Complex Projects Graduation Reflection

P4 date: 25 September 2019
AMS-Mid studio
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Research question: How will waste treatment be incorporated into the urban fabric of the city centre of Amsterdam in 2100?

Design process

Two weeks prior to P3 I made the decision not to take the first opportunity to finish my graduation project, instead choosing to delay for 10 weeks. The reason for this is that because of my marathon training, work as a teacher, work in the department of history and functions in my student association, I feared that I would not be able to dedicate myself full-time to my graduation project, which I wanted to do properly.

After making this decision I had some time to critically reflect on my designs and I concluded that I was not completely convinced by the merits of my own design. Even though the design was functionally sound and solved the major design problems formulated for P2, I felt the design did not do justice to the architectural theory surrounding my graduation project. The problem was that the design was a very literal translation of the waste processes and the building requirements, but was not very innovative architecturally and therefore did not really fit in the Complex Projects graduation studio, which was at the time looking at future developments for architecture in the year 2100 (fig. 1a & 1b). As such, after P3 I started working with renewed ambition on a new design that would be a better representation of the speculative research into automation, waste processes and the future society I did prior to P2.

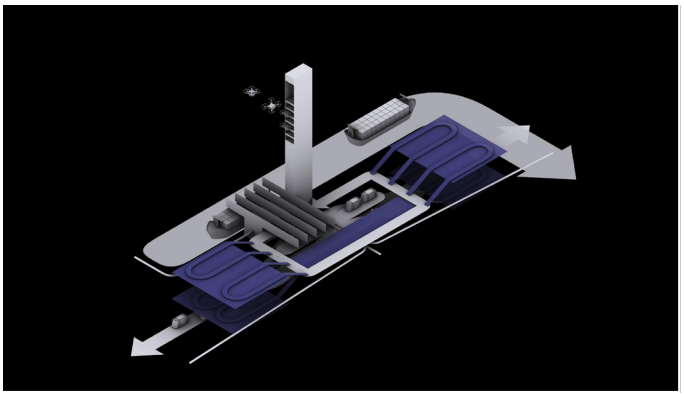

Fig. 1a: first elaborated design, waste processes

The new design still stayed true to the limitations and ambitions of P2, but put the emphasis of the design on the confrontation between the new kind of architecture that emerges from the full automation and efficient reorganisation of waste processes with the city. This confrontation between the inhabitants of 2100 Amsterdam and the recycling facility teaches people about the big impact that the circular economy and the process of automation would have on our daily life. The building becomes a site of connection between the world they

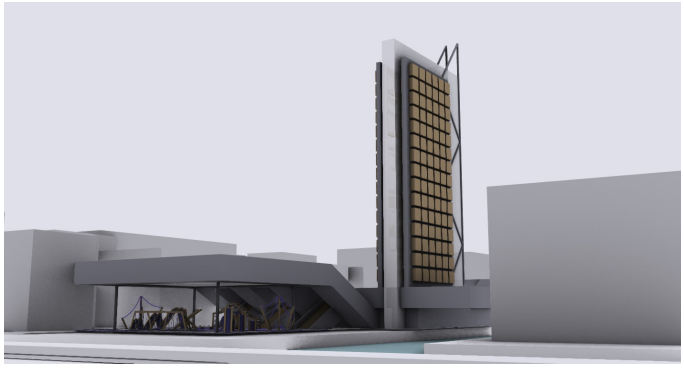

Fig. 1b: first elaborated design, exterior

experience on a day to day basis and the infrastructure that enables the future way of life; the architecture and materialisation are uncompromised and enable interaction and learning between the worlds of man and machine (fig. 2a & 2b).

This new design was significantly more ambitious than the previous design: it was difficult to design by drawing plans and sections, since the three-dimensional complexity of the expressive functionalism made it hard to relate these drawings to one another. Therefore I started by solving all major logistical and structural issues in a very detailed 3d-model first, making the drawings later; the opposite of what my peers were doing.

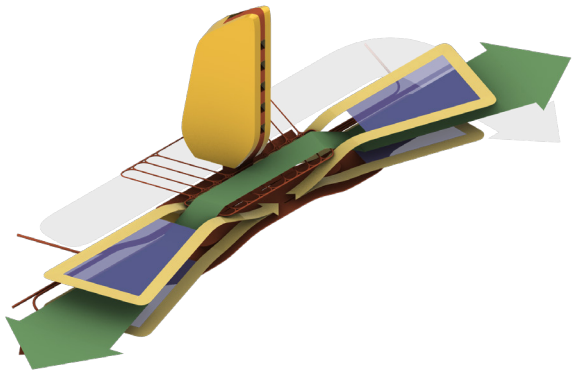

Fig. 2a: new design, waste processes & public programme

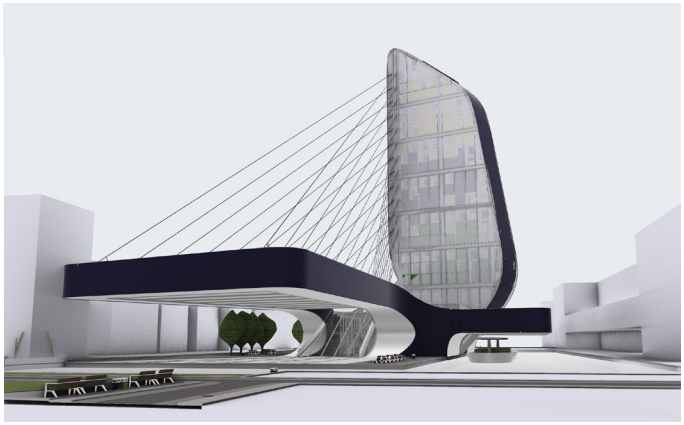

Fig. 2b: new design, exterior

The approach for the initial design - where a very simple building was created directly from the design requirements without much concern for the architectural experience of the building and its surrounding context - turned out to be problematic. The new design (very expressive of its functions and with a lot of emphasis on the experienced confrontation between man and machine) was related more closely to the research about how the circular economy and automation would change society, to the way construction techniques can develop as well as to the research into the future development of Amsterdam.

As such, the approach for the design process ultimately worked out - although with a ten week delay and very significant changes to my design after P3. If I had started out with a less ambitious, less futuristic and more conventional assignment both the research and the design phase would have been easier and perhaps it would have been possible for me to graduate at an earlier time. In hindsight, since I deliberately chose an ambitious and unconventional assignment, it would have helped if I would have narrowed down the scope of my research and if I would have settled on one topic (the process of automation, the circular economy, the logistics of recycling, the history of industrial architecture or the future of playgrounds) instead of doing a project where all these complex and unpredictable subjects meet. Regardless, I am now finally content with and convinced by the result of both my research and my design and eager to present it.

Feedback

The decision to change my design after P3 was my own. My tutors gave me both the option to continue with the old design or to continue with the new one, providing me with useful advice on how I could proceed either way. Initially I struggled to incorporate the key feedback from my main tutor Hrvoje Smidihen about my design, but I ultimately embraced it: the design should not be beautiful but offensive or even an eyesore (according to some) in order to provoke the curiosity of people and provoke a confrontation between the world of ma-

chine and the world of man. After all, ugliness often arises from unfamiliarity, whereas beauty often refers to things we already now, and the aim of the graduation studio is to discuss the unfamiliar and find out about things we do not yet know. This notion about confrontation and unfamiliarity helped me strengthen the theme of the design and incorporate the conclusions of my research, although I prefer to call it a monumental and iconic.

Aside from a lot of useful and practical advice from Hubert van der Meel (and to a lesser extent David Wesdorp) on the required products, climate, structure and organisation that has all been incorporated into the design, other noteworthy feedback includes that of Fred Veer. In this consultation he warned me that the structural complexity of the design would make it practically (not theoretically) impossible or at the very least very expensive to build it today; we talked about the vibrations that create problems for these kind of bridge-like structures and the unequal stresses on the foundations as well as about possible solutions. Since the building is being designed for 2100, the practical complexity is less of a problem. It did lead to a series of challenges to be overcome and innovative structural design proposals (fig. 3).

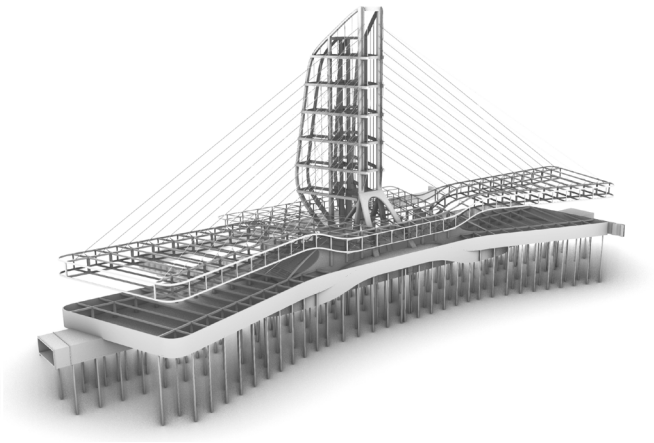

Fig. 3: load bearing structure

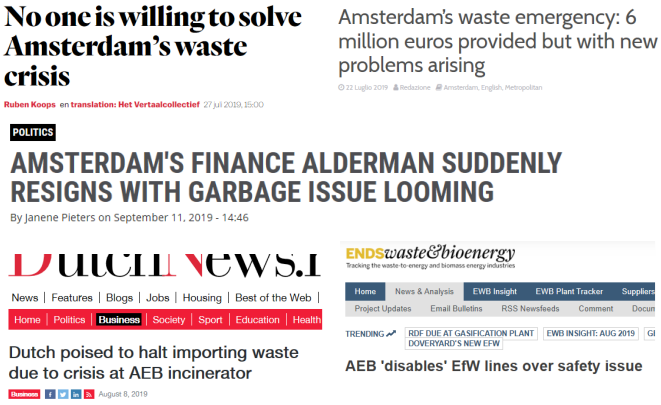

Fig. 4: Dutch waste crisis

Relation research and design

The wide variety of subjects that are related to this project initially made it hard to properly incorporate all the strands of research that had been done before P2 into the design, but this was largely resolved after P3 with the new design. Later on, during the design, case studies were used to find solutions for specific problems. Studies into high-tech materials and cable-stayed bridge construction also happened very late in the design phase and have greatly influenced the design without changing the layout. The developing crisis at AEB (the largest incineration plant in the Netherlands is operating at 30% capacity because of severe technical issues, disrupting waste disposal at the European level; fig. 4) now plays a significant part in the argumentation for the design, even though the research into this issue is happening very late in the design process.

The crisis started in July, and is still creating massive problems for the Amsterdam metropolitan area in September as no simple solution is in sight. This significantly strengthens the story, since many of the problems with the Dutch waste system were already identified in my research phase before P2 and addressed in this design. The crisis is of course very unfortunate, but it stresses the high societal relevance of the topic and means that the research phase is continuing well into the design, since more and more problems with our current way of dealing with waste are emerging. As a result of this new information the drawings of the

machines needed in the recycling facility have been updated to allow for more sustainable handling of specific types of waste.

Relation to other fields and ethical discussion

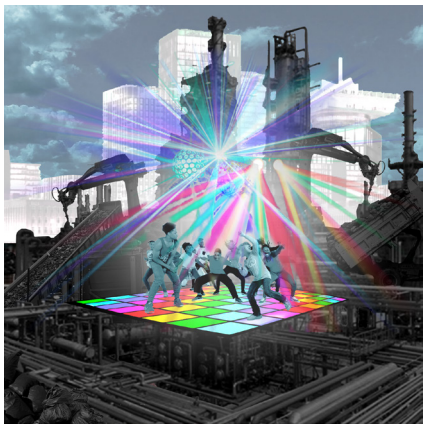

Fig. 5: unknown future relation to technology

This graduation project is not limited to one specific field of expertise. The speculative research and scenarios for Amsterdam 2100 have been developed as part of a group strategy within the Complex Projects Studio, but they build on developments not only in architecture but also is also related to developments in science, engineering and society at large. The architect as a generalist is, in this studio, also speculating on how these fields will move ahead together, and how society as a whole will evolve. A lot is unknown or unpredictable, but through speculative research a meaningful discussion can be started that benefits the entire faculty, creating images and ideas that help us understand developments that are happening today. The design therefore is also not only innovative through the way it confronts people with the circular economy and automation, but also through its experimental load bearing structure, uncommon climate system, energy collection and the internal language/style of the building, which is deliberately unfamiliar to spark curiosity and discussion.

A very big issue with basing an innovative design on speculative research is that the relevance can always be questioned: will this unpredictable development really create a new form of architecture, or would it fit into an existing building type? The choice for confrontation of people with the circular economy and automation through this building rather than mitigation (hiding these processes in industrial areas) or even full separation from human society is also inherently ethical. It builds on a long discussion on whether such processes should be shown (fig. 5) or hidden. The developments of automation and circularity will surely be disruptive, but does it really necessitate such a profound place in the city centre of Amsterdam? Since in the end the goal of this graduation project is educational and theoretical (it will not be built), no harm is being done, but as a catalyst for discussion its relevance is nonetheless significant.