Reflection

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This reflection is part of my graduation project at the RMIT Graduation Studio: Mixed Projects The Hague, in which I focused on the transformation/redesign of the former office building of the Octrooiraad on the Willem Witsenplein in The Hague.

The first part consists of a summarizing reflection on my project, product and design choices itself. The second part will be more about my position in the field of architecture, the process and used methods.

Analysis and redesign

At the start of my RMIT graduation project, I decided to make a redesign for the former Octrooiraad building on the Willem Witsenplein in The Hague. The building fascinated me because of its location, building style, but especially because of its composition and facade. However, as it had lost its function as an office, all that remained was a big, empty brick volume. With that in mind, the research question contained two parts: analyzing the existing structure and its value, and designing a new value.

What was and will be the added value of the Octrooiraad building to its neighborhood?

This very broad question could be split up into different subjects. My analysis and design mainly focused on the next five points:

Urban: what is the former and new relation of the building to its context?
Function: what can be a new valuable function for the former office building?
Composition: what are the proportions of the volumes and facades, and how can they be used in the redesign?
Facade: how will the new facade respond and connect to the existing? And how will it express its new function?
Climate: what is the current value of the building climate, and how can it be improved?
Urban

The urban analysis done in the first part of the project was quite extensive and for me very valuable and interesting. The building is located on the corner of the traditionalistic housing grid designed by Berlage, and the monumental traffic junction with the modernistic Nirwanaflat by Johannes Duiker, initially infamous in the 1930’s. It connects and reacts to both these contrasting atmospheres, but is, with its former function, also a solitary office block between two housing projects.

For me, the contrast between the Nirwanaflat and Octrooiraad building is very valuable and should be maintained. However, the two atmospheres can be brought together by applying a new function. Not only for the octrooiraad building, but also for the ground floor of the Nirwanaflat and the car-covered square in between. For the redesign, I have a conceptual idea for the square, its function and new layout. However, this would be a very interesting future study object in its own.

Function

One of the interesting and challenging points of this graduation project for me was that the building had lost its function as office and that it needed a new purpose. Research on surrounding functions, user groups, upcoming trends etcetera made me decide to transform the building into a multifunctional complex for healthy living and eating. As the neighborhood will consist of fit elderly and young families, mainly well-educated and wealthy, the growing interest for biological food, healthy lifestyle and growing your own food, will fit in perfectly. The favourable location on the edge of the small scale neighborhood and big scale transportation and park, asked for both something public and regional, as well as something residential and local.

For those reasons, the building will contain five functions: a food museum, a biological supermarket and a few bio shops, a fitness centre, a restaurant and café, and apartments and maisonettes for families and elderly.

To bring these functions together, the idea of a greenhouse was born. This would provide a green and pleasant environment for education, production and eating, both public and private. The greenhouse changed shape in the early design stages and finally became part of the existing composition. By replacing a part of the brick façade and the top floor with a glass façade or volume, (edible) plants can be grown behind that façade, as a vertical greenhouse.

The healthy mix of functions was and still is one of my most convincing points in the redesign. I think that therefore, the function will play a leading role in answering the research question. With these new functions, the building will no longer be an isolated office, but become a buzzing complex of different users. The functions will complement each other in inspiring people to live a healthy life and be more conscious about the food they eat.
Composition

Analyzing and redesigning the building, its unique composition is a particularly interesting subject. Especially the contrast between the horizontal and vertical elements, and the proportions between the different volumes, are in my opinion a very strong feature of the building. As I am very interested in proportional systems and geometrical designs, a sub question was raised for my position paper:

What is the role of the proportional rules of Dom Hans van der Laan in the composition of the Octrooiraad building in The Hague, and why should these proportions be respected and applied in the redesign?

For this question, the written and built work of Dom Hans van der Laan was investigated. His theory is based on the coherence between three-dimensional objects of different measures. He states that, in architecture, we can implement a system of eight measures. With the plastic number, a ratio that approaches 1.32, a sequence of eight volumes can still be considered as being the same whole. Beyond these ‘eight measures’, all coherence is lost. In his own work, Van der Laan implements this system quite literally, although he also emphasizes in his writings that a simple ratio cannot be seen as the key to success or beauty in architecture (Van der Laan, 1967).

With his theory in mind, I analyzed the existing mass composition of the Octrooiraad building. Some dimensions were explicable according to his theory, but as the building is older than the theory itself, I concluded that these were more coincidences than the result of a leading rule. The first part of the research question was therefore a simple ‘none’.

Nevertheless, I think the theory of Van der Laan is a very valuable read and that his plastic number can be implemented in new architectural designs as well as in a redesign. During the redesign of the Octrooiraad, I intended to use the plastic number as a design guide for the new top floor and facade. With various designs, I tried to implement the ratio of 1.32 into the façade grid or spacing of the columns. This would often lead to a very well-proportioned sketch. But as practical arguments such as ergonomics or glazing systems were encountered, the precise proportions had to be compromised. This eventually lead to the conclusion that a straightforward grid would be more practical and applicable. Also, while the new design was well-proportioned in its own, it would have no relation to the existing building, where different dimensions were used.

The most important decision in the design process regarding the proportions, was to let go of the plastic number for the new façade. As this should respond to the existing, a complete new measure system would not have been satisfactory. Also, the façade according to the plastic number faced a few practical problems such as window framing, detailing, ergonomics.

Façade

This problem was closely connected to another problem faced. The function of the new façade was to bring in light and create a fruitful environment to grow (edible) plants. To express that both inside and out, I tempted to integrate the façade grid with U-beams that would contain plants. As the U-beams varied in dimensions, based on the plastic number and ergonomics, this had big consequences for the façade grid and its functionality. As the façade also had to be openable, big window frames were needed that made integration with the U-beams very complex. After research on different openable systems, beam dimensions and integration of the two structures, the conclusion was that integration was not desirable. By disconnecting the two, the façade was able to take its own form, and the pots became flexible interior objects.

4. the integrated and separated version of the façade section
Although this façade system did not work in this particular redesign, I am still very interested in the combination of these two different architectural elements. Is there a way to make a greenhouse façade, that can function as a climate buffer, a growing environment and at the same time be an appealing façade with important aspects such as transparency and detailing kept in mind?

However, this brings up another discussion. Why should building parts with different functions be integrated, when they have different users, purposes and life span? Stewart Brand, author and biologist, states in ‘How buildings learn’ that a building consists of six layers. These layers all have a different life span: while the Site is eternal, the Services will have to be replaced every 15 years or so, and the Stuff (furniture, personal belongings) can change shape within days to months. Integrating different layers would mean unnecessary early replacement of building elements, and difficulties in maintenance. By enabling adjustment of the different layers, a building will be able to transform and serve its different users throughout the years. (Brand, 1995)

Climate

Another point of focus was the climate design of the building. As the facades are solid brick, they are poorly insulated but at the same time have a big thermal mass. By implementing the concept of Warm Bouwen, that thermal mass is used as a buffer while heating and cooling the rooms with a low temperature floor heating system. An open source WKO on both sides of the terrain will supply this system. Besides that, I wanted to use the new designed top floor to catch both rainwater and sunlight. By orienting parts the roof surface on the south and with an angle of 35°, solar collectors will optimally convert solar energy into heat for the building below. The heated water can be used for floor heating, hot tap water, or regenerating the WKO source. The whole roof is shaped in such a way that rainwater flows to one point per house and can be collected and used as water for toilet, washing and watering plants.
Process, methods and position

Process

As described in my graduation plan, my process for both analysis and design can be seen as top-down: starting on the urban scale, zooming in towards detailing. The process followed for this graduation project is, like most design processes, a very cyclical process. Between the analysis and final design are numerous steps forward, but also steps back. A good example is the design for the façade structure. The global idea of integrating the glass façade with a space for growing plants created a very interesting façade, but the step towards detailing and integrating wood structure and window frames appeared to be too difficult and impractical. Therefore, a big step back had to be done to split the two elements up. Façade as façade, the growing pots as furniture/interior. But eventually, all the research done for the complex integration can also be used in new steps.

While in my earlier projects often quite separated, especially with new buildings, I think that for this project the analysis and design were very interwoven. This can also be seen as research-based design, as for every design step taken, there was a lot of analyzing the existing structure, but also looking into different methods and . The research starts at a specific point of the building or redesign, but can extend to a much broader field. An example is the climate design: by analyzing the existing façade, various methods of insulating, heating and cooling were explored, as well as ways of implementing climate installations on the new roof.

As for decision making, I tend to use too much time sticking to one option, only to find out that this is not the most fitting solution. In the future, I would like to get more practiced in developing quick drafts (including different scales), to make the decision process easier and more substantiated. The arguments should be based on a value assessment and design concept and rules.

Methods

In the design process, different methods were used to come to the final plan. In the analysis phase, historical research about the building and architect was combined with analyses of the context, morphology, composition, climate and technique. The analysis was concluded with a value assessment, in which the strong and weak points of the building were defined. This acknowledgement makes future decisions about the existing easier and more reasoned.

With the start of the design phase, I used different models 1:500 to define the most adequate addition or transformation to the building. At the same time, the floor plans served as sub layer for drawings concerning routing and dividing the different functions. The first impressions were visualized by using sketches, as a sketch can highlight a scene or atmosphere much better than a photo or render. After the P3, I decided to focus on the design of the new top floor. Here, most of the critical points of the design were coming together: routing, function, new façade, new roof, expressing the functional concept architecturally. For this phase, 1:100 and 1:50 models were used, as well as changing floorplans, facades, sections, roof plans. In this phase, constant switching between different scale levels and viewpoints was necessary, as detail determined façade, construction dictated floor plan, and vice versa. The digital 3D model in Revit was very useful for the floorplans, sections, and roof layout. Worked out in 3D, a design comes alive, but also gives a lot of information and exposes critical details. For me, working with Revit was limited to a scale of about 1:50. More detailed drawings are in my opinion easier and more accurate in the traditional 2D AutoCAD drawings.

The graduation project challenged me to use different methods of designing. I think that combining these different methods and techniques is a very complete way to design, as every method gives a new viewpoint and highlights new aspects. In the future, I would like to keep designing with the described methods, preferably focusing on hand sketches and models, with a personal style, supported by a digital model.
Position

As a student and designer, my position in the field of architecture is developed during the different projects, and will always be evolving with new findings and experience. As I started the graduation project, my position and style could be described as conservative, and often in search for a rhythmic and geometry. The first designs for the Octooirrad building consisted of glass additions, and were very protective towards the ‘holy’ existing composition. But as the process evolved, the existing and new became more and more combined. While still keeping the valuable features of the building, the redesign intended to create a better whole that would support its new functions. An old office building, however beautiful composition, will not fit modern and comfortable family housing for example. Along the way, I think my position changed towards a more complementing and interfering architecture, where the new is not submissive to the old, but improves it and gives it a new identity that matches the needs for the future. For this particular building, the new redesign would be a next chapter in a history of various changes, alterations and additions to the original design. While applying modern techniques and designs, the existing construction and composition serves as a strong base.

I think that this approach connects very well with the vision of RMIT. As Job Roos writes in his ‘De ontdekking van de opgave’, redevelopment serves both past and future, without being subordinate to one of the two (Roos, 2007). The transformation I designed is in my opinion not subordinate to either history or past. While respecting the values of the original architect, the redesign responds to the needs of the future by opening up the building and making it meet the modern requirements for climate, living, and so on.

This can also be explained well according to the theory of Stewart Brand, shown earlier. As the building has served as an office for many years, very few alterations have been executed. The space plan, with offices on both sides of the corridor, has hardly changed in 80 years. Also, the services have been updated but never fully modernized, leading to more and more complaints in the last years. My redesign changes several layers drastically, but with those changes, it revitalizes the building. But the deliberate choice to make these new layers in their turn also adjustable, is striking and a relative new personal approach. In earlier design projects and reference projects I was always interested in the integration of elements. But this often did not lead to the most user-friendly and flexible design. By looking more into Brand’s theory, and accepting that those layers can be separated, my design freedom increased. At the same time, his theory made me realize that the function I am implementing is desirable for now, but might change again in the future, involving space plan, services, skin. Also, climate installations such as solar collectors will improve more and more, so this requires a high level of changeability in the services.

During the design process, I think I can say that my focus in the field of architecture shifted from a search for symmetry and beauty, towards a more time-based architecture. What influence will a design choice have on the future and the context? How long will a design last? What will be the lifespan of the different layers? At the same time, the function and the role of a building in its context remains a very valuable point in my design process. In future projects, I would like to keep focusing on the conversation between old and new, the function of the different building layers, and how this will evolve in an honest, open and beautiful design.
Conclusion

Looking at the research question, it is answered in various ways. In a broad view, the new function will give the neighborhood a new impulse and creates a unique multifunctional complex, where healthy living and eating is the central theme. The redesign supports this new function by creating a new, light façade and top floor. At the same time, this intervention is fully based on the values of the existing building. The composition, the façade, the construction, all comes from a thorough analysis of the original brick office.

Questions that still remain are mainly questions about the façade system: is there a way to integrate the greenhouse function with the façade? Or should these be separated, as they have a different purpose?

These questions, based on the theory of Stewart Brand, shifted my focus from a beautiful, integrated design, towards an honest and open building in which the functions of the different building layers are expressed and changeable for future needs.

With the redesign, I based my decisions on the approach of RMIT that a redesign should serve both past and future. The result of a broad analysis and diverse design phase is a redesign that gives the building a new but integrated identity. It is a new layer to the history of the building, that was transformed several times before.

The process can be seen as cyclical and a dialogue between analysis and design. The different methods used have given a very diverse view on the design challenge. However, the decision process could have been more effective by designing more options on different scale levels, which could have been reviewed using the value assessment.

I would advise a future RMIT student to make good use of the value assessment, as you can learn a lot from the existing. At the same time the building needs a transformation, so the approach should not be too conservative. Take a starting position in the big task of redesign architecture, but don’t be afraid to let that point of view be altered during the process. As for the Octrooiraad building and its new function, a future design could involve a more specific façade that takes the greenhouse function more literally, including the climate design. Another option is to completely let go of the greenhouse and focus on the shape and layout of the façade and roof.

Literature

