

Urban agriculture as a catalyst for healthy & self-sustaining post-war neighbourhoods

transformation, densification, urban agriculture, community, post-'65, residential, health, social interaction



Administration Building with Rooftop Greenhouse / Kuehn Malvezzi ©hiepler, brunier,

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To begin, I chose this studio because of the well-rounded approach and strong focus on technical innovation within architecture. The strong correlation between architectural and technological development inspire me to think in multidisciplinary ways, which is essential to tackle the complex problems that we face nowadays. Therefore, I was very keen about the post-war context, where different societal, economical and environmental problems create a playground for students like myself. Lastly, I believe that in future architectural practises the integration of architecture and technology will become more and more important.

Key terms	4
Introduction	5
Problem statement	6
Design objective	7
Thematic research	8
Methodology	9
Planning	10
Hypothesis	11
Literature	11

Key terms

Transformation:

A significant and purposeful change or alteration made to an existing building, structure, or urban area. This process involves reconfiguring, renovating, or repurposing the built environment with the goal of improving its functionality, aesthetics, or adaptability to new needs or uses

Densification:

A deliberate strategy or process of increasing the population or building density within an existing urban or suburban area. This approach involves the intensification of land use, typically by building upward or by optimizing the use of available space to accommodate more people, structures, or activities within a specific area

Urban Agriculture:

Urban agriculture encompasses a wide range of food production practices within urban areas, such as community gardening, allotments, and urban farms, but it does not include indoor hydroponic facilities (Ilieva et al., 2022)

Post-'65/Post-war:

A term used to describe buildings that were built after WW2, typically around 1965. Post-war neighbourhoods were characterized by comprehensive neighbourhood design, featuring open building blocks, orthogonal layouts with a prominent presence of green and water elements, and functional segregation of living, shopping, and working areas. These neighbourhoods are often referred to as 'stamps' and 'strips' in the Netherlands. Consequently, the selected project sites lack uniqueness, which enhances the replicability of research findings (Reijneveld et al., 2023).

Introduction

In today's world, the global trend of urbanization places cities under a growing need for housing. To address this, municipalities often choose to densify in the existing urban fabric. Currently, the Netherlands is coping with a housing crisis, with an aim to build 1.000.000 dwellings by 2030. As our cities become more populated and demand for housing increases, housing and rental prices have been on the rise. As a result, cities have become unaffordable living environments for the lower-income target groups (Verlaan & Hochstenbach, 2022). This particular demographic group is frequently located in the so-called post-war neighbourhoods that make up a significant portion of the Dutch housing stock. More precisely, these neighbourhoods contribute 1.600.000 dwellings to the current housing stock respectively. (*Onderzoek Ruimte Zat | Bezit Van Corporatievastgoed | KAW, 2022*).

However, these neighbourhoods face critical issues. Concerning the energy transition, the poor state of buildings constructed after 1965 reflect an inadequate energy efficiency and limited adaptability. On the neighbourhood scale, problems arise from abrupt shifts between public and private domains, underutilized green spaces, limited diversity of flora and fauna, and a lack of social safety. Besides, research from Van Velze et al. (2020) demonstrates that the quality of the living environment has a significant impact on the physical and mental well-being of the residents. Furthermore, these neighbourhoods have the highest percentages of residents adopting unhealthy lifestyles, which mostly include physical inactivity, unhealthy diets and smoking. As prices of food have increased with more than 10% in one year (CBS, 2023), the consumption behaviour of these people has been effected, forcing them to go for cheaper and healthier alternatives (EenVandaag, 2022).

The intersection of housing deficiencies, environmental challenges, and socioeconomic disparities in post-'65 neighbourhoods poses a multifaceted issue that calls for innovative solutions. Something that has continuously motivated and inspired me is urban agriculture, a concept that enables residents in urban environments to cultivate their own food, benefiting both them and their green surroundings symbiotically. Research from Jenkins (2018) shows that urban agriculture can significantly improve physical activity, mental health and helps reconnecting people with healthy eating habits.

However, the potential of urban agriculture in post-war neighbourhoods in the Netherlands has left a gap to research.

Therefore, this research plan will explore the potential of urban agriculture as a catalyst for positive change in these communities, addressing housing, environmental, and health concerns while fostering community engagement and food production.

Problem statement

1 Energy transition

A large portion of the existing housing stock doesn't meet the current sustainability requirements, therefore the energy efficiency of these building must be improved.

2 Housing demand

Due to an increasing demand for housing we simply need to build more dwellings.

3 Quality of living environment

The poor quality of the living environment in post-war neighbourhoods are both responsible for the segregated social environment and a contributing factor to mental and physical health concerns.

4 Socio-economic issues

The vast majority of residents in post-war neighbourhoods belong to lower-income groups. As prices of food have increased, the quality of the diet has decreased.

Context: Post-65' neighbourhood Boerhaave, Haarlem

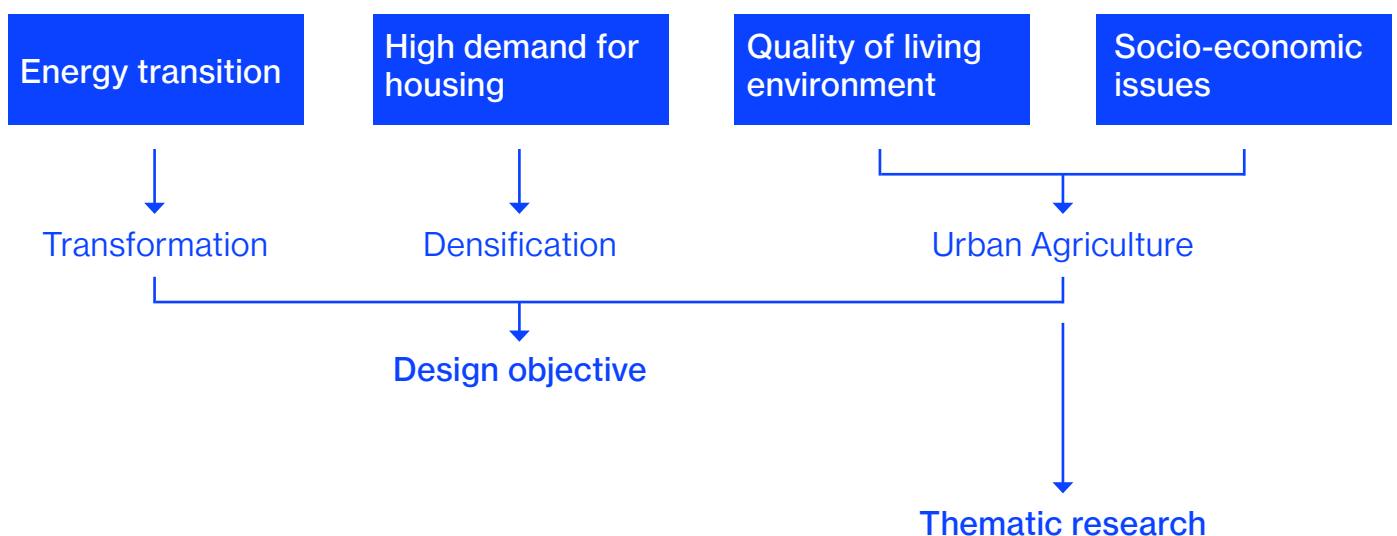


Figure 1: Schematic representation of problem statement and proposed research

Design objective

Applying the problems identified in the problem statement to a specific context, the aE studio has offered a typical post-war site that faces challenges akin to those outlined in the problem statement. This context brings us to a the overall design question:

“How can we transform and densify post-’65 neighbourhoods in Boerhaave, Haarlem while creating a healthier physical and mental environment for its users?”

The design will be focused on densification, transformation and the implementation of urban agriculture as a catalyst for a healthier living environment. In order to achieve a systematic approach that could significantly change the neighbourhood, the design will be focused on the transformation of an urban block. This way, the scale of the urban realm is also being tackled, which plays an important role in the overall transformation of Boerhaave. Because of the standardized urban grid, the design also holds the potential to be implemented in other post-war neighbourhoods.

The current demographic composition of the neighbourhood is very diverse. The goal is to remain this beautiful mix of cultures and stimulate communal life through urban agriculture. This means that urban agriculture should easily be accessible to all users and it should contribute to the social and collective realm of the neighbourhood. Additionally, it is very important that the agricultural space also becomes a learning environment for the residents of the neighbourhood, so people will have the chance to develop themselves.

The relevance of the design can be reflected in the range of environmental, social and economical issues that it tackles. Transforming these post-war suburbs could help solve the housing crisis by providing a flexible, future-proof housing typologies that can also diversify the current demographic composition of the neighbourhood. From a societal point the proposed transformation could strengthen the economical position of low-income groups. Because of climate change the annual production of vegetables and fruits will increasingly fluctuate, which eventually will be reflected in the price. Especially civilians in low-income neighbourhoods will be the very victims of this. Therefore empowering these people to harvest locally owned food will significantly cut costs while re-establishing a fundamental understanding of sustainable and healthy living.

Thematic research

The thematic research aims to grasp an understanding of how urban agriculture could be implemented in post-'65 neighbourhoods, in order to create a self-sustaining, healthy society that is actively involved in the harvesting of foods. Attracting different user groups in urban agriculture will encourage social interaction. According to Jenkins (2018), urban farming can also offer different levels of solutions to problems like air pollution, unhealthy eating habits, lack of exercise, feelings of depression and anxiety, and financial instability. Research by Houweling et al. (2023) shows a correlation with the increasing rates of diabetes and the amount of consumed processed foods in the Netherlands. Therefore involving and educating users, especially in these neighbourhoods, with agricultural practises could enhance the connection with nature and their eating habits. This leads us to the thematic research question:

"How can the implementation of urban agriculture in post-'65 neighbourhoods foster self-sufficiency, improve physical and mental health, and promote community engagement through locally owned food production?"

This question is divided in four sub-questions:

- 1 *What kinds of urban agriculture stimulate social interaction?*
- 2 *How can urban agriculture foster self sufficiency?*
- 3 *How can urban agriculture stimulate and improve physical and mental health?*
- 4 *How can urban agriculture effectively be integrated in the society of post-war neighbourhoods?*



Figure 2: An example of how urban agriculture could stimulate community engagement (The Greenhouse Project, n.d.)

Methodology

In order to answer the proposed thematic research questions a series of research methods will be used.

1 Literature review (qualitative)

The literature review will be focused on gaining knowledge about urban agriculture and its potential for improving mental and physical health and social interaction. The findings will create a framework that can be used in the design.

2 Case study analysis (qualitative)

The case study analysis will be used to research and compare existing urban agricultural systems. A range of different implementations and techniques will be addressed and they will be categorized based on their accessibility, positioning in the building and their potential to stimulate social engagement and physical activity.

3 Context analysis (qualitative)

An analysis of the context will be used to determine the base conditions and how they could relate to the findings of the first two analysis on urban agriculture. Therefore analysis will be done at the very end and relates back to the last sub-question.

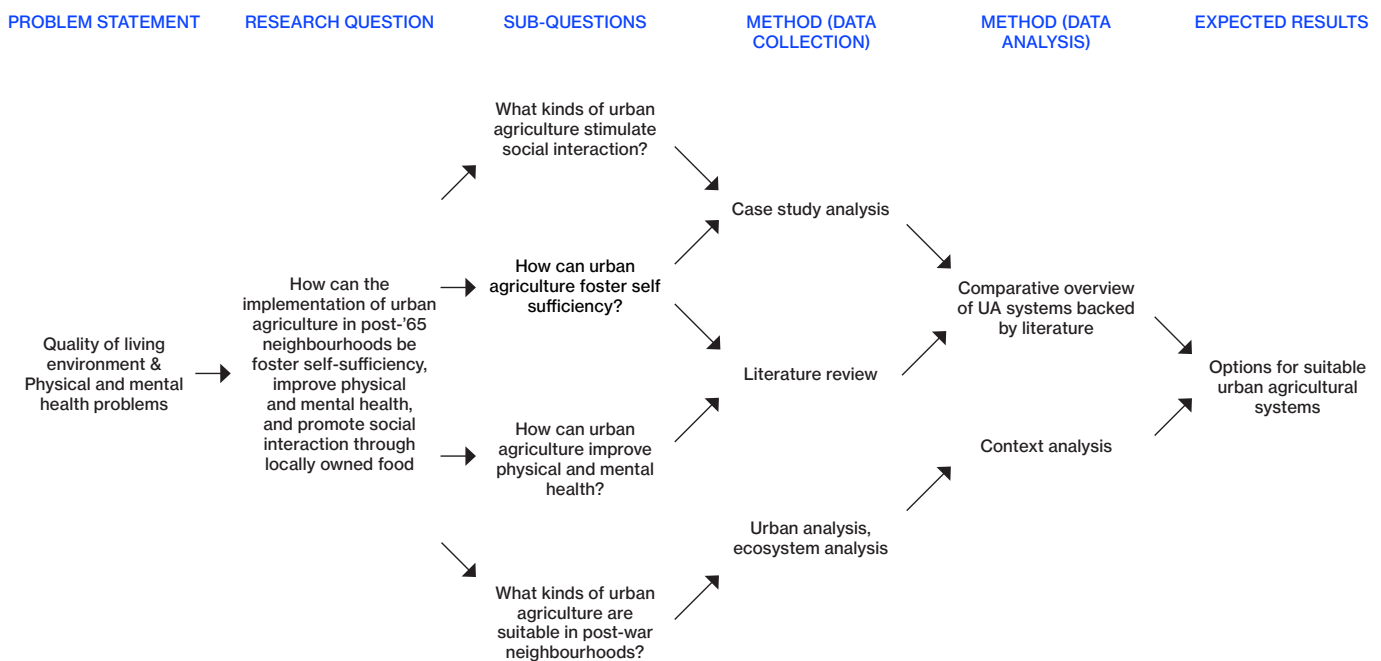
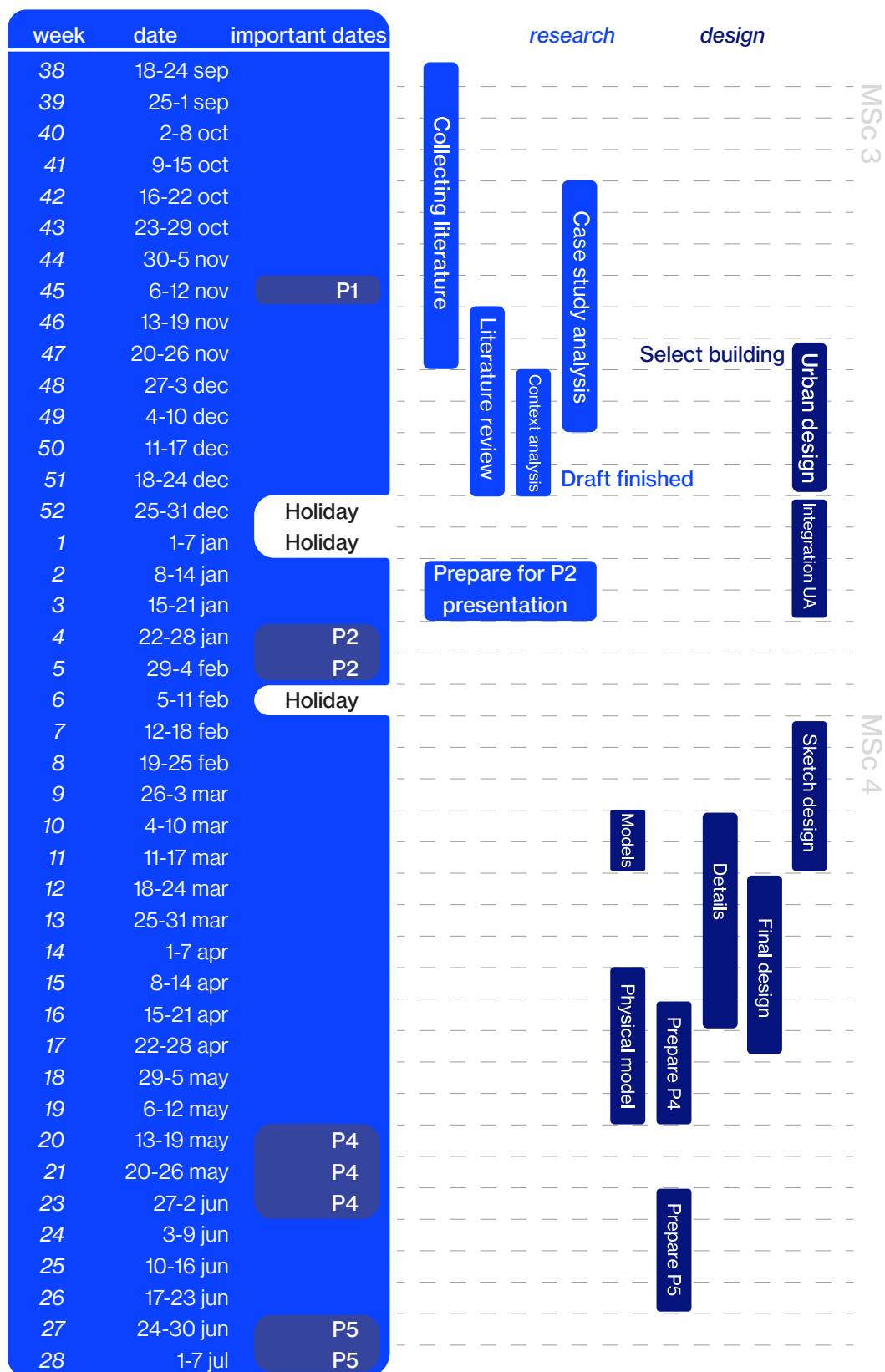


Figure 3: Methodology

Planning



Hypothesis

The implementation of urban agriculture in post-'65 neighbourhoods will foster self-sufficiency, improve physical and mental health, and promote community engagement through locally owned food production, ultimately leading to a more sustainable and vibrant living environment.

The results of the analysis in the thematic research will form a fundamental base that can be used in the design assignment. By following the proposed methodology a toolbox of information and solutions can be obtained.

Literature

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Planning (for the student as guiding tool)

A realistic planning of the activities and goals of your Research Plan, divided into

two parts: MSc3 and MSc4. In the MSc3 part a more detailed elaboration of the planning for the thematic research is expected. Compulsory in this scheme are also the examinations at the middle and end of the semester. Please discuss this planning with both your design and research tutor to avoid unrealistic goals.

