

REFLECTION PAPER

RECLAIMING AMSTERDAM

the role of discarded materials in the architectural design



Architectural Engineering Graduation Studio 14
Reflection Paper
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COLOFON

Reflection Paper
"Reclaiming Amsterdam"

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The relationship between research and design

The Architectural Engineering graduation studio can be divided into two main subjects; the research and the design, both of which have their own focus in the semesters. During the first half year of the graduation project students are required to write a technical research paper, which will form the basis for the design in the second semester.

Research

The technical research paper is related to the personal technical fascination of each student; mine being reuse. Not only of buildings in itself, but also of materials. Reusing materials was the main idea for the technical research paper; to further specify the research I've looked to the bigger picture. The problems we're facing, the biggest being the ecological footprint of the Dutch. Simply said we need more than three earths to maintain living the way we do; which means we consume too much. On top of that we produce a lot of waste, and the building sector is the biggest contributor to this. These three subjects combined led to the topic of reclaiming (and reusing) materials from the building sector.

To help myself understand what reclaiming materials was all about, I decided to first set up a framework. Within this framework I've tried to specify the difference between recycle and reuse, the corresponding (design) processes and which actors are involved. This is needed to understand in which step of the process a change should be made; which effects your idea (of reclaiming materials) has on the building process in general. Because that's basically the biggest change, going from a demolition process to a reclamation process.

After creating the framework, the background of the research, the actual research still had to take place. But I found it difficult to start with this part. With the location of my project, the Van Gendthallen in Amsterdam, in mind the topic of the technical research paper was further specified, but still too broad to make it manageable within the given timeframe. It has taken me a very long time to define the final research question, which meant the research hasn't been done as deep as it could.

I therefore have chosen to let the research paper become more of an overview of what's possible and what could be done with examples, rather than a strict report with numbers of found materials. To give this overview, the research towards reclaimable materials in Amsterdam has been divided into three scenarios.

1. Office renovations
2. The Harbour of Amsterdam
3. The Van Gendthallen

The third scenario was directed to the building of the Van Gendthallen itself, the materials that would be removed from the building in case of a redesign. This scenario has not been researched during the first semester of the graduation project, because the design was not that far developed. This scenario could have been further researched during the second half of the design studio, but this has not been done. Mainly because the chosen design of the Van Gendthallen did not lend itself for this research. In the current design, the building is mostly kept intact. Only on several locations some walls have been removed, but these walls were mostly made out of brick or steel and those materials have not found a new place in the Dutch Design Docks.

Because I found it difficult to set the specific research question, the entire research paper remained mostly hypothetical. It was a last minute decision to focus on materials that would be available in large quantities and within the coming years. Especially when looking at the first scenario, the office

renovation, it remained quite hypothetical. It did start with the research towards which kind of offices are mostly vacant in Amsterdam. This proved to be office buildings from the 80's; not only in the amount of vacant buildings, but also in the amount of total vacant square meters. This category has also been chosen, because these buildings are often the ones that cause the 'sick building syndrome' and are therefore more likely to be renovated first.

The next step was to look at the buildings itself, but since there were so many different types of buildings still, I have chosen to look for the most common solution and the maximum amount of materials available. In the 80's the rental office became highly popular and these offices mostly have a cellular structure. I've looked at the option of the most 'cells' in an office and tried to determine the amount of products it would generate per square meter. Research from repurpose.com showed that the most commonly found materials from office renovations were doors, windows, carpet tiles and system walls. So in my hypothesis, I specifically looked for these materials. The numbers given are not strict; I consider them to be the maximum amount of possibly available materials.

For future designs a more realistic image of these reclaimable materials should be sketched. First and foremost I've assumed that all vacant buildings will be renovated or demolished. The best step is to actually find the buildings that will be transformed and look at this specific building. What's the floorplan, the materials used. The layout. The exact numbers. With that comes then the option to look at the quality of the materials available, which was now a combination of reasoning and searching for the material properties of new materials.

Design

For the design part of the graduation studio, I've focussed on finding a new program for the Van Gendthallen in Amsterdam. Research towards the creative sector in Amsterdam shows that there's a demand for working spaces and

looking at a broader scale; I think there's a need for a Dutch Design Museum. These two functions combined formed the main idea for the Dutch Design Dock; a museum that functions as work space and can simultaneously show the visitors the process of a creative product. This main function being supported by other public/commercial functions such as a hotel or a restaurant.

During the first semester the idea came to mind to create a pathway system in the halls, between which moveable walls could be spanned. These walls would have been made using the reclaimed materials; and could have been divided into several subsections. For example a visual separation or a storage separation. But this concept has been put aside during the second semester; it proved to be too difficult to acclimatize the building. Instead a box in box principle has been chosen and in the same time the decision was made to let the building function as a passageway to connect the dwelling with the new functions and the existing functions on the island.

With this change in the design, the results of the research have been neglected a bit and looking back the research should have been implemented in the design earlier again. Besides looking at the materials from the design side, it should have been an 'interactive discussion'; which materials are available? Which function asks for which material, and which material lends itself for a specific function. Are there restrictions that come with certain materials, or possibilities. Are there enough of these materials and if not, in which phase or timeline should the project be realised.

Research and Design

Looking back at both the technical research paper and the design, I think the research paper has a lot of potential and right now can be seen as a start for further research in this direction. Looking at the design; I think the program is suitable for this location and the decision to implement the passage, with the creation of different pathways through the building is a strong concept; and

even though the reclaimed materials have found their place in the design, it would be better to have looked back to the research earlier on in the design process.

The relationship between the theme of the graduation lab and the subject chosen by the student within this framework

Within the Architectural Engineering graduation studio the student is free to determine its own project, but there are some themes in which the project should fall. These themes are *Make*, *Stack* and *Flow*. On top of that the Architectural Engineering track also focusses on sustainability.

My graduation project fell into two of these themes. The first being *Flow*, within this theme the research towards the reclaimed materials has been done. Normally within the topic of *flow* students make flowcharts to determine which products enter a system and which steps will be taken before a product exits a system; to each step values should be given. But it proved to be difficult to create such a flowchart for materials that will be reclaimed from a building. I therefore have mostly focussed on the process behind it. Which steps need to be taken, which actors are involved.

The second theme of my project is *Stack*. One of the possible locations students could choose from where the Van Gendhallen in Amsterdam. A vacant and industrial building; which I've always found interesting. I've chosen for this location because it was close to the Heritage and Architecture studio which I've always found interesting, but to me that track is too strict and not open enough for sustainability and innovation; two topics I also find interesting. Besides the fact that my building will be reused, I'm also looking at

materials from other buildings and therefore implementing existing stock in a new project on two different ways.

The main theme of my project could be defined as re-use. Not only the reuse of the vacant industrial building, but also the re-use of materials that are redundant in their current function or location. I therefore feel that my project does not only fit the two themes set by the Architectural Engineering studio, I also think it focusses on sustainability in its own way.

The relationship between the methodical line of approach of the graduation lab and the method chosen by the student in this framework

What makes the Architectural Engineering graduation track stand out from other graduation tracks is the combination of technology and design. Like other studios the project starts with research, but instead of focussing on architectural research this research is based on the technological fascination of the student.

The main technical fascination and concept for the design were both easily found, but I personally struggled with defining a specific research question as well as defining the exact program as to what happens where and this has made combining both parts more difficult, resulting in combining these two elements later than anticipated or wanted. This was also due to the fact that the results of the paper and the at that time design concept lead to a quite specific implementation of the materials (in wall elements).

To really start with the design and look at it with an open mind this has been put aside; resulting in a for me better architectural concept and design, but it did make the implementation of the materials more difficult. How to make them stand out, led those materials be the main element.

As described in my graduation plan the research paper should have been based on literature, case studies and field work. The literature study formed the basis of the framework, but I got lost in making the case studies. There were just too many projects and too little information known about these projects that I needed for my research. A big mistake in this was the fact that it were all rather small scale projects, while my location isn't.

For the design part, I always like to work in both drawings and models and right after the beginning of the second semester I started with making a model of the Van Gendthallen. To use it for the design; but the scale and the fineness of the model actually limited me in using it for that goal. And therefore has not been used as much as I would have liked or anticipated.

The relationship between the project and the wider social context

The project started with defining a problem statement; in fact I had three:

1. We need 3.6 earths to maintain our lifestyle (footprint)
2. Waste production
3. Vacancy

My graduation project tackles all these subjects and can be seen as both generic and specific. It deals with the problem of vacancy the building & construction related waste. It could function as a general example on how to design using reclaimed materials. The theme of reclamation and reuse could and maybe should be applied in all projects, the research towards the material flows in Amsterdam is rather specific. I picked certain scenarios to research, but this does not mean it are the only possible scenarios to research. So in other projects one might find materials from different waste streams. Also the implementation of the materials is in this design quite specific; especially with the design of the passage.

I hope that this graduation project can function as an inspiration for future projects. The research paper as a starting point for further in depth research and the design as an example of what could be done with the results of such an research.