A SUSTAINABLE COMMUNITY WITHIN A SUSTAINABLE DISTRICT;

A MULTIGENERATIONAL DEVELOPMENT IN OVERPORT, DURBAN

By

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A Dissertation Submitted in partial fulfilment of the
Requirements for the degree of Master of Architecture
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DECLARATION

I hereby declare that this document is my own unaided work. It is for submission to the School of Built Environment and Development Studies, University of Kwa-Zulu Natal, Howard College, Durban, in partial fulfilment of the requirements for the degree of Masters of Architecture. It has not been submitted before, for any degree or examination, at any other educational institution.

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Rishen Mahadew

16th March 2018

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Date

ACKNOWLEDGEMENTS

My Lord and Saviour Jesus Christ, Your grace is forever sufficient to me.

My lady, Wafeeqa Moosa, your love and support during this research has been of strength to me.

Risha Mahadew, mom, your endless love and support, has motivated me in difficult times to persevere and continue achieving.

Sandi and Llew Bryan, thank you for believing in my passion and making this possible for me.

Lawrence Ogunsanya, my dissertation Supervisor for critically analysing this dissertation to be robust and responsive in our dedicated stride for quality Architecture.

Yashaen Luckan, for guiding me through the subsequent design process.

Viloshin Govender, your guidance, passion and architectural knowledge have been greatly valued by me.

Juan Solis Arias and the Staff of UKZN Architecture Department, thank you for your passion and dedication to this profession.

Malcolm Taylor Christine and Pat Wessels of Amberfield staff for receiving me well, also giving insight into gated retirement communities. Thank you for your time spent with me in this dissertation.

Hannelie Oosthuizen and Charmaine Pollock, as well as residents of Tafta on Ridge and Taft Cambridge Gardens for participating to this dissertation and aiding the stride to closing the gap in retirement architecture in South Africa.

Louis and Grace Grussendorf and Jackie and Gordon Turner, your prayer and blessings have been of strength to me throughout this research.

Yasmeen Motala and Eleanor Crowie, my Durban moms, thank you for countless amount of support you have provided.

DEDICATION

This dissertation is dedicated to my daughter, Hannah Mahadew.

ABSTRACT

In South Africa an increasing elderly population is necessitating the need for alternative forms of retirement. The current facilities that have existed for the past 50 years cater exclusively to the economic affluent of society. These facilities, outdated in there architectural design; ignore the vital concept of social integration and falls short of offering the elderly a meaningful sense of purpose for the remaining years of their lives.

The two fold problem addressed in this research is the isolation and voluntary segregation of the aged. It is hypothesized that integrating the elderly with a mixture of generations will prompt reciprocal care, economic activities and knowledge transfer amongst each other, ultimately creating social sustainability within a community. Therefore the aim of this research is to create a sustainable community within a sustainable district.

The research method of this study is a mixed method which allows for a holistic understanding of the elderly and their needs. International precedent studies and local case studies were analysed and augmented with first-hand accounts in the form of interviews, questionnaires and observations. Since this dissertation is towards an architectural intervention, a multigenerational development geared towards the needs of the elderly is proposed as the building typology.

Keywords: multigenerational, aged, sustainability, communality.

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PART ONE – BACKGROUND RESEARCH

CHAPTER 1- INTRODUCTION

1.1 Background

From birth to death, ageing is viewed as part of the life spanning process whereby development and growth occur. This process is inevitable, with old age being the eventual outcome of every living species. Ageing is progressive, irreversible and is associated with the deterioration of one's functions. The elderly usually exhibit multiple health problems with complex interactions. The most common chronic ailments affecting the aged are cancer, diabetes, cardio vascular diseases, Alzheimer's and psychiatric disorders namely depression and dementia (Saucer, 2003).

Over the past 50 years from 1950 to 2000 the world elderly population increased from 8 to 9.9 percent of the world's total population. The geriatric population at present sits at 550 million of the approximate 7 billion world population. By 2020 it is expected that this figure will reach the 1 billion mark with 700 million of this figure living in developing countries (Modi, 2001).

Due to the technological advancement of health care facilities and medicine, there has been a rapid decline of the fertility, morbidity and mortality rates. This impact has led to an increase of the elderly population all over the world and it is also indicative of an improvement in the overall quality of life.

The process of ageing is one that accompanies much change for the elderly; retirement from occupations, declining health functions, death of partners, diet and exercise patterns, lack of family support and poor income are all conducive to the presence of depression throughout the aged population. These physical, psychological and social effects of ageing contribute to a depressive state that is highly predominant amongst the geriatric population (Zwimmer, 2002).

According to sociologists Hagestad and Uhlenberg (Hagestad & Uhlenberg, 2006) people are separated by different ages due to institutional, spatial and cultural reasons. Institutional and Spatial

age segregations occur “when individuals of different ages do not occupy or interact in the same space.” (Hagestad & Uhlenberg, 2006) As they do not share the same spaces, they do not have adequate opportunity for interaction and understanding one and other.

Shared spaces promote intergenerational learning. Reciprocal learning activities promote healthy aging. Everyone,the aged, young adults, and children benefit from mutual learning and sharing flow in many ways. By integrating the elderly with different age groups a sustainable multigenerational mixed use can be a viable solution to promoting social togetherness.

1.2 Motivation/Justification of the study

The increase in an ageing population would naturally mean a paradigm shift in the notion of retirement. Due to the apartheidregime many racial, ethnic, cultural and low economic groups do not understand retirement,as it is a luxury that can be afforded by a few. An integration of the elderly through multigenerational living is precise in coaxing the intergenerational relationships of reciprocal care and neighbourly behaviour.

Information and messages that are passed down from one generation to another orally, is known as oral tradition (World Affairs Council of Houston, 2009). This rich history of story-telling and transmission of knowledge has existed in Arica and most prominent in Western Africa, in countries such as Mali and Morocco. “Oral Traditions guide social and human morals and giving people a sense of place and purpose” (World Affairs Council of Houston, 2009).

Oral tradition as a means of transferring knowledge from one generation to another has lost its place in society. This can be attributed partially to the segregated zoning and bylaws of past governments and the voluntary segregation of the aged.(Shave & Fox, 1992)

As the African proverb goes “It takes a village to raise a child” so can the aged play an integral role within communities if the architectural intervention is geared to it socially. Alexander in his book Pattern

Language (Alexander, Ishikawa & Silverstein, 1977) sheds light to the issue of the aged and their detachment from society.

In his Pattern 40, "Old people everywhere" Alexander stresses the need for the aged to be integrated into society and share a relationship with the youth. Institutionalizing the elderly into retirement villages and nursing homes that lie on the outskirts of towns and cities isolates the elderly; this contributes to the prevalence of loneliness, depression and social isolation (Alexander *et al.*, *1977).*

It is proposed that the elderlyshouldbe allowed to stay in the neighbourhood known best to them resulting in some old people in every neighbourhood. It is proposed that the elderly live in group's small enough not to isolate themselves from the younger people. Whilst the elderly, who are independent to also live independently amongst young people without losing the benefits of communality."We must allow those who need nursing care or prepared meals to get it without having to go to nursing homes far from the neighbourhood" (Alexander *et al.,* 1977).

Voluntary segregation of the aged is ascribed to gated retirement communities that are run by strict codes and regulations (Marcuse, 1997). The sprawl of retirement suburbia has for most cases, ignored the concept of space as a precious commodity. By proposing multigenerational living as an alternative to senior living in Durban, cohabitation will ensure promotion of a sense of community and social togetherness.

1.3 Definition of the Problem

A gap has been identified in the provision of housing for the elderly in South Africa. In 1997 the Department of Welfare and Population Development entirely phased out the funding of government homes for the aged entirely (Froneman, van Huyssteen & van der Merwe, 2014). This means the private sector in the form of Non-Governmental Organisations (NGO's), developers and even churches have become the only sources in the provision of housing and facilities for the aged. The prevalence of the retirement gated communities in South Africa is ascribed to this voluntary segregation. Contextually

it is these "collective self-organisations" that lead to the decline in power and initiative of the local municipal authority (Mckenzie, 1994). The problem being addressed in this dissertation is twofold; the former being the isolation of the aged due to physical decline and a lack of a sense of purpose and the latter being the eventual voluntary segregation of seniors due to institutionalization into gated retirement communities.

1.3.1 Aim

The aim of this research is to create a **sustainable multigenerational development** that caters to people from all walks of life and an attempt to curb the isolation of the aged by promoting integration, vibrancy and a sense of purpose.

This research seeks to investigate the development of retirement villages and the possible need for multigenerational living within Durban. The purpose of this proposal will be to find out how living with the aged within Durban and providing for their needs could promote social integration, knowledge transfer and an active ageing process. Ultimately, this dissertation is aimed at finding an alternative to retirement through multigenerational living.

1.3.2 Objectives

1. **To create spaces that act as a platform for social integration and knowledge sharing for the aged and society.**
2. **To find out what spaces augment multigenerational housing.**
3. **To create social integration across all levels and to promote a sense of community.**
4. **To investigate the appropriate architectural response for the aged.**

1.3.3 Limitations

This proposal focuses on creating a sustainable multigenerational development for the aged, children, and young adults within Durban.Its purpose is to be a place where these individuals and their families reside. The activities gathered from the secondary research will inform the nature of activities to be included and through this will know what is specific to the context of Durban.

1. This sustainable multigenerational development might not be a housing type for all elders. However, it is still a reasonable option for active elders.
2. This sustainable multigenerational development will not consider the impact of unpredictable characteristics of family household and senior housing preferences. This proposal is not for all the seniors such as fragile seniors or severally ailing seniors.
3. This sustainable multigenerational development is a new concept in the context of modern South Africa and its notion may not be accepted by all.

1.4 Theories

Existentialism – Martin Heidegger

As a point of departure and justification of this research, the essence of dwelling will be explored. A key factor being mankind's existenceis cohabitation.In the case of retirement institutes, the isolation and voluntary segregation excludes the elderly from entirely dwelling. It is from here that the gravitas of cohabitation and mixing of generations begins.

Critical Regionalism – Kenneth Frampton.

In order for an architectural intervention to be viable it will have to be looked through a contextual lens; Firstly, in the modern context of South Africa and secondly, the immediate communities and retirement villages in this area of research. Materiality, sustainability, topography, morphology and habitat will be considered principles in ensuring multigenerational housing will succeed in the aforementioned context.

1.5 Concepts and Definitions

Multigenerational living is creating living environments where various generations (three or more generations) can live and interact together. This concept of dwelling allows the aged to maintain a fit and active lifestyle whilst adapt to the physical decline that accompanies ageing. Though a good design within a retirement village is important it ignores the positive attributes of multigenerational living i.e.

interaction, independence and a sense of purpose and knowledge transfer (Harper, 2013).Sociologist, Karl Mannheim, discusses the sociology of generational relationships, he believes that "man is not solely taught by the preceding generations on how to live, but it is in fact the experiences of life that teach a person how so" (Mannheim, 1952).

Culture and Identity – Amos Rapaport

Human dwellings are shaped not only by the distinctive character of the site but it is also influenced by complex social and cultural norms, religion and varying climatic conditions (Rapaport, 1969). In order for this multigenerational housing to be responsive the "housing" aspect will have to be considered carefully to ensure that the expression of this intervention is authentic, place specific and not informed by imagery and applied styles. The institutionalisation of the aged does not only affects the psychological well being of the occupant but its rationality also robs architecture of its identity (Norburg-Schulz, 1979).

Filial Piety – Confucius

The density and close living relationships that have existed in China for centuries has bred the concept of filial piety, this philosophy is known as Xiao or respect for ones elders. A secondary aim of this research is to restore this concept into modern society by encouraging cohabitation, the youth and elderly will engage in meaningful social intercourse.

1.6 Considerations of this Multigenerational Design

The learning in shared spaces is not a one-way communication but a reciprocal process. These reciprocal learning activities promote healthy aging. Everyone, the elderly, young adults, and children benefits from mutual learning and sharing flow in many ways.

The typology of the project:-

1. **MultigenerationalLiving(Literature Review)**

   Variety of living situations and social proximity
   Universal Design
   Privacy and Communality
   Flexibility
   Culture and Identity

2. **Programme (Case Study Analysis and Qualitative data research)**

   Observations of primary case studies and immediate site context
   Economic Activities and linking of existing facilities and open parks
   Social Activities and shared spaces (3rd Spaces)

3. **Sustainability (Design Report)**

   Critical Regionalism
   Passive Design
   Urban Farming and self sustenance

According to Jacobs (Jacobs, 1961) “the enormous collections of small elements” contribute to a lively city. By incorporating various activities in shared spaces that appeal to different age groups, a sustainable multigenerational developmentbecomes more than just a residential edifice but one that stimulates ageing process to be a fit and active one.

1.7 Location of the Study

The location chosen for the architectural design would be within the area Overport in Durban, KwaZulu-Natal. Overport started as an estate of land owned by William Hartley, the 8th Mayor of Durban. Brickfield and Sparks Road feature as the most intense intersectional roads in the area. Overport, west of Ridge Road is predominantly an Indian community with numerous churches, mosques and temples outlying the area.A variety of Indian cuisine outlets and textile fabric shops exist along Brickfield and Sparks Road.

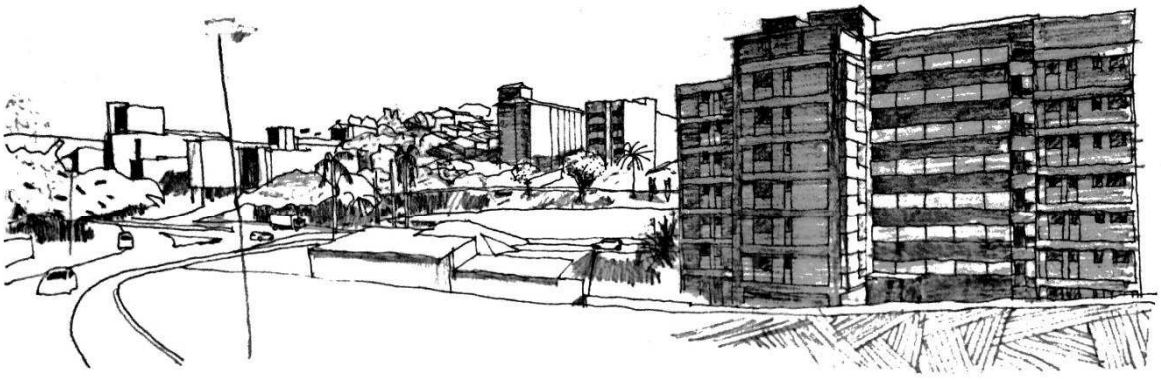


FIGURE 1: Overport Park (foreground) looking into the back of 558 Brickfield Road – "Lalita Park", vegetable market on the left

SOURCE: Drawn by Author

Brickfield Road, now Felix Dlamini Road is noted as a dual carriageway lined with semi industrial factories and commercial shops south and north of Sparks Road respectively. Overport is an area made up of high density residential and residential mixed-use buildings. Residential blocks vary from 5 to 10 storey buildings with a few exceeding this, a decline in the mortality rates means a growing ageing population, many of the residential blocks here have very little regard for factors of universal access and inclusive design as well as privacy and communality. Multigenerational living is rooted in these two factors hence it is proposed as an architectural intervention to growing ageing population.

1.8 Questions to be considered:-

1. **How can a multigenerational development and its spaces become a relevant option for an ageing population of Overport and provide social integration and knowledge transfer amongst the various generations?**
2. **What spaces augment Multigenerational housing?**
3. **How a sense of community can be achieved with integration across all levels?**
4. **What is the appropriate architectural response for an ageing population?**

1.9 Research Methods / Approach to Study

A mixed method of research will be conducted to gain a comprehensive understanding towards an intervention.

Primary research will be gathered qualitatively by conducting interviews, discussions and observations with individuals of different age groups however, predominantly older persons. The outcome we searching for here are the needs and challenges of the aged and their relationship with society and the environment.

Secondary research collection will be conducted whereby the researcher will gather literature from books, journals and internet sources as primary research into multigenerational living and the architecture of this typology. This will inform the literature review, theoretical framework and precedent studies.

1.9.1 Sampling Methods for Case Studies

The population of Durban is considered. Two retirement centres will be systematically sampled namely: Tafta on Ridge and Tafta Cambridge Gardens. A third case study, Amberfield, will also be analysed to ensure that a holistic understanding of retirement villages can be deduced.

1.9.1.1 Interviewing the staff of old age homes will enable me to understand the structure and operations of the facilities and more so the current conditions of the aged.

1.9.1.2 Interviewing the aged in retirement villages within the immediate context of the site in Overport will allow me to understand the mindset and perception towards the elderly and their facilities this will ensure that an appropriate approach may be taken to promote social integration through multigenerational living.

1.9.1.3 Interviewing the elderly that are about to retire in the immediate context of the site in Overportwill ensure that I have a full understanding of the priorities of their well-being as well as the end user and the community it will serve.

1.9.2 Instrument

The instrument to be used will be in the form of a questionnaire consisting of three parts.

1. Family structure and social aspects of the interviewed aged.
2. The economic aspects of the aged.
3. The architectural aspects of the residences.

The final point is necessary in understanding the context of Durban and will help in the realization of a relevant architectural response. The eventual building will need to be site specific and will be informed by both its context and the community it will serve.

1.10 Chapter Summary- A paradigm shift in retirement.

The increase in global life expectancy contributes to an increase in ageing population. Alternate solutions to retirement require consideration.

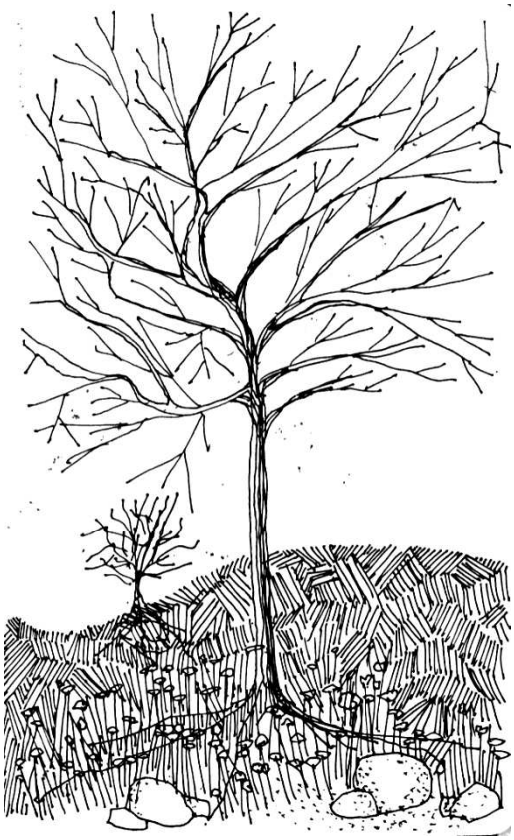
Multigenerational design will be proposed as the solution by portraying its trumping pros. Cohabitation is essential and proximity of closer living and work can spark economic activity and knowledge transfer through transmission of learning and communication.

Multigenerational housing is proposed as the dwelling component of this architectural intervention. In the following chapters, multigenerational living will be explored in its essence and then through theoretical perspectives, the current perceptions of senior housing will be carefully analysed to deduce the advantages and disadvantages of the concept.

A collection of housing becomes an extended family neighbourhood with a shared purpose: supporting one another through the challenges of growing up, growing old, and growing together (W.K. Kellogg Foundation, 2008).African oral tradition as a means of passing down knowledge, values and wisdom decline to exist in modern society. The elderly are repositories of knowledge (Peoples and Bailey, 2011) and oral traditions guide social and human morals giving people a sense of place and purpose. Secondary researchcollection will be conducted whereby the researcher will gather literature from books, journals and internet sources into multigenerational living and the architecture of this typology. This will inform the literature review, theoretical framework and precedent studies. The information overview in this chapter will be explored in greater depth in the following chapters.

The title of this dissertation is **a Sustainable community within a sustainable district; a multigenerational development in Overport, Durban.**

PART TWO – LITERATURE REVIEW



A single tree cannot make a forest – African Proverb

FIGURE 2: Like the tree, the aged generation cannot be part of society's vision if they are isolated from the rest of society.

SOURCE: Drawn by Author

2.1 Introduction

Similar to Vitruvius' definition (Hillier, 2007), architectural knowledge is a *synthesis* of practice and theory. This research undertaken will be in the form of a *synthesis*. To understand the phenomenon of multigenerational living entirely a clear definition and understanding of multigenerational will be deduced. Distinguishing between multigenerational living as a benefit to the elderly or as a social intervention is imperative. A guideline of principles will eventually be ascertained.

In this chapter, the concept of multigenerational livingwill be explored extensively.First, its origins and then the key principles underlying it.Architectural concepts such as phenomenology, critical regionalism and *genius loci* will then be looked at as a theoretical grounding. Retirement in South Africa will then be looked at together with its attributes and disadvantages. In relation to this problem multigenerational housing will be proposed as a solution in respect to its attributes and advantages.

By providing informed architecture that speaks to the synthesis of both the qualitative and theoretical aspects of multigenerational housing, it will then be able to tackle a prominent social challenge whilst still providing a sense of purpose to the elderly. In order for a multigenerational design to be ascertained, precedent studies will be conducted to understand the development of multigenerational housing and its design features. Insight into a preliminary schedule accommodation will be established.Various case study locations will be chosen.

Lastly, a set of design criteria will be developed; this 'criteria' together with primary research gathered from case studies will form a symbiosis to establish key drivers for the eventual proposed design. These principles will form as design recommendations for an urban framework and an architectural design.

2.2 Origins of Multigenerational Housing

Multigenerational housing has existed throughout the erasthough the ideaof multigenerational living declined sharply after World War IIwith the rise of retirement facilities and senior cohousing. (Bady, 2011) With the global increase in life expectancy and a growing elderly population, many first world countries have adopted the concept of multigenerational planning into society and the built environment (Hodgson, 2011).

The three typical living scenarios of multigenerational livingare: parents to children, grandparents to grandchildren and children to parents to grandparents (Pew Research Centre, 2010). All inhabitants choose for cohabitation in one house. To make the multigenerational dwelling inhabitable for all generations, Universal Designis integrated at least on one level of the house (Gerards, De Ridder & De Bleeckere, 2015).

In the 1990's, research was conducted into multigenerational housing as an intervention strategy for an overloaded foster care system in Illinois, United States, whereby the elderly assist foster families and children in exchange for reduced rent. To be eligible for reduced rent, senior households were required to volunteer to care for other seniors, school programming and youthactivities (Hackett, 2011). This multigenerational housing development known as Hope Meadows was then used as a model for other multigenerational housing interventions in the United States.A multigenerational housing community, theGenerations of Hope Community (GHC) was formed as an intentionally created, geographically contiguous multigenerational neighbourhood, where some of the residents are facing a specific challenge around which the entire community organizes.



FIGURE 3: Good Hope Meadows communal outdoor space

SOURCE: https://nwnatural.com

According to sociologist Brenda Eheart, distinctive strategies used in GHCs are known as "Intergenerational Community as Intervention" (ICI) (Eheart *et al.,* 2008).

2.3 Multigenerational living to benefit seniors and as a social intervention

Multigenerational living can be viewed in twoperspectives:-

As an intervention of multigenerational activities to benefit the aged in which case a social service component is not geared to the strategy i.e. a social service is not required for university students living with the aged who trade home maintenance for reduced rent (Hackett, 2011).

The second perspective prompting multigenerational living is an intervention of multigenerational activities to meet the needs of low income families in which case a social service component is geared to the strategyi.e. in the case of Hope Meadows, it is the foster care system that requires multigenerational interactions (Hackett, 2011).

Apart from multigenerational housing being a form of social intervention; the four principal reasons for multigenerational living are:

1. Multigenerational living that is sparked by either the adult-child circumstances or the changing needs of the aging parents (Choi, 2003), (Cohen and Casper, 2002), (Goldschieder & Goldschieder, 1999) and (Mickus, Stommel & Given, 1997).

2. The concept of altruism features as another contributor to multigenerational living. Altruism is the emotional care and concern for the aging parents or the elderly, its aim is to ensure thewell-being and social interactions of the aged by others (Bianchi, Joseph Hotz, McGarry, Seltzer, 2007).

3. Altruism together with social norms and obligations provide a basis for reciprocal connections (Rossi & Rossi, 1990).With reference to the theory of exchange, aged children may fulfil parental care for their aged parents out of social or cultural norms. Social norms are prompted by the obligation of parental care by children.

4. Cultural norms are based on the type of assistance that family members will provide to one another (Piercy, 1998). In South Africa apart from the two-fold scenario of westernised and traditional ideas in the dealing with the aged, multigenerational living features prominently in lower economic households and holds some ethnic merit. "Kin are viewed as the most appropriate people to provide support for elders followed by significant others, and lastly, formal organizations" (Cantor, 1979).

Multigenerational design that can counter a noteworthy social problem is the ideal approach. Principles of multigenerational housing that entails a social service component will be looked at. It is of importance to note that it is not the multigenerational house that serves as the intervention but it is the plurality of such that creates a community.

2.4 Principles of multigenerational housing as a social intervention

Created to address a specific social challenge

Multigenerational housing is implemented to deal with noteworthy social challenges such as homelessness, juvenile justice and foster care. It provides the setting for whereby the interaction of various generations can deal with social challenges collectively through mediation and negotiation. Multigenerational housing as an intervention gains its specific identity from its ability to solve social challenges through cohesion.

Presence of three or more generations

Multigenerational housing accounts for at least three generations. Families with children and youth interact with elderly families to build meaningful relationships. The primary basis is care: care from the present to secure future reciprocal care or just care out purpose and meaning.

Physical design that facilitates relationships, engagement, and aging-in-community.Multigenerational living is grounded in interpersonal relationships. It is these relationships, through exchange of knowledge and experience that eventually creates reciprocity of care. The design of multigenerational housing should be considerate to the needs of the elderly as well as those of the youth and growing families. Youth should have social gathering spaces whilst the elderly should "age-in-place"

Practice grounded in theory and research

Karl Mannheim, the sociologist who theorised "The Theory of Generations" concluded that every generation shares a unique worldview based on the socio-historical context (Mannheim, 1952), thus multigenerational living forms as a setting for social exchanges. Part of what makes community a good place to raise children makes community a good place to grow old (Eheart et al, 2008).The theories to be looked at in this chapter are :-

Theories	Theorists
Existentialism & Dwelling (Cohabitation)	Martin Heidegger
	Otto Freidrich Bollnow
Culture and Identity	Amos Rapaport
Phenomenology of Space (Sensory Design)	Juhani Palasmaa and Steven Holl
Critical Regionalism	Kenneth Frampton

Evolving program design/learning from experience

In order for multigenerational living to be successful it requires flexibility to be evolved.

By it not being "fully designed" and left with options for adaptability, space can be changed to suite the activities that deal with a specific social challenge (Eheart *et al*., 2008).

Older adults are the community's volunteers as opposed to retirement housingwhereby the elderly are the primary recipients of care, multigenerational living prioritizes the social challenge as the primary issue. The needs of the aged are not overlooked and provided for spatially and universally. Seniors are vital in volunteering however it requires some form of formal organization (Eheart *et al.,* 2008).

Requisite diversity

Although the core of community is difference, being surrounded by difference is not always easy as it forces residents to accommodate others whom they might otherwise prefer to avoid (McPherson, Smith-Lovin, & Cook, 2001). The diversities of age in multigenerational living is enhanced by other factors of residents namely, race, ethnicity, life experience, education and income.

Professional staff knows when to guide and when to govern

Professional staff act as managers and administrative means of sustaining multigenerational housing however their role is a fine one between imposing decisions and standing back to consensus of seniors and other multigenerational residents.

Economic issues are addressed but do not compromise principles

Multigenerational housing should not be compromised by economic issues. For instance if the intervention is subsidised by low-income housing Programme it can be severely compromised with regards to who may live in such a development. Structuring participation through rental agreement should not be considered as the risk will be multigenerational housing becoming just affordable housing. A mix of self-generated revenue such as small scale retail business should be incorporated (Eheart *et al.,* 2008).

Cohesion stopping short of insularity

The built character of multigenerational housing should not be set apart or stand as a symbol but instead it should be integrated into its surroundings. The more distinct it remains from its immediate surroundings the more stigmas will be associated with it as an intervention(Eheart*et al.,* 2008).

Philosophically multigenerational living emphasizes the enduring capacity of the individual to care. Given the opportunity, ordinary people will care for one another in ways and to a degree, which go beyond the scope of traditional interventions. Multigenerational residents, including those whose social challenge provides the organizing focus of the community, are viewed not as problems-to-be-managed, but as ordinary people requiring the same involvement in family and community that we would want for ourselves (Eheart*et al.,* 2008).

2.5 Multigenerational theories

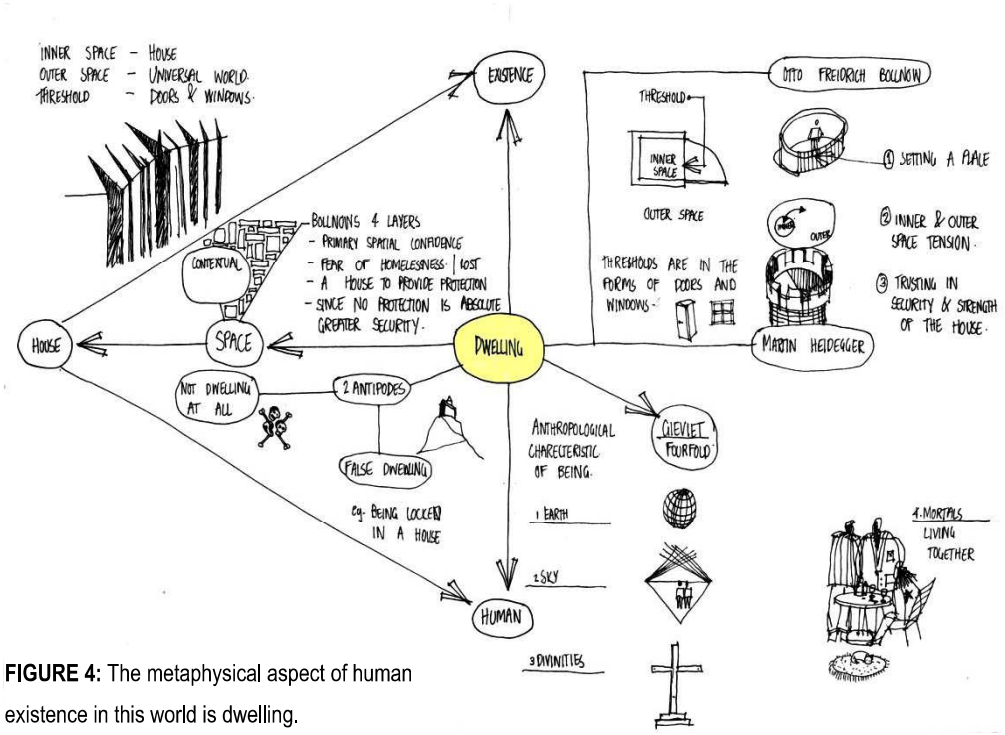


FIGURE 4: The metaphysical aspect of human existence in this world is dwelling.

SOURCE: Drawn by author

A theoretical framework will be used as an overarching driver to this research. The relationship between culture and architecture will be explored and the existential essence of dwelling will form the outset theoretical approach in hypothesising multigenerational living as the potential solution to the problem of isolation and voluntary segregation. Phenomenology as a lens will feature in this research in the initial instance of dwelling and then in the instance of spatial configurations. As an architectural thesis, space features extensively throughout this research.

2.5.1 The existential essence of dwelling

In order for us to understand what it is to live in gated retirement communities or multigenerational architecture, first we need to ascertain what it is to dwell. Dwelling is an essential element of what it means to exist in this world. To be a human being means to be a mortal on earth, it means to dwell (Heidegger, 1971). According to Heidegger (Heidegger, 1971) dwelling is the anthropological characteristic of being a human and space uncovers this phenomenon. Furthermore, dwelling has interrelation and theoretical aspects of what he terms the *Gierviet* or fourfold concept.

1. Humans live on the **earth**,
2. And under the **sky**,
3. In the presence of the **divinities,**
4. As **mortals** living with <u>one another.</u>

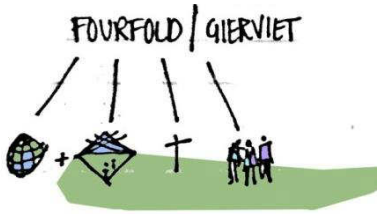


FIGURE 5: Heidegger's Gierviet
SOURCE : Drawn by author

The idea being that these four are existential dimensions of human life. The phenomenological essence of dwelling according to Heidegger is, "Staying with and among things under one roof" (Heidegger, 1971).

2.5.2 A second perspective of dwelling

To enrich the conceptual understanding for what it means to dwell, a second perspective is considered. According to Bollnow, his definition of dwelling is derived through the notion of space. The idea is that human beings are spatial beings because we spend our entire existence accompanied by a feeling and a sense of wellbeing (Bollnow, 2011). Bollnow looks at space as four interweaving layers that are contextual and not chronological, namely;

1. Primary naive spatial confidence/ security,
2. Fear of homelessness/ being lost,
3. A house to provide protection,
4. Since no protection is absolute/ greater security (Bollnow, 2011).

A house is viewed as the primary world of human existence and to become conscious an individual needs to be one with space. The main characteristic of a house is the difference between inside and outside space. It can therefore be said that the three main factors of real dwelling is:

1. Settling at a place and creating an area of privacy and security,
2. Tension between inner space and outer space is essential in human and spatial existence,
3. Overcoming the naive belief in the strength of the house and man trusting the outer world (Bollnow, 2011).

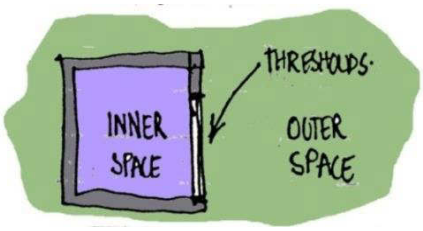


FIGURE 6: Inner Space and Outer Space
SOURCE: Drawn by author

Like Heidegger, Bollnow, agrees that real dwelling occurs inside a house however; their perspectives differ as the latter believes that real dwelling is not determined by the house design but rather by the life inside of it. – “Dwelling is only dwelling when it is dwelling together,” and “A true house longs for a family.” (Bollnow, 2011) Both theorists have a common conclusion of the phenomenological essence of dwelling, that is not just the intimacy of space but, the interaction with other beings and coming together under one roof.

2.5.3 Culture and Identity

Man is a designer of *genius*, and *genius* is mans physical surroundings (Rapaport, 1969). With regards to architecture there are two perspectives: the grand design tradition in which the minority of society can afford an architect to produce a grandeur edifice. There is also the folk tradition which majority of society act as architects in fact it is the community as a whole that become the architects through co-operation.

Folk tradition is of interest in this research as culture is closely linked to it and easily understood from this perspective. It is also categorised in two ways: that of primitive architecture and of vernacular architecture. The former is attributed to being identical and lacking of a differentiation that of man and natures threshold. The latter deals with the specifics of family being open ended and flexible to the change of the familial needs. Vernacular architecture can be seen as architecture of place. To propose multigenerational housing as an alternative means for the elderly to retire it would be prudent to address the notion of traditional architecture and culture in the design by allowing the architecture to be freely informed by its context.

The colonial movement is when architecture distinguishes itself from shelter i.e. primitive Architecture. The Western world is viewed as the ideal in comparison to the Eastern and African practices (Baydar, 2004). Since both architecture and culture share structural qualities such as man versus nature, inside versus outside, a culturally diverse route needs to be taken, one that is made up of comparative ethics and aesthetics.The modern symbols of the house are just as strong as those of the past and still take precedence over the physical

(Rapaport, 1969)

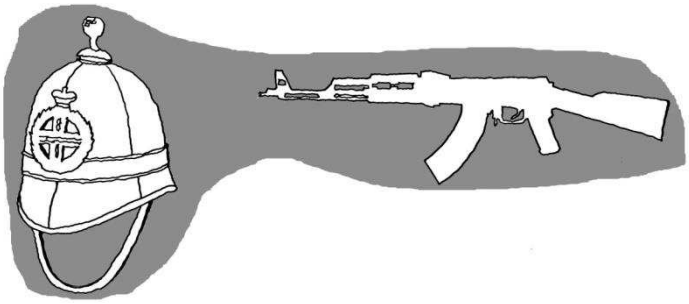


FIGURE 7 : The pith helmet and AK 47, symbols of Colonialism and Independence in Africa, these periods in history gave identity to the vast continent', just as these items have association so does the dwelling in different ethnographic contexts

SOURCE: Drawn by author

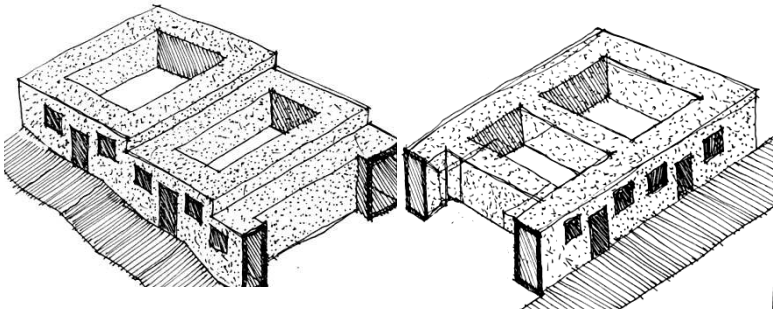


FIGURE 8: The effect of the site is cultural rather than physical. The symbolism and importance of the landscape and its features vary with regard to cultural beliefs. The courtyard house is native and common to many cultures and has been adapted to the different reliefs of the site; either steep slope sites or flat sites.

SOURCE: Drawn by author



FIGURE 9: Socio Cultural factors have influence on house form and spatial arrangement. In this instance it is hierarchy determines the layout.

SOURCE: Drawn by author

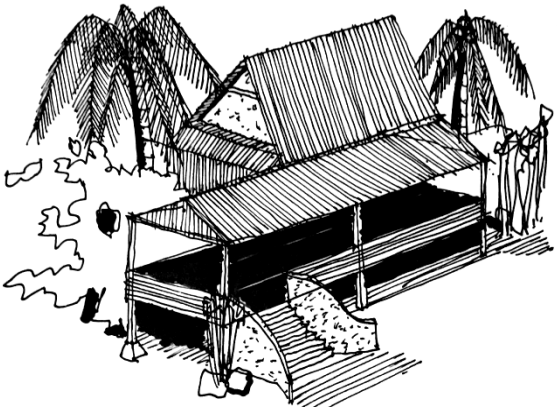


FIGURE 10: Defence definitely plays a role in determining house form but does not fully account for it. The communal house has been linked to the need of survival. The need for defence in some form of another was embraced as a opportunity for certain cultures to portray prestige.

SOURCE: Drawn by author

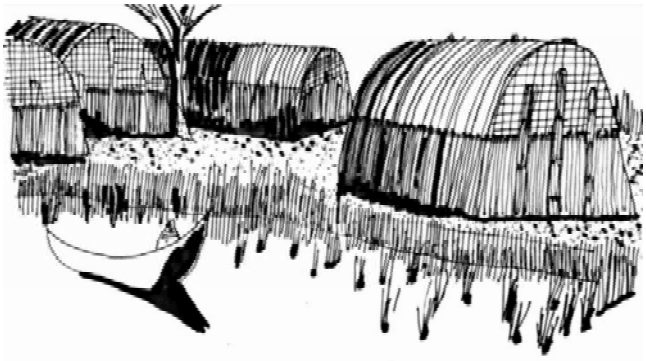


FIGURE 11: The use of circular and round forms is not determined by materials or technology though different cultures may have similar interwoven technology or materials, the symbolism of the elements that constitute to a house form, varies.

SOURCE: Drawn by author

In order to find the appropriate architectural response it is imperative that an understanding of Culture and Architecture is attained, furthermore a cultural understanding should take place in the context of modern society. According to Bhabha, "all cultural systems are born in ambivalent space of enunciation during an interrupted time of translation and negotiation" (Bhabha, 1994).Identity is born out of lack (Rapaport, 1969). It is only when something has a lack then it has identity for it has to lack to achieve an illusion in order to be whole. The two identity categories of focus are culture and architecture.

According to Rapaport (1969) when tradition goes then there can be no reliance on the accepted norms and thus there is a beginning of institutionalisation. For instance in China the familial system of care has been long held together by the cultural belief of *Xiao* or filial piety; a Confucian concept that includes a wide range of behaviours. These "behaviours" in essence are a child's respect, obedience and care for elderly parents (Zhan & Montgomery, 2003)



FIGURE 12: XIAO

SOURCE: Drawn by author

In today's society, Indian families like the Chinese counterparts are governed by patrilocal norms in which sons and their wives take care of their parents, the eldest son bears the bulk of the responsibility and the adult wives should care for her in-laws first and parents second (Ghou & Zhang, 1996). With regards to Rapaport's statement of tradition, we understand that if traditional values such as filial piety are ignored or detached from society there will be a shift to institutionalisation. This institutionalisation, in respect to this research, can be seen as a retirement facilities that isolates the elderly from society.

In order for this multigenerational intervention to be of success it will require identity. According to Baydar (2004), culture is seen as a burden to architecture. The latter is a combination of practice and theory; mans relationship with nature and the **thing** which gives it its identity. This "thing" can be literary, geometrical, historical, musical, medical, legal etc. In the case of this research it will be the things attributed to the needs of the elderly (Baydar, 2004).

2.5.4 Placemaking

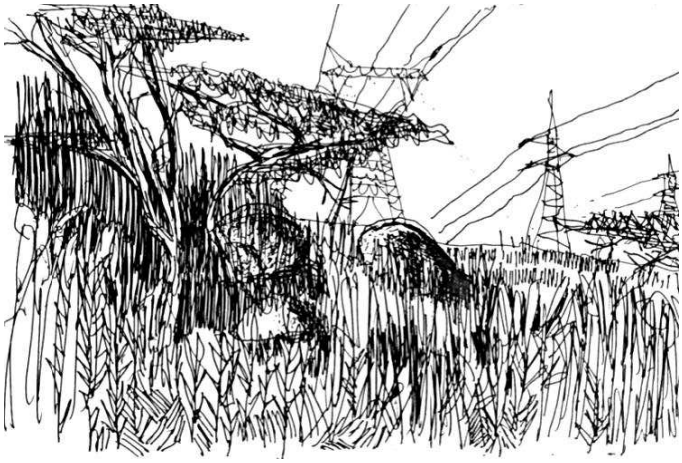


FIGURE 13: The vegetation, acacias and boulders are symbols of nature and the electric pylons are that of mans identification.

According to Christian Norburg-Shulz, man can dwell when he concretises space and creates concrete objects of legibility (Norburg-Schulz, 1979).

SOURCE: Drawn by author

The concept of **Placemaking** is that of creating public space into a *place*. The character of the proposed architecture will need to reflect the needs of the elderly first and foremost. Circulation and movement will need to be optimally designed to enable way finding for the aged.

A great sense of community would be the apt approach in the design of multigenerational living, encouraging retail and informal trade at ground level would be a key factor in allowing activation of adjacent spaces thus creating a continuation of its surroundings. Introducing physical elements should aim at making the edges of the site welcoming and comfortable. A prudent layout of these elements is necessary and using triangulation in the placement of such would prompt occupants to intermingle more effectively.

“Nothing is experienced by itself, but always in relation to its surroundings” (Lynch, 1960). Irrespective of socio-economic, racial, political and cultural lines, all humans require navigation through spaces, even more so in public buildings. Visual punctuation is noted as elements that allow occupants/ citizens to have a memory of place. They provide structure, clarity and legibility. One of the most vital aspects of architecture is its entrance.

Creating building setbacks to major squares and parks would create a hierarchy of open space (Alexander*et al.*, 1977) and ensure pedestrianization, social freedom and a strong relationship between the contexts. The planning and management of social spaces should be flexible in order that it may change over time according to multigenerational needs.

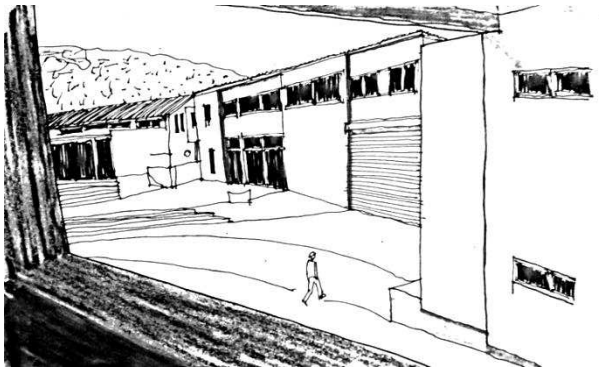


FIGURE 14: The enclosure of spaces and capturing of views will be essential to the eventual design. According to Alexander (1977) the window can become a place for withdrawal, reflecting and relaxing while also enjoying the view of the outdoor environment through the incorporation of seating with the window.

SOURCE: Drawn by author

2.5.5 Phenomenology of Space



FIGURE 15: Steven Holl's play of light in Knut Hamsun Center.

SOURCE: http:/dudye.com/wp-content/uploads/2009/12/interior-design3.jpg

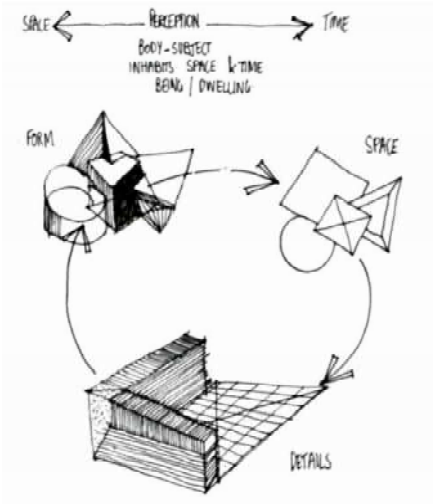


FIGURE 16: Form-Space-Details

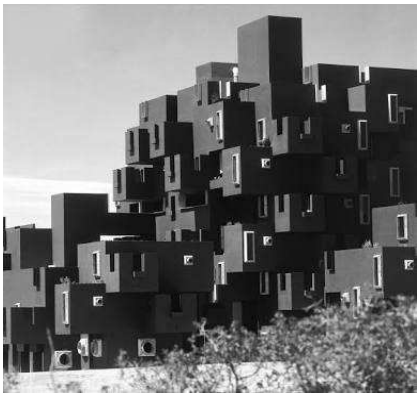
Form - Holl, Space -Multigenerational, Details - Pallasmaa

SOURCE: Drawn by author

According to Harvey (1992) architecture articulates the experiences of being-in-the-world and strengthens our sense of reality and self, it is also a primary instrument in relating us with space and time (Harvey, 1992). The intent of this dissertation is to express tactility through hand drawn communicated sketches and designs. The computer creates a distance between object and maker. (Pallasmaa, 1996)

The idea of Holl's methodology in architectural design has been explored in this research. Like Pallasmaa, Holl's approach is of a phenomenological one whereby the relationship between person and place is vital. As opposed to Pallasmaa who explores architecture through its tactility and sensory design, Holl achieves the phenomenology of space through an articulation of spatial arrangements and volumetric form. The composition of which invokes an emotional connection through procession between these spaces.

The intertwined and entangled composition of such form will be the poetic metaphor to the dynamic nature of multigenerational living. The volumetric arrangement of this multigenerational design will be one that encourages co-mingling and allows for degrees of privacy and communality. The honeycombing or clustering of unit typologies will be explored and incorporated into the design.



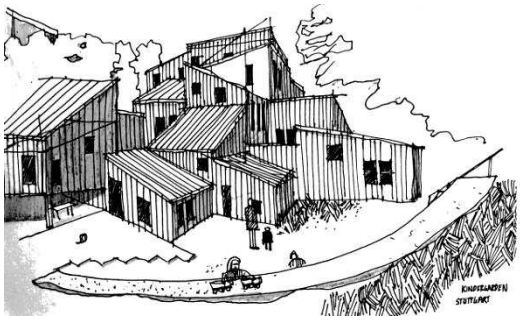


FIGURE 17 (left): Kafka Castle was spatial arranged to create a modulation of form whilst forming spatially meaningful internal and external spaces. This clustering creates a spatial variation in progression from space to space.

SOURCE: https://www.astudejaoublie.blogspot.co.za

FIGURE 18 (right): Kindergarten in Stuttgart encompasses the principle of honeycombing through which a phenomenological experience is captured as occupants move within invoking learning through memory.

SOURCE: Drawn by Author

Pallasmaa's approach to the phenomenology of architecture is one that encompasses the human senses however, two main senses are emphasized: Pallasmaa explains that the human experience of the built form is strongly aligned to the sensory experiences of touch and vision. In the design of multigenerational housing the physical decline of these functions through ageing will require addressing. Tactility and legibility are key architectural characteristics aligned with sensory design (Pallasmaa, 1996).



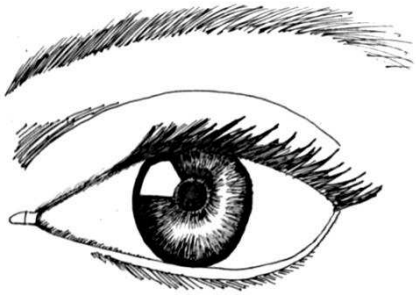


FIGURE 19 (left): Touch
(Mother of all senses is the mode that enables us to experience both the world and ourselves)

FIGURE 20 (right). Vision
(The dominant sense that allows us to visually comprehend our surroundings)
(Palasmaa 1996)
SOURCE: Drawn by Author

The skin is capable of comprehending colour (Pallasmaa, 1996). Focused vision versus peripheral vision, the latter has a higher priority. The dominance of the eye and the suppression of the other sense tend to push us into detachment and isolation. Modernist design has housed both intellect and the eye, but it has left the body and other sensesas well as that of memory imagination and dreams homeless (Pallasmaa, 1996).

The increase in architecture losing its tactility, materials and details results in a loss of authority or presence. The increasing use of reflective glass in an enigmatic and frightening device as it reflects

back our gaze. The works of Frank Lloyd Wright, Louis Khan and Alvar Aalto have strived to encompass a sense of materiality and tactility.

Rene Descartes states that, “Touch is more certain and less vulnerable than vision,“whilst MartinHeidegger (1977)states, “The fundamental event of the modern age is the conquest of the world as a picture”. In other words universal modernism has led to the open production of spaces and places as images for the instance of this research, identical units in retirement gated estates. Vision separates us from the world and other senses unite us (Pallasmaa, 1996).

Vernacular architecture portrays tactility and haptic sensibility. Modernism or even Renaissance/Classical styles all possess order, structure, mass detail and craft to create an excellent visual image.An architectural work is meritable for the reason of oppositely and contradictory fusing elements that create allusion and illusions. Vision orders and categorizes our surroundings. The eye aims for perfection and is evident in modern urban planning. Oscar Niemeyer’s Brasilia is an excellent example of this and thank God Le Corbusier’s Paris plan never went through.

Architecture strengthens the existential experience in this world. Touch and haptic memory, shadow and light, acoustic intimacy, silence, time and solitude, spaces of scent, spaces of intimate warmth should all be architectural considerations. The shape of touch reads weight, texture, density (Pallasmaa, 1996).

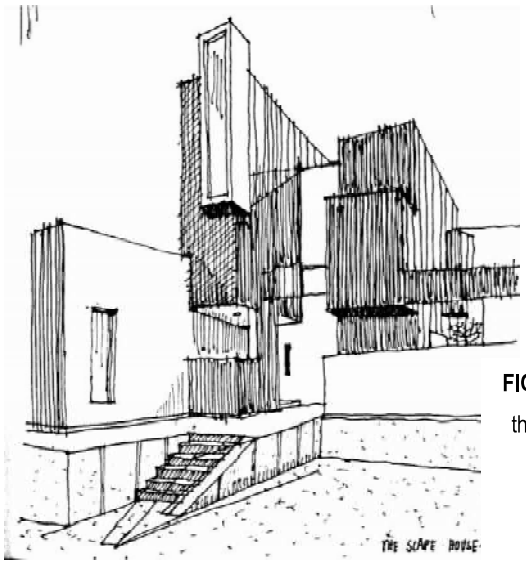




FIGURE 21 (left). Scape House displays a juxtaposition of form that manifests in the lighting and shadows of internal spaces captured on planes of concrete and steel to express materiality

SOURCE: Drawn by Author andhttps:/www.archdaily.com

2.5.6 Critical Regionalism

According to Frampton (Frampton, 1983), the spread of Universal Modernism eventually led to its demise. The Modernist Movement was an International Style that lacked identity in its 'place' aspect. Critical regionalism forms as the antipode to Universal Modernism. This theory aims to unite the architectural edifice and spirit of place within its context. The factors of the approach are firstly that Critical Regionalism does not reject the advancements of the modern movement but instead distances the utopian intentions of modern pioneers. Critical Regionalism should seek to integrate architecture with its environment as oppose to emphasizing it as a free standing object.

Critical Regionalism is in tune with the notion of architecture and its tectonics, instead of its scenographic traits the idea places a major emphasis on certain site specific factors whether it be climatic conditions, lighting and typography. This concept considers Sensory Design; like Juhani Pallaasma, Frampton agrees to the notion that architecture is experienced with the human senses with emphasis being on the touch and vision (Frampton, 1983).Critical Regionalism does not simulate the local vernacular of the context but instead re-interprets these elements in some cases a paradoxical fashion with the aim of creating coherent form.This concept blossoms in instances where there is no heavy pressure of Universal Modernism in order that architecture can be regarded *critically*(Frampton, 1983).

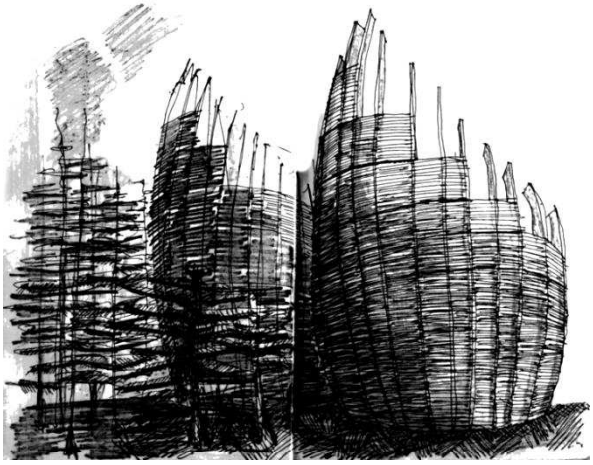


FIGURE 22: Renzo Pianos Tjiboau Cultural Centre was designed with the intent of blending into its surroundings, first in the cultural then the natural sense.

SOURCE: Drawn by author

Multigenerational housing can be informed by its place form or product form. Multigenerational design should not be designed with the strict rigid principles of Modernism. Whilst it is important to maintain structure, the spatial planning should portray flexibility in the design. The immediate context and the architecture of surroundings should be encapsulated in order that the multigenerational design will not stand out as a symbol but instead will blend into everything around it. This ensures there is no stigma around the building and the residents view it as an extension of their context. Activities neighbouring the site should "bleed" into the multigenerational design.

2.6 Retirement for low-income citizens

In addition to qualitative research gathered from gated retirement communities, a theoretical outlook is conducted with the aim of finding a solution that will be informed by the research problem. Since "space" uncovers the essence of dwelling (Heidegger, 1971), an analysis will be made to gated retirement communities as an existence of this space. The aim here is to gather a full understanding of the antipode which is rigid and ordered gated retirement communities.

Since multigenerational design is almost non-existent in the South African context, modern gated retirement communities and institutionalizing the aged were looked at as a problem. The activities and the program for the architectural response will be informed by primary research; whilst the secondary research will enlighten the conceptual and spatial configurations of space. The definition of a retirement village can be summed up as buildings and land designed or the housing of people advanced in age (SAPAO, 1993).

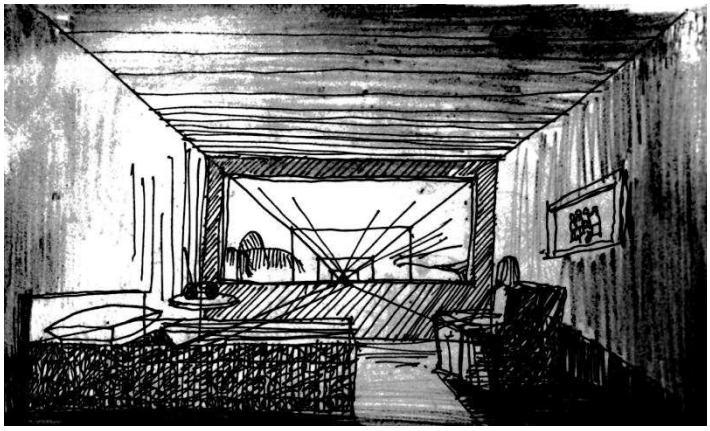


FIGURE 23: Isolation from activities and lack of purpose are proven to decrease the longevity of an aged person.

SOURCE: Drawn by author

Prior to the phasing out of state funded housing for the aged alternate means of housing were provided for non frail elderly persons with limited financial resources (Froneman *et al.,* 2014). In South Africa today, the dilemma lies with the elderly who are either not willing or unable to live with children or do not possess any financial muscle to afford current retirement facilities. Presently, in South Africa retirement villages in the form of gated retirement communities cater exclusively for single elderly groups that is both the wealthy and white (Froneman *et al.,*2014). In industrialised countries such as Japan the phenomenon of multigenerational co-residence was previously the norm, however up until now the market demand for independent living has increased (Ferreira, 1998).

2.6.1 Socio Economic Impact

The role of the aged in a traditional African society differsand has been moulded by the Apartheid regime. The industrialization and modernization of South Africa has resulted in urbanization and rural migration to cities. Men are forced in the rural scarcity of job opportunities to move to cities to seek employment. The remaining rural household is left in the care of the elders in many of these instances it is a female who is the breadwinner and caregiver to the younger generation. All members of the household benefit by making common use of their financial resources(Bianchi *et al.,* 2007).According toCaldwell's Intergenerational Theory of Wealth Flow (Caldwell,1985) and research into African societies, wealth is distributed in a bilateral manner dependent on socio-economic class. Wealth is passed down as an inheritance from the older generation to the younger generation and as predominant in the middle to higher income socio-economic class. In contrast wealth is passed from younger generations to older generations in the form of financial assistance and care. He addsthat traditional families i.e. Black people, tend to reproduce more in order for their children to take care of them however this specific thinking is null and void in today's society (Caldwell, 1985).

"Elderly parents may barter financial resources for the physical care and attention of their children." (Bernheim *et al.,* 1985) and (Cox, 1987).Bernheim also mentions that these rewards are not necessarily financial (Bernheim *et al.,* 1985). In higher income families children might care for their aging parents for the purposes of inheritance (Rossi & Rossi, 1990); though in lower income families the financial assistance of the aging parents is required (Bianchi *et al.,* 2007).Economic hardship features alongside widowhood and poor health as a fundamental basis to prompt multigenerational living (Crimmins & Ingegneri, 1990);(Mickus *et al,* 1997); (Roan & Raley, 1996); (Szinovacz, 1997) and (Choi, 2003)

Old age grants (OAG) according to Du Toit (Du Toit, 1994) has a positive effect on poverty alleviation. OAGs were prompted by social and economic effects of an absent paternal member and elderly women therefore providing care (Richter & Morrel, 2006). The concept of OAG was introduced in the apartheid era, first to the poor White elderly then eventually to the Black elderly people. The White folks received more and the Black folks received less. In a democratic South Africa today this situation has been equalised. Research has shown that the provision of OAG has assisted a great to lower income multigenerational households (Ramphele,1992).

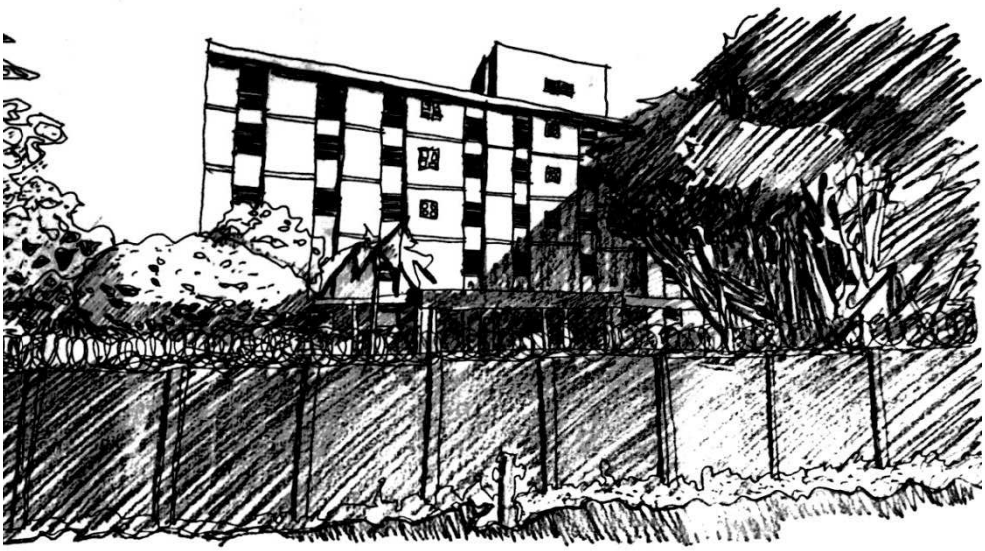


FIGURE 24: TAFTA on Ridge (also a case study), as a sketch it expresses its modernist institutional attributes.

SOURCE: Drawn by Author

2.6.2 Gated Retirement Communities

Gated retirement communities are the predominant option of living for the aging population in South Africa. It is a form of segregation: Gated communities are places of seclusion and homogeneous enclaves which lead to increased segregation (Blakely & Snyder, 1997), (Low, 2001), (Caldeira, 2000), (Blandy *et al.*, 2003),and (Le Goix, 2003). Low (Low, 2001) defines a gated community as a residential development surrounded by walls, fences, earth banks covered with bushes with a secured entrance however; the gated community can also be in the form of a multi-storey building with a doorman. Modern gated communities encompass the enclosure of houses, streets, sidewalks and other amenities. Marcuse (Marcuse, 1997) states that living inside walls immediately evokes the idea of a ghetto but the difference between the ghetto and the gated community is the voluntary segregation that the residents desire. Living in a separated residential complex has no link to any ethnic or economic discrimination. “Mans existential foothold is lost when we address architecture scientifically” (Norburg-Schulz, 1979).Norburg-Schulz emphasizes that if architecture is treated analytically and scientifically then we miss the vital characteristic which is being an object of man’s identification (Norburg-Schulz, 1979).

2.6.3 Challenges of Retirement Homes

Lack of Autonomy

Studies done at nursing homes have showna lack of autonomy as a fundamental factor that adversely affects residents (Anderberg *et al.,* 2009, Fiveash 1997, Murphy *et al.,* 2007, &Teeri *et al.,* 2006).This occurs where the residents strongly object to the idea of living in an institution for the rest of their lives, even at the cost of their health and security. Reduced autonomyis therefore attributed to institutionalization. (Teeri *et al,* 2006).

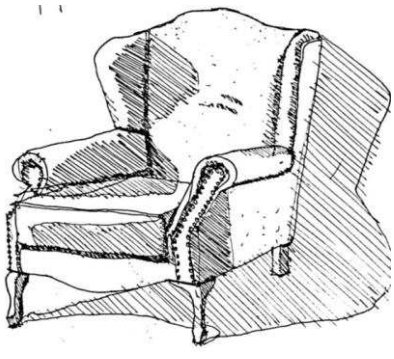


FIGURE 25: Retirement design that allows the use of the seniors own furniture is not usually catered for in dense retirement

SOURCE: Drawn by author

Environmental Factors

For elderly people living in institutions privacy is extremely important. Personal space or territory is a key aspect of privacy (Kimondo, 2012). For residents living in nursing homes there is little privacy and opportunity to personalise their spaces. (Murphy *et al*, 2007).

Negative Relations

Relationships between staff and residents are tensioned by abuse from both parties. Abuse generally arises from residents expressing their own opinions about retirement homes. Elder abuse has been defined by World Health Organization (WHO) as a single or repeated act or lack of an appropriate action, occurring within any relationship where there is an expectation of trust and which causes harm or distress to an older person. Seniors are abused in institutional care because they are often in a powerless position (Buzgova & Ivanova, 2011).

Lack of Purpose in Life

A recent study by Kofod (2008) found out that residents of nursing homes lacked in feeling of spark of life and that they perceived their bodies as prison. It is therefore impetrative that the elderly be given a sense of active purpose in society through an architectural response.

2.7 Multigenerational housing as a solution

Multigenerational housing's greatest contribution in being an alternate solution to gated retirement communities is its characteristic of dealing with social challenges. The main advantages of multigenerational living areas follow:

2.7.1 Addressing a social challenge

Multigenerational design that deals with a specific social challenge and gives a sense of purpose to seniors will be solving both a crisis in society and sprawl of retirement suburbia. The occupants here require trauma counselling and care, having a multigenerational community can mitigate this issue.

The opportunity to participate in a diverse range of activities and events within their physical context can help the aged to stay active and stay independent for a longer period. Optimizing opportunities for collaboration and communication between residents in a community can be a significant source of support for the elderly; this can help compensate for the decline in the abilities and competence of seniors.

2.7.2 Social sustainability

Multigenerational housing is a form of co-housing. This forms a co-operation between diverse inhabitants and service providers. Furthermore, the use of technical aids and mediation processes promote new forms of living together and social sustainability (Eurich *et al.,* 2014) and (Lemke *et al.,* 2014).

Sustainability of co-housing occurs in the form of its “Common Characteristic Relationships” (McMillan & Shavis,) whereby much of the assets are shared i.e. lawnmowers, tools, gardens, swimming pools and responsibilities. In essence, co-operation forms the grounding basis for a sustainable community.

Multigenerational housing forms a type of sustainability unlike that of passive design and energy fixtures. The concept of social sustainability is generated through co-operation and sharing. In many multigenerational homes there exists a bidirectional reward to the members of such household. The commonality and advantage of both co-housing and mutigenerational living is in the form of social sustainability.

2.7.3 Suburban Sprawl

Suburban sprawl though beneficial in reducing the housing gap between Black and White groups (Barnes *et al,* 2002), still imposes high economic costs on citizens and increased taxes from its necessity infrastructure. The distancing and decentralising of residential developments from economic work sectors contributes to the need for vehicular transport. A resultant of this is an increase in noise and air pollution (Barnes *et al,* 2002).

The emotional costs of suburban sprawl come in the form of a decreasing sense of community cohesion and values. The aesthetical and physical costs of sprawl are the displeasing, monotonous image of the suburban landscape and the increase of traffic congestion to and from the urban centres (Barnes *et al,* 2002).

Multigenerational housing can vary in density, from low density towns to the tights infill's of the striving metropolis. The expansive existence of retirement communities that disregard space as a commodity will be contrasted by proposed multigenerational housing. This will be achieved by situating multigenerational housing on residual space within the urban fabric

2.7.4 Knowledge transfer and Oral Tradition

Through multigenerational living knowledge transfer is possible and a diverse skill set is brought forward prompting economic activities Each Generation has cultural values and traits formed by defining events in their youth which manifests in their workplace (Cox & Holloway, 2011). Filial Piety (Silverstein *et al.,* 2002) or respect for elders is a concept possible to achieve through multigenerational living. Sociologist, Karl Mannheim discusses the sociology of generational relationships. It is theorized that man is not solely taught by the preceding generations on how to live, but it is in fact the experiences of life that teach a person how so (Mannheim,). .

Griots are oral historians in West African culture that receives ancestral knowledge and facts. They bear the responsibility to ensure that such knowledge and facts are passed down to generations (World Affairs Council of Houston, 2009). Many of these vivid yet true proverbs drew parallels from nature and repetition of language and rhythm allowing for comprehension and memory.

2.8 Universal Design

The first important factor of multigenerational living in respect to Universal Design is equitable use. The elderly persons, children, the youth and middle aged should not be discriminated against. The ageing process physically declines the mobility of an occupant thus prompting the need for ramps, sizable walkways and railings. Apart from mobility these elements create a safe environment for all by decreasing the probability of accidents. Flexibility in multigenerational living does not only come in the form of various unit typologies but in that of choice. Occupants should have the choice between staircases; a ramp or elevators these all add to the experiential nature of the building typology.

The comprehension of “things” differs across culture and generations as explored in Rapaport (1969). There are similarities in all cultures. There is a structure that keeps everything together. An important principle of Universal Design is comprehension irrespective of the dynamics of the user. As explained by Pallasmaa, vision and touch are the two most important senses of a human in experiencing the phenomenon of space. As ageing takes place, vision declines resulting in a need for greater legibility and way finding.

A tolerance for human error should communicate in the design. The arrangement of spaces and elements prudently considered will allow for minimal hazards and danger. A great consideration for multigenerational housing will be the execution of services, its placement and concealment to make environments safe and habitable. The reality of ageing is the decline of physical strength which alleviates seniors with a sense of purpose. By designing spaces that efficiently increase and ease of

mobility in conjunction with activities that urge a sense of purpose multigenerational living can be a successful social and economic intervention.

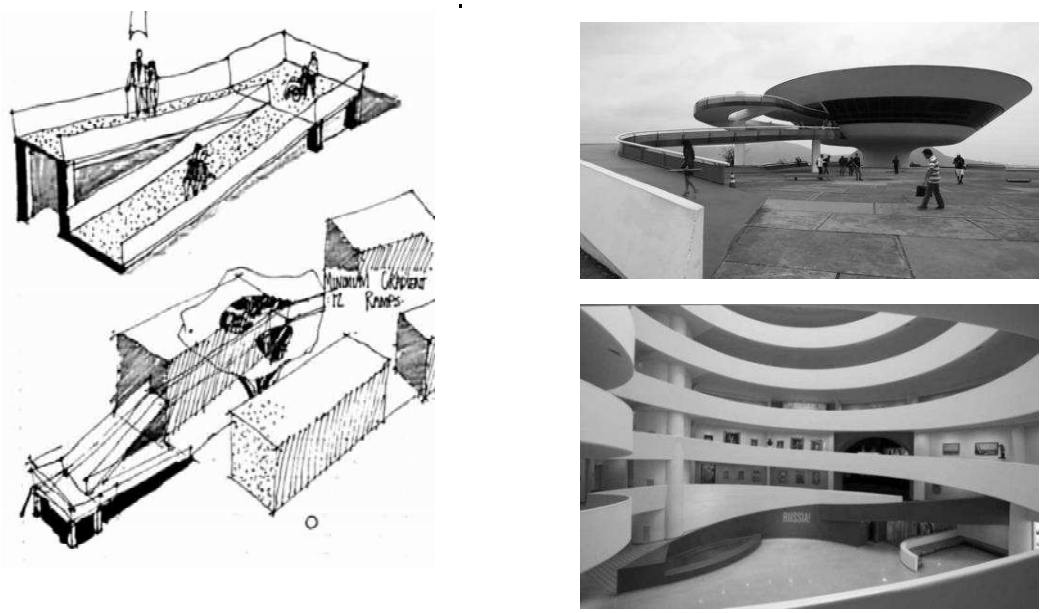


FIGURE 26: The ramp can either be a simply functional element of the building (authors sketch on the left) or become a sculpturally defining experiential component of the building composition as in the case of Niemeyer's Museum for Contemporary Art **FIGURE 27** (above right) or Wright's Guggenheim museum **FIGURE 28:**(below right).

SOURCE: https:/www.archdaily.com

2.9 Public and private spaces

In order for a multigenerational design to be established the concepts of public and private space will require an in depth view. According to Marcuse (Nissen, Sylke. 2008) public space cannot just be defined by the scope of public authority or the built fabric of a settlement nor public and private ownership. Instead public space can be defined on the basis of two main elements namely:-

1. Usability
2. Unrestricted access (Atkinson, 2003).

Usability determines the degree to which the public can use a space. Jane Jacobs (1952) regards the vital organs of a town or city as the streets and sidewalks; when a citizen is discontent he or she takes

to the streets and exercises there discontentment in a pubic manner (Glasze, 2001). Jacobs outlines three different facets of streets namely; communication, safety and business. He emphasizes the reduction of street functions as a key contributor to a city dying off. Public parks and squares are spaces that can be used by all however, these too can undergo a certain transformation: Local authorities maintain care of gardens and parks, private companies or residents take care over the maintenance ,the complete park or plaza enters a privatization process, these public parks are neglected or closed off with limited access (Glasze, 2001).

Donahue (Donahue*et al.,* 2010) reports that problems of multigenerational living may result in low morale due to loss of privacy, low degree of independence accorded the elder parent, severe physical handicaps and poor prior relationships among family members. On the other hand, such elders may experience good morale in multigenerational family settings because the alternative institutional care has been avoided or because a support system of health care and increased available income has reduced the stress of a previous disadvantaged state. The key differentiators of public and private space are its rules of access i.e. the source and nature of control over entry to a space.

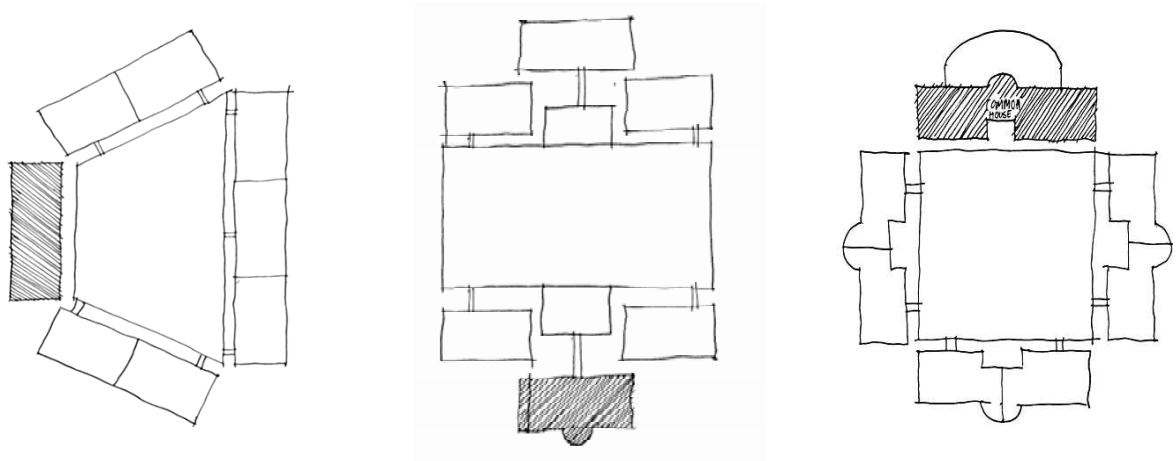


FIGURE 29: Configurations of spatial arrangements around communal space with communal room (hatched)

SOURCE: Drawn by Author

In multigenerational living the concept of Privacy and Communality should be addressed from the largest of scales to smallest of scales i.e. from the site development and position of the design to the most internal spaces of the dwelling space. This allows for a smooth transition from the one to the other allowing the young and the old to integrate in communality and resort to quieter private spaces when needed.

Figure 30

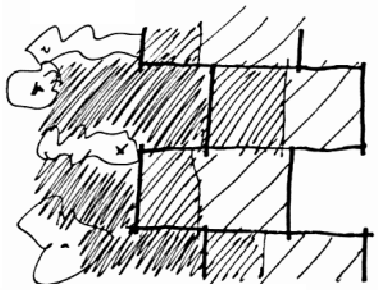


Figure 31

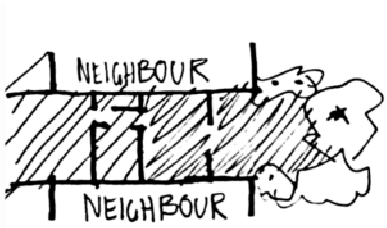


Figure 32

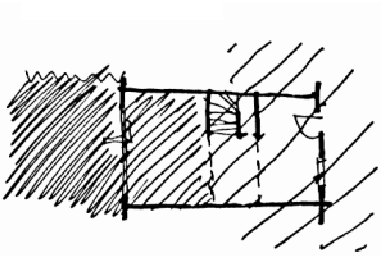


Figure 33

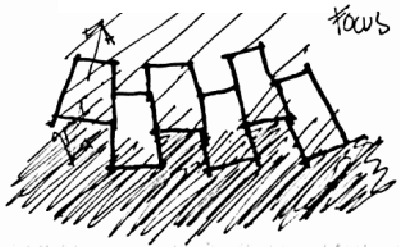


Figure 34

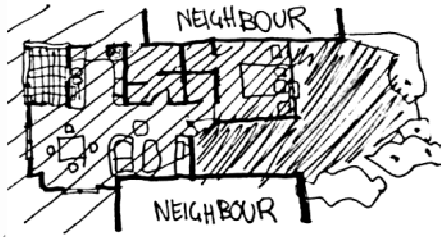


Figure 35

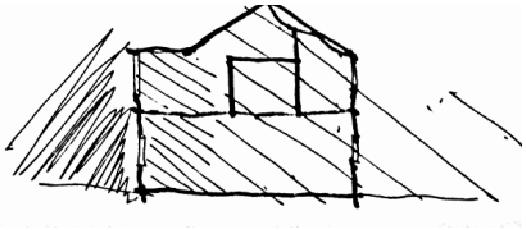


FIGURE 30-35: Privacy Gradient of staggered unit; dense hatching represents private spaces whilst sparse hatching represents the more public spaces or least private spaces. These private spaces are important as they act as break away spaces for seniors. By radially staggering tapered units a sense of focus is created on the inner diameter. A sense of intimacy can be achieved by down scaling the private area of the unit as expressed sectionally.

2.10 Smart Growth and Urban Regeneration

A recent concept that closely accompanies multigenerational design is smart growth. Smart Growth is a development strategy implemented in many first world countries. It promotes a variety of building types and uses, multiple living arrangements and transportation choices (Smart growth America, 2006).

The key principles of smart growth are namely:-

1. Compact design
2. Mixed land uses
3. Walk able neighbourhoods
4. Distinctive lively communities
5. Provide various transportation choices
6. Various housing opportunities and choices
7. Direct development towards existing communities
8. Preserving open space natural beauty critical environmental areas
9. Development decisions should be predictable, fair and cost effective
10. Encouraging communities and stakeholder collaboration in development decisions(Smart growth America, 2006).

Most gated retirement communities have a disregard for space as they are expansive and exclusive. The proposed sustainable multigenerational development will seek to address space in a compact manner and encourage cohabitation. Being a western idea Smart Growth was developed to create greater social interaction and economic efficiency in the context of Urbanisation and growing population densities. In research to multigenerational living, smart growth has been implemented as a model for creating tightly knit communities and providing for the needs of everyone. As a form of regeneration Smart Growth contrasts with the Suburban Sprawl of gated retirement communities and creates sustainability through close proximity and compact design.

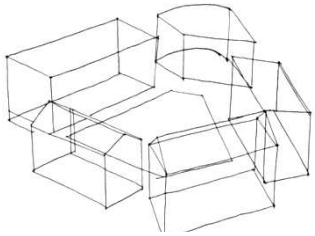
2.11 Multigenerational Living and Co-housing Principles

Multigenerational living is closely linked to the concept of co-housing or co-operative housing. Principles of co-housing have been explored and will be applied to the design of multigenerational housing. The definition of co-housing can be seen as an intentional community of private dwellings clustered around shared space (American Heritage Dictionary, 2000). Community activities are planned collaboratively but households still maintain independent and private lives. Shared meals, meetings and workdays are regularly scheduled activities feature in the community; the gathering of neighbours to

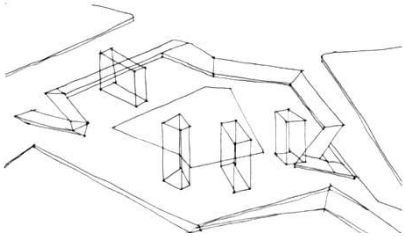
engage in parties, movies, games or other events. In essence co-housing facilitates organised elder and child care whilst maintaining a sustainable stance (Korki, 2013).According to Durrett and McAamant (1994).Co-housing prompts interaction amongst neighbours for economic, environmental and practical benefits.

The four crucial aspects of co-housing are:-

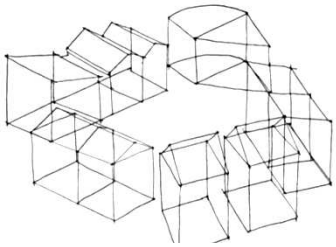
1. A common characteristic relationship - the notion of sharing and caring is attached to a community whereby neighbours commit to a culture of mutual benefiting.
2. Privacy and communality are two aspects that should be considered in a cohousing design. Occupants can choose their own level of engagement.
3. Participation - decision making is vital in any housing development in cohousing the character of participation is usually participatory based on consensus. Residents self manage aspects of living in turn building a community and saving money.
4. Shared values - the actualising of shared values is supported by cohousing communities to their fellow residents. Green approaches are adapted to cohousing living (Durrett, 2009).



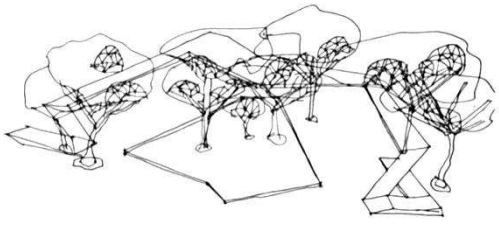
Clustering of buildings around shared space.



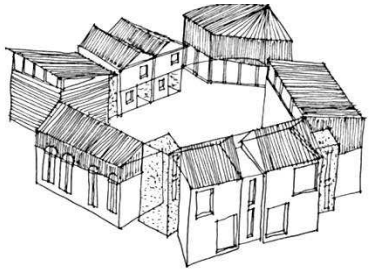
Smooth spaces of connectivity.



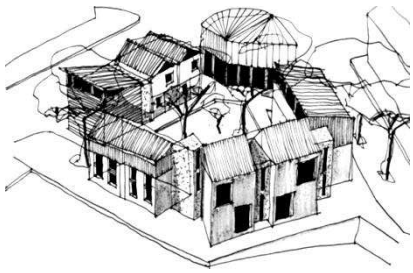
A variety of living situations and typologies.



Shared accessible green space.



Architecture of place and not applied styles.



Architecture that is responsive to the context.

FIGURE 36-41: 6 Co-housing Design Principles

SOURCE: Drawn by Author

2.12 Chapter Summary

Multigenerational living gives a sense of purpose to the elderly if its primary focus is that of solving a social challenge. The elderly are considered in the spatial arrangements of the design to be inclusive in order that they may age-in-place. Multigenerational housing that deals with salient social challenges are the more credible interventions. By giving the elderly a sense of purpose, problems with future consequences can be dealt with swiftly.

Multigenerational living is also a dynamic phenomenon that is informed by a variety of scenarios. The fundamental aspect of this chapter will assist and contribute to understanding the end user of the proposed architectural design. This can be deduced by the reason informing multigenerational living. Furthermore multigenerational living can be seen as a dynamic, entangled and intertwined nature of economic, social and cultural norms. "While most studies have addressed exchange theory, altruism, norms, and obligations independently, others have suggested these behaviours are not easily disentangled" (Silverstein *et al.,* 2002).

In our initial theoretical analysis of dwelling we ascertain that cohabitation is a factor of both "Staying with and among things under one roof" (Heidegger, 1971) and recognising that "Dwelling is only dwelling when it is dwelling together," (Bollnow, 2011). By using primary research and a theoretical grounding of contemporary ideas of Holl and Pallasmaa into the proposed multigenerational design it will be possible to achieve a sensory experience in both materiality and volumetric expressions. Sensory Design is vital with multigenerational design as it takes into account the needs of the elderly (physical declining and decrease in senses). The articulation of forms in a multigenerational design will require careful consideration of public, private and hybrid spaces as it is found that the relationship of space is of key importance to multigenerational living.

The following 8 principles can be gathered from this chapter:-

1. Multigenerational living as an intervention in solving the two-fold problem of retirement suburbia sprawl and crises facing low income and impoverished seniors.
2. The proposed design should be inclusive and cognitive of all ages. It should also be self sustaining.
3. The space will be designed with cohabitation in mind.
4. The space will be designed with a Sensory Design Approach as it will capture the human senses through its tectonics.
5. The space will be designed with a critical regionalist approach so it will suite its immediate context
6. Universal Design is imperative.
7. The relationship between privacy and communality is important for both the elderly and the youth. They have choice in the level of engagement they prefer.
8. Design flexibility is imperative to cope with the ever changing needs of families.

Though a set of criteria is envisioned, the eventual design will have a large number of primary and secondary considerations based on contextual drivers.

PART THREE - PRECEDENT STUDIES



“

FIGURE 42: The loss of an elder is like the burning down of a library” - African Proverb

SOURCE: Drawn by Author

CHAPTER 3

3.1. INTRODUCTION

As ascertained in the literature review multigenerational housing is comprised of several factors. These factors are considered as a criterion for the analysis of both precedent studies and case studies.

International precedent studies were critically analysed to guarantee a comprehensive understanding of multigenerational housing and its factors.

These main factors are:

1. Residents- multigenerational housing should accommodate a variety of living scenarios.
2. Site design- is looked as multigenerational housing needs to be integrative and cohesive with its surroundings ensuring that the facility is not stigmatized.
3. Unit typologies- as living scenarios vary so do unit typologies. The following buildings are analysed for its residential accommodation singularly and holistically.
4. Construction- in order for multigenerational housing to be economically feasible. The construction type is considered as well as its capacity to accommodate flexibility and an evolution of change.
5. Communal spaces- are fundamental in building relationships between the various generations. This factor and its spatial configurations are looked at in precedent and case studies.
6. Ecological principles- are examined to understand sustainability apart from social sustainability i.e. green passive design measures to increase the affordability for ageing residents.

3.2. Miss Sargfabrik – Vienna, Austria



FIGURE 43: Miss' envelope showing wrapping facade

SOURCE: https://www.mck-architectur.de

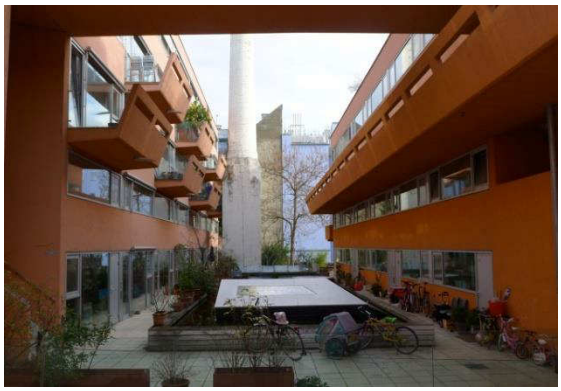


FIGURE 44: Miss' private courtyard for residents

SOURCE: htts://www.beepitive.kek.org.hu

Miss Sargfabrik was chosen as a precedent study due to its wrapping appearance on the perimeter of the site. The internal softness of the communal courtyard is strongly contrasted by the monolithic weightiness of the buildings envelope. A distinct feature of this building is the complexity of the spatial arrangements within. The units portray an un-orthogonal layout with varying height differences. This precedent was also explored for its rational form and it's intertwined internal setup.

Miss Sargfabrik is a multigenerational housing complex. This housing complex accommodates a variety of people whom are members of an association; these members play the role of landlord owner and builder. This dynamic setup means that the tenants do not pay rent thus, encouraging tenants to take more gratification in their home.

Residents: This complex accommodates multigenerational families.

Site Design: There are variations in the street and courtyard facades. Community involvement is achieved by using smaller windows to the street fronts and larger to the inner courtyard. The interior courtyard facades are glazed and lined with communal access balconies, overlooking a small paved courtyard.

Units: There are thirty-five apartments of which three of these apartments are wheelchair friendly and the other apartments are either maisonettes or apartments that are over three stories. There are interior

ramps and stairs in all the apartments' accommodating all spatial interests. As well as a communal dwelling that houses eight young adults and five small business units which faces the street front.

Construction Type: The complex derived its unique shape which is reflected on two street facades from "the bending and folding of walls, the switching of floor plans and changes in room heights, sometimes with fluid transitions from 2.26 m to 3.12 m" (Feddersen, 2009).

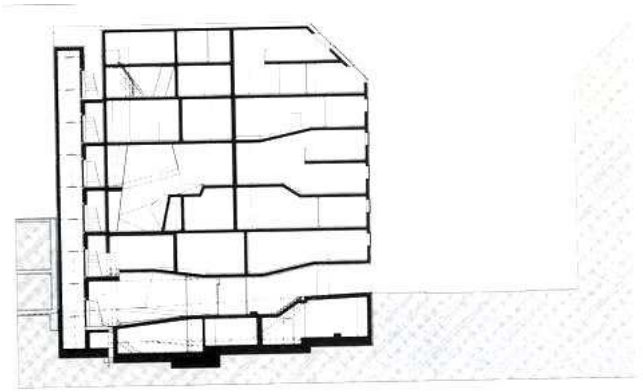


FIGURE 45: Section of Miss Sargfabrik showing the dynamic use of volumetric space allowing for interesting living spaces.
SOURCE: https://www.mck-architectur.de

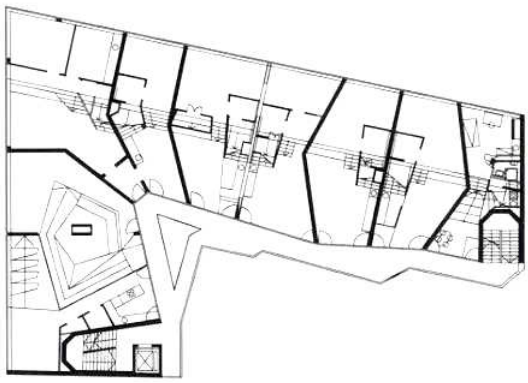


FIGURE 46: Plan of Miss Sargfabrik showing the spatial arrangements and complexity of living units

SOURCE: https://www.mck-architectur.de

Communal Spaces: There are balconies with communal access. These balconies allow for circulation routes and provide an outdoor seating area. Other communal spaces include a kitchen, library, media room, laundry room, and a club room for the young adults.

Ecological Principles: The use of ecologically certified and non-hazardous materials. To ensure that there are no thermal bridges, a homogenous non-vapour retardant insulation system was opted for which ensures efficiency both environmentally and economically.



FIGURE 47: Roof gardens act as a social and sustainable design feature.

SOURCE: https://www.mck-architectur.de



FIGURE 48: Miss Sargfabrik identity is prominent as it as an urban infill in Vienna.

SOURCE: https://www.mck-architectur.de

3.3. City House – Munich, Germany

The City House is situated in Munich, Germany. This multigenerational building encompasses a mixed-use design consisting of residential units and retail shops.





FIGURE 49, 50 &51 (left to right): Exterior brick facade showing regular modulation of fenestration. Interior spaces and circulation accommodate for both able and disabled persons with the options of ramps and staircase. The characters of the interior facing façades are different to interior.'

SOURCE: https://mgenhaus.wordpress.com

City House was chosen as a precedent study for being an all-round mixed-use multigenerational building. The simplistic and unfinished character of the building creates an intrigue that is contrasted by a humane inner appearance. The favourable merits of city house are its circulation which allows residents to conduct economic activities whilst maintaining a degree of privacy.

Residents: The people occupying City House are made up of both the elderly and the young as well as people with disabilities.

Site design: Like Miss Sargfabrik is designed within the urban context of Munich the building in order to optimize its ground floor commercial activities has been built to the full extents of the boundary. As a result, the design incorporates a private, soft internal space that is used by residents.

Units: There are fifteen barrier-free apartments with loggias, two wheel chair friendly apartments and six maisonettes with roof terraces which are barrier-free.

Communal spaces: There are socially interactive spaces such as the stairwell, communal kitchens, an interior courtyard and the children's playground.

Construction type: The load bearing concrete structure is expressed on the exterior of the building this allows the residents flexibility of altering the spatial configurations internally.

Ecological Principles: It is a highly insulated building. This requires necessary ventilation which is acquired by air fresh from the roof. Furthermore, to mitigate sound emission windows are highly insulated with triple glazing.





FIGURE 52 & 53 (above to below): Roof garden spaces create co mingling areas for residents. Large opening windows frame views and allow residents a greater experience of the outdoors whilst remaining inside.

SOURCE: https://mgenhaus.wordpress.com

3.4. The Steinacker

The Steinacker overlooks Lake Zürich. It consists of five freestanding buildings. It is directed towards the future and evolving structure of society.



FIGURE 54: Steinacker' contemporary facade; material use is alternated between unit types.

SOURCE: https:/www.hsp-architekten.ch

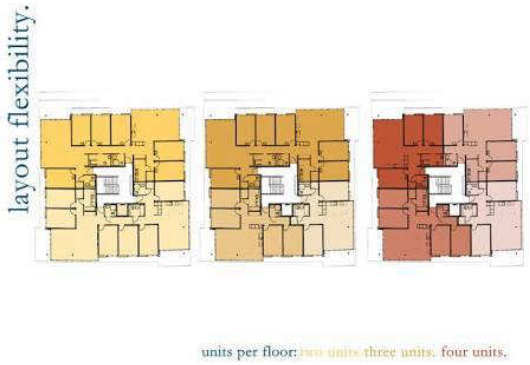


FIGURE 55: Residential units are spatial arranged around a central core area

SOURCE: https://www.sieplcoatesstudio.weebly.com

Steinacker was considered as a precedent study due to its rationality. The design portrays various components positioned in a logical manner that allows Steinacker to have a great degree of flexibility that is proportional to the ever changing and evolving nature of a family structure. The aesthetics are that of a contemporary building incorporating slim line slab edges, full height glazing and careful positioned timber screens.

Residents: Accommodates age diversity in the various buildings.

Site Design: Allows for spatial connection between the buildings as well as the interior and exterior.

Units: There are barrier-free and wheelchair friendly apartments that accommodate the needs of the elderly and disabled. Furthermore, where a larger apartment is required, units may be merged.

Communal Space: There is no particular communal space however; there is a nursery and elder residential care group.

Construction Type: There is a structural grid running through each unit this allows for a flexible floor plan around the central concrete stairwell and plumbing stacks. A private balcony is created for each apartment through the cantilevering of concrete floor plates on a structural grid.

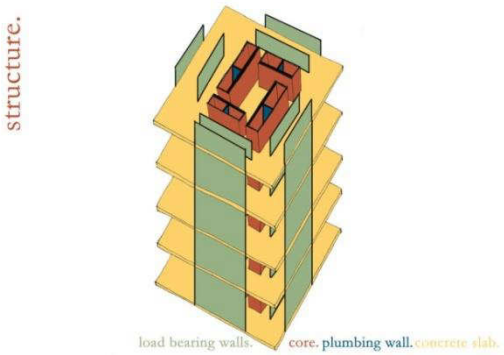


FIGURE 56: Central Core for services and outer brick skin as load bearing walls.

SOURCE: https:/www.hsp-architekten.ch

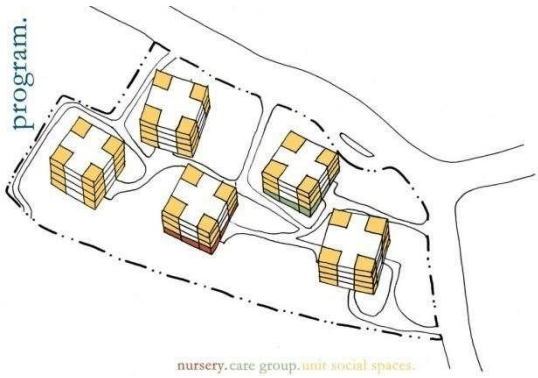


FIGURE 57: Building arrangements on site with elder care and nursery in the centre.

SOURCE: https:/www.hsp-architekten.ch

Ecological principles: Steinacker utilises a central core which forms a ventilation void to all units. The facades are contemporary with alternating materials that filter out solar gains. Unlike previous examples, this multigenerational housing example does not portray great sustainability efforts.

3.5. Chapter Summary

From the precedent study it is apparent that the needs of everyone reflect in the accommodation of spaces provided from elderly care to a children's nursery. The collection of these specialized spaces ensures a multigenerational experience. Secondly, a variety of living situations reflect in the unit typologies of the various precedent studies. An important characteristic of multigenerational living is flexibility. The example of Steinacker portrays this quality together with excellent rationality however, falling short of an essential communal space such as Miss Sargfabriks' Courtyard. The focus of this section of research is not to make endless comparisons but, rather to highlight the essential attributes of multigenerational living.

PART FOUR- CASE STUDIES

CHAPTER 4

4.1. Introduction

By comparing local case studies with international precedent studies,a holistic outlook on a proposed typology can be deduced. This synthesis of factors together with drivers from a location in Durban will allow for a responsive architectural intervention.

This dissertation is aimed at analyzing the different social economical and physical environments of the elderly. In Chapter 3, three precedent studies were examined for their spatial, technical and sustainable merits. Similarly, in this chapter three case studies will be examined, one in Howick, and two in Durban. The two contexts vary greatly, Howick with a population 22 000 people and Durban of 3.11 Million people.

Once the context of the case studies has been understood a greater understanding of the elderly and their needs will be ascertained; i.e. why do they live in these institutions? Own will or necessity?

Amberfield Retirement Village and its neighbouring communities: Amberglen, Amberlee and Amberidge are examples of retirement Suburbia Sprawl on the peripheral edges of the town of Howick. Amberfield was chosen as it is the first of the “Ambers”. It is compared to Durban case studies so that a robust overview of the different facilities can be comprehended. Amberfield is the introductory case study into this research and especially important in ascertaining the crucial needs of the aged.

Two Tafta retirement homes were chosen as primary case studies, Tafta on the Ridge and Tafta Cambridge Gardens. These retirement centres are within 1,7km’s from each other. Both centres are bordering Morningside/ Overport and accommodate different socio-economic classes by contrast to Amberfield. The Tafta case studies are compact in five storey and two storey buildings. By examining high density examples one can explore the needs of the aged in an urban context. A deficit in a specific area of facilities can be apparent and catered for in proposed design.

People refer to the ideas of security and prestige as those found in residing within gated communities (Progressive Architecture, 1967). The following two chapters will give insight and firsthand accounts to the living needs of the elderly. These needs augmented to the design of multigenerational housing will form the social intervention to the voluntary segregation and isolation of the aged.

4.2. Amberfield Retirement Village

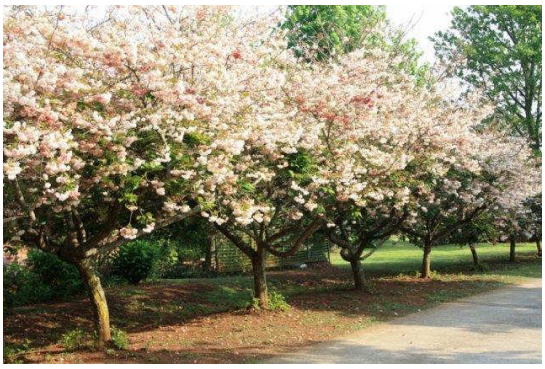
Amberfield Retirement Village is an established and secure sectional title complex consisting of 400 units set on 30 hectares of land. The perimeter of the estate is surrounded by electric fence and regular patrols. The units are spread out on a south facing slope with areas of lawn in between them. Both independent and assisted living Amberfield's rationale is based on, "Guidelines for the establishment of retirement villages in Natal by N.E Shave and N.P Fox (1992)".

Residents: Majority of the residents at Amberfield are retired white collar professionals that can afford the substantial costs involved in attaining the standard of living in such an environment. As oppose to a dense retirement institution, the elderly choose Amberfield for its climate (Howick), available health care and its security measures.

Units: Amberfield was designed to be a gardener's paradise prompting owners to cultivate their own green spaces. The living units vary in size from 40- 260 square meters however, majority of units are 100 square meters.

Materials: The units are built in face brick ensuring that maintenance is kept to the minimal whilst levies are used for the painting fascias, windows and doors. An important factor of consideration for the aged residents is being allowed the use of their own furniture within their units. The flexibility of these units comes in the form of grab rails and other devices being installed at the request of the resident.

Communal activities: Since Amberfield accommodates residents in individual freestanding units, neighbours interact freely between spaces.



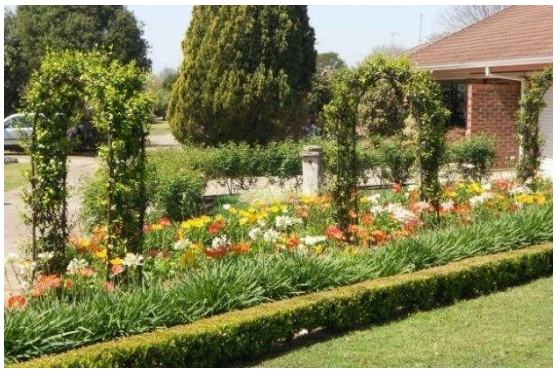


FIGURE 58 (left) and **59** (right): The scenic beauty of flora is experienced throughout the retirement village and has been the desired factor for those retiring here.

SOURCE: Amberfield Retirement Village 2017



FIGURE 60: The expanse of identical living units

SOURCE: Amberfield Retirement Village 2017

Amenities at the retirement home include:

- Exercise classes
- Film shows
- Musical evenings
- Choir and repertory group
- Library facilities
- Bridge club
- Sewing club
- Guest speaker seminars
- Quiz evenings
- Hairdressing salon
- Snooker room
- Bingo
- Arts and craft activities
- Bible study groups

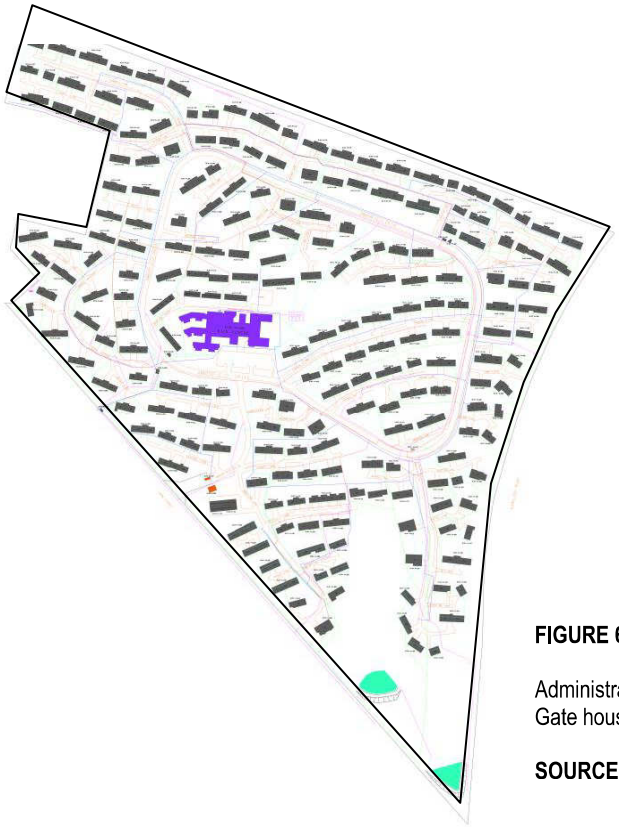


FIGURE 61: Amberfield Retirement Village: Site Layout

Administrative centre- central communal facility (Purple), Gate house (Orange), Living Units (Grey), Ponds (Cyan).

SOURCE: Amberfield Retirement Village 2017



FIGURE 62: Aerial Photo of Howick showing extents of Amberfield Retirement Village

SOURCE: GIS Howick Technical Services

Unit Typologies

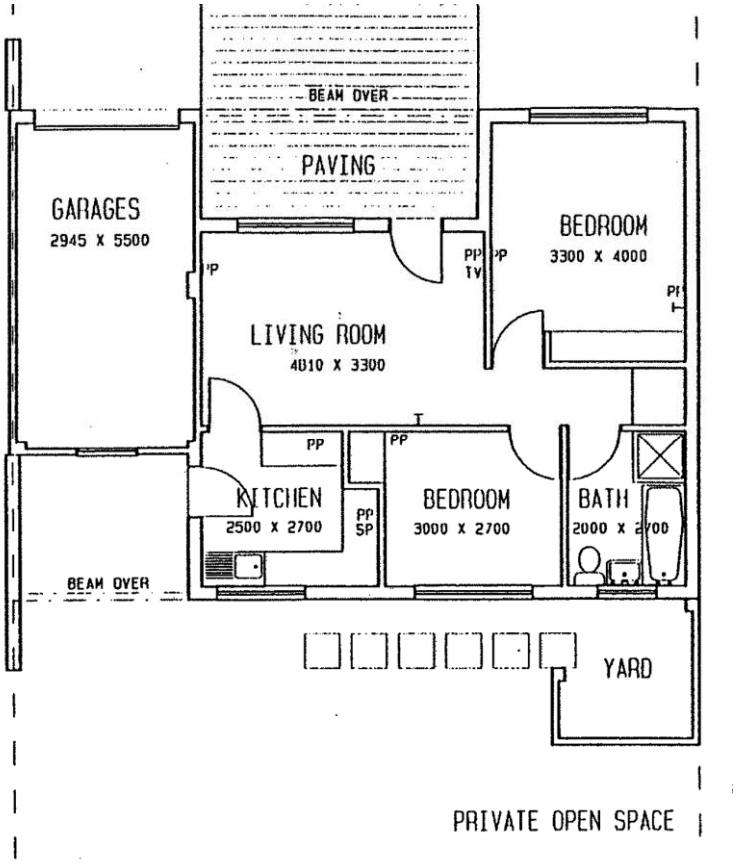


FIGURE 63: 1.5 Bedroom Unit

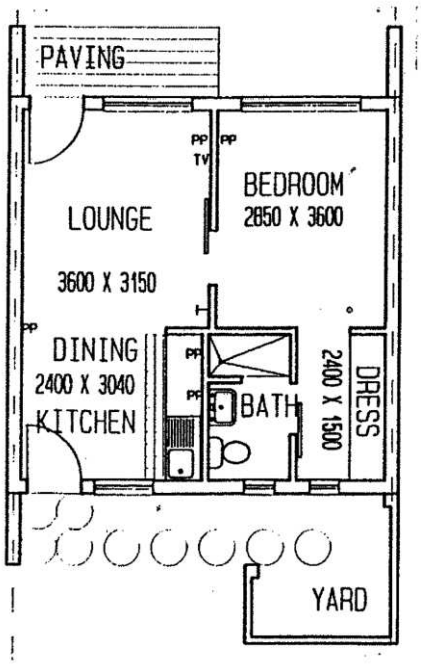


FIGURE 64: 1 Bedroom Unit

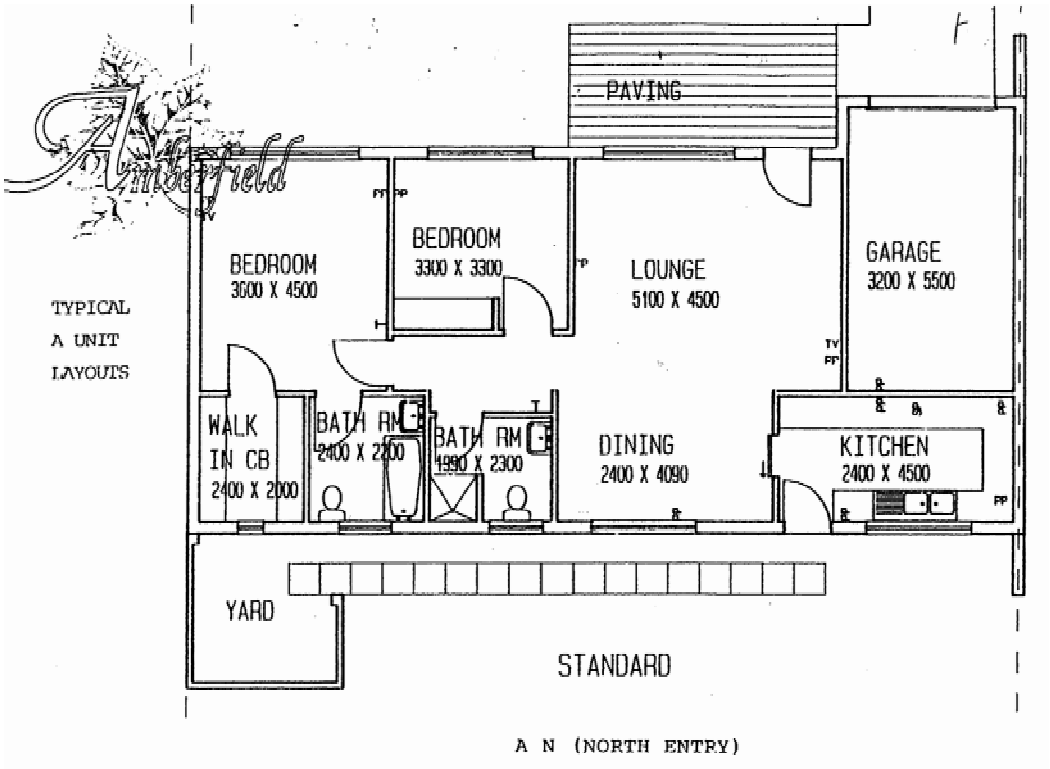


FIGURE 65: 2 Bedroom Unit

SOURCE:Amberfield Retirement Village



FIGURE 66: Private Open Space

SOURCE: Amberfield Retirement Village 2017



FIGURE 67: A generously sized bedroom.

SOURCE: Amberfield Retirement Village 2017

As opposed to the general perceptions of retirement villages being places where the elderly spend their final days,Amberfield encompasses a different perspective. It is an oasis for the aged that have lived a stressful day to day life and prefer the serenity of the country and nature. Residents at Amberfield have felt that further services could be added to the design that could optimise living for instance; bank ATMs

situated in the village would service the residents in close proximity and safety while the existence of a grocer will ensure fresh produce for residents to cook.

The merits of Amberfield are found in the form of security and healthcare.

Security at Amberfield has been considered greatly. Elderly people are seen as soft targets for criminals (Amberfield, 2017). The perimeter of Amberfield is lined with an electric fence connected to a monitored alarm system. The gate access is controlled since Howick is sparse, isolation can become a factor resulting in increased security measures. Amberfield being the first of the Ambers has its security through experience. The presence of an attack dog ensures the extents of the residential development are combed through for criminal activity.





FIGURE 68: (above)Electrified Fence and

FIGURE 69 (Right) Rottweiler "Attack dog"

SOURCE: Amberfield Retirement Village 2017

Healthcare at Amberfield has been catered for considerably. A frail care unit has been incorporated into the design to accommodate residents requiring assisted living and medical care. Weekly access to in-house clinic is made available to residents to monitor blood pressure and diabetes. Amberfield is situated 2km's away from the nearest private hospital where greater healthcare is accessible.





FIGURE 70 & 71: In house Clinic and weekly advisory sessions

SOURCE: Amberfield Retirement Village 2017

Communal spaces: Centrally positioned is the administrative center where the staff is located. This center also adjoins a large communal room where seniors can congregate to share meals or interact. In addition to this, a library, billiards room and a sewing room are located here.

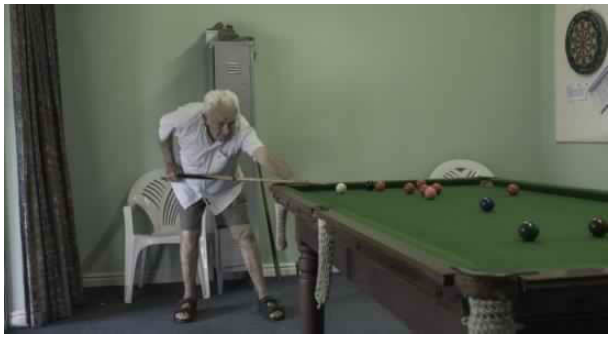


FIGURE 72: The Billiards Room

SOURCE: Amberfield Retirement Village 2017



FIGURE 73: Amberfield Library

SOURCE: Amberfield Retirement Village 2017

Flexibility, an important factor ascertained in the literature review outlines “evolving for changing” as an important factor of multigenerational living. The other case studies do not portray flexibility as the building does not accommodate spaces for further expansion. At Amberfield in Howick the situation is different. The units are designed to spatially cope with spontaneous visits.

4.3. TAFTA

TAFTA is a registered Non-Profit Organisation (NPO 002093) dedicated to housing the elderly. TAFTA established a partnership with the Department of Social Development (DSD) to assist the government by providing critical services to the elderly, such as suitable accommodation and social support services. Their aim is to encourage the elderly to live as independent members of the community for as long as possible and to promote healthy and active ageing. TAFTA owns 14 buildings in Durban and provides services to more than 5500 people. TAFTA is managed by a dedicated board of Finance, Administration, Human Resources, Homes & Housing, Social Services, Operations, Support Services and Income Development & Public Relation members. Apart from the contributions they receive from the government, TAFTA greatly relies on the generous social and financial contribution of the general public and private sectors (TAFTA, 2016; TAFTA, the association for the aged, 2016).

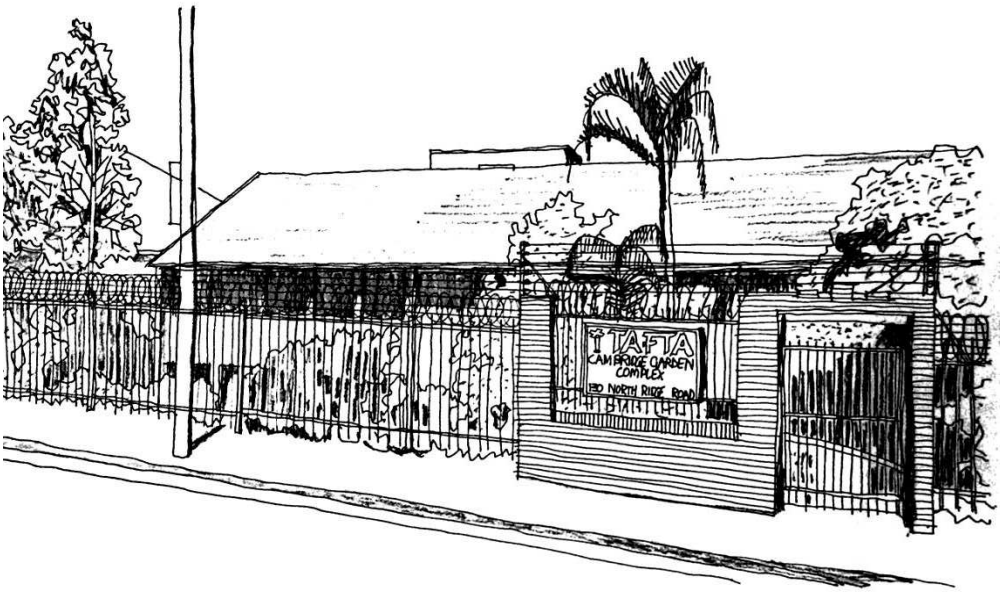


FIGURE 74: Tafta Cambridge Gardens, 1 of 14 TAFTA Buildings in Durban

SOURCE: Drawn by Author

4.4. TAFTA Cambridge Gardens Complex

Tafta Cambridge Gardens is situated at 130 North Ridge Road, Morningside.

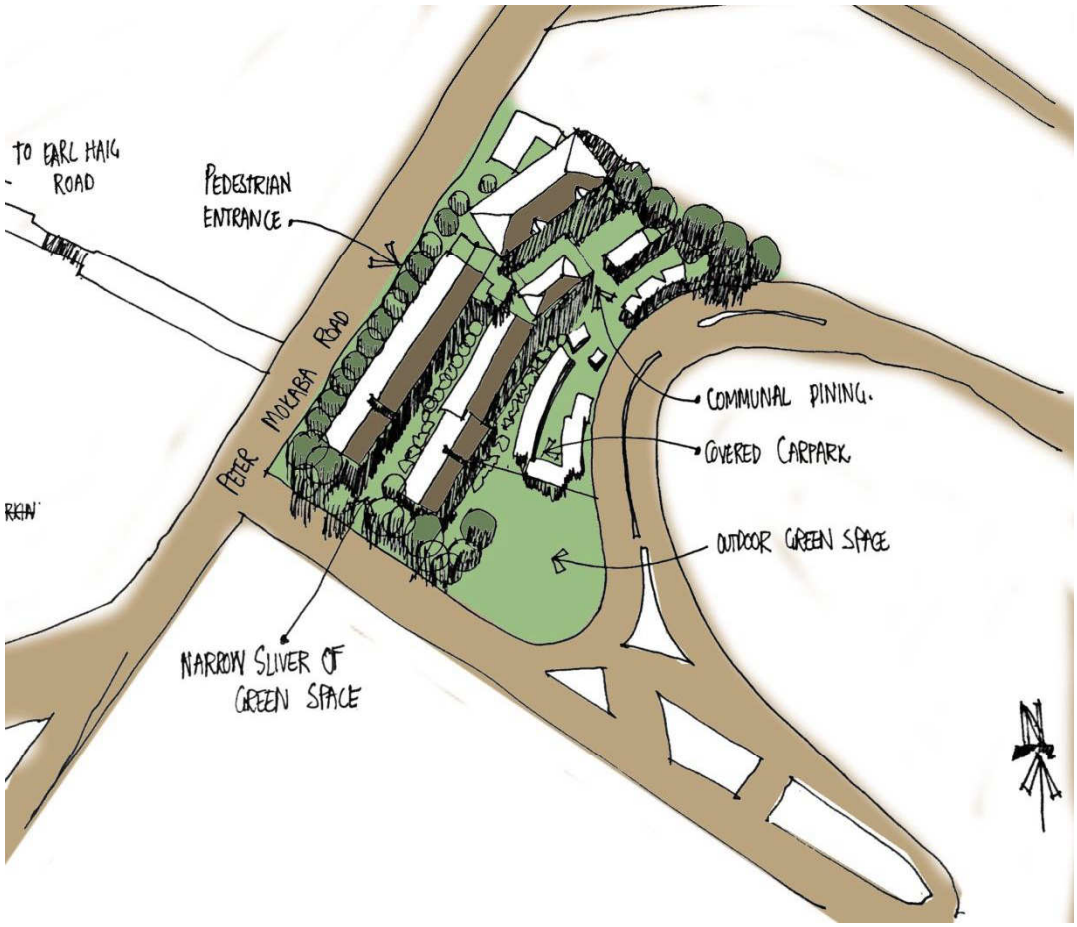


FIGURE 75: TAFTA Cambridge Gardens Site Plan

SOURCE: Drawn by Author

Residents and units: TAFTA Cambridge Gardens accommodate elderly people who have a form of income. There are 77 units in total with a variety of living situations.

Site design: This facility is positioned at a high point of the ridge and blends into the surroundings due to three factors namely; the aspect of the terrain slopes towards the oceans the site has been sloped to descend before entering the front door. This retirement home is built on an East facing slope with an architectural composition of two linear blocks. These two storey blocks blend into their surroundings due to scale.

In terms of Cambridge Gardens architectural expression can be classified as an eclectic combination of Utilitarian Modernism and Neo-Cape-Dutch. A large free standing block in the latter style is visible to the North of the facility

Materials and Construction type: Materials are a factor for the building blending into its surroundings. Again, the hegemony of brick exudes that of any other material. Both blocks have tiled gable roofs. The use of breeze blocks creates a sifted light effect. Green spaces and vegetation on the periphery makes Cambridge Gardens missable.

Communal and Outdoor Spaces




Figure 76 &77: Internal communal space at TAFTA

SOURCE: TAFTA 2017

Its chameleon effects are well credited to this facility however, a very important design factor has been overlooked. A linear configuration of the two lengthy blocks creates a residual space in between. This type of arrangement saw great rise and fall in the Chicago Pruitt Igoe housing scheme. Though this is an extreme example, the sociological effects of ignoring place making and communality cannot be overlooked. The large dehumanizing blocks of Pruitt Igoe was eventually demolished as a failure to fundamental modernism era; the brutal design and placement of identical blocks on a regimental manner ensured the fate of its violent and drug ridden spaces.

Communal spaces: At Cambridge Gardens this linear space is well vegetated, maintained and furnished with tables and chairs. Had this been designed as an inclusive courtyard space with desirable proportions,it would not feel as superficial.

According to Alexander in his Pattern “Positive outdoor space”,outdoor spaces which are merely “left over” between buildings will in general, not be used. Negative outdoor spaces are shapeless whilst positive spaces are partly enclosed. Camillo Sitte in “City planning according to artistic principles” stated that lively squares have two principles: They are partly enclosed and they open to one and other and spaces lead into the next.

Alexander (1977) suggests making all outdoor spaces which surround and lie between buildings, positive. Give each one some degree of enclosure and surround each space with wings of buildings, trees, hedges, fences and arcades.



FIGURE 78: The Linear space at TAFTA.

SOURCE: TAFTA 2017



FIGURE 79: Neo-Cape-Dutch-Style free standing block on TAFTA.

SOURCE: TAFTA 2017

4.5. TAFTA on Ridge

Tafta on the Ridge is situated in 51 East Street, Overport closely bordering Morningside. The building is situated in a predominantly residential area of Overport with a few outlying shops. An underutilised area of green public space sits adjacent to Tafta; an opportunity exists for the two to be integrated.

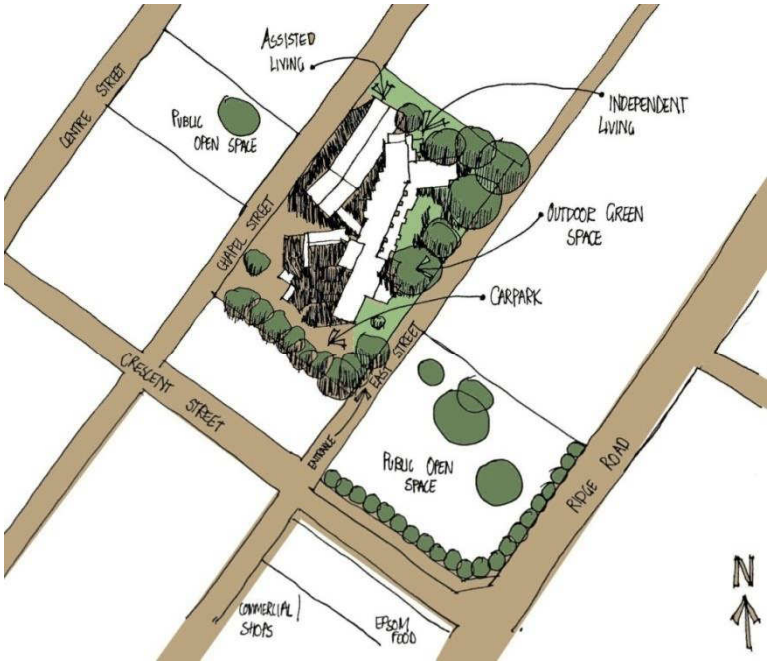


FIGURE 80: TAFTA on Ridge Site Plan

SOURCE: Drawn by author

Residents and units: with a monthly personal income of R3000 and requiring assisted living and frail care have a choice between Single room apartments: 18 with bathrooms, 12 with shared bathrooms and 85 with communal bath



FIGURE 81: Basic living unit

SOURCE: TAFTA 2017



FIGURE 82: The essential amenities of living such as a hairdresser

SOURCE: TAFTA 2017

Indoor environmental quality: The internal corridor is likened to that of Le Corbusier's Unite d'Habitation, the latter having approximately double the width. Since this passage is double banked the internal space is poorly day lit for the residents of Tafta. The building is comprised of two linear blocks that creates a monotonous movement between living units. The architectural plan form of Tafta on Ridge is in an orientation East-West. Incontinence a common factor in ageing and children creates displeasing odours which requires an architectural design that promotes efficient ventilation; an unconsidered factor of this building.



FIGURE 83: Unite d'Habitation's internal corridor.

SOURCE: https:/www.archdaily.com

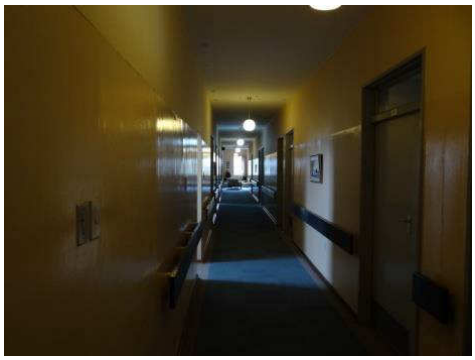


FIGURE 84: Tafta on the Ridge internal passage

SOURCE: TAFTA 2017

Communal and outdoor spaces: The communal space of Tafta on Ridge is situated on the ground floor of the independent living block. This space is accessible to all residents and exists with independent living units above having a visual connection to a lush garden at the bottom. This indoor and outdoor communal space forms as transitional space from public to private due to the architectural plan form of this facility. An integrated outdoor communal space has been overlooked. A private courtyard such as Miss Sargfabrik's would be far more efficient to the buildings performance both socially and sustainably.

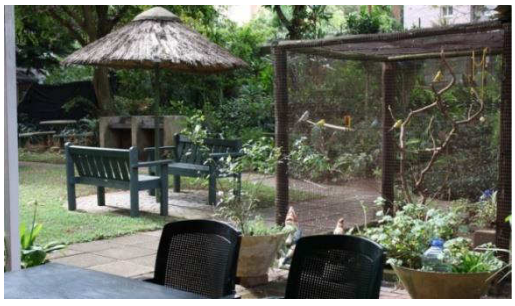


FIGURE 85: (ABOVE) Internal Communal Space

SOURCE: TAFTA 2017



FIGURE 86: (ABOVE)Internal Communal Space

SOURCE: TAFTA 2017

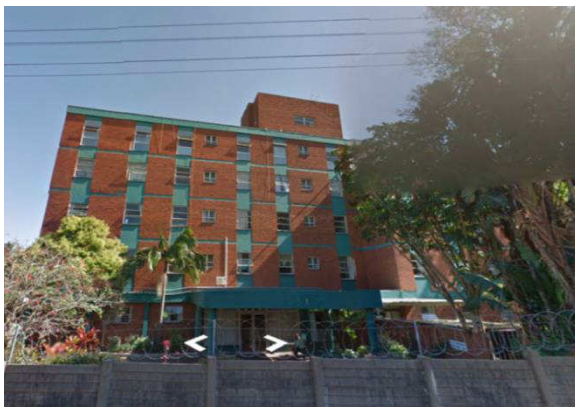


FIGURE 87: Brick and Reinforced Concrete Structure expression of TAFTA on Ridge

SOURCE: TAFTA 2017



FIGURE 88: Khan's Richardson Medical Centre brick and reinforced concrete structure expression

SOURCE: TAFTA 2017

Construction type: The building expression of Tafta on the Ridge is a combination of Utilitarian Modernism. The assisted living block is particularly reminiscent of a South African social housing effort. The institutional work of Louis Khan is reminiscent of this facility though lacking the finesse of Khan's juxtaposition of servant and served spaces (Frampton, 2007). Tafta portrays the use of a rational reinforced concrete structure; this institutional aesthetic combined with the excessive homogeneity of a tarred car park creates a sense of place little to none. For what it's worth the presence of an aviary situated in the outdoor communal space forms some acoustic intimacy and ambience for the residents.

Clay brick known to have the second lowest embodied energy of any building material forms the infill's to the structure of facility though ignoring the enveloping unity achievable with brick, "Materials are appreciated for the qualities they represent" (Frampton, 2007). Using materials with good thermal conductivity such as face brick will be environmentally beneficial. The consideration of coastal corrosion and humidity should be addressed by using a minimal amount of steel and the use of brisesoleils will allow spaces within the building to breathe.

Amenities include:

- 24 hour security
- Weekly advisory clinic
- Home based care services
- Full board
- Lounges and TV Lounges
- Library dining room
- Garden with the aviary
- Coin operated washing machine.

Observations made at TAFTA on Ridge indicate that it caters for the border line destitute of society. The elderly at this facility have little flexibility. Their means of social contact with visitors occurs on ground floor communal lounges.

PART FIVE – CASE STUDIES DATA ANALYSIS

CHAPTER 5

5.1 Introduction

The focus of this dissertation is to find alternative means to retirement for an increasing aged population in South Africa. The aim is not to create another edifice of isolation and voluntary segregation but to integrate the aged into society and to give them a sense of purpose for the remaining years of their lives.

In the literature and theoretical review, it was deduced that the idea of multigenerational living focuses on aspecific social challenge and allows the elderly to still make a useful contribution to society by living in immediate proximity to other generational families. Theoretically, it is understood that the essence of dwelling is the interaction of mortals with one another(Heidegger, 1971).

The key architectural theory of phenomenology was examined and will be considered in the eventual design. The decline of thesenses due to ageing prompts a Sensory Design experience accounted for in architectural phenomenology; through materiality, light & shadows and spatial experience and process. *Genus Loci* and Critical Regionalism are two sub theories explored and will be greatly looked at in relation to context of the eventual design. This ensures that the design is cohesive and integrated whilst still remaining legible for the aged.

As previously mentioned, “Architecture is a synthesis of practise and theory” (Vitruvius, 1990). Three international precedent studies and three local case studies were explored. The focus of this chapter is to analyse and discuss the findings of the latter. The first-hand accounts and information gathered from Amberfield Retirement Village, Tafta on Ridge and Tafta Cambridge Gardens will contribute to a robust design of a sustainable multigenerational development in Overport, Durban.

5.2 Analysis and discussion

A random sampling method was utilised to ensure that there is no bias towards research findings; in respect of the various race, gender and economic backgrounds of the elderly. The interview schedule was structured into three categories: social, economic and architectural with a total16 questions. This categorization was done to ensure that both a socio-economic and architectural understanding can be ascertained. The ages of the elderly vary from the youngest being 64 years old to the eldest of 93 years old.

As mentioned previously, three case studies were looked at. Amberfield retirement village, though situated 100kms away from Durban, played a vital role in gaining a greater understanding of the aged and their needs. Majority of the residents living here were previously in the professional work environment and had occupations as educators, lawyers, and heads of government departments. Some of the elderly residing here had relocated from greater Urban areas such as Pietermaritzburg, Durban and Johannesburg. Ofthe questions posed the following was regarded in this analysis.

1. **Do you socialise with neighbours?**

If so, where does this occur?

One of the questions posed to the sample was whether residents interact with their fellow neighbours. Due to the spatial planning of Amberglen with individual houses along the landscape, a design deficiency is noted whereby units are not communally arranged. It also creates a disconnection between the central communal facilities. Majority of residents confirmed interaction amongst neighbours and mentioned that the use of central facilities as key points of interaction and communality.

At Tafta on Ridge residents mixed a lot more frequently. The social or communal areas were far more detached from the rest of the building. As a result of the building being brutalist in nature it misses the opportunity of a day lit central courtyard in the middle of the building's flanking wings. Credit is given to the close proximity relationship between internal communal space and external communal space at

Tafta Cambridge Gardens. The residents shared a similar internal communal area as its Ridge counterparts. Due to the socio- economic outweighing of this facility the interior spaces, finishings and furnishings were of a greater standard. Access to a narrow central green space is made to residents who wish to be in quiet outdoors.

2. **Do you think elderly people should be living together with neighbours/ in buildings of mixed generations?**

80% of residents agreed to elderly people living together with neighbours or in buildings of mixed generations. 20% of candidates felt that the idea of multigenerational living looked viable theoretically, but was not practical in reality. Some felt that retirement was being in an oasis by choice and did not feel isolated. It can be assumed then that the elderly recognise the importance of cohabitation. This question is imperative in ascertaining the elderlystance on multigenerational living.

3. **Do you receive help from non-family youth?**

Of the candidates 80% received help from non- family whilst the remaining were self-reliant and relied solely for assistance from the institution and fellow residents. The importance of assisted living is shown here as many seniors have no help from family. Their only reliance is the services offered by the retirement home.

4. **Do you think it is important for elderly people to mentor and teach youth?**

Of all the candidates participating in this research 95% agreed that it is importance for seniors to mentor youth. Many felt it not the responsibility of the elderly to overcome respect deficits in and amongst the youth. A single candidate making up this 5% felt that the youth choose their own paths and it is not entirely necessary for youth to be mentored.

Majority of residents felt the importance of mentoring and teaching as vital elements to rehabilitating youth. It was of general consensus among the elderly that being a positive role model is an expectation of the aged.

According to Alexander (1977) contemporary society shunts away old people, the more shunted away they are, the deeper the rift between the old and the young. When isolated, the youth are forfeited the opportunity of engaging with older company. In traditional culture "the older have, in their wisdom and experience, protected and instructed the little ones, while the children have acted as the "eyes, ears, hands and feet of their feeble old friends" (Ibid pg. 199). Indeed the outlook varies but the elderly have the possibility to mentor the youth whilst the able bodied are at work. They also can play important mediators in domestic disputes and mediators of issues.

5. **Would you use your home to run a small scale business?**

If so, what business would it be?

Residents shared mixed feelings regarding the running of a small scale business. Some felt that it may be disruptive to fellow residents whilst others felt it contradicts retirement. The question was phrased "would you use your home to run a small scale business?" then the question was posed in three personal interviews, of the three, two were residents of a gated retirement community whilst one lived in a multigenerational family. The two residents were trustees and outlined the important management principle; collaborative managementor making decisionstogether. The resident of the multigenerational home is of the Veteran generational cohort and runs an unbranded tuck-shop from home. During the evenings the shift swaps to the younger. The moments in between can are times of discourse where oral traditions can occur and all generations can meet. The two residents of the gated retirement being previous white collar professionals seemed enthusiastic about mentoring youth and passing down knowledge but stressed a comfortable proximity away from the immediate premises.

6. **Are you satisfied with your residence?**
7. **Are you satisfied with the lighting?**

All residents were satisfied with their home and none displayed negative feelings towards their dwellings and the amenities associated with it. In the same light all residents were pleased with the

level of lighting and ventilation from the interviews conducted it was clarified, that some residents felt at risk to expose dissatisfaction as it may negatively affect them. Assurance was given and some seniors mentioned internal walkways and bathrooms as spaces that require greater illumination. Measures to counter this should reflect in the eventual design; illumination in the form of orientation and lux levels should be considered as declining vision is an attribute to ageing.

8. Would you prefer a closer proximity to shops, clinics, public transport facilities?

All 20 candidates agreed to have a closer proximity to schools, bus stops, clinics and shops. It was noted that access to automated teller machines and South African Social Services Association (SASSA) pension offices was also required. The threat of the elderly and their vulnerability lie at the former; seniors become prey for criminals/ thieves or muggers whilst waiting at banks and ATM queues. Safety is a key factor provided for in gated retirement communities and consideration of this should reflect in the building program.

9. Do you think it is important to improve the architectural environment of the elderly?

All residents responded positively and agreed that the architectural environment of the elderly needs to be improved. A resident remarked, “The surroundings are a reflection of the user” whilst one said, “ramps and railings should be the norm of every building so everyone can use it.”

10. What activities would you like to see occur in your residential area?

When asked on the type of activities the elderly would like to see in society, the residents commented that more interaction was needed as well as staff training and some shops. Spaces where the elderly can mingle and learn new skills collectively were also mentioned. A single resident suggested having a “resource centre” with books and computers that was close to home where ease of access is possible. Residents generally felt that spaces for the elderly need to be exciting and semi communal for instance a sewing room can be more inviting and vibrant if it promotes interaction as opposed to being functional

for the sake of production. 40% of the candidates mentioned the safety of parks and suggested that parks require security without being exclusive.

11. Are there any physical challenges that you face as an elderly person? And does your building accommodate your needs?

Of the candidates interviewed a minority (40%) experienced physical challenges. Two residents required the use of a wheeled walker whilst one used a walker without wheels that required lifting up. Six of the residents used walking sticks which provided balance and movable around the retirement home.

12. What is the single most important space in this building aside from your residence?

The final question posed to all residents was about the single most important space within the facility apart from their residence. Reponses varied, residents mentioned communal areas where dining occurs as an important space for interaction. The gardens were a popular response. A few residents also mentioned the mini library and reading area as key spaces. This then portrays communal spaces and nature as important factors of the aged. The aged enjoy being around there elderly counterparts.

PART SIX – CONCLUSION AND RECOMMENDATIONS

CHAPTER 6

6.1 Conclusion

In South Africa, retirement is a luxury afforded by the economically affluent of society. The findings of this dissertation are for the effort of shifting the paradigms in which the elderly is catered for and integrated in society. By integrating the elderly into multigenerational community, many social issues can be addressed. The elderly can gain a great sense of purpose by assisting families with the upbringing of children, by transferring values and knowledge to succeeding generations and by leading the youth to be respectable and useful to society. The elderly receiving a moiré meaningful role in society can overcome the negative effects of ageing that is isolation, loneliness and depression as well the issue of voluntary segregation attributed to gated communities and retirement institutions.

The problem addressed in this research is twofold. It is the isolation of the aged due to their physical decline and a lack of a sense of purpose in society thus an institutionalisation occurs which is the second issue i.e. voluntary segregation. The elderly in their retirement chose residence in retirement villages due to a lack of aid from family members, they require of assisted living, full time nursing or lastly free will.

Theoretically, man's existence is dependent on cohabitation (Heidegger, 1977) and (Bollnow, 1963). Heidegger outlines four key factors of dwelling that is: as mortals on the Earth, under the sky, amongst the divinities and lastly living with one another. The latter being the focus of this architectural research.

With the gathering of both primary and secondary research the objectives of the study have been met. Ascertaining the needs of the elderly and gearing it with the concept of multigenerational living the proposed typology can be a sustainable option for the elderly who wish to retire with an active and

meaningful lifestyle. In the first chapter four primary research questions were posed. In this chapter these questions are addressed.

1. **How can a multigenerational development and its spaces become a relevant option for an ageing population of Overport and provide social integration and knowledge transfer amongst the various generations?**

Due to Overport having a large Indian population a multigenerational design would be viable due to the cultural obligations of Indian families. The proposed design could then become a successful prototype model for implementation in various other districts. The reciprocal care offered in multigenerational living will ensure relationship building and knowledge transfer. Proposed design will be inclusive of all generations and will contrast the current retirement situations in South Africa. By choosing multigenerational living as an alternative for the aged, skills and wisdom can be transferred to younger generations thus restoring valuable morals and ethics back into society. In the same token the youth can play a meaningful role in the lives of the elderly, offering support and enlightening the elderly on new technological advances

2. **What is the appropriate architectural response for an ageing population?**

The architectural typology proposed as an alternative to retirement in South Africa will is strongly driven by a synthesis of practice and theory. A multigenerational development being the building typology comprises of a variety of factors namely; multiple generations living together under a one roof, reciprocal care whether in the form of cooked meals or assistance in daily activities from other residence flexibility in the design ensures change in the family structure. The units should be thereforedesigned with this in mind.

Universal design should not only come in the form of grab rails and ramps but should provide equitable use for all residences. Universal Design living ensures that the aged, children and disabled people have

a safe environment to live in. One that is accessible, adaptive and assistive. Such design is vital to the ageing process. It allows increased mobility in immediate vicinities for the ageing residents. Developed in 1997, six principles were decided on as Universal Design; equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort.

3. **How a sense of community can be achieved with integration across all levels?**

Consideration should be given to gradients of privacy and communality from the most public of courtyards to the most intimate of entrance alcoves. Within the residential units this concept should be further applied. The aesthetics of the design in terms of form and material should be on that is integrated and cohesive i.e. not a white elephant in the context of a modern city in South Africa.

4. **What spaces augment Multigenerational housing?**

Spaces for interaction with the youth should be considered in the schedule of accommodation as with spaces for the elderly. Hobbies relating to all age groups should feature in the design i.e.; sewing rooms for the elderly can be place for a hobby or a form of income and can be highly effective in areas of small industry. A small communal library can service all ages while playrooms for children and computer labs for the youth can be useful for keeping young minds occupied.

According to Alexander (1977) it is of economic and psychological importance to have a close proximity of the home to work. This “closeness” creates ecology between home and work (Alexander *el al.,* 1977). Lewis Mumford elaborates that genuine benefits of technology can take place when the relationship between work and home is in close proximity with each other i.e. production of intricate items can be manufactured with greater ease.

In order for multigenerational living to be successful and be distinguished from ordinary housing developments established set of criteria will need to relate to the design and built form. A key consideration is the management of the building. Multigenerational design is co-operatively managed by the residents which gives them a great deal of importance in the decisions that are made.

6.2 Recommendations

The building typology proposed in this dissertation is a collection of all of factors of this research. Although the current case studies portray exclusive elderly residents, the eventual design needs to accommodate a variety of living situations and residents of various generations. As seen from the case studies, the institutions currently in place for the elderly partially meet their needs. These buildings brutal in nature and unresponsive to their context offer a very dim image for the final years of the aged. Theoretically, vision is the mother of all senses (Pallasmaa, 1996) so as a responsible architect; cognisance should be taken to the declining senses. Tactility in surface and transition strips should be included in the eventual design to invoke awareness of progression through space. Visual punctuation in the spatial form creates the ideal entrance and a point of reference for occupants. The inclusion then of ramps at a point of reference such as the entrance would be essential in maintaining an ease of access. The consideration of barrier free units should not be overlooked. Internal walls should also be remodelable to accommodate change.

6.3. Schedule of accommodation

The importance of a schedule of accommodation is to be a brief deduced from data collected and data analysed of both precedent studies and case studies. This schedule augmented with literature review factors and a conceptual framework forms what that goes into the building.

The following schedule is a comprehensive list of a quad categorised accommodation programme. The schedule is categorised by a level of publicness and character. These categories are; public space, shared space, private space and service space.

Building program

Private space

Studio units
1 bedroom units
2 bedroom units
3 bedroom units
Assisted care units

Shared space

Educational spaces
Mediation space
Greenhouse
Laundry
TV Lounges
Multipurpose space
Shared kitchen
Exercise room
Child day care
Sewing rooms
Small offices

Public space

Café
Restaurant
Fabric store ‘
Salon/ barber
Bakery
Butcher
Pharmacy
Doctors consultation rooms
Grocer

Service space

Parking
Elevators and stairs
Mechanical duct
Circulation
Lobby
Storage room
Public toilet
Automated teller machines

6.4 Ownership model

The preferred ownership model for the proposed design would be a co-ownership one whereby an elderly resident is partially subsidized by an NPO i.e. TAFTA. The advantage of this co-ownership model is to provide an ease of transfer of unit ownership in the event of a death of an elderly resident.

6.5 Criteria for site selection

Multigenerational housing is proposed as an alternative to gated retirement communities in this research, an ideal site location that has a target population conforming to cultural norms of society will ensure viability. Integration and placement are considerations that will ensure participation and interaction with other spheres of society. As discovered in the literature review section multigenerational housing requires a high density zone in order to be fully occupied and economically feasible. Activities of the chosen area should be linked to those interests of the aged.

Proximity to amenities such as public transport, healthcare, religious institutions and recreation should be taken into consideration. Multigenerational housing, apart from benefiting seniors, can also focus on tackling secondary issues in society; its positioning in the built environment as an urban infill and in an area of partial urban decay can form a node of hope as a sustainable regeneration location.



FIGURE 89: 3 possible site choices within the area of Overport

SOURCE: Durban Technical Services (GIS)

PART SEVEN – BIBLIOGRAPHY AND APPENDICES

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APPENDIX A

FIGURE 1: Overport Park (foreground) looking into the back of 558 Brickfield Road – "Lalita Park", vegetable market on the left
SOURCE: Drawn by Author
PAGE: 13

FIGURE 2: A single tree cannot make a forest – African Proverb **-** Like the tree, the aged generation cannot be part of society's vision if they are isolated from the rest of society.
SOURCE: Drawn by Author
PAGE: 17

FIGURE 3: Good Hope Meadows communal outdoor space
SOURCE: https://nwnatural.com
PAGE: 19

FIGURE 4: The metaphysical aspect of human existence in this world is dwelling.
SOURCE: Drawn by author
PAGE: 24

FIGURE 5: Heidegger's Gierviet
SOURCE: Drawn by author
PAGE: 25

FIGURE 6: Inner Space and Outer Space
SOURCE: Drawn by author
PAGE: 26

FIGURE 7 : The pith helmet and AK 47, symbols of Colonialism and Independence in Africa, these periods in history gave identity to the vast continent', just as these items have association so does the dwelling in different ethnographic contexts
SOURCE: Drawn by author
PAGE: 27

FIGURE 8: Socio Cultural factors have influence on house form and spatial arrangement**.** In this instance it is hierarchy determines the layout**.**
SOURCE: Drawn by author
PAGE: 28

FIGURE 9: The effect of the site is cultural rather than physical. The symbolism and importance of the landscape and its features vary with regard to cultural beliefs. The courtyard house is native and common to many cultures and has been adapted to the different reliefs of the site; either steep slope sites or flat sites**.**
SOURCE: Drawn by author
PAGE: 28

FIGURE 10: Defence definitely plays a role in determining house form but does not fully account for it. The communal house has been linked to the need of survival. The need for defence in some form of another was embraced as a opportunity for certain cultures to portray prestige.
SOURCE: Drawn by author
PAGE: 28

FIGURE 11: The use of circular and round forms is not determined by materials or technology though different cultures may have similar interwoven technology or materials, the symbolism of the elements that constitute to a house form, varies.
SOURCE: Drawn by author
PAGE: 28

FIGURE 12: XIAO
SOURCE: Drawn by author
PAGE: 29

FIGURE 13: The vegetation, acacias and boulders are symbols of nature and the electric pylons are that of mans identification. According to Christian Norburg-Shulz, man can dwell when he concretises space and creates concrete objects of legibility (Norburg-Schulz, 1979).
SOURCE: Drawn by author
PAGE: 30

FIGURE 14: The enclosure of spaces and capturing of views will be essential to the eventual design. According to Alexander (1977) the window can become a place for withdrawal, reflecting and relaxing while also enjoying the view of the outdoor environment through the incorporation of seating with the window.
SOURCE: Drawn by author
PAGE: 31

FIGURE 15 Steven Holl's play of light in Knut Hamsun Centre.
SOURCE: http:/dudye.com/wp-content/uploads/2009/12/interior-design3.jpg
PAGE: 31

FIGURE 16 (right): Form-Space-Details Form - Holl, Space -Multigenerational, Details – Pallasmaa
SOURCE: Drawn by author
PAGE: 31

FIGURE 17 (left): Kafka Castle was spatial arranged to create a modulation of form whilst forming spatially meaningful internal and external spaces. This clustering creates a spatial variation in progression from space to space.
SOURCE: https://www.astudejaoublie.blogspot.co.za
PAGE: 32

FIGURE 18 (right): Kindergarten in Stuttgart encompasses the principle of honeycombing through which a phenomenological experience is captured as occupants move within invoking learning through memory.
SOURCE: Drawn by Author
PAGE: 32

FIGURE 19: Touch (Mother of all senses is the mode that enables us to experience both the world and ourselves)
SOURCE: Drawn by Author
PAGE: 33

FIGURE 20 Vision (The dominant sense that allows us to visually comprehend our surroundings)(Palasmaa 1996)
SOURCE: Drawn by Author
PAGE: 33

FIGURE 21 (left). Scape House displays a juxtaposition of form that manifests in the lighting and shadows of internal spaces captured on planes of concrete and steel to express materiality
SOURCE: Drawn by Author and https:/www.archdaily.com
PAGE: 34

FIGURE 22: Renzo Pianos Tjiboau Cultural Centre was designed with the intent of blending into its surroundings, first in the cultural then the natural sense**.**
SOURCE: Drawn by author
PAGE: 35

FIGURE 23: Isolation from activities and lack of purpose are proven to decrease the longevity of an aged person.
SOURCE: Drawn by author
PAGE: 36

FIGURE 24: TAFTA on Ridge (also acase study), as a sketch it expressesits modernist institutional attributes.
SOURCE: Drawn by Author
PAGE: 38

FIGURE 25: Retirement design that allows the use of the seniors own furniture is not usually catered for in dense retirement**SOURCE:** Drawn by author
PAGE: 39

FIGURE 26: The ramp can either be a simply functional element of the building.
SOURCE: Drawn by author
PAGE: 44

FIGURE 27: Niemeyer's Museum for Contemporary Art
SOURCE: https:/www.archdaily.com
PAGE: 44

FIGURE 28: Wright's Guggenheim museum
SOURCE: https:/www.archdaily.com
PAGE: 44

FIGURE 29: Configurations of spatial arrangements around communal space with communal room (hatched)
SOURCE: Drawn by Author
PAGE: 45

FIGURE 30-35: Privacy Gradient of staggered unit; dense hatching represents private spaces whilst sparse hatching represents the more public spaces or least private spaces. These private spaces are important as they act as break away spaces for seniors. By radially staggering tapered units a sense of focus is created on the inner diameter. A sense of intimacy can be achieved by down scaling the private area of the unit as expressed sectionally
SOURCE: Drawn by Author
PAGE: 46

FIGURE 36-41: 6 Co-housing Design Principles
SOURCE: Drawn by Author
PAGE: 48

FIGURE 42: The loss of an elder is like the burning down of a library" - African Proverb
SOURCE: Drawn by Author
PAGE: 51

FIGURE 43: Miss' envelope showing wrapping facade
SOURCE: https://www.mck-architectur.de
PAGE: 53

FIGURE 44: Miss' private courtyard for residents
SOURCE: htts://www.beepitive.kek.org.hu
PAGE: 53

FIGURE 45: Section of Miss Sargfabrik showing the dynamic use of volumetric space allowing for interesting living spaces.
SOURCE: https://www.mck-architectur.de
PAGE: 54

FIGURE 46: Plan of Miss Sargfabrik showing the spatial arrangements and complexity of living units
SOURCE: https://www.mck-architectur.de
PAGE: 54

FIGURE 47: Roof gardens act as a social and sustainable design feature.
SOURCE: https://www.mck-architectur.de
PAGE: 54

FIGURE 48: Miss Sargfabrik identity is prominent as it as an urban infill in Vienna.
SOURCE: https://www.mck-architectur.de
PAGE: 54

FIGURE 49, 50 &51 (left to right): Exterior brick facade showing regular modulation of fenestration. Interior spaces and circulation accommodate for both able and disabled persons with the options of ramps and staircase. The characters of the interior facing façades are different to interior.'
SOURCE: https://mgenhaus.wordpress.com
PAGE: 55

FIGURE 52 & 53 (left to right): Roof garden spaces create co mingling areas for residents. Large opening windows frame views and allow residents a greater experience of the outdoors whilst remaining inside.
SOURCE: https://mgenhaus.wordpress.com
PAGE: 56

FIGURE 54: Steinacker' contemporary facade; material use is alternated between unit types.
SOURCE: https:/www.hsp-architekten.ch
PAGE: 57

FIGURE 55: Residential units are spatial arranged around a central core area
SOURCE: https://www.sieplcoatesstudio.weebly.com
PAGE: 57

FIGURE 56: Central Core for services and outer brick skin as load bearing walls.
SOURCE: https:/www.hsp-architekten.ch
PAGE: 58

FIGURE 57: Building arrangements on site with elder care and nursery in the centre.
SOURCE: https:/www.hsp-architekten.ch
PAGE: 58

FIGURE 58 (left) and **59** (right): The scenic beauty of flora is experienced throughout the retirement village and has been the desired factor for those retiring here.
SOURCE: Amberfield Retirement Village 2017
PAGE: 63

FIGURE 60: The expanse of identical living units
SOURCE: Amberfield Retirement Village 2017
PAGE: 63

FIGURE 61:(BELOW) Amberfield Retirement Village: Site LayoutAdministrative centre- central communal facility (Purple), Gate house (Orange), Living Units (Grey), Ponds (Cyan).
SOURCE: Amberfield Retirement Village 2017
PAGE: 63

FIGURE 62: Aerial Photo of Howick showing extents of Amberfield Retirement Village
SOURCE: GIS Howick Technical Services
PAGE: 64

FIGURE 63: 1.5 Bedroom Unit
SOURCE: Amberfield Retirement Village
PAGE: 64

FIGURE 64: 1 Bedroom Unit
SOURCE: Amberfield Retirement Village
PAGE: 64

FIGURE 65: 2 Bedroom Unit
SOURCE: Amberfield Retirement Village
PAGE: 65

FIGURE 68: Electrified Fence
SOURCE: Amberfield Retirement Village 2017
PAGE: 65

FIGURE 69 Rottweiler "Attack dog"
SOURCE: Amberfield Retirement Village 2017
PAGE: 66

FIGURE 70 & 71: In house Clinic and weekly advisory sessions
SOURCE: Amberfield Retirement Village 2017
PAGE: 67

FIGURE 72: The Billiards Room
SOURCE: Amberfield Retirement Village 2017
PAGE: 67

FIGURE 73: Amberfield Library
SOURCE: Amberfield Retirement Village 2017
PAGE: 67

FIGURE 74: Tafta Cambridge Gardens, 1 of 14 TAFTA Buildings in Durban
SOURCE: Drawn by Author
PAGE: 68

FIGURE 75: TAFTA Cambridge Gardens Site Plan
SOURCE: Drawn by Author
PAGE: 69

FIGURE 76: Internal communal space at TAFTA
SOURCE: TAFTA 2017
PAGE: 70

FIGURE 77: Internal communal space at TAFTA
SOURCE: TAFTA 2017
PAGE: 70

FIGURE 79: Neo-Cape-Dutch-Style free standing block on TAFTA.
SOURCE: TAFTA 2017
PAGE: 71

FIGURE 80: TAFTA on Ridge Site Plan
SOURCE: Drawn by author
PAGE: 72

FIGURE 81: Basic living unit
SOURCE: TAFTA 2017
PAGE: 72

FIGURE 82: The essential amenities of living such as a hairdresser
SOURCE: TAFTA 2017
PAGE: 72

FIGURE 83: Unite d'Habitation's internal corridor.
SOURCE: https:/www.archdaily.com
PAGE: 73

FIGURE 84: Tafta on the Ridge internal passage
SOURCE: TAFTA 2017
PAGE: 73

FIGURE 85: Internal Communal Space
SOURCE: TAFTA 2017
PAGE: 73

FIGURE 86: Internal Communal Space
SOURCE: TAFTA 2017
PAGE: 73

FIGURE 87: Brick and Reinforced Concrete Structure expression of TAFTA on Ridge
SOURCE: TAFTA 2017
PAGE: 74

FIGURE 88: Khan's Richardson Medical Centre brick and reinforced concrete structure expression
SOURCE: TAFTA 2017
PAGE: 74

FIGURE 89: 3 possible site choices within the area of Overport
SOURCE: Durban Technical Services (GIS)
PAGE: 89

APPENDIX B

RishenMahadew **UKZN Student- 209506460**

rishen.mahadew@gmail.com

***Topic:*A SUSTAINABLE COMMUNITY WITHIN A SUSTAINABLE DISTRICT; A MULTIGENERATIONAL DEVELOPMENT IN OVERPORT, DURBAN**

Family Structure

1. **Please tell me about yourself**

What is your name? _____

Where do you reside? _____

What is your age? _____

What is your occupation? _____

Social

2. **How do you spend your free time?**

   What are your recreational activities? _____

   _____

   Do you have any hobbies? _____

   _____

   What are your skills? _____

   _____

3. **Do you socialise with neighbours?** (Yes/No)
   If so, where does this occur? _____

4. **Do you think elderly people should be living together with neighbours/ in buildings of mixed generations?** (Yes/No)

5. **Do you receive help from non-family youth?** (Yes/No)

6. **Do you think it is important for elderly people to mentor and teach youth?** (Yes/No)

   Would you mentor any youth? (Yes/No)

   If so, where would this occur in the building? _____

7. **Do you feel that a portion of the youth today have little respect as they do not grow up amongst the seniors of society?** (Yes/No)

   Please provide a reason for your answer _____

Economic

8. **Do you receive Old Age Grants?** (Yes/No)

   Do you use your Old age grants to support yourself only or family as well?

   _____

   If you have any children, what is the type of support that you gain from them?

   _____

9. **Would you use your home to run a small scale business?** (Yes/No)
   If so, what business would it be? _____
   _____

Architectural

10. **Do you think it is important to improve the architectural environment of the elderly?** (Yes/No)

    Please provide a reason for your answer _____
    _____

11. **Would you prefer a closer proximity to shops, clinics, public transport facilities?** (Yes/No)

12. **What activities would you like to see occur in your residential area?**

    _____
    _____

13. **Are you satisfied with your residence?** (Yes/No)

14. **Are you satisfied with the lighting?** (Yes/No)

15. **Are there any physical challenges that you face as an elderly person? And does your building accommodate your needs?**

    _____
    _____
    _____

16. **What is the single most important space in this building aside from your residence?**

    If it does not exist please suggest space _____
    _____

PART EIGHT – DESIGN REPORT

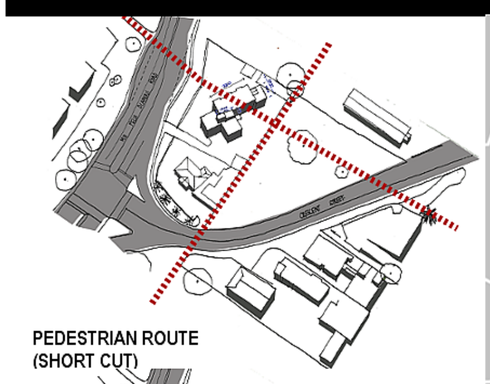
OVERPORT

HISTORICALLY THE ESTATE OF WILLIAM HARTLEY THE 8TH MAYOR OF DURBAN
DURBAN'S LOCAL AREA PLAN(LAP) DOES NOT INCLUDE THIS AREA - EAST OF RIDGE ROAD
IS DEVELOPEMENT AND WEST OF RIDGE IS DECAY
LARGE INDIAN POPULATION (CULTURAL OBLIGATIONS AND SOCIAL NORMS)
CURRENT BUILDINGS DO NOT ACCOMMODATE AN AGEING POPULATION
CULTURE & IDENTITY WITH RESPECT TO TEXTILES, FASHION & CUISINE

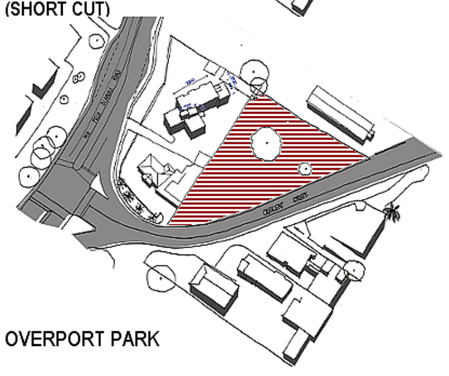


" A COLLECTION OF SMALL ELEMENTS CONTRIBUTES TO A LIVELY CITY"
JANE JACOBS 1961

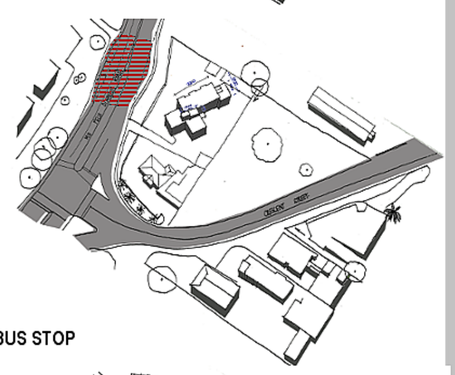
PRIMARY SITE DRIVERS



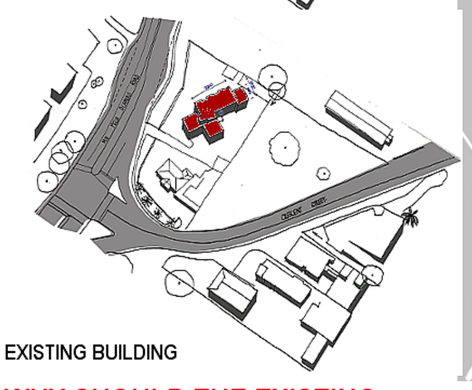
PEDESTRIAN ROUTE
(SHORT CUT)



OVERPORT PARK



BUS STOP



EXISTING BUILDING

WHY SHOULD THE EXISTING BUILDING BE RETAINED?

- THE DESTRUCTION OF BUILDINGS THAT HAVE BECOME A PART OF COMMUNAL CONCIOUS WILL ULTIMATELY LEAVE GAPING WOUNDS IN THE COMMUNAL BODY

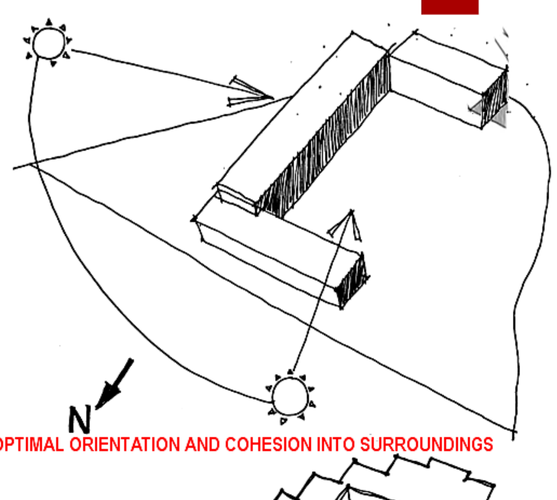
- A LARGE ROBUST STRUCTURE

-POSSIBILITES OF REUSE

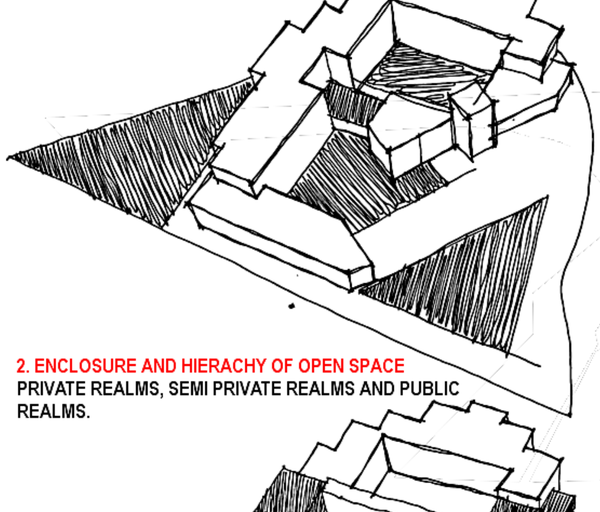
-ELEVATORS ARE COSTLY

- A SYMBOL OR HUB OF URBAN REJUVENATION

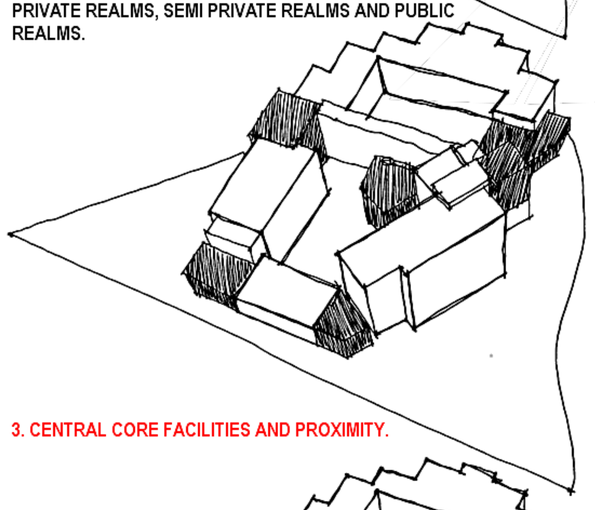
DESIGN PRINCIPLES



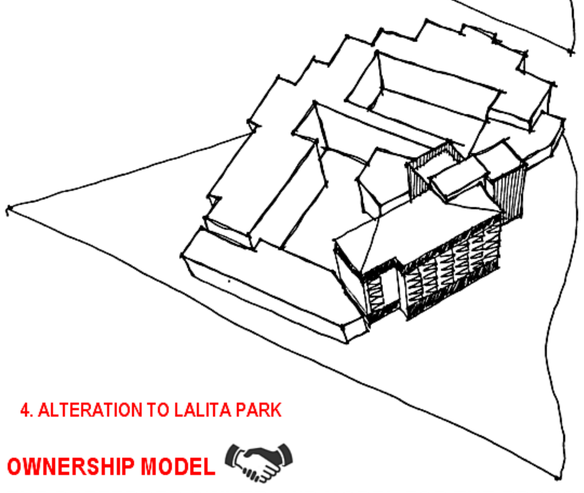
1. OPTIMAL ORIENTATION AND COHESION INTO SURROUNDINGS



2. ENCLOSURE AND HIERACHY OF OPEN SPACE
PRIVATE REALMS, SEMI PRIVATE REALMS AND PUBLIC REALMS.



3. CENTRAL CORE FACILITIES AND PROXIMITY.



4. ALTERATION TO LALITA PARK

OWNERSHIP MODEL

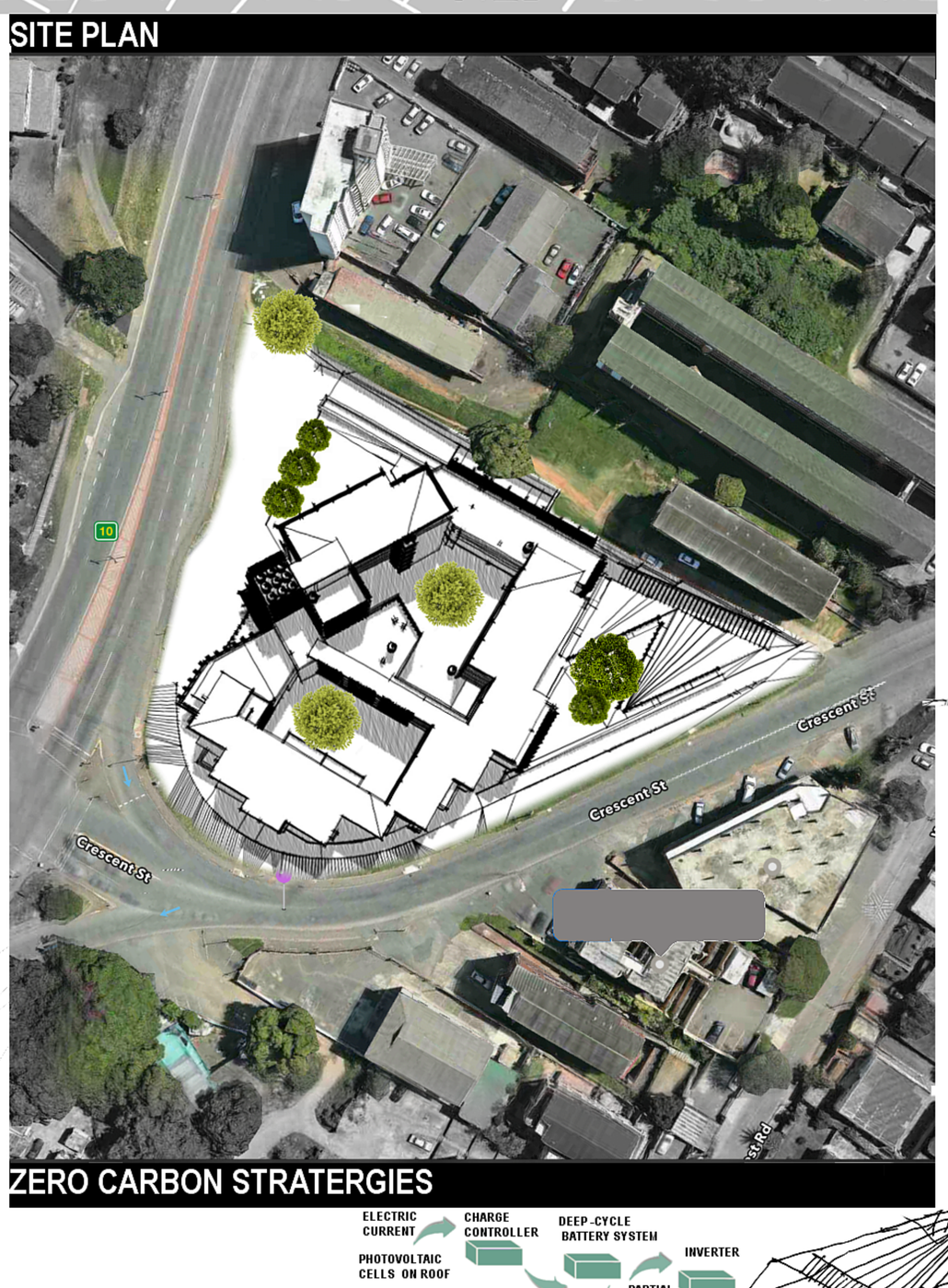
THE PREFERRED OWNERSHIP MODEL FOR THE PROPOSED DESIGN WOULD BE A CO-OWNERSHIP ONE WHEREBY AN ELDERLY RESIDENT IS PARTIALLY SUBSIDIZED BY AN NPO I.E. TAFTA. THE ADVANTAGE OF THIS CO-OWNERSHIP MODEL IS TO PROVIDE AN EASE OF TRANSFER OF UNIT OWNERSHIP IN THE EVENT OF A DEATH OF AN ELDERLY RESIDENT.

URBAN FRAMEWORK

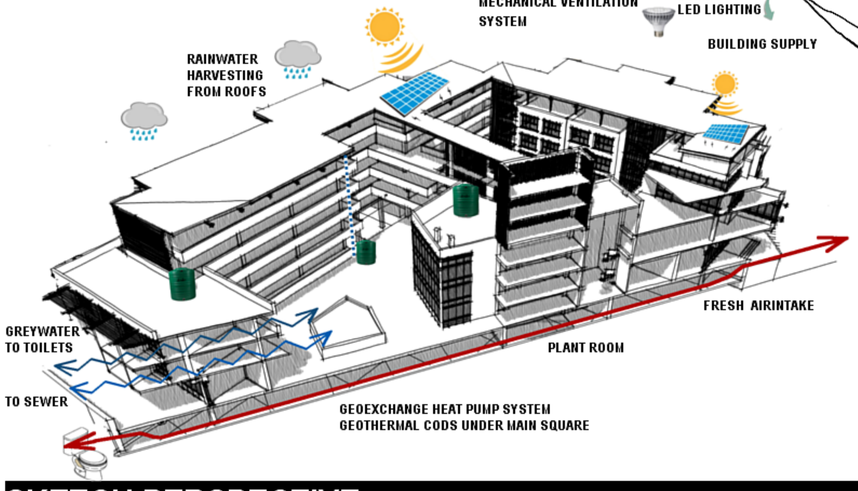


- MUSALLAH
- CHURCH
- MEDICAL
- RETAIL
- COMMUNITY CENTRE
- EDUCATIONAL FACILITIES
- GREEN SPACES
- URBAN PROPOSAL

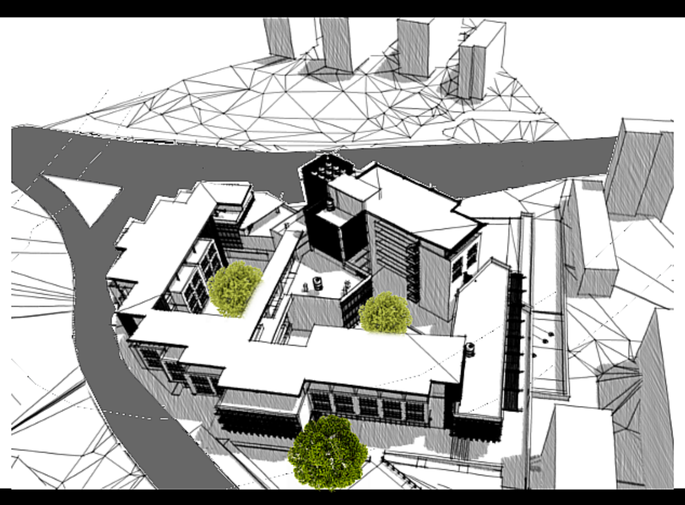
SITE PLAN



ZERO CARBON STRATERGIES

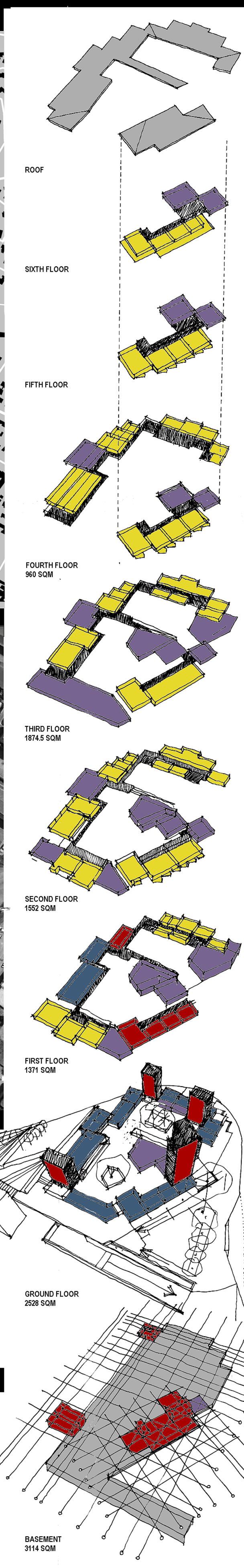


SKETCH PERSPECTIVE



- PUBLIC SPACE
- PRIVATE SPACE
- SERVICE SPACE
- SHARED SPACE

RELATIONSHIP OF SPACES



A SUSTAINABLE COMMUNITY WITHIN A SUSTAINABLE DISTRICT; A MULTIGENERATIONAL DEVELOPMENT IN OVERPORT. DURBAN.

ISSUES:

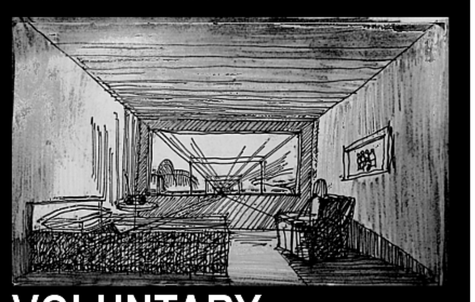
ISOLATION

PHYSICAL & MENTAL DECLINE &

A LACK OF SENSE OF PURPOSE

LOSS OF CULTURAL TIES

LONELINESS & DEPRESSION



VOLUNTARY SEGREGATION

ATTRIBUTED TO GATED RETIREMENT COMMUNITIES

LACK OF AUTONOMY

ENVIRONMENTAL FACTORS

NEGATIVE RELATIONS

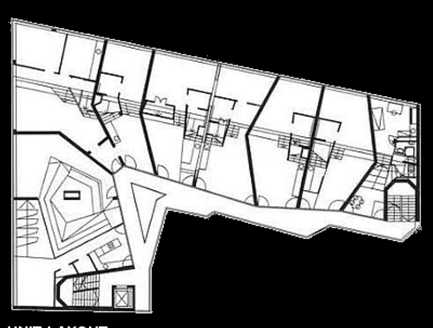


AGED

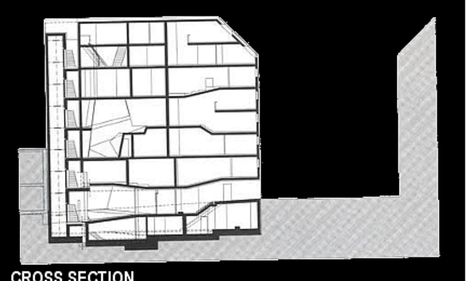


PRECEDENT STUDIES

MISS SARGFABRIK- VIENNA, AUSTRIA

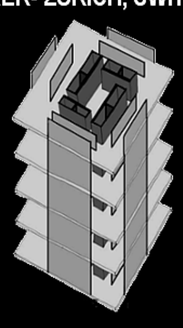


UNIT LAYOUT



CROSS SECTION

STEINACKER- ZURICH, SWITZERLAND



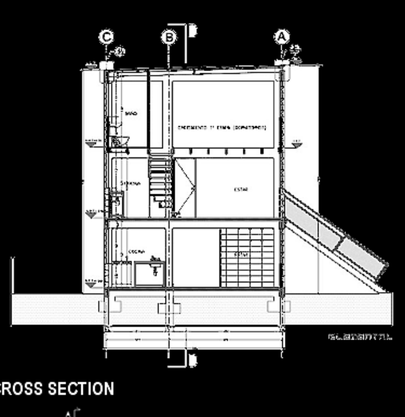
STRUCTURE

KAFKA CASTLE - BARCELONA, SPAIN

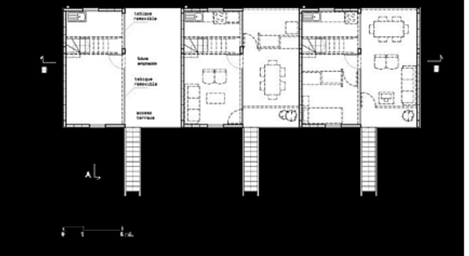


SITE LAYOUT

ELEMENTAL- CHILE, SOUTH AMERICA



CROSS SECTION



UNIT LAYOUT

HOW IS THIS BUILDING TYPOLOGY RELEVANT IN SOUTH AFRICA?

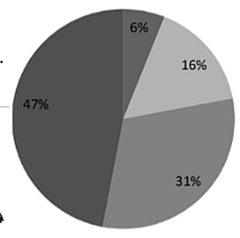
IN SOUTH AFRICA, PEOPLE WHO REACH RETIREMENT AGE:

47% ARE FINANCIALLY DEPENDENT ON FAMILY MEMBERS AND FRIENDS.

31% CANNOT RETIRE DUE TO FINANCIAL CIRCUMSTANCES.

16% DEPEND ON OLD AGE GRANTS.

6% CAN RETIRE INDEPENDENTLY.





THEORIES

EXISTENCE

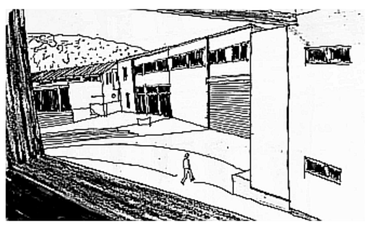


+

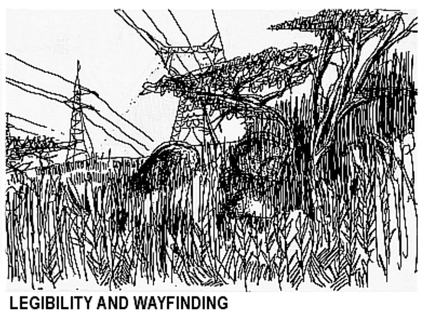


COHABITATION
DWELLING

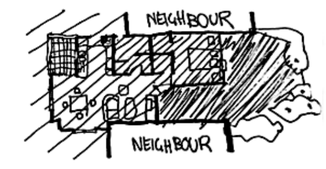
GENIUS LOCI

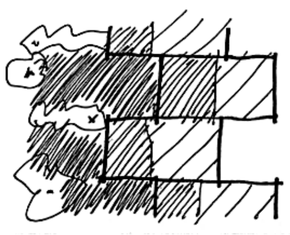


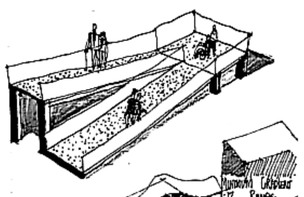
PLACEMAKING

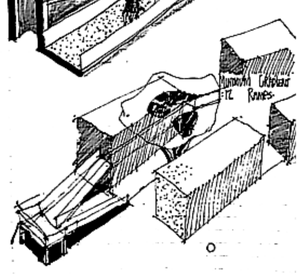


LEGIBILITY AND WAYFINDING



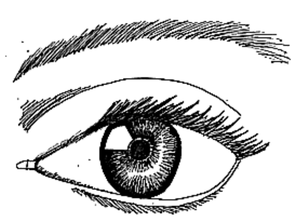




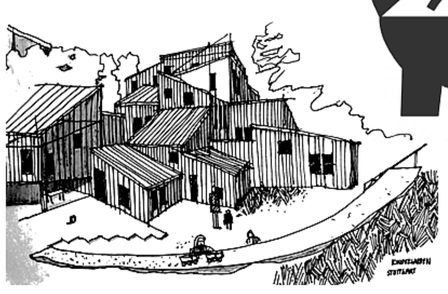


PHENOMENOLOGY & SENSORY DESIGN





HAPTIC SENSIBILITY AND VISUAL EXPERIENCE



DESIGN PROCESS





BUILDING TYPOLOGY

MULTIGENERATIONAL

ADDRESSES SPECIFIC SOCIAL CHALLENGE
(ISOLATION & VOLUNTARY SEGREGATION)

PHYSICAL DESIGN THAT FACILITATES ACTIVE AGEING AND ENGAGEMENT
(PRIVACY & COMMUNALITY AND UNIVERSAL DESIGN)

THREE OR MORE GENERATIONS

RECIPROCAL CARE

SENIORS BECOME VOLUNTEERS

FLEXIBILITY AND EVOLVING FOR CHANGE

DIVERSITY

COLLABORATIVE MANAGEMENT

AUTONOMY FOR RESIDENTS

COHESIVE AND INTEGRATION







SUSTAINABLE

SOCIAL SUSTAINABILITY

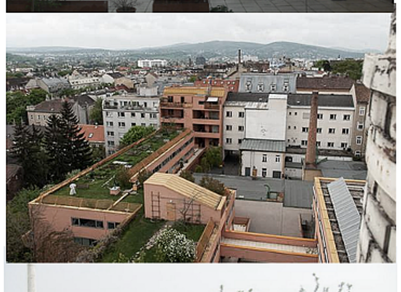
KNOWLEDGE TRANSFER

MITIGATES SUBURBAN SPRAWL

MENTOR AND APPRENTICE

CASE STUDIES





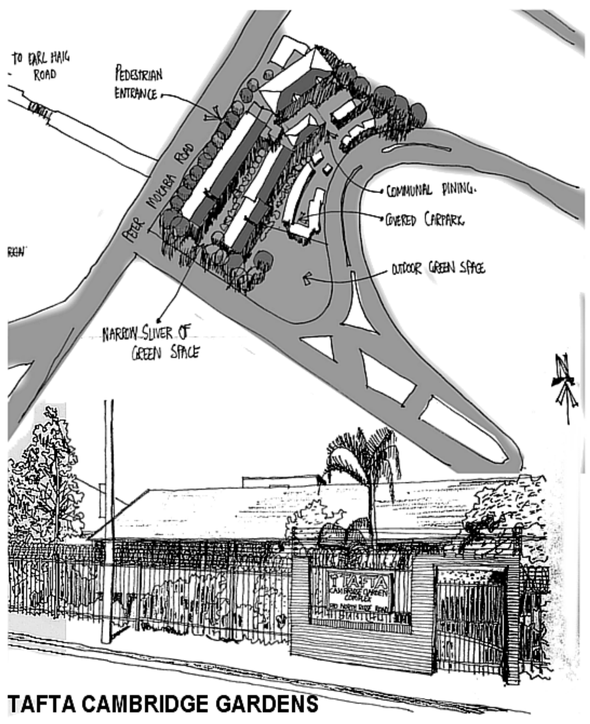




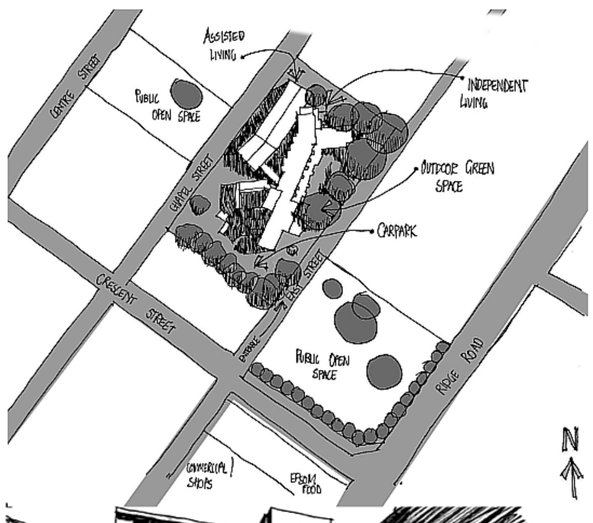








TAFTA CAMBRIDGE GARDENS





TAFTA RIDGE ROAD



AMBERFIELD, HOWICK



KENDRA GARDENS,

SCHEDULE OF ACCOMMODATION

SHARED SPACES

LOWER MEDIATION ROOM	56SQM
DAYCARE CENTRE	85 SQM
COMMUNAL LOUNGE	201 SQM
OPEN FLEXIBLE VENUE	125 SQM
COURTYARD	1070 SQM
GYMNASIUM	215 SQM
LIBRARY	245 SQM
RESIDENTIAL LAUNDRY	26 SQM
SEWING ROOM	80 SQM
YOGA ROOM	100 SQM
TV ROOM	80 SQM
CONFERANCE ROOM	100 SQM
BREEZE ROOM	56 SQM
QUIET ROOM	56 SQM
OUTDOOR CLOTHES HANGING	125 SQM
CAGE SOCCER	56 SQM
COMMUNAL LAUNDRY	75 SQM
BAR & OUTDOOR BRAAI AREA	215 SQM
LEARNING CENTRE	150 SQM
ROOF GARDEN	410 SQM
BILLIARD ROOM	150 SQM
MEDITATION ROOM	56 SQM
	3732 SQM

PUBLIC SPACES

LEARNING CENTRE	234 SQM
TAILOR	32 SQM
TRAVEL AGENCY	70 SQM
CALL CENTRE	32 SQM
HABERDASHERY	35 SQM
BEAUTY SHOP	35 SQM
FABRIC SHOP	35 SQM
RESTUARANT	155 SQM
CAFE	30 SQM
SMALL SHOP	44 SQM
LAUNDROMAT	36 SQM
FASTFOOD	102 SQM
HARDWARE	72 SQM
BARBER	30 SQM
RETAIL	80 SQM
TABACCONIST	48 SQM
BAKERY	32 SQM
GROCER	32 SQM
	1174 SQM

SERVICE SPACES

NURSES STATION	50 SQM
DISPENSARY	17 SQM
DOCTORS CONSULTATION ROOM	35 SQM
OFFICE	139 SQM
CIRCULATION RAMP	125 SQM
ABLUTIONS	10 SQM
CIRCULATION LOBBY	168 SQM
AUTO MATED TELLER MACHINES	60 SQM
DISTRIBUTION ROOMS X 2	5 SQM
BACK UP GENERATOR	56 SQM
BATTERY ROOM	32 SQM
MAINTENANCE	30 SQM
WORKSHOP	75 SQM
GENERAL STORAGE	75 SQM
WATER CISTERN	200 SQM
PARKING BAYS - 70	2500 SQM
	3577

PRIVATE SPACES

RESIDENTIAL UNITS

STUDIO UNITS X 22	652 SQM
1 BEDROOM UNITS X 8	424 SQM
2 BEDROOM UNITS X 14	969 SQM
3 BEDROOM UNITS X 10	871.5 SQM
	2916.5 SQM

BUILDING COST

12540 SQM - 740 SQM (EXISTING BUILDING)
= 11800 SQM X R11000
(COST UNIT MULTI-STOREY RESIDENTIAL MIXED USE AND BASEMENT - AECOM 2017)

ADVANCED ARCHITECTURAL DESIGN - ARCH 808 H2

RISHEN MAHADEW

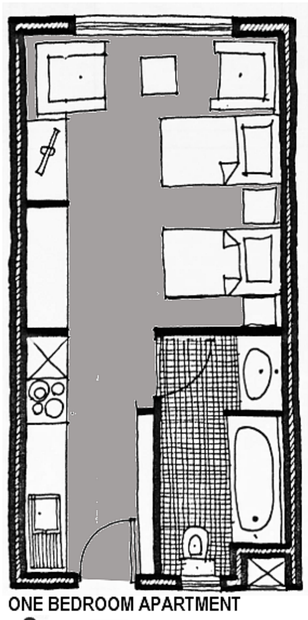
2018

209506460

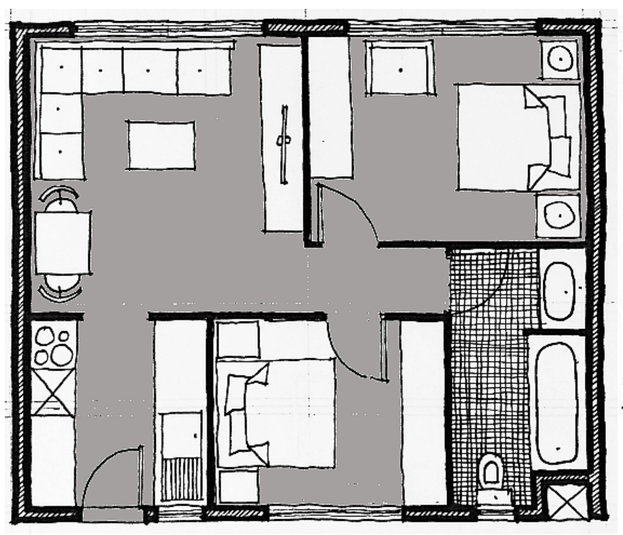
AIM:TO CREATE A SUSTAINABLE MULTIGENERATIONAL DEVELOPEMENT THAT CATERS TO PEOPLE FROM ALL WALKS OF LIFE AND PROMOTES INTERGRATION, VIBRANCY AND A SENSE OF PURPOSE .

UNIT TYPOLOGIES

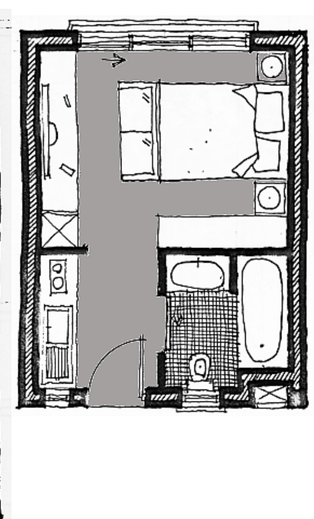
THE CRUCIAL DESIGN FACTOR OF MULTIGENERATIONAL LIVING IS TO PROVIDE UNIT TYPOLOGIES THAT ACCOMMODATES A VARIETY OF LIVING SITUATIONS FOR DIFFERENT GENERATIONAL COHORTS.
THE FOLLOWING UNITS ARE MODULAR AND FIT INTO THE TWO GRID SIZES OF 7.5m AND 8.4m THIS ENSURES FLEXIBILITY TO EVOLVE FOR CHANGE AND ALLOWS FOR INCREMENTAL GROWTH.



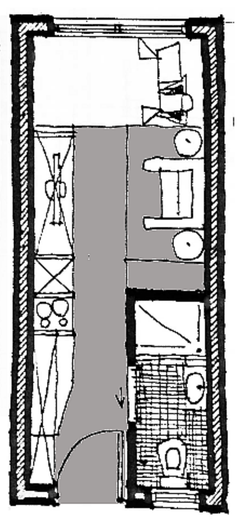
ONE BEDROOM APARTMENT



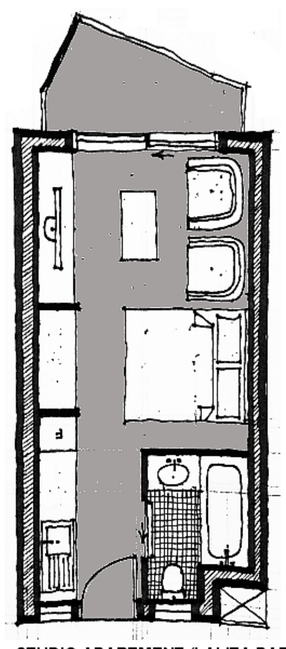
TWO BEDROOM APARTMENT



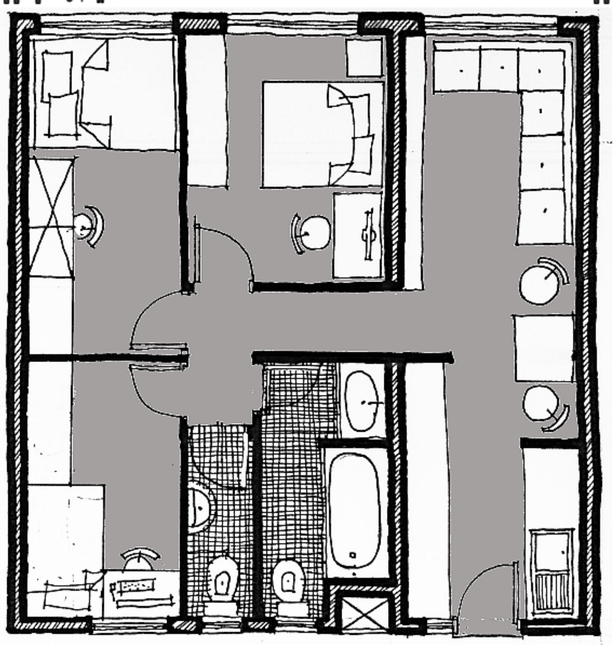
ONE BEDROOM APARTMENT



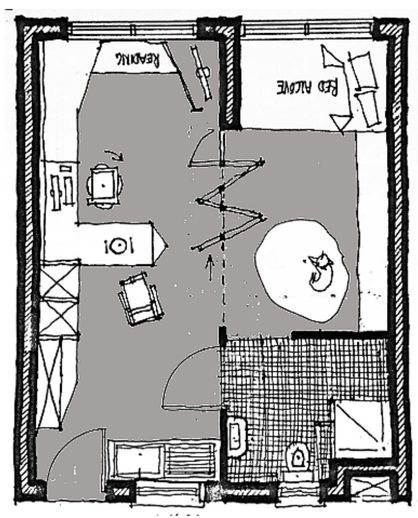
ONE BEDROOM APARTMENT



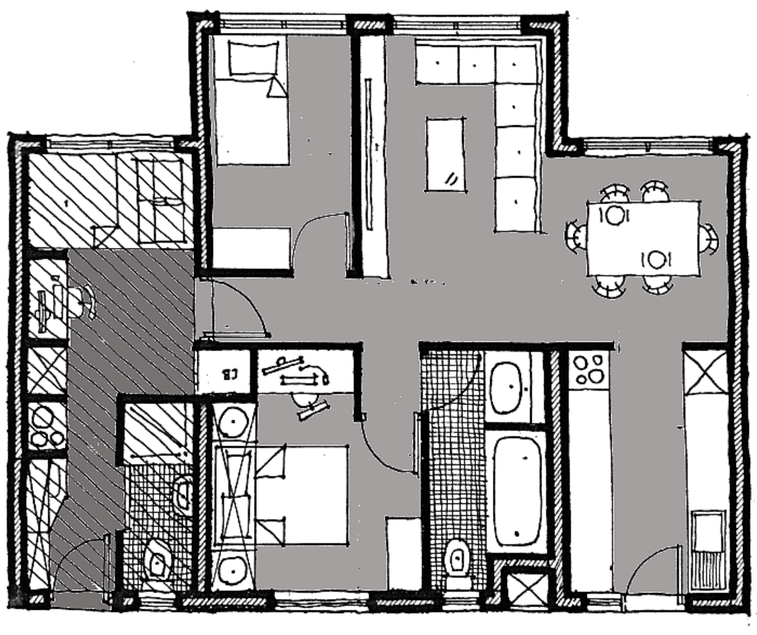
STUDIO APARTMENT (LALITA PARK)



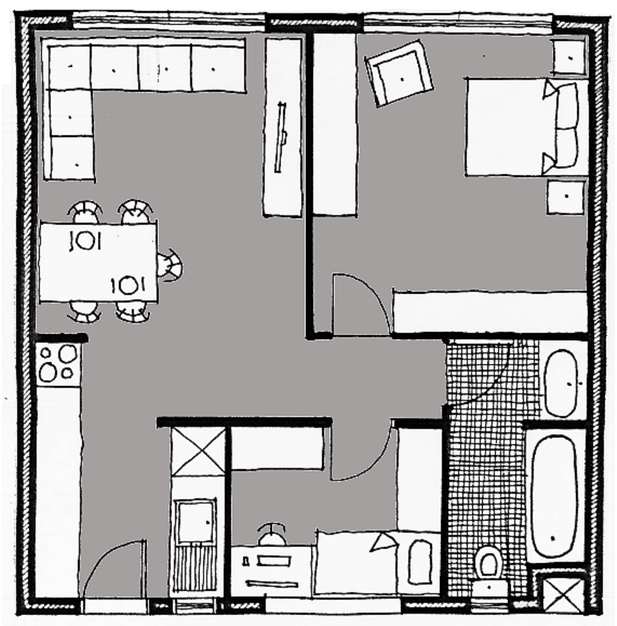
THREE BEDROOM APARTMENT



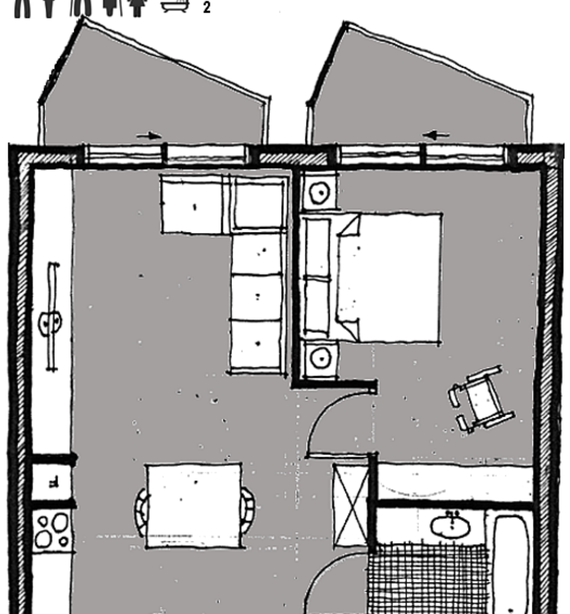
ONE BEDROOM APARTMENT



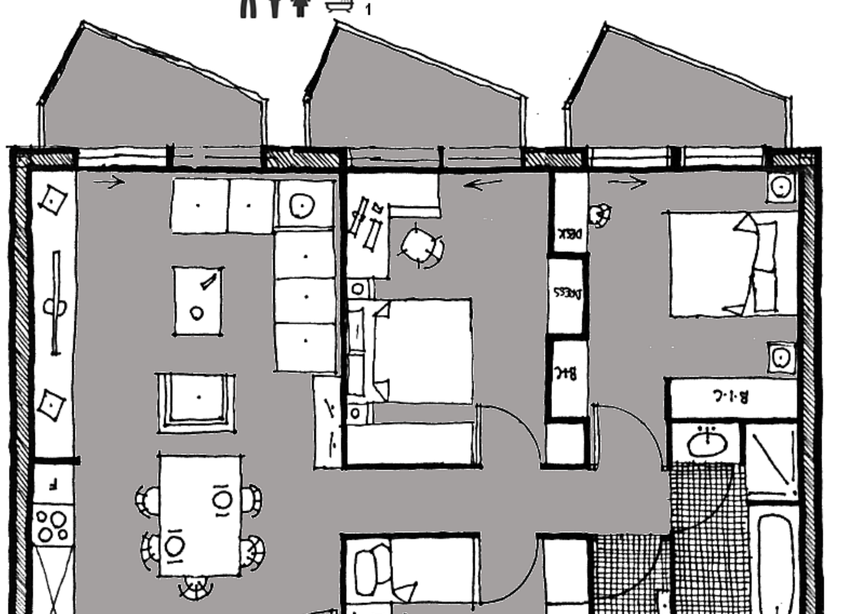
THREE BEDROOM APARTMENT



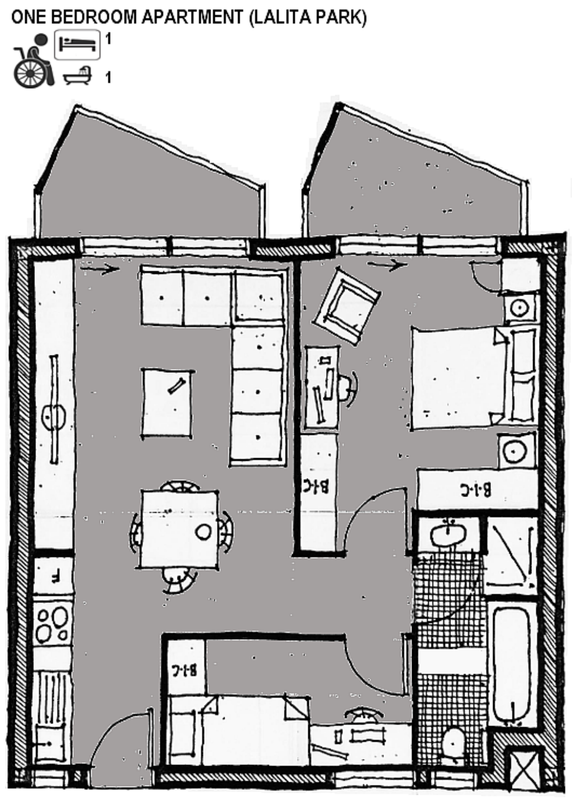
TWO BEDROOM APARTMENT



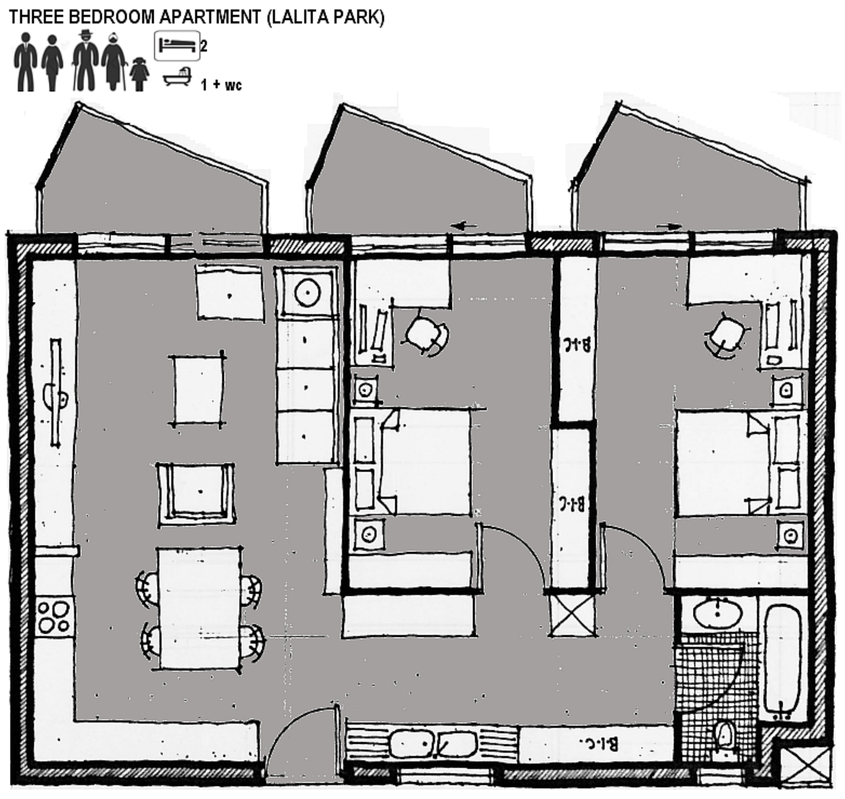
ONE BEDROOM APARTMENT (LALITA PARK)



THREE BEDROOM APARTMENT (LALITA PARK)



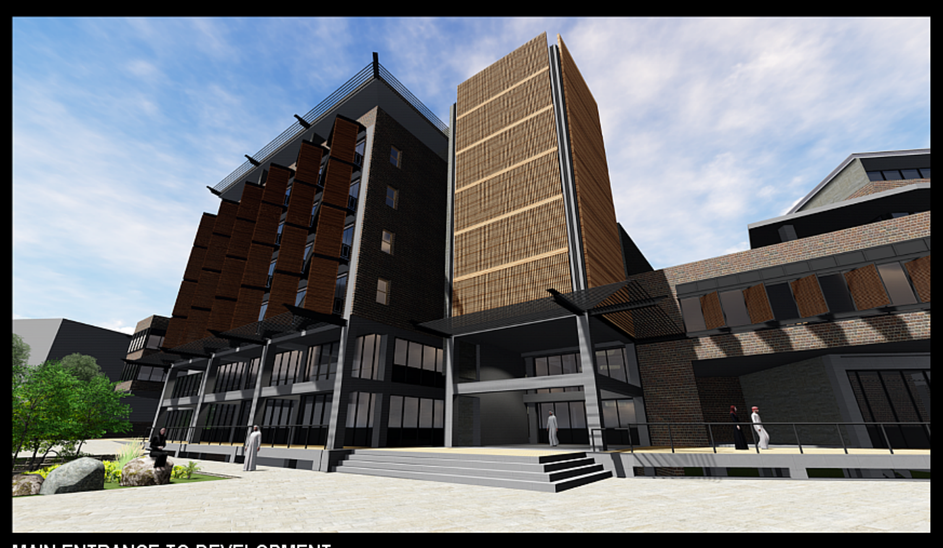
TWO BEDROOM APARTMENT (LALITA PARK)



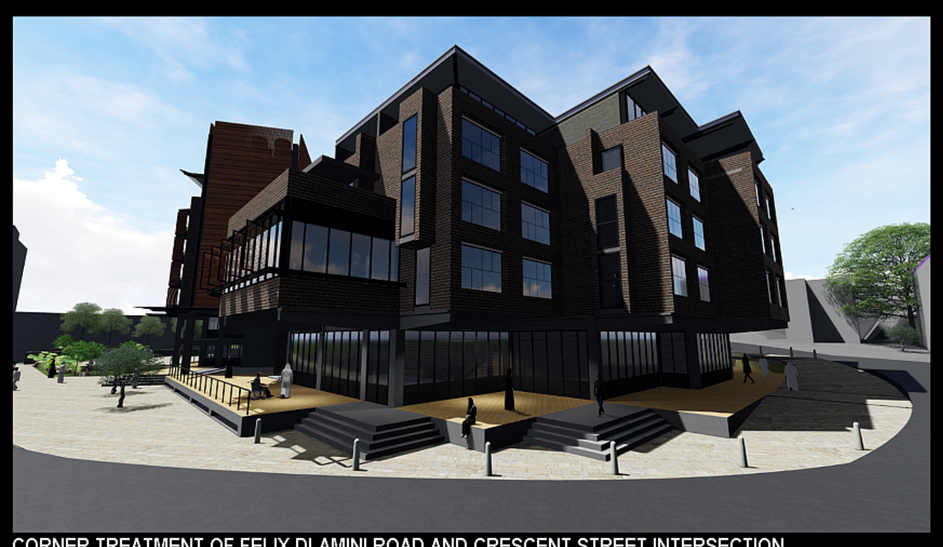
TWO BEDROOM APARTMENT (LALITA PARK)



ARCHITECTS IMPRESSION OF THE REDESIGNED EXISTING BUILDING



MAIN ENTRANCE TO DEVELOPMENT



CORNER TREATMENT OF FELIX DLAMINI ROAD AND CRESCENT STREET INTERSECTION



SECONDARY ENTRANCE AND CORNER TREATMENT



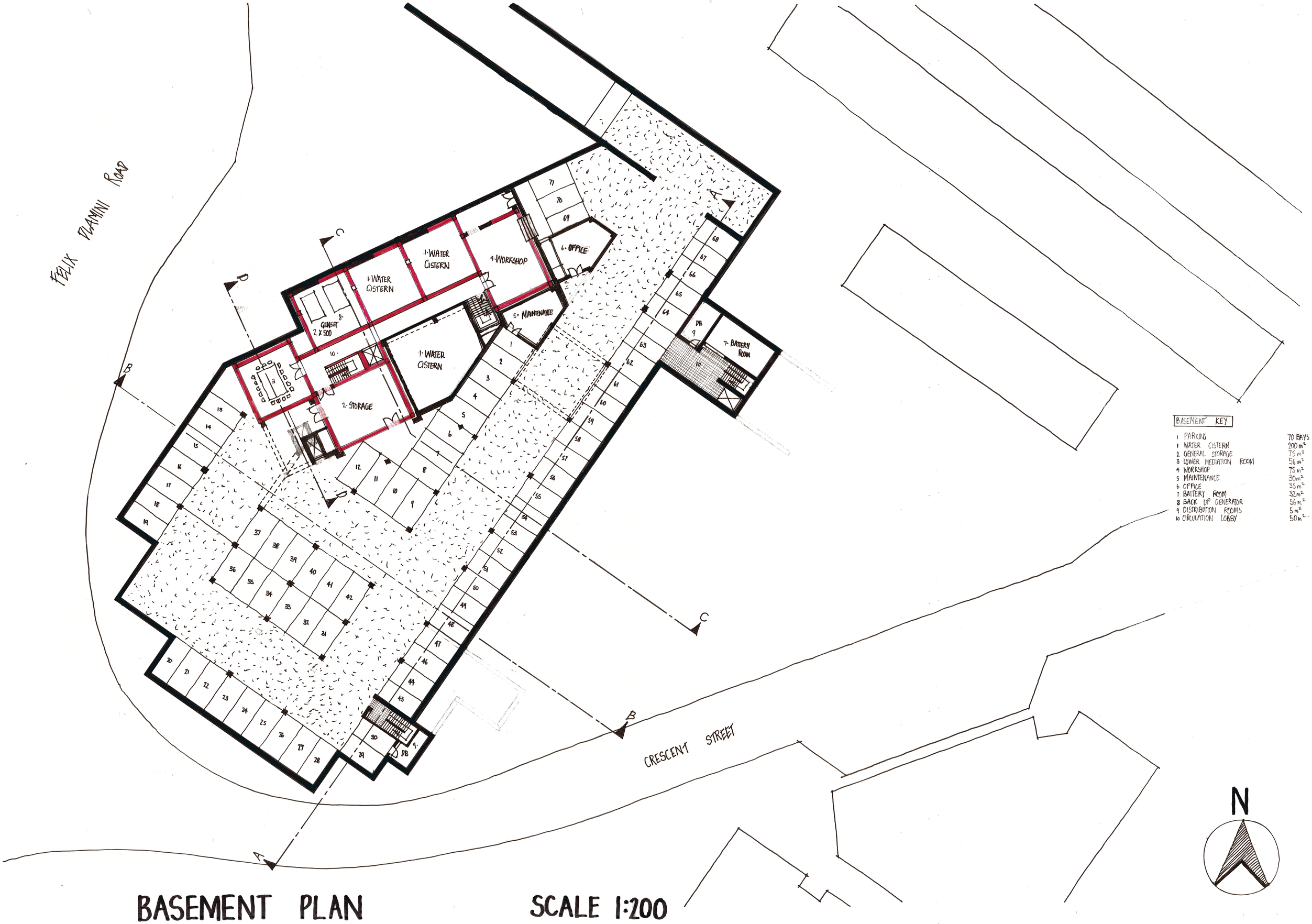
APPROACH TO DEVELOPEMENT THROUGH OVERPORT PARK



NORTH-EAST ENTRANCE



BUILDING JUNCTION - NEW VS OLD



BASEMENT KEY

1	PARKING	70 BAYS
1	WATER CISTERN	200 m²
2	GENERAL STORAGE	75 m²
3	LOWER MEDIATION ROOM	56 m²
4	WORKSHOP	75 m²
5	MAINTENANCE	30 m²
6	OFFICE	35 m²
7	BATTERY ROOM	32 m²
8	BACK UP GENERATOR	56 m²
9	DISTRIBUTION ROOMS	5 m²
10	CIRCULATION LOBBY	50 m²

BASEMENT PLAN

SCALE 1:200

FELIX RAMINI ROAD

>1:8 GRADIENT

CRESCENT STREET

2-ATMs

CAFE

GROUND FLOOR KEY

1	CIRCULATION LOBBY	68m²
2	AUTOMATED TELLER MACHINES	60m²
3	LOCKSMITH	40m²
4	GROCER	82m²
5	BAKERY & CONFECTIONARY	32m²
6	TABACCONIST	48m²
7	LIQUOR STORE	40m²
8	CELLPHONE REPAIRS	12m²
9	PRINT SHOP	12m²
10	DAYCARE CENTER	85m²
11	FAST FOOD 1	30m²
12	RETAIL	40m²
13	BARBERSHOP	30m²
14	LEARNING CENTRE	54m²
15	HARDWARE STORE	72m²
16	FAST FOOD 2	72m²
17	LAUNDROMAT	36m²
18	CIRCULATION	50m²
19	SPICE SHOP	20m²
20	RESTUARANT 1	85m²
21	RESTUARANT 2	70m²
22	FABRIC SHOP	35m²
23	BEAUTY SHOP	35m²
24	HABERDASHERY	35m²
25	COMMUNAL SPACE	75m²
26	OPEN FLEXIBLE VENUE	125m²
27	ABLUTIONS	10m²
28	CIRCULATION RAMP	125m²
29	COURTYARD 1	450m²
30	COURTYARD 2	400m²
	COURTYARD 3	220m².

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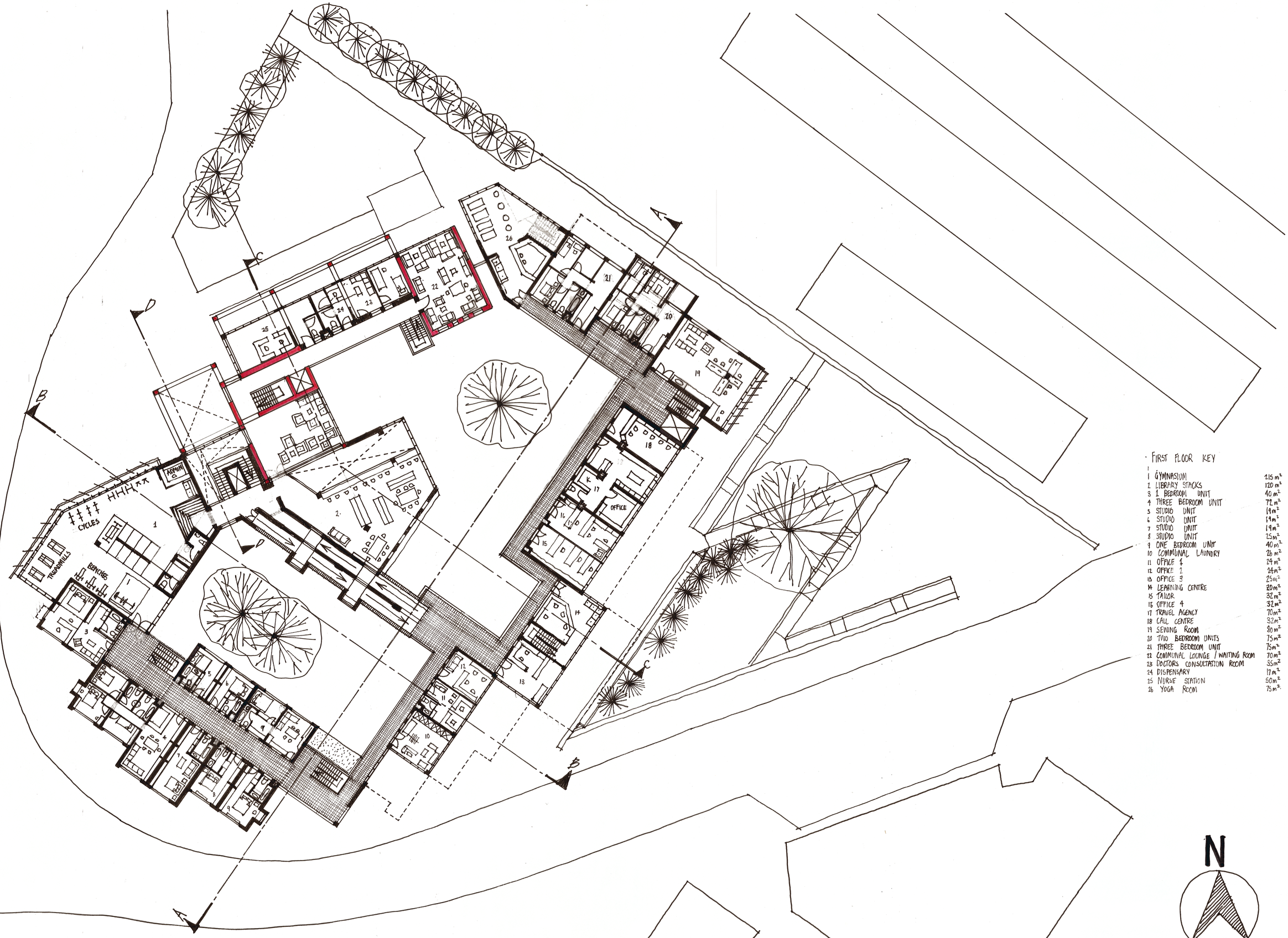
GROUND FLOOR PLAN

SCALE 1:200



· FIRST FLOOR KEY

1	GYMNASIUM	215 m²
2	LIBRARY STACKS	120 m²
3	1 BEDROOM UNIT	40 m²
4	THREE BEDROOM UNIT	72 m²
5	STUDIO UNIT	19 m²
6	STUDIO UNIT	19 m²
7	STUDIO UNIT	19 m²
8	STUDIO UNIT	25 m²
9	ONE BEDROOM UNIT	40 m²
10	COMMUNAL LAUNDRY	26 m²
11	OFFICE 1	24 m²
12	OFFICE 2	24 m²
13	OFFICE 3	25 m²
14	LEARNING CENTRE	20 m²
15	TAILOR	32 m²
16	OFFICE 4	32 m²
17	TRAVEL AGENCY	70 m²
18	CALL CENTRE	32 m²
19	SEWING ROOM	80 m²
20	TWO BEDROOM UNITS	75 m²
21	THREE BEDROOM UNIT	75 m²
22	COMMUNAL LOUNGE / WAITING ROOM	70 m²
23	DOCTORS CONSULTATION ROOM	35 m²
24	DISPENSARY	17 m²
25	NURSE STATION	50 m²
26	YOGA ROOM	75 m²

N

FIRST FLOOR PLAN

SCALE 1:200

SECOND FLOOR KEY

1	ONE BEDROOM UNIT	40m²
2	TWO BEDROOM UNIT	56m²
3	THREE BEDROOM UNIT	90m²
4	STUDIO UNIT	38m²
5	STUDIO UNIT	30m²
6	STUDIO UNIT	40m²
7	STUDIO UNIT	40m²
8	STUDIO UNIT	20m²
9	STUDIO UNIT	20m²
10	LEARNING CENTRE SEMINAR SPACE	150m²
11	TWO BEDROOM UNIT	80m²
12	STUDIO UNIT	30m²
13	ONE BEDROOM UNIT	75m²
14	T.V ROOM	80m²
15	STUDIO UNIT	20m²
16	ONE BEDROOM UNIT	56m²
17	THREE BEDROOM UNIT	90m²
18	CONFERANCE ROOM	100m²
19	ONE BEDROOM UNIT	75m²
20	TWO BEDROOM UNIT	56m²
21	STUDIO UNIT	28m²
23	THREE BEDROOM UNIT	85m²
24	BEBLE ROOM	56m²
25	QUIET ROOM	56m²
26	LIBRARY & INTERNET SPACE	125m²

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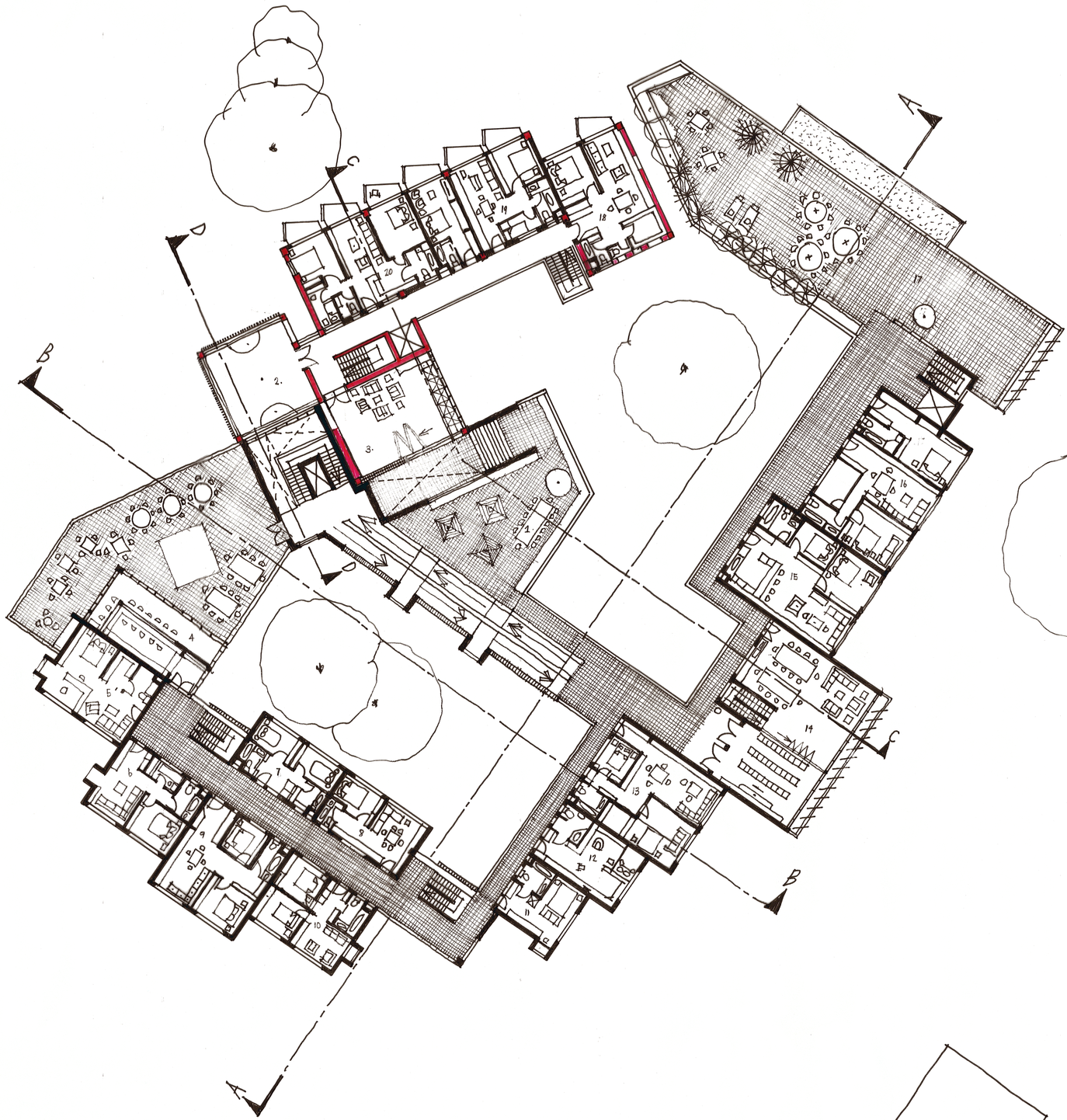
SECOND FLOOR PLAN

SCALE 1:200



THIRD FLOOR PLAN KEY

1	OUTDOOR CLOTHES HANGING	125m²
2.	CAGE SOCCER	56m²
3	COMMUNAL LAUNDRY	75m²
4	BAR AND OUTDOOR BRAAI AREA	215m²
5	ONE BEDROOM UNIT	40m²
6	TWO BEDROOM UNIT	56m²
7	TWO BEDROOM UNIT	40m²
8	ONE BEDROOM UNIT	40m²
9	TWO BEDROOM UNIT	60m²
10	TWO BEDROOM UNIT	56m²
11	STUDIO UNIT	20m²
12	STUDIO UNIT	20m²
13	TWO BEDROOM UNIT	80m²
14	LEARNING CENTER FLAT VENUE	150m²
15	TWO BEDROOM UNIT	80m²
16	THREE BEDROOM UNIT	100m²
17	ROOF GARDEN	410m²
18	TWO BEDROOM UNIT	75m²
19	THREE BEDROOM UNIT	82,5m²
20	THREE BEDROOM UNIT	82,5m²

N

THIRD FLOOR PLAN

SCALE 1:200



FOURTH FLOOR PLAN

1	STUDIO UNIT	40m²
2	STUDIO UNIT	40m²
3	STUDIO UNIT	40m²
4	STUDIO UNIT	40m²
5	STUDIO UNIT	40m²
6	STUDIO UNIT	40m²
7	THREE BEDROOM UNIT	105m²
8	BILLIARD ROOM	150m²
9	TWO BEDROOM UNIT	80m²
10	THREE BEDROOM UNIT	90m²
11	TWO BEDROOM UNIT	75m²
12	TWO BEDROOM	100m²
13	STUDIO UNIT	28m²
14	COMMUNAL LOUNGE	56m²
15	MEDITATION ROOM	56m²

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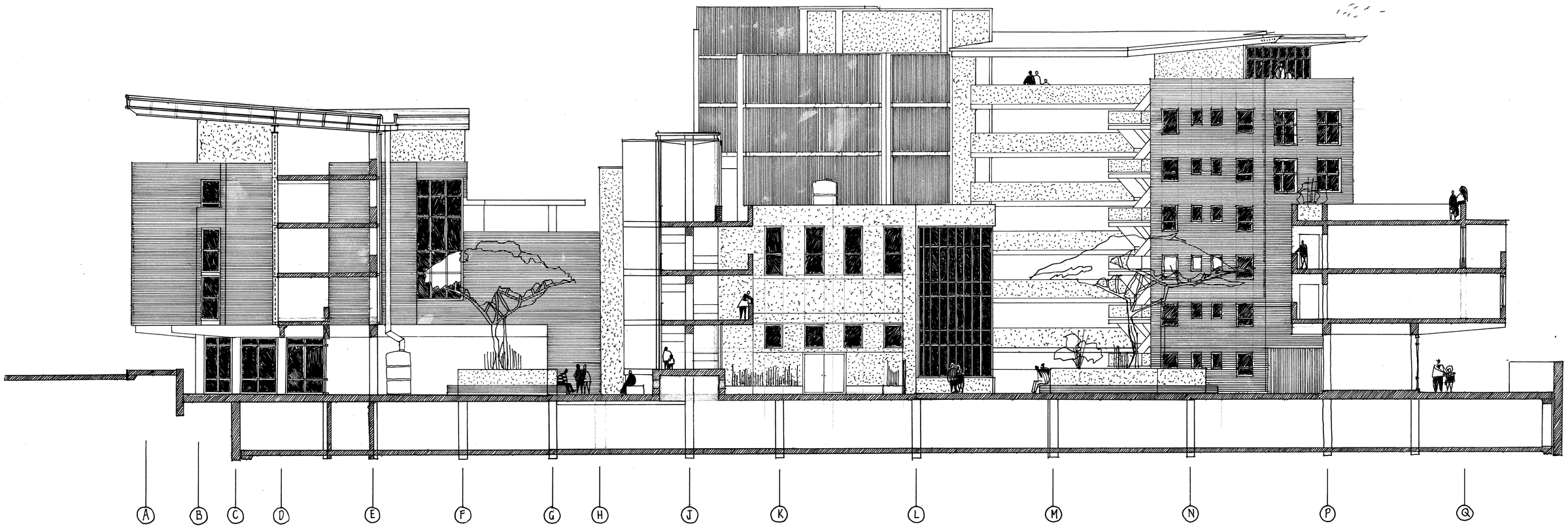
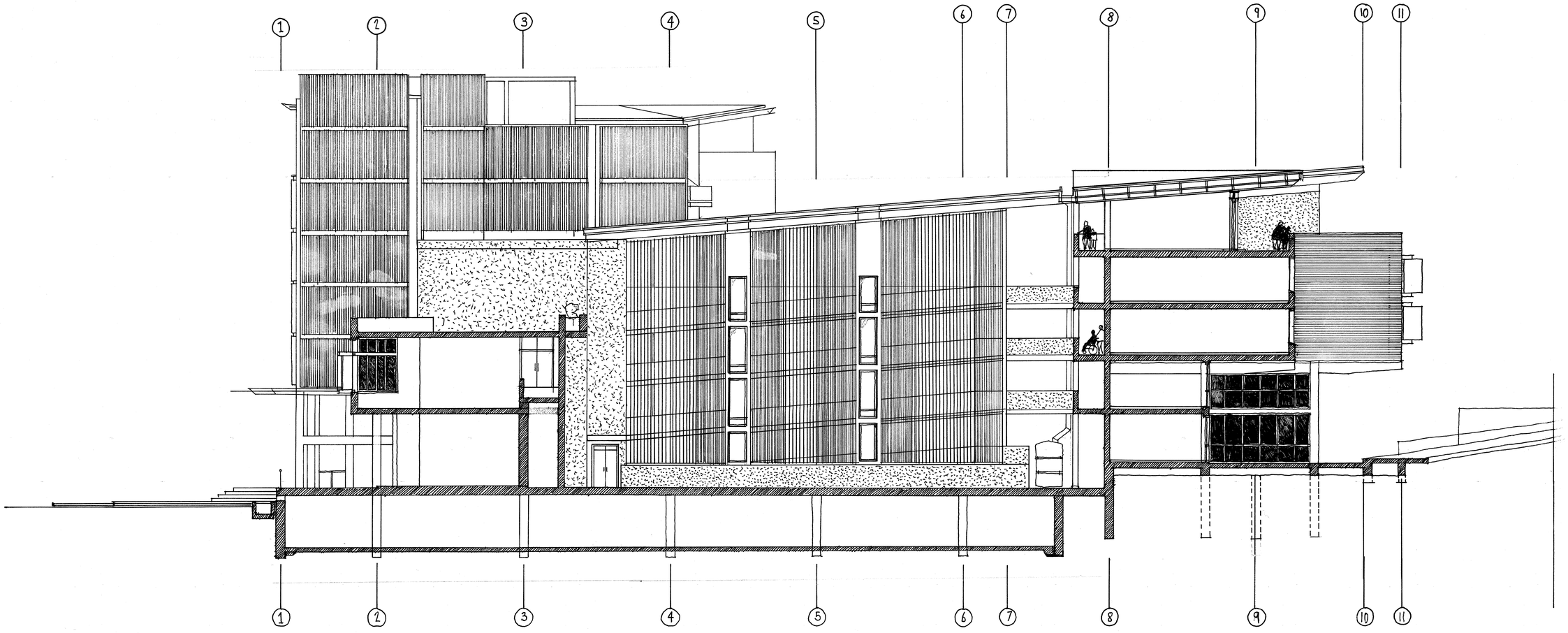
FOURTH FLOOR PLAN

SCALE 1:200

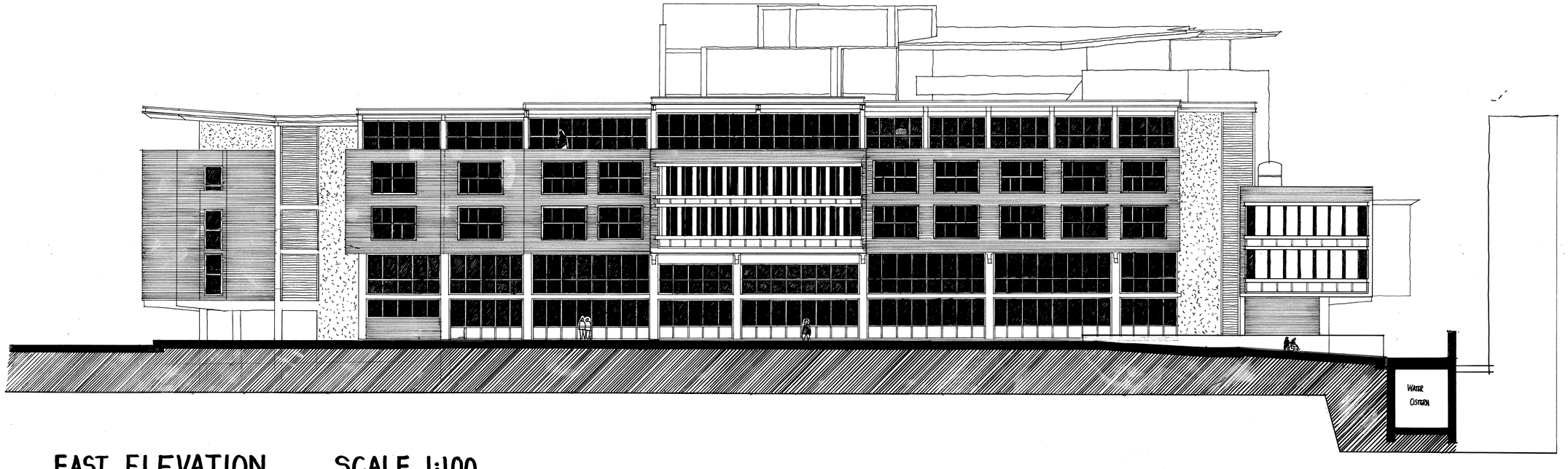


SECTION A-A SCALE 1:100

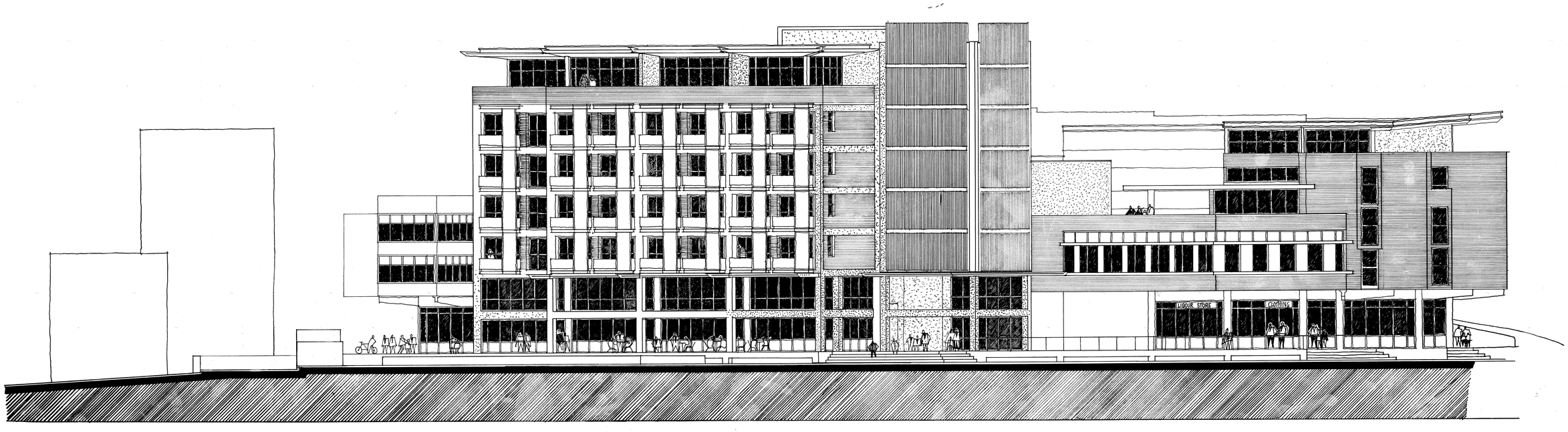


SECTION B-B SCALE 1:100

SECTION C-C SCALE 1:50



EAST ELEVATION SCALE 1:100

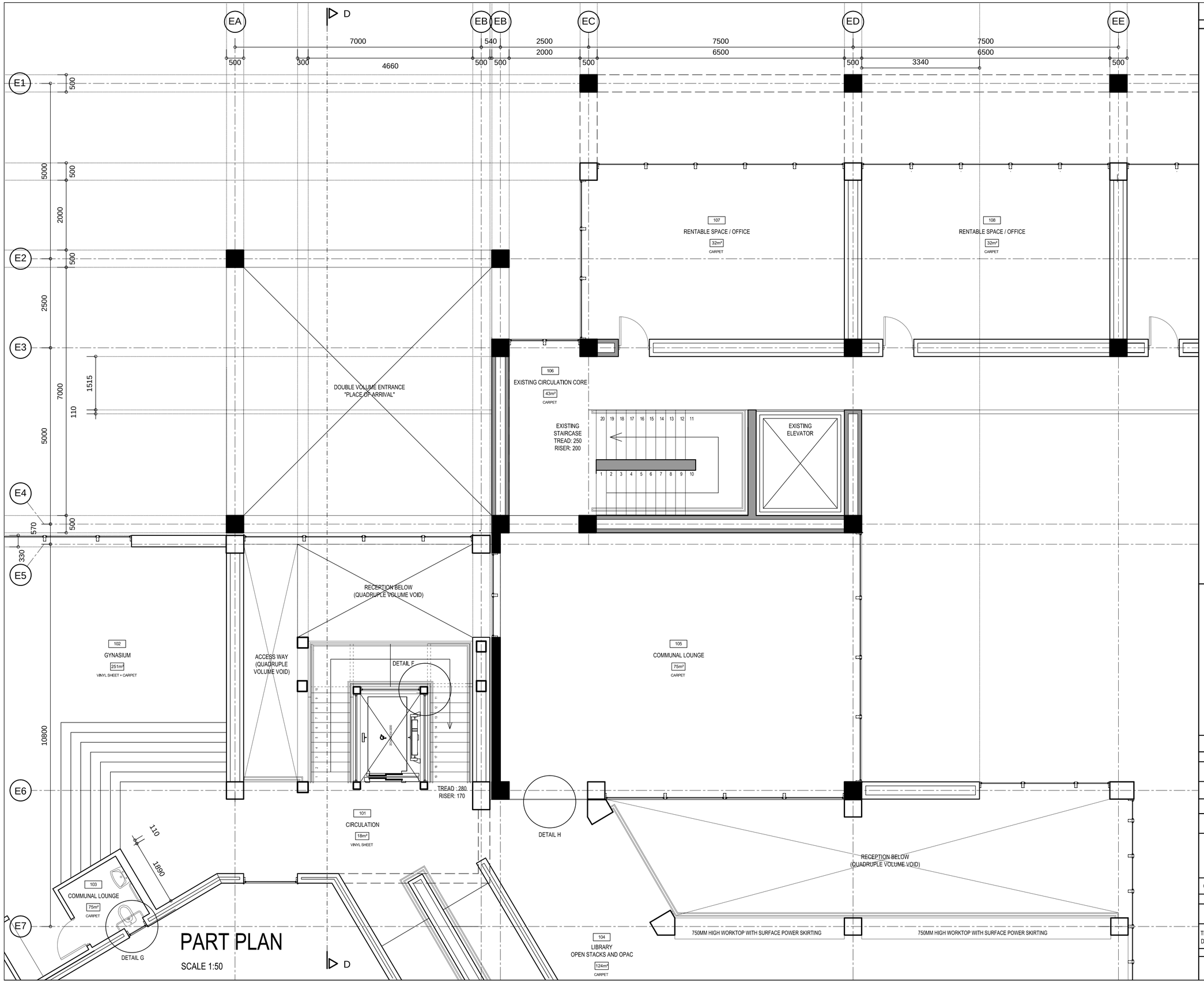


WEST ELEVATION SCALE 1:100

SOUTH ELEVATION SCALE 1:100

NORTH ELEVATION SCALE 1:100

RAINWATER CISTERN



Project Number:	17-01

General Notes

STRUCTURE :
S1. REINFORCED CONCRETE FLOOR SLABS, FOUNDATIONS AND GROUND BEAMS, REINFORCED BRICKWORK, RC COLUMNS AND RETAINING WALLS, IF ANY, (INCLUSIVE OF WEEP HOLES, AGRICULTURAL DRAINS AND BACKFILL) TO STRUCTURAL ENGINEERS SPECIFICATIONS

S2. SUPPORT OVER ALL OPENINGS AND ALL STEELWORK SUPPORTS TO BE TO STRUCTURAL ENGINEERS DETAILS

FLOORS :
F1. ALL REINFORCED CONCRETE GROUND SLABS TO STRUCTURAL ENGINEERS DETAILS AND SPECIFICATIONS ON 250 MICRON DPM ON WELL CONSOLIDATED LAYER WORKS AS PER ENGINEERS DETAILS AND SPECIFICATIONS. EARTH UNDER TO BE TREATED WITH APPROVED TERMITE POISON

F2. ALL FLOOR FINISHES TO BE AS PER SCHEDULES AND SPECIFICATIONS

ROOF :
PRE-PAINTED (MIN 0.53mm THICK) DEEP PROFILE CONCEALED FIX ROOF SHEETS (BROWNBUILT PROFILE) WITH STANDING RIBS AT 203mm CENTERS AND COVER WIDTH OF 406 mm IN SINGLE LONG LENGTHS FIXED TO MILD STEEL LIP PURLINS @ MAXIMIUM 1500ccs ON LIGHT WEIGHT STEEL TRUSSES - ALL TO STRUCTURAL ENGINEERS DETAILS.
THE RIB HEIGHT SHALL BE 48mm AND PROVIDE CAPILLARY BREAKS.
SHEETS TO BE FIXED IN STRICT ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND TO HAVE ALL THE NECESSARY FLASHINGS AND COUNTER FLASHINGS.

R2. SAFE-LOC ASHGRID SPACER SUPPORT SYSYTEM TO BE USED IN CONJUNCTION WITH 60mm LAMBDABOARD AND A 75mm AIR GAP TO PROVIDE FOR AIR MOVEMENT AND COOLING OF THE ROOF.

R3. ALL CONCRETE ROOFS TO ENGINEERS DETAILS AND TO BE WATERPROOFED WITH 'DERBIGUM' THROUGHOUT (INCLUSIVE OF SILVER PAINT AND PEBBLE LAYER), ALL CONCRETE ROOFS TO HAVE 60 MM LAMBDABORD THROUGHOUT - ALL TO THE MANUFACTURES SPECIFICATIONS

CEILINGS :

C2. 100mm THICK BULK INSULATION (ISOTHERM) TO BE LAID ON TOP OF CEILING
C2. SKIMMED AND PAINTED SLAB SOFFITS WHERE APPLICABLE

WALLS :
W1. GENERALLY 380 / 330 / 300 CAVITY BRICK WALLS / 230 / 115 WALLS INCLUSIVE OF ALL REINFORCEMENT AND TIES AND BITUMEN PAINT ON INNER SKIN - PLASTERED WITH A STEEL TROWEL FINISH TO RECEIVE ONE FILLER COAT AND TWO COATS HIGH QUALITY EXTERIOR PAINT

W2. WHERE INDICATED, INTERIOR WALLS TO BE ONE HOUR FIRE RATED RODENT PROOF CLASS B1 DRYWALL (DOUBLE SIDED) INCLUSIVE OF STEEL STUD FIXINGS AND TRIMS AND ISULATION TO MEET SANS-10400 REQUIREMENTS WITH SKIMMED JOINTS AND PAINTED FINISH

W3. APPLY BLACK BRICKGRIP DPC FULL WIDTH TO ALL WALLS AT TOP OF FLOOR SLAB LEVEL AND UNDER ALL CILLS. STEP ACROSS ALL CAVITY WALLS

W4. WALLS INTERNAL - ONE COAT PLASTER WITH A STEEL TROWEL THEN SKIMMED, AND PREPARED TO RECEIVE PAINT FINISH - ALL TO INTERIOR DESIGNERS DETAILS AND SPECIFICATIONS

MISCELLANEOUS

M1. ALL SHOPFRONTS AND WINDOWS TO BE NEW SILVER CODE ANP9089 POWDER COATED ALUMINIUM AS PER SCHEDULE AND TO HAVE ALL SANS-10400 AND SANS 204:2011 CERTIFICATES

M2. ALL GLAZING TO COMPLY WITH SANS 1263-1, SANS 2001-CG1, SANS 10137 AND CURRENT AAAMSA STANDARDS

M3. ALL MECHANICAL VENTILATION AND EXTRACTION TO BE TO MECHANICAL ENGINEERS/AIR-CON DESIGNER DETAILS

M4. ALL ARTIFICIAL LIGHTING ETC TO BE TO THE INTERIOR DESIGNERS DETAILS AND SPECIFICATIONS.

M5. ALL BALUSTRADES TO COMPLY WITH SANS 10400-M

M6. LOW LEVEL PLANTING TO BE IN ACCORDANCE WITH AN APPROVED LANDSCAPE DESIGNER.

M7. ROOFS TO BE DRAINED TO STORM WATER CHANNELS AND CATCH PITS. ALL RAINWATER DOWN PIPES TO DISCHARGE DIRECTLY INTO CATCH PITS

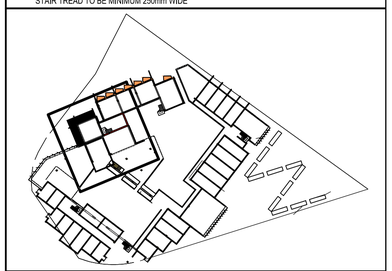
M8. ALL SEWER SERVICE DUCTS TO HAVE ACCESS PANELS AT ALL FLOOR LEVELS.

M9. ALL SEWER PIPES AND GREY WATER DRAINAGE CONNECTION TO COMPLY WITH SANS 10400-P

M10. HOT WATER SUPPLY AND INSTALLATION TO COMPLY WITH SANS 10400-XA, SANS 10252-1, SANS 10254

M11. IF ANY SOLAR GEYSER INSTALLATION IS DONE THEN CONFORMANCE IS TO BE REACHED IN TERMS OF SANS 10400-XA, SANS 1307, SANS 10106, SANS 10254, SANS 10252-1

M12. STAIR RISERS TO BE MAXIMUM 180mm HIGH
STAIR TREAD TO BE MINIMUM 250mm WIDE



Consultant

Council	Professional Number	Name	Signature
SACAP	CAT 21212	R.MAHADEW	

Project	Multigenerational Development
Building Address	558 Felix Dlamini Road, Overport, Durban
Drawing Title	

MULTIGENERATIONAL DEVELOPMENT DETAIL :

PART PLAN

Consultants In Office Drawing Number: 17 / 01 - PL101

DRAWN	CHECKED	DATE	SCALE	PAGE SIZE
R.M	L.O	30/ 12/ 2017	1 : 50 @	A1

This drawing to be read in conjunction with drawing no:
Drawing Number Dwg No. ES 201

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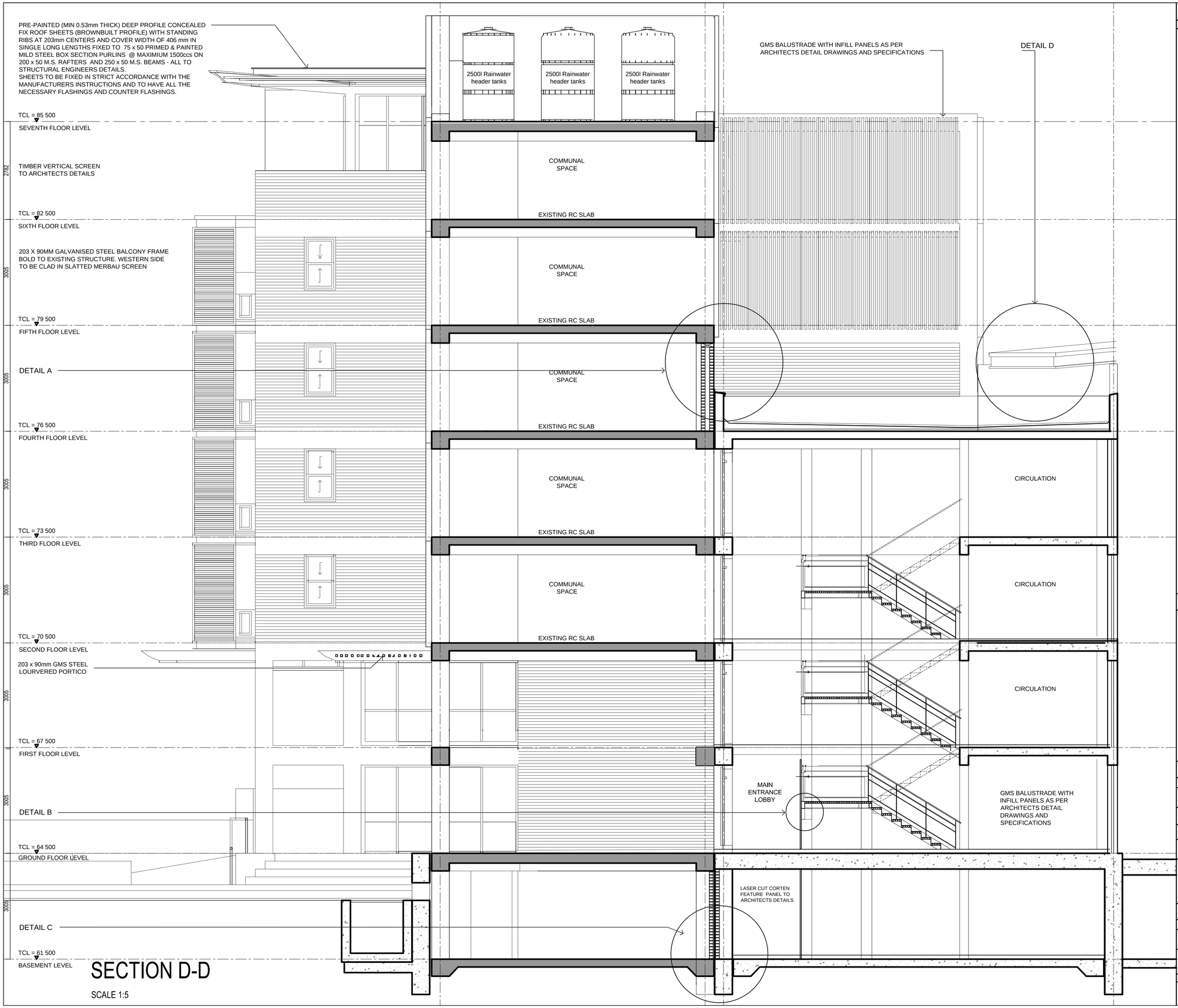

SECTION D-D

SCALE 1:5

Project Number:	17-01

General Notes

STRUCTURE :
S1. REINFORCED CONCRETE FLOOR SLABS, FOUNDATIONS AND GROUND BEAMS. REINFORCED BRICKWORK, RC COLUMNS AND RETAINING WALLS, IF ANY. (INCLUSIVE OF WEEP HOLES, AGRICULTURAL DRAINS AND BACKFILL) TO STRUCTURAL ENGINEERS SPECIFICATIONS

S2. SUPPORT OVER ALL OPENINGS AND ALL STEELWORK SUPPORTS TO BE TO STRUCTURAL ENGINEERS DETAILS

FLOORS :
F1. ALL REINFORCED CONCRETE GROUND SLABS TO STRUCTURAL ENGINEERS DETAILS AND SPECIFICATIONS ON 250 MICRON DPM ON WELL CONSOLIDATED LAYER WORKS AS PER ENGINEERS DETAILS AND SPECIFICATIONS. EARTH UNDER TO BE TREATED WITH APPROVED TERMITE POISON

F2. ALL FLOOR FINISHES TO BE AS PER SCHEDULES AND SPECIFICATIONS

ROOF :
PRE-PAINTED (MIN 0.53mm THICK) DEEP PROFILE CONCEALED FIX ROOF SHEETS (BROWNBUILT PROFILE) WITH STANDING RIBS AT 203mm CENTERS AND COVER WIDTH OF 406 mm IN SINGLE LONG LENGTHS FIXED TO MILD STEEL LIP PURLINS @ MAXIMUM 1500ccs ON LIGHT WEIGHT STEEL TRUSSES - ALL TO STRUCTURAL ENGINEERS DETAILS.
THE RIB HEIGHT SHALL BE 48mm AND PROVIDE CAPILLARY BREAKS.
SHEETS TO BE FIXED IN STRICT ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND TO HAVE ALL THE NECESSARY FLASHINGS AND COUNTER FLASHINGS.

R2. SAFE-LOC ASHGRID SPACER SUPPORT SYSYTEM TO BE USED IN CONJUNCTION WITH 60mm LAMBDABOARD AND A 75mm AIR GAP TO PROVIDE FOR AIR MOVEMENT AND COOLING OF THE ROOF.

R3. ALL CONCRETE ROOFS TO ENGINEERS DETAILS AND TO BE WATERPROOFED WITH 'DERBIGUM' THROUGHOUT (INCLUSIVE OF SILVER PAINT AND PEBBLE LAYER), ALL CONCRETE ROOFS TO HAVE 60 MM LAMBDABORD THROUGHOUT - ALL TO THE MANUFACTURES SPECIFICATIONS

CEILINGS :

C2. 100mm THICK BULK INSULATION (ISOTHERM) TO BE LAID ON TOP OF CEILING
C2. SKIMMED AND PAINTED SLAB SOFFITS WHERE APPLICABLE

WALLS :
W1. GENERALLY 380 / 330 / 300 CAVITY BRICK WALLS / 230 / 115 WALLS INCLUSIVE OF ALL REINFORCEMENT AND TIES AND BITUMEN PAINT ON INNER SKIN - PLASTERED WITH A STEEL TROWEL FINISH TO RECEIVE ONE FILLER COAT AND TWO COATS HIGH QUALITY EXTERIOR PAINT

W2, WHERE INDICATED, INTERIOR WALLS TO BE ONE HOUR FIRE RATED RODENT PROOF CLASS B1 DRYWALL (DOUBLE SIDED) INCLUSIVE OF STEEL STUD FIXINGS AND TRIMS AND ISULATION TO MEET SANS-10400 REQUIREMENTS WITH SKIMMED JOINTS AND PAINTED FINISH

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M8, ALL SEWER SERVICE DUCTS TO HAVE ACCESS PANELS AT ALL FLOOR LEVELS.

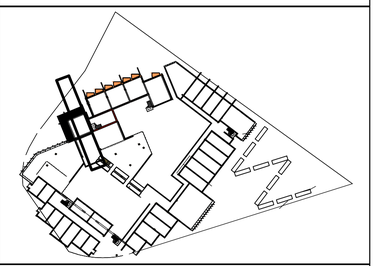
M9, ALL SEWER PIPES AND GREY WATER DRAINAGE CONNECTION TO COMPLY WITH SANS 10400-P

M10, HOT WATER SUPPLY AND INSTALLATION TO COMPLY WITH SANS 10400-XA, SANS 10252-1, SANS 10254

M11, IF ANY SOLAR GEYSER INSTALLATION IS DONE THEN CONFORMANCE IS TO BE REACHED IN TERMS OF SANS 10400-XA, SANS 1307, SANS 10106, SANS 10254, SANS 10252-1

M12, STAIR RISERS TO BE MAXIMUM 180mm HIGH
STAIR TREAD TO BE MINIMUM 250mm WIDE

LOCALITY INDICATOR



Consultant

Council	Professional Number	Name	Signature
SACAP	CAT 21212	R.MAHADEW	

Project: Multigenerational Development

Building Address: 558 Felix Dlamini Road, Overport, Durban

Drawing Title

MULTIGENERATIONAL DEVELOPMENT DETAIL :

SECTION D-D

Consultants In Office Drawing Number: 17 / 01 - ES 201

DRAWN	CHECKED	DATE	SCALE	PAGE SIZE
R.M	L.O	30/ 12/ 2017	1 : 50 @	A1

This drawing to be read in conjunction with drawing no:
Drawing Number Dwg No. PL 101

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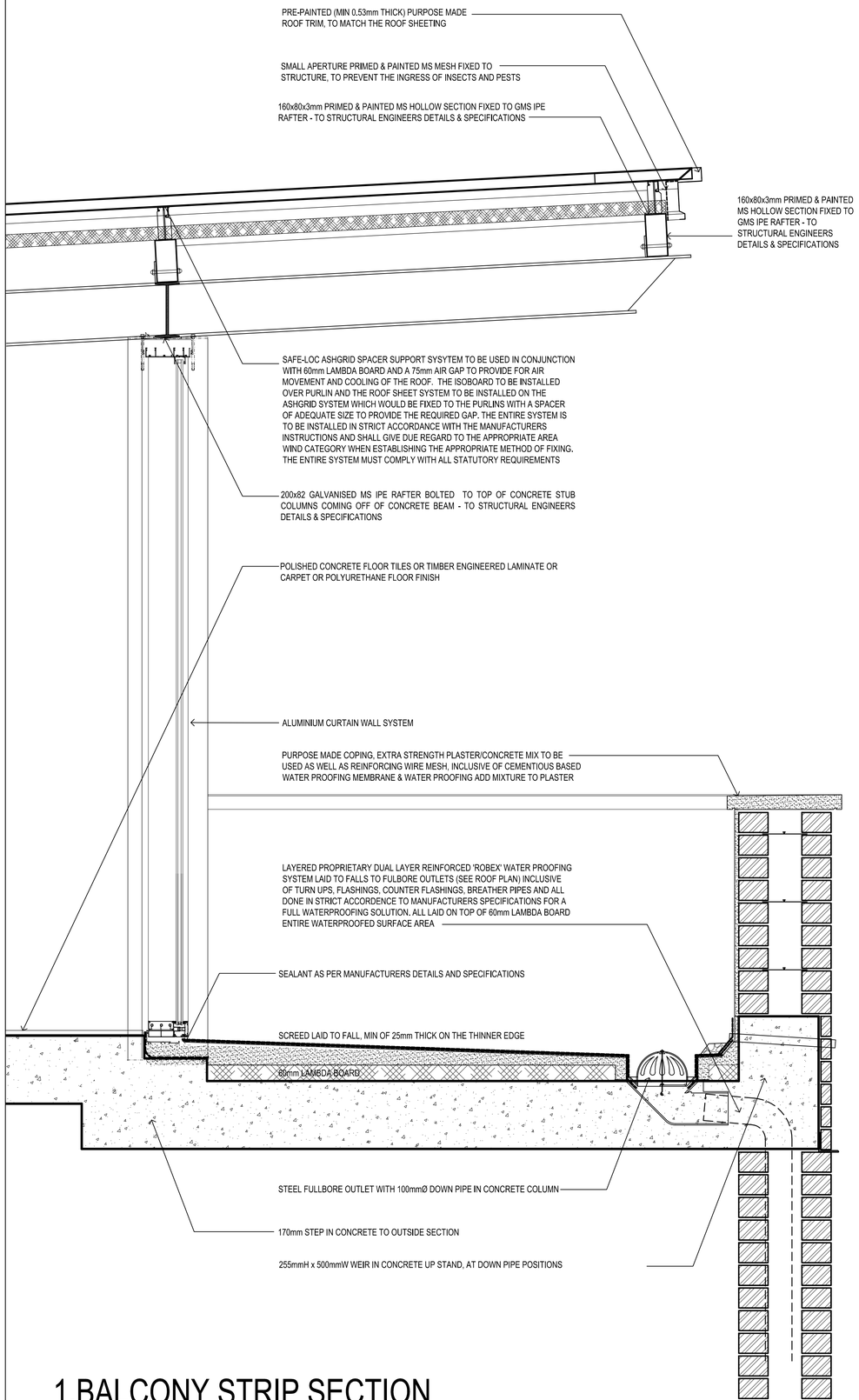

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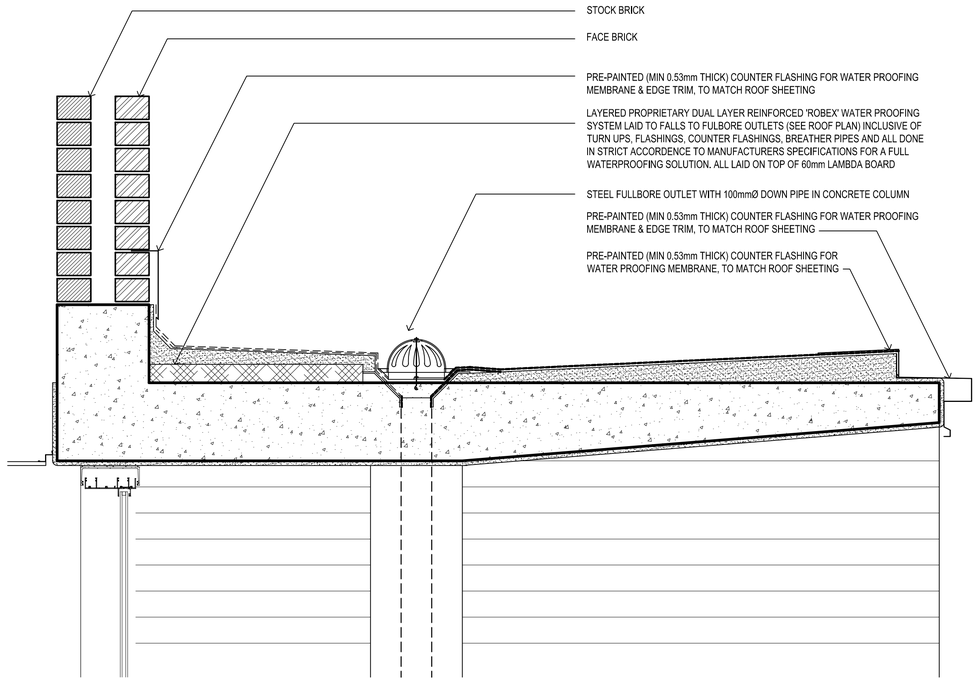
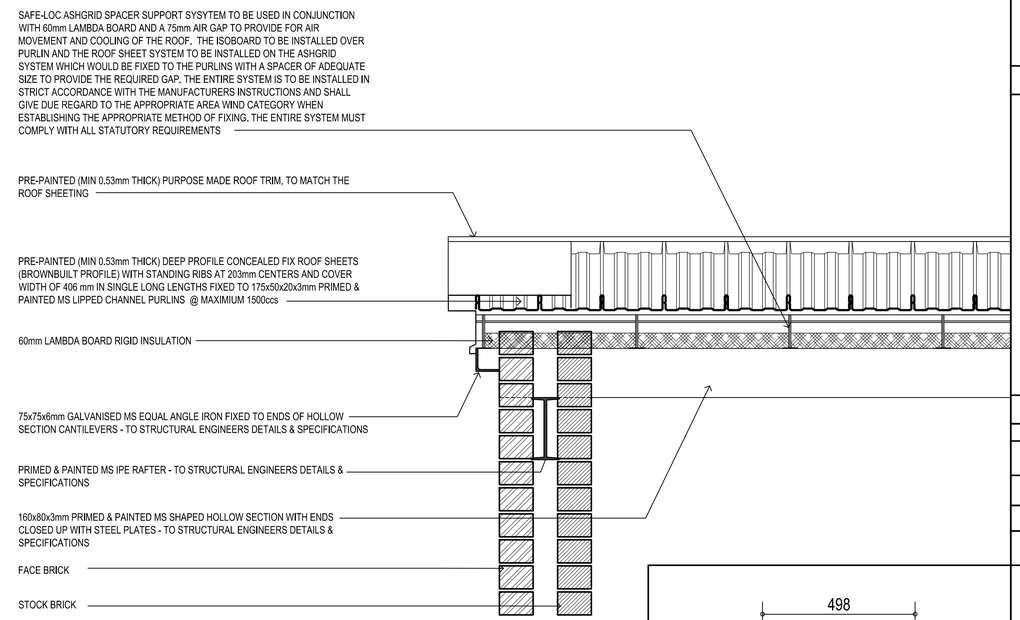
SCALE 1:10



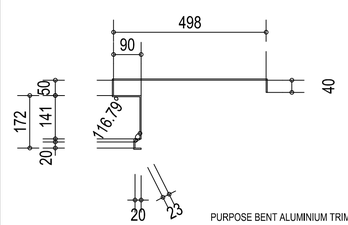
2.CANTILEVER ROOF SLAB

SCALE 1:10



3.BARGE END DETAIL

SCALE 1:10



PURPOSE BENT ALUMINIUM TRIM

NTS

Project Number:	17-01

General Notes

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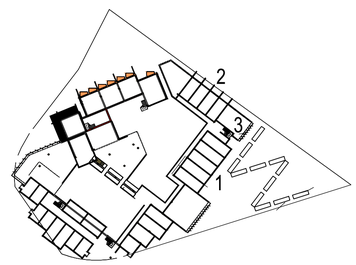
KEY PLAN & LOCALITY INDICATOR

LOCALITY INDICATOR



Consultant

Council	Professional Number	Name	Signature
SACAP	CAT 21212	R.MAHADEW	

Project: Multigenerational Development

Building Address: 558 Felix Dlamini Road, Overport, Durban

Drawing Title:

MULTIGENERATIONAL DEVELOPMENT DETAIL :

PAGE 2

Consultants In Office Drawing Number: 17 / 01 - CD 503

DRAWN	CHECKED	DATE	SCALE	PAGE SIZE
R.M	L.O	30/ 12/ 2017	1 : 10 @	A1

This drawing to be read in conjunction with drawing no:

Drawing Number: Dwg No. CD 503

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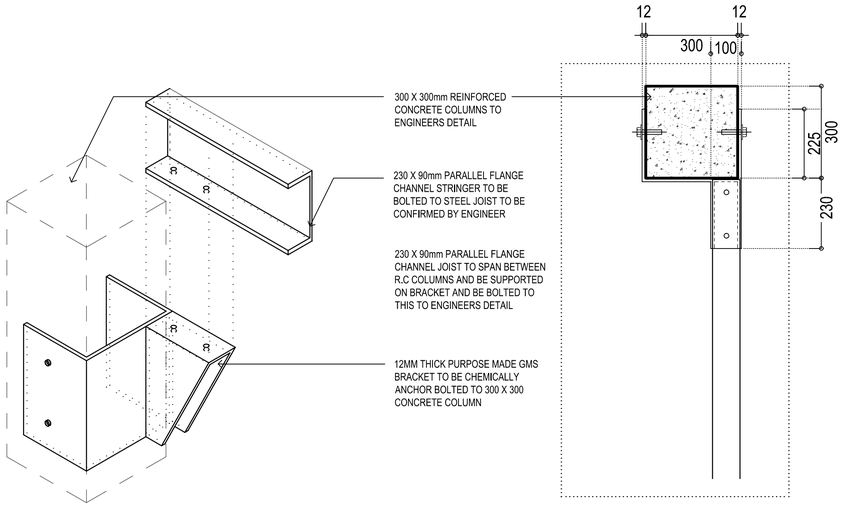
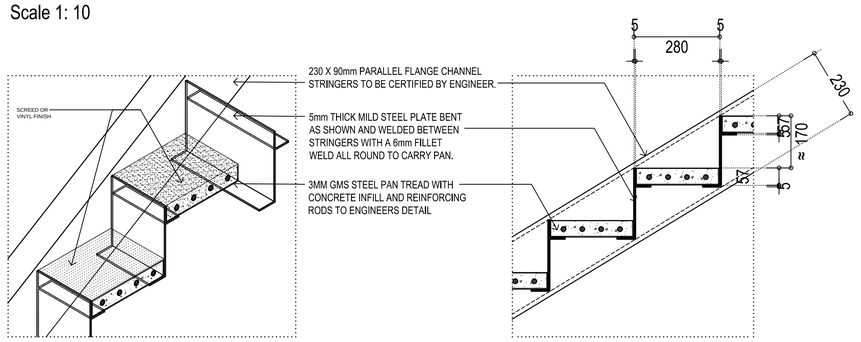


STEEL BEAM TO CONCRETE COLUMN CONNECTION DETAIL

Scale 1: 10



STEEL PAN TREAD DETAIL

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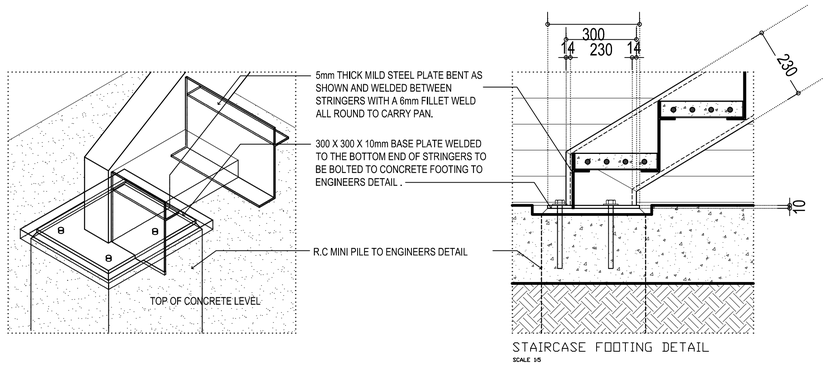
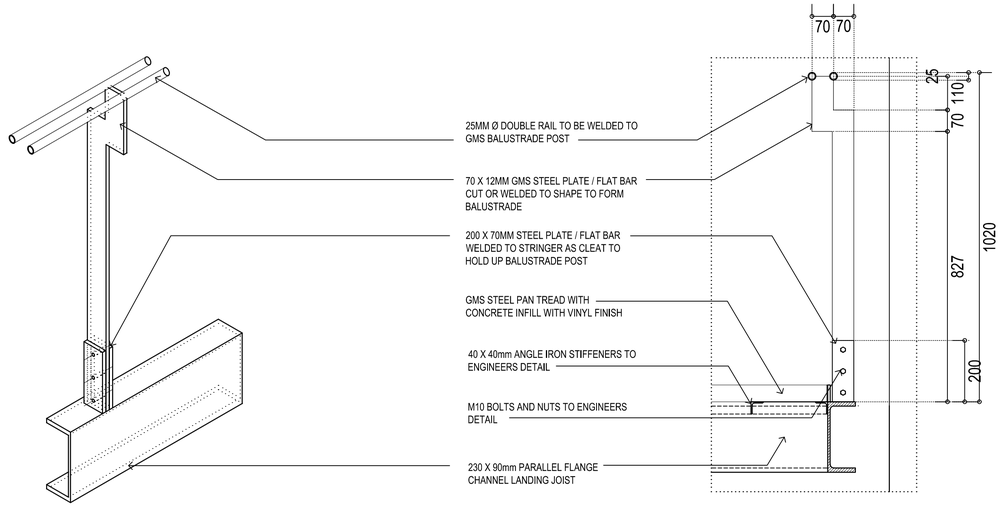


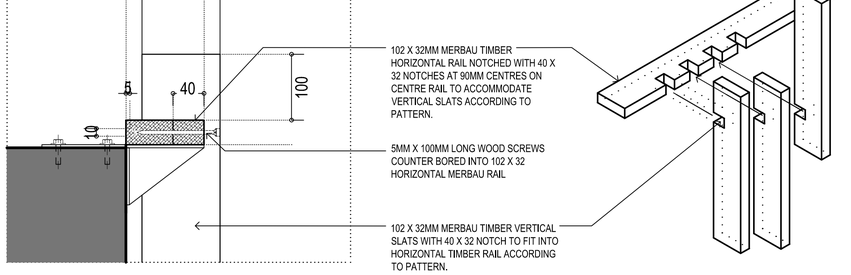
STAIRCASE FOOTING DETAIL

SCALE 1:10



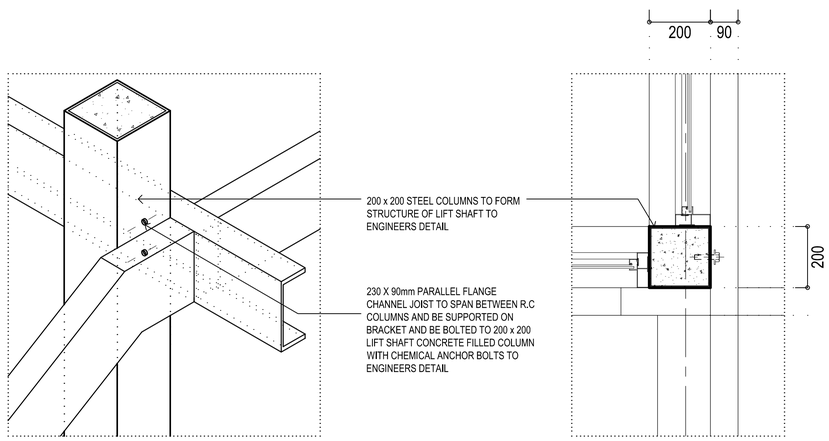
BALUSTRADE DETAIL

Scale 1: 10



VERTICAL SCREEN DETAIL

SCALE 1:10



DETAIL F

SCALE 1:10

Project Number: 17-01

General Notes

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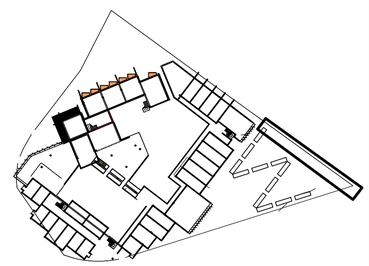
KEY PLAN & LOCALITY INDICATOR

LOCALITY INDICATOR



Consultant

Council	Professional Number	Name	Signature
SACAP	CAT 21212	R.MAHADEW	

Project: Multigenerational Development

Building Address: 558 Felix Dlamini Road, Overport, Durban

Drawing Title:

MULTIGENERATIONAL DEVELOPMENT DETAIL :

PAGE 3

Consultants In Office Drawing Number: 17 / 01 - CD 504

DRAWN	CHECKED	DATE	SCALE	PAGE SIZE
R.M	L.O	30/ 12/ 2017	1 : 10 @	A1

This drawing to be read in conjunction with drawing no:
Drawing Number Dwg No. CD 504

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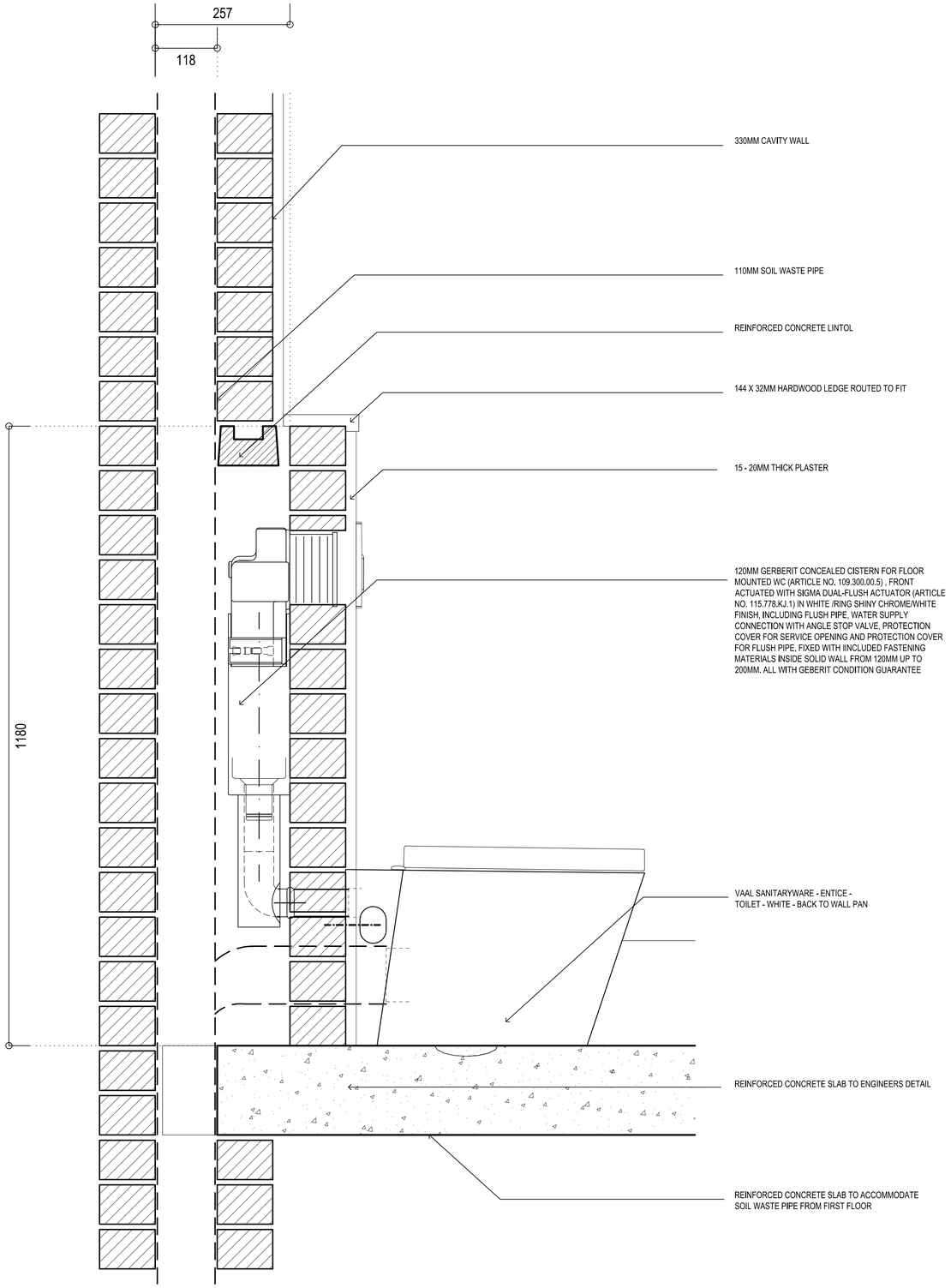
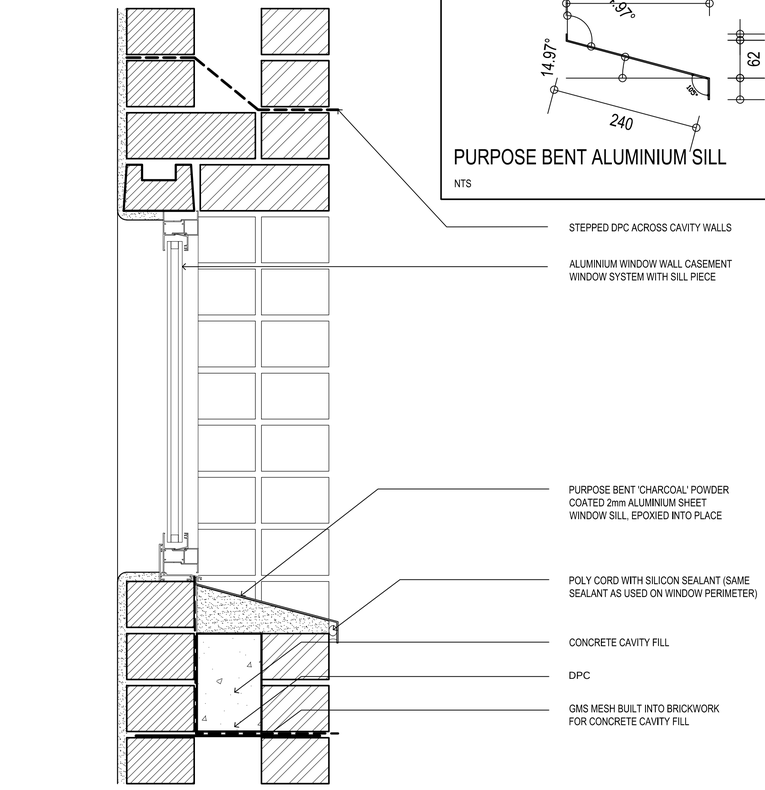


1.DETAIL G - CONCEALED CISTERN

SCALE 1:5

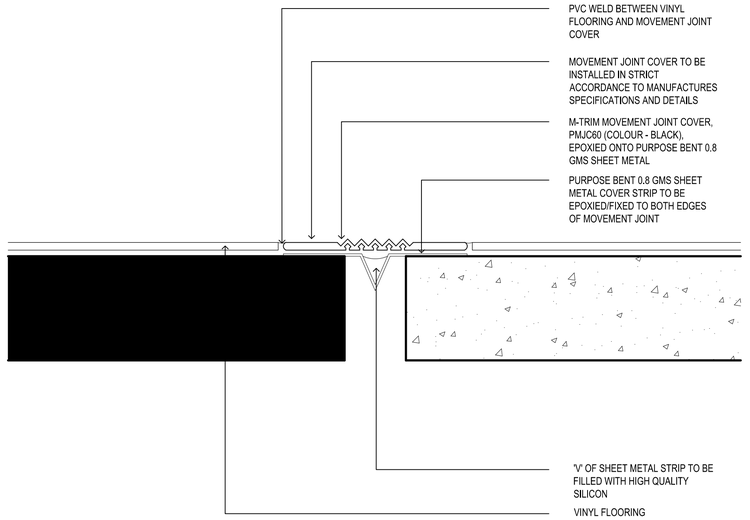


3.SILL DETAIL

SCALE 1:5

PURPOSE BENT ALUMINIUM SILL

NTS



2.DETAIL H

SCALE 1:5

Project Number: 17-01

General Notes

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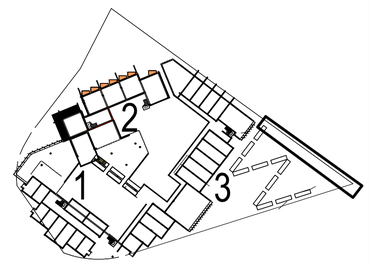
KEY PLAN & LOCALITY INDICATOR

LOCALITY INDICATOR



Consultant

Council	Professional Number	Name	Signature
SACAP	CAT 21212	R.MAHADEW	

Project: Multigenerational Development

Building Address: 558 Felix Dlamini Road, Overport, Durban

Drawing Title:

MULTIGENERATIONAL DEVELOPMENT DETAIL :

PAGE 4

Consultants In Office Drawing Number: 17 / 01 - CD 505

DRAWN	CHECKED	DATE	SCALE	PAGE SIZE
R.M	L.O	30/ 12/ 2017	1 : 5 @	A1

This drawing to be read in conjunction with drawing no:
Drawing Number Dwg No. CD 505

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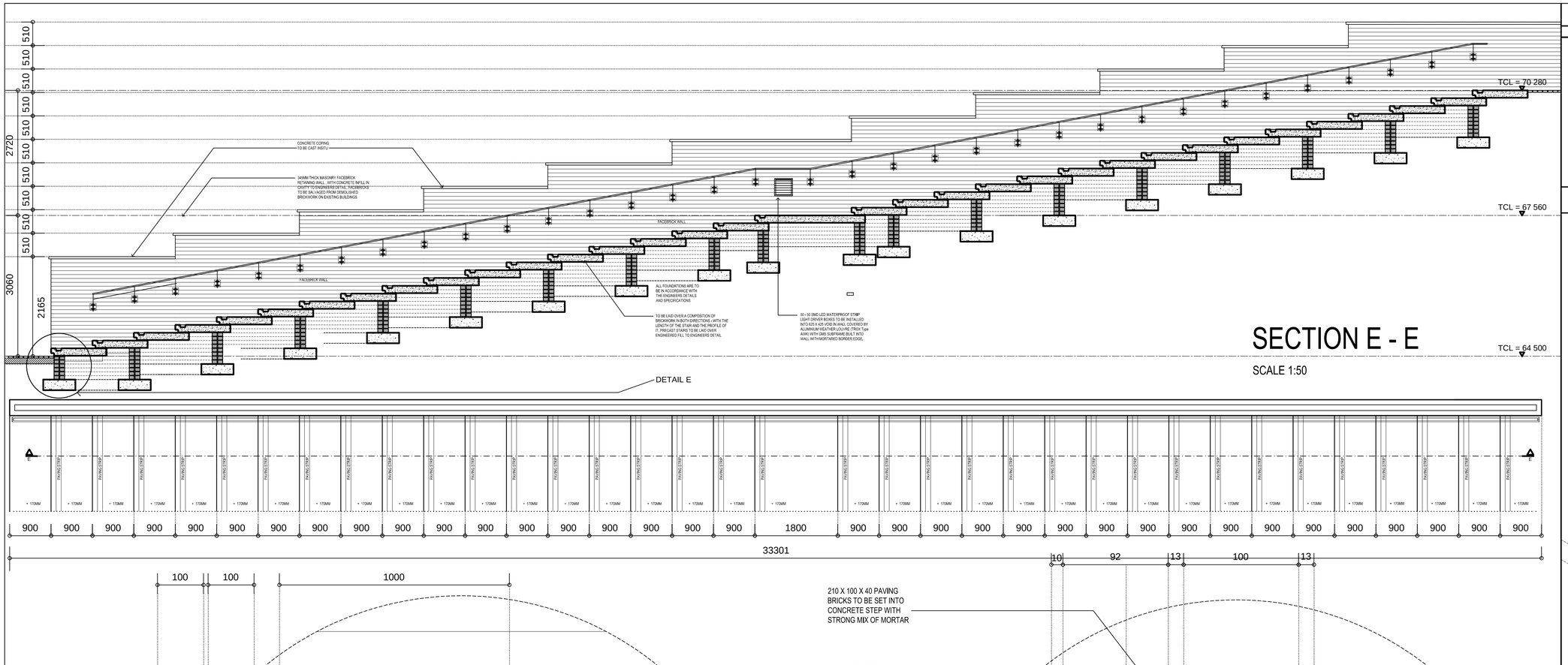
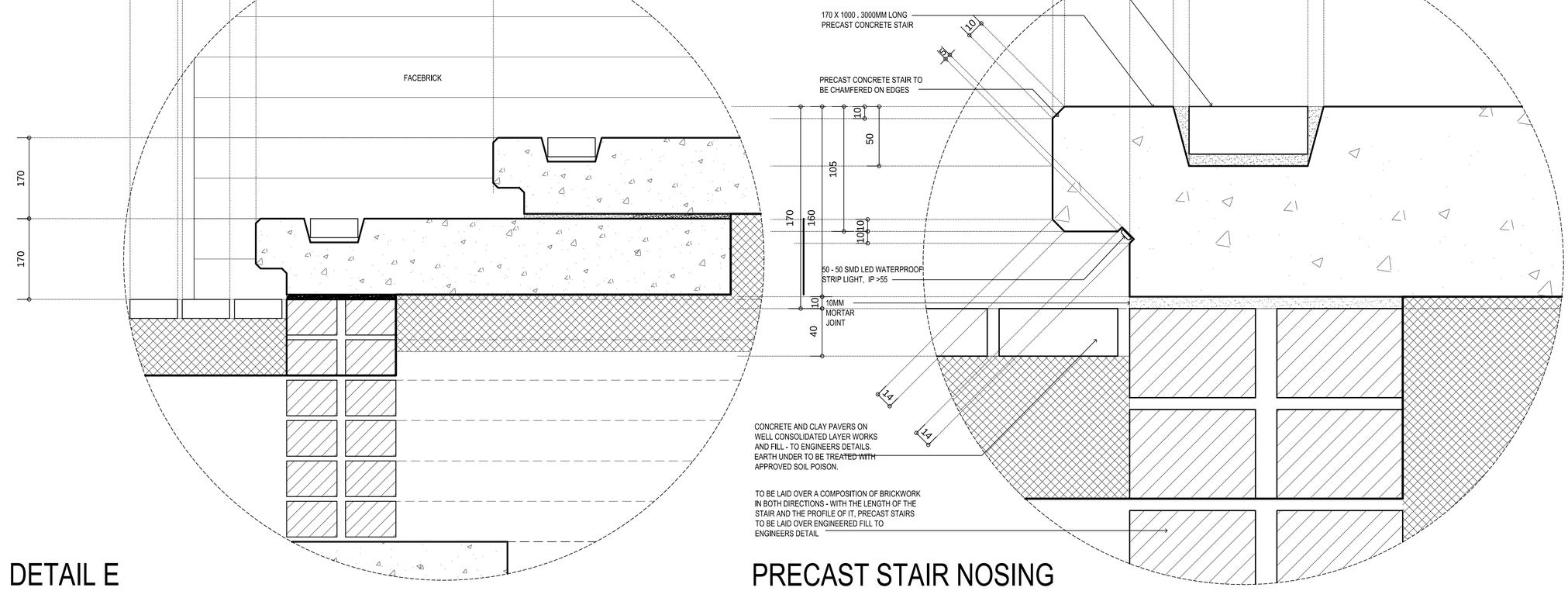


SECTION E - E

SCALE 1:50



DETAIL E

SCALE 1:5

PRECAST STAIR NOSING

SCALE 1:2

Project Number:	17-01

General Notes

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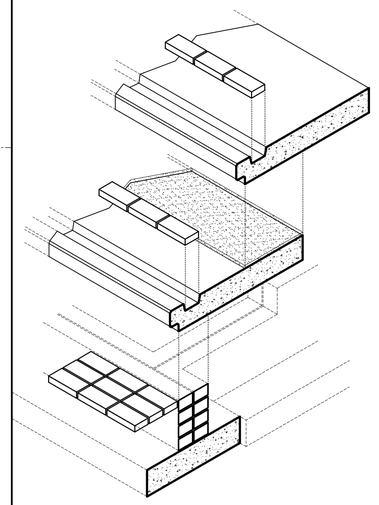
NOTES AND SKETCHES



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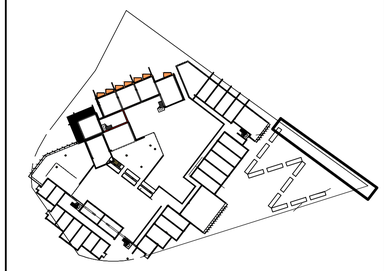

Consultant

Council	Professional Number	Name	Signature
SACAP	CAT 21212	R.MAHADEW	

Project: Multigenerational Development

Building Address: 558 Felix Dlamini Road, Overport, Durban

Drawing Title:

MULTIGENERATIONAL DEVELOPMENT DETAIL :

SECTION E-E OVERPORT PARK

Consultants In Office Drawing Number: 17 / 01 - CD 501

DRAWN	CHECKED	DATE	SCALE	PAGE SIZE
R.M	L.O	30/ 12/ 2017	1 : 50 @	A1

This drawing to be read in conjunction with drawing no:
Drawing Number Dwg No. ES 501

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