

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	Cas Castenmiller
Student number	5733936

Studio		
Name / Theme	Advanced Housing Design – Ecologies of Inclusion	
Main mentor	Olv Klijn / Robbert Guis	Architecture
Second mentor	Ruurd Kuijlenburg	Building Technology
Argumentation of choice of the studio	Within architecture my focus always has been Housing design. Thinking about the way people use the space around them started in a technical sense. <i>How do people use a building, so what rooms should be where?</i> However, since the start of my masters at the TU has morphed into a more theoretical approach. Because of this, sustainability within architecture has gotten a new meaning for me. Housing with a perfect design for the climate but not for the people living there isn't a sustainable building. The vision on architecture of Architecture firm FARO is: <i>"If you don't design for people, who do you design for?"</i> . This quote embodies the question around housing design for me, if a building isn't designed for people, it won't be used, and it just might as well have not been build. The Netherlands currently has a housing and a climate crisis. With the focus of the design question stretched in the middle. So the current question is, how can we design futureproof housing that caters to the needs of society. This is the premise of this studio, designing housing that is sustainable not only for the climate, but also for a society.	

Graduation project	
Title of the graduation project	Architecture as a medium between a landscape and its community.
Goal	
Location:	Maasland, Midden-Delfland
The posed problem,	<p>The peat polders of Midden-Delfland in the Netherlands are experiencing subsidence, emitting significant CO₂. To address this and align with Paris Climate Accord goals, the architecture firm ZUS proposed a masterplan that transforms the area into a green buffer. The plan includes productive landscapes, urban parks, and wetlands for stormwater diversion and fresh water storage. While studies show challenges in freshwater storage in peat polders, reintroducing water could halt subsidence, aiding peat regrowth and CO₂ capture. Creating this wetland is forcing a shift from traditional farming to Paludiculture. This is requiring education on this new type of agriculture.</p> <p>The ambitious masterplan of ZUS sacrifices agricultural land, impacting existing villages and farms. Adapting current villages to the new landscape poses challenges, and the masterplan lacks a method for this transition. New developments also have to be designed to accommodate varying wetland conditions. The buildings should be adaptable to wet, flooded, and dry environments without isolating residents.</p>
research questions and	How can architecture serve as a medium between a continuously changing water landscape and a community that resides in it?
design assignment in which these result.	The design assignment is to design a student housing complex within the masterplan for a new trade school college in the wetland landscape of Midden-Delfland.

Process

Method description

The aim of this research is to find practices that enable a community to arise and live/work with its surrounding wetland landscape. To achieve this, multiple case studies will be studied and analyzed. This analysis will be done on two main topics, 1) the interaction with the landscape and 2) Place for the community. For the first topic questions like 'How does the project interact with water?' and 'How does the project connect to the landscape?' are addressed. For the second topic is 'How does the project create space for a community to convene?' central to the research. By analyzing the case studies in their respective environment, different strategies can be distilled on how to tackle the design question posed in the problem statement. Because of the similar approach these strategies can be compared with each other. To study design for communities, a literature study will be done to research concepts of campus and college design. Looking at the architectural concepts and looking into similar topics as for the case studies.

Literature and general practical references

- Bergen-Kolpa, V. (2010). *Park Supermarkt Oregional*. Retrieved from <https://www.vanbergenkolpa.nl/nl-nl/stedenbouw#park-supermarkt-oregional>
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- Engel, H., Gramsbergen, E., Hoeks, H., Rutte, R., Diesfeldt, O., & Pane, I. (2017). *Over Holland 18/19*. KNOB.
- Frederique van Anandel, D. v. (2014). *DASH #10 Housing the student*.
- Henk Engel, E. G. (2021). *Over holland 21*. KNOB.
- Marle de Jong, O. v. (2021). Paludiculture as paludifuture on Dutch peatlands: An environmental and economic analysis of Typha cultivation and insulation production. *Science of The Total Environment*.
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- NOS. (2021). Overstromingen in Limburg en buurlanden op één na duurste natuurramp van 2021. NOS.
- Rijkswaterstaat. (2024). *Beheer van uiterwaarden: voor een veilig en natuurlijk rivierengebied*. Retrieved from [rijkswaterstaat.nl: https://www.rijkswaterstaat.nl/water/waterbeheer/bescherming-tegen-het-water/maatregelen-om-overstromingen-te-voorkomen/beheer-van-uitwaerden-voor-een-veilig-rivierengebied](https://www.rijkswaterstaat.nl/water/waterbeheer/bescherming-tegen-het-water/maatregelen-om-overstromingen-te-voorkomen/beheer-van-uitwaerden-voor-een-veilig-rivierengebied)
- WUR. (2023, 10 23). *Coastal river deltas threatened by more than climate change*. Retrieved from Wageningen university of Research: <https://www.wur.nl/en/research-results/research->

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WUR, W. U. (2023). Natte teelten. 15.

ZUS, a. J. (n.d.). *Masterplan*.

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)?

There is quite a close connection to my graduation project and the studio topic, the main question the studio is "how do we live with water?" by researching design practises that combine architecture with water and wetland landscapes a part of the main question can be answered. The relation with architecture, and AUBS in general, is less close than with the studio specific question. However, the project does respond to the housing crisis. Not by developing a housing project, but by researching a strategy to develop buildings in variable and wet conditions.

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

With climate change also changing the waterways in the Netherlands, water buffers and floodplains will become more important. To not (permanently) lose this land, but instead developing a strategy to create buildings in a wetland area, these floodplains can still be useful.