Reflection P4
Living Over The Sea – A Barrier Building Complex
Delta Interventions Studio
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Aspect 1: The relationship between the research and design.

The research includes four parts:

a. Topology studies and mappings:

Through the tracing of the maps and the geographic information on the maps, the designer is able to have an intensive understanding of the area which the design will be situated. Together with the mappings, spacial information has also been observed both in digital and realistic perspectives in the forms of using GIS and doing field trips.

Fig.1 By author, Source: FEMA
b. **Comparison between American and Dutch risk reduction approaches:**

The designer has written a research paper about the different approaches these two countries have been used to reduce the flood risks. The comparison includes literature studies and case studies both on the general level and some specific fields not only in architectural, urbanism and engineering aspects. As well as a reflection to the *Rebuild by Design* competition, the designer is also focusing on the proposals which were proposed by Dutch teams on the New York cases.

In American point of view, the added value of the whole project is reflected by the integration of the civil engineering, the governmental efforts, the regional solution rather than a local one, and an artistic architectural perspective to improve the environment. On the other hand, the Dutch layering approach is refined by the Americans with rational calculation of the cost analysis and a democratic process to make the project fall into place, with everyone’s interests approved.

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**Recovery**
- Rebuild and repair (national disaster fund)
- Rebuild (flood insurance) and repair (FEMA)
- Federal grants

**Adaptation**
- Improved flood protection
- Wet proofing and dry proofing of buildings
- Levees

**Transformation**
- Room for the river
- Managed retreat
- Land acquisitions
- Buy outs
- Deed restrictions

*Fig.2 Flood risk management and resilience toolbox, Source: Veelen. P*
c. **Case studies of pictures and drawings:**

This is for having a general impression and intention for the design both in visual and sensual aspect. Having picked some specific points out of the pictures and the drawings, the designer could have some standards and qualities in her mind, to which she wants to reach in the design.

d. **Typology studies of inhabitable bridges:**

In this research the designer took an inner look of the book “*Living bridges*” and added her own evaluations of the whole history of the inhabitable bridges from Medieval to contemporary. By deconstructing the bridges into five elements (infrastructure, path, platform, dwelling and monument), the designer concluded the development trend of the inhabitable bridges and would reconstruct these five elements to contribute to the design.

![Image of typology studies](image)

**Fig. 3** Two pages from the typology studies by author, Source: *Living Bridges*
Aspect 2: The relationship between the theme of the studio and the subject study chosen by the student within this framework.

*Delta Interventions Studio* is a multi-discipline studio which is focusing on the water-related issues on the delta lands. As an architecture student, the designer would like not to be limited by the architectural perspective, but to have a wider view and comprehensive considerations to solve the water-related problems and improve the water-related qualities. In the project it is embodied by the combination of civil engineering proposal and architectural design. The barrier building complex, which is the theme chosen by the designer, is based on and elaborated from a barrier structure. The barrier building is trying to have a good combination of the rational and poetical aspects, in the forms of having a good transition from barrier-bridge-building-nature. The design decisions of the architecture were influenced by the knowledge from both sides, sometimes conflicting sometimes inspiring, and finally have reached the harmony point. In this case, the project studies also includes literature researches of flood risks reductions, urbanism design for future flood zones, civil engineering choices for the infrastructure systems, and of course enormous numbers of architecture possibility studies which are related to the water, for example beach houses, inhabitable bridges, waterfront parks, floating structures, hydraulic power plants, storm and surge proof practices etc.

![Fig.4 The four aspects of the project by author](image-url)
**Aspect 3:** The relationship between the methodical line of approach of the studio and the method chosen by the student in this framework

As a multi-discipline studio, *Delta Interventions Studio* firstly uses the *Dutch layering* approach as an urbanism-based site analysis. The approach layered the map into three or more layers such as nature, infrastructure and building plots. The designer followed the approach and thus developed the multi-layer design including the considerations from barrier-bridge-building-nature.

*Fig. 5 Flood maps of NYC overlayed by author, Source: FEMA*

*Water-related design* course worked as a reminder to think over how the water issue could contribute to the design, how to translate those aesthetic, functional and technical requirements into design tools. For example in this project the designer used several water altitude line such as the 100 year and 500 year flood line, the daily and monthly tidal line to control the height of the section of the buildings.
Other supplementary courses of the studio also helped students to develop research questions through the literature studies and mappings.

Fig. 6 Diagram of the section control lines by author
Aspect 4: The relationship between the project and the wider social context

This barrier building complex is located on the new inlet of Rockaway peninsula in south New York. The area is very vulnerable to the storm surges and floods due to its location and its geological features. The area is relatively poor with insufficient flood safety supports and thus was one of the biggest victims after the Sandy Storm. The proposal the designer is doing right now is one of the solutions to improve the safety of the coastal line alone the beaches and its extension to the bridges and communities. Furthermore because of its architectural interventions, this proposal is trying to add value to the barrier and to create new possibilities for the future development of the area. For example the barrier is combined with the dwellings, commercial areas, water-front public spaces to activate the social activities and economy re-prosperity.

Fig. 7 Relevant aspects, Source: Delta Interventions Studio Booklet