



Social housing with interior public spaces

2.1 Introduction

This chapter deals with the context study surrounding the site chosen for this project. The study will investigate various levels of context, from physical informants such as the location within the larger city down to the building itself, to the regulatory context and the needs of the inhabitants. The chapter is divided into the macro context, meso-context and the micro-context. The macro context deals with the project's location within Pretoria and the social issues surrounding it, as well as the regulations followed by the chosen client that influence it. The meso-context considers the physical context within a smaller radius and looks at the needs of the client (who will maintain and run the building) and its inhabitants. The micro context looks at the building itself, its relationship to its immediate environment, and the structure and characteristics of the building itself.

2.2 Context

2.2.1 Physical (Macro)

As a manner to test the validity of the claim that there is a variety of buildings left unused and abandoned within Pretoria Central Business District (CBD), a mapping exercise was undertaken to represent these buildings (Figure 3). These have been found to be spread across the central area of Pretoria. However, a cluster of buildings located within a couple of blocks was identified on the UNISA Sunnyside campus, in the south eastern quadrant of Pretoria, just to the north of the east-west train line.

Upon closer inspection, the proposed site was located in



Figure 8 - Layout of suburbs surrounding site and points of interest nearby (by Author)

the broader city context and was identified to be located in the Muckleneuk suburb of Pretoria, although the campus is known as the Sunnyside Campus of UNISA. It is reasonably close to Burgers Park, City Hall and the main UNISA campus (Figure 8).

The Sunnyside campus of UNISA is located amidst a variety of commercial activity and residential buildings. The campus is surrounded by very busy roads both to the east and west, Nelson Mandela Drive and Elandsport Road, respectively. These roads provide easy access to public transportation such as taxis, bus routes and trains (Figure 9).

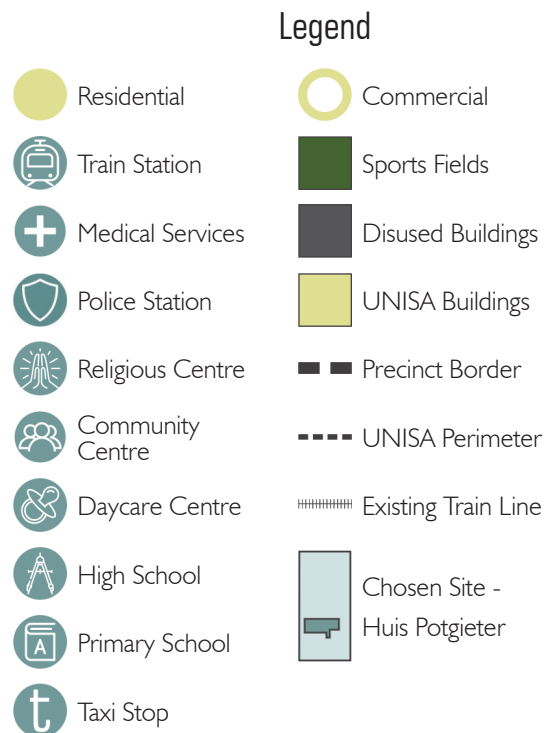


Figure 9 - Map of train stops, abandoned and used UNISA buildings, commercial, and residential activity (by Author)

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The abandoned buildings identified earlier all lie to the south of the campus. These were all abandoned roughly in 2007, when UNISA bought these properties in order to establish the Sunnyside Campus. The proposal is to separate the blocks, divided by Piet Uys Street to the north, Preller Street to the west, and Berea Street forming the second northern boundary, in order to create a defined social housing precinct.

2.2.2 Physical/Historical (Meso)

Through a study of historic satellite images obtained through Google Earth, significant changes in the area regarding infrastructure and use changes have been observed. These changes have been highlighted and described per image (Figure 10 - Figure 15).

2001



Figure 10 - Satellite images taken in 2001 shows cars parked both at Huis Potgieter as well as the single family residences in the area (Google Earth 2001).

2007



Figure 11 - 2007 Images shows the absence of cars where they were visible in the previous image (Google Earth 2007).

2009



Figure 12 - 2009 Images show the development of the Gautrain station, the new bridge to Elandsport Road, and the new construction of the UNISA Es'kia Mphahlele Hall (Google Earth 2009).

2.2.3 History (Meso)

The following timeline was compiled by using a variety of sources regarding Normal College Pretoria, University of Pretoria, and the various regulatory documents that were consulted. The timeline emphasises the strong history of community in the area. It originated as a residential area, but developed into a dedicated area of Pretoria focused on education and training. After having been active for quite some time, roughly 57 years, the inactivity of the area has only been for the past 10 years (see next page, Figure 16).

2011



Figure 13 - 2011 Images show the completion of the Gautrain Station, as well as new construction (commercial) at the southern end of the block (Google Earth 2011).

2014



Figure 14 - 2014 shows the deterioration of the overall precinct, with plants beginning to grow wild in the previously defined gardens (Google Earth 2014).

2016

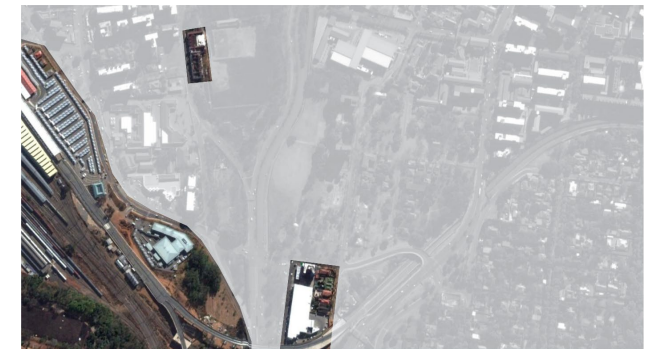


Figure 15 - Most recent images show the inactivity in the southern side of the campus, with cars only parked in the streets (Google Earth 2016).

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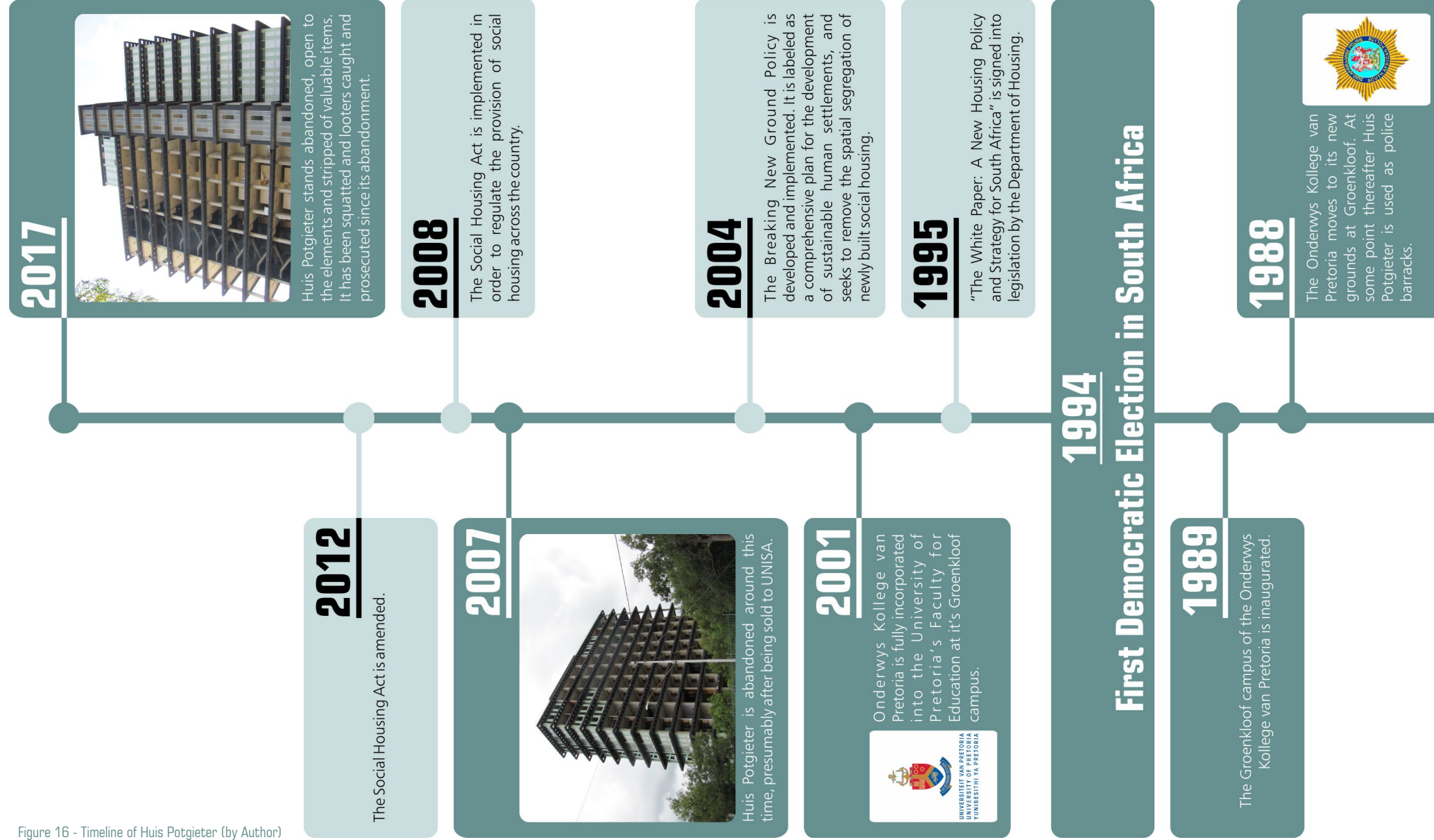


Figure 16 - Timeline of Huis Potgieter (by Author)

1975

The Onderwys Kollege van Pretoria purchases additional grounds at Groenkloof.

1968

The Huis Potgieter men's residence and a women's residence is taken into use on 1 March. The residences were commissioned by the rector, Dr GJ Potgieter, in an effort to relieve the housing crisis due to a steadily rising number of students.

1964

Dr G.J. Potgieter, previously the headmaster of Pretoria Boys High, is appointed as rector of the Onderwyskollege van Pretoria.

1954

Normaal Kollege Pretoria's name is changed to "Onderwyskollege van Pretoria".

1949

Picture of south eastern quadrant of Pretoria in 1949. Area where precinct is located fully residential at this time.

1909

The Transvaal Normal Kollege changes its name to Normaal Kollege Pretoria, also known as NKP.

1908

The Transvaal University College, later to become University of Pretoria, is established at Kya Rosa.

1903

Pretoria and Johannesburg's Normaal College's merge to become Transvaal Normaal Kollege

1902

Normaal Kollege vir Onderwys is established at 126 Rissik Street, Sunnyside

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2.2.4 User Needs (Macro)

Landman and Du Toit (2014) conducted surveys among residents of local social housing developments to investigate their perceptions of the importance of various outdoor elements and neighbourliness. The graphs in Figure 17 to Figure 24 indicate the overall level of importance per sub-category as indicated by all respondents, followed by the responses of specific groups, (i.e., households with children, female headed, male headed, heads of household between the ages of 18 and 35, over 35, etc.). This initial analysis was done as precursor. An in depth case study will be conducted in Chapter 4 (c.f. 4.6) to analyse the spaces provided to the residents who participated in the survey.

Importance of Outdoor Design

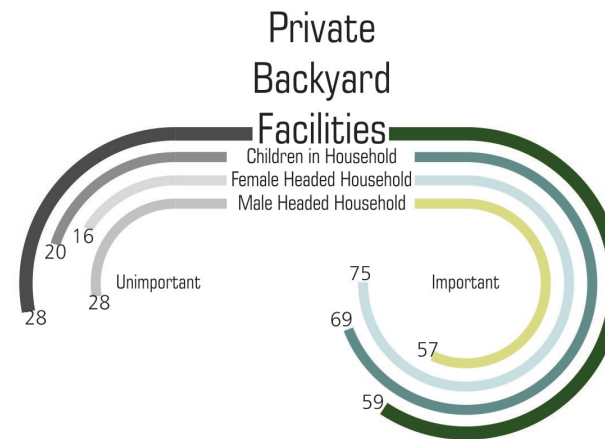


Figure 17 - The importance of private backyard facilities (Adapted from Landman & Du Toit 2014:29)

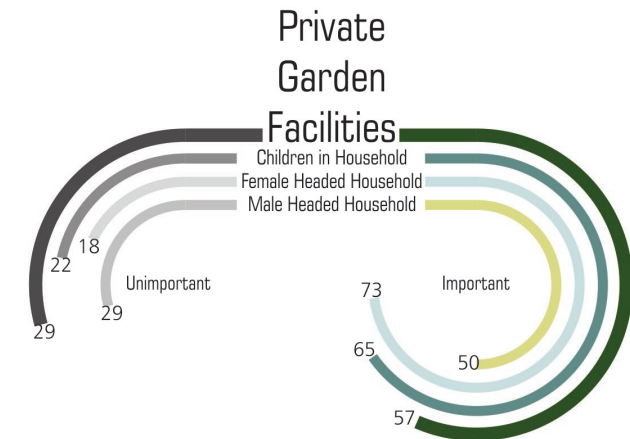


Figure 18 - The importance of private garden facilities (Adapted from Landman & Du Toit 2014:30)

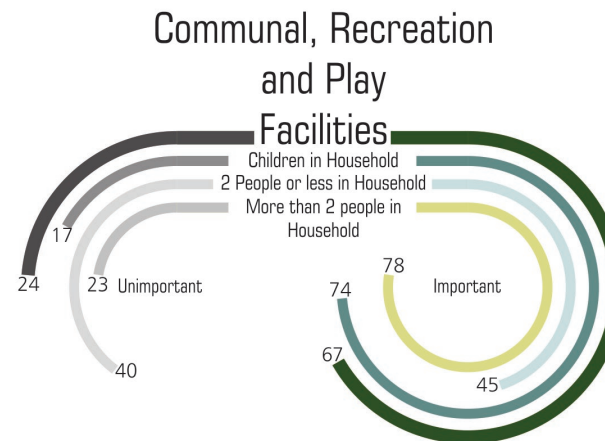


Figure 19 - The importance of communal, recreation, and play facilities (Adapted from Landman & Du Toit 2014:30)

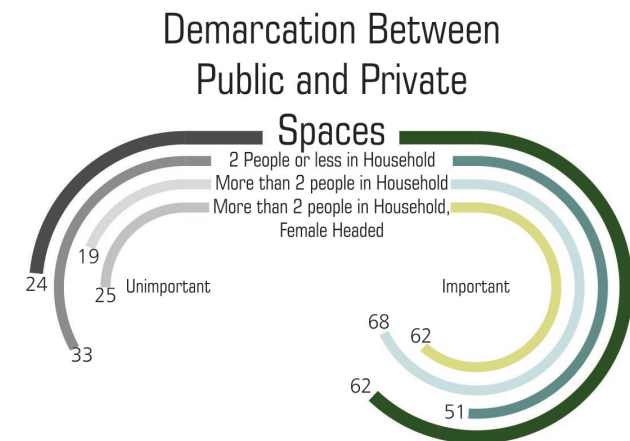


Figure 20 - The importance of the demarcation between public and private space (Adapted from Landman & Du Toit 2014:31)

Importance of Neighbourliness

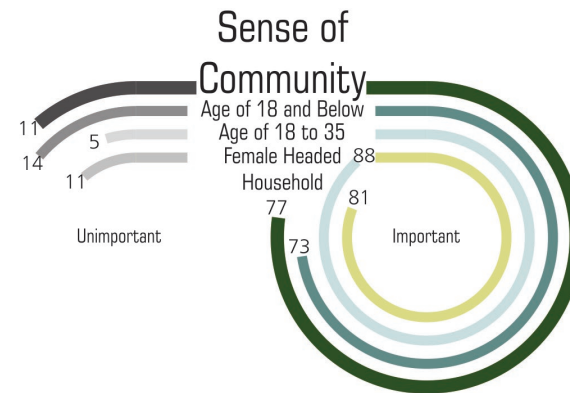


Figure 21 - The importance of sense of community (Adapted from Landman & Du Toit 2014:31)

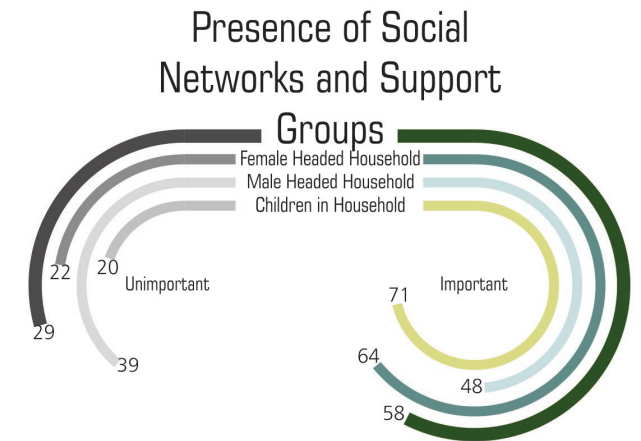


Figure 22 - The importance of the presence of social networks and support groups (Adapted from Landman & Du Toit 2014:32)

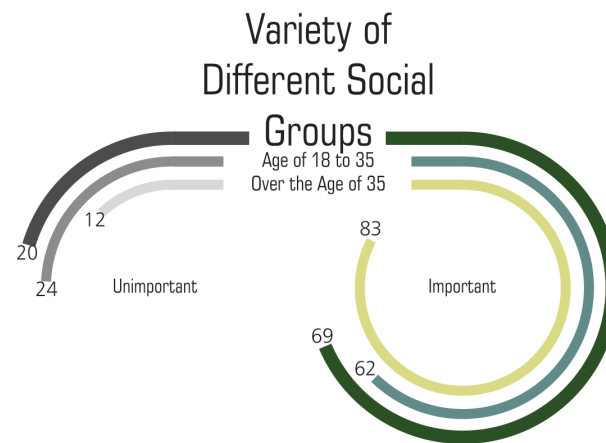


Figure 23 - The importance of the presence of a variety of different social groups (Adapted from Landman & Du Toit 2014:32)

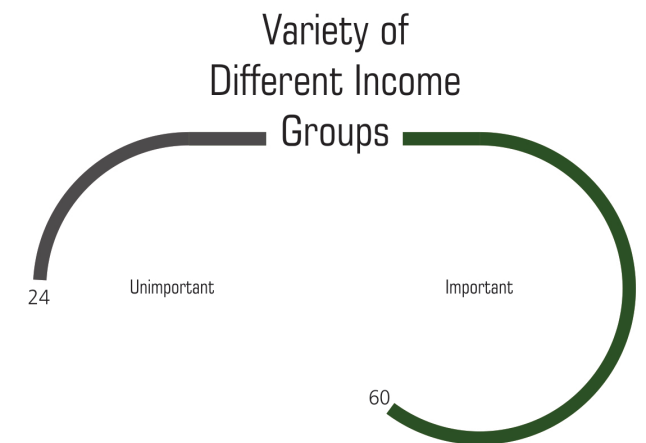


Figure 24 - The importance of the presence of a mix of income groups (Adapted from Landman & Du Toit 2014:32)

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2.2.5 Regulatory Context (Macro)

After a thorough investigation into the regulations that would influence the implementation and design of the housing, the following summary was compiled. The legislation consulted includes the Breaking New Ground policy (2004), the Housing Code (DHS 2009) and the Social Housing Act (DHS 2012). The regulations were analysed in terms of their applicability to the location, appropriation of land, the type of housing, the source of funding, ownership, the management, maintenance, design, and costs. They have been summarised graphically below.

Location

The regulations state that unused state-owned land as well as parastatal land should be handed over to the relevant municipality at no cost. The regulations also promote densification, as well as location of new housing developments within urban environments. The new developments should also be located close to primary municipal facilities such as parks, playgrounds, sport fields, crèches, community halls, taxi ranks, transport routes, satellite police stations, municipal clinics, and informal trading facilities (Figure 25).

Type

Newly implemented housing should be medium density and should allow for various persons of different income levels to receive housing in the same development to allow for social integration and financial cross-subsidisation. A new subsidy mechanism providing for the income group of R3 500 to R7 000 to accommodate a wider bracket of the South African population was introduced. This type of housing intervention

should make a strong contribution to urban renewal and integration. Social housing interventions may also be used to facilitate the acquisition, rehabilitation and conversion of vacant office blocks and other vacant/dilapidated buildings as part of a broader urban renewal strategy (Figure 26).

Ownership/Source of Income

The partnership with public-private enterprises is encouraged to enhance income and increase the engagement of the private sector in social housing developments. Furthermore, the policies promote removal of barriers within the housing trade by reducing the amount of time after which social housing stock can be transferred to the inhabitants themselves (Figure 27).

Management/Maintenance

The policies and regulations impose strict rules on the social housing institutions to ensure that their management of developments is sustainable and places the inhabitants at the forefront of their attention. The institution is also responsible for specifically maintaining the buildings to ensure they retain their value. These institutions are also responsible for insuring that the building stock is prepared for both planned and unplanned maintenance, as well as services failure.

Design

By using alternative technology and design, and in an effort to change the perception of the stereotypical “RDP” houses, the housing design should be enhanced within the urban context. The design of the housing units must comply with land use rights and take cognisance of future tenure upgrading. The

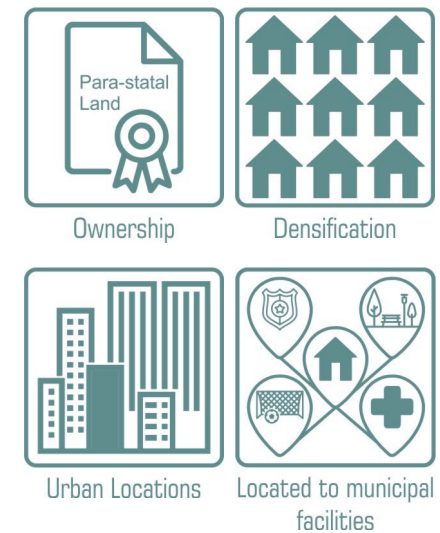


Figure 25 - Graphic representation of regulations influencing location of developments (by Author)



Figure 26 - Graphic representation of regulations influencing the type of social housing development (by Author)



Figure 27 - Graphic representation of regulations influencing the ownership of social housing developments (by Author)

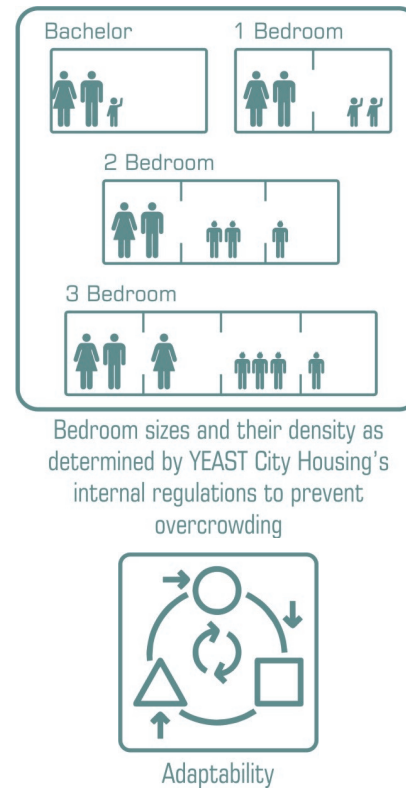


Figure 28 - Graphic representation of regulations influencing the design of social housing developments (by Author)

housing sizes should range from bachelor units to 3 bedroom units; this mix should be determined from market research and be adaptable during the project to respond to the needs of the population. In addition to the residential units, related social facilities and amenities must accommodate recreational and other needs related to higher density residential living. The housing should take its role in social and spatial restructuring into consideration, and must enable social stability. The internal housing environment is also just as important as its immediate environment. The development encompasses the unit design, common areas such as walkways and staircases, as well as amenities that contribute to the social environment such as play areas, landscaping, parking bays, laundry and drying areas, and community meeting rooms. The move to a project-based approach means that the public environment can be made integral to the project design. Retrofitting should be allowed and planned accordingly (Figure 28).

Cost

The gross rentals/levies must cover the unit operating costs and cannot exceed a third of the monthly household income. A third of the housing units must be rental units for households earning less than R 3 500 per month, and a maximum of 70% units must support households earning between R 3 501 and R 7 500 per month.

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2.3 Huis Potgieter

Huis Potgieter, the chosen site, was built between 1967 and 1968 and was taken into use on 1 March 1968, as seen in Figure 29). The building was built as a men's residence for the Normaal Kollege Pretoria, where teachers were trained from 1902 to 1988. In the late '50s and during the '60s (Oberholzer 1977:80), Normaal Kollege experienced a high need for student housing, as the influx of students was too great for the existing residences to handle. Dr GJ Potgieter, appointed rector in 1964 (Oberholzer 1977:83), commissioned this men's residence and another women's residence to be built during his leadership of the college, before ending his tenure at the end of 1968, the building name a legacy of his contribution to the school (Oberholzer 1977:84).

Total Floor Surface Area
4 416 m²

Footprint
684 m²

Property Size
5 950 m²

Floor to soffit height
2,8 m



Figure 29 : Photograph of southern facade of building (by Author)



Figure 30 - Location of building within precinct (by Author)

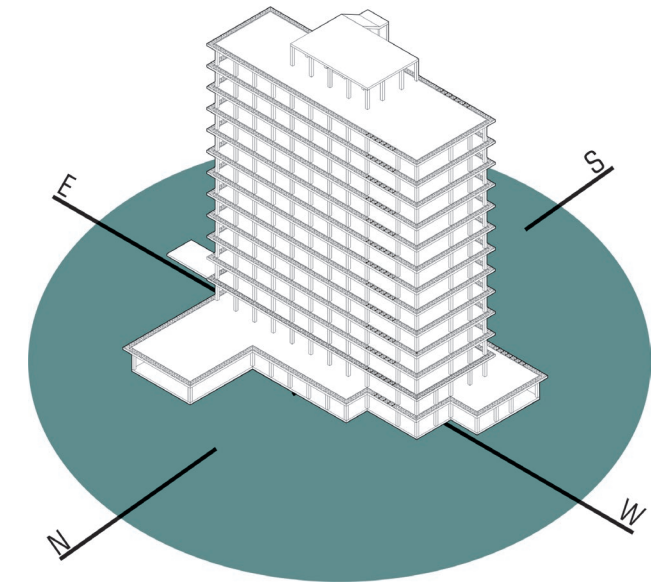


Figure 31 - Axonometric indicating orientation of building (by Author)

Figure 30 indicates the building's location (blue blocks) on the Sunnyside campus of UNISA (indicated by the dashed line). Joubert and Berea Streets both lead from very busy roads (Justice Mahomed and Elandspoort Roads respectively), creating an ideal situation for the building – it is close to feeder routes into the city without unsafe fast-moving traffic right in front of the building.

The building's orientation is ideal for residential living, with the main axis of the building lying on the East-West line with a large northern exposure, as shown in Figure 31.

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2.3.1 International Style

Huis Potgieter was designed using the International Style. Although there might be many similarities to the Modern Movement, the International Style focused more on the aesthetic principles of the design rather than the social concerns surrounding the building. The style is known for its rectilinear form, the use of light, taut plane surfaces and a visually weightless quality, often shown in the use of cantilevered elements. Huis Potgieter complies to this style in all of the above categories, as illustrated in Figure 32 and Figure 33). The shape of the building is highly rectilinear, with minimal decoration. The light façade system allows for a thin skin, maximising the available floor space on the interior of the building (Encyclopaedia Britannica, 2005) . This effect was made possible in this particular building through the use of a concrete column and slab construction.

2.3.2 Materials

The materials used in Huis Potgieter were most likely selected for their durability. The internal walls were built from brick, which were plastered and painted. The walls surrounding the service core was built from a solid gypsum-based material, and painted. The floors are reinforced concrete. The soffits were painted and the floors were finished with linoleum tiles. The columns were also painted in the living areas, but covered in linoleum in the bathrooms and tiled in the kitchen area. The glazing is either clear wired glass or rolled blue glass. The façade is finished with medium density fibre (MDF) panels covered in a mint-green metal sheet.

The rooms were built to be highly robust with plastered and painted walls and linoleum flooring, as shown in Figure 35. The façade consists of metal and glass panels. The mint green colour on the exterior of the building is the effect of these metal panels. The windows were fitted with small louvre panes for ventilation.

The window frames are aluminium. The wired glass provides a fine textured view outwards. The aluminium frames conceal the vertical lines of the frames from the exterior of the building. Most of the wired glass has been removed by vandals and looters (Figure 39).

The walls surrounding the service shafts appear to have been constructed from a gypsum-based material, as seen in Figure 36. The material is light and powdery to the touch, and does not appear to have aggregate or sand as one would expect from a concrete-based material. It appears to be easily altered (once a weak spot was created, other pieces broke off easily).

In the areas where the façade is still intact, the construction of the façade and brise soleil can be seen clearly (Figure 38). The façade consists of a compressed wood panel sandwiched between two metal sheets, and installed in a lightweight aluminium frame. The frame is lightly fixed to the columns, floor slab and soffits. The transparent glass panels are either clear, wired glass (Figure 37) either in solid panes or louvre windows, and rolled blue glass.

The brise soleil slab edging appears to have been coated



Figure 32 - Image indicating taut plane surface used in the original facade (by Author)



Figure 33 - Image emphasising the rectilinear shape of the building (by Author)



Figure 34 - Linoleum Flooring (by Author)



Figure 39 - Northern façade with missing cladding (by Author)

in a spray-on finish, as deduced by the texture of the finish and the evenness of the colouring. The finish appears to be cement-based as it still adheres to the slab very well and has maintained its colour from its original installation.

The floors were finished with a standard colour and finish linoleum glue-on tile, which has started to lift after being exposed to the elements for too long (Figure 34). The original colour is similar to the green cladding on the exterior of the building. The linoleum tiles added to the cold institutional feeling of the interior of the building, and was most likely chosen for its durability and robustness.



Figure 35 - Typical Room (by Author)



Figure 36 - Service shaft wall (by Author)



Figure 37 - Wired Glass (by Author)



Figure 38 - Facade and Brise Soleil (by Author)

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2.3.3 Characteristics

The building has various highly recognisable elements, both on the exterior of the building as well as in the interior (Figure 40). The slab edging, which acts as a brise soleil, gives the building strong horizontal lines. The openings in the edging reduces its visual mass when viewed from close by, and within the building itself. The strong horizontal lines of the edging are offset by the mint-coloured panels which enhance the verticality of the design. The main staircase protrudes from the southern façade and is glazed, providing views of the main UNISA building towards the south. It also ensures ample natural lighting in the main circulation areas.



Figure 40 - Collage of unique characteristics of the building, with hierarchy shown in size of images. The brise soleil, vertical circulation, glazing and views are the main features of the building.

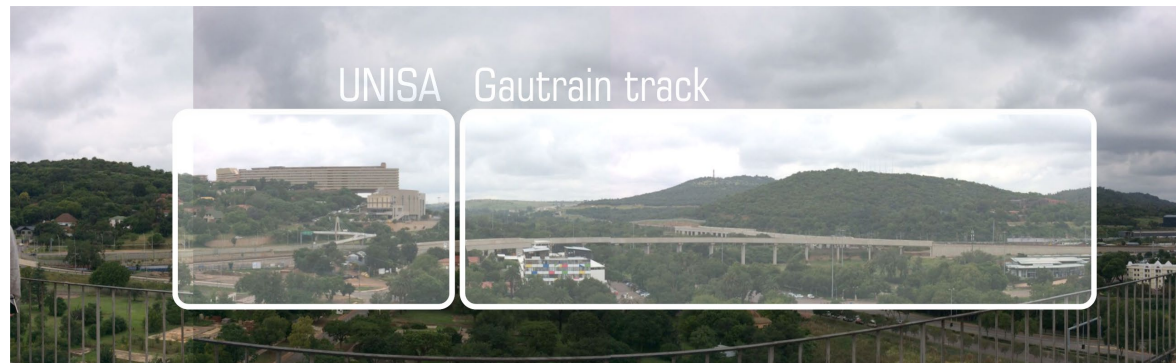


Figure 41 - View towards the South (by Author)



Figure 42 - View towards the North (by Author)

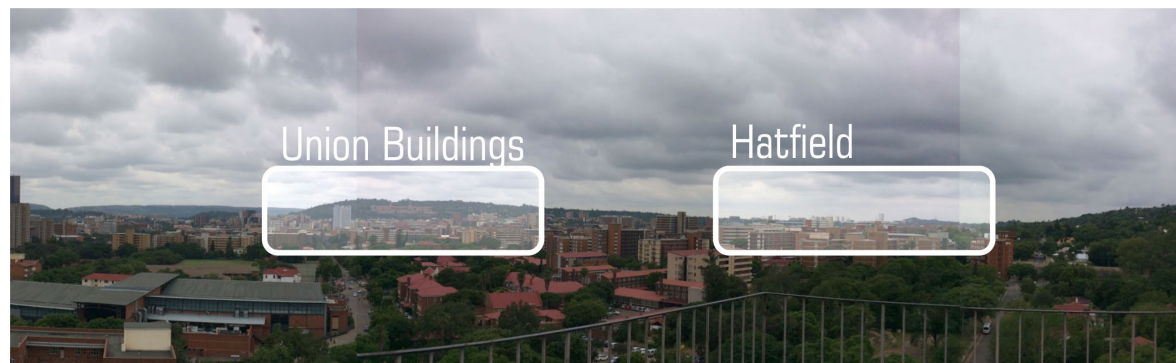


Figure 43 - View towards Northeast (by Author)

2.3.4 Views

Huis Potgieter is the highest building in the area, its 12 storey height dwarfing the surrounding single, double, and triple storey buildings.

It has a 360 degree view over its surroundings - from the CBD to the north around to the UNISA main building to the south. This also means that the building is visible from far away – such as from the Gautrain bridge to the south of the building (Figure 41), as well as from the surrounding houses to the east (Figure 43). This should be considered in a possible façade intervention and the privacy of inhabitants will also have an impact on façade considerations.

To the north the Pretoria CBD is visible, including all the surrounding koppies. This view places the building's height into context as one of the taller buildings in Pretoria (Figure 42).

To the south the main building of the UNISA campus can be seen, as well as the N14 highway leading into the city. Freedom Park and the Gautrain track can be seen to the southwest (Figure 41). The building is clearly visible from the Gautrain.

Towards the northeast there is a clear view of the Union Buildings. Areas like Hatfield and Arcadia can be seen through the koppies, with the Humanities Building of the University of Pretoria also visible in the distance (Figure 43).

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2.3.5 Building Layout

The most public functions within the building, such as the eating hall and recreational areas, as well as the service areas, are located on the ground and lower ground level of the buildings (Figure 44). The main pedestrian entrance of the building is on street level, the ground floor (Figure 46). There is a small bridge from the sidewalk to the entrance. On this level, there was a reception, sitting room, pool room and phone booth. The lower ground floor (Figure 45) housed the communal eating hall, kitchen and other service areas. On the first floor there were two large apartments, one for the house father and his family, as well as a second, smaller apartment for another member of staff. The student's rooms were located on floors 3 to 12. Figure 47 illustrates the 4 rooms on the corners of the buildings were double rooms, usually assigned to the first year students. The other north-facing rooms were smaller, single rooms. The southern side of the building contains the communal bathrooms and showers, as well as a small area for drying laundry, main circulation and fire escape.

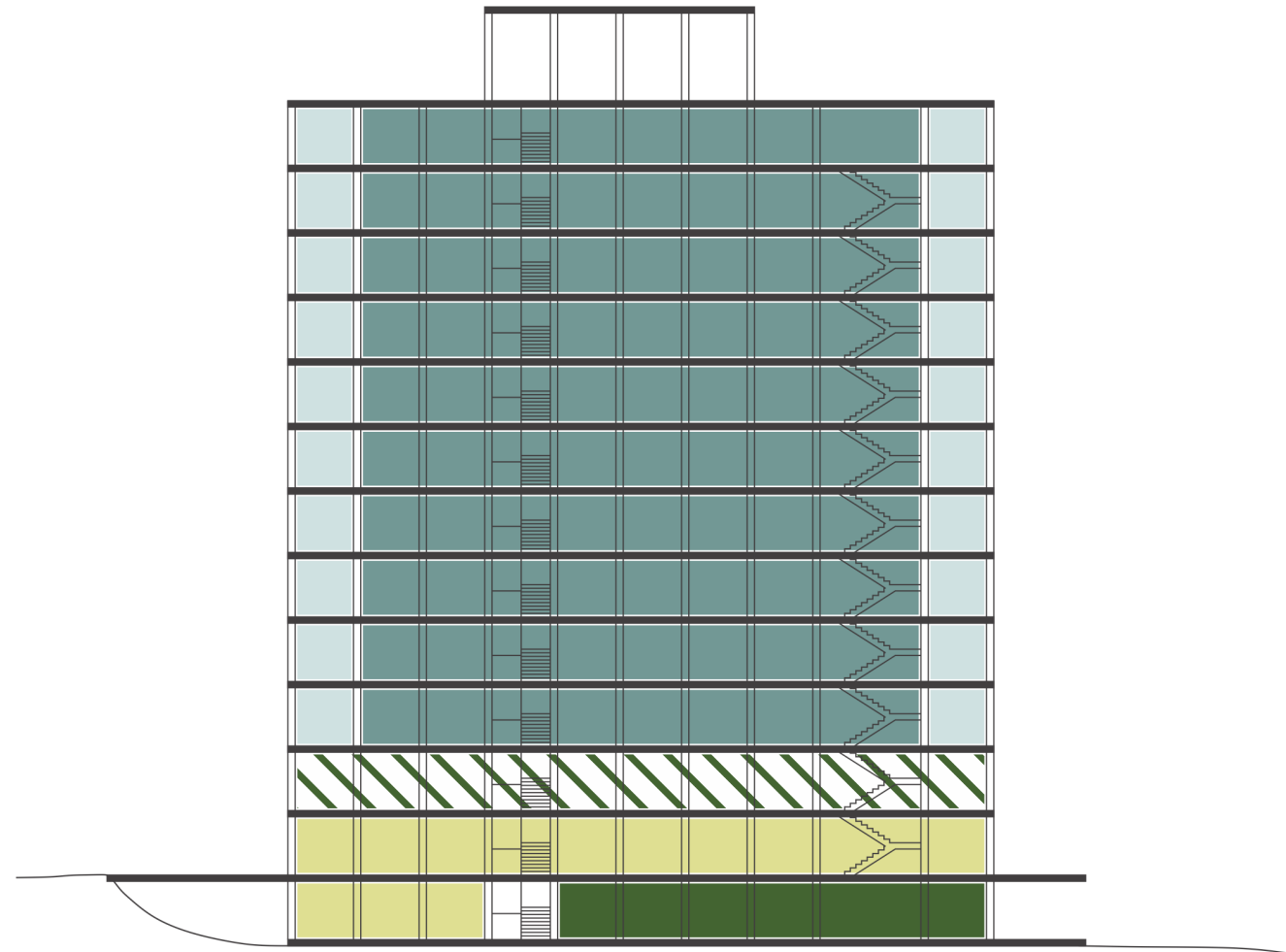


Figure 44 - Northern elevation of building indicating previous use (by Author)



Figure 45 - Layout of the lower ground floor (by Author)

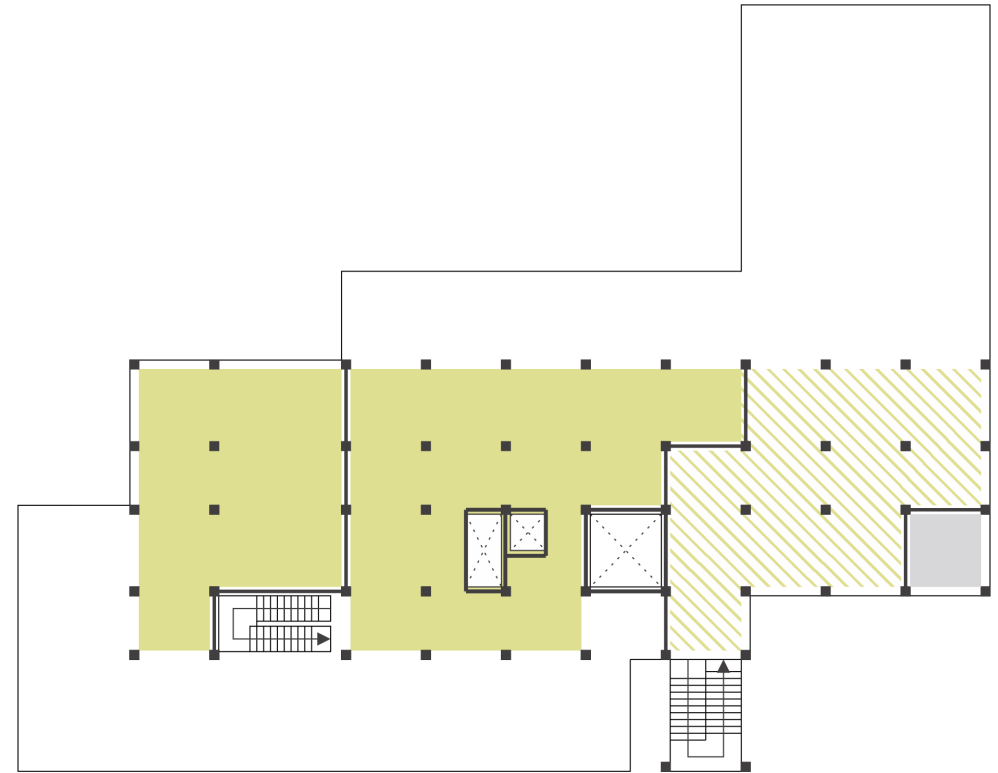


Figure 46 - Layout of Ground Floor level (by Author)

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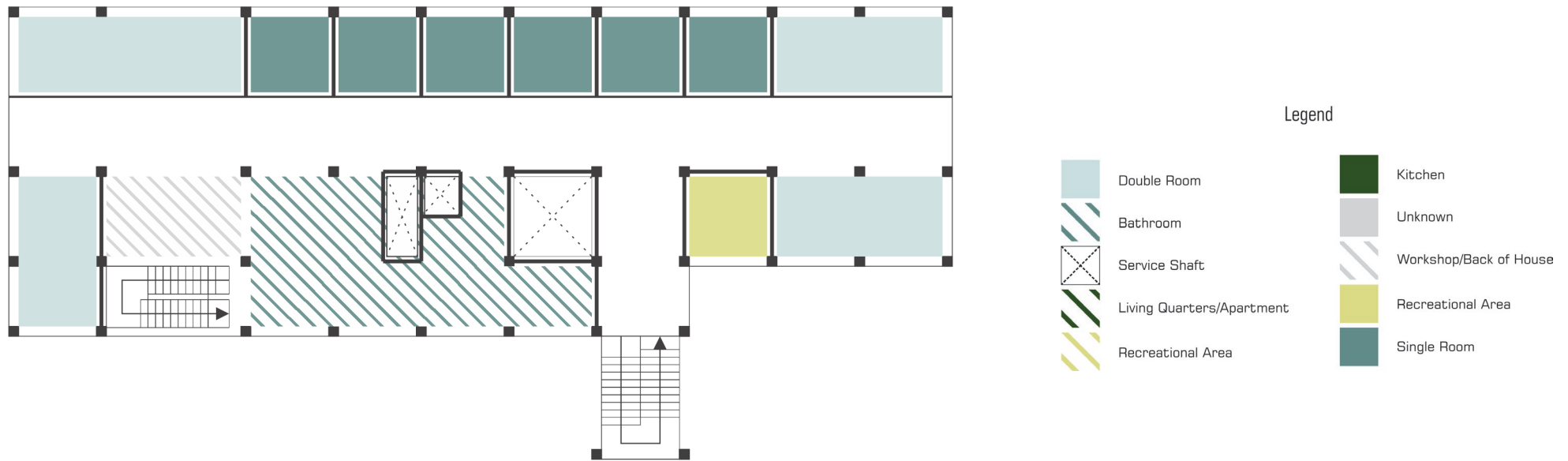


Figure 47 - Layout of typical floor (by Author)

2.3.6 Relationship to street

The building's basement is located one level below street level, creating a lower ground floor (Figure 48). In order to access the building, the user crosses a small bridge to reach the entrance lobby, which is on the same level as the street. This bridge is the only physical connection of the building to the street. From the entrance lobby a reception area as well as the lift lobby is visible. This progression is shown in Figure 49.

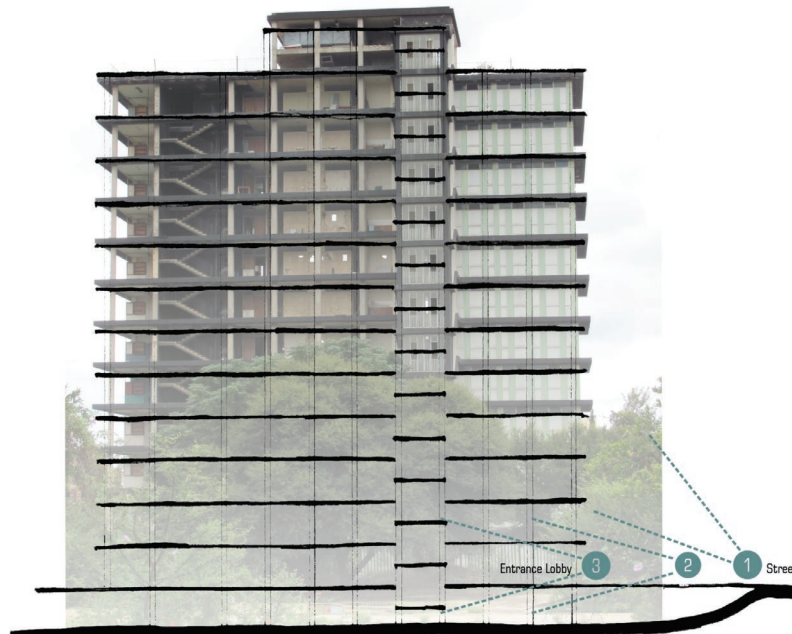
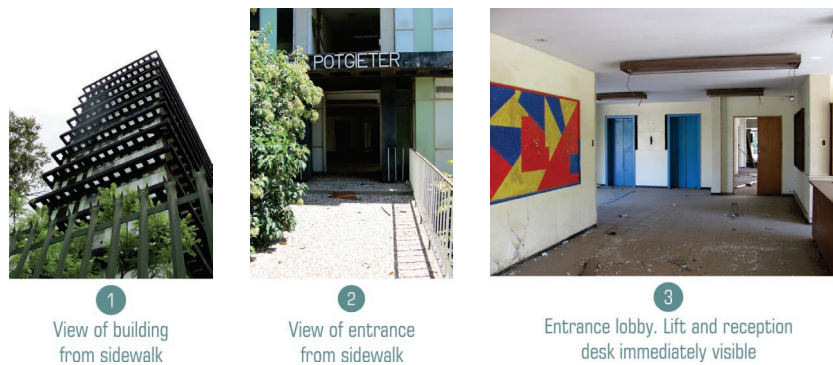


Figure 48 - Elevation of building indicating change in level and views from street (by Author)



1

View of building from sidewalk

2

View of entrance from sidewalk

3

Entrance lobby. Lift and reception desk immediately visible

Figure 49 - Typical views on approaching and entering the building (by Author)

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2.3.7 Parking

The parking is accessed via a concrete ramp from street level in the southernmost corner of the site. There are still some remnants of shaded parking bays (now deteriorated). This area is largely undefined apart from the previous shade ports. There appears to be access to workshops on the lower ground level on the south-western corner of the building.



1

View from parking towards street. Height difference between parking and street visible



3

Southern balcony overlooks parking entrance but aligns more with abandoned lots on next plot



2

View towards west of parking. Area is overgrown.



4

View of shadeports from third floor

Figure 50 - Images indicating views as seen from points indicated in parking areas (by Author)

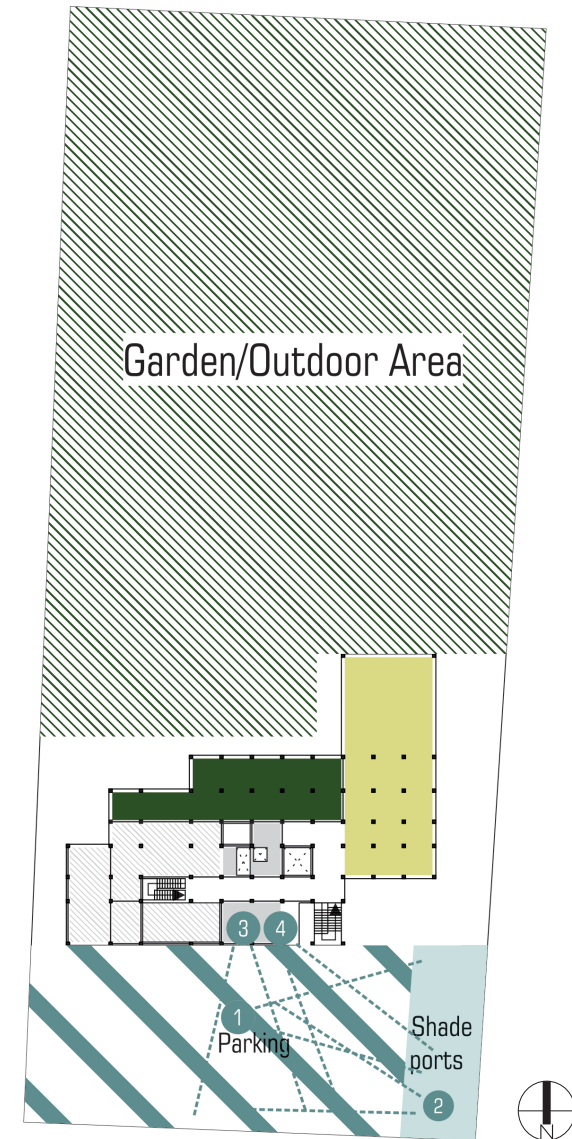


Figure 51 - Diagram of existing parking layout (by Author)

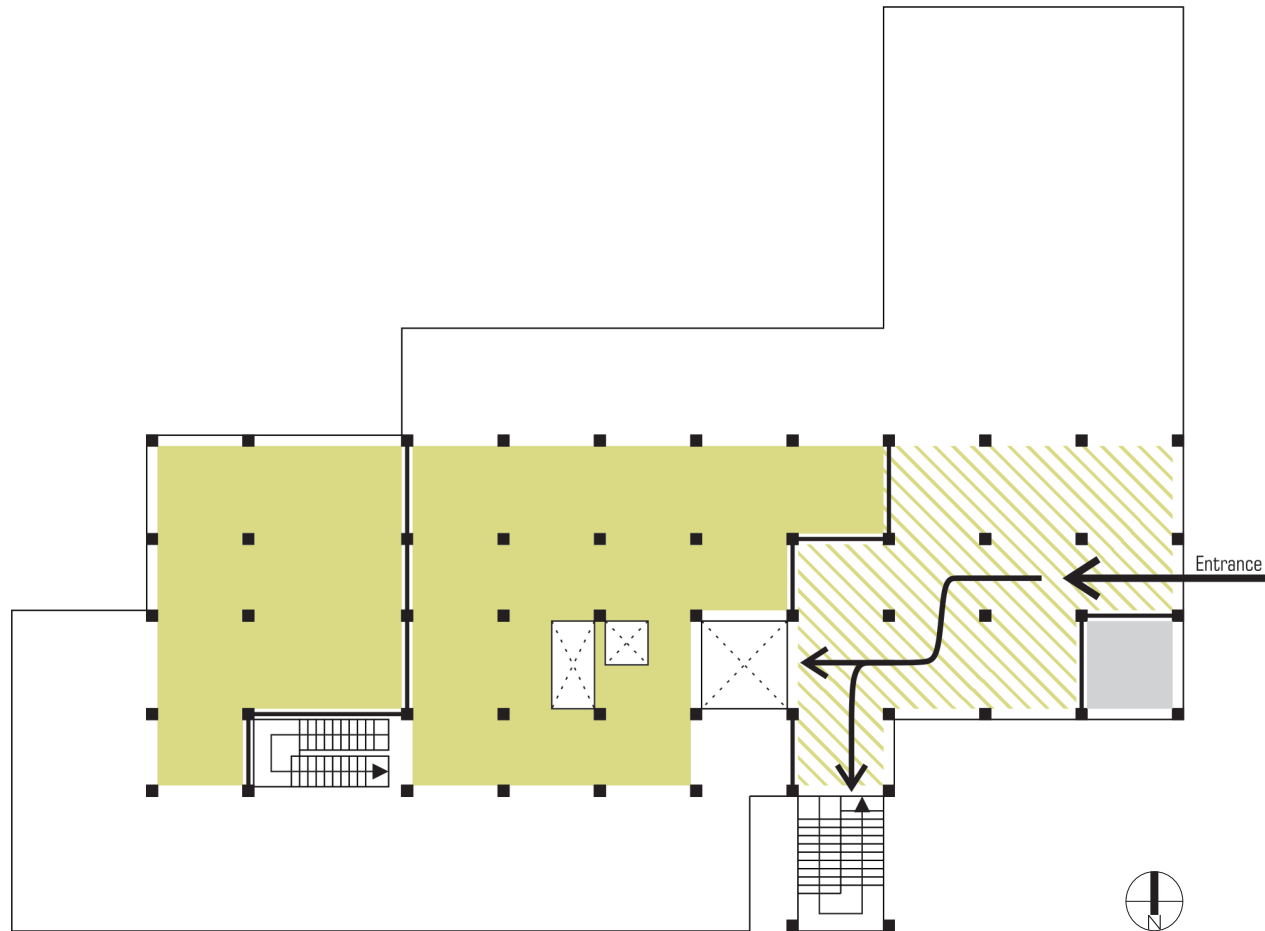


Figure 52 - Diagram of existing ground floor layout indicating main circulation route from pedestrian access (by Author)

2.3.8 Circulation

The wayfinding in the building is very easy to navigate, and public areas are well-lit. The main circulation methods are clearly visible from the main entrance (Figure 52). The main staircase forms an integral part of the architectural design (Figure 53). It is shown in the massing of the building and persons can clearly be seen by onlookers or pedestrians on the street. The glazed staircase also provides views as a person ascends and descends, giving alternating views of the surrounding landscape and the building itself. The fire escape is less successful in this regard but is also well lit via natural lighting, with views only to the side of the main movement direction, see Figure 54 to Figure 59 for further information.

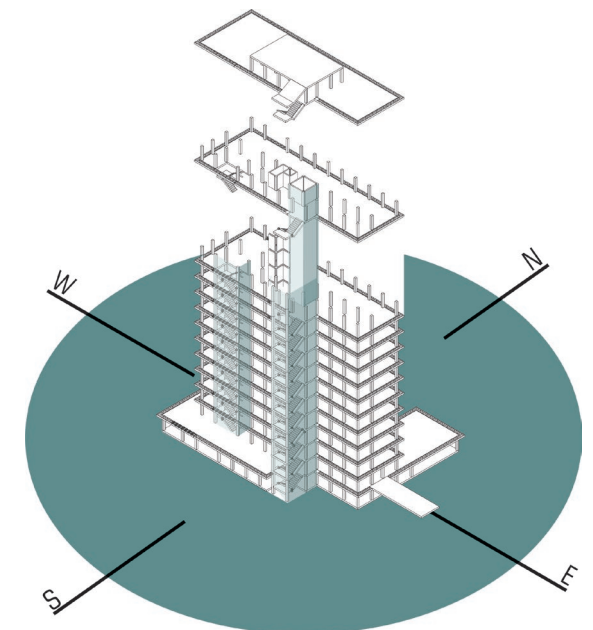


Figure 53 - Axonometric indicating main vertical circulation (by Author)

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Figure 54 - Wired glazing on main staircase (by Author)



Figure 56 - View towards lift from main staircase (by Author)



Figure 58 - View from main staircase towards parking area (by Author)



Figure 55 - View of main staircase from lift (by Author)



Figure 57 - View of main staircase from parking area (by Author)



Figure 59 - View of fire escape from main circulation (by Author)

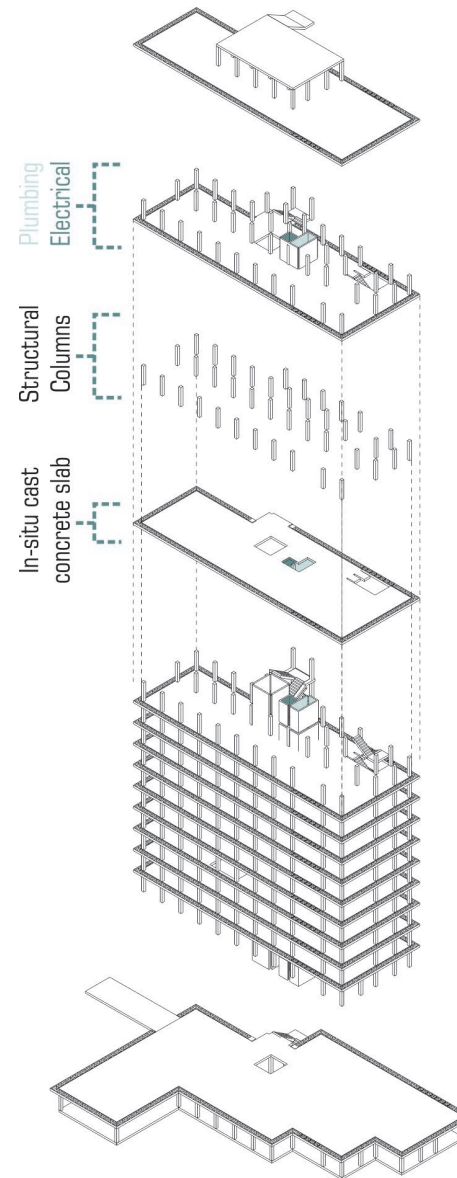


Figure 60 - Exploded axonometric of services (by Author)

2.3.9 Services and Structure

The services of the building are centralised in two service shafts, as illustrated in Figure 60. The larger shaft runs from north to south in the centre of the building and is used for all the water reticulation and sewerage. The smaller shaft immediately adjacent to that houses all the electrical services. There does not appear to be any connection between the two shafts. This would allow new services to be easily reticulated into the existing shafts. The location in the centre of the building would also mean that additional units, perhaps on the far eastern or western façades would require the introduction of additional service shafts.

The building is constructed using a concrete column and -slab method. The brise soleil has been cast in situ as part of the slab, but cantilevers beyond the edge of the floor slab. The concrete slab has been reinforced, but does not seem to have been post-stressed. This would allow for openings to be cut into the slab to create double volume or larger spaces, provided that these openings do not interfere with the reinforcements between the columns.

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2.3.10 Sun Angles

The building is ideally orientated for residential living with the main northern façade being shaded with the brise soleil. The eastern and western façades could be over-exposed during the summer months due to their increased exposure. The southern façade with the circulation spaces would have consistent, even southern lighting, but would most likely have a colder atmosphere.

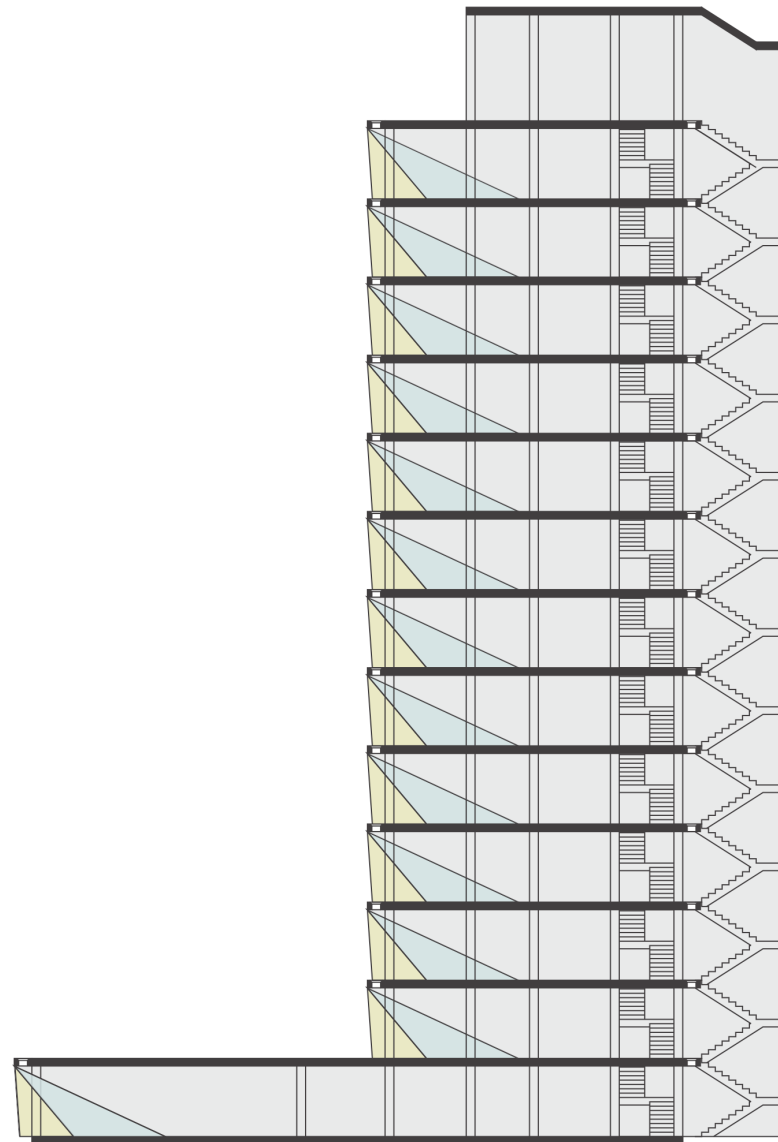


Figure 61 - Section of building indicating sun angles and efficacy of brise soleil
(by Author)

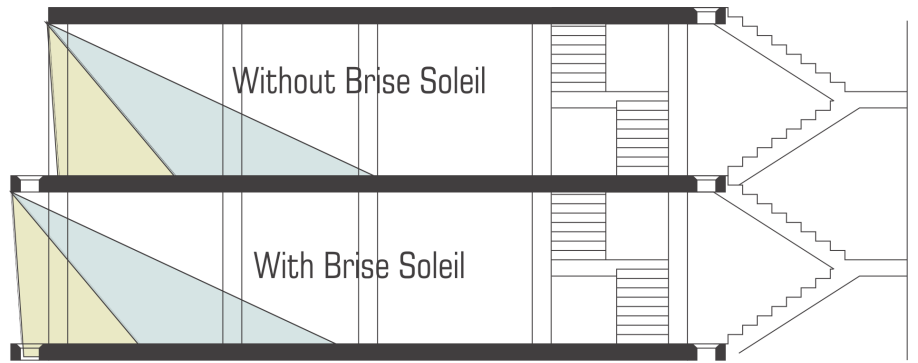


Figure 62 - Section of building indicating sun angles and floors with and without brise soleil (by Author)

Figure 61 indicates the winter solstice (blue), equinox (yellow) and summer solstices for the building. The brise soleil manages to effectively block out the summer sun but allows for winter sun to fall far into the building to heat the thermal mass of the concrete slab, as illustrated by Figure 62.

Figure 63, Figure 64, and Figure 65 indicate how deep the sun penetrates the building during the different solar situations. The models clearly indicate the efficacy of the brise soleil by blocking all of the northern sunlight in summer, yet allowing the winter sun to warm the floor slab for some passive heating.

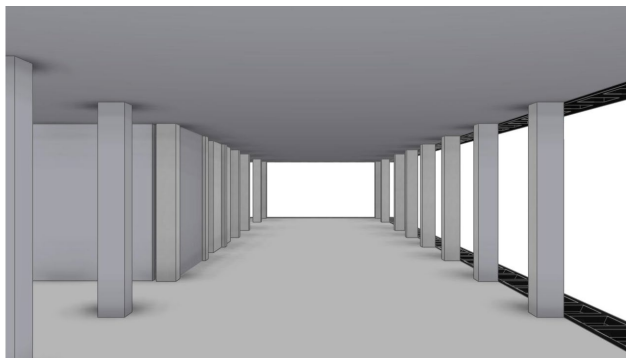


Figure 63 - Modeling of typical floor on the summer solstice (by Author)

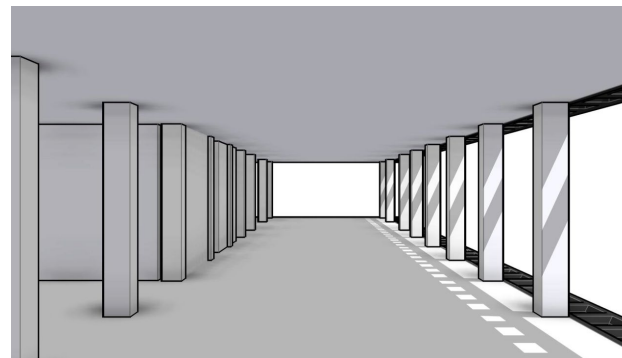


Figure 64 - Modeling of typical floor on the fall and spring solstices (by Author)

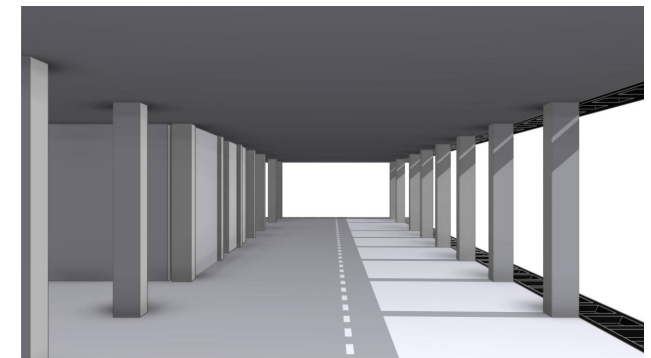


Figure 65 - Modeling of typical floor on the winter equinox (by Author)

Social housing with interior public spaces

2.3.11 Wind

The building is subject to the typical wind effects of high buildings - low wind speeds on ground and lower levels, with wind speeds increasing as one moves higher up in the building (Figure 67). This was experienced when in the building itself, as most of the façade has been removed and the visitor is very exposed to the elements at the moment. This effect would allow for highly efficient natural ventilation when considering the possibility of controlling the wind flow from the northeast (Figure 67) and using the leeward side of the building - where wind pressure is lower - to control the amount of air flowing through the building.

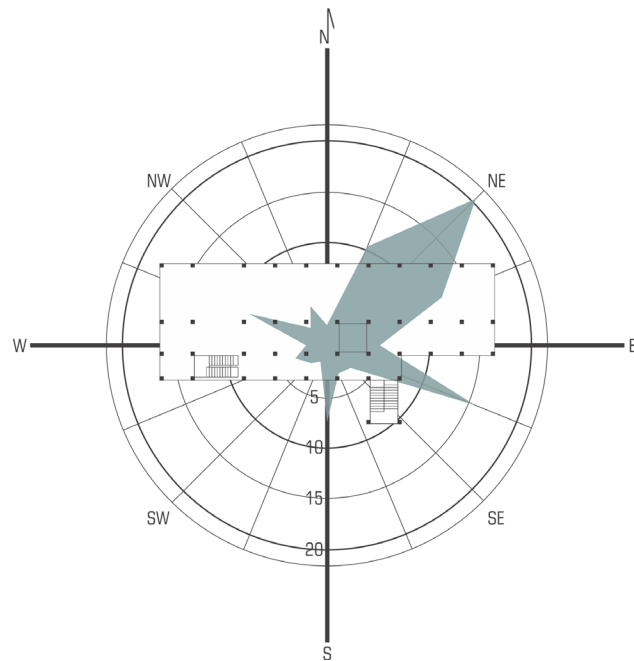


Figure 66 - Diagram of predominant wind in South Africa (by Author)

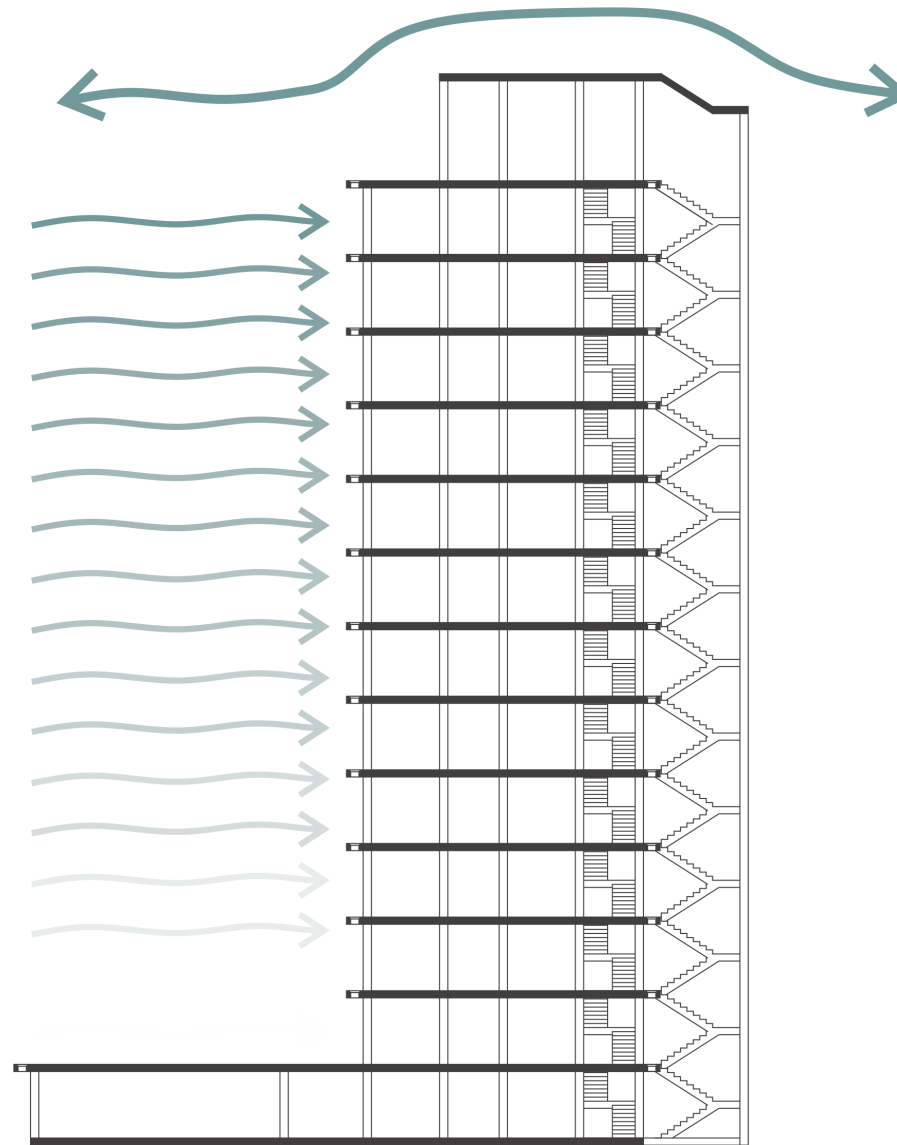


Figure 67 - Diagram illustrating the effect of the wind pressure caused by the height and exposed nature of the building (by Author)

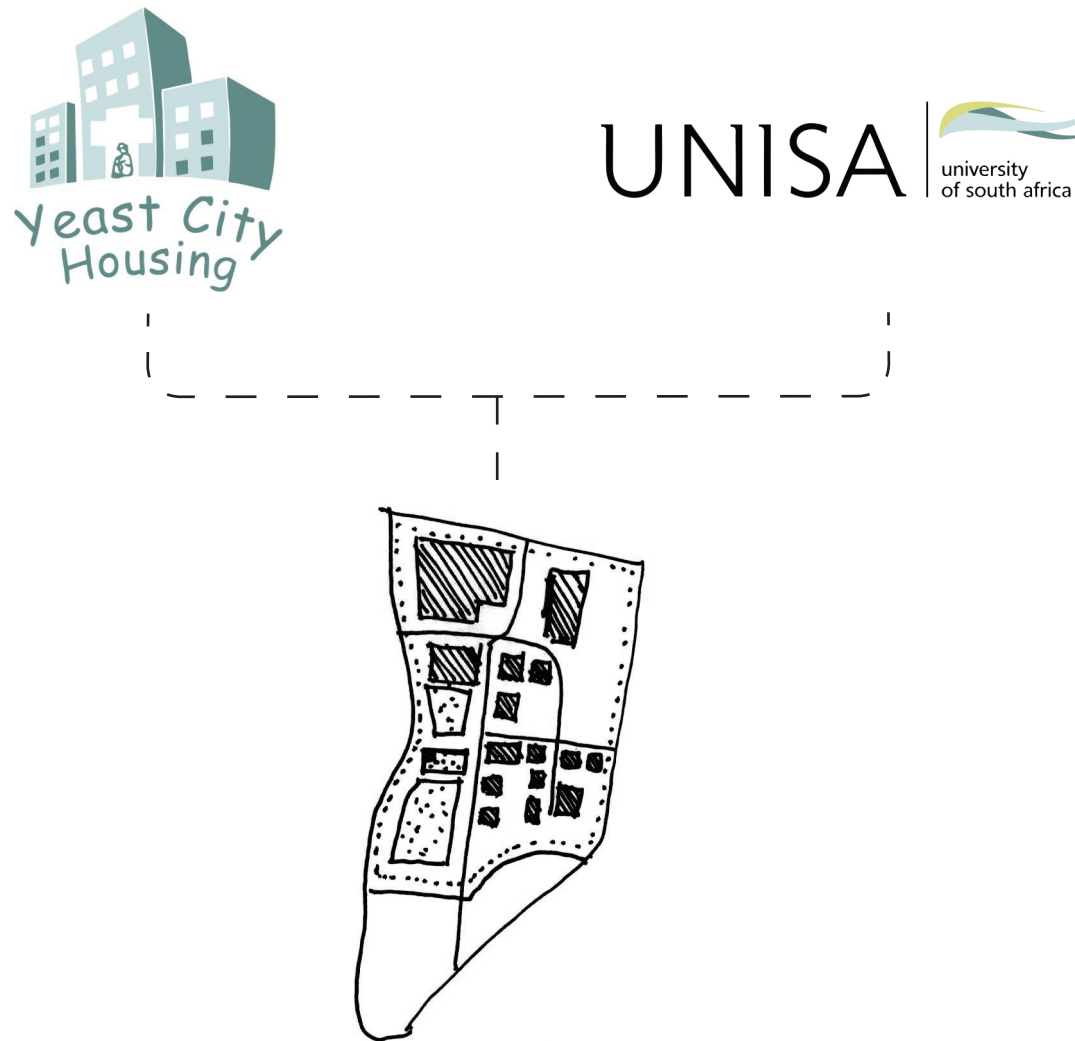


Figure 68 - Diagram illustrating the proposed clients developing the site as partners to create a unified approach for the site and surrounding available properties (by Author)

2.4 Client

The clients have been chosen as Yeast City Housing and UNISA. This proposed partnership was developed as an application of the regulations (c.f.), which encourage public and private entity partnerships.

2.4.1 Existing Owner - UNISA

The proposed site is in the University of South Africa's (UNISA) Sunnyside campus to the east of Pretoria CBD. UNISA has been chosen as the main partner for the project as they currently own the property, have established access control to the site, and has employees in various income groups. The variety of income groups would typically include members in the medium income market, the identified target market (c.f. 1.3), as well as employees lower and higher income brackets. This would apply and enforce the regulations stating that housing developments should incorporate residents of various income groups (c.f.). Developing this area as housing for their employees would have the added benefit of reducing their employees' travel time and expenses.

2.4.2 Proposed Partner - Yeast City Housing

Yeast is an approved Social Housing Institution, which focuses on housing provision for the medium income market. The institution is required to adhere to the Department of Housing's regulations in all areas, especially in their requirements for tenants.

Context | 2

2.5 Precinct

With the identification of the various unused buildings on the Sunnyside campus, as well as the regulatory requirements, a proposal to allow the clients to develop a social housing precinct is made. The precinct was informed by the regulatory requirements and the existing urban condition around the site. The more public functions, which the existing community in the surrounding areas could also benefit from, were placed to the outer edges and busy streets. The more private spaces such as housing and childcare were placed to the centre of the precinct to create a sense of casual surveillance and to define the public to private transition.



Figure 69 - Proposed precinct layout (by Author)

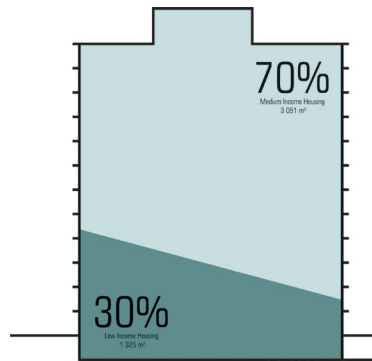


Figure 70 - Diagram illustrating the required mix of income of inhabitants (by Author)

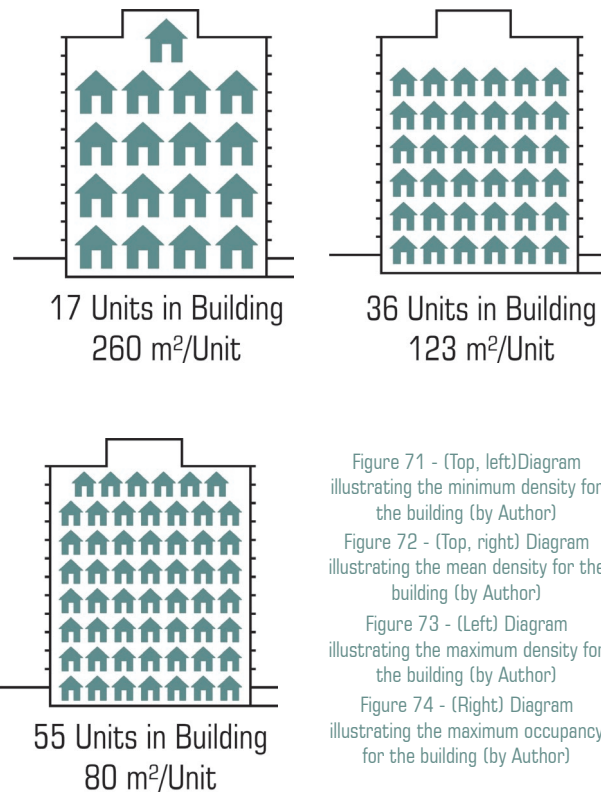
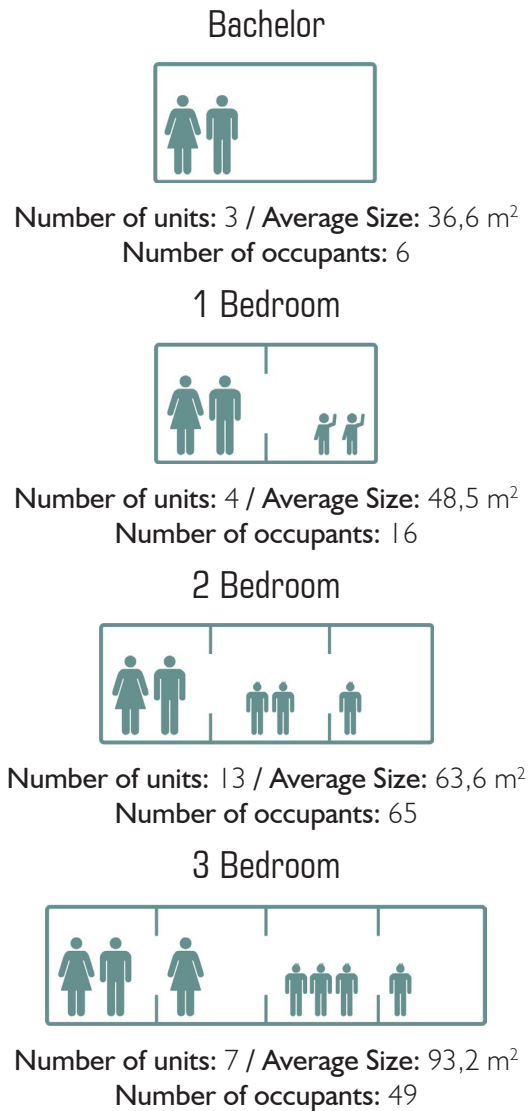


Figure 71 - (Top, left) Diagram illustrating the minimum density for the building (by Author)
 Figure 72 - (Top, right) Diagram illustrating the mean density for the building (by Author)
 Figure 73 - (Left) Diagram illustrating the maximum density for the building (by Author)
 Figure 74 - (Right) Diagram illustrating the maximum occupancy for the building (by Author)



2.6 Proposed Density

From an analysis of the regulations influencing the design, the conclusion can be drawn that in order to densify the area, the building should house a medium density living arrangement and accommodate 30% low income units and 70% medium income units (as illustrated in Figure 70).

The density of the housing should be medium density (c.f. 2.2.5). Landman and Du Toit has defined medium density as ranging between 40-125 units per hectare (2014:24). The building's total usable floor space amounts to roughly 4 428 m², or 0,4 ha. An analysis was done to estimate the amount of units that should be provided in the proposal to constitute a medium density development. Figure 71 illustrates the amount of units required for the lowest end of the estimate (40 units/ha), Figure 72 is an average of the range (83 units/ha) and the maximum amount of units (right, 125 units/ha) for the range is shown in Figure 73. The proposed density will be defined through the design process and will depend on an analysis of how the units can be arranged within the building.

The client, YEAST, has a maximum occupancy per unit type, as set out in Figure 74, in order to prevent overcrowding. The proposed amount of units and average size per type is also indicated, as per the tenant layout in Figure 139 to Figure 152.

Maximum amount of residents: 136

2.7 Conclusion

This chapter dealt with a variety of climatic, social and regulatory influences of the building and analysed the building from various points of departure.

The physical context shows that the building is ideally located in terms of infrastructure, transport, commercial activities and education services, and a conclusion can be drawn that developing a housing programme for this area is viable and would serve the area well.

An analysis of the user needs has revealed that a focus on public spaces is a valid concern and that these spaces will be used by the inhabitants, in most cases especially by women with their children. With a high importance placed on outdoor space, it would be pertinent to the study to design spaces that can fulfil this need.

The analysis of Huis Potgieter has revealed that it is an ideal building for housing units, most likely due to the fact that it was designed with a residential purpose in mind. The challenge in the design process will be to adapt the building from a highly institutional, communal type of living into separate apartments with shared spaces. In terms of the climatic considerations, the units should be placed, as far as possible, on the northern side of the building, reducing the need for artificial heating and cooling. Care must be taken in the placement of the public spaces – they should also be comfortable, but should not take up too much valuable private space.

With the contextual analysis of the building complete, the design premise and theory base will be introduced and discussed next in order to develop a design approach for the design.
