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	Marloes van Zee
Student number	4840836

Studio		
Name / Theme	Timber for Urban Density	
Main mentor	Loes Thijssen	Architecture
Second mentor	Alex de Rijke	Architecture
Argumentation of choice of the studio	It is amazing how versatile wood is as a material. As a structure it is part of the architecture and it needs to be shown instead of covered. Also as a interior material it gives a calming feeling. During my study I have often used wood as the material of the structure, so I was excited to see a timber studio for the graduation project. Apart from the material, the brief of the studio also spoke to me, which is a challenging design project, without having any land to build on, but having to top-up or build on water. Having to think about new ways of making space which is not yet available in this project.	

Graduation project	
Title of the graduation project	Jump onto the IJ
Goal	
Location:	Amsterdam, Minervahaven, NDSM-werf
The posed problem,	Amsterdam's population is expected to grow 20% by 2035. To accommodate this increase in population, Amsterdam is planning the Haven-stad transformation, turning an area west of the city centre into a city inside the city. The Haven-stad plan also includes a bridge linking the NDSM-werf to the Minervahaven, two areas that are to be transformed into high density mixed-use neighbourhoods. Most of the land available has already been built on, or is under construction, so underused

	spaces must be used to the fullest. This research investigates how this new bridge crossing the IJ river, can contribute to the densification of Amsterdam, by reintroducing the typology of a multifunctional bridge.
research questions and	How can a bridge crossing the IJ river in Amsterdam serve as a multifunctional space that contributes to the urban density and creates an active connection between the north and south of the city?
design assignment in which these result.	The design assignment will be a multifunctional floating bridge on barges, for pedestrians and cyclists that includes housing, retail, restaurants, public and cultural space.

Process

Method description

The research combines archival, literature, and case study analysis. The reasons for rejection of previous designs for a bridge in Amsterdam will be done through archival and literature research. I will explore technical drawings and literature written by historians and archivists about the ongoing discussion in the 19th century of the bridge crossing the IJ-river. Analysing the Haven-Stad transformation plan will give insight into the current need for a bridge. To research the effect of the bridge on Amsterdam and its surroundings, I will conduct a SWOT analysis to evaluate the bridge's impact on connectivity, accessibility, mobility, and stakeholders.

The multi-use of existing bridges will be done through a series of case studies, looking at both historical and modern examples that include multiple types of functions. Attention is paid to historical context and how the use changed over time of the historical bridges. The program, layout, accessibility and functionality will also be researched. This will result in a set of typologies that can be applied and tested at the location of the bridge in Amsterdam. This involves a research-by-design approach, making simple concepts with multiple functions focusing on form and layout to research the best strategy for a multifunctional bridge on this location.

The result of the research will be the direct input of the design project in which the concept of the multifunctional bridge will be further developed and detailed. This involves more research by design and case studies, looking into references of floating buildings and bridges, to study types of structures and architecture.

Literature and general practical references

- Bock, M., Hoogewoud, G., Luijendijk, G. J., & Van Rossem, V. (1996). *De sprong over het IJ: Visionaire ontwerpen van Jan Galman (1807-1891)* [Printed book].
- D'Hooghe, A., Van der Lugt, L., Schmitt, M., Peeters, T., Boddeke, D., De Groot, H., Van der Hout, A., Kwantes, C., Alver, M. D., & Dubini, C. (2020). Genereus verbonden: Een concept-inrichtingsplan voor het IJ in Amsterdam als robuust en toekomstvast waterkruispunt. In *Open Research Amsterdam*. https://openresearch.amsterdam/nl/page/63495/genereus-verbonden-inrichtingsplan-het-ij
- Ponte Vecchio, Italy, built in 1345
- Schipbrug, Deventer, built in 1600
- Galata bridge, Istanbul built in 1994

Reflection

The topic of the studio, timber for urban density relates to the project and the master track through the optimal use of available space by reinventing the old typology of the bridge with buildings on top. The bridge is a combination of a floating structure and topping it up with a bridge made from a timber structure. It makes optimal use of the created space and adds to densification of the city.

The research and design of the multifunctional bridge might result into valuable information on how we can be more creative with the space available in the city. This project focuses on a bridge, but the new insights into multi-use urban space might also be applicable to other typologies or structures, such as roads, train tracks etc. Furthermore the bridge will be a floating structure using barges on which buildings and the bridge will be added, which shows a new way of using existing barges. Instead of as a base for a bridge, the topped-up barges can be used on their own, and since they float can be moved and placed anywhere in a city with water.