

Graduation Plan P2: Delta Interventions

Personal Information

Name: Wieland Boers
Student number: 1329030
Address: Verwersdijk 130a
Postal code: 2611 NL
Place of residence: Delft
Telephone number: +31 6 42988902
E-mail address: WielandBoers@gmail.com

Studio

Theme: New York, Rebuild by design
Teachers: Ir. Anne Loes Nillesen, Maarten Meijs

Argumentation of choice
of the studio:

Delta Interventions (A)

Over the years I have sailed most of the Dutch delta. One of the things that does intrigue me on those trips are the uncountable variations in how we relate to and deal with water, it clearly shows that a safe and qualitative relation with water does not come naturally. On such a location I want to explore architectural interventions that make a safe experience of its qualities possible.

Title

of the graduation project: **A future for Broad Channel**
Flood proof experience centre

Product

Problem statement

Broad Channel is an introvert neighbourhood of approximately 3000 inhabitants located in the middle of Jamaica Bay. It is situated on Big Egg Marsh along the road connecting Howard beach with Rockaway. Parts of Broad Channel are flooding on a regular basis due to the tidal conditions in Jamaica Bay. Still nobody thinks about abandoning the neighbourhood as it is highly valued by its inhabitants for the close relation to the bay, its views and proximity of New York. The close but static relation to the bay makes Broad Channel highly vulnerable for extreme water levels. Adding up to the flood risk is the lack of functions and activities for the public; it makes that Broad Channel and its unique characteristics easily become forgotten.

Research question

How can a public function in close relation to the water improve the resiliency of a flood prone neighbourhood?

Keywords:

Architecture, United States, Jamaica Bay, Flooding, Fluctuation water levels, Sea level rise, Storms, Decrease consequences, Leisure

General design assignment:

Make a water related architectural design in the New York region on a location affected by flooding during super storm Sandy.

Goal

Goal of the project is to show the qualities of Broad Channel and its surrounding to the public by building a flood proof experience centre. So that the public can experience the vastness, remoteness and close relation with water in the heart of Jamaica Bay. Thereby creating awareness of the value of Broad Channel and its surrounding. In the same time the centre must be an architectural example for its surrounding by showing sustainable ways of dealing with fluctuating water levels and having the possibility to serve the community as an emergency centre during and after flood events.

Process

Method description

For achieving the goal of this project different methods are used.

- Analysis of site
Mapping of site, analyse context, analyze publications, modeling, contact with involved parties etc. are done to enhance knowledge of the location's context and provide a good basement for the design process.
- Literature research
Literary writings about related subjects provide theoretical background and secure personal position. It is as well used to extend knowledge on specific related subjects in the design practice.
- Theoretical writings
Writing about a specific design related topic helps to understand it better and find your personal position in the matter.
- Case studies and references
Thematic research focused on water related architecture where theories are put into practice and are analyzed to understand how they work and why they work like that. These case studies give understanding in the tools architects can use to achieve their goal.
- Design practice
Based on previously described methods and along with, the design is developed; making use of multiple design tools and scales of which modelling is an important one for me.

Literature and general practical preferences

Following literature focuses on architecture in relation to water, flood risk and climate adaption.

- Aerts J., Botzen W., Bowman M., Dircke P., Ward P. (2012) Climate Adaptation and Flood Risk in Coastal Cities, New York: Earthscan
- Birch E.L., Wachter S.M. (2006) Rebuilding urban places after disaster, Pennsylvania, Pennsylvania Press
- Boshier L. (2008) Hazards and the Built environment, New York: Routledge
- Bucx T., Marchand M., Makaske B., van de Guchte C. (2011), Deltas in Times of Climate Change. Comparative assessment of the vulnerability and resilience of 10 deltas, Delta-Alliance report nr 1
- Climate Adaptation Lab (2008), Inventory of Water Related Designs, (studio booklet Delta-Interventions, see www.deltainterventions.com)
- Climate Adaptation Lab (2009), International Delta Analysis and pavilion design, (studio booklet Delta-Interventions, see www.deltainterventions.com)
- Climate Adaptation Lab (2009), Research and Design on the Delta areas of the Po (I) and the Rhine (NL), (studio booklet Delta-Interventions, see www.deltainterventions.com)

- Costanza. R. e.a. (1997), The value of the world's ecosystem services and natural capital, in Nature; Vol. 387 pp. 253-260
- Futagawa Y., Turnbull. Jr. W (1970) Globa Architecture: Sea Ranch, California 1966, Tokyo: A.D.A. Edita Tokyo Co.
- Guarino L., Guarino D. (2008) Images of America Broad Channel, Charleston: Arcadia Publishing
- Hooimeijer F., H. Meyer, A. Nienhuis (2005), Atlas of Dutch Water Cities, Amsterdam: SUN
- Lowther C., Schultz S. (2008) Beachlife: Architecture and Interior Design at the Seaside, Amsterdam: Frame publishers
- McHarg I., 1969, Design with Nature, New York: The Natural History Press
- Nillesen A.L., J. Singelenberg (2011) Amphibious Housing in the Netherlands, Rotterdam: NAI Publishers
- Olthuis K., Keuning D. (2010) Float! Building on Water to Combat Urban Congestion and Climate Change, Amsterdam: Frame publishers
- Pols L., P. Kronberger, N. Pieterse, J. Tennekes (2007), Overstromingsrisico als ruimtelijke opgave, Rotterdam: NAI Publishers
- Roaf S., Crichton D., Nicol F. (2005) Adapting Buildings and Cities for Climate Change, Oxford: Architectural press
- Ryan, Z. (2010) Building with water, Basel: Birkhauser GmbH
- Saeijs H. (2008), Turning the Tide. Essays on Dutch ways with water, Delft: VSSD
- Zaretsky M. (2007) Precedents in zero-energy design, New York: Routledge

Reflection

As the impact of climate change on our living environment becomes more and more clear over time and most likely will be of growing influence in many professions it is it highly relevant for me, as an architecture student, to gain understanding and position in this process.

Broad Channel is of course not the only neighbourhood facing a high risk of flooding. The neighbourhoods in the direct surrounding will most likely at the same risk in the near future, taking sea level rise and more extreme weather in account. These changes in climate are already and will eventually influence more deltas and coastal regions. More and more areas that never faced water hazards will have to deal with it. Therefor it is beneficial to look at projects and places that are already dealing with these changing conditions. And to reflect on how sustainable and durable the relation to water is shaped.

This project is a reaction on this knowledge. Based on literature, case studies and local characteristics a design is elaborated as an answer to the stated problem. The used principles are not incidental but a contribution to the ongoing discussion and development on the way we live in relation to water. Especially how adaption can be achieved in small steps, even before the area is facing a direct treat. Not only does it create awareness in an early stage it as well influences the way we think and make our choices for the future.

Studio planning

(After P1)

<u>Week 2.1</u>	ELABORATION OF INDIVIDUAL DESIGN CONCEPT <i>Evaluation of problem statement and goal</i>
<u>Week 2.2</u>	ELABORATION OF INDIVIDUAL DESIGN CONCEPT <i>Analysis of chosen location</i>
<u>Week 2.3</u>	ELABORATION OF INDIVIDUAL DESIGN CONCEPT <i>Implementation of the project on neighbourhood scale</i>
<u>Week 2.4</u>	ELABORATION OF INDIVIDUAL DESIGN CONCEPT <i>Program and relation</i>
<u>Week 2.5</u>	ELABORATION OF INDIVIDUAL DESIGN CONCEPT <i>References and design principles</i>
<u>Week 2.6</u>	ELABORATION OF INDIVIDUAL DESIGN CONCEPT <i>preparation Graduation Plan , mass studies</i>
<u>Week 2.7</u>	ELABORATION OF INDIVIDUAL DESIGN CONCEPT <i>check Graduation Plan, drawings 1:200</i>
<u>Week 2.8</u>	CONTINUE WITH INDIVIDUAL DESIGN CONCEPT <i>hand in final Graduation Plan , preparation P2</i>
<u>Week 2.9</u>	P2 PRESENTATION DESIGN CONCEPT
<u>Week 3.1</u>	Evaluation of design and research; definition of additional studies, necessary for the final design stage
<u>Week 3.2-3.6</u>	Development of design, in relation to: - volumetric studies, internal relations and relation landscape - materialization, structure and water related design Parallel additional research specific to the design; Extra consults re: structure, climate design etc. with experts, if applicable
<u>Week 3.7-3.8</u>	P3 PRESENTATION FIRST COMPLETE DESIGN PRESENTATION
<u>Week 3.9-4.3</u>	Focus on elaboration of design, esp. interior and facade design with regard to materialization, structure and climate design
<u>Week 4.4-4.5</u>	P4 PRESENTATION DEFINITIVE DESIGN PRESENTATION At the P4 presentations all aspects of the graduation project need to be finished, and communicated by way of drawings and models, plus report If applicable, identification of minor aspects to be elaborated for the ultimate P5 presentations. <i>hand in Reflection</i>
<u>Week 4.6-4.9</u>	P5 PREPARATIONS
<u>Week 4.10-4.11</u>	P5 PRESENTATION CONCLUSIVE PUBLIC PRESENTATION OF GRADUATION PROJECT