

# 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:

<b>Personal information</b>	
Name	Carl Matthew Senarta
Student number	5867363

<b>Studio</b>		
Name / Theme	Architectural Wood Design	Timber for Urban Density
Research mentor	Stijn Brancart	Architecture
Design Mentor	Gilbert Koskamp	Architecture
Second Mentor	Max Salzberger	Architecture
Argumentation of choice of the studio	In the context of today where there is a pressing need for new infrastructure to meet the demands for the housing shortage in our cities. There needs to be a balance on the utilisation of sustainable and effective materials and strategies. Therefore timber and the application of which in adaptive construction becomes highly relevant. Hence, the study of this and how timber can be prudently applied within these systems especially within adaptive systems. Hence this is highly relevant in pursuit of the densification of our cities.	

<b>Graduation project</b>	
Title of the graduation project	Urban Densification through the permanence and temporality of non-residential infrastructure
<b>Goal</b>	
Location:	Houthaven, Amsterdam
The posed problem	In light of the rapidly changing demographics and limited space within urban areas, non-residential infrastructure needs to constantly accommodate to these demands whilst considering the limitation of space and eroding the creation of permanent infrastructure within these neighbourhoods.
research questions and	How can non-residential infrastructure be effectively introduced into Dutch neighbourhoods in response to their evolving demographic needs through the use of timber construction
design assignment in which these result.	Using adaptive timber construction to design adaptive floating infrastructure that transitions from a school into an elderly care centre and a general practitioner

Through the research it was apparent that in starter neighbourhoods there was a general trend in how they could be expected to progress over time. Where its demographic eventually ages, creating a need for non-residential infrastructure that supports these newly incurred demographic demands. Hence as these demands change, the intervention proposed will allow for this adaptability of functions. As identified, the functions housed will taper to the progression of needs associated with ageing. Thus, the design will incorporate child-centred functions like a school and daycare and gradually shift with the demographical shifts towards medical and care facilities like elderly care centres and a general practitioner.

Additionally, with the expected sequential development of the surrounding neighbourhood there will be an added challenge of introducing modularity in the design where the building will be composed of multiple units that can function independently. Thus, creating the option for parts of the existing building to break off and repositioned within newly developing neighbourhoods to expedite the maturity within these spaces. This will be achieved through the reduced reaction time in the minimal construction required and the ease of fostering a sense of place.

## **Process**

### **Method description**

This research aims to identify the relationship between the expected demographic shifts and their resulting demand for respective non-residential infrastructures in Dutch neighbourhoods and consequently . This was conducted mainly through site analyses of various neighbourhoods in Amsterdam and Almere, coupled with projections and historical documentation of the sites and how non-residential infrastructures have been introduced into these neighbourhoods. Through the site visits the following questions were investigated:

1. "What are the triggers for the introduction of the different types of non-residential infrastructure and if they are implicated by the demographical shifts within the neighbourhoods? "
2. "How are different types of non-residential infrastructure prioritised in residential neighbourhoods?"
3. "What are the available types of non-residential infrastructure and how much traffic do they garner?"

The site visits consisted of the documentation of existing non-residential infrastructure and surveyed their conditions, traffic and activities that surround these facilities. After which the data was compared in ascertaining what can be considered to be essential non-residential infrastructure and patterns. Taken against the demographical changes within each neighbourhood the triggers and strategies in which non-residential infrastructures are implemented were identified. And hence resulting in a overarching strategy for new neighbourhoods

## Literature and general practical references

1. Case Studies in Almere and Ijburg(Theo van Goghparkbuurt, Rieteland Oost, Centrumeiland, Muziekwijk, Homeruskwartier, De Marken, Almere-pampus)
2. The urban catalyst: The power of temporary use

Oswalt, P., Overmeyer, K., & Misselwitz, P. (2013). *Urban Catalyst: The Power of Temporary Use*. Dom Publishers.

3. Everyday Urbanism

Chase, J., Crawford, M., & John, K. (2008). *Everyday urbanism: Expanded*. The Monacelli Press, LLC.

## 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)?

With the need for urban densification within our cities in light of its growing and changing population and demographics, it translates into a huge demand for material and space. Both of which are finite, therefore there is a need for options that can maximise both resources. Hence the need for strategies surrounding renewable biobased materials increases, the most common and accessible being timber. Additionally, the unpredictability of how our cities could change creates the added stress on its limited space. Hence, prudent strategies that create allowances for change and infrastructure to react accordingly to these changes are necessary. Therefore, this project investigates how these changing needs can be met through adaptive timber construction within non-residential infrastructure and how these non-residential functions can adapt to these changes over time.

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

With these expected changes within Amsterdam, the changing and growing demographics and challenge of limited urban space, it becomes imperative to explore new strategies and ideas to maximise this limited space to meet these needs. This research begins with largely an urban perspective on how space can be allocated strategies centred on ensuring that the available space is conditioned to be future-proofed, allowing for new functions to easily be added to meet these needs. At the same time this research serves as a starting point in understanding the existing strategies within Dutch neighbourhoods and the creation of a catalogue on these various methods. This also gives insight on how these neighbourhoods can be expected to evolve in both the near and distant future. The documentation methods undertaken can be repeated and refined over the other neighbourhoods to provide a more complete understanding of how our neighbourhoods develop and how non-residential infrastructure is implemented to meet their changing needs.