

LOW-COST HOUSING IN SOUTH AFRICA

THE URBAN CHANGES OF WEST PRETORIA.



Low-cost Housing in South Africa – The urban changes of West Pretoria

The history of low-cost housing projects in South Africa during the 19th till 21st and its influences on the appearance of Westfort.

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Abstract

The urban surroundings of Westfort have changed during the last decade. From an isolated leprosy colony outside the city boundaries, Westfort changed into an informal settlement within the structures of the capital Pretoria. Due to the fast expanding urban sprawl many low cost housing projects are realized in the perimeter of the city. The aim of this paper is to address the question if and how these low cost housing projects have changed the context of west Pretoria and the appearance of Westfort.

Introduction

The Dutch architect Sietze Wopkes Wierda made the design for the Westfort leprosy colony, west of Pretoria, in 1896. Wierda was attracted in 1887 from the Netherlands to help with the urban developments in the Transvaal by working for the national Department Publieke Werken (DPW). Due to the Architecture and Heritage graduation project of the TU delft, a site visit was planned to see and understand the shared heritage of the historic Westfort leprosy in Pretoria, South Africa. The remains of the former Westfort leprosy give shelter for 4000 residents, and it's surrounded by various 20th century low-cost housing projects. During my trip in South Africa my fascination have been raised by the immense contrast in history these large living areas feature, while sometimes just a small stroke of wasteland is dividing them. Instead of focusing on the history of Westfort I chose to do research about the surroundings and to understand the changes in the area from this point of view. This fascination led me to the following research question; did the historic developments of the low-cost housing change the context of west Pretoria? And if so, in what way did these developments have influences on the appearing of Westfort? This question will be answered by several sub questions giving you an understanding of the context and history of low-cost housing in South Africa.

This paper starts by giving a brief history of low-cost housing projects in South Africa in order to understand their underlying ideologies and to put later developments in their context. To understand the current state of west Pretoria this paper describes the first labour housing projects that were developed at the diamond mines during the start of South Africa's industrialisation around 1900. This was followed up in 1910, when national authority

changed and the Transvaal became part of the Union of South Africa. Due to the rise of industrialisation around this time many people from the rural areas started to migrate towards the city. This rural-to-industry migration caused an immense housing demand and resulted into major national housing problems during the next 50 years. In 1961 the national authority changed once more into the Republic of South Africa characterized by the dark heritage of the Non-European housing projects during the Apartheid. Townships were developed to have a non-stop flux of labourers but instead amplified racial segregation. The abolition of the Apartheid was marked in 1990 when Nelson Mandela was released from Robben Island. Four years later the authority of the Afrikaans Nasionaal Congress (ANC) completed the post-Apartheid framework of Reconstruction and Development. Within this framework the latest major low-cost housing projects was fulfilled, known as Reconstruction and Development housing project (RDP), intended to house the poorest residents of South Africa. The latest development examined is a new framework to better understand and raise the quality of low-cost housing projects, named Breaking new Ground (BNG) Because only the last three low-cost housing projects can be found in the direct surroundings of Westfort, the paper will focus specifically on their architectural and urban impact. Therefore the Non-European housing project in Atteridgeville will be discussed in the second chapter, followed by the RDP and BNG projects in Lotus Gardens. Both districts have a close relation with the Westfort leprosy. Atteridgeville was the first major low-cost housing project in west Pretoria and Lotus Gardens is a relatively recent district that exposes Westfort to lose its isolated characteristic.

In the fourth chapter and concluding chapter the examined case studies will be related with the appearance of Westfort. By comparing and the understanding the social and spatial impact of these low-cost housing projects the main research question will be discussed; Did the low-cost housing project in the surroundings of

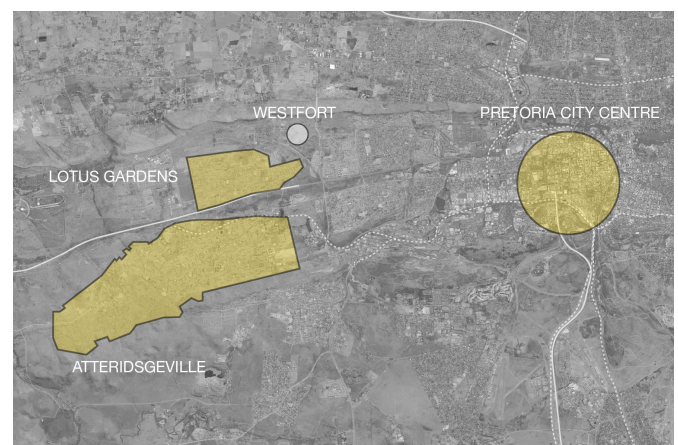


Image 1: Location of Atteridgeville, Lotus Gardens and Westfort in relation with the city centre of Pretoria.

Westfort change west Pretoria? And if so, how did these rapid urbanizations change the appearance of Westfort?

A brief history of Low-cost housing

The first signs of industrialisation were marked with the discovery of diamonds in the soil of South Africa in 1867. The first diamond miners confined themselves by searching the riverbed. Due to the discovery of diamonds in dry soil in 1872, the diamond industry started to become one of the most important mining industries of South Africa. (Tappan, 1914, p.437) Large quantities of soil from diamondiferous ground would be removed, washed and examined. Due to the huge demands of labour, a rural-to-industry migration started, sending approximately 50.000 African men from 1871 to 1875 to the diamond mines. (Sixteentons) Especially one area became well known among prospectors and would change to be the diamond centre of the following years. "The district which we as yet know to be so specially gifted extends up and down the Vaal River from the confluence of the Modder to Hebron." (Tappan, 1914, p.437) Several dry-digging mines were located in that area, Du Toit's Pan, Bultfontein, Old De Beers and Colesberg. The last one is better known by the name Kimberley mine, which became the attraction for the fortune-seekers caused by the discovery of diamonds in ancient volcanic pipes. During these years, also called the New Rush (1870 – 1873), diamond industry became booming. White claimholders started to compete for wealth and were grouping together against small numbers of Asian claimholders. The segregation became even more apparent, when the British authorities cancelled all claims owned by black claimholders after big mining riots in 1875, caused by the accusation of the black labour force for illicit diamond buying and stealing. (Potenza, E. 2008) This resulted in increasingly larger claims and power for the white mine owners. After fierce competition Cecil John Rhodes bought out the last competing mine owner and established a world monopoly of diamond sales in the end of the 1880s. Rhodes became also politically powerful, as he became the prime minister of the Cape colony in 1890 and changed laws to benefit the mining industry. "His Glen Grey Act of 1894 aimed to push more Africans into leaving their land to become wage labourers on the mines and the railways." (Potenza, E. 2008)

A couple of years earlier the discovery of gold quickly attracted several prospectors to the area and uncovered gold at the Confidence Reef, nowadays close by Roodepoort. (Potenza, E. 2008) The Australian prospector, George Harrison was probably the one who caused the gold booming years, finding a main gold reef in July 1886 on the Langlaagte farm. Quickly after this discovery cast workings were opened along the main reef. "The diamond men from Kimberley quickly

established control. They came up quietly by coach, trying hard to avoid having their rivals know where they were bound." (goldavenue) The knowledge taken from the diamond mines and the profitability to mine gold caused a need for a large amount of unskilled labourers to create a good and well rolling gold mining industry. Just as the diamonds mines, a new large migration started towards the gold mines, this large labour force was cheap for the white supervisions and described as followed; "virile and excellent workers under white supervision". (Potenza, E. 2008) This labour force was attracted by white employers send to the rural areas. Interested workers mostly had to sign a contract of one or two years, had to leave their family and were directly send to the companies compound to start their job.

To household this labour force, mining companies introduced open compounds shortly after the first diamonds were found at Kimberly. These compounds consisted of barrack-type accommodations provided lodgings for more than 20.000 Africans in the early 1880s. (Turrel, 1984, p.59) As the word open compound says, the labour forces were able to move freely in and out. They could spend their leisure time on food,



Image 2: View of a closed mining compound at Kimberley around 1890.



Image 3: View on the courtyard of a closed mining compound at Kimberley around 1890.

drink and pleasure of their choice. However these open compounds were enclosed with guarded gates to regulate the movement. Fifteen years after the diamond rush started a transformation from open to closed compounds occurred. The first mining company that introduced closed compounds at the Kimberly mine was the Comagnie Française de Mines de Diamants du Cap du Bon Esperance, also known as the French Company. (Turrel, 1984, p.60) They placed 110 Africans in a closed compound with several barracks. In the following six-months they had to work and weren't allowed to leave. Big mining companies as De Beers Consolidated Company used these closed compound soon afterwards. Their argumentation was that closed compounds would prevent diamond theft, one of the biggest threats in the eyes of the mining companies. The second factor was the shift from soil mining to dry diggings. This type of mining was more intensive and required a steady supply of the labour force to work on full capacity. And the closed compounds also helped preventing desertion during the period of contract. The scheme of the closed compound was almost equal to the open compound; only the guarded gates were closed so the labour forces couldn't get out freely anymore. Also the rules became stricter and labourers at Kimberly had to carry passes with them stating their name and contract conditions. Every time a labourer went in or out of the closed compound a full body search was done preventing the theft of diamonds.

The first closed compounds were open roof enclosures made out of corrugated iron. Several barracks were used to house the labour forces sleeping quarter placed around a courtyard. These barracks were made without doors and with an open space around the top walls. This aided natural ventilation during the day but it didn't exclude the intense cold during the night. (Turrel, 1984, p.65) Mesh netting were used to hang on top of the compound preventing thieves to throw their findings over the walls. Because of the constraining plan, amenities had to be moved inside the compound. Several amenities as compounds stores, hospitals, churches, shared bathrooms and sometimes even a swimming pool provided the needs for the labour force. Some closed compounds were provided with trees in the courtyard to escape from the hot South African sun. But all these facilities and wide-open spaces couldn't compensate the sleeping barracks. In the beginning public health minimal standards were infringed at 8,5 cubic meter per four men. And this situation would become worse in the following years. A systematic shift in working hours resulted in shared beds, while one labourer had his working shift the other could sleep. Overcrowding and the low quality of life caused the first major problem within the system. "Pneumonia, which was directly attributable to overcrowded

accommodation, poor diet and inadequate protection against major changes in temperature, became the greatest killer on the diamond fields." (Turrel, 1984, p.75) In 1903 the closed compound health standards improved rapidly in response to the high risk of losing to many labourers. This resulted for example in larger sleeping barracks and an increase of cubical meters per labourer. De Beers Consolidated Company closed compounds were soon regarded as models of social welfare and other mining centers in South Africa soon copied this labour housing plan.

Between 1904 and 1920 the industrialisation started to grow. The native people were encouraged to migrate towards the larger cities in order to work for them in the industry, commerce or as a domestic servant. Due to the rising social division between the native and the European residents, authorities didn't pay attention to the problems of the labour forces. The influenza epidemic in 1918 would change this, resulting in the "Slum-Act". This Act was established to provide a standard for housing industrial labourers, but it didn't affect native compounds or locations. A few years later in 1920, still little was done to raise the quality of native housing. "Firstly because World War I had just completed and, secondly, no one really knew who was responsible for housing urban natives." (Calderwood, 1955, p.3) In the upcoming years the situation became even more problematic. Due to the rise of secondary industry and employers that couldn't afford to house native employees on site, the native housing problem began to bulge. In 1923, the government signed a new Act: The Natives (urban areas) Act, which had consequences for the natives and the local authorities. For native people it was now compulsory to carry a pass with them to enter or leave the city, which resulted in a stricter segregation. For the local authorities the responsibility of native housing was pushed into their hands. During these years several local authorities experimented with models for native housing and townships, as in Springs and Benoni. Satellite suburbs were designed to house a specific racial group. Other townships like Orlando and Atteridgeville started to grow and local authorities where commencing full-scale housing projects for these areas. This proceeded until World War II began and most of these housing projects stopped. But during the war, secondary industry grew rapidly due to the influx of the "war market" resulting in an even larger rural-to-urban migration.

In 1945 the native housing problem had taken extreme proportions. Due to the overcrowding in most of the townships, native people started illegal squatter camps in public areas. For the first time the native housing problem became noticeable for the public, resulting in new acts and housing standardisations once again. Due to the absence of any standardisation in native

housing, big variations were seen between the houses designs of local authorities. During a conference of the Technical Staff of the Directorate of Housing and Senior Professional Officers of the Department of Health in 1947 a suggestion was made on the Minimum Standards of Accommodation for Native and Coloured Housing. "These standards were tentative, since it was considered that the foundation upon they were based might not be sufficiently well established and, consequently, the National Housing and Planning Commission requested the South African Council for Scientific and Industrial Research to undertake and co-ordinate research on the Minimum Standards of Accommodation for Housing in South Africa. (Calderwood, 1955, p.24) Nine sub-committees, consisting of around 150 specialists, were working under one main committee. The members of these committees were selected specialist, volunteering to make an attempt to define the needs of the population of South Africa.

The same kind of research was conducted in Europe as *existenzminimum*, whereby the satisfaction of material that is needed for physical survival was examined. (Kler, 2007, p.29) These project were also highly influenced by Modernist as the architects Le Corbusiers vision of the city and CIAM's low-cost social housing. Le Corbusier work included the vision of an ideal city. Within this imaginative vision he sought the construction of a built environment whereby standardisation and mass production would provide the base of a new social system. Le Corbusier used architecture and urban planning as an implementation to subvert the norms and forms of daily society. For the labour class, Le Corbusier introduced satellite townships, including

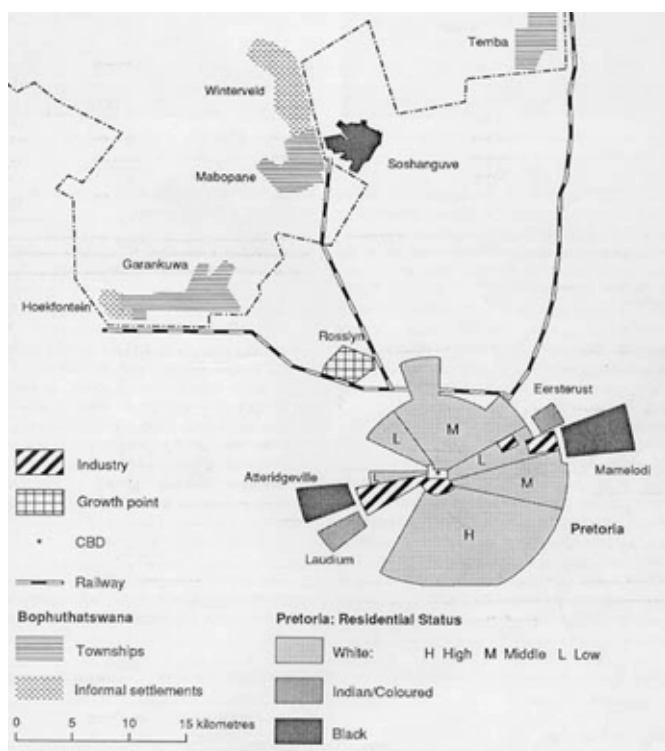


Image 4: Analysis of Pretoria and surrounding dormitory settlements around 1960. Showing the segregation of specific racial groups.

garden apartments with social amenities and highways to assure a connection between the nodes.

With the adoption of the Apartheid laws in 1948, racial segregation became even more important. In 1949 the National Building Research Institute published an interim report of the Research Committees on Minimum Standards of Accommodation. The main reason for this attempt, besides the struggle with native housing problems, was explained in the report; "all progressive countries are conscious of the need for establishing and maintaining the welfare and good health of their citizens, and that much of this can be achieved by ensuring proper housing conditions. Conversely, bad housing conditions, if they became general, can be one of the most disruptive influences in society. Good housing tends to promote good citizens and hence stable conditions in society. It is in the interest of every civilized country to set its standards of housing as high as possible within the means of its economy." (Calderwood, 1955, p.24-25) This report resulted in recommendations, which were on their turn re-examined by a Joint Committee of the National Housing and Planning Commission, the Native Affairs Department and the National Building Research Institute. The recommended standards were modified for non-European housing and represented the agreed opinion of these three bodies as to the minimum standards required to ensure the health, decency and well-being of their residents. These standards were determined the same year in the Minimum Standards of Housing Accommodation for non-Europeans. From then on all native housing had to be built in accordance with these provisions. Immediately after introducing these standards, two extra surveys were undertaken. Firstly the committees revealed that by using local materials the demands for mass housing project could be met. Secondly they calculated that at least 35.000 houses had to be build each year, in the period between 1951 till 1961, to house the increasing urban population in South Africa. (Calderwood, 1955, p.30) The government got concerned and realized that the minimum standard had to be reconsidered. Several months later the National Building Research Institute published the Cost of urban Bantu housing report, in which every aspect affecting the cost of mass housing was investigated. Once the standards were fully accepted it was necessary to produce standard type plans to guide local authorities interested in mass housing projects. This resulted in the Non-European housing or NE-Housing. Not all of the local authorities used these standard type plans and endeavoured their own housing project, which was allowed if the minimum standards were achieved. In the upcoming years several investigations were made to provide the government with sufficient information about densities, locations, climate control and urban planning. Scientists had many theories about housing

the low-income families, but the local authorities and government were hesitating to put these theories in practice because of the cost involved.

During the 1970s most urban Africans were still living in controlled areas where they were forced to rent accommodations in these Non-European standardized houses. This high apartheid model of urban African settlements changed slowly during the next decades. First of all in the early 1980s, some community councils lost their control of several townships and squatter camps due to local uprising of occupants. (Crankshaw, 1996 p.54) To win the support back of the black elite, the government embarked upon racial reform, resulting in a renewed state housing act. This allowed the private sector to build private houses for Africans on the periphery of established African townships. (Crankshaw, 1996 p.55) Secondly due to the crisis of the urban government in the mid 1980s, "land invasions and shanty-towns proliferated on the periphery of established African townships and in peri-urban white areas. Where African < homelands > boundaries fell within commuting distance of the major urban centers of employment, shanty-towns either sprang up spontaneously on land governed by communal tenure or were created by forced resettlement" (Crankshaw, 1996, p.55)

It lasted till after the abolition of the Apartheid legislation in 1990, African families began to move into white residential areas. Mostly towards districts of predominantly rental housing. The end of racial segregation and the apartheid regime became slowly visible while racial groups were mixing and the protest against the authorities became stronger. The shift of the political regime in South Africa started in 1994 when Nelson Mandela got democratically elected as president. The end of the apartheid regime opened the door for equal opportunities for all South Africans. Several government policies had sought to atone the racial inequality by state interventions with varying results. One of those policies is the reconstruction and development project (RDP), a South African integrated, coherent socio-economic policy framework by the ANC of Nelson Mandela in 1994. "This document - The Reconstruction and Development Programme (RDP) - is the end of one process and the beginning of another.... It seeks to mobilise all our people and our country's resources toward the final eradication of apartheid and the building of a democratic, non-racial and non-sexist future." (nelsonmandela.org) The document consist out of six basic principles; an integrated and sustainable programme, a people-driven process, peace and security for all, nation-building, link reconstruction and development and the democratising of South Africa. One of intentions was to solve the immense housing backlog of South Africa by providing houses for the poorest

residents, which had a combined income of R3500 or less. The authorities provided around 3 million RDP houses in South Africa, in the years till 2015. In the last 10 years the quality of the RDP houses became better due to the Breaking New Ground (BNG) framework whereby the Department of Human Settlements shifted their focus from quantity to quality. Within this framework the authorities have strengthened their vision to eradicate informal settlements and to improve existing low-cost housing structures. Among the RDP housing project, formal housing has grown by 50% since 1994, (Le Roux, 2011, p.4)

Atteridgeville and the use of Non-European housing

Plans for the neighbourhood Atteridgeville were finished in 1936 and infrastructural and landscaping work started just before the Second World War. These constructions ranged from water drainage systems and roads to the first houses and were contracted by Dowzen Fraser and Ballantine Construction & Hardware. (Atteridgeville) The township was named after Mrs Myrtle Patricia Atteridge from the Pretoria City Council for Non-European Affairs, also referred as Mrs Mmabatho (mother of people) and Mmadisopo (the soup mother) as she went to the neighbourhood to feed soup to the school children. The idea behind Atteridgeville was to create a model town for Non-European residents out of the city boundaries with white-only comforts. This included flushing toilets, running water, houses erected out of bricks, electricity and garbage removal services. Atteridgeville would become the first legal urbanised black township in the Union of South Africa. A large industrial zone was used as buffer zone between the city and the township. The development of the large steel company ISCOR caused the need for labourers and a need to house them, resulting into a large movement forced to Atteridgeville. (Atteridgeville)

The first residents were relocated into their houses in August 1940 from Marabastad. Around the same time Saulsville, west of Atteridgeville, was established with the idea to introduce a new whites-only area. Between 1940 and 1949 a total of 1533 houses were developed. (Ramphela, 2015) As mentioned, the construction of new houses in Atteridgeville stagnated during the Second World War but continued afterwards. Between the period of 1954 and 1962 an additional 8,297 NE houses were built and the subsidised railway track connecting the township with the industrial buffer zone was developed in 1958. The concept of Saulsville changed to accommodate black residents from Lady-Selborne, making the area into one large township. This could be the result of the large expansion of ISCOR due to the advantage of the industrial war market. Between 1968 and 1978 the developments

were frozen once again, due to a new policy to limit the provision of housing to the reserves. During this time approximately 155,00 people were relocated in two Settlements, Bophuthatswana and KawaNdebele. Due to illegal migration to Atteridgeville the housing backlog grew and at the same time an increase of informal shack houses at the periphery of Atteridgeville arose. In 1969 the township was nearly demolished when the new mayor of Pretoria, Dr PJ van der Walt demanded that native people shouldn't live near a white municipal and that the township should be used for white-only urban expansion. (Atteridgeville) In the end this never succeeded due to the cost of demolishing and to lose of a closely located labour force.

The already existing native housing in Atteridgeville prior 1947 was designed by the local authorities and used in research to find a standardized housing scheme. These non-standardised native schemes consisted of various plans to house different family compositions. The houses were rent and functioned as a hostel, allowing the finance of the township due to monthly wages. These arrangements led most of the time to expansive rental housing, or too piteous housing plans that could affect the health of the occupant. Large variation in the dimensions of rooms and structuring of the house could be found between the schemes of local authorities. (See image 6) For example the native housing in Atteridgeville possessed a veranda within the envelope of the building, whereby this feature in the plan type developed in Orlando was designed as an extension. Also the combination of living space and kitchen shared a striking difference between the local authorities. The overall conclusion was that all these schemes had a lack of privacy and consisted waste of space.

With the standardisation of native housing in 1947 the researchers were working on a solution for these problems and tried to create better living conditions within the housing plan. Their main focus was; 'To plan the house so that it is possible to create homes.

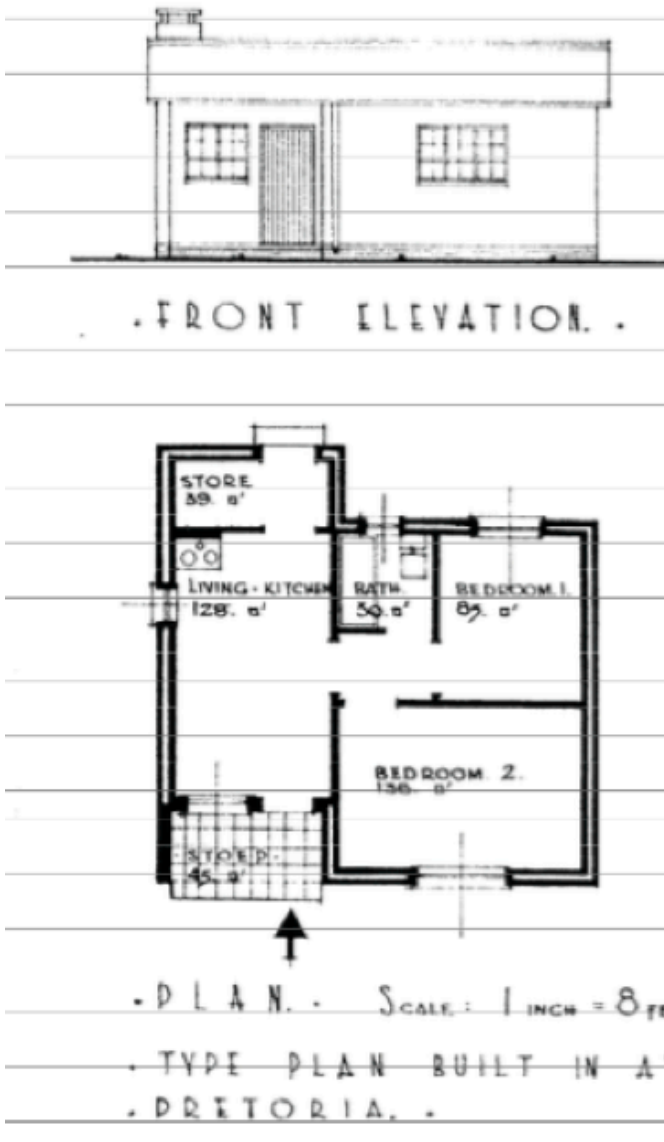


Image 5: Facade and plan drawings of native housing in Atteridgeville prior the Non-European housing standard.

Areas of rooms found in one bedroomed houses built prior to 1947.

Locality.	Living room.	Kitchen	Bedroom	Store	Stoop	Bath-room.	Total*
Pretoria	117	60	142	28	27	30	488
Port Elizabeth	130	-	130	20	-	7.5**	340
Pietermaritzburg	132	48	120	22	56	15 ^a	474
Native Affairs Department(Union)	117	-	117	-	65	15 ^a	360
Average of above	124	54	127	23	49	30	415

Image 6: Table from Calderwoods research about low cost housing comparing the native houses built by various authorities in South Africa.

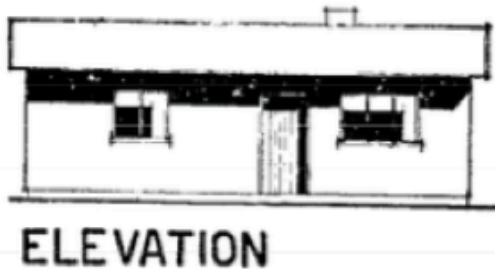
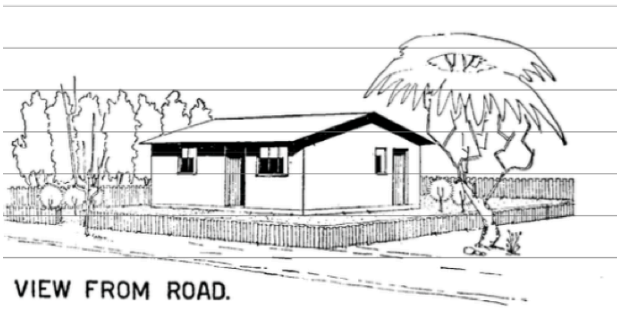


Image 7: Elevation and plan drawings of the Non-European 51/9 house, a 3 roomed house.

This means that the house, built of bricks, mortar and other building materials and providing shelter to the occupants, must be capable of becoming a home which promotes family life and the nurture of children – the responsible family group. The creation of homes requires more than good housing schemes; it involves administration, housing managers, education and guidance and, above all, the belief that the formation of homes can be achieved.’ (Calderwood, 1955, p.18) Studies also focussed to investigate the possibilities of density in relation to road, control and social aspects. With these scenarios the implications of several density schemes, like the use of row-, detached, semi detached houses and flats, were examined. Concluding the use of

these various buildings was linked with the cost of land. “(2) When land costs do not exceed 5000 pond/acre the most economical development is a single storey layout. (3) Very tall apartment or flat buildings should only be considered when cost of land exceed 30.000 pond/acre.” (Calderwood, 1955, p.80) Due to the cheap land Atteridgeville is built on, the so-called Non-European detached single storey houses were the preference.

The researches on the standardisation of these detached houses resulted in the removal of the veranda due to the consideration it wasn’t an essential requirement. Reasons given by the tenants to keep the veranda, like a house without a veranda wouldn’t look like a house anymore and European houses had one, were dismissed because removing it would provide more vital internal space. (Calderwood, 1955, p.22) Secondly, the living space would become, in some cases, a multifunctional room that provided space for extra sleeping places. By these two decisions a more efficient way was found to use the average surface of the building plan. Further research focused to obtain comfortable and liveable internal spaces by analysing daylight, ventilation, circulation and furniture arrangement.

On the contrary little attention was given to aesthetics due to the financial limits. The researcher were aware these standardised housing plans would lead to a monotony urban landscape, but they figured out that the appearance of the township could be improved by vital townplanning and landscaping. A striking conclusion of Calderwood in his research; “In low-cost housing, the important contribution of landscape design must be more generally considered in the future than has been the case in the past” (Calderwood, 1955, p.36) Therefore a large section of the research of Calderwood engaged the use of outdoor space; “In addition, in considering housing, the designer must be aware of the fact that he is basically creating two spaces; that within the walls of the dwelling and the defined by the external walls of the dwelling (external space)” (Calderwood, 1955, p.34) Further research by Calderwood was done on the use of private gardens. These consisted a small playground for children, space to hang out laundry, an area for agriculture to provide the possibility for a self-sustaining vegetables garden and an area for leisure activities for the adults. These functions and the application of privacy, fresh air and sunlight would result in an extension of the indoor space and improve the relation between in- and outside. Calderwood also discusses the need for social and economical amenities, vital for these townships. “Houses alone cannot create a good environment, and it is necessary to provide shops, schools, parks, playing fields, halls, libraries, clinics etc. in order to establish a neighbourhood in which persons can live a full life.” (Calderwood, 1955, p.88) The development of the houses in Atteridgeville was done in stages; Calderwood

assumed this should also be done with amenities. When the erection of these amenities was prevented due to the lack of money, spaces should be set apart for later developments or smaller structures had to be built to give the residents a centre from where they could build their own future. "Services should be considered at all stages of planning, even if they are not to be provided until years later. Always plan for services, is a good motto, and will, in the years to come, pay handsome dividends." (Calderwood, 1955, p.98)

Aside one of the main thoughts of racial segregation, the research of Calderwood shows a respectful way to create a home and to design a suburb that could lift up living conditions for its occupants. In reality this was not the case, due to the influx of racial segregation and the way the black residents were seen as a minority, the township became exclusive residential areas with a lack freedom. The townships and its residents became prejudged "Names like Germiston and Orlando East describe more than just where you live, they also describe your race, how much money you have and what language you speak" (Kler, 2007, p.30) Besides the racial segregation the downfall of the Non-European houses can be explained by other reasons; The idea to produce a structure that could be transformed into a home was contradicted by the tenancy system whereby residents had to pay monthly. This caused a gap between the feeling of a house and a home. The prohibition on any economical activity in the neighbourhood forced the residents to make use of white amenities and obstructed any possibility to raise the economical quality of the area. The large rural-to-urban migration caused overcrowding in many townships, and more residents than originally planned due to subletting used the Non-European houses. The lack of facilitating structures ensured the downfall of quality in the townships. As mentioned before, Calderwood showed the importance of social- and cultural services. Atteridgeville had a few facilities like the Walton Jameson primary school and the African high school erected during the initial phase in 1936 (atteridgevilletribute.com). Many other facilitating buildings were delayed or halted like the post offices built in 1952 (City council of Pretoria, 1991, p4) And the poor maintenance of services was also a part of criticism from the residents within Atteridgeville. The situation is readable in a letter of the Atteridgeville-Saulsville resident organisation to the town council; "We don't see any need for the increase in electricity, water and service charges because there has never been any qualitatively improvement of the services. Yet the charges have been going up. At the moment there is a widespread unhappiness and dissatisfaction about the rent and services charge..."

In 1984 Atteridgeville became officially part of Pretoria by granting the neighbourhood municipal status. But

this decade was marked by social disobedience, which swept across South Africa due to the dissatisfaction from within the townships. This resulted into the school boycotts in Atteridgeville and the City Council of Atteridgeville attempting to gather wider support by producing a promotional brochure showing that "Atteridgeville has all the makings of a modern city, All it needs is more living space...and money to modernise out-dated services and facilities and create new ones for its crowded residents" (Kler, 2007, p.31)

After the ANC in 1994 took over authority of South Africa, residents of Atteridgeville got legal ownership on their leased properties, including churches, shops and houses. More important the abolition of the Apartheid caused equal rights and freedom of movement. Due to the relatively close location Atteridgeville had with the city of Pretoria, in comparison with many other settlements, it became a highly desirable to life. Nowadays Atteridgeville still houses a large amount of the black population in Pretoria. With a population of around 170,000 in 2011, 99,1 per cent of the residents are black Africans. (Frith, 2011) Atteridgeville contains a mixture of Non-European houses, shacks, former Non-European housing and newly developed amenities. In the 20 years of democracy Atteridgeville changed from a model black township into a model black suburb of Pretoria. Thereby the road got tarmacked and the dust disappeared from the streetscape. The road between the industrial buffer and the township got a necessary upgrade, due to the many accidents. And the township became greener, with 85 per cent of the street containing trees.

Lotus Gardens and the use of RDP and BNG housing

Around the year 2000 the urban planning and building of Lotus Gardens started through the Department of Housing's Informal Settlement Upgrading Programme (ISUP) and the housing subsidy scheme. (Mulondo, 2009, p41) The neighbourhood is located 10 km west of the city centre and connected by Church Street. The street is a physical border that causes the seceding of Atteridgeville and Lotus Gardens. North of Lotus Gardens the Westfort leprosy is located at the base of the Daspoortrand. Within the suburb a mixture of various household structures are realised, providing low-cost houses for especially former residents from informal settlements in Atteridgeville, Saulsville and Laudium. (Mulondo, 2009, p46) Lotus Gardens started as a neighbourhood for around 10,000 residents with one large primary school. Around 2002 Lotus Gardens Extension 2 developments started giving the neighbourhood place for 25,000 new residents and two schools. From the 35.000 residents in 2011 most of the population consist of black Africans, Indian or Asian

ances.

The first developments in Lotus Gardens were RDP houses constructed due to the new framework of the ANC. The main reason of this framework was the housing backlog South Africa was dealing with and at the same time the possibility to upraise the housing market in South Africa. To do this the framework ensured housing for the poorest residents of South Africa. The market was seen as a new economical driver that would generate jobs for society. To consolidate the economical activity the private sector had to play a part in the housing market. As they were searching for new implementations of these low-cost houses, the ANC introduced several guidelines in order to manage the housing projects. A RDP house had to deal with primary standards that included sanitary facilities, storm water drainage, energy supply and access to water. The construction cost had to be kept as low as possible while meeting the proposed standards. Bulk buying was encouraged to maximise the use of local materials and the development of new low priced housing products. Thereby the location of the housing projects had to be chosen near economical, health, educational and social amenities to assure an affordable, developmental and sustainable community.

The first developments of RDP housing mainly focused on quantity instead of the quality. As there have been reports of RDP houses with a 16 square metre floor plan. (Greyling, 2009, p.13-14) After the National Home Builders Registration Council (NHBRC) was introduced in 1997 the regulation of RDP houses became more accurate and the average square metres was increased to 30. Because there weren't any strict standardisation like the Non European houses, various ways of construction and building plans erected. The first RDP houses were erected with brick walls and a corrugated steel roof. After 1997 most RDP houses were built by the use of strip foundations. The walls were erected from clay bricks of block work and the floor out of a concrete slab. Corrugated steel is still the most seen material for the roof, but clay tiles are being used as well. (Greyling, 2009, p. 15) Due to the few regulations based on the RDP houses, large variations can be found between various RDP housing projects. However most RDP houses are highly influenced by the native houses built prior and during Apartheid. Comparing a recent 2-bedroom RDP housing plan from *fastfab low-cost homes* with a NE 91/5 houses, it's clearly visible that the plan is adopted. (See image 8) In most cases small changes were made. The kitchen got reconnected with the living area, as this room didn't needed be multifunctional anymore and the placement of the windows changed in relation with the placement to the sun. This was not the only influence by the Non-European housing projects. The urban town planning has similarities too. The detached housing

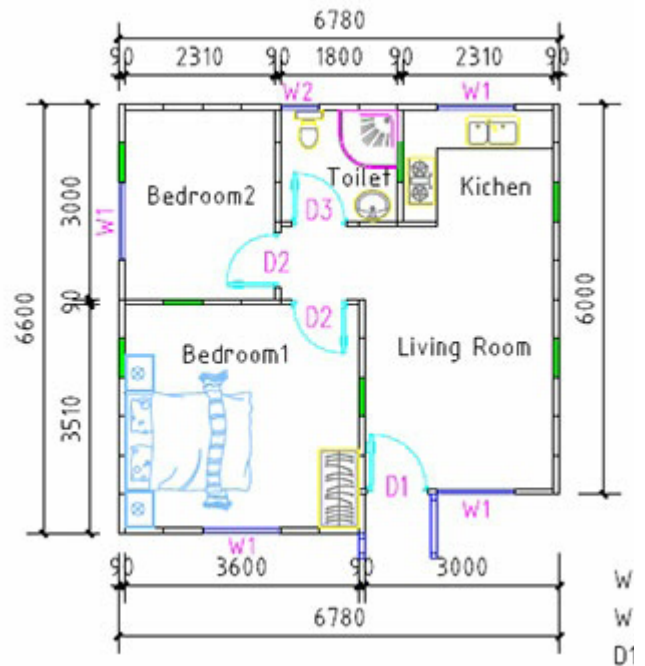


Image 8: Comparison of a RDP house built by fastfab low cost home and the Non-European housing during the Apartheid.

blocks still form a monotone urban landscape due to the use of mass production. And even though the guidelines for sustainable and developmental locations, most of these RDP projects are located on the outskirts of the city built on cheap land. Although the abolition of the Apartheid has changed the way freedom and equality is recognized, the economical gaining of the residents of RDP housing project were mostly depending on facilities in the city centre. This resulted in non-vibrant residential neighbourhood with a lack of social and economical amenities.

These problems with the low-cost housing project are caused by the profitability of the private sector. The subsidy giving for these projects caused the search for ways to keep the building price low and get the highest profit. Due to this scheme the quality of constructing low-cost houses decreased. For example,

sometimes no gutters were placed within the design, causing the rainwater runoff falling directly onto the ground, resulting in erosion of the ground surrounding the house. (Greyling, 2009, p. 16) The RDP housing project didn't meet the expectations and is criticised in various articles. After these substantial criticism and the need for improvements the National Department of Housing came up with a new framework in 2004; called the Comprehensive Housing Plan (CHP) for the Development of Integrated Sustainable Human Settlements, also referred as "Breaking New Ground" (BNG). Within this framework the Department achieved reinforcement of their vision and "promote the two achievement of a non-racial, integrated society through the development of sustainable human settlements and quality housing". (Breaking New Ground, 2004, p.7) Their main focus was to eradicate all informal settlements due to the millennium development goals of the UN to upgrade all informal settlements and to improve 100 million slum dwellers around the world (Government communications, 2012, p.294) The BNG is working with new approaches to build a sustainable human settlement by stronger partnership with the private sector, social infrastructure and amenities. (Trusler, 2009, p.2) This is realised by providing new housing development as low-cost housing, medium density accommodation, rental housing and by improving existing low-cost housing. For instance the 20-35 square metres RDP house became upgraded into a 45 square metres house during the BNG phase. The quality of construction has

improved during the last 10 years and environmentally friendly and sustainable developments are adopted in the construction of new low-cost housing as the authorities encourage the private sector to implement these aspects. The use of local materials and an efficiently work schedule has dropped the building cost and resulted in improved designs.

Especially the lack of social-, economical amenities and the connection with the city was a stumbling block for Lotus Gardens. Nevertheless, in comparison with Atteridgeville, the urban design of Lotus Gardens had left open spaces for later developments. Within the last couple of years several smaller formal residential extension are developed around Lotus Gardens increasing the numbers of residents even more. Therefore social and economical amenities take place in the left open spaces in the urban design. For example a large shopping mall was developed in 2008 in Lotus Gardens Extension 2 and several churches can be found in the neighbourhood. Due to the BNG framework, the raise of housing quality and the social developments, Lotus Gardens became a mixed middle class neighbourhood with various racial backgrounds. Comparing a satellite photo from 2004 and 2015 it is clearly visible most of the plots have an increase of built structures. This can be the result due to the rise of the quality of life and the need or possibility to expand the house. It can also be caused by the rise of local economics. Several tuck shops (small local supermarkets) and other private enterprises opened on private plots making Lotus Gardens a more vibrant place. The current expansion developments of Lotus Gardens will fill the northern part of the suburb up to the ridge with new low-cost houses. Especially this development is endangering Westfort heritage, as Pretoria's urban sprawl surrounds the historical isolated leprosy.

The changing West Pretoria and its influences on Westfort

The western part of Pretoria has been undeveloped for a long time. The first built structures were developed in 1897-1898 in former Westfort leprosy. It was located around 10km west of the city Pretoria to retain the contagious disease. Developed on the foot of the Daspoortrand ridge and close to water of the Skinnerspruit, Westfort became a self-sustaining isolated colony linked with the city by just one arrival road. The patient that were send to the leprosy had to start a new life within the periphery of Westfort as they were constrained with the place. Therefore the design of Westfort had to have a clear structure for the segregation of various groups, mostly self-sustaining, express tranquillity and enhance the social behaviour of the patients. The wide planning of the leprosy and the combination of predominating tree lanes and green



Image 9: Lotus Gardens Extension 2 developments in 2004 and Lotus Gardens in 2015

areas caused Westfort to be a picturesque place, in which forgetting the disease was almost self-evident. The patient houses were constructed around an outdoor area, forming a compound like structure. Due to these planning social bounding was stimulated within the compound due to the shared courtyard. Spaces had been left open between the patient houses and on one of the short side a hospital building was located. The other short side was mostly left open and positioned directed downhill. This was done to produce a look out perspective towards nature that would always be visible from within the compound. The overall plan of Westfort was built around a triangle shaped green heart, on each side an own race or gender was located as followed; the east side the white men and couples, the west side the white and black women and on the south side the black men. The employees of West leprosy lived more uphill; this was probably done due to hygiene regulations, as they would be the first that could make use of the water that came down from the ridge.

The compound planning of Westfort had almost none similarities with the closed compound during the mining years of South Africa. The reason it's mentioned in this paper is the important role it played in its upcoming history of the Non-European housing developments. The closed compound didn't represent an early model of urban segregation, as the labourers had the choice to sign the working contract or not. The early compounds represented the first application of locating a labour force close to their work situation and also resulted in the first acts to improve living conditions for those labourers. With the planning of the townships around Pretoria, as Atteridgeville and Laudium the labour force concept was reused on a broader scale. Even though the ideologies to design new homes and lift up living conditions for the native labour force, the Apartheid system caused these townships to become a system of racial segregation. Authorities used these townships as an instrument of control, as the administrative and the physical form fostered the surveillance of these areas.

Before the introduction of these townships, the racial segregation was already visible in Westfort. The black men were located on the south side of Westfort and cut-off by an extra natural barrier of the Skinnerspruit. Besides the segregated placement of the native compounds, the difference between white and native compounds was clearly visible. First of all the native compounds were surrounded with a large fence to control the movement of its occupants. Secondly the native rooms available were much smaller in comparison with the private white patients houses. And the primary needs as toilet, bathroom and kitchens were in the black compounds shared amenities. Although the physical border of freedom was immensely smaller within Westfort in comparison with the townships, the system



Image 10: Westfort around 1900; showing the immense isolated location and its undeveloped surroundings



Image 11: Fence surrounding the black patients compound around 1900



Image 12: View from Westfort showing formal patient housing and the new RDP developments behind it. (2015)



Image 13: View from Westfort, kid pose in front of water tank placed by Tschwane Metro Municipality. (2015)

of control was less tangible due to the planning of Westfort. The townships were designed as an instrument of control and to keep the chance of social unrest as low as possible. The semi-detached Non-European houses were developed along roads, so the houses could be supervised easier. Mostly one road connected the city with the township, in the case that protest would rise it could be easily suppressed. And the lack of social amenities, discouraged social bonding within the townships. Comparatively Westfort was designed to control leprosy but also to express tranquillity and help patients to overcome their diseases. Social amenities were, in comparison with the township and the amount of users, in abundance. Besides that, the planning of the patient housing with the shared courtyard, is one of the most primary gestures within Westfort to improve social contacts between the patients, as protest or social unrest wasn't a great risk due to the amount of people living in the area. The developments of Atteridgeville didn't have any direct influences on the appearance of the Westfort leprosy; it marked the west of Pretoria to a better-not-to-go area and changed the preconception of the word Township. With various townships and a leprosy colony in west Pretoria, this wasn't the place at that time for new white-only residential developments. Several decades later due to breakthroughs in the fight against Leprosy and the not needed necessity to hold leprosy patients any longer, doors closed for Westfort and the colony became abandoned in 1997. Various parties claimed to be holder of the site, but before this was figured out, Westfort was already taken over by its new residents. Approximately 4000 people now live in Westfort and during this time it has changed into an informal settlement within the historic formal structure. When abandoning the site, Westfort became disconnected from water supply, electricity services and any other amenities. Living conditions became quickly appalling and Tshwane Metro Municipality installed several water tanks and portable toilet to relieve the residents with the primary need. Westfort became quickly overcrowded and the new residents started the use of every built structure in Westfort. In some cases shacks were built within larger facilitating buildings. The former kitchen building, church and hospital wards house several families, resulting in less location for amenities in Westfort. In addition the movement within Westfort changed and activities that always took place within the periphery of Westfort weren't bounded to the place anymore. Therefore Westfort has become an informal neighbourhood from where the residents leave during daytime to work.

The developments of Lotus Gardens that started in the year 2000 at the periphery of Westfort would become a new challenge for the former leprosy. Due to the new developments, Westfort became connected directly

with the other urban structures of Pretoria and most residents of Westfort were put on a waiting list to move into a RDP house. Around the area where they live, a slow development of new RDP houses is conducted. This process is also changing the perception of Westfort itself. As Westfort changed slowly from a formal leprosy into an informal settlement, Lotus Gardens has been developed into a regular middle class neighbourhood. The desire and the presumption they will move sooner or later to these RDP houses, with all the primary needs included, causes the downfall of connection with their current living spaces. As Westfort nowadays still attract some new residents, living conditions stay poor and the built heritage suffers from rapid degradation, mainly caused by lack of maintenance or the reuse of built materials. Also vandalism and fires destroyed some buildings in the last decade. Nevertheless some residents try to make the best out of it. Self-made expansions of the houses are common and in some cases the gardens or courtyards are carefully kept clean. But this positive input on the heritage of Westfort is overshadowed by the quick downfall of the built environment it formerly consisted. However due to the wide planning and the large amount of green space, Westfort still offers the historic feeling of tranquillity it was made for. But Westfort will struggle more and more as the living conditions stay this way and its surroundings will become more attractive.

The history of low-cost housing has marked the context of west Pretoria. The use of the mega housing schemes during the Apartheid and the reconstruction and development framework has resulted into negative perception due to the history of the distribution of wealth and the segregation of racial groups. This has caused the west to stay less affluent in comparison with the expeditiously parts of Pretoria. With the BNG framework the authorities are finally focusing to restructure this spatial and social exclusion. Access to economical opportunities, social integration, public infrastructure and access to social amenities become frequently more important. Besides these improvements, opportunities do exist for progressive design instead of designs that have their roots in the past. The segregation west of Pretoria is still tangible, but don't forget the dark history of Apartheid and the use of townships, as an instrument of racial control, is relatively recent. Only 20 years, South Africa is experiencing democracy and used several approaches to overturn the inequality of the urban developments.

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Images

Image 1: *Location of Atteridgeville, Lotus Gardens and Westfort in relation with the city centre of Pretoria.*
Linstra, M. (2016)

Image 2: *View of a closed mining compound at Kimberly around 1890.*
Holthe, P. B. (unknown year)
Retrieved from: <http://www.mindat.org/photo-344552.html>

Image 3: *View on the courtyard of a closed mining compound at Kimberly around 1890.*
(unknown photographer and year)
Retrieved from: <https://historyshadow.wordpress.com/tag/south-african-mining/>

Image 4: *Analysis of Pretoria and surrounding dormitory settlements around 1960. Showing the segregation of specific racial groups.*
(unknown illustrator and year)
Retrieved from: https://www.impulscentrum.be/south_africa/mod3_city/theo3.asp

Image 5: *Facade and plan drawings of native housing in Atteridgeville prior the Non-European housing standard.*
Calderwood, D. M. (1955)

Image 6: *Table from Calderwoods research about low cost housing comparing the native houses build by various authorities in South Africa.*
Calderwood, D. M. (1955)

Image 7: *Elevation and plan drawings of the Non-European 51/9 house, a 3 roomed house.*
Calderwood, D. M. (1955)

Image 8: *Comparison of a RDP house built by fastfab low cost home and the Non-European housing during the Apartheid.*
Retrieved from <http://moladi.com/low-cost-house-plans.htm>
and Calderwood, D. M. (1955)

Image 9: *Lotus Gardens Extension 2 developments in 2004 and Lotus Gardens in 2015*
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Image 10: *Westfort around 1900; showing the immense isolated location and its undeveloped surroundings*
Boral, A. (Between 1898 - 1911)

Image 11: *Fence surrounding the black patients compound around 1900*
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Image 12: *View from Westfort showing formal patient housing and the new RDP developments behind it.*
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Image 13: *View from Westfort, kid pose in front of water tank placed by Tschwane Metro Municipality. (2015)*
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