

WHAT WE WEAR:

Alteration to support a circular economy driven by post-consumer textile waste generated by fast fashion.

DECLARATION

Submitted in partial fulfilment of the requirements for the degree Master of Interior Architecture (Professional) to the faculty of Engineering, Built Environment, and Information Technology.

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2020

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PROJECT INFORMATION

TITLE: What we wear: Alteration to support a circular economy driven by post-consumer textile waste generated by fast fashion

PROJECT DESCRIPTION: An investigation of design principles for the design of a multi-use programme that supports a circular economy driven by post-consumer textile waste generated by fast fashion to create a new fashion culture that encourages sustainable consumption.

PROGRAMME: Mixed-use programme, which includes a processing plant, a makerspace, retail, exhibition and café.

SITE LOCATION: 381 Helen Joseph Street, Pretoria CBD

RESEARCH FIELD: Environmental Potential

CLIENT: City Property

KEYWORDS: lifecycle, sustainable interior design, skills development, adaptive reuse, circular economy



ABSTRACT

The value consumers attach to their clothing creates a high demand and frequent consumption of fast fashion. This results in the increase of post-consumer textile waste that ends up on landfills, which has a negative impact on the environment. This raises the critical issue of disposal methods and necessary education to create awareness and equip users to contribute to a circular economy that aims to extend the lifecycle of each garment. This study aims to design for the facilitation of a circular economy driven by post-consumer textile waste that encourages sustainable consumption.

The short lifecycles of commercial interior due to the influence of societal taste results in the frequent alteration of these interiors, increasing building waste which has a negative environmental impact. This study explores how the lifecycle of an interior environment can be extended through the design principles derived from the design informants identified through the investigation of the theoretical framework, site, precedents, users and programme, and proposed brand. The result is the design of sustainable interior environments that encourages sustainable consumption.

The design for multi-use programme allows for users to learn and contribute on various platforms to empower the local community and close the loop for fast fashion to generate a new fashion culture at 012 Central. Through the alteration of the identified interior environments the design intervention aims to reinvigorate the underutilised buildings at 012 Central to support a circular economy driven by post-consumer textile waste.

The design intervention aims to provide an informative spatial experience that encourages interaction with space and object, empowering users to contribute to a circular economy driven by post-consumer textile waste. The technical resolution of the proposed design intervention is concerned with the design of sustainable interior environments and components that considers their environmental impact through a closed-loop design approach.

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DEFINITION OF TERMS FOR THIS STUDY



Figure a. Commercial interiors (Author, 2020)

COMMERCIAL INTERIORS:

A commercial interior is any facility that functions as a business. These businesses attract public and range from retail, restaurants, and hotels to being more restricted such as corporate offices. Commercial interiors fulfill a range of functions and needs. Therefore, there are many different types (Piotrowski, 2016).

FAST FASHION:



Figure b. Fast Fashion (Author, 2020)

Fast fashion is characterised by the speed at which clothes are produced and consumed, where clothes are low priced and are constantly changing (Clarke, 2008). The high demand to keep up with the latest trends results in high consumption volumes that are disposed of frequently, generating post-consumer textile waste that mostly ends up in landfills.

POST-CONSUMER TEXTILE WASTE:

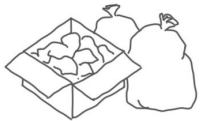


Figure c. Post-consumer textile waste (Author, 2020)

In this study, this refers to the waste generated by the consumer who no longer sees value in their clothes and decides to dispose of them. This ranges from threadbare to torn old clothes through to clothes that have never even been worn (Bianchi & Birtwistle, 2012).

LINEAR ECONOMY:

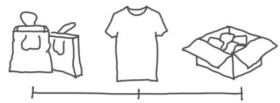


Figure d. Linear Economy (Author, 2020)

An economy characterised by exploitation of resources to produce and consume clothes. To dispose of them after a limited number of uses without considering their end of life value (Bocken, et al., 2016)



Figure e. Circular Economy

CIRCULAR ECONOMY:

An economy that applies different strategies to extend the lifecycle of materials and products in the economy without decreasing their value. The materials and products can be upcycled, recycled and or repaired to extend their lifecycle to give it a high second-life value (Circular Flanders, 2017). In the fashion industry a circular economy aims to develop a closed-loop system that extends the lifecycle of clothes while maintaining their value (Niinimäki, 2018).

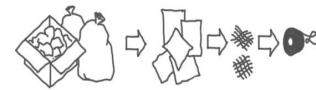


Figure f. Closed-loop Recycling (Author, 2020)

CLOSED-LOOP RECYCLING:

The process of collecting post-consumer textile waste to be processed into a new fibre to produce new garments (Payne, 2015). It is a challenging process that is still being explored, and is currently limited to materials of a garment that can be separated (The Sustainable Fashion Forum, n.d.).



Figure g. Closed-loop Design

CLOSED-LOOP DESIGN:

Designing and manufacturing products and their components to be used and reused so as to circulate for as long as possible. Maximising the use with a minimal environmental impact (Brisma, 2015).



Figure h. Adaptive Reuse (Author, 2020)

ADAPTIVE REUSE:

According to Brooker and Stone (2004:79), the relationship between the original fabric of a building and the new is the most influential design device. Three strategies to alteration are introduced by Brooker and Stone (2004:79), namely: insertion, installation, and intervention.

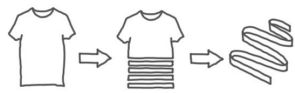


Figure i. Upcycling (Author,

UPCYCLING:

Making something new from post-consumer textile waste, while acknowledging the value of any post-consumer textile waste material to be able to make a new product from it (Brismar, 2017).



Figure j. Recycling (Author,

RECYCLING:

The process of transforming post-consumer textile waste into new products by giving waste materials a new use, thus keeping post-consumer textile waste from landfills. Recycling reduces the use of new materials and allows for the production of new products from existing resources (The Sustainable Fashion Forum, n.d.).

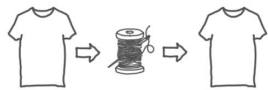


Figure k. Reuse (Author,

REUSE:

The process of using a garment more than once for the same function or for a different purpose (Payne, 2015). The garments might require repairs before being used again.



Figure l. Resale (Author,

RESALE:

Pre-owned garments are sold to be used by a new consumer for the same function (The Sustainable Fashion Forum, n.d.).

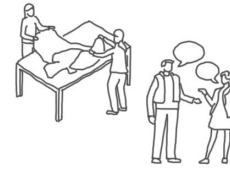


Figure m. Makerspace (Author,

MAKERSPACE:

A space where people come together to share their knowledge, resources, and ideas with one another. Inspiring each other to design and create (EDUCAUSE Learning Initiative (ELI), 2013).

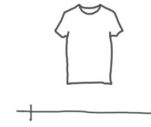


Figure n. Lifecycle of a product (Author, 2020)

LIFECYCLE OF A PRODUCT:

How a product is made, consumed, and disposed of (Niva & Timonen, 2008).



Figure o. Garment (Author, 2020)

GARMENT:

A piece of clothing (Merriam Webster, n.d.).

CHAPTER 01

{project proposal}

1.0 INTRODUCTION

This chapter serves to introduce the research problem in its setting. As background, the relationship between fashion and interior architecture is established, followed by a brief description of the status quo of commercial interiors and fast fashion in South Africa. The study investigates design principles for the design of commercial interiors that facilitates an informative spatial experience as well as a circular economy by using post-consumer textile waste generated by fast fashion as a conceptual driver. The chapter discusses general, urban, and interior architectural concerns, along with the research problem and relevant questions. Finally, the research methodology and methods are described and the design informants that will guide the design investigation.



Figure 1.1 Decomposition time of clothes in landfill. (Author,

1.1 BACKGROUND

Currently, the fashion industry follows a linear economy model, geared around production and consumption of clothes discarding them without a thought for end of life value (The Sustainable Fashion Forum, n.d.). The affordable prices and easy access to trendy clothing by fast fashion has lowered the value consumers attach to their clothing, as clothes are more frequently disposed of and replaced (Reiley & DeLong, 2011). This increases post-consumer textile waste that ends up on landfills, or is incinerated (Fletcher, 2008). Consumption behaviour of consumers influences the environment. Therefore, what and how users consume can positively impact the environment (Khan & Snyman, 2019:256). An opportunity to transform the linear economy of fast fashion to a closed-loop circular economy represents itself within Tshwane Vision 2055.

Tshwane Vision 2055 places the youth of the City of Tshwane at the centre of its efforts, as the benefactors of this vision. The City of Tshwane has a high youth population of 64% between the ages of 1 and 34, where there is a lack of education and skills development. The Tshwane Vision 2055 highlights the need for an improved waste management system (City of Tshwane, 2013).

The study focuses on using post-consumer textile waste as a resource to contribute to the Tshwane Vision 2055, by reducing post-consumer textile waste through facilitating a circular economy, and to develop skills that empower the local community of Pretoria CBD. The design intervention reactivates the site, 012 Central, 381 Helen Joseph Street, through alteration as a catalyst for a circular economy driven by post-consumer textile waste that can be further developed.

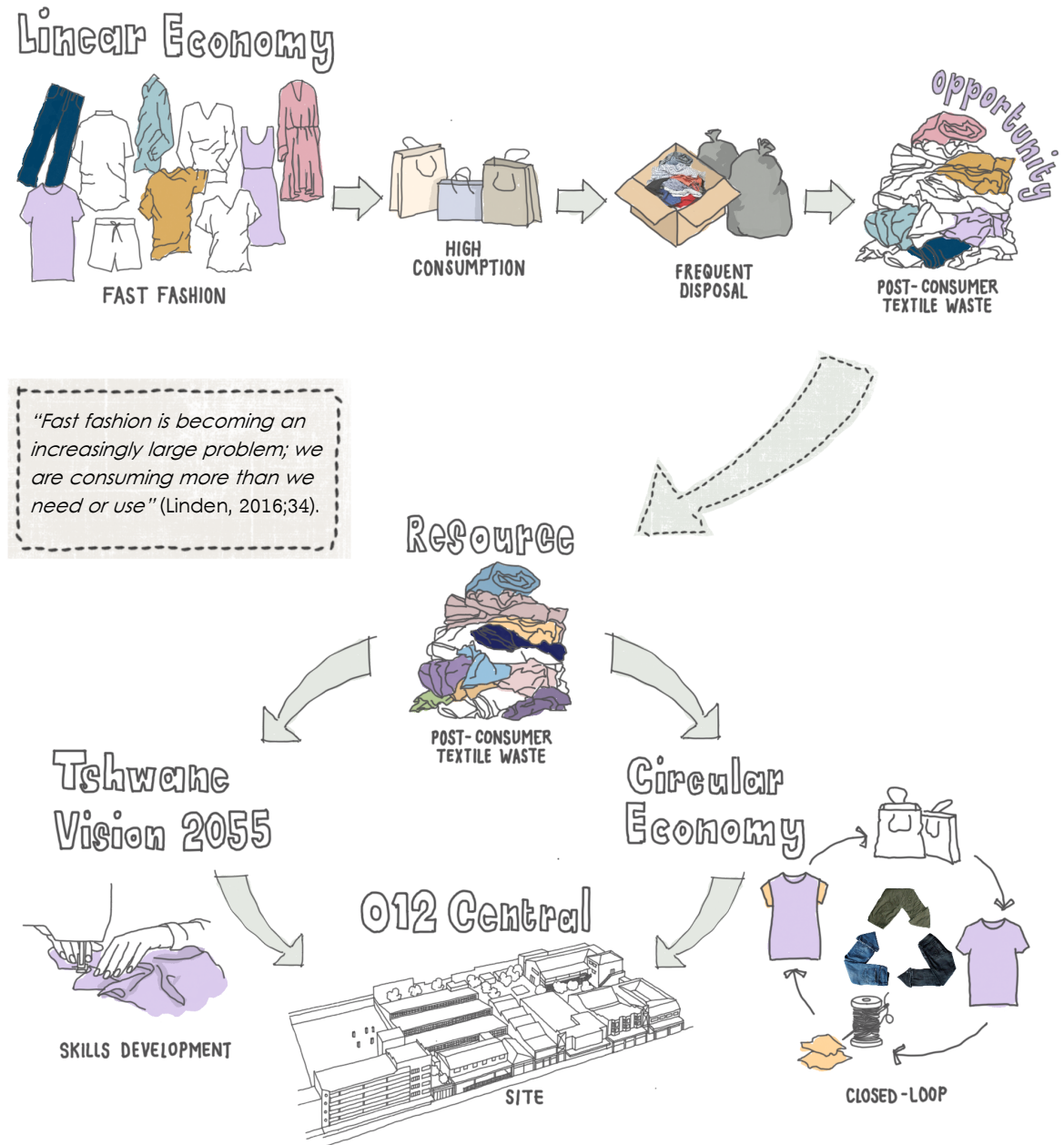


Figure 1.2 Background of this study (Author, 2020)

1.2 CONTEXT

The identified site of 012 Central, 381 Helen Joseph Street, Pretoria CBD, is an area that has a high volume of clothing retail shops that sells fast fashion (Figure 1.4). Mapping includes tertiary fashion institutions and fabric shops near the site. Unfortunately, the nearby Tshwane University of Technology has cancelled their textile design programme, leaving a gap in the teaching and skills development for the production of textiles. This presents an opportunity for the design intervention to accommodate education and skills development of textile production with a direct concern for post-consumer textile waste as resource.

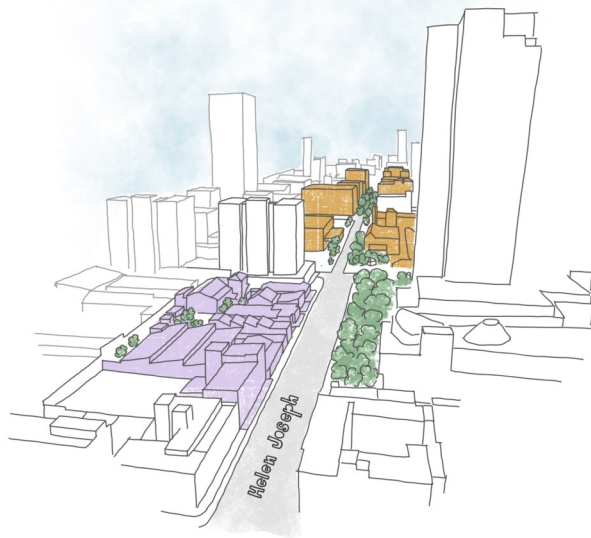


Figure 1.3 Birds eye view of identified site (Author, 2020)



Figure 1.4 Mapping of clothing context surrounding the identified site (Author,

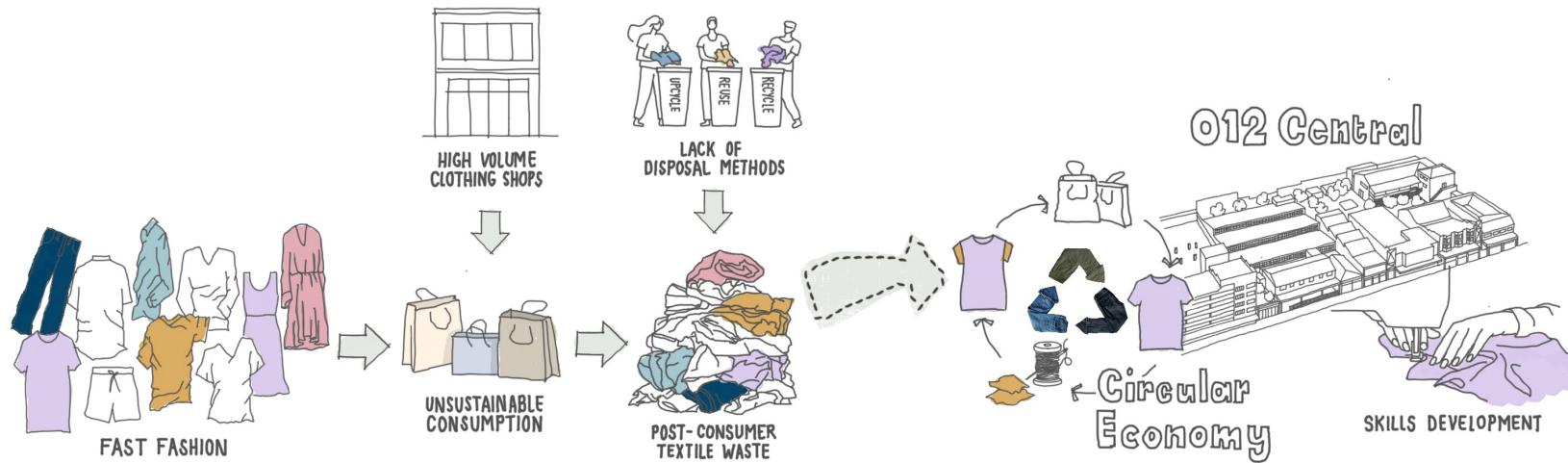


Figure 1.5 Problem statement (Author, 2020)

1.3 PROBLEM STATEMENT

1.3.1 GENERAL PROBLEM:

Currently, the fashion industry influences the unsustainable consumption behavior of consumers. Unsustainable consumption is a result of purposely producing products that are cheaply produced using low-quality materials and mass production, resulting in low quality. Fast fashion's low quality and affordable price design is purposely engineered for easy consumption and disposal (Fletcher, et al., 2001). The linear model of the fashion industry results in a fashion system that is overflowing with a negative environmental impact (Armstrong, et al., 2016). The environment is impacted by the way we make, use, and dispose of our clothes (EAC, 2019). For this reason, it is important that the industry move to a circular economy that extends the lifecycle of clothes and reduces post-consumer textile waste (Ellen MacArthur Foundation, 2017).

The high volume of fast fashion clothing shops in the vicinity of 012 Central feeds the problem of

unsustainable consumption, generating vast quantities of post-consumer textile waste, while not providing effective disposal methods and leaving consumers unaware of the environmental impact of their consumption and disposal.

Most people lack the basic skills of sewing to be able to create, repair, or alter their own clothing with confidence (Cooper, 2018). It can be argued that sustainable education initiatives can encourage social responsibility through giving information and teaching skills to understand the influence of consuming fast fashion clothing (TRAID, 2018).

The cyclic nature of commercial interiors due to the influence of societal taste results in interiors with short lifecycles that promote frequent alteration of interior environments. This results in the increase of building waste which has a negative environmental impact raising the need for more sustainable alteration of interior environments.

1.3.2 DESIGN PROBLEM:

012 Central consists of a number of buildings that are closely situated to one another. Currently, the buildings provide a variety of enterprises that offer a diverse experience to users visiting the site (City Property, n.d.). However, not all the commercial spaces are in use, and the Market @ The Sheds, a monthly market for local entrepreneurs, is underutilised. This creates an opportunity to invigorate the site through the introduction of a circular economy driven by post-consumer textile waste.

1.4 PROPOSED PROGRAMME

A multi-use programme is introduced that aims to close the loop of post-consumer textile waste, which in turns supports a circular economy. The programme facilitates the disposal of post-consumer textile waste, the making of new products through closed-loop recycling, the reuse or upcycling post-consumer textile waste, and the consumption of these new products. The programme aims to support, inform, inspire, and empower the local community by providing a platform for skills development, creative collaboration, social interaction, and the selling of products that support sustainable consumption.



Figure 1.6 Proposed programme (Author,

“THERE IS NO SUCH
THING AS ‘AWAY’,
WHEN WE THROW
ANYTHING AWAY IT
MUST GO
SOMEWHERE.”

Annie Leonard



Figure 1.7 Post-consumer textile waste (Author, 2020)

1.5 RESEARCH QUESTIONS



Figure 1.8 Research question (Author, 2020)

MAIN QUESTION:

How can the alteration of vacant and underutilised building stock at 012 Central, 381 Helen Joseph Street, Pretoria, introduce a circular economy for post-consumer textile waste generated by fast fashion?

THEORY

SUB-QUESTION 1:

How can adaptive reuse and the principles of circular economy extend the lifecycle of commercial interiors?

CONTEXT

SUB-QUESTION 2:

How can the proposed programme that supports a circular economy serve the local community?

DESIGN

SUB-QUESTION 3:

How can a sustainable design intervention through alteration influence the public's appreciation of a circular economy?

1.6 PROJECT AIMS

The aim of the study is to explore how a sustainable design intervention can influence sustainable consumption behaviour, by exploring how the alteration of existing commercial interiors can facilitate a circular economy. The multi-functional programme aims to inform users about the environmental impact of their consumption and disposal habits, and what they can do to close the loop for fast fashion and in result generate a new fashion culture.

1.7 PROJECT OBJECTIVES

The objective of the study is to reactivate 012 Central through alteration to serve an example of a circular economy with inherent potential for further development, to design sustainable interior environments that promote sustainable consumption.

1.8 PROJECT LIMITATIONS

The design is limited to upcycling, reuse, and recycling of post-consumer textile waste. The recycling is limited to single fiber materials such as cotton, wool, linen. There is currently no technology available for the recycling of blended materials (The Sustainable Fashion Forum, n.d.).

1.9 METHODOLOGY

Qualitative methodology involves interpretation and finding meaning in the gathered data to find an appropriate application (Groat & Wang, 2013). This study is conducted using qualitative approach and involves mixed methods. The methods are listed and explained below:

HISTORICAL OVERVIEW:

The development of the site is documented to show how the site has evolved over time. The layers of the built fabric are documented with photographs and sketches. Concluding the analysis with a statement of significance.

MAPPING:

The macro, meso and micro context are documented to gain a better understanding of the site and its surroundings. The macro context documents the urban framework, building typologies, fashion institutions, transport and pedestrian movement, and Helen Joseph Street. The meso

context documents the block context, and the micro context is an in-depth study of the site and the identified buildings.

LITERATURE STUDY:

A literature review is conducted to gain a better understanding of the relationship between fashion and interior architecture and to review the theory of adaptive reuse, the strategy of a process-oriented view, and the concept of a circular economy, so as to establish a clear closed-loop design approach towards activating 012 Central.

PRECEDENTS:

The analysis of identified projects related to the study provides a better understanding and informs a set of design principles that will guide the design process.

QUESTIONNAIRE:

A survey is conducted by means of a questionnaire to identify the most utilised disposal method, as well

as what the clothes are made of, so as to determine how their lifecycle can be extended. The questionnaire was aimed at pedestrians moving past 012 Central, designed to investigate the disposal habits of the local community and determine the materials out of which their clothing is generally made.

Due to the Covid-19 nationwide lockdown between April and June of 2020, it was not possible to conduct the survey on site. As a contingency, the questionnaire was distributed online using Google Forms to colleagues and acquaintances of the author. However, a limitation of this approach was that the people surveyed held no connection to 012 Central. The evidence was thus deemed anecdotal, and not used directly in the study. Refer to the Appendix A for the questionnaire and results.

1.10 CONCLUSION

This chapter establishes the objective of the dissertation, namely to investigate the relationship between fast fashion, post-consumer textile waste, and interior architecture. The relationship presents an opportunity to introduce circular economy thinking to both the problem of post-consumer textiles waste, and the problem of the short-life cycle of interior environments and material waste produced with each new fit-out. In an attempt to address these issues, closed-loop design principles are applied to reactivate the underutilised building stock at 012 Central, using recycled, recyclable, and reused materials, and post-consumer textile waste as resources. The adaptive reuse of the buildings through an interior design intervention serves as the mediator between architecture, space, user and product.

CHAPTER 02

{theoretical framework}

2.0 INTRODUCTION

Chapter 2 aims to provide an understanding of the theories of adaptive reuse and circular economy as a theoretical design generator to establish a sustainable design strategy for commercial interiors to facilitate a circular economy for clothing production and consumption made from textile waste.

The chapter considers adaptive reuse through alteration with intervention and installation, in an endeavour to facilitate the creation of sustainable commercial interiors. Further to this, the principles for a circular economy are extended to the discipline of interior architecture.

2.1 RELATIONSHIP BETWEEN FASHION AND INTERIOR ARCHITECTURE

The fashion industry influences social, economic, and environmental concerns. As an element of expression, fashion plays a significant role in personal and social relationships. The clothes we wear are a translation of our lifestyles and the way we perceive ourselves (Hethorn & Ulasewicz, 2008).

The design of clothing and interiors environments reveal our preferences in style and identity (Weinthal, 2011:72). Clothes concern the individual, while an interior environment is concerned with use and experience of the individual. Fashion and interior architecture shape one another and are human-centred. Both design disciplines involve ergonomics, physiology, scale, proportion, movement, and time. Clothing and interiors are lifeless without the inhabitation of a body (Clarke, 2018:64).

Architecture and clothes form layers of space around the human body that shelters and protects, with clothing being the most intimate layer often referred to as the second skin (Clarke, 2018:66). The interior acts as the mediator that brings the user and

architecture closer together while influencing the user directly (Weinthal, 2011).

In fashion, the human body is clothed with garments tailored, cut, and made to fit, draped and changed to enclose, or in most cases both methods are applied. Clarke (2018: 66) identifies some of the following techniques shared by fashion and architecture: cutting, draping, cladding, suspending, weaving, tailoring, and enveloping.

Often, clothing and interior environments have shorter lifecycles than does architecture before being demolished, altered, or renovated (Weinthal, 2011). The interior design industry is subject to the taste-cycle, in which interiors are produced, consumed and re-produced according to societal taste (Khan & König, 2015). Societal taste constantly changes; reflected in the changes made in interior spaces. For commercial interiors to remain relevant to societal taste, they need to constantly adapt their identities (Khan & Snyman, 2019). Due to this, there is a need for cyclic changes to interiors, specific to

retail interiors (Mesher, 2010).

It is argued by Lefebvre (1991) that space is more than a place-holder, without content or meaning. According to Potvin (2010:9), space relates to all components of social practices. Therefore, interior architecture and fashion inform and inhabit space. Both practices protect, extend, enhance, detract, conform to and limit the body, creating social positions within a specific environment. The interactions linking fashion and interior architecture are endless and dynamic, with the user being in a continuous interaction with a space (Papasprou, 2013:78).

Interior design constitutes a reflection of societal taste, and is in turn a means to redefine taste. Consequently, the way we design cyclic retail interiors needs to be more sustainable so as to reduce waste. Taste-making can be used as a tool to create interior environments that influence consumers to strive for more sustainable consumption (Khan & Snyman, 2019).

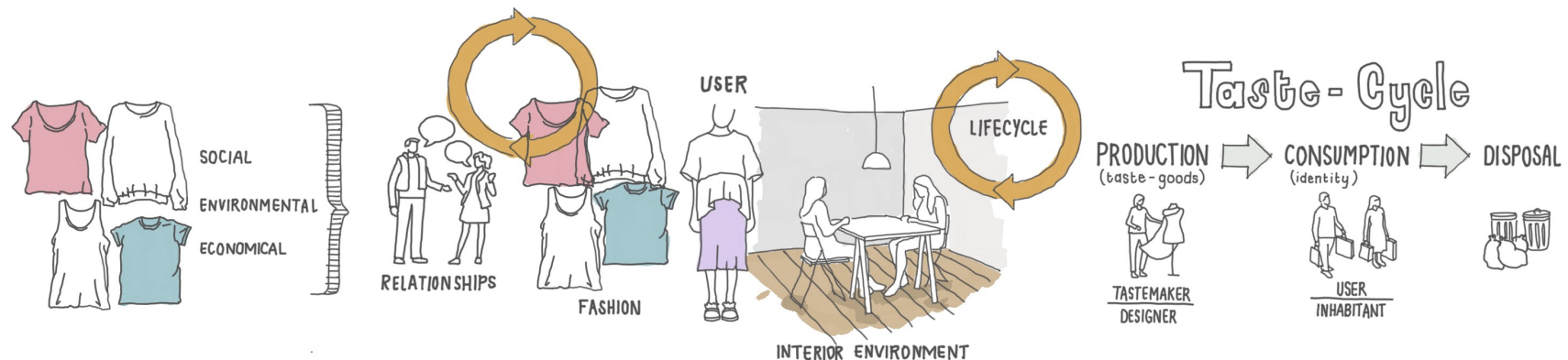


Figure 2.1 Relationship between fashion and interior architecture (Author, 2020)



SHARED
TECHNIQUES:

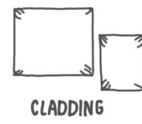
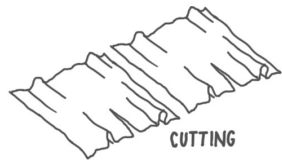


Figure 2.2 Shared techniques between fashion and interior architecture (Author, 2020)

2.2 CLOTHING RETAIL INTERIORS

The act of shopping has evolved over time in reflection to societal taste. Quinn (2003) describes shopping as an activity that brings people together. Because retail has evolved to being about more than just buying a product, this has resulted in a variety of social interactions linked to the act of buying. Clothing shops that merge with other commercial interiors provide evidence of this philosophy (Papaspyrou, 2013:71). The linear consumption culture of today can be attributed to the Industrial Revolution (Linden, 2016:7).

Over history the spaces of retail interiors were where making sense of the social, political and economical principles of the time took place. These events were communicated in the shops and boutiques through fashion and reflected in design as style in clothing and interior spaces (Vernet & de Wit, 2007:xi). Social interaction between users are encouraged by fashion and interior spaces.

2.2.1 EVOLUTION OF RETAIL INTERIORS

1760

1790



Figure 2.3

THE INDUSTRIAL REVOLUTION

The development of the sewing machine led to the mass production of clothes, increasing the speed of production and consumption. The sizes of clothes were standardised by mass production, making them more accessible. Mass production led to the separation between the production and consumption spaces (Pimlott, 2007).



Figure 2.4

THE FRENCH REVOLUTION

Slop Shops were the common name for shops that sold second-hand clothing. These shops provided an alternative that changed the consumer demand from specially handmade clothing towards ready-made clothing (Linden, 2016).

Figure 2.3 Women sewing in a factory (History Today, 2002)
 Figure 2.4 Clothes hanging on racks (Time, 2018)
 Figure 2.5 Gucci shopfront (Picfair, 2018)
 Figure 2.6 Mass produced clothes (Pinterest, 2020)
 Figure 2.7 Shopfront display (Rochestersubway, 2012)
 Figure 2.8 Interior of a boutique (Adelto, 2012)
 Figure 2.9 Shopping mall (Quartz, 2018)

1800

1950

1960

2000

2010



Figure 2.5



Figure 2.6



Figure 2.7



Figure 2.8



Figure 2.9

THE BOUTIQUE

The boutique offered an intimate experience that draws the user in with its unique interior design and exclusive products that suite a lifestyle of luxury for the growing middle class (Pimlott, 2007).

FOR THE MASSES

The loss of boutiques due to the First World War resulted in the absence of smaller shops, with production moving to cater for the masses. The loss of exclusive products resulted in a mass market driven by mass production and high demand (Pimlott, 2007).

BOUTIQUE REDEFINED

The boutique had to redevelop itself as a speciality shop that relates to the mass market without being involved in mass production and having a unique identity (Pimlott, 2007).

THE NEW BOUTIQUE

The model of the boutique will continue to develop and evolve in reaction to the demands of the mass market while finding a balance between individuality and conventionality (Pimlott, 2007).

SHOPPING MALLS

Large scale shopping centers – malls with exclusive shops such as boutiques, combined with spaces for food, entertainment and services.

2.3 EXTENDING THE LIFECYCLE

2.3.1 SUSTAINABLE INTERIORS

Sustainable development comprises three pillars: economic growth, social influence, and impact on the environment. Appropriate and considered design strategies applied to interior design can work to reduce negative environmental impact, without compromising the identity or aesthetic quality of the design, and without increasing cost (Campos, et al., 2018). According to Walker (2006), sustainability for interior design is comprised of resourcefulness and restraint. Exploring the re-use and re-manufacturing of materials according to their environmental impact work toward sustainable practice. The adaptive reuse of existing buildings and their components present a resource for sustainable interior design (Hassler & Kohler, 2014).

“Buildings outlast civilization [sic], they are changed, but their re-use emphasizes [sic] continuity. A building can retain a remembrance of the former function and value; it has memory of its previous purpose engrained within its very structure” (Brooker & Stone, 2004).

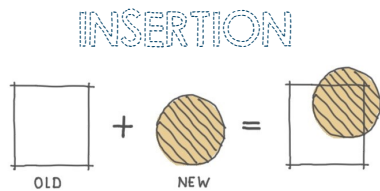


Figure 2.3 Parti diagram of insertion

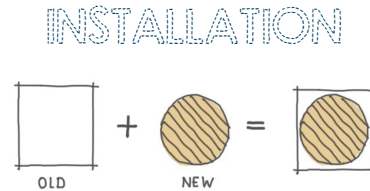


Figure 2.4 Parti diagram of installation (Author, 2020)

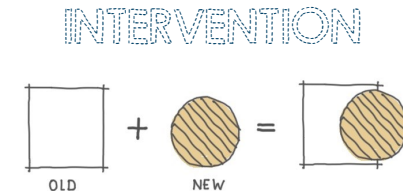


Figure 2.5 Parti diagram of intervention (Author, 2020)

2.3.2 ALTERATION OF SPACE

Brooker and Stone (2004) consider the adaptive reuse of existing buildings from the point of view of interior architecture. Adaptive reuse involves the alteration of existing buildings through the assignment of new functions. Adaptive reuse establishes a relationship between the old and new through three different identified design strategies: insertion, intervention, and installation, towards finding a synergy between the old and new.

Insertion is an intense relationship between the new and old, which still act independently from one another. Demolition of the old may be required to make place for the new that can be removed to reinstate the existing fabric (Brooker & Stone, 2004).

Installation refers to adding the new within the existing fabric temporarily, where the old and new exist independently from each other. Therefore, the new can be removed without causing any harm to the existing fabric (Brooker & Stone, 2004). Intervention is the result of an alteration that is

integrated into the existing fabric, while responding to the existing fabric. The old and new become one in an intimate permanent relationship (Brooker & Stone, 2004).

Intervention is the main adaptive reuse strategy for the alteration of 012 Central. However, installation is also applied to accommodate for adaptability of the space where intended. The alteration of the existing building serves to reactivate 012 Central by supporting a circular economy. The alterations respond to the concept of closing the loop of production, consumption, and waste through a multi-functional programme that aims to facilitate a spatial experience that informs and inspires sustainable consumption.

The intervention strategy is applied through the alteration of existing built fabric of the Rezmep and FNB buildings at 012 Central. Creating physical and visual connections between the different spaces as users move through, across, and between the

buildings. The installation strategy is applied through the addition of furniture systems for production, consumption, and exhibition space. These systems are adaptable so as to support a circular economy and to accommodate the rotation of renters and exhibitions.

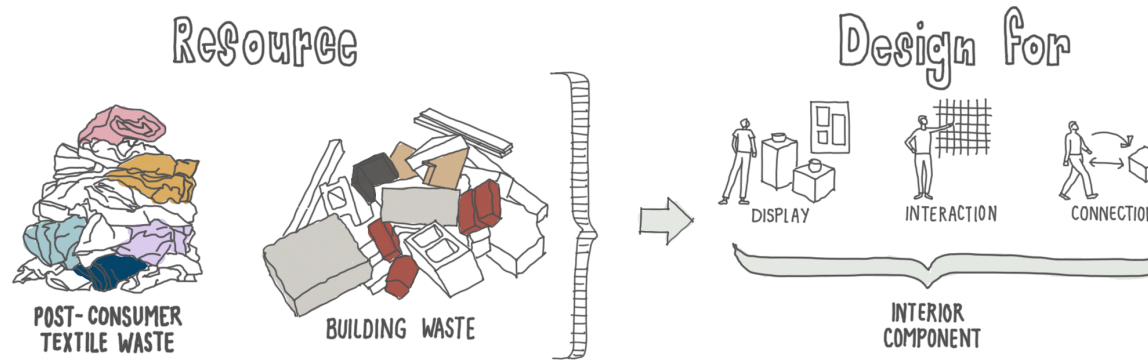


Figure 2.6 Interior architecture design for adaptive reuse (Author, 2020)

2.3.3 INTERIOR ARCHITECTURE DESIGN FOR ADAPTIVE REUSE

Interior design for adaptive reuse is defined by Celadyn (2019) to prepare for new functions, to add value to the existing fabric, and to create a new spatial context. It is a design method using building waste as resource, which enables the design of new interior components. It can involve the introduction of reclaimed building materials and products from refurbished or demolished buildings into the interior environment. Through the placement of interior components in different functional and environmental contexts, the value of building materials and products are maintained, which extends their use. Inversion, inclusion, and integrity are design strategies identified by the Interior Architectural Design for Adaptive Reuse Conceptual Model for the design of interior components, existing in parallel with the design strategies of adaptive reuse as defined by Brooker and Stone (2004).

Inversion refers to the procurement of available reclaimed building products and materials from refurbished or demolished buildings for reintroduction into the interior environment as building materials. The inclusion of parts of salvaged building materials or products with a connection to the other interior components, recognising integrity as form of a unity between the building materials and products, interior spaces, and interior components to support a multi-functional interpretation and exploration of the possibilities of each of these elements (Celadyn, 2019).

The valuable design methods identified by Celadyn (2019) can be implemented to build a relationship with the user that is based on their responsibility towards the environment through the presence of an interior component:

DESIGN METHODS:

- **Design for display:** to attract attention through the presence of reused materials.
- **Design for interaction:** to build up knowledge on the impact of interior components on the environment.
- **Design for connection:** to provide users with the evidence of their contribution to environmental integration due to interior component selection based on adaptive reuse models.

2.4 CLOSING THE LOOP

A circular economy is defined by the Ellen MacArthur Foundation as an economic model that intends to restore and afford benefits to not only business, but society and the environment too (Ellen MacArthur Foundation, 2017). According to Den Hollander (2018), the aim of designing for a circular economy “is to maintain product integrity over multiple cycles of use through the application of repair, refurbishment, and remanufacturing, and to focus on closing loops through recycling, while at the same time building product-service systems that are economically viable” (Den Hollander, 2018). In a circular economy, the material loop is closed by focusing on the lifecycle, use and revival of a product (Niinimäki, 2018) 20.

The move to a circular economy is contingent on creativity and collaboration. According to Sanders (2015), collaboration is a key factor to finding a solution to a complex problem. To find solutions for multifaceted sustainable issues such as circular systems, a collaborative, experimental and creative approach needs to be applied, using collective creativity when two or more people experience acts of creativity together as a tool for sustainable innovation (Sanders, 2015:298).

A circular economy is concerned with supporting local activities, and is best when waste is managed locally. The actions of reuse, upcycling, and recycling can be more easily achieved when in proximity and supports the local community. The activities related to circular economy are action-orientated, and can create new startups within the economy (Stahel, 2017).

Job creation and new opportunities can be generated by applying a new perspective on how products work, are produced, and consumed

(European Commission, 2015). Knowledge and skills can be developed through experience and learning how to make and alter clothing, allowing consumers to contribute to a manner of “cultural capital”. This is about having a clear understanding about the production of clothes, which can lead to a more rewarding and sustainable interaction with them (Leadbeater & Miller, 2004). Circular economy concerns actions that lead to transformation, rewarding the users with the right skills, products, relationships, and experiences that improve human well-being and the environment (McGrath, 2012).

The following principles of circular economy are identified (Chamberlin & Boks, 2018), and are considered in the multi-functional programme, design development, and material strategy:

- **Longevity:** to encourage long-term use.
- **Lease:** make the loop slower by allowing for multiple ownerships.
- **Reuse:** to extend the lifecycle.
- **Recycle:** to recover and convert into new materials.
- **Upcycle:** to recover and convert into new materials with a higher value.

These principles form part of the approach of the design intervention by considering how the design allows for longevity by means of permanent components that encourage long-term use, allowing for leasing by design for spaces or systems that accommodate variegated ownership. Reusing refurbished materials and recycling or upcycling demolished materials extends the lifecycle of the materials.

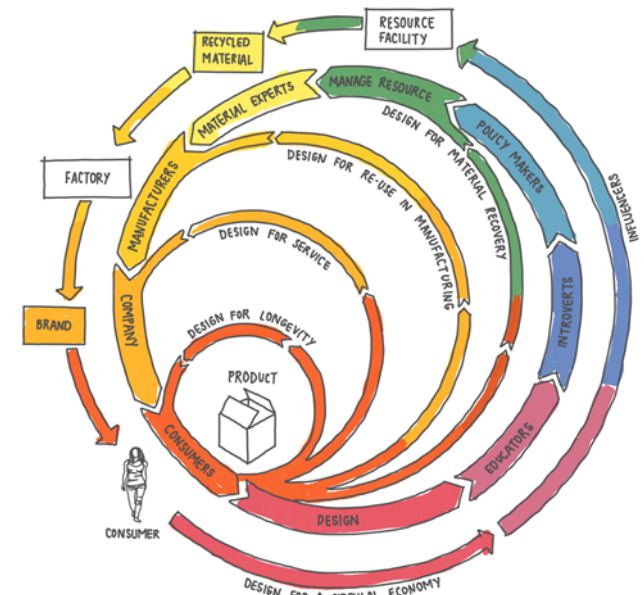


Figure 2.7 Circular economy (Author, 2020)

2.5 CONCLUSION

Both clothes and interior architecture reify identity in a way that brings people together through interaction. Both can be altered to accommodate something new. The adaptive reuse strategies, intervention and installation, inform the alteration of the existing built form to support a circular economy. The alteration of the interior architecture ought to consider attraction, interaction, and connection in order for the design intervention to build a relationship with the user that motivates sustainable consumption. The principles of circular economy do not only apply to post-consumer textile waste, but also present opportunities for sustainable interior architectural practice.

CHAPTER 03

{context}

3.0 INTRODUCTION

Chapter 3 is concerned with the site and its immediate context. The objective is to highlight the relevance of the proposed programme within the context. In terms of the site, 012 Central, and the selected buildings for intervention, opportunities for intervention are identified, along with highlighting existing architectural value.

3.1 MACRO CONTEXT

3.1.1 URBAN CONTEXT

The South-Eastern part of the Pretoria CBD developed as a business district in the early stages of the establishment of Pretoria. A market was located in Church Square in 1882, as the heart of State and Church, as well as social and trade activities. Later, the market relocated to where the State Theatre and Sammy Marks Square are currently located (Jordaan, 1992:42).



Figure 3.1 Location of site in



Figure 3.2 Location of site in Helen Joseph street (Author,

Figure 3.3 Identified site - 012 Central (Author, 2020)

3.1.2 URBAN FRAMEWORK

The South African Government defines sustainable development as “the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations” (South African National Environmental Management Act).

Tshwane Vision 2055 represents how the City of Tshwane aims to become a more livable, resilient, and inclusive city (City of Tshwane, 2013:21).

The aim of the vision is to drive innovation, enterprise, and entrepreneurship in the City of Tshwane, by bringing knowledge, research, and development

together, through education. The Tshwane Vision 2055 puts young individuals at its centre, because they constitute its future. Therefore, the Vision provides a platform for young individuals to contribute to the future of the city. The City of Tshwane’s youth programme aims to provide more access to education, training, and job creation, in order to help young individuals find their full potential and implement it to create a better future for themselves. This will help to address the issue of unemployment through skills development. Unemployment is not only the result of insufficient tertiary education, but also the lack of developing skills in the work environment (City of Tshwane,



Figure 3.4 Urban framework (Author, 2020)

3.2 BUILDING TYPOLOGIES

The context of 012 Central is dominated by mixed-use buildings. Most buildings along Helen Joseph Street are built on the building line that resulted in the buildings lining up with the pavement. With the façades of the buildings lining up, it forms a diverse street elevation on both sides of the street. Most of the buildings have an overhang that cantilevers over the sidewalk and form part of the building's threshold. It also provides shelter and shade for pedestrians walking along the sidewalk.

The main typology of the buildings found on Helen Joseph Street have glazed shopfronts on the ground floor, with offices or apartments on the upper levels. The buildings have noticeable differences in scale, mass, and treatment of their façade.



Figure 3.5 Section through Helen Joseph street (Author, 2020)

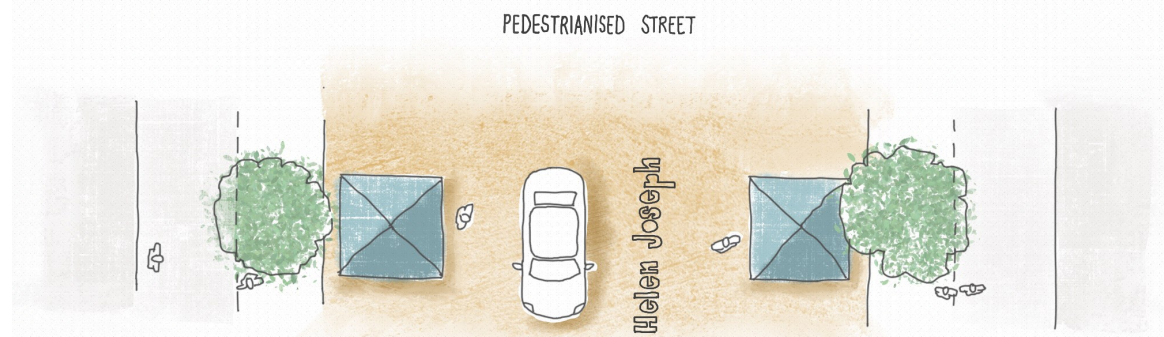


Figure 3.6 Plan of Helen Joseph street (Author, 2020)



Figure 3.7 Spatial quality of pedestrianised street s of Helen Joseph (Author, 2020)

3.3 HELEN JOSEPH STREET MAPPING

Analysis of Helen Joseph Street (from the site to Church Square) as larger context.

Figure 3.7 shows the different building typologies that are mostly mixed-use buildings. The main typology of the buildings are shops on the ground floor with either offices or apartments on the upper levels. The building range from double storeys upwards.



Figure 3.8 Building typologies of Helen Joseph street (Author, 2020)

The section through Helen Joseph Street extending from the State Theatre to Church Square is pedestrianised and is used for parking or is occupied by informal vendors or both. The street has a high-volume of pedestrians moving through that slows down at shopfronts, informal vendors, or pickup points. There is lack of space that allows for interaction and lingering. The only seating is located at the Lillian Ngoyi Square.



Figure 3.9 Pedestrian movement and informal vendors (Author, 2020)

The informal vendors located along the pedestrianized section of Helen Joseph street, mainly sell fresh food and cheap imported products; a few of them sell handcrafted products. There is an opportunity to better equip the informal vendors as entrepreneurs that make and sell handcrafted products made from post-consumer textile waste that supports and celebrates the local community through the proposed skills development programme at 012 Central.

- 012 CENTRAL
- PEDESTRIANISED STREET

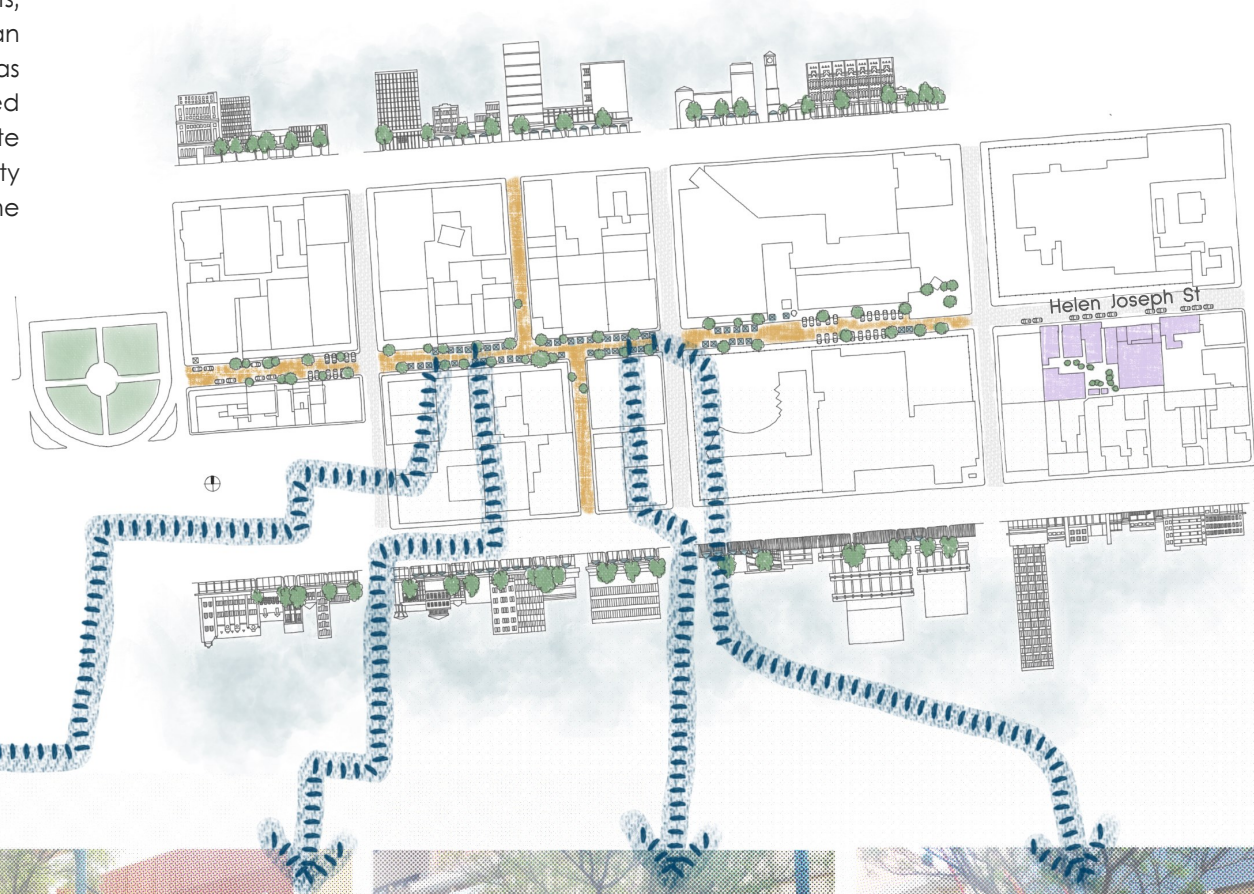


Figure 3.13 Second-hand clothes (Author, 2020)

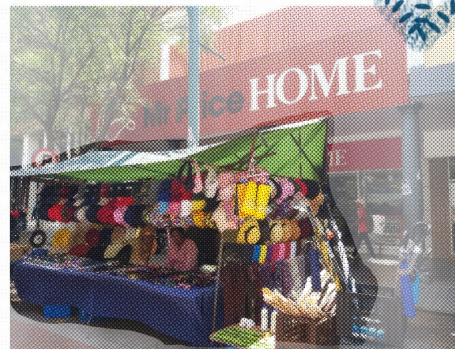


Figure 3.12 Combination of products (Author, 2020)



Figure 3.11 Imported products (Author, 2020)

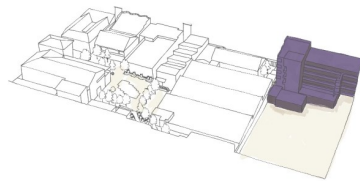


Figure 3.10 Fresh food (Author, 2020)

3.4 HISTORICAL ANALYSIS

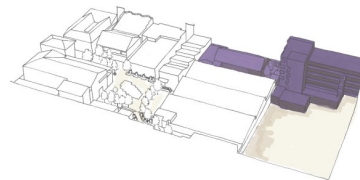
3.4.1 HISTORICAL TIMELINE

A historical timeline documents the evolution of the site and the introduction of 012 Central, 381 Helen Joseph Street, Pretoria.



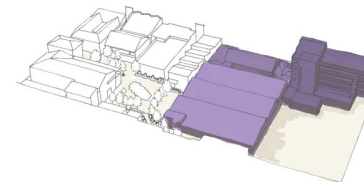
1941

ELAND HOUSE:
Commercial shopfronts on the ground floor with residential accommodations on the upper levels.



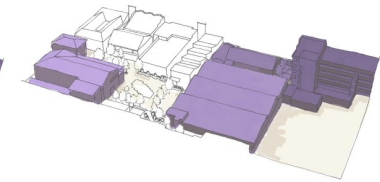
±1946

REZMEP 6
Commercial two storey building placed between two projecting single storey wings. The façade has changed drastically over the years, but still has the original columns on the ground floor.



1951

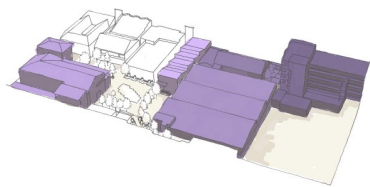
THE SHEDS
The building has been speculated to have been built in the World War II period; putting it between 1945 and 1947. It is a saw-tooth roofed structure with walls consisting of English bond facebrick. The technological use of timber and steel is a unique and significant feature and should be maintained.



1955

THE KARPS BUILDING
It was built as a mechanical shop and was then later used as a bakery. The building has profiled eaves with red and yellow; two tone brick corners in facebrick.

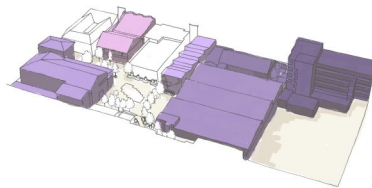
EVOLUTION OF THE SITE



1962

REZMEP 7

A two storey commercial building. It is uncertain when the building was built and for what purpose. Currently the ground floor shopfront is being used as a clothing shop.



1972

THE KARPS BUILDING

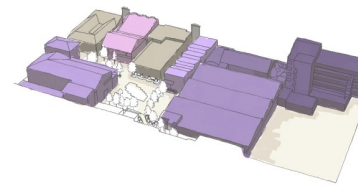
Is a three storey building, built with mid-brown facebrick. The wall in the first and second storey is built out to form three bay windows, with steel window frames. The public street roof is supported on four square columns.



1960

FNB BUILDING

The building was built with the purpose of being a bank but it is uncertain when it was built. It was later used as a college but currently it is vacant.



2000

MARAVIN BUILDING

Double storey commercial building with apartments above the shops. A balcony/public street roof on paired concrete doric columns.



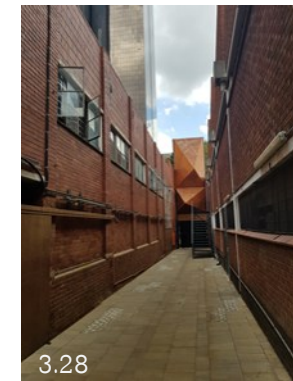
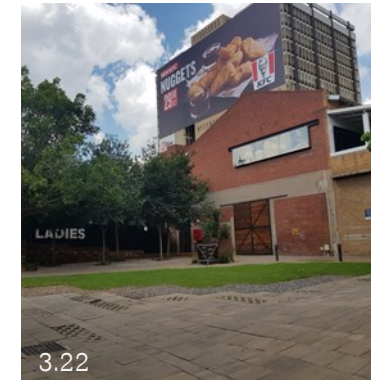
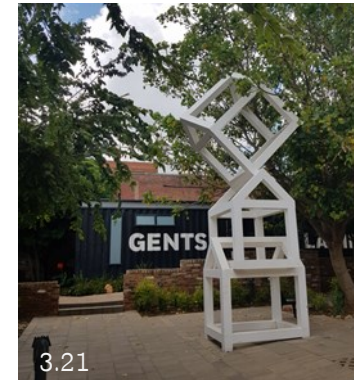
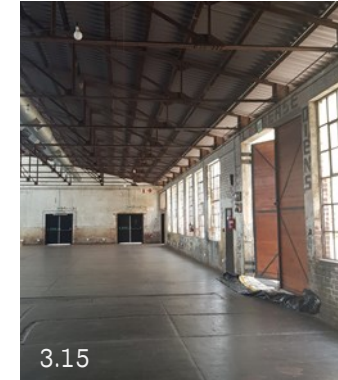
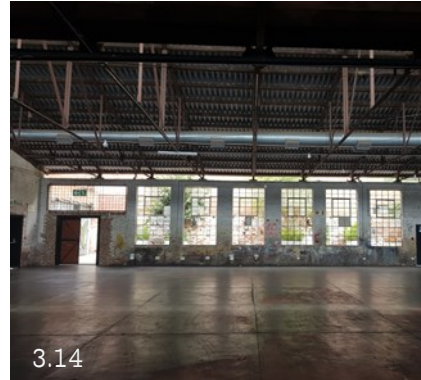
2017

TOILET BLOCK

Small new structures made of shipping containers that houses ablutions for the whole site.

3.4.2 LAYERS OF THE SITE

Each of the buildings have undergone various physical alterations and changes in function over time. The alterations of the built form have resulted in a rich layering of the original structures with the renovated and new additions that follow the industrial character of the precinct.



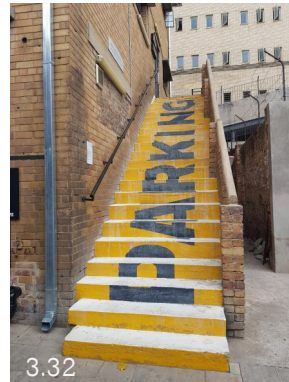


Figure 3.14 Original roof structure and windows & renovated floor.

Figure 3.15 New doors in original openings.

Figure 3.16 Original windows & new paving.

Figure 3.17 New door, planter and paving.

Figure 3.18 Original structure with new artwork.

Figure 3.19 Original structure with new doors.

Figure 3.20 Original structure & new paving and planters.

Figure 3.21 New structures and sculpture.

Figure 3.22 New paving and grass.

Figure 3.23 New art on existing structure.

Figure 3.24 New pergola structure and paving.

Figure 3.25 Renovated roof and storefront & new planters and sealing.

Figure 3.26 Renovated entrance & new signage.

Figure 3.27 New signage fixed to existing structure.

Figure 3.28 New structure enclosing the alleyway.

Figure 3.29 New structure & renovated façade.

Figure 3.30 Renovated shopfront.

Figure 3.31 Renovated structure with new doors and windows.

Figure 3.32 Existing staircase painted.

Figure 3.33 New paving and furniture.

3.5 012 CENTRAL

012 Central is located in Pretoria CBD, and is part of the regenerative project that is undertaken by City Property to rejuvenate the inner-city of Pretoria. It is a precinct comprised of a group of buildings, unrelated in function and typology. The buildings are positioned around a central, inner courtyard. Each building adds an element of diversity to the site, being different in size and scale as well as built in different years. The site reflects an industrial influence in style and use of materials, namely steel, concrete and face-brick.

Only the ABE building (refer to site plan) is not directly accessible from the sidewalk. The site has three entrances: two of them are alleyways closed off with structures that form part of the rich and diverse street façade of the site. The third entrance is a section of the Rezmep 6 building, altered as a main entrance to The Sheds building, and usually used on market days.

The main attraction to the site is currently the Market @ the Sheds. This monthly event is a platform for local entrepreneurs to sell their work, as well as a place for visitors to interact socially. The market takes place only once a month, and is currently under-exploited. The various commercial spaces offer visitors a variety of experiences. However, the interaction and activity does not encourage visitors to move through the site. It is limited to the outside and does not engage the interiors, courtyard and spaces between buildings. The buildings function independently.

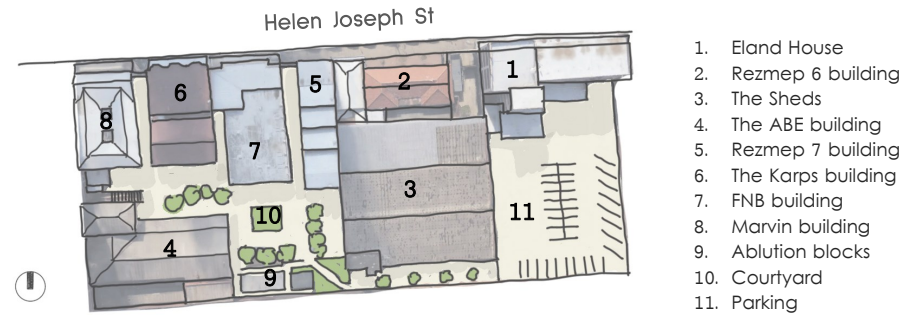


Figure 3.34 Site plan of 012 Central (Author, 2020)

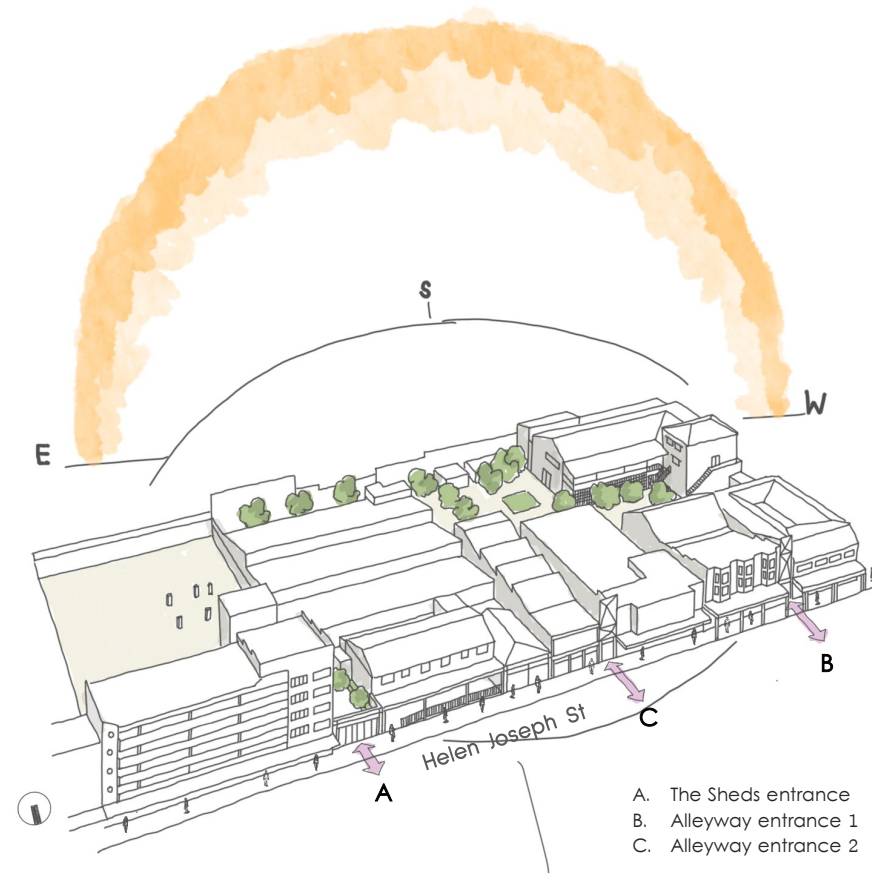


Figure 3.35 Analysis of 012 Central (Author, 2020)

3.5.1 FAÇADE OF 012 CENTRAL

With the establishment of 012 Central the facades of the buildings have been altered and structures added to the alleyways, linking the facades as a whole while celebrating the diversity of the buildings.

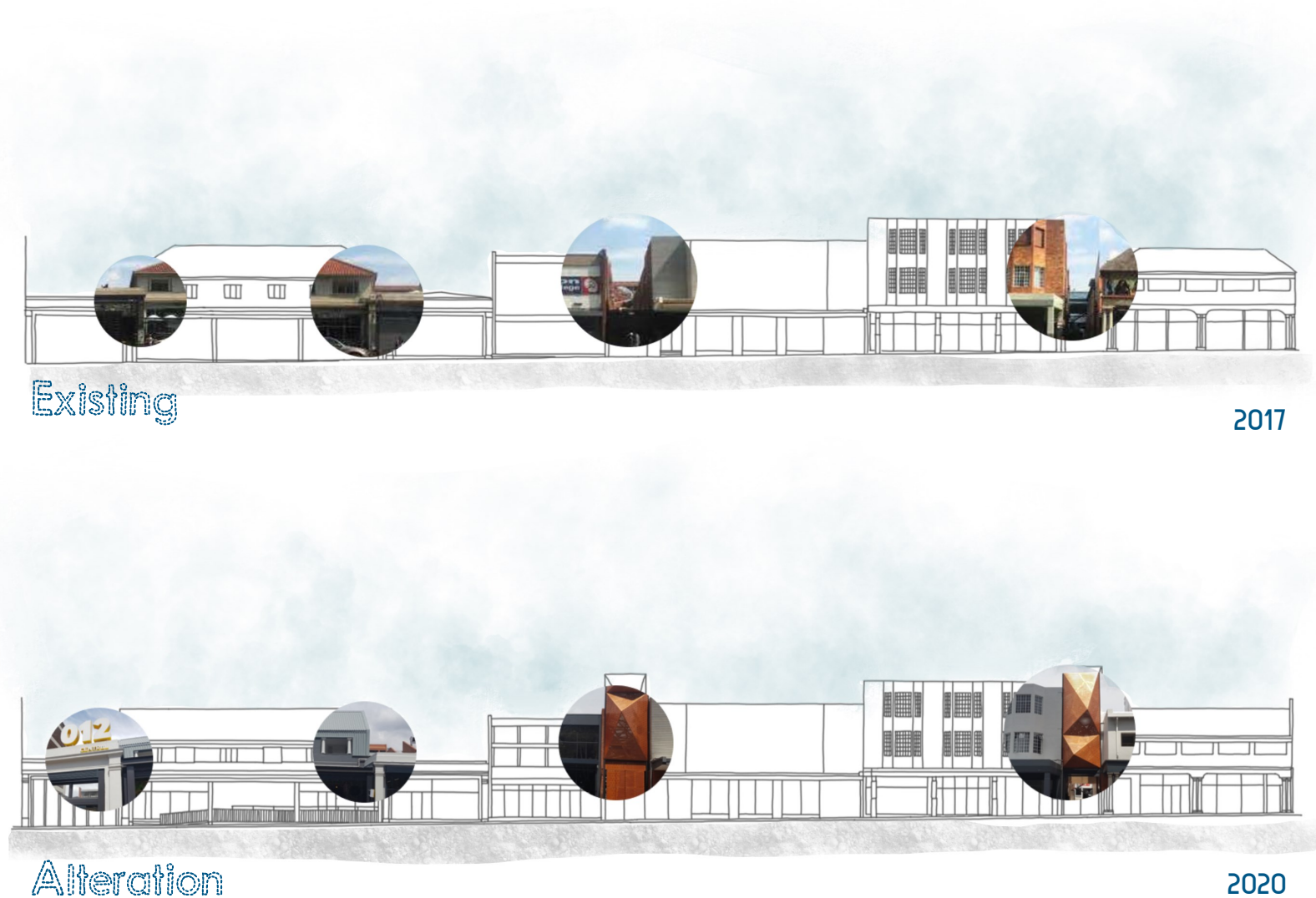


Figure 3.36 Comparison between facades (Author, 2020)

3.6 BUILDING ANALYSIS

The following buildings have been identified for the design intervention; the Sheds building, the FNB building and the Rezmeep 7 building.

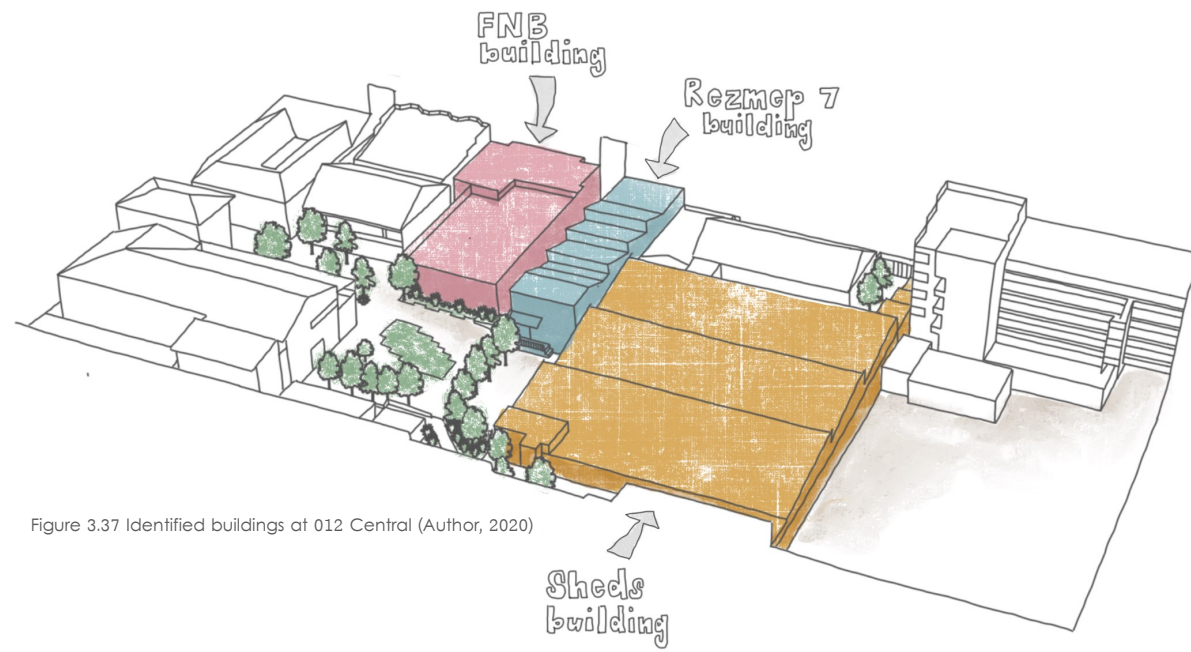


Figure 3.37 Identified buildings at 012 Central (Author, 2020)

3.6.1 THE SHEDS BUILDING

The Sheds building in figure is currently used for the Market @ The Sheds and can be rented for events. The building is a large industrial shed that was renovated as part of the regeneration project of City Property. The building is older than 60 years and one of the last Industrial buildings in the Pretoria CBD (dhk, n.d.). Therefore, the renovation maintained the integrity of the existing face-brick and retaining the existing windows that are broken.

The building is accessible from all four elevations of the building that navigates the circulation from the sidewalk (south) that spills out to the parking on the East, small courtyard on the South, and the central courtyard of the site on the West of the building. The building is not visible from the sidewalk. However, the entrance of the building is part of the building in front of the Shed building with distinctive signage and a walkway from the sidewalk that leads up to the building. The building only has windows on the south elevation and Northern clerestories that illuminates the building with natural light.

The large open space creates an opportunity for a design intervention without altering the existing fabric of the building. There is an opportunity for a design intervention on the west elevation of the building, to create a visual connection with the courtyard of the site. However, the industrial heritage of the building is a constraint that needs to be considered in the design intervention.



Figure 3.38

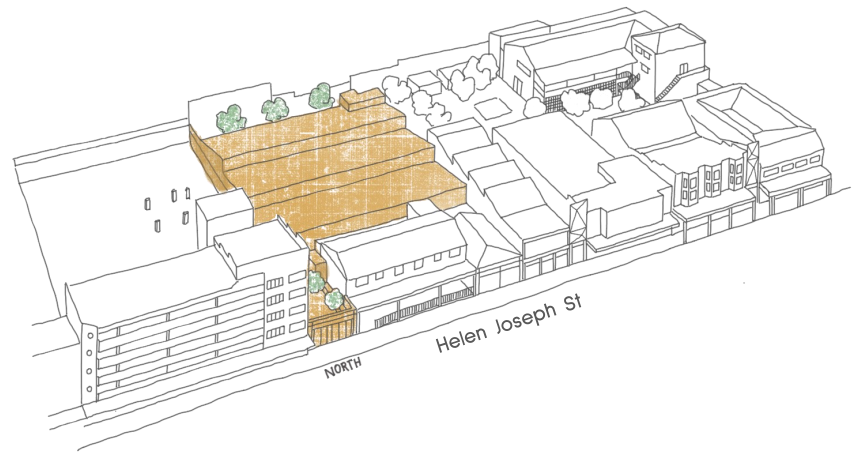


Figure 3.39

Access to and from the central courtyard.

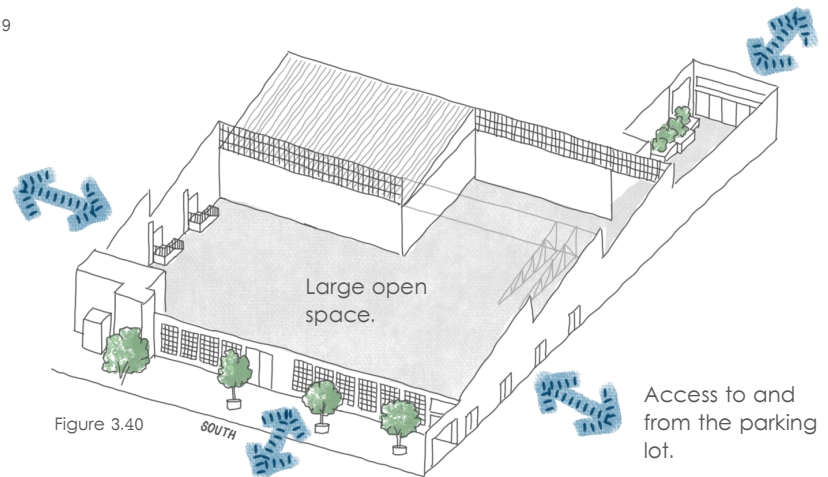


Figure 3.40

Access to and from the small courtyard.

Figure 3.38 North elevation of the Sheds building (Author, 2020)

Figure 3.39 The Sheds building at 012 Central (Author, 2020)

Figure 3.40 Building analysis of the Sheds building (Author, 2020)

3.6.2 THE FNB BUILDING

The FNB building (Figure 3.20) is currently vacant. The FNB building is accessible from the sidewalk with a service entrance to the alleyway on the east elevation and on the south elevation. However, it is currently not in use. This results in the circulation between the floor levels and the sidewalk only, and none to the courtyard. The FNB building is visible from the sidewalk and forms part of the rich street façade of the site with a shopfront on the ground level of the building. The building has double-storey windows on the West elevation and windows on the first floor on the East elevation.

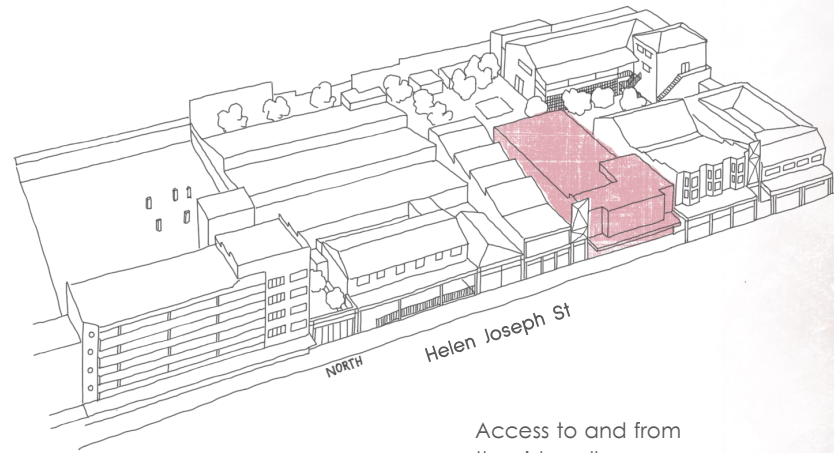


Figure 3.41

Access to and from the sidewalk.

Figure 3.41 The FNB building at 012 Central (Author, 2020)

Figure 3.42 Building analysis of the FNB building (Author, 2020)

Figure 3.43 North elevation of the FNB building (Author, 2020)

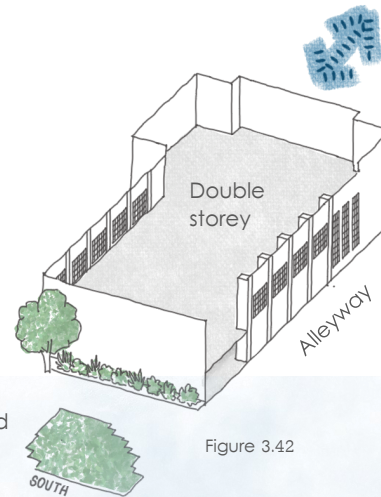
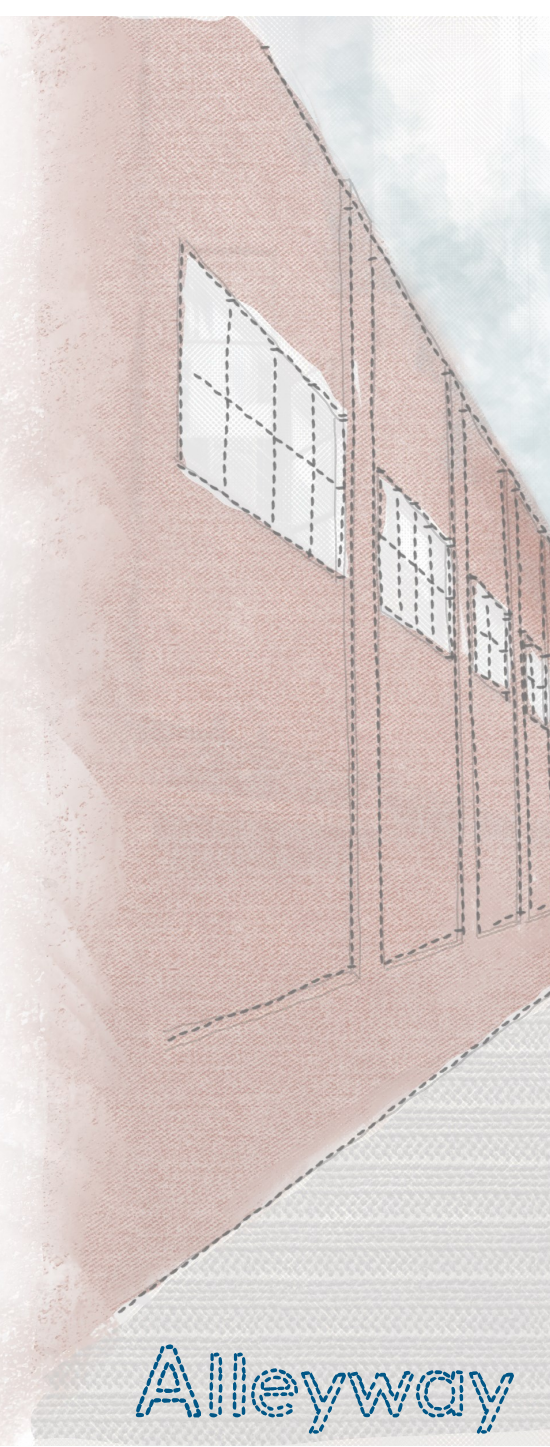


Figure 3.42



Figure 3.43



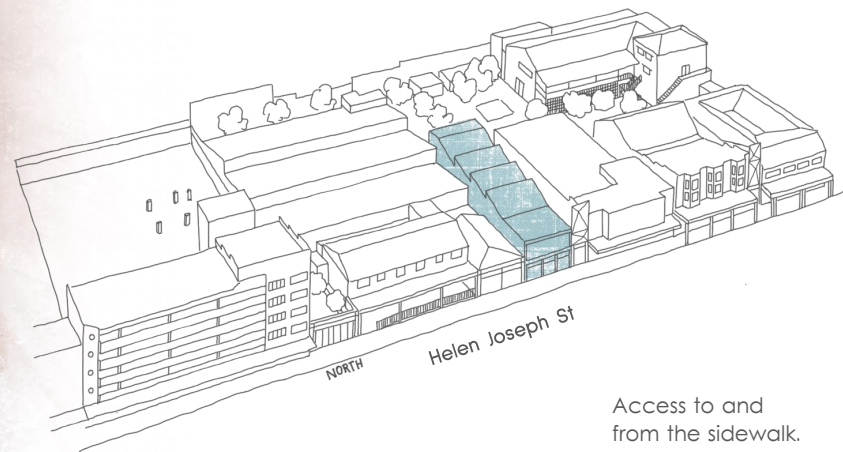
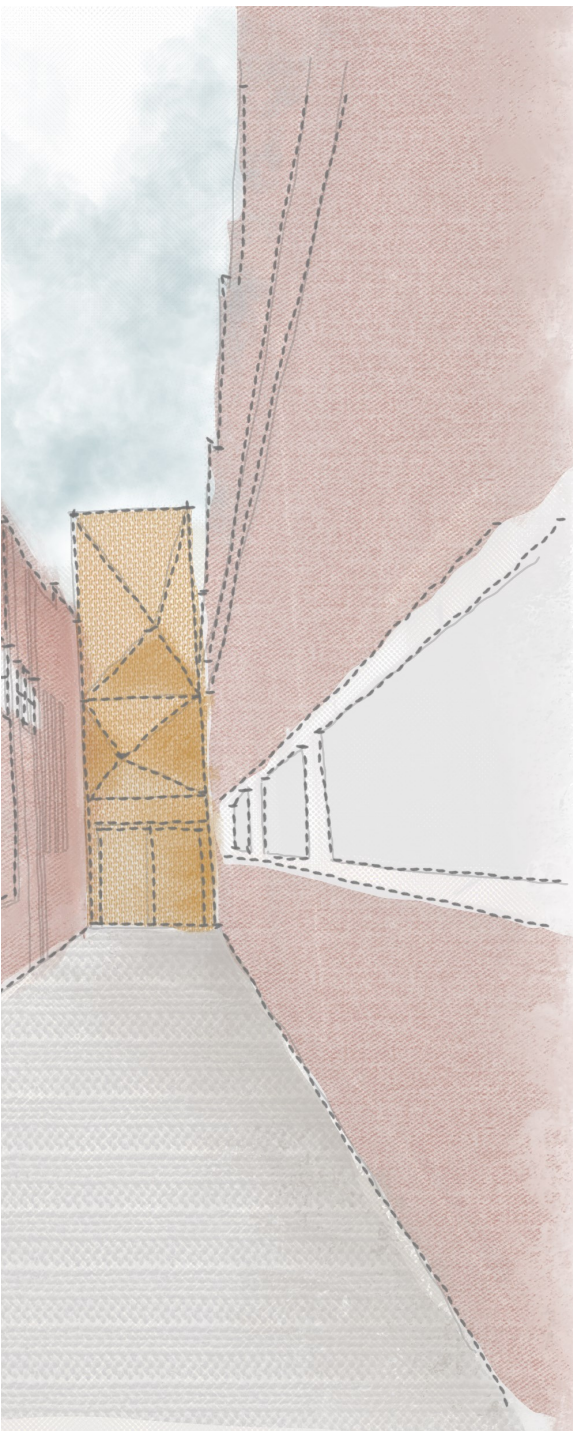


Figure 3.44

Access to and from the sidewalk.

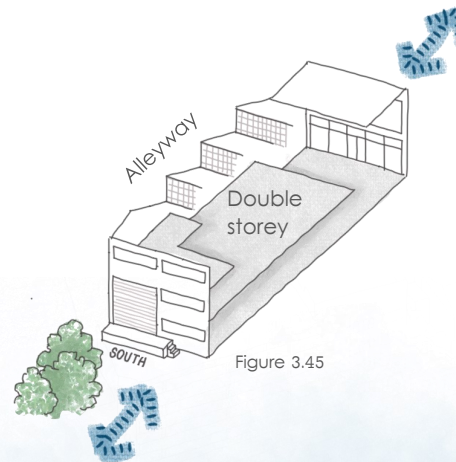


Figure 3.45

Access to and from the central courtyard.



Figure 3.46

3.6.3 THE REZMEP 7 BUILDING

Part of the building is currently being used as a clothing retail shop, that sells local clothing. The shop will be moved to one of the Retail units in the design intervention. The Rezmep 7 building is accessible from the sidewalk with a service entrance to the alleyway on the West elevation, and to the courtyard on the South elevation. However, it is currently not in use. This results in the circulation between the floor levels and the sidewalk only, and none to the courtyard. The Rezmep 7 building is visible from the sidewalk and forms part of the diverse street façade of the site with a glazed double storey shopfront. There are no sightlines from the building towards the courtyard of the site.

The west elevation of the building offers an opportunity for a design intervention to activate the alleyway and create visual and physical connections between the Rezmep 7 building and the FNB building.

Figure 3.44 The Rezmep 7 building at 012 Central (Author, 2020)

Figure 3.45 Building analysis of the Rezmep 7 building (Author, 2020)

Figure 3.46 North elevation of the Rezmep 7 building (Author, 2020)

3.7 CONCLUSION

The contextual investigation of the site and its surrounding context supports the proposed design intervention and that it can contribute to the Tshwane Vision 2055. It can invigorate the site as catalyst for a circular economy driven by post-consumer textile waste that creates a new fashion culture. The building analysis of the Sheds, the Rezmep 7 building and the FNB building identifies how the built form can be altered to support a circular economy driven by post-consumer textile waste.

CHAPTER 04
{precedent studies}

4.0 INTRODUCTION

This chapter investigates four precedents, each representative of a different design concern related to the proposed design intervention. The precedent studies are conducted to gain a better understanding of what the design intervention might achieve. The design concerns represented by the precedents include, programme, adaptive reuse, exhibition and urban park. The precedents are first briefly described (with reference to relevant literature). Thereafter, analysed so as to uncover design guidelines useful for the development and resolution of the proposed design intervention.

4.1 URBAN OUTFITTERS CORPORATE CAMPUS

ARCHITECTS: Meyer, Sherer & Rockcastle Ltd.

LOCATION: Philadelphia, Pennsylvania

PROGRAMME: Urban Outfitters apparel company headquarters

YEAR: 2006

KEYWORDS: adaptive reuse, sustainable development, multi-functional programme, longevity

DESIGN CONCERNS: programme and adaptive reuse.

The project is a continuation of the history of the company to reuse historical buildings that are in abandoned or in a state of decay. The buildings are located in commercial areas and sustainably redeveloped. The Navy Yard originally served as a facility that built and repaired ships from 1868 to 1996, after which it was abandoned. This particular project is an example of adaptive reuse of buildings in the Navy Yard, Philadelphia, as the corporate headquarters of Urban Outfitters (MSR Design, 2010).

Preservation through reuse is the main design strategy of the design. The design is a combination of deterioration, a history, and a refurbishment to embody the identity of the company spatially. The project aims to bring the new and old together, while highlighting the historical features of the existing fabric. This is achieved by applying contrast and layering the new and old, the tactile and smooth, light and dark, and the interior and exterior. The design evolves around the characteristics of the factory, the materiality of the industrial buildings, open volumes, and the access to natural light. The functions of the buildings are re-purposed from production to creativity. Design informants include, art, culture, economy, and the environment. The historical elements are preserved through the reuse of the existing building materials (MSR Design, 2010).

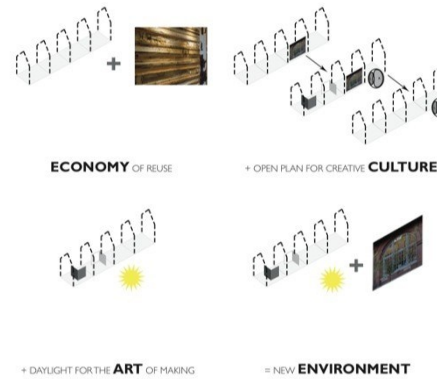


Figure 4.1 Design informants (Archdaily, 2006)

DESIGN GUIDELINES: multi-functional programme and reusing the existing infrastructure

- Creating something old from something new is their corporate identity, this is translated through the design that bring the existing and new infrastructure together.
- The industrial aesthetic is maintained by reusing the existing materials.
- Large open spaces integrate a mix of enclosed spaces.
- Minimise private spaces and to create more opportunities for interaction and collaboration.



Figure 4.2 Multi-functional workspace (Archdaily, 2006)



Figure 4.3 Insertion of new elements (Archdaily, 2006)



Figure 4.4 Creative collaboration workspace (Archdaily, 2006)

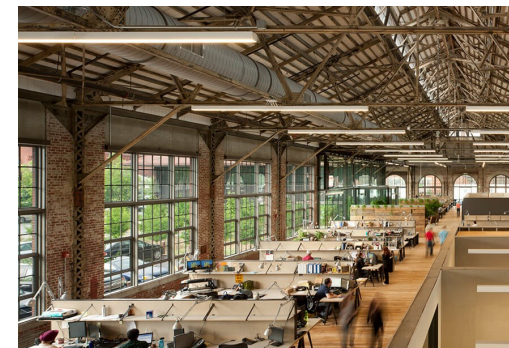


Figure 4.5 Natural light in workspace (Archdaily, 2006)

4.2 THE DEPARTMENT STORE

ARCHITECTS: Squire & Partners

LOCATION: Brixton, London

PROGRAMME: Multi-functional programme (offices, retail)

YEAR: 2017

KEYWORDS: adaptive reuse, multi-functional programme, reuse, longevity, lease

The Squire and Partners architectural firm bought a rundown Edwardian department store for their new offices. The existing fabric of the building and the historical palimpsest worked as design informants. The design process involved the collaboration of craftspeople and furniture-makers that allowed for the design of a variety of spaces for the different disciplines within the practice.

The process of stripping back the existing fabric revealed the original state of the building, exposing the decayed original fabric of the building and celebrating them at the same time. New interventions in a contemporary design language were added to repurpose the building as a workshop environment that inspires the users. The design aims to expose the process of craft and making. The design is sensitive to the interior environment by preserving interior elements, such as the teak and mahogany flooring, and a tiled staircase. Voids were cut into the building to create vistas between the different levels, linking the various spaces and activities. The façade of the building is re-activated with the new shopfronts and in revealing the original brickwork, stone, marble, and terracotta. The addition of a new rooftop level adds a new layer to the existing fabric (Squire and Partners, 2017).

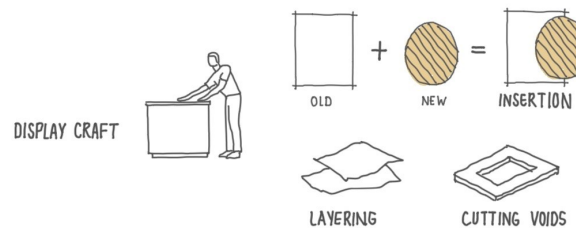


Figure 4.6 Design guidelines (Author, 2020)

DESIGN GUIDELINES: layering and visual links

- The glazed ground floor creates visual links to the interior that aims to display craft and design on street level.
- Semi-open building was purposeful, encouraging the community to interact and become involved.
- The design is a reflection of the architecture firm that aims to express its dedication to craft, collaboration and creativity.
- The design uses the existing fabric and layers of history as design informants to create a design that connects the new and old by celebrating the existing and adding a new contemporary layer that expresses the dynamic quality of the design.



Figure 4.7 Façade of building (Archdaily, 2017)

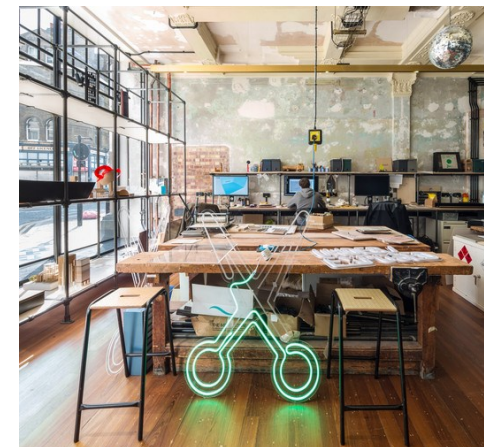


Figure 4.8 Makerspace visible from street (Archdaily, 2017)

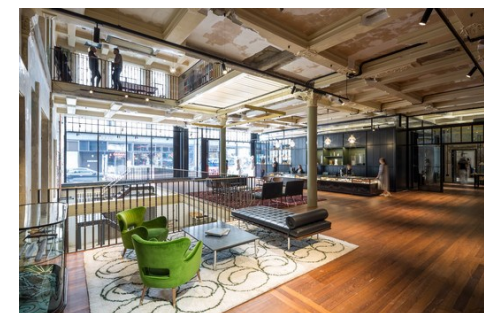


Figure 4.9 Vistas cut into building (Archdaily, 2006)

4.3 THE FASHION FOR GOOD MUSEUM

DESIGNERS: Local Projects

LOCATION: Amsterdam

PROGRAMME: museum

YEAR: 2018

KEYWORDS: longevity, reuse, lease

The Fashion for Good Museum is designed to inform and teach the visitors about the textiles and fashion industry. The displays are designed to change the consumption habits of the users by showing them the wasteful nature of the fashion industry and how they can make a change through an interactive gaming experience. The visitors have the opportunity to commit to the sustainable fashion cause, and are able to design a sustainable t-shirt that is printed on site. The design aims to use materials that are more environmentally sustainable; designed for multi-functionality. The designers also used second hand and rental furniture contributing to a circular economy (Powell, 2018).

When visiting the museum, it takes the user on a journey of gaming, learning, storytelling, creating and community building that they can walk away with a sense of ownership and that they have the ability to make a positive change (Bonime,2018).

DESIGN GUIDELINES: inform through interaction

- Designing a spatial journey that aims to inform the user through interaction.
- Using design as a communication tool, by using different methods of display to make visitors aware of the problem and to teach them about circular fashion, while empowering them to make a change in their fashion consumption habits.

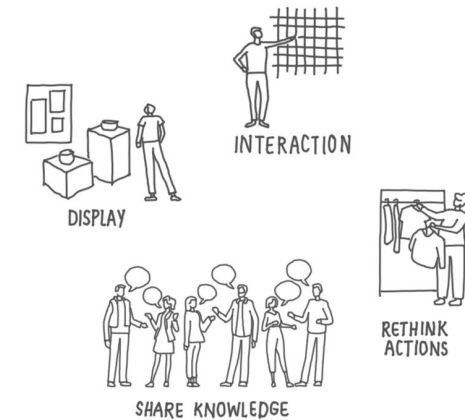


Figure 4.10 Design guidelines (Author, 2020)



Figure 4.11 Interactive display (Fashion for good museum, 2018)



Figure 4.12 Display of unsustainable consumption (Fashion for good museum, 2018)



Figure 4.13 Active bracelet for gaming experience (Fashion for good museum, 2018)



Figure 4.14 Digital display (Fashion for good museum, 2018)

4.4 PALEY PARK

ARCHITECTS: Zion Breen Richardson Associates

LOCATION: New York

PROGRAMME: Urban park

YEAR: 1967

KEYWORDS: adaptability, nature

The success of the park lies in it appearing to be part of its surroundings, with its close proximity to the street, but is a secluded space that offers refuge to its occupants. Every element of the park is designed for aesthetic efficiency in creating an urban oasis in the midst of a busy city. The park is slightly elevated, and boarded by buildings on three sides. The park is enclosed with an iron fence, and is accessed by stairs with ramps on both sides. The main feature of the park is the waterfall that spans the back wall that creates ambient noise that can be heard from the sidewalk, and the waterfall is visible from the sidewalk as well, providing a calming visual and auditory experience to the occupant. The park has ample sunlight. With the site facing south-west, the canopy of trees diffuses the natural light and provides sufficient shade for the occupants. The free-standing furniture in the park allows for adaptability and gives visitors an opportunity to take ownership of their experience when visiting the park (Terrapin Bright Green, 2015).

This precedent serves to inform the proposed design when considering the treatment of the alleyway between the Rezmep 7 and the FNB buildings as well as opportunities for invigoration of the 012 Central inner courtyard.



Figure 4.15 Connection to nature (Author,

DESIGN GUIDELINES: oasis, link to nature

- Using natural elements to design a refuge within the urban environment that connects the user to nature and allows them to linger and interact socially.
- Give ownership to users by designing for adaptability that allows the user to take control of their spatial experience.



Figure 4.16 Entrance to Paley Park (Terrapin Bright Green, 2015)

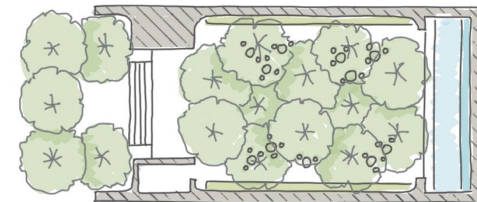


Figure 4.17 Plan of the park (Author, 2020)



Figure 4.18 Section through the park (Author, 2020)

4.5 CONCLUSION

The selected precedents are representative of a combination of four design concerns: programme, adaptive reuse, exhibition, and urban park. The precedents are assessed graphically. Design guidelines are uncovered. These include: adaptability, mixed-use/multi-functional, visual links, spatial interaction and integration, multiple spatial experiences, individual control, and urban oasis. The identified design guidelines serve to inform the conceptual approach and the design development.

CHAPTER 05

{user, programme & concept}

5.0 INTRODUCTION

Chapter 5 rationalises the user profiles and proposes a multi-functional programme that aims to reactivate the site, as well as a potential client. The different programmes are allocated in the three identified buildings. Each of the programmes have a different function using post-consumer textile waste as resource that supports a circular economy. Therefore, the programmes must be connected through the design intervention that aims to support a circular economy. Finally, the conceptual approach is established. The concept is informed through a synthesis of the theoretical premise, context study findings as well as the identified and profiled users and programme.

5.1 PROGRAMME

THE PROCESS PLANT (The Sheds building): is the collection point for post-consumer textile waste brought the local community. After dropping off the post-consumer textile waste, it is sorted according to how lifecycle of the waste-item and its components can be extended: recycle, upcycle, or reuse. Thereafter, the waste-items are cleaned and sorted to be distributed to the makerspace. This is also where the recycle process takes place.

Spatial requirements:

- Drop-off point: where users can drop off their post-consumer textile waste. It needs to be easily accessible and visible from the sidewalk.
- Sorting area: where the post-consumer textile waste is sorted according to how their lifecycle can be extended.
- Cleaning area to clean the post-consumer textiles waste after being sorted.
- Storage: for post-consumer textiles waste after being sorted.
- Staff quarters: with a kitchenette, ablutions, and seating where the staff can relax and socialise.
- Recycle station: where post-consumer textile waste made of 100% cotton is recycled.
- Retail space: that sells the sorted post-consumer textile waste that can be bought by makers that do not work on the site.
- User engagement station: where the users can experience the plant's processes on a small and individual scale.
- Circulation: how the user enters the space and moves between the different areas and to the courtyard.

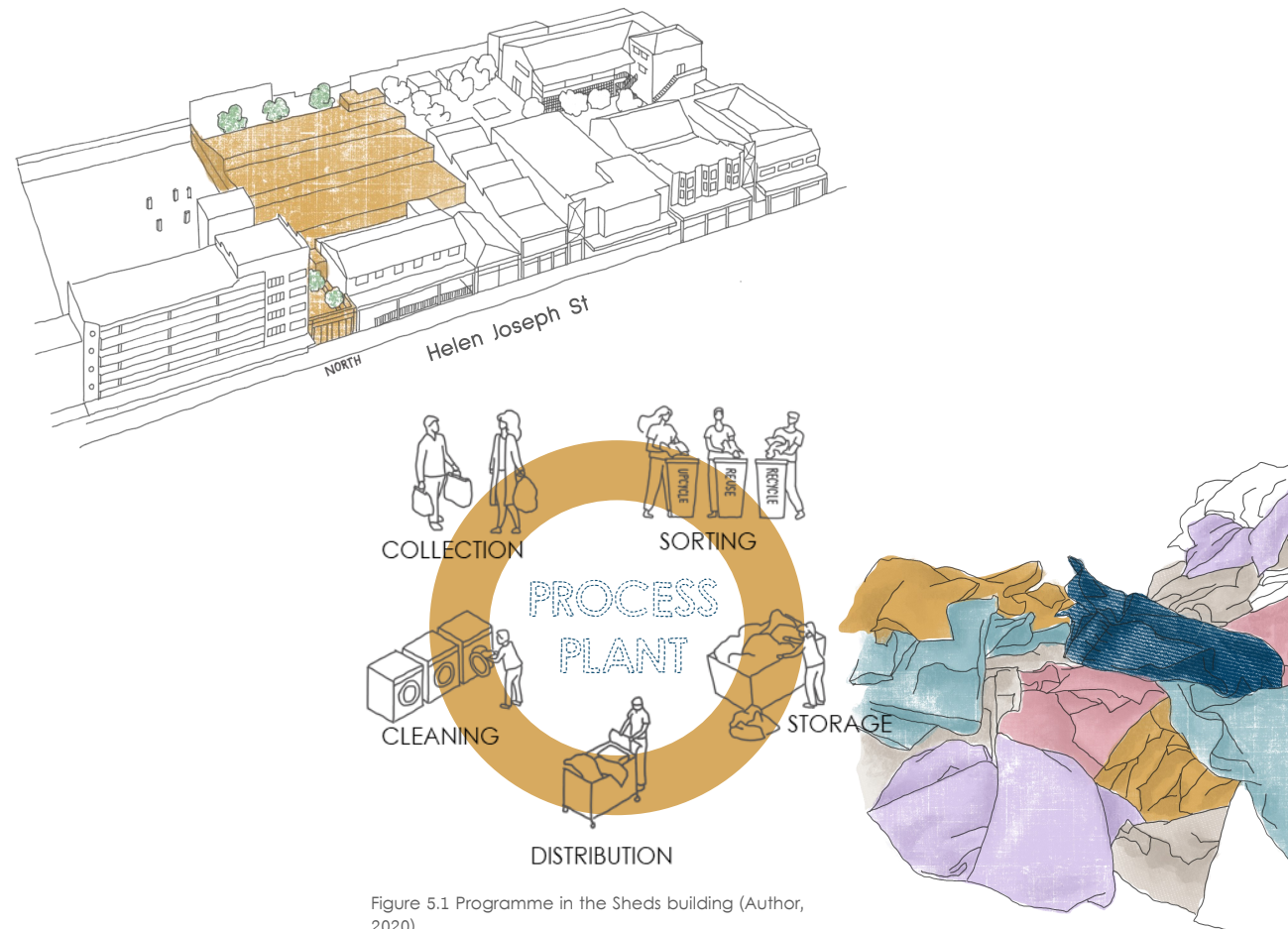


Figure 5.1 Programme in the Sheds building (Author, 2020)

RETAIL (FNB building): involves a series of Retail Units on the ground floor that can be rented by local entrepreneurs, who already have a workshop but not a shop to sell their products. It is a platform for them to establish their brand and contribute to a circular economy. The shopfront, Café and an Exhibition area on the ground floor serve to attract user. The first floor is an office space where individuals or groups can rent a workspace. It is also used for lectures that form part of the skills development programme.

Spatial requirements:

- Retail units: for local entrepreneurs to sell their products made of post-consumer textile waste, to establish their brand and allow for interaction with users.
- Café: a stop for the pedestrian walking past, attracting users to the building that allows for social interaction.
- Reception: to help navigate users towards the different spaces as required and acts as visual security.
- Exhibition space: part of the shopfront that attracts pedestrians and it navigates the user through the space while informing them.
 - Office workspace: allows individuals or groups to rent workspace as they need and can be used for lectures that are part of the skills development program.

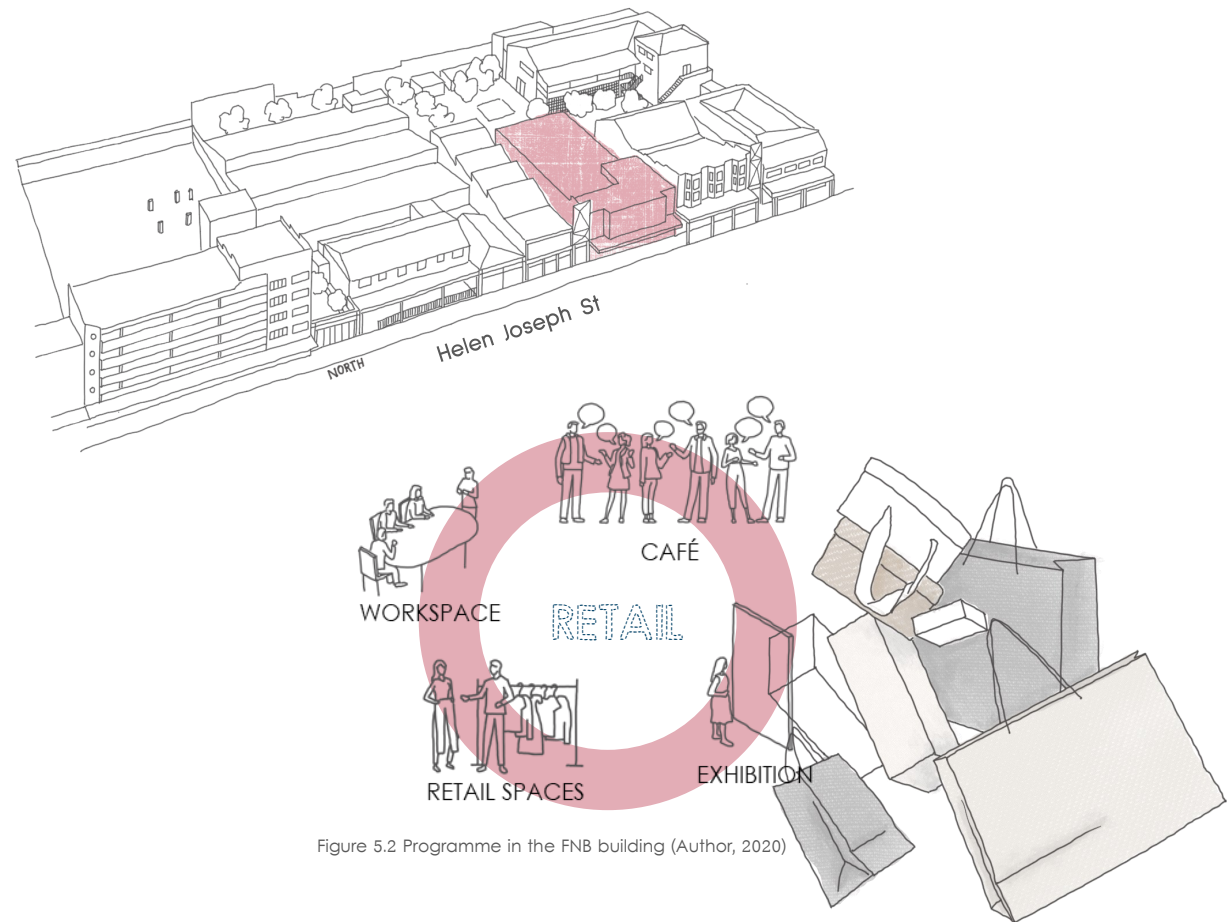


Figure 5.2 Programme in the FNB building (Author, 2020)

THE MAKERSPACE (Rezmep 7 building): this is a collection of Maker Units on the ground floor that can be rented by local entrepreneurs that make and sell their own products by upcycling post-consumer textile waste or by using the recycled textiles from the Sheds. The first floor is a workshop area that focuses on developing sewing skills of the local community. The program focuses on the art of making and sharing knowledge through creative collaboration and interaction.

Spatial requirements:

- Maker units: for local makers where they can make and sell their products made of post-consumer textile waste and allow for interact with users.
- Communal cutting tables: tables that are shared by the different makers.
- Collaboration area: where the makers can collaborate with one another as well as with the users.
- Sewing stations/workshop: for the skills development programme.
- Circulation: entrance from the sidewalk, moving between the spaces and moving through the building to the alleyway and courtyard.

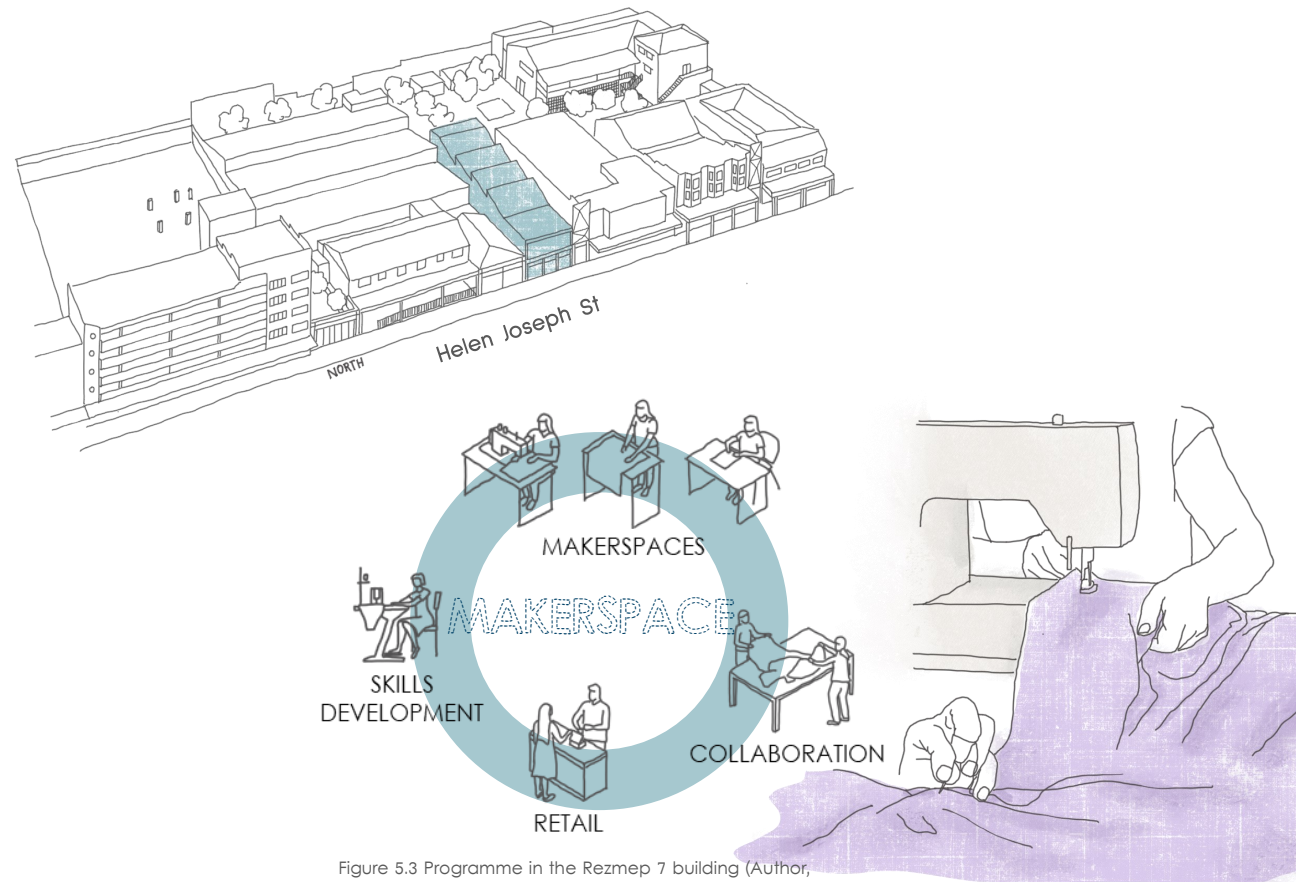


Figure 5.3 Programme in the Rezmep 7 building (Author, 2020)

5.2 POTENTIAL USERS

The following three user groups are identified: staff, the consumer and the design entrepreneur. Within these user groups, user profiles are compiled and serve to inform the design development by responding to the user needs of each user group.

5.2.1 USER GROUPS

STAFF – the potential users working in the proposed multi-functional programme (the Process plant, The Makerspace, and Retail):

- needs a space to relax and socialise with other staff members;
- needs a place to store personal belongings and ablutions (Processing Plant staff);
- needs an environment that feels safe and comfortable; and
- wants a platform to educate the local community.



Figure 5.4 Staff user group (Author, 2020)

CONSUMER – the user who comes to 012 Central intentionally as well as users who happen upon the site by chance; motivated by curiosity:

- wants a space that allows for social interaction and can move freely between the different spaces;
- needs to leave with an informative experience that motivates them to make a change, return and engage with the circular economy;
- need to be able to interact and collaborate with design entrepreneurs; and
- wants a platform to develop skills, such as sewing or crafting.

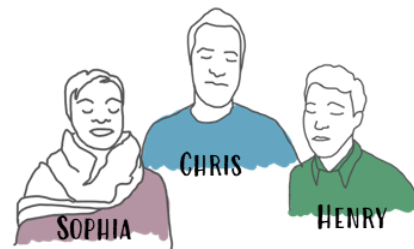


Figure 5.5 Consumer user group (Author, 2020)

DESIGN ENTREPRENEUR – local designers that love to create-and-make and seek an opportunity to share their work with the public;

- wants a platform to inform and educate the local community;
- needs space where they can make and/or sell their products, or space that allows for both;
- need opportunities to be able to collaborate with fellow design entrepreneurs and interact with customers; and
- need to feel safe and comfortable to express themselves and engage socially.

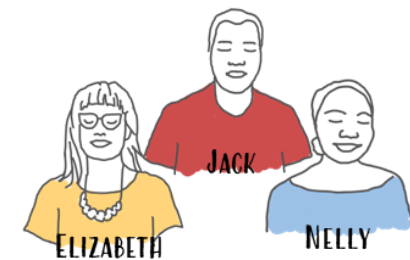


Figure 5.6 Design entrepreneur user group (Author, 2020)

5.2.1 USER GROUPS

STAFF



SIMPHIWE

- 35
- Male
- Manager of the factory
- Married with 2 kids
- Diploma in Management



ONCE A MONTH

He is a friendly and approachable person with the affinity for working with people. He wants to create an efficient work environment and wants to work with the youth to teach them management skills. He needs to be able to bring his kids to work from time to time.



ROSE

- 40
- Female
- Head seamstress
- Widow with 3 kids
- Matric



EVERY 6 MONTHS

She is a reserved, consistent person that works very hard. She has an affinity for working with her hands. She wants to create her own clothing line in the future and to pass on her sewing skills to the youth through workshops. She considers it important to socialize and interact with fellow staff members.



CINDY

- 26
- Female
- Sales manager
- Single
- Degree in marketing



ONCE A MONTH

She is a friendly, open-minded person that likes to help wherever she can. She is efficient and has an affinity for solving problems. Her goal is to be the head of marketing of 012 Central. It is important for her to have the freedom to express herself.

CONSUMER



SOPHIA

- 23
- Female
- Works at van Schalk Bookstore
- In a relationship
- Matric



MORE THAN ONCE A WEEK

She is fun and outgoing. She is dependable and compassionate and has an affinity for organizing. She deems personal time as an important priority and is open to new experiences. She aims to become an entrepreneur. She is on the look out for a shop that sells more authentic and affordable clothes.



CHRIS

- 20
- Male
- Student
- In a relationship
- Studying Financial Management



ONCE A WEEK

He is very laid back and curious about the world with an idealistic attitude. He is honest and reliable and has an affinity for plants. His goal is to finish his studies and to help people with financial guidance. He needs information about the items he wants to buy before buying them.



HENRY

- 29
- Male
- Photographer
- Single
- Diploma in Photography



EVERY 3 MONTHS

He is a very curious and approachable person that is honest and committed. He can sometimes be lazy but has the affinity for capturing a moment. He wants to experience and do as much as possible when traveling. It is important for him to interact socially.

DESIGN ENTREPRENEUR



ELIZABETH

- 30
- Female
- Designer
- Married
- Diploma in Fashion design



ONCE A WEEK

She is a very positive and artistic person that is loyal and open-minded. She is a do-it-yourself kind of person and has the affinity for teaching people. She wants to teach workshops to up and coming local fashion designers. She would like be able to design, make and sell in the same space.



JACK

- 34
- Male
- Informal vendor
- Single
- Matric



ONCE A MONTH

He is an energetic friendly guy that is always up for a challenge. He has an affinity for selling products. His goal is to have his own shop one day that sells handmade products. It is important for him to be authentic.



NELLY

- 19
- Female
- Unemployed
- In a relationship
- St 9



ONCE A WEEK

She is a shy creative person that has an affinity for working with her hands. Her goal is to master a skill from which she can earn an income. She needs an environment where she feels safe and comfortable to engage socially.

5.3 POTENTIAL CLIENT

CITY PROPERTY: 012 Central is the result of the inner-city regenerative programme undertaken by City Property. The aim with the 012 Central development is to create spaces in the city that are customer-focused, by considering how people work, play, and live in the inner-city.

THE NYDA (National Youth Development Agency) aims to address youth development issues by implementing programmes that empower and improve the economic development of the youth of South Africa (nyda, n.d.).



Figure 5.7 City Property logo (City Property, n. d.)



Figure 5.8 NYDA logo (nyda, n. d.)

5.4 CONCEPTUAL APPROACH

The conceptual approach is based on the idea of closing the loop of fashion production and consumption. It considers the actions of making, use, and disposal. How they influence each other and how the alteration of the interior has the potential to support a circular economy. The participation of each individual user is important in a circular economy. However, creative collaboration is just as important, and therefore the alteration of the interior becomes the 'golden thread' that stitches the multi-functional programme, users and buildings together.

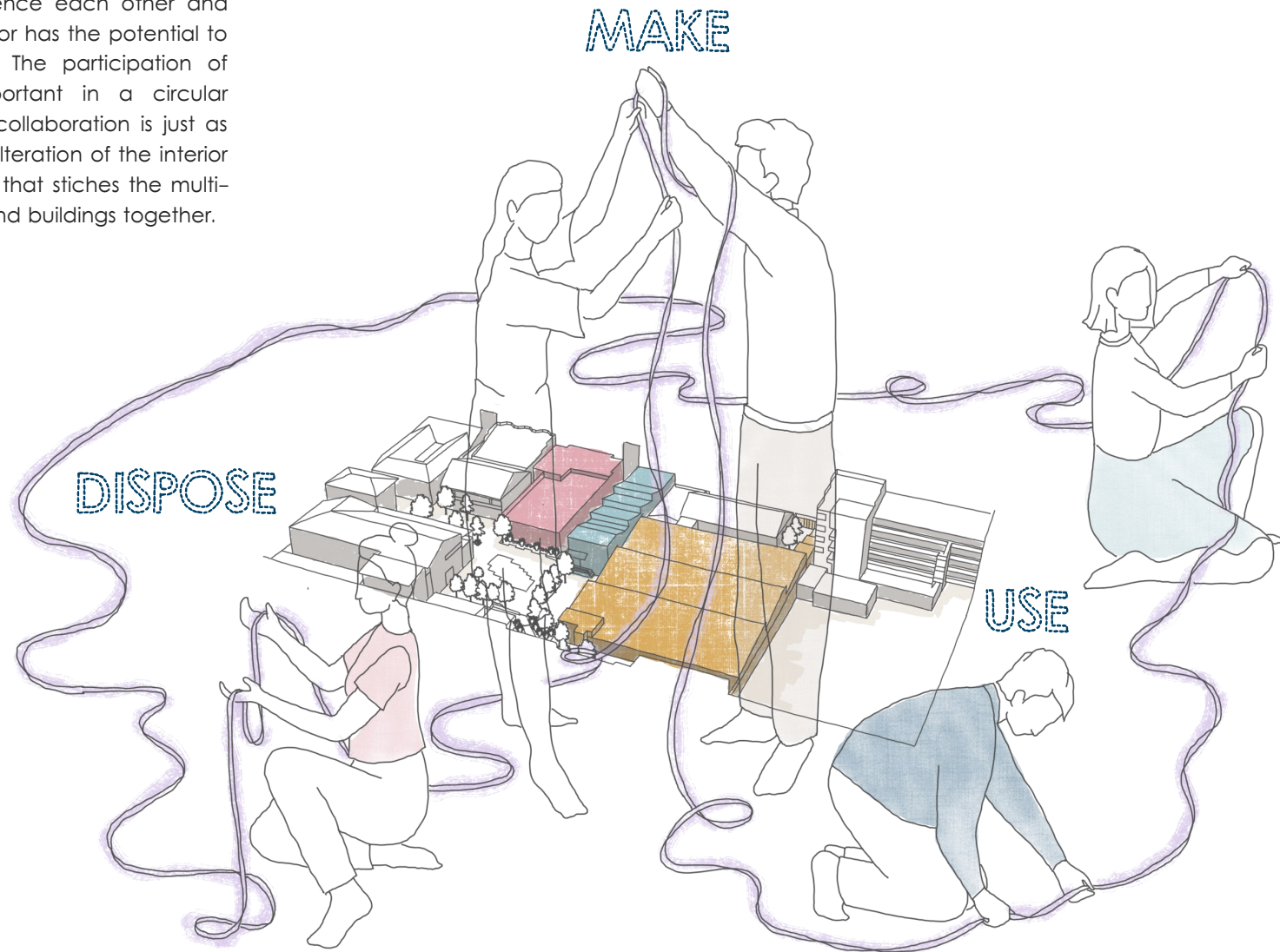


Figure 5.9 Conceptual approach diagram (Author, 2020)

5.5 CONCLUSION

The proposed mixed-use, multi-functional programme, potential users, and potential clients are established. The programme identifies the spatial requirements to be accommodated by the proposed design intervention. The profiled users provide an understanding of their personalities and needs. The users include the staff, design entrepreneurs, and customers who will either occupy or visit the space. The conceptual approach is established. Alteration as the 'thread' that stitches the programmes, users, the buildings and their interior and exterior-interior spaces together. The concept is a synthesis of the informants distilled from the theoretical premise, context and site, programme and users, as well as the understanding gained from the precedent studies. The conceptual approach drives the design development and formulation of the proposed design.

CHAPTER 06
{proposed brand}

6.0 INTRODUCTION

Chapter 6 evaluates the existing brand and brand identity of 012 Central in order to rationalise how the brand of the proposed design intervention can slot into the 012 Central identity while establishing its own identity. Typically, the brand and brand identity is delineated and conceptualised first. Thereafter, it is translated spatially through interior design into a commercial space. However, with this study, the brand is developed concurrent to the concept and spatial design. It works to graphically communicate the concept and spatial experience of the proposed design.



Figure 6.2 Market @ the Sheds (012 Central & Author, 2020)

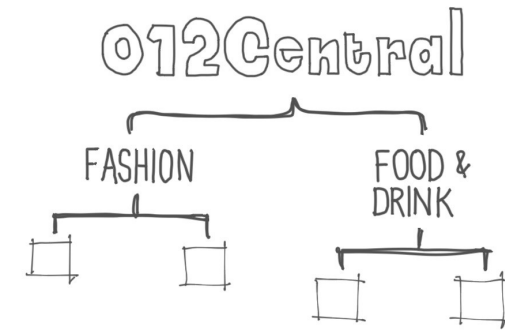


Figure 6.3 Umbrella model at 012 Central (Author, 2020)

6.1 012 CENTRAL BRAND

The existing brand identity of 012 Central is visually analysed. The analysis shows the brand identity as being ambiguous. This is seen in different translations of the brand into signage (Figure 6.1) at 012 Central. The identity is connected to the aim of the brand to be a platform for the local entrepreneurs, designers, artists, and musicians, where they can share their talent and passion with the local community. The ambiguous identity of 012 Central brand acts as an umbrella model for other brands to slot into, and to establish their own brand identity that in turn strengthens the 012 Central brand.



Figure 6.1 Signage of 012 Central (012 Central, n.d. & Author, 2020)

The Market @ the Sheds is one of the main attractions of 012 Central that translates the intention of the site. However, the market is currently under exploited in relation to other markets in Pretoria such as the 'Boere Mark' (Farmer's Market). Pretoria consumers are more purposeful in their recreational time, and are therefore more motivated to visit the Boere Mark than the Market @ the Sheds. The Boere Mark is known for its fresh produce, 'straight from the farm', and homemade edible goods. Craft and of miscellaneous items, such as plants and fresh flowers, are secondary. Thus, visitors may feel that they are fulfilling a useful household task whilst at once supporting the local community, and interacting socially at the same time. It is noteworthy that the sellers and visitors alike at the Boere Mark represent quite a cosmopolitan section of Pretoria's demographic. Market @ the Sheds is dominated by consumerism, with retailers selling food and handmade products such as jewelry, clothes, and home décor at high prices. The demographic of

the visitors at Market @ the Sheds is multicultural and youthful. The missing element of the market is what it is specifically known for. Currently the focus is more on the social experience, rather than the holistic experience that goes further than the market and filters through to the rest of the site. However, there is an opportunity in the ambiguity of the 012 Central brand by giving it a focused basis from which it functions such as a circular economy.

The ambiguity of the 012 Central brand model allows the proposed brand identity to slot into the umbrella model. At the same time, the umbrella model can easily be re-structured to support a circular economy, not only for fashion, but for food and drink as well. In this way, 012 Central becomes a catalyst in a circular economy. It is argued that the site of 012 Central will experience increased activity and engagement from the community as these visitors actively seek to support a circular economy.

6.2 PROPOSED BRAND IDENTITY

The proposed brand becomes an extension of the existing 012 Central brand by slotting into the umbrella model. This extension gives clarity and direction of the proposed brand that aims to create a new fashion culture that encourages sustainable consumption in a circular economy at 012 Central.

6.2.1 BRAND ARCHETYPE:

Brand archetypes are a model used to develop a brand identity. Archetypes help a brand to portray a clear message to its audience (Astute, n.d.). The identified archetype provides knowledge and guidance to inform the spatial design of a brand (Roberts, 2010).

The creator archetype is identified as the brand archetype for this project. This archetype is motivated by creativity and freedom for self-expression, balanced with control. This allows for 'thinking outside the box' to create something tangible and authentic that inspires others through innovation. The archetype is characterised by the following words: creativity, innovation, and expression (Ericksen, n.d.).

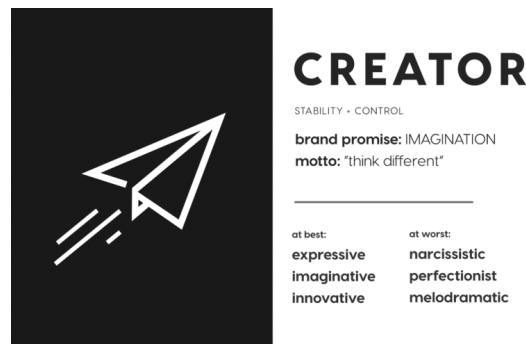


Figure 6.4 Creator archetype (Astute, 2020)

6.2.2 BRAND INTENTION:

The intention of the brand is to encourage consumers to close the loop by inspiring them to make a difference through showing them how they can do it. The brand is about appreciating local craft, sharing and growing it. The brand is also about celebrating individuality and promoting innovation and authenticity. It serves as a platform where ideas and creativity can be shared with one another while at the same time supporting a circular economy.

6.2.3 BRAND VALUES:

SUSTAINABILITY: A closed-loop approach towards clothes.

AUTHENTICITY: Celebrating original design by local designers.

CRAFTMANSHIP: Quality and detail of products made by hand.

TRANSPARENCY: Create a sense of ownership through sharing information.

6.2.4 BRAND IDENTITY-PRISM:

The existing brand identity of 012 Central is visually analysed. The analysis shows the brand identity as being ambiguous. This is seen in different translations of the brand into signage (Figure 6.1) at 012 Central. The identity is connected to the aim of the brand to be a platform for the local entrepreneurs, designers, artists, and musicians, where they can share their talent and passion with the local community. The ambiguous identity of 012 Central brand acts as an umbrella model for other brands to slot into, and to establish their own brand identity that in turn strengthens the 012 Central brand.

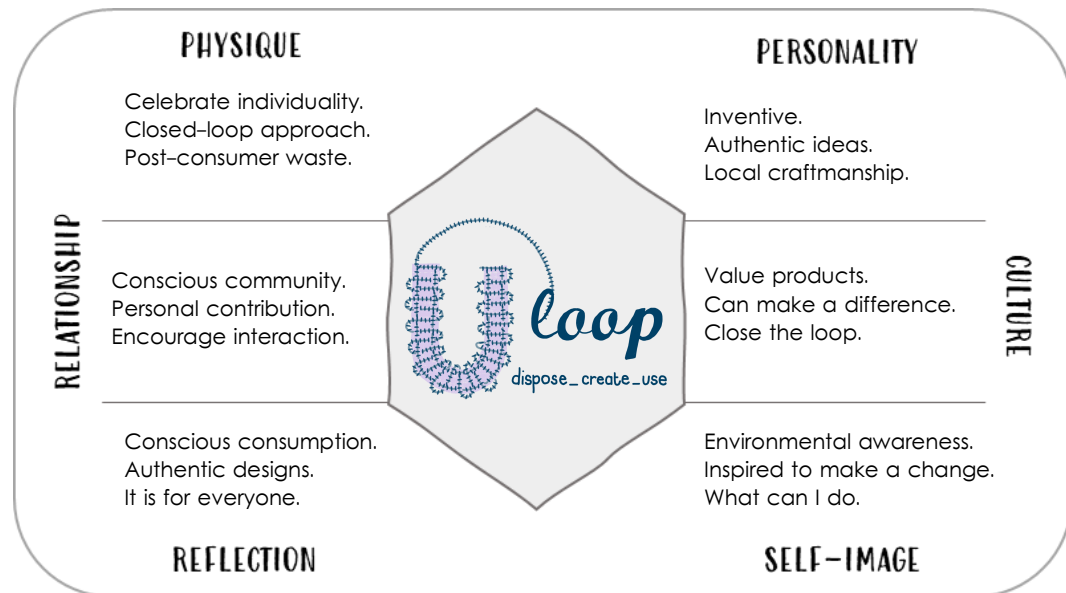


Figure 6.5 Brand Identity-prism (Author, 2020)

6.2.5 BRAND NAME:

U-loop [dispose_make_consume]

The brand name aims to convey everyone has the capacity to contribute to the circular economy. The slogan identifies the activities to which the closed-loop approach responds, namely to support a circular economy.

6.2.6 BRAND LOGO:

The brand logo aims to capture the closed-loop approach and to convey that the contribution of each individual is important in a circular economy.

6.2.7 BRAND COLOURS:

Colour is an important element that influences our perception about something. Colour is also considered as an important component in consumer behaviour. Colour encourages certain emotions from consumers and in response influences their perception and behavior (Khattak, et al., 2018).

The selected brand colours aim to communicate the creative and innovative identity of the brand and evokes a feeling of confidence. The colours represent the different functional programmes that together form the closed-loop system within the design intervention.

- **purple and dark blue** – main colours of the brand representing the new closed-loop approach;
- **light blue** – the Makerspace (communicating innovation);
- **yellow** – the Process plant (communicating excitement); and
- **light pink** – Retail (communicating creativity).



Figure 6.6 Brand logo (Author, 2020)

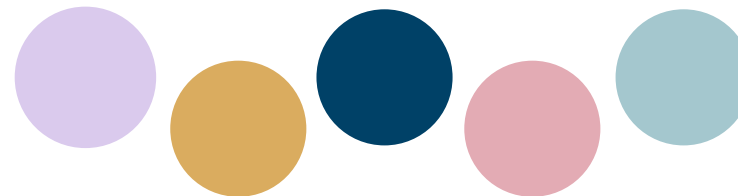


Figure 6.7 Brand colours (Author, 2020)

6.3 CONCLUSION

This chapter establishes a brand that reflects the closed loop intentions of the proposed design intervention. The brand aims to fall under the umbrella of the existing brand by being an extension of 012 Central that focuses on fashion. For this reason, the brand has its own identity and is an important design informant because it allows the user to make an emotional connection to the design.

CHAPTER 07

{design development}

7.0 INTRODUCTION

Chapter 7 is concerned with the design proposal and design development leading to the final design. The chapter opens with a recapitulation of the theoretical premise; context and site analysis; precedent studies; user and programme as well as brand and identity as design informants. Thereafter, the design development process and final design are described through a combination of text and graphic illustrations.

The intention is to illustrate through spatial and object design how the principles of circular economy are applied to the Sheds, Rezmep 7 and FNB buildings, at 012 Central. The aim is for a sustainable design intervention that alters the existing fabric to support a circular economy driven by post-consumer textile waste. Rendered and annotated floor plans, elevations, sections communicate the final design. Finally, a rendered spatial narrative highlights the main design elements and spatial experience of the design intervention.

7.1 DESIGN INFORMANTS

Five design considerations of site, theory, precedents, user and programme, brand and brand identity drive the design development. Important elements within each are identified and discussed. The conceptual approach is generated from the considerations, in particular, user and programme and brand and brand identity. The conceptual approach along with further informants and guidelines distilled from the design considerations are synthesised through the process of design development into a final design.



Figure 7.1 Summary of design informants (Author, 2020)

7.1.1 SITE AS INFORMANT

A detailed analysis and mapping conducted in Chapter 3 to gain a thorough understanding of the site, its immediate context, and the three identified buildings on the site. Figure 7.2 provides a summary of the analysis that identifies programmatic and design opportunities as well as significant existing design elements the intervention needs to respond to:

- Access
- Circulation
- Sightlines
- Street façade
- Climate

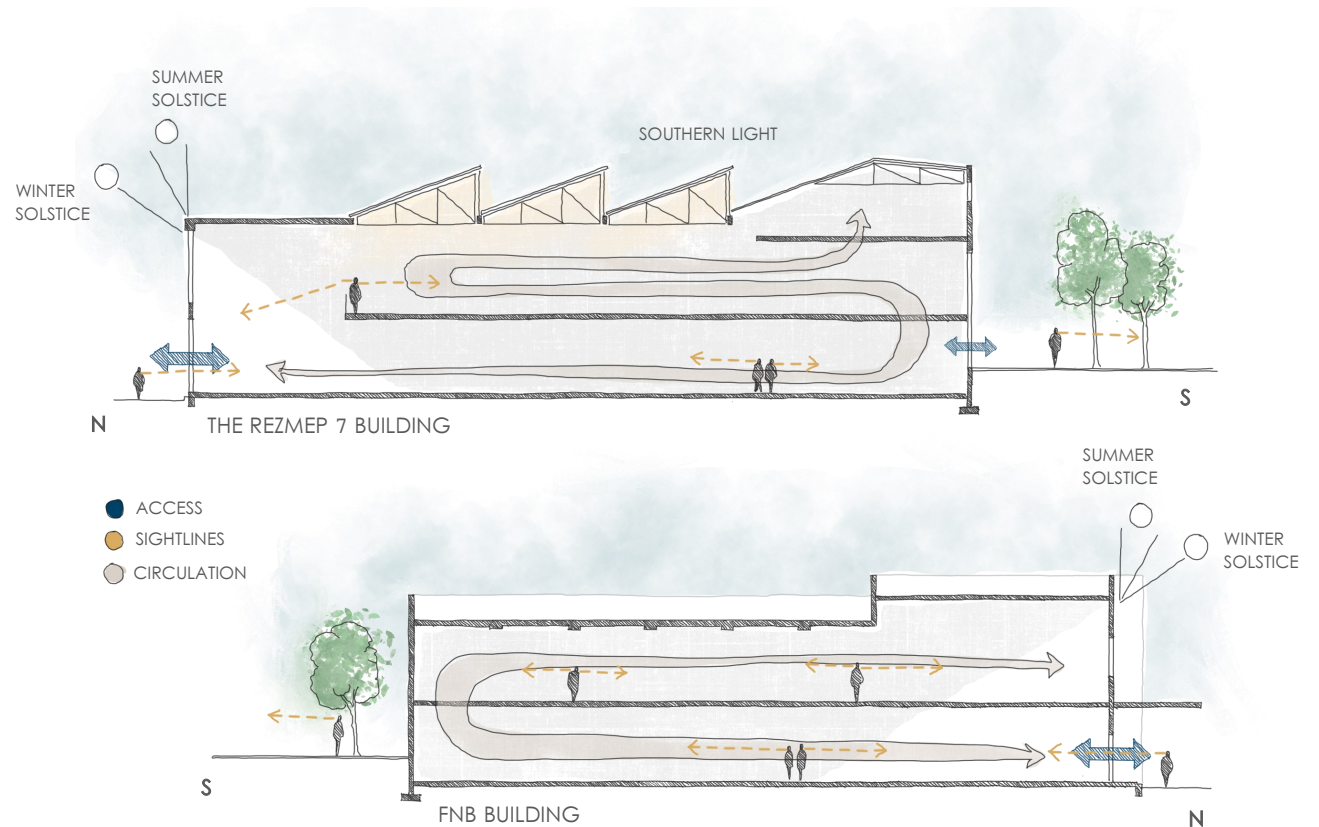


Figure 7.2 Summary of building analysis (Author, 2020)

7.1.3 PRECEDENTS AS INFORMANT

The analysis of the selected precedents undertaken to appreciate adaptive reuse approaches to buildings of industry (similar to those present at 012 Central for alternative industries and 'making'; programme; informative design, and the urban park to identify design guidelines that can be applied in the design development (Figures 7.4 – 7.7)

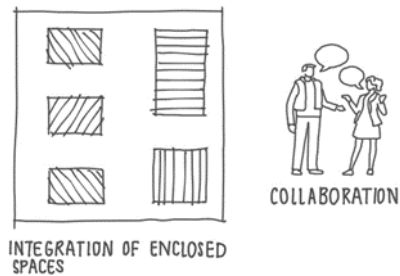


Figure 7.4 multi-functional programme and reusing the existing infrastructure (Author, 2020)

The design aims to translate the corporate identity spatially. The industrial aesthetic of the existing is maintained. A mix of enclosed spaces are integrated in the large open spaces. The design allows for interaction and collaboration between the users.

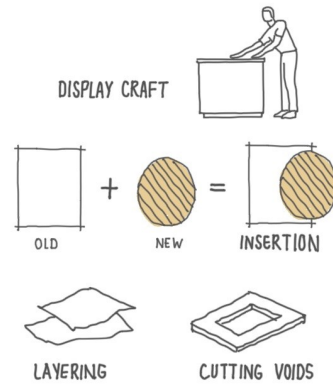


Figure 7.5 layering of old & new and visual links (Author, 2020)

The design focuses on different visual links especially between the interior and exterior to display the design and craft. The design encourages interaction from the local community and is a translation of the architecture firm's brand identity. The layering of new and old expresses the dynamic quality of the design.

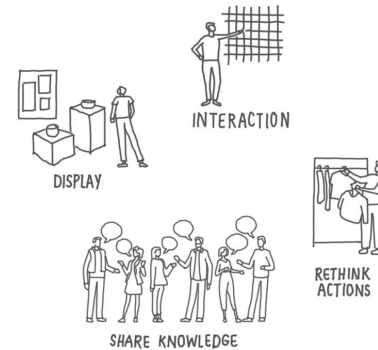


Figure 7.6 inform through interaction (Author, 2020)

The design is a spatial journey that aims to inform the user through interaction. Different methods of display as a communication tool to inform and empower users about circular fashion and sustainable consumption.



Figure 7.7 oasis, link to nature (Author, 2020)

The design of a refuge within the urban environment by using natural elements to create a connection between the user and nature. Designing for adaptability allows the user to take ownership of their spatial experience.

7.14 USERS & PROGRAMME AS INFORMANT

The multi-use programme aims to support a circular economy that uses post-consumer textile waste as resource. therefore, it is important that the design intervention connects the programmes to be able to support a circular economy, while responding to the needs of the users.

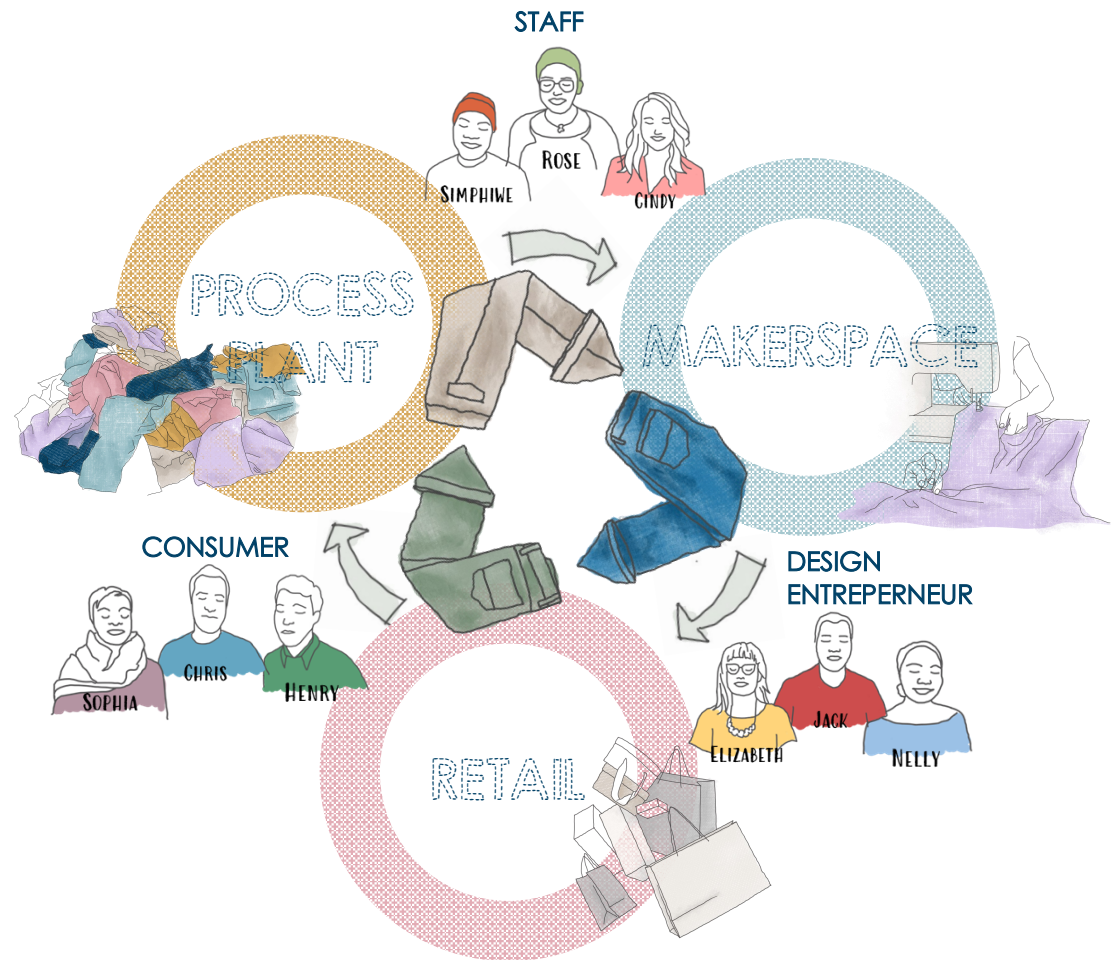


Figure 7.8 Summary of the users & programme (Author, 2020)

7.15 BRAND AS INFORMANT

Brand and brand identity present a valuable exercise in distilling the core intention of the proposed design intervention at 012 Central. The proposed brand identity captures the theme of closing the loop in generating a circular economy for Fast Fashion and interior architectural practice. It provides a useful informant in the design of the spatial experience and narrative.

The values of the brand (c.f. Chapter 6) include sustainability, authenticity, craftsmanship, and transparency.

The selected brand colours aims to communicate a creative and innovative identity for the brand, evoking a feeling of confidence. The colours represent the different functional programmes, which together form the closed-loop system of the design proposal.



Figure 7.9 Brand identity (Author, 2020)

7.2 DESIGN DEVELOPMENT

The design is a response to the multi-functional programme and potential users (c.f. Chapter 5). The spatial quality of the design is a translation of the proposed brand identity (c.f. Chapter 6), that encourages creativity, innovation and collaboration.

The spatial narrative of continuous interaction and adaptation captures how a circular economy functions, and that it is possible to make a change and contribute at any stage of a product's life to extend its lifecycle. The spatial narrative is a cyclical network of different interactions influenced by the programme and through the physical alteration of each building to accommodate programme and spatial experience. To this end, the design intervention allows for different points of entry and exit. The spatial narrative, therefore, is not fixed or limited, but allows for a variety of spatial experiences, each supporting a different aspect of a circular economy.

The interior design provides an informative spatial experience (c.f. 4.3 Fashion for Good Museum) for patrons and visitors alike. It encourages interaction with space and object, empowering users to contribute to a circular economy driven by post-consumer textile waste.

The design presents a synthesis of adaptive reuse principles of intervention, installation, and inversion (c.f. 2.3.2 Alteration of space). These inform alteration of the existing built fabric as well as the reuse and recycling of demolished materials in an endeavour to support a circular economy.

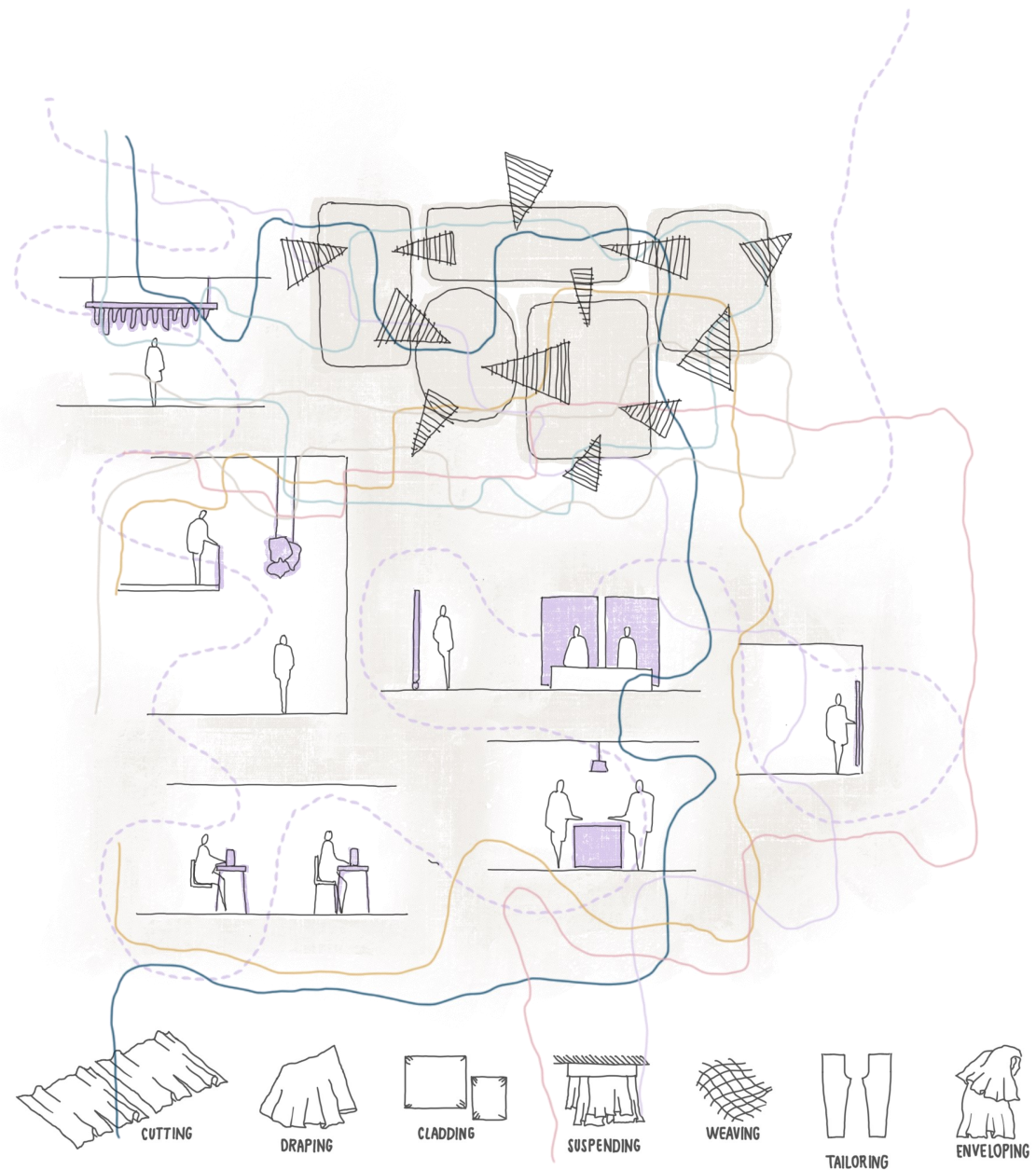


Figure 7.10 Conceptual design development (Author, 2020)

7.2.1 SITE PLAN



Figure 7.11 North elevation of 012 Central, not to scale (Author, 2020)



Figure 7.12 Site plan, not to scale (Author, 2020)

7.2.2 PROCESS PLAN

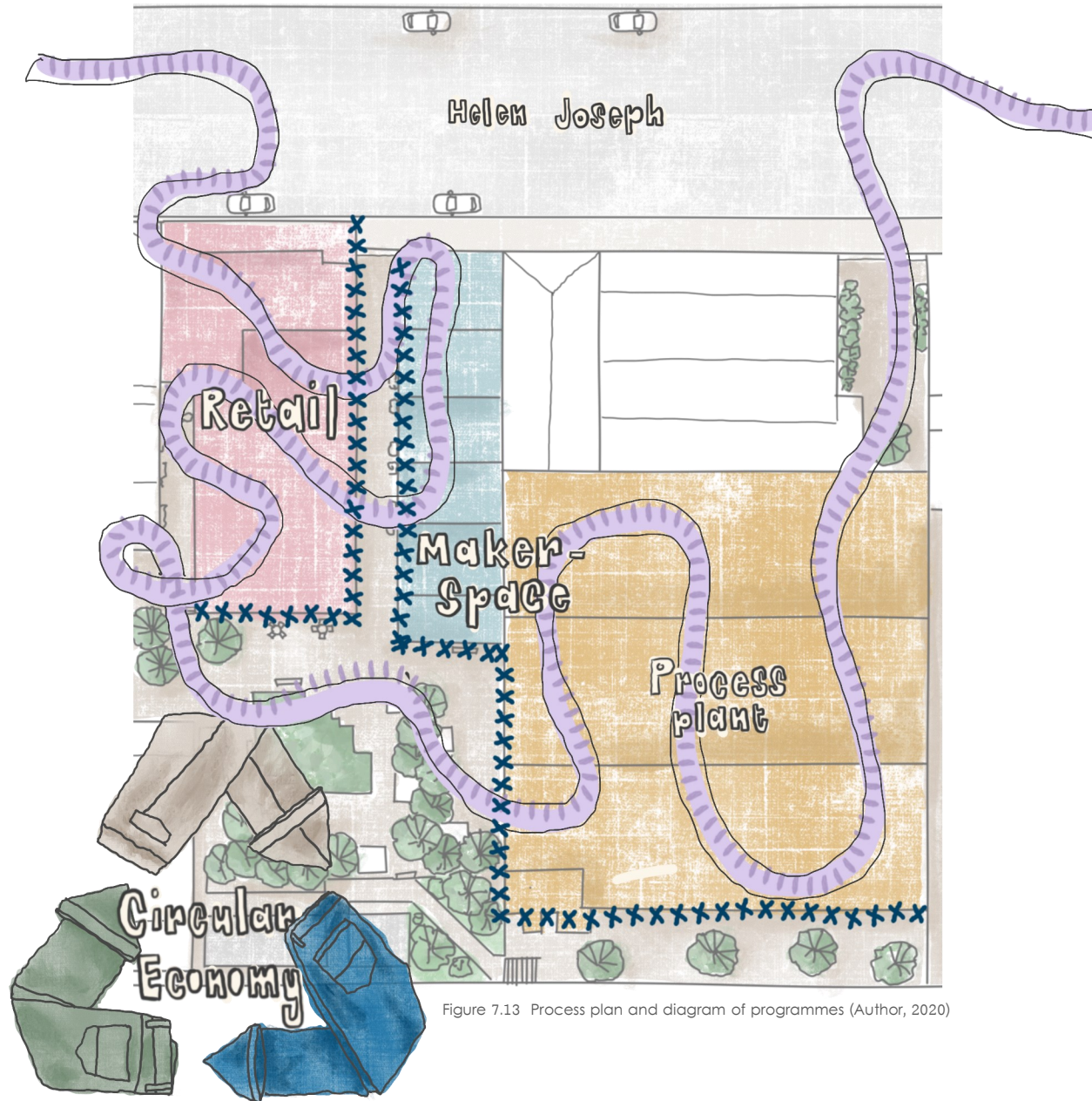


Figure 7.13 Process plan and diagram of programmes (Author, 2020)

7.2.3 GROUND FLOOR PLAN



Figure 7.14 Ground floor plan, not to scale (Author, 2020)

7.2.4 DESIGN FOCUS GROUND FLOOR PLAN

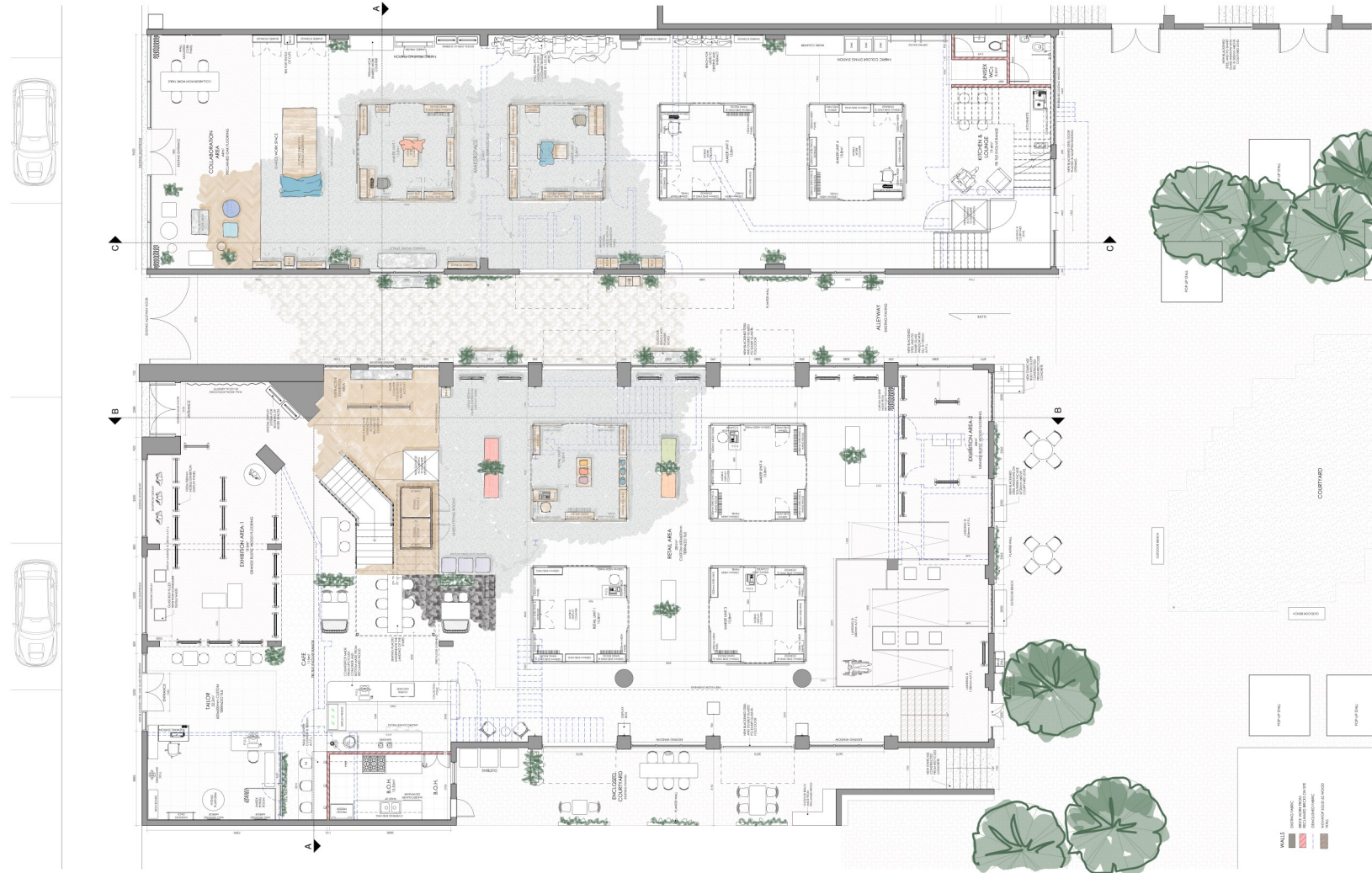


Figure 7.15 Design focus ground floor plan, not to scale (Author, 2020)

7.2.5 DESIGN FOCUS FIRST FLOOR PLAN



Figure 7.16 Design focus first floor plan, not to scale (Author, 2020)

7.2.5 ELEVATIONS



Figure 7.17 North elevation of the FNB building and the Rezmep 7 building, not to scale (Author, 2020)



Figure 7.18 South elevation of the FNB building and the Rezmep 7 building, not to scale (Author, 2020)

7.2.6 SECTIONS



Figure 7.21 Section A-A, not to scale (Author, 2020)



Figure 7.22 Section B-B, not to scale Author, 2020

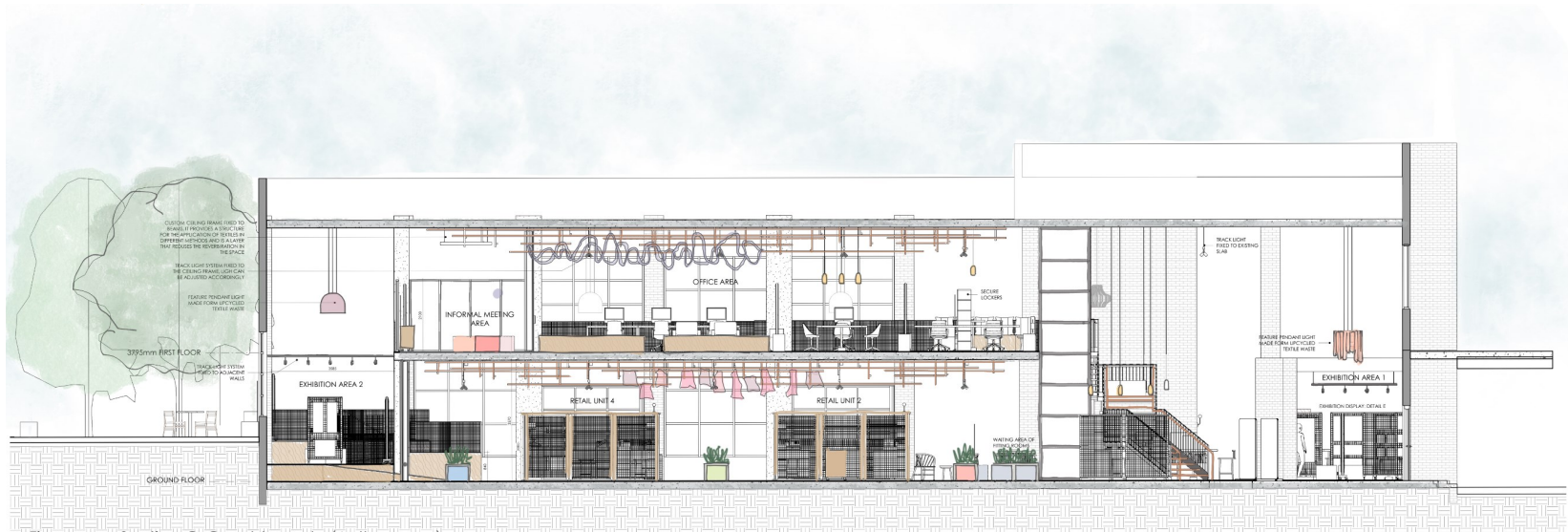


Figure 7.23 Section C-C, not to scale (Author, 2020)

7.3 CONCLUSION

The chapter provides a recapitulation of the design informants synthesised through the design development process into the final design. The aim is to acknowledge the relationship between Fast Fashion and interior architecture and to explore how alteration of both can support a circular economy. The purpose of the design intervention is to provide a spatial experience that is informative and encourages creative collaboration between the local community and occupants of the space, so as to empower and inspire users to make a difference in contributing to the circular economy.

CHAPTER 08

{technical development}

8.0 INTRODUCTION

Chapter 8 is concerned with the resolution of the design through materiality and technology. This entails resolution of the design at detail level and systems that support the programme and ensure user-comfort and well-being. A strategy for technical investigation and resolution and a material strategy are formulated in response to project needs, and through a synthesis of research findings. Both strategies work to translate the conceptual approach of a closed loop system into spatial and object design as well as user experience through the technical investigation.

8.1 TECHNICAL STRATEGY

The technical strategy is formulated to actively consider the environmental impact of interior components during the design and construction processes, with the aim of supporting sustainable design principles. The strategy facilitates the three design principles of multi-functionality, adaptability, and flexibility (c.f. Chapter 2). These approaches allow for the design of interior environments and components with a strategic concern for environmental impact. In turn, it ensures the effective management of resources and waste. This also responds to the resource efficiency, impact on environment, and socio-economic categories of the Green Star Rating Tool (c.f. Appendix B).

The design intervention is applied in layers related to the theory of adaptive reuse; intervention, insertion and installation, and the principles of a circular economy; longevity, lease, reuse, recycle, and upcycle. Resulting in the design intervention layers of; permanent, semi-permanent, loose and decorative.

Multi-functionality is considered in the design of office space to function as lecture space, as well for the skills development programme. For this reason, the furniture needs to accommodate these functional changes. The worktables in the Makerspace used for collaboration sessions double up as storage space. The production and consumption units are designed to allow for adaptability by designing for dis-assembly. This makes it possible for renters to adapt the unit according to their needs. Flexibility is considered in the design of the exhibition space by designing free-standing display units that can easily be moved to curate the exhibition space. These approaches have influenced the material selection and joinery techniques of the technical resolution of the design details.

Layers of desing intervention

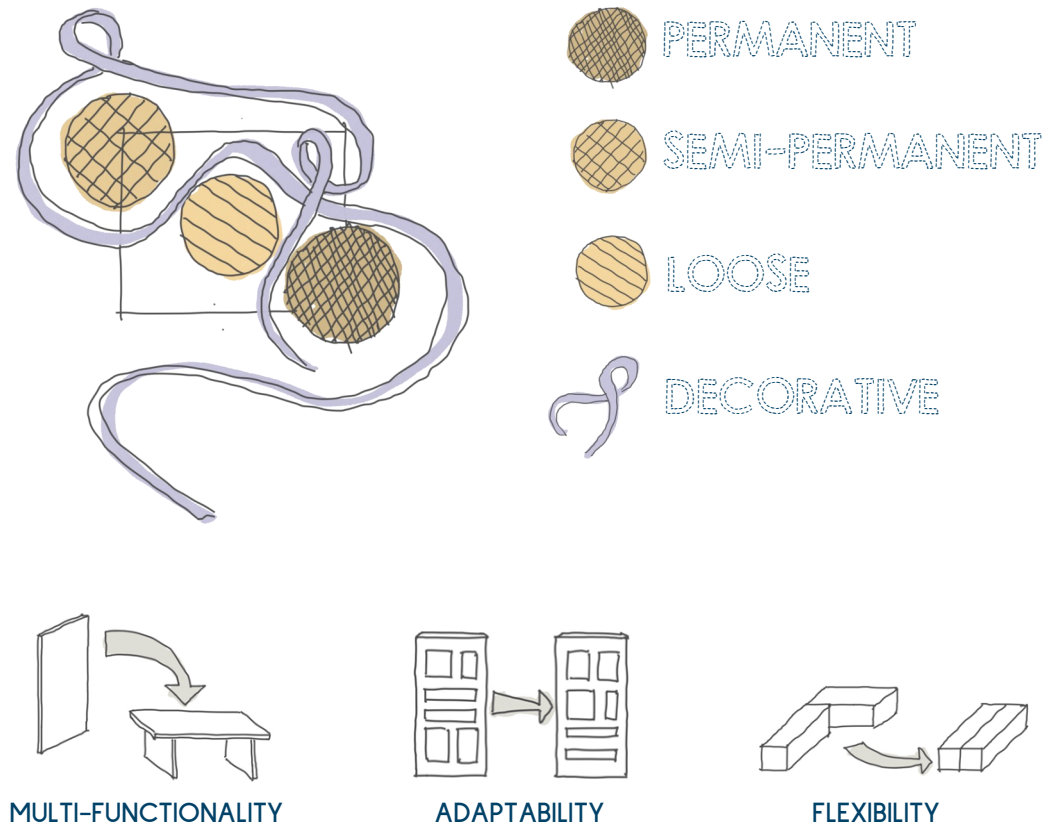


Figure 8.1 Technical strategy Author, 2020)

CLOSING THE LOOP

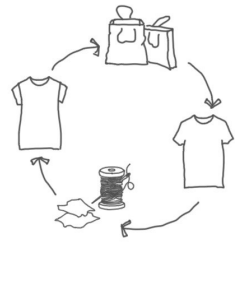
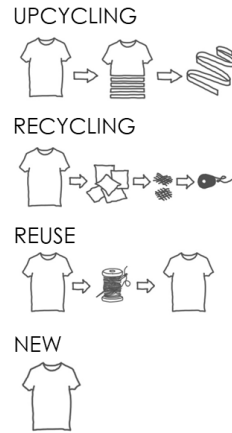


Figure 8.2 Material strategy (Author, 2020)



8.2 MATERIALS

Materials are purposely selected to support and reinforce the concept of closing the loop through design. The material palette involves a combination of upcycled, recycled, reused, and new materials to limit the environmental impact. The reuse of existing materials aims to influence that perception users have of the value of existing materials and to show how their lifecycle can be extended while still being aesthetically pleasing. The spatial narrative of informing the user through interaction is translated in the combined material palette that is applied in the design details. For this reason, the lifecycle and durability of materials are important drivers in the selection of materials, as well as in the joinery techniques that need to allow for dis-assembly and longevity.

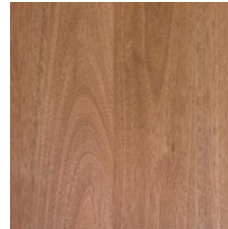


Figure 8.3

SALIGNA:

Indigenous hardwood that responds well to craftsmanship and is durable and recyclable.



Figure 8.4

MILD STEEL PROFILES:

The material can be recycled without losing quality. Require less materials to carry a large load. Durable material. Blackened finish - hot rolled process.



Figure 8.5

WOVEN STEEL MESH:

The material can be recycled without losing quality. Require less materials than solid surface. Durable material.

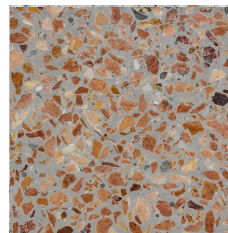


Figure 8.6

TERRAZZO TILES:

Made from recycled demolished concrete, brick and glass with a matt finish. Durable material.

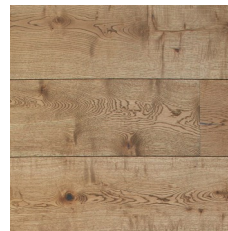


Figure 8.7

TIMBER FLOORING:

Grande Rustic range with a Brazil brown finish. The product is durable and can be reused.

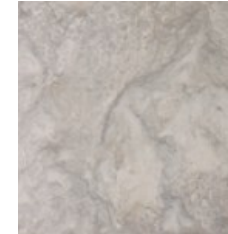


Figure 8.8

LIMESITE:

Colour - dove grey. A refined concrete that is strong and durable. It is a recyclable material.

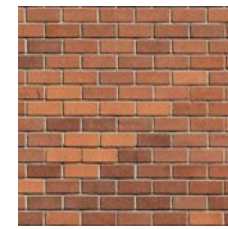


Figure 8.9

RED FACE BRICK:

Matching the existing material palette. A strong and durable material that can be recycled or reused.



Figure 8.10

PG SMART GLASS 2X:

Double glazing that has good insulation, energy efficiency and comfort qualities. It is a durable and recyclable material.



Figure 8.11

POST-CONSUMER TEXTILE WASTE

Textile waste is upcycled or recycled to upholster furniture.



Figure 8.12

TRI TILE:

Colour - platinum. Made from 81% recycled materials. It is 100% locally sourced and is a recyclable material.



Figure 8.13

BRASS EDGE TRIM:

Used as divider between different floor finishes. It is a strong and durable material that can be recycled or reused.

8.3 DETAIL DESIGN AND RESOLUTION

8.3.1 CIRCULATION

Movement through the space is a critical consideration in terms of both practical use and the design narrative. The design explores how the multi-use programme may be connected through interior elements that encourage movement and interaction between spaces and buildings, inside and out.

The interior elements: staircase, bridge, ramp, and doors aim to encourage interaction and highlight the transition between spaces that creates visual connections to how the spaces are occupied as the user moves through the spaces and buildings. The different interior elements translate the dynamic nature of Fast Fashion; how interaction and connection support the concept of closing the loop.

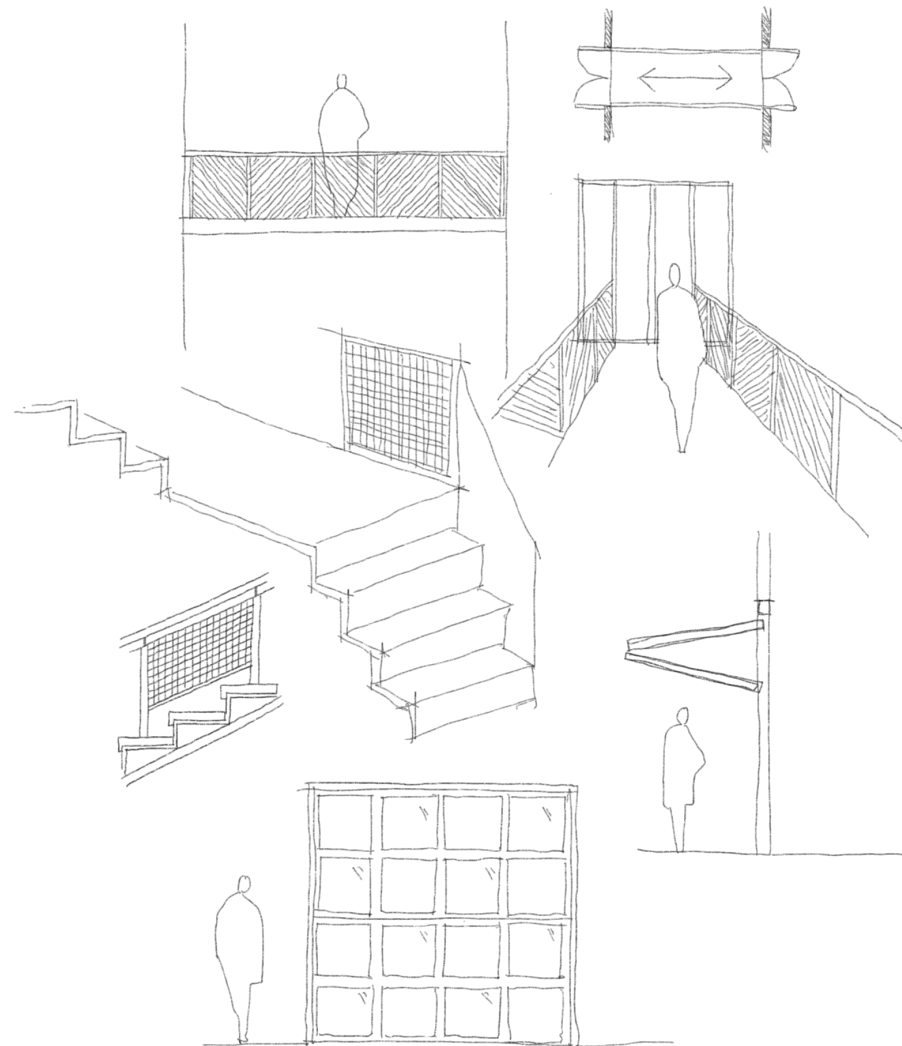
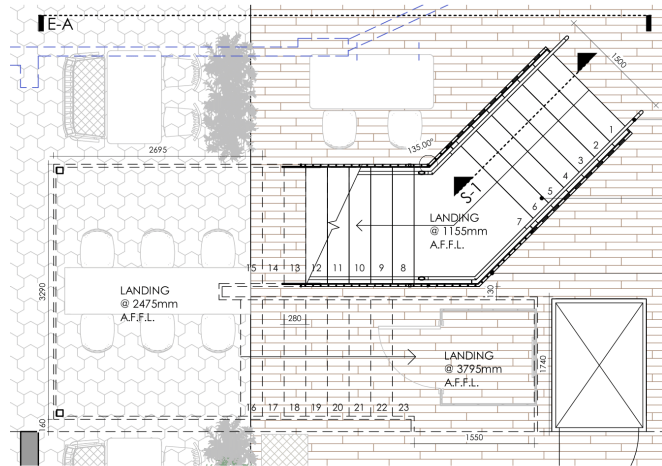


Figure 8.14 Sketches of circulation (Author, 2020)

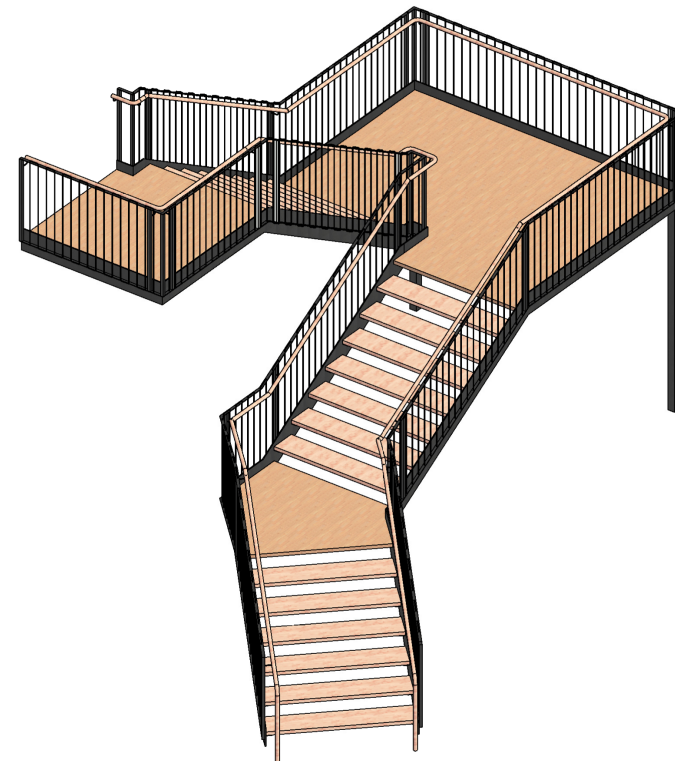
DETAIL A: STAIRCASE & BALUSTRADE



STAIRCASE ON PLAN

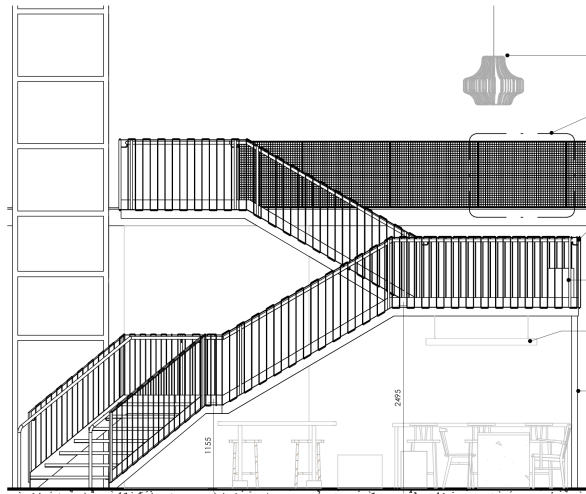
Figure 8.15 Staircase on plan, not to scale (Author, 2020)

- 40mm DIA SALIGNA HARDWOOD HANDRAIL WITH A 300mm EXTENSION AT THE BOTTOM OF THE STAIRCASE
- 1500x280x40mm SALIGNA HARDWOOD TREAD FIXED TO STRINGER BRACKETS WITH COUNTERSUNK SELF-TAPPING SCREWS
- 8mm 6x19FC/WRC BLACK STEEL WIRE CABLE WOVEN THROUGH THE TOP AND BOTTOM RAIL FIXED WITH A CABLE FERRULE AT THE END POINTS



AXONOMETRIC OF STAIRCASE

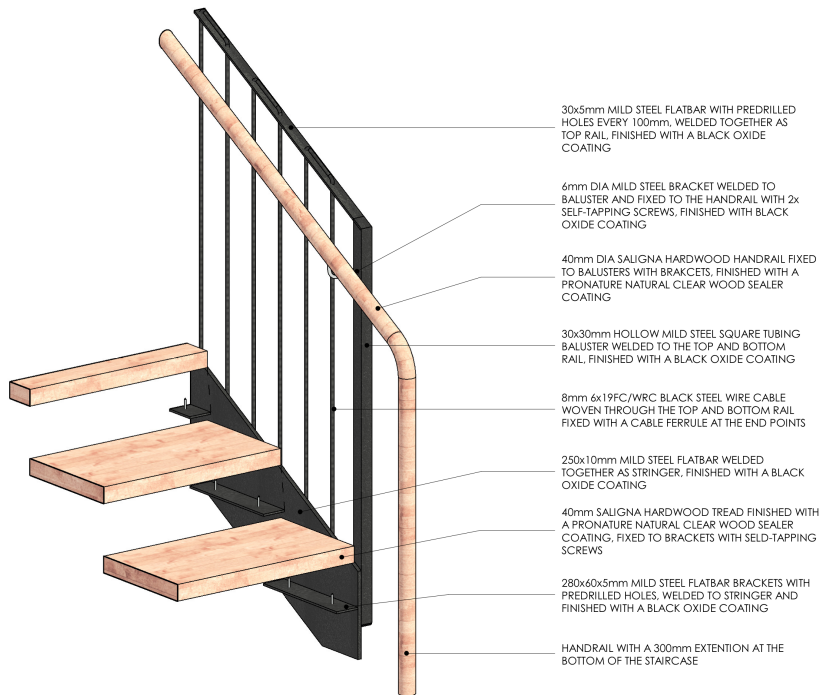
Figure 8.17 Axonometric of staircase (Author, 2020)



ELEVATION OF STAIRCASE

Figure 8.16 Elevation-A of staircase, not to scale (Author, 2020)

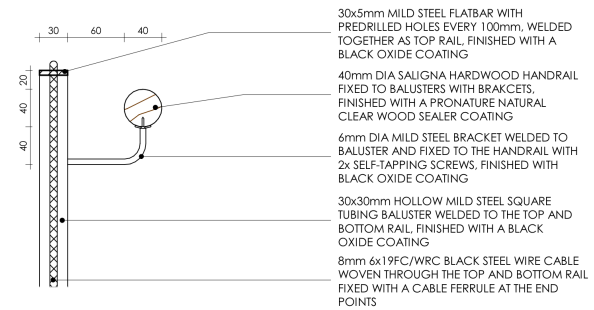
- CUSTOM FEATURE PENDANT LIGHT HANGING ABOVE LANDING, FIXED TO THE EXISTING SOFFIT
- 900mm HIGH MILD STEEL AND MESH FINISHED WITH BLACK OXIDE COATING BALUSTRADE. SEE DETAIL A2: BALUSTRADE 2
- 920mm HIGH MILD STEEL AND STEEL WIRE CABLE BALUSTRADE WITH 920mm HIGH HANDRAIL. SEE AXONOMETRIC SECTION-1 OF DETAIL A: STAIRCASE
- 1500mm BENCH SEATING AND PLANTER BOX PLACED ON LANDING
- 1500mm BLACK ALUMINIUM ANVICO SUSPENDED LIGHT FIXED TO THE STEEL FRAME OF STAIRCASE
- 80x80mm HOLLOW MILD STEEL SQUARE TUBING FIXED TO STEEL FRAME OF STAIRCASE LANDING COLUMN FINISHED WITH BLACK OXIDE COATING



AXONOMETRIC SECTION-1 OF STAIRCASE

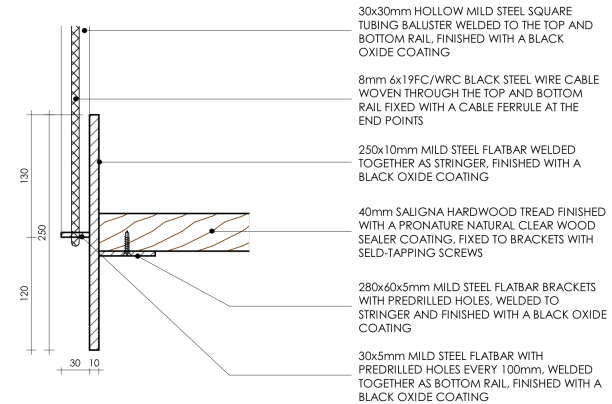
Figure 8.18 Axonometric section of staircase (Author, 2020)

- 30x5mm MILD STEEL FLATBAR WITH PREDRILLED HOLES EVERY 100mm, WELDED TOGETHER AS TOP RAIL, FINISHED WITH A BLACK OXIDE COATING
- 6mm DIA MILD STEEL BRACKET WELDED TO BALUSTER AND FIXED TO THE HANDRAIL WITH 2x SELF-TAPPING SCREWS, FINISHED WITH BLACK OXIDE COATING
- 40mm DIA SALIGNA HARDWOOD HANDRAIL FIXED TO BALUSTERS WITH BRACKETS, FINISHED WITH A PRONATURE NATURAL CLEAR WOOD SEALER COATING
- 30x30mm HOLLOW MILD STEEL SQUARE TUBING BALUSTER WELDED TO THE TOP AND BOTTOM RAIL, FINISHED WITH A BLACK OXIDE COATING
- 8mm 6x19FC/WRC BLACK STEEL WIRE CABLE WOVEN THROUGH THE TOP AND BOTTOM RAIL FIXED WITH A CABLE FERRULE AT THE END POINTS
- 250x10mm MILD STEEL FLATBAR WELDED TOGETHER AS STRINGER, FINISHED WITH A BLACK OXIDE COATING
- 40mm SALIGNA HARDWOOD TREAD FINISHED WITH A PRONATURE NATURAL CLEAR WOOD SEALER COATING, FIXED TO BRACKETS WITH SELF-TAPPING SCREWS
- 280x60x5mm MILD STEEL FLATBAR BRACKETS WITH PREDRILLED HOLES, WELDED TO STRINGER AND FINISHED WITH A BLACK OXIDE COATING
- HANDRAIL WITH A 300mm EXTENTION AT THE BOTTOM OF THE STAIRCASE



HANDRAIL SECTION

Figure 8.19 Handrail section of staircase (Author, 2020)



TREAD SECTION

Figure 8.20 Tread section of staircase (Author, 2020)

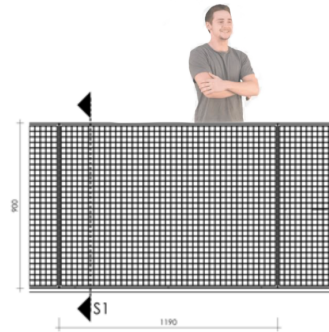


SEMI-PERMANENT

The balustrade becomes dynamic in the space when users interact with the textiles woven through the mesh panels. The woven textiles is post-consumer textiles waste that is either recycled or upcycled.

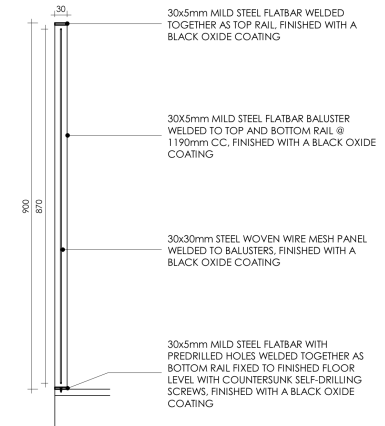


Figure 8.24 Reference image of interaction with balustrade (Tonoandco, n.d.)



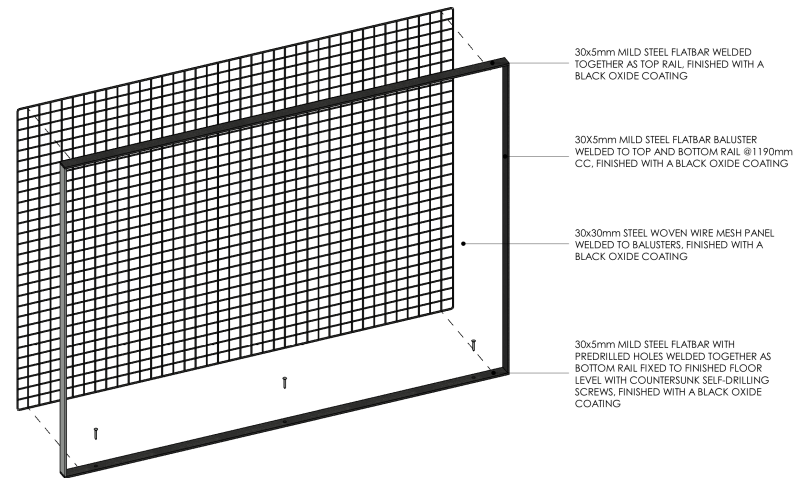
ELEVATION OF BALUSTRADE

Figure 8.21 Elevation-A of balustrade, not to scale (Author, 2020)



SECTION OF BALUSTRADE

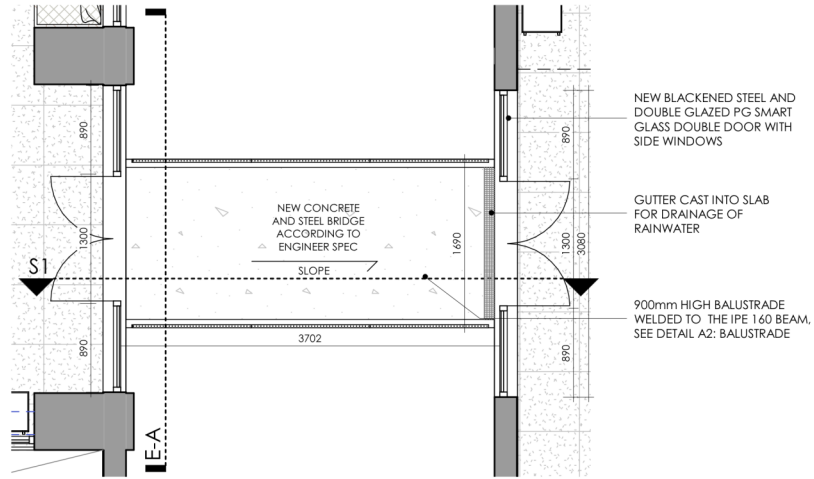
Figure 8.22 Section-1 of balustrade, not to scale (Author, 2020)



EXPLODED AXONOMETRIC OF BALUSTRADE

Figure 8.23 Exploded axonometric of balustrade (Author, 2020)

DETAIL B: BRIDGE



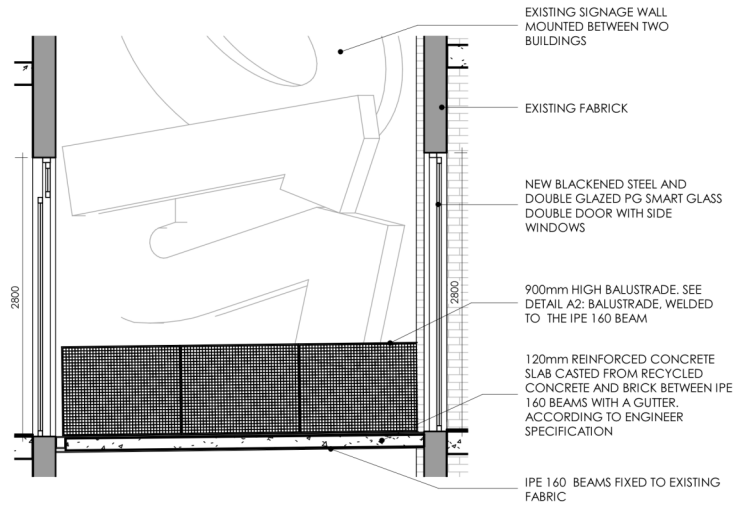
BRIDGE ON PLAN

Figure 8.25 Bridge on plan, not to scale (Author, 2020)



PERSPECTIVE OF BRIDGE

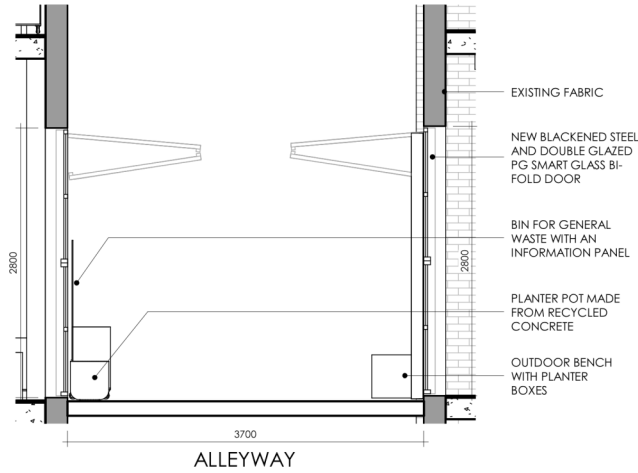
Figure 8.27 Perspective of bridge (Author, 2020)



SECTION OF BRIDGE

Figure 8.26 Section-1 of bridge, not to scale (Author, 2020)

DETAIL C: DOORS



SECTION OF DOORS

Figure 8.28 Section-1 of doors, not to scale (Author, 2020)



PERSPECTIVE OF BRIDGE

Figure 8.30 Perspective of alleyway (Author, 2020)



ELEVATION OF DOORS

Figure 8.29 Elevation of doors, not to scale (Author, 2020)



Figure 8.31 Reference image (Crown doors, n.d.)

8.3.2 PRODUCTION AND CONSUMPTION

The interior elements: the Maker unit and Retail unit are designed to facilitate the production and consumption of products made using post-consumer textile waste (provided by the Processing Plant). The design of the interior elements is driven by the design informants (c.f. Chapter 7) and to allow for adaptability that extends the lifecycle of the units. The units support a circular economy by facilitating the process of production and consumption in a closed loop system. The units are installed in the Rezmep 7 and FNB buildings.

Alteration of the unit that allows for personalisation by different users through designing for adaptability, multi-functionality. The adaptability of the unit allows the user to adapt the unit according to their needs. The unit is multi-functional and can be used as either a Maker unit or a Retail unit.

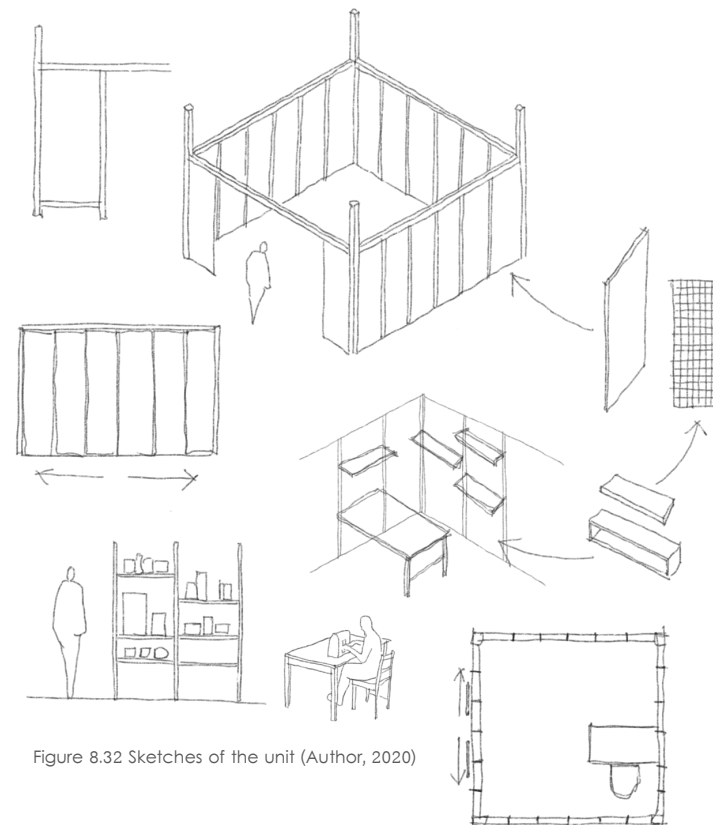


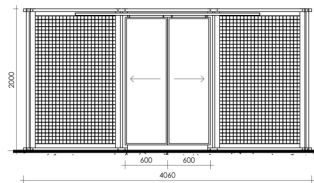
Figure 8.32 Sketches of the unit (Author, 2020)

DETAIL D: UNIT



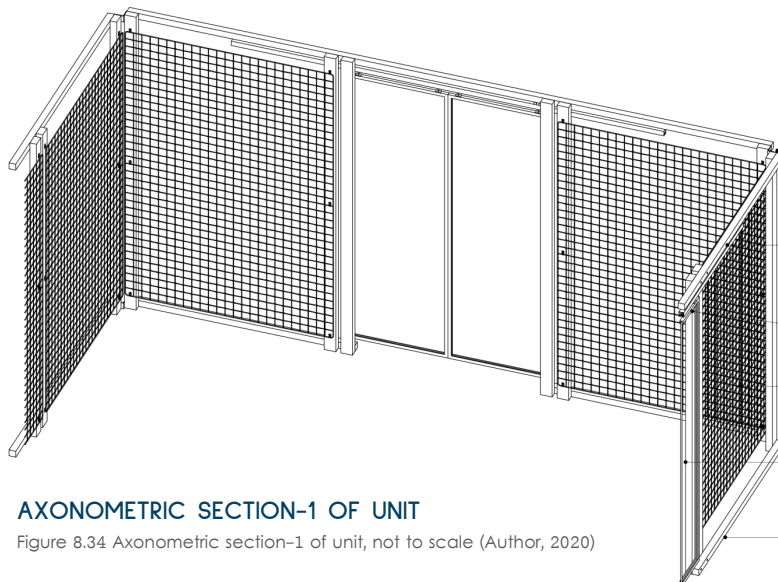
The whole joinery system of the unit is designed for dis-assembly that allows for the replacement of components when needed, and for easy installation and removal.

The uses and the adaptability of the unit require the materials to be durable, aesthetically pleasing, and easily replaceable, and it is important to consider the lifecycle of the materials.



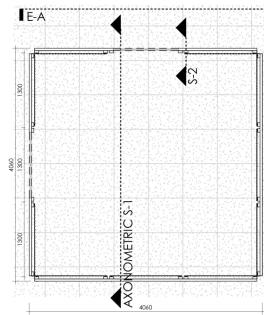
ELEVATION OF UNIT

Figure 8.35 Elevation of unit, not to scale (Author, 2020)



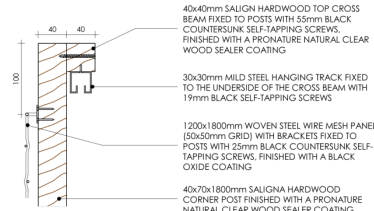
AXONOMETRIC SECTION-1 OF UNIT

Figure 8.34 Axonometric section-1 of unit, not to scale (Author, 2020)



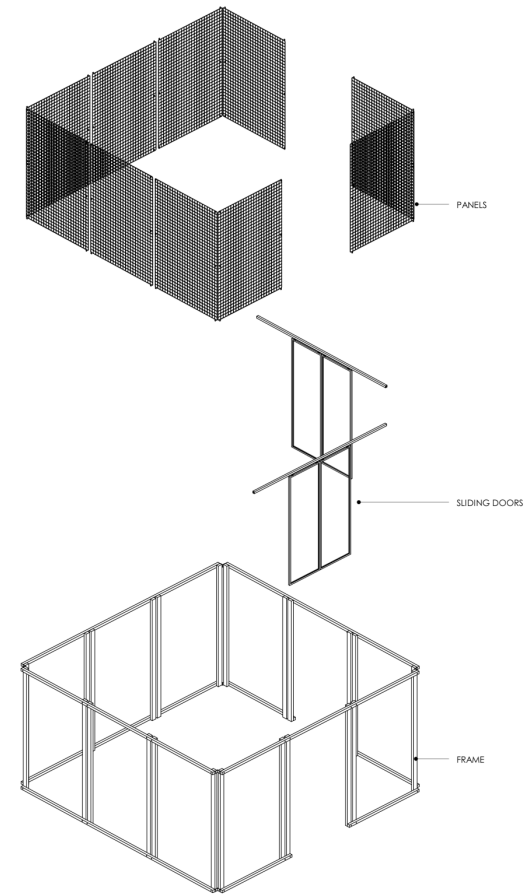
UNIT ON PLAN

Figure 8.33 Unit on plan, not to scale (Author, 2020)



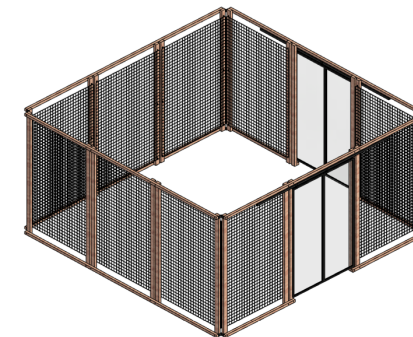
SECTION-2 OF UNIT

Figure 8.36 Section-2 of unit, not to scale (Author, 2020)



EXPLODED AXONOMETRIC OF UNIT

Figure 8.37 Exploded axonometric of unit, not to scale (Author, 2020)



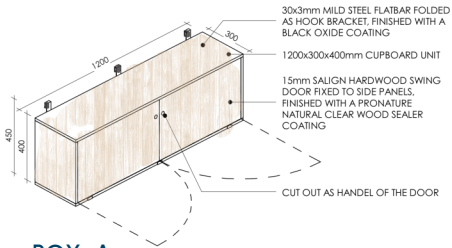
AXONOMETRIC OF UNIT

Figure 8.38 Axonometric of unit, not to scale (Author, 2020)

- 40x40mm SALIGN HARDWOOD TOP CROSS BEAM FIXED TO POSTS WITH 55mm BLACK COUNTERSUNK SELF-TAPPING SCREWS, FINISHED WITH A PRONATURE NATURAL CLEAR WOOD SEALER COATING
- 30x30mm MILD STEEL HANGING TRACK FIXED TO THE UNDERSIDE OF THE CROSS BEAM WITH 19mm BLACK SELF-TAPPING SCREWS
- 1200x1800mm WOVEN STEEL WIRE MESH PANEL (30x30mm GRID) WITH BRACKETS FIXED TO POSTS WITH 25mm BLACK COUNTERSUNK SELF-TAPPING SCREWS, FINISHED WITH A BLACK OXIDE COATING
- 40x70x1800mm SALIGNA HARDWOOD CORNER POST FINISHED WITH A PRONATURE NATURAL CLEAR WOOD SEALER COATING

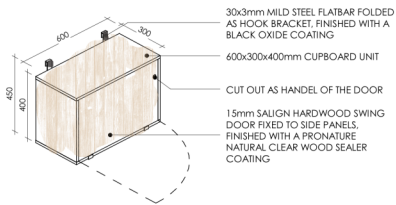
- 30x30mm MILD STEEL EQUAL ANGLE BRACKET FIXED TO CORNER POSTS WITH 19mm BLACK COUNTERSUNK SELF-TAPPING SCREWS, FINISHED WITH A BLACK OXIDE COATING
- 40x70x1800mm SALIGNA HARDWOOD CORNER POST FINISHED WITH A PRONATURE NATURAL CLEAR WOOD SEALER COATING
- 40x40mm SALIGN HARDWOOD TOP CROSS BEAM FIXED TO POSTS WITH 55mm BLACK COUNTERSUNK SELF-TAPPING SCREWS, FINISHED WITH A PRONATURE NATURAL CLEAR WOOD SEALER COATING
- 30x30mm MILD STEEL HANGING TRACK FIXED TO THE UNDERSIDE OF THE CROSS BEAM WITH 19mm BLACK SELF-TAPPING SCREWS
- 1200x1800mm WOVEN STEEL WIRE MESH PANEL (30x30mm GRID) WITH BRACKETS FIXED TO POSTS WITH 25mm BLACK COUNTERSUNK SELF-TAPPING SCREWS, FINISHED WITH A BLACK OXIDE COATING
- 600x1800x20mm DOOR WITH A 20x20mm MILD STEEL FRAME FINISHED WITH A BLACK OXIDE COATING AND PG SMART GLASS INFILL, FIXED WITH 2x SLIDING WHEELS ON THE TOP OF THE DOOR FRAME TO RUN IN THE TRACK
- 40x40mm SALIGN HARDWOOD BOTTOM CROSS BEAM FIXED TO POSTS WITH 55mm BLACK COUNTERSUNK SELF-TAPPING SCREWS, FINISHED WITH A PRONATURE NATURAL CLEAR WOOD SEALER COATING

DETAIL D: UNIT COMPONENTS



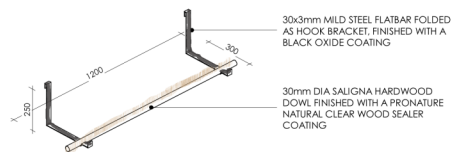
BOX_A

Figure 8.39 Box A component, not to scale (Author, 2020)



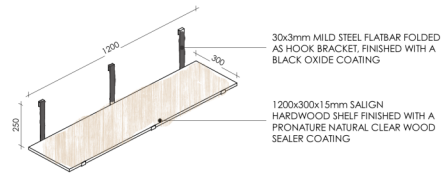
BOX_B

Figure 8.40 Box B component, not to scale (Author, 2020)



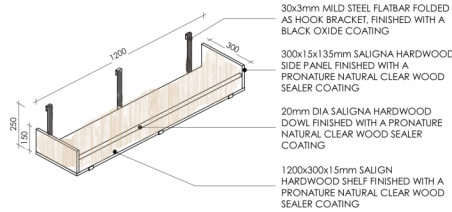
HANG RACK

Figure 8.41 Hang rack component, not to scale (Author, 2020)



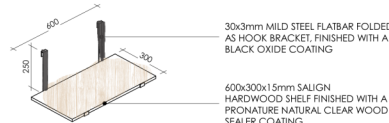
SHELF_A

Figure 8.42 Shelf A component, not to scale (Author, 2020)



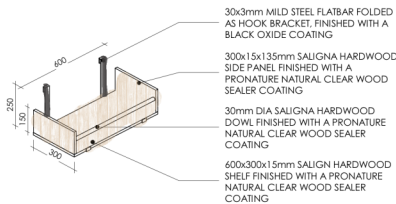
SHELF_B

Figure 8.43 Shelf B component, not to scale (Author, 2020)



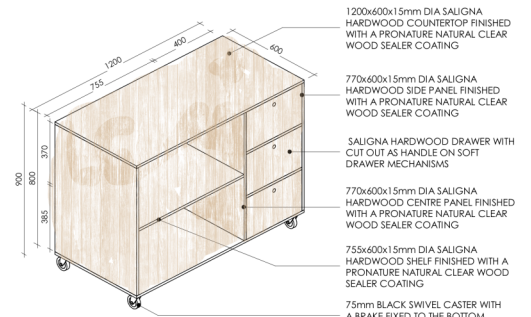
SHELF_C

Figure 8.44 Shelf C component, not to scale (Author, 2020)



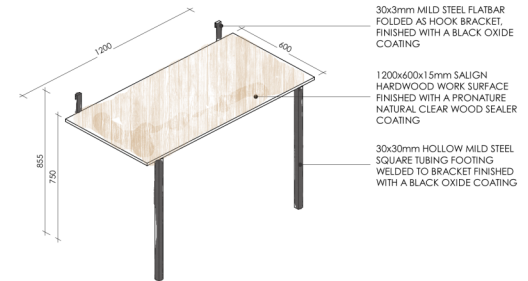
SHELF_D

Figure 8.45 Shelf D component, not to scale (Author, 2020)



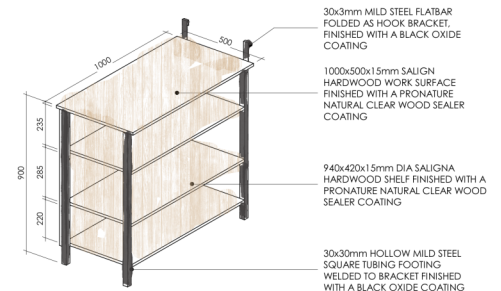
WORKBENCH

Figure 8.46 Workbench component, not to scale (Author, 2020)



WORK SURFACE

Figure 8.47 Work surface component, not to scale (Author, 2020)



HIGH COUNTER

Figure 8.48 High counter component, not to scale (Author, 2020)

DETIAL D1: MAKER UNIT (production & consumption)

The aim of the unit is to portray the different methods of how the lifecycle of post-consumer textile waste can be extended to encourage sustainable consumption. The unit is designed to encourage interaction between the maker and the consumer. The language of the unit, adaptability, materiality, and construction, is designed to express the idea of craftsmanship.

Adaptability allows the individual users/makers to adapt the space according to their needs and to express their brand identity. The joinery system allows the user to re-arrange the shelving, storage and work surfaces according to their individual functional needs. The units are enclosed with a combination of fixed and movable panels. The movable panels can be changed by the user to determine the points of access and can be used for branding.

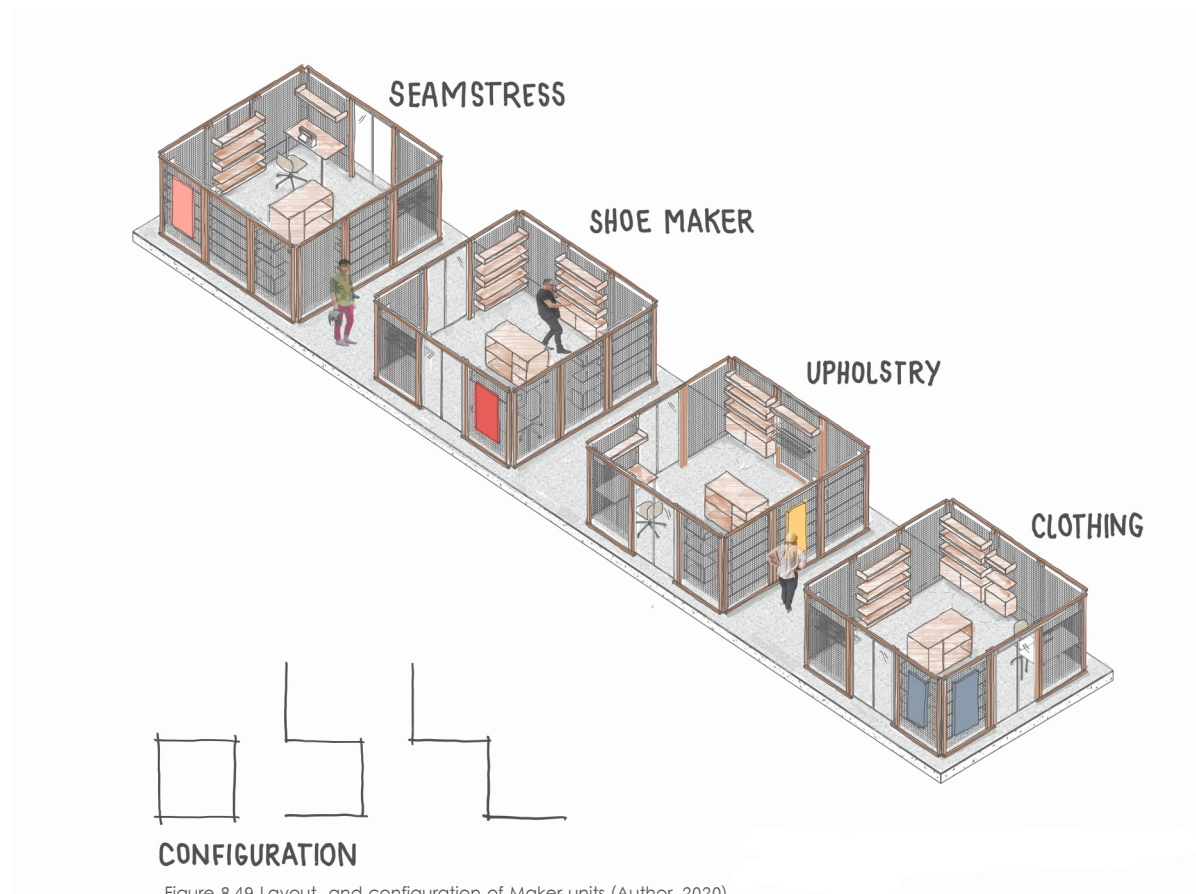


Figure 8.49 Layout and configuration of Maker units (Author, 2020)



DETAIL D2: RETAIL UNIT (consumption)

The unit is designed as a 'pop-up' retail space. Therefore, the design for display of products is an important component. The main structure of the unit and the components is the same as the Maker unit with the same adaptable joinery, where the retailer may tailor the space according to their product/s and brand identity.

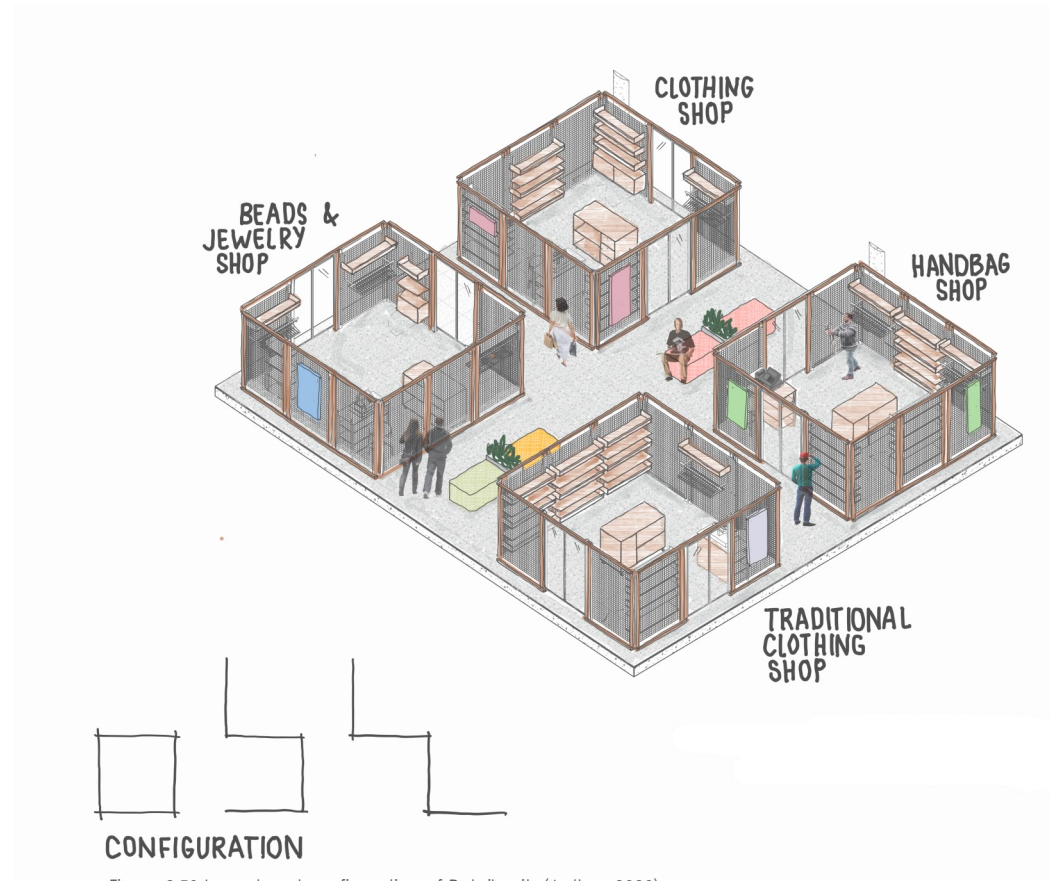
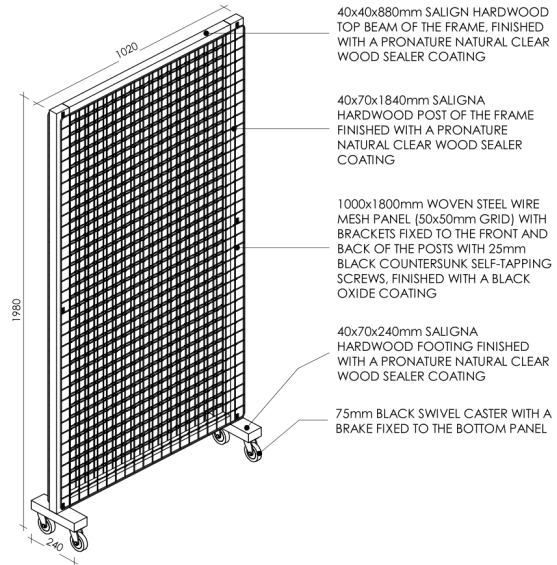


Figure 8.50 Layout and configuration of Retail units (Author, 2020)

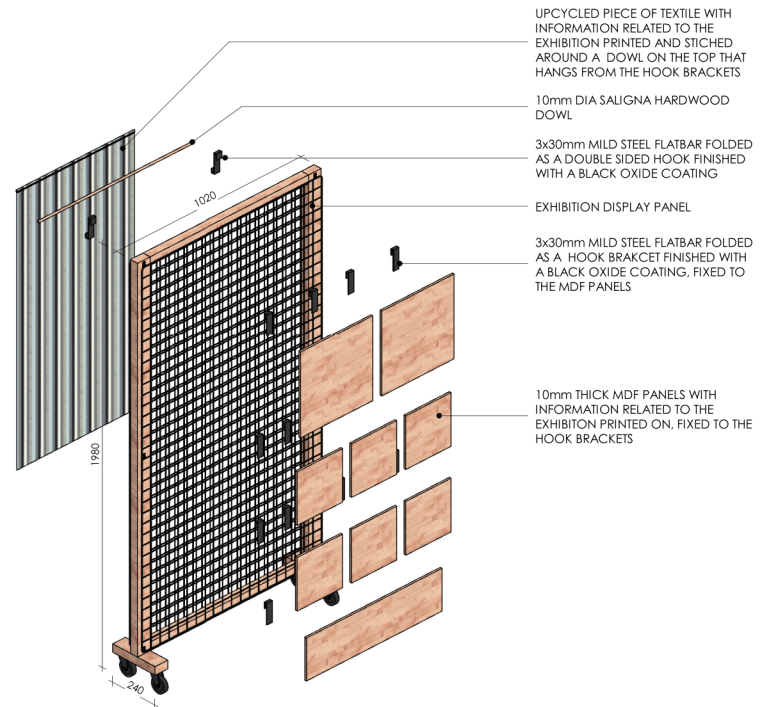


DETAIL E: EXHIBITION DISPLAY



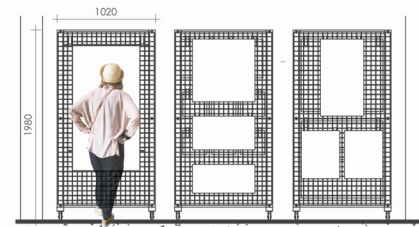
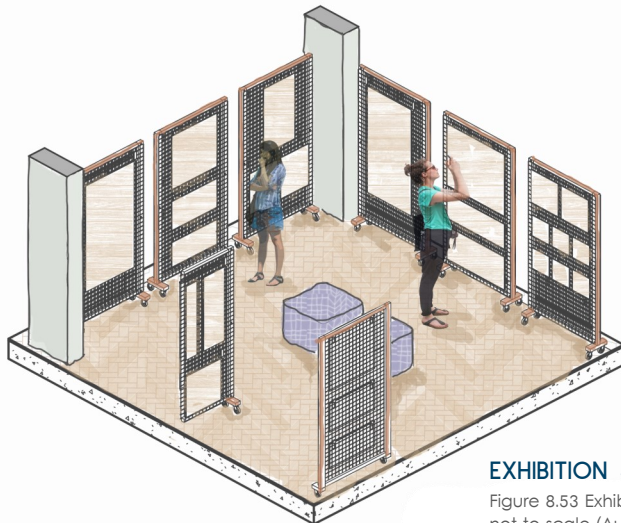
AXONOMETRIC OF DISPLAY PANEL

Figure 8.51 Axonometric of display panel, not to scale (Author, 2020)



EXPLODED AXONOMETRIC OF DISPLAY PANEL

Figure 8.52 Exploded axonometric of display panel, not to scale (Author, 2020)





8.4 SYSTEMS

8.4.1 CLIMATE

VENTILATION:

Natural ventilation is an important element in improving the indoor environmental quality for occupants. The buildings are passively ventilated through cross ventilation. The movement of the air is influenced by opening and closing of the new doors on the ground floor of the buildings.

NATURAL DAYLIGHT:

The natural illumination of the buildings is increased through the alteration of the southern elevations and the building elevations facing the alleyway. The southern light is soft throughout the year and the northern light is direct in the winter and indirect in the summer.

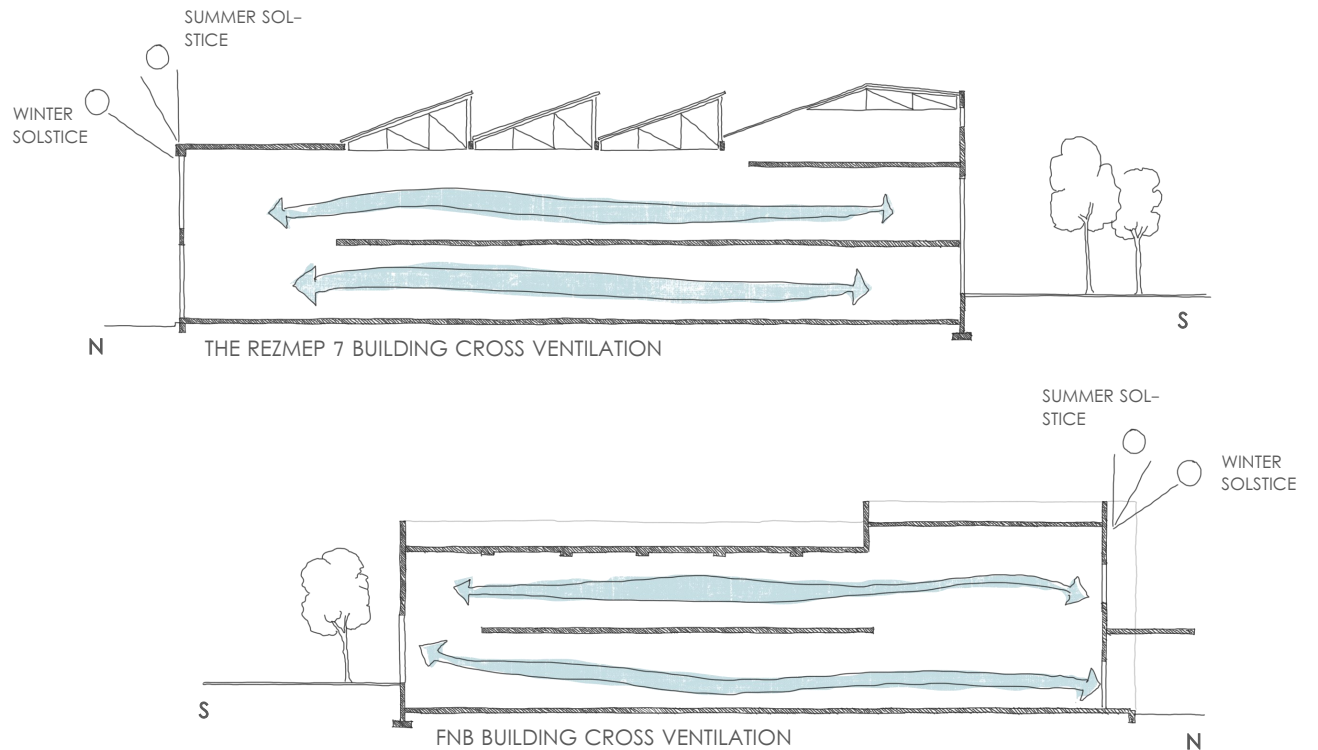


Figure 8.55 Systems of the buildings (Author, 2020)

8.4.2 ARTIFICIAL LIGHTING

Artificial lighting is used to influence the spatial quality and narrative of the different spaces and to improve the lighting quality for functional tasks where needed. The overall track light system allows for flexibility in the spaces.

SEMI-PERMANENT



Figure 8.56



Figure 8.57



Figure 8.58



Figure 8.59



Figure 8.60



Figure 8.61



Figure 8.62



Figure 8.63



Figure 8.64















Figure 8.65



Figure 8.66

LEGEND LUMINAIRES

 Figure 8.56	SURFACE MOUNTED BLACK ALUMINUM DOWNLIGHT-LED
 Figure 8.57	BLACK ALUMINUM AVICO SUSPENDED LIGHT WITH LED LAMP
 Figure 8.58	SUSPENDED BARIL BLACK GU10 3 WIRE TRACK ANTI-GLARE SPOTLIGHT FLEXIBLE SYSTEM
 Figure 8.59	BLACK ALUMINUM UP & DOWN FACING WALL LIGHT WITH LED LAMP
 Figure 8.60	BLACK ALUMINUM EXTERIOR WALL LIGHT WITH A LED LAMP
 Figure 8.61	LUNE SWING WALL LAMP-LED
 Figure 8.62	JP0037: WALL LIGHT METAL T1L MATT BLACK G9 BI-PIN
 Figure 8.63	CUSTOM GLASS DOME WALL LIGHT MADE FROM RECYCLED GLASS WITH A LED LAMP
 Figure 8.64	PENDANT LIGHT GLASS CYLINDER ELECTROPLATED RETRO GLOBE WITH LED LAMP
 Figure 8.65	FEATURE PENDANT LIGHT 1 MADE FROM UPCYCLED TEXTILE WASTE WITH A LED LAMP
 Figure 8.66	FEATURE PENDANT LIGHT 2 MADE FROM UPCYCLED TEXTILE WASTE WITH A LED LAMP
 Figure 8.67	FEATURE PENDANT LIGHT 2MADE FROM UPCYCLED TEXTILE WASTE WITH A LED LAMP

GROUND FLOOR:

THE REZMEP 7 BUILDING: – the Maker units require task lighting.

THE FNB BUILDING – the exhibition displays require focused lighting that highlights the information that is displayed. The Retail units each require lighting to highlight products on display as well as ambient lighting in between the units that guides the user as they move through the space. Pendant lights are placed in the double volumes as sculptural elements to provide atmospheric lights made of post-consumer textile waste.

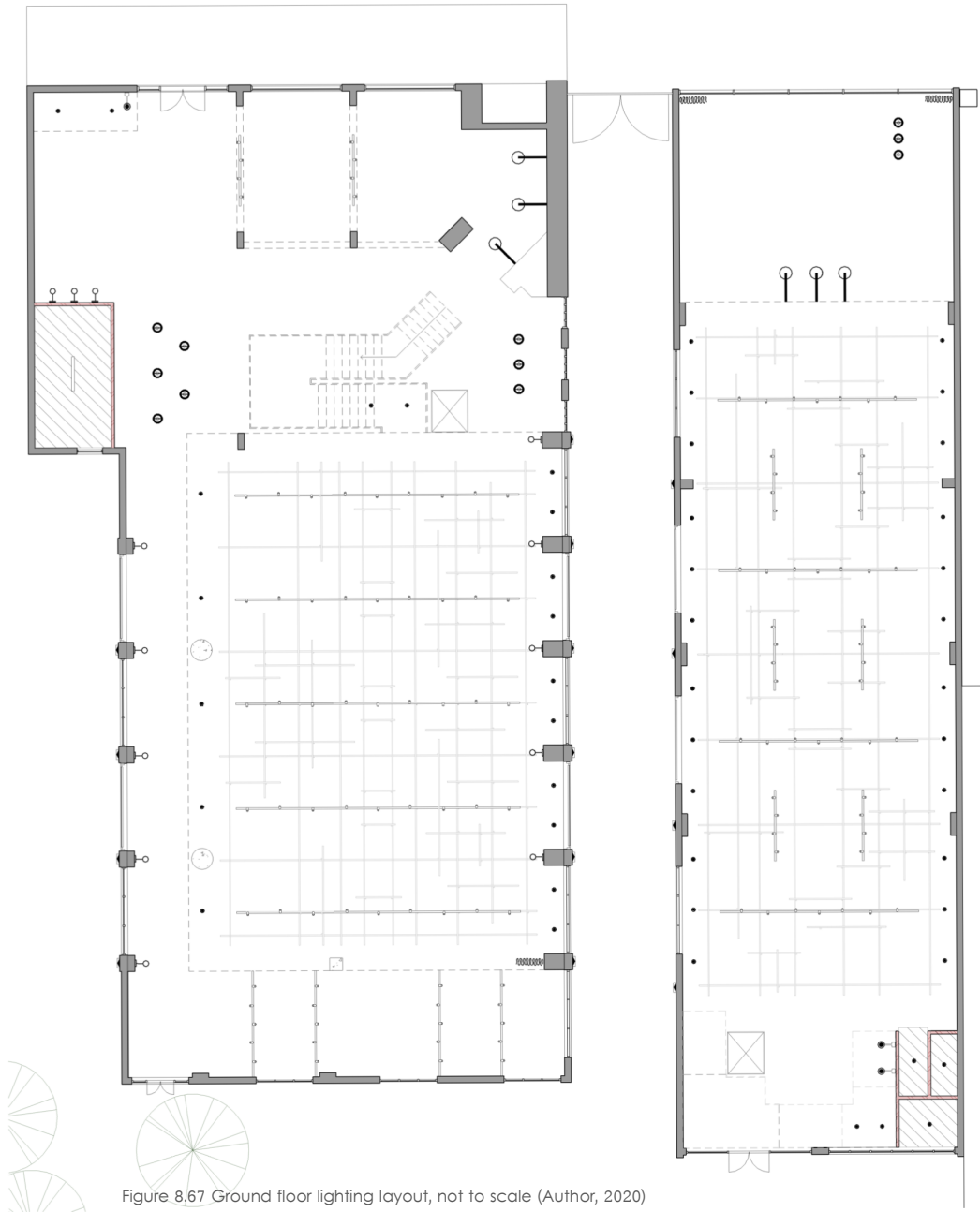


Figure 8.67 Ground floor lighting layout, not to scale (Author, 2020)

FIRST FLOOR:

THE REZMEP BUILDING – the space requires task lighting above the sewing machines and cutting tables.

THE FNB BUILDING – the workstations in the office space requires task lighting.

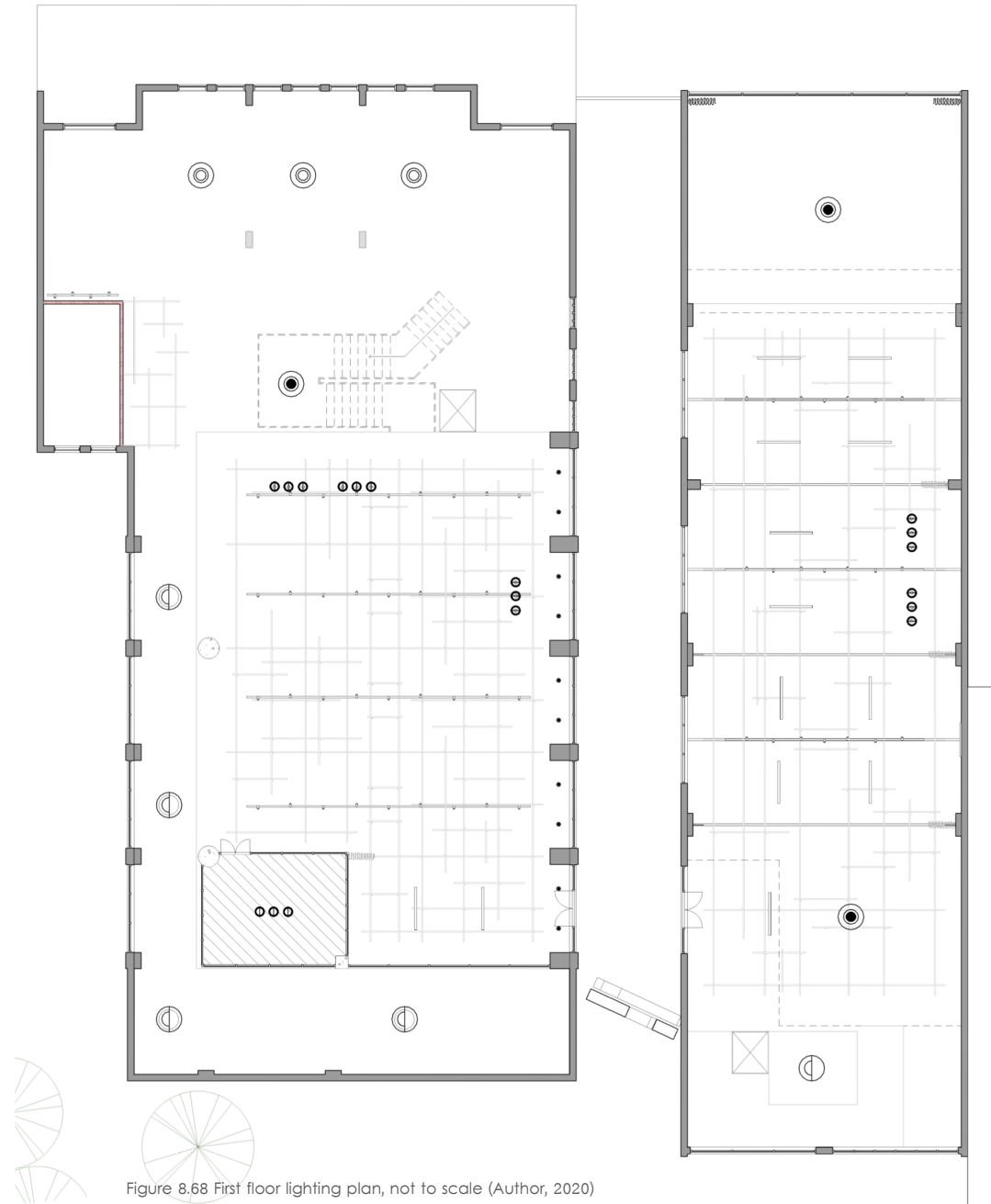


Figure 8.68 First floor lighting plan, not to scale (Author, 2020)

8.4.3 ACOUSTICS

The acoustic quality of a space influences the spatial experience. The spaces each have a different function. Therefore, the acoustic design of each space is treated separately. The overall system is a wood structure that allows for the use of post-consumer textile waste to reduce the reverberation time in the space that aims to improve the acoustic quality of the space. It is a static system that becomes dynamic.



GROUND FLOOR:

THE FNB BUILDING – the café is the biggest noise generator, due to the equipment and conversation, music and noise of the cutlery and furniture that occupy the space. Therefore, the ceiling treatment above the coffee bar needs to absorb the noise generated by the coffee machines, as well as the floor treatment to absorb the noise generated by the users moving the furniture and people moving through the space.

THE REZMEP 7 BUILDING – the Maker units each generates a noise level from the equipment used by the maker. Therefore, the ceiling and floor treatment is important to absorb the noise to improve the acoustic quality of the space.



Figure 7.69 Post-consumer textile waste (Author, 2020)

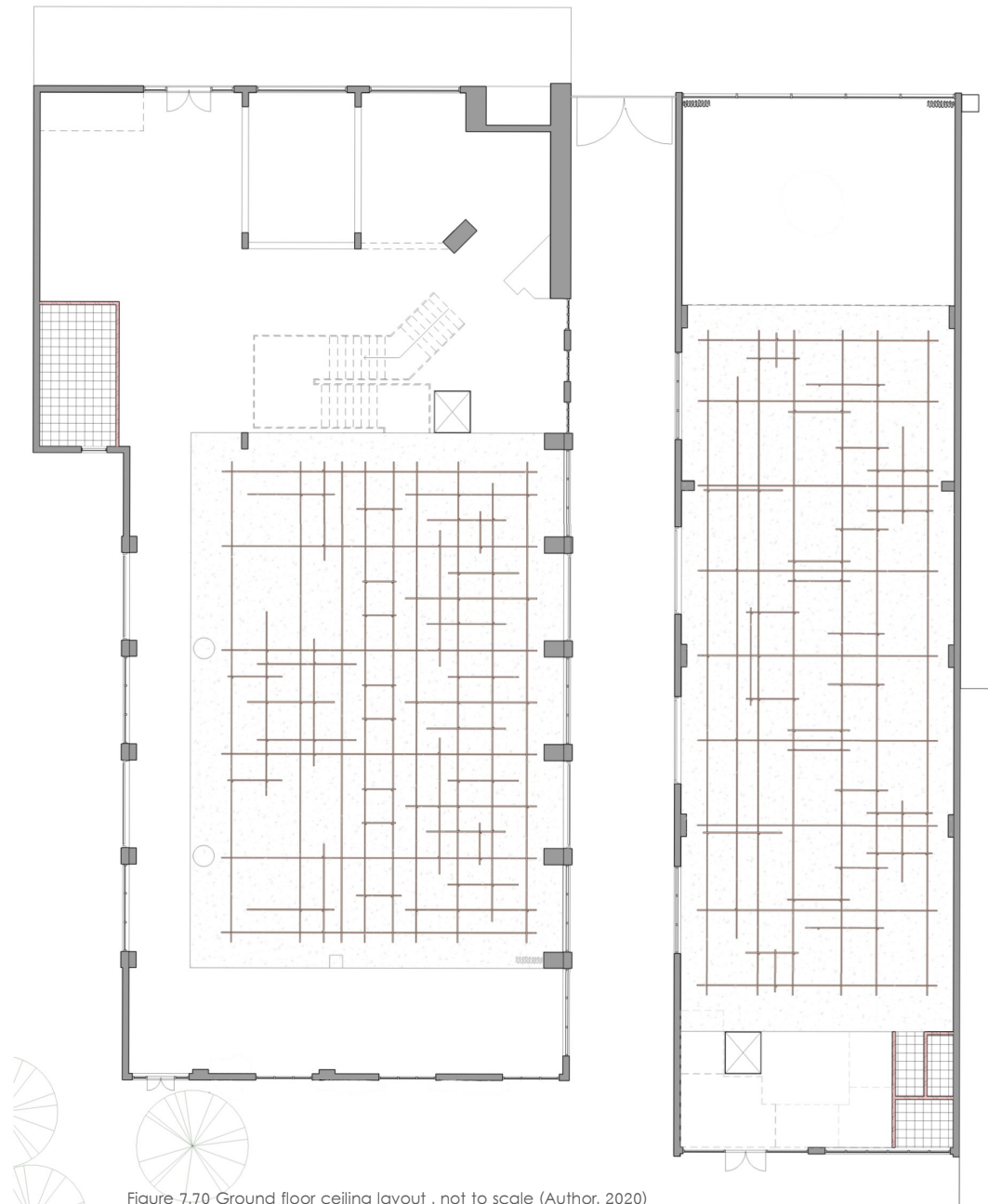


Figure 7.70 Ground floor ceiling layout , not to scale (Author, 2020)

FIRST FLOOR:

THE REZMEP 7 BUILDING – the noise generated from the sewing machines need to be reduced. Therefore, the ceiling and floor treatment as well as work surfaces are important to absorb the noise to improve the acoustic quality of the space.

THE FNB BUILDING – the noise generated by users working in the space need to be reduced, as well as the noise generated from students attending the classes for the skills development programme. Therefore, the ceiling and floor treatment is important to absorb the noise to improve the acoustic quality of the space.

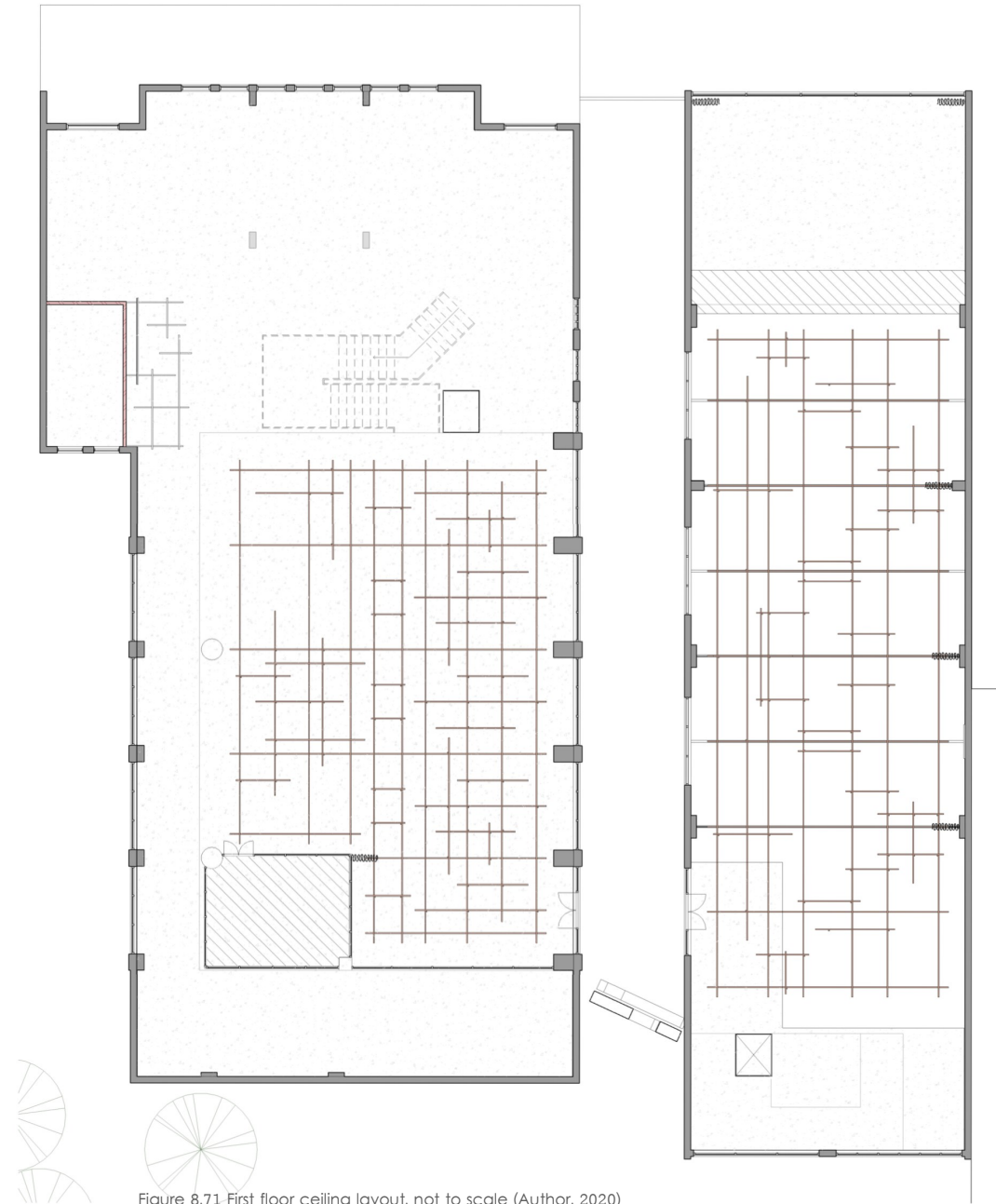


Figure 8.71 First floor ceiling layout, not to scale (Author, 2020)





8.4.4 FURNITURE



The furniture is a combination of new, second-hand and upcycled products. It is a system that aims to extend the lifecycle of the furniture as far as possible by closing the loop. The range of furniture aims to change the way we perceive and use furniture and acknowledging the different roles it plays in the spatial experience of each user.



Figure 8.72 Collage of furniture (Author, 2020)

8.5 CONCLUSION

The identified design details and systems have been resolved through the application of the technical and material strategy. The combination of the two strategies has ensured that a circular economy is supported from the design intervention to the technical resolution.

CHAPTER 09

{conclusion}

CONCLUSION

This dissertation acknowledges the relationship between fashion and interior architecture, and explores how the alteration of both can support a circular economy. Furthermore, it assessed the way in which the design of sustainable interior environments through a closed-loop design approach can promote sustainable consumption of fashion.

The closed-loop design approach is derived from the theoretical investigation of adaptive reuse, interior architecture design for adaptive reuse and circular economy in order to design a sustainable interior environment that facilitates a multi-functional programme that provides a platform for skills development, creative collaboration and social interaction.

Through the extensive mapping of 012 Central and its surrounding context, this research identified how the existing fabric could be altered to invigorate the site as a contributor to the Tshwane Vision 2055 that aims to design for a better future for the youth of Tshwane.

The design intervention creates a spatial experience that brings the disposal of post-consumer textile

waste, production, and consumption of products made from post-consumer textile waste together in a way that inform users about the environmental impact of their unsustainable consumption of fast fashion and disposal of post-consumer textile waste, and what they can do to contribute to the new fashion culture.

The multi-functional programme, users and buildings are stitched together through the alteration of the interior. The circular economy is supported through the design intervention that allows for creative collaboration and inspires and empowers users through interaction to contribute to the circular economy.

The design development and technical resolution of the design intervention invigorates the site as a catalyst of a circular economy driven by post-consumer textile waste that generates a new fashion culture in the Pretoria context that can be further developed. The closed-loop design approach can be applied to design for sustainable interior environments.

REFERENCES 10

- 012 Central, n.d. *About 012 Central*. [Online]
Available at: <https://012central.co.za/about-012/>
[Accessed 17 10 2020].
- Armstrong, C. M., Niinimäki, K. & Lang, C., 2016. Towards Design Recipes to Curb the Clothing Carbohydrate Binge. *Design Journal*, 19(1), pp. 159–181.
- Bianchi, C. & Birtwistle, G., 2012. Consumer clothing disposal behaviour; a comparative study. *International Journal of Consumer Studies*, 36(3), pp. 336–368.
- Bocken, M. N., de Pauw, I., Bakker, C. & van der Grinten, B., 2016. Product design and business model strategies for a circular economy. *Journal of Industrial and Production Engineering*, 33(5), pp. 308–320.
- Brismar, A., 2017. *She upcycles for a circular future*. [Online]
Available at: <https://www.greenstrategy.se/marie-louise-hellgren-upcycles-for-a-circular-future/>
[Accessed 14 08 2020].
- Brooker, G. & Stone, S., 2004. *Re-readings*. London: Riba Enterprises.
- Celadyn, M., 2019. Interior Architectural Design for Adaptive Reuse in Application of Environmental Sustainability Principles. *Sustainability*, 11(14), pp. 1–16.
- Chamberlin, L. & Boks, C., 2018. Marketing Approaches for Circular Economy: Using Design Frameworks to Interpret Online Communications. *Sustainability*, 10(2070), pp. 1–27.
- City of Tshwane, 2013. *Tshwane vision 2055: remaking South Africa's capital city*. [Online]
Available at: http://www.tshwane2055.gov.za/images/vision/online_version-cot_2055_vision-v2.pdf.
[Accessed 13 07 2020].
- City Property, n.d. *About 012*. [Online]
Available at: <https://012central.co.za/about-012/>
[Accessed 13 10 2020].
- Clarke, H., 2008. Slow Fashion: An oxymoron or a promise for the future?. *Fashion Theory*, 12(4), pp. 427–446.
- Clarke, S. E. B., 2018. Outfitting Textiles, Fashion + Architecture The Convergence + Interplay of Construction + Engineering for the Human Form. *Textile: Cloth and Culture*, 16(1), pp. 62–77.
- Ellen MacArthur Foundation, 2017. *A New Textiles Economy: Redesigning Fashion's future*. [Online]
Available at: <https://www.ellenmacarthurfoundation.org/assets/downloads/publications/A-New-Textiles-Economy-Full-Report.pdf>
[Accessed 14 06 2020].
- European Commission, 2015. *Closing the loop: Commission adopts ambitious new circular economy package to boost competitiveness, create jobs and generate sustainable growth*. [Online]
Available at: [Press release http://europa.eu/rapid/press-release-IP-15-6203-en.htm](http://europa.eu/rapid/press-release-IP-15-6203-en.htm)
[Accessed 15 10 2020].
- Fletcher, K., 2008. *Sustainable Fashion and Textiles*. London: Earthscan.
- Fletcher, K., Drewberry, E. & Goggin, P., 2001. Sustainable Consumption by Design. In: M. Cohen & J. Murphy, eds. *Exploring Sustainable Consumption: Conceptual Issues and Policy Perspectives*. London: Elsevier, pp. 213–224.
- Hethorn, J. & Ulasewicz, C., 2008. *Sustainable fashion : why now? : a conversation about issues, practices, and possibilities*. New York: Fairchild books.
- Khan, Z. & Königh, R., 2015. *The ethics of tastemaking: towards responsible conspicuous consumption*. Midrand, DEFFSA.
- Khan, Z. & Snyman, H., 2019. *Hacking the Taste Cycle: A process-oriented view for sustainable interior fit-out*. s.l., Design Education Forum of Southern Africa.
- Leadbeater, C. & Miller, P., 2004. *The Pro-Am Revolution: How enthusiasts are changing our economy and society*. London: Demos.
- Máté, K., 2007. Using Materials for Sustainability in Interior Architecture and Design. *Journal of Green Building*, 2(4), pp. 23–38.
- McGrath, A. S., 2012. Fashioning Sustainability: How the Clothes we wear can support Environmental and Human Well-being. *Sustainable Fashion*.

Meshner, L., 2010. *Basics Interior Design 01: Retail Design*. Lausanna: AVA Publishing SA.

Niinimäki, K., 2018. *Sustainable Fashion In A Circular Economy*. 1st ed. Finland: Aalto University.

NYDA, n.d. *What is NYDA?* [Online]
Available at: <http://www.nyda.gov.za/About-Us/What-is-NYDA>
[Accessed 17 10 2020].

Papaspyrou, R., 2013. *Inprint Local Fashion House: Celebrating the parallels between interior architecture and fashion..* Pretoria: University of Pretoria.

Payne, A., 2015. Open- and closed-loop recycling of textile and apparel products.. In: S. S. Muthu, ed. *Handbook of Life Cycle Assessment (LCA) of Textiles and Clothing*. s.l.:Elsevier, pp. 104–123.

Pimlott, M., 2007. Boutiques and other retail spaces: the architecture of seduction. In: D. Vernet & L. de Wit, eds. *The boutique and the mass market..* Oxon: Routledge, pp. 1–15.

Piotrowski, C., 2016. *Designing Commercial Interiors*. Hoboken: John Wiley & Sons, Incorporated.

Reiley, K. & DeLong, M., 2011. A Consumer Vision for Sustainable Fashion Practice. *The Journal of Design, Creative Process & the Fashion Industry*, 3(1), pp. 63–83.

Sanders, E. B., 2015. Is sustainable innovation an oxymoron?. In: P. Stebbing & U. Tischner, eds. *Changing paradigms: Designing for a sustainable future..* Mumbai: Aalto University School of Arts, Design and Architecture, pp. 296–301.

Squire and Partners, 2017. *The Department Store / Squire and Partners*. [Online]
Available at: https://www.archdaily.com/881042/the-department-store-squire-and-partners?ad_source=search&ad_medium=search_result_projects

Stahel, W., 2017. The Re-Use Atlas: A Designer's Guide Towards a Circular Economy. In: D. Baker-Brown, ed. *Preface*. London: RIBA publishing, pp. xiii–xviii.

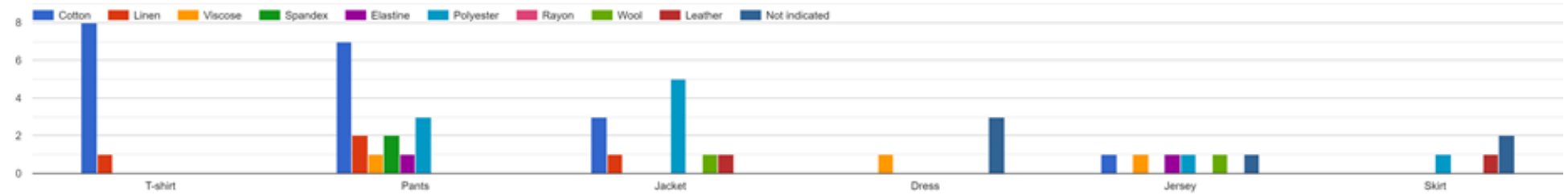
Terrapin Bright Green, 2015. *Paley Park case study*. [Online]
Available at: https://www.terrabinbrightgreen.com/wp-content/uploads/2015/11/Paley-Park_Case-Study-Fall-15.pdf
[Accessed 01 09 2020].

The Sustainable Fashion Forum, n.d. *25 Sustainable Fashion Terms You Need to Know When Talking About Circular Fashion*. [Online]
Available at: <https://www.thesustainablefashionforum.com/blog/sustainable-fashion-glossary-circularity>
[Accessed 11 10 2020].

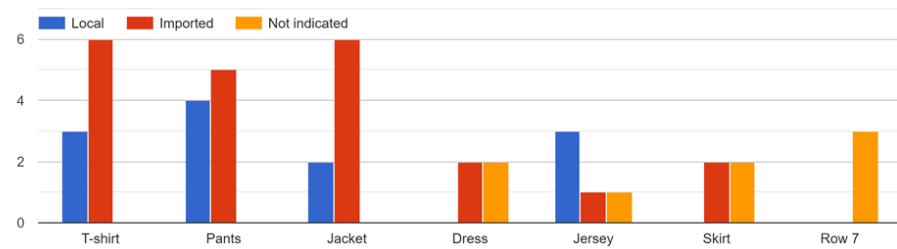
APPENDIX 11

11.1 QUESTIONNAIRE (questions & results)

1. What are the items you are wearing made of (refer to the label)?



2. Indicate what items are imported or locally made (refer to the label).

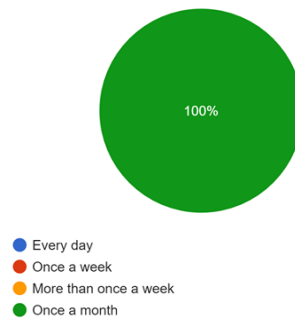


3. Where do you most often buy your clothes?

- Cotton on/ Woolworths/ Refinery
- Woolworths; H&M; Pick 'n Pay Clothing
- Zara, Woolworths
- PNPclothing and Woolworths
- Woolworths and Edgars
- Makro
- Woolworths, edgars
- Vhalhalla & Cape Union mart and Jhonnson workwear

4. How regularly do you buy new clothes?

8 responses



5. How do you dispose of your clothes?

8 responses

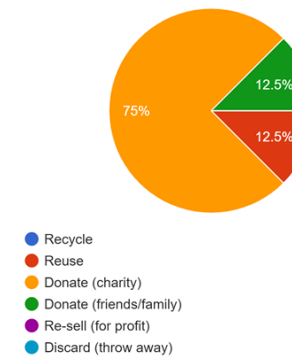


Figure 11.1 Questions with results (Author, 2020)

11.2 GREEN STAR RATING



Score Sheet Green Star SA - Interiors v1

Credit	Credit Name	Aim of Credit	Points Available	Points Targeted
Management Category				
Int-Man-1	Green Star SA Accredited Professional	To encourage and recognise the engagement of professionals who can assist the project team with the integration of Green Star SA aims and processes throughout all stages of a fitout's design and construction phases.	1	1
Int-Man-2	Commissioning & Tuning	To recognise effective commissioning and tuning processes during a project's design and construction phase that ensure all services and installations can operate to their optimal design potential.	2	1
Int-Man-3	Occupant Users' Guide	To encourage and recognise the provision of information to fitout owners and users that helps them understand a project's systems, environmental attributes, and maintenance requirements.	1	1
Int-Man-4	Environmental Management	To encourage and recognise the adoption of a formal environmental management system in line with established guidelines during construction.	1,5	0
Int-Man-5	Construction Waste Management	To recognise and encourage management practices that minimise the amount of demolition and construction waste going to disposal.	2	2
Int-Man-6	Work space efficiency	To recognise the design of workspaces that provide spatial efficiency and improve productivity and occupant performance.	2	2
Int-Man-7	Green Lease	To recognise and encourage collaboration between the building owner and tenants in order to manage and operate the building along environmentally sustainable principles whilst realising mutual benefit.	2	2
Int-Man-8	Learning Resources	To encourage and recognise sustainability initiatives implemented in the development as learning resources for building users and visitors	1	1
Management credits			12,5	10
Indoor Environmental Quality Category				
Int-IEQ-1	Quality of Internal Air	To encourage and recognise projects that provide high quality air to occupants.	4	3
Int-IEQ-2	Thermal Comfort	To encourage and recognise fitouts that achieve a high level of thermal comfort.	2	2
Int-IEQ-3	Lighting Comfort	To encourage, recognise and reward well-lit spaces that provide appropriate levels of lighting comfort to occupants.	3	2
Int-IEQ-4	Visual Comfort	To recognise the delivery of well daylight spaces that provide high levels of visual comfort and views to fit-out occupants.	3	3
Int-IEQ-5	Acoustic Quality	To encourage and recognise buildings that are designed to provide appropriate acoustic qualities to enable the functionality of the space.	2	2
Int-IEQ-6	Reduced Exposure to Air Pollutants	To recognise projects that safeguard occupant health through the reduction in internal air pollutant levels.	5	3
Int-IEQ-7	Mould Prevention	To encourage and recognise the design of services that eliminates the risk of mould growth and its associated detrimental impact on occupant health.	0,5	0
Int-IEQ-8	Ergonomics	To recognise the choice of equipment and design of spaces that promotes wellbeing, efficiency and effectiveness	2	2
Int-IEQ-9	Indoor Plants	To encourage and recognise the installation of indoor plants that improve indoor environment quality and also provides occupants with a connection to nature.	1,5	1,5
Indoor Environmental Quality credits			23	18,5
Energy Category				
Int-Ene-1	Greenhouse Gas Emissions	To encourage and recognise projects that minimise the greenhouse gas emissions associated with tenant fit outs.	12	8
Int-Ene-2	Electrical Sub-metering	To encourage and recognise the installation of electrical energy sub-metering to facilitate on-going management of electrical energy consumption.	2	0
Energy credits			14	8

Transport Category				
Int-Tra-1	Commuting Mass Transport	To encourage and recognise developments that select a site near public transport and facilitate the use of mass transport.	1	1
Int-Tra-2	Local connectivity	To encourage and recognise projects that are located within walking distance of high quality amenities such as shops and parks, thus reducing private vehicle use and the associated negative environmental impacts.	1	1
Int-Tra-3	Alternative Transport	To encourage and recognise projects that promote and facilitate the use of alternative modes of transport over the use of private cars.	2	2
Transport credits			4	4
Water Category				
Int-Wat-1	Potable Water	To recognise projects that minimise potable water consumption	6	5
Int-Wat-2	Water Sub-metering	To encourage and recognise the installation of sub-metering to facilitate on-going management of water consumption	2	0
Water credits			8	5
Materials Category				
Int-Mat-1	Operational Waste Management	To encourage and recognise developments which include space and an operational waste management plan that facilitates the recovery of resources used within the developments to reduce waste going to disposal.	2	2
Int-Mat-2	Furniture	To recognise the selection of fit-out furniture that has a reduced environmental impact when compared to available alternatives.	8	7
Int-Mat-3	Assemblies	To recognise the selection of fit-out assemblies that have a reduced environmental impact when compared to available alternatives.	8	6
Int-Mat-4	Flooring	To recognise the selection of flooring that has a reduced environmental impact when compared to available alternatives.	6	4
Int-Mat-5	Wall coverings	To recognise the selection of wall coverings that have a reduced environmental impact when compared to available alternatives.	3	2
Int-Mat-6	Local Sourcing	To encourage and recognise the environmental advantages gained, in the form of reduced transportation emissions, by using materials and products that are sourced within close proximity to the site.	2	2
Int-Mat-7	Sundries Materials Sourcing	To recognise the selection of fitout finishes that have a reduced environmental impact when compared to available alternatives through responsible manufacturing, product stewardship and resource efficient design.	1	1
Materials credits			30	24
Land Use and Ecology Category				
Int-Eco-1	Site selection	To recognise and reward a tenant for selecting their space in a building that reduces their environmental impact due to the building's base building design attributes.	4	3
Land use and Ecology credits			4	3
Emissions Category				
Int-Emi-1	Impacts from refrigerants and insulants	To encourage and recognise developments that minimise light pollution into the night sky.	3	3
Int-Emi-2	Light Pollution	To encourage and recognise the avoidance of substances that contribute to the deterioration and long-term alteration of the Earth's atmosphere.	1,5	1,5
Emissions credits			4,5	4,5
Innovation Category				
Int-Inn-1	Innovative Strategies & Technologies	To encourage and recognise pioneering initiatives in sustainable design, process or advocacy.		
Int-Inn-2	Exceeding Green Star SA Benchmarks	To encourage and recognise projects that achieve environmental benefits in excess of the current Green Star SA benchmarks.		6
Int-Inn-3	Environmental Design Initiatives	To encourage and recognise sustainable building initiatives that are currently outside of the scope of this Green Star SA rating tool but which have a substantial or significant environmental benefit.		
Innovation credits			10	6
TOTAL POINTS AVAILABLE			100	83

Figure 11.2 Green star rating tool (GBSA, 2020)

THANK YOU

My parents for always being there and believing in me and for giving me this opportunity to follow my dreams.

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