

**ADAPTIVE REUSE  
OF INDUSTRIAL BUILDINGS,  
WITH SPECIAL REFERENCE TO CAPE TOWN**

**VOLUME I**

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# ABSTRACT

Internationally, the need for the conservation of industrial heritage is well established. The factors affecting the success of such conservation ventures have been extensively documented, as well as the changed uses likely to produce the best results in different types of industrial buildings. Many projects have been executed, demonstrating different approaches to the typical planning, design and funding issues that arise when industrial buildings are conserved.

Industrial conservation is much less well established in South Africa, and, to date, there have been few studies concentrating specifically on issues arising from the conservation of the local industrial heritage. This dissertation focuses on the adaptive reuse of conservation-worthy industrial buildings in Cape Town, South Africa. Issues addressed in this study range from conservation and design attitudes towards the buildings; to the impact of location on possibilities for adaptive reuse, new functional opportunities offered by typical structural and building forms and spaces, and the economical viability of projects. This study will relate South African industrial conservation issues to international precedents, and, by analysing three case studies of successful reuse projects in the Cape Town area, the study will demonstrate that this heritage can indeed be reused effectively and successfully. It will also show that the ultimate success of industrial conservation projects depends on careful consideration of economic potentials and constraints, as well as on an appreciation of the specific building's cultural significance.

## DECLARATION

The author hereby confirms that this work or any part thereof has not been previously submitted to this or any other body in respect of any other award or for any other purpose.

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# PART A: THEORY

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# CHAPTER A1: INTRODUCTION

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## A1.1 INTRODUCTION

This dissertation focuses on the reuse<sup>1</sup> of industrial buildings, with particular emphasis on the industrial heritage of Cape Town, South Africa. This introduction has four sub-sections. In the first sub-section A1.1, the reader is introduced to both the subject and the framework of this study. In sub-section A1.2, the choice of the specific dissertation topic is clarified. In sub-section A1.3, the reuse of industrial buildings is placed within the context of the international history and is illustrated referring to key examples. This sub-section also introduces cases of how industrial buildings are presently being dealt with in South Africa and more specifically in Cape Town. Research that has previously been conducted on the reuse of industrial buildings is also covered. Finally, sub-section A1.4 presents the framework of this study: its aims, its overall structure, the methodology used and its limitations.

## A1.2 THE CHOICE OF THE DISSERTATION TOPIC

This dissertation focuses on industrial buildings that have been disused or abandoned. This may happen for a number of reasons, ranging from changes in technology to shifts in the location of a city's commercial-industrial district<sup>2</sup> or the process of scaling up of the economy, which forces industries to relocate their businesses. Industrial sites often present exceptional cultural attributes. Complexes of such buildings, particularly if still in their original state, provide a rare picture of the evolution of industrial development. Valuable aspects of the cultural patrimony disappear with the demolition of these buildings. On the other hand, redundant buildings that stand unused can also damage the structure of cities, as they influence their surroundings negatively, eventually even contributing to the decay of the whole area. The dissertation will only deal with those industrial buildings that are considered to be worthy of retention.

In South Africa the protection of valuable industrial buildings is still seen as a luxury, especially because there is also a large historical patrimony (in the traditional sense) that has to be conserved. Cape Town is the most appropriate South African city within which to have undertaken the research for this dissertation. It is the oldest city in South Africa, with an extensive harbour and a larger industrial heritage than other South African cities. A proper conservation structure already exists; but although Cape Town is one of the most advanced cities in South Africa in terms of the conservation of its heritage, few people are conscious of the need to protect its industrial sites.

One way of protecting industrial sites for the future is by reusing the buildings, in other words, by giving them new and compatible functions. The literature generally suggests that the protection of redundant industrial buildings is most likely to happen when the conservation process of reuse is adopted, so it was decided that this dissertation would focus on this particular conservation process.

## **A1.3 CONTEXT**

### **International history of reusing industrial buildings**

The history of the reuse of industrial buildings is in fact the result of a long history of reusing old buildings in general. Therefore, the latter will be discussed first, after which the specific history of industrial buildings will follow. Throughout history, buildings have been adapted to new uses. This goes as far back as Michelangelo, whose masterpiece was the conversion of the Thermae of Diocletian into a church.<sup>3</sup>

However, until the nineteenth century, reuse only took place for functional and financial reasons. At this time, protecting old buildings became a legislative concern in some countries<sup>4</sup> and an issue addressed by conservation movements. In the first part of the twentieth century, however, Le Corbusier and CIAM were promoting reconstruction rather than conservation, giving rise to massive demolition schemes, particularly in inner cities. The conservation movement was only reawakened in the 1970s at the time of the global oil crisis and when the subsequent ecological movement protested against the waste of demolishing buildings.<sup>5</sup>

In the 1980s and 1990s, reusing old buildings became fashionable and formed a major part of architectural practice in Europe and the United States. Whereas previously preservation had been regarded as the only way of paying respect to a building, it was now recognised that this could also be accomplished by means of reuse. Further, whereas preservation was always considered to be the field of specialist firms, it was now acknowledged that architects in general could execute reuse projects.<sup>6</sup>

Today, many architects work with old buildings, and conversion work is increasingly becoming part of everyday practice. Well-known architects, such as Frank Gehry, Bernard Tschumi, Norman Foster, Enric Miralles, Eric Owen Moss, and Herzog and de Meuron have done important conversion work based on architectural transformation rather than on preservation or a historical approach.<sup>7</sup>

With regard to the reuse of industrial buildings in particular, this had its origins in the conversion work that took place in the 1970s in the United States. As many industrial centres had been in economic decay since the 1960s, the conversion movement of the 1970s dealt specifically with those cities where this had happened and with their industrial buildings. An early example of this was the redevelopment of the waterfront in Boston. Cut off by an intrusive highway scheme, Boston's waterfront had become derelict. This changed with its reuse in 1976 as a centre for specialist shopping. Due to the commercial success of the scheme, industrial sites throughout the United States began to attract the interest of developers. The change in attitude towards old industrial buildings was so drastic that they even became important tourist destinations. Perhaps the most successful and influential example in the United States is the conversion of the redundant mills of Lowell for multi-functional purposes: a project that was completed in 1982.

Whereas the industrial revolution of the nineteenth century had originated in the United Kingdom and later spread to the United States, the reuse movement now spread from the United States back to the United Kingdom. The immense industrial heritage of the United Kingdom had been threatened until 1979, when the local heritage and conservation body, SAVE, organised the exhibition entitled 'Satanic Mills'. As a result, many redundant mills were transformed into lively and economically viable centres for business and tourism, while riverside warehouses underwent the same transformation. A famous example is the rescue of the Albert Dock in Liverpool in the late 1980s, which resulted in the revitalisation of the rundown port city. Industrial buildings increasingly received protection through various systems of listing and scheduling, while the regeneration potential of their reuse was widely acknowledged.<sup>8</sup> Another leading and well-known example is Covent Garden Market in London, converted in the 1980s.

Similar developments took place in France. The front-rank architectural firm of reuse specialists, Bernard Reichen and Philippe Robert, executed the most influential conversions. For example, they successfully converted the Leblan mill in Lille into a housing and shopping complex.<sup>9</sup> Their recent conversion of the old Meunier chocolate factory into the headquarters of Nestlé France is also internationally acknowledged as a landmark in reuse practice.

The reuse of industrial buildings is not limited to Europe: even in Japan, industrial buildings are being reused at present. The waterfront in Hakodate is reused as shops, restaurants and conference facilities, while the mill buildings in Kanazawa have been converted into the Citizens' Art Centre.<sup>10</sup>

The future for the reuse of industrial buildings looks promising. Indicative of the increasing appreciation for industrial buildings is the decision to house London's new museum of modern art, which is part of the famous Tate Gallery, in the old Bankside Power Station instead of constructing a new building. A competition in which some of the world's most well-known architectural firms participated, led to the appointment of the firm of Herzog and de Meuron, who will now complete this project.<sup>11</sup>

## **The reuse of industrial buildings in South Africa**

In South Africa, there is as yet no movement that promotes the reuse of industrial buildings. There has always been little awareness of the industrial heritage of this country, which has only a few examples of successfully converted industrial buildings.

Prime exceptions are the market buildings in downtown Johannesburg, now successfully reused as a mixture of restaurants, bars, galleries and an alternative theatre. Situated close to Johannesburg is Gold Reef City, where a former gold mine has been turned into a full-blown amusement park with ex-miners as guides, and offering an underground experience. A similar, less commercial conversion is found in Kimberley, where the location of the diamond site called the 'Big Hole' – the largest hole in the world dug entirely by manual labour – is being used as an open-air mine museum, displaying a reconstruction of Kimberley in the 1880s. In Mossel Bay, two disused mill buildings have become the main museum spaces in the Bartholomew Diaz Complex.<sup>12</sup> In the late 1980s, the old railway station site on the edge of the Central Business District in Durban was given a new use. The workshop where train wagons used to be repaired, the central station platform structure and the administration building were converted to, respectively, a retail shopping centre, a health and fitness centre and an office building.<sup>13</sup>

There are many other industrial sites in South Africa with marked reuse potential. In Johannesburg, for instance, several old railway buildings and warehouses are standing empty in the Central Business District, and the future of its old gasworks is also uncertain. The site of the old gasworks is currently being examined to determine its industrial archaeological potential. In Knysna, too, the wood factory on Thesen Island is under threat. Further, the site of the dynamite company AECl in Somerset West is currently being examined with regard to its industrial archaeological potential. As another example, the Tiger Mill in Mooresburg is standing vacant and also offers reuse potential.

There are several converted industrial buildings in Cape Town. Cape Town is the city in South Africa that displays the most sensitivity towards its cultural heritage, although conservation bodies have shown hardly any interest in its industrial heritage and most initiatives have come from individuals. As Cape Town's most prominent converted industrial buildings are more thoroughly discussed in section A3.1, they are merely listed hereunder.

Top of the list of converted industrial sites in Cape Town is its reused harbour, called the Victoria and Alfred Waterfront. This highly successful conversion is now one of South Africa's prime tourist attractions. However, in addition to this leading example, there are several other converted industrial buildings of a smaller scale and accomplished with a much smaller budget.<sup>14</sup> They are the following: the Breakwater prison, now reused as the University of Cape Town's Graduate School of Business; the recently completed Victoria Junction site, where the old Cunningham and Gearing Foundry has been reused as a mix of design orientated businesses; Longkloof Studios, previously a tobacco factory, which has become a centre for media orientated businesses (this development forms the subject matter of Chapter B3); the old Castle Brewery, which is now a centre for small businesses (it forms the subject matter of Chapter B2); Bromwell Mews, previously the Pyott Biscuit Factory and the woollen blankets factory Waverley also now have similar new uses; the Albion Spring site, where several water factories were once located and where the remaining pump house and the waterworks administration block have now been reused as office space; Josephine Mill, Cape Town's only surviving and operational water mill, which has been reused as a museum; the South African Breweries site in Newlands, where the old brewery and malt house have been reused as a visitors' centre (this conversion forms the subject matter of Chapter B4); and the old stables on the Montebello site, which now house an arts and crafts design centre with studios, shop and restaurant.

However, over time several valuable industrial buildings in Cape Town have been demolished. The power station in Paardeneiland, once the oldest in the country and one of the most well-known modern landmarks in Cape Town, was demolished in 1997.<sup>15</sup> Also recently, the gasworks in Salt River were demolished.

However, despite these demolitions, there are still large numbers of redundant industrial buildings with reuse potential in Cape Town. For example, the site known as 'Culemborg', which belongs to the South African railway company SPOORNET and is situated close to the Central Business District, is in a derelict state. Only parts of its buildings are temporarily being used by small businesses. Also, the still operational grain elevator and its silos, which are located in the vicinity of the harbour, are still being threatened with demolition. At the time that it was built in 1924, it was Africa's tallest building. Its magnificent spaces and excellent location highlight its potential for a successful reuse.

Other industrial buildings that also offer reuse possibilities are the old granary in Canterbury Street in town, the Burtish factory along Main Road in Salt River, the old cement factory along Voortrekker Road in Salt River, and a number of warehouses, mainly located in the Southern Suburbs.

## Research context

In order to place this dissertation on the reuse of industrial buildings in the broader research field, internationally and as well as in South Africa, this section will now discuss which research and promotion bodies for the reuse of industrial buildings already exist in the world. It seems that most of the well-established research and promotion bodies are found in Europe; they are summarised hereunder.

In the Netherlands, the Architecture and Planning Department of the Technical University of Eindhoven held its first symposium on the reuse of buildings in 1985, called 'Bouwombouw'. Later, a research body on the reuse of buildings was established, called 'Onderzoekskollektief Herbestemming Gebouwen'<sup>16</sup> and led by Ed. Schulte. The University of Delft also has a researcher who specialises in the reuse of buildings, namely C.T.H. Van Rongen, who published a book on the topic in 1988.<sup>17</sup> Furthermore, an independent project bureau for the retention of the industrial heritage of The Netherlands exists, called PIE ('Projectbureau Industrieel Erfgoed').<sup>18</sup>

In Belgium, Flanders has its own society for industrial archaeology, which is also interested in the reuse of industrial buildings. It is called the 'Vlaamse Vereniging voor Industriële Archeologie' and is led by A. Linters.

In the United Kingdom, there is URBED (Urban and Economic Development Group), which is "a non-profit making research and consultancy organisation, whose main work is directed at fostering small enterprises and finding new uses for empty buildings."<sup>19</sup> Part of the URBED Fund is the Re-use of Industrial Buildings Service (RIBS) which was established by the Department of the Environment's (DoE) Urban Initiatives. The RIBS categorises 400 conversion schemes carried out in Britain in the eighties.<sup>20</sup> The work of researchers John Worthington and Peter Eley, which resulted in the standard work '*Industrial rehabilitation. The use of redundant buildings for small enterprises*' (1984) is also worth mentioning.<sup>21</sup>

In South Africa, on the other hand, there are no bodies or organisations that specialise in the reuse of industrial buildings, and there is little awareness on the part of its official conservation body – the South African Heritage Resources Agency – with regard to the protection of its industrial heritage. Only one such study has been conducted with regard to the industrial heritage of South Africa and more specifically, Cape Town. This study is the Master of Social Sciences in Industrial Archaeology dissertation of David Worth, submitted in 1993, entitled "An assessment of the conservation framework in South Africa as it relates to the industrial heritage of Cape Town".<sup>22</sup>

The above study has been written from an archaeological point of view, and discusses the conservation framework of Cape Town. However, the present dissertation will go beyond the scope of industrial history and archaeology, and will address architectural questions as well. It will, however, partly draw on Worth's work with regard to conservation issues.

## A1.4 FRAMEWORK OF STUDY

### Aims

The aim of this dissertation is to relate South African industrial conservation issues to international precedents, and, by analysing three case studies of successful reuse projects in the Cape Town area, to investigate if Cape Town's industrial heritage can indeed be reused effectively and successfully. More specifically, the aim is to identify and discuss both the shortcomings and successes of each case study.

The intention of this investigation is to indicate the opportunities for, and the constraints affecting the reuse of industrial buildings in general, and in South Africa more particularly. It is also intended to indicate that an increased awareness of the value of Cape town's remaining industrial heritage is recommended, together with the potential of reusing this industrial heritage, as opposed to destroying, demolishing or abandoning it.

Accordingly, the issues addressed are conservation and design attitudes towards industrial buildings, the impact of location on possibilities for adaptive reuse, new functional opportunities offered by typical structural and building forms and spaces and the economical viability of projects.

Although these three case studies are chosen because of their diversity in approach, they are only, to some extent, representative. The specifics of each case make it difficult to formulate valid generalisations from these three case studies and it is not possible to draw guidelines from them. However, suggestions can definitely be made and, to some extent, lessons can be learnt and then applied to other buildings.

## Structure

For this reason, it was decided to divide this dissertation in a theoretical part (part A) and a more practical part analysing three case studies (part B). In addition to this introduction, part A comprises two chapters. The first, Chapter A2, deals with general conservation issues pertaining to industrial buildings, such as their conservation worthiness (section A2.2), possible design approaches (section A2.3) and conservation management policies (section A2.4). The second substantive chapter of part A (Chapter A3) is dedicated to the feasibility of reusing industrial buildings, and deals with issues such as location (section A3.2), form-function matches (section A3.3) and finance (section A3.4).

The intention of part A is to put in place a framework for the more practically oriented part B, which deals with three reused industrial sites in the Cape Town area. These case studies have been selected on the basis of their diversity in conservation and feasibility approaches and with the aim of giving an impression of the potential existing in Cape Town for the reuse of its industrial buildings. They are the following: Castle Brewery (Chapter B2), Longkloof Studios (Chapter B3) and the South African Breweries (Chapter B4). Each case study will be organised according to the issues identified and discussed in part A. Part C will thereafter draw conclusions from the analysis provided in parts A and B.

Parts A, B and C are found in Volume I of this dissertation. Volume II consists of appendices with additional graphic and photographic material of the three case studies of part B.

## **Methodology**

Initial research centred on making contact with a wide range of professionals based in Cape Town who are concerned primarily with conservation, archaeology and architecture. The aim was to become acquainted with the industrial heritage of Cape Town and its conservation legislation.

With regard to the methodology employed, the theoretically based part A draws its information from key literature on conservation and reuse issues generally, and on the reuse of industrial buildings in particular. This information is illustrated with examples from all over the world. The methodology of this part is further explained in the respective introductions to each chapter and section.

The information presented in part B (in the three case studies) was gained by means of historical research on the sites, interviews with the professionals involved in the conversion process and, where applicable and possible, with the developers and tenants, and in situ observations. This methodology will be explained more extensively in the introduction chapter to part B (Chapter B1).

## **Limitations**

This dissertation deals mainly with Cape Town, although extensive references are made to the rest of South Africa and to other areas of the world.

Conservation and feasibility issues are discussed in relation to what pertains or is possible in South Africa, as opposed to international practice, and in relation to the reuse of industrial buildings as opposed to conservation generally.

Although part of the theory in this dissertation on the reuse of industrial buildings also applies to old buildings in general, this dissertation specifically concerns industrial buildings. It is thus appropriate to define the term 'industrial buildings' in terms of the aspects of time and the original use of the building.

With regard to the time aspect, the following applies: most industrial buildings are from the nineteenth or twentieth centuries. It is acknowledged, however, that industrial buildings can date from any period. Since this dissertation focuses on Cape Town, for analytical purposes it will concentrate on industrial buildings from the nineteenth and twentieth centuries, as most industrial buildings in Cape Town in fact date from that period.

Concerning the aspect of the original use of the building, the following is valid for the purpose of this dissertation. As old industrial buildings and the study of their original uses or industrial activities are related to the field of industrial archaeology, this term is briefly explained hereunder.

The term 'industrial archaeology' was used for the first time in the United Kingdom at the beginning of the 1950's. It is concerned with "the field study of technological change."<sup>23</sup> This relates to "past methods of manufacture and distribution."<sup>24</sup> These methods can either be old, such as methods used for metals or textiles, but they can also relate to more recent methods, as for example for plastics or electronics.<sup>25</sup>

Industrial buildings can be classified in several ways; furthermore, this classification differs from country to country,<sup>26</sup> depending on its history and the available stock. At present, South Africa does not have its own classification system. Since South Africa has adopted and adapted the conservation legislation of Australia in many of its policies,<sup>27</sup> this dissertation consequently makes use of the Australian definition in order to classify industrial buildings. Industrial buildings include buildings "which have been associated with primary production, mining, manufacturing, processing, transport, or public utilities."<sup>28</sup>

## A1.5 CONCLUSION

Now that the material of this dissertation has been introduced and the overall structure and aim have been explained, the first section of the theoretical part of this dissertation will hereunder discuss the opportunities for and constraints affecting the reuse of industrial buildings in terms of conservation issues.

1. In clarification and with regard to the terminology used in this dissertation, it must be stated that the term 'reuse' is used in the title of this dissertation, since it is the term most commonly used in the literature of the field and as it describes most accurately the conservation process of providing a building with a new function. However, instead of 'reuse' other terms – such as 'recycling' or 'conversion' – are also utilised.
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6. *Ibid*, p. 15.
7. *Ibid*, p. 10.
8. *Ibid*, p. 13.
9. *Ibid*, p. 13.
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11. *Ibid*, pp. 224-227.
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23. Bracegirdle, B., *The archaeology of the industrial revolution* (London: Heinemann Educational Books, 1974), p. 1.
24. *Ibid*, p. 1.
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28. Mackay, R., ed., "Industrial Archaeology. A National Trust Policy Paper" (Sydney: National Trust of Australia, 1988), p. 4, in: Worth, D., "An assessment of the conservation framework in South Africa as it relates to the industrial heritage of Cape Town", p. 174.

# CHAPTER A2: CONSERVATION ISSUES AND INDUSTRIAL BUILDINGS

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## A2.1 INTRODUCTION

This chapter deals with conservation and design issues related to the reuse of industrial buildings. Before tackling specific problems, a decision must be made as to whether a particular building is in fact worth conserving. This involves an examination of its cultural significance and authenticity, which will be discussed in the first section A2.2 of this chapter.

If the building is indeed worth conserving, there are several options. Reuse, which is the focus of this thesis, is a commonly chosen conservation process, but it is often combined with others, such as preservation and restoration. It is therefore appropriate to discuss these other conservation processes as well. The various combinations of these conservation processes will eventually lead to a number of design approaches, which are relevant to the reuse of industrial buildings. These conservation processes and design approaches will be the subject of the second section (A2.3).

Third and finally, in order to prevent cultural significance being neglected in favour of economic considerations, a conservation management policy needs to be drawn up. In the third and final section (A2.4), it will be discussed how this can be done and how it relates to the present situation in Cape Town.

The material used in this chapter was drawn from the main literature on conservation issues and policies, as well as from the 1993 Master's dissertation of David Worth entitled "An assessment of the conservation framework in South Africa as it relates to the industrial heritage of Cape Town."<sup>1</sup> Material was also obtained by researching and analysing relevant case studies with regard to conservation.

## A2.2 EVALUATION OF THE CONSERVATION WORTHINESS OF INDUSTRIAL BUILDINGS

### Introduction

The main purpose of conservation is "to retain ... cultural significance."<sup>2</sup> This section will therefore focus on what the term 'cultural significance' means and how the conservation worthiness of an industrial building can be evaluated as objectively as possible. Consequently, the criteria that indicate whether or not a building is in fact worth conserving need to be ascertained.

Therefore, this section is organised as follows. There will first be a discussion of some relevant definitions with regard to the topic of cultural significance. With this in mind, another part will discuss wherein the cultural significance of industrial buildings lies and how such assessments relate to the South African situation. As is evident from the leading legislation on conservation – the United Nations Educational, Scientific and Cultural Organisation (UNESCO) – the determination of the conservation worthiness of a building revolves around cultural significance and authenticity. This will be discussed in the final part. From this topic the criteria that will enable one to evaluate the conservation worthiness of a building will be derived. However, these criteria cannot be numerically calculated or measured, but will instead be based on the skills and experience of conservation professionals and authorities. It is difficult to determine whether a particular building is worth conserving or not, as no scientific method exists that can verify this.

As this dissertation focuses primarily on the situation in Cape Town, the subsequent discussion will rely mainly on the terminology and definitions contained in the official conservation legislation of South Africa. This legislation is found in the National Heritage Resources Act of 1999, which was until recently called the National Monuments Act of 1969. It is issued by South Africa's conservation authority, namely the South African Heritage Agency (SAHRA), until recently called the National Monuments Council (NMC). Where necessary, the terminology and definitions as contained in these documents will be combined with relevant definitions and explanations contained in the conservation legislation of other countries, as well as in that of the United Nations Educational, Scientific and Cultural Organisation (UNESCO).

## The definition of cultural significance

The statement that something is conservation worthy implies that it has cultural significance and embodies cultural values.<sup>3</sup> Determining cultural significance and values is therefore a key issue in evaluating the conservation worthiness of a specific building. Some preliminary definitions will be provided to clarify the term 'cultural significance'. The aim is to gain insight into the relevant elements (for instance, a building's history) that have to be considered.

There are three different groups of cultural values. Firstly, there are identity values, which are based on a level of recognition within a community. A community group may, for instance, have an emotional attachment to a certain building and its site, perhaps because they worked in that factory when they were young.<sup>4</sup>

Secondly, there are relative artistic or technical values, which can be determined through research. A certain building might be considered to be important for its "technical, structural and functional concept."<sup>5</sup> For example, the combination of a skeleton frame with brickwork in a specific building was revolutionary at some time in history, and early instances of this in a given context are thus significant because of where they stand on an historical trajectory.<sup>6</sup>

Thirdly, there are rarity values, which are based on uniqueness. A certain building may be rare, one of its kind or one of a few. For example, a particular building may be the only one left that was designed by a particular architect.<sup>7</sup>

Cultural significance is an important term for the South African Heritage Resources Agency (which, as has been said before, is the official heritage authority in South Africa). This authority defines a heritage resource as a "place or object of cultural significance."<sup>8</sup> The following definitions of 'cultural significance' try to explain the qualities of old buildings, and more specifically, industrial buildings. According to South Africa's National Heritage Resources Act, 1999, "cultural significance means aesthetic, historical, scientific, social, spiritual, linguistic or technological value or significance."<sup>9</sup> These different values can be contained in a single term: 'cultural values'.

In the National Heritage Resources Act, 1999, the individual values in this list – such as ‘aesthetic’ and ‘historical’ – are not explained in detail. More precise definitions of these terms can be found in the heritage assessment guidelines of the Heritage Council of New South Wales in Australia, whose definition of ‘heritage values’ closely resembles the definition of ‘cultural values’ in South Africa. This definition similarly refers to historic, scientific, social and aesthetic value or significance, as well as mentioning archaeological and architectural value or significance.<sup>10</sup> Furthermore, it provides more detailed definitions of these individual terms.

- Historical significance, it is suggested, “underlies many of the other values of heritage significance by providing the contextual dimension of time. In most cases the historical element is in fact inseparable from social, cultural and archaeological significance.”<sup>11</sup>
- Scientific significance “relates to an item’s ability to reveal information which will contribute to the development of research on particular or various subjects.”<sup>12</sup>
- Social significance “relates to the way in which an item can illustrate social life – the working and living conditions, often of past eras, but also of contemporary life.”<sup>13</sup>
- “To be of aesthetic significance, an item may demonstrate important creative accomplishments that influence or challenge standards of beauty or refinement recognised by connoisseurs, a cultural group or community (although not necessarily the majority), or the local community.”<sup>14</sup>
- Archaeological significance “requires an item to have the potential to define or expand knowledge of earlier human occupation, activities and events through archaeological research. Often the fabric of the item itself, rather than its associated historical documentation, provides the necessary evidence. Items of archaeological significance can be free-standing structures or ruins, relics, archaeological deposits and landscapes ... Standing structures or ruins include religious, industrial, extractive, administrative, rural or domestic structures or complexes.”<sup>15</sup>
- “An item may have architectural or technical significance as a notable, rare, representational or early example of vernacular building; or as an architect’s or engineer’s work; or as of a particular style, age, detailing, interior design, layout, finish, construction technique or use of materials.”<sup>16</sup>

## Cultural significance and industrial buildings

The definitions of the cultural significance and values of heritage resources discussed above will now be used to analyse the cultural significance of industrial buildings and assess their conservation worthiness in South Africa.

The cultural significance of industrial buildings and the evaluation of their conservation will be no different to that of other old buildings, although the emphasis will be somewhat different. In general, social, scientific and technological values will be more important in the case of industrial buildings than aesthetic considerations, which are more commonly used with other types of old buildings. Therefore, it is appropriate to discuss briefly wherein the specific cultural significance of industrial buildings lies.

The social values of industrial buildings (for example, factories) are quite prominent in the assessment of their conservation worthiness, as such buildings were originally people's places of work. More than any other building, they will provide information concerning the social and economic relationships of their time.<sup>17</sup>

The scientific or technological values are also important, as most buildings were the result of a functional tradition, where many new developments and innovations were central to their design. The fabric of such buildings, and the artefacts found within them, are testimonies of this past. Some of the criteria to be used to determine this value are, for example, "the age of the building; its rarity value; the type of construction and materials used; the existence of certain elements that are unique to this specific building; elements demonstrating creative or technical achievements at a particular period in time; elements demonstrating function, particular use of power, technological innovation, development of engineering, development of rail transport, transfer of technology,..."<sup>18</sup>

Particularly for industrial buildings, which were all originally places of work, it is important to evaluate not only their structures and settings, but also possibly associated artefacts, such as machines and tools. Such artefacts should in fact be considered to be part of the buildings,<sup>19</sup> and if possible, they should be integrated into the new setting rather than being removed.

In South Africa, certain problems occur with the assessment of the cultural significance of industrial buildings. One problem is that such assessments have been heavily based on the historical and aesthetic values of buildings (including industrial buildings), in other words on their outer appearance, as was concluded by Worth.<sup>20</sup> The cultural significance of industrial buildings will, however, also rest on other values, such as social, scientific and technological values. As pointed out by Worth, it is not commonly recognised in South Africa that industrial sites can be culturally significant to any degree.<sup>21</sup> Worth attributes this to the fact that the previous NMC's selection of conservation worthy buildings is "built on the tradition of recognising great houses ... with their distinctive Cape Dutch gables. And from this tradition has grown the fashion of having 'conservation studies' carried out by practising architects, who then largely use architectural and other aesthetic criteria for establishing what is worthy of conservation."<sup>22</sup> As industrial buildings often have other values than architectural or aesthetic ones, they are frequently forgotten by the NMC.

Hopefully this will change with the recently instated Heritage Resources Act (1999), an update from the previous National Monuments Council Act (1969), as the assessments of the cultural significance of heritage resources are now based on a wider range of criteria. However, it is too soon to verify whether these assessments are in fact implemented.<sup>23</sup>

Another reason is that, in the South African context, the words 'culture' and 'heritage' are Euro centric: "it is the cultural values of European and other settlers, that have until recently predominated: that is, those of the colonists, not the colonised."<sup>24</sup> What makes industrial buildings different from other types of buildings, however, is the fact that "all racial, economic, religious, political and social groups are represented at the workplace. Industrial history is indivisibly linked to that of the people, however advantaged or disadvantaged by that history they may have been."<sup>25</sup> Therefore, it could be concluded that South Africa's industrial heritage belongs to its entire population. Moreover, given the developments in the country after its first democratic elections in 1994, this heritage seems particularly important. Although the first protective legislation goes back to 1911 (the Bushman Relics Protection Act), the heritage of large parts of the society (the colonised) was previously considered to be less important. South Africa's heritage should reflect the cultural values of the entire society, and industrial buildings are an integral part of this.

## Cultural significance and authenticity

The South African Heritage Resources Agency in its new Heritage Resources Act of 1999 does provide more information than the previous National Monuments Act of 1969 about when places or objects are to be considered as having cultural significance. However, proper and extensive guidelines with regard to evaluating the conservation worthiness and cultural significance of a building are not provided in the new Act. Therefore, it is relevant to consider the guidelines of the world's leading conservation body UNESCO (the United Nations Educational, Scientific and Cultural Organisation) on the subject. UNESCO's World Heritage Convention states in its Operational Guidelines that the problematic and key issues of determining the conservation worthiness and cultural values of buildings can be arranged around the idea of 'authenticity'.<sup>26</sup> This term is now discussed with the aim of ascertaining the criteria that will allow one to determine the conservation worthiness of a building.

According to these guidelines, a building or site will be "considered to be of outstanding universal value"<sup>27</sup> and will be considered for inclusion in the World Heritage List when they meet "one or more ... criteria and the test of authenticity."<sup>28</sup>

The criteria and the test of authenticity should entail one or more of the following.<sup>29</sup> The property should:

- "represent a masterpiece of human creative genius"
- "exhibit an important interchange of human values..."
- "bear a unique or at least exceptional testimony to a cultural tradition or to a civilization...."
- "be an outstanding example of a type of building or architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history"
- "be an outstanding example of a traditional human settlement or land-use..."
- "be ... associated with events or living traditions, with ideas, or with beliefs, with artistic ... works of outstanding universal significance..."
- "meet the test of authenticity in design, material, workmanship or setting..."
- "have adequate legal and/or traditional protection and management mechanisms to ensure the conservation..."<sup>30</sup>

However, the 'Operational Guidelines of the World Heritage Convention' do not provide sufficiently practical guidelines as to the procedure to be used in evaluating the authenticity of a specific resource. The 1994 Nara conference gave rise to a document<sup>31</sup> on precisely this concept of authenticity, which is regarded as the most authoritative one to date and is thus used as a basis by many conservation related organisations all over the world. The general consensus at the conference was that authenticity was an essential element in "defining, assessing, and monitoring cultural heritage."<sup>32</sup> It was also agreed that authenticity related to cultural heritage must be evaluated and assessed within a specific cultural context.<sup>33</sup>

Subsequent papers and conventions attempted to further clarify the issue of authenticity, e.g. Jokilehto and King wrote in 2000 that authenticity and genuineness were closely intertwined.<sup>34</sup> A test was developed to verify, among other things, that the resource is a genuine expression of human creativity and that it genuinely represents a specific cultural tradition.<sup>35</sup>

However, the most practical test guidelines were already proposed in 1996 at the InterAmerican Symposium on Authenticity in the Conservation and Management of the Cultural Heritage; its Declaration of San Antonio provides some of the criteria for determining whether authenticity is indeed present in a site.<sup>36</sup> They are the following:

- "Reflection of the true value. That is, whether the resource remains in the condition of its creation and reflects all its significant history.
- Integrity. That is, whether the site is fragmented, how much is missing, and what are the recent additions.
- Context. That is, whether the context and/or the environment correspond to the original or other periods of significance; and whether they enhance or diminish the significance.
- Identity. That is, whether the local population identify themselves with the site, and whose identity the site reflects.
- Use and function. That is, the traditional patterns of use that have characterised the site."<sup>37</sup>

The above criteria bring us to one of the key questions of conservation, namely whether the building under consideration should be conserved entirely in its original form or whether it should instead "reflect the significant phases of construction and utilisation in different phases"<sup>38</sup> over time. The first means that the building should be conserved or returned to the state that it was in at the time it was first constructed. The latter means that if a building was changed from time to time (for example to meet the requirements of new tenants, etc.), then those changes should be retained. This should only happen if those changes are culturally significant, not if the building was in fact 'damaged' by those changes (for example if valuable facades were removed). UNESCO adopted the latter option for the clarification of the concept of authenticity. In fact, a definition from ICOMOS and ICCROM (the International Centre for the Study of the Preservation and the Restoration of Cultural Property, which is part of the UNESCO) asserts that authenticity involves "a measure of truthfulness of the internal unity of the creative process and the physical realisation of the work, and the effects of its passage through time."<sup>39</sup>

This idea – that authenticity involves recognition of and placing value on the effects of "passage through time" – is an important one: it seems to indicate that there is no obligation to use the original form of the building as a basis for conservation.<sup>40</sup> On the contrary, when it is decided to 'conserve' a building, that building is considered to be the result of a continuous process of historical development: thus its authenticity is revealed and its cultural values are protected precisely when the conservation process highlights or exposes this historical process. In this regard, however, ambiguity can arise as to which period in history should be given preference when conserving a building. The South African Heritage Resources Agency uses the following rule: disclosing "the fabric of one period at the expense of another can be justified only when what is removed is proven to be of slight cultural significance and the fabric which is to be revealed is of much greater cultural significance."<sup>41</sup> Of course, the notions of 'slight' and 'greater' cultural significance are particularly intangible qualities, and are very subjective – giving rise to a lot of disputes.

The following is an example of such ambiguity. An old housing block along Buitengracht in Cape Town – presently known as 'Heritage Square' – is now reused for shops, restaurants and a hotel. It had originally been built in the seventeenth century, but over the years several parts of the block had been changed, demolished or rebuilt. The Cape Town Heritage Trust – which acted as the developer of the project – made the decision that the reuse and restoration would reveal the different building periods in time. As a result, the houses have each been restored to one particular moment in time, and the old housing block is now a reflection of various types of housing from the seventeenth till the twentieth century. It was the restoration of one of the façades that created uncertainty as to which viewpoint would be most appropriate. The Research Unit for the Archaeology of Cape Town (RESUNACT) considered a concrete balcony of the twentieth century to be worthy of retention and restoration. Nevertheless, it was eventually removed, as the Heritage Trust wanted to restore that particular house to the phase in time when it was originally built and thus considered the balcony to be of lesser significance (in other words, not relevant).<sup>42</sup>

## Conclusion

As the above has tried to illustrate, it is important to begin a reuse project by first determining the conservation worthiness of the relevant building. This is also the case for industrial buildings. The reuse project should aim to reveal the authenticity of the building in question, as the issue of cultural significance and the interrelated issue of authenticity are fundamental aspects in evaluating whether or not a building is indeed worth conserving.<sup>43</sup>

Cultural heritage is a complex and very sensitive topic, as many diverse points of view have to be considered, and conflicting opinions and views may have to be weighed up against each other. Each specific resource has to be critically analysed and evaluated on its own merits and in its own specific cultural context.<sup>44</sup>

For the purposes of this dissertation, the conservation of heritage resources (including old industrial buildings) is taken to include all the various conservation processes that are intended to retain the cultural significance and authenticity of these resources.<sup>45</sup> These different processes will be discussed in the next section A2.3.

## A2.3 DESIGN APPROACHES

### Introduction

The main intention of conserving industrial buildings is to retain their cultural significance. A variety of design approaches allows one to accomplish this. As industrial sites are often large and consist of numerous buildings, it is normally necessary to use a combination or a range of these design approaches in order to ensure that the overall cultural significance of the site is retained.

The possibilities range from design approaches that would necessitate only small alterations to the existing fabric to approaches requiring more large-scale alterations. These 'small-scale' adaptation approaches and 'large-scale' adaptation approaches will be discussed hereunder, with particular emphasis on their practical application and combination in order to retain the cultural significance of a particular building. It must be said that this discussion is not only valid for industrial buildings, but for other old buildings as well: in other words, the design approaches discussed herein will be no different than those for other old buildings. Nevertheless, the emphasis in this dissertation will be specifically on approaches that are closely related to industrial buildings and their 'adaptive' reuse. Furthermore, the relevant implications of reuse will also be described with regard to each design approach.

Another part of this section will then discuss various examples where several of these design approaches have been successfully combined, as this is specifically relevant for large industrial sites. In conclusion, the final part of this section will discuss which design approaches can result in an 'adaptive' reuse, which is commonly regarded as a type of reuse that is particularly successful in conservation terms.

The material for the following discussion will be derived from South African and international conservation legislation. Use will also be made of the main literature on conservation and reuse, referring to illustrative key case studies from various parts of the world.

## Design approaches

Much of the following discussion will use terminology pertaining to various conservation processes (such as preservation, repair or restoration). This terminology often causes confusion,<sup>46</sup> as the various conservation literatures throughout the world often assign different meanings to the same term. For the purposes of this dissertation, the definitions are derived primarily from the legislation in South Africa and, where appropriate, combined with definitions contained in the legislation of other countries. Although the legislation in South Africa changed in 1999, at the time of writing, no new definitions on the different conservation processes had been published in South Africa as yet. Therefore, the definitions contained in a policy paper by the (previous) National Monuments Council had to be used as a basis for the following discussion.<sup>47</sup> The explanations provided in this document are not sufficiently precise, however. Thus, as the South African definitions are based on the Australian ICOMOS Charter for the Conservation of Places of Cultural Significance (1988)<sup>48</sup> (commonly known as the Burra Charter),<sup>49</sup> this Charter was used for further clarification of the terms. Where this did not suffice, other legislation from ICOMOS New Zealand and the World Heritage Convention of ICOMOS was also incorporated.

Several design approaches are relevant for reusing redundant industrial buildings. They are ranked and discussed hereunder, ranked in an ascending order from small-scale to large-scale adaptations. In general, the less a structure is altered, the more difficult it will be to accommodate new uses. Conversely, the more structure is altered, the more attention must be paid to the suitability of the chosen design approach.

### Small-scale adaptation approaches

The term 'small-scale adaptation approaches' stands for design approaches that only involve one or more relatively small changes to the fabric. This contrasts with 'large-scale adaptation approaches' where the fabric (also) includes entirely new elements. For the former, only part of the fabric may be changed by means of preservation, repair or restoration. For example, inserting new bricks can repair part of a wall. In the case of a large-scale adaptation approach, the same wall may be partly or entirely demolished and replaced by a staircase (if the wall was not load-bearing).

For the purpose of the following discussion, the small-scale adaptation approaches are divided into 'preservation', 'repair', 'restoration', and 'compensation'.

One of these, '**preservation**', protects the fabric of a building by retarding its deterioration. This approach tries to maintain the status quo of the original fabric as far as possible.<sup>50/51</sup> Small interventions to the fabric are intended to protect the building from further neglect.

Another small-scale adaptation design approach, '**repair**', depends largely on repairs to the decayed or damaged fabric,<sup>52</sup> with the sole aim of ensuring the soundness of the building.<sup>53</sup> This can be accomplished by introducing new elements, which may come from the original damaged fabric, or alternatively, introducing similar but new fabric.<sup>54</sup> These new elements must match and be compatible with the existing fabric. For example, a wall may be missing some bricks due to neglect. Repair would involve inserting new bricks that closely match the existing bricks. Repair of a technically higher standard than the original workmanship or materials may only be justified when the life expectancy of the site or material is increased, when the new material is compatible with the old, and when the cultural significance is not diminished.<sup>55</sup>

Yet another small-scale adaptation design approach, '**restoration**', largely restores the fabric of the building to an earlier state. In contrast to 'preservation', which protects and maintains the existing state of a building, whatever its state may be, 'restoration' aims to restore the building as accurately as possible to a previous state.<sup>56</sup> This may be necessary if the building has been damaged or altered and is incomplete, or when its survival is being threatened.<sup>57</sup> If parts of the fabric have been altered, only those later additions that are irrelevant to the cultural significance of the building are removed.<sup>58</sup> If parts of the fabric have been damaged, they are, where needed, repaired using new elements. These elements must match the existing fabric exactly, and are intended to restore the building to a specific earlier state.<sup>59</sup> However, in order to retain the building's cultural significance, restoration should only involve a minor part of the building.<sup>60</sup>

Care should be taken that this design approach does not 'degrade' into 'reconstruction' – an approach that is regarded very negatively by architects. Like restoration, reconstruction also means "returning a place as nearly as possible to a known state".<sup>61</sup> However, "reconstruction is distinguished from restoration by the introduction of additional materials where loss has occurred."<sup>62</sup> These materials can be old or new,<sup>63</sup> and their purpose is to rebuild the building in its original form.<sup>64</sup> Here, the cultural significance of the building is effectively diminished, as it is no longer clear which parts of the building are original.

A final small-scale adaptation design approach, which may be termed 'compensation', retains the existing fabric and inserts new elements in compensation of missing old ones, and where necessary for its survival or to accommodate a use in a new way. These new elements, which are clearly of a new design and material, are only inserted in those places where elements of the existing fabric are missing. For example, a particular staircase may be missing, and in the case of a choice for this design approach, an entirely new staircase of contemporary design and construction may be inserted. In this way, the period which the new elements belong to will be self-evident. The cultural significance of the building is not diminished when this design approach is chosen, as long as the new elements are clearly modern and are not trying to mimic or copy the old style, and as long as they fit in with the general style of the particular building.

With regard to the implications for use of these small-scale adaptation approaches, it appears that a change in use is almost always necessary in order to retain redundant industrial buildings. It is simply not practical and economically not feasible to conserve industrial buildings without using them in one way or another: funds for such conservation projects are even more difficult to obtain than is the case for other old buildings. Also, restoring them to their original use is hardly ever possible. Often there is a good reason why they became redundant in the first place: for example, due to changing technologies or a change in the structure of the city. In short, a new use is the only option.

With regard to new uses for industrial buildings, in practice it is hardly possible to apply any of the above-mentioned four small-scale adaptation approaches, precisely because the less is done to the structure, the more difficult it may be to accommodate new uses.

There are only two cases where these design approaches can be applied for the reuse of industrial buildings. The first is when the new use is so closely related to the old one that hardly any adaptations are necessary. An example of this is the detailed restoration and reuse of Union Station in St-Louis, the United States. The main building, with its magnificent hall, has kept its public character: originally conceived as a public space, it is now the hall of a new hotel. The restaurant of the station has been restored and is once again a restaurant. The open spaces leading to the train tracks are still a focal point, but are also now part of a commercial centre.<sup>65</sup>

Secondly, these four design approaches also apply to industrial buildings when they are reused as museums,<sup>66</sup> and specifically a type of museum where alterations to the fabric are neither needed nor wanted. There are a few possible scenarios in this regard.

In one scenario, the original function of the industrial building may be retained in such a way that the original machinery will still be operational and will in fact form an inherent part of the new museum. No changes may be necessary to either the exterior or the interior of the building. Only minimal interventions, such as protecting, maintaining and limiting further deterioration or change<sup>67</sup> to the fabric would be required. Most of the time, this will only be possible in the case of a small-scale craft business. An example of this kind is an old mustard factory in Zutphen, The Netherlands, which still produces mustard as part of its new function as a museum.<sup>68</sup>

In another scenario, the industrial building's original function may have disappeared, but the machinery and objects currently exhibited as part of the new museum are related to the building's former use. An example of this is an old textile factory in Tilburg, The Netherlands, which is now a textile museum.<sup>69</sup> Another example is the Museum for Industrial Archaeology in Ghent, Belgium, which is housed in a former spinning mill.<sup>70</sup>

In the final scenario, the function of the new museum is no longer associated with the original function. However, the building is seen as an essential part of the quality of the museum and is therefore preserved, mainly in its original state. An example of this is the Graphic Museum Drenthe in Meppel, The Netherlands, which is housed in old warehouses that have stayed almost completely untouched.

## **Large-scale adaptation approaches**

For the following large-scale adaptation design approaches, the changes to the fabric of the industrial building are substantially greater than is the case for the design approaches discussed above. These changes can occur in two ways: the original industrial building itself can be altered; or new parts can be added. An alteration to a building means that the whole fabric or parts thereof are changed, either basically or superficially.<sup>71</sup> An addition, on the other hand, is a totally new building or only a part of a structure that is attached or spatially related to the original building.<sup>72</sup> For the purpose of the discussion, large-scale adaptation approaches are divided into 'historic reconstruction', 'celebration', 'opposition of styles', and 'façadism'.

For one large-scale adaptation design approach, '**historic reconstruction**', entirely new components are inserted into the fabric of the building. These components can be walls, stairs, floors, etc. Although these components are clearly new, they do not read as such: they merely copy the appearance of original components of the building. More specifically, these new components need to resemble the old of a building, its material and colour in such a way that it is difficult to distinguish between the old and the new fabric.<sup>73</sup>

An example of this approach is Cape Town's Waterfront. Some of the existing warehouses were converted in such a way that it is now difficult to identify which parts of the buildings have been physically altered. The same design approach of 'historic reconstruction' was adopted with buildings that were added to the site. The newly designed façades of the Victoria and Alfred hotel, for example, imitate certain elements of the Victorian period.

Basically, it is acknowledged in the main literature on the topic of reuse that historic reconstruction is a design approach that should be avoided, because it is not 'genuine': in other words the alterations are not genuinely what they claim to be,<sup>74</sup> as they are recognisably fake. Therefore, this approach is not effective for retaining a building's cultural significance.

Another large-scale adaptation design approach, '**celebration**', involves alterations and additions to the fabric, which are compatible with the original fabric, but distinctly recognisable as new work. Their main purpose is to celebrate the existing spaces by allowing the fabric to 'speak for itself'. Therefore, the visual impact of these interventions is relatively minor. This design approach of 'celebration' of the existing structure can be accomplished in the following way.

The current condition of the fabric of the building is respected, and the patina and present deformations are preserved. Deformations that do not threaten the stability of the structure are retained. If they are likely to threaten the stability of the building, the structural elements are dismantled and rebuilt, preferably using the original material. For instance, wall repairs are done according to necessity; holes and cracks are merely filled up; and parts that are vulnerable or structurally weakened are strengthened with recognisably new materials.<sup>75</sup>

In contrast to the design approach of 'historic reconstruction', 'celebration' often regards a building as a palimpsest, which means that traces of all the work done over the years are visible. It is the intention of this design approach to conserve and illustrate the building's history: no preference is given to any particular period.<sup>76</sup>

The Pander complex in 's-Gravenhage, The Netherlands, provides an example of how this can be accomplished. The building was an old furniture factory that became a housing and offices complex. The new design acknowledges the history of the building, as it is still possible to identify where buildings had been demolished. The walls that were originally exposed are made out of bricks, while the walls that have become visible after the demolition of buildings were plastered and painted.<sup>77</sup>

With regard to alterations and additions to industrial buildings, celebration of the qualities of the original structure can be accomplished "by subtly relating architectural components while at the same time distinguishing the specific nature of each".<sup>78</sup> The starting point of the new design is the ornamental and architectural details of the existing structure. These are not copied, but are used to stylistically re-articulate the building.<sup>79</sup> Thus, the new adaptations are inspired by the original form and fabric of the building: they respect the original structure and try to capture its spirit. The new function will be subsidiary to the old form,<sup>80</sup> although the interventions are definitely recognisable as new.

In this way, the design approach of 'celebration' respects the cultural significance of the building, as the new use involves "no change to the culturally significant fabric, changes which are substantially reversible, or changes which require a minimal impact".<sup>81</sup> Further, the alterations and additions are "compatible with the original fabric"<sup>82</sup> but are "sufficiently distinct that they can be read as new work".<sup>83</sup>

One example of this is the reuse of the distillery Seagram in Waterloo, France, as a museum for the Seagram Company. The magnificent wooden structure where the barrels were once stacked and which occupies almost the entire old building has been retained (see Fig. 1). A large addition was necessary to accommodate the new use. Of the entire complex - the reused former warehouse and the new museum buildings - the original wooden structure forms the focal point. In this way the reuse highlights the qualities and cultural significance of the original building.<sup>84</sup>

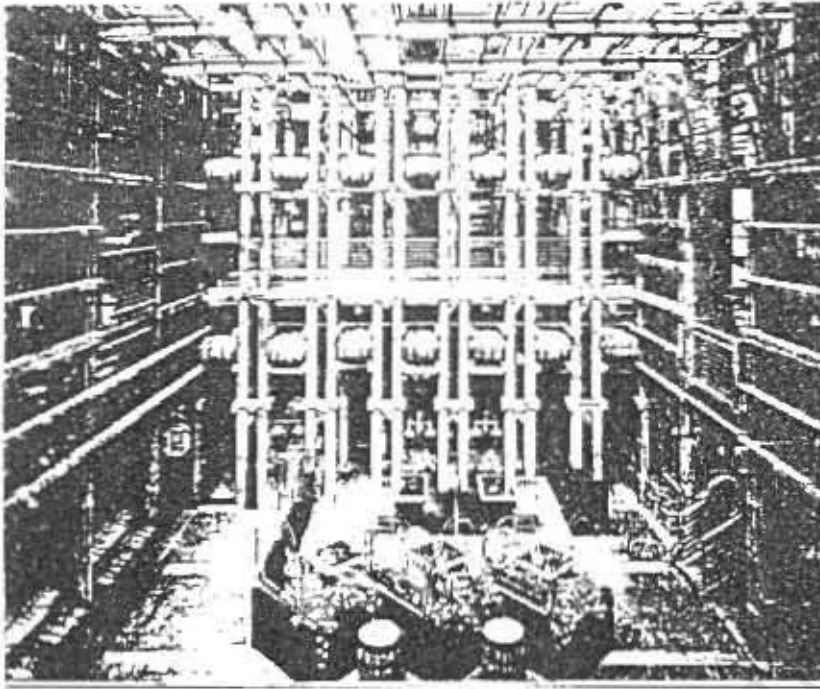


Fig. 11: View of restaurant within barrel structure (distillery Seagram) (Source: COMOS, *Créer dans le ciel: L'architecture contemporaine dans les bâtiments anciens*, p. 66)

Another example is the reuse of the Le Nil paper mill in Angoulême, France, as a regional art college and museum of papermaking. Highlighting the existing open spaces retained the cultural significance of the building. Minimal adaptations were thus made: only a new visitor walkway was inserted, running along the retained old sluices and stone structures making up the ground floor of the mill.<sup>85</sup>

Yet another example is the old chocolate factory Meunier in Noisiel-sur-Marne, France, which is presently being reused as the Headquarters of Nestlé, France. The new design respects the overall architectural concept. The existing historic details are underscored, and there is still a level of communication between the old and the new. The new elements are made of a simple but modern material, sober in form, and of a striking colour, so that they can be clearly distinguished from the old. "The service elements are integrated within the structure to permit finishes and architectural details, old or new, to be read as unique elements."<sup>86</sup>

Often the new elements are made out of industrial materials to fit in with the material of the original structure,<sup>87</sup> as this highlights the industrial look of the building, which is part of its inherent value. An example of such an approach is the multi-purpose event hall 'Fabriekspand' in Foeselare, Belgium, which was previously a jute spinning-mill. All adaptations were done with the purpose of preserving and highlighting the industrial look of the building. Where possible, the original structure and materials were kept intact, the new elements were made of industrial materials, and the cast iron structure was treated with intumescent paint for passive fire protection.<sup>88</sup>

The conversion of the Lainé warehouses in Bordeaux, France, into a museum for contemporary art (CAPC) and a centre for architecture (Arc en Rêve) has been highly successful. These almost timeless buildings, (dating from 1824) are of an exceptional interior quality that is reminiscent of Piranesi, due to the atmosphere created by the vaults, piers, semi-circular arches and brick walls. The architecture of the buildings is highlighted by a reserved design approach.<sup>39</sup> The new elements are all removable, interchangeable and thin; examples of this are the separation panels, the mobile passageways constructed on rails (see Fig. 2), or the lighting rails.<sup>40</sup>



Fig. 2 View of semi-circular brick arches with new mobile passageways on rails (Lainé warehouses) (Source: Robert P., *Adaptations: New uses for old buildings*, p. 117)

Another large-scale adaptation design approach, 'opposition of styles', also involves the insertion of entirely new components, as did the previous approaches, but in this case with a greater visual impact on the fabric. This design approach is based on an intentional opposition or contrast between the style of the existing structure and the style of the new design. By using different forms, materials, colours, etc.,<sup>41</sup> there is a strong affirmation of the new compared to the old.<sup>42</sup> The adaptations of this 'opposition of styles' approach are thus of a larger scale and have a bigger impact on the original building than would be the case in the 'celebration' design approach.<sup>43</sup> However, if skillfully applied, this design approach can also highlight the original structure, precisely through the opposition of styles. The new design can depart from the existing structure as well as complementing it. In this way, the new design will still be in harmony with its environment.<sup>44</sup>

An example is the boiler house on the Zollverein XII mine in Essen, Germany, redesigned by the architectural firm of Foster and Partners. The building was converted into the German Design Centre. The polished appearances of the new materials that have been inserted contrast with the rusty old industrial relics, which were simply repaired. Through this juxtaposition, the old is in fact highlighted.<sup>95</sup>

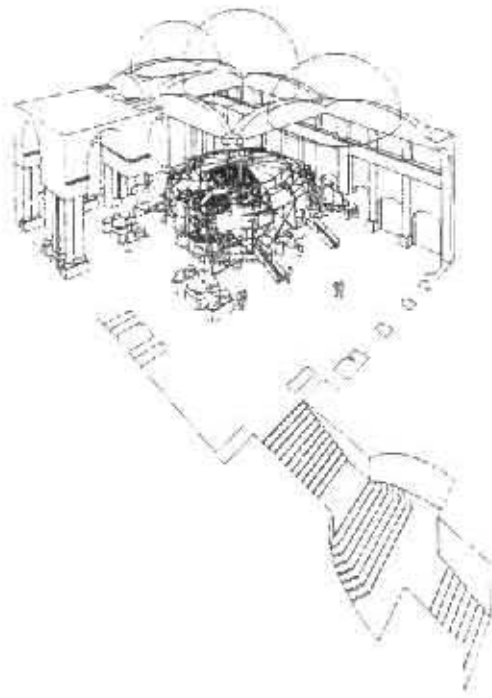
Contrast can also be accomplished by applying the principle of disconnection: the new interior elements are intentionally not connected with the current structure. There is thus a clear distinction between the old and the new elements.<sup>96</sup>

An example of this principle is the water tower in Brasschaat, Belgium, which was reused as a house. The concrete columns of the former water tower had deteriorated over time, and thus a new glass skin was erected around the concrete structure without touching it. The glass forms a protective wall and at the same time leaves the original structure visible.<sup>97</sup> In this way, it highlights the structure of the water tower.

Another conversion where the principle of disconnection was used is the old cattle hall of the abattoir La Villette in Paris, one of the most beautiful nineteenth-century metal structures. The French-based reuse specialists, Reichen and Robert, converted it into an exposition and multi-purpose hall. Three moveable platforms of a contemporary design were inserted, thereby increasing the exposition surface and improving circulation on several levels. As these platforms are moveable, they emphasise the vast open space of the hall.<sup>98</sup>

Another example of contrast, which uses an even more independent new construction within an existing building, is the old cotton market in Manchester, the United Kingdom. The auditorium of a new theatre has been erected within the existing building, under the big dome of the old exchange hall (see Fig. 3). The significant contrast between the huge space of the original building and the proportionally small scale of the auditorium in fact highlights the dome even more.<sup>99</sup> In cases where there is such a contrast, the skill and sensitivity of the architect will be crucial for determining the success or failure of the reuse in conservation terms (in other words, whether or not the cultural significance of the original fabric will be retained).

Fig 3: Drawing of theatre underneath dome (Source: ICOMOS, *Créer dans le créé. L'architecture contemporaine dans les bâtiments anciens*, p. 200)



This principle of disconnection can be taken to an even greater extreme, as the following example shows. An entirely new building may be inserted underneath an older structure. For example, the central halls of Lille, France, had previously been used as a covered meat market. Reichen and Robert devised a unique solution for retaining the extraordinary metal structure. The structure was restored and the envisaged commercial activities were located in an entirely new building of a lower height constructed underneath the metal structure (see Fig. 4). The new roof is suspended from the existing columns by means of numerous cables. The intention of this was to highlight the elegant structure to its maximum and simultaneously to limit heating costs.<sup>100</sup> In this manner, it can be said that the new structure in effect respects the old.

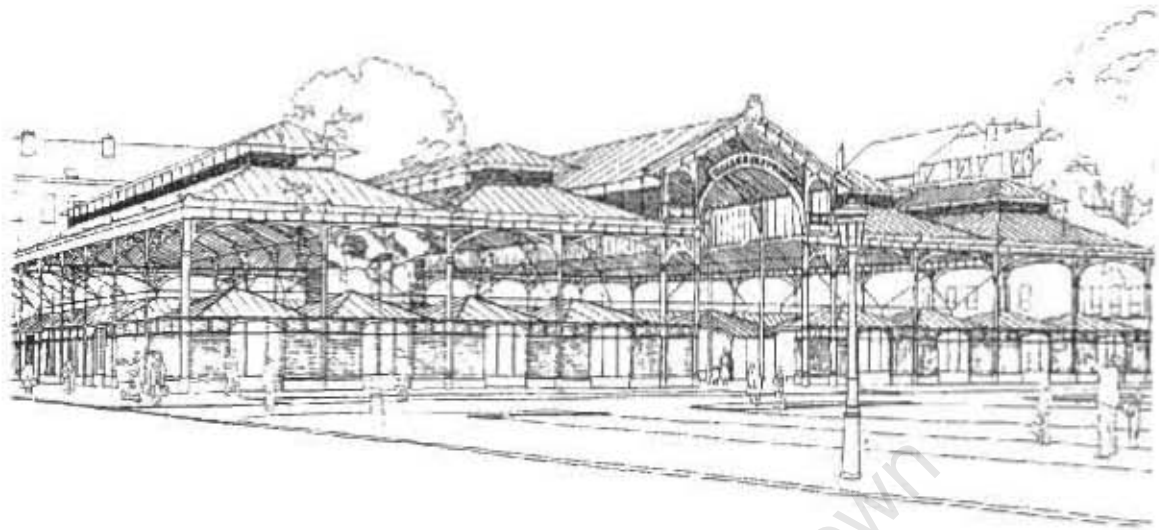


Fig. 4: Drawing of the converted central halls in Lille, with new building underneath old structure (Source: ICOMOS, *Créer dans le créé. L'architecture contemporaine dans les bâtiments anciens*, p. 163)

There is of course a danger that the approach of 'contrast' may be taken too far: this is when the new design does not take the original structure into account, or contribute to it in a positive way. Then, the new design will not highlight the existing one, but will oppose it so strongly that the quality of the original building will be diminished.<sup>161</sup>

Ultimately, this leads to an approach where only the body of the building is original, as in the final large-scale adaptation design approach, 'façadism', which has the most impact on the original fabric of the building. Here, the entire interior of the building makes room for a new construction. The exterior is kept intact, although it is only considered to be a 'shell' for the new interior construction.<sup>162</sup>

There is doubt as to whether façade retention can be accepted as a means of architectural conservation, as 'façadism' hardly takes cognisance of the character and cultural significance of the old building, and as very little remains of the original structure after the conversion.<sup>163</sup>

The line between façadism and intensive adaptation is often very fine. Although façadism should be avoided as a way of reusing an industrial building, it is sometimes unavoidable and may be permitted in certain circumstances.<sup>104</sup> For example, the interior of some buildings on an industrial site may be in such a bad state, that it may not be economically viable for it to be restored. However, it may be crucial to keep the façades intact as much as possible in order to protect the cultural significance of the entire site. It is generally acknowledged in the main literature on reuse that façadism should be avoided if possible;<sup>105</sup> it may occasionally be justified if it is the only way of preventing the building from being demolished, or when it involves only a small structure on the site.<sup>106</sup>

With regard to the **implications for use** of these large-scale adaptation design approaches, it appears they are only applied when it is decided to change the use of an industrial building. Reuse should thus only be considered if all other methods of conservation are either not appropriate or have failed.<sup>107</sup> This means that the use for which the building was intended in the first place should only be abandoned if it is really impossible to retain the original use. In the case of industrial buildings, they may need to be modernised due to changed technologies. A brewery, for example, has to be modernised from time to time. However, the type of modernisation that is needed to adapt the building to today's standards may have such a high impact on the building or may be so expensive that it may not be possible or financially feasible to be carried out. In that case, reuse would be justified.

The large-scale adaptation approaches discussed above will therefore only be suitable when the industrial building is to be given a new use. In fact, these large-scale adaptation approaches can be considered suitable for redundant industrial buildings that have been given a new use that is not very closely related to the original use. They can also be considered for those new uses that do not match perfectly the original fabric. As has been discussed under 'Small-scale adaptation approaches', this will actually be the case for most new uses. In both cases, more interventions to the fabric will be required than was the case for buildings where the new use is very similar to the original use, or where the buildings are intended to be reused as museums. This will mean that more attention must be paid to creating the most appropriate design approach for the building to accommodate the new use in order to retain and/or highlight its cultural significance.

## Combination of design approaches

In the case of industrial sites, it is often necessary and even desirable to combine several design approaches in order to obtain a qualitative reuse (one where the cultural significance of the site is not damaged), as they are often composed of a number of buildings. For example, if a building has a beautiful chimney, which is important for the building's landmark value, it will be restored. Another building on the site may be of great value, so a design approach of 'celebration' may be more appropriate. Another space or building may be less valuable and have less cultural significance, but as part of the site, it may still be of significance and can be more boldly reused, with less emphasis on retaining or highlighting the fabric of the building. The following example illustrates this idea.

This example is Reichen and Robert's most significant work to date, the reuse of the chocolate factory Meunier in Noisel, France, as the headquarters of Nestlé, which is one of the most significant conversions of the 1990's. The site is one of France's key industrial monuments, and contains, for example, a mill, which sits on beams spanning the Marne; an engine house designed by Gustave Eiffel (the 'Halle Eiffel'); and the 'Cathédrale', built on the Hennebique reinforced concrete system. Because of their high cultural significance, these listed buildings were reused by means of a design approach of almost complete 'restoration'. They were restored strictly, unaltered and used as exhibition and reception space (see Fig. 5). On the contrary, the qualities of other buildings on the site, such as the existing warehouses, were highlighted by means of 'celebration'. The alterations – which had been necessary to accommodate the new use – highlighted the warehouses by, for example, using undeniably new insertions in stainless steel and glass. These insertions "were in a timeless tradition of unselfconscious industrial design – and therefore immediately seemed at home in their surroundings" <sup>100</sup>

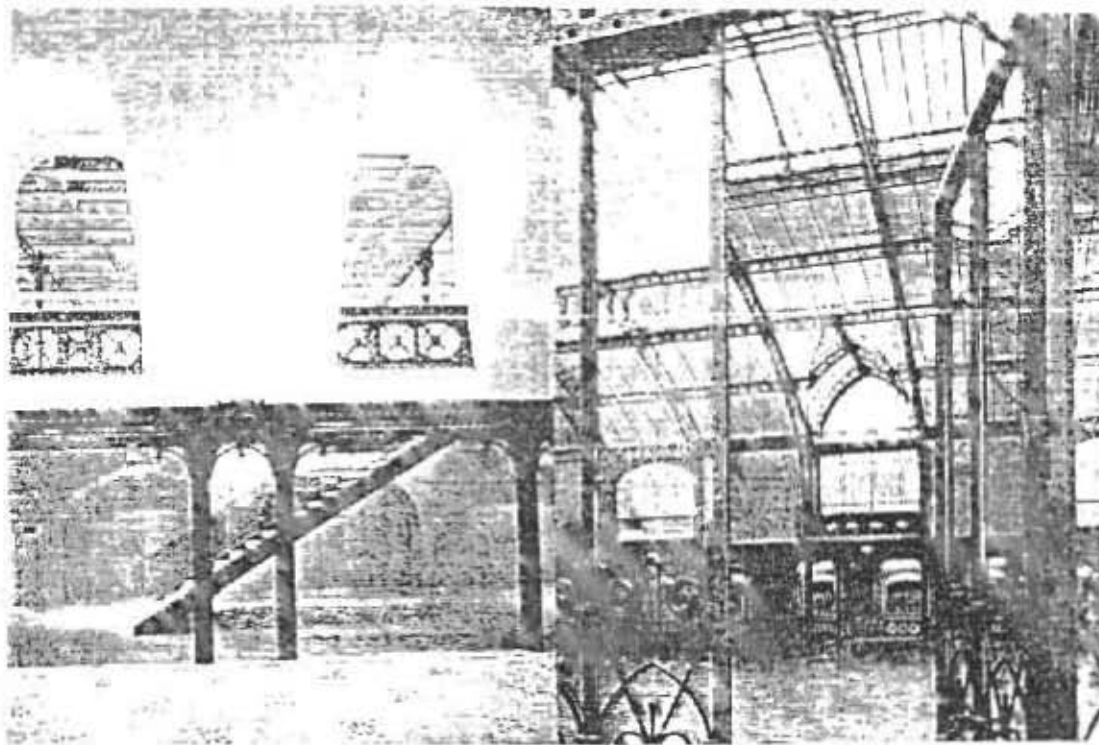


Fig. 5. The restored interiors of the 'Cathédrale' and the 'Halle Eiffel' (Source: Powell, K., *Architecture reborn. The conversion and reconstruction of old buildings*, p. 86)

Another example is the conversion of the Fiat factory in Turin, Italy, as a multi-use, cultural and commercial complex by the well-known architectural firm of Renzo Piano. Once an example of modernism from the 1920's and considered by Le Corbusier as a highlight of the new architecture, it is now one of the most important conversions of the last decades (see Fig. 6) <sup>129</sup>

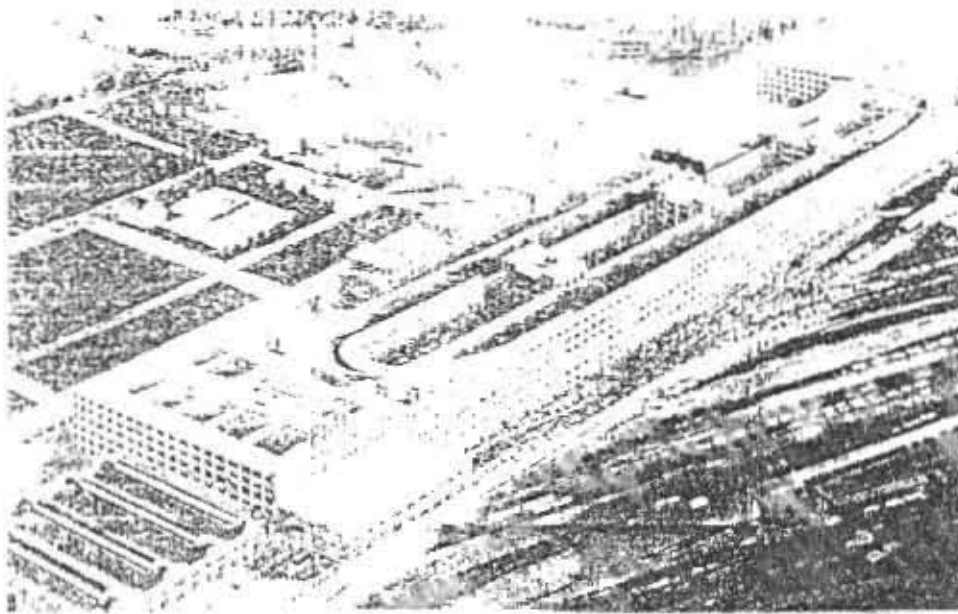


Fig. 6 View of the reused car factory of Fiat, with original test track on roof (Source: *Viaanderen*, May-June 1998, Volume 47, n° 3, p. 126)

Two radically different design approaches were used in this example. The approach of the architects to the concrete-framed structure was one of 'celebration'. They did not want to make extravagant alterations, as this might have destroyed the qualities of the building. Therefore, the fabric of the building was restored, and the alterations kept to a minimum; these were definitely contemporary and fitted in smoothly with the old fabric.

Later, in 1996, it was decided that there was a need for additional conference space and that it would be appropriate to apply a design approach of 'contrast' to this small addition. An eye-catching and extravagant 'bubble' structure, with linkage to a heli-pad, was added to the roof of the original building (see Fig. 7).<sup>110</sup>

Fig. 7. The newly added conference suite on the rooftop (Source: *Vlaanderen*, May-June 1998, Volume 47, n° 3, p. 126)



### 'Adaptive' reuse

The term 'adaptive reuse' implies the provision of not only a new, but also a compatible use, and refers to the conservation implications of reuse. Basically, there are two extremes. On the one hand, it may be decided to copy the style of the existing building, which makes it hard to determine whether the new elements, alterations or additions are in fact contemporary. On the other hand, the new elements, alterations or additions may also be distinctly contemporary, still related to the original fabric, or even completely ignoring its existence. From the main literature on reuse, it appears that when the new interventions are clearly of a modern nature this will most likely result in a qualitative conservation of the building in architectural terms, and thus, a successful conversion project.

In that case, there are two design approaches that are most likely to evolve into an 'adaptive' reuse of the site in question: 'celebration' and 'opposition of styles'. It will be exactly this type of 'adaptive' reuse that will respect the cultural significance of the building and will protect its authenticity. The individual qualities of these two design approaches are briefly analysed hereunder.

A design approach where the original design is articulated, exposed and celebrated is regarded as the best in relation to industrial buildings,<sup>112</sup> and the most successful examples of conversion employ this approach. The reason for this is that minimal interventions to the original fabric tend to make the interior spaces more attractive.<sup>113</sup> Minimal interventions also respect the original building, so the building keeps its value.<sup>113</sup> 'Celebration' also regards a building as a 'palimpsest', which reveals the different layers of the building over time and teaches us about the building's history and its relation to industrial archaeology.<sup>114</sup> This will further highlight the authenticity of the building. Of course, this approach will only be possible if the new use does not require heavy alterations to the fabric of the building.

If the new use is further removed from the original use, a design approach of 'opposition of styles' has shown some pleasing results. Although the new alterations may be of a larger scale and outspokenly modern, even boldly contemporary, it is possible that exactly this method will highlight the existing fabric. However, the success of this approach will largely depend on the skill and sensitivity of the architect in designing the new features. All too often this approach merely results in 'over-designing' by the architects in question, and the history and significance of the site and its buildings are forgotten. Further, it seems that this approach is more successful when the building in question is of a smaller scale. For more large-scale projects, this design approach is often too imposing on the old structure.

In short, if adaptations are necessary to the fabric in order to reuse it, they "should be compatible with the original fabric but should be sufficiently distinct that they can be read as new work",<sup>115</sup> to result in a successful and qualitative reuse in conservation terms. The challenge for which transformation architecture stands is well captured in the following words of architect David Chipperfield: "We should not live in a bright shining new future, any more than we should hide in a comfortable past one of the past. We must inhabit an ever-evolving present, motivated by the possibilities of change, restricted by the baggage of memory and experience."<sup>116</sup>

## Conclusion

It will be the chosen design approach and the acknowledgement of the qualities and cultural significance of the building that will determine the success of reusing a particular industrial building in conservation terms.<sup>117</sup>

However, only in an ideal world can design approaches deal purely with cultural significance. The choices between them will not only depend on the cultural significance link, but also – and maybe primarily – on economic considerations. This is a factor that will be dealt with in the next chapter on 'Feasibility' (Chapter A3). Briefly put, for example, a modest design approach, such as 'repair', will be cheaper than one of 'opposition of styles', as it has less impact on the original fabric. Nevertheless, in order to prevent economic considerations from being more important than conservation considerations, and so as to maintain the cultural significance of the building in question, it is important to draw up a conservation management policy. This policy will be the topic of the next section A2.4 of this chapter.

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## A2.4 CONSERVATION MANAGEMENT POLICIES

### Introduction

It is the intention of this section to relate the theoretical discussion of the previous two sections to the present, practical situation both in general and in Cape Town. Therefore, it will be discussed how the cultural significance of industrial buildings can be protected by means of certain conservation management policies.

Particularly in the light of the difficult economic reality in South Africa, it appears that such a policy is essential. The reason for this is that it is likely that conservation will be considered to be less important than development requirements. It is often difficult to create a qualitative design approach for an industrial building, due to pressure from the developer. This is especially the case when the cultural significance of the building has to be compromised for financial constraints.

Therefore, this section will discuss how a policy can be set up according to which the architect and developer can both work. The section is divided into two parts: conservation management policies will be discussed more thoroughly under the part titled 'The conservation plan'. It will make use of the main literature on the issue of conservation planning. In the part titled 'Conservation framework in Cape Town as it relates to the industrial heritage', the practical aspects and possibilities for conservation management policies in Cape Town will be investigated and tested, in so far as it relates to industrial buildings.

South Africa does not have an organisation with particular interest in the industrial heritage, whereas the United Kingdom has its 'Association for Industrial Archaeology' and Australia has its 'Committee on Engineering Heritage of the Institution of Engineers'. Internationally, there also exists such a body: 'The International Committee for the Conservation of Industrial Heritage' (TICCIH), which works in close relationship with ICOMOS "to aid UNESCO in its choices to safeguard the industrial heritage to be added to the World Heritage List."<sup>118</sup>

As the relevant information for this discussion could not be drawn from a South African organisation specialising in industrial heritage, it was mainly drawn from the 1993 Master's dissertation of David Worth, entitled "An assessment of the conservation framework in South Africa as it relates to the industrial heritage of Cape Town."<sup>119</sup> This is the only existing academic study that specifically examines the problems of conserving industrial buildings in Cape Town. The material provided in this dissertation will be combined with more recent papers from the same author.

## Conservation plan

This part will explain what a conservation management policy is and how it should be conducted. Information on the subject has largely been drawn from the work of James Kerr in Australia and his book *'The conservation plan'*.<sup>120</sup> Indicative of the importance of his work is that conservation plans are now obligatory for both owners and developers of historic places, before they are eligible to receive grant aid from Great Britain's Heritage Lottery Funding system.<sup>121</sup> Therefore, this work will be utilised as a basis for the discussion on conservation plans.

The current conservation legislation of Australia provides a good definition for a conservation plan: it is "a document establishing the significance of a heritage item and the policies which would be appropriate to enable that significance to be retained in its future use and development."<sup>122</sup>

The 'conservation plan' of James Kerr can be applied to any location, including industrial sites.<sup>123</sup> A conservation plan will be useful if there is an intention to conserve an industrial site. This document also specifies the site's significance. As it is likely that the only suitable conservation process will be reuse, the conservation plan will also evaluate which design approach is most suitable for retaining the cultural significance of the site. In short, this conservation plan can be accomplished in the following four phases.

In the first phase, a survey is conducted with the intention of obtaining a proper understanding of the site.<sup>124</sup> This entails a "methodical inspection, survey and documentation of the resource, its historical setting and its physical environment."<sup>125</sup> It will furthermore include an examination of the site's surroundings, the changes in ownership, the history of the site, the typology of its buildings, and their condition.<sup>126</sup>

Second, this survey will result in the formulation of a definition concerning the significance of the site and its components.<sup>127</sup> This will be combined with a review of the issues affecting that significance.<sup>128</sup>

In the third phase, an analysis is made. This involves a "scientific analysis and diagnosis of the material substance and associated structural system with a view towards its conservation."<sup>129</sup> Here it will be discussed which conservation processes and design approaches will be most suitable for the retention of the specific place.

Fourth and finally, a strategy or policy will be developed out of the previous three phases, as to how the retention of the significance of the site can be realised in practical terms. This involves "long-term and short-term programmes for conservation and management of change, including regular inspections, cyclic maintenance and environment control."<sup>130</sup>

It is crucial for the quality of the conservation plan that the assessment of the cultural significance of the site and its buildings is not manipulated by means of a prearranged policy for the future of the site.<sup>131</sup> In other words, there should be a "clear distinction between assessment of significance and formulation of policy"<sup>132</sup>: "the principle of developers funding the archaeological investigation of culturally significant sites, while sound in theory, depends on the prior identification of those sites."<sup>133</sup> This means that an unbiased approach is essential. Groups with vested interests cannot be relied upon to give an impartial survey and assessment, as they may be motivated by economic considerations, thereby compromising the cultural significance of the site.

Also crucial for the quality of the conservation plan is that it is done by an interdisciplinary team, as this will avoid one discipline overshadowing others.<sup>134</sup> Particularly in the case of the built environment, there is a clear danger that architectural and aesthetic considerations will dominate the assessment of its cultural significance, and other values, such as technical or scientific, will be forgotten. If this should happen, the entire cultural significance of the heritage resource will be neglected.

## **Conservation framework in Cape Town as it relates to the industrial heritage**

This part will discuss the situation as it exists in South Africa – and more particularly in Cape Town – with regard to the qualitative reuse of its industrial heritage. Therefore, the conservation framework as it relates to industrial buildings will now be discussed.

Given the fact that South Africa's conservation legislation was changed and updated during the process of writing this dissertation, the following discussion is based primarily on the National Monuments Act of 1969 and its implementation. As said before, it is hoped that the situation of South Africa's industrial heritage will improve with the new Heritage Resources Act of 1999. Although this new Act definitely seems to be an improvement, it is too early to draw conclusions on its implementation.

The importance of creating conservation plans is also acknowledged in South Africa, as is indicated by the following quote from the National Monuments Council: "before conservation is undertaken, a conservation policy should be prepared, in the form of a written statement setting out the cultural significance, physical condition and proposed conservation processes..."<sup>136</sup> The new Heritage Resources Agency also provides some general principles for heritage resources management. However, the practical application of a conservation plan in preparation of the conservation – or more particularly the reuse – of an industrial site has not happened as has been envisaged by James Kerr. This problem has arisen despite the fact that his approach to conservation plans has been internationally recognised.

In 1998, Worth made the accusation that there is no overall ethic or strategy of writing conservation studies in Cape Town; they have only been written on an ad hoc basis, usually in response to proposed developments. Another problem is that they have also been written by individuals – mainly architects – with vested interests rather than being impartial studies conducted by independent outsiders.<sup>138</sup>

There is a lack of awareness in South Africa with regard to its industrial heritage, and "the identification of industrial sites of cultural significance"<sup>137</sup> is not organised here, as is the case for other historic sites. "The current system of identifying the cultural significance of industrial sites, if it takes place at all, is heavily biased towards a 'popular' conception of industrial archaeology."<sup>138</sup> As has been said in section A2.2 on conservation worthiness, the interest in industrial buildings as shown by South Africa's official conservation body, has always been based on an architectural viewpoint. For that reason many industrial sites have been and are still forgotten.<sup>139</sup> However, the shortage of appropriate resources and expertise to make a proper and comprehensive study of such buildings can be held responsible for this lack of awareness of the specific qualities of industrial buildings and their identification.<sup>140</sup>

Although there is no framework or overall policy for industrial buildings in South Africa, there exists a conservation framework for old buildings in general. As it is related to the industrial heritage, it will be discussed hereunder.

The **National Monuments Council** had the power to declare and protect any building, irrespective of its age, and without payment of compensation if property rights were reduced as a consequence of proclamation. The old National Monuments Act protected all buildings older than 50 years. This meant that if a developer intended to demolish an industrial building older than 50 years, no special argument was theoretically required from the Council.<sup>141</sup> The Council, however, had the discretion to decide whether the protection should be enforced in specific cases, but was generally reluctant to exercise this power without the property owners' consent.<sup>142</sup> Of all the National Monuments in the Cape Province, barely 5% are industrial.<sup>143</sup>

Although heritage assessment criteria and a grading system exists, the lack of a program and proper criteria to systematically identify significant historic sites forced the local authorities in Cape Town to decide themselves which sites were conservation worthy, when making their Zoning and Town Planning Schemes.<sup>144</sup>

The new South African Heritage Resources Act automatically protects buildings that are older than sixty years. It has not yet been seen whether the Act is in fact able to enforce this and it is too early to make any definitive conclusions, as the new Act only exists since 1999.<sup>145</sup> It is expected that the new Council and the new Act will envisage a more democratic and 'bottom-up' approach. The aim of this is for the local communities themselves to identify heritage sites. Thereafter, their recommendations will go up to the regional level and higher.

The new Act is based on a wider variety of legislative instruments, from all over the world, than the old Act.<sup>146</sup> South Africa is now a member of the United Nations and the UNESCO and consequently subscribes to the ICOMOS Charter.<sup>147</sup> It is hoped that this will lead to a broadening of the term 'cultural significance', not only in theory but also in practice, so that South Africa will also become aware of its industrial heritage. It is hoped that the new legislation will eventually lead to adopting the 'conservation plan', as envisaged and designed by James Kerr.

In Cape Town, there is another body that is responsible for initiatives with regard to conservation issues: the **Urban Conservation Unit (UCU)**, which is part of the planning department of the City Council. The current situation in South Africa is that such unit exist only in Cape Town. It is a positive sign that this body was set up in an attempt to integrate conservation into the planning process itself.

The Urban Conservation Unit obtained a delegated authority, so to speak, from the National Monuments Council: they were (and still are) able to make their own decisions.<sup>149</sup> The Cape Town municipality, where the Urban Conservation Unit is in charge, extends as far as Wynberg in the south and Tygerberg and Belville in the north. The National Monuments Council was in charge of local conservation projects outside this area, and it is likely that this will remain the same with the new Agency.<sup>150</sup>

The Urban Conservation Unit assigns conservation studies mainly to architects and architectural historians, and consequently, these studies are almost exclusively conducted from an architectural perspective.<sup>151</sup> For industrial buildings, whose significance more accurately relies on their scientific or technological value (as was pointed out in section A2.2 on conservation worthiness), this is potentially a cause of problems. The reason for this is that the discipline of architecture will overshadow all other disciplines. As a consequence, no complete evaluation of the building's cultural significance may take place. In practice, it is uncertain, furthermore, whether the recommendations of the conservation studies undertaken by the Urban Conservation Unit are always effectively used and implemented by the South African Heritage Resources Agency.<sup>152</sup>

As the protection of industrial sites in South Africa cannot really count on the support of the above-mentioned conservation bodies, it will to a large extent be **individuals** who will contribute to the conservation of industrial sites. Basically, the potential of reusing industrial sites will depend solely on private initiatives and developers. However, "commercial developers seeking to re-use industrial sites, are generally under no obligation to assess or retain cultural significance when designing new schemes."<sup>153</sup> As a result, there have in the past been a number of culturally significant sites, whose value was not recognised and assessed prior to reuse, and whose cultural value has become either compromised or destroyed outright.<sup>154</sup>

## Conclusion

In South Africa, the neglect of the field of industrial archaeology has had a negative influence on the conservation of its industrial heritage. There is a general lack of comprehension towards industrial sites and their cultural significance, and an absence of well-identified conservation management policies that would be able to retain and protect that significance.<sup>155</sup>

In this regard, it is essential for the government to stimulate the quality of the reuse of industrial buildings by regulating the protection of their cultural significance. In each case, a conservation study initiated by the Heritage Resources Agency or by the Urban Conservation Unit needs to be conducted. This would lead to a conservation management policy (such as the conservation plan of James Kerr), resulting in a framework within which the developer of the conversion would be able to work.

Adopting the methodology of a conservation plan would have the advantage that industrial sites would be analysed more objectively (taking into account all their particular cultural values), in contrast to the architecturally based and biased conservation studies of the past. It is hoped that this will contribute to a better understanding and higher regard for such sites, and furthermore offer possibilities to retain more significant industrial sites.<sup>155</sup>

As the discussion on conservation issues in this chapter has indicated, in the South African context it is imperative that all historic sites, including industrial ones, are acknowledged as possible heritage resources. This would lead to proper, protective management of those sites that are eventually considered to be worthy of conserving.

However, trying to retain the authenticity of a building is sometimes impossible due to financial reasons. Work on an old building should be a balance between efficiency and authenticity,<sup>156</sup> between development and conservation. Therefore, the next chapter will discuss issues related to the (economic) feasibility of reuse projects.

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# CHAPTER A3: THE FEASIBILITY OF REUSING INDUSTRIAL BUILDINGS

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## A3.1 INTRODUCTION

This chapter will deal with the feasibility of reusing industrial buildings. The issue of feasibility is crucially important for all types of conversions, and thus also for industrial buildings. In fact, any form of reuse or conversion is only possible if the project is economically viable. It is imperative, particularly in South Africa, to take into consideration economic concerns to ensure the economic viability of a conversion project. The situation is further complicated when there is a conflict between economic necessity on the one hand, and conservation issues on the other hand.

The determination of the feasibility of a building project depends largely on good, accurate prior analyses and feasibility studies. These are even more important in the case of conversion projects than for new buildings, as unexpected delays and problems are more likely to arise during the former.<sup>1/2</sup>

The success or failure of a conversion project is primarily influenced by three main factors, which must therefore be analysed thoroughly when conducting a feasibility study. The ultimate aim of such an analysis is to determine the best ways of managing the conversion project. These factors are the following: the location of the site (discussed in section A3.2), the adaptability of the original building to new uses (section A3.3), and the financial viability of the project (section A3.4).

Each of these three factors will be discussed hereunder. The main literature on the topic of reuse has provided the theoretical material for the following sections, which was specifically applied to the South African context. Examples from South Africa as well as from other countries have been used in clarification.

## A3.2 LOCATION AND FEASIBILITY

### Introduction

One factor that contributes to the success or failure of a conversion and influences the feasibility of the reuse is the location of the particular industrial building within the city. This factor will be discussed more fully in the following section, which consists of two parts. One part will discuss the general issues relating to the location of disused industrial sites, and will illustrate these using various examples with the intention of demonstrating the influence of location on the success or failure of a reuse conversion. However, some of the characteristics of location are not only valid for industrial buildings, but also for old buildings in general. It will thus be clearly indicated in the following discussion where these characteristics are related specifically to industrial buildings. The more theoretical discussion of this part will be used as a basis for the discussion in another part, which will indicate the specific location problems that have arisen in Cape Town with regard to the conversion of industrial sites.

### General location issues

Each location has certain identifiable characteristics, which can have either a positive or a negative influence on the feasibility of reuse. A good location – with characteristics that improve the feasibility of a conversion – will clearly contribute to its success. The characteristics of a site's location consist of the following: the boundaries of the site, the zoning regulations pertaining to the site, the site's attractiveness in relation to its surroundings, the availability of a transport infrastructure, and the soil pollution on the site.

One characteristic relates to the **site's boundaries**. An advantage of a site that has available space between it and its boundaries is its good accessibility, which is likely to increase and improve links between the site and its surroundings, thereby facilitating the site's re-incorporation into the city structure as a whole. As industrial sites often comprise several buildings with spaces in-between, these spaces could be landscaped in such a way that they become an integral part of the city structure. This can happen, for example, by removing part of the site's boundaries and transforming the spaces in-between into public squares.

Another advantage of a site that has available space between it and its boundaries is the greater possibility for expansion. Expansion is often necessary, as converted industrial sites are frequently used by more people than before the conversion. The reason for this is their size: as industrial sites are often very large, their reuse can only be economically viable if they are subdivided. This means that they are subdivided to accommodate a number of businesses, whereas before, only one business may have been occupying the buildings. Therefore, it may be necessary to increase open spaces for additional parking, and to increase the floor area by constructing additions to the buildings. Sometimes the possibilities for expansion may be limited, as for example in the city centre, where industrial buildings are often restricted by their boundaries.

In the case of restrictive boundaries, one solution would be to expand the buildings within their boundaries by utilising their bulk – or the total allowable floor area on the site as implemented by the municipality – to its full potential. However, this solution is more appropriate for industrial sites located on the edges of a city or in a rural environment, as industrial sites in the inner city are often smaller, which means that the buildings usually take up almost all the available space on the plot, and have already made full use of their bulk. This, in combination with the restrictive boundaries, makes industrial buildings located in the inner city difficult to enlarge. In general, however, existing boundaries are less of a problem for the reuse of industrial buildings than is the case with other old buildings. This is because the former are mostly found on the edges of a city, or on bigger sites with a large number of buildings, separated by large open spaces, and bulk that has not been used to its full potential. Only in the case of an inner city location do boundary problems in fact arise.

Another characteristic of the location of an industrial site that will influence the feasibility of its reuse concerns the **zoning regulations**. These regulations – implemented by the municipality as part of a global zoning scheme – limit the functions that are allowed in a specific section of all available land.

An industrial site is often located in a part of the city that was dedicated exclusively to industry, and this may still be reflected in the current zoning regulations for the site. The intended new use of an industrial building may conflict with the current zoning regulations when these are restricted to industrial use – for that specific part of the city. These restrictions will then cause problems for the reuse of an industrial building.<sup>3</sup> The only economically viable reuse of a big industrial complex may be to incorporate a variety of functions within the same complex. According to the zoning schemes, it may however not be possible to reuse industrial sites for housing or multi-functional purposes.<sup>4</sup>

Despite this, industrial buildings suitable for conversions are usually sited where mixed uses exist anyway and where zoning changes are relatively easy to obtain. When a particular industrial building is located in a mixed use area in Cape Town, it will not be difficult to change zoning regulations when this would appear to be necessary for the new function of the building.<sup>5</sup> In other words, the problem as expressed above is only a problem in the practical sense when the particular industrial building is located in an area with 'mono-zoning', further away from the inner city.

The flexibility of the relevant city council with regard to the application of zoning regulations is important. It is exemplified in the reuse of the large number of textile factories in Lowell, Massachusetts, the United States, which is seen as a representative model for the adaptive reuse of industrial buildings. The local council was flexible with regard to applying the zoning regulations when investors showed an interest in reusing the textile factories. They allowed a mixture of functions, but above all, they contractually committed themselves to not changing the zoning of the plots for an extended period of time. This gave the investors long-term security, which in turn made them more willing to invest in the conversion.<sup>6</sup>

A further characteristic of a disused industrial site's location concerns the **attractiveness** of its surroundings, as this will attract both investors and tenants – which will in turn enhance the success of a conversion. Ghirardelli Square in San Francisco, the United States, is an example of this. This former chocolate factory was converted into a shopping centre as early as 1962 and is regarded as a prime example of reuse in the United States. Its superb location on the attractive San Francisco waterfront, with terraces overlooking the bay, contributed significantly to its success.<sup>7</sup>

The attractiveness of a site's location also depends greatly on the security aspect, including the security of the site's surroundings or the possibilities of improving the security of the site itself. Particularly in the case of industrial buildings, security is a determining factor. The reason for this is that such buildings are often located in remote industrial areas, far away from the city centre, with no mix of other uses. Therefore, many conversions require at least one security checkpoint – and preferably only one entrance to the site. On the other hand, this can also limit the reintegration of the site into the city structure because it closes off the boundaries.

In addition to the aspect of good security, the site's proximity to other sources of activity is another factor that increases the attractiveness of the site, both for investors and for tenants. Particularly if the industrial site is located some distance from the city itself, this can be problematic,<sup>8</sup> especially when the new use requires easy access to basic materials. For example, a photographer who is working from a converted industrial site may require a photo lab in close proximity of the site. A sculptor who wants to exhibit his or her work may also have difficulties attracting potential buyers when his studio is located far from the city centre.

However, the new use does not always require the proximity of a particular activity: the attractiveness of an industrial site will also depend on the type of intended use. The fact that a specific building may be unsuitable for one type of use does not make it unsuitable for another type of use. In fact, the same factor that may represent a problem in the first case may make the building perfectly suited for the second case.<sup>9</sup> For example, some early industrial buildings in town are now unsuitable for a new industrial use, because this new industrial use would be confrontational in the modern city: it would result in problems with heavy traffic, sound and air pollution. On the other hand, the same buildings might be very suited to housing, as they have the advantage of being located close to all necessary amenities.<sup>10</sup>

The reuse proposal for 'Thurn and Taxis' in Brussels, Belgium, is an example of bad integration of a proposed new use of an industrial building with its location. This goods-station is one of the most imposing industrial structures ever built in Belgium and has long been threatened with demolition. It was intended to reuse this building as part of 'Music City', a multinational show-business consortium that owns stadiums, theme parks and concert venues all over the world. This proposal was heavily criticised, as this extravagant, multi-functional project is located in the middle of an underprivileged district of Brussels. The proposal made no attempt to socially integrate the buildings into the district, nor was there any intention of giving something back to the community on a socio-economic level.<sup>11</sup> The show-business related new use thus does not fit in with its surroundings at all.

The availability of a transportation infrastructure is a further characteristic of an industrial site's location that influences the feasibility of its reuse. Since an industrial site is often located in a more remote part of the city – often with no proximity to public transport – accessibility can be problematic,<sup>12</sup> and people may have to depend on transport by car. Such dependence on the car, however, may result in overcrowding, which means that more on-site parking spaces may have to be created.<sup>13</sup> This can in turn have negative cost implications for the conversion.

Finally, the issue of **soil pollution** as a result of an industrial site's original use – a characteristic that is particularly relevant for industrial sites – must be taken into consideration. The municipality usually imposes strict regulations with regard to the contents of the soil, above all if the buildings are to be converted for housing purposes. This can be a major problem for the economic viability of the conversion, as removing the upper layer of polluted soil on a site would be an expensive operation. The old gasworks in Cape Town are a good example of this problem: as the soil was too polluted, no suitable and economically viable new use could be found, and the buildings ultimately had to be demolished.

The impact of soil pollution will depend on how heavy the original industrial activity was. Industrial buildings in the inner city appear to have less soil pollution as a result of their age and in view of the fact that they were used at a time when industrial activities generally caused less soil pollution.

The **consequences** of all of the above characteristics can be summarised as follows. There appears to be a chain reaction: if a specific industrial building has a favourable location, which will have a positive influence on the overall feasibility of the intended conversion, it is likely that the surrounding area will benefit as well. Reuse will create further development opportunities for its surroundings. Moreover, the concomitant increase in property values will also attract developers.<sup>14</sup> This, in fact, is precisely where the opportunities for development and growth lie: in view of most cities' current problems with regard to abandoned buildings in general, the reuse of previously overlooked industrial sites can in fact help to rejuvenate the city as a whole. It is a fact that redundant industrial sites are often located in rundown areas, perhaps as a result of changing technologies in the industrial sector, or changes in the city structure, for example. A successful reuse is then able to revitalise its surroundings, which will be beneficial for the city as a whole.

The following is an example of such a conversion. In the late 1960's, the waterfront and wholesale area of Boston were isolated from the city centre and their buildings faced demolition. Huge redevelopment and the construction of a highway exacerbated this situation. At one point in time, the abandoned wholesale market warehouses in downtown Boston were converted into a shopping centre, which was a tremendous commercial success. Not only did it regenerate the whole city centre of Boston, but it also inspired many other American cities to convert their own old buildings, thereby revitalising their own city centres.<sup>15</sup>

Another example of such a successful reuse project was that of the long-threatened Albert Dock in Liverpool; the project revitalised this rundown city, so that it ultimately became a prime visitors' destination in the region.<sup>16</sup> Private investors suddenly became interested in the Dock because the famous Tate Gallery of Modern Art in London had decided to open a section in the rundown harbour of Liverpool. A warehouse was chosen and the well-known architect James Stirling brought the reuse project to fruition.<sup>17</sup>

The following is another example of a reuse project that had positive repercussions. In Eeklo, Belgium, a whole area had been divided up and had depreciated in value. This had happened due to the presence of a redundant dairy factory, namely the Stassano factories. It was located in an area very close to the city centre. Its reuse as offices for the health insurance fund, 'Christelijke Mutualiteiten', involved close co-operation between the health insurance fund and the city council. The former renovated the buildings, while the latter took care of the surrounding public space in such a way that a whole new area was in fact created and developed. This had a major impact on the revitalisation of the whole city.<sup>18</sup>

However, such revitalisation also involves a potential danger. If a conversion or reuse project in a fairly rundown or underdeveloped area is successful and its surroundings are revitalised, property values will inevitably increase as well. This means that those poorer people who originally inhabited that area, can no longer afford to stay there (unless of course they find employment in that area). As a result, professionals and wealthier people will move in. "The longstanding social structure of the area, which was really the original object of protection, is ultimately destroyed."<sup>19</sup>

It is a fact that reuse has a much higher success rate, if the industrial building is not located in a completely rundown area,<sup>20</sup> as it is far more difficult to revitalise such an area by successfully reusing only one single industrial building. Rather, "rehabilitation must take place over a significant area sufficient to affect a lasting change in the perceived value of an area."<sup>21</sup> Consequently, it is not likely that industrial sites that are located far away from the city, in a completely rundown area, will be able to rejuvenate their surroundings.

Indeed, there are significant differences with regard to the success of a conversion, depending on whether the industrial site is located far from the city centre, on the edge of the city or in the inner city itself. The potential for the conversion to succeed will depend precisely on its proximity to the city centre: rundown industrial sites closer to the city centre will be more able to succeed in economic terms. As stated above, site characteristics will differ greatly depending on the proximity of the site to the city centre. Generally speaking, the further away from the inner city a site is located, the less restrictive its boundaries will be. This also applies to zoning regulations: inner city sites will be more multi-functional, while those towards the outskirts of the city will be more mono-functional. This may be problematic in that mixed uses may in fact enhance the economic viability of a conversion. The attractiveness of a site will further depend on its distance from the city centre, its activities and level of security. In addition, a site that is located some distance from the city centre may only be accessible by car rather than by public transport, which means that secure car parking has to be provided on or near the site. With regard to the aspect of soil pollution, this usually increases towards the outskirts of the city, as more allowance for heavy industrial activities was made on plots far away from the inner city.

The next part will focus on the location of industrial sites in the city of Cape Town. It will discuss the differences in the levels of success of various conversion projects by looking specifically at the influence of their location characteristics and their proximity to the inner city.

## The location of industrial sites in Cape Town

Before discussing some of the remaining industrial buildings in the Cape Town area and the characteristics of their location, it seems appropriate to briefly discuss the effects of the **history** of Cape Town's industrial activities on their location, as this will explain the current location of these remaining industrial buildings.

At the beginning of the nineteenth century, Cape Town was a small market town with normal industrial activities concentrated in the inner city. Its only intention was to provide for local needs.<sup>22</sup> Money for these industrial activities came from the cash that slave owners were given in compensation for their 'losses' when slavery was abolished in 1834.<sup>23</sup>

By the second half of the nineteenth century, industrial activities in Cape Town had increased, because diamonds and gold had been found further inland. As a result, the economy of South Africa as a whole expanded dramatically. Industrial activities were now also located further away from the inner city, and more in particular in Cape Town's harbour, which continued to grow.<sup>24</sup> The existing harbour dates back to this period, namely the 1860s. It was also at that time that a new breakwater was built.<sup>25</sup> The growth of the harbour was the start of the construction of numerous new industrial buildings, all of them related to harbour activities, such as warehouses for storing goods. By 1905, the construction of the Victoria Basin – today part of the Victoria and Alfred Waterfront – had been completed.<sup>26</sup>

Soon thereafter, some of Cape Town's industries decentralised to the suburbs, as a result of the overcrowding and consequent expansion of the city centre.<sup>27</sup> Many companies moved to the southern suburbs of Woodstock, Salt River and Observatory.<sup>28</sup> This meant that industrial buildings were now not only found in the city centre itself, but also in its adjoining suburbs. The increase in industrial activities was unmistakable, as a journalist pointed out in the Cape Argus in 1924: "a stranger might well be excused for forming the impression that the Mother City of South Africa was nothing but a smoke belching congestion of factories."<sup>29</sup>

In 1938, a larger harbour was constructed as a result of the industrial growth in the years between the two World Wars. Because the accessibility from the residential and industrial areas to the east and west of the central city became more important than the north/south linkage from the harbour to the city centre,<sup>30</sup> an area was reclaimed between the new basin and the existing city. This piece of land became known as 'the Foreshore'. The material that had been dredged during excavation of the new harbour basin was used to reclaim this area. Because of the growth of the east/west linkage, the capacity of the railway terminal – where railway lines from the eastern, southern and northern suburbs converged – had to be increased.<sup>31</sup> And yet, the Foreshore was never successfully integrated into the rest of Cape Town, and still seems to separate rather than connect the city and the ocean.<sup>32</sup>

Today, at the start of the twenty-first century, industrial activity in South Africa is primarily concentrated in and around Johannesburg and Durban. However, "Cape Town ... retains some major commercial companies in the city centre, and some major manufacturers on its fringes."<sup>33</sup>

Although Cape Town has over the years lost many of its industrial buildings, several have survived demolition. Most of these are redundant or have been given a new use. The inference that can be made from the above historical effects on the location of industrial buildings is that there are at present **five zones** where industrial buildings still exist (see Fig. 8). These five zones appear to be influenced by their proximity to the city centre. Each zone has also developed its own characteristics. Further, each zone seems to have a strong influence on the success of the reuse of redundant industrial buildings that are located within that zone. These five zones and their particular characteristics will be discussed hereunder. The characteristics of location discussed previously, under the heading 'General issues', will further be used as a basis for this discussion. In addition, prime examples of industrial buildings in Cape Town will be used in substantiation where necessary. However, as these examples are not meant to be exhaustive, not all the existing industrial buildings in Cape Town will be discussed.

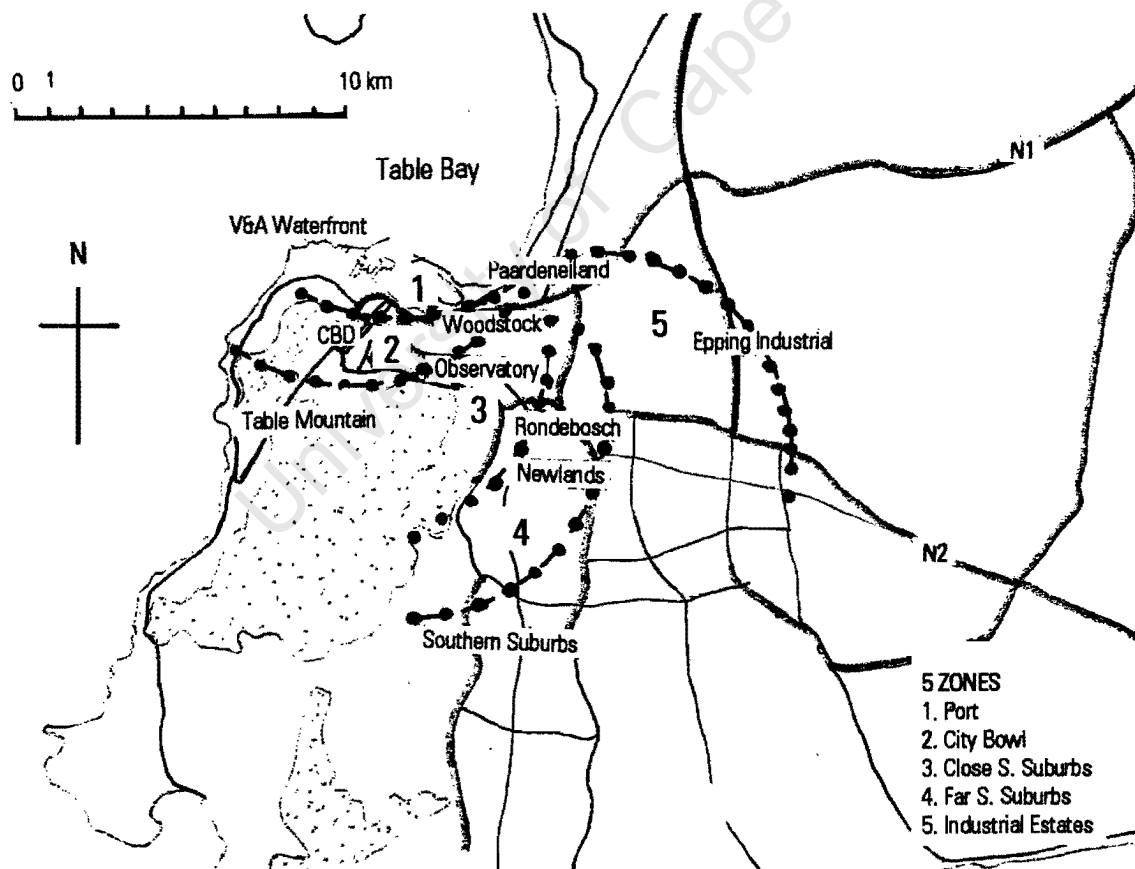


Fig. 8: Map showing the five zones in Cape Town where industrial buildings can be found at present (Source: MapStudio)

The first zone contains a wide range of industrial buildings that can be broadly categorised as belonging to the port.<sup>34</sup> Today, several of these buildings – some of which have retained their original use – are still visible in the harbour area itself. These buildings are mainly warehouses. Next to warehouses, the docks also house a still-working grain elevator and grain silos. Several industrial buildings related to harbour activities also still stand on the reclaimed land of the Foreshore. The most important of these is an old railway site, Culemborg, which is currently used as a storage area by a limited number of short-term industrial users.<sup>35</sup> Next to these buildings, which are still accommodating their original use, is a large site that is part of the harbour. It has been reused for commercial and tourist purposes, and is now called the Victoria and Alfred Waterfront.

The possibilities of reuse for buildings in this location – the harbour zone – depend to a large extent on the attractiveness of the harbour and its buildings as a whole. As seen in many other examples all over the world, the reuse of an old harbour can be very successful and can lead to revitalisation of the city centre. This was also the case in Cape Town, where the reuse of its waterfront has been a major commercial success as well as creating a prime tourist destination. The link with the city centre, however, is still missing. The success of this project will hopefully lead to the reuse of the grain elevator complex adjacent to the Waterfront when the contract of the grain company WPK is coming to an end in a few years.<sup>36</sup> The large site of the grain elevator with its railway tracks is very well located and could be used as an expansion of the Waterfront. Paradoxically, it is precisely the success of the Waterfront that is threatening the site, as the surrounding land has increased in value. The boundaries of the industrial sites located in the harbour zone generally do not pose a problem, as there are usually sufficient possibilities for expansion. With regard to transport infrastructure, however, these sites depend almost entirely on transport by car. In most cases it will not be viable to create a whole new public transport network. In the case of the Cape Town Waterfront, though, the City Council has made a serious effort to promote public transport, and a larger group of people is now able to reach the site.

The various industrial buildings that belong to the City Bowl area make up the second zone. As a result of its proximity to the harbour, there are also warehouses in this zone. They are mainly located along Buitengracht and the city's eastside. In general, these are small-scale buildings – two to three storeys high. As a consequence of decentralisation, and as they stood on increasingly valuable land, industrial buildings in the inner city were often demolished to make way for more profitable development.<sup>37</sup> Therefore, only a small concentration of these warehouses remains. Other than these, almost all industrial buildings that were part of the city centre have since been destroyed. Exceptions are the old granary in Canterbury Street in the City Bowl and the reused old Cunningham and Gearing Foundry in Green Point, near the harbour. Only one industrial site remains on the fringe of the city centre: the currently called Longkloof site. It is situated in the Gardens and contains an old tobacco factory; its main warehouses are fairly large – four storeys high – in comparison with the other warehouses of the City Bowl. This particular site will form the subject matter of Chapter B3.

The main obstacle for the reuse of buildings in this zone is their boundaries, as there is limited room for expansion in the city centre. However, the old Cunningham and Gearing Foundry and the Longkloof site have already been successfully reused. This is partly because there were still some open spaces between the buildings, which could be landscaped to reintegrate the site into the city structure. Buildings in this zone are particularly attractive for future users because they are so close to the amenities of the city centre. The good infrastructure in the City Bowl area also contributes to the economic success of the conversion, as public transport is already present.<sup>38</sup>

The third zone contains several industrial buildings located in those parts of the Southern Suburbs that are near the city centre, particularly Woodstock and Salt River, and Mowbray and Observatory to a lesser extent. At the start of the twentieth century when Cape Town was booming and its city centre became too crowded and began to decentralise, many companies were forced to move to the Southern Suburbs. Their premises were mainly located along the railway line. Several factories still exist and were reused over the years, ranging from an old brewery (Castle Brewery) – the subject matter of Chapter B2 – and the Burtish or Pyott's biscuit factory (now called Bromwell Mews) in Woodstock, a cement factory in Salt River, a match factory (Lion's) in Observatory, to a blanket factory (Waverley) in Mowbray. Other than these factories, the suburbs mentioned above also housed many warehouses, some of which still exist today.

In general, the industrial buildings in this zone are of a larger scale than those located in the previous zone – the City Bowl area. They are also slightly less limited by the boundaries of the city structure. Their plots are fairly large, so expansion is easier, but they can still be considered as belonging to the city structure. However, as most of them are located along the railway line – which forms a restrictive boundary – this does also prevent them from being fully integrated into the city structure. Although the closeness to the railway line is an advantage with regard to the transport of goods and people, these sites are not attractive. Areas surrounding a railway line often have difficulties attracting tenants and visitors because they are rundown. As it may be difficult for one of these buildings to revitalise a whole area on its own, it is likely that their reuse will only be successful if it is part of a major redevelopment plan extending over the whole area. In another sense, however, their location is unique in that they are situated in areas where there has always been a mixture of housing, commercial and industrial use. Woodstock is a prime example of this. Such mixed-use areas were and are still rare in South Africa, and definitely contribute to the liveliness of a neighbourhood. It is in this context that there are opportunities for redundant industrial buildings to be reused in such a way that they contribute to their environment. Moreover, the current infrastructure (for example, the nearby railway line) appears to be sufficient, although there is an increasing security problem.

The fourth zone contains a few remaining industrial buildings that are located much further away from the City Bowl area. These industrial buildings, often on large sites and isolated from their surroundings, are located mainly in the Southern Suburbs of Rondebosch or Newlands. Their location was often determined by the proximity of a natural resource, which was a prerequisite for their activity. Examples of this are the site of Albion Springs in Rondebosch, where a water factory was once situated, or the site of the South African Breweries in Newlands. Both of these sites are located near a stream.

As these are isolated sites, their boundaries often do not limit their possibilities for expansion. Although their reuse, if properly managed, may be a success – as seen in the example of the South African Breweries site in Newlands, which forms the subject matter of Chapter B4 – it is unlikely that this will result in the upgrading of their nearest neighbourhoods. The reason for this is that such isolated sites are not part of the city structure and are too far away from neighbourhoods and sources of activity. The successful reuse of such sites will depend on the specifics of the chosen new use. The availability of a suitable infrastructure needs to be considered as well. This was, however, not problematic in the specific cases of Albion Springs and the South African Breweries: they are both situated on the Main Road, a public transport route.

The fifth zone was created when oversized manufacturing enterprises moved away from the city centre. Industrial estates such as Paardeneiland and Epping Industria were established in 1935 and 1947 respectively to create larger industrial sites with better transport links between them and the city.<sup>39</sup> These industrial estates are still being used for industrial activities. Even if they were to become redundant, their reuse would be problematic, if not entirely unsuccessful by virtue of the following: they are not integrated into the city structure; they are far away from the city centre; they are far from sources of activity; they are heavily dependent on car transport; and they are not attractive to potential new users. In view of the above, this particular type of zone has not been dealt with in this dissertation.

## Conclusion

In conclusion, then, and as has been demonstrated in the foregoing discussion, the location of an industrial building plays an important role in ensuring the success of its conversion. In the case of Cape Town, industrial buildings located in the first three types of zones (the harbour, the City Bowl and those Southern Suburbs that are situated fairly close to the city centre) have the highest reuse potential. This is primarily because of their proximity to the city centre. Successfully converted industrial buildings in the third zone, which has the highest number of redundant industrial buildings, are also most able to revitalise their surroundings. However, the success of a conversion does not only depend on the location of the building and on the match between the new use and the location of the building. It also depends on its suitability for the new use, in other words, the match between the building's form and its intended new function.<sup>40</sup> This aspect will be discussed in the following section on the match between form and function and its influence on the feasibility of reuse.

## A3.3 FORM-FUNCTION MATCHES RESPECTING DESIGN INTEGRITY

### Introduction

This section will focus on the match between the existing form of industrial buildings and their intended new function or functions. This match is an important consideration, as it influences the feasibility of a conversion: mismatches between existing space and new use, and between old form and new function, will necessitate extensive and expensive adaptations, which may reduce the feasibility of the conversion.

Industrial buildings appear to be well suited to a wide range of new functions, because their spatial programmes are more diverse than is commonly the case with other types of buildings.<sup>41</sup> Old factory buildings and warehouses, with their "large, continuous floor areas, high rooms, extensive hall spaces, old vaulting and many other features",<sup>42</sup> provide "an excellent background for all kinds of activities."<sup>43</sup>

The aim of this section is to arrive at an overview of the problems and constraints involved in finding new functions for industrial buildings, and to indicate the most appropriate approaches to these problems. Thus this section will consist of two parts. The theoretically based first part will discuss the factors that affect the adaptability of an industrial building. This part will draw its information from the literature on the reuse of industrial buildings and key examples thereof. Tables will be used in clarification of the issues raised.

The second part will look at possible new functions for industrial buildings. The discussion of these functions will be based on the theory provided in the first part, so as to ascertain the factors on which the adaptability of a particular building will depend. Although the choices between possible new functions are almost unlimited in theory, in practice there appear to be three main functions, which reappear throughout the literature on the subject of reused industrial buildings. These are housing, commerce and cultural uses. This discussion will be based on research of case studies referred to in the literature; examples of these new functions will be furnished by citing similarly reused buildings in Cape Town, as well as in other parts of the world.

## Factors affecting form-function matches

Several factors will affect the form-function match. It is very important to take these factors into account, as they will determine the suitability of an existing industrial building for a new function, as well as the adaptations that such a conversion will require. Extensive adaptations will obviously have a negative impact on the feasibility of the conversion. Three issues have to be considered in this regard: the impact of the new function on the building's constructive structure, its functional structure, and its user structure. The constructive structure of a building is the same as its load-bearing structure. It is composed of walls, columns, floors, etc. The functional structure is dependent on the use of the building and is composed of spaces, heights, form, etc. The user structure is dependent on the circulation of the building and consists of corridors, stairs, etc.

### Constructive structure

An analysis of the constructive structure of an industrial building regarding its adaptability for the proposed new function must consider the following elements: the construction type and the condition of the construction.

The advantages, problems and failures of a particular **construction type** must be analysed. Different types of construction of industrial buildings have evolved over time. As summarised by Sherban Cantacuzino in his book *'Re/architecture. Old buildings/new uses'*, "in the eighteenth and early nineteenth centuries the structure nearly always consisted of cast-iron columns, timber floors and timber, brick or stone walls. In the early nineteenth century a fireproof construction was developed which consisted of cast-iron columns and beams carrying shallow brick vaults and in the twentieth century the cast-iron columns and beams were replaced by steel, and later also reinforced concrete."<sup>44</sup> Each construction type is associated with its own set of problems when adaptations are required for the new function, as is illustrated by Table 1.

Material construction types and related fabric	
Construction type	Fabric problem
Brick and timber or all timber	Combustibility, wet and dry rot and insect infestation.
Brick and cast iron.	Low fire resistance of elements, partial removal may be difficult.
Brick or stone and concrete.	Filler joint in concrete floors, difficulty of pronouncing on safety for new loadings. Corrosion problems with some concrete.
Steel frame and reinforced concrete.	Less likely to need structural alteration.

Also some structures may need the introduction of new floors where none were provided for the previous industrial use (eg breweries and maltings).

Table 1: Material construction types and related fabric (Source: Eley, P., Worthington, J., *Industrial rehabilitation. The use of redundant buildings for small enterprises*, p. 108, Table II)

When adaptations are necessary to accommodate the new function, the **condition** of the structure should be investigated in order to verify whether the proposed adaptations are possible or would be excessively expensive. For example, the construction should be able to carry new floors, if the feasibility of the project requires an increased floor area. Basically, the following two elements should be considered with regard to adapting the building to the new function: the building's stability and its strength.<sup>45</sup>

As one might expect, it should be ascertained whether or not the stability of the building would be compromised if walls or frames have to be removed, as the structure may then have difficulties enduring wind and other loads. The stability of the building may also be compromised by the removal of floors or roofs, as the supporting walls and columns may become unstable.<sup>46</sup>

Of course, the strength of the building needs to be examined too, particularly when the load-bearing capacity of the new function will necessitate an increase beyond the building's previous level of capacity. Fortunately, industrial buildings are often designed to bear heavy loads, for example machinery, so strength is usually not an issue. Obviously, though, openings made in the floors to accommodate the new function may compromise the strength of the building as a whole.<sup>47</sup>

Clearly, failure of any one of these elements will mean that the building needs to be improved, for example by adding supports to increase the strength of a floor. However, it should be noted that these kinds of changes in the constructional structure are often very costly, and should be avoided as much as possible to increase the overall feasibility of the project.

## **Functional structure**

It is important that the new function can easily be integrated with the functional structure of the building. In contrast to a new building, where the functional structure and the constructive structure are attuned to each other, a conversion is determined and limited by the existing constructive structure, and the (new) functional structure has to fit in with it.<sup>48</sup> The following elements need to be considered in this regard: the form of the building as a whole, its capacity, the types of spaces involved and created, the existing and projected subdivision of these spaces, and the ceiling height.

The functional structure depends primarily on the **form** of the building, and “form is, in essence, the structure of movement patterns, the organisation of routes.”<sup>49</sup> The most adaptable form of a building will be one where the fabric does not interfere with these movement patterns, but will allow the building to be adapted easily.<sup>50</sup>

The new function will have to match the original form or structure of the movement patterns of the building. However, some new functions will require adaptations to the form of the building itself, and it should be established whether these will lead to changes in the movement patterns. Fortunately, the large open spaces of many industrial buildings, where the only fabric consists of the external structure and an internal steel structure, ensure that such buildings are usually easy to adapt.

Another element that needs to be examined, in addition to the form of the industrial building, is its **capacity** – the building’s unused volume. The more spare capacity a building has, the greater its flexibility in accommodating a new function. Examples of spare capacity are the ‘dead’ spaces between wall and column, or wall thickness. Thick walls facilitate carving in the building, which can be used to hide services.<sup>51</sup>

Previously, buildings in general used to be built with large spaces and were less likely to be closely tailored to meet user needs. As a result, they have more spare capacity and are now easier to adapt than would be the case with more recent constructions.<sup>52</sup> This is no different for industrial buildings. An example that shows the advantages of the extra capacity found in old buildings is the ‘Usine M.C.R. Prouvost’ in Tourcoing, France. Reichen and Robert converted this textile mill into an apartment block with space standards that exceed the French norms by 25%, “a bonus that can often be achieved without appreciable extra cost when adapting old buildings.”<sup>53</sup>

On the other hand, a lack of capacity may lead to expensive adaptations. An example is Reichen and Robert’s conversion of the corn exchange in Blois, France, into a convention and cultural centre. The original volume had to be increased because the corn exchange did not have enough capacity to accommodate the new function: the new addition of a semi-circular shape now houses an auditorium.<sup>54</sup>

Another element that needs to be examined in analysing a building’s functional structure is the **types of spaces** that exist in the building. There are several building types, as shown in Table 2.




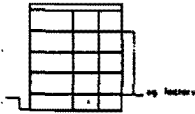

Classification of buildings according to spatial type; and factors affecting the reuse of each type			
Building type	Typical existing use of building	Characteristics	Factors affecting reuse
Small single space 	chapel gatehouse stables/coach house	single storied detached load bearing walls size max 100m <sup>2</sup>	<b>Advantages:</b> <ul style="list-style-type: none"> <li>space with character for specialised use</li> </ul> <b>Disadvantages:</b> <ul style="list-style-type: none"> <li>insufficient space</li> </ul>
Large single space 	barn hangar warehouse goods shed engine house factory	single storied detached frame or frame and perimeter wall construction size 100m <sup>2</sup> + floor to eaves height 5m +	<b>Advantages:</b> <ul style="list-style-type: none"> <li>flexibility of use</li> <li>ease of movement of goods</li> </ul> <b>Disadvantages:</b> <ul style="list-style-type: none"> <li>heating</li> <li>sub-division</li> <li>servicing</li> </ul>
Small repetitive spaces 	house housing workshops lock-up garages	up to four storied terraced narrow frontage up to 100m <sup>2</sup> on each floor	<b>Advantages:</b> <ul style="list-style-type: none"> <li>sub-divided for small units of accommodation</li> </ul> <b>Disadvantages:</b> <ul style="list-style-type: none"> <li>means of escape</li> <li>accessibility</li> <li>loading on upper floors</li> <li>fire protection</li> </ul>
Large repetitive spaces 	railway arches warehouse factory mill	multi-storied deep space frame and perimeter wall structure size up to 3000m <sup>2</sup> on each floor	<b>Advantages:</b> <ul style="list-style-type: none"> <li>flexibility of use</li> <li>suitable for open plan multiple use</li> </ul> <b>Disadvantages:</b> <ul style="list-style-type: none"> <li>difficulty of sub-dividing into small units</li> <li>means of escape</li> <li>access</li> <li>natural light</li> <li>fire protection</li> </ul>
Small and large spaces 	church town hall hospital school industrial complex exchange	up to four storied detached mixed structural system varying floor to ceiling heights	<b>Advantages:</b> <ul style="list-style-type: none"> <li>falling vacant in key inner city sites</li> <li>well serviced, range of spaces provided (suitable for mixed uses)</li> </ul> <b>Disadvantages:</b> <ul style="list-style-type: none"> <li>complex building forms</li> <li>heating</li> <li>internal circulation of goods</li> </ul>

Table 2: Classification of buildings according to spatial type, and factors affecting the reuse of each type (Source: Eley, P., Worthington, J., *Industrial rehabilitation. The use of redundant buildings for small enterprises*, p. 25, Table V)

As can be seen from the above table, a building can consist of one small single space, one large single space, several small spaces of similar size, several large spaces of similar size, and a combination of small and large spaces. The last column of the table indicates the advantages and disadvantages of each building with regard to reuse. For example, a building type consisting of large spaces of similar size is typical for warehouses. Its advantages are its flexibility in accommodating a new function and the existence of choices among various possibilities. It would be suited to open-plan multiple use, but would, for example, be more difficult to reuse for small businesses, as subdivision into small units might be problematic.

A mixture of different new functions is often the most feasible way of reusing large industrial complexes. This mixture of functions is easier for a building with a variety of spatial types.<sup>56</sup> A blend of small and large spaces, or of both shallow and deep spaces may attract a wide variety of uses, ranging from small apartments to a large theatre. Fortunately, this variety of space is often present in industrial buildings, as their original functions often required small spaces for storage and large spaces for machinery.

The possibility for **subdivision** of the spaces is another element that must be considered. Subdivision is a main constraint, particularly when the building is to be reused as apartments or businesses. Subdivision possibilities will depend mainly on two factors, namely the distances between the load-bearing structures (the walls or columns) and the building depths (the dimensions from the front to the rear of the building).

However, when the sizes of the spaces do not correlate with the projected new function, and the subdividing walls are in fact load-bearing, the demolition of some of these walls may necessitate expensive adaptations to ensure the stability of the building.

Nevertheless, most industrial buildings do consist of large, open spaces. In this case, it will be the distances between the columns that will determine the possibilities for subdivision.

Regarding the other factor, namely building depth, this is a critical attribute of the building form with regard to daylight penetration – particularly in the middle of the building.<sup>56</sup> Enlarging existing windows, or adding new windows or domes can solve the problem of daylight penetration. These are, however, mostly costly or fabric-damaging interventions, as the following example indicates.

The soap factory 'De Adelaar' in Wormerveer, The Netherlands, is on the government's list of monuments. Since reuse could potentially endanger the cultural value of the building, a study was conducted beforehand on the feasibility of new functions. This study concluded that almost all of the possible new functions would require an increase in the available daylight, which – even until the present day – has made it difficult to find a suitable function. Enlarging the existing windows or adding new ones would interfere with the valuable façades and was therefore not advisable. The only other option would be to interfere with the concrete structure by adding a dome, which would automatically have led to huge costs and damage to the valuable construction.<sup>57</sup> As these problems have effectively limited the choice of new function, the building has still not been reused. However, there are examples where the necessary increase in daylight penetration actually contributed to the overall design quality of the conversion. This was the case with the Bankside Power Station in London, which was reused as a museum. The dark turbine hall required additional light, which was achieved by adding a semi-transparent 'light beam' on top, "extending across the façade and providing public spaces with river views. The overall look of the building is now determined by the contrast between this horizontal light beam and the solid vertical emphasis of the chimney."<sup>58</sup>

The last element to be considered when determining the adaptability of the functional structure to accommodating a specific new function is the **ceiling height**. Sometimes new levels or mezzanine floors may be inserted to increase the floor area and thereby improve the overall feasibility of the conversion. This is only possible when the ceiling is high enough though. Fortunately, most industrial buildings are characterised by high ceilings because they originally needed room for machinery or storage.

An example illustrating the significance of this element is the reuse of the 'Le Nil' paper mill as a regional art college and a museum of papermaking in Angoulême, France. The photography studio, which was a necessary part of this scheme, needed a fairly large space. Therefore, it was located in the large roof space where the height made it possible to insert mezzanine floors, which is ideal for photography.<sup>59</sup>

## User structure

The user structure is the final element that needs to be analysed when trying to determine the adaptability of an industrial building for a new function. This involves looking at the ways in which the building catered for its original users and how it might cater for, or be adapted to cater for, new users. This kind of analysis looks at the building's methods of operation and at the influence of the requisite machinery on the building's design.

The user structure is based on a **circulation system** of corridors, stairs, elevators or entrances.<sup>60</sup> Specific building regulations set out the measurements of these various elements of the circulation system. For example, the regulations governed the ratio between the number of fire escapes and their measurements, depending on the number of people using the building.

Clearly, if a building is to be reused for a different type of activity or function, different regulations will apply. Thus, the adaptability of the building will depend on the possibilities of changing the circulation system. An example of this kind is whether corridors or entrances could be moved to another place or even demolished, or whether it would be possible to add staircases, so as to meet the regulations with regard to the new function.<sup>61</sup>

Now that the factors affecting the form-function matches have been determined and clarified, the following section will discuss more fully the possible new functions for industrial buildings.

## Possible new functions

There appear to be three main new functions that are relevant to reused industrial buildings – housing, cultural and commercial. The problems and constraints of each of these in turn will now be discussed in greater detail.

## Housing

For a long time, the primary new function of converted industrial buildings has been housing. This is a trend that originated in the United States in the 1970s. It was artists, looking for places where they could live, work and exhibit their works of art, who were first interested in renting redundant industrial buildings with their large, cheap spaces, regular plan and high ceiling height. Later, it in fact became fashionable to live in industrial buildings, which had been converted into trendy lofts.<sup>62</sup> Lofts are often an ideal new function for industrial buildings, as they preserve and highlight the sense of space and structure of the original building.

In addition to being used as lofts, industrial buildings have also been reused as apartment blocks, mainly small-scale or related to social housing. This new function is less likely to be successful, as extensive adaptations are necessary. One of these is the need for intensive subdivision of the building into smaller units. This in effect destroys the large open spaces, which are such an attractive feature of industrial buildings.

Other adaptations are necessitated by building depth. This is a critical attribute of the building form with regard to daylight penetration – particularly in the middle of the building – and crucial for an activity such as housing.<sup>63</sup> It may be difficult to adapt apartments in such a way that they have sufficient natural light. One option is to have skylights in the roof, thereby bringing natural light into the centre of the building. This can, however, have a drastic – and perhaps even damaging – effect on the character and form of the building.

Furthermore, governments often lay down even stricter regulations for housing than is the case with any other reuse function, and these may necessitate far-reaching adaptations. Examples of such regulations include the required minimal number of toilets, the minimum permitted measurements for lounges in small apartments, as well as adaptations to industrial buildings with their steel structures to comply with the current fire regulations.<sup>64</sup> Also, the quality of heating required by people for spaces used for living is often in conflict with industrial buildings, because they were not originally designed for this and because their high spaces increase the heating costs.

There are advantages to reusing industrial buildings for housing purposes, however. For instance, as a result of the large ceiling height so characteristic for industrial buildings, it may be possible to insert additional levels, thereby creating duplexes with a greater sense of space. In addition, this increases the sellable or lettable floor area, which may enhance the overall feasibility of the project.

In Cape Town, there has been no loft living culture, and hardly any of its redundant industrial buildings are reused for housing purposes. However, the current trend appears to be that loft apartments in the inner-city are a fashionable way of reusing buildings; this is likely to happen more and more in the future.<sup>65</sup>

Although industrial buildings are suited to reuse as loft apartments, in general housing is not regarded as the most appropriate type of reuse, as, in most cases, drastic adaptations are necessary and the unique sense of space may be sacrificed.

## **Commercial functions**

In contrast to housing, the reuse of industrial buildings for commercial purposes – as offices, shops or businesses – is more feasible; it is also becoming increasingly popular, especially when a collection or 'hive' of several businesses rents the space.

Indicative of the easy match between industrial buildings and their new function for commercial purposes is that redundant industrial buildings are often first used as commercially related storage space.<sup>66</sup> The reason for this is that many industrial buildings already have a lot of storage space and therefore, do not need many adaptations. This is indeed the main advantage for commercial reuse: subdivisions are hardly necessary, as businesses merely select a space size to fit their needs.

Industrial buildings are particularly suited, without many adaptations, to occupation by a hive of businesses. If used in this way the original character of the building is preserved and the exterior remains mostly untouched. Moreover, the variety of spaces available will improve the feasibility of reuse, as there are fewer limitations on the types and sizes of businesses that are able to occupy a building – some may require a smaller area, while others may need more privacy. In such a way, these buildings can accommodate diverse commercial businesses. As an example of this, the old Castle Brewery in Woodstock, Cape Town, is a building with a variety of spaces, which were inherent to its original function as a brewery. It now houses a hive of businesses, each of which could choose the space most suited to its needs. Thus hardly any adaptations needed to be made to the spaces.

The above should not be seen to imply that only buildings with irregular bays are suited for commercial reuse; structures based on regular bays are equally suitable, particularly for larger businesses that need open-plan spaces. These will often buy or rent an entire level of a building. For example, the former tobacco warehouses in the Gardens, Longkloof Studios, consisted of open-plan levels of similar sizes, and now houses media-related firms. One of these firms owns several levels, which have been subdivided by half-height prefab walls that do not disrupt the sense of space created by the original fabric of the building. In the case of some of the other smaller businesses, however, the levels have been subdivided and the sense of space has been lost.

In the case of businesses, the building depth factor will affect greatly the sizes and types of firms that can occupy the spaces. Shallow buildings (10 to 15 metres deep) are most suited for firms requiring small cellular spaces. On the other hand, medium-depth buildings (15 to 20 metres deep) are more appropriate for a combination of cellular and open-plan areas. Finally, deep buildings (20 or more metres deep) are more suitable for organisations that require a great deal of interaction and minimum separation, or have a high proportion of machinery or storage spaces, which do not require natural lighting.

The amount of daylight that is available in industrial buildings generally suffices for commercial purposes, as these businesses require less daylight than would housing. Businesses also select the space most suited to them according to how much daylight they need. Manufacturers of goods, for instance, would obviously choose a space with more daylight than would storage companies.

All over the world and not only in Cape Town, industrial buildings are commonly reused to accommodate hives of businesses, because such reuse initiatives come from private investors and because such projects are especially feasible. In the case of Cape Town's many redundant industrial buildings, only a small number of these have been reused, and those primarily as business hives. The most likely reason for this is that relatively few adaptations are necessary. Depending on the type of business that moves in, the degree to which the building is finished does not have to be as high as it does in the case of housing. An example of this is the old Castle Brewery in Woodstock.

There are several other examples of successful commercial reuse in Cape Town, and they are the following: the Waverley building in Mowbray, Bromwell Mews in Woodstock and the more upmarket old Cunningham and Gearing Foundry in Green Point.

## Cultural functions

Industrial buildings are also particularly suited to be reused for cultural activities – such as museums and theatres or performance halls – because these require large open spaces. Adaptations are thus often unnecessary, and subdivisions are only used to a small extent. If there are already a variety of different size spaces available in the industrial building, then it may not be necessary to subdivide the space at all. For example, the control rooms, changing rooms and small storage spaces found in a typical factory can easily be converted into toilets, changing rooms, storage spaces or offices, all of which may be required for a theatre or a museum.

Moreover, as industrial buildings are often chosen specifically for their inherent qualities, their large open spaces are usually retained. For instance, the decision of the Tate Gallery to use the redundant Bankside Power Station in London for their new museum – the Tate Gallery of Modern Art – instead of constructing an entirely new building was based on the quality of the Power Station's inner space – and spaciousness. The Swiss architectural firm of Herzog and de Meuron have done the conversion work on behalf of the Tate Gallery. They recently converted the massive turbine hall into a huge public space, with galleries situated alongside. In this way, the quality of the large open spaces was retained. This type of creative adaptation is considered to be an important step towards reusing industrial buildings in the future.<sup>67</sup>

Another example of the cultural reuse of industrial buildings is that of the Hamburger Bahnhof, the old terminus train station in Berlin, which was converted for reuse by Jozef-Paul Kleihues. It is presently a museum of contemporary art. The large art works and the elegant nineteenth-century train shed are excellently matched, and the shed did not need many adaptations.<sup>68</sup>

Daylight penetration into the building is also less of a problem with cultural reuse than is the case for housing or commercial activities, as theatres or performance halls in any event depend on adjustable artificial lighting.

The main disadvantage of the reuse of an industrial building for cultural purposes, however, is the installation of the infrastructure, such as air-conditioning and lighting. As a more specialised infrastructure is required, this can have a greater impact on the feasibility of a reuse project than would be the case for housing or commercial functions. The following example – of the famous conversion of the Orsay Station in Paris into a museum – illustrates the excessive expenses that can be incurred if there is a mismatch between the original form and the new function. Although the massive open spaces inside the old station appeared to be ideal for exhibiting sculptures, several factors argued against this. There was the problem of managing the light from the glazed roofs, the resonance caused by passing trains, and the difficulty of controlling the temperature and humidity in such a huge space. To overcome these problems, it was necessary to develop and use advanced and very costly systems, such as sophisticated air-conditioning, which impacted negatively on the feasibility of the conversion.<sup>69</sup>

In general, though, and depending on the type of industrial building, relatively few adaptations are necessary to accommodate cultural functions. Also, they have a positive influence on their surroundings. More than would be the case with housing or commercial functions, cultural functions can in fact act as a focal point for the surroundings and are able to uplift their surroundings; this is largely because they are by their very nature accessible to everybody. Accordingly, industrial buildings are very suited to being reused in this way.

In Cape Town, industrial buildings are rarely reused for cultural activities, most likely because the City Council does not encourage this or take initiative in this regard. Theatres or concert halls are not found in such buildings in Cape Town. Moreover, to the author's knowledge, the Market Theatre in Johannesburg and the 'Stables Theatre' in Alice Street, Durban (by OMM Design Workshop) are the only examples in South Africa where industrial buildings have been reused as theatres. Museums, however, are found in several reused industrial buildings in Cape Town: the South African Breweries in Newlands has reused its malthouse and the Mariendahl Brewery as a museum dedicated to beer making, and Josephine Mill has been reused as a museum focussing on its own history.

## Mix of functions

As a result of their large scale, it is often not feasible for industrial buildings to accommodate only one type of function. In fact the most successful conversions of industrial buildings make use of and incorporate a combination of functions. An example of this is the reuse of the Tiefenbrunnen flourmill in Zurich, Switzerland. The redesigned building accommodates shops and offices, a museum, dance studios, art galleries and even apartments.<sup>70</sup>

An analysis of case studies referred to in the literature on the reuse of industrial sites seems to demonstrate that the most successful combination is where the lower levels are used by many people, while the upper levels are more private. For instance, the ground floor either has a cultural function, which attracts the public, or commercial functions in the form of shops. The next level contains commercial functions, such as offices. Finally, the upper level accommodates housing.<sup>71</sup>

In an ideal situation, the various new functions would support each other. One of the mills in Lowell, Massachusetts, the United States is a good example of such a situation. This is considered to be one of the most influential and effective conversions of an industrial building. The lower level of the building contains a crèche and doctors' rooms, while the next level accommodates a restaurant and various service companies, such as physiotherapists. The upper level, finally, has social housing for the elderly. The idea of this set-up is that the elderly make use of the doctors' firms and the service companies, and act as a type of social control for the crèche by watching who comes and goes.<sup>72</sup>

An advantage of a mix of functions is that the converted site is in use both day and night. In other words, while shops and other businesses primarily attract customers to the site during the day, a cultural function such as a theatre would do the same during the evening, and pubs would do so at night. As industrial buildings are often located in less lively or less secure districts, this would contribute strongly to the feasibility factor of their conversion.

In Cape Town, only a few mixed-use complexes exist. For example, although the Waterfront is currently reused for commercial purposes – containing a mixture of shops, restaurants and pubs – there is also a cinema and an outdoor performance space (representing cultural functions). In addition, there are plans to use adjacent plots for new housing developments as well as office blocks.

# Application of the location and form-function match

As can be seen from the first two headings of this chapter with regard to the feasibility of reuse, the location of the industrial building and the form-function match will be determining factors. This is illustrated by Table 3, which concludes this.

Redundant building types and possible new uses							
Use category	Building type	Period	Characteristics Location	Configuration	Construction	% Site coverage	Possible new uses
1 Industrial Located near to markets, key sources: raw materials components labour energy	Foundries	C18-19	Urban	Complex	Brick and Timber	90	Light industrial units
	Mining and mineral workings	C17-20	Rural	Uneven ground	Mixed small and large buildings	40	Light industry, distribution haulage and building contractors, waste disposal
	Textile mills	C18-19	Urban and rural, sited near water	Multi-storey structures	Brick, stone, timber	60	Multiple light industrial units, crafts, offices, labs
	Breweries, maltings, oast houses	C18-19	Urban, semi-rural Water supply needed	Complex different processes Irregular profile	Brick, timber	60	Offices, light industrial units, craft centres, residential
	Factories	C19-20	Urban, town, rural	Irregular bays	Bricks, timber, steel, concrete	40 80	Light industrial units, polytechnic
2 Power production Located near centres of population and industrial activity	Water mills	C17-19	Mostly rural, towns by water	Complex irregular profile	Brick, stone, timber	50	Crafts and local centres residential
	Engineering houses, pumping stations	C18-19	Rural, urban,	Large, small and tall single-storey	Brick, timber	70	Theatre, concert halls, museums
	Gas works	C19	Urban + fringes	Complex mixed structures	Brick, steel	40	Industrial, distribution
	Power stations	C20	Inner city, urbanised areas	Large structures	Concrete, steel and light cladding	40	As above
3 Storage Located near transport facilities, primarily points of production and distribution	Warehouses	C18-20	Docks, rivers, canals, railways, produce	Regular bay, multi (and single) storey structures	Brick timber, steel	90	Very varied: crafts, light industrial units, arts centres, offices, residential, museums
	Depositories	C18-20	Cities + fringes	Regular bay, multi (and single) storey structures	Brick, timber, steel	90	Multi-light industrial units, craft workshops, distribution
	Barns	Medieval, modern	Rural (towns), farms	Single or two-storey	Brick, timber, concrete, asbestos	40	Crafts, light industrial, leisure, residential, community centres
	Sheds	C19-20	Urban and rural	Simple usually single storey	Brick, metal	70	As above
	Cold stores	C19	Urban	Heavy walled		90	Industrial
4 Transport Changes in technology have great physical effect	Railway viaducts, bridges	C19	Cities towns (Rural)	Regular compartments under arches	Brick	80	Light industrial units, storage, retailing
	Road viaducts, bridges	C20	Towns, rural	Regular compartments	Concrete	50	Light industrial community and leisure uses
	Railway stations	C19	Urban rural	Complex simple	Brick, stone, timber	80 40	Offices, workshops, light industrial, retailing
	Locomotive sheds Omnibus garages	C19 C20	Urban	Regular bay structures	Brick, timber, iron	80	As above
	Parking, garages (especially on residential estates)	C20	Urban	Single or two-storey structure	Concrete	60	Industrial units, additional residential (flats)
	Goods yards	C19	Urban, rural	Spawning	Small structures	20	Industrial units
5 Military Emerge and grow during periods of military activity, national expansion, unrest  Intermittent use over time	Ordnance factories	C18-20	Semi-rural	Variable	Mixed small and large buildings	40	Industrial units and redevelopment
	Barracks	C18-20	Town, rural	Cellular structures	Brick timber	60 30	Industrial units, storage distribution
	Forts	C18-19	Rural (urban)	Complex irregular	Massivestone/natural rock	50	Industrial units
	Airfields	C20	Rural (rural fringe)	Light structures	Brick, metal	20	Industrial units and redevelopment

Redundant building types and possible new uses—*continued*

Use category	Building type	Period	Characteristics Location	Configuration	Construction	% Site coverage	Possible new uses
6 Social Institution Emerge to suit needs and resources of current social and cultural values  Increase with population growth, higher standards and services  Changes due to centralisation or larger catchment areas	Schools	C16-20	Urban, rural	Complex, simple	(Stone) brick, timber steel, concrete	80 30	Industrial units, arts centres, craft workshops, residential
	Churches	Medieval C20	Urban	Irregular profile large space	Stone (brick), timber	60	Storage, retailing, community centres, light industry, offices.
	Halls		Rural	Simple structure		30	Museums, arts centres, residential (if small)
	Hospitals	Medieval C20	Urban, rural	Complex	Brick, timber	80	Residential, hotels, industrial
	Prisons	C18-20	Urban, rural	Complex	Stone, brick	60	Industrial
	Town halls	C19	City, town	Large space + smaller	Brick, timber	80	Showrooms, offices, higher education
7 Residential Living patterns change, related to social and cultural values	Tenements	C19	Urban	Cellular, multi-storey	Brick, concrete	70	Craft workshops and industrial units, other social groups
	Town houses	C17-20	Urban	Cellular, 3-4 storeys	Brick, timber	60	Very flexible: social institutions, offices
	Country houses	C17-19	Rural	Cellular, cluster	Brick, timber	30	Training centre, residential community, research centres
	Tower blocks	C20	Urban	Cellular	Concrete, brick, light cladding	50	Other residential groups eg student hostel

Table 3: Redundant building types and possible new uses (Source: Eley, P., Worthington, J., *Industrial rehabilitation. The use of redundant buildings for small enterprises*, p. 21, Table II)

The table above indicates which new functions will be most suited for specific building types. For example, if the building type 'brewery' is associated with the possible new functions 'offices, light industrial units, craft centres, residential', then this means that the new functions and uses shown in the table are appropriate for the stated building type, and that there is likely to be a good match between the form of the brewery and its intended new function.

The above table also identifies several factors that determine possible new functions for redundant buildings, related to the location of a building as well as to its form-function match. With regard to the location of a building, these factors are the characteristics of the location (such as urban or rural) and the percentage of site coverage. With regard to the form-function match, one factor is the time the building was erected and therefore the construction – such as concrete, which was primarily used in the twentieth century (constructive structure). Another factor is the configuration – such as the varieties of spaces available (functional structure). This table does not discuss the user structure, however.

The example of the Josephine Mill (located in Newlands, Cape Town, and built in 1840)<sup>73</sup> illustrates the applicability and relevance of the above table. The building type is a water mill, which belongs to the use category of 'power production'. The factor 'characteristic of the location' indicates that it has a primarily rural location, or is located near water. This was indeed relevant to Newlands in the nineteenth century, the period when the Josephine Mill was built. Although Newlands was already part of the city of Cape Town at that time, the mill was located far away from its centre, in an area consisting mainly of farmland, virtually on the banks of the Liesbeek River. The building consists of a brick and timber construction, which was typical for that time. The configuration has a variety of spaces, and thus has an irregular profile. It is suggested in the table that new uses such as 'crafts and local centres' are a possibility. This is partly correct with regard to the current function: Josephine Mill is currently being reused as a museum detailing its own former function or activities, has conference facilities and a tea garden.<sup>74</sup> It is in fact the only working industrial museum in Cape Town. From time to time it is also used for concerts. In this way, the rural atmosphere of the place has remained almost undisturbed.

The following sums up the advantages and disadvantages of the most commonly used new functions for disused industrial buildings. In the case of housing, the advantage of lofts is that it may be possible to keep the large spaces fairly intact. On the other hand, apartments may have problems with daylight penetration, may need adaptations to meet the City Council's regulations or may have problems with subdivision. However, the ceiling height can be an advantage in terms of increasing the lettable or saleable floor area using horizontal subdivisions.

In the case of commercial functions, 'business hives' seem to be particularly suitable because they make use of the multiplicity and variety of available spaces (although they are also suitable for regular structures). They are also less likely to need much subdivision and there is no serious problem with daylight penetration.

In the case of cultural functions, they are generally able to retain the space, layout and structure of the building, and have little need for subdivisions. There are no real problems with regard to daylight penetration, as they often only require artificial lighting. Cultural functions are also particularly suitable as a new use for industrial buildings, as they can revitalise an area and are by their nature very accessible to the general public. However, problems may occur when it is necessary to install specialised infrastructure.

The discussion above also indicates the following. In situations where a conversion exclusively for housing purposes would be less feasible (and commercial or cultural functions would have better chances of success), the ideal situation would in fact be a combination of all three. In contrast with other redundant buildings, which mostly involve only one type of new function, industrial buildings have the advantage that their scale permits and encourages a mixture of different, mutually supportive functions. Such conversions in fact embody the current tendency in city planning, which encourages a mixture of zoning/functions.

## Conclusion

To sum up, then, it is clear that the constructive structure is characteristic of a specific building, and may therefore be difficult to change. It may, however, be possible to adapt the functional and user structure to the projected new function. Moreover, it is precisely this adaptability or flexibility of variation and extension that will make it possible to reuse a building for a particular function. This adaptability is thus an essential feature in the design of the conversion project.<sup>75</sup>

As can be seen from the above discussion, it is vitally important for the overall feasibility of the conversion project that the projected new use matches the structure or function of the particular industrial building. Mismatches would lead to extensive and costly adaptations. The issue that must be considered at this stage of the dissertation is the financing of the conversion, and which development approach must be used to guarantee the economical viability of the project. This will be the topic of the following section.

## **A3.4 FINANCE AND FEASIBILITY**

### **Introduction**

This next section will deal with the overall economic viability of a conversion, as both generally and in South Africa the only hope of retaining the industrial heritage is by giving it an economically viable new use. The purpose of this section is to determine which models can be used to make a conversion economically successful, and what factors will influence its success. For this reason, this section is subdivided as follows.

Firstly, the possible funding and development models will be discussed, in order to determine how the conversion of industrial buildings can be made economically successful. The sources of funding, as well as the different types of development – each with their specific problems and successes – will be analysed and contextualised to the situation in South Africa.

Secondly, the main factors influencing the overall cost and economic viability of the conversion will be discussed. The information presented will be drawn from the literature on the economic feasibility of reuse. This will be combined with material obtained in a number of interviews conducted in Cape Town with experts in this field, such as quantity surveyors, property developers, and architects.

### **Funding and development models**

How a conversion scheme can be made economically viable will depend largely on the relevant funding and development model. In order to determine the most appropriate funding and development model for a particular conversion, the various problems and constraints with regard to the funding must be examined. Those problems related to the development of the conversion project must be examined as well. The private sector can overcome some of the problems and constraints in this regard; despite this, an overall structure is necessary – and this should come from the public sector. The government's role in stimulating funding and development for reuse projects will be another issue discussed in this section.

Relevant discussion for each of these problems and solutions will be put forward. This discussion will pertain to conservation in general as opposed to the reuse of industrial buildings in particular. It will also pertain to international practice as opposed to only what is relevant or is possible in South Africa.

## Funding

Firstly, then, as suggested in the literature on the subject, conversion schemes for industrial buildings can be financed and developed in various ways. In general, the funding comes from either the public or the private sector.

The funding for conversions is partly different to other conservation processes, in the sense that the emphasis will be more on the private sector. This is because, inherently, reuse projects – as any other building projects – have to be economically viable in order to survive. In general public sector funding can come from a local authority, an urban development grant or a historic buildings commission. Private sector funding can come from a bank loan, a building society, a property fund, an insurance company or own resources.<sup>76</sup> Occasionally funding may also come from a combination of public and private sectors. For example, a local authority can make obtaining funding easier by offering subsidies, which themselves can be combined with the investment of developers.<sup>77</sup>

However, in South Africa the choices between the various sources of funding are limited. Although the South African Heritage Resources Agency has significant powers when it comes to the conservation of the cultural heritage, it lacks the ability to enforce these powers. The main reasons for this are the shortage of funding from the central government and the shortage of skilled staff.<sup>78</sup> This is no different for its industrial heritage, resulting in a lack of a subsidising framework for the conservation and reuse of industrial buildings. To the author's knowledge, in all the cases of reused industrial buildings in South Africa funding came from the private sector. Further, as the building is often intended for a commercial market, in most cases a property developer will provide the money.<sup>79</sup>

In other countries, as well as in South Africa, obtaining sufficient funding to carry the cost of the conversion of an industrial building is often difficult,<sup>80</sup> as developers and investors generally do not see such a conversion as a healthy investment. Reuse involves high financial risks and for several reasons the financial feasibility of the investment cannot be guaranteed: industrial buildings in particular are difficult to value and there is too much uncertainty with regard to "demand, building condition and local authority expectations."<sup>81</sup> Their location in an unattractive industrial zone may also play a role, or the fact that the preparation time for their conversion is often long.

Nevertheless, there are solutions to the problem of funding conversions of industrial buildings, and a few of them will be discussed hereunder.

One solution to make the conversion more viable economically is to spread the funding over different phases. As discussed in the previous section (A3.2) on 'Form-function matches and feasibility', when an industrial building in South Africa is to be reused for commercial purposes, the future new users will often be tenants of businesses. This means that a new phase is only started if the space created or converted in the previous phase has already been rented out and occupied.<sup>82</sup> The rent from the first group of tenants could then be used to pay for subsequent conversion works. This was the case in the reuse of the old tobacco factory in the Gardens in Cape Town. After the first phase of its conversion had been completed, the rent of the first tenants provided sufficient funding for the second phase of development.

The spreading of funding over several phases is a particularly good solution for industrial buildings, as their large size often implies that it is only viable to redevelop one part at a time. An example is the reuse of the Fiat factory in Turin, Italy, by the architectural firm of Renzo Piano. It was converted into a multi-use, cultural and commercial complex in phases, because of its immense size of 230 000 m<sup>2</sup>. The conversion started in 1988, and by 1997, over 185 000 m<sup>2</sup> of space had already been occupied.<sup>83</sup>

Another solution to the problem of funding is to use a mixture of new functions. From an economic point of view, some new uses can compensate for others that are less viable, thereby making the conversion as a whole more viable. Housing and cultural functions are seen as economically weak functions, as the income from rentals is normally quite low in these cases. These functions could be balanced by commercial functions, such as businesses; these are economically stronger, as the rent income is higher.<sup>84</sup> For example, in the reuse of the Tiefenbrunnen flourmill in Zurich, Switzerland, the high ground rents charged for the offices and shops compensated for the lower rents charged for the museum and the dance studios.<sup>85</sup>

## Development

The different kinds of development approaches to conversions of industrial buildings – as well as each type of development as it applies to international practice, and how each type pertains to South Africa – will now be discussed. Each conversion has a driving force behind it, somebody who looks for the funding to cover the cost of the project and who manages it: the developer. For both conservation and conversion projects of old buildings as well as industrial buildings, there are different kinds of developers: they may come from the private sector (for example, property companies, landlords, locally based developers, associations of users, small firms, private developers, voluntary groups, or development trusts) as well as from the public sector (for example, local authorities, building preservation trusts, or central government).<sup>86/87</sup> A combination of the two is also possible.

In the same way that conversions of industrial buildings are mostly funded with money from the private sector, it is also common for them to be privately redeveloped. A study of the Re-use of Industrial Buildings Service (RIBS) in the United Kingdom<sup>88</sup> confirms this. The RIBS categorised 400 conversion schemes of industrial buildings carried out in Britain in the eighties and its files indicated that private developers carried over half of these schemes out.<sup>89</sup> Only a few of all the existing private developers actually specialise in conversions,<sup>90</sup> and those few are responsible for a large number of the conversion schemes.<sup>91</sup>

An example of a private company that specialises in conversions is the 'Lofting Group' from Belgium. They only redevelop large old buildings, and in particular industrial buildings. The new use is mainly lofts, sometimes offices. In contrast to other large development companies, they are in charge of the entire conversion process.<sup>92</sup> Their sphere of work consists of three aspects: the first is that they look for old buildings that have reuse possibilities. They may either buy the building themselves, or they may help the owner with the financing of the project. They then deal with the planning regulations and analyse the return on the investment and the commercial feasibility of the project; they also negotiate with architects, local authorities or action-committees. The second aspect is that they are able to act as either the general contractor who organises everything during the building phase, or as the building contractor, or as the interior designer. The third aspect is that they are also responsible for the commercialisation of the reused buildings: in other words, they try to sell or lease parts of the reused building to potential customers.<sup>93</sup>

Small private developers are most common for the reuse of smaller industrial buildings, because it is still possible for a single individual – or a small group – to financially manage such a project.<sup>94</sup> They are also common for the reuse of other old buildings. However, industrial buildings are often part of large complexes. Developers have to be financially very strong to be able to deal with such projects and therefore, industrial buildings are mostly developed by large companies or even the government.<sup>95</sup>

In South Africa, the choices between the existing types of developers that are able to embark upon conversions are limited. Large property companies are most likely to act as developers, although none of them is specialised in conversions (as is the case with the 'Lofting Group' from Belgium). Rather, they are most interested in projects with a good return – value for money – and thus primarily in commercial reuse projects which generate higher rental incomes. However, although large property companies are indeed attracted to develop such a project, it is ultimately individuals who first embark upon conversions. "Personal enthusiasm has been a prime mover in the conservation of industrial sites"<sup>96</sup> in Cape Town.

The developer may also come from the public sector. In that case, it is often the government or its local branch that acts as the developer, although in many countries this has not yet happened. Only in special circumstances will the local authority take on the role of developer and convert and manage sites themselves; most of the time the role of the local authority is limited to creating a good climate for conversion. In general, it appears that conversion projects that are most likely to be successful are those where the local government has either taken the initiative or is actively supporting the reuse proposal.<sup>97</sup>

In South Africa, the government has never acted as a developer for conversions of industrial buildings. However, a development trust exists in Cape Town, which exists only in Durban too (the Durban Heritage Trust). It is called the Cape Town Heritage Trust; it was set up by the Cape Town City Council in 1987, but is now independent and a non-government organisation. It promotes and funds Cape Town's architectural and historical heritage, "by acquiring, rehabilitating and leasing or reselling buildings; and providing financial assistance and advice to property owners wishing to rehabilitate architecturally and historically significant properties."<sup>98</sup> Because the Trust wants to have a say in any major alterations or demolition of the buildings it sells, it is able to write restrictive conditions into the Title Deeds of those properties.<sup>99</sup> From the inception of the Trust, it had the resources "to set up a revolving fund along the lines of Britain's Civic Trust."<sup>100</sup> However, "it has not operated the revolving fund in the way originally envisaged."<sup>101</sup> The Trust's most important and biggest project is the highly successful reuse of an old housing block along Buitengracht, which is now known as 'Heritage Square'. It contains shops, restaurants, and a hotel.<sup>102</sup>

The above suggests that the developer can come from either the private or the public sector. It even seems that the conversion projects of highest quality are those where there is a partnership between the two. Clearly, reuse projects are not possible without the support or participation of the private sector. However, as the quality of the end result may be neglected, official conservation bodies need to act as a guardian to ensure the quality of the conversion.

### **The government's role in stimulating funding and development for reuse projects**

The previously discussed types of funding and development for reuse projects, and their problems and constraints, indicate that most problems could be dealt with if there were some sort of support from the public sector. This section will look at the government's role in the international arena as well as its role in South Africa.

There are two ways in which the government can stimulate the feasible reuse of old buildings, and of industrial buildings in particular: firstly, by providing finance, and secondly, by creating a better climate for such developments. These are discussed hereunder.

Firstly, as with any conservation project, searching for funding is always a constraint; this is even more so with the reuse of large sites, as is often the case for industrial buildings. The government might offer direct financial stimulation for conversions by **providing grants or loans.**<sup>103</sup>

However, government subsidisation is often not the best solution, as it involves complicated and time-consuming procedures. This is particularly detrimental for the economic viability of smaller conversion proposals. A better solution would thus be indirect financial stimulation by providing fiscal advantages.

In Belgium for example, indirect financial stimulation by reducing taxes levied on conversions would be appropriate. Currently, there is a tax reduction for the renovation of houses (6% is levied), while there is no reduction for the reuse of a factory as housing (the full amount of 21% is levied). Effectively, then, reuse proposals are not stimulated.<sup>104</sup> However, care should be taken that a low tax rate for conversions does not lead to the situation that presently exists in the United Kingdom. A standard tax on the repair and maintenance of all buildings is present there, while there is none for major works of alteration or reconstruction on buildings that are listed by the government as being highly significant. Therefore, listed buildings are easily damaged, since major alterations to buildings are taxed at a lower rate than their repair or maintenance.<sup>105</sup> Other countries in the European Community are no exception, as they have even higher tax rates for repair and maintenance than in the United Kingdom. So, ideally, the tax rate levied for conversion should be lower than the standard tax and as high as for other conservation processes.

However, there are a few countries that do offer some level of tax relief. The Netherlands provides an excellent example of this. There is a yearly fund that provides for the repair and maintenance of all major historic buildings, together with a tax-deductible interest on the repair and maintenance costs. Both The Netherlands and the United States have a system of combining grants and tax relief. The USA's Economic Recovery Tax Act of 1981 provided private investors with "a tax credit of up to 25% on the capital cost of converting an old building, providing it was of landmark status." This resulted in a great boost to the adaptation of old buildings to new uses. This is also why a large proportion of the world's most successful conversions are found in the States.<sup>106</sup>

The local government could also subsidise feasibility studies of crucial and representative projects, since the biggest costs with the start of a conversion are taking the measurements of the building and analysing the structure. In that way, the government would stimulate the private sector to realise an economically feasible conversion.<sup>107</sup>

With regard to the situation in South Africa, however, as it is not possible to obtain grants or loans, or fiscal advantages for any conservation or conversion, there is no chance whatsoever that state intervention or tax provisions will be made applicable to industrial buildings in particular.<sup>108</sup>

Despite the aforesaid, it appears that the main constraint with reuse is not a lack of funding. Although there are problems in this regard, they can be overcome. More important are the technical and administrative difficulties,<sup>109</sup> with governments often blocking rather than stimulating conversion schemes and in particular those for industrial buildings: there is often a lack of vision on such schemes, due to the particular nature and problems of industrial buildings.

Therefore, it may perhaps be better for the government to stimulate the economic viability of reuse proposals for industrial buildings by **providing a better overall climate** for such developments. The possible methods of doing so will be discussed hereunder.

If the local government owns the property, they could, for example, introduce a competition to get an overview of different ideas for the reuse of a specific industrial building, since they often have a lack of vision with regard to reuse possibilities.<sup>110</sup> Or else, if they do sell their property, an obligatory architectural competition might be part of the deal.

The government could also provide a better climate for conversions by developing an appropriate planning policy. This would involve listing buildings and declaring them monuments for conservation purposes. However, listing can be somewhat of a constraint for reuse projects – in particular for industrial buildings – for the following reason. Although a planning policy created by the government, where significant industrial buildings are listed, may be intended to improve the quality of their reuse, it is often a major constraint on the economic feasibility of the project. As listing involves strict building regulations, this often makes the administration of the reuse process complicated and time-consuming, affecting the economic viability negatively rather than positively. This is even more so for industrial buildings, as their large size implies bulky conversion processes.

Instead of listing industrial buildings, the local government could develop a planning policy that encourages reuse and discourages demolition without plan<sup>111</sup> by creating a municipal development plan for the industrial heritage. This has already been done in the United Kingdom where the English Heritage development plan exists.<sup>112</sup> In this development plan, industrial areas can be promoted by local authorities,<sup>113</sup> for example by localising cultural activities in the area in order to draw attention to it,<sup>114</sup> or by setting the right example by reusing industrial buildings as the local authority's own administrative centres.<sup>115</sup>

However, to develop such a planning policy, the available stock of industrial buildings first needs to be determined. In The Netherlands, for example, a building reserve of industrial buildings has been established, which is called SPABIE (Stichting Pandenbank Industrieel Erfgoed). Although this approach starts from individual buildings and users and does not automatically lead to a general policy at the level of town planning, it can ultimately help the government to decide on the preservation and reuse of individual buildings.<sup>116</sup>

With reference to the situation in South Africa, such a databank of redundant industrial buildings – and even of any building with reuse possibilities – could be useful when the City Council draws up conservation plans for certain areas. Hopefully, the information provided in this databank – such as information on the buildings' form and their match with specific functions – would be taken into account and allowed to impact on policy decision making with regard to those conservation plans.

The information provided on this databank could also include the unused bulk rights of each redundant industrial site. Many old buildings do not use their full bulk, which is the total allowable floor area on the site, to its full potential. The owners of buildings could sell their unused bulk rights and thereby generate funds; alternatively, they could buy or exchange bulk rights to increase the floor area.<sup>117</sup>

A better climate for the reuse of industrial buildings could also be achieved by setting up professional organisations, which can give advice on specific reuse problems. An example of such a professional organisation exists in the United Kingdom, where amenities societies and community groups can get advice from the Reuse of Industrial Buildings Service (RIBS) of the non-profit making training and development consultant organisation URBED (Urban and Economic Development).<sup>118</sup> However, it is not likely that such organisations will be set up soon in South Africa, as Industrial Archaeology is not even recognised as a separate discipline, but falls under the broader field of the well-established discipline of Historical Archaeology.<sup>119</sup>

The above illustrates that there are several ways in which the government can assist conversion schemes. Some **examples** are now discussed to demonstrate that the government can use a combination of the methods referred to above to promote the reuse of industrial buildings. The reuse of several industrial buildings in Lowell, Massachusetts, the United States, is an example of how the government can contribute to the success of a conversion: they chose the concept of a national park – called the Lowell Heritage State Park – instead of agreeing to an urban renewal approach. “Aided in the beginning by low interest loans, the project has inspired enormous investment, both public and private, for the renovation of mills, canals, and commercial buildings.”<sup>120</sup> A variety of different sources paid for the conservation of a large part of the town. Joint ventures, using public and private funds were used, and public finance was used to attract private investment.<sup>121</sup> For every dollar of government money received, eight dollars were obtained from the private sector.<sup>122</sup>

Another example is the reuse of a large section of the city of Norrköping in Sweden. The city lies on the river Motala Ström or ‘The Stream’ as it is known. A one kilometre long industrial landscape is sited along ‘The Stream’; this zone has now been reused. A substantial number of buildings on this large area was listed and consequently received state heritage grants. Because the entire site is classed as valuable, some of the more modest buildings also obtained grants for refurbishment. This external refurbishment of several buildings was partly funded by the government and completed even before any decisions were made with regard to the new use. This was very important from a psychological point of view, because it drew attention to the buildings’ qualities and thus interested investors.<sup>123</sup>

## **Factors affecting economic viability**

The discussion now turns to the factors affecting the economic viability of conversion projects; in contrast to those pertaining to entirely new developments.<sup>124</sup> They are the costs of returning the building to a workable condition, and the peripheral costs involved in a conversion. These factors will determine whether the conversion will be economically viable.

The main factor is **the costs of returning the building to a workable condition** and thereby ensuring its compliance with the modern building regulations and the modern requirements for infrastructure. Restrictive building regulations with many conditions will obviously increase conversion costs, even up to 10%.<sup>125</sup> Liberal building regulations, on the other hand, will reduce costs.<sup>126</sup>

The most important of these regulations are those related to fire protection. Adapting industrial buildings to current fire regulations is a major financial constraint. The reason is that many industrial buildings consist of a cast-iron or steel structure of beams and columns.<sup>127</sup> The most appropriate design approach often requires the industrial look to be preserved or highlighted. As encapsulating the cast-iron or steel structure with fire-retarding material will hide it, the only other option is to make use of costly fire-retarding paint.

Providing the necessary infrastructure may also increase costs. This is even more so for industrial buildings: most factories or warehouses usually have an outdated or low level of technical installation – such as electricity or heating – due to the very nature of their original function. Turning such buildings into apartment blocks, business hives or theatres may in most cases require costly adaptations. Unlike new buildings, this new infrastructure has to fit into an existing structure, necessitating certain adaptations – such as cutting holes into the walls. The lift system – if there is need for one – will affect both the conversion costs and the post-construction costs (or the costs of managing and maintaining the building after the conversion).<sup>128</sup>

In addition to the actual conversion costs, yet another factor impacting on the economic viability of a conversion are the costs involved in the redevelopment, such as the purchase costs, the demolition costs, the holding costs or the post-construction costs, in other words, the **peripheral costs**. Particularly in the case of industrial buildings, which are often located in rundown areas<sup>129</sup> with low land value, the purchase costs of the site and its buildings are generally cheap.<sup>130</sup>

Other costs that are relevant to conversions are the demolition costs of parts of the buildings and/or of some of the structures on the site. Furthermore, industrial sites often comprise many structures, some of which are more culturally significant or easier to adapt than others; the costs of demolishing these structures, for example, to increase space on the site for additional parking, can be fairly high.<sup>131</sup> Further expenses are the holding costs (this is the capital that was spent on the conversion prior to receiving an income from the conversion); it is the same as the sum of the capital invested and the opportunity costs. The term 'opportunity costs' denotes the loss of interest when own capital is used to convert the building (thereby losing interest on the investment), or, if the capital had to be borrowed from the bank, it is the interest that the bank charges for the borrowing of the capital.<sup>132</sup> For example, if a capital of five million was invested, and 0.5 million interest on that amount was lost, then the holding costs would be 5.5 million.<sup>133</sup>

These holding costs affect the economic viability of a conversion in the following way. Compared to a 'green-field' land development, where a piece of land is bought and it is only necessary to bring money in gradually, as the construction of the buildings proceeds, the initial start up costs of a conversion project are generally higher. The reason for this is that the land and buildings have to be bought up front and at the same time the conversion has to commence. 'Cash-flow' is thus slow, and it takes a while before the buildings generate income. As interest has to be paid, there are much higher holding costs (or costs of holding onto the property before it generates income). In the South African economic context this is an extremely important factor, because of the high real interest rates (being the repayments on the capital that are needed for the purchase of the land and buildings and the conversion costs). Over the past decade, interest rates have fluctuated significantly. Whereas 4 to 5 years ago, these interest rates were around 24%, they are currently around 13-15%.<sup>134</sup>

Finally, the post-construction costs, for example the costs of running and maintaining the buildings after their conversion, are another factor to consider. The post-construction costs for old buildings may be significantly higher than those for new buildings: although renovated, the state of their fabric will never match that of new structures, for the simple reason that their fabric is older and thus, will have sooner problems relating to maintenance.<sup>135</sup>

To determine the impact of the factors discussed above on the economic viability of a conversion and to determine whether viability exists, it is important to conduct a **feasibility study** prior to the start of the conversion. A feasibility study should be carried out as soon as there is a proposition to reuse a specific industrial building, so that problems can be detected at an early stage, thereby reducing costs.

The advantage of having conducted a feasibility study in advance is that this reduces the chances of unexpected costs during the course of the actual conversion works. Nevertheless, it is not possible to predict every problem. Preparatory estimations and cost planning are considered to be the main difficulties in converting buildings, as it is difficult to foresee the extent of the various necessary adaptations to the fabric of the building. As has been pointed out by Alfred Fischer, "because of imponderable factors such as these, cost planning is only possible to a degree of accuracy of +/- 25 per cent."<sup>136</sup> Particularly during conversion works, it can be discovered that the structural condition of the building is not as good as initially thought. This will result in additional costs, as well as interruptions and delays.

## Conclusion

As can be seen from the above discussion, much still needs to be done in South Africa – and Cape Town in particular – to encourage the reuse of industrial buildings. Funding and developing problems are currently in the way, as well as the “lack of a definite concept, lack of experience in redevelopment schemes, uncertainty in financial questions, difficulties in the realms of urban planning and conservation, and a whole range of other obstacles.”<sup>137</sup>

It is vitally important for the overall feasibility of the conversion project, that obstacles are identified prior to the start of the conversion works. Conducting a feasibility study, analysing the building carefully and increasing confidence in the viability of the proposed conversion are therefore essential.

The theory presented in the previous two chapters on conservation and on feasibility will now be used to analyse three industrial buildings in Cape Town. These case studies will form the subject matter of part B of this dissertation.

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  70. *Ibid*, p. 18.
  71. Personal communication with Adriaan Linters, April 1998.
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  75. Van Rongen, C., *Hergebruik van gebouwen*, p. 16.
  76. These examples of funding are derived from a number of case studies executed by URBED, found in: URBED (Urban and Economic Development), *Reusing redundant buildings. Case studies of good practice in urban regeneration*, p. 16, Table 5.
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# PART B: CASE STUDIES

University of Cape Town

# CHAPTER B1: INTRODUCTION

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Part B of the dissertation consists of case studies. The aim of this is to apply the theory discussed in part A to the current situation in Cape Town. Three reused industrial sites in Cape Town have been chosen for this purpose with each illustrating a different approach to adaptive reuse. This will indicate the possibilities for the reuse of industrial buildings, specifically in Cape Town. The three case studies will be examined on the quality of their reuse approaches, on a conservation level as well as a feasibility level. The relevant issues of the theoretical part of this dissertation will be used as a framework. Finally, a comparison of the respective reuse approaches will allow conclusions to be drawn on issues ranging from the impact of the location and conservation and design attitudes towards these buildings to the economical viability of their conversions and new functional opportunities offered by their typical structural and building forms and spaces.

The chosen case studies are the old Castle Brewery in Woodstock, the old tobacco factory in the Gardens, currently called Longkloof Studios, and the site of the South African Breweries in Newlands, where the original brewery has been reused as a visitors' centre. The selection was made on the basis of the following four criteria, which have been derived from the theoretical part of this dissertation: location, design approach, project-economics and function.

The three case studies illustrate the impact of location on the redevelopment of an industrial site with regard to its surroundings. As will be seen, the sites discussed in the three case studies varied in their proximity to the city centre. There were also variations in their design approaches, ranging from design changes with a low impact on the existing building, to new designs with a high degree of interference. These chosen design approaches in turn influenced the conservation quality and the economic feasibility of the conversion. Also, the available budgets for each of the three case studies differed, which again influenced the success of the conversion. Finally, the case studies were also chosen for their differences in original and new functions. The match between the old structure, as intended for the original function, and the new use also influenced the success of the conversion.

Table 4 summarises the variables on the basis of which the case study choices were made:

CRITERIA	CASE STUDY 1 – CASTLE BREWERY	CASE STUDY 2 – LONGKLOOF STUDIOS	CASE STUDY 3 – SOUTH AFRICAN BREWERIES
LOCATION	In suburb close to city centre (Woodstock)	In city centre (Gardens)	In suburb further from city centre (Newlands)
DESIGN APPROACH	Low impact design approach	Medium impact design approach	High impact design approach
PROJECT-ECONOMICS	Low cost	Medium cost	High cost
FUNCTION	From brewery to art and advertising businesses	From tobacco factory to media centre	From brewery to visitors' centre

Table 4: The criteria on the basis of which the case studies were chosen

Material was obtained from the following sources:

- o interviews with the professionals involved in the conversion process (the architect, the developer, and the person responsible for the feasibility studies)
- o interviews with tenants (with the exception of Case Study 3, as no tenants were involved)
- o old documents and photographs (City Council and Cape Archives)
- o plans and files (architects), and finally,
- o personal in situ observations

Interviews were based on open-ended questions, intended to clarify the entire conversion story, identifying both its problems and successes. Table 5 provides a list of the types of questions that were used during the interviews:

Location Questions	Were the surroundings of the site affected by the conversion, and if so, how?
	Was the location of the building in any way an opportunity or a constraint for the success or failure of the reuse, and why?
	How did the zoning regulations influence the success or failure of the conversion?
	Were changes necessary to improve the access of the site and its buildings, and if so, what were they?
Quality Questions	Which design approach was followed and which factors influenced its choice?
	How was the building brought into a workable condition?
	Who redesigned the spaces (the architectural firm or the tenants), and how was this accomplished?
	Were any new additions necessary?
	Which alterations impacted most on the fabric of the building?
Project-Economic Questions	Who provided the finances for the conversion?
	Which costs were involved in the reuse?
	How was the economic viability of the conversion accomplished?
	Was a feasibility study prepared in advance?
	How was the level of co-operation with the local authorities?
Function Questions	Which factors impacted on the costs of the conversion?
	Were there any structural problems that had to be addressed?
	What was the condition of the building before the reuse?
	How did the types of available space influence the reuse possibilities?

Table 5: Types of questions asked during interviews conducted for the three case studies

Each case study examines the quality of the adopted reuse approach. Each starts by identifying the constraints of obtaining the necessary material for conducting the case studies, and thereafter consists of four parts.

- The first part will furnish some background to the project, presenting general information and the history of the site;
- In the second part, the success of the case study in economic terms will be analysed. Issues such as the following will thus be dealt with: the adopted funding and development model, the suitable tenant profile, the impact of the location on the success of the development, the amount of work required and the cost implications thereof, and the cost of the conversion;

- In the third part, the conversion's success in conservation terms will be established. In order to provide the necessary framework and background for the analysis of the success or failure of the project in conservation terms, this part will cover the following topics: it will describe and analyse the buildings on the site in the light of their the cultural significance; it will discuss the quality of the conservation in architectural and in urban terms; and finally, it will examine which factors influenced the ultimate success or failure of the conversion project in conservation terms;
- The fourth part will summarise the basic features of the case study, as a basis for comparing the reuse approaches of the three case studies, which will form the subject matter of the conclusions of this dissertation (part C).

Each case study will contain a few particularly appropriate and illustrative figures, which have been inserted in the text itself. These 'primary' figures will be numbered just as all the other figures in this study, namely, in the order of which they appear in the entire text. For example, the first figure appearing in the first case study will be referred to as 'Fig. 9'.

Reference will also be made to the appendices in Volume II of this dissertation, containing a large number of additional figures. These secondary figures, mainly maps and photographs, will be arranged in the order in which they are mentioned in the text. In this way, the text of the case studies in Volume I and the relevant figures in Volume II can be easily read through together. The code of these figures included in the appendix starts with the relevant appendix code and is followed by the number of the particular figure. For example, for the first case study, Chapter B2, the relevant appendix is also coded B2, and the first figure appearing in the text of Chapter B2 is coded 'Fig. B2/1'.

The pictures inserted in all three case studies and in the appendices have all, unless otherwise stated, been taken by the author during several site visits (from 1998 till 2000).

# CHAPTER B2: CASE STUDY 1 – CASTLE BREWERY, WOODSTOCK

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## B2.1 INTRODUCTION

The first case study, the conversion of the old Castle Brewery, was the most economical and the design approach employed had the lowest impact of all of the case studies. The Castle Brewery buildings are presently being reused by art and advertisement businesses.

The material for the case study was gained through interview, archival research and on site inspection. Extended interviews were held with the architect and thirty-five of the forty tenants. Unfortunately, it was not possible to interview the owner and developer of the conversion, as he is currently living overseas. According to the architect,<sup>1</sup> only the owner is in possession of the feasibility study, and there is thus a lack of information on the issue of the cost of the conversion.

The material found in the Cape Archives consisted mainly of old photographs and location plans. The architect provided a file with his own research, containing old photographs and some general historical background. There were no original plans of the brewery available in the Cape Archives and the City Council, and the architect confirmed that he too had not managed to find them.<sup>2</sup> The architect furnished the plans of his own measurements and designs, as well as an updated version of the current situation.

This case study is structured as follows: first, the history and background to the project will be discussed; second, the economic feasibility of the conversion will be examined; and third, its success in conservation terms will be evaluated. This will lead to conclusions on the key features of the case study, which will eventually be compared with the other two case studies, with the ultimate aim of drawing conclusions on the opportunities and constraints of reusing industrial buildings in Cape Town. Key figures will be inserted in the text. The text will also refer to other figures, contained in Appendix B2 (Volume II). The code of the figures included in the appendix starts with B2 and is followed by the number of the figures.

## B2.2 THE BACKGROUND TO THE PROJECT

### The history of the site

The site of the old Castle Brewery is in the Southern Suburbs of Cape Town in Woodstock, in an area close to the city centre. Until the first railway line in South Africa was built here in 1859, Woodstock was purely a seaside resort. Thereafter, the area developed rapidly and became more industrialised and densely populated.<sup>1</sup> Subsequent development consisted mainly of working class housing. Fig. 9 shows where the Castle Brewery site is located in Woodstock.



Fig. 9: Development of Cape Town and Woodstock in 1901, indicating the future location of the Castle Brewery site (Source: Cape Archives, M2/341)

From 1950 onwards, some plots were consolidated to accommodate larger scale developments, including blocks of flats and commercial and light industrial buildings (see Fig. B2/1). Much of this new development was in fact out of scale and thus stood in stark contrast to the previous residential development.

Today, the character of Woodstock is determined by the working class housing of which it is still predominantly comprised. It consists of only a few standard building types, resulting in a sense of continuity and unity in the environment.<sup>4</sup>

Around the turn of the twentieth century, the South African Breweries wished to contest the then prevailing monopoly of Chisson's Brewery. Therefore, they decided to build an ale, lager and stout brewery for their Castle beer in Woodstock in 1901 (finished in 1902), which they named 'Castle Brewery'.<sup>5</sup> The name 'Castle' originated from the building where the inventor of that beer had brewed prior to selling his brewery to the South African Breweries; the features of that building resembled a castle.<sup>6</sup> Fig. 10 gives an idea of how the brewery must have looked (or was intended to look) when it was built.



Fig. 10: The Castle Brewery at the time when it had just been built (Source: Cape Times Annual, 1902)

The original designer of the Castle Brewery was H. Steinmann from New York. Steinmann was an architect and engineer who had designed breweries all over the world; this brewery was also the second building designed by an American architect in South Africa.<sup>7</sup> The construction of the brewery took place during the Second Anglo Boer war (1899-1902) and was finalised in 1902. It had to be expanded almost immediately, because of the huge demand for beer from British troops.<sup>8,9</sup>

Originally, the site of the Castle Brewery was located between the railway line and Woodstock beach: "in those days, there was nothing between the Brewery and the beach."<sup>10</sup>

Later, as a result of a land reclamation project, the coastline receded from the site. At present, the industrial site, 'Culemborg', is located on this reclaimed land, and the street name 'Beach Road'<sup>12</sup> is now the only reminder of the fact that the coastline was once very close to Castle Brewery.

Currently, the Castle Brewery is part of lower Woodstock – a rundown area with a mix of residential, commercial and industrial activities. The site is located close to the centre of lower Woodstock, which is concentrated along Albert Road with its small commercial businesses.

The original use of a site is often only half the story, and this is particularly the case for this site; for half of its life it had been used for other functions and several changes of ownership occurred. As the assessment of the success or failure of the conversion – the aim of this case study – can only take place if it is known what exactly has been conserved, there is a need for a proper understanding of the entire history of the building and/or the site. Thus the history of the site will be briefly set out hereunder.

Over the years and due to the many changes of ownership and new uses, several adaptations were made to the buildings. As these adaptations influenced the state of the buildings at the time of the conversion, they are discussed hereunder. However, due to a lack of old plans and photographs, it was not possible to obtain precise information of the adaptations. The only available information came from old photographs, taken by the architect just prior to the conversion.

The building was used as a brewery until 1956,<sup>13</sup> when South African Breweries merged with Onissson's Cape Breweries and moved their entire brewing operation to Newlands. Thereafter, United Metal Exchange bought the site and used it for about ten years; the site was then sold to the refrigeration company 'I&J', who occupied it for about fifteen years and transformed the buildings into cold rooms. This new use required severe adaptations to the buildings. Windows were closed, refrigeration doors inserted and the walls covered with a thick insulation layer of chalk.<sup>14</sup> After that, it was acquired by Dralee Court (Proprietary) Limited and was let out to a number of tenants in the late 1970's, who used it mainly for workshops and storage.<sup>15</sup>

The present owner, the property developer Max Arien of Cityview Industria (Proprietary) Limited, became attached to the buildings, saw their possibilities and thought they should be protected from further deterioration. He asked the property development company 'DCF Properties (Pty) Ltd' to draw up an investment proposal before he bought the site in 1984 with the intention of converting it.<sup>16</sup> Fig. 11 shows how the Castle Brewery looked just before its conversion.

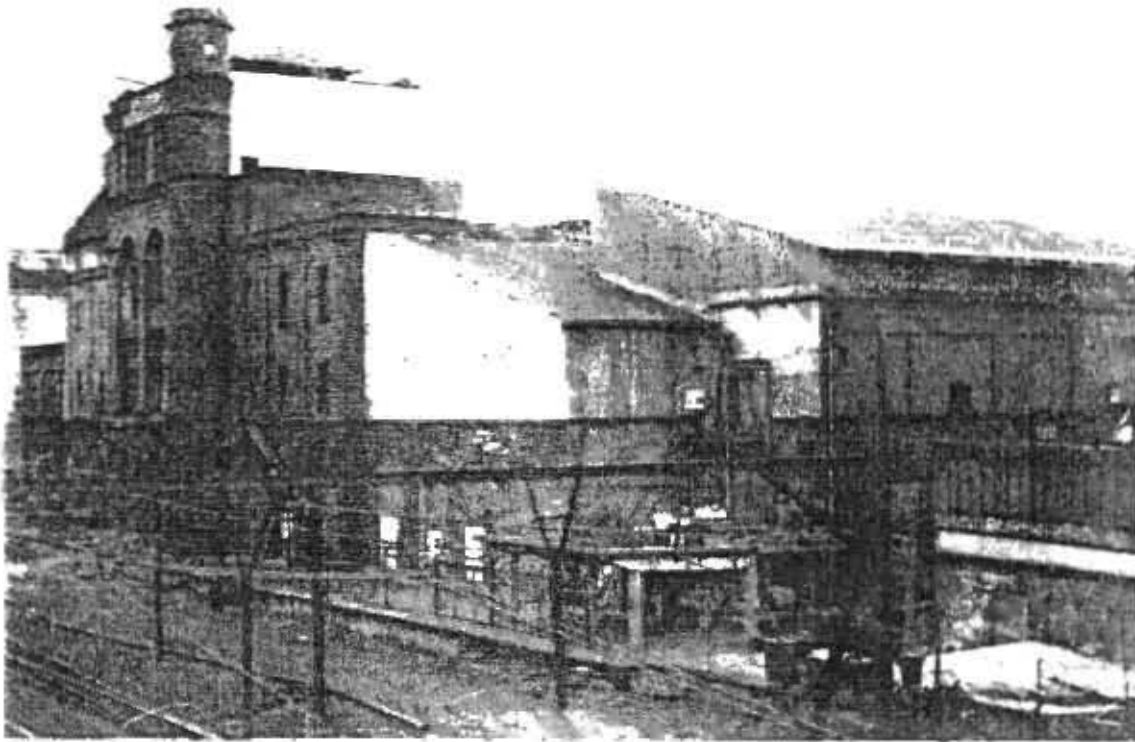


Fig. 11. The Castle Brewery before the 1984 conversion (Source: Willem Otten)

### B2.3 ECONOMIC FEASIBILITY

The following section will examine whether and to what degree the conversion of the Castle Brewery into a hive for businesses was economically feasible. It will also identify and discuss the reasons for the successes and failures of the conversion.

One of the factors impacting on the economic feasibility of the conversion was the overall funding and development model applied. When the current owner Max Arien bought the site, the buildings were in a derelict state. His original intended reuse concept was to rehabilitate them in an economically viable way, using a part of the space for his own hat factory and renting out the remainder to a variety of tenants with small businesses. The idea was to turn the site into a setting for a vibrant creative community. There were, for instance, plans for a restaurant, coffee bar, pub and moving gallery in the complex to attract outsiders. The common area between the buildings was to be landscaped to make it accessible to outsiders. It was also the intention to attract appropriate tenants, who would reinforce a community spirit.<sup>17</sup>

## Factors affecting the economic feasibility of the conversion

To determine the economic feasibility of the conversion of the Castle Brewery, it is important to discuss the following relevant factors: the funding and development model, the suitable tenant profile, the location of the site, and the amount of work required

The following approach was used in an effort to accomplish this: the owner acted as the developer and also funded the project, with his own capital as well as money borrowed from the bank. He contracted Willem Otten as the architect for the conversion process; Otten drafted several feasibility studies and budget schemes on the expected costs of the conversion. Later, the constant updating of the feasibility schemes ensured that both the architect and the owner could keep track of the situation; adaptations are continuing even until this date.<sup>18</sup>

Because of the large sizes of the buildings with their large floor areas, it was decided that the conversion works would happen gradually, depending on tenants moving in. The speed of finding these tenants was particularly important, as the income, which was to be received from their rent, would be used to pay for the next phases. The initial conversion phase lasted about six months, after which the first tenants already moved in. In the end, it took about three years to achieve 100% occupancy.<sup>19</sup>

In general, the conversion project can be called a success. Fig. 12 gives an idea of the transformation the site underwent. Whereas the owner originally had to borrow more money from the bank, the project is now self-sufficient, and borrowing is no longer necessary for the continuation of new work.<sup>20</sup> However, although the project is economically viable at present, the original reuse concept in fact aimed too high in budgetary terms – one of the common problems with reuse proposals for industrial buildings



Fig. 12. The Castle Brewery after the 1984 conversion (situation in 1998)

Currently, the buildings do to some extent reflect the developer's original intentions for turning the site into a setting for a vibrant creative community with appropriate tenants. Most tenants have interrelated businesses and there is contact between the various tenants, but not to the extent that there is actual interaction between their businesses. Furthermore, very few of the original plans to landscape the site were actually carried out, and most of the spaces between the buildings are only used as parking. Nevertheless, there is a pleasant atmosphere on the site, due to tenants and visitors walking in and out of the buildings (see Fig. B2/2). Attraction of outsiders to the site, however, seems to be limited to people who have to be there: delivery people or visitors for tenants. Currently, there are no more plans for a restaurant, coffee bar, pub or moving gallery (see Fig. B2/3).

At present, though, there are other new plans for the site. Whereas the tenure of the buildings was a joint-tenancy for some time, the success of the conversion has made the whole project rather difficult to manage. As a result, the current owner is forming a body corporate for the whole site, and is sectionalising the entire site. The current tenants were asked whether they would be interested in buying their individual spaces, and, at present, about half of the tenants do indeed want to have the sectional title of their premises. The current owner estimates that it will take about one year in total to sell the whole site. The owners can then elect a committee, which will look after the exterior of the building and manage the site, while individual owners will take care of the interior of each of their spaces.<sup>21</sup>

Another factor affecting the economic feasibility of the conversion was the identification of suitable tenants. For this conversion, there were on the whole no problems with occupying the spaces; in fact, tenants already started to move in, while the architect was still busy converting some of the spaces. The first people to move in were in the art or advertising business, which was in line with the intention of the original reuse concept.

There are several reasons why this process of occupation went so smoothly. It appears that people in the advertising business know each other well, and thus through word of mouth advertising more and more tenants were attracted to the site. An article written in Style Magazine (a South African magazine on design and lifestyle) also helped to attract people, and in turn more articles on the site were published.<sup>22</sup> Despite the generally high level of satisfaction, though, there are also some problems. These are mainly those inherent in occupying old buildings. An additional contributing factor were the budgetary constraints. Some tenants complained that it was either too hot or too cold, depending on the orientation of their space. Some also had problems with ventilation, due to the large depth or the lack of doors and windows that could open and the lack of mechanical ventilation.<sup>23</sup>

The high level of occupancy by tenants at the moment can also be regarded as an indication that the conversion is an economic success. The reason can be found in the level of satisfaction among the tenants with regard to their respective spaces. Interviews held<sup>24</sup> with most (present) tenants – thirty-five – indicated that they are generally very happy with their space. Most of them chose the old Castle Brewery as their working space or office, because of the specific nature of the buildings. They appreciated the roughness and easy adaptability of the spaces, since this fitted in perfectly with their type of business (see Figs. B2/4 and B2/5). Some tenants also received their customers there, and these customers were very satisfied with the location of the business in such a converted industrial building. An example of such is the factory that produces hats, as illustrated in Fig. B2/6.<sup>25</sup>

Although tenants are changing regularly, this has more to do with the nature of the new use – small businesses that expand when they become successful. According to the architect,<sup>26</sup> the current tendency is that the site is turning out to be more and more popular with high-tech and media-related businesses. The reason for this is that businesses related to the textile sector, of which there were many in Cape Town, are either moving out or closing down. This tendency is a reflection of the macro-economy of Cape Town as a whole. Since the huge import taxes on textile product have been lowered drastically, the textile industry is in decline in Cape Town. On the other hand, media-related businesses are booming. Thus there was a constancy in tenants being artists.<sup>27</sup>

Another factor affecting the economic feasibility is the location of the site. At first sight, the available transport infrastructure is good: public transport is close, as Woodstock station and the Albert Road bus stop are within five minutes walking distance (see Fig. B2/7). However, because of security problems in the area, almost nobody uses public transport to get to the site, and certainly nobody walks. Therefore, the site is entirely car-orientated and the nearby freeway makes the location ideal for that purpose.<sup>28</sup>

Accessibility to materials is also good, because the site is located in lower Woodstock with its proliferating hardware stores and material shops. This is particularly relevant for the tenants, as it means that all the artists have easy access to the materials that they need, such as timber, metal, paint and plaster.

Negatively impacting on the success of the conversion, however, are the strict boundaries of the site. The site is still enclosed by the railway line on the south side and Lower Church Street, which goes over the railway line in the east; these two barriers make it impossible to link the site with the busy Albert Road. Industrial enterprises are situated on the north and west side of the site. Because of these strict boundaries, the conversion of Castle Brewery did not have a positive impact on the economic upgrading of its rundown environment, and the poor link between the site and lower Woodstock did not improve.

Whereas previously the brewery had been orientated towards the railway line (hence the position of its main façade) a big fence between the site and the railway line is now blocking any contact (since the site no longer needs to use the railway). The site is now only accessible through one entrance. This makes access difficult for people from outside, as well as limiting the integration of the site into the urban structure.<sup>29</sup>

However, for security reasons the option of only having one entrance seems justified: many tenants complained about security problems. Even with the installation of a security control point more recently, these problems have not been entirely solved (see Fig. B2/8).<sup>30</sup> As a consequence, the site has now become a well-controlled hub of activity, although it is cut off from its surroundings.

Another issue related to the location of the site concerns the zoning regulations. In the case of Castle Brewery, the zoning regulations did not cause problems. The site fell under the industrial zoning regulations, which included commercial activities. Since the new use was for businesses (falling under commercial activities), a change in the zoning regulations was not necessary.<sup>31</sup> Although there were vague plans to use the buildings for residential use as well, this did not fall under the industrial zoning regulations, and thus, was not allowed. Also, although mixing uses is now common in Cape Town, a mix of commercial and residential use was not allowed at that time.<sup>32</sup> Such a mixture of uses is often the only way of ensuring an economically viable conversion scheme for industrial buildings; in this case, however, this was not necessary.

Yet another factor that affected the economic feasibility of the conversion was the amount of work required to convert the buildings, as this impacted on the conversion costs.

In this particular case study, the buildings – and in particular the main brewery building – had already been subdivided into a mixture of small and larger spaces. This seemed to be ideal for the intended tenant profile, and it was decided that tenants could choose their space according to their individual requirements. Further subdivision of the interior of the building was hardly necessary (see Fig. B2/9): the buildings merely needed to be restored to a working condition. This was fortunate from an economic point of view, as the conversion ran on a low budget.

Basically, there were three stages of work. First the buildings had to be made compliant with the building regulations. Thereafter, they were rehabilitated. Finally a suitable working area for the targeted tenant groups needed to be created.

In the first stage, as indicated, the buildings had to be made compliant with the current building regulations. In this case, special concessions needed to be obtained. As a result, the plan approval by the City Council took a long time: approximately one year.<sup>33</sup> Nevertheless, despite this delay, the conversion works had already been set in motion prior to approval. A delay would have been too costly, as the bond had to be serviced.<sup>34</sup>

The regulations regarding ventilation and natural light required some concessions, but it was the regulations related to fire protection that needed most attention.<sup>35</sup> On the whole though, there were no serious problems, partly because the fire brigade in Cape Town tends to be flexible towards old buildings and agreed to make certain concessions with regard to the Castle Brewery.<sup>36</sup> Also, the necessary alterations were ultimately useful for the overall conversion of the buildings, and thus, these regulations did not seriously influence the conversion cost. Thus the 'extra' costs incurred would have been necessary in any event.<sup>37</sup> For example, additional concrete stairs were built as fire escapes, but at the same time they were necessary to connect the spaces of the various tenants with each other (see Fig. B2/10).

However, the low budget did not have the upper hand in decision making in every case: it was decided to treat the steel structure with an expensive fire-retarding paint. It was thought from a design approach point of view appropriate to leave the steel structure visible, as this would enhance the industrial look of the building (see Fig. B2/11).<sup>38</sup>

In the second stage, the buildings that had deteriorated over the years had to be rehabilitated. Again, the costs to repair or improve the structure did not run very high. At the start of the conversion project, the structure was basically sound, except for some potential stability problems with the walls and the steel structure. These problems were mainly caused by the former use of the buildings as cold rooms: for example, the walls had major cracks and the steel structure was badly rusted.<sup>39</sup>

Major adaptations were necessary to bring the building in line with current infrastructure requirements: for example, the building had to be completely rewired. To limit the costs, it was decided to insert very little mechanical ventilation, and to use natural ventilation instead.<sup>40</sup>

Finally, in the third stage, a certain amount of work was necessary to create a suitable working area for the envisaged tenant groups. This gave rise to several adaptations, of which the main ones are now discussed.

One adaptation involved the improvement of the security on the site. An entrance area was accordingly designed to control vehicle access, and visitors and tenants have to check in with the security guard. Another adaptation involved the change in the circulation pattern within the buildings, which resulted from converting the building's single use space (as a brewery) to a mixed-use environment (a business hive). New stairs had to be added to the brewery building so that the tenants could have access to all the spaces without having to pass through other tenants' spaces.<sup>41</sup>

Another adaptation was the increase of the amount of open space on the site, with the aim of providing more parking space and more freedom of movement for delivery vehicles. At first, this seemed quite difficult to accomplish, as the site has strict boundaries – such as Church Street, the railway line and its own property lines.<sup>42</sup> The only available option seemed to be the demolition of some valueless constructions on the site. However, SPOORNET, the South African Railway Company, had taken over a part of the property of the brewery to extend their original railway line, without the knowledge of the owners of the property,<sup>43</sup> and in July 1984 had erected a fence inside the boundary lines of the site.<sup>44</sup> When the architect discovered this encroachment, he was able to obtain an exchange of the property between Lower Church Street and the brewery site and an adjoining plot.

Another adaptation was the increase in the floor area, with the aim of increasing the lettable area, so that more income could be generated. This was done by inserting mezzanine floors for individual tenants.<sup>45</sup> A further space was created by means of excavating an extra space beneath the brewery building, where there happened to be an unused space of about one meter of height (which had formerly been used as cold storage). Also, as the foundations were deep under the ground, it was possible to dig out an even larger space (see Fig. B2/12).<sup>46</sup>

Basically, the limited amount of work required to convert the buildings can be ascribed to the good match between the fabric of the brewery and the intended function. The flexibility of the fabric made this possible. The mix of different building types (see Fig. B2/13), the variety of shallow and deep spaces, the excess of capacity, and the open-plan structure of the building all contributed to this.

### **The cost of the conversion**

In general, the factors discussed above had a positive effect on the feasibility of the conversion and contributed to its success in economic terms. In order to verify this properly, though, it would have been desirable to obtain exact figures of the costs involved. This was not possible, however, as the owner currently lives overseas and is the only one who is in possession of the feasibility studies. Nevertheless, the architect and a study done by DCF Properties (Pty) Ltd (instructed by Cityview Industrial CC) did provide some material in this regard.<sup>47</sup>

According to the architect's recollection, the feasibility study made at the time of the conversion indicated that the whole conversion would cost about half as much as the cost of erecting a new building with the same use on the same site. Moreover, a new building would not have had the same quality or attractiveness to the targeted tenants: these tenants indicated that they partly chose the building because of its industrial look.<sup>48</sup> Further, according to the architect,<sup>49</sup> the property value has increased greatly, partly because of the success of the site in terms of occupancy. However, it was not possible to verify these claims with exact figures.

An important factor in making the conversion economically viable was the cheap initial cost of buying the property: not only was the land value of the site fairly low, but the property was in such a rundown state that the cost did not exceed the land value by much. When the current owner bought the site, the asking price was R650 000.<sup>50</sup> Compared to the land value in Woodstock at the time of the making of the study, this meant that the actual rate per m<sup>2</sup> would be far below the rate per m<sup>2</sup> at the time of the conversion.<sup>51</sup> According to the architect, since then the property value has increased greatly over the years.<sup>52</sup>

## **B2.4 THE SUCCESS OF THE PROJECT IN CONSERVATION TERMS**

The following section will deal with the success of the conversion of the Castle Brewery in conservation terms. It will identify and discuss the elements influencing the success or failure of the conversion, as well as the consequences of such success or failure.

The economic feasibility of a conversion can be calculated fairly accurately. It is difficult, however, to determine as precisely whether or not a conversion is successful in conservation terms. The reason for this is that criteria must be used that are not measurable in figures, but are instead based on such intangible qualities as expertise, judgement and common sense. In order to provide the necessary framework and background for the analysis of the success or failure of the project in conservation terms, this section will do the following. It will describe and analyse the buildings on the site in the light of their cultural significance; it will discuss the quality of the conservation in architectural and in urban terms; and finally, it will examine which factors influenced the ultimate success or failure of the conversion project in conservation terms.

### **The cultural significance of the site and its buildings**

In order to evaluate the success or failure of the conversion of the Castle Brewery in conservation terms, it is important first to establish what its specific cultural qualities were prior to the conversion. The site contains a wide range of buildings, which are important in conservation terms to varying degrees. Not only may the entire building have cultural significance, but there may also be elements of significance within the buildings, and different phases in occupancy of the buildings may have different significance too.

South Africa's conservation body (at that time still called the National Monuments Council) inspected the site prior to the start of the conversion works to evaluate its conservation worthiness. They concluded that it was not worth protecting, as the original brewery had endured too many alterations over time to warrant protection or conservation.<sup>53</sup>

The cultural values of the Castle Brewery site and its buildings will now be discussed (Fig. 13 presents a site plan with the different buildings). The author does not intend to be exhaustive in this regard: the purpose of this discussion is merely to indicate that cultural values should not be limited to aesthetic considerations. Essentially, there appear to be two main categories. The first is the urbanistic significance of the site, or in other words the significance of the site in relation to its surroundings. The second category comprises the intrinsic values of the buildings.

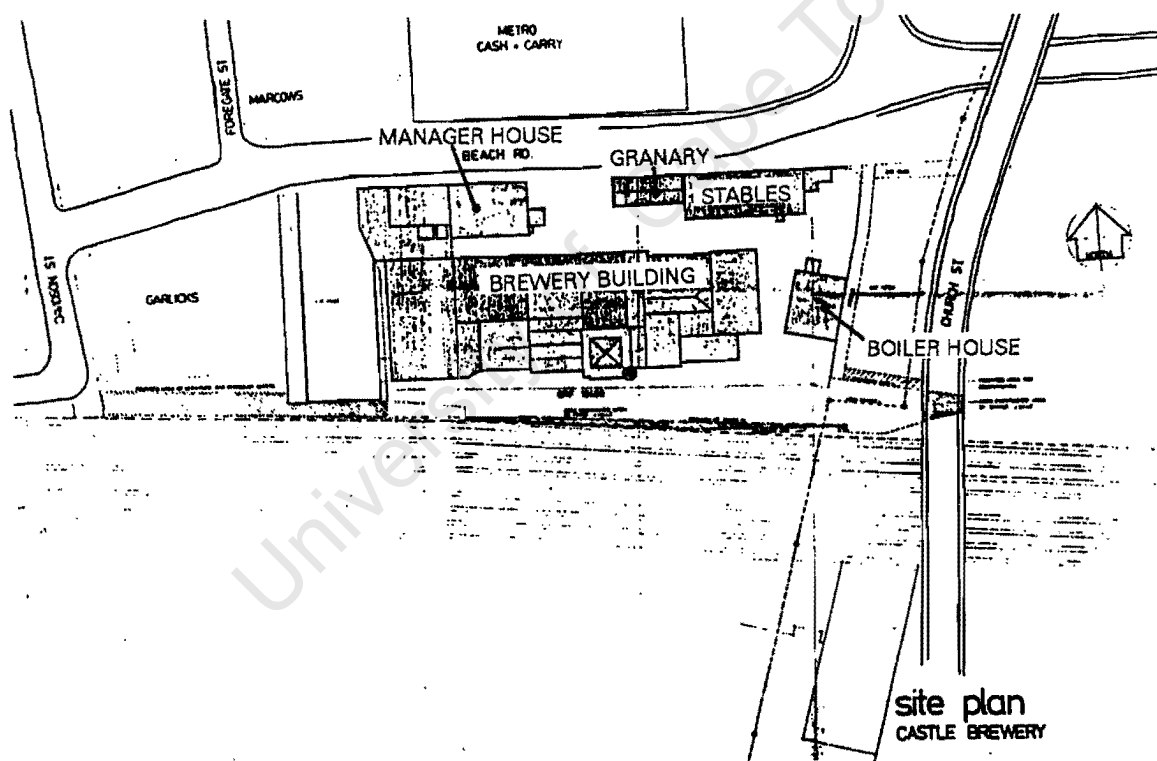


Fig. 13: Site plan of the Castle Brewery (Source: Willem Otten)

The **urbanistic significance** of the site lies in the fact that it is part of Woodstock. Woodstock is a rare example of a suburb with an unusual mix of uses, because South Africa is a country where strict zoning is still a central issue in city planning. However, this may change in the near future). Both the original and the later uses of the site were related to industrial activities, which were integrated into the predominantly commercial activities and housing that make up this suburb. In social and cultural terms, Woodstock is an atypical neighbourhood in South Africa,<sup>54</sup> as it combines "one of the oldest working class residential areas in Cape Town"<sup>55</sup> with other activities.

The site also has **historical value**, as the South African Breweries originally owned it. As one of the most successful and largest ventures in Southern Africa,<sup>56</sup> the SA Breweries form an important part of South Africa's history and development.<sup>57</sup> The Castle Brewery also played a prominent role in the merging of the South African Breweries and Ohlsson's Breweries in the early 1950's.

The intrinsic qualities of the buildings on the site consist mainly of architectural, as well as of scientific and technical values. The main building on this site is the brewery building, by virtue of its appearance, scale and original use. It certainly has **architectural value**, as there are not many buildings of American design from the period of the Castle Brewery in South Africa.<sup>58</sup> The brewery building itself seems to be a unique blend of the proto-modern American architecture of Furness<sup>59</sup> and of Cape Victorian industrial architecture.

Briefly put, the architect of the brewery building (H. Steinmann from New York) may have been influenced by an important American architect of his time, Frank Furness.<sup>60</sup> The extremely good and detailed red brickwork in this same façade (see Fig. B2/14) resembles the red brick buildings by Furness, for example his buildings in Philadelphia in the United States.<sup>61</sup>

Furthermore, the brewery is an example of Cape Victorian industrial architecture, as seen in the use of material (such as the red brick and cast iron, of which the detailing of the window frames is made). Its spirit is an example of Victorian romance and the buildings are a Victorian-style fantasy, because the exterior is designed in the form of a castle (see Fig. B2/15).<sup>62</sup>

The brewery building also has **technical value**, which is embodied in its structure. The specific type of construction was unusual for that time. Therefore, the building has rarity value: many of its features, such as the steel frames, the building material and the complete brewing equipment were imported from the United States.<sup>63</sup> In order to ship it from the United States, it had to be entirely prefabricated, which was fairly unusual for that time. This resulted in a structure that is based on a prefabricated concrete and cast iron I-beam system. The floors are made of cast iron I-beams with concrete vaults between the beams and a tension bar resisting the outward thrust of the vaults. Fig. 14 shows an example of this system.

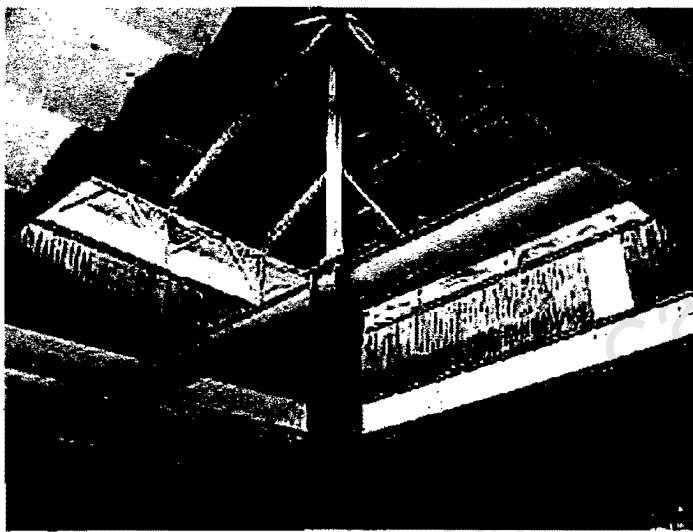


Fig. 14: The prefabricated system of the brewery building (top floor)

In addition, there are several other buildings on the site, of less architectural importance than the brewery building, namely:

- The stables (Fig. B2/16). They indicate that in addition to the train, horses and carriages must have been used to deliver beer.<sup>64</sup>
- The granary, where the grain for the beer was stored.<sup>65</sup>
- The boiler house, where the coals were burnt to provide steam for powering the brewery.<sup>66</sup>
- A house presumably used by the site manager, as the brewery was operating 24 hours a day.<sup>67</sup>

As complete industrial sites from that period are rare in South Africa, these buildings are worth conserving and should be considered as forming an integral part of the site. They were also converted in 1984. This variety of building types, with their typical construction and spaces contribute to the pleasant atmosphere that currently exists on the site. The above clearly indicates that, contrary to the conclusions of the South African conservation body, the site and its buildings were worth conserving. The National Monuments Council had concluded that the buildings had endured too many changes over time to be considered worthy of protection. This indicates that they were at that time not sensitive to the entire history of the building – including both the history of its original use and its later uses – and that they made decisions on the conservation worthiness of their heritage resources without a proper understanding of their values. Regretfully no proper assessment of the site's cultural significance was made, which could have been used as a basis for the conservation of the site.

### **The quality of the conservation of the project in architectural and urban terms**

The following discussion will evaluate how the conservation of the site was accomplished (without a proper assessment of its cultural significance). It will also verify whether a qualitative approach was adopted – with respect for the cultural values of the site – both in architectural as well as in urban terms.

To determine the **architectural quality** of the conversion, the design approach must be analysed. However, the economic considerations greatly influenced the choice of approach. Conservation criteria were also taken into account: in other words, the approach was not purely economic. Care was taken with the integration of new elements, hence the low impact of the design approach on the existing structure.

In this case, for economic reasons, a conservation process other than reuse would not have worked: an economically viable alternative use was necessary if the buildings were to be kept at all, and on a low budget, the practical options were limited.<sup>68</sup> Given the very specific spaces originally required for the brewery, the necessary changes in use required minor modification of the building; and in any case, given the budget available, full restoration was clearly impossible on economic grounds, even if it had been functionally possible. The only feasible conservation strategy was adaptive reuse.

The existing spaces were thus repaired and adapted to suit the chosen uses. In fact, the building has proved to be flexible enough to permit ongoing adaptation to fit in with the needs of new users. These adaptations have been limited and have easily been accommodated by the building. Further, the new tenants tend to choose the space that best meets their needs. As a result, there is a harmonious interaction between user needs and space, and between function and form.

The design approach is one of continuity, rather than contrast. The architect and the owner both believed that a modest design approach was the best option, both from an economic as well as from an architectural viewpoint. Therefore, physical intervention was minimal and the fabric was kept as much as possible as it was before the conversion.

Prior to actual adaptation of the buildings, though, these first had to be repaired and cleaned, as they were in a poor state (see Figs. B2/17 and B2/18).<sup>69</sup> Old beer advertisements depicting the original state of the buildings, found in the Cape Archives by the conversion architect, were used as a guide to refurbishing the building, although the ultimate decision of which later additions and alterations should be retained depended upon matters of practicality and economic feasibility. There was no intention to restore part of the fabric to its original appearance. For example, when the posts of some of the windows, previously in cast iron, had to be replaced, it was decided to fit new posts constructed of wood and painted in the same colour as the others. This was done to fit in with the rest of the windows, as there was no money to make a replica of the styles (see Figs. B2/19 and B2/20).<sup>70</sup>

Afterwards, alterations were made in order to accommodate the new functions, and with a certain level of respect towards the existing form. Continuity with the industrial look of the buildings was thereby safeguarded, and this effectively maintained the integrity of the buildings. To achieve the industrial look (and as it was also the cheapest way), often all that was needed was to expose or to leave visible what was already present.<sup>71</sup> For the newly inserted elements scrap material was used, or even reused material that had originally been part of the buildings. For example, old bricks from demolished walls were used to build new walls. Where it was not possible to use scrap material, new material at low cost and with an industrial look was used. For example, the cement render-finished floors were chosen not only because they were cheap, but also because they fitted in with the industrial look of the buildings. To highlight this look, the new infrastructure was also left exposed. This also happened to be the cheapest option, as breaking through such thick walls would have been expensive.<sup>72</sup>

The design approach succeeded in highlighting the entire history of the site by revealing the work that had been done during previous periods, at the same time without giving preference to any particular period. For example, when the chalk, which had provided the insulation for the cold rooms, was chopped away, it was discovered that the brick walls underneath had many layers of paint and plaster. In some spaces these layers were chopped off as much as possible, in order to expose the original brick,<sup>21</sup> but in other spaces these layers are still visible and are reminders of the history of the buildings (see Fig. B2/21).

However, it must be said that the decision to reveal the various periods in history was made on a very pragmatic basis: some additions were removed, while others were kept (see Fig. B2/22). Where elements were missing, they were replaced or left as is, depending on the urgency and the available budget. As seen on Fig. 15 and Fig. 16, the windows that were bricked in from the time that the spaces were used as cold rooms were reopened for the simple reason that it was necessary to have daylight in certain spaces.<sup>22</sup> Also, it was decided to keep some of the fridge doors from those times, as they were still useful to close off spaces (see Fig. B2/23).



Fig. 15: View towards bricked-in windows in one of the façades of brewery building, before the 1984 conversion (Source: Willem Otten)

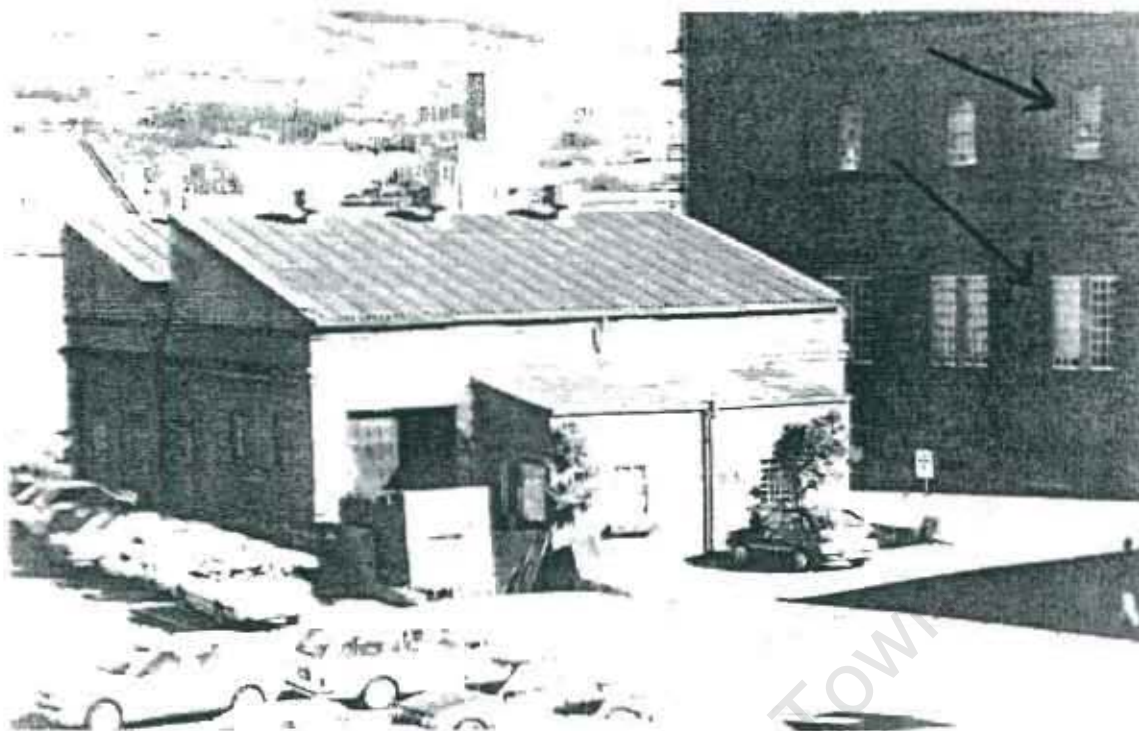


Fig 16: Same view after the 1984 conversion, showing new windows

This respect for the entire history of the place implies that the cultural significance – in this case the historical value of the place – was retained in some places – although not always with the explicit intention to do so. There are other examples where the cultural significance was unconsciously retained. The cast iron staircase in the turret, for example, was kept only to reach the upper level of the brewery building. Some scientifically significant elements, reminders of the building's original use as a brewery, were kept too. Although all the machinery had disappeared at the time of the conversion, there are still some reminders of the building's former use. For example, the manner in which the beams work in some spaces indicates that there must have been a big beer tank standing on top of them. Also, some spaces are double-storey high, which again points to the former presence of tanks.<sup>75</sup>

In short, the new elements inserted to accommodate the new use were chosen in such a way that they did not impose themselves on the original architecture, but actually emphasised the existing architecture. They can be easily removed, so in the future, the space can be adapted without problems for another new use. The new elements have also been designed from as little material as possible and their measurements are minimal, so the new elements do not impose themselves on the space. An example are the removable screens (made out of a thin steel frame), which were designed to subdivide the spaces (see Fig. B2/24). Their design has been repeated for new elements throughout the brewery building (see Fig. B2/25).<sup>76</sup>

It can be concluded that the design approach undertaken for the conversion of the old Castle Brewery can best be classified under the approach of 'celebration'.<sup>77</sup> The architect respected the 'genius loci' of the site and adapted the new functions to the existing structures in keeping with the old. The form of the spaces was a source of inspiration, since the tenants chose the space specifically because it matched their needs, and the spaces were highlighted with the use of small adaptations.

### Urban quality

The conversion did not, however, contribute positively to the urban quality. There were no new initiatives to upgrade the surrounding buildings, although the entire look of the setting was improved to some extent: an industrial building next to the site was rehabilitated (as can be seen on Fig. 17 and Fig. 18). Also, the success of the conversion did influence reuse initiatives further along the Main Road: people that intended to reuse the redundant biscuit factory building, Pyott's, located along Albert Road in Woodstock, as a similar business hive came to see how things had been done in the old Castle Brewery. The old biscuit factory was subsequently converted and is known today as Bromwell Mews.<sup>78</sup>



Fig. 17 View of entire site from Beach Road (before the 1934 conversion) (Source: Willem Otten)



Fig. 18: View of entire site from Beach Road (after the 1984 conversion), showing improved situation and rehabilitated building (right)

### Factors that impacted on the quality of the conversion in conservation terms

Although the conversion cannot be called a success in urbanistic terms, it is one in architectural terms. This was accomplished by a number of factors, such as the match between the fabric of the buildings and the new use, and conservation restrictions

One factor that affected the success of the conversion in conservation terms was the **good match between form and function**, which resulted in a minimum of adaptations. To establish whether the old form and new function were well matched in this case, the material from the theoretical part of the dissertation was used as a basis for an analysis

For the purposes of this case study, only the main brewery building – the focus of the site – was examined in this way. The compatibility of the brewery building with its new use for small art and advertising businesses can be verified through the analysis of its constructive, functional and user structure, as discussed hereunder.

With regard to the constructive structure of the brewery building, the construction type of a concrete and cast iron I-beam system with concrete vaults and brick walls posed no difficulties with accommodating businesses, and there were hardly any fabric problems related to the construction type. Although the building had been quite neglected prior to the conversion, the structure of the building was in a good condition; moreover, the new use did not demand an increase of the load-bearing capacity, and there were no stability or strength problems.

With regard to the functional structure of the brewery building, this could also easily accommodate the new use. As the brewery building consisted of a spatial type of a mixture of small and large spaces, this made it easy for tenants to choose a space that suited the purpose and size of their business, and the building did not need heavy subdivisions or other alterations to the fabric.

With regard to the user structure of the brewery building, the existing circulation system needed modification, as the building was to be used for several businesses instead of one as originally, and the different spaces needed to be reachable separately. However, the spare capacity of the building made this easy to accommodate. For example, the existing corridors were over-dimensioned.

In conclusion, the above illustrated that there was a good match between form and function in this case study. As a result, the conservation implications were minor. The buildings did not need to be extensively adapted and were mainly kept in their original state.

Another factor affecting the success of the conversion in terms of conservation was **the implementation of conservation restrictions**, as these can be used to protect the cultural significance of a building when too much emphasis is placed on economic considerations.

In this case, the regulations ensured that the developer kept control over the conservation of the buildings. These regulations are also contained in the general conditions of the lease contract and provide protection for the buildings with regard to alterations made by tenants. They consist of the following:

- o Tenants are not allowed to make any alterations or additions to their spaces or the buildings without the consent of the landlord.
- o The tenants can install fixtures and fittings, but only at their own cost.
- o The tenants cannot exceed the loading capacity of the floor.<sup>29</sup>

As is often the case in conversions of culturally significant buildings, the above indicates the following. The (subjective) judgement of the developer (and in practice for this case study, the conversion architect) will in the end decide whether certain alterations will be allowed. Consequently, this judgement will also decide whether the cultural significance of the building or the site will be retained and protected.

However, this will change in the near future. Because the whole site will be subdivided and all parts sold off to individual tenants as sectional title units, tenants will be allowed to make alterations to their own section. Then again, these will most likely not result in major changes to the buildings, since all joint owners have to agree to the proposed exterior alterations of each individual owner to his or her section.<sup>80</sup>

## B2.5 SUMMARY OF THE KEY FEATURES OF THE CASE STUDY

Table 6 summarises the basic features of this case study with the aim of comparing it with the other two case studies at a later stage in the concluding chapter.

<b>General</b>	Case study	Old Castle Brewery
	Original use	Brewery
	New use	Art and advertisement businesses
	Building year	1901
	Start date conversion	1984
	Structure	Prefabricated concrete and cast iron I beam system, concrete vaults, brick walls
	Site surface	Approximately 8 596 m <sup>2</sup>
	Total floor area	7 902 m <sup>2</sup>
	Zoning	Commercial
<b>Location</b>	Services	All necessary services were available and did not require upgrading
	Suburb	Woodstock
	Level of upgrading environment	Low
<b>Project-Economics</b>	Professionals	Private developer, architect, valuer, manager
	Approach	Entrepreneurial approach
	Funding	Private investment combined with bank loan
	Cost	Low
	Tenure	Joint tenancy

Function	Type of space	Open plan and cellular, combination of small and large spaces
	Site type	Courtyard site
	Depth	Medium
	Frontage	Wide
	Aspect	Detached
	Match between form and function	Good
Conservation	Conservation processes	Preservation, alterations, adaptations
	Design approach	Continuity, celebration, palimpsest, new elements do not impose but highlight

Table 6: Key features of Case Study 1 – Castle Brewery

1. Personal communication with architect Willem Otten, 25/01/2000.
2. *Ibid.*, 18/06/1999.
3. Document "History and development", found in documentation map of architect Willem Otten, nd., also in: Sandilands, M., "Castle Brewery", paper for the University of Cape Town as part of the Bachelor of Architecture degree (presumably 1983).
4. *Ibid.*, p. 3.
5. South African Breweries. *One hundred years of brewing*, nd., p. 673, in: Sandilands, M., "Castle Brewery", paper for the University of Cape Town as part of the Bachelor of Architecture degree (presumably 1983).
6. South African Breweries. *1895-1970 - Keeping pace. The story of the first 75 years of the S.A Breweries group*, nd., p. 5.
7. South African Breweries. *One hundred years of brewing*, p. 673.
8. It is not known whether Steinmann was responsible for any other buildings in South Africa. It is likely that he never came out to South Africa to inspect the site before the construction process started. However, he did come to supervise the erection of the building. Personal communication with architect Willem Otten, 18/06/1999.
9. South African Breweries. *One hundred years of brewing*, p. 673.
10. Personal communication with architect Willem Otten, 18/06/1999.
11. Sandilands, M., "Castle Brewery".
12. Castle Brewery is located along Beach Road in Woodstock.
13. Information display in the South African Breweries' visitors' centre, Newlands.
14. Personal communication with architect Willem Otten, 18/06/1999.
15. DCF Properties, "Investment proposal City View Industrial complex" (Woodstock, January 1984), found in documentation map of architect Willem Otten.
16. Personal communication with architect Willem Otten, 18/06/1999.
17. *Ibid.*, 18/06/1999.
18. *Ibid.*, 18/06/1999.
19. *Ibid.*, 18/06/1999.
20. *Ibid.*, 18/06/1999.
21. *Ibid.*, 25/01/2000.
22. *Ibid.*, 18/06/1999.
23. *Ibid.*, 25/01/2000.
24. These short interviews were held at several times when the author was visiting the site. The tenants were asked what the positive and negative points were of using a space in the old buildings.

25. Personal communication with tenants. 30/06/1999.
26. Personal communication with architect Willem Otten. 25/01/2000.
27. *Ibid.* 25/01/2000.
28. *Ibid.* 25/01/2000.
29. *Ibid.* 18/06/1999.
30. Personal communication with tenants. 30/06/1999.
31. Personal communication with architect Willem Otten. 18/06/1999.
32. *Ibid.* 18/06/1999.
33. *Ibid.* 17/10/2000.
34. *Ibid.* 18/06/1999.
35. *Ibid.* 17/10/2000.
36. *Ibid.* 25/01/2000.
37. *Ibid.* 25/01/2000.
38. *Ibid.* 18/06/1999.
39. *Ibid.* 18/06/1999.
40. Personal communication with tenants. 30/06/1999.
41. *Ibid.* 18/06/1999.
42. Shoppin, W., *Restoring old buildings for contemporary uses. An American sourcebook for architects and preservationists* (New York: Whitney Library of Design, 1986), p. 30.
43. Letter from M. Arlen of City View Industrial C.C. to S.A. Transport Services (Cape Town: 24/07/1985), found in documentation map of architect Willem Otten.
44. *Ibid.*
45. Personal communication with architect Willem Otten. 18/06/1999.
46. *Ibid.* 18/06/1999.
47. DCF Properties. 'Investment proposal City View industrial complex' (Woodstock: January 1984), found in documentation map of architect Willem Otten.
48. Personal communication with architect Willem Otten. 25/01/2000.
49. *Ibid.* 25/01/2000.
50. DCF Properties. 'Investment proposal City View industrial complex'.
51. Copies found in file of architect Willem Otten, presumably study of DCF Properties (Pty) Ltd for Cityview Industrial Co., Ltd.
52. Personal communication with architect Willem Otten. 25/01/2000.
53. Personal communication with tenant Tony Meintjes. 30/06/1999.
54. Lucien Le Grange Architects, in association with the Town Planning Branch, City Planners Department. *Woodstock/Salt River. A guide to building and repairs* (Cape Town City Council, October 1993), p. 6.
55. *Ibid.* p. 6.
56. South African Breweries, 1895-1970. *Keeping pace. The story of the first 75 years of the S.A. Breweries group.* p. 2.
57. *Ibid.* p. 8.
58. Author unknown. 'New yeast for a very old brew' in: *Observatory News* (June 1986).
59. Whiffen, M. and Koeper, F., *American architecture. Volume 2: 1860-1976* (Cambridge: MIT Press, 1995), p. 9 (First Edition, 1984).
60. Personal communication with Prof. Ivor Prinsloo. 27/10/1999.
61. *Ibid.* 27/10/1999.
62. Author unknown. 'Centre for the arts' in: *Weekend Argus* (September 1985).
63. South African Breweries, *One hundred years of brewing.* p. 674.
64. Personal communication with architect Willem Otten. 18/06/1999.
65. *Ibid.* 18/06/1999.

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- 66 *Ibid.*, 18/06/1999.
- 67 *Ibid.*, 18/06/1999.
- 68 *Ibid.*, 18/06/1999.
- 69 *Ibid.*, 18/06/1999.
- 70 *Ibid.*, 18/06/1999.
- 71 Fire was addressed with special paint instead
- 72 Personal communication with architect Willem Otten, 18/06/1999.
- 73 *Ibid.*, 18/06/1999.
- 74 *Ibid.*, 18/06/1999.
- 75 *Ibid.*, 18/06/1999.
- 76 *Ibid.*, 18/06/1999.
- 77 As mentioned in the theoretical part (A2.2)
- 78 Personal communication with architect Willem Otten, 30/06/1999.
- 79 DCF Properties, "Investment proposal City View Industrial complex", annexe F, 3d, 3e, 3k.
- 80 Personal communication with architect Willem Otten, 25/01/2000.

University of Cape Town

# CHAPTER B3: CASE STUDY 2 – LONGKLOOF STUDIOS, GARDENS

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## B3.1 INTRODUCTION

Longkloof Studios, formerly the industrial site of the United Tobacco Company, is the focus of the second case study. In comparison with the old Castle Brewery, Longkloof Studios was a more upmarket conversion: a bigger budget was available and the new design has had more impact on the old factory than was the case with the Castle Brewery. The main buildings have been reused as a media centre, comprising film studios and businesses related to the media.

The material for this case study was obtained as follows. Interviews were held with the architect and the development manager of the conversion, a security guard and almost all tenants. Searches were also conducted at the Cape Archives, although the material found there consisted mainly of records of the construction of new buildings and extensions on the site when it was still used by the United Tobacco Company. The architect provided a file with the building plans, depicting the situation on the site as it existed both before and after the conversion. However, it has not been possible to obtain plans of the current situation, since no records exist of the smaller adaptations made for tenants in a later phase. It was also not possible to obtain pictures of the site's situation prior to the conversion. With regard to the feasibility part of this case study, there was regrettably no assistance from the construction contractor. The development manager, on the other hand, did provide the relevant cost figures and documents on the adopted development approach. With regard to the conservation issues, a file on the Longkloof site compiled by South Africa's Heritage Resources Agency was used.

As with the first case study, this case study is structured as follows: first, there is some discussion of the history and background of the project. Second, the economic feasibility of the conversion is examined. Third, its success in conservation terms is evaluated. At the end of this chapter, the key features of this case study will be presented in a summary form. This will eventually be compared with the other two case studies, to make it possible to draw conclusions on the opportunities for and constraints on the reuse of industrial buildings in Cape Town. Key figures are inserted in the text where relevant, while the text also refers to other figures, which are contained in Appendix B3 (Volume II). The code of these latter figures starts with B3 and is followed by the number of the figure.

## B3.2 THE BACKGROUND OF THE PROJECT

### The history of the site

In order to contextualise the project, it is necessary to consider the history of the site and its surroundings, as well as of the buildings themselves, and of the changes in ownership:

The site of Longkloof Studios is located on the edge of the city centre, in an area called the 'Gardens' (see Fig. 19). This area forms part of the City Bowl, whose boundaries are Devil's Peak, Table Mountain and Signal Hill. The Gardens belongs to the Upper Table Valley, which was from the earliest days of colonial settlement a predominantly agricultural area. It was fed by streams flowing down from Table Mountain, which explains the former presence of water mills in the area. Later, brick-making concerns and, from the end of the nineteenth century onwards, residential housing were built in the area.<sup>1</sup> Today, the Gardens is a mix of residential development and small businesses, many of which are restaurants and cafés, predominantly situated along Kloof Street. With the exception of the Gardens Centre, it has been unaffected by the high-rise development of the Central Business District, and it is this small scale which contributes to the unique character of the Gardens.

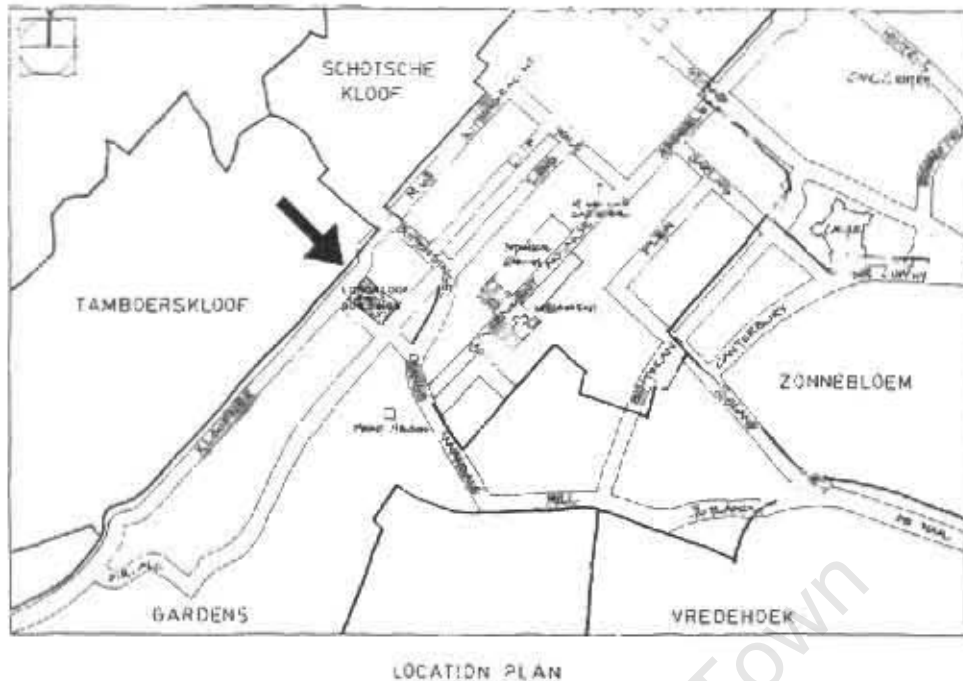


Fig. 19. Location plan of the Longkloof Studios complex (Source: Piet de Beer)

The site of a farm of the Upper Table Valley, Nooitgedacht, became the site for the factory of the United Tobacco Company (UTC), which is now the site of Longkloof Studios. Fig. B3/1 depicts the situation of the site around 1900.

From 1906 onwards the registered offices of the United Tobacco Companies (South) Limited had been at 32 Kloof Street, Cape Town (see Fig. B3/2). It was a subsidiary of the United Tobacco Companies Limited, a London-based company, which established this new company to manufacture and deal in tobacco and related products in the Cape Colony. The new company was only allowed to export to the United Kingdom.<sup>2</sup>

Several buildings were erected on the site in different phases, as the company grew very quickly. The site plan (see Fig. 20) shows the entire site<sup>2</sup> as it was prior to the conversion of 1993, and indicates the year in which each building was built and the buildings that were intended to be demolished.

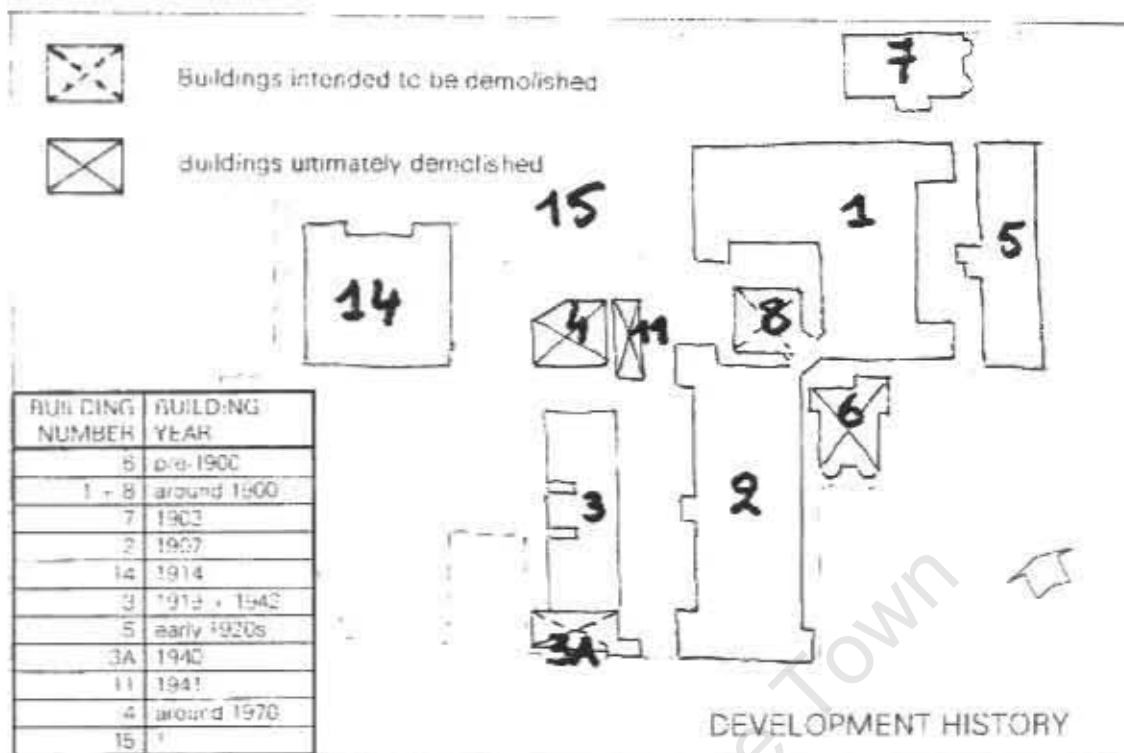


Fig 20 Site plan just before conversion indicating building number, building year and buildings intended to be demolished (based on plan of Piet de Beer)

The first building (Building 1 on Fig. 20 above),<sup>2</sup> an industrial warehouse assumed to have been constructed around 1900<sup>3</sup> for the storage of tobacco, was designed by the then well-known architectural firm of Victor Jones and W. J. McWilliams from Port Elizabeth (see Fig. B3/3). It was also at this time that a boiler house (Building 8) was constructed.<sup>3</sup> The warehouse still has four storeys and is surrounded by residential buildings of lesser height, which meant that it was noticeable from various points in the city.

The large scale of the building and the industrial use were the first of this kind in a previously mainly residential area. Thus it was in conflict with its surroundings, as is evident from many letters of complaint received from the neighbours.<sup>7/8</sup> The factory needed to be expanded because of its success, and as a result an additional factory building was constructed in 1907. This second warehouse (Building 2) was similar to, but slightly larger than the first warehouse. Again, the firm of Jones and McWilliams designed it.

The landmark water tower (see Fig. B3/4) was constructed at the same time as the second warehouse for the following reason: it was thought that during summer there might be insufficient water for the operation of the sprinklers, which were necessary for the fire protection of the warehouses. The warehouses had a high fire risk, due to the presence of timber in the structures of the two buildings, as well as the product of tobacco.<sup>9</sup> Over the years, the fire regulations were a constant source of concern.<sup>10</sup> The United Tobacco Company also installed a complete system of automatic sprinklers, fire pumps, and buckets for the fire protection of their buildings,<sup>11</sup> as well fire doors and a large firewall. This firewall still divides the second warehouse into two sections.<sup>12</sup>

Between 1907 and the time that the United Tobacco Company vacated the buildings, several additions were made to the site. It is not known for certain, however, when the United Tobacco Company moved from the Gardens site to Observatory, but this must have been between 1941 and 1952.<sup>13</sup>

In 1919, another building (Building 3), designed by the well-known firm of Herbert Baker, F. K. Kendall and James Morris, was erected behind the first two warehouses, for the purpose of expanding the manufacturing activities and to provide some staff facilities.<sup>14/15</sup> In 1942, the firm of Forsyth and Parker erected an addition to this building (see Fig. B3/5).<sup>16</sup> It is now known as the MLT-building, because of the printing and packaging business 'MLT' that had moved in at the time of the reuse of the Longkloof site as a centre for media-related businesses in 1993.

On Kloof Street a building was designed in the early 1920s by the firm of Parker and Forsyth to accommodate the increasing need of the United Tobacco Company for office space.<sup>17</sup> It is known as Building 5 or the administration building (see Fig. B3/6). Also, an engine house was built behind Building 1<sup>18</sup> to ensure the regular provision of electrical power.<sup>19</sup> In 1941, a substation providing municipal power (Building 11) replaced the engine house.<sup>20</sup> Another building is the old Westcliff School (Building 14) designed by the firm of Herbert Baker in 1914. Although it is part of the current site, it was, however, never part of the tobacco factory.

Other buildings on the site are the 'Benmore' house (Building 6), pre-1900<sup>21</sup>; the Heighton House (Building 7), 1903<sup>22</sup>; the old UTC mess block (Building 3A), ca. 1940<sup>23</sup>; a shed used for storage (Building 4), ca. 1970<sup>24</sup>; and a warehouse (Building 15)<sup>25</sup>

Over the years, there were several changes of ownership and a variety of companies used the buildings. As this also forms part of the history of the site, and influenced the state of the buildings at the time of the conversion, they are discussed briefly hereunder.<sup>26</sup> Several companies were occupying the buildings from the 1950s onwards<sup>27</sup> such as the companies 'Hex River Textile Mills',<sup>28</sup> 'Longkloof Buildings (Fty) Ltd',<sup>29</sup> or 'Artistic Seals and Labels Ltd'.<sup>30</sup>

In 1976, the Cape Provincial Administration took over the site from the Council of the Cape Technical Colleges, CAPAB, the government-sponsored performing arts council, rented the two warehouses from them and used the buildings as storage spaces for a while.<sup>31</sup> The new owners and tenants did not make any effort to maintain the buildings, so their condition deteriorated over time.

The Cape Provincial Administration's health department used the Westcliff School for a while as their ambulance training centre, the Metro Rescue Service,<sup>32</sup> while at the time of the conversion, pathology offices occupied the administration block.<sup>33</sup> At one stage, the Cape Provincial Administration wanted Metro Rescue Service and CAPAB to vacate the buildings. At the start of the 1990s the Provincial Administration called for proposals from architects and developers to convert the site.<sup>34</sup>

Various proposals were received, ranging from the demolition of all the buildings to the construction of new, larger ones, to the conversion of the existing buildings. It was decided that the existing buildings had a high potential and would be economically viable if retained rather than demolished. Therefore, the reuse proposal (of Groenewalt Architects and Gestalt) was chosen.<sup>35</sup>

Eventually, though, this proposal was not executed, because the firm was unable to secure requisite finances for the conversion project. As a result the Provincial Administration called for further proposals. ARX II Architects in association with Samuel Pauw Architects, together with Concor Developments – a major construction and development company – showed an interest in the project and put together a consortium of investors. In contrast to Groenewalt Architects and Gestalt, this consortium of investors was successful in acquiring the site for redevelopment.<sup>36</sup>

### B3.3 ECONOMIC FEASIBILITY

The following section will examine whether and to what degree the conversion of the old tobacco buildings into a media centre was economically feasible. It will also identify and discuss the reasons for the success and/or failure of the conversion. In order to ascertain this, the factors that affected the economic viability of the conversion will be discussed, and thereafter, the actual costs of the conversion will be analysed. Fig. 21 gives an idea of how the site looks after its conversion in 1993.

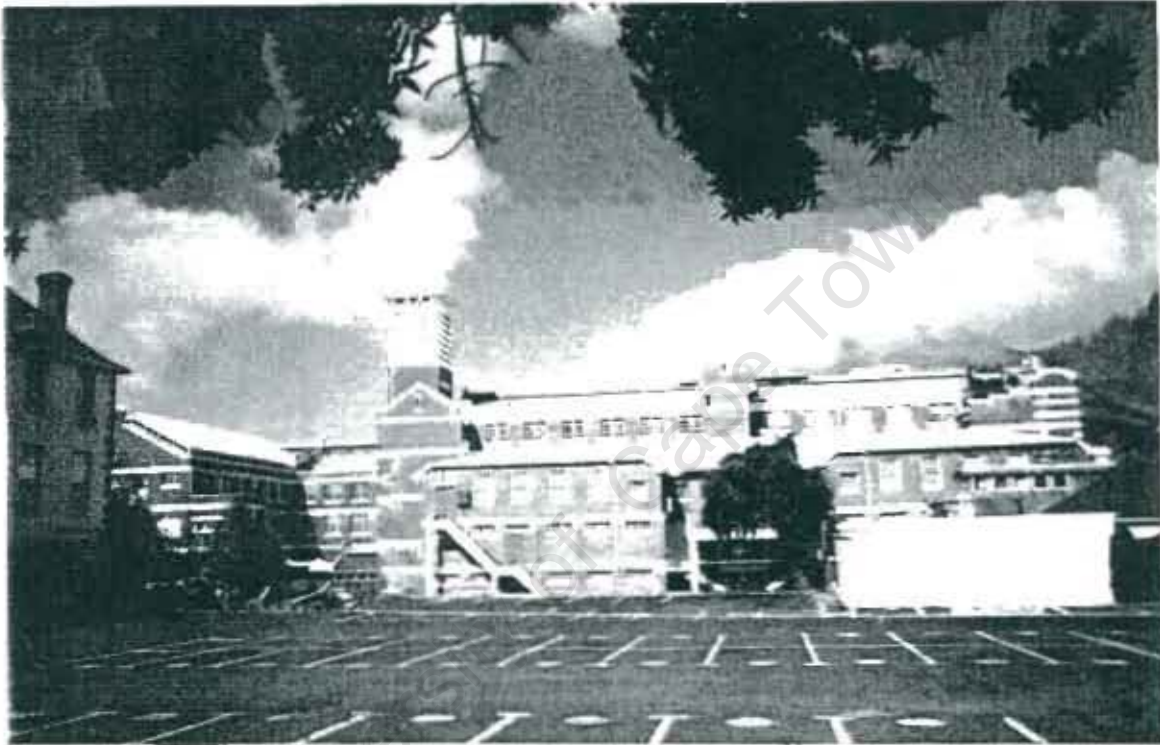


Fig. 21: The Longloof Studios site after the 1993 conversion

#### Factors affecting the economic feasibility of the conversion

To determine the economic feasibility of the conversion of the Longloof site, it is important to look at the relevant factors that affected its success or failure. In this case study, the main factor is the approach that was taken towards the reuse of the Longloof site. The success of the conversion can be directly attributed to the funding and development model that was adopted by the development team (including the architects, the development manager and the consortium of investors). In fact, the economic feasibility of the conversion relied mainly on this model. Other factors affecting the economic feasibility will also be discussed, such as the choice of a suitable tenant profile, the location of the site, and how much work was actually required to convert the buildings.

The first factor to consider is the funding and development model. The development philosophy was to retain – as far as possible – the existing buildings and to concentrate on providing an overall environment that would attract businesses. Its success was based on the idea that selling off parts of the property to ‘acceptable’ users immediately after the site had been purchased would generate sufficient cash flow and available funds for the conversion process. Included in this process were the purchase of the property and the construction of a suitable infrastructure. Generating sufficient cash-flow and available funds as soon as possible is necessary because the ‘holding costs’ of a property are generally higher for conversions than for ‘green-field’ land development.<sup>37</sup> These holding costs are the cost of holding onto the property after its purchase but before income is earned from rentals.

Five shareholders were found who each purchased a part of the site and bought the peripheral buildings. They intended their involvement to be a short-term investment: they were planning to sell off the buildings after the conversion;<sup>38</sup> the sale of the peripheral buildings was indeed successful.

Whereas it had been decided to dispose of the peripheral buildings, it was also intended to retain the two major warehouse buildings for conversion into a film and television media centre. With the money of the sale of the peripheral buildings, there were sufficient funds for the first phase of the conversion, from 1994 till 1995.<sup>39</sup> During this period, the first warehouse and the upper level of the second warehouse were adapted for new user needs.<sup>40</sup>

In the end, the development contractor – Resnekov and Nielsen – also became a shareholder, and eventually, to conclude the redevelopment, they bought out the original consortium of short-term investors so that they could retain the buildings in the long term. In the second phase of the conversion process, they adapted the remaining three levels of the second warehouse. Warehouse 2 was completed in late 1995,<sup>41</sup> although sporadic adaptations – executed by the development contractor in his capacity as landlord – have remained necessary to this date due to the occasional change of tenants.<sup>42</sup> At present, the development contractor is re-negotiating the terms of all leases, which will hopefully raise the finance needed to construct an additional parking garage.<sup>43</sup>

A second factor affecting the economic feasibility of the conversion concerns the identification of suitable tenants. It had always been a condition of the investors that offers of lease for the entire area of the first warehouse had to be received prior to commencement of the adaptation works. They wanted tenants to be in place for the majority of the spaces, because it offered them a level of financial security. This was easily achieved, due to the location and the relatively low rentals.<sup>44</sup> In this regard, a consortium of tenants was formed who took on the leases, namely three television related companies – one of which was the South African Broadcasting Corporation (SABC) – and one advertising agency.<sup>45</sup>

A third factor affecting the economic feasibility of the conversion was the location of the site. The attractiveness of the Longkloof site's location in the Gardens, one of Cape Town's most pleasant suburbs, allowed them to easily find businesses that wanted to rent a space in the old tobacco buildings. The location of the site has a number of characteristics that are responsible for the site's ability to attract suitable tenants. One of these is the small scale of the site's surroundings. Exactly because of this, the Longkloof buildings with their larger scale and landmark water tower, which can be seen from various parts of town, stand out (see Figs. B3/7, B3/8 and B3/9).<sup>46</sup> Further, the slope on which the Gardens is located, ensures a constant visual link with the centre of Cape Town.<sup>47</sup> Therefore, the buildings attract tenants who want their business to be located in a building with a certain visual prominence, this is especially the case for people working in media-related businesses.

Another characteristic is the functional mix existing in its surroundings: although the Gardens was slightly neglected at the time of the conversion, there was a mix of residential development with small businesses, which is partly what gave this suburb such a pleasant character. The strategic location of the site close to the Central Business District, and on Kloof Street – a commercial street leading straight to the city centre – also contributed to the attractiveness of the site for new businesses.<sup>48</sup>

The zoning regulations related to the site and its surroundings, which are zoned 'General Commercial', are yet another characteristic. In this case, the new uses happened to be in line with the 'General Commercial' zoning of the area. Thus the zoning did not need to be changed, which might have resulted in increased costs and delays.<sup>49</sup> More specifically, according to the land use restrictions of 1985 the zoning for the Longkloof site involved specific land uses for each portion of the site, as indicated on Fig. B3/10.

A fourth factor that impacted on the economic feasibility of the conversion was the amount of work required to convert the buildings and the cost implications thereof. In this particular case study, the layout and structure of the buildings gave rise to open-plan spaces divided by columns into regular bays. The architects and developers recognised the inherent flexibility of this type of layout and concluded that all that was necessary was to restore the buildings to a working condition, and to choose new uses that were geared towards a specific target market. It would thereafter be up to the individual tenants to adapt their respective spaces to meet their own particular needs.

There was an overall attitude of respect towards the existing fabric of the buildings. Also, the prime criterion for the adaptations was not to cut costs as far as possible, but rather to emphasise quality and life span.

Basically, it is possible to divide the amount of work required to convert the buildings into the three stages in which the buildings were converted. In the first stage, the buildings had to be made compliant with the building regulations. Thereafter, the buildings had to be rehabilitated, and finally, a suitable working area for the targeted tenant groups needed to be created.

In the first stage, just as with the reuse of the Castle Brewery, the most important work was to make the buildings conform to the fire regulations. As industrial buildings often consist of a steel and/or wood structure, conformity with the fire regulations is usually a recurring constraint in their conversion, this was also the case here. However, this work did not have an excessively negative impact on the economic feasibility of the conversion. The reason for this is that the tobacco buildings had originally been designed to meet the strict fire regulations for such buildings; practically all that was needed was to upgrade the existing water-based system of automatic sprinklers – installed approximately 45 years ago.<sup>50</sup> Overall, the whole system was in a good condition.<sup>51</sup> Only new pumps were required and, where necessary, new rose heads.<sup>52/3</sup> In addition, fire escapes were already available in the buildings, and only one further staircase had to be added as a fire escape.<sup>54</sup> The major cost however, was the fire proofing of all the buildings. In particular, the fire retarding tumescent paint with which the metal structure had to be painted, was expensive.<sup>55</sup> In the end, R400 000<sup>56</sup> was spent on fire protection in the first phase of the conversion. Taking into account the total conversion cost of R7 450 000,<sup>57</sup> and bearing in mind that the accommodation of fire regulations is often a big expense, especially with the reuse of industrial buildings, this figure is very low.

In the second stage, the buildings needed to be rehabilitated, as their condition had deteriorated over the years. Although the general structural condition was generally fine, some parts of the buildings, such as parts of the brick work, the timber work, the floors and the windows, had deteriorated and needed replacement or repair. The main problem was water damage, since a large number of timber windows and frames were damaged and the roofs were in a bad condition and leaking. Parts of the roofs had to be re-covered, and this water-proofing was an expensive repair.<sup>58</sup> The gutter system and parapet walls were also in state of disrepair. Another major cost was sanding the floors and peeling the old paint off the walls.<sup>59</sup> Also, some floor boarding had to be redone: although the existing loading capacity was sufficient for the new use,<sup>60</sup> some of the floor boarding had deteriorated through moisture penetration and the weight of the tobacco.<sup>61</sup> All these basic upgrade costs on rehabilitation amounted to a total of R1 500 000.<sup>62</sup>

Finally, there was work required to create a working area for specific tenant groups. These tenant groups had been chosen before the start of the conversion works: it was decided that small to medium businesses could easily be accommodated in the open-plan spaces of the tobacco buildings, and that film, media and advertising related businesses were especially well-suited to industrial buildings of this nature. In general, the buildings were only restored to a working condition for these targeted tenant groups. Thereafter, it was the individual tenants' own responsibility to adapt their particular space to meet the requirements of their businesses, by means of internal partitions and decoration.<sup>63</sup>

The specific tenant group of media-related businesses necessitated several specific adaptations, namely an increase in the amount of open space on the site, an increase in the parking space, an increase in the floor area, the accommodation of the infrastructure for the specific tenant group, and subdivision of the open-plan spaces.

One adaptation, then, involved an increase in the amount of open space on the site. This needed to be done partly in order to landscape the open area on the site so that a pleasant working environment could be created for the targeted tenant groups and partly to increase the amount of parking space (see Fig. B3/11). It was accomplished by demolishing some buildings on the site, such as the house called 'Benmore' (Building 6), along Darters Road (see Fig. B3/12), the City Council substation (Building 11), and a storage area (Building 4) in front of the Westcliff School (close to the substation) (see Fig. B3/13).<sup>64</sup>

Initially, there were also plans to demolish the boiler house, but after discussions with the studios, it was decided that a new use would be economically viable. It was thus retained as a public canteen for the studios (see Figs. B3/14 and B3/15).<sup>65/66</sup>

Adaptations were also required to increase the floor area. This was partly done to create parking spaces that could not be provided on the open space of the site. It was planned that the basement of the second warehouse would also provide parking.<sup>67</sup> At present, the parking needs to be increased even further, and there are plans to build a new parking garage close to Building 1 in the near future.<sup>68</sup>

An increase in the floor area was also necessary to create more lettable space. On one occasion, a missing warehouse floor was again reinserted. Also, because of the success of the conversion, a completely new level is currently being added on top of the first warehouse, as can be seen on Fig. 22. As a result, the roof was raised.<sup>69</sup>

Fig. 22: New level on top of first warehouse



However, even more floor area would have been possible: the zoning on the site allowed significantly more bulk (the total allowable floor area on the site) than what was utilised in the buildings.<sup>70</sup> However, the developers consciously decided not to increase the scope of the development, as this would have reduced the historical appeal of the buildings and the public space that in fact created the desired environment. The developers were convinced that a more exclusive and different type of environment would attract tenants in the long term.<sup>71</sup>

Expensive adaptations were necessary to accommodate the infrastructure required for the specific tenant groups, such as plumbing, electrical works and air-conditioning. However, this was inherent in the function of film studios – with their recording and transmitting studios – rather than resulting from the nature of the buildings themselves. This air-conditioning, especially, was expensive, because of the large sizes and open-plan spaces so typical for industrial buildings: an amount of R1 200 000 was spent on this in the first phase, in relation to the total conversion cost of R7 450 000.<sup>22</sup>

Subdivision of the open plan spaces was another adaptation required to make the buildings usable for the target tenant groups. As with most industrial buildings, the high ceilings and large spaces made the buildings easy to subdivide and adapt to new uses. In this case, each level in the building consisted of a similar open-plan space with identical measurements, which was copied on each level (see Fig. B3/16). It was only subdivided by tenants themselves by means of temporary structures instead of by the developing team (see Fig. B3/17).<sup>23</sup>

Table 7 summarises the major conversion costs that were incurred with regard to Building 1.

Basic upgrade costs: i.e. structural work, brickwork, floors, lifts, windows, roofing/waterproofing, external works (to get buildings to usable state)	R1 500 000
Plumbing	R 350 000
Electrical works	R1 130 000
Air-conditioning/ventilation	R1 200 000
Sprinklers/fire protection	R 400 000
Internal partitions/tenant installations	R1 570 000
Decoration	R 400 000
Contractors fee/make up	R 900 000
<b>TOTAL CONVERSION COSTS</b>	<b>R7 450 000</b>

Table 7: Conversion costs for Building 1 [Longloof Studios] (Source: Gary Moore)

According to the development manager, the amount of work required to make the buildings serviceable again, as well as to adapt them to their new use, cannot be called particularly costly,<sup>74</sup> at least not with regard to Building 1.<sup>75</sup> This is a result of the good match between the original buildings, their location and the targeted tenant groups. Accordingly, the buildings are in high demand with tenants and have a high level of occupancy, which is the primary indicator for the economic success of the conversion. In fact, most of the time, all the spaces are rented out and there is even a demand to increase the existing floor area to accommodate more businesses. Further indicative of the good match between original form and new function, and evidence of the success of conversion is the high level of satisfaction among tenants. During site visits, almost all tenants were interviewed and most reported that they were pleased with their respective spaces.

## The cost

In general, the factors discussed above had a positive effect on the feasibility of the conversion and contributed to its success in economic terms. This next discussion will concentrate on the actual costs of the conversion, so as to verify the conversion's economic success numerically.

Redundant industrial sites are usually not expensive, which greatly improves the economic feasibility of their intended reuse. This was no different for the Longkloof site. After the sale of the peripheral buildings, the actual cost of buying the land and its buildings came to R2 397 000. The effectiveness of this approach is clear if one considers that the purchase cost of the land alone, which could provide 9 500 m<sup>2</sup> of usable bulk, would have been in the region of R4 000 000 in Cape Town at that time.<sup>76</sup>

Basically, the following figures were examined in order to verify the ultimate cost and project viability of the conversion: the interest rate, the actual cost of what had to be borrowed during the conversion project, the actual cost of what was spent during the conversion project, and the income that was gained from the buildings after conversion. The following figures and calculations are only relevant for the first phase of the conversion, which includes the first warehouse and the upper level of the second warehouse.

The interest that the bank charged for the borrowing of the capital was 14,5% at the time of the conversion.<sup>77</sup>

The actual cost of what had to be borrowed, which included the purchase cost and the capital needed to convert the buildings, added up to an amount of R13 970 500 (this was after the sale of the peripheral buildings). More money was spent on converting the buildings than initially thought, because of specific tenant requirements and an increase in the lettable floor area.<sup>28</sup> These total development costs are summarised in Table 8.

Land/preliminary costs	R 2 397 000
Conversion costs - Building 1	R 7 450 000
Building 2	R 4 700 000
Professional fees	R 1 698 000
Legal/Council costs	R 130 000
Lease commissions	R 264 000
Finance costs	R 1 580 000
<b>TOTAL DEVELOPMENT COSTS</b>	<b>R18 219 000</b>

Table 8: Total development costs (Longkloof Studios) (Source: Gary Moore)

The actual cost of what was spent during the conversion project (or the costs to convert Building 1 and Building 2 in the first phase) amounted to R12 150 000 (R7 450 000 for Building 1 and R4 700 000 for Building 2).

The income that was earned from the buildings after conversion – or the net income gained from the rent received from tenants – amounted to R2 231 504.

The viability of the project was measured by the income generated by the buildings after completion of the first phase of the conversion – R2 231 504 – to match interest cost of capital borrowed to fund the project – at an interest rate of 14,5% per annum.

Furthermore, every year this net income generated a return, which would be able to pay off the capital that had been borrowed. It was calculated that the return after the first year of the conversion was 15,97%, which meant that it was in fact higher than the interest on the capital of 14,5%.

The final cost/viability analysis after completion of the first phase of the conversion reflected the following (see Table 9).

Actual cost of what had to be borrowed	R13 970 500
Net income	R2 231 504
First year yield	15,97%

Table 9: Cost/viability analysis after completion of first phase of conversion (Longkloof Studios) (Source: Gary Moore)

This cost equates to a building cost of R1 012/m<sup>2</sup> (excluding the specific tenant requirements). This compares favourably with 'new' building costs at the time of approximately R1 300/m<sup>2</sup>.

From the above figures it can be concluded that the developers succeeded in creating an environment that has consistently shown good returns to its investors as well as providing a catalyst for growth in the surrounding area.

Given that these buildings generate good occupancy levels for a sustained period, this redevelopment has proven to be a better investment than would have been the purchase of land and the construction of new buildings. Thus the conversion was definitely economically viable.

### **B3.4 CONSERVATION EVALUATION**

The following section will evaluate the success of the conversion of the Longkloof site in conservation terms. It will identify and discuss the elements influencing the success or failure of the conversion, as well as the consequences of such success or failure.

As was done in the first case study on the Castle Brewery, this section will discuss the cultural significance of the buildings, the quality of the conversion in architectural and in urban terms, and the factors influencing the ultimate success or failure of the conversion project in conservation terms.

#### **The cultural significance of the site and its buildings**

As with the previous case study, the first section is dedicated to the cultural significance of the Longkloof site and its buildings. The site contains a variety of buildings, which, in conservation terms, are important to varying degrees. In order to demonstrate that the buildings were indeed worth preserving, this section will analyse the cultural significance of the Longkloof site and its buildings.

In this regard, the National Monuments Council evaluated the conservation worthiness of the site and its buildings. Generally with regard to such evaluations, they tend to emphasise those cultural values that are related to the outer appearance of the buildings.<sup>88</sup> This was also the case with the buildings of the Longkloof site. The NMC stated in their file on this site that the three principal buildings on the site were excellent examples of turn of the century architecture, rationally planned, structurally advanced for the time they had been built, and very well detailed. These three buildings were also considered to be "prime examples of early functionalist architecture so extolled by the founders of the Modern Movement – Gropius, Mies van der Rohe and Le Corbusier."<sup>89</sup> As this demonstrates, it seems that only architectural and historical values were considered.

The buildings on the site (see Fig. 23) were automatically protected, as they were older than 50 years, and thus part of a 'historical site'. Permits were required to demolish, excavate or alter these buildings.<sup>90</sup> In summary, the NMC implemented the following conservation restrictions: Buildings 1 and 2, and Buildings 5, 7 and 14 were considered to be pre-eminently conservation-worthy, whereas Buildings 3, 6 and 8 were only to be retained if possible.<sup>91</sup> The other buildings were considered to have no conservation value and could be demolished, providing the required permits from the City Council were obtained beforehand.



Fig. 23: Site plan of the intended 1993 conversion, with building numbers and the pre-eminently conservation-worthy buildings (dotted) (Source: Piet de Beer)

As there was no proper research from a conservation body, it is difficult to discuss the cultural significance of the Longkloof site and its buildings. Cultural significance is a social construct, capable of different interpretations in any specific case, and therefore, an analysis assessing the cultural values cannot be exhaustive. The following analysis and interpretation are an attempt to determine the cultural significance of the Longkloof site, based on research in the Cape Archives and combined with papers and files of a few specialists (such as industrial archaeologist David Worth and the NMC). Additional research would be needed to come to a more comprehensive analysis, but this goes beyond the scope of this study. The primary intention was to indicate that the cultural values are not defined by aesthetic considerations alone.

The site has **historical value** because of the importance of the company that originally utilised the buildings in the first place. The history of Cape Town's United Tobacco Company, a subsidiary of the London based mother company, is an integral part of Cape Town's colonial past.<sup>63</sup> Also, the UTC was "the first modern manufacturing industry to move into the Upper Table Valley"<sup>64</sup>

The site also has **urbanistic value**, because it is an excellent example, one of the remaining few, of how an industrial site at the beginning of the twentieth century developed as the company grew.<sup>85</sup> Over the years, and because of the United Tobacco Company's success, there was a level of consistency with regard to new buildings being added. In fact, it is the only example of an industrial site of such a large scale in the immediate proximity of Cape Town's Central Business District.<sup>86</sup>

The combination of a mainly residential area with an industrial site is also unique in urbanistic terms, since mixed-use areas were rare at that time.<sup>87</sup> Further, being situated in the Gardens, with its specific character of small-scale development, the site is a landmark in the City Bowl due to its large scale, its highly visible water tower and the prominence of the two warehouses.

In fact, the entire history of the site is important: the site was used as a tobacco factory for only half of its life. Thereafter, it was reused for storage and businesses, which also provides significant information on the pragmatic attitude towards reuse so many years ago.<sup>88</sup>

The site contains a range of buildings, most of which also have intrinsic qualities and **architectural value**; they do, however, differ in their levels of conservation worthiness. In the following discussion, the cultural significance of each building will be measured, and affirmed by a brief analysis and description of the building's features.

The most prominent buildings on the site are the two four-storey warehouses to which the landmark water tower is attached (Building 1 and Building 2 on Fig. 23). These two made up the actual tobacco factory.<sup>89</sup> The NMC considered both these warehouses to be pre-eminently conservation-worthy.<sup>90</sup>

According to the NMC,<sup>91</sup> they can both be regarded as architecturally significant. They were designed by a prominent architectural firm of the time, namely Jones and McWilliams from Port Elizabeth, which was responsible for many important buildings in South Africa.<sup>92</sup> Also, both buildings are representative of a specific kind of building, and are a notable example of a particular style and age: they are "prime examples of the early functionalist architecture",<sup>93</sup> dating back to the beginning of the twentieth century and, as will appear from the following, are structurally well-thought out. They are rationally planned and clearly designed from a functional perspective, with each level being divided by columns into regular bays. The reason for this rationally planned lay-out can be attributed to the machinery, which needed large spaces.<sup>94</sup> In the second warehouse this was accomplished by dividing up the building into only two massive portions of 450 000 m<sup>3</sup> each (see Fig. B3/18).

Further, the external design of the building was expensive for a factory building of that time:<sup>95</sup> a great amount of detail can be found in the façades, which were given much attention when they were built. They are made of red face-brick with white plastered bands, a neo-gothic motif (as used by Butterfield) (see Fig. B3/19).<sup>96</sup>

Also, the unusual and well-thought out structure contributes to the **technical value** of the buildings, as it is a rare, and still existing, example of the creative and technical achievements at a particular period: the innovative structure was designed to fit in with the use of a tobacco factory and its machinery.<sup>97</sup> It is based on a load-bearing brick envelope – different from the current structural design where the columns form the main structure of the building.<sup>98</sup> A system known as a ‘jointless construction’ forms the inside structure and consists of wooden floors, timber joists, steel beams and steel supports (see Figs. B3/20 and B3/21).<sup>99</sup> The structure was actually determined by the machinery to be used in the buildings. The floors needed to be pierced in many places “for strap races from machine power from pulleys below floors, as vice one room in existing factory where fourteen separate machines are driven by straps passing through the floor in one room alone.”<sup>100</sup> It seems that the United Tobacco Company wanted to avoid concrete floors and preferred “to erect a factory building in brick under (an) iron roof with wooden floors on wood joists and iron bresssummers...”<sup>101</sup>

Although the machinery is missing at present, the structure still provides indications as to how the buildings must have been used. As this type of structure was necessary to accommodate machines that were driven by straps, and as strap braces are only necessary for central power sources,<sup>102</sup> one can conclude that there must have been such a central power source. It is possible that the electricity provision of the municipality was unreliable at the time, therefore making own power sources necessary.

This case study deals mainly with the first two buildings mentioned above, which formed the focus of the conversion. However, as the site consists of several other buildings too, some of which were also worth conserving, they are briefly discussed hereunder:

The NMC considered the following three buildings on the site to be pre-eminently conservation-worthy:

- o Building 5, the three-storey high administration building along Kloof Street,<sup>103</sup> although they did not furnish any reasons for this assessment.

- o The Victorian-style one-storey high Heighton house on Kloof Street, Building 7,<sup>104</sup> which was built in 1903 and designed by Fred Cherry. It is likely that it was considered conservation-worthy because it is aesthetically attractive (see Fig. B3/22).<sup>105</sup>
- o The old neo-classicist Westcliff School, Building 14,<sup>106</sup> most likely because it is a representational example of a well-known architect's work (it was designed by Herbert Baker's well-known firm). Also, it is a representational example of a particular style and age: it is a "good example of formal, civic architecture"<sup>107</sup> of its period (see Fig. B3/23).

The NMC decided that the following buildings should only be retained if possible:

- o Building 3, like the two warehouses, is "a prime example of the early functionalist architecture",<sup>108</sup> and thus also a representational example of a particular style. It too is considered to have been rationally planned, structurally ahead of its time and very detailed.<sup>109</sup> It is also a representational example of well-known architects' work, having been designed by two well-known firms: the firm of Baker, Kendall and Morris designed the two-storey building in front, while the firm of Forsyth and Parker designed the three-storey addition in the back. It has a face-brick façade and concrete floors.<sup>110</sup> Given that the other two warehouses were pre-eminently conservation-worthy and moreover based on the exact same criteria, the recommendation of the NMC is surprising.
- o The 'Benmore' house (Building 6), an old Victorian House along Darter's Road, pre-1900 and from the same style as the Heighton House, but less 'pretty'.
- o With regard to Building 8, the boiler house attached to the two warehouses, there were initially plans to demolish it. However, after a tenant proposed to reuse it as a canteen, it was decided not to demolish it. As part of the large industrial site it can be considered of significance.

Building 15 is a prefabricated concrete and steel warehouse structure of no value and was therefore not included in the recommendations of the NMC. Although the building itself is not noteworthy, it appears that the NMC did not take into account that it forms part of a significant complex.

The NMC made decisions on the conservation worthiness of its heritage resources without a proper understanding of their values. Indicative of this is that they could not provide enough justification as to why exactly they declared specific buildings as worthy of conservation, this suggests that the NMC failed to assess the Longkloof site and its buildings adequately.<sup>111</sup> What is missing in this case is an engagement from the NMC with the fabric of the buildings, not only with their history and aesthetics.<sup>112</sup>

On the other hand, the limited capacity and resources of the NMC have to be taken into account: in South Africa, there are currently no resources to support a heritage agency with the capacity to investigate in depth any structure referred to it.<sup>113</sup>

### The quality of the conservation of the project in architectural and in urban terms

The following will question whether the cultural significance was retained with the reuse of the site as a media centre, and how this was accomplished. To ascertain this, the quality of the conservation in architectural and in urban terms must be analysed.

For the **architectural quality** of the project, this will involve an analysis of the design approach adopted for the reuse. The focus will be on the reuse of the two warehouses. In this particular case study, the decision to reuse the site was obvious. Full restoration was clearly impossible on economic grounds, the site was too large and there was no awareness in Cape Town with regard to restoring its industrial past. Simply put, the original use could not be retained. An economically viable new use was the only option if the buildings were to be retained at all.

Basically, the adopted design approach was a sensitive one that resulted in low to medium-impact adaptations to the buildings, which contributed to the success of the conversion in conservation terms. This design approach and its conservation implications will now be discussed in more detail.

Most adaptations were justifiable from an economic as well as from a conservationist viewpoint. In fact, the symbiosis of economic and conservation considerations turned out to be crucial for the overall success of the conversion. For example, the decision to cut as few holes as possible in the walls for the installation of the new services was a pragmatic decision, with the aim of keeping the fabric intact.<sup>114</sup> Leaving the original building untouched was equally justifiable from a conservation viewpoint, and as cutting holes in thick walls would have been an expensive operation, the decision was also economically justifiable.

The choice of a sensitive design approach was also obvious from the perspective of the development model that was adopted for this project. The main task of the architects was to restore the buildings to working order. As this had to happen in an economically feasible way, the existing elements of the buildings had to be retained as much as possible, without necessarily restoring them to their original state.<sup>145</sup> For example, the façades were merely repaired and cleaned,<sup>146</sup> and the windows were repaired where necessary. Many windows had already been replaced by steel ones after the United Tobacco Company moved out of the buildings, and the architects simply retained these.<sup>147</sup> Where windows had to disappear to accommodate the requirements of the new use, they were merely bricked-in again (see Fig. B3/24). However, in the case of additions to the outer look of the buildings, these were made from a design that was very similar to the old, even copying it. An example of this is the new entrance between Building 1 and Building 2: the new design is so similar to the old, and the contrasting bands have been so easily copied, that it is hardly possible to see that it is a later addition (see Fig. 24).



Fig. 24: New entrance between Building 1 and Building 2 (front)

The sensitive design approach, respecting the original fabric, is also visible in the ways in which the tenants adapted the spaces to suit their own needs and requirements. Although they were free to do what they wanted inside, they were not permitted to alter the original fabric. As a result, many temporary subdividing structures can be found in their spaces. Although this was quite effective in some cases, several spaces have been over-subdivided and the sense of space has been lost. Nevertheless, these subdividing structures do not reach the ceiling, which means that the original columns are still partly visible.

The industrial look of the buildings was also respected in most spaces, as can be seen on Figs. 25 and B3/25. For example, the metal structure was treated with a special fire-resisting paint, so that it could remain visible. Another example is the old fire doors that were retained. Some of these were left in their original location (see Fig. B3/26), while others were moved to the new pub, Cafe Bardelli,<sup>116</sup> on the ground floor of the second warehouse, where they were reused to form part of a wall (see Figs. 26 and B3/27). However, in some spaces the design of the subdividing structures (with Victorian-like detailing) does not seem to fit in with this industrial look, although this is entirely the responsibility of the particular tenant.



Fig. 25: New staircase in harmony with industrial look of space (Building 2)



Fig. 26: Passage with wall made of old fire doors (left)

Although the industrial look of the buildings is clearly visible in most cases, there are only few reminders that the buildings were formally used as a tobacco factory, and this is a negative factor in the conservation success of the buildings. However, the state of the buildings at the start of the conversion is partly responsible for this: most of the old machinery had already been removed<sup>19</sup> by this time and the remaining parts had been destroyed.

Nevertheless, the fabric of the buildings does provide some information on the buildings' previous use. For example, in one of the large spaces, there is a smaller space on a slightly higher level, which has some remaining thick walls. A likely conclusion is that this was the control room, from where the storage of tobacco could be supervised (see Fig. B3/28).<sup>20</sup>

Basically, it can be concluded that the chosen design approach was a mix of 'historical reconstruction' and 'celebration'.<sup>21</sup> For the outside of the buildings it appears that the design of the new additions (this is in fact only the entrance to Building 1 and the entrance to Building 2) closely resembles the original fabric (tending to a design approach of 'historic reconstruction'). Inside, the new elements are clearly modern, and effectively highlight the industrial look of the building ('celebration').

The improvement of the **urban quality** of the surroundings of the Longkloof site is indicative of its success in conservation terms, as well as in economic terms. It is not possible to prove conclusively that the renewal of the area after the conversion can be solely contributed to the success of this particular conversion. However, it is very likely that the improvement of the urban quality and the economic success of the conversion have created opportunities for other businesses. Through interviews with the developing manager and tenants who had their premises in the area of the Longkloof site before its conversion,<sup>22</sup> it is clear that things started to change for the better in Kloof Street as soon as the site had been converted. A number of other reasons – economic or political – might have caused this, but the following discussion will only concentrate on how and to what extent the conversion of the Longkloof site contributed to improving the urban quality of the area. Therefore, the situation of the area surrounding the site is discussed, after which the reasons that contributed to the changed environment after the conversion will be summarised. Finally, the current situation of the surroundings of the site and to which degree the original concept was executed will be analysed.

At the time of the conversion, the area surrounding the site had, to a minor extent, been neglected and businesses along Kloof Street were not faring well. The warehouses were mainly used as storage spaces, which contributed to a lifeless atmosphere, since few people were present on the site or occupying the buildings. The warehouses were closed to the public and the open space between the buildings was closed off from the street by big gates, making it impossible for the public to interact with the site. Basically, the whole site was an island in the city structure.

The conversion of the site into a media centre changed all this and, for a number of reasons, the immediate environment underwent several transformations. Firstly, the site's new use as a media centre created a more fashionable atmosphere in this part of the Gardens and therefore, most likely encouraged the establishment of new and trendy restaurants (with or without other economic reasons). Secondly, the buildings themselves housed some public functions, such as Café Bardelli, which contributed to the liveliness of the site, day and night.

Thirdly, the accessibility of the site was improved. The initial idea was to integrate the site with its environment, so that the development would eventually increase the urban quality of the site's surroundings. To achieve this, it was intended that the use of the site would be partially of a 'public' nature and create a pleasant environment – for the occupants of the buildings, their visitors and the general public. However, the original plans of landscaping the spaces between the buildings to create a more pleasant environment on the site<sup>123</sup> were only partly executed (see Figs. 27, 28 and 29), and this due to an increased demand for parking. To improve the accessibility of the site, it was opened up at some of its edges to improve its accessibility (see Fig. B3/29); as a result less strict boundaries have been created on Park Street and Kloof Street. In fact, on the Kloof Street side, the site opens onto a public space with Café Bardelli as an attraction point for the public. On the Park Road side with its residential character, there are two major points of access to the site (see Figs. B3/30 and B3/31), albeit more of a private nature, as they give access to private parking lots (see Fig. B3/32).

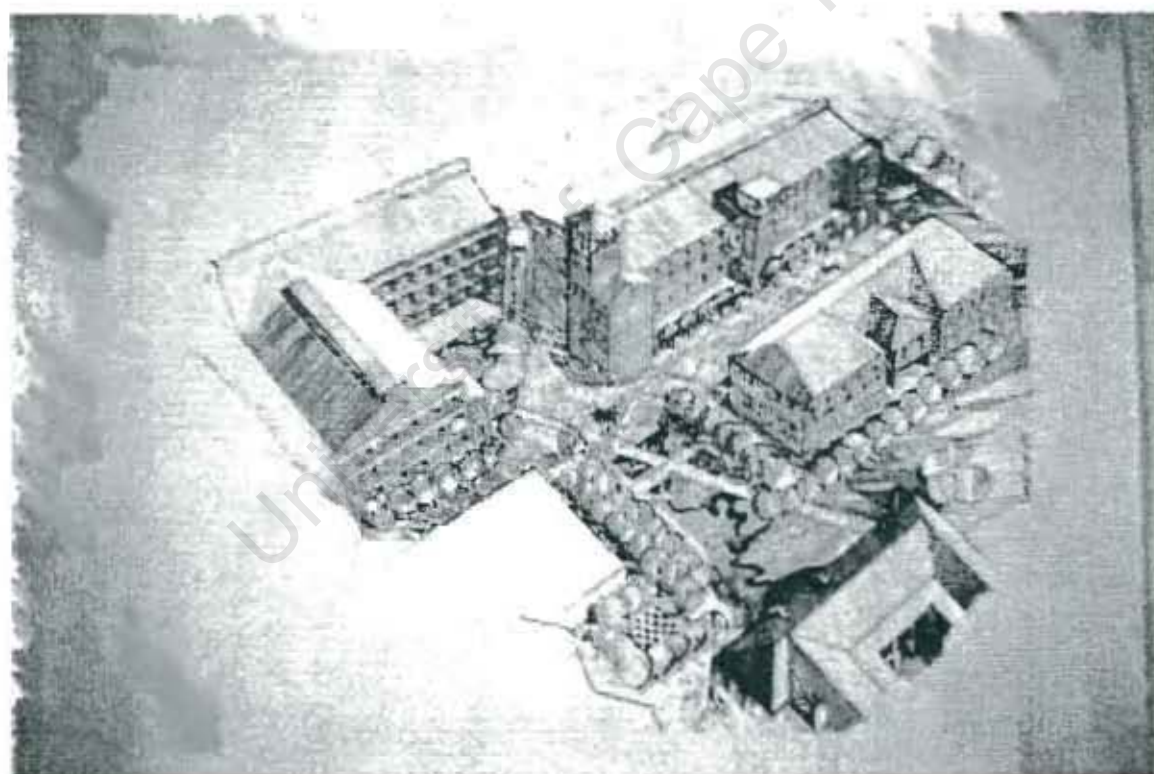


Fig. 27: Axonometric of Longkloof site (intended plan for landscaping the site (Source: Piet de Beer)



Fig. 28: View towards Westcliff School (execution of the original plan to landscape the site)



Fig. 29: View from one of parking areas towards Longwood complex

Although the site is accessible to the general public and has seven entrances, it was never intended for the public to treat the site as a pedestrian thoroughfare. The reason for this is that the nature of city life in a developing country like South Africa precludes entirely 'open' commercially owned space. According to the developing manager, a security presence is always necessary and unavoidable.<sup>124</sup>

A fourth reason why the urban quality the site was positively influenced by the conversion, is exactly this security aspect. A good security system was provided on the site, which enhanced the entire area and made it easier to integrate the site into the city structure. Although security guards are constantly walking across the site and are in contact with each other through walky-talkies, their presence is not intimidating or overbearing.<sup>125</sup> There is in practice no security problem, although there are seven entrances to the site (see the previous Fig. B3/29), making it theoretically difficult to control.<sup>126/127</sup> Also, the level of social control – inherent to sites where many small businesses have their premises – is fairly high. Proof of the effectiveness of the security measures is that, except for some petty theft, no serious crimes have been committed on the site so far.<sup>128</sup>

In short, there can be no doubt that the converted site has had a positive influence on its environment. The urban quality of the area has definitely improved. The success of the conversion contributed to the fact that Kloof Street has become a vibrant part of the city's nightlife, and new businesses, mainly restaurants, have moved into the area. This part of the Gardens has now become a more integral part of the city centre, albeit with a more upmarket or classier setting than before the conversion of the site.<sup>129</sup> The intention behind the reuse of the site, namely to integrate the large site back into the historically sensitive area of the Gardens and to connect the upper Gardens with the city itself has largely succeeded.<sup>130</sup>

### **Factors that impacted on the quality of the conversion in conservation terms**

As indicated by the above discussion, on the whole, the conversion can be considered to be a success in conservation terms. This was accomplished by a number of factors, for example the match between the fabric of the buildings and the new use; the importance of good conservation restrictions; and the initiatives of government bodies to protect the buildings. These factors are discussed hereunder.

One factor affecting the success of the conversion in terms of conservation is **the good match between form and function**, which ensured that minimal adaptations were effected. As the qualitative conservation of buildings requires that as few adaptations as possible are made, this good match was a positive factor. Again, the material of the theoretical part will be used to analyse the compatibility of the new use with the original fabric.

For this case study, only Building 1 and Building 2 (the focus of the site) will be examined. In general, the following analysis will test whether the original form of open-plan warehouses, as in this case, matches the new use of small and medium-sized businesses related to the media.

With regard to the constructive structure of the two warehouses, the construction type consisted of a load-bearing brick construction outside and a jointless construction inside, consisting of wooden floors, timber joists, steel beams and steel supports. This construction type had no problem accommodating media-related businesses, and no extensive changes had to be made to the construction. The good condition of the structure prior to the conversion, together with the fact that the new use needed less load-bearing capacity than the original use made adaptations to enhance the stability or strength of the buildings unnecessary.

With regard to the functional structure of the two warehouses, this could also easily accommodate the new use. The spatial type consists of repetitive, large, open-plan spaces only interrupted by columns, which divide the spaces into bays. Since each level consists of only one open-plan space, several alterations would have been necessary to subdivide this space into smaller units. However, the various sizes of the businesses that wanted to move in were very compatible with the size of the spaces: in most cases there is only one user per floor and the layout of most levels was kept open-plan. Only temporary structures have been used to subdivide the space. Only the medium-depth of the buildings that created some difficulties: despite the fact that the many windows do let in natural light, it was necessary to install artificial lighting.

With regard to the user structure of the two warehouses, the original circulation system was sufficient, as the large spaces are mainly used by one tenant. This also made additional fire escapes unnecessary.

In short, the good match between form and function resulted in only small alterations to the original fabric of the two warehouses and the conservation implications were minimised.

Another factor affecting the success of the conversion in terms of conservation was the implementation of clear, well considered and well executed **conservation restrictions**, which are intended to protect the cultural significance of buildings.

In this case, regulations to conserve the cultural significance of the site were not enforced by a government body. Although the NMC assisted in the initial identification of the conservation-worthy buildings, it was difficult to implement their assessments, as the following example indicates. The administration block was sold to Boston College and considered to be pre-eminently conservation-worthy. Despite the fact that the NMC protected the building, the owners went against their restrictions and changed the outer look of the building, making major changes to the roof, which are visible from Kloof Street (see Fig. B3/33).<sup>131</sup>

In fact, the NMC did not even try to defend some of their buildings that they considered conservation-worthy. One of these was 'Benmore' House, along Darters Road, which was demolished without objection from the NMC or the City Council since the site would benefit from it: this was because space was needed in front of the two entrances, as they were focal points of the site.<sup>132</sup>

Although no government body enforced restrictions to conserve the cultural significance of the Longkloof site, the professional team in charge of the conversion did so. The land had been subdivided and sold to shareholders, who would theoretically be able to change the outer look of their respective buildings. After several meetings with the City Council, the architects and development manager decided on the following option to ensure that the buildings remained untouched from the outside: the land was divided between the various shareholders in such a way that each property was based on the footprint of the building.<sup>133</sup> In this way, new designs could be controlled and additions would be prevented.<sup>134</sup> Moreover, all owners were to share the remaining land between the buildings. Since each individual owner has to agree on any changes to this common piece of land, additions to the buildings are not likely to occur either.<sup>135</sup> In this way the developing team contributed to the protection of the cultural significance of the buildings, where government bodies had failed to contribute.

Further, the developing team was also committed to conserving the environment. They did not intend to erect further buildings, which they were in fact entitled to do: the site had development rights of about 60 000 m<sup>2</sup>, while the existing eleven buildings only provided around 18 000 m<sup>2</sup> of floor area. However, they did not want to maximise their rights, as the preservation of the site and respect for the buildings as a group was essential for them.<sup>136</sup>

The last factor affecting the success of the conversion in terms of conservation are **initiatives from government bodies**. In this regard, the City Council commissioned architects to make conservation studies of parts of Cape Town. Although the Longkloof site "is identified in Rennie and Riley's Conservation Study of the Upper Table Valley as being 'a particularly fine complex of early industrial buildings, the first in the Upper Table Valley'," "it is excluded from the Upper Table Valley Policy Plan of 1984."<sup>137</sup> The intention of this policy plan was to direct and co-ordinate the upgrading of the whole Upper Table Valley. So basically, although the Longkloof site itself never received special attention, the City Council had previously drafted plans to upgrade the Upper Table Valley and the Lower Gardens, and this might have smoothed the way for the reuse of the site.

In conclusion then, it is clear from the above that in this case most of the original concept for the conversion could be executed. The intention to redevelop the two major warehouses into spaces usable by media, film, television, advertising and sound related industries<sup>138</sup> and the idea of turning the factory into a media centre had been successful: most businesses in the two warehouses and the MLT-building are still film- and advertising-related.

### B3.5 SUMMARY OF THE KEY FEATURES OF THE CASE STUDY

For purposes of comparison with the other case studies, the basic features of the reuse of this group of buildings are summarised hereunder in Table 10:

<b>General</b>	Case study	Longkloof Studios
	Original use	Tobacco factory
	New use	Film studios and media-related businesses
	Building year	around 1900
	Start date conversion	1993
	Structure	Almost free-standing load-bearing brick construction, inside jointless construction, consisting of wooden floors, timber joists, steel beams and steel supports
	Site surface	1,5924 hectares
	Total floor area	+/- 18 000 m <sup>2</sup>
	Zoning	General commercial
	Services	All necessary services were available

<b>Location</b>	Suburb	Gardens
	Level of upgrading environment	Medium to high
<b>Project-Economics</b>	Professionals	Developing manager, building contractor, architects, quantity surveyors, structural and civil engineers, electrical and mechanical engineers, fire protection consultants and land surveyors
	Approach	Entrepreneurial approach
	Funding	Five shareholders + commercial bank
	Cost	Medium
	Tenure	Joint tenancy
<b>Function</b>	Type of space	Open plan, large spaces
	Site type	Courtyard site
	Depth	Medium
	Frontage	Wide
	Aspect	Detached
	Match between form and function	Moderate to good
<b>Conservation</b>	Conservation processes	Repair, adaptations (some are copying the old)
	Design approach	Bringing into workable condition, keeping industrial look, celebration, continuity

Table 10: Key features of Case Study 2 – Longkloof Studios

1. De Beer, P., "Longkloof Studios", unpublished paper, nd.
2. Document, "Registration of the United Tobacco Company (South) Limited under the Company's Act of 1892", 13/03/1906, Cape Archives, LC, 259, 697.
3. The word 'site' means the site that was converted in 1993; the buildings on this site were not necessarily all part of the original UTC site.
4. During the conversion, the buildings were each given a number, in no way referring to the sequence in which they were built. Since the buildings are referred to according to these numbers in the available information on the conversion, they are used in this way throughout this case study.
5. It is uncertain when the first warehouse was built. Documents found in the Cape Archives provide different building years for this warehouse, ranging from 1900, 1903 to 1904.
6. Author unknown, paper on United Tobacco Company, nd., obtained from David Worth.
7. Letter from G. Patterson to Town Clerk, 23/07/1906, in which he complains about the nuisance caused by vibrations from dynamos in the engine house adjoining his own house, Cape Archives, 3/CT, 4/1/1/26, A249/1.
8. Letter and petition from neighbours to Town clerk, 28/11/1906, in which they state that "the noise of the machinery coupled with the smoke of the Factory, and the smell arising from the tobacco during the course of manufacture is almost unbearable at times...", Cape Archives, 3/CT, 4/1/1/26, A249/1.
9. Letter from United Tobacco Company to Town Clerk, 11/09/1907, Cape Archives, 3/CT, 4/1/1/69, D90/1.
10. Letter from Chief Officer of Fire Department to City Engineer, 27/07/1940, Cape Archives, 3/CT, 4/2/1/3/1062, B2234.
11. Letter from United Tobacco Company to Town Clerk, 11/09/1907, Cape Archives, 3/CT, 4/1/1/69, D90/1.

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12. De Beer, P., "Longkloof Studios".
  13. Letter from the City's Electricity Department to the Electricity and Waterworks Committee, 07/02/1941, Cape Archives, 3/CT, 4/3/1/152, 5/U/3.
  14. De Beer, P., "Longkloof Studios".
  15. Letter from architectural firm of Baker, Kendall and Morris to City Engineer with application for additional block of buildings, 20/11/1918, Cape Archives, 3/CT, 4/2/1/3/38, B2142.
  16. De Beer, P., "Longkloof Studios".
  17. *Ibid.*
  18. It was not possible to track down the building year of this engine house.
  19. This was probably the case because the supply of electricity from the Graaf Electrical Light Works was both inadequate and unpredictable. Found in: De Beer, P., "Longkloof Studios".
  20. De Beer, P., "Longkloof Studios".
  21. Author unknown, paper on the United Tobacco Company..
  22. *Ibid.*
  23. *Ibid.*
  24. *Ibid.*
  25. It was not possible to track down the building year of this warehouse.
  26. However, due to a lack of old plans and photographs, it was not possible to obtain precise information on these the adaptations, or on the precise dates of changes of ownership or of changes of new tenants. The only available information was gleaned from old documents and correspondence, found in the Cape Archives.
  27. The earliest indication that other companies were using the buildings was in 1952. Found in document dated 1952, Cape Archives, 3/CT, 4/2/1/3/2503, B5387.
  28. Document dated 1952, Cape Archives, 3/CT, 4/2/1/3/2503, B5387.
  29. Document dated 1952, Cape Archives, 3/CT, 4/2/1/3/2573, B570.
  30. Document dated 1952, Cape Archives, 3/CT, 4/2/1/3/2925, B3229/54.
  31. Personal communication with development manager Gary Moore, previously from Concor, 28/01/2000.
  32. *Ibid.*, 28/01/2000.
  33. Personal communication with architect Piet de Beer, 27/06/1999.
  34. *Ibid.*, 27/06/1999.
  35. De Beer, P., "Longkloof Studios", unpublished paper, nd.
  36. Personal communication with development manager Gary Moore, 15/03/2000.
  37. *Ibid.*, 15/03/2000.
  38. *Ibid.*, 28/01/2000.
  39. *Ibid.*, 15/03/2000.
  40. *Ibid.*, 17/03/2000.
  41. *Ibid.*, 17/03/2000.
  42. Personal communication with architect Piet de Beer, 27/06/1999.
  43. Personal communication with development manager Gary Moore, 28/01/2000.
  44. *Ibid.*, 17/03/2000.
  45. *Ibid.*, 15/03/2000.
  46. Groenewald Architects, "Longkloof. Redevelopment proposal for Gestalt" (Cape Town: 1992), pp. 1-3.
  47. Town Planning Branch, City Engineer's Department, "Upper Table Valley policy plan. Statement of problems and assets" (Cape Town City Council: 1984), p. 9.
  48. Groenewald Architects, "Longkloof. Redevelopment proposal for Gestalt", pp. 1-3.
  49. "New Land Use Restrictions imposed i.t.o. Section 42 (1) Ordinance 15/1985. Approval to subdivision SE 13594/1", in: Lipot Properties (presumably), "Longkloof Cape Town. Development proposals building n°1" (Cape Town: 26/11/1993), annexure B.

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50. Groenewald Architects, "Longkloof. Redevelopment proposal for Gestalt", p. 26.
  51. According to development manager Gary Moore, the sprinkler system was tested by putting it under pressure, and the pipes were holding the water.
  52. Personal communication with development manager Gary Moore, 28/01/2000.
  53. Only on one occasion was it not possible to make use of the existing water-based sprinkler system. One part of Building 2 could not use this system: the recording and transmission rooms of e-tv which contained expensive electrical equipment. Since water would ruin these machines, in this particular case a gas-based sprinkler system had to be installed. Personal communication with administration manager of e-tv Derrick Frazer, 29/07/1999.
  54. Personal communication with administration manager of e-tv Derrick Frazer, 29/07/1999.
  55. Personal communication with architect Piet de Beer, 27/06/1999.
  56. Personal communication with development manager Gary Moore, 17/03/2000.
  57. *Ibid*, 17/03/2000.
  58. *Ibid*, 17/03/2000.
  59. *Ibid*, 28/01/2000.
  60. Since the buildings were originally designed as warehouses, the floors had a high loading capacity, especially considering that the tobacco was spread out on the floor in flat sheets and was very heavy. The new use of businesses required a substantially lower loading capacity. Personal communication with architect Piet de Beer, 27/06/1999.
  61. Personal communication with architect Piet de Beer, 27/06/1999.
  62. Personal communication with development manager Gary Moore, 17/03/2000.
  63. *Ibid*, 17/03/2000.
  64. *Ibid*, 28/01/2000.
  65. *Ibid*, 28/01/2000.
  66. In the end, several cafés have been using the boiler house as their premises, but they were never economically viable, most probably because of the location, which is not visible from the roads surrounding the site. Personal communication with architect Piet de Beer, 27/06/1999.
  67. Personal communication with development manager Gary Moore, 28/01/2000.
  68. *Ibid*, 28/01/2000.
  69. This is to accommodate a company producing sport shows which was previously housed in the first warehouse but needed more space because of its success. Personal communication with security guard Jonathan Childs, 21/07/1999.
  70. Document provided by development manager Gary Moore, nd. (presumably from before the sale of the site).
  71. Personal communication with development manager Gary Moore, 17/03/2000.
  72. *Ibid*, 17/03/2000.
  73. *Ibid*, 28/01/2000.
  74. *Ibid*, 28/01/2000.
  75. It can be assumed that it was the same for the other buildings, although it was not possible to obtain exact figures for them.
  76. Personal communication with development manager Gary Moore, 17/03/2000.
  77. Personal communication with quantity surveyor Nigel Sessions of Farrow Laing Ntene, 03/04/2000.
  78. Personal communication with development manager Gary Moore, 17/03/2000.
  79. As discussed in the theoretical part (A2.1).
  80. National Monuments Council Archive, File 9/2/018/96, nd.
  81. Letter from National Monuments Council to General Provincial Services Branch, 16/05/1991. National Monuments Council Archive, File WCBOX153 on United Tobacco Buildings.
  82. Document provided by development manager Gary Moore, nd. (presumably from before the sale of the site).

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83. Document, "Registration of the United Tobacco Company (South) Limited under the Company's Act of 1892", 13/03/1906, Cape Archives, LC, 259, 697.
  84. Worth, D., "An assessment of the conservation framework in South Africa as it relates to the industrial heritage of Cape Town", unpublished dissertation submitted for the degree of Master of Social Sciences in Industrial Archaeology (University of Birmingham, Ironbridge Institute, 1993), p. 30.
  85. Personal communication with David Worth, March 2000.
  86. *Ibid*, March 2000.
  87. *Ibid*, March 2000.
  88. *Ibid*, March 2000.
  89. De Beer, P., "Longkloof Studios".
  90. Document provided by development manager Gary Moore.
  91. National Monuments Council Archive, File 9/2/018/96.
  92. Personal communication with David Worth, March 2000.
  93. Groenewald Architects, "Longkloof. Redevelopment proposal for Gestalt", p. 4.
  94. Personal communication with David Worth, March 2000.
  95. De Beer, P., "Longkloof Studios".
  96. Personal communication with Ass. Prof. Derek Japha, 24/10/2000.
  97. Personal communication with David Worth, March 2000.
  98. Personal communication with development manager Gary Moore, 28/01/2000.
  99. De Beer, P., "Longkloof Studios".
  100. Letter from McWilliams and Jones to City Engineer, 03/09/1906, Cape Archives, 3/CT, 4/2/1/1/23, 502/8.
  101. *Ibid*.
  102. Personal communication with David Worth, March 2000.
  103. Document provided by development manager Gary Moore.
  104. *Ibid*.
  105. *Ibid*.
  106. *Ibid*.
  107. Groenewald Architects, "Longkloof. Redevelopment proposal for Gestalt", p. 4.
  108. *Ibid*, p. 4.
  109. *Ibid*, p. 4.
  110. Personal communication with architect Piet de Beer, 27/06/1999.
  111. Personal communication with David Worth, March 2000.
  112. *Ibid*, March 2000.
  113. Personal communication with Ass. Prof. Derek Japha, 24/10/2000.
  114. Personal communication with architect Piet de Beer, 27/06/1999.
  115. *Ibid*, 27/06/1999.
  116. *Ibid*, 27/06/1999.
  117. *Ibid*, 27/06/1999.
  118. Personal communication with development manager Gary Moore, 28/01/2000.
  119. Personal communication with architect Piet de Beer, 27/06/1999.
  120. Personal communication with development manager Gary Moore, 28/01/2000.
  121. As mentioned in the theoretical part (A2.2).
  122. Personal communication with tenants, 21/07/1999, and development manager Gary Moore, 28/01/2000.
  123. Personal communication with architect Piet de Beer, 27/06/1999.
  124. Personal communication with development manager Gary Moore, 17/03/2000.

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125. *ibid*, 17/03/2000.
  126. *ibid*, 17/03/2000.
  127. Personal communication with security guard Jonathan Childs, 21/07/1999.
  128. Personal communication with security guard Jonathan Childs, 21/07/1999.
  129. Personal communication with development manager Gary Moore, 28/01/2000.
  130. De Beer, P., "Longkloof Studios".
  131. Personal communication with architect Piet de Beer, 27/06/1999.
  132. Personal communication with development manager Gary Moore, 28/01/2000.
  133. Personal communication with architect Piet de Beer, 27/06/1999.
  134. The only option the owners have is to demolish the whole structure and erect a new building on exactly the same spot. This is unlikely to happen, due to the economic success of the conversion. Personal communication with architect Piet de Beer, 27/06/1999.
  135. Personal communication with architect Piet de Beer, 27/06/1999.
  136. Author unknown, paper on United Tobacco Company.
  137. *ibid*.
  138. Personal communication with development manager Gary Moore, 17/03/2000.

University of Cape Town

# CHAPTER B4: CASE STUDY 3 – THE SOUTH AFRICAN BREWERIES, NEWLANDS

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## B4.1 INTRODUCTION

The reuse of some of the original buildings of the South African Breweries in Newlands as a visitors' centre forms the subject matter of this third case study. In comparison with the previous two case studies, this conversion utilised a high-cost and high-impact design approach.

The material for this case study came from interviews with the architects of the conversion and the quantity surveyor. Although they were willing to co-operate, the owner of the buildings – the South African Breweries – restricted them in providing plan material and exact cost figures (mainly for security reasons). However, the National Monuments Council did provide a file with information on the site and this information was combined with the material presented on the information boards in the visitors' centre itself. Further, the Cape Archives provided old photographs and plans of alterations, and the City Council also made some old plans available.

This case study is structured slightly differently to the previous two. First, there will be some discussion of the history and background of the project. Second, the management and budgetary constraints of the conversion will be examined instead of the economic feasibility, and third, its success in conservation terms will be evaluated. This will lead to certain conclusions on the key features of the case study. The text is illustrated with key figures and reference is also made to other figures, contained in Appendix B4 (Volume II). The code of these last figures starts with B4 and is followed by the number of the figure.

## B4.2 THE BACKGROUND OF THE PROJECT

### The history of the site

The site of the South African Breweries is located along the strategic Main Road in Newlands, a Cape Town suburb that is further away from the city centre than the sites discussed in the previous two case studies (see Fig. 30). Newlands was originally part of the Liesbeeck Valley.<sup>1</sup> The extension of the frontier from Cape Town to the Liesbeeck River was the beginning of the European colonisation of the Cape Colony.<sup>2</sup> The earliest structures built in the valley date back to 1657, when the Dutch East India Company erected the barn 'De Schuur'.

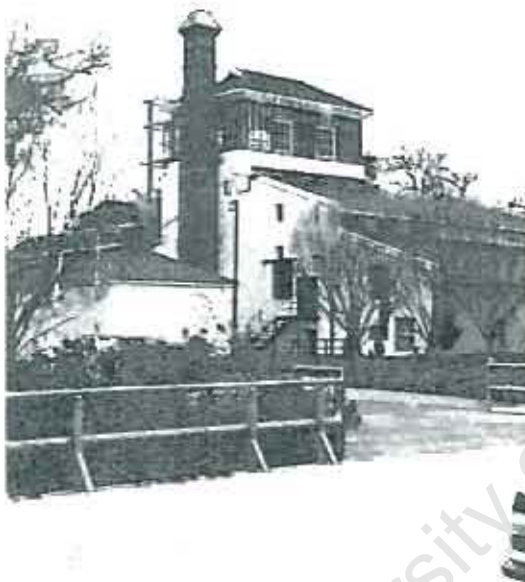


Fig. 30: Map of South African Breweries site and surroundings (current situation)  
(Source: David Worth)

Later, part of the land was subdivided into five farms, of which one area was bought by the Swede Jacob Letterstedt and called 'Mariendahl' (see Fig. B4/1). Letterstedt was listed in 1826 as a 'brewer' and it is from this date onwards that the site has been associated with beer brewing.<sup>3</sup> The location of the site was ideal for brewing, as there were nearby mountain streams with good quality water.

The Mariendahl Brewery, an extension of the now demolished earlier brewery of Letterstedt, was completed in 1859, while additions continued over a period of time, culminating in the addition of a tower in 1880 (see Fig. 31).<sup>4</sup> Although the actual designer of the original structure is unknown, it is known that one Adolphus W. Ackermann was responsible for the design of the tower and for later additions to this brewery building.<sup>5</sup> The Mariendahl Brewery is one of the buildings that form part of the recently reused site, which is the focus of this case study.

Fig. 31: View of Mariendahl Brewery of 1859 (current situation)



However, Mariendahl was not only associated with beer making, but also, for instance, with the production of spirits. In this regard, it is highly likely that the 'distillery' building – as it was called on the site plans of 1863 – was related to the production of spirits.<sup>6</sup> This distillery of 1863 still exists and also forms part of the recent conversion.

In 1881, another Swede, Anders Ohlsson, purchased part of the nearby Estate Papeboom.<sup>7</sup> He realized "that the key to the whole brewing industry was a copious supply of water."<sup>8</sup> As a result, he gradually bought up all the breweries in the area, so as to "ensure that he had control of every rival brewery in the area, and possessed all the water rights so necessary for brewing."<sup>9</sup> In 1888 he also leased the Mariendahl Estate, before buying it in 1896 (see Fig. B4/2).<sup>10</sup> During the lease period and thereafter Ohlsson replaced and erected many new buildings on the site. In 1898, he added the malt house with the kiln to the site.<sup>11</sup> This is the third building that forms part of the conversion (see Fig. 32).



Fig. 32: View of malthouse with kiln as it looks today (top level of Mariendahl Brewery)

The purpose of the malt house was to prepare the barley for the beer making process by steeping and kilning it.<sup>12</sup> From the malt house, the barley was then taken in bags to the Mariendahl Brewery, where the actual beer making process started.<sup>13</sup>

Over the years, several buildings were added to the site to keep pace with developments in the beer making process. While the Mariendahl Brewery produced pale ale, another brewery was erected on the site in 1902 for the production of English beer or lager. In the meantime, the Mariendahl Brewery was modernised and remained in production.<sup>14</sup> In 1903, new expansions were again necessary, and Onlsson commissioned the architect John Parker to design several new buildings on the site, such as a pneumatic malt house, a lager tower brewery, a bottling shed and a pump house. The barley malt of the malt house was now transported by rail to the new brewery (Figs. B4/3 and B4/4).<sup>15</sup> In the 1950s, growth and modernisation were again inevitable. In 1953, a new five-storey lager brewery was completed adjacent to the existing plant, while the lager building of 1902 was demolished.<sup>16</sup>

In 1956, Ohlsson's Cape Breweries finally merged with its main rival, SA Breweries. This happened after a long period of collaboration, which had begun in 1905. The new company was called the South African Breweries (SAB) and had its headquarters in Johannesburg. This merger resulted in the closing down of the SAB Castle Brewery in Woodstock, "while the brewery at Mariendahl was improved and has since been extended with new buildings and continuous upgrading"<sup>17</sup> Only in the 1970s did Parker's malt house at Newlands stop supplying malt for the brewery. The malt supply thereafter came from the newly constructed maltings at Caledon.<sup>18</sup> At present, the SAB is one of South Africa's largest companies. Although producing beer is still its main enterprise, the SAB has expanded into other areas as well.<sup>19</sup>

In 1994, the SAB decided to convert the Mariendahl Brewery of 1859 and the malt house of 1898 into a visitors' centre. At that time, these buildings were in a fairly rundown condition, as they had partly been used as storage space and had been neglected over the years.<sup>20</sup> The conversion took place in view of the SAB's centenary celebrations, which were to take place in May 1995.<sup>21</sup> The purpose of the visitors' centre was to "reconstruct the history of beer-making in the Cape"<sup>22</sup> for the public. Although the SAB intended to develop "a wider, more comprehensive tourist experience of this most historic part of Newlands",<sup>23</sup> their aim was mainly commercial and for advertising purposes:<sup>24</sup> to increase public knowledge of their corporate name

The SAB instructed the firm of Gabriel Fagan Architects to redesign the buildings and landscape their immediate surroundings. In addition to the visitors' centre, the program also included "parking for visitors and staff (100 open, 100 covered bays), lecture, dining and pub facilities for staff, memento shop and the reuse of the 1863 distillery as an environmental centre."<sup>25</sup> Included in the architects' brief was historical research on three hundred years of brewing history at Newlands, together with the drafting of the text for and the design of the visitors' information boards.<sup>26</sup>

The conversion had to be finished within a fairly tight schedule (one year) so as to be completed in time for the World Cup Rugby in 1995. As the site was located adjacent to the Newlands rugby stadium, the SAB intended to use it to entertain large numbers of VIP guest who came to the rugby stadium.<sup>27</sup>

## B4.3 MANAGEMENT AND BUDGETARY CONSTRAINTS

Whereas the previous two case studies at this point dealt with the feasibility of the conversion project, this is not relevant for this case study. Part of the reason is that there is no comparable material available, such as cost calculations to substantiate whether the reuse project was more viable than a green-field development on the same site would have been, or calculations of the returns generated by the conversion for investors. In any case, a section focusing on feasibility would be irrelevant in this case, because of the brief of this conversion project: the conversion was intended as a promotion, and not as an investment (in the traditional sense). The primary intention of the SAB was not to receive a hard liquid return, but to increase public knowledge of their corporate name. Their aim was thus to attract as many people as possible to the visitors' centre, and to make sure that they would be satisfied with their visit.

As a result, the conservation quality of the conversion was crucial: the SAB had decided at the outset that the buildings were to be retained because of their qualities and history. They could do this because they were able to provide the finance for such a commercial exploit.

The whole process of funding and developing the conversion is discussed under the heading 'The funding and development model'. The budget was high enough for them to be able to afford to conserve the buildings to a large extent, although the budget was not completely unlimited. Therefore, the cost implications for the different phases in the conversion will be discussed under the next heading 'Amount of work required for the conversion and its cost implications'. The ultimate gauge of the success of the conversion project is the satisfaction of the client, which is discussed briefly thereafter.

### **The funding and development model**

The funding and development model chosen for the conversion was based on the principle that the architects and their recommendations were central to the conversion. Basically, the client, SAB, had chosen the specific architectural firm because of its knowledge of and experience in conservation projects. For the same reason, they decided that the architects would be the overall manager/developer of the project. This meant that the architects were doing the historical research and, in accordance with this knowledge, were delegating work to other professionals, such as engineers, quantity surveyors and archaeologists.

The funding came entirely from the client: the SAB put forward a specific budget, with the intention that the conversion should not exceed this. This budget was without a doubt high.<sup>25</sup> The other, vitally important, condition was that the project had to be ready in time for the World Cup Rugby tournament.<sup>26</sup> Whereas the latter goal was accomplished, the budget appeared to have been inadequate. This could be attributed to time delays and increased costs caused by the excavation works and to extra requests from the client, which will be discussed hereunder in more detail.

First of all, certain time delays occurred because of the necessary excavation works. From their research, the architects were aware of old buildings that had been part of the brewery, and that had since been demolished. As they could determine the approximate positions of these buildings by means of this research, they instructed archaeologists to do the actual excavations and to analyse their findings.<sup>27</sup> As the excavations progressed, it became increasingly clear that there was a significant amount of important material to be found underneath the site, in the soil itself. Inevitably, these excavations resulted in time delays, even though the architects were continuing with the conversion works at the same time. One particular delay occurred, for instance, when the water mains that feed the brewery were unearthed during the excavation works. The architects had to re-route the pipes. As the brewery was operational twenty-four hours a day, it took a while before they could find a suitable time when the pipes could be shut down.<sup>27</sup> Finally, the architects had to stop the excavations as they took too much of the time available for finishing the conversion and were causing financial difficulties.<sup>27</sup>

Extra requests from the client also created additional costs, which had not been budgeted for originally. In some cases the client was convinced of the suitability of certain solutions that fell outside the budgetary limits, the architects persuaded them that in the end the conversion would benefit from their more expensive propositions.<sup>28</sup> For example, when the excavations indicated that there was important material found underground, it was decided to partly reveal this for the public by designing and constructing an entire underground passage system (which had cost implications) (see Fig. B4/5).<sup>28</sup> Another example were the hinges of the doors: the architects convinced the client to have these custom-made; designing and ordering the hinges resulted in additional costs.<sup>29</sup>

Ultimately, then, the budget appeared to have been inadequate. This was despite the fact that the quantity surveyors had done very thorough calculations on the financial implications of the architects' design solutions. A budget was also available for unforeseen elements (such as bringing in the NMC if artefacts and relics of buildings were found during the conversion works). Nevertheless, in the end this was not a real problem, as the client was able to apply for extra money from its headquarters.<sup>36</sup>

## The amount of work required for the conversion and its cost implications

The amount of work required to convert the buildings into a visitors' centre resulted in cost implications for each of the following phases: making the site compliant with the zoning regulations, the landscaping of the site, making the buildings compliant with building regulations, the restoration and rehabilitation of the buildings, the adaptation to the new use, and the creation of visitors' and staff flow patterns. Each of these phases will be briefly discussed hereunder.

First, approval for re-zoning had to be obtained, as the site had previously been zoned as industrial and as the buildings were now to be opened to the public.<sup>37</sup> However, although this did take some time, about three months, it was no more than was normal for a rezoning application and did not result in time delays or cost implications.<sup>38</sup>

Part of the architects' brief was to landscape the site, which was done in a second stage. This did not have high cost implications either. Apart from slightly upgrading the existing situation, the redesign of the parking (see Fig. B4/6) on the site was central to the landscaping, as can be seen in Figs. 33 and B4/7.<sup>39</sup> Whereas previously, vehicles had been able to park all anywhere on the site, the client instructed the architects to concentrate the parking in one area, and to provide 200 parking bays for visitors and staff. Ordinary parking bays were created between the buildings, while a further site was proposed for a new parking area. As this parking site was very visible from the Main Road, the architects decided to design an unobtrusive "two-level parking garage with covered parking and open parking above",<sup>40</sup> which was done as cheaply as possible.

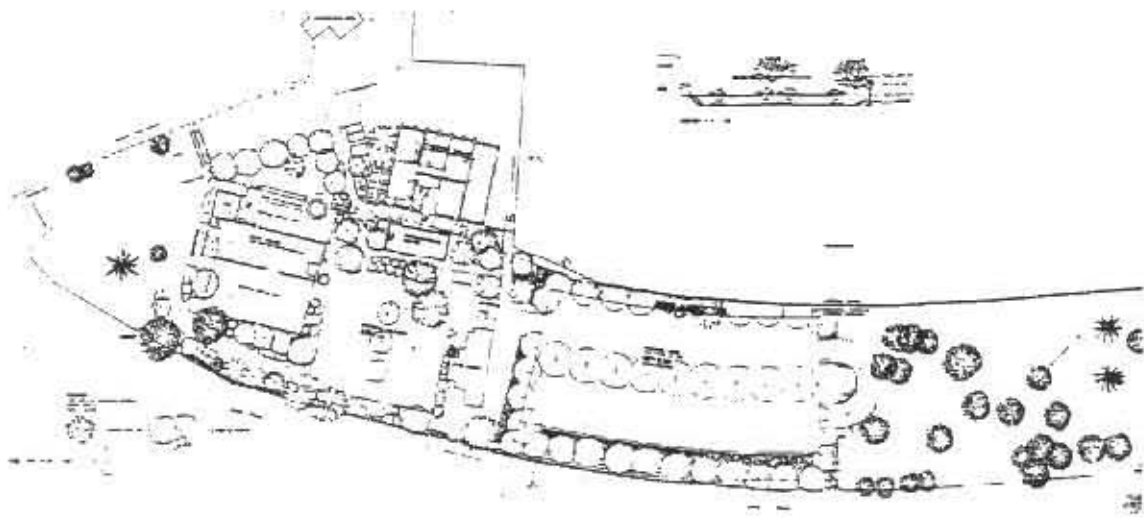


Fig. 33 Plan of reused site, with new parking area (Source: *Architecture SA*, September-October 1995, p. 13)

In a third phase, the buildings were made compliant with the building regulations, particularly those related to fire. It was decided from a design point of view to leave the structure visible. Therefore, all the structural timber and steel work had to be treated with fire retarding paint, which was costly. In addition, a sprinkler system was installed in the buildings. However, the necessary alterations to accommodate the fire regulations were ultimately useful for the overall conversion of the buildings. For example, where new stairs were necessary for alternative escape routes, this suited the planning of the buildings anyway because these stairs could be used as part of the visitors' circulation route (see Fig. 34).<sup>41</sup>



Fig. 34: New staircase outside malthouse (part of the escape route and of the visitors' circulation route)

In a fourth phase, the buildings were restored and, where necessary, rehabilitated. Although the buildings were neglected and in a fairly rundown condition at the time of the conversion, they were structurally in a good condition<sup>43</sup> and apart from the construction of some buttresses, no work had to be done to the structure.<sup>43</sup> The main costs only involved plastering, earthworks and joinery, no structural work.<sup>44</sup>

In a fifth phase, the buildings were adapted to the new function of a visitors' centre. As this function adapted itself entirely to the size of the existing spaces, it was merely a matter of locating all the activities – such as the shop (see Fig. B4/8) and the exhibit rooms (see Figs. B4/9 and B4/10) – wherever they were the most appropriate. This resulted in minor costs.<sup>45</sup> Only in one case were costly adaptations necessary. At one stage, when the architects saw that extra space could be gained by excavating the basement of the Mariendahl Brewery, they wanted to create the bar there. This was an expensive operation, far more expensive than the originally proposed smaller bar, as walls had to be underpinned in order to excavate the basement. However, the SAB were very happy about the gain of space, approved the plans and made extra money available.<sup>46</sup>

In a sixth phase, staff flow patterns of visitors and staff had to be created. This resulted in some expensive additions, although this was caused by the fact that the architects wanted to design all the necessary elements. For instance, it was decided to construct an elevator alongside the reconstructed tower of the Mariendahl Brewery, in order to bring visitors to the top level from which the tour starts (see Fig. 35). Because this element was so important for the overall architectural quality of the reuse, the architects felt it necessary to design this elevator themselves, instead of inserting a (cheaper) prefabricated one (see Fig. B4/11).<sup>47</sup>

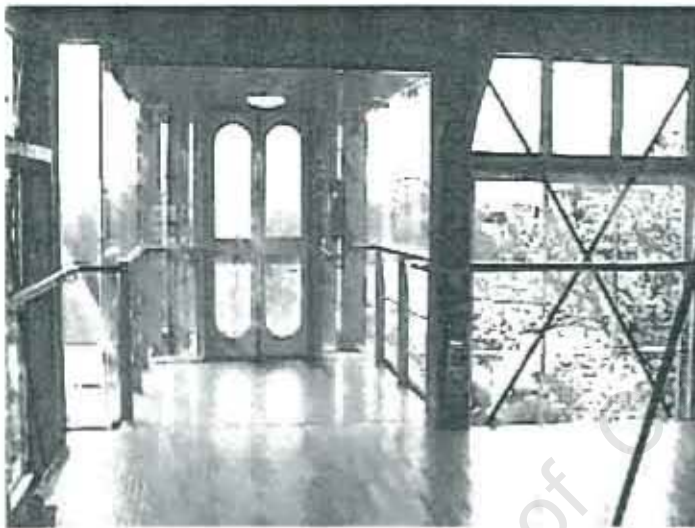


Fig. 35. View from top of Mariendahl Brewery towards new elevator

### The satisfaction of the client

The main indicator for the success of this conversion was the level of satisfaction of the client with the reuse project. Although it was not possible to ask the client's opinion, the architects indicated that the SAB was certainly satisfied with the reuse of the buildings. The SAB was pleased that the buildings have been qualitatively reused, and that visitors appreciate the conversion and the tour offered.

Basically, their aim was to attract as many people as possible to the buildings, so that visitors could be educated about beer, so that they would be stimulated to think about beer and eventually drink beer.<sup>48</sup> In this regard, it can be said that the conversion was successful, as there was no problem with attracting large numbers of visitors to the site.<sup>49</sup> It appears that the visitors' centre of the SAB in Johannesburg – where an American firm was brought in to design an entirely new building – has not been so successful with visitors as the one in Newlands,<sup>50</sup> although it has a larger public potential. According to the architects, this may indicate that people are more attracted by reused buildings than they are by new ones, and if so, this may pave the way for other companies to reuse their industrial heritage in a similar way.<sup>51</sup>

## **B4.4 THE SUCCESS OF THE PROJECT IN CONSERVATION TERMS**

The following section will deal with the success of the conversion of the old SAB buildings in conservation terms. It will identify and discuss the elements influencing the success or failure of the conversion, as well as the consequences of such success or failure.

As in the previous two case studies, in order to provide the necessary framework and background for such an analysis, this section will be structured as follows: it will describe and analyse the buildings on the site in the light of their cultural significance; it will discuss the quality of the conservation in architectural and in urban terms; and finally, it will examine which factors influenced the ultimate success or failure of the conversion project in conservation terms.

### **The buildings on the site and their cultural significance**

In order to evaluate the success or failure of the conversion of the old brewery buildings in conservation terms, it is important first to establish what their specific cultural significance is. Only thereafter can it be determined whether the design approach used for this particular conversion – as discussed immediately hereafter – was in fact able to retain and protect this significance.

In comparison with the two previous case studies, the involvement of South Africa's conservation body was somewhat different. In fact, during the course of the conversion process, application was made to declare two of the three buildings that are dealt with in this case study National Monuments (namely the Mariendahl Brewery and the Malt house with kiln) and further to declare part of the SAB site a National Monuments area. This application was finally approved on 22 September 1995, a few months after the official opening of the buildings.<sup>52</sup>

It is clear from the NMC's file with regard to the application that the cultural significance of the site and its buildings had been properly assessed – or in any event more thoroughly than was the case for the previous two case studies for example. It is thus appropriate to use their assessment as a basis for the following discussion. Included in the NMC's file are datasheets, completed by the architect. These datasheets are structured around the different kinds of cultural values, and go beyond the scope of architectural or aesthetic value. They are also used for the following discussion, together with more extensive information obtained from the archaeological reports, which were written after the excavations had been completed.

The site itself has **urbanistic value**, as it can be considered a landmark in Newlands.<sup>53</sup> Together with the nearby Josephine Mill Museum, it definitely contributes to the character of its surroundings; moreover it enjoys a certain prominence on the Main Road, thereby contributing to the character of the street.

The site's **historical value** lies in the fact that it has "important historic links with both the personalities and development of this part of the Southern Suburbs of Cape Town."<sup>54</sup> The involvement of Letterstedt and Ohlsson was crucial for the growth of this area, and the brewery site effectively encompasses and represents the history of brewing in the area as far back as 1826.<sup>55</sup>

Both the Mariendahl Brewery and the Malt house with kiln form a complex of buildings with **architectural value**, as they are an important example of a particular style or period.<sup>56</sup> They are "amongst the finest and most important examples of Victorian industrial architecture remaining in Cape Town."<sup>57</sup> They have been described in the following terms in the documents dealing with the proposed declaration of the buildings as National Monuments: first, the Mariendahl Brewery (see Fig. B4/12) "contains typically Victorian industrial finishes throughout, including limewashed fairface brickwork, both internally and externally, some outstandingly ornate cast iron windows and hard industrial finishes such as steel joists supporting the internal timber floors."<sup>58</sup> Second, the Malt House with kiln (see Fig. B4/13) contains striking examples of the original timber post and truss construction methods used extensively in Victorian industrial buildings."<sup>59</sup>

Both buildings also have **technical and scientific value**, as they are important examples of industrial development, and in addition, one of the only brewery buildings of that period left in the country.<sup>60</sup> They provide significant information on how a brewery worked at that time. The Mariendahl Brewery, for instance, in which the brewing process was carried out, "still contains the remains of the original brewing equipment"<sup>61</sup> (see Figs. B4/14, B4/15 and B4/16) and its fabric reveals how the brewing process must have worked during its operational period. The imposing tower – added to the Mariendahl Brewery in 1881 – indicates that the previously horizontal process of beer brewing must have changed at one point to a vertical, gravity driven process.<sup>62</sup> At the start of this process small buckets inside the malt elevator would carry the barley to the top of the tower; the barley would then descend through a series of processes until the beer had been produced (Fig. B4/17).<sup>63</sup>

The fabric of the Malt House with kiln, too, illustrates how the process of steeping and kilning the barley worked at that time.<sup>64</sup> Indicative of this is its design, "similar to most nineteenth century European malt houses, with the steeping tank and malting floor on the ground floor and storage and kilning on the top floor."<sup>65</sup> The walls and the exposed timber had been whitewashed to prevent the presence of weevils and the cemented ground floor had several drainage channels.<sup>66</sup> Attached to the malt house is a kiln, which was used for drying the malt. It contains "the original steel floor for drying the barley, as well as the remains of the kiln itself and a labyrinth of surrounding passages at basement level."<sup>67</sup>

The distillery, too, is of value, because it is part of the history of this significant site and forms an integral component of it. However, its main value lies in the fact that it is one of the only remaining indications that the site was not solely used for beer making:

"...the production of spirits, such as brandy, would account for the usage and identification of the 'distillery' on the 1863 plans."<sup>68</sup>

With regard to the **archaeological** value of the site, several artefacts were found during excavation works as well as in the buildings themselves, such as ceramics, glass, and metal artefacts (see Fig. B4/18). The excavations also clearly indicated that the site had been the subject of multiple reuses, as various structural remains were found. In this regard, however, "it has been difficult to ascertain which of the various features relate to each other."<sup>69</sup> The remains of tanks, flues, and a brick covered culvert yielded valuable information about "the transport and usage of quantities of water, the surplus of which was allowed to flow to Josephine Mill."<sup>70</sup> In this way, these excavations actually contributed to and helped to bring out the cultural significance of the site. Furthermore, the information on the brilliant flue system "once more emphasises the ingenuity and knowledge of the old time brewers and engineers."<sup>71</sup>

The proposed declaration of the buildings as National Monuments occurred on the initiative of the architects. It was their information that was used as a source for the assessment of the cultural significance of the buildings. They were also the ones who compiled the datasheets necessary for the application. Although there is no doubt that the architects did a proper and very thorough job, it can be asked whether it would not have been better if the NMC had taken the initiative, instead of a party closely involved in the project and with vested interests<sup>72</sup> in its outcome.

## **The quality of the conservation of the project in architectural and urban terms**

The question now arises whether the cultural significance was in fact retained with the conversion into a visitors' centre, and how this was actualised. The quality of the conservation in architectural and in urban terms must therefore be analysed more thoroughly

In terms of the **architectural quality** of the project, this will involve an analysis of the design approach adopted for the reuse. In this particular instance, the reason for adopting a particular design approach differed from the previous two case studies: briefly put, in this case, economic considerations were less important. Basically, it had already been decided at the outset to reuse the buildings with a great deal of respect for conservation issues. Confronted with a few historic buildings and a range of car shelters, the brief of the architects was to reuse the buildings and design new vehicle, visitors' and staff flow patterns, with a distinctive visitors' route linking the various components of the historic buildings with each other.<sup>73</sup> Although the available budget did have to be monitored throughout, decisions were rarely made on economic grounds, it had been decided that conservation issues were as important, if not more so, than budgetary ones. Of course, the reason why this was possible was that the budget could be increased if necessary.

With this in mind, the architects based the entire design approach on the following idea. In essence, their stance – based on years of experience in conservation projects – was that old buildings should be respected. Thus, rather than trying to imitate the old design (thereby perhaps creating confusion between the new and the old), they ensured that any new additions were recognisably new, although not disregarding the history of the buildings. In this way, the authenticity of the buildings was kept intact and their significance and history were highlighted.<sup>74</sup> An example of this method can be found on Figs. 36 and B4/19.



Fig 36. Original staircase and obviously modern new staircase (Mariendahl Brewery)

This was accomplished in the following manner: the original fabric merely needed to be 'cleaned up', as the buildings were structurally sound (see Figs. B4/20 and B4/21). Some missing or damaged components had to be replaced, for example, missing windows were replaced by replicas, which had been recast from the old patterns. The damaged and half-collapsed brick chimney next to the tower of the Mariendahl Brewery was rebuilt using new bricks that matched the original ones as closely as possible, based on old photographs of the chimney when it was still intact.<sup>75</sup>

With regard to the question of which period of the building's history should be given preference, the following decision was made. The architects did not restore the buildings to their original state, but chose to respect the entire history of the buildings. Elements that had been added to the building at a later stage were retained, if they were seen to contribute to the overall cultural significance of the building; if, on the other hand, they did not add anything to the quality of the buildings, they were removed.<sup>76</sup> The aim throughout was to highlight the history of the buildings. In practice, this meant that the decision of the architects of what to keep of the buildings depended on what would be relevant for the visitors and what would add to the history of the place (see Fig. B4/22).<sup>77</sup>

For example, it was discovered that the present location of the VIP dining room had previously been a wine cellar; it had been built in the eighteenth century by one of the first owners of the site who had been a wine-producer. The section of a wall of this cellar, which was still intact, was left standing, in fact, it was decided to expose the wall and put glass in front of it for protection. In this way, the VIP dining room has the added interest of looking back over a couple of hundred years at one of the first walls that was ever built on the site.<sup>78</sup>

Another example involves the archaeological excavations: it was decided to reveal parts of these to the public (see Figs. B4/23 and B4/24), and in addition to expand on what the visitors could see by means of information boards. Deciding which parts of the excavations to reveal depended on matters of significance, but also practicality. For example, excavations of some of the earliest relics of the buildings were too large to display effectively; it was thus decided to fill these up with sand to permit future scrutiny.<sup>79</sup>

The only major alterations and additions to the fabric involved the addition of linking structures, so as 'to provide a spine to take the visitors chronologically through the physical spaces and historical processes of beer-making'.<sup>60</sup> The route that the visitor takes is indicated on Fig. B4/25. This walkway is entirely colour-coded in blue and made of materials that contrast with the existing fabric, such as glass or steel; in this way, it is highly visible, as seen on Fig. 37.<sup>61</sup> The alterations and additions are clearly of a modern design, although they still relate and fit comfortably with the old (see Fig. B4/26).



Fig. 37: New staircase (part of visitors' route)

The method of 'disconnection' is also used, which means that the new additions are barely 'touching' the original fabric: this reinforces the overall concept of keeping the original fabric as unchanged as possible. For example, the new elevator, which takes visitors to the top of the tower of the Mariendahl Brewery from where they have a view of the whole site and its surroundings, is clearly of a modern design and uses modern materials, thereby contrasting with the old fabric of the brewery tower. Yet, it still relates to the original fabric, as visually, the shape of the new elevator is similar to that of the rebuilt chimney and constructed very near to it. Further, the contact between the elevator and the original fabric is kept to a minimum: the glass lift shaft stands free from the original fabric, and is as unobtrusive as possible, as can be seen on Fig. 38.<sup>62</sup> Another example is the new railing of the visitors' walkway, which tries to avoid contact with the old fabric, as can be seen on Fig. 39.

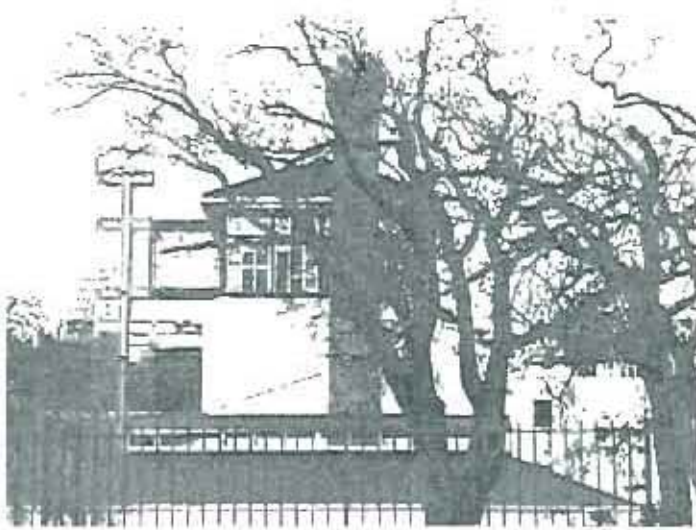


Fig. 38 View of new glass elevator disconnected from Mariendahl Brewery

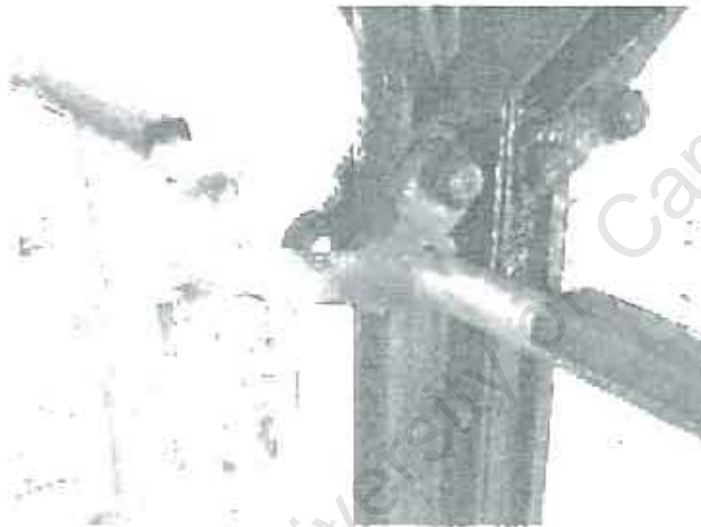


Fig. 39 view of new railing (unobtrusive with regard to one of the original columns)

The alterations and additions not only treated the fabric of the buildings with respect, but also the artefacts, as the following example illustrates. As there were not that many artefacts left in the buildings at the time of the conversion, the SAB decided to bring down an old copper tank from its Johannesburg based brewery. They instructed the architects to integrate it into their design,<sup>43</sup> although the architects questioned whether bringing in artefacts that were not originally part of the building would contribute to the preservation of the building's authenticity. Despite this, the tank was to become the focal point of a newly designed covered walkway, which leads the flow of visitors outside from the malt house to the brewery. Next to the walkway, a modern water feature of an artist had to be integrated (see Fig. B4/27). This walkway proved to be quite difficult to design, because its roof was not supposed to obstruct the view of the water feature and the tank when the visitor walks from the top level of the malt house to the outside ground level. It was thus decided to use glass for the roof of the walkway, and to construct supporting pillars in a peculiar shape and form, as seen on Fig. 40. In this way, the whole construction is as transparent as possible and of an obviously modern design, and the artefact itself is properly highlighted.<sup>44</sup>



Fig. 40 View of covered walkway, with supporting pillars

Smaller alterations to the buildings were also done as unobtrusively as possible. For example, much of the new infrastructure was left visible and painted in a prominent colour; moreover, holes in the walls were kept to a minimum, so the existing fabric was kept fairly intact.<sup>85</sup>

To conclude, it can be said that the adopted design approach is one of 'opposition of styles'.<sup>86</sup> The new design is clearly different to the old, stands in stark contrast with it and highlights it by means of references to the existing fabric (as discussed in the case of the new elevator). By disconnecting the new components from the original fabric, the fabric has been left as intact as possible. In short, the cultural significance of the buildings has been protected, even emphasised, and the architectural quality conversion can definitely be called successful in conservation terms – the new design even won an architectural award.

With regard to the **urban quality** of the site's surroundings, the following has occurred. The area had already been quite pleasant and active before the conversion (thereby also attracting people to the visitors' centre), and this stayed the same after the conversion. The restored and reused Josephine Mill Museum (which had already been converted into a museum prior to the conversion of the SAB buildings) is close-by (see Fig. B4/28), and as it has the same purpose as the visitors' centre – namely educating the public on the former use of the buildings (see Fig. B4/29). These two sites are thus able to reinforce each other.<sup>87</sup> The success of the SAB visitors' centre, however, did not create any new initiatives in its surroundings. Currently, there is still no connection between the two sites, although there are plans to put them on the same tourist route, which would most likely increase the numbers of visitors coming to the centre even more.<sup>88</sup> The close-by Sports and Science Institute, the Rugby Stadium – with its Sunday rugby matches – and occasional activities on the nearby site of the currently operating brewery of SAB, enhance this pleasant environment (see Fig. B4/30).

There was not much opportunity for the conversion to improve the urban quality of its surroundings significantly, for the following reasons. The site is situated some distance from the centre of Newlands, a prosperous suburb, dominated by upmarket housing, while also containing a few small businesses. It was felt necessary to have a tight security check at the entrance, both for the visitors' centre and for the working factory.<sup>89</sup> This has resulted in the fact that the site is not very approachable for occasional pedestrians and has difficulties interacting with its surroundings (see Figs. B4/31 and B4/32). In short, the site's location in a suburban environment – which is quite different from a city structure – with hardly any surrounding buildings in combination with its strict boundaries (see Fig. B4/33) and tight security isolates it: the site is effectively an island in the suburban structure. The only positive point is that the site does enjoy now a certain level of prominence on the Main Road (see Fig. B4/34), because of the architectural quality of its conversion.

### **Factors that impacted on the quality of the conversion in conservation terms**

The conversion can be called a success in architectural terms. This has been the result of a number of factors, such as the match between the fabric of the buildings and the new use on the one hand, and the conservation restrictions and initiatives of government bodies on the other.

One factor that affected the success of the conversion in conservation terms was the **good match between form and function**. It is not necessary to use the theory of part A for an analysis in this regard, as the spaces were mainly reused for museum purposes. This merely involved restoring the spaces and making minimal adaptations to create displays of artefacts or exhibit remains of structures, as well as inserting some stairs and passages for visitors. There were a few more significant additions, though, in the form of the elevator and the glass-covered walkway between the Malt House and the Mariendahl Brewery. As for the accommodation of the shop and the pub, it was merely a matter of finding the right spaces for these functions, so no adaptations would be necessary.

Another factor, which affected the success of the conversion in conservation terms, concerns **the conservation restrictions and initiatives of government bodies**. In contrast to the previous two case studies, a government body, the NMC, here implemented the conservation restrictions. They closely monitored the conversion, as the buildings were at the time in the process of being declared National Monuments. As (proposed) National Monuments are more closely monitored by the NMC than other conservation-worthy buildings, the architects had to ask them for permission whenever they intended to make major alterations to the buildings; for example, they had to obtain permission to partially demolish the brick sewer on the site, so as to "allow access at the basement level from the tunnel connecting the malt house, to the Mariendahl brewery."<sup>90</sup> Nevertheless, these restrictions never posed any practical problems.

Whereas the NMC could impose conservation restrictions, the archaeologists who were appointed by the architects to do the excavations on the site could merely make suggestions and recommendations as to how their discoveries had to be interpreted and treated. Although the architects did take these recommendations into consideration, they had the final say. Ultimately, the architects made their decisions based on practicality, economics and time constraints. They could thus not allow the archaeologists to carry on endlessly with their excavations because they had a program to keep to.<sup>91</sup>

In the end, discussions between the archaeologists and the architects generally resulted in a compromise, as the following example indicates. The archaeologists had recommended to roof over the entire kiln area with its associated flues and passageway, as they thought it was "a unique opportunity to show visitors an excavated archaeological site under cover, which will not deteriorate due to exposure to weather."<sup>92</sup> In this case, the following compromise was reached: only part of the kiln area was displayed. The area was properly illuminated and a surface skylight was included in the roof, through which visitors could view the area. Moreover, the floor level of the passageway had to be dropped so that people could gain access to a window (see Fig. B4/35).<sup>93</sup>

In practice, the architects themselves made the necessary decisions. In most cases this might have been a potentially dangerous situation, as economic considerations are often paramount and conservation issues are frequently dismissed or ignored. However, this was not a problem for this particular case study. It is generally acknowledged among other architects and architectural journals that the architects on this project were qualified and experienced enough to decide what was the best solution for the overall quality of the conservation and conversion.

## B4.5 SUMMARY OF THE KEY FEATURES OF THE CASE STUDY

The following Table 11 summarises the basic features of this case study with the aim of comparing it with the other two case studies at a later stage in the concluding chapter.

<b>General</b>	Case study	South African Breweries
	Original use	Brewery
	New use	Visitors' centre
	Building year	1859, 1863, 1898
	Start date conversion	1994
	Structure	Wooden structure and brick walls
	Site surface	2 526 m <sup>2</sup>
	Total floor area	+/- 1 500 m <sup>2</sup> (as roughly calculated on plan)
	Zoning	General Residential Use Zone, R5 changed to General Industrial Use Zone
	Services	All necessary services were available
<b>Location</b>	Suburb	Newlands
	Level of upgrading environment	Low
<b>Project-Economics</b>	Professionals	client (= funder), architect, archaeologists, National Monuments Council
	Approach	Entrepreneurial approach
	Funding	Private, from commercial client
	Cost	High
<b>Function</b>	Tenure	None
	Type of space	Open plan and cellular, combination of small and large spaces
	Aspect	Detached
<b>Conservation</b>	Match between form and function	Good
	Conservation processes	Restoration
	Design approach	'Opposition of styles'

Table 11: Key features of Case Study 3 – South African Breweries

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1. Saitowitz, S., Fenton, C., Archaeology Contracts Office, "Phase I – archaeological investigation at Ohlssons Breweries, Newlands", prepared for the South African Breweries centenary project (University of Cape Town, May 1994).
  2. *Ibid.*
  3. *Ibid.*
  4. National Monuments Council Archive, File 9/2/111/0133 on the South African Breweries site in Newlands, document "Proposed declaration as a National Monument: the Letterstedt Building, Ohlsson's Brewery, Newlands", 14/09/1994.
  5. *Ibid.*
  6. Saitowitz, S., Fenton, C., Archaeology Contracts Office, "Phase I – archaeological investigation at Ohlssons Breweries, Newlands".
  7. *Ibid.*
  8. *Ibid.*
  9. *Ibid.*
  10. *Ibid.*
  11. National Monuments Council Archive, File 9/2/111/0133 on the South African Breweries site in Newlands, document "Proposed declaration as a National Monument: the Malt House and Kiln, Ohlsson's Brewery, Newlands", 14/09/1994.
  12. De Beer, I., "SAB visitors centre - Newlands", in: *Architecture SA* (September-October 1995), p. 14.
  13. *Ibid.*
  14. Information display in the South African Breweries' visitors centre, Newlands.
  15. *Ibid.*
  16. *Ibid.*
  17. *Ibid.*
  18. *Ibid.*
  19. *Ibid.*
  20. Personal communication with Gwen Fagan of the firm Gabriël Fagan Architects, 26/07/1999.
  21. De Beer, I., "SAB visitors centre", p. 13.
  22. *Ibid.*
  23. *Ibid.*
  24. Personal communication with Gwen Fagan, 26/07/1999.
  25. De Beer, I., "SAB visitors centre", p. 13.
  26. Gabriël Fagan Architects, "SAB Visitors' Centre, Newlands", in: *Architecture SA* (November-December 1997), p. 18.
  27. Personal communication with Moira Serritslev of the firm Gabriël Fagan Architects, 26/07/1999.
  28. However, the quantity surveyor interviewed was not allowed to provide the exact figures of this budget. Personal communication with quantity surveyor Alan Van Rensburg of Farrow Laing Ntene, 03/04/2000.
  29. Personal communication with Gwen Fagan, 26/07/1999.
  30. *Ibid.*, 26/07/1999.
  31. Personal communication with Moira Serritslev, 26/07/1999.
  32. *Ibid.*, 26/07/1999.
  33. Personal communication with Gwen Fagan, 26/07/1999.
  34. *Ibid.*, 26/07/1999.
  35. Personal communication with quantity surveyor Alan Van Rensburg, 03/04/2000.
  36. Personal communication with Moira Serritslev, 26/07/1999.
  37. *Ibid.*, 26/07/1999.

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38. Personal communication with Gwen Fagan, 26/07/1999.
  39. *Ibid*, 26/07/1999.
  40. De Beer, I., "SAB visitors centre", pp. 13-14.
  41. Personal communication with Moira Serritslev, 26/07/1999.
  42. Personal communication with Gwen Fagan, 26/07/1999.
  43. Personal communication with quantity surveyor Alan Van Rensburg, 03/04/2000.
  44. *Ibid*.
  45. Personal communication with Gwen Fagan, 26/07/1999.
  46. *Ibid*, 26/07/1999.
  47. *Ibid*, 26/07/1999.
  48. *Ibid*, 26/07/1999.
  49. Personal communication with Moira Serritslev, 26/07/1999.
  50. Personal communication with Gwen Fagan, 26/07/1999.
  51. *Ibid*, 26/07/1999.
  52. National Monuments Council Archive, File 9/2/111/0133, letter from National Monuments Council to the South African Breweries, 27/09/1995.
  53. Completed datasheets submitted by Gabriel Fagan Architects to the National Monuments Council, 22/07/1994.
  54. National Monuments Council Archive, File 9/2/111/0133 on the South African Breweries site in Newlands, document "Proposed declaration as a National Monument: the Letterstedt Building and the Malt House and Kiln, Ohlsson's Brewery, Newlands", 08-09/11/1994.
  55. Saitowitz, S., Fenton, C., Archaeology Contracts Office, "Phase I – archaeological investigation at Ohlssons Breweries, Newlands".
  56. National Monuments Council Archive, File 9/2/111/0133 on the South African Breweries site in Newlands, completed datasheets submitted by Gabriel Fagan Architects to the National Monuments Council, 22/07/1994.
  57. Document "Proposed declaration as a National Monument: the Letterstedt Building and the Malt House and Kiln, Ohlsson's Brewery, Newlands", 08-09/11/1994.
  58. *Ibid*.
  59. *Ibid*.
  60. Completed datasheets submitted by Gabriel Fagan Architects to the National Monuments Council, 22/07/1994.
  61. Document "Proposed declaration as a National Monument: the Letterstedt Building and the Malt House and Kiln, Ohlsson's Brewery, Newlands", 08-09/11/1994.
  62. De Beer, I., "SAB visitors centre", p. 15.
  63. Information display in the visitors centre.
  64. De Beer, I., "SAB visitors centre", p. 14.
  65. Information display in the visitors centre.
  66. *Ibid*.
  67. Document "Proposed declaration as a National Monument: the Letterstedt Building and the Malt House and Kiln, Ohlsson's Brewery, Newlands", 08-09/11/1994.
  68. Saitowitz, S., Fenton, C., Archaeology Contracts Office, "Phase I – archaeological investigation at Ohlssons Breweries, Newlands".
  69. Archaeology Contracts Office, "Phase II – archaeological investigation: Ohlssons Breweries, Newlands", prepared for Gabriel Fagan Architect (University of Cape Town, January 1995).
  70. Saitowitz, S., Fenton, C., Archaeology Contracts Office, "Phase III – archaeological investigation at Ohlssons Breweries, Newlands", prepared for the South African Breweries centenary project (University of Cape Town, February 1995).
  71. *Ibid*.
  72. The intention of the SAB to declare their buildings National Monuments is clear: it was hoped that this would attract more visitors and potential beer buyers.

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73. Gabriël Fagan Architects, "SAB Visitors' Centre, Newlands", p. 18.
  74. Personal communication with Gwen Fagan, 26/07/1999.
  75. *Ibid*, 26/07/1999.
  76. *Ibid*, 26/07/1999.
  77. *Ibid*, 26/07/1999.
  78. *Ibid*, 26/07/1999.
  79. *Ibid*, 26/07/1999.
  80. Gabriël Fagan Architects, "SAB Visitors' Centre, Newlands", p. 18.
  81. *Ibid*, p. 18.
  82. Personal communication with Gwen Fagan, 26/07/1999.
  83. It is quite likely that the integration of artefacts that were not originally part of the buildings will confuse the visitor.
  84. *Ibid*, 26/07/1999.
  85. *Ibid*, 26/07/1999.
  86. As discussed in the theoretical part (A2.2).
  87. Personal communication with Gwen Fagan, 26/07/1999.
  88. *Ibid*, 26/07/1999.
  89. *Ibid*, 26/07/1999.
  90. Letter from Gabriël Fagan Architects to the National Monuments Council, 23/01/1995.
  91. Personal communication with Gwen Fagan, 26/07/1999.
  92. Saitowitz, S., Fenton, C., Archaeology Contracts Office, "Phase III – archaeological investigation at Ohlssons Breweries, Newlands".
  93. *Ibid*.

# PART C: CONCLUSIONS

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## Introduction

The aim of this dissertation was to relate South African industrial conservation issues to international precedents, and, by analysing three case studies of successful reuse projects in the Cape Town area, to investigate whether Cape Town's industrial heritage can indeed be reused effectively and successfully. Therefore, this dissertation has explored the opportunities and constraints with regard to the reuse of industrial buildings in general (part A) and has analysed three case studies in the Cape Town area (part B) in particular, selected on the basis of their diversity in both conservation and feasibility approaches.

The purpose of part C is to state how and to what degree the aims of this study have been satisfied. In order to do so, the information derived from the three case studies (Castle Brewery, Longkloof Studios and South African Breweries) is integrated together with the following general issues, which are discussed in part A: the appropriate conservation and design attitudes towards industrial buildings, the impact of the location of industrial buildings on the feasibility of their conversion, the functional opportunities offered by their typical structural and building forms and spaces, and the design of an appropriate funding and development model for their reuse.

For this purpose, it was decided to structure the concluding part C as follows: firstly, for each of the issues mentioned above, statements will be provided concerning what might be expected when conserving industrial buildings in the international arena. The problems and constraints that tend to arise when industrial buildings are conserved or, more specifically, when they are reused, will be summarised. Secondly, the way in which the South African experience (as embodied in the three case studies) is either different or similar will be discussed for each particular issue. Examples will be given by comparing the three case studies. Therefore, a comparative table will be drawn up for each of the general issues.

Prior to embarking upon this discussion, it must be strongly emphasised that the capacity to generalise on issues related to development projects is actually rather small. It is a well-established fact that no case studies of any development processes can give grounds for generalisation since the circumstances are always very specific, even unique. This is no different for the conversions of industrial buildings.

This difficulty of drawing general conclusions is exacerbated in this particular study because only three case studies, from a limited number of reused industrial buildings in Cape Town, were analysed: such a small number can merely generate suggestions and thoughts, instead of categorical statements. Although the three case studies were chosen precisely because they were representative, it would be necessary to conduct more case studies. Practically, though, analysing a larger number of case studies would have been difficult: it would have reached beyond the reasonable scope of this Masters dissertation, and, above all, there are not many reused industrial sites in South Africa, let alone successful conversions (as discussed in Chapter 1). Reuse is generally still a new field in South Africa, requiring encouragement. There are few developers willing to try it.

## Assessments of cultural values

CASE STUDY	Carrying out proper assessments of cultural values
1	No
2	To some degree
3	Yes

Table 12: Table comparing the three case studies with regard to the issue of 'Assessments of cultural values'

International practice indicates that the conservation of industrial buildings starts with determining their conservation worthiness (as discussed in section A2.2). Conservation literature provides extensive clarifications of conservation worthiness related terms, such as 'cultural significance' and 'authenticity'. It is acknowledged that valuable industrial sites contain a broad spectrum of cultural values, and include social, scientific and technological values in particular. Case studies of successfully converted industrial buildings world-wide indicate that these terms are generally understood and are often properly applied.

It is important to evaluate industrial sites not only on their structures and settings, but also on possible associated artefacts, such as machines and tools. International case studies indicate that the integration of these artefacts in the new design contributes considerably to an overall appreciation of the original building and use, and thus, the design quality of the reuse project.

Worth's study and the three case studies in this thesis reveal that the situation in South Africa is different: although the term 'cultural significance' is considered to be important when evaluating heritage resources, it is not commonly recognised that industrial sites can be culturally significant to any degree. On the rare occasions that such sites are indeed considered as culturally significant, the assessment is to a large degree based on architectural or aesthetic values. The three case studies demonstrate this too. However, this may change with the implementation of the new Heritage Resources Act (1999).

For Case Study 1 (Castle Brewery), the cultural significance of the site and its buildings was not considered in advance. The NMC did not even bother to assess the cultural significance, as they thought that the buildings had undergone too many changes over the years. For Case Study 2 (Longkloof Studios), only architectural and aesthetic factors were considered. For Case Study 3 (South African Breweries), the situation was very different: a proper assessment was made, most likely because the buildings were due to become National Monuments.

Also, in all three cases, all or most of the original artefacts were already missing at the time of the conversion. The opportunity of integrating them into the new design and contributing to a better understanding and appreciation of the building had thus been missed. Better care for and recording of valuable industrial buildings after they have lost their original use could have avoided this.

## Design approach

CASE STUDY	Available budget	Care with regard to restoration of original fabric	Changes of ownership/use	Impact of other uses on fabric	Design approach
1	Small	Little	Several	High	Celebration
2	Medium	Medium	Several	Low	Celebration
3	Large	A Lot	Few	Low	Opposition of styles

Table 13: Table comparing the three case studies with regard to the issue of 'Design approach'

It is internationally acknowledged that reuse can only be considered when all other methods of conservation are not appropriate or have failed. For industrial buildings this is almost always the case: a change in use is the predominant way of retaining redundant industrial sites. In addition, a large number of conversions of such sites demonstrate that a combination of design approaches is most successful.

As discussed in section A2.3, these design approaches range from small-scale adaptation approaches (such as 'preservation', 'repair', 'restoration' and 'compensation') to large-scale adaptation approaches (such as 'historic reconstruction', 'celebration', 'opposition of styles' and 'façadism'). New interventions must be as minimal as possible, clearly of a modern nature and at the same time still be compatible with or relate to the original fabric. In this sense, 'celebration' and in some cases 'opposition of styles' are internationally recognised as being the design approaches that will most likely result in qualitative conservation and successful conversion, and thus, in what has been termed 'adaptive' reuse.

International case studies demonstrate that, in choosing between various design approaches, economic considerations will be as (or even more) influential than considerations of cultural significance. In most cases, decisions will be made on a pragmatic basis. Only if the available budget is high, will conservation issues be taken into consideration.

The South African experience, as suggested by the three case studies, is similar to the international situation. The only way of conserving them was by reuse. Also, the previous analysis of the three case studies suggest that they are all successful in conservation quality term, and can be regarded as being 'adaptive' reuses. Their design approach is primarily based on 'celebration' (Case Study 1 and Case Study 2) or 'opposition of styles' (Case Study 3).

Compared with the economic situation of countries where reuse is common (such as the United States or the United Kingdom), South Africa is different. Tighter economic constraints made budgetary problems even more important for the case studies discussed in this study than is common internationally. Decisions regarding the original fabric and the new adaptations depended greatly on the available budget. The higher the budget, the greater were the chances that the original fabric would be restored, instead of being merely fixed and cleaned up.

In the light of the particular circumstances of each case study discussed in this study, the respective design approaches that were adopted appeared to be wholly justified, both from an economic and budgetary perspective, as well as from a conservation and cultural perspective.

For Case Study 1, on the whole, decisions were made on a pragmatic basis. Full restoration was impossible because the available budget was low, and thus the rundown buildings were merely repaired. The obvious conclusion is that small-budget projects tend to give priority to alterations that are necessary for accommodating the new use, before considering restoration of the original fabric.

Generally, the choice between restoring the building to its original state or revealing its whole history (creating a 'palimpsest', as discussed in section A2.3) largely depends on the degree to which previous uses have impacted on the fabric of the building. The changes that had been made to the brewery building in the past to convert it into cold storage rooms had had such a heavy impact on the fabric that it was not economically viable to restore the brewery building to its original state. Large-scale alterations in particular had the greatest impact, and they were costly to undo. Essentially, it was easier and cheaper to leave the alterations intact. It could even be argued that more of the building's history could be revealed in this way. Small alterations, such as the bricking-in of many of the windows were easier to undo. In this case, it was a good decision to adopt a design approach of 'celebration', as this involved only modest alterations.

For Case Study 2, the condition of the fabric prior to the conversion had been rather good, and thus the fabric did not require many repairs: the question of restoration was hardly an issue. The buildings had not endured heavy alterations over the years, although there had been several changes of ownership as well as changes in use. Again, decisions were made on a pragmatic basis. Alterations that were easily reversible and did not contribute to the cultural significance of the buildings, such as various subdivisions, for instance, were removed. On the other hand, it was decided to retain the new window styles, as this was the cheapest option, and as they fitted their purpose well. The overall intention of the original reuse concept was to make the necessary alterations on the basis of ensuring a long life span for the buildings, and with the additional aim of creating a fashionable atmosphere in order to attract media-related businesses. Limiting the costs was a factor, but not the most important one. As a result and as with Case Study 1 (although at somewhat greater expense), the design approach of 'celebration' seemed justified.

For Case Study 3, the high budget that was available facilitated painstaking restoration. Further, the more costly design approach of 'opposition of styles' and the decision to disconnect the new alterations as much as possible from the original fabric was both financially possible and justified in conservation terms.

## Conservation management policies

CASE STUDY	Conservation restrictions
1	Almost none
2	Some implemented by NMC, most by architect
3	Implemented by NMC

Table 14: Table comparing the three case studies with regard to the issue of 'Conservation management policies'

In order to prevent a design approach from compromising the cultural significance of a site because of financial constraints, it is internationally acknowledged that a conservation management policy needs to be drawn up. As discussed in section A2.4, the conservation plan drafted by Kerr is a widely established example of such a policy. An unbiased approach is essential to ensure the high quality of a conservation plan: the assessment of the cultural significance must be clearly separate from the formulation of the conservation management policy. It is an internationally acknowledged fact that professionals with vested interests, such as the developer of the conversion, should not assess the cultural significance of a site. In fact, inter-disciplinary teams should conduct the entire assessment to ensure objectivity.

The South African situation, however, is different. Because of the difficult economic reality and a lack of awareness for the local industrial heritage, cultural significance tends to be compromised by financial constraints, and therefore, a conservation plan is even more essential. Although South Africa's conservation body acknowledges the importance of drawing up a conservation plan for valuable old buildings in general (and thus by implication also for valuable industrial buildings), such plans are only written on an ad hoc basis, without being based on an ethic or overarching strategy (as discussed in section A2.3). Buildings in the process of being declared National Monuments are an exception. In addition, individuals with vested interests often write conservation plans. There is seldom an interdisciplinary team that identifies and examines issues of cultural significance of the site to be developed. The largely architectural viewpoint of the NMC emphasises this. A lack of resources and expertise is partly to blame for this situation.

No conservation plan was drawn up in any of the three case studies. This meant that there was no proper policy regarding which design approach to choose. However, the implementation of some conservation restrictions compensated to some extent for this shortcoming. For Case Study 1, there were no conservation restrictions during the design process; the architect decided what was best according to his own judgements, mostly determined by budgetary reasons. The developer also stated in the lease contracts that alterations to the fabric had to be approved first. For Case Study 2, the NMC decided which buildings were allowed to be altered and which were not. Their decisions were based primarily on an architectural point of view. However, to their credit, it was the architect and the developing team who took the initiative and successfully decided to protect the buildings from further alterations by restricting them to the footprint of each building. For Case Study 3, a proper assessment of the cultural values was made, most likely because the buildings were going to be declared National Monuments. All changes to the fabric thus needed to be approved by the NMC. As a result, all demands that would potentially have a negative effect on the cultural significance of the buildings were refused.

In short, in South Africa (and in Cape Town in particular) there exists no framework for the identification and conservation of industrial buildings. Although they could be considered within the existing framework for old buildings in general, the architectural and aesthetic viewpoint of the relevant organisations, such as the NMC or UCU, are partly obstructing and preventing valuable industrial buildings from being considered within this framework. Although this may change with the new SAHRA, at the moment the only hope for the conservation of industrial buildings rests on the shoulders of individuals.

## Location

CASE STUDY	Zone	Use	Boundaries	Quality of environment prior to conversion	Upgrading of environment after conversion
1	3 Suburb close to centre	Industrial area, on edge of mixed use area	Tight (railway line + bridge); not adjustable	Rundown industrial area	Hardly
2	2 City centre	Mixed use area	Strict, but with possibilities of adjusting	Slightly neglected, but quite pleasant neighbourhood	Yes
3	4 Suburb far from centre	Edge of residential area	Strict, but not impossible to adjust	Slightly neglected	No

Table 15: Table comparing the three case studies with regard to the issue of 'Location'

It is internationally acknowledged that good locations contribute significantly to the economic success of conversions of industrial sites. In this regard, the most determinant characteristics of such locations are the boundaries of the site, the zoning regulations, the site's attractiveness, the availability of a transport infrastructure and the soil pollution (as discussed in section A3.2).

Sites with adjustable or flexible boundaries have the advantage of facilitating the sites' re-incorporation into the city as a whole and offering more expansion opportunities. Zoning regulations often create problems when reusing industrial buildings, which are mostly located in areas entirely dedicated to industry (mono-zoning areas). As a variety of functions may be the only way of ensuring an economically viable reuse, changing the zoning regulations has to be possible. A flexible and open-minded city council is crucial in this regard. Despite this theoretical problem, in practice industrial buildings suitable for conversions are usually sited where mixed uses exist anyway and where zoning changes are relatively easy to obtain.

The attractiveness of the surroundings of industrial sites is also an important characteristic, as the site must attract both investors and tenants in order to enhance the success of the conversion. This attractiveness is closely related to the security aspect, which is a determinant factor for industrial buildings, as these are often located in rundown areas. The availability of a transportation infrastructure is another important factor for industrial buildings located in more remote areas. Finally, soil pollution may also be a problem when converting industrial sites, particularly when the proposed new use is to be housing: removing the upper layer of polluted soil is very expensive.

Industrial buildings located in rundown areas could, theoretically, rejuvenate that area and even the city as a whole. In practice, however, their reuse has a much higher success rate, if they are not located in a completely rundown area, as it is far more difficult to revitalise such an area by successfully reusing only one single industrial building. International practice demonstrates that if many industrial buildings are reused, the chances of success improve.

Judging from the three case studies analysed in this study, the above factors are also valid for South Africa. A comparison of the respective locations of the three case studies suggests the following.

A comparison between Case Studies 1 and 2 suggests that adjustable boundaries ease the site's integration into the city structure. In Case Study 1, the railway line and bridge are very divisive elements, which make it difficult to cross the existing boundaries and interact with the busy area of Woodstock along Albert Road. In view of this, it was unavoidable that only the immediate surroundings of the site experienced any improvements, and even that only to a minor extent. The boundaries of the Longkloof Studios site (Case Study 2), on the other hand, were more open, thus making it easy for the site to interact with its surroundings. It was possible to improve the accessibility of the site with the conversion. Whereas the site had been an island in the city structure before the conversion, it is now integrated with its environment. This eventually improved the urban quality of the site's surroundings.

In all three cases zoning regulations were never a problem. For Case Studies 1 and 2, the new use fell under the zoning regulations applicable for that area. For Case Study 3, although a re-zoning was necessary, the city council approved the application without problems. As has proved to be the case internationally, in Cape Town the conversion of an industrial site is more likely to succeed when it is located in a mixed use area, as the presence of other functions can enhance the chosen new function for the industrial site. This was particularly relevant for Case Study 2: the functional mix of residential development and small businesses in the immediate vicinity of the site contributed to an overall pleasant and active environment. The site of Case Study 1 is theoretically part of Woodstock, a suburb known for its mix of uses, especially of residential development and commercial activities. Yet, in practice, this did not have the expected positive effect on the success of the conversion, as the site in fact belongs more to the mono-functional industrial area adjoining the mixed-use area of Woodstock.

With regard to the attractiveness of the location of industrial buildings, the three case studies suggest that in South Africa the security aspect is even more crucial for the success of such conversions than what is internationally common. As security is in any event a major concern in South Africa at the moment, this is exacerbated by the fact that industrial sites are often located in more remote or industrial areas. As a result, the provision of security – and thus the closure of boundaries – is often more important than integrating industrial sites with their surroundings, and it will be difficult for such conversion projects to improve the urban quality of their sites' surroundings.

All three case studies in fact demonstrate that security was a major consideration. The sites of Case Studies 1 and 3 are only accessible to the public via one high-security check point, and Case Study 1 has the added disadvantage of being located in a rundown area with a generally high security problem. For Case Study 2 (Longkloof Studios) – located in a more pleasant and secure environment – the security did not have to be as strict, permitting a greater level of interaction between the public and the site. The good social control – an advantage often found in mixed-use areas – further reduced the need for tight security. With regard to transportation, this was not a problem for any of the case studies, as a good transportation infrastructure was available. Soil pollution, too, was never an issue.

As is the case internationally, the three case studies also suggest that, in South Africa, it is equally difficult for the conversion of only one industrial site to upgrade a rundown area. The Castle Brewery project, which was not part of a broader neighbourhood rejuvenating scheme, has not resulted in an upgrading of the environment – a fairly rundown area; on the other hand, the Longkloof Studios site, which was located in an already quite pleasant neighbourhood, had a positive influence on its environment.

In short, in Cape Town the following situation prevails: most of the industrial buildings with the best location – in the inner city (Zone 2) – have already been demolished. Not all the industrial buildings in the Southern Suburbs closer to town (Zone 3) are as yet integrated into a city structure or have potentially adjustable boundaries, which would allow them to interact with their surroundings. In this regard, it appears that industrial sites that are located in Zone 3 may become economically successful: their proximity to modes of transport is particularly important, even more so when their new use is of a commercial nature. However, at the same time it is more difficult for them to be successful in conservation and urban quality terms.

In summary, it can be concluded that in Cape Town, the reuse of industrial buildings is likely to have a higher success rate when they are part of a more global upgrading scheme (both on a feasibility and conservation level, and on an architectural and urban level), partly because they are located in fairly rundown areas. It is at this level that government stimulation may be necessary. Private developers may indeed be interested in an individual industrial site, but it is unlikely that they will have the resources and the capability to successfully reuse and develop an entire area. By utilising industrial sites as a focus of town planning upgrading schemes – and taking advantage of their prominent appearance – the government can in fact use them as a catalyst for upgrading schemes.

## Functional opportunities

CASE STUDY	Condition	Final quality of conversion	New use	Match with existing fabric	Circulation
1	Structure fine, but very neglected	Less upmarket	Commercial	Good	Needed modification
2	Structure fine, and moderately neglected	Upmarket	Commercial	Good	No modification needed
3	Structure fine, and moderately neglected	Very upmarket, because budget was not a problem	Cultural	Good	Needed new (independent) route

Table 16: Table comparing the three case studies with regard to the issue of 'Functional opportunities'

It is internationally acknowledged that industrial buildings offer many functional opportunities: in general, their spatial programs are more diverse than is commonly the case with other types of buildings, and they are well suited to a wide variety of new uses. As discussed in section A3.2, the form-function match between original fabric and new use is crucial. In this regard, the constructive, functional and user structure need to be considered. International case studies demonstrate the following.

An analysis of the constructive structure examines the condition of the fabric: when structural changes are necessary to stabilise or strengthen the structure, they are in general expensive and may endanger the economic viability of the conversion. While the general structure of industrial buildings is often good, because they were originally designed and built to carry heavy loads, most problems relating to the condition of such buildings are the result of years of neglect. The reason for this state of affairs is that industrial buildings often stand empty for several years or are simply used as storage spaces without concern for their maintenance.

With regard to the functional structure of industrial buildings, international precedent demonstrates the following. Industrial buildings often have a high degree of flexibility – generally more so than other old buildings – and are therefore easier to reuse and more able to accommodate a wide variety of new uses. This is primarily related to their typical structural and building forms and spaces: they often consist of large open-plan spaces composed by regular bays, and/or of a mixture of large and small spaces. The variety of buildings and structures found on industrial sites also contributes to the fact that many different new uses are possible. Their spare capacity, too, makes adaptations easier to achieve. The large ceiling height of industrial buildings is also a positive factor in accommodating the new use: it may be possible to insert new floors. One negative factor, however, is the building depth. This is critical with regard to daylight penetration, which is frequently a problem for industrial buildings with large spaces.

It must be stressed that it is more effective to identify and select new uses according to the available structure and spaces, and not vice versa. If new uses are chosen according to the existing functional structure of the building, then adaptations and costs will be reduced and consequently, the economic feasibility of the project will be increased and the cultural significance of the building will be protected.

With regard to the user structure, changing the circulation system of industrial buildings generally involves expensive adaptations. An increase in the number of users will have an impact on many regulations, mostly those related to fire.

While industrial buildings can be reused for a wide variety of uses, international case studies demonstrate that housing, cultural functions and commercial functions are the three most common new uses for industrial buildings.

With regard to housing, lofts are an ideal new use for industrial buildings. In leading reuse countries lofts are at the moment in high demand, and consequently, expensive. Apartments are less successful as a new use: the main concerns are subdivisions that destroy the sense of space, strict regulations imposed by the government and the quality of heating.

The increasingly popular reuse of industrial buildings for commercial purposes is more feasible than for housing: fewer adaptations are necessary, particularly if businesses merely select a space size to fit their needs.

Cultural functions are another recurring and successful option when industrial buildings are reused. Positive characteristics are the inherent qualities of industrial spaces and the ability to improve the – often rundown – surroundings of such buildings.

As has been demonstrated internationally, a mix of functions is usually necessary for conversions of industrial sites to be viable, particularly when they are large (thus, in most cases). One function, then, can enhance the other, thereby increasing the overall feasibility of the reuse project. It also means that the site is in use both day and night, which improves the urban quality and security of the surroundings.

As suggested by the three case studies and in comparison with international practice, industrial buildings in South Africa have the same possibilities and constraints with regard to their constructive, functional and user structure.

The structural conditions of all three industrial sites discussed in this study were good. None of them needed major structural alterations. This also tends to be true internationally. In addition, the three case studies suggest that, if an industrial building has been very neglected prior to the conversion, it will be difficult to ensure a sufficiently high-quality end result, unless a large amount of capital is available. This is logical, as the more a building has been neglected, the higher the costs of restoring it to an acceptable standard. For example, in comparison with the other two case studies, the buildings of Case Study 1 were the most damaged prior to the conversion, and yet this conversion had the smallest budget of the three. This meant that fewer funds were available for other issues, such as landscaping. As a result, Case Study 1 is ultimately less upmarket than Case Studies 2 and 3.

All three case studies demonstrate that the new use was well matched to the typical functional structure of the buildings in question. As has also been internationally acknowledged, the three case studies suggest that it is more effective to identify and select new uses according to the available structure and spaces, than the other way around. For Case Study 1, the small businesses were perfectly suited to the spaces available in the brewery building. The building's mix of smaller and larger spaces allowed the tenants to choose a space according to their needs. This reduced costs, increased the overall economic feasibility and protected the cultural significance of the buildings. The same applies to Case Study 2, where larger businesses than those in Case Study 1 moved into the equally large available spaces. With regard to Case Study 3, the new function – the museum – easily fitted into the existing spaces and no subdivisions were necessary.

A striking and typical example of the flexibility of the functional structure of industrial buildings is that they can easily accommodate an increased floor area. This was exemplified in Case Study 1 by the insertion of mezzanine floors in the high-ceilinged spaces, thereby increasing the lettable area and thus generating more rental income. For all three case studies the deep and strong foundations created additional space in the basement – in Case Study 1 this was filled in by office space, in Case Study 2 by additional parking and in Case Study 3 by a bar.

With regard to the user structure, adapting the existing circulation to a new use was one of the most important alterations for Case Studies 1 and 3, while this was not the case for Case Study 2 (due to specific circumstances). In Case Study 1, the circulation pattern had to be modified to allow all the tenants access to their individual spaces (there were several tenants per floor level). On the other hand, the existing circulation pattern did not create a problem for Case Study 2: it could remain intact, as there was mostly only one tenant per floor level. With regard to Case Study 3, the purpose of the conversion was to design a visitors' route through the buildings; this involved certain modifications – such as adding stairs and an elevator. In clarification, though, it must be added that for Case Studies 1 and 3, the new circulation route was actually also part of the fire escape route, making it less imposing on the overall conversion cost, as it was necessary in any event in order to accommodate the fire regulations.

With regard to the internationally most common new uses for industrial buildings – housing, commercial functions and cultural functions – the situation in Cape Town appears to be the following. Housing functions are hardly found. The high security risk in (rundown) areas, where industrial buildings are found in Cape Town, contributes to this. Of all three main categories of uses, residential use depends the most on the security factor. Also responsible are the high costs involved in adapting industrial buildings to residential use, particularly apartments. Until recently, lofts have not been considered as an option in Cape Town. However, as there is a tendency towards developing a loft-living culture, housing functions in industrial buildings may become more desirable in Cape Town in the future. Commercial functions (as exemplified by Case Studies 1 and 2) are the most common, as these seem to be the most economically feasible and self-sufficient at the present time. New cultural functions for industrial buildings are hardly found in Cape Town. There might be a wide range of reasons for this. One reason could be the lack of subsidisation or other forms of government stimulation. However, there are a few exceptions. Case Study 3, reused as a museum, indicates that the owners of industrial heritage could in fact use their redundant property as an asset, without government aid.

Although it is internationally recognised that a combination of new uses is in most cases necessary to make a project viable, this has not really happened in South Africa to such an extent. All three case studies in fact depended on one type of use. However, the examples of the Victoria and Alfred Waterfront in Cape Town and the Market Theatre in Johannesburg suggest that a mix of uses can be very successful.

## Funding and development model

CASE STUDY	Funding	Investment	Cost	Management	Size	Phasing	Original reuse concept
1	Private developer (one investor)	Mid- to long-term	Low	Smaller project	Large	Yes	Aimed too high
2	Private developer (consortium of investors)	First short-term, then long-term	Medium	Larger project (whole development team)	Large	Yes	Aimed too high
3	Client	Not an investment that requires a return	High	Centred around architects who delegate	Medium	No	Executed

Table 17: Table comparing the three case studies with regard to the issue of 'Funding and development model'

It is internationally acknowledged that retaining valuable industrial sites is only possible if their conversions are economically viable. The economic viability of such conversions will largely depend on the funding and development model adopted (as discussed in section A3.3).

The public sector can fund conversion schemes, although it is more likely that the private sector will provide the funding. Obtaining sufficient funding for conversions of industrial buildings is often difficult, as developers and investors generally do not consider such conversions to be healthy investments: too many risks are involved, industrial buildings are difficult to value and the sites' sizes are large. As a result, conversion works tend to start without sufficient funding being present for the entire process. A common solution is to spread the funding over different phases. For example, tenants' rent can pay for conversion works of later phases. Another solution is using a mixture of new uses: some uses can compensate for others that are less viable.

In most cases, the developers of conversion schemes for industrial buildings are also private. As industrial sites are often bulky, developers must be able to financially manage the whole scheme; therefore, large companies or the government are required. In most cases, large property developers will manage the scheme; most of the time the role of the government is limited to creating a good climate for conversions by introducing competitions, developing appropriate planning policies or setting up professional advisory boards. The government can also provide fiscal advantages, grants or loans.

With regard to cost affecting factors, conversions of industrial buildings often involve expensive adaptations to bring them to a workable condition. In this regard, particularly fire regulations can involve huge costs. Also negatively influencing the economic viability of such conversions are the holding costs: they are generally high, as the land and buildings have to be bought up front and at the same time the conversion has to commence. 'Cash-flow' is thus slow. On the other hand, industrial sites have the advantage that the purchase costs of their land and buildings are generally cheap, as they are often located in rundown areas with low land value. In order to reduce costs, a feasibility study needs to be conducted prior to the start of the conversion to detect problems in an early stage.

In general, the South African situation as suggested by the three South African case studies is similar to the above. However, there are even more constraints than internationally acknowledged to accomplish feasible reuse schemes of industrial buildings in South Africa. The reason is that the currently difficult economic situation in South Africa puts even more stress on the necessity of economically viable conversion schemes for industrial buildings. The following discussion exemplifies this.

A comparison of the three case studies on the basis of their respective funding and development models demonstrates that South Africa's economic situation was indeed influencing the economic feasibility of each conversion.

All three funding and development models appear to have been successful. Nevertheless, each conversion utilised a somewhat different model. This suggests that there is no generally applicable model or straightforward approach for such conversion projects, which is obvious considering that circumstances are always specific for development projects. Rather, the choice of a particular model depended for each case study on a wide variety of factors. The most important factors for all projects turned out to be the need to attract the necessary funding and the size of the site. These factors are also internationally acknowledged as being crucial for conversions of industrial buildings.

One factor is the attraction of the appropriate capital for the conversion project and the provision of sufficient cash flow. Case Studies 1 and 2 were compared in this regard, because they are very similar in their respective funding and development models. As also internationally acknowledged, this comparison suggests that it is not always certain in Cape Town (and South Africa) whether conversions of industrial buildings will be able to attract initial investors who will provide the necessary funding to buy the property and to provide capital for all the conversion works. Both case studies were tackled by private developers, as is the case in many conversions of industrial buildings all over the world, and in almost all projects of a similar nature in South Africa. The comparison indicates that Case Studies 1 and 2 differed in the amount of capital needed/available. Case Study 1 was a less costly conversion, because the original reuse concept was to alter the buildings pragmatically and with a minimum of costs. It was decided to target specifically artists and people in the advertising industry. Case Study 2, however, was a more costly conversion because the quality and life span of the new alterations were regarded as particularly important, and because the targeted new businesses of film studios and firms related to media had costly specific requirements for alterations.

The original reuse concept and the targeted tenant group determined the possibility of attracting initial funding to buy the property and to start with the initial conversion works: in Case Study 1, all the buildings were acquired by a single private developer and converted in phases. For Case Study 2, a consortium of investors acquired the property, as this was a more costly conversion. As a result of the costs of the intended conversion works and the size of the site, it was decided to sell off the peripheral buildings in order to provide sufficient cash-flow and available funds to convert the two main warehouses.

Whereas, in Case Studies 1 and 2, private developers tackled the projects, in Case Study 3 a somewhat different approach was adopted. The owner of the factory, SAB, realised that its own industrial heritage was an asset with commercial possibilities: their buildings' reuse as a museum concentrating on the beer-making process could improve public knowledge of their corporate name. Unlike Case Studies 1 and 2, Case Study 3 experienced no constraints with regard to acquiring the appropriate funding, as the client was easily able to provide the necessary capital. Whereas in Case Study 2 a whole development team was necessary to ensure the success of the conversion, and whereas in Case Study 1 everything depended on the conversion architect and the private developer, in Case Study 3, the architects were considered to be central to the conversion project. The architects made most of the decisions, although they did also delegate work to other firms and institutions. Given the good conservation quality of this conversion project, it is hoped that such an approach will happen more often in Cape Town.

In addition to the factor of attracting funding, and as is also internationally acknowledged, the three case studies suggest that the size of industrial sites is another crucial factor when choosing the most appropriate funding and development model. This was also the case for Case Studies 1 and 2. Considering the large size of each site, it was decided in both cases to reduce the financial risk by dividing the conversion work up into phases. Whereas in Case Study 1 the tenants' rent helped to fund the later conversion phases, in Case Study 2 it was the money generated by the sale of the peripheral buildings and by the rental received from the tenants who moved in after the first conversion phase had been completed. Further, whereas in Case Study 1 parts of the buildings had already been converted before offers of lease had been received, in Case Study 2 these offers had to be obtained before the start of the actual conversion works. The reason is that more money was involved and that the initial investors wanted to reduce the financial risk. In Case Study 3, phasing was not relevant, as the capital was already available and as the conversion project had to be completed in one year anyway.

For Case Studies 1 and 2, the size of the site resulted in the original reuse concept being too ambitious. As it was difficult to predict all the financial implications prior to the start of the actual conversion works, the original reuse concept was scaled down to make way for other – more feasible and less costly – considerations. The budget was in the first place intended for the conversion of the buildings themselves.

In both cases, the original reuse concept involved extensive landscaping of the sites' communal areas. However, in the end the provision of parking was paramount, because additional parking contributed more to the economic feasibility of the conversion projects than the availability of other landscaped spaces. Although the communal areas on both industrial sites were large, in the end, there was only sufficient space to provide the necessary parking, and not to create other communal areas. The importance of providing sufficient parking, in both case studies, can partly be held responsible by their new use of small- to medium-scale businesses, which resulted in an increase in the number of cars on the site.

In Case Study 3, on the other hand, parking and other landscaped spaces were both equally important. The large budget contributed to this, but above all, there was enough space available on the site anyway to design both landscaped spaces as well as sufficient parking for the expected number of visitors and staff members.

## Conclusion

It can be concluded, from the above, that the connections between South African industrial conservation issues and international precedent, and the overall success of all three case studies, suggests that Cape Town's industrial heritage does, indeed, have the potential to be reused effectively and successfully – both on a feasibility and a conservation level. Although there are only a few similar projects with the same success rate, there is a large stock of available and valuable industrial buildings that offers the same possibilities. Hopefully, in the future, this stock will be recorded and analysed on its reuse opportunities and constraints, thereby creating a databank, which may encourage potential developers and investors to start such projects and reduce the financial risk involved.

The success story of the Victoria and Alfred Waterfront already seems to have created some awareness for the potential of Cape Town's industrial heritage and, it is hoped, that the recognition of the economic potential of such projects will be combined with an appreciation of their cultural significance. It is also hoped that, in the future, the concept of a conservation plan, such as the one drafted by James Kerr, may be introduced and adapted to the South African context. However, more research will need to be conducted in this regard.

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