

Reflection

From a Dike House to a growing Dike Architecture

This graduation project commenced as a journey to ascertain my capabilities and interests within the domains of Architecture, Design, and Research. The initial phase in the studio served as an exploratory period, during which I delved into various fields of interest. Numerous research ideas were conceived, leading to the development of a concept that exhibited minimal correlation with the eventual research and design outcomes. Initially, my focus revolved around investigating the impact of climate installations on architectural aesthetics and exploring how passive design strategies could restore such aesthetics. However, this idea concluded after an on-site excursion inspired alternative research processes. My attention subsequently gravitated towards the interaction between water and land, particularly the engineering of Dutch dikes and their dual role in land reclamation and protection. Being from outside the Netherlands, I found the multifunctionality of the dikes particularly fascinating. I aimed to explore how these dikes could be integrated into architectural design but struggled to find examples of buildings on dikes to draw inspiration from.

Transitioning into P2, my research adopted a more technical orientation, focusing on which dike typologies are suitable for building and which foundations are appropriate. While this phase of research was crucial for the design, it lacked architectural depth, a point addressed in the feedback provided by mentors. Consequently, efforts were undertaken to bridge the gap between technical research and architectural expression, resulting in the formulation of five design principles including form, foundation typologies, and climatic considerations, among other facets.

Reflecting on the research process, it became evident that there was a delay in incorporating architectural considerations early on. The heavy focus on technical research made it challenging to later integrate aesthetics. To address this issue, I paused technical research between P2 and P3 to focus more on design, allowing for a better integration of technical insights subsequently.

This journey underscores the importance of prioritizing design and using research to sup-

port it, rather than letting research dictate the process. By focusing on design first, subsequent research efforts can be more seamlessly incorporated into the overall architectural vision, resulting in a more cohesive and effective design process. As we approach P5, the focus shifts towards refining the design and research, emphasizing their interplay. I view my graduation project as a narrative encompassing all Dutch residents and citizens. It is essential to dedicate time to crafting this narrative and exploring potential future scenarios through my proposed design, fostering dialogue among colleagues, tutors, architects, and the wider audience. Therefore, I intend to invest time in presenting the project to the public and identifying any gaps between the design and research that can be addressed to further enhance the project.

Additionally, preparing for P4 has been instrumental in identifying areas where the project remains underdeveloped on various scales. P4 presents an opportunity to discuss how to communicate my project effectively to tutors and peers. Between P4 and P5, documenting the entire process will be crucial. This will allow for a comprehensive review of the progress and development achieved over the eight-month period.

The relation between Graduation project, Studio topic and Master track

My graduation project delves into the potential for architectural development on dikes and its significance in addressing challenges associated with rising sea levels. This exploration represents one of the many possibilities within the realm of architecture. Architecture inherently involves identifying problems within the built environment, considering numerous solutions, and developing a concept to address these challenges. In this sense, my graduation project embodies the essence of architectural practice. Moreover, the thematic focus of my project aligns with the overarching themes of the Technology & Aesthetics Graduation Studio, which centers on the exploration of materials, water, and energy. My project investigates strategies for building near water bodies and generating energy in flood-prone areas, thereby intersecting the

themes of water and energy. This convergence underscores the fundamental aspects of my graduation project within the broader context of the studio's thematic framework.

The relation between design and research

The research conducted up to P2 primarily focused on the technical aspects and engineering considerations of building on dikes. However, this groundwork proved invaluable during the subsequent design phase. It prompted me to move beyond mere architectural solutions and critically evaluate the potential contributions of my design beyond mere physical structures. This shift led to a broader exploration of how my design could address not only the immediate need for housing but also contribute to mitigating the effects of sea-level rise. Consequently, my research on building on dikes transcended individual structures to encompass larger-scale solutions that intersected with societal challenges. Conversely, following P2, the design phase evolved into a process of research through design. Through iterative design iterations, I sought to develop an architectural language that resonated with the unique characteristics of dikes and contemplated potential future scenarios for this infrastructure. The initial stages of design injected a research-oriented approach that had been lacking during P2, thereby enriching the overall research endeavor.

Elaboration on research method and approach in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work

In my research plan, I outlined a methodology that involved conducting a comprehensive literature review spanning various disciplines, with a primary emphasis on Architecture. Additionally, I undertook an analysis of case studies to glean insights into structural requirements and potential challenges. Following the research phase, my approach in the design phase centered on the iterative generation of multiple floor plans and design concepts to foster creativity. Moreover, as the design progressed, I prioritized establishing a systematic framework to accommodate future expansion

and adaptation of the building and architectural elements. This entailed designing with clarity and transparency to facilitate a coherent project vision. Reflecting on my approach, I recognize that certain methods could have been more impactful and conducive to project enrichment. For instance, engaging in discussions with professionals from various engineering disciplines could have provided valuable perspectives. Furthermore, while I utilized small-scale 3D models to explore design shapes, a more in-depth analysis of these models could have yielded valuable insights for refining the building's form.

The assessment of the academic and social value

Reflecting on the genesis of my research, it became apparent that minimal literature exists on the possibilities of constructing on dikes. While some literature addresses the concept of multifunctional dikes and their legal implications, none delve deeply into the visualization of engineering and architectural potential for dike-based construction. Although my research may not be entirely grounded in academia and may include assumptions and comparisons drawn from various sources, it introduces a novel topic that adds value and may inspire further exploration by colleagues in the fields of architecture and engineering. From a societal standpoint, the graduation project engages with a future scenario of the Netherlands in the face of rising sea levels, addressing a global challenge. While not all audiences may readily embrace the idea of living on dikes, it catalyzes discussions on how to navigate such scenarios and the role dikes may play in shaping future landscapes. Considering the potential implications of the project, I believe that further research into dike-based construction should be a collaborative effort between civil engineering and architectural engineering disciplines. Additionally, it's crucial to acknowledge the project's inherent limitations; while we may develop watertight construction methods, uncertainties remain regarding the legalities of building on dikes in the future.

The assessment of the transferability of the project results

Evaluating the value of my project in other fields, I believe that although the first part of the research was technical, it may interest engineering disciplines. While the engineering details are still in the early stages, the concept and its development hold significant potential for more detailed research. The research focuses on preventing a future scenario and the possibility of inhabiting the dike, which can also be relevant for social fields and urbanism. Additionally, it offers an opportunity to explore how social life on the dike would unfold.

The influence of personal background and experiences on the research and design

Being originally from Egypt, it was very interesting for me to discover how the Dutch landscape functions and how these dikes both protect and create the landscape. This duality intrigued me and inspired me to think about how this infrastructure could have additional functions. I believe this idea stemmed from my fresh perspective on dikes and how buildings on such monumental infrastructure might interact with it. Indirectly, my perception of the dikes was influenced by my understanding of the Nile River in Egypt. The Nile serves not only as a crucial agricultural and geographical feature but also as a social and cultural lifeline. This perspective made me consider how similar multifunctionality could be applied to dikes in the Netherlands, envisioning them as not only protective barriers but also as platforms for social interaction, urban development, and architectural innovation.

Encountered challenges during the integration of architectural and technical aspects

Reflecting on the integration of technical and architectural aspects in my designs, I believe that one of the main challenges for any designer is to create an architectural image that meets all technical requirements. During the initial design phase, I neglected the technical aspects. However, when I started detailing the building, the technical considerations actually strengthened the vision of my project rather than presenting insurmountable challenges. Challenges are, of course, part of the process, but it is crucial to see technical aspects and

detailing as integral to the architectural language and aesthetics. For instance, I encountered difficulties in detailing the lower part of the columns, which are critical for the structural support of the building. This challenge prompted me to reflect on the aesthetics of that component and how users would experience it. I considered whether it would be perceived as an innovative feature or an aesthetically displeasing element.

In conclusion, this project highlights the critical interplay between technical research and architectural design, emphasizing the importance of integrating both aspects early in the process. By doing so, it not only addresses immediate housing needs but also contributes to broader societal and environmental challenges, paving the way for future architectural innovations on dikes.