



**Exploring how Post Drug addicted Healing and Reintegration inform
Architectural Design:**

Towards a Contemporary Rehabilitation Centre for Durban

BY

NABILA JEEWA

213505690

Supervisor : Dr Silvia Bodei

Dissertation submitted to the School of Built Environment and Development Studies, University of
KwaZulu-Natal, in partial fulfilment of the requirements of master's in architecture

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 KwaZulu-Natal, Durban, in partial fulfilment of the requirements for the degree of Master of Architecture. It has not been submitted before, for any degree or examination, at any other educational institution.

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Signed

.....

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DEDICATION

This dissertation is dedicated to my mother, father, brother and sister for the endless support, encouragement and wise words. Thank you for moulding me into the person that I am today.

I am forever grateful.

ABSTRACT

Currently 40% of south Africa's population living in rural and urban areas are involved in the use of substances or are post substance users and this number is increasing immensely over the past 5 years. Although the availability of substances has increased, current rehabilitation centres are trying to expand their reach however stability and the lack of psychological healing is evident in these facilities and as a result the socio-economic inequalities that are filled in cities, users do not have access to rehabilitation facilities. In conjunction substance use and relapsing is a growing challenge in the city, fuelled by the impact of no education, lack of skills, psychological imbalances and specifically the rehabilitation facilities in the city of Durban do not focus on post drug addicted users and the reintegration of them into communities.

Therapeutic communities are one of the most important approaches developed by the world health organization that has a successful rate over the past two decades of the improvement of individuals through healing architecture. With regards to that the aim of this dissertation is to explore how post drug addicted healing and reintegration can inform the architectural design. This research uses the theories and concepts of healing, empowerment and community reinforcement as a primary base to contribute to the concept of social reintegration. There is currently no documentation on post rehabilitation centres and the current rehabilitation systems are not enough for these individuals to be healed psychologically. The study is based on the research that the current rehabilitation systems and facilities do not focus on socially reintegration post substance users into society. The research for this study follows a qualitative approach. Relevant literature and a few precedent studies of rehabilitation centres, Groot Klimmendaal rehabilitation centre and Sister Margaret Smith Addiction Treatment Centre is investigated to determine functions and strategies for healing and reintegration however the quality of architecture of these facilities can improve and is not convincing in terms of the principals it should offer. Local studies of rehabilitation centres , Careline Crisis and Trauma Centre and Rauf Rehabilitation Centre is explored, through personally conducted interviews with directors of the centres and community leaders involved in the rehabilitation process as a means of understanding the issues and ways to improve the system in Durban.

The research shows that a contemporary rehabilitation centre can improve the users lives by using principals of healing and providing these individuals with educational skills and behavioural skills that will help them cope, feel a sense of belonging, empower them and prevent the possibility of relapsing in the recovery process. In addition, this will improve the current rehabilitation system and reduce the amount of substance users in Durban by removing factors that cause it. It will allow community reinforcement and social rehabilitation to happen between the public and the users aiding them in the process of reintegration into society and empowering them to achieve a better life.

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CHAPTER 1: INTRODUCTION

CHAPTER 1 | INTRODUCTION

1.1 INTRODUCTION

This chapter and research analysis is designed to : “Explore how post -drug addicted healing and re-integration can inform Architectural Design in creating a Contemporary Rehabilitation Centre for Durban”. The data gathered will determine how, post drug addicted individuals , can be reintegrated into society through the design of a Rehabilitation centre. Furthermore, this will assist in establishing a model for many other rehabilitation centres ,assisting in re-integration into communities. This model will serve not just for the present but will present a design for a better quality of life in the future .

1.1.1 Background

Currently, South Africa is losing the battle against substance abuse due to the old systems of rehabilitation ; resulting in a multi-billion dent to the economy every year [based on observations and news reports (Sajbl,2012)]. Thousands of people will continue to be trapped in the abuse of substances, unless South Africa changes its approach to the rehabilitation for substance abuse. Dr Eugene Allers (2010), a member of the South African Society of Psychiatrists (SASOP) reported that an estimation of 10 million South Africans are substance abusers and 1 of every 5 adults are abusing substances like alcohol, dagga and painkillers.

Allers suggests that the old approach in treating substance abuse is focused on :

- social rehabilitation
- the encouragement of abstinence and behaviour change.

These treatments require a multifaceted, team approach of psychiatric , medical treatment, social interventions, psychological therapy and other professional assistance. The South African Community Epidemiology Network on Drug Use (SACENDU), has determined that significant substance abuse in the country is due to, the lack of insight and facilities for abusers, as well as , the high unemployment rate , preventing them from re- integrating into society .

Despite the implementation of numerous programs by the US National ? to help users overcome the use of drugs, there has not been much success in the decrease of users in society. Instead , it has increased, due to outdated techniques provided by the government . Such facilities do not provide activities and learning outcomes, that assist substance abuse users to control and evolve their lives ,after they have been treated. News reports (Health24,2018) states that World Health Organization (WHO) implemented a 5-year plan called the 'National Drug Master plan', to end drug abuse. This plan aims to reduce the bio-socio economic impact of substance abuse through the use of recreational facilities and programmes ; with the intention to reduce its availability and implement a multifaceted approach.

Although there were precautions taken to minimize the use of substance abuse , proposed by the US National institute on Drug Abuse in South Africa, there is a lack of facilities that reintegrate post substance abuse users into societies. Studies done by the National Institute of health in 2010, shows that the most common type of rehabilitation facilities is drug rehabilitation - which deals with altering the patients social, physical and behavioural characteristics, however , there is a lack of post- rehabilitation facilities in South Africa . In the Durban area especially , there is a need to invest in the aftercare of these individuals, in order to increase their effective recovery rate.

1.1.2 Motivation/Justification of the study

The problem substance use individuals face is gaining a clear understanding of society , and realizing that the lifestyle they have chosen, is not one that is conducive to an efficient society, and significantly, not for their own improvement. The City of Durban lacks a facility for post-drug addicted users that helps supports re-integration into communities. The current facilities that assist with pre-substance users, are not in locations that are accessible to many - and due to pressure of society, the use of substances has rapidly increased.

This thesis will investigate the possibility of creating an architectural model, for post -drug addicted users, that will contribute to the concept of social re-integration into society. The motivation for this study is based , on the lack of facilities that focus on socially re-integrating post- substance abuse users , into society. Therefore, an alternative design in a facility for

post-rehabilitated substance abusers is vital , to help them to improve their daily lives , by teaching them skills and coping mechanisms preventing the possibility of relapsing in their recovery process. This architectural response will improve the development of rehabilitation facilities and help reduce the amount of substance abuse users in Durban. It will also allow community involvement between the public and the patients, which will, in turn, aid the users to re-integrate back into society and achieve a better life.

1.2 DEFINITION OF THE PROBLEM, AIMS AND OBJECTIVES

1.2.1 Definition of the problem

In Durban, the main issue is that there is a lack of post drug rehabilitation reintegration centres for post substance abuse users; as the existing facilities, public and private are inaccessible, poorly maintained and are not properly designed (Africheck, 2016). These facilities lack the provisions required by the substance abusers in order to overcome their addiction and the locations of these rehabilitation centres are inappropriate for substance users. The United Nations office on drugs and crime (UNODC) states that the stats for the use of substance abuse is high and increased due to the increase in unemployment, financial pressure and mental health issues. The age group that is most affected ranges from 28-34, which comprises 20% of South Africa's population. People are surrounded by others who perform different skills to live their lives, but society is comprised of spaces that these people perform their functions in and it could be said that whilst performing these functions in that space it has a direct relationship to their behaviour and affects the human emotion, therefore these rehabilitation spaces could be designed in a way to aid social rehabilitation. (Brownell, P 2010).

In South Africa, individuals are faced with many challenges with regard to development and this raises concerns about the development from education to community and social participation. The use of substances occurs in places with less surveillance, creating environments within the built environment that facilitate this use. The problem with this is that individuals are slipping out of the construct of society and communities which results in harm to others and has a negative impact on the individual's personalities therefore making

them vulnerable in the social realm. Investigations into rehabilitation methods need to be addressed in order and the effects of building form in the built environment in order to create an appropriate centre for social reintegration.

1.2.2 Aims

The primary intention of this research , is to investigate the principles of a healing and re-integration architecture, with the use of rehabilitative activities, such as: education, therapy, creativity, sport, recreation, art, and farming, that can aid in re-integrating post-rehabilitated substance abusers back into society. By identifying and understanding the challenges these individuals face, this thesis aim will be to further develop a theoretical framework , to address these issues through empowering the individuals and providing them with skills that will integrate them into society. This can be realised through awareness, self-control and education. This study will be limited to the vicinity of the Umgeni Precinct in Durban, South Africa. The aim is not to re-design existing facilities, but to explore new solutions of healing and re-integration architecture, that can play a pivotal role in re-integrating post-rehabilitated substance abusers back into society, as a better long-term approach to recovery. The result of the analysis will assist in developing a proposed post drug interconnected rehabilitation centre for post substance users in the city of Durban.

1.2.3 Objectives

Primary Objective

The primary objective of this research is to identify the challenges of socially reintegrating post addicted users into society and communities. This thesis will develop a framework to address the issues and provide solutions : resulting in the development of a rehabilitation centre that will reintegrate post substance users into communities.

Secondary Objectives

1. To determine the main issues of substance use in South Africa.
2. To investigate how other centres contributed to solving the issue of relapsing after post rehabilitation.

3. To determine how a reintegration centre will assist in the recovery process of post drug substance users.
4. To explore how healing architecture can assist in creating architectural interventions that will reintegrate post drug medical patients.
5. To develop a platform for new rehabilitation centres that focuses on healing and reintegration.

1.3 SETTING OUT THE SCOPE

1.3.1 Delimitation of Research Problem

The purpose of this research is to define the current drug rehabilitation systems and use the principles of healing and reintegration architecture as a supporting mechanism for this rehabilitation centre. The primary focus of this study will be principals of healing architecture and reintegration in order to aid the phase of post rehabilitation because there is a vital need for an architectural intervention that facilitates activities which support reintegration, educational, recreation and community involvement.

This research will not be investigating any new systems of premedical rehabilitation but will rather focus on the post medical factors of rehabilitation treatment programs and architectural environments. The theories and concepts applied will be associated with therapeutic architecture, rehabilitation, reintegration and architectural built form pertaining to the research topic.

Upon the basis, the study will be focused on drug addicts phasing themselves through post rehabilitation to revitalize the mental, physical and social aspects. The interviews conducted will assist in understanding the role of therapeutic architecture, the use of educational and recreational facilities, community involvement as complimentary mechanism for post rehabilitation. Healing is explored as a means of self, power and reintegration to establish relationships between addicts and individuals of society.

The purpose of the study is to derive a set of architectural principals which combine healing architecture and reintegration components to the post rehabilitation phase. The idea is to

define an Architectural intervention that can facilitate patients and educate them on how to sustain themselves via the dynamics of healing and reintegration into society.

1.3.2 Definition of key terms

- **Social rehabilitation:** A process whereby an individual's social status is developed in a positive way that would not only benefit them and their social integration, but the society in which they are a part of.
- **Built form:** The combination of elements pertaining to a physical built structure that when combined create architecture.
- **Rehabilitation facility:** A place where individuals can go in order to receive help to rid themselves of their previous bad behaviour, bad habits and their way of life whether drug and alcohol, psychological, or life skill related.
- **Wellbeing:** A good and satisfactory condition of existence by happiness health and prosperity. (dictionary.com).
- **Post-medical rehabilitation:** Also known as aftercare. The involvement in an aftercare program that has shown positive results in individuals that are abstaining from relapsing.
- **Drug addiction:** In this context, this term refers to a chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences. It is considered a brain disease because drugs change the brain; they change its structure and how it works (www.yourfrisco.dallasnews.com, May 2015).
- **Built environment:** Buildings and structures created by people.
- **Social Reintegration-** The process in which individuals are incorporated into the social structure of society.
- **Healing Architecture-** A setting supporting individuals and families through stresses that develop as a result of illness, hospitalization, medical visits or the healing process.

- **Empowerment-** To provide an individual with the authority or power to do something or to make an individual stronger and more confident, especially in controlling their life and claiming their rights.
- **Education-** The act or process of imparting and acquiring knowledge through teaching and learning.
- **Contemporary-** Creating a new/ idea for a specific solution.

1.3.3 Stating the assumptions

- Post medical rehabilitation programs can be altered by using healing architecture as a complimentary mechanism.
- Due to the unemployment rate, the effects of post-apartheid era and the mental health state of mind, the use of substances and relapse rate after the rehabilitation state has increased.
- Current rehabilitation centres lack facilities that deal with post drug addicted users and does not provide spaces that help individuals heal or educational, recreational and healing skills that will include community involvement and allow these individuals to be socially reintegrated into society.
- It is assumed, with the parameters of this thesis, that an architectural intervention will be suitable for the response of the challenge outlined within the Umgeni Precinct of Durban and use architectural frameworks of recreational, educational and social integration.

1.3.4 Key Questions

How can architecture be used as tool to socially reintegrate post addicted drug users into society through the use of healing and reintegration architecture?

Secondary Question

The research questions underpinning this study are:

1. What are the spatial design principals of current rehabilitation centres?
2. What spatial qualities facilitate healing in Architectural Design?
3. How can architectural spaces contribute to the process of empowering post substance users?
4. How can healing architecture be used as a tool to inform the design of a rehabilitation centre that reintegrates post substance users into society?

1.3.5 Hypothesis

The hypothesis of this thesis is that the proposed healing reintegration and rehabilitation centre will be used as a medium of post drug addicted rehabilitation amongst substance abusers and will develop principals for creating a successful inclusive post drug addicted healing reintegration and rehabilitation centre. This type of rehabilitation model will be used to create an environment that provides for recovering patients a potential of reintegration into society.

1.4 THEORIES AND CONCEPTS

1.4.1 Theory of empowerment

The theory of empowerment will analyse the relationship between the individual of substance use and empowerment in order to understand how empowerment can be used as tool. Empowerment conceptualizes individual growth through self-development, and it is the core stone of social mobility. By empowering individuals through knowledge one can gain the required tool to create opportunities in life.

1.4.2 Community Reinforcement Approach

The CRA Approach is a therapeutic community approach which includes participation, group-based approach that was created to solve mental illness and drug addiction. This approach first started off as a residential design with the patients and therapist living together but as the theory become more successful over time it increased by implementing it into communities. This theory is based on the milieu therapy principal and includes activities and group therapy sessions. The aim of this theory is to create a global change in the lifestyle of these individuals that successfully integrates both social and psychological goals so that they can successfully reintegrate into communities.

1.4.3 Healing architecture

The concept of healing architecture is about how nature and spaces influence an individual's mind and body. Healing architecture takes into consideration all living things that allow a space to become therapeutic and explores the relationship between man and nature. This type of architecture promotes social connectivity and interaction. In chapter 3 aspects such as light, ventilation, greenery, colour and space and how healing can be used in architecture will be analysed in the literature.

1.5 RESEARCH METHODS AND MATERIALS

The research carried out in this dissertation focuses on the development of a contemporary rehabilitation centre for post substance users with emphasis on using principals of healing and empowerment. The research will initially look at published literature pertaining to the theoretical framework as prescribed above Precedent studies, which focus on buildings/spaces of a similar typology which reinforce the literature discussed have been designed, will follow.

1.5.1 Approach

This research study is of a qualitative nature. Creswell (2014) defines qualitative research as “an approach for exploring and understanding the meaning individuals or groups ascribe to a

social or human problem” through a “process of research that involves emerging questions and procedures, data typically collected in the participants setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data.

Primary Data from case studies and interviews will be further used to conduct relevance to healing architecture and post substance users. People/organizations that play a major role within this community will be identified and interviewed, with emphasis on drug rehabilitation centres in Durban and how it can inform architectural design. The research method type will be a case study research design as it is best suited to understand how rehabilitation centres can be improved and the incorporation of new techniques of healing.

The research will also use secondary data in the form of literature papers, books, articles and internal search engines in order to conceptualize the fundamental principles of social integration and rehabilitation and how it can be facilitated through architecture in order to promote social and economic integration into society.

1.5.2 Sampling Methods

The sampling method that will be used is the case study research design approach as it involves collecting, analysing and integrating research data, to ultimately provide a more complete and comprehensive understanding to find the best possible solution of a post rehabilitation centre in Durban . This provides the researcher with detailed information on the best approach in re-conceptualizing the design of drug and alcohol rehabilitation for post substance users. People and organizations of Rehabilitation centres will be identified and be handed out questionnaires to answer and will be interviewed with the emphasis on empowering and focusing the community to establish resilience in Durban.

1.5.3 Primary Research

First-hand observations and investigations at existing private and public rehabilitation facilities with focus on the post drug substance users as well as interviewing the staff, professional psychologist and doctors.

Case Studies

The analyses of the selected local case study will give a comprehensive overview of rehabilitation centres and provide insight of how existing architecture utilized design principals, theoretical and conceptual frameworks in response to drug rehabilitation, culture, empowerment.

1. *Careline Crisis & Trauma, Assagay, Hillcrest. (1995)*

2. *R.A.U.F Rehabilitation Centre, Clare Estate, Durban. (1998)*

Interviews

The interview process will be a continuous process throughout the research and design phases to help enhance and clarify specific issues generated and encountered by the research question. Intended interviewees to include:

- Dr Anwar Jeewa who is the director of Minds Alive Wellness Centre, Westville, Durban.
- Joey Du Plessis who is the director of Careline Crisis Centre, Hillcrest.
- Dr Monique Marks who is the director of The Urban Future Centre, Durban
- Ebrahim Dawood who is the director of R.A.U.F Rehabilitation, Clare Estate, Durban
- Community leaders and individuals involved in outreach programs for substance users.
- Architectural professionals who have dealt with youth projects with a similar scope, such as Seedat and Seedat Architects.

Questions to interviewees respectively will be focused on lived experiences around identity, culture and architectural influence/ lack thereof. Questions will be semi-structured and open ended to encourage the interviewee to contribute information deemed relevant to them.

Interviews will be conducted on key personal through a non-random selective process based on the researcher's self-selection of individuals best suited to help guide and clarify specific issues. Interviewees will be assessed beforehand to ensure only relevant and informed individuals will be considered thus ensuring reliable information is obtained.

Questionnaires

Questionnaires will be handed out to the officials and professionals who run rehabilitation centres and are involved in the reintegration of post drug and alcohol substance users. The respondents will interpret the results for the need of a Post drug addicted healing and Reintegration centre in Durban. The questionnaires will be given to twenty people in order to work out the final percentage results.

Observations

Observations will be a fundamental component for the architectural research. It will assist the researcher to understand the people and their activities in spaces. This will result in thorough guidelines for architectural design. The method used for observations will be instinctive observations. This technique allows the researcher to distinguish people's behavioural patterns within the environment where daily activities occur. Observations will be carried out within the same areas as interviews and questionnaire answering to ensure accurate information and results.

1.5.4 Secondary Research

Secondary research materials: Books, internet, reports, journals, articles, collection of information and statistical data that has been used in the past from studies done by other researchers that will contribute towards a resolution of the research problem. This research will include the following.

Precedent studies will investigate how other structures of a similar typology have been designed and used. These will be analysed and will provide an understanding of how these spaces work. The analyses of 3 selected precedent studies will give a comprehensive overview of rehabilitation centres and provide insight of how existing architecture utilized design principals, theoretical and conceptual frameworks in response to drug rehabilitation, culture, empowerment.

1. Groot klimmendaal Facility, Netherlands. (2011) Architect: Koen Van Velsen

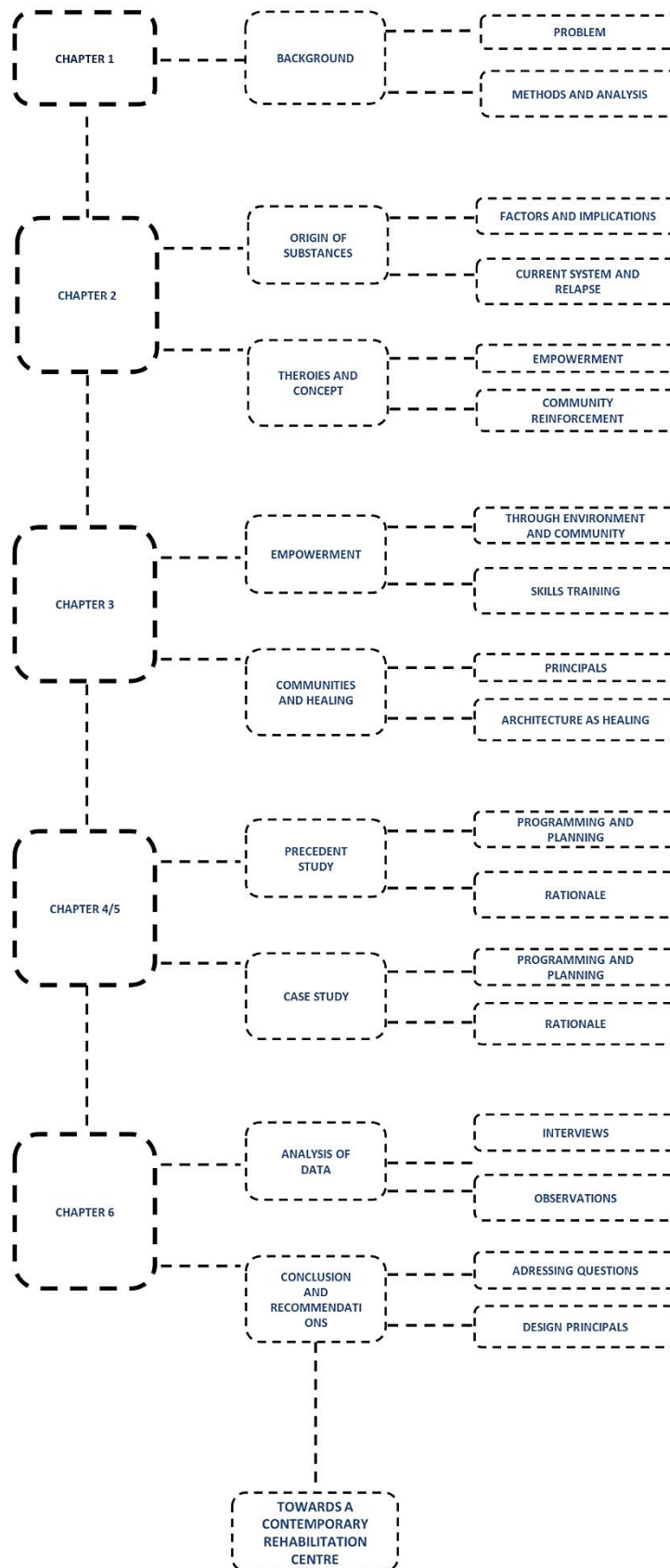
2. Sister Margaret Smith Addiction Treatment Centre, Canada. (1884) Architect: Kuch Stephenson Gibson Malo Architects

Once collected and synthesised secondary data will provide the basis for analysis through a case study and ultimately will inform the development and design of an architectural intervention.

1.5.5 Literature Review

Existing literature on the concepts and theories identified by the researcher will be investigated in order to understand the underpinning concept of what defines them. Furthermore, other documents relating to drug rehabilitation will be identified and analysed as to ensure the fabrication of a well-founded and detailed dissertation.

1.6 CONCLUSION: THESIS OUTLINE



CHAPTER 2:

CONCEPTUALIZING EMPOWERMENT AND COMMUNITY

CHAPTER 2 | CONCEPTUALIZING EMPOWERMENT AND COMMUNITY

2.1 INTRODUCTION

The following literature review aims to dismantle the problem statement systematically in sections, to understand the greater objective of the subject matter.

The first section will identify and understand the problems of substance use in the city of Durban and South Africa. The section will further explore the issue of how drugs are easily available in the city. Furthermore, factors of substance use in individuals will be explored. The reason behind individuals indulging in substance use, the risks and the basic fundamentals of why they use it. It further analyses the current rehabilitation process used in centres and the successful and unsuccessful treatment strategies that will inform the design of this centre.

The second section introduces the approaches to the prevention of substance use and the uses of activities and community involvement strategies to promote social rehabilitation and the recovery process. The analysis further goes on to deduce ways in which substance use can be prevented and investigates reintegration strategies that can be used to help these individuals with social rehabilitation. This literature will assist in design spaces that facilitate the healing process and play a role in the development of an individual

Lastly, section two and three will inform the research analysed in section four with the theory of empowerment, where design principals such as the relationship between an individual and communities are explored and the community reinforcement approach. This approach focuses on the involvement of the community to ensure that the reintegration process runs smoothly, the use of public spaces and balance between public and private.

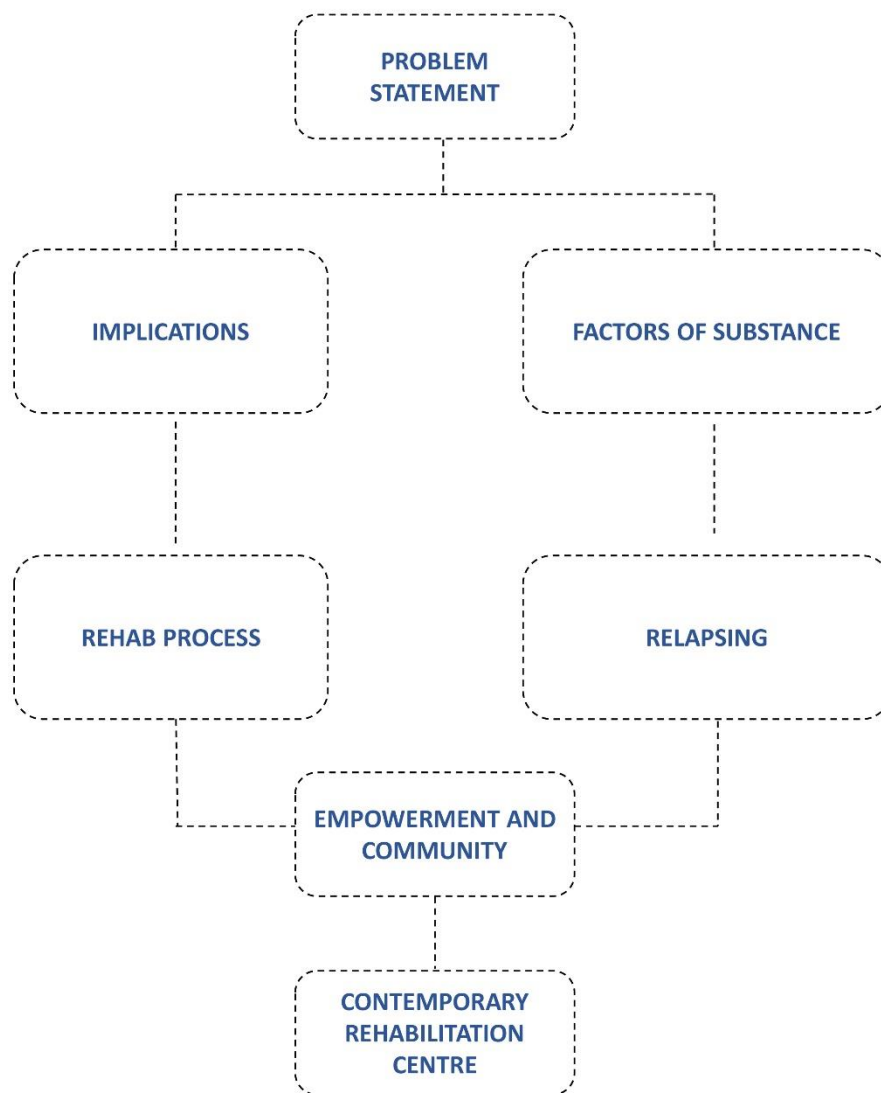


Figure 1: Literature Review Structure. Source: Author (21 June 2019) Durban, South Africa

2.2 ORIGIN OF SUBSTANCE USE IN SOUTH AFRICA

The World Health Organization (WHO) has conducted a survey about the use of substances across the world and has concluded that this is not just a problem in South Africa but rather a global pandemic. However, in South Africa, over the past 10 years, post-apartheid era, drug abuse has increased immensely. This is due to the lack of support individuals are receiving in their communities and social difficulties they face in society. This causes them to be hesitant towards community-based organisations and rehabilitations which in turn takes away their ability of being able to make positive contributions to the community. The increasing use of substances in South Africa, especially with the youth population, has caused their government to implement more law enforcement and provide more rehabilitation centres around South Africa. This has been done in order to aid help in the crisis, but unfortunately, this scourge has escalated. From the research done by WHO on the requirements for these facilities to be successful, the concluding result was that, in order for these facilities to work, the community around it has to be involved. (World health organisation, 2000)

The medical research council of South Africa has conducted surveys on which substances is used the most and has concluded that alcohol, cannabis, heroin, whoonga and slimming tablets have caused the result of 11% of the country's population to be involved in the indulgence of substances (Pasche, 2012). According to the national drug master plan (2012-2016) the primary cause for social ills and 47% of non-natural deaths is the use of substances. In KwaZulu Natal alone, 55% of population consume alcohol, 33% cannabis and 17% heroin the possible reason being the high unemployment rate. (Department of health ,2008). It is thus concluded that the social problem of substance abuse needs to be explored as South Africa is a developing nation. This social problem is increasing poverty in areas, thereby affecting the country's growth.

2.2.1 Implications of Substance Use

Research done by Brooke JS (2006), it is stated that the majority of the incidents that are reported of crime and harmful behaviour involve individuals that are under the influence of drugs. These individuals , when under the influence of drugs, make poor decisions, which have

a negative impact on the society and communities they are in. This also brings about effects within themselves such as concentration, development and poor behavioural issues.

According to Minds Alive Wellness Centre Director, Dr Anwar Jeewa (2019) many post rehabilitation patients are excluded from society, communities and lack social relationships with family due to the stigmatization of being involved in substance use. This results in the arising of stress, absence, lack of inspiration and low confidence.

Some implications that society faces because of substance does to an individual is shown in the diagram below:

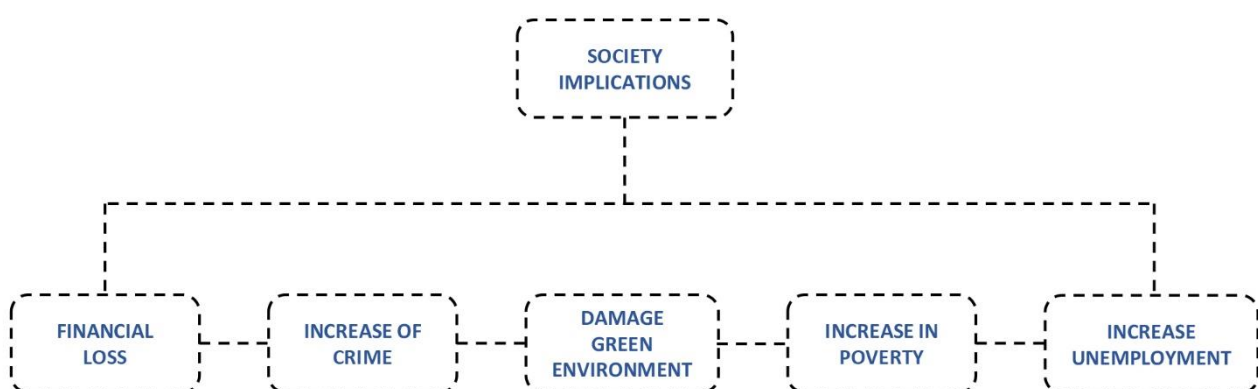


Figure 2: Diagram illustrating the implications. Source: Author (21 June 2019) Durban, South Africa

A study conducted by Elliot (1989) on substance use development elaborates on the process substance users go through from minor use to serious drug use and the progression of change in their nature when the use of substances is not tackled and solved which further strengthens the research of substance use having the certain implications mentioned above.

2.2.2 Factors in substance use

Research conducted by Hawkins Et Al (1992) provided information on the understanding of substance uses and a framework that was used in order to establish components that benefit the prevention of substance use. From this research, he provided five life areas that help to understand the impact between substance use risk and protective ways, variables that must be attended to in order to prevent substances and ways to establish the severity the individual has of the use of drugs. These five life areas are society, family, network, workplaces and

peers. He then states that if these components are protected, it can create a very positive and healthy life for the individual.

To support this research Brounstein and Zweig demonstrates the five life areas in diagram explaining the connection between risk and protective factors.

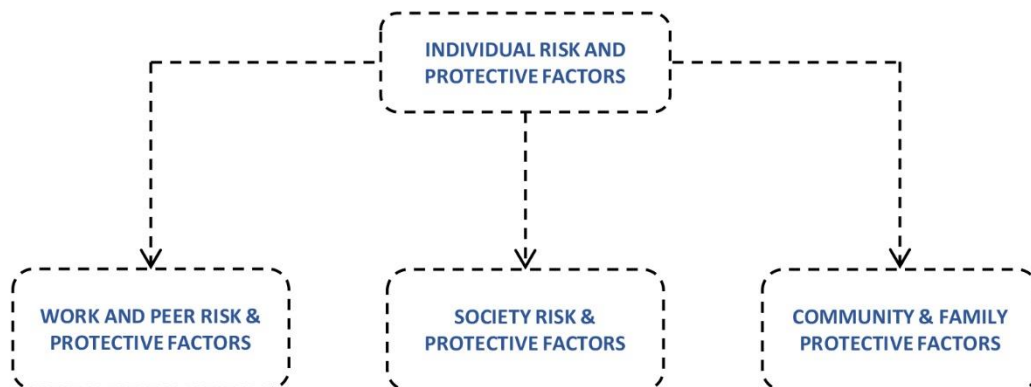


Figure 3 : This diagram illustrates the risk and protective factors of substance use that was created by Brounstein and Zweig. Source: Author (21 June 2019) Durban, Kwazulu Natal

Most rehabilitation facilities have flaws in their prevention treatment programs because the only focus on the risk factors therefore in order to create a more successful rehabilitation system, focus should be on the positive aspects of the individual's life and communities.

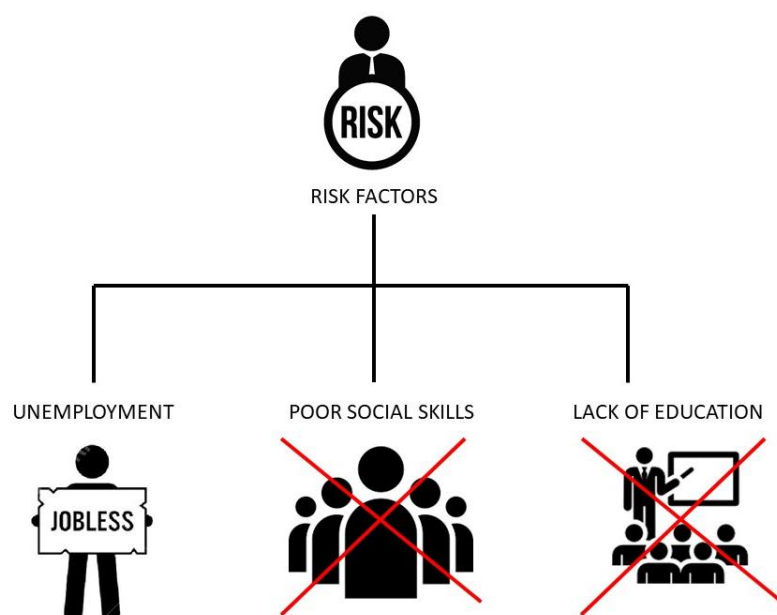


Figure 4 : Diagram explains the risk factors an individual experience while in the use of substances. Source: Author (21 June 2019) Durban, South Africa

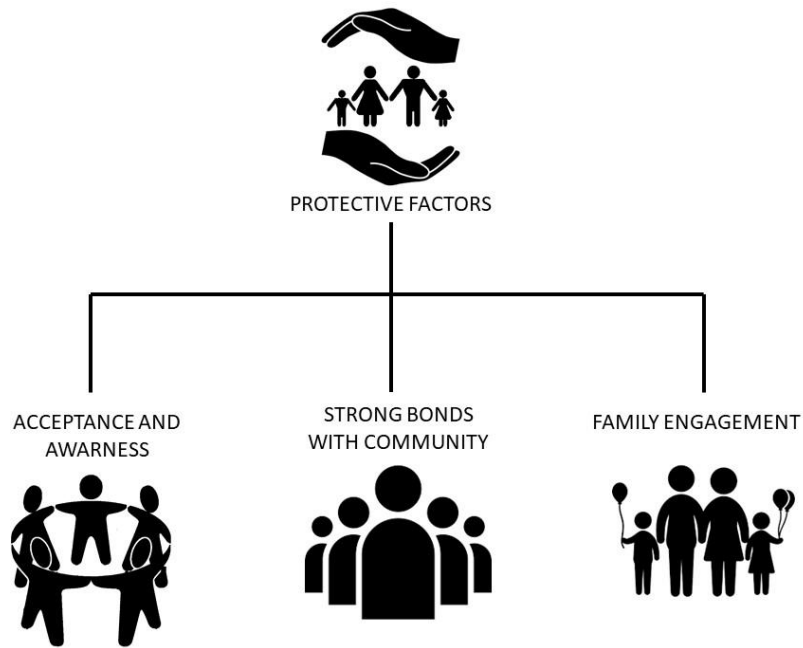


Figure 5: Diagram explains the protective factors that an individual can face to prevent substance use. Source: Author (02 June 2019) Durban, South Africa

Some Factors that cause individuals to use substances and often relapse after rehabilitation:

1. Availability of drugs, alcohol and other substances
2. Stressful living conditions
3. Lack of community and family support
4. Lack of recreational facilities
5. Lack of interventions and awareness to prevent substance uses

To increase the individual's quality of life, decrease relapsing and win the battle against substance use, the communities of these individuals and families have to get involved in the post rehabilitation process allowing them to reintegrate into society and gain support as well.

2.2.3 Current Rehabilitation Systems

The literature below will analyse 6 different treatment programs used in current rehabilitation systems: Residential rehabilitation program, 12 step recovery model, Inpatient vs outpatient program, conventional rehabilitation and holistic rehabilitation and halfway house treatment.

1. Residential rehabilitation programs

There are two types of residential programs, short term program and long-term program:

1. Short term program-This is 3,4- or 6-week period. It is based on the 'Minnesota Model'.
2. Long term program- This program does not provide medical supervised withdrawal and last 1-2 years. It is based on the therapeutic community model.

The residential rehabilitation program offers services such as:

1. Group and individual counselling
2. Improving life skills
3. Vocational training
4. Aftercare support
5. Psycho-educational counselling
6. Behavioural management

The programs mentioned above that are used in rehabilitation centres seek assistance from other help groups for the success of the program. A new type of residential program has been established in the recovery stage called "Halfway houses". This program is an independent environmental program located near main residential programs and the focus of this to provide the individual with the ability to return to the communities.

2. 12 Step recovery model

This model is based on the method that originated from the support group called Alcoholics Anonymous. This program lasts for 3 to 4 weeks and has been the longest treatment model around with the most amount of moderate success documented. After the appearance of hard drugs, the 12-step model was used most often to fight these addictions compared to other treatment models

The success rate of this model is approximately 10-25% depending on the facility using it, with 74% of treatment centres use this model. The success rate is higher with private facilities (Drug rehab locator, 2005).

The 12-step model is for people to help each other achieve and maintain abstinence from substance use. This is done through meetings and sharing experiences. According to the

addiction research and theory journal, individuals who use the 12-step method have a higher positive mental health contributing to long term recovery. This allows individuals the platform to surrender their addiction, process experiences and move forward.

The architectural intervention will have to look at the potential the built environment has to evoke and encourage self-reflection in the recovery process. According to Carl Jung, the moment that defines the transformation of recovery is spiritual and defining where the individual realizes the potential for healing within architecture.

The work of Louis Kahn, Tadao Ando and le Corbusier speak about the built environment as something we do not know and the environmental potentials it has to foster self-finding and observations of ones thought. In the renovation of the body, Perez Gomez states that in order for one to create architecture that is meaningful it must have the presence of being and this could make architecture a spiritual path and a place for reflection.

3. Inpatient vs Outpatient programs

Inpatient treatment programs are long term treatment programs that do not allow community involvement or interferences from the outside world. Long term programs use activities that work with physical wellbeing such as outdoor exercise that assist in the escalation of recovery for post substance users.

Outpatient recovery program is a short-term program that is only focused around premedical rehabilitation for prevention of relapsing and the users are administered by people in the health care sector. These facilities usually experience financial constraints and eventually cannot look after the patient which negatively affects the rehabilitation process as during this process the users are being taught how to regain their physical, mental and social wellbeing.

4. Conventional Rehabilitation & Holistic rehabilitation

There are two types of rehabilitation processes that are used in rehabilitation centres around the world.

Conventional rehabilitation- This type of rehabilitation process is cold, unpleasant and works a lot with clinical facilities that only focus on immediate addiction (Seaside palm beach, 2018)

Holistic rehabilitation- This approach uses therapeutic systems and focuses on the different types of treatment plans. With this approach there is a higher success rate in the prevention of relapsing because it includes post and pre rehabilitation together as one.

5. Halfway House Treatment Program

A halfway house is known as a sober living house, a transitional facility for post drug addicted users, an institution that provides for people with physical, mental and emotional disabilities by equipping them with the necessary skills to reintegrate into society with a better support system. This program is known as a steppingstone between rehabilitation facilities and the real world because it provides the individual with social, medical and educational services. Due to the abstinence of the use of drugs becoming more difficult after rehabilitation, this program was established to create a safe and supportive environment for post drug users.

The main focus of this type of program is equipping the individuals with social, life, educational skills and providing recreational activities for healing. It uses the 12-step outpatient program mentioned above and focuses on programs catered for the specific needs of the individual hence providing an environment that allow them to become self-supportive. Halfway house treatment programs rely a lot on peer support, community involvement and community participation to allow integration into society.

2.2.4 Relapsing & Sense of belonging

Research done by the NIDA (National establishment of medication misuse, 2012) states that individuals do not relapse because the current treatment programs are failing; but rather that the current treatment programs require adjustments using alternative treatment programs in order for these users to be able to regain their sense of control and belonging.

Researchers Smith and Watkins (2008) state that most rehabilitation centres use an alternative treatment referred to as self-regulation which utilizes properties of both natural origin and learning, to create opportunities for the individuals. Smith and Watkins (2008) have created four principals that can prevent increases in the rate of relapse among patients. These principals are:

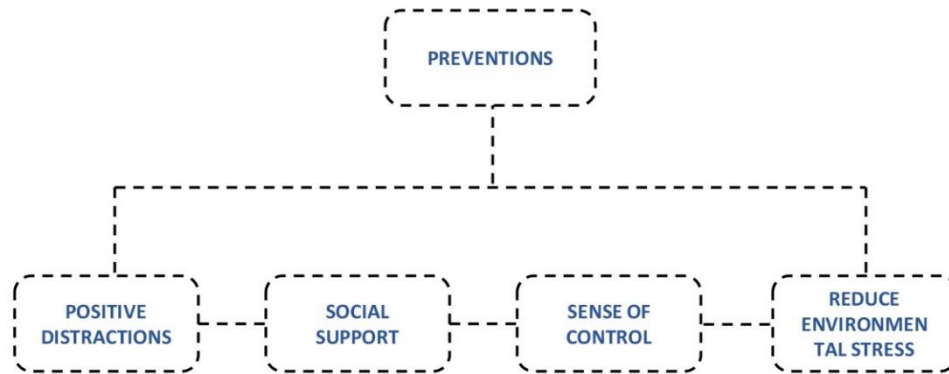


Figure 6 : Diagram illustrates the principals. Source: Author (21 June 2019) Durban, South Africa

Harden Et Al (2001) states that in order to avoid relapsing, prevention programs must make use of the right framework that tackles the problems that arise with emotions, circumstances and life occasions through management and exercise. This helps to build up the individuals' physiological wellness; assist in the reintegration process, thereby providing the individual with the chance of community involvement; prevention of future relapsing and promotion of self-esteem.

Research done by Hawkins et Al (1992) and Brounstein and Zweig (1999) on the different factors that involve substance use provides insight on prevention methods that can be used for designing an intervention to prevent relapsing and promote healing and reintegration with the inclusion of protective factors.

Brounstein and Zweig (1999) have also established prevention programs that focus purely on substance users. The three main principals were derived that would assist the most in the program:

1. The facility should support and encourage the relationships between individuals and communities (Brounstein and Zweig,1999).
2. This facility should create an intervention that facilitates for the needs of the users (Brounstein and Zweig,1999).
3. This facility should reduce risk factors and increase protective factors (Brounstein and Zweig, 1999).

From the afore-mentioned principals developed by Brounstein and Zweig (1999), one can conclude that in order to seize the drug issue in South Africa, and promote better social life wellbeing, communities need to stand together and bring about awareness on the issue of drugs and substance abuse in society. Failure to do so will leave the statistics of substance abuse in the area unchanged (Adelman and Taylor, 2003).

2.3 THEORY OF EMPOWERMENT

The Theory of Empowerment has the power of liberating society through development. Rappaport (1987) states that empowerment is the ability to bring upon change in an individual's life through the use of mediating structures of architecture. Perkins and Zimmerman (1995) support this idea by stating that it focuses on identifying an individual's strengths instead of their weaknesses. One should create an intervention that focuses on empowerment and improving wellness, providing opportunities for development in society and the utilization of skills in the professional practice. The intervention provided should create meaningful spaces and allow the users to engage with the site and building. Providing spaces that allow community interaction with clear distinctions of public and private provides the users with value and meaning. The use of wayfinding and clear special organizations provide the individuals with the power they need to feel comfort and belonging in a space.

The theory of empowerment emphasises individual growth through self-development, which is the core stone of social mobility. When one empowers society with education and skills, it subsequently creates opportunities in the professional practise for these individuals.

2.3.1 Empowering individuals through shame resilience

Sadan (1997) states that an individual's empowerment is the power to make their own life decisions. This implies that understanding what empowerment does to a person and how it can be translated in the built environment, is vital to the process of empowerment. This can be further understood by Maslow's hierarchy of needs, which is discussed below and how this helps in attaining life goals.

The empowering of an individual will be emphasised and tackled with the aid of the shame resilience theory by Dr Breene Brown. This is when one understands the principals that cause

the feeling of shame and ways in which this feeling can be addressed through architecture and emotion in order for post drug users to be reintegrated wholesomely in society.

Brown (2007) develops principals that can be used to counteract the feeling of shame which most of the time is due to the lack of sense of belonging and the connection that one creates with a space in the environment can give the user a healthy purpose in life. These principals are:

1. Speaking out continuum
2. The Vulnerability
3. Critical Awareness Continuum
4. Reaching out Continuum

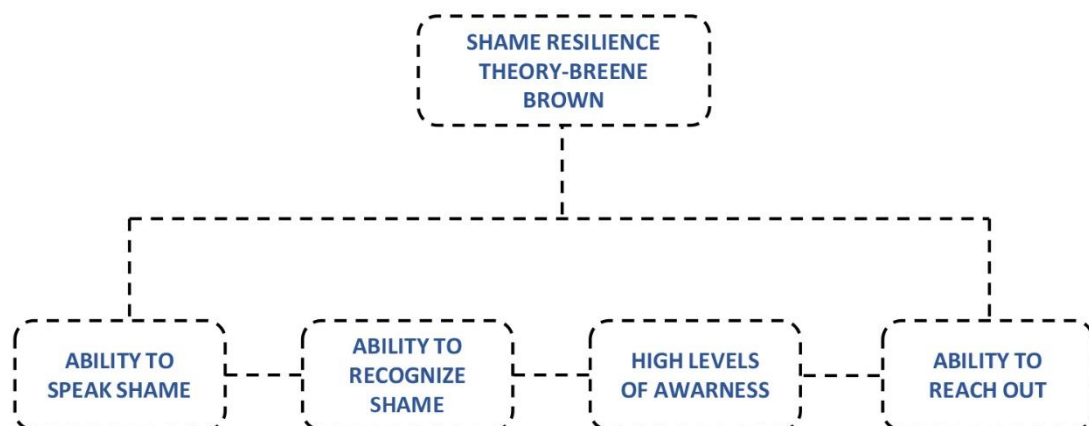


Figure 7: Diagram explaining How the shame resilience theory works. Source: Author (21 June 2019) Durban, KwaZulu Natal

2.3.2 Maslow's hierarchy of needs

Maslow (1943) states that individuals are always motivated to satisfy their needs and when one has been satisfied the individual moves on to the next one. He then breaks down the needs of an individual in 8 levels of growth and deficiency needs.

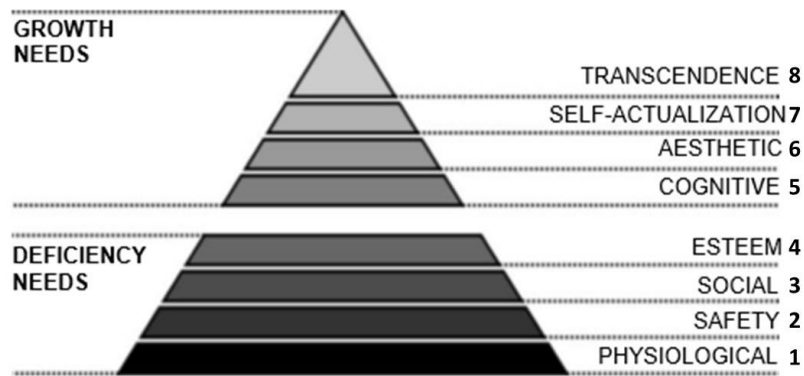


Figure 8 : Diagram explaining Maslow Hierarchy of needs starting from deficiency needs to growth needs.
Source: <https://changeecom.wordpress.com/2016/05/16/maslowshierarchy-of-needs-motivational-model/>
(Date accessed: 04 June 2019)

Deficiency needs breakdown

1. Physiological needs- Basic Elements such as food, water and sleep.
2. Safety needs- Security from harmful elements, financial stability and alleviation of fear.
3. Social needs- Sense of belonging, connection to others, in order to reduce depression and social exclusion.
4. Esteem needs- Needs that an individual must have in order to cope with daily life, elements that impacts the way individuals are perceived and self-approval.

Growth needs breakdown

5. Cognitive needs- This is the most important need because the built environment will aim to impact this through the need of understanding and know.
6. Aesthetic needs- This is the visual, audible and tangible beauty that consist of nature, art, music, architecture.
7. Self-actualisation- Personal potential, finding purpose in life, self-upliftment and personal growth
8. Transcendence needs- This refers to an individual's need to help others with their needs.

This suggest that when designing facilities of learning and integration, the built environment should be able to facilitate the empowerment process so that the individual can fulfil their needs and achieve their life goals.

2.3.3 Positive Reinforcers

A common issue that is raised after researching the reason behind relapsing and substance abuse is that there isn't much nonsubstance activities, therefore this approach started focusing this issue by creating three positive reinforcement strategies: Relationships, employment, social and leisure activities (Purvis,2017).

Behavioural relationship therapy and meaningful employment is focused on the individual and individual's significant other. This type of therapy includes job skills training focusing on employment which helps to improve both the individual's communication and social skills (Purvis,2017)

The social activities of individuals involved in the use of substances is only focused on substance indulgence, which concludes that this matter needs to be addressed specifically. It also implies that this aspect of the approach attempts to solve the issue by generating innovative recreational activities and problem solving (Purvis,2017).

2.3.4 Educational strategies

From the research conducted above, one can conclude that there are three types of principals that help with the reintegration and empowerment process of post drug users. These principals are not included in the rehabilitative process therefore including them is vital to the program. These principals are Vocational education, Education training and Work experiences.

1. Vocational Education

This type of principal focuses around employment-based strategies in the rehabilitation process. The primary aim for this type of strategy is to provide these users with work discipline, confidence to work in a company and improve social relationships. Including this in the designing of a reintegration rehabilitation centre focusing on empowerment and

healing can improve the individual's self-esteem, ability and work experience allowing them to find employment thereafter. Research done by Staines (2004) states that promising vocational education strategies were conducted in the United States which turned out to be successful as a result of the inclusion of work activities, exercises and occupational support programs. These programs are lacking in the rehabilitation process in South Africa therefore including them in a post drug program will assist in the prevention of relapsing, preventing further use of substance and allow these users the opportunity to connect with society.

2. Educational Training

This type of principles is focused on providing the individual with the necessary education to improve their employability after the process. Some strategies that will be implemented in the building are:

1. Educational classes
2. Work placement opportunities
3. Skills training programmes
4. Aptitude training

As referenced above in the literature of vocational education, specific skills training will be implemented in the designing of this facility however educational strategies will also play a vital role in the facility by providing these users with the skills they need to accomplish employment and the ability to partake in society with the improved skills.

From the analysis done above on both principles one can conclude that for social reintegration to be successful in this facility, educational strategies and vocational education is vital to the process. Lang and Moleski (2010) have stated that the built environment can play a positive role in the prevention and elimination of substance abuse by providing a healing facility, which promotes physical and emotional wellbeing whilst also promoting social interaction with communities.

3. Work Experience

Further elaborating on the strategy of vocational education, another aspect that will be implemented in the building is work experience. Hasluck and Green (2007) states that this

type of strategy helps to promote work control, self-belonging and promote integration. Work experiences strategies is good for the rehabilitation process because it teaches the individuals work management, time management skills and helps them prepare for the professional workplace. This type of strategy has been proven to be successful in the united states with substance abusers. This provides them with guarantees that they will have the similar opportunity in life like everyone else.

2.4 COMMUNITY REINFORCEMENT APPROACH

The community reinforcement approach is a broad-spectrum behavioural program for substance use problems with impatient, outpatients and the homeless population. The aim of this approach is to achieve abstinence from substance use by providing multiple treatment spaces that motivate the user to stop the usage, learn how to cope with staying away and allow family involvement in the process. This approach provides design principals that can use be used to include communities in the process.

According to the researcher Roozen (2004), most support organisations use the community reinforcement approach to treat the behavioural problems that arise as a result of substance abuse. This is implemented by involving the community through basic skills training, counselling and educational programs. Assessments conducted by Roozen (2004) state that the efficacy of the CRA Approach has positive outcomes on the users.

According to Researcher Purvis (2017), an important aspect of this approach is helping the individual cope with relapsing. It makes use of specific techniques for relapse prevention while providing an opportunity for learning.

This suggest that in order to create a successful reintegration centre that promotes social inclusion, the influences of the community and the support from them for the individual is vital for the recovery process. One should consider providing spaces that allow the community to partake in it which is easily accessible and provides social inclusion for the individuals and community.

2.4.1 Community reintegration

According to Researcher Purvis (2017), this process provides behavioural and educational interventions that aim to educate them on newer, healthier, promising ways to prevent negative consequences; meet their social and emotional needs; and provide them with positive self-esteem. It is based on the belief that the environment can play a vital role in the encouragement of abstaining from substance abuse and teaches the individuals the necessary skills they require for the integration process and obtaining a job in society.

The following reinforcers are used in this approach to assist post substance users: Social, Recreational, Familial and Vocational.

2.4.2 Social rehabilitation

According to the US Substance Abuse and Mental Health Services Administration (SAMHSA) The process of recovery is referred to as the change an individual goes through to improve their health and wellness; and the endeavours they undertake to reach their full potential by learning basic skills to live a rehabilitated life (Bothma,2014). In order for social rehabilitation to assist in the recovery process the factors mentioned below need to be focused on:

1. Health
2. Family and social support
3. Recreational facilities
4. Employment
5. Vocational skills and education
6. Community integration

The recovery process does not stop at with the individual alone. It continues to morph around the individual's perspective and environment, providing the individual with all the necessary tools to experience the full social rehabilitation process making it a vital component of the recovery (Torres,2010). This process considers all aspects of wellbeing, mental health and social connections. One of the main programs mentioned above that proved to be positive in the recovery process and increased employability is work based programs.

Some of the obstacles that substance users face in society and communities can be defined as structural barriers and personal barriers (Effective Interventions Unit,2001).

Personal Obstacles

1. Poor education
2. Low mental health
3. No work experiences

Structural Obstacles

1. Daily treatment
2. Lack of integration
3. Employment routine

The prevention examples mentioned above can affect these individuals from being included in the employment market as a result of the constraints due to the lack of educational skills and work experience (European Commission,2009).

2.4.3 Private functions and public spaces

Neocleous (2010) states that in order to prevent weak ties in a person one should provide public spaces in a private environment that is open to all allowing community participation. Madanipur (2010) a researcher on public space states that a public space provided in a building should allow the users of the building the ability to express themselves and use it in the way they want to and change to their needs (Omarjee, 2014). The public spaces provided in the building must be easily accessible to them and both the public and private must be merged in order to remove the gap between them and allow for community's involvement which aids in the integration process. The use of local materials can allow community involvement and create a spirit of place of a space with these individuals in it.

2.5 CONCLUSION

The chapter elaborates that the effects substance users experience on their health affects the physical, mental and social aspects of themselves to work together. After analysing the issues of social reintegration and the way individuals who are under the influence of substances see themselves suggest that a holistic approach to rehabilitation and re integration is needed.

The principals of two frameworks that have been looked are found to be similar in many respects. The theory of empowerment and community reinforcement approach focuses on helping these individuals through the means of education , employment , self-control and vocational , education training. These have proven to be fundamental aspects that make the rehabilitation process successful.

This has shown that perception of substance users in Durban and the way in which society views these individuals will change eliminating the social barriers mentioned in the paragraphs in chapter 2. The impact substance use has on the individual and the implications it has on society is linked to the numerous influences from personal, family and communities. This begins to create a framework that social rehabilitations can implement.

Two concepts for developing a reintegration centre is discussed through the use of different principals and the concept of conceptualizing community involvement were considered. The first concept was theory of empowerment and strategies that can be used to provide solutions through self-appreciation , basic and social needs, skills development , job creation that includes vocational education , education training and work experience. The second concept was Community reinforcement approach. This addresses how environment and built form can provide and cater for the community's needs enhancing interaction between public and the user.

With the research provided above regarding current rehabilitation facilities, it is evident that there is a need for improvement in these facilities. Current systems of social reintegration need to be adopted within the initial phase of the rehabilitation process. Using the community reinforcement approach creates an architectural response that will lead to a set of principals which will reinterpret the design of rehabilitation facilities and create a more holistic approach thereby addressing the social, mental and physical aspects via healing.

CHAPTER 3:

FROM COMMUNITY EMPOWERMENT TO ARCHITECTURE

CHAPTER 3 | FROM COMMUNITY EMPOWERMENT TO ARCHITECTURE

3.1 INTRODUCTION

This chapter aims to : analyse the structural framework of the theories and concepts, which explore the relationship between the rehabilitation and re-integration component , in the built environment. The lack of current post-rehabilitation and re-integration facilities have been a key issue with regards to substance abuse. The following theoretical framework of Empowering through architecture - by Rapaport (1987) and Therapeutic communities and concept, Healing Architecture will be analysed below. These theories directly affect how the user can function and adapt to certain circumstances and activities ,thus having a positive effect on their mental, physical and social levels and the power to rehabilitate fully. This will be done in order to gain a deeper and more positive understanding, to generate a foundation that will achieve the best possible architectural response.

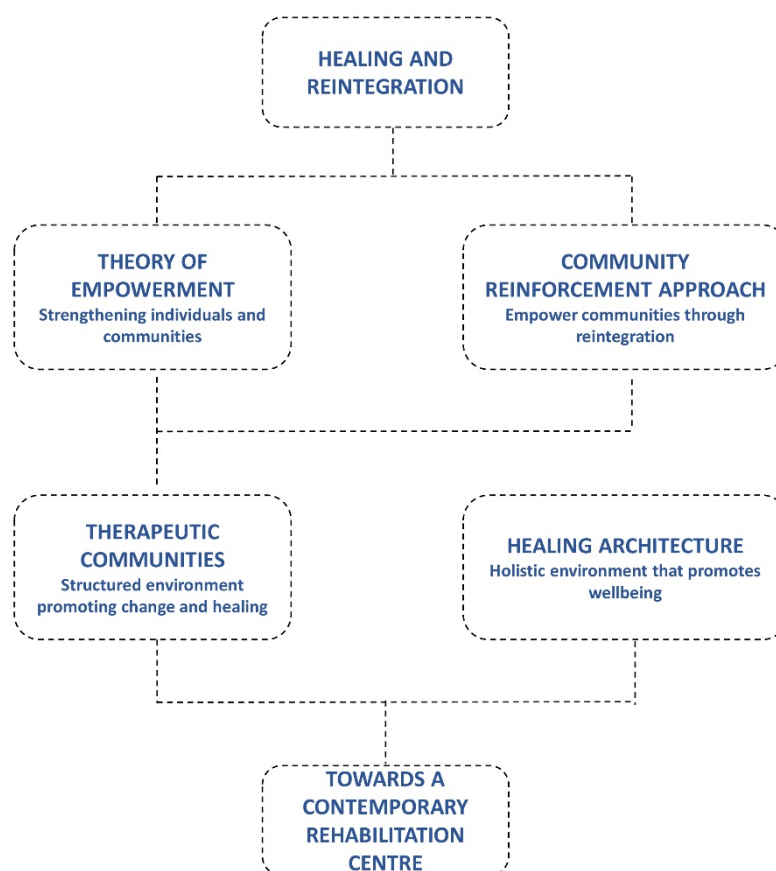


Figure 9 : Diagram explaining the breakdown of theory's and concept. Source: Author (04 June 2019) Durban, South Africa

3.2 EMPOWERING PEOPLE THROUGH ARCHITECTURE

Research conducted by Cox and Parson (1994) concludes that, empowerment is when you grant an individual the ability to gain power or give power. He then further states, that providing these individuals with power, increases their quality of life and grants them the ability to contribute to the facilities in the centre and cause an impact in a positive way.

Researchers Cox and Parson (1994) established four principles that can be used to empower post drug users. These principles are:

- Providing drug addicted users with the platform to express their skills and experiences.
- Allowing these individuals sense of control
- Informing post drug addicted user's methods for healthy living
- Giving these individual's the opportunity to learn new skills and modern technological advancements

Perkins Et Al (2004) supports these principles by stating that the built environment can aid this process by providing the facilities for empowerment and creating spaces that acknowledge the physical and social need of past drug users (Bayat,2014). He also implies that the facility should provide positive effects, achievements to uplift their spirits, opportunities for community involvement and the power to live within these communities; whilst also providing long lasting education.

3.2.1 Empowering people through the built environment

Herman Hertzberger, a Dutch architect states that , in order to empower an individual within the built environment, one has to create a structure that allows the users of the building, the ability to engage with it and add their own personal touch. This process helps to make post drug users become more passive in nature. Therefore, when designing a healing re-integration centre, users occupying the building should be able to experience what the building and environment has to offer.

Alexander (1977) supports this ideology by stating that facilities like this shouldn't follow the society belief system of what the facility and spaces within should be but instead draw from

the interest of post- drug users so that one can create a building that enhances life, creates opportunities for them to make a space their own and provide a sense of control.

3.2.2 Empowering individuals through communities

Group empowerment is different from individual empowerment. Whereas group means - the inclusiveness with others- and the built environment facilitates this , by providing Educational facilities that have the potential to empower individuals. Steven Holl, An American Architect believes that when creating architecture, the intention of the building , and the perception of the viewer, should be one.

According to Sadan (1997), the process of community empowerment, is referred to as- the social change process- which is the involvement of creating a community with characteristics of a typical community but does not include social stigmas and discrimination to past substance users. A community has the ability to create a better environment that influences the future generation. Therefore, in order to create such a community that can facilitate these views and cultures in the built environment, the relationship between group empowerment and architecture is important.

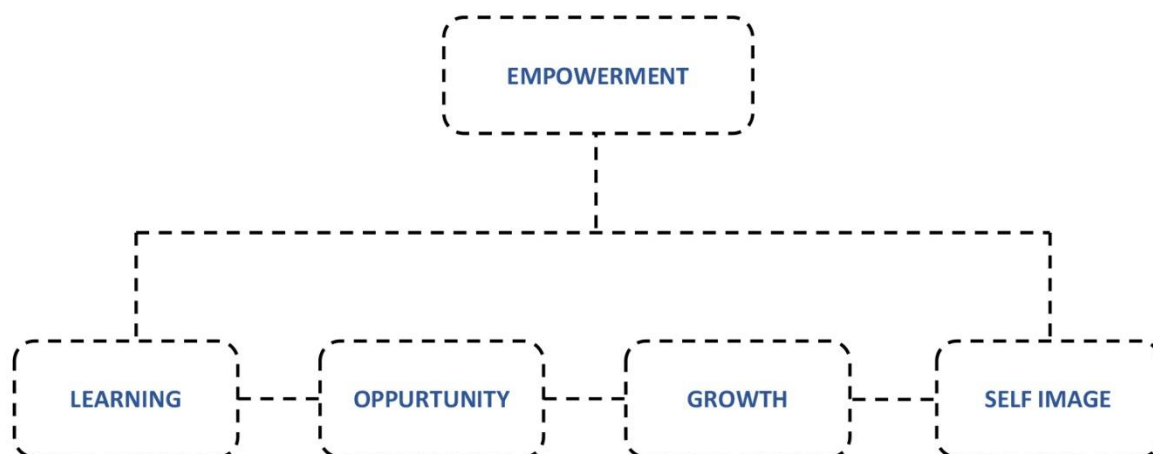


Figure 10 : Diagram explaining the empowerment theory for the design of the building. Source: Author (04 June 2019) Durban, South Africa

3.2.3 Behavioural Skills training

The most important aspects of this approach are teaching these post- substance user's new skills such as : communication, problem solving, abstinence, new ways to relax and ways for integration. This part of the CRA approach uses communication skills that are focused on understanding, accepting responsibility for the problems; and offering of help to others and the community (Purvis,2017).

Through behavioural treatments, The CRA Approach assist the user in improving and developing their social skills to support re-integration. By focusing on communication skills during this treatment, it provides the user with the feeling of comfort and confidence, while creating a positive feeling within themselves to encounter more successful social interactions.

Problem solving , educates the user on how to encounter and solve problems in their daily lives. This provides the individual with the ability to brainstorm possible solutions for their problem; and choose the most appropriate one for themselves. Abstinence -allows the user to identify the risk factors of using substances and derive positive responses.

3.2.4 The Model of therapeutic communities

This concept deals with the consequences of substance use, as a result of the lack of therapeutic healing within communities. Therefore, justification for this exploration, comes as a direct response to this consequence; and the literature reviewed within the dissertation to healing architecture.

The definition of a therapeutic community for drug addicts is an environment in which- "people live together in an organized and structured way , in order to promote change and make a possible drug free life in the outside society. The community forms a miniature society in which residents fulfill distinctive roles, designed to promote a transitional process (Ottenberg, 1993).

Therapeutic community programs for substance abuse started 10 years after Jones (1953) used this model of psychiatric hospitals (Rapoport,1960). In the 1960 and 70's in north

America- the modern addiction of therapeutic communities evolved, and evidence of this can be traced in history (Brook & Whitehead, 1980).

Most rehabilitation facilities inspire individuals by promoting community spirits, creating situations for the users to overcome and provide exercises which support the idea of new identity and energy.

Therapeutic community models- are types of effective rehabilitation that is used because of the living components and inspiration provided, which serves as a strategy for healing that is associated with physical and emotional encounters.

According to Sven (1971), these spaces should accommodate for : close communication and interaction with the surrounding communities and environment. The treatment provided is important because it encourages socialization, as well as mental and physical well-being of the individual. In order for the individual to be impacted on all levels, the built environment has to be included in the designing of such a facility as it determines how the communities of people should work, play and live. The inclusion of the built environment should be facilitated by the provision of spaces that promote social inclusion, development of one's body, and provide private healing spaces. This then allows behavioural change, social connection and makes the rehabilitation facility more habitable and conducive to healing.

Research done by Minding our bodies (2009) Therapeutic environments include 3 Aspects : Sociological aspect, psychological aspect, and economical aspect.

1.Sociological Aspect

Is when the facility is designed like a community and uses principles of the therapeutic community model, in order to create a normal type of rehabilitative method, to prevent the patient from being stressed (Isikpinal,1964).

2. Psychological aspect

Is when therapeutic environments use elements that are helpful to the patient, and create spaces that use nature, to provide a more healing environment for the individual (Isikpinal,1964).

3.Economical aspect

This aspect allows for healing therapy to be a part of the design and functionality of the building. (Isikpinal,1964).

3.3 THERAPEUTIC COMMUNITIES AND HEALING ARCHITECTURE

Healing architecture is important to an individual's body and mind. The study of healing architecture and the principles below, will provide ways in which an environment can become therapeutic when considering all living organisms. This is expressed, by saying that the impact a living structure provides in the physical environment, promotes well-being and freedom of spirit.

The Journal of alternative and Complementary medicine (2004) states that- using elements of the earth in the structure, can aid in the process of healing an individual, and promote wellbeing. Therefore, when designing a social and healing environment, one should consider the relationship man and nature has because these promote social connectivity with others (Bothma,2014).

3.3.1 Principals for Healing

The following principles will be analysed in order to create a facility that promotes healing for post drug users :

Natural light and ventilation properties

Verderber (1983) states that in order to improve an individual's well-being in rehab facilities, a design with more natural light and ventilation is preferred, over one with artificial lighting. Studies have been done by physiologists on how one could use the built environment to promote personal well-being and the conclusions drawn, promote the idea that, in order to reduce mental and physical strains on the person's health- designs should incorporate natural light and ventilation. He then states that when using daylight, the positive outcomes of this are spirituality, open-ness and freedom from windowless spaces (Verderber,1983).

Vischer (1986) supports this research by stating that in order to create a therapeutic environment one should use several windows because this allows views of nature and environment and allows natural light to enter , thus creating a therapeutic environment.



Figure 11 : Duke Student Wellness Centre ,Durham, United states PAINE Architects, 2017. The use of natural light and ventilation to promote wellbeing. Source: <https://www.archdaily.com/904664/duke-student-wellness-center-duda-paine-architects/duke-student-wellness-center-duda-paine-architects> (Date Accessed 24 June 2019).



Figure 12 : Invisible house , Australia, Peter stutchbury, 2012. Diagram illustrating the basic principles of natural light and ventilation by peter stutchbory. Source: OZ.E.TECTURE. (2019). Peter Stutchbury — OZ.E.TECTURE. [online] Available at: <https://www.ozetecture.org/peter-stutchbury> [Accessed 20 Sep. 2019].

Solar Architecture

The sun is the reason for our warmth, energy and vision of life. For energy conservation and to improve the quality of our lives, definite sunlight is vital. Solar architecture refers to the relationship between the sun and the impact it has on the built environment and the quality of life. The purpose of using solar architecture in the designing of a building for post-substance users - is how it plays a role in the environment and the spaces it reflects onto- the feeling one experiences from its historical nature.

An example of solar architecture is Photovoltaic Cells. This system comprises of silicon components that convert solar energy to electricity. It diffuses and directs solar radiation as productivity, to increase maximum sunshine as it increases temperature. Photovoltaic cells are sustainable, eco-friendly, durable and light weight.

Water harvesting

Connecting to the municipal service systems- establishing a non-potable water system, is vital to water harvesting. This helps in irrigating and cooling natural landscaping. The integration of storm water run offs and rainwater retention tanks, should be considered in the building as well as different types of materials. For example, permeable pavers, allow water to seep through to ground surface.

Colour in rehabilitation facilities

Mahnke (1987) states that other factors that influence the built environment with regards to healing is light and colour. It has an influence on an individual's reaction and wellbeing and affects both the visual and non-visual aspects of the human body.

He then states that the energy that light and colour together bring out, affects the way a body functions and influences the human's mind. Therefore, when designing a building, one has to be careful with how colour is used , because it can have either a negative or positive impact, depending on what colour is used and the amount thereof. This can either lead to the patient becoming restless or calm (Mahnke,1996). The most commonly used colours in a building is the basic colours, because it impacts the patient the most. When individuals are experiencing an environment, they are unaware of their surroundings, therefore, architects now use a lot

of colour and aesthetics in the environment to attract an individual's attention to promote wellbeing.

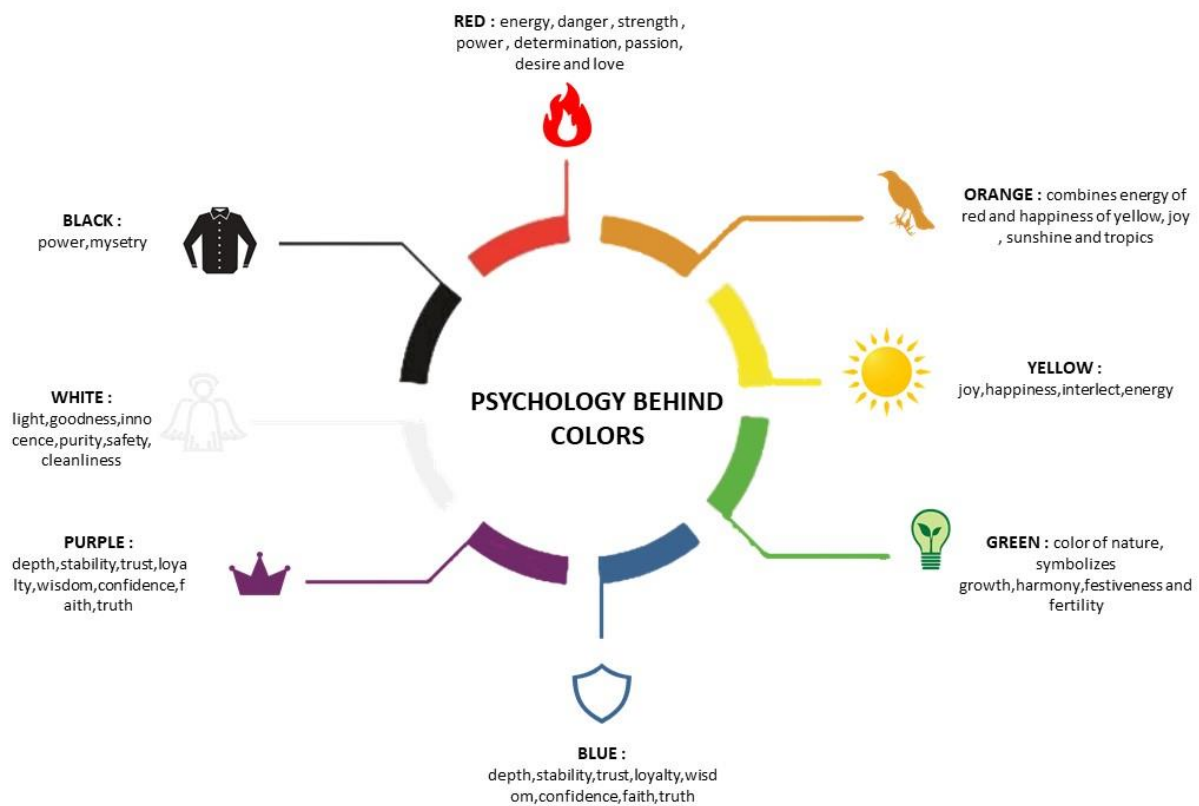


Figure 13 : Diagram showing Colour wheel of emotional psychology and how it affects a person. Source: Author, 24 June 2019

Using materials to promote well being

"On the whole, people do not look at architecture, not at materials. They breathe it in. It provides an atmosphere, not a pictorial scene" (Day: 1990).

Materials is one aspect in the built environment that affects a human's emotion and sensory experience. Some materials that can be used in the designing of a healing centre in order to promote wellbeing are:

- Timber- This is a natural material that comes from earth and people relate to it because of its warm nature.
- Bricks – this is a material that appeals to a person's nature and wants them to touch it because of its texture and design.

- Steel- This material is very cold in nature because it is associated with rough work as it is mostly used in industrial work.
- Concrete and plastic- These materials are not harsh in nature because individuals are exposed to it all the time. This is used a lot, to make different type of shapes without worrying about limitations.

One can conclude that when designing a facility for healing and re-integration, the materials to use to promote wellbeing should consist of brick, stone or timber because they all have warm properties and appealing to a user instead of cold properties that come from steel (Day ,1990).



Figure 14 : Duke Student Wellness Centre ,Durham, United states PAINE Architects, 2017. The use of different materials to promote wellbeing. Source:<https://www.archdaily.com/904664/duke-student-wellness-center-duda-paine-architects/5bd1b48cf197cc96d0000364-duke-student-wellness-center-duda-paine-architects-ground-floor-plan> (Date Accessed 24 June 2019).

3.3.2 Therapeutic community reintegration

Wherever we are in the world, we come into contact with nature and its healing properties; and as humans we harness that energy to create a positive effect in our lives and mind. This component of the process called “healing” must be added in the rehabilitation process whilst patients are in post recovery. The national Institute of drug association (2002) states that an important aspect of the rehabilitation process should include physical activity and nature because it helps with the abstaining from substances , immensely.

William (1995) states that a green environment is more appealing to the user than a space that has no green components. According to research done by Minding our bodies (2009), the best counteractive programs with regards to substance use are those that include training exercises like sports, therapeutic systems and physical exercises. These programs that are used in the rehabilitation process increased the success rate, preventing relapsing. The different programs that should be included in the process are physical activity, exercise, and healing :

1. **Physical Activity** - Activities such as dancing and gardening involves physical movement and burns calories.
2. **Exercise** - This is when a person experiences physical exertion of the body that is planned and scheduled.
3. **Healing** – When physical activities and exercises are different in nature, but the end goal is the same.

When creating a rehabilitative program structure, one should use principles that have the best outcome for the individual to heal and re-integrate. In order to create such a program, one should focus on the individual and groups that also aids in increasing social connections. According to Minding our Bodies (2009) there are 3 basic types of healing : Individual healing, Group healing and Nature healing

1. **Individual Healing** – This is focused on improving the individual’s self-strength, self-control and wellbeing. Exercises incorporated in this type of healing is yoga, swimming and self-meditation because of their healing properties.

2. **Group healing** – This creates social aptitudes while the user learns teamwork skills. By including society in this type of method, the user feels important and wanted, which increases the recovery process.
3. **Nature healing** – This type of healing is when the natural environment is used in the process. The properties of nature acts as healing agent, providing the user with feelings of serenity and tranquillity.

From the above analysis one can conclude that this can be viewed as a post- rehabilitative and re-integrative technique, because it allows the individual the ability to adjust to different encounters and get involved with activities that bring individuals and communities together. If therapeutic healing is practiced in the correct way, it can provide the user with positive change and increase family ties through the use of group healing.

3.3.3 Architecture as healing

Healing rehabilitation is bringing up positive attributes in an individual and helping them build a new identity with the aid of therapeutic communities. Architectural design plays a vital role in this process, because it creates practical spaces and landscape design that uplifts the user's spirit and provides a better environment for the user and community.

When a building is designed, it's not just slabs and concrete; it also includes the energy that the building creates and, that, plays a role in the healing process. Using natural elements, different aspects of the environment, and creating spaces that allow people to filter through the building in a specific way with the interaction of different areas, affects the individuals mood, allows them to feel more welcome and creates a connection to their wellbeing, thus increasing motivation for them to succeed. Researcher Moughtin (2009) states that most healing centres around the world use water as a component for healing, either by means of a stream or lake. This helps in providing spiritual healing, recreation and improves the environment while improving the individual's wellbeing. Therefore, rehabilitation facilities should be designed in a way that allows individuals to feel close to home and welcomed; instead of providing an institutionalized facility that society has already categorized.



Figure 15 : Berkley Homes, London, Gillespies , 2018. Image showing the use of materials in a residential setting. Source: Gillespies. (2018). *250 City Road - Projects - Gillespies*. [online] Available at: <https://www.gillespies.co.uk/projects/250-city-road> [Accessed 5 Oct. 2019]. (Date Accessed 24 June 2019).

Robbins (2001) states that even though the use of nature has changed over time, it is still a vital component for the built environment and an individual's wellbeing. In the past, nature and landscape architecture was a vital component of design when designing a facility of healthcare , but after architecture evolved and structures became more important than nature, the designing of landscape became minimal and is now not part of the design process. This has impacted the rehabilitation process negatively, as medication has become more important , than inner healing.

Mc Dowell (1998) a researcher on healing architecture, created 6 principles when designing a facility that focuses on healing architecture :

1. A large entrance
2. Use of water to promote wellbeing
3. Use of colour and light
4. Use of natural features and materials
5. Use of sculptures in gardens
6. Wildlife

Larson & Kreitzer (2005) supports this idea by stating that the most important aspect for therapeutic architecture, is that it should provide comfort for the soul. There should be fluidity and freedom in the design; with the use of human scale buildings ,as these individuals are still healing psychologically and need to feel as close to home when they are in this space.



Figure 16 : Water temple, Japan , Tadao Ando , 1990. Building designed by tadao ando with the use of water. Source: Nast, C. (2016). 13 Examples of Modern Architecture by Tadao Ando. [online] Architectural Digest. Available at: <https://www.architecturaldigest.com/gallery/13-examples-of-modern-architecture-by-tadao-ando> [Accessed 20 Sep. 2019].

3.3.4 Healing with Therapeutic communities

After the pre-medical rehabilitation, most post- substance users are likely to experience relapsing because they have not fully healed socially and mentally. This resulted in creating therapeutic communities. This type of rehabilitation is situated near nature, is accessible and creates scenarios where the individual has to find their self and learn basic skills to be integrated into society. Therapeutic communities become homes for the patient, because they become involved in every decision-making activity.

In this type of rehabilitation, treatment staff and communities, are a vital supporting aspect because it includes all types of people- along with the patients. The intention is the users must become close to the communities ,through social connections and activities, to allow the re-integration process to be as smooth as possible. The result of this process promotes positive ways of life and influences for the user to avoid them relapsing. This helps the users adapt new treatments and education of basic skills like : culinary skills, craftsmanship, agriculture & planting, carpentry, engineering, theatre & drama- that open up new opportunities for work, creates stronger family bonds and employment thus , allowing them to give back to the community.

The activities that are provided in therapeutic communities have the capability of influencing the rehabilitation process , using architecture and the natural environment for the best possible outcome, by providing recreational activities that increase the individual's self-approval and create social gathering opportunities. Therefore, one can conclude, that therapeutic communities are self-re-discovery journeys, which aid in creating a new identity and helping an individual to re-integrate into society. The spaces provided in the facility should promote comfort and belonging - using elements of earth and landscaping to link different functions and cater for the user's needs. The spatial expressions of the spaces should provide a healing environment with constant connection to nature; and have order, without forcing it. These elements should make the building ecologically and economically stable.

3.4 DESIGNING HEALING ARCHITECTURE

The way individuals move in a space plays a direct role with the way they react to the building, their moods, behaviour and attitudes which causes them to act in either a positive or negative way. Architecture can play a role in the way these individuals, specifically drug addicts who have psychological imbalances, act and feel by creating spaces that allow them to regain their social identity and self-esteem.

According to Dutch architect Jasper Schaap, architecture must create spaces that affect human movement and action , encouraging sensory perception. Leibrock discusses the concept of healing architecture, where nature , through the use of landscaping , becomes part of the recovery healing process. Three types of healing with a combination of theories have been derived by Ulrika Stigsdotter and Patrick Grahn -to assist in creating landscape architecture that promotes healing gardens.

Emotional healing

This theory is derived from the belief that humans are created from nature and forms the basis of the understanding of why an individual's quality of life improves when surrounded by it. The use of nature reduces stress levels and promotes wellbeing through the energy that is expended from it. An example of this is the comfort and peace experienced when taking a walk whilst being in constant contact with nature.

Horticultural healing

This theory is based on the psychological feeling an individual gets when they are in contact with nature, such as gardening. This type of interaction provides the user with physical healing such as being active, spiritual enlightenment in growing , while helping to cultivate emotional healing by being around the result of your creation.

Experiential healing

This is referred to the experiences a person has throughout their life. Designing with the use of sensual stimulants - provides the user with the power to relate back to their past experiences and can result in the user feeling a sense of belonging , by creating a deeper

connection with the space. This would create a meaningful connection to the building and enhance mental or spiritual healing.

Individuals have their own preference in how they connect with the natural world , but the interaction between nature and a person is the same with everyone. Various experiments undertaken by Ulrich and other architects suggest that the integration of natural surroundings in living areas ,help promote healing and positive changes. Ulrich suggests four reasons that nature has beneficial effects :

1. Nature is associated with physical activity and stimulates health
2. Nature is linked with community interaction and socialization with others.
3. Nature provides an escape from reality, providing sense of comfort.
4. Nature influences the mind by providing sense of comfort.

A science experiment that was conducted on the power of a window, concluded that patients recover faster , in a room that has a direct view to the natural environment, than a wall. This experiment provided insight, that a window is not just a functional necessity that provides light and ventilation, but a gateway that allows the patient to transport from their reality to a spiritual place. It also frames the views of the natural environment , allowing these individuals to emotionally engage with specific elements like water, trees or landscape providing the individuals with moments of self-awareness and distraction. This concept also generates the feeling of comfort and relaxation allowing the user to heal faster, by providing the opportunity of perception where these individuals can view the external world rather than be viewed by others.

Therefore, one can conclude that the use of landscape and its sensory experiences , can play a vital role in the development and wellbeing of individuals who are psychologically healing.

3.4.1 Place making and communities

Social space and interaction play a vital role when it comes to empowering individuals through architecture and architectural forms. Day (2012) states that one can create spaces that allow interaction and promote social inclusion, without forcing it. Place - defined by Noberg Schulz (1980) is not a location but a combination of concrete phenomena with people, animals,

vegetation, earth, wood, water and climate and experiences. It is these elements that make up the psychological and material feeling of a place. Therefore, the spirit of a place is centred on the wholeness one experiences whilst in a specific space. Culture, social interaction and context creates the essence of a place.

There are three approaches in which genius loci can be achieved:

1. Distinction between natural and man made
2. Categories of earth and sky - inside and outside.
3. Character

The elements of placemaking can be categorized using two of the elements mentioned above: Space and character. Space indicates organization within a boundary and character is defined in how these spaces are treated and the atmosphere it portrays. Boundaries can be described as enclosures in the form of walls, ceilings and floors that help an individual navigate through a space horizontally and vertically. Kenneth Frampton (1983) spoke about the use of fenestration and how the forces of light and climate reflects on the wall of the building. Therefore, architecture is considered to have the ability to create a specific spirit in a place.

The best way to connect and strengthen communities is the encouragement of interaction between individuals and communities and nature. These interactions must take place in spaces which are easily accessible and respond to its context. A community is a complex system of culture and socio-economic groups. HBEP developed ways in which community connections can be achieved with the built environment.

Interaction in public spaces

The location of green spaces can encourage interaction with the built environment. In these spaces community interaction and nature interaction should be considered. Areas around residential spaces should be welcoming and safe, encouraging interaction with others. William Whyte states that : the use of plazas encourage gathering and interaction between people in the community and their homes and the design needs to fulfil their needs.



Figure 17 : Cassiobury park , London , LUC , 2018. Image showing interaction in public spaces. Source: Landezine.com. (2019). Cassiobury Park by LUC « Landscape Architecture Platform | Landezine. [online] Available at: <http://www.landezine.com/index.php/2019/06/cassiobury-park-by-luc/> [Accessed 20 Sep. 2019].

Community Gardens

Community gardens offer various types of interactions and encourage individuals to integrate with their community whilst maintaining the connection with nature. An example that used community gardens to help individuals with substance use challenges is Monarch Garden in Albemarle. This investigation showed that learning activities like tending to vegetable gardens or practising the habit of conservation was very beneficial to the health and wellbeing of the individuals.



Figure 18 : Image showing community gardening. Source: container gardening. (2016). community gardens – container gardening. [online] Available at: <https://containergardening.wordpress.com/category/horticulture-gardening/garden-types/community-gardens/> [Accessed 20 Sep. 2019].

Safety

The proposed architectural intervention should welcome, foster openness and natural surveillance. Wayfinding should be visible and natural surveillance should occur between buildings. This will lead to strengthening of communities and promote wellbeing in the individual's lives.

3.4.2 Architects using “healing” in design: *Water , Nature , Materiality and Light*

Phenomenology is the idea of how an environment affects an individual's character and experiences. In order for a place to have human value and engagement, the factors of environment must be included. Peter Zumthor in the book “*Atmospheres: Architectural environment and Surrounding Objects*” focuses on the sensory aspects of architecture and how one can create meaning in the built form (Zumthor, 1994). Peter Zumthor describes the perception of atmospheres and the nine qualities that one could use to achieve this. These 9 elements are :

1. *Magic of the real*- The way in which architectural atmospheres is created
2. *The body of architecture*- Considering the building is the form of a body - where the exterior is a membrane and once elements are put in , it creates a body.
3. *Material Compatibility*- The ability to turn an idea into reality and the way individuals react to specific materials, helps to decide what materials should be used
4. *The sound of space*- The choice of material that collect, amplify and transmit sound in a space.
5. *The temperature of a space* – The comfort of a space and the surrounding objects which create a sense of home
6. *Composure and seduction* – The way light falls into a space that makes the individual want to stay.
7. *Tension between interior and exterior*- The transitioning between inside and outside.
8. *Levels of intimacy*- The proximity, distance, size, dimension and scale of the built form and the way in which the building speaks to you.
9. *The light of things* – The way in which light falls into a building creating shadows and the surface quality that enhances that special quality.

Following the concepts mentioned by Zumthor (1994) , the 15 following architectures - designed by Tadao Ando, Peter Zumthor, Peter Stutchbory, Louis Kahn, Renzo Piano, Herzog and De Meuron and Juhani Pallasmaa are chosen to provide solutions of healing architecture - and ways to promote serene and wellbeing environments.

The Architectures are related to 4 important aspects : Water, Nature, Materiality and Light. The idea is to provide a visual vocabulary of solutions that can aid in designing an architecture that fosters healing.

WATER

Water symbolizes the vitality of life and sacredness in healing. To individuals, it represents peace, tranquillity, calmn , fluidity and movement. It opens up the nature of the soul and helps to create sense of belonging. Water is also associated with land and genius loci due to its energy (Huelat.B, 2003).

1. Tadao Ando , Pulitzer Arts foundation, St Louis, Missouri (2001)

Tadao Ando is a highly regarded architect with unparalleled work of concrete, sensitive treatment of natural light and engagement with nature. The Pulitzer Arts foundation (966m²)was chosen for its long-lasting attention to detail and natural elements such as water and light with the use of concrete. This facility creates a serene setting for contemplation of art and urban landscape. The facility creates large and open spaces free from ornamentation. The perception of openness and the building integrated into the context is achieved by the use of proportions and the adjacent spaces relating to each other through the building's asymmetry.

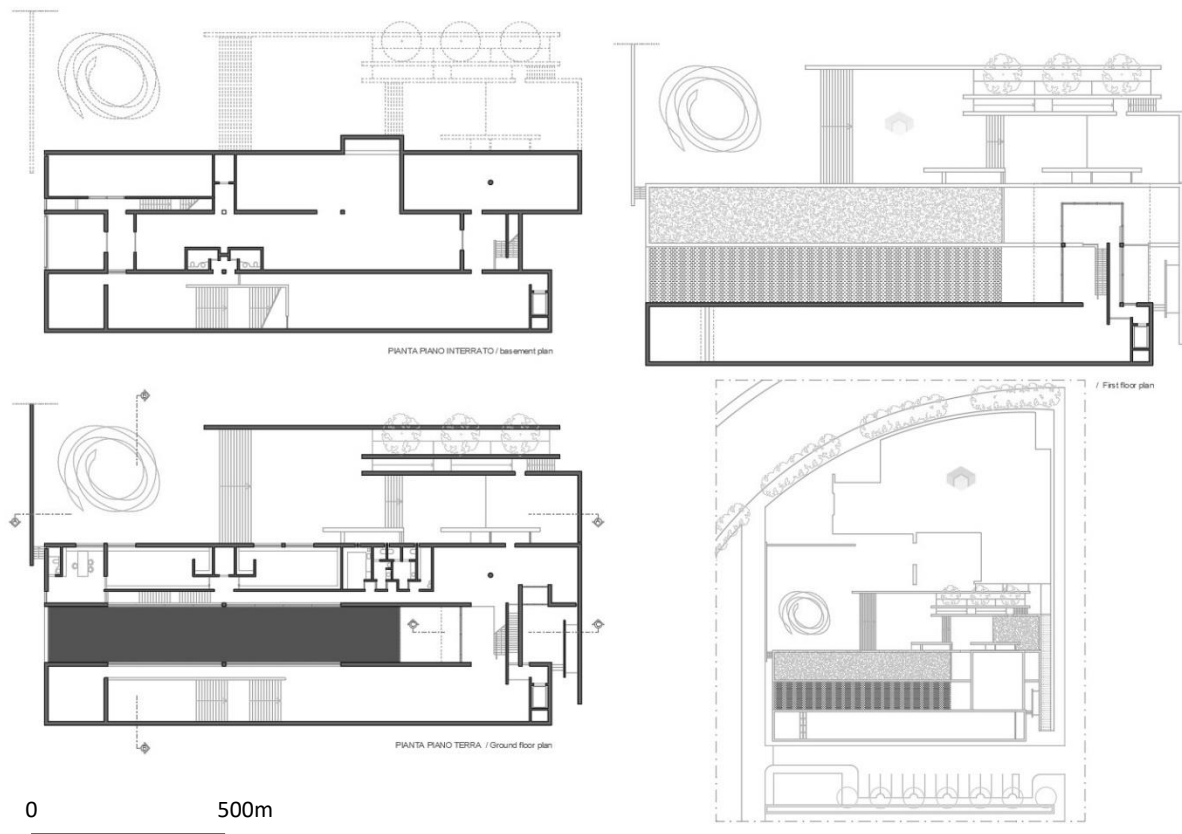


Figure 19 : Pulitzer Arts Foundation, Missouri, Tadao Ando, 2001. Plan. Source: Nast, C. (2016). 13 Examples of Modern Architecture by Tadao Ando. [online] Architectural Digest. Available at: <https://www.architecturaldigest.com/gallery/13-examples-of-modern-architecture-by-tadao-ando> [Accessed 20 Sep. 2019].

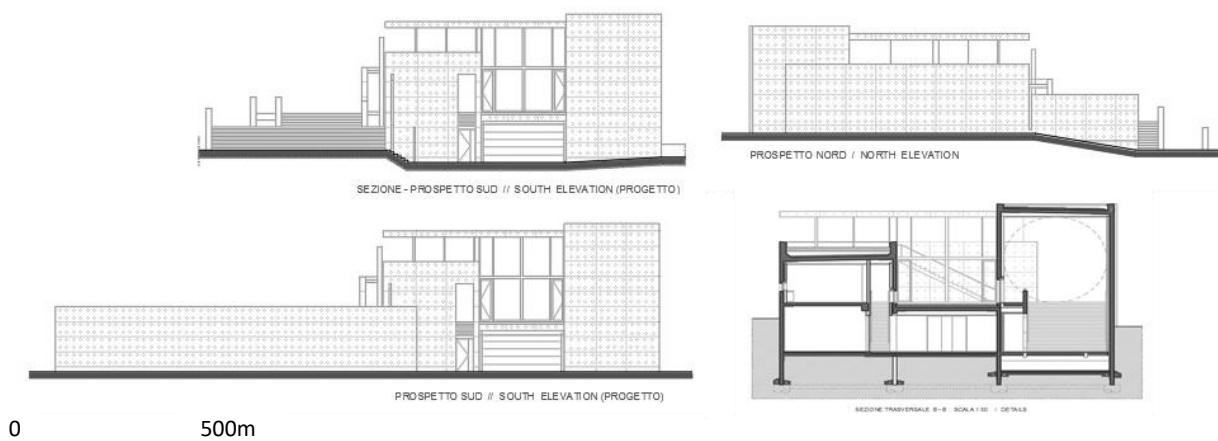


Figure 20 : Pulitzer Arts Foundation, Missouri, Tadao Ando, 2001. Sections. Source: Nast, C. (2016). 13 Examples of Modern Architecture by Tadao Ando. [online] Architectural Digest. Available at: <https://www.architecturaldigest.com/gallery/13-examples-of-modern-architecture-by-tadao-ando> [Accessed 20 Sep. 2019].

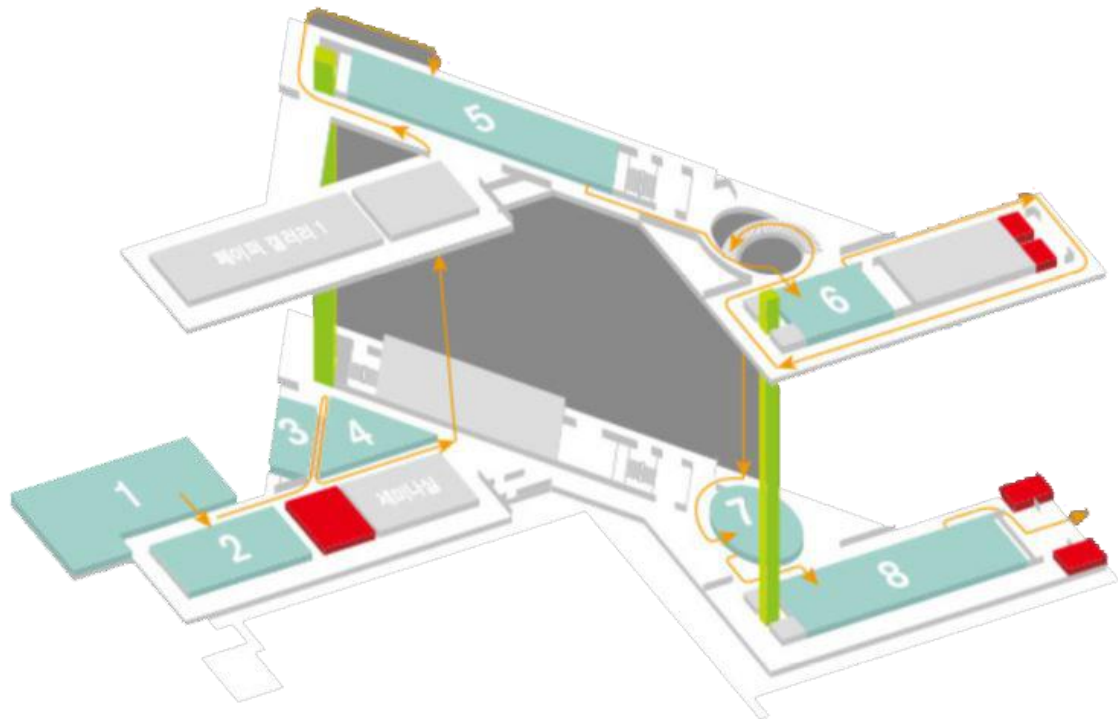


Figure 23 :Hansol Museum, South Korea,Tadao Ando, 2013. 3d sections. Source: Nast, C. (2016). 13 Examples of Modern Architecture by Tadao Ando. [online] Architectural Digest. Available at: <https://www.architecturaldigest.com/gallery/13-examples-of-modern-architecture-by-tadao-ando> [Accessed 20 Sep. 2019].



Figure 24: Hansol Museum, South Korea, Tadao Ando, 2013. The use of water in the design. Source: Nast, C. (2016). 13 Examples of Modern Architecture by Tadao Ando. [online] Architectural Digest. Available at: <https://www.architecturaldigest.com/gallery/13-examples-of-modern-architecture-by-tadao-ando> [Accessed 20 Sep. 2019].



Figure 25 : Hansol Museum, South Korea, Tadao Ando, 2013. The use of water in the design. Source: Nast, C. (2016). 13 Examples of Modern Architecture by Tadao Ando. [online] Architectural Digest. Available at: <https://www.architecturaldigest.com/gallery/13-examples-of-modern-architecture-by-tadao-ando> [Accessed 20 Sep. 2019].



Figure 26 : Hansol Museum, South Korea, Tadao Ando, 2013. The use of water in the design. Source: Nast, C. (2016). 13 Examples of Modern Architecture by Tadao Ando. [online] Architectural Digest. Available at: <https://www.architecturaldigest.com/gallery/13-examples-of-modern-architecture-by-tadao-ando> [Accessed 20 Sep. 2019].

3. Tadao Ando, Sayamaike Museum, Japan (2001)

The Sayamaike Museum (4948m²) is an exhibition space of ancient water management in Japan. The use of water in this building, is a large pond with waterfalls that fall off the corridor walls, leading into the sunken courtyard. The surrounding environment is integrated into the architecture in order to create a place that's appropriate for healing. The walls above the ground are the same as the floor to make it seem as if the ground and the building are one. In order to create that serene and calming environment, the water that falls off the corridor walls acts as a screen when one is walking past.

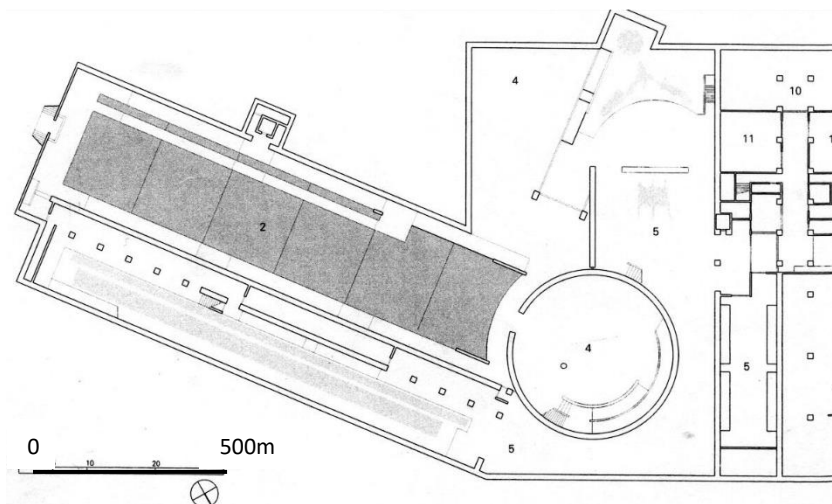
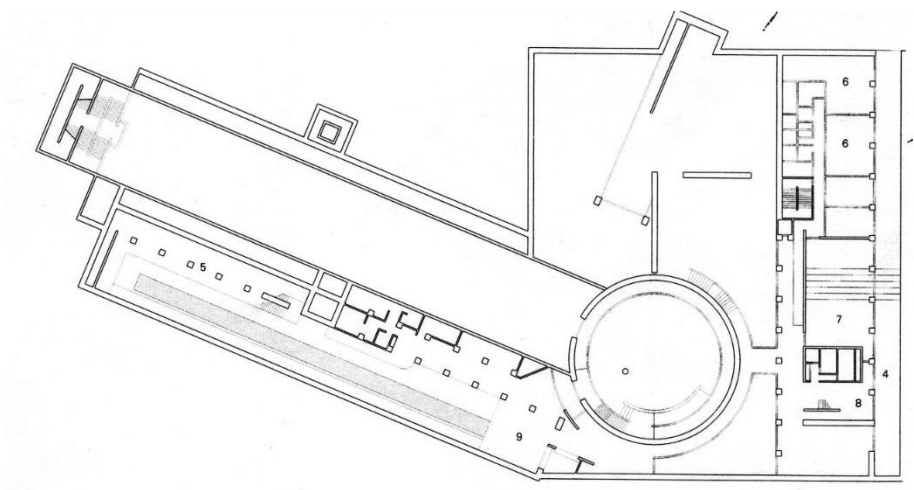
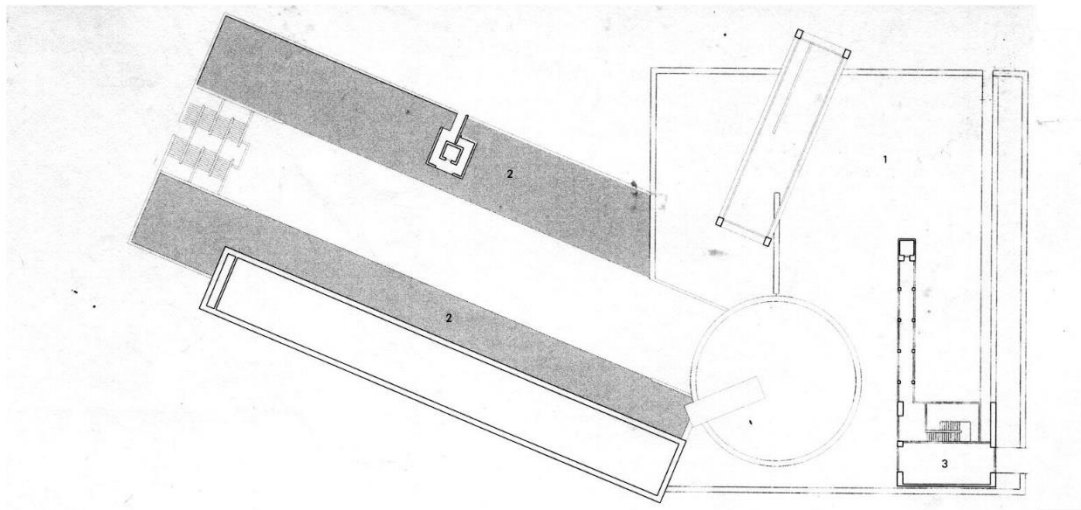


Figure 27 :Sayamaike Museum, Japan, Tadao Ando, 2001. Plans. Available at: <https://www.architecturaldigest.com/gallery/13-examples-of-modern-architecture-by-tadao-ando> [Accessed 20 Sep. 2019].

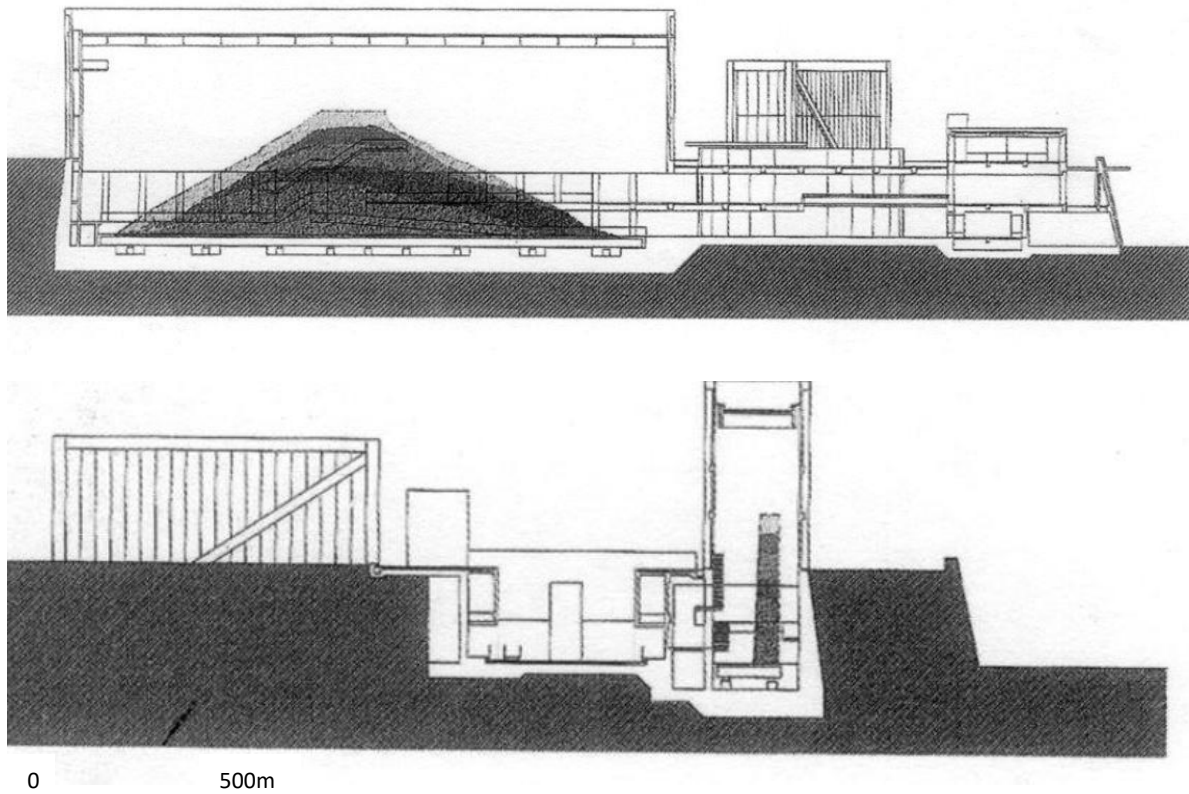


Figure 28 : Sayamaike Museum, Japan, Tadao Ando, 2001. Sections. Available at: <https://www.architecturaldigest.com/gallery/13-examples-of-modern-architecture-by-tadao-ando> [Accessed 20 Sep. 2019].



Figure 29 : Sayamaike Museum, Japan, Tadao Ando, 2001. The use of water in the design. Source: Nast, C. (2016). 13 Examples of Modern Architecture by Tadao Ando. [online] Architectural Digest. Available at: <https://www.architecturaldigest.com/gallery/13-examples-of-modern-architecture-by-tadao-ando> [Accessed 20 Sep. 2019].



Figure 30 : Sayamaike Museum, Japan, Tadao Ando, 2001. The use of water in the design. Source: Nast, C. (2016). 13 Examples of Modern Architecture by Tadao Ando. [online] Architectural Digest. Available at: <https://www.architecturaldigest.com/gallery/13-examples-of-modern-architecture-by-tadao-ando> [Accessed 20 Sep. 2019].

4. Louis Khan, Opus, Parliament Building, Bangladesh (1962)

Louis Kahn is an architect known for his architecture with weight and dignity and includes light and water in the design of buildings. This building is one of Louis Khan's famous buildings, Jatiya Sangsad (80 000m²) complex for members of parliament. The design philosophy behind this building was the use of space representing the culture in Bangladesh. The use of a series of columns allows light to filter into the building. The choice of materials is locally sourced materials.

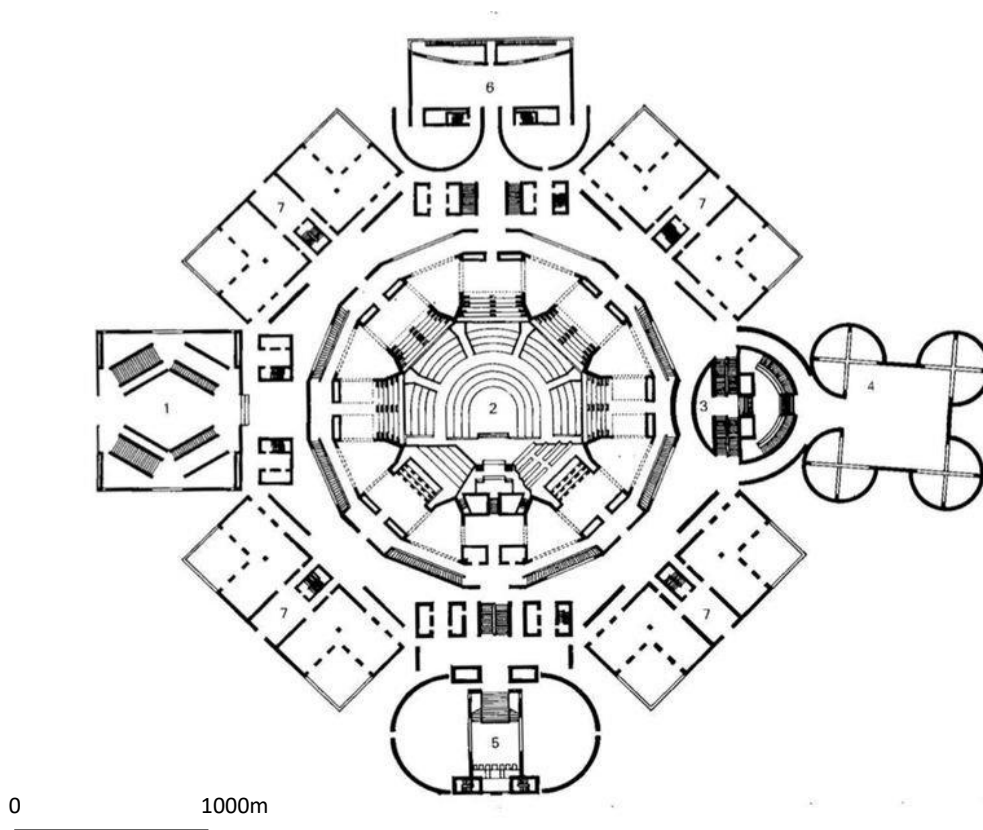


Figure 31: Opus, Bangladesh, Louis Kahn, 1962. Site plan . Source: Archdaily.com. (2019). Louis Kahn | Tag | ArchDaily. [online] Available at: <https://www.archdaily.com/tag/louis-kahn> [Accessed 20 Sep. 2019].

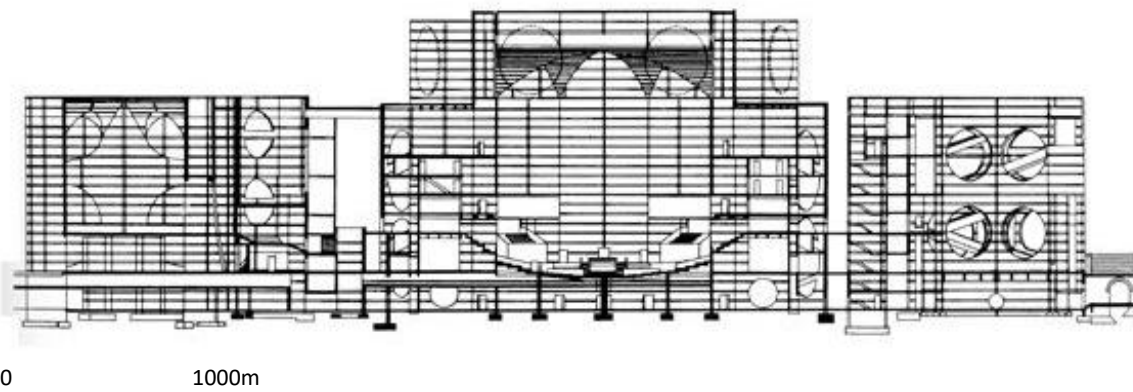


Figure 32: Opus, Bangladesh, Louis Kahn, 1962. Site plan . Source: Archdaily.com. (2019). Louis Kahn | Tag | ArchDaily. [online] Available at: <https://www.archdaily.com/tag/louis-kahn> [Accessed 20 Sep. 2019].



Figure 33: Opus, Bangladesh, Louis Kahn, 1962. The use of building and water. Source: Archdaily.com. (2019). Louis Kahn | Tag | ArchDaily. [online] Available at: <https://www.archdaily.com/tag/louis-kahn> [Accessed 20 Sep. 2019].



Figure 34: Opus, Bangladesh, Louis Kahn, 1962. The use of building and water. Source: Archdaily.com. (2019). Louis Kahn | Tag | ArchDaily. [online] Available at: <https://www.archdaily.com/tag/louis-kahn> [Accessed 20 Sep. 2019].

NATURE AND MATERIALITY

Nature has a physical and visual link with individuals that provide them with positive and beneficial qualities- which help them to heal in- and an environment that provides wellbeing in general. This relationship between the two has to be nurtured and provided in healing environments. Materials has a direct influence on the individual's overall sense of an

environment. It has the ability to affect the way in which individuals move, provide sense of comfort, create specific sounds and feelings. The way in which material is included in the building - determines the power of the space.

5. Peter Zumthor , Therme Vals, Switzerland (1996)

As mentioned before, Zumthor is an architect known for his sensuous materiality and attention to place and space. The concept of Therme Vals (3000m²) is based on the interpretation of a stone quarry with relation to the surrounding context. The movement in the building was a vital aspect in the design. The play of small intimate spaces and large meandering bath, ,creates the experience of the surrounding atmosphere. The attention to detail and the use of water, was considered to create a structure that seems to appear as if it is emerging from the natural landscape, and to allow for seclusion and relaxation.

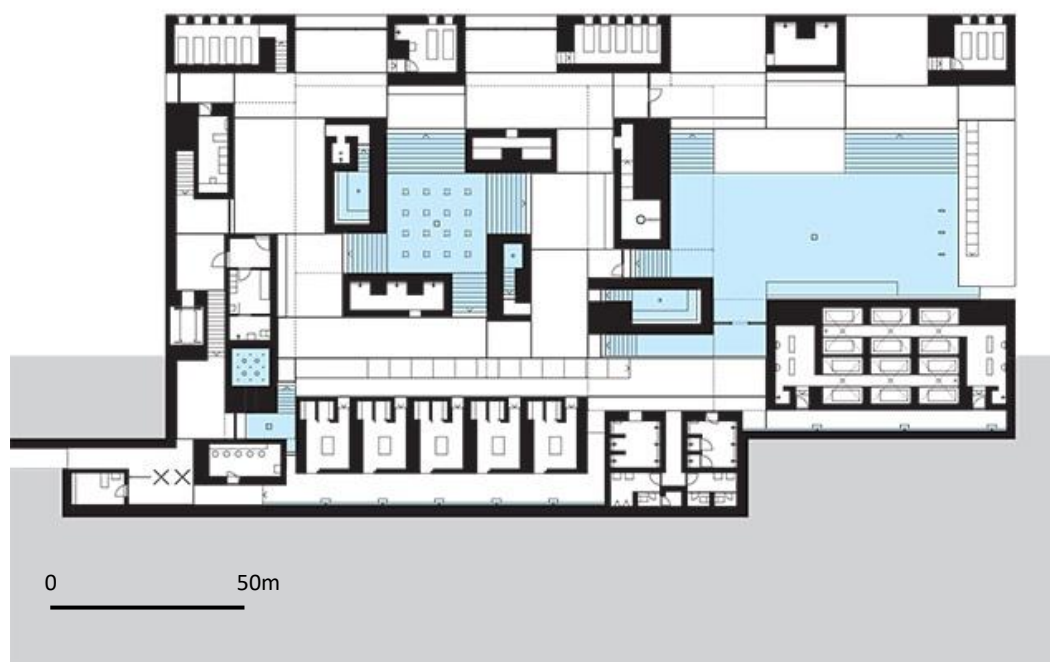


Figure 35: Theme Vals, Switzerland, Peter Zumthor, 1996. Plan. Source: Archdaily.com. (2019). Peter Zumthor | Tag | ArchDaily. [online] Available at: <https://www.archdaily.com/tag/peter-zumthor> [Accessed 20 Sep. 2019].

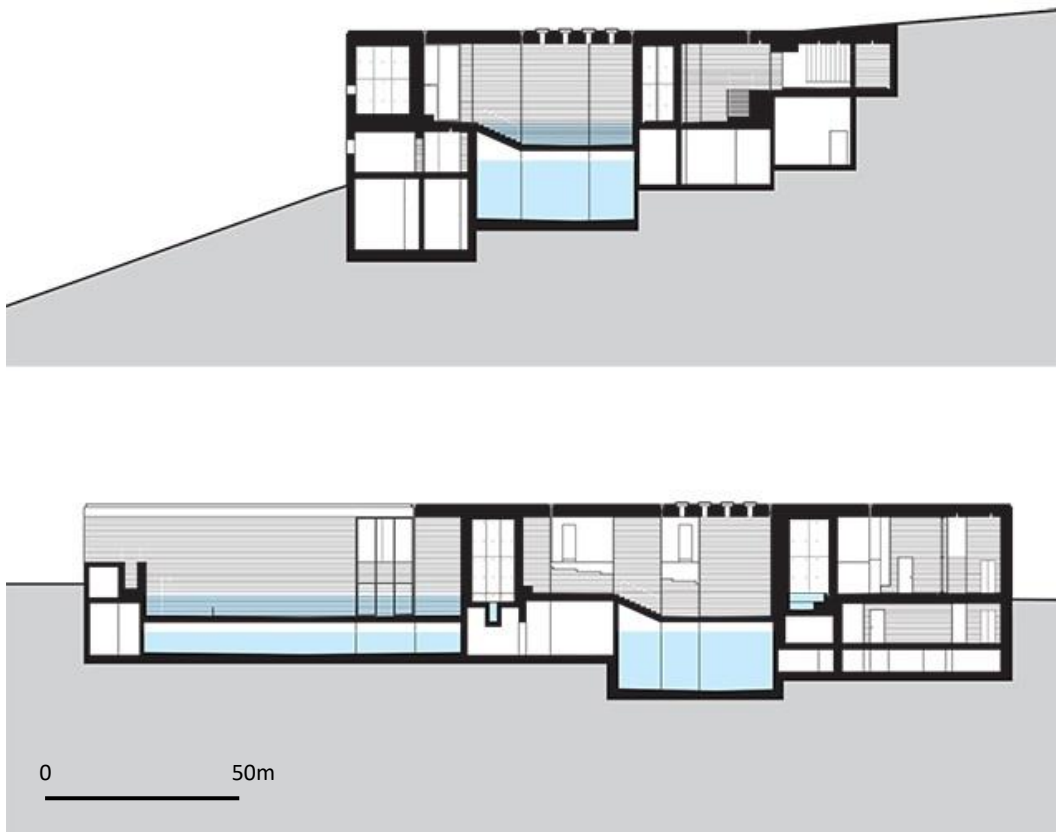


Figure 36:Theme Vals, Switzerland, Peter Zumthor, 1996. Section. Source: Archdaily.com. (2019). Peter Zumthor | Tag | ArchDaily. [online] Available at: <https://www.archdaily.com/tag/peter-zumthor> [Accessed 20 Sep. 2019].



Figure 37:Theme Vals, Switzerland, Peter Zumthor, 1996. The use of nature integrated into the design. Source: Archdaily.com. (2019). Peter Zumthor | Tag | ArchDaily. [online] Available at: <https://www.archdaily.com/tag/peter-zumthor> [Accessed 20 Sep. 2019].



Figure 38: Theme Vals, Switzerland, Peter Zumthor, 1996. The use of materials and natural lighting used in the building. Source: Archdaily.com. (2019). Peter Zumthor | Tag | ArchDaily. [online] Available at: <https://www.archdaily.com/tag/peter-zumthor> [Accessed 20 Sep. 2019].

6. Renzo Piano, Tjibaou Cultural Centre, New Calidonia (1998)

Renzo Piano is an architect known for his delicate and more technical approach to building, with sensitivity and consistency. His approach to light and materials plays a vital role in the sensitivity of the design. The Tjibaou Cultural Centre (8550m²) is significant for its location and attention to detail with the choice of materials that represent the culture of the specific area where it is located. The use of timber allows light to filter through in different ways creating a marvelous serene and comforting environment. The exterior part of the building is given an ancient appearance of a hut whilst the interior has a rectangular space. The iroko slats and steel connections acts as climate control and the aluminium sheeting on the roof plays with the shadows of light, to create the effect of a healing environment. The roofing allows natural air to filter through, without any mechanical systems being utilized.

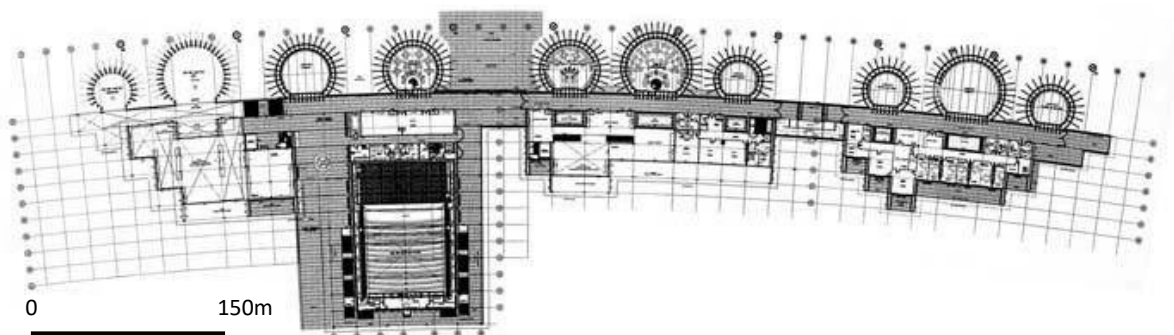


Figure 39 : Tjibaou Cultural Centre, New Calidonia, Renzo Piano, 1998. Plan. Source: Crook, L. (2015). Renzo Piano | Dezeen. [online] Dezeen. Available at: <https://www.dezeen.com/tag/renzo-piano/> [Accessed 20 Sep. 2019].

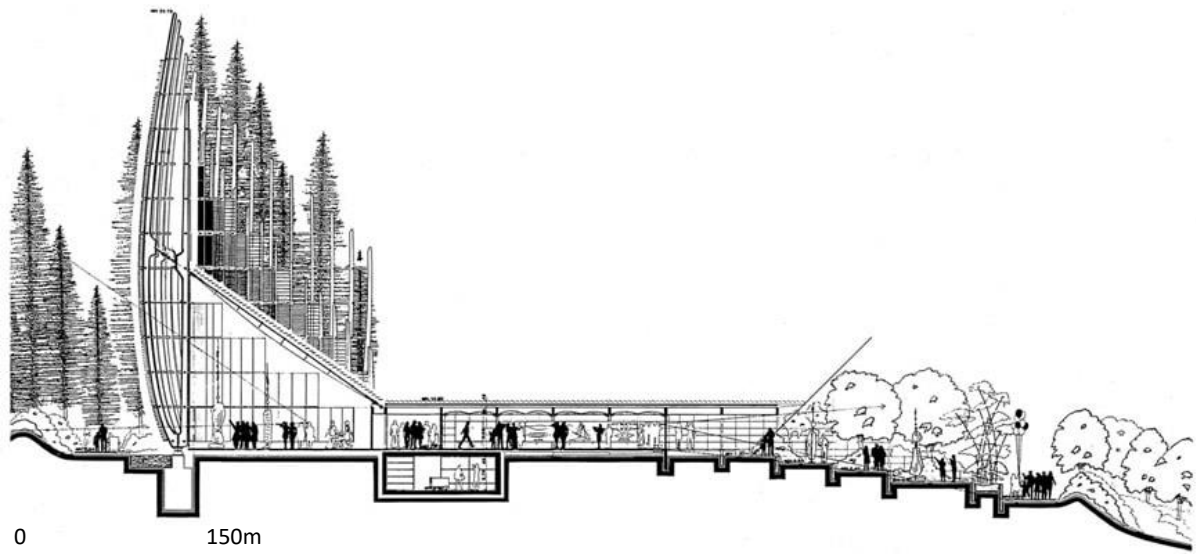


Figure 40 : Tijbaou Cultural Centre, New Calidonia, Renzo Piano, 1998. Sections. Source: Crook, L. (2015). Renzo Piano | Dezeen. [online] Dezeen. Available at: <https://www.dezeen.com/tag/renzo-piano/> [Accessed 20 Sep. 2019].

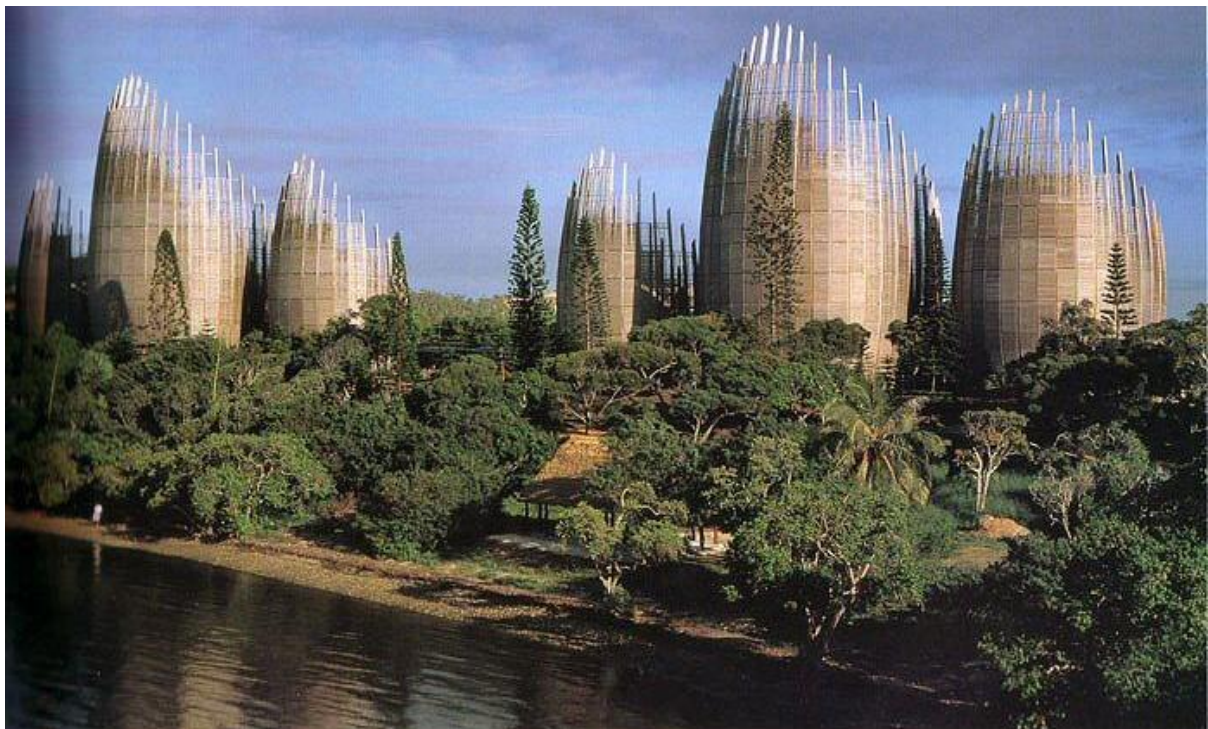


Figure 41: Tijbaou Cultural Centre, New Calidonia, Renzo Piano, 1998. The use of materials and natural light filtering through. Source: Crook, L. (2015). Renzo Piano | Dezeen. [online] Dezeen. Available at: <https://www.dezeen.com/tag/renzo-piano/> [Accessed 20 Sep. 2019].



Figure 42 : Tjibaou Cultural Centre, New Calidonia, Renzo Piano, 1998. The use of materials and natural light filtering through. Source: Crook, L. (2015). Renzo Piano | Dezeen. [online] Dezeen. Available at: <https://www.dezeen.com/tag/renzo-piano/> [Accessed 20 Sep. 2019].

7. Herzog & De Meuron, Rehab Basel, Switzerland (2002)

Herzog & De Meuron are Swiss architects who redefine modernism to elemental simplicity, while transforming materials and surfaces through exploration of new techniques. The Rehab Basel (24000m²) is a diversified building, almost like a mini town with streets, gardens, plaza and public facilities with the careful use of materials and natural light. The structure reinforces therapeutic methods that have been lost - such as : sunlight and natural building materials. The materials allow light to penetrate through into the rooms. The use of different materials and designs allow for wayfinding to be simpler. The main element that stands out is the materials, specifically the wood that looks as if it is reaching out of the grassy gardens.

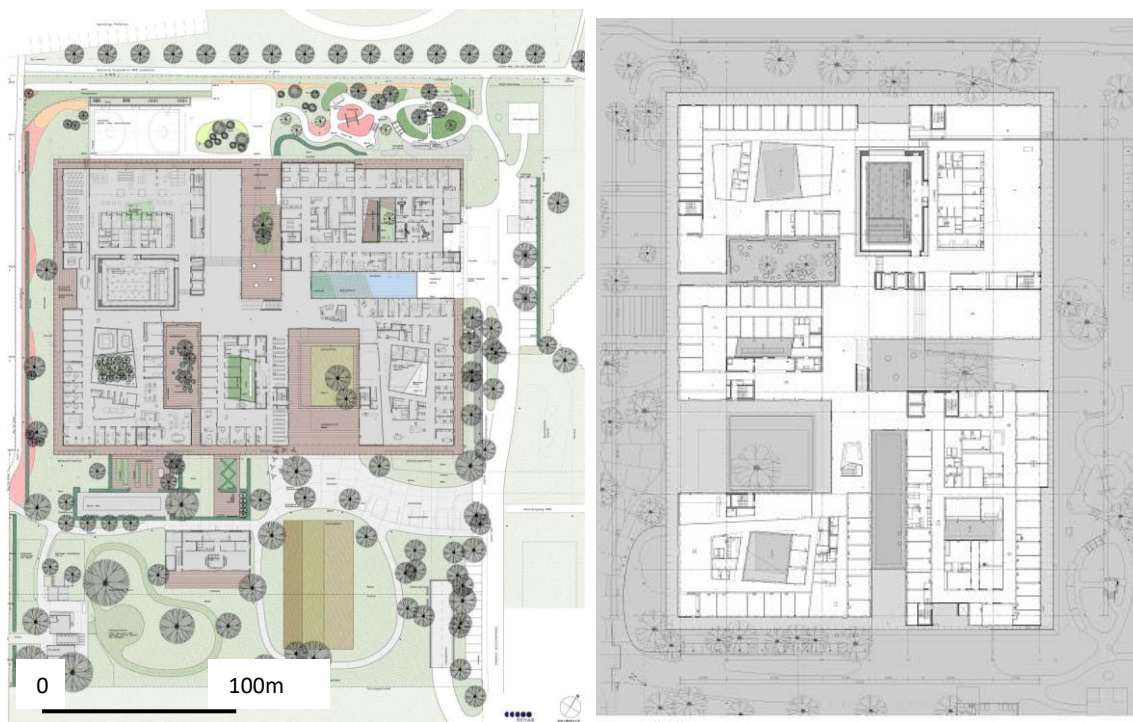


Figure 43: Rehab Basel, Switzerland, Herzog & de meuron, 2002. Plan. Source: Herzogdemeuron.com. (2016). 165 REHAB BASEL - HERZOG & DE MEURON. [online] Available at: <https://www.herzogdemeuron.com/index/projects/complete-works/151-175/165-rehab-centre-for-spinal-cord-and-brain-injuries.html> [Accessed 20 Sep. 2019].)

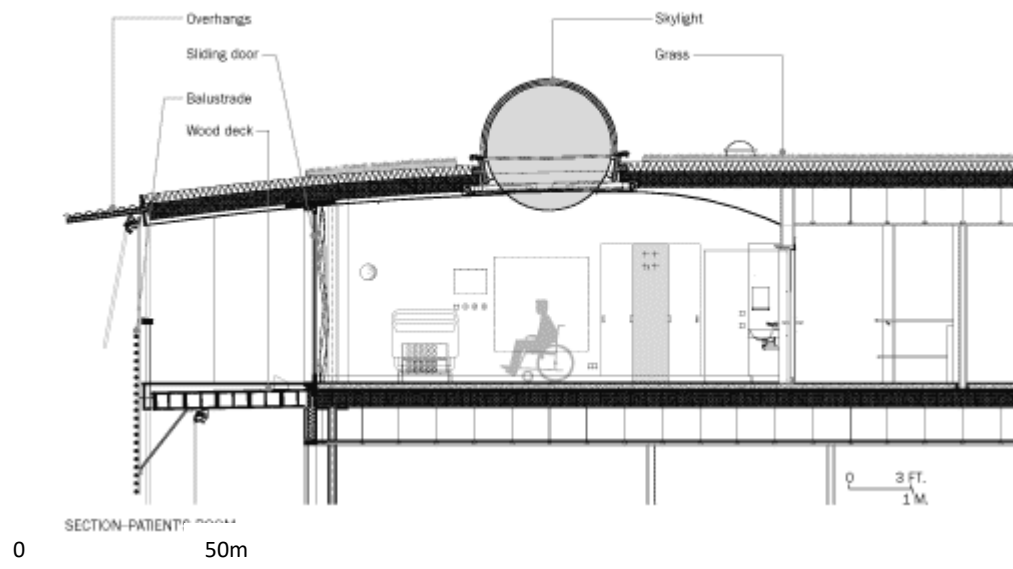


Figure 44: Rehab Basel, Switzerland, Herzog & de meuron, 2002. Sections. Source: Herzogdemeuron.com. (2016). 165 REHAB BASEL - HERZOG & DE MEURON. [online] Available at: <https://www.herzogdemeuron.com/index/projects/complete-works/151-175/165-rehab-centre-for-spinal-cord-and-brain-injuries.html> [Accessed 20 Sep. 2019].)



Figure 45: Rehab Basel, Switzerland, Herzog & de meuron, 2002. The use of nature, materials and light. Source: Herzogdemeuron.com. (2016). 165 REHAB BASEL - HERZOG & DE MEURON. [online] Available at: <https://www.herzogdemeuron.com/index/projects/complete-works/151-175/165-rehab-centre-for-spinal-cord-and-brain-injuries.html> [Accessed 20 Sep. 2019].)



Figure 46 : Rehab Basel, Switzerland, Herzog & de meuron, 2002. The use of nature and lightwells. Source: Herzogdemeuron.com. (2016). 165 REHAB BASEL - HERZOG & DE MEURON. [online] Available at: <https://www.herzogdemeuron.com/index/projects/complete-works/151-175/165-rehab-centre-for-spinal-cord-and-brain-injuries.html> [Accessed 20 Sep. 2019].

8. Juhaani Pallasmaa, *Sistema Moduli*, (1968)

Juhaani Pallasmaa is an architect who created the architectural theory in the : *Eyes of the Skin-Architecture and its Sense* (Wiley,20 05). He is important for designing buildings that include materiality and phenomenology, culture and psychology. The Sistema Moduli(600m²) utilizes inspiration from the work of Mies van de Rohe. The idea behind the use of materials and techniques of light filtration is based on the design of prefabricated houses through industrial production built in wood, steel, and glass.



Figure 47 : Sistema Moduli, Juhani Pallasmaa, 1968. The use of nature to create a calm welcoming feeling.

Source: Archdaily.com. (2018). Juhani Pallasmaa | Tag | ArchDaily. [online] Available at: <https://www.archdaily.com/tag/juhani-pallasmaa> [Accessed 20 Sep. 2019].

LIGHT

Besides the common benefits natural light has, when it is controlled in how it enters a space, it gives that specific space a sense of character and an emotional quality that is sensual and can be inherently felt by the user, thereby increasing the sense of comfort and wellbeing. Light also symbolizes growth and life.

9. Louis Kahn, Treptow Crematorium, Germany (1996)

Louis Kahn building, Treptow Crematorium(9339m²) has been designed with a special attention to detail, via the use of natural materials and light-well spaces allowing natural light to filter through. The circular light-well spaces in the columns are carefully arranged around a circular pole. The light from the head of each column is natural light. There are two symmetrical openings located in the niches between the pillars in the roof on either side of the room which illuminates and allows light to enter, symbolizing the transitory nature of life and creating the calming environment the user needs.

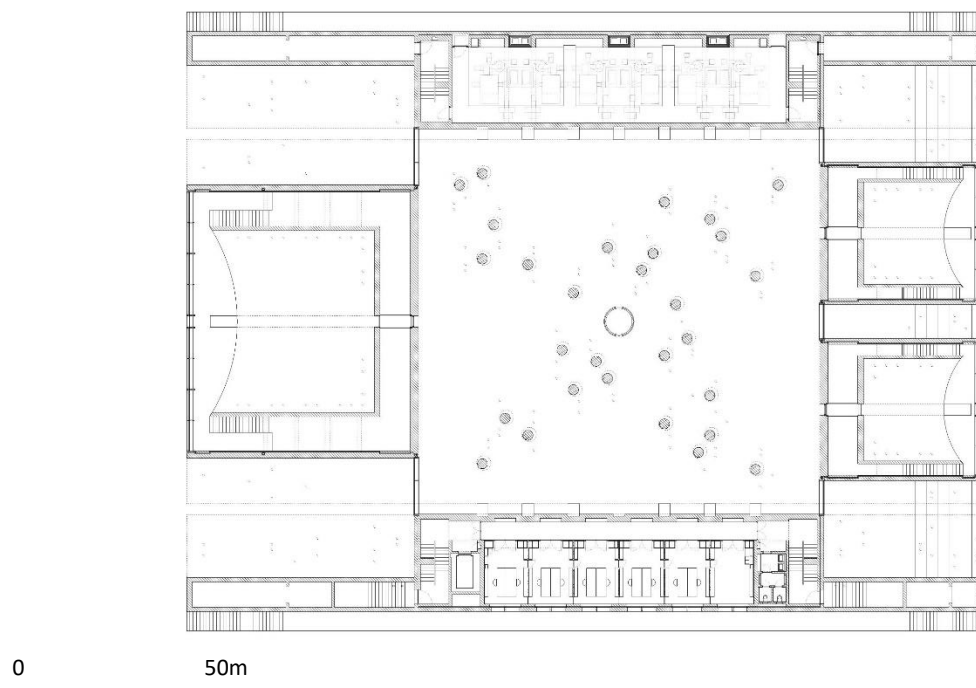


Figure 48: Treptow Crematorium, Germany, Louis Kahn, 1996. Plan. Source: Archdaily.com. (2019). Louis Kahn | Tag | ArchDaily. [online] Available at: <https://www.archdaily.com/tag/louis-kahn> [Accessed 20 Sep. 2019].

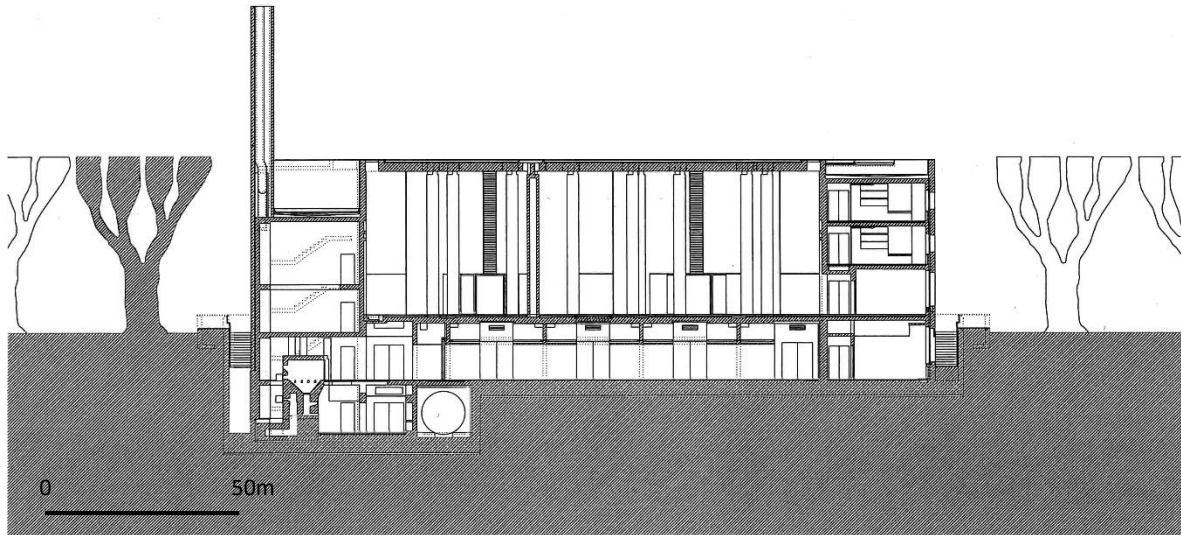


Figure 49:Treptow Crematorium, Germany, Louis Kahn, 1996. Light filtering into the building through lightwells. Source: Archdaily.com. (2019). Louis Kahn | Tag | ArchDaily. [online] Available at: <https://www.archdaily.com/tag/louis-kahn> [Accessed 20 Sep. 2019].



Figure 50:Treptow Crematorium, Germany, Louis Kahn, 1996.Sections. Source: Archdaily.com. (2019). Louis Kahn | Tag | ArchDaily. [online] Available at: <https://www.archdaily.com/tag/louis-kahn> [Accessed 20 Sep. 2019].

10. Tadao Ando, Church of light, Japan (1999)

Tadao Ando building, *The Church of The Light*(113m²) is a philosophical framework between architecture and nature defined by the way in which light creates new perceptions. *The church of the light* - is an architecture of duality between nature and existence - with solid/void, stark/serene and light/dark. The intersection of light and solids in the church raises the user's awareness of spirituality and creates a secluded, serene environment within themselves.

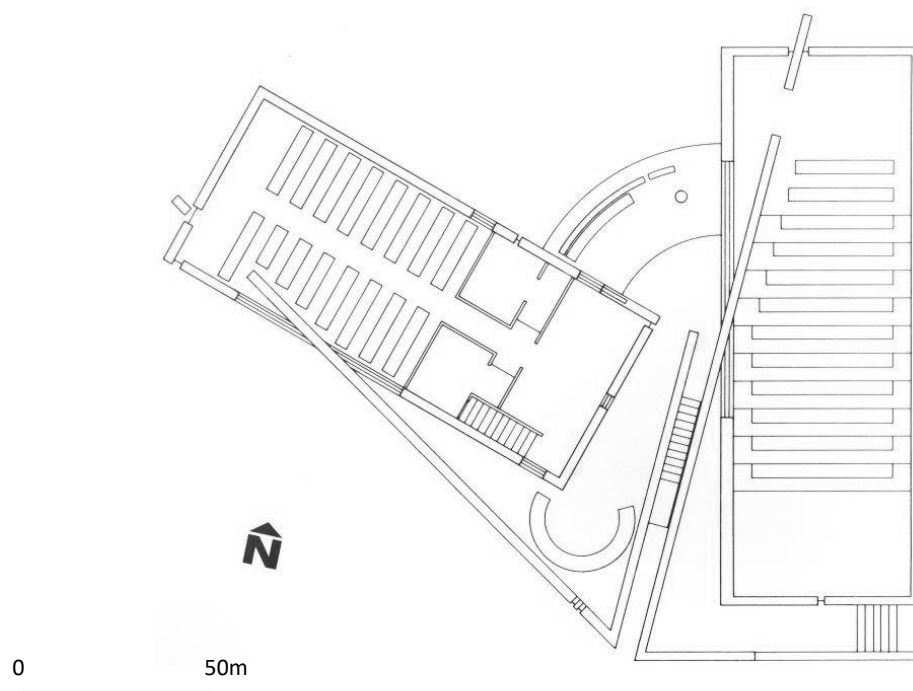


Figure 51 : Church of the light, Japan, Tadao Ando, 1999. Site Plan. Source: ArchDaily. (2011). *AD Classics: Church of the Light / Tadao Ando Architect & Associates*. [online] Available at: <https://www.archdaily.com/101260/ad-classics-church-of-the-light-tadao-ando> [Accessed 5 Oct. 2019].

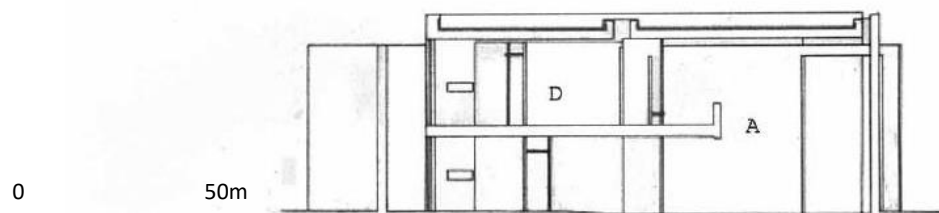


Figure 52 :Church of the light, Japan, Tadao Ando, 1999. Sections Source: ArchDaily. (2011). *AD Classics: Church of the Light / Tadao Ando Architect & Associates*. [online] Available at: <https://www.archdaily.com/101260/ad-classics-church-of-the-light-tadao-ando> [Accessed 5 Oct. 2019].

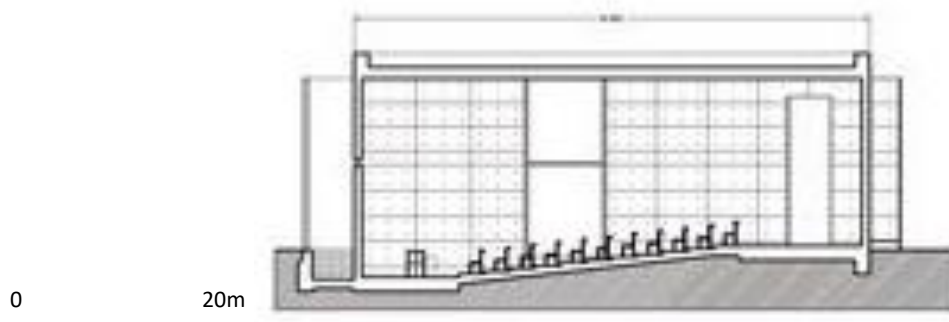


Figure 53 : Church of the light, Japan, Tadao Ando, 1999. Sections. Source: ArchDaily. (2011). *AD Classics: Church of the Light / Tadao Ando Architect & Associates*. [online] Available at: <https://www.archdaily.com/101260/ad-classics-church-of-the-light-tadao-ando> [Accessed 5 Oct. 2019].

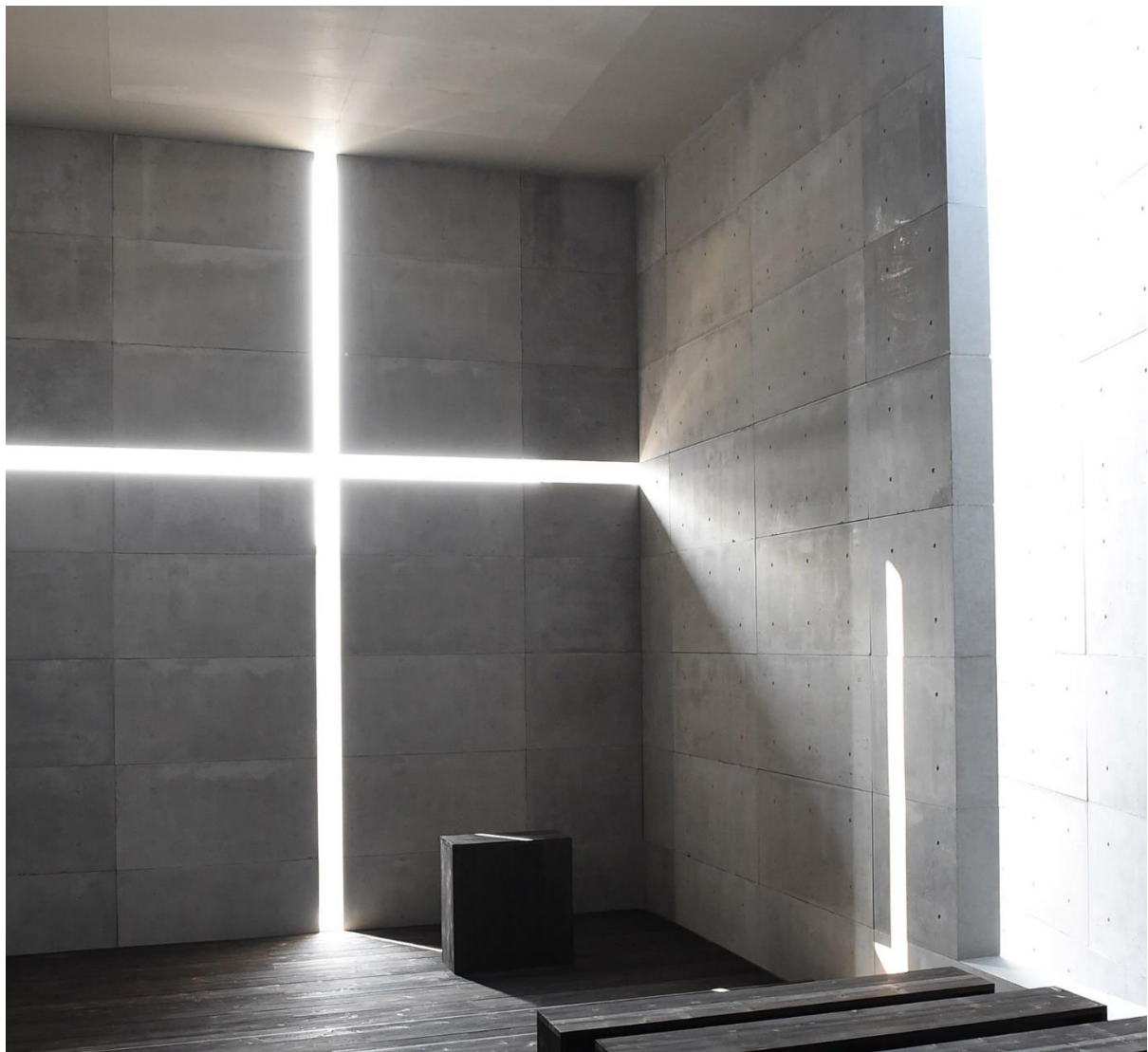


Figure 54 : Church of the light, Japan, Tadao Ando, 1999. Natural light filtering through. Source: ArchDaily. (2011). *AD Classics: Church of the Light / Tadao Ando Architect & Associates*. [online] Available at: <https://www.archdaily.com/101260/ad-classics-church-of-the-light-tadao-ando> [Accessed 5 Oct. 2019].



Figure 55 : Church of the light, Japan, Tadao Ando, 1999. Natural light filtering through. Source: ArchDaily. (2011). *AD Classics: Church of the Light / Tadao Ando Architect & Associates*. [online] Available at: <https://www.archdaily.com/101260/ad-classics-church-of-the-light-tadao-ando> [Accessed 5 Oct. 2019].

11. Peter Zumthor , Kolumba Museum, Cologne (2007)

It is interesting to observe the building, Kolumba Museum(1750m²) for the way in which light filters into the museum and exhibition space. The new brickwork integrates into the church's old façade and is articulated with perforations allowing light to filter into specific spaces and objects creating a peaceful, changing environment for seclusion and reflection.

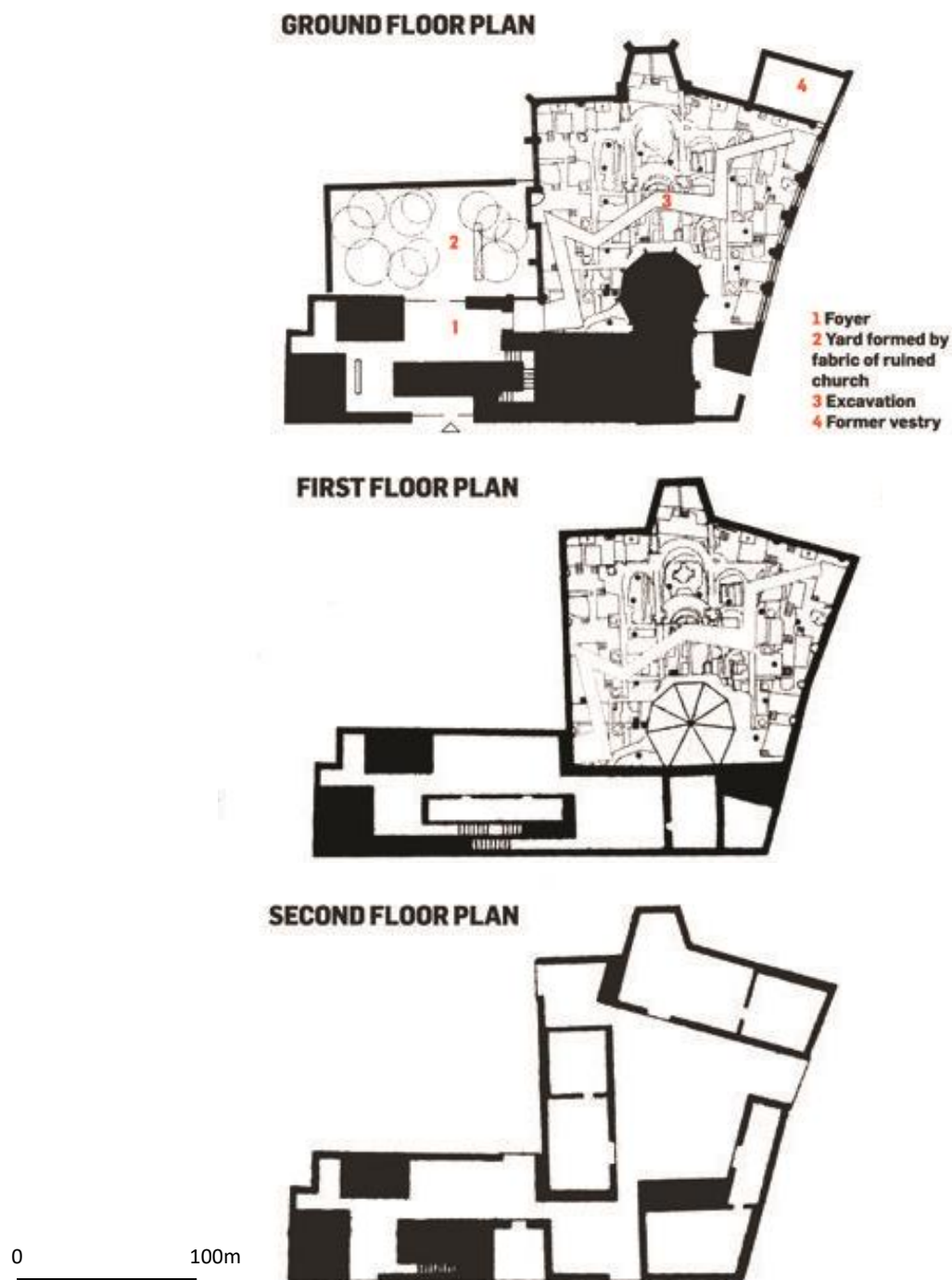


Figure 56:Kolumba Museum, Cologne Peter Zumthor, 2007Site plan. Source: Cilento, K. (2010). Kolumba Museum / Peter Zumthor. [online] ArchDaily. Available at: <https://www.archdaily.com/72192/kolumba-museum-peter-zumthor> [Accessed 10 Oct. 2019].

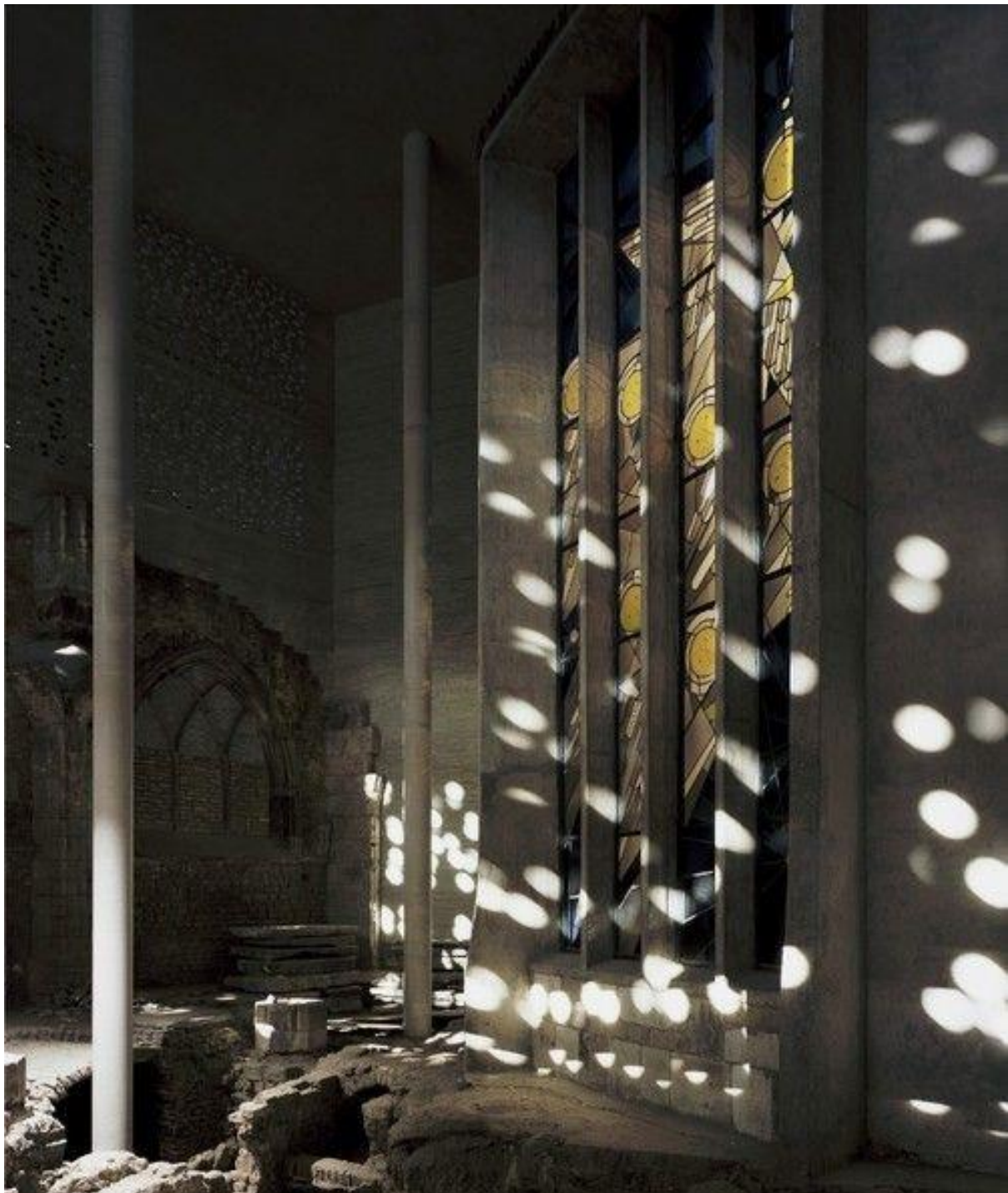


Figure 57:Kolumba Museum, Cologne Peter Zumthor, 2007. Natural light filtering through. Source: Cilento, K. (2010). Kolumba Museum / Peter Zumthor. [online] ArchDaily. Available at: <https://www.archdaily.com/72192/kolumba-museum-peter-zumthor> [Accessed 10 Oct. 2019].

The Young Museum (27220m²) can be observed for the way in which light filters through the ceiling into a spiritual place. The idea behind the design of the extension of this museum was to create an experience for the visitor from the entrance of the museum. Terraces and cantilevered roofs in this museum help to create the desired effect of serenity and becoming one with the context. The large ribbon windows used in the exhibition spaces allow the users to feel united with the exterior surroundings, by blurring the lines between inside and outside. The façade opening represents the illusion of light filtering through a tree in order to create the feeling of being one with nature.



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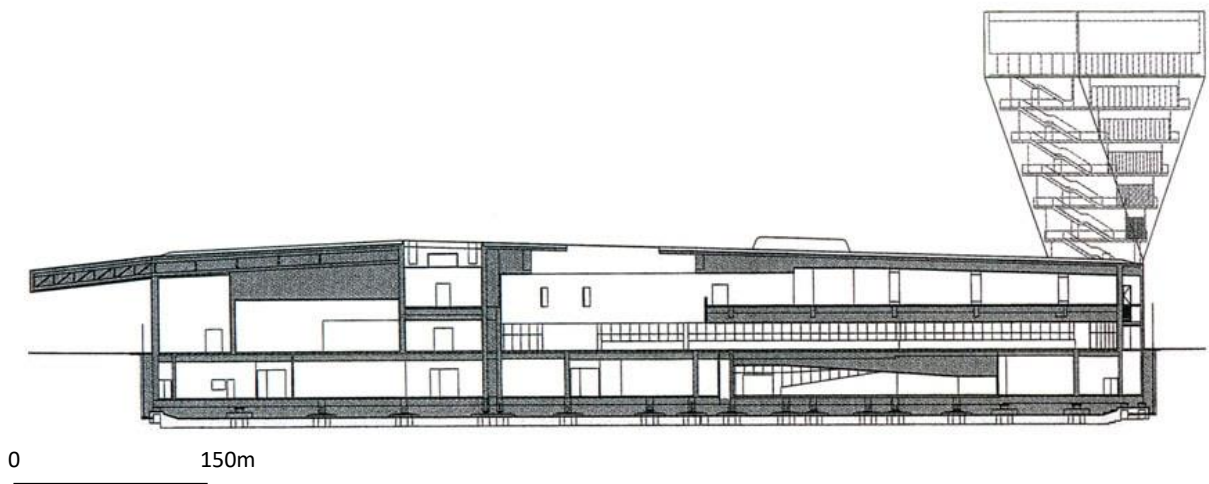


Figure 59 :Young Museum, Switzerland, Herzog & de meuron, 2002. Sections. (2016). 165 REHAB BASEL - HERZOG & DE MEURON. [online] Available at: <https://www.herzogdemeuron.com/index/projects/complete-works/151-175/165-young-museum.html> [Accessed 20 Sep. 2019].)



Figure 60 :Young Museum, Switzerland, Herzog & de meuron, 2002. Natural light filtering through Source: Herzogdemeuron.com. (2016). 165 REHAB BASEL - HERZOG & DE MEURON. [online] Available at: <https://www.herzogdemeuron.com/index/projects/complete-works/151-175/165-young-museum.html> [Accessed 20 Sep. 2019].)

3.5 CONCLUSION

The exploration of the theories and concepts of - Empowering through Architecture, Therapeutic Communities and Healing Architecture , can be understood as the theme which combines healing, rehabilitation and the built environment. The connection between architecture and the built environment is without a doubt connected with our natural and social situations. Through the previously mentioned architectural, social and environmental theories such as empowering through the built form, therapeutic communities and principals of healing , structures should be intended to encourage the individual's feelings and challenges that are obstacles . Architecture is the amazing asset that strengthens the connection of people and with the use of principals of healing one can provide places where people can think about themselves and create a strong network in general.

Healing Architecture and atmospheres have the ability to create social classes through the built form to produce social connections. The advantages of therapeutic healing and rehabilitative frameworks is that, they allow the re-integrative frameworks the ability to function, through the use of public and private spaces, by means of formalized structures. Therapeutic communities are a concept which is regularly adjusted in treatment models and can be communicated by principals of healing. The articulation and the linkage of spaces to various schedules should take into consideration communication between communities and individuals.

Therefore, the above theories and concepts examined in this literature becomes the foundation for this dissertation as it will assist in informing the precedent and case studies that will follow in order to create an overall design intervention.

REINTEGRATION PROCESS

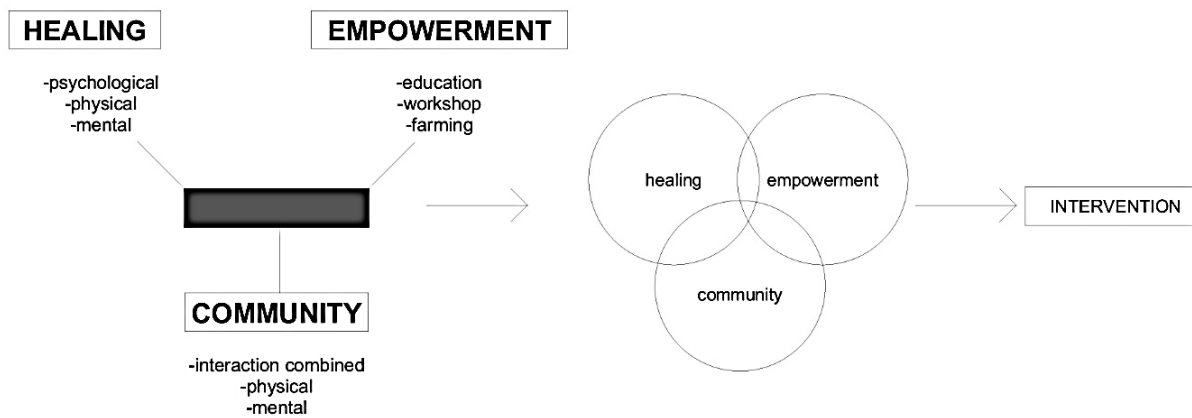


Figure 61 :Diagram showing the different concepts coming together to create intervention. Source: Author (01 March 2020)

CHAPTER 4:

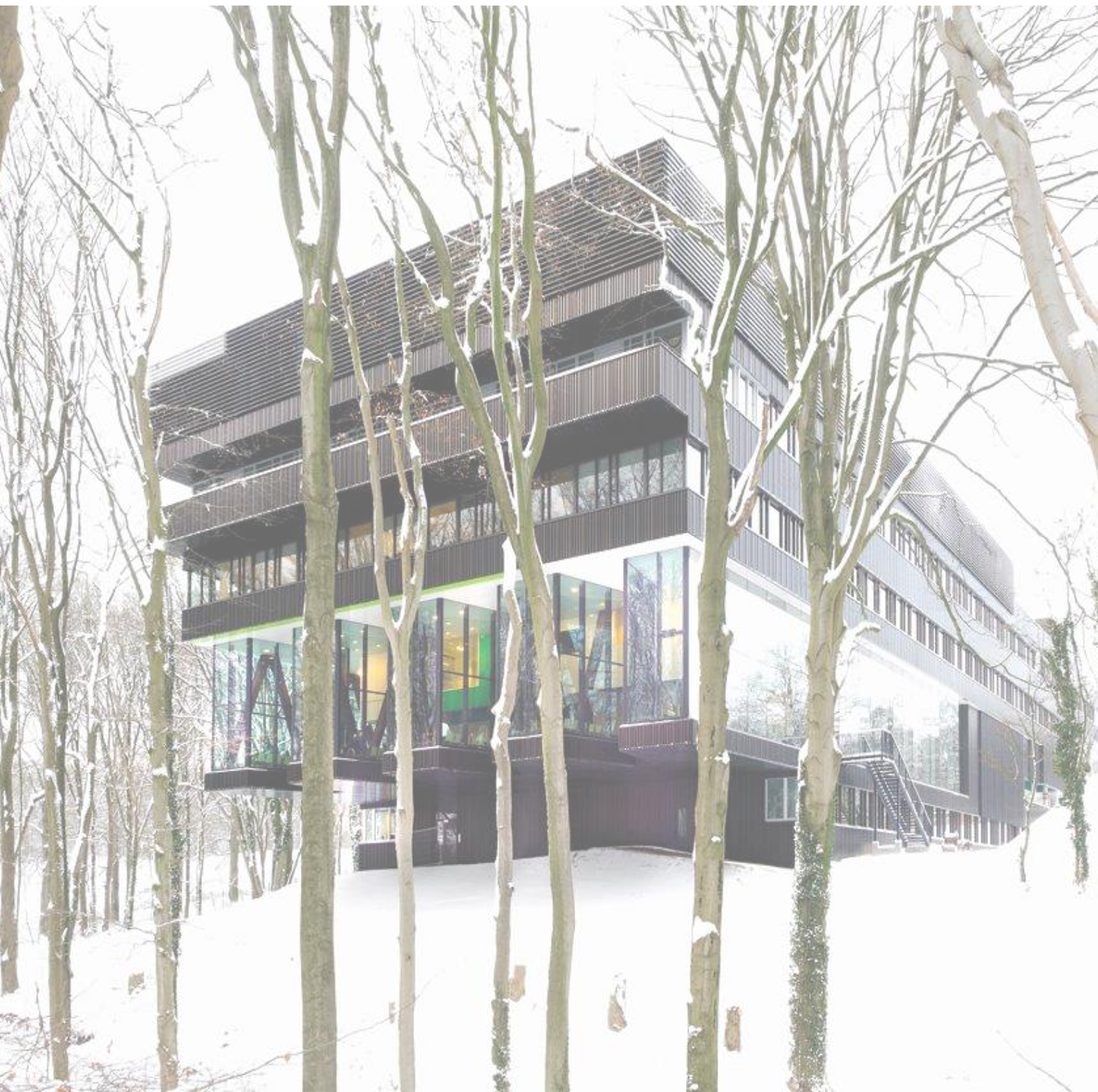
TOWARDS A CONTEMPORARY REHABILITATION CENTRE

CHAPTER 4 | TOWARDS A CONTEMPORARY REHABILITATION CENTRE

4.1 INTRODUCTION

The literature thus far has highlighted the importance of post rehabilitation, using social reintegration and therapeutic healing as a mechanism for integration. The following precedents were selected for their typology for the design proposal and include Groot Klimmendaal Rehabilitation facility in Anhem, Netherlands and Sister Margaret Smith Addiction and Treatment Centre in Ontario Canada. These two studies will be broken down by their general characteristics. Investigation of the typology and how it deals with the current context, the way in which the setting is supported by the concept of social reintegration that shows that this building has the ability to learn through the environment.

The analysis of the spaces provided is supported by the principles of the theory of empowerment and community reinforcement approach along with the concept of healing architecture. This will provide a better understanding on rehabilitation buildings and the typology of therapeutic architecture as a post rehabilitation and reintegration mechanism which can be formed through practical and informative design interventions.



4.2 GROOT KLIMMENDAAL FACILITY, NETHERLANDS

4.2.1 Project Background

Project: Rehabilitation Centre Groot Klimmendaal

Location: Arnhem, Netherlands

Architect: Koen Van Velsen

Size: 14,000 sqm

Constructed: January 2010

Funded: Government/Public



Figure 62: Site plan of the groot klimmendaal rehabilitation centre. Source: <http://www.dezeen.com/2011/03/25/rehabilitation-centregroot-klimmendaal-by-architectenbureau-koen-van-velsen/> (Date Accessed: 20 May 2019)

The Groot Klimmendaal rehabilitation centre is located in a forest environment outside Arnhem, Netherlands. The architect Koen Van Velsen's intention for this building was to create a facility that forms part of the large-scale intervention and allows the patients to reintegrate into society while rehabilitating. The building is in its first phase of the design and it consist of residential, recreational and social spaces. This allows the individuals to gradually integrate into the public realm. This facility provides for individuals of all ages and includes a

separate component for the youth's family to be involved in the process allowing the individuals to have family support in the process. The second phase of the building is to include a school component.

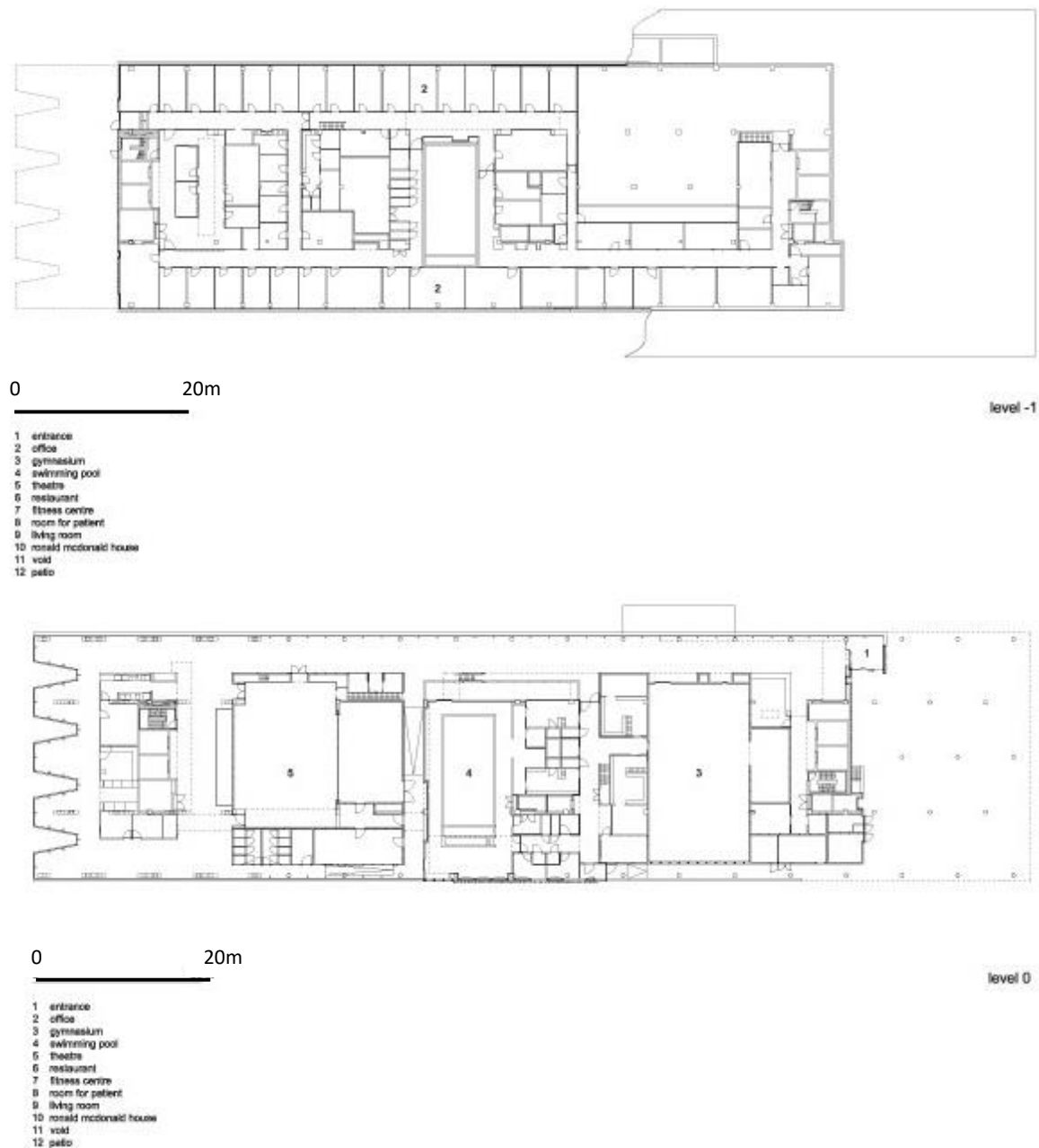
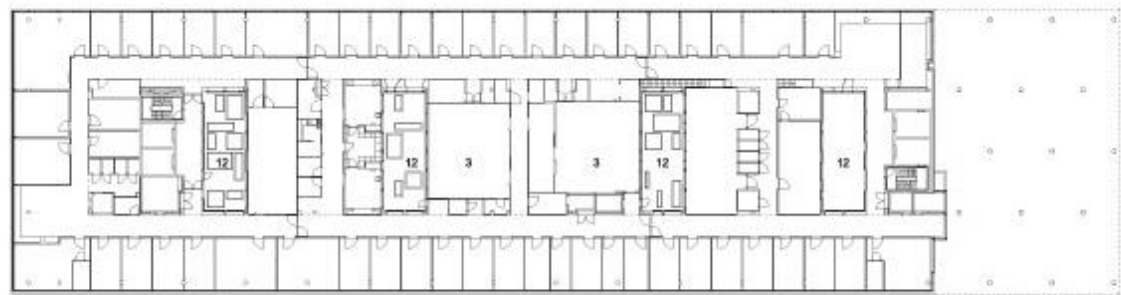


Figure 63: Level -1 and Level 0 of the Groot Klimmendaal Facility. Source: <https://www.archdaily.com/126290/rehabilitation-centre-groot-klimmendaal-koen-van-velsen> (Date Accessed: 13 June 2019)



0 20m

level 2

- 1 entrance
- 2 office
- 3 gymnasium
- 4 swimming pool
- 5 theatre
- 6 restaurant
- 7 fitness centre
- 8 room for patient
- 9 living room
- 10 ronald mcdonald house
- 11 void
- 12 patio



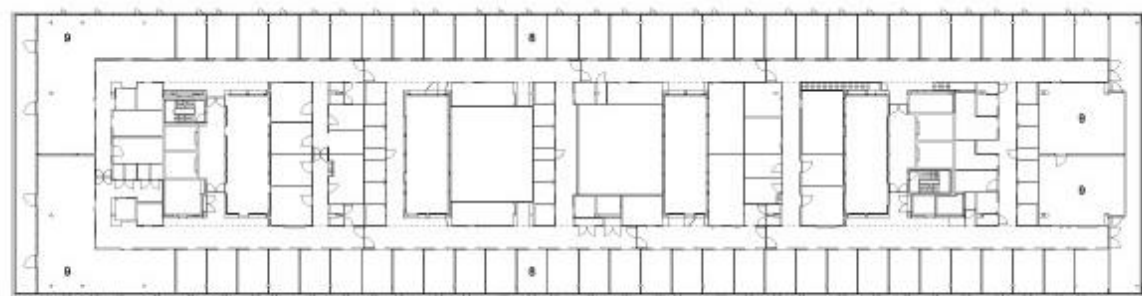
0 20m

level 1

- 1 entrance
- 2 office
- 3 gymnasium
- 4 swimming pool
- 5 theatre
- 6 restaurant
- 7 fitness centre
- 8 room for patient
- 9 living room
- 10 ronald mcdonald house
- 11 void
- 12 patio

Figure 64 : Level 1 and Level 2 of the Groot Klimmendaal Facility.

Source:<https://www.archdaily.com/126290/rehabilitation-centre-groot-klimmendaal-koen-van-velsen> (Date Accessed: 13 June 2019)



0 20m

level 3

- 1 entrance
- 2 office
- 3 gymnasium
- 4 swimming pool
- 5 theatre
- 6 restaurant
- 7 fitness centre
- 8 room for patient
- 9 living room
- 10 Ronald McDonald house
- 11 void
- 12 patio



0 20m

level 4

- 1 entrance
- 2 office
- 3 gymnasium
- 4 swimming pool
- 5 theatre
- 6 restaurant
- 7 fitness centre
- 8 room for patient
- 9 living room
- 10 Ronald McDonald house
- 11 void
- 12 patio

Figure 65: Level 3 and Level 4 of the Groot Klimmendaal Facility.

Source: <https://www.archdaily.com/126290/rehabilitation-centre-groot-klimmendaal-koen-van-velsen> (Date Accessed: 13 June 2019)



Figure 66: Longitudinal section of the building. Source:<https://www.archdaily.com/126290/rehabilitation-centre-groot-klimmendaal-koen-van-velsen> (Date Accessed : 13 June 2019)

4.2.2 Empowerment and Community Reinforcement

The Groot Klimmendaal rehabilitation centre is designed using the concept called 'Inclusive Care'. This is a concept that considers the impact the natural environment has on an individual. The intention when designing this building was to allow the building to blend into the natural environment and be a part of the communities. This assist in the reintegration process considered in the building by allowing the patients to feel a part of the community.

The theory of community reinforcement can be seen when looking at the location of the building because it is central to the community and has direct connection with the surrounding nature. By including the second phase of the design the building and its site will become a public park for the community consisting of various types of buildings. This will attract the community to the area and the utilization of the building by the community will assist in the reintegration aspect.



Figure 67 : Image showing the facility blending into the surroundings. Source: <https://www.archdaily.com/126290/rehabilitation-centre-groot-klimmendaal-koen-van-velsen> (Date Accessed: 13 June 2019)

Looking at the building on a mezzo scale , the theory of community reinforcement can be seen in the designing of building because it creates opportunities for social interaction between patients and the community within it . The public facilities provided in the building allows the community to use it while the patients are in the space. The reason behind the public being allowed to use these spaces is so that these patients feel a part of the community.

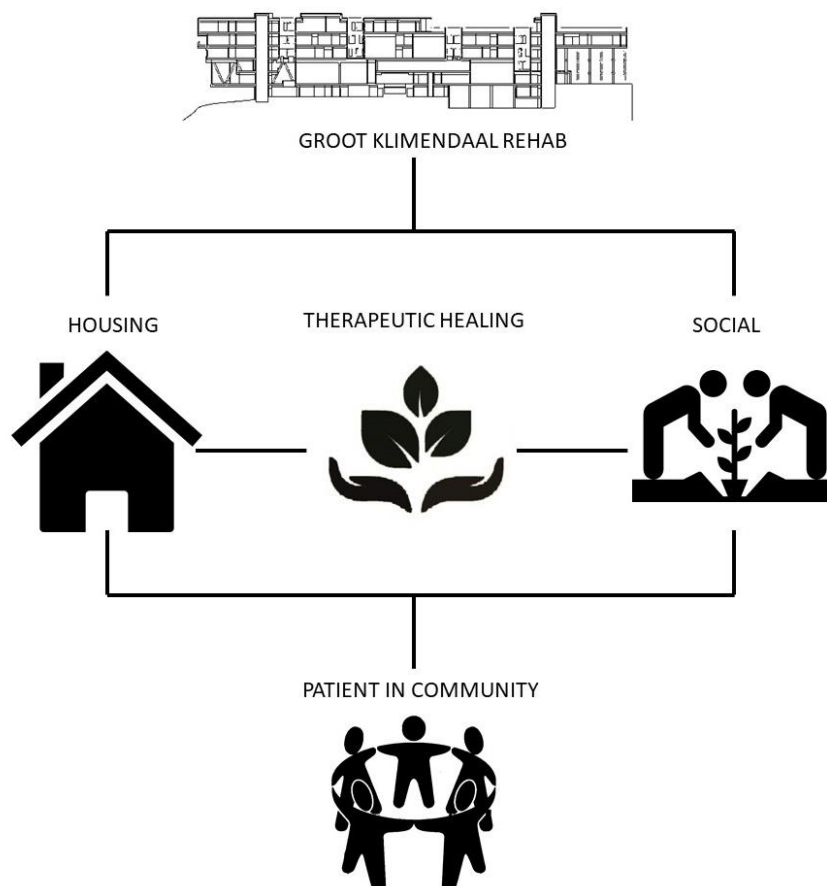


Figure 68 : Diagram showing the reintegration process of the building. Source: Author (04 June 2019) Durban, South Africa

The images above demonstrate how therapeutic wellness is used as an element that assist in the rehabilitation process with the involvement of the community. The building also used the concept of social sustainability which goes back to the concept of healing architecture. This is shown by the building being part of the natural environment and alters the perspectives of how healthcare facilities should be designed by providing an alternative design strategy of how a building can also be used as a tool for reintegration.

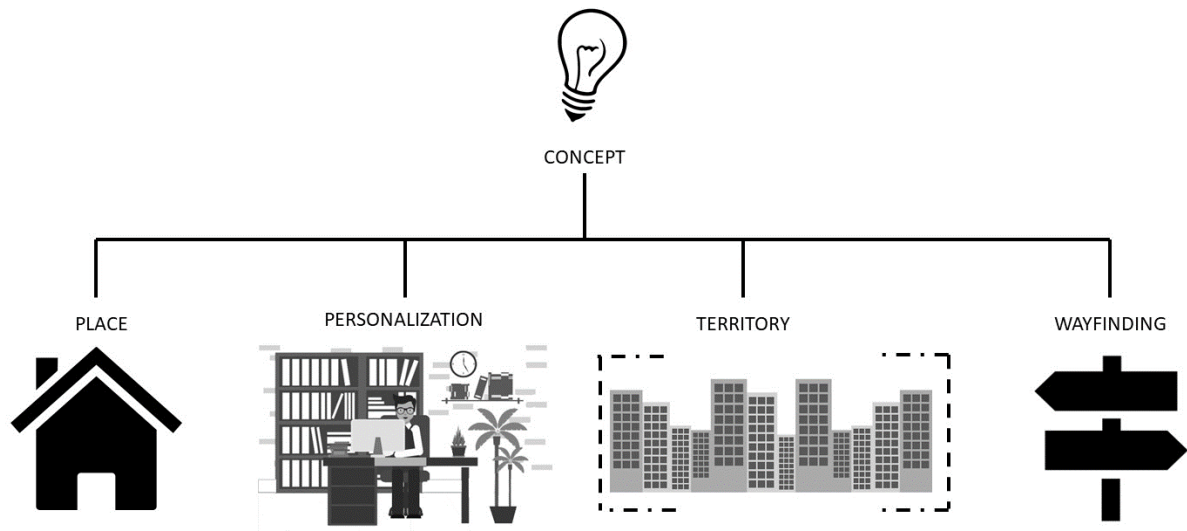


Figure 69: Diagram showing the different concepts used. Source: Author (04 June 2019) Durban, South Africa

The image above shows the different theories of empowerment, healing and placemaking used in the building to create a new approach on how facilities for rehabilitation should be designed. In this facility, one of the concepts used in the rehabilitative process is self-regulation mentioned in chapter 2. This helps the individual learn informative principles from the environment mentioned above.

The reintegration process of the facility is based on three key elements of the theory of empowerment the patients and help them to recover using architecture. The journey that the residents experience is shown clearly in the design by providing the public nodes first and private nodes above. This enforces the idea that aesthetics and function are vital to the recovery process. The public facilities are provided on the ground floor because of its accessibility and to allow the residents to have their privacy on the floors above. The stacking up the building with multiple boxes allows the floors above to cantilever over the ground floor, adding to the experience of the public.

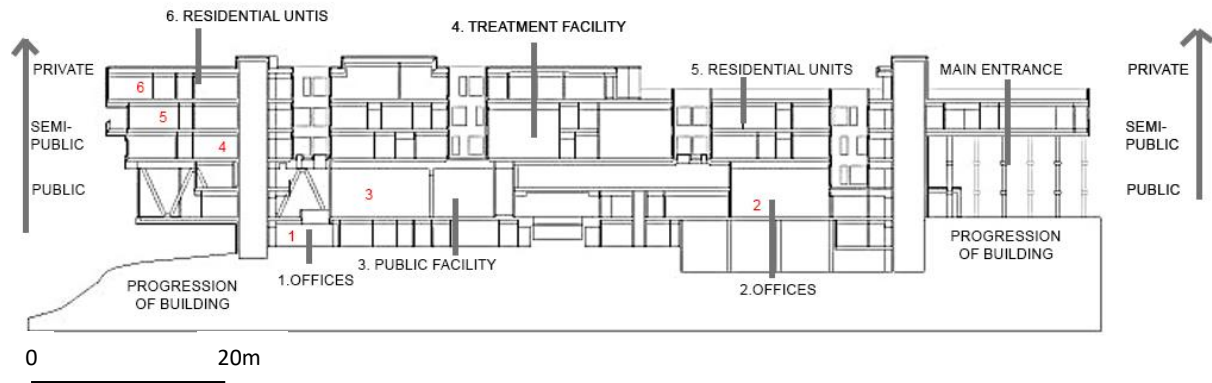


Figure 70 : Section showing the progression through the building. Source: Author (04 June 2019) Durban, South Africa

4.2.3 Healing Architecture

The facility allows the surrounding nature to have a strong visual and tangible presence in every part of the building allowing the patients to heal whilst walking. The welcoming environment offers a natural habitat for which to care. This shows the reader that the use of concepts of healing architecture is a vital component of the process by allowing nature to play a role and the user to draw out the element's nature provides.



Figure 71: Image showing the spaces in the facility open up to nature. Source: <https://www.archdaily.com/126290/rehabilitation-centre-groot-klimmendaal-koen-van-velsen> (Date Accessed: 13 June 2019)

The diagram below shows that the way in which individuals circulate in the building is specifically designed to allow them to find the spaces provided easily . The principles of wayfinding is used by linking spaces through landmarks and mental and physical activities.



Figure 72: Diagram showing the circulation through the building. Source: Author (04 June 2019) Durban, South Africa

The ground floor double volume is designed to cover the entire length of the building to create a smooth continuity of the exterior and interior and allow the user to feel comfortable when entering the building. This also allows ventilation to filter through the entire building.

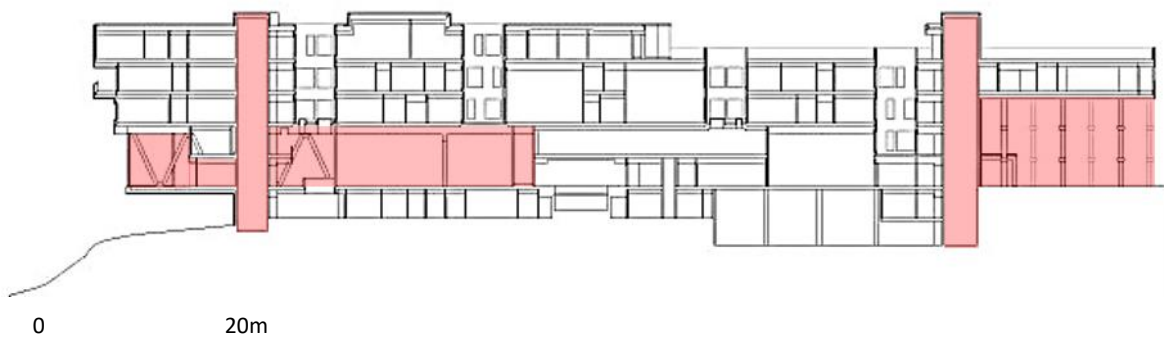


Figure 73: Diagram showing the double volume spaces. Source: Author (04 June 2019) Durban, South Africa



Figure 74 : Image showing entrance of the facility. Source: <https://www.archdaily.com/126290/rehabilitation-centre-groot-klimmendaal-koen-van-velsen> (Date Accessed: 13 June 2019)

A timber staircase is situated at the edge of the building covering the full height creating alternative routes for the patient allowing them to move around through the different functions easily. The principals from the concept of healing architecture mentioned in chapter 3 can be seen with the design of the staircase, the position of it allows the user to experience physical exercise that stimulates the patient's physical and mental health .



Figure 75 : Image showing the staircase and surrounding spaces. Source: <http://www.dezeen.com/2011/03/25/rehabilitation-centregroot-klimmendaal-by-architectenbureau-koen-van-velsen/> (Date Accessed: 20 May 2019)

The facility uses a combination of large and small windows and light wells to allow light to filter through into the building and rustic views creating a healing environment using natural light .The use of colours and materials provide an impacting role on the users wellbeing by using specific types like wood, glass and brick to affect the patients' health and increase healing. The choice of materials also increases the building sustainability by using finishes that need less maintenance while promoting wellbeing. The design of this building took into consideration each aspect of the principals of healing architecture such as light ,colour , materiality, nature and sustainability.

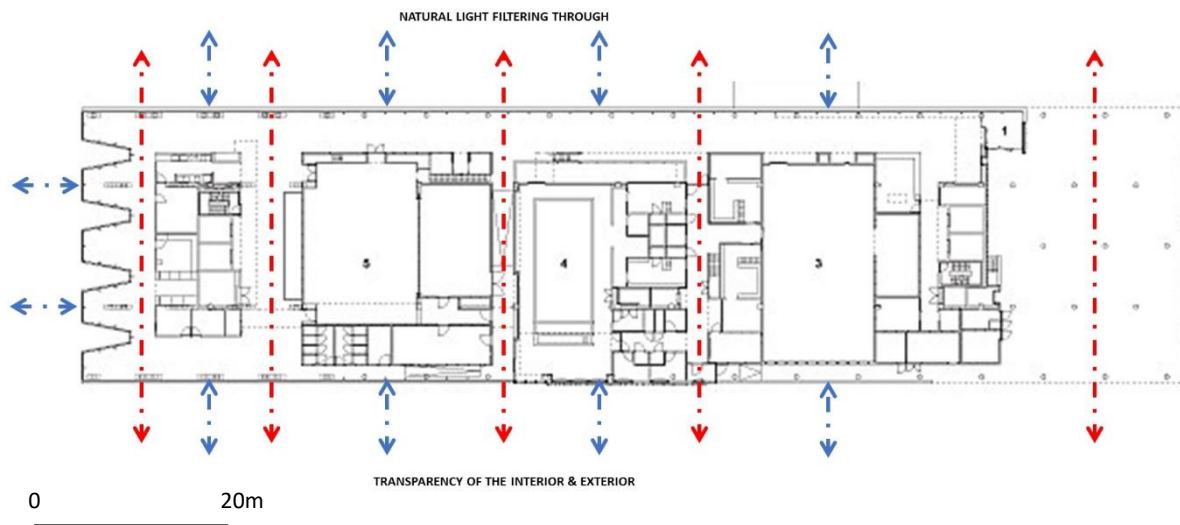


Figure 76 : Images natural light filtering through and transparency of the building.

Source:<http://www.dezeen.com/2011/03/25/rehabilitation-centregroot-klimmendaal-by-architectenbureau-koen-van-velsen/> (Edited by Author, Date Accessed: 20 May 2019)

A few key sustainable design strategies that are used in the building are:

1. Glazing- All the glazing used provides natural light in spaces and creates that healing and comforting feeling by providing access to the outside therapeutic gardens
2. The building footprint- The facility was designed to respects the sites ecology and include the forestry area in it with the use of elements of nature.
3. Materials - This is shown by choice of materials that require low maintenance and have a long lifespan.
4. Energy reduction- This can be seen by the compact design of the building and the use of hot and cold thermal storage reducing the energy consumption.

4.2.4 Summary

The Groot Klimmendaal centre is a facility that is focused on the inclusion of the surrounding community, environment and social context, thereby inviting the community and family to the building which aids the rehabilitation and reintegration process. It is placed at the centre of the community which increases connectivity and social interaction and social cohesion. The buildings main elements are circulation, light, colour and materials to create a therapeutic

healing environment for the patient. The resident's privacy in the building is considered as an important aspect and is therefore limited to the public however the ground floor acts as magnet attracting the public with the use of public facilities like physical activities, recreational and food. The building achieves the goal of reintegration and rehabilitating patients through new therapeutic treatments used. The building enhances the experience of nature and the stimulating environment by using transparency, continuity, layering, diversity and the play of light and shadow (Arch Daily, 2011).



4.3 SISTER MARGARET SMITH ADDICTION TREATMENT CENTRE, CANADA

4.3.1 Project Background

Project: Sister Margaret Smith Addictions Treatment Centre

Location: Thunder Bay, Ontario, Canada

Architect: Montgomery Sisam Architects Inc.

Size: 20,400 sqm

Constructed: 2009

Funded: Private

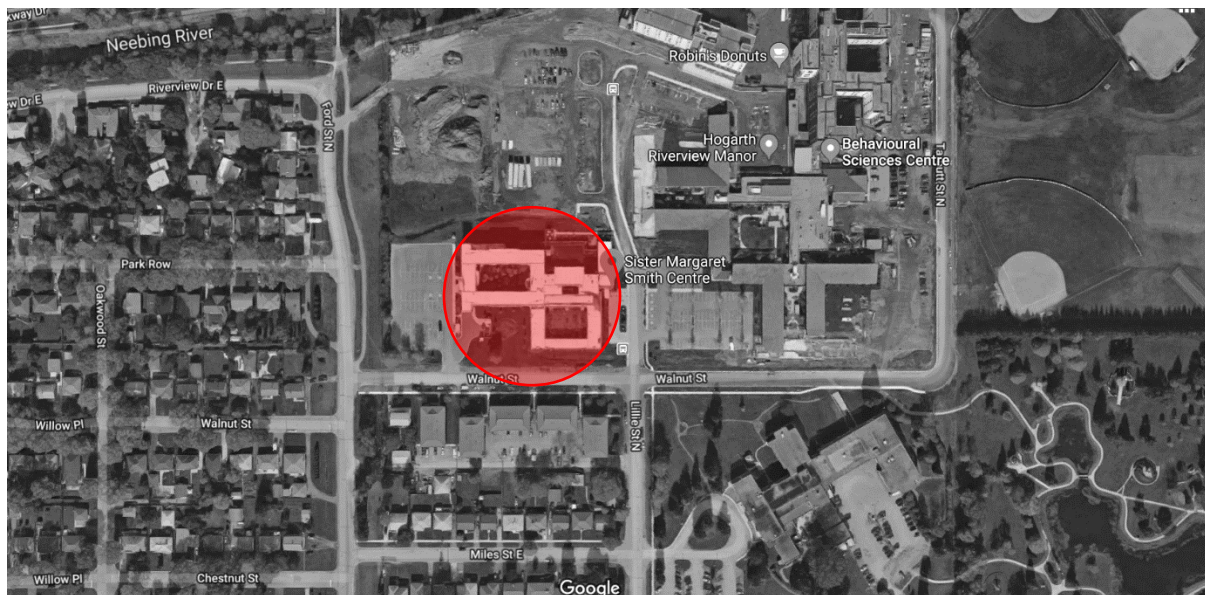


Figure 77 : Site plan of the sister Margaret smith addiction treatment centre.

Source: <https://www.montgomerysisam.com/project/sister-margaret-smith-addictions-treatment-centre/>
(Date Accessed: 20 May 2019)

The Sister Margaret Smith Addiction Treatment Centre is located in the inner city of Ontario, Canada. The intention of architect Stephenson Gibson Malo Architects was to create a facility that caters for all types of addiction starting with drug and alcohol substances. The building facilitates a residential and non-residential component for substance users.

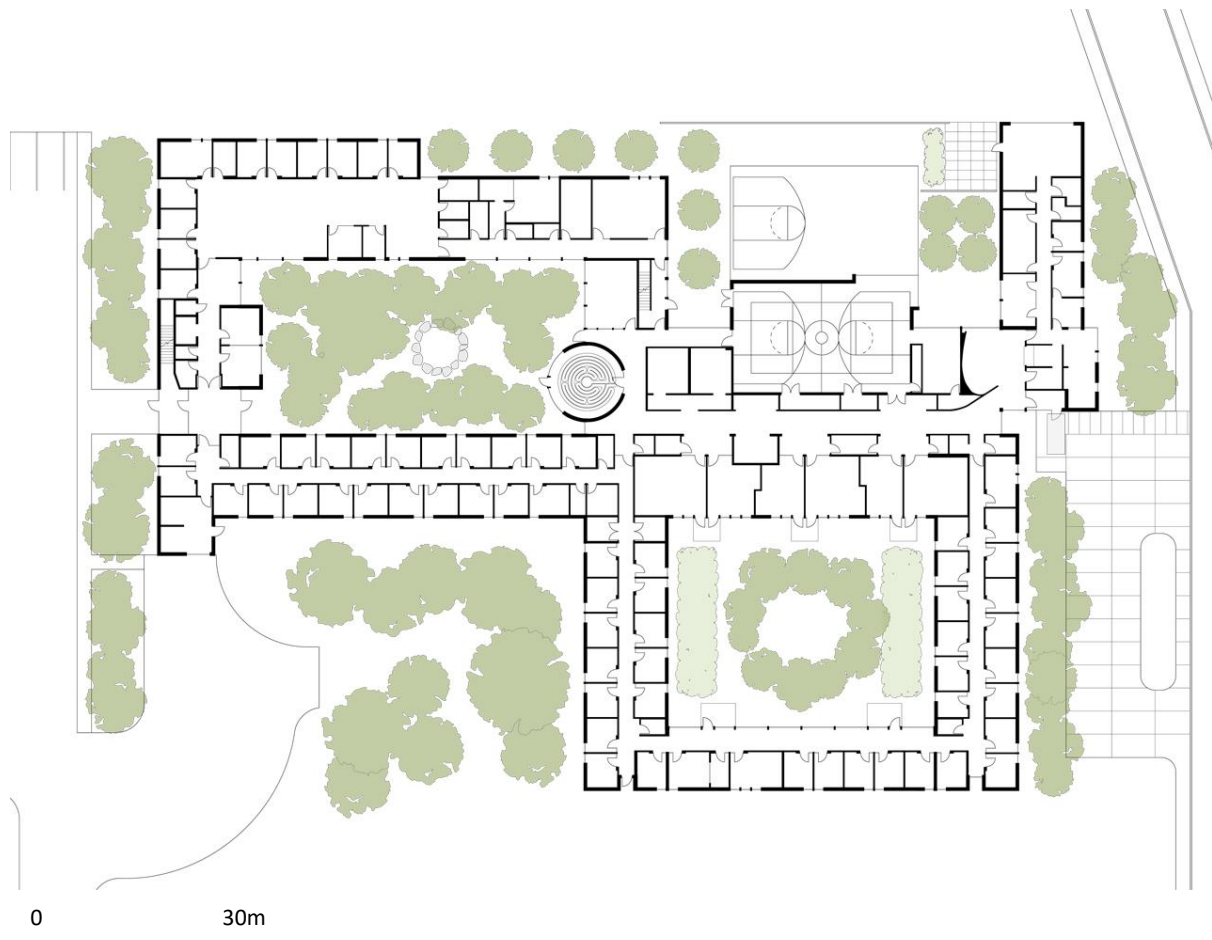


Figure 78 : Plan of the sister Margaret addiction treatment centre. Source: <https://www.montgomerysisam.com/project/sister-margaret-smith-addictions-treatment-centre/> (Date Accessed: 13 June 2019)

4.3.2 Empowerment and Community Reinforcement

The facility is designed to be all inclusive , catering for all genders, races and age groups. The use of the community reinforcement approach in the design is vital to this building being successful because the community around it catered for all individuals . This design focused a lot on the surrounding communities of Ontario.

The architect took into consideration the theory of empowerment and community reinforcement approach when designing the building as it is designed in such a way that both components , residential and non-residential have separate entrances to protect the long-term resident's privacy yet both areas are interlinked through the two courtyards to integrate these two components. The non-residential component provides areas such as private therapy rooms, for individuals that need one on one attention and group therapy rooms to

allow the community to get involved, gym facilities and craft rooms that are open to the public and spiritual rooms for both the community and residents to use. The rooms provided in the residential component open directly into a large living area. The facility is located on a large green space located near communal areas to allow easy access and walkability to the activities provided. The idea behind this was to create a feeling of community and to integrate all the users of this building thereby allowing more community interaction with the surrounding areas.



Figure 79 : Image of a communal garden designed to allow interaction with the community and residents.
Source: <https://www.montgomerysisam.com/project/sister-margaret-smith-addictions-treatment-centre/>
(Date Accessed: 04 June 2019)

4.3.3 Healing Architecture

One of the main principles of the concept of healing architecture is to experience the healing quality of natural light and the natural environment provides. The main part of the building is the walkway called the Hall of Recovery. This space was designed to create a calm welcoming approach for new patients.



Figure 80 : Image of the therapeutic entrance. Source: <https://www.montgomerysisam.com/project/sister-margaret-smith-addictions-treatment-centre/> (Date Accessed: 04 June 2019)

The building is designed around two respective courtyards catering for residential and multiple therapeutic programs. In this courtyard, there is a space provided called The Spiritual Place, which is circular in design and the intention of the architect was to draw inspiration from and be respectful to the surrounding community. The intention behind the use of sustainable principals is to create a healing environment using the properties of nature, water and natural light from the concept of healing architecture.

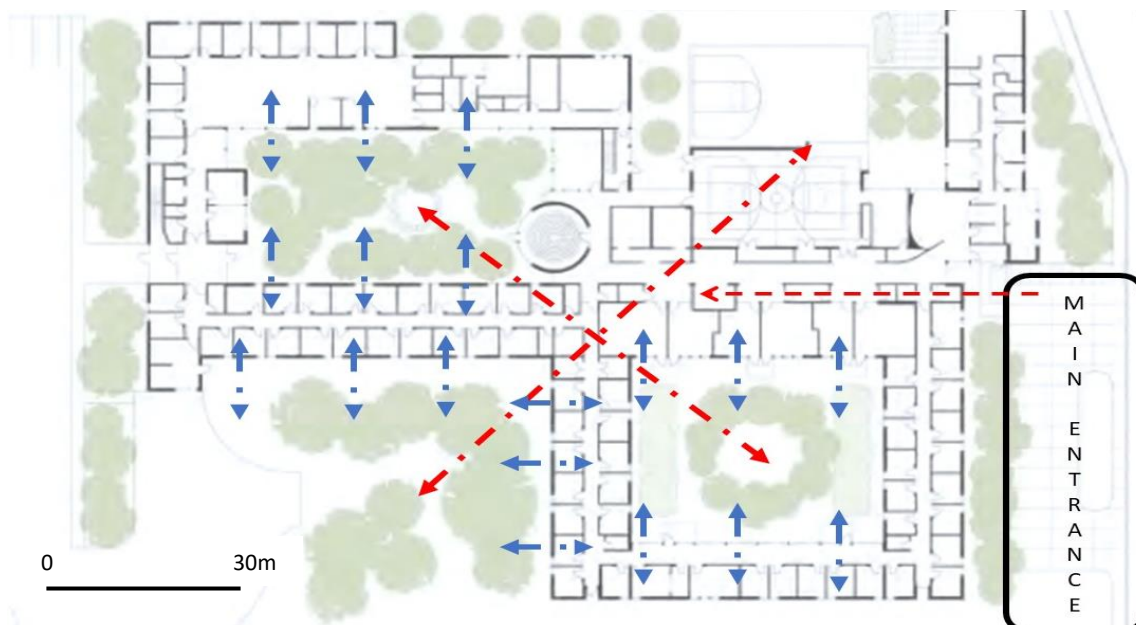


Figure 81 : Diagram showing the connection between the two courtyards and main entrance. Source: <https://www.montgomerysisam.com/project/sister-margaret-smith-addictions-treatment-centre/> (Edited by Author, Date Accessed: 20 May 2019)

A few key sustainable design strategies that are used in the building are:

1. Glazing- All the glazing used provides natural light in spaces and creates a healing and comforting feeling by providing access to the outside therapeutic gardens
2. The building footprint- The facility was designed to respects the sites ecology.
3. Water reduction – this is achieved through the use of landscaping

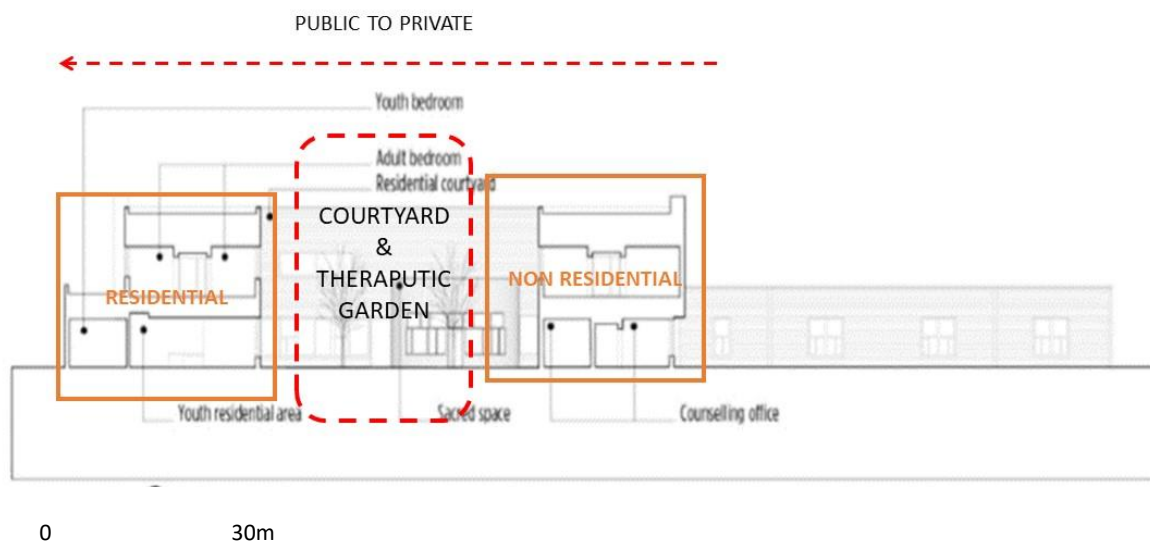


Figure 82 : Picture showing the interconnection between the two building with the central courtyard.
Source:<https://www.montgomerysisam.com/project/sister-margaret-smith-addictions-treatment-centre/>
(Edited by Author, Date Accessed: 20 May 2019)

The main aspect of the building, the hall recovery is divided into 3 parts, consisting of individual large rounded windows that have their own holistic significance. These 3 windows are referred to the windows of hope with each having its own property such as mind (therapy rooms), body (gym) and soul (spiritual space).



Figure 83: Image showing the hall of recovery from the exterior with the use of sustainable timber.
Source: <https://www.montgomerysisam.com/project/sister-margaret-smith-addictions-treatment-centre/>
(Date Accessed: 04 June 2019)

4.3.4 Summary

The Sister Margaret Smith's Addiction Treatment Centre caters a holistic and healing environment for the users of the building. The provision of both residential and non-residential facilities creates a connection with the environment and communities. However, community interaction is controlled by providing the people with limit access to the rooms that will be used by the patients for recovery.

Another important aspect of the designing of the building was healing architecture because the architect chose a location that is open and on a greenfield which promotes the idea of natural lighting that contributes to the place being more calming. The building uses a lot of sustainable principles in order to create that holistic healing environment by providing courtyards, the choice of materials and glazing, the use of nature and water.

4.4 CONCLUSION

The precedent studies discuss the principals underlying the design of spaces that are built for health and healing. The overarching theme is that the physical and mental place in the built environment is vital in order to encourage a clear sense of mind, changing the perception of how one views themselves personally and socially and creating a sense of belonging and power.

The Groot Klimmendaal Rehabilitation Centre and the Sister Margaret Addiction Treatment Centre both perform well in their purpose of creating a holistic rehabilitation and social reintegration facility. Both examples approach the social context of the person with complete inclusiveness and opportunities within the community. These principles is supported in the community reinforcement theory with regards to the interaction of various social groups and the understanding of the issues in order to achieve social efficiency and inclusivity.

With regards to the promotion of health in environments, both examples use the concept of nature and visual connection to the outdoor landscape provided. The use of the natural environment in architecture benefits the wellbeing of the patient and is promoted throughout the buildings, still being respectful of the functions provided in the building. Each aspect of views and light is considered in the designing of the building in order to benefit the rehabilitation process, but the opposite can be said for the external appearance and architectural quality in terms of clear spatial organization, façade solution, significant skylights, the design of the vegetations and natural elements and materiality; which does not represent a rehabilitation centre that should heal the individuals. The analysis of the above two precedents provide insight that the architectural quality of rehabilitation centres needs to be improved and the concept of healing architecture needs to be considered. This analysis will be used to further analyse the case studies in the next chapter and assist in the formulation and brief of the healing and reintegration wellness centre.

The research shows that an individual's perception and how they respond to a space emotionally is a result of all the elements that form an architectural language and its surrounding context.

CHAPTER 5:

DURBANS RESPONSE TO REHABILITATION

CHAPTER 5 | DURBANS RESPONSE TO REHABILITATION

5.1 INTRODUCTION

This chapter will analysis/explore two case studies within KwaZulu Natal, in order to create a facility that intends to address the dimensions of healing and the re-integration for post drug addicts. The first case study is Careline Crisis and Trauma Centre , a facility that caters for all types of addiction and trauma with the provision of a residential quarter called the halfway house in Assagay, Hillcrest. The second facility is RAUF Rehabilitation, this facility deals with drug addicts during pre-rehabilitation and caters for men only.

Careline Crisis and Trauma Centre is known for its treatment called the Halfway House. We examine how nature is utilized and the ways in which these individuals are taught to re-integrate into society. RAUF rehabilitation has been selected as a case study to analyse the current rehabilitation system and how the recovery process works, without medication. In understanding how these facilities operate and how it can be improved, will therefore, attain strategies to assist integration and improvement.

5.2 CARELINE CRISIS & TRAUMA CENTRE, HILLCREST

5.2.1 Project Background

Project: Careline crisis and Trauma Centre

Location: Assagay, Hillcrest

Architect: Ellison Woodward

Size: 27676 m²

Constructed: 1995

Funded: Private



Figure 84 : Site plan of the careline crisis and trauma centre.

Source: <https://www.google.com/maps/place/Careline-Crisis-Trauma-Centre/> (Edited by Author , Date Accessed : 19 June 2019)

The careline crisis centre is located in a residential area surrounded by nature in Assagay, Hillcrest. The intention behind this building was to create a facility that is located near residential areas, to allow users to feel included and be surrounded by nature. thus, Allowing the user to heal in a therapeutic environment. This building uses the concept of therapeutic

Figure 85: Site plan of Careline crisis and trauma centre. Source: Author (27 June 2019) Hillcrest

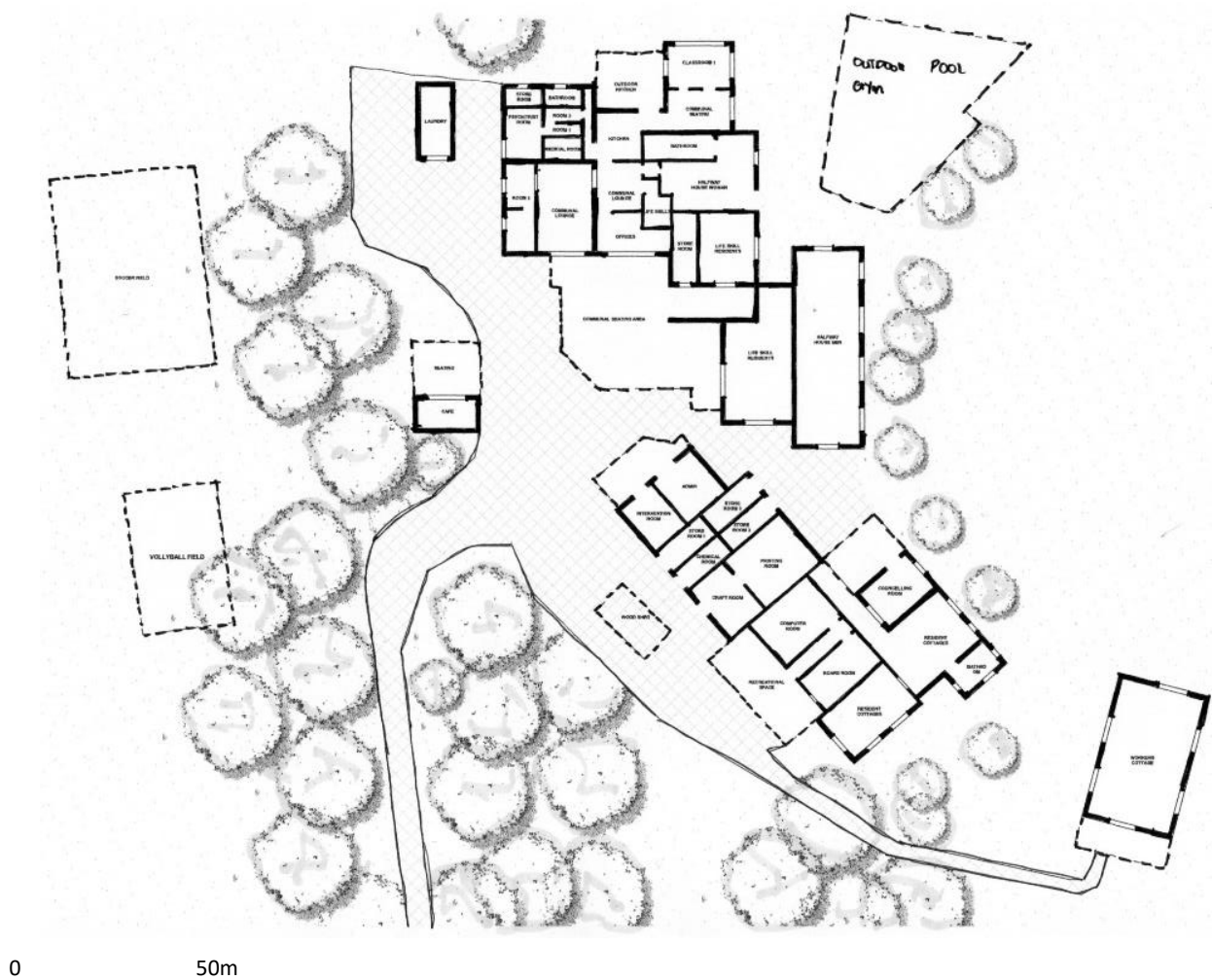


Figure 86: Plan of Careline crisis and trauma centre. Source: Author (27 June 2019) Hillcrest

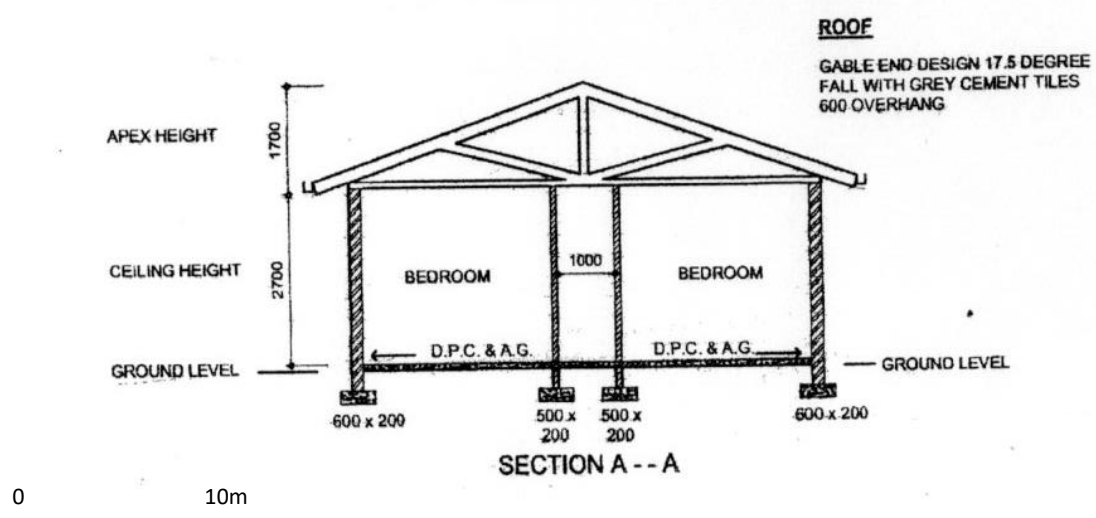


Figure 87: Section of careline crisis and trauma centre. Source: Author (27 June 2019) Hillcrest

5.2.2 Empowerment and Community Reinforcement

The theory of empowerment, community reinforcement approach and shame resilience theory - can be seen in the Careline Crisis Centre. The main focus of this facility is healing the individuals psychologically and empowering them with educational skills and life skills that can help them re-integrate into society. The buildings location played a vital role in making this facility a success as it is Surrounded by residential areas and a large amount of nature.

Community involvement and family participation is a vital aspect used in the process because it provides the individual with a sense of belonging and feeling of being welcomed back into society, which helps them to recover better.



Figure 88 : Image showing the welcoming entrance of the facility. Source: Author (27 June 2019) Hillcrest

The facility caters for both in-patient and out-patient programs. This centre focuses on individuals from the age 18 and upwards who have been through any type of crisis such as drugs, alcohol abuse, depression etc. The director of the facility took into consideration the resident's privacy by creating the sleeping quarters at the ends of the building and not being accessible to the public. In order to re-integrate these individuals into society, the facility takes part in many outreach and awareness programs. They share their life experiences, as

well as what they have learned from different encounters and how this has impacted the problem on hand in their lives. A communal lounge and Dinning Area are provided for the patients in the building. A recreational space that includes a pool table, tennis table and a jungle gym is provided for the residents to relax, clear their mind and take a break from the recovery process.



Figure 89 : Image showing the communal eating area. Source: Author (27 June 2019) Hillcrest



Figure 90 : Image showing the outdoor communal area created by the patients of the building. Source: Author (27 June 2019) Hillcrest

An intervention room is created for patients who are going to reside in the facility. Here the patients will choose a specific skill that is provided in the building, thus allowing them to interact and feel inclusive or involved. They can also educate the Facilitators on what skill they have, and how it can be used it to help their recovery and re-integrate into society.



Figure 91 : Image showing the intervention room. Source: Author (27 June 2019) Hillcrest

In order to help these individuals, re-integrate into society, the facility created a woodwork space. Majority of the objects used in the facility is created by the residents, and the creations made out of wood is later sold in the flea markets that are held in and around the area of Hillcrest. The theory of empowerment can be seen in the specific type of skill, woodwork provided because it allows the residents to feel important and needed in society- a way of giving back to the community and provides them with a new skill that can help them in attaining a job.

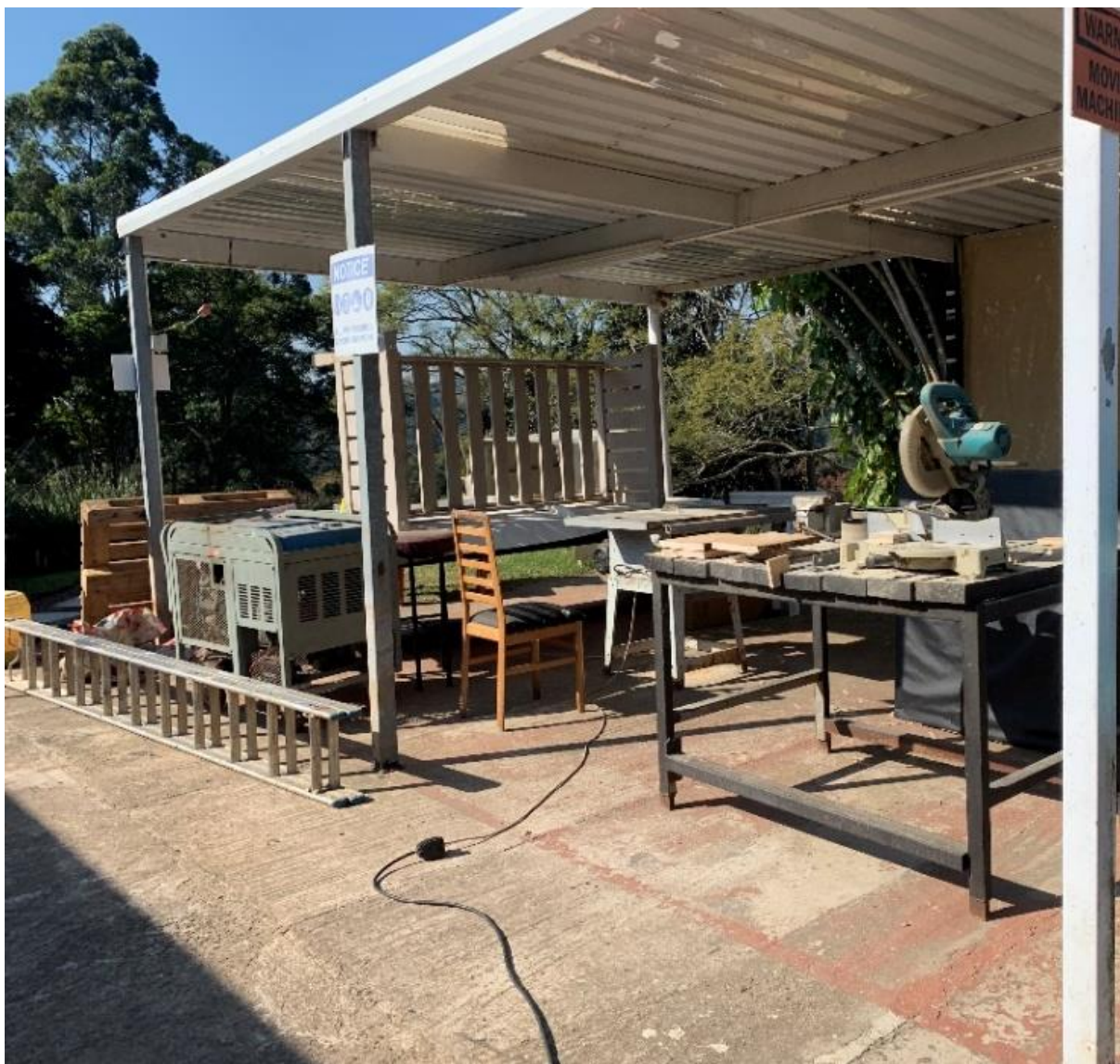


Figure 92 : Image showing the area where creations are made out of wood. Source: Author (27 June 2019)
Hillcrest

Another skill taught in the facility is graphic designing and computer literacy. Most of the residents of the building are involved in job placements. The facility educates them with a specific skill, and they are sent out to the businesses in hillcrest with the opportunity to gain employment and give back to the community further enhancing reintegration and community reinforcement.

A printing room is provided in the facility that is used by the community. This provides them with opportunity to learn new skills, interact with the individuals of the community and assist in any way that they can. The individuals use the room to create artwork and furniture that can be sold to the community.

A computer facility and boardrooms are provided for the patients of the building. This allows the individuals to expand their computer knowledge and the boardroom provides a space that is used to educate them on other educational skills.

5.2.3 Healing Architecture

Careline crisis centre focuses on using solely natural ways to help individuals rather than them being medicated. The location of the building is surrounded by immense nature and in turn this generates a great advantage for the facility to provide a better service for the users/individuals/patients. The entrance of the facility is surrounded by all types of vegetation and a big green field which is used for their recreational activities. The use of nature at the entrance makes the user feel welcome and provides the feeling of comfort. All of the gathering spaces and lecture rooms, open into a garden area surrounded by nature and a serene view that helps with the individual's well-being.



Figure 93: Image showing the entrance of careline crisis before getting admitted. Source: Author (27 June 2019) Hillcrest

The principal of natural light mentioned in chapter 3 is another important aspect used in the building. The facility consists of large windows allowing natural light into spaces that will be occupied by the residents and provides views of the surrounding nature, whilst in their therapy sessions. Most of the recreational spaces are located near nature and outdoors to provide natural light and air.



Figure 94 : Plan view of natural light filtering through and views. Source: Author (27 June 2019) Hillcrest



Figure 95 : Image showing the therapy and group rooms with natural light filtering through. Source: Author (27 June 2019) Hillcrest

Materiality mentioned in chapter 2 is evident in the facades of the building as earthy colours and materials were chosen to provide a comforting environment and to promote calmness and wellbeing- while using the space. The most common material used is wood and bricks because of its earthy characteristics. These aspects provide a welcoming centre and makes the individual feel like they are at home, helping with the recovery process. In order to for the users to feel like they are at home and a part of the facility, the patients decorate the sleeping quarters and therapy rooms themselves, with different textures and colours. This provides them with power and a sense of belonging.

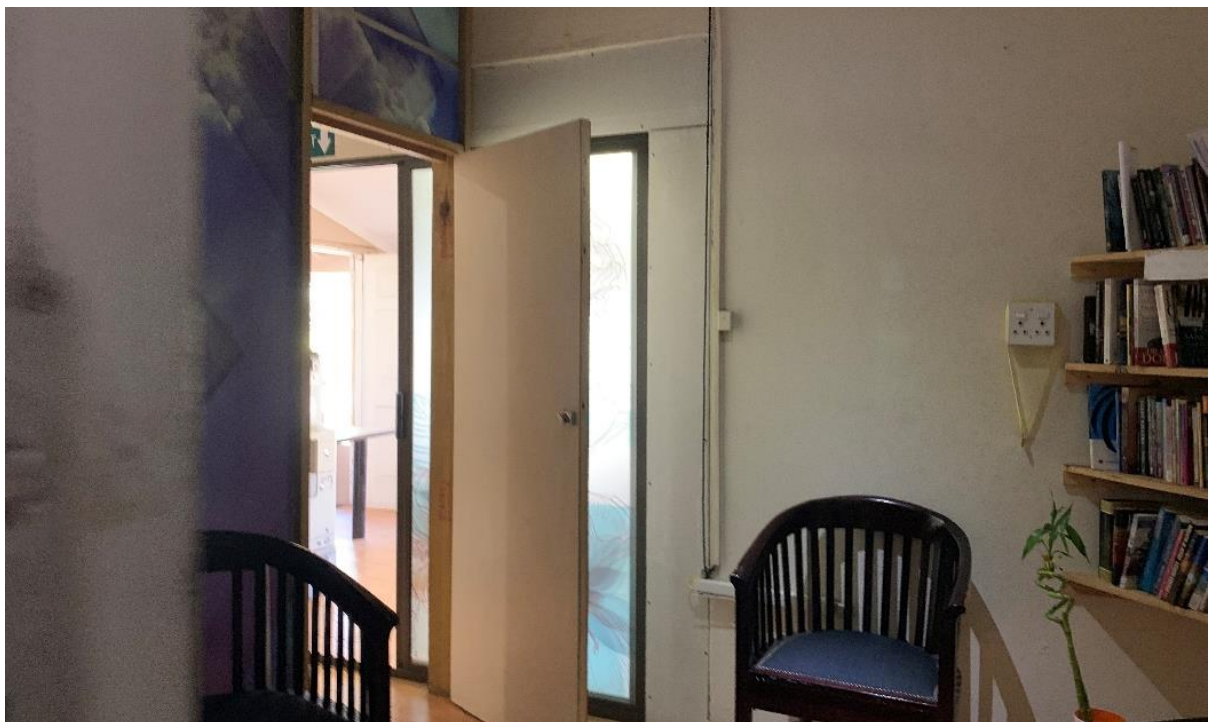


Figure 96 : Image showing one of the therapy rooms decorated by the patient. Source: Author (27 June 2019) Hillcrest

Physical exercise from the concept of healing architecture can be seen by the provisions of sports and facilities provided such as A soccer field, volleyball, pool, jungle gym area and outdoor gym. This helps to stimulate their mind, provides a healthy environment, builds up their strength and self-resilience.



Figure 97 : Image showing the outdoor sporting areas. Source: Author (27 June 2019) Hillcrest and self-resilience.

The facilities sustainable strategies are: rainwater harvesting-allowing the building to recycle water. This water is used for the vegetation and greens filed around the facility. The glazing used, meets the requirements of the department of social health. Glazing is used in the appropriate places to minimize the use of artificial lighting. The structure of the facility and surrounding spaces uses materials that were manufactured by the residents of the building.



Figure 98 : Image showing the pool area. Source: Author (27 June 2019) Hillcrest

5.2.4 Suitability of Careline Crisis Centre

The Careline Crisis and Trauma Centre caters for a holistic and a serene environment for the users to heal in the building. Careline Crisis main focus is on empowering these individuals with life and educational skills, as well as, family and community participation. This approach is included in all types of activities provided, and therapy treatments. Family participation occurs to ensure these individuals go back into a welcoming environment.

Job placements is another important activity provided by the facility, making sure that these individuals will gain some sort of employment after the recovery process.

Another important aspect incorporated into the construction of this facility is nature, tranquillity and natural light. The facility takes full advantage of the natural environment during the therapy and healing sessions. Sustainable architecture is used in the facility to create a more self-sustaining building and a holistic environment.

5.3 RAUF REHABILITATION CENTRE, CLARE ESTATE

5.3.1 Project Background

Project: Rauf rehabilitation Centre

Location: Spencer Road, Clare Estate

Architect: GM Khan Architects

Size: 32289 m²

Constructed: 1998

Funded: Private



Figure 99 : Site plan of the Rauf Rehabilitation Centre. Source: <https://www.google.com/maps/place/Rauf-Rehabilitation/> (Edited by Author, Date Accessed: 19 June 2019)

The R.A.U.F Rehabilitation Centre is located in a residential area surrounded by lakes and nature in Spencer Road, Clare Estate. This facility was created 21 years ago because the founders of R.A.U.F rehab saw a need for the facility, as drugs and alcohol abuse increased in south Africa over the past 25 years. This facility caters for male substance users only, between the ages 18- 45 years. The main focus of this facility is empowerment and community

integration. The site is accessible through Spencer Road that is parallel to the N2 highway. The facility is currently in its first phase but construction of phase 2 has begun.

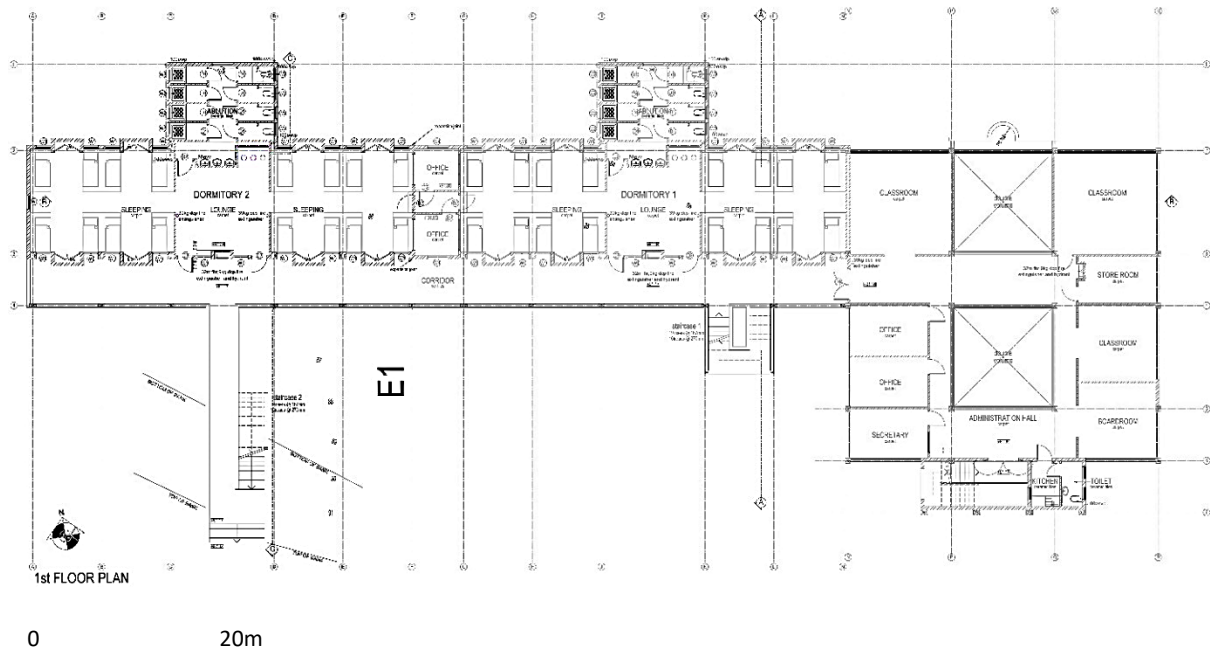


Figure 100 : Plans of RAUF Rehab. Source: Author (25 June 2019) Clare Estate.

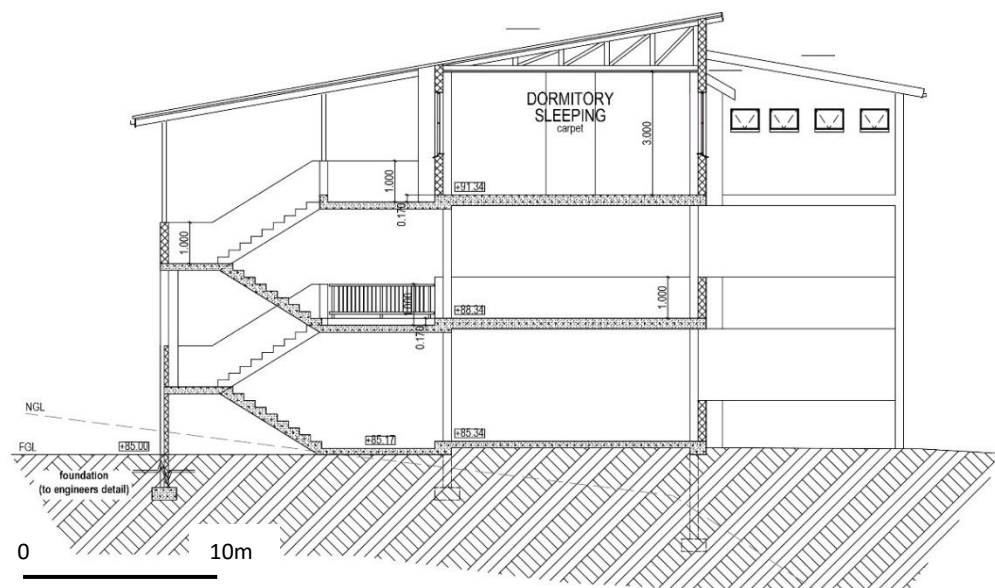


Figure 101 : Sections of RAUF Rehab. Source: Author (25 June 2019) Clare Estate

5.3.2 Empowerment and Community Reinforcement

The building blends into its surroundings and the location plays a vital role in the empowerment of these individuals, as it is situated around community facilities involved in the rehab process. The principals of empowering individuals and community reinforcement can be seen with the activities provided such as Family inclusion is a vital component of the rehabilitation process provided in RAUF rehab, providing the individuals family with insight on how to help them after recovery, to decrease the relapse rate.

The facility focuses on integration within the building itself - such as -all sleeping quarters open up directly into a central lounge area bringing all the users of the building into one space, to allow interaction to occur/ take place. This facility has Many of programs that include community involvement.

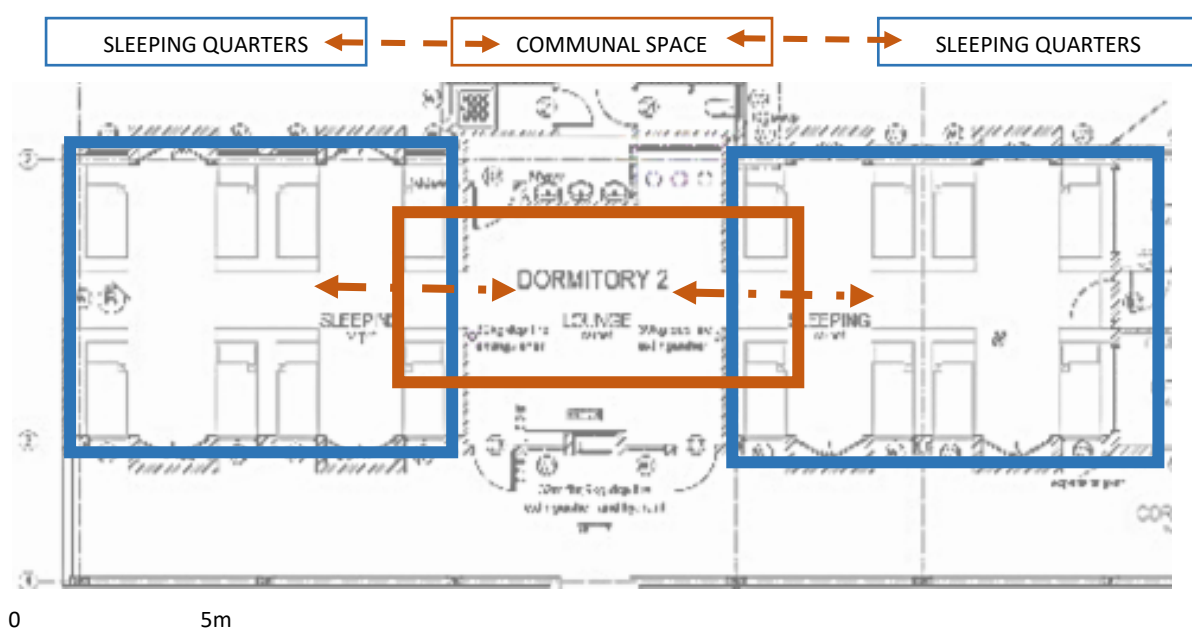


Figure 102 : The sketch above illustrates how all the sleeping quarters open up into the main common area.
Source: Author (25 June 2019) Clare Estate

A multipurpose hall is provided for the users of the building. This space is used for family and community therapy sessions with the patients and indoor recreational activities allowing community reinforcement .



Figure 103 : The image below shows the indoor multipurpose hall provided in the facility. Source: Author (25 June 2019) Clare Estate

The rehabilitation process used in this facility focuses primarily on education. This facility provides the users with the basic skills that they need to re-integrate into society. They are taught agricultural farming, and the produce is used in the facility or sold to the surrounding communities.



Figure 104 : The image below shows the agricultural area. Source: Author (25 June 2019) Clare Estate

Weekly Work Experience Jobs, this is where individuals are sent out to the surrounding businesses to work and gain more skills, this plays a vital component/role of the facility and in turn makes this facility unique. The infrastructure of the facility is built by the patients in the building, equipping them with more skills and broadening the opportunities for employment enhancing the theory of community reinforcement.



Figure 105 : The sketch below shows the infrastructure that was created by the patients. Source: Author (25 June 2019) Clare Estate

Phase 2 includes another building of accommodation as the current facility, which only caters for 32 patients and phase 3 includes a religious facility and another multipurpose hall that can be hired out by the community.

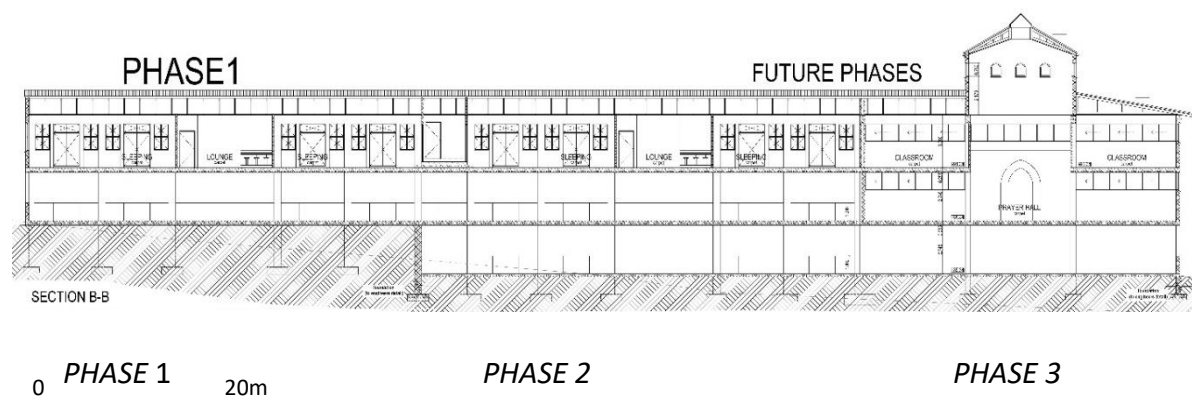


Figure 106: The section below shows the different phases of the building. Source: Author (25 June 2019) Clare Estate

5.3.3 Healing Architecture

The RAUF rehab's main focus of the patient's rehabilitation process is based on a more natural way, instead of a medicated type of rehabilitation. The beliefs of this facility are based on the principals of healing architecture emphasising that the users need to heal within themselves, in order to abstain from drugs, instead of using medication to aid the process. The facility is located around forested natural setting and the centre takes full advantage of it, by providing outside spaces, that are enhanced by the effects of nature, for the patients to relax. This play a vital role in the process of enhancing the therapeutic healing process.

The main facilities such as the sleeping quarters and multipurpose hall was designed using the principals of healing such as natural light and ventilation by providing have large windows, allowing natural light to filter through into the spaces, therefore minimizing the use of artificial lighting while participating in the activities. The aim of this was to create an environment that feels like home.

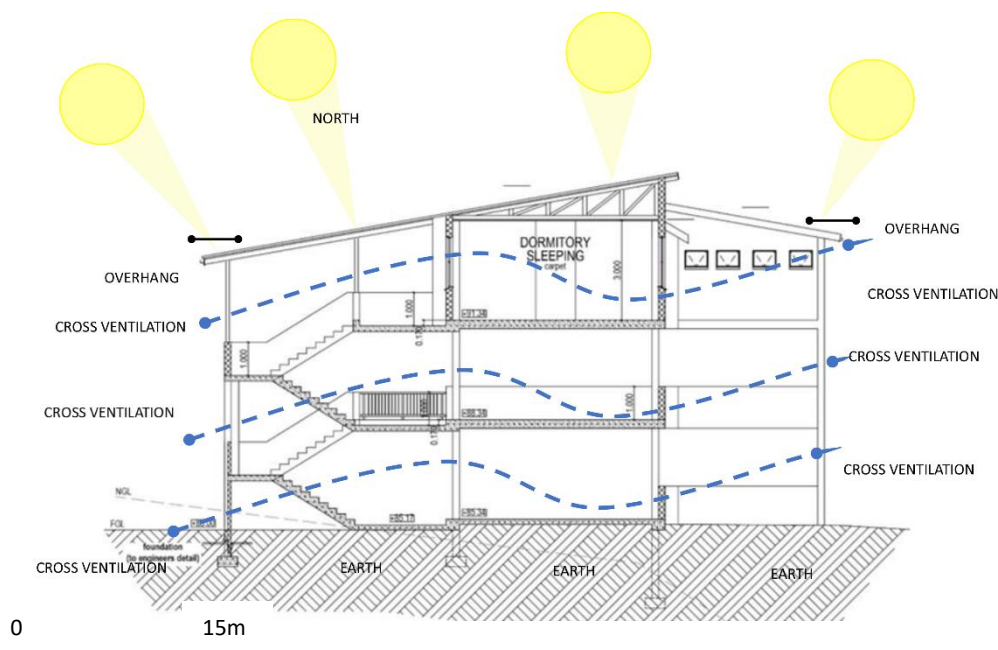


Figure 107 : Section shows the orientation, shading overhang and cross ventilation and passive cooling used.
Source: Author (25 June 2019) Clare Estate

Materiality and the effect it has on an individual was taken into consideration with the exterior and interior of the facility. The most common materials used in the building is bricks, blocks and timber. Timber is used because of the strong characteristic and symbolism to

nature, as it is an earth element. Timber also creates the character and atmosphere of a place. Bricks and blocks are made in the facility by patients due to textures that it is made from. Half of the structures provided in the facility is constructed by the patients, with the different materials they have created. The choices of colours used in the facility is pastel and neutral colours in order to create an environment that's calming and soothing.



Figure 108 : Image above shows the blocks that were made by the patients. Source: Author (25 June 2019)
Clare Estate

The facility includes its own bore hole system on the property allowing them to recycle water as well as utilising fresh water. This water is used for the agricultural farm and adds to the energy efficiency of the building. The centre provides weekly sessions of soccer at a different location, to promote wellbeing and enhancing the user's health. Recreational activities and physical activities like outdoor exercises and the utilization of public facilities such as basketball, beach soccer is all facilitated by the centre.

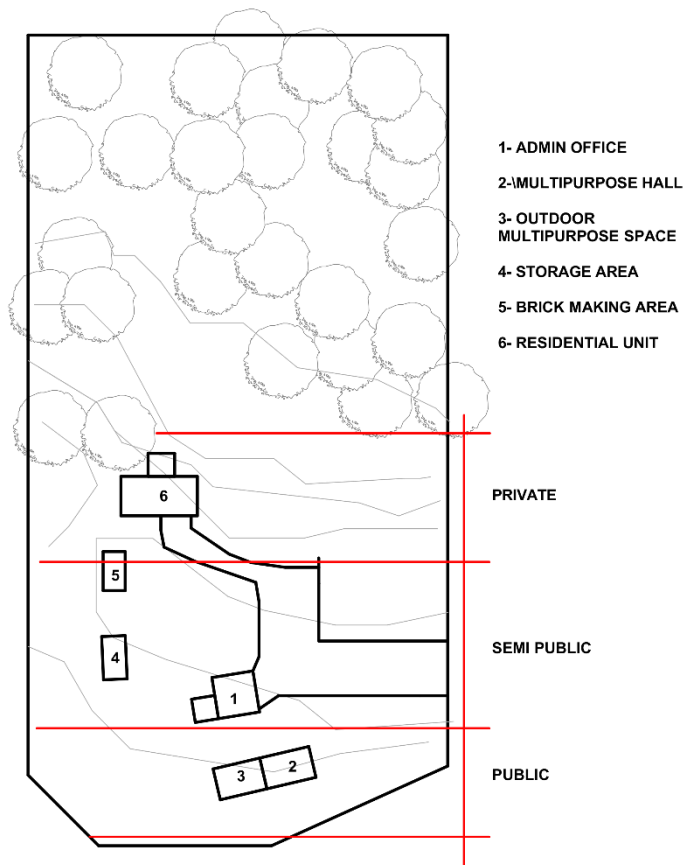


Figure 109: Relationship between Public and Private Spaces on a Macro scale of the rehabilitation facility.
Source: Author (25 June 2019) Clare Estate

5.3.4 Suitability of RAUF Rehabilitation

The RAUF Rehab facility caters for a more holistic approach with treating the individual's inner wellbeing, without the use of medication. The facilities main focus is based on empowerment and community integration. Individuals in the facility are taught skills like culinary skills and agriculture which is then sold to the community, allowing these individuals to feel like they are giving back to society.

Job placements are done with some businesses and individuals so they can further expand on their skills, thus allowing for future growth as an individual and to encounter more opportunities. The Public is not allowed to access the building, but a multipurpose hall is provided to allow individuals to interact with the surrounding communities. Family importance is another vital component of the building.

The building achieves the goal of a holistic approach and re-integrating these individuals into society, however, improvements can be made, as the facility only caters for a few skills. The

building successfully enhances the surrounding nature by providing all the relaxation exercises near the ends of the site where one can view ,feel apart and have an injection of nature.

5.4 CONCLUSION

Based on first-hand observations , aligned with the theoretical framework, review of literature and in response to the research questions, both studies provide the research with the understanding of current rehabilitation systems in KwaZulu natal.

The RAUF Rehabilitation centre and Careline Crisis Centre both achieve their purpose of creating a facility that focuses on empowering individuals and re-integration. Both facilities rely on the immediate communities of the area in order to create community support through awareness and inclusion. The positive effects of including this in the rehabilitation process is that the users will be able to reintegrate into society with educational skills that can assist the community and give the patients a sense of belonging and inner well-being.

With regards to the architecture and spatial design of Careline crisis Centre , the director successfully developed a safe and comfortable healing environment through minimal therapeutic strategies in the architecture. However, the interior design still remains unpleasant/ old based on the use of no design components that creates a sense of healing in the inside. Whereas the architecture, infrastructure and overall environment of RAUF rehab is considerably poorly designed and isolated due to the cold and dark atmosphere within the spaces due to small barred windows and lack of inclusion of natural daylight and ventilation

By analysing these case studies one can conclude that the environmental context plays a crucial role in the way these facilities work. Both facilities use the serene environment of nature to assist with healing the individuals; without any type of medication and embraces the concept of social re-integration with holistic rehabilitation. The facilities provide the necessary functions and spaces that are required for social re-integration, development and inclusion; however, the architectural quality is lacking. What needs to be explored to a greater extent, is how these principles of healing such as light, materials, water, air, re-integration and inclusion can be included in the architecture, along with the inclusion of the natural landscape. The use of materials, nature in the building and promotion of well-Being is not

evident in these centres. The information gathered from the above analysis will help in formulating the development of a post- drug addicted healing and re-integration centre for Durban. This therefore strengthens the need to explore ways to achieve a more reputable solution to post drug users.

CHAPTER 6:

FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

CHAPTER 6 | FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter investigates primary data gathered from the interviews and observations carried out in the above case studies and interviews of other professionals in the field. The interviews and observations conducted have been influenced by the theoretical framework established in chapter 2 which have been derived by the primary and secondary questions stated in chapter 1. This will aid in comprising a clear link between the problem statement and aim of the dissertation.

The analysis of the findings is obtained from 20 interviewees from various backgrounds. The interviews of many different people will provide enough information to meet the requirements. Natural observations have been done whilst investigating the case studies above.

The research above provided new strategies, design principals and information that can facilitate an architectural response to create an interconnected contemporary rehabilitation centre for post substance users in the urgent precinct.

As stated above, the research has utilised many research methodologies in order to achieve the solution, aims, objectives and questions stated in chapter 1. The research then stated objectives for the dissertation to narrow down the information in order to achieve the aims and objectives.

6.2 ANALYSIS OF EMPHERICAL FINDINGS

6.2.1 Interviews

Question 1-3: What is the most common age of substance users, how many programs do you have to help with this problem and what are they?

When asked what is the most common age category the interviewees deal with and if they have any programs to help these individuals with substance use issues , 17 out of 20

responded that the common age group is between 18 and over and that there is a lack of programs in society that helps with substance use, its effects and how to overcome it. These respondents shared that there is a need for more programs, especially in a city like Durban where substance abuse has rapidly increased over the years. Many of the programs mentioned during the interviews are limited to type provided and the vicinity it covers.

Question 4-6: How do you view the current rehabilitation process; how long do you think it should be and how many counsellors do you provide in your facility?

18 out of 20 interviewees responded that the current rehabilitation process is not working and there is a need for improvement. These respondents suggested that the process of rehabilitation needs to be more than 8 months and the individuals need to stay in the facility to help them heal fully because 25% of users relapse due to the lack of time spent in the process. A common number of interviewees suggest that for every 3 patients there needs to be 1 counsellor so that these users get the full attention they require.

Question 7: In your experience, what percentage of users' relapse, why and do they return to the same facility for more treatment? A) 1%-10% B) 10%-25% C) 25%-35% D) 35% or more

When interviewees were asked about the percentage of relapsing, 18 out 20 responded that 10-25% of the user's relapse after the treatment process because of the lack of facilities provided and due to the small amount of time the users stay in the facility.

6.2.2 Community reinforcement theory

The interviews in this section will investigate the Community reinforcement theory within the case studies analysed above in order to derive a clear and concise understanding of how this theory can be used and its impact it has on the process.

6.2.2.1 Interviews

Question 7: With regards to community and family support, does your facility include any in your treatment programs? Yes / No, Why?

When asked if the interviewees include community and family participation in the treatment programs, 15 out of 20 responded yes stating that community and family support is a vital component of the rehabilitation process and in order for these individuals to rehabilitate fully without relapsing, they need to be included in the process so that they can help them after they leave the facility. The balance 5 interviewees stated that they do not have the correct facilities and space to allow for that treatment.

Question 8: Does your facility assist with reintegrating these individuals seeking treatment back into the community? Yes / No, Why?

10 out of the 20 interviewees responded yes stating that reintegration is an important aspect in the process and activities are provided in the facility to allow for that. The balance of the interviewees that responded no stated that they do not have the finance and facilities to allow for reintegration to happen. A common theme amongst the individuals that stated no is that they are not situated near community areas.

Question 9: Does the facility encourage social interaction between other individuals during the rehabilitation process? Yes / No, Why?

12 out of the 20 interviewees responded yes that social interaction between others is encouraged however it is limited to prevent relapsing. 8 out of the 20 responded no stating that social interaction causes the individuals to relapse and has negative impacts on the rehabilitation process.

6.2.2.2 Observations

Observations of Community reinforcement were conducted whilst investigating the case studies mentioned above to further understand how it is provided in rehabilitation facilities. It has been observed through the interviews and the exploration of the facilities that this theory is used in most facilities because of the success rate it has achieved during the process.

These facilities are located in close proximity to community facilities and have strong connections to the community areas around it. The immediate space is relatively quiet and calming away from the busy roads. Although it is situated near the N2 and squatter camps, the noise pollution that comes from these areas do not affect the facility. The location of the site plays a positive role in the facilities success rate.

The researcher then observed the various interventions that were created in the facility that help with community, family participation and create a space that is welcoming and creates connectivity between all. This was facilitated with the provisions made such as braai facilities, multipurpose hall, soccer and volleyball fields, communal eating spaces and natural lighting.

6.2.3 Empowerment theory

The interviews in this section further investigates the empowerment theory through the idea of architectural space and seeks to answer the questions stated in chapter 1. The information required from this section will assist in providing meaningful spaces in the design process.

6.2.3.1 Interviews

Question 15: Do you think that the individuals in the rehab want to gain educational skills so that they can gain employment after treatment and do you include this in your facility? If Yes, has this made the rehabilitation process more successful?

When interviewees were asked if the patients want to gain educational skills and if they have made some provision for it, 16 out of 20 responded yes stating that the patients want to gain employment after the rehabilitation and learn some skill that they can give back to the community however the skills provided is limited due to the restriction of spaces in the sites and finance. The 4 who responded no stated that they do not cater for this type of treatment as their treatment is based purely on medicine and do not have the space required to allow for it however, they still feel it is important include it if possible.

6.2.3.2 Observations

Observations of Empowerment have been examined whilst investigating the case studies. The observations focus on tangible and intangible layers which help to breakdown what has been observed.

Based on the researcher's observation, the facilities provided in both the case studies analysed, focus on empowerment as one of its main tools in the rehabilitation process. The spaces created in the facility provides the individuals with the basic skills they need to gain employment after the rehabilitation process is over. The structures and furniture that exist in the facility is created by the patients who have learned wood craft as their chosen skill.

The researcher observed various different skills training provided and all the spaces created were controlled by the patients. This power given to the patients provided them with the feeling of belonging and value which helped to promote wellbeing. The skills taught provides the patients with a variety of employment options which allows community integration to be possible.

Community participation was another aspect of the rehabilitation process observed. The facilities provide giving back to the community and allows the community to interact with the patients in a controlled environment.

6.2.4 Healing Architecture

The interviews in this section will investigate the concept of Healing architecture and aims to answer the research questions stated in chapter 1. This will aid in providing a clear understanding of how this concept can be used in the design process.

6.2.4.1 Interviews

Question 12: With regards to treatment and rehabilitation, how would you rate the importance of nature and the environment in which the treatment happens? (Scale 1 to 5, why?)

When interviewees were asked the question on how important nature is in the treatment process on a scale 1:5, 18 out of 20 responded positively stating 5 and that nature is vital to the rehabilitation process as it helps individuals heal through natural elements and promotes wellbeing. The 2 respondents were unsure due to their facility being away from nature and in the city but stated that the environment in which the treatment happens is vital as a noisy environment creates havoc.

Question 13: Do you think that the use of colour and materials in the building assists in the treatment program and does it allow them to heal and do you use it in your facility? Yes / No, why?

18 out of 20 interviewees responded yes stating that the use of colour is vital to the rehabilitation process as the right colours promote wellbeing and the wrong ones aggravate and cause discomfort to the users. The 2 interviewees who responded no stated that they are not involved in the therapy treatment and the psychologist of the facility makes the decision.

Question 14 (15): In your opinion, do you think the post medical process of rehabilitation is successful or can there be any improvements made? If so, what ways can it be improved in?

When interviewees were asked their opinion on the current rehabilitation process and what improvements can be made, 15 out of 20 responded that the current process is not working, and the issue of substance use is increasing over time. They suggested that for the rehabilitation process to work family and community participation is important and this is lacking in the current process. Natural healing ways should be used instead of medication as this is adding to the problem instead of solving it.

6.2.4.2 Observations

Observations on healing architecture was conducted whilst investigating the case study. The aim for this was to investigate how current rehabilitation facilities use nature in their facility and what improvements can be made.

From the researcher's observations, the areas have a sense of openness and is surrounded by an abundance of nature. The winds that flow through the forestry surrounding areas cools down most of the area. The recreational spaces and therapy facilities provided is located near the natural vegetation in order to create a calm environment. Clusters of palm trees and aloes can be seen randomly around the facility. The use of natural elements like rocks and animals such as geese and eagles can be seen and heard within the immediate area. Water fountains and pools have been provided in one of the case studies to allow the effects of water to be used in the treatment process.

During the tour on the facility, the researcher observed the pastel and natural colours used in the facility to promote calmness that alter the individual's mindset. The use of natural materials can be seen evidently in the structures provided, creating an earthly welcome and feeling when one is experiencing the space.

6.3 CONCLUSIONS

The analysis and discussion of the interviews have proven to be useful in the data acquired and provided confirmation for topics explored in the literature review. The analysis helped to identify what aspects of rehabilitation and the natural environment support the theoretical frameworks mentioned above. The theories that support the framework were used in the interview questions to help formulate principals that can be used in the literature review in order to create a typology. The findings justify the strategies and approaches that will be taken with the theoretical framework that deal with the environment and social responses of the typology. This is done in accordance with the information acquired from the professionals and facilities in the field of substance use prevention.

6.3.1 Addressing and answering the secondary research questions

Healing Architecture has been a vital concept of this dissertation and provided the idea that healing should be a component for the process of rehabilitation for post drug users. In addressing the research question, *How can healing properties be used as a tool to inform the design of a rehabilitation centre that reintegrates post substance users into society?*

The research proves that architecture can play a vital role in helping post substance users heal but architecture has to implement the principals of healing in these facilities so that it can inform the built form. The concept then provides insight that using aspects from the natural environment prove to have positive results on post substance users. Natural light, ventilation, healing gardens and landscapes promote a positive state of mind and wellbeing. Colour and materials directly influence the individual's psychological wellbeing and affect the way they experience a space.

Empowerment Theory has been another vital component of this dissertation and provided insight on how it can be used in the design, thus addressing the question; *How can architectural spaces empower post substance users and allow integration?*, The research proves that an individual's personal constructs such as education and training can promote social inclusion and benefit the entire community. Empowerment is the ability to change one's life. The focus of this dissertation is how empowerment can be integrated in architectural design in order to create places of opportunity and "place". This creation will provide spaces for social interaction promoting social and economic development.

Therapeutic communities through community reinforcement theory has been utilized in this research in order to answer the research question; *What type of facilities aid in healing in a rehabilitation centre? What spatial qualities facilitate healing in Architectural Design?* And to understand how a facility for post substance users can include reintegration into society and community participation. Community reinforcement theory suggest that when creating interventions and spaces, the functions should be clear and say what it is in order to allow for a more fluent flow preventing the user and community from being confused. The effect of this approach shows that the community can be a vital aspect. The research shows that the use of educational strategies will provide these individuals with skills that they can use to

achieve employment and reconnect with society. This relates to the theory of therapeutic communities and how these individuals can play a part in society and benefit the overall community.

6.3.2 Addressing and answering the primary research question

The information provided in the literature review, precedent and case studies shows that healing and reintegration can be used as a rehabilitation mechanism which will successfully reintegrate post drug users into society. In order for architecture to foster healing and reintegration, the utilization of nature and principals healing architecture provides, is vital.

6.3.3 Addressing and achieving the aims and objectives

The overall aim and objective of the research has been achieved through answering of the primary and secondary question. The information mentioned above provides answers for the questions and states that the aims and objectives have been achieved. The literature review section provides possible ways in which healing can be implemented in the post rehabilitation process and how these users can be reintegrated into society through empowerment. Therefore, Architecture will provide a facility that bonds post substance users and communities with the overall aim of reintegration and empowerment. The assumptions made in the dissertation have proven to be correct after the research analysis and literature review has been done.

6.4 RECOMMENDATIONS AND DESIGN PRINCIPLES

The recommendations mentioned in this chapter will aid in deriving principals of architectural design from the research questions, theoretical framework, primary and secondary data found in the research. The following principals have been derived from the research so that a contemporary rehabilitation centre that focuses on healing and reintegration can be created in Durban. These recommendations are:

6.4.1. Community reinforcement (Therapeutic communities)

- Community reinforcement approach will be addressed through therapeutic communities with aspects like, educational strategies and skills training.
- Community and family participation will be a vital component of the facility to aid with the rehabilitation process through recreational facilities.
- Vocational and education strategies will be a vital component of the process and will assist in reintegration.
- Work experiences in the surrounding communities will be a part of the facility and aid in the reintegration process.
- The inclusion of public facilities will allow the community to interact with the patients enhancing reintegration.

6.4.2. Empowerment

- Providing spaces that allow for learning in appropriate environments. Therefore, this facility must integrate the cultural activities provided.
- Provision of business facilities allowing these individuals to gain knowledge and link to existing workshops and facilities around it to provide support.
- Architecture used must promote the individuals and focus on health, stimulating principals and learning spaces.
- Facilities that are provided must be in charge by the users which will empower them through sense of responsibility.
- The individual spaces of the units provided for the residents must be empty and have minimal furniture in it allowing the user to decorate it providing them with a sense of control and power.

6.4.3. Healing Architecture

- Healthy environments need to be considered as part of the design process to benefit the wellbeing of the individual.

- Aspects of healing architecture ; light , air , materiality, colour , nature and water must be considered in the design.
- Nature must be included in the residential spaces to enhance the idea of serenity within the units and promote wellbeing.
- The different types of plants that offer healing should be considered.
- The way in which natural light filters into the units is vital and the most effective light that contributes to healing should be considered.
- Air ventilation is important because it creates a comforting and clean environment allowing the users to be at peace in their spaces.
- The use of different textures in the building and paving will help with wayfinding as well as create a more interactive and amusing place.
- Neutral colours for the building should be considered so the building is welcoming and not opposing.
- Water should be included in the exterior and interior spaces of the building through pools or natural water systems.
- The use of vegetation acts as natural healing agent and allows for community integration
- Functionality must be considered to promote spatial quality and make it easier for the individuals to find certain spaces.
- Texture is another vital component that must be considered to promote environmental changes with the user.

6.4.4. Principals when developing the typology

- The facility must provide multiple functions to allow for community participation and integration
- The facility must include a variety of typologies to allow for skills training and development.
- The building should be able to adapt to the context to allow for further social sustainability.
- The building should serve as a catalyst for social interaction with communities.

- The use of Design elements that encourage visual contact, social integration and shared responsibilities.
- Facilitate an ordered and structured lifestyle and encourage a healthy mentality.
- Access should allow for private and public entry for various functions
- Separate men and woman sleeping areas as well as single family units
- The use of natural, locally available materials reinforces the contextual belonging
- Flexible learning spaces that may allow for a variety of training purposes that can also be opened to the public as a centre for skills development and another source of income for the centre

PART 2

PROJECT DESCRIPTION

CHAPTER 1 | PROJECT DESCRIPTION

1.1 PROJECT OUTLINE, JUSTIFICATION OF PROJECT, BUILDING TYPOLOGY

The research study undertaken in part one of this thesis project channelled a path towards a specific architectural response to reintegrate post substance users into society. Therefore, aiming to establish a platform to empower and educate post drug users towards a self-sustaining and sustainable future.

WHO

This facility is for patients who have already received pre-medical rehabilitation

WHAT

Introducing a 'post rehabilitation facility' for all rehabilitation facilities around Durban, both national and international with sustainable reintegration

WHY

To provide an empowering rehabilitation centre for post drug addicts to heal with nature and reintegration

HOW

Through community support, social skills, education, skills training and nature

1.2 THE CLIENT

The client can be a combination of substance rehabilitative associates of the department of health

- World health organization (WHO) : A national drug master plan began with the organization and facilities that used the principals suggested, which is used in the proposed design will be funded by the organization.
- A host of private NGO's (non-government associations) who are associated with assisting and combating substance abuse scheme

1.3 THE CLIENTS BRIEF

- Opportunity to create an example of post rehabilitation by creating a building that focuses on natural healing and reintegration.
- A mixed-use typology is recommended, to include functions which address the dimensions of healing (spiritual, mental and physical) and reintegration (accessibility, availability, value and skills) in a holistic and connected manner.
- Provide a range of functions for healing through wellbeing and nature, empowerment through education, reintegration through skills and value and community reinforcement through inclusion for all post drug addicts in Durban and international

1.4 SCHEDULE OF ACCOMODATION

	AREA (m ²)	QUANTITY	AREA TOTAL
DESCRIPTION			
GENERAL FACILITIES	432	1	432
Visitors parking	290	1	290
Reception	28	5	140
Admin	80	19	1520
Residential Units	130	1	130
Kitchen	100	3	300
Core	11	3	33
Linen Room			
HEALING FACILITIES	47	1	47
Out Patient Room	47	1	47
In Patient Room	Varies	8	126
Counselling Rooms	194	1	194
Gym	28	1	28
Game room	316	1	316
Gallery	25	7	125
Spiritual Room	Varies	4	42
Medical Rooms	Varies	2	63
Family Rooms			
EDUCATIONAL/SKILLS DEVELOPMENT	Varies	8	1420
Studios/ Workshops	50	1	50
Intervention Room	280	1	280
Sports Office			
COMMUNITY/PUBLIC FACILITIES	2518	1	2518
Market	70	2	140
Cafe	50	1	50
Day Care	30	1	30
Community Office	30	1	30
Employment Centre	50	1	50
Board Room	60	2	60
Retail Stores	30	3	90
Ablutions			
SUSTAINABILITY			
Grey water			
Water Storage			
Solar Technology			
AREA EXCL. CIRCULATION	Varies	Varies	2400
Circulation: Public and Private	Varies	Varies	20
Service Ducts	Varies	Varies	
Structure	Varies	Varies	
Lightwells			
TOTAL AREA			11 500m²

Figure 110 : Schedule of Accomodation. Source: Author (22 November 2019) Durban

1.5 INTRODUCTION

The overall site selection criteria from the part one research aims towards the site to have a certain characteristic which the Claire estate precinct meets:

- Close to nature and water body
- Close proximity to a striving community
- Local communities need skills development spaces
- Environmental degradation

1.6 BACKGROUND

1.6.1 Location

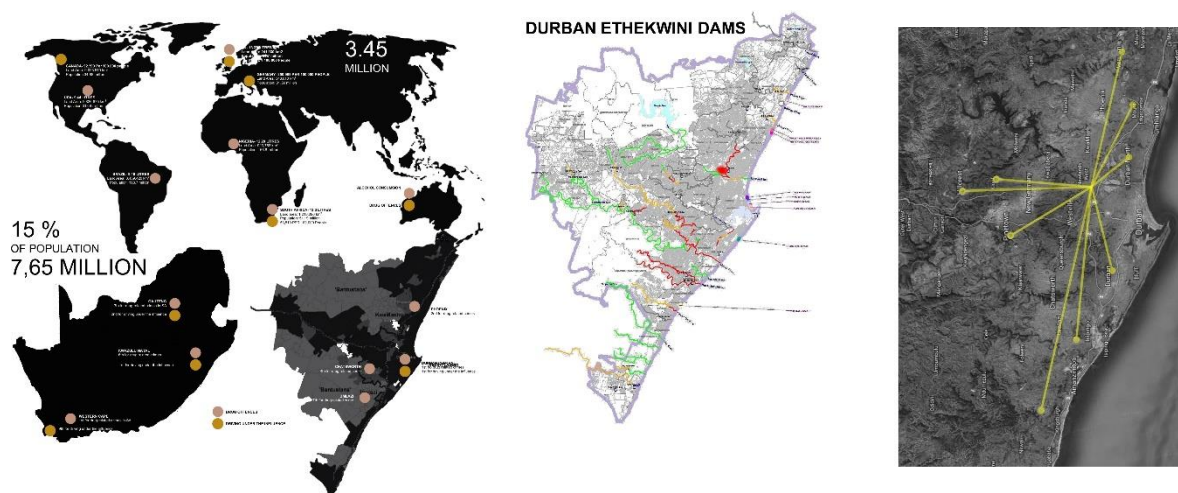


Figure 111 : Location of site. Source: Author (22 November 2019) Durban

1.6.2 History and overview of site

It was found that Clare Estate is experiencing frictional, functional, physical and economic blight. The abandoned and neglected buildings, vacant sites, illegal land uses, lack of public open spaces and exceedingly high crime levels have all contributed to the decay of the area. The overwhelming number of informal settles within Clare estate is a significant contributor to the deuteriation of the area. They have created an unappealing environment which has consequently created unpleasant for the residents , patrons and community members. Clare estate has experienced years of neglect and management which can be attributed to poor

coordination and communication between stakeholders. In order to reverse the effect years of decay has had on Clare Estate; the implementation of urban renewal initiatives is required. The community of Clare Estate will gain a stronger local economy, reinforced and intensified community bonds and a healthier and safer environment, through the use of urban renewal intervention.

Transport Routes into Clare estate

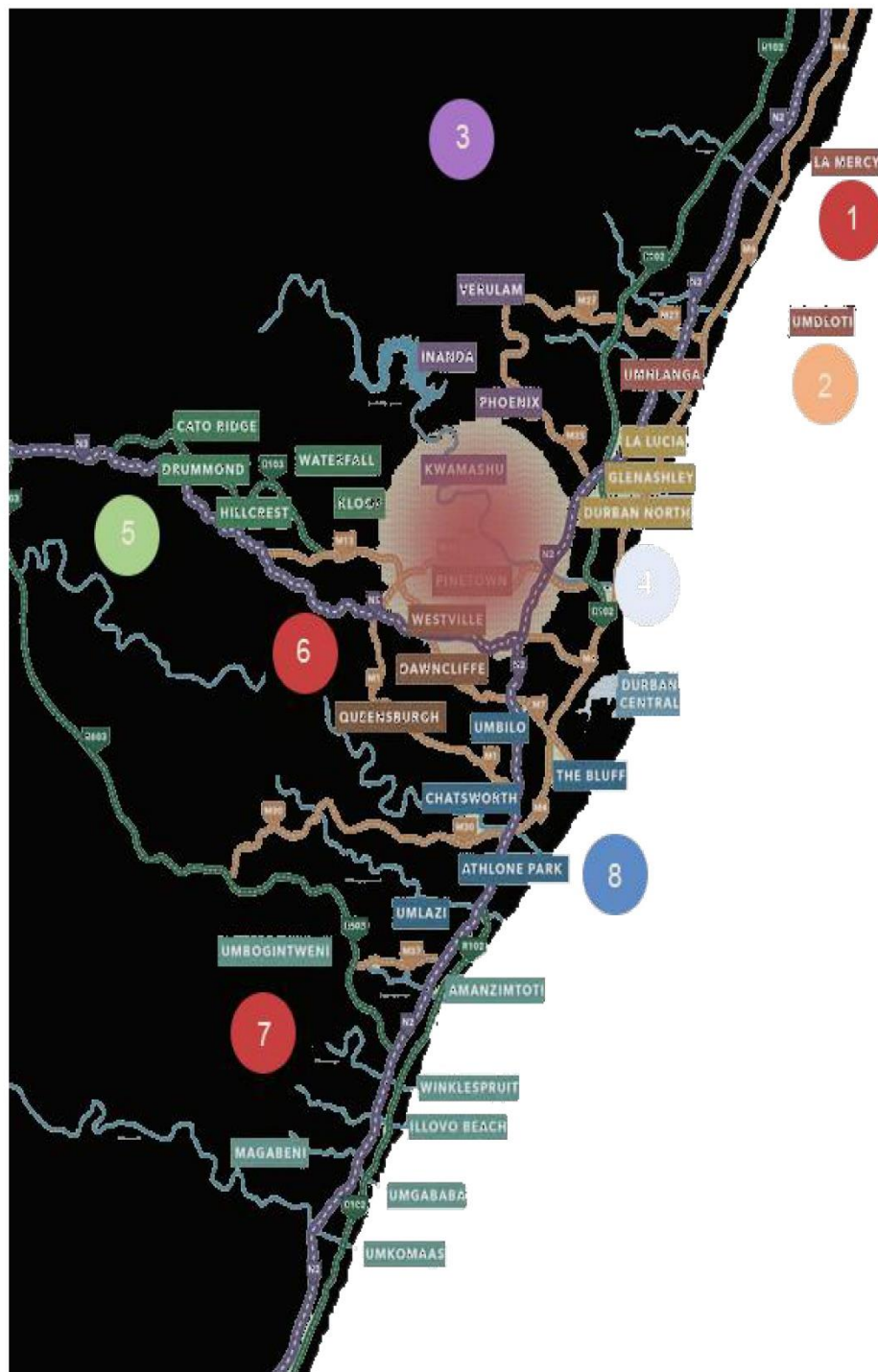


Figure 112 : Vehicle routes. Source: Author (22 November 2019) Durban

The Greater context of Clare estate

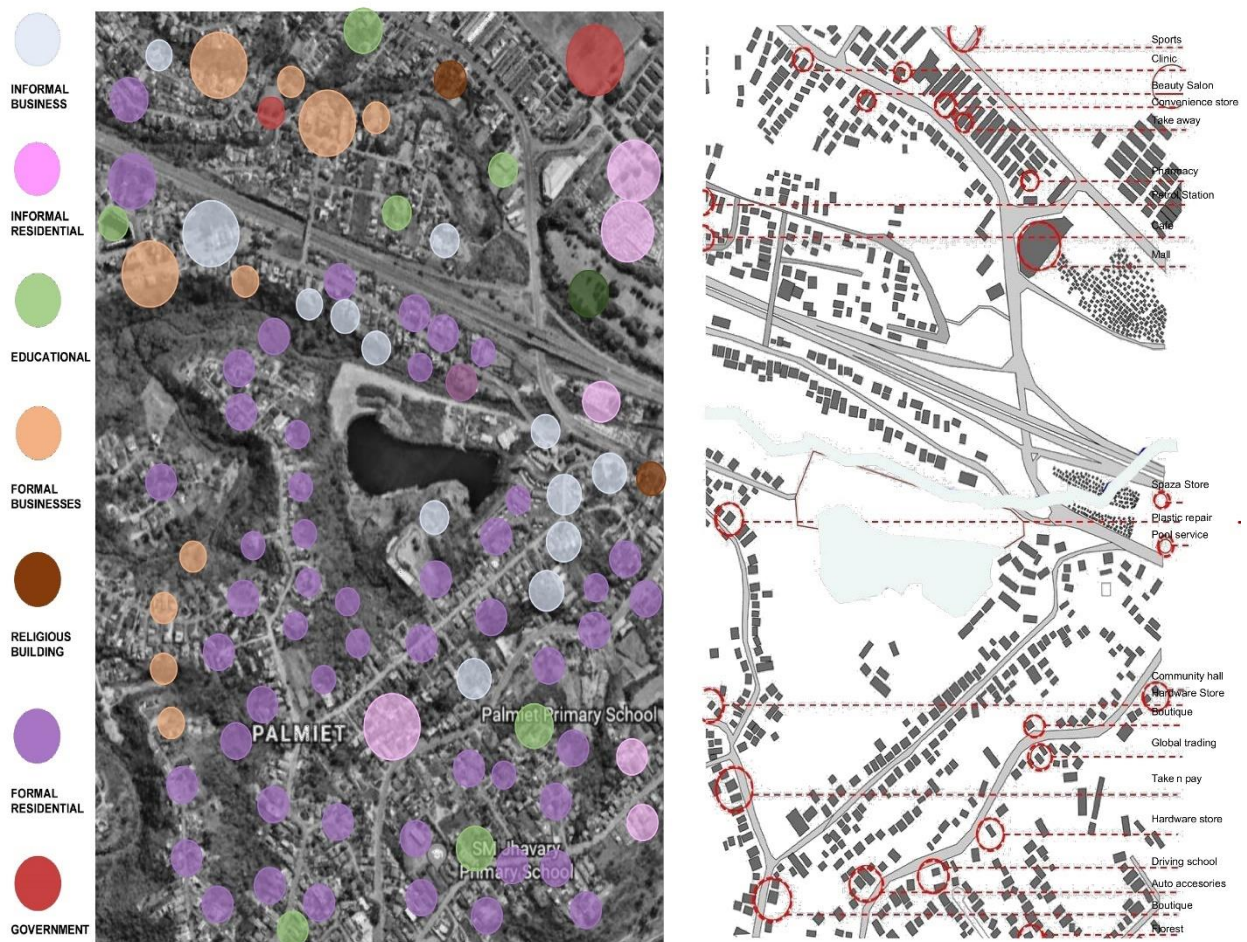


Figure 113: Zoning and economical nodes Source: Author (22 November 2019) Durban

Formal Vs informal residential & Figure ground

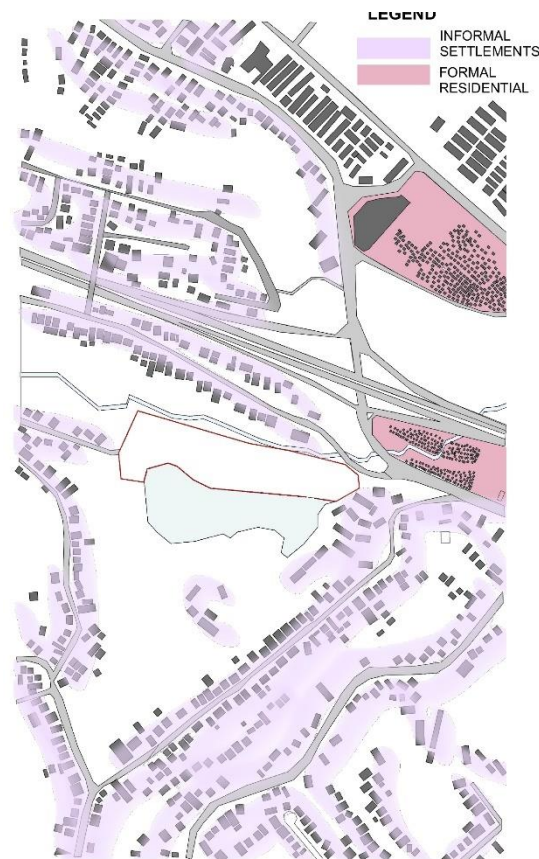


Figure 114: Zoning of residents. Source: Author (22 November 2019) Durban

Condition of the roads

When examining the primary and secondary distributor roads , it was found that there no unattended potholes or obstructions present on the road. The streetlights were broken, pavements were missing in certain areas and patches on unevenness in the tarring road were present due to the mending of previous potholes. The interior roads were neglected and extremely narrow with potholes missing and no streetlights .



Figure 115: Condition of an existing road. Source: Author (22 November 2019) Durban

Informal settlements

The overwhelming amount of informal settlements in Clare Estate is largely contributing to the degeneration and continuous decline of the area. With a staggering 46% of households in Clare Estate being informal, the impact of informal settlements has become increasingly problematic. There are three main squatter camps within Clare Estate located on Kennedy Road, Bolton Road and Quarry Road, however due to the continuous increase in informal settlements and a lack of land within the area, people have invaded abandoned buildings and vacant plots of land throughout the area. Large amounts of settlements can now be found along Mayat Place, Candover Road and Bhogal Road. The presence of informal settlements has devalued properties within Clare Estate and has contributed to a decaying urban environment.



Figure 116 :Informal settlements on quarry road. Source: Author (22 November 2019) Durban

Landfill sites

The Bisasar Road landfill site is a leading contributor to the decline of Clare Estate. It is to blame for the increase in pollution and plummeting property values. The landfill has subjected the residents of Clare Estate to an unhealthy and unsafe environment. The landfill presently holds non-hazardous waste, which is primarily domestic waste. Furthermore, the presence of the landfill site is an attraction for the informal settlements as residents scavenge for materials, food and other discarded products to sustain their livelihoods. In general, the presence of the landfill has affected the physical appearance and overall aesthetic of Clare Estate.

Vacant and abandoned sites

There are a number of vacant sites and abandoned buildings throughout Clare Estate that have resulted and contributed to plummeting property values. A declining local economy, poor planned zonings and Clare Estate is no longer viewed as being an attractive neighbourhood for new residents to settle in. The large number of vacant sites and abandoned buildings throughout Clare Estate adds to the neglected and decaying physical appearance of the area. It was noted that the majority of the vacant sites and abandoned buildings were either invaded by informal settlements, used for illegal dumping, illegal activities or used to park large trucks and busses. The presence of these vacant and deserted sites is an eyesore and has created an unsafe and unpleasant atmosphere within Clare Estate.



Figure 117 :House that's vacant and abandoned. Source: Author (22 November 2019) Durban

Littering

It was observed that the littering occurred predominantly in the busy parts of Clare Estate and around the informal settlements. Litter was common along the main roads, near bus stops or corner shops. It was also noted that public bins were not provided in busy areas, thus encouraging residents and patrons to litter. The littering around informal settlements is due to the residents of the settlement not having proper waste disposal methods, which consequently leads to the disposal of waste along roads, on vacant sites and around their residences. It was also noted that on windy days litter from the landfill site is blown about and distributed around the area. Clearly the landfill site contributes to the litter around Clare

Estate. The untidy and polluted appearance of the area caused by litter has encouraged residents to have a relaxed attitude towards the problem of litter. It was noted that residents of Clare Estate themselves often litter on roads. The litter around Clare Estate contributes to an untidy and messy appearance.



Figure 118 :Littering on the side of the road, Source: Author (22 November 2019) Durban

Economic

The physical blight of the area has had a considerably negative effect on the local economy of Clare Estate. The degenerating urban environment has consequently led to a failing local economy with many businesses being abandoned and undergoing liquidation. A number of businesses are running at a great loss as business owners are unable to keep up with their daily expenses. Currently 46% of households in Clare Estate are informal settlements; however, this percentage is increasing. This increase of informal settlements has contributed to the high crime levels, which has resulted in the abandonment of businesses, as business owners are unable to make up the cost of the loss incurred through theft.



Figure 119 :Abandoned business in the area, Source: Author (22 November 2019) Durban

Environmental

The original community of Clare Estate were victims of environmental racism as the Bisasar Road landfill site was located in close proximity to communities classified as non-white during the apartheid era. The landfill is the leading cause of the environmental degradation occurring within the area. Has forced the current residents of Clare Estate to live in an environment that is unhealthy and unsafe, making the community victims of an environmental injustice. The strain that urban decay has put on the environment is distinctly noticeable and evident throughout Clare Estate. The informal settlements scattered throughout Clare Estate and

their invasion of abandoned buildings furthermore contributes to the environmental degradation of the area. Residents of the informal settlement do not have access to proper sanitation and waste disposal systems, which consequently adds to the pollution of the environment. It was observed that there is an absence of bins in public areas, such as the bus stops or along the road, which consequently encourages littering, as there is nowhere to dispose of waste.

Social

Urban decay so too has impacted on the social environment of Clare Estate as it has contributed to exceedingly high levels of unemployment and poverty. Vagrancy and crime are significant problems within Clare Estate. Beggars can be found outside businesses on Clare Road, Oflaherty Road and Burnwood Road as well as on busy road intersections such as the intersection of Clare Road and Kennedy Road. The high levels of crime have contributed to a fragmented community which lacks a sense of unity and trust. Community facilities and recreational facilities are not present within Clare Estate. The residents of Clare Estate resort to making use of facilities from neighbouring areas. When conducting the observation studies, it was noted that many students played along verges of properties on the busy Clare Road.

Site and community issues

Site

- Scarcity of land
- Formal housing not dense resulting in dead, vacant and wasted space ☐ Informal settlements are dense and overpopulated.
- Pollution of the Umgeni river due to no organized mode of refuse collection in informal (and to an extent formal) settlements
- Land made up mostly of infertile soil
- Limited access to public transport as well as a direct connection to the inner city
- Not pedestrian friendly due to safety

Community

- Security issues- 59% of crime committed is burglary, 33% is violent crime and 8% are other types of crime.
- Lack of environmental awareness
- Unemployment and people living off grants
- Drug and alcohol abuse especially amongst younger people
- Majority of residents are not permanent residents equating to a sense of non – belonging and therefore no interest or pride in their temporary homes. This in turn creates an attitude of “I don’t care” especially in the adults which ultimately results in complete neglect.
- Lack of guidance and skills development programs results in new business owners being demotivated. The result is the changing of their business plan or products as new trends arise which is a sign of a lack in business management skills. Congruently these businesses take time to develop and produce a stable income which is frustrating as the need for an income is immediate.

1.6.3 SITE OPTIONS

The following sites have been selected based on information obtained from the literature review and the primary research that has been conducted. The following criteria will be compared between both site options to determine which site is best suited for the project proposal.

Site selection guidelines

Physical features

The site should have existing natural features like water or greenery. For the concept of healing architecture to be successful , the inclusion of natural materials in the design is vital.

Location

The location of the site should be in close proximity to the precincts and communities for job opportunities. The aim of this location is to connect these precincts and to connect this new building to other precincts of the inner city

The building should be within close proximity to public transport and not hidden away from the street, as it must be conducive to informal trade. It should therefore be able to make use of existing amenities within the city.

Site Area

The site area should be able to accommodate the various layers of a mixed-use typology (retail, offices, leisure and accommodation, as well as provide space for healing).

Zoning

The building locations should ideally adhere to the projected urban planning scheme for the city and the proposed functions should be able to work in this context.

Access to Public transport

The site should be within walking distance to public transport in order to make use of the transport hub and promote walkability and connectedness aligned with the current Local Area Plan for Durban.

Pedestrian Access

The site should be conducive to pedestrian access from all aspects or be able to be manipulated to achieve this

Vehicular Access

The site should have strong links to existing parking garages that are underutilised, and it should be able to provide space for loading and delivery vehicles.

Site selection criteria

THEORIES USED	THEMES	CRITERIA	POTENTIAL EFFECTS
COMMUNITY REINFORCEMENT APPROACH	People based, mixed community's therapeutic community Participation Inclusion Social support Sense of belonging Self identity	Empower communities through reintegration centre Connection to community and residents Proximity to transport Social recognition Outdoor recreation area Personalization Family room Educational room Gallery Markets Rentable spaces Workshops	Inclusions Socialization Communication Self esteem Valued Appreciation Communication Reintegration Skills Sense of connection
THEORY OF EMPOWERMENT	Social inclusion Empowering through community upliftment and power Sense of control Value	Strengthen individuals and communities Potential for reintegration and awareness Employment centre Personalization Wayfinding Personal space Study spaces Resource centre Sport	Power Identity Employment Skilled Educated Reintegration Strength Longer recovery Sense of belonging
HEALING ARCHITECTURE	Site specific Place Light Nature sustainability Water Biophilia restoration	Pedestrian movement Orientation-ventilation and lighting Nature Topography Location Holistic environment Perimeter permeability Farming Spiritual Garden Water – lake Physical activities Spiritual/Music/Art Noise control Colour	Restoration Physical wellbeing Psychological wellbeing Sense of control Comfort

Figure 120 : Criteria of site requirements. Source: Author (22 November 2019) Durban

1.7 SITE SELECTION AND DISCUSSION

OPTION 1

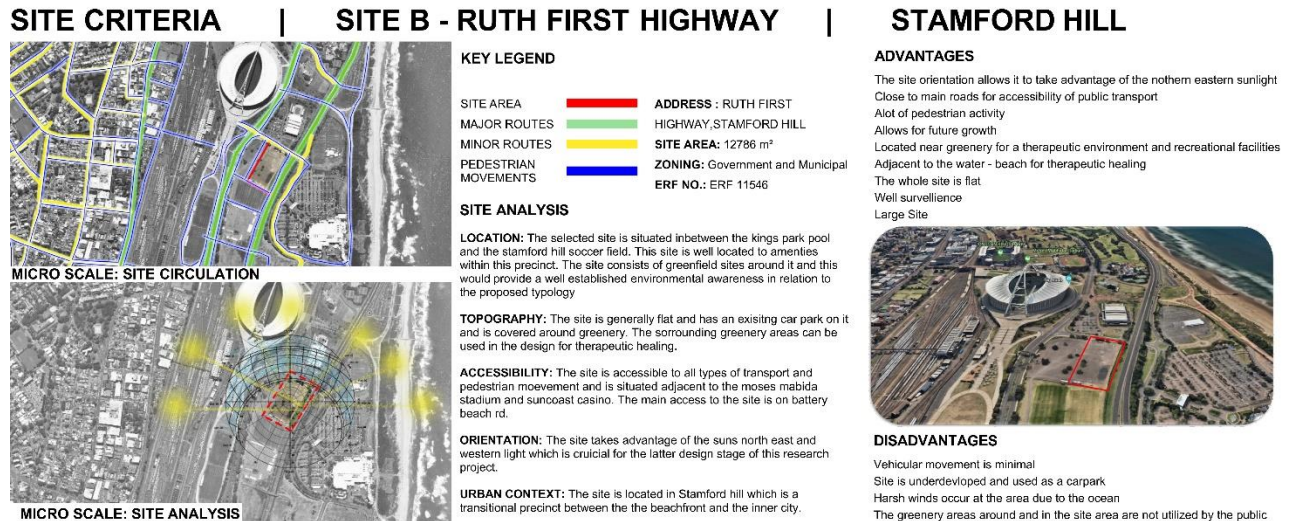


Figure 121: Option 1. Source: Author (22 November 2019) Durban

OPTION 2



Figure 122: Option 2. Source: Author (22 November 2019) Durban

OPTION 3

As a result of a comparison between the two sites and both sites not being applicable enough for the chosen typology, option 3 was looked at as a potential site and proved to have a major

advantage, owing to its geographical and symbolic location. It has an interesting and iconic form that is conducive to a potential landmark.

The proposed site area is on Varsity drive ,Claire Estate.

Address : Varsity Drive , Claire Estate

Site Area: 38 000 sqm

Zoning : Special Zone 4848



Figure 123: Location of site. Source: Author (22 November 2019) Durban

Landscape and topography

- Immediate landscape of trees , hills and mountain influences the design to consider natural context.
- Lake must be accessible.
- Low rise scale to reduce negative shading.
- Surrounding hillsides and mountain which supports the community naturally impacts the immediate climate of solar and wind.

Connections

- Existing roads and infrastructure are frequently used.
- Consider existing connections of vehicular and pedestrian routes.
- Consider both vehicular and pedestrian bridges into site.
- Existing site is flat which helps in providing a more accessible building

Community

- The site is located around different community's and needs to address all
- Site context is to be considered
- Community interaction is to be considered for reintegration purposes
- Inclusion of the community facilities and businesses around site should be considered
- Include facilities for communities

Environment and water's edge

- The site is abundant in nature situated around natural vegetation, water and trees which aids in the rehabilitation process of healing
- Site is located around a lot of built environment
- The site is located between the umgeni river and palmiet lake
- Consider water's edge
- Consider relaxed buildings line against water boundary

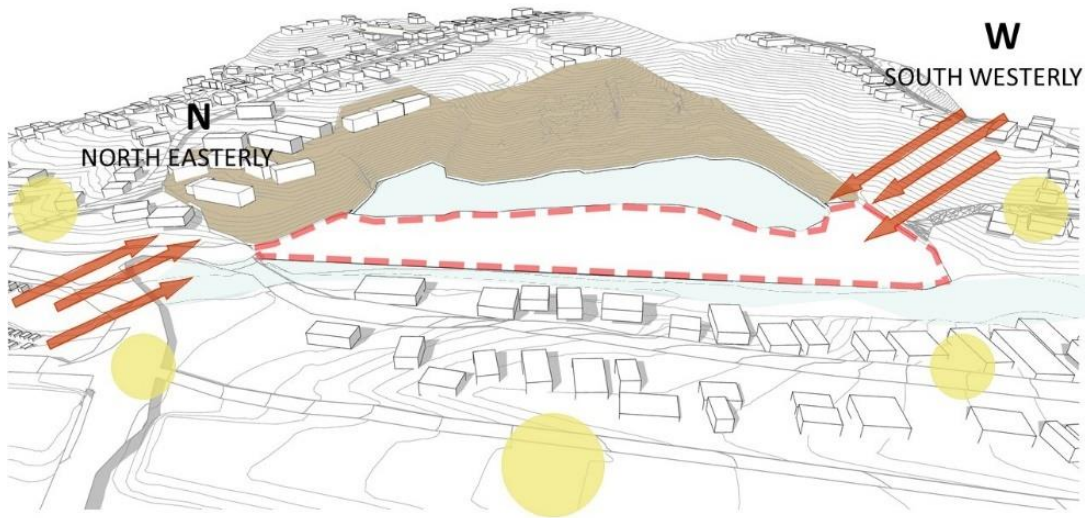


Figure 124 : Solar analysis. Source: Author (22 November 2019) Durban

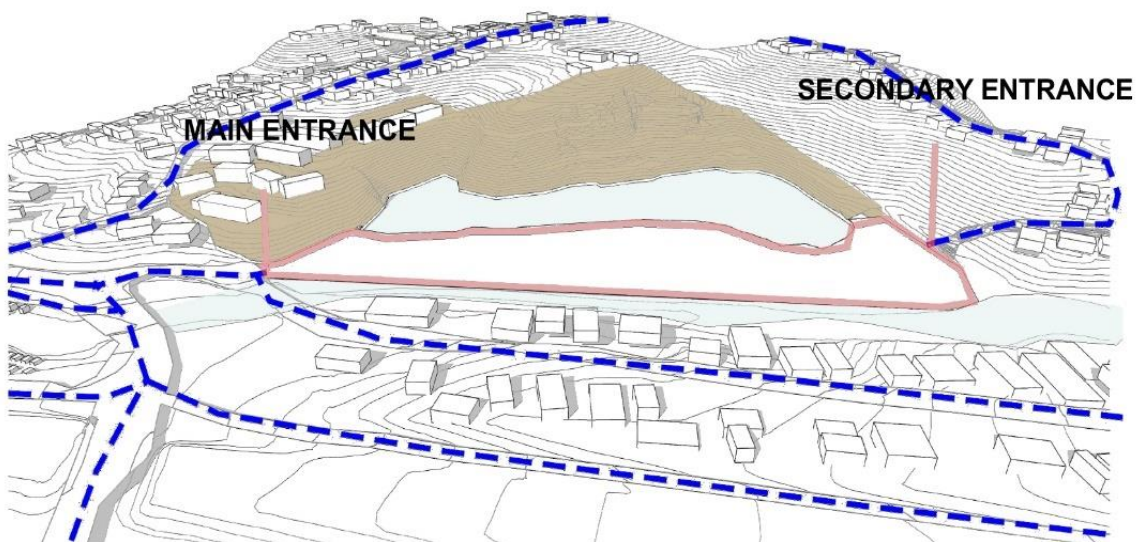


Figure 125 : Routes into site. Source: Author (22 November 2019) Durban

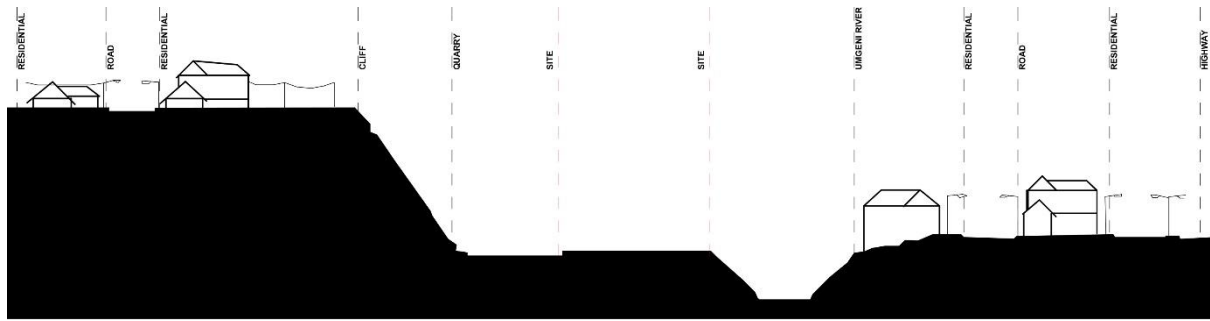


Figure 126 : Site section. Source: Author (22 November 2019) Durban

1.7.1 Neighbourhood Scale Analysis

The road networks, which was according to history were intended to be confusing, is unorganized and often roads going into the settlements lead to dead ends. Connecting roads from the settlement to the main road Quarry road are not maintained and are narrow with little and sometimes no pedestrian space. Most Claire estate residents take to walking to get from one place to another however the roads of Claire estate are not pedestrian friendly. Vegetation has overgrown on pavements; pedestrian crossings are not clearly marked and parking spaces on the Quarry Road is often vacant (wasted space). There is no shade on pavements or spaces to sit and relax. Informal traders are often located on pavements sides to take advantage of passing pedestrian movement, however this causes congestion as people stop to commune by them obstructing the way. The bus/taxi stop by the clinic has insufficient waiting space while the bus/taxi stop on Quarry Road is always congested with no formal seating/waiting space and no order

Formal and informal business – Places of interest

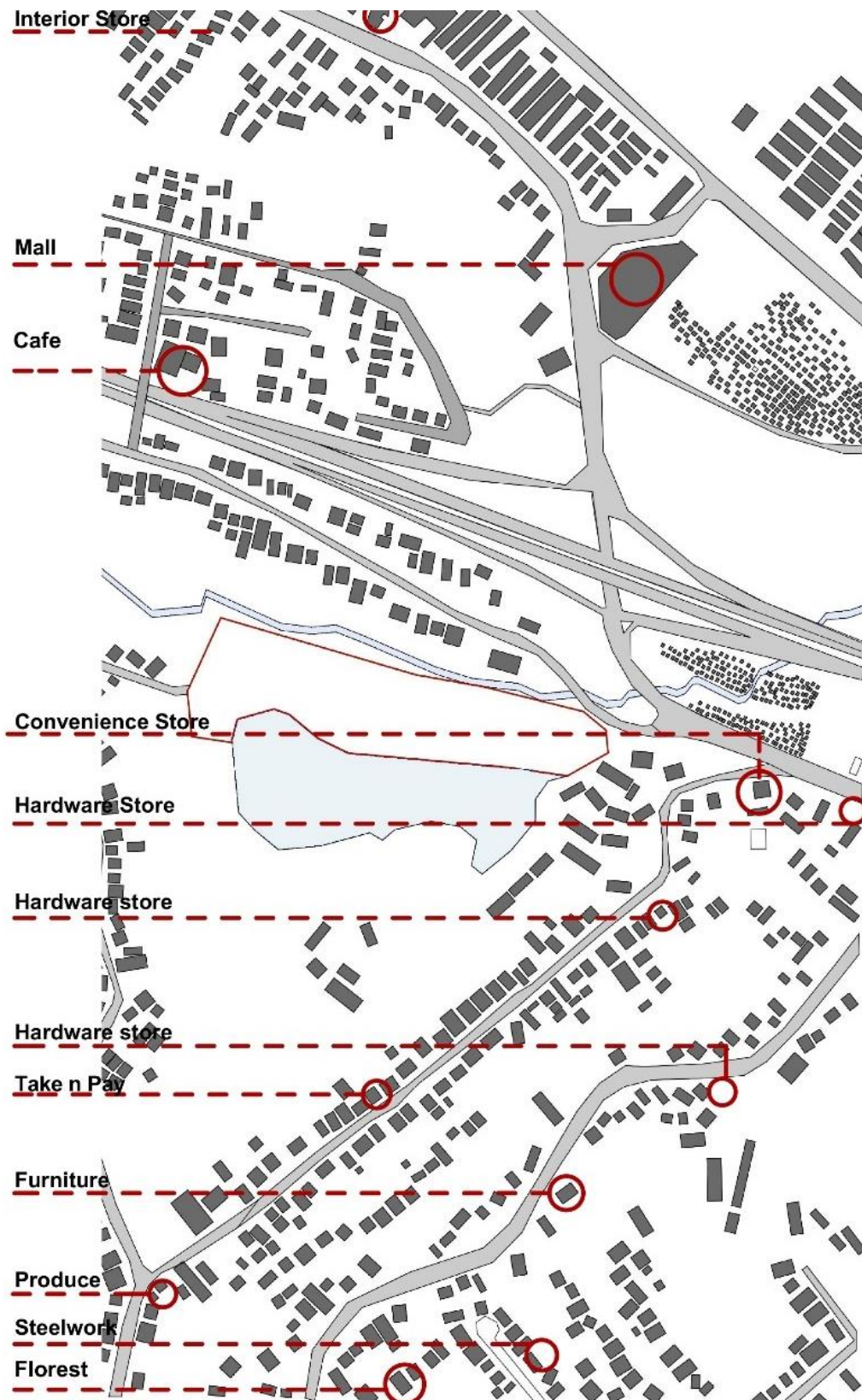


Figure 127 : Places of interest, Source: Author (22 November 2019) Durban

1.8 TOWN PLANNING, LAND USE AND OTHER RELEVANT INFORMATION ON SITE

1.8.1 Town Planning and Zoning

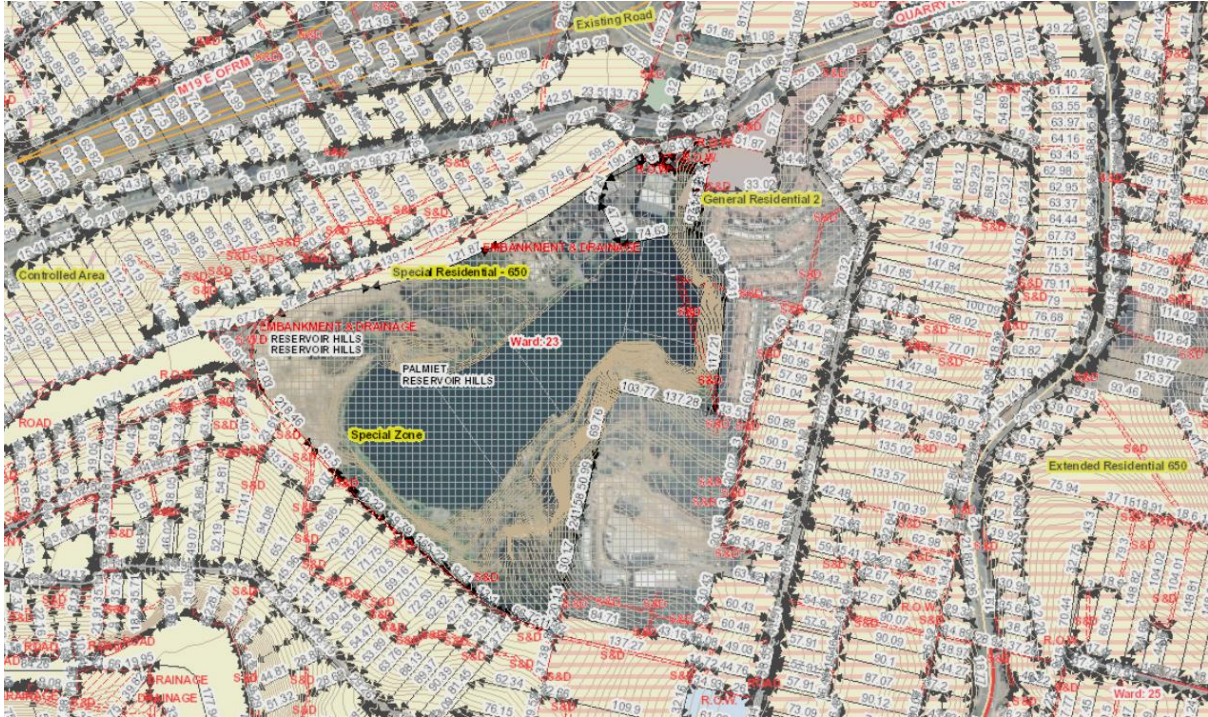


Figure 128 : Zoning. Source: Author (22 November 2019) Durban

CHAPTER 2 | DESIGN DEVELOPMENT

2.1 INFLUENTIAL IDEAS BEHIND THE URBAN INTERVENTION

2.1.1 Primary Ideas Behind Urban Design

Awareness of the impacts that illegal connection of electricity can affect a whole community. Therefore, implementing solar energy harvesting and its techniques as the new source of electricity.

To Empower the marginalized communities within the formal and informal settlements with the integration of post substance users using the resources accessible to them and educating them with skills that can make the area of Claire estate grow

To Reintegrate post substance users with the aid of the surrounding community.

2.1.2 Primary Ideas Behind Architectural Intervention

Healing Architecture : Using the 5 elements of healing : Light, Air, Colour, Materiality and nature to help the individuals in their treatment process

Empowerment theory : The intervention allows users of the facility to experience the process of Reintegration by learning skills that will help them to work in the surrounding buildings. The first-time user of the intervention will have the opportunity to learn the process of healing through educational facilities.

Community reinforcement: The inclusion of spaces that allow the community to be involved in and utilize as well as public spaces that allow for interaction , reintegration and nature. The theory of therapeutic communities has been used where the community gets involved in the healing process.

Promenade : A promenade or axis system on the waters edge which is a connective feature where the users experience the properties of healing along with the courtyard spaces and built forms. This allows the users to engage with others whilst being in constant connection with the water body. This promenade is a feature as it is illuminated with natural light and seating spaces along the way and opens up to a beach area and stairs that lead you into the water.

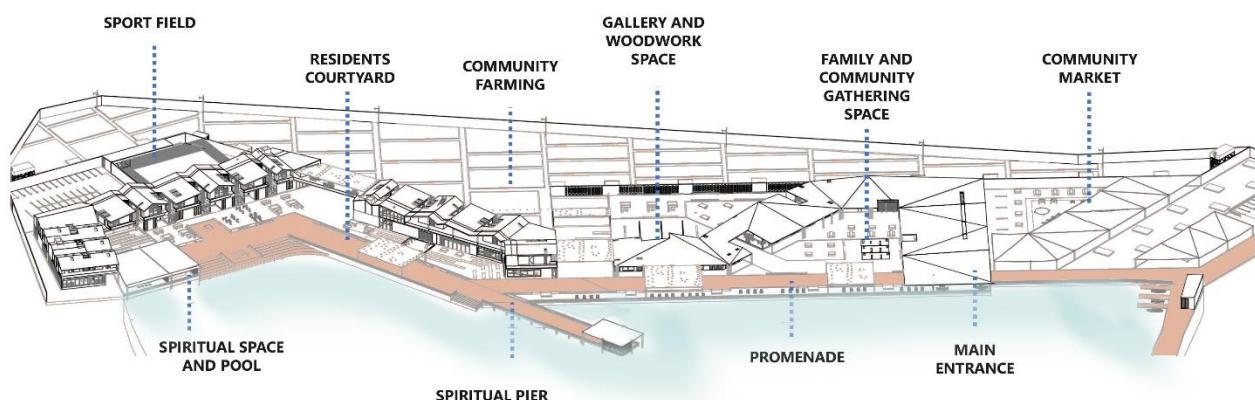


Figure 129 : Nodes, Source: Author (22 November 2019) Durban

2.2 PROCESS WORK

2.2.1 Urban Design Conceptual Diagrams

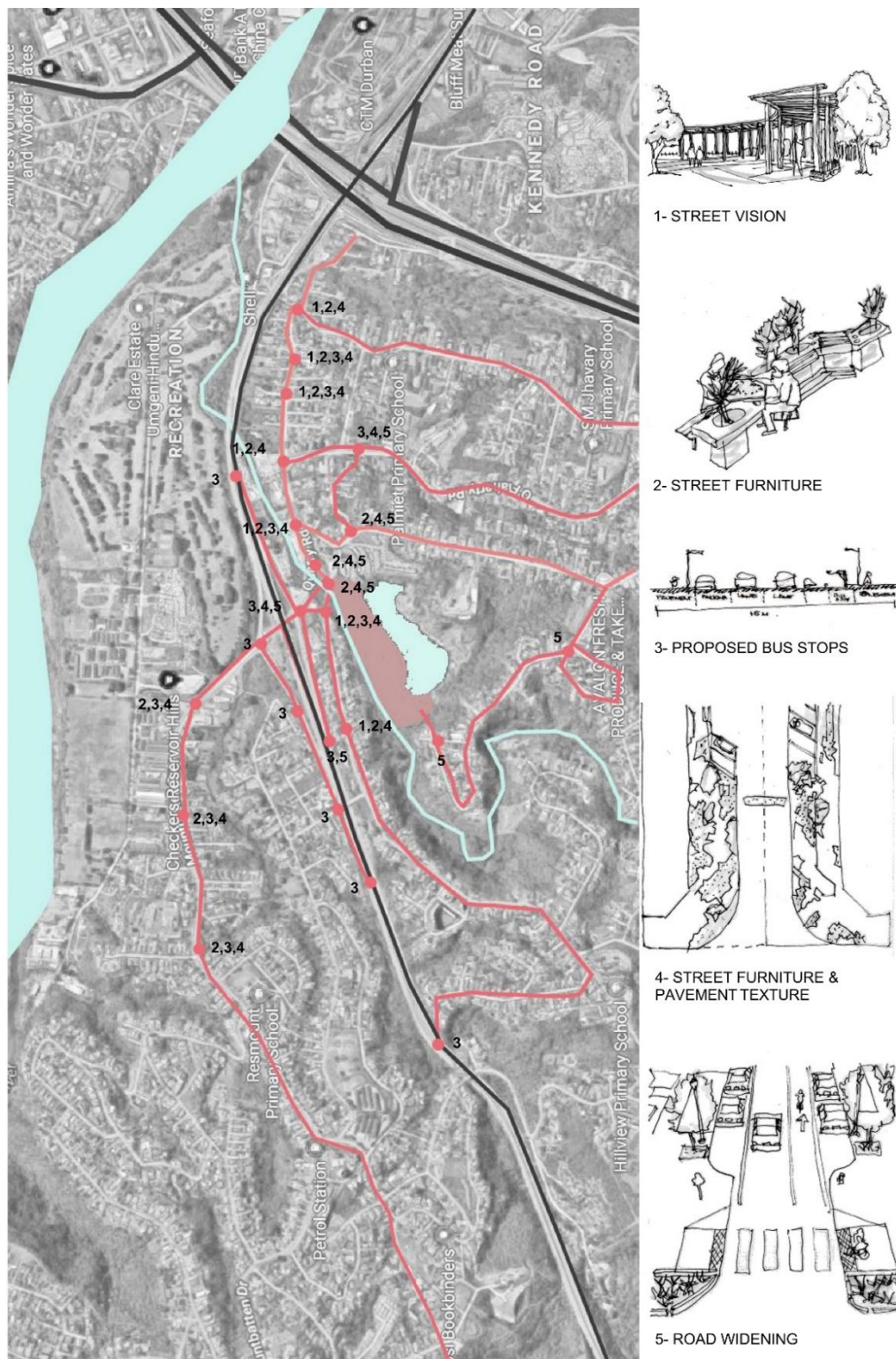


Figure 130 : Urban interventions. Source: Author (22 November 2019) Durban

2.2.2 Architectural Intervention Conceptual Diagrams

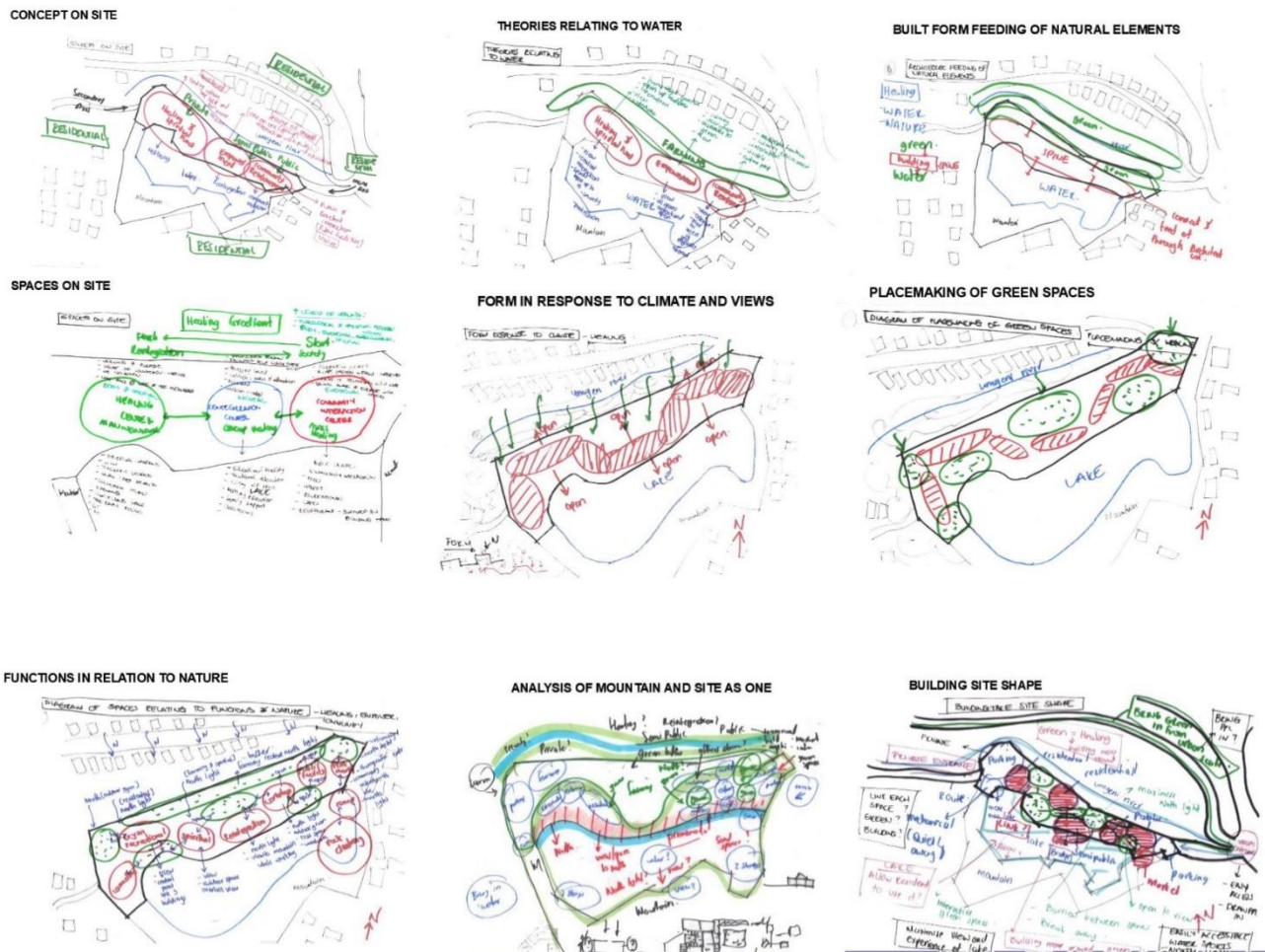


Figure 131 : Conceptual diagrams on site , Source: Author (22 November 2019) Durban

Environmental Study

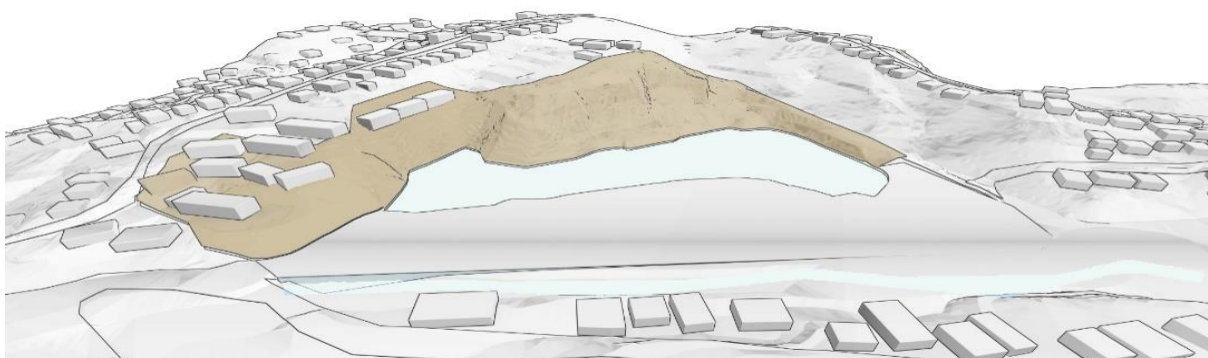
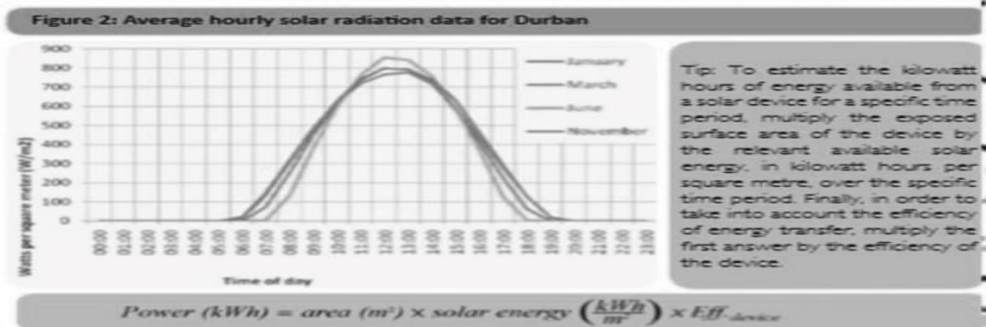


Figure 132 : Environmental features on site, Source: Author (22 November 2019) Durban

Table 1: Mean daily global radiation on flat and tilted surfaces (kWh.m-2.day-1)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Ave
0°	5.53	5.40	4.89	3.99	3.28	3.03	3.17	3.62	4.02	4.77	5.15	5.74	4.38
35°	5.00	5.31	5.49	5.31	5.01	5.11	5.12	5.07	4.76	4.90	4.78	5.06	5.08
65°	3.49	4.04	4.68	5.14	5.26	5.61	5.50	5.07	4.27	3.90	3.42	3.42	4.48



TIME	MARCH	JUNE	SEPTEMBER
6 AM			
7AM-9 AM			
10AM-12PM			
1 PM-3PM			
4 PM			
5 PM			

Figure 133 : Solar Map and analysis, Source: Author (22 November 2019) Durban

The proposed intervention is designed to gain the maximum gain of the north, north-east and north-west lighting. Therefore, producing daylight comfort as well as maximum solar energy production.

Ventilation and rainwater harvesting

The architectural intervention will consist of two types of ventilation systems which are mechanical and natural atrium stack ventilation systems. In spaces where possible, cross ventilation will be encouraged whereas large spaces will require mechanical ventilation through informal cooling towers. All rainwater will be harvested through roof pitch catchments and water reticulation systems.

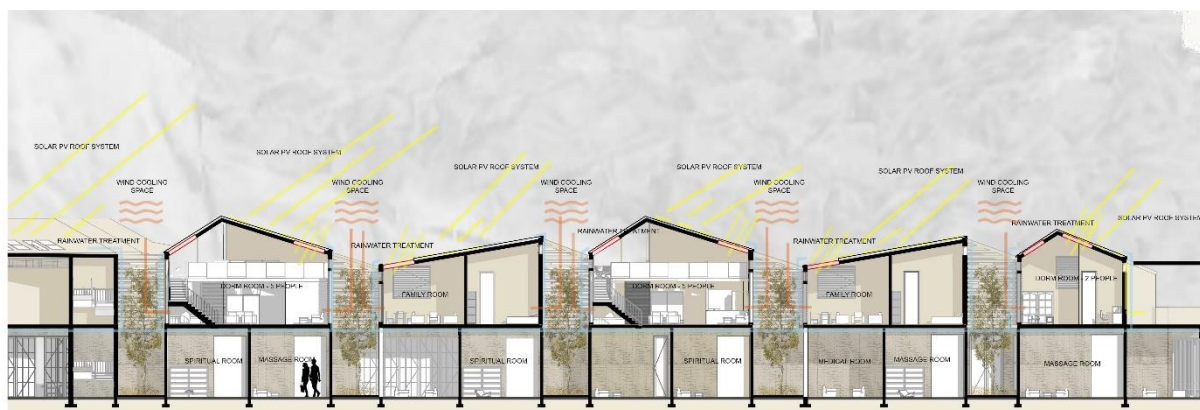


Figure 134 : Sustainable strategies section Source: Author (22 November 2019) Durban

2.3 TECHNOLOGICAL COMPOSITION AND MATERIALS

2.3.1 The Integration of Form and Healing

Using the concept of healing and reintegration , all spaces in the building is walkable and there is a constant transition between people and nature. The materials of the building is locally supplied, and the choice of specific materials provides the user with a sense of comfort. Sustainable approaches have been taken into consideration to preserve the surrounding areas and use it to the buildings advantage. All aspects in the design consider the main concept of healing architecture.

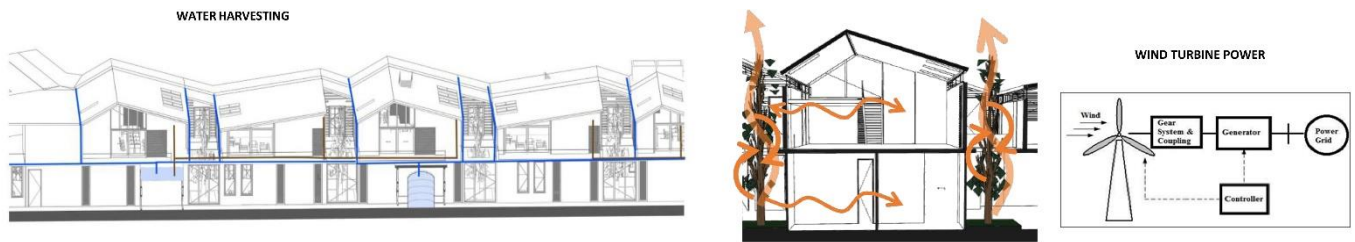


Figure 135 : Sustainable strategies, Source: Author (22 November 2019) Durban

HEALING ARCHITECTURE

Light , color, air, materials, water, nature

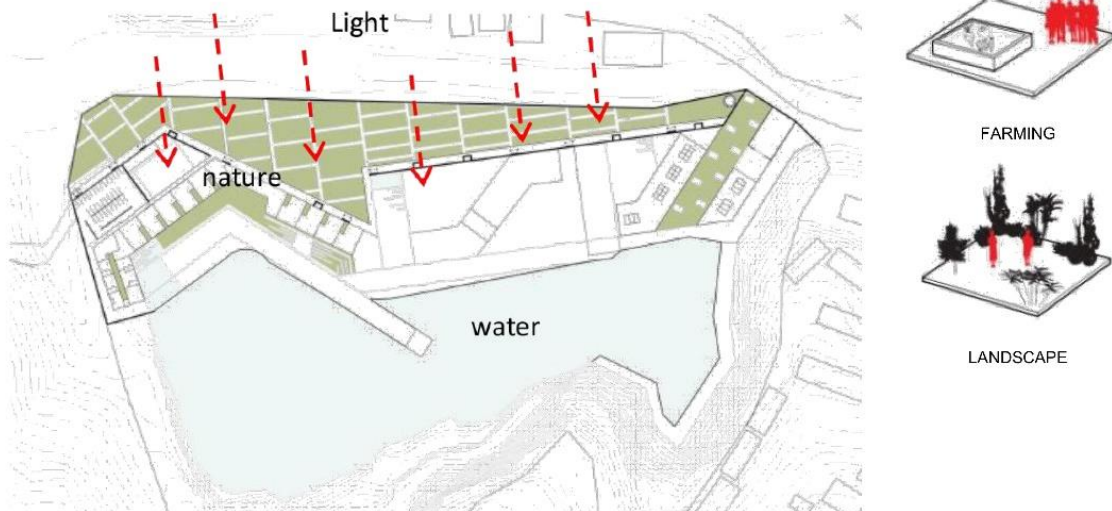


Figure 136 : Healing Architecture on site. Source: Author (22 November 2019) Durban

COMMUNITY REINFORCEMENT APPROACH

Inclusion, therapeutic community, nature, community involvement, community spaces, reintegration

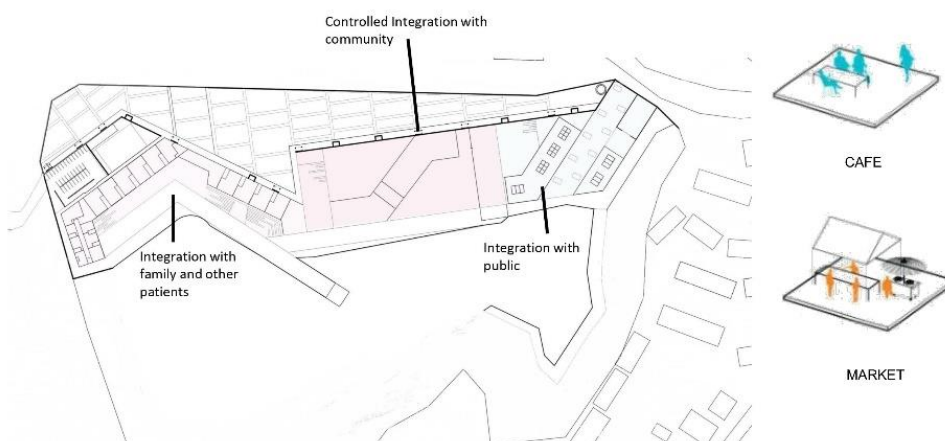


Figure 137: Community theory on site . Source: Author (22 November 2019) Durban

EMPOWERMENT

Education, access, spatial organization, public and private, community interaction, work placements

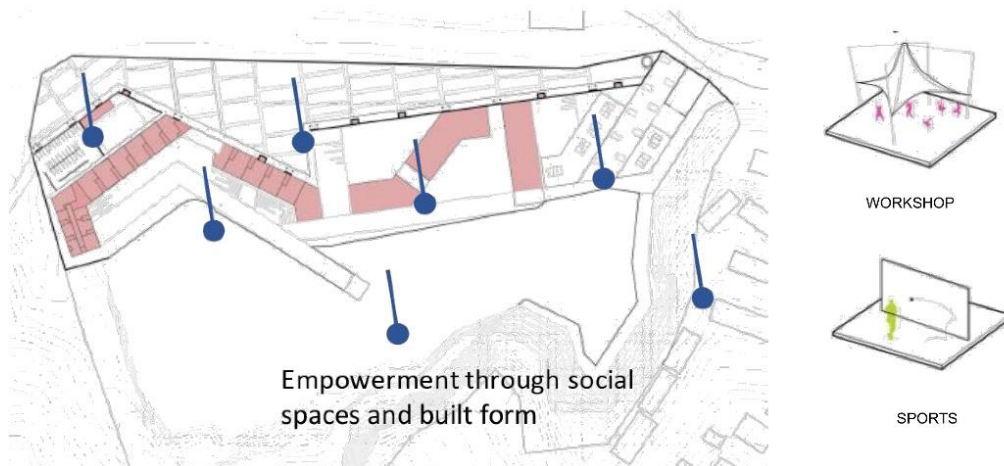
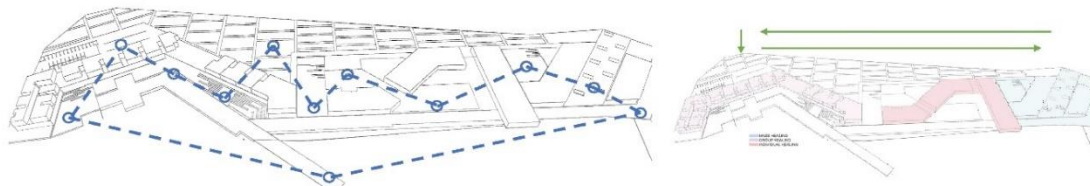
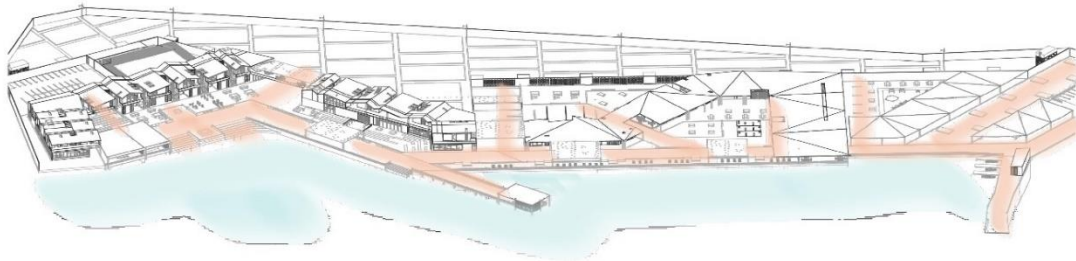


Figure 138 : Empowerment theory. Source: Author (22 November 2019) Durban

INTERLINKING SPACES



PROMENADE NETWORKS



FORM MAKING

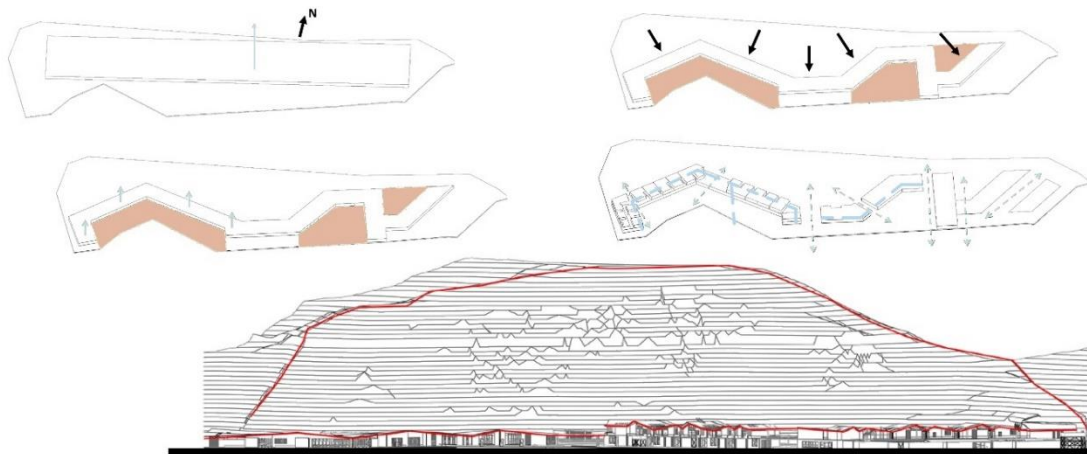


Figure 139 : Form making and spaces. Source: Author (22 November 2019) Durban

The programme of building functions transitions from the most public space (market), to the most private space (housing). These varying spaces are all connected by a continuous promenade at the front of the building. The promenade begins at the market and filters through to the end with various courtyard spaces feeding into it.

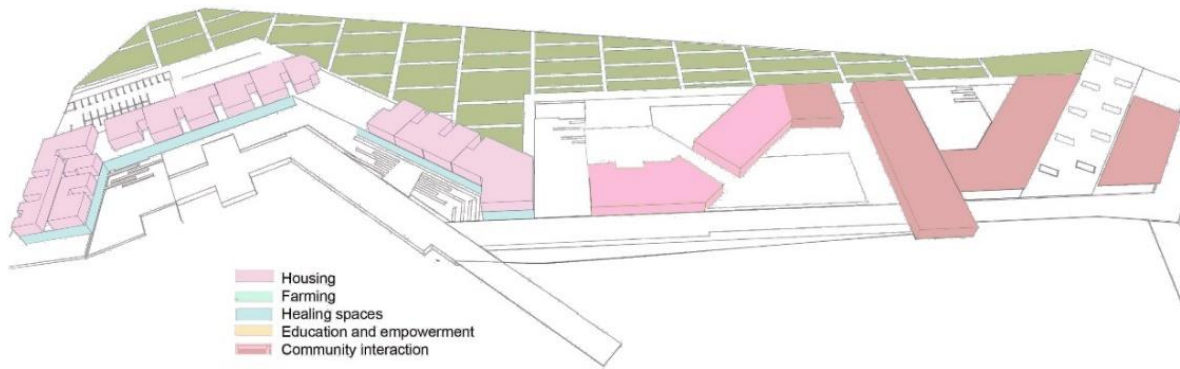


Figure 140 : Building programme on site. Source: Author (22 November 2019) Durban



Figure 141 : Building explanation schemes. Source: Author (22 November 2019) Durban

2.3.2 Materials to Be Used

Tactile and homely materials used to evoke connection between man and building



Figure 142 : Image of bricks. Source: Author (22 November 2019) Durban

Brick- a material that appeals to a person's nature as it is an earthly material and individuals wants to touch it because of its texture and design . Locally supplied material and recyclable allowing the facility to be sustainable. The use of different brickwork allows for wayfinding and sensory experience. Healing properties also consist of absorption of heat allowing the space to be warm at times of the day

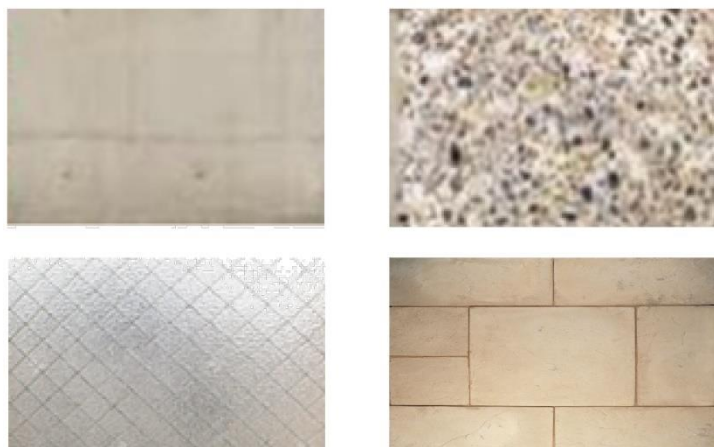


Figure 143 : Images of materials Source: Author (22 November 2019) Durban

Concrete , Plastic & Glass - These materials are not harsh in nature because individuals are exposed to it all the time. These are sustainable and can be provided locally. The use of plastic allows light to filter through creating that calm environment in specific places.

Timber - This is a natural material that comes from earth and people relate to it because of its warm nature. The use of bamboo material helps to make the facility sustainable as it is a locally grown material and helps with the earth's atmosphere. It is a significant and cultural wood . This type of wood heals the individual and the earth's atmosphere.



Figure 144 : image of materials. Source: Author (22 November 2019) Durban

Colour- while subjective, can be a design factor in reducing environmental stress when understood and used in the context of the colour preferences of a project-specific population.

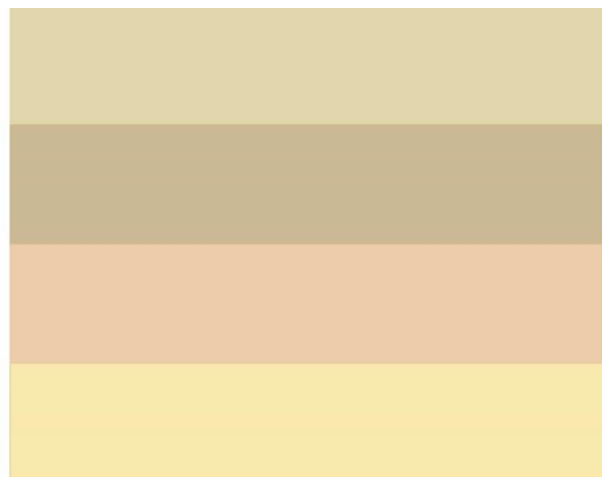


Figure 145 : Colour schemes Source: Author (22 November 2019) Durban

EXPLORING HOW POST DRUG ADDICTED HEALING AND REINTEGRATION INFORM ARCHITECTURAL DESIGN

Towards a contemporary rehabilitation center for durban

PROBLEM STATEMENT

This architectural response is to derive a set of architectural principals which combine therapeutic architecture and reintegration components to the post rehabilitation phase. The idea is to define an Architectural intervention that can facilitate patients and educate them on how to sustain themselves via the dynamics of healing and reintegration into society

WHO? This facility is for patients who have already received pre-medical rehabilitation

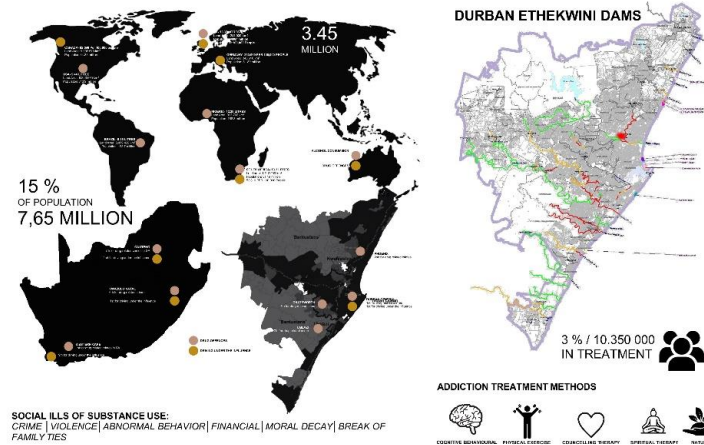
WHAT? Introducing a 'post rehabilitation facility' for all rehabilitation facilities around Durban, both national and international with sustainable reintegration

WHY? To provide a empowering rehabilitation centre for post drug addicts to heal with nature and reintegration

HOW? Through community support, social skills, education, skills training and nature

FACTORS CONTRIBUTION TO ADDICTION:
[UNEMPLOYMENT] [POVERTY] [LACK OF PARENTING] [INFLUENCE] [NO KNOWLEDGE] [FAMILY HISTORY] [AVAILABILITY] [MENTAL ILLNESS]

SITE AREA: 40 000m², ERF 4848 Special Zone



SITE SELECTION

REHABILITATION NODES LINKED TO SITE

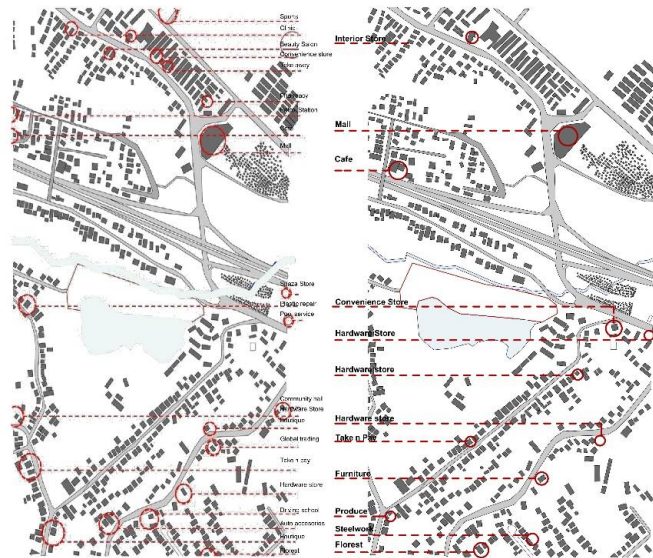


LANDSCAPE & TOPOGRAPHY

- Immediate landscape of trees, hills and mountain influences the design to consider natural context
- Lake must be accessible
- Low rise scale to reduce negative shading
- Surrounding hillsides and mountain which supports the community naturally impacts the immediate climate of solar and wind

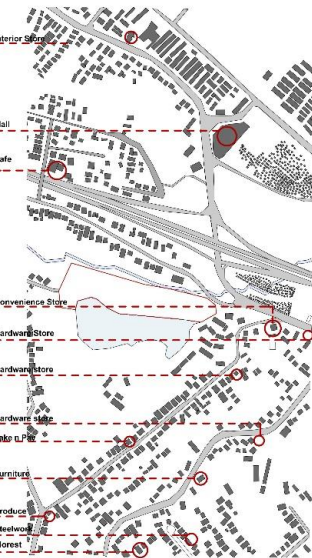
SITE ANALYSIS

THE ECONOMIC NODES



THE UMGENI PRECINCT

PLACES OF INTEREST



CONNECTIONS

- Existing roads and infrastructure are frequently used
- Consider existing connections of vehicular and pedestrian routes
- Consider both vehicular and pedestrian bridges into site
- Existing site is flat which helps in providing a more accessible building

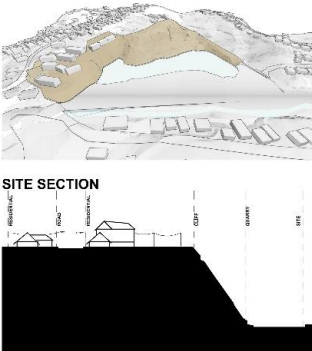
COMMUNITY

- The site is located around different communities and needs to address all
- Site context is to be considered
- Community interaction is to be considered for reintegration purposes
- Inclusion of the community facilities and businesses around site should be considered
- Include facilities for communities

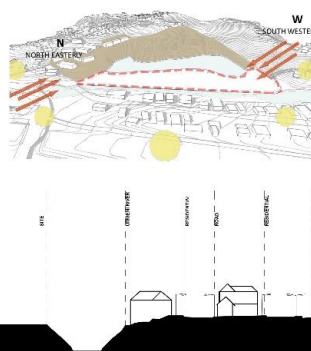
ENVIRONMENT & WATERS EDGE

- The site is abundant in nature situated around natural vegetation, water and trees which aids in the rehabilitation process of healing
- Site is located around alot of built environment
- The site is located between the umgeni river and palmiet lake
- Consider waters edge
- Consider relaxed buildings line against water boundary

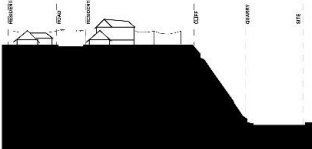
ENVIRONMENTAL FEATURES



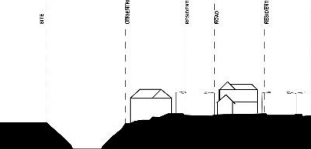
SOLAR ANALYSIS



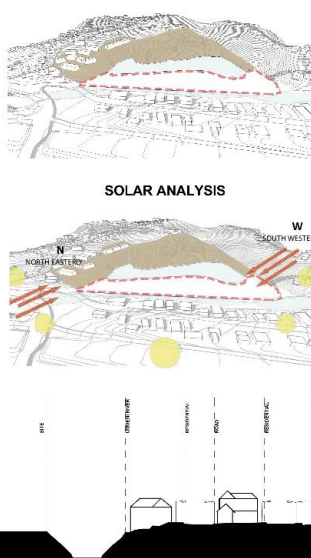
SITE SECTION



PEDESTRIAN ROUTES



SITE BOUNDARY



SITE PICTURES



PRECEDENT STUDY

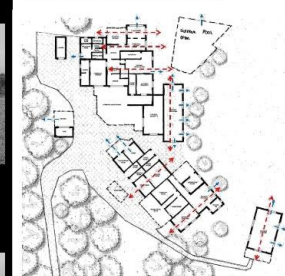
REHAB BASEL BASEL, SWITZERLAND 1998(HERZOG & DE MEURON)

- BUILDING ANALYSIS**
- Multi functional diversified building like a small town with streets, plazas and public facilities
- Residential quarters with their own personalities to bring in light and creates cues and landmarks to keep people oriented.
- Low rise structure
- Cantilever balcony to shade walkway below
- Rooms built around interior courtyard to maximize daylight
- Facility is focused on garden architecture and surrounded by trees and landscaping
- Facility is used by family members and local communities- patient and building center of community
- Each room has a large window to allow the outside to filter into the interior spaces
- Facility aim is to be apart of the surrounding community
- Materials used in the building is pine panels, glass and large
- Wood screens acts as a visual barrier and heat glare
- Use of lightwells and color is prominent



CARELINE CRISIS AND TRAUMA CENTRE HILLCREST, SOUTH AFRICA, 1995 (ELLISON WOODWARD)

- BUILDING ANALYSIS**
- Forest environment surrounded by nature and communities
- Caters for empowerment and education
- Psychological healing is the main aspect
- The facility uses full height glazing windows to allow a continuity between the interior and exterior
- The facility caters for physical exercise as it is located in a quite residential area
- This facility occupies an existing residential home. The way in which the facility looks allows the individuals to heal in a more familiar environment
- Therapy facilities are provided
- Natural light and constant connection to nature is a vital component. All spaces open up to the view
- Wood making is the main educational skill learnt



RAUF REHAB CENTRE SPENCER ROAD, SOUTH AFRICA, 1998(GM KHAN ARCHITECTS)

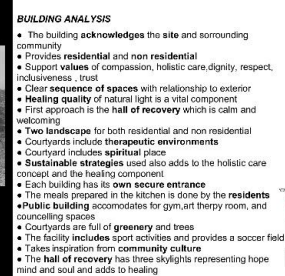
- BUILDING ANALYSIS**
- Residential environment surrounded by nature and communities
- Facility provides minimal agricultural farming to allow users to give back to the community
- Main focus is to heal individuals psychologically without any medication
- Focuses on education and reintegration
- Infrastructure is built by the patients
- Lack of architecture and color is a goal of healing
- Does not include community facilities but allows community interaction

GROOT KLIMMENDAAL REHABILITATION FACILITY, ARNHEM, NETHERLANDS, 2010 (ARCHITECT KOEN VAN VELSEN)

- BUILDING ANALYSIS**
- Forest environment surrounded by nature and communities
- Material-brown aluminium allows the facility to blend into the surroundings
- The top functions cantilever over the ground
- The facility uses full height glazing windows to allow a continuity between the interior and exterior
- The surrounding facade has a strong, tangible presence throughout the building- revalidating whilst walking
- The next phase is to transform the site and building into a public park
- The double height ground floor facilitates elements like the sports facility, fitness and swimming pool
- Facility is used by family members and local communities- patient and building center of community
- Care concept is used- positive and stimulating environment increases wellbeing
- Facility aim is to be apart of the surrounding community
- Facility is about self control and self confidence
- Staircase used as a tool for physical activity
- Use of lightwells and color is prominent
- The facility uses sustainable strategies like thermal storage, materials, easily maintained cladding
- Facility is about complexity and simplicity with attention to physical practical and social details
- The use of light, shadow, nature, layering, continuity, transparency and diversity adds to the buildings stimulating environment

SISTER MARGARET SMITH ADDICTION TREATMENT CENTRE, ONTARIO, CANADA, 2009(ARCHITECT MONTGOMERY SISAM INC.)

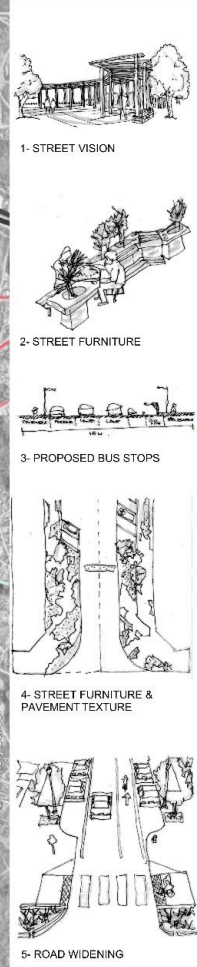
- BUILDING ANALYSIS**
- The building acknowledges the site and surrounding community
- Provides residential and non residential
- Support values of compassion, holistic care, dignity, respect, inclusiveness, trust
- Clear sequence of spaces with relationship to exterior
- Healing quality of natural light is a vital component
- First approach is the hall of recovery which is calm and welcoming
- Two landscape for both residential and non residential
- Courtyards include therapeutic environments
- Courtyard includes spiritual place
- Sustainable strategies used also adds to the holistic care concept and the healing component
- Each building has its own secure entrance
- The meals prepared in the kitchen is done by the residents
- Public building accommodates for gym, art therapy room, and counselling spaces
- Courtyards are full of greenery and trees
- The facility includes sport activities and provides a soccer field
- Takes inspiration from community culture
- The hall of recovery has three skylights representing hope, mind and soul and adds to healing



URBAN INTERVENTION

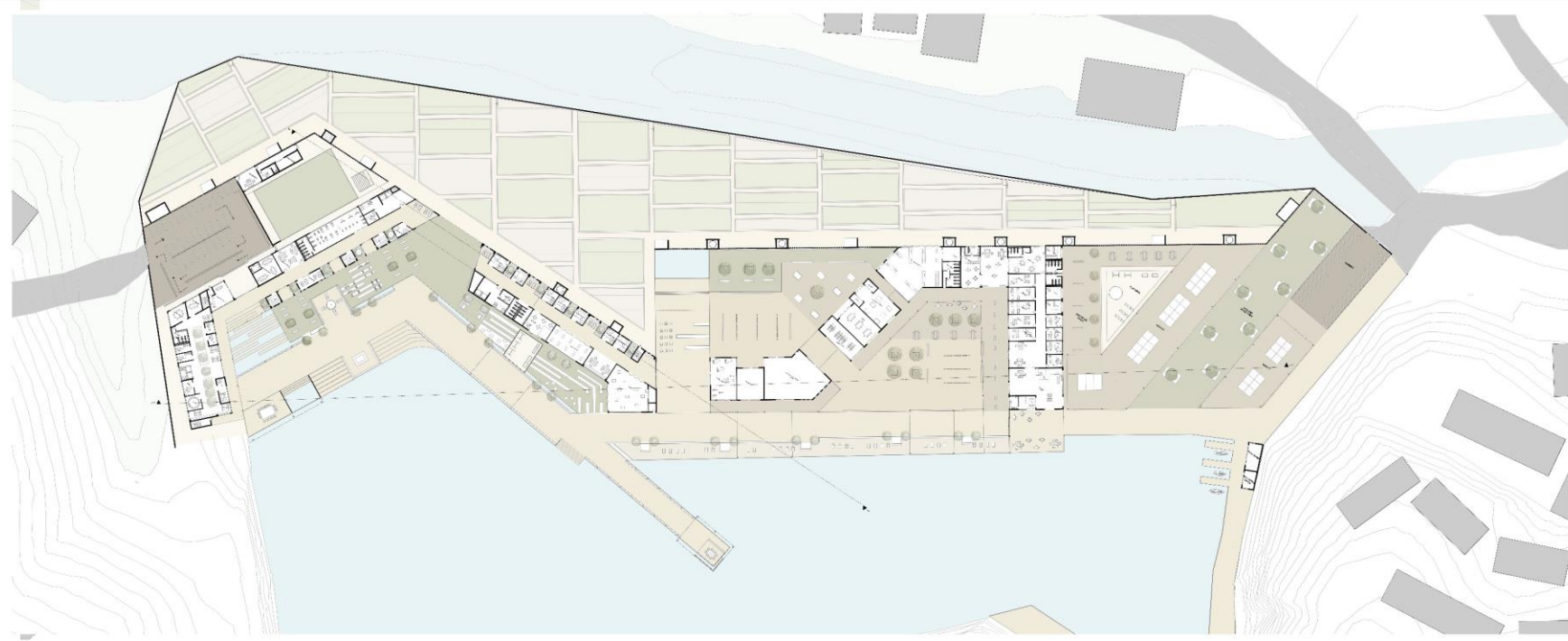


NABILA JEEWA 213505690



SOLAR STUDY

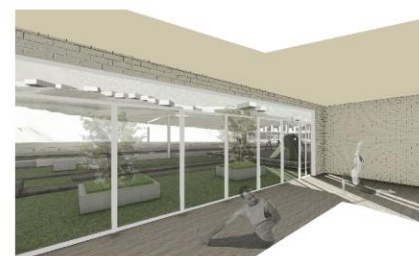
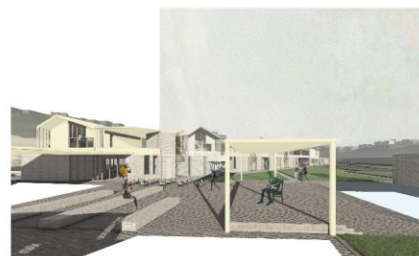
TIME	MARCH	JUNE	SEPTEMBER
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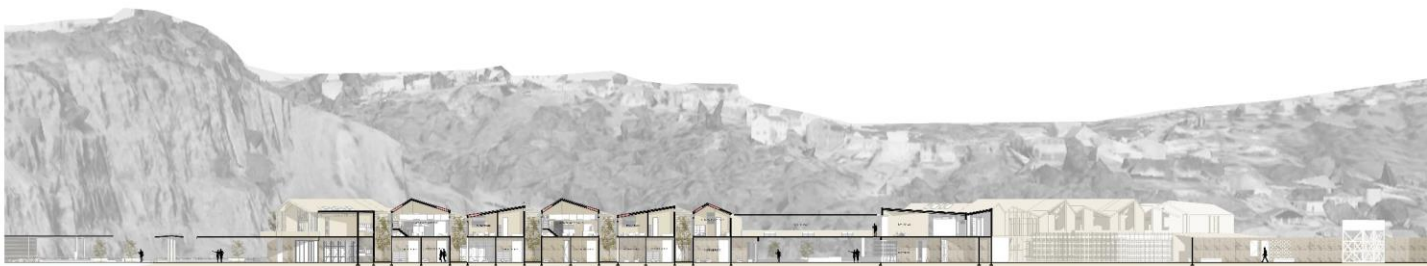
SECTION B-B
SCALE 1:200



3D PERSPECTIVES



SECTION A-A
SCALE 1:200

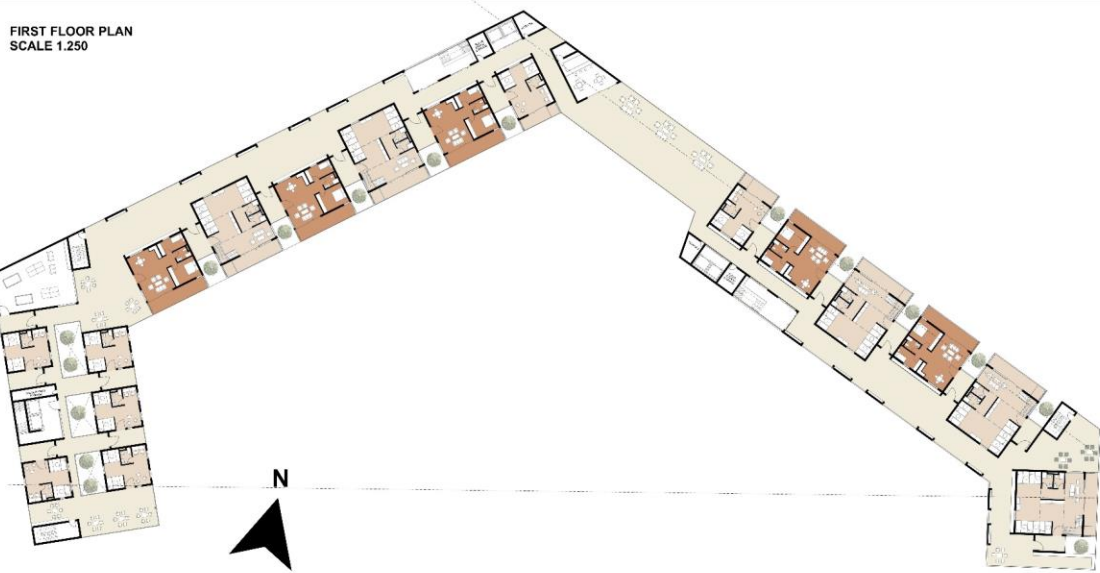


NORTH ELEVATION
SCALE 1:200

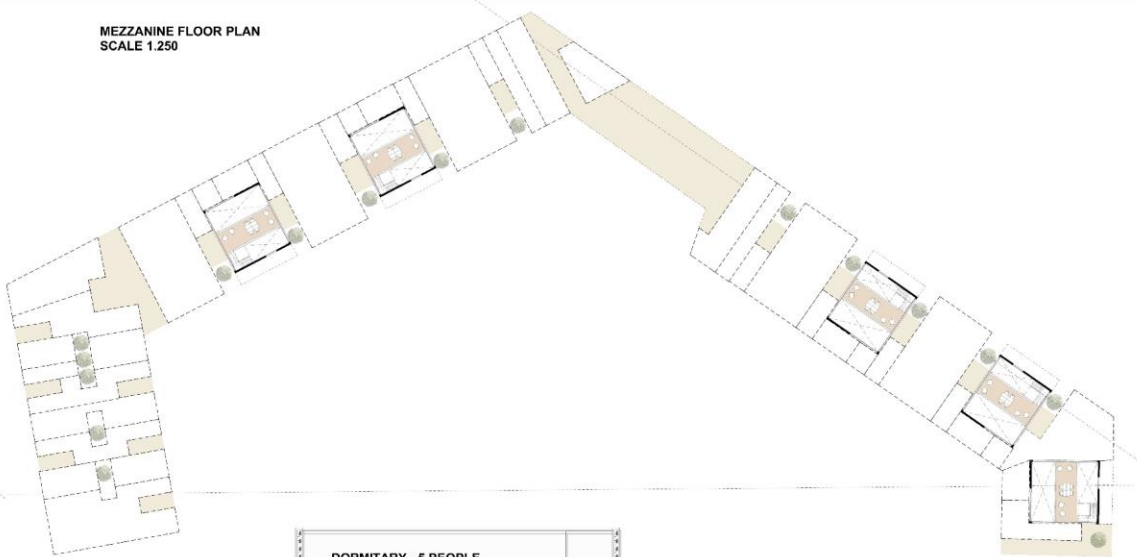


TYPICAL HOUSING UNITS
SCALE 1:50

FIRST FLOOR PLAN
SCALE 1:250



MEZZANINE FLOOR PLAN
SCALE 1:250



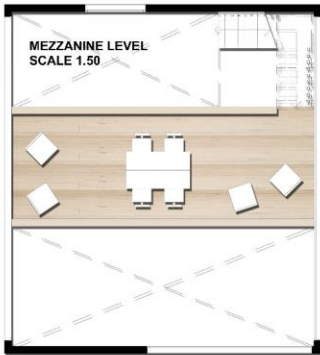
DORMITORY - 2 PEOPLE
SCALE 1:50



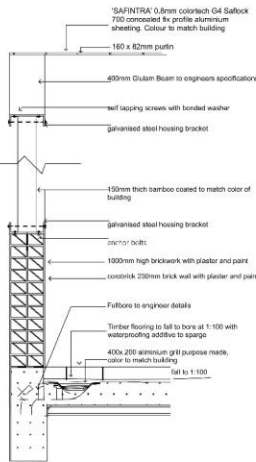
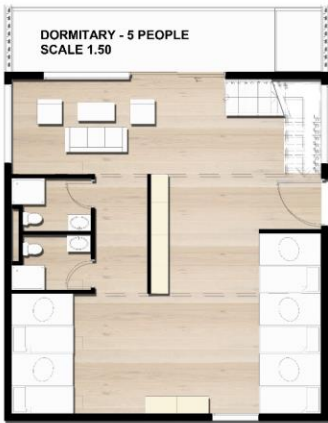
FAMILY UNIT
SCALE 1:50



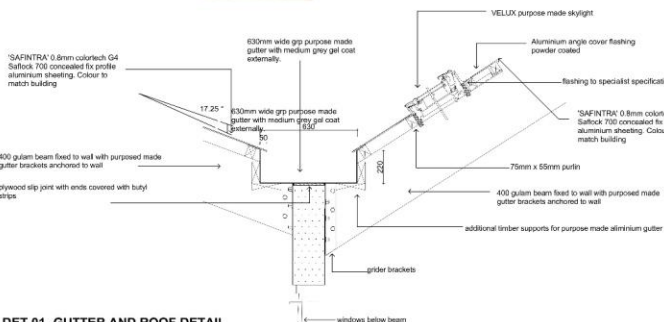
MEZZANINE LEVEL
SCALE 1:50



DORMITORY - 5 PEOPLE
SCALE 1:50



DET 05- BALCONY SCREEN DETAIL
SCALE 1:10



DET 01- GUTTER AND ROOF DETAIL
SCALE 1:10



SOUTH ELEVATION
SCALE 1:200



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APPENDICES

APPENDICES 01: CONSENT FORM

COLLEGE OF HUMANITIES

MASTERS/PHD RESEARCH CONSENT FORM

(HUMAN AND SOCIAL SCIENCES)

(To be read out by researcher before the beginning of the interview. One copy of the form to be left with the respondent; one copy to be signed by the respondent and kept by the researcher.)

My name is Nabila Jeewa (student number 213505690). I am doing research on a project entitled "Post Drug addicted Healing and Reintegration in Architectural Design: Towards a Contemporary Rehabilitation Centre for Durban."

The purpose of this research is to use healing as a means for post rehabilitation in drug rehabilitation centres in order to contribute to a built form which aids the sustenance of drug addicts and the reintegration into society.

This project is supervised by Dr Silvia Bodei at the School of Development Studies, University of KwaZulu-Natal. I am managing the project, and should you have any questions my and supervisors contact details are:

School of Development Studies, University of KwaZulu-Natal, Durban

Silvia Bodei (supervisor) Cell: 031 260 1520 Email: BodeiS@ukzn.ac.za

Nabila Jeewa (Researcher) Cell: 082 387 7914 Email: nabilajeewa@yahoo.com

Ethics office Tell: 031 373 2900

I agree to participate in this project, whose conditions are as follows:

- Interviews will last for about one hour and questions will deal with sport being as a means of post rehabilitation.

- The interview I give and the information it contains will be used solely for the purposes defined by the project.
- At any time, I can refuse to answer certain questions, discuss certain topics or even put an end to the interview without prejudice to myself.
- To facilitate the interviewer's job, the interview will be recorded. However, the recording will be destroyed as soon as it has been transcribed.
- The participant can withdraw from the interview at any given time.
- There is no benefit of reward for participating in this interview.
- All interview data will be handled to protect their confidentiality. Therefore, no names will be mentioned, and the information will be coded.
- All data will be destroyed at the end of the project.

Permission for AUDIO RECORDING : YES / NO

Respondent's signature: _____

Date: _____

Interviewer's signature: _____

Date: _____

APPENDICES 02: GATEKEEPERS FORM

To Whom it may concern

Nabila Jeewa (213505690) a master's student in Architecture at the University of KwaZulu-Natal, formally requests permission to preview your building as one of the case studies in her dissertational research. She would like to use the data collected on community understanding of what architecture in a broader sense of our society is through critically engaging with the built environment. She would like to use this data for her Master dissertation entitled: "Exploring how Post Drug Addicted Healing and Reintegration inform Architectural Design: Towards a contemporary rehabilitation centre for Durban." The dissertation will acknowledge the Minds Alive Wellness Centre and the dissertation will be shared if requested.

Thank you and Kind regards

Student: Nabila Jeewa

Supervisor: Dr Silvia Bodei

Email: nabilajeewa@yahoo.com

Tel number: 082 387 7914

Permission to use Minds Alive Wellness Centre data Granted by:

Name: _____

Signature: _____

Date: _____

Architectural Department

University of KwaZulu Natal

APPENDICES 03: INTERVIEW SCHEDULE

Research Instruments- Interview Research Details:

I. Opening A. [shake hands] My name is Nabila Jeewa I am a master's in architecture student at UKZN and I am currently working on my dissertation which will be Exploring how post drug addicted healing and reintegration inform architectural design: towards a contemporary rehabilitation centre in Durban.

B. **(Purpose)** I would like to ask you some questions about your background drug addiction and some experiences you have had

C. **(Motivation)** I hope to use this information to better understand how architecture can aid in the rehabilitation process.

D. **(Timeline)** The interview should take about 15-20 minutes. Is it okay if I record this interview? This will be recording will be confidential.

Questions:

1. What is the most common age category of substance users you get? (In your experience)

A) 9-14 B) 15-18 C) 18-23 D) 25 and over , Additional comments:

2. With regards to the drug and alcohol abuse, how many programs do you have in facility to aid with this problem? If you don't have any, how many referrals have you made to other facilities?

3. What are the names of the programs you have accommodated for with regards to drug and alcohol abuse?

4. In your opinion, how do you view the current rehabilitation process?

5. Do you have counsellors available in your facility for the substance users? If yes, how many for each individual and why? A) 1:1 B) 1:2 C) 1:3 D) 1:5 E) 1:12

6. In your experience, how long should the rehabilitation process be for substance users and why? A) 2 week - 1 month B) 1 month – 3 months C) 5 months – 8 months D) 8 months – 1 year E) 1 year- 2 years

7. With regards to community and family support, does your facility include any in your treatment programs? Yes / No, Why?

8. Does your facility assist with reintegrating these individuals seeking treatment back into the community? Yes / No, Why?

9. Does the facility encourage social interaction between other individuals during the rehabilitation process? Yes / No, Why?

10. After the rehabilitation process, do any individuals in your facility return back for more treatment? Yes/ No Why?

11. In your experience, what percentage of users' relapse, why and do they return to the same facility for more treatment? A) 1%-10% B) 10%-25% C) 25%-35% D) 35% or more

12. With regards to treatment and rehabilitation, how would you rate the importance of nature and the environment in which the treatment happens? (Scale 1 to 5, why?)

13. Do you think that the use of colour and materials in the building assists in the treatment program and does it allow them to heal and do you use it in your facility? Yes / No, why?

14. What recreational activities do you think would have an impact on these individuals? Why?

15. Do you think that the individuals in the rehab want to gain educational skills so that they can gain employment after treatment and do you include this in your facility? If Yes, has this made the rehabilitation process more successful?

16. In your opinion, do you think the post medical process of rehabilitation is successful or can there be any improvements made? If so, what ways can it be improved in?

III Closing

(Maintain Rapport) I appreciate the time you took for this interview. Is there anything else you think would be helpful for me to know? And is there anyone else in your facility I could give these questions to fill in for me?

(Action to be taken) I should have all the information I need. Would it be alright to call you if I have any more questions? Thanks again.

APPENDICES 04: OBSERVATION SCHEDULE

Observation Schedule Details		Observed by	Year
Date of observation		Nabila Jeewa	2019
Activity observed Nature and Spaces			
Location			
Purpose of observation To Analyse and study the way the current facility works.			
Time	Observation/Activity	Observed by/People in charge	
	Location of the site in proximity to community		
	Use of nature and water (Peace & tranquillity)		
	Use of materials and colour		
	Proximity to transport		
	Facility promotes calmness		
	Green spaces in comparison to build form		
	Provision of facilities to learn basic skills		

	Empowering individuals	
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APPENDICES 05: ETHICAL CLEARANCE



15 August 2019

Ms Nabila Jeewa (213505690)
School Of Built Env & Dev Stud
Howard College

Dear Ms Jeewa,

Protocol reference number: HSSREC/00000163/2019

Project title: Exploring how Post Drug addicted Healing and Reintegration inform Architectural Design: Towards a Contemporary Rehabilitation Center for Durban

Full Approval – Expedited Application

This letter serves to notify you that your application received on 11 August 2019 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

This approval is valid for one year from 15 August 2019.

To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

Yours sincerely,

Professor Urmilla Bob
University Dean of Research

/dd

Humanities & Social Sciences Research Ethics Committee
Dr Rosemary Sibanda (Chair)
UKZN Research Ethics Office Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Website: <http://research.ukzn.ac.za/Research-Ethics/>

Founding Campuses: ■ Edgewood ■ Howard College ■ Medical School ■ Pietermaritzburg ■ Westville

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