

P4 REFLECTION

Jump onto the IJ

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Within the subject of the graduation studio, *Timber for Urban Density*, the goal of my graduation project is to explore a method to transform a monofunctional bridge into multifunctional urban space, specifically the west bridge in Amsterdam. This bridge is part of the Haven-stad transformation plan, which aims to turn an area west of the city into a high density area with mixed-use neighbourhoods, to accommodate the expected population growth in Amsterdam. Most of the land available has already been built on, or is under construction, so underused spaces must be repurposed. The project investigates how this new bridge crossing the IJ river, can contribute to the densification of Amsterdam, by reintroducing the typology of a multifunctional bridge.

Main research question:

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?

Answering this question led to the design of a floating bridge which consists of a repetition of barges on which buildings are placed. These buildings form the foundation on which the bridge rests which goes across the river. The buildings house a variety of functions, combining housing with commercial and recreational functions, making the bridge available for a variety of users.

1. What is the relation between your graduation project topic, your master track (A, U, BT, LA, MBE), and your master programme (MSc AUBS)?

The project

As a part of the Architecture track within the AUBS master programme, the project explores different scales by going into the theme of urban transformation by addressing the challenge related to increasing urban density. With a focus on architectural design I investigate how a bridge, typically designed to get across a river, can serve as a place to stay, by adding living, working and recreational spaces. The project reinterprets traditional and contemporary bridge typologies, including floating and multifunctional structures, into a new typology that integrates the urban planning, architectural design and program and the structure into one coherent project.

2. How did your research influence your design/recommendations and how did the design/recommendations influence your research?

The results of the research were the direct input for the design. Through the research I found reasons why previous bridge designs crossing the IJ-river were never built, of which some remain relevant today and needed to be considered in the design. A SWOT analysis of the location and its context on multiple scales helped to reveal challenges and opportunities of the site. It showed why the bridge is necessary,

considering the urban densification goals of the municipality, how the bridge can connect to the context and the exact location of the bridge. Finally the analysis showed which functions lack in the urban area, which I then included in the design. Case studies on multifunctional bridges resulted in a list of typologies that helped determine where and how functions can be applied on a bridge and how this program works together. Through research by design I combined the SWOT analysis with the case studies that led to an optimal blend of typologies suited for the site in Amsterdam. This formed the conceptual framework of the bridge, which I then further developed through design.

3. How do you assess the value of your way of working (your approach, your used methods, used methodology)?

The combination of the location-specific part of the research and the case studies were highly valuable, as it served as a foundation for the design. It allowed me to gather information about the site's urban fabric, social context, and relevant examples of similar typologies, which through the research by design guided the start of the design process.

During the design phase, sketching and 3D modeling allowed me to quickly experiment with different iterations of the design. I also consistently kept going through the different scales of the design, both keeping the urban context and the human perspective in mind, exploring how you move through and interact with the bridge and the building.

4. How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?

Academically, this project contributes to the exploration of multifunctional infrastructure and a new way of densification. It demonstrated how bridges, often seen as only engineering challenges, can become meaningful architectural interventions that contribute to the urban space as a place to stay. It addresses a critical urban challenge, of how to make the most of the limited space available in growing cities by putting effort and being critical about its design.

By reimagining infrastructure on water as a habitable space, the design proposes a more efficient and inclusive use of the bridge. The water becomes accessible and can be experienced in a new way by either staying to enjoy the large variety of functions or by going across, making the space available for a diverse group of users.

5. How do you assess the value of the transferability of your project results?

Although a part of the research and design is specific to the location in Amsterdam, the core concept of using infrastructure in a multifunctional way can be applied to other cities as well. More specifically, regarding this project, the barges with buildings are a repeating part of the bridge, which can be configured in multiple ways, fitting for the context. Also without the bridge going across, these buildings can individually be added to a harbour to densify a city located around a river.

6. What challenges did you face combining architectural design with structural and logistical constraints of building a bridge across the IJ?

Designing a floating bridge combined with buildings presented a lot of challenges. The river is still a major shipping route, requiring sufficient clearance and a movable section to allow ship traffic. This influenced the height and span of the bridge, which also had an impact on the placement of the added program. These functions should not interfere with the bridge's performance and vice versa, while maintaining spatial quality, human scale and coherence across the structure. Finally the bridge should both be

structurally sound, but should also be able to move with the water, which also faced me with a difficult technical challenge.

7. How did the use of timber influence the design decisions beyond sustainability?

Timber influenced the project not only as a sustainable material, but also in terms of aesthetics, modularity and spatial experience. Its lightweight properties made it ideal for integrating additional functions without overloading the barges, also allowing for prefabrication and adaptability. Aesthetically it helps to create a neutral canvas which the residents can add colour onto through a facade made of pallets on which they can hang plants, art, or anything they desire. It helps to break this megastructure into the individual buildings and creates a different character for each barge. Furthermore the timber structure is a large part of the architecture. With a grid that is repeated throughout the design, it brings the different elements of the bridge together.

8. Feedback of the mentors

After the P2 presentation the mentors told me to continue with designing a section of the bridge. This helped me get a better grasp on the design and led me to focus on the architectural design of the buildings and their connection to the bridge. Throughout the process the mentors reminded me to design from the viewpoint of the users going into the human scale and perspective and to think about how the spaces are used and how you walk through the bridge and the building. I always tried to experiment with the tips and critique they gave me, to see if those alterations would indeed be better.

9. Final part of the graduation

During the final part of the graduation, I want to focus on creating visuals that show the design from a human perspective. This will show how the bridge is experienced and how the different functions come together and how they are used. Furthermore the grid is an important part of both the architecture and the structure. During the last phase I want to make a clear visual that shows how this grid is experienced throughout the different scales and places where it is applied. Finally I want to make a model that shows how the bridge comes together with the buildings. This model will also help with showing how the grid is applied throughout the design.