

The Ladder

a world within a world

Reflection
Graduation studio Heritage and Architecture, TU Delft

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1. STATEMENT

Humanity's impact on Earth's geology is so crucial that Holocene, the current Geological epoch, is proposed to be replaced by a new one called Anthropocene, from the Greek word «Anthropos» for human. The Anthropocene stands for the (consciousness of) our impact on the planet Earth. We live in a time where our relationship with nature is questionable, are we part of nature or do we only exploit it?

To understand the Anthropocene better in its influence of human impact on earth, we have to understand our actions of the past. Here we can look into Jason Moore's proposal of an alternative name for this epoch: the Capitalocene, in which capitalism is at the basis of the adaption of nature by humans and especially the consuming of Earth's resources. While the theory of the Anthropocene focuses on modernity in the past two centuries: "industrial society, industrial civilisation and industrial capitalism", the argument of the Capitalocene starts earlier with the "...remarkable remaking of land and labour beginning in the long sixteenth century, ca. 1450-1640".¹ Moore argues that it is not the invention of the steam engine that made humans change the planet for the first time, but that already from 1450 a new landscape exploiting started. To explain this, Moore introduces the concept of Cheap Nature, as a the "unpaid work" in capitalism: "It was "cheap" in a specific sense, deploying the capacities of capital, empire, and science to appropriate the unpaid work/energy of global natures within reach of capitalist power."² Cheap Nature includes beside the resources of the earth, also land and the labour of people that can be exploit.³ Every step in the history of capitalist mechanization used Cheap Nature to accelerate, from the plantation systems to the steam engines and the assembly lines.⁴

As designers of the future we must reflect on this notion, take the responsibility to place our actions between the existing and the future. We have had centuries of exploiting resources in the capitalistic system, now it is time to show that design and architecture can as well reduce the human impact and especially recycle what is now left unused. And that is also my interpretation of the graduation studio I followed this past year, Heritage & architecture, which focusses on preservation and renewal in existing architecture; transforming spatial objects of history in a way that they can be used again in the future but keep the history readable at the same time.

- 1 Moore, The Rise of Cheap Nature, in Moore, et al., 2016, p. 94
- 2 Ibid. p. 88
- 3 Ibid. p. 91.
- 4 Ibid. p. 2

2. INTRODUCTION GRADUATION TOPIC

This graduation research is done at the studio Heritage & Architecture (H&A), which is part of the master track Architecture of the Technical University of Delft and focusses on preservation and renewal in existing architecture. This reflection paper is part of the graduation master thesis and aims to give an overview of the overall approach, the relation between design and research, and the societal and scientific relevance of the graduation project.

The topic of the graduation studio is the Hembrug area, a former military production site located South of Zaandam, Netherlands. Within the fortification “de stelling van Amsterdam” the Hembrug site functioned as the central point where weapons and ammunition were not only produced, but also tested. With the military leaving the site in 2000 it has become a large area to redevelop in the metropolitan area of Amsterdam. The object of the graduation is a building ensemble named the Ladder. The Ladder consists of 5 factory buildings, with a total floor surface of 7400 m², located in the South-East part of the military terrain. In this building, the shells of large grenades were produced. Notable is the fact that buildings in this ensemble are built within a span of 50 years (1926-1969).

The current trend in the development of the industrial harbour areas along the IJ and the Noordzeekanaal is to transform into living and working areas, to expand the metropolitan area of Amsterdam. This means that the overall inquiry of the project is that the area needs to be redeveloped, but the buildings, with their specific cultural historic values, are not directly in a usable state. The result of this graduation project is the architectural elaboration of the building ensemble The Ladder in relation to the cultural historical and social context. The new function of the ensemble will be a sport village, including housing and a public swimming pool.

Main question of the graduation research: how can the Ladder be transformed to a neighbourhood reinforcing complex but keep its cultural historic and atmospheric values?



figure 1, contrast between nature and industrial buildings at the Hembrug site, foto by author

3. RESEARCH AND DESIGN

In this paragraph we focus on the different methods used to investigate and substantiate in order to come to the final design. To clarify this process, it is made visible in a diagram (Fig.2). This diagram is explicitly about the order of substantiation and not directly the order of process. This will be explained further in this paragraph, where the different parts of research, progress and design within the graduation process will be highlighted.

3.1 ANALYSIS OF THE HISTORY AND EXISTING SITUATION

Because the graduation project of H&A starts with an existing object, site and context, with a proposed problem, the method of the studio is to start with an analysis of the architectural, technical and historical/cultural aspects as the body of knowledge for the graduation studio. This research is scientifically done, based on Chrono-mapping, value mapping, literature and archive investigation, supervised by teachers specialized in the topics of H&A. This practical & archive research is focused on specific project related investigations, to find out how and why things are made. On the level of the site for example, with my analysis group we found in the archives in which order and direction the buildings are developed. This gave an enormous input for the understanding of the history. One of the most interesting findings was the research into a unique type of concrete roof structure. This required an extensive archive and literature search to find the origin (Germany) and name (prestressed concrete hyperbolic paraboloid shell) of this structure type. The result is a set of conclusions that showed why this structure has certain values and why it needs to be preserved.

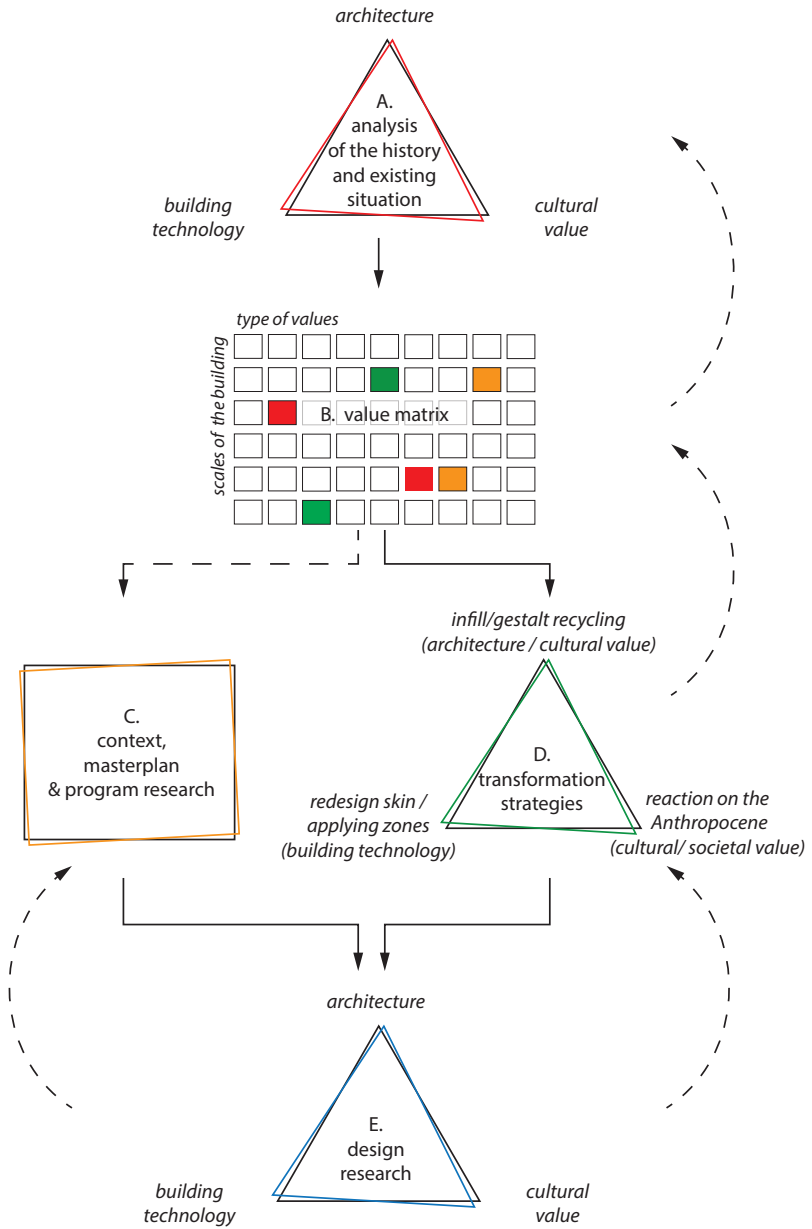
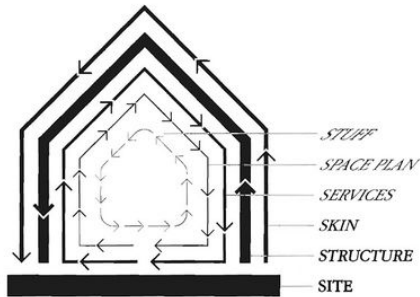


figure 2, order of substantiation of the research

3.2 VALUE MATRIX

Just as these concrete shell structure, a lot of other values of the building ensemble can be taken from the analysis. To map and compare these values, the value matrix is used. This matrix is developed by the H&A studio and described by Marieke Kuipers and Wessel de Jonge in the book 'Designing from Heritage' (2017). The value matrix is a tool to discuss and compare. Important is that it's filled in by a team of "experts", to give it well-founded, scientific based and discussed valuation. The values in the matrix are divided by different types of values (monumental, historic, rarity etc.) and scales of the building (from the site to the space plan). The latter is derived from the "shearing layers of change", a scheme of different layers of a building by Steward Brand. I believe the value matrix is a helpful tool to conclude the analysis, to separate values from each other and to transfer the results of the investigation to others. Later, in the research phase it is a guideline to explain your interventions for the building. For example, in my plan I demolish a part of the façade of the south side, so an older façade (and the only one decorated) becomes visible again, and visitor/ user of the building experiences more of the different historical layers.



SHEARING LAYERS OF CHANGE. Because of the different rates of change of its components, a building is always tearing itself apart.

figure 3, shearing layers of change by Steward Brand (Brand, 1994, p. 12-23)

3.3 TRANSFORMATION STRATEGIES

A transformation of a building can be done in many ways, from radical to modest, from focused on the new to focused on the old. Therefore, it is important to set and develop your position as architect, not only on the design, the architectural level, but as well on the cultural and technical levels of the project. The first intent for these transformation strategies was introduced during the P2 presentation; how I'm going to develop the transformation? And it is not that the strategies were set from the moment I introduced them; they developed overtime and became better to explain at presentations and improved to use in the design process.

During the writing of my literature thesis in the first year of the master, I gained interest in the concept of the Anthropocene, see the statement in the beginning of this paper. I found this concept very fitting with the contrast visible between nature present and large, weapon making, industries at the Hembrug site. That's why I choose to make it one of the transformation strategies focused on the cultural perception between history and future; The reaction on the Anthropocene, with as input for the transformation: reduce the human impact and restore the contact between nature and humans. Literature research is needed to reflect with the project on the social and scientific framework. By reading about the Anthropocene and about the reuse of buildings, I formed my own statement on how the project could fit in the current society.

The second transformation strategy appeared from on one hand the fascination for the building as it is in its current state; empty, monumental, open and closed at the same time, almost with a museum atmosphere. On the other hand, while doing the historical analysis, I gained interest in how the building worked in the past, how it was filled in with different machines in every space, and especially historic photos showed these almost sculptural machines. This made me think about on which level of the building the transformation is being done, related to the "shearing layers of change" of Steward Brand. So, this more architectural strategy, named Infill & gestalt recycling; showing how the building worked in a spatial way in the past, to the future users, with new functions that fit in the old skin. To make the translation from research to design on this level, reference project investigation was important to expand my design "language". As a student you have to explore your options as a designer. Reference projects

can also help to explain your thoughts to an audience. I really needed to use this to show my ideas on the topic of connecting old and new building elements against each other, instead of making a contrast.

The last strategy, Redesign skin & applying zones, is a continuation of this thinking in building layers; which layers must be adapted, and which kind of climate zones are necessary to make the building usable for the new functions and reduce the impact of the new functions. We can see this as a more technical strategy, about exchanging energy between functions and between periods of time, but as well as looking into the qualities of spaces needed for human usage.

Together the transformation strategies form the guideline of the design. During the developing of these strategies, the design process continued; they developed together. Donald Schön described the process of designing as “reflection in action”, in which the designer has a reflecting conversation with the design tools used. Design tools can vary from sketching, to model building to design with the computer, they all have they all have advantages and disadvantages. During the designing the designer acts and reflects at the same time. The designer becomes a researcher in the practice context and he or she “does not separate thinking from doing” ⁵. I studied this topic (in relation to the notion of the Tectonics by Gottfried Semper) more comprehensive in the Position Paper from the course on Research Methods, which is attached to the final rapport. We can state that research and design cannot be seen separate from one another, and I believe that it is important as designer to understand where your inspiration and knowledge is coming from; if you get stuck in a design problem, you must know which other sources other than yourself you can consult.

5 Schön, 1983, p. 68

4. REFLECTION ON APPROACH & CONTINUATION

The Ladder is large complex, including different buildings, numerous structures, many atmospheres and an enormous potential. To steer this project in the right direction a good sense on what I was doing was necessary and I believe that the forming the transformation strategies was the biggest step in the design process I have made. Even though they were just starting points during the P2 presentation, I noticed that it really helped me to explain the “ingredients” of the project. Now at the P4 phase, these three strategies are still relevant to explain the story (the coat rack) behind the design choices I made.

Because the ensemble is too large to work out everything in detail, I felt multiple times insecure about how to approach the different buildings within the Ladder; should I focus on the connection and sequence through the ensemble by making more general solutions or should I express the quality of the different atmospheres by designing a different solution for each building? I was afraid about the consequence of that the latter, that it would cost more time to design and draw everything. On this topic I got some positive feedback from my mentors, what really helped to see that it is not about the quantity but about the quality of the project and that diversity, that every building has its own approach and design, can be a good quality, as long as the story behind it is solid. And that is something I really learned in the past months, to focus more extensive on the story and thereby providing quality to the elaboration.

During the preparation of the P3, P4 and this reflection I noticed that I have investigated a lot, but that not all can and have to be presented to transmit a solid story. The final ingredients of the project are now laying on the table. At the P4 presentation I let the audience taste the full dish, but the order and quantity of the ingredients can still be finetuned for the P5.

5. CONCLUSION

We live in an era where the consequences of our capitalistic system become more and more visible and more widely acknowledged. In the project the references to (the reaction on) the Anthropocene as I propose in form of an architectural design is not only focused on reducing human impact but can be found in-between the lines of history and future. To understand how we have become a planet changing species, we have to take notice of our actions from the past. Transformation of outdated and leftover buildings is a possibility to show the past and the options for the future by means of architecture. I transform the former grenade factory into a sport and housing centre for Hembrug area, where at the same time the new layer of interventions making the building usable again for the new neighbourhood and as well accentuate the former usage of the building and the history of the site.

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