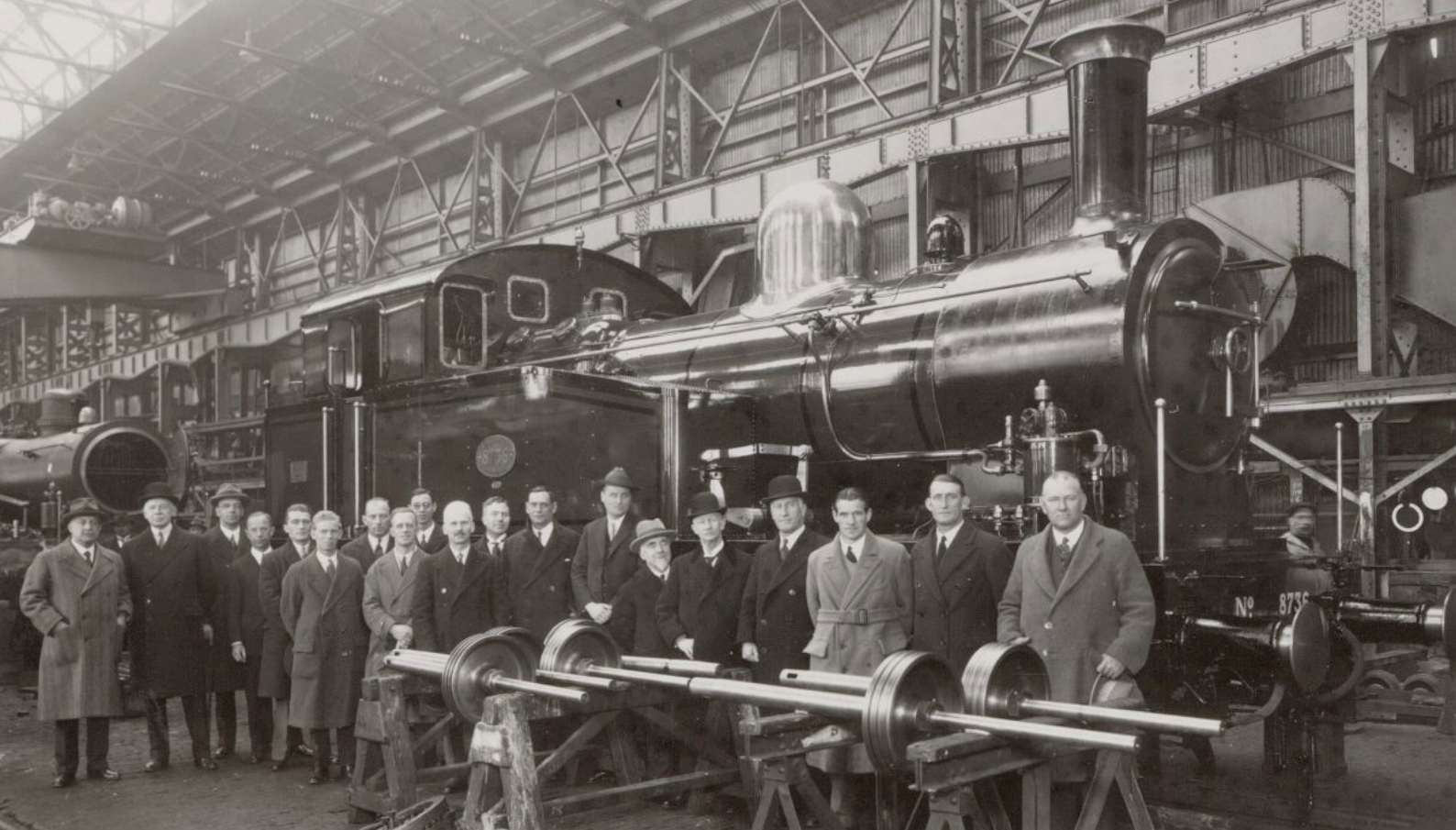




Research Report

Van Gendt redeveloping industry

The Van Gendthallen, industrial Heritage in the centre of Amsterdam.



Heritage & Architecture
Heritage & Amsterdam
Technology & Heritage

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Heritage & Amsterdam | Technology & Heritage | Van Gendthallen | Amsterdam

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Illustrations on cover

Front

top : Beeldbank Amsterdam nr. 010003013938

bottom : Beeldbank Amsterdam nr. 010003048625

Back

top : Beeldbank Amsterdam nr. B00000029464

bottom : Beeldbank Amsterdam nr. 10019A000479



The wide variety of industrial heritage in the Netherlands has long inspired and fascinated me. They offer insight into the industrial past of the country. During my study of Architecture and the Built environment at the TU Delft this fascination has remained and grown. As the graduation assignment of the master track architecture I've chosen the redevelopment of the Van Gendhallen in Amsterdam. This building is a reminder of the industrial past of Amsterdam. The cultural value ingrained in the building should be used to enrich this redevelopment.

To get a deeper understanding of cultural value and how it could be utilized to support the redevelopment of industrial heritage I've done research into cultural value and redevelopment of Industrial halls similar to the Van Gendhallen. With this report I aim to convey the extent and conclusions of this research. Doing this research has helped me to find the balance between the opportunities and limitations cultural value offers.

During the graduation assignment I've guided two mentors Job Roos and Wido Quist. Job critical view and drive for quality sharpened the design. Wido guided me in the integration of both technique and research into the design. I wish to thank both of them for the valuable advice and guidance they offered to me.

I hope this report informs you of the research I've done and enjoy reading it.

Rick van Delft

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1

INDUSTRIAL HERITAGE

Assignment

I will start with the introduction of the graduation studio Technology and Heritage, the Van Gendthallen in Amsterdam and the main challenge posed by the graduation assignment. The research in this report is part of this assignment and has been done to support the redevelopment.

Industrial halls

The Van gendthallen is a industrial hall shaped building. To clarify the typology of the building and place it into a broader context I will give examples of industrial halls like the Van Gendthallen and the characteristics they have in common.

Drive for redevelopment

One of these characteristics is their location. A lot these industrial complexes are situated on desirable locations in or near city centres. This together with the wish to preserve the cultural value drive the redevelopment of these complexes.

INTRODUCTION

Graduation studio Technology & Heritage

The focus of the graduation studio Technology & Heritage is on the redevelopment of industrial heritage. As with all redevelopment of heritage finding the balance between development and preservation of the cultural value is crucial.

The section Heritage & Architecture that organizes the graduation studio. Sees the de work field of Heritage as the balance of technology, design and cultural value.

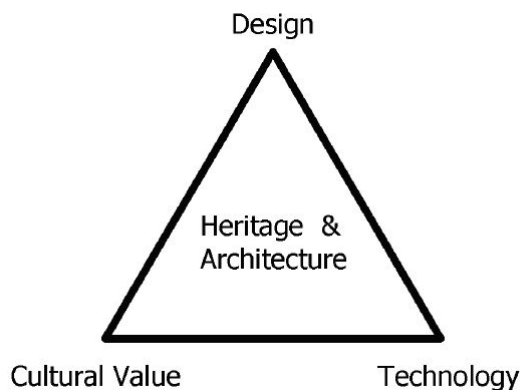


Figure 1: Triangle of Heritage and architecture

The benefits of balancing the conservation of cultural value with development to me is captured in the motto of the Belvedere memorandum, "Conservation through development", and the extension of this motto, "Development through Conservation" (Feddes et al., 1999).

To conserve the value there is a need of continued use and thus development of the build heritage. At the same time the development can be enriched by the cultural value ingrained in the heritage.

Industrial heritage however has its own specific characteristics that set them apart in the build

heritage field. The redevelopment of these buildings therefore need a design approach that is specifically focused up on industrial heritage.

The Van Gendthallen

The assignment of the Technology & Heritage studio is the redevelopment of the Van Gendthallen, located in the centre of Amsterdam. These Industrial halls are also know as the Werkspoorhallen or the Hallen van Storck, were a main part of the Stork-Werkspoor complex on Oostenburg and are listed as national heritage.

The building consists of five 156 meter long halls. The originally planned first tree halls were constructed in 1898. These industrial halls were built to enlarge the production capacity after the company got an order of 40 locomotives and 400 wagons from the South African railways.

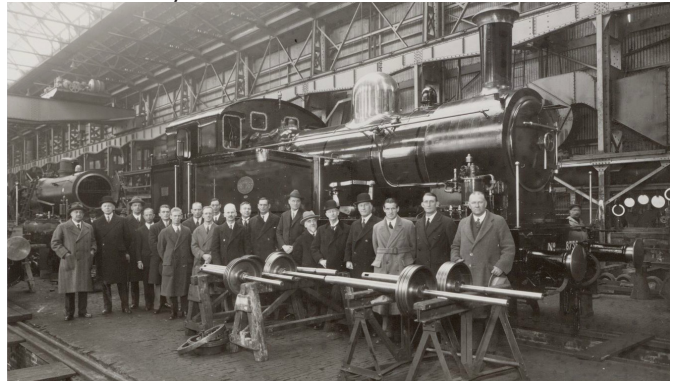


Figure 2: Locomotive build the Van Gendthallen

Halls 4 and 5 were build and enlarged in during several phases between 1902 and 1910 (Berning & Graaf, 2014). As is often the case with industrial buildings the main concern was functionality. The halls were build as low-tech shells to protect the fabrication process against the elements. Over time the original building has been enlarged, adapted, partly destroyed by fire and rebuild.



Figure 3: Van Gendthallen 1, 2 & 3 and part of hall 4

INDUSTRIAL HERITAGE

Location of the Van Gendthallen

Eastern islands

The Eastern islands in the north-eastern part of the city centre of Amsterdam have a rich history. They were originally developed as shipyards in the 2nd half of the 16th century. The islands played an important part in the defence and the economic growth of Amsterdam. Both the Admiralty of Amsterdam (naval defence) and the VOC used to have their headquarters on the isles.



Figure 4: Oostenburg in the centre of Amsterdam

Oostenburg

Oostenburg, one of the Eastern islands, was the home to the VOC until the end of the 18th century. The isle remained an industrial site until however the focus of the industry gradually moved from ship building to steam engines to railway equipment. Early 21st century the industry moved away and the site became vacant. Currently Oostenburg is at a turning point, the municipality of Amsterdam has plans to integrate the former industrial site into the city centre.



Figure 5: Van Gendthallen on Oostenburg

Cultural value

The way the halls were built and adapted over the years to facilitate the production process has shaped the character and atmosphere of the building. The functional way the building has been shaped reflects the industrial purpose of the building. The cultural value of the Van Gendthallen lie in the industrial past it represents.

The Dutch national agency for cultural heritage defines the cultural value as follows.

"One of the last remnants of turn of the century large industry and shipyards"

"Historic importance as a memory of developments in Dutch Iron- and Machine engineering"
(Erfgoed, 2001)

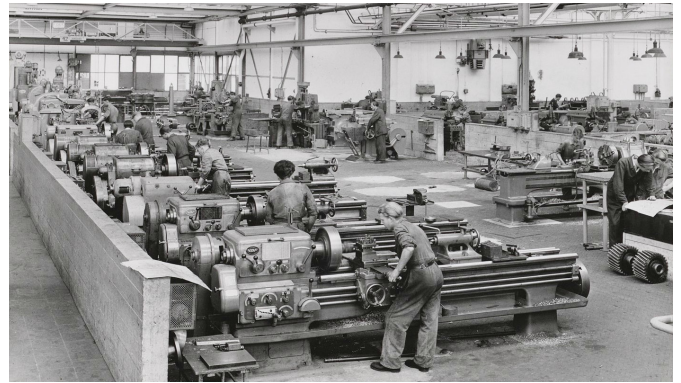


Figure 6: Production line in the Van Gendthallen

Large industry and shipyards

With the decline of the Werkspoor-Storck company the large scale industrial activities and shipyards left Oostenburg. What remains are structures such as the Van Gendthallen, the cold gas building and industrial cranes. These tangible elements are important because they are the remnants of the industrial past.

Memory

The heritage agency also sees the Van Gendthallen as a memory of the development of dutch industry. This implies that the tangible structure, the materials contain the intangible memory of the historical industrial development that took place in and around the building.

Redevelopment challenge

The description of the cultural value given by heritage agency to me confirms the importance of the intangible aspects of the Van Gendthallen. The tangible aspects of the industrial halls are a way to capture and preserve the intangible, such as memory and history. I see the preservation and utilization of the intangible values ingrained in the halls as the main challenge during the redevelopment of the building.

INTRODUCTION

Industrial halls

There are several industrial complexes similar to the Van Gendthallen in the Netherlands. I will focus on industrial halls in or near the centre of dutch cities. In this section I will discuss the common characteristics of these complexes.

Typology

Mid 19th century the upcoming iron and machine engineering industry in the Netherlands made increasingly larger products. To house the production process they needed large scale single story buildings. This need led to the introduction of the industrial hall in the Netherlands. Near the end of the century the introduction of structural steel made large scale halls possible (Loeff, 2006).

Location

These industrial complexes were originally build next to cities. However over time the cities have grown around these sites. Today the sites are surrounded by these cities.

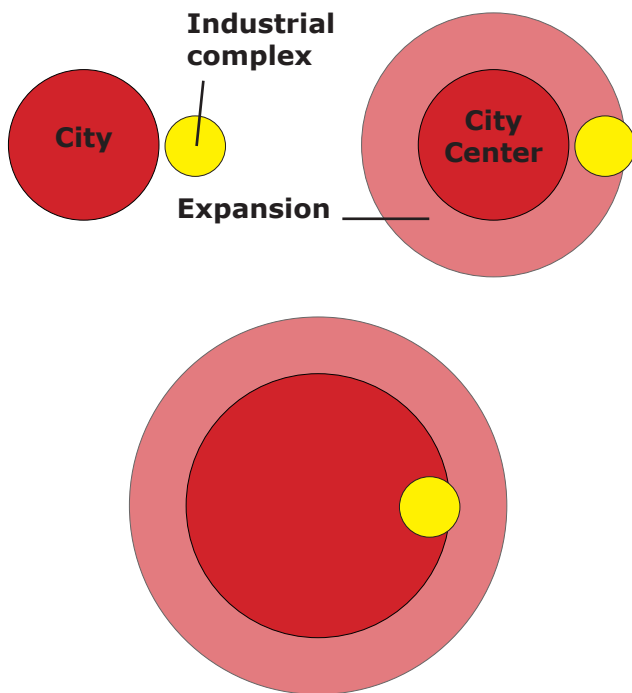


Figure 7: City growing around an industrial site

The growth of the city leads to tension between the industrial use and the residential neighbourhoods surrounding the complexes. Often this leads to the disappearance of the industry, the industrial sites become vacant. The sites offer the opportunity for (re)development within the city. Several have already been redeveloped.

Pragmatism

The Van Gendthallen were originally build to house the manufactory process of locomotives and wagons. They can be seen as pragmatic, functional, efficient,

cost effective shells to keep out the elements. The pragmatic way of building is typical for industrial halls.

Adaptation

All buildings will be adapted over time as long as they stay in use. These adaptations can be simple maintenance to prevent degradation. However often the adaptations are more substantial.

Steward Brand identifies three forces that drive the adaptation of buildings: technology, money and fashion (Brand, 1994).

For industrial buildings, technologic innovation and Profit are the main drives of transformation. Technologic innovations and profit optimization drive both the need for adaptation and changes the way the adaptation is realised. Innovation can for example require adaptation of the building that make the production process more cost effective.

Adaptations to the Van Gendthallen

The Van Gendthallen have also been adapted multiple times during their life time.

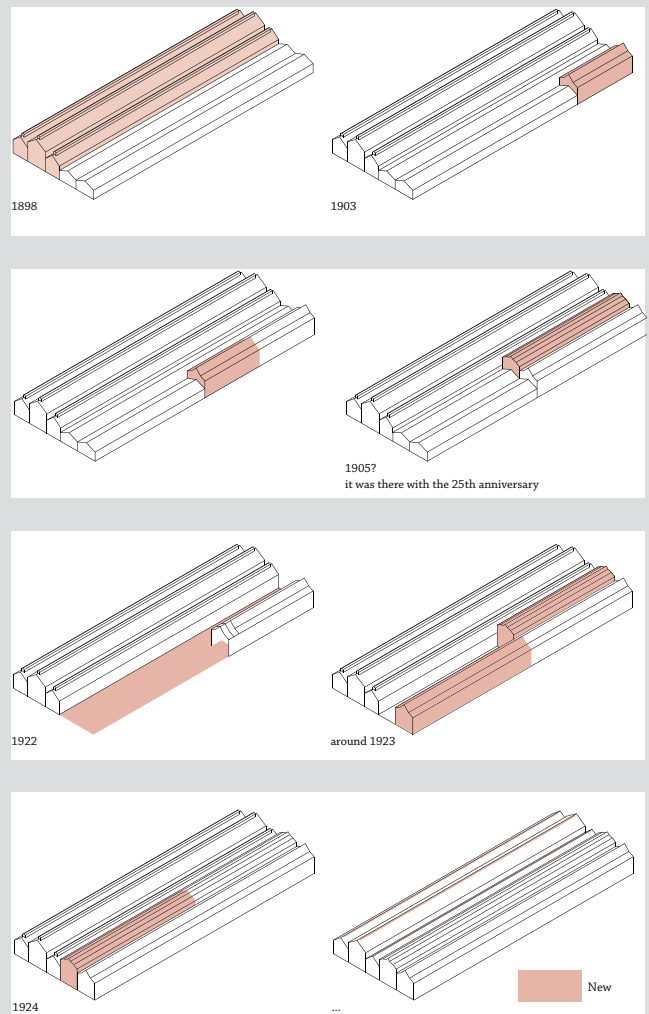


Figure 8: Development of the Van Gendthallen

INDUSTRIAL HERITAGE

Drive for redevelopment

The two forces that are the main drivers of the redevelopment of industrial heritage sites are the preservation of the cultural value and the economic potential of the location.

To preserve build heritage it is important to that the buildings have an occupant and are in use. Buildings that are in use are taken care of while vacant buildings start to deteriorate. Therefore heritage needs to be developed. The belvedere memorandum captures this need in the motto: "Conservation through Development" (Feddes et al., 1999).

The other main driver for development is the location. Situated near or in city centre the ground value of these complexes is often quite high. As sites to develop within dutch city centres is scarce there is a lot of potential profit to be made by investors. This drives the economic incentive to develop these sites.

Redeveloped industrial halls

The following buildings are examples of previously redeveloped industrial halls. They have common characteristics with the Van Gendhallen, like their location within a city.

RDM Campus Innovation Dock, Rotterdam

Van Heerden & Partners and PLUS architecten

The former site of the Rotterdam Dry-dock Company has been transformed into a campus where a technical college located together with technical companies and a knowledge centre.



Figure 9: RDM Campus Rotterdam



Figure 10: Interior RDM Campus

De Hallen, Amsterdam

Van Sight architecten

This former tram depot and workshop of the municipal transportation service is located near the canal district of Amsterdam. After a few unsuccessful redevelopment attempts. Van Sight architects together with a group of local residents recently transformed the depot into a multifunctional building housing a library, hotel, restaurants, crafts school and Movie theatre.



Figure 11: De hallen before redevelopment

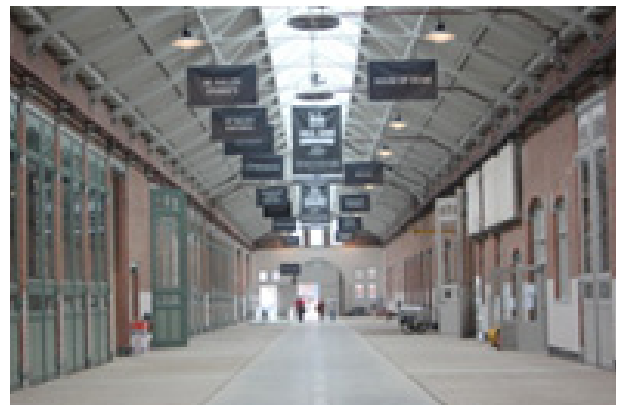


Figure 12: Large passage De Hallen Amsterdam

2

RESEARCH FRAMEWORK

Framework

In this chapter I introduce the framework for the research into the cultural value of industrial heritage I've done and how it relates to the Graduation assignment.

After this I will show the scope and focus of the research by introducing the research question, the components that it consists of and the methods I've used to research these components.

RESEARCH FRAMEWORK

Relation to the graduation assignment

The assignment for the Technology and Heritage studio is posed very broad. It simply asked for a redevelopment of the industrial heritage site. To get a better grasp and understanding of the assignment research had to be done. This research can be separated into 2 categories, situational and thematic research. Together these form the starting point for the programme and design research.

Situational Research

The Situational research has been done together by all the participants in the studio. To get a broad and in-depth analyse of the Van Gendthallen in its context the research was divided into 3 parts, context, architecture and technology. I was part of the group that analysed the context. The results the 3 analyses can be read in the Context, Technique and Architecture analysis reports.

Thematic Research

During the situational research I identified that the preservation and utilisation of the cultural value would be the main challenge for me during the redevelopment of the industrial halls. To meet this challenge I've done my thematic research into this subject. This report reflects the process and out come of this research.

Research question

Understanding the relation between the tangible and intangible aspects of industrial heritage is vital to preserve and utilize the cultural value during the redevelopment of the Van Gendthallen. With my thematic research I plan to investigate the correlation between these aspects.

The research question below is the guideline for the research.

"How can the mainly intangible cultural value, such as character and memory, of a large industrial hall shaped building, like the Van Gendthallen, be both preserved and used to strengthen its redevelopment trough architecture?"

This question has two main components. That require a different type of research.

Theory

To clarify and deeper understand the first component Intangible cultural value I've done a literature study into the tangible and intangible aspect of industrial heritage and how they relate to each other.

Practice

The second component of the question is about the implementation of the cultural value to strengthen the redevelopment of the Van Gendthallen. This part consists of case study research of previously redeveloped industrial hall shaped buildings such as the Van Gendthallen.

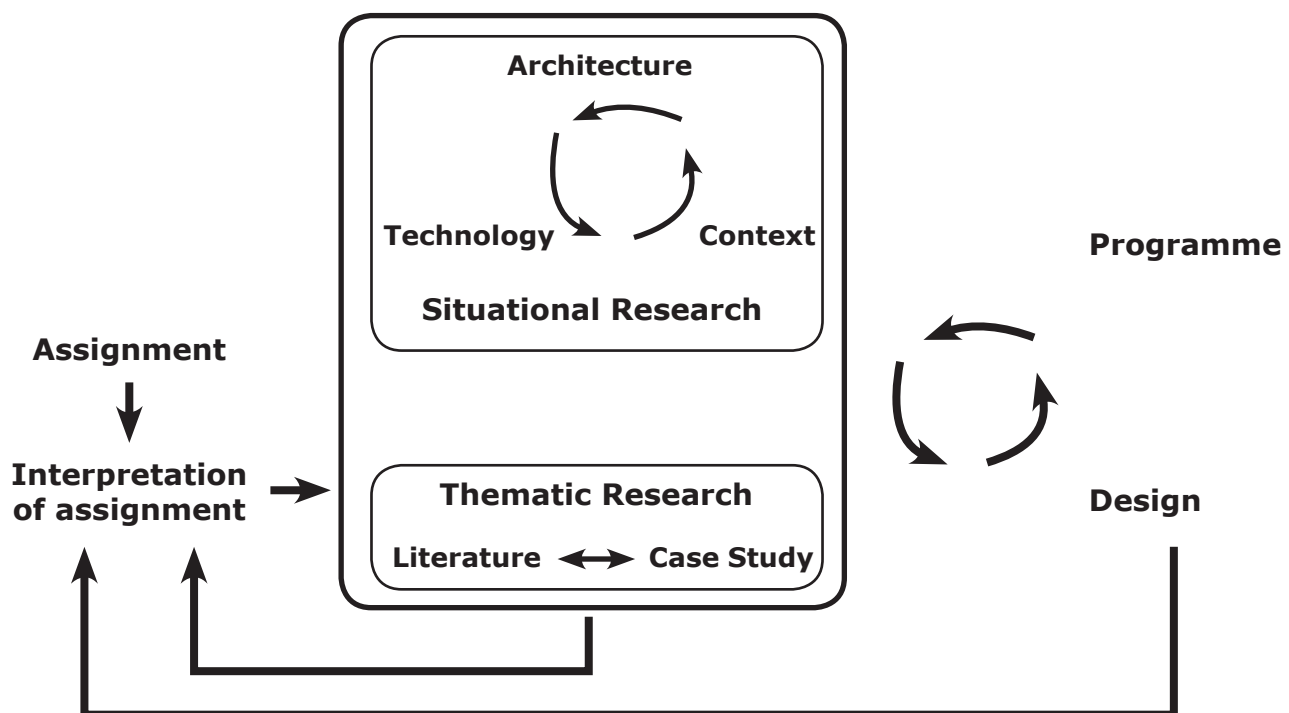


Figure 13: Research in relation to the redevelopment process

3

Study of Literature

Cultural value is a broad and abstract concept. This chapter goes deeper into this concept and how it relates to architecture and build heritage.

It starts with an introduction of monument care in the 20th century and the shift from monument care towards heritage in the Netherlands.

Next the qualities of Industrial Heritage both tangible and intangible and the relation between these qualities is discussed.

CULTURAL VALUE

LITERATURE STUDY

European monument care in the 20th century

Preserving authenticity

The care for monuments in the 20th century focussed on preserving the authenticity of the monuments for the next generation. The charters composed by monument experts during this century give insight into the manner they thought the authenticity should be preserved. The charter of Athens written in 1931 during the great depression is aimed at preventing loss of historical values and character of the structure during restorations (The Athens Charter for the Restoration of Historic Monuments, 1931).

Charter of Venice

The charter of Venice made in 1964 makes additional steps in defining authenticity and how to preserve it. This charter takes into account that buildings are adapted over time. Each time period since the build was build could have made contributions to the value of the monument. Therefore all valid contributions made in the past should also be respected (Gazzola et al., 1964). The preservation of the current state of the structure is most important.

Like the charter of Athens, the charter of Venice focuses on preservation of the monument. Preservation of the current state is preferred over restoration as any alteration could infringe upon the historical value. The goal is to preserve the authentic state of the structure for the coming generations.

Charter of Athens

"Proposed Restoration projects are to be subjected to Knowledgeable criticism to prevent Mistakes which will cause loss of character and Historical values to the structures."

(The Athens Charter for the Restoration of Historic Monuments, 1931)

Charter of Venice

Art 11.

The valid contributions of all periods to the building of a monument must be Respected, since unity of style is not the aim of a restoration. When a building includes the superimposed work of different periods, the revealing of the underlying state can only be justified in exceptional circumstances and when what is removed is of little interest and the material which is brought to light is of great historical, archaeological or aesthetic value, and its state of preservation good enough to justify the action. Evaluation of the importance of the elements involved and the decision as to what may be destroyed cannot rest solely on the individual in charge of the work.

Art 12.

Replacements of missing parts must integrate harmoniously with the whole, but at the same time must be distinguishable from the original so that restoration does not falsify the artistic or historic evidence.

Art 13.

Additions cannot be allowed except in so far as they do not detract from the interesting parts of the building, its traditional setting, the balance of its composition and its relation with its surroundings.

(Gazzola et al., 1964)

Heritage in the Netherlands

In The Netherlands monuments were viewed and treated in a similar way during much of the 20th century. Preservation was preferred over restoration and restoration preferred over additions or alterations. However during the last decades there has been a significant shift in how we value and treat our monuments.

Shift from Monument care to Cultural heritage

This shift is illustrated by a change in terminology for monuments. In the seventies the term Cultural heritage was introduced in the Netherlands. In the last decades this term has become the common terminology used in the field. (Halberstma & Kuipers, 2014)

The term monument refers to memory (Halberstma & Kuipers, 2014). The monument is a way to remember the past. Alterations could infringe, falsify and destroy the memory stored in the structure. Cultural heritage refers to ownership and tradition (Halberstma & Kuipers, 2014). The inheritance of traditions requires a much more active roll for the present generation to keep the tradition alive for the next generation.

This active roll for the current generation is confirmed by the belvedere memorandum. The motto of this memorandum 'Conservation through development' shows the change in attitude. Conservation of cultural value requires development, action to be taken by the current generation. This active involvement with heritage also offers opportunity to enrich the development. as is captured in the complementary motto 'Development through conservation'(Feddes et al., 1999). Together they sum up the power and need for continued redevelopment of build heritage.

Expansion of the heritage field

Next to the more active roll for the current generation the shift in terminology to Heritage also indicates a expansion of the field. Cultural Heritage is more than buildings, it includes art, craftsmanship, stories, and traditions. Anything and everything, tangible and intangible that is deemed to be of cultural significance by the current generation could be included.

Industrial Heritage

For cultural valuable industrial complexes the shift towards heritage is significant. Both for the recognition of the value of the complexes as for the way we redevelop these complexes. The following paragraphs are about the roll off both the both the tangible qualities and the intangible value of industrial heritage and the correlation between them.

Tangible aspects of Industrial Heritage

Industrial heritage buildings are made to facilitate a production process. The buildings are mere containers that facilitate the production process. Especially the large hall shaped buildings are just shells to keep out the elements. These shells are adapted when needed to scale up or improve the production process. Through this the tangible aspects of these buildings like the materials are constantly adapted in a cost efficient way. The functional way of adapting these buildings is a big part of the character of industrial buildings.

Due to this process the tangible aspects of industrial heritage are often only important because they represent the intangible values imbedded in them.



Figure 14: Strijp-S. The industrial pipes represent the industrial past of the complex

LITERATURE STUDY

Intangible value of Industrial Heritage

There are several different types of intangible cultural value. In his lectures Meurs identifies the following types. Stories and story telling, Rituals, Social structures, Diversity, Character, Concept or idea space, Identity, Sense of place, and Atmosphere (Meurs, 2013) Several of these types partially overlap each other.

The research in this report is limited to the following aspects. The atmosphere or character, the historical story, memory and the identity or label.

Atmosphere

The atmosphere or character of a building is the impression/impact a building has on the visitor. The feeling it evokes. Zumthor describes this as the way a building moves the visitor, it's natural presence. This impact is already there the first time you visit the building. (Zumthor, 2006)

For Industrial Heritage the atmosphere is an important aspect. It helps tell the story of what has happened on the heritage by letting you feel and experience the events. To preserve the industrial atmosphere the qualities of aspects like structure, material and space need to be respected.

The redevelopment of Zeche Zollverein by Rem Koolhaas is an good example of how the atmosphere of industrial heritage can be respected and utilized in the design.

Identity / Label

The identity of a building, how the building is known to the general public, is closely related to the type of use and the label that the building has. Certain aspects of a building ,such as the label, make it recognizable. These aspects are the point of view from where the building is perceived.



Figure 15: Zeche Zollverein - Passage towards the lunchroom

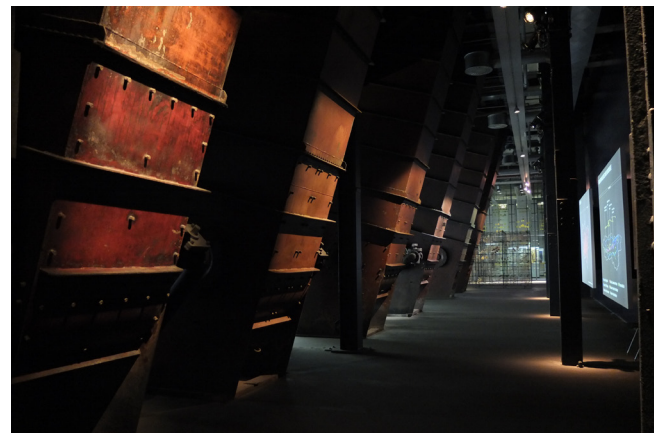


Figure 16: Zeche Zollverein - Dark passage with highlighted industrial elements

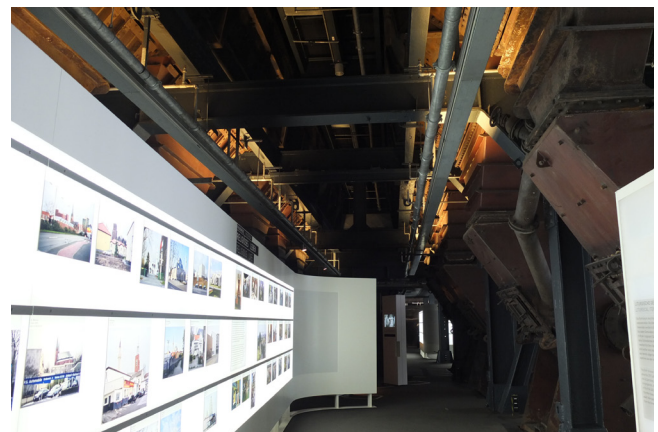


Figure 17: Zeche Zollverein - Contemporary designed elements in the museum

Architectural memory

In the Heritage declaration of the Van Gendthallen the halls are called a memory of the Dutch iron- and machine engineering (R v h Cultureel Erfgoed, 2001). This suggests that buildings and memory are related. Marieke Kuipers calls this the architectural memory. Like all memory the architectural memory is subjective, subject to change, versatile and dynamic (Kuipers & TU Delft Delft University of Technology Faculteit Bouwkunde RMIT, 2010). Buildings tell stories through the build form and evoke memories in the individual.

Historical story

Historical events in which the building has played a part. The building is a reminder of the events that took place there a way of telling the story of those events. The tangible building or site has meaning as the place where these events took place. for both experts and the larger community.

Memory

The memories and stories of individuals that are connected to the building or site. The day to day events that took place in a building or site. These might not have historical value but can have value for the community surrounding the site.

Relation between Tangible and Intangible

While the preservation of the intangible cultural value is often the main objective in industrial heritage. These values are lost without the tangible form of the heritage.

The tangible heritage lets us experience the intangible. The tangible is an expression of the intangible value and therefore they can only be preserved together. This relation is described by Bumbaru as follows:

"Built heritage and sites in which we invest so much effort to preserve are after all, the vessels for cultural values, an intangible heritage." (Bumbaru, 2000)

4

REDEVELOPMENT OF INDUSTRIAL HERITAGE

Case study

The previous chapter discussed the cultural values of industrial heritage. This chapter will go into the preservation of these cultural values during and after the buildings are redeveloped.

When a industrial heritage site is redeveloped the cultural value of that site can at the same time offer unique opportunities as restrictions. The redevelopment needs to balance the preservation of cultural value with the opportunities offered by these values.

This chapter shows case study research of previously redeveloped industrial hall shaped buildings.

CASE STUDY

Case Study Research

By doing case study research of previously redeveloped complexes the several different qualities of buildings both tangible and intangible can be analysed. The correlation between those aspects come into focus. From this analysis recommendations for future redevelopment of industrial hall shaped buildings can be made. I will use these recommendations for my graduation assignment, the redevelopment of the Van Gendhallen.

ABCD in Time Research Method

I've used the ABCD in time method, developed by H. Zijlstra, as a basis to do these case studies. I've chosen this method because it shows the correlation between several building aspects and how they change over time. The ABCD in Time matrix helps to find and determine the interaction of the different aspects of buildings during their life time.

Description of the ABCD Method

The ABCD method developed by H. Zijlstra is a research method that aims to index several aspects of existing buildings and the way these aspects developed over time. In addition it shows the potential of these aspects for redevelopment.

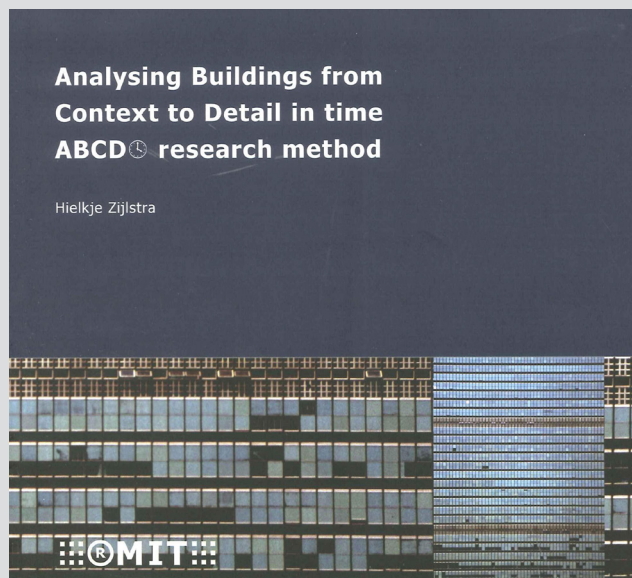


Figure 18: ABCD in time Research method

Time Levels

The method defines and uses three time levels to show the development of the building over time. Should be, Has been and Could be. Each of these time levels has a distinctive characteristics. The following description of these levels is my interpretation of the levels stated by Zijlstra in Analysing Buildings from Context to Detail in time research method.

Meant to be

How the building was intended to be.

This period describes the period when the building was designed and developed. The intentions of the persons involved, what the building was meant to be after its construction is finished.

Already during construction the building starts to change. Innovative, untested techniques for example could demand adaptation. However demand for change can also come from factors outside of the construction. Think of changes in regulation, budget and program.

During the development of the former architecture building of the TU Delft. There was a large increase in the amount of architecture students. To accommodate this increase hanging floors were introduced in to the double height ateliers space.



Figure 19: the former Architecture faculty

What has been

The influences that shaped the building during its life time

Buildings are shaped and reshaped over the course of their lifetime. Brand says that building learn and adapt over the course of time. He states that time is the main architect of buildings (Brand, 1994). This statement certainly holds true for industrial buildings. Where architectural quality was often not the main focus during the design and adaptations are made when necessary.

This time level is about the significant changes that occurred to the building and its context over time.

Could be

The potential for redevelopment.

The analysis of the original concepts, intentions and demands combined with the changes that occurred to these aspects over time provide the basis for this time level. The possibilities and potential for redevelopment of the building. The intrinsic qualities of the building are assessed and valued.

REDEVELOPMENT OF INDUSTRIAL HERITAGE

Building aspects

The method focuses on nine aspects, brief, site, architect, typology, structure, space, material, services and design process. For the case-study research eight of these nine aspects are used, the design process will be left out. This aspect is excluded from this study because research of this topic by means of interviewing the participants wasn't possible.

The other eight aspects will be researched if these aspects influenced the design, construction and appearance of the building or will influence the possibilities for redevelopment (Delft University of Technology Faculty of Architecture RMIT, 2009).

Below is my interpretation of the aspects as determined by Zijlstra in her ABCD in Time Method.

Brief

Reason to build.

The functions to be fulfilled by the building at the time of design and at time the time of significant changes.

The reason for building and adapting the building. Significant factors that influenced the decision to and how to build should also be included. Things like the programme of requirements, demands of the client, local regulations and constraints.

Site

The context in which the building stands.

The site or context where a building is build can affect the design, construction and appearance of the building.

Over time the context surrounding the building can dramatically change. This aspect describes the original state of the context and significant changes that occurred during the lifetime of the building.

Architect

Who is the designer?

The architect has a large impact on the building design, construction method therefore it is useful to know the architect and his/her body of work. To distinguish the original design from later interventions and understand them knowing who the designed them can be very useful.

Typology

Placement within the architectural field.

By determining the typology of a building it is placed in the context of its typology (Zijlstra, 2009). doing this gives the building a place within the building stock. This is helpful for understanding and comparing the building.

This report focuses on Industrial hall shaped buildings.

Structure

The aspects that structure and organize the building

This aspect is about both the load-bearing structure and the system of measurement of the building. The way the building is structured, organized by elements like construction, form, space and volume.

Space

Defining space

Buildings shape the space inside and around them by creating boundaries the building gives meaning to space. The dimensions, shape and materialization of these boundaries help determine the space.

Material

The implementation of structure and space

The materials that are used to contain the space, they form the tangible border of the space and determine how we experience the space. The materials influence the character and atmosphere of the space and building. A lot of factors like the age and state of maintenance of the materials determine how we experience them.

Services

Installations to create comfort

The type of installations used in a building and how they are placed in or on the building can both determine and be determined by the space, structure and materials used in the building. They can be hidden or showcased, integrated or separate from the structure, occupy space or create it.

(Delft University of Technology Faculty of Architecture RMIT, 2009)

CASE STUDY

Shortcomings of the method

The method is focused around the aspects mentioned above and how these impact up on the design, construction and appearance of buildings. These aspects are the expressions of underlying cultural values. However the method has a few shortcomings. The method is meant to analyse existing buildings to show the potential for redevelopment. Therefore it doesn't show if the potential/goals/intentions have been accomplished/reached.

Furthermore the focus of the method is on factual information and the tangible aspects of the building. While I'm looking for the correlation between the tangible and the intangible aspects of a building.

To use this method for case study of redeveloped industrial hall shaped buildings it has to be adapted/ supplemented to include the time period after the redevelopment and show the intangible aspects.

Adaptations to the method

After Redevelopment

To analyse already redeveloped buildings and show the outcome of the redevelopment of these buildings I've added an additional time period, "Has become". This period shows the building after the redevelopment and thus the impact the redevelopment had upon the building and if the intentions and goals of the redevelopment are reached.

Intangible aspects

In addition to the aspects in the ABCD in Time method I've investigated four intangible aspects of the buildings, Atmosphere, Story, Memory, and Identity. I've chosen these aspects because in my opinion they are the main intangible aspects to preserve in industrial Heritage. In the previous chapter I've discussed the characteristics of these aspects.

By researching both the tangible and intangible aspects the correlation between these aspects can be determined.

Intangible aspects of buildings

Atmosphere

The atmosphere or character of a building is the impression/impact a building has on the visitor. The feeling it evokes.

Historical story

The building is a reminder of , a way of telling, the story of events that took place there. The building or site has meaning as the place where these events took place both for experts and the larger community.

Memory

The Memories and stories of individuals that are connected to the building or site. The day to day events that took place in a building or site. These might not have historical value but can have value for the community surrounding the site.

Identity/Label

How the building is know to the general public, experts or the community.

REDEVELOPMENT OF INDUSTRIAL HERITAGE



Figure 20

RDM CAMPUS INNOVATION DOCK

The former site of the Rotterdam Dry-dock Company became vacant in 2002. The shipyard couldn't compete with the competition from abroad. This had a major economic impact upon the neighbourhood Heijplaat where a lot of the employees lived.

In 2009 the Scheepsbouwlloods has been transformed into a campus where a technical college is located together with innovative industry.

LOCATION
Rotterdam heijplaat

BUILD YEAR
1914

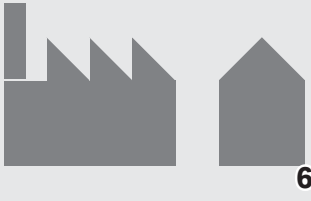
ARCHITECT
H.A.J. Baanders

YEAR OF REDEVELOPMENT
2009

REDEVELOPMENT ARCHITECT
Van Heerden & Partners, PLUS architecten



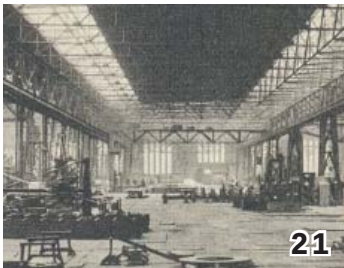
CASE STUDY - RDM CAMPUS INNOVATION DOCK

	BRIEF	SITE	ARCHITECT	TYOLOGY	SPACE
MEANT TO BE Original idea, design or intention	LARGE INDUSTRIAL SHIPYARD to house the production and reparation of ships 	BOVEN-HEIJPLAAT Uncultivated ground on the south bank of the river Maas. To be turned into shipyard 	H. A. J. BAANDERS 1876-1953 Prominent roll in the Amsterdamse school style. Also designed Amsterdams Lyceum 	INDUSTRIAL HALLS Large single story buildings with large spans to house production 	LARGE OPEN SPACE Flooded with daylight through skylights. 
HAS BEEN Actual history before redevelopment	CONTINUOS EXPANSION RDM became one of the largest yards in Europe. 	INDUSTRY AND HOUSING Industrial shipyard, head office and neighbourhood for employee housing 	H. A. J. BAANDERS Architect of several buildings for RDM such as the main office and housing on Heijplaat. 	INDUSTRIAL HALLS Large single story buildings with large spans to house production 	LARGE OPEN SPACE Roofs up to 24m. The columns together with the difference in roof heights divide the space into halls. 
COULD BE Redevelopment Idea, Design, Intention	INNOVATION HUB Engine for the development of Heijplaat. Harbour and innovation related 	INNOVATION DOCK Landscape for technical or harbour related education and business 	VAN HEERDEN & PARTNERS and PLUS ARCHITECTEN 	HALL SHAPED Utilitarian and educational building 	OPEN SPACE Filled with solid shapes to make smaller spaces 
HAS BECOME Actual history after redeveloped	UTILITARIAN AND EDUCATIONAL BUILDING 	EDUCATION & IN-NOVATIVE INDUSTRY 	VAN HEERDEN & PARTNERS and PLUS ARCHITECTEN 	HALL SHAPED Utilitarian and educational building 	BOX IN BOX Filled with several free standing structures like greenhouses 

STRUCTURE

STEEL COLUMNS AND TRUSSES

With a brick and glass skin to keep out the elements.



21

MATERIALS

HARD INDUSTRIAL

Steel structure
Red-brown waal-size Bricks
Single pane glass in steel window frames.



25

SERVICES

INDUSTRIAL INSTALLATIONS

Overhead cranes, integrated in the structure



29

ATMOSPHERE & CHARACTER

MODERN SHIPYARD

Hard working, no nonsense and rough.



33

HISTORICAL STORY

EMERGENCE OF THE CITY HARBOURS



37

MEMORY

PRIDE IN THE SHIPS THAT ARE PRODUCED



41

IDENTITY & LABEL

RDM WERF



45

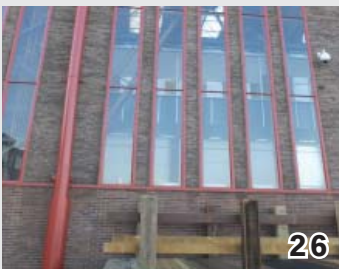
STEEL COLUMNS AND TRUSSES



22

HARD INDUSTRIAL

Steel structure
Red-brown waal-size Bricks
Single pane glass in steel window frames.



26

FUNCTIONAL ADDITIONS

Installations for climate control are bolted on to the existing structure



30

ROUGH INDUSTRIAL



34

20TH CENTURY SHIPYARD

Remnants of ship building industry in Rotterdam harbour



38

(UN)EMPLOYMENT

Provided income, housing and work until the bankruptcy



42

RDM WERF



46

FREE STANDING STRUCTURES

Additions work around the existing structure



23

HARD INDUSTRIAL

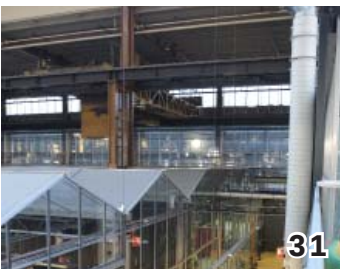
New structures in between the old.



27

BOX IN BOX

basic comfort levels achieved for the entire building



31

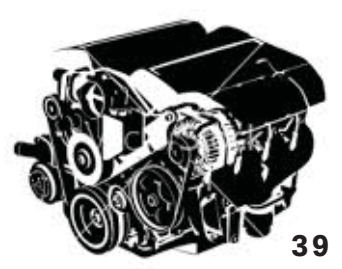
ROUGH INDUSTRIAL WITH CLEAN INDUSTRIAL



35

ENGINE FOR REDEVELOPMENT

Driver to boost the redevelopment of Heijplaat.

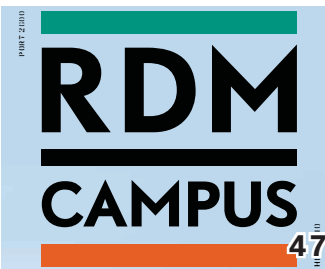


39

ENTREPRENEURSHIP, INNOVATION & EDUCATION

43

RDM CAMPUS



47

FREE STANDING STRUCTURES

Additions work around the existing structure



24

HARD INDUSTRIAL

Existing structure used as raincoat. New structures with industrial look and feel.



28

INSTALLATION DESIGN

The installations are used to shape the existing structure



32

ROUGH INDUSTRIAL WITH CLEAN INDUSTRIAL



36

EDUCATION & BUSINESS CENTRE



40

ENTREPRENEURSHIP, INNOVATION & EDUCATION



44

RDM CENTRE OF EXPERTISE



48



ILLUSTRATIONS RDM CAMPUS MATRIX

1	rdm-archief.nl
2	rdm-archief.nl/Werf-RDM-1925.jpg
3	studio-rtm.nl/rdm-innovation-dock/
4	by R. Hoeflaak
5	nieuws van de RDM januari 1977
6	own illustration
7	rdmcampus.nl
8	by J. Cannoo, 2015
9	Beeldbank Amsterdam nr. 000291000661
10	Beeldbank Amsterdam nr. 000291000661
11	plusarchitecten.nl/
12	plusarchitecten.nl/
13	rdm-archief.nl/RDM-WT/WT-1949A-1.jpg
14	rdm-archief.nl/RDM-WT/WT-1949A-1.jpg
15	by R. Hoeflaak
16	by J. Cannoo, 2015
17	www.duravermeer.nl
18	www.duravermeer.nl
19	by J. Cannoo, 2015
20	by J. Cannoo, 2015
21	rdm-archief.nl/RD M-WT/RDM-WT-1951B.html
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37	publicwiki.deltares.nl/display/KWI/4.3.03.+ Stadshavens+Rotterdam
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39	www.vectorstock.com
40	studio-rtm.nl/rdm-innovation-dock/
41	http://www.rdm-archief.nl/RDM-05.jpg
42	rdm-archief.nl/RDM-04.jpg
43	
44	www.feltenwcs.nl
45	rdm-archief.nl
46	rdm-archief.nl
47	rdmcampus.nl
48	rdmrotterdam.nl

CASE STUDY

Historical story

The RDM area combined with the neighbourhood Heijplaat are the remnants of the large shipyards in the Netherlands. The buildings, docks and industrial installations are the tangible reminders of city harbours. These harbours were the economic engine of Rotterdam.

Memory

For the residents of Heijplaat and the former employees of RDM the shipyard complex was the basis for their livelihood

Identity

The redevelopment makes use of the former identity of the shipyard. By using the abbreviation RDM the redevelopment has a clear label of innovation, hard work technique and entrepreneurship.

Atmosphere

Most of the atmosphere in the Scheepsbouwlloods comes from the combination of Space, Structure and Materials. By leaving the existing rough industrial structure, material and space intact and working with the atmosphere the RDM Campus still reminds the visitor of the former shipyard.

By doing this the redevelopment is given an extra boost and the memory and historic story is preserved. The RDM Campus has enriched this story and will add its own chapter to the RDM history.



Figure 21: RDM campus



Figure 22 Interior innovation dock

REDEVELOPMENT OF INDUSTRIAL HERITAGE



Figure 23 source: foodhallen.nl

DE HALLEN

This former tram depot and workshop of the municipal transportation service is located near the canal district of Amsterdam. After a few unsuccessful redevelopment attempts, Van Sigh architectes together with a group of local residents recently transformed the depot into a multifunctional building housing a library, hotel, restaurants, crafts school and Movie theatre.

LOCATION
Amsterdam

BUILD YEAR
1901-1903

ARCHITECT
Dienst Publieke Werken

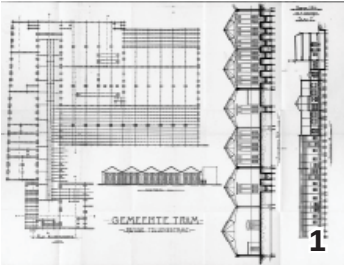
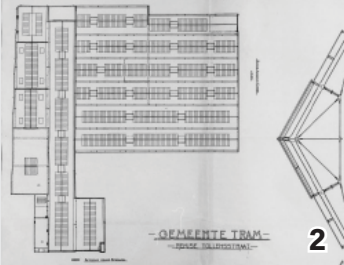
YEAR OF REDEVELOPMENT
2013-2014

REDEVELOPMENT ARCHITECT
Van Sigh architecten





CASE STUDY - DE HALLEN

	BRIEF	SITE	ARCHITECT	TYOLOGY	SPACE
MEANT TO BE Original idea, design or intention	TRAM DEPOT AND WORKSHOP 	KINKERBUURT Residential neighbourhood. The depot was a closed of enclave within the neighbourhood 	DIENST PUBLIEKE WERKEN, Municipality of Amsterdam 	INDUSTRIAL HALL Used by the municipality as tram depot and maintenance shop 	LONG HALLS connected at one end by a passage strip of skylights on the top of the roof 
HAS BEEN Actual history before redevelopment	TRAM DEPOT AND WORKSHOP FOR BUSES 	KINKERBUURT Residential neighbourhood. The depot was a closed of enclave within the neighbourhood 	DIENST PUBLIEKE WERKEN, gem. Amsterdam Description 	INDUSTRIAL HALL Used by the municipality as tram depot and maintenance shop 	LONG HALLS connected at one end by a passage strip of skylights on the top of the roof 
COULD BE Redevelopment Idea, Design, Intention	HIGH DENSITY living, Nightlife & Municipality office 	THE HALLENQUARTER Shopping, bars, restaurants library and hotels. 	J. VAN STIGT BV 	COMMERCIAL HALL SHAPED BUILDING 	LONG HALLS & AP-PARTMENT BLOCKS 
HAS BECOME Actual history after redeveloped	NEIGHBOURHOOD CENTRE for Media, Fasion, Craftmanship & Culture 	RESIDENTIAL NEIGHBOURHOOD With shopping, bars, restaurants library and hotels. 	J. VAN STIGT BV 	COMMERCIAL HALL SHAPED BUILDING 	LONG HALLS with several types of infill 

STRUCTURE

WOOD WITH STEEL TRUSSES.
supported by either brick walls or steel columns



21

MATERIALS

WOOD STEEL BRICK
Wood roofing
Composed trusses made of wood and steel
brick walls



25

SERVICES

FUNCTIONAL AND INTEGRATED
The installations like the tracks and maintenance pits are integrated in the build



29

ATMOSPHERE & CHARACTER

PRAGMATIC & ROBUST WORK ENVIRONMENT



33

HISTORICAL STORY

EXPANDING PUBLIC TRANSPORTATION
Part of a series of depots that support transportation



37

MEMORY

WORKER FRIENDLY
Pleasant work environment



41

IDENTITY & LABEL

WESTELIJKE TRAMREMISE



45

WOOD WITH STEEL TRUSSES
supported by either brick walls or steel columns



22

WOOD STEEL BRICK
Wood roofing
Composed trusses made of wood and steel
brick walls



26

PRAGMATIC & ROBUST WORK ENVIRONMENT



30

PRAGMATIC & ROBUST WORK ENVIRONMENT



34

PUBLIC TRANSPORTATION
in Amsterdam



38

CLOSED OF ENCLAVE
the depot never became part of the neighbourhood



42

TRAMREMISE TOLLENSSTRAAT



46

WOOD WITH STEEL TRUSSES
supported by either brick walls or steel columns



23

UNKNOWN

N / A

27

UNKNOWN

N / A

31

UNKNOWN

N / A

35

UNKNOWN

N / A

39

CLOSED OF ENCLAVE BY DAY
the nightlife centre only opens up at night.

43

DE HALLEN

DE HALLEN
AMSTERDAM

47

WOOD WITH STEEL TRUSSES
supported by either brick walls or steel columns



24

POLISHED CON- CRETE



28

EXPOSED
Industrial look



32

NEW BUILDING
The treatment of the materials makes the building feel like a new historic build.



36

RESET THE STORY
The cleanness of the redevelopment has reset the building.



40

CENTRE OF THE NEIGHBOURHOOD
Shopping, eating, day-care movie theatre



44

DE HALLEN

DE HALLEN
AMSTERDAM

48

CASE STUDY

ILLUSTRATIONS DE HALLEN MATRIX

1	Beeldbank Amsterdam nr. 010163001547
2	dehallen-amsterdam.nl/het-gebouw/historie/
3	dance events
4	dehallen-amsterdam.nl/het-gebouw/
5	dehallen-amsterdam.nl/het-gebouw/historie/
6	beeldbank Amsterdam nr. 010163001547
7	N/A
8	wikipedia.org/wiki/Kinkerbuurt#/media/
File:Lijn_7_in_de_Kinkerstraat.jpg	
9	
10	
11	burovanstigt.nl/overons
12	burovanstigt.nl/overons
13	dehallen-amsterdam.nl/het-gebouw/historie/
14	beeldbank Amsterdam nr. 010163001547/
15	N/A
16	dehallen-amsterdam.nl/het-gebouw/
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	dam-tramremise-de-hallen/
18	openmonumentendag.nl /monument/amster-
	dam-tramremise-de-hallen/
19	N/A
20	foodhallen.nl
21	kennisbankherbestemming.nu/projecten/
	tramremise-de-hallen-amsterdam
22	kennisbankherbestemming.nu/projecten/
	tramremise-de-hallen-amsterdam
23	by Minke Wagenaar
24	openmonumentendag.nl /monument/amster-
	dam-tramremise-de-hallen/
25	kennisbankherbestemming.nu/projecten/
	tramremise-de-hallen-amsterdam
26	kennisbankherbestemming.nu/projecten/
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27	N/A
28	openmonumentendag.nl /monument/amster-
	dam-tramremise-de-hallen/
29	dehallen-amsterdam.nl/het-gebouw/historie/
30	kennisbankherbestemming.nu/projecten/
	tramremise-de-hallen-amsterdam
31	N/A
32	by J. Cannoo
33	beeldbank Amsterdam nr: 010003005917
34	beeldbank Amsterdam nr: 010003005917
35	N/A
36	openmonumentendag.nl /monument/amster
	dam-tramremise-de-hallen/
37	beeldbank Amsterdam nr: 010122050576
38	beeldbank Amsterdam nr: 010003043936
39	N/A
40	openmonumentendag.nl /monument/amster
	dam-tramremise-de-hallen/
41	beeldbank Amsterdam nr: 010003005917
42	beeldbank Amsterdam nr: 010122050576
43	N/A
44	foodhallen.nl
45	beeldbank Amsterdam nr: 010122012041
46	beeldbank Amsterdam nr: 010122050576
47	dehallen-amsterdam.nl
48	dehallen-amsterdam.nl

REDEVELOPMENT

The redeveloped by Van Stigt has successfully transformed De Hallen from a closed of enclave into a busy centre in the neighbourhood. It's successfully integrated into the neighbourhood. This is largely do to the close collaboration of the architect with a neighbourhood committee. The choice of programme has been done right for the current generation. The programme however ignores the history of the building.

Historical story

The former tram depot was part of the public transportation expansion in Amsterdam and has for a long time serviced the trams and busses of the municipal transportation service. It is an important way to show and tell this story. This history is however no longer readable when you visit the building.

Identity

The identity of the building has also been re-labelled. The new name De Hallen refers to shape of the industrial halls.

Atmosphere

During my visit of the site I had the feeling that I was visiting a new building build according to the scheme of the original building. The restoration has erased the atmosphere of the Halls.

Materialization

I believe the loss of the story and atmosphere is closely related with the way the building has been restored. When you look at the original materials of the building, they look almost new. Through the process of cleaning the bricks the history has been lost. The wear and tear that comes through years of use have been scrubbed away and with it the ability of the building to invoke and tell his story has been lost.



Figure 24: De western tram depot soon after completion



Figure 25: the depot after years of use



Figure 26: De Hallen after redevelopment



5

LITERATURE & REFERENCES

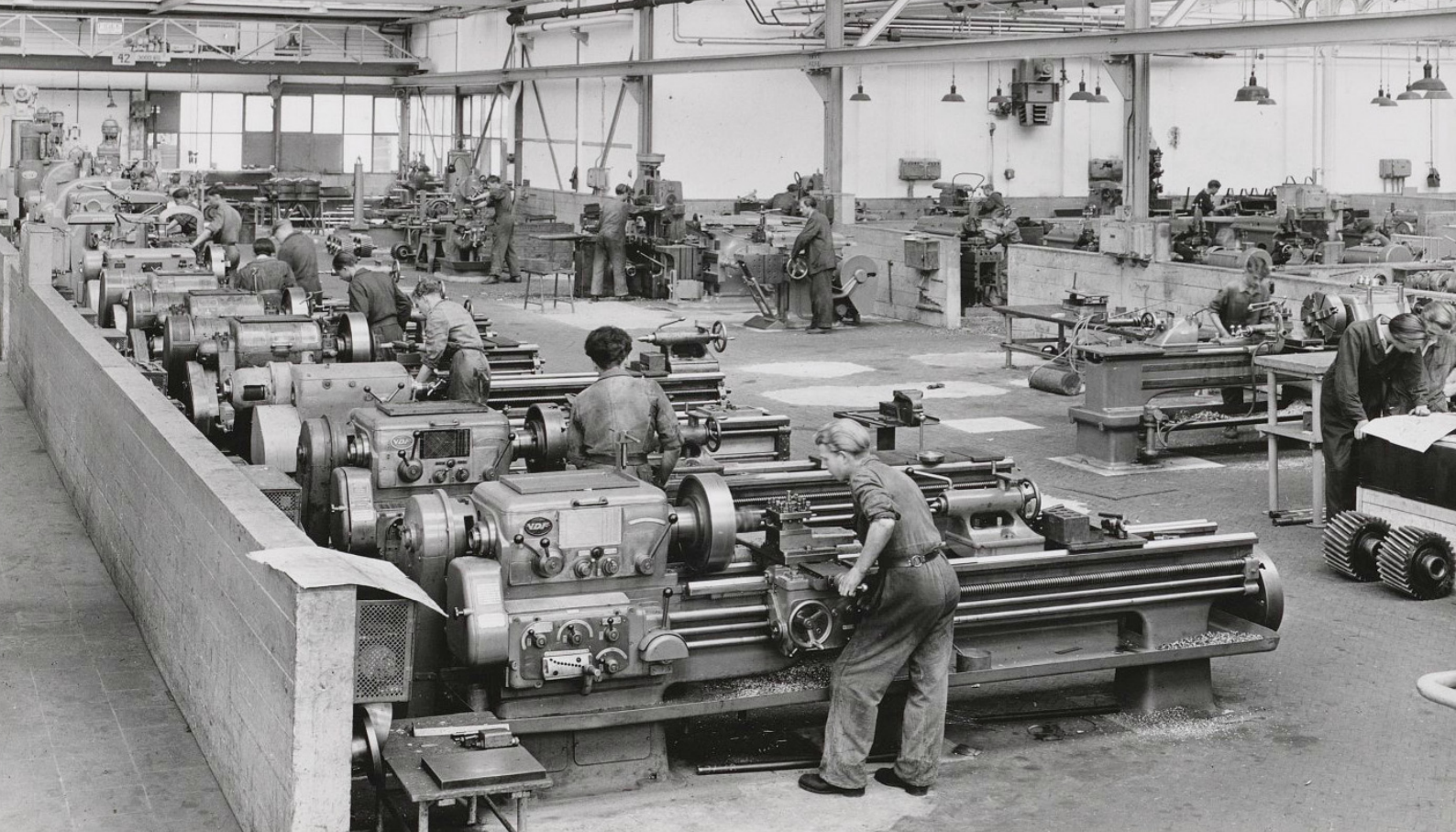
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Illustrations

- Figure 1: Triangle of Heritage and architecture
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- Figure 2: Locomotive build in the Van Gendthallen
Beeldbank Amsterdam nr. 010003013938
- Figure 3: Van Gendthallen 1, 2 & 3 and part of hall 4
nl.wikipedia.org/wiki/Hallen_van_Stork#/media/File:VanGendthallen_overzicht_west.jpg
- Figure 4: Oostenburg in the centre of Amsterdam
Own illustration
- Figure 5: Van Gendthallen on Oostenburg
Own illustration
- Figure 6: Production line in the Van Gendthallen
Beeldbank Amsterdam nr. B00000029464
- Figure 7: City growing around an industrial site
Own illustration
- Figure 8: Development of the Van Gendthallen
Berning, O., & Graaf, E. d. (2014). architecture Van Gendthallen. Analysis. Heritage and Architecture.
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- Figure 9: RDM Campus Rotterdam
by R. Hoeflaak
- Figure 10: Interior RDM Campus
by J. Cannoo, 2015
- Figure 11: De hallen before redevelopment
beeldbank Amsterdam nr:
- Figure 12: Large passage De Hallen Amsterdam
by L. Alkemade
- Figure 13: Research in relation to the redevelopment process
own illustration
- Figure 14: Strijp-S. The industrial pipes represent the industrial past of the complex
own illustration
- Figure 15: Zeche Zolverwein - Passage towards the lunchroom
by J. Cannoo, 2014
- Figure 16: Zeche Zolverwein - Dark passage with highlighted industrial elements
by J. Cannoo, 2014
- Figure 17: Zeche Zolverwein - Contemporary designed elements in the museum
by J. Cannoo, 2014
- Figure 18: Cover of ABCD in time Research method
Delft University of Technology Faculty of Architecture RMIT. (2009). Analysing buildings from context to detail in time ABCD research method. Amsterdam: IOS.
- Figure 19: The former architecture faculty
Bouwkunde Delft - archief Broekbakema
- Figure 20:
by R. Hoeflaak
- Figure 21: RDM campus
by J. Cannoo, 2015
- Figure 22 Interior innovation dock
by J. Cannoo, 2015
- Figure 23
foodhallen.nl
- Figure 24: De western tram depot soon after completion
<http://dehallen-amsterdam.nl/het-gebouw/historie/>
- Figure 25: the depot after years of use
Beeldbank Amsterdam nr. 010003013938
- Figure 26: De Hallen after redevelopment
openmonumentendag.nl/monument/amsterdam-tramremise-de-hallen/



Capturing the Cultural Value of Industrial Heritage

