DESIGNING A WASTE INNOVATION CENTRE

‘The relevance of architecture as a device to inspire in a fast changing world’

Reflection P4
Graduation studio Architectural Engineering
Delft University of Technology
Louise Remmelts (4158946)

‘Architects can reimagine themselves and their profession as something greater; not merely the designers of buildings, but designers of systems.’ – Tim Brown, 2014

INTRODUCTION

'We mapped 18 material flows of 6 businesses which have the same weight of seven Eiffel towers. We are able to match these material flows with material exchange instead of wasting the material and therefore we can save the emission of all citizens of Amsterdam driving from Amsterdam to Milan, save energy equal to the consumption of the public lights in Paris for at least five years and save water of 860 Olympic-size swimming pools.' – Maayke Damen

We live in an environment that is subject to so rapid successive changes that it is almost impossible to keep up and even more, that many people are not aware of the actions they are taking within this environment. What is our role in waste management in 2050 and how can we contribute to a healthier environment where a circular economy is the norm?

For a large part, our economy thrives on fast-moving consumer goods. Problems of these goods are the mass production, inexpensiveness and short lifespan. In the Netherlands, only 22% of the total waste is being recycled. In addition, the country is largely dependent on the import of materials from abroad. By consuming less, separating waste better and recycling more materials, a contribution can be made to a healthier environment with less polluting emissions. Alternative waste management can contribute to a healthier environment, better waste separation and material recycling.

THE RELATIONSHIP BETWEEN RESEARCH AND DESIGN

Research on material flows and waste management resulted in certain goals and design principles on how to cope with this topic. I combined a material flow analysis with a literature study on waste management which led to a systematic design process. Later in the process a did research on how to use architecture as a device to get peoples attention and inspire them.

There are some important research conclusions that came out of my research that I took as a starting point for my design. In the Amstel lll area an underground waste system is a more sustainable alternative for the current waste management which can be placed in and near residential areas. Office waste offers the largest opportunities in the Amstel III area in Amsterdam. Mitigating office waste provides the highest-impact opportunity. However, awareness must be created to increase participation of residents. Therefore focussing on both business waste and household waste is key to successfully decrease the footprint of the area.

To let people cooperate the system should be easy, interesting and it must express a certain kind of solidarity. By just designing a waste facility in a city centre we do not attract people to the facility and it could even create a 'not in my backyard' (NIMBY) effect. I did research on how I could add social and cultural functions to the facility to turn the negative association of waste facilities into a positive one. The outcome of my research functioned as a base for the start of my design in terms of function, program and size, but also in terms of its role in society and connection with the existing urban fabric. After P2 I started working on translating parts of the research to architecture, but I also did further research on public paces an buildings in city centres and the desires of the municipality of Amsterdam to support my design. At the same time the technical aspects and circularity of the design required some additional research.

THE RELATIONSHIP BETWEEN GRADUATION TOPIC, STUDIO TOPIC AND MASTER TRACK

Because the modern world is driven by technology and is characterized by rapid successive changes, the built environment needs to adapt in order to accommodate these changes. It needs to mend the disconnect between the traditional approach to architecture and dynamic, social and technological systems. The system thinking approach can help to deal with information. But how can

these systems be applied on architecture and what role do architects play when systematic approaches are being used as design methods? My graduation studio, architectural engineering, aims on improving the quality of the built environment and make it more sustainable. The studio is divided in a ‘make’ direction and a ‘flow’ direction. In addition, either the ‘making’ or ‘the energy and material flow’ is used and applied as a basis in different contexts. Working with such technical and societal issues and translating it to architecture is difficult but also challenging and inspiring.

THE RELATIONSHIP BETWEEN THE STUDIO METHOD AND THE CHOSEN METHOD

Because the studio is divided in two directions (make and flow) in my opinion the studio does not have one particular method. My fascination at the beginning of the process didn’t match either the make or the flow direction. I did choose the studio because either in the make or the flow direction it deals with a lot of societal issues. Nevertheless, I did chose a systemic design method because it matched the flow direction of the studio. In addition to the material flow analysis, I have also conducted research into the psychology behind sustainability, waste centres and public function in city centres.

THE RELATIONSHIP BETWEEN THE GRADUATION PROJECT AND THE WIDER FRAMEWORK

The topic of my graduation project is a relevant topic in the current society. During my research and my design process I talked to many people related to this topic. Also I discovered that in many places in the Netherlands interventions that relate to my topic are considered. It’s a very comprehensive and difficult topic because many different parties have an interest in it or, on the contrary do not want to be associated with it because of financial aspects. Translating this topic to architecture was even more challenging. Although I want to state that the role of an architect goes beyond desiging buildings; architects are also designers of social, financial and technical systems. Still, our cities are densifying and the world population is growing while we need to reduce our co2 emissions. To achieve sustainable goals, collaboration on every possible scale is necessary. I wanted to show that trough the design of a waste innovation centre awareness could be created concerning waste in a positive way, avoiding the NIMBY effect.

ETHICAL ISSUES / DILEMMAS

There are some interesting questions that have been raised during tutoring sessions and presentations that I want to discuss here. First of all, my project would work in a society in which people would accept the new system and parties higher up have to be involved and collaborate. The negative association of waste must be turned into a positive one. Still the facility deals with waste so there are some technical requirements that can disadvantage this philosophy. I looked at systems that require less emissions than the current waste systems and had discussions about this with the municipality of Arnhem and Almere, where an underground waste system is working considering the technical aspects of the design.

Thereby the building should set an example. Therefor materials should be reused as much as possible, which brings a lot of struggles and considerations. You work with materials that are available before even designing and a really good argumentation is necessary weather you use new materials or reused materials. This again requires a lot of knowledge of the knew and reused materials to integrate them in a functional, still beautiful ánd circular accepted way. Furthermore a goal has to be set about what you want to achieve with the appearance of the building. Should it be of reused materials without recognizing it as reused? Should it be designed with reused material that shout ‘I’m a reused material’? Besides, the goal of my graduation project was not to design a circular building considering the physical material but concerning the topic it does make sense to reuse materials. So

considerations had to be made between the limitations of reused materials and the goal you want to achieve with the architecture of the building.

For the final period of my graduation I envision to work on final changes within my design and going into more depth on certain aspects of it that might need some more attention towards the P5 presentation. I aim to spend enough time on making a model of parts of the design on a small scale to visualise the reused materials and the experience of the building and it’s architecture. Also I’m aiming on making a model on a bigger scale to further design and show the public connections between de different functions, buildings and the adjacent park because they lead you through a possibly new typology of an inspiring waste innovation centre.