

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	Oskar Hermans
Student number	5652154

Studio		
Name / Theme	Advanced Housing Design	
Main mentor	Olv Klijn	Architecture and the Build Environment, Form, Space & Type
Second mentor	Ruurd Kuijlenburg	Architecture and the Build Environment, Form, Space & Type
Argumentation of choice of the studio	The current scarcity of housing in the Netherlands is one of the factors that drew my intention to study more about the architecture of Dwellings. The advanced housing studio was the best fit to explore this interest in combination with my other interests for social inclusion, sustainability, and resources.	

Graduation project	
Title of the graduation project	Housing as a service, Setting the standard for affordable living in the Dutch wetlands in combination with farming and tourism
Goal	
Location:	De Zweth, Midden-Delfland, Netherlands
The posed problem, research questions and design assignment in which these result.	Missing housing type (for short stay residents) How can affordable housing be designed to provide housing as a service in the wetlands in a space for tourism and farming? The studio formulated a design question of housing in the landscape design by ZUS. My personal interest will be housing design in this landscape with the focus on housing as a service, to fill

in the gap of available affordable housing in Midden Delfland.

Introduction: Project initiative

This research will focus on housing in a new landscape design of Midden Delfland and the landscape design is made by the landscape architect called ZUS. That landscape design is part of a speculative design exercise of the Delta project. The design by ZUS requires some changes of the Dutch landscape and give new opportunities for Dutch housing. This proposal of the new landscape can be distinguished in four different types of land: wetlands, peatland, forest, and urban areas. The Advanced Housing studio is exploring how to live in these types of land. This research will be part of that exploration by researching how affordable housing fits in this new plan.

Threw analysis of a few sites on the ZUS landscape were explored. The results show that De Zweth is an area with a lot of potential and opportunities as one of the pilot projects from the advanced housing studio. The ecology of the Zweth can be further expanded without destroying the current community.

Relevance: Affordable housing in the Netherlands

In the Netherlands there is a housing shortage. In 2021 this was a shortage of 279.000, but this shortage is expected to rise to 317.000 in 2024. (Ministerie van Algemene Zaken, 2023) The housing prices have increased to a point where a lot of people are unable to find an affordable home that suits their needs. These raising prices have been caused by multiple factors. Prices of building materials have increased rapidly over the last years. At the same time the housing demand kept rising and the supply has not been able to keep up with this demand. This contributes to the shortage of housing on the market. (Brysch & Czischke, 2022) (Capital Value, 2020)

Problem statement: Affordable housing in Midden Delfland

Focusing on affordable housing and the project location near the Zweth a few complications and challenges were found. The results show that there are a lot of jobs for seasonal workers. The jobs in this area are important to consider for affordable housing. Because what makes a house affordable is not only based on the value of a home, but also the income of its residents. The living situation of seasonal workers differs a lot.

A large portion of the seasonal workers are working in South & North Holland. The largest amount of seasonal work is from tourism, catering, entertainment and the agriculture sector. (Seizoenwerk in 2021, 2021) 19% of agriculture and horticulture jobs are seasonal work and 60% of that is horticulture. (Vermaas, 2021) To many migrant workers are still living in bad conditions in the Netherlands. (Ministerie van Algemene Zaken, 2023b)

According to the CBS (Centraal Bureau voor de Statistiek), the number of jobs in agriculture and green sector is the highest in the months Juni & Juli (Dutch summer). The peaks are a fluctuation of around 21% of the total number of jobs in these sectors. (WERKbedrijf, 2024) With a residence permit for seasonal work, you are allowed to work in the agricultural sector of the Netherlands for up to 24 weeks. (Naturalisatiedienst, 2023) This creates living situations, where people want to live for a short period, just for their work. Sometimes they will move to these temporary locations with a part of their family and sometimes alone or only with their

partner. This requires homes that are flexible in the duration of stay and a variety of home sizes.

This concept formed the conclusion of a missing housing type in this area. A housing type that allows its residents to stay the duration they need, to pay for only what they use, and not be bound by a contract that lasts longer than a week.

Topic: Housing as a service

Housing as a service is a type of ownership of real estate property. According to Rafael Presa (Presa, 2019), A lot of residents don't need to own their own real estate property. Minimalism is their way of life, due to a wide spectrum of reasons. Most popular reasons for that pivot includes environmental concerns, financial concerns, and the desire to have more time and freedom enjoying life. (Presa, 2019).

The user of the property pays in real time for what they use, instead of a more traditional and restrictive monthly period. The benefit of this model is that residents have more freedom, and more costs can be shared collectively.

In this graduation project there is a lot of potential for this housing as a service model as well. This brings a lot of design influence. Dwellings are a very personal space. When applying the housing as a service model, the dwellings could become mono apartments, where all the dwellings are alike, and the personality of a home is lost. To avoid this, clear design ambitions need to be formulated. A clear distinction between private use and collective use, as well as ownership, needs to be made. For example, does someone own their own fridge or is there only one fridge in a shared kitchen and with how many dwellings is this kitchen shared or does each dwelling need their own kitchen?

This research will focus on architectural design of the housing as a service concept. Thinking of spatial design, programming, experience, and use. For example, by exploring a large variety of dwellings where the user can choose a dwelling to fit their needs and pay only for the space they use. Perhaps the dwellings need to allow for easy minor adjustments to fit a large variety of possibilities. It might also be possible to include the furniture in the variety. Therefore, the people who will move often are still able to live as they like, without the need for moving their own furniture to everywhere they go. Allowing for more freedom by owning less.

Housing as a service still has financial concerns as well. With this model, the residents are paying the owner of the real estate for the things they use. This could mean the owner of the real estate is able to generate profit on every little thing that is being 'borrowed'. In this study a more cooperative inclusion of the residents is expected, to overcome these concerns of affordability. The overall owner of the housing as a service concept should be combined with a non-profit organization. Perhaps there is not one company that owns all that is being shared to turn a profit. Instead, multiple small businesses can be involved in this shared concept. Where the shared laundry is a local business and all the buildings are not owned by one individual, but a few buildings are owned by locals instead.

The position this project will take in housing as a service is one focused on a non-profit ownership model. Furthermore, residents should have the freedom to live as they want. Not to be bound by things such as monthly payments. However, the dwellings should be able to

spatially fit those different living styles and allow for personal items to create one's own home experience.

The problem statement and the theory of housing as a service, creates the following research question:

How can affordable housing be designed to provide housing as a service in the wetlands in a space for tourism and farming?

Process

Method description

Research method

The Advanced Housing studio of which this research is part of, already contains a direction of research with the specific themes that it includes. The method on how the process will approach the topics in different scales will be explained.

With each step, all themes of the studio (living with water, social inclusion, affordability, gender equity, sustainability, resources) will be presented and explored through design. Although in each step, one theme might be more present than the other theme. For example, social inclusion has a lot to do with the programming of the masterplan and the dwelling types, as well as how the dwellings are connected to each other. While a theme such as resources is most present during the step where construction and material will be explored.

Qualitative Methods

Qualitative research is based on non-numerical data. It may contain fieldwork, mapping, fieldnotes with information about the experience, attitudes, and beliefs. (Pathak, Bijayini, & Kalra, 2013)

The plan by ZUS for the site shows drastic changes. By using a qualitative approach, a better understanding of their approach and the context of the site will be gathered. The site and context in its current form and the site as planned in the design of ZUS will be documented to gather information that is relevant to the approach of designing affordable housing. Mapping and analyzing are a good way to document the large scope of information surrounding the environment of the site. Although it often lacks the feel and experience of the place. Through site visits this feel, and experience can be captured. By sketching, the key components of this experience will be documented. This allows for a more comprehensive analysis to complete an overview of the location.

Case-Study - morphological analysis

Housing as a service creates complex problems to be explored within architectural design. Morphological analysis is a method that can identify possible relations contained in a multidimensional problem. (Bird, Menzies, & Zimmermann, 2015)

The programming of the affordable housing design also has one of the largest impacts on the living costs and conditions of affordable housing. By finding important relations with this analysis, a clear overview will be presented, with important structures. Therefore, the programming of affordable housing design will be explored

with existing projects. Case studies of these projects will be studied and compared. With the information gained from those studies, different floor plans can be tested for the design in Midden Delfland.

Speculative design method

Speculative design is a way of not only creating things but also ideas. It's to imagine the future of how things could be, by asking the question "what if?" This method aims to start a discussion about what people want or don't want. (Dunne & Raby, 2013)

For the design of this study, the future will be explored with this method. Therefore, the design in the location will be explored by creating variants. In this method, different aspects such as the figure, arrival, form, and the design relation to the environment can be tested. The design will be tested in the landscape, by visualizing the design in the landscape with either sketching or models. This step will also focus on how the residents experience the arrival to the dwellings and how they enter and interact with the dwellings.

Research by Design

Throughout this study the method of research by design will be used. This method explores the research that may arise from design, a proposal, model, or experiment. By consciously extracting rules about the object, with investigations such as analysis, criticism, selection, and problem formulation. (Hauberg, 2011)

This method will explore aspects such as flexibility. The building structure is an important aspect of flexibility and therefore of affordable housing as well. To find an optimal solution, different alternatives will be explored through design. Building elements and their relation or physical connection to one another goes further into the aspects of flexibility and sustainability of the design, therefore this method of research will also explore the design throughout the detailing of the project.

Literature and general practical references

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

The graduation topic "Housing as a service" is related to the studio topic "Affordable housing" and to the track Architecture. As was mentioned in the theoretical framework, Housing as a service is a way of affordable living, where

the residents only pay for what they use. This type of housing allows residents to stay for short durations and do not bind them to long term contracts. This is a housing type that's uncommon in the Netherlands.

Affordable housing is a highly discussed current topic, due the current housing shortage. This graduation project will explore the architecture of housing as a service in Midden Delfland. This project will also explore, how it improves the available affordable housing possibilities for the Dutch housing market.