

EFFICIENCY through design

Interior Design Components for South African Shoprite Interiors which
Minimise Resources and Maximises the User Experience



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

UNIVERSITY OF PRETORIA

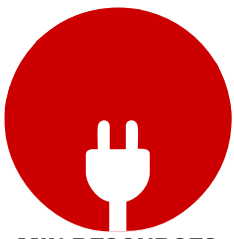
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December 2015



MIN RESOURCES



**MAX USER
EXPERIENCE**



**RELATE INTERIOR SPACE
TO THE BRAND PROMISE**



GUIDELINES



INTERIOR COMPONENTS

DECLARATION

I declare that this dissertation, which I hereby submit for the degree Master of Interior Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

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December 2015

FULL DISSERTATION TITLE:	Efficiency Through Design: Interior Design Components for South African Shoprite Interiors which Minimise Resources and Maximises the User Experience
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TOPIC:	Efficient Interior Design
PROGRAMME:	Enhancing the efficiency of South African Shoprite interiors through the design of interior components which balance utilising the minimum amount of resources and maximising the user experience in order to relate the store interior to Shoprite's brand promise.

The following project aims to demonstrate how **interior design** can **improve** the **efficiency** of South African **Shoprite supermarket interiors**.

This entails designing specific **parts** of an **interior model** for South Africa's largest retailer's most valuable brand, which balances utilising the **minimum** amount of **resources** and **maximising** the **user experience** in order to achieve efficient interior design.

This is to **relate** the **interior space** to the **brand promise** of providing the **lowest possible prices** in a **satisfying** and **convenient first world shopping environment** that is conducive to a **comfortable** and **enjoyable shopping experience**.

Utilising the **minimum** amount of **resources** demonstrates the impact of interior design on **energy**, **water** and **material efficiency** as well as the **indoor environmental quality**, which are the four interdependent regions which have the biggest impact on the interior environment. An appropriate interior design for Shoprite, which considers their core **target market** as **key**, further **maximises** the **user experience** by improving shopping **convenience**, **productivity** and **comfort** within the supermarket. Together, these aspects aid in representing the brand promise within the interior space, which is the interior designer's biggest contribution to the retail sector.

This indicates the possibility in **increasing** Shoprite's **financial turnover** by **lowering** the supermarket's **operational costs** and **increasing customer loyalty** towards the brand. Operational costs are lowered through lowering electricity consumption by specifying appropriate lighting solutions, equipment, materials and finishes; lowering water consumption by specifying low flow water fittings; and by using appropriate materials and construction methods within the new design. Customer loyalty is increased through differentiating the brand from its competitors beyond the products being sold, by establishing an appropriate brand identity in store which the target market can relate to and which fulfils their aspirations for a satisfying shopping experience which is convenient, healthy, comfortable and enjoyable.

In so doing, the **positive impact** of **interior design** on **everyday retail environments** is revealed, proving that **interior design** is not simply a luxury, but a **necessity**.

The project results in a set of interior design guidelines, informed by theory and driven by the interior design problems identified within the existing Shoprite supermarket design. These **guidelines** are **illustrated** in an example of a typical site, which was used to develop and test the **interior components**. In addition, the **flexibility** of the components is explored, in order for the solution to be **adaptable** to various existing and new **Shoprite supermarkets**.

Focusing on that which is in the **power** of the **discipline** of **interior design**, only **specific parts** of the supermarket are designed (the interior components). The components selected are those which have the **most potential** to make the **biggest impact** in terms of **minimising resources** and **maximising** the **user experience** within the supermarket. These interior components are: (1) the in-store **departments**, which include the Deli, Bakery and Butchery; (2) the **aisle navigation** in store; and (3) the **checkout area**. They have the potential to make the biggest impact in terms of efficiency by lowering operational costs and increasing customer loyalty, as discussed above.

The parts can be given to merchandisers to determine the final layout and visual merchandising of the supermarket as a combination of the parts, in order for the project to evolve into a roll-out strategy for Shoprite supermarkets.

KEYWORDS: Efficient interior design, minimising resources, maximising user experience, relating interior space to Shoprite's brand promise

Die doel van hierdie projek is om aan te toon hoe binneontwerp die doeltreffendheid van Suid-Afrikaanse Shoprite-supermarkte kan verbeter.

Om doeltreffendheid te bereik behels dat spesifieke komponente binne die supermark ontwerp word wat daarna streef om die minimum hoeveelheid hulpbronne te gebruik, sowel as om die gebruikerservaring binne die supermark te maksimeer.

Bogenoemde streef daarna om die binneruimte te laat ooreenstem met Shoprite se beloftes aan sy kliënte. Shoprite belowe sy kliënte dat die besigheid die laagste maandelike pryse in 'n bevredigende en gerieflike eerstewêreldse omgewing aanbied, wat gemaklike en genotvolle inkopies maandelik maak.

Deur die minimum hoeveelheid hulpbronne te gebruik, word die impak wat die binneontwerp op energie, water en materiale het, gedemonstreer asook die impak wat dit op die binnehuis-omgewingehalte van die supermark het. 'n Toepaslike binneontwerp vir Shoprite, wat hul kern-teikenmark belangrik ag, kan die gebruikerservaring verder maksimeer deur gerieflikheid, produktiwiteit en gemak vir die kliënt te verbeter. Al hierdie aspekte dien saam om Shoprite se belofte na te kom om die binneruimte op so 'n manier toeganklik te maak aan die kliënt, sienende dat dit die binneontwerper se grootste bydrae tot die handelsektor is.

Bogenoemde dui die moontlikheid aan om Shoprite se omset te verhoog deur hulle bedryfskoste te verlaag en die lojaliteit van hulle kliënte te verbeter. Die bedryfskoste kan eerstens verlaag word deur elektrisiteitsverbruik te verminder, deur middel van toepaslike beligtings-oplossings, toerusting, materiale en afwerkings. Tweedens kan waterverbruik verlaag word deur laevloei watertoerusting te gebruik en derdens deur gepaste materiale en konstruksiemetodes te gebruik.

Deur Shoprite van sy mededingers te onderskei, kan die lojaliteit van hulle kliënte versterk word deur 'n toepaslike identiteit binne die supermark te stig waarmee die teikenmark verband kan hou en wat hulle aspirasies vir 'n bevredigende inkopie-ervaring kan nakom. Deur dit te doen, word die positiewe impak wat binneontwerp vir die alledaagse handelsektor bied geopenbaar, wat bewys dat binneontwerp nie net 'n luuksheid nie, maar 'n noodsaaklikheid is.

Die projek lei tot 'n stel riglyne van hoe om die binneruimte te ontwerp. Die riglyne is gevorm deur gepaste teorie te analiseer wat die bestaande probleme binne die supermark kan help oplos. Die riglyne word dan binne 'n tipiese Shoprite-supermark geïllustreer wat gebruik was om die interieur-komponente te toets en te ontwikkel. Hiermeesaam word die buigzaamheid van die komponente ondersoek, sodat die oplossing toepaslik kan wees vir beide bestaande en nuwe Shoprite-supermarkte.

Aangesien die projek fokus op binneontwerp, word net spesifieke komponente van die supermark ontwerp. Die komponente wat gekies is, is dié wat die meeste potensiaal het om die doeltreffendheid van die supermark te verbeter. Dit sluit in: (1) die hoofafdelings binne die winkel, wat die Delikatessen area, Bakkery en Slaghuis insluit; (2) die ryngasie; en (3) die betaalpunte.

Die komponente kan dan aan die afsetbeplanner gegee word om die finale uitleg en visuele afsetbeplanning van die supermark te bepaal. Sodoende kan die projek ontwikkel in 'n doeltreffende implementeringstrategie vir Shoprite supermarkte.

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For the readers' convenience, the structure of the following mini-dissertation allows for easy access to each subsection of the project.

The study's questions – 'what?', 'why?', 'how?' and 'where?' are answered throughout chapters one to four. **'What'** discussed in chapter one, serves to **introduce** the project and explains the project's **intentions**. **'Why'** discussed in chapter two, clarifies the **design issue**, or the reason why the study is relevant. **'How'**, discussed in chapter three, analyses relevant **theories** which assist in finding appropriate means to achieve the design intention. Lastly **'Where'**, discussed in chapter four, includes the site analyses – in which the **areas of focus** for the project, the interior components, are identified. The rest of the chapter continues with the **design development** of the components and includes identifying additional interior design strategies or tactics (which serve as guidelines) to be applied to the interior components. The **design and technical resolution** is then illustrated in chapter five and the **conclusions** to the project are drawn in chapter six.

01 | INTRODUCTION

WHAT

1.1 INTRODUCTION

Chapter one serves as an introduction to the dissertation for the programme: Masters of Interior Architecture (Professional) in the year 2015. Firstly, the terms 'interior design' and 'efficiency' are defined, as 'efficiency' refers to 'efficient interior design' throughout the project. This is followed by the design intention, summarised in figure 1.3 seen below and properly stated in the premise, aims, objectives and research questions. The delimitations of the project and the method used to conduct the study are then discussed. Hereafter, the chapter is concluded.

1.2 DEFINITION OF TERMS

INTERIOR DESIGN

The International Federation of Interior Architects/Designers (IFI) (2011) defines interior design as: *"determining the relationship of people to spaces based on psychological and physical parameters, to improve the quality of life". We shape the spaces that shape the human experience.*

Interior design **forms space** that **responds to human needs** and thus creates environments that are productive, diverse, liveable, comfortable, healthy, safe, and beautiful (AIA 2008 and IFI 2011). In addition, the **design** of a space **determines** to a large degree **how** occupants **use** energy and other **resources** within that space (Steelcase 2007).

EFFICIENCY

Efficiency, in general, is defined as reaching **maximum productivity** with the **minimum utilisation** of **resources** or **effort**, to achieve **satisfaction** (Oxford Dictionary of English 2010).

EFFICIENT INTERIOR DESIGN

The term 'efficiency' used in this study, which refers to 'efficient interior design', therefore attempts to create a **positive relationship** between **people** and their **interior environment** by translating science into an enhanced quality of life. It strives to **balance** utilising the **minimum amount of resources** and **maximising the user experience** in order to **improve an interior space**.

1.3 DESIGN INTENTION

1.3.1 PREMISE

Interior design can enhance the efficiency and flexibility of Shoprite interiors through minimising resources by optimising energy, water, and material efficiency, as well as indoor environmental quality. Simultaneously, by maximising the user experience, through improving convenience and productivity by lowering effort – creating a comfortable and enjoyable shopping experience. This will aid in relating Shoprite supermarket interiors to the brand promise and thereby increasing Shoprite's turnover.

1.3.2 AIMS

To determine how interior design can improve the efficiency of Shoprite supermarket interiors, in order to fulfil the brand promise of providing the lowest possible prices in a satisfying and convenient first world shopping environment which is comfortable and enjoyable.

As previously stated, this will be done by implementing interior design strategies into the design of interior components, which utilise the minimum amount of resources and maximises the user experience. This is to demonstrate the impact of interior design on the energy, water, and material efficiency, as well as the indoor environmental quality, which to repeat, are the four interdependent regions which have the biggest effect on an interior environment. At the same time, it is to reveal the contribution interior design can make to the user experience by establishing an appropriate brand identity in store, that relates to Shoprite's core target market, and enhances shopping convenience, productivity and comfort. This can increase Shoprite's turnover by lowering operational costs and improving customer loyalty.

1.3.3 OBJECTIVES

- To identify innovative interior design practices that enhance the efficiency and flexibility of Shoprite interiors, by minimising resources and maximising the user experience, in attempt to deliver the brand promise within the interior.
- To develop these practises into an appropriate interior design language for Shoprite that relates to their living standards measure (LSM) 4-7 target market.
- To give an overall perspective on the effect efficiently designed interiors can have on the operational costs and sales due to enhanced operational efficiency, convenience, productivity, comfort, health, life-cycle and the ambience of Shoprite interiors.

1.3.4 RESEARCH QUESTIONS

1. How can interior design improve the efficiency of Shoprite interiors by minimising resources and maximising the user experience, in order to find a balance between the price of the products and the price of society – in terms of budget constraints versus a satisfying shopping experience?
 - 1.1 What are the national and international standards for efficient interior design which are appropriate to South African Shoprite supermarkets?
 - 1.2 How can efficiency aid in fulfilling Shoprite's brand promise of providing the lowest possible prices in a satisfying and convenient first world shopping environment, which results in a comfortable and enjoyable shopping experience?

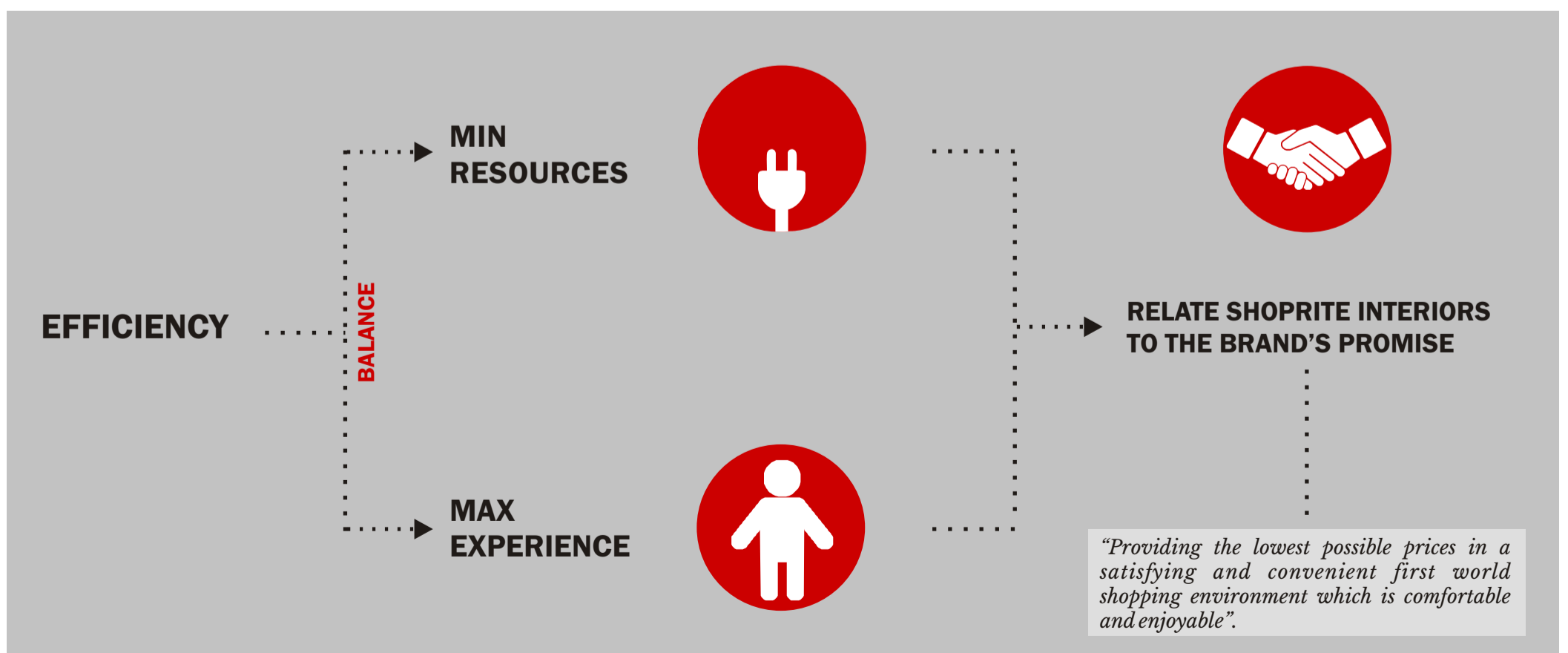


Figure 1.3: Diagram of design intention (Author 2015 - information gathered from Shoprite 2015b, 2015c; Shoprite Holdings 2014c and 2014e)

1.4 DELIMITATIONS

The project recognises that retail design is a complex and multifaceted environment which is dependent on a number of role players to successfully execute a retailer's design and identity. It can therefore not be solved solely by the interior designer. The investigation is so limited in that it only investigates and illustrates the role fulfilled by the interior designer within the retail design environment, opposed to those fulfilled by marketers, merchandisers or visual merchandisers for example. Furthermore, the study is limited to interior designs contribution to the South African grocery retail sector in particular, however retail design exists in many retail sectors in which an interior designer can be of great value. These include banking, corporate clothing and footwear as well as entertainment, among other sectors. What's more, it involves contributing to an appropriate interior design for the brand Shoprite specifically, who has a living standards measure (LSM) 4-7 target market. Their needs differ from those of other consumer markets. The design language will therefore differ from those required by other brands or grocery retailers, such as Shoprite Holdings' USave brand, which caters to the LSM 1-5 segment; their Checkers brand, who caters to the LSM 8-10 segment; or the grocery retailer Woolworths, who also caters to the LSM 8-10 segment for example. Lastly, the solutions are specifically based on South African Shoprite supermarkets, opposed to Shoprite superstores, Shoprite Hypers, or any Shoprite store found outside of the country.

It is important to note that the project will not result in a roll-out strategy for South African Shoprite supermarkets. The project will not focus on the **products** sold by the company or the visual merchandising, promotion, or education of the products. The project did require some research on supermarket layouts and visual merchandising in order to gain knowledge, yet it is vital to understand that this is not the focus of the study, since merchandisers are responsible for the layout and product placement and -displays. The project will consequently **not** result in an **ideal layout** for Shoprite, but specific parts of a layout - the interior components, which have the most potential to improve the efficiency of the interior environment through that which is in the power of the interior designer. As mentioned in the abstract, these parts can be given to merchandisers at a later stage to determine the final layout and visual merchandising in store, and thereby possibly come up with a roll-out strategy for Shoprite supermarkets.

Due to time constraints, three main interior components within the supermarket were chosen as the areas of focus. These will serve as examples of how the rest of the interior can be resolved efficiently by help of the guidelines set throughout the document. As previously stated, the three chosen interior components include: (1) the **in-store departments**; (2) the **aisle navigation**; and (3) the **checkout area**, as they are the areas with the most potential to improve the efficiency, as determined by the theory and the site analyses discussed in chapters three and four. The departments include the Deli, the Bakery and the Butchery. The **Deli**, with focus on the sales floor opposed to the back of house or kitchen area, serves as the detailed, key example of how the departments are to be resolved.

Further, detailed development is required for the remaining interior components in store, such as the Kiosk, the Money Market, the Fruit and Vegetable section and the Dairy section, to name a few. As mentioned, the guidelines set within this study can however assist in appropriately executing the rest of the design, as they serve as an example of how the interior design strategies should be applied.

1.5 METHOD

The **research strategy** used for the project, which refers to the structure of the process through which the research is done, is the method of **research through design** (Groat & Wang 2002).

According to Martin & Hanington (2012), research through design links theory and building knowledge to enhance design practices by examining the tools and processes of design thinking and making. This evolves examining secondary research, then combining it with exploratory research, where after the process of ideation, experimentation and critique takes place. Hereafter the designer reframes the problem as part of an iterative process to arrive at the best possible solution (Keyson & Alonso 2009 and Martin & Hanington 2012).

Through the process of research through design, the following **tactics**, or the specific techniques to be used for the research to be done (Groat & Wang 2002), are:

A two part **literature review**, which analyses ways for the interior designer to **maximise the user experience** and **minimise resources** within the interior. The literature review is design and research orientated to assist in defining, adopting and accurately executing the design. It involves using **qualitative theory** to gather facts and information on the topic(s) of research in order to develop case and site specific information, generate normative action and assist in successfully executing the project.

Local and international **precedent studies** with similar aspects to the research and design will be critically identified and analysed throughout the document in order to obtain further knowledge and to guide the design process.

Site analyses of four different sites in Pretoria are undertaken to identify the **general** successes and weaknesses in the existing design of Shoprite supermarkets, before design investigation and development can take place.

Lastly, the method of research through design is accompanied by **associations** as a **design method**. As explored by Doctor Raymund Königk in his doctoral thesis entitled "An Imaginal Interpretation of Interior Design's Methods of Cultural Production: Towards a Strategy for Constructing Meaning", associations as a design method for interior design is established. As interior design is a visual discipline which has the ability to generate meaning by creating connections in the human mind between various components, the use of associations in interior design has been proven very effective (Königk 2015). This method particularly assists the design development of the project in achieving an appropriate outcome. It aids in relating the design to the core target market, finding ways to interiorise the Shoprite brand, as well as analysing typological precedents to further improve the design.

* Kindly refer to page 56 under '6.2 Limitations to the Study' regarding the limitations to the research strategy (research through design) used.

1.6 CONCLUSION

This chapter served as an introduction to the dissertation by defining the key terms used throughout the study, and by expressing the design intension through the premise, aims, objectives and research questions. Clear delimitations to the study were set and the design method used to conduct the study was explained.

DESIGN ISSUE | 02

YHWM

2.1 INTRODUCTION

The following chapter addresses the design issue which includes the background and context as well as the real world problem which inspired the project. The client, Shoprite, is then analysed in relation to the design issue, and their target market investigated. This is to initiate the development of an appropriate interior design for Shoprite, which relates to their target market.

2.2 BACKGROUND AND CONTEXT

THE IDENTITY OF THE INTERIOR DESIGN PROFESSION

According to Breytenbach (2012), the discipline of interior design needs to **explore** and **strengthen participation** in the **retail sector** as a means of **establishing the identity** of the **profession** beyond the boundaries of the architecture discipline. This is a feasible strategy since the South African retail sector is an economically viable and growing sector which requires a number of role players to assist in the successful execution of a retailer's identity (Breytenbach 2012). The **interior designer** is **one** of these **role players** (Prinsloo 2011a).

THE PROMISING SOUTH AFRICAN RETAIL SECTOR

In 2011, **retail sales** in South Africa **exceeded a trillion rand** for the first time in history and this is expected to swell to R1.46tr. by 2016 (PWC 2012). The top five South African retailing companies are: Shoprite Holdings, with the largest market share; Pick n Pay Stores; the Spar Group; Massmart Holdings; and Woolworths Holdings. Together the top four companies mentioned, account for around 80 percent of local retail sales in South Africa. The **grocery retail sector** therefore continues to **dominate** the South African retail market with an increasingly complex competitive environment emerging in which the retailers are **competing** to **satisfy** evolving **customer needs** (Deloitte 2015, Euromonitor 2015 and PWC 2012).

THE INTERIOR DESIGNERS' CONTRIBUTION TO THE RETAIL SECTOR



According to Prinsloo (2011a), **interior designers** are currently **underutilised** within the **retail design sector** due to a **poor understanding** of the **functions** that **interior designers** can **perform** in retail design.

In attempting to determine the **role** of the **interior designer** in retailing, Prinsloo (2011a) concluded that interior designers can make a considerable **contribution** to retailers in terms of **store design**, **used as marketing communication** and as a **differentiation strategy**. Marketing communication is a fundamental and complex part of a retailer's marketing effort and can be described as **all the methods** used to **communicate** with **customers** (Cambridge Dictionaries 2015 and Mars 2013). A differentiation strategy is an approach used to **develop** and **market** the **unique attributes** of the **retailer** that are **valued** by their **target market**, as a means to gain or maintain a **competitive advantage** (Business Dictionary 2015, Quick MBA 2010 and Prinsloo 2011a). The above is manifested in a retailer's **brand promise** which serves to deliver the brand in a way that **connects emotionally** with **customers** and **differentiates** the **brand** from its **competition** (Smith & Co 2013).

As competition is intensifying between grocery retailers, especially with the acquisition of Massmart by the international retail giant Wal-mart, it is imperative that South African retailers exploit the use of differentiation as a strategic marketing activity to distinguish themselves from their competitors in order to become or remain appealing to their particular consumer market (Mazarella 2010, Prinsloo 2011a and PWC 2012). Professional **interior designers** can **assist clients** with this by **relating interior space** to the **brand promise** through applying creative and technical solutions to the building shells that are both **functional** and **aesthetically pleasing** (Mazarella 2010, Moore & Lochhead 1998, Murialdo 2008 and Petermans & Van Cleempoel 2010).

By fulfilling Shoprite's brand promise within the interior, the interior designer's value to the retail sector will therefore be revealed in order to strengthen participation in the retail sector and thereby help establish the identity of the young and developing profession that is interior design.

2.3 REAL WORLD PROBLEM

South Africa, being the 12th largest carbon dioxide (CO₂) emitter in the world, produces nearly 50 percent of the African continent's total CO₂ emissions and the corporate sector is responsible for almost half of these emissions (Economist Intelligence Unit 2009 and EDF & IETA 2014). The country's total greenhouse gas (GHG) emissions have increased with 25 percent between the years 2000 and 2010 to an annual 563 120 million tons in 2010, when inventory was last taken (DEA 2013, 2014). CO₂ accounts for 80 percent of the total GHG emissions of which the largest share of 48 percent is emitted by the energy sector due to its high dependence on coal (EDF & IETA 2014).

According to the World Economic Forum (2015), **"failure of climate-change adaptation"** is one of the top 10 global risks while **"innovation in products, services and operations"** as well as **"improving execution of strategy across business functions"** are in the top 10 business opportunities for 2015 (Ernst and Young 2013). In reaction to the above, the project was inspired since this holds particular opportunity for the **South African retail sector**, which according to the Green Business Journal, **does not perform well in terms of sustainability** (Savin 2014).

A shift towards a more sustainable retail industry is however evident. Household names such as Pick n Pay, Spar, Massmart and Woolworths have shown initiatives in climate change strategies, as evaluated through the Carbon Disclosure Project (CDP) (Savin 2014).

Shoprite Holdings Limited, South Africa's largest retailer, operates 1649 corporate and 371 franchise outlets in 15 countries across Africa and the Indian Ocean Islands (Shoprite Holdings 2014a). About 71 percent of South Africa's total adult population shops at one of the Group's supermarket outlets and they are responsible for more than 60 percent of the country's sales (A.T. Kearney 2014 and

Shoprite Holdings 2014b). As stated in their reports, the Group has an ongoing awareness of their impact on the environment. Efforts include lowering electricity consumption, fuel consumption, packaging, recycling and CDP reports – see **Corporate Identity** in Appendix A on page 63 for further information on Shoprite's sustainability efforts (Shoprite Holdings 2011, 2013b and 2014g). According to the Green Business Journal however, these efforts are not satisfactory in comparison to the other retailers, who seem to be doing more (Savin 2014).

Being the **largest retailer**, not only in South Africa, but Africa – with an increasing footprint across the continent – it is thus imperative that Shoprite starts using this power responsibly, for they can make the **biggest impact** in terms of sustainability within the retail sector. In addition, Shoprite needs to maintain a competitive advantage against other retailers, which in contemporary society entails adapting to climate change, amongst other things. Lastly, with the addition of the current energy crisis in South Africa, which is taking a toll on the country's economy, it is further evident that businesses need to adapt in order to survive (Oatway 2015).

By minimising energy, water and non renewable materials, it will aid in contributing to Shoprite's climate change adaptation strategy, while simultaneously enhancing the user experience by improving the indoor environmental quality. It will contribute to their innovation in services and operations, as well as improving execution of their business strategy. Especially in terms of keeping low prices through operational efficiency, enhanced productivity and comfort. By further maximising the user experience in terms of convenience, productivity and comfort, created by an appropriate retail design – which embodies the brand identity – Shoprite's business strategy will be further executed in terms of that which is in the power of the discipline of interior design. The project is therefore focussed on efficient interior design, which minimises resources and maximises the user experience.



2.4 CLIENT ANALYSIS

Shoprite's corporate- and brand identity is presented in Appendix A. Shoprite was analysed in order to get an in-depth understanding of the company. The most applicable findings to the project are elaborated on below.

2.4.1 SHOPRITE OVERVIEW

SHOPRITE HOLDINGS

With a reported turnover of R57 469 billion for the six months ended December 2014, Shoprite Holdings Ltd is the **largest fast moving consumer goods operation** on the **African continent** and the **107th largest retailer** in the **world**, leading 41 places ahead of its closest South African competitor (Deloitte 2015 and Shoprite Holdings 2014b, 2014c). They were also named the number one retailer in Africa and the Middle East by the Deloitte Global Powers of Retailing survey (Deloitte 2015 and Shoprite Holdings 2014a). They employ 129 926 people in total, mostly from local communities (Shoprite Holdings 2014b and 2014d).

The Group has 13 brands as can be seen on figure 2.4.1, each catering to a different living standards measure (LSM) target market (Shoprite Holdings 2014e).



Figure 2.4.1: Shoprite Holdings brands (Shoprite 2014e)

SHOPRITE BRAND

The **Shoprite brand** is rated the **most valuable** retail brand in **South Africa** and remains the **Group's core business and main brand**. With the **most existing outlets** and the **most proposed new outlets** underway in 2015, the Shoprite brand is the **brand of focus** for this project, since it will make the biggest impact, both in terms of the company and the South African retail sector (Shoprite Holdings 2014b, 2014e and 2014g).

The Shoprite brand, whose logo reads: "lower prices you can trust, always", cater to the **LSM 4-7 target market**, which as described by Shoprite Holdings (2014e), is the **price-conscious mass middle market** or the **middle-to- lower-income consumer**. They provide their customers with the lowest possible prices on a range of groceries and some durable items (PWC 2012, SAARF 2015 and Shoprite Holdings 2014e).

2.4.2 GROWTH STRATEGIES

According to PWC (2012), who reported on the South African retail and consumer products outlook for the years 2012-2016, the grocery retail sector is focused on three growth strategies, namely ongoing organic growth, an expansion into Africa, and a drive for greater efficiencies to control costs. Of these, the most obvious is **organic expansion**, which entails **opening new stores** as well as **squeezing more sales out of existing stores**. A drive for **efficiency** is therefore a prominent element, with much of the investment focussed on working out how to generate more revenue per square meter of existing retail space through **controlling in store operations**, among other things. Evidently, Shoprite Holdings' primary growth strategy and driver within South Africa, is also organic expansion (PWC 2012). Efficient interior design therefore holds tremendous opportunity in terms of contributing to Shoprite's growth strategy.

2.4.3 IMPROVING POSITIONING

PWC (2012) further recognises several levers to further improve a retailers positioning. The area in which interior design can prove of great benefit is **Store Operations**, which falls under **customer excellence**, and includes **store process optimisation, labour efficiency, and customer focus** (see figure 2.4.3).

This further strengthens the reason why the project focuses on minimising resources and maximising user experience, through that which is in the power of the discipline of interior design.

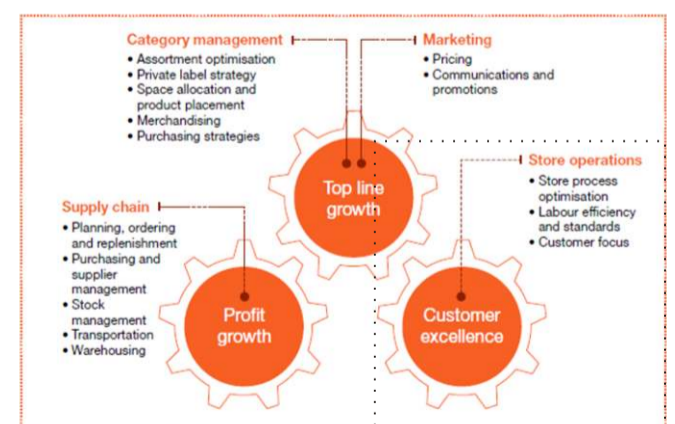


Figure 2.4.3: Levers to improve a retailers positioning (PWC 2012)

2.5 INTERIOR DESIGN STRATEGY SUMMARY

Shoprite's brand promise, which is not stated separately on either the Group's or brand's website, is therefore a combination of the Group's positioning and the brand's philosophy (Business Case Studies 2015, Smith & Co 2013 and Spiro 2010). As stated earlier in the document, it reads: *“providing the lowest possible prices in a satisfying and convenient first world shopping environment that is conducive to a comfortable and enjoyable shopping experience”* (Shoprite 2015b, 2015c; Shoprite Holdings 2014c and 2014e).

After an in depth analysis of the corporate- and brand identity (Appendix A), it is concluded that Shoprite's sustainability efforts are indeed unsatisfactory and that their promises are questionable. Through a few initial site visits, illustrated in chapter four, it was further noted that even though Shoprite is clearly a successful brand in terms of profitability, it is undeniable that the **existing shopping experience is unpleasant and time consuming**. This further conflicts with the brand promise as will become evident in chapter three and four.

Interior design holds the answer to improve this in terms of fulfilling the brand promise within the interior – by means of innovative interior design strategies to minimise resources and maximise user experience – which will enhance the **operational efficiency, productivity, comfort, convenience** and the **overall shopping experience**. This will particularly contribute to Shoprite's competitive advantage as a result of differentiation as strategic marketing strategy, discussed in 2.2; their climate change adaptation strategies as discussed in 2.3; as well as their growth strategy and store operations mentioned in 2.4.2 and 2.4.3. This will in turn serve to increase Shoprite's turnover, which in retail, and especially in Shoprite's case – since the products are priced so low – is always the determining factor and main goal of any improvement strategy (PWC 2012).

In short, minimising resources and maximising the user experience as a means of fulfilling the brand promise within the interior, holds the greatest opportunity for interior designers to make a considerable contribution to the retail sector and to Shoprite in particular. This will be further explained in chapter three, by discussing how this will be executed.

2.6 TARGET MARKET



2.6.1 SOUTH AFRICAN CONSUMER OVERVIEW

A major role player in stimulating the retail sector's value growth (discussed in 2.2 under “The Promising South African Retail Sector”), is the expansion of middle-income consumers and more specifically the **black middle class** (Euromonitor 2015 and PWC 2012). For Shoprite, who caters to these consumers, it is thus vital to satisfy their evolving customer needs in order to maintain a competitive advantage (Deloitte 2015, Euromonitor 2015, PWC 2012 and Shoprite Holdings 2014e). In order to satisfy these needs, one has to know what these needs are.

As published in the 2014 African Retail Development Index, African consumers are **price sensitive** yet **brand conscious** and are very loyal to their brands. Consumers spend money sensibly and on useful items. The most important purchasing decisions for consumers are **price, brand** and **quality**. Retailers therefore need to be **innovative** in order to maintain **satisfaction** and **stay relevant** (A.T. Kearney 2014 and Mack 2013).

As a means for a brand to innovate and keep its competitive advantage, Abbing (2010) also suggests **fulfilling the brand promise**, as well as **increasing efficiency to cut prices, fulfilling unmet user needs, creating value** and **keeping a brand relevant**. In order to do so in a way that is fitting to Shoprite's target market and their evolving needs, the mass middle market is further analysed.

2.6.2 LSM 4-7



According to Mackay (2014), strong brands reflect and push society forward by being deeply embedded in local insights and understanding cultural shifts and nuances. Innovating new products, services and brands for the majority market will therefore create sustainable and successful businesses that hold the loyalty of millions of people.

As mentioned earlier, Shoprite draws its customers from the middle to lower-income group in the living standard measurement (LSM) 4-7 segment (Shoprite Holdings 2014e). The **LSM 4-7 segment** is the fastest growing consumer segment in the market, with massive spending power. This **mass middle market is dominated by the black middle class**, which is not homogeneous, but has a large variety of needs and outlooks. It is therefore extremely difficult to determine their shopping behaviour (Mack 2013, Mackay 2014 and Zharare 2015). Nevertheless, for the purpose of this study, which focuses on interior design, I will evaluate the target market and their consumer behaviour accordingly. This means, finding **general aspects** which are applicable to and can be influenced by interior design strategies to **resonate** with the **majority of the market**. This will initiate a relevant interior design for Shoprite's target market with an appropriate design language.

Mackay (2014) states that since the South African middle class is so diverse and will continue to diversify, some customers want **first world innovation** and the **latest trends and technologies**, while others want **brands that celebrate Africa** and “**Africanness**”. The rest want their brands to understand the pressure they are under and want to have their **lives made easier**. In general however, customers and employees seek **value, better experiences, more opportunity** and **better engagement**.

Shoppers support grocery stores for convenience, bulk buying and speciality products. Many middle class consumers however still use informal stores, since they are likely to be township dwellers. **Informal retail** still accounts for **30 percent** of South African food expenditure and is part of our daily lives, with street vendors on every other corner – even in urban areas. Middle class consumers use these stores for bread, airtime, milk and fresh produce, searching for the stores which offer them the best quality and which are conveniently located (Mack 2013, Mashaba 2013, Prinsloo 2014 and PWC 2012).

Most of these consumers still prefer to do a monthly bulk-shop, mostly on weekends (Mack 2013). A shift towards smaller shopping baskets is however evident in market research, due to more frequent shopping as socio-economic status rises. **Convenience shopping** is therefore vital (Prinsloo 2014). Additionally, 75 percent of all black South Africans LSM 4-7 are **commuters** – who use taxis, buses and/or trains weekly. This has a large influence on their daily lives and influences their shopping patterns, since the amount of products that are able to be transported are limited (Berman 2015 and Zharare 2015).

English is the common language used in public life and business in South Africa, apart from the fact that we have 11 official languages (A.T. Kearney 2014). In some communities, especially among the low-income consumers, people however **do not understand English** entirely or are **illiterate** (LiveMoya 2014). This can be solved with the appropriate use of signage.

According to Mackay (2014), the common needs of South African consumers across all income levels are **quality** and **value**. **Value** involves getting the **balance of price and benefit** right, therefore price, although very important, is not the only consideration, even for the lower income consumer. **Quality** on the other hand involves the **nature of the products, services or experience**.

Since no one likes to feel poor, customers need to feel included and made to feel valued, important and at home (Mackay 2014). A way to achieve this is to find **affordable ways to create great customer experiences**.

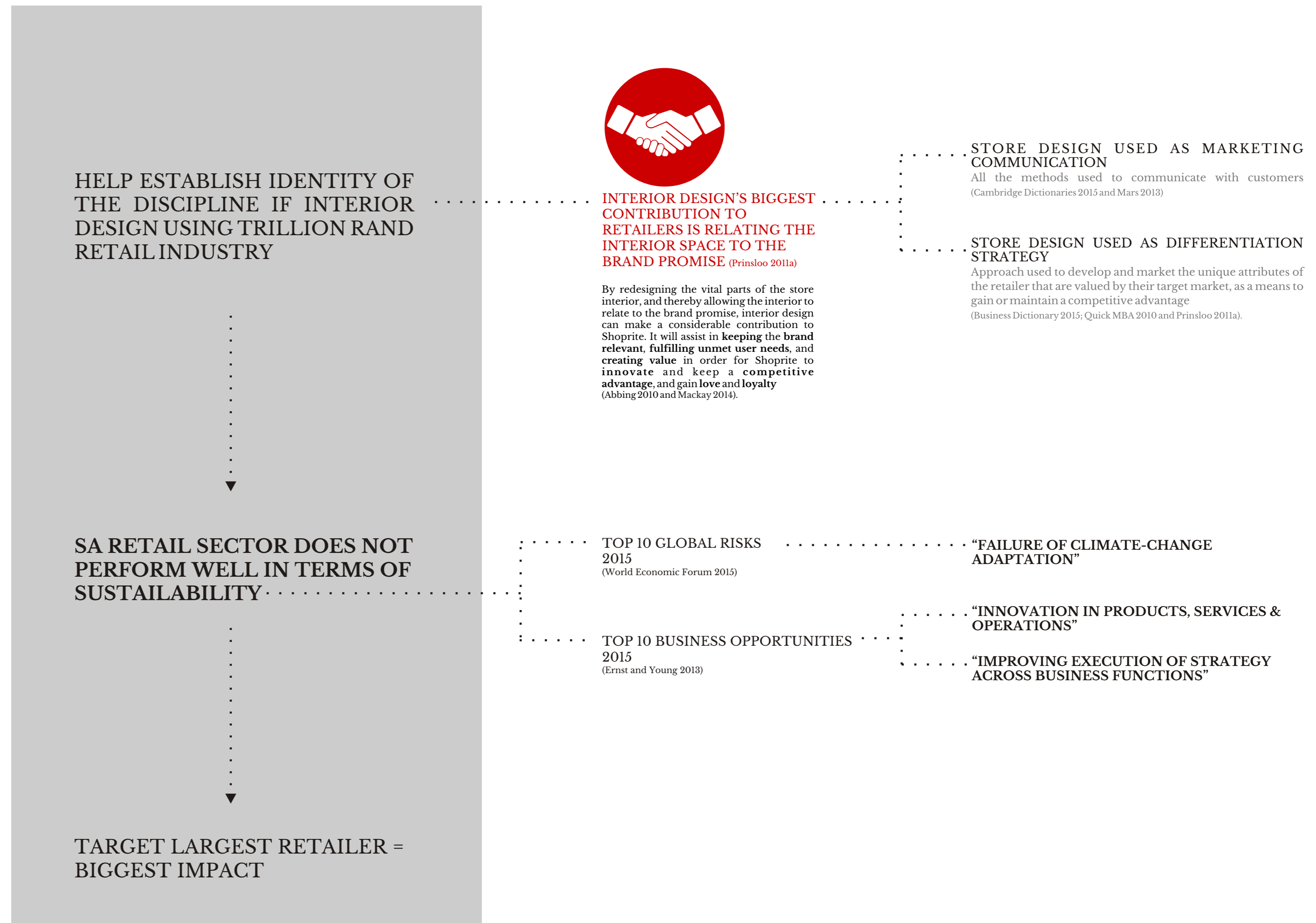
Due to higher expectations through increased exposure to upmarket retail, **customer experience** has gained substantial importance continues Mack (2013). Shopping is therefore not simply about consumption, but also about **convenience and shopping experience** (Prinsloo 2014).

The next page contains a summary of the design issue for easy reference to the concepts discussed.

2.7 CONCLUSION

Chapter two clarified the design issue and therefore the relevance of the project in fulfilling Shoprite's brand promise by minimising resources and maximising the experience, as it holds the greatest opportunity for interior design to make a significant contribution to Shoprite, while also contributing to the South African retail sector and its impact on the environment. The client, Shoprite, was analysed in relation to the design issue and their target market investigated in order to identify consumer needs. This will assist in the execution of an appropriate interior design for Shoprite, which the target market can relate to. This will become evident in chapter three, which is concerned with how the project can and should be executed appropriately.

2.8 Design Issue Summary



Client Analysis

Starting from small beginnings in 1979, Shoprite Holdings Ltd has become the largest food retailer in Africa & the 107th largest retailer in the world (Shoprite Holdings 2014a, 2014b)

60% of countries sales

71% of the total adult population shops at 1 of the Groups supermarket outlets (Shoprite Holdings 2014b)

GROUP'S MOST VALUABLE BRAND

(Shoprite Holdings 2014e)



MOST STORES IN AFRICA

MOST PROPOSED NEW STORES

(Shoprite Holdings 2014g)

BRAND VALUES

- Low prices (value for money)
- Trust
- Convenience
- Advancement
- Pleasant shopping experience

PRIMARY GROWTH STRATEGY

ORGANIC EXPANSION

- OPENING NEW STORES
- GENERATE MORE REVENUE PER SQUARE METER OF EXISTING RETAIL SPACE
- Controlling in store operations

IMPROVING POSITIONING

STORE OPERATIONS

- STORE PROCESS OPTIMISATION
- LABOUR EFFICIENCY & STANDARDS
- CUSTOMER FOCUS

Target Market

LSM 4-7 (middle class consumers)

LSM (LIVING STANDARD MEASURE)
Based on the socio-economic status of adult consumers in South Africa

53% of total adult population falls within this segment, making it the largest consumer segment in SA (SAARF 2008)

VERY DIVERSE SEGMENT
The most prominent sub-segment being the 'new black middle class', representing about 12% of black adults and just over 20% of the purchasing power in South Africa (BFAP 2008).

WHAT CURRENTLY EARNS SHOPRITE BRAND LOYALTY

(Mackay 2014)

- Value for money
- Prices constantly low
- Large range of products
- Customers treated with respect



INCOME: RETAIL SHOPPING FREQUENCY:
% of consumers in group engaging in monthly bulk shopping

LSM 4: R2340	LSM 4: 52%
LSM 5: R3085	LSM 5: 52%
LSM 6: R5396	LSM 6: 33%
LSM 7: R8719	LSM 7: 48%

FOOD EXPENDITURE PATTERNS: estimated expenditure on dominant food groups as share of total food expenditure within wealth category

Bread & cereals:	22%
Meat:	28%
Vegetables:	9%
Dairy, eggs:	10%

MOST PROMINENT FOOD TRENDS IN THE SA FOOD SECTOR:

1. Dairy
2. Condiments (bread spreads, sauces, seasonings, dips)
3. Animal protein
4. Baked goods - sweet
5. Alcoholic beverages
6. Sweets (chocolate)
7. Non-alcoholic fruit beverages
8. Staple foods
9. Fats/oils
10. Tea

CUSTOMER VALUES

- Save money
- Quality
- Convenience
- Brand (make them feel good)
- Experience

03 | THEORETICAL PREMISE

HOW

3.1 INTRODUCTION

Chapter three examines appropriate theories, in the form of a literature review, to maximise the user experience and minimise resources – which inherently also contributes to enhancing the user experience. This will assist in formulating guidelines for an efficient interior design for Shoprite, which fulfils the brand promise within the interior, and will thereby aid in the successful execution of the design. The topics 'maximising the user experience' and 'minimising resources' will be investigated separately, however the two are correlated since they are interdependent.

The chapter will begin with a quick overview of the essence of retail design, followed by a recap of the interior designers' role in retail design. Methods to enhance the user experience within a retail environment, through that which is in the power of the discipline of interior design, will then be discussed. This will be done by looking at branding theory in relation to the target market's aspirations, consumer behaviour and needs. It will cover topics such as brand innovation, branding strategies to create an authentic experience – which include psychographics and curating a lifestyle, as well as brand communication through store design.

Minimising resources will then be investigated with a short introduction to the impact of the built environment on natural resources and how interior design can assist in minimising the negative impact. Resource efficient strategies for interior designers are then investigated to determine which have the biggest impact on the interior environment. The strategies, which formulate the guidelines for the design, will be determined through a mix of theory and award winning case studies.

Precedents will be reviewed throughout to clarify the relationship between the theory and design production. The chapter therefore in part, aids in answering the research question of how interior design can improve the efficiency of Shoprite interiors, and thereby find a balance between the price of the product and the price of society.

As a conclusion to both chapter two and three, which serves as the conceptual framework to the study - analysing the design opportunities held by efficient interior design, the concept is then defined. The concept responds to the design issue and the essence of the theory, and therefore the main aim of the project. The concept page includes the inspiration behind the design as it was inspired by Shoprite's target market and South Africa in general.

3.2 OVERVIEW OF RETAIL DESIGN

3.2.1 RETAIL DESIGN

"If a brand is the relationship between a business and its customers, the retail space is its most visceral conversation" (Bisho & Cho 2008).

According to Prinsloo (2011a), the aim of retail design is to distinguish, enhance and promote a positive shopping experience. Cues are therefore created to draw customers into the retail store and engage them in a satisfying shopping experience. Experience-based consumption and the use of consumer experience as differentiation strategy has become a dominant subject in literature, due to its growing economic significance (Prinsloo 2011a). In the past, retail stores designed the store to accommodate the products, but today, the trend is to put emphasis on the emotions, perceptions and experiences of customers (Murialdo 2008).

Changes to the retail store environment can transform the

behaviour of consumers are a very complex environment (Prinsloo 2011b). What influences the way customers relate to a retail brand is the experience a customer associates with the retail store. What leads a customer to have a distinctive and favourable association with the retail brand identity, is therefore a pleasant experience. This allows retailers to gain a competitive advantage in their market by differentiating themselves from their competitors. A significant part in the success of a retailer in the current global market is therefore the design and implementation of a retail store (Prinsloo 2011b).

Prinsloo (2011a), further states that the retail strategy describes the essence of the retail brand. It represents what the brand stands for and how they want to be perceived by consumers. The personality of the retail brand is articulated through the design of a retail store, among other things. This manifestation of the personality changes to align with the latest trends. When determining a retail design strategy, what proves a retailer with valuable instruments is the store image which is related to its functional qualities and psychological attributes. For retailers to create a store that will produce a unique and positive consumer experience, careful planning and proficient design of these functional qualities and psychological attributes are required (Prinsloo 2011b).

3.2.2 ROLE OF THE INTERIOR DESIGNER IN RETAIL DESIGN

Interior designers are educated and trained to perform more functions than the technical application of knowledge. They are also skilled in identifying problems and finding solutions through the application of creative skills (Prinsloo 2011b). Interior design is innovative, purposeful and valuable to retail objectives such as increasing productivity, enhancing the quality of the store and promoting merchandise through effective displays (Mazarella 2010).

To repeat, the most significant contribution the interior designer can make to retailers, is store design used as marketing communication and as differentiation strategy - or in short - relating the interior of the store to the brand promise. This is to enhance the shopping experience and thereby allow the retailer to gain a competitive advantage (Mazarella 2010, Moore & Lochhead 1998, Murialdo 2008, Petermans & Van Cleempoel 2010 and Prinsloo 2011b). Abbing (2010), also supports this contribution by stating that products, services, environments and people play a much larger role in getting the brand message across than do written and spoken communication about a brand. This is where interior design comes in – to carry a message through non-verbal media. To do this, he suggests developing technical solutions, combining them with human-centred services and embedding them in meaningful experiences.

PART I

MAXIMISING USER EXPERIENCE



[BRANDING]

In aid of finding a course of action to enhance the user experience, by relating interior space to the brand promise, branding strategies are investigated.

3.3 BRAND INNOVATION

According to Abbing (2010), a brand is the relationship an organisation has with the user. It connects what the company believes in and what the user values. In order for brands to keep a competitive advantage, they need to innovate since innovation is a source of growth. It increases long-term

profit and turnover by fulfilling unmet user needs, which differentiates a company from its competitors. The key to success is to keep a brand relevant and in order for a brand to stay relevant, it needs to be revitalised. He adds that the key to innovation is therefore seeking opportunity to create value.

3.4 BRANDING STRATEGIES FOR INTERIOR DESIGN

Consumers no longer automatically trust a brand simply because it is big and well-known. A good reputation requires exceptional service and offering customers exactly what they want (Mackay 2014).

According to Mulvena (2013), the solution to holding on to customers and attracting new ones - whether it is to compete with the increasingly simple and convenient online shopping, convenience stores or other retailers - retailers have to integrate the brand. This statement is justified by Mackay (2014), who states that brands need to demonstrate their narratives instead of just talking about them in an advertisement. This again, is where interior design comes in. Integrating a brand is not limited to visual aspects such as colour, graphics and aesthetics. Designers need to dig deeper and look at the values of the customer and brand strategy, and determine how these elements can come together to support the design of a space. The designer's job is therefore to create an authentic experience that is directly in line with the brand and its values.

Mulvena (2013) continues by saying that the key to offering an authentic retail experience, is to design according to psychographics and curating a lifestyle. In explaining the psychology of design, he mentions that the first thing one must do when designing a store is to understand the target market. One has to determine how their needs and values line up with the brand strategy. This can be done through psychographics, which is the study of values, attitudes, personalities, interests and lifestyles. This approach creates cultural groups around shared values and aspirations, which results in a common language and usually shared experiences. This enables a more relevant and appropriate design that resonates on a much deeper level than simply creating a "cool" space.

Like in Shoprite's case, where multiple psychographic groups exist, seeing that even the most dominant group in the LSM 4-7 segment, the black middle-class is not homogeneous, the designer must create solutions that seamlessly appeal to all groups within the market (Mulvena 2013).

In order for a brand to truly connect with consumers, it also has to show its values beyond the trusted products being sold and benefit the customer beyond their purchase (Mackay 2014 and Mulvena 2013). A way for retailers to do this is by being curators of a lifestyle which is in line with the brand and its core values. Retailers therefore also need to have a sense of context in order to connect with customers in other areas of their life. Therefore, in order for retailers to make a meaningful connection with the customer, it might mean sacrificing a portion of the sales floor to additional activities that are relevant to the customers (Mulvena 2013). Prinsloo (2014) adds to this by stating that interactive shopping is the new key word. In aid of increasing the shopping experience as well as the dwelling time in store, retailers are adding coffee shops and eating places.

A brand who offer new experiences to those who never had it before, generate large levels of love and loyalty. Brands therefore need to give consumers more choice than they are used to and access to experiences that they never previously had (Mackay 2014). It is thus not enough to rely on a brand's colours, logos, and one big tagline, one has to create an authentic experience (Mulvena 2013).

In an attempt to create an authentic experience that is directly in line with the brand and its values, design according to psychographic is utilised. The target market is therefore further analysed to determine how their needs and values line up with the brand strategy. This is to create cultural groups around shared values and aspirations to create a common language and shared experiences, to enable a more relevant and appropriate design.

3.4.1 PSYCHOGRAPHICS

ASPIRATIONAL BRANDING

According to Velleman (2014), the increasing spending power of the growing **middle class** is a sign that people are moving up and that brands should do more to help them achieve their goals. A better quality of life is being driven which people are eager to maintain and grow (Walker 2013). Philip (2013) agrees by saying that the middle class **aspires to improve their lot and progress themselves**. They therefore also aspire to brands in the same way as consumers around the world aspire to brands, and have a **desire for brands to meet their high levels of aspirations**. Brands need to push past inspiring slogans and key into consumers' aspirational identities (Brown 2014).

If brands become **part of a consumer's journey to success**, it will generate **love and loyalty** towards the brand. These aspirational consumers attach **emotional value** to the brands that support their aspirations and enrich their life experiences. They are looking for more than just functional products and services (Velleman 2014).

The reason why many brands fail to connect to the 'rising' middle class is because they try to broaden their appeal by re-packaging their offerings to feel like a 'cheaper' option says (Velleman 2014). Customers do not like to feel cheap. It is therefore vital, yet difficult, to find a balance between affordability and aspiration. Consumers look for value and value does not mean 'cheap'. It means getting more benefit for what you pay, as mentioned earlier.

A common misperception is that value to the aspirational consumers is a way to show economic and social status, but the reality is that they want brands that also help them feel successful in other ways. **Successful South African brands** are a mix of business strategies that are designed to **capture the deeper agenda of the consumer**, a **commitment to marketing spend** and a **consistent brand experience that captures its relevance** with customers (Walker 2013). Consumers want to see themselves in the brand, continues Walker (2013). They want brands to **understand them** and to **know what they want and need**, in order to **enhance the customer experience** and make their lives better. Relevance through aspiration is therefore a significant part of a brand's agenda in South Africa. Brands need to uncover this agenda with customers and package it as a consistent experience.

A way to capture the value-oriented but aspirational lower end of the market is to deliver **value** through **quality** (Velleman 2014). The key is to understand the customer's inner journey and have that help align the brand and its core strengths. In order to cement a position of brand value and ensure ownership of a brand in people's minds, brands need to be **consistent and highly visible**. A brand has to **sell an experience** that **reflects the aspirations** of the market (Walker 2013).

UNDERSTANDING SHOPRITE AND ITS TARGET MARKET

In further determining the needs and shopping behaviour of Shoprite's target market, as an extension of the earlier target market analysis and the aspirations above, Chase, Legoete & Wamelen (2010), state that the **mass middle market's attitudes and outlooks are more important** than their **income**. However, **57 percent of black consumers' main concern** when buying food is to save as much money as possible, **most consumers are willing to pay more for convenience, brand and quality**. Additionally, nearly 50 percent of the middle-income black consumers support brands that **"make them feel good"**. This requires retailers to make customers **feel more welcome in their stores**. This offers great opportunity for "grocery brands" specifically, to develop stronger brands in order to capitalise on the much more brand-conscious customer base, especially considering how far many South Africans need to travel for their food shopping via public transport.

According to Shoprite's chairman, Mr. CH Wiese, Shoprite analyses their customers' shopping patterns in order to better understand their needs and aspirations. They satisfy these by **sourcing globally** to find the **best quality** at the **lowest prices**, and ensure that the **products** are on the shelf where and when their customers want them (Shoprite Holdings 2014g).

One of the reasons why **Shoprite** is such a popular brand across all segments in South Africa, is because they offer **great value for money**. The prices are **consistently low**, there is an **enormous range of products** on offer and **customers are treated with respect**. This is what currently earns them brand loyalty. Shoprite is also seen as a retailer who **cares about its shoppers** due to its continuous expansion into townships, bringing its stores to where the shoppers are (Mackay 2014). From a product, employee and geographic point of view, Shoprite is therefore very successful. From an **in-store experience** perspective however, and seeing the impact it can have on a retailer's competitive advantage and brand loyalty, Shoprite has a **long way to go** (see figure 3.4.1[i]).

In order to successfully relate the interior of the store to the brand promise in a way that is relevant to the customers, one has to determine how their needs and values line up with the brand strategy.

COMPARING VALUES

Customers expect brands to **deliver a specific experience**, which is embodied in the **brand values**. This is to fulfil consumer aspirations. The brand values are what gives the brand **personality** and establishes an **emotional connection** with the audience, driving trust and loyalty. Any deviation from the brand's values will hinder the original brand promise, therefore the brand values are core to any brand (Davis 2009).



Figure 3.4.1[ii]: Diagram comparing Shoprite's brand values to their customers' values (Author 2015 - information gathered from Chase, Legoete & Wamelen 2010, Mackay 2014, Prinsloo 2014, Shoprite 2015b, 2015c; Shoprite Holdings 2014a, 2014e)

As seen above, Shoprite's brand values align with those of their customers. These **brand values should** however be **understood by anyone experiencing the brand** in order for people to have a **strong emotional connection** to the brand (Davis 2009). In Shoprite's case this is not clear to the consumer, since the **store interiors do not represent these values** (see figure 3.4.1[i]). By redesigning the vital parts of the store interior (interior components identified in chapter four), and thereby allowing the interior to relate to the brand promise, interior design can make a considerable contribution to Shoprite. It will assist in keeping the brand **relevant, fulfilling unmet user needs, and creating value** in order for Shoprite to **innovate and keep a competitive advantage**, while gaining **love and loyalty**.



Figure 3.4.1[i]: Existing Shoprite supermarket interior (Various sources)



What other brands are doing to fulfil the needs of their target market and how they execute these values in store

The following precedents illustrate how to successfully design an authentic experience through the use of psychographics.

The first three precedents show South African brands which particularly resonate with Shoprite's target market. The fourth precedent is an international example which explores store format flexibility as a result of their target market's needs. A conclusion is drawn at the end to determine the main aspects of store design which resonate with Shoprite's target market specifically. The conclusion can be seen on page 19, heading number 3.6 Theoretical Synthesis 1, under 'What the Target Market Relates to': 'Target Markets' Favourite Brands'.

Shoprite's target market's favourite brands

● PRECEDENT 1: MTN "everywhere you go"

8brand, which is a marketing communication and brand management consultancy, designed a modern new look and feel for MTN that forms part of their overall brand strategy. The 'Revolutionary Concept' design stays consistent throughout various sized outlets (8brand 2014).



Name: MTN Yellow City
Date: 2014
Designer: 8brand

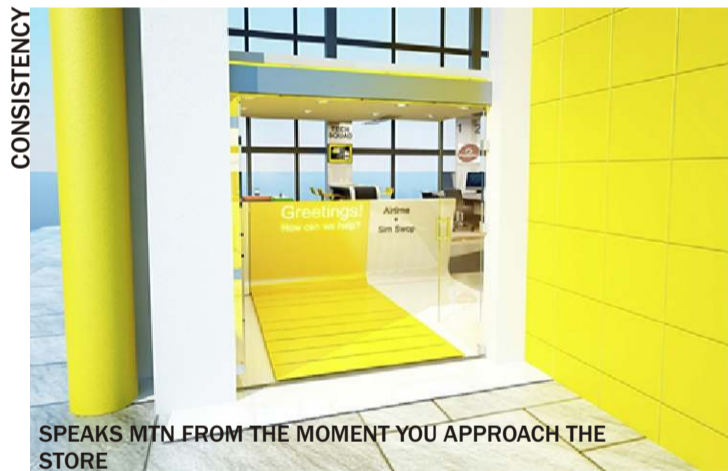
- Ranked #1 most **valuable brand** in South Africa (Forbes 2014).
- Ranked #2 by the **middle income consumer** for understanding the **needs** of South Africans, and as **favourite brand**.
- Ranked #3 by **low income consumers** for most **transformed brand** in the country (Mackay 2014).

SUCCESS FACTOR:
CONSISTENT BRAND EXPERIENCE THAT IS RELEVANT TO ITS CUSTOMERS – CUSTOMERS SEE THEMSELVES IN THE BRAND

- Loved for its **bright, dynamic and positive communications**, its **customer service** and **reliable network**.
- The brand is **optimistic, energetic and proud African**.
- The brand **connects with the consumer** because it **reflects them** (Mackay 2014 and Walker 2013).

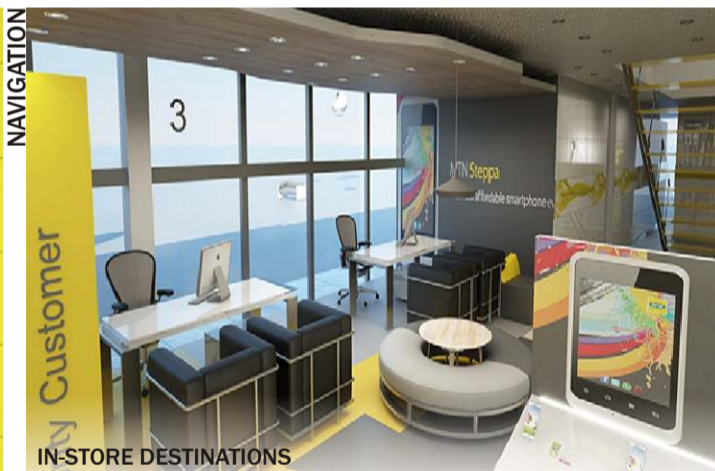


PLAYFUL TONE OF VOICE



CONSISTENCY

SPEAKS MTN FROM THE MOMENT YOU APPROACH THE STORE

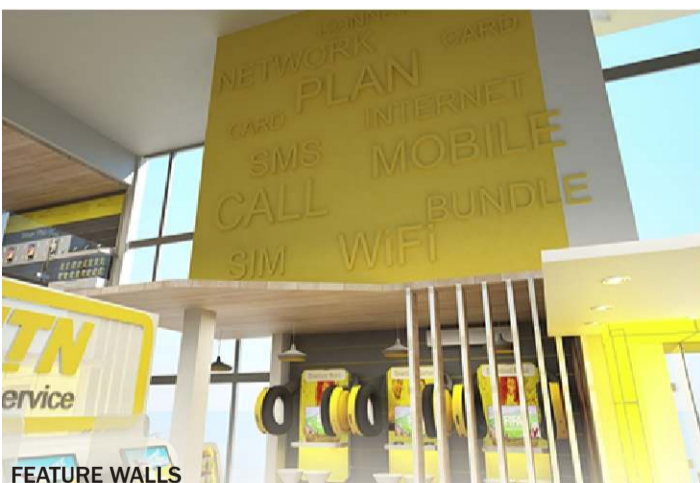


NAVIGATION

IN-STORE DESTINATIONS



DESIGN ELEMENTS



FEATURE WALLS



DIFFERENT FLOOR FINISHES



CLEAR & SIMPLE SIGNAGE



DESIGN

EFFICIENT USE OF SPACE



WOODEN ELEMENTS FOR WARMTH & PRIVACY



REPETITION OF COLOUR, SHAPE & MATERIAL

Figure 3.4.1.1: Various images of MTN Yellow City, South Africa (8degree 2015)

PRECEDENT 2: KFC “so good”



INSTANTLY RECOGNISABLE



Name: KFC

- In the top 10 favourite brands for lower and middle income consumers (Mackay 2014).

COLOURFUL & FUN



SUBTLE YET RECOGNISABLE

SUCCESS FACTOR:
"Tastes like home" campaign – INSTANTLY RECOGNIZABLE EVERYWHERE IN THE WORLD

- Their communication speaks the consumer language and taps into local, relevant customer experiences and stories.
- Builds contemporary but nostalgic connections with South Africans (the taste you grew up with – the brand has evolved beyond the old Colonel) (Mackay 2014).

Figure 3.4.1.2: KFC (Various sources)

PRECEDENT 3: CAPITEC BANK “simplicity is the ultimate sophistication”



PERSONAL



WELCOMING



Name: Capitec Bank, South Africa

- Among the most transformed brands for poorer consumers and among the favourite brands of wealthy SA – even though it is a value offering (Mackay 2014).

COMFORTABLE



SUCCESS FACTOR:
CHALLENGER PHILOSOPHY DRIVES THE BRAND

- Attitude that resonates with SA with our struggle history – they take on the big guys on your behalf.
- They do things differently, and that is something SA want more of.
- Refreshingly gender-neutral approach to marketing (Mackay 2014).

Figure 3.4.1.3: Various images of Capitec Bank, South Africa (Allen International 2012)



LOCAL PRODUCTS HIGHLIGHTED AROUND STORE PARAMETER

MORE YOUNG FAMILIES IN AREA THUS MORE BABY CLOTHING



Figure 3.4.1.4: Various sketches of Morrisons' 'Format Flex' lab store format, United Kingdom (M Worldwide 2014)



Name: Morrisons 'Format Flex' lab store format
Date: 2015
Location: Weybridge, Surrey, UK
Designer: M Worldwide

The Format Flex project stores experiment with **tailored formats to suit different local communities** through different store designs, environments, product ranges and customer propositions.

Each store flexes the size and type of serve-over counters, while local produce is displayed around the store parameter for emphasis (Retail Design World 2015).

There are 3 different stores undergoing the make-over, each catering to a different target market:

STORE 1: Features a wider range of children's clothing since it is situated in an area with a lot of new parents.

STORE 2: Focuses on value.

STORE 3: Incorporates additional elements into the design to appeal to the high number of young families in the area.

Research into **customer segmentation** and **space allocation** was done beforehand to create **targeted propositions**. This allows them to get closer to the customer and provide **value** in a way that is **locally relevant** but **unmistakably Morrisons** (Briggs 2015 and Retail Design World 2015).

Step 2 in creating an authentic experience, after the use of psychographics, is to curate a lifestyle. This allows a brand to truly connect with consumers beyond their purchase by showing their values beyond the products being sold. This offers additional benefits to the customer. This again should be in line with the brand and its core values. Retailers should therefore have a sense of context, in order to identify additional means to satisfy their customers, by identifying needs connected to other areas of their lives. This may mean sacrificing a portion of the sales floor to additional activities, but will allow the retailer to gain large levels of love and loyalty, as mentioned earlier.

3.4.2 CURATING A LIFESTYLE

THE GENERAL CONTEXT AROUND SHOPRITE SUPERMARKETS

As identified in the site analyses of Shoprite supermarkets, which is discussed in detail in chapter four, Shoprite stores in Pretoria are all in close proximity to where people work. The Deli which houses the prepared meals or "take-aways", therefore proves to be a popular destination in store during lunch time. This offers an opportunity to recreate the Deli and offer an additional eating area, where people can sit and eat in store, instead of having to sit outside in the parking lot or street as they do at the moment. This is a means to curate a lifestyle and thereby fulfil unmet user needs in order to enhance love and loyalty towards the Shoprite brand.



Additional activities other brands are adding to their stores to satisfy their target market

As an example of how to curate a lifestyle in order to create an authentic experience, the following precedents are investigated:

The first precedent is a South African brand which shows additional means to satisfy their customers. The second is an international, award winning precedent which also offers additional lifestyle activities in store. A conclusion is drawn of the possible activities to offer, in order to satisfy customers within a supermarket. The conclusion can be seen on page 19, heading number 3.6 Theoretical Synthesis I, under 'Additional Activities': 'Analysing Context & Target Market Habits'.

South African brand curating a lifestyle

PRECEDENT 1: Woolworths Food, South Africa



Installing shops-in-shops (florist, café, sushi station, fishmonger, and butchery - steering away from the usual aisle-aesthetic). This breaks up the space and keeps the store's original boutique feel, while providing an intuitive layout. The design language still speaks evenly throughout the store.



Name: Woolworths, Waterstone
Location: Waterstone Village, Somerset West, Western, Cape South Africa
Date: 2014
Designer: Woolworths, Cape Town, South Africa

- Ranked #10 most valuable brand in South Africa (Forbes 2014)
- Ranked #1 by upper income consumers LSM 8-10, as brand that best understands South Africans
- South Africa's 3rd favourite brand overall for all race groups and both black and white consumers rank it highly for having transformed in line with SA (Mackay 2014 and Woolworths Holdings 2015)

First Place in VMSD's Renovation Competition for Supermarket Renovation

CURRENT TREND IN SOUTH AFRICA:

- Theatrical approach to food
- Back to the way things were done in the past (people want to see the butcher working, the coffee roasting, the bread baking) (A.R.E. Design Awards 2014 and Hagedon 2014)

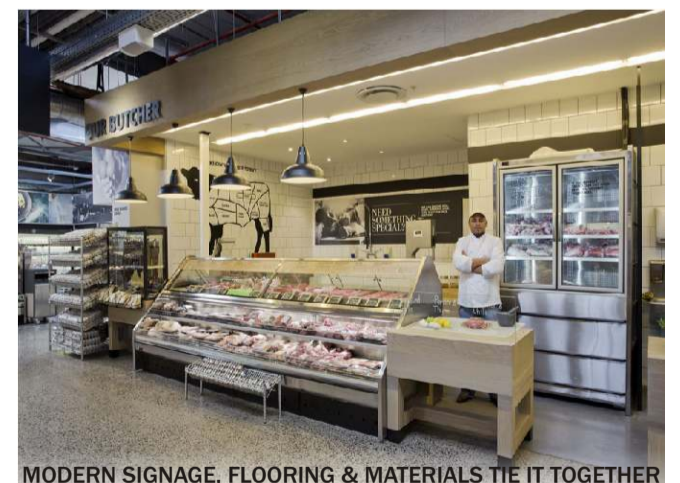
DESIGN



RAW, NATURAL MATERIALS



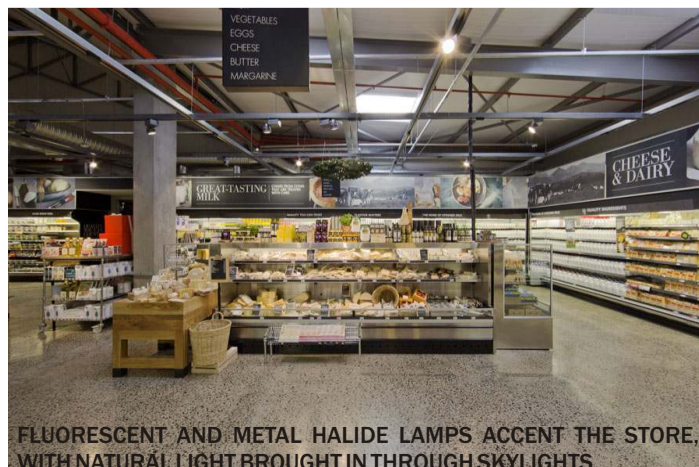
CONTROLLED, CLEAN & ELEGANTLY DESIGNED



MODERN SIGNAGE, FLOORING & MATERIALS TIE IT TOGETHER



STEEL AND RECLAIMED TIMBER TABLES PRESENT MERCHANDISING DISPLAYS



FLUORESCENT AND METAL HALIDE LAMPS ACCENT THE STORE, WITH NATURAL LIGHT BROUGHT IN THROUGH SKYLIGHTS.



SIMPLE AND CONSISTENT SIGNAGE

Figure 3.4.2.1: Woolworths, Waterstone, South Africa (Hagedon 2014)

International brand curating a lifestyle

● PRECEDENT 2: Waitrose, United Kingdom



Waitrose

Name: Waitrose Superstore
Location: Wichelstowe, Swindon, UK
Date: 2014
Designer: Studio Nesh

- “Everything the discounters aren’t” – to continue increasing sales and market share.

Winner of 2014 Retail Design Awards (Retail Week 2015).

- Fruit juice bar
- Wine & Whiskey tasting
- Eating areas (Essential Retail 2014)

ACTIVITIES



MULTIPLE EATING & DRINKING ZONES

DESIGN



SPACIOUS



EYE-CATCHING DISPLAYS



EMPHASIS ON NATURAL MATERIALS



DISPLAYS BACKLIT, TO SHOW THE COLOURS OF THE BEER CONTAINED



THEMES SIGNAGE THAT FITS PRODUCTS



ORGANIC, FRESH, LOCAL PRODUCE



Figure 3.4.2.2: Waitrose, Wichelstowe, United Kingdom (Various sources)

Although integrating a brand is not limited to visual aspects such as colour, graphics and aesthetics to create an experience, these elements are still vital. Brand communication which informs the consumer of the brand promise through its own look and feel (Floor 2006), is therefore investigated to further determine how store design can bring the brand to life:

3.5 BRAND COMMUNICATION THROUGH STORE DESIGN

BRAND PERCEPTIONS

According to Alawadhi (2009), studies have shown that there are a number of factors that affect a customer's perception of a store and their preference over other places. Contributing factors to the visual perception and behavioural responses of customers, are store location, atmosphere, emotional attributes, sensory stimulation attributes, and visual merchandising. Interior design can have the biggest impact on **store atmosphere**, **emotional attributes** and **sensory stimulation attributes**, therefore they are the areas of focus for this project.

Since the previous topics focused more on the emotional attributes which contribute to the experience, the next part will focus on the store atmosphere and sensory stimulation attributes of interior design which can be used to further enhance the user experience.

STORE ATMOSPHERE

The means of communication for sending a perceived message about a brand is important, since customers' **perceptions** of a brand is what **persuades** them to **support** the **brand**. In most cases it is **based** on the **brand identity** and **advertising**. Everything however contributes to our perception of a brand. We all come into contact with advertising, visual identity applications and branded environments. Each **visual communication** application, being individual experiences themselves, help build our perceptions of a brand and is what contributes to the overall brand experience (Alawadhi 2009). According to Landa (2005), **branded environments** can therefore play a **vital role** in determining a consumer's brand perception, since an individual's experiences are **intuitive** and **sensory**.

How the target market experiences the brand is pointed out by the brand perception or **brand image**. The **look** and **feel** of the communication therefore has to **reflect** the **brand personality**. Communicating the same **consistent message** through advertising, direct marketing communications, store design, visual merchandising and the employees is thus crucial (Floor 2006).

A store can no longer survive on good positioning alone says Alawadhi (2009), since many **buying decisions** are not made until the consumer is **in store** (Floor 2006 and Landa 2005). Good merchandise and affordable prices are no longer enough, consumers today, demand more of a store. Consumers expect stores to offer all kinds of **sensory experiences**, including sight, hearing, feeling, tasting and smelling. These will **strengthen** the **brand** and allow them the right to demand higher prices (Alawadhi 2009). By counting on distinguished style attributes such as **colour**, **shape**, **materials**, **sound**, **smell** and other sensory aspects, brands can develop a **distinctive look and feel** for its in-store communication says Alawadhi (2009).

A reason why many retail brands miss the opportunity to connect with their consumers is because of visual pollution or visual clutter as a result of all in-store communication being visual (Floor 2006).

Although a retail brand uses many tools to communicate its positioning and personality, both through out-of-store tools such as advertisements to attract the customers, and in-store tools such as visual merchandising and employees, it is vital to remember that the **project focuses solely on specific parts of the store design**, which can be controlled by the interior designer. All the tools however contribute to the overall brand experience.

Store design is more than a neutral background for products says Alawadhi (2009). It has to be a **persuasive marketer** and an **appealing product presenter**. Store communication tells customers what to expect from the retail brand, says Floor (2006). A way to attract customers is by utilising the exterior of the store to communicate clear messages to them about the anticipated interior look. The **interior** of the store on the other hand, is able to **influence buying behaviour** by **turning browsing into buying** with the help of store design, among other things (Floor 2006). This will be discussed further in chapter four under **4.3 Supermarket Psychology** - page 27.

SENSORY STIMULATION

According to Alawadhi (2009), designers will be more proficient in fulfilling the real needs of customers and help improve their lifestyles and well-being, if the **human senses** are taken into account when **enhancing the experience**. Branding in retail can therefore be primarily induced by sensory perception to enhance the overall shopping experience. As a branded environment, the retail store extends the experience of a brand through three-dimensional space. Consumers go to stores to see, hear, touch, smell and taste products on display as well as their environmental surroundings. In a retail store, sensory experience therefore plays a significant role in consumers' **perception** of the brand and their **purchasing behaviour** due to its **positive influence** on the **brand image**. Creating a **unique brand experience** through **sensory stimulation** is therefore a vital part of interior design (Alawadhi 2009).

When evaluating our environment, **sight** is the **key sense**, followed by **smell**, **sound**, **taste** and **touch** (Lindstrom 2007). According to Alawadhi (2009), the effect of sensory branding is astonishing, yet this effect is magnified when sensory synergy is created by including any of the other senses. Creating **synergy across the senses** should be the ultimate goal, since one sense triggers a **chain reaction** of impressions, instantaneously unfolding an array of **memories** and **emotions** (Alawadhi 2009). The more senses used in branding, the higher the number of sensory memories activated and the higher the number of sensory memories activated, the **stronger the connection** between the **brand** and the **consumer** (Lindstrom 2007).

Positive synergy across multiple consumer touch points should be created, therefore **sensory signatures** which **characterise the brand** should be identified.

VISUAL SENSES


Vision is both a **primary sense** and a **complementary sense** to our other four senses says Alawadhi (2009). It is the **most persuasive** sense of all, often overruling our other senses. It has the power to persuade us against all logic (Lindstrom 2005). This is why brand builders and marketers focus mainly on vision.

A **brand's values** are **read** according to the way they are **presented** to us **visually** (Vaid 2003). What we see and register first is **colour**, **names**, **logos** and **typefaces**. These become a **symbol** of the **brand** and its **associations**. Whether it is the dynamic use of colour, shape, typography or logo, it can establish a very clear and unambiguous image that can become memorable to anyone exposed to the brand.

Store design specifically, mostly appeals to the eye through **light**, **shapes**, **colours**, **graphics**, **typeface** and **movements** (Alawadhi 2009). **All the store elements visible** to the customer will have a role in their **perceived impact**. This impact on the customer experience starts from elements such as floor finish and ceiling material to brand logo.

NON VISUAL SENSES

A significant amount of **extra information** and **experience** in our everyday lives are created by our **other non visual senses** (Alawadhi 2009). According to Healey (2008), designers need to take advantage of the non visual senses which **contribute** to the **impressions** we form of the world around us. A **multisensory appeal** directly affects the **perceptions** of the **quality** of the **brand**, and therefore its **value** (Alawadhi 2009).

After the precedent studies on the next page, the essence of the above theories on 'Maximising the User Experience', are summarised under **3.6 Theoretical Synthesis 1** – page 19. This is to highlight the key concepts, as they form part of the conceptual framework for the design project. Interior design guidelines are set in the form of conclusions to the theory and the precedents analysed. These are clearly marked with the icon , which refers to interior design guidelines throughout the project. These guidelines assist with the design and technical resolution of the project.



Interiorised brands which create positive brand perceptions through store design

The following precedents serve to illustrate successful brand communication through store design, or brands which managed to successfully interiorise their brands:

The first precedent shows a South African brand which managed to make the brand visible withing the interior (interiorise the brand). The second and third examples show international brands which achieved the same. Repeating strategies are identified and concluded on page 19, heading number 3.6 Theoretical Synthesis 1, under 'Ways to Interiorise a Brand': 'How a Brand Becomes Evident in the Interior'.

Interiorised brands

PRECEDENT 1: Woolworths Food "the difference"



- SIGNAGE:**
Recognisable font and colour (same as brand logo) - balance of black and white
- LIGHTING**
Accent lighting for a luxurious atmosphere is appropriate to the brand image
- SHAPE**
Dominant use of squares that relates to the logo
- COLOUR:**
Luxurious colour use repeated in ceiling, walls, signage, fixtures & floor finishes
- MATERIAL:**
Repetition
Wood warm and inviting materials

Figure 3.5.1.1: Woolworths food store interior, South Africa (Galleryhip 2015)

PRECEDENT 2: Sainsbury's "live well for less"



- COLOUR**
 - Timber represents their brand colour (orange)
 - Colour variation for navigation, yet orange remains dominant
 - Grey used because it is a neutral colour which highlights the key colours
- Columns designed as part of the atmosphere
- 1 prominent shape used throughout the store to pull the space together

Figure 3.5.1.2: Sainsbury's store interior, United Kingdom (Various sources)

PRECEDENT 3: TESCO "every little helps"



- Signage creating in-line focal points
- COLOUR**
Colour drawing attention to endcaps
- Relating the brand colours to the country flag - connect with customers
- Repeating elements above and below to draw attention to merchandise (colour, shape)
- Colour used as break lines between merchandise, highlights the merchandise
- Colour used to bring store down to human level

Figure 3.5.1.3: Tesco store interior, United Kingdom (Various sources)

3.6 Theoretical Synthesis 1

MAX EXPERIENCE

- INCREASE TURNOVER [THROUGH DIFFERENTIATION]
- GAIN COMPETITIVE ADVANTAGE
- ENHANCE CUSTOMER LOYALTY

BRANDING

BRAND INNOVATION

(Abbing 2010 and Mulvena 2013)

Fulfill unmet user needs to differentiate the brand from its competitors

KEY TO SUCCESS
Keep a brand relevant

Seek opportunity to create value

PSYCHOGRAPHICS
CURATING A LIFESTYLE

BRANDING STRATEGIES FOR INTERIOR DESIGNERS

(Mulvena 2013)

PSYCHOGRAPHICS

Customers expect brands to deliver a specific experience, which is embodied in the brand values. This is to fulfil consumer aspirations. The brand values are what gives the brand personality and establishes an emotional connection with the audience, driving trust and loyalty. Any deviation from the brand's values will hinder the original 'brand promise', therefore the brand values are core to any brand (Davis 2009).

AUTHENTIC EXPERIENCE

ASPIRATIONAL BRANDING

UNDERSTANDING SHOPRITE AND ITS TARGET MARKET

COMPARE VALUE

CUSTOMER VALUES

BRAND VALUES

ALIGNED

Value for money
Quality
Convenience
Experience

BRAND VALUES SHOULD BE UNDERSTOOD BY ANYONE EXPERIENCING THE BRAND IN ORDER FOR PEOPLE TO HAVE A STRONG EMOTIONAL CONNECTION TO THE BRAND (Davis 2009).

In Shoprite's case this is not clear to the consumer, since the store interiors do not represent these values.

WHAT THE TARGET MARKET RELATES TO



TARGET MARKETS' FAVOURITE BRANDS (MTN, KFC, CAPITEC)

- Bright, dynamic & positive communication
- Instantly recognisable
- Tap into local, relevant experiences
- Try to make their lives easier



Figure 3.6.1: MTN Palms, Roll Out Store, South Africa by 8Brand 2014 (8degrees 2015)

EXISTING SHOPRITE INTERIOR



Figure 3.6.2: Existing Shoprite Store Aisle (Roberts 2011)

CURATING A LIFESTYLE

In order for a brand to truly connect with consumers, it has to show its values beyond the products being sold and benefit the customer beyond their purchase (Mackay 2014 & Mulvena 2013).

AUTHENTIC EXPERIENCE

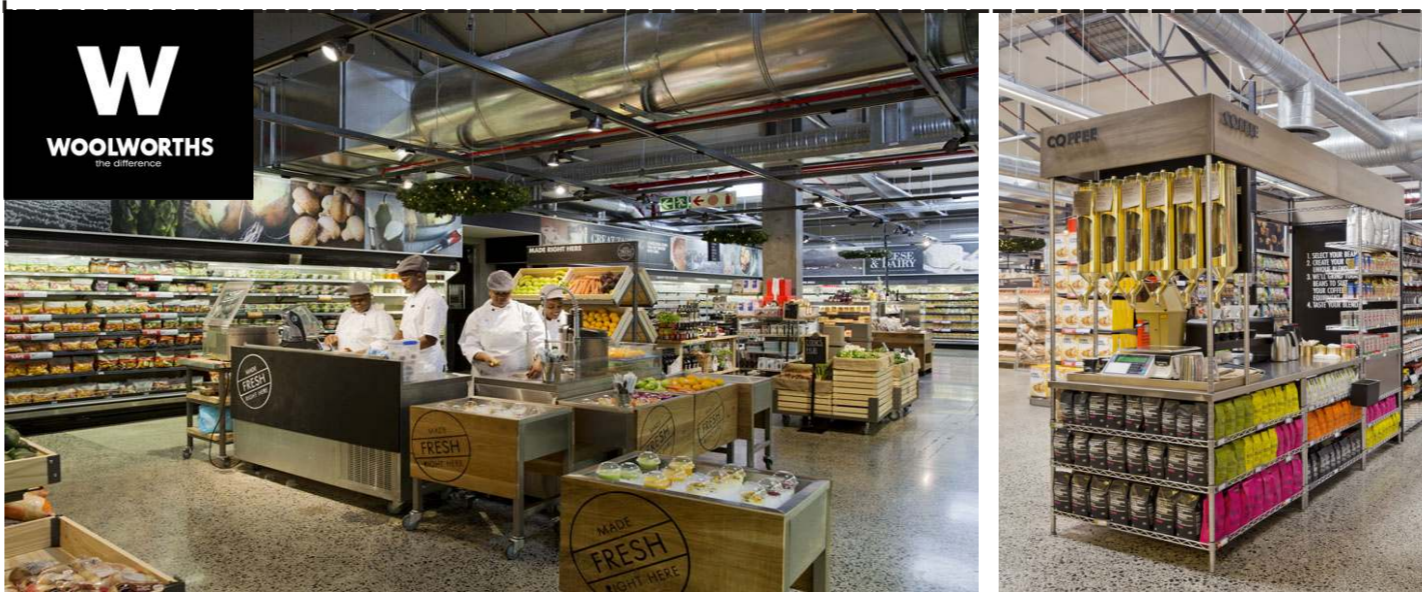
IN LINE WITH BRAND

IN LINE WITH BRANDS CORE VALUES

Additional activities that are relevant to the customers

Interactive shopping

ADDITIONAL ACTIVITIES



ANALYSING CONTEXT & TARGET MARKET HABITS (WOOLWORTHS, WAITROSE)

- Eating zones
- Fruit juice stands
- Coffee stands
- Wine tasting



*Refer to figure 3.4.2.1 on page 15

CONTEXT Connect with customers in other areas of their life

BRANDS NEED TO GIVE CONSUMERS MORE CHOICE THAN THEY ARE USED TO AND ACCESS TO EXPERIENCES THAT THEY NEVER PREVIOUSLY HAD TO GAIN LOVE & LOYALTY (Mackay 2014).

BRAND COMMUNICATION THROUGH STORE DESIGN

Store design is more than a neutral background for products says Alawadhi (2009). It has to be a persuasive marketer and an appealing product presenter. Store communication tells customers what to expect from the retail brand, says Floor (2006).

BRAND PERCEPTIONS

- STORE ATMOSPHERE
- EMOTIONAL ATTRIBUTES
- SENSORY STIMULATION ATTRIBUTES

STORE ATMOSPHERE

DISTINCT LOOK & FEEL THAT RELATES TO BRAND

TURN BROWSING INTO BUYING

SENSORY STIMULATION

ELIMINATE VISUAL CLUTTER

1. SIGHT
2. SMELL
3. SOUND
4. TASTE
5. TOUCH

ALTHOUGH INTEGRATING A BRAND IS NOT LIMITED TO VISUAL ASPECTS SUCH AS COLOUR, GRAPHICS AND AESTHETICS TO CREATE AN EXPERIENCE, THESE ELEMENTS ARE STILL VITAL. BRAND COMMUNICATION, INFORMS THE CONSUMER OF THE BRAND PROMISE THROUGH ITS OWN LOOK AND FEEL TO THE BRAND TO LIFE THROUGH STORE DESIGN (Floor 2006)

WAYS TO INTERIORISE A BRAND



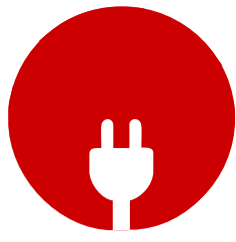
Figure 3.6.3: Loblaw's, Canada by Lamdini Associates 2013 (Retail Design Blog 2014)

HOW A BRAND BECOMES EVIDENT IN THE INTERIOR (WOOLWORTHS, SAINSBURY'S, TESCO & LOBLAWS)

- Good, clear & simple graphics
- Lighting which provides an appropriate atmosphere
- Bold use of brands prominent colour
- 1 dominant shape used in all design elements
- Repetition of these strategies

PART II

MINIMISING RESOURCES



According to Schittich (2009), a striking, high quality design can serve to **improve aesthetics and functional aspects**, as well as **increase profit**.

As a continuation of ways to fulfil the brand promise, by enhancing the user experience, the reduction of resources within the interior is explored. Utilising **renewable, non-toxic resources** as far as possible, and **using resources efficiently**, can both enhance the user experience by creating a **healthy and productive environment**, and **lower operational cost** – which will in turn further **increase Shoprite's financial turnover**.

As mentioned earlier, retailers in South Africa have made a shift towards sustainability, yet this shift is not satisfactory and needs to be better implemented (Savin 2014). With the addition of “failure of climate-change adaptation” being one of the top 10 global risks, it holds an opportunity for the project to make an additional contribution to Shoprite, by not only **improving** the supermarket's **user experience** and **operational costs**, but to contribute to their **climate change adaptation strategies** (World Economic Forum 2015). As part of a larger whole, it will also contribute to **reducing the retail sector's impact** on the **environment**, as Shoprite is South Africa's largest retailer. Yet, with focus on interior design, the opportunities for improvement, which will be investigated below, will serve as a small step towards a more sustainable retail sector by reducing non renewable resources, such as energy and materials, through that which is in the **power** of the discipline of **interior design**.

According to Magee, Scerri, James et al. (2013), the organizing principle of sustainability, is sustainable development, which includes four regions namely: ecology, economics, politics and social sustainability. As described in 1987 by the Bruntland Commission's report (World Commission on Environment and Development) sustainable development aims to ensure that our present actions do not restrain the opportunities of future generations. It necessitates meeting the basic needs of people and providing opportunity to satisfy their aspirations for a better life (WCED1987).

I would hereby like to note that I recognise that sustainability is a widely integrated concept. When referring to 'sustainability' or 'sustainable design' in the following section, I am however only referring to **minimising resources**, which is a **small part** that contributes to the **whole**. It is the part that has the **biggest impact** on the **interior environment**, as can be controlled by the interior designer. This will become apparent below.

[RESOURCE EFFICIENCY]

3.7 CLIMATE CHANGE ADAPTATION

THE BUILT ENVIRONMENT

In recent times, issues such as climate change, diminishing resources and -biodiversity, waste, allergies, stress, and water scarcity, have come into play, causing unparalleled challenges, which increasingly affect our daily lives. The need to minimise resources is therefore rightly a major topic of issue, which is an obligation rather than a will (Ayalp 2012 and Moxon 2012).

According to Osec (2010), the built environment makes a significant contribution to environmental degradation. Buildings, which include construction, operations and deconstruction impacts, use approximately 15 percent of the world's fresh water resources; 40 percent of the world's energy; produces approximately 23-40 percent of the world's greenhouse gas emissions; and uses 50 percent of

natural material resources (Ayalp 2012). The built environment therefore has an immense role to play in sustainable development and needs to develop suitable assessment criteria.

According to Moxon (2012), a building's sustainability efforts can reduce carbon emissions by 30 to 50 percent, without a significant increase in cost, thus we no longer have an excuse not to implement sustainable practices. He adds, as a crucial aspect in the debate, that sustainable design does not need to conform to 'eco' style, but should simply be **part of any good design**.

Sustainable design embodies an approach which considers the **impact** of buildings and construction on the **environment, human health and productivity**. **Sustainable interior design** can therefore be defined as a design in which all systems and materials are designed, with an emphasis on **integration** into a **whole**, for the purpose of **minimising negative impacts** on the **environment and occupants** (Guerin & Kang 2009).

CONTRIBUTION OF THE INTERIOR DESIGNER

According to Moxon (2012), interior design has an immense impact on the environment, since 90% of our time is spent indoors. The design of a space determines how occupants use energy and other resources within that space, as mentioned previously. Furthermore, interior design is the discipline which is most concerned with the way people experience their built environment, impacting on human health, well-being and productivity (Steelcase 2007). Interior design can therefore **enhance productivity, enhance sales** and can **guide users to use the space sustainably**.

The interior should facilitate **programmable flexibility** in order to extend the building's life, providing **simple and intuitive circulation** and allowing **service efficiency** by reducing customer waiting time (WBDG 2014).

Interior design plays a vital role in any building construction or renovation project. In order for a building to function optimally and to achieve high-energy performance and exceptional human comfort and health, interior designers need to be key participants in the overall design approach, right from the start, says (OSHA 2011).

Since interior designers have an understanding of how decisions affect the interior of a building, they have the ability to contribute to decisions related to site selection, orientation, massing, and mechanical and electrical systems design (Steelcase 2007). Interior designers can therefore make a valuable contribution through their design role on projects and their capacity to influence and support the wider design team. Additionally, interior designers are well placed to instigate change, since they mostly focus on refurbishment projects, carefully selecting **lighting, appliances, materials and finishes**. It holds the opportunity to enhance a building's **energy and water** systems, and improve **thermal performance** of its external envelope (Moxon 2012).

Several fundamental aspects of interior design impacts the building's energy use and systems design. These include the **floor plan, partition design, lighting design and interior finishes**. The above mentioned also affects **indoor air quality, building maintenance, acoustics and occupant comfort** (Steelcase 2007). A simple case in point is how the selection of a paint colour affects the amount of lighting fixtures that are necessary within the interior, for a colour with a high reflectivity significantly reduces the amount of fixtures needed. This reduces energy costs, heat loads, and installation and maintenance costs, while providing a higher quality of light (OSHA 2011).

3.8 INTERIOR DESIGN STRATEGIES

VITAL ASPECTS FOR INTERIOR DESIGN

Guerin & Kang (2009) believe that the **indoor environmental quality** (IEQ) is the most important aspect considering the interior environment. This is supported by LEED which includes IEQ as an assessment category (USGBC 2015a), as well as by the Green Building Council of South Africa in their new Technical Manual for Interiors (GBCSA 2015). IEQ includes **indoor air quality (IAQ), thermal and visual comfort and occupants' satisfaction**. Buildings with good IEQ protect the **health and comfort** of building occupants, enhancing **productivity and decreasing absenteeism** (USGBC 2015b).

As part of the IEQ, IAQ entails **reducing indoor pollutants**, which improves the **thermal comfort** of a space and the quality of interior **lighting**. It is also concerned with health, safety and comfort issues such as **aesthetics, portable water surveillance, ergonomics and acoustics** (WBDG 2014). The **essential interior design elements**, which influence the indoor air quality, are thus **materials, furnishings and lighting**. **Minimising harmful construction materials, recycling and preventing pollution** is crucial (Ayalp 2012).

MATERIALS

Sensitive material selection can **minimize waste**, promote recycling and lower carbon emissions and toxic gasses by selecting materials which have a **low embodied energy** (Ayalp 2012). Moxon (2012) confirms this by saying that the environmental impact of materials should be considered by means of using **recycled-content materials, avoiding endangered tropical hardwoods and limiting VOC's** (Volatile Organic Compound), which are harmful to human health.

FURNISHINGS

Furniture needs to be considered in terms of the **production process and long term use** in order to be sustainable says Ayalp (2012). Again, **recycling** should be considered as a viable option as well as using **recycled materials** to make the furniture.

LIGHTING

40-50 percent of a building's total energy is used in the interior environment. Lighting design offers the **largest opportunity** for the interior designer to **reduce this electric energy usage** and should therefore be carefully designed (Ayalp 2012). **Maximizing natural daylight** is vital, since it reduces energy use and offers better quality illumination than artificial light, adds Halliday (2008).

Daylight holds a number of benefits on life quality within an interior environment, enhancing productivity and human health (Yaldiz & Magdi 2011). It has also been proven to **increase sales with 5 percent** when introduced into retail interiors (USGBC 2015a). In the context of sustainability, daylight can be considered in three categories (Yaldiz & Magdi 2011):

1. **Resource sustainability** (using daylight to affect the energy of the building performance).
2. **Economical sustainability** (in the dimension of financial benefit).
3. **Human sustainability** (in the dimension of human physical and psychological health).

STARTING POINT FOR DESIGN

It is vital for interior designers to understand the **principles** of sustainable design in order to inform their approach. These principles should then influence their choices of energy and water systems, as well as material and construction methods (Moxon 2012). In order to choose the most sustainable energy and water systems and material and construction methods, Moxon (2012) suggests that the following priorities (in this specific order) be used as a starting point:

ENERGY

1. Passive design
2. Energy efficient products
3. Renewable energy

WATER

1. Passive design
2. Water saving products/ fixtures
3. Water re-use and recycling

MATERIALS

(As discussed in 3.8 under Materials)

ENVIRONMENTAL ASSESSMENT TOOLS

According to Yaldiz & Magdi (2011), interior design assessment tools assist in creating **long term sustainable environments**. The assessment tools aim to provoke designers and construction industries to serve environmental sustainability.

Among these tools are: Green Star SA (South Africa), BREEAM (England), SBTool (International), LEED (USA), EcoProfile (Norway), Promise (Finland), Green Mark of Buildings (Singapore), Green Star (Australia), CASBEE (Japan) and SBAT, which is claimed to be particularly relevant to developing countries. Between these, the most widely used are BREEAM and LEED (Ayalp 2012 and Moxon 2012), while the Green Building Council of South Africa has developed the Green Star SA technical manual specifically for interior environments, as mentioned earlier.

Since the Green Star SA manual proves to be the most relevant, as it focuses on the interior environment and the South African context specifically, it will be utilised within the project. This will become apparent in chapter five, which deals with the technical resolution of the design.

BREEAM and LEED are however still explained below for comparative purposes - this is to meet international standards.

BREEAM was established in 1990 as an Environmental Assessment Method by the Building Research Establishment. The system evaluates the building in the context of sustainability under nine topics (Ayalp 2012):

1. **Management:** in the dimension of policy of site management.
2. **Health and wellbeing:** Factors affecting the health and wellbeing.
3. **Energy:** energy consumption and gas emission.
4. **Transport:** transportation in the context of location and gas emission.
5. **Water:** efficiency in water consumption.
6. **Materials:** evaluation from the aspect of material life cycle.
7. **Waste:** waste products.
8. **Land use and Ecology:** conservation of ecological sites.
9. **Pollution:** air and water pollution assessments.

LEED evaluates sustainability under six categorises (USGBC 2015a):

1. Sustainable site development
2. **Water efficiency**
3. **Energy efficiency**
4. **Material selection**
5. **Indoor Environmental Quality**
6. Innovation and design process

Green Star SA evaluates sustainability under nine categories (GBCSA 2015):

1. Management
2. **Indoor Environment Quality**
3. **Energy**
4. **Transport**
5. **Water**
6. **Materials**
7. **Land Use and Ecology**
8. Emissions
9. Innovation

When the theory and the above categories are considered from an interior design perspective, it is obvious which design elements are core in providing a sustainable interior environments. These are: **energy, water, materials, and indoor environmental quality** (AIA 2008, Ayalp 2012, GBCSA 2015, LEED 2014, Moxon 2012 and WBDG 2014).

3.9 CASE STUDIES

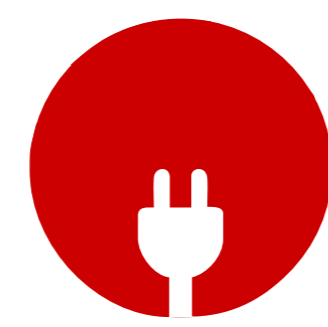
Three case studies, attached in Appendix B – page 65, served to assess how the above mentioned aspects, namely energy, water and material efficiency as well as indoor environmental quality, have been implemented in award winning projects. This was done to clarify if and **how** they have a substantial **effect** on the interior environment.

The conclusion, seen in figure 3.10.1 under **3.10 Theoretical Synthesis 2**, on the next page, was drawn from **recurring strategies** identified in the **case studies**, as compared to the **theory**. This clarifies which interior design strategies have the **biggest impact** on the interior environment. Additional supermarket specific precedents were also analysed, as can be seen in figures 3.10.2 and 3.10.3. These further support the strategies.

The strategies identified, which serve as guidelines for the design, assists the project in achieving an interior design which utilises the minimum amount of resources, and thereby further enhances the user experience.

.....
 Please note that further, supermarket specific energy strategies are identified in chapter five during the technical resolution of the design. Here, the components in South African supermarkets specifically, which use the most energy within store, are identified and resolved accordingly. These can be seen on page 43, under 5.3 Technical Response.

3.10 Theoretical Synthesis 2



MIN RESOURCES

- INCREASE TURNOVER [SUSTAINABILITY EFFORTS]
- LOWER OPERATIONAL COSTS
- ENHANCE EXPERIENCE

4 INTERDEPENDENT REGIONS WHICH HAVE THE BIGGEST IMPACT ON THE INTERIOR ENVIRONMENT & THE SUBCATEGORIES WHICH CAN BE INFLUENCED BY THE INTERIOR DESIGNER



Figure 3.10.1: Diagram of theoretical synthesis (Author 2015 - information gathered from AIA 2008, ASID 2007, Ayalp 2012, GBCSA 2015, LEED 2014, Moxon 2012 and WBDG 2014)

ENERGY EFFICIENCY

SPAR IN AUSTRIA BY LOVE ARCHITECTURE AND URBANISM 2011 (ArchRE-think 2013)

- Solar gain from open facade
- Daylight sensors
- Exhaust heat from cooling plant used to refrigerate food
- Double glazing
- Thermally active floor slab = even distribution of heat
- Prefabricated elements = fast construction
- Cost will be balanced out in 3 years due to reduced energy consumption



Figure 3.10.2: Spar, Austria (ArchRE-think 2013)



FLEXIBILITY

MENY SUPERMARKET IN NORWAY BY HOUSEHOLD 2014 (Retail Design Blog 2014)

- Perceived as warm & abundant
- Wooden ceiling raft holds fresh counter perimeter together
- Display units flex to stock levels throughout the day



Figure 3.10.3: Meny Supermarket (Retail Design Blog 2014)



3.11 Concept

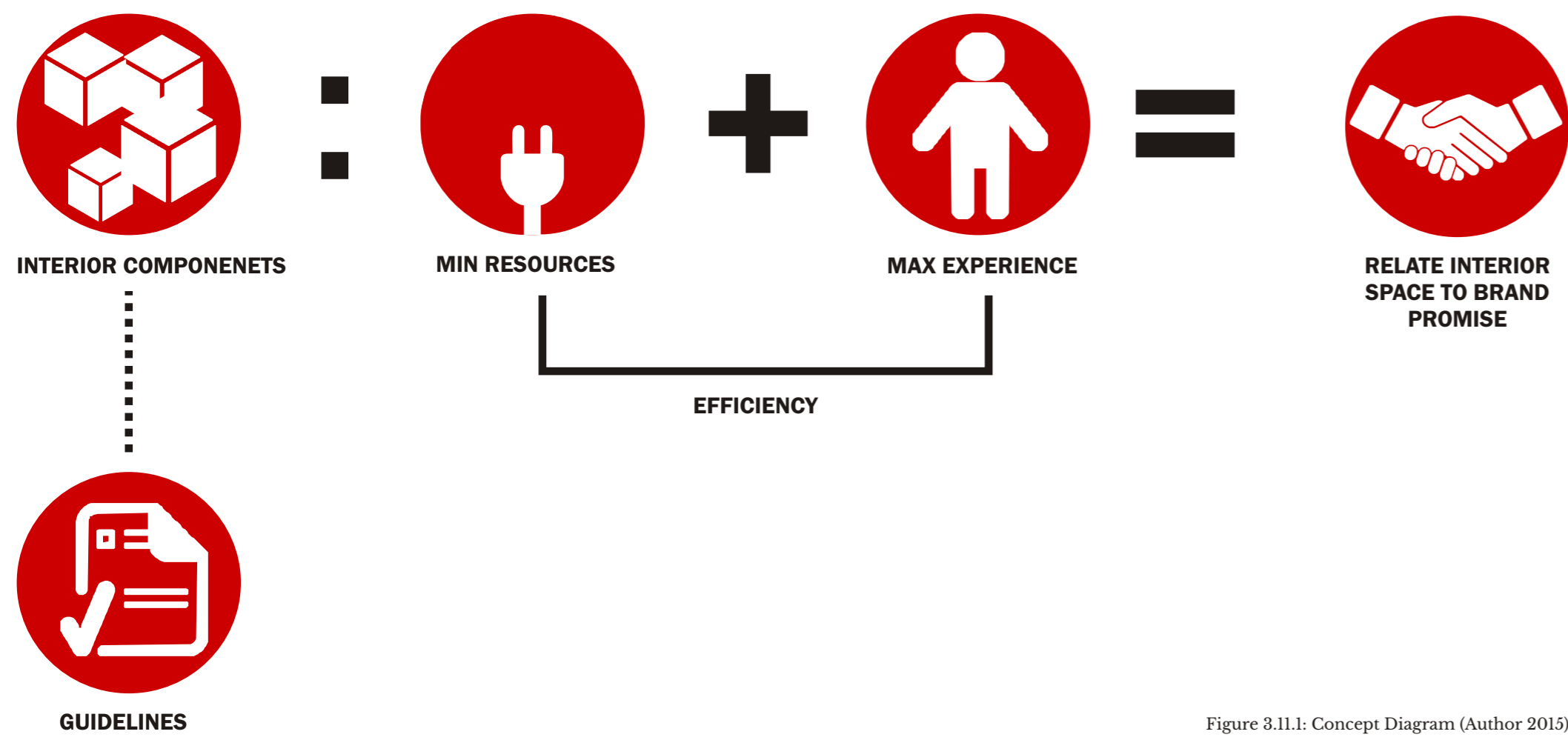


Figure 3.11.1: Concept Diagram (Author 2015)

Designing interior components which **balance** utilising the **minimum amount** of resources and **maximising** the user experience, in order to **enhance** the efficiency of Shoprite interiors. This is to relate the interior space to the **brand promise** of offering customers the *lowest possible prices in a satisfying and convenient 1st world shopping environment which results in a comfortable and enjoyable shopping experience.*

3.13 CONCLUSION

Chapter three served to theoretically answer the research questions by analysing how interior design can improve the efficiency of Shoprite interiors by minimising resources and maximising the user experience in order to find a balance between the price of the product and the price of society.

Firstly, the chapter confirmed that the largest contribution interior designers can make to retailers, is **relating the interior space to the brand promise**. Ways to go about doing so effectively and in a way that is appropriate to Shoprite's target market was investigated and precedents were presented as examples. This clarified the national and international standards for efficient interior design while emphasising which are appropriate to South African Shoprite supermarkets.

It was determined that by minimising resources and maximising the user experience, through that which is in the power of the discipline of interior design - a relevant interior space for Shoprite can be designed, which creates value for their customers. The design can serve to keep Shoprite's prices low, by minimising energy, water and material use within the interior, which will enhance the store's operational efficiency. It can also serve to provide a **first world shopping experience** that is **comfortable and enjoyable**, by improving indoor environmental quality, and establishing the brand identity within the interior in a way that resonates with the target market and fulfils their aspirations. By so demonstrating the brands narrative within the interior, it will differentiate the brand from its competitors and create love and loyalty towards the Shoprite brand.

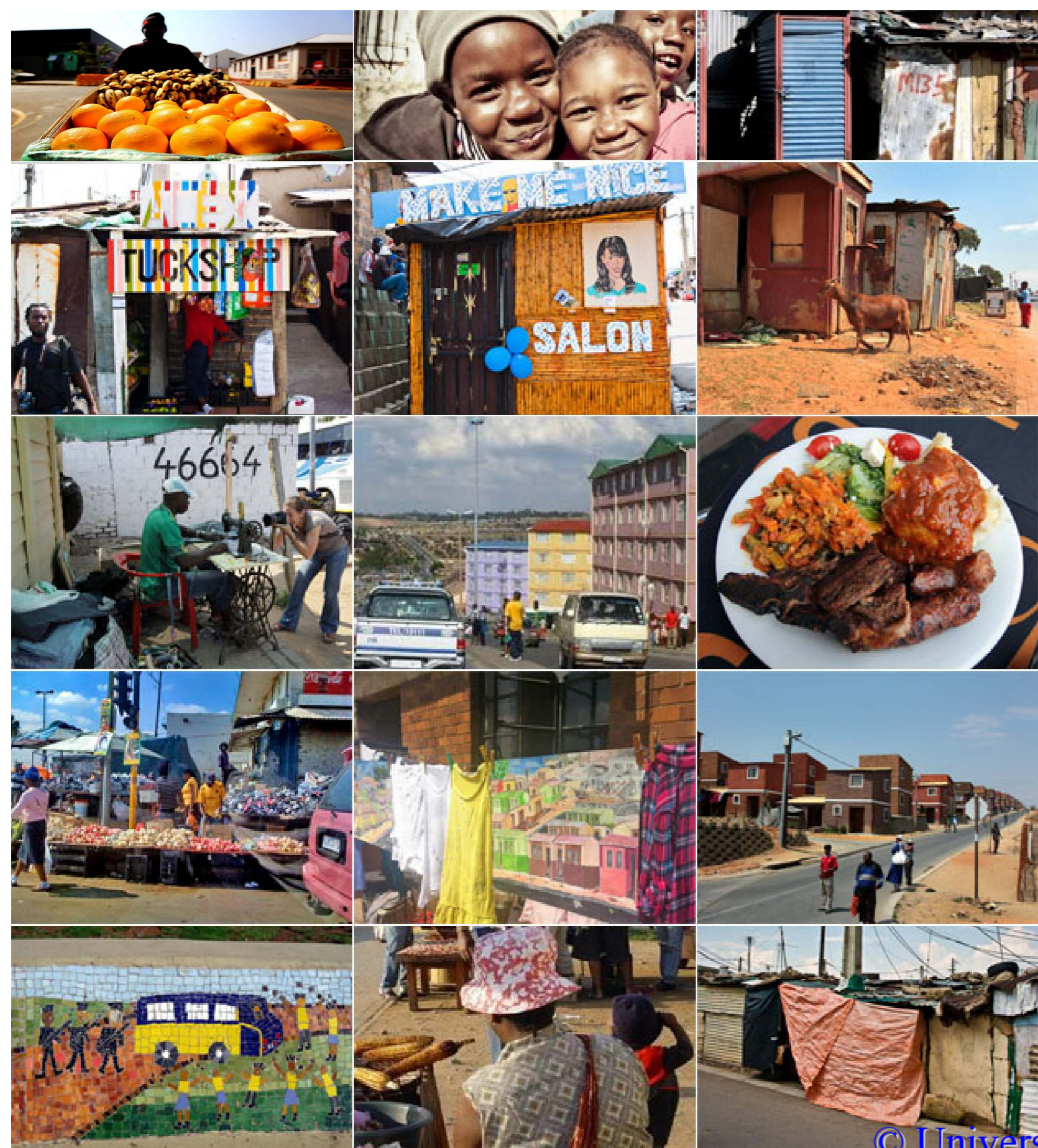
The aspects discussed within the chapter also clarified how the project aids in addressing the real world problems and opportunities discussed in chapter two - which includes the need for 'climate change adaptation strategies'; as well as 'opportunities for innovation in services and operations'; and 'improving execution of the business strategies across business functions'. Furthermore it was clarified that the project can contribute to Shoprite's growth strategy, by increasing sales through enhanced efficiency in store. Lastly, the project can also improve Shoprite's positioning by improving store operations which will allow for store process optimisation and productivity.

As a conclusion to the chapter, the design concept was presented. The concept is a manifestation of the theory. It responds to the design issue, and therefore the main aim of the project. Finally, the inspiration behind the design - which relates to the target market and life in South Africa, was presented.

The chapter therefore aided in formulating interior design guidelines to be applied to the new design in order to achieve an efficient interior design for Shoprite.

3.12 Inspiration

INFORMAL RETAIL IN SA



WHAT THE TARGET MARKET RELATES TO



Informal retail still accounts for **30% of SA retail** (PWC 2012)

- APPEALING
- CONVENIENT QUICK
- NAVIGATION SYMBOLS
FOCAL POINTS
SIMPLE
CLEAR/OBVIOUS
COMPACTNESS
SPACIOUS
MOVEMENT
- ACCESS
- PRODUCT GROUPING
- PREPARED MEALS
- COMFORT
- FRESH AIR
- NATURAL LIGHT
- NATURAL MATERIALS
- PUBLIC SEATING
- RESOURCES
- REUSE MATERIALS
- FLEXIBLE



FORMALISE THE INFORMAL

DESIGN DEVELOPMENT | 04

WHERE

4.1 INTRODUCTION

In reaction to the theoretical premise in chapter three - which analysed the design opportunities held by efficient interior design – chapter four commences.

Three site analysis pages of existing Shoprite supermarkets are presented first. The first of the three pages, page 26 - [4.2 Site Analysis 1](#), is a general analysis of all eighteen Shoprite stores in Pretoria - of which four are presented as examples. The facilities and departments provided by the four sites are identified to determine the general facilities and departments Shoprite provides. These were compared to those offered by all eighteen sites in Pretoria, to ensure correct generalisation. Additional, prominent store destinations are also listed. The departments were identified in order to determine the main destinations in store which Shoprite is known for.

Next, the context surrounding Shoprite stores were analysed, and a general example is provided (see figure 4.2.6 on the opposite page). Two plans of existing Shoprite stores are also provided to assist with further analysis.

The next page - [4.3 Supermarket Psychology](#), contains theories on the psychology behind the design of supermarket layouts. It analyses the traditional or standard supermarket layout, which proves to be superior to alternative layouts. Next, the reason why the layout is superior is explored by determining the secret behind the layout - which serves to maximise a retailer's turnover.

Seven initial site visits to the four Shoprite stores shown in 4.2 on page 26, were undertaken to continue the rest of the site analysis.


In [4.4 Site Analysis 2](#), on page 27, the supermarket psychology theory further assisted in correctly identifying success and weaknesses, as well as opportunities within the existing Shoprite interiors.

A colour study was done on Shoprite's brand colours to determine the associations connected to the colours. This further assisted in identifying design problems in the existing interiors. The findings are also utilised within the new design for Shoprite to insure appropriate colour use. This will become evident later in the chapter.

Number [4.5 Site Analysis 3](#), contains an in depth analysis of the general problems within the supermarket. These were determined by the site visits and by comparing the findings

to the theory. Here, the three **areas of focus** for the project are identified. The areas identified are those which have the most potential to resolve the existing problems within the interior, and improve the efficiency, as discussed earlier in the document.

The design development, which directly responds to the site analyses, commences on page 29 under [4.6 Interior design Strategies 1: General Guidelines](#). This page identifies ways to solve the existing problems - by analysing additional precedents and theories and correlating them with the strategies used by informal retailers (from which inspiration for the design is drawn). Additional strategies for improvement are also presented.

The specific areas of focus for the project (the interior components), which are clearly marked with the icon , then become the main focus throughout the rest of the chapter. To repeat, the interior components of focus, include (1) the in-store departments - **Deli, Bakery, and Butchery**; (2) the aisle navigation; and (3) the checkout area.

Using the **Deli** as the **main example** of how an appropriate brand identity within the interior is established for Shoprite, a diagram is presented on page 31 and 32, under [4.7 Interior Design Strategies 2: Look & Feel](#). The identity was established by following a process. Firstly, contemporary supermarket precedents are explored to identify successes and weaknesses within their designs. The diagram then continues by summarising how a typology study was done on deli's to determine the specific elements which are associated with deli design - allowing them to be instantly recognisable without the need for signage as the main indication. Informal retail in South Africa continued to inspire the design by identifying similarities between the deli typology and street vendors. Furthermore, keeping in mind the branding strategies for interior design, which were determined in chapter three, store communication which resonates with the target market was utilised within the design. Ways to interiorise the brand were also adapted to Shoprite.

The process is then repeated for the design of the Bakery and Butchery to ensure an appropriate design for each of the departments. This can be seen on pages 33-36. Hereafter, the chapter is concluded.

4.2 Site Analysis 1 SHOPRITE PRETORIA SOUTH AFRICA

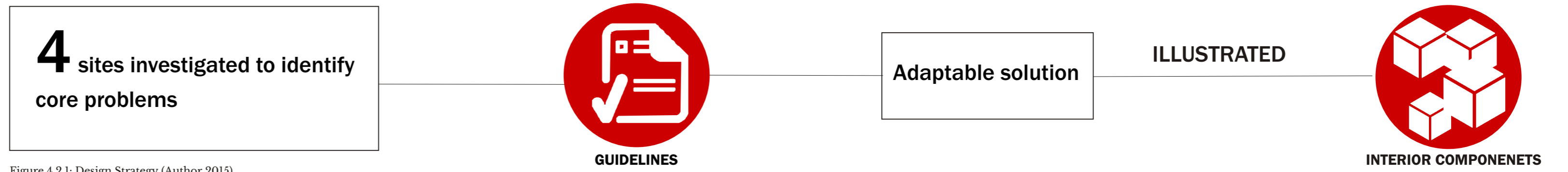
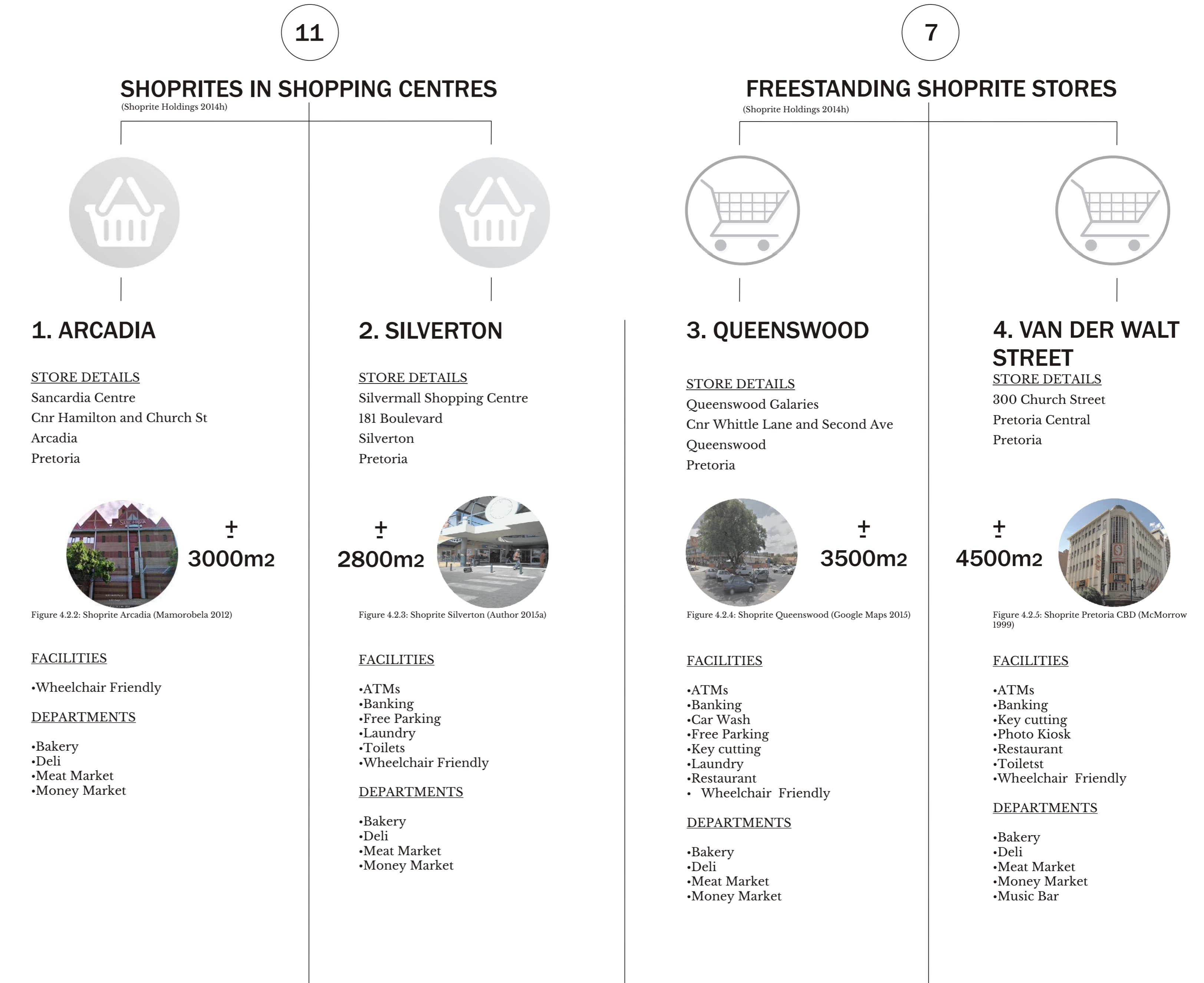


Figure 4.2.1: Design Strategy (Author 2015)



STORE SIZES

(Shoprite Holdings 2014e)

Stores vary between 2500 & 4500m²

GENERAL FACILITIES

(Shoprite Holdings 2014h)

ATM	88%
FREE PARKING	88%
WHEELCHAIR FRIENDLY	75%
TOILETS	75%
BANKING	63%

GENERAL DEPARTMENTS

(Shoprite Holdings 2014h)

BAKERY	100%
DELI	100%
MEAT MARKET	100%
MONEY MARKET	100%

OTHER PROMINENT STORE DESTINATIONS

PARCEL STORAGE
KIOSK
PIE SHOP
FRUIT & VEG
DAIRY
BREAD

PREPARED FOOD (DELI)
CHEST FREEZERS

SHOPRITE SILVERTON SITE & CONTEXT



Figure 4.2.6: Map of Shoprite Silverton (Google Maps 2015)

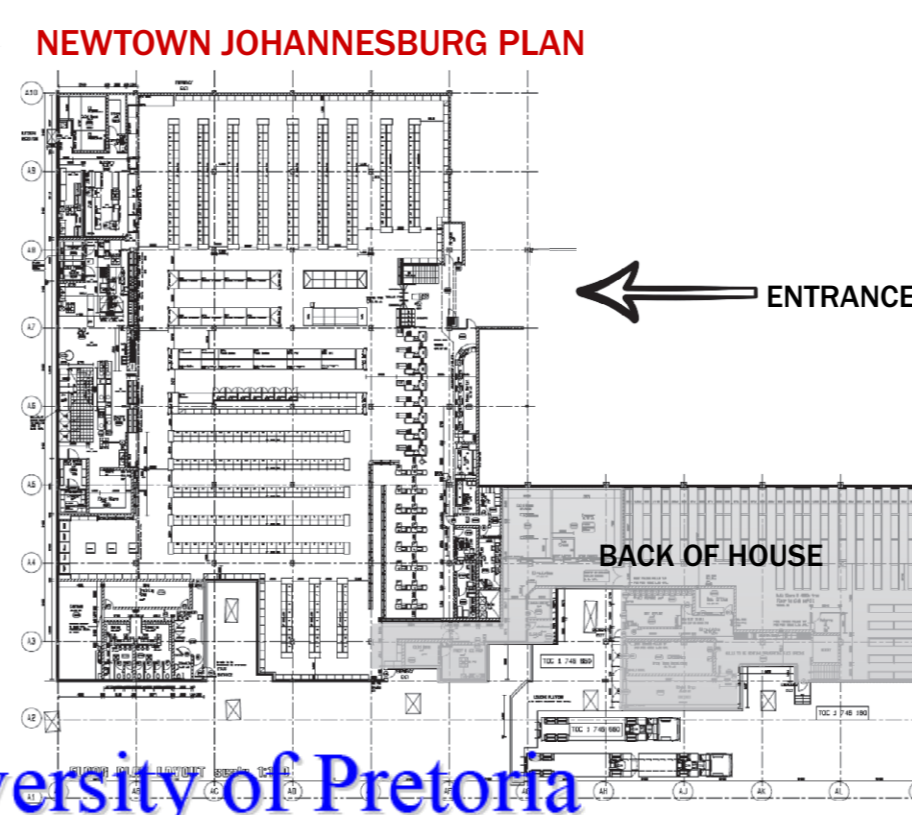


Figure 4.2.7: Plan of Shoprite Newtown (Schoeman 2013)

PRETORIA CBD PLAN

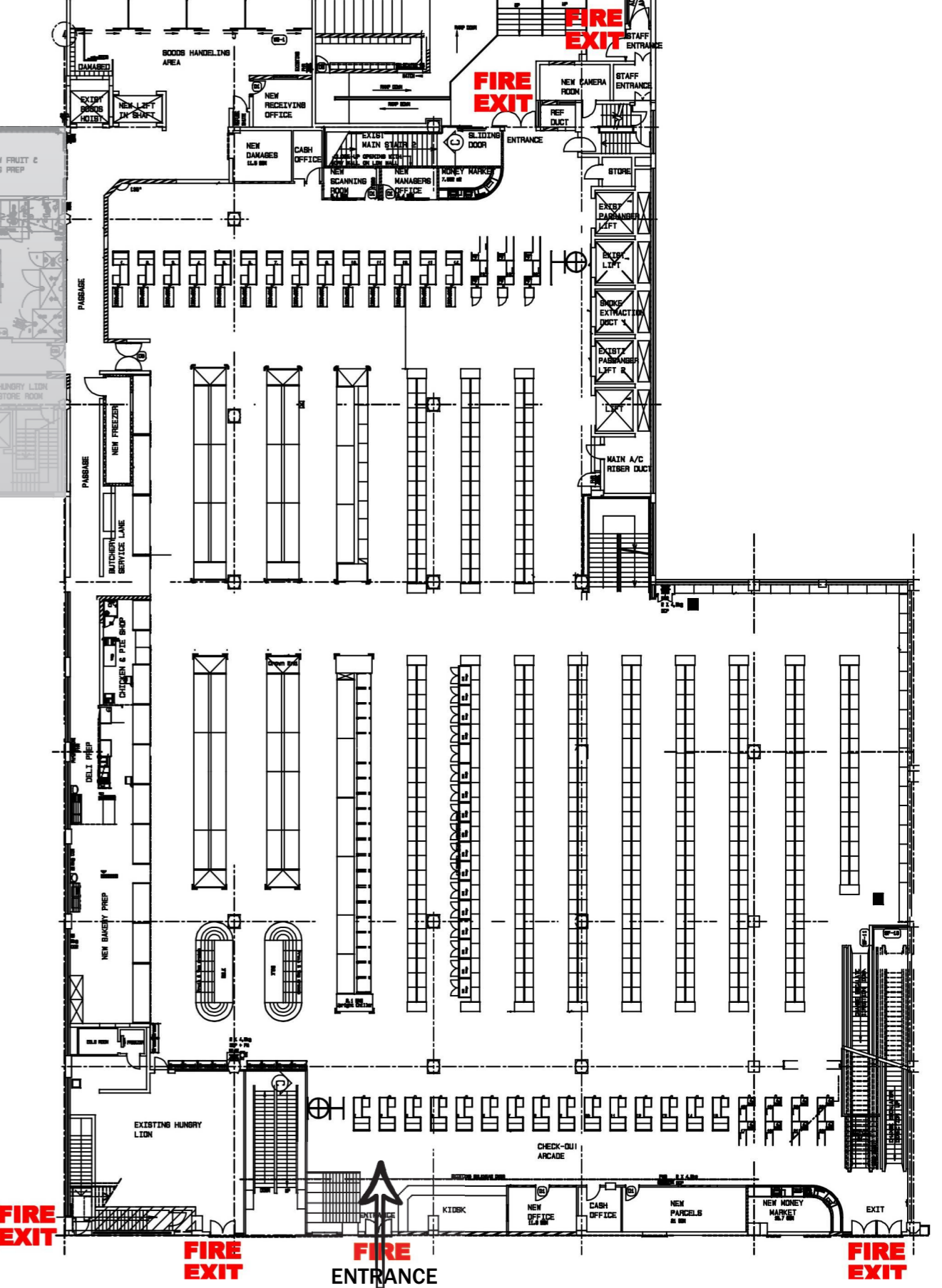


Figure 4.2.8: Plan of Shoprite Pretoria CBD (Nel 2015)

4.3 Supermarket Psychology

4.3.1 TRADITIONAL SUPERMARKET LAYOUT

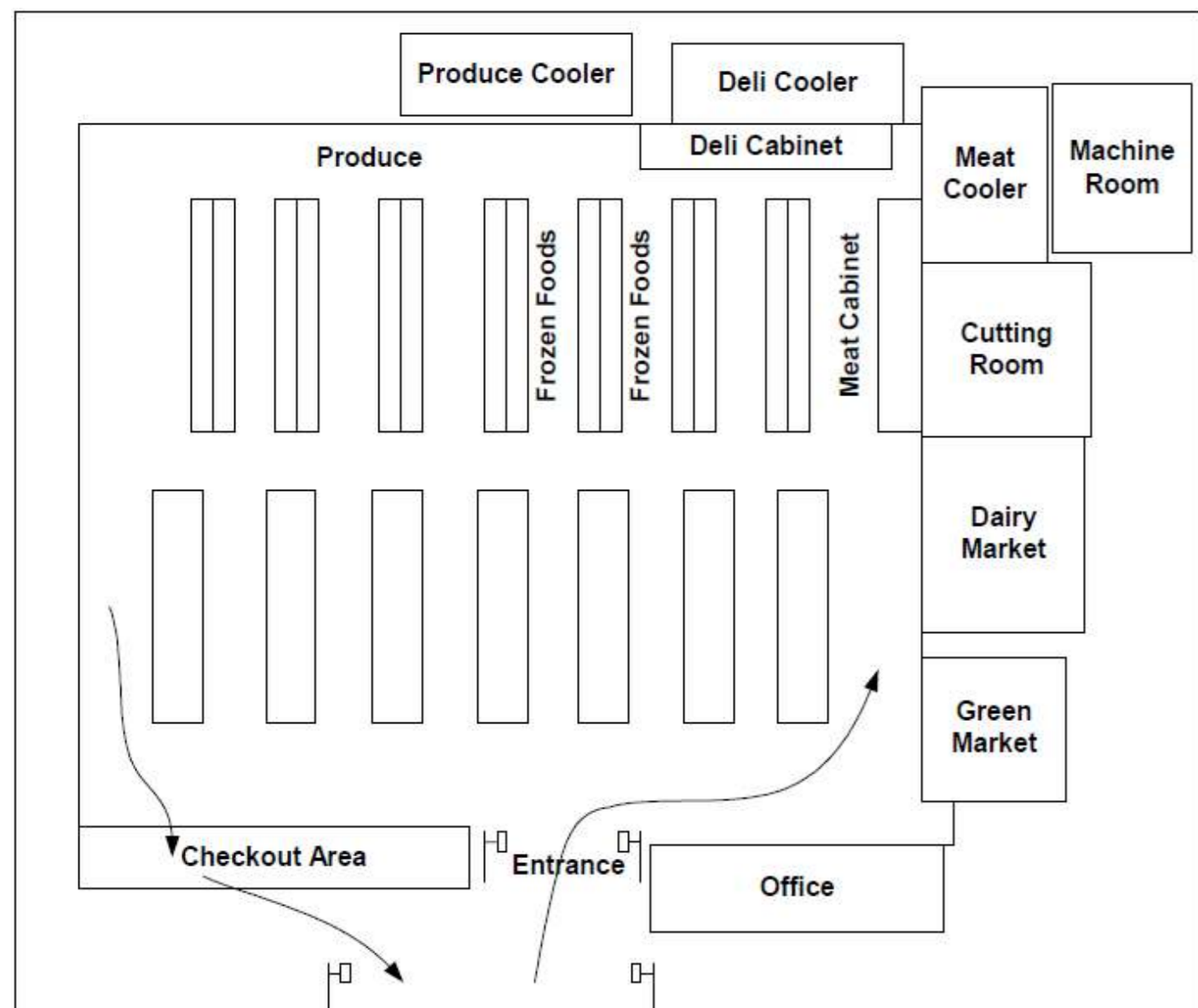
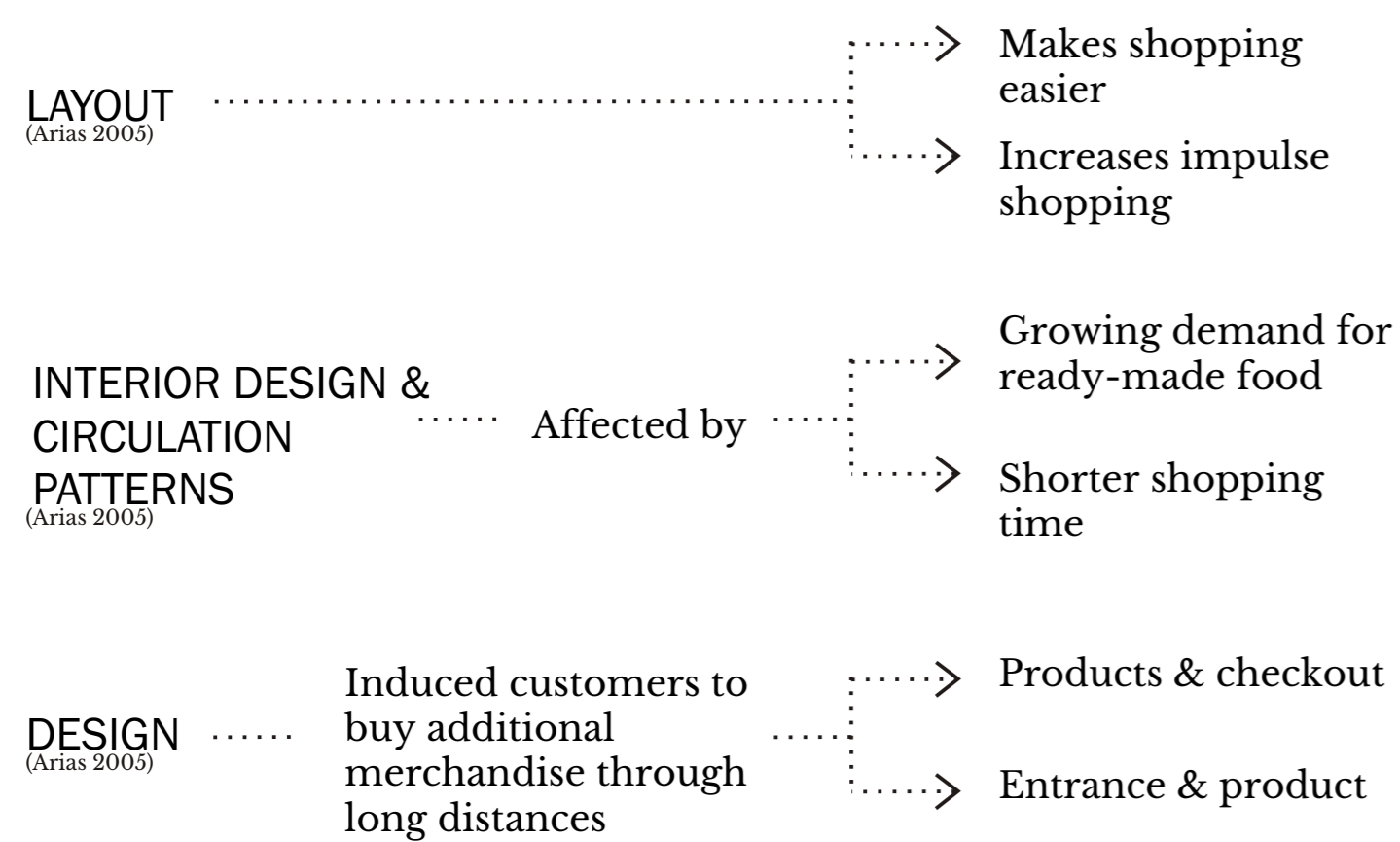


Figure 4.3.1: Traditional supermarket layout (Arias 2005)



SHOPPERS USE ONLY 25% OF THE SUPERMARKET ON AVERAGE: (Harrison 2008)

STORE PERIMETER DROP IN & OUT OF THE AISLES

SHOP COUNTERCLOCKWISE CONSUMERS SPEND MORE

EMOTIONAL PURCHASES

BABY FOOD AWAY FROM REST OF SUPERMARKET

COFFEE PEOPLE STOP & THINK (MIDDLE OF AISLE)

4.3.2 THE SECRET BEHIND THE LAYOUT

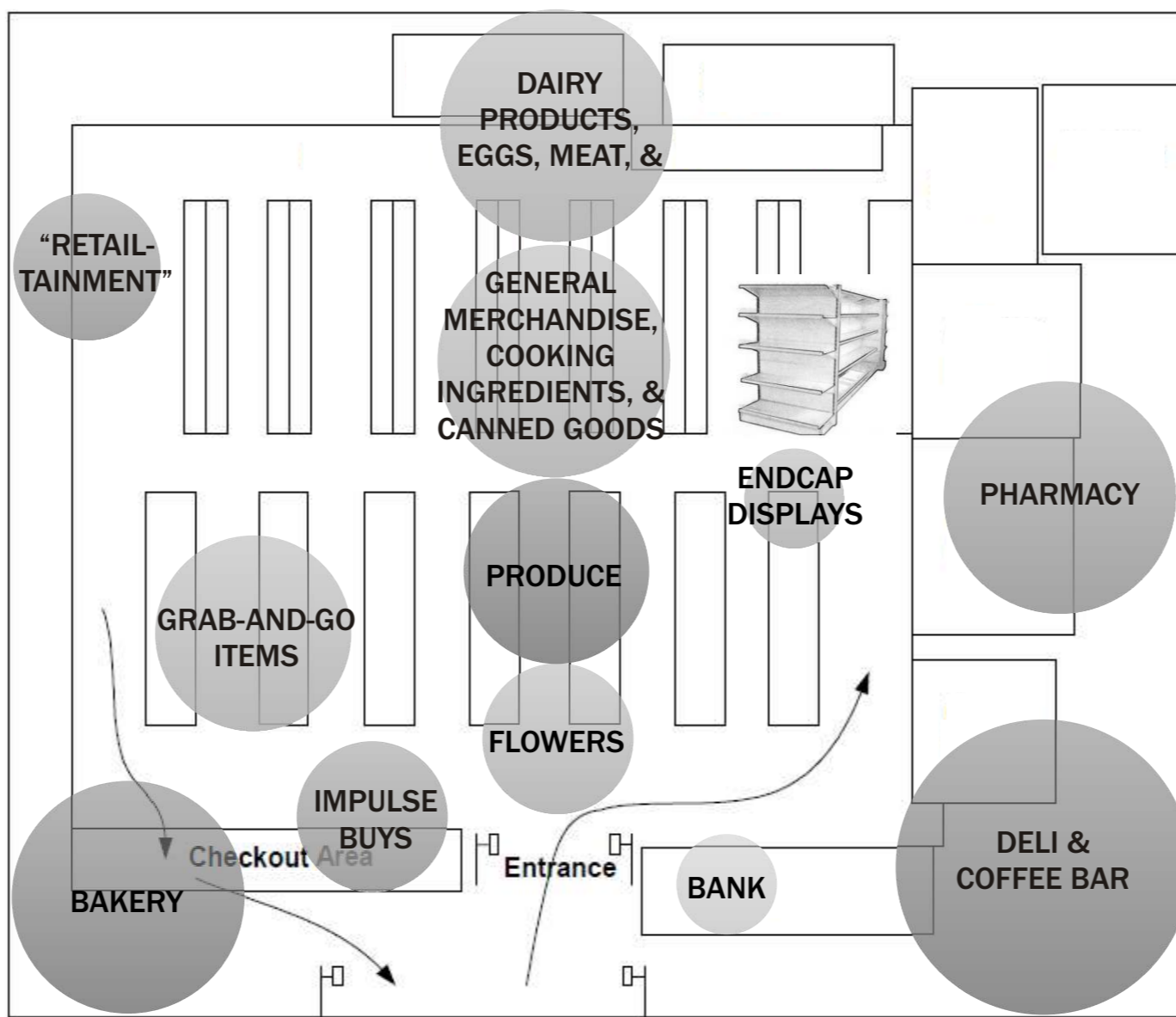


Figure 4.3.2: The secret behind the traditional supermarket layout (from Real Simple 2015)

MAIN AIM: MAX TURNOVER BY INDUCING CUSTOMERS TO BUY ADDITIONAL MERCHANDISE (Arias 2005; Bell & Ternus 2002; Real Simple 2015 and Underhill 2001).

FLOWERS

Just inside the entrance: can enhance the image of a store (consumers walk into something that is pretty, smells great & builds a notion of fresh) (Wendy Liebmann, founder and president of WSL Strategic Retail) (Real Simple 2015).

PRODUCE

Immediately past the flowers: To create a tempting sensory experience (stores need to communicate to shoppers produce is fresh or people won't buy anything) (Liebmann).

PEOPLE SPEND MORE TIME IN THE SUPERMARKET, BECAUSE THEY ARE CONFRONTED WITH THE IDEA THAT IT IS A RELAXED, COMFORTABLE & FRESH PLACE – PEOPLE SPEND MORE MONEY

BAKERY

In corner beyond entrance: The smells make you feel hungry which makes you buy more (Underhill 2000).

GRAB-AND-GO ITEMS (MILK, BOTTLED WATER, SNACKS)

Near entrance: Get back business lost to convenience stores (add section up front) (Mike Tesler, president of Retail-Concepts) (Real Simple 2015).

BANK

Close to the entrance: To get money in the hands of the shoppers (Tesler).

ENDCAP DISPLAYS

End of the aisles: Advertisement for new or popular products (something new or in season - not always discounted) (William Schober, editorial director of Path to Purchase Institute) (Real Simple 2015).

"RETAIL-TAINMENT" (COOKING DEMONSTRATIONS, DISPLAYS, FREE SAMPLES)

Free floating displays lining one of the outside walls: Sampling stations slow you down & expose customers to new products (Real Simple 2015).

DELI & COFFEE BAR

In 1 of the front corners: If you're hungry for lunch you will shop in a hurry (if you can have lunch in store you will stay & relax) (Liebmann).

PHARMACY

On perimeter near the exit: If you're filling a prescription, you need to wait, spend more time & you'll put another item in the basket (Liebmann).

GENERAL MERCHANDISE, COOKING INGREDIENTS, & CANNED GOODS

In the centre aisle: Draw customers deeper into the store & expose them to nonessential items along the way (Real Simple 2015).

DAIRY PRODUCTS, EGGS, MEAT, & OTHER STAPLES

Along the back wall of store: Farthest reaches of the store to expose customers to max product on their 'quick trip' so they will impulsively buy other things (Tesler).

IMPULSE BUYS (CANDY, MAGAZINES, ETC.)

By the registers & exit: Turn waiting time into buying time (most profitable area in store) (Underhill 2001).

SHELF LAYOUT

TOP SHELF

What: Smaller brands, regional brands, gourmet brands.

Why: The items here give "tone and texture" to the shelf layout, helping the supermarket stand out from its competitors (Liebmann).

BULLS-EYE ZONE

What: Best sellers and other leading brands.

Why: Right in your sight line is the best placement, and the manufacturers have to pay for it (Children). Higher-priced items or items with the highest markup are in effective spot (Tesler).

KIDS EYE LEVEL

What: Products with kid appeal.

Why: Kids can react and reach out to a product (Tesler). 10 to 40% more time spent in store if kids come along (Liebmann).

BOTTOM SHELF

What: Store and private-label brands; oversize and bulk items.

Why: People who buy store brands fill their baskets (Children). Super firms discount bulk items to compete with warehouses (Liebmann) and bulk items are awkward to store & replace but the bottom shelf. (Real Simple 2015)

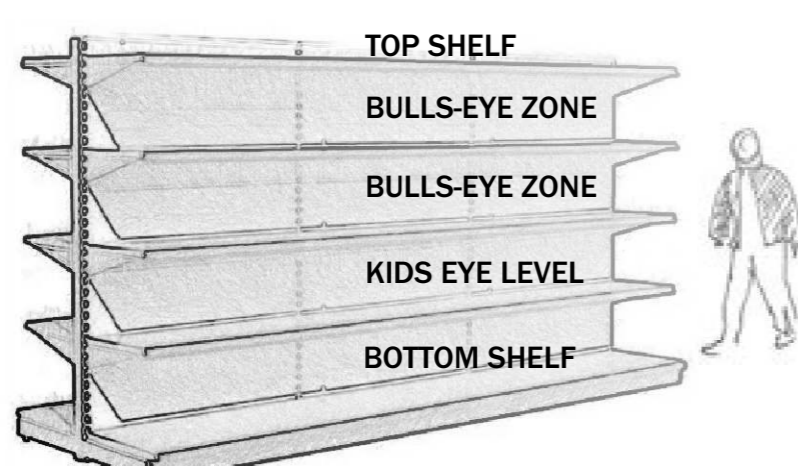


Figure 4.3.2: Gondola shelving diagram (from Real Simple 2015)

4.4 Site Analysis 2

4.4.1 EXISTING SHOPRITE STORE LAYOUT

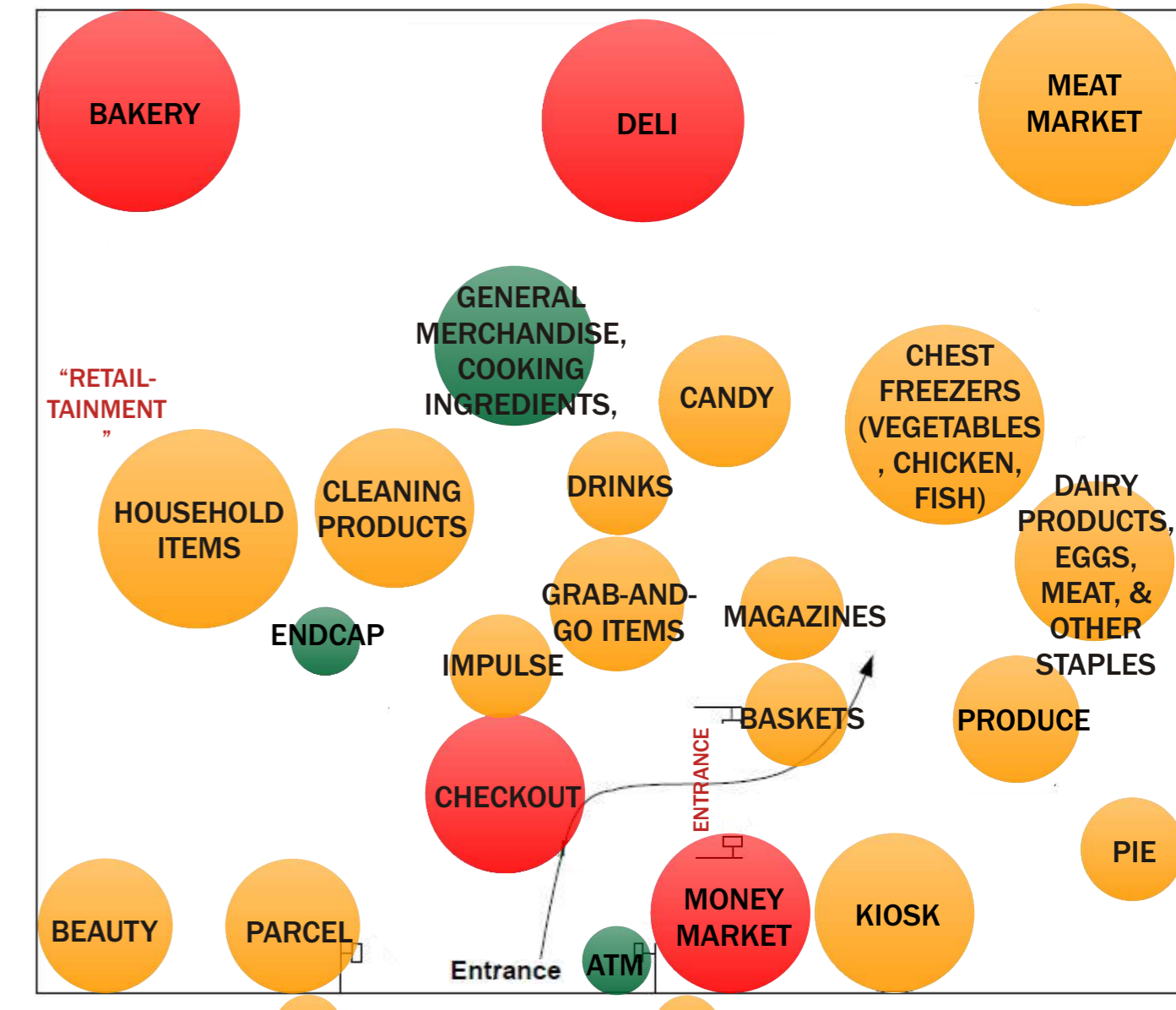


Figure 4.4.1: Positives, okays & negatives of existing Shoprite store layout (Author 2015)

GENERAL STORE POSITIVES

- THE ANCHOR CHAIN HAS NEGOTIATING POWER
- BANKS/ATMS NEARBY
- STORES LOCATED NEAR WHERE PEOPLE WORK
- STORE BUSY DURING LUNCH
- SELLING STARTS BEFORE YOU ENTER STORE (ads in parking lot)
- PARCEL STORAGE (hands free shopping)
- MOST INTERIOR MATERIALS RECYCLABLE
- COMPREHENSIVE RANGE OF HOUSEHOLD ITEMS

GENERAL STORE OKAYS

- STORE LOOKS CHEAP (appropriate yet unsuccessful)
- CHEST FREEZERS INCLUSIVE, CONVENIENT & BEST FOR BULK CHICKEN SOLD (yet uses a lot of energy & takes up a lot of space)
- PRICES MAKE EVERYTHING LOOK LIKE ITS ON SALE (appropriate to low priced products in store yet overwhelming & confusing)

LEGEND

- SHOPRITE POSITIVE
- SHOPRITE OKAY
- SHOPRITE NEGATIVE

4.4.2 COLOUR STUDY

COLOUR USE & COLOUR ASSOCIATIONS

A brand's values are read according to the way they are presented to us visually. What we see and register 1st is colour, names, logos and typefaces. These become a symbol of the brand and its associations (Vaid 2008).

SHOPRITE'S INTERIOR COLOURS & THEIR CONNOTATIONS

INTERIOR
LOGO
PACKAGING
ADVERTISEMENTS



RED
Grabs Attention - MOST NOTICEABLE COLOUR IN THE SPECTRUM (focal points)
Makes you hungry
Confidence
Power
Urgency (max turnover)
Speed (convenience)

WHITE
Order (convenience)
Simplicity (convenience)
Stimulating (comfortable experience)
Cleanliness (enjoyable experience)
Neutrality (flexible)

BLACK

Authority
Power
Control
Comfort
Dignified

YELLOW

Grabs Attention (focal points)
Confidence
Happy (enjoyable experience)
Playful
Energy (productivity)
Makes babies cry

BLUE (not 1 of the brand's prominent colours - additional)

Trust - releases our trust hormones
Security
Productivity
Calm/relaxing
Serene



4.5 Site Analysis 3

INTERIOR COMPONENTS OF FOCUS

AREAS WITH MOST POTENTIAL TO ADDRESS THE PROBLEMS WITHIN THE INTERIOR

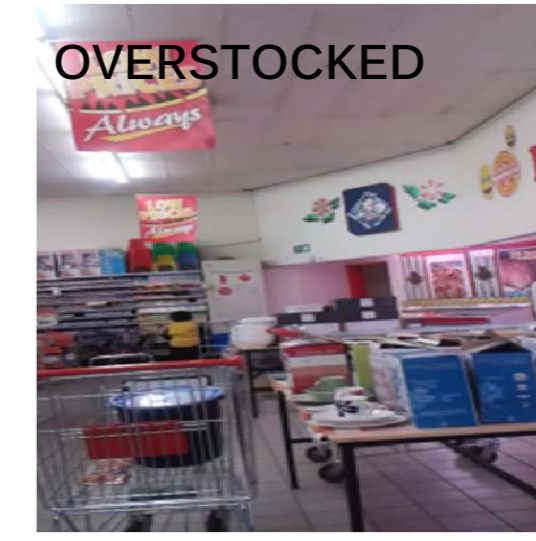
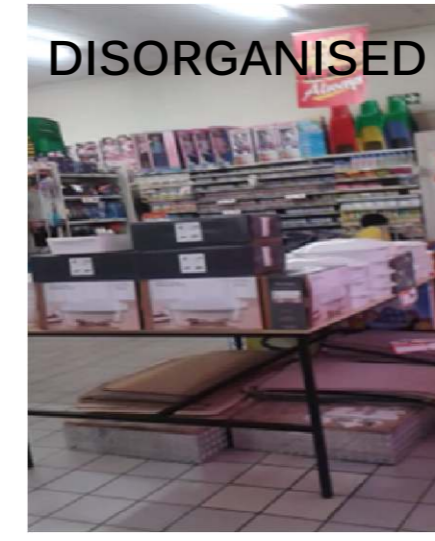
GENERAL EXISTING SHOPRITE STORE PROBLEMS: lack of convenience, consistency & brand identity

EXPERIENCE

- UNPLEASANT
 - UNCOMFORTABLE
 - DIFFICULT
 - TIME CONSUMING
- Little differentiation
 - Disorganised
 - Poor signage
 - No seating
 - Queues too long



Figure 4.5.1: Shoprite store shopping experience (Various sources)



ENTRANCE

- UNWELCOMING
 - GREETED BY
- Trolleys
 - Money Market queue
 - Busy checkout counters



Figure 4.5.2: Shoprite store entrance (Author 2015a)



Figure 4.5.3: Shoprite Money Market (Shoprite 2015g)



Figure 4.5.4: Trolleys and baskets (Various sources)

MONEY MARKET

- INEFFICIENT
- Queues designed to form parallel with entrance/exit
 - No indication of where to queue
 - Queues too long
 - Move too slow

TROLLEYS & BASKETS

- TROLLEYS
 - BASKETS
- Outside or just next to entrance only
 - Blocks entrance
 - Limited options
 - Next to the entrance only
 - Limited options

NAVIGATION

COLOUR

- NO BRAND IDENTITY
 - THEY DON'T CONTROL THE COLOUR IN THE INTERIOR
 - NEUTRAL COLOUR PALETTE (beige, off-white)
 - FLEXIBILITY
- Dull
 - Colour associations not utilised
 - Logo's & ads seem like an afterthought



Figure 4.5.5: Shoprite interior colour use (NG Vibes 2014)



Figure 4.5.6: South African supermarkets colour use (Various sources)

5 Largest retailers in SA: (Buzz SA 2015)

1. Shoprite
2. Pick n Pay
3. Massmart (Makro)
4. Spar
5. Woolworths

NEUTRAL COLOUR PALETTE

- Flexible
- Brand identifiers (Logo's only)
- No prominent store identity
- Insufficient focal points

1. DEPARTMENTS

NO DIFFERENTIATION



- Same colour
- Same font
- Same size font
- Same shape design
- Ineffective focal points
- Little help with navigation



Figure 4.5.7: Shoprite in store departments / mini-destinations (Skyscrapercity 2008)

SIGNAGE

- INEFFECTIVE
 - NOT UNIFORM
 - VISUAL CLUTTER
- Mix Afrikaans & English on 1 sign
 - Not always appropriate (no African languages)



Figure 4.5.8: Shoprite store signage (Various sources)



Figure 4.5.9: Shoprite product pricing (Various sources)

PRICING

- OVERWHELMING
- EVERYTHING LOOKS ON SPECIAL
- No designated space for signage



2. AISLES



DIFFICULT TO NAVIGATE

- CONFUSING
 - FLEXIBLE
- Difficult to find what you are looking for
 - Aisles long & boring
 - Poor signage
 - Disorganised
 - Too much stock



Figure 4.5.10: Shoprite aisle navigation (Various sources)

3. QUEUES & CHECKOUT COUNTERS

- INEFFICIENT
 - CONVENTIONAL QUEUEING SYSTEM
- Impulse shopping under-utilised with conventional queueing system
 - Blocks flow between aisles
 - Queues too long
 - Transactions too slow
 - Shortage of staff



Figure 4.5.11: Shoprite checkout area (Shoprite Holdings 2014)

- EXPRESS COUNTERS
 - INEFFICIENT
- Doesn't mean faster: studies show waiting time almost identical to regular checkouts (3.11 min.) [Craig Childress, CEO of Envirosell] (Real Simple 2015)

LIGHTING

- 750 LUX REQUIRED (Veelite 2015)
 - TOO MUCH UNNECESSARY LIGHTING
- NO DIMENSION = DULL
 - Even distribution of artificial light
 - No natural light
 - Fluorescent tube lights used for general & accent lighting



Figure 4.5.12: Shoprite artificial lighting (Various sources)



VENTILATION

- No natural ventilation

WATER

- No rainwater harvesting
- No low flow fittings

MATERIALS USE

- RECYCLABLE
- DULL
- PRODUCT DISPLAYS NOT UNIFORM

Steel shelving



Figure 4.5.13: Shoprite material use (Author 2015b)

Chipboard signage



Plastic crates



Wooden pallets



As gathered by consumerism theory, SA competition, international precedents & informal retail strategies

APPEAL

STORE

SPACIOUS
WELL LIT
ORGANISED
INVITING

Greeted by the notion of fresh, low prices & convenience

ENTRANCE

Unobstructed to enhance navigation - FOCAL POINTS & FRONT

Appealing to draw customers in - MERCHANDISE THAT APPEALS TO VISUAL MARKET

TRANSITION ZONE

No NB goods

Give time to adjust to light, temperature, situating

OR

Minor on facade to slow people down

Push store out beyond entrance

Large discounted bins to stop customers in their tracks

BASKETS

1st set of baskets to be placed beyond transition zone

LEFT

RIGHT

TRANSITION ZONE

ENTRANCE

MONEY MARKET

QUEUE SHOULD BE OUT OF SITE OF ENTRANCE

SHOULD NOT BLOCK ENTRANCE

PART OF CHECKOUT COUNTERS

CHECKOUT COUNTERS EVEN LONGER

MAKE DESTINATION IN STORE THEN NOT CONVENIENT

COMMUNAL QUEUE SYSTEM

Provide merchandise as entertainment

SHRINKAGE

Queues define the shoppers opinion on the overall service (less than 2min. waiting time is ideal) (Underhill 2000)

COMMUNAL QUEUEING SYSTEM

ADVANTAGES OUTWEIGH THE DISADVANTAGES

(Supermarket & Retailer 2009)

ADVANTAGE

- Increases impulse sales
- Speeds up processing customers
- Improves cashier productivity
- Enables you to schedule cashiers more effectively
- Better atmosphere between cashiers & makes them happier
- Kills sweethearting (loss through employee theft at the cash register)
- Protects products from shrinkage (loss of inventory due to employee theft & shoplifting)

DISADVANTAGES

- Loss of gondola space (3 drops max)
- Some shoppers are put off shopping if queue is too long
- Not suited to large month-end pantry load shopping (Makro proved this wrong)

CHECKOUT COUNTER

CONNECTION BETWEEN CLIENT & SERVICE PROVIDER

VITAL FOR CUSTOMER SATISFACTION

Checkout counters organised for fast & effective checkout

CHECKOUT COUNTER

ORGANISED

Clear numbering

Price clear to customer

Space for trolley

Space for basket

Access to restrooms

Damage barrier

Access arm

WHEELCHAIR FRIENDLY

CONVENIENCE

NAVIGATION

FOCAL POINTS

SIGHTLINES

COLOUR

CONSISTENT BRAND PRESENTATION

DIFFERENTIATION BETWEEN AREAS

CONTROL COLOUR USE

CONTROL INTERIOR COLOUR USE

Challenge neutral colour palette as only way to achieve flexibility

NEUTRAL

FRESH & HEALTHY

DESTINATIONS

DIFFERENTIATION

COLOUR

SHAPE

SIZE

SIGNAGE

Variation in font & size makes reading & differentiation easier

Images over text

DESIGN

Uniform

Clear/ Obvious

Simple text

Themed signage that fits the products - KEEP BRAND LOCALLY RELEVANT

SYMBOLS

PLACEMENT IN SIGHT OF THE SHOPPER (don't have to turn your head sideways)

ENOUGH TIME TO READ THE SIGN

Control advertisements

Pricing or specials not to compete with signage

UNIVERSAL (target market illiterate or does not understand English very well - SA 11 official language)

ACCESS

SPACIOUS MOVEMENT

COMPACTNESS

PRODUCT GROUPING

COMFORT

LIGHTING

DAYLIGHT HARVESTING

SOLAR CONTROLLED GLAZED FACADES

LED LIGHTING

Lighting which enhances the products so the thy look their best

- produce
- meats
- cheese

EXPLORE REFLECTION

(to enable light to penetrate deeper into the spaces)

SEATING

COMFORT

Impression that brand cares about its customers

TROLLEYS & BASKETS

Most people use a basket when they shop.

Place baskets in various locations throughout the store (encourage customers to use) - buy more (Underhill 2000)

OPTIONS ALLOW:

- Convenience
- Comfort
- Personal item storage
- Sales increase

ERGONOMICS

Comfortable heights

Enhance productivity of staff

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LOW COST

MODIFY EXISTING

FINISHES

Repairing existing fridges - enhance atmosphere

EXISTING MATERIALS RE-IMAGINED

Re-imagine typical gondola

MATERIAL USE

Similar materials to Shoptree with quality finishes & luxurious colours

RE-USE & RECYCLE

Shoptree is replacing wooden crates with reusable plastic crates (Shoptree Holdings 2014)

Opportunity to reuse wooden crates in interior (FRESH PRODUCE SECTION)

FLEXIBILITY

MAINTAIN IDENTITY

Design adaptable to different sized stores

Objects able to move around store (signage, shelving)

FOCAL FIXTURE

Visual impact through floor-to-ceiling library-style fixture

Variety of shelving options

STORE FURNISHINGS

Fixtures to support innovative merchandising concepts

Theme & materials NB

MODIFY INTERIOR COMPONENTS

GONGOLA FIXTURES

ENHANCE BORING AISLES

Cost-effective & flexible signage with interesting graphics along entire run of gondola, spacing signs at intervals, create in-line focal points

Column navigation

ENHANCE BASIC GONDOLA TO CREATE DESTINATION

Custom wood finishes & a grid fixture that supports graphics

DRAW ATTENTION TO SPECIFIC AREA

Intriguing floor patterns

Unintimidating - human scale

CUSTOM MADE FIXTURES

Accentuate colour of produce and packaged goods, with black ledges around table fixtures

Replace standard fixture bumper guards/ crash rails that protect fixtures from damage by trolleys with decorative stainless steel rails

Emphasise natural products with plain border

DESTINATIONS

Series of interconnected shops (bakery, butchery, produce shop)

Create exciting environment

BAKERY

Displays designed to give area & products "fresh-baked from scratch look" through arranging breads and other bakery items on several levels in an assortment of "country style" woven reed baskets, accented with rustic napkins.

WHAT MAKES PEOPLE NOTICE MERCHANDISE

- Endcaps (impulse sales)
- Shelf signs
- Packaging

Provide tables for cross merchandising

GRAPHICS

Bright floor-to-ceiling graphics enhance store atmosphere & prevent wasted retail space

Navigation

4.7 Interior Design Strategies 2: Look & Feel

4.7.1 Brand Identity Deli



Existing Shoprite Destinations

NO DIFFERENTIATION BETWEEN DEPARTMENTS

- Same colour
- Same shape
- Same design

*Refer to page 33 & 35 to compare the departments

SA SUPERMARKETS



Woolworths, South Africa

- Too little differentiation

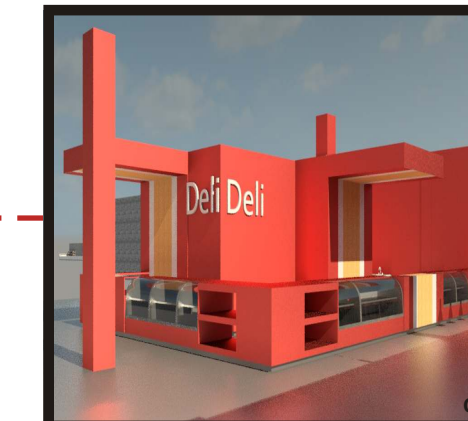
INTERNATIONAL SUPERMARKETS



Loblaws, Canada

- Prominent brand identity
- Differentiation, yet too generic
- Typology lacking

1st GENERIC PROPOSAL



Further development required

- If name removed - doesn't speak Deli
- Development required (layering the design):
- Interpret theory
- Analyse & dissect typology - so it speaks the correct language

What target market relates to

Interiorising the brand

Bright, dynamic & positive communication

Instantly recognisable

Tap into local, relevant experiences

Brand that makes their lives easier

COLOUR

- There should be a bold use of the brand's prominent colour
- Red: Shoprite's prominent colour
- Most noticeably colour in the spectrum
- Makes you hungry
- Entrance should grab attention (invite customers in)

Wood to represent yellow

Subtle touches of yellow

HYGINIC

NEUTRAL

UNDER-STATED

SHAPE

- There should be 1 dominant shape used in all design elements
- Relates to Shoprite logo
- Dominant shape
- Powerful
- Instantly recognisable

SQUARE

Rounded edges

VS

Straight edges (cheaper)(flexible)

How to best emphasise counter:

LIGHTS

- Lighting should provide an appropriate atmosphere
- Bright, cool, shadow-free light which speaks 'value for money'
- Accent lighting to highlight main feature (counter/merchandise)

GRAPHICS

- Graphics should be good, clear, simple
- Universal
- Informal retail inspired

SYMBOLS

TYPEFACE

CONSISTANT BRAND PRESENTATION

- Shoprite font

MOVEMENT

SIMPLE / CONVENIENT PRODUCTIVE FUNCTIONAL

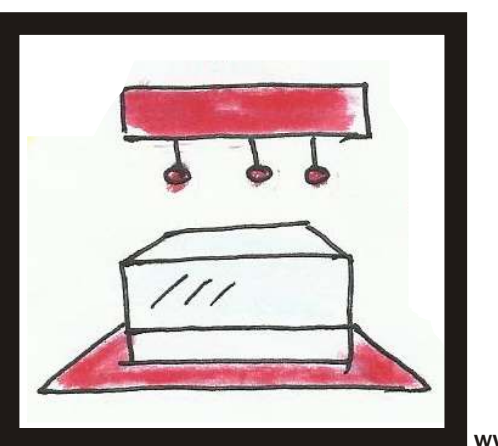
- Designated pay point
- 2 serve over areas

MATERIALS

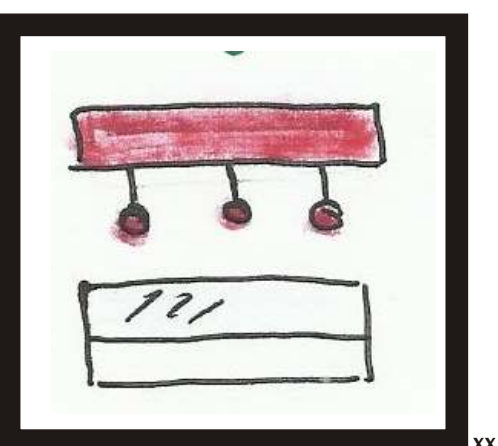
- Speak value
- Warm & inviting to enhance atmosphere
- Sustainable
- Healthy
- Low maintenance
- Acoustics

SENSSES

- Sight
- Smell
- Taste
- Hear
- Feel



Colour above and below counter best emphasis the counter



Add suspended ceiling because pendants lights not sufficient to emphasise counter in such a big space

PRECEDENT STUDIES: CONTEMPORARY INTERPRETATION



In order to create differentiation between the different departments, to enhance navigation in store, a typology study was done.

This was to make them instantly recognisable without the need of signage.

Typology study

This was compared to the strategies used by informal retailers such as street vendors to keep the design locally relevant.

Informal retail in SA inspiration



Barrier used for display of merchandise

Prominent structure to impede vendor stand out

Overhead element protect food from sun

Bold, colourful, clear branding & signage

Designated space for signage/indicating specials - to avoid add-ons

Seating provided near counter

Preparation rarely visible

Preparation rarely visible

Preparation rarely visible

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Figure 4.7.1.1: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (Various sources)

Figure 4.7.1.1a: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1b: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1c: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1d: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1e: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1f: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1g: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1h: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1i: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1j: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1k: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1l: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1m: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1n: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1o: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1p: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1q: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1r: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1s: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1t: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1u: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1v: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1w: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1x: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1y: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1z: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1aa: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ab: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ac: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ad: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ae: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1af: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ag: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ah: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ai: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1aj: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ak: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1al: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1am: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1an: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ao: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ap: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1aq: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ar: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1as: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1at: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1au: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1av: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1aw: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ax: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

Figure 4.7.1.1ay: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

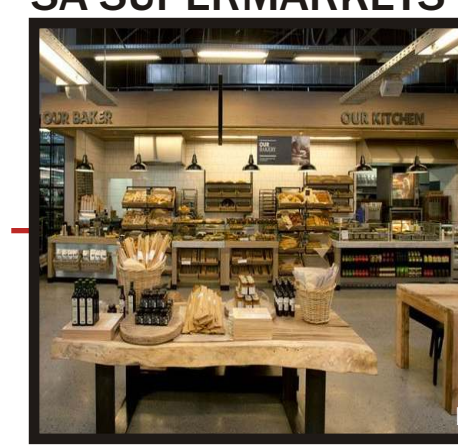
Figure 4.7.1.1az: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Deli (DD Arc Art 2013)

4.7.2 Brand Identity

Existing Shoprite Destinations



SA SUPERMARKETS



Typology of bakery okay

INTERNATIONAL SUPERMARKETS



1st GENERIC PROPOSAL



Further development required

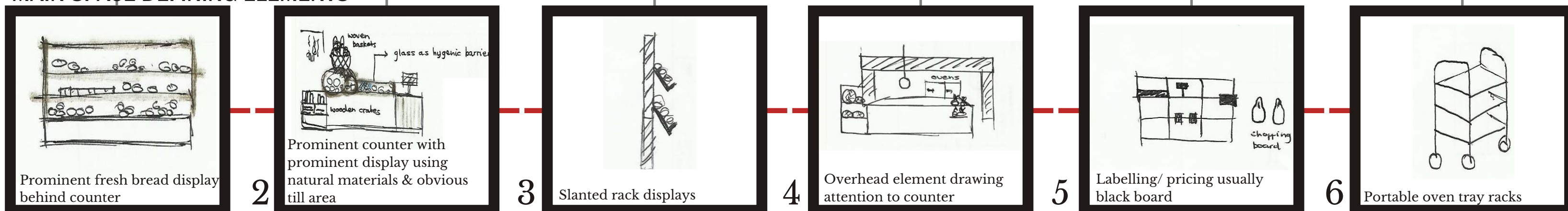
PRECEDENT STUDIES: CONTEMPORARY INTERPRETATION



Typology study

Informal retail in SA inspiration

MAIN SPACE DEFINING ELEMENTS

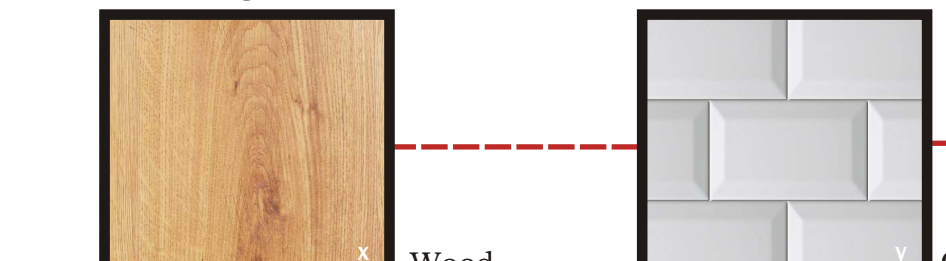


Preparation not always visible

COLOUR



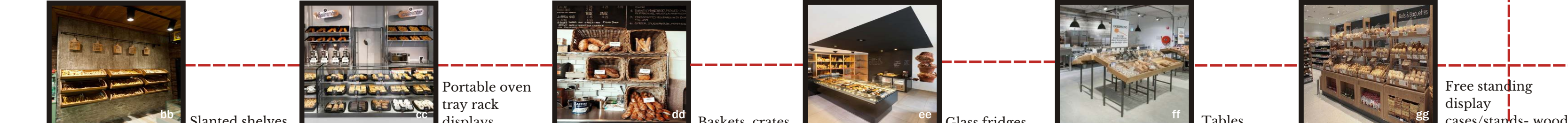
MATERIALS



LIGHTING



DISPLAY FIXTURES



DISPLAYS



LABELS



VISIBLE MACHINERY



PACKAGING



Figure 4.7.2: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (Various sources - edited by author)

SOURCES

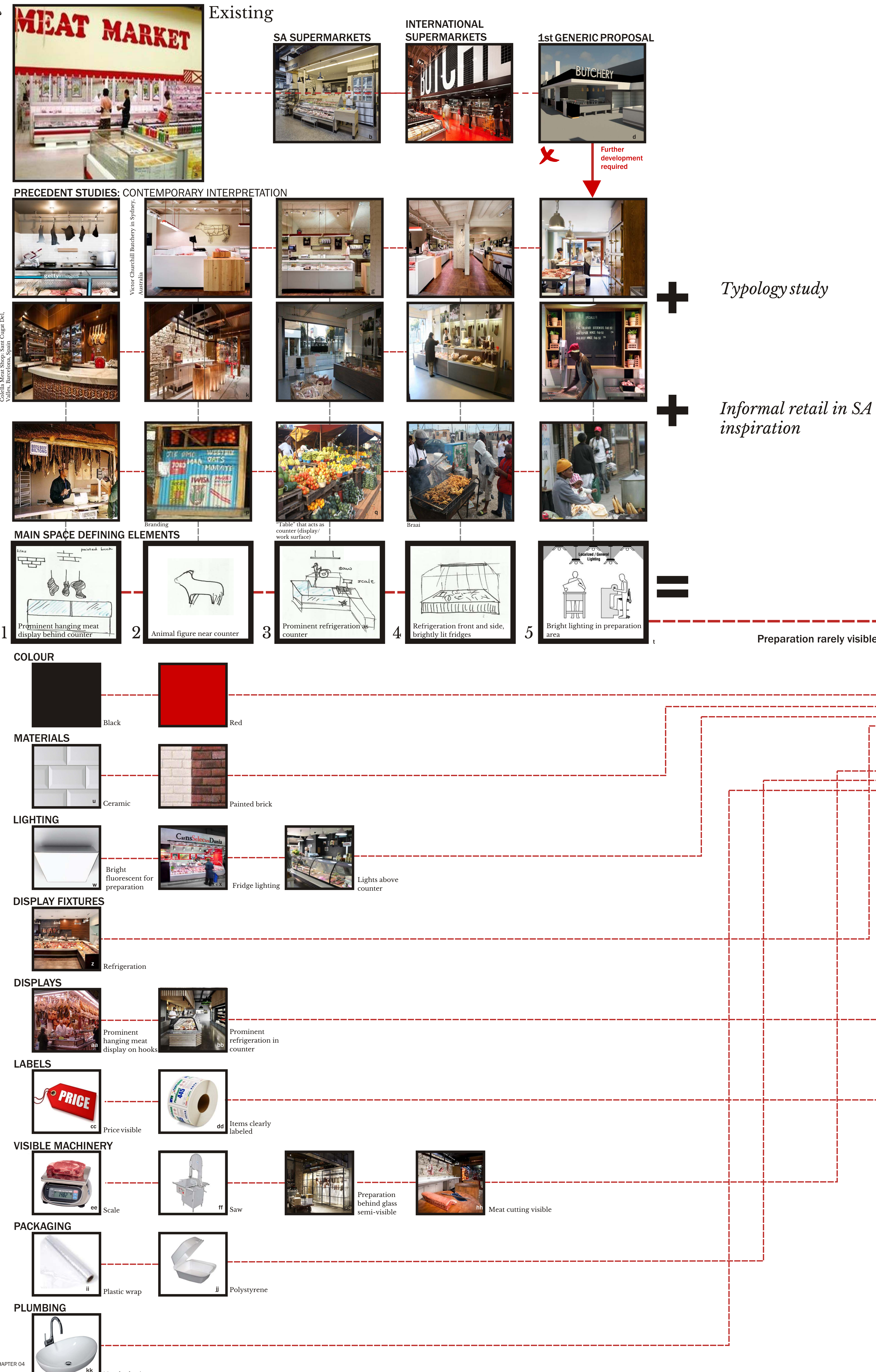
- * Please note: As indicated, the visual diagram (figure 4.7.2.1) is compiled from the top left on page 33, and should be read from left to right then top to bottom as the images are referenced alphabetically.
Figure 4.7.2.1a: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (Skyscrapercity 2008)
Figure 4.7.2.1b: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (MIDDLETON GROUP, 2015. Woolworths Nicelway Grocery Store, South Africa. Available at: http://middletongroup.co/blog/10-retail-display-designs-we-love/ (Accessed 05 October 2015))
Figure 4.7.2.1c: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (Retail Design Blog 2014)
Figure 4.7.2.1d: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (Author 2015)
Figure 4.7.2.1e-f: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (MORRISSEVALICO, 2015. Eat. Available at: http://www.morrissevalico.com/portfolio-page/m-bakery/ (Accessed 05 October 2015))
Figure 4.7.2.1g: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (THE COOL HUNTER, 2014. The Rise of The Designer Bakery. Available at: http://www.thecoolhunter.net/article/detail/2014/the-rise-of-the-designer-bakery (Accessed 05 October 2015))
Figure 4.7.2.1k-p: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (RETAIL DESIGN BLOG, 2012. Komsumul'n bakery by Autoban. Available at: http://retaildesignblog.net/2012/04/13/komsumul-n-bakery-by-autoban/ (Accessed 05 October 2015))
Figure 4.7.2.1q: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (Times Live 2013)
Figure 4.7.2.1r: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (MILLER, R. 2014. NB Health Care. Available at: http://nextbillion.net/healthy-foods-and-new-jobs-part-2/ (Accessed 05 October 2015))
Figure 4.7.2.1s: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (THERON, K. 2015. Northern Mozambique - Beautiful But Inhospitalable. Available at: http://blog.tracksafrica.co.za/category/mozambique/ (Accessed 05 October 2015))
Figure 4.7.2.1t: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (PRICE TRAVEL, 2015. Puesto de frutas en Puerto Elizabeth. Available at: http://www.pricetravel.com.mx/puerto-elizabeth (Accessed 05 October 2015))
Figure 4.7.2.1u: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (REUTERS AFRICA, 2014. A desperate moonlight economy in Zimbabwe's Sunshine City. Available at: http://af.reuters.com/article/topNews/idAFK6N0P00M20140403 (Accessed 05 October 2015))
Figure 4.7.2.1v: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (MYSIRG, A. 2013. Development, politics, competition and bread: Lessons from South Africa. Available at: http://blogs.worldbank.org/psd/development-politics-competition-and-bread-lessons-from-south-africa (Accessed 05 October 2015))
Figure 4.7.2.1w: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (Author 2015)
Figure 4.7.2.1x: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (ArtWallpaperH 2011)
Figure 4.7.2.1y: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (imgarcade 2015))



Figure 4.7.2.2: New Shoprite Bakery design (Author 2015)

- Figure 4.7.2.2.1: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (CLARK, J. 2015. Colette. Available at: http://www.jacquelynclark.com/2015/02/13/eating-my-way-through-toronto/ (Accessed 05 October 2015))
Figure 4.7.2.2.1a: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (ARCHIVE, 2015. Brand. Available at: http://www.architecturaldigest.com/story/brand/ (Accessed 05 October 2015))
Figure 4.7.2.2.1b: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (ARCHLOVERS, 2012. Kogias Bakery. Available at: http://www.archlovers.com/projects/73381/kogias-bakery.html (Accessed 05 October 2015))
Figure 4.7.2.2.1c: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (IDER, 2015. Adriano Zumbo patisserie by Luchetti Kirelli, Sydney. Available at: http://ider427.isstory.com/?page=144 (Accessed 05 October 2015))
Figure 4.7.2.2.1d: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (VANDA, M. 2013. Dèpanneur | New York. Available at: https://www.pinterest.com/pin/3307399698931121/ (Accessed 05 October 2015))
Figure 4.7.2.2.1e: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (DECORATION OF HOME, 2015. Inviting Bakery Design in France by Cruz, R.S.: Boulangerie Gourmande. Available at: http://decorationofhome.net/home-decorating-styles/inviting-bakery-design-in-france-by-cruz-s-boulangerie-gourmande/ (Accessed 05 October 2015))
Figure 4.7.2.2.1f: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (HELIR, 2012. Markt Amstardam, Haarenmerst. Available at: http://hdp.nl/projecten/markt-haarenmerst-amstardam/ (Accessed 05 October 2015))
Figure 4.7.2.2.1g: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (BALLON, 2014. Wafrose_cw_food_1. Available at: https://www.pinterest.com/pin/333547916126586005/ (Accessed 05 October 2015))
Figure 4.7.2.2.1h: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (NOT QUITE NIGELLA, 2015. Bourke Street Bakery At Night, Potts Point. Available at: http://www.notquitenigella.com/2015/01/15/bourke-street-bakery-at-night-potts-point/ (Accessed 05 October 2015))
Figure 4.7.2.2.1i: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (VLAAMSCH VB BROODHUIS, 2015. Elandsgracht. Available at: http://www.vlaamschbroodhuis.nl/index.php/gb/page/elandsgracht/laal/ (Accessed 05 October 2015))
Figure 4.7.2.2.1j: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (Royal Dutch, 2015)
Figure 4.7.2.2.1k: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (ONLY HERE FOR THE FOOD, 2008. More Bakery than Cafe: Breadland Organic Whole Grain Bakery. Available at: http://www.onlyherethereforthefood.ca/2008/05/08/more-bakery-than-cafe-breadland-organic-whole-grain-bakery/ (Accessed 05 October 2015))
Figure 4.7.2.2.1m: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (CRAFTHUBS, 2015. French Bakery. Available at: http://www.crafthubs.com/french-bakery/18929 (Accessed 05 October 2015))
Figure 4.7.2.2.1nn: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Bakery (ANDREA, 2012. Seoree Village: Seoul's 'Little France'. Available at: http://www.world-walk-about.com/northern-asia/seoree-village-seouls-little-france/ (Accessed 05 October 2015))

4.7.8 Brand Identity



Typology study
+
Informal retail in SA inspiration
+

Preparation rarely visible

Figure 4.7.8.1: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (Various sources)

SOURCES

* Please note: As indicated, the visual diagram (figure 4.7.3.1) is compiled from the top left on page 33, and should be read from left to right then top to bottom as the images are referenced alphabetically.

Figure 4.7.3.1a: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (Skyscrapercity 2008)

Figure 4.7.3.1b: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (Hagedorn 2014)

Figure 4.7.3.1c: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (Retail Design Blog 2014)

Figure 4.7.3.1d: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (Author 2015)

Figure 4.7.3.1e: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, OFFSET. 2015. Consumption - Interior of a butcher shop. Available at: <http://www.offset.com/search/consumption> [Accessed 05 October 2015].

Figure 4.7.3.1f: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, HOMIFY. 2015. Carniceria Corella. Available at: <https://www.homify.com.my/projects/2576/carniceria-corella> [Accessed 05 October 2015].

Figure 4.7.3.1g: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, BOX SEVEN DESIGN. 2011. Retail design, a consumer advocate and a butcher's shop. Available at: <http://box7design.squarespace.com/irish-interior-design-blog/2011/2/10/retail-design-a-consumer-advocate-and-a-butchers-shop.html> [Accessed 05 October 2015].

Figure 4.7.3.1h: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, SCHIPPERDOWESARCHITECTUR. 2015. Stager's Hengelo [interieur]. Available at: http://www.schipperdouwearchitectuur.nl/projects/project/79/Stager's_Hengelo/ [Accessed 05 October 2015].

Figure 4.7.3.1i: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, RETAIL DESIGN BLOG 2014. Butcher Boys by TDC&Co., Vanderbijl Park - South Africa. Available at: <http://retaildesignblog.net/2014/09/22/butcher-boys-by-tdc-vanderbijl-park-south-africa/> [Accessed 05 October 2015].

Figure 4.7.3.1j: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, SOUTH AFRICAN TOURS AND TRAVEL. 2015. Biltong, cured and dried meat, a favourite snack with all South Africans. Available at: <http://www.south-africa-tours-and-travel.com/food-in-south-africa.html> [Accessed 05 October 2015].

Figure 4.7.3.1k: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (Freddie 2012)

Figure 4.7.3.1l: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, BUSINESSPME. 2015. Africa market. Available at: <http://www.businesspme.com/photos/360139/africa-market.html> [Accessed 05 October 2015].

Figure 4.7.3.1m: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, FROST ILLUSTRATED. 2015. South Africa loses 'chicken war' with U.S., opening way to cheap imports. Available at: <http://www.frostillustrated.com/2015/06/> [Accessed 05 October 2015].

Figure 4.7.3.1n: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, TIMES LIVE. 2012. Hawkers trash city streets. Available at: <http://www.timeslive.co.za/timeslive/2012/08/23/hawkers-trash-city-streets> [Accessed 05 October 2015].

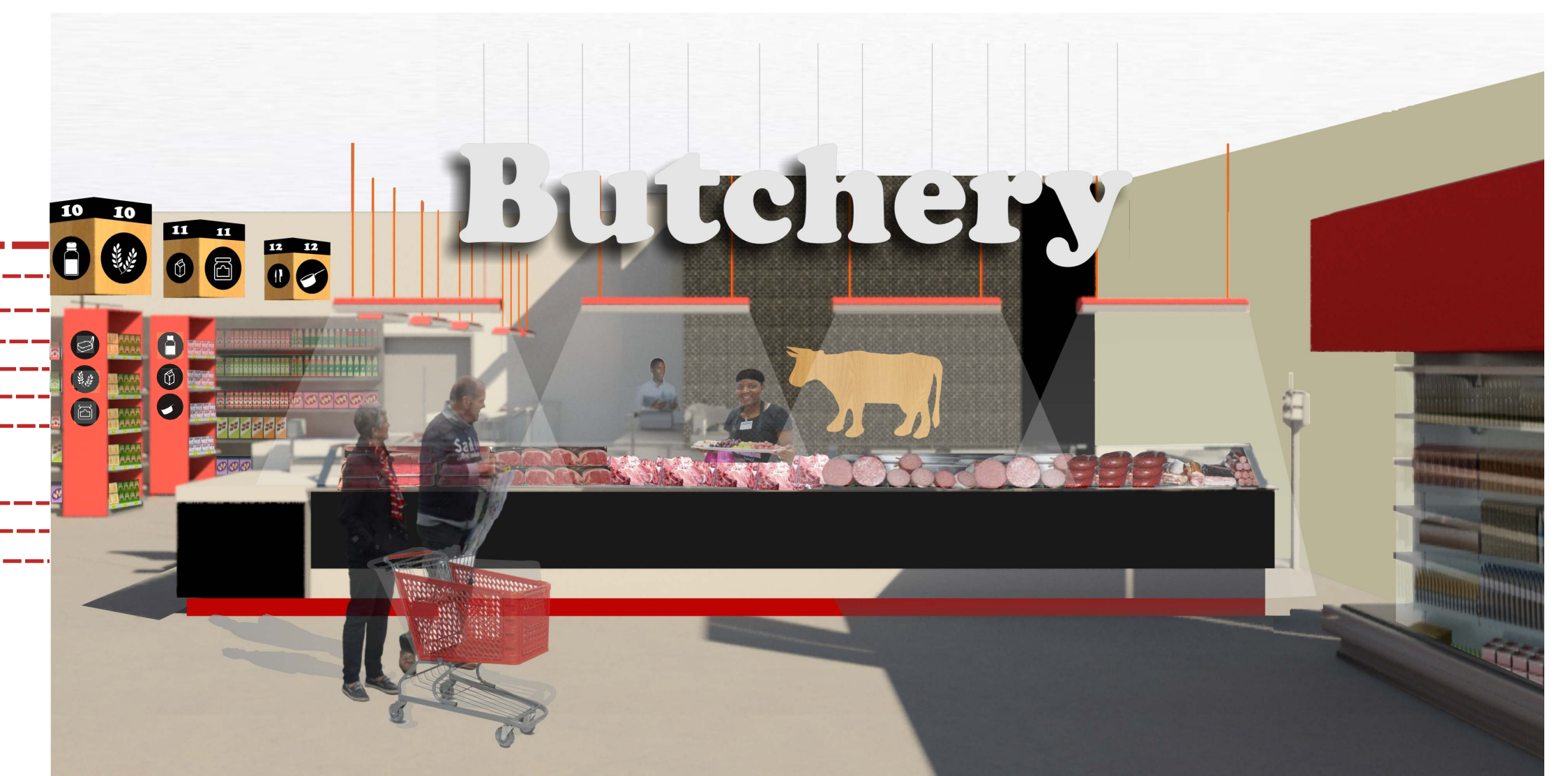


Figure 4.7.3.2: New Shoprite Butchery design (Author 2015)

Figure 4.7.3.1a: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (Author 2015)

Figure 4.7.3.1b: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (imgarcade 2015)

Figure 4.7.3.1c: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, MANOR WORKS. 2011. Is it a good idea to paint brick? Available at: <http://www.manorworks.com/blog/is-painting-brick-a-good-idea/> [Accessed 05 October 2015].

Figure 4.7.3.1d: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, ELECTRO MATIC. 2015. Indoor 2x2 LED Troffers. Available at: <http://www.emplighting.com/Products/Indoor-2x2-LED-Troffers> [Accessed 05 October 2015].

Figure 4.7.3.1e: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, JAN DRD. A . 2014. Mercados Municipales. Available at: <https://www.pinterest.com/pin/329748003939812308/> [Accessed 05 October 2015].

Figure 4.7.3.1f: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, CP. 2013. The Eight Best Butchers in Sydney. Available at: <http://concreteplayground.com/sydney/arts-entertainment/culture/the-eight-best-butchers-in-sydney> [Accessed 05 October 2015].

Figure 4.7.3.1g: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, CRUZ. 2015. Neulius. Available at: <http://www.cruz.nl/vitrines/neulius/> [Accessed 05 October 2015].

Figure 4.7.3.1h: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, ORGANIC. 2015. A Return to Sustainable Meat and Traditional, Ethical Butchery. Available at: <http://www.organicauthority.com/a-return-to-sustainable-meat-and-traditional-ethical-butchery/> [Accessed 05 October 2015].

Figure 4.7.3.1i: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, THE DRUM. 2015. The way 'buy sausage' could really hurt the banks. Available at: <http://www.the-drum.com/news/2015/07/30/whats-the-way-buy-sausages-could-bring-down-the-banks-665799/> [Accessed 05 October 2015].

Figure 4.7.3.1j: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (Sprees 2014)

Figure 4.7.3.1k: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (GGR 2014)

Figure 4.7.3.1l: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, AND. 2012. 6K WP Series Stainless Steel Waterproof. Available at: <http://www.andwing.com.au/metal-sector/wash-down-food-processing/6k-wp-series-stainless-steel-waterproof-scale> [Accessed 05 October 2015].

Figure 4.7.3.1m: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, SOUTHWEST SAW CORPORATION. 2009. An economical meat saw for the small, low-volume meat room. Available at: http://southwestsaw.net/Bio/bio_saw_22.htm [Accessed 05 October 2015].

Figure 4.7.3.1n: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, SPICE. 2013. Ex Toko and Heston Blumenthal crew open new Surry Hills cellar door. Available at: <http://www.spicenews.com.au/2013/10/ex-toko-and-heston-blumenthal-crew-open-new-surry-hills-cellar-door/> [Accessed 05 October 2015].

Figure 4.7.3.1o: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery, RECREATE. 2010. Victor Churchill Butcher - Sydney. Available at: <http://recreate.blogspot.co.za/2010/03/whod-have-thought-butchers-could-be-so.html> [Accessed 05 October 2015].

Figure 4.7.3.1p: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (SEVAAA 2015)

Figure 4.7.3.1q: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (Greenleaf & Farmer 2012)

Figure 4.7.3.1r: Diagram illustrating the establishment of an appropriate brand identity for Shoprite's Butchery (Reece 2015)

4.8 CONCLUSION

Chapter four aided in identifying the strengths, weaknesses and opportunities in exiting Shoprite supermarkets. This was done by means of a three part site analysis which was guided by the theory in chapter three, as well as additional supermarket psychology theory. The existing problems identified within the interior helped determine the areas of focus for the design execution of the project - the **interior components** to be designed. These have the most potential to improve the efficiency of Shoprite interiors and thereby fulfill the brand promise within the interior. Furthermore, they also hold the opportunity to solve most of the overall problems within the interior, such as the lack of brand identity, in-store navigation and convenience to name a few. Again, the interior components to be designed are: [1] the in-store **departments**, namely the Deli, Bakery and Butchery. Of these, the **Deli** will serve as the core example of how the destinations are to be resolved appropriately. [2] the **aisle navigation**; and [3] the **checkout area**.

The chapter continued by presenting the design development of the project. Here, additional interior design guidelines were formulated to assist in resolving the existing store problems - with focus on the identified interior components. This was done by analysing additional precedents and theories, while relating the solutions to the informal retail inspiration throughout.

Next, continuing the design guidelines, interior design strategies are presented for how a new, appropriate brand identity for Shoprite is established within store. The departments are used to illustrate this. It is done in the form of a diagram, showing precedent studies and typology studies - which was again linked to the informal retail inspiration behind the project, to ensure local relevance. The diagram further illustrates how the design serves to resonate with the target market by providing appropriate store communications which aid in creating an authentic experience, as suggested by the theory. Lastly, the diagram shows how the Shoprite brand is interiorised, following the guidelines formulated in chapter three.

DESIGN & TECHNICAL RESOLUTON | 05

5.1 INTRODUCTION

Chapter five **illustrates** the interior design guidelines (set throughout chapters three and four), in an **example** of a typical Shoprite supermarket, which was used to develop and test the interior components. Here, the design and technical resolution of the interior components are presented. To recap, the components serve to **balance** minimising resources and maximising the user experience in order to enhance the efficiency of Shoprite interiors. By enhancing the efficiency of Shoprite interiors, the brand promise becomes evident within the interior.

The design of the components is illustrated using Shoprite's largest store format, which is 4500m² (Shoprite Holdings 2014e). This was to eliminate unnecessary add-ons to the design, which would have been inevitable if additional space was not considered. The components are then adapted to fit into Shoprite's smallest store format, which is 2500m². The flexibility of the design from the largest to the smallest format is illustrated in the dimensioning and enables the design to stay consistent throughout various sized outlets. The maximum dimensions are illustrated in grey and the minimum dimensions in red, as will be explained in more detail in the legends provided next to the applicable drawings.

The chapter commences with a three dimensional explanation of the 'new' store layout, which was used as the model to develop and test the interior components. It is **vital** at this point to remember that the project does **not** strive to present a **final, ideal layout** for Shoprite supermarkets, as stated in the delimitations in chapter one. This is due to the fact that additional, key aspects such as the visual merchandising of the products will have to be considered in detail first before an efficient, final layout can be designed.

The 'new' layout presented was however informed by the theory discussed in chapter four. It strives to serve as an example of how to improve the efficiency of the store through that which is in the power of the discipline of interior design. It mainly focuses on enhancing in-store navigation, productivity, lowering shrinkage (loss of inventory due to employee theft and shoplifting) and exploiting supermarket psychology to increase impulse purchases. It serves to improve convenience and comfort

within the supermarket to provide a satisfying, first world shopping experience. Next, the 'new' layout is shown on plan for more detail.

This is followed by the technical response of the design, with specific focus on the interior components. The technical response shows the main elements utilised to minimise resources within the design as far as possible, while keeping a balance between maximising the user experience. At the same time, the strategies employed were also considered in terms of what is appropriate to Shoprite with regards to price, performance and durability.

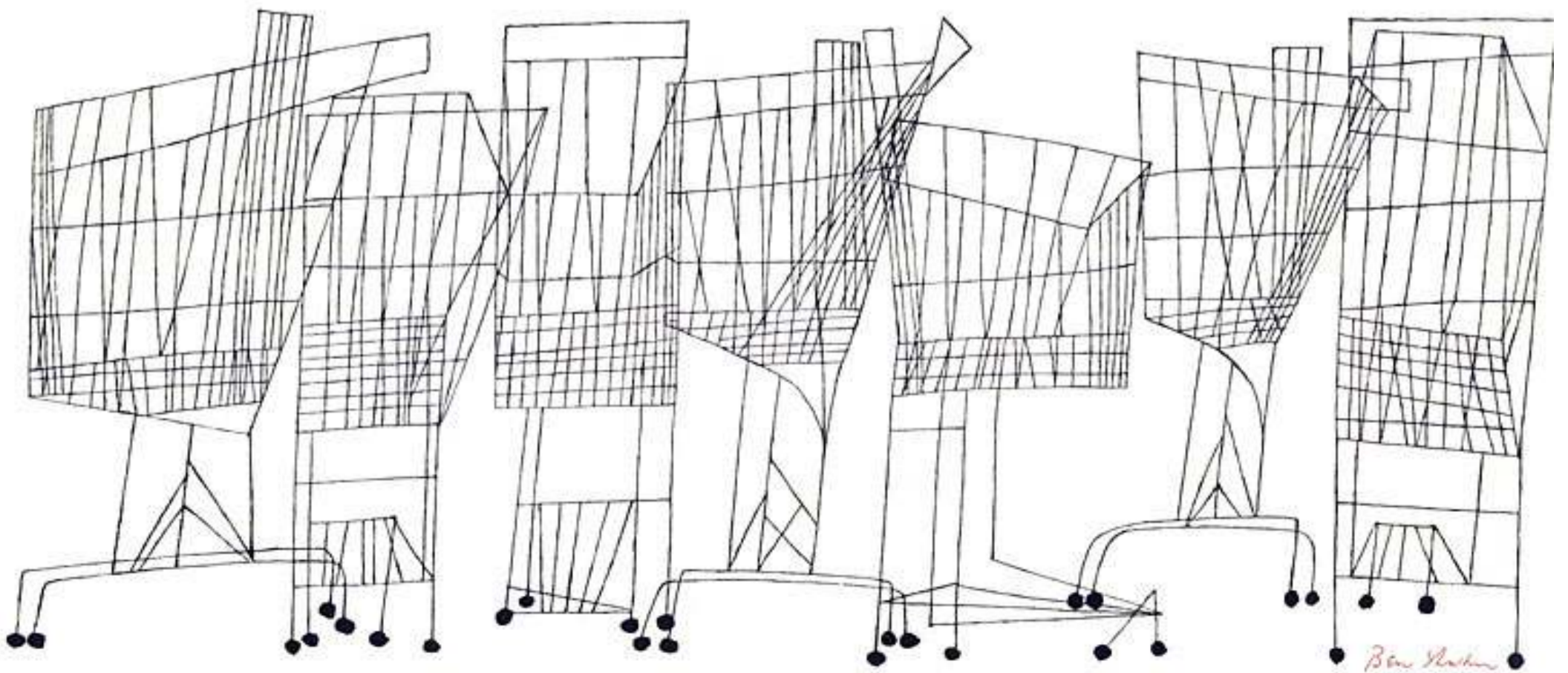
The core categories investigated under energy, water and material efficiency, as well as indoor environmental quality therefore become apparent in this chapter. Under indoor environmental quality, indoor air quality, acoustics and ergonomics are also investigated, as well as fire safety, which is a key consideration in any retail environment. The adaptability of the design to be translated into different sized stores, as mentioned earlier, also forms part of the technical response.

The Deli, which serves as the key component of the project, illustrating the interior design strategies employed, is then presented in a perspective view and on plan. Guidelines for appropriate lighting solutions for the Deli are then presented. These serve as an example of what to consider when lighting is resolved within the supermarket. Sections and details of the Deli design are then presented.

Hereafter, the Bakery and Butchery are presented. As the Deli serves as the main example of how the in-store departments are to be resolved, the other two departments are resolved in less detail.

Next, the aisle navigation is illustrated, followed by the checkout area design. Note that the informal retail inspiration is still used throughout the resolution of the design, in combination with the theory, in order to keep the design locally relevant.

Finally, the chapter is concluded.



5.2 New Store Layout

MAIN AIM: MAX TURNOVER BY INDUCING CUSTOMERS TO BUY ADDITIONAL MERCHANDISE (Arias 2005, Underhill 2001 and Bell & Ternus 2002).

5.2.1 CIRCULATION

Shoppers spend more money when they shop in a counterclockwise direction

Store parameter
Shoppers shop only 25% of the store on average, they use the parameter of the store and drop in and out of the aisles, this is why staples such as bread and milk & milk are put on the outside parameter

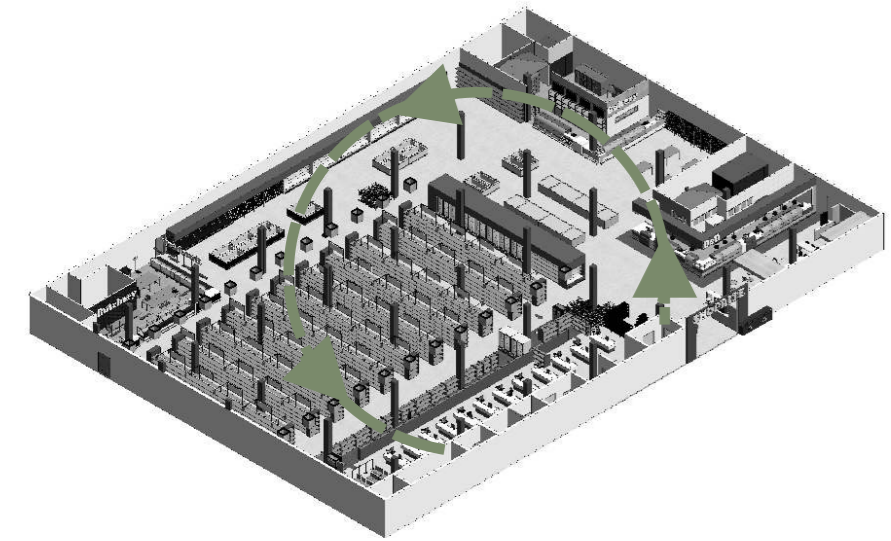


Figure 5.2.1: Circulation of the new store layout (Author 2015)

5.2.2 SIGHT LINES

- Sight lines from destinations prevent shrinkage (shoppers checked by staff & staff checked by staff)
- Sight lines from offices prevent shrinkage

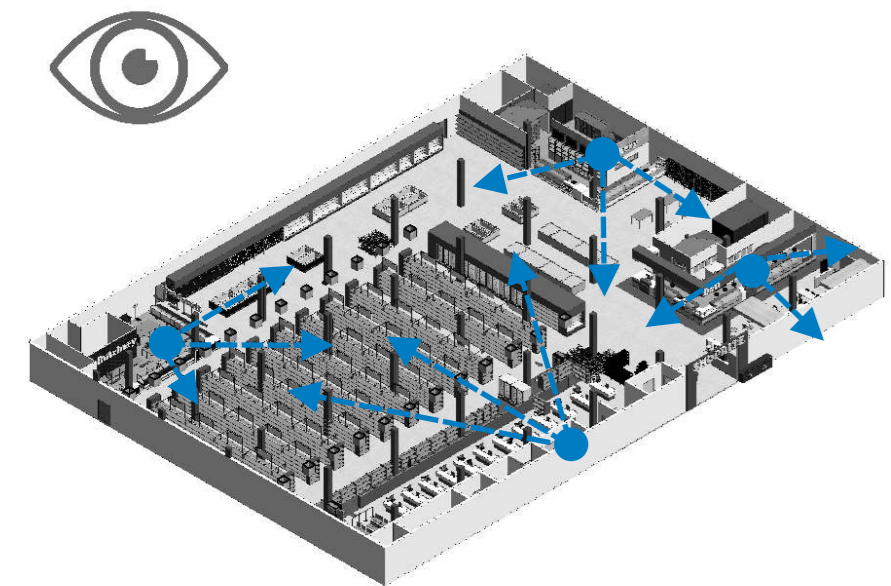
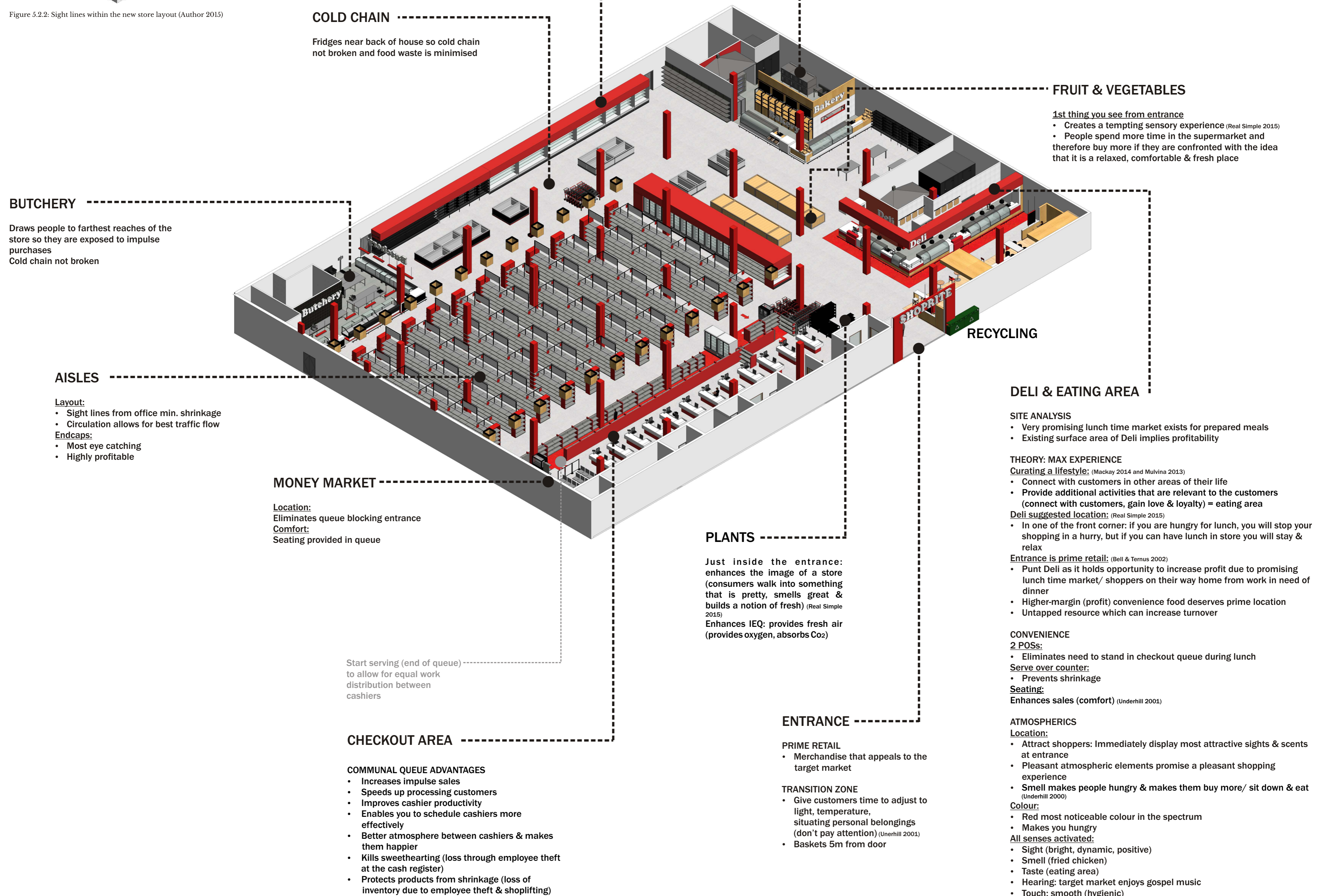


Figure 5.2.2: Sight lines within the new store layout (Author 2015)



5.2.3 GENERAL LAYOUT 3D

Figure 5.2.3: General layout 3D (Author 2015)

5.2.4 GENERAL LAYOUT

LEGEND	
FLOOR FINISH [pattern allows less dirt to show]	
	2000mm wide x 2.5mm thick Marmoleum Red sheathing as per FloorWork SA Colour: Blackonsteel 3127
	2000mm wide x 2.5mm thick Marmoleum Red sheathing as per FloorWork SA Colour: Concrete 3136
	2000mm wide x 2mm thick Compact Vinyl Sunstep Original sheathing as per FloorWork SA Colour: 171512 Oyster
	2.5mm thick x 2000mm wide Marmoleum Stone sheathing as per FloorWork SA Colour: Pacific Beaches 5216
ELECTRICAL, DRAINAGE & FIRE FIGHTING	
	SWITCH SOCKET OUTLET
	MICROWAVE OVEN
	GREASE TRAP
	FIRE EXTINGUISHER



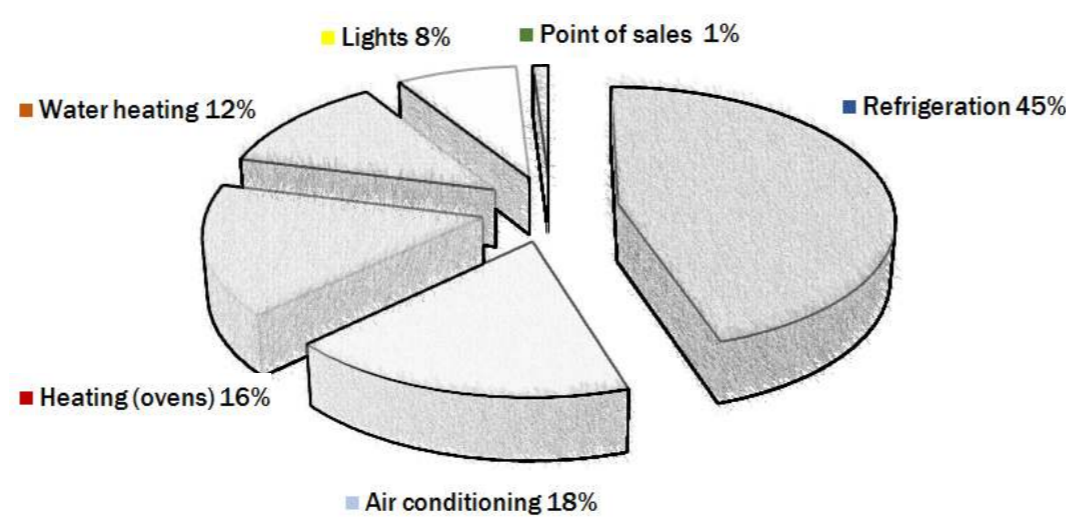
GENERAL LAYOUT
SCALE 1:100
Figure 5.2.4: General layout (Author 2015)

5.3.1 Interventionists Approach



ENERGY USAGE IN SA SUPERMARKETS

Areas which have the biggest impact on South African supermarkets:



DAYLIGHTING

LIGHTING DUCTS
3500 Solutube® 290 DS Daylighting System with 23-28 m2 Light Coverage as per Solutube, SA (Less heat than skylight)

ARTIFICIAL LIGHTING

LED
Longer life, high efficiency, no mercury, no flickering, no buzzing, instant start (Groenendaal & Rowland 2012)

LIGHTING CONTROLS

Dynalite as per Philips, SA
 • Save up to 60% energy
 • Presence detection
 • Daylight dimming
 • Sophisticated control, full system status

CEILING

SUSPENDED CEILING VS OPEN-PLENUM CEILING IN FOOD STORES
(CIRCA 2007; Oches 2008 and Taylor 2008)

Table 5.3.2.1: SUSPENDED CEILINGS ADVANTAGES

The advantages of a suspended ceiling outweigh those of an open-plenum ceiling

COST FLEXIBILITY	ANNUAL OPERATING COSTS	MAINTENANCE COSTS LOWER	HYGIENE	FIRE SAFETY	ACOUSTICS
Reduced reconfiguration costs.	ENERGY Save as much as 17% a year	* Less cleaning & no painting required	Prevent dust & small leaks from reaching occupied spaces below	EXTRA MARGIN OF FIRE SAFETY * Ceiling critical to controlling fire growth (large surface) * Provides air separation & creates fire resistance period	Controls noise
	HVAC * Downsizing of HVAC responsible for most of the savings * Return air plenums more efficient at removing heat from lights.				
	LIGHTING * 70% light reflectance * Reduces total number of luminaires required (reflectance) * Increases lighting performance by diffusing light & distributing it more evenly to the work plane.				

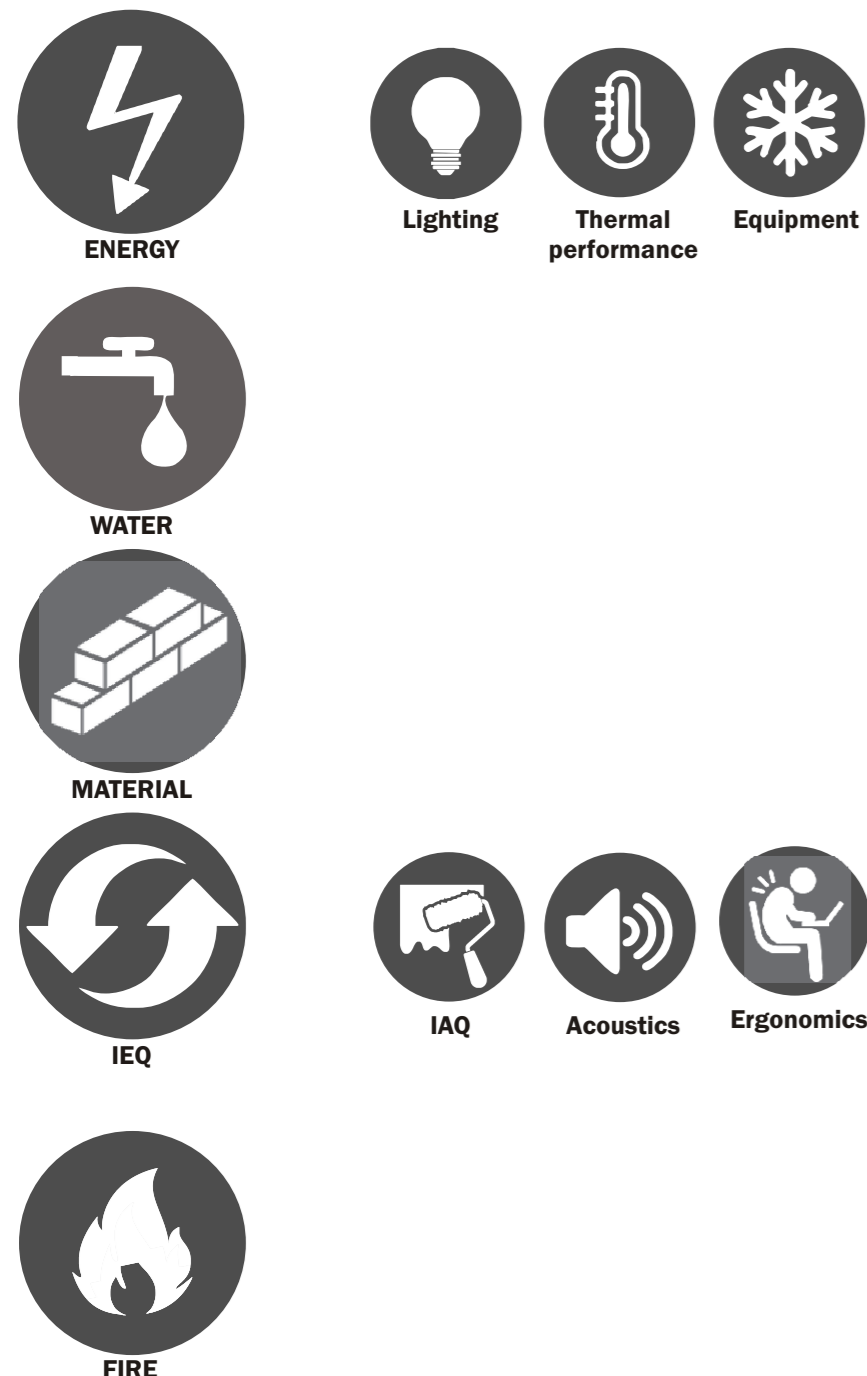
Regulations

Climate Zone 2: Pretoria (SANS 10400-XX:2011)

Maximum energy demand: 85VA/m²

Metal sheeting roof assemblies: R-value of ceiling 0.05
Added R-value of insulation: 2.85

5.3.2 Strategies



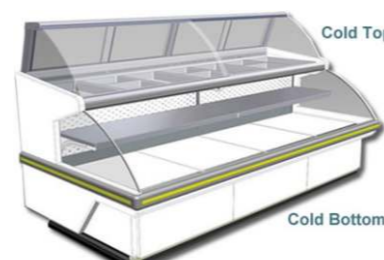
Recommendations

Study done on opportunities for electricity reduction, and carbon mitigation, in the food retail sector in South Africa, using a techno-economic approach, with a focus on store level (Pather-Ellis, S., Davis, S. & Cohen, B. 2012):

- Heat reclamation from refrigeration @ back end of store
 - assist with cooling high energy island freezers
 - reduces HVAC load
 - replaces electrical geyser
- Electronic controls for refrigeration
- Fridge curtains
- Energy efficient lights
- POS power management systems
(Information based on an average store size of 1 500m²)

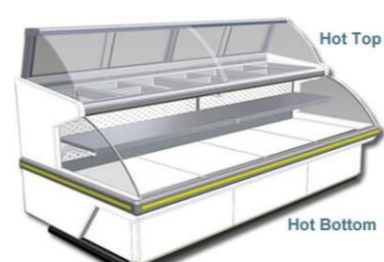
DELI EQUIPMENT

- Up to 50% energy saving
- Can be custom made to requirements
- Ozone friendly
- Simple controls for easy commissioning



REFRIGERANT [COLD MEAT]

Dual Case Cold Cabinet as per Omega, SA



DRY HEAT [CHICKEN, PIES, PRE-MADE MEALS]

Dual Case Hot Cabinet as per Omega, SA



BAIN MARIE [PREPARED MEALS]

Closed Curved Glass Cabinet as per Omega, SA
 • Air flow from front to rear of case ensures better temperature, without airflow onto curved glass



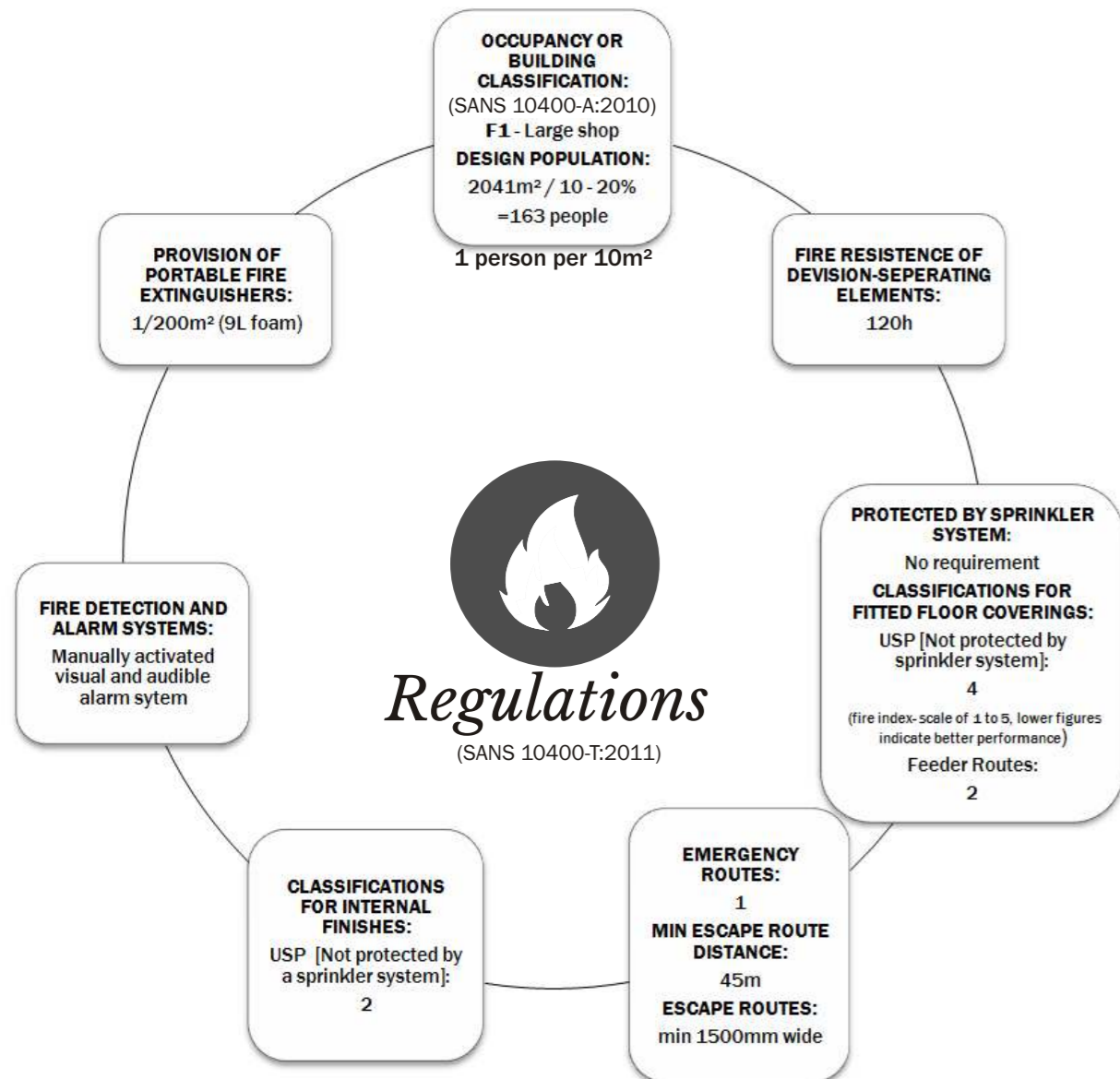
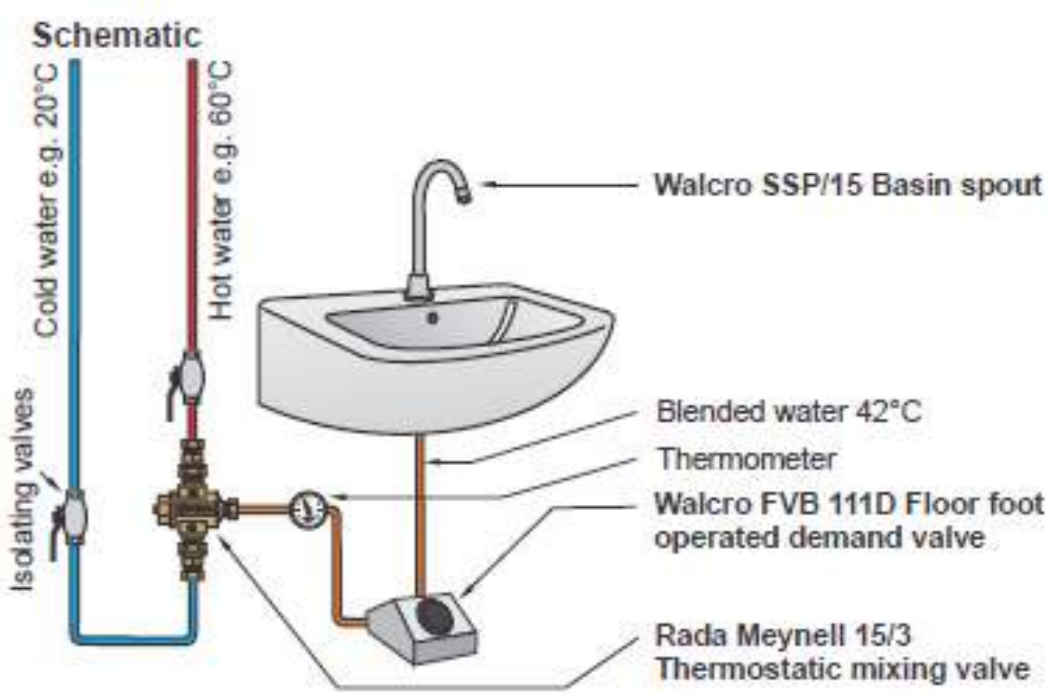
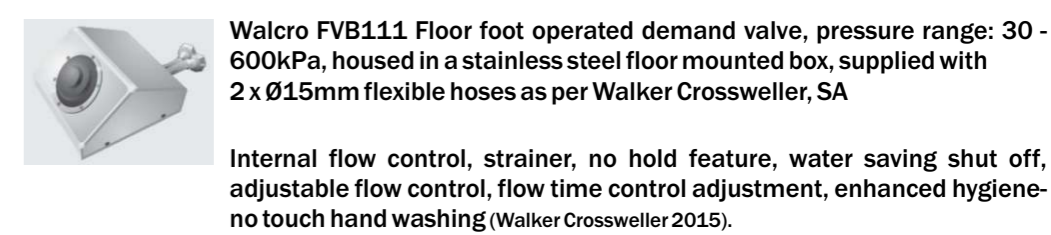
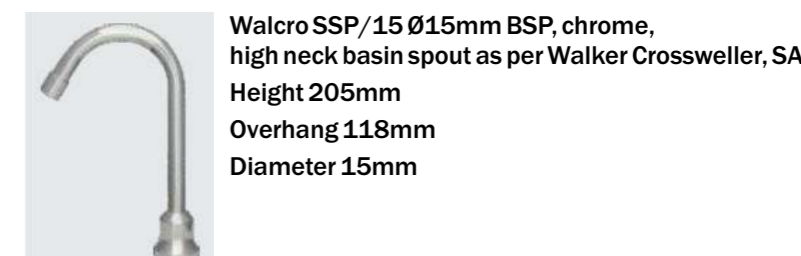
UPRIGHT REFRIGERATION [COLD DRINKS]

Glass Door Cabinet as per Omega, SA

LOW FLOW WATER FIXTURES

Table 5.3.2.2: LOW FLOW FITTINGS: TAPS

STANDARD FITTINGS	WATER EFFICIENT FITTINGS
15-18L/min	2L/min



Regulations

(SANS 10400-T:2011)

* See Appendix C - Sample Board on page 69

MATERIALITY

*NOTE: NONE OF THE BOARD PRODUCTS AVAILABLE IN SA ARE TRULY SUSTAINABLE, THEREFORE THE PRICE OF THE SUSTAINABLE FLOORING & CEILING MATERIAL (larger surface area) IS SUBSTITUTED WITH THE CHEAPEST, DURABLE BOARD PRODUCT

Table 5.3.2.3: MATERIAL REQUIREMENTS

MATERIAL REQUIREMENTS AS PER GREEN STAR SA (GBCSA 2015)									
LIFESPAN		LIFECYCLE		ENVIRONMENTAL & HUMAN HEALTH			APPROACH TO RESOURCES		
REDUCE	REUSE	RECYCLE	RECYCLABLE	ENVIRONMENTAL & HUMAN HEALTH	HEALTH PREFERABLE	MIN VOC	MIN ASBESTOS	MIN FORMALDEHYDE EMISSIONS	IEQ (min indoor air pollutants)
				VIRGIN MATERIALS LIMITED	ECOLOGICALLY PREFERABLE MATERIALS				

- MATERIALS - ALLOCATION FOR RECYCLING & WASTE MANAGEMENT PLAN
- FURNITURE - REDUCED ENVIRONMENTAL IMPACT
- ASSEMBLIES REDUCED IMPACT
- FLOORING REDUCED IMPACT
- WALL COVERINGS REDUCED IMPACT
- LOCAL SOURCING - TRANSPORT EMISSIONS
- SUNDRIES MATERIAL SOURCING - FINISHES REDUCED IMPACT, RESPONSIBLE MANUFACTURING, PRODUCT STEWARDSHIP, RESOURCE EFFICIENT DESIGN

LEGEND FOR KEY CONSIDERATIONS

- Sustainability Design requirements (atmospheric properties)
- Technical requirements (performance)
- Negatives

Table 5.3.2.4: MATERIAL SELECTION

USE	MATERIAL	DESIGN REQUIREMENTS/ STRATEGIES (visual sense key)	CONTENT	ENVIRONMENTAL IMPACT	COST	SOURCING	DESIGN STRATEGY EMPLOYED	EMISSIONS OR TOXINS	RESISTANCE	DURABILITY	LOW MAINTENANCE	ACOUSTIC PROPERTIES	FIRE	END OF LIFE
Floor (sales floor)	Marmoleum	Comfortable to stand on Quiet under foot Soft landing for products to minimise breakage	Natural linoleum floor covering: linseed oil, natural resins, wood flour, pigments & inorganic fillers with jute backing	Renewable Manufactured using 100% green electricity	Low life-cycle costs/ low cost of ownership (more expensive to put in then vinyl but costs less to maintain) (Drakes 2009) R422.06/m ² excluding vat (rubber R999.22/m ² excluding vat)	Local (FloorWorx, Johannesburg, SA)	Pre-treated Standard size sheets: 2.5mm thick x 2m wide x 30-32m long On site installation	Less VOC emissions than rubber Healthy/hygienic: naturally antibacterial, hypo-allergenic (asthma & allergy friendly) Solvent-free adhesive available	Water resistant Scratch resistant Stain resistant Bacteriostatic Slip resistant Resists denting	Durable (similar to vinyl) (FloorWorx SA 2015) Resilient Withstands heavy loads Passed cater wheel test	No need for waxing/ sealing during life-time (manufactured with surface treatment) Very easy to clean Traps little dirt	7db sound absorption (2.5mm thick)	Flame retardant (radiation intensity of 4.5 kW/m ²) Reaction To Fire EN ISO 13501-1 Cl1 - S1	* Biodegradable Recyclable
Floor (kitchen)	Vinyl * SUSTAINABLE OPTIONS ARE NOT RESISTANT ENOUGH	Durability Stain resistance Slip resistance Hygiene Fire resistance	Coloured polyvinyl chloride (PVC) chips formed into solid sheets Contains no restricted substances Glass fibre-mat reinforced	50% natural materials 100% recyclable	Affordable R337.30/m ² excluding vat (price + performance unbeatable)	Local (FloorWorx, Johannesburg, SA)	Best flooring option available for commercial kitchen application Less mat used than ceramic tile flooring & more hygienic	PVC uniquely toxic among plastics - toxic ingredients which readily migrate into the environment during its production, use & disposal	Very stain resistant V.O.C. resistance Resists intense traffic Exceptional indentation resistance of 0.02mm Antistatic	Homogeneous multi-layer Compact 0.7mm thick wear layer Abrasion resistant	PUR Pearl surface treatment - stain resistance, ease of maintenance, eliminates need for finishing throughout lifespan	5db sound absorption (2mm thick)	Reaction To Fire EN ISO 13501-1 Cl1 - S1	100% recyclable (can be safely incinerated)
Wall finish	Ceramic tile	Solid colour (unlike glass tile) Hygienic feel - typology requirement	Percentages of recycled materials - such as light bulbs, bottles and porcelain and other kinds of ceramics	Advances in production technologies have led to a considerable reduction in the environmental impacts of ceramic building materials	Affordable (Client in mind - why not glass) - availability in a wide range of prices	Local (Union Tiles, SA)	Standard size tile Easy installation (medium size tile) Pre-treated	Commonly made using low-VOC adhesives	Hygienic Stain resistant Scratch resistant	Durable Relatively impact resistant (A-grade tile)	Low maintenance Easy to clean - keep grout lines as narrow as possible	Reflects	Resistant	Recyclable (make new tiles)
Fresh Scent	Selfcoat SA, Eco Paint - Economical Contractors Paint	Water based (acrylic) No VOCs Durable Can match any colour from other paint company	Water-bond polymers	Reduction of temperatures by 8 to 13 degrees Celsius/light colours	Affordable	Local (Selfcoat SA, Eco Paint)	One paint for all surfaces Can match any colour from popular paint companies in SA - only used Plascon colours	Zero VOC, non-toxic, fungus resistant	Anti-condensation, waterproof, rust preventative, acid resistant, alkaline and stain resistant	Life expectancy 7 years +	Clean with water, it is colour and light fast, does not fade	N/A	Fire retardant No flame spreading	Repaint with any paint
Moth Mist	Ultima+ 7663M mineral ceiling tile	Energy saving (reflective) Recycled content Recyclable Noise reduction	50% recycled content Wet felt mineral fibre membrane	87% light reflectance 0.052 kJ value thermal conductivity	Affordable Construction 4.1% to 10.6% more than open plenum ceiling yet payback period less than 11 months due to energy saving	Local (Armstrong, SA)	Easy on site installation with easy levelling tee grid for 600 x 1200mm tiles	Low to no VOCs (A+) Low to no formaldehyde (E1)	Scratch resistant 95% humidity resistant	Durable Long life	Low maintenance Easy to clean with damp sponge	0.75 NRC 36db Sound attenuation 18db Sound reduction index	EEA Euroclass A2-s1,d0	100% recyclable (Armstrong Recycling Programme) C2C Bronze
Counter base/ suspended ceiling	Bisonboard (chipboard)	Less toxic than other board products in SA (plywood, MDF) Affordable Easy to work with Smooth surface for finishing	Chips of timber bond with resin (contains toxic formaldehyde)	Recycled & certified timbers lessen environmental impact	Affordable (less expensive than plywood alternative)	Locally manufactured (transport lessens carbon footprint - same company) (PG Bison, SA)	Standard sizes Utilises cut-offs Smooth surface for finish (unlike plywood that warps)	Fix with formaldehyde free resin	No heavy metals or carcinogens in the pigments Release few synthetic odours	Durable Structural strength, superior screw-holding capability & machinability, width consistent	Low maintenance (finish to withstand water)	N/A	N/A	Recycling difficult
Counter base finish	Formica high pressure laminate (HPL)	Durable Variety of colours & wooden textures * Small amount of material used	Made from sustainable wood fibres & recycled paper, impregnated with melamine resin and phenolic resin (Formica uses PPS paper stock, bio-based energy management, water based phenolic resin. Melamine chemically bonded into it and does not outgas).	Green Guard certified Minimal amount of material used (lightweight small carbon footprint) Fair amount of energy used in production	Expensive, yet durability unbeatable	Local (transport lessens carbon footprint - same company) (PG Bison, SA)	On site installation	HPL fabrication & installation can now be done with low-VOC adhesives.	RESISTANCE TO WEAR, SCUFF, IMPACT, HEAT, MOISTURE & STAINS	Durable	Easy to maintain Difficult to replace	N/A	N/A	Landfill
Counter top	Surinno Solid Surfacing	Durable * Seamless Corners tough - colour to remain in tact Hygienic	Mineral polymer: 2/3 Aluminium Trihydrate (ATH) (natural mat) mixed with 1/3 Acrylic Modified Polyester Resin (binder)	LEED Green Building Ratings MRc4 (2) MRc5 (2) Eqc4 (1)	More affordable than stainless steel (as will have to be powder coated to achieve design look and feel - not appropriate)	Locally manufactured (transport lessens carbon footprint - same company) (PG Bison, SA)	Pre-made units, on site installation	Non-toxic, no VOCs	100% non porous, hygienic, seamless joints prevents mould, bacterial & microbial growth, stain & chemical resistant, heat resistant.	Durable Scratches can be removed with a kitchen pad & polishing compound or by sanding and polishing the affected area	Low maintenance Highly resistant to deterioration Easy to repair if damaged (solid colour throughout)	N/A	N/A	Re-engineer
Wall panel connecting counter to suspended ceiling	Melawood (laminated chipboard)	Variety of colours & wooden textures Affordable (more so than Formica) Easy to work with	Chips of timber bond with resin with melamine laminate (plastic made with formaldehyde)	Recycled & certified timbers lessen environmental impact	Affordable	Locally manufactured (transport lessens carbon footprint - same company) (PG Bison, SA)	Standard sizes and easy on site assembly	Fix with formaldehyde free resin	Waterproof	Durable Doesn't dent easily	Low maintenance	N/A	N/A	Landfill
Suspended ceiling cladding	Supewood (Medium Density Fibreboard (MDF))	Colour (Melawood not available in red) Appropriate (smooth surface to prevent moisture problems)	Bonded softwood dust (contains toxic formaldehyde: HIGHER CONTENT THAN CHIPBOARD - sawing/cutting can cause health problems)	1.5% recycled	Affordable	Local (transport lessens carbon footprint - same company) (PG Bison, SA)	Standard sizing	Formaldehyde is still used to bond its component fibres, sawing & cutting it can cause health problems	Resistant	Durable	Maintenance lowered if painted/ sealed	N/A	N/A	Reusable Not recyclable
Menu's/ signage	Xanita board	* Informal market inspiration Recycled/ recyclable Variety of finishing options Lightweight (easy to move around/ replace)	Honey comb paper core manufactured from recycled paper & sandwiched between top and bottom layers of semi-rigid printable paper	Made from 100% recycled materials 100% Recyclable and re-pulpable VOC-free	Affordable	Local (Malzey, SA)	Min. waste (utilise entire board) Designed for re-use (easy to move around/ incorporate future frame) into existing product design	VOC free	High strength - weight ratio	Durable	Designed for longevity / durability (reduce the need to replace units - just replace stickers, reduced maintenance)	N/A	N/A	Fire resistant 100% Recyclable
Menu's/ signage	Recycled steel sheeting & tubing	Compatible with steel gongola sheathing	Recycled steel profiles	Recycled steel requires about 74% less energy than production of steel from iron ore 100% Recyclable	Affordable	Locally manufactured/ recycled (Steelcase, SA)	Standard sizes Designed for re-use (easy to move around/ incorporate future frame) into existing product design	Recycled steel (uses recycled steel)	All-round high resistance	Very durable Long life	Low maintenance	N/A	N/A	100% Recyclable * retains structural integrity * endlessly recyclable

LEGEND FOR KEY CONSIDERATIONS

■ Sustainability/ positives
■ Why material was ruled out

Table 5.3.2.5: ALTERNATIVE MATERIALS CONSIDERED

USE	MATERIAL	ATMOSPHERE (sensorial)	CONTENT	SUSTAINABILITY	SOURCING	COST	DURABILITY	RESISTANCE	MAINTENANCE	ACOUSTIC PROPERTIES	FIRE	
Floor	Polished concrete	Variety of colours (acid stain, appropriate dye, staining agent/ paint over it with a water proof resin paint). Cold & hard - uncomfortable to stand on for long periods of time. Items more likely to shatter or crack if they fall on the floor.	Uses existing concrete floor that has been treated with a chemical densifier and ground with progressively finer grinding tools	No depletion of resources No carbon footprint	Supplied & manufactured in SA	Affordable	Durable (Solutions Sealers 2015)	Cracks Mold & mildew growth if water penetrates pores (Lewin 2015a)	Needs to be sealed every 3-4 months to maintain protective layer (moisture penetration) Natural cleaning agent	N/A (disadvantages cannot be overlooked)	N/A	
	Rubber	Variety of colours Comfortable Can be installed without seams	Made from recycled rubber tires (Dubose & Labrador 2009)	Recycled, 100% recyclable, manufactured without hazardous chemicals, healthy (no air pollutants), hygienic, no glare Distinctive odour	Local	Expensive (flat cost the building) Flat: R999.22/m ² excluding vat. Studied: R1600/m ² excluding vat	Durable	Slip resistant (yet in COMMERCIAL KITCHEN - VERY SLIPPERY (Noramet as per Floorworks SA)	Easy maintenance	Good acoustic properties - absorbs sound better than linoleum	Flammable	
	Recycled ceramic tiles	Cold & hard - uncomfortable to stand on for long periods of time Grout lines susceptible to dirt Items more likely to shatter or crack if they fall on the floor (food waste)	* Refer to wall finish table 5.3.4	High embodied energy (production) Recyclable	Local	Affordable (available in range of prices)	Durable, yet can crack with impact	N/A (disadvantages cannot be overlooked since Marmoleum better choice)	N/A	N/A	N/A	
Wall finish	Recycled glass tile	Transparent (shiny, luxurious feel not appropriate)	Recycled glass	Recycled Reflects light		Expensive (twice as much as ceramic tile)	Chips or cracks if hard object falls	N/A (disadvantages cannot be overlooked)	N/A	N/A	N/A	
Ceiling	Open plenum ceiling	Provides a feeling of spaciousness & economy ("low cost look" reinforces the idea that store is going to save you money on your purchase)	Existing roof structure	HVAC & more energy needed to provide power to service greater volumes of air (requires higher static pressures & fan horsepower) LIGHTING: 50% light reflectance	Existing	Initial construction cost is high Fixed components more difficult & costly to move	Greater level of aesthetically acceptable finish required (visible)	Not hygienic - dust & leaks able to reach occupants & surfaces below	Periodic duct, pipes & rafterway cleaning & repainting necessary	None (noise from HVAC)	No physical separation between the elements of building services & the space below Height of the space is greater, & the size of the fire can thus be larger at the time of smoke detector or sprinkler system activation.	
Counter base/ Wall panel connecting counter to suspended ceiling/ Suspended ceiling cladding	Strawboard	*MATERIAL OF CHOICE: COUNTER, SUSPENDED CEILING, INTERIOR PARTITIONS (if it becomes available in SA) *MOST SUSTAINABLE BOARD PRODUCT AVAILABLE (Gieves 2015 and Moxon 2012) Smooth - can apply finish	Waste agricultural straw which uses no adhesive (just pressure)	Low embodied energy Rapidly renewable 100% recyclable & biodegradable No glue just high pressure & arborard outer layer High embodied energy & carbon footprint if need to import	NO (ROWANDA CLOSEST MANUFACTURER/ SUPPLIER) (Strawtec 2015)	Expensive (transport)	Strong Can be sawn, drilled, routed, nailed, screwed, & glued (Strowtec 2015)	Termites, mold-, & impact-resistant (Strowtec 2015)	Low maintenance	Reduces sound transmission	Fire resistant	
	Plywood	INTRIGUING JOINTS POSSIBLE (TAKE APART FOR FUTURE USE) Surface not ideal for required	Thin sheets of timber glued together for combined strength	High embodied energy Uses toxic formaldehyde resins (more than chipboard) NB to check that it contains certified timber	Local	Affordable	Not as dense or as uniform as particleboard	Warping Handles water better than chipboard				
	OBS	Surface too rough to finish (not as smooth as BisonBoard)	Formed by rectangular wood strips (flakes) arranged in cross-oriented layers, with the help of waterproof adhesives	High embodied energy (need heat in production) Use toxic formaldehyde Versions using recycled & certified timbers lessen environmental impact	Supplied & manufactured in SA (ITM 2015)	Affordable	More sturdy, water resistant & durable than chipboard	Expands when exposed to moisture	N/A	N/A	N/A	
Counter base finish	Eco clad	N/A	Layers of paper comprised of post consumer recycled paper fiber and rapidly renewable bamboo fiber, they integrate the performance wood grain and color paper layers with a UV armor layer on top and a balance layer on the back.	Recycled Renewable	NO (USA)	Expensive (transport)	Durable	N/A	N/A	N/A	N/A	
	Melamine	Uniform finish Large variety of colours and textures	Melamine starts with a compressed wood particle core. It's then covered with a resin and paper finish that can be manufactured to various styles and colours. It's often used for cabinetry in kitchens, bathrooms and other areas throughout the home.	Made with formaldehyde Landfill material	Local	Affordable	Chips Susceptible to wear damage	Moisture, heat & stain resistant Can splinter during installation	N/A	N/A	N/A	
	Veneer	Attractive & elegant alternative to solid wood Wooden textures only Doesn't have required colours	Thin slices of hardwood	Wood renewable Min. material used	Local	Affordable	Requires care & maintenance because it can scratch May want to protect with glass top or other desk top covering	N/A	N/A	N/A	N/A	
	Recycled glass	Varies greatly in appearance (Jeresek 2015a)	Recycled glass	Cradle to Cradle certified Jeresek 2015a)	Local	Expensive	Chips easily Chips cannot be replaced (entire countertop will have to be replaced) (Jeresek 2015a)	Porous (seal twice a year) (Jeresek 2015a)	High maintenance (Jeresek 2015a)	N/A	N/A	
	Paperstone	Not durable enough for supermarket application Using pigments rather than dyes colour stability and even distribution of colour throughout the entire panel	Made from 100% post-consumer recycled paper & PaperStone's phenolic resins	CLAIMED TO BE GREENEST ARCHITECTURAL SURFACE ON THE PLANET Manufactured using 100% recyclable materials (Andersen 2015)	Local	N/A	Damaged by general-purpose cleaners, bleach, ammonia & singlar (Andersen 2015)	Does not withstand heat or stains (Andersen 2015)	N/A	N/A	N/A	
	Stainless steel	Not compatible with design (will require powder coating, which is not justifiable)	Metal alloy with 10% chromium content	100% recyclable, made from an estimated 60-100% recycled stainless steel Recycling steel uses a fraction of the energy required to produce it from virgin sources. Healthy - does not offgas Phigmine Chromium mixing high embodied energy	Local	Expensive, yet has a long life (save money in the long run and is better for the environment)	Very durable Nonporous Does not corrode, rust or stain with water Impervious to heat	Dents & scratches easily Fingerprint smudges show up easily (if sanded to brushed finish, it helps hide prints)	Low maintenance Easy to clean	Noisy	N/A	
	Powder coated steel	Powder coating does not require a solvent & is VOC free - virtually no waste (any reclaim generated during the application process can be captured & recycled with nearly 100% use of the coating)	* Refer to menu's/ signage table 5.3.4			Affordable	Dents	Rust inevitable even with powder coating - chips	* Refer to menu's/ signage table 5.3.4			
	3 Form 100 percent	Not available in red Complex fabrication	Made entirely from post-consumer recycled High Density Polyethylene (HDPE). It is a household plastic that is transformed into high performance panels.	Made from 100% recycled materials Recycled Renewable	Local	Expensive	Low service temperature	Good chemical resistance Withstands impact Not abrasion resistant	*CHROMA - low impact strength low chemical resistance	N/A	N/A	Flame resistant

5.4.1 DELI



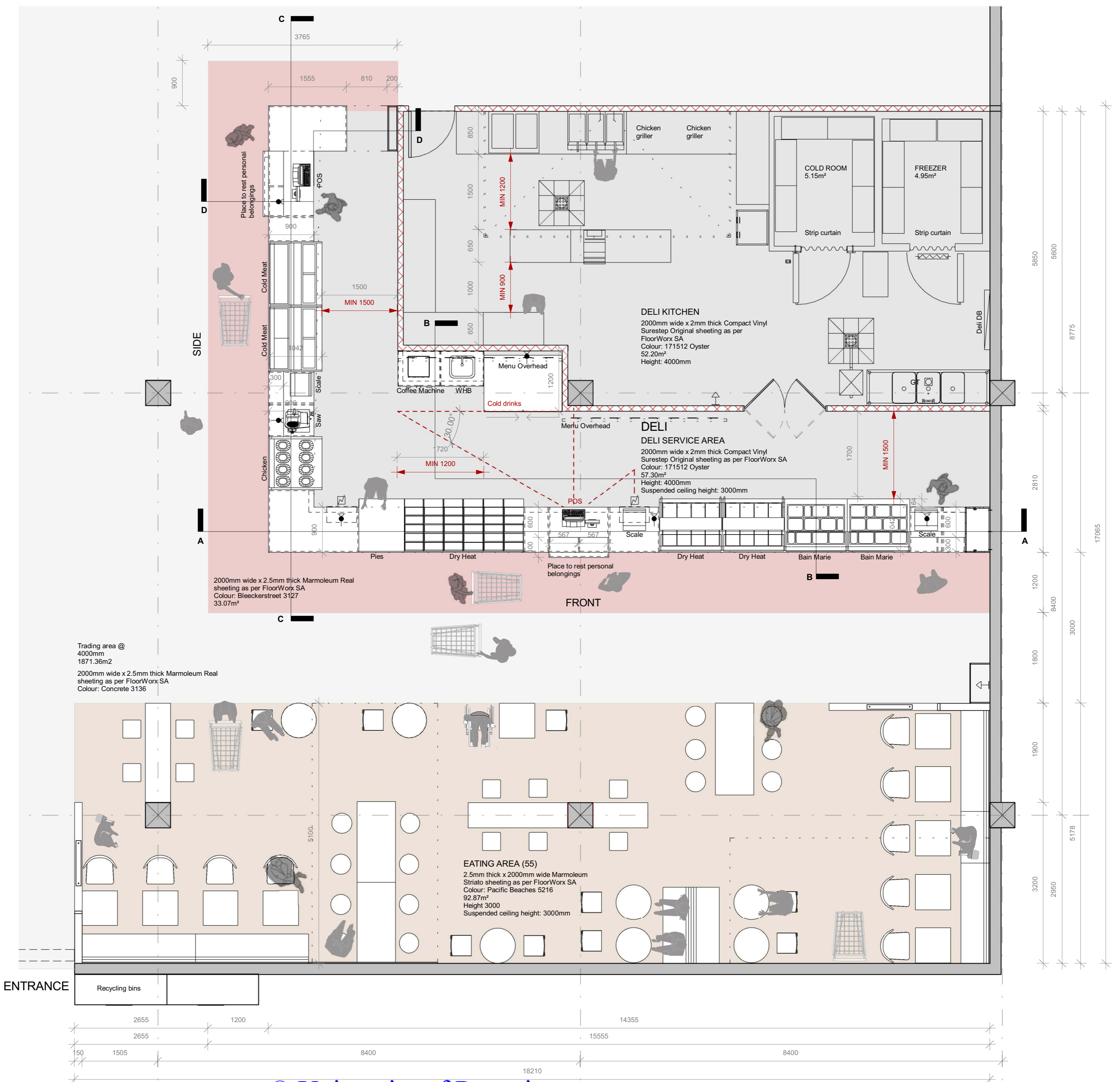
Figure 5.4.1.1: Deli Perspective (Author 2015)



KEY PLAN

LEGEND	
FLOOR FINISH [pattern allows less dirt to show]	
	Floor around Deli 2000mm wide x 2.5mm thick Marmoleum Real sheeting as per FloorWorx SA Colour: Bleeckstreet 3127
	Sales floor 2000mm wide x 2.5mm thick Marmoleum Real sheeting as per FloorWorx SA Colour: Concrete 3136
	Service area & kitchen 2000mm wide x 2mm thick Compact Vinyl Surestep Original sheeting as per FloorWorx SA Colour: 171512 Oyster
	Eating Area 2.5mm thick x 2000mm wide Marmoleum Striato sheeting as per FloorWorx SA Colour: Pacific Beaches 5216
ELECTRICAL, FIRE FIGHTING & DRAINAGE	
	SWITCH SOCKET OUTLET
	MICROWAVE OVEN
	FIRE EXTINGUISHERS
	GREASE TRAP

ADAPTABLE DESIGN LEGEND	
MAX DIMENSIONS [4500m ² STORE]	
MIN DIMENSIONS [2500m ² STORE] / CRUCIAL RELATIONSHIPS INDICATED	
Calculation: Max 4500 ÷ Min 2500 = 1.8 Max dimensions ÷ 1.8 = Min dimension Answer rounded off to nearest 100mm	



5.4.1.3 Deli Lighting Guidelines

* Kindly refer to Appendix D - Deli Ceiling Plan on page 70 to see how the guidelines are illustrated in an example.

TABLE 5.4.1.3a: AVERAGE ILLUMINATION CALCULATION
(Bean 2004:284-289)

ZONE 1: KITCHEN.....
KITCHEN AREA
Manufacturing of delicatessen foods, kitchens Em, **min. 500 lx** (SABS 10114-1:2005, Table 1)
[Maxos LED 4MX850]: 48W; 6600lm
Width: 5.85m
Height above horizontal working plane: (4000-850) = 3.15m
Total area: 52.2m²
 $RI = W/2H = 5.85/2(3.15) = 5.85/6.3 = 0.93$
 $UF = 0.32$
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.8 \times 1 \times 0.82 \times 0.98 = 0.64$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 1 \times 6600 \times 0.35 \times 0.64 / 52.2 = 28.32 \text{ lx per LED}$
500 lx required / 28.32 lx per LED = **18 LED's required**

[FOR COMPARATIVE PURPOSES]
Standard T8 Fluorescent 32W; 2850lm
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.84 \times 0.75 \times 0.82 \times 0.98 = 0.51$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 1 \times 2850 \times 0.35 \times 0.51 / 52.2 = 9.75 \text{ lux per lamp / luminaire}$
500lux required / 9.75lux per lamp = **51.28 = 51 lamps required**

• 33 LESS LAMPS REQUIRED THEN WHEN TYPICAL T8 IS USED
COLD ROOM
Chilling and cold rooms, ice-making Em, **min. 200 lx** (SABS 10114-1:2005, Table 1)
[Maxos LED 4MX850]: 48W; 6600lm
Width: 2m
Height above horizontal working plane: (3000-850) = 2.15m
Total area: 5.15m²
 $RI = W/2H = 2/2(2.15) = 2/4.3 = 0.47$
 $UF = 0.31$
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.8 \times 1 \times 0.82 \times 0.97 = 0.64$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 1 \times 6600 \times 0.31 \times 0.64 / 5.15 = 254.26 \text{ lx per LED} = 1 \text{ LED required}$

FREEZER
Chilling and cold rooms, ice-making Em, **min. 200 lx** (SABS 10114-1:2005, Table 1)
[Maxos LED 4MX850]: 48W; 6600lm
Width: 2m
Height above horizontal working plane: (3000-850) = 2.15m
Total area: 4.95m²
 $RI = W/2H = 2/2(2.15) = 2/4.3 = 0.47$
 $UF = 0.31$
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.8 \times 1 \times 0.82 \times 0.97 = 0.64$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 1 \times 6600 \times 0.31 \times 0.64 / 4.95 = 264.53 \text{ lx per LED} = 1 \text{ LED required}$

ZONE 2: SALES FLOOR.....
Sales areas (large) Em, **min. 500 lx** (SABS 10114-1:2005, Table 1)
GENERAL LIGHTING
[LuxSpace Accent Performance, fixed version, RS751B, LED 39S]: 35W; 3500lm
Width: 12.79m
Height above horizontal working plane: (4000-900) = 3.1m
Total area: 118.02m²
 $RI = W/2H = 12.79/2(3.1) = 12.79/6.2 = 2.06$
 $UF = 0.42$
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.9 \times 1 \times 0.82 \times 0.98 = 0.72$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 1 \times 3500 \times 0.42 \times 0.72 / 118.02 = 8.97 \text{ lx per LED}$

ACCENT LIGHTING (MENU'S & ADVERTISEMENTS) - 4 x menu's & 2 x advertisements = 6 LED's required
[LuxSpace Accent Performance, adjustable version, RS751B, LED 39S]: 35W; 3500lm
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.9 \times 1 \times 0.82 \times 0.98 = 0.72$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 6 \times 3500 \times 0.42 \times 0.72 / 118.02 = 53.81 \text{ lx for the 6 LED's}$

PROJECTORS (FOOD DISPLAYS) 12 LED's required
[StylID Fresh Food, Performance 3C-track version, LED26S, light source colour Fresh Food Meat (FMT)]: 47W; 2600lm
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.7 \times 1 \times 0.82 \times 0.98 = 0.56$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 12 \times 2600 \times 0.42 \times 0.56 / 118.02 = 62.18 \text{ lx for the 12 LED's}$

PENDANT LIGHTING 10 LED lamps required
[MASTER LEDbulb]: 7W; 470lm
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.7 \times 1 \times 0.82 \times 0.98 = 0.56$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 10 \times 470 \times 0.42 \times 0.56 / 118.02 = 9.37 \text{ lx for the 10 lamps}$

500 lx required - 53.81 lx (ACCENT LIGHTING) - 62.18 lx (PROJECTORS) - 9.37 lx (PENDANT LIGHTING) = 374.64 lx left to obtain
374.64 lx / 8.97 lx per LED (GENERAL LIGHTING) = **42 LED's required for GENERAL LIGHTING**

ZONE 3: EATING AREA.....
Restaurant, dining room, function room, bars Em, **min 200 lx** (SABS 10114-1:2005, Table 1)
GENERAL LIGHTING
[LuxSpace Compact Power BBS49S (UGR19 version)]: 30W; 2660lm
Width: 5.1m
Height above horizontal working plane: (4000-850) = 3.15m
Total area: 92.87m²
 $RI = W/2H = 5.1/2(3.15) = 5.1/6.3 = .81$
 $UF = 0.3$
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.7 \times 1 \times 0.82 \times 0.98 = 0.56$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 1 \times 2660 \times 0.3 \times 0.56 / 92.87 = 4.81 \text{ lx per LED}$

ACCENT LIGHTING (ADVERTISEMENTS) 2 LED's required
[LuxSpace Accent Performance, adjustable version, RS751B, LED 39S]: 35W; 3500lm
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.9 \times 1 \times 0.82 \times 0.98 = 0.72$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 2 \times 3500 \times 0.3 \times 0.72 / 92.87 = 16.28 \text{ lx for the 2 lamps}$

PENDANT LIGHTING 6 fluorescent lamps required
[T5 Fluorescent Circular Lamp]: 22W; 1800lm
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.84 \times 1 \times 0.75 \times 0.98 = 0.51$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 6 \times 1800 \times 0.3 \times 0.51 / 92.87 = 17.79 \text{ lx for the 6 lamps}$

PENDANT LIGHTING 6 LED lamps required
[MASTER LEDbulb]: 7W; 470lm
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.7 \times 1 \times 0.82 \times 0.98 = 0.56$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 6 \times 470 \times 0.3 \times 0.56 / 92.87 = 5.10 \text{ lx for the 6 lamps}$

200 lx required - 16.28 lx (ACCENT LIGHTING) - 17.79 lx (PENDANT LIGHTING) - 5.10 lx (PENDANT LIGHTING) = 160.83 lx left to obtain
160.83 lx / 4.81 lx per LED (GENERAL LIGHTING) = **33 LED's required for GENERAL LIGHTING**

ACCENT LIGHTING (ADVERTISEMENTS) 2 LED's required
[LuxSpace Accent Performance, adjustable version, RS751B, LED 39S]: 35W; 3500lm
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.9 \times 1 \times 0.82 \times 0.98 = 0.72$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 2 \times 3500 \times 0.3 \times 0.72 / 92.87 = 16.28 \text{ lx for the 2 lamps}$

PENDANT LIGHTING 6 LED lamps required
[MASTER LEDbulb]: 7W; 470lm
 $MF = LLMF \times LSF \times LMF \times RSMF = 0.7 \times 1 \times 0.82 \times 0.98 = 0.56$
 $Eav = n \times FL (lm) \times UF \times MF / Awp = 6 \times 470 \times 0.3 \times 0.56 / 92.87 = 5.10 \text{ lx for the 6 lamps}$

200 lx required - 16.28 lx (ACCENT LIGHTING) - 17.79 lx (PENDANT LIGHTING) - 5.10 lx (PENDANT LIGHTING) = 160.83 lx left to obtain
160.83 lx / 4.81 lx per LED (GENERAL LIGHTING) = **33 LED's required for GENERAL LIGHTING**

LIGHT COLOUR OPTIONS TO ENHANCE MERCHANDISE

Philips has developed a complete LED portfolio for fresh food

	Complete LED portfolio for fresh food			
	LED Rose	LED Authentic White	LED Champagne	LED Frolic White
Meat				
Fruit and vegetables				
Cheese				
Bread and pastries				
Fish				

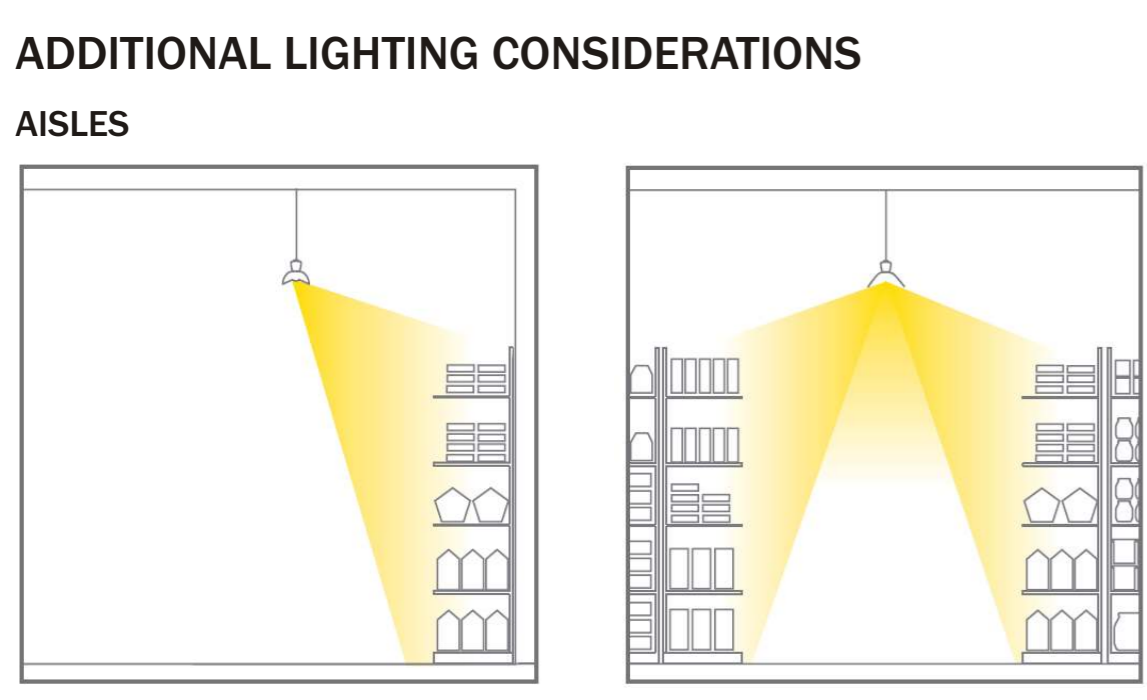
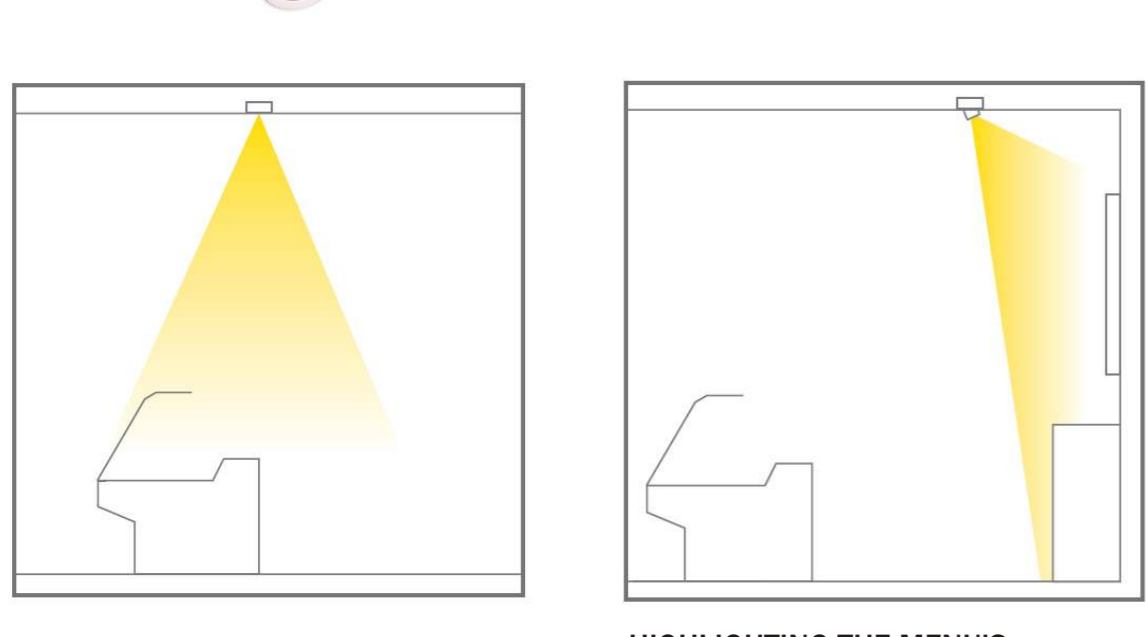
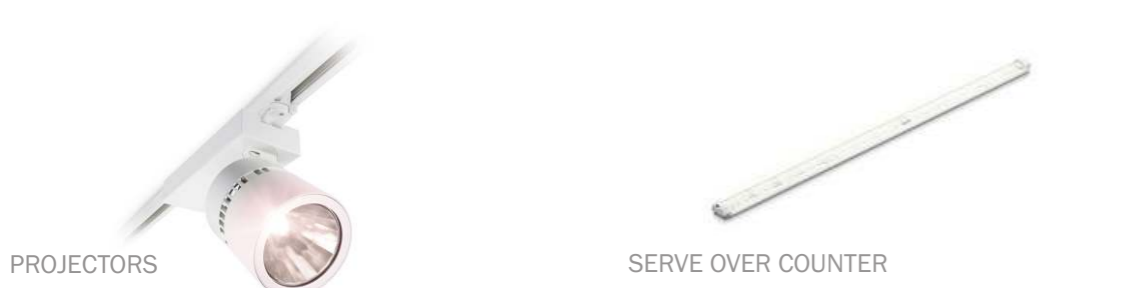
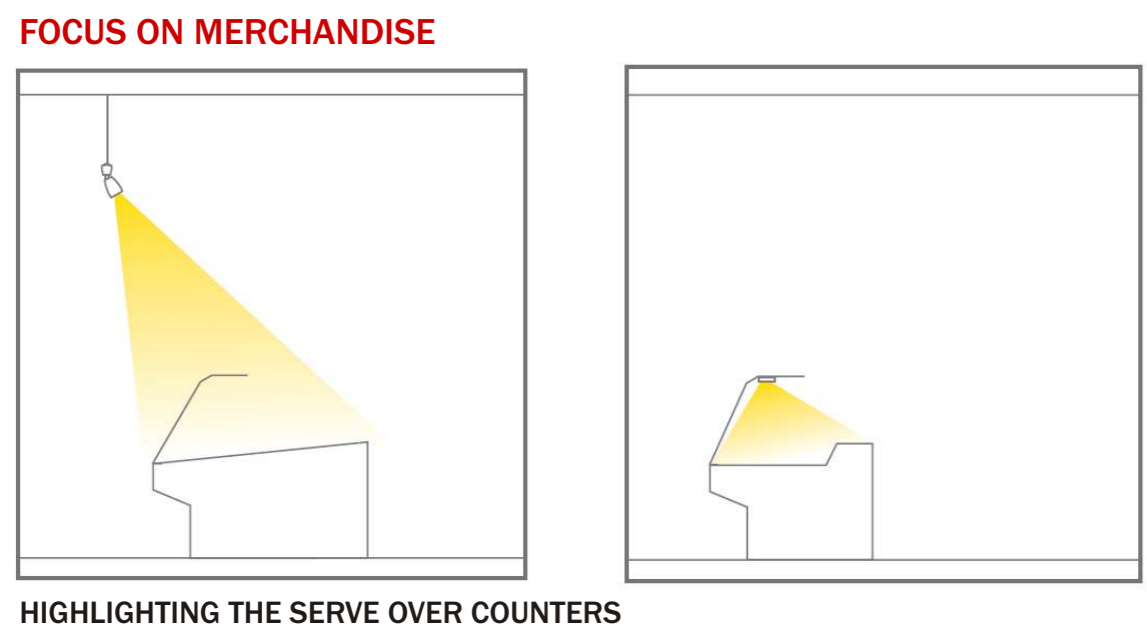
Authentic white light highlights colour of merchandise in Deli counters

TABLE 5.4.1.3b: LIGHTING LEGEND

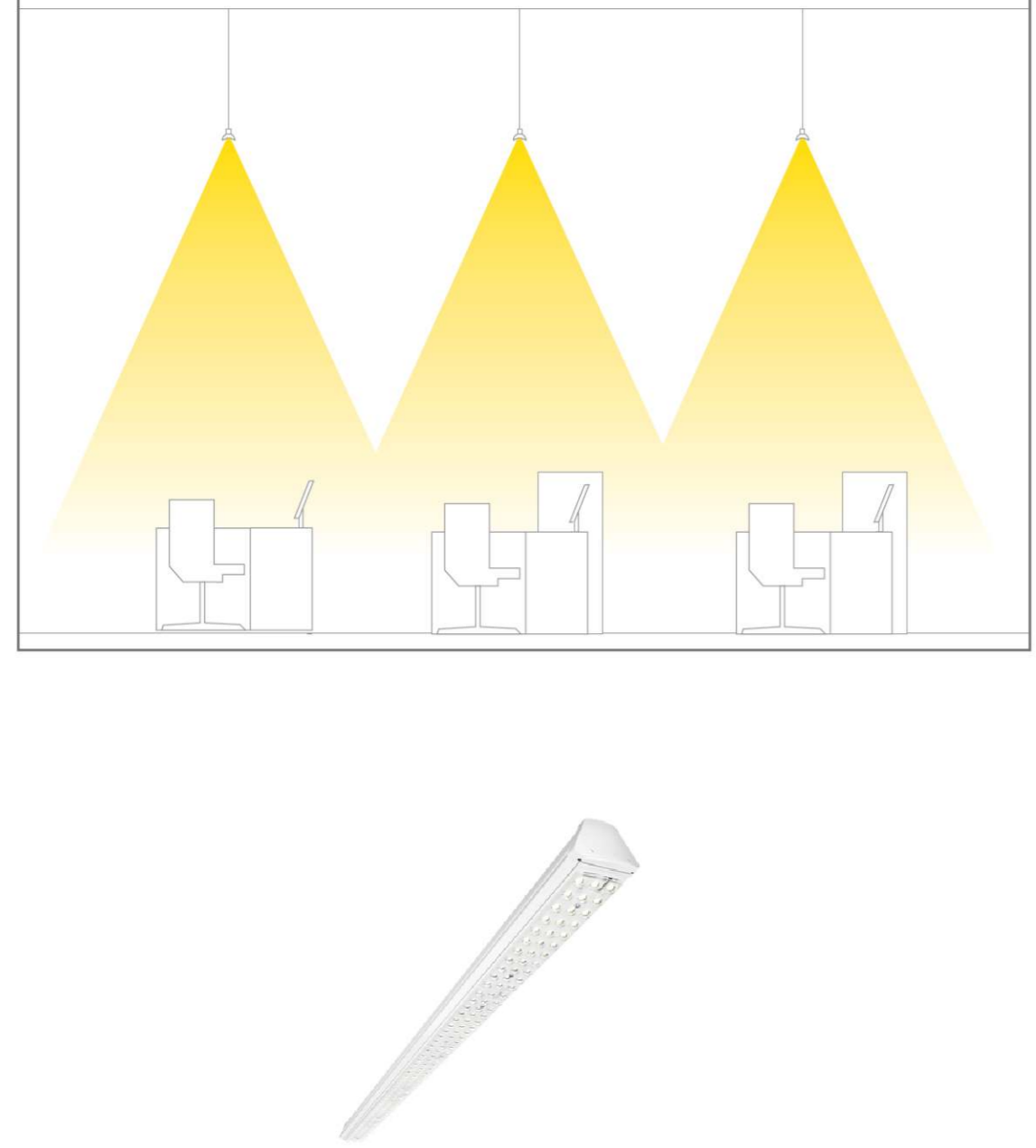
SYMBOL	LUMINAIRE SPECIFICATIONS	LAMP SPECIFICATIONS	QUANTITY (luminaire x lamp)	LUMINOUS FLUX (lumen per lamp)	TOTAL LOAD (watt)	TOTAL LUMINOUS FLUX (lumen)	EFFICACY (lumen/watt)
ZONE 1: BACK OF HOUSE							
	KITCHEN (3x LED), COLD ROOM (1x LED) & FREEZER (1x LED)	[Maxos LED 4MX850] by Philips, SA 1500 x 63 Surface mounted LED; White (WH) sheet metal Power: 48W; Luminous flux: 6600lm; Correlated colour temperature: 4000K Light colour: Natural White; CRI: 90; Colour Rendering Index: 90; Median useful life: 70 000hr; Average ambient temperature: 25°C; Beam angle: 2 x 50° (wide beam)	20	6600	960 W	132 000 lm	138 lm/W
TOTAL			20	6600	960 W	132 000 lm	138 lm/W
ZONE 2: SALES FLOOR							
	KITCHEN, COLD ROOM & FREEZER	Standard T8 Fluorescent by Philips, SA (for comparative purposes) Power: 32W; Initial lumens: 2850lm; Colour temperature 3000K; Median useful life: 29 000hr	51	2850 lm	1632 W	145 350 lm	89 lm/W
GENERAL LIGHTING							
	[LuxSpace Accent Performance, fixed version, RS751B, LED 39S] by Philips, SA 1680 Adjustable surface mounted LED; White (WH) Power: 35 W; Luminous flux: 3500 lm; Correlated colour temperature: 3000K Light colour: Warm white; Colour Rendering Index: 90; Median useful life: 70 000hr; Average ambient temperature: 25°C; Beam angle: 60°		42	3500 lm	1470 W	147 000 lm	100 lm/W
	ACCENT LIGHTING (MENU'S & ADVERTISEMENTS)	[LuxSpace Accent Performance, adjustable version, RS751B, LED 39S] by Philips, SA 1680 Adjustable surface mounted LED; White (WH) Power: 35 W; Luminous flux: 3500 lm; Correlated colour temperature: 3000K Light colour: Warm white; Colour Rendering Index: 90; Median useful life: 70 000hr; Average ambient temperature: 25°C; Beam angle: 60°	6	3500 lm	210 W	21 000 lm	100 lm/W
	PROJECTORS (FOOD DISPLAYS)	[StylID Fresh Food, Performance 3C-track version, LED26S, light source colour Fresh Food Meat (FMT)] by Philips, SA 1190 LED track light; White (WH) Power: 47 W (LED26S, light colour FMT); Luminous flux: 2600; Correlated colour temperature: 3000K; Light colour: Warm white; Colour Rendering Index: 90; Median useful life: 70 000hr; Average ambient temperature: 25°C; Beam angle: 60°	12	2600 lm	564 W	31 200 lm	55 lm/W
	PENDANT LIGHTING	[MASTER LEDbulb] by Philips, SA Power: 7W (Wattage Equivalent: 40 W) Luminous flux: 470lm LLMF - end nominal lifetime 70 % Correlated colour temperature: 2700K Light colour: Warm white Colour Rendering Index: 80 Median useful life: 70 000hr Average ambient temperature: 25°C	10	470 lm	70 W	47 000 lm	67 lm/W
TOTAL			70	2314 W	20 390 lm	322 lm/W	
ZONE 3: EATING AREA							
	EQUIPMENT LIGHTING	[Affinium LED Display Module LDM 400 for refrigerated display cases, Value Plus] by Philips, SA 1200 long Power: 8W Illuminance: 760 lux LLMF - end nominal lifetime 70 % Lumen maintenance Correlated colour temperature: 6600K Light colour: Cool white Colour Rendering Index: 75 Median useful life: 60 000hr Operating temperature: min -30°C/max 30°C Beam angle: 15° • Suitable for vertical full-height glass-door freezers/coolers • Energy saving up to 80%	1	8 W	-	-	-
	2x COOLERS (COLD MEAT) 1290mm	[Affinium LED display modules 424 Well and serve-over] by Philips, SA 1150 long Power: 18 W Illuminance: 750 lux Light colour: LED ROSE Colour Rendering Index: 75 Median useful life: 60 000hr Operating temperature: min -30°C/max 30°C Beam angle: 130° • Energy saving up to 80%	2	30 W	-	-	-
	1x DRY HEAT (CHICKEN) 1060mm	[Affinium LED display modules 422 Canopies, Value-plus] by Philips, SA 850 long Power: 18 W Illuminance: 750 lux Light colour: LED AUTHENTIC WHITE Colour Rendering Index: 70 Median useful life: 60 000hr Operating temperature: min -30°C/max 30°C Beam angle: 60° • Energy saving up to 50%	1	18 W	-	-	-
	1x DRY HEAT (PIES) 900mm (850)	[Affinium LED display modules 422 Canopies, Value-plus] by Philips, SA 850 long Power: 18 W Illuminance: 750 lux Light colour: LED AUTHENTIC WHITE Colour Rendering Index: 70 Median useful life: 60 000hr Operating temperature: min -30°C/max 30°C Beam angle: 60° • Energy saving up to 50%	1	18 W	-	-	-
	1x DRY HEAT (SANDWICHES, HOTDOGS ETC) 2383mm (2x50)	[Affinium LED display modules 422 Canopies, Value-plus] by Philips, SA 4 x 1200 Power: 18 W Illuminance: 750 lux Light colour: LED ROSE Colour Rendering Index: 70 Median useful life: 60 000hr Operating temperature: min -30°C/max 30°C Beam angle: 60° • Energy saving up to 50%	8	144 W	-	-	-
	2x BAIN MARIE (MEAT, STARCH, VEG, CHEESE) 1240mm (1200)	[Affinium LED display modules 422 Canopies, Value-plus] by Philips, SA 4 x 1200 Power: 18 W Illuminance: 750 lux Light colour: LED ROSE Colour Rendering Index: 70 Median useful life: 60 000hr Operating temperature: min -30°C/max 30°C Beam angle: 60° • Energy saving up to 50%	2	36 W	-	-	-
	LED AUTHENTIC WHITE: Natural display, slightly enhancing the red	Natural display, slightly enhancing the red	6	470 lm	102 W	2820 lm	67 lm/W
	LED ROSE: Extra red enhancement	Extra red enhancement	6	470 lm	102 W	2820 lm	67 lm/W
	LED CHAMPAGNE: Yellow enhancement	Yellow enhancement	6	470 lm	102 W	2820 lm	67 lm/W
	LED FROLIC WHITE: Cool enhancing the sparkle on ice	Cool enhancing the sparkle on ice	6	470 lm	102 W	2820 lm	67 lm/W
	ATMOSPHERIC LIGHTING (ABOVE SUSPENDED CEILING AND BELOW COUNTER)	[LightStrip Curve Colour] by Philips, SA 1600mm long Power: 0.06W x 60 bulbs in strip = 3.6 W	19	68.4 W	-	-	-
TOTAL			70	2314 W	20 390 lm	322 lm/W	
GRAND TOTAL (including equipment)			70	2314 W	20 390 lm	322 lm/W	



DIAGRAMS ILLUSTRATING LIGHTING STRATEGY FOR DELI



CHECKOUT AREA



AD UNIVERSITY OF PRETORIA
UNIBESITHI YA PRETORIA

MIN DIMENSIONS [2500⁺ STORE]

Calculation:
Max 4500 + Min 2000 = 1.8
Max dimension = 1.8 x Min dimension
Answer rounded off to nearest 100mm

- 1 Ceiling
1200 x 600 x 19mm thick ULTIMA+ 7653M - Board as per Amintoria SA
Light reflectance 87%
Sound absorption (NRC): 0.75; Sound Reduction Index 18dB
Sound attenuation 30dB
Thermal conductivity (K VALUE): 0.052W/mK
Fire reaction: EEA Euroclass A2-s1,0
- 2 Suspended ceiling
3660 x 1830 x 12mm - SuperWood as per PG Bison SA,
spray painted with Economical Contractors Paint
(ECP) as per ECPaint SA
Colour: Phazon Strawberry Daquiri 100
Finish: Matt
- 3 Signage
10mm thick Xanba board with
40mm thick spacer blocks, fixed
to melawood with slip in sign
board fix stud. Edged with triplex
white acid free board
- 4 Menu
10mm thick Xanba board with 100 radius
rounded corners, self-adhesive paper
edging & black TP12 Application Paper
for symbols as per Malsey SA, suspended
from 500 steel tubing with 146 x 650
stainless steel S hook
- 5 Drywall finish
302 x 150 White ceramic tiles as per
Union Tiles SA
- 6 Countertop
3660 x 1830 x 9 mm thick BisonBoard clad with 10mm
moulded Surimo as per PG Bison SA
Colour: Glacier White
- 7 Counter base
2600 x 1830 x 12mm thick BisonBoard with Formica HPL
finish as per PG Bison SA (BisonBoard carcass 18mm & front
panel 12mm)
Colour: Signa Red
Finish: Matt
- 8 3660 x 1830 x 12 mm thick BisonBoard with Formica HPL
finish as per PG Bison SA
Colour: Venza Oak
Finish: Matt
- 9 3660 x 1830 x 22 mm thick BisonBoard clad with 10mm
moulded Surimo as per PG Bison SA
Colour: Hot
- 10 Wall panel
3660 x 1830 x 12mm thick Melawood using BisonBoard
substrate as per PG Bison SA
1. Colour: Isberg White
Finish: Linear (a deep textured, straight wood grain)
2. Colour: Venza Oak
Finish: Peen (a textured, stippled finish)
- 11 Fresh Scent
Y6-B2-3
Economic Contractors Paint (acrylic) as per
ECPaint SA
Colour: Phazon Fresh Scent Y6-B2-3
Finish: Matt
- 12 Moth Mat
Y6-E2-3
Economic Contractors Paint (acrylic) as per
ECPaint SA
Colour: Phazon Moth Mat Y6-E2-3
Finish: Matt
- 13 Economic Contractors Paint (acrylic) as per
ECPaint SA
Colour: Phazon Chakabala R7-B1-2
Finish: Matt
- 14 Floor around Deli
2000mm wide x 2.5mm thick Marmoleum
Real flooring as per FloorWork SA
Colour: Bleedestreet 3127
- 15 Floor sales floor
2000mm wide x 2.5mm thick Marmoleum
Real flooring as per FloorWork SA
Colour: Concrete 3136
- 16 Floor Eating Area
2.5mm thick Marmoleum wide Marmoleum
Static bedding as per FloorWork SA
Colour: Pacific Beaches 5216

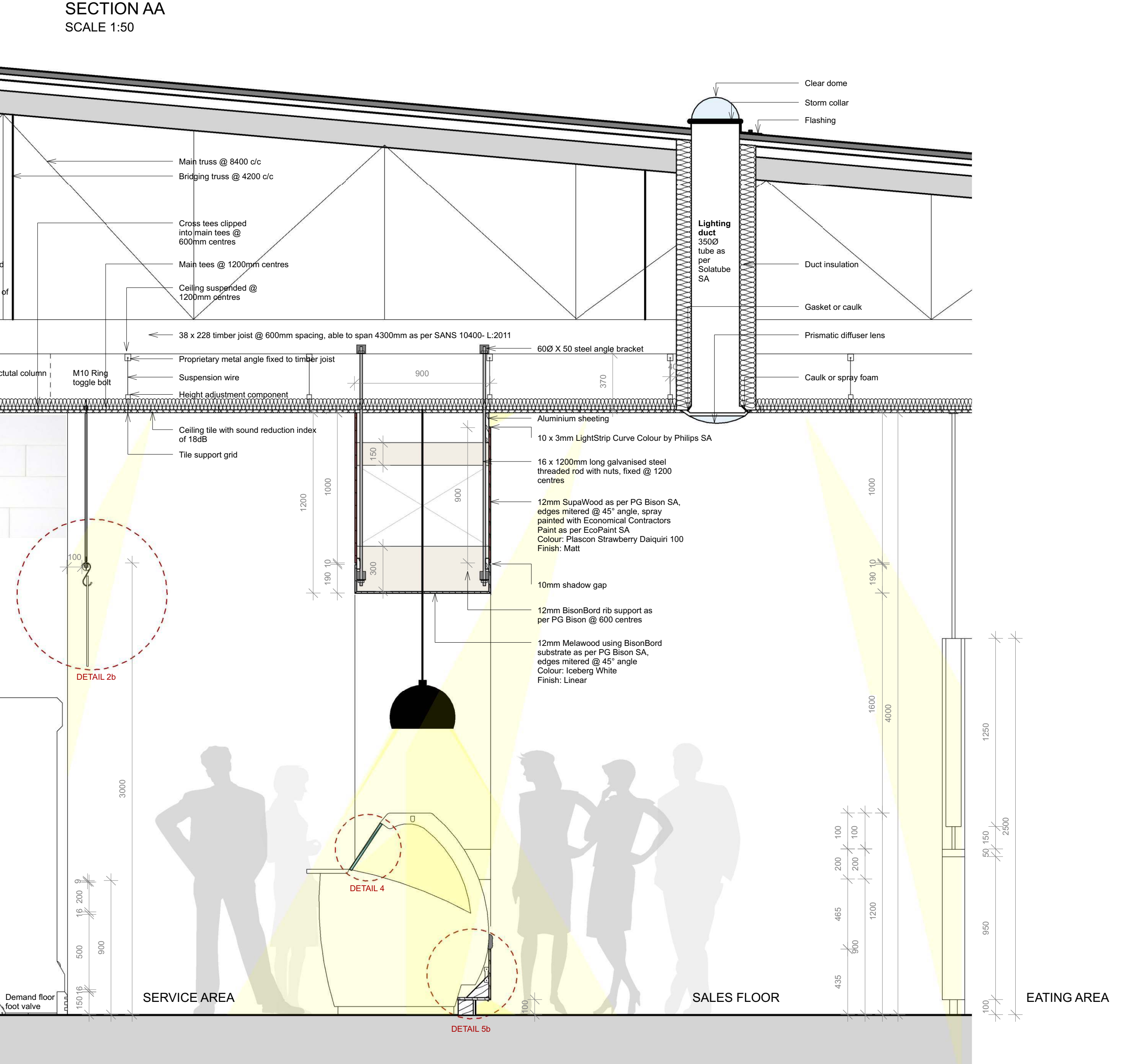
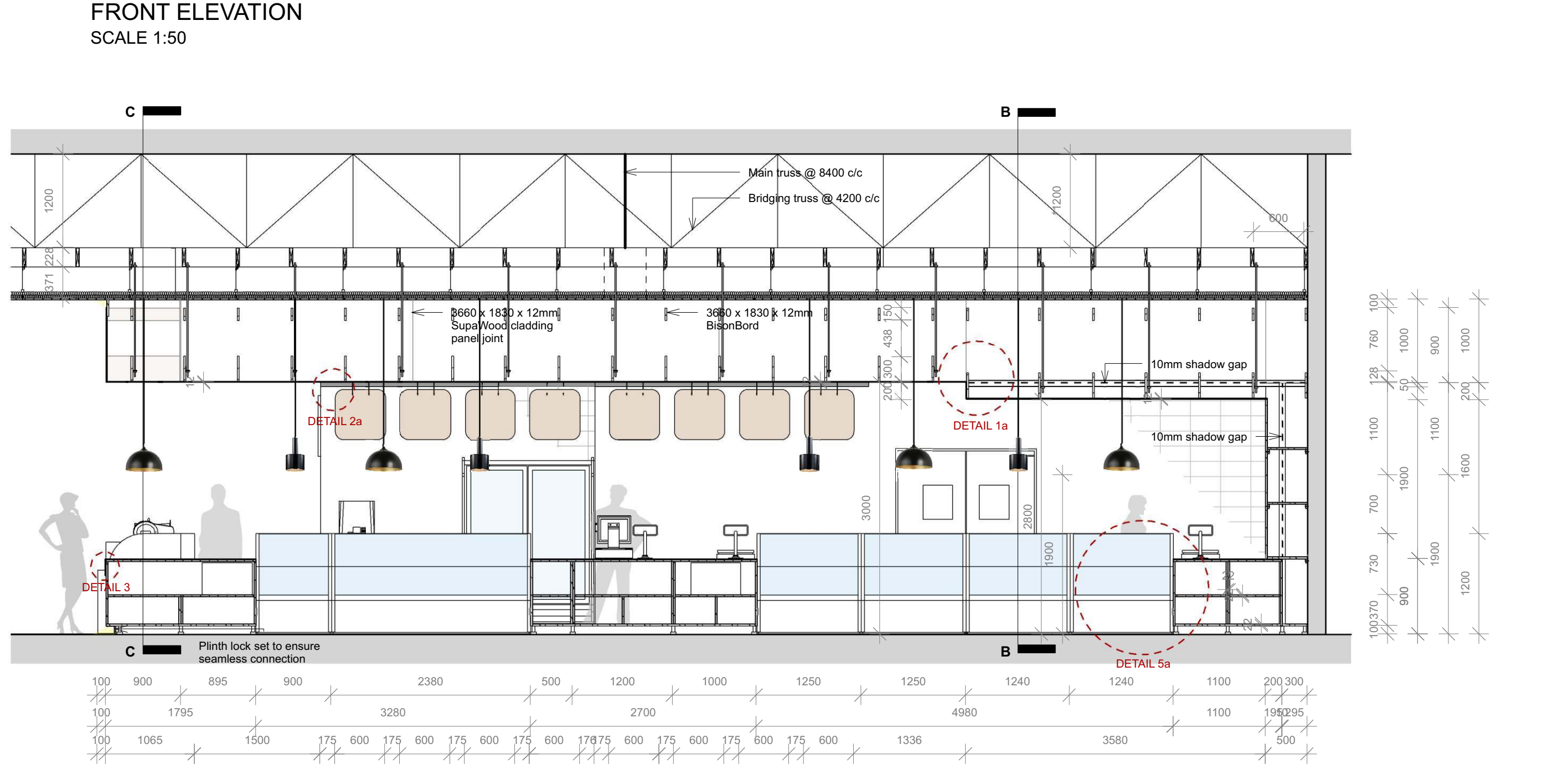
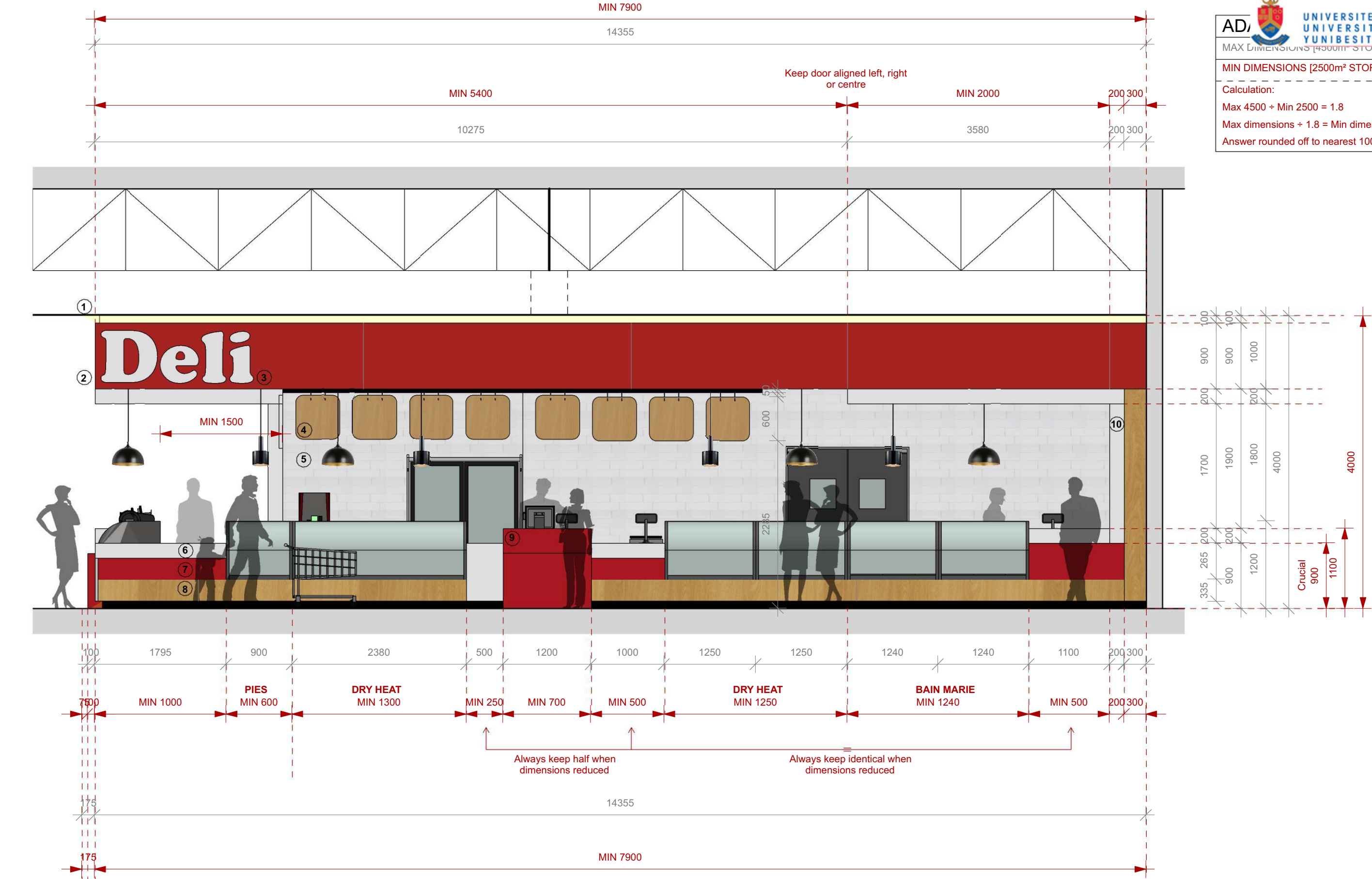
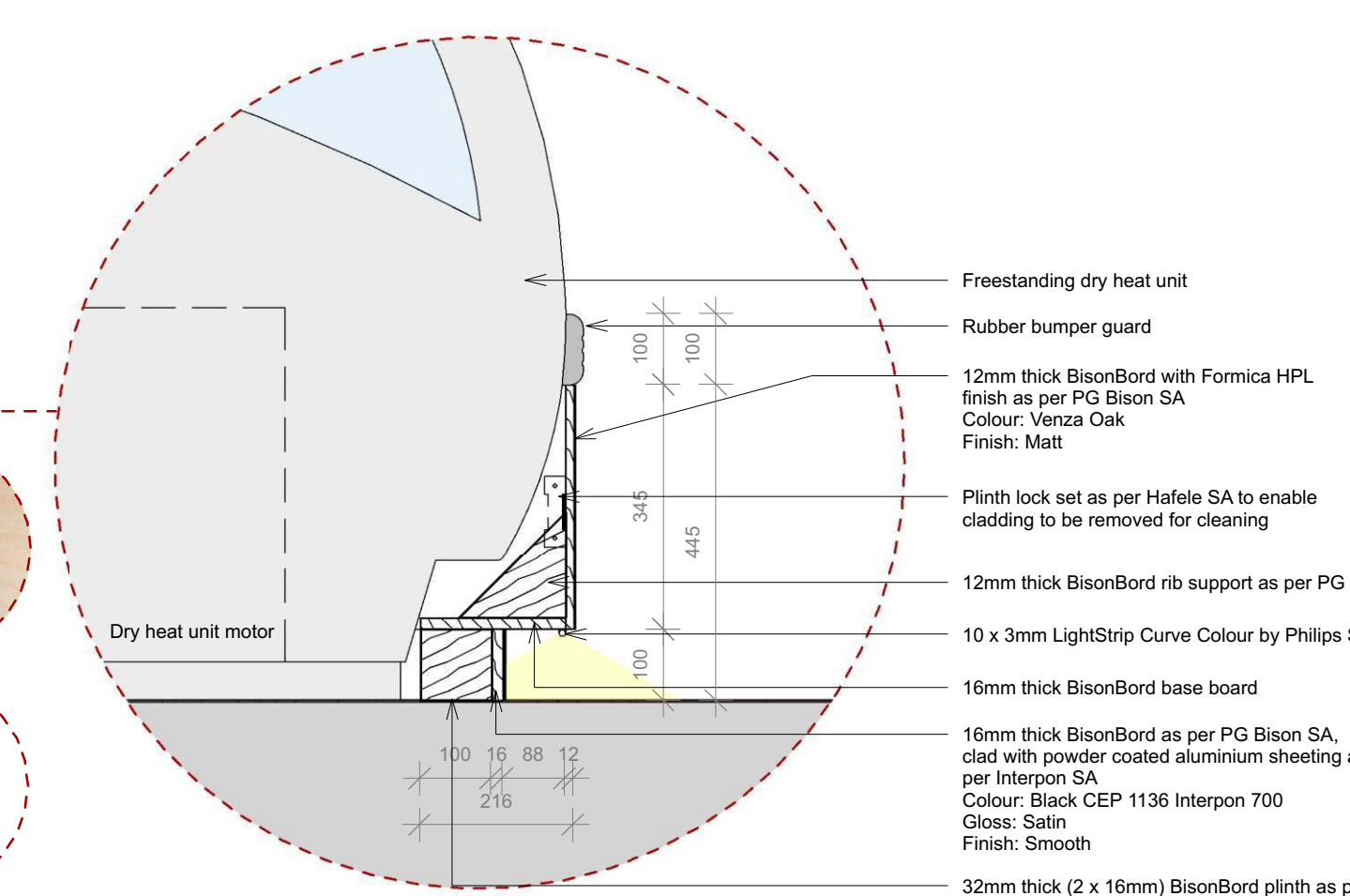
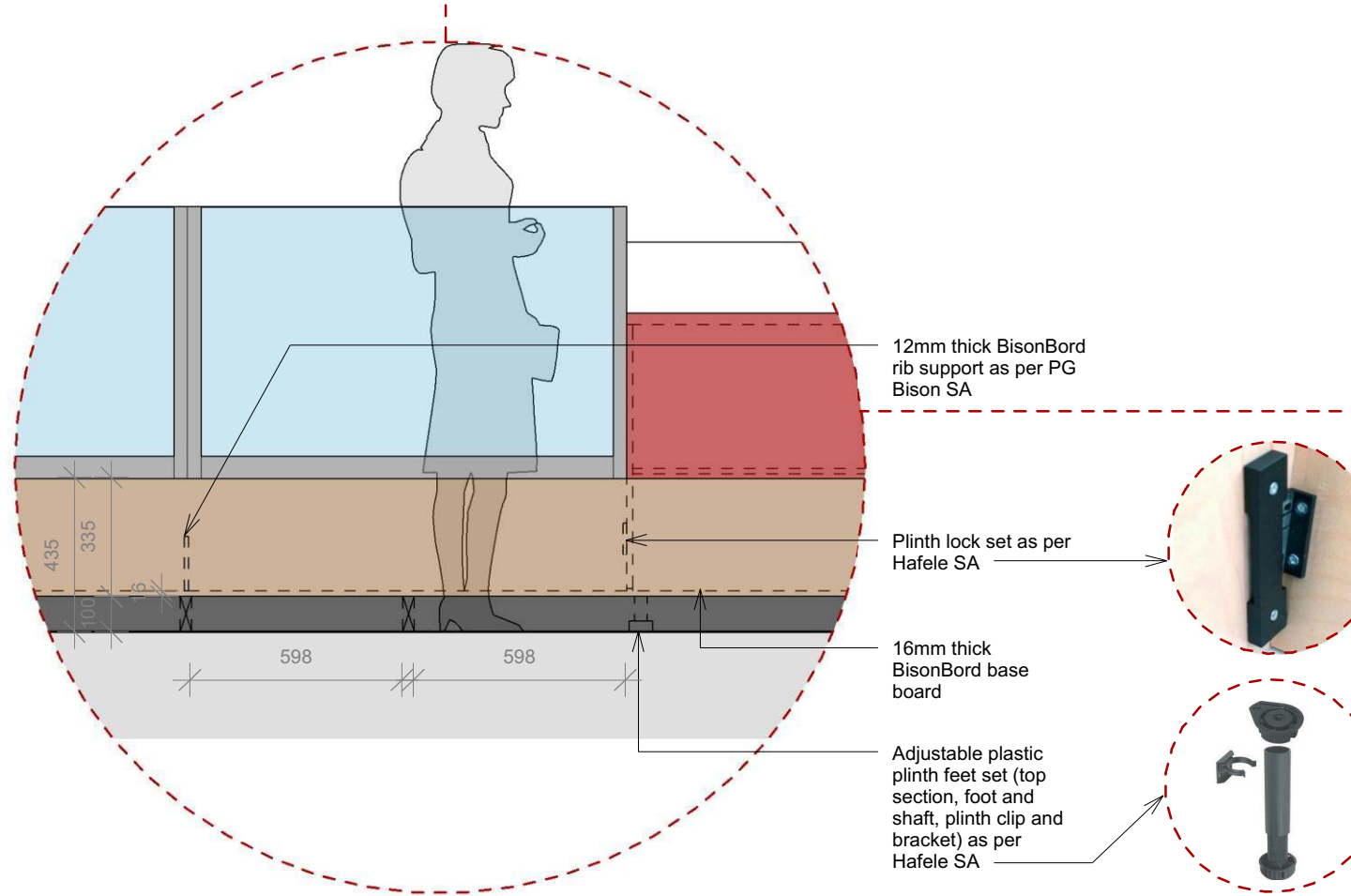
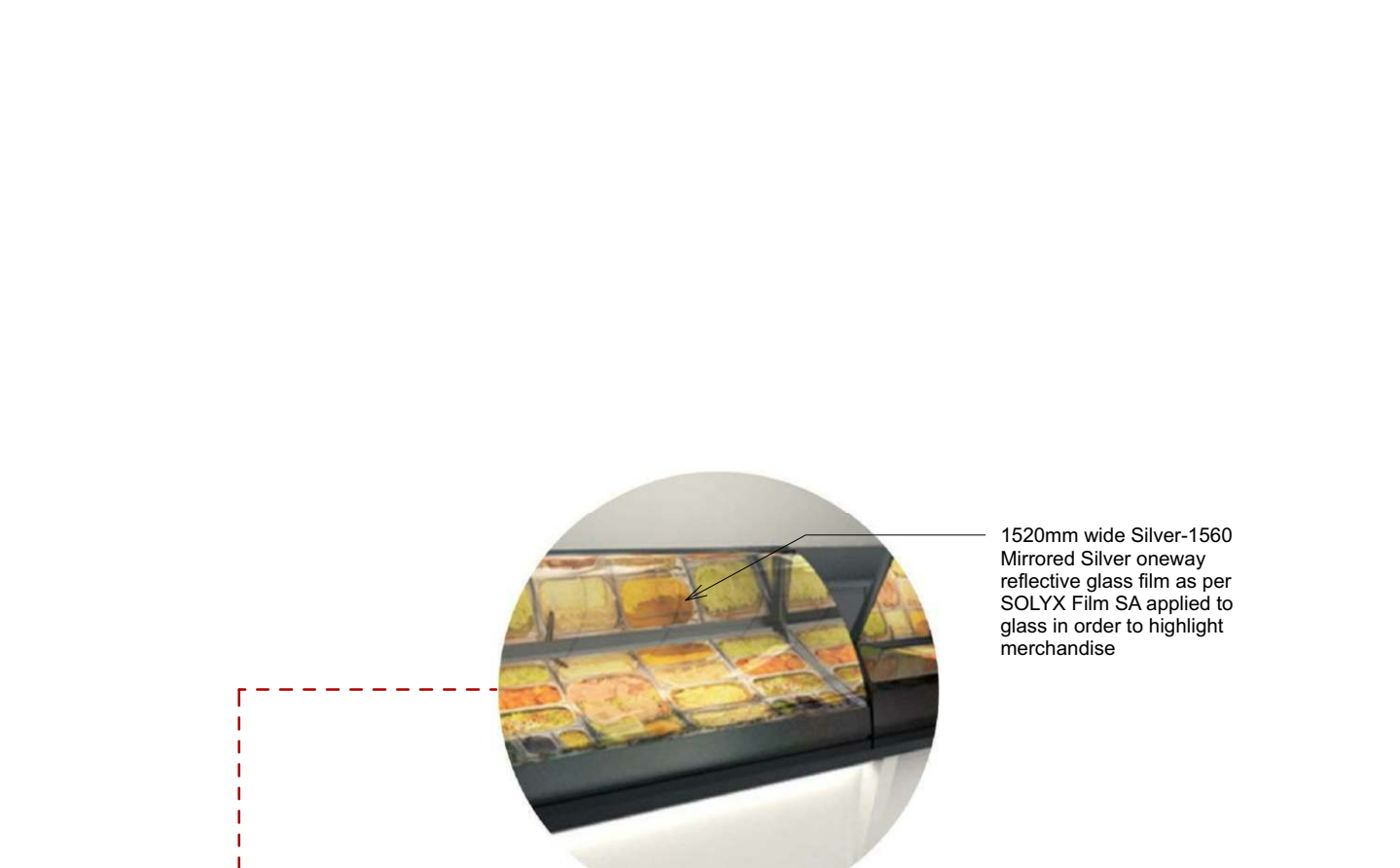
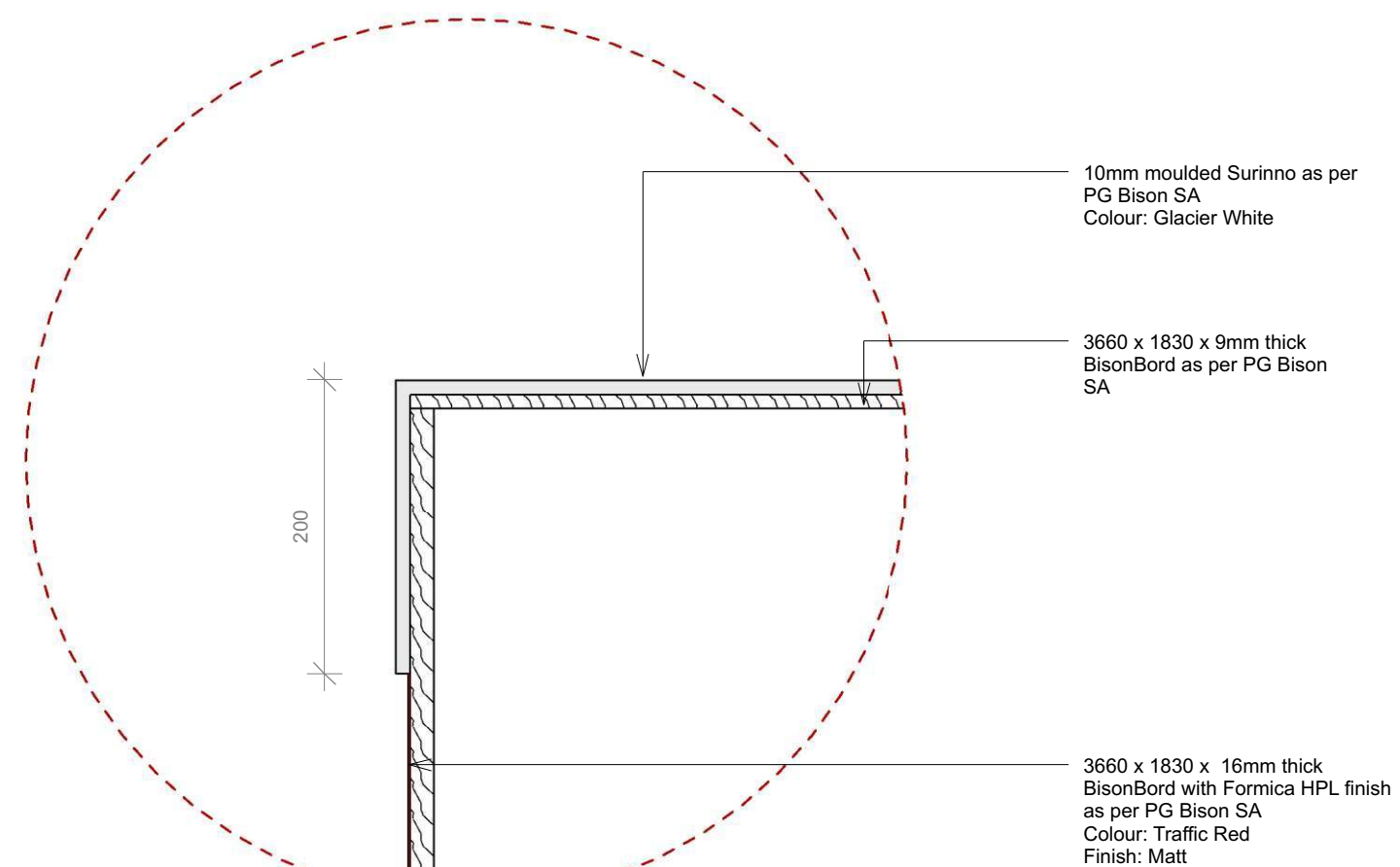
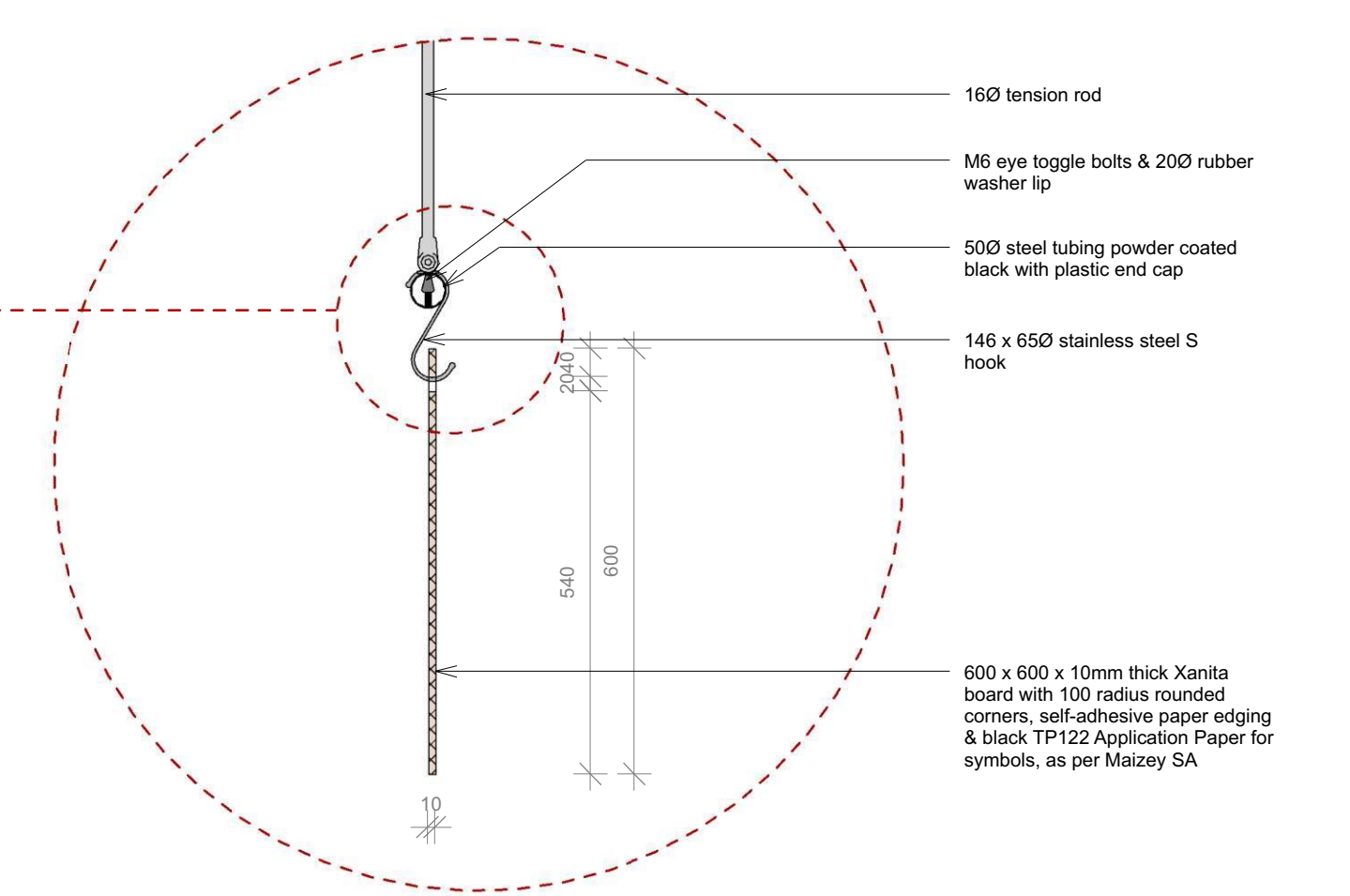
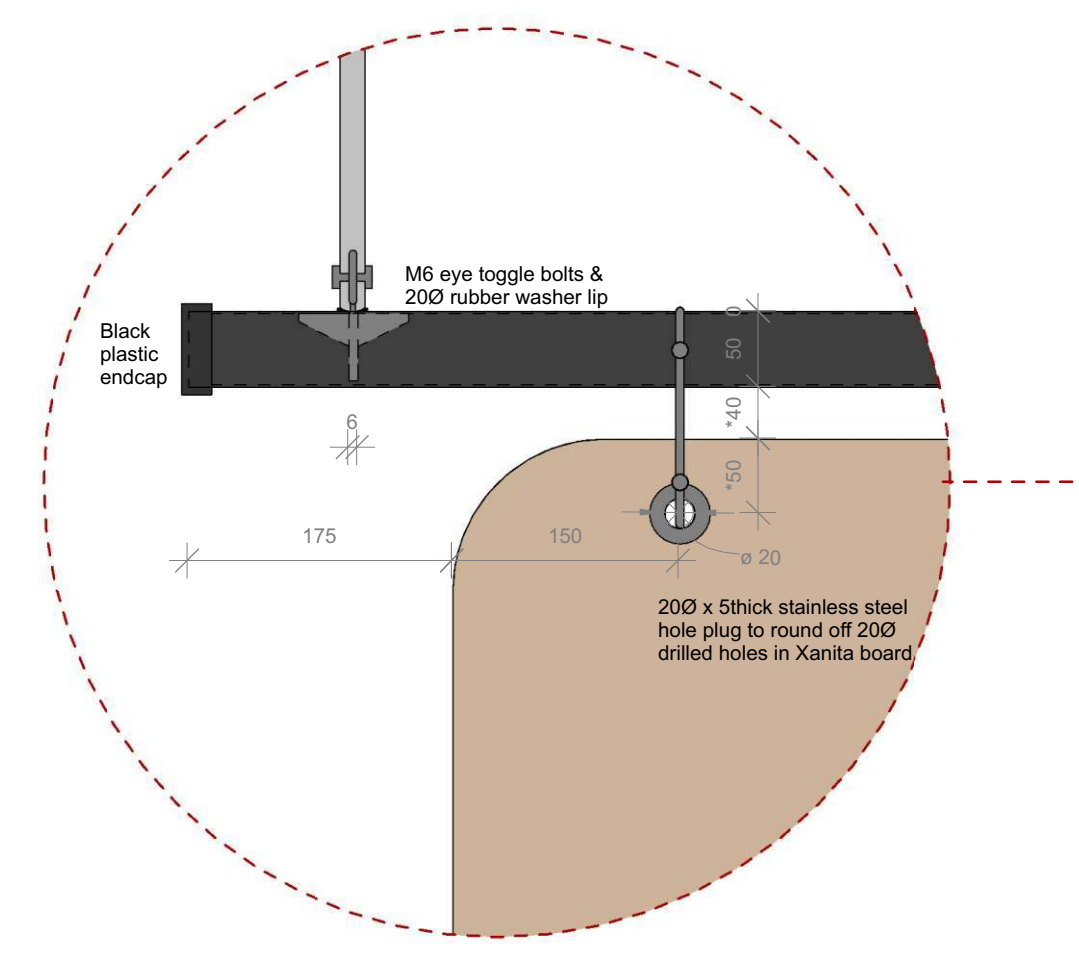
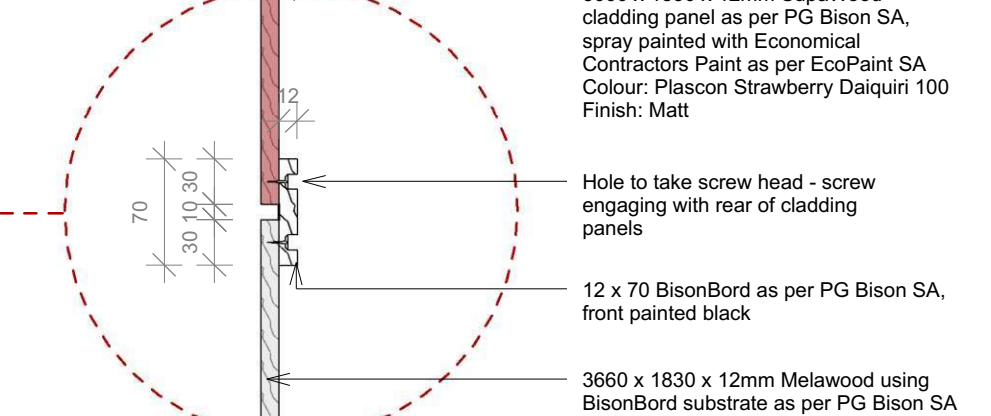
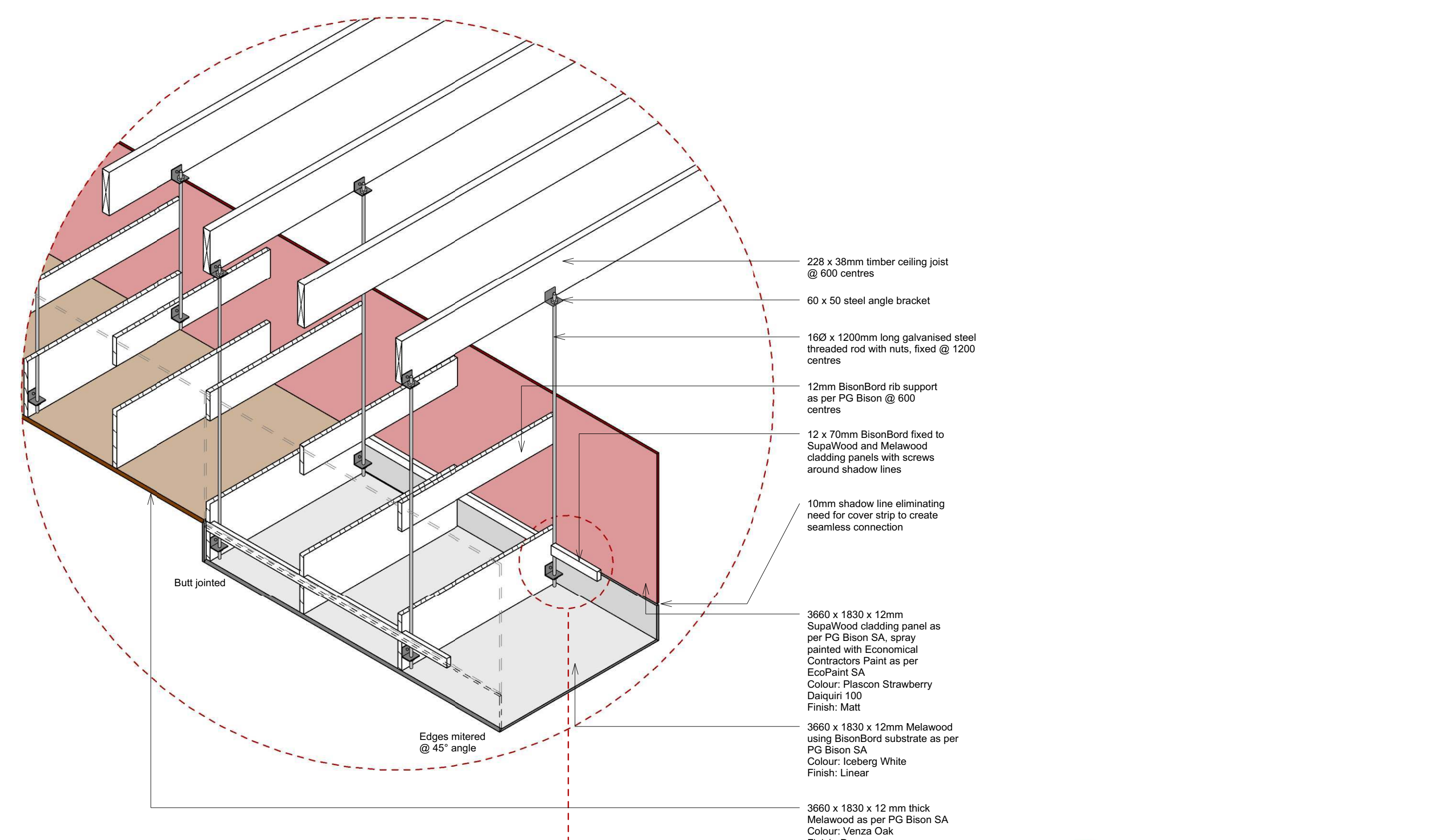


Figure 5.4.1.4: Deli Sections & Details
(Author 2015)



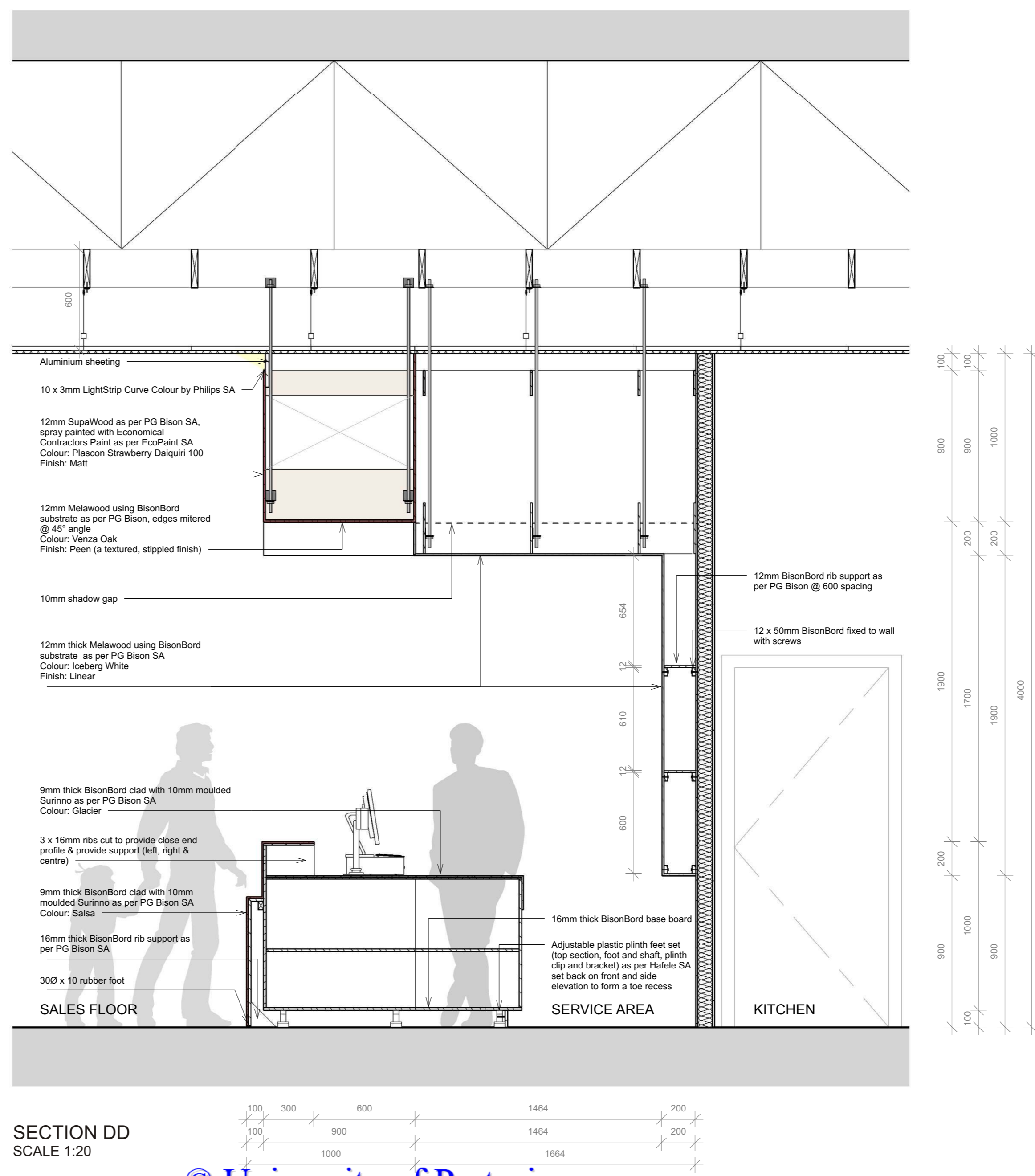
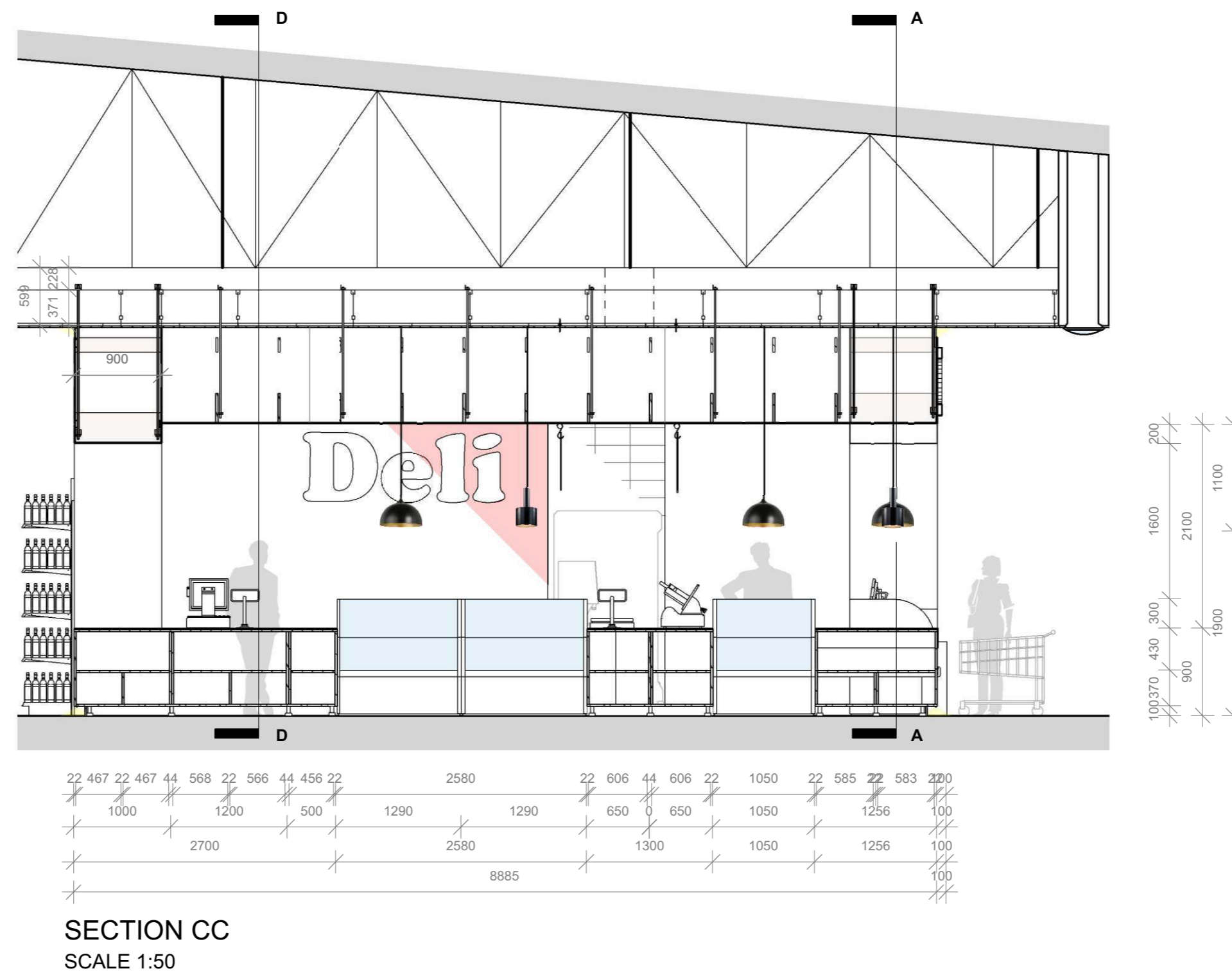
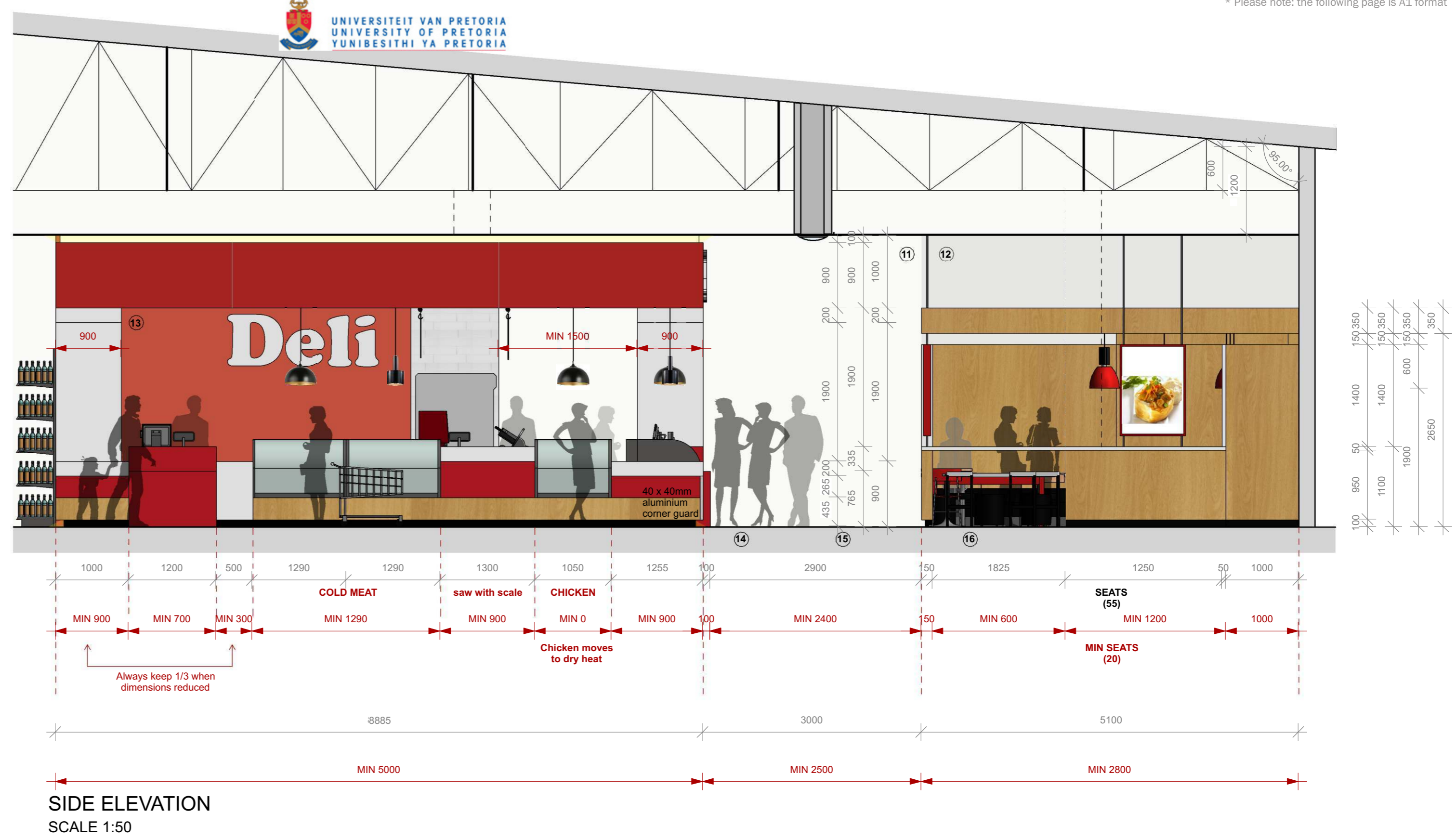


Figure 5.4.L5: Deli Sections Contin... © University of Pretoria (Author 2015)

5.4.2 BAKERY



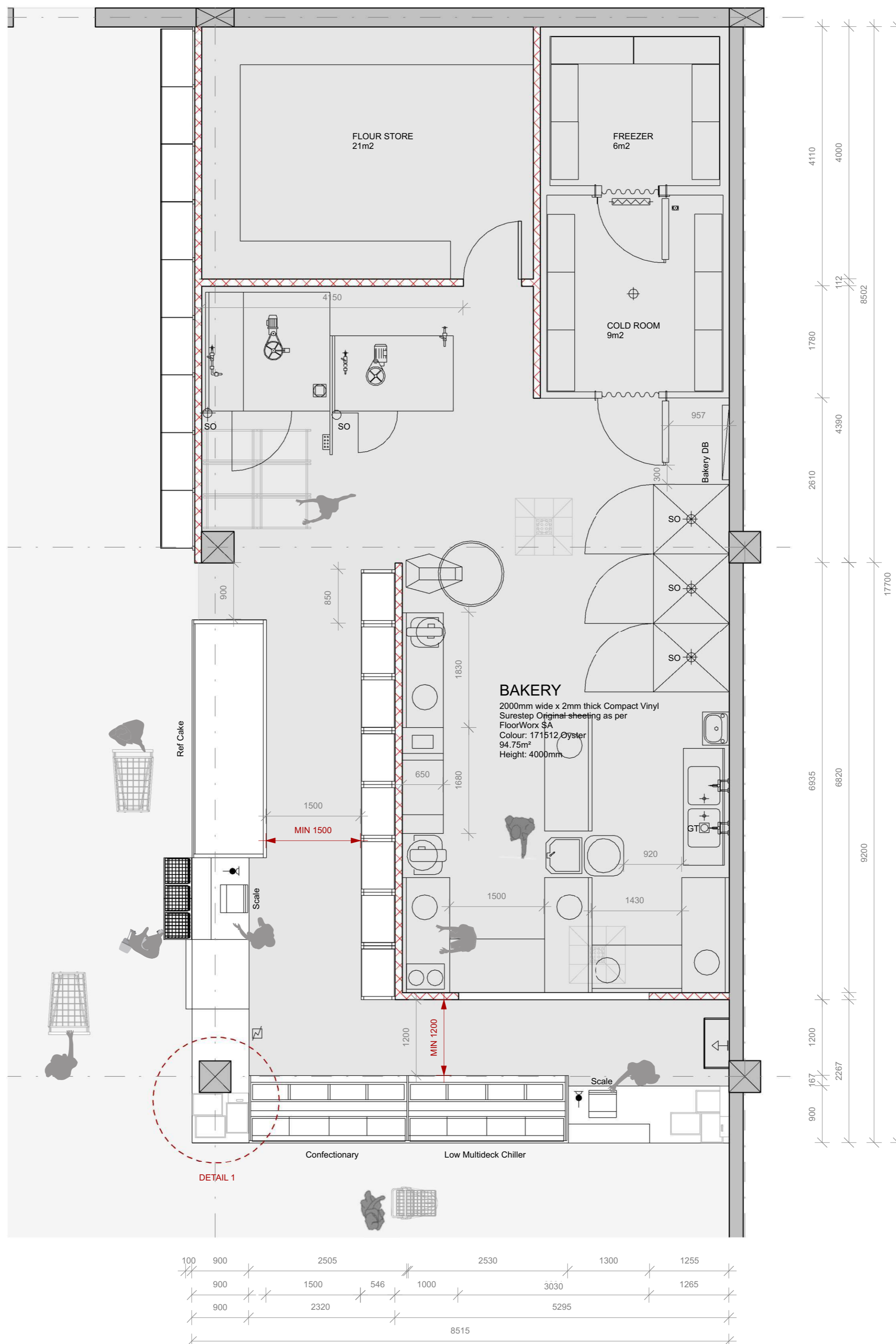
Figure 5.4.2.1: Bakery Perspective (Author 2015)



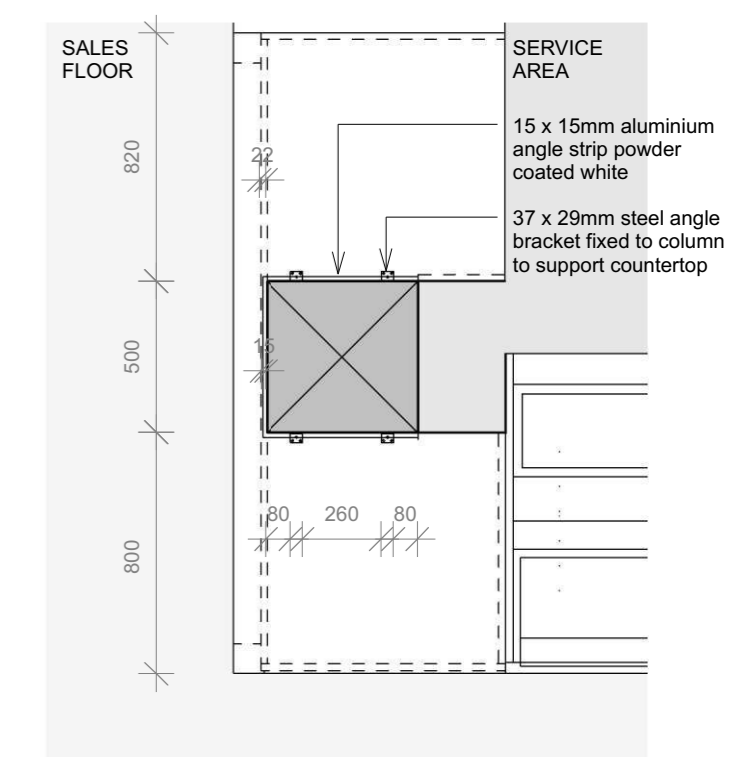
KEY PLAN

LEGEND	
FLOOR FINISH [pattern allows less dirt to show]	
	Sales floor 2000mm wide x 2.5mm thick Marmoleum Real sheeting as per FloorWork SA Colour: Concrete 3136
	Service area & kitchen 2000mm wide x 2mm thick Compact Vinyl Surestep Original sheeting as per FloorWork SA Colour: 171512 Oyster
ELECTRICAL, FIRE FIGHTING & DRAINAGE	
	SWITCH SOCKET OUTLET
	MICROWAVE OVEN
	FIRE EXTINGUISHERS
	GREASE TRAP

ADAPTABLE DESIGN LEGEND	
MAX DIMENSIONS [4500m² STORE]	
MIN DIMENSIONS [2500m² STORE] / CRUCIAL RELATIONSHIPS INDICATED	
Calculation: Max 4500 ÷ Min 2500 = 1.8 Max dimensions ÷ 1.8 = Min dimension Answer rounded off to nearest 100mm	



Ideally no column should intersect counter.
If needed, column should be situated in service area apposed to sales floor. Ideally, columns should be placed in kitchen area (refer to Detl Plan)



BAKERY PLAN
SCALE 1:50
Figure 5.4.2.2: Bakery Plan (Author 2015)

DETAIL 1 - IN CASE OF COLUMN
SCALE 1:25

5.4.3 BUTCHERY



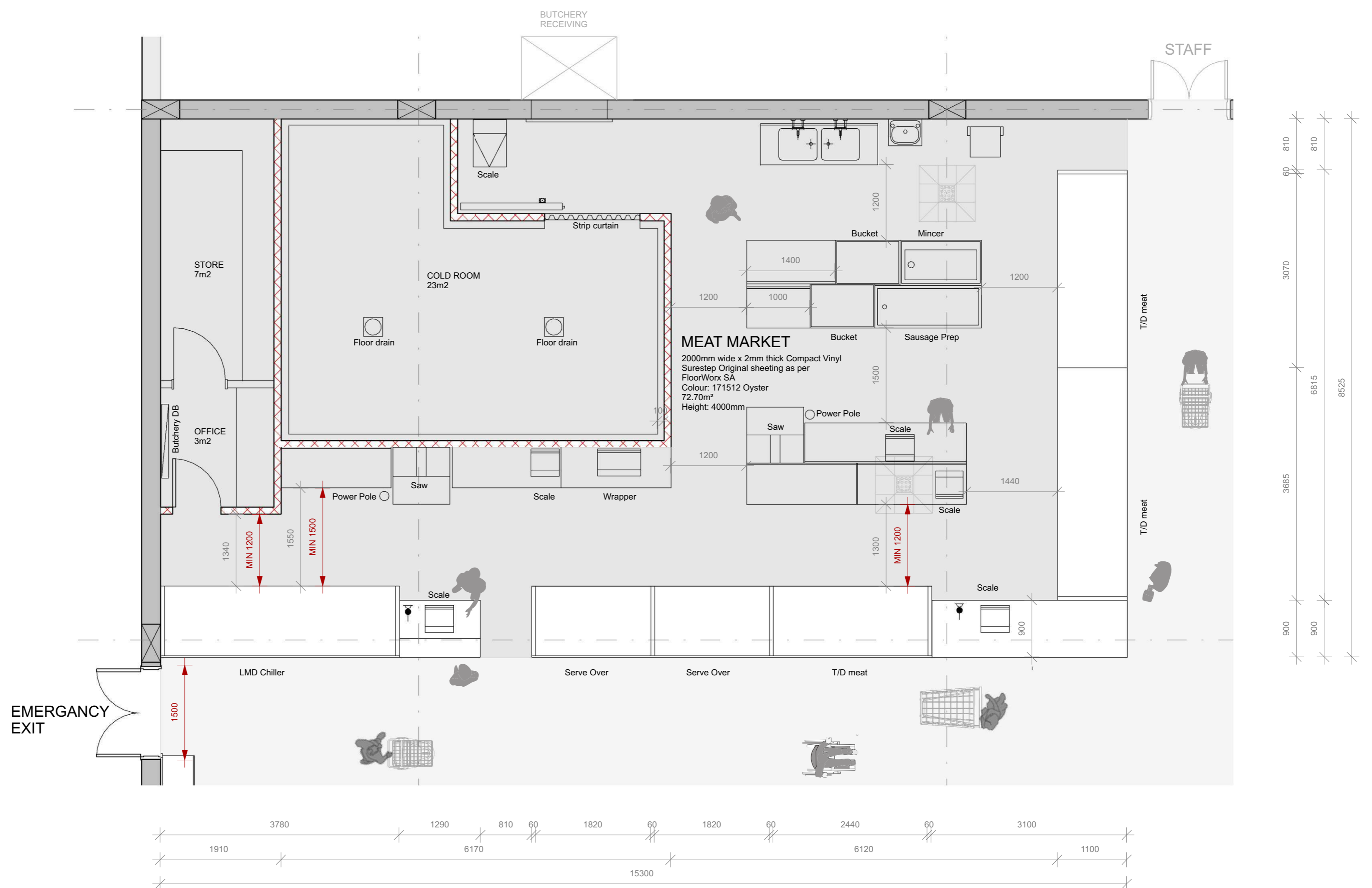
Figure 5.4.3.1: Butchery Perspective (Author 2015)



KEY PLAN

LEGEND	
FLOOR FINISH [pattern allows less dirt to show]	
	Sales floor 2000mm wide x 2.5mm thick Marmoleum Rabiil sheeting as per FloorWorx SA Colour: Concrete 3136
	Service area & kitchen 2000mm wide x 2mm thick Compact Vinyl Surestep Original sheeting as per FloorWorx SA Colour: 171512 Oyster
ELECTRICAL, FIRE FIGHTING & DRAINAGE	
	SWITCH SOCKET OUTLET
	MICROWAVE OVEN
	FIRE EXTINGUISHERS
	GREASE TRAP

ADAPTABLE DESIGN LEGEND	
MAX DIMENSIONS [4500mm STORE]	
MIN DIMENSIONS [2500mm STORE] / CRUCIAL RELATIONSHIPS INDICATED	
Calculation: Max 4500 ÷ Min 2500 = 1.8 Max dimensions + 1.8 = Min dimension Answer rounded off to nearest 100mm	



BUTCHERY PLAN
SCALE 1:50

Figure 5.4.3.2: Butchery Plan (Author 2015)

5.4.4 AISLE NAVIGATION



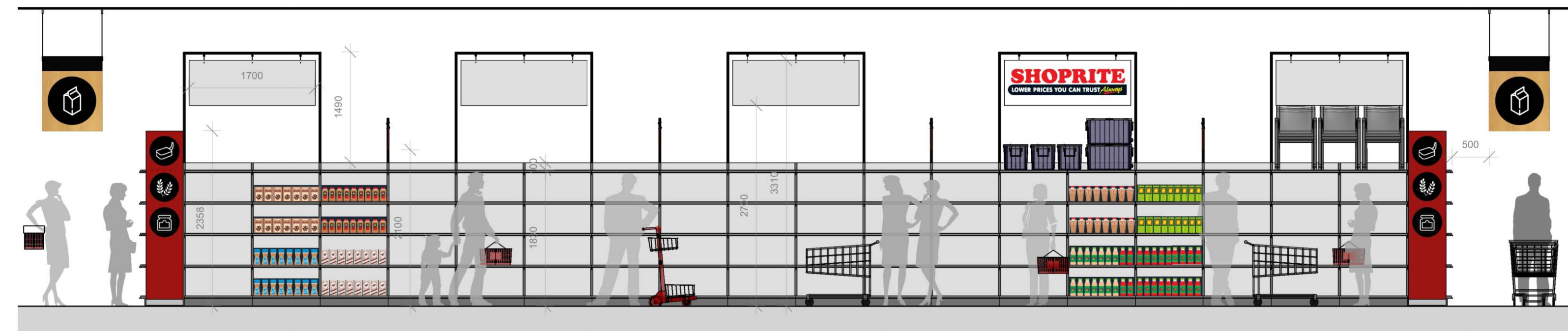
KEY PLAN



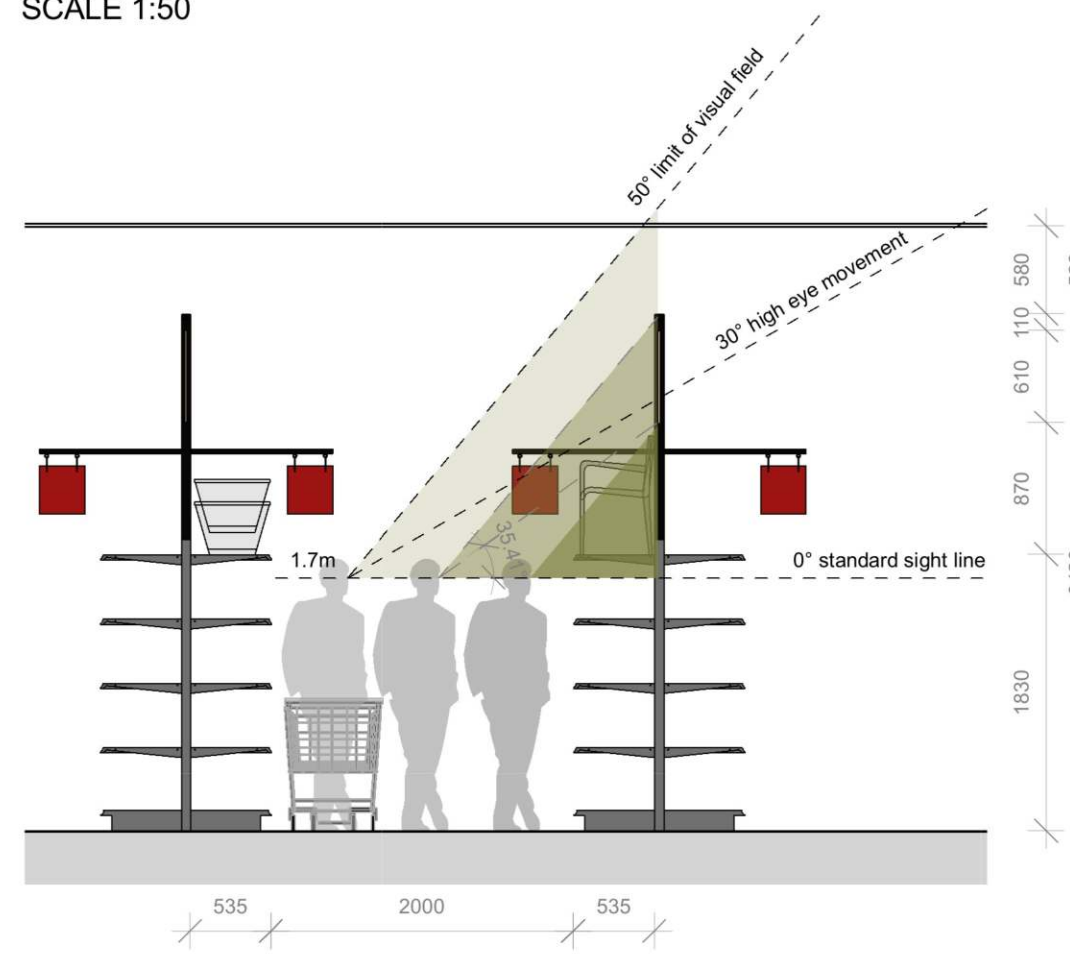
INSPIRATION [INFORMAL RETAIL - LOCAL RELEVANCE] + ENHANCED NAVIGATION



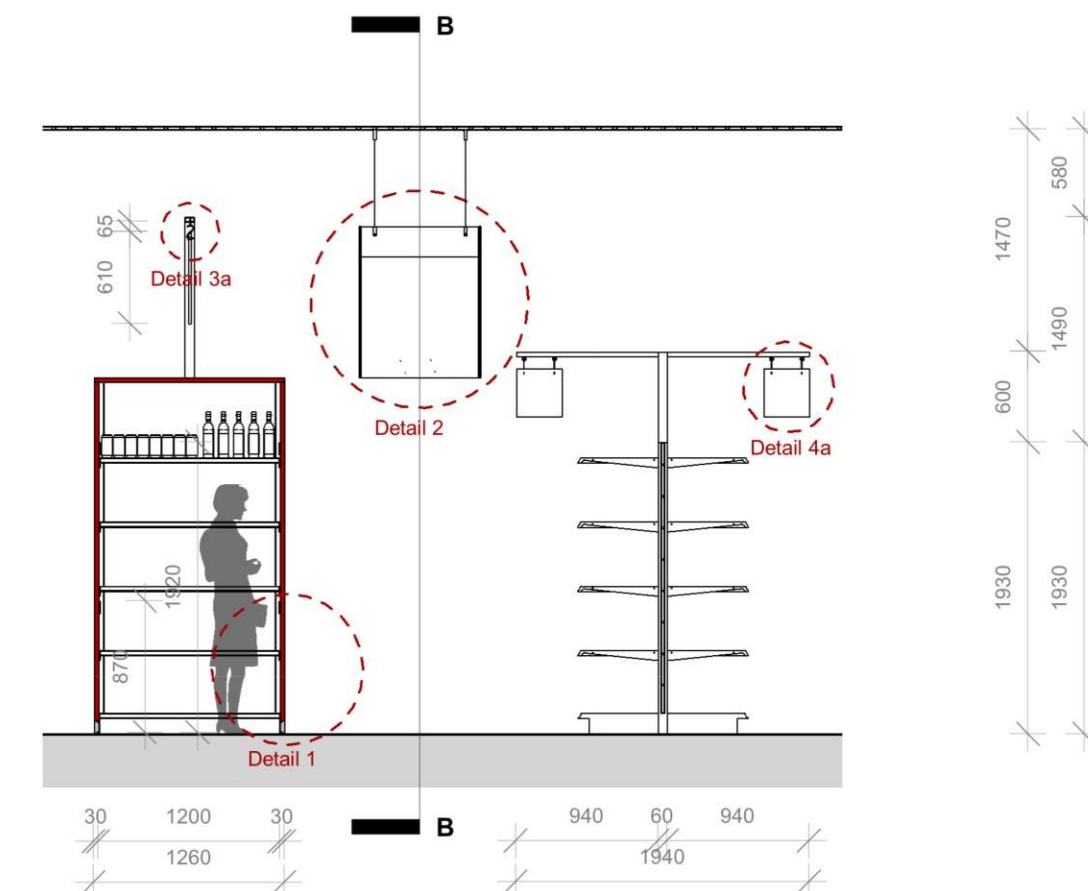
FRONT ELEVATION
SCALE 1:50



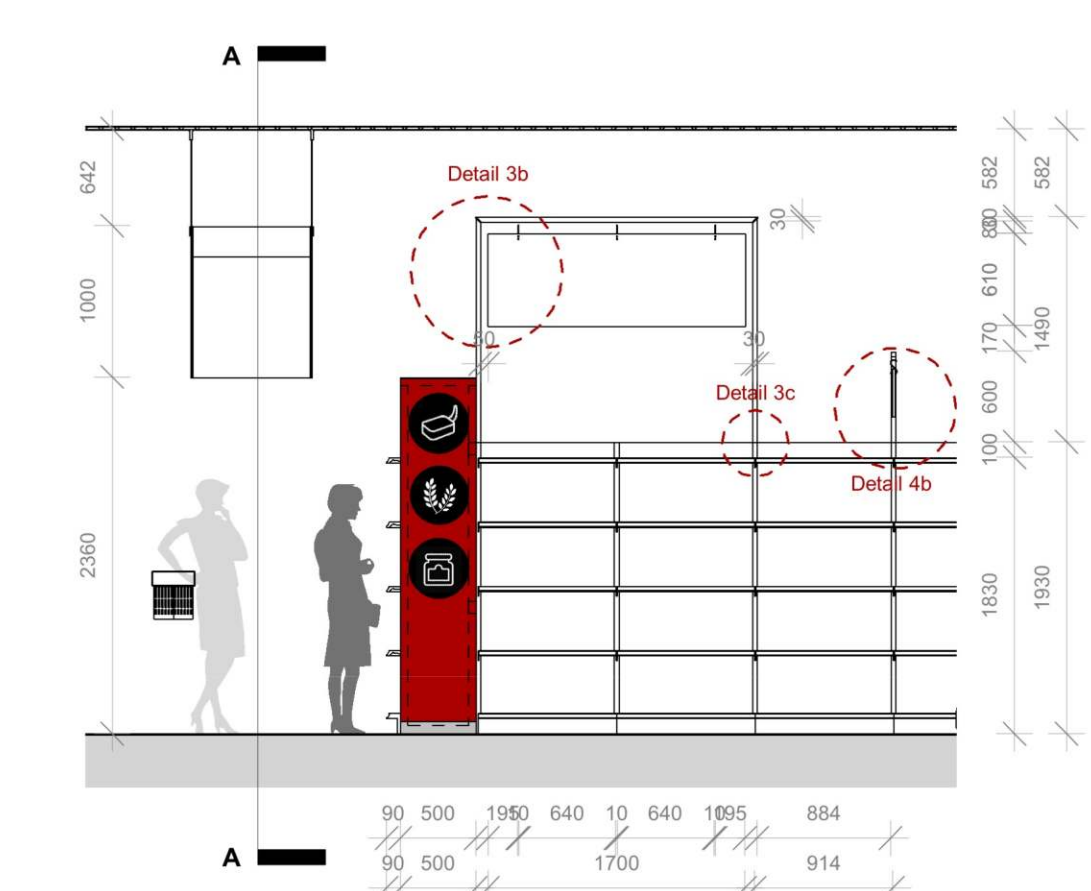
SIDE ELEVATION
SCALE 1:50



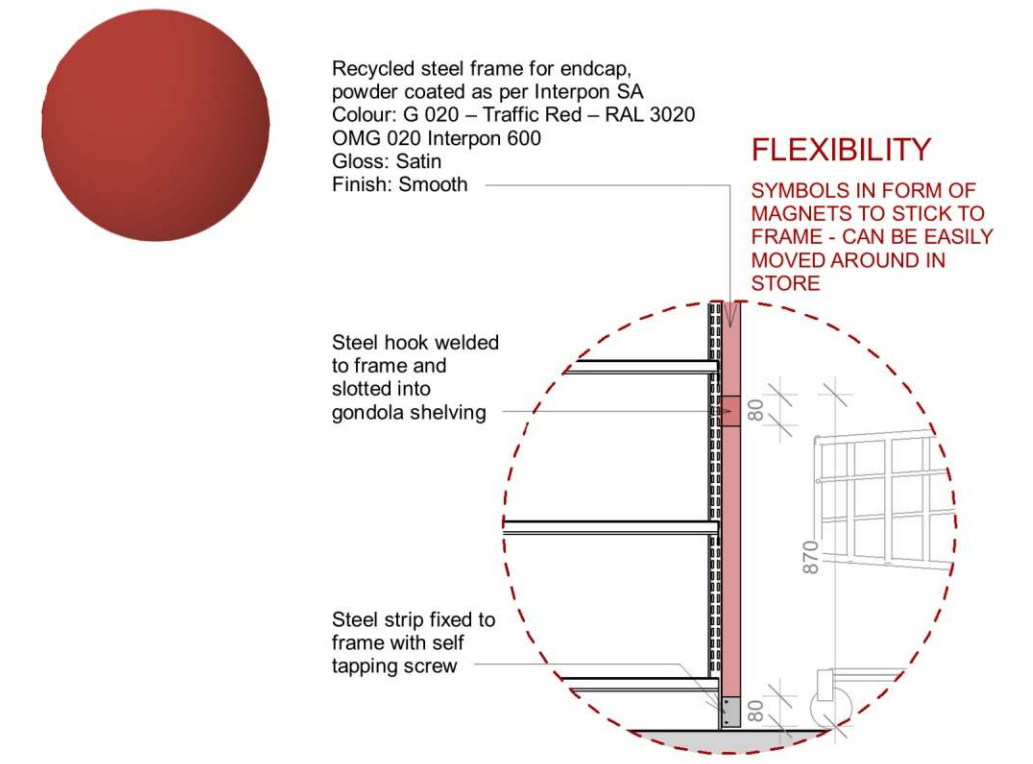
HUMAN VISION RANGE



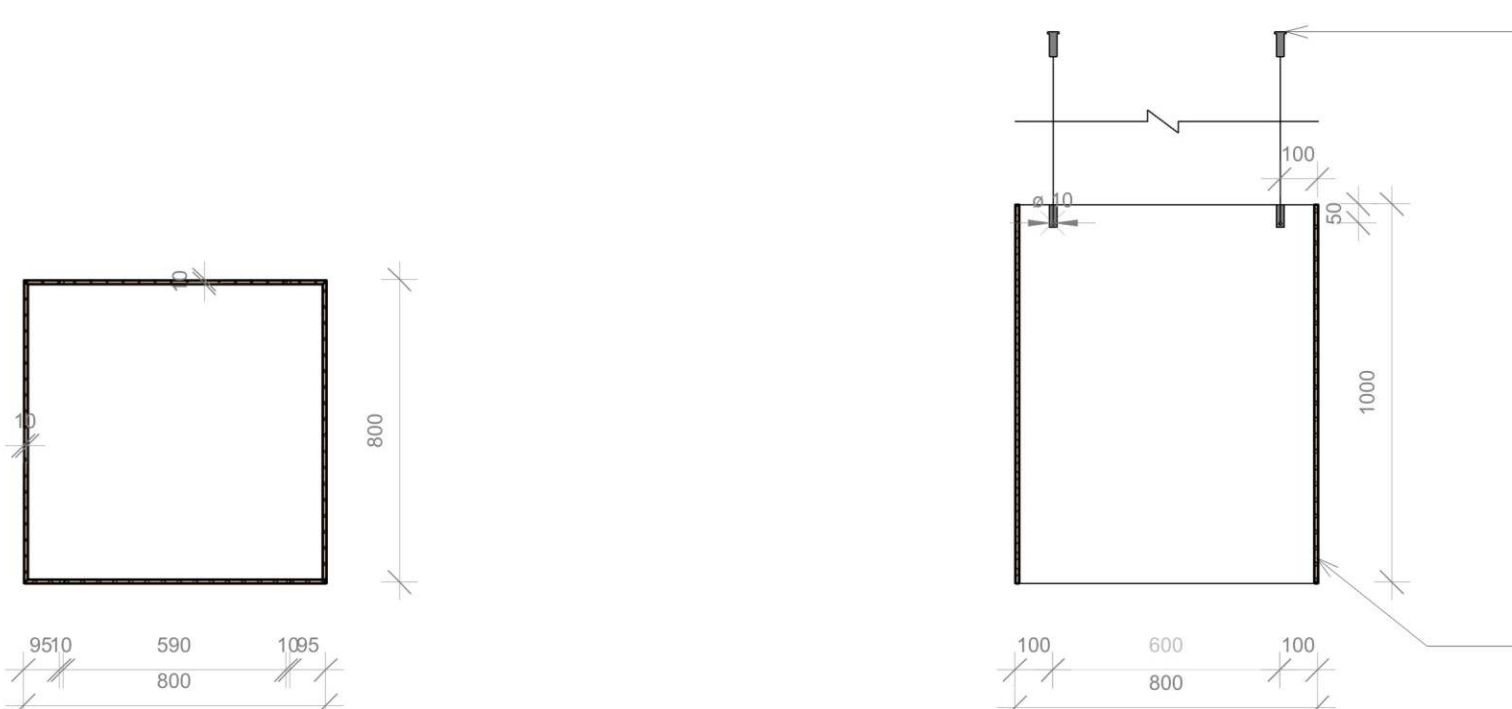
SECTION AA
SCALE 1:50



SECTION BB
SCALE 1:50

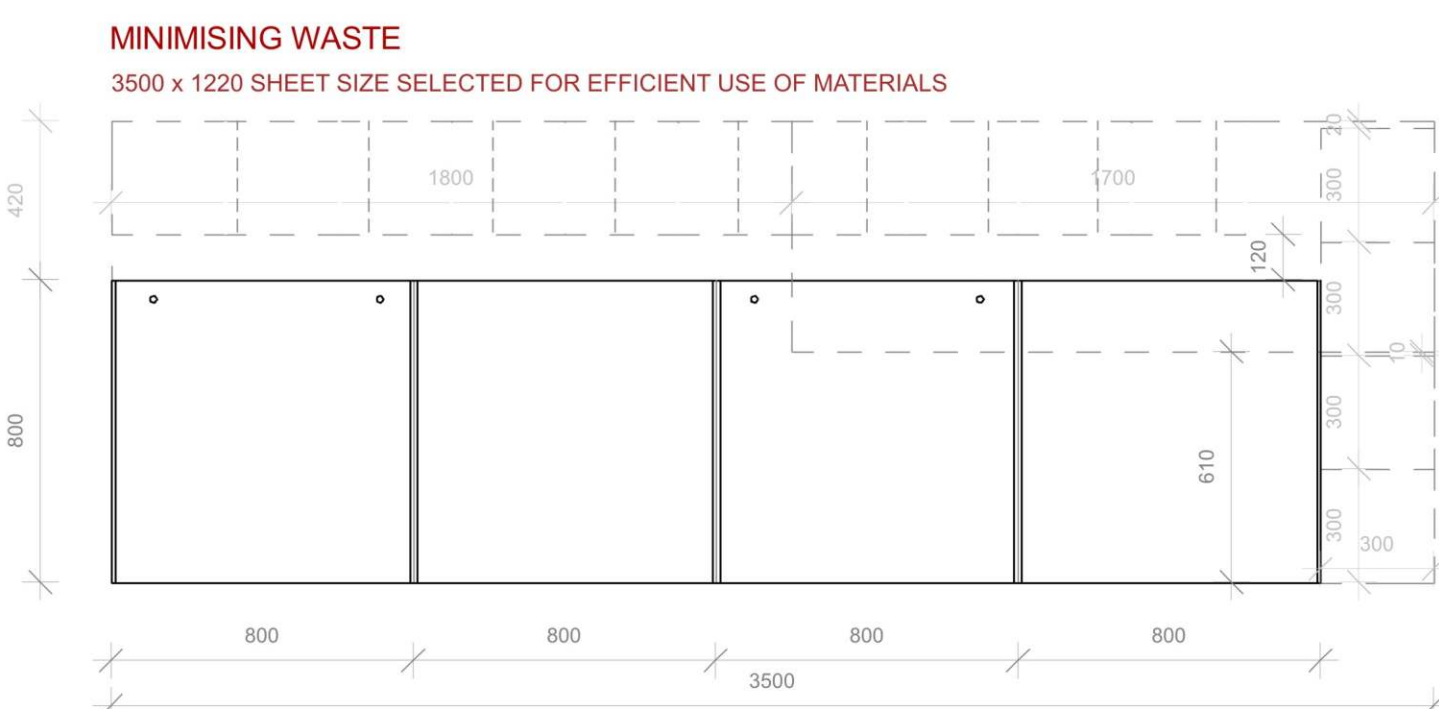


DETAIL 1 - ENDCAP FRAME [FRONT]
SCALE 1:20

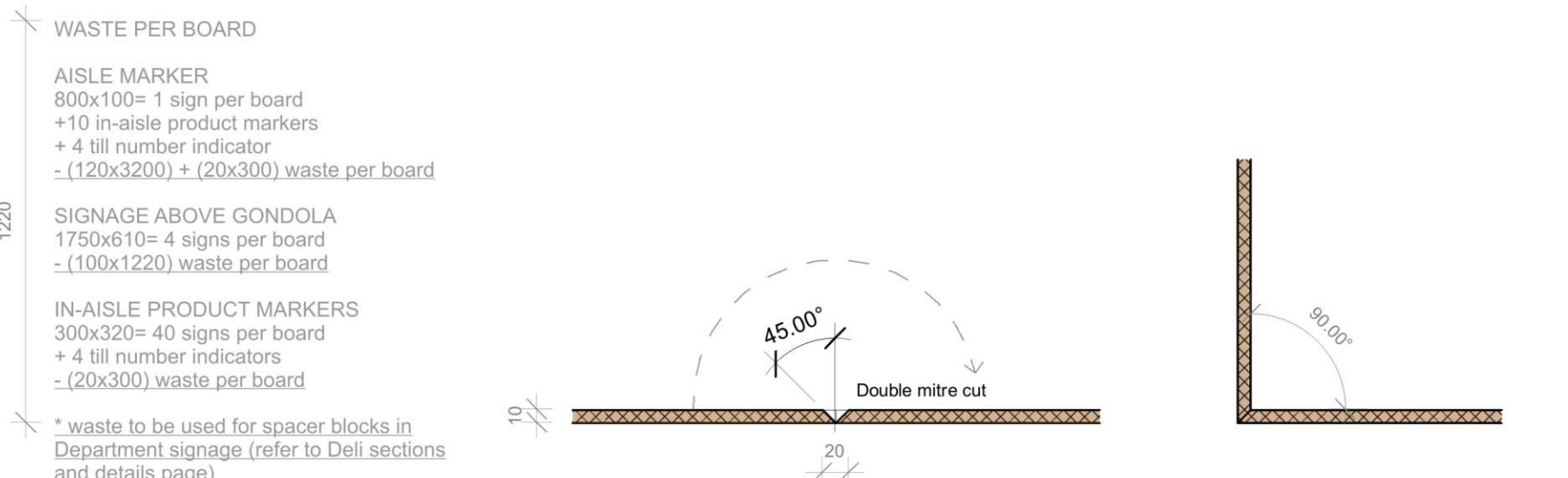


DETAIL 2 - AISLE MARKER [PLAN]
SCALE 1:20

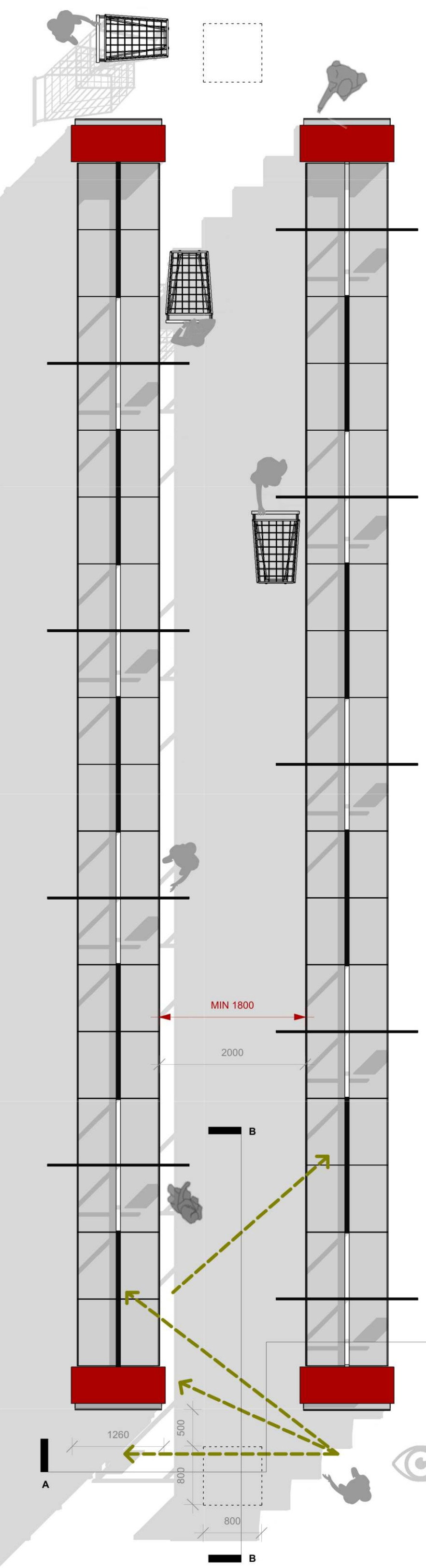
DETAIL 2 - AISLE MARKER [SECTION]
SCALE 1:20



DETAIL 2 - AISLE MARKER [XANITA BOARD FOLD-OUT & MATERIAL EFFICIENCY]
SCALE 1:20

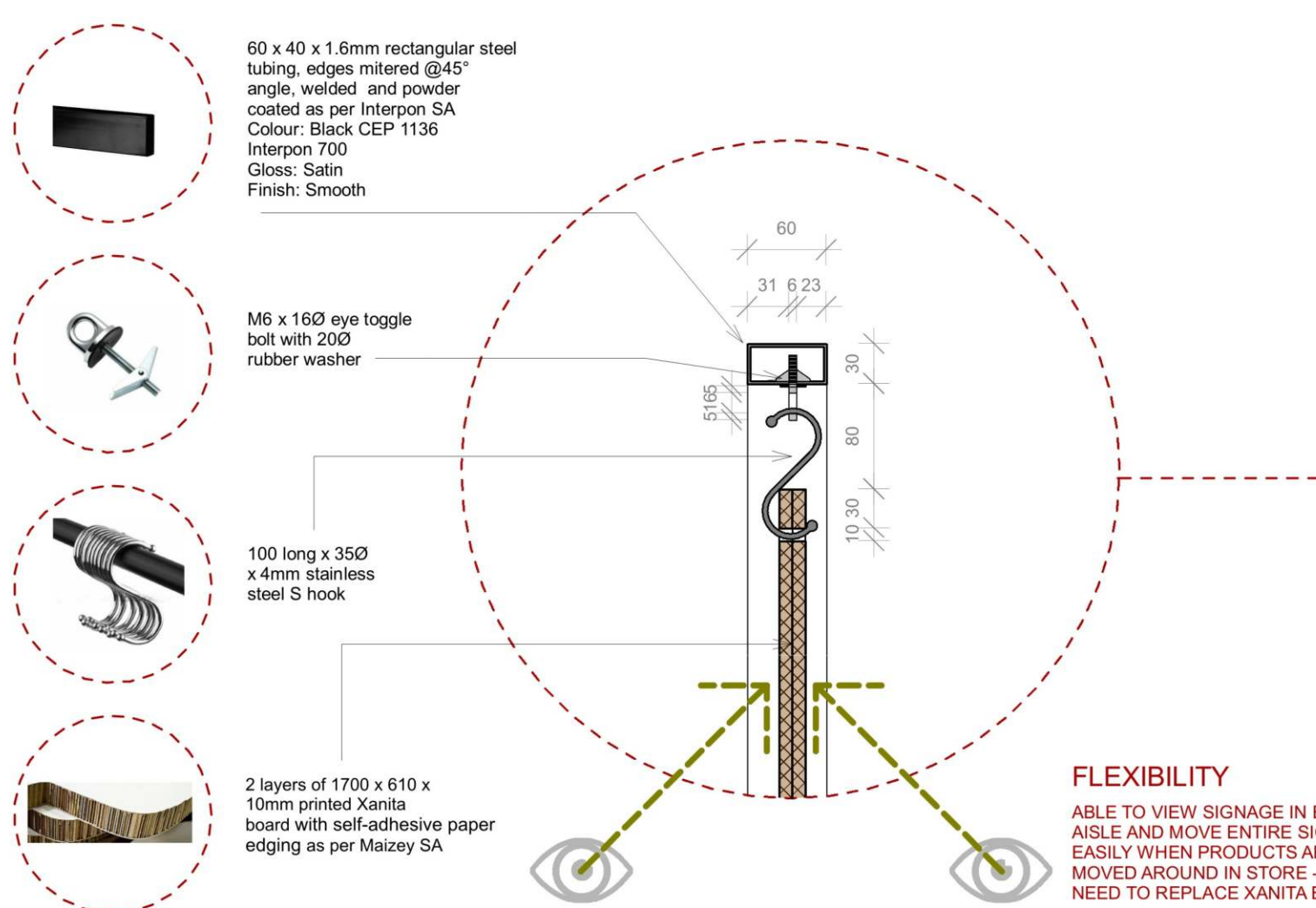


DETAIL 2 - AISLE MARKER [JOINT INSTRUCTIONS]
SCALE 1:5

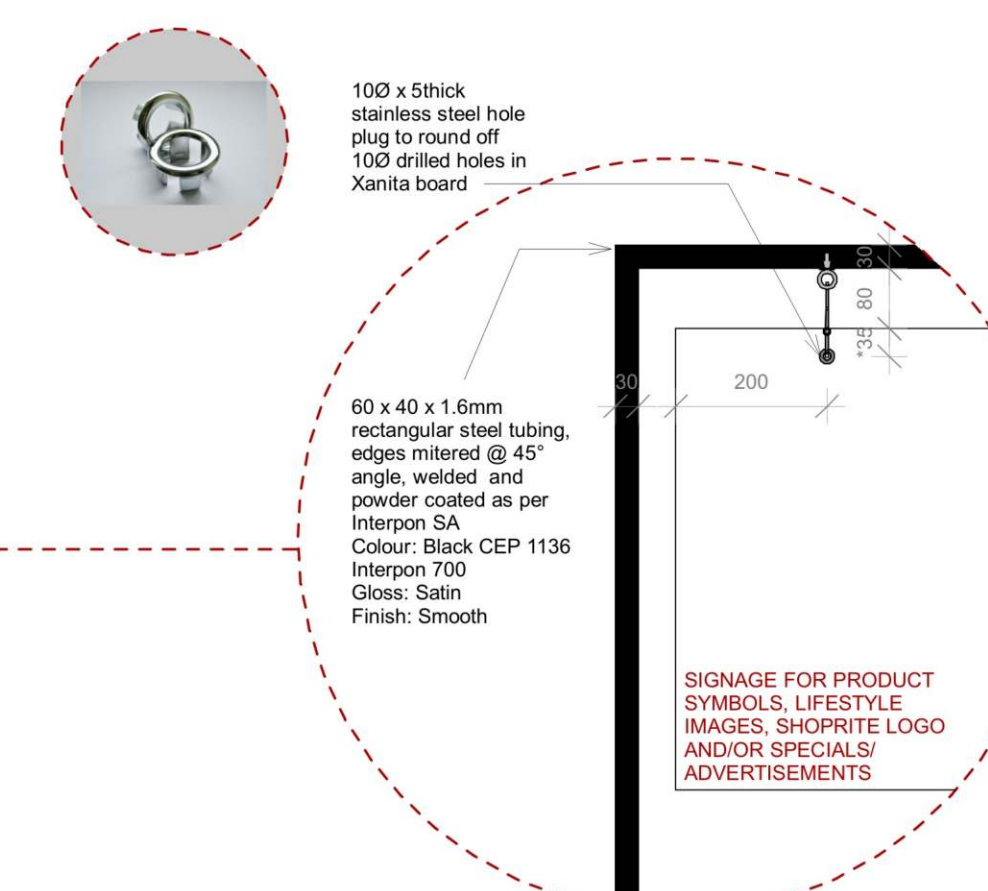


PLAN
SCALE 1:50

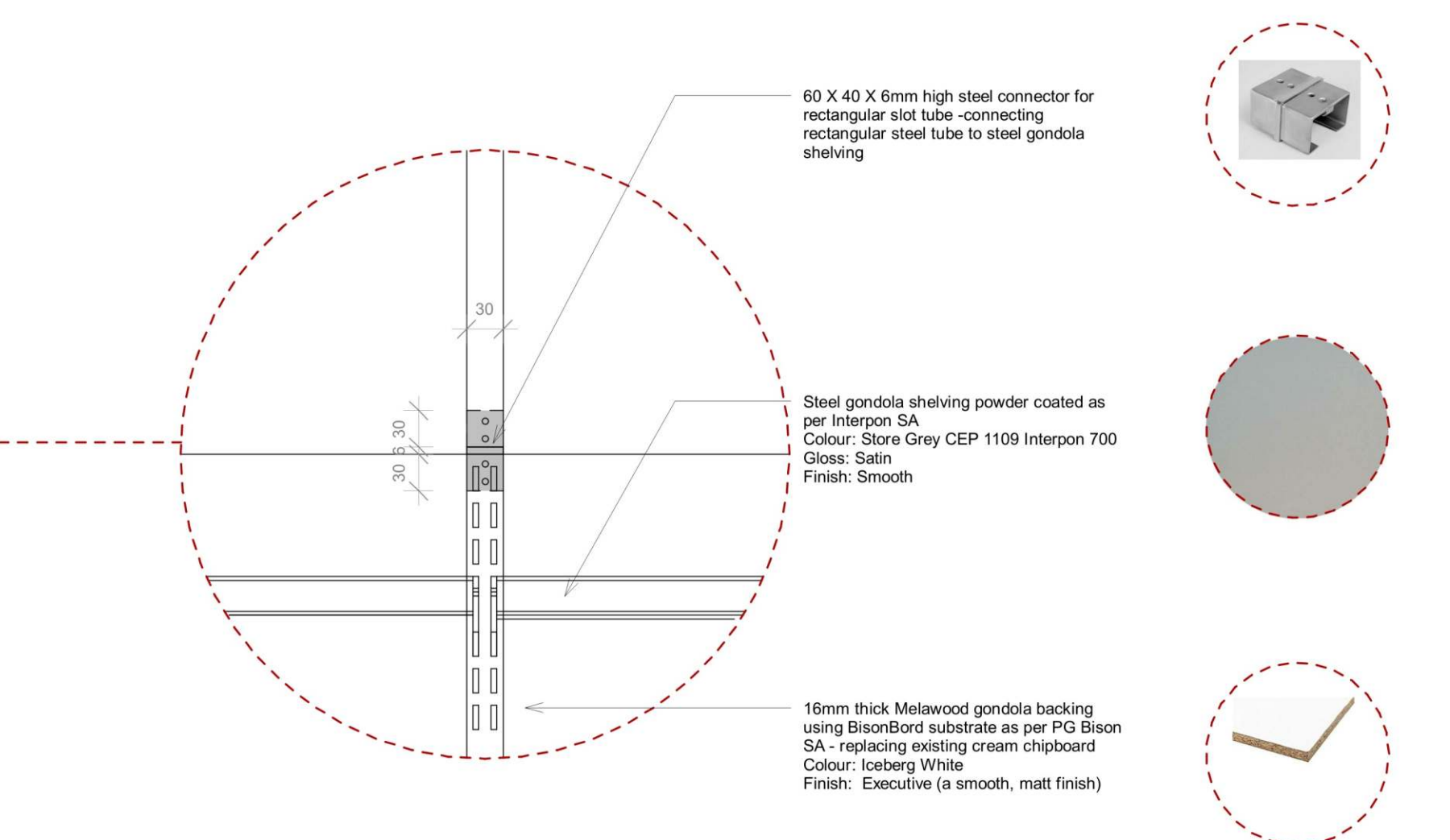
Figure 5.4.4.1: Aisle Navigation (Author 2015)



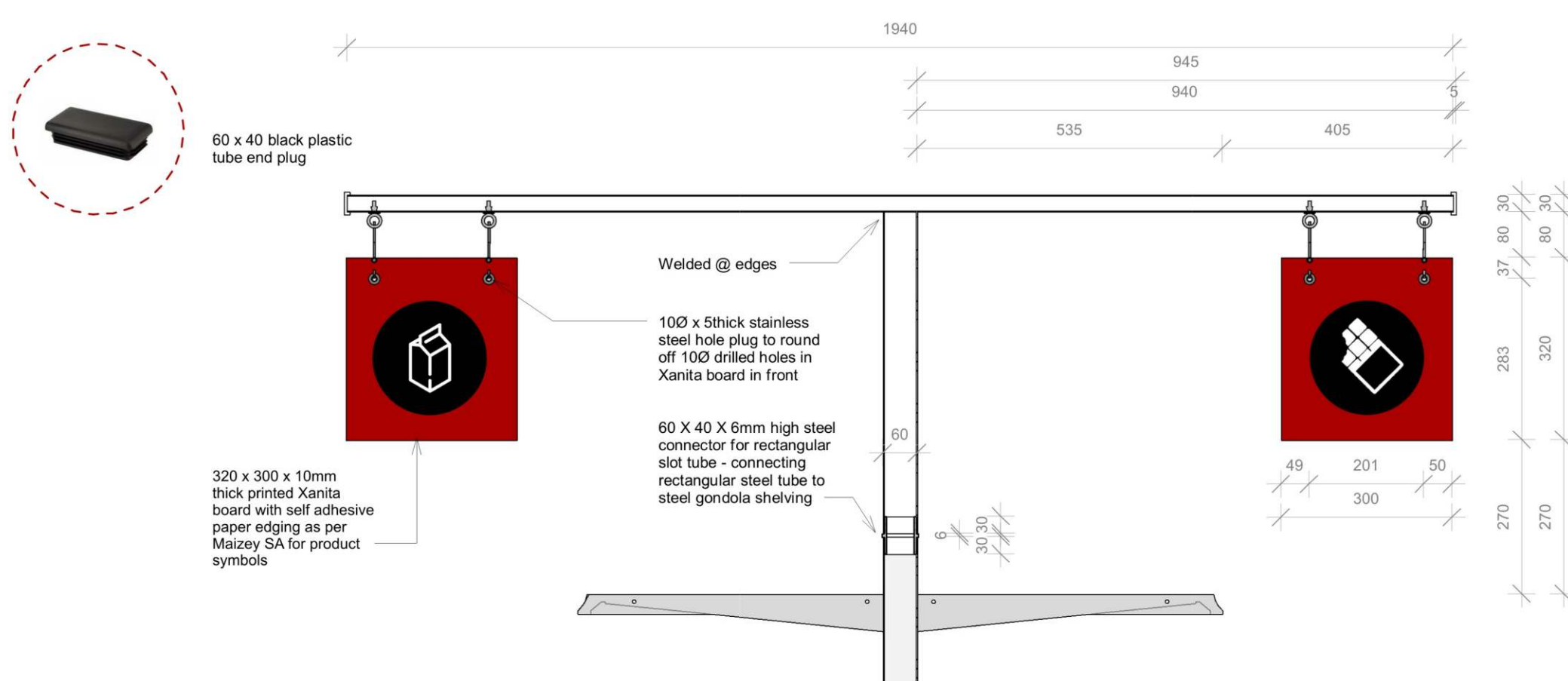
DETAIL 3a - SIGNAGE ABOVE GONDOLA [SECTION]
SCALE 1:5



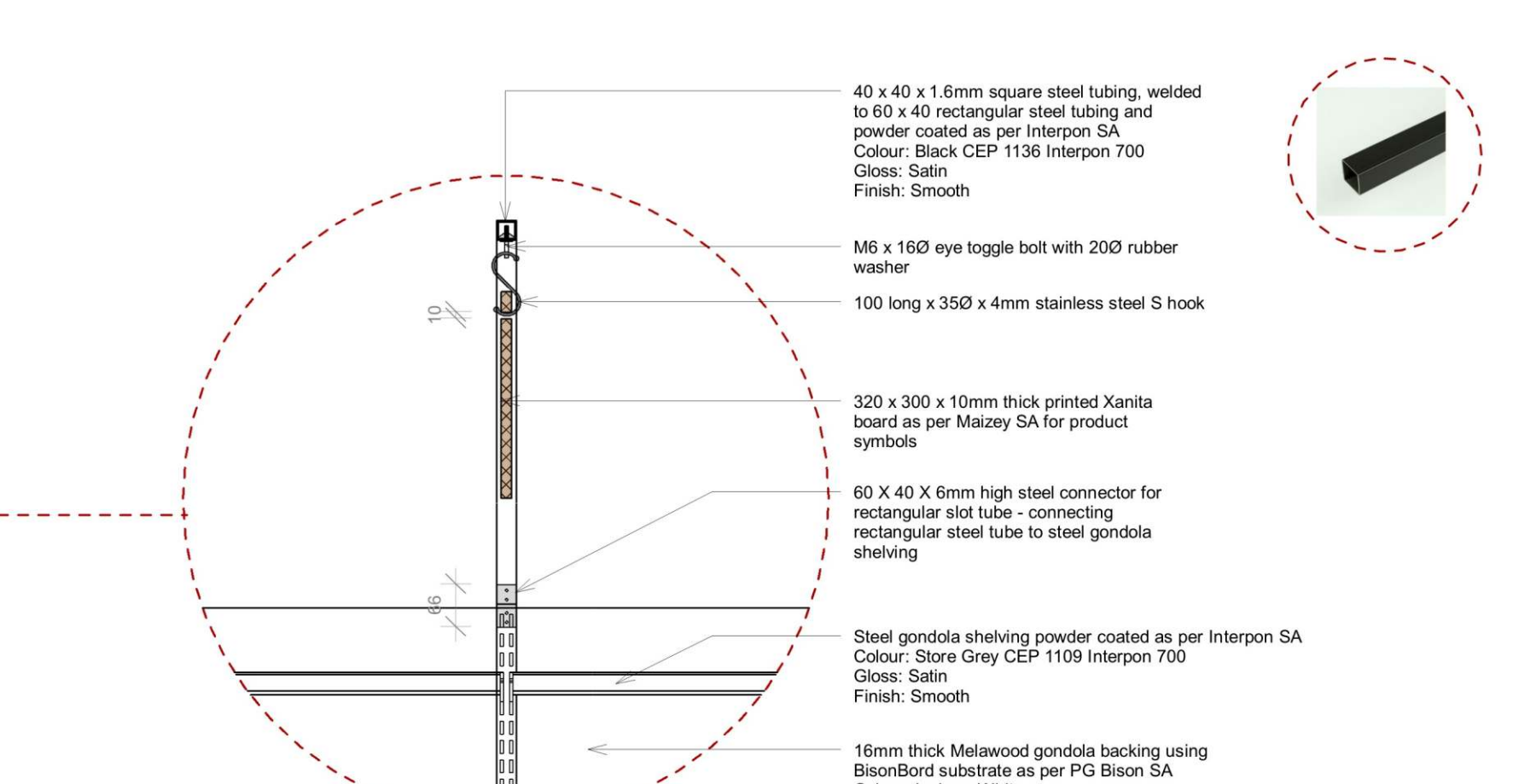
DETAIL 3b - SIGNAGE ABOVE GONDOLA [FRONT]
SCALE 1:5



DETAIL 3c - SIGNAGE ABOVE GONDOLA [FRONT: CONNECTION TO GONDOLA]
SCALE 1:5



DETAIL 4a - IN-AISLE PRODUCT MARKERS [FONT]
SCALE 1:10

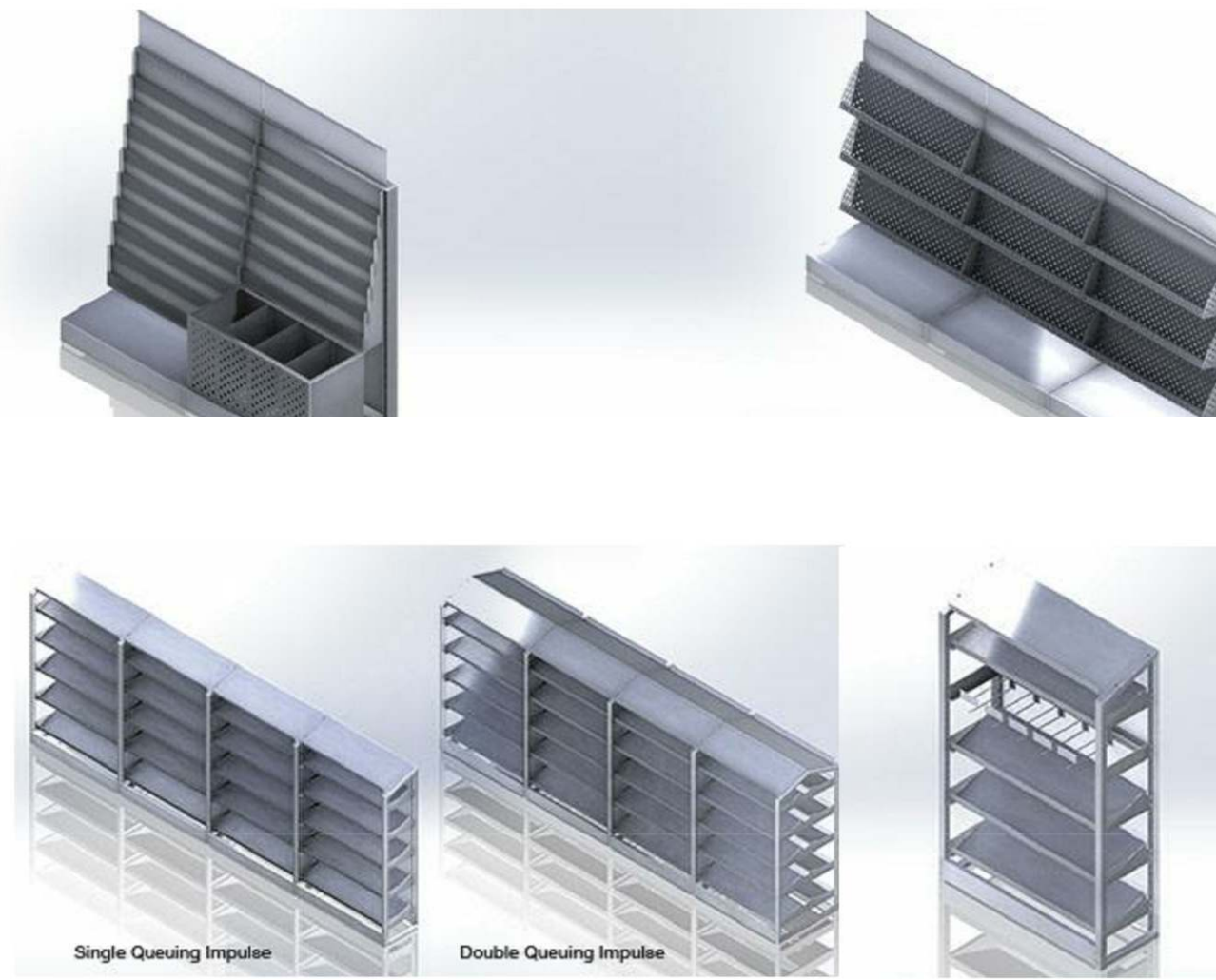


DETAIL 4b - IN-AISLE PRODUCT MARKERS [SIDE]
SCALE 1:10



Figure 5.4.5.1 Checkout Area Perspective

COMMUNAL QUEUE SPECIFICATIONS



MAGAZINES
 Magazine Stands as per BIS South Africa
 • Variety of options, for magazines, newspapers, greeting cards and wrapping paper
 • All steel and include in construction
 • Price point included
 Powder coated as per Interpon SA
 Colour: Stone Grey CEP 1109 Interpon 700
 Glaze: Satin
 Finish: Smooth

IMPULSE PURCHASES
 Queuing Impulse Merchandisers as per BIS South Africa
 • Single and Double variants
 • Various options on queue layout
 • 1200mm high units
 • Various shelf and peg options
 Powder coated as per Interpon SA
 Colour: Stone Grey CEP 1109 Interpon 700
 Glaze: Satin
 Finish: Smooth

COMPOSITE CHECKOUT COUNTERS



CHECKOUT COUNTERS SPECIFICATIONS
 Anessa - Solid Surface as per BIS South Africa
 • Typical 'U' shape with packing slope
 • Mild steel base powder coated with chipboard backing
 • Generous inner and outer radius
 • Easy cleaning
 • Includes electrical plug points
 • Height suited for a seated cashier
 • Shelves and drawer included

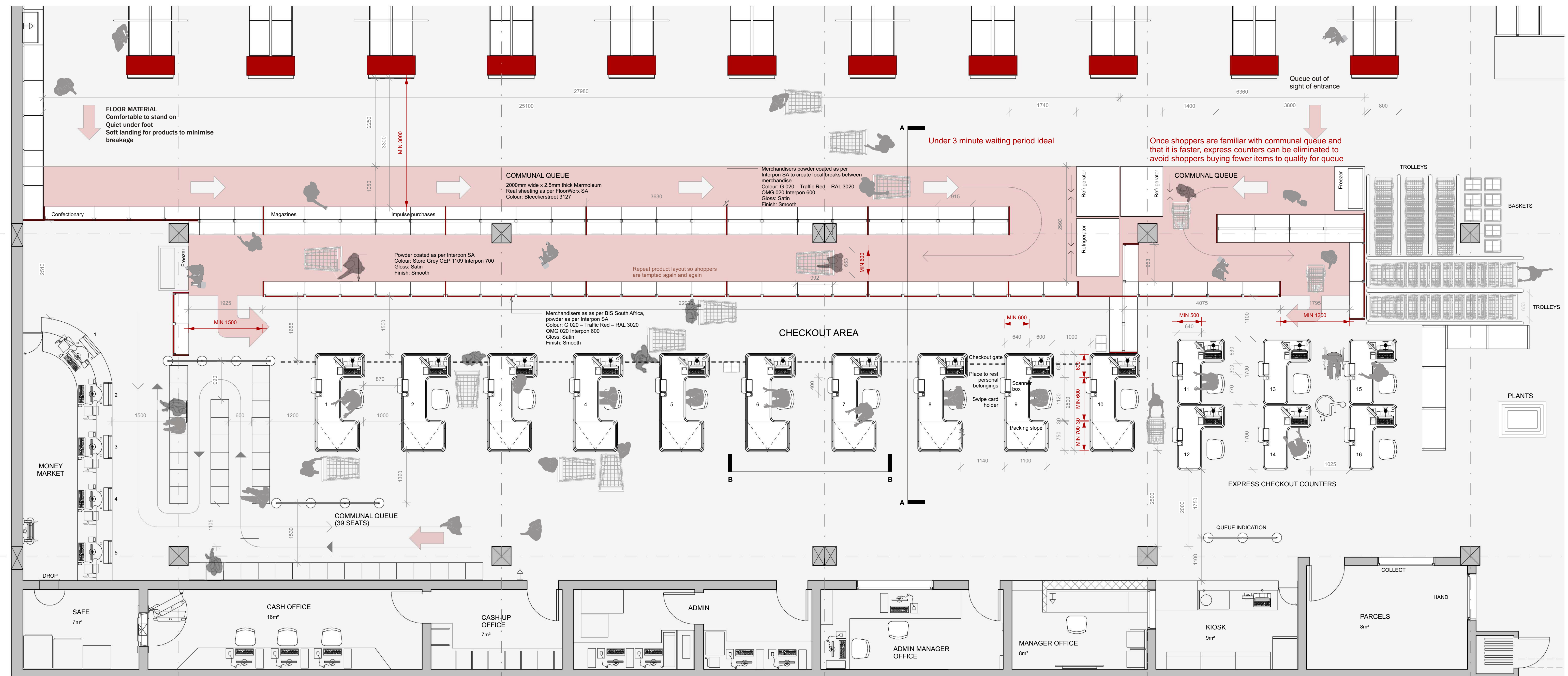
EXPRESS CHECKOUT COUNTERS SPECIFICATIONS
 Snello - Solid Surface as per BIS South Africa
 • Runway and packing slope same width
 • Typical 'L' shape
 • Various standard sizes
 • Mild steel base powder coated with chipboard backing
 • Includes electrical plug points
 • Shelves and drawer included
 • Can be positioned back-to-back
 • Secure computer CPU cupboard
 • Includes scanner box



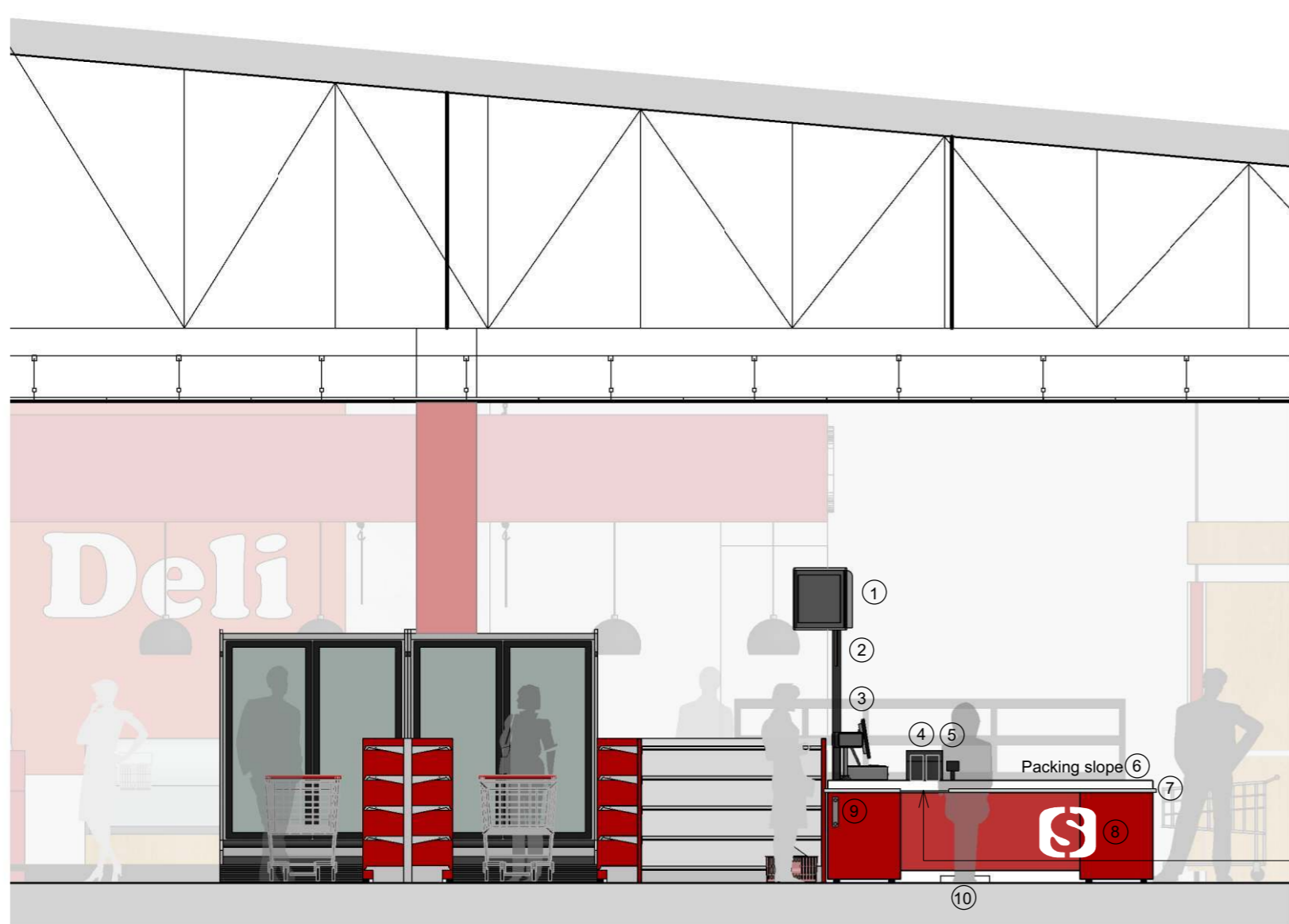
KEY PLAN

LEGEND	
FLOOR FINISH	
	2000mm wide x 2.5mm thick Marmoleum Real sheeting as per FloorWorx SA Colour: Blackbeetroot 3127
	2000mm wide x 2.5mm thick Marmoleum Real sheeting as per FloorWorx SA Colour: Concrete 3136
ELECTRICAL	
	SWITCH SOCKET OUTLET
FIRE FIGHTING	
	FIRE EXTINGUISHERS

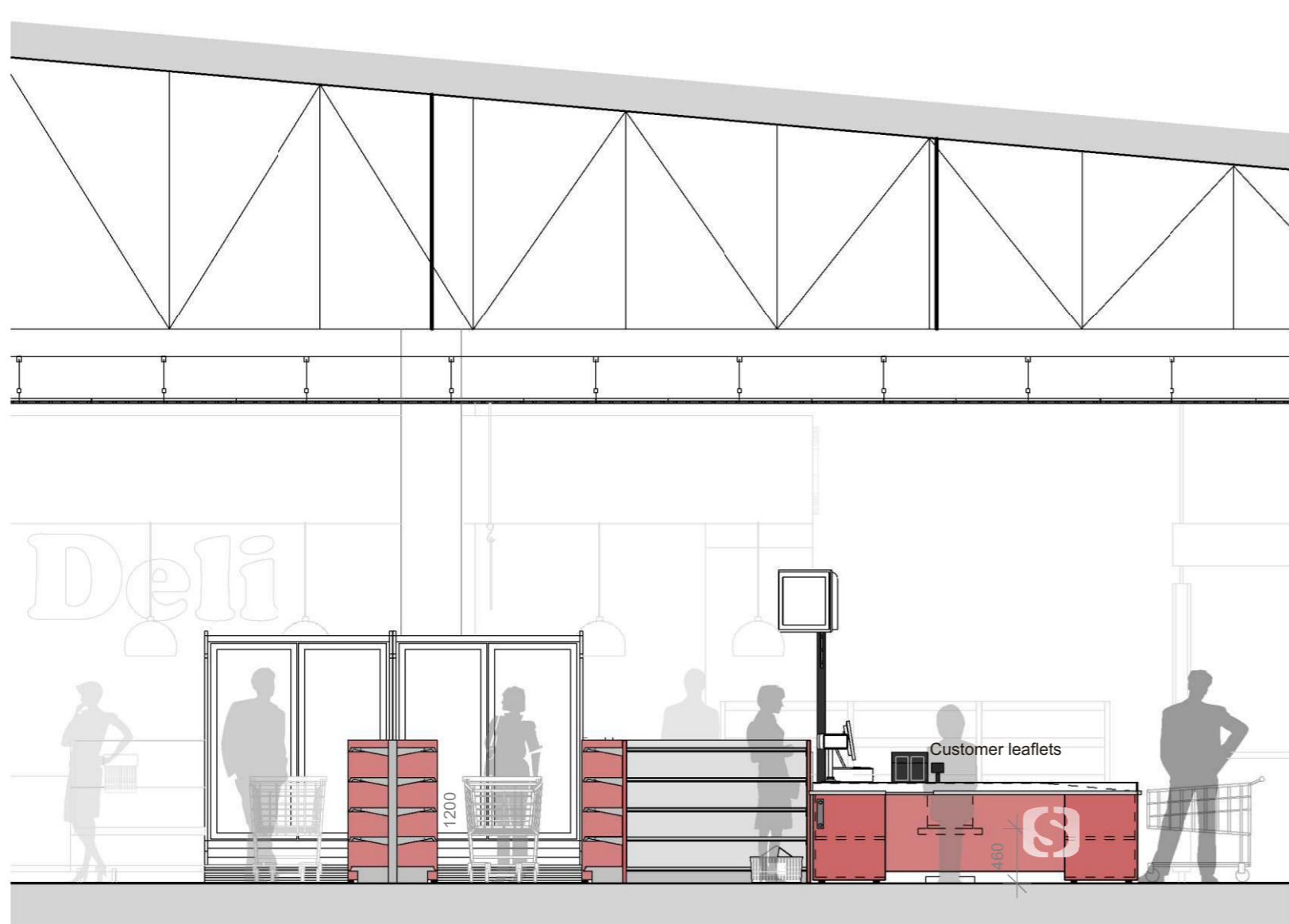
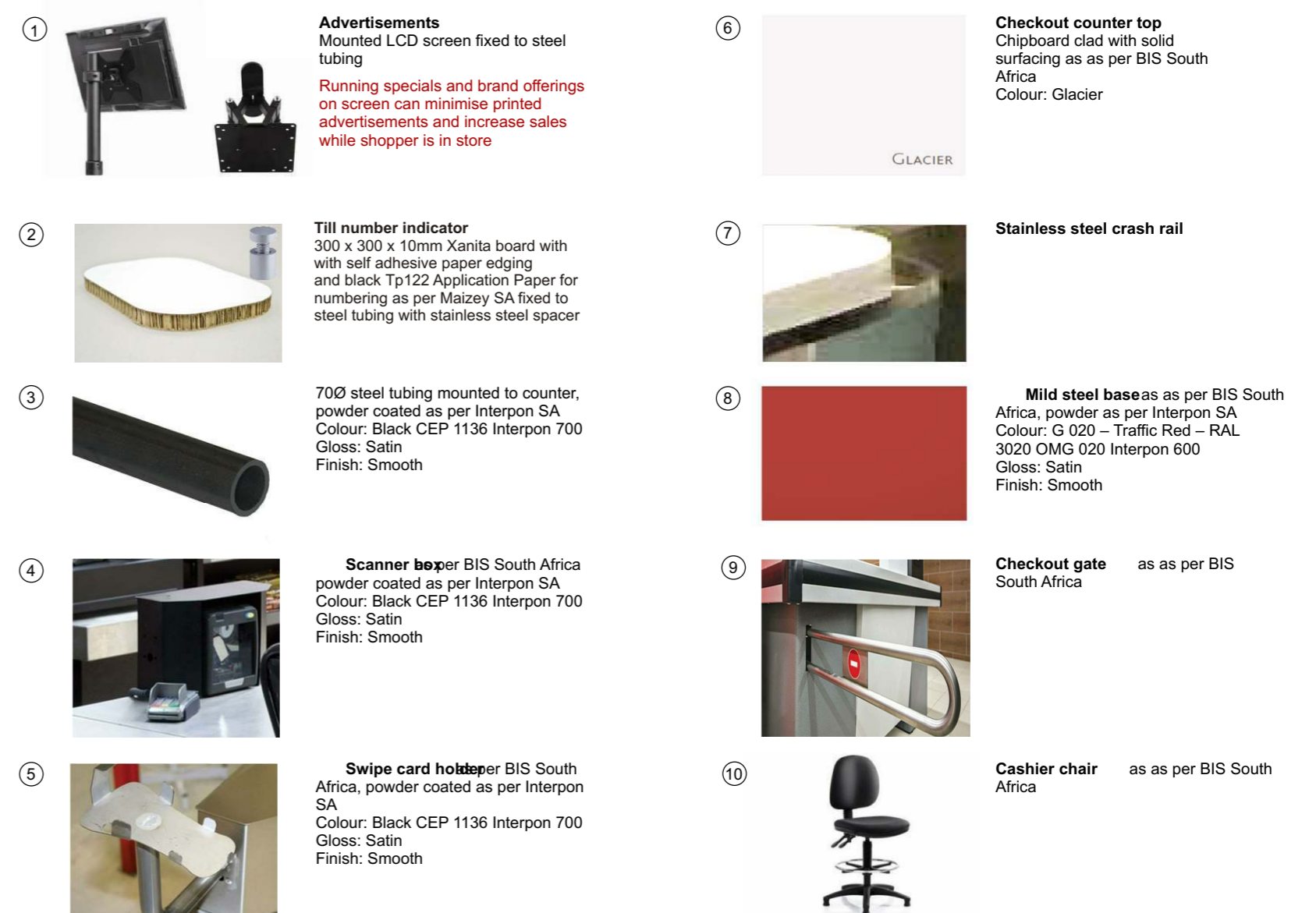
ADAPTABLE DESIGN LEGEND	
MAX DIMENSIONS (4500mm STORE)	
MIN DIMENSIONS (2500mm STORE) / RECOMMENDATIONS	



CHECKOUT AREA PLAN
 SCALE 1:50
 Figure 5.4.5.2 Checkout Area Plan

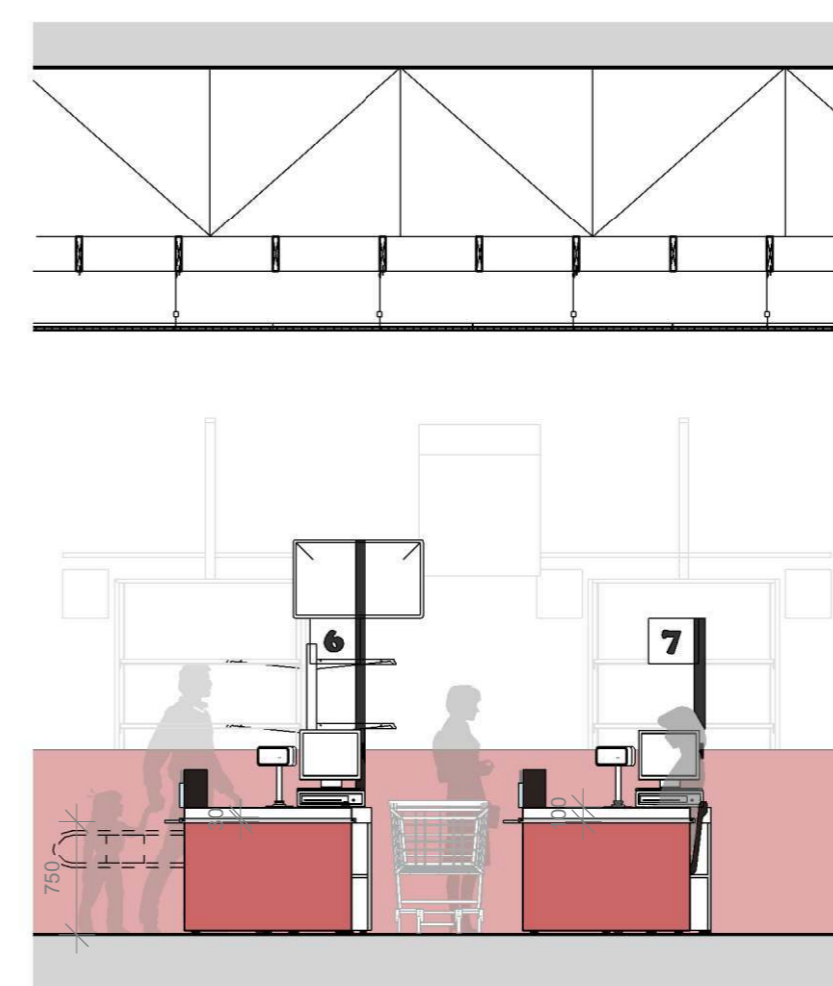


SIDE ELEVATION
SCALE 1:50

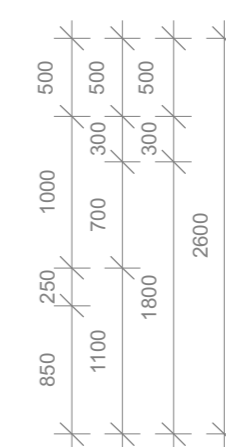
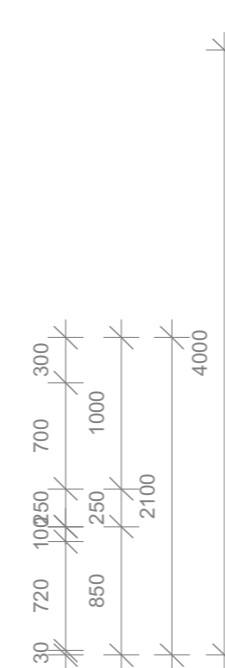
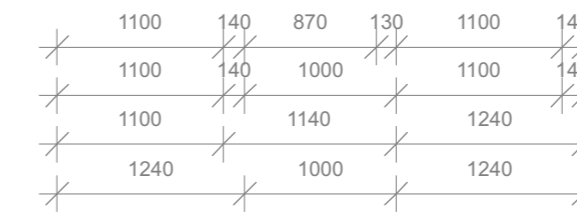
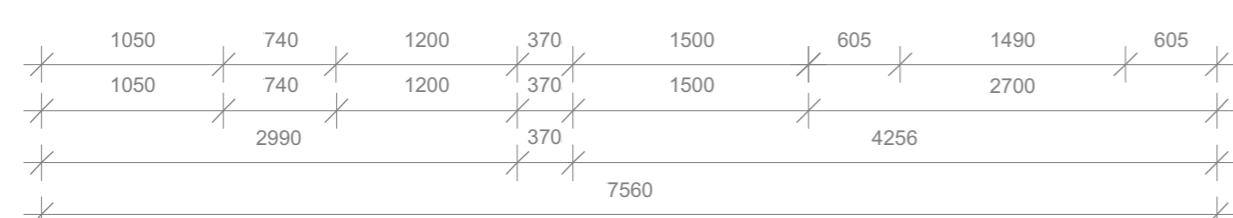


SECTION AA
SCALE 1:50

Figure 5.4.5.3 Checkout Area Sections



SECTION BB
SCALE 1:50



5.5 CONCLUSION

This chapter presented the new, efficient interior designed components for Shoprite which allow the interior space to represent the brand's promise by balancing minimising resources and maximising the user experience.

As chapter four successfully aided in demonstrating how the experience is maximised within the new design, through establishing an appropriate brand identity in store which relates to the target market and improves convenience, comfort and productivity to achieve satisfaction, the following conclusion will focus more on summarising how resources are minimised within the new design. Resources are minimised in order to lower the supermarket's operational costs, while further enhancing convenience and comfort within store - to fully achieve customer satisfaction (within the boundaries of the project).

As a technical response to the design, energy, water and material efficiency, as well as indoor environmental quality was further explored. In addition, the adaptability of the design to be translated into different sized stores was also explored in order for the design to be adaptable to various existing and new Shoprite outlets.

ENERGY

Starting with energy, as air conditioning is one of the largest energy consumers in South African supermarkets, a **suspended ceiling** was incorporated throughout the entire store, since the advantages of a suspended ceiling outweigh those of an open plenum ceiling in terms of energy consumption, maintenance, hygiene, fire safety and the acoustics in store (see table 5.3.2.1: Suspended Ceilings Advantages on page 43).

Next, as refrigeration is the largest energy consumer in store (responsible for 45 percent of the energy usage), heating and cooling equipment was specified, which provide 50 percent energy saving. It was further recommended that the heat from the refrigeration be reclaimed to further reduce the HVAC load and to replace the electrical geysers in store.

As for lighting, guidelines were presented on page 46 and in Appendix D on page 70. Firstly, daylight was introduced through lighting ducts with lighting controls to further reduce electricity consumption in store. Since most of Shoprite supermarkets are in single storey shopping centres, lighting ducts are viable. The facades of the store on the other hand have limited exposure to daylight, therefore adding windows were not an option (hence the lighting ducts were the best alternative).

General, task and accent lighting in the form of LEDs were recommended, paying special attention to the efficacy of the lamps, the colour temperature and light colour, as well as the median useful life. Continuing to use the Deli as the main example, 3000K, warm white lighting was utilised in and around the counter to optimise the colour of the majority of the merchandise displayed in the serve over counter (refer to

page 46 under 'Light Colour Options to Enhance Merchandise'). Within the cold meat serve over counter however, an LED Rose lamp by Philips was used, which most enhances the red of the meat, so it appears appealing and fresh to the consumer.

WATER

To improve water efficiency, hygienic low-flow water fixtures were specified for the basins, which can reduce consumption with up to 16 litres per minute. This is to tie in with Shoprite's proposed greywater system (Shoprite Holdings 2013b and 2014g).

MATERIALS

Lastly, materials were selected according to their production process, use and end of life, as recommended by Greenstar SA to lower the environmental impact and improve indoor environmental quality. The floor, walls and ceiling materials are the most sustainable, since they cover the largest surface area in store. The rest of the materials, such as the Deli counter materials are based on the availability and appropriateness of the material to create the required design and which are durable enough, low maintenance and economical - to balance out the cost of the flooring and ceiling materials. A table is provided on page 44 showing the additional materials considered and why they were ruled out.

As an example of the material selection process, chipboard is used in the deli counter as there is no sustainable board product available in South Africa and chipboard proved to be the most sustainable and appropriate material as compared to MDF and plywood. If the alternative choice, which is strawboard becomes available in South Africa however, I recommend that it replace the chipboard, as it is made from waste agricultural straw which uses no adhesives, just pressure and is 100% recyclable and biodegradable and allows for intricate joints (unlike chipboard) which are easy to assemble and disassemble for future use.

The Formica used in the Deli design, however it is a landfill material, was selected for its local availability, price, unbeatable durability and aesthetic, as well as the fact that it uses such a small amount of material. Its use is also limited to the high traffic front of counter.

The newly designed interior components for Shoprite therefore illustrate how interior design can balance minimising resources and maximising the user experience in store, and thereby achieve an efficient interior design for Shoprite. An efficient interior design for Shoprite provides an interior environment which represents the brand promise within the interior - as was the main aim of the project.

06 | CONCLUSIONS

6.1 CONCLUSION TO PROJECT

The dissertation succeeded in answering the research questions by firstly demonstrating how interior design can improve the efficiency of South African Shoprite interiors by balancing minimising resources and maximising the user experience through that which is in the power of the discipline of interior design. By improving the efficiency, Shoprite's brand promise of providing the lowest possible prices in a satisfying and convenient first world shopping environment which is comfortable and enjoyable, became evident within the interior space.

This was done by identifying the national and international standards for efficient interior design by analysing appropriate theories and interior artefacts. The standards identified were those which are appropriate to South African Shoprite interiors. The numerous theories on retail design and branding, as well as resource efficiency was then applied to the design of specific interior components within the supermarket in order to illustrate how the efficiency is improved. The interior components selected were those which proved to have the most potential to solve the problems within existing Shoprite supermarkets and thereby improve the efficiency.

Utilising the minimum amount of resources within the design demonstrated the impact of interior design on the energy, water and material efficiency, as well as the indoor environmental quality of the supermarket. This was revealed by specifically exploring ways to minimise the air conditioning, refrigeration, water heating and lighting load within store, which are the highest energy consumers in South African supermarkets (which can be controlled by the interior designer). Next, water consumption was addressed by specifying low flow water fittings within the design in order to complement Shoprite's proposed greywater system. The material selection involved selecting appropriate materials, considered in terms of their environmental impact, use, local availability and end of life. The above aspects were also considered in terms of indoor environmental quality, which includes thermal and visual comfort, water surveillance, selecting environmentally friendly materials and finishes, as well as the ergonomics and acoustics in store. These interior design strategies allow for a more comfortable, productive and healthy interior environment which improves the shopping experience. It also enables improved operational efficiency in store, which serves to keep the prices of the products low and can allow for larger financial turnover for Shoprite.

The user experience was further maximised through establishing an appropriate brand identity in store which meets the target market's aspirations and which they can relate to. This creates value by meeting consumers' need for a pleasant shopping experience. This was done by applying strategies to interiorise the Shoprite brand, so the store unmistakably speaks Shoprite, with an essence of local, informal retail inspiration. The design elements allow bright, dynamic and positive communication in store, as it was established that this is the kind of communication the target market relates to. The design also created suitable typologies for the different departments in store, while providing simple and intuitive circulation and communication. The elements improve the navigation, ambience and productivity in store, allowing for a more convenient, comfortable and enjoyable shopping experience. The above holds the opportunity to improve customer loyalty towards the brand by differentiating Shoprite from its competitors.

By minimising resources and maximising the user experience, the interior space therefore relates to the brand promise, allowing Shoprite to demonstrate their narrative instead of just talking about them in advertisements.

In essence, the design of Shoprite interiors is a balance between the price of the product and the price of society by allowing prices to stay low through enhanced operational efficiency, while making customers feel valued by providing a satisfying shopping experience.

The project also addressed the design issue by contributing to Shoprite's climate change adaptation strategies to lower business risks and thereby improve their sustainability efforts. Also by utilising business opportunities by offering innovation in services and operations in store by enhancing the efficiency; and improving execution of the business strategies across business functions by fulfilling the brand promise within the interior. The project lastly contributes to Shoprite's growth strategy by improving the efficiency of existing stores and allowing opportunity to generate more revenue.

6.2 LIMITATIONS TO THE STUDY

A limitation to the study is that the research method of research through design could not be completed due to time constraints. The design is still in need of the necessary iterations, experimentations and critique. This forms a recommendation for further study, as it will further enrich the project.

6.3 CONTRIBUTIONS

The project contributes to the discipline of interior design in the following ways:

- It provides interior design guidelines for achieving an appropriate retail interior which balances minimising resources and maximising the user experience to meet the needs of a specific target market. More specifically, it meets the needs of South Africa's fastest growing consumer segment, the LSM 4-7 segment or the mass middle market, which could benefit a number of retailers.
- It illustrates how theory can be combined with associations as research method, which was established by Dr. Raymund König in his doctoral thesis. This allows the design to generate meaning by creating appropriate connotations in the mind of the target market through visual communication. This enables a more relevant design, which the target market can relate to.
- The project serves to strengthen the participation of interior designers within the retail sector by revealing the positive impact interior design can have on retail environments in terms of improving in-store efficiency in order to increase financial turnover.
- By illustrating the key role fulfilled by the interior designer in retail design (relating the store interior to the brand promise), the project assists in establishing the identity of the interior design profession.

6.4 RECOMMENDATIONS

Firstly, **graphic design** will have to be carefully considered as the proposed symbols used in the design will greatly influence the new brand identity created in store. It will allow the symbols to come to life in order to maximise the ease of navigation in store in a way that resonates with the target market (informal retail inspiration). This will add to the convenience and satisfaction of the shopping experience.

Next, the project recognised that retail design is a very complex environment that is dependent on a number of role players to successfully execute a retailer's design and identity. A total shopping experience can thus only truly be achieved if all role players cooperate to execute a retailer's strategy. Additional design aspects, beyond the interior designed components presented in the project, therefore influence the overall user experience and the use of resources within the interior. Additional, key considerations which could enrich the project by further enhancing the efficiency, are elaborated on below.

Although the project focused on minimising resources and maximising the user experience of Shoprite supermarkets to allow the Shoprite brand to create value for its customers beyond the products being sold, the products still remain the main focus in any supermarket and therefore largely influence the shopping experience and brand identity. In order for Shoprite interiors to become truly efficient, **visual merchandising** therefore needs to be considered as an additional, key layer to the proposed design. Only then can a final layout be determined, which best situates the interior components in a way that is convenient and relevant to consumers, allows for productivity of the employees and provide opportunity to maximise impulse purchases.

The store layout can significantly impact a retailer's performance. It helps attract customer's attention and can therefore contribute to the uniqueness of the store and the user experience.

As the layout of a supermarket is primarily concerned with increasing sales, additional research is required on **consumer behaviour** and **needs** in terms of merchandise. Analysing the transaction data of Shoprite supermarkets can assist in better understanding consumer behaviour and will aid in accurately determining appropriate **cross merchandising** of products, which hold great opportunity to increase impulse sales and therefore profit. In addition, the transaction data will accurately determine which of the interior components truly deserve prime location in store (especially which department should be situated beyond the entrance of the store).

An appropriate layout can also serve to increase convenience since the proper placement of the interior components can enhance navigation in store. The proper placement of products can also minimise wasted steps and motions in the shopping process to further increase shopping convenience or better yet, be arranged in such a way that customers do not realise how far they travel and are encouraged to buy additional merchandise along the way.

As the LSM 4-7 segment is the largest consumer segment, marketing strategies such as advertisements, product offerings and product placement need to respond to specific locations in order to truly meet the needs of the different consumers in different areas or different age groups. This will add additional value to the design by making it more relevant to the target market.

Next, the design and specifications of **display units**, whether it be shelving, racking or custom made fixtures, should be carefully considered as they also hold further opportunity to enhance the user experience by effectively displaying the products.

If these recommendations are fulfilled, it can allow the project to evolve into a roll out strategy for Shoprite supermarkets.

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CORPORATE IDENTITY



COMPANY OFFERING

Fast Moving Consumer Goods (FMCG) retail operation
(Shoprite Holdings 2014c).

- Groceries
- Fresh food
- Non-foods
- Small appliances



COMPANY POSITIONING

GOAL

- Offering consumers of all income levels the Group's **lowest possible prices**
- Providing all communities in Africa with food and household items in a **1st world shopping environment**.
- At the same time the Group, inextricably linked to Africa, **contributes** to the **nurturing of stable economies** and the **social upliftment** of its people
(Shoprite Holdings 2014c).



MISSION

The guiding mission of the Shoprite Group of Companies is **to be the consumers' preferred shopping destination**, by retailing food and non-food products at the Group's lowest prices from conveniently located outlets in an environment that is conducive to a **comfortable and enjoyable shopping experience** (Shoprite 2014b).

SUSTAINABILITY

Shoprite acknowledges that the **degradation of the environment** will undermine their ability to produce **resources cost effectively** (Shoprite Holdings 2011).

Questionable Property Division Statement

"In-house store designers follow **design principles sympathetic to the environment** - energy efficiency. Designs & store layouts reflect the **latest international retail trends**. Freshness & integration of specialist apartments also impact on store layouts & ambience"
(Shoprite Holdings 2009).

ELECTRICITY CONSUMPTION

- Energy monitoring system for benchmarking
- Energy efficient lighting (fluorescent lighting only) - energy saving of 6 Mw
- Smart refrigeration
- Tele-maintenance system



WATER CONSUMPTION

- Proposed greywater system
- Water-wise indigenous plants for new stores



CDP

- 4 Reports (not satisfactory) Electricity = bulk of carbon emission
- Extra costs (Project can help):
 - Carbon tax
 - Operation cost
 - Emissions reporting
 - Fuel & energy tax
 - Capital expenditure increase due to green building



WASTE RECYCLING & PACKAGING

- National Environmental Waste Act of 2008
- Reclamation centre for damaged goods
 - reduce waste to landfills
 - baling & selling
- Reusable roll-tainers replaced wooden palletes
 - reduce staff effort
 - reduce shrink wrapping
- Increased use of crates & tote bins to reduce cardboard boxes
(Shoprite Holdings 2013b, 2014g)



Geographic Spread

Over the past 17 years, Shoprite has expanded throughout Africa and have become the leaders in expansion across Africa (A.T. Kearney 2014 and Shoprite Holdings 2014d).

SA does however remain the leader of Shoprite's African business, dominating more than 3/4 of the market (A.T. Kearney 2014).

- Angola
 - Botswana
 - Ghana
 - Lesotho
 - Madagascar
 - Malawi
 - Mauritius
 - Mozambique
 - Namibia
 - Nigeria
 - South Africa
 - Swaziland
 - Uganda
 - Zambia
 - DRC
- (Shoprite Holdings 2014d)



Stores

More than 280 corporate outlets and almost 40 franchise stores serve consumers in 15 countries in world-class supermarkets (Shoprite Holdings 2014d).

- Total number of corporate stores: 2020
- 230 Confirmed new stores to June 2016 (Shoprite Holdings 2014f).

R260m sales loss (closed 15 Dec) (Shoprite Holdings 2013a).

Economic development

Policy: Reducing dependance on international suppliers by empowering local suppliers.

- Small local suppliers deliver fresh produce & perishable products.
 - most receive assistance to meet Group's requirements in terms of volumes & product specifications.
 - Group provides support & development programs aimed at assisting locals to achieve the required standards & produce.
- Poverty development
 - job creation
 - black suppliers
 - black female suppliers
 - economic activity & land development in disadvantaged communities & rural areas.



Social & Ethics

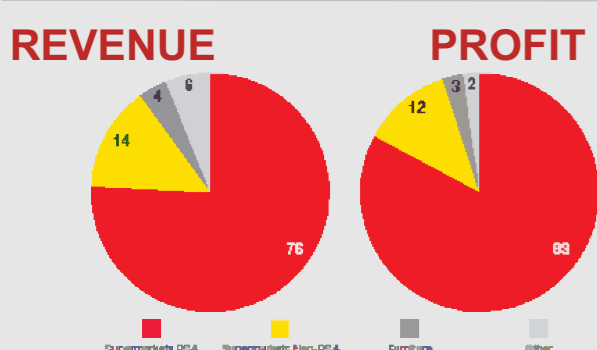
- 1 of the largest contributors to skills development in SA:
 - Job and skills development opportunities.

- Employs more than 17 313 local nationals in its non- South African operations.
 - 123 100 employees in total (99% from local communities)
 - 11762 new jobs in 2014
- Proudly local products highlighted in store (exclusive advertising space).



Sustainable Efforts

THIS YEAR WE PREVENTED OVER R1 BILLION IN PRICE INCREASES FROM REACHING OUR SHOPPERS



FIRE PREVENTION STRATEGY

- HIV AIDS TRAINING
- ACCESS TO MEDICATION
- HYGIENE SECURITY
- EMPLOYEE SATISFACTION = HIGHER PRODUCTIVITY

11 762 NEW JOBS CREATED IN 2014

123 100 people employed in total

BLACK REPRESENTATION 95.9%

130 NEW CORPORATE STORES BY JUNE 2015

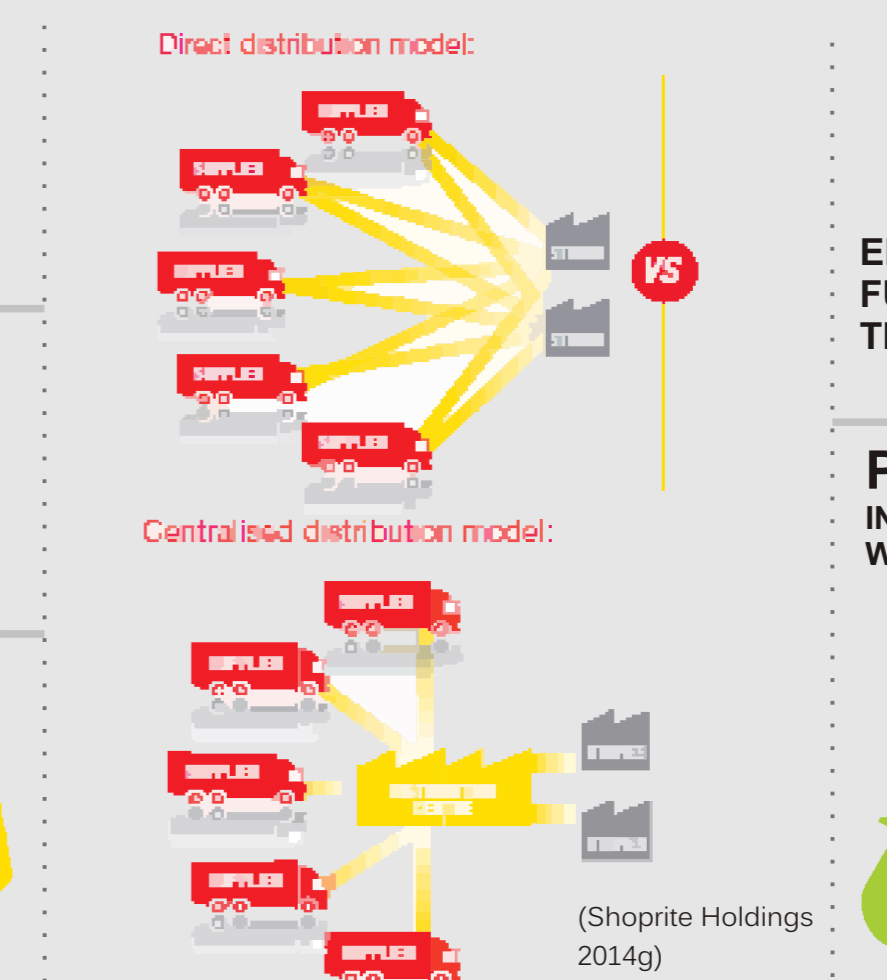
- South African National food inflation **6.1%**
- Shoprite Checkers Internal food inflation **4.7%**
- B-BBEE Level 4 contributor
- Group turnover grew **10.5%**
- Number of food safety incidents **ZERO**
- Total CSI spend **R118 456 338**

FOCUSING ON THE ENVIRONMENTAL IMPACT OF OUR VALUE CHAIN

Over **1 000 000** reusable crates in use

R85 000 000 Fossil fuel cost savings

1ST WORLD SHOPPING ENVIRONMENT



- Direct emission reductions** 77 000 Tons of CO₂
- ENVIRONMENTALLY FRIENDLY FUELS FOR REFRIGERATION IN TRUCKS
- PACKAGING INCREASES COST & GENERATES WASTE
- MATERIALS WHICH INCREASE SHELF LIFE & REDUCE FOOD WASTE
- REDUCE INCREASE RECYCLABILITY

BRAND IDENTITY



The Shoprite brand remains the **core business** of the Group and the **main brand** since it started from a small chain of supermarkets in 1979 (Shoprite 2015b). Today it is rated the most valuable retail brand in SA, worth R8.9 billion (Shoprite Holdings 2014b)

BRAND OFFERING

Supermarkets offer consumers a **modern shopping convenience** at the Group's **low prices** (Shoprite Holdings 2014e).



Logo



BRAND PROMISE

Offering customers lower prices they can **trust** in a satisfying and convenient, **1st world shopping environment** which results in a **comfortable** and **enjoyable shopping experience**

(Shoprite Holdings 2014a, 2014c, 2014e; Shoprite 2015b, 2015c).



BRAND PHILOSOPHY

Shoprite's winning philosophy is to operate a chain of modern supermarkets where customers can be sure to pay the Group's low prices on their basic food and household requirements in a convenient shopping environment. (Shoprite Holdings 2014e).

Consumer policies are geared at ensuring a **satisfying** and convenient shopping experience. (Shoprite 2015c).

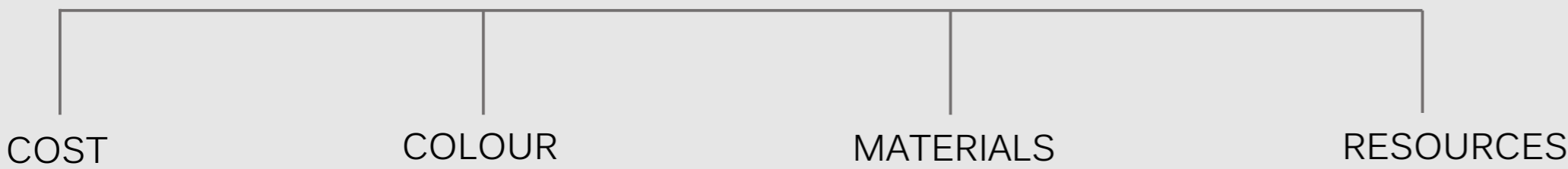
BRAND STRATEGY

The guiding mission of the Shoprite Group of Companies is **to be the consumers' preferred shopping destination**, by retailing food and non-food products at the Group's lowest prices from **conveniently located outlets** in an environment that is conducive to a comfortable and enjoyable shopping experience (Shoprite 2015c).

- Trust
- Convenience
- Advancement

(Shoprite 2015b, 2015c and Shoprite Holdings 2014e).

Design limits



Stores

In SA, Shoprite has 2 store formats (Shoprite Holdings 2014e)

Supermarkets:

Sell a comprehensive range of groceries, fresh food, non-foods and small appliances.

Size: 2500m² - 4500m².

Superstores:

Offers extended ranges of basic grocery and household products, service departments and a bigger range of non-food and DIY items. There is currently only 1 in SA that caters for a similar consumer market.

Outlets

Total 1581 corporate stores

Brand Summary Target market LSM 4 7

- Group's flagship brand
- Most existing stores in SA & across Africa
- Most proposed new stores in SA & across Africa 2015:
- 119 SA
- 44 non-SA (Shoprite Holdings 2014f, 2014g)

Biggest Impact

SAVE OVER R1000 ON YOUR SHOPPING WITH EeziCoupons

As Eezi as...

- Step 1: Scan the barcode on the coupon.
- Step 2: Enter the code on the app.
- Step 3: The discount will be applied to your bill.

A If your phone has internet access, get EeziCoupons by going to www.shoprite.mobi

B If your phone does not have internet access, dial *12969*11

C Alternatively, you can download our coupon app and send your discount code to your cellphone.

(Shoprite 2015e).

Mobile Community

Mobisite gives you access to EeziCoupons (Shoprite 2015e).

TARGET MARKET

Mass middle market

Middle- to- lower- income consumers (Shoprite Holdings 2014e).



Figure Appendix A1: South Africans (Nerve 2010)

Community Networks



Shoprite Community Network, Shoprite's R1 million festive season #Shareforgood food donation campaign, Mobile Soup Kitchens, Cuppa for CANSA, Stay safe at home, at work and at play –the shoprite stay safe women's road show, Dash 4 Warmth, Shoprite in conjunction with Age in Action, Charing knowledge by donating books (Shoprite 2015d).

House Brand



- Departments
- Bakery
 - Deli
 - Fish shop
 - Wine section
 - Meat Market
 - Money Market
 - Medirite pharmacy (selected stores)

Convenient Services



Consumer Centre:

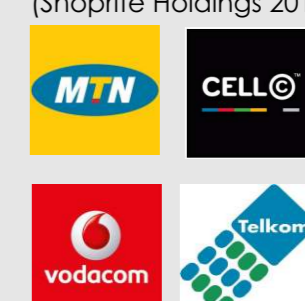
At the entrance of the stores customers have the opportunity to air their wishes and views & get valuable information on a variety of topics through the consumer centre (Shoprite Holdings 2014).



More than 200 different third party accounts can be paid at the Money Market counter, including 80 different municipalities nation-wide, water and electricity, property rates and taxes, telephone accounts and funeral policy payments (Shoprite Holdings 2014i and Shoprite 2015g).



Phone cards (Shoprite Holdings 2014j).



Packaging



APPENDIX B

CASE STUDY 1: THE FALLS PICK N PAY



Figure Appendix B1: View of The Falls Pick n Pay, as seen from the parking lot (Leading Architecture & Design 2012)

Name: The Falls Pick n Pay ('Green Flagship Store')
Location: Corner of Hendrik Potgieter Road & Johan Street in Little Falls, Roodepoort, Gauteng, South Africa
Date: 2013
Building type: Retail
Architects/ Interior Designer: Boogertman & Partners
Size: 10 000 m²
Cost: R160 million
Exterior material: Glass, steel & stone

Situated in one of South Africa's most rapidly expanding areas, the new Pick n Pay 'green flagship store' embodies fresh, variety and innovation (Pick n Pay 2013). For that reason, the shop displays are more organic and less structured layout than traditional stores (Atterbury News2013). The colour palette is neutral to allow for maximum flexibility of the store layout, as seen in the figures below.



Figure Appendix B2: Interior of The Falls Pick n Pay showing neutral material palette and light quality (Boogertman & Partners 2014)

In terms of the construction of the store, advanced energy efficiency, resource efficiency and environmentally responsible principles were implemented in combination with aesthetic ambience (Pick n Pay 2013 and Building & Décor 2014). The key consideration in the design of the store was however energy efficiency. A range of energy efficient initiatives, which comply with guidelines and rating criteria set by the Green Building Council of South Africa (GBCSA), were implemented, which reduces the electricity consumption (Building & Décor 2014). These initiatives include:

ENERGY EFFICIENCY

1. LIGHTING

1.1 Daylighting

- Daylight harvesting within the store is enabled by sustainable building design and technologies, such as **building orientation, fenestration and louvers** (Atterbury News 2013).
- **Skylights** bring daylight into the stores, reducing electricity demand.

1.2 Artificial lighting

- **LED lighting** is used for external signage, minimizing electricity consumption.
- **Dimmable fluorescent fittings** are used indoors for optimal energy usage. These adjust automatically, depending on the ambient lighting conditions.

Incorporated into the overhead bulkheads are 'real time' building power usage displays which enable customers to view the amount of electricity used in store. This creates awareness of a reduced environmental impact to encourage the public to follow suit (Building & Décor 2014).

2. HEATING AND COOLING

- Detailed attention was paid to **refrigeration and air conditioning** within the store, since it can account for almost half of the store's energy bills, says Building & Décor (2014).
- **External cavity walls** are used in the construction to stop heat from entering the store and to keep heat inside the building on cold days.
- **Solar control glass** is applied to **west-facing facades** to reduce heat loads. This reduces energy consumption by making the air conditioning more effective.
- Locally manufactured **horizontal louvers** are installed to screen off the shop fronts from exposure to the sun. This further reduces heat loads.
- Specialised "Rigifoam 85mm Lambdaboard" **roof insulation** was used, which has very high thermal properties. This reduces the amount of heat entering the store through the roof.
- A **CO₂ monitoring system** is implemented to allow fresh air intake to be controlled, reducing the demand on air conditioning.
- **Heat pumps** are also used for heating water.

MATERIALS

- Construction materials with **recycled content** are used.
- The insulation material has **zero ozone depletion properties** (ODP) (RigiFoam 2013).
- The insulation is also cleanable, washable and solvent-resistant, which makes it ideal for **future retrofits**.
- As mentioned, a neutral material palette further allows for **flexibility** of the interior layout, making the space more sustainable as less intervention will be required for future adaptation.

WATER

- **Rainwater run-off** from the roof and other areas are filtered and stored in steel **tanks** and used for **irrigation**.
- **Bioswales**, which are designed to remove silt and pollution from surface run-off water, assist with retaining the rainwater before it is absorbed into the ground.
- **Greywater** is recycled and use for irrigation.
- Only **indigenous and water-wise vegetation** has been used and is watered through drip irrigation to save water.

CASE STUDY 2: MAGNIFY CREDIT UNION



Name: Magnify Credit Union – South Lakeland Branch
Location: Lakeland, Florida, United States
Date: 2009
Building type: Commercial
Architect: Straughn Trout Architects, LLC
Size: 1 265m²
Exterior material: Glass, brick, and cement

Figure Appendix B3: Interior of Magnify Credit Union (WBDG 2014)

This LEED - Gold accredited building makes use of a roof-mounted photovoltaic array, digital daylight monitoring and rainwater harvesting to achieve a carbon neutral, net zero energy facility which generates 116% of the energy required for its operation (Architecture 2030 2011).

The flagship branch's mission is to achieve financial education and environmental awareness. The first sustainable action taken by the project, was therefore to purchase a previously developed property. Furthermore, the interior layout allows for programmatic flexibility of private and public spaces which will allow for further development in identity over time (WBDG 2014).

The building requires less operational costs than conventional buildings its size, reduced maintenance, improved durability, enhanced safety and security, maximum functionality and accessibility, as well as unbeaten indoor environmental and experiential qualities. The property value also significantly increased due to its unique operating independence from the municipality (WBDG 2014).



Figure Appendix B4: Diagram showing optimised energy usage (WBDG 2014)

ENERGY EFFICIENCY

Net Zero Energy is achieved by **reduced energy loads**, **increased equipment efficiency**, and **on-site photovoltaics (PV)**. **Energy and water metering** were also installed in order to track the buildings sustainable initiatives (Architecture 2030 2011).

Reduced energy loads were further achieved by the implementation of the following strategies:

1. LIGHTING

1.1 Daylight

Natural daylighting reduces the artificial illumination requirements through:

- **Clerestory daylighting**
- **Pedestrian level glazing**

Daylighting directly improves productivity by creating a user-friendly work environment (Architecture 2030 2011).

1.2 Artificial lighting

- Daylight Management System control: Digital **compact fluorescent lighting dimmers** with **photo sensors**, monitors the interior lighting levels and dims the artificial lights when natural daylight sufficiently illuminates a space.
- **Occupancy sensors** also automatically turn lights off in unoccupied offices.

A touch screen kiosk provides occupants with live building data, a "green features" map, as well as explanatory animations educating the public about the various sustainable design elements (WBDG 2014). Additionally, Energy Star labelled appliances are used to further lower electricity consumption.

2. HEATING AND COOLING

- **Cool Roof:** A **solar reflective roofing membrane** was installed to reflect heat away from the building.
- Passive cooling is achieved by use of a **"double roof"** design. The double roof is created by elevating the PV panels above the building which defers direct heat gain on the building through natural convection between the two roof layers.
- The primary **north/south orientation** of the **building** further minimizes solar heat gain during cooling times.
- Energy efficient **insulated glazing** is used to further reduce heat loads.
- Large **roof overhangs** block out direct sunlight during summer to minimise heat gains (figure top right).
- **Sunshades** are used for the same purpose, while allowing direct sunlight in during winter for heating (figure top right).
- Increased **wall insulation** also reduces solar heat gain.



Figure Appendix B5: Exterior & interior views of roof overhang, sunshades and energy efficient insulated glazing (WBDG 2014)

MATERIALS

- **Life-cycle cost analysis** was done throughout the design and construction process to minimise cost by comparing initial construction costs with long term operating costs as well as qualitative benefits to the building occupants.
- 16% of the materials (by cost) were extracted and manufactured **within an 800km radius** of the project, reducing the need for excessive transportation fuel.
- The interior finish materials contain **high recycled content**. These include carpet systems, porcelain tile flooring, recycled glass wall tiles, rubber flooring with shredded and cleaned tire rubber, recycled aluminium mill work panels, and counter tops of recycled paper which include inlays of bamboo, recycled credit cards and recycled currency.
- **100%** of building materials are thus **diverted** from disposal in **landfills**.
- The **embodied energy** in building materials and assemblies are **reused**.
- Lastly, **no energy** was used for **demolition** and **removal of debris**, which further adds to the sustainability of the project.

INDOOR AIR QUALITY

The indoor air quality (IAQ) was improved using the following strategies, says the WBDG (2014):

- Carpets, pads and other products with off-gassing characteristics were **opened and aired** for at least one week before installing it inside the building.
- HVAC equipment was **protected from weather**, prior to installation, while **daily replacement of return air filters** for all HVAC equipment also took place **during construction**.
- **Low-emitting materials** including adhesives, sealants, paints, wood stains, carpet systems and composite wood systems were chosen to reduce or **eliminate volatile organic compound (VOC)** off-gassing.
- Furthermore, **indoor cleaning chemicals** are contained in a **sealed closet** with a dedicated exhaust fan.
- Lastly, a permanently installed **entry system** captures **dirt** and particulates from entering the building.

WATER

1. Rainwater harvesting

- Rainwater harvesting from the **roof** with a series of **cistern tanks** and filters are used, which provide more than double the water required for flushing and irrigation.
- **Indigenous vegetation** is used to save water.

2. Interior intervention

- **Low-flow water fixtures**, including faucets and water closets, further reduce water use by 45%.

CASE STUDY 3: NASA SUSTAINABILITY BASE



Name: NASA Sustainability Base
Location: Moffett Field, California, United States
Date: 2013
Building type: Retail
Architects: William McDonough + Partners
Size: 15 240m²
Exterior material: Glass, concrete, steel & aluminium

Figure Appendix B6: Exterior view of NASA's Sustainability Base (McDonough 2012)

The LEED – Platinum accredited campus embodies NASA's culture of innovation (Pepitone 2012). The architect firm, William McDonough + Partners have a focus on clean air, soil, water and power, which is economically, equitably, ecologically, and elegantly enjoyed states McDonough (2012). They believe that design is the signal for human intension and they have a strong Cradle to Cradle philosophy, which considers materials from creation to eventual recycling.

The NASA campus building was designed to embody human health and well-being, as well as being highly energy- and water efficient.

Common services are aligned along an interior pathway of the open plan office, grouping 25 to 30 people in order to achieve team building and collaboration. This actively supports health and well-being of occupants and creates a positive workplace for NASA employees (view figures below) (McDonough 2012).



Figures Appendix B7: Open office floor plan allows for flexibility and productivity (McDonough 2012)

ENERGY EFFICIENCY

The interior design strategies to achieve energy efficiency are depicted in the figure below.

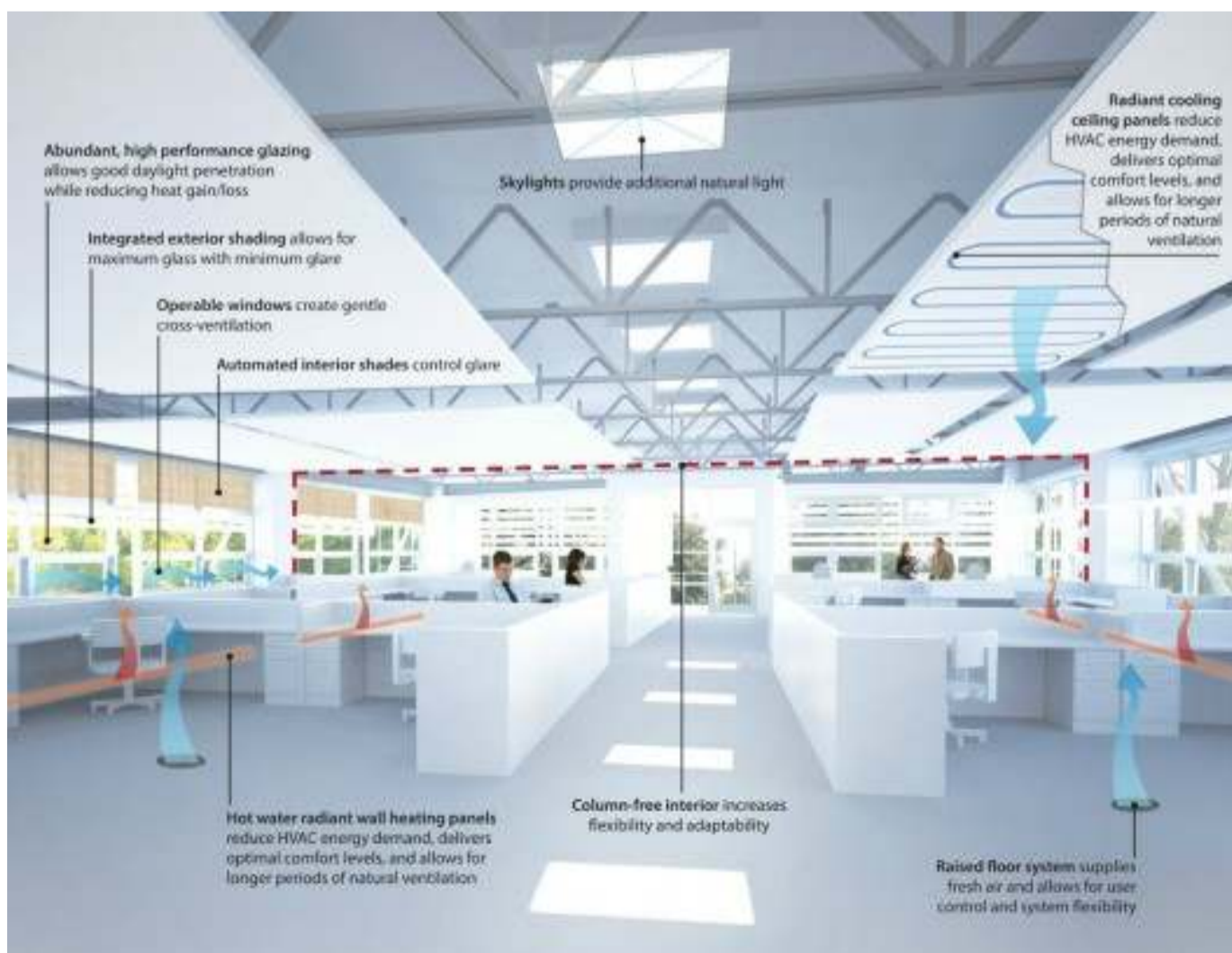


Figure Appendix B8: NASA Sustainability Base Interior Strategies (ArchDaily 2012)

The energy efficient strategies include:

1. Lighting

1.1 Daylight

- The interior is exposed to maximum daylight and views to the exterior, by use of an “**exoskeleton**” which is defined as a hyper-efficient structure that provides **thermal mass** for insulation, **shade** for residents, and **architectural elements** such as terraces and armatures (Lee 2006).
- Light penetrates deep into the building through use of **tall floor to floor heights**, **large windows**, **skylights** on the second floor and narrow building floor plates.
- Exterior aluminium shades mitigate glare and reduce heat gain

1.2 Artificial lighting

- Modelling suggests that electrical lighting will only be needed 42 days of the year, due to the exposure of natural daylight.

2. HEATING AND COOLING

- Thermal comfort is achieved through a super **insulated exterior metal panel** system with **high performance glazing**. This provides a tight, warm envelope for cool mornings.
- **Operable windows** can be controlled by users to ensure thermal comfort.
- The building management systems create gentle **cross-ventilation** which cools the building interior.
- Further, localised heating or cooling is provided by **radiant panels**, allowing for longer periods of natural ventilation.

MATERIALS

- **Cradle to Cradle** certified products were used when available, cost effective, and achievable through a competitive tender process.
- When these products could not be implemented, other products were evaluated for their Cradle to Cradle potential. This included comparing products in a similar material class on a relative scale of **human** and **ecological** performance.
- Material use considerations included utilizing an external braced frame to **reduce** the amount of steel (by weight) in the building. The lightweight insulated metal panel cladding also reduced the amount of material required for construction.
- Materials that were beneficial to human and ecological health were designed for technical and/or biological cycles to achieve **material health**.
- When these materials were not available due to performance requirements, remaining materials were evaluated for obvious **risks** to the **biosphere**.
- Material content considerations included **recyclable/recycled** materials, **salvaged** materials, and **locally available** and/or **rapidly renewable** materials as well as **certified wood**.
- The main components of the design (concrete, steel, glass, aluminium), although **high in embodied energy**, have **high recycled content** and are **regionally available**, making them a sustainable option.
- The lobby areas also **reuse** oak flooring from a transonic wind tunnel on the NASA Ames Campus.

Design for disassembly was facilitated by choosing a steel structure (rather than concrete) that can be easily dismantled as well as repaired. Exterior cladding was also provided in **pre-fabricated** unitised components. This extends the life of the materials and allows them to be easily reused.

INDOOR AIR QUALITY

Indoor Air Quality is supported by utilising **raised access floors** throughout open areas, allowing for user and system **flexibility**. The floor is connected to a **dedicated outdoor air system** which provides **fresh air** distribution when building's windows are closed.

WATER

Greywater recycling enables 90% less portable water usage that buildings of similar size.

CONCLUSION TO CASE STUDIES

Strong parallels can be drawn between the strategies used in the three examples. This clarifies which interior design strategies are viable in achieving sustainable building interiors. These are:

- Maximising **natural daylight** in the interior in order to enhance the **energy efficiency** of the building as well as enhancing the **quality of light** in the interior.
- Making use of **energy efficient lighting** such as LEDs and fluorescent lighting.
- Installing **controls** and **monitoring devices** to save electricity.
- Providing **overhangs** and **shading devices** in order to avoid heat gain and improve thermal performance.
- Properly **insulating** the structure by use of **roof** and **wall** insulation as well as **high performance glazing** in order to further reduce heat loads and save on air conditioning.
- Making use of **locally manufactured, recycled content** materials as much as possible. These should also preferably be **low maintenance** materials which are **easy to assemble** and **disassemble**.
- Use products which do not pollute the indoor environment, such as **low- or no VOC products** in order to enhance the indoor air quality within the building.
- Provide access to **fresh air** through **operable window** in order to enhance occupant **health** and **well-being**.
- **Harvest rainwater** and reuse **greywater** in order to reduce water consumption and specifying **low flow water fixture**.
- Use a neutral material and colour palette in the interior in order to maximise **flexibility** of the space and to allow for **future adaptation**.

These guidelines will provide a successful starting point which will lead to a sustainable interiors.

The four interdependent regions which have the biggest impact on the interior environment, as proven by the case studies and some additional sources, are illustrated below:

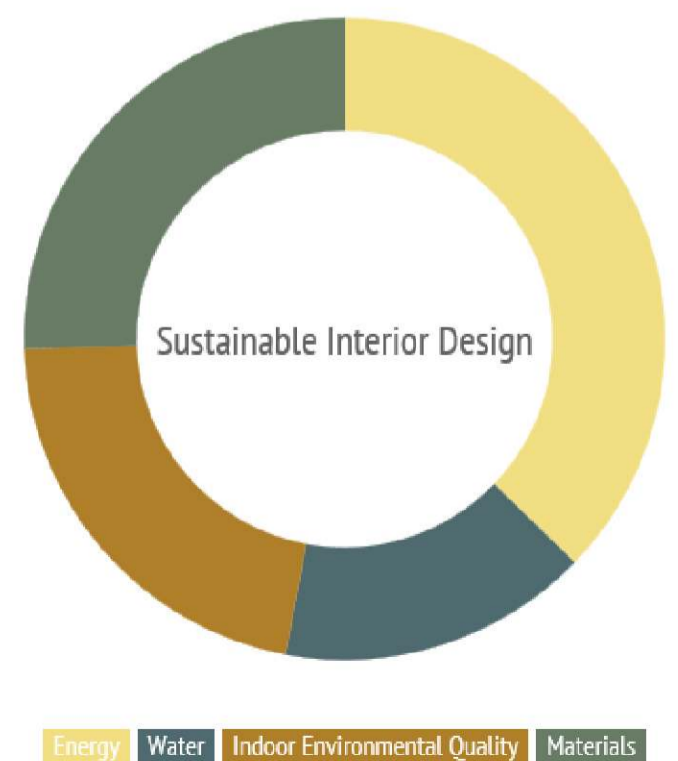
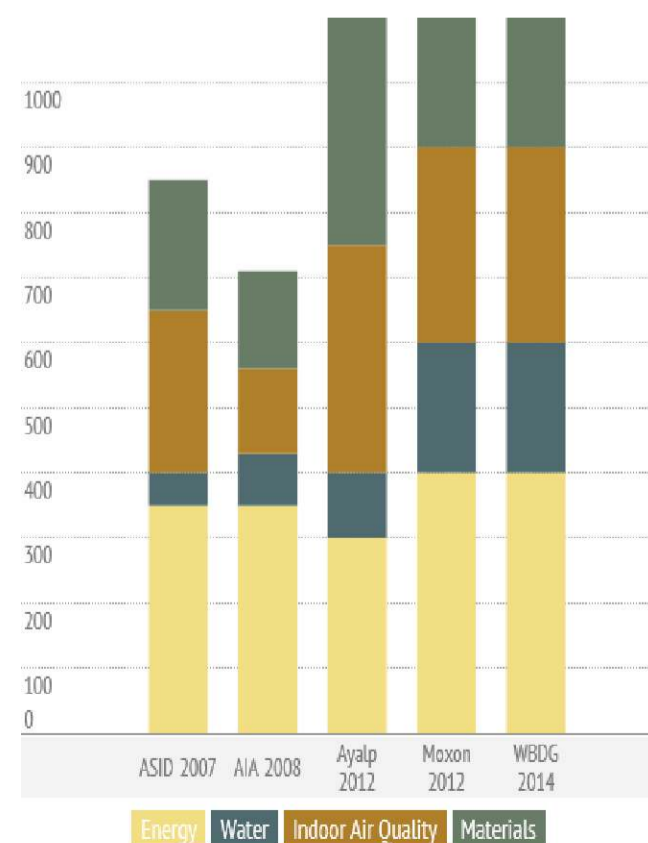


Figure Appendix B9: Graphic summary of the theoretical synthesis of various sources (Author 2015 - info gathered from ASID 2007, AIA 2008, Ayalp 2012, Moxon 2012 and WBDG 2014)

APPENDIX C

Sample Board

* Please note: the following page is reduced from A1 format

CEILING
1200 x 600 x 19mm thick **ULTIMA+ 7663M**
mineral ceiling as per Armstrong SA

SUSPENDED CEILING CLADDING
3660 x 1830 x 12mm **SupaWood**
Bison SA
Spray painted with Economical Contractors Paint
(acrylic) as per EcoPaint SA
Colour: Plascon Strawberry Daiquiri 100
Finish: Matt

12 mm
SUPA WOOD
PG BISON

WALL PANEL
3660 x 1830 x 12mm thick **Melawood** using
BisonBord substrate as per PG Bison SA
Colour: Iceberg White
Finish: Linear (a deep textured, straight wood grain)
Colour: VENZA Oak
Finish: Peen (a textured, stippled finish)

MELAWOOD
VENZA OAK
PEEN FINISH

COUNTERTOP
3660 x 1830 x 9mm thick BisonBord clad with
10mm moulded **Surino Solid Surfacing** as per
PG Bison SA
Colour: Glacier White
Colour: Hot

MELAWOOD
ICEBERG WHITE
LINEAR FINISH

SIGNAGE & MENU'S
REPRESENTATION
10mm thick **Xanita Board** as per Maizey SA

DRYWALL FINISH
300 x 150 white ceramic tiles as per Union Tiles

DELIVERY WALL
Economical Contractors Paint (acrylic) as per
EcoPaint SA
Colour: Plascon Chakalaka R7-B1.2
Finish: Matt

COUNTER BASE FRONT PANEL
3660 x 1830 x 12mm BisonBord as per PG
Bison SA
Formica HPL finish as per PG Bison SA
Colour: Signal Red
Finish: Matt
Colour: VENZA Oak
Finish: Matt

COUNTER BASE CARCASS
3660 x 1830 x 16mm **BisonBord** as per PG
Bison SA

FLOOR AROUND DELI
2000mm wide x 2.5mm thick **Marmoleum**
Real sheeting as per FloorWorx SA
Colour: Bleeckerstreet 3127

PLASCON
Y6-B2
Fresh Scent
Y6-B2.3
WALLS
Economical Contractors Paint (acrylic) as per
EcoPaint SA

KITCHEN FLOOR
2mm thick x 2000mm wide Compact Vinyl
Surestep Original sheeting as per FloorWorx
Colour: 171512 Oyster

SALES FLOOR
2000mm wide x 2.5mm thick **Marmoleum**
Real sheeting as per FloorWorx SA
Colour: Bleeckerstreet 3127


















EATING AREA FLOORING
2000mm wide x 2.5mm thick **Marmoleum**
Striato sheeting as per FloorWorx SA
Colour: Pacific Beaches 5216

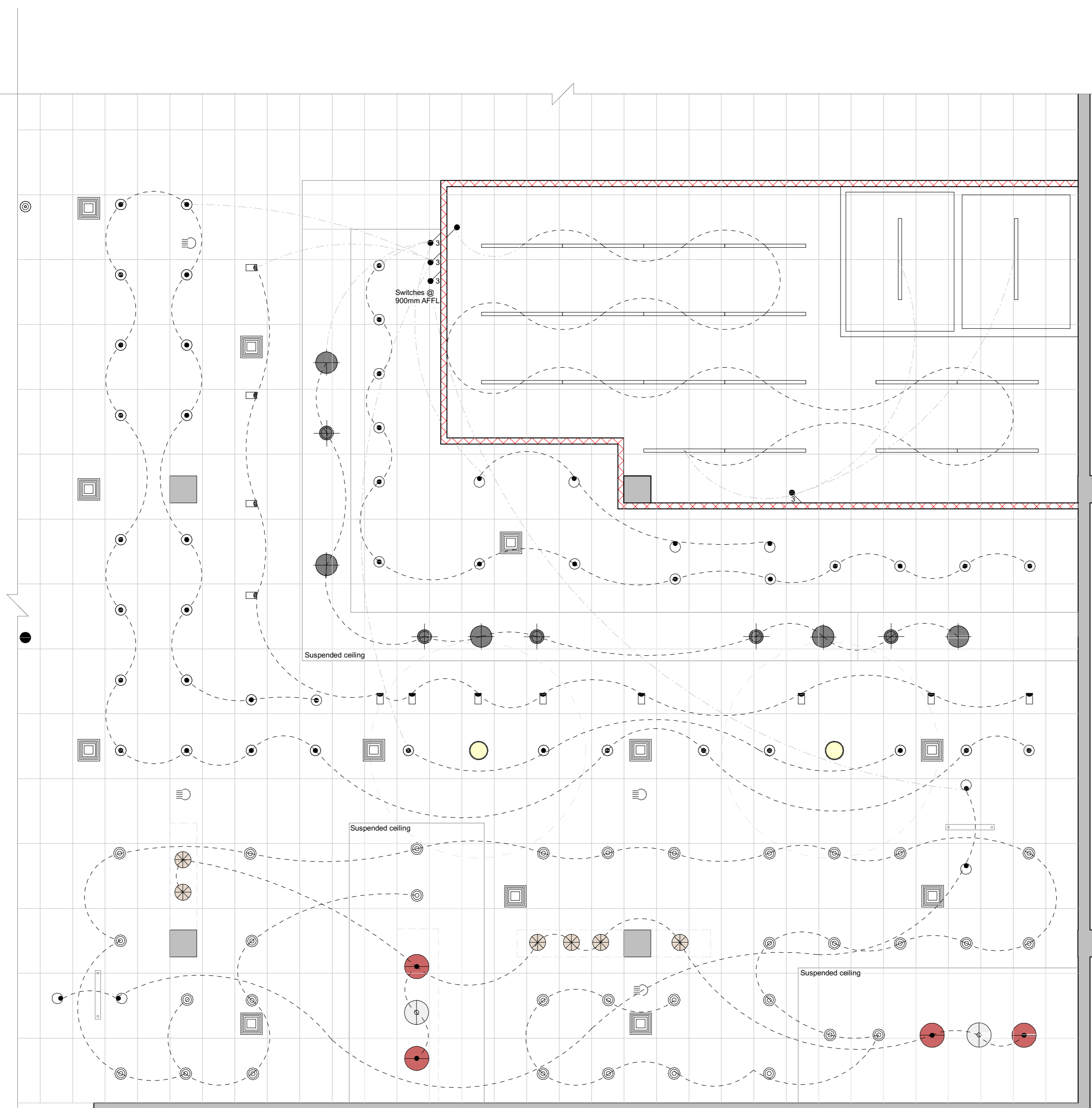
FEATURE WALLS
Economical Contractors Paint (acrylic) as per
EcoPaint SA



Deli Ceiling Plan

* Kindly refer to page 46 for guidelines.

ELECTRICAL LEGEND	
LIGHT FITTINGS	
	3500 Solutube® 290 DS Daylighting System, 23-28m² Light Coverage, 9m+ Potential Length
	Maxos LED 4MX850 by Philips, SA 1500 x 60 Surface mounted LED, White (WH) sheet metal
	LuxSpace Accent Performance, fixed version, RS751B, LED 39S by Philips, SA 1680 Adjustable surface mounted LED; White (WH)
	LuxSpace Accent Performance, adjustable version, RS751B, LED 39S by Philips, SA 1680 Adjustable surface mounted LED ; White (WH)
	SlyID Fresh Food, Performance 3C-track version, LED26S, light source colour Fresh Food Meat (FMT) by Philips, SA 1190 LED track light ; White (WH)
	ROYALE, PEN144 BK GD by illumina, SA 4000 x 230 high aluminium pendant in black and gold colour 1 x max 60 W E27 lamp required
	PORTOBELLO, IPEN7298_260_BK by illumina, SA 2600 x 320 high metal pendant
	LuxSpace Compact Power BBS495 (UGR19 version) by Philips, SA 2180 Surface mounted LED, White (WH) with high-gloss mirrors
	TANSY RED, IPEN7245_450_RD by illumina, SA 4500 x 500 high metal and glass pendant light 1 x 22-40 W (max 60 W) T5 required
	TANSY WHITE, IPEN7245_450_WT by illumina, SA 4500 x 500 high metal and glass pendant light 1 x 22-40 W (max 60 W) T5 required
	REPLICA SEPPKO KOHO SECTO PENDANT, IPEN7022_1_WD by illumina, SA 3000 x 600 high natural wood pendant light 1 x 7-40 W (max 60 Watt) E27 required
POWER SUPPLY COMPONENTS	
	LIGHT SWITCH
	3 WAY LIGHT SWITCH
HVAC, COMMUNICATIONS & FIRE FIGHTING	
	A/C OUTLET
	SPEAKERS
	SECURITY CAMERA
	FIRE ALARM



CEILING PLAN
SCALE 1:50

Figure Appendix C1: Deli Ceiling Plan (Author 2015)

DANKIE/ THANK YOU

Here, sonder U sou ek dit beslis nie gemaak het nie! Dankie vir al die krag, geduld en eindelose genade.

Ma, Nina, jy is my inspirasie! Dankie dat ma my hele lewe lank al vir my 'n voorbeeld stel van hoe om hard te werk en nooit op te gee nie. So baie dankie vir al ma se liefde en ondersteuning. Dankie dat ma die laaste vyf jaar van studies vir my moontlik gemaak het en dat ma altyd in my bly glo.

Raymund, dankie dat jy die potensiaal in my projek raak gesien het en dat jy vir my 'n visie gegee het van hoe om hom uit te voer. Dankie vir al jou moeite en insette en dat jy my gemotiveer het om nou en dan te slaap.

Barbara, *thank you for all your knowledge and guidance and for going out of your way to help me.*

Laura, my “lifeline”, dankie vir al jou idees, opinies en motivering. Dankie dat jy saam met my laat aande gely het en altyd geluister het hoe ek 'n duisend keer oor die selfde dinge kla.

Carla, jy het my “sane” gehou. Dankie vir al jou hulp wanneer ek op my desperaatste was. Dankie dat jy altyd in my en al my idees glo, al is hulle hoe sleg.

Oom Piera en tannie Suzette. Dankie dat julle my lief het soos julle eie kind en dat julle altyd in my glo. Dankie vir al die motiverende oproeppe, boodskappe en op die nippertjie se hulp. Ontsettend baie dankie vir al die tydskrifte wat my vir vier jaar inspirasie gebring het wanneer ek nie meer kon dink nie.

Vir al die ander wonderlike mense in my lewe, dankie vir al julle ondersteuning en moed inpraat.