Reflection

Now that the final part of my graduation project has commenced, I will briefly reflect on my resulting preliminary design. I will mainly focus on the relationship between my research and the design and how my design theme relates to the graduation lab of Architectural Engineering and its line of approach.

Research and design

One main criticism on my P2 presentation was the fact that, while the research I did on data center technology and its applications for architectural waste heat recovery was satisfying, the actual architectural implementation was still lacking. This issue has been a reoccurring theme in the problems I encountered during the design phase of my project. Since data centers themselves can be seen more as industrial buildings - like power plants or ‘big machines’ - as opposed to architectural structures for people to reside in, the design guidelines that resulted from my research entailed that the data center itself should mostly be a self-contained, secured entity: only its resulting ‘flows’ (waste heat) would be visible and experienced by the users around it. This finding however, provided little in the way of an architectural expression and implementation.

After my P2 presentation I tried to counteract this problem by developing and designing a program to complement the data center to ‘fill’ the van Gendthallen. I came up with the integration of a ‘conference center and hotel program’ that could fully leverage the large amounts of waste heat from the data center. This exercise was very demanding because of the complexities that result from the renovation of architectural heritage in general, and resulted in me losing track of my original concept (which was made clear during my P3).

To radically simplify the design, I decided to scrap the ‘hotel’ part of the program, because the only way it could be implemented – along the façade – gravelly interfered with my concept to maintain and strengthen the current building’s character. Furthermore, this ‘sideway’ exercise showed that the resulting design would be way too complex to develop into a satisfying result in a few weeks.

The simplification allowed me to focus more on the cooperation between the data center and the architectural program surrounding it and a more convincing use – and reuse – of the van Gendthallen and their architectural qualities and limitations. The resulting design is simple in
concept, but still very complex in its execution due to the integration of the very elaborate climate system required to circulate enough air for heating (and cooling) the whole building with the waste heat (and cooling installations) of the data center.

In hindsight it seems to me that an architectural integration of a data center in itself (by creating a wholly new hybrid data center-office building for example) - without the extra complications of revitalizing architectural heritage – would have resulted in a more focused research and design. AFTER such an exercise, the implementation of a data center in an existing building like the van Gendthallen could be tackled. The design goal to execute both an architectural implementation of the data center typology AND the complex redevelopment of industrial architectural heritage turned out to be a bit too much to handle in the limited time of the graduation project. This resulted in a project that, at times, lacked focus and did not always allow for enough time to develop the smaller intricacies of the design.

Relation to architectural engineering

The lack of ‘architectural implementation’ present at the P2 and the following period can also be ascribed to the choice of my ‘thematic focus’. The studio allowed for several themes to focus on for the research: make, flow and climate. Because of the choice for the data center waste heat recovery, ‘climate’ was a logical fit for my research. Of the three themes however, research in the two fields of ‘climate’ and ‘flow’ does not inherently result in a large palette of ‘design-’ or ‘spatially-guiding’ variables and handles, as was the case in my research. The small amount of results of my research (that were not purely climate installation-related) provided me with little direction for the actual structural-architectural design (something a thematic ‘make-research’ more easily provides). As mentioned before, the van Gendthallen themselves provided a huge challenge as well with regards to finding a suitable architectural program and its implementation.

The lack of focus resulting from the data center research and the complexities provided by the van Gendthallen resulted in a disconnect between the two that took a long time to resolve. While the endeavor of creating a conference center and hotel in the van Gendthallen provided me with the architectural input and direction that I so desperately needed, it came somewhat late in the graduation trajectory. On top of that, the Architectural Engineering studio requires of its students to develop their design into much detail. Here again, the findings of my thematic research did not provide me with many guidelines or direction, because of its inherent ‘climate-installation-relatedness’. The preliminary design therefore, is quite detailed in its climate concept and its integration with the heated raised floor, but it somewhat overshadows the structural-technical and aesthetic-architectural detailing of the project.

It can be concluded that the choice for the implementation of a data center into existing architectural heritage certainly has the potential for a very interesting resulting project. The two-fold nature of the design however, may have had a scope that was too big for this graduation project to be developed into an equal amount of detail on all levels.