Reflection

Max Lieser_5626293 aE Graduation Studio

1. What is the relation between your graduation project topic, your master track, and your master programme?

As an architectural graduation project, the proposed building addition aligns with the "Second Life" track of the architectural engineering studio. It is built on top of the Hofbogen railway, a long-duration infrastructure that has played a significant role in shaping the urban fabric of Rotterdam since its construction in 1909.
The Hofbogen has already undergone significant redevelopment after being out of service since 2002. This includes the establishment of the Luchtsingel roof park in 2015 and the ongoing construction until 2024 to transform the empty roof of the Hofbogen line into a nature-inclusive park. Within this existing masterplan, the project seeks to add value by proposing a building addition to the Hofbogen infrastructure at the Bergweg station.
One of the key challenges in designing a biodiverse park on a rooftop is water management. The engineering aspect of the studio is crucial in working with the existing structure to create architecture that generates positive output for the park, the area, and its users.
The engineering studio places significant emphasis on the conscious use of materials and is attentive to their lifecycle implications. In the context of the contemporary building industry, it is necessary to support the principles of reuse and demountability and the use of existing structures. Consequently, the project is designed to be constructed on top of an existing structure within the urban fabric, and represents a demountable building approach that utilizes highly adaptable building pieces capable of accommodating change. Overall, this graduation project aligns with the architectural engineering studio's focus on designing ecological and socially responsible architecture while contributing to a sustainable development of Rotterdam's urban landscape.

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

The research on digitally fabricated partition walls has aided in the understanding of the fundamentals of demountability and how they can be applied to larger-scale building parts. The established guidelines provided support for the construction of the new building, while also setting limits and possibilities for demountability. The research findings highlighted the importance of size, complexity, and handling of building pieces, which informed the design and appearance of the building. Knowledge about the workings of a CNC-Mill and the types of connections it can create has also influenced the connections used for the building's kit of parts. As the building is intended for public and semi-public use, possible changes in use must be considered to prevent the creation of waste and to facilitate the reuse of building components. Therefore, the design goal of demountability informed the research, with a focus on demountability approaches that could be implemented without compromising the building's use.

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

The methodology used in the research involved a review of literature and case studies, what made it possile to gain insights into the latest theoretical knowledge about materials and products, as well as an understanding of the current products available in the market. Additionally, the project approach involved addressing problems at various scales, ranging from global issues such as climate change to local challenges such as water management and workspace shortages in urban areas. This approach was instrumental in shaping the building's program, with the aim of addressing these diverse challenges in a cohesive manner.

To achieve the desired design goal, the focus on three key themes: Waste reduction through demountability, creation of high-quality public and working spaces, and the provision of water to the Hofbogenpark section of the Bergweg. Each of these themes was carefully analyzed and understood individually before being integrated into a coherent program. The constant shift between the different topics and scales was beneficial in prioritizing various components and ensuring that each was adequately addressed. Ultimately, this approach enabled the team to combine these themes and deliver an architectural project that effectively addresses a range of environmental challenges and social opportunities.

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

One of the key design features of the project is its response to future climate forecasts with the approach to water collection and ensuring the irridiation of the park in the area of the project. Green spaces are critical for enhancing the quality of life in urban areas, they require a reliable supply of water to be intact. To address this challenge, the project incorporates a demountable lightweight roof structure that provides shade to prevent excessive sun irradiation while simultaneously collecting water through its shape. The collected water is then filtered on-site without being routed to a sewer. In addition, the former railway station under the platform provides a closed-loop system with a water reservoir and a natural plant purification system for growing vegetables, promoting water conservation and reducing demand on urban infrastructure.
Another crucial aspect of the project is its emphasis on waste reduction. The building incorporated demountable features that increase ease of dismantling and reuse of materials in the future. This approach aims to scale down the global construction waste, which currently constitutes up to one-third of the total waste. By adopting such measures, it is possible to promote a sustainable development practices and contributing to the broader global effort to mitigate climate change.
In addition to addressing these environmental challenges, the project also focuses on the social aspect of architecture. The new structure is designed to provide a space for community engagement and interaction, adding a new dimension to the Hofbogen redevelopment project. By creating a mixed-use building with communal spaces, the project aims to stimulate the local economy and enhance the social fabric of the area. Furthermore, the project offers a high-quality workspace that has a close connection to nature and provides space for exchange, meetings, and relaxation, catering to the needs of employees who work from location-independent spaces.
In summary, this architectural project offers an approach to addressing the challenges posed by climate change and urbanization. By emphasizing the importance of water management and green spaces, the project is promoting sustainable development practices while also enhancing the quality of life for city inhabitants contributing to the broader revitalization of the area.

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

The reuse of the Bergwegstation in combination with the Hofbogenpark is a very site-specific project. However, similar projects exist globally, such as the High Line in New York and the Promenade Plantée in Paris. These project can serve as a model for other cities seeking to repurpose unused infrastructure into green spaces while increasing awareness of water scarcity and its impact on the ecosystem. This project demonstrates the potential of architecture to address environmental challenges while creating enjoyable spaces for users. The symbiotic relationship between nature, user and architecture can create a positive atmosphere that benefits all parties.