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Interior Architecture (Professional)

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Rebranding the Silver Market

The alteration of Huis Davidtsz from institution to place for living

By Margaux Nicholson



DECLARATION

In accordance with Regulation 4(e) of the General Regulations (G.57) for dissertation and theses, I declare that this dissertation, which I hereby submit for the degree Master of Interior Architecture (Professional), is my own work and has not previously been submitted by me for a degree at the University of Pretoria or any other tertiary institution.

I further state that no part of my dissertation has already been, or is currently being, submitted for any such degree, diploma or other qualification.

I further declare that this thesis is substantially the work of my own. Where reference is made to works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and the list of references.

Margaux Nicholson



PROJECT SUMMARY

Programme:	An intimacy gradient of recreational spaces
Site description:	Nursing home
Site location:	Erf 176 Pretoria
Address:	113 Johannes Ramokhoase Street, Pretoria CBD, Gauteng
GPS Coordinates:	25° 44' 35.94" S, 28° 11' 37.05" E
Research Field:	Human Settlements and Urbanism
Clients:	Kerk-sonder-mure and elderly living in Huis Davidtsz
Keywords:	<i>(elderly, ageism, transgenerational design, universal design)</i>

INTERIOR ARCHITECTURE

Theoretical Premise:	The alienation and removal of older adults from everyday society not only by the physical removal of these persons to isolated high care facilities but also by the general disregard for personal taste, fashion, comfort and elegance found in products and spaces designed for the elderly.
Approach:	Four elements of architectural space: floor, wall, ceiling and window, are manipulated to create an intimacy gradient

ABSTRACT

Places designed for the elderly tend to be stigmatising, which is predicated in its medical engineering background. The institutional nature of these places accelerates decline as it negatively impacts on the health of its residents, physically and psychologically disabling them.

Spaces that support the wellbeing of residents can be identified by the presence of three characteristics: a sense of control over one's environment, a sense of access to social support and access to positive distraction.

Huis Davidtsz is a frail care facility, located just west of Pretoria's central business district, which has housed elderly people since 1968. The interior environment of Huis Davidtsz is dull and disabling and for this reason is selected as site for design intervention. In order to re-design Huis Davidtsz into a psychologically supportive environment the aforementioned characteristics of supportive space are translated into architectural design.

Four elements of architectural space: floor, wall, ceiling and window, are manipulated to create an intimacy gradient.

This gradient humanises the institution by establishing a range of spaces and a sense of territoriality. The unforgiving threshold between intimate and public space is moderated by subtle spatial indications of levels of intimacy.

This provides Huis Davidtsz with the seven levels of intimacy associated with domestic spaces, enabling individuality and choice. The result is a comfortable and secure place for living.

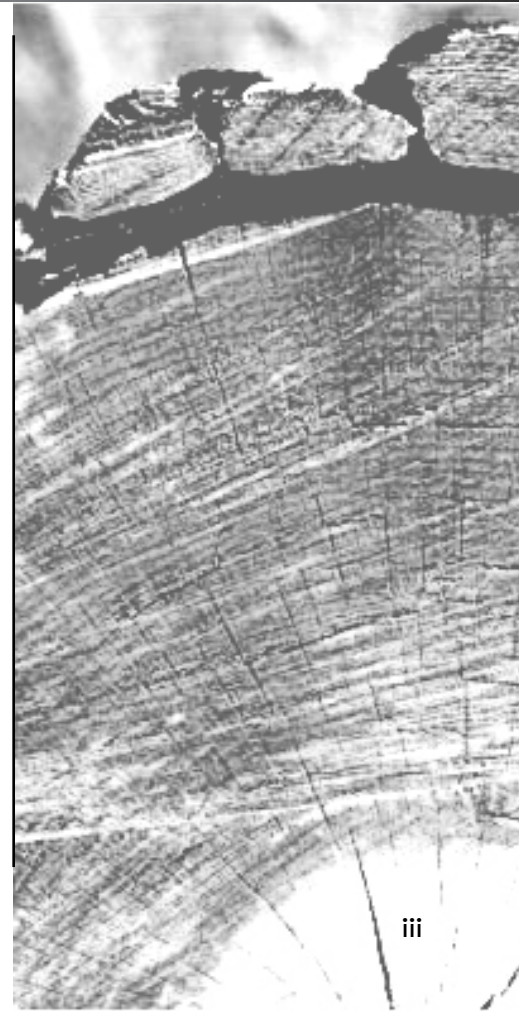


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CHAPTER ONE INTRODUCTION

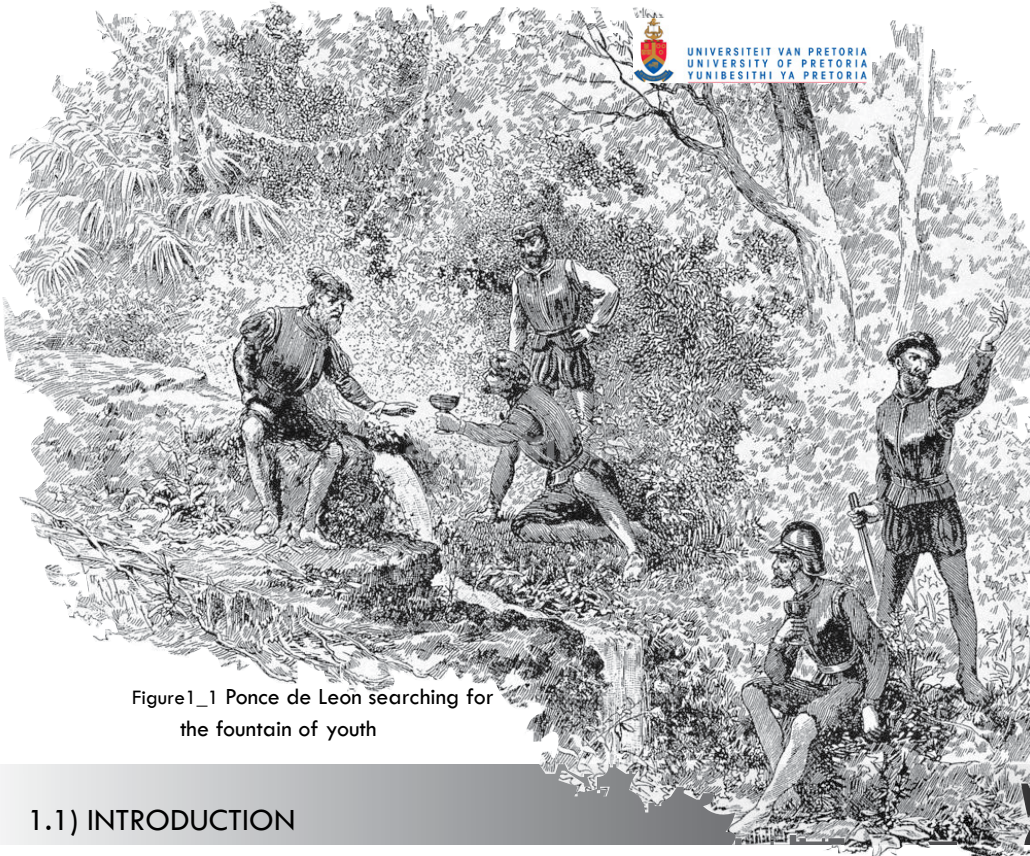


Figure1_1 Ponce de Leon searching for the fountain of youth

1.1) INTRODUCTION

"Youth is a circumstance you can't do anything about. The trick is to grow up without getting old." Frank Lloyd Wright (International Business Machines Corporation, 1968:62).

Since the beginning of time people have yearned for eternal youth. Ponce de Leon searched for a mythical fountain that would produce healing waters and eternal youth. Storytellers used this universal yearning to tell tales of elixirs of life and everlasting beauty (Dozois,2006:3).

Parallel to this obsession with youth a respect and reverence for the wisdom and experience that came with age used to be prevalent in society. Prehistoric societies held an almost god-like regard for their elders. The elderly were considered the custodians for the history and culture of their people. Senior members of society were teachers by virtue of their experience and in biblical times it was believed that persons who reached the age of fifty were selected by God for a great purpose (Nelson,2006:208).

As time passes unnoticed and quiet, radical changes occur within our bodies and within our minds. As we age, simple tasks become more difficult and natural bodily functions lose their youthful enthusiasm. In spite

of this, the elderly still dream, feel, experience and desire.

Vulnerability is a predisposition that makes a person or a group more susceptible to harm. The prioritisation or neglect of vulnerable groups by a society reflects the evolution of that society (Mechanic & Tanner, 2007: 1220).

'I believe that when an elder dies, a library is burned, vast sums of wisdom and knowledge are lost. Throughout the world libraries are ablaze with scant attention' (Lindsey, 2010).

While the value of youth has stayed consistent over time, old age has become progressively more and more stigmatized and the value of the elderly less and less appreciated. Our society is distended by information and data but it craves wisdom. Technology allows us to be connected to each other at all times but anxiety, loneliness and depression have never been so prominent (Lindsey, 2010).

This dissertation is centred on the elderly currently living in Huis





Davidtsz. Huis Davidtsz, an eight storey building situated on the corner of Johannes Ramakhoase Street and Shubart Street in Pretoria, is an existing old age home and frail care facility. The building was designed by Pretoria architect Paul du Plessis and constructed in 1968 (Strydom, 2013).

The functional spatial requirements of the elderly currently dominate the interior of Huis Davidtsz, while other elements of spatial experience have been neglected causing spaces to be psychologically unsupportive.

Furthermore, the institutional nature of the interior points to a lack of interest in the psychological and emotional needs of the residents. Research has proven that psychologically hard spaces, such as Huis Davidtsz, impact negatively on the health of its residents while also accelerating their deterioration (Ulrich, 2001:98).

Issues such as population ageing, ageism and the physiological and emotional requirements for a safe, healthy and comfortable environment are investigated.

The built environment and its influence on the people who inhabit it is a critical part of design research. Interior design specifically has a very intimate effect on our lives and our wellbeing. The spaces we dwell in are not only physically close to us; they also form the platform on which the collective narrative of our lives take place (Hudson, 2007: 6). Interior designers therefore need to know how to design spaces that will provide in the primary physical needs, as well as the psychological wellbeing, of its users (Chuang & Chiou, 2009:155).

Huis Davidtsz has a negative impact on the wellness of its residents by failing to provide in the three main spatial contributions to human psychological health. Firstly, there is no sense of control over one's environment; secondly, there is very little access to social support and lastly there are no

positive distractions in the everyday environments of the residents. The above mentioned spatial problems are called stressors by R. S. Ulrich (2001:98) and are medically proven to impact negatively on health.

The residents of Huis Davidtsz do not only require an alteration of the physically and psychologically disabling space they inhabit, but also a new interface which will connect them to the greater environment of the city and a re-imagination of the aesthetic and brand they are currently saddled with.

An African shaman once said that our society worships the jester while the king stands in plain clothes. In many ways this is true as society has placed an overemphasis on information while neglecting wisdom; it values science and rejects indigenous knowledge. Our elders have value beyond measure and form part of humanity's collective narrative. Elizabeth Kapu'uailani Lindsey (2010) tells the story of a lesson her mentor Mau -who was a traditional navigator- taught her in which he uses the analogy of a canoe trip. He said that if you are on a voyage far from home your survival depends on everyone on board and that no-one can make the journey alone. She says that he was talking about the world and how society's notion of everyone for himself is completely unsustainable.

Integrating the elderly residents of Huis Davidtsz into everyday society will prove that interior design can act as a catalyst for change in the social environment of Pretoria. By providing a safe, healthy interior space for the residents of Huis Davidtsz, we as a society can not only prove our evolutionary progress by prioritising the wellbeing of a vulnerable group, but can also educate our society against primitive behaviour such as ageism.



Figure 1-3 Old vs young

1.2) BACKGROUND

The objective of this study was formulated from various problems that influence this specific theme. Issues such as population ageing, ageism and the physiological and psychological requirements for comfortable, appropriate space design validate the research question.

The abovementioned issues are discussed in greater detail in this section in order to illustrate why the research is relevant and also a valid question to ask in the current situation.

1.2.1) POPULATION AGEING

Population ageing is the most significant demographic feature of the twentieth century (Joubert & Bradshawb, 2005:204). This occurrence, also known as demographic ageing, is a process by which the segment of the population (of a certain area) that is older than 60 years of age, grows proportionally faster (or decreases proportionally slower) than the other segments of the population. This causes a proportionally larger older population.

This phenomenon is said to be a causal effect of a transition from higher to lower levels of mortality and fertility, but can also be affected by issues such as international migration. Population ageing causes the population's age structure to morph from a pyramid shape (large broad base population of children)

to a column shape with larger proportions of older population groups and is illustrated in Figure 1_6 (Joubert & Bradshawb, 2005).

This phenomenon was originally very prominent in developed countries but has recently been documented globally. Adding to the pressure of this situation, population ageing occurs more rapidly in developing countries which deprive these countries of the opportunity to prepare (Joubert & Bradshawb, 2005:204).

Projected population figures of South Africa (see Fig. 1_6) indicate population ageing over the next two decades (Joubert & Bradshawb, 2005:205). Which is a projection of the average age of the population of South Africa.

Figure1_4 Mrs Stegman playing piano





Figure1_5 Children of men

“Children of men” is a novel based on this phenomenon of population ageing. The author P.D. James greatly exaggerates the effects of population ageing to describe a dystopia set in 2021 where mass infertility has created complete chaos. Even though the effects of this phenomenon will probably never reach the extremes of the novel, “Children of men” acts as a warning, urging the world to prepare for changes in demographic and family structures.

Rising life expectancy and changes in family structure have resulted in unique social conditions where older adults are able to remain active members of society for longer. Population ageing changes the health

needs of an area by increasing the demand for long term and chronic care. It also increases the amount of frail persons who have declining physical and cognitive capabilities, and therefore has a very definite effect on design.

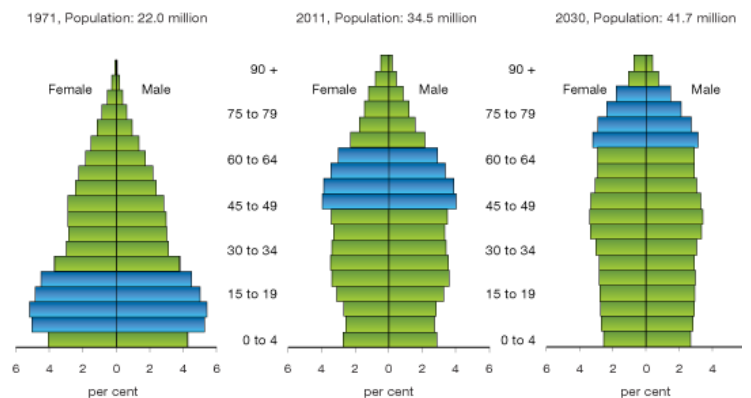


Figure1_6 Population's age structure morphs from a pyramid shape (large broad base population of children) to a column shape

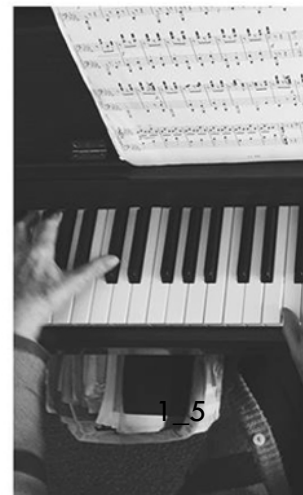




Figure1_7 Institutional aesthetic



Figure1_8 Walker with tennis balls

1.2.2) AGEISM

In order to simplify the cognitive process of everyday human decisions, people categorise certain bodies of information into groups. The categorisation of “others” into groups is so inherent in the way people think that some of these categories, such as race, gender and age are referred to as primitive categories. Stereotypes develop with this categorisation and from these stereotypes, prejudice (such as racism, sexism and ageism) is born (Nelson, 2006:213).

Ageism is prejudice based on age which can be defined as any outlook, deed or formal structure which subordinates an individual or group on the grounds of age (Traxler, 1980:4). As an “ism”, ageism reflects a prejudice in society against older adults (Woolf, 1998).

There are two theoretical perspectives on the origin of ageism. The first is called the functional perspective which is an ego protective strategy that includes distancing oneself from self-threatening aspects of age embodied by older adults

(Nelson, 2006:213). The second theory, known as terror management is very similar; it comes down to the self-esteem that acts as anxiety buffers to help a person deny his mortality (Nelson, 2006:214).

Ageist behaviour distances a person from older adults and their associations with death. A typical example of unintentional ageist behaviour is when external indicators of ageing are blamed on an elderly person (e.g. She has wrinkles because she didn't protect her skin while she was young).

Figure1_9 Assistive designs do not accommodate personal style





Figure1_10 Ageist humour



Figure1_11 Unattractive assistive elements



Figure1_12 Un-stimulating spaces



Figure1_13 Over exaggeration of incompetence

1.2.2.1) MANIFESTATIONS OF AGEISM

Ageism manifests itself in many ways such as baby talk, over accommodation, pseudo positive attitudes and even extremes such as physical abuse (Nelson, 2006:11). The manifestation of ageism in design is what will be investigated by this study.

Spaces and products purposed for the elderly are often designed from a technical or engineering point of view, where solving a physiological problem is the dominant culture. This bias against the elderly influences designers to design for them as a group instead of as individuals. The utility as well as the functional aspects of the spaces and products are over exaggerated. Little to no consideration is given to the aesthetic, haptic, olfactory, acoustic or gustatory appeal of the designs. Products available to older adults depict them as 'cranky, stupid, and tacky' (Hougan, 2010).

In the case of assistive devices or spaces, the institutional aesthetic overpowers all other aspects of the design.

Discretion is also overemphasised as products and spaces designed to enable the elderly seem to attempt to attract as little attention as possible. Moulded pink plastic products attempt camouflage but fail, instead of being invisible these designs send a clear, loud message: being old and needing assistance is something to hide, something shameful (Pullin, 2009:12).

One might argue that this overemphasis on utility stems from the fact that these spaces and products are assistive and that their utility is of utmost importance, but many examples can be found where this overemphasis on functionality has actually caused the products and spaces to be less functional (Pullin, 2009:15).

Walkers are a great example of this: their hard rubber feet are designed to be robust and long-lasting but they cause damage to carpets and do not slide smoothly across floor surfaces. In order to rectify this many owners

crudely retrofit their walkers with tennis balls (Hougan, 2010) see figure 1.8. Walkers are also permanent assistive products that almost become like accessories to the clothing of the user.

(E.g. A lady attending a wedding selects her favourite outfit, buys fashionable shoes that suit her personality and taste and rounds her look off with jewellery and perfume and then has to take her cold metal walker, crudely retrofitted with tennis balls, and which covers her entire ensemble.)

Figure1_14 Dove anti-ageism campaign

wrinkled?
 wonderful?

Will society ever accept 'old' can be beautiful? Join the beauty debate.

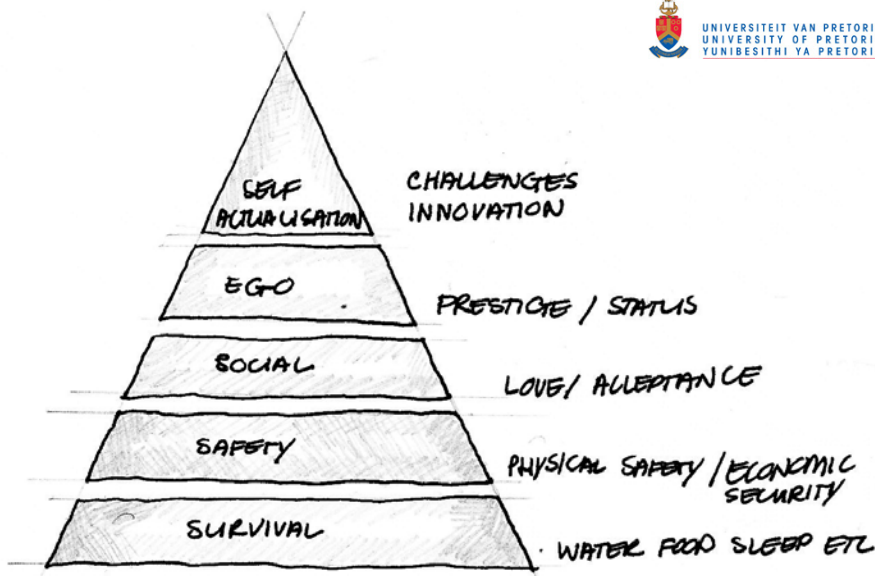


Figure1_15 Maslow's pyramid of needs

1.2.3) PHYSIOLOGICAL AND PSYCHOLOGICAL NEEDS

According to Chuang et al (2009:146) the human habitat consists of the sum of all the circumstantial surrounds of an organism. These circumstantial surrounds are in its essence a combination of the external physical conditions that influence the physical attributes of the organism (development, survival, growth) and the network of socio-cultural circumstances that influence the nature of the organism (Chuang et al, 2009:146).

The human habitat is an important factor of the design process because organisms respond to changes in their environment by evolutionary adaptations in form and behaviour. A symbiotic relationship therefore exists between environment and behaviour, which means that over time human behaviour and needs influence their environment but the environment also influences and changes the behaviour of its occupants. Interactions between humans and the environment come from space perception by means of distance sensory organs (ophthalmoception, audioception, olfactoception) and direct sensory organs (tactioception) (Chuang & Chiou, 2009:149).

As the senses experience objects within space, humans subconsciously perceive the voids around them.

Interaction with a specific character of space can impact on perception, performance, reciprocal help, cognition, memory and emotions and these impacts can be positive or negative (Chuang & Chiou, 2009:150).

In order to manipulate these impacts to provide positive actions, especially in terms of anti-ageist behaviour, the influence of spatial elements on the physiological and psychological well-being of the spatial users needs to be understood.

There are many theories surrounding the categorisation of human needs but they all come down to the same basic recipe given to us by Maslow's pyramid of needs (see figure 1_15). These physiological, safety, belongingness and love, esteem, cognitive, aesthetic, self-actualization and transcendence needs all translate into spatial needs (Chuang & Chiou, 2009:153).

This specific spatial need structure is based on the interaction between humans and their environment. In order to achieve appropriate comfortable interior space design, all of these needs have to be addressed (Chuang & Chiou, 2009:152).



The theoretical environment to be investigated can be described as the alienation and removal of older adults from everyday society, not only by the physical removal of these persons to isolated high care facilities, but also by the general disregard for personal taste, fashion, comfort and elegance found in products and spaces designed for the elderly (Hougan, 2010:8).

The client of this project simultaneously forms the starting point of the project as well as the golden thread that holds everything together. An investigation of the elderly as a group leads to the conclusion that elderly persons are being designed for as a group with little to no consideration in terms of personal taste and metaphysical requirements (Palmore, 1999:143). This is a global phenomenon with many explanations as to the cause of the situation.

The first explanation is that this unsophisticated design is a manifestation of ageism. This is known as the 'make do effect' where all elderly adults are seen as so visually, hearing, cognitively and haptic impaired that they are incapable of experiencing pleasure and do not care what a space or product looks and feels like and will "make do" with what they receive (Hougan, 2010:3).

The second explanation that links to the first idea is that the physiological requirements (in terms of decreased physical ability and

competence) of the user lead to an overemphasis of the physical requirements of the design. The result is a clinical medical look and feel manifested in the spaces and products designed for the elderly (Palmore, 1999:143).

A third conclusion comes from the fact that frail care facilities are the only long-care facilities that receive government funding (Dickinson, 2004:35). Thus several elderly persons, who are economically disabled and have no other housing options, live in the facilities. This causes residents who are cognitively intact to be grouped with persons who are cognitively compromised, as well as long term residents to be grouped with patients who require short term care to guide them in recovery. These extremes in terms of client base make the design process difficult (Dickinson, 2004:35).

Regardless of the cause of this inappropriate design a real world example of this phenomenon was identified as Huis Davidtsz, a frail care centre in

Pretoria. The client was then narrowed down from the elderly in general, to the residents of Huis Davidtsz in particular.

Unsophisticated ageist design prescribed to elderly adults not only stigmatises and disables these persons, but also accelerates their decline by negatively impacting on their health.

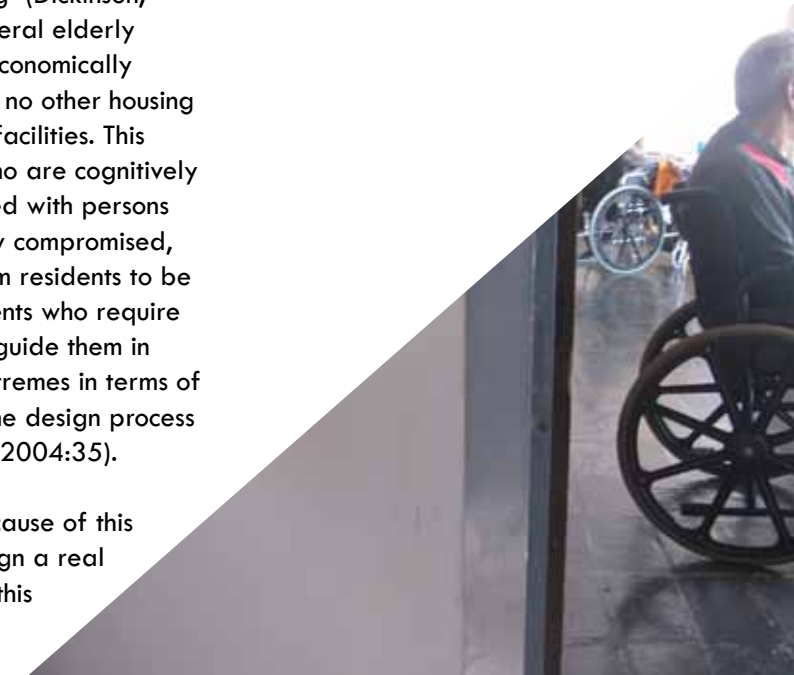


Figure 1_17 Institutional interior of Huis Davidtsz



Figure1_18 Stimulating social interaction is a major component of this project

1.4) RESEARCH QUESTION

In order to streamline the research, and to provide a point of departure for the study, the following research question and subsequent questions are posed:

How can interior design be utilised to eradicate unsophisticated ageist design that stigmatizes and disables the elderly, accelerates their decline and negatively impacts on their health?

1.4.1) SUB QUESTION 1

How can the stigmatisation caused by the institutional aesthetic and overemphasis on utility be addressed?

1.4.2) SUB QUESTION 2

How can a space be altered to be physiologically as well as psychologically enabling?

1.4.3) SUB QUESTION 3

Which spatial elements can be introduced to decelerate the decline of elderly persons?

1.4.4) SUB QUESTION 4

Which interior design elements could have a positive impact on the health of the elderly?

1.5) HYPOTHESIS

The introduction of interior design principles based on the production of psychologically supportive spaces will eradicate ageist prejudice by providing opportunities for prolonged independence, social friction techniques which enhance opportunities for social support as well as positive distractions which will prevent boredom induced anxiety.

1.5.1) SUB HYPOTHESIS 1

The alteration of Huis Davidtsz to include design variety and spatial interest will guide social cohesion and by utilising methods of multi-sensory design, the institutional aesthetic of Huis Davidtsz can be altered to provide design elements that transform it into a less stigmatising space.

1.5.3) SUB HYPOTHESIS 3

Spatial elements that encourage access to social support, access to control over one's environment and access to positive distraction will decelerate the decline of elderly persons.

1.5.2) SUB HYPOTHESIS 2

The alteration of Huis Davidtsz will be approached from a design point of view and not a medical engineering point of view and the design of all physiologically assistive devices will be augmented with principles that aid psychological comfort.

1.5.4) SUB HYPOTHESIS 4

The subdivision of Huis Davidtsz (a large monotonous building) into smaller more memorable spaces will aid way-finding and orientation. Providing the opportunity for accidental bump-ins will aid social cohesion as well as the social well-being of the residents of Huis Davidtsz.

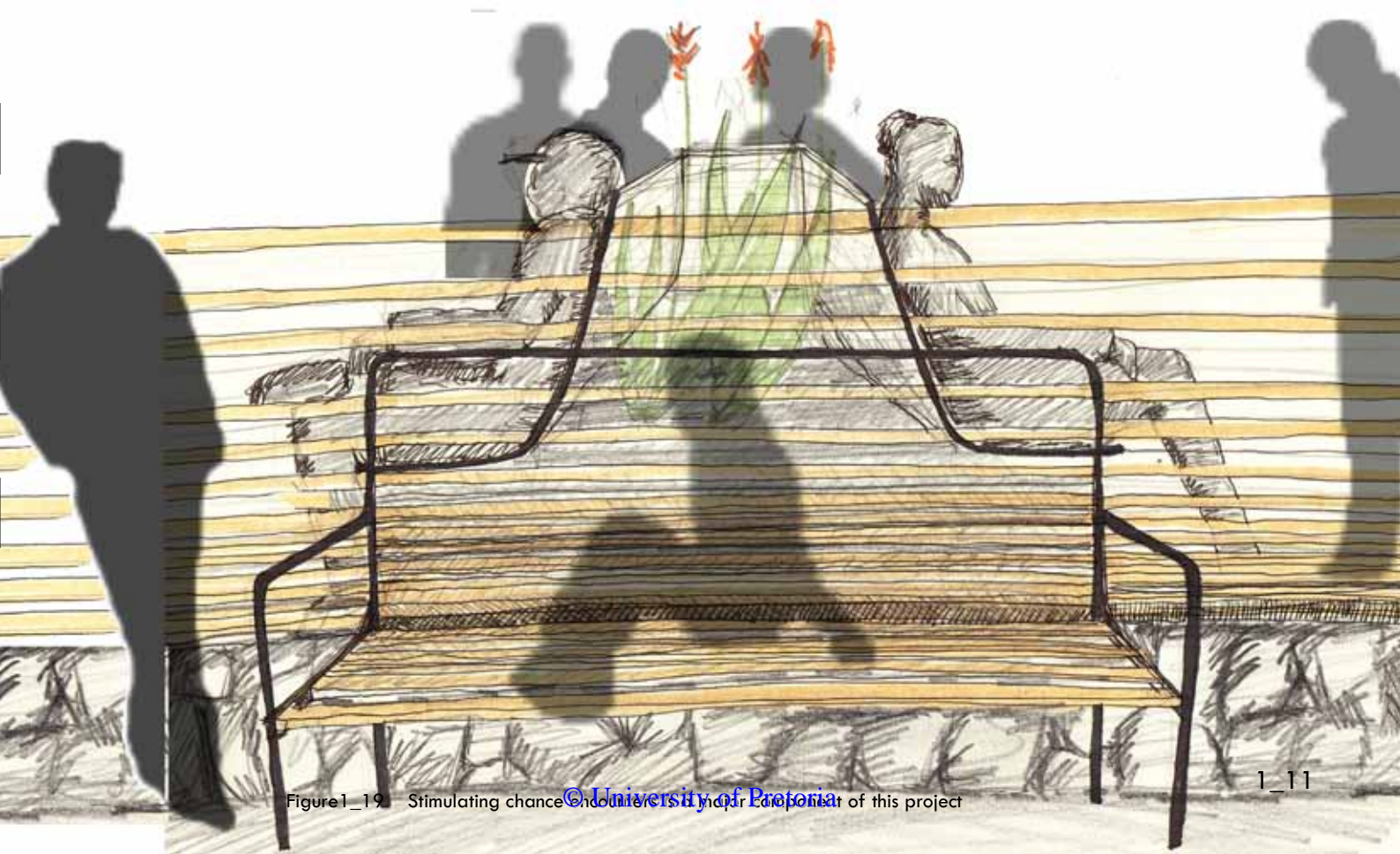


Figure 1_19 Stimulating chance encounters and social interaction of this project

1.6) DESIGN TASK

In order to resolve the real world problem and the theoretical problem, a process of research for design and research by design will be completed. The end result of this process will satisfy the design task which consists of client, site, theory, programme and concept.

1.6.1) CLIENT

This project has a two-folded client. Firstly, the elderly living in Huis Davidtsz forms the main client as well as the nucleus around which the entire study revolves. Secondly, the corporate client which is Kerk-sonder-mure, the organisation that owns the building, as well as the government who, by means of pension grants, funds the living costs of the residents. The staff of Huis Davidtsz then also forms part of the client.

1.6.2) SITE

Huis Davidtsz comes from a rich tapestry of historical urban interconnections: originally the building was integrated with the surrounding urban fabric and the social integration between the elderly and the users of the surrounding area was much better developed (see chapter two).

Between its construction and its current condition, safety concerns as well as the appropriation of the land surrounding Huis Davidtsz have caused the building to become internalised and isolated. The building has very little connection to its urban context and functions as an island. The design task surrounding the urban response of the building would require an approach of reintegration. A more gradual privacy gradient has to be employed to allow for various zones with various levels of privacy or interaction.

Huis Davidtsz is a typical Pretoria Regionalist building (see Chapter Two). These regionalist principles form an important layer of heritage and will form part of the design approach.

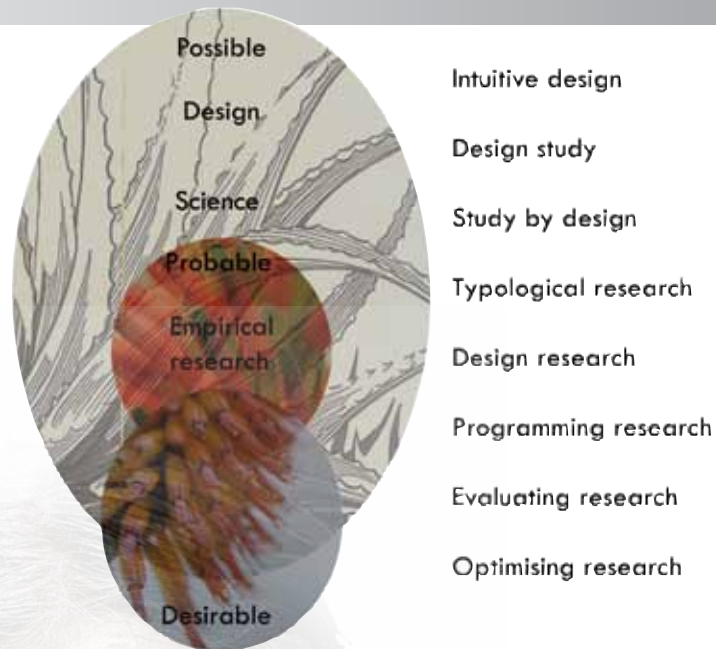


Figure1_20 The process of research by design



Figure1_21 Northern Facade of Huis Davidtsz

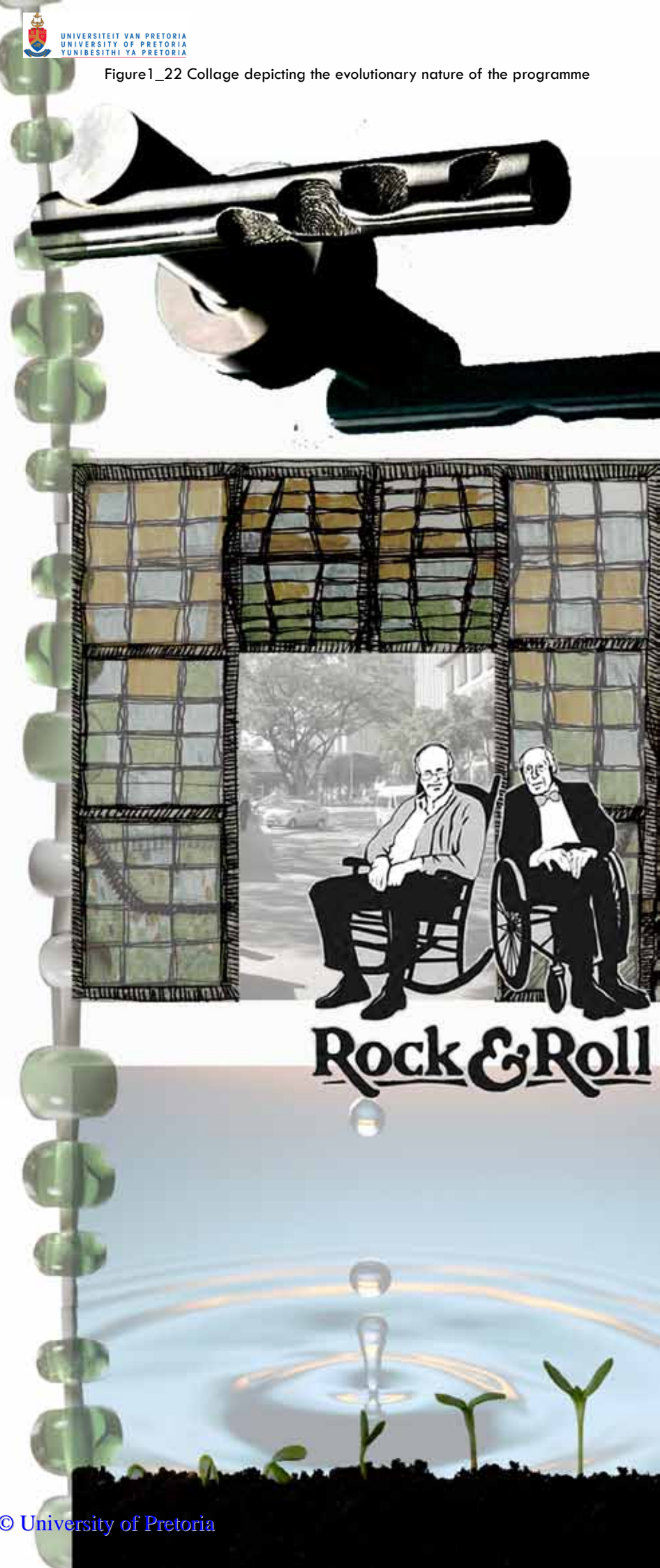
1.6.3) THEORY

The theoretical component of the study utilises Roger S Ulrich's (2001) theory on psychologically supportive spaces as a skeletal structure. His theory and three main conclusions are used as a basis to form the structure of the theoretical argument. This theory quantitatively and qualitatively proves that a lack of control over one's environment, as well as a lack of social support as well as a lack of positive distractions lead to unhealthy spaces which accelerate decline. Three consequent theories are investigated in order to avoid these unhealthy spaces. Firstly, universal design is investigated as a method of allowing all users to have a sense of control over their environment. Secondly, social friction is investigated as a method of encouraging social interaction, thus creating more opportunities for social support. Lastly, multi-sensory space design by means of interior green space is investigated as a method of providing positive distraction.

1.6.4) PROGRAMME

The programme of the intervention will take an evolutionary instead of a revolutionary approach and will be comprised of compact individual seed interventions spread throughout the building. These interventions will include a library and study centre, an outdoor/indoor recreational green space and personalised meeting spots. The purpose of the interventions is to form small groups within the larger group. As a result, each resident has the opportunity to become an active member of a group bound together by interests such as reading, music or gardening. Some of the activities that require less extensive use of space can be accommodated on the upper storeys of the building, which will stimulate vertical integration and circulation. The outdoor spaces and the library will become instruments to carefully reintegrate the elderly adults into the surrounding community by providing a service that is beneficial to both the community and themselves.

Figure1_22 Collage depicting the evolutionary nature of the programme



1.6.5) CONCEPT

Places designed for the elderly tend to be stigmatising, as these designs are predicated on a medical engineering background. The institutional nature of these places accelerates decline as it negatively impacts on the health of its residents, physically and psychologically disabling them.

Spaces that support the wellbeing of residents can be identified by the presence of three characteristics: a sense of control over one's environment, a sense of access to social support and access to positive distraction.

Huis Davidtsz is a frail care facility, located just west of Pretoria's central business district, and has housed elderly people since 1968. The interior environment of Huis Davidtsz is dull and disabling and for this reason has been selected as site for design intervention. In order to re-design

Huis Davidtsz into a psychologically supportive environment, the aforementioned characteristics of supportive space are translated into architectural design.

Four elements of architectural space: floor, wall, ceiling and window, are manipulated to create an intimacy gradient.

This gradient humanises the institution by establishing a range of spaces and a sense of territoriality. The unforgiving threshold between intimate and public space is moderated by subtle spatial indications of levels of intimacy.

This provides Huis Davidtsz with the seven levels of intimacy associated with domestic spaces, enabling individuality and choice. The result is a comfortable and secure place for living.

Figure 1_23 An intimacy gradient more suitable for long distance residences (Author, 2012)



1.6.6) AIMS AND GOALS

The aims of the design task revolve around the enhancement of social cohesion as well as adding value to the everyday as well as structured activities of the residents of Huis Davidtsz. The following are subsequent goals:

- a) To re-establish a connection to nature;
- b) To re-establish a sense of place;
- c) The improvement and simplification of way-finding;
- d) Providing spaces with adequate positive distractions;
- e) Improving staff working conditions as well as resident-staff relationships;
- f) The development of a symbiotic relationship between the community and the residents (give and take relationship).

Figure1_24 Digital collage depicting concept inspiration (Author,2013)



1.7) METHODOLOGY

This study incorporates a theoretical component, which is concerned with prejudice that older adults are subjected to. The real world problem questions how interior design principles can be applied to address the theoretical question. There is a very definite reciprocal relationship between the design problem and the theoretical problem and thus there is also a need for mutual collaboration between the research method and the design method.

As the research question of this study is quite new and the selection of secondary sources on the subject matter is scant, there is a need for the formulation of new theory. The subject is influenced by several contributing bodies of knowledge such as ageism, universal design, branding, physiological and psychological reactions to space etc., all of which bring certain contributions and limitations to the new theory being formulated by the study.

These realisations lead to the selection of a qualitative research method known as grounded theory. Grounded theory is based on processes of induction and deduction of data to inform the formation of new theory (LaRossa, 2005).

Formal questionnaires as well as semi structured interviews will be used to collect data with regards to the client and the context. The interviews will be recorded and transcribed and included into the appendix of the study.

With regards to the context: observations, photographic studies, sketches as well as detailed building analyses and an access audit will be utilised to formulate a clear understanding of the host building.

A review of relevant literature in the form of peer-reviewed journal articles, published monographs and

electronic information will be used to investigate the theory and precedent studies.

Precedent studies in many cases form a significant part of the design process as an educational tool, but also facilitates the relationship between the past and contemporary design production (Neveu, 2011:6).

Architectural precedents are investigated by means of standard analytical methods that place emphasis on spatial organisation, program and site. The goal of the use of precedent studies is to find ambiguity in design problems and to solve them. A process of critical appreciation is applied to the precedent in order to inform the design of the new item (Rifkind, 2011:66).

The design problem needs to be addressed in a very similar manner. A multitude of different factors will influence the final design product; these informants will need to be streamlined into an integrated design process. This process or method will be required to ensure that all the variables are considered and that the design progress stays on track and does not get distracted by a related tangent.

This design methodology consists of four comparable principles that reiterate information gathered during the research phase of the design project (Steenblock, 2010:42).

The first principle sets the goals and target criteria for the project by investigating the selected problem statement and the connected challenges. The objectives are assigned meaning and assumptions and limitations are set by the designer (Steenblock, 2010:42).

The second principle is concerned with the verification of the data that has been collected; the aim of the second principle is the postulation of a design idea or hypothesis (Steenblock, 2010:42).

The third principle revolves around the development of a new design; it incorporates an iterative process of trial and error analysis (Steenblock, 2010).

The final principle analyses usability versus utility by means of comparative analysis. This phase regards all the information gathered in the first phase as well as the assumption and limitation set in the second principle to ensure that all design requirements have been met (Steenblock, 2010:41-42).

Intervention will be used as a design method. Intervention is a design process which includes the insertion of interior design into an existing building envelope as well as the alteration of that existing structure (Königk, 2010:44).

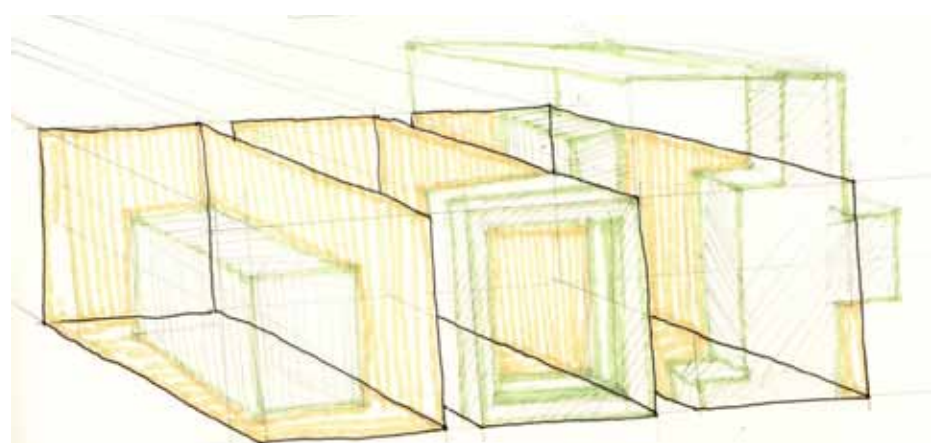
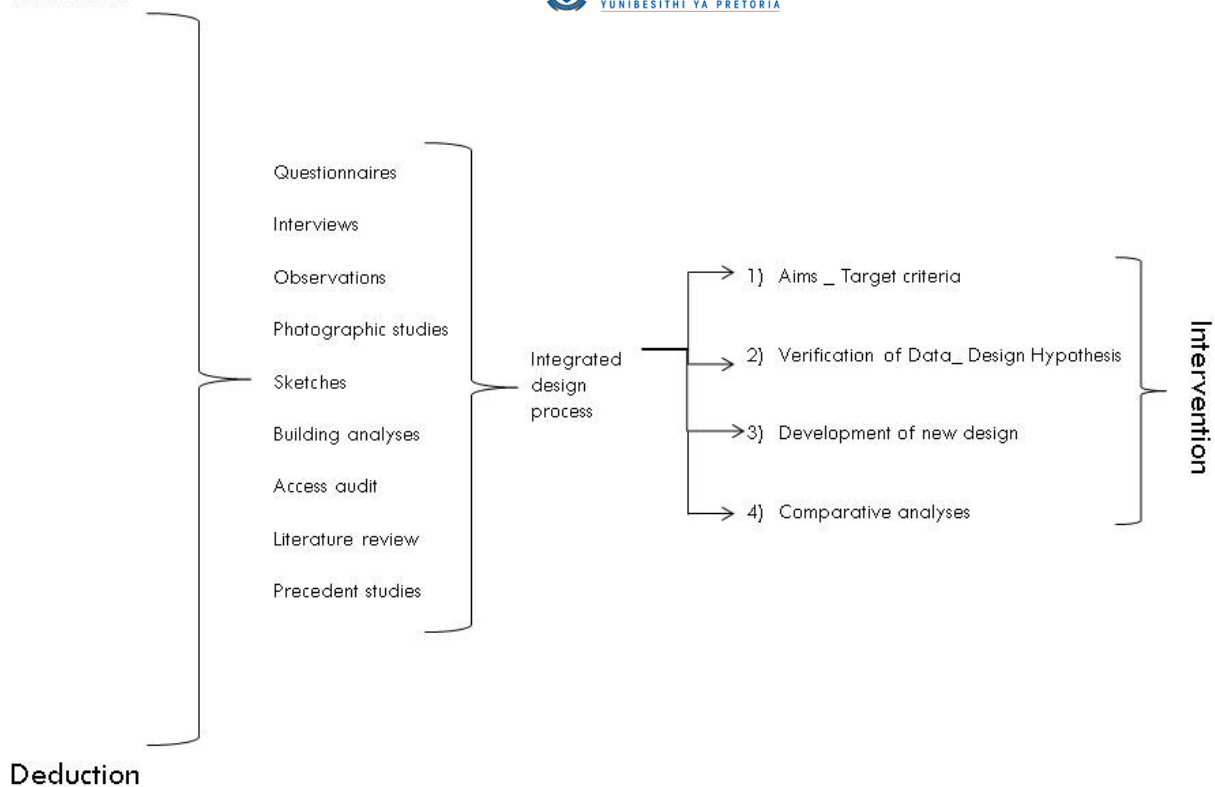


Figure 1.25. SHOWING INSTALLATION INSERTION INTERVENTION

Induction



Deduction

1.8) DELIMITATIONS AND ASSUMPTIONS

Since so many variables and informants are incorporated into the research proposal, it is necessary to outline the scope of the project from the outset. These limitations will act as a guideline to form the parameters of the investigation.

Older adults as a group were selected in order to investigate how ageist design can be re-imagined because of the current issues of population ageing and the very specific living typology currently associated with this group.

The objective of the project excludes the social issues associated with the elderly and the living typology of an old age home. The purpose of the project is not to reinvent the living conditions of these persons. The study will be limited to the following spaces in Huis Davidtsz:

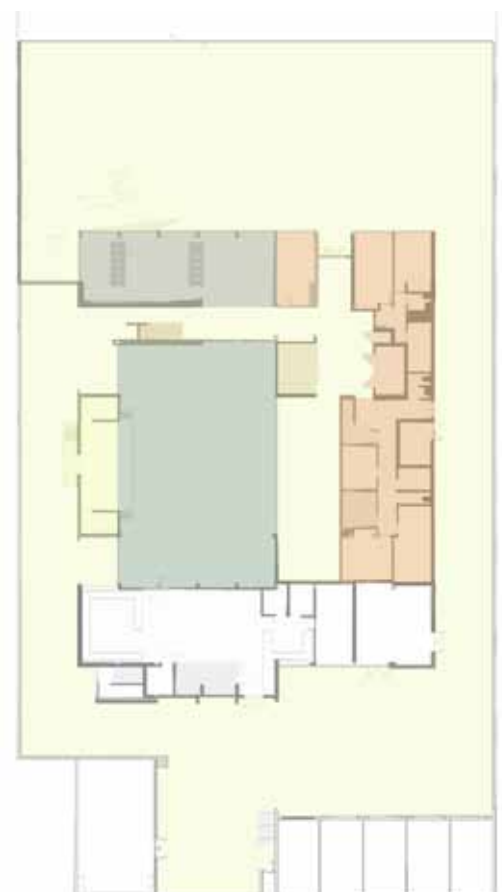
- The dining hall
- The sitting room
- Circulation & ancillary on upper floors
- The courtyard

A conceptual proposal will be made for the additional spaces such as the residential spaces.

1.9) OUTLINE OF THE STUDY

- Chapter One** - Introduction
- Chapter Two** - Context analysis
- Chapter Three** - Client characteristics
- Chapter Four** - Theoretical investigation
- Chapter Five** - Precedent studies
- Chapter Six** - Design development
- Chapter Seven** - Design intervention
- Chapter Eight** - Technical investigation
- Chapter Nine** - Conclusion

Figure1 _26 Plan depicting delimitations and assumptions





CHAPTER TWO

Context

2.1) INTRODUCTION

In this chapter the site for intervention is identified and analysed. The greater context surrounding the site as well as the historical context of the site is investigated. Data is found in the form of urban frameworks, maps, architectural drawings, published literature on the building and Pretoria Regionalist architecture, photographs and sketches.

Figure 2-1 Nolli map of Pretoria

Data is then graphically mapped to illustrate the macro and micro-context of the project. Photographic studies and sketches are utilised to document the architectural character of the host-building, its current state, as well as spatial and design qualities (or lack thereof). The form and structure of the building are analysed in detail. Thus all tangible and intangible aspects of the site are investigated and analysed. Finally the chapter is concluded with a summary of the analysis, which will form part of the design approach to the research problem.

2.2) IDENTIFICATION OF SITE

In order to prove that this ageist prejudice does manifest itself in architecture and that the problem could be addressed through an interior design intervention, a site that displayed the characteristics of such prejudice was identified. The following criteria were used to critically aid the identification of a site:

- The site had to house the elderly.
- The site had to have a very specific institutional and stigmatising interior.
- The site had to be isolated enough to prove that the stigmatisation of the spaces negatively influence social cohesion.
- The site had to be in an urban setting to allow the intervention to stimulate social cohesion.
- The site had to be a multi-level building.

The chosen site, Huis Davidtsz, is located on the corner of Johannes Ramokhoase and Shubart Streets. The eight storey structure was designed by Pretoria Regionalist architect Paul du Plessis and was constructed in 1968. The building was designed to be an old age facility and currently still functions as such.

2_2



Figure 2-2 Neighbourhood of Huis Davidtsz

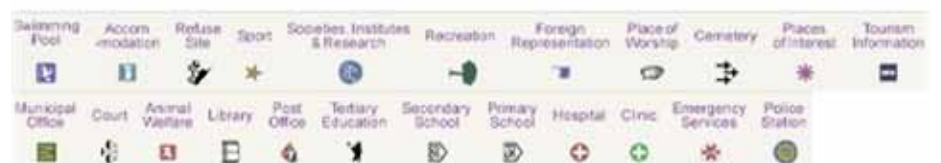


Figure 2-3 Places of interest surrounding Huis Davidtsz

2.3) HISTORICAL CONTEXT

Huis Davidsz was founded by “Die Groote Kerk Utiliteits Maatskappy” in 1968 and was designed to be an old age home. The aim of the project was to provide a government subsidised old age home for self-sufficient elderly white people. The building was named Die “Ouetehuis” and was chaired by Dr G.J. Davidsz and was named after him when he retired in 1993.

The social and political paradigm in which Huis Davitsz was designed was very different from the context in which it finds itself today. It is therefore beneficial to summarise the historical context in order to understand the background of the building. 1966 is the first available date stamp on the drawings of Huis Davidsz and one has to look at the paradigms and happenings of the time in which the building was designed in order to understand the influences on the designer.

Firstly, the world context of 1966 was greatly influenced by the Vietnam War as well as by teenagers rebelling against the war. The rebellion led to a global increase in the use of LSD and other hallucinogenic drugs. The Soviet Union completed their first unmanned “soft” moon landing in 1966 and rock and roll started to gain popularity through bands such as The Beatles and The Beach Boys (Benton, 1967).

In South Africa the Apartheid government was in control and there was extreme political unrest. Hendrik Verwoerd, the prime minister, was assassinated in 1966 and District Six was declared a white group area. There was increasing unrest in Southern Africa as South Africa refused to relinquish control of South West Africa. The first heart transplant was completed by Professor Christiaan Barnard in Cape Town (Wilson & Thompson, 1971).

Lastly, Pretoria was the administrative capital of RSA and between 1860 and 1994, the city was also the capital of the province of Transvaal. Pretoria Regionalism became the popular architectural language of the time (Fisher, 1998).



Figure 2-4 World events in 1966 Vietnam war, hallucinogenic drugs, soft moon landing and Rock and roll



Figure 2-5 South African events in 1966 Apartheid government, JFK visits SA, Hendrik Verwoerd assassination, District six



Figure 2-6 Pretoria events 1966, Capital city, Pretoria regionalism, Norman Eaton 2_3



Figure 2-7 Groote Kerk

2.3.1) SITE DEVELOPMENT TIMELINE

The building therefore has its roots in interesting times of political unrest and leaps in the field of technology.

Groote Kerk, the church on the corner of Bosman and Madiba (formerly Vermeulen) Streets, was the first Dutch Reformed congregation in Pretoria and was constructed in 1903. This church is significant because money collected by the congregation of this church funded the initial construction of Huis Davidtsz in 1968

(Strydom, 2012). This church is referred to as the “Bosmankerk” by the people residing and working in the area (Coetzee, 2013).

“Bosmankerk” has made it through some turbulent times with a significant decline in congregation numbers because of the changes in demographic, culture and needs of the surrounding area. PEN- is an institution brought into life by the “Bosmankerk”. This community service institution is

involved in several inner city projects including Pennies Pre-school located adjacent to Huis Davidtsz in the old rectory of the Groote Kerk (Grobler, 2012).

Since the church is located within such close proximity to Huis Davidtsz, an assumption can be made that some form of community connection existed between the church and Huis Davidtsz and the rectory (now Pennies Preschool). Huis Davidtsz is currently isolated and not connected to any of the buildings in its immediate vicinity. Social cohesion is a critical aspect of this study, therefore it is important to understand the cause of the severing of these social ties.



2_4 Figure 2-8 New government printing works

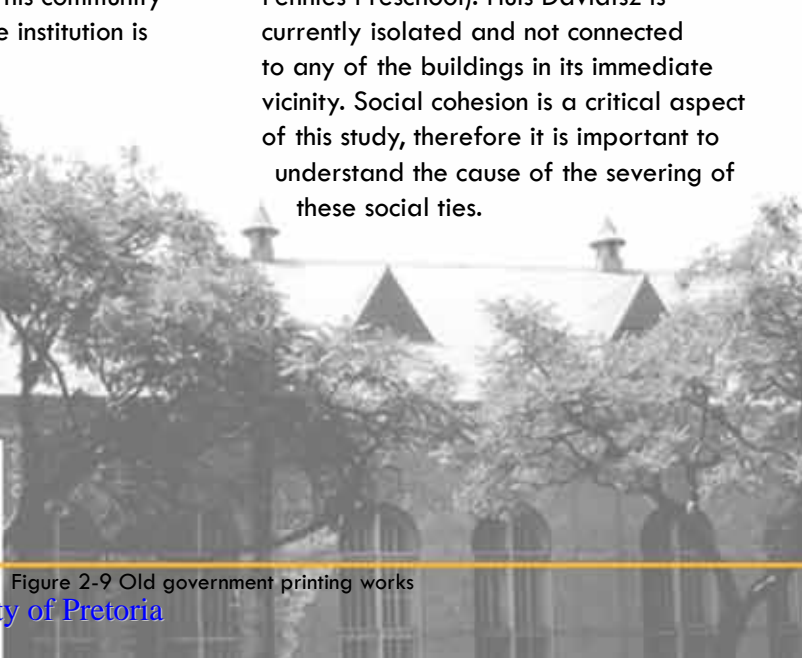


Figure 2-9 Old government printing works

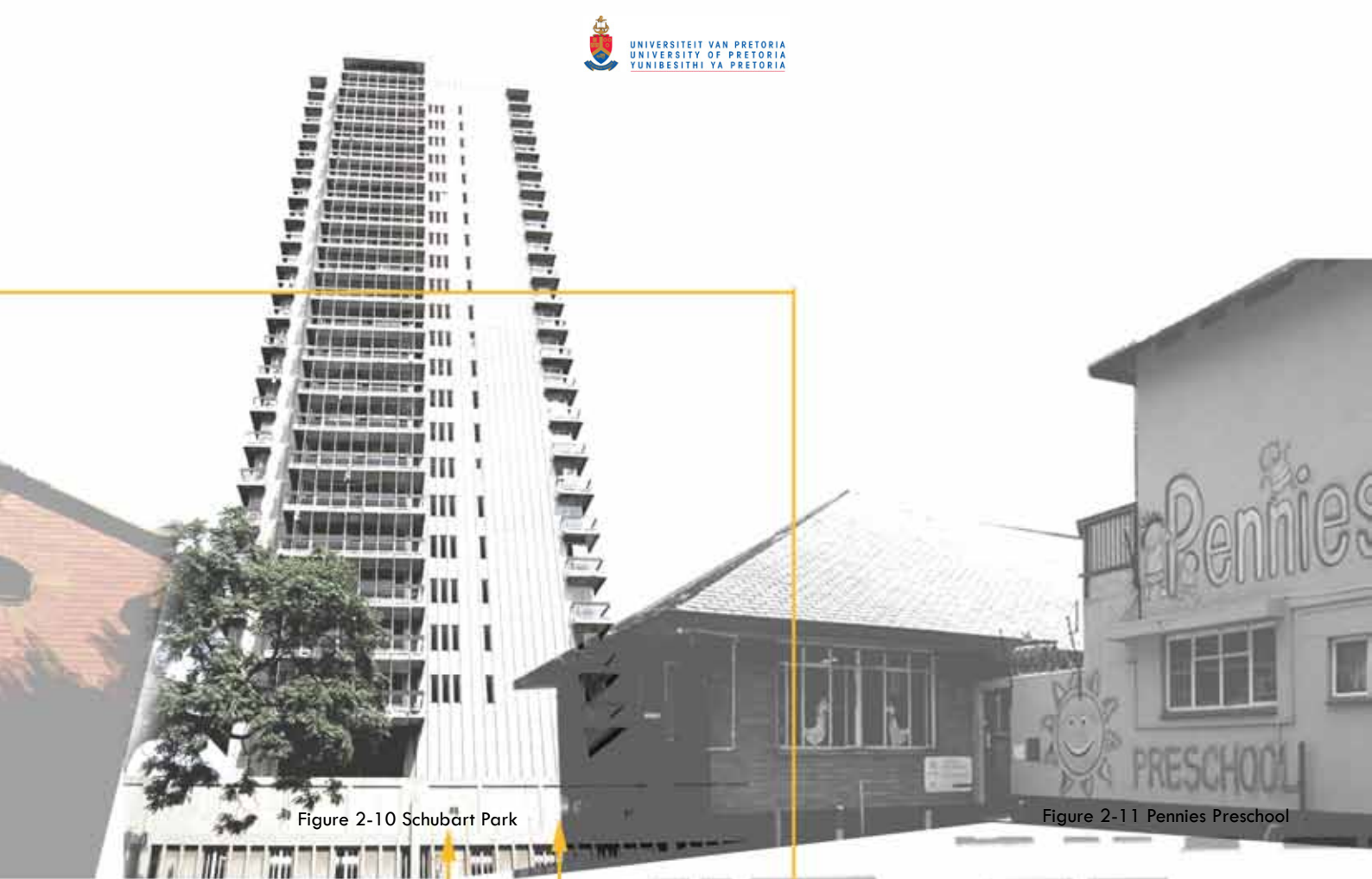
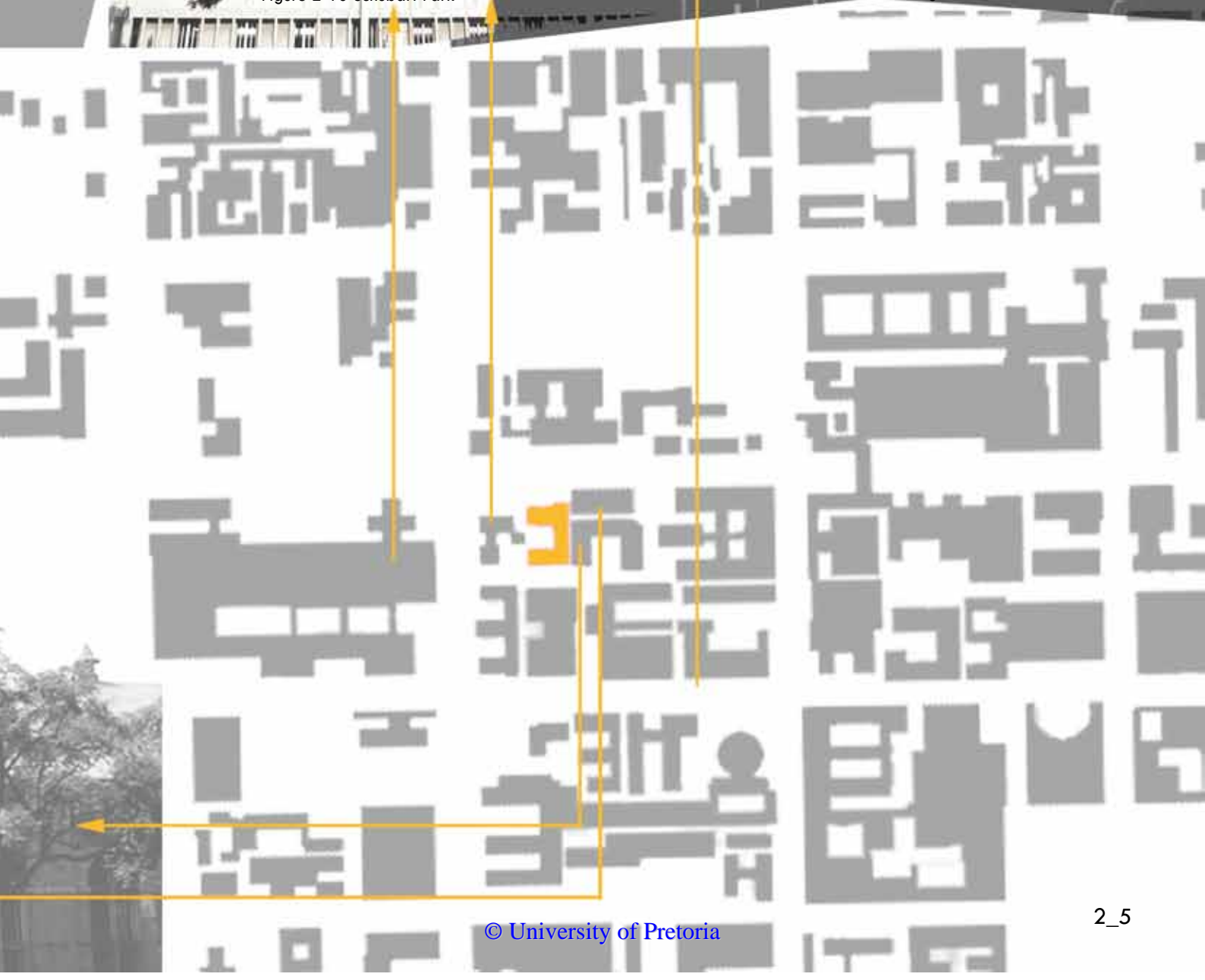


Figure 2-10 Schubart Park

Figure 2-11 Pennies Preschool



In order to find the roots of those community interconnections, a timeline excavation of the buildings surrounding Huis Davidtsz was completed.

The old Government Printing Works, located on the corner of Bosman and Madiba (formerly Vermeulen) Streets, was constructed in 1895-1896 and was one of the first buildings in the neighbourhood. This means that this building had no influence on the disuniting of the community's social structure (University of Pretoria, 2011).

New Government Printing Works was constructed in 1926, long before Huis Davidtsz, but Printing became computerised in 1986 which brought about an increase in security and a six meter high wall to be constructed around the entire precinct. This could have caused a lot of damage in terms of community ties (University of Pretoria, 2011).

Schubart Park was constructed during the 1970's and is situated on the corner of Schubart and Johannes Ramokhoase Streets. These buildings have been in a serious state of disrepair since 1999 and the government plans to implode them to make space for student accommodation (Mbanjwa, 2012).

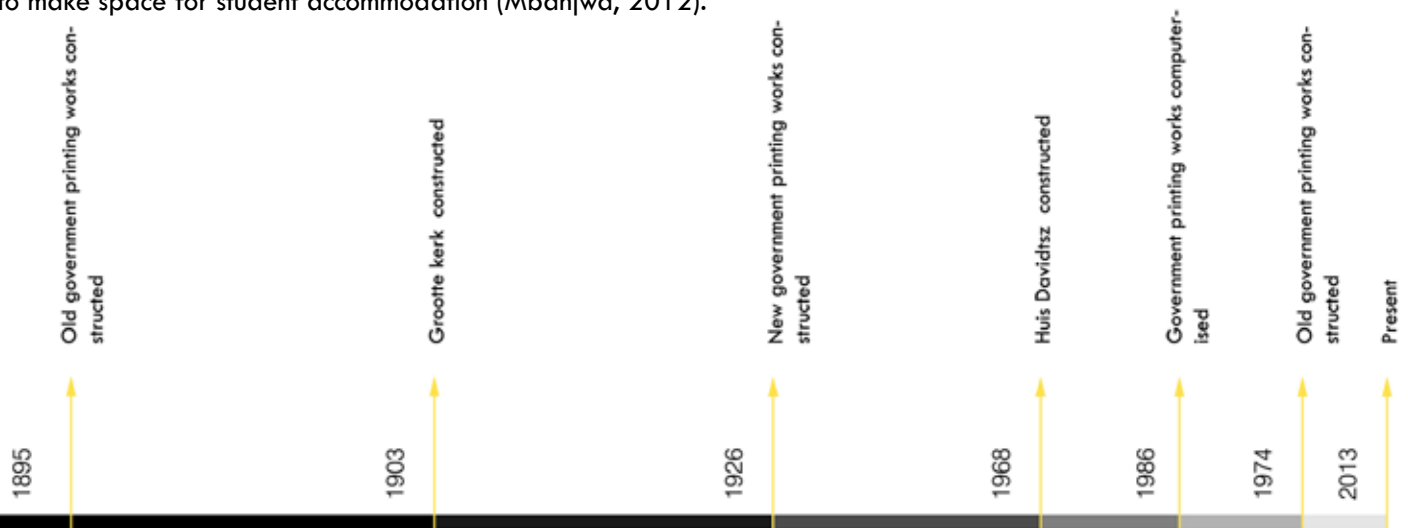


Figure 2-12 Site timeline

2.3.2) PRETORIA REGIONALISM

Pretoria Regionalism is the regionalist version of the International Style and it came into existence in the mid 1930's. The climatic response Le Corbusier illustrated in his work in South America greatly influenced Pretoria Regionalism. Climate, strong contextual design, local materials as well as the expressions of culture and religion is typical characteristics of this style (Fisher, 1998:136).

Characteristics of Pretoria Regionalism found in Huis Davidtsz:

- It has a traditional H-shaped plan form.
- Rustic brick was used on the interior and exterior.
- Huis Davidtsz has low-pitched corrugated iron roofs.
- A stoep on each floor acts as a veranda.
- The building as a whole has an architectural language that is responsive to climatic constraints especially in terms of orientation.

These principles will be illustrated and discussed further in the analysis of the micro context in terms of architectural features.

The regionalist principles found in Huis Davidtsz form an important layer of heritage and are the basis of the design intention. As these principles are so inherently part of the existing building and as they comfortably fall into the environmentally conscious paradigm of contemporary design mentality, they should be translated and applied to form part of the design language of the interior intervention.

2.4) MACRO CONTEXT

2.4.1) CITY OF TSHWANE

The multimodal municipal ward of Tshwane houses the city of Pretoria. This municipality was officially recognised in the year 2000 when authorities known as the greater Pretoria and surrounding areas were amalgamated. The districts that now form part of the Tshwane Municipality are indicated on the map (City of Tshwane, 2010). Pretoria CBD and Huis Davidtsz fall in the area marked as Pretoria.

2.4.2) PRETORIA CBD

Pretoria Central Business District falls in an area between the borders of E'skia Mphahlele (D.F. Malan) Drive on the west and Nelson Mandela Drive on the eastern side, as well as Boom Street and the Pretoria Railway Station which forms the northern and southern borders (Beerman, 1951).

2.4.3) HUIS DAVIDTSZ PRECINCT IN RELATION TO THE CBD

Huis Davidtsz is located north-west of Church Square, within walking distance.

2.4.4) RELATIONSHIP TO OTHER EXISTING STRUCTURES

In the area immediately surrounding Huis Davidtsz there is an active pedestrian area near the BRT system. The area is residentially zoned and quite a few schools can be identified. Several government departments are located nearby.

2.4.5) JOHANNES RAMOKHOASE STREET

Johannes Ramokhoase Street (previously Proes Street) is a busy one-way from the east towards the west of the city. The street is rich in trees and has a lush green appearance. The street creates a significant amount of ambient noise. Huis Davidtsz's neighbours are Pennies Pre-school to the west, the Government Printing Works to the east and the government Department of Public Service and Administration to the north. From the upper levels of Huis Davidtsz one can view the surrounding buildings as well as vistas of the city.



Figure 2-13 Tshwane municipality

Current usage of property around site

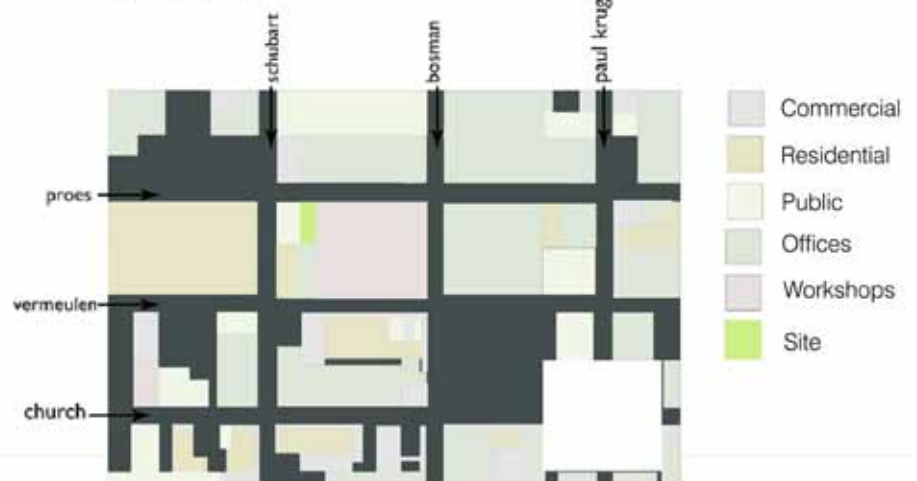


Figure 2-14 Relationship to other existing structures

2.5) MICRO CONTEXT

2.5.1) SITE

2.5.1.1) ORIENTATION

Huis Davidtsz has an H-shaped floor plan which is oriented with the longest side of each of the legs of the H tilted slightly towards north-northwest (see figure 2.1). The courtyard formed between the legs of the H is located to the western side of the building. This orientation is climate specific as the sun angle in the southern hemisphere tilts towards the north, especially in winter providing the rooms (oriented towards the North) with pleasant morning sun, with the afternoon glare being blocked by service areas located towards the west of the building.

2.5.1.2) ENTRANCES

Huis Davidtsz has one main entrance located on the northern side of the building (see Fig. 2_15 and Fig. 2_18). This entrance forms the threshold between the public and the interior of Huis Davidtsz. The entrance is well articulated and the name of the building is located above it, clearly indicating its spatial hierarchy as the main entrance (refer to Fig. 2_18). The double doors of the main entrance provide sufficient space for universal access even though no ramp is provided. The main entrance is permanently manned by a security guard and a receptionist.

Two additional entrances are located towards the east of the building - these entrances act as service openings (see Fig. 2_15). The first of the two openings is located parallel to the dining hall right next to the lift and is located next to the service road appropriated for ambulances. This entrance is also the only wheelchair accessible entrance to Huis Davidtsz (see Fig. 2_20). The second eastern door provides access to the boiler room which contains the geyser and water tank of the building.

The southern side of the building houses two more service doors. The two fire escapes open towards the west of the building and act as the secondary vertical circulation of the building, connecting the ground floor with the subsequent eight floors (refer to Fig. 2_19). The dining hall contains a small stage which has a door leading towards the western side of the building (see Fig. 2_15).

2.5.1.3) PARKING

Visitors enter the Huis Davidtsz premises through a vehicular gate along Johannes Ramokhoase Street. Parking is located inside the premises parallel to the street (see Fig. 2_16 and Fig. 2_21).

Staff enters the premises at the same gate but continues southwards along the eastern side of the building towards the back-of-house area where there is additional parking and garages available (see Fig. 2_22).

2.5.1.4) VEGETATION

The site contains very little green space and is indicated in Figure 2_17. The street is lined with Jacaranda trees and there is a large fig tree located in front of the Northern façade of the building (see Fig. 2_24). The western leg of the building contains a creeper that seems to have spontaneously grown onto the building.



Figure 2-15 Plan indicating entrances



Figure 2-16 Plan indicating parking

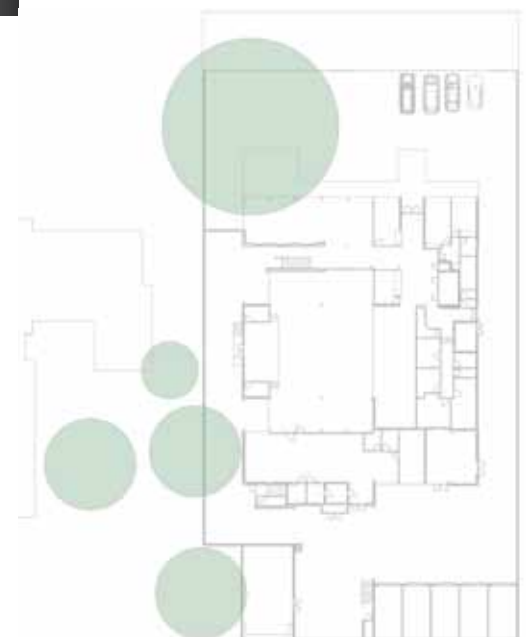


Figure 2-17 Plan indicating vegetation



Figure 2-18 main entrance



Figure 2-19 Fire escape



Figure 2-20 Wheelchair accessible entrance



Figure 2-21 Public parking



Figure 2-22 Employee parking



Figure 2-23 Existing vegetation



Figure 2-24 Existing vegetation

2.5.1.5) RELATIONSHIP WITH STREET AND NEIGHBOURING BUILDINGS

Huis Davidsz is slightly receded from the rest of the street to allow for visitor parking, as well as the small outdoor recreational space located on the northern side of the building under a large tree.

In terms of scale, Huis Davidsz is quite massive when compared to Pennies Preschool and the Government Printing Works- its immediate neighbours but when the other surrounding buildings are viewed, Huis Davidsz seems to be keeping within the scale of the neighbourhood, thus it is its immediate neighbours rather than Huis Davidsz itself, that are the exception.



2.5.2) ACCESS

Vehicles access the premises by means of a vehicular gate in Johannes Ramokhose Street and the park towards the north of the building. The vehicular gate is the only access to the premises and pedestrians such as staff and visitors have to enter and exit the site through the vehicular gate. The gate is opened by a guard on the inside of the premises.

There is a service road located on the eastern side of the building. This road lines up with the vehicular gate and is used for ambulance access to the wheelchair accessible door on the eastern side of the building as well as delivery vehicle access to the service side of the building to the South.

Figure 2-26 Relationship with street and neighbouring buildings



Figure 2-28 Ambulance path



Figure 2-27 Plan indicating vehicular access

2.5.3) SPATIAL ORGANISATION

The ground floor houses the arrival areas towards the north of the building. This includes the main entrance as well as all the recreational and administration spaces such as offices and reception. In terms of recreational space the sitting room and outdoor recreational space, as well as the dining room have a very public zoning and do not allow for private meeting spots. There is also a tuck shop located on this floor.

Servicing facilities such as the dining hall and the kitchen are also located on the ground floor. Clinical spaces in the form of two small patient rooms are located on the ground floor; these rooms are used as doctor's chambers where visiting doctors can examine patients.

The back-of-house area contains two outbuildings. Firstly, the garage building which is a double storey structure with garages on the ground floor and accommodation spaces on the first floor and secondly, a laundry.

Floors one to eight house the living areas of the residents on the northern side of the corridor as well as ablution facilities, laundry rooms and storage spaces on the southern side. All eight floors are exactly identical. Each floor has a long stoep area with large windows towards the eastern side formed by the central section of the H-shaped building.

The floor to ceiling height on the ground floor is 2600mm which is significantly less than the floor to floor slab height (3400mm) due to suspended ceilings. The upper floors have a slab to slab height of 2600mm.

The dining room is one storey space located in the courtyard formed by the two legs of the H-shaped plan of Huis Davidtsz and has a mono-pitch corrugated iron roof.

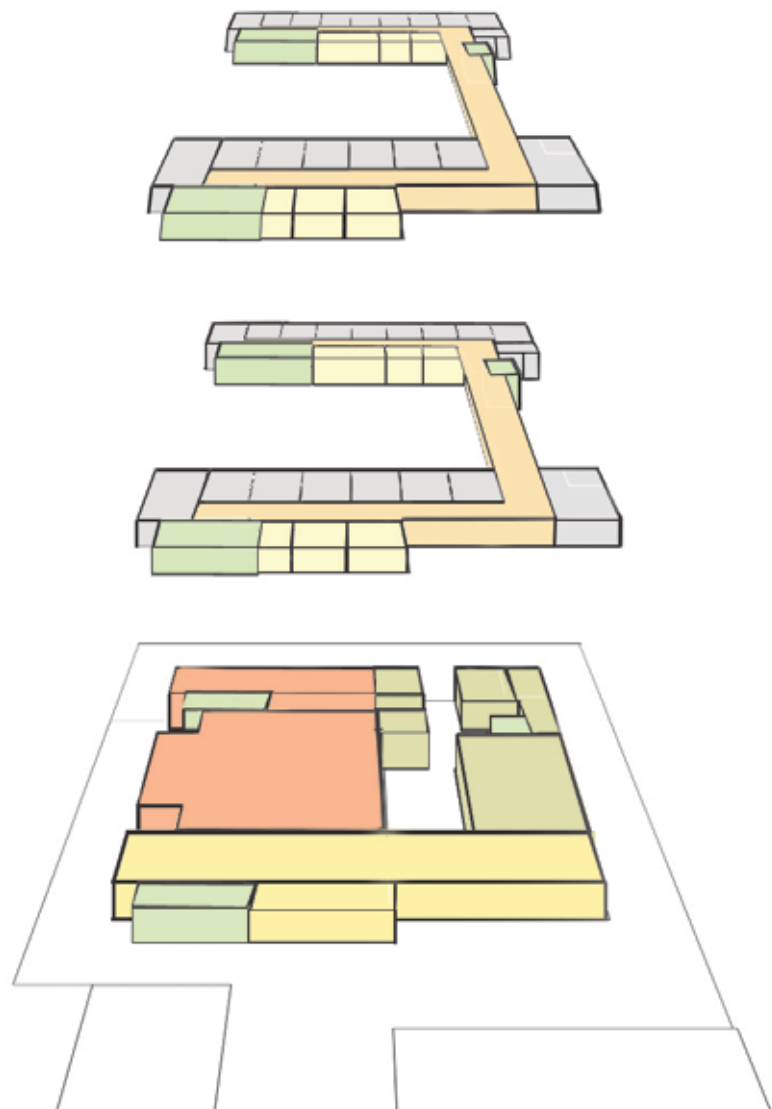
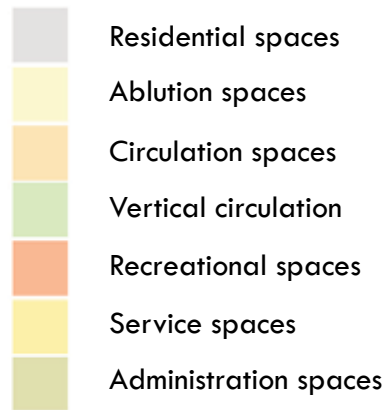


Figure 2-29 Spatial organisation of existing building

2.5.4) ARCHITECTURAL FEATURES

The structure has a H-shaped floor plan and consists of a frame structure (columns and floors with in-fill brick walls) and thus has an uninterrupted free plan based on a grid. The concrete columns start from the ground floor and continue all the way through the building to carry all the concrete floors as well as the low pitch corrugated iron roof. This H-shaped plan is very typical of the Pretoria Regionalist design language which favours traditional plan forms.



Figure 2-30 Pretoria regionalist characteristics traditional H-form plan

A strong emphasis on locally available material is apparent in the material dialect of the building. Face brick is used both on the exterior and interior and corrugated iron is used as roof cladding. This rustic brick aesthetic is emphasised by subtle brick corbelling on the interior and exterior of the building as well as variation in the brickwork courses used. Other materials such as blue ceramic tiles applied to the columns on the interior imitate the rhythm implied by the brickwork on the exterior of the building, translating this characteristic of Pretoria Regionalism into the interior.



Figure 2-31 Pretoria regionalist characteristics rustic brick aesthetic

The low pitch corrugated iron roofs are also a typical element of the Pretoria Regionalist style. Even though it is not a visual characteristic of Huis Davidtsz, it is a functional characteristic in terms of drainage.



Figure 2-32 Pretoria regionalist characteristics low pitch corrugated iron roofs

The fenestration of Huis Davidtsz iterate the principles of deep shaded eaves and windows sensitive to sun angles prevalent in the Pretoria Regionalist principles. Floor slabs are extended to act as a type of brise soleil.



Figure 2-33 Pretoria regionalist characteristics interior shop fitting. Timber boxes constructed in between the columns.

Currently the interior spaces are furnished with hodgepodge furniture donated, bought and inherited from various generations of visitors and residents.

The interior shop fitting of Huis Davidtsz consists of timber boxes constructed in between the columns and brickwork of the building. It can be seen in the reception as well as the in tuck-shop. A suspended ceiling and delicately corbelled wall decorate the sitting room.



Figure 2-34 Deep shaded eaves and windows sensitive to sun angles

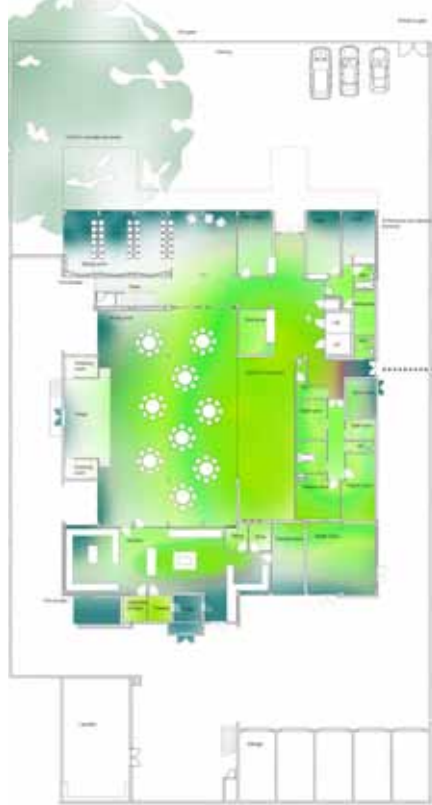
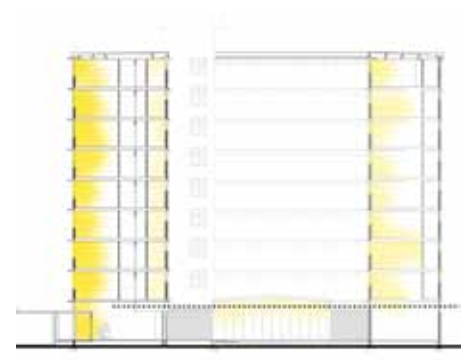
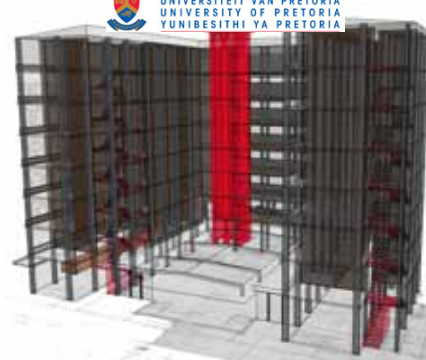


Figure 2-35 Plan indicating ventilation



Figure 2-36 Plan indicating circulation



Figure 2-37 Plan indicating natural and artificial lighting

2.5.5) SYSTEMS

2.5.5.1) VENTILATION

Huis Davidtisz has no artificial ventilation systems and uses only natural systems to ventilate the building. Because of the H-shaped plan, cross ventilation is possible through the narrow corridors preventing the air from becoming stagnant.

The ground floor has large louvered windows on the northern side as well as the western side, which allow ventilation. The ablution facilities and patient rooms ventilate into the outdoor courtyard space. The courtyard space in the centre of the building provides an opening for warm air to escape and the elevator shaft as well as the drainage shafts provide continuous space for vertical air movement.

2.5.5.2) CIRCULATION

There are two methods of vertical circulation in Huis Davidtisz. Firstly and most commonly used, due to the limited abilities of the residents, are the lifts. There are two lifts that connect the eight floors; these lifts are overused, slow and unreliable. Mrs Strydom stated that the brakes of the lifts had to be replaced once a year due to overuse. They are also too small and cannot comfortably accommodate a hospital gurney.

Secondly, a set of concrete stairs connect the eight floors on each of the legs of the H-shaped plan. These two staircases also act as the fire escapes of the building. Each landing has a large west-facing window providing natural lighting.

2.5.5.3) LIGHTING

The natural lighting of Huis Davidtisz is very effective in the northern wing of the building but the southern wing and the dining hall space in the heart of the building remain quite dark during the day. The cluttered floor plan of the ground floor produces many interior spaces without windows that are also quite dark.

According to the SANS 10400 Part S, elderly persons and persons with visual impairments require higher levels of artificial lighting and reduced glare. The artificial lighting of Huis Davidtisz has not been addressed to satisfaction. The illumination levels in general are too low and there is no task lighting available in the building.

2.5.5.4) WATER RETICULATION

Potable water is received from the municipal connection at ground floor level. The water fills a large tank located on the south-eastern side of the building, and the water is then pumped to a second set of tanks on the roof from where it is circulated through the building by means of gravity.

All the soiled and grey water reticulation of the building is located in shafts. There is a shaft in both legs as well as a central services shaft next to the lift-shaft.



Figure 2-38 Water reticulation

2.5.6) UNIVERSAL ACCESS AND SYSTEMS

Huis Davidsz has minimal facilities to assist age related disabilities. The building was subjected to a universal design access audit based on age related disabilities found among the residents (see appendix one). The results of the audit are summarised to provide an understanding of the main findings.

The entrance of Huis Davidsz is placed at a logical intuitive location and reads as the main entrance in terms of spatial hierarchy. The access to the building is particularly insufficient as there is no ramp in front of the main entrance, thus wheelchair bound persons have to use an alternative entrance to the building. The handrail on the stairs does not comply with standards and does not extend beyond the stairs onto the landing. The stairs do not have appropriate contrast between tread and riser and do not have the appropriate stair nosing strip.

The entire building has a lack of signage and identification. The signage in the reception area is not sufficient: there are no multi-sensory way-finding mechanisms, no tactile signage or tactile maps. The reception desk, which is the only source of navigational information, does not

have the required height and legroom necessary for a wheelchair bound person.

The foyer is cluttered with interior walls which makes it impossible for a first time visitor, or someone who has difficulty with interpreting information, to form a mental map of the space by means of a panoramic view.

The elevator, which is the primary form of vertical circulation, is not appropriate in terms of universal access. The entrance of the elevator is not marked appropriately and does not have the required contrast to make it clearly visible. The elevator has no auditory indicators or other visual or tactile signage to describe its use.

There is a lack of external signage and low visibility at night. There is a lack of outdoor signage as well as a lack of outdoor seating. The paving on the exterior of the building has been lifted by the roots of the large tree, resulting in a bumpy floor surface with abrupt level changes. There is no outdoor artificial lighting.

Inside on the ground floor an obvious attempt has been made to keep all the floor surfaces level, with minimal

transitions between floor finishes. The artificial lighting does not achieve the required illumination levels and there is a complete and utter lack of task lighting. The residents cannot control the lighting.

The interior has a lack of contrast between wall and floor as well as between wall and ceiling required to ease the strain on persons with visual impairment. Handrails have been implemented in all the corridors of the building. They are the correct diameter distance from the wall and from the floor, but they are extremely unattractive and institutional. They are also cold to touch as they are constructed from stainless steel and they cause the users' hands to smell like metal.

The doors of many of the spaces are extremely narrow and the sharp edges of the columns make mobility difficult. The ground floor has no wheelchair accessible w/c's. The lighting levels in the interior of the ablution facilities are too low. Televisions cannot be controlled by the residents and become an over stimulating distraction. There is also a lack of communication mechanisms such as computers and television.

- MAIN ENTRANCE NOT WHEELCHAIR ACCESSIBLE
- LACK OF STAIR NOSING
- LACK OF COLOUR CONTRAST
- HANDRAIL NOT ACCESSIBLE



Figure 2-39 Main entrance not accessible to wheelchairs

- LACK OF WHEELCHAIR ACCESSIBLE SECTION TO RECEPTION
- LACK OF LIGHTING OVER RECEPTION AREA



Figure 2-40 Existing reception counter vs wheelchair accessible reception counter

- NOT MARKED APPROPRIATELY
- NO CONTRAST
- NO AUDITORY INDICATORS
- NO TACTILE SIGNAGE
- NO WAITING AREA
- CALL BUTTONS TOO HIGH
- MANUALLY CONTROLLED LIFT DOOR (heavy and dangerous to use by persons in a wheelchair and the elderly in general)



Figure 2-41 Elevator which is the primary form of vertical circulation

- LACK OF APPROPRIATE ILLUMINATION



Figure 2-42 Artificial lighting does not achieve the required illumination levels

- LACK OF OUTDOOR SIGNAGE
- LACK OF OUTDOOR SEATING
- THE PAVING ON THE EXTERIOR OF THE BUILDING HAS BEEN LIFTED BY ROOTS



Figure 2-43 Bumpy floor surface with abrupt level changes

2.5.7) UNIVERSAL ACCESS AUDIT

Age related impairment

Difficulties

- *Communication difficulties
- *Spatial disorientation
- *Sense embarrassment
- *Aggressive behaviour
- *Incontinence
- *Forgetfulness
- *Spatial perception problems



Difficulty with interpreting information

Barriers

- *Monotonous spaces
- *Over illuminated spaces
- *Lack of way-finding mechanisms
- *Complicated layout
- *Enclosed spaces
- *Complicated furniture
- *Pooling of light
- *Glare

Design Aids

- *Lighting that is triggered by movement
- *Intuitive use
- *Colour cues
- *Open plan spaces
- *Visual access into spaces and furniture
- *Contrast between wall and floor, wall and ceiling, floor and furniture
- *Individual furniture
- *Panoramic view to form mental map
- *Spatial hierarchy

Critical Design Aid

- *Intuitive use
- *Visual access into spaces and furniture
- *Colour cues
- *Spatial hierarchy

Age related impairment

Difficulties

- *Limited field of vision
- *Short sightedness
- *Central vision loss
- *Can't read small text
- *Complete loss of vision



Visual impairment

Barriers

- *Poor colour and contrast
- *Monotonous spaces
- *Over illuminated spaces
- *Pooling of light
- *Glare
- *Slippery surfaces
- *Rough surfaces
- *Projecting or free-standing elements
- *Inconsistent ramps or stairs

Age related impairment

Difficulties

- *Mobility limitations
- *Difficulty in using stairs
- *Paralysed body functions
- *Issues with turning and navigating spaces



*Prevalence of poor balance, incoordination.

Barriers

- *Lack of handrails and grab-rails
- *Stairs and level changes
- *Steep ramps and stairs, insufficient landings
- *Rough surfaces
- *Projecting elements
- *Complicated layout
- *Pooling of light
- *Glare
- *Over illuminated spaces

Design Aids

- *Provision of pause spaces with leaning and/or seating facilities
- *Provision of handrails and grab-rails
- *Individual furniture
- *Provision of landings at regular intervals
- *Provision of seating with arm-rests that aids standing up

Critical Design Aid

- *Provision of handrails and grab-rails
- *Provision of pause areas
- *Provision of seating with arm-rests that aids standing up

Age related impairment

Difficulties

- *Heart or blood pressure related illness
- *Breathing related impairment
- *Pain related to aging such as stiffening of joints and arthritis
- *Pain related to injuries



Limitations of stamina

Barriers

- *Lack of pause space
- *Lack of handrails and grab-rails
- *Steep ramps and stairs, insufficient landings
- *Rough surfaces
- *Complicated layout

Age related impairment

Difficulties

- *Loss of fine motor controls
- *Unable to hold small objects
- *Reach difficulties



Loss of dexterity

Barriers

- *Handrails and grab-rail with cross-section too small or too big
- *Door-handles that are knob-shaped or with cross-section too small or too big
- *Locking mechanisms on doors, particularly WCs
- *Small or fine manipulative controls

Design Aids

- *Select materials size, form and texture of elements to improve grip
- *Slip free surfaces
- *Providing a ledge on flat surfaces
- *Simplifying manipulative controls

Critical Design Aid

- *Select materials size, form and texture of elements to improve grip

Age related impairment

Difficulties

- *Reach difficulties
- *Unable to lift objects
- *Difficulty in opening and/or manipulating doors and windows



Loss of upper extremity skills and/or strength

Barriers

- *Rough surfaces
- *Projecting elements
- *Heavy doors and windows
- *Door closers
- *Heavy furniture
- *Very high, low or deep elements can be difficult to reach

Age related impairment

Difficulties

- *Mobility limitations
- *Can't use stairs
- *Can't use standard w/c
- *Issues with turning and navigating spaces
- *Reach difficulties



Reliance on walking aids

Barriers

- *Stairs and level changes
- *Steep ramps and stairs with a lack of landings
- *Rough surfaces
- *Narrow corridors and door-frames
- *Slippery surfaces
- *Lack of handrails and grab-rails

Design Aids

- *Ramped access with hand-rails at gradient 1:20
- *Open plan spaces
- *Passages with a minimum clearance of 914mm
- *Doorways with a minimum clearance of 710mm
- *Provision of seating with arm-rests that aids standing up
- *Slip free surfaces

Critical Design Aid

- *Ramped access with handrails at gradient 1:20
- *Open plan spaces
- *Passages with a minimum clearance of 914mm

Age related impairment

Difficulties

- *Mobility limitations
- *Difficulty in using stairs
- *Paralysed body functions



Difficulty bending or kneeling

Barriers

- *Stairs and level changes
- *Steep ramps and stairs with a lack of landings
- *Very high, low or deep elements can be difficult to reach
- *Rough surfaces
- *Projecting elements

Design Aids

- *Good quality lighting
- *Acoustic and olfactory way-finding guides
- *Contrast between wall and floor, wall and ceiling, floor and furniture.
- *Large font, tactile, as well as Braille signage
- *Matt floor finish to avoid glare
- *Avoiding high contrast floor patterns that could appear to be obstructions.

Critical Design Aid

- *Acoustic and olfactory way-finding guides
- *Contrast between wall and floor, wall and ceiling, floor and furniture.
- *Good quality lighting
- *Large font, tactile, as well as Braille signage

Age related impairment

Hard of hearing



Difficulties

- *Difficulty hearing
- *Reliant on sign language or lip reading, as well as signage.
- *Communication difficulties
- *Audio warning signals and alarms not appropriate.

Barriers

- *Lack of way-finding mechanisms
- *Difficulty in emergency situations
- *Intrusive elements
- *Rough surfaces
- *Spaces that are acoustically loud, as well as ambient noise
- *Pooling of light glare

Design Aids

- *Signage
- *Grouping of sound
- *Visual communication during crisis situations
- *Good acoustics
- *Minimising of white noise
- *Matt floor finish to avoid glare
- *Good quality lighting

Critical Design Aid

- *Good acoustics and grouping of sound
- *Minimising of white noise
- *Signage as well as use of visual signals for warnings/alerts
- *Good quality lighting

Design Aids

- *Provision of pause spaces with leaning and/or seating facilities.
- *Provision of handrails and grab-rails
- *Provision of landings at regular intervals
- *Provision of seating with arm-rests that aids standing up.
- *Slip free surfaces

Critical Design Aid

- *Provision of handrails and grab-rails
- *Provision of pause spaces.
- *Provision of seating with arm-rests that aids standing up.

Age related impairment

Difficulty of reaching with arms



Difficulties

- *Reach difficulties

Barriers

- *Very high, low or deep elements can be difficult to reach

Design Aids

- *Designing elements with a maximum depth of 500mm
- *Placing shelves between 1575 and 610mm AFFL
- *Provide slide out drawers

Critical Design Aid

- *Designing elements with a maximum depth of 500mm
- *Placing shelves between 1575 and 610mm AFFL

Design Aids

- *Adding wheels or casters to furniture
- *Including low interaction doors and windows
- *Designing elements with a maximum depth of 500mm
- Placing shelves between 1575 and 610mm AFFL
- *Provide slide out drawers

Critical Design Aid

- *Adding wheels or casters to furniture including low interaction doors and windows

Age related impairment

Impairment of lower extremities



Difficulties

- *Mobility limitations
- *Cannot use stairs
- *Cannot use standard w/c
- *Paralysed body functions
- *Issues with turning and navigating spaces
- *Reach difficulties
- *Confidence

Barriers

- *Stairs level changes
- *steep ramps with a lack of landings
- *Very high, low or deep elements can be difficult to reach
- *Rough surfaces
- *Projecting elements
- *Narrow corridors and doorframes
- *Enclosed spaces
- *Lack of handrails and grab-rails
- *Lifts that do not allow for 1550 wheelchair turning circle and with controls out of reach

Design Aids

- *Ramped access with hand-rails at gradient 1:20
- *Open plan spaces
- *1550 wheelchair turning circle
- *Easy navigation with logical layout
- *Lowered counter height with knee space
- *850mm high counter with 750mm by 300mm deep leg room
- *Doorways with a minimum clearance of 813mm
- *Provide slide out drawers
- *Passages with a minimum clearance of 914mm
- *Slip free surfaces

Critical Design Aid

- *Ramped access with handrails at gradient 1:20
- *1550 wheelchair turning circle
- *Doorways with a minimum clearance of 813mm
- *Open plan spaces
- *Wheelchair accessible WC

Design Aids

- *Ramped access with hand-rails at gradient 1:20
- *Designing elements with a maximum depth of 500mm
- Placing shelves between 1575 and 610mm AFFL
- *Provide slide out drawers
- *Provision of seating with arm-rests that aids standing up.

Critical Design Aid

- *Ramped access with handrails at gradient 1:20



Figure 2-45 Huis Davidtisz from Johannes Ramokhoase street

2.6) STATEMENT OF SIGNIFICANCE

Huis Davidtisz was commissioned by the Grootte Kerk and was funded by money collected by the congregation. The eight storey H-plan, brown face brick building is located in Pretoria CBD next to the old rectory of the church and forms part of Grootte Kerk complex. The tall building has a typical modernist Cartesian grid column and floor frame structure and is fenestrated by steel side hung windows. Huis Davidtisz has housed elderly members of this community since 1968 and thus has social significance.

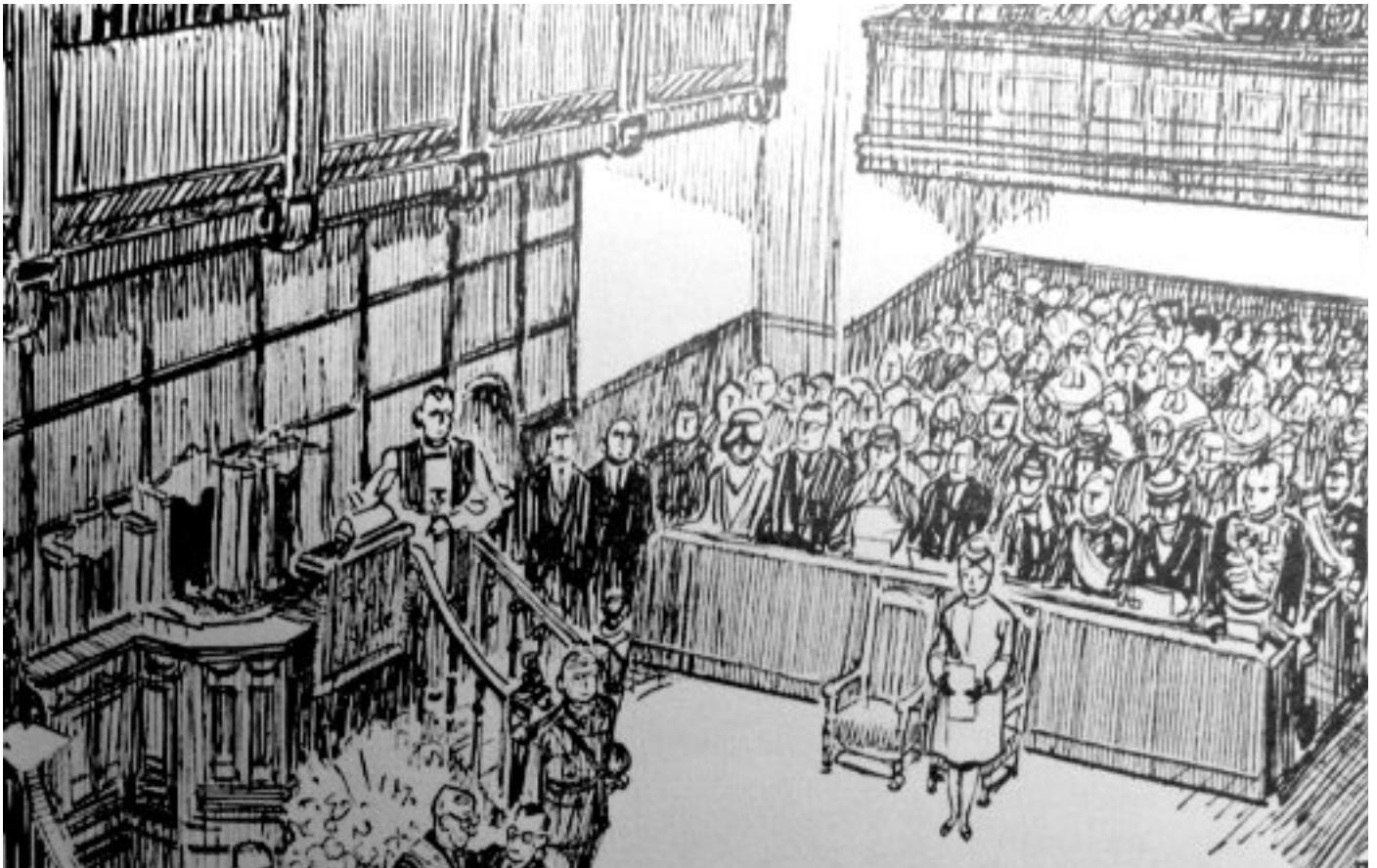


Figure 2-44 On May 31, 1961, Charles Robberts Swart, last Governor-General of the Union of South Africa, was formally invested with the insignia of the office of State President of the Republic of South Africa in the Grootte Kerk in Pretoria



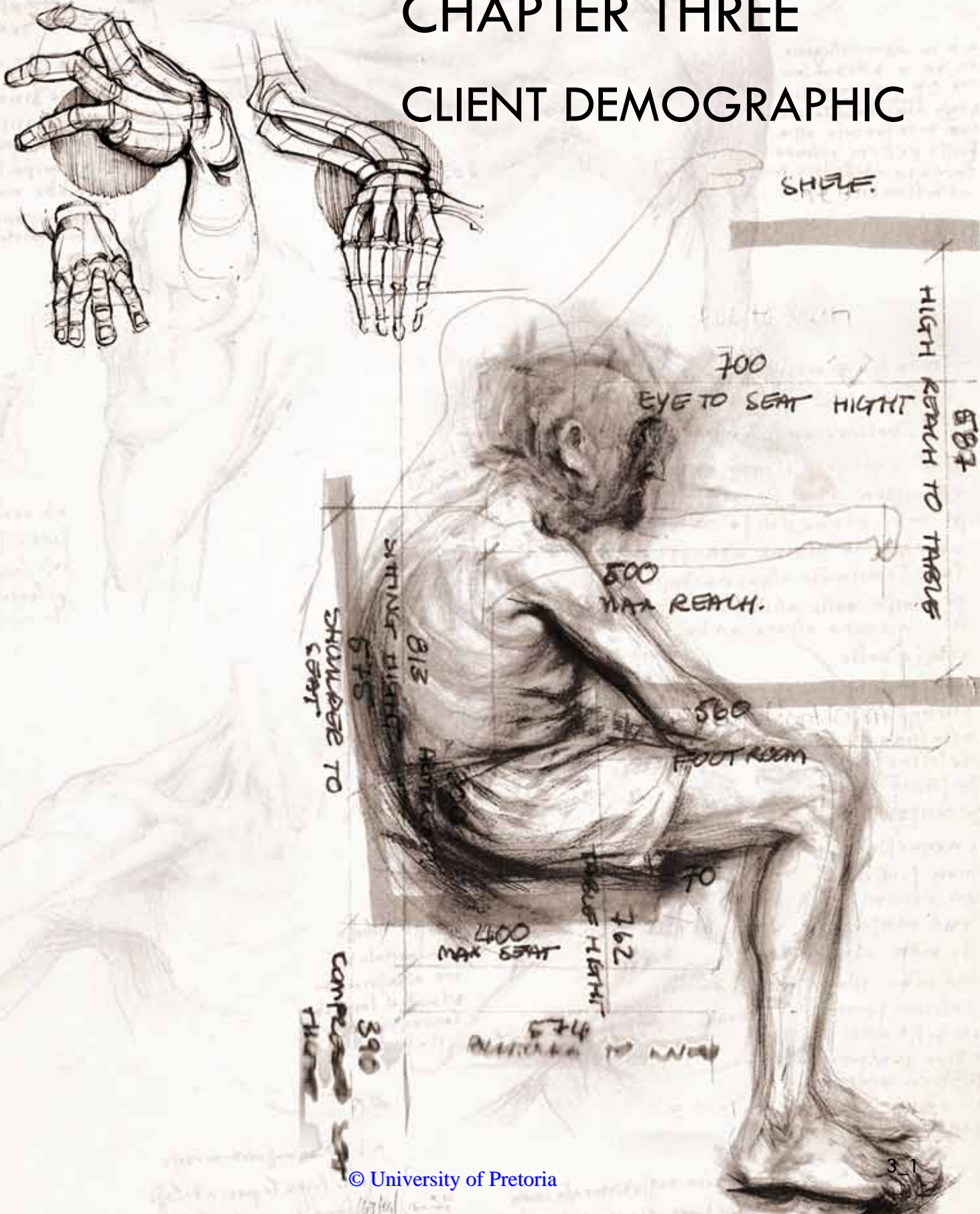
Figure 2-46 Huis Davidtsz logo

2.7) CONCLUSION

- Huis Davidtsz was chosen as a site due to its very specific characteristics that allow the investigation of ageist prejudice in design.
- The host building was designed and built in a very different historical context and paradigm to today and is thus in need of reimagining.
- The precinct surrounding Huis Davidtsz used to form part of a larger community with strong social ties. These historical connections should be rediscovered and utilised to reconnect Huis Davidtsz with its surrounding community.
- The architectural language of Huis Davidtsz speaks very clearly of Pretoria Regionalism. The characteristics very typical of Pretoria Regionalism such as the H-shaped plan, the locally available materials, the low pitch roof and the sun-sensitive windows are found throughout the building.
- Huis Davidtsz is located in the central business district next to a very busy street in a pedestrian active area.
- The main zoning of the area is high density residential.
- The building has a very specific orientation with the living spaces towards the north-east and the servicing spaces towards the south-west of the building.
- The spatial organisation of the building is very cluttered.
- Access becomes a problem specifically in terms of universal access as there is little consideration in terms of wheelchair accessible entrances.
- The layers of thresholds between the residents and their visitors, as well as the residents and people from the surrounding area make accidental bump-ins or normal social friction difficult.
- The building has quite a few beautiful and functional architectural features, reminiscent of Pretoria Regionalism, worthy of incorporation into a design intervention.
- The building is worth protecting as it has served the elderly for more than forty years.

CHAPTER THREE

CLIENT DEMOGRAPHIC



3.1) INTRODUCTION

This chapter looks at the demographic nature of the residents of Huis Davidtsz in order to guide design decision making. Firstly, the gender distribution of the residents will be discussed, followed by the prevalent distribution of spoken language. The prevalence of both physical and cognitive impaired persons is determined, followed by a discussion about the levels of literacy or education attained by the residents.

The average duration of residence in Huis Davidtsz is discussed in order to determine how long-term the stay of persons generally is. In order to understand the socio-cultural situation of the population, prevalence of religion, types of previous family structures as well as previous living situations are discussed.

In order to aid the design process the existing personality groups of Huis Davidtsz were also analysed. This will ensure that the design does not become another manifestation of ageism but that the personal wants and likes of the users are incorporated into the design.

3.2) CLIENT DEMOGRAPHICS

This project has two clients. Firstly, the corporate client: Kerk-sondermure, the organisation that owns the building as well as the government who, by means of pension grants, funds the living costs of the residents. Secondly, the elderly living in Huis Davidtsz, their visitors and the staff who attend them, form the main client around which the entire study revolves.

The very apparent physiological needs of the elderly are often overemphasised and all other elements of spatial experience are consequently neglected. Furthermore, the institutional feel of the spaces inside Huis Davidtsz proves an extreme lack of interest in the psychological needs and wants of the residents.

This lack has started to cause physical manifestations of inappropriate ageist behaviour and negative stereotypes. In order to prevent this manifestation of ageism in design, the true status quo of the client needs to be investigated. Since negative association between the elderly and

issues such as illness, mental and physical incompetence are formed, it is important to know exactly what the demographic situation of the client is in order to be able to design beyond the stereotype.



Figure 3-1 Knowing the client

3.3) DEMOGRAPHIC FEATURES OF HUIS DAVIDTSZ

Huis Davidtsz has both long term and short term residents, and as a result the demographics may be more fluid than the graphs indicate. The graphs give an indication of the typical population of the building as well as the demographic and socio-cultural nature of that population.

The data gathered in order to create the graphic representations was collected by means of a list of all the residents provided by Huis Davidtsz. The list contains the names and room numbers of the 183 residents currently residing in Huis Davidtsz; it also indicates whether the resident is male or female.

The rest of the information was acquired by means of interviews with the residents and the staff. Thus some of the information is based on an educated estimate. The age distribution specifically consists of estimated data, since many of the residents are either illiterate or cannot remember how old they are or in which year they were born.

3.3.1) GENDER DISTRIBUTION

The gender distribution in Huis Davidtsz is almost equal, with only three more female residents than male residents.

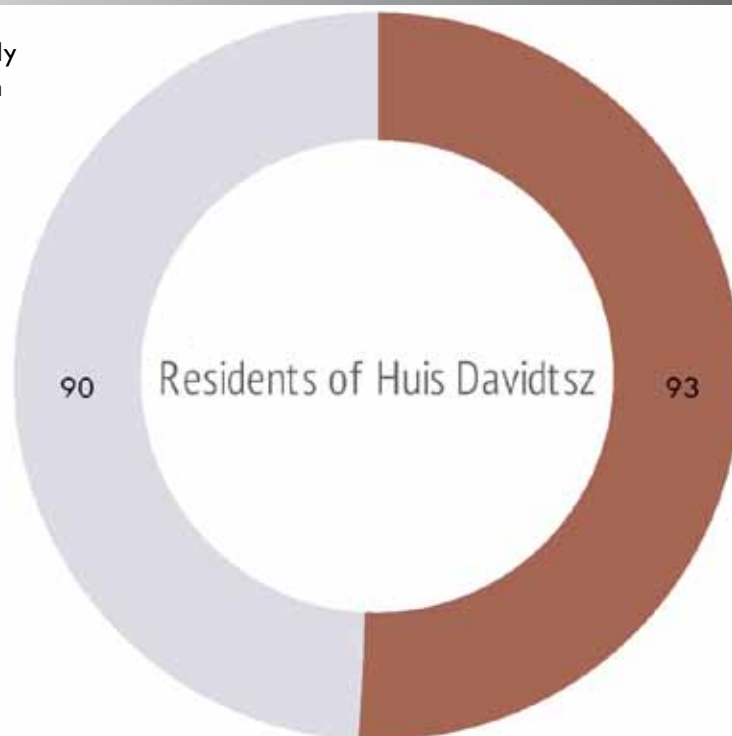


Figure 3-2 Gender distribution in Huis Davidtsz

3.3.2) DISTRIBUTION OF SPOKEN LANGUAGE

English is the main spoken language in Huis Davidtsz followed by Afrikaans and Sotho. Most residents understand English even though it is not necessarily their mother tongue. Some of the residents have impairments that have left them mute.

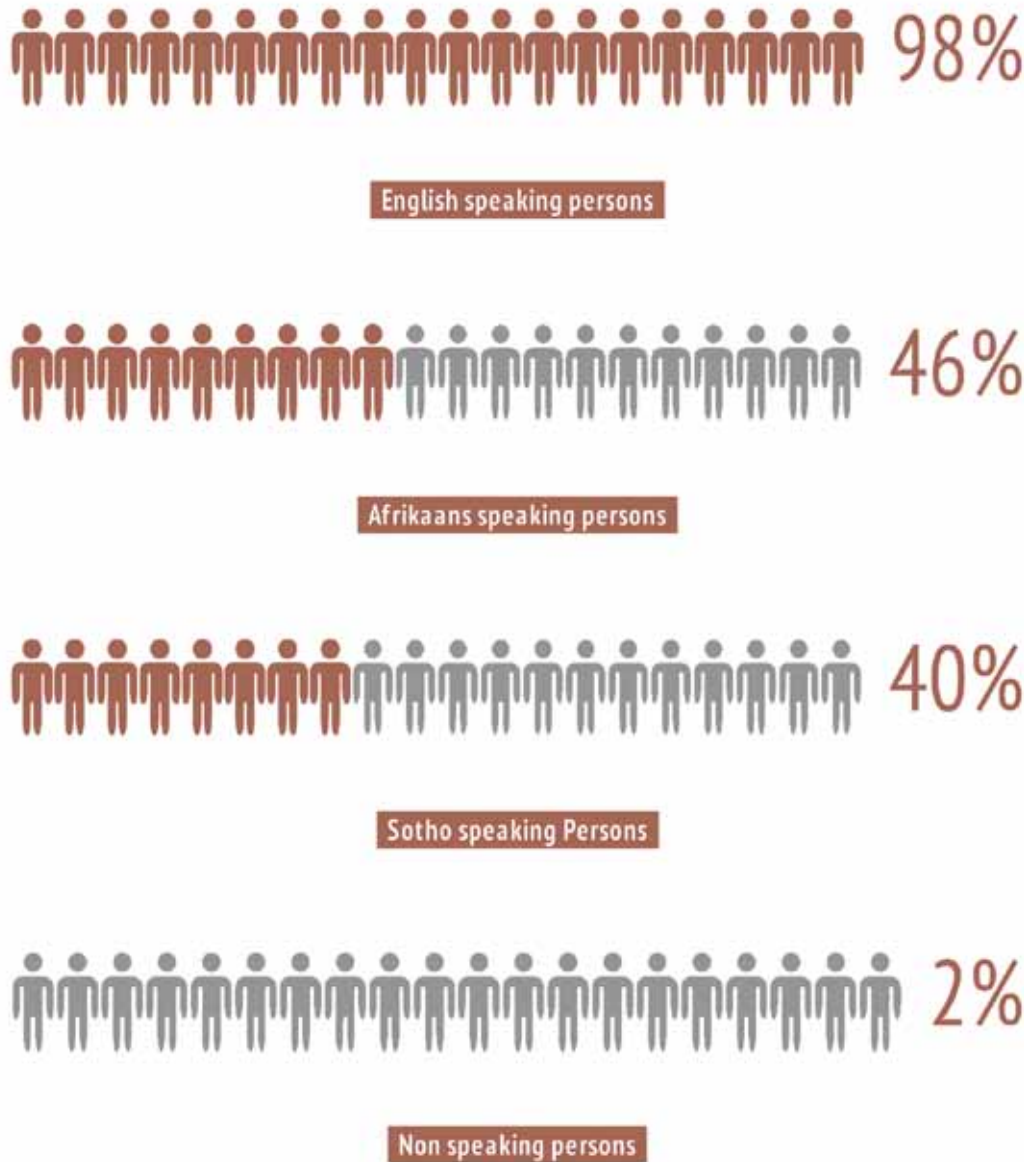
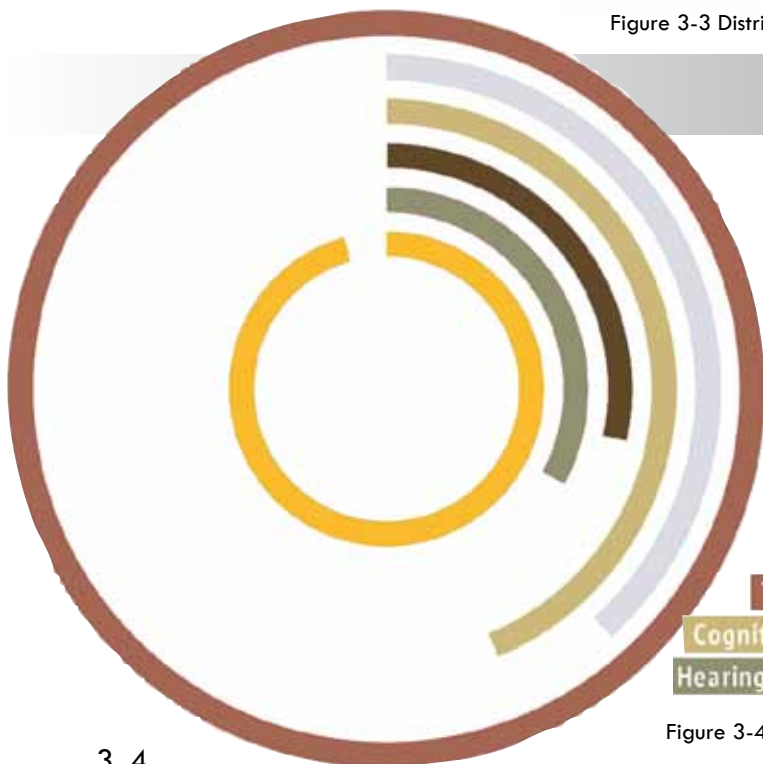


Figure 3-3 Distribution of spoken language

3.3.3) PREVALENCE OF PHYSICAL AND COGNITIVE IMPAIRMENTS

The following impairments and impairing ailments have been treated in Huis Davidtsz:
HVI/AIDS, Post TB, Cancer, Alzheimer's, Dementia, Wernich's disease, Schizophrenia, Multiple sclerosis, Colostomies, Blindness, Incontinence and Injuries.



Total residents: 183	Wheelchair bound persons: 70
Cognitively impaired persons: 80	Visually impaired persons: 52
Hearing impaired persons: 60	Economically impaired persons: 175

Figure 3-4 Prevalence of physical and cognitive impairments

3.3.4 AGE DISTRIBUTION

The greater part of the population of Huis Davidtsz is old-elderly persons which is persons over the age of 75. Some younger residents of Huis Davidtsz reside there because they need full time care due to impairments.

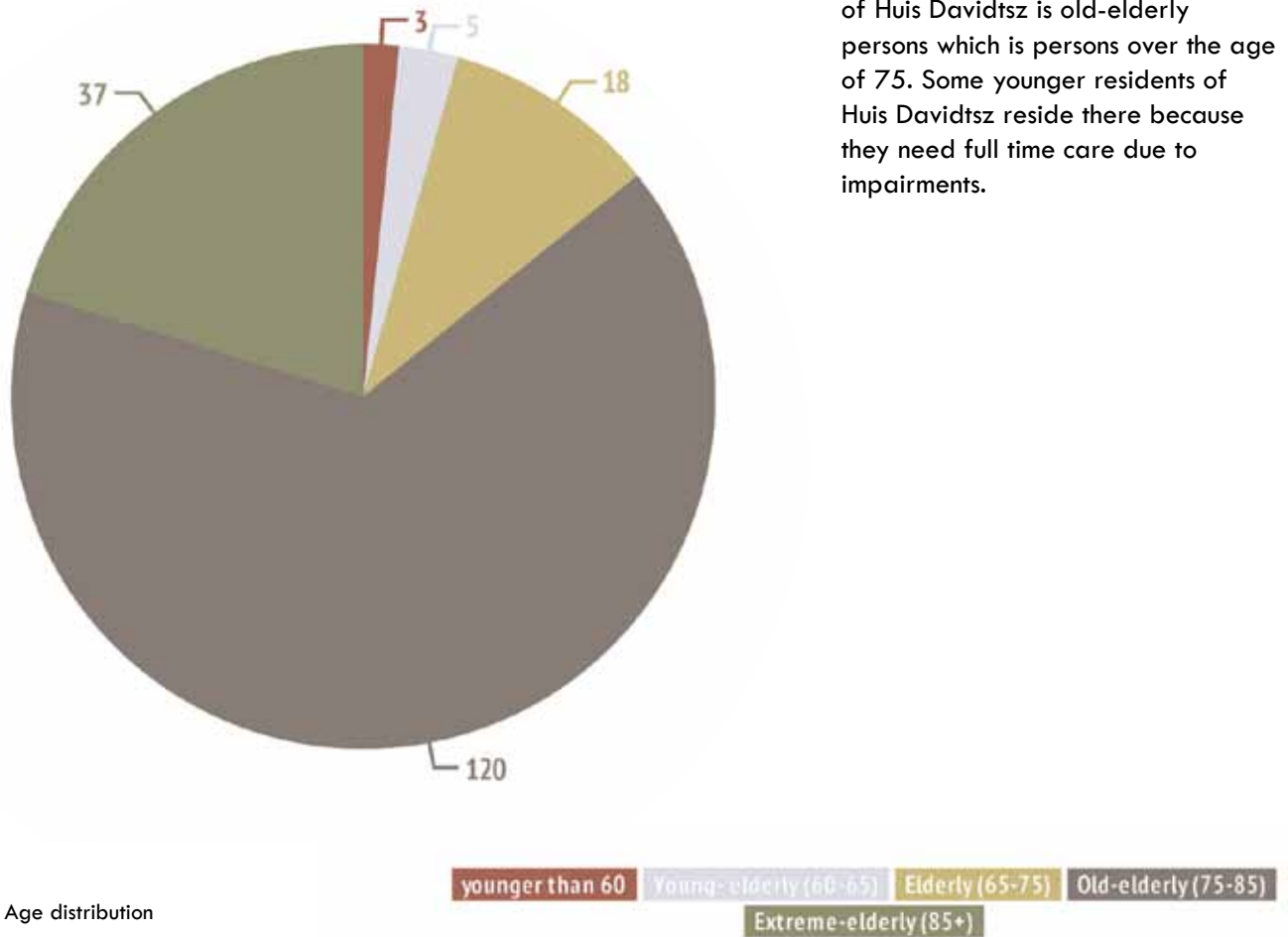


Figure 3-5 Age distribution

3.3.5) EDUCATION ATTAINED

A large portion of the residents is illiterate but the greater portion of the residents can read and write. Some of the residents have degrees and diplomas but very few residents are computer literate.

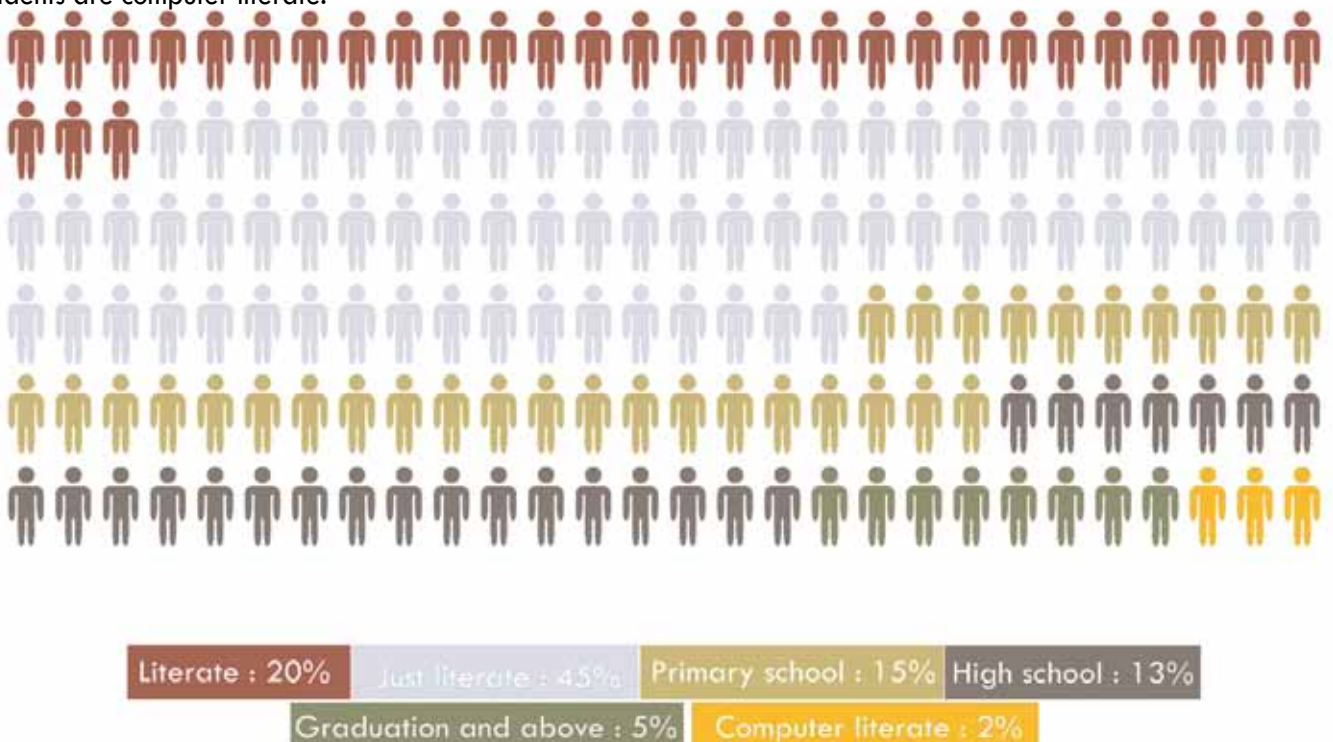


Figure 3-6 Education attained

3.3.6) AVERAGE DURATION OF RESIDENCE

Generally residents stay in Huis Davidtsz for a period of three to five years. Some residents receive care, for a few months or a year as they recover from an operation or an injury while others stay for more than ten years.

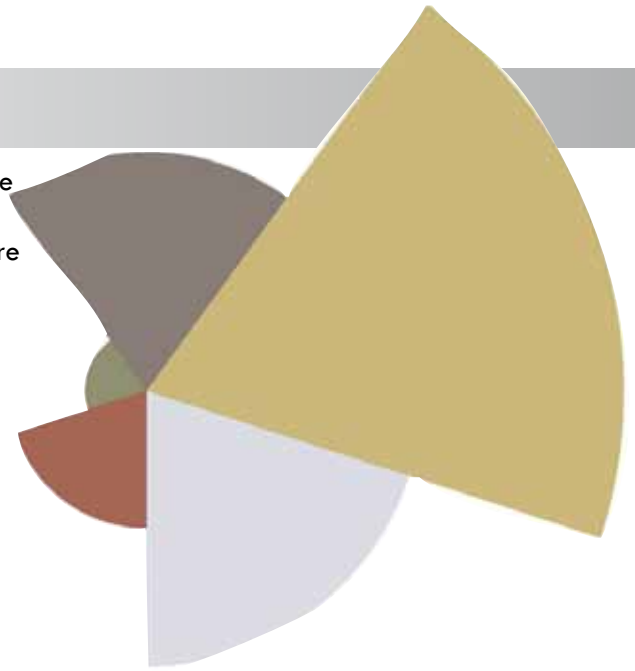


Figure 3-7 Average duration of residence

3.3.7) PREVALENCE OF RELIGION

As the Christian church has always been involved with Huis Davidtsz, many of the residents who choose to stay there are also Christians, but as indicated on the chart, other religions are also prevalent in the building.

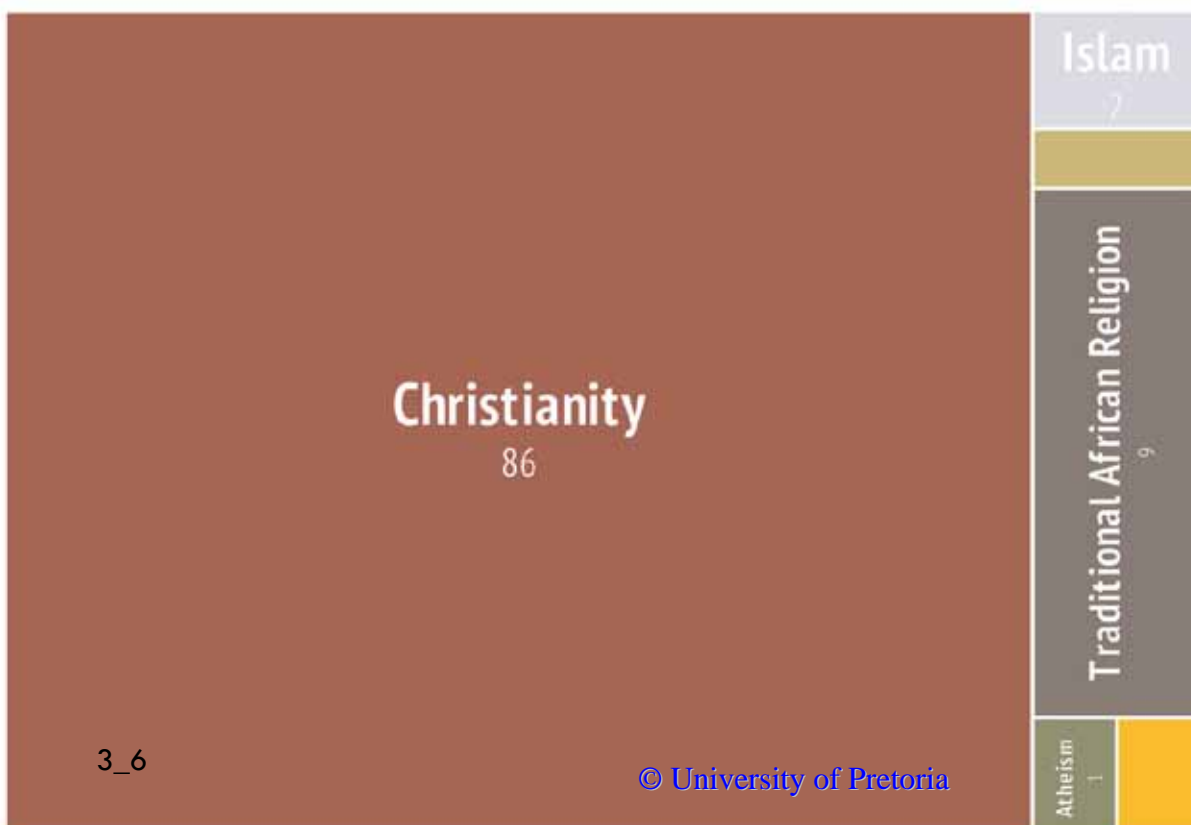


Figure 3-8 Prevalence of religion

3.3.8) TYPES OF PREVIOUS FAMILY STRUCTURES

In order to determine which social situation to design for, the previous family structures of the residents were investigated. It was found that the greater part of the residents previously lived in a nuclear type family structure.

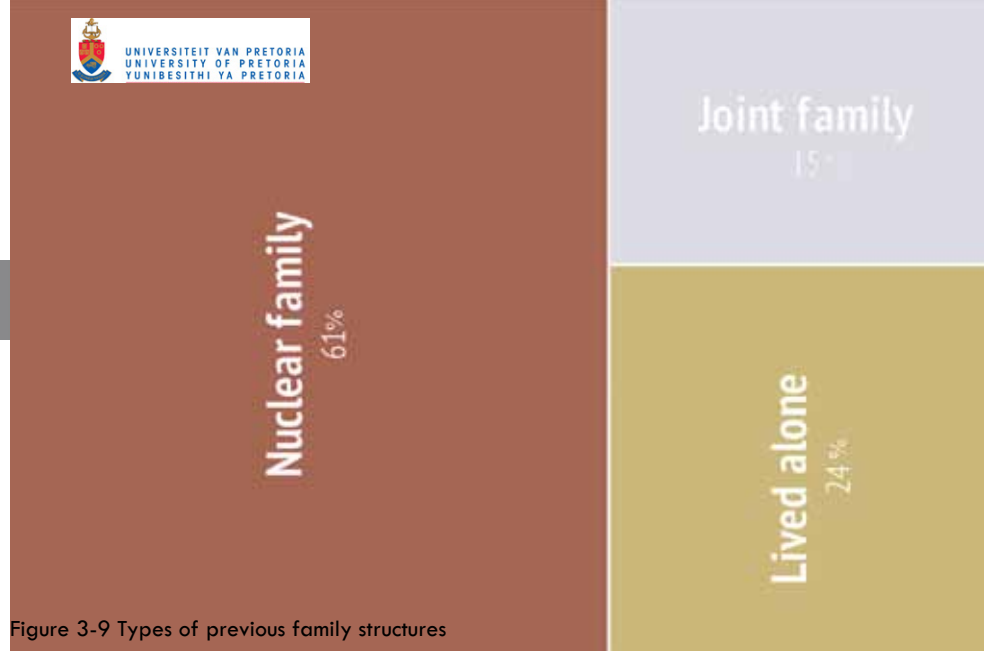


Figure 3-9 Types of previous family structures

3.3.9) PLACES PREVIOUSLY LIVED

Some of the residents have farming backgrounds or have moved from a village in the countryside to the city, whereas others have always lived in the city. This is also an important factor in the design process and will influence how the residents respond to the context of Huis Davidtsz.

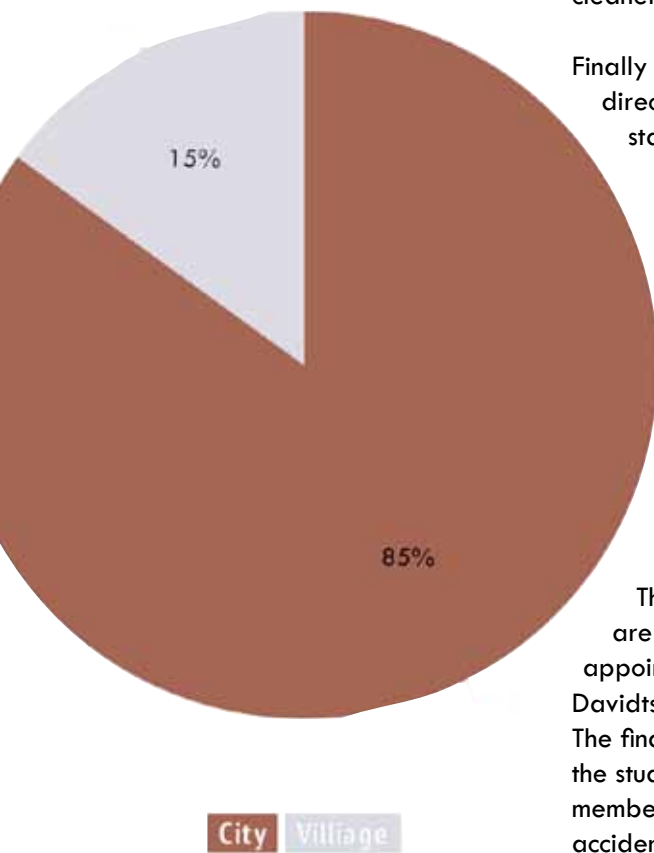


Figure 3-10 Places previously lived

3.4) THE STAFF

Huis Davidtsz has 81 permanent staff members, while thirty volunteers and sixty students also work there. The organisation of the staff is very simple and can be divided into three main parts.

Mrs Strydom is the executive manager of Huis Davidtsz and she oversees the administration staff which consists of a financial officer as well as a secretary who is also the receptionist and clerk.

The household staff also has a supervisor and consists of cooks, waiters, cleaners, laundry staff and kitchen staff.

Finally and most importantly, the nursing staff who work with the residents directly, consists of a senior Sister-in-charge who oversees the sisters, the staff nurses, the nurses and the care givers.

3.5) THE VISITORS

Visitors that frequent Huis Davidtsz form part of the client base of this study and these persons should be accommodated in the design process. The first type of visitors are unstructured visitors such as family and friends. These types of visitors generally make an appointment with the residents directly. Even though these visits tend to form a pattern (e.g. the family comes to visit every Sunday,) it is still unstructured in nature and there are no scheduled times during which they are allowed or not allowed to visit.

The second group of visitors are structured visitors or groups, who are generally affiliated with an organisation. These visitors make an appointment with the administration component of the management of Huis Davidtsz and come to visit the residents in a structured fashion. The final type of visitor does not exist yet but could be a potential client which the study attempts to attract. This client will be a passer-by or a community member living and working in the area and the type of visit will occur in an accidental bump-in fashion.

3.6) THE INSTITUTION (GOVERNMENT+KERK-SONDER- MURE)

The corporate client, which is Kerk-sonder-mure, is the organisation that owns the building and the government who, by means of pension grants, fund the living costs of the residents. Huis Davidtsz was founded by “Die Groote Kerk Utiliteits Maatskappy” in 1968 and was designed to be an old age home. The aim of the project was to provide a government subsidised old age home for self-sufficient Caucasian older adults. In 1998 the term frail care came into use and government policy changed in order to include all South African citizens. Criteria for residents of Huis Davidtsz are based on the amount of care a person needs, as well as the income available to the potential resident. Eligibility for care is determined by a DQ98 dependency questionnaire. Persons are considered to be eligible for frail care if:

- (a) they are acutely ill persons recovering from hospital care or physically compromised individuals with chronic illnesses
- (b) they are elderly with no other housing options,
- (c) they are cognitively deficit,
- (d) they are terminally ill,
- (e) individuals who for economic reasons are diagnosed with a medical problem in order to receive care (Strydom, 2013).



3.7) PERSONALITY

Structured and unstructured interviews were used to analyse the residents of Huis Davidtsz in terms of personality groups. This is an attempt to understand the existing social situation.

3.7.1) THE SMOKERS

Smoking is not allowed in Huis Davidtsz due to the increased risk of a fire, therefore people who smoke have to move from their rooms all the way to the ground floor of the building, out of the front door and along a passageway until they reach the outdoor space under a big tree to the north of the building. To ensure no-one smokes inside the building, Huis Davidtsz supplies each smoker with one cigarette as they exit the building. The amount of cigarettes smoked and paid for is vigorously documented.

The thirty-one smokers of Huis Davidtsz follow this ritual of moving from upstairs to outside at least once a day and as they all gather in that space everyday, a type of bond has formed between them and it almost seems like a clique that only smokers can belong to. The outdoor space that they occupy has a pleasant lively atmosphere and people are always gathered there discussing the week's events.



Figure 3-12 Smoking can form part of rituals

3.7.2) THE COUPLES

Some residents in Huis Davidtsz are in romantic relationships. There are currently two married couples residing together in Huis Davidtsz, as well as two couples where the one spouse is being cared for in Huis Davidtsz, while the other spouse works to support the family. More informal romantic relationships also develop inside this community (a boyfriend-girlfriend situation).

These couples have very specific movement patterns and needs. For example, most of the rooms in Huis Davidtsz are shared and the couples who live apart have a need for private space when they visit their spouse.



Figure 3-13 Some couples reside together in Huis Davidtsz

3.7.3) THE ACTIVES

Active ageing is a very popular contemporary life philosophy where the elderly are encouraged to stay active as long as they can. Huis Davidtsh has attempted to incorporate appropriate physical activities into their program such as wheelchair soccer and city strolls (Strydom, 2012). This was very popular among some of the residents but is difficult due to the lack of appropriate space and the dangerous surrounding neighbourhood. In the interviews some of the residents also expressed a desire for physical activities such as going for a walk.



Figure 3-14 The actives

3.7.7) THE TECHIES

During the interviews many of the residents expressed a desire to learn how to use computers and the internet as it would make communication with their families easier. Some of the residents said that they had previously owned computers and would enjoy having a facility like that again.

3.7.8) THE SNOOZERS

As in any community, Huis Davidtsh has pro-active, positive people who take situations into their own hands and attempt to make the best of everything, as well as the more passive timid people who prefer to be alone and take things slowly. These persons are less likely to take part in activities, whether it due to personality or ability.

3.7.9) THE HOBBYISTS

Some of the residents still have hobbies. Many of the female residents knit, while others enjoy forms of craft such as beading and weaving. During the interviews one male resident expressed his love for writing. Quite a few residents play musical instruments such as the piano.

3.7.4) THE BOOKWORMS

Huis Davidtsh has an existing collection of books scattered throughout the building but no designated library space. During the interviews almost all of the interviewees said that they enjoy reading as a pastime but found it difficult to find a peaceful quiet, place to read.



Figure 3-15 The bookworms

3.7.5) THE GREEN FINGERS

Some of the residents of Huis Davidtsh come from farming backgrounds and have extensive knowledge about how to grow and cultivate plants, both in terms of gardening and produce. According to Roger Ulrich's theory on wellbeing, a connection to nature is a very effective positive distraction and taking care of something other than oneself gives people a sense of purpose (Ulrich, 2001:100).

3.7.6) THE TEA LADIES

Each floor of Huis Davidtsh has a communal stoep area which has a kettle facility. The current residents of floors five and six consist largely of women. These women spend a large part of the day sitting on the communal stoep area drinking tea and gossiping. They come from similar backgrounds and have formed deep, meaningful friendships.



Figure 3-16 The tea ladies



Figure 3-17 The snoozers



Figure 3-18 The hobbyists

3.8) CONCLUSION

By looking at the very specific demographic features of the residents of Huis Davidtsz as well as the nature of the staff and visitors who frequent Huis Davidtsz, one can start to visualise the client of this study. This client is equally distributed male and female residents who generally understand and speak English, who suffer from various age related ailments and are most commonly around the age of seventy-five. The larger portion of the client can read and write. Generally clients live in Huis Davidtsz for around five years and a large portion of the clients are Christians.

Nonetheless, this study is about breaking through stereotypes that are conveyed and encouraged by quantitative research like the charts and graphs above. The study aims to prove that in order to provide a good nursing home, one has to know and understand who the client is, not in terms of generalisations and averages but in terms of personality, likes and dislikes, cultures and rituals. That is why the persons currently residing in Huis Davidtsz were interviewed and their inherent social groups were discussed.

CHAPTER FOUR

Theoretical Premise



Figure 4-1 Illustration of theoretical investigation

A review of the literature showed that scant research has been conducted on the research question of this dissertation. The subject is influenced by several contributing bodies of knowledge such as ageism, universal design, branding, physiological, social friction and biophilia, all of which bring certain contributions and limitations to the new theory being formulated by the study.

These realisations lead to the selection of grounded theory as a research method. Grounded theory is based on processes of induction and deduction of data to inform the formation of new theory (LaRossa, 2005).

The theoretical component of the study utilises Roger S Ulrich's (2001) theory on psychologically supportive spaces as a skeletal structure. His theory and three main conclusions are used as a basis to form the structure of the theoretical argument. This theory quantitatively and qualitatively proves that a lack of control over one's environment, as well as a lack of social support and a lack of positive distractions lead to unhealthy spaces which accelerate decline.

Three consequent theories are investigated in order to formulate a theoretical design strategy that would prevent these unhealthy spaces.

Firstly, universal design is investigated as a method of allowing all users to have a sense of control over their environment. A new approach to design for disability, which is advocated by Graham Pullin (2009), is investigated. This theory does not only look at the functionality of products and spaces that aid impaired persons but at the design elements such as comfort, aesthetic, style and sensory pleasure.

Secondly, social friction is investigated as a method of encouraging social interaction, and thus creating more opportunities for social support. Interior design elements that encourage social friction are identified.

Lastly, biophilic architecture by means of interior green space is investigated as a method of providing positive distraction.

In healthcare facilities efficiency is important and moments can be the difference between life and death. But most healthcare facilities are intended for short term care and the overemphasis on the physiological requirements of the user only has a limited impact. Facilities for the elderly have many names and vary in scale and intensity of care, but nursing homes in general have long term and even permanent residents (Dickinson, 2004).

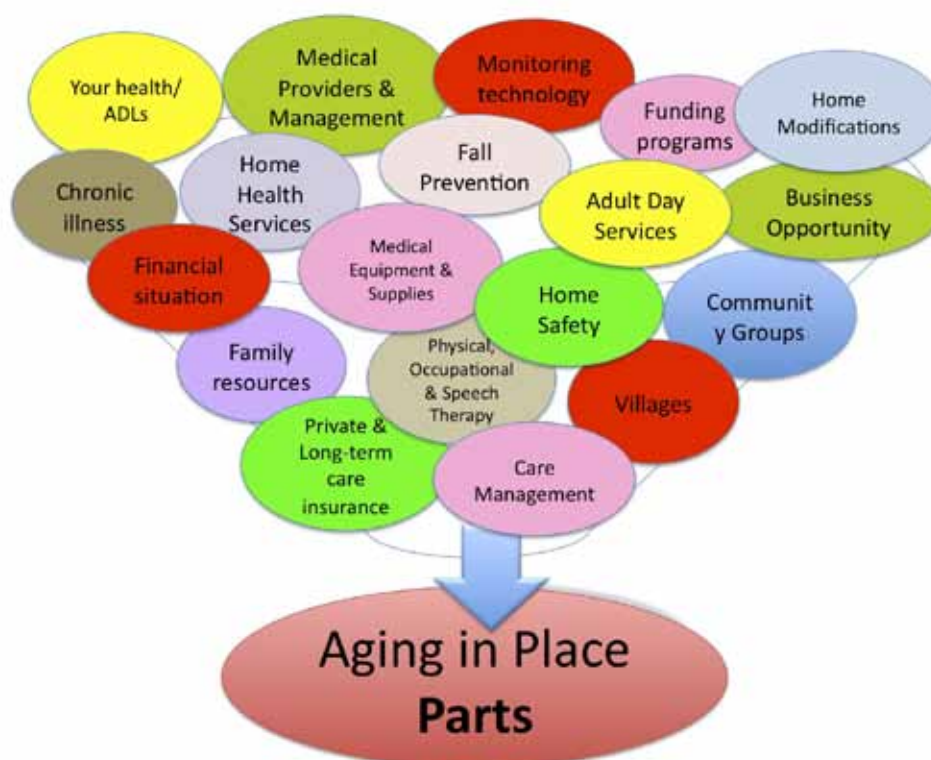


Figure 4-2 Facilities for the elderly

4.2.1) GLOSSARY OF TERMS



Figure 4-3 Active adult community/ age restricted communities



Figure 4-4 Assisted living



Figure 4-5 Continuing care retirement community



Figure 4-6 Trans-generational design

Active adult community/ age restricted communities - Life stage housing in communities for those ages 55 and older that contain health clubs college classrooms and computer labs

Ageing in place - Remaining in one's own home while growing old and modifying the home to accommodate the ageing process.

Assisted living - Housing for the elderly or disabled that provides nursing care, housekeeping, and prepared meals as needed.

Continuing care retirement community (CCRC) - A community that offers several levels of assistance. These include independent living, assisted living and nursing home care.

Dementia/ Alzheimer's care - A specialised skilled nursing care for individuals with dementia or Alzheimer's.

Disability - A complex interaction between features of a person's body and features of the environment and society in which he or she lives.

Impairment - also referred to as limitation. A disability that may be physiological, psychological, cognitive or mental, sensory or a combination of these and may be temporary or permanent.

Independent living - A living arrangement that maximizes independence and self-determination, especially of disabled persons living in a community instead of in a medical facility

Nursing home - A private institution providing residential accommodations with health care, esp. for the elderly

Trans-generational design - Making products and spaces compatible for physical and sensory limitations that may limit major life activities. Glossary (Nussbaumer, 2012:285).

4.3) HARD SPACES

Providing facilities and systems to support the curing and managing of illnesses is the rationale of the medical model. Nursing homes like Huis Davidtsz have been designed to emulate the model set by healthcare facilities. Several reasons have influenced the adoption of the medical model by nursing homes but the primary reason is that in order to receive government funding, nursing homes must offer medical care to the elderly (Dickinson, 2004). Another cause of this aesthetic is the strict safety requirements and codes aimed at keeping residents safe and simplifying the process of medication and treatment of diseases (Strydom, 2012). Applying residential and aesthetic features under this strict legal grid is almost impossible. Limited budgets may be a third cause of aesthetic and residential features being cut (Dickinson, 2004:37).

Spaces that are institutional in nature are described by Roger S. Ulrich as psychologically “hard spaces.” These spaces are stressful and not suited for the psychological needs of residents, visitor and staff. Design elements such as wide doors that accommodate beds, grab rails at the building regulations specified dimensions and surfaces that are easily cleaned produce functionally effective spaces. Recent scientific research however, indicate that these “hard spaces” work against the wellbeing of residents and staff by raising hurdles in the process of coping with stress (Ulrich, 2001:97).

Elements referred to as ‘Stressors’ by Ulrich are found in psychologically hard spaces. These elements add to the burden of the illness or impairment of the resident by causing them additional stress (Ulrich, 2001:97).

Stress experienced by residents of institutional spaces is produced by two sources. The first source of

stress is related to the natural age related impairment. These are usually events, such as reduced physical or mental ability, loss of independence or painful medical procedures. The second source is the environment of the resident, a loss of privacy, a loss of immediate social support from family members and noisy spaces (Ulrich, 2001:97).

The stresses caused by the above mentioned factors manifest physically, psychologically and behaviourally. These manifestations have negative impacts on wellness. Psychological manifestations can include anxiety, delirium, a sense of helplessness and depression. Physiological manifestations such as elevated blood pressure, circulation of stress hormones and muscle tension affect the body (Ulrich, 2001:98).

Behaviour also changes due to stress and negative behaviour such as rebellion against medication can have a definite impact on healing. Except for all the negative impacts of stress on residents, it also impacts negatively on staff and visitors (Ulrich, 2001:98). Stressed staff provides substandard healthcare and uncomfortable, stressed visitors reduce their visitations (Dickinson, 2004). Thus psychologically unsupportive spaces or ‘hard spaces’ provide major obstacles to wellbeing prolong healing time and accelerate deterioration.

Huis Davidtsz can qualify as a hard space due to the following stressors experienced by the residents:

- Reduced physical ability
- Uncertainty
- Painful medical procedures
- Noisy spaces
- Invasion of privacy
- Little social support (Strydom, 2012).

In order to provide psychologically supportive spaces, a theory of supportive design needs to be developed.

Elderly persons moving from their homes into a nursing home are effectively being removed from a psychologically supportive space to a physiologically supportive space. Even though these spaces are designed to primarily support the physical wellbeing of the resident, it becomes abundantly clear that the psychological wellbeing of the resident must also be considered to achieve this wellbeing (Dickinson, 2004 : 38).

Ulrich has performed various quantitative and qualitative studies in which he studies the medical model as well as the residential model in order to understand what makes a space psychologically supportive (Ulrich, 2001: 97). Based on the consequent scientific proof, he has identified three sets of broad criteria which have stress reducing qualities. In order to reduce stress and consequently improve wellbeing, spaces should foster:

1. A sense of control
 2. Access to social support
 3. Access to positive distractions
- (Ulrich, 2001:99).

Scientific research has proven that all human beings have the need to control their environment and to be self-efficient in day to day situations and environments. Thus people have a primal desire to independently move about and adjust their habitat to suit their wants and needs. Environments or situations that cannot be controlled, such as noisy spaces or undesirable temperatures, cause stress (Ulrich, 2001 : 98).

Ageing causes various uncontrollable stress-inducing situations, for example visual impairment or reduced memory (Dickinson, 2004). The environment in which elderly persons reside should not add to the stress which such a person already endures. Physical manifestations of age often cause a lack of control over one's environment (e.g. not being able to open a window due to lack of dexterity). Spaces that the elderly reside in should function in such a way that the widest possible range of residents, with the widest possible range of abilities, can have a sense of control over their environment (Helen Hamlyn Centre for Design, 2011).

Various researchers found that either frequent or prolonged access to supportive and understanding persons has a very positive impact on the wellbeing of people. Individuals who have higher social support indicate lower levels of stress. Frequent social interactions also act as positive distractions (see 4.4.3 access to positive distractions). Very few studies, investigating how spaces can hamper or enable access to socialisation, have been completed in the health facility sector (Ulrich, 2001: 100). Relevant information on how to manage social interaction have, however, been researched by the urban design sector and recently several interested parties have been looking into how the principles of social friction can be applied in an interior application (Petzsch, 2013).

Figure 4-7 A sense of control



Figure 4-8 A sense of control



4.4.3) ACCESS TO POSITIVE DISTRACTIONS



Figure 4-9 Positive distraction



Figure 4-10 Positive distraction



Figure 4-11 Positive distraction

Recent environmental psychology research proposes that modest amounts of positive stimulation provided by the environment can contribute positively towards the wellbeing of a person. The degree and type of stimulation are of paramount importance. Extreme stimulation will become a stressor in itself and add to the stress of the resident, whereas very low stimulation levels will lead to boredom and in turn depression. A lack of distraction will also lead to an overemphasis and awareness of personal stress and discomfort (Ulrich, 2001:102). Sensory deprivation or under stimulation is very common in nursing homes and issues such as repetitive sounds, unvarying lights and lack of views to the exterior can greatly increase delirium and anxiety (Ulrich, 2001:103).

Ulrich describes positive distractions as moderate stimulations that do not require too low or too high interaction. These distractions are environmental elements that make the user of that space experience a positive emotions and divert their attention from what their mind was occupied with. This happens subconsciously without further taxing the individual (Ulrich, 2001:102). Certain types of elements in the environment are vital in terms of wellbeing and have been important to people from the beginning of time. These elements are also the most effective positive distractions. The first of these distractions extends the idea of access to social support as happy, supportive people are the number one positive distraction. Secondly, animal companions also positively stimulate people and thirdly, elements of nature including water, varying light quality, variations in air movement and plants are also positive distractions (Ulrich, 2001:102).

Figure 4-12 Positive distraction, multi-sensory design



especially relevant

in the field of nursing home design, as the design language of nursing homes is a lot closer to that of medical engineering than that of interior architecture (Dickinson, 2004:40).

Universal design is defined as creating products and spaces which are useable by the

widest possible range of people with the widest possible range of abilities, operating within the widest possible range of situations (Nussbaumer, 2012:28).

A contemporary take on universal design, strongly advocated by Graham Pullin, suggests discarding the traditional attempt of universal design to compensate for disability by being as discrete as possible. ‘

The fashion industry has taken ownership of eyeglasses for example. This product designed as a medical implement in moulded pink polymers (which provided a foothold for stigmatising nicknames such as four eyes) has now become such a fashion item that individuals without visual impairment choose to wear spectacles without treated lenses (Pullin, 2009:11). This example of the design culture embracing the strict scientific school of medical engineering, is exactly the type of thinking that is advocated by Mr Pullen and is

What would happen if Tomoko Azumi met step stools, if Philippe Stark met bottom wipers, if Michael Marriot met wheelchairs and Maira Koutsoudakis met the interior of an old age home? This adoption of the field of assistive design by designers would have benefits for both fields, as the high level of technology available in the medical engineering field could have radical effects on mainstream design (Pullin, 2009:183).

Therefore products and spaces designed to aid impaired persons in having a sense of control, should not be flesh coloured, miniaturised or in any way try to subtly indicate that old age is something to hide or be ashamed of.

Huis Davidtsz currently provides minimal facilities to assist age related disabilities. The building was subjected to a universal design access audit based on age related disabilities found among the residents (see appendix p 11-12). The results of the audit are summarised to provide an understanding of the main findings.

The entrance of Huis Davidtsz is placed at a logical intuitive location and reads as the main entrance in terms of spatial hierarchy. The access to the building is particularly insufficient as there is no ramp in front of the main entrance, thus wheelchair bound persons have to use an alternative entrance to the building. The handrail on the stairs does not comply with standards and does not extend beyond the stairs onto the landing. The stairs do not have appropriate contrast between tread and riser and do not have the appropriate stair nosing strip.

The entire building has a lack of signage and identification. The signage in the reception area is not sufficient: there are no multi-sensory way-finding mechanisms, no tactile signage or tactile maps. The reception desk, which is the only source of navigational information, does not have the required height and legroom necessary for a wheelchair bound person.

The foyer is cluttered with interior walls which make it impossible for a first time visitor or someone who has difficulty with interpreting information to form a mental map of the space by means of a panoramic view.

The elevator, which is the primary form of vertical circulation, is not appropriate in terms of universal access. The entrance of the lift is not marked appropriately and does not have the required contrast to make it clearly visible. The lift has no auditory indicators or other visual or tactile signage to describe its use.

There is a lack of external signage and low visibility at night. There is a lack of outdoor signage as well as a lack of outdoor seating. The paving on the exterior of the building has been lifted by the roots of the large tree, resulting in a bumpy floor surface with abrupt level changes. There is no outdoor artificial lighting.



Figure 4-13 Contemporary take on universal design

Inside on the ground floor, an obvious attempt has been made to keep all the floor surfaces level, with minimal transitions between floor finishes. The artificial lighting does not achieve the required illumination levels and there is a complete and utter lack of task lighting. The residents cannot control the lighting.

The interior has a lack of contrast between wall and floor, as well as between wall and ceiling which is required to ease the strain on persons with visual impairment. Handrails have been implemented in all the corridors of the building they are the correct diameter and distance from the wall and from the floor, but they are extremely unattractive and institutional. They are also cold as they are constructed from stainless steel and they cause the users hands to smell like metal.

The doors of many of the spaces are extremely narrow and the sharp edges of the columns make mobility difficult. The ground floor has no wheelchair accessible w/c's and the lighting levels in the interior of the ablution facilities are too low. Televisions cannot be controlled by the residents and become an over stimulating distraction. There is also a lack of communication mechanisms such as computers and television.

These principles are obviously important for any design project, but become fundamentals in the design of spaces for the elderly. Even though it is important not to overemphasise the age related impairments of the elderly it is also important to provide the residents of Huis Davidtsz with a sense of control over their environment (Ulrich, 2001). Thus, the principles of universal design embraced by the design culture of interior architecture, as advocated by Graham Pullen would provide an ideal design strategy.



Figure 4-14 Contemporary take on universal design

4.6) SOCIAL FRICTION AS TOOL TO STIMULATE SOCIAL INTERACTION

4.6.1) INTRODUCTION

A theory that works with the ritual of interaction, social contact and engagement is investigated as a design strategy. The chosen theory is social friction and stems from urban design principles which find new modes of expression in interior design applications.

Social friction is the use of productive confrontation and conflict in order to create awareness of variances in community groups by means of social engagement. This study also investigates how the social interaction in interior spaces can be enhanced by means of social friction techniques. In this context, conflict is used as a positive attribute; thus conflict is not seen as violence but as a method of stimulated interaction or confrontation. Differences in community structure and the healthy conflict between these different groups are what cause social friction and thus friction cannot

exist in a monotonous community (Kachwalla, 2010 : 39).

“Experiencing the friction of differences and conflicts makes men personally aware of the milieu around their own lives...” (Kachwalla, 2010 : 4)

Social friction has an inclination to decelerate the rate of circulation of spaces. It facilitates stoppages and loitering which can sometimes be desirable and sometimes be disagreeable, depending on the program of the space and the needs of the user. The process of movement or reaching a destination is slowed down in order to stimulate social interaction and the exchange of ideas (Petzsch, 2013:52).

4.6.2) THE SOCIAL CONTEXT OF SOCIAL FRICTION

Mechanisms to inspire exchange between different social groups have been identified by urban theorists and they are: contact points, collision points and social strands (Kachwalla, 2010). These mechanisms are introduced in order to explain the social consequences of social friction applications.



Figure 4-15 Productive confrontation

4.6.2.1) CONTACT POINTS

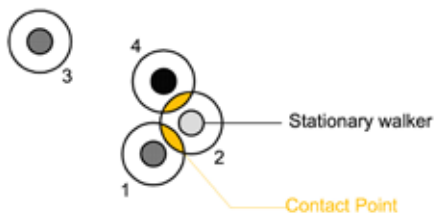


Figure 4-16 Contact points

Contact points are nodes where individuals can confront one another and where the differences of these individuals are engaged. These nodes facilitate social interaction and generally coincide with spaces that occupy a social overlap. These points also allow various groups to enter into social relations and act as gateways into fresh social experiences. Thus contact points are created when two or more social groups overlap. Contact points do not only facilitate a knowledge transfer between social groups, but also forms the place of birth of a new social group as a result of the different groups intermingling (Kachwalla, 2010:20).

4.6.2.2) COLLISION POINTS

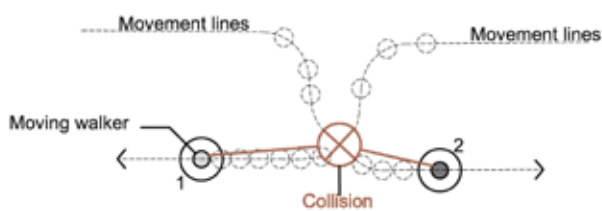


Figure 4-17 Collision points

Manipulating the movement patterns of different social groups can provide collision points. Collision points provide for give-and-take between individuals while they are moving. These planned collision points are a direct result of the intersecting of the movement patterns of different social groups. Collision points make use of the mixed movement and activity patterns of various social groups within a space to encourage the exchange of ideas. Collision points are not the same as contact points, even though they both incorporate the confrontation between different social groups. While contact points are caused by an overlap of different social groups in areas of low mobility, collision points provide nodes for exchange while experiencing movement between nodes (Kachwalla, 2010:21).

Areas that possess a number of intersections between various mobility options are the areas that develop collision points. This variety of intersections and activity patterns provide many opportunities for friction to develop between the users of the space, as they move together, parallel with and against each other. As the name suggests collision points may cause a state of collision such as abrupt stoppage or a sudden deceleration of the intersecting activity patterns (Kachwalla, 2010:21).

4.6.2.3) SOCIAL STRANDS

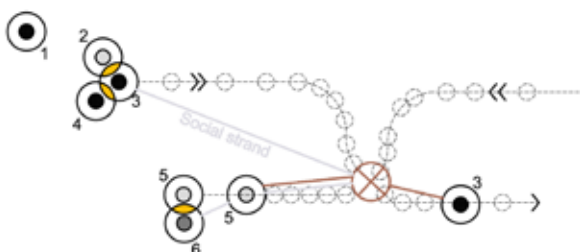


Figure 4-18 Social strands

Social strands are links that intertwine through multiple districts and connect these different areas. These strands connect contact points and collision points in order to form a link between different social groups. Social strands facilitate a knowledge transfer between these social groups. The diversity of options of the surroundings of a social strand, will directly affect the continuity of a social strand. If a space has a diversity of functions and options, it also has a diverse range of users and those users are not confined to that specific area but can cut through the boundaries of spaces. Thus diversity and choice plays a key role in the use of social strands to form an exchange between two different social groups (Kachwalla, 2010:25).

4.6.3) TYPES OF SOCIAL FRICTION

The above mentioned mechanisms discuss the various catalysts for social friction now the different types of social friction will be discussed. These forms of friction are dependent on spaces with a semi lattice structure; that means a space with a high level of social overlap like a city. An example of such a semi lattice structure can be found at an intersection between two streets. There is a drugstore on the corner of the intersection adjacent to the traffic light. The drug store has a rack of newspapers in the window displaying the headlines of the week. The users of the space wait at the traffic light in order to cross the intersection. While they wait, some people read the headlines while others buy a newspaper. The traffic light and intersection then obviously have a great influence on the newspaper sales. The individual parts of the semi lattice structure that is this intersection, create various occasions for exchange and is an example of how individual parts of a system work together (Alexander 1965:58).

4.6.3.1) MANIPULATED FRICTION

When two or more individuals interact with one another physically and exchange thoughts it is called manipulated social friction. Thus contact points and collision points play a large role in manipulated friction. This type of friction is a socially dependant occurrence and is a social function organised by the strategic employment of voids and solids in space design. Structuring solids around voids in various ways will provide opportunities to create zones of friction inside the voids (Kachwalla, 2010). In the example, manipulated friction would occur between the people waiting at the traffic light (Alexander, 1965:58).

4.6.3.2) VISUAL FRICTION

A variation in the user's line of sight that causes the user to engage with his or her surrounding is the core principle around which visual friction works. The word "view" in terms of visual friction means more than just seeing or witnessing it - is redefined to mean becoming aware of diversity and has the ability to distract the user and capture his or her attention. Visual friction can therefore be defined as an interaction or an engagement that was stimulated by visual interaction (Kachwalla, 2010 : 36). In terms of the example, visual friction is stimulated by the newspaper rack (Alexander 1965:58).

4.6.3.3) INDIRECT FRICTION

Indirect points of exchange result in indirect friction. This means that the two different users receive similar information from the public character of the space, and an invisible social strand connects them (Kachwalla, 2010). In terms of the example, indirect friction would occur between the owner of the drugstore and two of his customers if the store owner were to share information that he gained from one customer with another customer (Alexander, 1965:58).

4.6.4) SOCIAL FRICTION APPLIED IN INTERIOR DESIGN

The example of a semi lattice structure used to explain the types of social friction took place in an urban environment but recently it has been proven that interior spaces with a high level of diversity can have high levels of social friction that stimulate social interaction (Kachwalla, 2010 : 56). Just as urban elements are used as a catalyst to stimulate social friction in an urban environment, interior elements can be used to inspire social friction in an interior environment (Kachwalla, 2010 : 58).

The corridor, the passage, the staircase (or ramp) and the elevator are interior architectural elements that can stimulate social friction in terms of circulation. The open plan room, enclosed room and wall openings are elements used for social friction in terms of spatial arrangement. The type and level of interaction of these elements should be analysed in order to determine to what end they should be used in public and private spaces (Kachwalla, 2010).



Figure 4-19 Coffee nook could be contact point

A passage has the same friction characteristics as a pathway in an urban setting, as they both have flexible invisible margins and in both cases social connections are formed while people are traveling from one destination to another. Passages have a large capacity for collision points due to the movement patterns, but also for contact points due to the access into adjacent activity spheres. The space that the passage embodies is defined by the movement and the activities of its occupants as it houses an overlap of activities. The passage stimulates visual friction due to its views into adjacent rooms and manipulated friction due to its stimulation of visual friction (Kachwalla, 2010 : 60).

A corridor is the opposite of a passage - it is mainly a mechanism of movement. A corridor connects a number of entrances and is designed to stimulate quick movement and low social friction. A corridor does provide small opportunities for collision points if there are doors opening into the corridor. The visual complexity of corridors is low and the solid walls that flank them are designed to facilitate fast moving or very private spaces. Elevators are like vertical corridors; they remove the occupant from one spatial encounter and replace them in another with very little social interaction in-between (Kachwalla, 2010 : 62).

The opposite of these are the open staircase or ramp and the passage. These interior elements maximise the overlapping of activity spheres and stimulate visual, manipulated and indirect friction. As the other elements have open flexible parameters, they provide an opportunity for functional overlap and for a visual link through spaces that also stimulates social interaction.

An open staircase has strict physical boundaries but the voids and the visual links that surround such a staircase facilitate friction. In order to create private or working environments, a low level of social friction is required. In order to achieve this, solid boundaries should be applied. Softer boundaries or, implied boundaries, are used in spaces that attempt to stimulate social interaction.

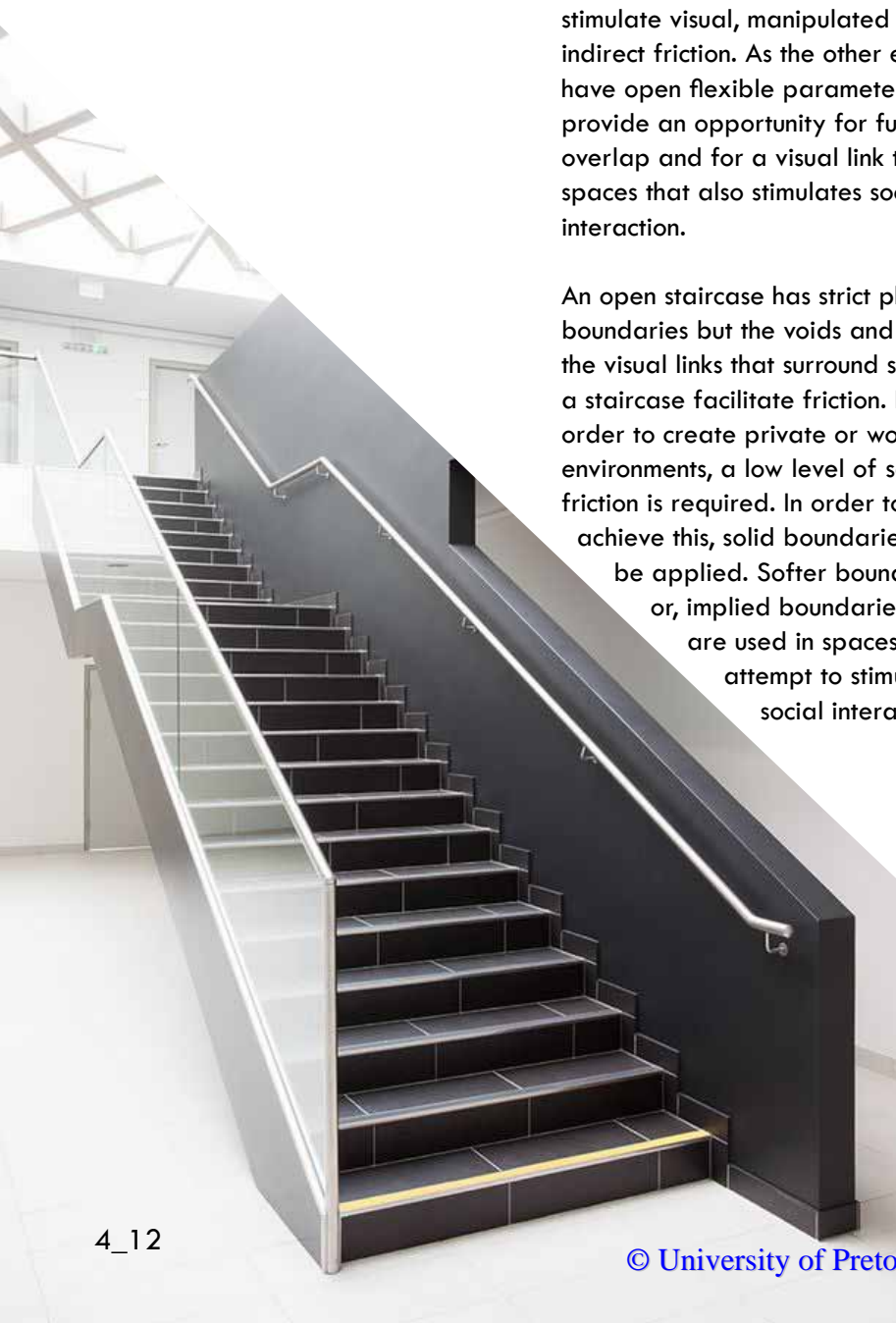


Figure 4-20 Open staircase

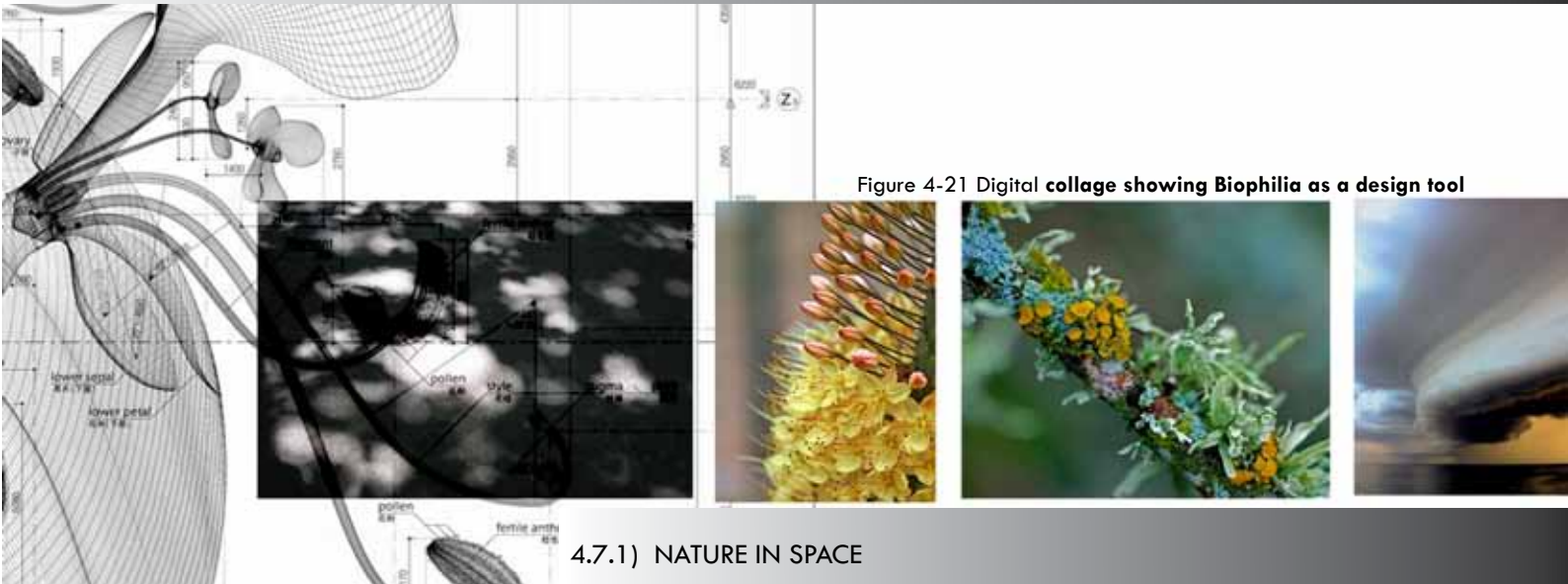


Figure 4-21 Digital collage showing Biophilia as a design tool

4.7.1) NATURE IN SPACE

Nature is a multi-sensorial experience, but the effects of nature on health have only been investigated in terms of the visual component of the human senses. Designers and planners have been introducing views into nature into space design since the days of the Roman Empire, intuitively believing that it has a stress reducing effect. This intuitive notion has recently been tested and researched by various fields (Ulrich, 2001 : 99).

There are three ways to apply visual biophilic touches to interior spaces. The first application is known as nature in space and are direct connections to nature and refer to incorporating nature elements such as plants, animals and water into interior spaces. Water features, aquariums, interior gardens and potted plants are examples of nature in space (Almusaed, 2005).

Lastly, it is important to use the biophilic elements to its maximum sensory potential: employ colours, smells, sounds and textures to stimulate the senses of the residents. Research has also shown that allowing residents to share in the responsibility of the care of plants (known as horticulture therapy) provides a sense of ownership and adds meaning to everyday tasks (Almusaed, 2005).

Natural views have been proven to increase the rate of patient recovery when compared to urban views. Roger Ulrich proved this by research done on the recovery process of patients who had undergone gallbladder surgery. In 1984 he found that patients exposed to nature left hospital 7.96 days after their surgery while patients exposed to urban scenes were only released after 8.71 days (Ulrich, 2001 : 100).

4.7.2) NATURAL ANALOGUE

The second method is more abstract and revolves around introducing biophilia without necessarily using living organisms. This method is called natural analogues and refers to ornamentation, representational artwork, biomorphic forms and the use of timber, stone and other natural materials (Almusaed, 2005).

When employing natural elements such as plants into an interior application, it is always important to ensure that these do not cause any negative effects like mold and fungi or pollen that could cause allergic reactions (Almusaed, 2005).

The school of thought which believes that people have an instinctive need to be connected to nature is known as Biophilia, which argues that people are intrinsically influenced psychologically, physiologically and behaviourally by nature. Research has proven that biophilic elements in interior design have positive influences on the inhabitants of those interiors. These elements can be as simple as the introduction of non-threatening animals, plants, water or increased day lighting (Ulrich, 2001:100).

4.7.3) NATURE OF THE SPACE

The third application is called the nature of the space and revolves around the type of spatial design and spatial configuration. Research has proven that human beings have a preference towards savannah-like spaces and thus interior spaces should represent that with open horizontal planes (Almusaed, 2005).

Human beings and nature are intrinsically connected, living systems and natural rhythms bind us and gives us a sense of calm in times of stress. Nature provides a positive distraction from the anxiety associated with nursing homes and offers a refreshing respite from the dullness of institutional facilities. Incorporating humans and their health as part of the environmental equation of sustainable design makes for positive healing environments (Loder & Smith, 2013).

Combining the three methods explained above will produce a very effective biophilic interior and all the associated positive effects of such an environment.

4.8) CONCLUSION

Huis Davidtsz is a psychologically unsupportive space. This needs to be address by providing a sense of control over the environment, access to social support and access to positive distraction.

The abilities and impairments of the residents of Huis Davidtsz have been analysed in Chapter Two and Huis Davidtsz has been subjected to a universal access audit. The results of this audit indicate the age related impairments of the residents. In order to widen the range of control the residents have over their environments, certain barriers have to be removed from the interior of the building, while certain design aids also have to be implemented.

Access to social support would be improved by the incorporation of social friction techniques that were developed in the field of urban design and translated to be used in interior design. Contact points, collision points and social strands are employed in order to encourage or discourage social interaction.

Natural elements introduced into the interior produce healthy, low interaction distraction. This can be achieved either by means of natural elements, natural analogues or spatial configurations that emulate nature settings.

CHAPTER FIVE

PRECEDENT STUDIES



Figure 5-1 Residências assistidas em Alcácer do Sal

5.1) INTRODUCTION

This chapter investigates architectural, furniture and interior precedents by means of critical analysis. This method places emphasis on typology, spatial organisation, theory and adaptive reuse. These main areas of focus can be more specifically explained as places and products for the elderly, which function in terms of a privacy gradient between public and private space, based on the theoretical principles of psychologically soft spaces and interventional design.

The goal of the use of precedent studies is to find ambiguity in design problems and to subsequently solve them. A process of critical appreciation is applied to the precedent in order to inform the design of the new item.

5.2) RESIDÊNCIAS ASSISTIDAS EM ALCÁCER DO SAL

Architect: Aires Mateus arquitos
 Date of completion: 2010

This project is a nursing home in Portugal. It is relevant to the study because of its similar programmatic nature. The project also places emphasis on the needs of the specific micro-society that lives in the nursing home, not only their physiological needs but also their psychological needs. The project attempts to overcome the stigma generally associated with nursing homes, but fails because of reasons to be discussed.

5.2.1) PROGRAMMATIC SOLUTIONS

According to the architects, *Residências assistidas em Alcácer do Sal* was designed to mediate the tension between private and public space always present in institutions such as nursing homes. The aim of the project was to answer the needs for social interaction while also not forgetting to facilitate the need for solitude. This building is located on a hillside in a historical town in Portugal named Alcácer do Sal (Warmann, 2011).



Figure 5-2 *Residências assistidas em Alcácer do Sal* by Aires Mateus arquitos



Figure 5-3 The folded plan incorporates semi-encircled outdoor spaces

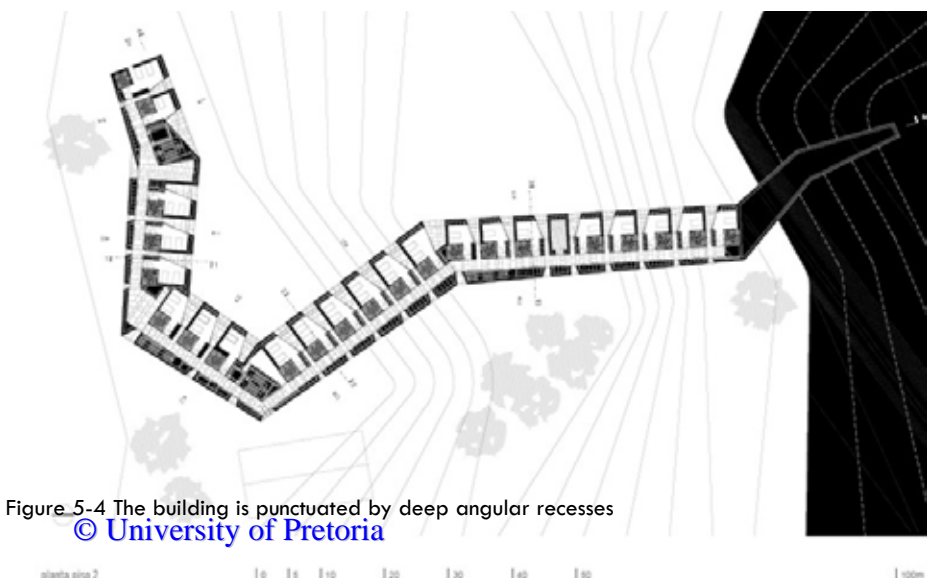


Figure 5-4 The building is punctuated by deep angular recesses



Figure 5-5 Each room is oriented towards a private patio and connected to the exterior by means of an oblique window wall



Figure 5-6 Stereotomic building



Figure 5-7 Each room is oriented towards a private patio and connected to the exterior by means of an oblique window wall



Figure 5-8 Glass and mullion-free façade

The long low rise building is folded in order to create semi-encircled outdoor spaces. The sloped site provides access to the roof of the building, turning the roof into a private outdoor space and a journey. (Warmann, 2011)

The building is stereotomic in nature but is punctuated by deep angular recesses that function as outdoor patios connected to the individual living units. Each room is oriented towards the mentioned private patios and connected to the exterior by means of an oblique window wall. This ensures lots of natural light without solar heat gain in the interior and an interesting glass and mullion-free façade.

Living units function independently and are separated by a pathway that distances the units by means of exaggerated notches. These independent units are bound together by a very clear modernist design language to form a collective spatial expression. This configuration allows the residents to select private or public space for both interior and exterior activities. (Warmann,2011)

The entire building is moulded from the natural topography of the site in order to specifically define the exterior social space of the nursing home and to clearly indicate which spaces are private and which are public.

The entrance of the building is located on the side closest to the local town and it leads the user to a lobby that has the generous aesthetic associated with hotels. The lobby leads the user to stairs, meandering corridors and finally to the individual living units. Thus the building has a definite privacy gradient.

Vernacular materials were utilised to construct the building instead of high-tech custom made materials. The building is aesthetically abstract and modern but is also true to the regionalist style and tradition of the area (Warmann,2011).

Figure 5-9 Moulded from the natural topology



5.2.2) PSYCHOLOGICAL NEEDS

Chapter four describes the three requirements for psychologically supportive spaces as being: the ability to control one's environment, access to social support and positive distraction.

Path and journey are dominant themes of the design and the reduced mobility of the user is embraced by providing a different emotive experience with every displacement, moving slowly is therefore celebrated. This, and the definite connection to nature formed by the outdoor spaces, can be quantified as positive distractions.

The project is specifically focussed on the lifestyle and social needs of the elderly user group. The architects describe the client as a group with their own rules. The relationships that exist in the community moved the designers to experiment with the boundaries between public and private space in order to respond to community life and private life, thereby providing opportunities to access social support.

The openings in the façade which have so many advantages do cause the building to become quite elongated, but since they are not merely decorative elements but contribute significantly to the quality of the individual living units, this seems appropriate (Warmann,2011).

5.2.3) INSTITUTIONAL NATURE

The architects describe the building as being midway between a hospital and a hotel. They also state that the variation in the expression of the structure of the building expresses the individuality of the residents.

Nursing homes have specific requirements and the overemphasis of these physiological requirements such as ramps and grab rails has led to an overemphasis on utility and in turn the institutional aesthetic associated with the elderly. Designers are starting

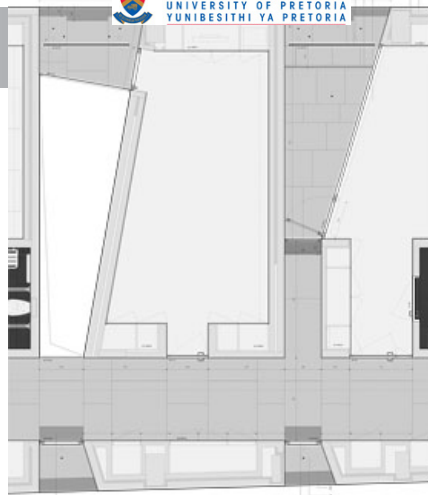


Figure 5-10 Experimenting with the boundaries between public and private space

Figure 5-12 Midway between a hospital and a hotel



to address this problem by means of projects such as Residências assistidas em Alcácer do Sal, and as a natural reaction to the institutional aesthetic these designers tend to create spaces that are visually appealing. Even though this project ticks all the boxes in terms of psychologically supportive space design and produces a beautiful sculptural building, it doesn't solve the problem.

The problem with nursing homes is that elderly adults are being removed from a natural residential situation and placed into an unnatural institutional situation. Therefore it's not only the institutional aesthetic that is an issue, but also the lack of residential aesthetic and qualities. Not having the ability to take ownership of the space in which one dwells by scattering it with small personal imperfections, is part of

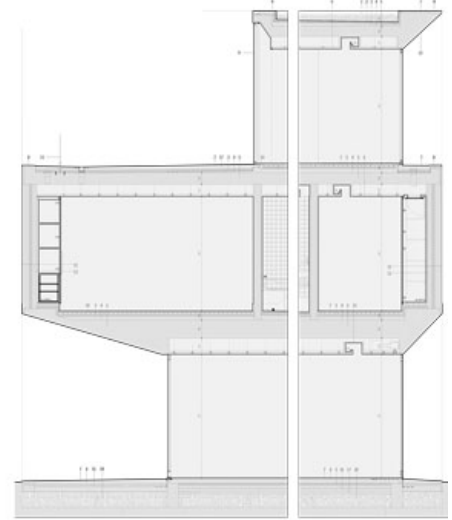


Figure 5-11 The building is punctuated by deep angular recesses

Figure 5-13 Midway between a hospital and a hotel



Figure 5-14 Lack of opportunities to take ownership



what makes a nursing home an unnatural environment. One can almost argue that this project with its clean pure formalism intensifies the problem instead of solving it (Warmann,2011).



Figure 5-15 Norra Vram by Marge Arkitekter

5.3) NORRA VRAM

Architect: Marge Arkitekter
Date of completion: 2006

This project consists of a 19th century mansion in Skane Sweden that housed a nursing home but could not fulfil the requirements of the residents, staff and visitors any longer and had to be altered and extended by Marge Arkitekter. This project is not only relevant in terms of typology and function but also in terms of intervention techniques and altering a building to become friendly towards an elderly user group without becoming a psychological hard space.

Analysis of nursing homes, how they generally work and the social impacts of their design were the starting point of this project. The specific target group of Norra Vram was analysed and this target group included the residents, their families and the staff. Providing meeting spots for the various groups and stimulating social interaction became a very important factor. Mediation between private and public space had to be introduced in order to stimulate interaction without leaving the residents exposed and lacking in privacy. Environments such as coffee shops, hotels, museums, private homes and offices were analysed to find functions that could improve on the traditional model of nursing homes (Mattsson, 2010).

5.3.1) PROGRAMMATIC SOLUTIONS

Due to a growth in residents the existing building of Norra Vram grew too small and could only be utilised for short term residents. New accommodation for long term residents had to be provided (Mattsson, 2010).

Various forms of extensions and addition to the building was investigated but due to the nature of the structure and the aesthetic of the area it was decided that the existing

building would be accompanied by five mews placed in such a way to form courtyards between them.

Instead of corridors the various rooms are connected by means of courtyards and communal spaces. A clearly defined entrance is welcoming and allows for intuitive use so that the residents can remain independent for as long as possible. A library exhibition space and coffee shop were also included to provide variety and possibilities for positive distraction.



Figure 5-16 Mews placed in such a way to form courtyards between them.



Figure 5-17 Welcoming entrances allow the residents to maintain independence

5.3.2) COMMUNITY PARTICIPATION

Communication and a close relationship between architect and client are what made this a successful project.

The director of Norra Vram commended the architects on involving the staff from the onset with the project. The experience of the staff and their knowledge of the process of the day to day happenings of a nursing home were utilised by allowing them to give input on design decisions. Throughout the construction of the additions the existing building continued to function and residents and relatives could witness the whole process of construction (Mattsson, 2010).

“We focused on the target groups who would be staying in the accommodation. It was both relatives and staff, but most of all the accommodations that you did research on.” says Susanne Ramel, one of Marge’s four founders (Marge, 2010).

5.3.3) PSYCHOLOGICAL NEEDS

“It’s very important for people, some of whom may be quite ill, to recognize themselves – to move somewhere similar to where they came from,” says Susanne Ramel, one of Marge’s four founders (Marge, 2010).

According to the architect the psychological wellbeing of the residents was the most important factor of the entire intervention. She states that it is of paramount importance for persons moving into a nursing home to feel a familiarity towards the space. The nursing home should be similar to where the person comes from and should be residential in nature so that the person feels at home.

The above mentioned principle is ever present in every detail of Norra Vram’s design (Mattsson, 2010).

Instead of corridors the various rooms are connected by means of courtyard



Figure 5-18 The interior is residential in nature

spaces. The courtyard green spaces are so accessible to the rooms that they provide opportunities for some of the more ailing residents to spend time outside.

Norra Vram is zoned into three wards: the first ward houses the shortterm residents, the second ward houses persons suffering from dementia while the third ward houses persons who are physically or mentally impaired. These zones exist to ease the process of caretaking but the various wards are connected by courtyards so that the various residents still interact. This intermingling of residents is important for social friction.

The intervention was equally focussed on the staff, the residents and the visitors and aimed to create architectural conditions that would allow these groups to socialise with ease, while also allowing them to feel comfortable and at home. The juxtaposing of rooms and communal spaces allow for the elimination of long corridors in favour of views and stimulating spaces.

Research was done on how spatial perception could be affected by the

ailments that the residents suffer from and decisions were made according to the findings of the research. For example in the residential areas, such as the rooms, the ceiling height was designed to be unthreatening and on a human scale, whereas the ceilings of the communal spaces are double volume and all entrances are articulated clearly to stimulate intuitive use.

The smaller outdoor spaces are protected and private so that residents can use them without supervision or fear of getting lost. A terrace behind the house is also sometimes utilised for outdoor naps (Mattsson, 2010).

The residents of Norra Vram describe the space as stimulating and vibrant and very active in terms of social interaction. The fact that the living units are oriented towards the courtyards provide many opportunities for visual friction as people can watch others through their windows. This daily bustle and activity is embraced by the layout of the building because it is important to the wellbeing of the elderly to still feel part of the day to day activities of the world.

5.3.4) INTERVENTION TECHNIQUES

Old Swedish farm houses were used as inspiration for the aesthetic of the nursing home, as this aesthetic was also selected to compliment the surrounding neighbourhood and the existing brick building. Elements such as the low pitched sloping roofs and the low volumes as well as the main house with the various mews link to the idea of a farm house, yet the flowing interior spaces are very contemporary. Various shades of rust colours were painted onto the plastered buildings to celebrate the red brick shades of the existing building.

The furniture used in the interior of Norra vram are residential in nature.



Figure 5-20 Architectural model of individual mews (inspired by Swedish farm houses)

They are simple, well selected pieces that provide the interior with a modern, sophisticated aesthetic

without leaving it cold and institutional in nature. Norra vram doesn't look like a hotel or a hospital or a nursing home, it looks like a home.

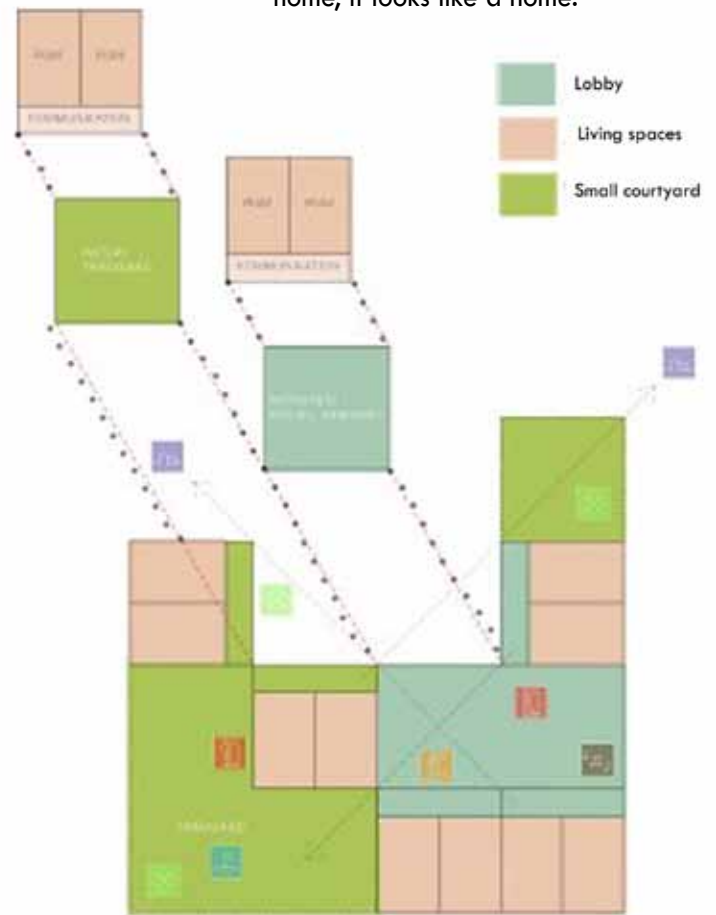


Figure 5-19 The conceptual process of the alteration



Figure 5-21 Norra Vram is zoned into three wards to ease the process of caretaking

5.4) NO COUNTRY FOR OLD MEN DOMESTIC PRODUCTS

Date of completion: currently in prototype phase.



Figure 5-22 T- cane, a walking stick with an attached tea tray

NCFOM is a domestic product range designed by Lanzavecchia+Wai. These products are relevant to the study because like the study, they address all the needs of their users, not just their physiological needs. The walking aid they designed is named Together and is said to be a 'walking aid for living not just mobility.' Modern lifestyles tend to move away from the very separate independent activity spheres. These spheres blur and mingle. The television and traditional living room is no longer the centre of the house around which everything else is placed; modern devices move with the user. The Together walking aid consists of three varieties for three personalities, namely the T, U and I-caness. These caness provide walking support but



Figure 5-23 U-cane used for knitting

also aid the elderly in living like contemporary dwellers by carrying tea, magazines or a tablet with them.

The T- cane is a walking stick with an attached tea tray so that a person who has difficulty walking can still easily and comfortably serve tea while leaning onto a beautifully designed, tactile walking aid. Standard walking aids tend to have a clinical feel that makes them seem unnatural in a home, but the residential materials like marble and timber used in these products integrate them into a homely aesthetic and make them domestic in nature.

The second format of the Together caness is the U-cane which has a basket connected to the bottom of



Figure 5-24 'Assunta', a seat that aids the user in standing up

the cane that can be used to move anything from magazines to knitting gear with you.

I-cane is described by the designers as a product for "Elderly 2.0" and contains designed slots that allow the user to prop a device such as a tablet into a comfortable viewing position.

These products attempt to allow for multi-faceted personalities, needs and wants instead of just the physiological needs of the elderly, and in doing so, illustrate a paradigm shift from designing for the elderly as a group to designing for people who happen to be old (Etherington, 2012)

Reduced endurance, stability, mobility and strength are typical manifestations of the natural decline of muscle tone due to the ageing process. These decreased abilities can make actions such as getting up from a seat very difficult. Assunta is a seat that aids the user in standing up. This beautiful modern chair utilises the bodyweight of the user as leverage to get them out of the

chair. The user would step onto a floor bar, hold on to the arm rests and tilt the chair forward. The contemporary form and materials of the chair places it firmly in the domestic furniture realm as opposed to a medical device.

Long term use of a computer screen, ageing as well as various other causes can result in the deterioration of eyesight.

Monolight is a lovely sculptural table lamp with an LED light component in a lightweight aluminium frame which also encases a magnifying screen. All of these components fit into a marble base cut to form a dodecagon which allows the lamp to be angled to various degrees depending on the need for illumination and magnification. (Etherington, 2012).

Figure 5-25 Monolight table lamp



Figure 5-26 Lightweight aluminium frame which encases a magnifying screen

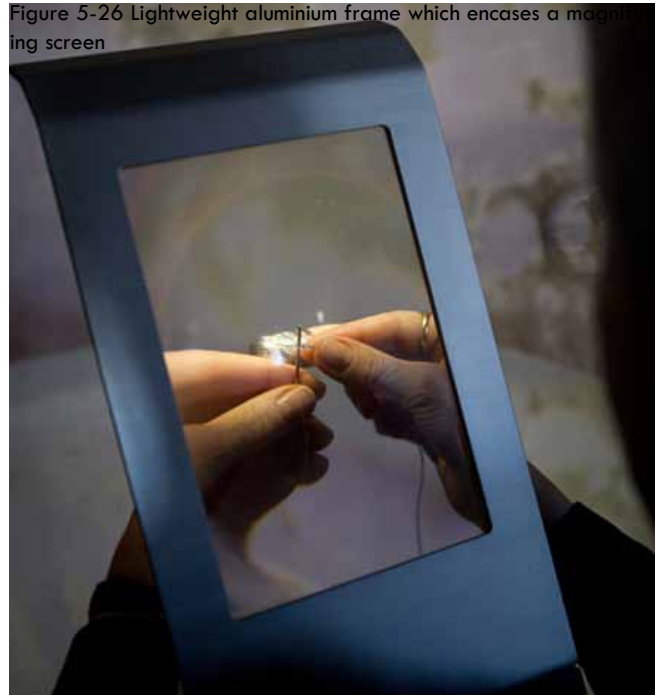


Figure 5-27 Monolight table lamp provides illumination and magnification

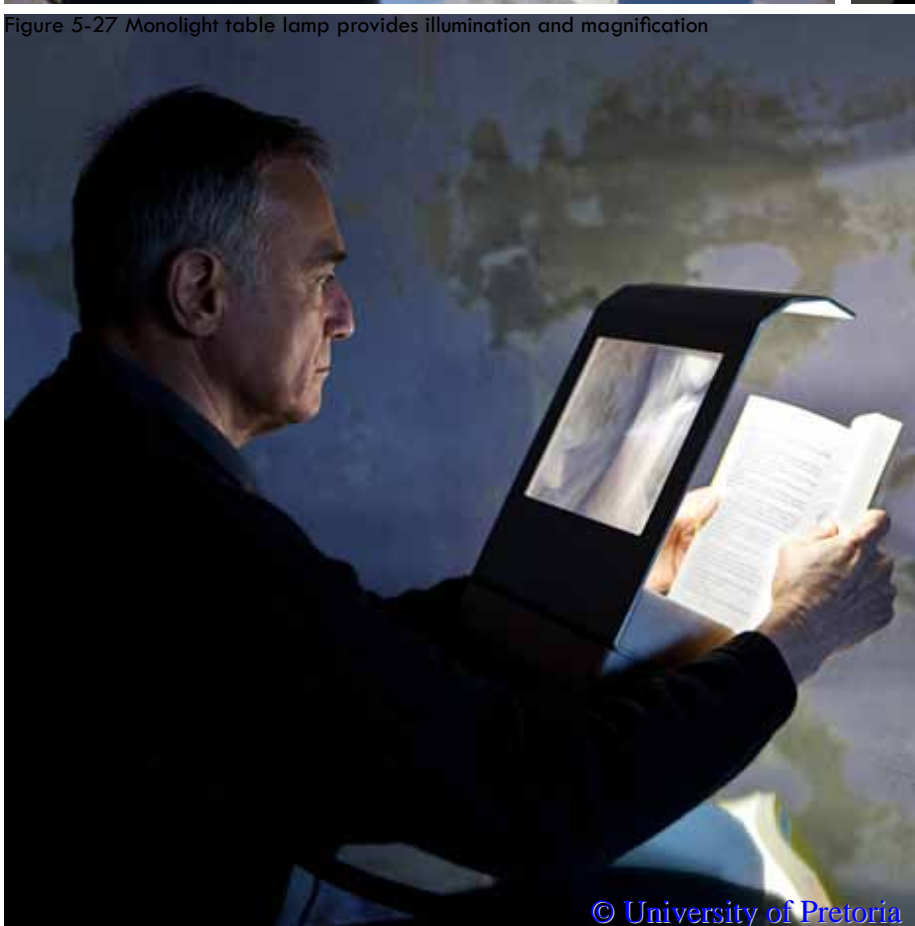


Figure 5-28 Marble base cut to form a dodecagon which allows the lamp to be angled to various degrees



5.5) ANCHOR CENTRE FOR BLIND CHILDREN

Architect: Davis partnership architects
Date of completion: 2007

The Julie Mcandrews Mork building in Denver, Colorado was designed with the aim of teaching blind children how to cope with their lack of sight by embracing their other senses. Even though this is not a typological precedent; it is relevant to the study due to the manner in which disability is used as a design informant instead of a design parameter. This establishment incorporates a braille trail, a cane walk lane and various textured floor finishes that aid in way-finding, also allows travellers to user various speeds without obstructing one another (Nussbaumer, 2012: 220). It is these elements that need to be investigated in order to apply the principles to the current study as these methods of way finding that stimulate intuitive and independent movement will also be applicable in space for the elderly.



Figure 5-29 A LightWalk strip this aids children who can differentiate between light and shadow

5.5.1) WAY-FINDING

Turning into the parking lot of the Julie Mcandrews Mork building is the start of an acoustic journey. Concrete rumble strips notify blind children that they have arrived at their destination and so form the first acoustic navigational tool.

The second space on this multi-sensory journey is the entrance of the building which houses a storage for carseats and strollers as well as a quiet zone which allows the parents and children

to achieve a sense of calm and connection. This space leads into the main corridor which acts as a spine that connects all the classrooms. This simple configuration makes navigation simple and is designed in such a way as to improve way finding. The floor finish in the hallway alternates between timber and tiles. The difference in sound when traveling over a different floor finish tells the children that they are adjacent to an entrance of a classroom.

On the northern side of the corridor a trail rail indicates a nearby classroom by means of notches that form a pattern. Natural light is simulated on the floor of a LightWalk strip. This aids children who can differentiate between light and shadow (Nussbaumer, 2012: 220).



Figure 5-30 A section of Anchor Centre for Blind Children to indicate the various zones of the building

5.5.2) PROGRAMMATIC SOLUTIONS

Coloured sky-lights are utilised to indicate the various classroom spaces. These are referred to as pods and are collections of rooms on various sides of the corridor. The first pod has windows tinted blue and is the host of a quiet space, an infant space and a kitchen and dining room for the children. These spaces are used to teach the preschool children basic life skills and are to the children's scale so as to simplify the teaching process. The yellow tinted pod houses a stage, a classroom, a light room, a fine motor skills centre, an eye examination and testing centre and a literacy classroom for the teaching of braille.

The third pod has red sky-lights and contains a activity room with a hardwood floor and a rubber floor for various activities as well as a sensory gym which contains a tree house. Informal lounges are located in-between the pods and these spaces act as pause spaces as well as lockers and spaces for storing canes. As the program of this building is

vastly different to that of the study, the functions of the rooms are not that relevant but the spatial arrangement of grouping various functions together in order to provide easy to navigate intuitive space is useful. The provision of pause spaces to allow the users to rest between activities is also an important and applicable design feature (Nussbaumer, 2012: 220).



Figure 5-31 Tinted windows aid way-finding

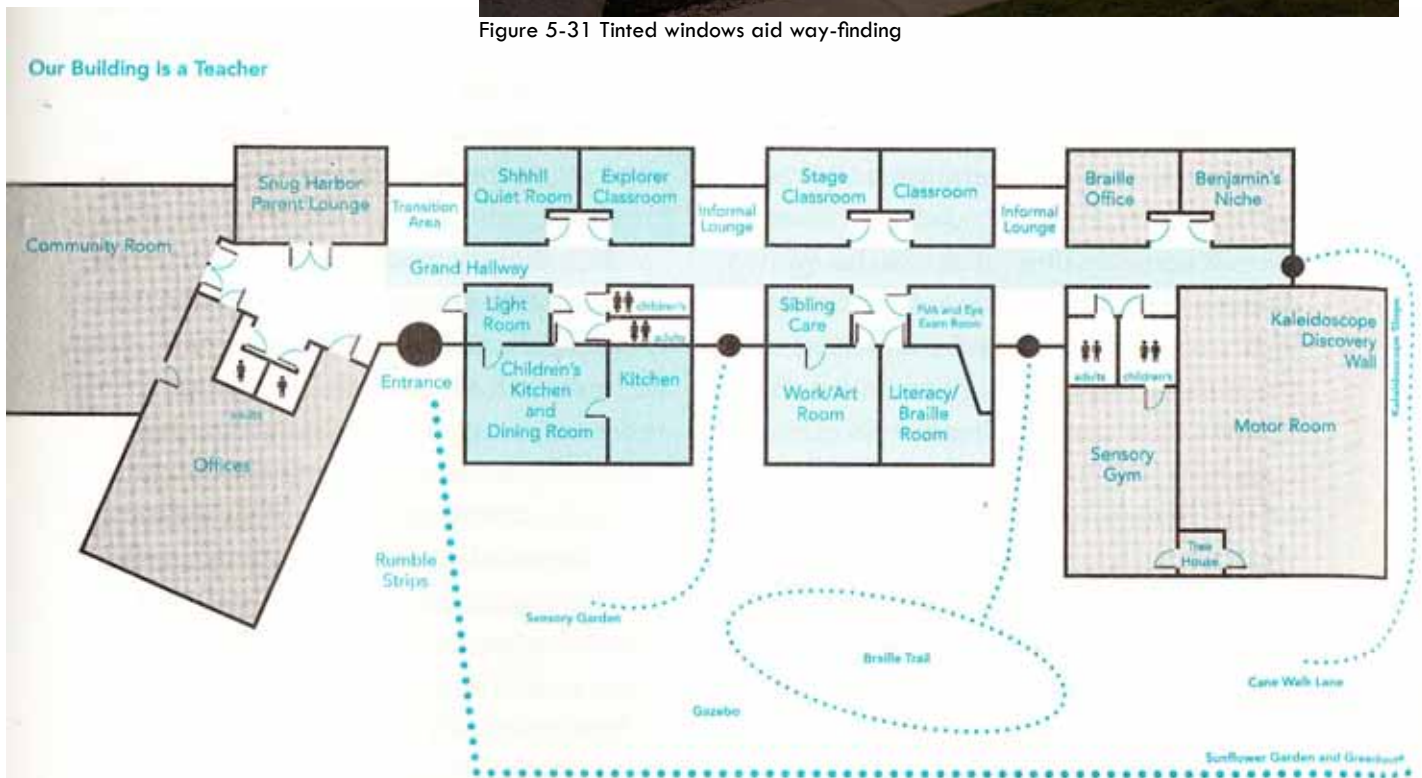


Figure 5-32 Floor plan of Anchor Centre for Blind Children to indicate the various zones of the building

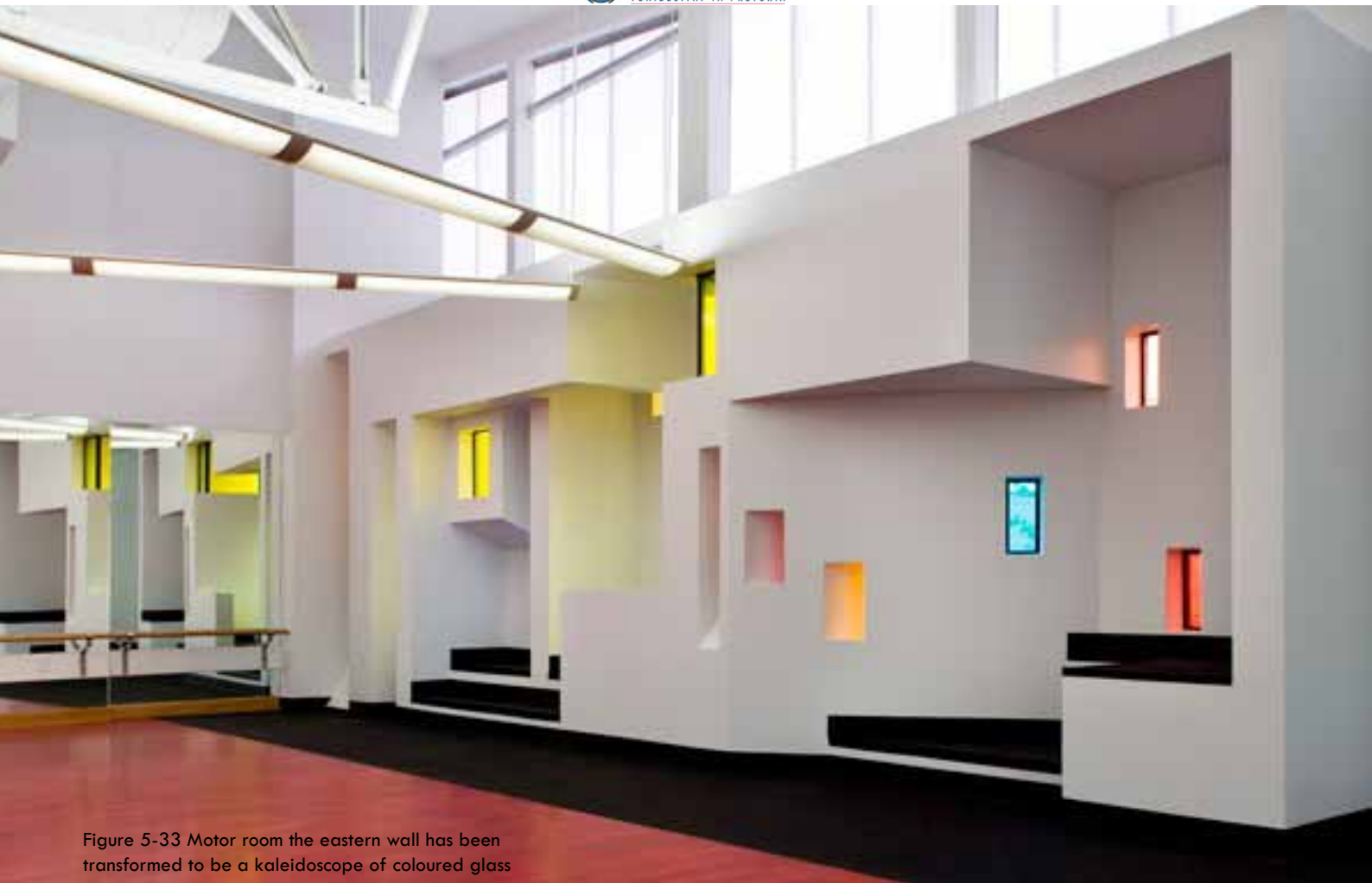


Figure 5-33 Motor room the eastern wall has been transformed to be a kaleidoscope of coloured glass

5.5.3) MULTI-SENSORY STIMULATION

In the Motor room the eastern wall has been transformed into be a kaleidoscope of coloured glass with hideaway nooks. This wall was designed to inspire children to explore and investigate spaces on their own and to gain a sense of independence. This space has a strong contrast between light and shadow and evokes sensory experiences in terms of the tactile sense. The exterior of this wall houses a grassy slope with a safe outdoor play area.

The outdoor recreational space is furnished with a sensory garden, a cane walk lane, a greenhouse, a sunflower garden and a braille trail. All of these are designed to stimulate the children to experience the world with the senses that remain to them. These spaces are also within the sight line of a gazebo which acts as a point of observation to keep the children safe.



Figure 5-34 Sensory gym which contains a tree house



Figure 5-35 Passage with handrails and other way-finding mechanisms

5.6) CONCLUSION

This chapter investigated architectural, furniture and interior precedents which centred on design for disability and more specifically, for the elderly. These precedents also generally investigate the relationship between public and private space and are based on the theoretical principles of psychological soft spaces and interventional design.

The goal of the use of precedent studies is to find ambiguity in design problems and to solve them. The process of critical appreciation applied to each precedent has led to the following conclusions that can be used in order to inform the design process of the study:

Residências assistidas em Alcácer do Sal had an interesting approach towards the relationship between public and private space as well as providing as much choice as possible to the user. The critique

that this project receives is that even though it starts to address the stigma associated with spaces for the elderly, it does not address the deeper lying issues such as the lack of residential qualities. Even though the spaces and the building are modern and aesthetically pleasing it still does not seem like a residence but iterates the design language of a hotel or an institution.

Norra Vram succeeds in creating positive distractions as well as healthy communal space by eliminating long linear corridors and providing pause space and loitering space in the form of the courtyards that connect the living units. The community participation component of the project has also resulted in effective spaces that simplify the work of the staff and improve the living conditions of the residents.

This is a very successful project in terms of the criteria set by this study.

Norra Vram achieves a perfect balance between modern aesthetic and residential comfort, assistance and independence and public space and private space.

No Country for Old Men products are simple and intuitive in nature and the principle of their design proves that assistive devices and in turn spaces do not have to be engineering feats but simple investigations of the actual problems can result in beautiful successful designs.

Anchor Centre for Blind Children is a good example of the use of clear spatial planning to simplify spaces and the traveling between spaces. It is also a project that successfully engages the senses of its users in order to help them experience and enjoy the space, but also to help them learn.



CHAPTER SIX DESIGN DEVELOPMENT

Figure 6-1 Models showing phases of the design development (Author,2013)

6.1) INTRODUCTION

In order to re-design Huis Davidtisz into a psychologically supportive environment, the theory investigated, as well as the analyses of the existing building, client and precedents have to be streamlined into clear design informants. The characteristics of psychologically supportive space have to be translated into architectural design.

A process of research by design resulted in several design proposals. All of these proposals are discussed and a swot analysis reiterates the lessons learnt from each. The architectural concept was developed with each of the proposals until a strong golden thread that ties all of the design informants together could be identified. The concept is the manipulation of the existing intimacy gradient of Huis Davidtisz. Four elements of architectural space: floor, wall, ceiling and window, form the medium for the creation of an intimacy gradient.

This gradient humanises the institution by establishing a range of spaces and a sense of territoriality. The unforgiving threshold between intimate and public space is moderated by subtle spatial indications of levels of intimacy.

This provides Huis Davidtisz with the seven levels of intimacy associated with domestic spaces, enabling individuality and choice. The result is a comfortable and secure place for living.



6.2) DESIGN INFORMANTS

The research portion of this project was distilled in order to produce clear design informants which form the aims of the intervention. Herewith follows the design informants according to the previous chapters.

6.2.1) CONTEXT ANALYSIS

The precinct surrounding Huis Davidtsz used to form part of a larger community with strong social ties. These historical connections should be rediscovered and utilised to reconnect Huis Davidtsz with its surrounding community.

The architectural language of Huis Davidtsz speaks very clearly of Pretoria Regionalism. The characteristics typical of Pretoria Regionalism such as the locally available materials, the low pitch roof and the sun-sensitive windows should be incorporated into the interior design of the building.

The cluttered spatial organisation of the building should be simplified to aid in way-finding.

Huis Davidtsz lacks a well-designed artificial lighting scheme.

Circulation should be addressed in terms of accessibility and efficiency.

The acoustics of the building should be improved as a large portion of the client has hearing impairments.



Figure 6-3 Historical connections should be rediscovered



Figure 6-4 Characteristics typical of Pretoria regionalism such as locally available materials (Author,2013)

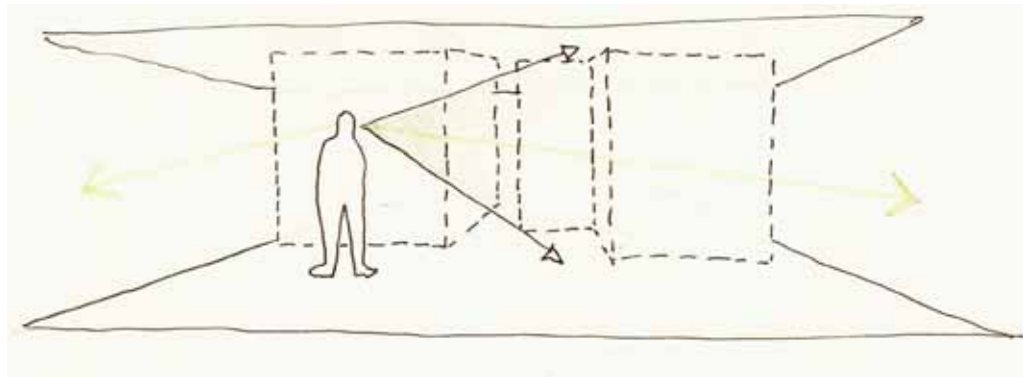


Figure 6-5 Cluttered spatial organisation of the building should be simplified to aid in way-finding (Author.2013)

6.2.2) CLIENT

The current client demographic is an even distribution of male and female old-elderly persons who suffer from a range of age related ailments. This has an implication on the nature of the design. The interior of Huis Davidtshz has to enable and support these persons and allow them to maintain their independence for as long as possible.

The residents of Huis Davidtshz do not all possess the same communication capabilities and the design needs to accommodate the way-finding and communication needs of all its users by means of intuitive use and multi-sensory cues.

Huis Davidtshz is a long term residence and its residents need to have a sense of ownership and the ability to apply personal touches to their home.

The various personality groups of the residents have to influence the design to provide choice- both spatially and in terms of design language.



Figure 6-6 Client

6.2.3) THEORY

Huis Davidtshz is a psychologically un-supportive space. This needs to be addressed by providing a sense of control over the environment, access to social support and access to positive distraction.

The abilities and impairments of the residents of Huis Davidtshz were analysed in Chapter Two and Huis Davidtshz has been subjected to a universal access audit. The results of this audit indicate the age related impairments of the residents. In order to widen the range of control the residents have over their environments, certain barriers had to be removed from the interior of the building, while certain design aids had to be implemented:

- Lighting that is triggered by movement.
- The size, form and texture of materials should be carefully selected to improve grip.
- Slip free surfaces are to be provided.
- Providing a ledge on flat surfaces.
- Ensure good colour contrast between critical surfaces (floor

and ceiling) and free-standing elements.

- Manipulative controls should be simplified and be accessible to a wide range of people.
- Casters or wheels added to furniture could make spaces easier to personalise.
- Low interaction doors and windows should be incorporated into the design.
- Elements should be designed to have a maximum reaching depth of 500mm.
- Shelves should be placed between 1575 and 610mm AFFL. Slide out drawers should be provided.
- Ramped access with handrails, on both sides, at gradient 1:20 is critical and should be provided at the main entrance in order to render the entrance accessible.
- Arm-rests should be incorporated into all seating to aid standing up.
- Open plan spaces should be a priority in this design. All passages should have a minimum clearance of 914mm.

Figure 6-7 Hambergen way-finding flooring



- All doorways should have a minimum clearance of 813mm.
- Thresholds should be level where possible, otherwise ramped according to standard.
- A 1550mm wheelchair turning circle should be used as a guideline for spatial organisation.
- The project should have a logical layout and intuitive navigation.
- Lowered counter height with knee space should be included to allow for wheelchair bound users.

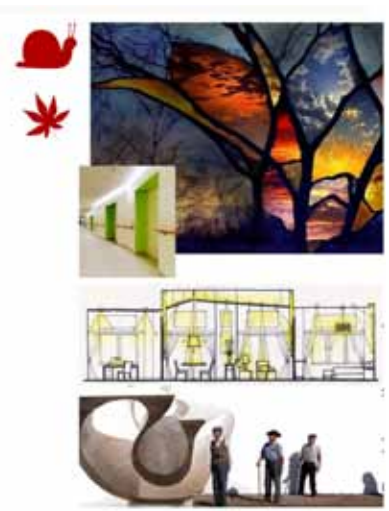
Figure 6-8 Sense of control over the environment



Figure 6-9 Sense of access to social support



Figure 6-10 Sense of access to positive distraction



Access to social support would be improved by the incorporation of social friction techniques that were developed in the field of urban design and translated to be used in interior design. Contact points, collision points and social strands are employed in order to encourage or discourage social interaction.

Natural elements introduced into the interior produce healthy low interaction distraction. This can be achieved either by means of natural elements, natural analogues or spatial configurations that emulate nature settings.

6.2.4) PRECEDENTS

Residências assistidas em Alcácer do Sal had an interesting approach towards the relationship between public and private space, this becomes a design informant and this experimentation with the relationship between public space and private space is included in the design scheme. The critique that Residências assistidas em Alcácer do Sal received is that even though it starts to address the stigma associated with spaces for the elderly; it does not address the lack of residential qualities found in institutional spaces. The design scheme utilises this precedent to inspire a design investigation into a sense of ownership and individual identity.

Norra Vram achieves a perfect balance between modern aesthetic and residential comfort, assistance and independence and public space and private space. This balance informs the intervention of Huis Davidtsz in terms of aesthetic and furniture selection.

Anchor Centre for Blind Children is a good example of the use of clear spatial planning to simplify spaces and traveling between spaces. The way-finding techniques displayed in the project serve as inspiration and informant for the design scheme.

6.3) INITIAL CONCEPTUAL SKETCHES

The initial conceptual development of the project was motivated by the development of private spaces in the interior of Huis Davidtsz. Booths or nooks were developed where the residents could have a sense of privacy without having to be in their rooms. A secondary opportunity provided by these elements was the simplification of controlling elements such as acoustics and lighting.

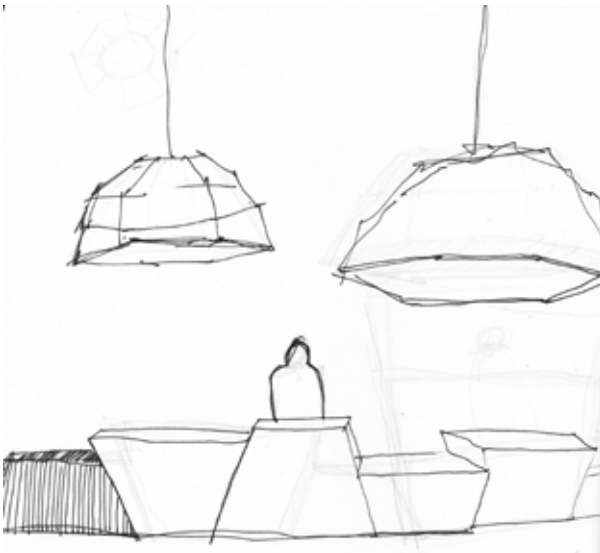


Figure 6-12 Conceptual sketches

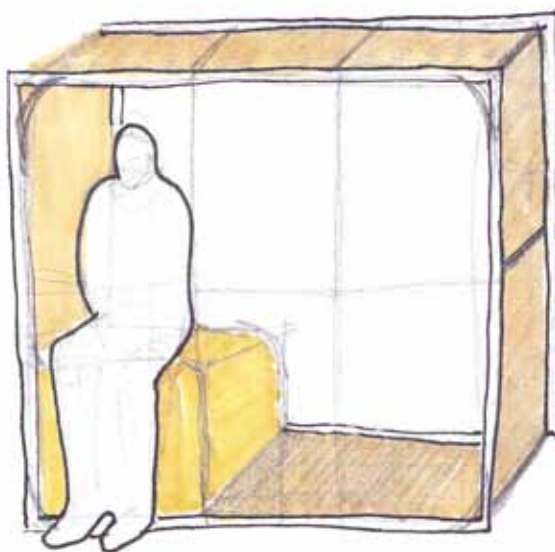


Figure 6-11 Initial conceptual sketches to create private spaces

6.4) CONCEPT A

"We don't stop playing because we get old, we get old because we stop playing."

George Bernhard Shaw (Rhoads, 2010:31)

The initial conceptual approach towards the building centred on providing everyday opportunities for play and interaction between the residents and their environment, their visitors, their caretakers and amongst themselves. The aim of the design was to redefine the existing recreational spaces to allow for more intimate spaces and design variety.

The existing building was stripped back to provide better circulation spaces and to remove the clutter of small spaces that littered the ground floor. The long narrow interior spaces were subdivided by angular insertions.



HIDE & SEEK

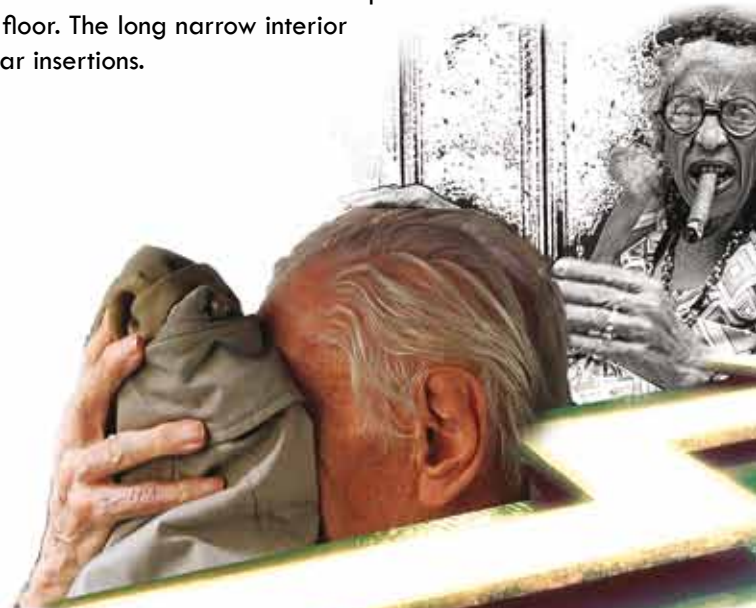


Figure 6-13 Concept A collage

PLANS AND SECTIONS

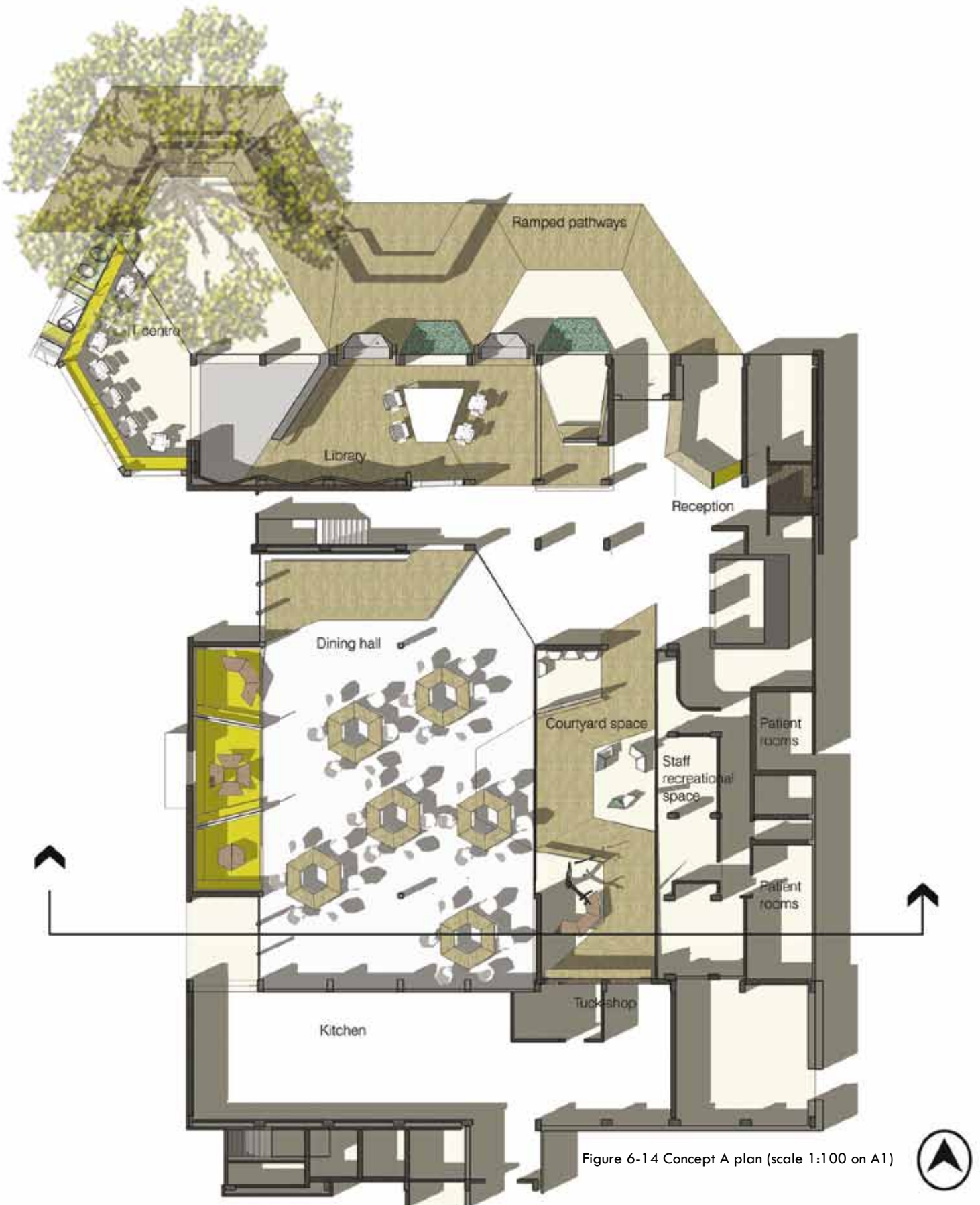


Figure 6-14 Concept A plan (scale 1:100 on A1)

SWOT ANALYSIS

STRENGTHS

- Providing spaces of various levels of intimacy.
- Providing the resident with choice.

WEAKNESSES

- The harsh geometry does not speak a language of domestic spaces.
- The geometry is not substantiated.

OPPORTUNITIES

- Investigation of natural light.
- Investigation of ergonomic needs of residents.

THREATS

- The recreational spaces are too small.
- The dining hall cannot house all 183 residents of the building.



Figure 6-15 Concept A section (scale 1:100 on A1)

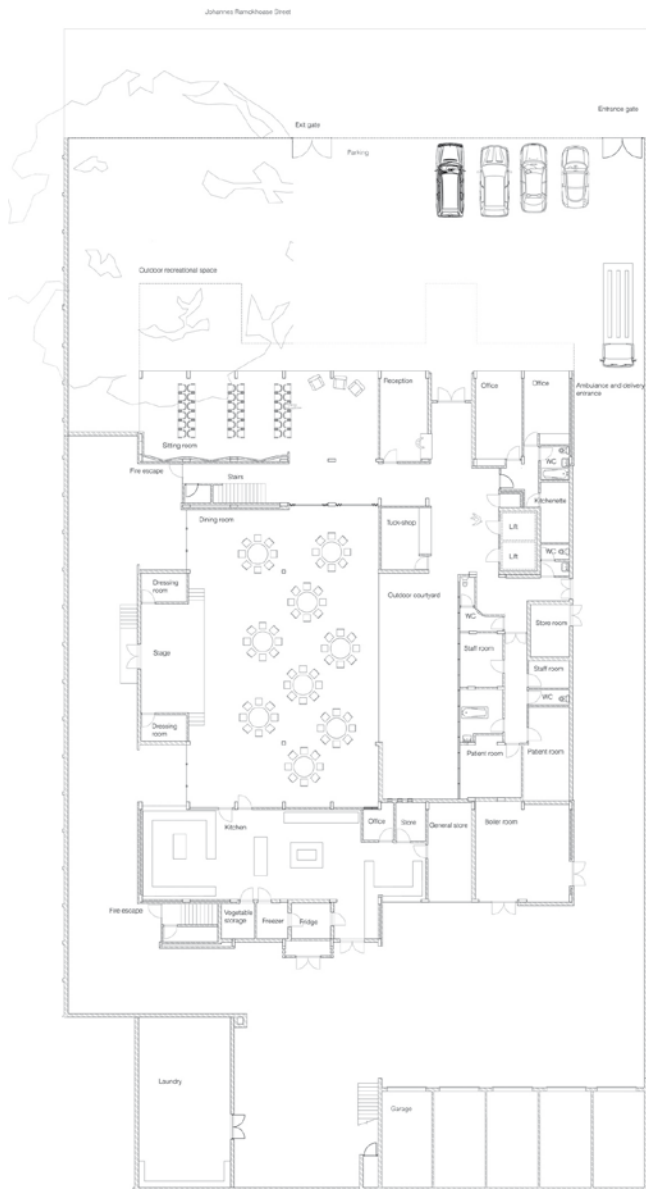


Figure 6-16 Existing ground floor plan

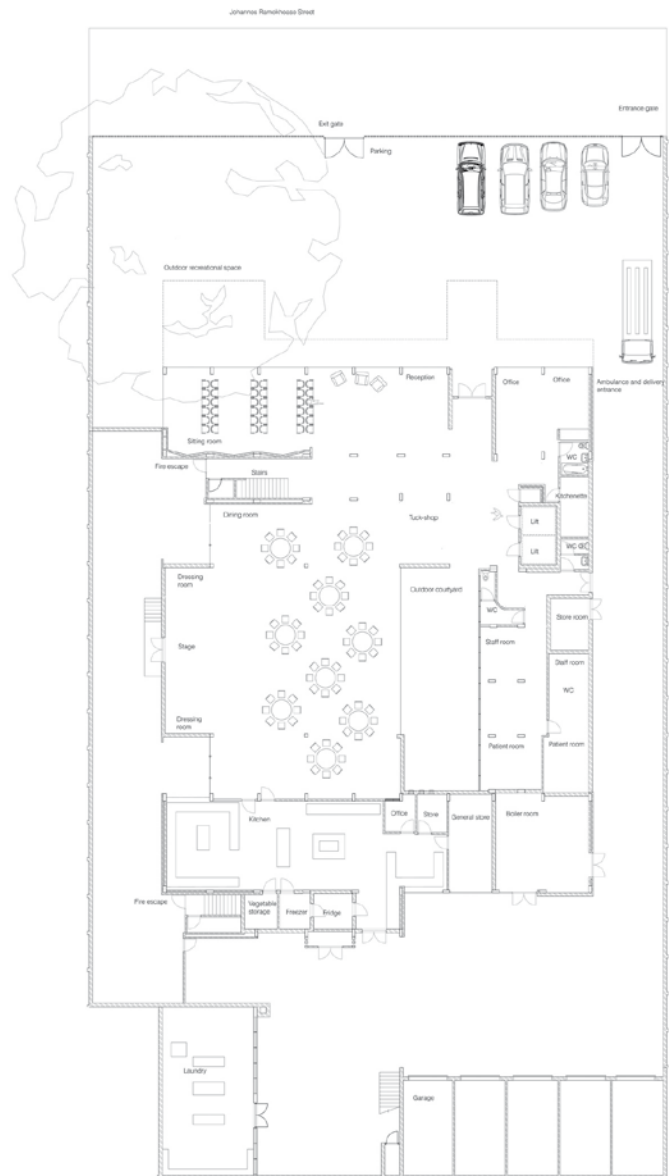


Figure 6-17 Stripped back plan

STRIPPING BACK

When working with an existing building there are always components of the building, which are not immediately apparent. These components, although hidden, can add to the significance of that specific building (Scott 2008:108).

‘Stripping back is a process of removing, delicately breaking down every layer of detail; developing an extensive knowledge of the host site and original program...’ (Nicholson 2010:8).

MULTIFUNCTIONAL LIBRARY SPACE

The sitting room was reprogrammed to form a multifunctional library space. The existing space was designed to form the reading room while an angular addition was added to serve as an IT space. The new wall of the IT space is an interactive jungle gym that connects Huis Davidtssz to Pennies Preschool. The jungle gym has a translucent wall through which the elderly can view the toddlers playing.



Figure 6-18 Library space

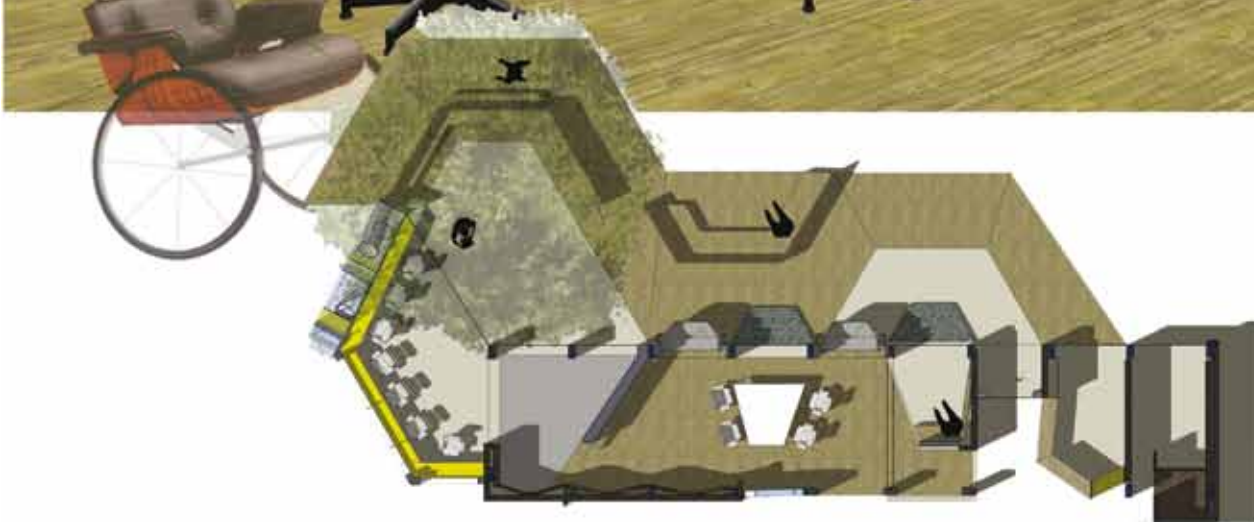


Figure 6-19 Library space plan



Figure 6-20 Key plan

Figure 6-21 Library space section



DINING HALL

The stage in the dining hall was removed during the process of stripping back. Booth seating was incorporated into the space where the stage was. A ramp was placed in the dining hall to be a universally accessible replacement for the stage. Trapezium tables were specified for the dining hall as they can be arranged in various configurations and allow the space to be multifunctional.

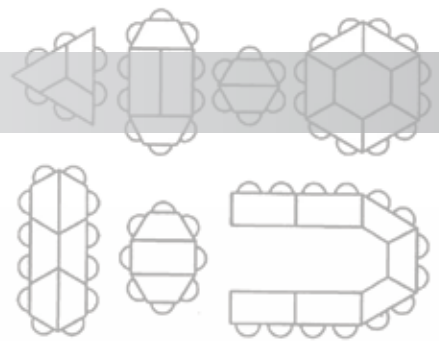


Figure 6-22 Trapezium tables with various possible configurations

Figure 6-23 Dining hall space plan

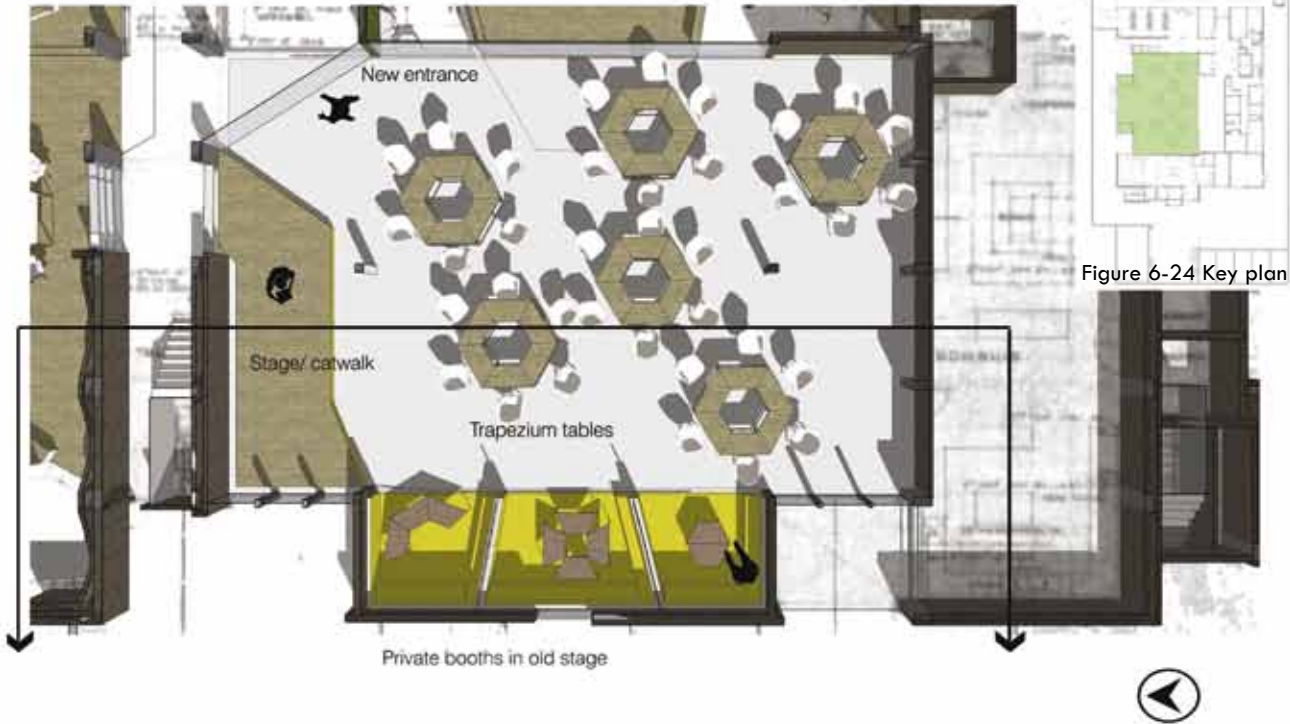


Figure 6-24 Key plan

New accessible roof

Dining hall

New accessible roof

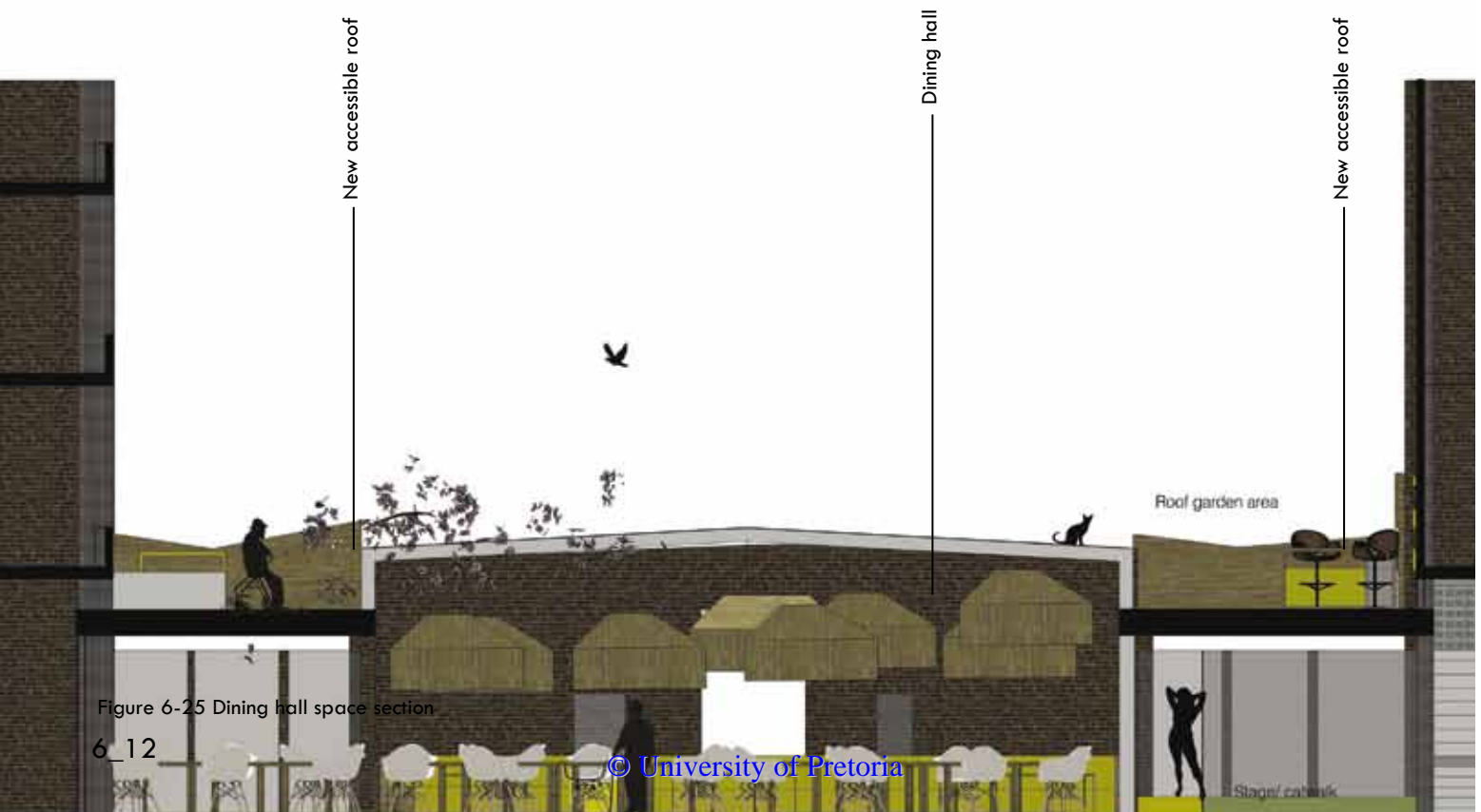


Figure 6-25 Dining hall space section



The outdoor spaces were subdivided and furnished to allow outdoor social interaction. The outdoor spaces such as the vegetable garden will become instruments to carefully reintegrate the elderly adults into the surrounding community by providing a service that is beneficial to the community as well as to themselves.



Figure 6-27 Key plan

New living wall

Accessible courtyard

Accessible roof



Figure 6-28 Courtyard space section



Figure 6-29 Mood board

6.5) CONCEPT B

The second design approach was an investigation between path and destination. The aim of the design was to provide various levels of movement in the building. The staff has to move fast and efficiently from one space to another while the residents have various levels of speed and stamina. This was translated into design by developing lanes in the circulation spaces. The central area is dedicated to fast moving foot traffic while the areas closest to the walls are used as pause spaces. Destinations or hiding places are incorporated into strategic places in the design. These spaces vary from enclosable reading nooks to handrails that provide a temporary leaning space.



Figure 6-30 Handrails that provide a temporary leaning space

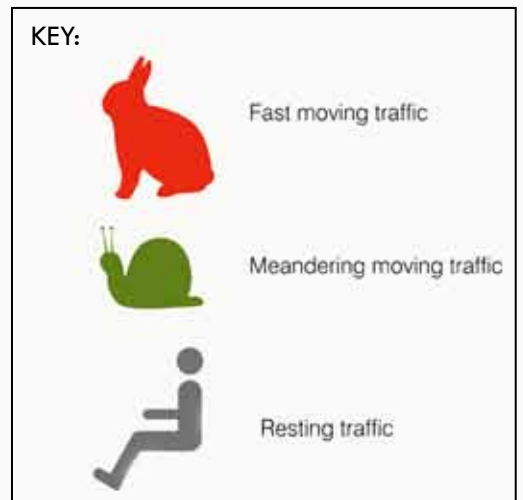


Figure 6-31 Various levels of movement

SWOT ANALYSIS

STRENGTHS

- Intimate spaces and reflection spaces are provided.

WEAKNESSES

- A potential outdoor spill-out space for the dining hall is blocked by the new ramp.

OPPORTUNITIES

- Provide choice in terms of light quality, type of seating and level of social integration by means of individual solutions in private spaces like the reading nooks.

THREATS

- The architectural concept is not strong enough; this leads to the aesthetic of the design being incoherent.

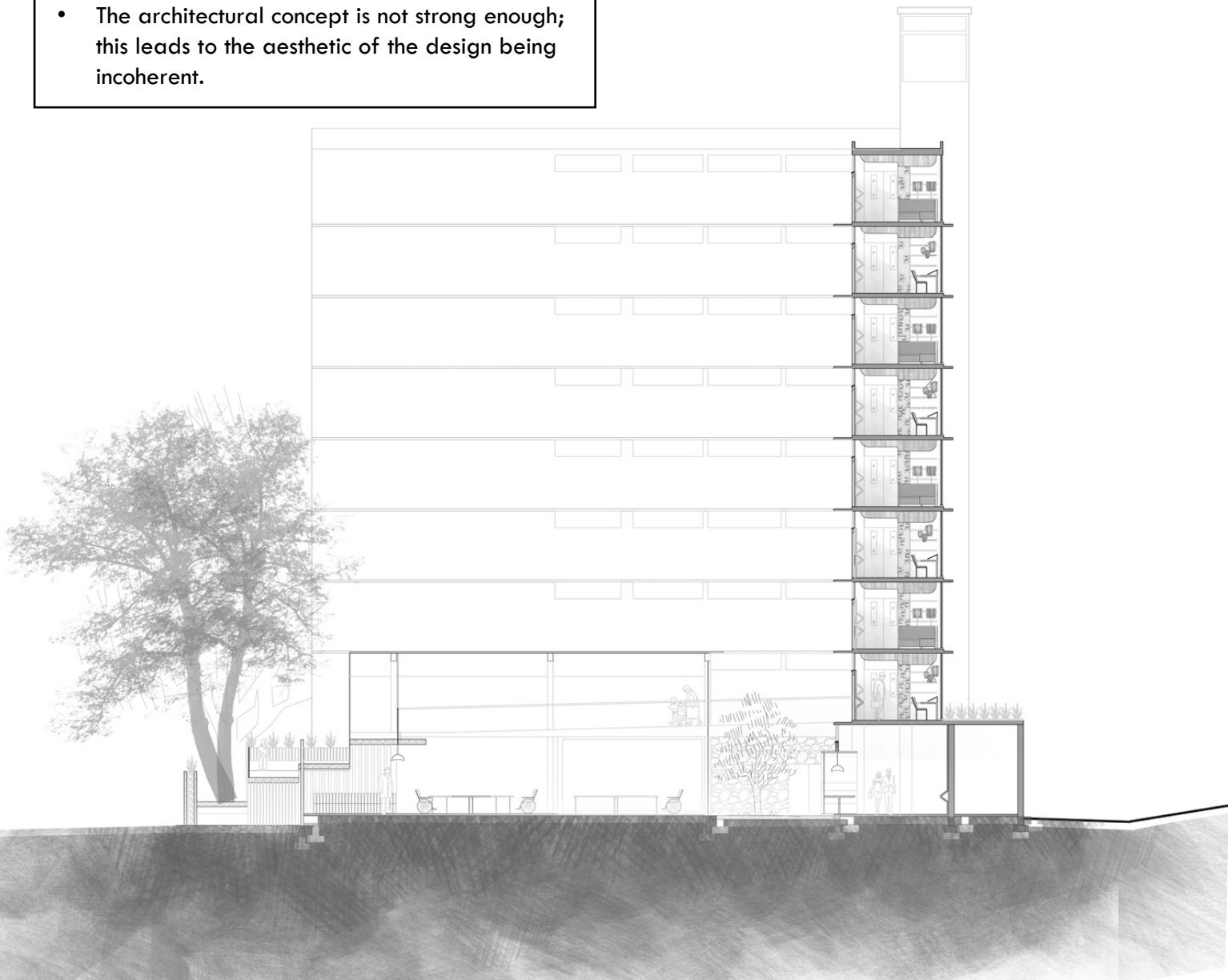


Figure 6-32 Concept B section (scale 1;50 on A0)

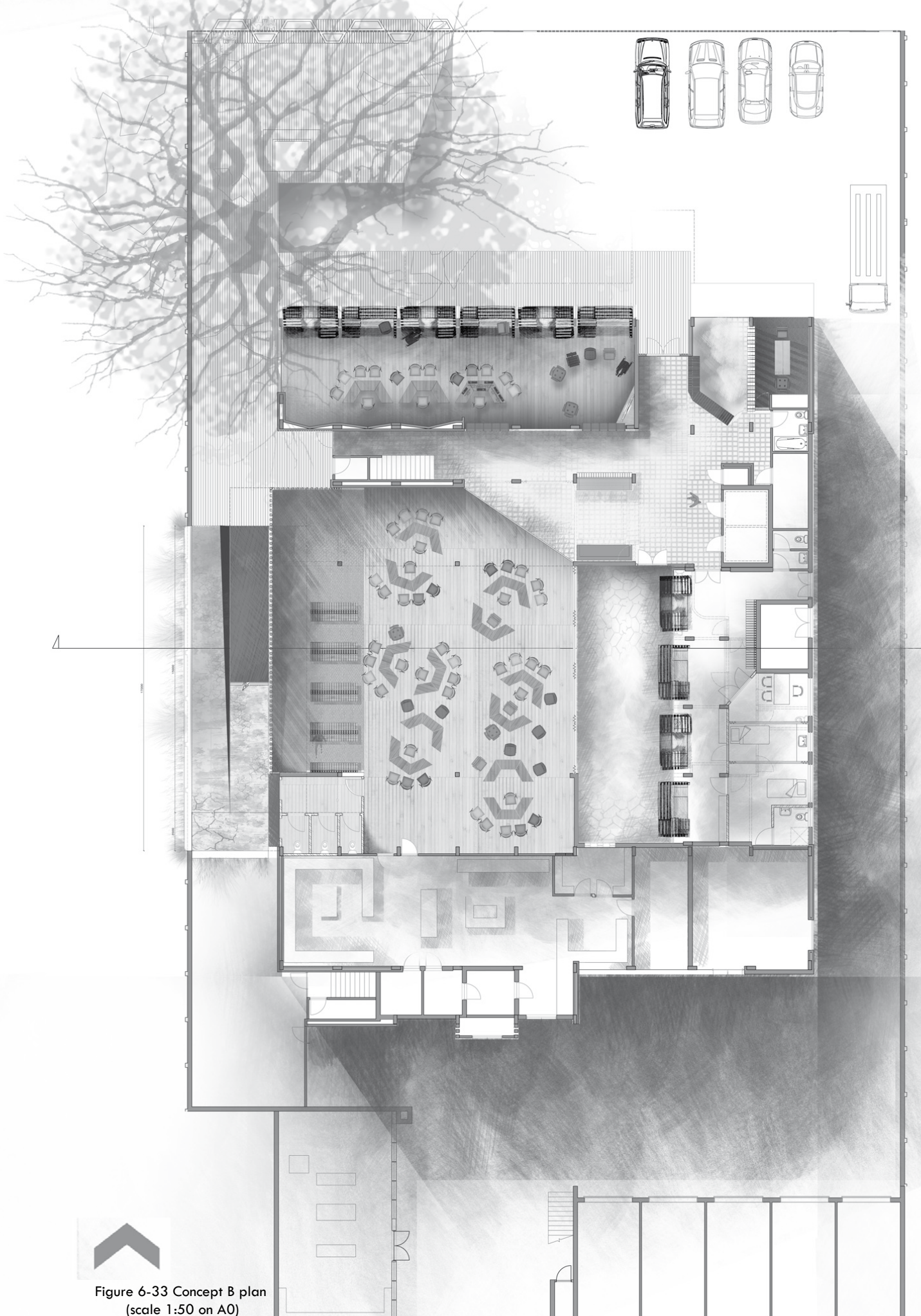


Figure 6-33 Concept B plan
(scale 1:50 on A0)

FACADE
Reading nook

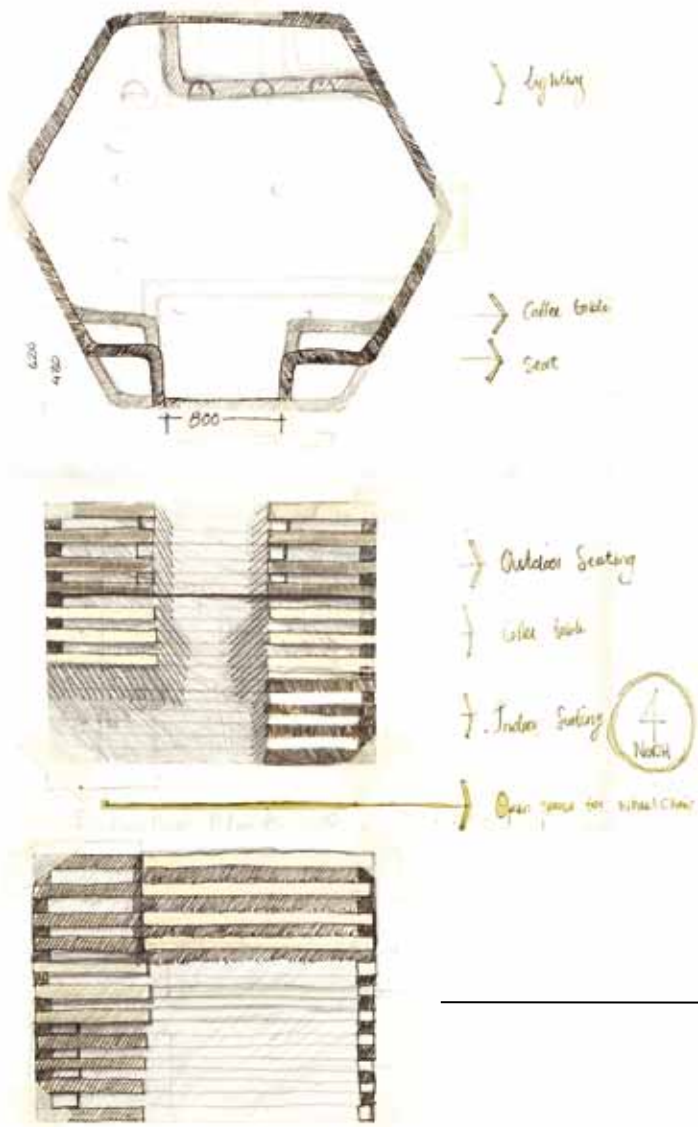


Figure 6-34 Reading nook development

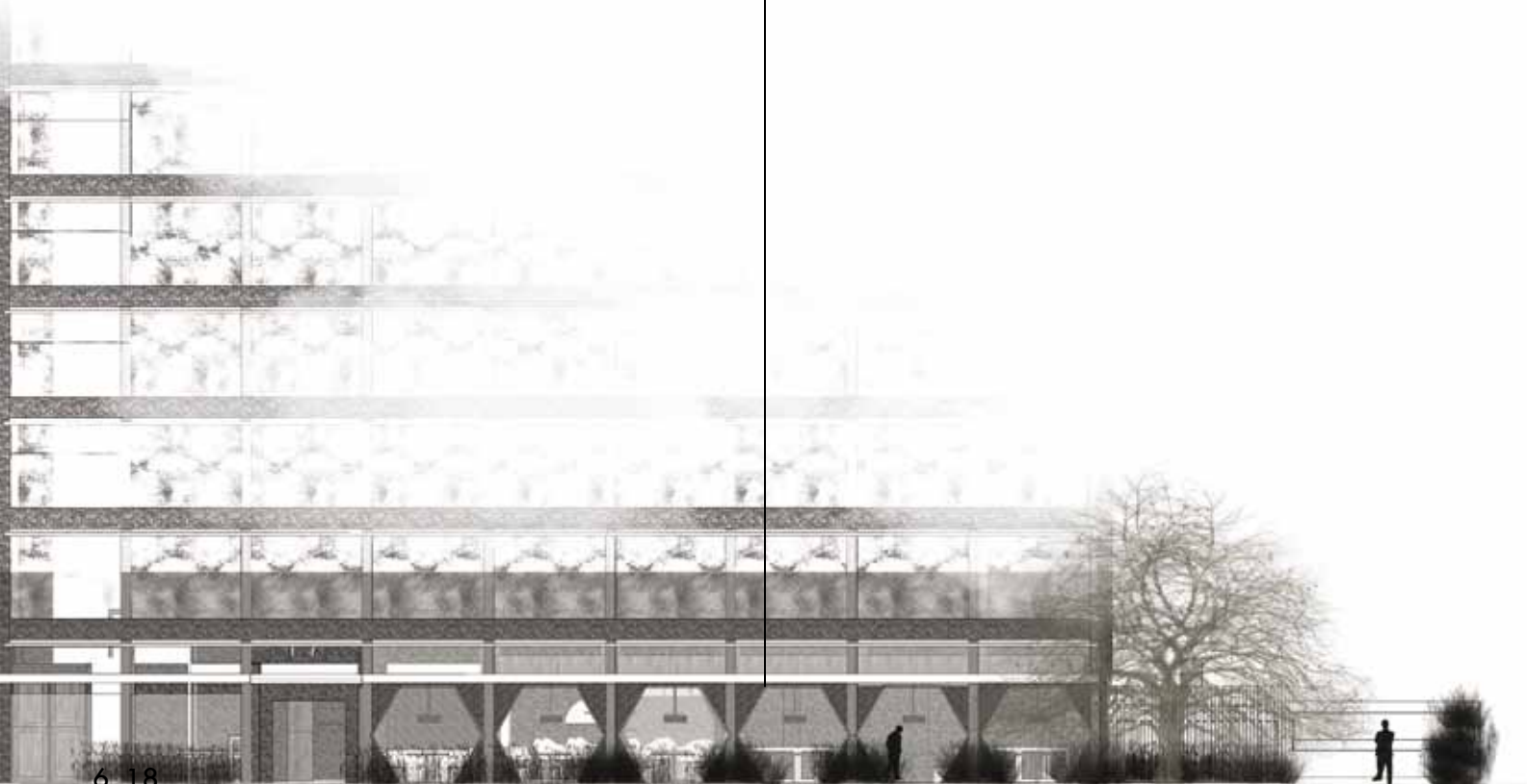


Figure 6-35 Facade with new reading nooks

BEFORE AND AFTER



Figure 6-36 Existing passage way



Figure 6-37 Hobby spaces



Figure 6-38 Existing lounge

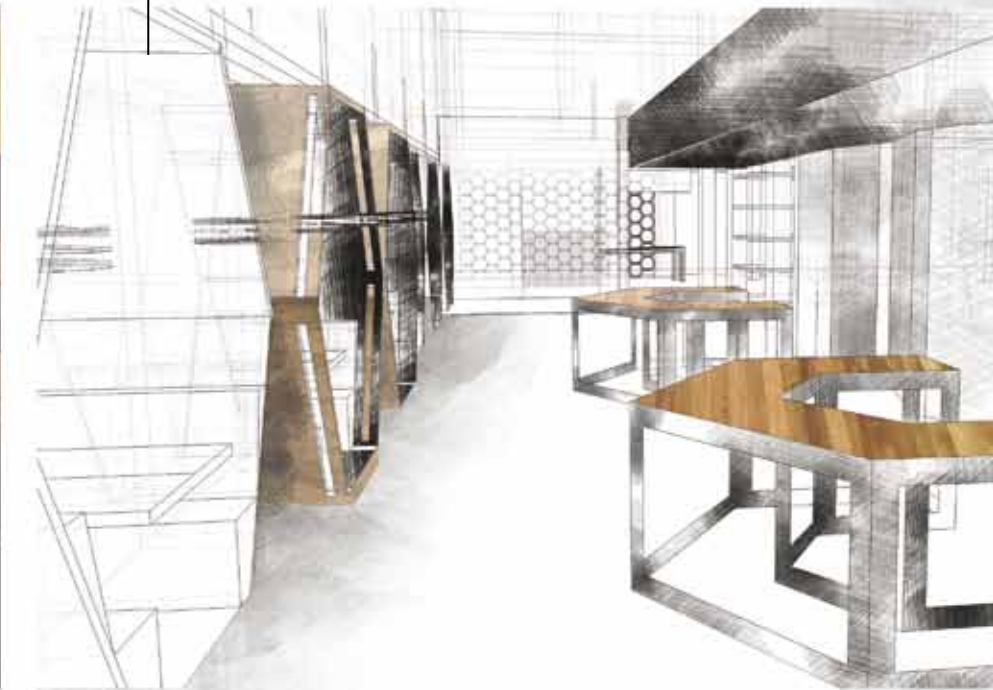


Figure 6-39 Reading room interior

Figure 6-40 Dining hall interior with ramp

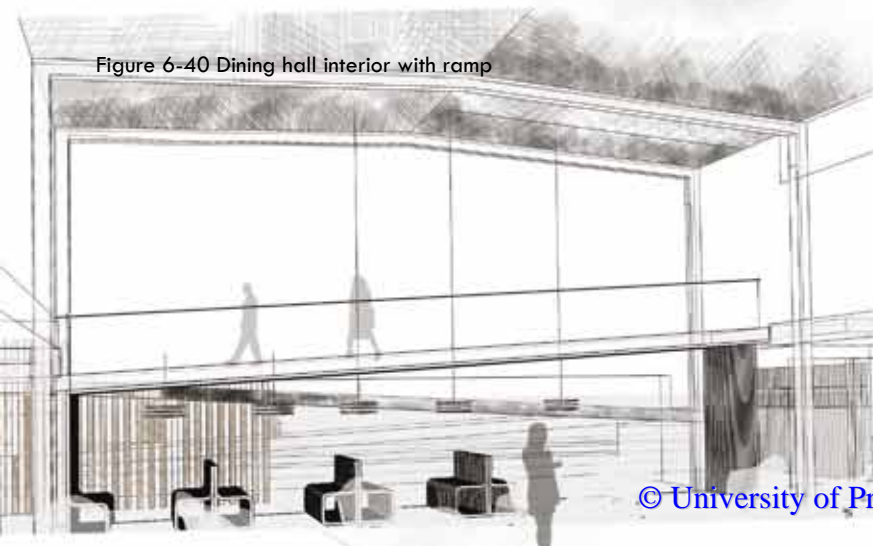


Figure 6-41 Existing dining hall



FENESTRATION

Huis Davidtsh has no artificial ventilation systems and uses only natural systems to ventilate the building. Because of the H-form plan, cross ventilation is possible through the narrow corridors, preventing the air from becoming stagnant.

The out dated ironmongery of the windows is difficult to use. Loss of dexterity makes it difficult for the residents to fasten the large windows, which in turn cause the windows to be slammed against the building by the wind and large panes of glass to come crashing down. Since the windows had to be replaced it was used as a design opportunity to introduce plants into the residents' rooms. A pivoting window which incorporates a flowerbox (that can be situated either on the interior or the exterior of the room) is introduced.



Figure 6-43 Conceptual sketch of new fenestration in residents' rooms



Figure 6-42 Tactile window crank



FURNITURE

Existing collection of donated and inherited armchairs:



Figure 6-44 Existing arm chairs



Figure 6-45 Re-upholstered with hand knitted fabric

Figure 6-46 Hand knitted squares combined to form new covering textile



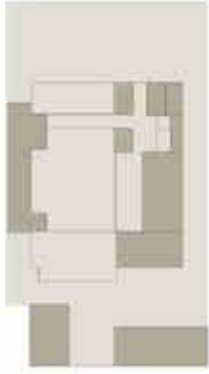
Figure 6-47 Re-upholstered with knitted fabric



Figure 6-48 Adding wheels and casters simplify movability

• existing gradient

•new gradient



6.6) CONCEPT C

PUBLIC SPACES

Buildings that directly juxtapose public spaces and intimate spaces can be classified as fully institutional. It is important to incorporate in-between levels of privacy because that allows the users of that space to have a sense of territoriality over the space they reside in. This intimacy gradient also provides subtle cues as to the function of the space and the appropriate behaviour in such a space (Georgiou, 2006:13). Architectural features communicate the level of intimacy of spaces to people, subtly indicating what type of conduct would be appropriate. Typical examples of these features are discussed in the following section.

Public spaces have high ceilings and stimulate movement rather than pausing. Good quality general lighting can be found in public spaces. Multifunctional moveable furniture can be found in public spaces. Public spaces are noisy and provide access to social interaction and positive distraction.



SEMI-PUBLIC SPACES

Semi-public spaces are found in public spaces and are defined by spatial indicators such as furniture. These spaces are generally not enclosed.

Semi-public spaces have high ceilings and general lighting. These spaces are used for group activities and circulation. Hard moveable furniture as well as some fixed furniture is situated in semi-public spaces.

Semi-public spaces tend to be noisier and provide high levels of social interaction and positive distraction but low levels of control over the environment.

SEMI-PRIVATE SPACES

Semi-private spaces could be enclosed but could also be defined by other spatial indicators such as a low ceiling, a floor finish or a screen. These spaces should have general illumination as well as task lighting as they could be used for individual activities or group activities.

Soft furnishings as well as mobile hard furnishings are used in semi-private spaces. The acoustic qualities of these spaces are generally quiet in nature but less so than private spaces. These spaces are used by small groups of up to six persons, and provide access to positive distraction and social interaction.

The programs dedicated to semi-private spaces are meeting spots and low activity hobbies like reading and knitting.

PRIVATE SPACE

Private spaces are normally completely closable. Private spaces can be controlled by the user of that space in terms of privacy, lighting levels and acoustics. A low ceiling also indicates a space that is more private in nature.

Intimate lighting and task lighting are always present in private spaces as the activities performed in private spaces often require high levels of illumination.

Soft lounge furniture and noise absorbing finishes are also subtle cues to indicate a private space.

The dimensions of private spaces are less than those of public spaces and these spaces generally cater for individual use or for use by small groups and couples.

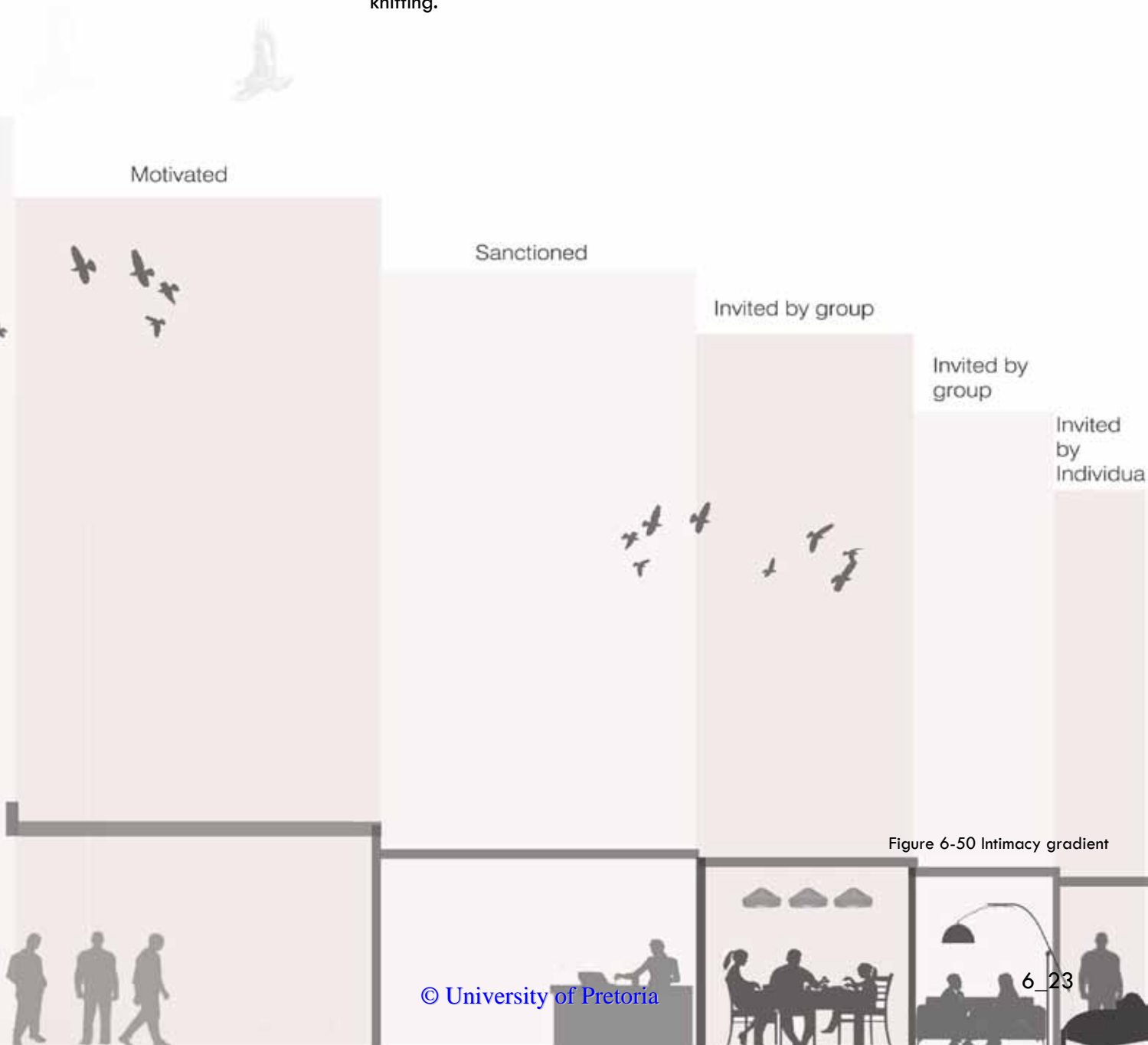


Figure 6-50 Intimacy gradient

SWOT ANALYSIS

STRENGTHS

- Intimacy gradient is an appropriate concept.
- All design informants are incorporated into scheme.

WEAKNESSES

- Lack of wheelchair accessible ablution in recreational spaces.
- Lack of consideration for use of lift.
- Lack of consideration for egress in emergency.

OPPORTUNITIES

- Structural intervention to extend the recreational spaces.
- Development of built-in furniture.
- Use of colour, light and texture to create residential quality as well as assist way-finding and acoustic comfort.

THREATS

- Recreational spaces too small and cannot house all the residents of the building.

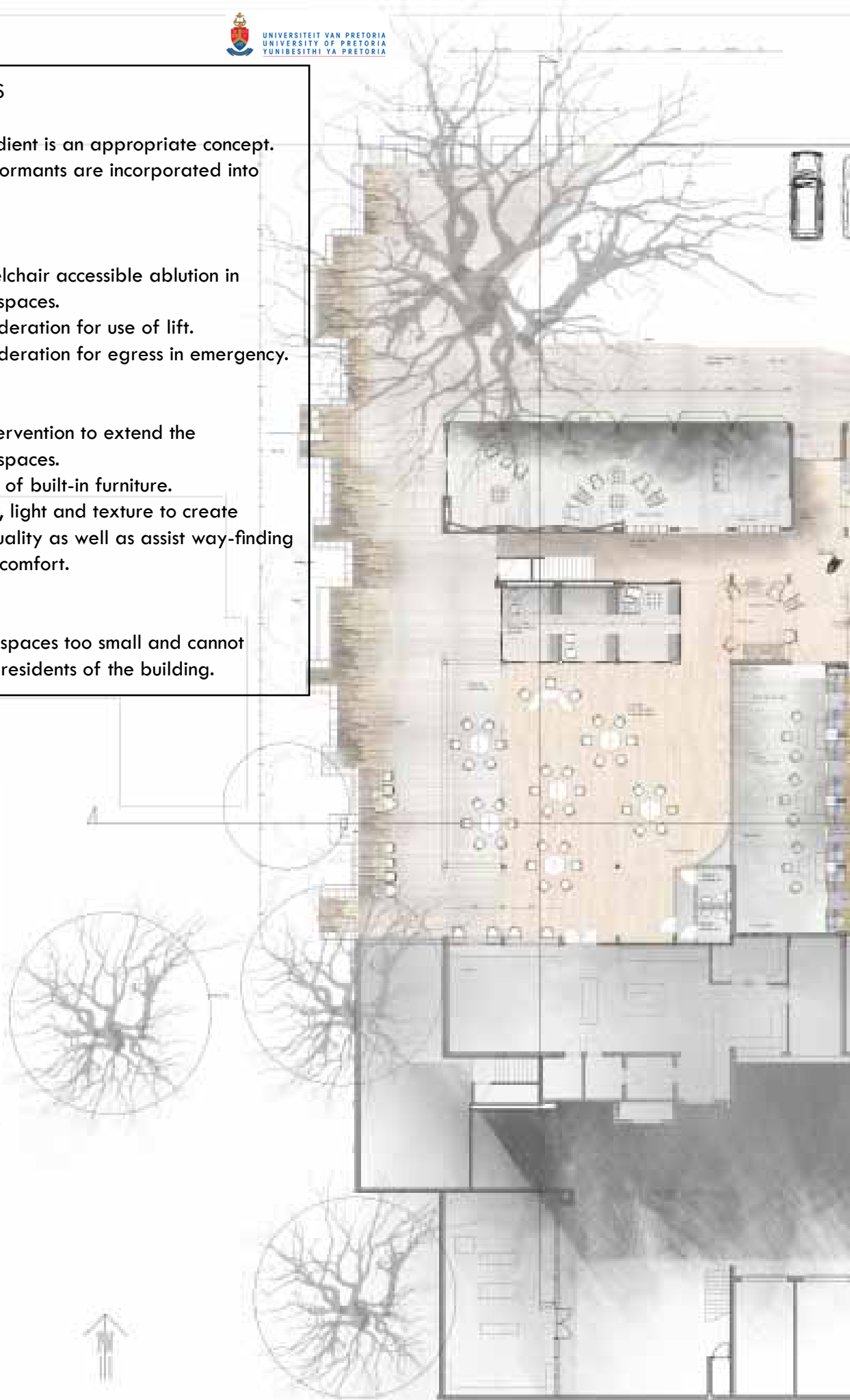


Figure 6-51 Concept C General layout Plan,
Ground Floor (scale 1:50 on A0)

PLANS



Figure 6-52 Concept C General Layout Plan,
First Floor (scale 1:50 on A0)



Figure 6-53 Concept C, seating development (Author,2013)

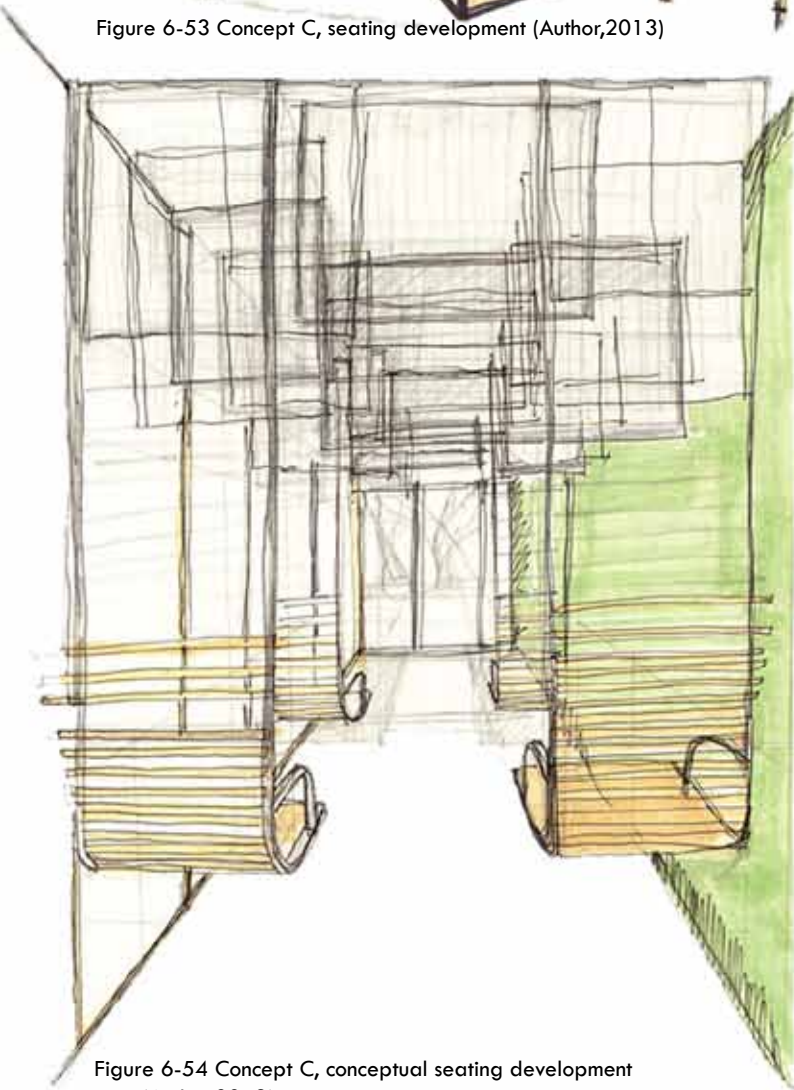


Figure 6-54 Concept C, conceptual seating development (Author,2013)

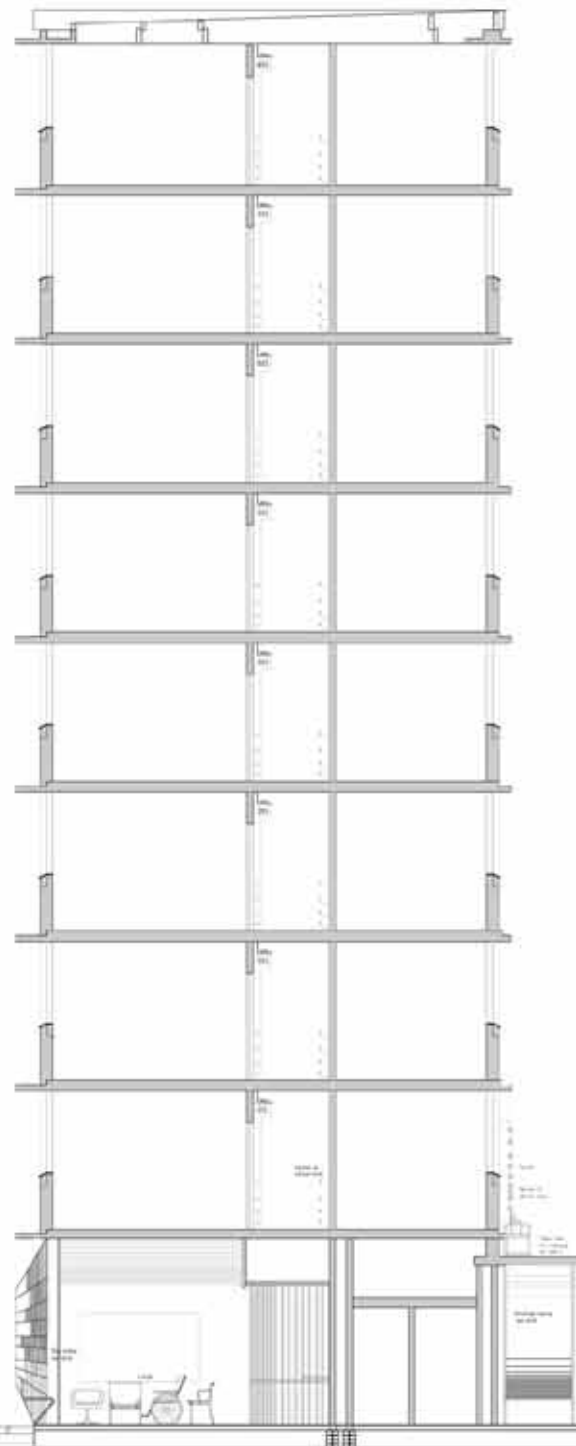


Figure 6-55 Concept C, Section AA (scale 1:50 on A0)

SECTIONS

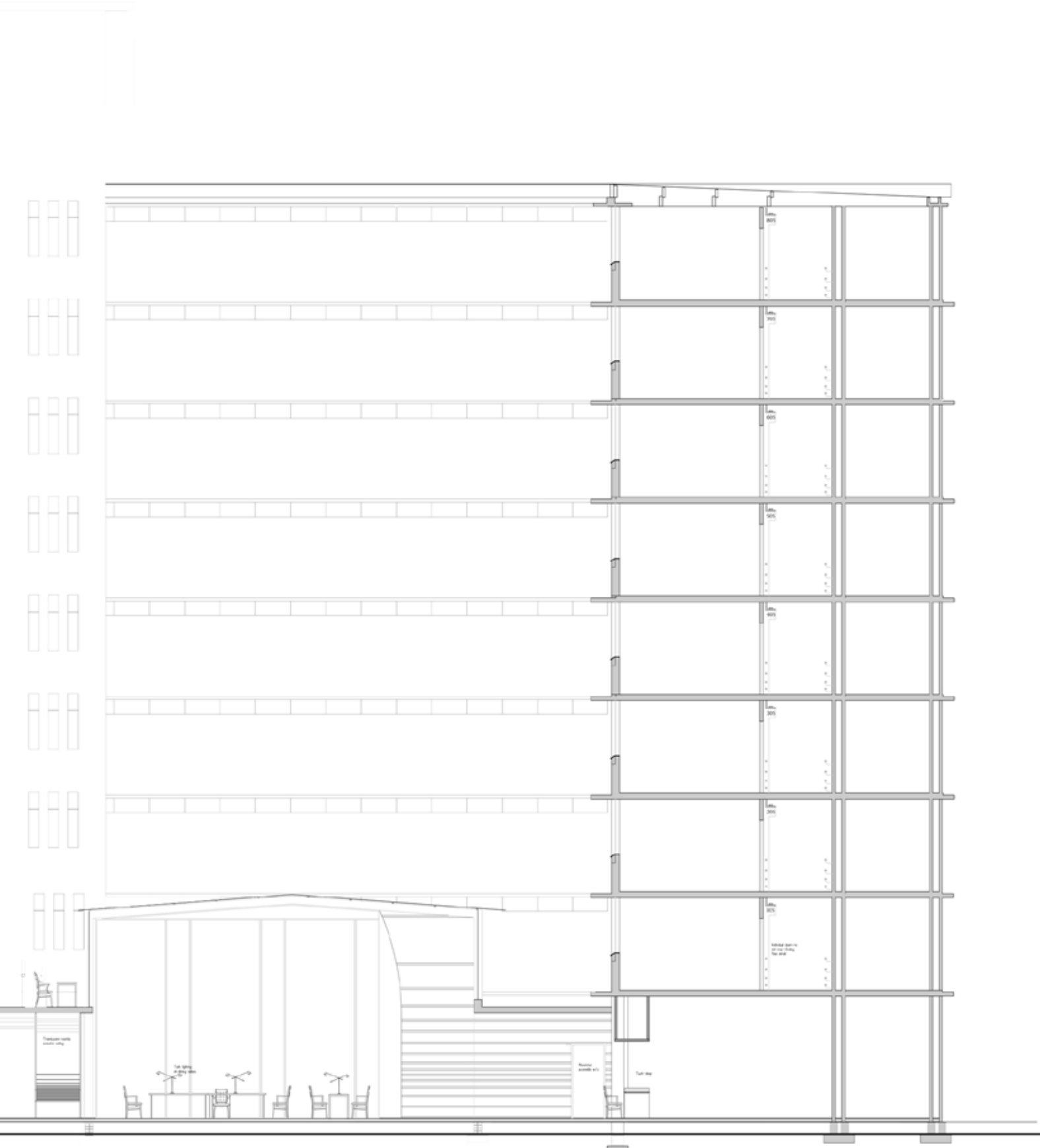




Figure 6-56 Concept C, conceptual altering of facade (Author,2013)

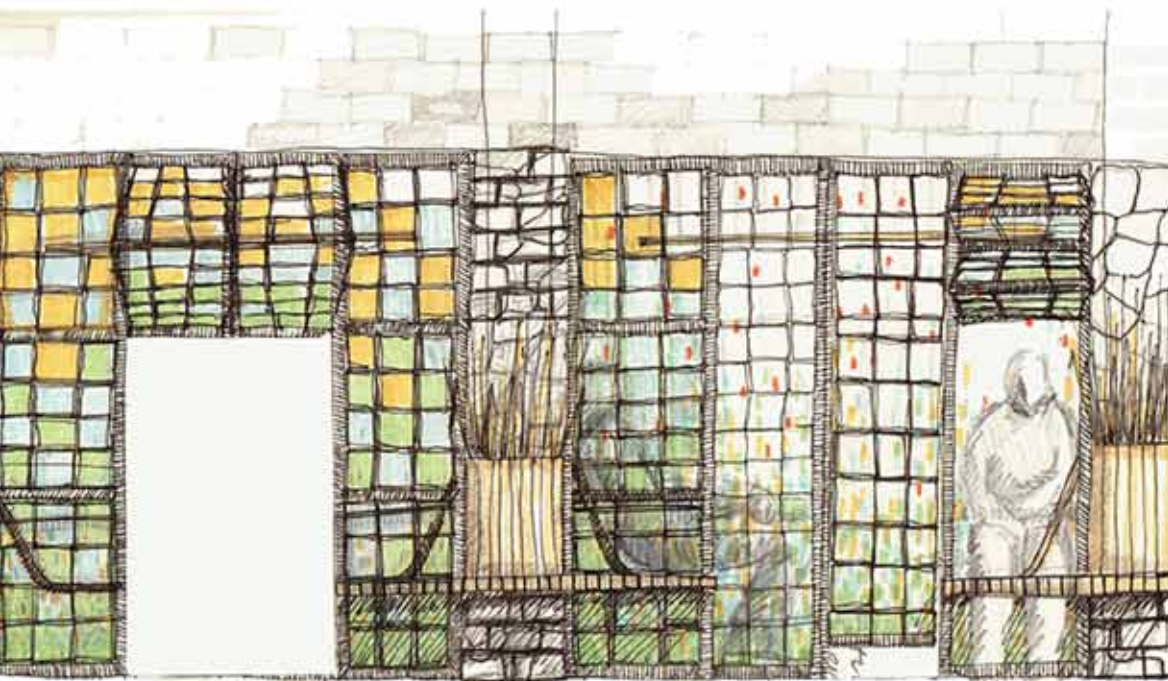


Figure 6-57 Concept C, conceptual development of intervention to facade (Author,2013)



Figure 6-58 Concept C, Section BB (scale 1:50 on A0)



ELEVATIONS



Figure 6-59 Concept C, Eastern Elevation (scale 1:50 on A0)



6_30

Figure 6-60 Concept C, digital collage of design development (Author.2013)

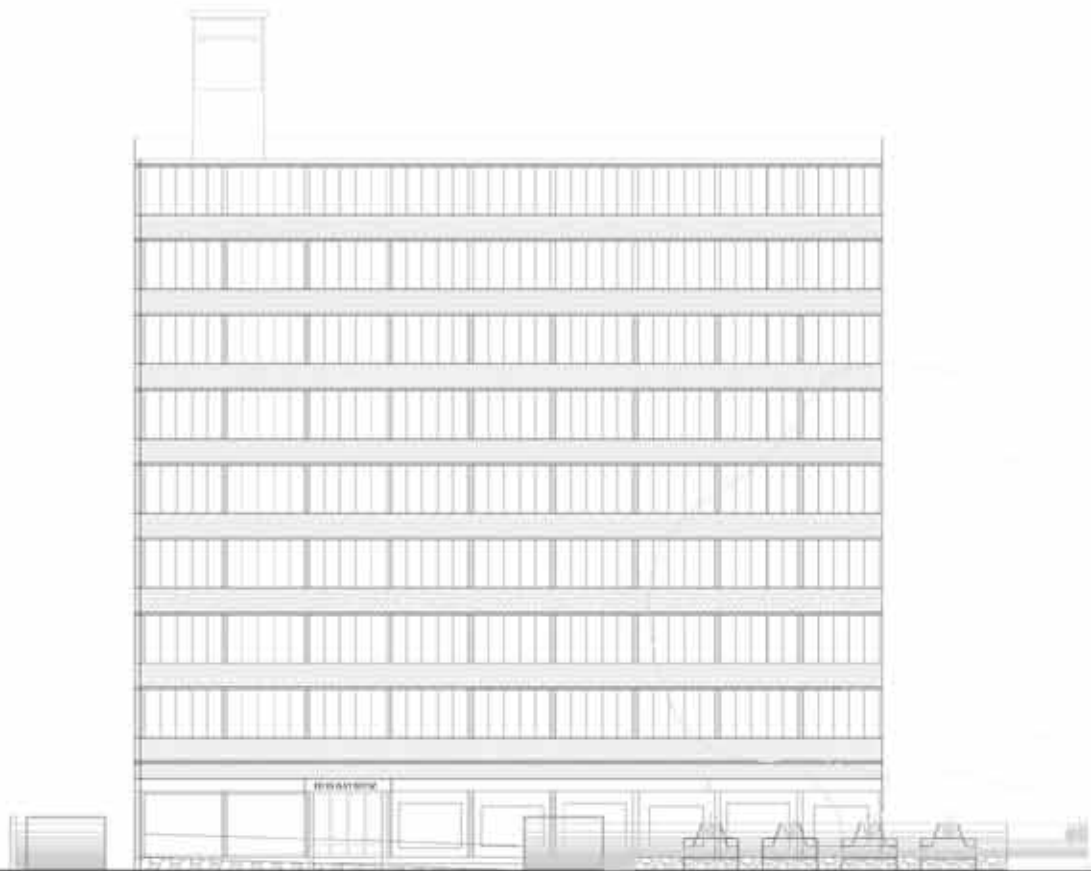
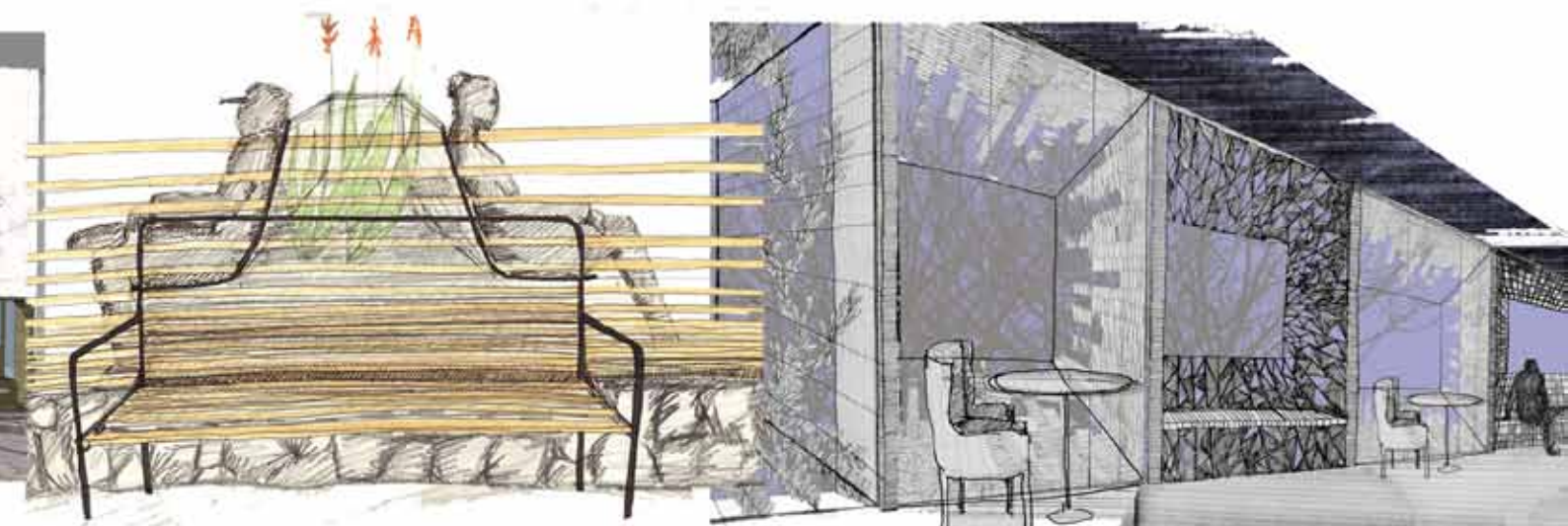


Figure 6-61 Concept C, Northern Elevation (scale 1:50 on A0)



6.7) CONCLUSION

A process of research by design resulted in clear design informants. The context analysis, client, theory and precedent studies were distilled to reveal the aims of the intervention and guided the iterative design process. Several consequent design proposals were analysed by means of swot analyses. The design process was developed until a strong golden thread revealed how all the informants could be tied together. The concept is the manipulation of the existing intimacy gradient of Huis Davidtsz. Four elements of architectural space: floor, wall, ceiling and window, form the medium for the creation of an intimacy gradient.

Subdividing and restructuring of spaces and the spatial relationships of the building was investigated and the need for an intimacy gradient became apparent. Weaknesses identified in each individual intervention were addressed while strengths and opportunities were resolved. This to and fro process of design, analyses and iteration formed the foundation for the final design intervention as well as the technical investigation.

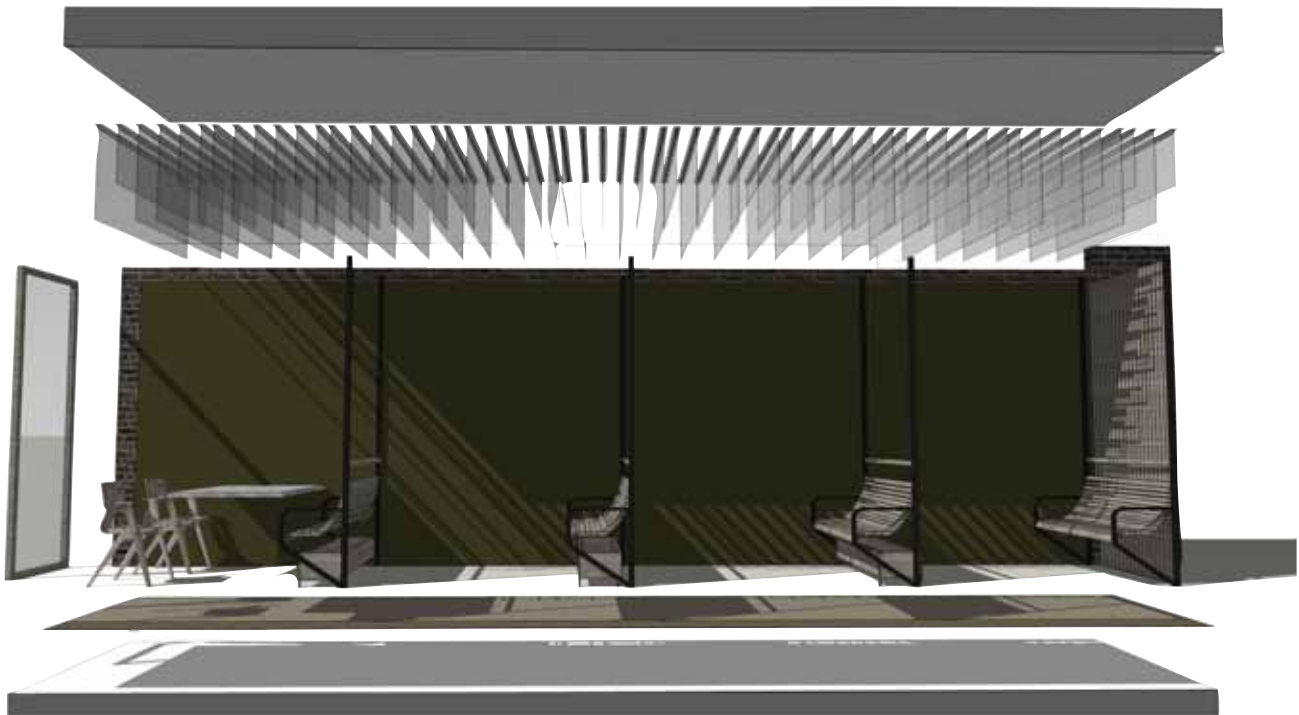


Figure 6-62 Digital model during design development (Author.2013)



Figure 6-63 Model investigating shadows (Author.2013)

Figure 6-64 Model investigating shadows (Author.2013)

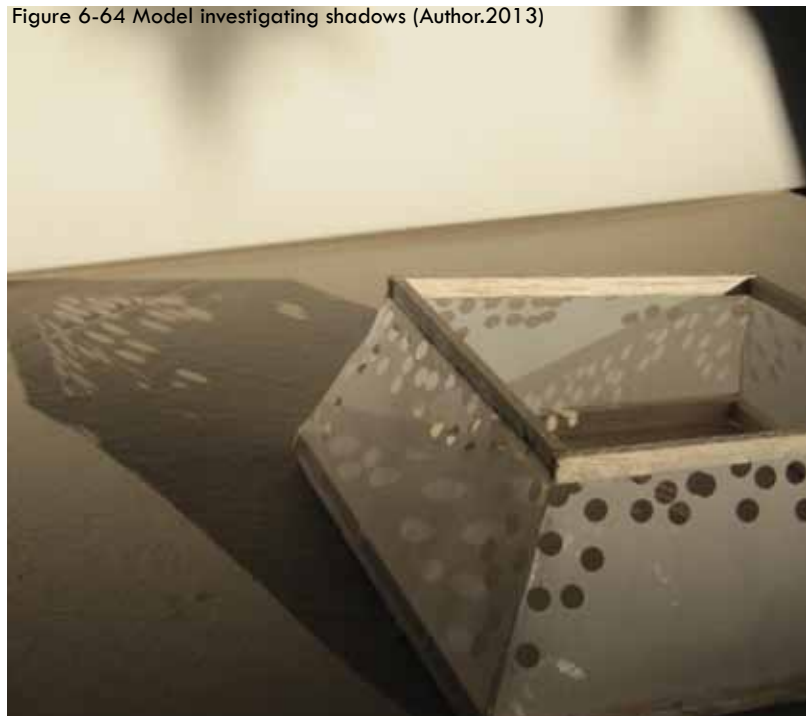




Figure 6-65 Model during design development (Author.2013)

CHAPTER SEVEN

FINAL DESIGN

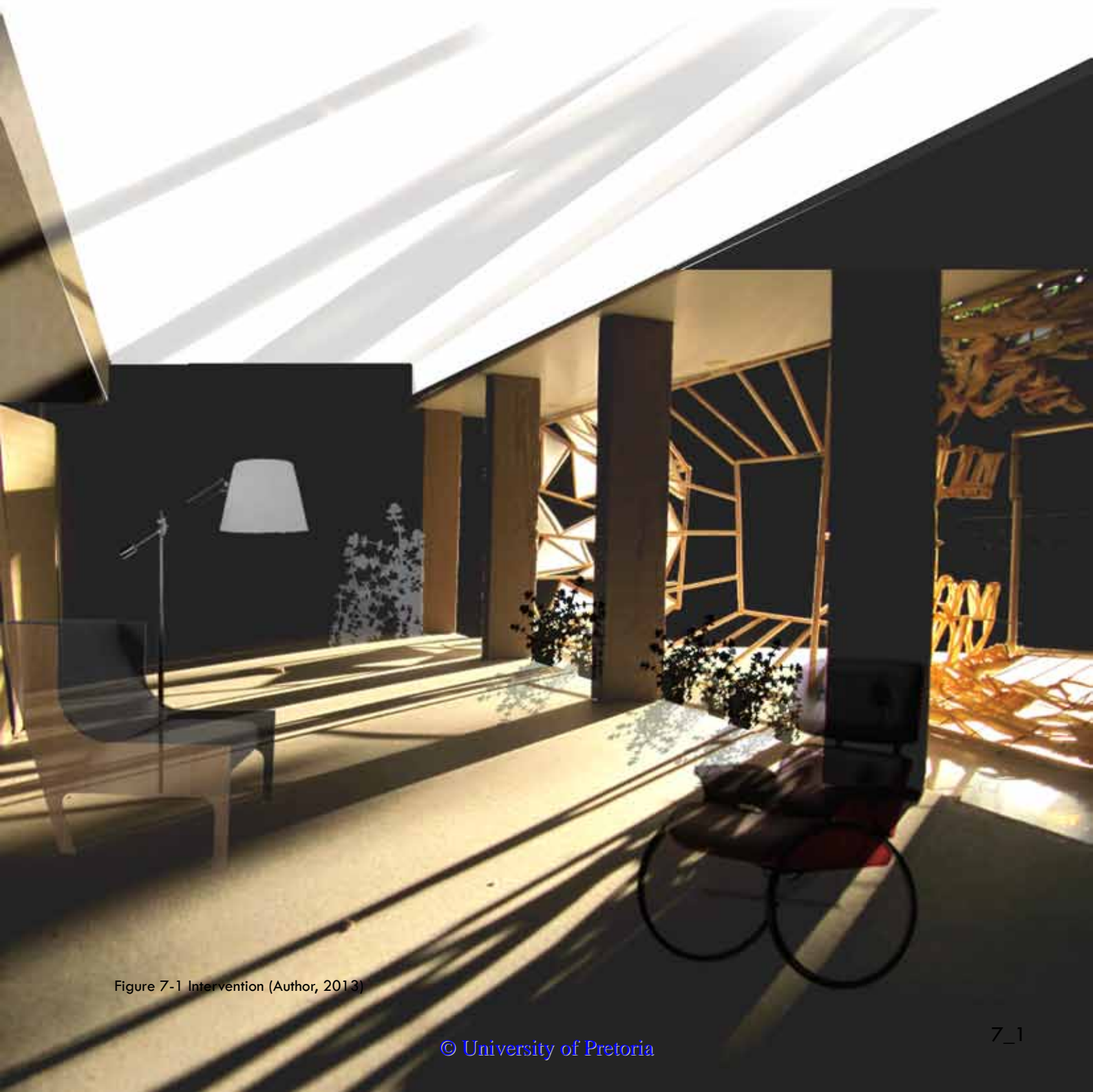


Figure 7-1 Intervention (Author, 2013)

7.1) INTERVENTION

This chapter amalgamates all the elements of the thesis into a physical architectural intervention. The introduction of an intimacy gradient in Huis Davidtsz, to incorporate in-between levels of privacy and a sense of territoriality, relies on various design interventions. As the spatial language of the various levels of intimacy differs (as discussed in Chapter Six), the architectural intervention also differs.

Architectural features communicate the level of intimacy of spaces to people, subtly indicating what type of conduct would be appropriate. The level of interaction with the existing building and extent of the structural intervention will be discussed in this chapter. The discussion will be continued to include a detailed explanation of the design intervention in the public- urban, public- neighbourhood, semi-public, private, semi- intimate and intimate spaces of Huis Davidtsz.

edge of an existing counter level concrete roof. The existing threshold was replaced by glass sliding doors; this provides a soft gradient between interior and exterior space. The trellis will be further discussed (see semi-public spaces).



Figure 7-2 Structural intervention

7.2) EXTENT OF STRUCTURAL INTERVENTION

The main recreational spaces of Huis Davidtsz are too small to accommodate the levels of intimacy required for the 183 residents of the building. In order to introduce more space, a process of stripping back (discussed in chapter six) removed several internal walls. The processes of design development led to the conclusion that a structural intervention was required. The building was extended towards the east and north and opened on the western side to allow extra spill- out space for the dining hall. The roof of the dining hall was also raised. The eastern extension is the most structurally significant intervention. The floor slabs of floors one to eight were extended and eight additional cast in situ concrete columns were added to support the new structure. The northern façade was extended on ground floor level by inserting bay window trellis elements on the



Figure 7-3 Structural intervention

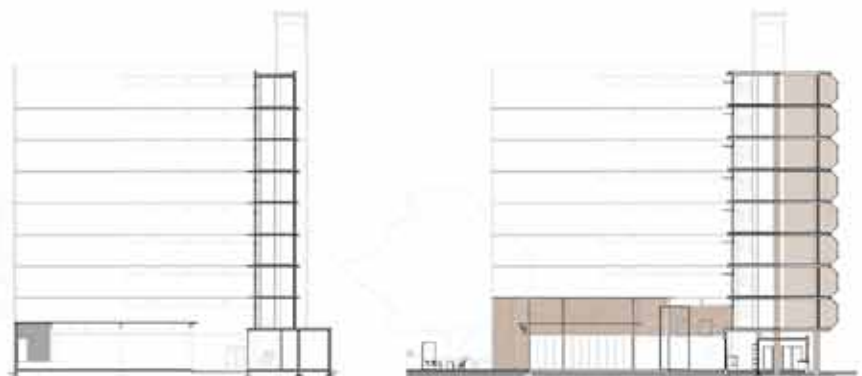


Figure 7-4 Structural intervention

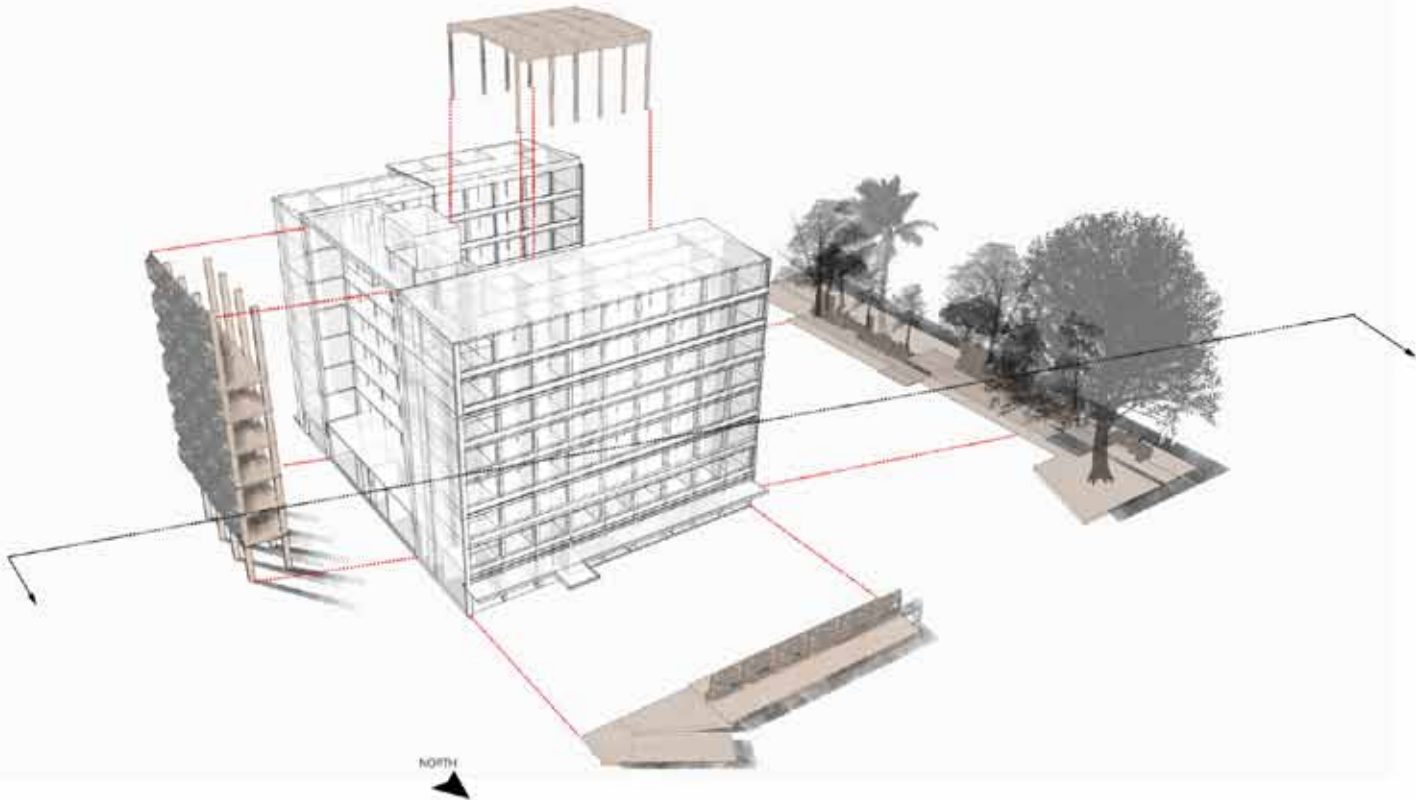


Figure 7-5 Structural intervention

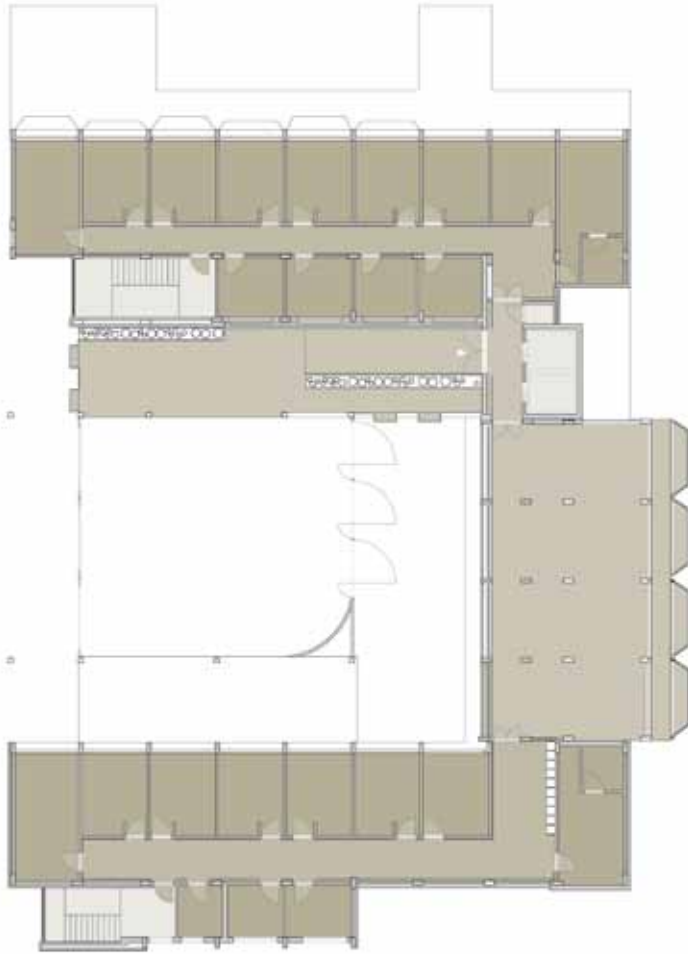
7.3) INTIMACY GRADIENT

The alteration of Huis Davidtsh will be discussed according to the intimacy level of each particular space. The implementation of the three theoretical guidelines: access to control over one's environment, access to social support and access to positive distraction in each space, will also be explained.



Figure 7-6 Plan indicating levels of intimacy (Author,2013)





Private spaces



Semi-intimate spaces



Intimate spaces



Figure 6
OUTDOOR LIVING SPACE

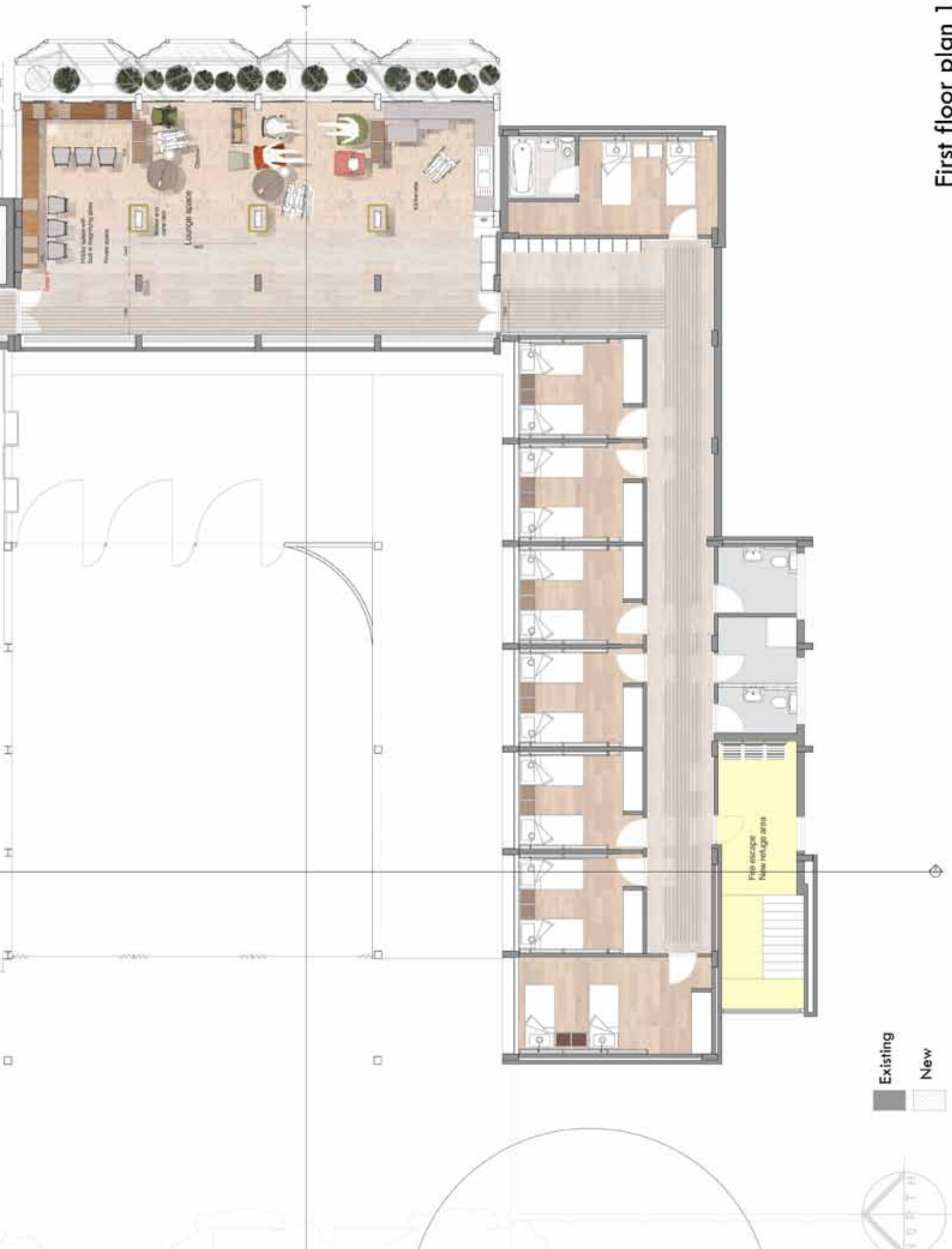
Outdoor deck





Ground floor plan 1:50





Existing
New



Figure 7-8 Final General Layout Plan First Floor, scale 1:50 on A0 (Author,2013)
© University of Pretoria



Outdoor recreational space
Public-neighborhood space

Natural-angled light and natural ventilation

New fence separates the property from the public realm but allows & reveals life @ the street

New street furniture allows shared enjoyment

Planter

Recessed territory and parking facility is made clear by tree change and fence



Mezzanine garden
Private space
1.20 timber ramp
Views into the dining
Raised planters
Screen

Protection space
Private space
Recessed space
Built in timber benches
Privacy wall
Clean on corner



Figure 7-9 Final section aa, scale 1:50 on A0 (Author,2013)

Section BB 1:50





Northern elevation
Scale 1:50

7_13

7.3.1) PUBLIC- URBAN SPACES

The interface between Huis Davidtsz and the street is the only public-urban space in the new intervention. This is a large open circulation space that is accessible by anyone who can motivate their admission. This space includes the vehicular entrance, parking, main entrance, service road and street furniture.

A new fence acts as a selective membrane. As the fence allows views into the street, an informed decision can be made as to who gains access to the property. This will provide residents with a sense of awareness and control.

The main entrance was altered to include a 1:20 wheelchair ramp. The ramp seems to wrap around the corner of the building, allowing users of all abilities to use the main entrance with dignity. Being able to independently enter or exit the building will foster a sense of control. An outdoor recreational space that falls into the public-neighbourhood intimacy level, is located adjacent to the public- urban space, but resident territory and public territory are clearly differentiated by means of a level change and a handrail that ensures that this space cannot be accessed from the public urban space. A new fence with horizontal slats is introduced. This membrane, that separates the property from the public realm, allows a visual link to the street. This visual friction is achieved by the slatted elements which are placed close to each other at floor level but are spaced further and further apart as the fence rises. The public-urban space, public-neighbourhood, semi-public and private spaces that flank one another are linked by selected views. These views are designed to allow only glimpses of the private spaces and direct visual links with the public-neighbourhood spaces in order to stimulate visual friction.

New street furniture was introduced. The furniture respects pedestrian and

resident territories while allowing opportunities for chance encounters and manipulated social friction. The trellis bay window elements (introduced in the reading room space) are covered in various climbing plants. The large tree in front of the building will be kept, as it provides soft dappled sunlight over the space and attracts birds to the site. The new street furniture incorporates a planter element that is filled with succulents. The use of natural materials, plants and nature analogies will ensure that this space is a calming point of arrival.



Figure 7-11 Public urban space with new entrance ramp (Author,2013)



Figure 7-12 Key Plan (Author,2013)



7.3.2) PUBLIC-NEIGHBOURHOOD SPACES

A small promenade was introduced to link Huis Davidtsz to Pennies Preschool. This space acts as a spill-out space for the dining hall and the reading room. An interactive wall (made up of seating and planters on the side of the elderly, and sandpits, slides, monkey bars and jungle gyms on the side of the preschool) is the main design element of the space. The space is paved with clay brick pavers and has insertions where turf blocks and sandpits (extending from the preschool side) allow various tactile experiences. The concrete seating and planters are juxtaposed to transparent glass windows. A timber deck was constructed beneath the tree to create a smooth surface over the raised roots of the tree. The seating introduced in the space allows various configurations. The built in seats were designed to ergonomically accommodate elderly persons. Spaces for wheelchairs are also provided here. Raised planters allow wheelchair bound persons to access and enjoy the plants.

This space allows a positive, manageable interaction between the elderly of Huis Davidtsz and the toddlers of Pennies Preschool. The wall allows both user groups to interact visually and verbally. These chance encounters will be of benefit to both the elderly residents and the toddlers.

The natural elements in the space, i.e. access to natural dappled light and natural ventilation, are perfect positive distractions. Access to laughing, active children will also prove a healthy alternative to the existing secluded nature of Huis Davidtsz.



Figure 7-13 Public neighbourhood space showing spill-out space (Author,2013)



Figure 7-14 Key Plan (Author,2013)



7.3.3.1) THE DINING HALL

The dining hall is the biggest social space of the intervention- it has a high ceiling and should be multi-functional. Even though the space is the territory of the residents, it is a semi-public space as visitors can also be accommodated here. The dining hall is used for activities and functions as well as dining. Trapezium tables have been specified for the space because they can be arranged in many configurations to accommodate either dining, conferencing or dinner theatre.

Residents often bring their own furniture to Huis Davidtsz. Chairs belonging to the residents or that were donated to Huis Davidtsz will be used in the dining hall. These chairs will be re-upholstered (see level of interaction: keep) to illustrate a layer of the new intervention, but will provide the space with a level of personalisation.

A large projection screen allows the space to be used for workshops or movie nights. This allows Huis Davidtsz to comfortably accommodate various institutions and groups that would like to become involved with the elderly. Large pivot doors allow the space to open towards the interior courtyard, while sliding and stacking doors form the threshold between the dining hall and its outdoor spill- out space towards the west. The access to natural cross ventilation and natural light provided by these thresholds, results in pleasant biophilic elements that stimulate the senses of the users. Suspended acoustic undulating ceiling tiles will reduce the reverberation time and sound reflection of the space. Woven bamboo pendants suspended from the ceiling at various levels, make the space more intimate by lowering the perceived soffit level.

In terms of way-finding, the circulation space as well as the reception, are the most crucial part of the intervention. This space has to provide intuitive way-finding cues in order to orientate persons visiting the building for the first time, as well as persons inflicted with cognitive impairments related to age.

The space has been cleared of cluttering interior walls and this allows the user to form a mental map of the ground floor, as it offers a panoramic view of the entire interior. Views into more private spaces allow the user to gain an understanding of the on-going activities, guiding them towards a decision regarding their next destination. Tactile floor finishes also allow the other senses to take way-finding cues from the space.

The reception desk has two levels, one of which is designed for effective use by a wheelchair- bound person, while the other is standard.

A waiting area was created in front of the elevator. The area is intended for visitors waiting for residents and for residents waiting for the elevator. Armchairs are placed in socio-petal seating arrangements to encourage social interaction.

The space is indicated by a change in floor finish and suspended cork pendant luminaires. These luminaires are used to lower the perceived ceiling and make the space more intimate. The absorptive pendants should also lower the acoustics of the waiting area without forming a solid visual obstruction that discontinues the panoramic nature of the space. A living wall is the main focal point as one enters the building. This natural element will give the space a soft appearance and have the added benefits of purifying the air and creating a micro-climate.

The interior courtyard is a buffer space between the staff recreational space and the dining hall. It acts as a spill- out space for the staff area and also has an important role in the ventilation of the building.

Built- in seating connects the staff recreational space with the courtyard. This seating could be augmented with tables and chairs to be used as an informal dining space.



Figure 7-15 Semi-public space showing new circulation space (Author,2013)



Figure 7-16 Key Plan (Author,2013)



7.3.4.1) REFLECTION SPACE

A private dining area flanks the dining hall, and as the ceiling drops due to an existing concrete slab, the space has a more intimate nature. This space can also function as a reflection space where small religious or other services can be held. Sliding screens allow the space to be either completely open, or completely closed.

As this is a quiet space, it is furnished with socio-fugal seating. Built-in dark timber benches are oriented towards the west of the building. These benches are spaced far enough apart to accommodate a table and two extra chairs. This allows the “pews” of the reflection space to also be used as booths for the dining hall. A custom-made drawer on casters is included beneath each bench. The drawer serves as storage for pillows. The pillows are designed to fix to the bench to allow various body types to be comfortably seated.

Geo-textile sheets are suspended from the ceiling to soften the space, act as acoustic absorber and to reflect light. When the space is open towards the outside, these sheets will be moved by the air movement and give the space a lovely quality.

The northern wall of the reflection space serves as a memory wall. This wall houses the names of residents who have since passed on. It will consist of a metal grid with sandblasted glass sheets that slot into the grid. These names will be illuminated from behind with diffused light.

The reading room is located where the original sitting room was. The space was enlarged by altering the threshold between inside and outside. A trellis element was designed to be fixed to the overhang of the existing concrete roof. This element forms a bay window space that is neither interior nor exterior but forms a spatial gradient between the two conditions. The trellis consists of a galvanised steel tube frame with various forms of infill: from woven wattle rods to wire mesh. The infill allows dappled natural northern light to reach the interior. As each trellis bay window differs slightly, the shadows cast by its infill will alter the interior of the reading room to provide individual spaces. Raised planters located near the bay windows were planted with climbing plants that will climb the trellis to further blur the boundaries of interior and exterior space.

As with the dining hall, personalisation is provided for with the incorporation of furniture belonging to the

residents. A custom- built ottoman on casters is the only specified piece of furniture. The ottoman contains a battery- powered, adjustable floor luminaire. The ottoman can be moved to wherever task lighting or extra seating is required.

The floor finish of the reading room consists of laminated timber planks and hexagonal parquet flooring. The colour of the parquet and the laminated planks were selected to be the same. The change in pattern was used to indicate individual spaces or zones. The mobile furniture and lighting allow the space to be adjusted according to the needs of the residents, while the floor finish indicates certain zones.

The threshold that pertinently divides the reading room into interior and exterior, consists of glass sliding doors. These doors are located between existing columns. These columns also house a custom-built rack, designed for the storage of canes and walkers.



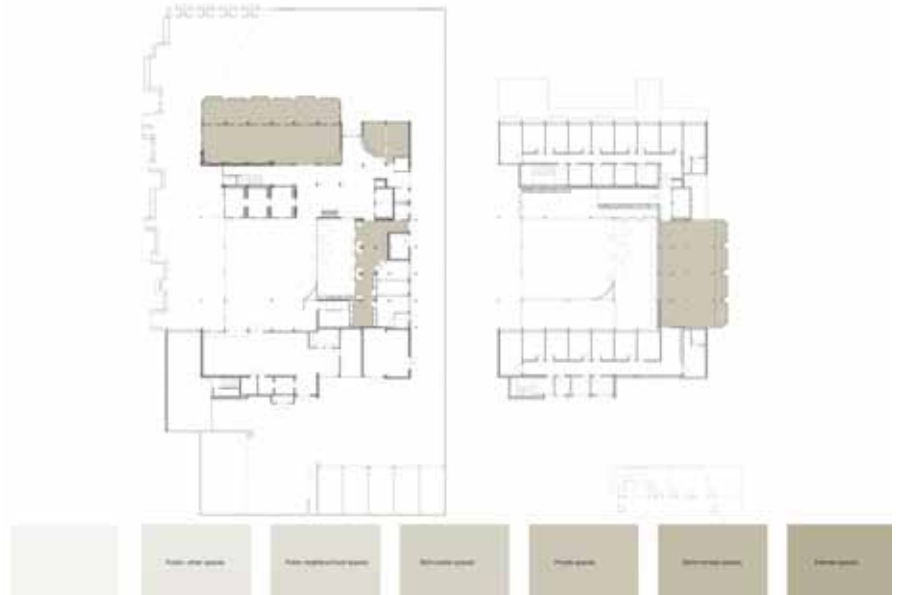


Figure 7-18 Key Plan (Author,2013)

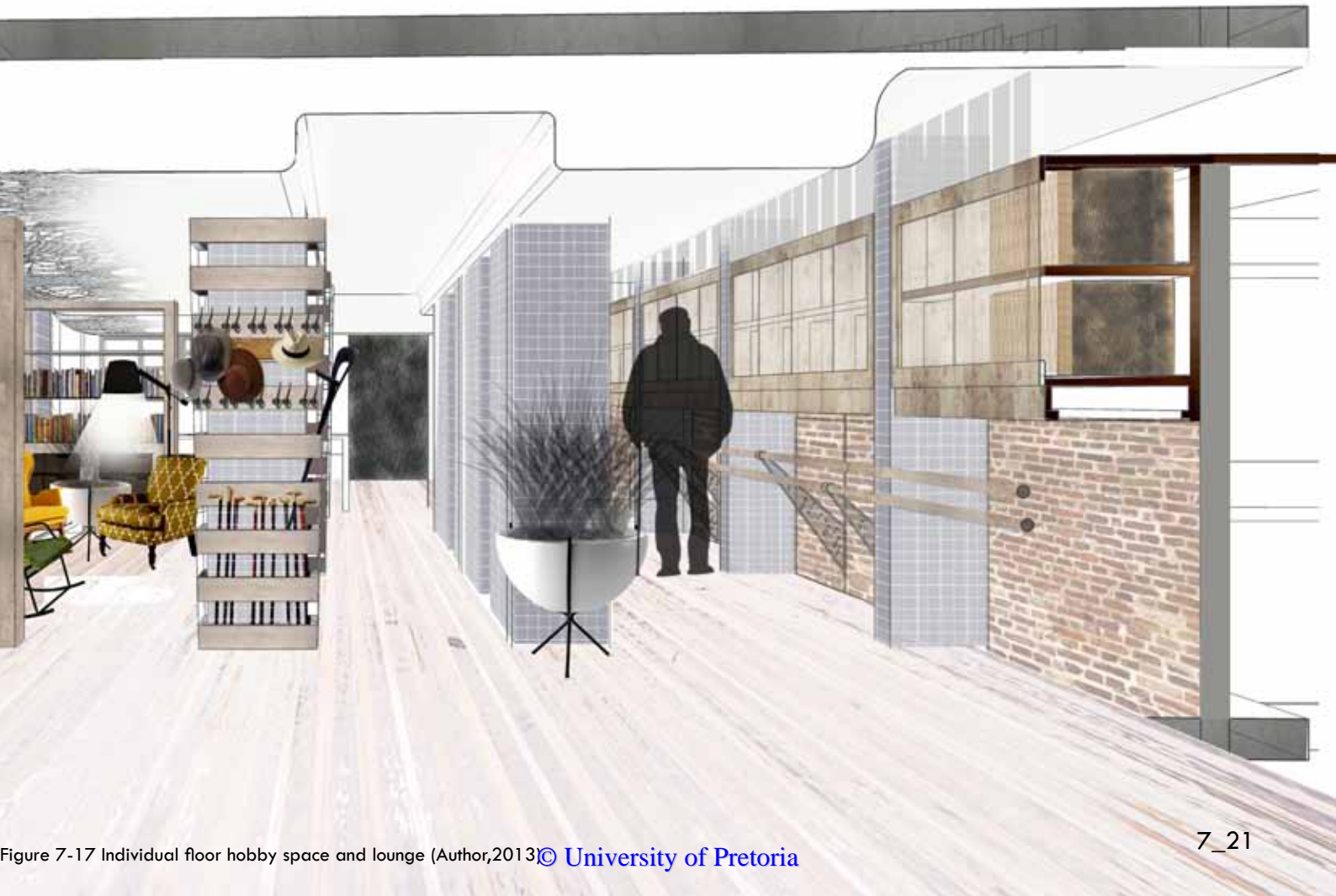


Figure 7-17 Individual floor hobby space and lounge (Author,2013) © University of Pretoria

7.3.4.3) STAFF SPACES

This space provides the staff of Huis Davidtsz with storage for their belongings, as well as a space to relax during a shift change. The space is located next to the interior courtyard and can be opened towards the courtyard by means of sliding doors.

Built-in timber seating connects the interior and exterior spaces and allow for various configurations. A living wall planter system wraps around the existing columns, providing the space with additional access to nature.

7.3.4.4) MEZZANINE GARDEN

The existing concrete slab that covers the new reflection space was altered to become a new outdoor break- away space. The slab was strengthened to allow it to accommodate foot traffic. A 1:20 timber ramp connects the slab to the first floor. A new door was introduced into the western wall to allow access to this space. Raised planters were introduced; these planters accommodate individual pots allowing each resident to tend their own micro garden. A designed handrail was installed to ensure user safety. The rail also houses built- in benches. Small outdoor cocktail tables and chairs are specified for this space.

This space allows views into the dining hall and the boardwalk, but is screened from the adjacent intimate first floor spaces. The space is ideal for the smokers of Huis Davidtsz.

7.3.4.5) INDIVIDUAL FLOOR HOBBY SPACE AND LOUNGE

Each floor has a private recreational space; this space is located in the new eastern extension. These spaces include a hobby space, lounge space and a kitchenette. Individual storage facilities are also incorporated to the design. This space speaks the same language as the reading room

but was designed to be even more intimate. As with the reading room, trellis bay windows create a gradient between the interior and exterior condition, while also screening the space from harsh morning sun. Planter drawers housed in the bay window space allow the residents daily access to growing plants.

The hobby station consists of a long-angled timber worktop. The worktop has a slightly raised bevel on its lower edge to allow items to stay on the desk and to simplify the picking up of items. Magnifying sheets in timber frames slide across the worktop on a rail. The timber frame that houses the sheet also houses a LED under-cabinet luminaire. This magnifying element can be used horizontally to enlarge the object or be angled vertically to provide task lighting. The timber worktop has a matt finish in order to avoid glare. The space is furnished with Eames executive chairs. These chairs are ergonomically suitable for use at a desk, are comfortably padded and supplied with armrests that aid frail persons in getting up. While the hobby space is oriented away from the circulation space, the lounge is oriented towards it. Custom loveseats made from plywood and plush seat cushions, provide seating as well as additional storage in drawers underneath. The lounge has a lower ceiling than the hobby space and softer, more absorptive furnishings. This makes the space more intimate and provides a quiet acoustic solution. As with the reading room, personal furniture is incorporated into the space.

The kitchenette allows the residents of each floor to make hot drinks. It consists of a wheelchair- accessible worktop and a sink. Under-worktop storage units on casters will hold the crockery of each floor.

7.3.5) SEMI-INTIMATE SPACES

Semi-intimate spaces can be defined as the circulation between intimate spaces. These should not be accessible to everyone. One would not like to run into a stranger in-between your bedroom and your ablution facility. The semi-intimate circulation spaces have been designed to aid way-finding. A laminated timber floor finish with tactile navigation cues was specified. Longitudinal cues indicate the centre and direction of corridors, while a blister pattern indicates two paths crossing.

Doors to rooms were designed to form a small portico or threshold. These thresholds introduce the room number. Doors are painted in various shades of the colours in the selected colour palette. A unique door colour will act as a memory stimulant and aid residents in remembering their room.

Doors to service spaces, such as the sluice, are painted the same colour as the wall. As these spaces are only used by the staff, they will be less likely to cause confusion if they are less defined.

Yellow is reserved for fire escapes, therefore only fire escape related spaces and elements will be painted yellow.



Figure 7-20 Key Plan (Author,2013)



Figure 7-19 Semi-intimate spaces of corridors on upper levels (Author,2013)_ pending

7.3.6) INTIMATE SPACES

7.3.6.1) BEDROOM

As the most intimate space of the intimacy gradient, the residents' bedrooms should be a place into which they can retreat and seclude themselves. However, bedrooms are shared by two residents and as Huis Davidtsz has an assisted living component, the bedrooms should also retain a high level of functionality. The bedrooms were altered to provide as much control as possible over elements such as lighting, privacy, ventilation and personal belongings, while also providing opportunities for personalisation. The artificial lighting of the bedrooms (discussed in Chapter Eight) was designed to be accessible and adjustable by each resident. General and task lighting can be adjusted by residents from their beds, and as task lighting is provided for each of the residents, a level of individual control is therefore provided.

A recessed ceiling curtain rail and adjustable modesty curtain provides each resident with a level of privacy they did not previously possess. The modern translucent curtain is designed to visually differ from hospital track curtains by extending into the recessed ceiling, instead of hanging from a suspended rail.

Individual storage is provided by introducing a new side table and drawer space under the bed. The side table includes a drawer and a mirror that is hinged to the table to be able to open and close. The bedrooms are zoned to be extremely intimate and accessible only by invitation of the individual who lives there. These spaces should not encourage social interaction. However, if a resident is bedridden, the room should be able to accommodate a visitor. As the size of the room does not allow adequate space for chairs, a marine fold-out chair was included in the intervention.

The material palette of the room was selected to be calming and neutral. The natural materials and colour palette form a natural analogy. Pegboard systems were designed into the space to allow each resident to easily personalise their side of the room with personal effects such as picture frames.

7.3.6.2) WHEELCHAIR- ACCESSIBLE WC

New, fully accessible WC's were designed to be functional as well as aesthetically pleasing. The standard dimensions of grab rails, hand wash basins and toilets were followed to the letter. A bulkhead was introduced over the toilet and vanity. The walls were painted moss green to allow a colour contrast between the wall and the floor, as well as between the wall and the other facilities. A metal grid drain turns the entire room into a wetroom, while also providing additional contrast between wall and floor. String gardens are suspended from the ceiling; the plants filter the air and act as lovely positive distractions.





Figure 7-22 Key Plan (Author,2013)



Figure 7-21 Intimate space created in residents' bedrooms (Author,2013)

7.5) LEVEL OF INTERACTION: KEEP, ALTER, AND REMOVE

7.4) COLOUR PALETTE

The new colour palette was selected by investigating colours found in indigenous Pretoria flora, more specifically, the Aloe marlothii. This palette suits the project as the aloe offers a soft gradient between a wide range of warm and cool colours in neutral tones. The earthy undertones of the material palette will support the colour selection. The yellow and brown ochre tones are used very selectively to provide hints of colour without becoming overpowering or aggressive.



Figure 7-23 Colour palette of intervention (Author,2013)

7.5.1) KEEP

Furniture donated to Huis Davidtsz or brought to Huis Davidtsz by residents are to be re-upholstered with high performance textiles. These anti-microbial textiles are moisture repellent and can easily be cleaned. When possible the furniture should also be fitted with casters and stoppers. Seat cushions provided for built- in furniture will also be covered in high performance textiles.

The ground floor columns are finished with blue mosaic tiles; these will be cleaned but maintained.

The undulating masonry wall and suspended timber bulkhead in the reading room will also be kept. The bulkhead will be slightly altered to accommodate more lighting.

Beautiful masonry details can be found in several places throughout the building. These details will be kept and are indicated on the drawings. All existing trees will be kept and celebrated. This includes ,but is not limited to, a colossal Ficus burkei in front of the building, as well as a large Canary Island Date Palm towards the west.

7.5.2) ALTER/REPURPOSE

7.5.2.1) STAINED GLASS

The existing dining hall has stained glass clerestory windows, and as the roof will be raised, the fenestration will need to be replaced. The stained glass will be cut and repurposed in the glass sliding doors that form the threshold between the interior courtyard and the staff recreational space. The existing panes are 1400 x 900 x 6mm and will be cut to 300 x 280mm blocks and soldered together. This new glass pane will then be inserted into a van Acht Saligna external sliding door frame.



Figure 7-24 Kept slate floors
(Author,2013)



Figure 7-25 Kept mosaic tiles
(Author,2013)



Figure 7-26 Kept brickwork
(Author,2013)



Figure 7-27 Kept brickwork
(Author,2013)



Figure 7-28 Kept brickwork
(Author,2013)



Figure 7-29 Kept mosaic tiles
(Author,2013)



Figure 7-30 Repurposed mailboxes for shelving
(Author,2013)



Figure 7-31 Repurposed glass from clerestory windows
(Author,2013)



Figure 7-32 Repurposed wood panels from tuck shop
(Author,2013)

7.5.2.2) MAILBOXES

The hardwood mailboxes will be repurposed to form new shelves in the reading room area. The mailboxes consist of a 300 x 300 grid of 22mm hardwood planks slotted into one another. Every second shelf will be replaced by structural glass bolted to the existing columns by means of glass clips. The doors of the mailboxes will be removed.

Several of the existing floor surfaces are finished with slate tiles. These tiles will be reused in the new intervention as indicated in the drawings.

All the existing shop fittings of Huis Davidtsz (the existing tuck shop) are constructed from solid hardwood. This timber will be reused as indicated on the drawings.

7.5.2.3) EXISTING BRASS MOULDING STRIPS

The existing floors of Huis Davidtsz are not effective as they produce glare, do not contribute to way-finding and their surfaces are difficult to clean. The existing divider and moulding strips are made of brass and are still in a good condition. These strips will be reused as moulding strips and divider strips for the new floor installation.

7.5.3) REMOVE

The existing steel handrail is stigmatising, cold and makes the users' hands smell. It will be removed completely and replaced with timber handrails with braille inlays (see detail). The new handrail will be installed on two heights to accommodate wider ergonomic features.

The column corner protectors are the same products used in parking garages. These elements are extremely stigmatising but they serve to protect the columns from wheelchairs, gurneys and trollies. Columns will be protected by a timber rail that wraps around the column

on several levels. This new element is multi-functional as it serves as corner protector, cane and walker rack as well as an additional handrail.

A new, high efficacy Schindler 3300 AP lift, with translucent doors, will be installed within the existing lift shaft and the existing lift will be removed.

The existing signage will be replaced by tactile universal signage.



Figure 7-33 Removed lift (Author,2013)



Figure 7-34 Removed handrails (Author,2013)

7.6) BRANDING

 smokers

snoozers


tea ladies

 ACTIVES

boon
worms

hobbiests

Green
Fingers 

Huis Davidtsz's name comes from its heritage and forms part of the layers of history of the place. The name is significant and should not be changed. However, as the building is reimagined, the branding should reflect the new anti-ageist appearance of Huis Davidtsz. A monogram of Huis Davidtsz will be used as its new branding identity. This logo can be used in advertising, on letterheads and for other administrative purposes as well as on items created in the new hobby spaces on each floor.

Market days can be held in the dining hall and boardwalk space, where items made by the residents can be sold. These items can also be taken to other craft markets in the city, and so the 'hd' logo can then also be a marketing platform for items handcrafted by the residents of Huis Davidtsz.



huis davidtsz

Figure 7-35 New Huis Davidtsz logos
(Author,2013)



Figure 7-36 Perspective of dining hall spill out space (Author,2013)

7.7) CONCLUSION

This chapter illustrates the physical architectural intervention. Huis Davidtsz is altered to incorporate in-between levels of privacy and a sense of territoriality. As the spatial language of the various levels of intimacy differs, the architectural intervention also differs. Various levels of structural, spatial, material and décor intervention are discussed.

The chapter forms a narrative through the public-urban, public-neighbourhood, semi-public, private, semi-intimate and intimate spaces of the building. The actions taken to provide the users of these spaces with a sense of control over their environment, a sense of access to social support and access to positive distraction, are described.

Existing elements, architectural and otherwise, that are to be kept intact by the intervention are discussed. Elements that will be removed or altered by the intervention are discussed.

The chapter concludes by illustrating the reimagining of the brand “Huis Davidtsz”.

CHAPTER EIGHT

TECHNICAL INVESTIGATION



Figure 8-1 Perspective of reading room space

8.1) DESIGN AND TECHNOLOGY

Places designed for the elderly tend to be stigmatising, which is predicated in its medical engineering background. In various fields of design, such as industrial design and fashion, design culture has embraced disability as a design generator instead of a parameter, architecture should do the same.

The systems and technology introduced into Huis Davidtsz centre on the physiological needs of its occupants and aim to provide them with a safe, comfortable, psychologically supportive space. Systems known to influence elderly persons such as way-finding, lighting, acoustics and egress are technically resolved. The technical investigation results not only in a physically enabling building, but also in a comfortable residence that stimulates multi-sensory spatial pleasure.

Passive building systems such as natural daylight and ventilation are augmented by active systems when necessary. Existing services are kept intact and the intervention ties into the existing system where it is possible.

8.1.1) PASSIVE SOLAR DESIGN

The typical Pretoria regionalist building was designed with orientation in mind. The building faces north and glazed surfaces are protected by overhangs. The thermal mass of the concrete and masonry structure of the building also result in stable, comfortable interior temperatures. The building is flanked by large multi-storey buildings on its western side. These buildings cast long shadows in the afternoon. The eastern façade is protected from glare and heat gain by the trellis bay window elements. The western façade of the new dining hall is shaded by many large exist-

ing trees and the large buildings that flank it.

8.1.2) DAYLIGHT

Natural light is essential for human wellbeing. It maintains our circadian rhythms and stimulates vitamin D production. The elderly residents of Huis Davidtsz cannot always access outdoor spaces, which makes the celebration of daylight in interior spaces all the more important. The design plays with daylight by offering various levels of light in various spaces. Dappled light enters spaces fitted with bay windows, while the use of stained glass produces coloured light. Light shelves fitted to the western façade of the building bounce light onto a white ceiling that reflects it into the lounge space.

8.1.3) VENTILATION

Huis Davidtsz has sufficient natural ventilation. The H-shaped plan allows all the spaces to have natural cross ventilation. The interior courtyard in the middle of the building allows fresh cool air to be drawn into the ground floor spaces.

8.1.4) RAINWATER COLLECTION

Rainwater is collected from the existing roof surfaces for irrigation purposes. Downpipes drain to a catchment pit which has an overflow into the existing storm water drain and eventually into the municipal connection.

8.2) CIRCULATION

Vertical circulation

There are two methods of vertical circulation in Huis Davidtsz. Firstly and most commonly used, due to the abilities of the residents, are the elevators. The two existing lifts are overused, slow and unreliable. They are also too small and cannot comfortably accommodate a hospital gurney. Two new Schindler 3300 high performance passenger elevators will be installed in the existing shaft. New technology allows bigger lift cars (1100 x 2100mm) to be installed into the existing shaft (Schindler 2013).

Secondly, a set of concrete stairs connects the eight floors on each of the legs of the H-shaped plan. These two staircases also act as the fire escapes of the building. Some changes to the stairs have been made to improve the emergency evacuation of the building (see egress).

Horizontal circulation in Huis Davidtsz was improved dramatically by removing the clutter of walls on ground floor level. All the recreational spaces can be accessed quickly and efficiently from the main entrance and the reception area.

4819

15000

11000
15000

Pennies preschool

Government printing works

- Site boundaries
- Municipal water supply
- Existing building footprint
- Existing boundary wall
- Sanitary and storm water sewer connection

Additions

Spaces shared between Huis Davidsz and Pennies Preschool

New paved surface

Benchmark as reference for the elevation of new work

- 1 Vehicular entrance
- 2 Visitor parking
- 3 Vehicular exit
- 4 Ambulance access and service road
- 5 Staff parking
- 6 Public entrance
- 7 Wheelchair ramp
- 8 New proposed street furniture (see detail)
- 9 Municipal sewer connection
- 10 Storm water drain



Site plan 1:200

4814 37757

Huis Davidsz for Kerk Sondermure
Erf 176 Pretoria
113 Johannes Ramokhoase Street

4207

11386

34382
67722

11103

7237

4864

Shubart park

Shubart park

Verregtig apartments

Pennies preschool

Huis Davidsz

Government printing works

Government printing works

Government printing works

Locality plan N.T.S.

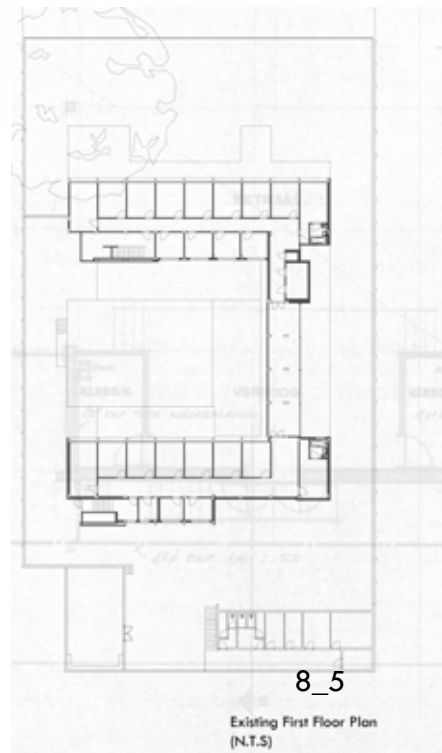
Figure 8-2 Site Plan



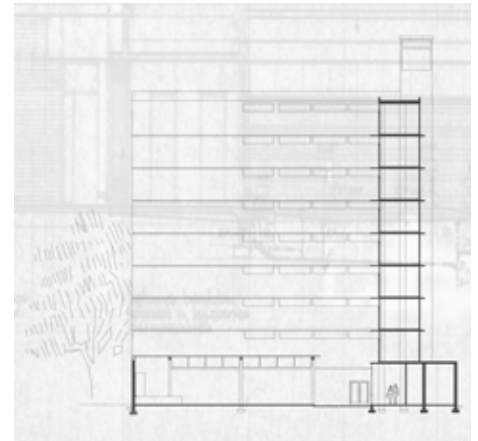
Figure 8-3 Ground floor plan, not to scale



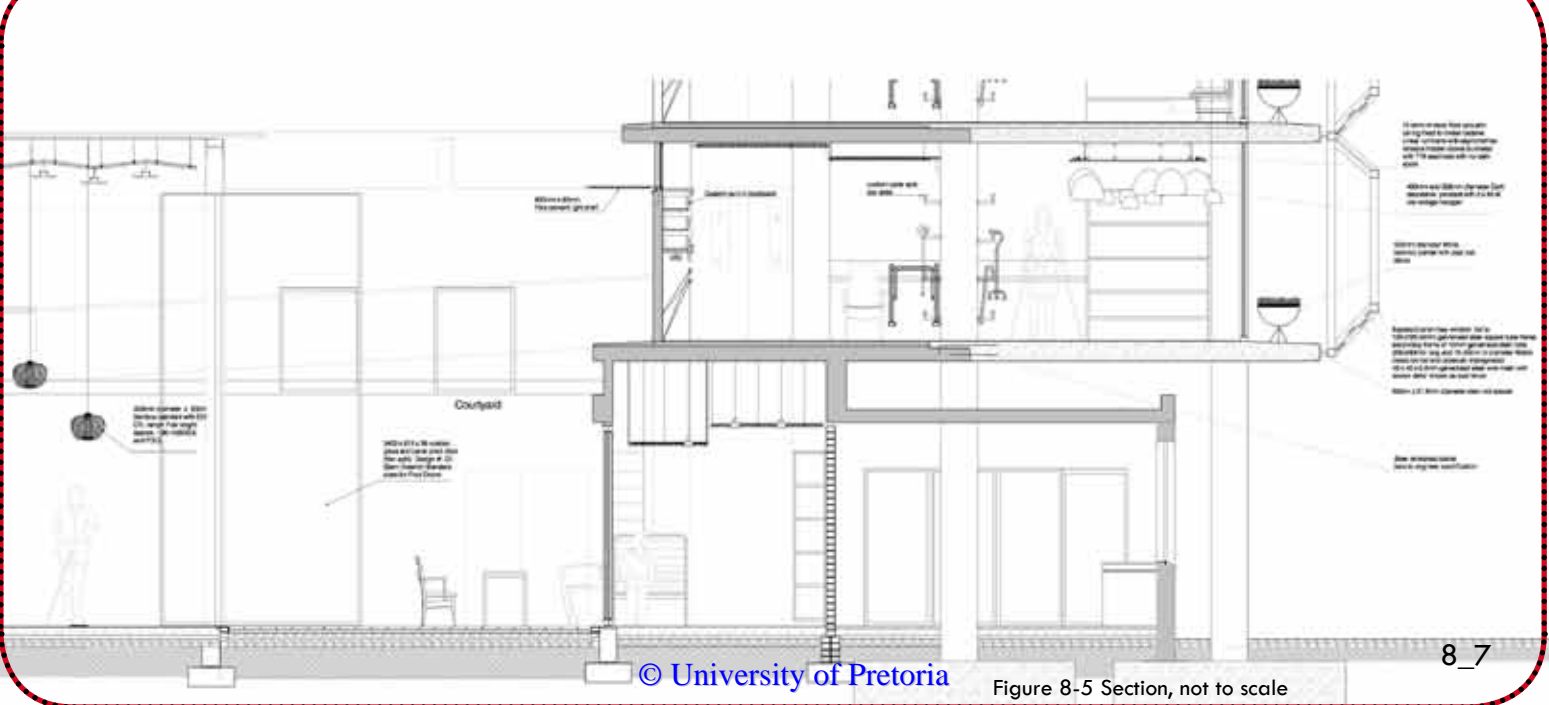
Figure 8-4 First floor plan, not to scale



	Soundscape	Materials	Reverberation time
Walking and te	City sounds Street noise birds	Clay brick pavers Timber handrails Timber decking	@ 500hz
	Some city sounds Children laughing Birds Wind	Clay brick pavers Concrete built- in seat- ing Trees	@ 500hz
pace	Footsteps Slight echo Quick, loud conversa- tions Knives and forks music	Acoustic ceilings Laminated flooring Soft furnishings Hard furnishings	@ 500hz
om e s	Long subdued conver- sations Quiet Pages of books being turned Kettle boiling	Acoustic ceilings Cork flooring Soft furnishings	0.26 @ 500hz
between ices	Muffled footsteps	Laminated flooring Acoustic ceilings	@ 500hz
	Snoring Pages of books being turned music	Soft furnishings Acoustic ceilings Curtains Timber panelling	@ 500hz



Section BB part B p 8_10





10110
10170
10200

Bank level
Existing level bottom
FSC certified timber
Borehole steel pipe, galvanized
and green-bond
Resist outdoor use of materials
for transfer below ground

Light fixture and arm
Steel galvanized and coated

Chair
Light and shade
RAL 7017 black
INSTALLATION
- fix models to be installed
below ground level the legs
are cut down to existing ground
level. Upgrade with existing frame
existing facility, a small ground
level must be dug out for the installation
of the existing frame parking element

10190
10200
10400

Plunge
20 x 20 mm
Pressure-treated (A)
green galvanized steel
90mm x 90mm. Galvanized steel
square tube

Outdoor recreational space
Public neighborhood space

no private
Some city blocks
Children laughing
Bark
Wind

10200
10200
10300
10300

200 x 90 x 60
50mm
100mm
Cantilevered city bench panel
Sand filling bed
Compacted aggregate
Compacted subgrade



800mm x 30mm Fibre cement light shelf
Pre-tensioned slab edge

Courtyard
lawn outdoor space

100 x 100 mm
10mm
300 240mm x
16-20mm plaster
Galvanized steel square tube frame
Galvanized steel mesh assembly height
Walls (large locked steel pressure in precast
rooms through-hole)

3400 x 810 x 30
Custom glass also panel
panel door floor finish
Design # 01

Staff recreational space
300 sq

Bicycle parking
Long wall
Duct
Height of beam using L-shaped
steel joist

Reading room:
 Room: 155m²
 Floor: 9.3 mm laminated flooring
 2 mm cork underlay

 Ceiling: 12.5mm mineral fibre acoustic ceiling fixed to timber battens

 Walls: undulating cavity wall 115 brick leaves with 20 mm cavity
 Doors: 6 mm glazing
 Furniture: various soft furnishings

Absorption coefficients
 Floors: 0.07
 Walls: 0.3
 Ceiling: 0.44
 Doors: 0.04
 Furnishings 0.88
 People 0.84
 Air: (per m3) 0.003 (from tables in)

Absorption m2
 Floors area 155 m2: 11
 Walls 24 m2: 19.6
 Roof 80 m2: 7.2
 Doors 4.7m2: 0.19
 Furnishings 20 : 17.6
 Air: 1

Total absorption in room: 116.59

Room total surface: 216 m2
 Average absorption coefficient: 0.75 (total absorption/ total surface area)
 Reverberation time: 0.26



Order	Time (s)	Distance (m)	Order	Time (s)	Distance (m)
1	0.000	0.000	1	0.000	0.000
2	0.000	0.000	2	0.000	0.000
3	0.000	0.000	3	0.000	0.000
4	0.000	0.000	4	0.000	0.000
5	0.000	0.000	5	0.000	0.000
6	0.000	0.000	6	0.000	0.000
7	0.000	0.000	7	0.000	0.000
8	0.000	0.000	8	0.000	0.000
9	0.000	0.000	9	0.000	0.000
10	0.000	0.000	10	0.000	0.000
11	0.000	0.000	11	0.000	0.000
12	0.000	0.000	12	0.000	0.000
13	0.000	0.000	13	0.000	0.000
14	0.000	0.000	14	0.000	0.000
15	0.000	0.000	15	0.000	0.000
16	0.000	0.000	16	0.000	0.000
17	0.000	0.000	17	0.000	0.000
18	0.000	0.000	18	0.000	0.000
19	0.000	0.000	19	0.000	0.000
20	0.000	0.000	20	0.000	0.000
21	0.000	0.000	21	0.000	0.000
22	0.000	0.000	22	0.000	0.000
23	0.000	0.000	23	0.000	0.000
24	0.000	0.000	24	0.000	0.000
25	0.000	0.000	25	0.000	0.000
26	0.000	0.000	26	0.000	0.000
27	0.000	0.000	27	0.000	0.000
28	0.000	0.000	28	0.000	0.000
29	0.000	0.000	29	0.000	0.000
30	0.000	0.000	30	0.000	0.000
31	0.000	0.000	31	0.000	0.000
32	0.000	0.000	32	0.000	0.000
33	0.000	0.000	33	0.000	0.000
34	0.000	0.000	34	0.000	0.000
35	0.000	0.000	35	0.000	0.000
36	0.000	0.000	36	0.000	0.000
37	0.000	0.000	37	0.000	0.000
38	0.000	0.000	38	0.000	0.000
39	0.000	0.000	39	0.000	0.000
40	0.000	0.000	40	0.000	0.000
41	0.000	0.000	41	0.000	0.000
42	0.000	0.000	42	0.000	0.000
43	0.000	0.000	43	0.000	0.000
44	0.000	0.000	44	0.000	0.000
45	0.000	0.000	45	0.000	0.000
46	0.000	0.000	46	0.000	0.000
47	0.000	0.000	47	0.000	0.000
48	0.000	0.000	48	0.000	0.000
49	0.000	0.000	49	0.000	0.000
50	0.000	0.000	50	0.000	0.000
51	0.000	0.000	51	0.000	0.000
52	0.000	0.000	52	0.000	0.000
53	0.000	0.000	53	0.000	0.000
54	0.000	0.000	54	0.000	0.000
55	0.000	0.000	55	0.000	0.000
56	0.000	0.000	56	0.000	0.000
57	0.000	0.000	57	0.000	0.000
58	0.000	0.000	58	0.000	0.000
59	0.000	0.000	59	0.000	0.000
60	0.000	0.000	60	0.000	0.000
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62	0.000	0.000	62	0.000	0.000
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70	0.000	0.000	70	0.000	0.000
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75	0.000	0.000	75	0.000	0.000
76	0.000	0.000	76	0.000	0.000
77	0.000	0.000	77	0.000	0.000
78	0.000	0.000	78	0.000	0.000
79	0.000	0.000	79	0.000	0.000
80	0.000	0.000	80	0.000	0.000
81	0.000	0.000	81	0.000	0.000
82	0.000	0.000	82	0.000	0.000
83	0.000	0.000	83	0.000	0.000
84	0.000	0.000	84	0.000	0.000
85	0.000	0.000	85	0.000	0.000
86	0.000	0.000	86	0.000	0.000
87	0.000	0.000	87	0.000	0.000
88	0.000	0.000	88	0.000	0.000
89	0.000	0.000	89	0.000	0.000
90	0.000	0.000	90	0.000	0.000
91	0.000	0.000	91	0.000	0.000
92	0.000	0.000	92	0.000	0.000
93	0.000	0.000	93	0.000	0.000
94	0.000	0.000	94	0.000	0.000
95	0.000	0.000	95	0.000	0.000
96	0.000	0.000	96	0.000	0.000
97	0.000	0.000	97	0.000	0.000
98	0.000	0.000	98	0.000	0.000
99	0.000	0.000	99	0.000	0.000
100	0.000	0.000	100	0.000	0.000

8.4) ARTIFICIAL LIGHTING

Ageing causes our eyes to change. This causes less light to reach our retina and consequently increases the amount of illumination we require. A 24-hr lighting scheme for elderly adults was invented by The Lighting Research Centre at Rensselaer Polytechnic Institute. This scheme corrects for the change in ageing eyes and so improves the visual and circadian systems of the elderly. If insufficient light reaches the back of the retina, the human body has trouble synchronising with the 24-hr solar day. Elderly persons often suffer from sleeping disorders caused by the disturbances in their circadian clock.

This 24-hr scheme is divided into three sections: daytime lighting, evening-time lighting and night-time lighting and will be introduced into the bedrooms of Huis Davidtsz.

The daytime scheme will provide high circadian stimulation in the morning. Two hours of intense illumination of a 1000 lux or more produced by a white light source is proposed. This will induce melatonin suppression and so stimulate healthy circadian rhythms (Figueiro, 2014). The illumination level should be reduced after two hours; an activity appropriate lux level can then be used. The general lighting of each bedroom will be controlled by a three-way dimmer switch. One switch will be located next to the bed of each resident, while a third is located near the door of the bedroom.

The evening scheme will provide general lighting of no more than 60 lux, while adjustable wall lights provide task lighting.

The night-time scheme introduces nightlights to reduce the risk of falling and to provide visual information about the bedroom. The 5 lux night lights produce 2500k amber light and are controlled by motion sensors. The amber colour of the light does not activate the altering stimulus and will therefore not wake a sleeping occupant when they are activated by caregivers or roommates (Figueiro, 2014).

Ambient lighting in Huis Davidtsz will consist almost entirely of indirect lighting. It is good practice to illuminate the ceiling instead of the floor. Light reflected off of a white ceiling mimics nature - a bright sky induces positive optimistic emotions while a dark ceiling is unsettling and institutional. In addition, indirect lighting is glare-free and provides soft uniform illumination. The number of luminaires required for a space is calculated by means of the average illumination calculation.

Average illumination = (total luminous flux x utilisation factor x maintenance factor) / (area of working plane)
 Thus: $E_{av} = (LF \times UF \times MF) / A$

Luminous flux: lamp info x number of lamps

Utilisation factor: Room index = Width / 2(height)

Maintenance factor: Lamp lumen maintenance factor x Lamp survival factor x Luminaire maintenance factor x Room surface maintenance factor

Wall washers are used to illuminate architectural features or to provide extra illuminations on intrusive elements. Task lighting is introduced in several of the spaces of Huis Davidtsz; this allows a level of customisation and a sense of control over the environment. Pendants introduced into the dining hall and the waiting area contribute to the spatial quality. An illuminated ceiling produces general lighting, and pendants lower than the perceived ceiling makes the spaces more intimate. The absorptive pendants should also lower the acoustics of the space without forming a solid visual obstruction that discontinues the panoramic nature of the space, which is important for way-finding.

DINING HALL

Room index

$$= l \times w / (l+w)h$$

$$= [1.5 \times 3 / (1.5+3)6.3] + [1.5 \times 12 / (1.5+12)6.3]$$

$$= 0.4+1$$

$$= 1.4$$

$\emptyset_{inst} = \emptyset_{rec} / MF \times UF$

$$= E \times A / MF \times UF$$

$$= 150 \times l \times b / MF \times UF$$

$$= 150 \times 228 / 0.8 \times 0.35$$

$$= 34200 / 0.28$$

$$= 122143 \text{ lumen}$$

DINING BOOTHS/ MULTI RELIGIOUS SPACE

Room index

$$= l \times w / (l+w)h$$

$$= 9.5 \times 4.2 / (9.5+4.2)3$$

$$= 39.9 / (13.7)3$$

$$= 0.97$$

$\emptyset_{inst} = \emptyset_{rec} / MF \times UF$

$$= E \times A / MF \times UF$$

$$= 150 \times l \times b / MF \times UF$$

$$= 150 \times 9.5 \times 4.2 / 0.8 \times 0.55$$

$$= 5985 / 0.44$$

$$= 13602 \text{ lumen}$$

READING ROOM

Room index

$$= l \times w / (l+w)h$$

$$= 18.6 \times 5.3 / (18.6+5.3)3.5$$

$$= 98.58 / 83.65$$

$$= 1.18 \text{ uf } 0.35$$

$\emptyset_{inst} = \emptyset_{rec} / MF \times UF$

$$= E \times A / MF \times UF$$

$$= 250 \times l \times b / MF \times UF$$

$$= 250 \times 18.6 \times 5.3 / 0.8 \times 0.35$$

$$= 24645 / 0.28$$

$$= 123225 \text{ lumen}$$

CIRCULATION SPACE

Room index

$$= l \times w / (l+w)h$$

$$= 71 / (22+3)2.6$$

$$= 1.18$$

$\emptyset_{inst} = \emptyset_{rec} / MF \times UF$

$$= E \times A / MF \times UF$$

$$= 150 \times l \times b / MF \times UF$$

$$= 150 \times 71 / 0.8 \times 0.49$$

$$= 10650 / 0.392$$

$$= 27168 \text{ lumen}$$

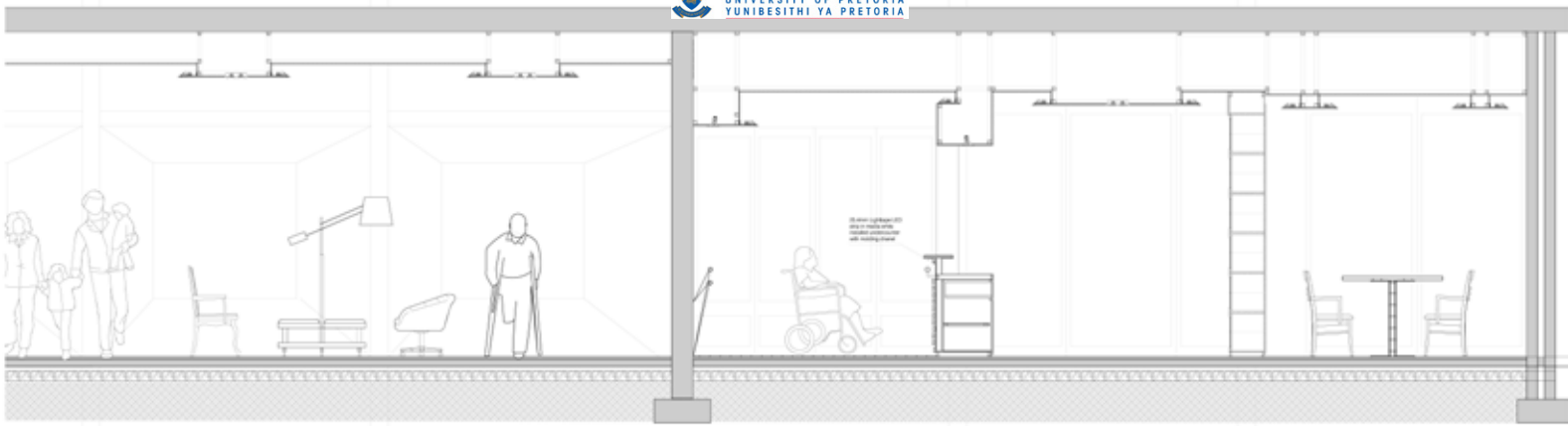


Figure 8-10 Section 2, not to scale

Section BB
1:20

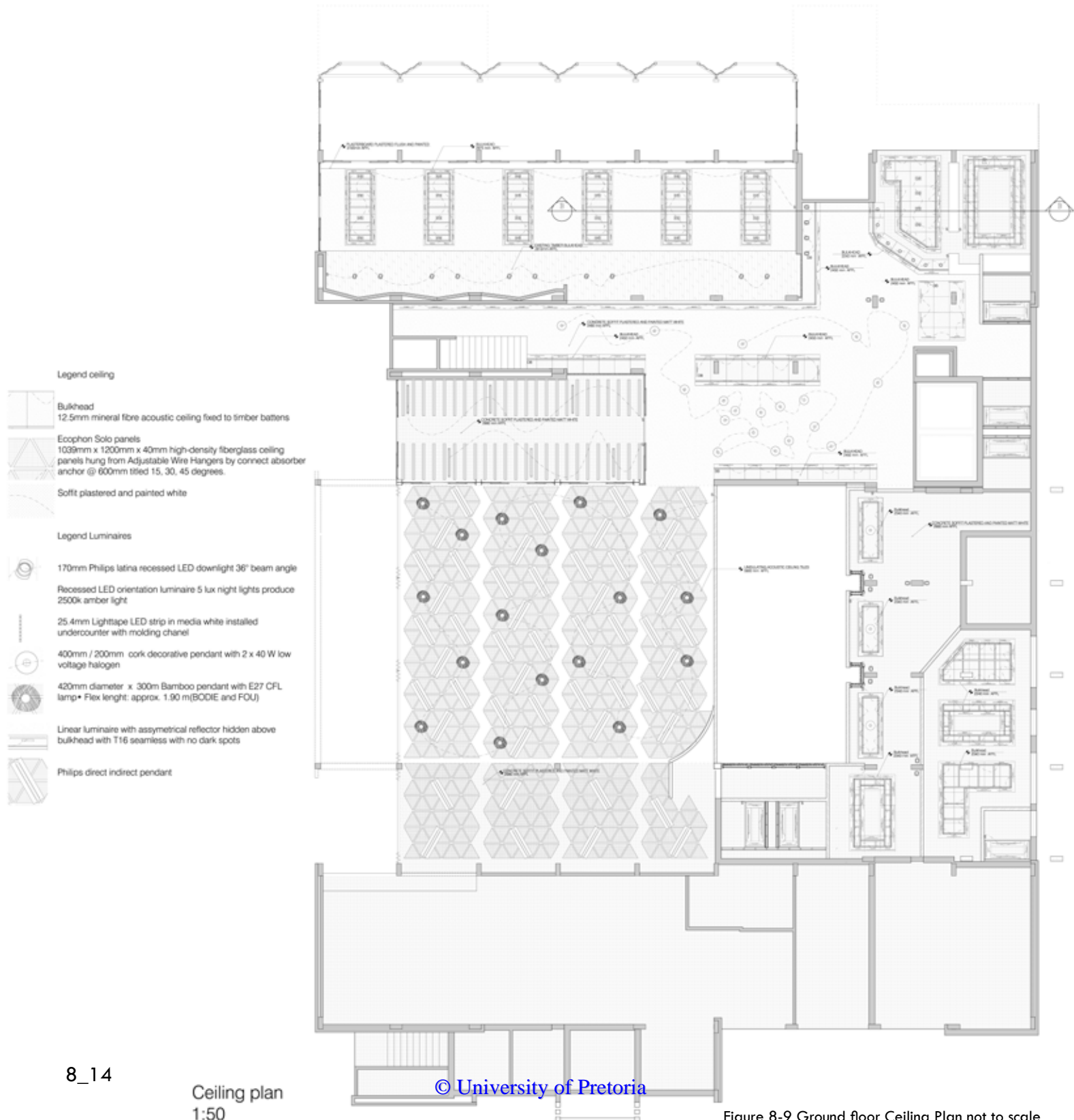




Figure 8-11 Philips direct indirect pendant

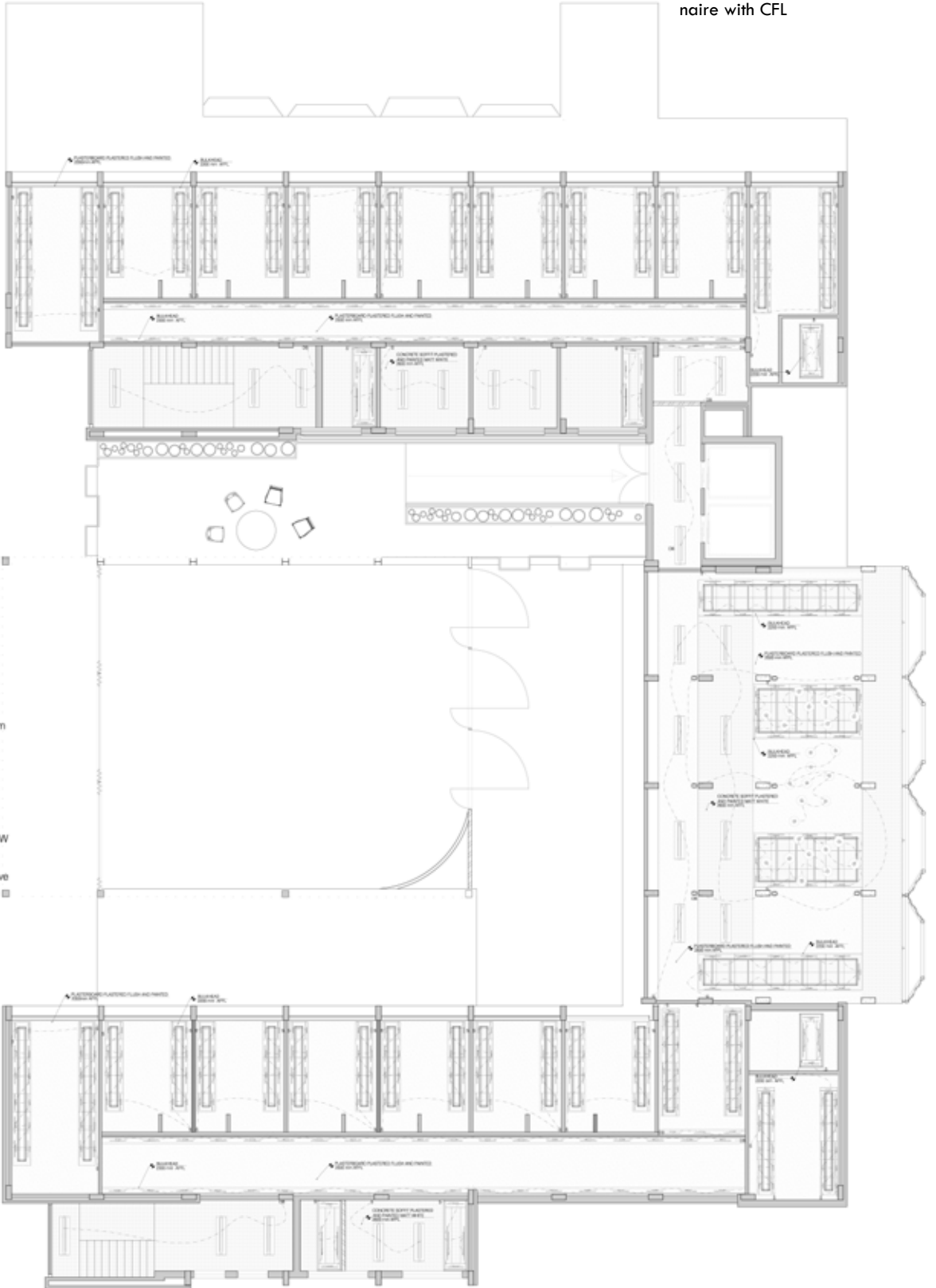


Figure 8-12 BODIE and FOU Bamboo pendant

Figure 8-13 Float decorative cork pendant



Figure 8-14 Philips Quazi floor lamp adjustable fluorescent luminaire with CFL



Legend ceiling

- Bulkhead
- 12.5mm mineral fibre acoustic ceiling fixed to timber battens
- Soffit plastered and painted white

Legend Luminaires

- 170mm Philips latina recessed LED downlight 36° beam angle
- Recessed LED orientation luminaire 5 lux night lights produce 2500k amber light
- 25.4mm Lightsape LED strip in media white installed undercounter with molding channel
- 400mm / 200mm cork decorative pendant with 2 x 40 W low voltage halogen
- Linear luminaire with asymmetrical reflector hidden above bulkhead with T16 seamless with no dark spots
- Philips direct indirect pendant

First floor ceiling plan
1:50

Figure 8-15 First floor lighting plan not to scale

8.5) EGRESS

SANS 10400-T 2001 provides deemed-to-satisfy requirements that place emphasis on: route of escape, interior fire advancement in terms of finishes and materials, interior fire advancement in terms of structure, exterior fire advancement and access by fire services. These standards also guide the designer in terms of the specification of fire fighting equipment. The building meets all the deemed- to- satisfy requirements, but a specialist will be required to design a rational fire plan.

However, safe egress for all can only be achieved if the evacuation time required is based on the person who will need the most time to escape. The range of abilities of residents of Huis Davidtsz is widely varied and thus special considerations have to be taken into consideration in the evacuation plan of the building.

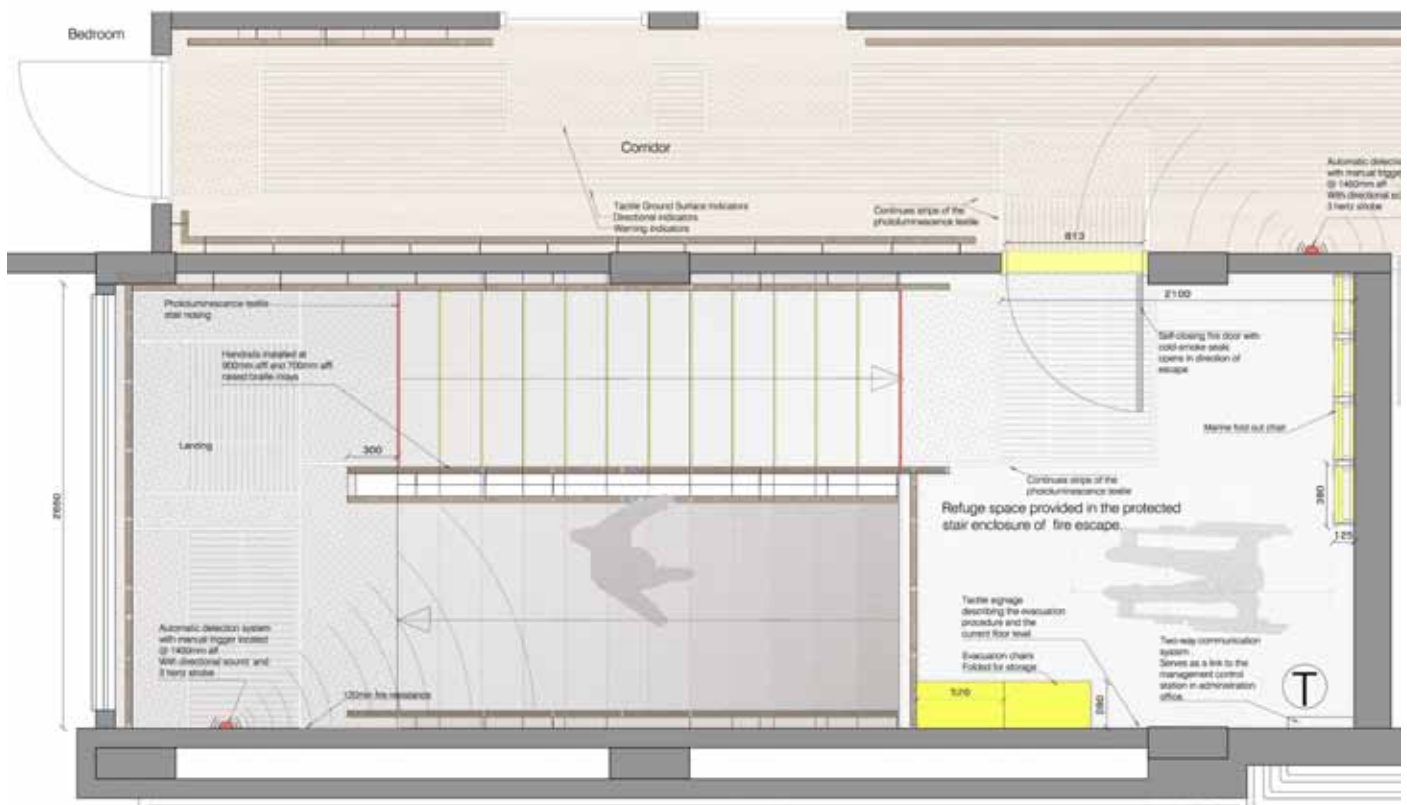


Figure 8-16 Plan of fire escape with new refuge space n.t.s. (Author, 2013)

8.5.1) ALARMS AND OTHER WARNING SYSTEMS

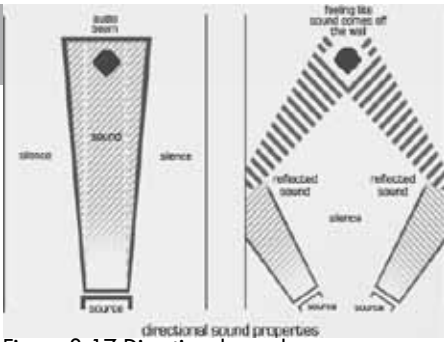


Figure 8-17 Directional sound



Figure 8-18 Vibrating warnings

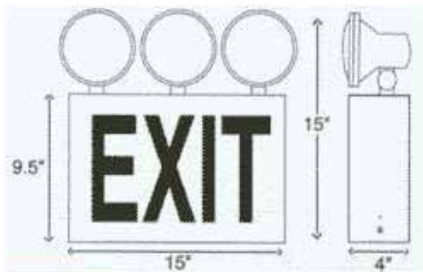


Figure 8-19 Emergency lighting



Figure 8-20 Photo-luminescence textile strips

Huis Davidtshz has an automatic detection system. In order to provide safe egress for all, the system has to be altered in two ways. Firstly, a manual component needs to be added to the system, and secondly, the alarm system should cater for various abilities to recognise the warning.

A manual alarm trigger allows an alert individual to raise a warning. In the case of a fire, early detection can save many lives. This means that the trigger should be accessible and the height of the call-point should be within reach of a wheelchair-bound person. There should be an adequate amount of triggers and they should be easy to locate.

The automatic detection system becomes a problem for persons with hearing impairments. Inclusive egress plans need to include visual alarms, paging systems or vibrating devices and the sound frequencies of the auditory alarm has to be tailored to accommodate the widest possible range of hearing.

Alarm systems have to be carefully selected to not become counterproductive. Flashing lights may induce a fit in a person suffering from epilepsy, while high decibel levels of alarms may make communication difficult.

8.5.1 .1) VIBRATING WARNINGS

Vibrating alerts work on a system of paging. This system is linked to the fire alarm and activation of the alarm will cause the device to vibrate and display a visual message. It will have an audible alarm as well. This system has the added benefit of making its users and their location identifiable by its audible tone.

This system uses multiple channels and is controlled by software linked to a PC and should have a battery back-up with the same standards as the fire alarm. The occupants supplied with vibrating alerts have to be trained in their use.

8.5.1 .2) STROBES

One strobe light will accompany each alarm sounder. These will be located in each corridor and will be accessible to the room occupant through transom windows. Epilepsy organisations recommend that these pulsating lights be specified to operate at a 2-4 hertz frequency.

8.5.2) WAY-FINDING

The escape routes and emergency staircases of Huis Davidtsh are not used every day. As residents are unfamiliar with these routes, they may reject them during an emergency in order to follow a familiar path. This makes way-finding cues crucial. Photo- luminescent guides can significantly improve emergency way-finding (McGlennon et al. 2013).

Continuous strips of the photo-luminescence textile are glued to floor coverings, column corners and intrusive elements. These strips direct occupants to the nearest fire escape. The textile absorbs energy from natural and artificial lighting and re-emits light in low-light conditions.

Correctly installed and designed handrails will also aid way-finding. Handrails installed at 900mm above finished floor level and 700mm above finished floor level accommodate users of various abilities by not only providing support, but also reassurance on escape routes. Handrails are also fitted with tactile cues by means of inlaid raised braille and moon type information on floor level escape routes and refuge spaces. The timber handrails with brass inlays are colour contrasted to the wall to which they are fixed.

Escape route lighting will be provided by natural, artificial and emergency lighting. Emergency escape lighting is lighting that continues to provide illumination the event of a power failure. Emergency lighting will provide a minimum luminance of 1 lux at floor level and will be incorporated by LED skirting lights in corridors.

8.5.2.1) SIGNAGE

Escape signage, its legibility and visibility, are very important. Photo-luminous signage will be implemented to indicate exists, non-exits, fire-fighting equipment, refuge areas and evacuation chairs (Royal New Zealand Foundation of the Blind,

2013.). These signs have to provide tactile information as well. All pictograms and words are to be raised 1mm from the surface of the sign.

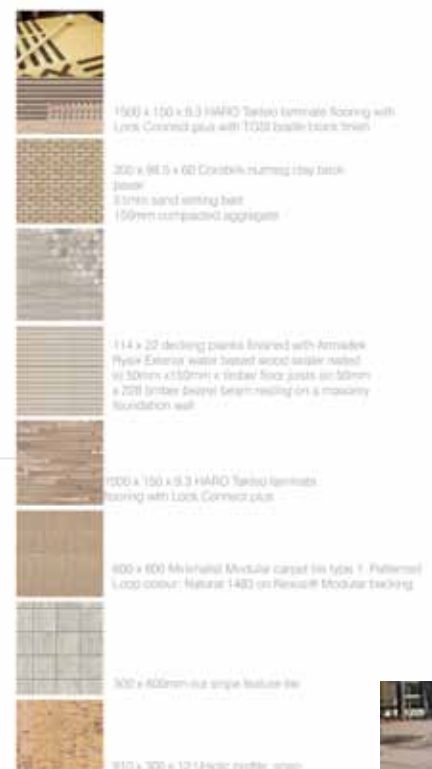
8.5.2.2) DIRECTIONAL SOUND

Directional sound is a multi-frequency broadband sound that is designed to be located easily by the human ear. These alarms are located near exits, at strategic points, and guide occupants towards the escapes. This technology is particularly effective in terms of the evacuation of impaired persons. Tests have shown that directional sound greatly improves evacuation time and stimulates intuitive egress (McGlennon et al. 2013). A directional sound alarm will be implemented at each escape door of Huis Davidtsh.

8.5.2.3) TACTILE GROUND SURFACE INDICATORS

Way-finding in Huis Davidtsh will also be improved by the implementation of tactile ground surface indicators on the floor finishes of the building. TGSI's were invented to inform visually impaired persons of obstacles, but will benefit all residents of the building as it augments intuitive way-finding and provides a non-slip surface. Tactile indicators are used in standards configurations consisting of directional indicators and warning indicators. Directional indicators indicate the direction of travel while warning indicators designate a change or obstacle in the path of travel.

Haro, a flooring manufacture, produces a laminate floor with a TGSI finish. The tactile indicators are designed for interior use and provide the necessary tactile information without becoming a barrier in itself (Anon. 2013) (Katsumi 2008).



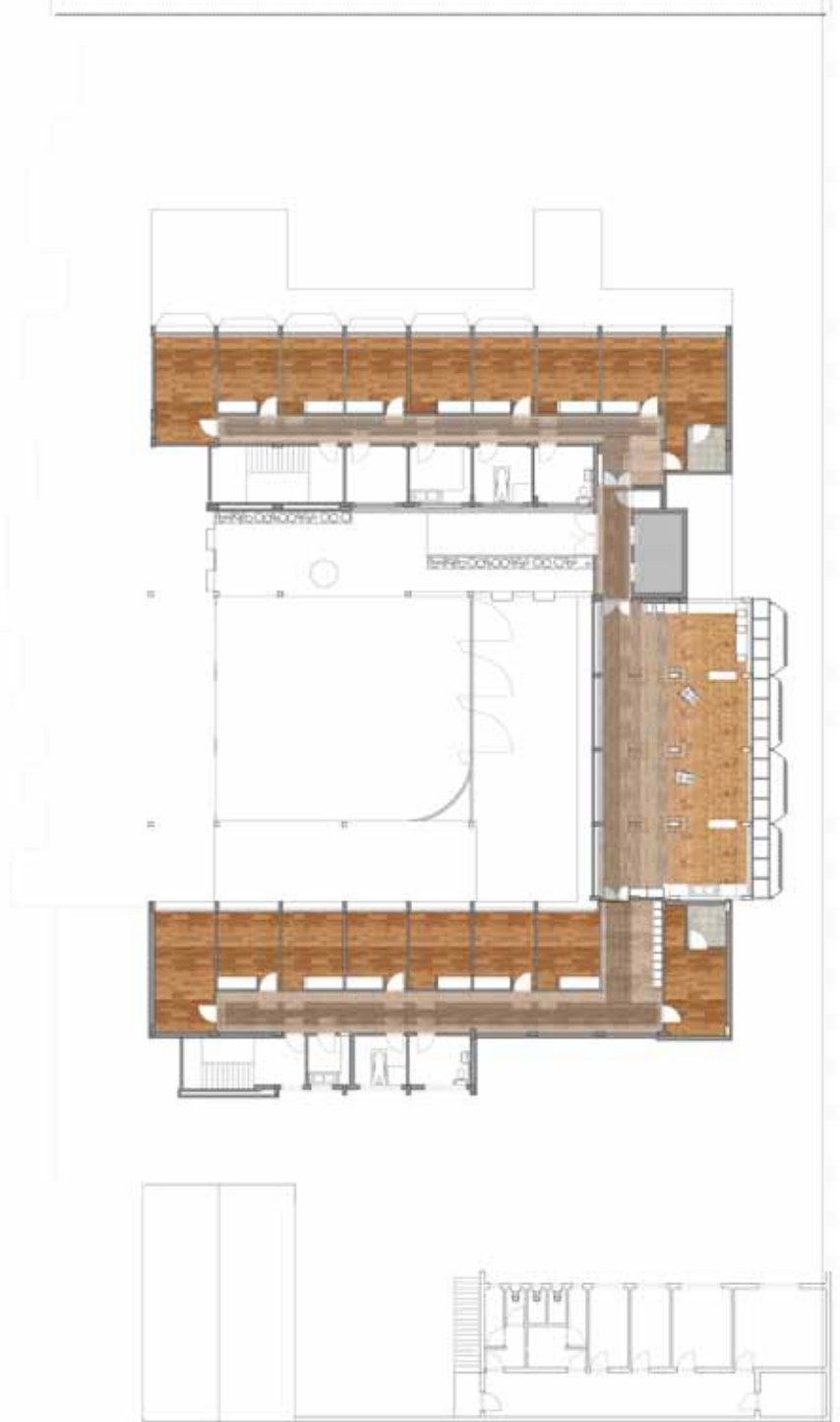
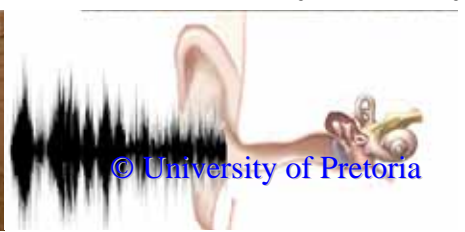
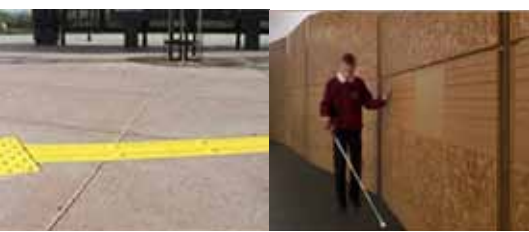


Figure 8-21 Floor finish plan, not to scale (Author, 2013)

Figure 8-22 Collage of way-finding aids Collage of signage (Author, 2013)



8.5.3) VERTICAL MOVEMENT

8.5.3.1) REFUGES

Stairs are a major obstacle for various disabled persons. As the fire escapes of Huis Davidtsz are stairs, it is important to provide refuges. Refuges are spaces where persons who cannot use stairs independently, can safely wait for assistance. A refuge will be provided in the protected stair enclosure of each fire escape per floor. A personal emergency egress plan will have to be drawn-up by the building manager, in which the egress of refuges is carefully planned.

The two refuge spaces on each floor will have the following features:

- The space will have a 120min fire resistance just like the rest of the stairwell.
- The space will be fitted with a self-closing fire door with cold-smoke seals.
- A two way communication system will be implemented in the space. This system serves as a link to the management control station which is located in the administration office.
- Tactile signage describing the evacuation procedure and the current floor level.
- Evacuation chairs

8.5.3.2) ELEVATORS

It is not advised to use passenger lifts for emergency evacuation (McGlennon et al. 2013). In Huis Davidtsz the new elevator will have doors with a fire rating of 120 minutes and will be sealed against smoke for 30 minutes. A fire lobby will be introduced in front of the shaft. The controls of the elevator will automatically bring the elevator to the ground floor in the case of a fire. The elevator will remain on the ground floor with its doors open.

8.5.3.3) ESCAPE STAIRS

The existing fire escape staircases of Huis Davidtsz will be altered to include photo-luminous yellow non-slip stair nosing. The first and last step of each flight of stair will have a red photo-luminous nosing. The treads will be finished with grey pvc resilient flooring. Handrails will be installed at 900mm and 700mm above finished floor level and extended 300mm beyond the last step.

8.5.3.4) EVACUATION CHAIRS

Evacuation chairs are commercially available products designed to evacuate persons with mobility impairments down stairs. These chairs are folded up when not in use and stored in refuges. The chairs use gravity to aid their descent but are fitted with brakes to allow a single person to control the decent (McGlennon et al. 2013). Each refuge will contain two evacuation chairs.

Fire fighting equipment (sans 10400, part t):

1 hose reel per 500m²

1 portable fire extinguisher per 200m²

Total floor areas: gf: 1030 m², ff- 8f: 598m²

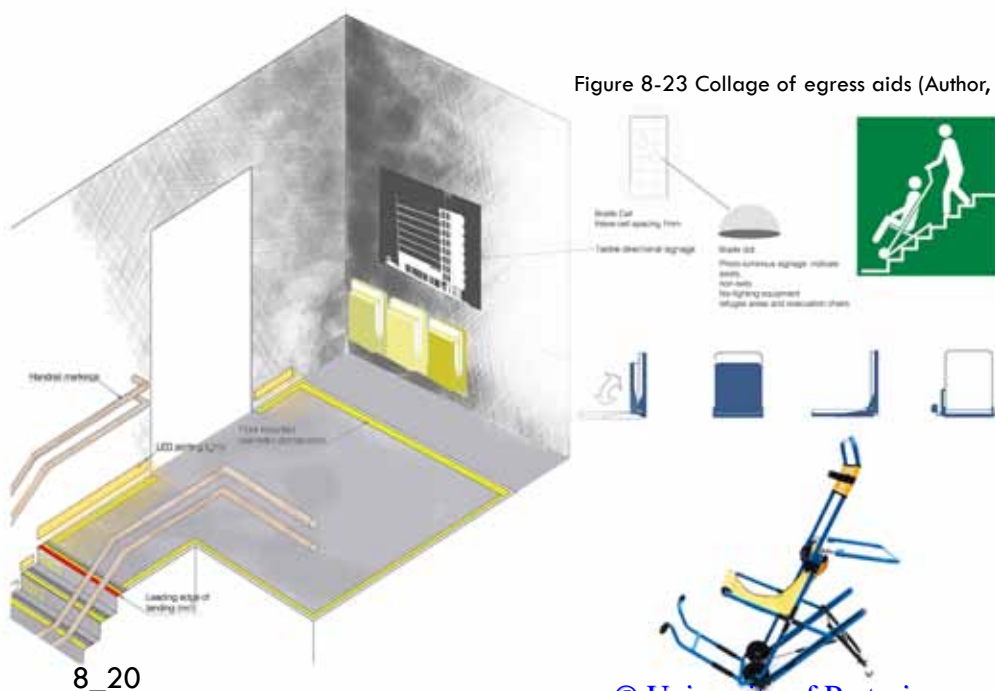


Figure 8-23 Collage of egress aids (Author, 2013)

8.6 OTHER SERVICES

8.6.1 SEWAGE

New wheelchair accessible WCs are orientated in such a manner that a 600mm service passage is formed behind them. All the waste water and soiled water drains into a collective pipe and then into a stub stack with a vent pipe in the service passage. Waste and soiled water pipes subscribe to the minimum diameters. The stub stack flows into the underground sewer as with two 45 degree bends. The existing underground sewer on the site is to connect to the municipal connection.

NUMBER OF SANITARY FIXTURES

(SANS 10400, Part P):

Males: 5 WC, 11 Urinals, 8 HWB

Females: 16 WC, 8 HWB

(for a population up to 180 people)

8.6.2) ELECTRICITY

The dining hall has a projection screen which allows the space to be used for workshops or movie nights. A Vivitec home theatre projector with a 10 m through range will be installed with a standard ceiling mounted bracket. A built-in cupboard behind the screen will house the equipment necessary to run the projector. The projector will connect to the same power supply as the lighting of the dining hall, while the rest of the equipment would require an additional supply.

Hobby spaces will facilitate the use of laptops and the power supply to these will run along the bottom of the counters in a power skirting. Plugs will be placed on top of the counters through pre-cast punctures in the countertop to connect to the power skirting.

The bedrooms also have sockets that provide power supply. These are located in the timber casement that also houses the adjustable wall luminaires.

8.6.3) SECURITY

A security guard mans the automatic vehicular gate and all visitors pass reception as they go through the main entrance. In this manner all occupants of the building are monitored.

8.7) MATERIALS

8.7.1) SELECTION

The technical concept of embracing disability as a design generator and the theoretical concept of creating gradient between various spatial conditions, amalgamate to inform material choices.

The technical concept often requires smart materials in order to provide in the physiological needs of the client. The theoretical concept requires spaces to seamlessly flow into one another. Materials were selected that could soften the thresholds between spaces. The access to the positive distraction component of the theory also advises the use of natural materials whenever possible.

Materials also differ from one intimacy level to another. Harder surfaces and geometric shapes are used in public spaces, while softer materials and curves indicate private spaces.

Attention was given to the haptic, acoustic and olfactory qualities of materials. As age -related impairments weaken our senses; the material palette aims to provide the widest possible range of sensory stimulation.

Maintenance and life-span were also important considerations in the process of material selection. As incontinence is a typical age-related impairment, all surfaces should be easy to clean and should not absorb odours.

All materials selected were investigated in terms of environmental, economic and social viability.

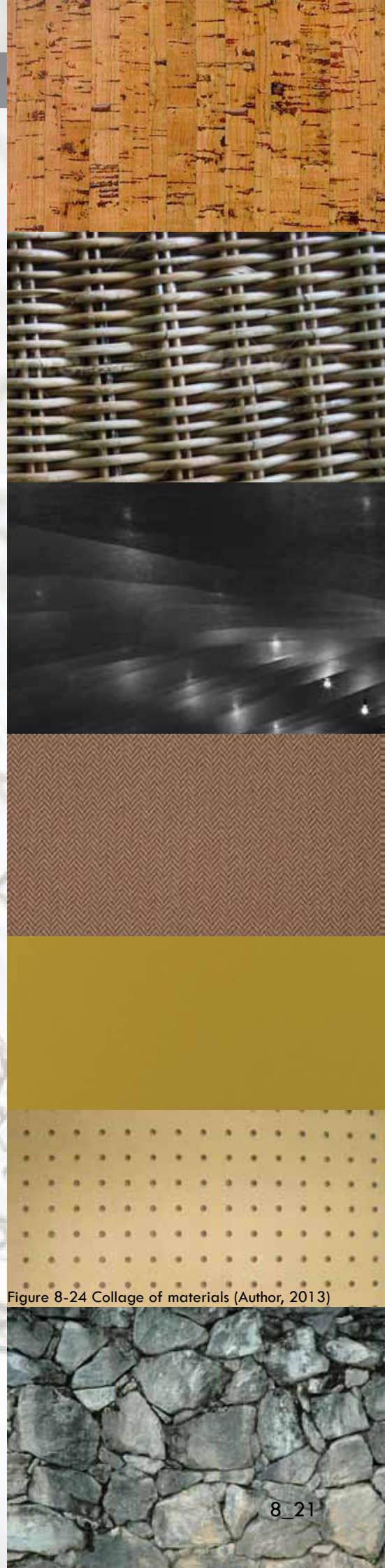


Figure 8-24 Collage of materials (Author, 2013)

8.8) DETAILS

8.8.1) READING ROOM

A new threshold was introduced between the interior and exterior of the reading room. A bay window is formed by a trapezium-shaped basket that acts as a trellis for climber plants and a screen to protect the interior against solar heat gain. This element consists of a 100 x 100 x 4mm galvanised steel square tube frame. A secondary frame of 10mm galvanised steel rods is welded into the main frame.

The secondary frame is used to house either woven, debarked wattle canes, boiled or pressure impregnated, 200-240mm long and 15-20mm in diameter, or a 40 x 40 x 0.2mm galvanised steel wire mesh with woven detail known as lace fence. The infill allows dappled natural northern light to reach the interior.

The whole bay window is bolted to the concrete slab by means of a 50mm x 21.3mm diameter steel rod spacer so that it does not rest directly against the slab.

Re-upholstered furniture, originally belonging to the residents, will be used in this space. A custom-built ottoman on casters is the only specified piece of furniture. The ottoman is constructed from 50 x 50mm SA pine and upholstered with high performance anti-microbial textiles. The ottoman also contains a battery powered adjustable floor luminaire. The floor finish of the reading room consists of laminated timber planks and hexagonal parquet flooring. The 1500x150 x 9.3 Haro Takteo laminate flooring, is laid on a 0.2 mm thick PE film underlay for moisture protection, and a 2 mm cork underlay that aids in acoustic absorption. A 10–15 mm expansion gap is required between the two finishes and is covered with a 78in Kingsford brass T-moulding system.

The custom cane rack consists of a 600mm x 50mm diameter Saligna pole routed to fit into a 50mm diameter copper pipe. The pipe is fixed onto the existing column by 50mm diameter cast brass school board clips TIG welded to a 16mm x 4mm copper flat bar.



Figure 8-25 DETAIL: Custom- built ottoman (Author, 2013)

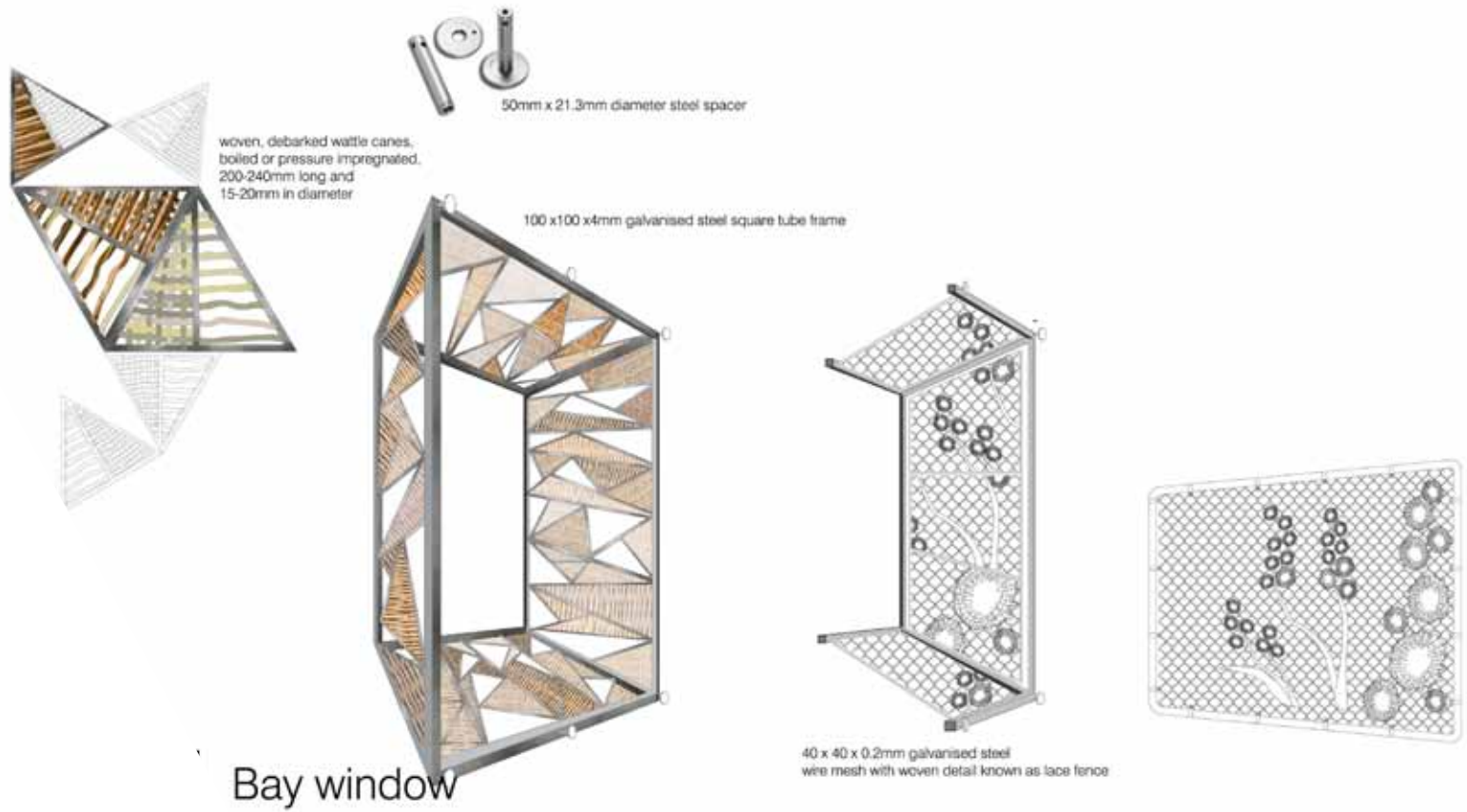


Figure 8-27 DETAIL: Custom- built bay window(Author, 2013)

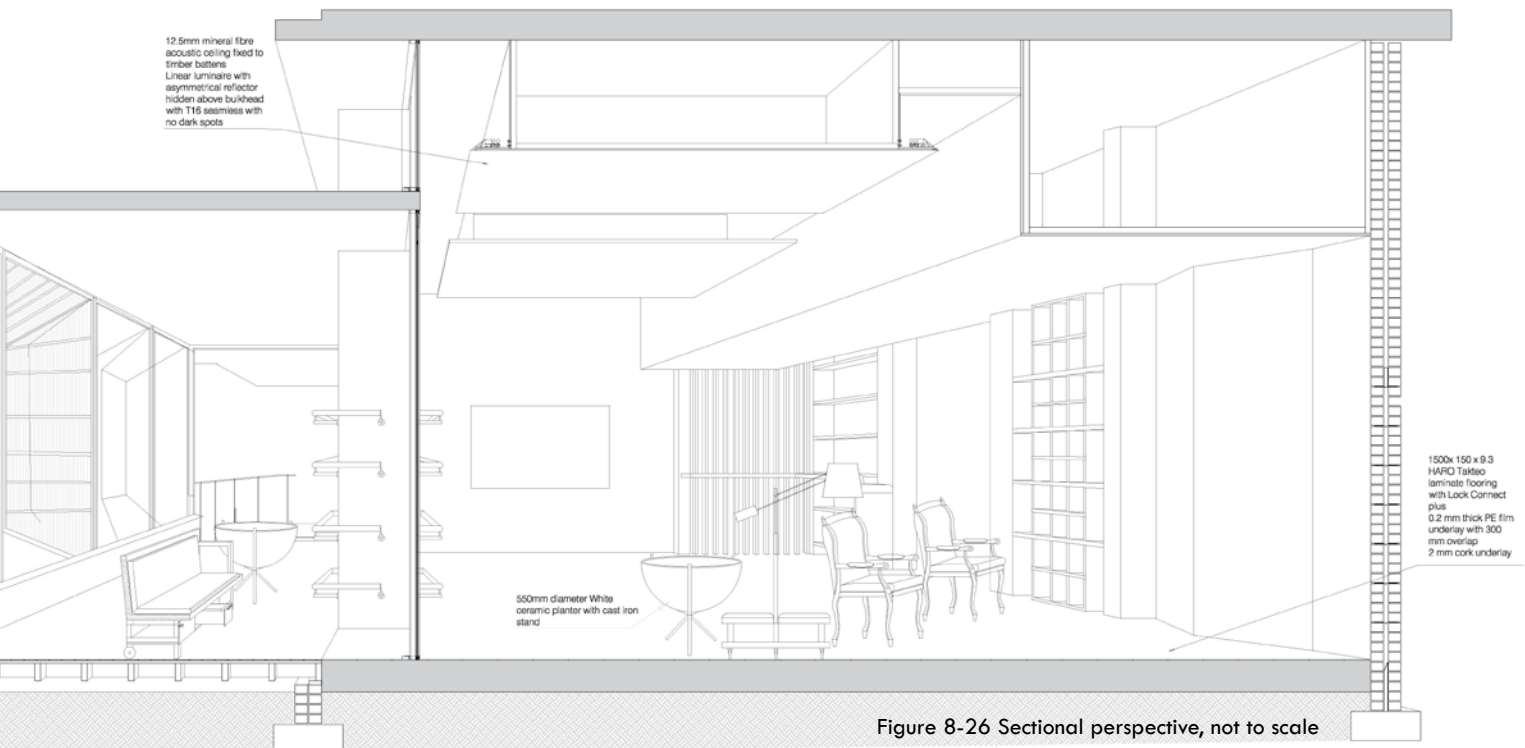


Figure 8-26 Sectional perspective, not to scale

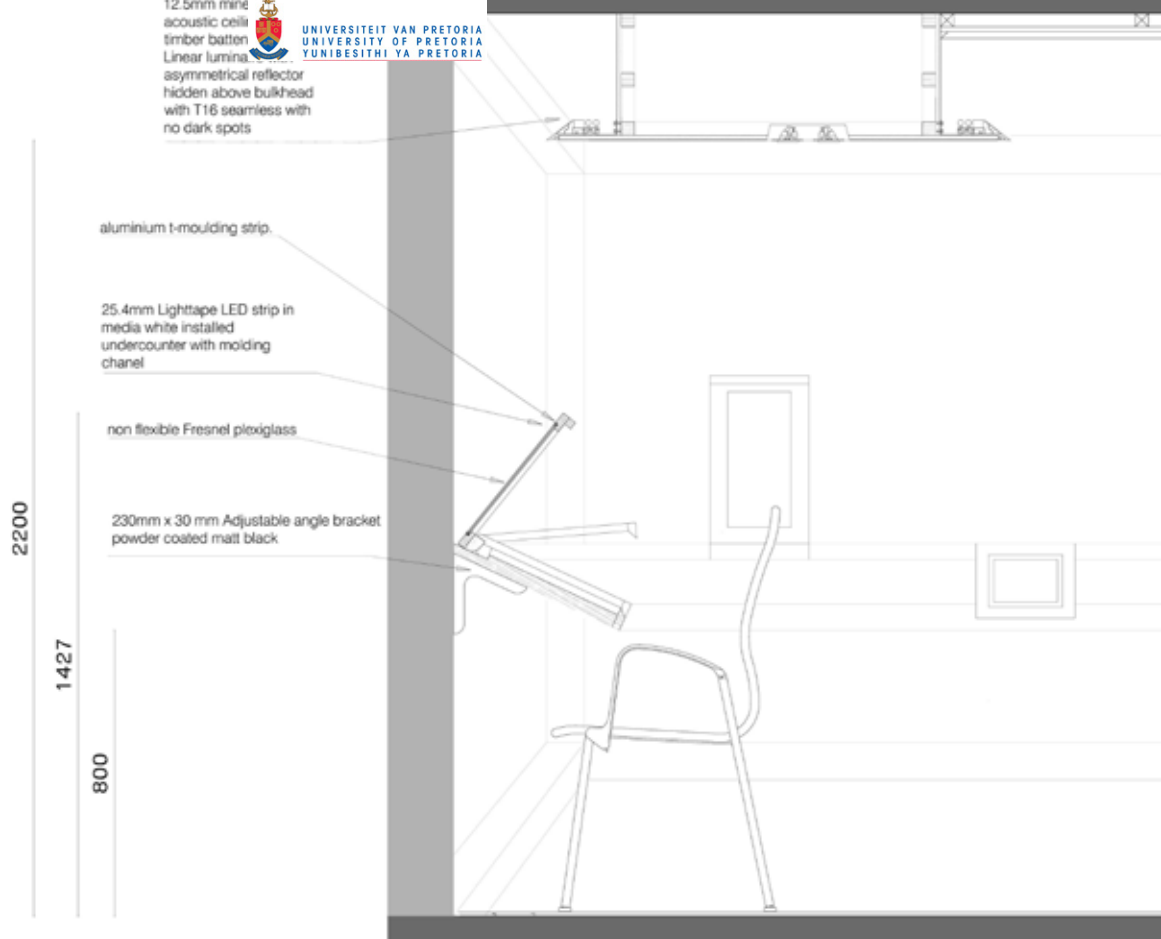


Figure 8-29 DETAIL: Work top, not to scale (Author, 2013)

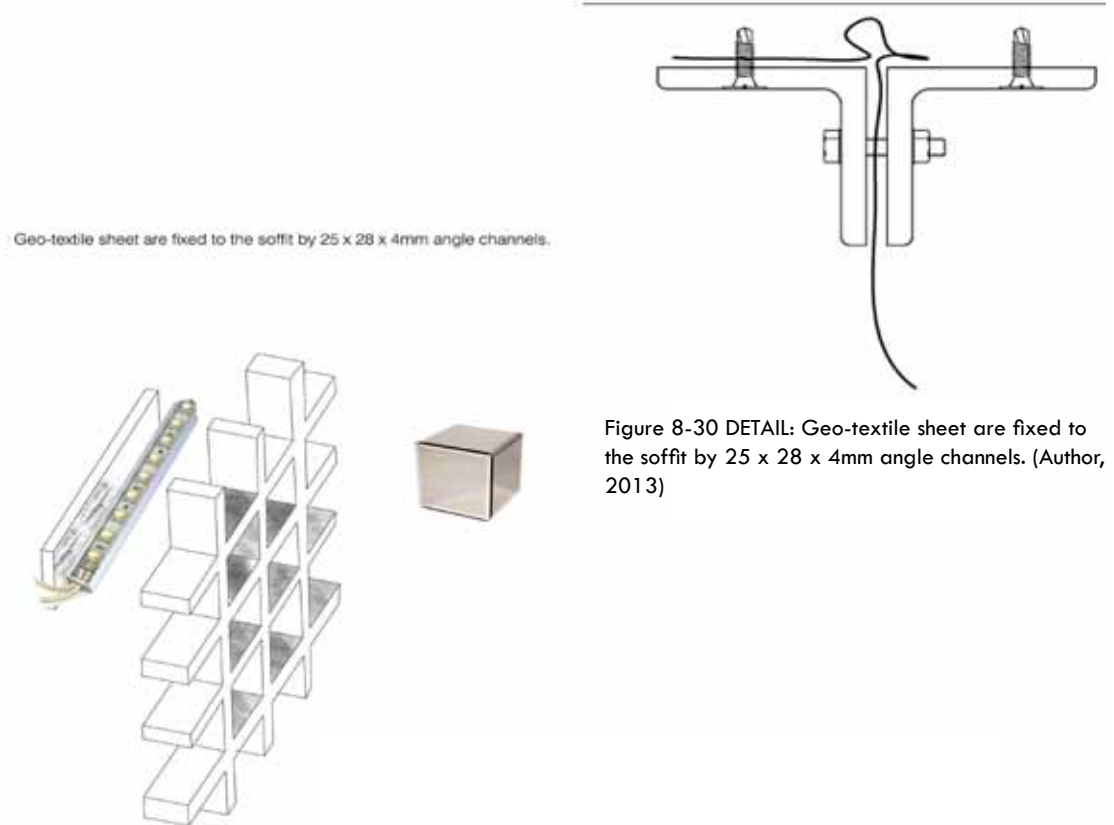


Figure 8-30 DETAIL: Geo-textile sheet are fixed to the soffit by 25 x 28 x 4mm angle channels. (Author, 2013)

Figure 8-31 DETAIL: memory wall, not to scale (Author, 2013)



Figure 8-33 DETAIL: paving -deck threshold (Author, 2013)

8.8.6) HANDRAILS

The handrails throughout the building are installed at 900mm above finished floor level and 700mm above finished floor level. They consist of 1800mm x 50mm diameter Saligna poles routed to fit into a 50mm diameter copper pipe. The pipe is held by 50mm diameter cast brass school board clips that are welded to a 16mm x 4mm copper flat bar. Brass screws connect the system to the existing walls. The Saligna is inlaid with raised braille plaques that convey information on floor level escape routes and refugee spaces. The timber handrails are colour-contrasted to the wall to which they are fixed.

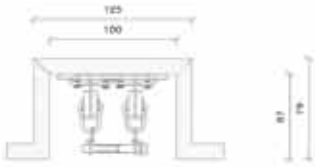
8.8.7) BEDROOMS

The artificial lighting of the bedrooms was designed to be accessible and adjustable by each resident. General and task lighting can be adjusted by residents from their beds and as task lighting is provided for each of the residents, a level individual control is provided. Custom-made timber ducting panels house the sockets and wall lights, while also acting as a shelf for small personal items.

A ceiling curtain rail is recessed into the 12.5mm mineral fibre acoustic ceiling and fixed to the timber battens structure on the ceiling. Individual storage is provided by introducing new side tables and drawer spaces under the bed. These elements consist of a 30mm x 10mm galvanised, flat bar structure and 13mm plywood boxes. The side table includes a drawer and a mirror that is hinged to the table to be able to open and close.



Figure 8-32.DETAIL: Handrail, not to scale (Author, 2013)



Recessed ceiling curtain rail

Section 1.2

BEDROOMS

Room index

$$= l \times w / (l+w)h$$

$$= 11 / (3+3.6)2.6$$

$$= 53/46.8$$

$$= 0.64$$

$$\varnothing_{inst} = \varnothing_{rec} / MF \times UF$$

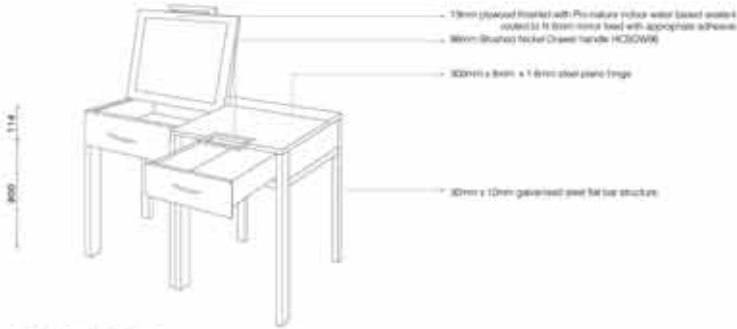
$$= E \times A / MF \times UF$$

$$= 200 \times l \times b / MF \times UF$$

$$= 1000 \times 11 / 0.8 \times 0.22$$

$$= 11000 / 0.176$$

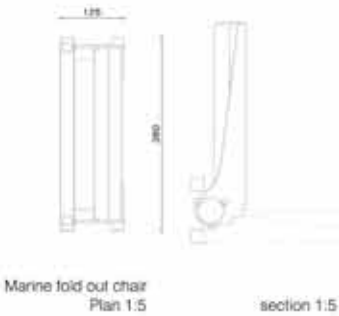
$$= 62500$$



Bedside table detail

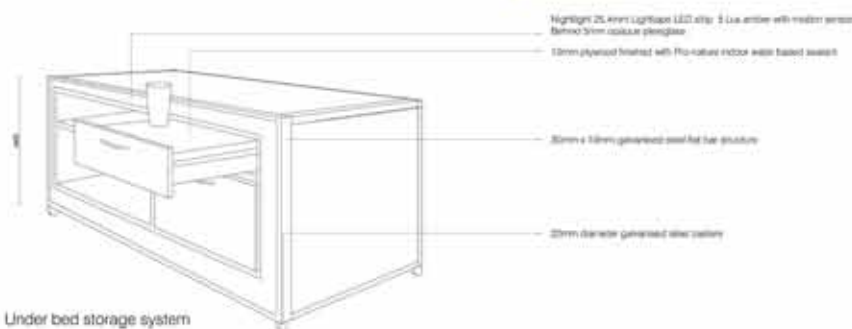


Figure 8-34 Bedroom details, not to scale (Author, 2013)



Marine fold out chair
Plan 1:5

section 1:5



Under bed storage system

8.9) CONCLUSION

The various systems and services required for execution of the design proposal were discussed in this chapter. The selection and application of artificial lighting, egress aids and materials were discussed. The systems and technology introduced into Huis Davidtsz and their role in the physiological needs of its occupants were explained. Design details required to provide a safe comfortable psychologically supportive space have also been explained and illustrated.





Figure 8-35 Re-upholstered furniture (Author, 2013)

CHAPTER NINE

Conclusion



Figure 9-1 Elderly man

CONCLUSION

The stigma related to spaces designed for the elderly result in spaces dictated by an institutional nature. The thesis identifies the decline on the health and well-being of persons residing in such spaces. Huis Davidtsz is chosen as such an environment and proposes an intervention to create a physically and psychologically supportive place for living.

Spaces that support the wellbeing of residents is identified by the manifestation of three characteristics: a sense of control over ones environment, a sense of access to social support and access to positive distraction. The intervention to Huis Davidtsz achieves a psychologically supportive environment by implementing the aforementioned characteristics.

An intimacy gradient was established with the seven levels of intimacy associated with domestic spaces and was thus used to manipulate the architecture and interior spaces. An environment that breaks away from the institutional language of the current condition is created. The intimacy gradient humanises the institution by forming a variety of spaces with differing levels of intimacy. The design results in an environment which supports social interaction while also providing territoriality and places of privacy for its residents. The intervention to Huis Davidtsz results in a comfortable, secure and supportive place for living and so re-brands the silver market.



CHAPTER TEN

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Figure 5-21: Norra Vram is zoned into three wards to ease the process of caretaking alteration Internet: <http://en.51arch.com/2011/09/marge-arkitekter-norra-vram/> (Accessed: 14 August 2013).

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APPENDIX



11.1) PRESENTATION AND MODEL



Figure 11-1 Models (Author, 2013)

Figure 11-2 Presentation 23 November 2013 (Author, 2013)





Figure 11-3 Presentation 23 November 2013 (Author, 2013)



11.1) PRESENTATION AND MODEL



Figure 11-4 Presentation 23 November 2013 (Author, 2013)



11.2) EXISTING DRAWINGS

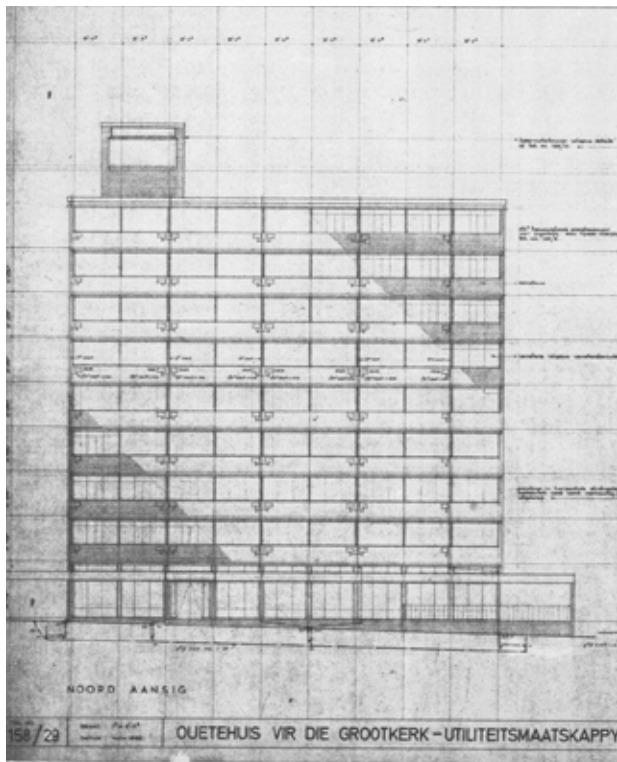


Figure 11-6 Existing elevation (Du Plessis, 1976)

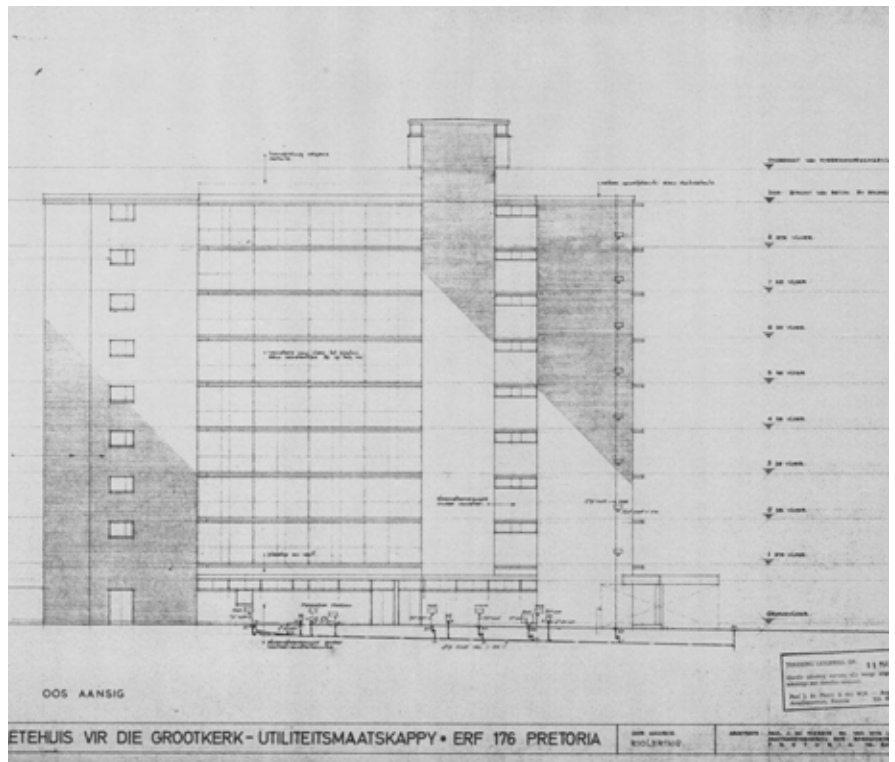


Figure 11-7 Existing elevation (Du Plessis, 1976)

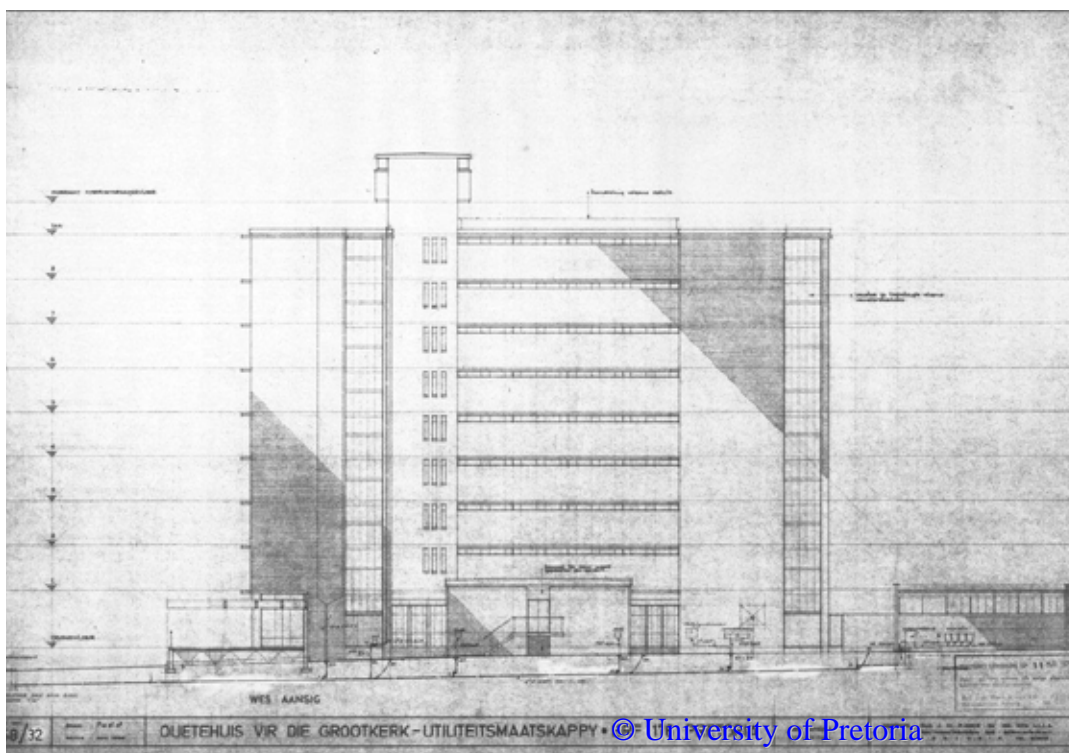
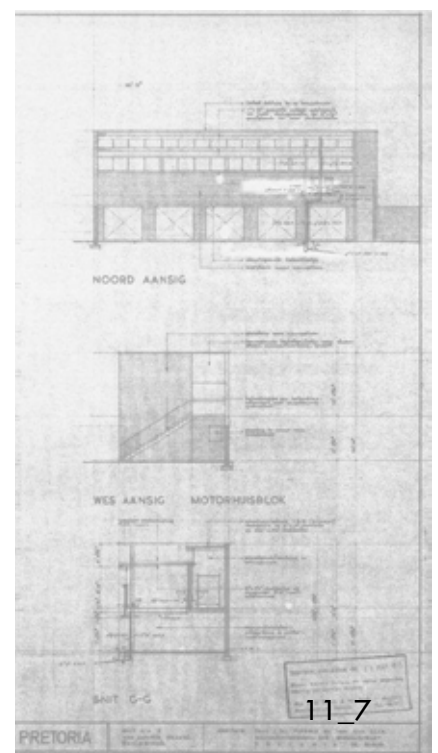


Figure 11-8 Existing elevation (Du Plessis, 1976)



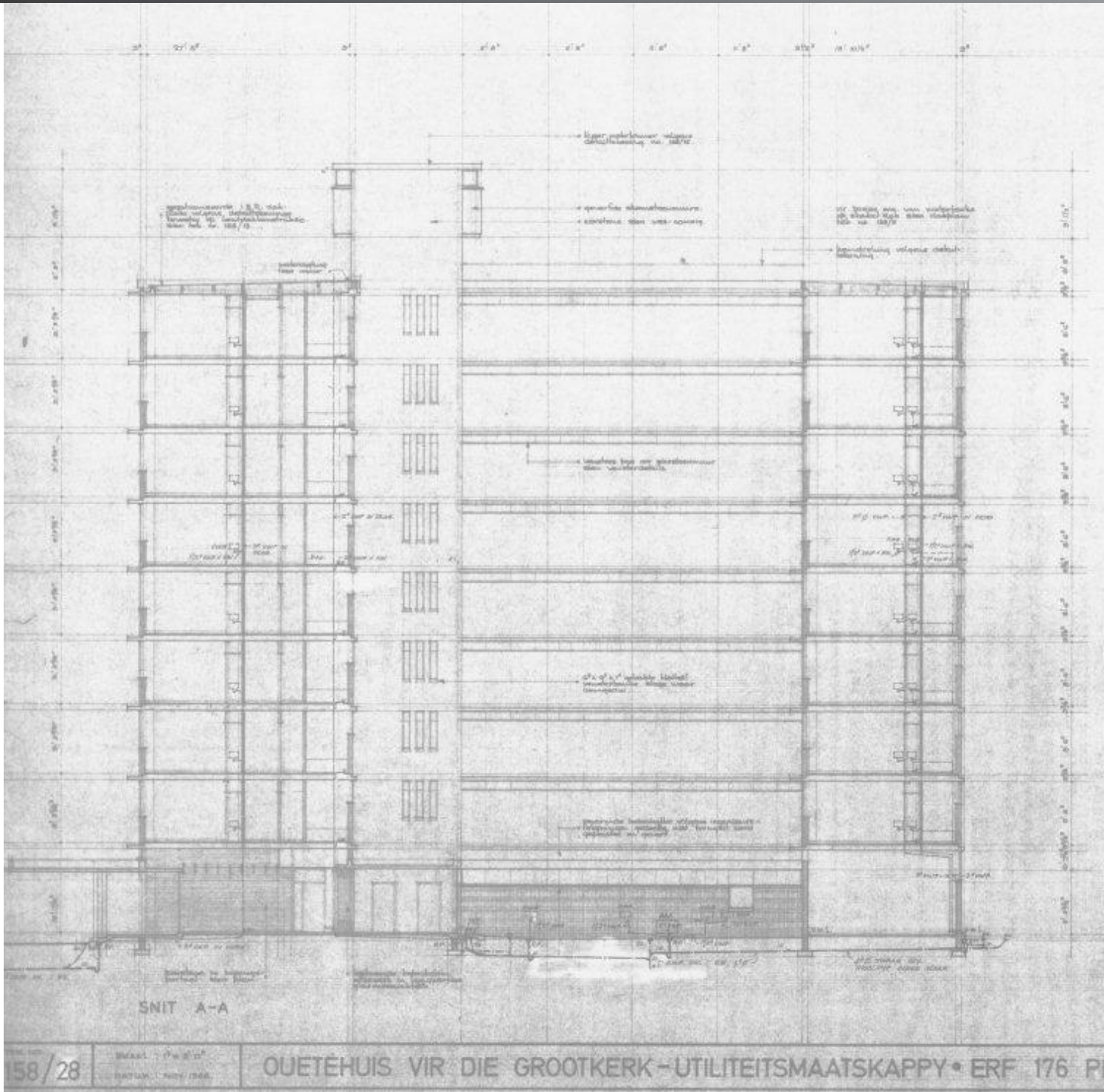


Figure 11-9 Existing section (Du Plessis, 1976)



Figure 11-11 Semi structured Interviews (Morrison, 2003)



Figure 11-12 Semi structured Interviews (Morrison, 2003)



Figure

11.3) QUESTIONNAIRE GUIDELINE

What is your name?

How old are you?

How long have you been living in Huis Davidtsz?

Where did you live previously?

Which career path did you follow?

How long did you work there?

Do you like children?

Do you have children?

Would you like to meet other people?

Do you like music?

Which activity during the day do you find most difficult?

Do you wish to spend more time outside?

Do you feel you could still share some of the skills you acquired from your job?

If you could add a room to Huis Davidtsz what would it be?



11-13 Semi structured Interviews (Morrison, 2003)



Figure 11-14 Semi structured Interviews (Morrison, 2003)

11.4) ACKNOWLEDGEMENTS



Figure 11-15 Anneli Jacobs, Line Visser and Werner Odendaal who helped me until the very end (Author, 2013)

Anyone who has attempted a master's degree in Interior architecture will confirm that a project like this is impossible to complete alone. The contributions of several people have made this possible. I would like to extend my appreciation especially to the following:

Thank God for the opportunity use my passion for design to serve others.

Catherine Karusseit, for making this research possible. Her guidance, support and advice throughout the project, as well as her pain-staking effort in proof reading the document, are greatly appreciated.

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Last but not least, I would like to thank my parents Hanlie and Paul Nicholson, my fiancé Willem Dercksen and friends for their unconditional support. In particular, Anneli Jacobs, Line Visser and Werner Odendaal who helped me until the very end.

11.5) ACCESS AUDIT CRITERIA

	Difficulty with interpreting information	Visual impairment	Hard of hearing	Prevalence of poor balance. Incoordination.	Limitations of stamina
General					
Entrance					
threshold					
identification					
Visibility at night					
Logical / appropriate placing					
Reception					
Counter height Leg room					
External Signage					
legibility					
Visibility at night					
Portico					
Ramp gradient					
handrails					
Stair nosing					
Layout					
foyer					
orientation					
Circulation position					
Circulation separation					
Reception information					
Lift and ramp entrance					

11.5) ACCESS AUDIT CRITERIA

	Difficulty with interpreting information	Visual impairment	Hard of hearing	Prevalence of poor balance. Incoordination.	Limitations of stamina
way-finding - general					
Signage to w/c					
Size and type of font					
Colour of signage					
graphics					
Tactile signage					
Tactile maps					
Emergency signage and alarms					
Outside spaces					
seating					
Level changes					
ramps					
stairs					
lighting					
Spatial assessment					
Main space/ function					
entrance					
Relative positioning					
Level change					
lighting					
Glare					
Natural lighting					
Artificial lighting					
Controls and switches - position					

11.5) ACCESS AUDIT CRITERIA

	Difficulty with interpreting information	Visual impairment	Hard of hearing	Prevalence of poor balance. Incoordination.	Limitations of stamina
way-finding - general					
Controls and switches - position					
Floor finish – slip proof					
Floor finish – colour					
Floor level – trip factor					
Acoustic quality					
Wall and ceiling – contrast and colour					
Toilet and ablution facilities					
Wheelchair accessible w/c					
Wheelchair accessible w/c according to regulation					
Location of wa_w/c					
Separate or integrated wa_w/c					
wa_w/c door					
lighting					
Secondary space / function					
Entrance					
Relative positioning					
Level changes					

11.5) ACCESS AUDIT CRITERIA

	Difficulty with interpreting information	Visual impairment	Hard of hearing	Prevalence of poor balance. Incoordination.	Limitations of stamina
way-finding - general					
lighting					
glare					
Natural lighting					
Artificial lighting					
Controls and switches - position					
Floor finish – slip proof					
Floor finish – colour					
Floor level – trip factor					
Acoustic quality					
Wall and ceiling – contrast and colour					
Communication / equipment					
television					
computers					
Public telephones					
First aid					
Room for assistance					

