

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	Darren van der Waart
Student number	5264472
Studio	
Name / Theme	Heritage & Architecture / Resourceful Housing – Adapting 20 th Century Heritage
Main mentor	Lidwine Spoormans Ana Pereira Roders Architecture Research
Second mentor	Elina Karanastasi Building Technology
Argumentation of choice of the studio	I chose this studio because of the opportunities to address current issues such as how to deal with the housing crisis, post-war heritage, and how to conduct this in a sustainable way. In the Masters 1, I also followed the Heritage & Architecture studio, which greatly appealed to me. Based on this and my affinity with the project location of this studio, Amsterdam Nieuw-West, I was eager to graduate in this studio.
Graduation project	
Title of the graduation project	Integrating density and livability in post-war neighborhoods
Goal	
Location:	Louis Couperusbuurt, Amsterdam Nieuw-West
The posed problem,	Like other countries, the Netherlands is facing how to deal with its growing population. The current population growth along with immigration, an aging society, and an increase in the number of single- person households is causing a great shortage of housing in the Netherlands. This, combined with long construction procedures and limited building space, makes it difficult for many people to acquire a home that suits their

needs and capabilities (Central Government, 2023).

In response to the great shortage of housing, the City of Amsterdam plans to expand by 150.000 new homes to accommodate the expected 250.000 new residents by the year 2050 (Gemeente Amsterdam, 2021). According to CBS (2023), this will bring the population of Amsterdam to about 1.19 million inhabitants by 2050. However, this growth is subject to conditions that result in limiting expansion opportunities. The Municipality of Amsterdam (2021) wants the expansion to take place only within the current city borders. Because Amsterdam was originally densely built, the City of Amsterdam (2021) sees great potential for densification mainly in the city districts outside the center. Especially post-war neighborhoods such as in the Western Garden Cities in Amsterdam New West, due to the relatively large amount of public green areas and low urban density. The Western Garden Cities are part of the expansion of Amsterdam following the 'Algemeen Uitbreidingsplan' (AUP) in 1934 by urban planner Cornelis van Eesteren. After World War II, the neighborhoods of the Western Garden Cities were built according to modernist principles. Under the motto "light, air, and space," wide-open housing blocks with lots of open green spaces were realized (Rijksdienst voor het Cultureel Erfgoed, 2016).

However, as previously addressed, densification can affect the livability of cities (Pont et al., 2020), as less space is available for nature, and the urban quality could decrease (Elsawy et al., 2019). In the Dutch livability meter (leefbaarometer), density was found to be statistically the most negative factor for livability. The denser an area, the more people answered to be dissatisfied

with their living environment (Burema et al., 2021). It is therefore important to investigate the balance between densification and livability and how these can go hand in hand. This is especially the case for the Western Garden Cities. This district scores lowest on neighborhood satisfaction compared to the other city districts (Gemeente Amsterdam, 2022). Every neighborhood in this district scores below average and most neighborhoods score the lowest in all of Amsterdam. It can be concluded from the scores that the livability of the Western Garden Cities needs to be improved.

In the Netherlands, urban restructuring initiatives over the past few decades have mostly concentrated on demolishing and replacing its current housing stock (Gruis et al., 2006). Certain areas were severely impacted, such as the Western Garden Cities, and numerous housing corporations started large-scale demolition projects on the less appreciated post-war social housing estates. According to Flier and Thomson (2006), the Western Garden Cities became one of the four biggest demolition sites in the nation as a result of this initiative. This demolition is causing the cultural values of post-war neighborhoods in the Western Garden Cities to fade, which must be preserved. In 2011, the Western Garden Cities were selected by the National Cultural Heritage Agency as one of the 15 post-war neighborhoods that are of national importance. The listing's aim states that the post-war construction period 1940-1965 shall remain recognizable on the level of the area in future developments (Havinga et al., 2020).

In this context, the problem statement revolves around the need to reconcile densification with livability while retaining

	<p>the cultural heritage of post-war neighborhoods. This challenge demands thoughtful strategies and approaches that align with the principles of urban development and simultaneously enhance the well-being of residents. Therefore, there is a pressing need to explore how densification can be carried out in a manner that not only addresses the urgent need for urbanization but also contributes positively to the overall livability and sustainability of cities.</p>
<p>research questions and</p>	<p>The main question for this research is as follows:</p> <p>How can a post-war neighborhood be densified, while improving its livability and preserving its heritage values?</p> <p>The sub-questions for this research are the following:</p> <ol style="list-style-type: none"> 1. What are the heritage values of the Louis Couperusbuurt in Amsterdam New West? 2. What set of factors determines the livability of a neighborhood? 3. What is the current livability of the Louis Couperusbuurt in Amsterdam New West and how can this be improved? 4. What are the challenges and methods for densifying a post-war neighborhood?
<p>design assignment in which these result.</p>	<p>The design assignment is to come up with a densification plan that contributes to the growing population and housing shortage. To this end, various densification methods need to be examined and weighed against each other. By densifying the neighborhood,</p>

heritage values can be lost. This requires research into the heritage values of the Louis Couperusbuurt and the impact of these different densification methods on these values. However, as previously addressed, densification can affect the livability of cities (Pont et al., 2020), as less space is available for nature, and the urban quality could decrease (Elsawy et al., 2019). In the Dutch livability meter (leefbaarometer), density was found to be statistically the most negative factor for livability. The denser an area, the more people answered to be dissatisfied with their living environment (Burema et al., 2021). Based on this, the factors that determine the livability in addition to the density of a neighborhood will be examined. Out of this will come a livability framework describing different factors of livability. This framework will be assessed on the Louis Couperusbuurt to see where opportunities exist to improve livability. Based on the literature, a toolbox will be developed with tools for improving livability. The various densification methods, tools to improve livability, and heritage values can be used to determine a design strategy. These three themes within the research will be weighed against each other to arrive at a design strategy, which will provide more housing in the neighborhood while improving its livability and preserving its heritage values. This design strategy will be worked out at the courtyard level in the design phase. For this purpose, an existing courtyard in the Louis Couperus neighborhood will be densified.

Process

Method description

The research methods used for this research are literature review and fieldwork consisting out of mapping. Listed below the approach for each given sub-question is described with the steps, tasks, and output of the method.

1. What are the heritage values of the Louis Couperusbuurt in Amsterdam New West?

The first sub-question, dedicated to gaining knowledge about the heritage values present in the Louis Couperusbuurt, will be investigated through a literature review. To determine the heritage values, multiple literature sources will be reviewed. For instance, 'Heritage attributes of post-war housing in Amsterdam' by Havinga et al. (2020) will be reviewed. Also, the 'Algemeen Uitbreidingsplan' by Van Eesteren Museum (2019) and the 'De Wijkgedachte' by Van Der Lans (2021) will be analyzed to get an understanding of the concept by which the Western Garden Cities were constructed.

Based on the above literature, the heritage values of the Louis Couperusbuurt can be determined as to which values should be preserved during the neighborhood densification.

2. What set of factors determines the livability of a neighborhood?

The second sub-question, concerning what set of factors determines the livability of a neighborhood, will be addressed by a literature review. The following frameworks that provide a set of factors to determine the livability of a neighborhood will be analyzed and compared:

- 'Environmental Quality and Human Well-being' by Van Kamp et al. (2003)
- 'Promoting livability through urban planning: A comprehensive framework based on the theory of human needs' by Sheikh & Van Ameijde (2022)
- 'Liveability Dimensions and Attributes: Their relative importance in the eyes of Neighbourhood' by Leby & Hashim (2010)
- 'Sustainable Urban Liveability: A practical proposal based on a composite indicator' by Valcárcel-Aguiar et al. (2018)
- 'Livability in dense residential neighborhoods' by Satu & Chiu (2017)

Based on the literature above, a set of factors that determine the livability of a neighborhood will be determined. These factors will be framed in a framework with indicators of how these factors can be measured.

3. What is the current livability of the Louis Couperusbuurt in Amsterdam New West and how can this be improved?

The third sub-question, dedicated to measuring the current livability of the Louis Couperusbuurt and how this can be improved, will be investigated through a literature review and mapping in the neighborhood. Based on the outcome of sub-question 2, a framework with livability factors will have been defined with indicators for measuring livability. The indicators will be examined in the Louis Couperusbuurt. This will be done through fieldwork in the form of mapping.

Based on the current livability of the neighborhood, it can be determined where opportunities to improve livability exist. Based on literature and mapping, a toolbox with tools that can be applied to improve livability will be created.

4. What are the challenges and methods for densifying a post-war neighborhood?

The fourth sub-question, dedicated to gaining knowledge about the challenges and methods for densifying a post-war neighborhood, will be investigated through a literature review. The following literature will be analyzed to discover multiple densification methods and frameworks:

- 'A methodology to determine the potential of urban densification through roof stacking' by Amer et al. (2017)
- 'A Methodological Approach towards Sustainable Urban Densification for Urban Sprawl Control at the Microscale' by Abdrabo et al. (2021)
- '5 Ways to Add Density without Building High-Rises' by Loomans (2015)
- 'Densification by High-Rise?' by Van Den IJssel (2019)

These various methods and frameworks will be compared, based on their advantages and disadvantages, to determine the most suitable densification strategy for the Louis Couperusbuurt in Amsterdam New West. This densification strategy will take into account the heritage values and tools for improving the livability investigated in the previous sub-questions.

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)?

The graduation topic of densifying a post-war neighborhood with improving its livability and preserving its heritage values has a close relationship to the studio topic and the master program Heritage & Architecture. The chosen topic plays into the main focus of this studio which is about Adapting 20th Century Heritage. It discusses how to deal with 20th Century Heritage using the Louis Couperusbuurt as an example case study.

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

The relevance of this graduation work plays into actual issues such as how to deal with the growing population, housing shortage and thus the densification of neighborhoods. These are issues that the City of Amsterdam, and other municipalities in the Netherlands, are working on. Furthermore, the theoretical framework revealed that there is a lack of frameworks for measuring livability. With this research I am making a contribution to the subject of livability and other researchers that can use this for their research.