Redevelopment of large-scale industrial heritage

Research report

Graduation studio Van Gendthallen Amsterdam

Heritage & Architecture

Preface

This report is the result of research done as part of the graduation studio Heritage & Architecture at Delft University of Technology. Subject of the studio are the Van Gendthallen, a large-scale industrial complex in the city centre district of Amsterdam. Next to the analysis of context, building and construction, this thematic research aims to generate input for the design process. Because we as a team first made a thorough analysis, an interesting individual research theme came forward that on the one hand strongly relates to this particular case, but it also applies to the redevelopment of large-scale industrial complexes in general. Furthermore, the research touches societal issues, to which it tries to provide a modest contribution.

Delft, september 2015

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1.   Introduction

A lot of buildings are considered worth preserving, although they sometimes cannot immediately be understood as 'heritage' in the traditional sense of the word. For a long time, very little attention has been paid to industrial heritage. The demolition of industrial buildings in Amsterdam around 1990 for example has been aptly described under the title 'falling chimneys', whereby it was signalled that the preservation of the industrial past had no priority.[1] In the Netherlands, changes in policy and an increasing public appreciation resulted in the redevelopment of many (industrial) buildings over the past decades. However, a drastically changed economic situation causes for concern, especially regarding churches and large-scale industrial complexes.[2] It raises a question about how to deal with these buildings, that often have enormous dimensions?

HERITAGE & ARCHITECTURE
'The section Heritage & Architecture […] deals with the built environment in terms of conservation, refurbishment and reuse.'[3] Although the focus of the project is on the design, as the studio Heritage & Architecture is part of the master track Architecture, this design cannot be seen separately from technical and cultural aspects. The approach of Heritage & Architecture is based on a strong interrelationship of design, technology and cultural history. Together with the analysis and the design, this research forms the basis for the approach to the large-scale industrial heritage we are dealing with in this studio: the Van Gendthallen in Amsterdam.
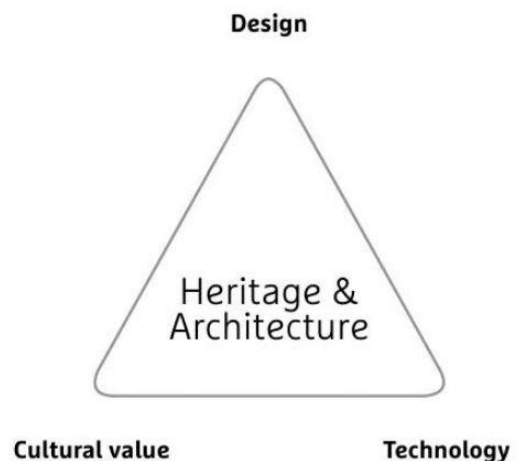

Fig. 1: interrelationship of design, cultural value and technology.

The next part of this chapter will give a brief introduction to the history of this complex and its location: the Oostelijke eilanden, part of the city-centre district of Amsterdam. Chapter 2 and 3 respectively describe a problem statement and the main research question that follows from this. Chapter 4, 5 and 6 are about three interrelated subjects: atmosphere, multi-use buildings and public interior spaces. These chapters start with a theoretical framework. After this, a case study related to the topic will be discussed. These case studies mark the transition between the generic parts of the research and the parts that specifically relate to the Van Gendthallen. Of course, as the topics are interrelated, each case study will refer to other parts of the report. The links between these three topics together with the case studies will give an answer to the main research question. A conclusion/design approach is formulated in the last chapter.

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[1] Bonke, A.J. (1990). *Vallende schoorstenen, verdwenen fabrieken: industriële archeologie in Amsterdam.*
[2] Loeff, K. (2013). *Industrieel erfgoed. Van buitenbeentje binnen de monumentenzorg naar boegbeeld van de erfgoedzorg.*
[3] Hees, R. van, Naldini, S. & Roos, J. (2014). *Durable past – sustainable future.* p.11

OOSTELIJKE EILANDEN & VAN GENDTHALLEN

The Van Gendthallen, a century-old and large-scale industrial complex forms the subject of the graduation studio and will be used in this report as a case study. This complex, constructed in several phases between 1898 and 1924, is considered worth preserving because it has both typological and architectural historical values. It is one of the last remnants of heavy industries and shipbuilding in Amsterdam around the turn of the century and reminds of the development of Dutch iron- and mechanical engineering.[4]

The *Oostelijke eilanden* of Amsterdam, on which the complex is located were part of the major city enlargement of 1663 and have a rich history. The area originally consisted of four islands: the roperies (lijnbanen) of the navy and the Dutch East India Company, Oostenburg, Wittenburg and Kattenburg. Oostenburg was organized by three parallel streets that lead to the warehouse of the East Indian Company (het Zeemagazijn). This enormous building was as wide as the island itself and faced the river IJ. Behind this gate building there were the shipyards. The bankruptcy of the VOC at the end of the 18th century meant a period of decline. A few decades later, new economic activity on Oostenburg was initiated by Paul van Vlissingen when he started with his ship building and -repair industries in 1828. This marked the beginning of a long period of industrial activity on Oostenburg. The successful business soon expanded and broadened its activities, until the Nederlandsche Fabriek van Werktuigen (later: Werkspoor) took over only the mechanical engineering part in 1891. The collapsed shipbuilding industry, which was the result of this acquisition has been restarted in 1894 on the north side of Oostenburg (Nederlandse Scheepsbouw Maatschappij). Around that period, the Werkspoor company received a large order for which new, larger factory halls had to be built: the present Van Gendthallen.[5] The first part of the complex was realised in 1898 and it reached its present size around 1924. Both companies, Werkspoor and NSM grew fast, which ultimately caused the NSM to leave around 1920 because of a lack of space. The vacant site was added to the Werkspoor company, that built two new large halls in 1931: the (also still existing and currently vacant) Langhouthallen, meant for the production of diesel engines for boats. In 1956, the company merged with Stork into the Verenigde Machinefabrieken Stork-Werkspoor (VMF). In 1989, the company was acquired by the Finnish company Wartsila, continuing under the name Stork-Wartsila Diesel (SWD). A reorganization in 1994 marked the end of the industrial activity on Oostenburg: SWD moved its activities to a new factory in Zwolle.[6] The last significant change on Oostenburg is the realization of an enormous glass business building (INIT) in 2004.

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[4] Rijksdienst voor het Cultureel Erfgoed (2015). Monumentenregister
[5] Kist, J.B. e.a. (1986). *Van VOC tot Werkspoor.*
[6] De Volkskrant. (December 20, 1994). *Stork-Wärtsilä Diesel vertrekt uit Amsterdam.*

2. Problem statement

In the introduction the problem of redeveloping churches and large-scale industrial complexes has already been mentioned. In this report and the graduation studio, the focus is on large-scale industrial complexes. 'Transformation of industrial production sites into living urban components is a global phenomenon that is seen in many countries that are entering or have completed the transition from an industrial society to a knowledge-based and service-based society.'[7] The Van Gendthallen and its direct context are considered to be a typical example of such an industrial complex. Finding a new programme for such large industrial complexes is difficult. However, the scale implies a multi-use programme. This means that the public accessibility of these complexes has to be improved. Accessibility on building-level is understood here in the sense of permeability (NL: doorwaadbaarheid). The research looks for a way to do this by including public interior space in the programme.

VAN GENDTHALLEN
As is the case for many recently vacated industrial sites, both the complex and the area can be characterized as private, secluded and therewith quite inaccessible. From the analysis of the context of the Van Gendthallen, it became clear that on the one hand the waterfront of Oostenburg should be open and attractive for the city of Amsterdam (public), while on the other hand a new residential neighbourhood is desired (more private). The Van Gendthallen are attractive for a programme that functions on the scale of Amsterdam. At the same time, accommodating local facilities for Oostenburg and the Oostelijke eilanden creates an opportunity for the new neighbourhood to derive its identity from the building, as it is one of the last significant tangible remnants of the (industrial) past of the site.

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[7] Baum, M. & Christiaanse, K. [Eds.] CITY AS LOFT. p.11

3.   Research question

The problem described before results in the following main research question:

How can large-scale and very closed industrial complexes be transformed into very accessible multi-use buildings?

The research will be structured along three lines, each representing a different topic. The first, *atmosphere*, is motivated by the building analysis, in which we concluded that one of the things that can explain the appreciation of the Van Gendthallen is the atmosphere of the complex. More generally, this is probably true for most old (industrial) buildings. The second, *multi-use buildings*, is motivated by the enormous scale of such complexes, making it almost impossible to find a single new function for it. The third subject, *public interior spaces*, is motivated by the idea that the halls, due to their large open spaces and the very minimal protection they offer against the weather, in a way can be seen as an intermediate between indoor and outdoor. This last subject also comes from a personal interest in this topic.

- atmosphere

- multi-use buildings

- public interior spaces

4.   Atmosphere

The building analysis revealed that the strength of this building cannot so much be found in its architectural (historical) values, being a complex that has grown over time and treated very pragmatically whenever changes in production demanded changes in the building. Yet, most people today appreciate the complex, and even call it 'beautiful'. We concluded that one of the things that can explain this appreciation is the *atmosphere* of the building.

4.1   WHAT IS ATMOSPHERE?

Having a lot of different meanings, atmosphere is a very confusing concept. This is presumably due to the fact that atmosphere is '[…] something personal, vague, ephemeral and difficult to capture in text or design, impossible to define or analyse.'[8] Pallasmaa (2011) identifies atmosphere as an 'overarching quality of our environments and spaces' and at the same time he notes that in the architectural profession, it has not been much analysed or theorized. He argues that the character of a space or place is more than only a visual quality: judging the character means '[…] a complex fusion of countless factors which are immediately and synthetically grasped as an overall atmosphere, feeling, mood or ambience.'[9] Besides the five traditional senses, factors like gravity, rhythm, scale, illumination and orientation contribute to the atmosphere. In our perception and understanding, details are not merged into one unity, but it works the other way around: units are observed first. So these individual factors, of which there are obviously many more, can only be distinguished after the experience of atmosphere as a whole.

While Pallasmaa approaches the notion of atmosphere in a more theoretical way, it plays an important role in the work of Peter Zumthor, who believes that a certain sensitivity to atmospheres is in some way the classic task of an architect. They both put a link between atmosphere and history and historical buildings.

> 'History provides ground to stand on. We come from somewhere. Most of the things around us are older than we are. Even trees survive us. That is good. History is a good thing for human beings. Without it we would feel alienated and displaced. I am not talking about history taught at universities. I'm not interested in that. Rather I would emphasise the history that is stored in the landscapes, in cities and buildings, stored in the objects we live with. When you ask me what comes to my mind when I think of the theme of atmosphere, it is this presence of history: old factories, industrial buildings – specifically old brick factories actually: pure constructions, full of atmosphere.'[10]

According to Pallasmaa, the re-use of (historical) buildings in particular offers an opportunity to create special atmospheres. Old buildings often already have a certain atmosphere, and new interventions can strengthen the experience of a place. He refers to this as this the 'atmospheric weakening of formal architectural logic.'[11] Insertion of new elements breaks through the original logic of the building, which 'opens up unexpected emotional and expressive ranges of experience.'[12] The same counts for degradation and ruination of old buildings.

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[8] Havik, K., Teerds, H. & Tielens, G. (2013). *Building atmosphere.* p.3
[9] Pallasmaa, J. (2011). *Space, place and atmosphere.* p.1
[10] Havik, K. & Thielens, G. (2013) OASE 91, p. 63
[11] idem, p.10
[12] Pallasmaa, J. (2011). *Space, place and atmosphere.* p.10

> 'Atmosphere is altogether an unfocused quality. It has to be experienced in an unfocused and partly unconscious manner.' (Pallasmaa, oase91, p.45)

More or less equal to Pallasmaa, German philosopher Gernot Böhme defines atmosphere as a dynamic interaction between architectural elements (objective) and the subjective perception of the observer. He states that although atmosphere is based on personal and emotional impressions of space, it is created by a set of objective elements like materials, spatial proportions, degradation of materials, connection details, relations with the space and with other buildings, rhythm, light et cetera. Summarized: atmospheres are 'characteristic manifestations of the simultaneous presence of object and subject'. The way in which people experience atmospheres is almost impossible to define, as it is determined by numerous aspects. Like Pallasmaa, he adds that atmospheres are in the first place a total experience and not a sum of individual aspects.

Böhme observes that the current serious attention for the human body in architecture is a revitalization of a development that started already at the end of the 19th century. One of the new ideas back then for example was that '[…] the spatial shape of architecture was not merely a matter of what you see, but is rather experienced in and by the body […]' (p.21) This meant a shift in focus from the building to the body, from object to subject, resulting in a change of paradigm from designing architectural objects to designing space. In the European tradition there are basically two notions of the concept of space. The definition of space as *topos*, place (Aristotle) and the definition of space as *spatium*, distance (Descartes)

- Space as *topos*: '[…] the inner surface of the surrounding body. Space in this sense is mainly delimited, something in which something else is located, the place.' (p.25)
- Space as *spatium*: '[…] the distance between bodies. It is distance that you can walk through, or volume that is filled.' (p.25)

> 'Both concepts, *topos* and *spatium*, and this links them, primarily refer to bodies. Bodies delimit space, space is the extension of bodies, their measure. Space is where bodies find their place and through which bodies move.' (p.25)

Böhme uses the term 'mindful physical presence' [bewuste fysieke aanwezigheid] to connect the human body with atmospheres. This term can be explained with the Dutch word '(be)vinden', that comes back both in 'welbevinden' [wellbeing, a certain mood] and 'zich bevinden' [being in a space]. Although space is also about objective aspects, and one's mood is dependent of many more factors than space, there is a link between space and mood. One's 'bevindelijkheid', the feeling he has to the place where he is, can be seen as a basic mood that 'colours all other moods' that may arise in someone. This basic mood, hidden deep in our subconsciousness is of high importance, although we are usually hardly aware of it. For Böhme, this shows the reason why the effect of atmosphere on spaces should be taken very serious: through atmosphere, people experience a space or place consciously.

4.2   FORMER INDUSTRIAL SITES

In the first paragraph of this chapter a more general understanding of the term atmosphere has been given. More specifically, former industrial buildings and sites have certain characteristics that gives them atmospheric qualities. Like explained in the previous paragraph, the experience of such places goes from the overall atmosphere to the smaller details that contribute to it. Brownfields[13], sites that have been used previously for industrial purposes and may be polluted, 'draw attention to themselves in

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[13] Wikipedia https://en.wikipedia.org/wiki/Brownfield_land

the form of an asynchronicity of feelings of fascination and repulsion.'[14] Hasse (2012) makes the comparison with agricultural fallow land; both are characterized by spatial emptiness but they bring forward a completely different atmosphere and mood. In the case of the fallow land, it is clear that 'it is deliberately placed in a state of fallowness in order to increase the effectiveness of future usage.'(p.54) This creates 'an expectation of spring-like blossoming of new plants.'(p.54) A brownfield by contrast has been abandoned. It 'expresses the withdrawal of a social world' and an uncertain future. So the emptiness that characterizes former industrial sites and buildings causes an atmosphere of abandonment.[15] The most important element is 'the past shape of human usage of the space.'[16] Of course, the individual mood caused by this atmosphere of abandonment varies widely. Creative professional groups for instance, have a constructive relationship to chaos.[17] 'In the certainty of their own generative potential, the same atmosphere of abandonment then communicates not a mood of having been abandoned, but rather – almost in the opposite sense – a mood of fresh departures.' (p.56) The qualities of these places can be used in urban transformations.

Many industrial buildings and complexes have been maintained or converted because of a wish for urbanity, identity and identification. The specific architecture, the history and the identity gives these former industrial locations meaning and stability. The buildings have a high degree of flexibility through their often large dimensions and open floorplans. They offer 'a stable framework as the basis for durability', and at the same time they 'provide an open stage for new elements.'[18] In 'City as Loft. Adaptive Reuse as a Resource for Sustainable Urban Development', the concept of a loft is used to describe the qualities of former industrial sites.

> 'We use the word 'loft' as a term to sum up these urban qualities. In this sense, it is used to describe adaptable, flexible, and at the same time powerful spaces with identity in which people can live and work. The qualities of the loft are in that sense not limited to a single building – they can be transferred to the urban context as a whole.'[19]

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[14] Hasse, J. (2012). *Brownfields – characteristics and atmosphere*. p.52
[15] idem.
[16] idem.
[17] According to Hasse, this group ranges 'from architects to artists and advertisers, or even management consultants.'
[18] Baum, M. (2012). *City as loft*. p.9
[19] idem.

La Halle Pajol

Place & year: Paris, France, 2013
Architect(s): Jourda Architectes
Area: 9.600 m2
Programme: youth hostel, library, business space, auditorium, public garden

The reuse of a former depot of the French national railway company (SNCF), originally constructed in 1926, is based on a strategy of changeability. The facades of the building were completely removed, so the large steel structure with its shed roof became visible. This construction was considered to be only a shelter, under which new functions could be placed.

The original steel structure has undergone various interventions before finding its 'purity of expression': that of a large shelter that welcomes new buildings and a covered garden. It was stripped of fillings of concrete, brick and tiles and the steel parts were refurbished: cleaned of lead paint, sanded, repainted and finally a possible strengthening or replacement of corroded parts. Here we see the 'cleaning up' described in this chapter. Questions can be put to this approach when it comes to the atmosphere of industrial heritage. With this extensive renovation of the construction a very clean image has been created. Of course the enormous steel structure remains and the dimensions are a very determining factor, but the atmosphere realised is different from the situation before and not reversible. However, the new atmosphere of the complexThe desirability of this is up to all parties involved in the design process.

Finally, new cross bracings were added to ensure the stability of the existing structure, so old and new are completely self-contained constructively. This new building is mostly made of wood. This is not only a choice for sustainability but also to create future possibilities: flexibility, convertibility or even a redevelopment in a few decades. The wooden construction could easily be (partly) disassembled so the 'old shelter' can host a new function again. The sustainable character of this project lies also in the reuse of the area and shape of the shed roof as a water collector for the garden and as a solar power station with 3500 m2 of solar panels.

The half-covered public garden can be interpreted as a public interior space, being partly enclosed by the old construction and the new wooden building. This green intermediate zone provides the neighbourhood with high quality urban space. Chapter 6 elaborates on public interior spaces. (source: Jourda, F.H. (11-12-2013))

Fig. 2: La Halle Pajol; old structure welcomes new wooden building

Fig. 3: La Halle Pajol; covered public garden as interior space. Refurbished and cleaned up steel structure creates new atmosphere.

Fig. 4: La Halle Pajol; old situation (year unknown)

4.3   ATMOSPHERE VAN GENDTHALLEN & OOSTENBURG

Looking at the Van Gendthallen for example, one can clearly indicate these elements contradictory to the original design. They are the result of different smaller or larger pragmatic interventions, made to adapt the building to the needs of different times and production processes. This applies to industrial buildings in particular, being the built result of relatively fast changing circumstances and production techniques. Very often, this activity lead to a certain messy, industrial character that is lost, as the patina of time is often literally polished away during renovations.[20] We could say that part of the unique elements that contribute to the atmosphere we considered valuable is removed in this process of cleaning up the existing situation. At the same time, new interventions are again part of the process of 'weakening' and therewith increasing atmospheric experience. Whether such 'cleaning up' is found to be necessary to achieve a beautiful design or not, the danger is that one or more layers of history will be removed permanently.

4.4   HISTORICAL- AND CULTURAL VALUES

Different interventions changed the appearance of the complex. This tells a lot about the mentality of the company that used the building; apparently they looked at it in a very pragmatic way, as a skin around the production process. At the same time this attitude affected the monumentality of the complex; by weakening the formal architectural logic of the facades, the atmospheric impact of the building increased. Historically seen, the Van Gendthallen, that occupied the south-east part of Oostenburgereiland, has always been the largest building on the island, thereby defining the main urban layout of Oostenburgereiland. The construction of the INIT building in 2004 emphasizes this structure, having more or less the same footprint as the Van Gendthallen. In a way, this also marked a new phase in which Oostenburgereiland, that has always been a private area, only accessible to employees, has become open to a new group of users.

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[20] Nijhof, P. (2004). *Het verleden wegpoetsen om het te behouden.*

5.   Multi-use buildings

The large scale of many industrial complexes makes it almost impossible to find a single new function for them. There appear to be many terms referring to different types of multi-use buildings. In this chapter, an attempt is made to give a definition and find characteristics of multi-use buildings.

5.1   MULTI-USE BUILDINGS

The first association I had with building types that have a high degree of (public) accessibility was the passage, or arcade. A search for the (history of) this building type taught me that this type can be seen as a special one in the development of the typology of mixed or multi-use buildings. Zeidler (1983) states in his book *Multi-use architecture in the urban context* that multi-use buildings have been built and used for centuries. These buildings formed integrated parts in the fabric of European cities and before the industrial revolution it would have been 'irrelevant' to describe buildings as multi-use.(p.13) In the Roman and Greek societies, the 'importance attributed to public life – to being a citizen – was symbolized both physically and emotionally in their multi-use buildings.' (p.13) In societies that found a religious or commercial life more important than a public one, this kind of building was not as important. Daily life in medieval cities for instance was concentrated around the own house, in which people also worked. Often the house was located above the (work)shop. This type of small-scale and private multi-use buildings characterized the medieval town. Limited space within the city wall forced prosperous people to start constructing their new and larger homes outside this wall. The situation of housing above shops continued to exist for a long time but it changed as well; it was not necessarily the owner or worker who lived in the house above the shop. Maintaining this way of working and living became more complex with the growth of the population and concentration in the city. More dwellings were needed above a single street-level workshop, resulting in for example the Parisian walk-up apartment. Covering the streets between these long blocks with a glass roof resulted in the passage or galleria. The apartments' living rooms often had a view into the new interior space, while more private rooms were located above the glass roof. (Zeidler, 1983)

Zeidler about the significance of this new building type:
> 'They represented the rich potential of adding to and renewing the existing city on a human scale. They did not attempt to reinvent parts of the city, nor do away with it in a clean sweep. The problems they addressed were limited to their immediate urban context, yet they demonstrated a larger possibility for the city as a whole – the idea of continuous and active pedestrian networks.' (p.14)

Industrialization eventually meant worsened living conditions and other social problems, as the factories were being built close to the homes in the middle of cities. Proposals were made for new, more regulated cities. These ideas '[…] would strongly influence the CIAM's thinking about their doctrine for a functional city, a doctrine which interrupted the rich history of multi-use urban buildings.'(p.17)

Zeidler defines multi-use buildings as 'centres that accommodate more than one of the three main functions of human life: work, recreation and inhabitation.' Recreation includes shopping, theatre, education, culture, health and entertainment. In successful multi-use buildings, the different functions do not only have a good internal integration, they also need to be related to the urban context surrounding the complex. This contextual integration is 'just as important, as multiuse buildings must draw upon a vital context for their existence'. They 'bring people together at different times', resulting in efficient use of urban space, which makes multi-use buildings cheaper to build in the long run. The presence of different functions strengthens the quality of multi-use buildings; creating urban action:

Fig. 5: Work, recreation and inhabitation.

> 'As in any living organism, so also in a city, an intricate dependence exists between its many parts. […] The physical proximity of different functions is of aid to each function involved. […] Such cohabitation not only creates satisfactory conditions for individual functions, but through the phenomenon of symbiosis creates urban action that is greater than the sum of its isolated parts.' (Zeidler, pp.111-117)

For a long period, such multi-use buildings were left out of consideration when it came to the categorization of building typologies because of their great variety. This situation changed when in 1985, when Joseph Fenton published his book *Hybrid Buildings*. This text brought some clarification, presenting a subdivision: fabric hybrids, graft hybrids and monolithic hybrids. The fabric hybrid follows directly from the organization of the surrounding urban fabric. The appearance '[…] can vary from being a distinguishable part of the urban block or expressing and composing a whole block as a urban unit.' (Komossa, Marzot, Cavallo, p.971) The graft hybrid consists of different forms within one urban block. The various functions can be expressed through the exterior appearance. The monolith hybrid finally emphasizes the unity of the building even more than the fabric hybrid; it usually concerns a high-rise building. (Komossa, Marzot, Cavallo)

> 'Until Joseph Fenton's catalogue of the topic in 1985, hybrid buildings had been ignored as a unique building type usually grouped under 'mixed-use'. Fenton argued that there was a distinct difference between the hybrid building and mixed-use, in that the individual programs relate to one another and begin to share intensities.' (Hybrids I, p.10)

Zeidler, who wrote his book in the same period, does not make this distinction, as he concludes that multi-use buildings should respect the needs of each individual function, while at the same time they should interrelate the various different functions. These two points come together with 8 other recommendations that define the nature of multi-use buildings:

- they should conserve urban space;
- they should relate to and create urban activity;
- they should be a link in the urban space;
- they should foster social dispersion;
- they should relate to the historical and cultural situation of their place;
- they should optimize technology;
- they should achieve economy;
- they should respond to the human psyche.

The significance of the renewed interest for hybrid buildings can be found in the simultaneous changing attitudes towards public space:

'[…] the evolution of hybrid buildings and the conditions which have allowed them or required them to exist, have developed alongside a constant renegotiation and evolution of public space in relation to the city – from the walled city which protected the civilised from the wild, to the formality of civic spaces in the metropolitan city and now to a new kind of dispersed definition of public space in today's networked world.' (Hybrids I, p.15)

5.2 HYBRIDS, SOLIDS, GROUNDSCRAPERS

In the last decade, several architectural terms like *hybrids, solids* and *groundscrapers* have been (re)introduced to appoint different urban building types. Every type has its own specific characteristics. Hybrids are characterized by their complexity and variety in programme, resulting in the integration of different building types. Solids fit in their location and provide flexibility in programme and spatial interpretation. Groundscrapers have a large footprint and as a result they make contact with the street over a long distance. (De Boer, 2012) This groundscraper-type has a public character:

'According to its European interpretation, the 'ground scraper' is not only public because of the character of its plinth facing the street, but also due to its interior space, partly accessible to the public. As such it potentially extends the city's public domain, horizontally and vertically, into the building's interior and links the public domain inside and outside. Basically it acts as a city within a city.'
(Komossa, Marzot, Cavallo, 2014)

It is not really clear whether these terms stand for innovative building types or not, but they show the search for urban building types that can preserve the vitality of the city. They have in common a strong connection with their surroundings and city life, providing possibilities for making *public interiors*. (De Boer, 2012) This notion of public interiors is also part of a description of multi-use structures by Michael Bednar (1989). He states that this interior pedestrian space is usually the means for achieving the internal integration of different functions in a multi-use building. The next chapter focuses on the topic of public interior spaces.

Heritage can play a major role attracting people to visit multi-use complexes. In his book about interior pedestrian places, Bednar highlights another type of multi-use building that often makes use of old (industrial) buildings. These so-calles 'festival marketplaces' are a type of market developed around the second half of the twentieth century. They combine entertainment, specialty shopping, socialization and eating and are often realised in a historic setting. Because in many cases there are no anchor tenants or large stores, this particular setting itself has to be the main attraction.

DOKK1

Place & year: Århus, Denmark, 2015
Architect(s): Schmidt Hammer Lassen Architects
Area: 35.600 m2
Programme: library, citizen's services, office space, auditorium, meeting- and project rooms, playground, parking facility

Just opened last summer, DOKK1 functions as a natural gathering point in Århus, the second largest city of Denmark. Even though a large library is the dominant function of the building, it clearly transcends the more traditional concept of a library and is therefore also referred to as the library of the future. Including a variety of different functions like Aarhus municipality Citizen's Services, rentable office spaces, meeting- and project rooms, an auditorium, a playground and an automated parking facility, DOKK1 certainly is a multi-use building.

Different forms of public interior space have been created. Several large stairs give access to an outdoor space on the first floor that surrounds the building and is covered by an overhanging volume on the higher level. This free accessible space with playground equipment and street furniture provides views over the harbour and the city. Through the enormous stairs, it is connected with the ground level. In the near future, this level will be redesigned, creating an urban space in which the building will be integrated: DOKK1 is part of a large project to reactivate Århus' former harbour areas and connect them with the city. The accessibility/reachability of the building is outstanding, as the light rail train has a stop underneath it (on ground level, see also pictures).

Once inside the building, the different functions are linked by a spaciously designed public interior. The functions seamlessly blend into each other. For example, there are no physical boundaries between public space and library. The security system is likely to be included in the main entrance of the building. Parts that also don't have physical boundaries with the public interior that have to be closed off on Sundays for example, like the citizen's services, are closed off through a steel wired 'curtain' so the visual connection is still there. (see also picture)

The building really relates to its context; although this new context still has to be created, the physical connection through stairs and lifted urban space, the accessibility from all sides and low barriers to entry clearly show how this will work. As a natural gathering point at the old harbour and linked to both the city centre and the public transportation system, it is highly likely that this building, as part of the harbour redevelopment plan will create urban activity and tries to preserve the vitality of the city.

Fig. 6: Lifted, half covered urban space with playground (own photo)

Fig. 7: Excellent accessibility: Light Rail train stops underneath the building. (own photo)

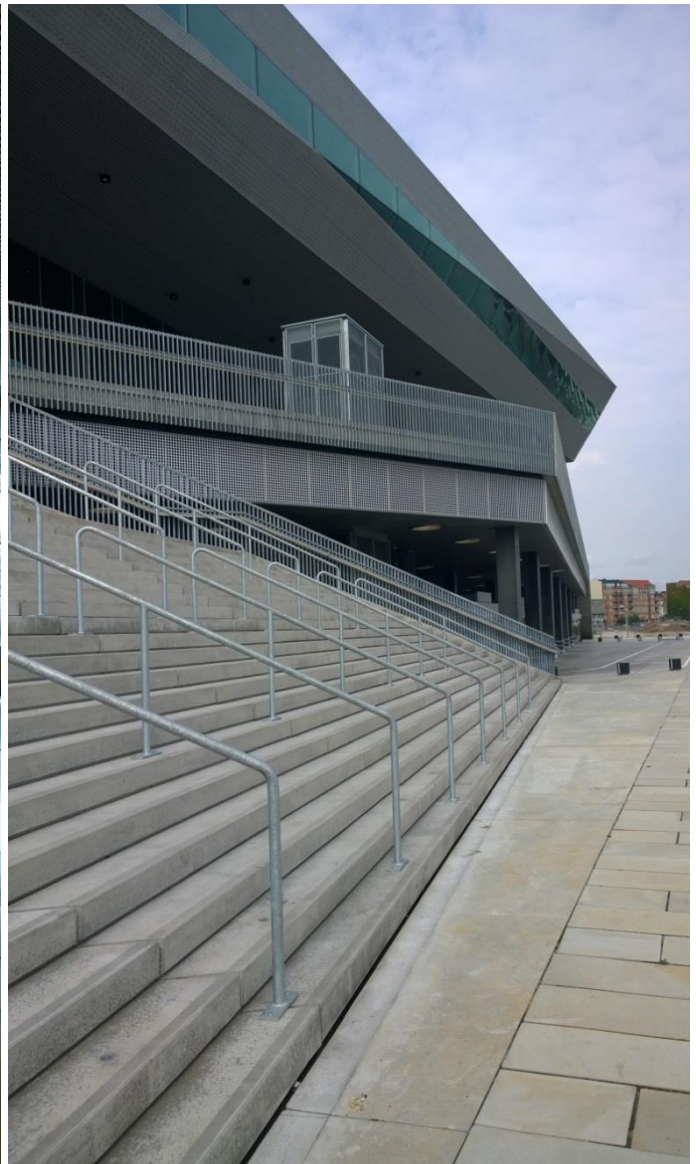Fig. 8: Separation with steel wired 'curtain' (own photo)

Fig. 9: Large stairs connect building with ground floor level.

5.3   VAN GENDTHALLEN

From the middle of the nineteenth century, new industries emerged. Especially the iron- and engineering industry required large spaces. This resulted in a new type of building, the factory building [fabriekshal]. The introduction of steel in 1800 made the construction of larger halls possible at a lower cost. Single layer factories can be divided in three types: the single hall [enkelvoudige hal], composite halls [samengestelde hallen] and coupled halls [gekoppelde hallen]. Aditionally, composite- and coupled halls can be distinguished by roof shape.[21]

The first part of the current Van Gendthallen (hall 1, 2, 3) is clearly of the composite type; it can be seen as one hall with two side aisles [zijbeuken]. This layout is also visible in the appearance because the three halls have their own roof constructions and the existing workshops they were built against were considerably lower. Soon after the completion of the first three halls, the existing workshop was partly replaced by a new locomotive workshop (hall 5). Because this new building part was at some distance of hall 1, 2 and 3, the previously described typology of one hall with two side aisles remained clear. With the (re)construction of hall 4, again shortly after the completion of the first part of hall 5, the halls grew together, slightly disturbing the image of hall 1, 2 and 3 as a unity. In the years that followed, hall 4 and 5 were extended tot he length of the first three halls.

The analysis showed that the (end)facades of hall 1, 2 and 3 have been designed as a unity and that the same style elements have been used in hall 5. Because of the different construction method that was used building hall 4 and of its appearance that also significantly differs from the other halls, the original three halls can still be recognized as a unity.

Today, different heights and roof shapes clearly show that the complex is built up of five different halls. In the interior, this unity is enhanced by the use of wood for the roof construction.

With several smaller and larger pragmatic interventions, the Van Gendthallen were adapted to the needs of different times. In a way, they have always been a multi-use building. Like in many other large factories, different clusters within the complex were used to fabricate different semi-finished products while in the end, finished products left the factory. The building, adapted continuously to perform these specific tasks, almost worked like a machine. This was not limited to the building itself; like in the case of multi-use buildings, connections with the surroundings were very important. From the import of raw materials to the export possibilities by ship or train, the context of the factory was crucial. Looking at the production process this way, not only the building but the complete industrial site of which the factory was a part can be considered working like a machine.

5.4   HISTORICAL- AND CULTURAL VALUES

The complex has been constructed is several phases. With its large footprint, enormous dimensions and open structure, the current empty complex can be interpreted as a roofed part of the city. The picture below shows different layers of use. When a part of the building was used as office space, several windows were replaced by new horizontal window frames, providing views to the outside for people sitting behind their desks. Years later, this pragmatic intervention could well be used by Mediamatics for a bar with a terrace by the water. These layers of use reveal the adaptability and flexibility of the Van Gendthallen.

The long facades make a lot of 'contact area' with its surroundings. Despite many large openings, the complex is very closed; these openings were meant for materials and products, not so much for people. But as part of the industrial activity on Oostenburg with many workers, the Van Gendthallen have always been a very lively building. Factory

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[21] Loeff, K. (2006)

complexes like the Van Gendthallen also fulfilled a social role in that time; for the workers, the factory was their world, their life.[22] Many (functional and social) relationships within the complex and with its surroundings are long gone and because most of the surrounding buildings have been demolished, this working principle is also not readable anymore. This offers possibilities to redefine the way interior and exterior, the building and it surroundings, are connected.

Fig. 10: Layers of use.

[22] Loeff, K. (2006)

6.   Public interior spaces

In this chapter, the (historical) reasons for making interior public space will be outlined and points of attention regarding public interiors will be discussed. Contextual integration will turn out to be a major aspect of successful public interiors. The historical development of the context of the Van Gendthallen will also be outlined, from the construction of Oostenburg up to the situation today. This will result in a number of cultural heritage values concerning the context of the Van Gendthallen, that are essential for designing a new urban fabric on Oostenburg that includes the Van Gendthallen.

6.1 DEFINITION

Michael Bednar (1989) described the renewed interest in the design of interior pedestrian places in the last quarter of the twentieth century and defined five rationales that 'form a basis for understanding the motivations for and the consequences of creating interior urban places.' (p.11) Although an American perspective can be discovered regularly, the underlying motives that should be mentioned are summarized here.

1. the **experiential rationale.**
    A starting point can be found in the map of Rome that Giovanni-Battista Nolli drew in 1748. It was a new type of representation of the city that shows all public pedestrian places in white, whereby it reveals a continuous network. This image of the city '[…] has continued to intrigue urban designers because it represents an idealized vision of the pedestrian's experience of the city as a connected series of exterior and interior spaces. The pedestrian in the city moves freely between these two realms.' (p.13) These can be distinguished by transitions like porticoes and entries but in the end the spatial experience becomes 'unified' because they are 'connected together through physical movement and mental image.' (p.13) When compared to two blocks in the centre of twentieth-century Manhattan, Bednar concludes that, although there are obvious differences in for example scale and form, the spatial experience is quite similar by the design of atriums, plazas and arcades. 'The perceptual and physical movement from exterior to interior in one of fluidity and continuity.'(p.14) The design of the entrances needs extra attention as they are the 'critical disruptions' in the experience of a spatial continuity. Finally, the most striking development he found is the nature of the public interior. 'The technology of glazed roofing has made possible the creation of places that are experientially interior but perceptually exterior. Such places are simultaneously interior-exterior – that is, closed and open.' (p.15)

2. the **pedestrianization rationale.**
    For conflicts between pedestrians and other types of traffic, a solution was often found in separation. The development of the nineteenth century arcade (passage) can be seen as part of this solution of separating pedestrian traffic. When these conflicts became more important with motorized traffic in the twentieth century, the *pedestrianization* movement had a big impact on urban planning. It involves the creation of traffic-free zones meant for pedestrian circulation and use. 'A new exterior-interior pedestrian zone should not be considered an island in the center city. Instead, the goal should be the creation of a totally conceived pedestrian environment.' Different types of pedestrian space can be included in this environment, such as street arcades, covered but open passages or covered unenclosed spaces (example: markets). Finally, being a pedestrian enabled people to really see their direct surroundings. Because people did not like what they saw then (modernistic buildings) and quality for pedestrians was found mainly in historical buildings, Bednar states that the pedestrianization and building preservation movements are 'undoubtedly related in their occurrence and intention.' (p.17)

3. the **sociological rationale**.
   After having described the significant social role of public interior places since their introduction, Bednar finds a problem with the social functioning of many interior places because 'there is a false, contrived sense of how people should gather or meet in a public setting – causing urban residents to long for the genuine experience.' (p.18) Barriers caused by restricted accessibility (doors and/or supervision) and a bad connection with the surrounding urban fabric (public interior treated/designed as a destination where you enter and leave through the same door) lie at the basis of this problem. These two factors help prevent to attract a wide variety of people, which […] 'is an important indicator of its social success.' (p.20) A tendency is observed towards differentiated interior spaces for different segments of the population (atria of offices or hotels, shopping malls). 'These interior places serve vital social roles, albeit different ones from traditional expectations'.(p.21)

4. the **interiorization rationale**.
   Creating spaces for public life in which the positive aspects of the environment (daylight) are being kept and the negative aspects (rain, snow, wind, temperature changes) are avoided can be seen as a long-standing architectural ambition. (p.23) But protection from the weather to provide the pedestrian with comfort and convenience is not the only reason to build public interior spaces; for both the owner and the merchant such a space means a marketing benefit.

5. the **privatization rationale**.
   Many interior pedestrian places in the United States are being financed, owned and managed privately. A reason for this privatization can be found in the increase of street crime; security can be managed better in these enclosed spaces. The question arises whether these spaces can be characterized as 'public'. In practice, different constructions (for example private-public partnerships) can lead to private, semi-public or public interior places concerning the ownership and accessibility.
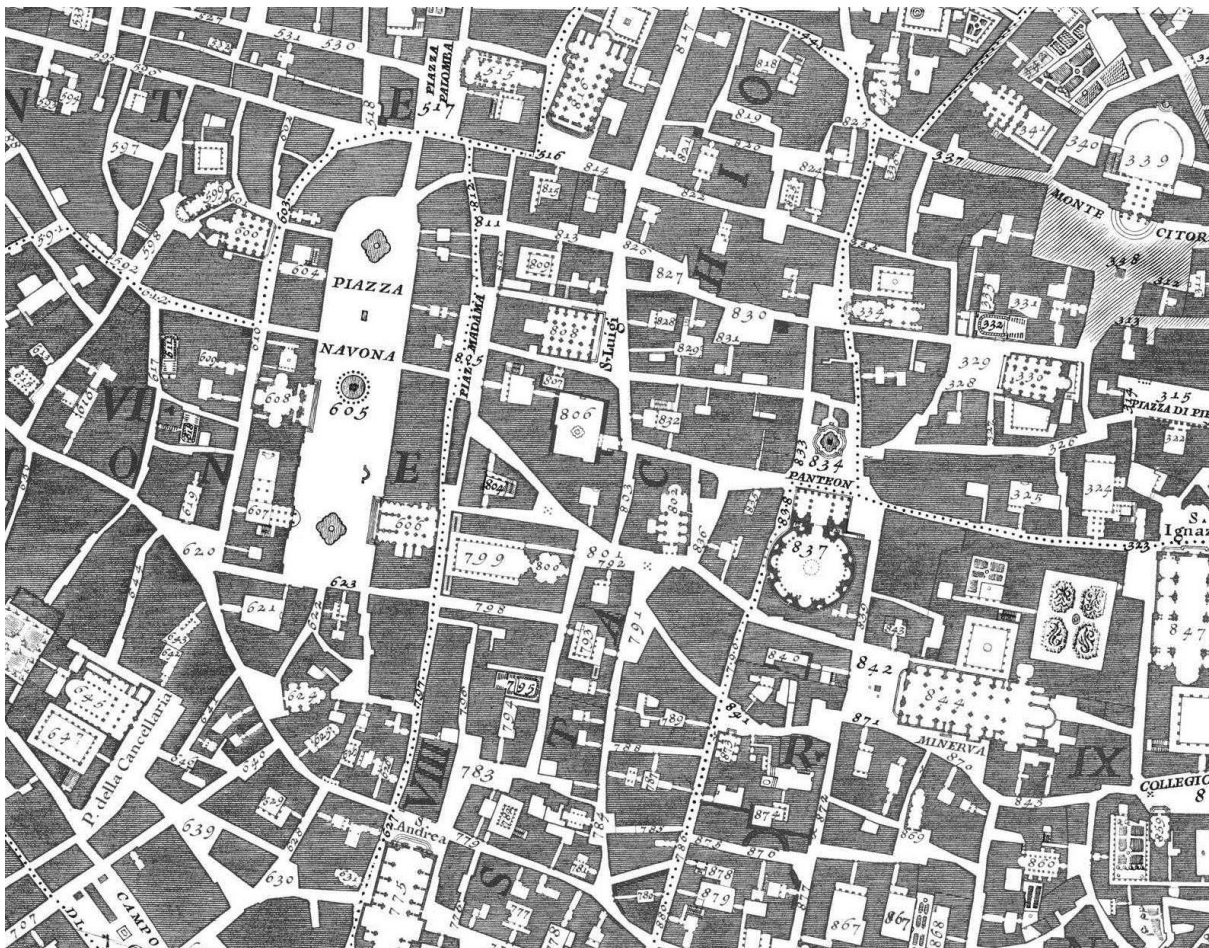

Fig. 11: Nolli's map of Rome

Especially the first rationale mentioned, the experiential, is of importance in the case of large-scale industrial heritage. The 'mental image' that unifies the spatial experience of interior and exterior, is also part of Pallasmaa's explanation of atmosphere. He states that a space or place essentially is a personal image, made up of both the actual, real materialisation and personal imagination. Atmosphere plays a key role in the creation of this image of a place. (see also chapter 4) American architect Kevin Lynch drew 'mental maps' based on interviews with citizens in his book *The image of the city* (1960). These maps revealed the way in which the city was experienced; '[…] the perception and mental representation of the urban environment by citizens.'[23] Such a method of understanding the city is part of a phenomenological approach, attempting to merge architecture and its urban surroundings into one experience.

Tokyo has an impressive system of public interior spaces and serves as an example in Maurice Harteveld's research (2014) on this topic. He describes them as 'vital centres in the city, […] that include places with essential urban programme and important human activity.' (p.19) In contrast to most European cities, the centre 'appears not to be formed by one recognizable historical core […] but by an intense compaction in urban programme and infrastructure.' (p.19) There can be big differences in the appearance and use of the interior spaces. They can be stretched or very compact, organized horizontally or vertically, be very narrow or grand and impressive and the programme may vary considerably. One striking similarity is that people really *gather at large* inside, using it as a hub in public transport, taking a shortcut, shop or just stay there for a while.

Concerning the issue of public interior spaces, there is no clear definition of how such spaces should be like, both in a spatial and a programmatic way. Several questions need to be asked prior to the actual design task. Should the place be more programmed, resulting in a more used space, or less programmed, leading to a more flexible but perhaps also less used space? Is it open to all kinds of (target) groups or do a lot of people belonging to a specific group gather there? This has also influence on the question whether the space should be really visible or can it be more introverted? Finally, they come down to the question what serves the public best?

Often, these questions contain great contradictions, but the answers will provide insights to the starting points of the specific task. These starting points will underline a hypothesis on the social and spatial roles the public interior space should play in the city. Usually, the designer, the developer and the government have clear ideas about how to serve the general interest of the people. In order to find out if these intentions indeed serve a public purpose, the opinion of the people making use of the space should be asked. 'The effect of the people, supporting or neglecting the public qualities of an interior, is enormous. […] Public interior spaces are changing continuously, not only in themselves but also shifting in senses and people's preferences.' (p.123)

In his book *Binnen in de stad. Ontwerp en gebruik van publieke interieus* (2012), urbanist Matthijs de Boer discusses the design and use of public interior space. Like atmosphere, a 'public interior' can be interpreted in different ways, ranging from an interior space within a building that is used as such (in fact private property) to a small square that is perceived as an 'urban interior space'. It is not only this issue of ownership that determines whether a place can be labelled 'public interior'; much more important is the question how a place is used. When a space is freely accessible to the public, it can become part of the spatial structure of the city and be understood as a public interior space. Cities have always generated such spaces that accommodate encounters between people, resulting in building types as the passage, the mall, post offices, city- and market halls and train stations.[24]

He distinguishes nine points of attention after having analysed several projects that include a pubic interior space: location, urban fabric, urban furnishing, mixing of

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[23] Avermaete, T. (2015). *Architecture and Its Epistemes: Lecture Notes for Students.* p.4 (Blackboard)
[24] De Boer, M. (2012).

functions, programme & facilities, dimensions, accessibility, quality of stay and management. A Nolli-map shows if a space can work as a public interior. It provides insight in things like routing, accessible- and inaccessible places, traffic zones, possible areas for staying, dimensions, activities in the plinth and the effect of limited opening hours. Below, the points that De Boer mentiones are listed. Where applicable, they will be related to the case of the Van Gendthallen.

- **LOCATION:** identify in what type of urban environment the location is situated. The centre of a large city needs more differentiated public interiors focusing on specific target groups while smaller centres benefit from one or a few where everything is for everyone.

The Oostelijke Eilanden are located in the centre district Amsterdam. The islands together can be seen as a sub-centre on the east side of this district. Within this sub-centre, Oostenburgereiland and the Van Gendthallen are roughly in the middle.

- **URBAN FABRIC:** a public interior functions when it is well embedded in the pedestrian network. It becomes part of the system of public spaces and forms an anchor point in it.

We have already seen in previous chapters that the context is of high importance to all three topics discussed. When it comes to atmosphere, multi-use buildings and public interior spaces, integration in the context is a recurring theme.

There is no question of a pedestrian network on Oostenburgereiland. The absence of a clear network or routes between the different functions on the islands forms an important opportunity. Introducing such a network can make the different islands as a whole a lot more attractive place to go. Plans to improve the area for slow traffic are being made already; the so called 'Eilandenboulevard' that connects the islands on the south side will be reconstructed in the near future. A clear route from this boulevard can contribute to the possibility of experiencing different islands. Connecting the Van Gendthallen to such a pedestrian network significantly increases the probability of success.

- **URBAN FURNISHING:** requirements of the pedestrian traffic determine the furnishing. Wide pavements or promenades accommodate a pedestrian flow with potential visitors of the public interior. Again: the connection determines the success and a route through the public interior means even greater chance of success.

- **MIX OF FUNCTIONS:** creates a dynamic context. Attracting elements for a public interior are public transport stops, shops and cultural facilities. A critical mass is needed for the continuity and functioning of a public interior. (housing, offices,..)

With the large INIT-building, there already is a considerable amount of office space on Oostenburg. Current plans for the development of Oostenburgereiland include a programme of about 1000 new dwellings. Together with other recreational functions, this can provide Oostenburgereiland with a critical mass needed to make a public interior successful.

- **PROGRAMME & FACILITIES:** giving reason for a visit and make the stay more comfortable. Free facilities (seating areas, drinking water, toilets, reading table, events,...) and paid facilities (kiost, coffee, cafeteria, sandwiches,…)

- **DIMENSIONS:** generous proportions of floor area and height. A direct and indirect correlation exists between size and the number of visitors.

The dimensions of the Van Gendthallen are one of the values of the complex. A public interior space creates the possibility to keep the experience of the length and height of the halls. There are not many other functions that require such large dimensions.

- **ACCESSIBILITY:** dependent on the number of entries, orientation and design. The transition zone forms a point of attention (direct or intermediary)

As we have seen in the previous chapter, multi-use buildings should have a very good accessibility. Although this was presented as a separate point of attention, it is clear that the accessibility is closely linked to the integration of the building in the urban fabric. Despite the presence of many and large openings in the facades of the Van Gendthallen, the complex is perceived as closed and inaccessible. This is because most of the openings were meant for the transition of products, not people. Great attention should be paid to the design of the entrances.

The inaccessibility of the site and therewith the building became very clear when Mediamatic, a cultural institution that 'explores the possibilities and challenges that new technology offers art, design and society' (mediamatic site), temporarily moved into a part of the Van Gendthallen in 2011. The new location proved difficult to find; large signposts in the Czaar Peterstraat were not allowed so they came up with a playful action: bright pink bird houses should point people to the Van Gendthallen. This demonstrates that the inaccessibility of Oostenburgereiland makes the building quite hard to find.

- **QUALITY OF STAY:** is related to the physical appearance of the public interior (shelter, clarity of space, quality of materials, daylighting and rest)

One of the reasons to create a public interior space is the presence of a spectacular industrial interior/construction that provides the building with a certain atmosphere. The new programme together with this atmosphere can make create a high quality of stay.

- **MANAGEMENT:** closing times, access regime, rules of conduct,…

Essentially, the above mentioned aspects are very basic principles that contribute to thesuccess of a public interior space. Two points of attention that are mentioned other publications concern basic design criteria:

- **DESIGN**: public interiors should be legible and imageable for purposes of circulation and orientation. This can be reached by a coherent spatial form and simple plan geometry. (Bednar, 1989) Horizontal circulation and readability of a building are important aspects that influence wayfinding.

Readability: The main entrance of a building should preferably be visible from the public road, the parking places, bicycle parking or public transport stops. When there are different building parts, it is important to differentiate them from each other so that there can be no mistake about the building part someone is in. Unconsciously, people tend to walk straight ahead, avoiding level changes, choosing the broadest pat hand move towards bright light.[25]

Horizontal circulation: rectangular layouts of corridors and rooms are easy to understand. When the layout of the building is in line with the pattern of expectations of people, less signage is needed. Essential facilities such as a reception office, toilets, stairs and lifts should preferably be combined and located close to the entrance. Destinations that are not visible upon entry (larger walking distance) should not only be indicated by signage but also with marks like light or notable spatial elements. Large, empty spaces need

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[25] Brinker, B. den, Apituley, A., Smeets, J. (2014). *Zicht op ruimte.*

marked walking routes. Walking areas should be clearly separated from staying areas and free of obstacles. Decision points along this route (junctions, elevators, stairs) should stand out.[26]

- **VERTICAL DEVELOPMENT:** because public interiors often have large dimensions in height, there is a possibility for functions on higher levels that are directly linked to the public interior space. The way in which these level(s) can (or cannot) be reached should be clear. (Komossa 2011)

'De aanduiding van de entree, de zichtbaarheid van de binnenwereld, de mate van verfijning in detaillering en decoratie, het toegangsregime, de verticale ontwikkeling en de doorwaadbaarheid en aanknoping op het stedelijk weefsel: zij blijken een constante hoofdrol te vervullen in het slagen van dit soort stedelijke semipublieke ruimten, vroeger en nu.' (tekenboek stadsgebouwen)

6.2 CONTEMPORARY ISSUES

Various contemporary issues pose a threat to the public interior spaces. Increasing car traffic and upscaling, that resulted in moving functions to the edges of the city can be seen as more traditional factors that have been going on for a while. Although many of the new buildings this has brought (hospitals, headquartes, university buildings, …) contain public space, they do not function as such because of their location, somewhat isolated from city life. In recent years, automation, internet, privatization of public services, security issues and safety put the public nature of these kind of places under pressure.[27]

A very recent and striking example is Rotterdam Central Station. The designers created a high quality public interior around the train tracks, that is of interest to the city. From the start, the incorporation of ticket barriers, demanded by the railway company (Nederlandse Spoorwegen, NS) for safety reasons formed a problem. Negotiations between designers and NS resulted in gates that were reduced in height. After commissioning it appeared that some people jumped over the gates, for the railway company reason to install the higher variant anyway. One of the architects responded: 'The new station has an important connecting function in the city. [...] With high gates, the station becomes a lot less inviting.[…] The train station should remain accessible to everyone.'[28]

> 'Voor iedereen toegankelijke stedelijke interieurs […] bieden plek aan onverwachte ontmoetingen en maken van de stad een boeiende aaneenschakeling van buiten- en binnenruimtes.' [29]

Amsterdam is not known for its great public interiors, but there are definitely worlds behind the urban façade that should be explored more often, '[…] because despite usually being regarded as a restrained city (unlike Paris, Milan or Hamburg with their spectacular interiors) it is nonetheless one whose many urban qualities are still grounded in its interior spaces and the rituals derived from them.'[30]

The simultaneous development of interior- and exterior is not always self-evident. Maurits de Hoog decribes the situation in Amsterdam in 1993 and calls for a better relationship between exterior and public interior space:

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[26] idem.

[27] Boer, M. de (2012). *Binnen in de stad. Ontwerp en gebruik van publieke interieurs.*

[28] NOS.nl (06-05-2015) *Architect station Rotterdam wil geen hogere poortjes.*

[29] Boer, M. de (2012) *Binnen in de stad. Ontwerp en gebruik van publieke interieurs.*

[30] Kloos, M. (1993). Introduction. In: Kloos, M. (Ed.) (1993). Public Interiors. Architecture and public life inside Amsterdam. Amsterdam: ARCAM/ Architectura & Natura Press.

'New interest in the form of the public urban exterior and the use to which it can be put parallels a period which has seen the renovation of many public urban interiors. Numerous shops, cafés, museums and theatres have been modernized and a large number of complexes, such as the Royal Palace, the Nieuwe Kerk, the Zuiderkerk and the Beurs van Berlage, have been given a new, public function or opened to the public for the first time. In terms of use, exterior and public interior form a continuum; together they are the images on which people's collective memory of Amsterdam is based. However, in the case of many existing buildings, complexes and ensembles, there is a strange mutual relationship between exterior and public interior, one that is characterized by numerous ambivalences and contradictions. Consequently, in many cases renewal of the exterior and renewal of the public interior are two processes practically independent of one another. Now that Amsterdam is faced with a far-reaching transformation of both its exterior and its public interior space – on Museumplein and around the banks of the IJ in the old harbour of Amsterdam, for example – it is desirable that the relationship between exterior and public interior space be mad more precise.'[31]

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[31] Hoog, M. de (1993). *The inside of Amsterdam.*

ROC van Twente

Place & year: Hengelo, The Netherlands, 2008
Architect(s): IAA Architecten & Architectenbureau Fritz (restoration)
Area: 56.500 m2 (hall:
Programme: education, shops, public interior space

The reuse of a former machine factory in Hengelo, originally built in 1902 and enlarged in 1928, shows a completely different approach to the existing compared with Halle Pajol (case study, p. x). Although parts of the complex have been demolished completely, in the remaining hall that was considered most valuable, the atmosphere of the past has been preserved. Purposely, corroding parts of the construction have not been renovated. Also peeling layers of paint and even old cutted off cables have not been removed or repainted in order to keep the existing atmosphere that refers to the past. Where an improvement of the construction appeared to be necessary, only new elements have been added, nothing has been replaced.

As described in this chapter, one of the contemporary issues with public interior spaces has to do with upscaling and moving (educational) buildings to the edges of the city. The philosophy of the *ROC van Twente*, a regional educational institution, is that their large-scale educational buildings should be located in the city, for example near a train station. The realisation of this project in which a part of an industrial complex is reused, shows this opposite movement trying to create a public interior space that connects the city with the educational institution. In order to keep the hall accessible to a larger public, there is no automated security system at the entrance like in most other regional educational institutions. Only students that follow a study there to become security guards keep an eye on things; this way they also gain some working experience.

This new complex was also part of a larger masterplan ('Hart van Zuid'), showing an attempt to integrate the building in its (future) urban fabric; one of the key features of good functioning public interiors. The building with its public interior should have played a catalyst function in this development. Unfortunately, the economic crisis of 2008 has delayed these plans. The public interior is not integrated in a pedestrian network and there is only one (main) entrance through which people should enter and leave the hall. That is possibly the main reason why the old hall, although the space is very much appreciated by the users related to the school, is visited by only 25 to 50 people daily (not related to the ROC). The project proves that integration in the urban fabric is one of the key success factors for making public interiors.

Sources:
Broekhuizen, D. (01-2009).
Crone, J. (04-2009).
Boer, M. de (2012).

Fig. 12: construction of old hall and new building parts

Fig. 13: interior of public hall ROC van Twente (Hengelo).

Fig. 14: Public interior (left white) and walking routes, (dashed line).

6.3   VAN GENDTHALLEN: DEVELOPMENT OF THE CONTEXT

Oostenburg originally looked more like an island than today. When it was laid out around 1663, the north-east end of the island was directly on the river IJ, where the East Indian Company launched their ships. The French domination of the Netherlands (1795-1813) and the bankruptcy of the VOC (1799) marked a period of decline. In 1828, Paul van Vlissingen initiated the building and repair of steam engines on Oostenburg. Initially these were meant for ships but soon they also made engines for the sugar-industry and steam locomotives. The company expanded and about ten years after its founding, they were also building sailing- and steam ships for clients around the world. When the Nederlandsche Fabriek van Werktuigen (later: Werkspoor) took over only the mechanical engineering part in 1891, a large group of shipbuilders became unemployed. From then, Amsterdam had only small-scale shipbuilding. In order to tackle this unemployment, plans were made to revive the large shipbuilding in Amsterdam on Oostenburg.

More or less on the location where the VOC launched their ships, the Nederlandse Scheepsbouw Maatschappij (NSM) started the construction of large ships after its founding in 1894. The location is a little bit more to the north-east of the VOC-site; obviously there have been land reclamation projects in the nineteenth century that had the consequence that the north-east end of Oostenburg was no longer on the riverside. On this side, Oostenburg was now bordered by train tracks. These space limitations soon became a problem for the factory, because it was necessary to expand several times due to the success of the NSM. Around 1915, the expansion reached a limit, with the entrance of the factory site along the '3rd Conradstraat' (the 2nd and 3rd Conradstraat no longer exist today, they were located around the present Van Reedestraat). A railway crossing in line with the Czaar Peterstraat provided a northern access to Oostenburg. However, the factory site was closed off with an entrance wall and gate. Also the southern entrance to the Werkspoor terrain (current Van Gendthallen) was meant for employees only (Werkspoorbrug). Around 1920, the lack of space and the obstacles like rail bridges that made it more difficult for larger ships to reach the river IJ from the factory, forced the NSM to relocate the factory to the other side of the river. The vacant site of the NSM became part of the Werkspoor factory when two large halls were built there in 1931.[32] These halls, the still existing 'Langhouthallen', were constructed especially for the production of diesel engines for boats.[33] They still exist today. Between 1936 and 1940, a large infrastructural project called 'Spoorwegwerken Oost' was carried out. This meant that the railroad tracks were raised so the rail crossings, that caused delays, became unnecessary. The viaduct at the end of the Czaar Peterstraat was part of these works.[34]

[32] NDSM-Werfmuseum (2011). NSM in Oost. http://www.ndsm-werfmuseum.nl/de-werven/nsm-1
[33] Damen, T. (28-12-2014). *Vier eeuwen industriële geschiedenis.* Het Parool
[34] I amsterdam (2015). Spoorwegwerken Oost. http://www.iamsterdam.com/nl/amsterdam-qr/oost-watergraafsmeer/muiderpoortstation

6.4   HISTORICAL- AND CULTURAL VALUES

Because of the fact that the Van Gendthallen can be seen as five craneways that are enclosed by just simple brick facades and a very light roof construction, the complex forms an urban interior. Materialisation and scale of the complex make that it becomes not really clear whether these space can be defined as indoor or outdoor. This offers possibilities for a new and clear definition of what is inside and what is outside. This can also lead to transitional zones within the complex.

Over time, Oostenburgereiland has become increasingly accessible. From a single entrance through a gate building during VOC period to two entrances in the industrial period, when Oostenburgereiland was separated in a Werkspoor- and NSM-part with their own entrances. Although the location is open to the public nowadays, it remains very closed off because there are still only two entrances/ways to approach the location. For a future redevelopment of Oostenburgereiland into a living- and working area, it is interesting to look for new ways to reach or approach the location.
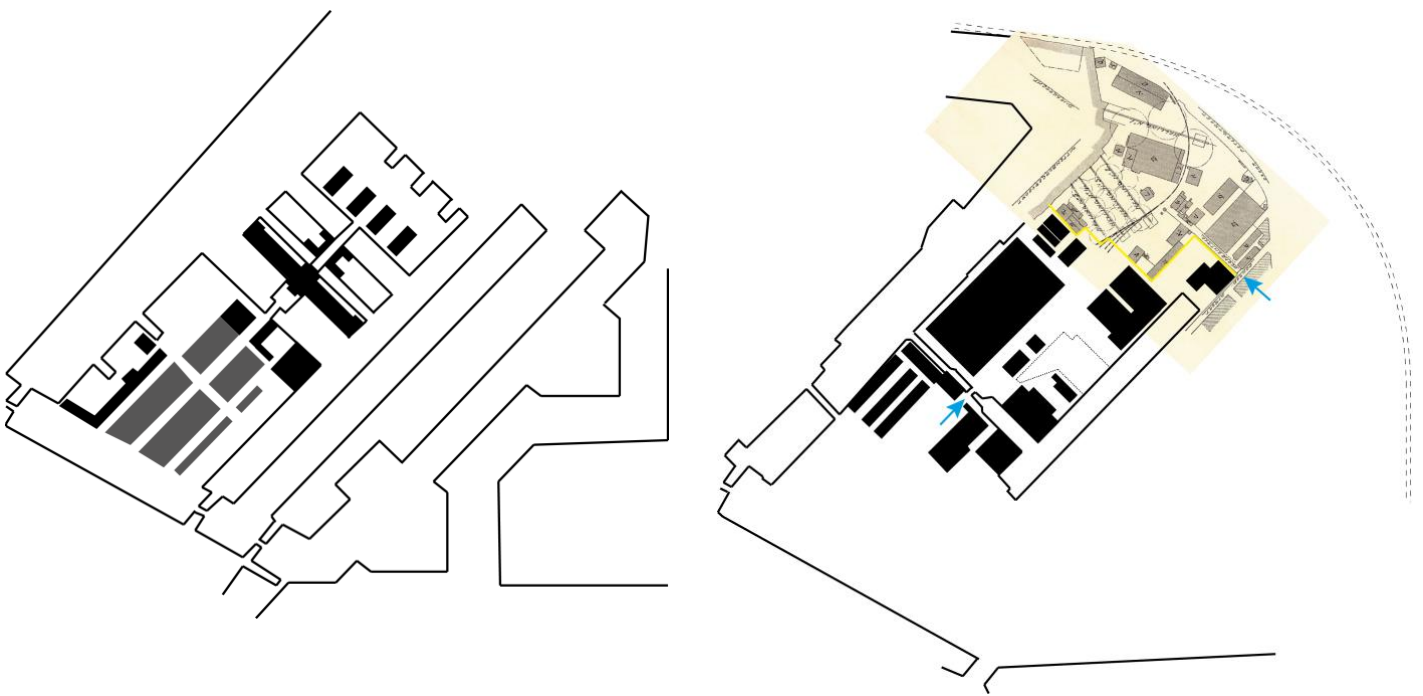

Fig. 15: development of Oostenburgereiland: VOC period (left) and Werkspoor/NSM-period

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7.   Conclusion & design approach

This research looked for a way to transform large-scale and very closed industrial complexes into very accessible multi-use buildings. In many cases, industrial buildings have been part of a larger industrial complex with buildings that accommodated different parts of the production process. Very often, the sites have been cleaned up, leaving just one or a few buildings behind with the risk of becoming isolated elements in their new urban context. On two levels of scale – first urban, later on the scale of the building - the typical messy industrial character is scrubbed away, forming a threat to the atmosphere of a place, the very thing that is often considered valuable.

In a way, the introduction of *public interior* (if strongly linked) can extend the (atmospheric) qualities of the industrial heritage to the urban context. Public interior space can be interpreted in different ways and takes many forms; ranging from an interior space within a building that is used as such (in fact private property) to a small square that is perceived as an 'urban interior space'. Especially large-scale industrial complexes, with their often big dimensions and impressive structures are ideally suited to include a public interior. This interior can be seen as a link between the industrial atmosphere of the place and the scale of the complex, that asks for a combination of different new functions. (see also fig. x) Beside these new functions, the heritage itself then can become an attraction. The size of their footprint makes that these buildings have a lot of contact area with their direct surroundings. This offers possibilities to integrate the complex and its public interior space in the urban fabric by responding to its surroundings. Contextual integration came forward as one of the key points, both for successful multi-use buildings and public interiors. In particular when the industrial heritage is located on a vacant lot, there are numerous options for this integration as the (direct) surroundings will probably be (re)developed as well. Approaching large-scale industrial complexes this way, the interior of the complex and its surroundings can become one experience. It can lead to a redevelopment where the complex will not only be preserved but also contributes to the vitality of the city.

Making a plan for the redevelopment of the Van Gendthallen in the first place meant a search for programme; one single function is really hard to find. The research showed that combining different types of programme in multi-use buildings can lead to a situation in which these functions are mutually reinforcing. An educational institution, retail and horeca for example can share a central space that is open to the public and can be used itself for various activities. This way, the public interior space becomes part of the programme of the complex. The wide range of public interior spaces and the different ways these spaces can be interpreted gave rise to the idea of differentiation of public interiors in the complex. This differentiation is directly related to the diverse functions and the way they are connected to the urban fabric. For example, a hall that is flanked by dwellings is treated more like a traditional street; the space is enclosed by its walls and the trusses, but is not climatized and it can even rain there because the roof surface is removed. This provides the houses with fresh ventilation air and creates space for outdoor terraces and balconies. A cross-connection over the complex is a covered street, providing a dry walk through the building. A public interior in the literal sense of the term can be found in the hall flanked by retail and horeca. In this more climatized space are also project rooms and student workplaces that will make it a lively place. The different types of public interior space are linked and form a network through the Van Gendthallen complex. The ends of this network are connected to the surrounding urban fabric, so there are at least 5 entrances to the complex that are always open and lead to public interior space. From there, the building parts that have limited opening times can be reached. This intervention increases the permeability [doorwaadbaarheid] and therewith the readability of the complex. These factors will make the complex as a whole more accessible.

In the research it has become very clear that the key factor to successful public interiors lies in transitions and connections with the urban fabric. That is why the development of the Van Gendthallen cannot be separated from other new developments on Oostenburgereiland. Therefore, in this case of redeveloping large-scale industrial heritage, an urban plan is crucial.
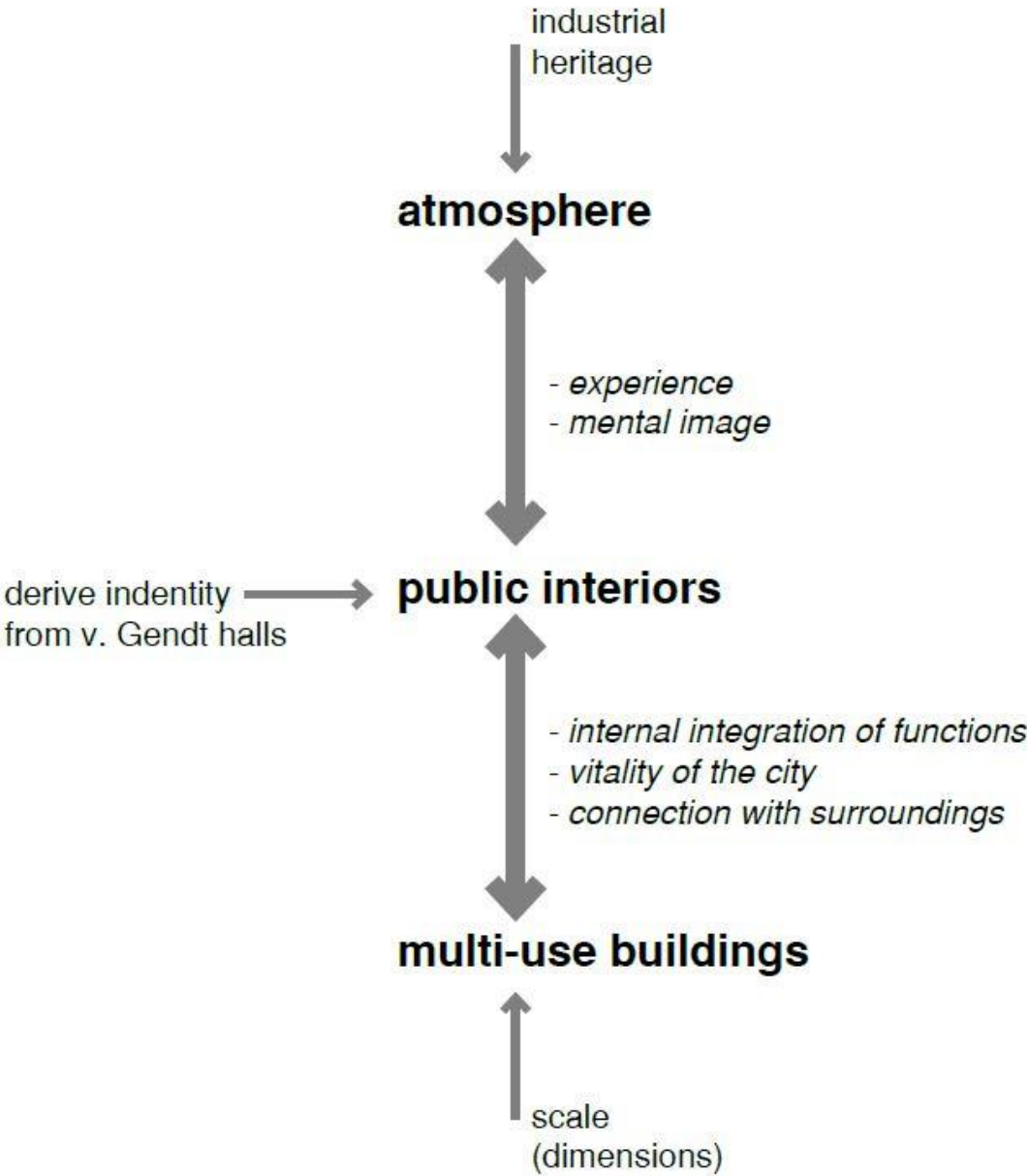
Fig. 15: Public interior forms a link between atmosphere and multi-use buildings

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FIGURES

Fig. 1   Hees, R. van, Naldini, S. & Roos, J. (2014). *Durable past – sustainable future.*

Fig. 2   11h45.com via: http://www.11h45.com/wp-content/uploads/2014/03/ JOURDA_PAJOL_1700_MD-11.jpg

Fig. 3   PARIS FvdV, via: http://paris-fvdv.blogspot.nl/2014_08_01_archive.html

Fig. 4   Un jour de plus a Paris (October 2014). *Halle Pajol and Jardin Rosa Luxembourg.* Retrieved 26-10-2015, from: http://www.unjourdeplusa paris.com/en/category/home

Fig. 10   Mediamatic

Fig. 11   https://landlab.files.wordpress.com/2012/03/nolli_rome_detail.jpg

Fig. 12   IAA Architecten

Fig. 13   Boer, M. de (2012). *Binnen in de stad.*

Fig. 14   Boer, M. de (2012). *Binnen in de stad.*