

# 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	Joris Hondtong
Student number	4880781

Studio		
Name / Theme	Architectural engineering	
Main mentor	Mo Smit	Design tutor
Second mentor	Pieter Stoutjesdijk	Research tutor
Argumentation of choice of the studio	The Architectural Engineering Design Studio I've selected for my graduation project aligns well with my preferences for several reasons. Firstly, I value the freedom to explore my creativity, and this studio offers opportunities for that. Secondly, I have a strong preference for crafting designs that are not only imaginative but also grounded in practicality and realism. Additionally, I'm interested in delving into the technical details of architecture, and this studio presents opportunities to fully explore this aspect of designing. I believe that this graduation studio has the potential to enhance my skills as an architect and strengthen my chances for a successful career in the field.	

Graduation project	
Title of the graduation project	<b>The green transition</b>
Goal	
<b>Location:</b>	Boerhaavewijk
<b>The posed problem,</b>	1) The housing shortage 2) The stock of staircase entrance apartment buildings 3) The decreasing natural environment
<b>research questions and</b>	<i>How can we effectively maximize the densification of staircase entrance apartment buildings in the Netherlands while making maximum use of the existing loadbearing structure of the building?</i>

	<p>1. What are the characteristics of the building-systems in terms of basic information, numbers, material, construction methods and measurements</p> <p>2. What are the solution principles to add square meters to the buildings?</p> <p>3. What are the limitations of the existing load-bearing structure regarding adding stories, removing (parts of) walls to improve flexibility or removing (parts of) of facades?</p> <p>4. What is the maximum addition in terms of added depth to the dwelling or added galleries to comply with Dutch building regulations concerning sunlight (equivalent daylight area)?</p>
<b>design assignment in which these result.</b>	How can we implement densification strategies to transform the existing stock of staircase entrance apartment buildings to address the housing shortage and enhance the overall livability, adaptability and sustainability of these buildings?

## Process

### Method description

#### 2.1. Literature study

To gather information about the construction methods of post-war housing, a literature study will be conducted. This will include a brief research into the historical context, followed by analysis of three relevant construction systems, which will be selected after the initial literature research. These systems will be analyzed to answer subquestion 1.

#### 2.2. Literature study and research by design.

To address subquestion 2, a combination of literature study and research by design will be employed. This approach will provide deeper insights into chances and challenges of the principles for adding square meters to the buildings.

#### 2.3. Modeling and Calculations

To answer subquestion 3 three buildings representative of one of the three identified systems will be modeled. Calculations will be made of the Rottinghuis building in Boerhaavewijk to conclude what the limitations are in terms of load-bearing capacities.

#### 2.4. Research by design and calculations

The maximum addition of added depth to the dwelling or added galleries to comply with Dutch building regulations concerning sunlight will be researched with calculations based on the Rottinghuis system building in Boerhaavewijk.

## Literature and general practical preference

1. Andeweg, M. T. (2013). Niet-traditionele bouwmethoden uit de periode 1945-1965. TU Delft.
2. BouwhulpGroep. (2013). DOCUMENTATIE SYSTEEMWONINGEN '50 -'75 (B12.069).
3. De rijksdienst van cultureel erfgoed Amersfoort, & Eikenaar, F. (2018). Gebiedsgericht verduurzamen in wederopbouwwijken. Saxion Deventer.
4. Hunnik, Y. (1998). De toekomst van de portiek-etagewoning : het ontwerp van een beslissingsondersteunend model voor de selectie van strategieën bij portiek-etagewoningen [Masterscriptie]. Universiteit Eindhoven.
5. Klaveren, S. V., Wassenberg, F., Zonneveld, M., & Platform31. (2021). Beter benutten bestaande woningbouw. In Beter benutten bestaande woningbouw. <https://www.kences.nl/wp-content/uploads/2021/07/20210705-Platform31-Beter-benutten-bestaande-woningbouw-Onderzoek-naar-belemmeringen-en-kansen.pdf>
6. Ministerie van Algemene Zaken. (2023, July 24). 900.000 nieuwe woningen om aan groeiende vraag te voldoen. Volkshuisvesting | Rijksoverheid.nl. Retrieved April 3, 2024, from <https://www.rijksoverheid.nl/onderwerpen/volkshuisvesting/nieuwe-woningen>
7. Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. (2023, August 1). Het statistisch woningtekort nader uitgelegd. Home | Volkshuisvesting Nederland. Retrieved April 3, 2024, from <https://www.volkshuisvestingnederland.nl/onderwerpen/berekening-woningbouwopgave>
8. Noord-Hollands Archief. (n.d.). Bouwdossiers (Noord-Hollands Archief) - Noord-Hollands Archief. <https://noord-hollandsarchief.nl/bronnen/archieven?mivast=236&mizig=376&miadt=236&miview=ldt&milang=nl&mif5=Haarlem>
9. Rijksdienst voor het Cultureel Erfgoed & bouwhulpGroep. (2016a). Documentatie systeemwoningen '50-'75. Rijksdienst voor het Cultureel Erfgoed.
10. Rijksdienst voor het Cultureel Erfgoed & bouwhulpGroep. (2016b). KANSEN VOOR SYSTEEMBOUW - Beoordeling van de kansen voor systeem MuWI. Rijksdienst voor het Cultureel Erfgoed.
11. Rijksdienst voor het Cultureel Erfgoed & bouwhulpGroep. (2016c). KANSEN VOOR SYSTEEMBOUW Beoordeling van de kansen voor systeem Rottinghuis/IBC. Rijksdienst voor het Cultureel Erfgoed.
12. Systeembouw in Amsterdam. (n.d.).
13. Van Battum, M. T. (2002). Enige (on)mogelijkheden van portieketagewoningen bij herstructurering van vroeg na oorlogse wijken. Technische Universiteit Delft.

## 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)?

When I complete my master's degree and begin my career, I aspire to work on residential buildings. This is my passion. In my previous master studios, I chose to focus on dwelling design. Additionally, I have a interest in the technical aspects of architecture, which are not always covered in every studio. This graduation project allows me to delve deeply into the technical details, integrating existing structures with new additions and making optimal use of the existing.

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

### **Social relevance**

The proposed design objective tries to help with solving the urgent challenge of addressing the housing shortage. By making a strategy for the revitalization and densification of staircase entrance apartment buildings, the project aims to tackle several pressing issues, including housing shortages, sustainability concerns, and the overall livability of these structures and urban areas. Through improvements in sustainability, adaptability, and densification, the project aims to not only meet the immediate need for housing but also enhance the long-term resilience and sustainability of urban environments. Additionally, preserving the loadbearing structures of buildings helps in limiting CO2 emissions in the process of adding dwellings in the housing stock.

### **In professional**

The project can serve as a framework to help architects recognize the possibilities in densifying and improving the existing post-war building stock. It will provide a clear indication of the opportunities and limitations of these buildings.

