

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	Sari Naito
Student number	5670292

Studio		
Name / Theme	Revitalising Maritime Heritage	
Main mentor	Nol Hermkens	Heritage & Architecture
Second mentor	Marie-Thérèse van Thoor	Heritage & Values
Argumentation of choice of the studio	<p>My initial interest in architecture stemmed from innovative Dutch projects that allowed people to live in harmony with water through a school project on sea level rise. Since starting my university studies, my perspectives have broadened, but still maintain a fascination for the water landscape and how we can connect the past, present and future through adaptive maritime architecture.</p> <p>This graduation studio encompasses my interest in the connection between water and buildings, as well as the ever-increasing importance of adaptive architecture. It tests the balance between historical understandings and contemporary design, which I believe is the key to creating a design rewarded with social and environmental successes.</p>	

Graduation project	
Title of the graduation project	Transparent Water: water education through design in the Waterdriehoek
Goal	
Location:	Slidrecht, the Netherlands
The posed problem,	In 2022, research by Wageningen University revealed that the Netherlands has the worst water quality in the EU, with only 1% of the water being satisfactory. Reports by the Kaderrichtlijn Water (KRW) show a similar result, with most of the country's water bodies containing at

	<p>least two pollutants that do not comply with the health and safety standards. In the site for this graduation studio, the Waterdriehoek, a similar study showed that the area contained at least 4 non-compliant pollutants and more than 7 chemicals that were deemed unsatisfactory.</p> <p>The Waterdriehoek Heritage Line, a programme designed to preserve and promote the cultural-historical values of the area, also encompasses environmental ambitions and sets out the framework for this project. Despite the importance of water and the maritime industry in the area, however, it fails to address its quality and contamination issues, and reaching a public audience still remains an issue – the gap between people and the water has been widening both physically and psychologically with the decline of the waterfront industries. The challenge therefore lies in recognising the water-centred history of the site through its maritime buildings and thereby understanding how we can make water a more fundamental consideration for all.</p>
research questions and	<p>Bridging the gap between scientific research and societal implications, the project will answer the overarching research question: How can the reuse of maritime industrial architecture be used to connect the public to the past and future narratives of water?</p> <p>A set of sub-questions from different historical, theoretical and architectural angles helps in reaching the main question:</p> <ol style="list-style-type: none"> 1. What is the connection between water and education and why is it important? 2. What is the current research and actions being taken regarding water education? 3. How can design be used to increase awareness of the issues around water and set environmental goals for the future waterscape? 4. How can the adaptive reuse of maritime industrial architecture in the Waterdriehoek (re)connect people to water?

<p>design assignment in which these result.</p>	<p>Research into the water-education nexus and analysis of relevant precedent projects will showcase what design strategies are used to connect the public audience to water. This theoretical understanding of the water-education principles and the analysis of successful and unsuccessful design choices gained through the research paper help form a personal view of how design can connect people to their environment while preserving their connection with their historical maritime past.</p> <p>The collective analysis of the Waterdriehoek Heritage Line and the van Eijk shipyard (located in the Waterdriehoek area) specifically in the first quarter has unveiled the area's innate connection with the river, due to its historical dredging industries. However, with the industrial decline and relocations, people and buildings are slowly losing their touch with water and with their past maritime heritage.</p> <p>Bringing the research and site analyses together, the outcomes of these will be translated spatially, in the design of water-related research laboratories and convention centre that actively connect the issues of water to the general public. As the aim of the project is to educate the public about water, the design will also incorporate outreach programmes, such as a learning centre designed to attract a wider community interest.</p>
<p>The design is a synthesis of theoretical and design-oriented research, with the aim of being able to visualise the issues surrounding water through the site's connection to historical maritime architecture.</p>	
<p>Process</p>	
<p>Method description</p>	
<p>The project will consist of a research phase and a design phase, which will run parallel to, and intersect with each other at points.</p> <p>The research will form a framework of theoretical knowledge regarding water education and spatial design, which will be analysed and tested for relevance on the design site. Firstly, it will delve into the literature behind water education through</p>	

architecture, explore why it is important, what is currently being done globally, and what the challenges of design-driven water pedagogy are.

Following this literature-based research, architectural examples that aim to connect the public to water and bring about a social dimension to the topic will be explored. This is done as a comparison and extraction of appropriate values from two contrasting case studies – Willemsoord in the Netherlands and the Solrødgård Climate and Environmental Park in Denmark. These two examples were chosen because of their differing outlooks on water as a past or future value, thus the contrasting approach to bridging the gap between people and the natural resource, whether through urban or primarily landscape design. Existing literature, planning documents, images and videos online, as well as personal site visits will support this section of the research. Through this paper, the design aspects that make the two case studies successful in terms of water education will be compared and evaluated, and questioned for applicability on other sites.

The design project will thus be a culmination of the design strategies extracted in the research with an investigation of the van Eijk shipyard in Sliedrecht. Using the site analysis and historical research done in the first two quarters about the shipyard, the results of the research can be synthesised and tested for architectural, historical, economic, environmental and social relevancy on the specific site. The deliberate combination of this spatial-thematic knowledge from architectural examples and the understanding of the site will allow for the design of a water outreach and convention centre that fulfils both the needs of the programme and the people.

Literature and general practical references

Extract from key literature for research and design:

Didde, R. (2022). 'Bottom of the class for water quality', *Wageningen World*, 3, pp. 10-15.

European Commission (2024). *Water Framework Directive*. Available at: https://environment.ec.europa.eu/topics/water/water-framework-directive_en (Accessed: 02 October 2024).

International Hydrological Programme of UNESCO (1999). *Framework Paper on Water-education-training (W-E-T)*. Available from: <https://www.ircwash.org/sites/default/files/204.1-99WA-16650.pdf> (Accessed 13 December 2024).

Kitamura, Y., Yamazaki, E., Kanie, N., Brent Edwards, D. Jr., Shivakoti, B.R., Mitra B.K., Abe, N., Pandyaswargo A.H. and Stevens, C. (2014). *Linking Education and Water in the*

Sustainable Development Goals. POST2015/UNU-IAS Policy Brief #2. Tokyo: United Nations University Institute for the Advanced Study of Sustainability. Available at: https://collections.unu.edu/eserv/UNU:1824/Post2015_UNUIAS_PolicyBrief2.pdf (Accessed 13 December 2024).

Rijksdienst voor het Cultureel Erfgoed (n.d.) *Waterdriehoek vergroot bekendheid en bevordert beleefbaarheid*. Available at: <https://www.cultureelerfgoed.nl/onderwerpen/praktijkvoorbeelden/overzicht-praktijkvoorbeelden/waterdriehoek-vergroot-bekendheid-en-bevordert-beleefbaarheid> (Accessed 24 October 2024).

Eulisse, E. (2023). 'Museums for the Past and Future Meaning of Water', *Blue Papers*, 2(1), pp. 42-49.

Eulisse, E. (2023). 'Toward a World Inventory of Water-Related Museums, Heritage Assets and Values to Promote Sustainability Education', *Blue Papers*, 2(1), pp. 112-123.

Architectural precedents:

Willemsoord (Den Helder, the Netherlands) – the country's former naval base was converted into a public quarter focused on entertainment and maritime tourism. It houses several water-related museums and old shipbuilding monuments, with the aim of enhancing the area's historical-cultural identity.

- Asselbergs, Prof. Drs. A.L.L.M. (2010). *Een interpretatie van de cultuurhistorische waardestelling en het toetsingekader voor de gebiedsontwikkeling Oude Rijkswerf Willemsoord Den Helder*. Den Helder: Ontwikkelingsmaatschappij Zeestad CV/BV.
- Emstede, van C.I.C. (2008). 'Values and Sustainable Conservation The Case of Dockyard 'Willemsoord', Den Helder, the Netherlands', *Measuring the value of material Cultural Heritage: Proceedings of the 2nd Herity International Conference*. Rome, Italy, 3-5 December 2008. Delft, the Netherlands: Technische Universiteit Delft, Faculteit Bouwkunde, pp. 209-211.
- Emstede, van C.I.C. (2015). 'De herinrichting van de Oude Rijkswerf Willemsoord te Den Helder' in Emstede, van C.I.C., *Waardestelling in de Nederlandse monumentenzorg 1981-2009*. Delft, the Netherlands: Technische Universiteit Delft, Faculteit Bouwkunde, pp. 241-273.
- West 8 (2012). *Willemsoord Den Helder een ongeslepen diamant*. Rotterdam: West 8.

Solrødgård Climate and Environmental Park (Hillerød, Denmark) – a prominent example of raising climate awareness through interdisciplinary design,

where the city's facilities such as an energy production centre, a water treatment plant, and educational facilities are combined with a bird-watching tower, walking trails and roosting hotel for bats. The integration of these various functions into a single landscape allows first-hand public exposure to water and the natural cycles in a subtle, yet powerful way.

- Hillerød Kommune (2015). *Lokalplan 395 for Energi-, Klima- og Miljøpark Solrødgård*. Hillerød, Denmark: Municipality of Hillerød.
- Hillerød Forsyning (n.d.). *HCR SYD: Green Wastewater Treatment Plant with Ambitious Goals*. Hillerød, Denmark: Hillerød Forsyning. Available at: https://hfors.dk/files/media/document/Green%20WWTP%20with%20ambitious%20goals_H1_FINALv3_0.pdf (Accessed 03 January 2025).
- Hillerød Forsyning (2025). *Solrødgård Klima- og Miljøpark*. Hillerød Forsyning. Available at: <https://hfors.dk/om-os/baeredygtig-forsyning/solroedgaard-klima-miljoepark> (Accessed 03 January 2025).
- Landezine International Landscape Award (2025). *Solrødgård Climate and Environmental Park* by Gottlieb Paludan Architects. Available at: <https://landezine-award.com/solrodgaard-climate-and-environmental-park/> (Accessed 03 January 2025).

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 project revolves around the topic of water and connecting the public to it through architecture, under the umbrella of the existing Waterdriehoek Heritage Line framework, which aims to promote the historical-cultural values of the area with consideration for sustainability. This falls within the studio topic of revitalising maritime architecture, as the historical architectural remains on-site provide the perfect opportunity for adaptive reuse in reaching future environmental goals.

It therefore puts architecture and its surrounding landscape at the centre of its design considerations and explores the power of design in connecting the seemingly divided elements of water and people in the Waterdriehoek site.

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

With a growing concern for sustainability in the past decade and the foreseeable future, there is a need for more environmental consciousness from all industries, including architecture. Many buildings nowadays incorporate climate-friendly strategies such as passive design, but I believe designers also have the responsibility of educating the public about the environment. This graduation

project thus takes on this idea and attempts to make water, and the issues regarding its quality more accessible to the public in the hopes of raising more awareness and action from them.

Simultaneously, as new buildings are constantly being built and old ones demolished, we are at risk of losing not only the structures themselves but also the intangible values associated with them. By utilising these historical structures and giving them a new function, the graduation project seeks to keep the stories of the buildings alive and share them with the public while increasing the longevity of the building.