

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	Rohan Chhanai
Student number	5651700

Studio		
Name / Theme	AR3AE100 Architectural Engineering Graduation Studio	
Main mentor	Mo Smit	Architecture
Second mentor	Nico Tilli	Landscape Architecture
Argumentation of choice of the studio	I chose the studio because there is an increasing demand for a holistic approach in the construction sector. This studio integrates design, technology, and sustainability, which is essential in an era focused on environmentally friendly and energy-efficient buildings. By working from a multidisciplinary perspective, I can contribute to creating buildings that are both aesthetically pleasing and functional, sustainable, and future-proof.	

Graduation project	
Title of the graduation project	Cultivating Connections: Enhancing Social Cohesion and Biodiversity in High-Rise Living on Zuidplein
Goal	
Location:	Zuidplein, Rotterdam, The Netherlands
The posed problem,	In the redevelopment of Zuidplein, the goal is to achieve higher residential density, with high-rise buildings providing a solution for limited space. However, the current low social cohesion and limited biodiversity pose challenges to ensuring the area's livability and sustainability. The project calls for a design that is not only space-efficient but also contributes to strengthening social connections and enhancing biodiversity.
research questions and	How can social cohesion and biodiversity be synergistically enhanced in Zuidplein through the integration of communal gardens?

design assignment in which these result.

Design a mixed-use residential high-rise building in Zuidplein that combines space efficiency with strategies to enhance social cohesion and biodiversity. The design must integrate communal gardens as a core architectural feature, aiming to create meeting places for residents while simultaneously providing a habitat for diverse flora and fauna.

Method description

To address the research questions and develop the design, a combination of research and design methods will be applied in an iterative process, where research informs the design and the design tests the research questions.

Information will be gathered through literature reviews and case studies. The literature review will focus on theories and strategies to enhance social cohesion and biodiversity, as well as best practices in urban high-rise developments. Case studies of existing projects will be analyzed to gain practical insights into the application of communal gardens and their impact on both social and ecological dimensions.

The design process will include concept development, where ideas are sketched and refined, digital modeling in Revit for accurate and scalable designs, and physical models to test spatial experience and materiality.

Research and design will be integrated in an iterative process. Research findings will inform design decisions, while the development of the design will be used to test and refine the research questions. This approach ensures that the final design is both theoretically grounded and practically applicable.

Literature and general practical preference

This project will draw on thematic research on interventions that promote social cohesion and biodiversity in residential high-rise settings. Additionally, the master's thesis by Marco van der Valk, *"How to design a Food producing building within the abundance of knowledge fields for the architect?"*, offers valuable insights into the integration of urban farming in buildings and the interaction between humans and food production.

Practical Examples:

1. Maanwijk in Leusden: This new development focuses on social cohesion through courtyards, communal gardens, and a shared community barn that serves as storage and a meeting place. The layout promotes casual encounters

and community building, leading to strong social ties among residents (Vastgoedjournaal, n.d.).

2. Victoria Gardens in Hoofddorp: This residential area comprises 180 homes, ranging from social housing to private sector properties, and fosters social cohesion through a diverse mix of residents. The integration of green gardens and public spaces encourages interactions between neighbors and connects people with nature, enhancing both social interaction and biodiversity (Dura Vermeer, n.d.).

These literature sources and practical examples provide a valuable foundation for developing a design that synergistically enhances social cohesion and biodiversity through the integration of communal gardens in residential high-rises.

Reflection

The project aligns closely with the objectives of the *Architectural Engineering* studio, which focuses on developing innovative and inspiring architectural solutions for environmental and societal challenges. Within this context, the project fits perfectly, as it aims to synergistically enhance social cohesion and biodiversity in an urban environment through residential high-rise designs. It promotes a different perspective on our building culture by making communal spaces, such as gardens, central to building typologies.

This project has a societal impact by offering a design solution for the growing challenges of urban density, social isolation, and ecological degradation. By integrating communal gardens, it fosters resident interaction and social connections while simultaneously improving urban biodiversity, contributing to a healthier, more inclusive, and sustainable living environment.

The project provides scientific value by exploring the interplay between social cohesion and biodiversity in the context of residential high-rise buildings. The research and design combine existing literature and practical examples with innovative concepts, potentially leading to new insights and methodologies for integrating ecological and social aspects into architecture. The iterative approach can serve as a model for future academic work.

Professionally, the project contributes to the development of design methods relevant to architects and urban planners. By reimagining high-rise buildings as social and ecological hubs, the project offers a fresh perspective on how urban densification can coexist with livability and sustainability. This can inspire and guide future developments in the construction industry.

In conclusion, this project strengthens the connection between architecture, society, and ecology, reflecting the core values of the *Architectural Engineering* studio and the MSc Architecture track. It not only contributes to academic and professional knowledge but also supports the well-being of future urban communities.