AN EXPLORATION OF OFFICE DESIGN:
UNDERSTANDING THE CHARACTER OF OUR WORKPLACES
To Tienie and Sophia:

a wise man and his feisty wife, my grandparents.
Submitted in partial fulfilment of the requirements for the degree Master of Interior Architecture (Professional) to the faculty of Engineering, Built Environment and Information Technology.

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2013

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Course coordinator: Dr. Arthur Barker

In accordance with Regulation 4(e) of the General Regulations (G.57) for dissertation and theses, 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.

I further state that no part of my dissertation has already been, or is currently being, submitted for any such degree, diploma or other qualification.

I further declare that this thesis is substantially my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and list of references.

Sunica de Klerk
**PROJECT SUMMARY**

Project Description: An investigation into the character of workplaces, specifically the relationship between the spatial character and the user interface and how these are influenced by the building’s context.

<table>
<thead>
<tr>
<th>Programme:</th>
<th>Workplace design.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site description:</td>
<td>Pre-1990’s building in Esselen / Robert Sobukwe Street, Pretoria.</td>
</tr>
<tr>
<td>Site location:</td>
<td>Erf 01338, Pretoria, Tshwane.</td>
</tr>
<tr>
<td>GPS Coordinates:</td>
<td>-25° 45’ 7.02”, +28° 12’ 15.49”.</td>
</tr>
<tr>
<td>Research Field:</td>
<td>Environmental Potential (EP).</td>
</tr>
<tr>
<td>Keywords:</td>
<td>Workplace design; corporate culture; user interface; responsive interior architecture.</td>
</tr>
<tr>
<td>Chosen Client:</td>
<td>Assupol Life Limited (low income insurance company).</td>
</tr>
<tr>
<td>Users:</td>
<td>Employees and employers of Assupol as well as their clientele.</td>
</tr>
</tbody>
</table>

Interior Architectural Theoretical Question: How can designers allow for change without compromising on the quality of the resultant space?

Interior Architectural Question: Can an introverted office building from the pre-1990’s be adapted to successfully adhere to present and future requirements of the workplace?
“Buildings... are one of the keys to our cultural awareness and practices. Done right, spaces can expand our ability to think and process. Designed poorly, buildings and spaces take from our heart; they literally bleed our energy” (Kemp & Baker, 2006:x).
“The office of the last century was designed to keep people apart - a division of labour. Now the office is increasingly designed to encourage the chance encounters…” (Meyerson & Ross, 2003: 10).
ABSTRACT

The workplace environment is intrinsically dynamic, yet architecturally it is treated as something that is fixed. Functional layouts specific to the thinking of the time (zeitgeist) are built into the structure leaving little opportunity for adaptation. Frank Lloyd Wright's Johnson Wax building is one such example; built to function in the Taylorist paradigm with little scope for alteration.

The contemporary workplace often lends itself to the adaptive reuse of a range of building typologies or the construction of new structures with Green Star ratings. At the same time, a significant amount of office buildings, constructed prior to the green building movement of the 1990’s, are still in use, despite the typically hermetic and unhealthy spaces they contain. The possibility of adapting an office building from pre-1990 building stock is investigated.

Previous workplace layouts inhibited conversation (since interaction in the workplace was frowned upon), but today workplaces are designed with social interaction as its core. The largely unused potential of this aspect within corporate culture and the influence it might have on spatial organisations is investigated.

Interior architecture, as mediator between office buildings’ accommodation and their dynamic programs, forms the premise of the study. The hypothesis that an interior architectural intervention can make a positive translation from an unhealthy to a healthy building is tested by designing for the interplay between the character of a space and its design elements.

The design process is guided by the Open Building methodology of fixed, semi-fixed and loose-fit. The intervention translates this methodology into a responsive and context conscious proposal with an emphasis on the users and their sense of place. Finally, traditional architectural elements are reinterpreted in terms of their ability to enable or disable interaction between users according to the theory of social friction.

Three types of interaction are considered: official meetings, casual meetings and chance encounters. Human interaction, central to the creation of a workplace as opposed to a work space, is a constant theme throughout the study.
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Introduction

Social interaction is becoming increasingly important in the workplace. A company’s corporate culture largely impacts the way communication and work processes take place. A translation from a specific corporate culture to an interior work environment will be investigated with a specific concern into the quality of space.

Office buildings built prior to the 1990’s green building movement generally exhibit hermetic internal spaces prone to sick building syndrome. Since the amount of building stock of these work places is in abundance, an investigation into the possible rehabilitation of such a building will be probed. The selected site at 187 Esselen Street, Pretoria, was built in 1966 and exhibits the required archetypal characteristics and will hence form the architectural setting for the investigation.

The background to the study is developed by means of an overview of the current conditions of workplace design. The necessity for a work place in juxtaposition to a work space is explored. The results of the background study and real world problem is amalgamated into a relevant problem statement and hypothesis; clarifying the intent of the study.

Finally, the phenomenological research methodology is presented. The various techniques through which an understanding of the workplace phenomenon will be probed in Chapter 2 is presented. Chapter 1 concludes by introducing the four theories developed and informed by Peter Zumthor, Christian Norberg-Schultz and Juhani Pallasmaa on the influences of the character of a space.
1.1. BACKGROUND

Numerous global surveys and interviews have been performed by Johnson Controls, Herman Miller, Citrix, CoreNet Global and others. These surveys indicate an influx towards working from home or on-the-move up until 2007, but since 2010, a 150% increase in time was spent at ‘the office,’ (Puybaraud, 2011: 17) (cf. graph 1-1). Results from later reports such as Eurofound’s Fifth European Working Conditions Survey (2012) confirm this shift of the office as preferred workplace. From these studies the importance of human interaction between co-workers as well as support from the built environment can be concluded.

The organisational structure, work processes, age of the staff, available technological infrastructure and the type of work (team or individual based) are all parameters working into the workplace environment and affecting the fit between organisation and workplace concept.

Technology has been a parameter influencing the work environment as it alters and supports the way work can be done. Over the years a number of technological inventions have had significant impacts on the discourse of work. The invention of the typewriter meant that letters and administration work no longer needed to be hand copied, but large amounts of paperwork still required sizeable tables and filing cabinets. The invention of the personal computer in combination with the first versions of e-mail and the World Wide Web further adapted the approach to work and decreased the size of office furniture.

As status is commonly linked to the size of one’s office or furniture (Vischer, 2005), a problem of territoriality often arise in the contemporary workplace. With the latest advance of computer tablets and , flexibility allows for workers to use various spaces instead of specific workstations. Human interaction, and not technology, has now become the main parameter influencing the workplace.

The building chosen as accommodation for an organisation can either support or inhibit positive growth and interaction between personnel. A socio-spatial contract (Vischer, 2005: 4) exists between a company and its accommodation, which directly improves or deteriorates the organisational structure, work processes and development of a corporate culture.

1 As no specific information on South Africa has been accumulated; the international trend will be employed as guideline for the thesis.

1.2. REAL WORLD PROBLEM

With the advance of the information age many designers question the necessity of a work place, instead of a work ‘space’ (cf. figure 1-1). Mark Augé, a French anthropologist, developed the term “non-place” (Augé 1995: 112) to identify spaces formed as a result of the fast growing information era. “Non-places” are in essence generic and have no sense of individualisation. Effectively, these ‘spaces’ become work-spaces: we work while commuting, during transit, in coffee shops and even when on holiday. While technology enables this flexibility, a significant need for face-to-face interaction has emerged since 2010 (Puybaraud, 2011: 17).

A number of variations are currently found within the workplace typology. Although no one-size-fits-all solution should be developed, a typology most fitting to the company identity, culture and accommodation should be established. The successful interpretation and implementation thereof is directly linked to a company’s bottom line, since whenever discomfort is experienced in whatever form, productivity decreases (Kemp & Baker, 2007: 88).

Studies done by the Carnegie Mellon Building Investment Decision Support (BIDS) program indicates that good buildings (allowing for views, operable windows, user control over the environment, good daylighting and ventilation) present around 20% higher worker productivity than bad buildings (allowing too much or too little light into workspaces, glare or affording no views to the outside and poor air quality) (Kemp & Baker, 2007: 35).

Office buildings, however, are often built as an investment with no indication of who the end user might be. Economic efficiency
is often utilised as the prevalent design parameter, leading to adherence only of minimum spatial allowances (Strelitz, 2008:126). Buildings developed prior to the green building movement of the 1990’s, typically rely solely on artificial systems and disconnect the interior and the outside world. These buildings are often prone to sick building syndrome, resulting in spaces deprived of good indoor environmental qualities.

Although adaptive re-use enables many other building typologies, such as warehouses and lofts, to be increasingly re-purposed as good workplaces (Etherington, 2013), this thesis will investigate the possibility of adapting a pre-1990 office building into contemporary workplace accommodation.

A workplace environment is intrinsically dynamic, yet it is treated architecturally as static and unchangeable. Functional layouts specific to the thinking of the time are built into the structure of buildings. Frank Lloyd Wright’s Johnson Wax building is one example. It was built to function in the Taylorist paradigm with no opportunity for change. This fixed approach leaves little opportunity for the evolving approach to work.

Workplaces today revolve around social interaction, while previously conversation and interaction were frowned upon. The largely unused potential of this aspect within corporate culture and the influence it might have on spatial organisations will be investigated. Finally, the possibility of adapting an office building from the pre-1990 building stock will be probed. Interior architecture, as a mediator between offices’ accommodation and their dynamic programs will hence become the premise of the investigation.

**Two main issues** that have been distinguished:

1. Corporate culture is not considered in the design process of the workplace concept and this raises problems within the office environment.
2. The character (genius loci) of a place should be designed to be conducive to work and interaction.

**Three research questions** have been deduced:

1. How can office design enhance social interaction within the workplace?
2. How can atmosphere be utilised as an interior architectural parameter to develop a platform for the encouragement of corporate culture?
3. How can the office environment be designed to allow for change without a compromise in spatial quality?
1.4. HYPOTHESIS

Through an interior architectural intervention an office building from the previous office typology can be adapted to create a functional yet habitable workplace. By designing for the interplay between the character of a space and its design elements, a positive translation can be made from an unhealthy to a healthy building.

Finally, when workplace design provides a platform for social interaction, the corporate culture and morale of an organisation will increase; these directly influence productivity. This allowance for social interaction can be facilitated through specific design elements and an informed conceptual approach.

*Note: Contemporary workplace concepts are investigated in 2.5.*
The objective of the thesis is to investigate the effects that atmosphere have on altering the way in which corporate interiors are understood and developed as well as comfort and enjoyment of office workers. An understanding of the role that corporate culture has on productivity, and in turn, the effects the building accommodation has on the company culture, will be explored. Finally, the development of a knowledge base and design language for atmosphere as an interior architectural quality would enlarge the profession’s contribution in corporate design.

In order to best develop, substantiate and validate the theoretical and real world problem, a combination of research techniques will be used. A research methodology refers to a specific plan of action or strategy. This strategy comprises various research techniques (Groat & Wang, 2002: 11). A combination of both qualitative and quantitative techniques will be utilised in order to corroborate and facilitate the research findings and their implementation into the conceptual approach.

A combination of sources was consulted to develop an informed framework prior to the development of the problem statement, research questions, site and client selection. This framework was based on a literature review of relevant research and an historical overview (elaborated on in Chapter 2).

Qualitative research is utilised to best understand the phenomena contributing to the site’s tangible and intangible qualities and how it is perceived by users. Interviews were conducted with employees according to the hermeneutic interviewing methodology (cf. 4.6). These interviews shed light on the selected client’s work processes and corporate culture. Furthermore, the phenomenological approach as originally developed by the philosopher, Martin Heidegger, and interpreted into architectural theory by Christian Norberg-Schultz, Johani Pallasmaa and Peter Zumthor among others, will provide the theoretical underpinning for the design approach. Its relevance in architecture was first delineated by Norberg-Schultz, explaining that it offers an understanding into the creation of a ‘sense of place’ (Norberg-Schultz, 1996: 412). He continues by developing the two interdependent, but distinct categories that contribute to a ‘sense of place’, namely “space” and “character.” These two categories will form the parallel considerations of the theoretical and design explorations.

Hermeneutic phenomenology concerns itself with the experience of an object within its context. This is in juxtaposition to the branch of phenomenology called lived experience, which is explored in depth by researchers such as Clark Moustakas (1994). The latter branch predominantly brackets the object and investigates it as an isolated phenomenon. For this dissertation the former branch is selected as qualitative research technique. This is due to it placing the spatial character within a context, relating it to spatial qualities, which can be altered through design.

Techniques that will be utilised to inform the phenomenological investigation are as follows:

- Literature review
  This branch of the research investigation will aid in establishing the status quo and influential aspects of workplace design. The exploration of research conducted by contemporary sources will actively ground the topic and support its relevance. In addition, these will guide the concept design to respond to the knowledge base and influential spatial characteristics as established at the time of completing the dissertation.

- The historical development of office design
  An investigation into the development and evolution of office design is undertaken. This enriches the understanding of the current paradigms and supports the interpretation and analysis of workplace concepts and how they were shaped. The investigation further grounds the site analysis by placing the specific building into a broader context of how the typology was developed to respond at the time.

- Theoretical Framework
  These theories will inform both the design and technical investigations as they construe interpretations of the two distinguished categories of consideration for the dissertation: spatial features and character. The theories on the character of a space will inform the exploration of the spatial attributes which define, alter or enhance them.

- Normative research
  By developing a framework of case studies, an understanding into influential qualities, parameters and variables informing specific spatial requirements for healthy buildings can be developed. These will be corroborated by research from contemporary authors who performed studies on the influence of the character of a work space on productivity. These aspects and their influence on
productivity ultimately becomes the design informant as it enables organisations to see bottom line results.

**Photographic and sketch observations of the site and context**
These techniques will enable the qualitative investigation and analysis of the current environment found at the site and context. These will inform insights into what the opportunities and weaknesses of the chosen site are.

**User Interviews**
Two sets of interviews will be conducted.
1. The users of the building will be interviewed to establish the opportunities and weaknesses of the interior environment as it is currently utilised.
2. A cross section through the selected client’s staff (from housekeeping staff to top management) will also be interviewed to enrich the understanding of their work processes and corporate culture.

**Precedent studies**
The investigation of design precedents enables the concept and technical development to be informed by representative interventions. By analysing and reviewing the impact, success and characteristics of similar design features or interventions, a knowledge base can be developed. This enables an understanding into the appropriateness and effects of a particular design or technical decision.

The theories that will inform the understanding of the **character** of a space are as follows:

- **Sense of place (Genius Loci)**
  This will inform and develop an understanding into the character of a space (Norberg-Schultz, 1996: 412).

- **Gestalt Theory**
  Gestalt theory reflects the phenomena where the whole is greater than the sum of its parts (Loustau in Nussbaumer, 2009: 24). Individual spatial qualities will be explored; the character of a space is however understood and developed as a rich integrated system.

The theories which will contribute to the understanding of the **spatial attributes** are as follows:

- **Interior Ecosystem Model**
  This theory studies the interior environment as a triangular interdependent system with the human user as central core. The natural environment, the social environment and designed environment creates a rich system from which the complexities of the workplace concept can be investigated.

- **Social Friction**
  The theory of Social friction focusses on human interaction: creating platforms where people can connect and interact. This theory will be implemented to enrich and guide the formation of spaces as well as their thresholds.

Figure 1-2. Conceptual perspective indicating the combination of character and spatial attributes in the make-up of space.
1.7. **CHOICE OF SITE**

An office building completed prior to the green building movement (which set minimum standards affecting the positive character of an interior space) will provide the context for the design investigation.

The site, currently known as the Huurkor Sunnyside branch at 187 Esselen Street, is located within the Travenna precinct, connecting the Pretoria CBD with the residential context to its east. The site was selected for its potential both within the urban setting and street context. In addition, its interior spaces provide ample opportunity for an interior architectural intervention.

The investigation will not:
- aim to produce a solution for the ultimate contemporary workplace. The thesis will not revolve around finding answers, but rather probe an understanding of what influences corporate design and how it has and possibly could respond to the needs of its users.

The investigation will:
- explore and exploit workplace design from past to contemporary concepts. Finally, a design is developed as a solution to a specific site and specific client.

1.8. **DELIMITATIONS**

Prior to the selection of a client, a set of requirements were compiled to guide the design and research investigation. The choice of client needed to be from outside the creative industry. This would enable the design and research of the study to focus on the least enthused aspect of corporate design. In addition, the company had to possess both an office and public interface. This would enable the design and research to focus on a larger band of spatial thresholds and their effects on social interaction. Finally, the client had to have more than 100 employees. This requirement ensures the investigation of multiple areas for spatial intervention.

1.9. **CHOICE OF CLIENT**

Assupol, a low income insurance company, was selected as client for the investigation. Assupol is currently located within four different buildings in Brooks and First Streets (Menlo Park), Pretoria. Their current office spaces have no allowance for communal areas, resulting in staff spending tea and lunch times either at their tables or in the street between the various buildings. Their current location also does not allow their clientele easy accessibility, as public transport to the area is limited.

Figure 1-3. Esselen Street towards the chosen site. Photograph by author. (Transcript). 4 April 2013. Pretoria.
1.10. OUTLINE OF THE STUDY

Chapter 1 investigates the topic and delineates the problem statement. This chapter extends as introduction to the theoretical, context and design investigation to follow. Chapter 2 explores the problem of workplace design by placing the design problem within a theoretical context. The theoretical framework develops an understanding into the character of a space and creates the academic point of departure for the design investigation of the Huurkor building as workplace accommodation. An historical development of the typology, literature review and case studies further discloses the problem and its influences.

Chapter 3 investigates the chosen site by delineating its current condition on a macro, meso and micro level. This is followed by an investigation into its qualitative status quo by means of interviews as well as photographic and sketch observations.

Chapter 4 delineates an overview of past and present workplace concepts and how they function. This is followed by an investigation of the working processes of the client. Finally this chapter explores the constraints and opportunities for team-based work processes and the infrastructure that accommodates them. Chapter 5 investigates precedent studies affording the design and technical explorations with real world informants. Both interviews and accumulated research from various individuals and organisations is investigated in this chapter. Chapter 6 introduces the concept for the intervention and Chapter 7 illustrates the design development.

Chapter 8 concludes the study as the technical investigation.

1.11. SUMMARY

The project investigates the evolution and status quo of the workplace typology. It will not conclude with a singular or final solution to the problem of office design, but will rather explore the means with which healthier interior environments can be developed. These guidelines will be used within the conceptual approach of designing a workplace for a specific client at a specific site.

Many contemporary workplaces have been exceptional examples of adaptive reuse of other building typologies, such as warehouses and lofts. These typically afford high ceilings, open, flexible floor areas, abundant natural light and often ample control for users over their environment. The chosen site for this thesis is an unhealthy building of the pre-1990 building stock. This allows the necessary scope for an interior architectural intervention to explore within the domains of adapting spaces for change without a loss in their qualitative experience.

In this chapter the objectives governing the investigation have been set and the hypothesis delineated. The real world problem and problem statement have been presented, indicating the need for an interior architectural investigation. As the theoretical approach and research methodology have been introduced, its exploration will now follow in Chapter 2.
The theoretical argument is developed as a benchmark for the context analysis and design investigation that will follow in chapter 3 to 8. An hermeneutic phenomenological approach is taken towards the understanding of the study, as it allows the interpretation of experiences within their context.

The development of the workplace as a typology is investigated. The paradigm’s evolution is considered and the reasons for its evolution investigated. The relationship between work processes and workplace layouts are then probed to deepen the understanding of the typology’s evolution.

The four theories influencing the quality of a space, its atmosphere, is then investigated. Their impact, threats and opportunities within the workplace typology concludes the chapter.
2.1. INTRODUCTION

Office workplaces have changed significantly since their first appearance as part of the factory floor during the Industrial Revolution. These early years of workplace layouts - and later during the Taylorist paradigm - did not promote any social interaction. Office work was focused on paper processing and the workplace layout was treated similar to a factory floor. Conversation was frowned upon and endless rows of desks were placed in large open spaces for ostensible efficiency.

With the evolution of technological inventions, workplaces were adapted in order to accommodate and best utilise the technology of the time. Today, human interaction has become the integral core of the workplace. Workplaces now need to support chance meetings and promote communication throughout. A synergy between colleagues, departments and even organisations has become important, irrespective of industry and work processes.

Chapter 2 aims to develop an understanding into the way interior architecture can manipulate and enhance the atmosphere of found space – thus translating it from space to place. An historical investigation, a literature review on contemporary workplaces and the understanding on how they function will now be delineated. This chapter will ground the theoretical argument of the thesis within the contemporary context of workplace thinking.

2.2. THEORETICAL FRAMEWORK

The author feels interior architecture is the art of articulating the context of “the real.”
Descriptive Phenomenology Interpretive Phenomenology

space

interior environment

"[the] three-dimensional organisation of the elements which make up a place" (Norberg-Schultz 1996: 418)

experience

isolated experience

in-the-world

character

atmospheres

"[the] atmosphere which is the most comprehensive property of any place" (Norberg-Schultz 1996: 418)

multisensory

poetics of space

experience of architecture

physical

psychological

(Palasmaa 1996: 152-153)

Social Friction

Creating platforms for people to connect and interact

Human being as central core of designed environment

Sense of Place

Interior architecture is the interpretation and art of creating a sense of belonging

Interior Ecosystem Model

Interior architecture is the interpretation and art of creating a sense of belonging

Reflects on the phenomena where the whole is greater than the sum of its parts (Loustau in Nussbaumer, 2009: 24).

Gestalt Theory

'Magic of the Real' (Zumthor 2006: 19)

The body of Architecture

Material Compatibility

The Light on Things

The Temperature of a Space

The Sound of a Space

Levels of Intimacy

Surrounding Objects

Tension between Interior and Exterior

Between Composure and Seduction

Levels of Intimacy

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2.3. PHENOMENOLOGICAL PERSPECTIVE

Phenomenology has been an influential theoretical paradigm within architecture since the 1970’s when architects such as Christian Norberg-Schultz, Peter Zumthor, Steven Holl and Juhani Pallasmaa started absorbing the philosophy into their writings and work. Classical phenomenologists had a great impact on how phenomenology has been developed and employed in architecture. Edmund Husserl (1859-1938) and Maurice Merleau-Ponty (1908-1961) considered phenomenology a purely descriptive philosophy. This phenomenology was called lived experience and is still commonly used in architectural theory (Merleau-Ponty, 1996). Husserl (2012) believed that a person’s thoughts, feelings and comprehension of an object constituted phenomenology. According to his epoch theory, the object needs to be bracketed after which the experience of the object becomes clear. This theory thus celebrates the experience of the object and not the object itself.

In juxtaposition we find the thinking of Martin Heidegger (1889-1976). Heidegger held that phenomenology ought to concern itself with the interpretation rather than the description of objects (Heidegger, 2008). He believed that the context surrounding an object was just as important. He iterated that we live in the world, and that objects should not be bracketed and isolated from the contexts in which they are found. Heidegger and his followers developed the phenomenology of Hermeneutics, which is particularly influential within the social, architectural and linguistic frameworks.

The graphic exploration of the theoretical framework (cf. 2.2) illustrates the parameters within which the arguments and explorations will be conducted. The importance of context is illustrated diagrammatically in figure 2-2.

2.3.1. HERMENEUTIC PHENOMENOLOGY’S RELEVANCE TO INTERIOR ARCHITECTURE

Christian Norberg-Schultz, a Norwegian architectural theorist, developed his architectural take on phenomenology from the writings of Martin Heidegger. He cultivated the philosophy’s potential in architecture as a means of making spaces meaningful by creating a ‘sense of place’ (Norberg-Schultz, 1996: 412). In addition, he distinguishes between the categories of “space” and “character.” Space is denoted as the “three-dimensional organisation of the elements which make up a place”, while character is expressed as the “atmosphere which is the most comprehensive property of any place” (Norberg-Schultz, 1996: 418). He elaborates that, although “space” and “character” may be comprehended as a singular whole called “lived space,” an investigation into each individually creates a better understanding into the experience of each. He emphasised that the qualities

\[\text{The context in which the object is placed, alters the experience.}\]

Figure 2-2. Diagram explaining hermeneutic phenomenology: the importance of context in experience.
of space and character are interdependent, as spaces with similar configurations could have very different characters (Norberg-Schultz, 1996: 418).

Peter Zumthor develops an understanding of the "character" of a place by developing a vocabulary of the factors that influence it. He states that atmosphere as an architectural quality is influenced by the way people interact with objects and spaces (Zumthor, 2006: 17). A poetic quality is found within these spaces where interactions take place, a mood that adds an intensity to the experience of a place. Zumthor calls it: "the Magic of the Real." He further develops the vocabulary by explaining nine factors which influence the character of a place. These will be investigated later in the course of this chapter (cf. 2.6).

Juhani Pallasmaa states that phenomenology analyses our experience of interaction with a design or building (Pallasmaa, 1996: 450). Pallasmaa further elaborates that the multisensory experience of architecture has both a physical and psychological impact on the user. He stipulates that although the structure of feeling in a place is diversified across cultures and individuals, senses have the ability to awaken any human being's imagination and enrich our experience of a space (Pallasmaa, 1996: 447-453).

The relevancy of hermeneutic phenomenology to interior architecture lies mainly in its approach to the experience of space. Interior space cannot be experienced without its relationship to the form-giving structure. Hence, interior architecture acts as the mediator of thresholds shaping interior spaces: effectively altering how they are experienced within the context.
2.4. AN OVERVIEW OF THE ARCHETYPAL OFFICE ENVIRONMENT EVOLUTION

* Refer to Appendix A for enlarged version.
The invention of electric candles and light bulbs empowered work moving indoors. It resulted in rooms that could be lit without any windows or relation to time of day. Trade and gold work were the first to move indoors and soon after manufacturing followed.

**INDUSTRIAL REVOLUTION**

**MANUFACTURING PROCESSES MOVING INDOORS**

**EARLY 1900’S**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900</td>
<td>Charles Seebeger invented the modern elevator (by redesigning Jesse Reno’s esculator). Jesse Reno’s esculator.</td>
</tr>
<tr>
<td>1902</td>
<td>Will’s Carrier invents the air conditioner. George Staude invents neon light.</td>
</tr>
<tr>
<td>1903</td>
<td>Powered airplane invented by Wilbur Wright and Orville Wright. William Coolidge invents ductile tungsten used in light bulbs.</td>
</tr>
<tr>
<td>1907</td>
<td>Color photography invented by Auguste and Louis Lumiere.</td>
</tr>
<tr>
<td>1908</td>
<td>Henry Ford mass-produces the Model T.</td>
</tr>
</tbody>
</table>

**THEORY OF WORK**

The theorist, Frederick Taylor, developed the time-motion studies within the early 1900’s. This paradigm looked to minimise movement of the worker in relation to time spent thereupon. Work was broken into small tasks, and the worker was not allowed to become familiar with the whole process. The theorist, Frederick Taylor, developed the time-motion studies within the early 1900’s. This paradigm looked to minimise movement of the worker in relation to time spent thereupon. Work was broken into small tasks, and the worker was not allowed to become familiar with the whole process.

**THEORY OF WORK**

The theorist, Frederick Taylor, developed the time-motion studies within the early 1900’s. This paradigm looked to minimise movement of the worker in relation to time spent thereupon. Work was broken into small tasks, and the worker was not allowed to become familiar with the whole process.
4000BC - 800BC  EARLY 1500'S  1560

CHARACTERISTICS

OVERVIEW

Many corporate space experiments like this timespan; examples include Amoco Oil and gas (headquarters Oval Day Los Angeles). Some examples were more successful than others depending on the fitness between the top management’s ideas and the corporate culture of the company.

1970

1980

1990

2000

1971
E-mail invented by Ray Tomlinson
Liquid Crystal Display invented by James Ferguson
Pocket calculator invented by Sharp Corporation

1972
The word processor invented.

1973
Ethernet invented by Bob Metcalfe and David Boggs
Personal computer invented by Xerox PARC

1979
Cray supercomputer invented by Seymour Cray.

1983
Camcorder invented by Sony
Programmer Jaron Lanier first coins the term “virtual reality”.

1984
The Apple Macintosh invented.

1985
Windows program invented by Microsoft.

1988
Digital cellular phones invented

1989
High-definition television invented.

1990
World Wide Web invented by Tim Berners-Lee

1991
The digital answering machine invented.

1993
The pentium processor invented.

1994
First PDA (personal digital assistant) invented by IBM. The IBM Simon can also be considered the first Smartphone.

1995
The Java computer language invented.
DVD (Digital Versatile Disc or Digital Video Disc) invented.

1998
Larry Page and Sergey Brin makes google public.

2001
Digital satellite radio

2003
Skype is founded by Niklas Zennström and Janus Friis
Green Star ratings is launched by the Green Building Council of Australia

2004
Translucent Concrete developed by Hungarian architect Áron Losonczi, called LinaCon
Mark Zuckerberg launches facebook

2005
YouTube invented by Steve Chen, Chad Hurley and Jawed Karim

2007
Green Building Council of South Africa is formed

Case Study

Huurkar Building

(Originally Volkskas Building)

Location: Guuksa Street Pretoria, South Africa

Architect: Pienaar & Buthelezi Architects

Completion Date: 1996

Space adopted to Huurkar offices in 2008

Many corporate space experiments like this timespan; examples include Amoco Oil and gas (headquarters Oval Day Los Angeles). Some examples were more successful than others depending on the fitness between the top management’s ideas and the corporate culture of the company.

Theoretical Framework

Due to the extensive development in building materials up to date, a clear evolution in office configurations can be seen. Deep floor plate and large column-spaces provide continuous spaces that are, by extension, maximum interaction between various areas. Airtracks and airtracks, centrally located stairs provide vertical interconnect spaces linking various floors visually and psychologically. We saw a mixture of the office landscape from the 1960s/1970s, maximizing the use of the flexible and open floor plates. The current paradigm also saw a large shift from purpose-built workplaces to existing buildings being recycled into offices.

ECONOMIC EFFICIENCY

OVERVIEW

Buildings from this time were predominantly rectangular or square to allow for optimal standardizations. A southeast consistent depth from the core to the outer walls was preferred. Due to development in building materials, larger space were possible that led to column-free office spaces.

CHARACTERISTICS

Workplaces were populated by a combination of private offices and cubicles. Offices of partners and managers typically had the perimeter of the building being open to the public.

LATE 1970’S TO EARLY 1980’S

GREEN BUILDING MOVEMENT

OVERVIEW

In the late 1980’s research performed indicated the relationship between office worker productivity and environmental design (Fischer, 2005: 91). This launched the investigations into sustainability and green design principles.

The green building movement gained momentum during the late 1980’s, altering the typology significantly.

1792

Ball bearing invented by Leonardo Da Vinci

1900
Leibniz invents a mechanical calculating machine.

1916
Improved steam engine.

1831
James Watt invents the steam engine.

1849
The first skyscraper built in Chicago (ten stories)

1878
Eiffel Tower is built

1892
Chester F. Carlson invents the photocopier.

1900
Electric telegraph.

1910
William Coolidge invents ductile molybdenum.

1916
George Claude invented neon light. The superheterodyne radio circuit invented.

1920
James V. Sullivan and Louis Sullivan invent the skyscraper.

1938
Ballpoint pen invented by Laszlo Biro.

1939
John Atanasoff and Clifford Berry built the first electronic digital computer.

1948
Frequency modulation (FM radio)

1958
Charles Ginsburg invented the personal computer.

1959

1964
Konrad Zuse’s Z3, the first freely programmable computer.

1971
The computer modem invented.

1974
First PDA (personal digital assistant) invented by IBM. The IBM Simon can also be considered the first Smartphone.

1978
The word processor invented. The Apple Macintosh invented.

1980
Digital satellite radio

1983
Skype is founded by Niklas Zennström and Janus Friis

1985
Green Star ratings is launched by the Green Building Council of Australia

1995
Translucent Concrete developed by Hungarian architect Áron Losonczi, called LinaCon

2005
YouTube invented by Steve Chen, Chad Hurley and Jawed Karim

2007
Green Building Council of South Africa is formed

© University of Pretoria
Property and the utilization of real estate are viewed very differently in the 21st century compared to that of previous eras. The concept of 20th century workplaces celebrated uniformity and fixed seating arrangements. These offices were also place dependent and office workers commuted daily to these buildings at fixed times.

Buildings from the 1960’s onwards began questioning the Taylorist theme of sole efficiency. Corporate interiors were developed to become more interactive, although their layouts were typically standardised. The standardisation of workspaces was partly due to a homogenous response to the technological advancements of the time (Meyerson & Ross, 2003: 9). This resulted in most offices looking exactly alike, irrespective of the type of company or the work processes followed. These standard configurations were called ‘vanilla’ space-planning (Meyerson & Ross, 2003: 9). The contemporary television series, “Mad Men” (figure 2-4) and “The Office” both illustrate these workspaces well.
2.5.1. ARCHETYPAL WORKPLACES FROM THE 20TH CENTURY:

**CELLULAR OFFICE**

The cellular office works best where the company’s organisational structure affords work to be done individually. This typology is typically found in hierarchically-organised companies, where work is subdivided into various individual parts or where projects are handled independently (Kleibrink 2011:11).

- Cellular offices, in their most traditional form, align the facades of the building leaving central areas dark and cheerless. When these areas are utilised for circulation, it is usually too narrow to allow any furniture or spatial nodes. When these areas are utilised for infrastructure or lower ranking staff, offices are windowless and dark.
- This typology is closely linked to hierarchical status. Each employee’s position in the company is symbolised by their dedicated workspace.
- Little scope for interaction between colleagues are found.
- Conversions due to hierarchical changes are expensive and time-consuming.
- This typology particularly satisfies privacy and territorial needs.

**OFFICE LANDSCAPE (BÜROLANDSCHAFT)**

The office landscape (open-plan) concept works well where inter-dependant departments work closely together, affording continual information exchange (Kleibrink 2011:12).

- This typology was developed during the 1960’s by the Quickborner Team. These early open-plan offices were typically air-conditioned, artificially lit and seated at least a hundred or more people. Mostly these spaces had no connection to the outside world.
- Office workers’ lack control over their work space (air-conditioning, lighting and noise).
- As a response to the emergent need of privacy within the open areas at the time, Herman Miller developed the action office. It was intended to permit more privacy, without removing the office worker from their interactive surroundings. (The system was eventually manipulated into the cubicle, maximising on floor area economy and defying the original concept of interconnected spaces with privacy at workstations.)

**GROUP OFFICE OR TEAM ROOMS**

The group office (open-plan) concept works well where information exchange and work demanding high levels of communication takes place (Kleibrink 2011:12).

- Group offices developed in response to the office landscape. It adapted the large expanse of open-plan seating (typically a hundred or more workstations in one area) into smaller areas defined by the size of a department or unit.
- Like the landscape office, the group office remains popular due to its economical use of floor area and low fit-out costs.
- Contemporary group offices are called team rooms. These spaces function particularly well where frequent interaction between team members are necessary as they offer both individual privacy and collaborative possibilities (Van Meel, Martens and Van Ree, 2010:51).
2.5.2. ARCHETYPAL WORKPLACES FROM THE 21TH CENTURY:

**MULTI-SPACE CONCEPT**

The multi-space typology is equipped to support both individual (concentration) and collaborative work. It offers various spatial opportunities which stand in direct juxtaposition to the open-plan workspaces from the office landscape and group office typologies (Kleibrink 2011:13).

- This typology is configured as a multitude of workplace zones interlinked to communal spaces.
- A variety of zones create specific spaces both for collaboration and concentration based work.
- Work space zones are kept intimate and are appropriated for informal meetings and discussions.
- Design elements are typically developed to enhance comfort and supports the company culture.
- Multi-space offices have supporting components such as team meeting rooms, coffee bars, lounge areas and think-tanks.
- This typology creates ‘places’ within the workspace. These work places are generally adapted to accommodate ad-hoc meetings and collaborative work processes.

**COMBI-OFFICE**

The combi-office is ideal for organisations where people-orientated working processes are integral to the organisational structure. It allows for both individual concentration work and team-based collaborative work, while all areas are visually connected. This establishes a synergy and connectedness within the company (Kleibrink 2011:13).

- The combi-office was developed in Scandinavia during the late 1970’s and combines the open-plan and cellular office typologies. Although this typology was never adopted worldwide, its advantages makes it worth investigating.
- Offices are typically aligned around the periphery of the building. These are single offices with full-height glass partitioning allowing daylight to filter through towards the inner work zone. Each workspace can be individually controlled.
- The corporate culture largely controls where the energy of the organisation is found within the individual offices or in the collaborative central spaces. The typology allows for both and creates the platform for a variety of work processes. The combi-office sidesteps the territorial approach as hierarchical distinctions are avoided – everyone has their own office.

**NON-TERRITORIAL OFFICE**

The non-territorial office can only be successfully implemented when the company culture and organisational structure is in tune with a modernised way of working. Productivity should be determined by output rather than surveillance of time spent at the workstation (Kleibrink 2011:14).

- The flexible office was developed in the Benelux countries and Scandinavia during the 1990’s.
- The flexible office typology opposes the concept that an assigned workstation should be adapted to enable various working processes. Instead, it provides employees with focused areas, specifically adapted for specific tasks. This typology needs to be aligned with the company’s culture, however, for it to be successful.
- Different zones typically include think-tanks, team meeting areas, reading areas, areas offering a retreat (concentration work), meeting rooms and lounge-style zones for both formal meetings and informal communication.
- Privatised offices, that stand empty for vast amounts of time, are eliminated.

**CO-WORKING SPACE**

The concept of co-working space has been in use for a number of years already. This office typology have significant economic advantages, allowing the company or individual to determine the amount of hours, days and kind of services as needed (Kleibrink 2011:15).

- This office typology is predominantly found within the creative fields, offering an affordable and flexible option to new start-up business or decentralised offices.
- Co-working offices are usually located in buildings originally designed for other uses than offices. The workspaces are generally equipped for a variety of uses and the layouts do not conform to typical office typologies. These offices are a good alternative to home-office isolation, creating a platform to collaborate and network with a variety of people from different disciplines and companies.
2.6. THEORETICAL INVESTIGATIONS

The hermeneutic approach, originally developed by Heidegger, introduced to architecture by Christian Norberg-Schultz and modernised in studies such as Ziona Strelitz’ *Buildings that ‘feel’ good*, indicates this research method’s relevance and influence on contemporary architectural thinking.

As defined earlier, the categories of place by Norberg-Schultz, “space” and “character,” will be used as guiding parameters for the theoretical and later, design investigations, to follow.

TOWARDS AN UNDERSTANDING OF THE CHARACTER OF A SPACE:

“Character is at the same time a more general and a more concrete concept than space. On the one hand it denotes a general comprehensive atmosphere, and on the other the concrete form and substance of space-defining elements. Any real presence is intimately linked with a character” (Norberg-Schultz, 1996: 419).

1. Sense of place (Genius Loci)

Genius Loci, is described as a spirit that gives life to people and places (Norberg-Schultz, 1996:422). This phenomenon is a key contributor to the character of a place. The spirit of place is understood as when buildings bring the qualities of the place close to man (Norberg-Schultz, 1996:426). Architecture is thus seen as the interpretation and art of the "vocation" of the place (Norberg-Schultz, 1996:426).
This experience of the character of a place will become the integral core of this theoretical investigation.

The sense of belonging which is closely connected with a good ‘spirit of place’ or genius loci can be seen as the third step in Maslow’s hierarchy of human needs (cf. figure 6-17). A sense of belonging, to a work community and to an environment, is rendered as one of the variables affecting productivity in the workplace (Kemp & Baker, 2007). Esselen Street as ‘place’ is explored in figure 2-13.

They are determined as:
- “The body of Architecture” (Zumthor, 2006:21) is elaborated on as the frame or body of a space. It is the skin of space and adds to the sensual experience of the enveloped place.
- “Material Compatibility” (Zumthor, 2006: 23) greatly influences a sense of place. Materials react differently in different combinations, at different times of the day and when used in different amounts. The arrangement of materials greatly exposes the character of a place to our senses.
- “The Sound of a Space” (Zumthor, 2006: 29) is explained as a peculiar influence on character. Zumthor stresses that interiors are in essence large instruments as they resonate, collect or absorb sound made within and without. The shape and materials of surfaces all contribute to the sound of a place – it can make you feel at home or it can make you feel abandoned and lonely.
- “The Temperature of a Space” (Zumthor, 2006: 33) is understood as both a physical and psychological influence. Steel is cold to the touch, while timber is warm. Each material has an influence on what is seen, felt and touched.
- “Surrounding Objects,” (Zumthor, 2006: 35) discusses the things that surround us. The objects within spaces and the way in which they can come together to form a welcoming whole. The details of the things greatly influence our senses and how we experience a place.
- “Between Composure and Seduction” (Zumthor, 2006: 41) is discussed as the sixth element and elaborates on how people’s movement should influence architecture. Architecture is found to be a temporal art. People move in and through buildings and one’s experience is altered in various sequences. Buildings should allow for these movements to be stimulating and relaxing. Movement through a building should appeal to the user and support the uses of the building.
- “Tension between Interior and Exterior” (Zumthor, 2006: 45). The thresholds separating the two realms have a definite impact on the sense of place. There’s a concentration in feeling when suddenly being enclosed. The façade acts as a subjective element framing views both to the outside and inside. The way people use the building, the way these views are altered or utilised at different times of the day or year, all influence the atmosphere.
- “Levels of Intimacy” (Zumthor, 2006: 49) is not only the scale of a space, but also the proximity, distance, detail and mass. It is in the way the space relates to our bodies, and how human scale alters the way we experience a space that ultimately translates it to place.
3. Interior Ecosystem Model

The Interior Ecosystem Model (Nussbaumer, 2009: 24) analyses the interior environment as a triangular interdependent system with the human user as central core. Three elements are explained as influencing the ecosystem: the social environment, the natural environment and the designed environment (refer to figure 2-15.)

Similar to any other ecosystem, the components need to be in harmony. Whenever their interdependence is overlooked, the ecosystem is disrupted. Consequences may result in interior spaces depriving their users from good working environments instead of enriching and supporting our experience are all important.

Figure 2-14 explores these attributes diagrammatically.

4. Social Friction Theory

The theory of social friction focusses on people’s interactions with one another. The term was first used by Richard Sennet (1970: 189), a sociologist, exploring the effects of friction within the social context of face-to-face encounters.

This phenomenon was introduced to architecture, in part, by Oscar Newman’s early work on Creating Defensible Space (1972). Newman’s approach to space focused on both the physical (designed) aspects and the psychological (user’s) interpretation of the space. He developed an understanding of edge transparency that influenced how architecture can respond to accessibility from the street edge. This approach to transparent thresholds benefits both the community health and individual’s sense of belonging by creating various points for physical and visual interaction.

Jane Jacobs (1961: 68) also understood the impact of social friction on communities when she investigated social interaction within the neighbourhood context. Jacobs focused on the connection between people and the environment in which they meet. She studied the street as a living entity in which she found that various degrees of transparency have a direct influence on community health. Social interaction was understood as when a variety of people - with different backgrounds, nationalities, incomes and professions - meet and engage to ultimately form a community.

The social friction theory will be utilised to understand where and how platforms for interaction can be designed as well as how they should function within the social context of the workplace (cf. figure 2-16).

"[T]he individual has to fit himself into a whole system and live for it: that, however, out of this system values and enhancement must flow back to him, that the life of the individual is but a means for the ends of the whole, the life of the whole but an instrument for the purpose of the individual" (Georg Simmel, cited in Hamdi, 2004: xvii).
Meyerson and Ross (2003) defines 4 types of office spaces in terms of their approach to social interaction:

- **NEIGHBOURLY** [MEYERSON & ROSS, 2003: 12]
  The Neighbourly office is based on a metaphor of the city and its neighbourhoods. The environments can be interpreted in a number of ways with abundant social activity and interaction.

- **NODAL** [MEYERSON & ROSS, 2003: 12]
  The Nodal office responds to the concern with mobility and flexibility. This office environment allows people to move freely and to create new environments as needed. Social activities are not constrained to specific areas, rather, the whole office becomes the social platform. The non-territorial office is an example of this approach.

- **NARRATIVE** [MEYERSON & ROSS, 2003: 11-12]
  The Narrative office uses the brand of the company to set its social platforms. The workplace communicates as a marketing tool. This office environment allows for social interaction within a themed environment, although often limited and unrewarding. Social platforms are merely the backdrop to branding.

- **NEUTRAL** [MEYERSON & ROSS, 2003: 12]
  The Neutral office is one where specific areas are dedicated to specific activities. This office environment is recognized where no consideration for informal interaction was given during the design. Spaces merely respond to fixed functions.

Kachwalla (2011:34-35) defines 3 types of friction, each lending to a different type of social interaction and resultant connection between people:

- **INDIRECT FRICITION**
  Indirect connections are made between people when they function as public characters.

- **VISUAL FRICITION**
  Visual connections are made when the line of sight has a variety of contact points.

- **MANIPULATED FRICITION**
  Manipulated connections are made when two or more people meet in conversation.

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1Public characters are defined as the people on whom the daily workings of the friction environment depends, yet they do not necessarily fulfill a specific function other than that their presence are needed within the system (Jacobs, 1961:68).
Mediation of spaces as design agenda

Social friction in interior architecture is a means by which architectural elements are employed to enable or disable interaction between users. Traditional interior elements are reinterpreted in terms of their ability to create friction within an environment. The diagrammatic exploration (cf. figure 2-17) indicates the potential of these elements to act as mediators between different spaces.

These mediators affect the type and level of social interaction, the manner and speed of movement through a space, the permeability between spaces and the visual lines of sight permitted. The elevator, staircase and corridor are traditional circulatory devices, but each allow for a different type and speed of connection. The wall becomes a transitional element dividing spaces, while the door becomes the connection point. The size, scale and proportion of the door and its materiality signal the type of connection between the spaces. When more than one door is introduced, servicing the same space, an interior matrix is developed.

These spatial mediators will be implemented in the design intervention to allow for a rich and integrated interior matrix of social friction, focussing on the provision of three types of connection points: casual, official and chance.

Figure 2-17. Diagrammatic exploration of the reinterpretation of interior elements as per the social friction theory.
2.7. SETTING THE GUIDELINES FOR THE DESIGN APPROACH

Work Processes

Private versus communal space

KEY
- Private Space
- Communal Space

Figure 2-18. Diagrammatic exploration of workplace experience over time.
This chapter investigated how the typology developed and evolved across time. It was found that with the advance of the knowledge era, new ways of interpreting social interaction within the workplace surfaced. While formal nodes for communal use were introduced to the office fabric as early as the 1960’s, the importance of informal nodes and connection points has only recently been revealed (cf. figure 2-18).

A metaphor can be drawn between the active street and its successful social interchange, that Jane Jacobs documented, and the dynamics within the workplace fabric. In both of these places, a variety of social conditions exist that draws from a familiarity as well as a public character for the successful functioning of the social connection points. As a result, the potential that social friction provides within the workplace’s formal and informal nodes have been explored and illustrated.

Finally, the research approach stemming from the interpretational branch of phenomenology has been presented and its relevance to interior architecture delineated. We experience interior spaces within the context of the architectural structure, the social structure and finally, within the envirnmental context. The investigation of the experience within its context is thus crucial in the understanding of interior spaces.

RESEARCH QUESTION
Can a workplace from the previous phase be adapted to the requirements of the current and upcoming office paradigm?
The identified site is located in Esselen Street, Pretoria. A number of frameworks indicate the area’s growth toward commercial and corporate use. The existing mixed-use environment of Esselen Street provides the relevant context for the investigation in workplace design.

A detailed site analysis is conducted, exploring the structure in terms of historical development, original architectural intentions, form, circulation, finishes and qualities embedded in the typology.

The chapter concludes with an investigation into the current spatial qualities and their potential for supporting social friction.
3.1. INTRODUCTION

This chapter elaborates on the process and selection of the site. The site’s characteristics, context, potential and limitations will be delineated both on an urban and street level, followed by an exploration of the building’s structure. The chapter will conclude with the qualitative analysis of its current condition. This analysis will function as benchmark for the conceptual, design and technical investigations to follow.

As indicated in Chapter 2, this thesis will address the architectural question of whether buildings from the pre-1990’s building stock can be adapted to the needs of present day clients. Certain requirements for the successful rehabilitation of such an office space exist. These requirements will be set out in this chapter guiding the site selection.

The chosen site, currently known as the Huurkor Building, is situated at 187 Esselen Street, Pretoria. It was built in 1966 as the Sunnyside branch for Volkskas bank. The building is located in a high-density precinct with ample potential for corporate and commercial growth.

It was designed by Pauw and Botha in 1966 as the Sunnyside branch for Volkskas bank.

Although the building is younger than 60 years and thus not yet of legal heritage significance, the investigation and intervention will treat it with due deference. Significant features and elements will be explored and delineated which will accordingly influence all design decisions. An investigation into its qualitative characteristics will conclude the chapter, indicating both the potential and constraints of the building in its current state. Where possible, these will be compared to the original design intent of the architect and ultimately substantiate the proposed alterations or preservations of specific features or spaces.

3.2. PROCESS AND SELECTION OF SITE

An investigation into the development of the typology in combination with relevant contemporary case studies was performed prior to selecting the site (and client). This ensured that the selections would be relevant and based in the present-day milieu of interior corporate design. A number of sites were investigated, which also provided insight into the current office building stock within the Pretoria precinct. It was found that many buildings built prior to the green building movement of the 1990’s were introverted and relied solely on artificial systems for illumination and ventilation.

It is acknowledged that contemporary workplaces are often programs suitable for adaptive reuse and we see many located in a variety of different building typologies (Etherington, 2013: Apartments make better places to work than offices.)

The adaptation of old office buildings are however essential for the following reasons:

1. **Sustainability:** there is no building greener than one already built.
2. **Fixed programme:** these buildings generally consist of fixed, deep floor plates and limited service infrastructures offering little opportunity for adaptive reuse with other programs.
3. **The amount of building stock currently in use:** this supports the necessity to enquire into their adaptation for contemporary, sustainable use.
4. **Technological disposition:** these pre-1990’s structures were constructed prior to the development of technological advancements such as, among others, the World Wide Web and Wifi.

In order to ensure the study is conducted in as relevant a nature as possible, the site and its setting needed to adhere to the commercial growth of Pretoria. A number of frameworks were consulted during the selection process, informing possible areas where the site could be located. Finally, criteria were set which provided parameters influencing the validity of the site choice.

These criteria were as follows:

1. The building had to be from the building stock constructed prior to the 1990’s green building movement: this ensures the intervention’s scope and validity;
2. It should currently be in use: this supports its location and probability of future use;
3. The site had to be located within a vibrant corporate precinct: a number of other offices should be within close proximity;
4. The building needs to be easily accessible for clientele: it should also have potential for branding;
5. The context and location should indicate scope for future commercial growth.

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The ground and mezzanine floors were originally designed as the public interface of the building. The main banking hall exhibited a double volume atrium, while the mezzanine floor overlooking the hall provided both workplaces and consulting stations (cf. figure 3-17 and 3-19).

The first to fourth floors were offices segregated with an improvised partitioning system of the time. These offices followed the typical cellular concept, resulting in narrow, artificially lit corridors for circulation (cf. figure 3-22).

Huurkor has made a number of changes since their relocation in 2004. Most notably is the loss of the atrium (cf. figure 3-20) and open areas with the introduction of partitioning and the converting of the main bank hall entrance into a cell-phone shop (cf. figure 3-16). Although the original partitioning was removed and the system is now of contemporary building material, the workplace layout has remained within the cellular workplace concept. This concept of offices on the perimeter of the building results in narrow and dark central circulation areas. The building and its location thus offers potential for the architectural investigation.
3.3. MACRO SCALE ANALYSIS

Esselen Street has been an important commercial corridor since the initial development of the Travenna and Sunnyside neighbourhoods. It provides a rich history of commercial, residential and corporate expansions. In 1913 a variance of quality commercial shops were located in this street, such as a shoemaker, baker, butchery, a greengrocers and a chemist (Boegman, 1994:15). The 1980’s conjured a vibrant energy in Esselen Street as it boasted a variety of restaurants and popular shops. This has changed in recent years and the variety of commercial enterprises have now been replaced by secondary retail endeavors such as cellphone repair, loan agencies, fast food and beauty salons (Petzsch, 2012:19). This has been the case for many sections of the Central Business Centre (CBD) of Pretoria and its surrounding areas. Accordingly, various past and present urban frameworks have intended to regenerate Pretoria’s CBD. Most envision the precinct of Esselen Street to become increasingly focused on art, leisure, housing and commerce.

Amongst others, the Arup framework (2013) and the Mandela Development Corridor (MDC) (2009) have been specifically investigated for their impact and vision’s effect on Esselen Street in Sunnyside. The two frameworks’ intentions are largely compatible and both indicate the growing relevance for the corporate market in the precinct of the selected site.

This existence of both past and present frameworks that envision commercial growth for the Esselen Street precinct, substantiates the probable future development of the area.

For the purpose of the thesis it will be assumed that the Arup framework of 2013 is being implemented and directly affecting the infrastructure, regeneration and commercial development of the precinct in question.
The Arup framework of 2013 intends to intervene in five different locations; these would then act as catalysts in regenerating the surrounding precincts. The 5 locations for intervention is:

1. Church Square
2. West Capital / Marabastad
3. Zoological Gardens
4. Pretoria Station / Salvokop
5. Caledonian Sports Grounds

The interventions will be focussed on developing open spaces, adding elements for greater user comfort (such as shade and ramps) which ultimately strive to activate public spaces and soften street and building edges.
3.4. STREET CONTEXT

Site: one of few buildings on Esselen Street that is set back from the building line.

3.5. OFFICE ENVIRONMENTS IN ESSELEN STREET

Figure 3-9. Figure Ground Study: Densities around the Site.

Figure 3-10. Figure Ground Study: Showing difference in built format of Esselen Street to Surroundings.

Figure 3-11. Section A: Street section indicating the street and sidewalk relationships with the built fabric.

Figure 3-12. Zoning and workplace relationship to Esselen Street context.

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Site visits to the office buildings located in Esselen Street were conducted. These visits focused on developing an understanding into the office buildings’ character and their relationship to the street as context. It was found that the corporate real estate in Esselen Street all personify the Modernist office typology that represent a dependency on energy in combination with the unanimous use of the cellular workplace concept. Some have been revamped lately and are rented out. The overall quality of the different revamp strategies are considered poor, as no attention to the acoustical, lighting or ventilation workings or the resultant quality of space were given. These buildings remain largely energy dependent and are continuously subdivided into partition mazes for maximum rentable space. The available areas either occupy spaces with windows or are completely removed into the central area of the floor plate. As the infrastructures of the buildings were left intact by all upgrade strategies, the upgrades’ scopes were limited to finishes and internal layouts.
3.6. MICRO SCALE ANALYSIS

3.6.1. STATEMENT OF SIGNIFICANCE

The structure was designed in 1966 by Pauw and Botha Architects as the Sunnyside branch of Volkskas Bank. It is located on the southern side of Esselen Street. The building has a frontal courtyard as it is one of very few buildings in Esselen Street that is set back from the building line. The six storey structure illustrates typical architectural features of the modern movement. Significant elements include the double storey atrium and protruding lift shaft. At the time of its completion it had top of the range technological features supporting the bank’s functions.

3.6.2. HISTORY

Volkskas bank occupied the building up until it merged with UBS Holdings, the Allied and partly with the Sage group in 1991 (ABSA Group, [n.d.]). The new entity, Amalgamated Banks of South Africa Limited (now Absa,) introduced their Sunnyside branch at the corner of Esselen and Leyds Streets. Volkskas subsequently relocated to this building during the merge, after which its original building remained unoccupied for 12 years.

3.6.3. ALTERATIONS

Internally, the structure has evolved mainly in its plan arrangement, leaving most of the structure intact. The cellular workplace layout has remained from the first floor upwards (cf. figure 3-22), although the ground and mezzanine levels have been altered considerably when the double volume was closed in 2004 (cf. figure 3-23). The front exterior façade (to Esselen Street) has been altered considerably with the addition of shops (cf. figure 3-16). These altered the circulation of the original entrances to the building. During Volkskas bank’s occupation, three additional safes were added to the one existing from 1966 on ground floor (cf. figure 3-23).

3.6.4. TYPOLOGY

The structure exhibits qualities typically associated with the office typology from the late 20th Century prior to the green building movement. During this phase office buildings were designed to be dependent on artificial systems to function. Fixed floor plates with consistent depths from the core to the outer walls were the norm. In addition, little concern was afforded to social interaction or the feel of a space.

3.6.5. ACCESS FROM ESSELEN STREET

Pauw and Botha Architects’ original design stepped back from the sidewalk’s edge, bringing relief to the unchanging building line and effectively distinguishing the building from the rest of the street’s built fabric.

According to an article published in the 1969 Government Gazette (1969: 11), the original brief required four different entrances to be incorporated within the building’s short front façade; these original entrances are illustrated in figure 3-14.
Access to the white’s bank hall (entrance 1) was placed at the centre of the building. It was further accentuated by cantilevering a protruding element above, further defining the passageway (cf. figure 3-15). This cantilever was enclosed in 2004 by Huurkor and is currently a cellphone booth. The main entrance is now accessed by a steep ramp located to the east of the cellphone booth. The entrance to the second banking hall (non-white’s) (entrance 3) were accessed by descending stairs adjacent to the lift shaft leading to the space beneath the manager’s office to the west of the front façade.

In order to minimise circulation space within the main banking hall, a separate entrance leading to the lift shaft (entrance 2) was placed directly to its right and was accentuated by the projecting lift shaft. An additional cashier was located in the garden leading up to the building to assist any clients who were in a hurry (entrance 5). At the edge of the garden a podium could be found exhibiting a sculpture from Danie de Jager portraying the ‘Volk se Kas’ (loosely translated as: the ‘people’s cabinet’). The original access points are documented and illustrated in figure 3-14.

From the four original entrances only the vehicular entrance (entrance 4) has remained intact. This entrance to the basement parking is located on the most eastern part of the front façade.

3.6.6. EXTENSION

In 2008, an addition of low quality has been added on the roof of the structure. This addition functions as a personnel meeting and social space for the Huurkor employees (cf. figure 3-16). This addition illustrates the apparent need for social space within the building.
3.6.7. FINISHES

Original finishes remain in part concealed or intact, while some have been replaced with finishes of an inferior quality. Original face brick and ceramic mosaics can be seen on large parts of the front façade (cf. 3.8: figures v and w), while the back façade have been painted a burnt orange. Remnants of the original ceramic mosaic cladding on the original ceiling and columns can be discerned through damaged partitions and ceiling panels (cf. 3.8: figure r). Only singular instances of the original slate which covered the ground floor and front courtyard can be seen (cf. 3.8: figure u and aa). All three instances are found on the periphery of the front courtyard.

3.6.8. CIRCULATION

The circulation alterations have been most extensive on ground floor. The original main banking hall is converted into a maze of partitions and narrow circulation corridors (cf. 3.22).

With the closing of the main banking hall’s double volume, access to the original mezzanine level have become isolated. The original mezzanine level can only be accessed by ascending to the first floor and descending on the internal staircase to the west of the floor plate.

Minor changes have been made to the top four floors’ layout over the years, although the original workplace concept of cellular offices located on the periphery of the building with artificially lit, dark corridors prevails. This leads to fixed circulation paths and the introverted feel of the interior space.
3.7. VOLSKAS ALTERATIONS

Figure 3-21. Axonometric illustrating the original design and intentions by Pauw and Botha Architects.

Figure 3-22. Composite axonometrics of alterations to the site.
3.8. SPATIAL QUALITY ANALYSIS

a. Back area on first floor.

b. Windows painted to southern side of existing fire escape.

c. Current entrance to site with palisade fencing and concrete benches.

d. Existing descending driveway towards basement (entrance 4 on figure 3-18).

e. Retail introduced to the site in 2004. The original cantilever of the main entrance (entrance 1 in figure 3-18) can be seen above the cell-2-sell signage.

f. Existing fire escape.

g. Balcony on first floor looking towards Esselen Street.

h. Front facade as seen from protruding lift lobby. Note the original mosaic cladding and tinted windows on the facade.

i. Protruding lift shaft and vertical circulation as seen from first floor balcony.

j. Original fire escape above descending driveway. This staircase services ground floor, mezzanine and first floor towards the south western side of the site.

k. Original staircase linking ground floor to the mezzanine. Huurkor closed the double volume for additional floor space (cf. figure 3-20).

l. Ground floor internal circulation.

m. Typical signage as accessed from the protruding lift lobby.

n. Typical landing within the protruding lift lobby of each floor.

o. Typical office in the centre of the floor plate with no relation to the outside world.

p. Enclosed staircase linking ground floor to the mezzanine level. (cf. figure k)

q. Additional floor space added in the original double volume.
r Original mosaic at main entrance to the building (entrance 1 in figure 3-18.)

s 500x500mm low quality ceramic tiles installed within the protruding lift lobbies, staircase and ground floor. The original slate was removed in 2004.

t View of slate and meranti balustrade and handrail on main staircase within the protruding lift shaft.

u Remnants of original slate finish visible on edge of main entrance (entrance 1 in figure 3-18.)

v Original ceramic mosaic cladding on building facades and parts of the original main banking hall.

w Original face brick; most areas have been plastered and painted in burnt orange.

x Original meranti handrail on main staircase in the protruding lift shaft.

y View of current lift car interior. Original lift had a window facing Esselen Street allowing passengers a view towards the outside.

z Typical internal floor area with cellular offices on the periphery of the building and artificially lit internal spaces.

aa Remnant of original slate floor finish in front of the current cell-2-sell shop.

ab View of original ceramic mosaic cladding on front facade.

ac Louvred windows allowing natural ventilation within the protruding lift shaft.
Interviews were conducted with the current users of the site to establish how the spaces are experienced. These findings (delineated in Appendix B) are translated into diagrammatic illustrations in figures 3-24 to 3-26.

“We have a lot of clients walking into the toilets thinking it’s the way out...”
Interior spaces are completely closed off from the outside world. Artificial lighting bathes the inner spaces in a cold, harsh light; one has no idea of the time of day or external environmental conditions.

Esselen Street’s sound reflects across all the various hard surfaces. The air-conditioning unit situated between the two outbuildings to the back of the first floor issues a foul smell with a continual loud operating noise. Interior surfaces are mostly tiled and painted resulting in intensive sound reflection throughout the building.

“I open my window for fresh air, but most people only use the air-cons…”
Figure 3-27: Front Facade, 2013. Photographs by author. [Transcript], 10 May 2013. Pretoria.
Figure 3-28. Significant and lost elements of the site.
Figure 3-29. Site's current structure and infill exploded axonometric.
This chapter introduced the site, namely Huurkor Sunnyside, within its context in Esselen Street, Sunnyside, Pretoria.

A series of requirements was developed prior to the selection process; these ensured the site choice is suitable for the proposed adaptive process. These requirements included: the type of building (pre-1990’s); that it should currently be in use; that the site had to be located within an urban precinct with potential for corporate growth, and finally that the building should illustrate potential for branding.

The building analysis and current qualitative state indicate the site’s potential and want for the proposed adaptation.

Figure 3.30. Timeline of site’s development from 1966 to 2013.
A potential client, namely Assupol, is identified according to a set of prerequisites. The company’s corporate identity is investigated in terms of branding and potential spatial implications.

Investigations into the organisational structures and corporate culture of Assupol are conducted by means of observational sketches and photographs. Interviews with staff are conducted over a cross section of the company; establishing both the formal and informal work processes and social friction potential and requirements.

The chapter concludes with a company overview of the findings and the resultant spatial implications.
4.1. INTRODUCTION

This chapter will introduce the client and the investigation that was conducted into their organisational structures and corporate culture. The hermeneutic interview and research methodology for the investigations will be delineated after which a company overview will be given. Findings will indicate the results from interviews and observations. These findings will ultimately define the brief for the concept and design investigations to follow in Chapters 6 and 7.

4.2. ASSUPOL AS CLIENT

4.2.1. HISTORY

The company originates from a tradition established among policemen to collect money in a hat for the family of a deceased colleague. After some time a kitty system was introduced, which eased collection procedures. Policemen paid a part of their salary to the kitty for future cover. In 1913 the South African Police Provident Fund was initiated that formalised the tradition. This fund was dubbed, Assupol.

For many years the Fund was only available to members of the Police Force. In 1960, Assupol selectively lifted their restrictions, allowing other state employees the opportunity to join. In the 1990’s, Assupol lifted their restrictions in total. Products became available to everyone effectively releasing Assupol from the niche market they so long served.

4.2.2. COMPANY STRUCTURE

The Assupol Group consists of three different companies:

1. Assupol Life Ltd
2. Cornerstone Brokers Corporate (Pty) Ltd
3. Kestrel Financial Solutions (Pty) Ltd

Cornerstone and Kestrel are located in Centurion, while Assupol Life is located in Brooklyn, Pretoria. Assupol Life will be investigated as client for the thesis.

The headquarters are currently located in four single and double structure buildings in Brooks and First Streets, Brooklyn, Pretoria. As the company grew new office space was rented close to the existing offices which resulted in the distributed nature of the current locations. This distributed nature of the company gives rise to communication difficulties and segmentation.

4.2.3. TOP MANAGEMENT’S BRIEF

1. The work environment should become more corporate.
2. An industrial interior look (as it is assumed to be the least expensive) higher specification finishes to be applied where clients are met.
3. The company has two main concerns:
   - Corporate image
   - Have personnel feel valued (Staff Esteem)
4. Minimum enclosed offices (cellular offices), with most personnel sitting in an open-plan environment.
5. Alternative suggestions would be considered.

The brief for the design thesis will be developed by layering the findings from the corporate culture investigation with that of the top management’s brief. The resultant requirements and parameters for interaction and work processes will allow for an informed design solution to be generated.
4.2.4. CORPORATE IDENTITY

Assupol’s corporate identity is constituted by their operating philosophies:

Vision: To serve those who serve.
Mission: To be the insurer to the people
Values: To treat our clients fairly

4.2.5. ASSUPOL’S CLIENT BASE

Today, anyone can buy products from Assupol, although the company’s focus remains on people working within governmental or institutional professions; these typically include: members of the SAPS, firefighters, teachers, doctors and those serving in the South African National Defense Force.
4.3. ASSUMPTIONS

Prior to visiting Assupol, the author's assumptions about the company were recorded. These assumptions are outlined below and serve as benchmark for the findings as related at the end of the chapter.

4.3.1. ASSUMPTIONS PRIOR TO VISITING ASSUPOL

Assupol, as an insurance company, was presumed to have a dull work environment. The type of work done was considered to be a combination of number crunching and high pressure processes. It was known that the company’s headquarters in Pretoria is currently located in four different buildings. It was expected that subcultures might have formed within the different buildings and that the overall corporate culture might not coincide with these. The top management is presumed to be chiefly baby boomers although the personnel were supposed to be from various age groups. As the company celebrates its centenary birthday in 2013, it is presumed that a number of set ways of doing might have been developed over the years.

4.4. INVESTIGATING ASSUPOL'S WORK PROCESSES AND CORPORATE CULTURE

4.4.1. INTERVIEW METHODOLOGY

The descriptive Husserlian phenomenology believes the researcher should rid him or herself of all prejudices or inclinations in order to get to the true essence of how something is experienced. The hermeneutic process chosen to guide the theoretical and real-world investigation, in juxtaposition, emphasizes that humans have the ability to interpret information by using previous experiences, intuition and foresights that orientate the researcher. This reflects the self-interpretive nature we have as human beings.

Hans-Georg Gadamer (1900 – 2002) and Heidegger both asserted that it is unachievable for people to rid themselves of preconceived ideas (Vandermause & Fleming, 2011: 369). The researcher is unavoidably an involved party who’s understanding during the research are guided and modified as new supporting or contradicting data is gathered.

An understanding into the client was undertaken with the use of interviews, observations, historical development, informal discussions and an investigation into their physical layout.

The interviews were conducted according to the research methodology. Hermeneutic interviewing has a distinctive style as a data gathering tool. It has an interpretive nature and purpose and follows the original views and intentions of Hermeneutic phenomenology. It typically has a collaborative conversational structure while being orientated towards the reflection and interpretation of the meanings of the related experiences.

During a hermeneutic interview the interviewer would uncover the meaning and thinking which are then later interpreted to accumulate an understanding into the experiences. The researcher has to be open to all new, supporting or contradicting responses regarding the phenomenon under question. The hermeneutic interview in essence tries to make sense of the experience of the interviewee by repeating parts for clarification or confirmation.

Observations and physical layouts were sketched and photographed adding to the ontological understanding of Assupol as client.

4.4.2. INTERVIEW PROCEDURE

Prior to the start of the interview, the aim of understanding the company culture and its qualities were explained to the interviewees. Photos were taken with prior consent from the interviewees; those who were uncomfortable are depicted by a photo of their workstation. The flexibility and openness of the interactions between the researcher and the interviewee(s) were based on Gadamer’s concept of the transformation of ideas and perceptions when parties enter in conversation (Vandermause & Fleming, 2011: 370). In addition, sketches and photographs were used to depict scenes observed. These are utilised towards developing a deeper understanding into the working processes and staff relationships from an objective point of view.

Although no distinguished methods can be delineated within the hermeneutic phenomenological approach according to both Heidegger and Gadamer, certain pathways towards ‘clearings of understanding’ can be used (Gadamer, 2001: 40).
4.5. GENERATIONS IN THE WORKPLACE

Although generation characteristics are acknowledged generalisations, it gives an overall feel of the age group’s priorities, concerns and perceptions. It also gives an insight as to how workplaces are managed when a particular generation is in power.

Generation characteristics are often used by literature reviews on managing the workforce. Its relevancy to interior architecture lies in its ability to inform us as designers how people from different age groups may interact and communicate in formal and informal settings. Once we have an understanding of how generations think, we start understanding their interpretation and roles within the fabric of social friction.

4.5.1. GENERATIONS WORKING AT ASSUPOL

Baby boomers and early Generation X are found within the top management of Assupol. Managers are predominantly Generation X, while the rest of the staff is made up of a combination of the generations with decreasing concentration from Generation X to Y to Boomers. The generalised characteristics as discussed above were considered during interviews and informed the interpretation of the workplace experiences.

4.5.2. TYPICAL CHARACTERISTICS

- This generation move between companies freely with their main loyalty focused on themselves.
- Connected 24/7 to anyone at any time.
- They do not hesitate to question authority.
- They grew up in a digitally literate environment.
- The internet is often used for information gathering and socialising.
- They do not live to work and prefer a relaxed work-life balance.
- Requires constant feedback.
- Office hours are preferred flexible.

- This generation questions authority and decisions.
- Raised in transition phase from paper to digital technology.
- First generation that changes careers often or move freely between companies.
- Not responsive to strict hierarchical settings.
- Requires small tokens of appreciation.
- Office hours typically span from 8 a.m. to 5 p.m.

- This generation is driven and are hard workers.
- Loyal to a company.
- Status and job titles matters.
- First generation exposed to television.
- This generation sees technology and innovation as something that needs to be learned.
- Feels comfortable with hierarchy and traditions.
- Office hours are long - typically from 8 a.m. to 7 p.m.

4.6. INTERVIEWS

Four different techniques were used during the interviews. These were adapted from the techniques presented by Vandermause and Fleming in their article, *Hermeneutic Interviewing* (2011: 372):

- **Setting the tone of the interview**
  The amount of time spent working at Assupol was used as the starting question leading the interview into its semi-structured conversational manner. The interviewee was then invited to speak about ‘what stands out’ to them about their experience at the company during the time period mentioned.

- **Incomplete sentences**
  Incomplete sentences such as, “I see your department operates differently...” extracts an answer from the interviewee without the risk of the interviewer leading the conversation. Incomplete sentences relieve pressure within the interview by increasing its conversational tone.

- **Looking for assent**
  In order to ensure the credibility of data gathered during the interviews, uncertainties were paraphrased in order to develop the correct interpretation.

- **Returning the conversation towards the required direction**
  When information start to get too far removed from the intended research areas, the conversational interview can be guided back to its necessary path by referencing the phenomena that is the focus of the interview or by the introduction of another question.

---

**Set 1**

**Questions**
- How long have you been working at Assupol?
- How do you experience working at Assupol?
- What is unique to Assupol and how they do things?
- What makes Assupol different from other companies?
- What do you think is Assupol’s biggest concern?
- How do you travel to and from work?
- Are there any traditions within your department?
- What are the age differences in your department?

---

**Set 2**

**Questions**
- How do you experience your workplace layout?
- Is there something that makes your building and its people different from the others?
- How is performance rewarded at Assupol?
- How do different hierarchical levels interact?
- What would you like to have in an ideal workplace?
- Does your workplace layout support the way you work in your department?
- What would you like to change in your workplace?

---

Cindy has worked for Assupol for 10 years and she is now 39 years old. She loves her work at Assupol. She stated that the company’s honesty towards its workers is amazing. She said that she loves working there and she never wants to work anywhere else. Every morning she looks forward to coming to work. The people at Assupol care for each other. She was assigned as receptionist when she first started and later she was transferred to the loans and cancellations department. Now she is supervisor of the department for client service administration. She supervises 10 people of whom the youngest is 22 and the oldest is 60. The rest of the ages are equally balanced in between. Many of the people in her department remain at their workstations during lunchtimes. Cindy arrives at work by car.

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Cindy sits in an open-plan environment. She enjoys the open-plan but would like their system to become less paper orientated. Currently they need storage units. Her department (client administration) need to sit close to client services and the consulting cubicles. Her department takes turns over lunch in order to ensure the office is permanently staffed. Many in her department often remain at their workstations over lunchtimes as there is nowhere else they can go to eat.

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*Prior to the start of the interview, the aim of understanding the company culture and its qualities were explained to the interviewees. Photos were taken with prior verbal consent from the interviewees, those who were uncomfortable are depicted by a photo of their workstation.

*The questions and their framing were open and spontaneously introduced during the conversational interviews. Once recurring themes were noted, second interviews were conducted with all the interviewees. The second interviews aimed to clarify specific ideas and experiences of the themes and to develop a clear understanding into their spatial implications and requirements.

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RECURRING THEMES:

- Assupol cares for its people.
- Employees experience the company as one big family.
- Assupol’s strength is in its people.
- People are friendly and helpful.
- Current employees, with the right skills, are given first consideration when new positions open up.
- Socials and end-year functions are very popular; prizes are awarded.
- Communal spaces are desperately needed.
- People support one another.
- Geniality amongst all hierarchical levels.
- Low staff turn-over.

SET 2

SPATIAL RECURRING THEMES:

- Open-plan is difficult to get used to but improves team work.
- Security inhibits free movement between departments.
- Internal communication is limited.
- New management style (Generation X) does not enforce hierarchy – corporate culture still largely illustrates a hierarchical influence from the previous CEO’s management style (Baby Boomer).

Requirements

AS SET BY ASSUPOL’S CORPORATE CULTURE

1. Break out spaces / pause areas.
2. Place to sit to have lunch.
3. Personnel seated in open-plan would like a concentration-orientated environment for certain time periods.

...THE COMPANY FEELS LIKE ONE BIG FAMILY AND EVERYONE SUPPORTS EVERYONE.”

“I ENJOY THE OPEN-PLAN, BUT SOMETIMES I GO TO THE MEETING ROOM... WHEN I NEED TO CONCENTRATE...”
The reception areas of all four buildings have continual physical and manipulated social friction. Waiting areas and consulting stations are serviced from the reception.

The finances department deals with privileged information. Work processes are computer-based with very little paperwork being done. Printers and copiers cannot be shared with other departments.

Corporate Affairs work closely with the Marketing department. The staff’s roles and work processes are flexible and interchanging, although most are computer-based. This department requires storage for a variety of branded merchandise. These merchandise change regularly but often include: caps, jerseys, jackets, pens and diaries.

The space allocated to the directors and personal assistants were found to operate in a more formal manner than the other departments. Both paper and computer work takes place with the addition of video conferencing.

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4.7. OVERVIEW OF MOVEMENT STUDIES AND DEPARTMENTAL REQUIREMENTS

*Work process requirements and activity time zones were compiled using results from both the observations and interview records.

Graph 4-4. Reception
The reception areas of all four buildings have continual physical and manipulated social friction. Waiting areas and consulting stations are serviced from the reception.

Graph 4-5. Client Services
The Client Services department meets clients who arrive wanting consultations. This department primarily functions as a call centre. Work processes are predominantly reliant on telephone discussions with computer supported information gathering. Paperwork, filled in by visiting clients, need to be processed.

Graph 4-6. Demutualisation
The Demutualisation department will only be in existence for approximately 5 to 7 years. This department has both administration and call centre work processes. Telephonic, computer and paper based work takes place.

Graph 4-7. Finances
The Finances department deals with privileged information. Work processes are computer-based with very little paperwork being done. Printers and copiers cannot be shared with other departments.

Graph 4-8. Corporate Affairs
Corporate Affairs work closely with the Marketing department. The staff’s roles and work processes are flexible and interchanging, although most are computer-based. This department requires storage for a variety of branded merchandise. These merchandise change regularly but often include: caps, jerseys, jackets, pens and diaries.

Graph 4-9. Directors and personal assistants
The space allocated to the directors and personal assistants were found to operate in a more formal manner than the other departments. Both paper and computer work takes place with the addition of video conferencing.
The Group Schemes department functions within both administrative and call centre work processes. The Claims and New Business department has a large paper trail. Files are passed between members of the department several times a day. Large amounts of storage are also necessary. Printers and scanners are used to read printed and written information back into the electronic databases.

The marketing department deals with Assupol’s branding and public image. Work processes are flexible and adapts to specific projects, although it remains largely computer-based.

The informal activities, comprising of meetings as well as social interaction, of all the departments have been layered to form a composite graph as seen in graph 4-13. The activity levels indicate that peaks are found around tea times and at lunch time. Some departments have higher informal activity peaks than others. Departments with lower informal activity rankings have specific time zones in which social interaction flourish.

*The movement studies were not completed in a specific hierarchy. Instead the author moved through the different departments continually observing the interactions and movements in peak and down times.*

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Current work environments at Assupol are intimate because they are in small spaces and closed off from one another. This however results in departments being largely disconnected.

Top management creates a comfortable work environment in terms of both formal and informal relationships. Informal interaction and social events are valued by both management and staff, although no platforms for social interaction exist within the built environment. Many employees feel frustrated as no relief during the workday is possible; the only break-out space being the street and sidewalk.

Communication within the company is one of the main problems. The security system, which has finger identification at every door, inhibits interdepartmental connections.

It is noted that projects are run within a singular department - and not between different departments - as initially presumed. The organisational structure is currently segregated and needs to be connected, not in a network style but rather in an associative manner.

4.8. DELINEATION OF FINDINGS

“... THE DIFFERENT DEPARTMENTS WORK IN SILOS. EVERY DEPARTMENT FUNCTION AS A SUBCULTURE OF ASSUPOL, VARYING IN FORMALITY ACCORDING TO THE WORK BEING DONE IN THE DEPARTMENT....”

**current organisational structure + communication between departments**

**proposed organisational structure + communication between departments**

**Figure 4-9.** Illustration of Assupol’s work processes.

**OBSERVATIONS:**

1. People were found to walk around often: towards coffee stations, to speak to one another as well as to file paperwork.
2. Teamwork happen at regular intervals: at times a constant dialogue is found from separate corners of the open-plan office.
3. Consulting stations remain unused for large amounts of time: members from the client services department meet clients here (who arrive from reception).
4. Many people eat at their workstations during lunch.
5. There is sociability between staff - interactions are good-natured and caring.
6. Older staff members seem to struggle more with the open-plan’s noise levels than younger staff.
FORMAL HIERARCHICAL STRUCTURE

Figure 4-10. Schematic illustrations of findings: Assupol’s organisational structure.

FORMAL STRUCTURE AS EXPERIENCED BY EMPLOYEES

STRONG HIERARCHY IN WORK RELATIONSHIPS, ALTHOUGH GENIAL

OPEN-DOOR POLICY

INFORMAL STRUCTURE AS EXPERIENCED BY EMPLOYERS + EMPLOYEES

STRONG HIERARCHY IN WORK PROCESSES
4.9. **SPATIAL REQUIREMENTS**

Figure 4-11. Graphic illustrating Assupol’s spatial requirements in terms of Zumthor’s qualitative principles.
4.10. DESIGN BRIEF

The Design Brief was set by layering the top management’s brief with findings from the organisational structure and corporate culture investigations:

1. Assupol is moving towards a more corporate look; the easy-going manner of the corporate culture will influence back-of-house design and amenities.
2. Workplace concept need to be developed that suit the corporate culture and organisational structure in terms of associative departmental connections and communication.
3. Team-work spaces and concentration spaces are necessary.
4. Communal areas such as break-out spaces and pause areas are required.
5. Noise due to working processes need to be dampened to ensure optimum productivity.
6. The work environment needs to create both formal and informal platforms for social interaction.
7. Work environment should respond to the change in management style from Baby Boomer to Generation X.
8. Staff esteem and client satisfaction are the main concerns for layouts and design.

The hermeneutic phenomenological approach is based on the interpretation of experiences of every day live occurrences. It focuses on establishing an informed understanding into the phenomenon by co-created conversations and observations.

Information regarding the formal and informal structures of Assupol was delineated by means of observation and photographic documentation. In addition, the corporate identity of Assupol was established in combination with their target group of clientele.

Assupol’s core values were delineated as: staff esteem and client satisfaction. These directly influence the corporate culture and informal structure of social interaction. Interviews with staff, representing a cross section of the company, were completed. A first set of questions was determined on establishing the corporate culture, the general experience of working at Assupol as well as how the workplace layout is experienced. After recurring themes were established, second interviews were conducted for further exploration into their spatial requirements.

The chapter concluded with setting the brief for the design intervention. The design brief was compiled by layering the findings from the investigation with those requirements as set by the top management.
The different expectations between case and precedent studies are identified. Three case studies are investigated. The first two are within the Pretoria precinct and they are reviewed as responses to the local context. The third is a case study focused on user control and the effect it has within the workplace environment.

Relevant precedent studies are investigated to fathom the contemporary outlook and approach to work places. Specific guidelines for qualitative design are adapted from Ziona Strelitz’ lessons (2008, 125-140).

Each case and precedent study is concluded by the summary of the design guidelines it contributed to the study.
5.1. INTRODUCTION

This chapter will explore case and precedent studies in an attempt to better understand the implications of design decisions. A literature study on contemporary workplace thinking was probed prior to the setting of the investigation’s discourse. The literature had a profound impact on how spaces and corporate cultures were understood.

The chapter will commence by setting the guidelines to qualitative aspects explored in the chapter. These aspects are directly linked to the elements for atmosphere as established in Chapter 2. Each precedent and case study will be considered and investigated as a means to develop guidelines for the design discourse to follow in Chapter 6.

This will have two sections:

1. Case Studies: For the consideration of design guidelines and potential explorations.

2. Precedent Studies: For informing the conceptual approach, design investigation and technical exploration.

5.2. CASE STUDIES

5.2.1. VIP SOFTLINE BUILDING

Architect: Boogertman+Partners Architects
Interior Architect: Boogertman + Partners Interiors
Location: Pretoria, South Africa
Completion date: September 2012
4 Star Green Star rating

At the time of investigation, VIP had been occupying their new building for 6 months. It was observed that the largest part of the interior budget had been dedicated to the public and common areas. The reception vestibule, canteen and pause areas have been meticulously designed, while the places where the performance of work needed to take place was left un-designed. VIP’s furniture from the previous office were reused in the space (Van den Bergh, 2013) and work areas are configured in an open-plan workplace concept (cf. figure 5-7).

Pause areas and meeting areas have been located on the periphery of the central atrium. These spaces enjoy natural daylight entering the volume from above. Broad stairs frame the perimeter of the atrium, leading to the different coloured pause areas on every floor. It was observed that staff frequently meet on these stairs for both informal (work-related) and casual interactions. Except for the varying colours at the pause areas, all floors are similar with no variation in finishes, materials or layout.

VIP’s work processes are largely computer-based. Staff is assigned a workstation and common areas may only be used during predetermined recreational periods. It is therefore significant to note that large volumes were attributed to the reception and canteen spaces, leaving them feeling spacious yet impersonal and empty (cf. figures 5-2 and 5-3). Pause areas and meeting spaces, as viewed from the canteen and waiting area on ground floor, enables visual friction in the atrium during tea and lunch times, but remains unanimated for the largest portion of the workday.

In juxtaposition, work areas were largely un-designed with minimal to no variation in-between the open-plan workstations. Work areas also do not enjoy being in close contact with real world representative interventions.

Hence, each will influence the understanding of the phenomenon of workplace design in a different way.

Figure 5-1. Hot desks and Pause Area. 2013. Photographs by author. [Transcript]. 13 March 2013. Pretoria.
Figure 5-2. Canteen. 2013. Photograph by author. [Transcript]. 13 March 2013. Pretoria.
Figure 5-3. Reception and Waiting area. 2013. Photograph by author. [Transcript]. 13 March 2013. Pretoria.
proximity to windows. This is of concern to many employees as they feel unconnected to the outside world while working (Van den Bergh, 2013).

Van den Berg (2013) stated that top management set the designer’s brief imagining her department (being the creative department) would benefit from having a think tank. She indicated that it is yet to be used and that they would have preferred a coffee machine. Clear communication between the design team and the actual users of the space are thus important. The roof is developed into a vegetable garden. It was also designed to become a node for social interaction as it provides seating spaces, smoking areas and a bar unit for use during socials (cf. figure 5-8).

- It is significant to note that public and common areas are given the largest portion of budget and are located at the best parts of the building, enjoying views and natural daylight. Spaces where work needs to be performed and employees spend the largest part of their day are left undesigned and without a connection to the outside world.

- Clear communication as to the actual and not assumed needs of the users will contribute in developing more successful work places.
At the time of investigation, Nedbank have been occupying their new building for almost 12 months. Again, most of the capital has been attributed to the reception, waiting area, canteen and pause areas. A generic design has been developed resulting in a repetition of cookie cutter spaces on every floor. An interview with Vermeulen (2013), the building manager, indicated that the complaint most often received concerns the provision of white boards. These are installed at the same point on each of the floors, yet some departments do not use them at all, while other departments complain that they are too small for their needs. This illustrates the necessity to investigate the needs of the various facets of an organisation and not to create one-size-fits-all solutions.

Nedbank’s staff was moved from a cellular office layout to open-plan in the new building. The new workplace layout has taken a step towards the collaborative workplace by eliminating all offices. It was observed, however, that the rows upon rows of desks create very little potential for collaborative interaction. All floors look exactly similar, and no personalisation of workstations is allowed. It was observed that some of the senior personnel have moved office furniture in such a way as to ‘create’ an office again. De Lange (2013), an employee, stated that she and many co-workers feel the use of plastic chairs; artificial flowers and plastic tables fail to humanise the large volumes.

The reception and canteen space is flooded with natural light and expansive views to the exterior (cf. figure 5-11 and 5-14). Work areas range from daylit to dark internal areas but remain unseen and separated from the central public and common areas. Pause areas are located in the centre of the floor plate, with only a wallpaper illustrating scenes of the outside world (cf. figure 5-10).
This building illustrates the problems that arise when the organisational structure and corporate culture do not align with layout decisions made by top management.

A generic design applied to all departments do not adhere to specific needs and expectations. Cookie cutter solutions often inhibit optimal performance as required elements are missing or unrequired elements take up valuable floor space.

Figure 5-11. Central Atrium, 2013. Photograph by author. [Transcript]. 13 March 2013. Pretoria.

Figure 5-12. Work area, 2013. Photograph by author. [Transcript]. 13 March 2013. Pretoria.


Figure 5-14. Canteen, 2013. Photograph by author. [Transcript]. 13 March 2013. Pretoria.
5.2.3. 500 COLLINS STREET

The 28-storey structure at 500 Collins Street, Melbourne, was constructed in the 1970’s. It has since remained largely unaltered until Kador Group acquired it in 2002.

Kador Group envisioned an extensive upgrade for the premises. Rendering the building sustainable was one of the main issues addressed. This included revising the lighting and ventilation strategies, heating and cooling schemes, introducing low VOC emitting materials and finishes and lowering the ambient noise levels. Allowing for user control within the building was also a primary consideration (SV, 2008).

Business Outlook and Evaluation teamed up with Sustainability Victoria in evaluating the impact of the refurbishment on the building users. The study was performed on two different but undisclosed tenants. Results were then compared from before and after the tenants’ occupation of the refurbished floor space (cf. table 5-1). This comparison indicates the effect of the altered workplace environment on productivity (SV, 2008).

Symptoms effecting productivity

<table>
<thead>
<tr>
<th></th>
<th>Tenant one</th>
<th>Tenant two</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>7% reduction</td>
<td>20% reduction</td>
</tr>
<tr>
<td>Cold and flu</td>
<td>21% reduction</td>
<td>24% reduction</td>
</tr>
<tr>
<td>Fatigue</td>
<td>26% reduction</td>
<td>16% reduction</td>
</tr>
<tr>
<td>Poor concentration</td>
<td>20% reduction</td>
<td>5% reduction</td>
</tr>
</tbody>
</table>

Table 5-1. Table indicating tenant productivity (SV, 2008).

5.2.4. APPLICATION OF CASE STUDIES

The case studies explored contemporary workplaces and their effects on their users. A number of guiding principles can be deducted:

1. When healthy distances of personal space are included in circulation areas, they form optimum platforms for establishing social interaction;
2. Visual friction as both social and spatial connecting strategies enables social interaction;
3. Visual connections to the exterior are conducive to staff morale and productivity;
4. When workplace layouts are forced onto companies without considering their organisational structure and corporate culture, it is experienced as a violation of privacy and/or status. Not only will this counteract productivity, but also staff morale;
5. When users are given an element of control, they will adapt more easily to change;
6. Threshold conditions have an immense impact on how workplaces are experienced: enabling or disabling.
Jean Nouvel presented his thinking of what workplaces need to offer in his Project: Office for living, an exhibition at the Salone Internazionale del Mobile in April of 2013. The exhibition was focused on the investigation of 'the concept of taking pleasure in life' (Dezeen, 2013).

“Once we reject cloned and alienating spaces, it becomes clear that there are many possible solutions. We have to change our behaviours, plan and think of work with a different mind-set: no matter where an office is situated, it has to have a space it can call its own, identifiable, alterable, on a human scale, with its own history and objects, an enjoyable environment…” (Jean Nouvel in Dezeen, 2013).

His exhibition was set within five different possible scenarios. In each scenario he criticises the standardised and homogenous workplace solutions currently offered within most organisations. These would typically be the surviving cellular and office landscape workplace layouts. In addition, Nouvel comments on providing individualised task lighting as an alternative to the traditional and uniform illumination found throughout an office environment: he showcases prototype lamps, allowing each individual to adapt their own working environment as needed.

- **Adaptive reuse of a house:**
  The first exhibition is based on an apartment converted to an office. This workplace is intimate and allows for a rich personalisation of the space. This intervention is illustrated in only the furnishings and finishes leaving the original features of the apartment, such as a fireplace, intact (cf. figure 5-20).

- **Home office:**
  The second exhibition is dedicated to a workplace as set up from the home. Nouvel explores combining spaces for living and working by having furniture perform dual purposes. The space transforms from dedicated 'office' during the day, to 'home' in the evenings and weekends (cf. figure 5-23).

- **Adaptive reuse of furniture:**
  The third comprises of modular industrial furniture within an open space. This part of the installation illustrates the importance of user interaction with the workplace environment. The different furniture pieces can be put together in a number of different ways, from stacking them, reassembling different parts and modulating their composition.

The furniture is constructed out of a variety of materials such as cardboard, different woods, different coloured plastics and leather, as well as from a variety of eras and even from different typologies. This enables the user to determine how and where they want to work. This scenario demonstrates the richness that atypical and irregular objects and furniture can bring to the workplace (cf. figure 5-22).

- **Adaptive reuse of a typical warehouse typology:**
  The fourth exhibition was set within a warehouse environment and illustrates the opportunities that adaptive reuse of this typology can offer. Flexible and non-systemic furnishing, lighting and trimming solutions provide endless opportunities for appropriation (cf. figure 5-21). This area of the exhibition particularly showcases the scope for workplaces as adaptive reuse programs.

- **Open-plan seating with added user control:**
  The final area of the exhibition demonstrates the possibilities when a typical open-plan area is provided with elements affording choice to its users. With the use of sliding and collapsible walls, areas can be closed off or opened up; frosted glass affords both indirect lighting and privacy, while blinds are provided for regulating glare and light intensity between areas. The finishes are a combination of timbers and chromes, imparting both a comfortable yet luxurious character to the space. Although the layout is standardised, the flexibility and choice gives the user control over his work environment (cf. figures 5-25, 5-26 and 5-27).
This office is unique in the way that it creates a mediation between spaces. The circulation space expands into the central spine housing the office’s infrastructure. Workstations are positioned near the windows, while the informal meeting areas, storage, concentration areas and informal social interaction is located in the centre of the space (Zumstein & Parton, 2011).

5.3.2. LANGLAND OFFICES

Architect: Jump Studios
Location: Windsor, UK
Completed: December, 2008
Size: 930m²

By locating the infrastructure in the middle of the space, an informal activity spine is created. This directly enables social friction within the workplace, creating a visual relief within the open plan layout.

5.3.3. RIOS CLEMENTI HALE STUDIOS OFFICE

Architect: Rios Clementi Hale Studios
Location: Los Angeles, USA
Completed: December, 2008
Size: 1580 m²

This office space shows the potential of team space where circulation is placed on the periphery. By allowing for additional sound separation between teams, the space dually diminishes noise within the space, without the risk of segregating the teams.

It is important to note that all five scenarios focus on giving users some element of control over their work environment.

• It is important to note that all five scenarios focus on giving users some element of control over their work environment.
5.3.4. MORI X HAKO OFFICES

Architect: UID Architects  
Location: Fukuyama, Japan  
Completed: January, 2009  
Size: 360 m²

Greenery within the workplace have a direct impact on its quality and perceived comfort. This workplace incorporated foliage within the workstations. Views to the exterior are also provided at relevant intervals.

The workstations are all merged into one continuous plane. This allows for an interconnected feel within teams (Zumstein & Parton, 2011).

The addition of foliage and large views to the exterior effectively increases the sense of intimacy and relaxed atmosphere of this office space. Furthermore, the combination of workstations into one shared work plane enables an interconnected and casual team working space.
Herman Herzberger developed the Centraal Beheer office space with a concern for human interaction. Visual connections were the theme of his spatial explorations. Spaces are open-ended allowing for change and adaptation; not with moving elements, but in its programme.

The design seen from plan view interchanges between form and space. This allows many fields of view, to different levels, from every point in the building. Spaces are thus linked by visual and auditory qualities.

The design allows for visual connections between floors and different departments, effectively creating an ever evolving platform for informal interaction and social friction. Spaces are designed to be used in multiple ways with little to no alteration to actual structure being necessary.

This Art Deco structure forms part of a number of buildings occupied by the Western Cape Provincial Administration.

In the process of upgrading the building to adhere to safety standards, a new external fire escape, an additional floor and a vertical sun screen was added. These additions were all of lightweight materials, resolving the problems indicated by the users as well as respecting the original architectural fabric.

The vertical sun screen is from profiled steel. This addition was made to divert the warm afternoon sun from entering the workspaces. The external fire escape is from fibreglass clad steel, effectively creating an additional modern layer to the historical building (Levitan, 2001).

This addition indicates that by utilising lightweight materials, the historical fabric can be respected, while problems faced by current users can be resolved.
5.3.8. OPEN BUILDING PRECEDENT:
QUINTA MONROY

Architect: Alejandro Aravena
Location: Iquique, Chile
Completion date: 2004

This project is a very good example of the open building system and its implementation within the residential sector.

Quinta Monroy was a squatter development located in the centre of Iquique, Chile. The area suffered from various safety and sanitary issues and the Chilean government decided to implement a housing scheme, as the illegal inhabitants of Quinta Monroy refused to move, stipulating that they have developed infrastructures over the years.

The budget for the project was extremely low, while the location of the site, being at the central node of the city, was of high value. The architects developed a scheme based on the open building principles, where inhabitants could adapt their homes by extending, adapting and finishing to individualise the dwellings.

The floor slabs, services and structural walls were the only parts provided - the parts that the inhabitants could not add themselves (Jalocha, 2008).
5.3.9. RECEPTION

Reception waiting areas are often impersonal and unwelcoming. A variety of conditions influence our experience of a space, such as the acoustic condition, the sense of intimacy as well as the material and colour combinations.

FAIRLANDS OFFICE

Architect: Continuum Architects
Location: Johannesburg, South Africa
Completed: March, 2008
Size: 160 000 m²

STUDENT LOANS COMPANY

Architect: 3FOLD
Location: Darlington, UK
Completed: June, 2008
Size: 5300 m²

FACTORY BUILDING

Architect: Weberwürschinger
Location: Rehau
Completed: 2004
Size: 2884 m²

ANZ LEARNING CENTRE

Architect: Hassel
Location: Melbourne, Australia
Completed: September, 2007
Size: 3000 m²

Furniture allowing for choice enables the person to wait in whichever manner suits him best. The sense of intimacy in this space is shaped mainly by the art installation hanging above the waiting area, although the space remains vast and impersonal. The surfaces are also reflective, giving sounds a hollow and intimidating tone (Zumstein & Parton, 2011: 348).

Furniture allowing people to sit at any chosen distance from another is more flexible and less space consuming. This seating is often seen in less corporate environments, where a relaxed atmosphere is found (Zumstein & Parton, 2011: 288).

Fixed furniture or niches from existing buildings can be adapted to a waiting space. These spaces typically exhibit an industrial feel. Less focus is placed on individual needs, while the overall atmosphere is often relaxed (Schittich, 2011: 73).

This waiting space features a variety of seating typologies, allowing the client to choose which seat suits his needs and personality best (Zumstein & Parton, 2011: 230).
5.4. CONCLUSION

5.3.10. APPLICATION OF PRECEDENT STUDIES

The various precedent studies illustrated key concepts that will influence the conceptual and design development.

- Spatial and material precedents were investigated for their applicability at the proposed site;
- Conceptual and theoretical precedents were investigated for their impact on the design discourse.

The aspects and spatial considerations determined by the literature study and theoretical framework, as presented in Chapter 2, have been investigated through the case and precedent studies in this chapter.

A number of guidelines have been set which will now be implemented in the concept, design and technical investigations to follow.
The site conditions, programmatic, climatic and contextual influences, ergonomics and heritage aspects are investigated. In addition to these, the perceptions and experiences of the building’s users (as well as passing pedestrians), the quality of spaces and finally, the opportunity for branding, are explored as the parameters working into the conceptual approach.
This chapter will introduce the amalgamated approach towards the problems and opportunities raised in Chapters 1 through 5. The context, structure, heritage, spatial and qualitative aspects of the chosen site at 187 Esselen Street will be discussed and illustrated as design influences. The various activities performed by Assupol (the client) will then be located with a particular consideration into the qualitative aspects of the different spaces as well as the relationship they have to the external context.

The conceptual approach will be informed by the theoretical investigation (cf. Chapter 2) which investigated the concepts of office typologies and their effects on the interior environment and corporate culture. The theory of social friction will actively guide the concept development by reinterpreting traditional interior elements in terms of their ability to affect the speed of movement through, the level of interaction within and the experience of, a space. The interior ecosystem model will be employed as informant to the conceptual approach, focusing its approach on the user in relation to the social, designed and natural environments working into an office setting.

This chapter will respond to the problem statement and research questions, as set in Chapter 1, by focusing on the translation of the hypothesis into a proposed design intervention.

The theoretical investigation (cf. Chapter 2) illustrated that work environments are increasingly moving towards a spatial influx of communal spaces. Assupol has a rich informal network which contributes largely to their corporate culture and work processes. Their work processes require spaces for continual collaboration and discussion within departments, but not necessarily between departments (cf. Chapter 4).

The conceptual approach needs to respond to three types of meetings within the workplace:

1. Official meetings
2. Casual meetings
3. Chance encounters

Each type of meeting point requires a different spatial character in terms of the light, sound and spatial conditions. The three types of meeting places will guide the conceptual development to be appropriately applied to the client’s specific needs in terms of work processes and corporate culture. The design influences affecting the conceptual approach are:

6.2.1. HERITAGE APPROACH: STRIPPING BACK

6.2.1.1. HERITAGE STATUS

The statement of significance (cf. 3.6.1) indicated the social and physical significance of the selected site. The conceptual approach needs to respond to the heritage significance of the site. Since the building was completed in 1966, it will not reach legal heritage status¹ until 2026. Although no responsibility for responding to the heritage of the site can be enforced legally, the proposed intervention will treat the site with due deference.

6.2.1.2. DEVELOPING THE APPROACH

The heritage approach is governed by the stripping back method as set out by Fred Scott (2008:108). Three responses have been concluded from Scott’s stages of alteration.

- Maintain significant architectural features which support the proposed intervention and new function

Originally, Pauw and Botha treated the manager’s office as the central pivot for the space by placing it as a separate unit within the interconnecting staircase linking the ground and mezzanine levels. The manager’s office is clearly distinguishable from both the exterior and interior of the building; this allowed him ample surveillance over the banking floor as well as to be easily accessible by clientele. The staircase, in combination with the double volume, was used to enhance the sense of connectedness between the two levels. In 2004, the manager’s office and balcony was closed off and a retail aspect was introduced. Currently an electrical appliances shop and

¹ Section 34 of the National Heritage Resources Act, Act 25 of 1999, protects any building that has reached 60 years of age. Any additions, alterations or demolitions need to be approved by the relevant provincial heritage resources authority (Absa Group [n.d.]).
cellphone repair unit utilises the space. The intervention will maintain the retail aspect but will introduce a bistro to the space, servicing both Assupol and the public.

**ENHANCE ELEMENTS**

- Enhance significant elements and architectural features which **advances** the proposed intervention

All internal partitions will be demolished. This will relieve the internal spaces from their current cluttered and hermetic quality. The built fabric will be stripped back to its original form. The orange paint on internal and external facebrick (cf. 3.8) will be removed to exhibit original surfaces. All windows painted orange for privacy reasons (cf. 3.8) will be replaced to once again allow light into the internal spaces. Concrete benches and low quality ceramic tiles currently installed in the frontal courtyard will be stripped and replaced by materials that are visually and tangibly warm and welcoming. The palisade fencing around the frontal courtyard will be removed, reinstating the fluid threshold inviting people into the space. Foliage will be reintroduced in planters, softening the building line and creating visual relief.

Although the original slate running from the sidewalk’s edge throughout the original ground floor’s surface has been lost, the intervention will again present a single finish on these surfaces, effectively joining the external and internal space. The low quality floor added by Huurkor to close up the double volume will be demolished. The social heritage will be reintroduced by again dedicating the ground and mezzanine levels to the public interface.

Floors one to four will be reinterpreted into open-plan environments with the spatial quality of team-spaces (cf. 2.5.1). Their connectedness to the exterior context and their spatial thresholds will be construed into the manifestation of social friction mediating social and physical interaction between employees.

**SUPPRESS ELEMENTS**

- Suppress those architectural features **undermining** the proposed intervention

The political heritage of the site is acknowledged for its architectural significance in the built fabric. The original access points will be adapted by suppressing its political features and effectively altering the spatial threshold between the sidewalk and buildings’ edge: welcoming all.

The heritage approach will utilise the existing built fabric to support and enhance the intervention’s proposed new function and client’s branding. As the building is set back from the building line, a number of spaces are defined at its front (north eastern) facade. In addition, the back (south western) facade also steps back from the second floor upwards. These spaces will be employed for supporting functions: illustrating the potential of reinterpreting built fabric from a pre-1990’s building.

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**Figure 6-2. Heritage Approach: Section.**

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6.2.2. CONTEXTUAL FACTORS

The contextual factors influencing the design and conceptual approach are: the existing spaces, structure, auditory experience, views from the building, views of the building (from the street edge), the amount and type of natural light entering and surrounding the building and the internal spatial qualities as a result of materials and thresholds. These have been translated into the street context and site in Section A (refer to figure 6-4).

The auditory experience from the building towards Esselen and Kotze streets respectively are significantly different, the one being serene and the other noisy. The structural grid and the rectangular form of the floor plan allows for maximum adjustability over time (Brand, 1995). Fixed elements, such as services, will be positioned as to allow for multiple interpretations of the space.

The simple structure allows for ample opportunity to reinterpret its function in relation to daylighting, natural ventilation, circulatory elements, social friction (cf. 2.6) and the interior ecosystem model (cf. 2.6).
FINDINGS

• Very few buildings on Esselen Street do not align with the building line; the chosen site is set back. This forms a frontal courtyard serving as introduction and threshold between the sidewalk’s edge and the internal spaces.

• The structure was built with exaggerated thicknesses for increased security and support for Volkskas’ safes.

The selected site has only two facades. These need to respond to two contrasting edge conditions:

• To the front an active edge is found facing the bustling Esselen Street.
• To the back a serene and quiet setting is experienced.

CONCLUSIONS

• Due to the different characters of the exterior milieus the internal spaces, requiring different acoustic conditions, can be developed.

• The structural integrity of the site allows for the addition of users on each floor plate.
6.2.3. NATURAL LIGHT ENTERING THE INTERNAL SPACES

The selected site, 187 Esselen Street, is located on the southern edge of the street. This allows the front facade to receive direct northern light, while the other receives diffused southern light.

After stripping the site of internal partitions, an ecotect analysis (weather tool) was performed to determine the light conditions of the internal spaces. The analysis was performed using an overcast sky; this ensures the analysis to indicate the worst-case scenario to which the design can then respond. The light levels were determined for each floor at a height of 750mm above the particular floor level; this ensures the analysis to indicate the light levels that will be experienced on the work surfaces. Original windows are tinted on both facades, this significantly altered the results.

FINDINGS

- Sufficient natural light enters the top levels of the site.
- Ground floor and mezzanine levels indicate insufficient light for computer orientated work, although sufficient for consultation spaces. (Required lux levels indicated in table 6-1.)

CONCLUSIONS

Different types of light enter the spaces:

- In the winter, direct light enters the interior spaces through the north-eastern facade. This is an ideal situation.
- During the summer, indirect light enters the spaces. During the equinox direct sun enters the interior and sun screens need to be installed.
- Soft light enters the interior from the south western facade; glare can be seen at the edges and overhangs need to be incorporated.
By optimising on daylight, an energy efficient and healthy environment will be created. Supplementary artificial lighting, powered by flat plate photovoltaic panels located on the roof, will operate in the evenings and in bad weather conditions. User control will be implemented with additional task lighting provided at workstations.

Light characteristics, such as its quality, intensity, temperature and proneness to glare, will be investigated in order to develop spaces which optimally support the activities within.

<table>
<thead>
<tr>
<th>Floor levels</th>
<th>Activity Zone</th>
<th>Minimum(^1) required Lux level</th>
<th>Maximum(^2) required Lux level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basement</td>
<td>Parking</td>
<td>50 lux</td>
<td>100 lux</td>
</tr>
<tr>
<td>Ground floor</td>
<td>Reception</td>
<td>100 lux</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Waiting area</td>
<td>100 lux</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Consulting area</td>
<td>300 lux</td>
<td>500 lux</td>
</tr>
<tr>
<td></td>
<td>Call centre</td>
<td>300 lux</td>
<td>500 lux</td>
</tr>
<tr>
<td></td>
<td>Circulation space</td>
<td>100 lux</td>
<td>500 lux</td>
</tr>
<tr>
<td>Mezzanine</td>
<td>Call centre</td>
<td>300 lux</td>
<td>500 lux</td>
</tr>
<tr>
<td></td>
<td>Circulation space</td>
<td>100 lux</td>
<td>500 lux</td>
</tr>
<tr>
<td>First floor</td>
<td>Work space</td>
<td>300 lux</td>
<td>500 lux</td>
</tr>
<tr>
<td></td>
<td>Circulation space</td>
<td>100 lux</td>
<td>500 lux</td>
</tr>
<tr>
<td></td>
<td>Ablutions</td>
<td>100 lux</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Meeting rooms</td>
<td>300 lux</td>
<td>n/a</td>
</tr>
<tr>
<td>Third floor</td>
<td>Work space</td>
<td>300 lux</td>
<td>500 lux</td>
</tr>
<tr>
<td></td>
<td>Circulation space</td>
<td>100 lux</td>
<td>500 lux</td>
</tr>
<tr>
<td></td>
<td>Ablutions</td>
<td>100 lux</td>
<td>n/a</td>
</tr>
<tr>
<td>Second and Fourth floor</td>
<td>Work space</td>
<td>300 lux</td>
<td>500 lux</td>
</tr>
<tr>
<td></td>
<td>Circulation space</td>
<td>100 lux</td>
<td>500 lux</td>
</tr>
<tr>
<td>Lift shaft</td>
<td>Vertical circulation</td>
<td>100 lux</td>
<td>500 lux</td>
</tr>
<tr>
<td>Outdoor areas</td>
<td>Main entrances and exits</td>
<td>20 lux</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Stairways and catwalks</td>
<td>20 lux</td>
<td>n/a</td>
</tr>
</tbody>
</table>

\(^2\) Levels according to good practice maximum values as per SANS 204 for G1 building type (offices)

Table 6.1: Required and preferred lux levels in the work environment.

*Levels determined at a desk height of 750mm using Autodesk Ecotect Analysis 2011 (levels were determined with an overcast sky, resulting in worst case scenario levels.*
6.2.4. ACTIVITY ALLOCATIONS

Originally, the site had a public interface on ground and mezzanine levels (from 1966 to 1998). Floors 1 to 4 were used as office space, with typical cellular offices located on the periphery of the building. No spaces were allocated for communal use, except the balcony area on the mezzanine level.

Assupol’s work processes (refer to 4.7) were found to be predominantly team-orientated, with a particular value for the informal organisational structure. Specific types of spaces are required for their performance of work.

These are: A client interface (call centres and consultation spaces); Work zones (team-orientated); Communal spaces for social interchange during breaks; Formal and informal meeting spaces; Support spaces (coffee stations, printing space and storage area).

Figure 6-15 illustrates ideal locations for the various activity zones required by Assupol. The intervention will reinstate the public interface to the ground and mezzanine levels. The first floor will become the threshold separating the public from the private areas. This floor is the ideal location for both formal and informal meeting spaces as it becomes a central connecting point.

Floors 2 to 4 will be maintained as workplace fabric. The approach to the layout will be developed as per the theoretical investigation presented in Chapter 2, responding to the work processes and corporate culture of Assupol (Chapter 4).

FINDINGS

- Assupol’s working processes allow for both public and private interfaces. Each will require different support spaces in accordance with what is done by the department.
- The different exterior qualities create ideal spill out spaces for the public and private zones respectively.

CONCLUSIONS

- The design intervention will investigate exterior spill out zones. These will be:
  1. The courtyard to the front of the building supporting the public interface;
  2. The semi-sheltered space to the back of the building engaging the private zones.
6.2.5. WORKPLACE PSYCHOLOGY

Abraham Maslow indicated that people behave in certain ways and are motivated to make decisions in a particular sequence (cf. figure 6-16). Kemp and Baker (2007:15) translated each of Maslow’s specified needs into productivity variables. This indicates the effect the workplace environment has on its users.

“... buildings built without consideration for the company culture, the human interactions with and within the space, and the site, climate, and demographic needs of the building leave people working in the building unmotivated and even uninspired to work.” (Kevin and Baker, 2007:15)

Sylke Neumann (2011:40) adapted Maslow’s Hierarchy of Needs into a version focused on workplace design (refer to figure 6-17). Neumann states that only when someone is able to perform their work in a safe and comfortable environment, can work be done efficiently.

CONCLUSIONS

- The experience of the workplace environment significantly impacts staff’s efficiency. The design intervention needs to respond to these by developing safe and comfortable environments conducive to work.

6.2.6. SEATING PSYCHOLOGY

Seating arrangements influence both physical proximity and visual contact between people. Seating possibilities can have an immense impact on workplace relationships. The type of seating and its effect on social friction within team work as well as interactions with clients need to be considered.

People choose to sit in different positions according to the social or professional situation. Sommer (1969: 61-73) indicated that people seated in neighboring chairs at a corner of a table would interact more than those sitting opposite one another. People sitting across from one another would act defensively towards one another, while people who chose to sit next to one another conversed most frequently in an informal manner.

CONCLUSIONS

- Seating arrangements in the workplace influences the nature and experience of both formal and informal interchanges. The design intervention will specifically focus on the round table, where a hierarchy is not enforced.
The type of building accommodation directly influences the sense of community that is established in a building (Kemp & Baker, 2007). It was found that in flat, long buildings (of one-, two-, or three-story) people moved through the different spaces more often - leading to more opportunities for getting acquainted with fellow colleagues. In these flat buildings people also more often used the stairs than the elevator. In tall structures, people more often use the lift than the stairs. Behaviour in elevators has a very different impact on social friction (cf. figure 6-19):

- On wide staircases people’s personal space are easily respected. Often conversations or ad hoc meetings take place on staircases. The informal nature of the meetings ensures physical friction without the pressure of forced conversation;
- People’s behaviour in elevators is significantly different: the intense sense of intimacy due to the tight physical space decreases the amount of interaction; instead people rarely network, preferring to stare vacantly ahead or at their feet (Kemp & Baker, 2007: viii).

Preferred type of circulation in different types of buildings:

- Tall, narrow buildings have people using the elevator more often. Elevators inhibit easy interaction: uncomfortable intimacy.
- Short, flat buildings have people using the stairs more often. Stairs allow for easier interaction: comfortable intimacy.

6.2.8. THE SOUND OF SPACE

Acoustic design has a significant impact on a user’s comfort. Sounds and vibrations audible to the human ear are located within the frequency range of 20Hz - 20 000Hz (Neufert & Neufert, 1999:117). The direct sound typically loses energy over distance and diminishes in intensity according to the inverses square law. In addition, sound can be reflected, absorbed or passed through a structure to alter the specific soundscape of a space.

The reverberation time of any space is typically defined as the time a sound needs to diminish by 60dB. The longer the reverberation time is, the more the sound will echo within the space, the shorter, the less depth it will have.

The reverberation times as required for Assupol’s work areas are:
- Ground floor and mezzanine requires 1 second; this will allow a sufficient amount of bass for the space not to sound ‘dead;
- The required reverberation times for first to fourth floor will be 1.5 - 2 seconds, allowing for warmer and fuller tones in the smaller volume.

In addition, the ambient noise (cf. graph 6-1) found within a space need to be incorporated in determining the possible travelling distances of intelligible speech. Every-day speech is estimated at 60dBA at a distance of one meter from the speaker, while raised speech is determined at around 66 dBA (SANS 10103: 17). Figures 6-20 and 6-21 indicate the traveling distances for Assupol’s two types of work areas.
These level values were adapted from standards as set out SANS 10103. The background noise levels in interiors have a significant impact on the productivity and concentration span of its users. Therefore, ideal and maximum values have been set for indoor activity zones.
6.2.9. SPATIAL QUALITIES: VOLUME, SCALE AND PROPORTION

The selected site at 187 Esselen Street has a set of typically generic spaces from floor 1 to 4, as most pre-1990 structures. Assupol’s two major concerns, staff esteem and client satisfaction (cf. 4.2) are translated into the building’s spaces in figure 6-22.

The sections illustrated in figure 6-23 explores the current and proposed volumes, scales and proportions in relation to visual friction and view lines.

Qualities of the space, as adapted from Zumthor (2006), illustrate the specific qualitative concerns at the various locations throughout the building.

Figure 6-22. Response to context and client: focus of spatial qualities.

Figure 6-23. Exploration into the volume and required qualitative aspects of the various spaces.
Main vertical circulation (existing)
Scale: 1:200

Double volume
Scale: 1:200

Entrance from Esselen Street
Scale: 1:200

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6.3. CONCEPTUAL APPROACH

Allowing for change without compromising on the quality of space

Figure 6-24. Diagrammatic illustration of the conceptual approach.
This chapter commenced by exploring the design influences as separate entities, elaborating on their significance and value within the conceptual approach.

The context, heritage, programmatic and climatic character of the site at 187 Esselen Street was explored. Other influential parameters which would significantly contribute to the experience and character of a workplace were investigated. These include: ergonomics, the sound of the space, seating typologies, circulatory elements, access to daylight and the volume and thresholds of the spaces. All of these influence the conceptual approach that will guide the design development to follow in Chapter 7.

Figure 6-25. Diagram illustrating the design influences of the concept development.
This chapter translates the research and theoretical investigation into an interior architectural intervention to be implemented at the selected site. The concept development illustrated in the preceding chapter indicated the influencing elements and parameters and the design development is created as a continuation thereof.

The chapter is divided into three parts corresponding to the three layers of the design approach: fixed elements, semi-fixed elements and loose elements. These layers were determined in accordance with the open building methodology.

The intervention aims to allow for adaptability within the workplace, while focusing on the three different types of social connections as design generators: formal meeting, casual meeting and chance encounters.
7.1. INTRODUCTION

This chapter will translate the conceptual development into a formal design proposal. The three layers of the design approach will be delineated as fixed, semi-fixed and loose interventions. These layers were determined according to their focus area, requirements and life expectancy. Fixed elements include: fire escapes, services and the architectural heritage approach. The semi-fixed layer focuses on the interior environment, while the loose layer is mainly concerned with branding and furniture.

The site that is set back from its surroundings (cf. figure 7-1) establishes the design language of its spatial make-up. The interior design intervention will focus on three floors as they represent the different aspects of the program and design response to the context. These are:
1. Ground floor (public interface);
2. First floor (formal and informal meeting spaces) and
3. Second floor (a typical work area).

7.2. DESIGN STRATEGY

7.2.1. THE WORKPLACE CONCEPT

Assupol’s corporate culture and work processes (explored in Chapter 4) were found to be focused on team work and interdepartmental communication is rare. Projects are typically run by a single department from commencement to completion. This type of organisational structure will suit best within a team room office environment (Van Meel et al., 2010: 50-51), since internal communication needs to take place frequently. Team rooms (cf. 2.5.1) provide users with spaces specifically developed to enhance their operating processes. These workplaces will be supplemented by secondary spaces such as: concentration spaces, informal meeting spaces and pause areas.

Every department will have a spill out area and pause area integrated into their work space. The type and size of these support spaces will relate to that of the various departments and their specific needs. This is in direct contrast to the usual cookie cutter approach (refer to case studies in Chapter 5), where every floor receive a standardised set of spaces and is rigidly managed to ensure they remain absolutely identical. By allowing for user control, within certain pre-determined parameters (as set out by Assupol), the workplace remains professional, whilst responding to specific departmental and user needs.

Design intervention’s proposed workplace relationship:
1. Inserting the pause areas into work areas (eliminating spaces standing empty).
2. Connecting the different zones, thus maximising on opportunity for social friction.

Figure 7-2. Diagrammatic exploration of spatial relationships within the dynamic workplace.
7.2.2. SUPPORT SPACES

It is quite common in workplace design for the pause areas and public interface to receive the largest part of the capital (cf. Chapter 5). Since the front-of-house areas are typically the place to make a first impression on prospective (as well as loyal) clients, this budget allocation is understandable. Pause areas, on the other hand, are used less frequently; often left empty for large amounts of time (cf. figure 5-3, 5-5 and 5-6). This delineates the conundrum that these spaces, intermittently used, are designed well while spaces where work needs to take place are left bare and under-designed (cf. figure 5-7).

The design proposal would therefore reinterpret this approach by focusing the capital and design resources on the workplaces themselves. By inserting the pause area into the work space, its role is modified from static filter to spatial generator (cf. figure 2-17). It becomes a node within the work space, marrying the supporting services (such as the coffee machine, water cooler, printer, copier and bulletin board) with the opportunity for social friction.

Secondary spaces should be provided by means of concentration and informal spaces. Concentration spaces, which are effectively treated for acoustic control, will be provided for the occasional concentration work to take place in. These are developed in the combi-office principle (cf. 2.5.2), where spaces provide privacy without removing the person from the interior milieu. In accordance with the combi-office principles, these spaces will be enclosed with glass partitioning, allowing daylight into the floor plate behind and ensuring a visual connection to the exterior remain fully accessible.

In addition, informal spaces are provided on the reinterpreted and extended landings of the secondary fire escape. These spaces will become the nodes for casual meetings as well as to provide a platform for social exchange and casual encounters.

7.2.3. LAYERING OF DESIGN

The design intervention will respond in three layers as distinguished within the conceptual open building approach:

Fixed: This layer responds to the architectural envelope and focuses on establishing a design language between old and new. The conceptual and technical approach to the structure, significant heritage fabric and services (which will remain fixed even when the tenants in the building change) are developed.

The building’s front facade is respected as a significant heritage entity. In order to facilitate an effective distinction between old and new elements, the language, materials and construction methods are specifically developed to be in contrast with one another.

Semi-fixed: This layer responds to the ‘infill’ and focuses on the interior environment. The design intervention’s conceptual and technical approach aims to articulate how the building’s internal spaces are experienced.

The existing structure is stereotomic with strong rectilinear and plumb lines. Materials are heavy, both physically and visually. Rich textures are found in the original structure, such as exposed facebrick and the facade’s ceramic mosaic cladding. The intervention, in direct contrast, is tectonic in nature, primarily using smooth and solid coloured surfaces, transparent and translucent materials and steel framing for a continued lightweight appearance.

The character of the site is further enhanced by the intervention’s introduction of effective use of daylight and mixed modal ventilation to the interior of the building. Fixed services such as electrical, lighting and plumbing as well as a secondary SANS compliant fire escape are also introduced.
7.3. FIXED ELEMENTS: OPEN BUILDING APPROACH

7.3.1. SERVICES

The plumbing services are located on the same periphery wall that the original 900x500mm duct was located. Although the original duct size would be insufficient for the current appropriation of the site, by keeping the plumbing in the same locale, connections through and underneath the site towards the existing municipal drain and storm-water pipes can be reused.

Ablutions are placed on floors 1 and 3, rendering the alternate floors flexible. As first floor would not have staff permanently stationed on its floor plate, the ablutions are available for use by staff and clientele from ground and mezzanine floors. The main wet pause area could likewise be fixed on the first floor, spatially translating this floor to the communal hub of the building.

Circulation routes are treated as semi-fixed as they may or may not change in future alterations.

This layer allocates the plumbing, electrical and data services. Once the fixed services are rationally placed, other fixed elements, such as the secondary fire escape can be allocated. The resultant spaces can thereafter be interpreted to constitute the ‘infill’ or semi-fixed and loose elements of the intervention.

7.3.2. SECONDARY FIRE ESCAPE

A secondary fire escape is proposed for the south western facade of the building. A traditional fire escape is reinterpreted by extending its landings and using the stairs as mediators between the different types of informal spaces shaped by the different landings. By designing the landings in different formations and sizes, a variety of single and double volume spaces are developed. Since Assupol has a corporate culture richly informed by its employees’ social meetings and informal relationships, the external spill out area will become the focus for social friction during recreational time periods.

Loose: This layer responds to the graphic aspects of the design and involves branding and the client’s corporate identity. Movable appliances and equipment, workstations and furniture also fall within this category.

Indoor and outdoor spaces are articulated with loose elements interacting with the fixed and semi-fixed layers. This layer renders the various zones usable in different ways, as required by its users. The intervention introduces round tables to the built fabric for use in formal and informal meetings. Round tables were chosen for both their operating and visual qualities as they eliminate hierarchy and provide a sense of community to a group (Sommer, 1969: 83-85).

Workstations are kept in modular format for the effective reinterpretation of space. In addition, personal boundaries are easier to establish with square or rectilinear tables (Sommer, 1969: 84) which becomes important in the formal work zone.

Beyond the building: creating external value

Low maintenance indigenous garden

Entrance can be opened totally on days with good weather

Low maintenance indigenous creeper with seasonal flowering

Bistro serving both staff from Assupol and the general public
The new stairs on the escape route should have a minimum width of 1500mm and may not exceed 1800mm (SANS 10400 Part T 4.2). The reinterpretation of the landings of the south western escape route is acceptable, as long as the stairs are located further than 3 meters from the openable facade’s folding stacking doors (SANS 10400 Part T 4.27.2).

Furthermore, the original stairs as built in 1966, will remain at 1100mm. This is in accordance with the latest regulations as stipulated in SANS 10400 Part A, stating that, “no alterations to the original building shall be required unless the addition will affect the structural strength or stability of the original building” (SANS 10400-A:2010: 24).
Figure 7-10. Illustration of daytime use: extended fire escape landings.
The steel addition will be finished with reclaimed timber slats on the floor plane. The balustrades are designed as a continuance of the supporting steel structure and finished with a stained solid saligna timber handrail. This allows for a comfortable tactile experience irrespective of the time of year or weather (steel being cold in winter and hot in summer). Planters will be employed as mediators between the different spaces. These will house creepers which are encouraged to grow along the balustrades, thus softening the edge and effectively rendering the exterior landings a physical and visual refuge.

The balustrades are extended into three types of seating nodes: a bar height table with movable bar stools, table height with moveable chairs and lastly, moveable trestle tables and benches.

In order to allow for maximum possible flexibility, a number of parameters needed to be fixed:

- Seating need to be able to move to different configurations as well as to cater for different sizes of groups
- Informal exterior meeting rooms should be possible
- Furniture should create visual interest; as they define the visual horizon as seen from the formal work areas.
- Desk widths should not be less than:
  - one-sided use: 600mm
  - two or more sided use: 750mm
- Desk heights are either between:
  - 750mm (seated on regular chair (linger / meet)
  - 900mm (for standing / bar stool (quick use)
- Seating should vary between
  - Quick seating: bar stools
  - Lingering: combination
  - Meeting points: easy seating
7.3.3. THE APPROACH TO THE BUILDING

The original entrance of the building had planters as a spatial threshold separating the courtyard from the sidewalk. The slate floor finish was utilised as a binding element and installed from the steps on the sidewalk, continuing to the back of the ground floor. Although the original slate has been destroyed, the design proposes to reinstate a continuing floor finish to draw people into the space from the street’s edge.

The original Volkskas branch was one of few on Esselen Street which did not allow for any commercial activity. In 2008, the current owners closed up the manager’s office to introduce commercial activity to the building. Currently a cellular shop and electrical appliances shop respectively occupy the space. The design proposal intends to maintain the commercial interface. The space will be rehabilitated so that windows, which are currently closed up by the retail addition of 2004, can once again let natural light enter the main staircase and double volume. Furthermore, the commercial interface will be transformed to a deli, which serves both the general public and Assupol above. Benches and street furniture will be incorporated to allow for seating on the sidewalk and within the frontal courtyard.

The original approach to the building (1966) had a fluid connection to the sidewalk. Slate was installed as a singular floor finish from the sidewalk to the back edge of the main banking hall. The approach was open and inviting with foliage softening the threshold from exterior to interior. For the original entrance layouts refer to figure 3-15.

Current approach (2013)
The current approach to the building (Huurkor) has been changed significantly. Retail has been added and the entrance fenced. Concrete benches and low quality ceramic tiles were installed in the courtyard space.

The proposed intervention
The proposed intervention (for Assupol Life) will reintroduce foliage and reestablish the fluid transition from the sidewalk into the ground floor space. Furthermore, a deli will be introduced to the west of the facade, catering to both Assupol and the general public.
7.3.4. ORIGINAL FIRE ESCAPE

The original fire escape is redesigned in terms of its wayfinding and circulation aids and character. The existing solid meranti handrail is maintained, but a continuous powdercoated aluminium handrail is added on the opposite side. The new handrail provides a continuous element through each level, terminating in the floor number (as signage) on every floor (cf. figure 7-15.)
7.4. SEMI-FIXED AND LOOSE ELEMENTS

7.4.1. DETERMINING THE INFILL ELEMENTS

The infill elements need to create a variety of zones, specifically required by the client. These zones were determined through observations and interviews conducted with employees and top management at Assupol (cf. Chapter 4). Required zones include: pause areas, work areas, break-out spaces, meeting spaces and concentration spaces. As future alterations will most probably focus less on formally dedicated workstations and develop into less distinct work areas (cf. Chapter 2), infill elements need to be reusable where possible, or alternatively recyclable.

Technology may provide a number of possibilities in future, and therefore the design intervention’s focus will shift from technology to user. The design’s premise that face-to-face interactions are at the core of the success of a company will guide the way that infill elements are placed - hence enabling them to remain relevant even when work processes change. Assupol, in particular, is focused on people and are often referred to as a ‘family’ (cf. Chapter 4), iterating the necessity of social friction within their office environment.
7.4.2. GROUND FLOOR: PUBLIC INTERFACE

Originally the main banking hall consisted of a singular counter. Later alterations transformed the counter's shape, although it always remained as one continuous element within the space. The double volume elevated the public portion of the space.

Huurkor altered the interior space by closing the double volume for additional floor space. The open plan environment was transformed into an intertwining network of partitioning. Most of the resultant spaces are fully hermetic with no relation to the exterior. The public space was reduced to a small counter, where clients view the exposed staircase and the newly installed floor above cutting through its centre. The original safe is used as storage space. Fencing frames the courtyard, limiting access to the interior. Added walls, to accommodate retail space to the front of the building, currently butt up to windows, inhibiting natural light to enter the building’s interior.

Figure 7-20. 1966 layout of ground floor: note the planters defining the threshold between interior and exterior.

Figure 7-21. Demolition plan: note the harshness of the spatial transitions as well as the fence around the original courtyard.

Figure 7-22. Movement of different users through and within the ground floor level.

- Call centre consultant: meets walk-in client and moves towards the consultation rooms.
- Office worker: meets client for formal meeting.
- Walk-in client interested in Assupol’s products.
- Client attending a formal meeting (on first floor).
Figure 7-23. Design development: proposal for ground floor.

LEGEND
- Existing full height concrete/brick walls and columns.
- New 220mm brick wall.
- New 110mm full height brick wall, see WC layouts.
- Custom designed relief wall with reused window pane glass see detail.
- Quartz Carpet floor finish (exterior and interior), colour: Cauliflower.
- Quartz Carpet floor finish (exterior and interior), colour: Battleship.
- Partition wall with opal 40mm sound insulating Multi Wall polycarbonate insert.
- Shopfitted signage, see detail.
- 7mm Timber full body porcelain tile with 3mm grout joints.

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Figure 7-24. Perspective of the public interface on ground floor.
Material and Furniture palette

a. Saligna hardwood.
b. Powdercoated aluminium handrail in main fire escape.
c. Existing face brick.
d. Multi Wall polycarbonate from Rodeca as acoustic separator between consultation spaces and call centre (yet allowing daylight to filter into the spaces).
e. Pendant suspended above reception desk from Spazio.
f. Tillandsia bromeliad air plants in glass globes suspended above reception desk. Requires weekly air misting.
g. Quartz Carpet as interior and exterior floor finish. Colour: Cauliflower.
h. Timber benches as continuation of planter boundary walls.
i. Paperstone solid surface as reception desk and coffee station shopfitting’s finish.
k. Waiting area upholstered bar stool from Coalesse.
l. Waiting area weighted white bar table from Coalesse.
m. Wilkhahn ON swivel chair for receptionist.
n. Waiting area Bindu upholstered side chair in blues and yellow from Coalesse.
o. Waiting area round coffee table MT-T ART for indoor / outdoor use by Sean Williams Contracts.
7.4.3. FIRST FLOOR: FORMAL MEETINGS AND COMMUNAL INTERFACE

Originally, all the office floors operated in the same manner. Cellular office spaces with dark corridors and restricted HVAC areas were found throughout.

Again, Huurkor adapted the corridor to allow for increased circulatory space. The first floor now houses Huurkor’s top management and therefore office sizes are increased. Dark interior spaces remains.

Office workers: Typical movement during recreational time.
Office worker returning from formal meeting.
Client attending a formal meeting.
LEGEND

- Existing full height concrete/brick walls and columns.
- Existing 1000mm high wall with tinted laminated windows above.
- New 110mm full height brick wall, see WC layouts.
- Quartz Carpet floor finish (exterior and interior), colour: Cauliflower.
- Opal 40mm sound insulating Multi Wall polycarbonate partitioning as continuation of server and presentation unit.
- Shopfitted signage, see detail.
- 7mm Timber full body porcelain tile with 3mm grout joints.
- Custom designed relief wall with reused window pane glass, see detail.
Figure 7-32. Conceptual exploration of meeting room tables.

Figure 7-33. Big meeting room: used for both general meetings and presentations as required.

Figure 7-34. Small meeting room: general meeting.

Figure 7-35. Small meeting room: presentation.
Material and Furniture palette

a. Saligna hardwood for selected timber finishes.
b. Powdercoated aluminium handrail in main fire escape.
c. Existing face brick.
d. Paperstone solid surface as meeting room server and pause area countertop. Colour: Gunmetal.
e. Multi Wall polycarbonate from Rodeca as acoustic separator at meeting rooms as well as ablutions (yet allowing the transmission of daylight between spaces).
g. Paperstone solid surface as interior and exterior finish to pause area relief wall. Colour: Indigo.
h. Slumped glass as panels in relief walls (southern edge of main meeting room and pause area).
k. Wilkhahn On Chair glider as meeting room chair.
l. Mojito table by Sean Williams Contracts.
m. Figure 7-36. View towards wet pause area and semi-formal space to the south west.

Figure 7-37. First Floor material and furniture palette.
The office spaces were originally designed as cellular office space. Dark corridors and restricted HVAC areas were the result. The corridor simply facilitated quick interactions with no opportunity for lingering between spaces.

Huurkor adapted the corridor to allow for increased circulatory space. The cellular offices operated by the HVAC system and dark interior spaces remained.

7.4.4. SECOND FLOOR: TYPICAL OFFICE FLOOR

Figure 7-38. 1966 second floor plan: note the cellular workplace concept and dark central corridors.

Figure 7-39. 2013 second floor plan: note the cellular workplace concept and dark central corridors.

Figure 7-40. Movement of different users through and within the second floor level.

Office workers: Typical movement during recreational time.
Office workers: Typical movement during work hours.
Office worker returning from formal meeting.
LEGEND

Existing full height concrete/brick walls and columns.
Existing 1000mm high wall with tinted laminated windows above.
New 110mm full height brick wall, see WC layouts.
3.2mm Taralay impression comfort vinyl sheet. Colour: Oxygen Wind
3.2mm Taralay impression comfort vinyl sheet. Colour: Oxygen Lemon
Opal 40mm sound insulating Multi Wall polycarbonate partitioning as continuation of server and presentation unit
Shopfitted signage, see detail.
7mm Timber full body porcelain tile with 3mm grout joints
20mm Reclaimed timber slats with 3mm gaps for rain water harvesting, see detail
30mm Ments grid fixed to 75 x 75 x 6mm MS steel frame bolted to brick walls with sleeve anchors at 800mm intervals

Figure 7-41. Design development: proposal for Second floor.
Figure 7.42. Semi-fixed intervention: view towards main fire escape and Esselen Street.
Material and Furniture palette

a. Saligna hardwood.
b. Powdercoated aluminium handrail in main fire escape.
c. Existing face brick.
d. 3.2mm Taralay impression comfort vinyl sheet. Colour: Oxygen Wind.
e. 3.2mm Taralay impression comfort vinyl sheet. Colour: Oxygen Lemon.
f. Ukhuni Evo desk system with customised back panel and modesty board.
g. Wilkhahn On Chair at desks. Fabric colour: Marriot 04 by U&G Fabrics.
h. Bindu upholstered side chair from Coalesse.
i. Paperstone solid surface as counter top finish at support space. Colour: Straw.
k. Paperstone solid surface as counter top inlays finish at support space. Colour: Gunmetal.
l. Mojito table by Sean Williams Contracts.
m. MT-T ART table for outdoor use by Sean Williams Contracts.
n. Easy Barstool for exterior use in blue and grey from Gaber.
o. 20mm Reclaimed timber slats for fixed furniture (balustrade transforming into seating and worktop.) See detail.
7.5. MATERIALS

6mm Cauliflower standard Quartz Carpet Natural Stone Flooring. To be applied over floor areas on ground floor, first floor and the roof for a soft and easily maintained floor finish running from the interior to exterior spaces.

6mm Battleship standard Quartz Carpet Natural Stone Flooring. To be applied at selected inlays as well as the fixed wet pause area’s floor finish.

6mm Cauliflower standard Quartz Carpet Natural Stone Flooring.

Quartz Carpet allows to reintroduce the site’s social memory of indoor and outdoor spaces having the same finish running throughout. It produces a seamless, slip-resistant, low VOC and UV stable finish fit for both indoor and outdoor use and requires low maintenance.

6mm Cauliflower standard Quartz Carpet Natural Stone Flooring.

20mm thick reclaimed timber to be used for balcony decking and outside furniture. All metal elements (screws, bolts etc.) to be removed prior to construction. Timber to be treated with Gripseal’s non toxic, low VOC exterior water-based wood sealant for UV resistant and weatherproof finish.

20mm thick reclaimed timber to be used for balcony decking and outside furniture. All metal elements (screws, bolts etc.) to be removed prior to construction. Timber to be treated with Gripseal’s non toxic, low VOC exterior water-based wood sealant for UV resistant and weatherproof finish.

500 solid saligna (honey coloured) handrail on secondary fire escape with LED ribbon light below. See detail. Treated with Gripseal’s non toxic, low VOC exterior water-based wood sealant for UV resistant and weatherproof finish.

500 solid saligna (honey coloured) handrail on secondary fire escape with LED ribbon light below. See detail. Treated with Gripseal’s non toxic, low VOC exterior water-based wood sealant for UV resistant and weatherproof finish.

Galvanised steel profiles are to be used for the fixed structural elements introduced by the design. These profiles are to be painted. Reference colour: RAL 5011 Steel Blue.

Steel is in infinitely recycled and recyclable without any loss in quality. Although a heavy material, it reads as visually light, sufficiently juxtaposing the new with the original visually stereotomic concrete structure. Steel also carry larger loads with smaller profiles making it less material intensive.

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Galvanised steel profiles are to be used for the fixed structural elements introduced by the design. These profiles are to be painted. Reference colour: RAL 5011 Steel Blue.

Galvanised steel profiles are to be used for the fixed structural elements introduced by the design. These profiles are to be painted. Reference colour: RAL 5011 Steel Blue.

Multi Wall polycarbonate as coloured, clear and opal spatial mediators installed at the meeting rooms on floor 1, the branding wall on mezzanine level and the consultation spaces on ground floor.

Multi Wall polycarbonate as coloured, clear and opal spatial mediators installed at the meeting rooms on floor 1, the branding wall on mezzanine level and the consultation spaces on ground floor.

Multi Wall polycarbonate as coloured, clear and opal spatial mediators installed at the meeting rooms on floor 1, the branding wall on mezzanine level and the consultation spaces on ground floor.

3.2mm Taralay impression comfort vinyl sheets with high resistance to indentation from Gerflor. Joints to be cold welded for a continuous and seamless finish. Colour: Oxygen Wind, code: 0079.

3.2mm Taralay impression comfort vinyl sheets with high resistance to indentation from Gerflor. Joints to be cold welded for a continuous and seamless finish. Colour: Oxygen Lemon, code: 0086.

3.2mm Taralay impression comfort vinyl sheets with high resistance to indentation from Gerflor. Joints to be cold welded for a continuous and seamless finish. Colour: Oxygen Lemon, code: 0086.

3.2mm Taralay impression comfort vinyl sheets with high resistance to indentation from Gerflor. Joints to be cold welded for a continuous and seamless finish. Colour: Oxygen Lemon, code: 0086.

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3.2mm Taralay impression comfort vinyl sheets with high resistance to indentation from Gerflor. Joints to be cold welded for a continuous and seamless finish. Colour: Oxygen Lemon, code: 0086.

3.2mm Taralay impression comfort vinyl sheets with high resistance to indentation from Gerflor. Joints to be cold welded for a continuous and seamless finish. Colour: Oxygen Lemon, code: 0086.
6mm PaperStone solid surface panels for reception desk, ablution vanities and pause area worktops. PaperStone is made of 100% post-consumer recycled paper. It is a solid, non-porous surface specifically selected for its warm and soft tactile properties. It is also UV resistant, waterproof, scratch resistant, durable, hard-wearing and require minimal maintenance.

Existing tinted and laminated glass (as removed on south western facade) to be reused as fixed relief wall. This wall is visible from the main meeting room and the balconies on floors two to four. See detail. Window pane glass can not be recycled. Therefore a technique for re-using the glass was explored. The proposed relief wall is a fixed addition complimenting the original material character of the site.

20mm Recycled Quartz Reflections Caesarstone as engineered stone surface for ablution vanity. Caesarstone engineered surfaces are waterproof, scratch resistant, durable, hard-wearing and require minimal maintenance. It is ideal for any setting where longevity in design are required.

Full bodied porcelain tiles do not show chips as easily (since it is one material throughout). Sizes of different batches are also equal and consistent as tiles are cut after the production process.

Aluminium was chosen for its infinite recyclable potential without any loss in quality or properties. Its tactile experience is more smooth.

Multi Wall polycarbonate was selected for its sound insulating qualities as well as its ability to allow for light transmissions between adjacent spaces.

Taralay impression is 100% recyclable and comes with a protexscol surface treatment to ensure no strip and seal is needed for the life of the product. It also offers 18db impact sound insulation and a R10 slip resistance.

The On chair is developed to support the body’s range of motions. The chair is manufacture with 56% recycled material. At the end of its life 96.5% of the chair can be recycled.

Figure 7-54. PaperStone solid surface. (Stonetech, 2013).

Figure 7-55. Re-used, slumped glass (Author, 2013).

Figure 7-56. Caesarstone solid surface (Caesarstone, 2013).

Figure 7-57. Fabric selected: Marriot 04 (U&G Fabrics, 2012).

Figure 7-58. Wilkhahn On chair (Wilkhahn, [n.d.]).

Figure 7-59. Wilkhahn On chair (Wilkhahn, [n.d.]).
This chapter investigated the design development within the three distinct focus areas: the public interface (ground floor), the formal and informal meeting nodes (first floor) and a typical formal work floor (second floor). Specific design considerations included the reinterpretation of traditional interior and circulatory elements to enhance social, acoustic and visual friction.

The heritage approach was developed to both enhance and accentuate the difference between old and new by means of its connections and design language. The intervention responds to the rich orange-red textures of the original structure with smooth, solid coloured, translucent and transparent materials and textures.

The interior intervention’s design language is developed as a response to the building’s existing static spatial language. The conceptual approach was formalised into a design language of light and angled elements, accentuating visual and physical movement linking the various spaces.
Technical Investigation

The design proposal is developed technically as a continuation of the layered design response. The systems investigated during the concept and design development is resolved and indicates the successful implementation of the open building approach within a workplace environment.

The acoustic, lighting and electrical systems are developed as a continuation of the design response and illustrates that the character of interior spaces is as reliant on their environment as their detailing.

Other details are developed that support the successful completion of the technical investigation and stipulates the validity of the research questions posed at the beginning of the dissertation.
8.1. INTRODUCTION

This chapter investigates the technical implications of the hypothesis and design proposal. The three main aspects considered during the design process of the interior intervention are:

- The acoustic environment
- The natural and artificial light conditions
- The electrical system

As a continuation of the hypothesis taken in Chapter 1 (cf. 1.4), other systems for the successful translation from an unhealthy to a healthy interior condition is also explored. These include:

- The heating, cooling and ventilation strategy
- The utilisation of solar energy
- Rain water harvesting
- Strategy towards furniture and material palette
- The fire regulations

These systems work together in creating the character of the workplace interior and therefore will constitute the technical approach. A specific focus was directed to the primary three systems as they are essential to a successful interior environment.

8.2. SYSTEMS APPROACH

8.2.1. NATURAL DAYLIGHT

Natural daylight is integral to any healthy interior condition. Since the building has a small footprint, ample natural daylight enters the interior spaces from both the north eastern and south western facades. An ecotect analysis (refer to figures 6-9 to 6-14) indicate the well-lit interior condition, once all the partitioning is demolished.

The existing tinted windows of the north eastern facade helps combat glare in the interior spaces, while a direct visual link to the outside world is maintained. The necessity for artificial lighting is further investigated in 8.4.

8.2.2. RAIN WATER HARVESTING

Rain water is harvested from the balconies for non-potable use throughout the building.

During the first year of implementation 16m$^3$ water would have to be obtained from the municipal system at the end of July. From then onwards the system would be able to sustain itself (cf. graph 8-1).

8.2.3. PHOTOVOLTAIC SYSTEM

The building’s minimum electrical requirement is determined as baseline in 8.4. This baseline load will be gathered from installed photovoltaic panels on the roof of the site (with no surplus), as Eskom do not currently accept electricity inserted back into the grid (Nel, 2013). This power supply is directly linked to the DB board, lessening the building’s electrical load from the grid. By linking this installation directly to the main DB board, the necessity for a battery room becomes void (Nel, 2013). A Battery room has numerous requirements to function successfully and lessens the green footprint of the system.

Graph 8-1. Potential for rain water harvesting compared to required non-potable required water.

<table>
<thead>
<tr>
<th>Month</th>
<th>Yield (m$^3$)</th>
<th>Water storage requirements</th>
<th>Non-drinking water required per month (WC's and plant irrigation)</th>
</tr>
</thead>
</table>
Passive solar design as site is shaded by two directly adjacent buildings.

2. Balconies allowing rain water harvesting with 1:200 fall towards gutter.

3. Gutters carry harvested rainwater to storage tank.

4. (Floating debris and pollutants heavier than water are filtered to produce non-potable water supply).

5. Photovoltaic panels for part of electrical power supply (cf. 8.5).


Figure 8-1. Technical exploration of multiple services contributing to the design and technical approach.
8.2.4. PASSIVE SOLAR DESIGN

Horizontal sun louvres are introduced onto the north eastern facade, rendering the interior free of direct summer sun while winter sunlight is still allowed in.

8.2.5. MIX MODAL VENTILATION APPROACH

The site’s floor plate was segregated into multiple small zones and every zone is solely dependent on individual air-conditioning units for heating and cooling. This approach is energy intensive and has many psychological and health disadvantages.

The intervention adheres to the heating and cooling as well as the ventilation requirements (minimum air requirements of 7.2 L/s per person (SANS 10400) by introducing a mix modal system. A four pipe reverse sided hydraulic heat pump is introduced on the roof of the building as per a mechanical engineer’s requirements (cf. figure 8-2). This system will be guided by CO₂ sensors, located within the building’s interior, monitoring the occupancy ratio and whether windows are opened or closed. This system allows users control over their environment.

As the prevailing wind is from the south east, the building is ideally rotated to allow for natural ventilation. When weather allows, air would naturally move from high to low pressures and therefore the existing top hung windows on the north eastern facade are altered to a weather louvre system (small openings) and openable folding stacking doors to the south (full height openings) which would draw fresh air through the building.

The four pipe reverse heat pump system allows for demand controlled ventilation as well as cooling and heating (cf. figure8-2). The comfort modules are easy to install and can also easily be moved (cf. figure8-3).

8.2.6. FIRE REGULATIONS

A rational fire design should be performed by a professional fire engineer. The following parameters influenced the intervention:

8.2.6.1. SPRINKLERS

The building from ground floor upwards does not require the installation of sprinklers, as the floor area do not exceed 5000 m² (SANS 10400: 23). In addition, the up stands to the north east and the extended landings to the south west act as fire breaks, sufficiently separating the floors from one another. The basement level will however require sprinklers as it is below the natural ground level on three sides and thus cannot be naturally ventilated (SANS 10400 Part T: 23).

8.2.6.2. FIRE EGRESS

SANS 10400 stipulates that the selected site (according to its amount of storeys) requires two escape routes (discharging onto street), but no emergency routes (protective route en route to escape door). To enhance the existing main fire escape in terms of inclusive design, the circulation is improved by the addition of a continuous handrail connecting the various landings. For inclusive egress, an evacuation chair, stored in a secure epoxy painted metal cupboard, is installed on every floor.

Furthermore the building type (offices) requires portable fire extinguishers installed every 200m² and fire hose reels installed every 500m² (SANS 10400 Part T).
8.2.6.3. **FIRE DOORS**

The main vertical circulation, which also serves as the main fire escape, requires fire class A\(^1\) doors as threshold to the floor plates. The basement level access door requires a class B\(^2\) rating with a self-closer. (SANS 10400 Part T: 30).

8.2.6.4. **SEWAGE**

Sewage was kept to the same periphery wall where the original 900 x 600mm duct was located. This allows the new ablution’s sewage to connect to the existing drainage system. The system runs underneath the soffit of the descending driveway (ground floor) until it reaches the municipal connection at the man hole in Esselen Street. Ablutions are provided on the first and third floors.

8.2.6.5. **SECURITY AND PASSIVE SURVEILLANCE (DEFENSIBLE SPACE)**

The ground floor is opened towards Esselen Street by means of folding stacking doors. When these are opened, the reception acts as an unintimidating security checkpoint. Prospective clients walking in from the street (for consultations of formal meetings) is received by the receptionist before seating themselves in the waiting area overlooking the frontal courtyard. The waiting area has a direct visual link to Esselen Street and ensures the interior is experienced as animated when viewed from the street. In addition, the act of observation from the waiting area provides passive surveillance whilst giving waiting clients an agreeable activity to occupy themselves with. A user-operated coffee machine and daily updated newspapers are other services provided.
8.3. ACOUSTIC CONSIDERATIONS

The conceptual approach of the acoustic design is based on acoustic comfort being a 'semi-fixed' installation. Acoustic comfort within a work environment is core to the spatial experience of its users. The different floors all operate with different sound conditions (in terms of use and resultant ambient noise levels). For that reason, the different floors were investigated separately. Choice of floor and ceiling materials were guided by their sound absorption efficiencies and specific consideration was given to which elements would be permanent installations compared to those which are removable.

Factors considered are:

- Sound sources and their respective dBA levels at specific distances
- Sound absorption or reflection characteristics of surfaces and finishes
- Distances for speech to remain intelligible

First, the acoustic condition of the stripped structure (structural and heritage significant elements) is determined. The reverberation time (time required for a sound to diminish by 60dBA within a specific space) is documented. After considering the acoustic baseline of the stripped spaces, the design, material and planar construct of the design intervention is developed.

The distances for intelligible speech were discussed in 6.2.8. However, it should be noted that for any speech to be intelligible, consonants should be audible (Van Reenen, 2013). Consonants are located from 800 Hz upwards (c.f. graph 8-2). For that reason, where intelligible speech should not travel, absorbent materials in a room should be focused on absorbing sound from 800Hz and upwards.

### Intelligibility distances for speech

<table>
<thead>
<tr>
<th>Equivalent continuous rating level ($L_{eq}$)</th>
<th>Maximum distance at which everyday speech is intelligible</th>
<th>Maximum distance at which raised speech is intelligible</th>
</tr>
</thead>
<tbody>
<tr>
<td>dB(A)</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td>45</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>50</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>55</td>
<td>2.2</td>
<td>4.4</td>
</tr>
</tbody>
</table>

Table 8-1. Speech intelligibility distances (adapted as from SANS 10103: 17).

An interior’s acoustic comfort is directly influenced by the type and quality of noise entering from the exterior context. This sound, if managed well, contributes to the contextual experience and sense of place. The two contrasting sound conditions on either side of the site (cf. table 8-3) greatly influenced the programmatic allocation of its uses during the concept development (cf. 6.2.4).

### Exterior noise levels

<table>
<thead>
<tr>
<th>Type of district</th>
<th>Building’s orientation</th>
<th>Equivalent continuous rating level ($L_{eq}$) for noise dBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban districts with business premises</td>
<td>Towards Esselen Street</td>
<td>$L_{eq,a}^a$ 60, $L_{eq,b}^b$ 60, $L_{eq,n}^{b}$ 50, $L_{eq,n}^{b}$ 50, $L_{eq,n}^{b}$ 40</td>
</tr>
<tr>
<td>Urban district</td>
<td>Towards Kotze Street</td>
<td>$L_{eq,a}^a$ 55, $L_{eq,b}^b$ 55, $L_{eq,n}^{b}$ 45, $L_{eq,n}^{b}$ 45, $L_{eq,n}^{b}$ 35</td>
</tr>
</tbody>
</table>

Table 8-2. Exterior noise levels (adapted as from SANS 10103: 16).
<table>
<thead>
<tr>
<th>Floor levels</th>
<th>Activity Zone</th>
<th>Design equivalent continuous rating level ($L_{eq}$) for ambient noise (dBA)</th>
<th>Maximum equivalent continuous rating level ($L_{eq}$) for ambient noise (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground floor</td>
<td>Reception</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Waiting area</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Consulting area</td>
<td>35</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Call centre</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Circulation space</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>Mezzanine</td>
<td>Call centre</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Support space</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>First floor</td>
<td>Work space</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Support space</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Ablutions</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Meeting rooms</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>Second floor</td>
<td>Work space</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Support space</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>Third floor</td>
<td>Work space</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Support space</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Ablutions</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>Fourth floor</td>
<td>Work space</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Support space</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>Lift shaft</td>
<td>Vertical circulation</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Car Interior</td>
<td>30</td>
<td>35</td>
</tr>
</tbody>
</table>

The Sabine formula was used in calculating reverberation times:

$$ T = 0.163 \cdot \frac{V}{A} $$

- $T$ = reverberation time in seconds
- $V$ = room volume (m$^3$)
- $A$ = total equivalent sound absorption area (m$^2$)

### Reverberation times

<table>
<thead>
<tr>
<th>Phase</th>
<th>Location</th>
<th>Room Volume (m$^3$)</th>
<th>Frequency (Hz)</th>
<th>Effective surface area $A$</th>
<th>Reverberation time (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Walls</td>
<td>Floor</td>
</tr>
<tr>
<td>Existing condition</td>
<td>Ground floor</td>
<td>1161.96</td>
<td>500</td>
<td>36.79</td>
<td>15.61</td>
</tr>
<tr>
<td>(stripped space)</td>
<td></td>
<td></td>
<td>1000</td>
<td>31.40</td>
<td>39.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2000</td>
<td>26.01</td>
<td>65.05</td>
</tr>
<tr>
<td>First floor</td>
<td></td>
<td>622.4</td>
<td>500</td>
<td>301.67</td>
<td>37.34</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1000</td>
<td>310.52</td>
<td>93.36</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2000</td>
<td>1419.93</td>
<td>155.60</td>
</tr>
<tr>
<td>Second floor</td>
<td></td>
<td>622.4</td>
<td>500</td>
<td>301.67</td>
<td>37.34</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1000</td>
<td>310.52</td>
<td>24.90</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2000</td>
<td>1419.93</td>
<td>155.60</td>
</tr>
</tbody>
</table>

*The reverberation time analysis were performed with the premise that the rooms in question are empty. As people with clothing would provide additional sound absorption, this premise allows for the worst case scenario.*

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8.3.1. GROUND FLOOR

The sound condition of any interior directly influences our experience of the space. Assupol’s clientele fall predominantly within the low income bracket (people walking in from the street). Therefore a specific consideration for the acoustic experience of the public interface is required.

A silent reception and waiting area is experienced as intimidating and not inviting or comforting. For that reason the call centers (which consult the walk-in clients) are located on the ground and mezzanine levels. The ambient noise level in the waiting area is hence designed to have a buzz (background noise) without actual telephonic conversations being intelligible.

The inverse square law was used to determine the sound levels at the consultation, waiting and reception areas. As a whisper is considered to be 20dB, the assumption can be made that the buzz from the call centre’s operating noise will be audible but not intelligible. Polycarbonate glazing is introduced as separation wall between the call centre and consultation spaces. The selected tongue and groove multiwall polycarbonate system (with sound insulation qualities of up to 48dBA) allows natural daylight to filter into these spaces, while effectively acting as acoustic buffer.

Observation and movement studies completed in Chapter 4 indicated that consultations are not required to be completely private. The room’s design will however allow for a sense of privacy by means of sound dampening and high backed chairs.

The sidewalk and foliage separating the interior from the busy Esselen Street, sufficiently dampens the traffic noise to a level of 36dBA. In addition, folding stacking doors to the back of the floor plate allows sound to escape to the more quiet southern edge of the site. A quartz carpet floor finish was introduced, reinstating the original fluid connection from outside to inside, while offering significant sound absorption.

The long reverberations in the lower frequencies indicate the effectiveness of the floor covering in the medium and upper frequencies. This illustrates that consonants (800dB and higher) will not travel through the vertical faces and thus renders the installation acoustically successful.

8.3.2. FIRST FLOOR

The first floor is the dedicated spatial threshold between the public and private interfaces of the site. Therefore, this floor is treated programmatically as the formal and informal meeting node. Acoustically the formal meeting rooms should be insulated from the neighboring communal spaces. The traditional glass partition is reinterpreted into a tongue and groove multiwall polycarbonate system as an extension of the meeting rooms’ server units. This reinterpretation of the traditional separation scheme allows for a semi-visual connection (one can see movement behind but with little definition that would distract) with increased sound insulating qualities. The separation of the zones acoustically is further enhanced by the placement of loose insulation material within the unit’s skirting and bulkhead connections to the floor slab and soffit. The doors are also treated to fit within the frame overlapping on all sides to further ensure the audible separation.

Both meeting rooms are openable to the exterior. Acceptable ambient noise levels entering meeting room 1 from Esselen Street, and meeting room 2 from the quieter south western edge. As with the ground floor, the meeting rooms may experience

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Figure 8-5. Acoustic development: proposal for ground floor.
8.3.3. SECOND FLOOR

The second floor is investigated as typical office floor and is designed as one single team space according to the requirements of Assupol’s working processes. The required 1.5 second reverberation time allows for multiple discussions to take place within a singular space without too much echo resulting in a difficulty of hearing.

Ecophon’s sound absorbing panels (cf. 8.3.2) are suspended in a grid from the exposed soffit. These panels soften the interior both visually and acoustically, while services such as electrical, data, heating and cooling remain visible and easily accessible from below. These panels’ sound absorbing coefficient is 1 within the crucial frequency range of 500 - 1200 Hz. Therefore, an effective reduction in the sound levels is obtained (allowing for multiple audible conversations) without multiple sound reflections.

The concentration spaces are fitted with an acoustic glass wool ceiling that provide a combination of sound absorbing and acoustic insulating properties. A combination of glass (for a transparent visual connection) and gypsum vertical elements (space defining) is set snug into the ecophon ceiling, preventing the excessive travel of sound. These spaces are not intended to be dead quiet, but rather to function as an acoustically subdued environment for the performance of concentration work or to provide sufficient privacy for personal phone calls.

The ablutions are acoustically insulated from the common areas by full height tongue and groove multi-wall polycarbonate panels. These panels are fixed to the floor plate and soffit by means of sound proofed aluminium edge profiles. The polycarbonate sheets allow for a 48dBA sound reduction that sufficiently segregates the spaces acoustically.

The wet pause area’s walls are constructed from treated laminated glass (reusing the removed glass from the building’s southern façade). These walls are sculptural in quality and is not sound insulated but rather allows for sound to filter through.

The concentration spaces are fitted with an acoustic glass wool ceiling that provide a combination of sound absorbing and acoustic insulating properties. A combination of glass (for a transparent visual connection) and gypsum vertical elements (space defining) is set snug into the ecophon ceiling, preventing the excessive travel of sound. These spaces are not intended to be dead quiet, but rather to function as an acoustically subdued environment for the performance of concentration work or to provide sufficient privacy for personal phone calls.
8.3.4. TONGUE AND GROOVE MULTI WALL POLYCARBONATE SYSTEM

The Rodeca Multi Wall system is a vertical translucent polycarbonate system. It 100% recyclable and has up to 30% pre-consumer recycled content. This system allows for daylight to enter into interior spaces. In addition, the system offers up to 43 dB sound insulation, has high stability and low weight. Vertical profiles are only required at ends and corners and therefore the system creates a visual continuous connection between spaces.

This interlocking polycarbonate system is also easy to install and will be located at the Ablutions, meeting rooms and branding wall towards Esselen Street.

The Rodeca Multi Wall system is a vertical translucent polycarbonate system.

8.4. ARTIFICIAL LIGHTING

Sufficient natural daylight enters the interior spaces (cf. 6.2.3). Therefore, the artificial lighting provided in the building is only supportive in nature as required in bad weather or for evening or emergency use. The proposed artificial lighting scheme range within all three layers of installation: fixed, semi-fixed and loose.

The conceptual approach of the artificial lighting scheme is inspired by the psychological and spatial impact of different lighting conditions. Indirect lighting is mainly used for its elimination of glare and psychological uplifting qualities. Direct lighting creates beams of concentrated light leaving the ceiling face dark. This was found to have an intense psychological oppressive effect on office workers (Computer workers prefer diffused lighting, 2010). Indirect lighting is therefore installed on top of the suspended acoustic panels. The exposed soffits on every floor is painted two coats satin white, effectively rendering the whole ceiling plane the positive reflection surface, ensuring an equally distributed reflected luminance down towards the floor area.

User operated task lighting is supplied at all work stations for individual operation as needed during the work day. For energy efficiency, warm white LED tube lamps are preferred for most of the general lighting installations. The LED tube lamps are connected to luminaires with an integrated connector system making connections to the 240V simple and effortless. CFL lamps in luminaires with integral electronic ballasts are selected as emergency lighting for their high efficiency, while warm white LED ribbon
lighting is used for supplementary emergency lighting within the newly introduced fire escape handrails. With the installation of daylighting and motion sensors, the general lighting scheme is automatically operated to respond when daylighting levels are too low or when spaces are unoccupied.

### LEGEND SPECIFICATION

- **LEDs DECO FLEX** compact dimmable ribbon lighting recessed in exposed balcony structure.
  - 3.6W with ECG (electronic control gear), beam angle 113°, Luminous flux 65.6lm
  - Colour rendering index Ra 22.3
  - 10mm x 2mm strip with LEDs in white epoxy resin strip.

- **KREIOS G1** WT LED image projector for meeting room with low energy consumption and uniform illuminated images.
  - 220V 20W, 270° manual pan and 120° tilt adjustment
  - No active cooling required due to low heat output from with LED lamps, and therefore no noise, From OSRAM.

- **POWERstix** silver aluminium pendant luminaire for suspended or wall mounted application. With flexible luminaire forms (linear or Y-shape)
  - Equipped with 9 LED lamps and reflector lens
  - 10.1W, ECG operating mode, 300K, 60° beam angle, 680lm and Ra 80. Clip installation and dimmable.

- **Silento Tavolo** table light in high-quality white aluminium casing
  - 1x LED lamp with touch sensor, 3000K colour temperature, 120° beam angle and 300 lm output. Colour rendering >80;
  - Operating mode: ECG Dimmable via TOUCH DIM and integrated on/off switch.

- **Pendant luminaire with fluorescent lamp** (as light quality from fluorescent lamps create the ideal condition for the tilandsia plantss hanging next to these luminaires.) From Spazio.

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**SYMBOLShornet**
- **CYL Light 6998.10** surface mounted or suspended luminaire in steel with die-cast aluminium base and dimmable CFL lamp, 99.9% pure anodized aluminium reflector with integral electronic ballast.
  - Pendant option of up to 3m on emergency supply (UPS), From Optique lighting.

- **White powdercoated aluminium channel fitting with 1xW LED tube lamp mounted in recess, from Osram.**

- **White powdercoated aluminium channel fitting with 2xW LED tube lamp mounted in recess, from Osram.**

- **White powdercoated aluminium channel fitting with 1xW LED tube lamp mounted in recess on emergency supply (UPS), from Osram.**

- **White powdercoated aluminium channel fitting with 1xW LED tube lamp mounted in recess on emergency supply (UPS), from Osram.**

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8.4.1 CEILING PLANS ILLUSTRATING ARTIFICIAL LIGHTING

Figure 8-25. Ground floor ceiling and lighting plan.

Figure 8-26. First floor ceiling and lighting plan.
Figure 8-27. Second floor ceiling and lighting plan.

Figure 8-28. Mezzanine level ceiling and lighting plan.

Figure 8-29. Third floor ceiling and lighting plan.

Figure 8-30. Fourth floor ceiling and lighting plan.

Legend

- Blue: Existing soffit exposed and painted satin white for maximum indirect lighting reflectance (general detail).
- Purple: Ecophon acoustic ceiling suspended from soffit (in ablutions and wet pause area).
- Brown: 20 mm Reclaimed wood secret fixed to purlins for balcony ceiling.
8.5. SECTION 1

Figure 8-31. Section 1 illustrating spatial relationship between the site, context and interior intervention.

Semi-Fixed & Fixed Layer
Scale 1:5

Fixed Layer
Scale 1:6

Loose Layer
Scale 1:10

Responsive energy efficient
Figure 8.32. Detail of timber slats in relation to women’s heels. Not to scale.

Figure 8.33. Detail of timber slats in relation to women’s heels. Not to scale.

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8.6. ELECTRICAL APPROACH

The electrical system is established as one of the ‘fixed’ systems of the design intervention. Therefore the conceptual approach has been governed by the structural and adaptable features as required per the open building concept. The following options were considered:

1. Raised flooring: Since the building was not originally designed with access flooring in mind, this option is impossible as doors would not be able to open or, alternatively, excessive level changes would result.

2. Core drilling into the floor slab: Only a 25mm drilling scope is possible before the structural integrity of the floor slab is jeopardised. Since this is insufficient for the electrical and data distribution units, core drilling was ruled out.

3. Exposed system suspended from soffit: This option was selected as it allows for easy maintenance, quick accessibility throughout the floor plate and easy connections to the artificial lighting installations. It also suits the original design brief as set by top management in 4.2.3.

The electrical system supplies the building with power for the effective operation of equipment, lighting and services. Powdercoated cable trays are suspended from the exposed soffit at 2660mm intervals and were determined according to the building’s structure and spatial constructs.

Figure 8-34. Diagrammatic illustration of electrical system’s approach.

Figure 8-35. Detail indicating relationships between Ecophon acoustic panels, indirect lighting and cable trays. Not to scale.

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Figure 8-36. Electrical reticulation: cable tray connection to workstations.

Figure 9-37. Detail of electrical and data distribution to workstations. Not to scale.
Figure 8.38. Section 2: illustrating spatial relationship between the site, context and interior intervention, not to scale.
Figure 8-39. Detail of interchangeable shelving and main fire escape signage. Not to scale.
20mm reclaimed timber slats fixed with tongue and groove and fillet joints to be treated with Gripseal’s non-toxic, low VOC exterior water-based wood sealant for UV resistant and weatherproof finish.

50x8mm flat plate welded to 150x8mm flat plate for continuous galvanised mild steel section powdercoated colour reference: RAL 5008. Fixed to underside of timber with flat headed screws.

500 solid saigna handrail, cut in at bottom to be treated with Gripseal’s non-toxic, low VOC exterior water-based wood sealant for UV resistant and weatherproof finish. Fixed to balustrade at 1200mm intervals with steel brackets.

5mm warm white LED ribbon light fixed to 15.8 x 15.8 x 1.6mm aluminium U-channel.

50x50x4mm galvanised steel angles welded to structural steel frame at 1200mm intervals.

10mm Ø solid steel round section welded to baluster post for invisible joint.

3.2mm marine grade stainless steel cable fixed horizontally between baluster posts with threaded fork joints and secured with a dome nut.

20mm reclaimed timber slats of different widths. Different lanes kept it similar widths. Lanes fixed with 3mm gaps. To be treated with Gripseal’s non-toxic, low VOC exterior water-based wood sealant for UV resistant and weatherproof finish.

76.2 x 50.8mm galvanised hot rolled steel purlins at 400mm intervals.

254 x 254mm galvanised structural steel I-beam with 1 xcoat primer and paint, reference colour: RAL 5008.

100 x 100 x 8mm structural steel angle continuously welded to structural I-beam with 1 xcoat primer and paint, reference colour: RAL 5008.

0.6mm galvanised mild steel sheets welded continuously for waterproof joints. To be fixed at an angle of 1:200 transferring harvested rain water to gutter.

75 x 50 x 20 x 2.0 galvanised cold formed C-channel welded to I-beams at 1000mm centres decreasing in height at 1:200 fall.

Figure 8.40. Exploded balustrade detail and water rain harvesting structure.
**BALUSTRADE AS WORKTOP**

- 50x50x4mm GALVANISED STEEL ANGLES WELDED TO STRUCTURAL STEEL FRAME AT 1200mm INTERVALS
- 100 x 100 x 8mm STRUCTURAL STEEL ANGLE
- 50Ø SOLID SALIGNA HANDRAIL WITH CUT IN AT BOTTOM
- 5mm WARM WHITE LED RIBBON LIGHT FIXED TO 15.8 x 15.8 x 1.6mm ALUMINIUM U-CHANNEL
- TWO X 50x50x4mm GALVANISED STEEL ANGLES WELDED CONTINUOUSLY TO STRUCTURAL STEEL FRAME AT 1200mm INTERVALS

**BALUSTRADE AS BENCH**

- 50Ø SOLID SALIGNA HANDRAIL WITH CUT IN AT BOTTOM
- 5mm WARM WHITE LED RIBBON LIGHT FIXED TO 15.8 x 15.8 x 1.6mm ALUMINIUM U-CHANNEL
- TWO X 50x50x4mm GALVANISED STEEL ANGLES WELDED CONTINUOUSLY TO STRUCTURAL STEEL FRAME AT 1200mm INTERVALS

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Figure 8-41. Exploded worktop detail.

Figure 8-42. Exploded Bench detail.
8.9. BRANDING THE BUILDING

DEVELOPMENT OF FIXED SYSTEM SUPPORTING INTERCHANGEABLE BRANDING

Figure 8-44. Conceptual development of branding unit

Figure 8-45. Detail of exterior branding facing Esselen Street.
8.10. RELIEF WALLS

The existing tinted laminated glass on the south western facade is removed in favour of clear paneled folding stacking doors. Solar gain is prohibited by the addition of balconies (creating a sufficient overhang), while the diffused indirect southern light is invited into the interior.

Window pane glass cannot be recycled, as reheating causes small bubbles which affect the glass’ translucency effectively turning it milky. As to ensure the glass panes removed do not end up in a landfill, the design intervention re-uses it to become part of its fixed layer response by reintroducing it as sculptural relief walls: giving social and historical significance to the site. The existing ceramic mosaic cladding of the structure relates to the rich craft culture of Pretoria. The proposed relief walls contribute to the site’s character by providing visual interest seen from the addition’s balconies and first floor’s public and communal spaces.

8.9.3. THE PROCESS:

The window panes will be cut smaller into various sizes, with its largest panels being 500mm x 500mm (to be able to fit in a standard glass kiln). The panes are then placed on ceramic moulds within a glass kiln. When heated to approximately 1600°C the glass slumps into its new shape effectively creating a relief. The longer the glass is baked, the more bubbles forms and the milky (whiter) the surface becomes. A colour variance within the different panels will thus take effect, depending on the time it was heated.

Original Volkskas logo as inspiration for the glass relief wall; conveying the social and programmatic memory of the site.

The original Volkskas logo is interpreted into 7 different clay moulds.

Clay moulds allow for several repeated uses before failing. Stainless steel moulds (as used for draping glass) would cool quicker than the heated glass and would either crack the glass or be too difficult to separate.

Resultant glass panes with relief surface.

Figure 8-46. Diagrammatic illustration of the process of reusing window pane glass.
As the workplace is increasingly becoming a space focused on collaboration, ablutions are becoming a refuge: a space to refresh. The material palette was selected to produce a neutral yet upbeat interior environment.
Material and sanitary palette

- Exposed face brick
- 40mm Multi Wall coloured Polycarbonate from Rodeca for south western wall
- Opal Multi Wall polycarbonate from Rodeca for cubicle doors.
- Paperstone solid surface for accent of back wall of cubicles. Colour: Gunmetal.
- Paperstone solid surface for front wall of cubicles. Colour: Straw.
- Interior walls of cubicles to be finished with Versus Polished Plaster, colour: DULUX 40YY73

General flushvalves: Geberit Kombifix concealed cistern for wall hung WC with Sigma 50 dual-flush actuator.
- Quartz Carpet as floor finish. Colour: Battleship.
- Urinal flushvalves: Geberit Sigma 50 single-flush actuator.
- Hansgrohe Metris S electronic basin mixer.
- Wall mounted Duravit Duraplus Series WC pan, code: 254709.

References:
- Figure 8-51. Material and sanitary palette for first floor ablations.
- Figure 8-50. Detail of opal Multi Wall polycarbonate door. (No visual connection yet allowing light transmission into cubicles), not to scale.
- Figure 8-49. Detail of hand wash, Not to scale.
A horizontal sun louvre with a 400mm width will effectively inhibit any direct sunlight to enter the interior space during summer, but would allow ample sunlight to enter during winter months (ecotect, 2013).

The selected 84R horizontal sun louvre (Hunter Douglas, 2013) requires very few tools for installation as the C-shaped panels fit into the stringers with a positive click.

The distance between stringers is calculated according to the wind load (N/m²) of the site according to the supplier’s calculation table.

The steel flat plate brackets is fitted to the existing vertical steel mullion. Stringers are fastened to steel bracket (carrier) from below.

A horizontal sun louvre with a 400mm width will effectively inhibit any direct sunlight to enter the interior space during summer, but would allow ample sunlight to enter during winter months (ecotect, 2013).

The steel flat plate brackets is fitted to the existing vertical steel mullion.

Stringers are fastened to steel bracket (carrier) from below.

84mm wide C-shaped panels are 'clicked' into place (no tools required).

Figure 8-52. Perspectives showing exploded and completed construction of installation components (Hunter Douglas, 2013).

Figure 8-53. Exploration of solar gain with Ecotect model, 2013.

Figure 8-54. Detail of sun and weather louvre.
8.13. VEGETATION

A variety of foliage, ranging from creepers to interior and exterior planted specimens will be introduced to the site. Since the growth conditions at the selected spaces differ considerably, different species of plants will be used in different areas. Most foliage, especially the creepers, are required to be evergreen ensuring year round delight.

The selected perennial families include a variety of shrubs, groundcovers, bulbs, creepers and herbaceous plants. The selection includes annually flowering species, but with flowering times spread across the year. Irrigation requirements are met by the recycling of grey water with additional irrigation from the rain water harvesting system when needed. The soil consistency required by the proposed water wise plants are predominantly well-drained with rich humus or leafmould. The soil ratio is thus proposed to have a 30-40% sand consistency to clay and loam. This will ensure sufficient drainage of water in summer, while the soil will adequately retain water in winter.

Proposed plant families and species

Indigenous, perennial plants were chosen with a particular notice to their being evergreen. Growth requirements that were considered are: moderate to little water, specific plants for semi-shade to full shade areas, hardiness, flower colouring, smell and density of growth.

General growth requirements:
(Joffe, 2003: 139-372)

Planters in courtyard leading into waiting area:
Area: approximately 14m²
Semi-sun to full shade tolerant
Fertilizer requirements: 3:1:5
General irrigation requirements: 3-5 l/m²/week

Planters on fire escape’s landings:
Area: approximately 4m²
Semi-sun to semi-shade tolerant
Fertilizer requirements: 3:2:1
General irrigation requirements: 2-4 l/m²/week

Family names
a. Ranunculaceae
b. Acanthaceae
c. Asparagaceae
d. Alliaceae
e. Geraniaceae
f. Adiantaceae
g. Anthericaceae
h. Agapanthaceae
i. Alliaceae
j. Asphodelaceae
k. Fabaceae
l. Plumbaginaceae
m. Asparagaceae
n. Amaryllidaceae
o. Plumbaginaceae

Genus and species with particular preference for those endemic to the Pretoria region

Clematis brachiata
Thunbergia alata
Asparagus asparagoides (bloom)
Tulbaghia violacea
Perlargonium graveolens
Adiantum capillus veneris
Chlorophytum comosum
Agapanthus africanus (bloom)
Bulbine frutescens
Eriosema psoraleoides
Plumbago auriculata
Asparagus asparagoides
Clivia maniata
Plumbago auriculata

Figure 8-55. Compilation of proposed foliage.
Figure 8-56. Elevation: Front Facade facing Esselen Street.
This chapter investigated the technical implications as a continuation of the design proposal’s system’s approach. A specific consideration for interior elements and their ability to manipulate the perception of space by means of visual, acoustic and physical connections were undertaken. An allowance for future adaptability was convened by adhering to the open building principles as a guiding parameter for the layered systems introduced to the site.

The three layers of the design (fixed, semi-fixed and loose) were explored on different scales of detailing and illustrate the means by which a successful translation of an existing building's interior condition can be made from unhealthy to healthy.
Conclusion
This dissertation investigated the potential and effects that the context and character of a work environment can have on its interior spatial condition. Theories presented in Chapter 2 guided the research and design delineation to focus the study on how psychological, contextual, social and the performance of a building can define its character.

An investigation into the development of the workplace, its requirements and its approach to user satisfaction was completed prior to the selection of a site and client. A site in Esselen Street was selected as the area is undergoing significant changes to become the commercial, art and corporate hub of Pretoria. In addition, its rich and vibrant context provides the opportunity to relate interior spaces with their exterior context. The selected client, Assupol Life, presented the investigation with a specific set of work processes and a compassionate, informal corporate culture to design for.

The Interior Ecosystem Model illustrates the importance of the social, environmental and design synthesis in creating healthy work environments. The dissertation demonstrates the value these aspects can contribute to a building’s user interface. A contextual approach guided all design decisions in the placement of activities and the spatial relationships between the interior and exterior contexts. Prior to the intervention the site’s interior spaces were isolated from their context and users had little or no relationship to the outside world. The intervention illustrates how the ecosystem approach utilises daylight, a sense of place, user orientated mix modal ventilation, heating, cooling, alterable support spaces and user operated services to establish a positive work environment.

The social friction theory investigated the reinterpretation of interior elements to provide connection points at which the three types of meeting (formal, casual and chance) could enhance interaction between the building’s users. Through the means of a timeline, the value of collaboration and the increasing need for informal space was illustrated. This was translated into the intervention through the means of a layered system’s design and technical approach.

Fred Scott’s stripping back method (2008) was implemented to reveal the site’s significant heritage context. The intervention responded to the architectural envelope with a three layered approach (fixed, semi-fixed and loose), where each gives merit to the intervention’s interior architectural approach and value. The interior intervention furthermore implemented an open building methodology to optimise for future adaptability.

The dissertation successfully illustrated the potential of translating the large amount of building stock constructed prior to the 1990’s green building movement, into a responsive, energy efficient, context conscious and performance enhancing environment. This illustrates the value the dissertation adds to the interior architecture profession as well as the Environmental Potential research field.
Figure 9.1. Illustration of the three types of meeting (formal, casual and chance).
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WORKS CONSULTED


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LIST OF FIGURE REFERENCES


Appendixes
APPENDIX A

FIRST INDOOR WORKPLACES

4000BC - 800BC

OVERVIEW
A place where work could be performed has been required since people gathered to record matters in writing or to negotiate.

CHARACTERISTICS
Typically these workplaces were sheltered, thus providing protection throughout all seasons. Examples of such work places include: monasteries, city centres, halls of government and trade spaces (such as blacksmithing and spinning).

EARLY 1500’S

OVERVIEW
Cortes, the first patriarch to the De Medici family, is known for developing the first office. These were spaces where clerical workers could gather for better efficiency and supervision. As the clerical workers provided services to the public, their gathering in an office made them more accessible.

CHARACTERISTICS
Purpose-built buildings for private companies were not built until deep within the Industrial Revolution. When a need for office space arose, especially in larger cities, offices were commonly located in houses.

1560

UFFIZI, FLORENCE, ITALY

OVERVIEW
The Uffizi was started by Giorgio Vasari and later completed by Buontalenti. It was built to house the administrative offices for Uffizi of the government when the Palazzo Vecchio had become too small. Currently it houses one of the world’s great sculpture galleries.

CHARACTERISTICS
From the very early example of office space one can see clear relationships between efficiency and the necessity for ease of public access. Surveillance of office workers and the need for larger spaces due to growth reasons means within the work places up to the present day.

2400BC

The abacus, the first known calculator, invented in Babylonia

724

Liang Ling Can invents the first fully mechanical clock

1041

Movable type printing press invented by Bi Sheng

1500

Ball bearing invented by Leonardo Da Vinci together with flying machines, including a helicopter, the first mechanical calculator and one of the first programmable robot

1510

Pocket watch invented by Peter Henlein

1581

Pendulum invented by Galileo Galilei

1600’s

1671

Gottfried Wilhelm Leibniz invents a calculating machine

1687

Newton’s Principia is published

1698

Steam engine invented by Thomas Savery

Figure A-1: Enlarged version of timeline as exploration of the workplace and its characteristics.
The invention of electric candles and light bulbs empowered work moving indoors. It resulted in rooms that could be lit without any windows or relation to time of day. Trade and guild work were the first to move indoors and soon after manufacturing followed.

**MANUFACTURING PROCESSES MOVING INDOORS**

**OVERVIEW**

The working conditions within these manufacturing buildings were poor. Unhealthy work places were the norm due to the lack of personal hygiene. During the late 1800’s the capacity for twenty-four hour workshops were possible, although the 1870 workshop culture, in pursuit of productivity, only took root within the 1860’s and 70’s.

**CHARACTERISTICS**

Office spaces at the beginning of the Industrial Revolution were only a separated area on the factory floor. It was a section of buildings only supporting the more important manufacturing processes. For surveillance purposes, managers or supervisors usually had offices furnished with a window looking into the machine area.

---

**INSET: 1840’s** The industrial revolution required buildings for production, such as this shoe factory in Salford for John Still. The building was constructed in 1839 with two stories. The first floor was divided into 12 sections for different operations. The shoe making machines were arranged in rows of 4-5 machines, each operated by a worker. In each section, the work proceeded in a routinized manner, with each worker or group of workers performing the same instructions over and over again. This was the Taylorist model, which prevailed in the 1870’s and 1880’s until the First World War.

---

**1850’s**

Patiently discover electro-magnetic current, this enables the development for generators and electric engines.

---

**1860’s**

First step in the development of the telegraphy. Alexander Graham Bell invents the telephone.

---

**1870’s**

First skyscraper built in Chicago (1885).

---

1883

Eiffel Tower is built.

---

**1890’s**

Pocket calculator invented by Sharp Corporation.

---

**1900’s**

Charles Seelenger is the first modern elevator (by redesigning Jesse Reno’s elevator). Jesse Reno’s escapator.

---

**1910**

Radio tuners invented, that received different stations. Stainless steel invented by Henry Brearly.

---

**1916**

The superheterodyne radio circuit invented by Edwin Howard Armstrong. Today, every radio or television set uses this invention.

---

1919

London to Paris air service begins.

---

Tim Berners-Lee invents the world wide web.

---

Skype is founded by Niklas Zennström and Janus Friis.
### OVERVIEW

This paradigm was developed as a reaction to taylorism, although the taylorist separation of managers and workers continued. Managerial changes resulted in the formation of task-based groups. To best accommodate these changes, clusters of individual workspaces became the norm. The USA also saw Alexander Maslow publishing his theories on human needs.

#### CHARACTERISTICS

During the 1950s, buildings were built primarily without a concern for site or climate influences. Artificial lighting and ventilation were the rule. The office remained a standardized and isolated place with no or limited consideration for the workers. This approach did not change until the late 1950s. Research conducted at the time indicated that improving social networks enhanced staff morale. This was found to directly increase motivation and productivity of employees. As a result, offices started offering spaces focused on the comfort of workers. Glass offices were also introduced during this paradigm, offering continuous visual contact within the workspace. This evolved result in the Bürolandschaft being developed in the 1960s.

### OVERVIEW

The office landscape was developed by the Schnelle brothers from the company, Gußburger Team. This alteration in the workspace paradigm resulted in the first open-plan office areas incorporating maximum flexibility. The shift in office planning revolved around the elimination of hierarchy and status and ultimately aimed at the promotion of communication between workers.

#### CHARACTERISTICS

The Bürolandschaft is an open collaborative space. The office landscape was developed as a means to break the misconception that the interior experience was the interior of the building. Building areas were typically distributed across the floor plate to provide various services. Alternatively, the building core was located on the periphery to minimize the visual and movement obstruction within the interior. Skylights and walls were eliminated within this paradigm. The ventilators evolved from the common rectangular shape to a corner typology.

### ACTION OFFICES

The active office was developed by Robert Propst from Herman Miller. It was developed as a reaction to the open spaces of the office landscape. Although the Bürolandschaft heightened interaction between workers, a loss of concentration was a common by-product. The active office is currently aimed to provide higher privacy for individuals. It was intended as an alternative to the open plan concept. It later developed into the cubicle system, maximizing even floor area accommodation. The final concept of creating interconnected spaces while offering privacy.

### POST WORLD WAR II

Heating, ventilation, air-conditioning, fluorescent lighting and suspended ceiling systems created the ability for buildings to accommodate uniform distribution of energy and light. This resulted in deeper floor plates and smaller, economical floor-to-floor distances. The mass production of buildings seen in the 1950s boated a defiance of natural systems. Energy resources seemed endless and electricity was cheap. Post World War II buildings reflected the move from the industrial age to the information economy. The workforce was also altered to enable both men and women to work, since women became accustomed to play their part in the economy during the war.

### 1960

- Laser invented by Theodore Harold Maiman
- The halogen lamp invented.

### 1963

- Computer mouse invented by Douglas Engelbart.

### 1967

- Automatic Teller Machine (ATM) invented by John Shepherd-Barron.
- The first handheld calculator invented.

### 1968

- Robert Osmann invented RAM (random access memory).

### 1969

- The Lزان (first internet) invented.
- The bar-code scanner invented.

### 1991

- South Africa is formed

### 1998

- Green Star ratings is launched by the Green Building Council of Australia

### 2007

- High-definition television invented.

### 2001

- Translucent Concrete developed by Hungarian
- First handheld calculator invented.
- IBM Simon can also be considered the first Smartphone.

### 1989

- South Africa is formed

### 1995

- Personal computers invented

### 1998

- Green Star ratings is launched by the Green Building Council of Australia

### 2011

- Buildings developed during the span through the 1940s to the 1960s celebrated loop
- The need for external or internal environmental consideration in their design and
- The underlying strategies used for circulating air and light, their response to climate and
- Site as well as the needs of the office workers were mostly disregarded. Interiors of office spaces were strikingly standardized in air conditioned boxes. If to uniform artificial lighting all hours of the day.
OVERVIEW

Buildings from this time were predominantly rectangular or square to allow for optimal standardization. A shallower consistent depth from the core to the outer walls was preferred. Due to development in building materials, larger spaces were possible that led to column-free office spaces.

CHARACTERISTICS

Workplaces were populated by a combination of private offices and cubicles. Offices of partners and managers typically fixed the periphery of the building bearing clerks, technically lit corridors and control areas for other offices and cubicle layouts. Cubicles are often found in endless rows to optimize space or economic efficiency.

1790

E-mail invented by Ray Tomlinson
Liquid Crystal Display invented by James Fergason
Pocket calculator invented by Sharp Corporation

1795

The Apple Macintosh invented.

1831

The first mechanical computer invented by Charles Xavier Thomas de Colmar.

1835

Monier develops reinforced concrete.

1848

U.S. Patent Office.

1876

Gottfried Wilhelm von Leibniz invents the first mechanical calculator.

1885

The first gasoline-powered car is built by Karl Benz.

1891

The first steam engine is built by James Watt.

1898

The Java computer language invented.

1901

World Wide Web invented by Tim Berners-Lee

1903

Skype is founded by Niklas Zennström and Janus Friis

1904

The first handheld calculator invented.

1907

The first computer hard disk used.

1924

The first television invented by John Logie Baird.

1929

The first computer program is written.

1939

The first handheld calculator invented.

1945

Konrad Zuse’s Z3, the first freely programmable computer.

1947

The first integrated circuit is invented by Jack Kilby.

1953

The first gas lighting invented by William Murdoch.

1970

1974

The first computer mouse is invented by Alan Kay.

1977

The first personal computer is introduced by Apple.

1980

1985

The Apple Macintosh is introduced.

1991

The first personal computer is introduced by Apple.

1995

The first handheld calculator invented.

2000

1997

The first computer mouse is invented by Alan Kay.

1998

The first personal computer is introduced by Apple.

2001

Digital satellite radio

2005

YouTube invented by Steve Chen, Chad Hurley and Jawed Karim

2007

Green Building Council of South Africa is formed
APPENDIX B: INTERVIEWS WITH CURRENT USERS

*Consent regarding photos were asked and personnel who were uncomfortable with this are depicted by a photo of their workstation.

Yvonne has been working at Huurkor for 6 years. She moves throughout the building as she cleans. She stated that the changes in temperatures from each office to the next is disturbing. She walks to Thabo Sehume Street from where she takes a taxi home. She and some of her colleagues walk approximately 30 minutes between the two places. She stated that people often get lost in the building and that they have a lot of clients walking into the toilets thinking it’s the way out.

Charlene has been with Huurkor for almost 2 years, although she has been working in the building for 6. The lawyers, Kleinhans & Swaneboel, for whom she first worked, underwent some financial difficulties and started renting offices from Huurkor. These offices were located on the southern side of ground floor. She would like to have windows in her workplace; she said that being so removed from everything depresses her, although it is tranquil. She enjoys the open-plan. She stated that the biggest problem with the building in her opinion is that it is confusing. Finding people is a problem and clients often end up on the wrong floor or at the wrong person.

Vathiswa has worked for Huurkor 8 years and has always been stationed on the mezzanine area. She lives in Pretoria CBD and walks to work. She stated that she enjoys the air-conditioning the most in her workplace, as they are completely shut off from the outside world.
Darius has been with Huurkor 6 years and has always occupied the office in which he is located. Darius parks his car at a dedicated area in the basement of Esselen Towers. Darius perceives his view as semi-good as long as you look up; the air-con unit on eye level disturbs him. Darius never opens his windows as the noise and smell from the air-con is too disturbing. He states that one can reach other departments quickly and the building makes movement convenient due to its small floor areas. He stated that in 1994 the army brought him along with other soldiers to this Volkskas branch to open accounts. He remembers that the atrium was impressive. He stated that the main banking hall felt open and light, not like now. The traffic from Esselen Street does disturb him a little, but the fresh air takes priority. The carpet warps and the floor feels unsteady at certain points.

Victoria has been with Huurkor for a few months. She works on ground floor at reception. She deals with clients that walk into the building from the street. She states that the workplace needs some cheering up. She parks her car on the street.

Jan has been working in the Huurkor building for 3 years. He formed part of the DJM Construction company that are contracted by Huurkor. He and his 3 colleagues from DJM share an open-plan office located where the double volume atrium office was used to be. When Huurkor moved into the building, they inserted a floor, covering the atrium. The mezzanine area now exist out of two parts, one where Jan sits down and they can see and the other. The department opens their windows for fresh air, although they do not consider their view of significance. If Jan could change anything he would like more natural light. Jan stated that the building is structurally very strong as all the walls have great thicknesses. Jan stated that he enjoys everything being so close together in the building. He said that one can reach other departments quickly and the building makes movement convenient due to its small floor areas. He stated that in 1994 the army brought him along with other soldiers to this Volkskas branch to open accounts. He remembers that the atrium was impressive. He stated that the main banking hall felt open and light, not like now. The traffic from Esselen Street does disturb them a little, but the fresh air takes priority. The carpet warps and the floor feels unsteady at certain points.

D.G. has been working for Huurkor 2 and a half years. His fiancé drops him off on her way to work. He stated that it is a pleasant building and he enjoys having a window close to him. People get lost very easily because the lift does not stop on the mezzanine level. Jan enjoys the area after entering the building and stated that it is quite ‘cool’ to have them. He opens his windows often but enjoys being able to adjust his air-con to what he wants. He states that most offices have their own air-cons.

Frik has been at Huurkor for 15 years and moved with the company to its current location in 2004. His office was originally placed on the mezzanine level, but he refused to sit down there and they reinterpreted the layout to accommodate him on the first floor. His office walks out onto the stoep area viewing Esselen Street. He never opens the doors, as the sound disturbs him. However, the young people often braai there at lunchtimes. There were talk of closing the stoep off by adding walls and a roof so that his storage units could move there. Frik parks at Zeeland and walks a block to get to Huurkor. He stated that the area feels unsafe. He stated that one sees a lot of movement on the street from his windows.

Debbie arrives at Huurkor via the Huurkor minivan with which she and some of her colleagues arrive from Montana. She does not like the area that much as she stated it to be dangerous. She would like Esselen Street to be cleaner. She states that her window (south facing) is wonderful, as all the opposite offices (north facing) receive a lot of sun. Debbie, however, does not open her windows often. She feels that the building has a lot of potential but that it is not optimally used now. She stated that the offices allow for a little privacy although they all actually work as a team. She parks her car on the street. She states that the workplace needs some cheering up. She parks her car on the street.

Jan has been working in the Huurkor building for 3 years. He forms part of the DJM Construction company that are contracted by Huurkor. He and his 3 colleagues from DJM share an open-plan office located where the double volume atrium office was used to be. When Huurkor moved into the building, they inserted a floor, covering the atrium. The mezzanine area now exist out of two parts, one where Jan sits down and they can see and the other. The department opens their windows for fresh air, although they do not consider their view of significance. If Jan could change anything he would like more natural light. Jan stated that the building is structurally very strong as all the walls have great thicknesses. Jan stated that he enjoys everything being so close together in the building. He said that one can reach other departments quickly and the building makes movement convenient due to its small floor areas. He stated that in 1994 the army brought him along with other soldiers to this Volkskas branch to open accounts. He remembers that the atrium was impressive. He stated that the main banking hall felt open and light, not like now. The traffic from Esselen Street does disturb them a little, but the fresh air takes priority. The carpet warps and the floor feels unsteady at certain points.

Victoria has been with Huurkor for a few months. She works on ground floor at reception. She deals with clients that walk into the building from the street. She states that the workplace needs some cheering up. She parks her car on the street.
Figure C.2. Model: context towards Esselen Street. Photograph by author. [Transcript]. 4 December 2013. Pretoria.

Figure C.3. Model: context at south-western facade. Photograph by author. [Transcript]. 4 December 2013. Pretoria.

The Green Star ‘Management’ category is designed to encourage and reward the adoption of sustainable development principles from your interior project’s design, implementation and operation.

1. MANAGEMENT

The ‘Indoor Environment Quality (IEQ)’ category encourages and rewards initiatives that enhance the comfort and wellbeing of fitout occupants, and assesses the sustainable attributes of components like air conditioning systems and lighting. IEQ category credits reward increases to occupant comfort and reductions in pollutant levels.

2. INDOOR ENVIRONMENT QUALITY (IEQ)

The ‘Energy’ category is designed to encourage and reward projects that reduce the amount of greenhouse emissions from operations by addressing issues of energy demand, use efficiency, and supply of energy from alternative sources.

3. ENERGY

The Green Star ‘Transport’ category encourages the reduction of single-occupant car use, by rewarding measures taken to discourage car commuting and encourage the use of alternative transportation.

4. TRANSPORT

The ‘Water’ category encourages and rewards initiatives that reduce fitouts’ consumption and reliance on potable (drinking) water. The category assesses the efficiency of projects’ fixtures and water reuse strategies, and rewards the substitution of potable water with alternative sources (like rainwater).

5. WATER

The ‘Materials’ category encourages and rewards fitout projects that minimise and reduce resource consumption through good material selection, reuse initiatives and efficient management practices.

6. MATERIALS

The ‘Land Use & Ecology’ category addresses a fitout’s impact on its immediate ecosystem, through the choice of a sustainable base building.

7. LAND USE AND ECOSYSTEMS

The Green Star ‘Emissions’ category addresses the point source pollution to the atmosphere, local watercourses, and ecosystems from fitouts.

8. EMISSIONS

The Green Star ‘Innovation’ category is designed to reward new design or construction innovations that foster a transition to sustainable building practices.

9. INNOVATION

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<tr>
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<th>Impact Categories</th>
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<td>INDOOR ENVIRONMENT QUALITY (IEQ)</td>
<td>The ‘IEQ’ category encourages and rewards initiatives that enhance the comfort and wellbeing of fitout occupants, and assesses the sustainable attributes of components like air conditioning systems and lighting. IEQ category credits reward increases to occupant comfort and reductions in pollutant levels.</td>
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<td>3</td>
<td>ENERGY</td>
<td>The ‘Energy’ category is designed to encourage and reward projects that reduce the amount of greenhouse emissions from operations by addressing issues of energy demand, use efficiency, and supply of energy from alternative sources.</td>
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<tr>
<td>4</td>
<td>TRANSPORT</td>
<td>The Green Star ‘Transport’ category encourages the reduction of single-occupant car use, by rewarding measures taken to discourage car commuting and encourage the use of alternative transportation.</td>
<td>10</td>
<td>8</td>
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<tr>
<td>5</td>
<td>WATER</td>
<td>The ‘Water’ category encourages and rewards initiatives that reduce fitouts’ consumption and reliance on potable (drinking) water. The category assesses the efficiency of projects’ fixtures and water reuse strategies, and rewards the substitution of potable water with alternative sources (like rainwater).</td>
<td>10</td>
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<td>6</td>
<td>MATERIALS</td>
<td>The ‘Materials’ category encourages and rewards fitout projects that minimise and reduce resource consumption through good material selection, reuse initiatives and efficient management practices.</td>
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<tr>
<td>7</td>
<td>LAND USE AND ECOSYSTEMS</td>
<td>The ‘Land Use &amp; Ecology’ category addresses a fitout’s impact on its immediate ecosystem, through the choice of a sustainable base building.</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>EMISSIONS</td>
<td>The Green Star ‘Emissions’ category addresses the point source pollution to the atmosphere, local watercourses, and ecosystems from fitouts.</td>
<td>10</td>
<td>6</td>
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<tr>
<td>9</td>
<td>INNOVATION</td>
<td>The Green Star ‘Innovation’ category is designed to reward new design or construction innovations that foster a transition to sustainable building practices.</td>
<td>10</td>
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A todos mis amigos
y familiares

muchas gracias

- To my incredible friends: for the continual support, care, comfort and laughs, including Liesl, Alida, Danien, Michelle, Janel and Ilze.

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