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	Ruben Bogert
Student number	5272157

Studio		
Name / Theme	AR3AD110 Dwelling Graduation Studio	
Main mentor	Birgit Jurgenhake	Architecture and the Built Environment, Housing and Public Building Design
Second mentor	Jasmina Campochiaro	Architectural Engineering +Technology
Third mentor	Leo Oorschot	Architecture and the Built Environment, Teachers of Practice
Argumentation of choice of the studio	I chose this studio because of my personal interest in healthcare. I often hear and read about the increasing pressure on the healthcare sector, which is a significant societal issue. Opening new care homes might seem like a straightforward solution at first glance, but in reality, we face a severe shortage of caregivers and nurses, and other problems. The people needed to work at these facilities are not there. It is, therefore, a wicked problem. I believe that architecture is a powerful tool for addressing societal challenges. For me, it's not just about designing a building for its aesthetics or appearance, but about creating a design that serves a higher purpose. I find the interaction between social issues and architecture intriguing. That is why I chose this graduation studio. It offers me the opportunity to explore how architecture can contribute to solutions for complex problems, such as those in the healthcare sector. Through this studio, I aim to make a meaningful contribution to a better world through architecture.	

Graduation project

Title of the graduation project	Healthy aging in the Tarwewijk
Goal	
Location:	Tarwewijk, Rotterdam
The posed problem,	The ageing population in the Netherlands is causing societal challenges, including significant pressure on healthcare systems and the working generation. The increase in life expectancy is likely to worsen these problems. However, in Tarwewijk, Rotterdam, life expectancy is notably lower due to socioeconomic factors. Few elderly residents remain in the neighbourhood, and the existing housing is often unsuitable for their needs. Nationally, there is growing interest in small-scale care homes, but there is a more pressing need for intermediate solutions that allow elderly people with mild care needs to remain in their communities for as long as possible. This is urgent as the healthcare sector faces a severe shortage of qualified staff, making traditional solutions such as care homes unfeasible.
research questions and	This study aims to address the question: How can the living environment in Tarwewijk be improved to enable elderly people to live independently at home for longer? To explore this, the main research question is divided into three sub-questions: 1. What is the current housing situation for elderly residents in Tarwewijk? 2. What are the needs of elderly people regarding their living environment? 3. What design principles from existing reference projects can

	enhance the living environment for elderly people?
design assignment in which these result.	The findings from the research will inform the creation of a design for a residential complex in Tarwewijk tailored to the needs of the elderly. The design will incorporate principles that promote independence, accessibility, and social interaction. Key objectives include: • Designing adaptable homes suitable for ageing in place. • Creating communal spaces that foster social cohesion. • People need to connect with one another to build a strong network of weak ties. These weak ties are essential for self-reliance, and independence. • Ensuring accessible infrastructure that integrates well with the surrounding neighbourhood. The ultimate aim is to develop a living environment that allows elderly residents to age healthily and independently with a strong community, reducing the burden on formal healthcare services.

Process

Method description

Quantitative Research
The study uses statistical data to describe the current living conditions of the elderly in Tarwewijk. This information is visually represented through mapping.

Photo Documentation
Visual documentation of the built environment provides an impression of the living conditions of older residents. These images capture the physical and social aspects of the neighbourhood.

In-depth interview
In-depth interviews with senior residents aim to uncover their current situation and needs. Given the challenges of reaching residents within Tarwewijk, alternatives include interviewing elderly individuals from similar contexts, such as neighbouring housing complexes.

Literature Research
A research of academic literature focuses on elderly living environments, examining

themes like "independent living for seniors," "age-friendly neighbourhoods," and "housing adaptability for ageing populations."

Case Study Analysis of Age-Friendly Projects
Reference projects, Knarrenhof in Zwolle, BruVille in Bruinisse, and Kop van Dok and Scheldehof, are analysed to identify principles of age-friendly design. These case studies provide insights into fostering community, accessibility, and adaptability in urban housing.

Literature and general practical references

This research is based on several key frameworks and practical references:

- **WHO Age-Friendly Cities Framework**: This serves as the primary theoretical foundation, focusing on creating inclusive, accessible, and supportive environments for elderly people. The domains include housing, outdoor spaces and buildings, transportation, social participation, respect and social inclusion, civic participation and employment, communication and information, community and health services.

    - World Health Organization. (n.d.-a). *Age-Friendly World - Housing*. Age-Friendly World. Retrieved October 25, 2024, from https://extranet.who.int/agefriendlyworld/age-friendly-practices/housing/
    - World Health Organization. (n.d.-b). *The WHO Age-Friendly Cities Framework - Age-Friendly World*. Age-Friendly World. Retrieved October 25, 2024, from https://extranet.who.int/agefriendlyworld/age-friendly-cities-framework/
    - World Health Organization. (2007). *Global Age-friendly Cities: A Guide*.

- **Case Studies**: Practical examples like Knarrenhof in Zwolle, Bruville in Bruinisse, and Scheldehof in Vlissingen provide design principles and lessons. These projects highlight elements such as adaptable housing, communal spaces, and the integration of care services into residential environments.

- **Fieldwork**: Observations and interviews with elderly residents in different settings (Crooswijk and Bruinisse) provide insights into their specific needs and preferences. These references collectively inform the design strategies and recommendations for creating age-friendly living environments in Tarwewijk and similar urban contexts.

- **Literature**: Research from sources such as "Ontwerp voor Ontmoeten" and studies on social participation emphasizes the role of the built environment in fostering interaction and independence. Documents such as those from the Centraal Bureau voor de Statistiek and the Ministerie van Volksgezondheid, Welzijn en Sport underline societal challenges and opportunities in elderly care and housing.

- Centraal Bureau voor de Statistiek. (n.d.). *Ouderen*. Centraal Bureau Voor De Statistiek. https://www.cbs.nl/nl-nl/visualisaties/dashboard-bevolking/leeftijd/ouderen
- de Architekten Cie. (2024). The Architecture of Ageing. https://www.cie.nl/media/inline/2024/10/8/ebook_the_architecture_of_
- ageing_by_de_architekten_cie.pdf
- De Klerk, M., Verbeek-Oudijk, D., Plaisier, I., Den Draak, M., & Sociaal en Cultureel Planbureau. (2019). Zorgen voor thuiswonende ouderen. In *Sociaal En Cultureel Planbureau*. https://repository.scp.nl/bitstream/handle/publications/368/Zorgen %20voor%20thuiswonende
- %20ouderen.pdf?sequence=1&isAllowed=y
- Handler, S. (2018). Alternative age-friendly initiatives: redefining age-friendly design. In *Policy Press eBooks* (pp. 211–230). https://doi.org/10.51952/9781447331322.ch011
- Mantingh, I., & Duivenvoorden, A. (2021). Ontwerp voor ontmoeten.
- Ministerie van Volksgezondheid, Welzijn en Sport. (2023, September 29). *SCP: Stijgende vraag naar mantelzorg vraagt om meer integrale visie*. Nieuwsbericht | Sociaal En Cultureel Planbureau. https://www.scp.nl/actueel/nieuws/2023/09/28/scp-stijgende-vraag-naar-mantelzorg-vraagt-om-meer-integrale-visie
- Nijkamp, J. E., & Bosker, L. (2020). Enabling older people to live independently: a shared responsibility of citizens and municipality. *Companion Proceedings of the European Facility Management International Conference 2020*, 85–92. https://research.hanze.nl/en/publications/enabling-older-people-to-live-independently-a-shared-responsibili
- Van Hoof, J., Marston, H. R., Brittain, K. R., & Barrie, H. R. (2019). Creating Age-Friendly Communities: housing and technology. *Healthcare*, *7*(4), 130. https://doi.org/10.3390/healthcare7040130
- Verbeek-Oudijk, D., Van Campen, C., & Sociaal en Cultureel Planbureau. (2017). Ouderen in verpleeghuizen en verzorgingshuizen. In *Sociaal En Cultureel Planbureau*. https://www.scp.nl/binaries/scp/documenten/publicaties/2017/09/14/ouderen-in-verpleeghuizen-en-verzorgingshuizen/Ouderen+in+verpleeg-+en+verzorgingshuizen.pdf
- Verkooijen, L. (2020, July 13). *Laatste levensjaren tachtigplussers*. Centraal Bureau Voor De Statistiek. https://www.cbs.nl/nl-nl/longread/statistische-trends/2020/laatste-levensjaren-tachtigplussers

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)?

a. Studio topic:

The graduation project focuses on "healthy ageing" in the Tarwewijk neighborhood of Rotterdam within the studio *Designing for Health & Care*. This aligns with the studio theme by exploring how architecture can contribute to healthy and independent living for elderly

residents in a neighborhood. The focus is on preventive measures and improving quality of life through architecture.

b. Master track:
Within the *Architecture* master track, this graduation topic addresses the challenges of societal ageing and healthcare issues, examining how the built environment can support the well-being. It investigates how architecture can be both functional and socially supportive.

c. Master programme:
The topic aligns with the broader MSc *Architecture, Urbanism, and Building Sciences* programme. The programme encourages interdisciplinary approaches to address complex societal issues. This research contributes to knowledge about how architecture and urban planning can integrally support a better future for the elderly.

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

This research responds to the challenges of an ageing society and healthcare issues, such as the shortage of appropriate housing and care facilities for elderly people. It promotes social cohesion by designing homes and buildings that create supportive environments for the elderly to live independently for longer.

The project addresses the needs of an ageing population and focuses on fostering social inclusion and enhancing the quality of life for elderly residents by providing supportive living environments.It provides valuable design principles and guidelines for architects and urban planners tasked with creating buildings and environments that meet the specific needs of elderly residents. The research contributes to knowledge on age-friendly cities and neighborhoods, with a specific focus on how the built environment can enhance health and well-being. By utilizing case studies and diverse sources, the study establishes a scientific foundation for design strategies.