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	Sander Velsink
Student number	4863739

Studio	
Name / Theme	Designing for care – towards an inclusive living environment
Main mentor	Birgit Jürgenhake	Architecture
Second mentor	Lex van Deudekom	Building Technology
Third mentor	Leo Oorschot	Research
Argumentation of choice of the studio	I chose the studio Designing for care because I was very interested in designing dwellings for the elderly. During my master's degree most projects I did involved public buildings on various scales. Therefore, for my graduation I wanted to do something different. Between my first and second year of the master I did an internship at an urbanism and architecture firm with architects that teach dwelling at the TU Delft. Talking to these architects inspired me to do a dwelling studio for graduation. Designing for health and care seemed very interesting to me because it was a relatively free studio where I had the chance to choose a topic that sparked my interest and at the same time challenged me. I chose for the topic of elderly housing because this topic is very relevant at this time and thus this research and the design guidelines following from this could contribute to finding solutions for the various problems this topic is dealing with now. I had little knowledge about how the built environment could affect (elderly) people's health and I wanted to learn more about that.

Graduation project	
Title of the graduation project	Transformation for elderly housing
Goal	

Location:	Delft
The posed problem,	[Problem Statement]
research questions and	[Research Question]
design assignment in which these result.	[Design Assignment]

Problem statement:
In this graduation I will look at the problem of elderly housing. This problem is divided into two parts. On one hand there is the problem of the housing gap for the Dutch elderly with a small to medium care demand, which will be explained first. On the other hand, there is the need for more building transformations due to sustainability and housing shortages.

First, there is the problem of a housing gap for elderly in the Netherlands.
The Dutch elderly care system is under pressure and with the rising life expectancy this pressure is only growing (CBS, 2023). The government has therefore adopted a policy to encourage elderly to keep living at home. However, not all elderly can or want to continue living at home because of several reasons. Their houses might not be suitable for growing old in or they do not have the financial means to continue living at home (Nivel, 2014). At the same time social connections are very important for the elderly and their health. Study has shown that proper social connections can provide an increase in life expectancy of up to 7 years while at the same time increasing health and the experienced quality of life (Steverink, 2016). When living at home many elderly lose their social connections because of their reducing health causing their world to get smaller (Van de Sande, 2019). A solution for these elderly could be to move into a nursing home where they could get the help they need and live together with other elderly people. However, these elderly are often too healthy to move into a nursing home where 24-hour care and nursing is provided and they do not need this type of extreme healthcare. Therefore, there is the need for a form of housing where the elderly can get help when needed and have social connections but do not get permanent healthcare as they do in nursing homes.

The second problem, there is the problem of sustainability, building vacancy and housing shortages in the Netherlands. Sustainability is an ever-growing topic in Architecture and buildings have to be more sustainable than ever before to meet the European sustainability goals. However, 85-90 percent of the built environment of 2050 is already built and therefore these buildings need to be renovated or transformed to make them more sustainable (European Commission, 2020). At the same time plots for building houses are increasingly hard to find in the Netherlands(source) and therefore we need to look more and more into using existing vacant buildings and transforming these buildings into housing (Rijksdienst voor Ondernemend Nederland, 2022). The transformation of these buildings both provides new options for creating houses and increasing sustainability of these buildings.

Research Questions:
In this research these two problems are connected by researching how existing utility buildings can be transformed into a communal housing complex for elderly.

Therefore, my research question is: *Which architectural interventions can be introduced in an existing utility building to create a living environment that improves the care and prevents health issues for vulnerable elderly in the Netherlands?*
This research question can be divided into several subquestions which are stated below:
- Which type of buildings are suitable for transformation into elderly housing?
- What are the needs and demands of elderly concerning the way they live and how are they living now?
- Which principles of Co-housing can be introduced into an elderly housing complex to improve health and care and how can these principles be shaped architecturally?
- Can mixed living be a solution to relieve pressure on the Dutch professional care system and how can this be architecturally incorporated in a housing facility for elderly people?

Design assignment / Research output:
In the end my research will provide me with information on transformations of existing utility buildings and which types of buildings are generally concerned suitable for transformation into housing complexes.
For the elderly housing part, this research will provide me with architectural design guidelines for creating a communal living complex for elderly these design guidelines are based on both the elderly wishes of communal living and the needs and demands for elderly social housing that resulted from expert researches and case studies.
These design guidelines can then be used to come up with a concept to transform an existing utility building into a communal housing complex for elderly. This design concept can then be inserted in existing buildings in order to transform these buildings into complexes for elderly communal housing.

Process

Method description

The research started with a fieldworkweek at a elderly housing complex in the Netherlands. During this fieldwork the research consisted of two parts. The first part was research by observations, looking at the building, it's layout and spaces to see what design tools are used to design for elderly. The second part of this fieldworkweek research consisted of interviews of residents using a narrative format. These interviews were performed during the communal activities of the elderly to get a grip on their social interactions.

After the fieldwork week the research was continued as follows: First and foremost, literature research has been done on: Transforming buildings into housing, elderly housing wishes, (Elderly) Co-housing and Mixed living. This literature research is then validated, combined, and complemented by
For the research into buildings transformations some researches performed by an expert team in real estate transformations have been consulted. The results from this research are validated using several other literature sources by experts on these specific topics.

For the Research into elderly housing wishes research and literature by Springco Urban Analytics and Platform 31 (2020) are consulted. The results from this research are then combined validated and complemented by other literary sources and results from the fieldwork.
For (elderly) Co-housing and Mixed living multiple literature sources combined with fieldwork results and some building case studies have been used to come up with design guidelines

Literature and general practical references

Centraal Bureau van de Statistiek. (2023). Prognose levensverwachting 65-jarigen: 20,89 jaar in 2029. Retrieved from: https://www.cbs.nl/nl-nl/nieuws/2023/45/prognose-levensverwachting-65-jarigen-20-89-jaar-in-2029#:~:text=In%202022%20was%20er%20nog,jarige%20leeftijd%202%2C2%20jaar. On December 18th 2023.

European commission. (2020, Oktober 14). A Renovation Wave for Europe – greening our buildings, creating jobs, improving lives. Brussels: Office for Official Publications of the European Communities.

Hagen, G.J., & Neijmeijer. (2020, july). Woonprofielen van Senioren. Platform 31/Springco Urban Analytics. Retrieved on Oktober 24th 2023 on https://www.platform31.nl/artikelen/woonprofielen-van-senioren/

Nivel. (2014). Overzichtsstudie: Ouderen van de toekomst. Nivel.

Rijksdienst voor Ondernemend Nederland. (2022). Transformatie in cijfers: Heden, verleden en perspectief.

Steverink, N. (2016). De kracht van sociale relaties: De invloed van sociale relaties op zelfmanagementvaardigheid, gezondheid en welbevinden. Rijksuniversiteit Groningen.

Most important literature sources used in this research:

Hagen, G.J., & Neijmeijer. (2020, july). Woonprofielen van Senioren. Platform 31/Springco Urban Analytics. Retrieved on Oktober 24th 2023 on https://www.platform31.nl/artikelen/woonprofielen-van-senioren/

Ministerie van Volksgezondheid, Welzijn en Sport. (2018). Programma Langer thuis.

Nivel. (2014). Overzichtsstudie: Ouderen van de toekomst. Nivel.

Oorschot, L. (author). (2021). Nederlands kantelpunt: Darinka Czischke about the freedom to choose your way of living in collaborative housing. Web publication/site, 1M Homes initiative.

Rijksdienst voor Ondernemend Nederland. (2022). Transformatie in cijfers: Heden, verleden en perspectief.

Singelenberg, J.P.J., "Woonzorgcomplexen, Beschut zelfstandig wonen met zorg op maat". Utrecht: Kenniscentrum Wonen/Zorg Aedes-Arcares, 2005.

Spierings D.G.M., Van der Voort, D.J.M. & Van Biene, M.A.W. (2014) Promotieonderzoek De wenselijke schaal. Raboud Universiteit Nijmegen

Van de Sande, J. et al, (2019). Senior Co-Housing in the Netherlands: Benefits and Drawbacks for Its Residents. International journal of Environmental Research and Public Health.

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)?

   My graduation topic continues on the studio topic of general designing for health and care. In my graduation topic I decided I wanted to design a building for elderly to live using design principles that improve the health and care for these elderly. Health and care is a big and important topic in the field of architecture. Architecture is about more than the building itself. It is also about creating safe an healthy spaces for people to, amongst other things, live and work in. But at the same time this topic is not only about the buildings and its spaces but also about how the building is positioned in both the physical and social landscape surrounding us all. Therefore, this topic touches upon many other disciplines than only architecture on its own. It is about creating a healthy building where elderly can live their live whilst maintaining good social contacts both within and outside of the building, with all of their needed facilities close by. And this all is placed in an existing structure withing the urban fabric of a city in the Netherlands.

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

   As mentioned before in the problem statement, this project involves some of the major challenges in today's society, the housing crisis. There are many reasons for this crisis to be how it is at this moment but one of the problems is the fact that the elderly people continue to keep living in their often way too big, family homes where they lived for the most part of their lives. At the same time, we see that space for creating new buildings to live in is running out in the Netherlands and therefore it is becoming evermore important too see what we can do with the buildings that are already there and how we can use them more efficiently when their existing function might not be needed anymore. This research will provide a solution by looking into how we can transform these existing buildings into elderly housing complexes where the elderly can continue having a meaningful and healthy life full with social connections. This could cause more elderly to move out of their family homes, opening up spaces for other people to move in and at the same time improving their own quality of life.