P2 I have focused on getting grip on both topic and target group. Therefore, literature was key in order to define the relevance of both aspects. With this objective way of doing research I have been able to answer some of the sub questions that are part of the research questions. Besides using literature to answer sub questions, I already have worked on analysing the following case studies:

- Villa Mokum, Amsterdam (the Netherlands)
- Tietgenkollegiet, Copenhagen (Denmark)
- Gronneviksoren, Bergen (Norway)

Those case studies have been selected based on their dwelling sizes. They are matching with the results of the economic research I have done to determine what my target group can afford. Analysing the three case studies, not only help me answering sub questions, they also help me realise what the possibilities are and how certain problems have been solved in those projects. It functions as a starting point for my own design proposal. Together with the literature I have been using for the research I have done so far, this research can be called design by research.

To define my concept, I would like to move from a design by research method to a research through design method where designing is a tool to do research. This will be the stage where I will use the different techniques I have learnt during both my Bachelor and Master. Examples are, using (small and quick) physical models and sketching.

The mix of using different techniques helps me solving problems and making design decisions. Where sketching can help to get the ideas flowing, physical models can be used to experience the proportions of masses and by making the model obstacles can be discovered which wouldn't have been discovered (immediately) if the model wasn't build. Lately, I finished the "Dutch Housing Tutorial" course in which I worked with virtual reality, which can be useful for doing research on eye level. Eventually, I see the process, especially at the beginning, as a trial-and-error process where different techniques will be used to understand in what way the design can be improved. Different computer programmes will be used to visualise the entire design process in a good way to eventually being able to have a design that represents both my topic and target group and will contribute in the "one million new homes in 2030" by transforming Minervahaven into a liveable and affordable place.

## Literature and general practical preference

Literature used for this document:


ANP/DFT. (2019). *Starterswoningen razendsnel duurder*. https://www.telegraaf.nl/financieel/3392998/starterswoningen-razendsnel-duurder. Visited on 17-10-2019.

Hofman, J. & Paalman, M. (2014). *Rainwater harvesting, a sustainable solution for urban climate adaption.* Knowledge for Climate, nr. 142.

Municipality of Amsterdam. (2017). *Havenstad-Stad. Transformatie van 12 deelgebieden. Ontwikkelingsstrategie.*

Schreuder, A. (2019). *Nederlanders wanen zich veilig.* https://www.nrc.nl/nieuws/2019/10/03/nederlanders-wanen-zich-veilig-a3975465. Visited on 09-10-2019.


*Remark: More references have already been used, but not for this document. Those references are included in the reference list of my P2 research booklet.*

Literature I intend to consult for my further research and design process:


Amsterdam Rainproof. (2019). https://www.rainproof.nl/toolbox/maatregelen. Visited on 27-11-2019.

Andersson, T. (2017). *Waterfront promenade design: urban revival strategies.* Australia, Mulgrave: Images Publishing Group.

Barré, F. & Arc and Rêve Centre d'Architecture. (2009). *New forms of collective housing in Europe.* Switzerland, Basel: Birkhäuser.

McDowell, S. (2016). *Water index: design strategies for drought, flooding and contamination.* United States of America, Virginia: University of Virginia School of Architecture.

Schneider, T. & Till, J. (2007). *Flexible housing.* The Netherlands, Amsterdam & Great Britain, London: Elsevier/Architectural.

Schwartz-Clauss, M., Von Vegesack, A. & Vitra Design Museum. (2002). *Living in motion: design and architecture for flexible dwelling.* Germany, Weil am Rhein: Vitra Design Museum.

Sessarego, A. (2017). Toward resilient public places on the waterfront. *UPlanD: Journal of Urban Planning, Landscape & Environmental Design*, 2(4), 219-230.


Case studies I have used for analyses (and would like to use as reference):

- Villa Mokum, Amsterdam (the Netherlands)
- Tietgenkollegiet, Copenhagen (Denmark)
- Gronneviksoren, Bergen (Norway)

Apart from the case studies I have chosen for analyses, I would like to use some other projects as references as well. They have something in common with my concept, so I think I can learn from those projects and try to implement what I have learnt into my own design. The projects I have selected so far are:

- Eixample (Superblock), Barcelona (Spain)
- Bulevar Residential Building, Mairena del Aljarafe (Spain)
- Pilies Apartments, Vilnius (Lithuania)
- "Unik" Apartments, Boulogne-Billancourt (France)

## Reflection

1. *What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?*

With the graduation studio called "Between standards and ideals" it refers, in my opinion, to a design assignment with the challenge to give something back to the community. With architecture, I feel responsible to both give something back to the society by transforming space into place (place making) and at the same time solving problems we face now and in the future. With having "Minervahaven water resilient" as title for my graduation project I would like to design something that solves the water problems we will face now and the even more concerning problems in the future. New ideals will be tried to be found and translated into a design proposal, which is in line with the goals of the Dutch Housing Graduation Studio mentioned in the course manual. I think researching and analysing the existing is key in realising this. We can only get a step closer to our ideals if we learn from the past, which is an important aspect of what I have learnt during my Bachelor and my Master Architecture. I don't want to be too focused on a specific aspect of my design that I want to solve. But moving between different scale levels while using different research methods and tools, helps me creating a design proposal that not only solve the problems in a better way, it also enhances the quality of the design.

2. *What is the relevance of your graduation work in the larger social, professional and scientific framework?*

With focussing on creating Minervahaven water resilient and make my design affordable for starters, I am focussing on solving two problems with one design proposal. By having compact dwellings, in order to make it affordable for starters to live in Amsterdam, I solve a social problem[1] and at the same time it contributes in creating a high density and inclusive environment. The high density of the urban design proposal of Minervahaven in which my design proposal will be located contributes in creating the "one million new homes in 2030" and is in line with the vision the municipality of Amsterdam has for the development strategy of Haven-Stad (2017). At the same time, by reacting on the increase in more extreme rainfall in the present and in the future, my design proposal will solve an environmental problem as well.

I see a challenge where architecture and building technology are coming together. The collaboration of different disciplines is needed to both react on the environmental and the social problems we face now and in the future. I see it as a sustainable design proposal. By being part of the group of students who learnt integrating sustainability in every design proposal while studying architecture, I feel responsible to give something back to the community that not only solve something in the present but also prevent enhancing or creating new problems in the future. Sustainability is an important aspect in the design (process) and will definitely be present in my design as well.

[1] The starters are having difficulties finding houses they can afford, especially in big cities such as Amsterdam, and at the same time fulfil their demands at a location where they want to life.