

An abstract painting with a vertical tear down the center. The left side features dark, textured brushstrokes in shades of grey, black, and brown. The right side is more vibrant, with warm tones of orange, yellow, and green, also with visible brushwork. The overall style is expressive and gestural.

reflection

on

'production biospheres'

A project around the notion of unfinished architecture located on the Plots In The Woods site in Hembrug in the metropolitan area of Zaandam & Amsterdam.

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A faint, light-colored silhouette of a person standing with their hands on their hips, positioned behind the text in the lower right quadrant of the page.

Table of Contents:

<i>Table of contents</i>	2
<i>Intro</i>	4
<i>I. Cultivate, stage & set-up</i>	6
<i>II. Unfinished architecture</i>	9
<i>III. Circularity</i>	12
<i>Conclusion</i>	17
<i>Literature</i>	18

Production Biospheres

Introduction

This reflection will look back upon my process for the design studio focused on the Hembrug area under the department of *Heritage & Architecture* at the *Faculty of Architecture and the Built Environment*, in Delft. The department already has a great deal of research into dealing with the existing built environment. There is a proven method of analyzing and assigning values within a matrix that puts them comparable and decisions on the particular design traceable. The project site is named *Plots in the Wood* part of the green center of the Hembrug area. This paper reflects on the approaches and thought processes that led to the realization of the eventual process design, under the title of *Production Biospheres*, as it stands in the P5 stage. This will be done by describing some crucial moments and design decisions or realizations and discussing these next to the research, readings, and reference projects to place it in a scope beyond this project.

The aim of this graduation design project, based on the results of both contextual and site research placed in the framework of the department and graduation program, is to create a new production space in the green center of Hembrug.

This reflection will start with elaborating the initial approach based on and next to the (research) methods used, explained, researched and provided by the different lectures, books and tutorials by the teachers of the department of Heritage & Architecture during the graduation period. Due to the nature of the site, were the buildings were designed with the surrounding context and lived in a symbiotic relationship with their surroundings and context, as a production biosphere. This building ensemble was treated with an open ended design approach and direction similar to a landscape architect through cultivating, staging and setting up (Corner, p. 2). This was deemed necessary

because the area of Hembrug is currently still in early stages of development so the site needs to account for future developments and the different rates of change that buildings and landscape are subject to. *Furthermore, in this paragraph the relation between the graduation project and the studio topic of Revitalizing Architecture, in the context of the master program of architecture at the TU Delft, will be described.*

The focus on the architectural approach came in the second half of the graduation process. Through reading, reformulating the project and the position on architecture and heritage got kick-started by the workshop *Fragments Workshop*, that was a part of the graduation studio program. Important next to this workshop was to read through the exhibition catalogue for the German pavilion for the 13th international architecture exhibition in Venice named *Reduce, Reuse, Recycle*. The different themes with the different projects discussed here aided in structuring the strategies for the different buildings in *Plots in the Wood*. The most relevant themes for this project were *Maintenance, Infill, Addition and Material Recycling* (Heilmeyer & Petzet, 2015, p. 164). *Here the relationship between the project and the wider social, professional and scientific framework will be discussed and introduced with the transferability of results in mind.*

In the Addition chapter of *Reduce, Reuse Recycle* the notion of “*unfinished architecture*”, became a central theme in the later development of this project (Heilmeyer & Petzet, 2015, p. 164). It helped the approach for the definition of the adaptive reuse of the most important interior spaces on the site. It is introduced in a discussion on new and used buildings with one or more extension with visible seams or patina. These buildings and actually unfinished buildings for that matter show more information

Production Biospheres

and “*are more intelligible and sometimes even more stimulating than finished ones*” (Heilmeyer & Petzet, 2012, p. 164). The definition and interpretation of this term will be described through two elements from the two main interventions in the process design for Plots in the Wood.

In the final two parts *circularity* of space, building and materials will be discussed *to elaborate my personal vision and on societal context and societal relevance* through comparing works of different authors and architects other professionals.

This paper will end with the conclusion on the notion of whether the approach is deemed successful or not and what feedback during the process that I described helped and how I interpreted it. *Concluding with what the relationship between design and research is.* The reflection will end with my current view on architecture regarding this project and architecture of landscapes and buildings in general. *How can this be applied in practice, and what are the relevant dilemmas with the approach and concept?*

I. Cultivate, stage and set up

The project started with researching the site, aptly named, *Plots in the Wood*, in the green center of Hembrug. The name for the site originated from the development plan by Palmbout Urban Landscapes. This plan assigned different methods and focus for developments in terms of spatial design for areas and building groups with specific and overarching characteristics. At the same time a contextual analysis, through methods like chrono-mapping, was done on Hembrug and the surrounding metropolitan area of Zaandam and Amsterdam. The result was an encyclopedic reference on Hembrug and its surroundings.

Setting up

The research for *Plots in the Wood* was split into research on the landscape and on the individual buildings and their values. The landscape research focusing on topography, spatial elements and artifacts, former use of the site to understand relationships between them. The second part of the research was on the individual buildings, divided in four types. These were derived from the distinct roof shapes and time periods in which they were built. This research explained the logic of the site based on the former use which was the production of ammunition and grenades. In the end the research was combined and the cultural values of the landscape were put on the same level and next the values of the buildings in a value matrix. This is important for “*stimulating careful observation and critical positioning by focusing the attention on that which is required to achieve architecture of value, or to sustain it*” (Kuipers & De Jonge, 2017, p. 5). The word critical is crucial in this quote from the preface of *Design From Heritage*. This way of working aims towards making decisions and making designs from the existing context or building, as the title already suggests, and to surpass social preference from different parties as a main

incentive.

This relation between the landscape and the architecture and the equalization of these two work-fields within the design became the starting point for this project. The setup of the research for the site already suggested the binding factor of the landscape for the *Plots in the Wood*. The next step in the process was to formulate a *personal statement* regarding the cultural values for the landscape and the architecture to form a basis for the design phase of the project.

For me personally, this already became clear during doing the research on the atmosphere and spatial elements of the landscape. Here it was concluded that the site had patterns, rhythms, textures and a camouflaged color-scheme with highlights all-together are a binding factors. In the *personal statement*, focused on the values, I stated that this binding setting was a constant but always densifying spatial factor and the buildings were used flexibly and sometimes symbiotic, the most resilient ones are still there. These values were still mostly there, albeit in distorted fashion, and were taken into the new development plan by Palmbout Urban Landscapes. At this moment in the process I interpreted the buildings as part of the landscape not a space in relationship with its surroundings.

This was the starting point for the design phase with the focus on the landscape of *Plots in the Wood* and environment of Hembrug. A central approach in this stage was one described by James Corner (2004) in a text about design strategies in evolving and ever changing circumstances. Corner describes a (design) approach, used by the fields of landscape architecture and ecology, that interprets a project or site and is then focused on cultivating, staging and setting up rather than creating something finished (2004, p.2). Design is approached here with

Production Biospheres



Impression and concluding image from the atmosphere in Plots in the Wood with its mainly vertical textures, rhythms and patterns.



Impressions from the P2 presentation showing different relations for the biggest building in the Plots in the Wood.

Reflection

an open end result in a sense, that gives and leaves possibilities for the next designer. Important for this direction is that there it needs to be very precisely defined.

This was not the case for all aspects of the design project halfway through the project during the P2 presentation. As stated before the buildings were considered part of the landscape and not treated as entities within the landscape with their own values and user spaces that are subject faster changes and developments. One of the decisions was to keep all the buildings on site intact and find a use for them with the program of a new production space to be used by, makers and central workshop that would exist in a symbiotic relationship with the other users and buildings. All the buildings were expanded and combined around their main space. Almost every building had an extension to maximize the use-able space. This contradicts the careful considerations needed to approach a context with changing users, planning and conditions as mentioned above. The design was aimed at creating a finished design where the maximum amount of building is created and thus also not accounting for the properties of the site itself already in the name: *Plots in the Wood*. In this state of the design there was not a lot of room for change in the future. Just flexibility of use which is already a value for most of these buildings. Redesign had to be drastic in this hypothetical future then. This was in contrast with some of the more important impressions which did show relationships and interactions between landscape and architecture spaces. A lot more nuance was necessary to take the design forward.

RE-DO / Rethink

At the start of the second semester one of the tutors, asked me a question during a presentation under the title *RE-DO / Rethink*. Here we discussed our project and how to take them forwards. *What binds the whole project or design for the ensemble*

together? My answer then was, the program, just like during the days of ammunition production. Here I envisioned designers and craftsmen helping each-other and working together. What was happening already on Hembrug but then on a somewhat bigger scale. She was not convinced by my answer, *I should look more to the site itself*, she told me. Firstly, what I did not realize yet then was that those things can only be suggested, rather than forcing it in the plan, for the way I was approaching project. In a way, I had treated the site already with the landscape as a binding factor in mind, already in the *personal statement*. At this moment I still considered the buildings and the landscape as one blended entity. So the program was the binding factor. Later I had rethought my project it was formulated in a way where the buildings are their own spaces within *Plots in the Wood*. The approach here now is that the buildings create different possibilities in which the user or dweller can move into or interact with the landscape.

At that moment I was still in the process reading *Reduce, Reuse, Recycle* through the different themes where two of them struck me as fitting to the project: *Addition*, was already one of tools I was using and *Material Recycling*, that seemed to add to the creative businesses as a program.

Reduce, Reuse, Recycle is structured in way that it goes through themes and approaches that show the practical use and proof of concept for adaptive reuse for the built environment. These separate building entities currently exist in various stages of development, from empty to in full use. The building (types) will all be treated in sense by one of three themes: *Infill*, *Maintenance* then *Conversion* or *Addition*. These would be tailored to every unique building with or without existing program. To lead into the next subject the theme *Behavior* is an overarching theme that is about doing small interventions in landscape or building like adding a path intended to invoke action by the user or dweller.

II. Unfinished architecture

In this section the notion of “unfinished architecture” is discussed and how this is applied in the buildings in the *Plots in the Wood*.

The starting point for the focus of this section comes from the chapter *Addition* is where there was a clear link with my approach on treating the existing (built) environment. During a recorded conversation between Sonja Nagel, Björn Martenson, Jan Theissen, who formed the collective called *AMUNT*, and Florian Heilmeyer the notion of “*unfinished architecture*” comes forward: They are discussing a type of villa with one or multiple extensions that does not result in an aesthetically pleasing end result for most people. Two of them started taking pictures of a lot of these types of villa’s. These were added to their reference library. Architecture by the office is discussed and the interviewer Heilmeyer comments on them, “...*the buildings simply don’t appear so “finished”.*” Concluding it is stated that buildings with visible seams between different parts and materials and actually unfinished buildings for that matter show more information and they “*are more intelligible and sometimes even more stimulating than finished ones*”. A pristine finished designed building where everything is in place could be considered a dead point in the buildings lifetime it does not invoke a reaction. (Heilmeyer & Petzet, 2012, p. 164)

Unfinished Architecture

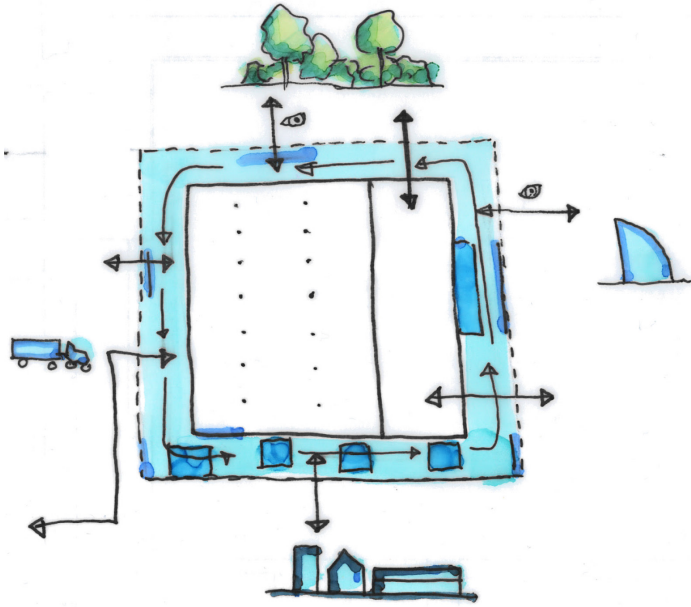
This term caught my attention. I have always liked to look at buildings throughout their building process. For the past 6 months I have been cycling past a new housing project. Not a building which I like from looking at the render. It is interesting to look at how it develops and see how the building works and clash with the activities around this building site. So now I have this connection which a building which I

was not planning to find interesting but it struck me that even before the building was finished there was involvement, wondering, interaction, reaction.

In *Building the Unfinished* Lars Lerup explains that in Switzerland before building starts with placing laths at every corner that reaches the building height that is planned (1977, p. 152). The book discusses *unfinished architecture* or more precisely the unfinished building. Lerup goes into the fact that architects, behaviorists specifically, tend to design a space exactly and precisely for the intended function. This does not leave room for interaction and dwelling in a space. The focus shifts from a protest to the relationships between people and objects, or spaces and architecture. This relationship is interactive and goes both ways. He takes the stairs as an example, for a child it can be a mountain, for somebody else a riser, a storage place. It is important to look at architecture and buildings as things dwellers can interact with and in. A designer can design a space or an object to stimulate that, but over design and it does not have the same effect. There needs to be space that the dweller or user can appropriate so the space or building is something different in that moment or period. This requires the architect to balance between being a manager in some respects and in other instances to leave things open for the dweller to rebel or appropriate (Lerup, 1977).

This is similar to the approach that the architects duo Lacaton & Vassal have taken in some of their dwelling reuse projects. They mainly add an extra buffer space that can be open or closed, freedom, that the dweller can appropriate and use according to their wishes. They state that often just adding some sliding doors is enough to make or change a space. (Lacaton & Vassal, 2015)

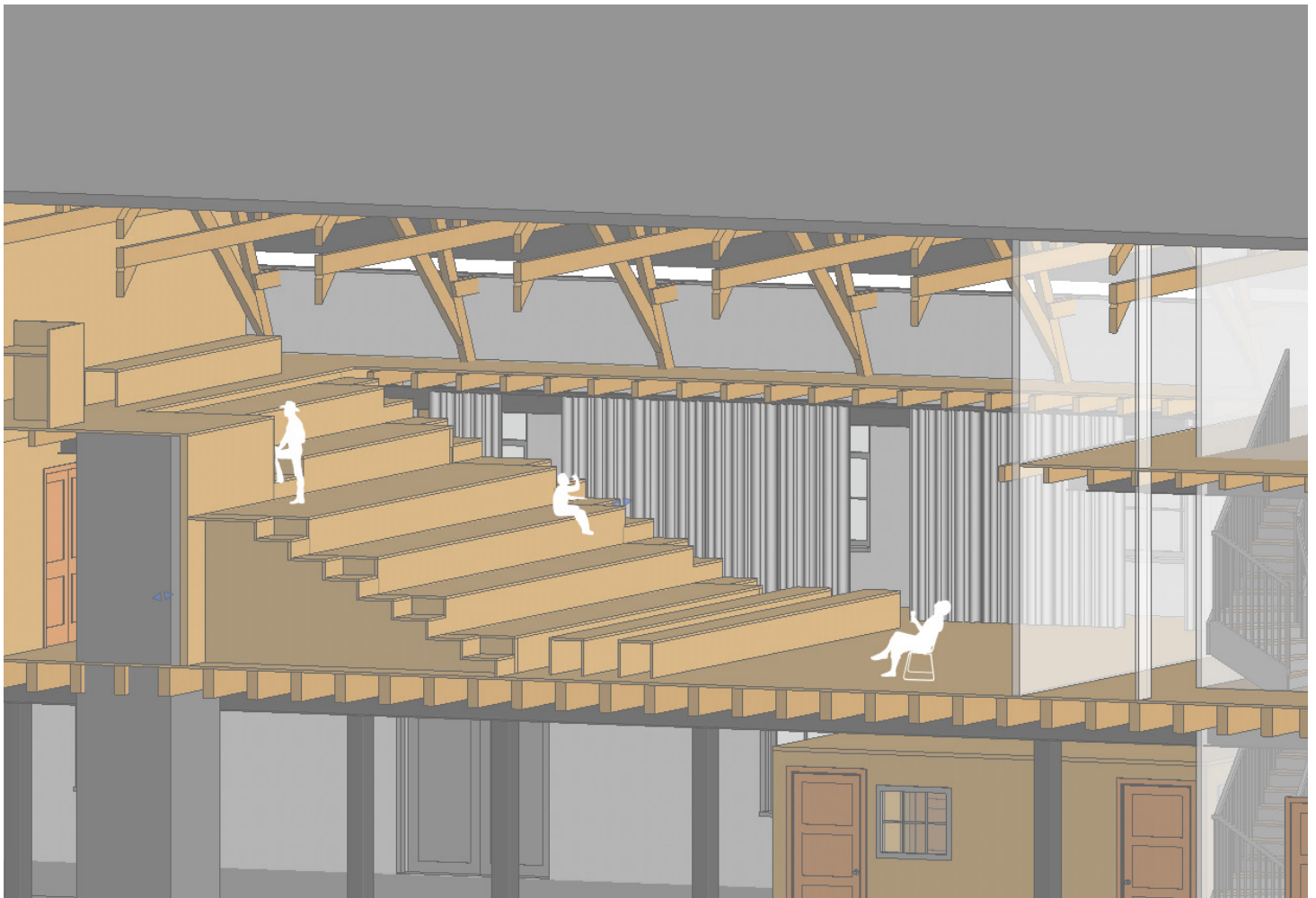
Reflection



The zone around the warehouse & workshop building to meant to create a vaguer boundary.



An appropriated space designed by Lacaton & Vassal (and the dweller). From "architectenweb" by Ruault, 2014.



Process image of the interior of the new theater spaces showing different interactions with the space and materials.

Production Biospheres

These are important aspects for this design, to get the dweller actively involved in the building and the space, to actually make it a place through interaction. One example in the design that was first described as a zone where either the public or the building itself could expand into to create a vaguer boundary, for the building was too closed. At this moment there was happening too much. It was changed to that a zone around the building in the public space is defined where the user can appropriate the outside space and add parts that do not fit in the main space of the building and create interaction and clashes and this way a different perception of this border. In other buildings a path was added to invoke different actions but the scale of this buildings needed a evolution of this gesture.

In another part of the project, a small theater is fit in the existing building, this building has different properties and values again. In this case the building is cut into, but it is clearly left visible and made a part of the atmosphere. The space itself is bigger and lighter now, for this to have this interactive quality the building is brought through adding a new area, in the form of staircase or “*lump*” (Lerup, 1977, p. 127-129) that makes for multiple possibilities, the curtains make the space closed or a crossway. Further interventions past this design proposal will be orchestrated by the future users, when they are deemed *necessary*.

The proposed interventions of this graduation project need to be considered as part of an ongoing process. The process design needs to be resilient. Therefore on the building interventions should create possibilities and spaces to appropriate not only for the current dwellers, but also the future users and dwellers of these buildings and spaces.

III. Circularity

One of the connecting themes of this process project is the concept of circularity. The approaches in this project on circularity are present on multiple levels. Firstly spatially, an important factor in the Netherlands where space has to be managed very carefully. Secondly through program and thirdly material recycling and reuse as a starting point for the materialization of the different buildings in this production biosphere. Circularity and reuse are important for the project as the process design is based on the fact that the site is and will be changing in the future. Therefore the design cannot be defined as a finished product, it needs to be open ended.

Circularity of space

There is a large amount of empty buildings in the Netherlands. Recently it was determined that 40 up to 75 million square meters of building space is empty and unused; From this amount 30-40 percent of that is structurally empty. At the moment there is interest from the economic market to use these spaces. (Ouweland, 2018) It is suggested that this amount will increase without intervention due to continuing economic growth. The demand for property will increase and therefore the affordability of homes and other spaces for example will decline (Donkers, Velleman, & Koenraadt, 2018). As both the above referenced report and article suggest there needs to be drastic change in the use, or lack thereof, of existing real estate. This already stresses the importance of the graduation studio's department of *Heritage & Architecture*. Architects can, just by being familiar with a tested method of treating existing buildings and spaces, already help with this necessary shift in the real estate market.

This shift towards reusing and recycling spaces, becomes even more important in the context of a small country and densely

populated like the Netherlands. Here the space has to be managed carefully. Lacaton & Vassal describe an approach to treating cities and their existing buildings in the following way. Replacing an existing building with a new one is often not desired because the new spaces will most likely house less people than before. (2015) This can be partly due to changed regulations and the expected size of for example a new house. They propose to streamline the existing real estate and maximize this (Lacaton & Vassal, 2018). This may solve some spatial issues without adding to or replacing it with a new building. After *changing perception*, addition should become an important theme now, not in the future. *Addition*, also of new buildings, is inevitable but first the existing needs to be used efficiently and effectively. The managers collective of the built environment, where real estate agents and architects are part of, need to take a different, but important, approach.

The book "*De Draggers En De Mensen*" or the carriers and the people, describes problems of the social housing market. The writer Habraken describes a change in the approach of housing where more individualism is allowed (1985). This because the necessity of social housing had, and still has, decreased. A physical framework is proposed where, prefabricated more individual buildings and spaces can be placed according to what dwellers supposedly want. It presents an utopic city where all inhabitants will flourish and are able to choose and form their environment. This suggestion is vague and probably flawed but it is in the same realm as the ideas as Lerup discusses in *The Unfinished Building*. It doesn't address the creativity of the user, it's still written from a perspective where the city is completely managed top-down.

This approach suggests a large shift in the field of architecture and urbanism for that matter. The solution that Habraken suggests

Reflection

is not an attainable one to me. He describes structures in the same category as bridges, streets and other infrastructural and urban elements (Habraken, 1985). The descriptions fall short compared to the ambition of the ideas presented. They are supposed to be carriers for the city and its buildings but the description brings and refers to the post war planning that it tries to distance itself from. Instead of finding and trying to find the shape of these utopic cities formed by carriers. I am suggesting to use the before mentioned empty buildings as these carriers for the spaces, programs and functions that dwellers need. These projects already have values that need to act as the basis of a design to aid the needs of the current and future dweller. Developments and designs are not be focused on creating a utopia but to experiment with elements like the “*lump*” (Lerup, 1977, p.128) and its interaction with humans and vice versa. It is important to develop and understand these more subtle designing tools further to create designs that allow for change are still aimed on the users and dwellers as individuals but through allowing space for them to appropriate.

Hill discusses possible reasons that so many older buildings, specifically architecture before the functionalist architects that came in the wake of architects like Le Corbusier and Mies van der Rohe. In the context of the open plan which makes for “*a loose fit between space and the actual use*”. In a lot of older buildings there exists flexibility through spatial redundancy. This allows for the appropriation of these existing spaces. Hill Describes several precedents and it becomes apparent in three clear precedents: The first one is Villa Rotanda by Palladio with it’s neutral spaces that were occupied according to the views or surroundings and use. Later during the rococo period richly decorated spaces were created with the focus on these ornaments and left a background for a space that was free to appropriate further. Finally the *fusima* sliding partitions allow for different connections and divisions

between the spaces according to the inhabitants mind and undefined by a specific function. (Hill, 2001, p. 357-359) This idea of flexibility by spatial redundancy is central and especially apparent in the former production spaces on the Plots in the Wood, in the middle of a former military industrial terrain of Hembrug.

This is not a new approach, it had several interpretations and applications in the past. Architects like the before mentioned Lacaton & Vassal, Lerup and the interviewed architect trio have approached and researched architecture in a similar manner. The title of the book of Lacaton & Vassal, *Freedom*, suggests freedom for the dweller to change, add to, occupy, expand. The dweller should be able to appropriate the space and make it theirs. The architect can make sure that this is can happen and will make sure it is possible for the next user to do so as well.

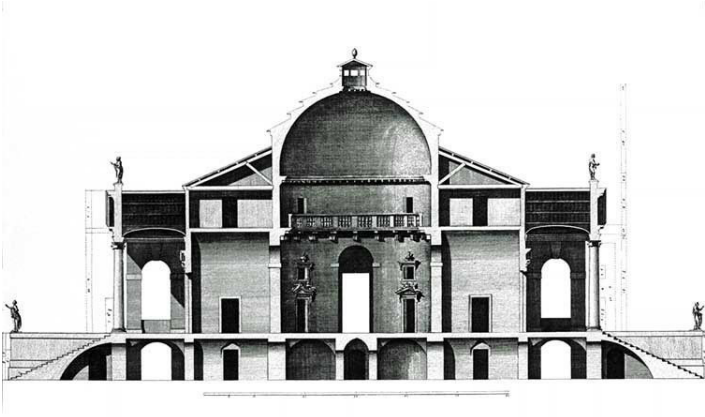
Circularity in use

This suggests a certain creativity, that exists in several grades, from a dweller or user. Jonathan Hill concludes, in his article “*The Use Of Architects*”, that there are three main groups of users: The passive user, the reactive user and the creative user. From the users that dwell in spaces that are completely defined by the architect to the reactive and creative users that change their environment on different levels. (Hill, 2001, p. 364)

Hill describes work of different architects in his paper. The work and thoughts of *Herman Hertzberger* discussed here make an important statement regarding the main focus of this reflection. Hertzberger proposes the term “*polyvalency*” instead of flexibility (Hill, 2001, p. . Flexibility is about the accommodating for different uses or as Rem Koolhaas puts it:

“Most changes are unpredictable. ...Flexibility is the creation of margin-excess capacity that enables different and even opposite

Production Biospheres



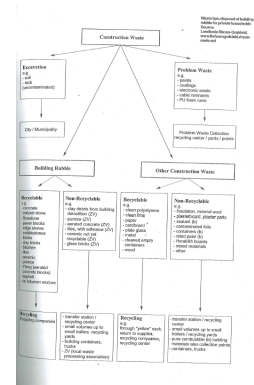
Section of Villa Almerico Capra "La Rotonda" by Andrea Palladio in Vicenza, Veneto, Italy. From "wikipedia" by Scamozzi, 1778.



A space from in the decorative in late baroque or rococo style. From "itZbcause" by Unknown, 2019.



A Japanese house with tatami mats and sliding doors. From "Matcha" by Nishino, 2017.



Construction waste and materials mapped. From Reduce, Reuse Recycle, by Hantje Cantz Verlag, 2012, Ostfildern, Germany.



Interior photograph of the HAKA Recycle Office designed and developed by Doepelstrijkers architects. Retrieved from "doepelstrijkers" by Doepelstrijkers, 2010.

Reflection

interpretations and uses". (OMA, Koolhaas & Mau, 1995 in Hill, 2001, p. 358)

The term flexibility is too broad for this project, the term is too open for interpretation. This can lead to misinterpreting in the sense that flexibility could account for every possibility that could result in a flawed design where there is unclarity for the eventual dweller. Then, as Hertzberger argues,

"... *it can never be the best and most suitable solution to any one problem; it can at any given moment provide any solution but the most appropriate one. Flexibility therefore represents the set of all unsuitable solutions of a problem.*" (Hertzberger in Hill, 2001, p. 360).

Koolhaas already starts suggesting it in his definition but the term "*polyvalence*" is closest to what this projects needs, and is more fitting to *unfinished architecture* (Hill, 2001, p. 360). It is defined similar to how *Lars Lerup* defines the unfinished, through his *lump* description of a stairs, open for interpretation and different uses, despite being an unchangeable form in itself. It resists fixed meanings as Hill defines (2001, p. 360). This is key for this graduation project. The use and solution then comes from a two way interaction between the object or space and the human. Hertzberger uses a Montessori School design to illustrate *polyvalence*, here he proposed a podium block and square hollow (Hill, 2001, p. 360, 361). These elements are in the way but therefore they force the user to adapt and think of and use it with a fitting purpose. These kind of ideas and interventions are important for the idea that the program or function could change a lot during the use of the building.

Space needs to be considered and understood in a circular and temporary way; Because of this understanding buildings could and should be used for things that they weren't

build for initially. The architect should create or emphasize spaces for the possibility for different appropriations by the next but also other future dwellers. This is a necessity for the current day and age in the Netherlands, as an example where as good as every square meter is defined or planned. There is a limited amount of space and a lot of people that occupy this space. To keep the Netherlands habitable we need to take care of our environment and the focus of most architectural and building developments therefore should shift from creating the ideal city, like Habraken envisioned for example, towards architecture, landscape architecture based on what is already there and to maximize the use, experience and use through the inherent values connected to existing buildings and their context.

Recycling material

In the current context it is important that buildings need to be used as long as possible and new build with this intention or as a temporary removable vessel, like the tiny houses that are popping up all over the Netherlands. These structures and new buildings should be built with used materials, because not all buildings will be reused. This is central theme for materialization in the project.

Material reuse also one of the important themes in *Reduce Reuse Recycle*. When a building is torn down it is important to do this smartly. There is a large amount of waste and it is important to make sure that as much of the material as possible will be reusable in one way or another.

In *Reduce Reuse Recycle* under the theme *Material Recycling* construction waste is mapped, by Landkreis Rhoen-Grabfeld, in an overview that also shows possible ways of reusing or processing it. In this chapter it is described that currently the reuse of construction materials is mostly for small scale use for a niche market of "budget-

Production Biospheres

conscious “do it yourself-builders” and aficionados of historical elements” (Heilmeyer & Petzet, 2015, p. 173).

There is as of yet no developed market and structure that could provide for larger scale commercial projects, reusing an existing building could help in putting this into motion assuming fewer materials would be necessary here in first instance. The HAKA Recycle Office in Rotterdam by Doepelstrijckels is an example of this. The basis for this project is a factory complex that was designed for production. Now it is a exhibition space with auditorium, meeting and office programs. Construction material streams were mapped so the different spaces could be designed with platforms, tables and different separating elements that are all constructed out of different used building materials originating from torn down buildings as close as possible or the material broker in nearby Vlaardingen named KOMU. Most interventions are based on and are a consequence of the available materials. The materials sourced from KOMU were not cataloged therefore their origins are unclear and not traceable. The aim was to make the example interventions as effortless as possible to show that it could be done by everyone. One of the goals and next steps from this project is to optimize this way of building and create system and method that will operate on a regional or district scale. (Doepel, 2017)

The program and central function of this graduation project plays into this missing factor. The material warehouse and processing workshop as a program redistribute, store, process and finally catalogue used materials and makes them available and usable for one the one site larger commercial and public projects and for the individual do it yourself-builders as well. The warehouse building reacts on the creative businesses already present on the Hembrug and proposes and extra option for more sustainable material use.

Important for the overall materialization of the project it was important that the interventions would not break with the atmosphere of *Plots in the Wood*. So the reuse of construction materials help fit in the interventions so the main spaces and values are enhanced and build upon rather than creating a stark contrast almost competing with the existing.

Important for all of these aspects is that buildings and the forming of them become more accessible and fun because more changes will happen and in this way the dweller gets a larger place and the evolving of buildings becomes more natural and can happen longer so maybe even older community ideas connected to place will happen comparable to the old city centers of a lot of cities in Europe where building are lived in, reused and altered again and again.

Conclusion

The answer to whether the approach was successful is yes. It does not end there though, the methods from the studio's department Heritage & Architecture are a working starting point. It gives space to weave in aspects that are not within the field of architecture or need to be treated a different way like the landscape in the project. In the end the value matrix forced me as a student to work towards values, positive and negative, that can be put in the matrix for critical discussion. However the methods borrowed from landscape architects used to create an open ended process design needed a lot of changing and re-stating. I took these as ready to be used at first but then later during the process of the design found out that these approaches change with the design and create a new set of rules then. Links and narratives needed to be created between the method of cultivating, staging and setting up and the approaches for the buildings based from *Reduce, Reuse, Recycle*. Therefore research and design happened side by side. It was successful in the end but a lot of tweaking was necessary to get the design to the current state.

A third and final discussion here is whether the project is suitable for the real world in practice. The actions and considerations are aimed towards making it as realistic as possible to invoke interaction, create space and not creating a space that is tailored specifically to one action. In that sense it should work, but a lot of the research and considerations are simulated from reference projects from for example Lacaton & Vassal and texts by Lars Lerup. So in the end I can imagine that it will work in practice, but there is a large chance that something totally unexpected would happen than was thought of, which is also exactly the intention. A dilemma here and during this design process was the fact that a designer cannot make a space that accounts for everything, no one can, but can try to invoke interaction and

with that create architecture.

Using existing buildings and structures as carriers should extend their lifetime and allow them to become one with the places, and vice versa. The line should be vague like in the old city centers of European cities. Where there is a connection and the buildings help create a sense of community and identity. To keep the Netherlands habitable we need to take care of our environment and the focus of most architectural and building developments therefore should shift from creating the ideal city towards architecture, landscape architecture based on what is already there and to maximize the use, experience and use through the inherent values connected to existing buildings and their context.

The graduation process project *Production Biospheres* in terms of materiality is focused on the atmospheric qualities that are of high value in the *Plots in the Wood* and is intermingled with part of the newly added program. The spaces should evoke the appropriation of it by the different future dwellers and should make living in and interacting with the building to eventually make the transition from resilient space to place through a process design that is based on values the values of the building(site) and accounts for the different rates of change for the values, landscape, building, materials and technology.

Literature

This paper is written in *APA-style* as is customary for most texts written for the Architecture faculty in Delft.

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