



Reflection paper

Starting the graduation process, and more specifically the Architectural Engineering studio, I had to come up with a subject for my research and design that would interest me enough to work on for an entire year. I had certain interests, such as multifunctional design or quick assembly or demountable architecture. However, these subjects were broad and not specific to a certain type of building. What eventually led me to my research subject and design topic was mostly personal experience. The preceding summer had been very dry and had resulted in water shortages all around the country. Additionally, there were problems with water quality. This brought me to the topic of water.

Research into the location, the Marineterrein, and what it was lacking, and my personal love of sports were what brought me to my design topic: creating a sports complex, or actually a sports route across the entire terrain. My final thematic research question was:

*"How can water be used in an innovative way to contribute to the sustainability of a building but also help boost the image of water and the experience of the location or building that the solution is applied to?"*

It was an interesting subject. However, perhaps I developed my research question too much alongside the design topic, instead of properly combining them. As water was my first idea, and this seemed like an interesting topic, I was hesitant to let go of it once I had decided to design a sports route. Because water is so present at the Marineterrein the results of the research were still relevant for the design. Implementing certain solutions and ideas found in the research had the potential to improve the design. However, this implementation took place more in the public space rather than in the building itself. For instance, a water spraying system has been included in the portals on the running route, as to provide (evaporative) cooling for runners in summer. In the public spaces, water is present as an interactive element of playfulness (for children), as an element to create places where people can gather or relax, and the route interacts with water in different ways. In some places the route lowers to the water level, so people can run practically next to the water, in another place a shortcut goes straight across the water.

Despite its eventual usefulness, the design inspiration found in the research was not specific to sports buildings and could be used for other types of buildings as well. What could have strengthened the relationship between research and design was if the research had been explicitly focussed on the relationship between a subject and sports buildings or the influence of the subject on them. Now, the found principles and the design solutions were not vital to creating a well-functioning and pleasant sports building. Therefore they were applied in the later stages of the design, more as an addition to it than an intrinsic part of it.

Aside from my thematic research, I analysed several case studies, which can be described as my preliminary design research. This happened in a structured way by collecting similar information from each reference project: sustainable solutions, design solutions and sports solutions. Aside from that, I studied their floor plans and for each of them, attempted to catch their essence in a schematic drawing. As such, I was gathering solutions and guidelines for creating an innovative sports complex that responds to the *current* needs in sports. The results of this research were more immediately a part of the design (process) and possibly would have better served as the thematic research.

A reason that it was not, could be found in the focus of the studio. The projects of the Architectural Engineering studio that I personally have encountered often focussed on the more technical aspects of architecture. Researching sports design solutions, ways of

encouraging interaction and integrating sports in the built environment, seemed to diverge too far from this main focus. With water, a more technical approach was possible. Initially, I thought about studying ways of storing water in a building or a façade. In the end, after refining the thematic research topic, it became less technical nevertheless.

Reviewing the topic in a bigger scope, that of the master track Architecture, it becomes more relevant. In my experience, sports buildings were not often given much design attention when being built, until fairly recently. When growing up, the sports halls and football clubhouses I went to were simple, warehouse-like structures or copies of the same plain club houses over and over again. Knowledge regarding sports building design and specifically responding to new trends and demands in sports could thus be quite useful. Since many reference projects were studied in different places, the solutions should not be applicable in merely one place but more broadly. The collection of the guidelines in a schematic overview should also allow easy implementation as a tool to provide inspiration.

Additionally, looking at water in the way that my thematic research did, has not happened earlier in my studies. Water tended to be something purely functional and less of a design tool. By looking at quite varying uses of water in the built environment, I learned more about how you can use it to improve the quality and experience of a design, aside from using it in the most sustainable way. As such, the research has made me rethink the use of water in designs and architecture.

Scientifically, the research is likely not to be particularly relevant. The result of the thematic research was more of an essay that aims to inspire and provide suggestions or solutions. It is less built on facts and experiments, than it is on observations and on a new combining of information and studied reference projects.

I think the method was an appropriate way of finding and offering inspiration and stimulating creative solutions based on existing principles and examples. However, for proving or finding a (new) technical principle, it lacked scientific basis.

The tools, or schematic overview that was a result of the research, could perhaps be helpful for students or even designers, to stimulate creative use of water in the built environment.

While researching the Marineterrein and developments in sports, my objective changed from designing a single sports building to multiple ones, connected by a sports route through the entire area. Initially, the plan was to develop one of these buildings more in depth after the P2. However, at the presentation my tutors encouraged me to focus more on the ensemble. That meant that I had to give more attention to the route itself: what it would look like, where exactly it would be, how it would connect to the sports buildings along it, and other exercise and playing related places that I created on the Marineterrein.

The new assignment that focussed not just on architecture but also on urban and landscape design asked for a different approach than I was used to. I worked on several scales simultaneously. 1:1000 gave an overview of the area that was perfect for deciding where the route would go and where other places of interest and design interventions would be located. A model on this scale allowed me to make quick changes and was ideal for a good spatial impression and overview. I also made several models in the scales 1:200, 1:100, 1:50 and 1:20 to study the look of the route, elements on it, other built elements along the route and the portals on it, in more detail. Models worked well to immediately get a feeling of the route. Sketching over photos of them enabled me to try out different design variations. However, they were also fairly time consuming, so perhaps sometimes a 3D model in the computer would have been quicker and yielded the same result. When designing the entrance of the large sports

building I was again thinking of making a model but on advice of my design tutor, I did this on the computer instead of in a physical model. That turned out wise at that stage, because it provided a starting point for a 3D model that I could use to extract some perspective views from for my presentation, and to give a sense of the architecture and experience of the building.

Since the scope was bigger than usual, I had to make sure to divide my time and attention well between the different aspects of the design: the route, the public spaces, the smaller built elements and the large sports building. It was tempting to focus on only one of these areas at a time and keep working on that same one for a long time. Therefore, my tutors had to remind me occasionally to switch back to a different scale and not to look at just one single element of the masterplan but also at how all the elements would come together.

In the end, it was a learning process to work with a different scope of design than I was used to and that I planned on working with at the start of my graduation. The thematic research could have been more focussed on sports buildings, which could have made it more relevant to and more present in the project. The case studies of reference projects could perhaps have been expanded, since they provided useful design input and guidelines for sports buildings and sports environments.