P4 Reflection

Relationship between research and design

For this project, the aspect of research has been very important to the design, much more than any design project before. The extensive research into a specific subject, decentralized ventilation in this case, has granted much more insight into the existing solutions and situation. Researching ran parallel to designing for the most part of the project, which created continues insight and inspiration for design concepts and ideas that wouldn’t work or turned out to be in existence already. Even though it was hard to come up with own ideas, knowing how much already exists, in the end the research background provided valuable information and feedback on the feasibility of design concepts.

Even though the original planning was to start with research, followed by design, the two have been integrated into each other. In the same way that research provided inspiration and feedback for the design, provided the design new subjects for further research.

Relationship between the theme of the graduation lab and the chosen subject

The Sustainable design and graduation study studio aims for the more technical side of building design and focusses more on (the integration of:) Façade, Structure and Climate design. For this subject, the initial focus would be on climatic design, but façade design grew more important over the course of the project, because this was for a large part important for the feasibility of the design.

Analysis of calculation-models provided a more technical approach and more insight into the quality of designs.

Relationship between methodical line of approach of the graduation lab and the chosen method

I’m not exactly sure about the exact line of approach of the studio, but reports provided by tutors and from external sources provided a valuable guide in terms of what a proper research (of a new ventilation concept) should include and in what order. Even though it was somewhat troublesome to find an exact subject in the beginning and it took quite a while to actually get started, eventually the approach to the project started to work out. In retrospect it would have been much easier to have a clearly defined subject and research at the start of the project, because now the first months have been more generic research, into ventilation in general, which lead to dead ends and was sometimes somewhat pointless because no clear subject had been defined. Eventually this landed me at an interesting, relevant topic, but this time could have been spend on more specific research.
Relationship between the project and the wider social context

The topic of natural and decentralised ventilation methods is quite relevant at the moment. The central mechanical ventilation concept is no longer the only option. Other approaches like naturally ventilated schools, houses with hybrid ventilation instead of balanced mechanical ventilation and decentralized units like the Climarad are rising in popularity. There is an ongoing discussion into the benefits and disadvantages of natural, hybrid, mechanical and decentralized ventilation and climate systems. Even though mechanical systems have long been the standard because of their monopoly on heat recovery and their reliability, heat recovery for naturally ventilated (with mechanical extraction) buildings is now possible as well. New developments like regulated vents provide more comfort for natural systems as well. All of this development is, at least partially, caused by the sick building syndrome and other possible negative effects of fully mechanical systems, which led to the search for simpler, robust solutions.

Possible (sustainable) advantages of these developments include the following:

- Reduced energy costs by reducing fan power and heating and cooling costs, by providing local/personal adjustments to the climate.
- Reduced building costs and material use by eliminating the need for ducts, plant rooms, increased building height etc.
- Improved user satisfaction by allowing users to influence their climate
- Improved air quality by preventing the need for ducts, filters etc., and also making maintenance easier.