

# Symbiosis



Reflection and positioning  
paper on the graduation  
project 'GGZ Hembrug'



# Introduction

This paper is a reflection on the graduation project and takes a position in the field of Architecture and Heritage. The graduation project is focused on a transformation of industrial heritage in Campus North in Hembrug, a former closed-off military production terrain on a peninsula in Zaandam.

For a long time the terrain was used by the Artellerie-Inrichtingen for the production and manufacturing of weapons and ammunition for the Dutch army. After the companies left the area, the area became vacant and nature took over the area. Now it is an oasis of rest where time has been standing still. The area is located in the metropolitan area of Amsterdam with Zaandam and Haarlem on the other side. This is an area where people are mentally and physically suffering under a lot of stress en pressure which resulting in overstraining, depressions and burnouts. At the moment new developments are started to reconnect this former closed off area with the city. For a lot of buildings there is still no future plan. Some of them are in temporary use and others are already transformed. Campus North is located near the new entrance of Hembrug. This part of Hembrug is located on the border between the open campus of the terrain and the forest.

The assignment for the graduation project was a transformation for the ensemble Campus North and consisting out of: two buildings, building 8 'the weapon depot' and building 320 'the machine hall', an open space in front of building 8 including the old Foundation of building 309, 'storage and canteen' and a piece of forest next to building 320 including there surrounding. For both buildings there is still no permanent function.

In the graduation project the ensemble is transformed into a GGZ complex where people can be treated and residence who suffer from stress, burnout and depression. The machine hall will get the new function of a treatment centre combined with a small theatre and the weapon depot will be transformed into an open residential community. On the terrain there will also be a closed residential community and a gym realized in new buildings.

In this paper there will be reflected on the process, results and the social and scientific value of the work in relation to Heritage, Architecture and AUBS. Hereby will be mainly focused on the question: *How can different research and design elements work in complementary way to substantiate the project?* The paper is divided in five themes: Utilitarian (social and scientific function), Complementary architecture (interdisciplinary design), Raison d'être (research and design), Narrative buildings (research methods) and Ethic (ethical issues)

# Utilitarian

The function of architecture and the project

## Functional design

With a surplus of vacant industrial buildings the re-use of these buildings is a hot topic these days. We don't live in a time anymore where we can demolish with no reason and build a new suitable building on the same place. We need to find smart solutions to deal with these buildings in the form of re-use, redevelop and redesign. Especially with monumental buildings this is an interesting topic. A monumental building can be restored in its original state, but without a function it is just a pile of bricks. Men made buildings to be used and not just to be pretty, after all a building is still a utensil. Buildings are utilitarian, they are in the first place designed to be useful rather than attractive.

With buildings like this we need to find the tolerance of chance where the building can have a new purpose without losing its monumental value. For both the weapon depot and the machine hall in Hembrug, there is still no final purpose. The design project can help in showing new possibilities to deal with these kinds of buildings.

With small interventions the buildings are transformed for the new use and function, but the same ideas and approach can in an adjusted form also be useful with another infill. This can help in the redevelopment of Hembrug but also other vacant industrial areas that need to be transformed.

## Functional research

The problem with most of those massive industrial buildings is the missing of the human scale. (fig 1) The results of the research and design on this can help architects in the future with the transformation of large industrial buildings. Because how can a building that is made for big machines be transformed to be made for people? The findings for this problem are tested in the proposed design. The effect of this intervention on the experience of these buildings can help other architects and give new insight in dealing with industrial heritage.

The results of this can be applied in the form of layering in multiple scale levels. The current view on this is based on placing smaller volumes that fit the human scale inside the open space. To preserve the connection with outside and the larger space, extra layers are created which help in the experience and the connection. Herby is specific focused on the space around the volumes which work as an extra layer in the sequence of the experience of the spaces. (fig 2)

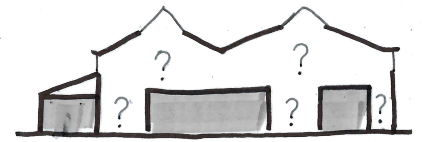


fig 1 How is space transformed to the human scale?

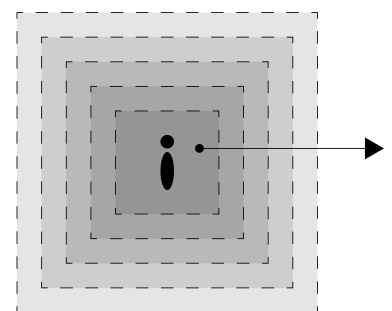
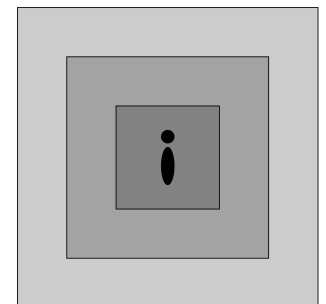


fig 2 Layering in creating personal space

# Complementary architecture

Interdisciplinary designing in a search for complementary interaction

## Acceptance

During the graduation project a building is transformed into a mental health center. The project location is located in the metropolitan area of Amsterdam. This is an area where a lot of people suffer from overstrain, burnouts, depressions and other mental health diseases. (TNO, 2018) Mental health diseases are mostly the effect of an event or events in the past. They are not coming out of nowhere but having a clear cause. With the use of therapy this will be examined in order to remedy this. In most cases this is put away deep inside their minds in order to try to forget this. With therapy mostly is searched for acceptance of this cause. This is important because the past cannot be changed, forgotten, edited or erased, it can only be accepted. You have to understand where you have come from in order to go forward. This reminds me of a quote used by George R.R. Martin in one of his books.

*"To go north, you must journey south. To reach the west, you must go east. To go forward you must go back, and to touch the light you must pass beneath the shadow."*

*George R.R. Martin*

Despite the fact that his work is prose and has nothing to do with architecture, this text nevertheless has an interesting load and is almost poetry. Instead of only looking forward at your goal, the route you have already taken, no matter how difficult it was, can help you in a positive way. (fig 3)

This is exactly what has been done in the studio of Hemburg. Originally the area was a military production area, an area that can be linked to war and destruction. In order to revitalize this area a new positive direction is needed without forgetting where we have come from. This can also help to emphasize what for great time we are living in with peace and economic progress.

These positive effects also have a downside. Overpopulation and resource depletion are lurking and let us focus more on the existing building stock. Therefore the field of heritage takes a more important roll in the field of architecture the past years. A heritage project needs also to be viewed from other architectural disciplines. In case of the design project it also touches the areas of public buildings, interiors and architectural engineering. This resulting in an interdisciplinary design, where the views of different chairs can contribute each other.

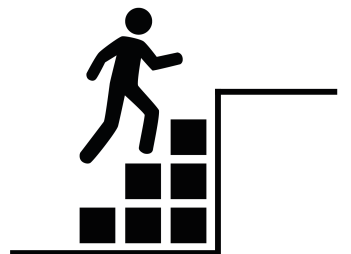
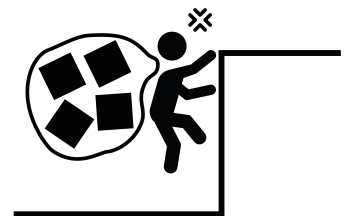


fig 3 Accept what you carry with you and use it in a positive way

## Integral design

Most important for a function like this are the different levels of privacy. Because you are dealing with very personal matter, a protective environment is needed without the feeling of imprisonment. This starts already on an urban level. The distinction between public, semi-private and private is translated towards a building scale. By looking at the building through an urbanistic lens, principles from different disciplines can contribute each other. (fig 4)

Accepting is also important in the field of building science. Designs these days are asking for a much more integral design. Where in the past technology was more a tool to create the architecture, they now work more in a symbiosis. In the design is search for an approach where the technology increased the architectural concept, and the architecture makes use of the technological possibilities. An example of this, used in the design, is the use of green with both a technological and architectural function and making the existing construction part of the architecture.

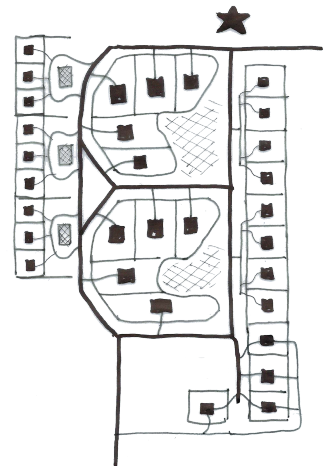


fig 4 A building drawn as an neighborhood

## Symbiosis

1 *"The relationship between two different living creatures that live close together and depend on each other in particular ways, each getting particular benefits from the other."*

2 *"A relationship between people, companies, etc. that is to the advantage of both"*

*Oxford Dictionary*

# Raison d'être

Research as a tool to justify the design

All the decisions taken in research and design process are having a reason. Even intuition-based decisions are in fact followed out of the frame of reference (Van Dooren, 2013) lying in our subconscious. If we know what's underlying the decisions we can understand the design. Doing research is not the goal, the design isn't either. They are both tools, which can help each other in the gathering of knowledge.

## Research in Architecture

In the field of architecture, research and design are two terms, which are used a lot to describe the process and justify the decisions taken in this process. The fact of doing research makes an architectural design different from art and construction. Art is driven from the personal expression of the artist while the laws of nature drive construction. Architecture can be found where those two worlds touch each other. It must be mentioned that it is not that black and white. In fact is the sketching and practising of the artist a form of 'Research by design' (fig 5) and construction is a form of 'Evidence-based design' because it is followed out of researching physics. (fig 6) In Architecture this is one of the most difficult distinctions to make. In 'Vers une architecture' (1923) Le Corbusier also touches this theme.

*"You employ stone, wood and concrete, and within these materials you build houses and palaces. That is construction. Ingenuity is at work. But suddenly you touch my heart, you do me good, I am happy and I say: "This is beautiful". That is Architecture. Art enters in."*

*Le Corbusier*

But what is the definition of beauty? Vitruvius has already mentioned beauty in his Architectura. He stated the three pillars for architecture where: utilitas, firmitas and venustas (utility, strength and beauty). With the use of research we can explain those terms and look with an objective view towards a subjective theme like beauty.

Also interesting is looking at architecture without construction, art in its purest form. In theory we can create everything what we want, in the real world we are dealing with the laws of nature but in our minds we don't have any rules and the possibilities are infinite. The Penrose stairs and the work of Escher are examples of this. (fig 7) Most of the decisions we make in architecture are based on the utility, strength and beauty of the building and with research we can explain those decisions.

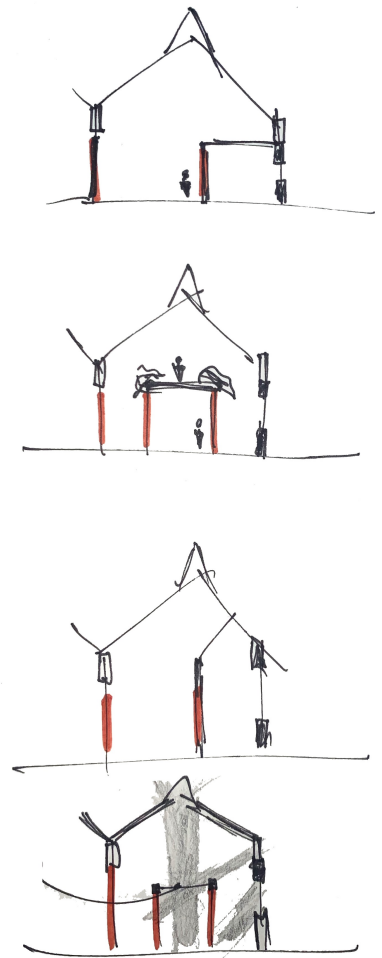


fig 5 Sketching as a tool to research possibilities



fig 6 The Primitive Hut of Lagier, architecture followed out of physics and nature

## Research in Heritage

With research we can explain our choices made in this process and let people understand the building. Especially in the field of Heritage research has an even bigger roll. Because you are dealing with an existing situation, not only the location has an influence on the design but also the existing building. The design of industrial heritage is mostly focused on 'forms follows function', an architectural theme introduced by Sullivan. In this case the building needs to be as efficient and flexible as possible with the lowest costs. Research on the function and it's needs and the personal experience of the user gives a framework for the design. The architectural expression and materialization is in this case mostly following out of the location and the available resources. This principle cannot be applied on every building. For representative industrial heritage buildings the architectural expression of the architect can still be perceived.

While dealing with heritage the first question that needs to be answered is why the building has to be transformed. By doing research on the building the values of the building can be determined. For most of the buildings that needs a transformation this is followed out of the actual value of the building. Is a transformation more cost efficient then demolition and building a new building? With a heritage building this value is based on the cultural values the building has. With research on the significance of those values, those values can be addressed and can be used to substantiate the design. By understanding the cultural values of the building you basically are trying to understand the DNA of the building, the information that makes the building unique and significant. (fig 8)

## Research in practice

In the current view on research and design, the process is seen as a linear line from start to end moving in between research and design. In this case the variable in the process is time and the result of the process is a timeline. But what difference the start and end from a project? Mostly the project starts with an abstract idea and is moving towards a concrete end result. (fig 9)

During this process there is a continuous interaction between the design and the research. After a design decision is made this needs to be reflected on the research. An intervention can increase, decrease or let a value be the same. This process is not a straight line from research towards design but more a circular motion.

Because the values mostly are related to the bigger picture and the experience of the building the effect should be viewed from all scale levels. In this case the process is not only an interaction between research en design but also between concretizing and abstracting. Even after a building is build, and the design reaches its most concrete form, the design can be evaluate and reflected on the original idea in a more abstract way.



fig 7 Relativity, a lithograph print by Escher, Architecture without physics

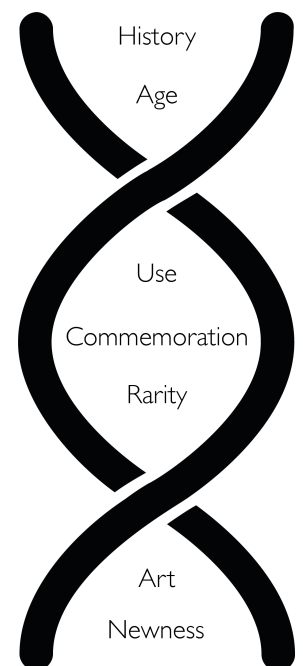


fig 8 The cultural values as DNA of the building,

This circular way of researching and design fits the idea of gathering knowledge where both can amplify each other. The Process is started by creating a frame of reference in the research on Strijp-S in Eindhoven and Céremique in Maastricht. With a visit to the location, the experience and existing situation gave the first design direction but also raised questions. With every step towards concreteness new research is necessary on the history, society, technique and design.

Every aspect in a design has its own function. And with research we can understand and explain this function. Every element has a 'raison d'être', a purpose in the greater idea. It can be a column with a constructive purpose, or an ornament, which raise the beauty. Everything is following out of an interaction between research and design.

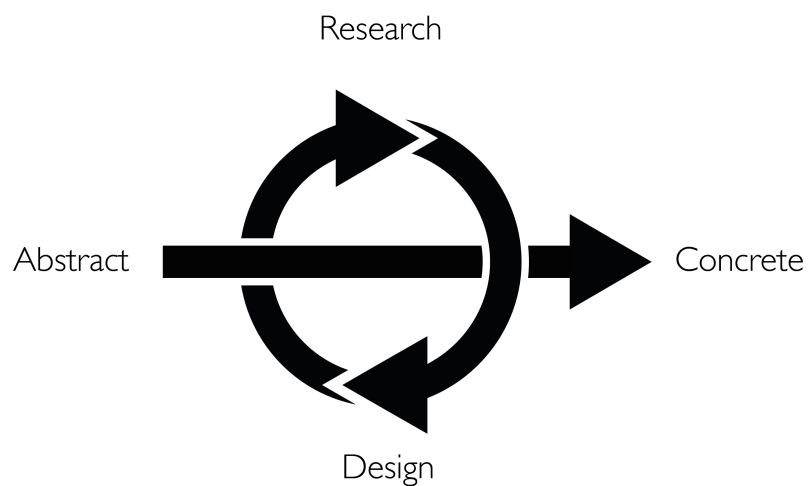


fig 9 The research and design process in a circular motion moving from abstract to concrete

# Narrative Buildings

The use of narrating and materializing in the research on cultural values

The studio of heritage differences itself from the others studios because there is already an existing situation, you are not only dealing with a location but also with its buildings. Important for a heritage project is to address its cultural value and the elements, which ensure this value. As a tool to research this values the cultural value matrix is given by the studio to clarify all this values and to arrange all this values.

## Cultural values

The way of researching in heritage is a four-step process. (Kuipers, 2017)) The first step is the chrono-mapping. In this phase the historical and current data is collected and mapped out in words, maps or diagrams. The reason behind it is to give insight in how the site evolved in its current state and what we can still see and trace back to the past. The second step is the value mapping. The goal of this value mapping is to give an overview and structure to organize all the values found during the chrono-mapping.

As a tool you can use the cultural value matrix made by the department of Heritage and Architecture. There are more research tools like this one, for example the Burra Charter and the Nara Grid. The last one does have lot similarities with the cultural value matrix but is much more focused on conserving instead of designing (van Balen, 2008). The third step is the Mapping Levels of Significance. Where in the Value Mapping it is about the qualitative research to address the values, it is in the Levels of Significance about the quantitative research on how important the values are and how they are arranged in relation to each other. The last step is to Defining Dilemmas. Because of some values are conflicting with the modern requirements and contemporary visions.

A way to organize these values is the division according's to Riegl his values. In his essay on Cultural values (1982) he sees the values as different lenses in which way you can look at the monuments. He argues already the similarities and differences between a historical and an artistic value. The most important difference is that the narrative that is behind the monument is brought tot the viewer his conscious. This can be done with the use of the visual materialisation or a narrative inscription. Most of the time this is an interaction between both methods, which amplify each other.

## Etude

Because it is hard to grasp this values I looked in my own research how and interaction between narrative and materialisation can be used the address the cultural value. My personal narrative based on the research is materialized in the form of a creative expression. (fig 10) I combined art and architecture to give a materialized expression of my thoughts with my own face as the canvas for the design. After this 'drawing' a play with words is used to describe this idea in a narrative way. (fig 11) It was interesting to see that the drawing, without saying anything, brought up different ideas and interpretation by each person. None of these interpretations was wrong but they addressed different elements of the same concept. On the other hand gave the words a concrete definition of the idea and the concept.



fig 10 The etude, a creative expressions combining art and architecture

You can see that both methods are part of a heritage related research. Both are used in a complementary way and not supplementary. They are not telling both half of the story because, either the narrative is not understood or either the narrative has many interpretations. To understand the historic value a combination of word and the physical material is needed because the experience is an important part in the value determination.

*"For me it's about the two faces of the site, on one hand the open campus structure: the freestanding buildings in the public space, orientated towards all directions, the repetitive patterns alongside all facades and the mix of typologies, which together form an uniform unity. On the other hand the forest, with his history and roots deep inside the past, gives the area its curious atmosphere. A roof of leaves penetrates the area and is meeting the open shared space in its core. It's about the connection of those two worlds and how we as users are part in this. The forest was always a safe haven, a place to shelter and to protect yourself when the sky was falling, but nowadays it can watch over you when you are escaping from modern society and find yourself peace and happiness. To see all of this your eyes are going through the buildings, light is falling on you, when your eyes are reaching through the twigs. Sight lines are racing past you and disappear between the trees in the horizon. All of this is lying in different time layers on the area and now a new layer is painted over the area but we can still see his original soul through his eyes, because they are the only things that never change."*

fig 11 The use of narrative in the etude

# Ethic

## Functionless and fake architecture

A heritage-based design is in the beginning always an ethical assignment. The fact that a building is Heritage gives already a social point of view. Some cultural values of a building are quantitative and can be measured like for example, age use and rarity. If a building is 1000 years old or is one in a kind no one will argue that. With values like historical, commemorative and art value, the values are much more subjective and can even be contradictory for different people.

With the use of the CV Matric in the research you will come across conflicting values. Because these values are qualitative and not quantitative to rank these values is quite hard. The researcher has to compare these values and organizes them in an ethical way and argumenta why one value is more imported then the other. Also these values have to be seen in the wider perspective. A concrete example for this is the "spatial quality" of a building. There are a lot of large open industrial buildings and not every building can be transformed into an event or expo location with an open floor plan.

## Functionless architecture

During the elaboration of the design there where always two conflicting dilemmas. First, can something be of value without a function? The old crane track of the machine hall is example of this. The crane track is not used anymore but has a historic value for the building. There are two approaches, you can leave it as it is say you should not touch it or you van give it a new purpose. In my opinion making it part of the new architecture can raise the value. Instead of working out of the construction and starting with giving it a new function, I started from the new architecture and how the original construction can contribute in this design. Hereby I found smart integrations like the hanging roof of the theatre (fig 12), the room dividing piles (fig 13) and the movable sun shading system. (fig 14)

## Fake architecture

The second dilemma was, is something what is not original in principal fake and needs the user to see de difference? There are two ways op approaching this issue. First the intervention can blend into the original design so it looks like it was always this way and second the intervention is clearly different from the original. For me the choice is made based on the effect on the building. If blending raises the value, for example reordering the windows so the repetitive pattern is still visible, this is the right way. If an intervention conflict with the original a distinction must be made between the intervention and the original in the form of experience and materialization. This is been done for example in the new trusses connected on the old crane track. In the application of the results in practice, the results of the research and design can help to make the ethical decision between demolishing and re-use because the results are showing the possibilities and opportunities.

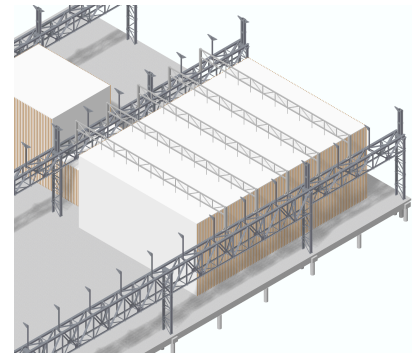


fig 12 The theatre roof construction making use of the crane track

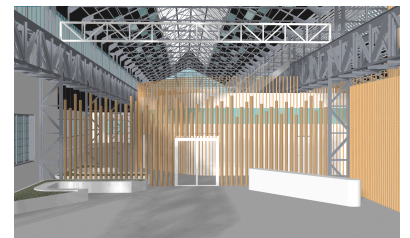


fig 13 The room dividing piles hanging like a curtain on the crane track

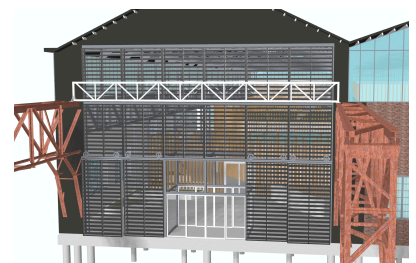


fig 14 Movable sun shading system which is moving as a crane over the track

# Conclusion

In this paper is reflected on the process, results and the social and scientific value of the work in relation to Heritage, Architecture and AUBS. Hereby is focused on the question: How can different research and design elements work in complementary way to substantiate the project? In the graduation project is mostly search for a way of research and designing where multiple aspects can benefit from each other. By looking at a project from this point of view architecture can work in a complementary way instead of a supplementary. Especially in heritage the new intervention can work as a symbiosis. The old and the new interact with each other and both achieve benefits from each other. In this way of thinking, one plus one is not two, it is three. The DNA of the old Building, his heritages, merges with the DNA of the new intervention and in this way new architecture is created with an even greater value.

## Sources

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## Illustrations

- fig 6 Eisen, C. (1755). *The primitive hut* [Illustration]. Retrieved from <https://archinect.com/news/article/150034219/omg-designs-primitive-hut-a-pavilion-that-will-decompose-over-time>
- fig 7 Escher, M. (1953). *Relativity* [Illustration]. Retrieved from <https://mcescher.com/>

