Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

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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	Marc Kellerman
Student number	4707656

Studio		
Name / Theme	Technologies and Aesthetics	
Main mentor	Veerle de Vries	Architectural Design
Second mentor	Koen Mulder	Building Technology
Third mentor	Peter Koorstra	Research mentor
Argumentation of choice of the studio	For me, designing is solving a problem. This studio has a clear problem that needs to be solved which is the reason why it drew my interest. I have done a similar studio during my MSc 2 exchange called 'immersion' where the assignment was the design for Tuvalu in 100 years, quite the challenge.	

Graduation project	
Title of the graduation project	Submerged
Goal	
Location:	Groningen

The posed problem,	Due to climate change, the sea level is rising, posing a potential threat to the protective dikes in Groningen. In the next century, we might not be able to rely on these structures anymore. As a result, it becomes crucial to reimagine our architectural design strategies, anticipating a future where water might play a more prominent role in our everyday living. Moreover, in addressing the environmental challenges posed by climate change, it is essential that we transition towards a greater reliance on renewable energy sources. The integration of water-conscious design and increased utilisation of renewable energy are crucial steps toward creating a more sustainable and adaptable living environment for generations to come.
research questions and	**0 | How can sunlight and water be foundational elements for an off-grid building design in Groningen?** 1 | What are the current weather and water conditions in Groningen and the anticipated projections? 2 | What solar and water-based systems can be implemented to support an energy-independent building? 3 | What architectural language implications arise when energy technologies form the foundation of the design?

design assignment in which these result.	A building where solar and water technologies will be the key starting point for an off-grid design. A design that will be able to withstand the rising sea level through being elevated, floatable or floodable. Besides the focus on energy-independency, the building will be part of the environment, both in form and function. It will look for the ability to adapt to the surroundings, just like water, and in function the building will give and take from the direct vicinity. A landscape submerged, (sea)food oriented, self-sufficient building.

Process

Method description

This research aims to create design guidelines for an off-grid building in Groningen where the rising of the sea level in 100 years could become a significant issue.

The research will commence by looking at the current weather and water conditions of the landscape and making an assumptions of the expected future conditions. Since it is not possible to know for certain what the conditions will be in the future, various expectations will be compared to sketch the best possible scenario.

Subsequently, there will be looked into a set of diverse solar and water-based systems and which of these could be used in this specific environment. Mostly recent technologies with a likeliness to further develop in the near future will be overviewed. This will be done by studying different reports and studies, alongside analysing interesting case studies.

Based on the technologies that will be set as the fundamental elements, architectural language implications will be configured. Together with the anticipated projections for the area, a design brief will be formed for the project.

Literature and general practical references

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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)?

The graduation project is directly linked to the studio's exploration of "Technologies and Aesthetics," the master track Architecture, and the overarching master program.

Within the studio, the project aligns seamlessly with the emphasis on technologies and aesthetics. Conduct research on innovative solar and water-based systems and explore those that could have an aesthetic contribution to the design.

In the broader context of the Architecture track, the project involves the development of design guidelines for an off-grid building. This aligns with the overarching theme, where design strategies are reimagined in response to climate change and the evolving role of water in living environments.

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

Addressing the impact of rising sea levels and climate change on architectural design. The research contributes to setting new standards for sustainable living in water dominated areas. The design guidelines and further insights could be a step towards a better integration of resourceful systems into building design and considering the possible aesthetic values of certain technologies.