

ARCHITECTURAL ENGINEERING GRADUATION STUDIO
2022-2023

GRADUATION PLAN

Faculty of Architecture & the Built Environment
Delft University of Technology

Exploring Opportunities for Rewilding the Built Environment through Nature-Inclusive Design

Case study Boerhaavewijk, post-war residential neighbourhood in Haarlem, the Netherlands

Design Tutor: Ir. Anne Snijders
Research Tutor: Ir. Nico Tillie
Building Technology Tutor: Ir. Engbert van der Zaag

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PERSONAL INFORMATION

Name Annekee Groeninx van Zoelen
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STUDIO

Name / Theme Architectural Engineering, Harvest
Main mentor Anne Snijders
Second mentor Engbert van der Zaag
Argumentation of choice of the studio
The wider scope of the Architectural Engineering studio to seek innovative and inspiring architectural solutions to environmental and societal issues, while leading your own research is what appealed to me a lot. In addition, the directions that can be taken within this studio to explore one's own role as an architect in facing today's challenges is why I choose aE. I want to expand my skills in the interconnected research-design approach and here, this opportunity is offered. I also really appreciate the freedom and flexibility to define one's own problem and context based on one's personal fascination in this studio.

My personal fascination arose while reading David Attenborough's book *A Life on Our Planet*. He describes how humanity has taken the Earth out of balance and how nature needs to 'rewild' to stabilise our planet. "How can we encourage a return of the wild and bring back some stability to the Earth?" (Attenborough & Hughes, 2020). This is a question from Attenborough that has been floating through my mind for months, leaving me wondering: how exactly do we do this in the built environment? This is what drives me: to explore opportunities to apply the rewilding concept in our built world.

GRADUATION PROJECT

Title of the graduation project

Exploring Opportunities for Rewilding the Built Environment through Nature-Inclusive Design
Case Study Boerhaavewijk, Post-War Residential Neighbourhood in Haarlem, the Netherlands

GOAL

Location

Boerhaavewijk, Schalkwijk, Haarlem, the Netherlands

Problem statement

Climate change is harming global biodiversity, a sign of an ecosystem's health and resilience. Not least in urban environments, which face the continuous challenge of accommodating more people, providing a higher quality of life, and resisting the consequences of climate change. This calls for measures to restore biodiversity by increasing the degree of natural areas to stabilise our planet. Rewilding, the reintroduction of nature by allowing it to take the lead with minimal human intervention, can be applied to the urban environment to interweave humans and nature. Rewilding strategies, however, are highly dependent on the characteristics of a specific environment and thorough site research is necessary to come up with suitable strategies. Yet, there is currently no established overview of potential rewilding strategies for urban environments.

Research question

How to rewild the built environment through nature-inclusive design in a residential neighbourhood?

Sub-questions

1. How can the concept of rewilding be applied in the built environment?
2. What are the requirements for a nature-inclusive design to be an ecological connection between the built zone and its surrounding landscape?
3. How can rewilding through nature-inclusive design create opportunities for biodiversity in a residential neighbourhood in the Netherlands, with Boerhaavewijk as a case study?
4. What are the specific species and their requirements in Boerhaavewijk?

Design assignment

The design assignment for this graduation project focuses on developing rewilding strategies for the typical Dutch post-war residential neighbourhood Boerhaavewijk, which is due for renovation. It also aims to develop a nature-inclusive public, and partly residential, building which foresees the deficiencies and needs of the neighbourhood and brings nature and people together.

An exemplary project that shows the application of the proposed rewilding strategies in an urban environment which will increase biodiversity, improve the quality of life, and mitigate the consequences of climate change.

PROCESS

Method description

The methodology is focused on ecology, human, and building, and on finding strategies to rewild the urban environment. The meaning of rewilding and its possibilities within urban environments are defined through literature study. Recent urban rewilding projects are looked into to create an overview of rewilding strategies and literature is used to define a large-scale strategy. The developed toolbox with nature-inclusive designs can be implemented by architects and urban planners in the design process. A case study is done to show the application of these strategies. Starting with site research into the history and the local species of Boerhaavewijk, followed by applying the large-scale strategy and the toolbox to come to possibilities and a suitable strategy for this neighbourhood. The findings coming out of this case study will be taken to the design part of this project.

Literature and general practical preference

Among many other scientific literature and academic papers, two papers, in particular, are very useful for this research. These papers are by former students of the Architectural Engineering Graduation Studio at the Faculty of Architecture & the Built Environment, Delft University of Technology. Ciske Buiter's (2021) paper *A design strategy for a nature inclusive building* studies the current biodiversity in Schalkwijk. It contains a biotope requirements list that is very useful for this project. In addition, Ella Wildenberg's (2021) paper *Nature inclusive design in high-density urban development to support urban biodiversity* is also interesting because it proposes architectural

interventions that can be used in nature-inclusive design and urban ecology in the Netherlands. I will use both papers and tie the findings together to achieve highly relevant information for this site specifically.

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Reflection

With the current climate change harming biodiversity worldwide, the role of the architect has changed. Decisions are not only based on social, technical, and aesthetic principles anymore but now more than ever, mainly on sustainability. As a future architect, I feel that designers should take responsibility for creating sustainable, resilient environments both for humans and nature, to restabilise our planet.

My graduation project embraces the studio topic Harvest by exploring opportunities to use sustainable, nature-inclusive techniques suitable for this specific site by looking into the characteristics of the environment and the local species and their requirements. Within the track Architecture of the TU Delft master programme Architecture, Urbanism & Building Sciences, this project gives me the opportunity to work on a solution to a global problem within a specific context.

