Cultural Values in the Built Environment

Revitalization and re-use of

Industrial Areas and buildings

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The changed view of the industrial heritage

It was not until the middle of the 20th century that the attention was focused on the heritage of the industrial society and various industrial objects such as buildings, production systems began to be looked upon as valuable and important tasks for preservation. The interest arose at first in England where the glorious memory of the childhood of industrialisation was the driving force for a vast movement called “industrial archaeology”. In Sweden it was not until the end of the seventies before a similar interest in the history of industrialisation arose.

The industrial heritage was earlier not looked upon as a cultural heritage in the same way as the relics of the agricultural society and different kinds of handicraft. Alzen (1996) mentions at least six hampering factors which contributed to the feeling that industry was not a part of the cultural heritage:

1) Industry and Culture were considered as contradictory. Culture was conceived as a counter-weight and compensation for the ugly, trivial industrial production and heavy industrial work. For that reason the industrial artefacts left over should preferably be forgotten, it was thought.

2) The preservation of the industrial heritage, interest in old technology, working conditions and so on, were considered as counter-progressive.

3) The remnants of industry symbolized only poverty, humiliation and misery.

4) Industrial production is characterized by constant change while the cultural heritage was distinguished by authenticity and continuity.

The reconstruction and extension of buildings, new layouts and use of materials which are part of the ordinary industrial production also disqualified industrial objects as true cultural exponents. Industrial facilities were for that reason often considered as ugly and untidy. This did not legitimate its reception in the aesthetically valued cultural heritage.

In today’s perspective, this seems somewhat difficult to understand as we find many industrial buildings from the period 1850 - 1910 as objects of high aesthetic value, designed with a high degree of artistic care and feeling. Many of these buildings appear as real “jewels” compared to the simple boxes produced during the last decades.

5) Practical preservation problems. The preservation of industrial remains is much more complicated than for example relics from the agricultural society. This is among other things due to the fact that industrial artefacts often comprise large volumes. Large establishments with many buildings, long production chains, voluminous and heavy machines created different problems of selection and storing compared with small cottages, spinning wheels, mangels and other objects from the agricultural society.

6) Economical problems. Large industrial establishments represent substantial economical assets which the owners want to manage in an economically convenient way. This often diminishes the owner’s interest for preservation.
Fortunately the prejudice against industrial environments which was reflected in the hampering factors 1-3 has been reduced during the last 20 years. The meaning of the word preservation of industrial environments has also become extended and better tools have been developed to handle these complex questions in a proper way. A museum preservation does not appear today as a main strategy as for the industrial heritage, owing partly to the hampering factors 4-6 mentioned above.

Due to the considerable proportions of many industrial facilities and the increasing structural changes in many branches different kinds of revitalization or re-use appear as the main strategy today and in the future. This strategy is closely related to the question of sustainability of the urban and regional planning and architecture. Revitalization and re-use give great advantages and profits compared with the planning of new areas and buildings.

Even if a pure preservation is subordinated to revitalization and re-use as a main strategy, there are complicated questions of priorities in almost every case of renewal. It is impossible to present any standard methods for obtaining a good balance between preservation and revitalization, but by analyzing successful planning and building examples, many useful experiences can be gained.

Important factors facilitating revitalization and re-use of industrial environments from the 19th and early 20th century.

Before I describe different strategies more in detail I will try to systematize in a rough manner some important factors facilitating revitalization and reuse of industrial environments. My own practical planning and research experience (Ranhagen, 1989) is that the compatibility between trends within industry and society on the one hand and properties of the physical environment on the other has increased during the last decades.

Törnqvist (1981) shows that there are reasons for questioning the usual opinion that only premises with certain design properties, for example large industrial single-floor spaces, constitute a good production and working environment for modern industry. A common feature among the chosen examples, all built before 1950, is a far-reaching mutual adaptability between premises and industrial activities. Also between old premises (industrial and military) and other activities than industrial such adaption could be observed (Josefsson & Ranhagen 1996).

This discussion could be illustrated by four ellipses where the overlapping parts represent compatibility.

As mentioned above there are of course always some conflicts between qualities in the built environment and different commercial trends respectively environmental/cultural trends.

Three important commercial trends today are:

- transformation from heavy production to light production, offices, research labs, service functions etc
- decentralization of organizations to smaller result-oriented business units in flat, network organizations
increased area-efficiency, i.e. reduction of area per person due to a more flexible and market-oriented organization, flexible open spaces with coordinated use of spaces for different functions.

![Diagram](image)

**Figure 1** The compatibility between business and environmental trends on the one hand and properties of the physical environment on the other has increased during the last decades.

Old, multi-floor buildings from the period before and after the turn of last century have often ceiling-heights, column spacing and floor flexibility modern business and research functions. There are many examples of nicely rebuilt building complexes of this kind, for example in the modern company hotel that has been established in the old textile factories of Krokslätts fabriker in Gothenburg.

These buildings represent great cultural values due to architecturally elaborated and expressive brick facades and building volumes. The large windows in the old so called day-light factories could cause heat-problems in the summertime. It is however possible to reduce the window areas by putting glazed and insulated panels in the upper parts of the windows without destroying the architectural and urban qualities of the old buildings. These changes have been made in
connection with the rebuilding of a cotton factory designed by Cyrillus Johansson for various types of small firms on Södermalm in Stockholm.

Old industrial areas are often located adjacent to city or town centres with direct access to water, which served as power source, and with railway connections. When the areas were in use for heavy industrial purposes these factors constituted their main disadvantages. When the industrial production has disappeared, these conditions on the contrary make the areas really attractive for other purposes such as housing, cultural functions etc. The areas being closed enclaves or barriers in the town could be transformed into integral parts of the urban scene. These transformations are for example compatible with efforts

- to create multi-functional and aesthetically complex and stimulating environments with close integration between working, residential and service functions
- to utilize existing resources for new functions in order to reduce energy consumption for heating and transportation
- to prevent new building investments in peripheral locations with poor public transport systems, which could cause urban agglomerations characterized by the diffusion of functions (so called edge cities).

**Different strategies for revitalization and re-use with the aim of preserving cultural and other environmental values**

Strategies for revitalization and re-use of industrial estates could be characterized by at least four main considerations:

- **scale and location of the actual areas/buildings** ranging from large, complex areas in central locations to single buildings in peripheral locations

- **type of new activities** ranging from a mix of different kinds of new activities compared with the original activity for example integration of residential, working and service functions with modernised versions of the original industrial activities

- **planning, design and implementation processes** ranging from, on the one hand rational, strategic and formal planning processes characterized by formal negotiations and on the other hand to intuitive/tentative processes characterized by experiments and continually changing ambitions.

- **value orientation** ranging from a main focus on technical and functional aspects to a main focus on cultural, aesthetical and historical aspects

I will roughly comment on three examples of revitalisation which exemplify these considerations. I will not pretend to characterize these examples as typical even if you can recognize common features in the examples as well as other similar examples. There is a need for further research work in order to refine the analyses of different cases as a basis for developing more accurate and appropriate methods and strategies.
Nääs factories in Lerum

Nääs fabriker are located in the town of Lerum 30 km east of Gothenburg in connection with the motorway E20. In 1833 a cotton mill was established here and during the first part of the 20th century, the working force increased to about 500 people. A small industrial community grew up around the mill. The structural changes within the textile industry hit the mill and all activities ceased in 1980. What could be done with 14-15 000 sq. metres of old factory premises in a small community? Also in Gothenburg there was a surplus of empty premises which Nääs had to compete with.

As there was a lack of private initiative contact was established between the community and a research group on industrial planning within CTH which gave their experiences from british examples (see Birgersson, L, 1996). The strategy could be characterized as a "marginal solution" in order to create low cost premises for small and newly established firms in the existing building.

The local authority bought the factory buildings and the planning secretary moved from the municipal office to the factories as project leader for a revitalization process. From being a closed world the factory was developed into an open arena where everything could happen! A course for unemployed youths moved to the building. The youths participated in the rebuilding of the premises for small firms. At the same time music evenings, art exhibitions, junk markets and similar activities were arranged as well as meetings for the inhabitants and working groups involved in finding new functions for the building.

Instead of designing expensive rebuilding measures for the building complex as a whole, general guidelines for the rebuilding were decided. These guidelines also served as a base for the building permission. The premises were refurbished one at a time for interested firms. Design, building, renting and real estate management - normally separated working steps - were integrated in a rolling rebuilding-process. The strategy could thus be changed after each rented and rebuilt premise. The firms could choose standards on the level of their own working achievement and level of the rent. Activities to strengthen the common philosophy were arranged. A reception and a broad spectrum of services could be offered at cost price. After five years the whole complex was rented and rebuilt for 65 firms with 100 employees.

The project had reached break-even and the municipality stated that their goal was fulfilled so they looked for another form of administration. The complex was sold to a building firm which has refurbished the premises to a higher standard than in the initial process. The rents have become higher but are still much lower than in Gothenburg. A plan has been made in order to prepare the building of new apartments and premises adjacent to the old factory.

The initial process in the transformation of Nääs fabriker was decisive for the successful development of the project. From the beginning, the history was an asset, but it threw also a shadow over the project. Many people could not visualize new activities in industrial premises which history had marked as cruel. At the same time the pioneers were well aware of the historical values of the building. Later on when the complex become dominated by people who had not seen the original environment there were sometimes difficulties in maintaining the historical values. Important features of the original building
have however been preserved such as the old wooden floors, the window-bars, cast-iron columns and the mighty brick facade.

The most important cultural aspect of the Nääs-project was that the way of renting and rebuilding the premises - successively and with many people involved - was part of an instrument for creating a new culture around the building complex. This culture deals according to Öhrström in Birgerssons thesis (1996) with identity, solidarity and safety among many small firms working independently or in small groups.

The industrial landscape of Norrköping

The industrial landscape of Norrköping also represents the transformation and dramatic reduction of the Swedish textile industry and in addition the move of a pulp and paper works from a central location in the town to an external location. The industrial buildings around the Motala River in the centre of Norrköping represent a unique asset and this has been confirmed by prominent researchers:

"There are few cities and towns in Europe - not even the old textile cities in England - that could exhibit such a magnificent and concentrated industrial landscape from the foundation period of the large-scale " (Marie Nisser in Östergötland, the yearbook of the regional museum 1969 referred in Alzen (1996))

There was however according to Alzen (1996) a long process before the industrial landscape was legitimized as part of the cultural heritage. She discerns four phases in the course of events:

Phase 1: During the fifties and sixties the area west of Bergsbron was an industrial area with textile production but at the end of the sixties most of the industries were shut down while the pulp and paper production of Holmen east of Bergsbron continued until the middle of the eighties. In this period the area was exclusively considered as an industrial area without any cultural value. Only a few of the oldest, most original and rare buildings were classified as valuable from a cultural-historical point of view. But at the same time such an architecturally valuable and for the townscape important building as "Tuppens factories" - from the standpoint of today - was demolished without protests. Industry was not looked upon as part of the cultural heritage.

Phase 2: From the end of the sixties until the middle of the seventies the area attracted attention from external architects and technology historians. A local survey identified the industries along Motala River as one of five areas of cultural and historical interest. Instead of focusing on single buildings and artefacts, the area as a whole and as a part of the urban planning began to be considered as the main task.

Phase 3: From the end of the seventies until the middle of the eighties was a period characterized by a deepened interest in the history of industrialism including the conditions of the textile workers. In a new survey of the industrial landscape, the antagonisms between planners and antiquarians became evident. The planners regarded the industrial landscape mainly as an urban space and an architectonic problem while the antiquarians asserted the industrial urban environment as an expression of societies from different times.
When the Holmen company decided to shut down their pulp and paper works in the central part of Norrköping they made a detailed investigation of different alternatives of re-use for a space of approx 70,000 sq. metres distributed between 33 buildings (VBB architects 1984) A systematic analysis of the capacity of the area and the buildings to accommodate a number of possible new activities ranging from music performances to offices and housing was carried through.

Phase 4: From the end of the eighties and until today the "unique industrial landscape" is looked upon as a obvious and natural prerequisite and the cultural-historical arguments are used to market the area for new activities. The upgrading of the area is embraced by all interested parties. By glorifying the industrial period and dramatizing the past, a positive image was created as a means for attracting new activities. The old textile factories are now in use for computer industry, university education, premises for dentists and physiotherapists etc.

Holmen arranged an international architectural competition in 1987 on the basis of its earlier survey and a new master plan for the area was developed in 1990 on the basis of the winning proposal by the Finnish architect Kai Wartainen. We can now enjoy the result of many years efforts where the proportions and construction of the old buildings are preserved but supplemented with modern additions of high quality:

- An old warehouse and a machine hall originally designed by a renowned architect, Ivar Tengbom, have been transformed to a modern office building for Telia, the telephone company.

- A paper machine hall and a pulp and paper preparation hall also designed by Tengbom were converted into a concert hall combined with conference facilities in exquisite contact with the river.

- The restoration of the old market place reinforces the contact with the commercial centre of Norrköping by, among other things, reintroducing running water as an important element of the square.

The restoration of the so called "Strykjärnet" ("the flat iron building") - one of the most singular and architecturally characteristic buildings in the industrial landscape from the beginning of the century (architect Folke Bensow 1917) represents a slightly different approach to the question of recycling than the above mentioned buildings. A more orthodox view of how to revitalize the original cotton spinning building is applied by the architect Ove Hidemark in order to reveal the building technique (very modern for its time) and to give free scope for the museum activities of "Arbetets museum" (the museum of working life) to develop in the future.

The ABB Mimer-district in Västerås

The last example is the revitalization of the Mimer-district in Västerås. In this district ABB (Asea-Brown Bovery) established its rapidly expanding activities from 1911 on. The famous Mimer workshop was erected during 1911-12 and 1914-15 along Karlsgatan to the imposing length of 210m and a floor space of 20,000 sqm. A close collaboration was developed between the managing director Sigfrid Edström and the city architect of Västerås Erik Hahrm.
The AEG-factory in Berlin by Peter Behrens served as an ideal not only for the rational mass production but also for the rational design of the buildings. Hahr also designed the well-known Ottar office (erected 1916-19) in a national romantic style which differs from the straight-forward design of the factories for electrical motors. The Asea tower is a part of that office and is still a characteristic landmark of Västerås and Asea and a building of great architectural value. The Mimer expanded eastwards with multi-storey buildings for workshops but also for heavy production such as forges during the following decades.

As ABB, the leading international company, still has activities within the area but a vast process of transformation including making spaces more effective is going on. Production functions are moved to more peripheral districts in the town and approx half of the premises are utilised for ABB-offices at present. Many buildings are empty and the possibilities of developing other activities as residential, cultural and commercial functions etc are currently discussed. ABB took the initiative to an architect competition between a selected group of architects in order to test the future possibilities of the area. After evaluation of a number of proposal in 1994 the planning work has been going on in close collaboration between ABB Fastighet (real estate management), Västerås municipality and the consultant VBB architects.

The main idea of the overall structural plan which will be presented during 1996 is to open up the industrial area, former a totally closed enclave of the city, and to integrate the district with the city centre. A number of alternative scenarios and visions around this theme have been tested in the planning work as well as different strategies to revitalize the area successively (in many steps) at a faster or slower pace. The characteristic grid-pattern of the streets is applied to the area. Thus the numbers of entrances to the area is extended from one to four. In the corner between Karlsgatan and Stora gatan a diagonal passage has been opened up through the massive peripheral buildings. The accessibility between the city center and the inner parts of the area is thus improved.

The robust buildings around the area originating from the beginning of the century will be kept while some of the one-floor halls in the core of the district already have been demolished. According to the overall planning concept, flexible blocks for light work places, residential and service functions in the ground floors are proposed in the central part of the district. A view upon the industrial heritage as an integrated part of a transformation process towards a multi-functional urban environment is here a priority over an orthodox preservation view. Thus buildings and objects with evident disadvantages for new purposes have been or will be demolished even if they could be valuable in preserving industrial architecture representing almost every decade of the 20th century.

The Mimer approach could be characterized by a parallell study with

1) strategic planning questions (alternative long-range visions and revitilazation in many steps with the freedom of changed future actions kept in mind) and

2) implementation of small practical changes comprising improvement of details of the ground such as foot-paths, cerbstones, green areas etc, and of the buildings, windows doors, signs etc.
It is interesting to compare the Mimer district with the model area for its planning, the AEG area in Berlin, where the district is still (1996) exclusively destined for industrial purposes, but old buildings of bad quality are replaced with ultra-modern high-tech industrial buildings contrasting the AEG turbine factory which represents one of the most valuable jewels of industrial architecture in the world.

**Which strategies will be the most successful in the future - a discussion and tentative summary**

I have in this paper tried to give a glimpse of the development within the field of revitalization and re-use of industrial areas and buildings during the last decades and have also given some representative examples of planning and architecture. It is apparent how the view upon the industrial heritage has changed dramatically during the last 30 years. The awareness of the potentials of the existing physical resources of the industrial society has grown parallel to the increasing pace of industrial shut-downs and the sharper demands on economizing existing resources. A reinforcement of the same tendencies could also be observed within the public sector during the last decade. Military areas and buildings as well as hospitals are for example left-over due to the reduction of activities. Approx 30-40% of the military building stock will probably become redundant in Sweden during the nineties corresponding 1.5 - 2 mill sq. metres.

It is obvious how the focus has moved from a more narrow aspect upon the industrial heritage as a question of the aesthetic and historical museal value of single objects to a question of revitalization and re-use of whole industrial environments as part of the urban development but also the development of the whole society including technology, working conditions etc. This has contributed to the insight that the **planning and implementation process** including the collaboration between different interested parties including authorities, real estate owners, the public and experts such as architects, antiquarians and others is the most crucial factor to achieve success in balancing simultaneous demands on preservation and renewal. A process characterized by large-scale involvement, creativity and flexibility can also contribute to the creation of a new culture around the old facilities where the industrial heritage can be interpreted in new ways.

Of this reason there is a great need to evaluate the advantages and disadvantages of processes of revitalization used in different regional contexts in research and practical planning. The experience and knowledge gained could be used as a basis for developing more accurate and appropriate methods and strategies. In order to handle the more and more complex matters of revitalization we need a comprehensive tool-box which permits us to combine, refine and develop a broad spectrum of methods and strategies but also to develop new approaches.
A Selection of books, reports and articles concerning Revitalization and Re-use of industrial and institutional areas and buildings:

- ABB Fastighet, VBB arkitekter, 1992 - Strategiska planer för fastigheter i Bollnäs, Gävle, Håggvik, Västberga och Västerås (Kv Mimer)
- Byggnadsstyrelsen, VBB arkitekter, 1990, Underlag för fördjupning av översiktsplaner för Norra och Södra Djurgården.
- Holmens bruk, SAR m fl, 1986, tävlingsprogram för internationell arkitekttävling om återanvändningen av Holmens industriområde.
- Josefsson, R & Ranhagen, U, 1996, Återanvändning av förvarsfastigheter - lägesrapport i FoU-projektet "Återanvändning av institutionsområden". BFR, FORTV, VBB arkitekter, LuTh.
- Marabou, VBB arkitekter, 1982 - 1991 förstudier och strategiska planer för anläggningarna i Upplands-Väsby, Sundbyberg, Malmö och Slagelse.
• Näss fabriker, 1994, Broschyr och presentation utgiven av Byggnadsfirman Ernst Rosén AB och Floden Byggnads AB.
• Ranhagen, U & Lagheim, P, 1988, Analys av lokaler vid förnyad och effektiviserad användning. ALFA - etapp 1. metodutveckling. VBB arkitekter.
• Ranhagen, U, 1990, Strategisk planering - företagets "time-manager". Att samordna byggande och personalpolitik. (Uppsats i "Bakom arbetets fasader": SNS förlag)
• Scania Trucks and Buses, VBB arkitekter, 1974-1991, Strategiska planer för industriområden i Södertälje, Falun, Katrineholm, Sibbult, Zwolle och Meppel.
• VBB arkitekter, 1984, Holmen förstudie Flora. Analy av återanvändningsmöjligheter för Holmens pappersbruk i centrala Norrköping.