



Adaptive reuse as a conduit for regenerative & human-centred design in Johannesburg

By

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Declaration

I, Tanya Simpson, hereby declare that the Research Study submitted for [REDACTED] [REDACTED] a component of the qualification of B.A. Interior Design Honours Degree to The Independent Institute of Education (IIE), at Vega School of Design Pretoria Campus is my original work. It has not previously been submitted to another University or Higher Education Institution for degree purposes.

I further declare that all sources have been cited, quoted, or acknowledged by an inclusive list of references in accordance with the IIE's Referencing Guide.

ABSTRACT

The residents of Johannesburg are facing actual real issues of housing shortages and a surplus of abandoned buildings in the CBD; many residents are living in poor conditions without necessities. This wicked problem has challenged designers to think with a human-centred design approach to resolve this problem. This research aims to examine the idea of a non-traditional theory of adaptive reuse as an alternative solution for the housing shortage, in Johannesburg by utilising a human-centred design methodology with regenerative design solutions as a resolve in the urban renewal for Johannesburg. The aim is accomplished by gathering information from literature reviews on two case studies and a third detailed visual observation of an abandoned building The Carlton Hotel. The first study was conducted on Jewel City, wherein the design interventions of adaptive reuse and human-centred design were applied to a six-block residential, retail, and commercial development. The second case study was performed on an office building with award-winning regenerative design principles rendering it one of the most successful low impact buildings in Africa. The results of the visual observation and case studies are then combined in order to develop a holistic design approaches with interior design strategies for urban renewal within the inner city and revival of abandoned buildings.

Keywords: Adaptive Reuse, Human Centered Design, Regenerative Design, Johannesburg.

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JHB	Johannesburg
HCD	Human-centred design
DHS	Department of Human Settlements
CAHF	Centre for Affordable Housing Finance in Africa
S.A.	South Africa/n
CBD	Central Business District

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LIST OF TERMINOLOGY

Adaptive reuse	reusing an existing building for a purpose other than which it was originally built or designed for (Caves, 2004).
Regenerative design	further to aid the environment by becoming a contributing “ <i>member</i> ” of the ecosystem (Sustainability Snack. From Sustainable to Regenerative Design, 2015).
Sustainability	elaborates with elements such as regulating economic and successful use of space, preferring construction resources that offer minimal environmental impact and reducing pollution, waste, and energy expenditure (The Importance of Sustainability in Interior Design Marchese Partners, 2019).
Human centered design	by focusing on the client, the expectation is that your design solution will better serve them as you resolve their problems (The Field Guide to Human-Centred Design, 2015).

CHAPTER ONE

Introduction

'all buildings, once handed over by the builders to the client, have three possible fates, namely, to remain unchanged, to be altered or to be demolished'.

Fred Scott (Altering Architecture)

1.1 INTRODUCTION

The world is changing with a variety of buildings left, unused or abandoned, in the past, only having limited fates. The destinies of buildings can be further substantiated by author Fred Scott, of Altering Architecture, buildings had three outcomes; remain unaffected, modified, or destroyed. With Fred Scott's words in mind, the Researcher wishes to explore and study adaptive reuse as a possible resolution for regenerative and human-centred design (HCD) in the abandoned buildings of Johannesburg (JHB).

Adaptive reuse, HCD and regenerative design are mentionable topics amongst the design community. Apart they each have positive impacts on the environment for the planet and humans. However, jointly they better promote the community (Nugent, Packard, Brabon and Vierra, 2016). The Researcher wishes to search the meanings of the above-mentioned interior design methodologies and merge them to create a holistic design solution for future urban development initiatives in JHB.

In a feature by Business Tech, there is evidence of abandoned or desolated buildings that can be adaptively reused; - reusing an existing building for a purpose other than which it was originally built or designed for. (Caves, 2004). Indicating that there are sufficient unused structures, that if combined with a regenerative and HCD can promote better urban living in the city. In addition, applying adaptive reuse can successfully be modified to create living spaces that are developed with an empathy compass for the end-user; ultimately creating dignified dwellings in the built environment (Scott-Fundling, 2019).

Utilising preservation, restoration, and rehabilitation in architecture cause much less destruction to our natural resources than new construction (Bahl, 2005). Fred Scott further substantiates this paradigm in his book *Altering Architecture* '*All buildings once handed over by the builders to the client, have three possible fates, namely, to remain unchanged, to be altered or to be demolished*'.

The Researcher will define and outline the topics as they understand the definitions to support better the community and the natural environment in which they co-exist.

1.2 BACKGROUND TO THE RESEARCH PROBLEM

The purpose of this study is to assist the knowledge of society; in bridging the gap to house, the income-generating population inhabiting some of the urban buildings at the moment (Anna, 2018), perhaps with the theory of creating a working and living environment to benefit all. Moreover, to establish logically if the findings from the data are conducive to the regeneration of adaptable buildings in Johannesburg with a human focussed methodology.

Within the BusinessTech article interviewing the Mayor, the article shows evidence of the surplus buildings that are unused in JHB (Writer, 2018). With the demand for energy, land and materials developing new structures requires extensive resources. Designers across the faculties should instead take better care of existing buildings, extending their life expectancy, thereby logically using less energy, and sustainably supporting the environment. By adapting buildings that are abandoned with an HCD approach as outlined by Scott- Fundling (2019) gives designers a deeper understanding of designing living spaces that are more humanistic and holistic, solution for the people inhabiting the space.

It is, therefore, of the logical opinion to research and study these theories of design to consider the abandoned buildings in JHB and their contributing potential to the developing community for future urban development strategies.

1.3 PROBLEM STATEMENT, RESEARCH QUESTIONS, AIM & OBJECTIVES

1.3.1 Problem Statement

How can the conversion of abandoned buildings, within Johannesburg, be adaptively reused through, regenerative HCD?

The Researcher would like to explore adaptive reuse with an HCD approach as a possible solution for the unused buildings in the JHB area, aiding in the regenerative design practise, exploring whether a tri-unified approach is achievable.

Affordable housing for low to middle-income bracket individuals is a well-recognised plight. The housing dilemma is well documented, as highlighted in Writer's (2018) article that there are surplus hijacked or abandoned' buildings. Reusing an existing building for a purpose other than which it was originally built or designed for (Caves, 2004) with a human-centred strategy in mind could support local communities which can benefit from this alternative view of architecture. In addition to the two design theories, a third is added where regenerative design is used in cohesion with adaptive reuse to create living buildings and holistically assist the environment.

1.3.2 Research Questions

1.3.2.1 Main Research Question

- How can the conversion of abandoned buildings, within JHB, be adaptively reused through, regenerative HCD?

1.3.2.2 Secondary Research Questions/Sub-Questions

- Does adaptive reuse fall under Johannesburg's Urban Renewal Strategy?
- How can the method of regenerative design practices warrant adaptive reuse?
- How can an HCD encourage adaptive reuse with a regenerative design approach?

1.3.3 Research Aim

The purpose of this research paper is to examine the idea of adaptive reuse and the effects the findings can have on supporting data in the field and reflecting an alternative solution for the housing shortage, by exploring a non-traditional theory of adaptive reuse and HCD in JHB and industrialising surplus buildings housing with HCD methodology as a resolve in the urban renewal for Johannesburg.

1.3.4 Research Objectives

- Explore the definition of adaptive reuse and how it can be applied to the abandoned buildings in JHB.
- Describe regenerative sustainability as an improved design paradigm.
- Explore how HCD and urban renewal can unite in creating a regenerative design.

In essence, this study wishes to explore the possibility to accommodate a desolate population inhabiting some of the buildings at the moment (Anna, 2018). Perhaps with the belief of creating a working/living environment to assist all entities – the people, the planet, and the abandoned buildings.

Exploring the understanding of problem-solving to design approaches is changing the design industry at large. Where systems for HCD are employed, and standards are beginning to be applied to provide usability scales and feedback in order to determine the success of design solutions (Scott-Fundling, 2019).

1.4 OVERVIEW OF RESEARCH DESIGN & METHODOLOGY

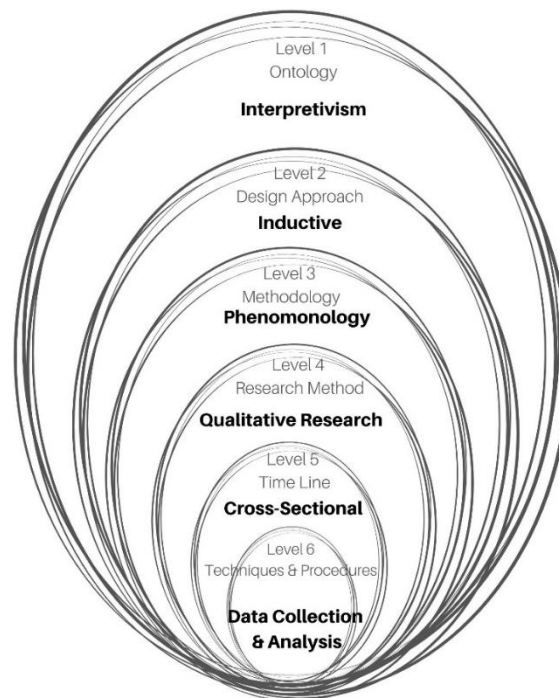


Figure 1 – Research Onion Diagram adapted from Saunders et al. (Simpson 2020)

1.4.1 Research paradigm, approach, and design

The overview of the research methodology is to explore adaptive reuse with a qualitative ontological perspective of interpretivism. With an emphasis on regenerative human-centred design; using an inductive approach to identify the phenomenology of adaptive reuse and regenerative human-centred design in Johannesburg in a cross-sectional timeline.

1.4.2 Scope of Sampling

The access population for this study are buildings in the JHB. A non-probability sampling method shall be developed as it is impractical for the Researcher to gain access to all abandoned buildings in the Johannesburg areas for this study. A purposeful sampling method will be utilised based on a setlist of characterises derived from the population and research questions (Davis, Bezuidenhout and du Plooy-Cilliers, 2014: 142-143).

1.4.3 Data Collection Method

The data collection method of the study requires to meet the studies population parameters. Two case studies will be acquired from a scholastically, reliable internet source (Creswell, 2007). Data and pictures will form the basis of the visual observation of these case studies; furthermore, an observation of the chosen abandoned building with adaptive reuse attributes in JHB will be completed. In which the Researcher will participate by examining photographs and journaling investigative field notes (Crouch & Pearce, 2012).

1.4.4 Data Analysis

Qualitative data analysis is a deconstructed methodology to the interpretation of the information collected often involving combining and understanding the knowledge accumulated in an elaborate manner (Du Plooy-Cilliers, et al, 2014). The researchers resolve the textual and graphic material collected from the case studies. Observations will follow an iterative process from a hermeneutic and subjective clarification of social interactionism and constructivism of adaptive reuse for human-centred and reconstructive design (Du Plooy-Cilliers, et al, 2014).

CHAPTER TWO

Literature Review

The purpose of this literature review is to acquire an understanding and to examine the concept of adaptive reuse and the influences the findings can have on supporting an alternative solution for the housing shortage in JHB. Furthermore, provide a resolution to be inclusive of human-centred requirements and the natural environment, exploring options and possible models of adaptive reuse in the unconventional sense and how the frameworks in combination could resolve humanitarianism problems confronting JHB residents (Anna, 2018).

The Researcher anticipates that the research will aid in the workings of knowledge and is transferred from earlier established concepts by design professional's past and present.

The Researcher will evaluate the methods and theories of articles, websites, existing papers published and unpublished; these will be the current foundations for the intent of this analysis. Furthermore, they will establish relevance in the literature review and identify differences of opinion in the bodies of literature to either further support or provide an alternative viewpoint on the subject.

The Researcher will identify each topic within the secondary research questions and its relevance to the study and progress towards resolving the research questions with the appropriate literature with optimism that the possible results can add to the phenomenology.

2.1 THEORETICAL FOUNDATIONS

Theories form the academic foundation if every discipline and allow the transformation of information into knowledge (Littlejohn & Foss,2008).

The frameworks used for this study are as follows:

2.1.1 Adaptive Reuse

A process that retains as much as possible of the original building while upgrading the performance to suit modern standards and changing user requirements (Latham, 2000). This view can be further substantiated by Caves (2004) adaptive reuse is reusing an existing building for a purpose other than which it was originally built or designed for. It is an effective strategy for optimising the operational and commercial performance of built assets (Bullen, Love, 2011) helping communities, governments, and developers.

The standard term of adaptive reuse are predominantly preserved for buildings that have heritage attributes; this quality is what makes the buildings significant. Therefore, the complexity to reuse them for something other than what they have been designed for. However, what if Designers find value in complete constructed buildings that have no heritage attributes that can be reused for something other than what they have been constructed for initially. It is the researcher's belief that this phenomenon is worth investigating.

Reuse can mean something costly (Holyoake and Watt, 2002) and adaptation describes rehabilitation, renovation or restoration works that do not necessarily include changes of use. Rehabilitation is the recycling of structures involving restoration and new construction (Gregory, 2004; Douglas, 2002). The distinction is that restoration returns a building to the state it originally was constructed, whereas renovation alters a building so that it meets current standards and regulations. Although it extends the practical life of a building, renovation does not involve a change in use (Douglas, 2002).

2.1.2 Regenerative Design

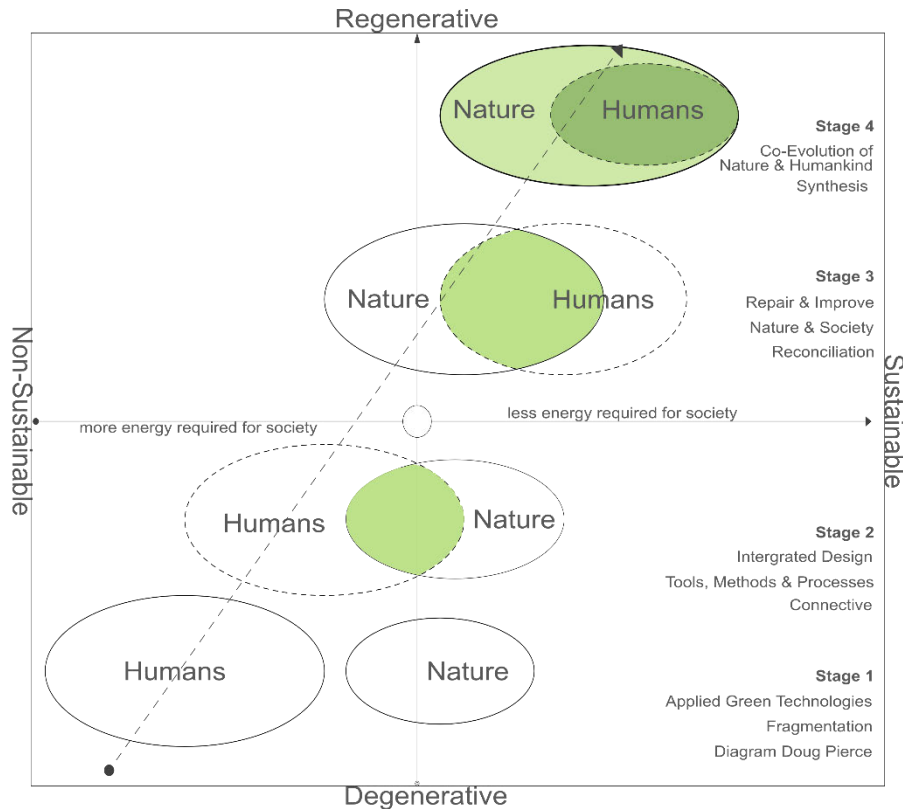


Figure 2 - Stages of Design Thinking Transformation (Reed, 2007)

Referring to Daniel Christian Wahls hypothesis and Bill Reed's graph for this study. In Figure 2 – *Stages of Design Thinking Transformation* (Reed, 2007), Wahl explains how we need to aim for the ultimate regenerating stage and advance on the trajectory scale into a regenerating system. Wahl suggests that designers should oppose being satisfied with a degenerating system or with being just above-the-line stage three (Sustainability Snack. From Sustainable to Regenerative Design, 2015). Following his work in regenerative design, Wahl implores designers to move away from “*being just-sustainable*” in their design development which is in his opinion is still better than the conventional practises but encourages designers to push further to aid the environment by becoming contributing “*members*” of the ecosystem (Sustainability Snack. From Sustainable to Regenerative Design, 2015).

The Researcher wishes to establish a regenerative design approach as supported by Wahl in an urban renewal context with human-centred design principles. There are opportunities within the adaptive design process for individuals to partake in the regeneration of the adaptive buildings in Johannesburg, thus, becoming part of the process, the building renewal, coincidentally, becoming a part of nature.

As a community of designers, we create for individuals and the environment. We are motivated to transcend and evolve as philanthropic beings in doing so we should address how we see sustainability and the natural environment in which we construct in and physically on; the resources we use and how we add to the circle of life. Progressing through the stages of designing for sustainability to a restorative approach, reconciliatory or regenerative design. (Sustainability Snack. From Sustainable to Regenerative Design, 2015). Empathetically advancing through Wahl's system to a design solution that requires less energy; than trying to conquer nature or command it but co-design with a co-depending temperament with the planet in a healthy and mutual appreciating manner. (Sustainability Snack. From Sustainable to Regenerative Design, 2015)

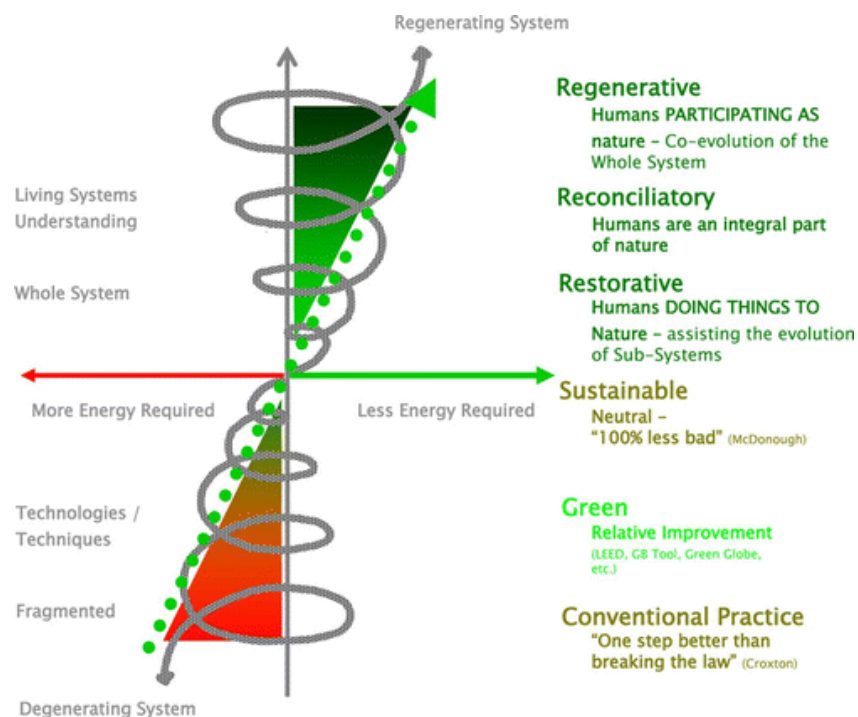


Figure 3 – Environmentally Responsible Framework (Wahl, 2016)

The Four Stages of Transformation Design Thinking and the Environmental Responsible Design Framework operate similarly (Sustainability Snack. From Sustainable to Regenerative Design, 2015) this can be seen in Figures 2 & 3 both frameworks attempt to transcend through the stages - to a regenerative state of designing for sustainability as these explanations pertain to the above depictions and explanations.

In the built environment, the wastefulness of resources is the unproductive and inefficient why to deplete the environment of raw resources when salvaging what we already have would aid in sustainability and the condition of the environment. The use of codes and regulations set out by various green and eco organisation has a rating system where damage can be minimised to the environment if utilised correctly (Reed, 2006).

Designers should create environments with healthy ecological systems in unification with urban renewal, adaptive reuse, and human centeredness at the core and plan to move away from fragmented, outdated systems. Our goals as designers should be to holistically, integrate a regenerative method in a damaged structure that optimistically can bring about a much-needed transformation in the world (Reed, 2006).

Sustainability, particularly those of the highest standards, is undoubtedly achievable goals for the building industry in South Africa. We as a country tend to see ourselves behind the developed countries of the world, but 78 Corlett Drive is a clear indication that this is not the case. We have the means and the know-how to be a contributor to the planet and assist in saving the little resources we have. If 78 Corlett is anything to go about it is not a far-off utopia as Peter Calthorpe explains in his TED Talk of how urbanism (TED Talk, 2017), human development and sustainability is required to rejuvenate the planet more holistically as echoed by Daniel Wahl (2015). With design thinking and a regenerative sustainability, forgotten buildings like the phoenix of legend are required to burn into ashes, we too as designers can liberate ourselves from our objective design doctrines and rise with new and innovative ideas to save our environment.

2.2.3 Human-Centred Design Framework

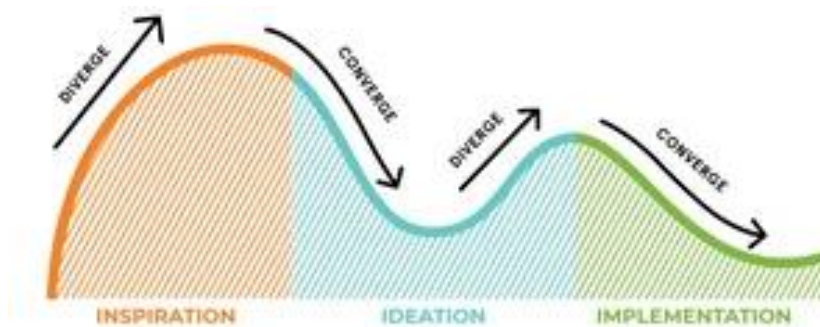


Figure 4 – Human Centred Design Process (IDEO.org, 2015).

Human-Centred Designers (HCD), as explained by *IDEO.org*, are optimists and builders, alchemists, and novices. Empathy and iteration lead them, and they are consistently looking for inspiration in all sorts of everyday life situations. However, all of these attributes require a healthy mindset to strive and move forward when failure seems to be a constant companion; by focusing on resolve the problems of the client, your designs will better serve as a solution (The Field Guide to Human-Centred Design, 2015). However, before more complex problems can be solved, more basic needs should be met first, as explained by Maslow in his framework, as explained in Figure 4.1 below:



Figure 4.1 – Maslow's hierarchy of needs (Professional Academy, 2020)

For a human-centred design to be effective, designers are required to fulfil the basic requirements that humans need to survive first as indicated in Figure 4.1 these basic needs a biological and physiological needs for survival, before transcending up the pyramid.

Cities are the reasons for a range of social, economic, and environmental concerns half of the world's populations live in or around cities; therefore, cities have their share of economic output as well as environmental issues (Jewel City Inner Project Development, 2019). In a progressively urban world, well thought out cities are perhaps the single most impactful phenomenon that can be accomplished to ensure a more economically prosperous, environmentally sustainable, and socially equitable future (Jewel City Inner Project Development, 2019).

When thinking of HCD, one would need to believe all problems, no matter how inflexible is comprehensible in a co-designing manner with the individuals whom designers are trying to assist. These individuals bearing the burden of problems every day will more than likely have simple ideas blended with the knowledge of designers that can have an impactful solution. HCD is a service design and innovation of solutions with people's needs at the centre (The Field Guide to Human-Centred Design, 2015).

HCD is about the human; it is as simple and straightforward as it sounds. The contributing characteristics that complement the HCD process are that Designers need to consistently put themselves in a state self-assurance in whom they are designing for. Also, empathic designing is a discipline that requires daily practise. Moreover, failure is a friend in design thinking, yet such a necessary part of the process as this step keeps on educating and challenging designers to fully resolve the problem. Furthermore, designers should test their prototypes; this stage allows them to find the inconsistencies - effectively and practically - in their work. Lastly, engagement co-designing with clients allows for a holistic solution to the problem.

2.3 CONCEPTUALISATIONS

2.3.1 Adaptive reuse of buildings can be an attractive alternative to new construction in terms of sustainability and a circular economy. (Sanchez, Haas, 2018)

2.3.2 Regenerative Design seeks to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. The primary objectives of sustainability are to reduce consumption of non-renewable resources, minimise waste, and create healthy, productive environments. (Sustainable Design, 2019)

2.3.3 Human Centered Design - This approach enhances effectiveness and efficiency, improves human well-being, user satisfaction, accessibility, and sustainability; and

counteracts possible adverse effects of use on human health, safety and performance. (ISO 9241-210:2019 edition 2, 2019)

2.3.3.1 Maslow's Hierarchy of Needs - Maslow's hierarchy of needs was established by Abraham Maslow, an expert in human behavioural psychology. The hierarchy was initially used to facilitate and clarify the relationship between basic human requirements and human aspirations (Professional Academy, 2020).

2.4 LITERATURE REVIEW

2.4.1 Literature investigation objectives

- Explore the meaning of housing shortage, urban decay, abandoned buildings, uniting the frameworks and urban renewal as the Researcher understands the critical concept meanings with relevant influential resources.
- Describe adaptive reuse as a conduit by way of regenerative sustainability as an improved design paradigm.
- Explore how human-centred design and urban renewal can unite in creating regenerative design with adaptive reuse as a tool.

2.4.2 Literature relevant to an urban renewal strategy using adaptive reuse

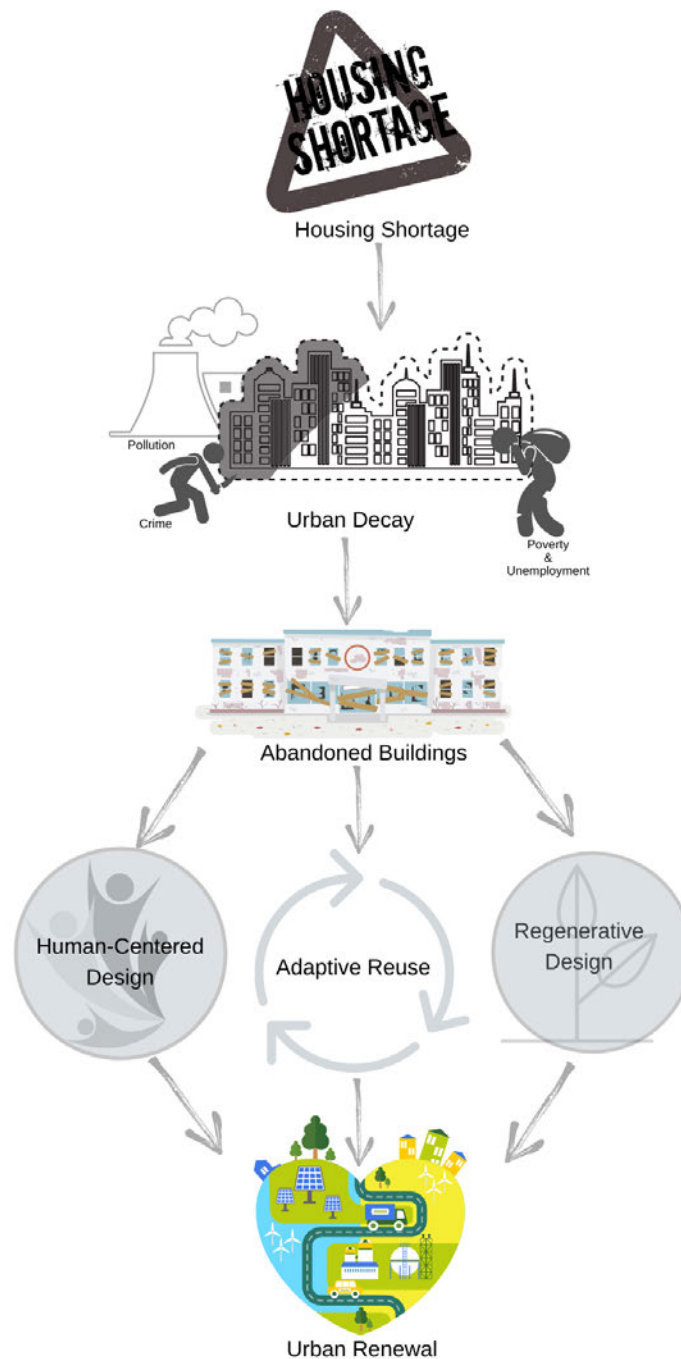


Figure 5 –Literature relating to urban renewal (Simpson, 2020)

2.4.2.1 Housing Shortage

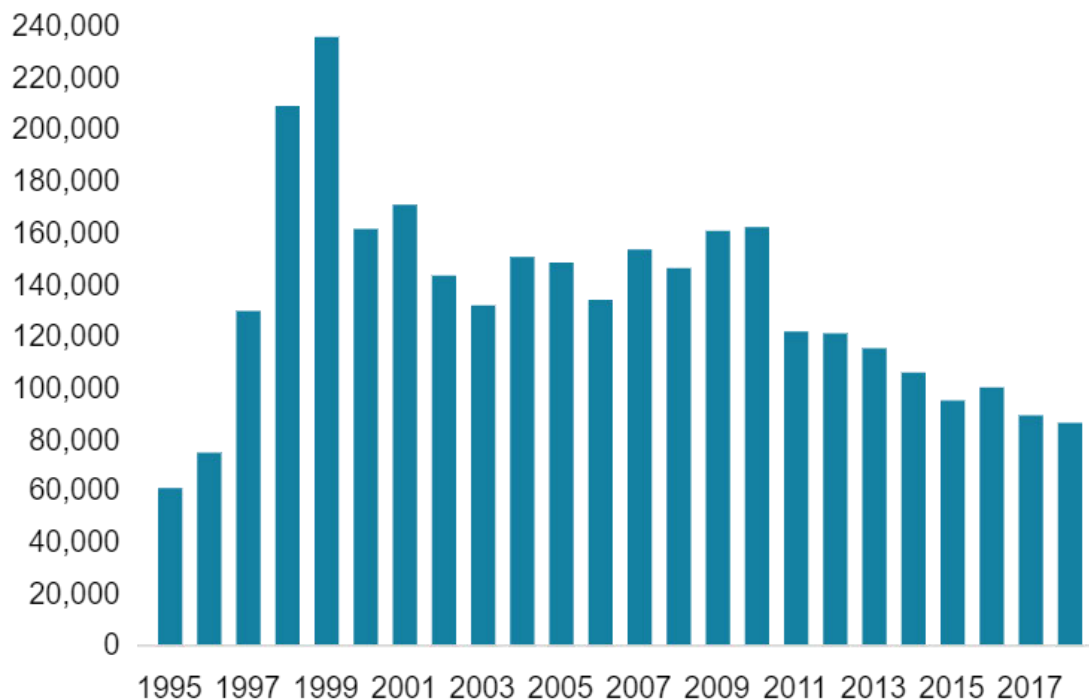


Figure 6 - Source: Department of Human Settlements, South African Government

The lack of basic and affordable housing in South Africa is a familiar dilemma (Writer, 2018). Newspapers articles over the times of democracy have documented the empirical plight of the residents that are inhabiting these derelict buildings of the years (Anna, 2018). These personal concerns are reinforced by the statistics from the Department of Human Settlements (DHS) as depicted in Figure 6 between 2015 – 2018, the Government delivered under 580,000 homes during the first four years term according to the DHS's estimations on the current deficit are approximately 2.1million homes for about 12.5 million people. They have set a target of achieving the gap by 2030 (By Reality Check team BBC News, 2019). However, independent think-tank the Centre for Affordable Housing Finance in Africa (CAHF) says the backlog is enormous, and the S.A. The government cannot cope with the demands (South Africa – CAHF Africa, 2019).

2.4.2.2 Urban Decay

Urban decay goes by many names most common is urban blight; this is a sociological process that occurs when a thriving city or area collapses in dilapidation. Scholarly opinion implies that a variety of negative characteristics could contribute to this phenomenon. These include but are not limited to deindustrialisation, financial reshuffling, elevated unemployment, low living standards, political exclusion, criminality and pollution (Skifter Andersen, 2003).

Abandoned properties add to a prolonging cycle of blight: tenants and building owners will not rehabilitate the property when fear and crime exist, and the Governments cannot reduce fear and crime when abandoned properties plague communities. The indicators of vacant properties further validate the blight of the neighbourhood; the communication to private or public investors is that the area is unmanageable, and there will not be a return on their investments (Shane, 2012).

2.4.2.3 Abandoned Buildings

‘Old ideas can sometimes use new buildings. New ideas must use old buildings.’

Jane Jacobs (2016)

The above quote resonates so aptly with the Researcher and for this study. The world is spinning with rapid speed. Instantaneous indulgences and modern humans are forgetting that all the ‘new’ has been built on the tenets of ‘old’ – the established, the everlasting, the past and the ‘old’ still has so much to give and make amends for.

Nevertheless, the alternative is also valid when contemplating an abandoned building. According to author Jon. M. Shane in his article, *‘The Problem of Abandoned Buildings and Lots’* published in 2012, the term “*abandoned building*” suggests an image of a building that is empty and in poor condition, possibly boarded up, littered with rubbish and graffiti and not a visual representation that a prospective investor would want to capitalise on.

Although a building may possess these attributes, which evoke fear and uncertainty in a community, it is difficult to legally define “*abandoned building*” as there is no universal definition (Shane, 2012). To be categorised as abandoned, the structure must be unoccupied for a certain period, be a danger to the well-being and safety of society and the proprietor must renounce their entitlements to the establishment (Shane, 2012).

Squatters of the abandoned buildings in Johannesburg have asked for the redevelopment of their current living conditions liveable dwellings, to remain in the Inner City and close to their employment (Anna, 2018). Environmental, social, and economic costs of continued urban development and expansion (Ball, 1999. Wilkinson and Reed, 2008; Bullen and Love. 2009) and therefore, adaptive reuse is a recognised approach internationally as a solution for this condition when the ‘*supplies*’ are available for reuse into something other than what it was initially designed for (Caves, 2004).

2.4.2.4 Urban Renewal

The critical motivations for urban renewal, redevelopment, and revitalisation projects is to re-establish the success of the modern city in a countries economy by appealing to the private and public investors and unlock under-utilised areas for jobs and encouraging entrepreneurship, housing, and investment (Caves, 2004). Urban renewal can benefit the local economy, support current businesses, and attract new ones, instil a sense of civic pride, foster citizen engagement and social inclusion and regenerative sustainability. Additionally, urban renewal initiatives often involve rezoning land and improving an area’s service delivery by recognising transportation and infrastructure requirements (Johannesburg | Urban Regeneration, n.d.). However, in S.A, the lack of basic and affordable housing is a well-documented problem. Seized or abandoned buildings, in the Johannesburg, have been recognised by the hundreds according to local municipalities (Writer, 2018).

The arithmetic is simple, at the present delivery rate - 136,000 homes per year - only 1.5 million of the 2.1 million currently needed would be available by 2030, (By Reality Check team BBC News, 2019) and the population is increasing.

Rationally how can the South African government cope with the intensification in basic housing demands over-and-above the magnitude of other sections that need to reform the country?

There is an opportunity where the community can assist the government in a co-designing manner for a better future for the people of Johannesburg by working together to meet the increasing strains and develop the already existing abandoned building stocks that the city and government already own. According to the '*Impact Theory*' by Divercity (2018). South African cities bear the burden of the spatial legacy of Apartheid-era segregation act with most of the current affordable housing taking place at the urban periphery, poor households remain spatially marginalised and remote from economic opportunity, essential services, and amenities.

Following the creation of democracy, new residents from townships relocated to JHB City. Some of these settlers squatted in abandoned buildings, while JHB experienced a continued deterioration of public spaces, lack of service delivery, high crime rates, and an ensuing decline in financing. (Johannesburg | Urban Regeneration, 2020). JHB CBD had experienced an alarming decline from the 1950s when the City Council moved to the outlying district. In the 1960s, the parking regulations changed to restrict the usage of cars without improvement in public transport, forcing businesses to relocate, leaving many structures abandoned.

Abandoned buildings can still provide considerable benefits to the communities, and people reside around them. As time has stood still; in their presence, there is something beautiful of the shell that has lingered behind; nevertheless, it reminds us that without human camaraderie to help breathe life into a building – it remains just that – bricks and mortar. The primary use of adaptive reuse in a building is to extend the lifecycle of the building with a unique architectural structure and in a stable condition (Bullen, 2007). Similarly, the “genetic creation” of a building is its structure and composition. However, time and age are a factor in the deterioration of a building – adaption comes about more because of social and financial factors (Clarke and Kuipers, 2015).

It can, therefore, be reasonably argued that adaptation is a method of extending the useful life of buildings and hence their sustainability by a mixture of improvement and conversion (Lowe, 2004; Kohler and Hassler, 2002; Douglas, 2002; Cooper, 2001). The following definitions of adaptive reuse have been applied throughout this study.

Consequently, there are challenges faced with and when adaptively reusing buildings. However, there is sound evidence of the benefits of adaptive reuse; still, many factors need to be considered before undergoing such extensive and costly transformation.

Evidence of positive transformations of abandoned or desolated buildings that have successfully been adaptively reused indicates that it is a possible undertaking. It has been recorded that JHB has an abundance of abandoned structures with essential municipal connections in place. Certainly, should these buildings be combined with a regenerative and human-centred design and adopting adaptive reuse as a form of rehabilitation for the building and the community, it will positively impact the community. The South African government can acknowledge the positivity from the phenomenon. Successful international adaptive reuse implementations have been noted in different countries such as the United States, Canada, Hong Kong, North Africa, and Australia (Langston, Wong, Hui and Shen, 2008).

The Researcher will consider metropolitan of Johannesburg as their primary location, concentrating on urban renewal districts as these attributes line up with the Researcher's empirical paradigm.

Standard sustainability methods have worked in the past but are no longer beneficial. To conquer and positively move into a regenerative design state humanity is required to repair the damage that has been caused to the earth over the years with more extensive measures. Organisations providing ratings and certificates are the first step in the right direction. However, a sober approach to resolving the destruction and depletion of resources throughout the scales requires extensive consideration.

2.4.3 Analysis of local precedent study of adaptive reuse supporting regenerative sustainability

Humanity has created a monstrosity of our environment since the 1800's industrial revolution the earth has been hacked up, overcrowded and polluted. Most environmental challenges faced today can be traced back to this moment in human history. How do we transcend the levels of designing for a better future for people and the natural earth? How do we rise out of the ashes and invoke our legendary phoenix?

Designers should discourse how we understand sustainability and the natural environment in which we create in and physically on; the resources we use and how we *enhance* the circle of life. As we create for humans and nature, we should be motivated to go beyond and evolve not only in a philanthropic context but in how we use our natural resources too, not to live in separation but in a union.

2.4.3.1 Development of Sustainability

The paradigm of sustainability has motivated individuals, governments, and designers over the last 30 years to understand that the planet and humans are unified, multifaceted, and communal organic organisation that is consistently changing - poignantly, the only consistency is change. (Sustainability Snack. From Sustainable to Regenerative Design, 2015). This view highlights that humans and nature can live in co-creation and evolution instead of each eco-component, providing partial assistance to the other. Instead - realising that there is a co-dependency for survival (du Plessis, 2012). Philosophical pioneers through the East and West found that understanding traditional skills, assisted the environment in creating regenerative. In history, rural cultures have their connections with their environment; living in harmony within a community (du Plessis, 2012) incorporating basic sustainable design regenerating practices these communities are noted in the rural regions of Africa and South America just to name a few. These are not new ideas but old fundamental ideas which are adaptable for the world we now live. Communities and cities do not thrive on isolation or sprawl as pointed out by Peter Calthorpe but work more cohesively in

a regenerative accessibility environment where communities are mixed-use in a circular cylindrical fashion (TED Talk, 2017).

2.4.3.2 Current thinking on sustainability

Scaling down as interpreted by Myerson challenges designers to test their thinking habits and move away from the objective form of design but to instead collecting enough data to produce ideally for their target market. Instead, it is preferable to focus on peoples unique and different qualities and design by Myerson's (2016) guidelines. Therefore, shifting our design mindset and altering how we evaluate nature; as an alternative to dominating. Designers should instead practise participating in co-evolution, thereby unifying in the regenerating design system, in a healthy and appreciative approach (Sustainability Snack. From Sustainable to Regenerative Design, 2015).

2.4.3.3 Principles of Regenerative Design

Designers are required to think outside the box, rise above and challenge their way of thinking (Sorrento, 2012), this is what makes us unique to our profession the need to surpass the practised and mundane. There are a variety of similar and juxtaposed philosophies on the design principles of sustainability by seminal authors dedicated to the field. However, the Researcher would like to focus on two authors: Daniel Wahl and Jeremy Myerson. The Researcher trusts their context theory for this piece.

2.4.3.4 Scaling Down Why designers need to reverse their thinking

Jeremy Myerson (2016) advises that designers cultivate a participatory mindset in opposition to an expert attitude as this will assist in designing for the client more holistically. Furthermore, a design process that is infused with co-designing approaches and not dictated by personas allows the designer to explore an empathic solution that requires engagement. Developing a unique design solution for the client; this type of designing is more useful and minimises unwanted results.

2.4.4 CORLETT DRIVE, 78 – MELROSE NORTH



Figure 7 – 76 Corlett Drive North Facade (Letch, 2020)



Figure 8 – 76 Corlett Drive North Facade (Letch, 2020)



Figure 9 – Vertical Garden Concept (Letch, 2020)

2.4.4.1 Engaged Process Design-Infused

78 Corlett Drive, a building that is the first of its kind on African soil, has the highest level of effort and consideration thought out in its development and conception. It is a building that is artistically distinct from its neighbours yet universally sufficient to appeal to a multitude of tenants. The structure is visually appealing with vertical gardens and greenery offsetting the linear aluminium screens. Mostly, one can notice the effort and commitment that the Developer and Architect did to be involved in the restorative building. Daffonchio Architects commenced the project with the most top theoretical goals in terms of Green Star ratings endeavouring to focus their efforts by identifying elements of design that would enhance a structures function while lowering developmental budgets.

2.4.4.2 Restorative design

Legaro's sustainable office block 76 Corlett Drive designed by Architects Daffonchio & Associates is a building encompassing current and industry-leading sustainability technology. Humans doing things to nature – assisting the evolution of subsystems the building is to be the most sustainable in Africa according to evaluations by the highest international Green Building Rating – the Living Building Challenge. (76 Corlett Drive Building / Daffonchio and Associates, 2020)

2.4.5 Literature relevant to human-centred design to encourage regenerative design approach

2.4.5.1 Build on Assets & Design for Human-Centred Design

The allowance of design into smart urbanism incorporated into the projects central planning. (78 Corlett Drive Building / Daffonchio and Associates, 2020) by considering a positive approach to the inhabitants of the buildings physical and psychological resources - the building has made special allowances for electric cars with charging stations powered by the solar power of the building. Biking is an effective means of transport in the community; benefits have been made for cyclists to store, shower and change before heading into the office. The building is near six major bus transit, and transport stops, therefore uniquely positioned to permit users alternative means of transportation. No sustainable thought was left unanswered.

In summary of chapter two, the observation of Jane Jacobs quote:

‘Old ideas can sometimes use new buildings. New ideas must use old buildings’

(Jacobs. 2016)

The research shows that there is a mass of unused buildings in the Johannesburg; not all of them are heritage sites. However, they have all the necessary infrastructure in place to assist in the rehousing dilemma that the residents of the city are facing.

Through the literature, the Researcher identified disparities. Firstly, the actual number of abandoned buildings requires accurate identification and the feasibility of these buildings determined with a fundamental checklist as a starting point. Secondly, the typical urban property investors knowledge of the levels of sustainability are limited to stages one to three. The literature review clearly shows that there is room for more investigation into incorporating the practice into the urban renewal of JHB. Some professionals are incorporating unified strategies in JHB, but an all-encompassing example is worth investigating more.

Adaptively reusing surplus abandoned buildings and repurposing them into affordable housing with a human-centred and regenerative design methodology at the base for urban renewal in the city of Johannesburg is a phenomenon worth investigating as each design approach is separately utilised to bring about positive change.

Holistically the Researcher wishes to explore both regenerative and human-centred design in collaboration with adaptive reuse; it is worthwhile to research this problem further and identify how each framework can be blended within a unified context. Could this be a future solution for urban renewal in South Africa?

CHAPTER THREE

Design & Methodology

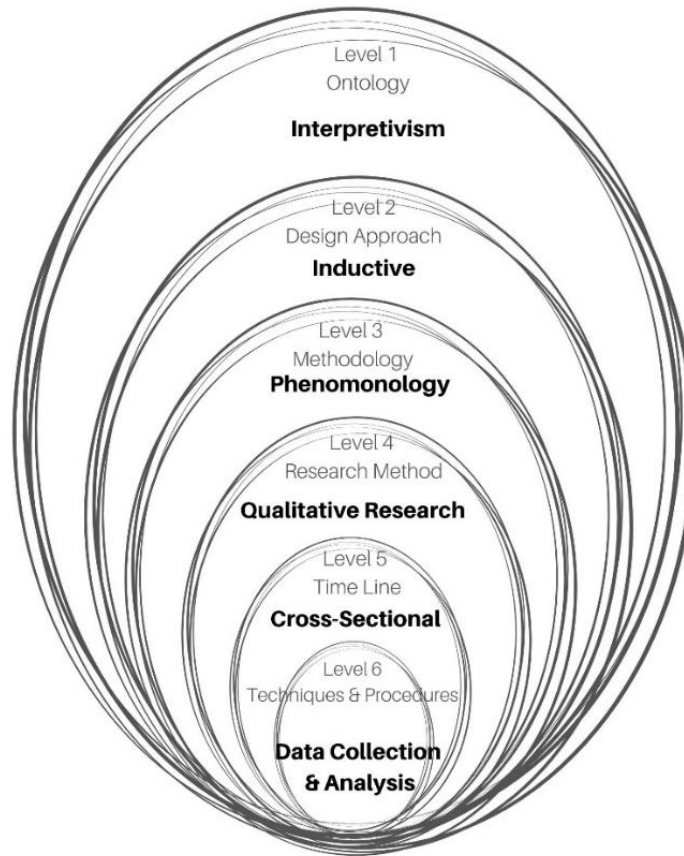


Figure 1 – Research Onion Diagram adapted from Saunders et al. (Simpson 2020)

In the chapter of this study, the scholar considers the research approaches, paradigms, data collection and analysis, in a practical process as the study applies to the primary research question: -

How can the conversion of abandoned buildings, within Johannesburg, be adaptively reused through, regenerative human-centred design?

When applying research, the correct methods are required, covering one step first before proceeding to another (Noko Emmanuel, 2019). Referring to Figure 1, an adaptation of the Research Onion by Saunders et al. (2007). In this representation, the research process is

that of onion with layers, peeling one layer at a time starting from the outside and progressively moving towards the centre. Additionally, in the book, *Research Matters* by Du Plooy-Cilliers et al. (2014), the authors describe three different philosophical assumptions when conducting research. Epistemological assumption referring to beliefs about knowledge. Secondly, axiological assumption referring to values either value-free - an objective point of view or value bound – a subjective point of view. To conclude ontological assumption, which discusses reality 'what is' (Du Plooy-Cilliers, et al, 2014).

The Researcher's assumption of how they review reality will impact how they can most truthfully answer the research question, this is referred to the Researcher's ontology (De Vos, Strydom, Fouché and Delport, 2011). The Researcher will observe buildings in the Johannesburg area and formulate their reality of the phenomenology. Consequently, an ontological position of interpretivism is the correct research method for this study (Du Plooy-Cilliers, et al, 2014). The work is mostly exploratory, as the Researcher uses their visual observations to build a theory (Leedy and Ormrod, 2005).

Additionally, an inductive approach will be included, as theoretical ideas will be discovered only when the relevant data is collected and analysed (Gray, 2014). The primary research to be applied to the study is that of a visual analysis study of Johannesburg buildings.

Lastly, because the research will be conducted in a time-specific manner, all research will be collected at one point in time; therefore, a cross-sectional study will be applied (Gray, 2014).

Hence, the overview of the research methodology is to explore adaptive reuse with a qualitative ontological perspective of interpretivism with emphasise on regenerative human-centred design. The Researcher will utilise an inductive approach to identify the phenomenology of adaptive reuse and regenerative human-centred design in Johannesburg in a cross-sectional timeline.

3.1 RESEARCH DESIGN & APPROACH

Research designs are methods that guide the preparation of environments for the gathering and examination of information in a process. The purpose of the process is to combine significance. It is, therefore, a safe assumption that research design is a *progressive* strategy in order to focus on the research question (Kumar, 2016). According to the complete diagram illustrating the research onion by Saunders (2007), there are three distinct research choices when conducting a study. The Researcher may choose to use several alternative methods of analysis of the same general nature, for example, using both qualitative and quantitative methods is referred to as a mixed-method or exclusively use either a quantitative or qualitative method using a singular method referred to as a mono-method (Multi-method Research — Jyväskylän yliopiston Koppa, 2010).

There are distinct differences between quantitative and qualitative focused research. Quantitative researchers refer to their lists of possible models and frameworks or develop an archetypal basis sourced from other models. (De Vos, et al, 2011). The research tends to be more along the lines of a set of worked-out formulas measured by statistics and arithmetic and very scientific (De Vos, et al, 2011). This approach is too analytical for this study as the Researcher will be looking for data from a more complex human-centred approach. Whereas qualitative research is based on the Researchers, own strategies using available methods, tools, or aids to guide them as a qualitative researcher is concerned with understanding rather than a realistic explanatory observation (De Vos, et al, 2011).

Furthermore, qualitative research does not pursue to prove a particular truth or resolve (Braun and Clarke, 2013). Braun and Clarke's (2013) theory is further substantiated by Maxwell (2013) he, believes that qualitative research operates with the concept of values, intentions, ambitions, beliefs, principles, and mindsets, which communicates to a richer connection, developments and phenomena that cannot be diminished to a single strategy of simple mathematics (Almeida, Farai and Queiroz, 2017). Therefore, this study will

develop a qualitative research design as the study requires inquiry of a complex and unique system to explore and examine the data (Muratovski, 2016).

The appropriate actions must be adhered to; accordingly, this applies to the purpose of the research for this study. The Researcher will apply a mono-method using a qualitative approach to identify buildings in the Johannesburg areas that have no constraint with opinions to the architectural style, broad scale, typology, cultural or heritage significance, public or private owned buildings when choosing a site. The selected sites could allow for the use of public or private, mixed-income housing, or local business generation within a community.

Qualitative research is the view that experiencing reality is not the same for everybody. Grounded qualitative research finds its basis on sensitivities, background circumstances, cultural and traditional belief systems people have a personal view of situations. Utilising a singular approach, it allows the Researcher a little more time to conduct the data collection and analysis in opposition to an alternative multi or mixed methods that require more time and skill to conduct. Being an amateur researcher and conducting a research study for the first time, the Researcher has selected to progress with restraint and start the process of this study at a novice level to understand the process of researching thoroughly.

3.2 POPULATION

A population is a whole collection of individuals or objects from whom you, as the Researcher chooses to acquire information according to authors Wiid & Diggins (Du Plooy-Cilliers, et al, 2014). For this study, the Researcher will include buildings in the Johannesburg area as part of its population source. The population parameters are the shared characteristics that the study will further develop (Du Plooy-Cilliers, et al, 2014). The population parameters for this study will have no constraint with opinions to the architectural style, universal scale, typology, cultural or heritage significance, public or private owned buildings when choosing a site (Creswell, 2007).

As the objective of the study is to create awareness that holistically combines the design strategies in an unconventional method of adaptive reuse of a derelict building, then logically, this can be applied to any building.

According to Research Matters, the target population is everything that falls within the population parameters for a study. The target population for this study would include all abandoned buildings or vacant buildings in the Johannesburg area. Furthermore, the accessible population is a section of the population that can be included in this study. The accessible population for this study would include the buildings that the Researcher has direct access too.

3.3 SAMPLING

The accessible population for this study are buildings in the Johannesburg area. A non-probability sampling method shall be developed as it is impractical for the Researcher to gain access to all abandoned buildings in the Johannesburg areas for this study. A purposeful sampling method will be utilised based on a setlist of characterises derived from the population and research question (Davis, et al, 2014: 142-143).

The principal archetypical precedent of this study will include two architectural case studies. Case studies offer a conduit to explore multifaceted frameworks, theories, or methods with numerous variables under study. However, it can be thought-provoking to determine a context to get to an assumption, and it can be challenging to simplify, mainly when a small number of case studies are included (Almeida, et al, 2017).

The first case study will be completed on an architectural project in which the design intervention of adaptive reuse has been applied to an abandoned building, resulting in the building receiving a function other than for what it was initially created (Caves 2004). The second case study will be performed on an architectural project wherein a regenerative human-centred design approach consisting of photographs and information is utilised (Creswell, 2007).

The second precedent of this study will incorporate a visual observation of consisting of images and data of an urban renewal district in Johannesburg that have incorporated human-centred design initiatives with adaptive reuse principles—therefore resulting in the building achieving a purpose other than what it was initially designed for (Bullen, 2007).

According to Muratovski's (2016) theory, the two case studies will be distinct in their disciplines. This distinction is in order to coordinate a detailed evaluation and explanation of the various viewpoints apparent in the results of these case studies.

Lastly, a visual observation will take place in various buildings that could potentially utilise and solidify the three individual design frameworks that form part of this study.

3.4 DATA COLLECTION METHOD

An all-inclusive or 'developing' research process is created when the Researcher sets out to gather information and enters the data collecting setting with an uncluttered awareness ready to engage themselves in the intricacy of a situation and interact with their participants in this case the participants are the buildings themselves. It is in this process that classifications emerge from the data leading to the perspective of information, patterns or themes that explain the phenomenon when studied. It is thus logical to report that the data will be subjective (Leedy and Ormrod, 2005).

The Researcher's primary focus will be on visual observation as a mode of collection of information; this is where the Researcher will observe the phenomenon in its natural environment (Almeida, et al, 2017). A disadvantage of this type of data collection is that the method is relatively sensitive to the impartiality of the Researcher's analysis since the interpretation of the data is made exclusively by the Researcher. Observation is the preferred method of collecting data simultaneously with taking field notes; in this capacity, the Researcher can be unobtrusive and flexible in the method of discovery of knowledge without interfering with the subject (Almeida, et al, 2017).

An additional research collection method of field research will be implemented in the data collection process of this study as it allows the Researcher a sense of perception about the subjects they are observing (Almeida, et al, 2017). However, the challenge of this type of data collection method is that it may not be easy to get an objective point of view from a large number of participants and the documentation process could prove to be complicated (Almeida, et al, 2017).

3.4.1 Data Collection Tool

The sample of the study requires to meet the studies population parameters. Two case studies will be acquired from a scholastically, reliable internet source (Creswell, 2007). Data and pictures will form the basis of the visual observation of these case studies and will be collected from an electronic source such as a laptop or physical fieldwork via photos taken by the Researcher with their smartphone or DSL camera. Furthermore, a detailed on-site observation of the chosen buildings in JHB will be completed with the Researcher immersing themselves in the area to gain the full experience of the qualitative data capturing.

In which the Researcher will participate by examining the field of focus in the form of photographs and field notes on a Saturday morning as the Researcher for safety reasons will acquire the security of her husband while obtaining the visual data in the Johannesburg city centre (Crouch & Pearce, 2012). The advantage of these types of data collection tools is the vivid, detailed relationship that the Researcher will form with the space that will provide the Researcher with applied experience of the design interventions required.

3.4.2 Method of Collection

Utilising the data collected via the field note collection method will provide an original empirical record of the Researcher's hermeneutic opinion. There are benefits and shortcomings in collecting this type of information. The benefit is the rich connection the Researcher can understand when observing the JHB precinct. The shortcomings

are that the data will be collected from the subjective paradigm of the Researcher; the Researcher's belief, mindset and bias could affect the data collected (Almeida, et al, 2017). However, with the added intervention of the Researcher's supervisor and the opportunity to review the photographs taken, the Researcher can embrace the opportunity of practising integrity when processing the information.

Firstly, the Researcher will investigate the internet for dependable recognised design firms and websites showcasing projects that meet the requirements of the research question. The Researcher specifically chose the two selected case studies from South Africa and Johannesburg, as they provide sufficient information, photographs and diagrams that meet the non-probable sample methods that the research is based. There are advantages and disadvantages when collecting data in this manner. An advantage of the internet is that accessible data is effortless and quick to acquire. However, the disadvantage is the credibility of the information collected. It is therefore vital that the Researcher maintains their integrity and further studies the information received from multiple or trustworthy internet sources. The websites, information and photographs have been collected and saved on the Researcher's laptop under the related research data collection file for safekeeping.

Secondly, the Researcher drove to Johannesburg city centre on a Saturday morning where they wanted to gain insight into the spaces first-hand and visually evaluate and record the case study buildings utilising additional photos taken by the Researchers Apple Smartphone. The reason for using a smartphone is that the camera angle allows for better wide-angle photos of the buildings in the Johannesburg city centre that fit the population parameters as set out by the studies topic. The photographic observations of selected Johannesburg buildings will have determining considerations, as will the surrounding communities that interact with the spaces; thus, these factors will impact the research. Human beings change all the time and the environment in which they find themselves, continually influences them (Du Plooy-Cilliers, et al. 2014). The purpose of this study is to identify buildings in the Johannesburg areas that have a criteria resolution, these structures that could allow for the use of housing or business generation within a community.

Thirdly, the Researcher travelled around the city centre in search of an abandoned building as part of the observational portion of the research project. The Researcher found an astonishing quantity of abandoned buildings in the Johannesburg city.

It was challenging to gain access to these buildings as some were bricked closed or they were structurally unsound. Unlawful tenants inhabited other buildings; or required the Researcher to remunerate the security guards to gain access unethically.

In the Researchers experience and observations on the day of data collection, the Researcher has chosen to further the study by investigating the Carlton Hotel. The Carlton Hotel has a rich record of photographs and information from academically useful resources, and books to determine an ethical analysis. This iconic, abandoned establishment that will form part of the Researcher's third investigation.

3.5 DATA ANALYSIS METHOD

Qualitative data analysis is a deconstructed methodology to the interpretation of the information collected often involving combining and understanding the knowledge accumulated in an elaborate manner (Du Plooy-Cilliers, et al, 2014). The researchers resolve of the photographic material collected from the case studies, and observations will follow an iterative process from a hermeneutic and subjective clarification of social interactionism and constructivism of adaptive reuse for human-centred and reconstructive design (Du Plooy-Cilliers, et al, 2014).

De Vos, Strydom, Fouche and Delport (2011:397) describes qualitative data analysis as 'the process of bringing order, structure and meaning' to the mass of data a content analysis method will be used, as it is appropriate to the data collection method.

Reducing the raw information, searching for significance, and identifying patterns with constricting a framework for communicating what the data has revealed (de Vos et al, 2011:397).

Thematic analysis is a flexible method used for explorative studies frequently employed in qualitative research because themes are patterns of significant interest across data sets that play a vital role in describing phenomena under investigation (Braun & Clarke, 2006). According to Braun and Clarke (2006), as depicted in Figure 10, the Researcher is required to use guidelines to create successful themes which are crucial in the interpretation of data from a thematic analysis purpose.

3.5.1 Qualitative Data Conceptualisation Diagram

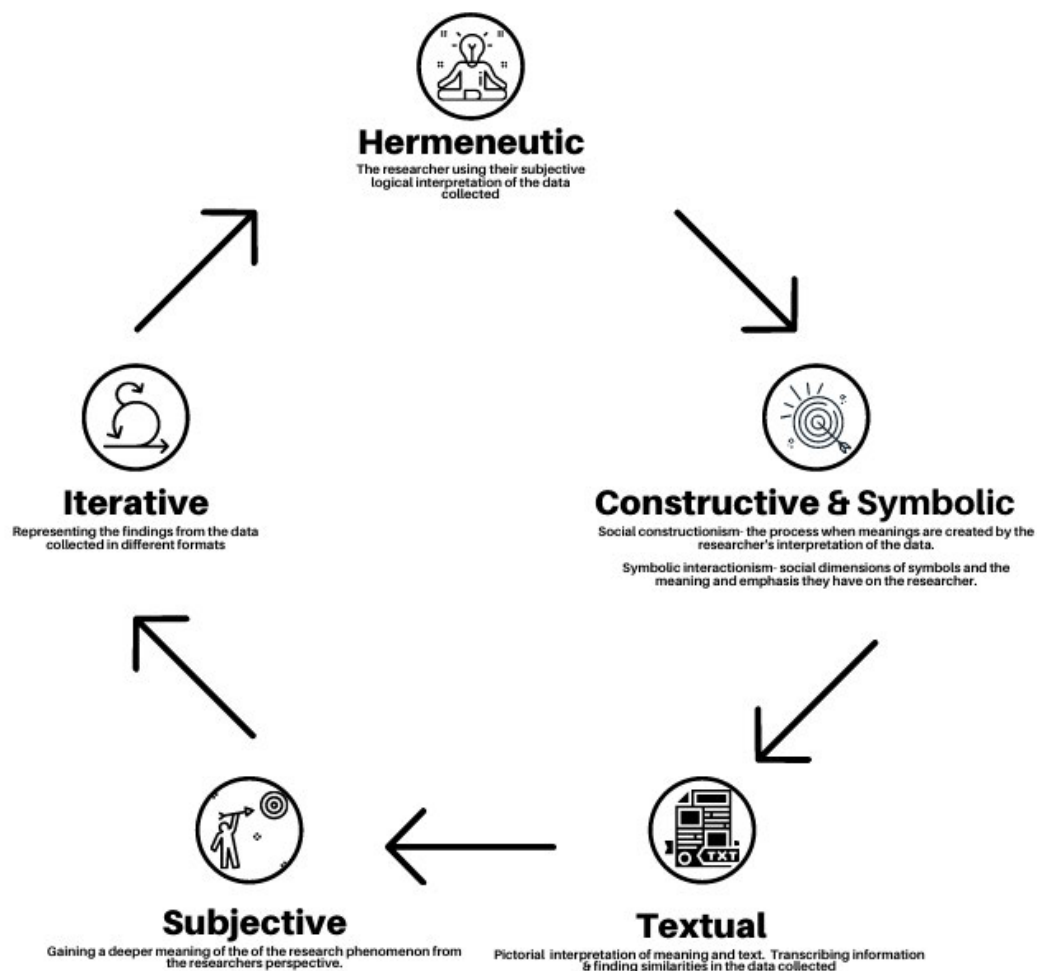


Figure 10: Qualitative Data Diagram adapted from Research Matters Data Analysis (Simpson, 2020)

Figure 10 is explained as follows. The Researcher is to familiarise themselves with the data- this would require the Researcher to examine all field notes transcribed on-site and notes taken as well as photographs, where possible, areas that are relevant for the case

studies analysis thereby adding a further **hermeneutic** review. Following step **construction and symbolisms**; the scholar will consider the data collected in terms of photographs and notes and assign and describe the codes found in the data all. The Researcher will then **subjectively** examine the data once more to search for themes or patterns that have become known to gain a deeper meaning of the phenomenon from the Researcher's perspective; this will form part of the pattern analysis. Consequently, the themes and patterns that have been identified the Researcher then will use to review in a **textual** clarification of what the Researcher has discovered and will define the theme names. Finally, the scholar repeats the process a couple of times in an **iterative** pattern to ensure all aspects of the information is represented with integrity.

3.6 VALIDITY, RELIABILITY AND TRUSTWORTHINESS

In accord with the qualitative research design of this study, trustworthiness requires an established characteristic to be supported. These characteristics are defined as follows credibility, dependability, transferability, and confirmability (Du Plooy-Cilliers, et al, 2014).

Credibility discusses the accuracy with which the Researcher interprets the data. The time spent by the Researcher in the space of the observed buildings will allow the Researcher a richer understanding of the study with the use of the method of triangulation; using more than one research method to gain reliable results (Du Plooy-Cilliers, et al, 2014).

Additionally, transferability will be regarded as it is likely that should the same study be applied to alternative studies; the findings should be similar (Du Plooy-Cilliers, et al, 2014).

Dependability discourses the value, the researcher process the collection and examination of the data (Du Plooy-Cilliers, et al, 2014). The Researcher will endeavour to process the data with integrity and consistency throughout the study.

Lastly, confirmability refers to how well the Researcher can support the findings and interpretation of the data (Du Plooy-Cilliers, et al, 2014). The Researcher will prepare an in-depth description of the collected data. A review of the primary data will be shared with the Researcher's supervisor to gain insight into the information collected and further receive an alternative perspective to the trustworthiness of the interpretations of the findings.

CHAPTER FOUR

Findings & Interpretations

In the following chapter, the research design completed is to support findings and interpretations. The chapter commences with two single instrumental case studies (Stake, 1995). The Researcher focuses on an issue or concern and then selects one limited case to illustrate this issue (Creswell, 2007).

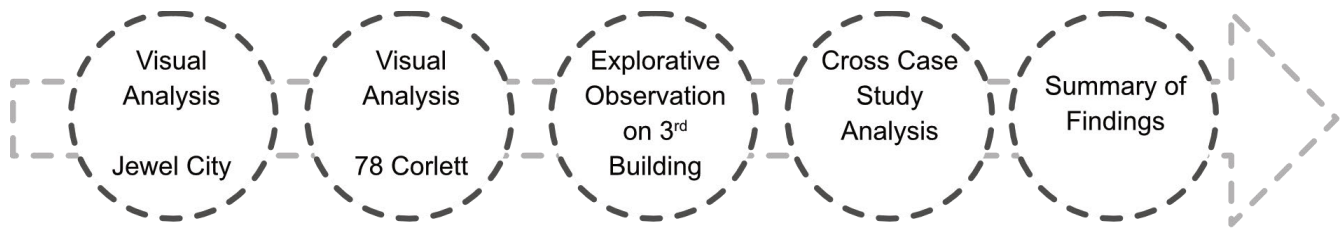


Figure 11 – Chapter Outline (Simpson, 2020)

Firstly, a visual analysis is completed on the adaptive reuse and human-centred design principles of a Johannesburg commercial block into a mixed-use area.

The second case study is a visual analysis completed on a co-working office space with the utilisation of human-centred design principles and regenerative solutions securing the building a prestigious 6 Star Rating and a Net Zero Carbon accreditation in Johannesburg.

Thirdly, an exploitative examination of a chosen building in Johannesburg CBD, was performed wherein the Researcher visually observed the building in the form of photographs and field notes. Thereafter both case studies are examined in detail in terms of the design interventions applied, and a cross-case analysis of the two case studies and examination of the third observation building is performed, wherein the common themes and variances are reported. Lastly, a plan was formed summarising the measures assumed in applying adaptive reuse, human-centred design principles and regenerative solutions to the abandoned building to support holistic space for all three design principles of adaptive reuse, human-centred design, and restorative design principles.

CASE STUDY A – JEWEL CITY JOHANNESBURG

(Please refer to Appendix A)

The case study was completed on the adaptive reuse of a Johannesburg city block development - Jewel City situated in the CBD of Johannesburg located between the current Maboneng and Absa precincts. The 40 000 square meters has been redeveloped into a trendy inner-city neighbourhood by Divercity Urban Property Fund & Partners (Jewel City Inner Project Development, n.d.). The precinct which was closed to the public for several years has now been "pedestrianised" creating a safe, green, space for people to enjoy in the inner city (Jewel City, 2020). Initially the area renowned for its gold and diamonds housing over 300 diamond dealers and jewellery manufacturers, the Diamond Board and State Trader Association, all in five commercial buildings covering six-city blocks, bounded by Commissioner and Main streets in the north and south, and Berea and Joe Slovo streets in the east and west respectively (Jewel City, 2020). The Researcher exclusively focused on the residential aspect of Block 6 of the development for the first case study. However, the full developmental plans have been included to add to the context of the findings Table 1 is a legend supporting the codes and colours used for the visual analysis performed in this first case study. Multiple design discourses informed the chosen design interventions for this visual analysis on adaptive reuse and human-centred design.

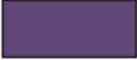
Themes	Code	Colour
Structure (Adaptively Reuse)	AR-S-01	
Basic Human Needs	AR-HN-02	
Way Finding	AR-WF-03	
Light, Transparency & View of Outdoors	AR-L-04	
Materiality	AR-M-05	
Ergonomics & Anthropometrics	AR-EA-06	

Table 1 Design Interventions (Simpson, 2020)

(AR-SD-01)	Structure Diversity	Image A - shows the six-block multi-use area that was once warehousing and jewellery stores; it identifies that some building structures have been adaptively reused, using a building for the purpose other than what it was produced for (Caves, 2004). Adaptive reuse can be observed where original warehousing and office buildings were adapted into retail stores or parking garages. In Image B - housing apartments have been added vertically to the retail stores' foundation buildings in Block 6; this is not an accurate example of adaptively reuse in the 'traditional' term. The Researcher noticed portions of the host buildings structure had been reserved, and other sections have been altered, or add-ons of new structures have been included, therefore, causing an alteration of the host building (Scott, 2008 pg 11).
(AR-HN-02)	Human Needs	The Researcher focused on Maslow's hierarchy of needs to shape the foundation of the physiological (basic human needs) for human survival; these are air, water, shelter, food, and sleep (Mcleod, 2020). If these needs are not satisfied, the human body cannot function optimally. Maslow considered these physiological conditions the most important as all the other needs become secondary until these needs are met (Mcleod, 2020). Images J, K and L, show the floor plans of The Onyx residential apartments in Block 6, each apartment typology covers all the necessary requirements for an individual to survive; these are the fresh air from the windows, clean running water from the taps in kitchen & bathroom, the shelter of the apartment, separate areas to place a bed for sleep and storage and electricity to store and prepare food three main design sizes to accommodate a single, couple or small family.

(AR-WF-03)	Wayfinding	Wayfinding is essential in built environments people need visual signs to guide them to their destinations. In Images, E, F, G, H, and I, a successful system demonstrating economical and efficient signage for individuals to find their bearings. Practical wayfinding systems provide well-being, safety, and security, the second tier in Maslow's hierarchy pyramid (McLeod, 2020).
(AR-L-04)	Light, Transparency & View of the Outdoors	Lighting, transparency of openings or a visual of the outdoors can primarily affect the mood of the person inhabiting the space. (Multiple Benefits of Human Centric Lighting Design, n.d.) A variety of different lighting options is observed throughout the building; these are noted as window openings in Images J, K & L. The large window is showcasing the structural staircase in Image D & F. This allows maximum natural light to saturate the space. Furthermore, in Image H at the end of each residential corridor are openings allowing natural light and air to filter in from the sides of the building. Additionally, in images F, G and H sensor triggered lighting is offered throughout the building illuminating the areas for residents while proceeding to their apartments.
(AR-M-05)	Materiality	Materiality is a quality possessed by a surface or item or product that occupies physical space in the world (Nieminen, 2019). The material can have a tangible and intangible value depending on the perceiver. In Interior Design, the Designer is continuously aware of the types of materials used within a space and whether those materials are suitable for the function that is required of it. The materials used in the exterior and interior of the development are hard wearing and easily maintained yet have a stylistic functionality appropriate and relevant to commercial & industrial style of the area this is noticed in images C to Images I. The industrial design of the building is featured with exposed brick painted in a bright yellow colour seen in Images G to Images I. Exposed concrete support pillars and ceilings, aluminium window frames, all of the materials used showing signs of minimum maintenance are all seen in Images C and Image F.

(AR-EA-06)	Ergonomics & Anthropometrics	Interior Design aspects such as space, environmental variables require evaluation sensibly in relations to the purpose for which it is proposed: to adapt to the human body ergonomics connects to anthropometrics, physiology, and psychology in response to the needs of the user. The Designer uses this data to create interior designs which are both humanistic and functional (Human Behavior and the Interior-Environment, n.d.). In Images G – I the large passageways complement to the physical and psychological space the occupants have in the building. Furthermore, the ergonomics of the entrance allow for universal and inclusive design principles for all proportions of and physical characteristics whether active or restricted, by the use of elevators and a staircase with ample surrounding space.
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Individual Case Study Report



Structure

Building structures that have been adaptively reused refers to using a building for the purpose other than what it was produced for (Caves, 2004).



Physiological Needs

Our most basic need is for physical survival, & this will be the first thing that motivates our behaviour (McLeod, 2020).



Light

Lighting takes into account many different factors such as emotional well-being & functionality.



Wayfinding

Wayfinding discusses communication methods that steer humans through a natural environment & improves their awareness and knowledge of the space (SEGD, 2014).



Materiality

Materiality pertains to tangible properties of building materials & finishes, but also because of its intangible value to the environment & cost effectiveness & health of the building (Nieminen, 2019).



Ergonomics & Anthropometrics

Recognises that the spacial environment significantly influences & impacts human behaviour.

Figure 12 - Case Study Individual Report (Simpson, 2020)

CASE STUDY B – CORLETT DRIVE JOHANNESBURG

78 Corlett Drive, a building the first of its kind on African soil has the highest level of effort and consideration thought out in its development and conception. It is a building that is artistically distinct from its neighbours yet universally sufficient to appeal to a multitude of tenants. The structure is visually appealing with vertical gardens and greenery that are offset with linear aluminium screens. Daffonchio Architects commenced the project with the most top theoretical goals in terms of Green Star ratings endeavouring to focus their efforts by identifying elements of design that would enhance a structures function while lowering developmental budgets.

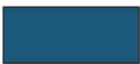
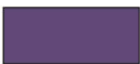
Themes	Code	Colour
Regenerative Design (Superior Sustainability)	SS-RD-01	
Basic Human Needs	SS-HN-02	
Way Finding	SS-WF-03	
Light, Transparency & View of Outdoors	SS-L-04	
Materiality	SS-M-05	
Ergonomics & Anthropometrics	SS-EA-06	

Table 2 – Design Interventions 2 (Simpson, 2020)

CODE	THEME	OBSERVATIONAL FIELD NOTES
(SS-RD-01)	Regenerative Design (Superior Sustainability)	The stages of design for sustainability by Daniel Wahl (2015) outlines six stages of sustainability. For the observational purposes of the second case study, the researcher would like to focus on regenerative design – <i>humans participating as nature co-evolution of the whole system</i>. In Images A & B, Daffonchio Architects have counteracted the environmental impact of 78 Corlett Drive with static, modular aluminium-clad structure shading louvres, functioning as a facade treatment as well as an efficient reactive shading structure protecting the building inhabitants from the harsh summer sun (78 Corlett Drive Building / Daffonchio and Associates, 2020). Image B also shows the sliding shutters along the adjacent facades producing an ever-changing antithetical appeal, providing occupants with the capability to adapt the quantity of natural light, temperature, and brightness that can enter their space (78 Corlett Drive Building / Daffonchio and Associates, 2020).
(SS-HN-02)	Human Needs	Founded on Maslow's hierarchy of needs the building caters for the necessary needs of humans, a safe shelter to work in, water, fresh air, sufficient self-generated energy operated by a high-performing solar array that crowns the building (76 Corlett Drive, Melrose North, Johannesburg — DAFFONCHIO & ASSOCIATES ARCHITECTS, n.d.). The second tier of Maslow's Hierarchy of human needs are met with a safe working environment in Images E, the Designers have allocated a combination of accessible co-working spaces. As seen in Images F, G, H, social and formal meeting spaces in a variety of seating arrangements are observed. Images G & H demonstrate the central and vibrant coffee bar being the innermost part of the building inviting the occupants to share the core space of the building.

CODE	THEME	OBSERVATIONAL FIELD NOTES
(SS-WF-03)	WayFinding	The Building is effortlessly located on a prominent Johannesburg Street and has accesses to six major bus transit stops as well as numerous other taxi drop-off points; it is uniquely positioned to seamlessly integrate alternative transportation strategies into Johannesburg's existing infrastructure (78 Corlett Drive Building / Daffonchio and Associates, 2020). In Images A & B an added inducement is to make use of electric cars as this is promoted by providing dedicated parking bays, the bays are complete with electric car charging stations, powered by the building.
(SS-L-04)	Light-Transparency & View	Image J depicts the triple volume day lit atrium, which allows for sufficient natural & artificial light to enter the building. As previously shown, Image B also represents sliding shutters along the adjacent facades, offering occupants the ability to adjust the quantity of natural light, that can enter their space. Furthermore, in all the images, one notices excellent use of functional and ambient lighting all powered by the solar-generated by the building adding to the health and regenerative design of the building.
(SS-M-05)	Materiality	A variety of low maintenance and sustainable and low maintenance materials are located in the building these materials are noticed in stationary modular aluminium-clad, façade of the building in images A & B. In Images D to H acoustic sensitive wooden flooring in a stylistic herringbone pattern is prevalent in all the walkways adding to the aesthetics of the building. Another observation is the biophilic dividers between the workspaces and social spaces in a creative partitioning depicted in images E, F and H.

CODE	THEME	OBSERVATIONAL FIELD NOTES
(SS-EA-06)	Ergonomics & Anthropometrics	Ergonomic design identifies that the environment substantially affects and influences human behaviour. It is noticed in Images E to I; that considerate allocation of space to permit for movement, work and socialising is evident for all proportions of people and capabilities of individuals.

Individual Case Study Report



Regenerative Design

Humans participating as nature co-evolution of the whole system (Wahl, 2015),



Physiological Needs

Our most basic need is for physical survival, & this will be the first thing that motivates our behaviour (McLeod, 2020).



Light

Lighting takes into account many different factors such as emotional well-being & functionality.



Wayfinding

Wayfinding discusses communication methods that steer humans through a natural environment & improves their awareness and knowledge of the space (SEGD, 2014).



Materiality

Materiality pertains to tangible properties of building materials & finishes, but also of its impact to the environment (Nieminen, 2019).



Ergonomics & Anthropometrics

Recognises that the spacial environment significantly influences & impacts human behaviour.

Figure 13- Individual Case Study Report 2 (Simpson, 2020)

VISUAL OBSERVATION OF THE CARLTON HOTEL JOHANNESBURG

(Please refer to Appendix E)

An observation was conducted on the controversial Carlton Hotel located on Main Street in Johannesburg CBD. The building is relatively young in comparison to others in the city only being 48 years old from the day of opening its doors in 1972. The building closed down in December 1997 and is now owned by Transnet.

Historical Timeline of the Carlton Hotel

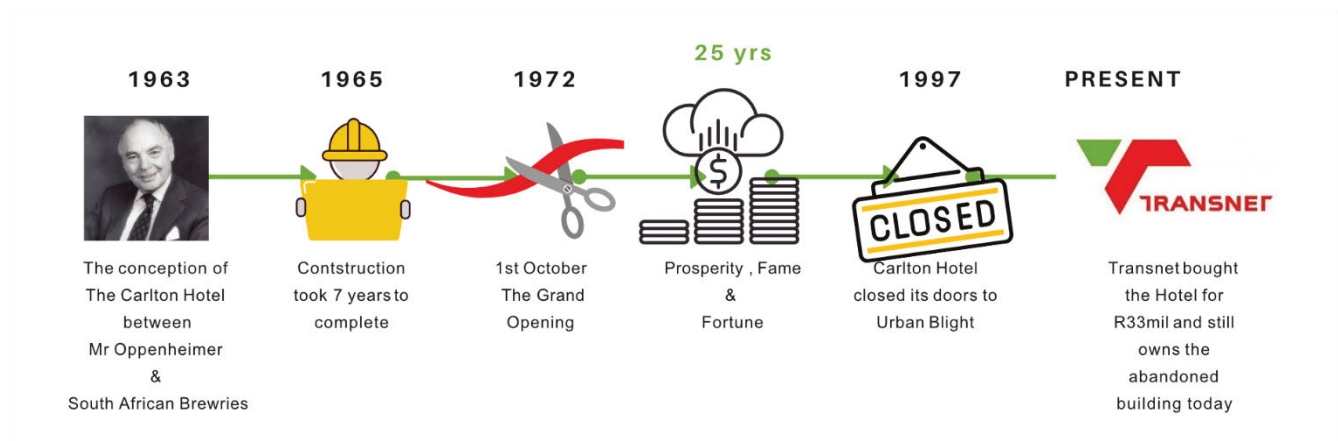


Figure 14 – Historical Timeline of the Carlton Hotel (Simpson, 2020)

From the photographs as depicted in Appendix E, Image 1, the Carlton Hotel appears to be in a fair condition, albeit some structural and maintenance work is needed to ensure the building is structurally sound.

OBSERVATIONAL PROTOCOL

Jewel City JHB, Carlton Hotel & 76 Corelth Drive

Length of Observation: 480 mins

	DESCRIPTIVE NOTES			REFLECTIVE NOTES		
	Jewel City	76 Corlett Drive	Carlton Hotel	Jewel City	76 Corlett Drive	Carlton Hotel
Date & time of initial observations	29-08-2020 / 7:28am	29-08-2020/ 11:15am	29-08-2020/ 9:45am	Cold & overcast day allowed for better photographing quality. Wanted to get an early start. The city was peacefully quiet	the building was closed, and no access was allowed	the building was barricaded, the "security" guard on duty was reluctant to give access without monetary supplementation
Supplementary Observation	03-10-2020/ 11:00am	photographic observation	03-10-2020/13:00pm		photographic observation	photographic observation
What did the researcher learn about the building/s?	the city block was previously a commercial hub	the building was on a brownfield site	was a joint development to rival the Rockefeller centre in NYC	The ambiance in the air was renewing and exciting, albeit being in the city I felt save in this area	the ambiance of the building was enjoyable on the exterior of the building, yet disheartening as not access could be obtained on initial visit	I didn't feel save in that area of the city in comparison to jewel city. The ambiance was rushed & uninviting
Frame of mind of the researcher on the date of observation	clear mental intentions were set to observe all buildings required, to collect data			Navigating to JHB via GPS made for a stressful arrival at the city. But the researcher was enthusiastic and open minded to soak up as much information as possible	navigation to the building from Johannesburg was interrupted by breakfast as the researcher was hungry and couldn't concentrate on collecting data	the researcher mentally shut down as safety was paramount in comparison to data collection.

Exterior structural quality of the buildings	Excellent quality	Excellent quality	From the vantage point the building seemed in good structural condition	It was observed that builders were working on various parts of the buildings before the launch of the development	The researcher wanted physical access to the building to gain a better "feel" of the space	The researcher felt disappointed that she could not gain access.
Interior structural quality of the buildings	Excellent structural quality prevalent throughout Block 6	Excellent structural quality common throughout the building	Fair structural quality observed as some of the lower rooms are overgrown with plants and water damage is noticed in photographs IV & V	Newly added sections of the building & developed and adapted parts of the building where noticed	It was observed that the interior structure of the building was contemporarily designed with large spaces	the potential to adapt the rooms makes the researcher hopeful and excited to notice how to adapt the space more effectively
Physiological Needs Met	it was observed that the occupants had access to safe space, food, water, and power	It was observed that all basic human needs were met in the building and that the occupants had access to these needs	It is observed from the photographic evidence that all basic human requirements are met by the building, there is access to bathrooms each hotel room has their own bathroom the rooms are large in space allowing for a fair liveable	It was observed that the building is a good example and resourceful space, providing for basic human requirements cost effectively. Safety in the area is palpable; accessibility to basic requirements is visually noticed.	The building is beautifully laid out and gives a sense of safety with access-controlled gates and a lobby area, the building provides running water and utilizes power generated by the solar. Although the building is developed for commercial use the researcher noticed aspects that can be implemented in a mixed-use space.	It is assumed as the building is present that access to manipulate services are available to be maintained and redesigned to provide basic services to the building, incorporating the energy solution from 76 Corelitt will assist in the low running costs of the building.

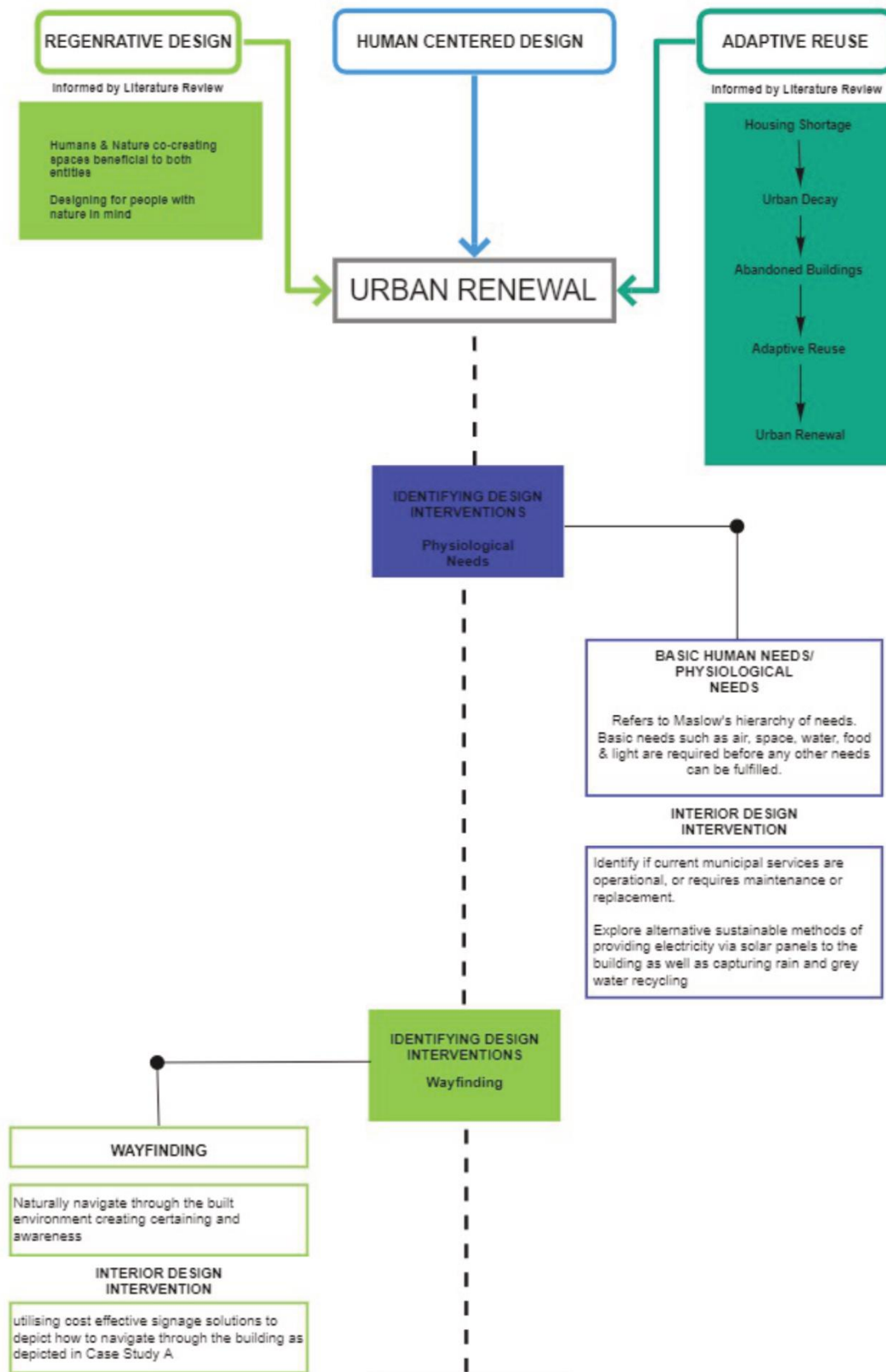
Lighting	Excellent typologies of lighting was observed throughout the building. Natural light entered the building through the large window framing the staircase. Sensor triggered artificial lighting was noticed as the lights came on as the researcher walked through the building, Open "windows" were noticed at the ends of the apartment corridors allowing natural light and air flow through the space.	A variety of lighting typologies were observed in the building. All the energy for the artificial lighting was provided by the buildings solar crown.	Lighting outlet are observed and are assumed to be operational	the staircase or manual exit was great example of highlighting a feature that is generally hidden. The energy saving artificial lights were all triggered by motion sensors, it was a novel idea that created a great impact when experiencing the space	The airiness and space that is depicted in the photographs as a result of a combination of light typologies used. Inspires the Researcher that this design intervention can be implemented in an abandoned building.	Lighting outlets are visible in the building it is unsure whether the soundness of the electrical system is still functioning after years of no maintenance
Accessibility & wayfinding through the buildings	Cost effective signage is used in the building	More exclusive signage is used to navigate the building	No signage is visible in the photographs, it is assumed that the signage has been removed	The researcher was inspired by the use of stencils and black paint as a design intervention for cost effective and low maintenance signage. The building was easy to navigate by the means of this		
Materiality	Simple low maintenance materials were used throughout the building, irrespective of the low cost the materials did not seem economical looking.	Exclusive use of materials are noticed through the building	Luxury materials such as expensive marbles, wall panelling are observed in the photographs	the researcher observed newly developed spaces. The entrance to the residential building is stylistically designed for low maintenance. The exposed concrete,		The opulence that once was the Carlton hotel can still be visually identified. The rooms are large and spacious and with cost effective design interventions the
				glass, steel & painted brick		building can be made beautiful again.

(Wood, 2018)

Transcribed Field Notes

From the physical observations in Appendix E the visual investigation of photographs and transcribed field notes, it is inevitable that Carlton Hotel possesses a good possibility for the design interventions of adaptive reuse, with the regenerative human-centred application. This would provide the building with a new objective. The characteristics of this building will be kept in mind when establishing the context mapping in the next segment.

Urban Renewal Plan



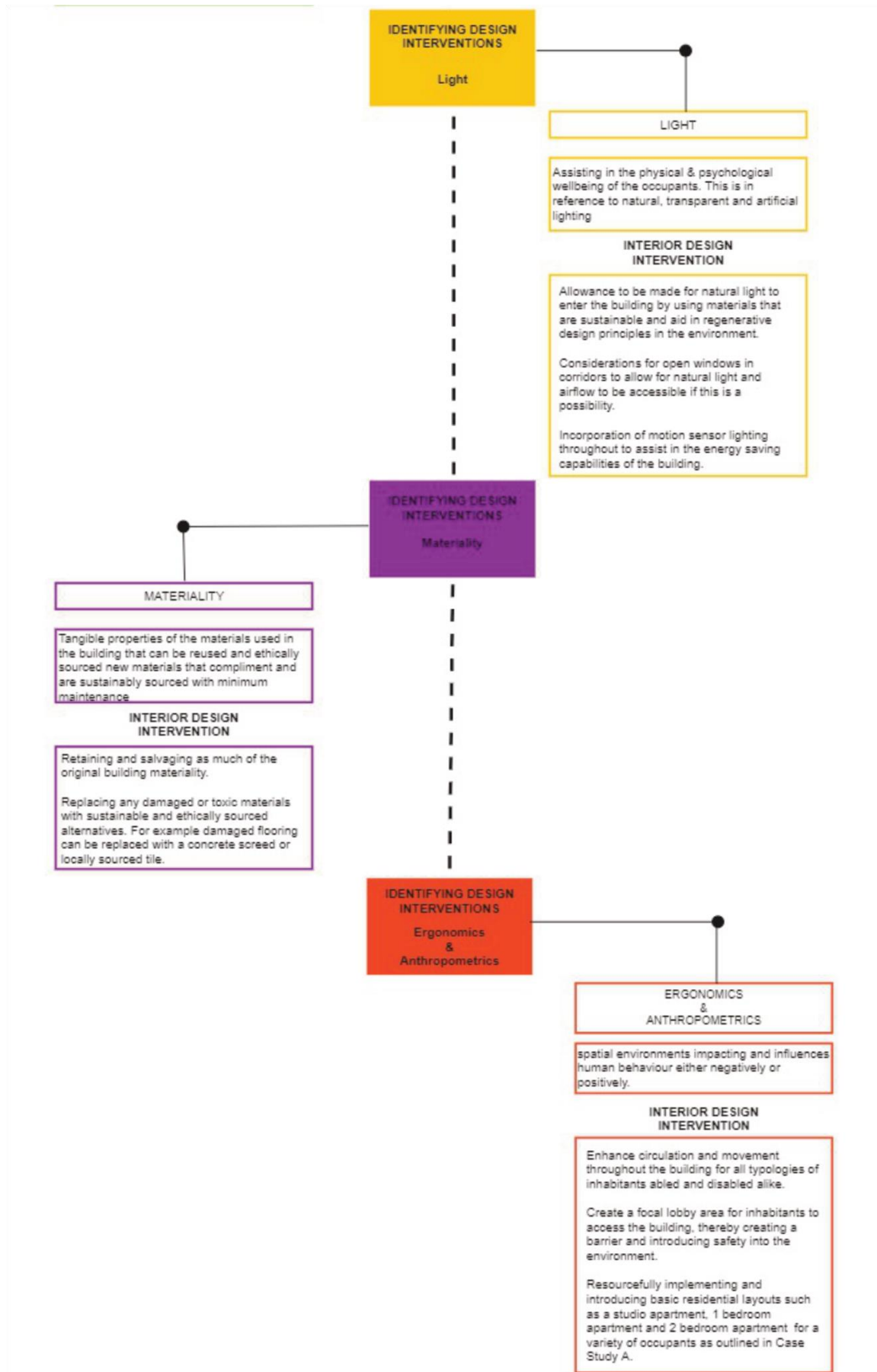


Figure 15 – Urban Renewal Plan Analysis (Simpson, 2020)

Cross Case Study Analysis

THEMES	CONNECTIONS OF ALL THREE VISUAL OBSERVATIONS	DIFFERENCES		
		CASE STUDY A	CASE STUDY B	ABANDONED BUILDING
STRUCTURE	All buildings use an existing structure that had no heritage value and reused the space for something other than what it was initially designed for.	Is primarily a residential, retail and commercial precinct.	Is a multi commercial use, self-sustaining office building.	Was primarily used for a commercial and leisure use
	Altered the original host by recycling aspects of the building and altering other aspects	The largest area of the three observations included a multi mix use of space within a	The smallest building of the three observations.	Tallest building of the three observations
	Multiple level structures all structures have more than 2 stories			
REGENERATIVE DESIGN	-	-	Is at the core of the functionality of the building.	
HUMAN NEEDS	physiological needs are met in all buildings.	Physiological needs are met on a personal level as inhabitants reside & live at this building	Indoor environmental quality aids to the physiological needs are met on a commercial level	Opportunity to enhance the physiological services evident in the building
WAYFINDING	Both buildings displayed good wayfinding signs and were easily navigated by the inhabitants	Used economical wayfinding methods	Used modern wayfinding methods	Unidentified
LIGHT	A variety of light methods were used in both buildings, allowing natural light to enter the space as well as an excellent use of artificial lighting and openings.	Lighting is mostly based on residential requirements. Natural lighting enters the building via windows and openings. Ambient lighting is provided artificially.	Variety of options are available for natural lighting externally the lighting can be adjusted on the sides; the central atrium provides natural lighting to the core of the building. Task lighting is provided throughout the essential working areas.	Lighting is provided from the windows of the building as well as the artificial lighting sources
MATERIALITY	Easily maintainable materials are used in both buildings such as concrete, aluminium and steel.	Economical materials are used for the building	Upmarket materials are used for the building.	Opulent and classical materials are observed as well as outdated materials
ERGONOMICS	Both buildings provide sufficient space of people who are non-disabled and a disadvantage to move throughout the space.	Residential ergonomics & anthropometrics define the space	Commercial ergonomics & anthropometrics define the space	Observed spaces are large enough to accommodate able and disabled individuals, although no physical evidence is present to show that inclusive designed was used.

Table 4 Case Study Comparisons & Differences (Simpson, 2020)

INTERPRETATION OF FINDINGS OF THE CASE STUDY

The table outlines specific connections between the two case studies. Both case studies used the various design mediations to create a singular positive resolution. It was noteworthy that the design interventions used in both case-studies drastically improve the environment that each is found in. For example, Jewel city was an abandoned commercial area adding to the urban blight of JHB CBD and 78 Corlett drive was a brownfield site, both interventions improved the quality of the environment that they both inhabit and provide essential amenities for their inhabitants. While both the case studies had similarities apparent, there were still differences noted. The points that were noted as differences provided awareness that adaptive reuse can be joined with other crucial design interventions such as human-centred design and regenerative design to impact the environments and inhabitants further positively.

SUMMARY

This chapter commences with the conclusion of two visual analysis case studies. Together, both case studies are examined with regards to the design interventions implemented. Additionally, a detailed observation of a chosen abandoned building in Johannesburg was completed wherein the Researcher connected with and observed the buildings in the form of photographs and field notes. Thereafter, across-case analysis of all three observations was investigated, (two case studies and the abandoned building), wherein the common themes and variances were reported within a table. Finally, a context map was then created delineating possible resolutions when applying adaptive reuse to abandoned buildings in order to provide mixed-use areas.

CHAPTER FIVE

Conclusions, implications & recommendations

5.1 INTRODUCTION

In this chapter, the researcher combines and discusses the conclusions, implications, and recommendations for additional research. The chapter commences with a discussion on the associations and assumptions drawn from this study. The contributions that this study may have added to the field of interior design. Subsequently, a review of the study is performed, and recommendations offered.

5.2 IMPLICATIONS DRAWN FROM THE FINDINGS

In the literature review, the academic sources consulted presented clear findings that Johannesburg is currently facing problems, a shortage of human-centred designed housing, a surplus of abandoned buildings and a serious posture on sustainability and the impact wasting natural resources has on the environment. It is noted that the Department of Human Settlements cannot keep up with the current rate of housing required and fall behind each annum (Writer, 2018). However, many JHB residents are living in poor substandard buildings or abandoned building without basic needs such as power, sanitation and running water (Anna, 2018). These problems offered the Researcher alternative approaches in resolving the wicked problem of re-housing utilising a non-traditional form of adaptive reuse, sustainability and human-focused design thinking in a tri-unification to design and resolve problems for the residents of JHB city more effectively. A humanist design approach was explored which outlined steps that could be taken in addition to a regenerative solution all contained in an abandoned building that has a stable structure, access to power, sanitation, and water. A process that not only could be a success in JHB but throughout South Africa where housing is challenging.

The first secondary question of this research was to explore JHB's urban renewal strategy and implementation in selected parts of the city where the adaptive reuse of abandoned buildings had been conducted. This part of the research was accomplished through data collected in the literature review and case studies consisting of photographs and information. Cave's theory on adaptive reuse and Maslow's Hierarchy of Needs theory outlined and informed the design interventions, that were used to analyse this architectural case study. The first case study was performed on the Jewel City, an architectural and human-centred design project wherein the design interventions of adaptive reuse have been applied to a six-city block of abandoned buildings in the JHB CBD.

The second and last question of the secondary research was to explore how the method of regenerative design practices warrant adaptive reuse and how human-centred design strategies encourage adaptive reuse with a regenerative design approach? Wahls theory on regenerative design and Maslow's Hierarchy of Needs theory outlined and informed the design interventions, that were used to analyse this architectural case study. The second case study was completed on a regenerative architectural project in JHB. Wherein thoughtful sustainably design solutions were applied to an office building that was constructed on a brownstone site. The design interventions of the project were carefully thought out with the occupants of the buildings need in mind, winning the project a variety of international sustainability awards. This was due to the buildings low impact on the environment and effective use of human-centred design solutions. The building is designed in such a way that it is powered by the crown of solar panels that are housed on the roof of the building, heating, and cooling is controlled through the ingenious use of movable louvres on the sides of the building allowing natural airflow or the sun to heat and cool down the building. These are just a few of the sustainable attributes the building encompasses.

An investigative approach to the case studies was performed, where after an individual case report reviewing the essential components observed for each design intervention was presented.

By uniting the discoveries of the two architectural case studies with the information obtained from the literature study, and the visual observation and data collected from the third abandoned building an urban renewal plan was created to outline how the conversion of abandoned buildings, within Johannesburg, can be adaptively reused through regenerative design and human-centred designs solutions.

The Urban Renewal plan discusses Cave's theory on adaptive reuse, emphasising the reality that a building can be utilised in a different manner other than it was initially designed for, this does not need only to imply heritage buildings but could encompass all types of abandoned buildings. Consequently, the plan summarises different design interventions that could be applied to an abandoned building. For example, the design invention of physiological needs that need to be met in terms of water, sanitation, power, an established building that has those elements in place could effortlessly meet these needs. Similarly, a building that is already well designed in terms of accessibility for abled and disabled occupants alike could already fulfil the wayfinding interventions where occupants feel safe and can easily navigate their surroundings a further intervention would be that wayfinding interventions can be sustainably thought out as indicated in Case Study A.

5.3 FINAL CONCLUSIONS

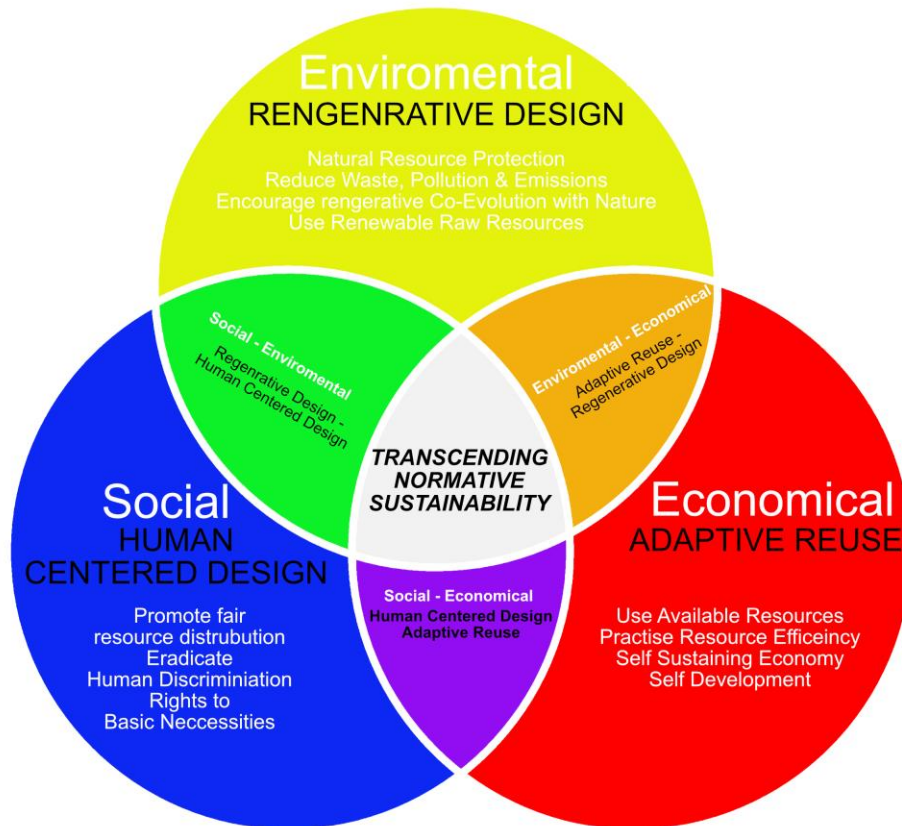


Figure 16 Unification of Design Interventions (Simpson, 2020)

The findings of this study may have the possibility of contributing to the interior design faculty as the findings and interventions herein have the potential to make a difference to people's lives and the environment in an effective manner. From a hermeneutic perspective, it is no secret that the majority of South Africa's population is living in poor living situations (Anna, 2018). The city of Johannesburg has over 500 buildings that have either been hijacked, abandoned, or are owned by the government (Writer, 2018). Indeed, by utilising the current abandoned building stocks that meet the correct criteria we have the means to aid the inner-city inhabitants with an urban revival with a regenerative and human-centred design approach at the core designing for the people of South Africa we are hitting more than *"two birds with one stone"* I would likely think we are hitting *"three,*

birds". Referring to Figure 15, it is clear that a unification of the three design interventions can create a sweet spot as a possible design solution for urban renewal in Johannesburg.

5.4 ETHICAL CONCERNS

The primary ethical consideration for this study is that the research conducted is in a subjective view without the limitations of bias. The subjective restriction could be a challenge to maintain as the study will be conducted from the viewpoint of the Researcher also, that the research is conducted with integrity to all institutions involved (Du Plooy-Cilliers, et al, 2014). The study will include a research approach of visual observation and case studies; therefore, no ethical consideration in terms of informed consent of participants is required (Du Plooy-Cilliers, et al, 2014).

However, as defined by Du Plooy-Cilliers, et al (2014), the planned case studies of the research will contain the workings of other professionals, and it is therefore vital that these professionals are identified. Furthermore, adequate security consent from the buildings under observation for this study will be requested by the relevant parties involved.

Lastly, credible internet sources will be sourced, and no falsification or creation of data will be presented (Du Plooy-Cilliers, et al, 2014). A request of ethical authorisation for this study has approved by the Ethical Committee at Vega Pretoria Campus.

5.5 LIMITATIONS OF THE STUDY

The primary limitation related to qualitative research analysis is that the practice is time-consuming (Chetty, 2016). Another possible difficulty with qualitative research is that a specific challenge could be overlooked (Bowen, 2009). Additionally, the time constraint of the study will be a restraint, as there is a limited time available for the Researcher to conduct an exploratory analysis of two case studies. Consequently, for impending analysis of adaptive reuse projects, several cases studies will provide more comprehensive data to reduce the Researcher's subjectivity, and reflexions will influence the investigation of the

case studies and observation of the chosen site, which in turn will affect the results of the study (Chetty, 2016).

The observation process will be a limitation since the 2020 CoVid-19 Pandemic the Researcher is limited in movement to research in the field. Furthermore, access to the buildings because of CoVid-19 could be difficult because of social distancing and health-related concerns. An alternative measure is in place where the Researcher will review online pictures in the event of not being able to gain access to the buildings because of the CoVid-19 health concerns.

Moreover, it was challenging to obtain safe and secure access to abandoned buildings in the JHB city centre. However, there are many abandoned buildings throughout the city. Restricted admission to these abandoned buildings was unlikely without resorting to unethical financial remuneration to gain access to the abandoned sites the Researcher tried on several occasions to gain access to the building however this was considered unsafe for the Researcher to continue to collect data.

Lastly, qualitative research involves experienced researchers to obtain the targeted data from the outlined population sample group (Chetty, 2016). Additionally, different assumptions are obtained based on similar data differing on the individual attributes of the Researcher (Maxwell, 2005).

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APPENDIX A



2020.08.20

Student name: Tanya Simpson

[REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED]

Re: Approval of Honours in Interior Design Proposal and Ethics Clearance

HONOURS/PGDIP ETHICAL CLEARANCE LETTER

Your research proposal and the ethical implications of your proposed research topic were reviewed by your supervisor and the campus research panel, a subcommittee of The Independent Institute of Education's Research and Postgraduate Studies Committee.

Given that your study poses no significant ethical concerns as you will be conducting a non-human analysis (visual observation), and all required accompanying documentation is accounted for, you may proceed with your study.

In the event of you deciding to change your research methodology in any way, kindly consult your supervisor to ensure all ethical considerations are adhered to and pose no risk to any participant or party involved. A revised ethical clearance letter will be issued.

We wish you all the best with your research!

GENERAL CONDITIONS TO BE FULFILLED IN RELATION TO RESEARCH

Permission is granted to proceed with the above study subject to the conditions listed below being met and may be withdrawn should any of these conditions be flouted.

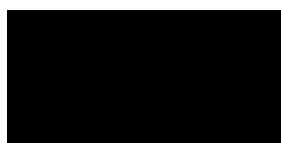
Please note: The panel has not considered the merits, accuracy or ethical soundness of the research. The only merits examined are the use of The IIE as a sample.

Permission is granted subject to the following conditions:

1. The researcher(s) will need to obtain informed consent in writing from all of the participants in his/ her sample if the study is not anonymous.
2. The researcher(s) may only use the data collected for research purposes and in no other way.
3. Photographs of human subjects may only be taken if relevant to the research, informed consent was obtained, and even with informed consent, the photographs may not be published on any online platforms.
4. The researcher is responsible for supplying and utilising his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institutions and/or the offices visited for supplying such resources.
5. No names or identifying information of participants may be used within the research and the research must be voluntary.
6. Please make it clear that the information will not be used punitively in any way and participants may in no way be counselled/advised based on this.



Supervisor: Armand Meyer



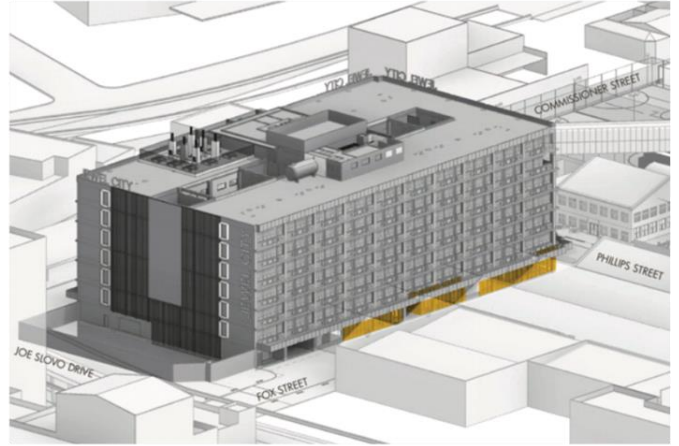
Campus Postgraduate Coordinator (CPC): RIA VAN ZYL

APPENDIX B

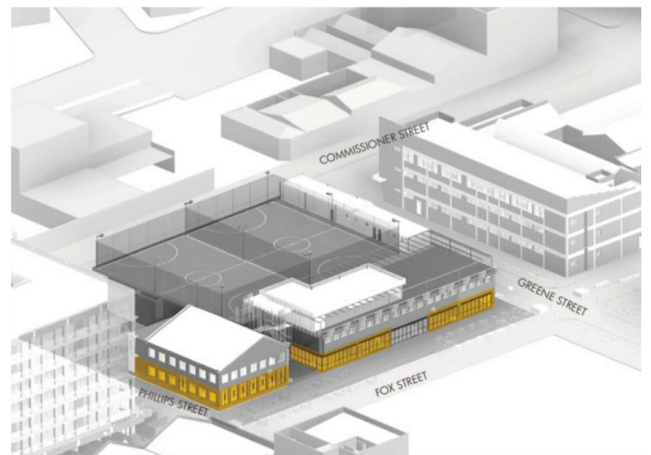
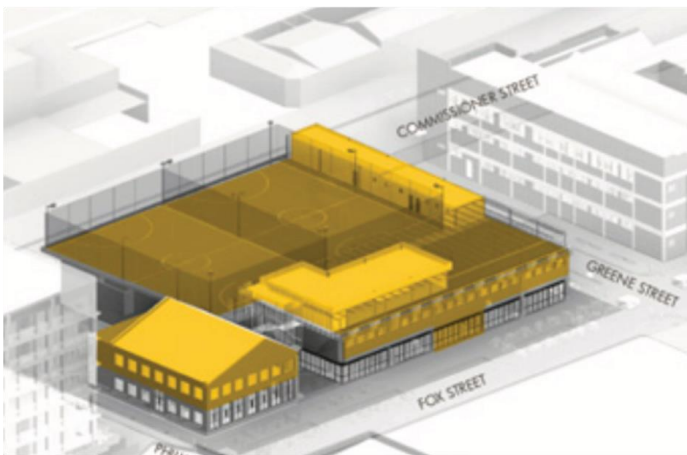
Refer to Concept Document Table File

APPENDIX C

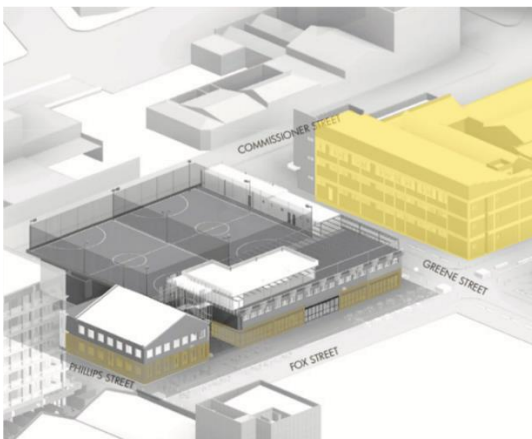
BLOCK 1 - RETAIL & RESIDENTIAL



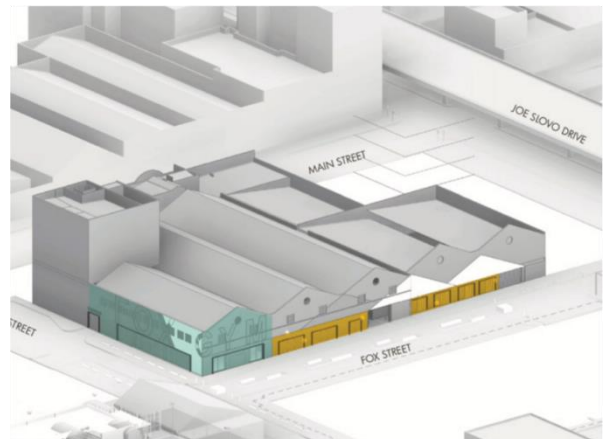
BLOCK 2 - RETAIL & COMMERCIAL



BLOCK 3 - COMMERCIAL



BLOCK 4 - RETAIL



BLOCK 5 - RETAIL & COMMERCIAL

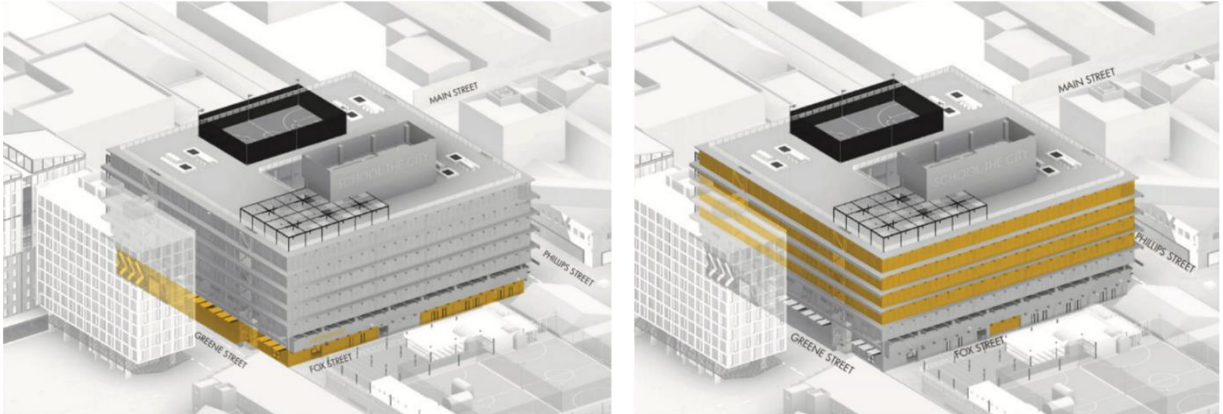


Image 1 - Jewel City Isometric (Diversity, 2020)



Image A - Master Plan

BLOCK 6 - RETAIL & RESIDENTIAL

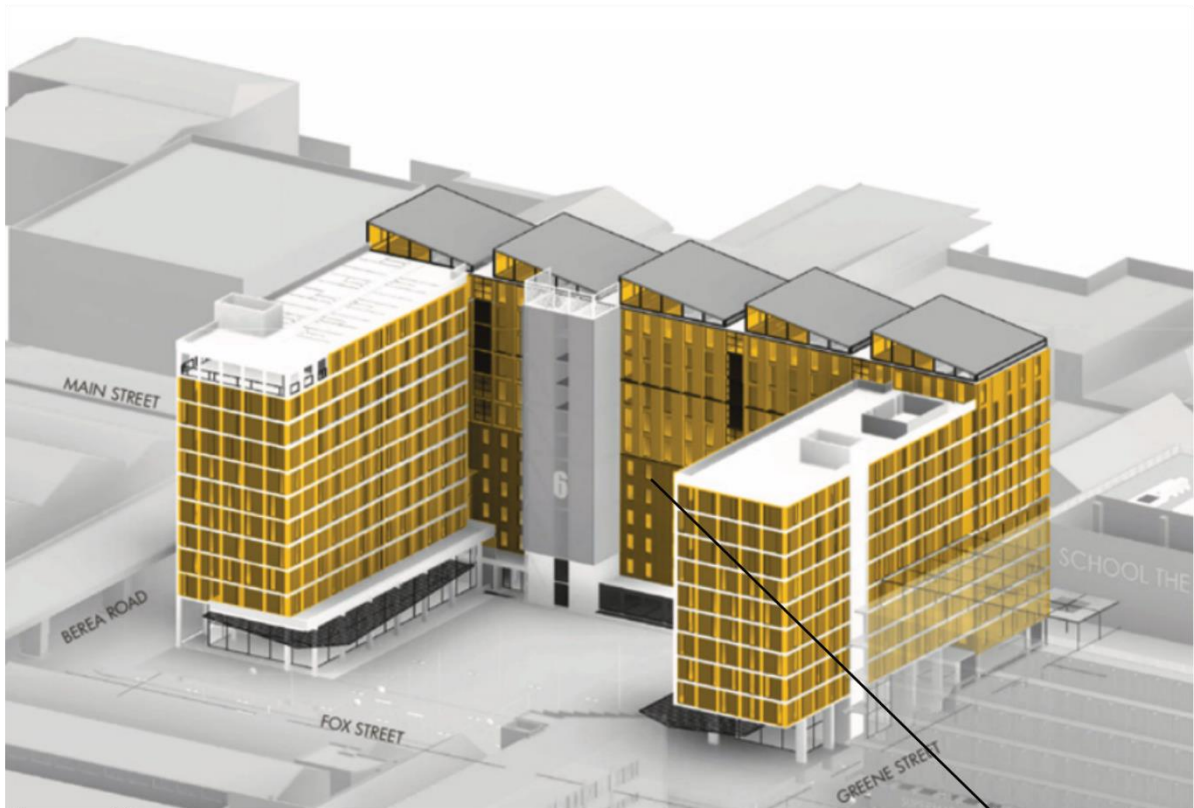


Image B

AR-SD-01

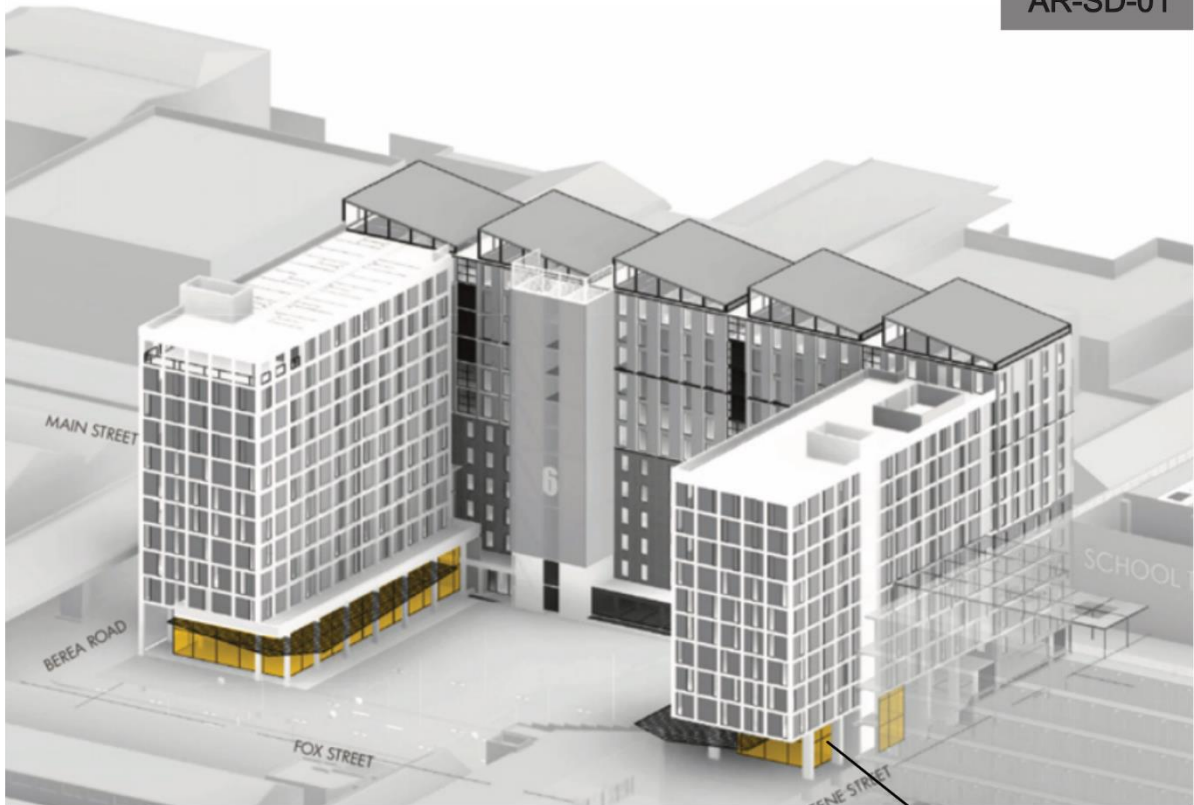


Image B1

AR-S-01



Image C

AR-L-04

AR-M-05

AR-EA-06

AR-S-01



Image D

AR-L-04

AR-M-05

AR-EA-06

AR-WF-03

AR-S-01

Image E

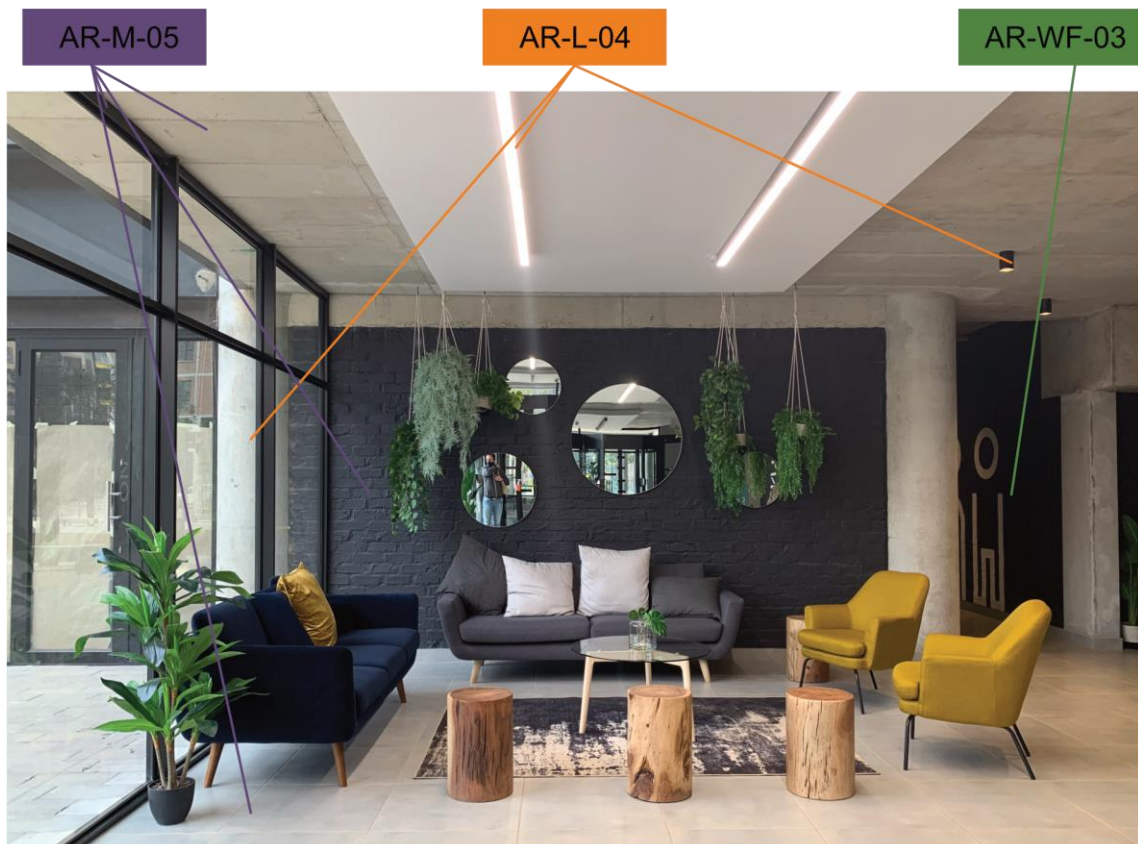
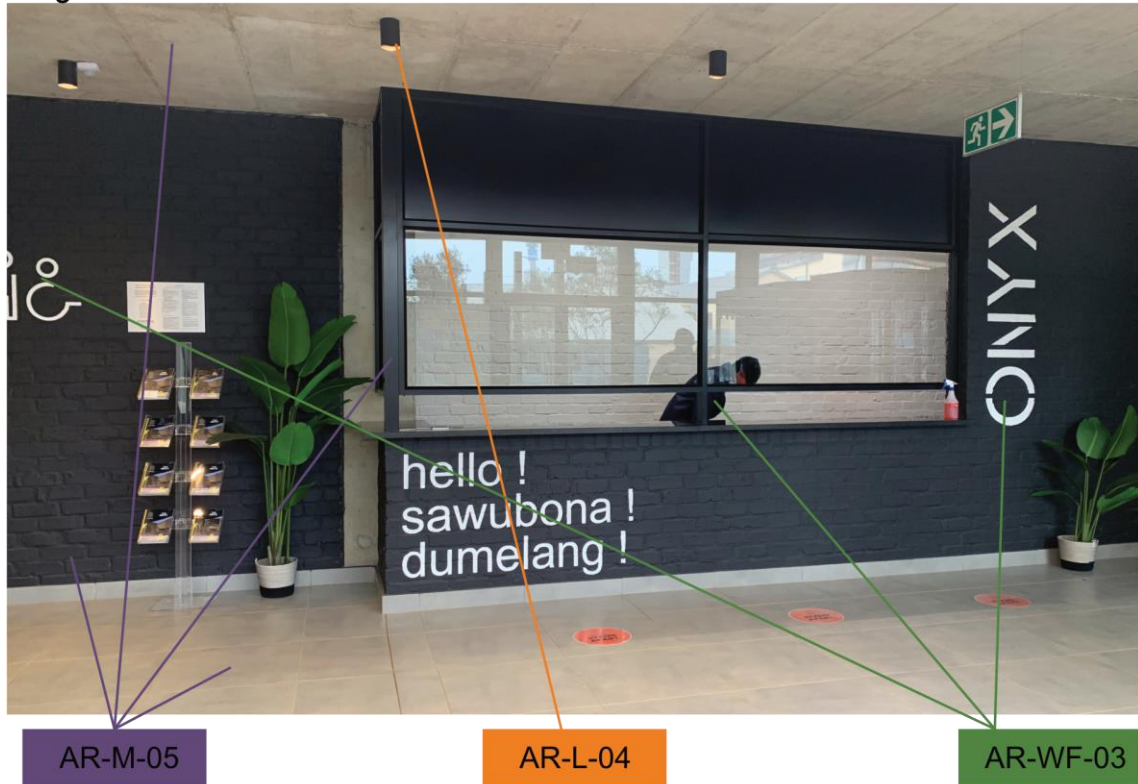


Image F



AR-WF-03

AR-M-05

AR-EA-06

AR-WF-03

AR-L-04

AR-L-04



Image I



AR-L-04

AR-WF-03

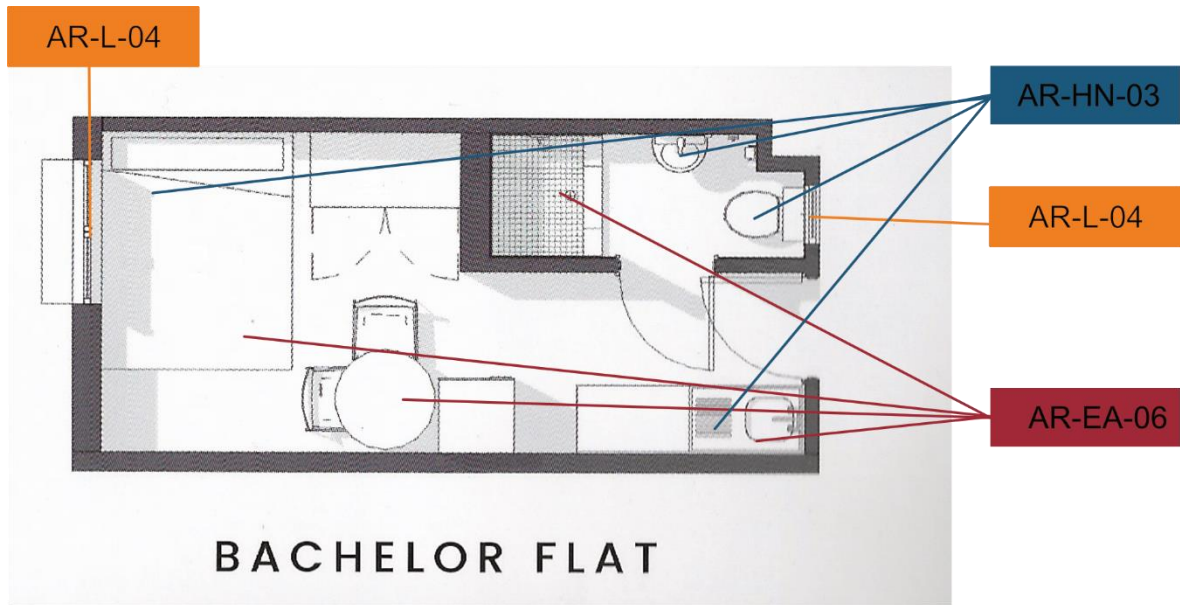


Image J

Residential Floor Plans - The Onyx

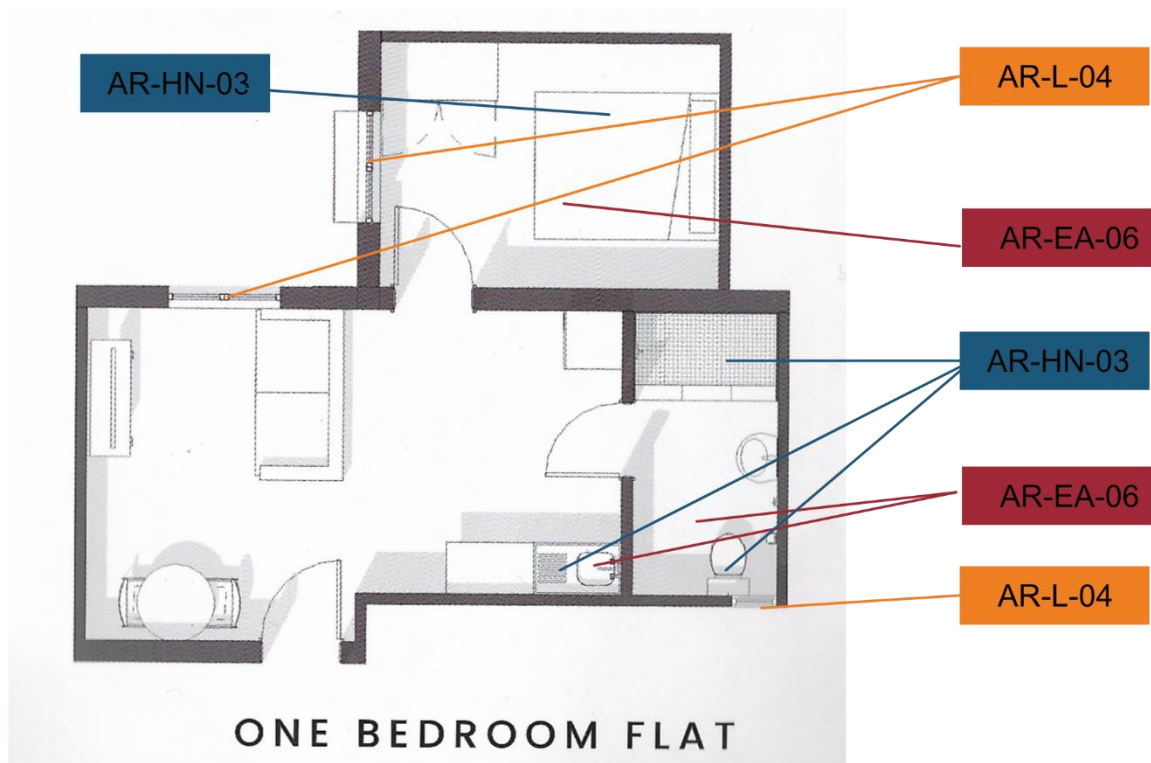


Image K

Residential Floor Plans - The Onyx

APPENDIX D



Image A



Image B

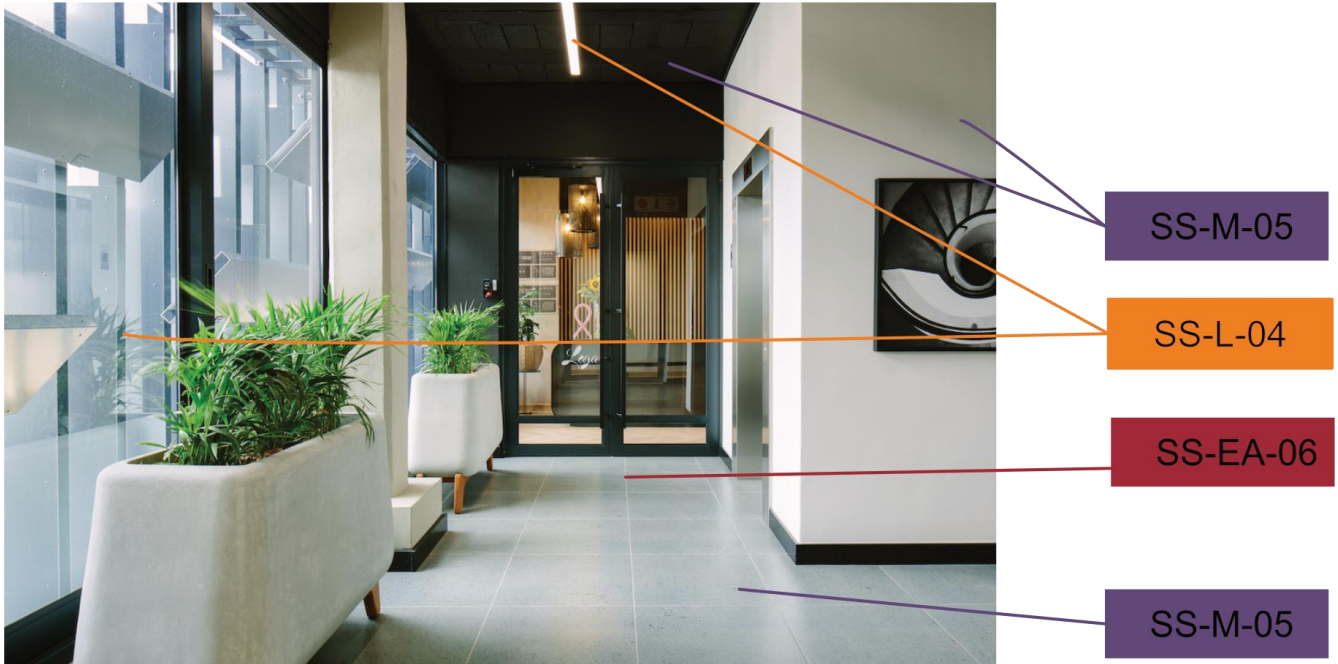


Image C

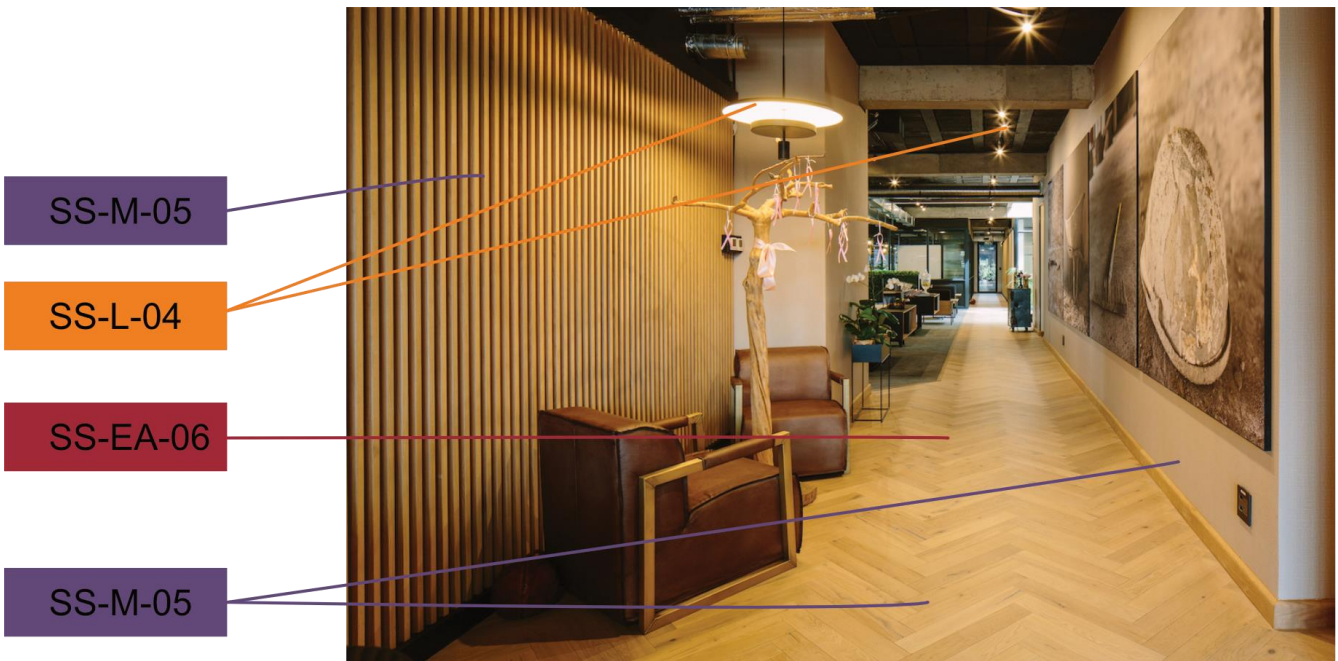
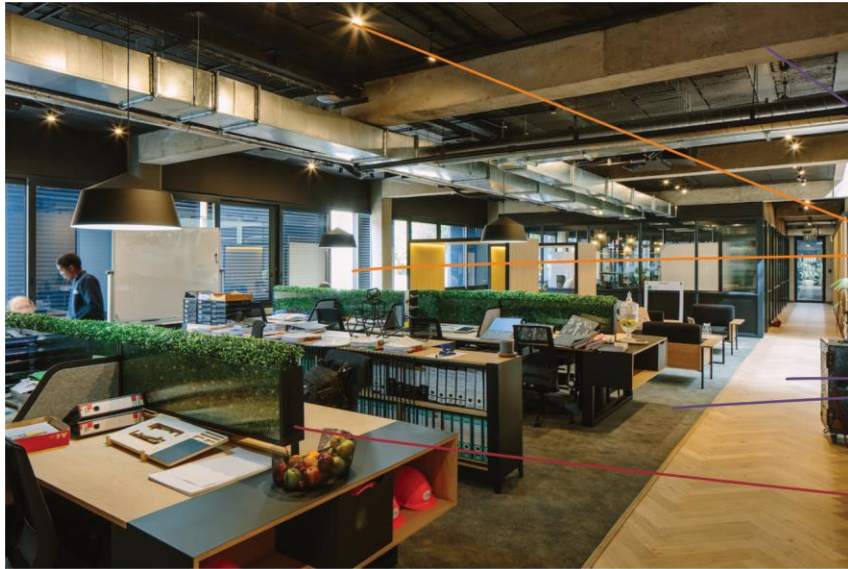


Image D



SS-M-05

SS-L-04

SS-M-05

SS-EA-06

Image E



SS-M-05

SS-L-04

SS-EA-06

SS-M-05

Image F



SS-M-05

SS-L-04

SS-EA-06

Image G

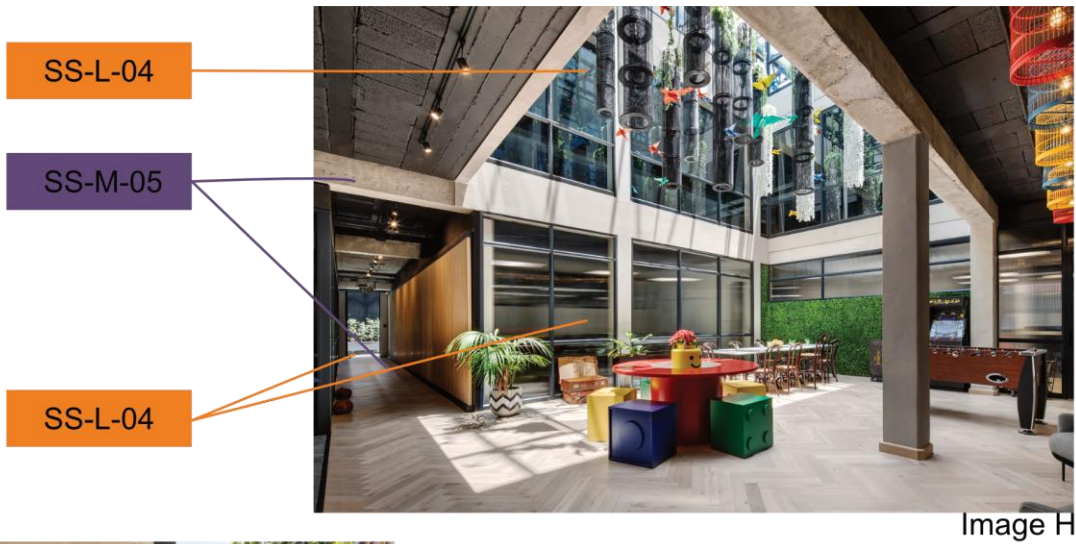


Image 1 – Visual analysis of Case Study B (Simpson, 2020)

APPENDIX E



i



ii



iii



iv



v



vi



vii

i - Front facade

ii - Top floor room

iii - Marble cladded bathroom

iv - Ground floor room

v - Marble fire place of ballroom

vi - Ball room entrance

vii - Reception area

Image 1 – Carlton Hotel Observational Photographs (Simpson, 2020)