Reflection report
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This reflection report is written at the end of the design process. It reflects on the product, the process and my planning in the content below:

I. Research and design
II. aE studio themes
III. Methods
IV. Project in broad context

I. RESEARCH AND DESIGN

Graduation plan - The first semester of the graduation year I conducted research on unused rooftops and their potential to become green roofs. In advance I wrote a graduation plan, describing my problem statement, objective, design- and research questions, methodology, planning and relevance. Despite the fact that I rewrote my graduation plan a few times, I mostly stayed with it throughout the year. I actively approached my initial research phase by contacting De Dakdokters, who have led me to my design location for example. This location is an actual problem area from the perspective of my topic, which made my project particularly interesting and meaningful. Contacting companies was part of my plan on how to gain knowledge. I figured experience of existing companies would be helpful, in order to answer my technical research questions.

Research to design - Describing my design programme was more difficult. During the research phase I focussed on the realization of green roofs so much, it took me quite long to formulate an architectural assignment, which is my final goal. Formulating this goal was the difficult transition from research to design. After P2 I had a hard time getting started, this pending phase was the most challenging of past year. When I noticed some others having the same problem I realized this was typical for the graduation process. On personal level I got to know myself (even more) as someone that tries to figure out everything before getting started. Therefore an iterative design process has always been difficult for me. This hard start of MSc4 is when I needed my guidance the most.

Implementing research - My techniques, namely unused rooftops and green roofs, got less important in the second semester (MSc4). My focus shifted and my assignment became an architectural/structural one. Green roofs became more and more subservient in the bigger whole, however, green was never out of my plan. It’s still a crucial part of the design that gives the roof village the desired character and quality that I was aiming for. Second, it was important to transform my focus in order to formulate an architectural design. I’m satisfied with the way my concept has worked out. Combining the green with the exploitation of functions in a generic way resulted in an interesting way of adding quality to the built environment.

Development of the concept - When I started out with unused city roofs as my technical fascination, I didn’t realise the potential of this topic for urban stratification, densification and greenification. However, the practical elaboration of my plan goes hand in hand with multiple unforeseen issues. At first, my biggest starting goal was to design a generic green roof structure, in order to make green roofs more accessible and affordable. It started out with a substructure, strong enough to span from column to column (or wall to wall) and carry the load of a decent roof garden. The biggest problem was the dependency on the existing building. Together with De Dakdokters I tried to find a generic solution that could handle all reasonable roof spans. When I focussed on attaching this substructure to the existing structure, the question was raised how far I could go with increasing the extra load.
Especially so when I decided to add a layer of programme to the plan (supermarket, restaurant or recreation spot). I ended up with extending the columns of an average office floor plan, in order to extend with multiple stories. Leaving alone the existing roof (like another floor) solved other problems as well, like avoiding exceptions on the roof surface. The roof surface is often used for climate installations, maintenance units or chimneys and I was trying to find a way around those.

**Context: the existing grid** - The column grid I’m depending on (Weesperstaete) is not consistent at all. In order to make optimal use of the expensive building ground in Amsterdam, the architect apparently chose an inconsistent grid over loss of square meters. At first I felt like this would make a generic system impossible. Then I assumed a lot of buildings have inconsistent grid sizes, so in fact this represents one of my project’s challenges.

**Generic vs. custom-made** – My final structure consists of steel columns, beams and crosses that form a stable frame. This frame can be filled with different elements. The frame itself, made out of steel, can differ in grid size for every other building, since steel has a wide range of spans it can cover. At last all ‘fillers’ for the frame are designed to be built in the same way, so they can be connected in the same way too. It’s up to me to clear out this catalogue of elements that can be part of the green roof village and design ways they can be built in adjustable ways. This is the strength of my plan. In order to do this I will schematize my ‘structural grammar’. The more generic this is, the better I succeeded for this part of my project.

**Economics** – Encountering all these problems during both the research and the design phase showed me the downsides of my plan as well. Solving problem by problem in order to make rooftop architecture, causes me to make compromises. This makes the design less efficient in the end, if the integration of all aspects is not closely guarded. I would need extra time to optimize the design, while incorporating the current knowledge. First, the way I’m constructing the village is quite an expensive solution in terms of construction. My external structure is meant to facilitate a generic way of filling it and the living units function apart from each other. Because they stand alone they have a relatively big façade surface, which is costly. Wiring and pipes need to be arranged for every unit apart and I use relatively expensive materials like polycarbonate façade panels, Lignatur floors (wooden hollow-core plates) and green roofs. Especially the exceptions through the plan ask for differing solutions, which is usually costly. In return I’m making double use of the expensive building ground, I aim to be energy neutral and try to build detachable. I haven’t calculated the economic balance between the pro’s and con’s, but my common sense tells me that my solution is rather expensive. Standardizing the units, the paths and green elements might stimulate the feasibility, as long as my plan is mass produced. The dwellings are exploitable, the location is quite favourable: it would be relevant to find out what the exploitation model for my plan would be.

**Social and political obstructions** – In my research paper I paid particular attention to social and political obstructions, because this seems to be a substantial part of the reason why rooftops aren’t exploited in the Netherlands. However, after gaining this knowledge it never really came back in my design. I guess my design needs to be convincing in itself, in order to become an incentive to do things differently in the future. The only way to make changes in existing systems, is to provide an attractive alternative. I believe this revolution can take place when rooftop solutions get more elaborate and I hope my project is part of the start of this.

**Architectural design** – With Architectural Engineering being a technical studio, I feel in place with my ambitions to design innovative buildings. The past years I’ve mostly tried to own technical knowledge on how to produce sustainable buildings, in terms of energy-neutral building and designs that integrate logistics, facilities and materials into something architectural. My fascination is built on these technical aspects, but my ambition for
architecture started with the desire to create beautiful spaces and atmospheres. It became my personal battle to combine architecture with techniques in the past years. Often I’m trying to solve a technical problem and adjust my architecture to that, but Monique made me realize I actually want to do this the other way around. As an architect I should be capable of creating beauty and know how to do this while solving the problems that come along with that. The set-up of this year, having different mentors for each aspect, helped me integrate them. Monique, being an architect and my first mentor, pushed me to investigate the shape, looks and feel of my design. This never fitted my wishes to calculate the load bearing capacity or make details of a lightweight and passive façade. Those were things I felt were more important and I was happy to go on search for feasibility and reality. The extra consults I received from Hans Daane (load bearing structures) made this part of the design even more important. Both Hans Daane and Maarten Meijs would help me with my plan, to make it the way I want it to look, but it remained difficult to formulate a desired image. It made me wonder what kind of architect I want to be, but I can’t deny the importance of aesthetics: I think combining architecture and techniques is the ultimate challenge for our profession the coming era and therefore I need to learn to focus on both. With all mentors wanting something different from me every week, I accelerated every field at the same time. This consciously helped me to make an integrated design.

II. aE STUDIO THEMES

The aE studio provides three locations that are all ‘in-between zones’. I was allowed to choose a location of my own, since I needed a more dense location for my roofing plan. From that perspective there’s no particular relationship between my plan and the studio themes. Luckily the aE graduation studio makes room for this kind of open interpretation. This is part of the reason why I like this studio so much. Men could say my plan is also an in between zone, between built environment and sky. It’s a prominent finding that vertical city extension seems to be quite under-exposed, despite its relevance now. Only the names that have been given to this way of building in the past point out the different ways of thinking about it, like sky-borne building (NL: luchtgebonden bouwen) versus topping up (optoppen). Is this lifted building layer part of the sky, completely detached from the existing world? Or is it just an extension on the roof and will it behave that way? I think the wishes of sky-borne designers fit the first idea, but practical issues like gravity, money and politics will keep them with both feet on the ground (literally).

On the other hand it appears a few categories of topics in our studio can be distinguished, like building on water, using digital fabrication, make use of exceptional building materials, but also the incorporation of green. My green roof fascination can easily fit the idea of a sustainable design, which seems to be quite a common goal in our studio as well.

III. METHODS

The main studio approach focusses on three aspects, especially emphasized during the research phase: context, use and techniques. I think this was a good theoretical framework for my project (and thus for the entire studio). My chosen context was the most important incentive for my design in multiple ways. The Weesperstraat is in need for more green, to turn this traffic axis into a public space. In order to attract people, it needs extra functions and on top of that Amsterdam (especially the centre, like Weesperstraat) is in big housing need. At last the problem of dense cities and expanding within the borders of the city was addressed. My design provides an answer on all of those aspects: my design was meant for this location. As mentioned this goes for the use and techniques as well, all the three aspect work closely together.
When I finished research and started designing, I tried to categorize my design aspects on a poster. When putting up a structure for this poster I came up with the same framework of context, use and techniques. This was a coincidence, but shows how useful this framework is. I added ‘design’ as a fourth part later, to make it complete for myself.

From the beginning all students in the studio were asked to make a graduation planning. This first planning was my base planning to elaborate on, every next phase. For every phase I created a new, more elaborate planning and did the same for the end of the same phase. The last three weeks (before P2, P3 and P4) were mostly production weeks in which I needed this kind of structure to finish in time. Even only making the planning is already very helpful with understanding how much time is available for different aspects, but especially in the production weeks I really needed my planning to stay on track.

IV. PROJECT IN BROADER CONTEXT

Vertical city extension seems to be quite a relevant topic for the future. I wasn’t fully aware of this when I started my graduation project, but I learned along the way. The combination with green (green roofs) seems to be just as relevant. De Dakdokters have booming business trying to keep up with the rising demand of green roofs and they told me about several comparable projects. Some are already being executed, but in comparison my project is more extreme and probably just as hard to realize. I’ve learned to appreciate my project as an ennobled, elaborate concept, rather than a realistic assignment. It’s already paying off to make people think differently, when it comes to urban extensions. Next Sunday (18th of May, 2014) I’ll be presenting my plan on the street festival ‘Weesperstraat van Morgen’. This festival is meant to bring people together, that want to see Weesperstraat refurbished and greened. Politicians, inhabitants, companies and visitors will be exchanging ideas on the Weesperstraat that day: the current character of this street is extremely poor in several ways. I was invited to be a part of this festival by De Dakdokters and we’ll be presenting both mine and their plans about urban stratification and greenification. They’ve mentioned interested parties are available, so I’m curious what comes out. This enthusiasm doesn’t only increases my motivation, but shows me the willingness to look for other ways of dealing with urban space and green.

I’m still planning to set up some numbers concerning my plan potential, however I’m not sure if it fits my schedule next to other activities the coming weeks. I would like to make a balanced calculation on how many dwellings and green surface can be added to a city when using my strategy and design. I would need to find out how many m2 of roof is available, categorized on structural capacity. It will be a rough estimation, but it will be interesting to show how much surface of green and dwellings (at least) can be added on this rooftop level.