Reflection on research, 30-6-2015

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The used approach for this research seems to be successful. The research prior to the design phase let to a useful guidance to design a new connection. Mapping all options and selecting the best one, for every important design choice, results in a clear design process. It also provides sort of a safety net if the chosen option appears to be not the best one.

Constructing and testing physical prototypes of the final design is very valuable. It not only provides useful data for validating analytical and numerical calculations for example, but it also very informative. It bridges the gap between theory and practice. I am very glad I had the opportunity to construct and test these models. Every student should have access to a proper (metal) workshop. It is very disappointing the faculty of architecture has cut back on this facility.

A successful approach does not mean the process was perfect. Looking back at the process, I would change some aspects if I would do it again. The most important points for improvement are described below.

Determining a more detailed research plan at the start. A research plan which exactly describes what variables will be neglected, and what results are demanded at the end of the research, etc. It gives more guidance during the research, to prevent paying too much attention to unimportant aspects, and too less attention to important aspects.

Dare to take decisions and stick to these, even if these decisions could let to unsatisfactory results. The time is limited, so it is not possible to postpone all decisions till you know if it is the right decision. Negative results are also results, and it does not affect the quality of your research.

Furthermore, it would have been better to write all research and decisions down properly, every now and then. It is sometimes very hard to write down something you thought of a year ago. Despite the fact I like doing research more than writing it down, it would be wise to schedule a day a week for example, to just write down what I am working at.

Some other required aspect for the reflection are discussed below.

Aspect 1     The relationship between research and design

In this project, the relationship between research and design was very close. Prior to the design phase, research is done to map all possible connections. During the design phase, most of the choices, if not all, are based on research. Also after the design phase, research is done to verify the expected performance, by physical testing of prototypes. As a result, this research not only provides theoretical information, but it also provides actual data. This can be very useful for possible future research.
Aspect 2  The relationship between the theme of the graduation lab and the subject/case study chosen by the student within this framework (location/object).

The main focus within the building technology track is about the realization of a certain concept. This concept can be a design, idea, desire, requirement, etc. The origin of this concept, for example an aesthetical, social or sustainable motive, is the main focus within the architecture track. This track deals with the ‘what?’ and ‘why?’ of a concept. The origin of the concept is often not that important within the building technology track. It is about the ‘how?’, how to realize the concept.

My project is based on the concept of a transparent connection between glass segments. It is not about the reason for this concept, but it is about how to realize it. From this point of view, the project fits perfectly within the building technology track.

Aspect 3  The relationship between the methodical line of approach of the graduation lab and the method chosen by the student in this framework

A common methodical approach, to answer the question ‘how?’, is to map multiple options and select the best one. These options could be found by searching for similar situations and see how others dealt with it. Or by own ideas how it should be done. The selection is done based on criteria. Often analytical or numerical models are used to check which option performs best on a certain criteria.

During my research, I first focused on similar connections. Based on these findings, I came up with three concepts and selected the best one, based on several criteria. During the elaboration of the chosen concept I used this method, of mapping the possibilities and selecting the best one, multiple times.

Aspect 4  The relationship between the project and the wider social context.

This research focused on a highly transparent connection for segmented beams. Such a connection would make segmented beams more attractive. Segmented beams have many advantages, compared with continuous and splice laminated beams. They are easier to produce and easier to transport, which results in lower costs and a shorter production time. Because more contractors are able to produce these segments, it could stimulate the local economy and reduce the distance of transport. Less transport can result in financial and sustainable benefits.

Segmented beams also offer the opportunity to use more efficient geometries. It makes larger structures possible, which is favorable from an architectural point of view. It is also creates the possibility to build equal sized structures with less material, which is favorable from a financial and sustainable point of view.