

# 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](mailto: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                 | Mara Theodora Popescu |
| Student number       | 5840287               |

| Studio                                |  |  |
|---------------------------------------|--|--|
| Name / Theme                          | AR3AD110 – Dwelling Graduation Studio: Designing for Care in an Inclusive Environment  |  |
| Main mentor                           | Kobe Macco   |  |
| Second mentor                         | Jasmina Campochiaro  |  |
| Third mentor                          | Leo Oorschot   |  |
| Argumentation of choice of the studio | I have a profound interest in the healthcare system and its potential for improvement through innovative architectural and urban design strategies. My focus lies in exploring how thoughtfully designed spaces can improve functionality, accessibility, and overall user experience, fostering environments that promote well-being and efficiency within healthcare settings. |  |

| Graduation project              |   |
|---------------------------------|---|
| Title of the graduation project | Empowering Elderly: enhancing mobility and social connections for active aging  |
| Goal                            |   |
| Location:                       | Tarwewijk, Rotterdam  |
| The posed problem,              | <p>Environments that are poorly designed can increase the risk of loneliness, isolation, and physical limitations, especially for vulnerable target groups, such as elderly.</p> <p>Statistics show that Tarwewijk presents a lower life expectancy than the average on a national level, which can be caused by unhealthy life factors such as lack of exercise and diet.<sup>1</sup> These unhealthy life habits might also lead to obesity and overweight problems, which are also higher than the national average.<sup>2</sup></p> |

<sup>1</sup> Marleen Luijt, “In Tarwewijk leef je zeven jaar korter,” *NRC*, June 24, 2014, <https://www.nrc.nl/nieuws/2014/06/24/in-tarwewijk-leef-je-zeven-jaar-korter-1393267-a308458>.

<sup>2</sup> “Wijkprofiel Rotterdam,” accessed October 7, 2024, <https://wijkprofiel.rotterdam.nl/nl/2024/rotterdam>.

|  |  |
|--|--|
|  | <p>The housing typology predominant in the neighbourhood, the portico blocks, presents obstacles for people with mobility limitations. Their lack of elevators combined with the heights of the building can lead to less outdoor activity and social interaction for people who experience difficulties with stairs.</p> <p>The neighbourhood currently lacks elderly or nursing facilities that can provide partial or full caring services and release informal caregivers.</p> <p>Tarwewijk, due to its obstacles and life factors, creates a problematic living environment for vulnerable groups like the elderly. This paper aims to investigate the intersection between active aging and architectural and urban design to combat loneliness, offer light-care facilities, and encourage movement and exercise for the elderly.</p> |
| research questions and   | <p>Main question:<br/>How can the architectural and urban design of senior living environments be optimized to reduce loneliness, promote active aging, and enhance access to supportive care facilities?</p> <p>Sub-questions:</p> <ol style="list-style-type: none"> <li>1. What architectural elements and design features effectively enhance social interaction among residents in senior living environments?</li> <li>2. What design strategies can facilitate accessibility and mobility for seniors, thereby promoting active aging and encouraging physical engagement within the community?</li> <li>3. How can the integration of supportive care facilities within architectural and urban designs enhance the overall well-being and independence of seniors in co-housing settings?</li> </ol>                                |
| design assignment in which these result.   | <p>The resulting design would be a senior living environment where people can live individually, have common spaces and activities, be offered assisted living care facilities, and have freedom without feeling in an institution.</p>  |
| <p>By designing a senior living environment focused on active aging, combating loneliness, and mobility limitations, elderly people in Tarwewijk would have more suitable places to live and have a healthier lifestyle.</p> |  |

## Process

### Method description

The methodology of this research paper is divided into three categories that help collect the knowledge needed to understand the target group and the needs for designing for them: literature, fieldwork, and case studies.

1. Literature research deepens the knowledge needed to answer the research question and sub-questions. The base of the literature research is the theoretical framework, accompanied by other articles and books focusing on co-housing for seniors and elderly homes, as well as attributes for a healthy lifestyle:
  - "Living for the Elderly, A Design Manual" by Eckhard Feddersen and Insa Lüdtke,
  - "Senior Co-Housing in the Netherlands: Benefits and Drawbacks for Its Residents" by Katja Rusinovic, Marianne van Bochove, and Jolien van de Sande
  - "The Blue Zones" by Dan Buettner
  - "Ecological Model of Aging" by M. Powell Lawton and Lucille Nahemow
  - "The Loneliness and Health Model" by Louise C. Hawkey and John T. Cacioppo
2. Fieldwork is used to analyse the location and the target group.
  - Fieldwork at Liv Inn was conducted through observation, interviews, and spatial analysis to obtain information about alternative living solutions for the elderly.
  - Mapping the neighbourhood, produced as group work, will provide qualitative and quantitative data for understanding Tarwewijk.
  - Discussions will be held with elderly people from the neighbourhood of Tarwewijk to understand their needs.
3. Case studies are used to analyse projects focused on elderly living environments for architectural and urban design elements.

### Literature and general practical references

Literature references:

Buettner, Dan, and Sam Skemp. "Blue Zones: Lessons from the World's Longest Lived." *American Journal of Lifestyle Medicine* 10, no. 5 (2016): 318–21.

Feddersen, Eckhard, Insa Lüdtke, and Julian Reisenberger. *Living for the Elderly: A Design Manual*. Second and Revised edition. Basel ; Boston: Birkhäuser, 2018.

Hawkey, Louise C., and John T. Cacioppo. "Loneliness and Pathways to Disease." *Brain, Behavior, and Immunity* 17 Suppl 1 (February 2003): S98-105.  
[https://doi.org/10.1016/s0889-1591\(02\)00073-9](https://doi.org/10.1016/s0889-1591(02)00073-9).

Hawkey, Louise, and John Cacioppo. "Loneliness Matters: A Theoretical and Empirical Review of Consequences and Mechanisms." *Annals of Behavioral Medicine* : A Publication of the Society of Behavioral Medicine 40 (October 1, 2010): 218–27. <https://doi.org/10.1007/s12160-010-9210-8>.

Lawton, M Powell, and Lucille Nahemow. "Ecology and the Aging Process.," 1973. "Louise Hawkey | NORC at the University of Chicago." Accessed October 16, 2024. <https://www.norc.org/about/experts/louise-hawkey.html>.

Rusinovic, Katja, Marianne Van Bochove, and Jolien Van De Sande. "Senior Co-Housing in the Netherlands: Benefits and Drawbacks for Its Residents." *International Journal of Environmental Research and Public Health* 16, no. 19 (October 8, 2019): 3776. <https://doi.org/10.3390/ijerph16193776>.

Other:

ANNEAR, MICHAEL, SALLY KEELING, TIM WILKINSON, GRANT CUSHMAN, BOB GIDLOW, and HEATHER HOPKINS. "Environmental Influences on Healthy and Active Ageing: A Systematic Review." *Ageing and Society* 34, no. 4 (2014): 590–622. <https://doi.org/10.1017/S0144686X1200116X>.

Bookman, Ann. "Innovative Models of Aging in Place: Transforming Our Communities for an Aging Population." *Community, Work & Family* 11, no. 4 (November 1, 2008): 419–38. <https://doi.org/10.1080/13668800802362334>.

Habion biedt ouderen huisvesting waar ze zich thuis voelen. Verspreid over heel Nederland bezit Habion op ruim 120 locaties meer dan 11.000 wooneenheden voor ouderen; zelfstandige woningen en wooneenheden in verzorgingshuizen. "Liv Inn Hilversum." . <https://www.habion.nl/projecten/de-boomberg-hilversum/>.

"Wijkprofiel Rotterdam." Accessed October 7, 2024. <https://wijkprofiel.rotterdam.nl/nl/2024/rotterdam>.

## 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. Relation to the studio  
This research looks into the effects of architectural and urban design on the mental and physical well-being of a vulnerable target group. It is connected to the "Health and Care" studio focusing on designing healthier living environments with caring facilities for elderly people.
  - b. Relation to the master track (A)  
As part of the Architecture track, the project uses architectural design to create healthier living environments.

c. Relation to the master programme (Msc AUBS)

The project engages on the scales of urban, architectural, and interior design to reach its goals. All these levels, followed by structural details, as part of the AUBS master program, come together in a complex design to tackle the problem of health and care among elderly living environments.

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

This graduation studio looks into how architectural and urban design can optimize senior living environments to reduce loneliness, promote active aging, and enhance access to caring facilities. The topic is relevant at a larger scale because due to the increase in the elderly population and the change of perspective on nursing homes, alternative living solutions for seniors are needed. The concepts of such a solution could be applied anywhere, to offer a healthier living environment and encourage a diverse community.