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	**Rens van Poppel**
Student number	4849868

Studio		
Name / Theme	AR3AD105 Dwelling Graduation Studio: Global Housing	
Main mentor	Rohan Varma	Architecture
Second mentor	Rocio Conesa	TBD
Argumentation of choice of the studio	I am fascinated by the affordable housing strategies of the 80s. Mainly the incremental architecture and urban planning of the likes of Doshi and Correa, as well as their notions on incremental and affordable housing, have greatly impacted me. This studio lets me delve into exactly these principles and add my own theories and concepts to that, whilst being aware of the global problems we have in housing, caused by climate change and rapid urbanisation.	

Graduation project	
Title of the graduation project	Incremental densification: incremental housing solutions for affordable, livable and resilient cities
Goal	
Location:	Sylhet, Bangladesh
The posed problem,	Bangladesh's unique context, distinguished by climate-induced rapid urbanisation and overflowing cities, calls for immediate research. At first glance, the situation may seem somewhat unique for the Bengali climate. Yet, with the consequences of climate change intensifying, the same problem will likely occur in countless places across the globe over the coming decades. The issues with informal settlements and rapid urbanisation show that housing schemes that fit flood-

	susceptible areas are needed. Incremental housing strategies seem most probable in coping with the lack of adequate housing, but little to no research has been done on how a large-scale incremental strategy can be adapted to implement flood-resilience measures, while still coping with the financial and minimal constraints of the strategy.
research questions and	How can incremental housing strategies be adapted to the flood susceptible context of Sylhet to create affordable context-based housing solutions?
design assignment in which these result.	Guiding the transition of a village on the rural-urban interface, while safeguarding affordability through incremental design and whilst providing design solutions to the frequent flooding of the site.

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This graduation project aims to address these issues on affordable housing through incremental housing solutions. This incremental housing strategy must be matched with good urban design, management and flood-resilience design aspects.

Process

Method description

For the research literature studies and case studies will be conducted to understand the architectural principles of incremental housing, as well as good urban planning. Literature also provides further insight into techniques for flood-resilient design. Interviews will also help understand these topics of incrementality and floods. The context and local typologies of Bangladesh will be studies through site analysis, photography and graphic analysis.

Literature and general practical references

The most important literature for this research is listed below. In addition, the field trip and case studies help understand the different research topics.

Ahmed, K. I. (2005). *Handbook on Design and Construction of Housing for Flood-prone Rural Areas of Bangladesh*.

Anik, S. I., & Khan, M. a. S. A. (2012). Climate change adaptation through local knowledge in the north eastern region of Bangladesh. *Mitigation and Adaptation Strategies for Global Change*, *17*(8), 879–896. https://doi. org/10.1007/s11027-011-9350-6

Aravena, A., Louisiana (Museum : Humlebæk, Denmark), & Elemental (Firm: Santiago, Chile). (2018). *Elemental: The Architecture of Alejandro Aravena* (M. J. Holm, Interviewer; M. M. Kallehauge & L. Rydal Jørgensen, Eds.; J. Rowley & G. Garner, Trans.). Lars Müller Publishers.

Aravena Mori, A., & Iacobelli, A. (2016). *Elemental : manual de vivienda incremental y diseño participativo = incremental housing and participatory design manual* (2nd ed.).

Bredenoord, J., Lindert, P., & Smets, P. (2014). Affordable housing in the urban global South: Seeking sustainable solutions. In *Routledge eBooks*. https://doi.org/10.4324/9781315849539

Correa, C. (1989). *The new landscape: Urbanisation in the Third World*.

Napier, M. (2002). *THE ORIGINS AND SPREAD OF CORE HOUSING* [PhD Dissertation, University of Newcastle upon Tyne]. https://www.research-gate.net/publication/260126216_Core_hous-ing_enablement_and_urban_poverty_the_con-solidation_paths_of_households_living_in_two_ South_African_settlements

Nohn, M., & Goethert, R. (2017). *Growing Up! The search for high-density search for high-density multi-story incremental housing: Presentations of built examples at the network session and documentation of the Associated Training Session at the United Nations World Urban Forum, Naples 2012*. https://portal.dnb.de/ opac.htm?method=simpleSearch&cqlMode=true&query=idn%3D1137624736

Wakely, P., & Riley, E. (2011). The case for incremental housing. *Cities Alliance : Cities Without Slums*, 1–72. http://web.mit.edu/incremental-housing/articlesPhotographs/pdfs/Case-for-Incremental-Housing.pdf

Reflection

1. My research on combining incremental housing strategies with flood-resilience ties with the studio topic of affordable housing in climate-stricken countries undergoing rapid urbanisation, since incremental housing is one of the most probable and accessible answers to the large housing crisis. It also envelops

important elements of architecture (A), good urban design (U+LA) and requires good governance and management strategies (MBE) and technically well-thought-out building components (BT).

2. Bangladesh's situation of a climate-stricken nation undergoing rapid urbanisation, paired with a lack of affordable housing, may be somewhat unique at the moment but will become more common in the future. Incremental housing strategies also need more research, especially in the case of current-day applications for this topic, which saw its peak in the 80s. Hence, this research is relevant to social, professional and scientific fields.