spaza station

An active waiting station in the Pretoria CBD

Acknowledgements

Special thank you to:

My parents, for your love, faith in me and all the late-night coffees.

Johan, for your assistance throughout.

Arno, for your unfailing encouragement.

Karlien, for always being willing to help.

My study leaders, for their guidance, patience and support.

By Alicia Beetge

Submitted in fulfilment of part of the requirements for the degree of Magister of Interior Architecture(Professional)

Department of Architecture

Faculty of Engineering, Built Environment and Information Technology.
University of Pretoria

Study Leaders

Catherine Karusseit, Prof. Barbara Jekot

Course Coordinators

Jacques Laubscher, Arthur Barker

Programme

Bus commuter waiting station

Site Description

Neglected former bus terminal building. Located behind the Bus Station at the Pretoria Station precinct.

Site Location

Pretoria Station, Bus Station. Scheiding Street Pretoria.

Design Premise

Adaptive Reuse

Design Approach

Interior Architecture as mediator between the user and his environment: creating a tranquil waiting place.

Research Field

Environmental Potential, Heritage and Cultural Landscapes

Pretoria
2013

e k s e r p

Hierdie verhandeling is gebaseer op die beginsel dat ontwerp, hoe kompleks ookal, spruit van iets so eenvoudig en basies as ‘n ‘behoefte’. Dit is ‘n proses van retrospeksie in hoe Interieur Ontwerp die behoeftes van mense in die omgewing voorsien. Dit is die doel van hierdie projek om die konneksie tussen die gebruiker en die ruim van die alledaagse, sowel as Interieur Ontwerp as ‘tussenganger’ tussen verbruiker, hul behoeftes en die omgewing, te herenig.

Die projek verlig die onderwerp van ‘gebruiker-gebaseerde’ ontwerp en die ‘alledaagse’ deur die aktiwiteite en interaksies van mense te ondersoek binne die konteks van ‘n publieke vervoer fasiliteit. Die ‘toestand’ van hierdie fasiliteite in Suid-Afrika word bevraagteken deur die mate waartoe Interieur Ontwerp as ‘tussenganger’ optree, te ondersoek. Die hoof aktiwiteite van ‘wag’ en ‘kos-verkope’ form die basis van die projek.

Die voorgestelde perseël (Spaza Shed) is geleë in Scheiding Straat aan die Noord-Westelike rand van die Pretoria Stasie perseel in die Sentrale Besigheids Distrik (SBD) van Pretoria. Dit was oorspronklik gebruik as ‘n kantoor gebou en het radikale verandering ondergaan toe dit omskep is in ‘n bus terminal deur Stauch en Vorstel Argitekte in 1993. Hierdie tipologiese verandering het die gebou geisoleer gelaat van die res van die perseël konteks. Na gelaat van die opgradering van wat vandag die huidige bus stasie is (suid van die gebou), was die Spaza Shed verlate gelaat en slegs vir stoor ruimte gebruik. Vandag word verskeie staal stalletjies deur die gebou gehuisves waarvan slegs ‘n paar gehuur word om traditionele maaltye te maak en te verkoop. ‘n Gebrek aan nodige fasiliteite veroorsaak dat die gebou ‘n gesondheids gevaar inhou vir personeel sowel as kliente. Die noordelike kant van die gebou bestaan uit n reeks klein winkeltjies en ongeskikte sitplekke waar bus gebruikers saamdrom om te wag.

Die posisie van die Spaza Shed relatief tot die bus stasie bied die potensiaal vir die Spaza Shed om te dien as ‘Wag Stasie’ vir bus gebruikers sowel as die voetgangers wat by die gebou verby begweeg. Die voorgestelde program berus op die beginsel van ‘mediasie’ en interkasie duer die Spaza Shed te herenig met die bus stasie sowel as die SBD. ‘n ‘Wag Stasie’ word voorgestel. Die ingryping beoog om ondermeer sitplek, kos stalletjies, toilet en stort geriewe, gratis internet (wifi) en interaktiewe inligting stasies te bied. Alhoewel die ontwerp ni daarop fokus nie, word ‘n voorstel gemaak vir ‘n dagsorg sentrum en ‘n speel area.

abstract

This dissertation is based on the premise that design, no matter how intricate or complex in nature, arises from something as basic and rudimentary as a 'need'. It is a process of retrospection into how interior design answers the needs of human beings in the environment. The aim of the project is celebrate the act of waiting and the experience of the 'every-day' world. Interior design is used to acts as 'mediator' between people, their needs and the environment.

The project sheds light on the 'every-day' life world by investigating the activities and interactions of people within the context of a public transport facility. The 'status-quo' of such facilities in South Africa is questioned by investigating the extent to which interior design acts as mediator to facilitate the user. The main activities of 'waiting' and 'food-vending' form the basis of the design project.

The proposed site (Spaza Shed) is located in Scheiding Street at the north-western edge of the Pretoria Station precinct in the central business district (CBD) of Pretoria. Originally used as an office building, it underwent radical alteration when it was converted into a bus terminal by Stauch and Vorster Architects in 1993. This typological change rendered the building isolated from the rest of the site context. In addition, following the upgrading of what is today the new bus station building (south of the building) the Spaza Shed was abandoned and used for storage. Today, the building houses several steel kiosks of which only a few are occupied by food-vendors who prepare and sell 'traditional' meals. Lack of facilities and systems mean that the building presents a health risk to both tenants and customers. The northern edge of the building consists of a series of small shops and inadequate benches where bus commuters clamour while waiting.

The proximity of the Spaza Shed relative to the bus station provides the potential for the Spaza Shed to serve as an active waiting station for bus commuters as well as pedestrians moving past the building. The proposed program rests on the basis of mediation and interaction by connecting the Spaza Shed building with the bus station as well as the CBD. An active waiting area is proposed which will house seating (based on ergonomic principles and postures), public restroomand shower facilities, food kiosks, interior green spaces, free wifi access and interactive information stations. A proposal is made for a a play area and a day care center.

Table Of Contents

Chapter 07 144

Chapter 08 168

List of Figures

Chapter 05 78

Chapter 06 106

Chapter 07 144

Chapter 08 168

This chapter serves as introduction to the research project undertaken. The background of the project is discussed and the problem statement is outlined. In order to evaluate the outcome of the project, the aims and objectives arising from the design problem are listed. The importance of the project and its relevance in terms of the discipline of Interior Design is emphasized by stating the contribution made. In addition, brief reference is made to the location and the client. The user profile is also discussed in order to shed light on who the building will ultimately serve.

chapter 01

introduction

1.1 Project outline

1.1.1 Introduction

Design is in its nature responsive to the needs of people. The most complex and intricate designs can result from something as simple and basic as a need. The responsibility of architecture and its concern for the creation of a human-friendly environment that responds to the basic needs of people is perhaps not more tangible and evident than in the realm of the everyday-life world. If, in fact architecture aims to create an environment that affects the experience of the user, then the act of waiting or lingering, is at the basis of this premise. When we have to pause, when we remove ourselves from our business and fast-paced lives and allow ourselves to be drawn into and engage with our surroundings. The aim should therefore be to emphasize the need to design for pause, lingering and the act of waiting.

It follows that waiting places are a vital part of the human [social] environment and take on many forms in the urban environment and its built fabric. A waiting place can be anything from the shade of a tree to a bus stop. Throughout this study the concept of waiting place, particularly within the context of a transport facility, will be investigated by analysing the two constituent concepts of waiting and place, respectively. Both the psychological and physical (architectural) meaning of these terms and their constituents will be investigated in order to state the relevance and applicability in terms of the design task.

Furthermore, the role of interior design as discipline of intervention and its ability to act as mediator within the built environment in order to create places that answer the needs of the city dwellers and commuters who have to wait, is addressed by working in an existing building which has become redundant and neglected due to social changes which have not been met architecturally.

For the purpose of the project, the former Scheiding Street Bus Station, now a semi-formal food and traders venue, is investigated as potential waiting place which will aim to serve the adjacent bus station towards the south. The two main typologies of bus station and semi-formal food market and the resultant needs of the participant users will be investigated. The architectural mediation, in order to create a responsive, inclusive and rewarding waiting place will be the focus of this study.

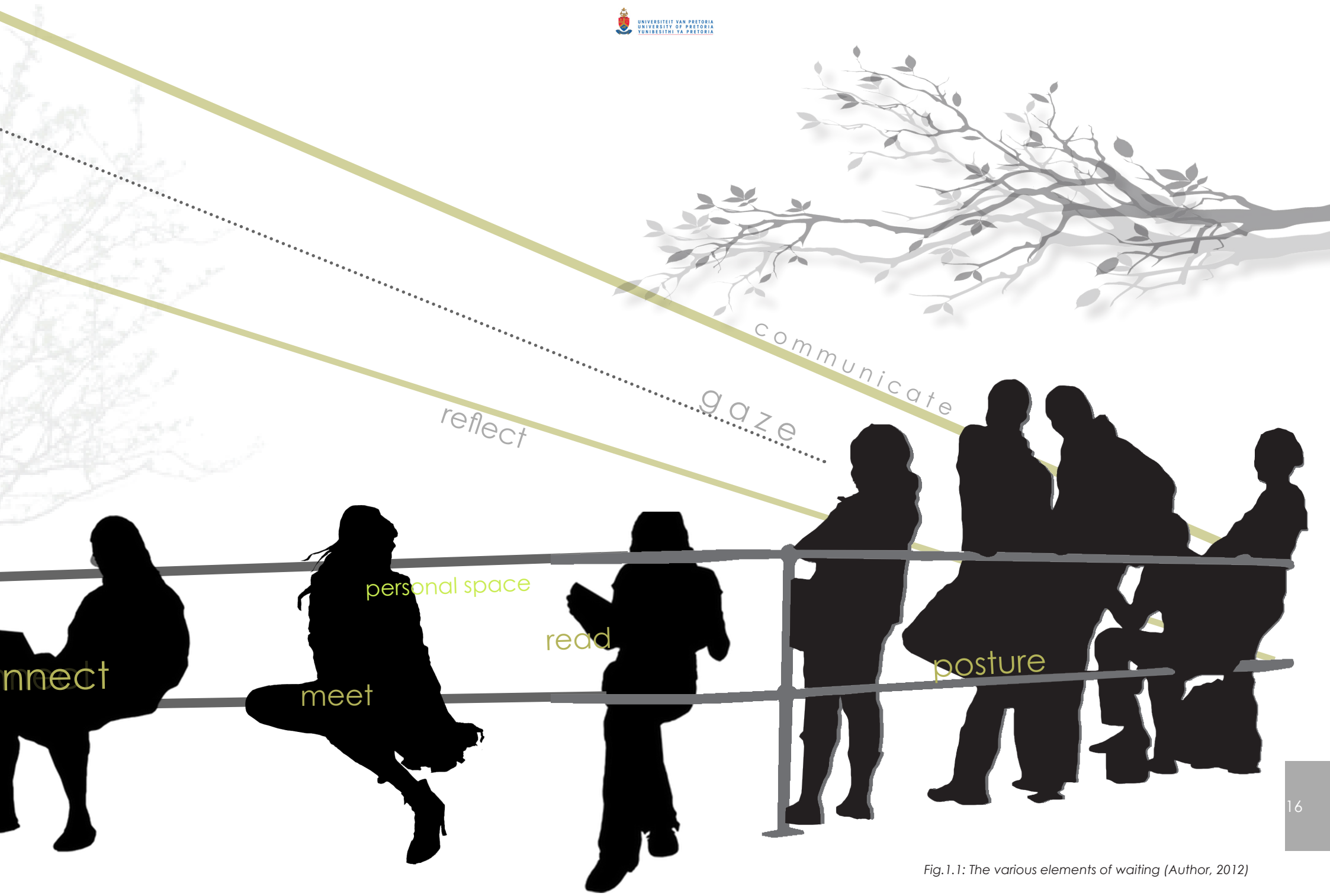


Fig.1.1: The various elements of waiting (Author, 2012)

1.1.2 Problem Statement

The central business district (CBD) of Pretoria offers very few adequate waiting places that respond to the needs of commuters and pedestrians. As a result, the city is perceived as a rushed, unfriendly entity devoid of humane elements in which one is nearly deprived of the need to pause or wait.

Cities develop and consequently so too does the use of buildings. This change can be the result of social or economic developments which can result in buildings being adapted to suit their new functions.
According to Fred Scott (2008:5), when the usages in buildings change, the result is often that buildings are considered to be insufficient.
This insufficiency results from the fact that the changes in use have not been addressed appropriately within an architectural context, either in terms of the building's interior or the site context.

This is evident in the case of the selected Spaza Shed building. It has a history of changing use with inadequate architectural response leading to a consequential state of neglect. Initially used as an office building, it was later converted into a bus terminal. This radical conversion required some extreme construction methods to be implemented and the new typology severed all connection between the interior of the building and the rest of its context. Today the building is completely closed off to vehicular access and houses steel kiosks from which food-vendors prepare and sell traditional food.
The isolation of the building from the rest of the site context has resulted in the interior being visually and spatially cut off from the street.

As a result, the bus station building suffers from overcrowded seats and spaces in which commuters have to clamber for a seat or use their luggage as seating. The proposal will aim to establish Spaza Shed as a serving-building to the bus station providing waiting space along the edge and facilities that will serve the commuters' needs.

The main objective of the project will therefore be to establish a connection between the Spaza Shed and the surrounding site context and to apply interior design as mediator in creating a 'waiting place' that will serve not only commuters, but traders and city dwellers as well.

Fig.1.2: Spatial experience of the building interior (Author, 2012)

1.1.3 Hypothesis

Interior Design, as discipline of intervention, with special focus on a public transport facility, can act as mediator in the built environment in order to create waiting places that answers to the needs of bus commuters and pedestrians in the 21st century.

1.1.4 Research questions

- How can Interior design, as discipline of intervention, address the needs of the 21st century commuter in order to create an adequate waiting place?

- How can architectural intervention accommodate changes in the built environment?

1.1.5 Methodology

_ Firstly, contextual analysis of the urban condition as well as of the site and building is done.

_ Secondly, literature review and theoretical investigation is done in order to form clarity with regard the theoretical approach.

_ Thirdly, qualitative research is undertaken in the form of observation in order to gain insight into the physical and psychological factors that impact users on site. Various site visits and participation in public transport is also undertaken as form of research.

1.1.6 Aims and objectives

_ Firstly, to investigate the role of the Interior Designer as mediator in creating a tranquil place that is sympathetic to people who have to wait.

_ Secondly, to engage in observation and interpretation in order to allow current site conditions and practices to reveal needs and limitations in order to formulate design generators.

_ Thirdly, to determine and react to the needs that arrise from a place where bus commuters and city dwellers interact.

_ Lastly, to investigate the design principles that can be generated from applying Interior Design methods to create a waiting place for bus commuters which will create a socially and physically inclusive waiting place.

1.1.7 Design problem

_ Firstly, the design task will aim to establish a dialogue between interior and exterior. The current use of the Spaza Shed as a bus station resulted in the deliberate separation of interior from exterior and there is no connection between the adjacent bus station building (which suffers from overcrowded commuters due to lack of waiting space) and the Spaza Shed. In its current use as platform for semi-formal food vendors, this spatial separation has negative impact on the tenants inside the building. Therefore the aim will be to create a thoroughfare and connection between the Spaza Building and the long distance bus station.
_ Secondly, the inadequate waiting space and seating for local bus commuters on the edge of Scheiding Street will be addressed and the lack of facilities for food-vendors will be investigated.
_ Thirdly, due to excavations done during the building's transformation from the office building into a bus terminal, there has been no consideration for universal access and disabled individuals as well as elderly people struggle to move around. In order to create a socially and physically inclusive waiting place that addresses the needs of all users, the issue of universal access will be addressed.

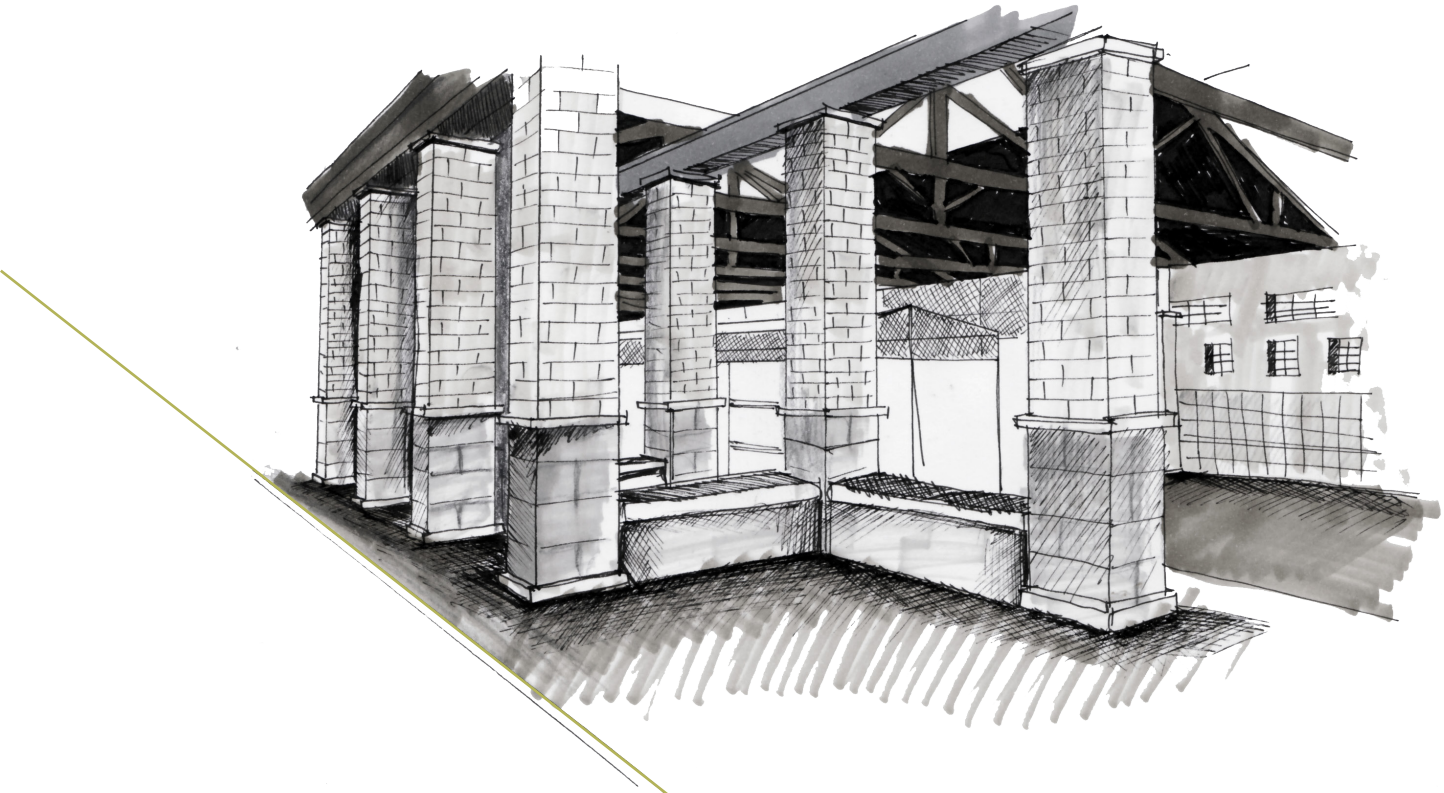


Fig.1.3: Sketch of existing seating along building edge (Author, 2012)

1.1.8 Relevance of the project

The project addresses the way in which designers can contribute to the act of waiting by designing places that facilitate the needs of people who have to wait. As the focus is directed to the physical and psychological factors involved in the act of waiting and its relation to the built environment, the scale of interior design and its focus on the experience of space as well as the user, is suited to address a design issue such as this.

Designers should be vigilant of the needs that arise from within our environment, as design can improve the daily life of the urban dweller. Interior design is, for the most part, actively involved with the formal retail industry, however, the urban realm and the needs of its role players is rarely addressed. Waiting and gathering places such as that of bus stations have the potential to become features in urban environments. The needs and requirements of the public transport commuter (the bus commuter in particular) have changed significantly and creates a new type of waiting place.

The selected building, both in its location and composition, has the potential to serve as a waiting place which will not only address the needs of commuters, but of city dwellers as well. The alterations and intervention that is proposed will aim to address the issue of change and adaptability. The discipline of interior design is temporal in nature and is primarily concerned with how one experiences space (Königk 2010:17). As a discipline, Interior Architecture is concerned with the usage of space and the way people interact with it. This results in a continuous dialogue and interaction with both space and user on an intimate scale (Königk 2010:12). In her article, 'Towards a Definition of Interiority', Christine McCarthy (2005:120) comments on the temporality of interiority as being:

"…temporal, because changes in its variables (boundaries, performance, intimacy, betweenness, enclosure) can cause the dissolution or the materialization of interiorities"

1.1.9 Contribution to interior Design

Interior design is a discipline of intervention and plays the role of 'mediator' in the built environment. This act of mediation is explored within this document. Mediation is not only manifested within the architectural intervention of an existing structure, but also as the manner in which design establishes dialogue between public and private, threshold and interior. Interior Design should aim to investigate the means to create waiting places that respond to the needs of those who have to wait.

Within this study, the focus is shifted from the city, on a macro scale, to the city on micro scale and how it is experienced by pedestrians and public transport commuters on an intimate level. The lack of tranquil and responsive waiting and pause places in the CBD of Pretoria reveals the need for a reinterpretation of what contribution interior design can bring in creating such adequate waiting places, and as result, contribute, little by little, to create cities that respond to the intimate scale of people and their physical and psychological needs.

In addition, the adaptability and user-friendly nature of the design requires a discipline such as interior design which is temporal in nature and focused on creating a user experience of space.

Fig.1.4. Needs and requirements of the person who waits

This brief chapter sets out the background and context of the dissertation. It reveals the argument underlying the theoretical premises which will follow in Chapter 3. The importance and role of the architect and interior designer to place human beings and their needs at the center of their endeavours is stated. The every-day life of people and their interaction with design (positive or negative) in the environment serves as testimony to our ability to create places in which people can interact and engage conveniently.

chapter 02

background +context

2.1 Background

2.1.1 Design and the everyday life World

"People should function the best because of their environment and not in spite of it."
(Deasy, 1985:11)

The phenomenology of place calls for a return to the everyday. Every activity requires a place to happen, hence the expression; to take place. The concept of place is as integral to our existence as our own skin. This cannot be more evident than in our everyday existence and rituals. The creation of places for the everyday life and the role of the designer is emphasized. This is done by considering the current social and architectural climate in which the ordinary and the everyday is considered trivial and insignificant. According to Deborah Berke (1997:222), we live in a culture in which celebrities are revered above heroes, and in which a lifetime of patient work is discarded for 15 minutes of fame. It is within this same climate that architects and designers have to become celebrities. This results in the attention of the media being sought after in the form of signature buildings. Architects and designers should rather aim to; address the needs of the many rather than the few; design with concern for program.

2.1.2 Real world problem

In most urban environments they are the heartbeat around which the city operates, and function as beacons of urbanity. In the contemporary South African context however, this is not yet entirely the case. A few emerging examples serve as indication of the gradual change within the context of creating places for waiting in a public transportation context.

The 21st century's public transport commuter requires a waiting place that is more than a mere sheltered structure. A contemporary waiting place has the potential to be an urban activity node, a platform to connect and gain information.

Fig.2.1: Bus commuters crowd at Pretoria Bus Station (Author, 2012)

2.1.3 The Site

It was concluded that the Pretoria Station Precinct at the southern edge of the Pretoria Central Business District (CBD) would serve as ideal site for the project to be undertaken. The precinct bares great historical significance and various buildings thereon have recently undergone upgrading. The introduction of the Gautrain Station emphasizes the nature of the precinct as gateway into the CBD. It is a node of public transportation, commuters (bus, train and taxi), pedestrians and retail activities.
The framework that will be used is that which Andrea Seabrook titled; I:HUB (2009). Within the context of this framework, Scheiding Street will be established as pedestrian friendly activity spine that will connect the station precinct and the western CBD area, the east and Nelson Mandela drive towards Sunnyside (see Chapter 4).
The selected building (Spaza Shed) proposed for the investigation is located in Scheiding Street and is directly north of the current bus Station building. Its proximity to the bus station building as well as its former conversions sets the base for the potential of serving as waiting station to the bus station building. Currently there exists no dialogue between the two buildings and this has resulted in the Spaza Shed building being completely cut-off and removed from the larger site context. The aim will furthermore be to establish the Spaza Shed building as a mediaton between the bus station building and Scheiding Street (towards the greater CBD context).

The neglect of the selected building indicates the poor architectural response to changes that have left the building inadequate to facilitate the current needs and use. Building on the theoretical premise of designing for the user and his needs within the context of waiting as fundamental action, the Spaza Shed will serve as platform to invetigate the mediation that can exist between design, user and building (architecture).

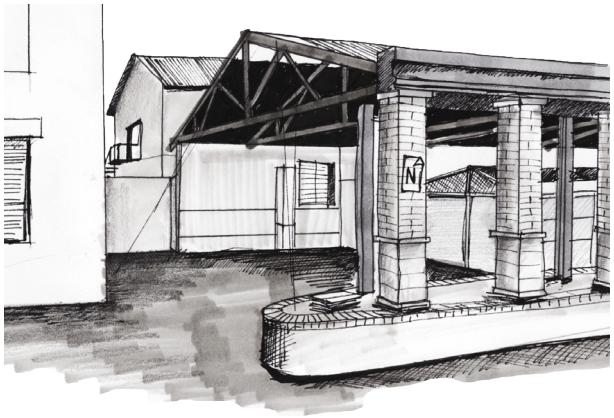


Fig.2.2: Hand drawing of building entrance (Author, 2012)

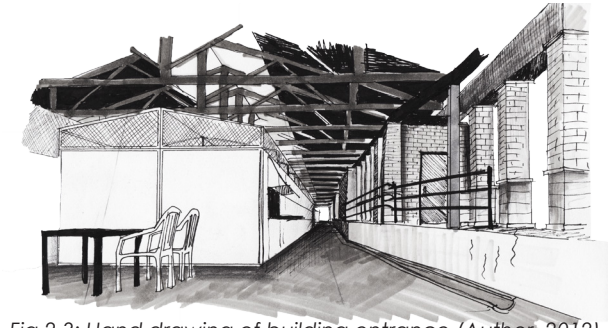


Fig.2.3: Hand drawing of building entrance (Author, 2012)

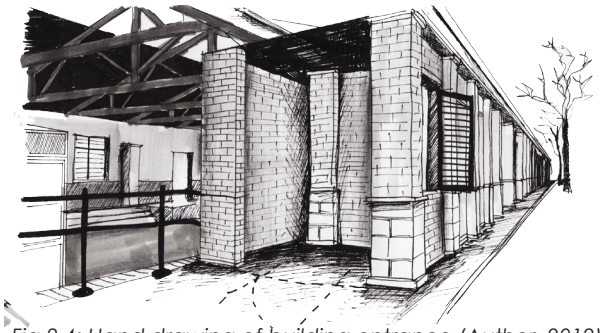


Fig.2.4: Hand drawing of building entrance (Author, 2012)

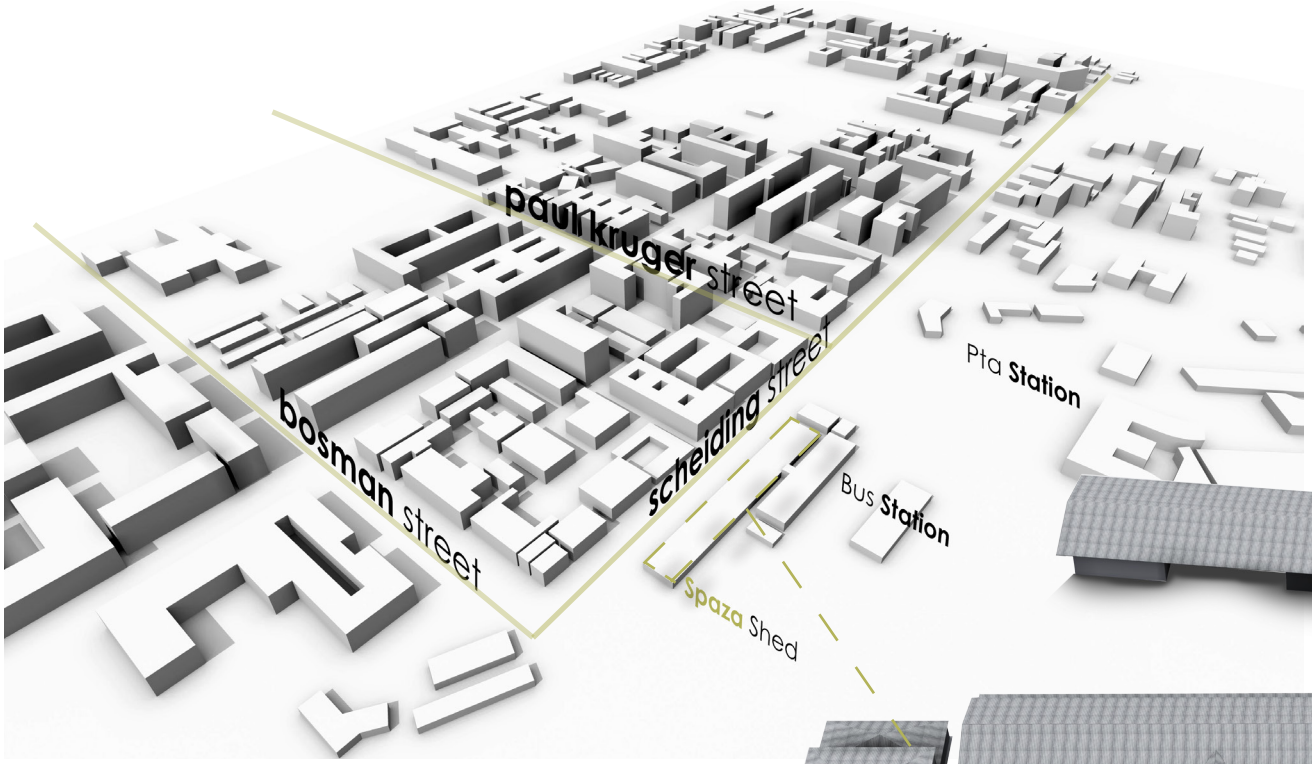


Fig.2.5: Urban context with site location (Author, 2012)

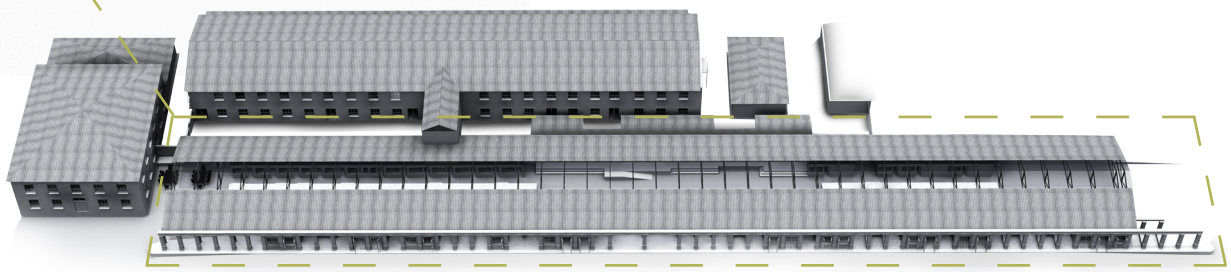


Fig.2.6: Existing relationship between buildings (Author, 2012)

2.2 Possible client

Clients are the partners or participants who can provide funding and protection in terms of the proposed project. The selected building is currently owned by Intersite Property Management (subsidiary of Prasa) to whom current tenants pay monthly fees. In accordance with their company value profile of innovative thinking and focus on creating and adding value, possible investment can stem from their involvement (WIEGO, 2012). Other possible clients include companies such as Innovative Franchise Concepts (IFC) that focus on the empowerment of informal food vendors and their legitimization (WIEGO, 2012).

Fig.2.7: Current user profile (Author, 2012)

2.3 Current user profile

Given the typology of the building (waiting station for a bus station), the main user will be the bus commuter using either long-distance busses departing from the bus station building (to the south of the Spaza Shed) or city busses that stop in Scheiding Street along the northern edge of the Spaza Shed.

2.2.3 Bus Commuters

The new bus station behind the selected building in Scheiding Street does not offer adequate waiting space or any commercial amenities. Restrooms are provided, yet they are not fully inclusive. In providing access from the bus ticket office building to the Spaza Shed, more waiting space can be created and the commercial activity, as result, will be stimulated by making the vendors inside the Spaza Shed more visible (See Chapter 4).

2.3.3 City Dwellers + Pedestrians

City dwellers and pedestrians include people walking to and from Bosman station, the CBD area, Nelson Mandela drive as well as from the Pretoria Station, respectively. Some of these pedestrians may be well-acquainted with the building and have regular interaction whereas others may be first-time visitors who will require navigation and introduction to what is offered.

2.3.3 Food Vendors + Traders

Current use of the Spaza Building as a hub of traditional food creates a unique atmosphere. City dwellers in the CBD prefer to eat the traditional meals prepared here. The lack of facilities diminish the vibrancy and potential that is latent within these activities. Therefore, the inclusion and provision of a food court that will address the needs of food vendors and hungry city dwellers will be developed.

2.3.3 Children

An aspect that is often overlooked in the context of buildings that serve transport facilities is that of children. This refers not only to the children of bus commuters but also to the children of food vendors and metro rail and bus office staff. A proposal will be made with regards the allocation of the future crèche and play space. This will provide a safe place for parents to allow their children to play and possible, be educated.

chapter 03

theoretical discourse

The following chapter constitutes the theoretical framework which informed the design project. At the heart of the theoretical discussion lies the concept of the waiting. In order to reveal the meaning and depth of this concept, the two constructive terms of waiting and place are investigated, respectively. The theoretical components are composed of two parts: **Part A** discusses the psychological aspects of waiting. **Part B** reveals the physical aspects and needs that arise from waiting.

3.1 Part A: Psychological aspects of waiting

3.1.1 Waiting in a modern world

In our contemporary culture of productivity, speed and industry, where every technological advancement is set on saving you the hassle of waiting, the very concept of waiting seems to stand at odds with our daily lives. The well-known economic mantra: "time is money" points to the fact that in our daily-life, there is no time to waste on waiting. According to Schweizer (2008:126), it is this paradigm, or 'spirit' of our time which has resulted in the very experiences that require of us to wait and linger, becoming insignificant and denigrated. He argues that waiting can be a pleasant experience that places us in a heightened state of awareness which allows us to be drawn into our environment.

3.1.2 Waiting for a state of attunement

The experience of waiting is temporal and relative to the condition and state of mind of the person who waits. In this state of pause one is removed from an active state and placed in a heightened state of awareness and harmony with the environment. The 'revealing' and 'uncovering' of truth that results from this temporal experience is explained by German philosopher Hans-Georg Gadamer (Schweizer, 2008: X)in terms of how art should be viewed:

"When we dwell upon the work, there is no tedium involved, for the longer we allow ourselves, the more it displays its manifold riches to us."

Therefore, it can be argued that, just as an artwork reveals certain truths and detail the longer one dwells upon it, just so the built environment (a building or an interior space) can gradually reveal itself if lingered over. The manner in which these truths are revealed will have an impact on the experience of the person who waits.

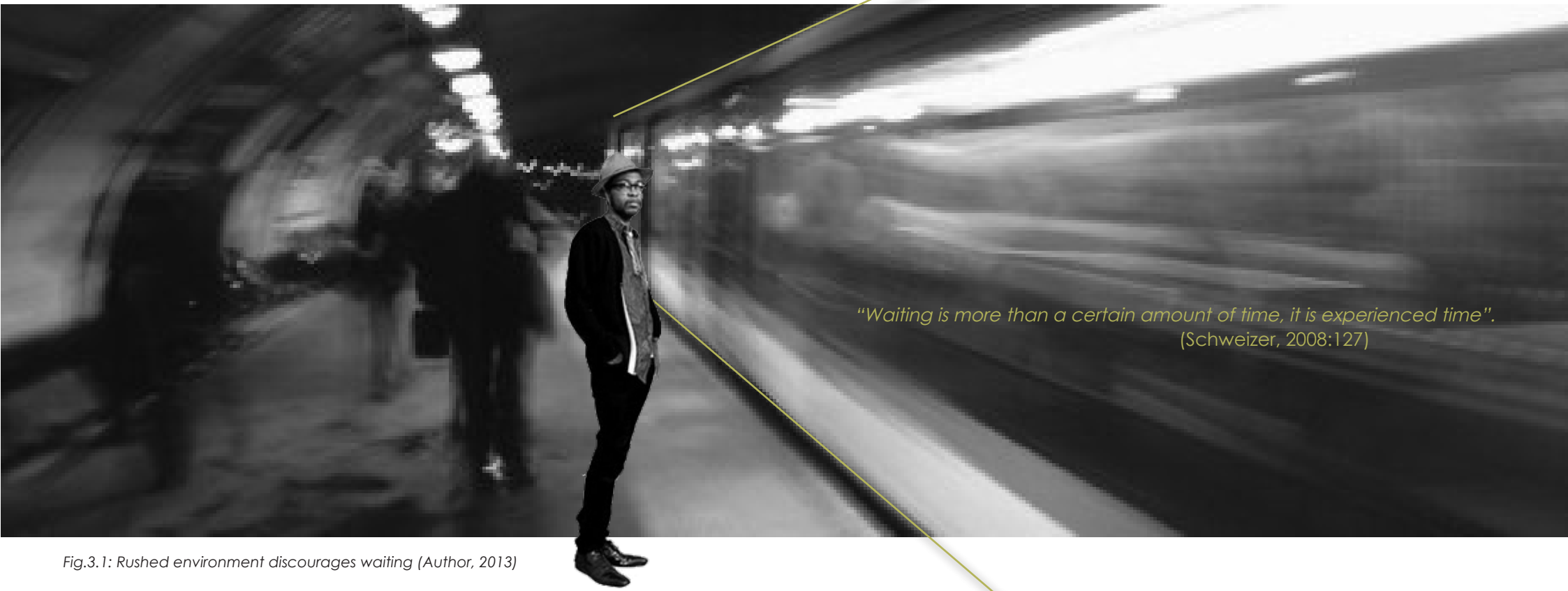


Fig.3.1: Rushed environment discourages waiting (Author, 2013)

3.1.1 The relativity of time and duration

The starting point towards the understanding of time and duration lies with the philosophy of Henri Bergson (1859 – 1941), who raises, and answers two pertinent questions:
Firstly; in what time does one find one self once the clock is stopped, and what constitutes this time?
Secondly; How does one know time, if you do not measure it? The answer to both questions, respectively, is based on his proposal of the two main temporalities: time, which is thought and duration, which is lived (Schweizer 2008:14).
The clock, according to Bergson (2008 : 15), does not merely give us a sense of time, but a sense of spatial abstractions.

"To know what duration is requires deeper knowledge and experience rather than spatial measurements".

Bergson in Schweizer (2008:15)

Bergson uses the following words to describe the difference between time and duration:

'Time' (thought) is transparent and inconspicuous
'Duration' (experience) is slow, opgue and unconsciously endured.

He also makes use of the following experiment to reveal the existence of a time which is not that of mathematical time:

"If I want to mix a glass of sugar and water, I must, willy-nilly, wait until the sugar melts. This little fact is big with meaning. For here the time I have to wait is not that mathematical time […]. It coincides with my impatience, that is to say, with a certain portion of my own duration, which I cannot protract or contract as I like. It is no longer something thought, it is something lived. It is no longer a relation, it is an absolute."

Bergson

in Schweizer (2008 : 15)

Through this experiment, he states that when we wait, we experience time. This time of waiting is encountered with resistance as is reflected in the phrase "… I must, willy-nilly, wait…", which can otherwise be translated as "I can't help it, I must wait". Therefore, once time is in conflict with our will and perception of how it should run, it is experienced, and therefore it becomes duration. As stated, duration is a temporal concept which is not thought, but experienced.

"As I waited I heard a multitude of small sounds, and knew simultaneously that I had been hearing them all along…

Elizabeth Bishop, Time's Andromeda's.

Fig.3.2: Time is a relative factor when waiting (Author, 2013)

3.2 Part B: Physical aspects and needs arising from waiting

3.2.1 Waiting in space

If the act of waiting allows us to be in a heightened state of awareness of the environment and the things around us, then it also holds great implications with regards to our experience of that fundamental basis of architecture, space. The author attempts to shed light on the intimate relationship that can exist between the act of waiting and architectural space as well as the implication on designing spaces in which people have to wait. A comparison between space and waiting is drawn by investigating what constitutes space.

Schweizer (2008 : 30 - 31) compares the gaze of the one who waits to the movements of a movie camera. The camera has slow-motion and close-up functions that alternate between suppression and perception, focus and indifference and the interplay between the static condition and motion. Just as an unconscious space is revealed to the viewer by the camera, so too the environment is revealed to the eyes and perception of the one who waits. And just as the camera changes in angle and depth, so too does do the eyes of the waiter.

Greek philosopher Plato, conceived of space to be: "…a nothingness existing as an entity in the outer world, like the objects it could hold" (Arnheim 1977:9). He also argues that even if space is not filled by things, (therefore in the absence of objects), it would still exist as an infinite, boundless container.

Arnheim (1977 : 17) on the other hand states that there exist two main conceptions of space: The first is that of spontaneous perception. This presents space as being a container that exists independently of, and prior to, the physical objects or entities within it. This perception maintains that the space between things is void and empty.
In contrast, the second perception argues that space is, in fact, created. It holds that space is the product of the relation between objects, a specific configuration of man-made or natural objects (Arnheim 1977 : 13). This is the perception with which the designer should be concerned, that there is a visual relation between objects and that, in fact, the space in between objects is not simply voids of nothingness.

Following the argument stated above, the relation between the phenomenon of space and the phenomenon of waiting is as such: Space and waiting both consist of the finite and the infinite.

With regards to space, the finite refers to the idea of physical space. It is the relation between the physical objects. This kind of space can only be experienced in the presence of perceivable things. The infinite on the other hand, refers to the infinite container that is yet to be filled. It cannot be measured in extent of space or duration of time.With regards to waiting, the finite refers to the time that can be measured, thought and calculated (3.1.3) and the infinite refers to duration, which is not thought, but felt and experienced.

It can therefore be concluded that space, though not tangible and in some ways infinite, can be defined. This definition results from the physical entities or objects created by the designer. These objects become focus points for the person who waits. Arnheim (2008 : 39) states that objects become dragged out of their invisibility and their uniqueness and particularity becomes exposed to the gaze of the person who waits. It is ultimately the space in which the waiter will find himself which will determine the experience of waiting, whether it is pleasant or not, whether he is frustrated or relaxed.

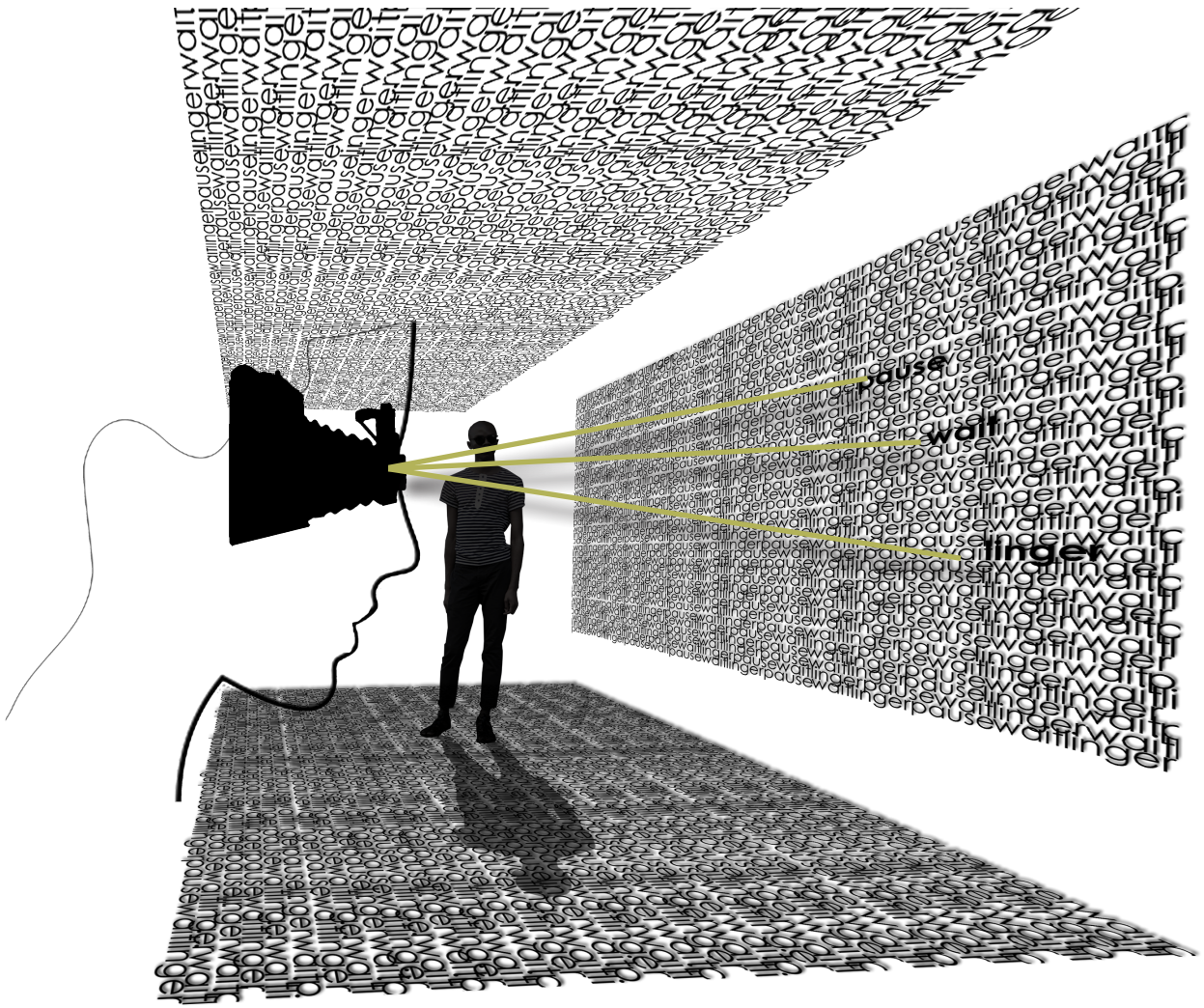


Fig.3.3: Attunement to our environment (Author, 2012)

3.2.2 Waiting [in] place

It is important, in relation to the theoretical study undertaken, that the impact of place on our daily lives is discussed. As stated in Chapter 2 (2.1), the phenomenon of place calls for a return to the everyday, to create every-day-life places. If waiting is a fundamental part of our daily life, then one should consider the 'places' that are created to suit this need. What constitutes a pleasent and comfortable waiting place?

The different components that make up the environmental character of place can consists of tangible elements such as; texture, colour, shape and material. But, can also consist of intangible elements such as climate, emotional elements such as neglect, holiness, and isolation. These make up the essence of place. It can therefore be stated that place is a total qualitative phenomenon that cannot be reduced to any of its constituent properties. Place therefore refers to much more than merely the location. Every place has a unique and definite character. The phenomena of our daily lives can help is grasping the spirit or "genius loci" of a particular place (Norberg-Schulz in Nesbitt, 1996:xx).

The concept of time and its relation to place is an important factor and the connection between time and character should also be emphasized. As character can be understood to be a function of time, this means that the character of a place may come to change over time. However, even though places change, the genius loci of a place will not necessarily change. In terms of creating a place fit for waiting, one should consider the physical and psycological needs that arise from the act of waiting.

3.2.3 Creating a tranquil waiting place

In terms of creating a place of quality fit for waiting, pausing or lingering, one should consider not only the physical aspects and requirements such as seating, shading and textures, to name a few, but also the psychological aspects such as openness, peacufulness, tranquility, and so forth, that will collectively determine whether ot not a person will experience the place as pleasent to pause or linger in or not.

In preparation for the site and contextual analysis (Chapter 4), the author not only made several visits to the area by means of public transport, but also engaged with the city as pedestrian, walking several kilometers and forcing herself to experience the constraints (as well as frustrations) of having to wait, linger or pause in the city.

It can be stated that the central business district (area around the selected site) offers very little to pedestrians or public transport commuters in terms of shading, shelter or seating. As a result, the individual finds himself in a place that causes stress and an uncomfortable experience that makes every second rushed. This becomes an even more troublesome notion when considering the elderly or disabled individuals who are, by physical constraints, forced to stop at intervals along their journey and wait.

It will be the aim of this project to create a waiting place of tranquillity in a city context which will address the needs of the waiter and allow him or her to have a pleasant and stress-free waiting experience.

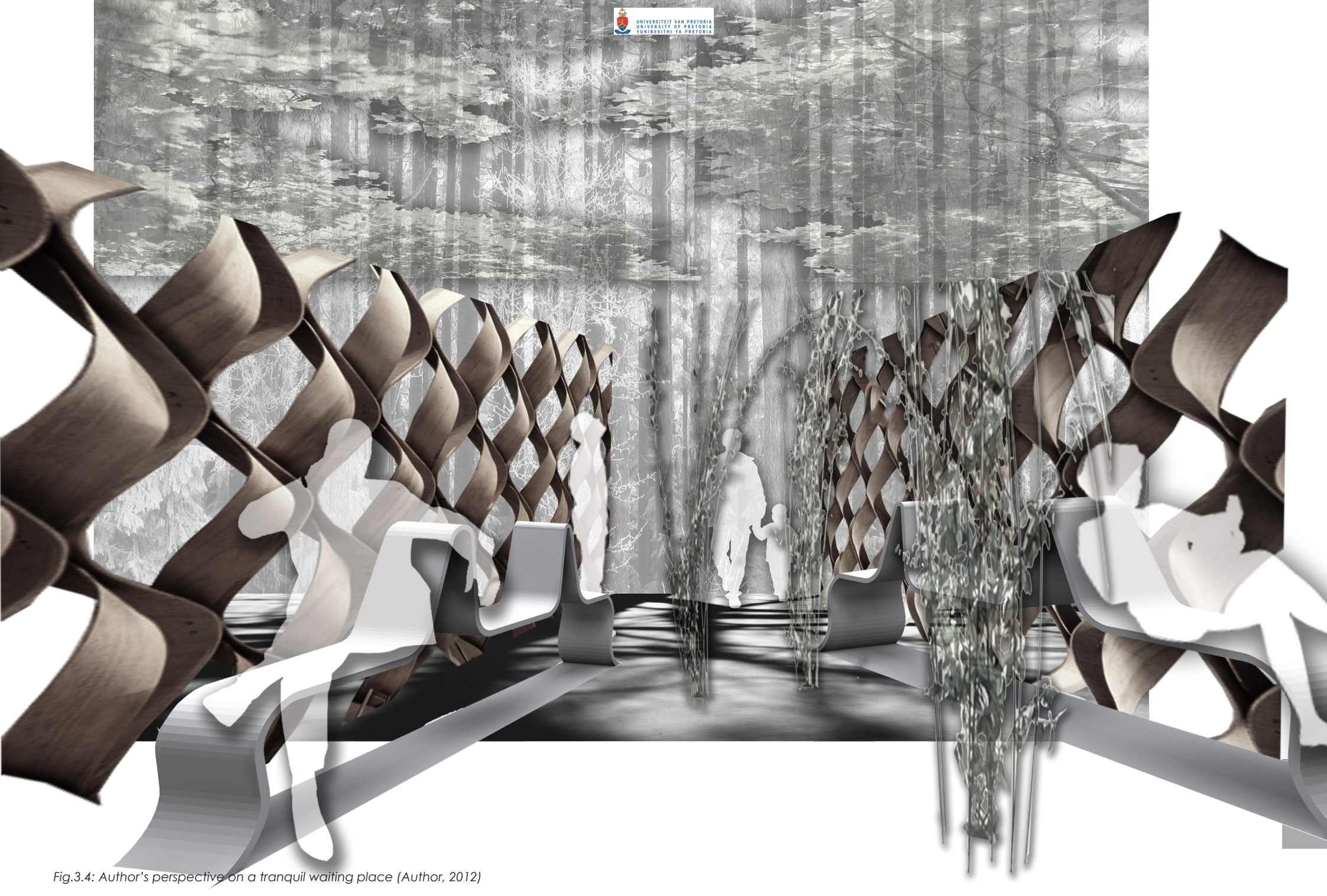


Fig.3.4: Author's perspective on a tranquil waiting place (Author, 2012)

3.2.4 The body in waiting

The importance of this study, within the parameters of Interior Design, is to investigate how to design places that people can interact with in a positive way while waiting. Therefore it is important to understand the physical embodiment of waiting:

- The postures that people adopt while waiting: whether they prefer sitting up straight, leaning back, or standing against something.
- What people engage with when they wait: this can include reading, eating or commnicating.
- The personal space required when people have to wait in the proximity of others.

All these factors will aim to be answered through considering two main components: Firstly; ergonomics, which will address the physical requirements of people who have to wait, and secondly; the theory of personal space, which will look into the psychological requirements and social space that is required by the individual, as well as the group.

Francis Ching (1996:310) defines Anthropometry as being the measurement of the size and proportions of the human body. Anthropometric proportioning methods are founded on the theory that spaces and forms in architecture function either as containers for, or extentions of the human body. It therefore follows that they should be determined by the dimensions of the human body. Human dimensions not only determine the furnishings we use, but also the proportions of things we handle and the distancing of things (Ching 1996 : 310-311).

Ergonomics can be understood as a special field that has developed from a concern with human factors. It can be described as that science which is concerned with the measurement of humankind and is of crucial importance to designers as it forms the ultimate basis of the design of buildings (interiors) (Adler 1999 : 2-1). Although anthropometric dimensioning is mostly given in averages, one must consider not only those dimensions given for able bodied individuals, but also consider those of the disabled and the elderly as well.

Sitting upright

This is the most common sitting posture and is adopted by a person who wants to wait for a short period of time.

Sitting upright with armrest

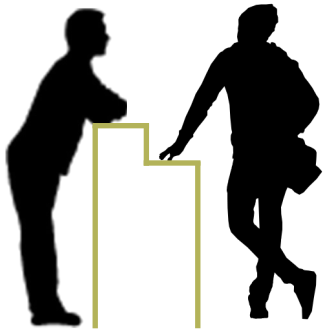
The longer the duration of waiting, the more a person's posture will start changing and the more he or she will require elements to improve their comfort. Adding an armrest will allow a person to relax their arms.

Sitting backwards

A prolonged period of waiting can result in a person becoming fatigued by sitting upright and requiring a seating position which will allow them to sit backwards.
This posture also results in a heightened state of awareness of surroundings and details.

STANDING lean-to

The standing (leaning) posture is adopted for a short period of time. A person might require a surface of such height for writing on or leaning against.



Disabled and elderly persons

It is important to create a waiting area that also takes the needs of disabled and elderly persons into account. This requires insuring that tables are accessible, floor surfaces do not obstruct movement and that seating is comfortable.

Children

The project proposes a day-care centre to be constructed adjacent the selected building. This day-care centre will provide a safe place for children of vendors and Metro employees to play and interact. The design proposal takes into account parents waiting with their children.

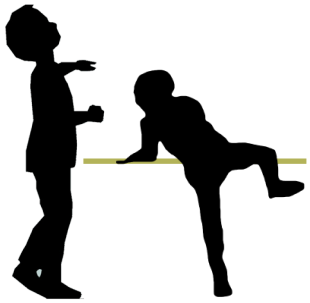


Fig.3.5: Different postures that infuence the design (Author, 2013)

3.2.5 Personal Space

The dimensioning of the human body also effects the volume of space that we require for pause, activity and movement. Ching (1996:312) refers to three kinds of 'fits' in relation to the form and dimensions of a space and our human dimensions:

- Static fit: the space in which we pause, sit in a chair, nestle in an alcove or lean against a railing.
- Dynamic fit: the space through which we move.
- Third type of 'fit': the manner in which a space facilitates our need to have control over our personal space and to maintain appropriate social distances.

The concept of personal space as a communal or shared phenomenon differs from culture to culture. It can also be considered as a result of the nature of the built environment. However, personal space also differs from individual to individual. There exist, within personal space, four different distances that should be taken cognisance of if a responsive waiting place is to be created (Deasy, 1985:18):

- Intimate distance: varies from actual contact to a distance of about 500mm and is mostly reserved for close friends, family, lovers and children.
- Personal distance: represents the most commonly known aspect of personal space and constitutes a radius of about 3 meters that surrounds most individuals and holds people at an arm's length.
- Social distance: ranges from 1 meter to 2 meters and is the personal space at which most interactions occur and should be of most interest to designers. Speech and communication is clear and unobtrusive at this distance.
- Public distances: this ranges from 2 meters to 8 meters and constitutes the range where non-involvement commences.

The design implication that this has on seating and layout is important. This is evident in the current condition of linear seating which is not effective and does not address the issue of personal space. It will be the aim of the project to investigate seating compositions and configurations that will address this issue and which will create more seating options to the person who has to wait.

Fig.3.6: Personal space bubble (Author, 2012).

Fig.3.7: Ordinary bench provides no personal space (Author, 2012).

Fig.3.8: Seating design that can create personal space (Author, 2012).

Fig.3.9: Seating concept allows for privacy (Author, 2012).

3.2.6 Theoretical Design Guidelines

The following theoretical guidelines constitute the basis of the design approach and serve as guidelines for the design development in this dissertation (discussed in detail in Chapter 7).

In order to create a waiting station that will respond to both physical and psychological needs of commuters, the following two categories have been compiled. The first is a list of keywords that summarize the different requirements that a commuter might have when waiting. The second is a list of design guidelines that respond to the factors listed in the first group.

The following characters have been created and each have a different narration and reason as to why they are at the Spaza Sation building

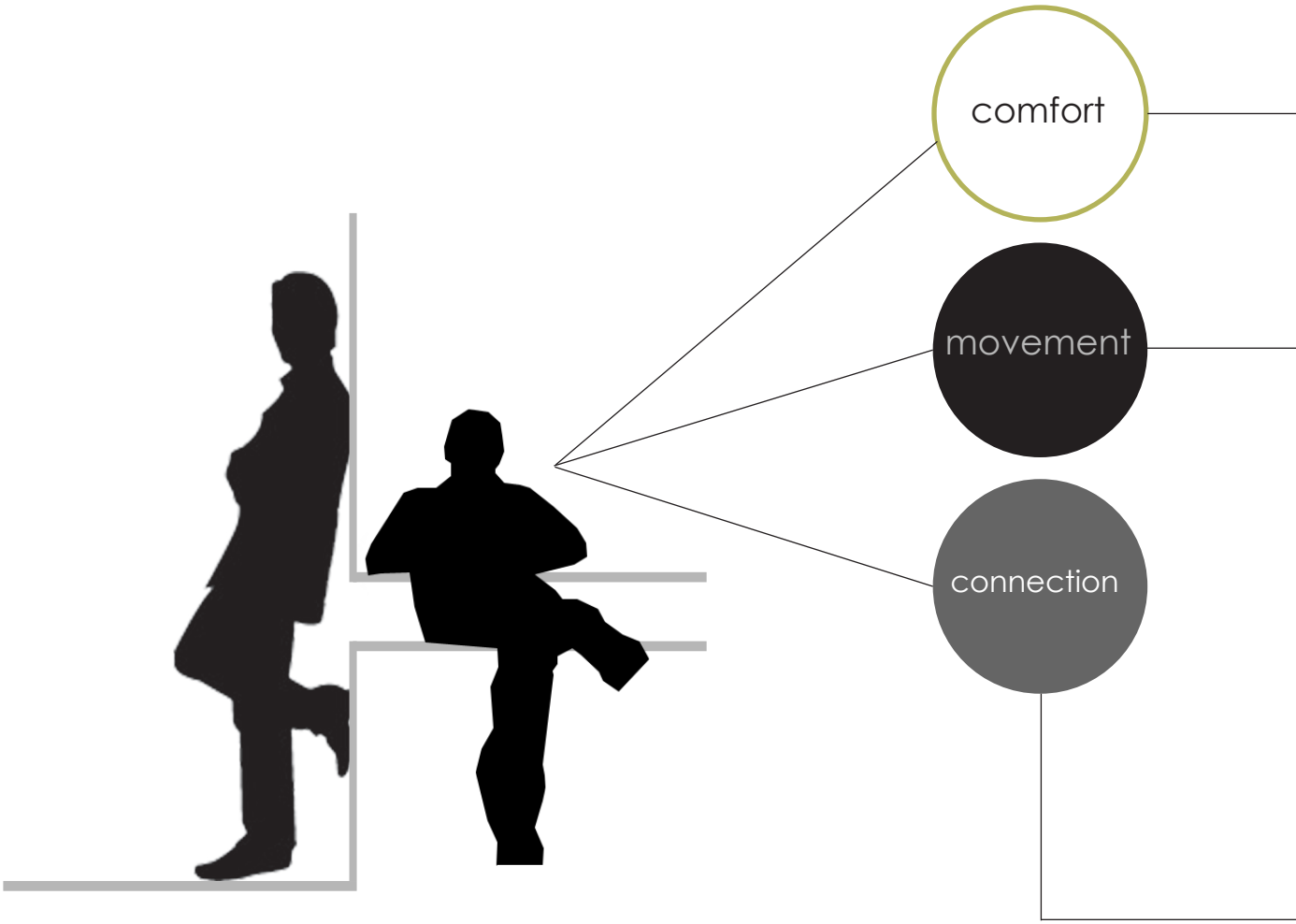
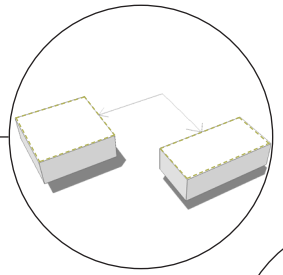


Fig.3.10: Theoretical design guidelines (Author, 2013)

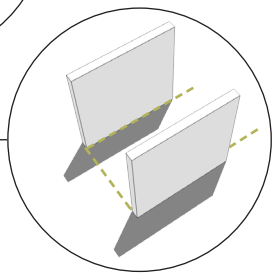
ZONES

Create different areas appropriately positioned and organized for different tyes of interactions and amenities such as food kiosks, seating areas ent



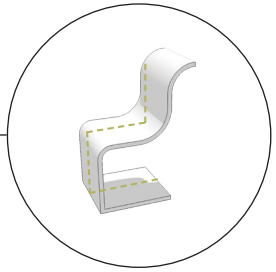
NICHES

Design niches and spaces that allow for privacy by using screens as zoning elements as well as seating configuration



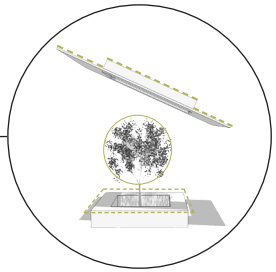
SEATING

Design seating that responds to the physical and ergonomic requirements of people who have to wait.



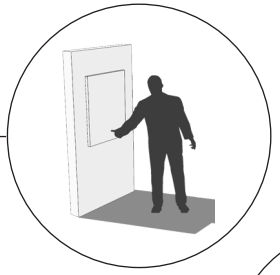
GREEN SPACE + SKYLIGHTS

Introduce foliage such as planters and trees to the interior in order to soften the interior. These spaces should also employ natural lighting elements.



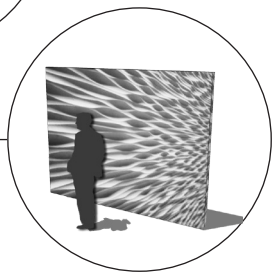
SIGNAGE + DIGITAL INFORMATION

Design signage and information boards that are simple and easy to understand and that aids the commuter in finding in way. Make use of information technology such as touch screens that display maps and information



VIEWS + TEXTURE

Employ visually inticing elements such as surface textures and views to screens and skylights which will guide the gaze of the person who waits and create a visually stimulating environment



3.2.7 Conclusion

The intimate relationship between architecture and the everyday-life world should be emphasized. If we consider the influence and necessity of the act of waiting in our daily lives, perhaps we as designers and shapers of the environment should be more cautious of designing for and facilitating that most fundamental need of having to wait. The designer is repeatedly reminded of the fact that architectural space has an impact on the experience of the user. However, this experience is not limited to actions such as moving through a space. If one in fact aims to design for, or have an influence on the experience of the user, then one should aim to design for that state in which the user is at his most heightened state of awareness of his surroundings when lingering and waiting. The current paradigm of time is money and the obsession with speed and production, has denigrated the concept of waiting. Therefore, it is argued that if one aims to fully engage the user's experience of a space, one should also be aware of designing for waiting. The designer should not simply rely on the adaptibility of people, but in fact, the design should facilitate the ease and comfort of the user.

This chapter consists of three parts. Part A: constitutes the urban analysis, macro and micro scale conducted so as to understand the context. Furthermore, conclusions are drawn regarding the experience of the pedestrian when moving in the city. The pause and waiting spaces that are provided, or rather, the lack thereof is addressed and proposals are made. Part B comprises of the site analysis which investigates the current limitations and possibilities regarding the immediate context of the building. It includes a site description, current site conditions and historical development of the building in order to understand its adaptation and ability, or lack of ability to change and adapt. Part B: the building assessment, considers on a micro scale, the composition of the host building, its character and materials. Lastly, a proposal is made at the end of the chapter in a response to the analysis conducted above.

This chapter constitutes the urban analysis so as to understand the context. Conclusions are drawn regarding the experience of the pedestrian when moving in the city. and the pause and waiting spaces that are provided, or rather, the lack thereof is addressed and proposals are made. A site analysis is also carried out which investigates the current limitations and possibilities regarding the immediate context of the building.

It includes a site description, current site conditions and historical development of the building in order to understand its adaptation and ability, or lack of ability to change and adapt.

chapter 04

framework + contextual analysis

4.1 Part A: Frameworks

4.1.1 Context + Precinct Analysis

The project is situated in the Central Business District (CBD) of Pretoria. The area consists of many buildings that are of cultural and historical significance and it is the strengthening of the connection between the selected site and these structures which will also be considered on a larger urban scale. The Pretoria Station Precicnt, where the selected building located lies at the most southern end of the CBD and forms the gateway and connection between Salvokop (to the south) and the CBD (to the north).

Fig.4.1: Greater Central Business District (CBD) (Author, 2012).

4.1.2 Existing Urban Fabric

The following analysis of the urban fabric surrounding the Pretoria Station is based on the findings and research conducted in the Urban Framework proposal by Andrea Seabrook and Lourette van der Westhuizen.

4.1.3 Context Conditions

The Pretoria Station Precinct acts as gateway into the Central Business District (CBD) of Pretoria. Scheiding Street forms the most southern boundary of the CBD and is the east-west connection between the CBD and Sunnyside, towards the east of Nelson Mandela Drive. Paul Kruger Street forms the north-south axis that connects (visually and spatially) the precinct with the inner city. The main condition of the precinct is that it is poorly integrated into the city fabric and that it is cut-off frm Salvokop to the south, via the railway, and to the east via Nelson Mandela drive.

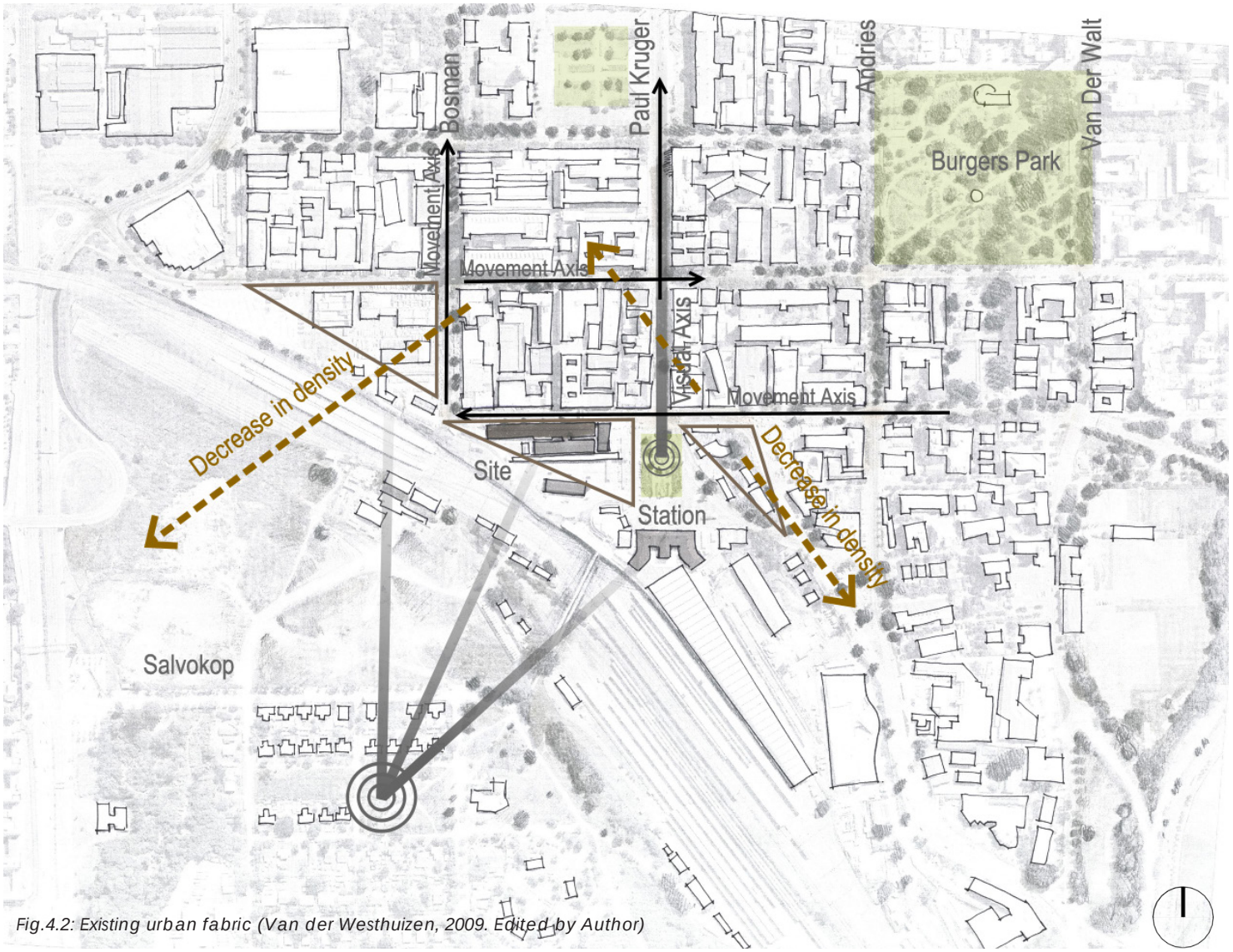


Fig.4.2: Existing urban fabric (Van der Westhuizen, 2009. Edited by Author)

4.1.4 Existing Surrounds

Some of the major problems and concidera-tions in the area that have been identified is the lack of ordering, legibility and orientation. The condition of public spaces is that they either do not exist, or that they are completely removed from the surrounding context.

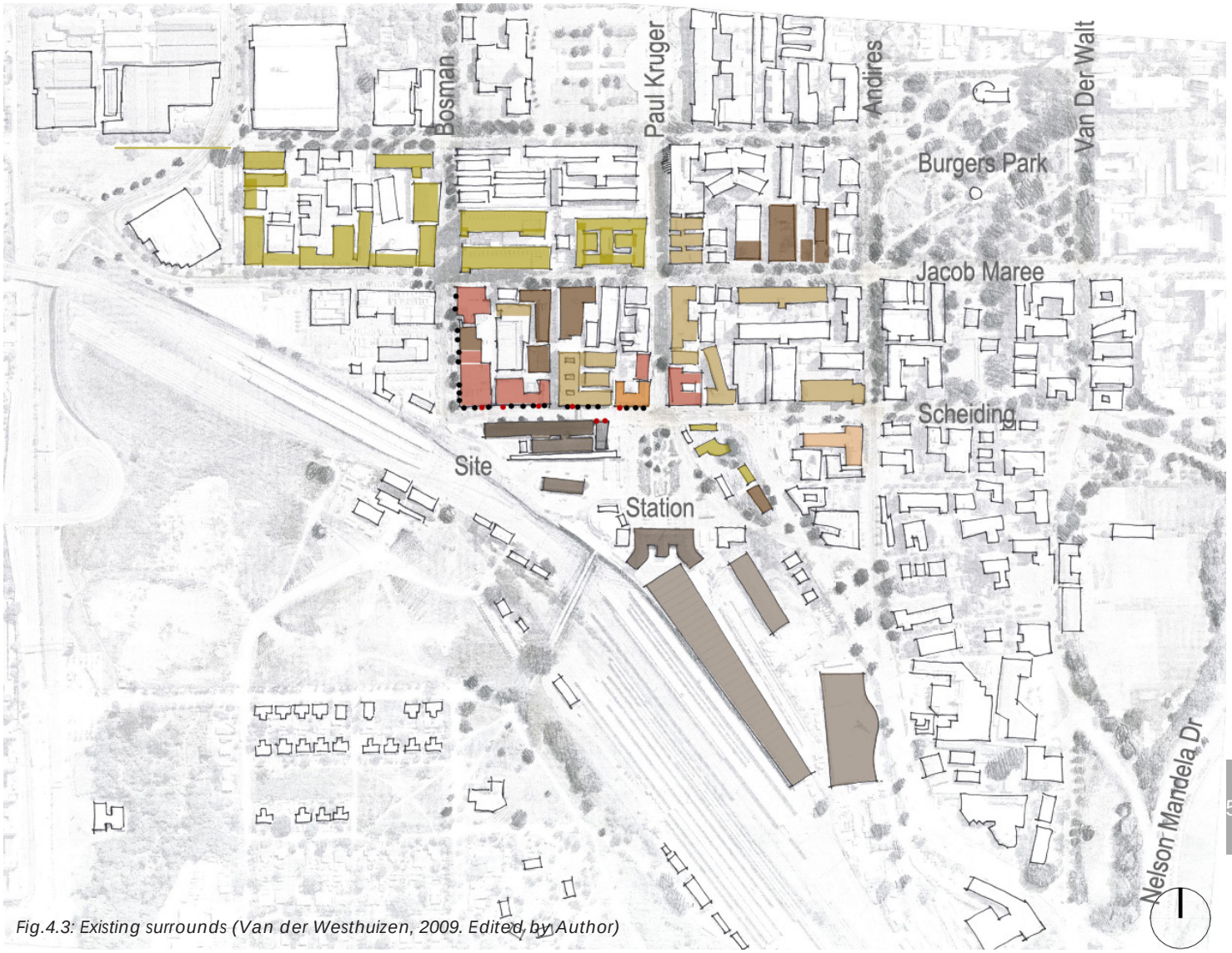


Fig.4.3: Existing surrounds (Van der Westhuizen, 2009. Edited by Author)

4.1.5 Waiting In The City

When walking through the city, one is struck by how unfriendly the environment is to the everyday pedestrian or city dweller. Very few places are such that it can provide one with a comfortable pause or lingering experience. Buildings are built right on to the sidewalks which makes walking space very limited. Furthermore, lack of urban furniture means that there is no place to sit. Most places where people pause or linger is close to transport nodes (taxi stops) where they wait for transport, wash their vehicles or along the edges of shops.

Fig.4.4: Taxi stop point next to petrol station (Author, 2012)

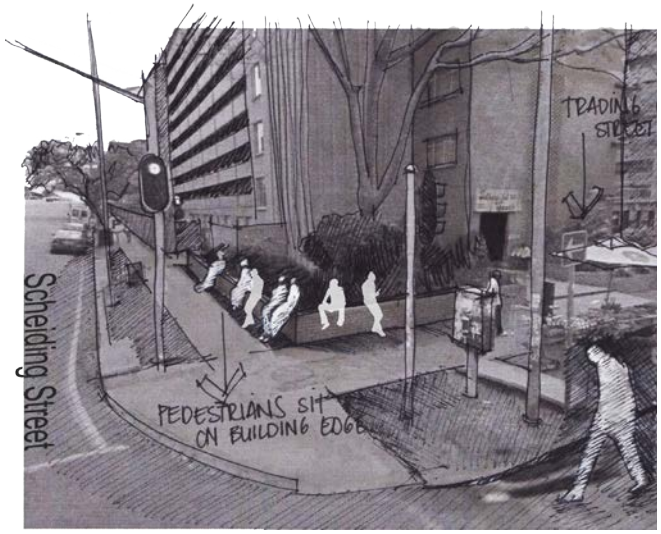


Fig.4.5: Building edge used as seating (Author, 2012)

Fig.4.6: No connection between building edge and street (Author, 2012)

Fig.4.7: Seating along edge of Spaza Shed building (Author, 2012)

4.1.6 Movement Around Site: Macro Scale

Movement in the immediate surround is divided into four categories.

Minibus taxi routes: which causes much congestion and danger to pedestrians.
Train transportation: which consists of the Gautrein and Metro Rail lines.
Pedestrian movement
Bus tranportation: which consists of city busses and long distance busses.

4.1.7 Summary Of Immediate Context Characteristics

- There are little or no places for pedestrians to sit and wait if need be and the places that do exist offer no shelter and nothing to address the needs of the pedestrian who needs to pause.
- The area is very congested with private and public vehicles competing for space and posing a danger to pedestrians.
- Poor legibility and undefined space leads to confusion and lack of orientation.
- Limited green spaces create a harsh feel of an unfriendly pedestrian city.
- There is no formal connection to the Salvokop area.

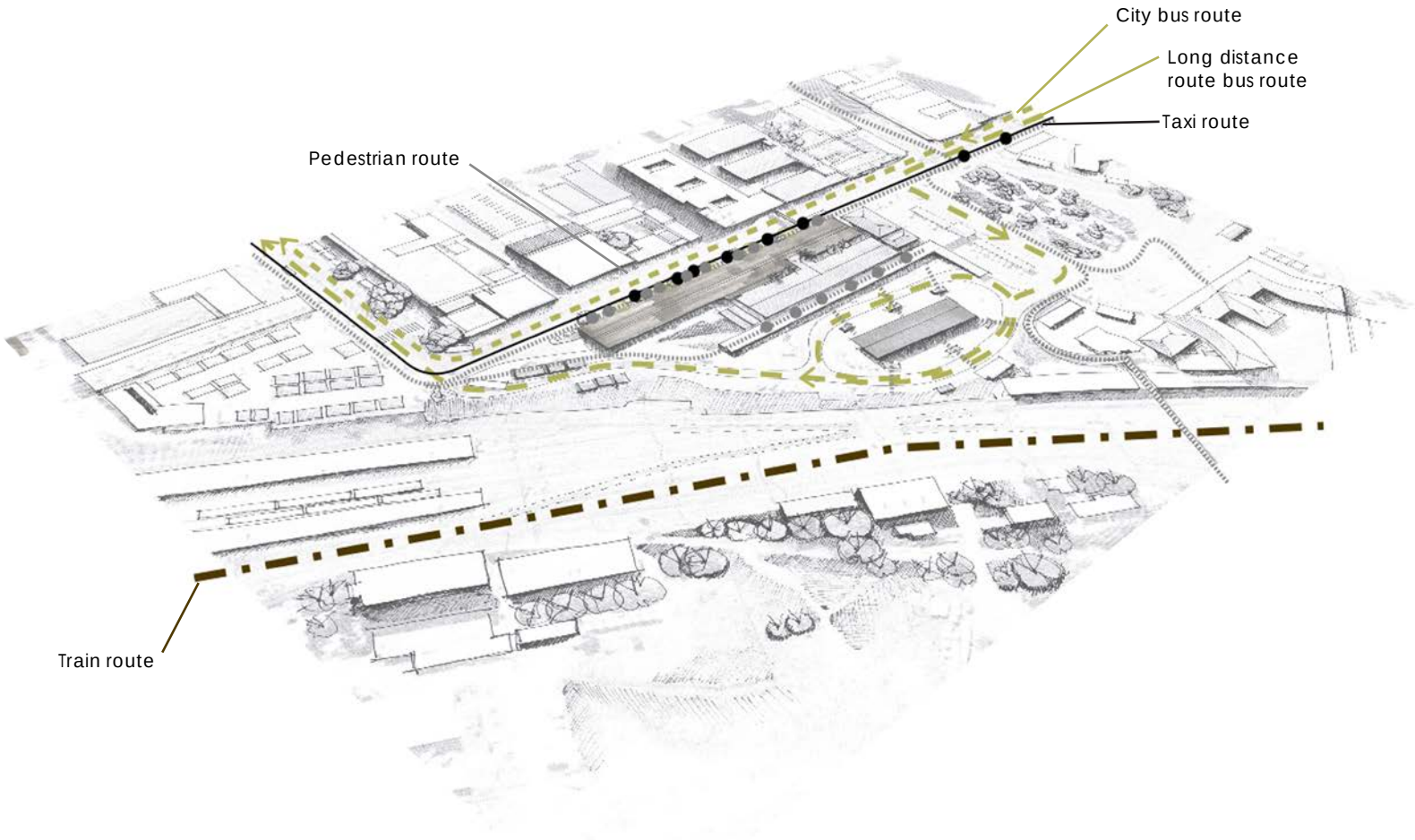


Fig.4.8: Movement in surrounding context (Author, 2012)

4.2 Framework Proposal

The framework addresses the need to densify the area surrounding the station and promoting pedestrianization of the east-west Scheiding Street axis.
The proposed spatial development framework is that undertaken by Andrea Seabrook in 2009 in her dissertation, "I-HUB".

The following urban framework was conducted by Andrea Seabrook in 2009 and will be referred to for the study. Findings attained through investigation of the framework and site analysis will be used to assess the context in which the building is located.

The author's response and interpretation to the proposed framework strategies illustrates the importance of understanding the urban context and the interconnectedness that exists between the city (on a macro scale), the building (on a micro scale) and the interior (most intimate user scale).

4.2.1 Concept ONE: Continuation of urban fabric

The concept involves the development of new structures around Station Square (re-instating its historical significance), between the currently under-utilized Bureau Sports Fields and the Apies River, as well as to the South where the car dealerships are currently located (Seabrook, 2009:39). (Fig 4.9) Districts – Three Zoning Belts

New built fabric has been zoned into areas that are to support transport functions, those that are to include hotel, residential and office functions, becoming primarily mixed-use developments and those that are to be geared towards educational services (Seabrook, 2009:39) (Fig 4.9).

4.2.2 Interpretation of Concept ONE

The selected site, on the Pretoria Station Precinct, falls within the Transportation sector and will have to address all the requirements of people using public transport. This sector will act both as gateway into the city from the south, as well as a converging point where all modes of transport and their accompanying commuters will get together. The focus will have to be on the user, the scale intimate and the physical and psychological needs resulting from users of a transport precinct will have to be addressed.

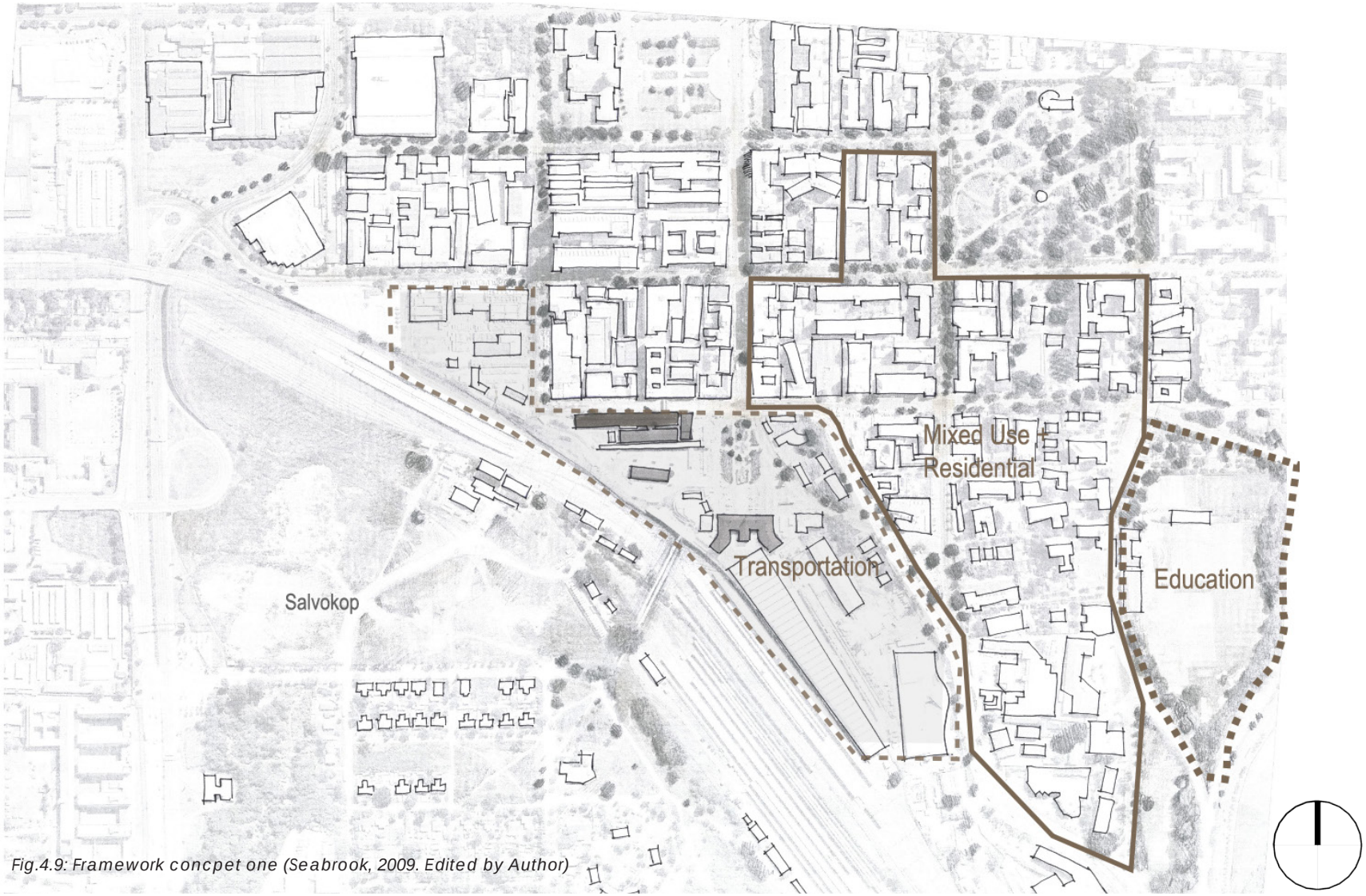


Fig.4.9: Framework concpet one (Seabrook, 2009. Edited by Author)

4.2.3 Concept TWO: Establishment of Links With Other Precincts

There already exists a strong North-South axis between Pretoria Station and Church Square. However, the street still needs to be established as a pedestrian-friendly environment. The East-West Scheiding Street link is to be pedestrianized and extended prominently over Nelson Mandela Drive in order to link the two sectors of the educational district. A vehicle free boulevard is proposed from Burgers Park in the north towards the south. The aim of the boulevard is to create a vibrant café culture by creating arcades and squares which will promote social interaction. New vehicle and pedestrian links provide access over the railway lines (Seabrook, 2009:40). (Fig 4.10)

4.2.4 Interpretation of Concept TWO

Scheiding Street is proposed to be established as an East-West link that will create a pedestrian passage between Nelson Mandela Drive and Sunnyside on the East, and the Station Precinct in the south-western sector of the Pretoria Central Business District. The selected building is located on this axis and therefore will have to respond to the pedestrian movement and activities that will take place alongside as well as through it. The edge condition of the building and the manner in which it responds not only to direct users such as bus commuters (See Chapter 2, page 19), but to pedestrians as well, will be focused on providing pause spaces where pedestrians can linger, emgage and rest.

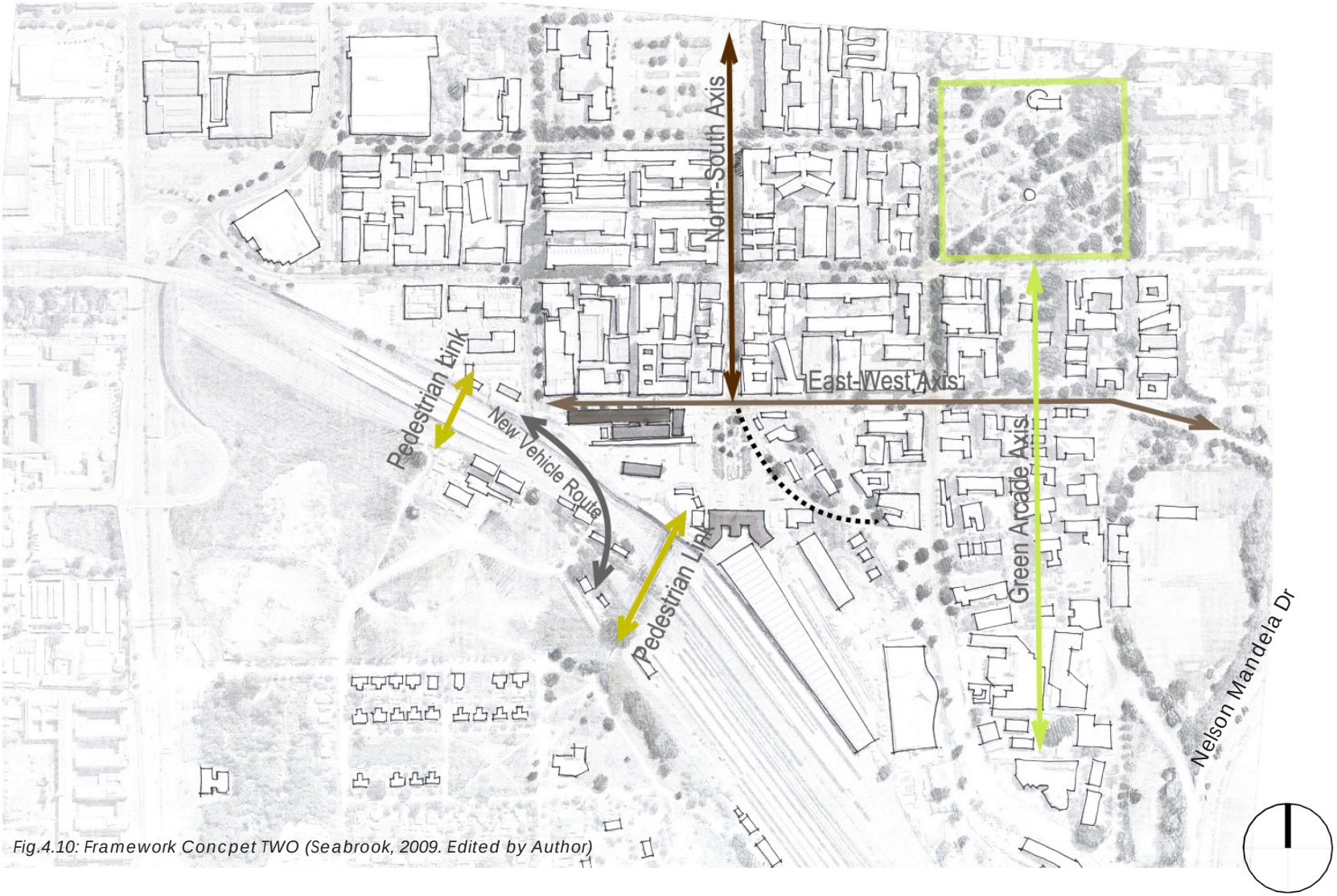


Fig.4.10: Framework Concpet TWO (Seabrook, 2009. Edited by Author)

4.2.5 Concept THREE: Circulation

The Paul Kruger Street extension is to be closed so as to re-instate the historical Station site in its entirety. The Station Forecourt is to function as 'drop-off' and 'pick-up' zone only by moving parking away. The new circulation now operates as a combination of ring roads. Pedestrian safety is increased by means of traffic calming zones (Seabrook, 2009:41). (Fig 4.11).

4.2.6 Interpretation of Concept TWO

The proposed Taxi loading and drop-off zones indicated indicated in Concept THREE will aid in releiving the congestion currently experienced in Scheiding street in front of the selected building. Pedestrians can therefore safely wait for and be picked up by Taxi's without the danger of standing and waiting in the street. This also provides busses and bus commuters waiting in front of the Spaza building with adequate space which is not used by Taxi's. Furthermore, waiting elements such as seating and shading elements could be included near the drop-off zones to accommodate pedestrians and co-mumuters.

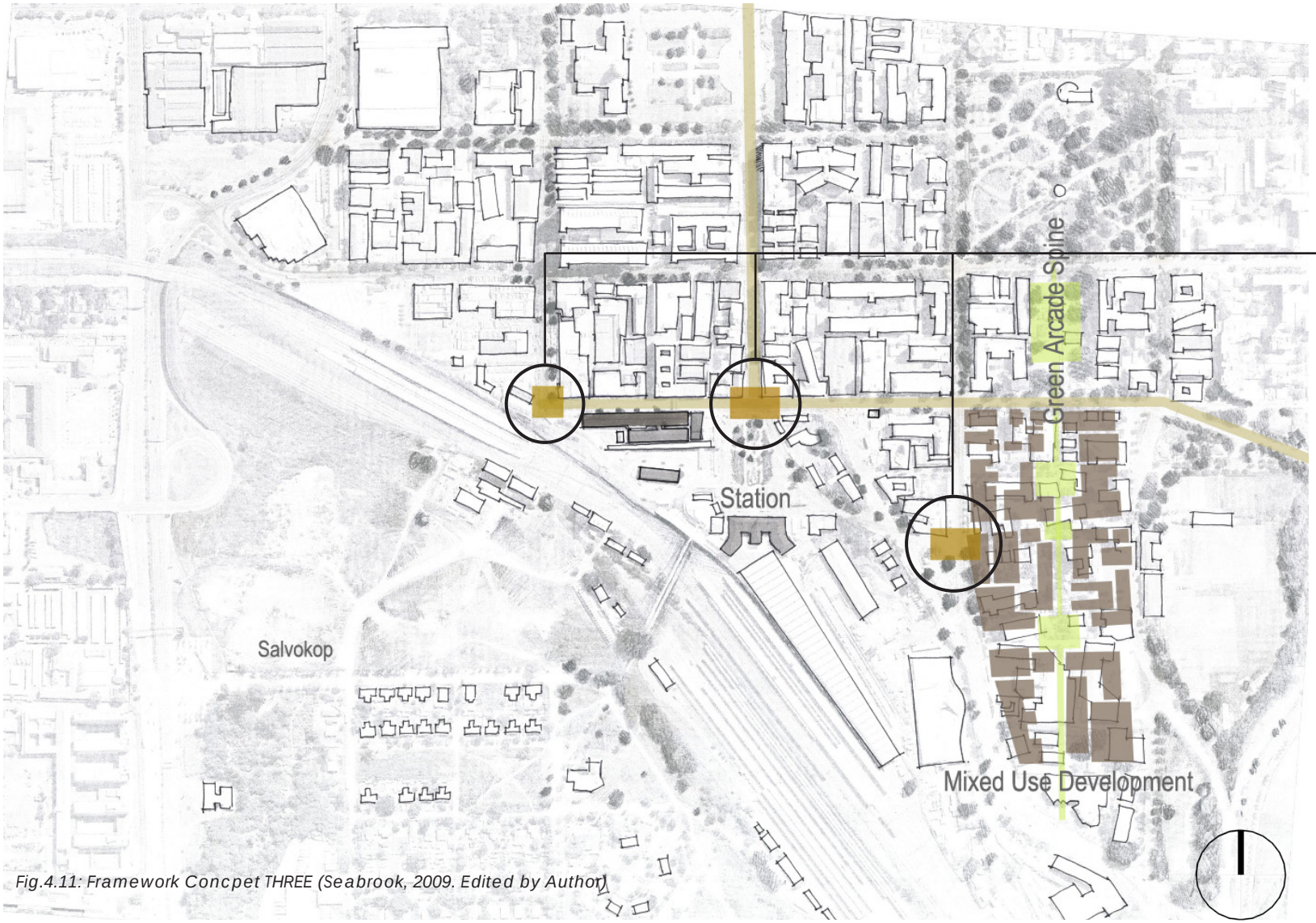


Fig.4.11: Framework Concpet THREE (Seabrook, 2009. Edited by Author)

4.2.7 Summary of the Proposed Framework

Inclusion of a public space network
The already existing public spaces are incorporated within this network (Seabrook, 2009:42). (Fig 4.12)

- Densification of urban fabric, especially towards the south of Scheiding Street.
- Emphasizing east-west connections.
- Ease of movement is assisted by creation of new circulation routes and new public spaces.
- Establishment of the Scheiding Street activity spine allows for pedestrian and transport activity.
- Green arcades and squares link to create corridors.

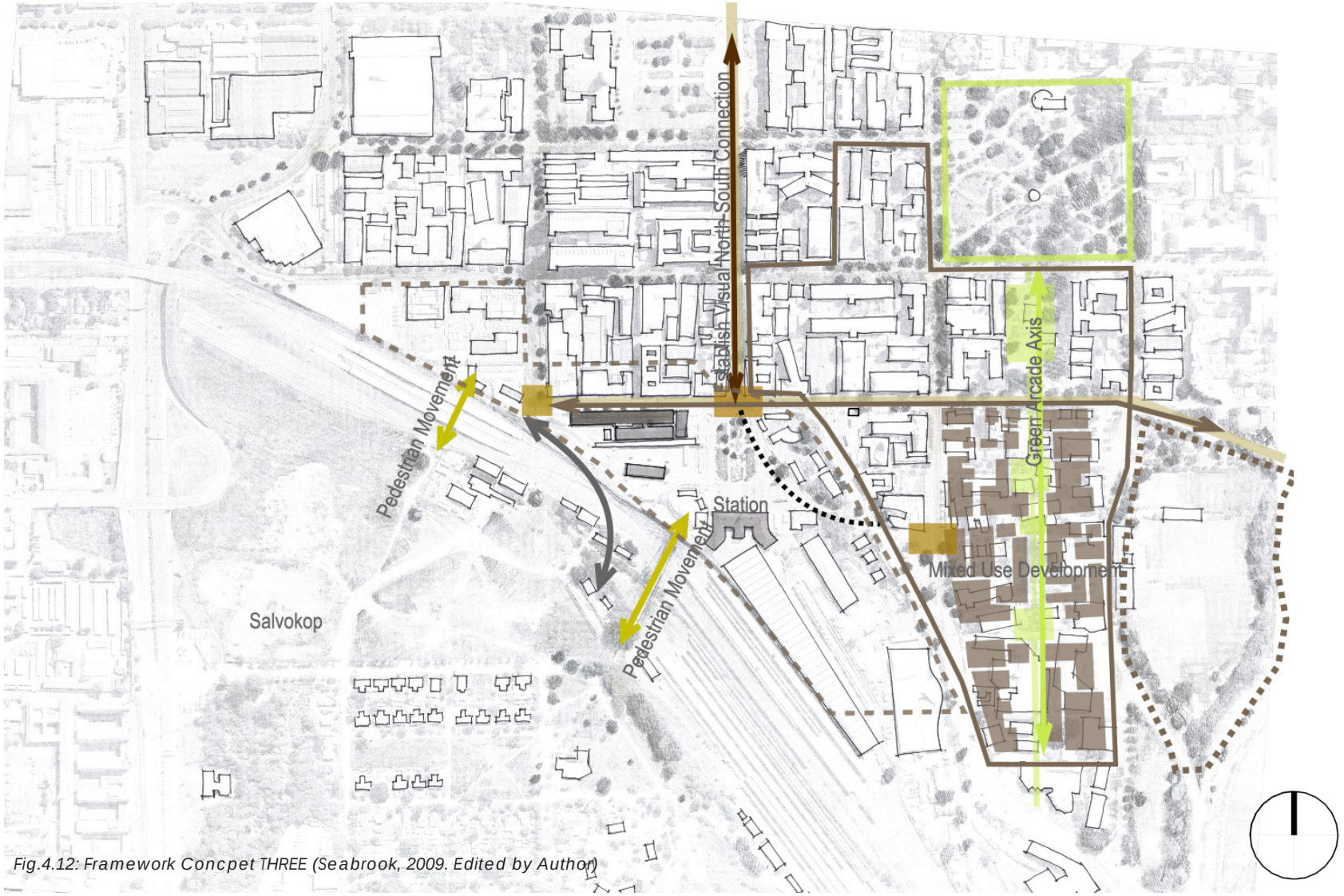


Fig.4.12: Framework Concpet THREE (Seabrook, 2009. Edited by Author)

4.3 Part B: Site Analysis

4.3.1 Site Description

The selected building is located in Scheiding Street and is closely related to (yet cut-off from) the Bus Ticket office building which also serves as waiting place for bus commuters. Previously serving as a bus terminal, the existing building now houses a series of steel kiosks and the Scheiding street edge consists of a series of shops and bus stops where commuters wait. The building is a simple structure, yet its proximity to the Pretoria Station, Gautrain Station and Bus Station as well as its alignment along the street, provides the potential for it to serve as a waiting station that will address the needs of bus commuters, city dwellers and food vendors.

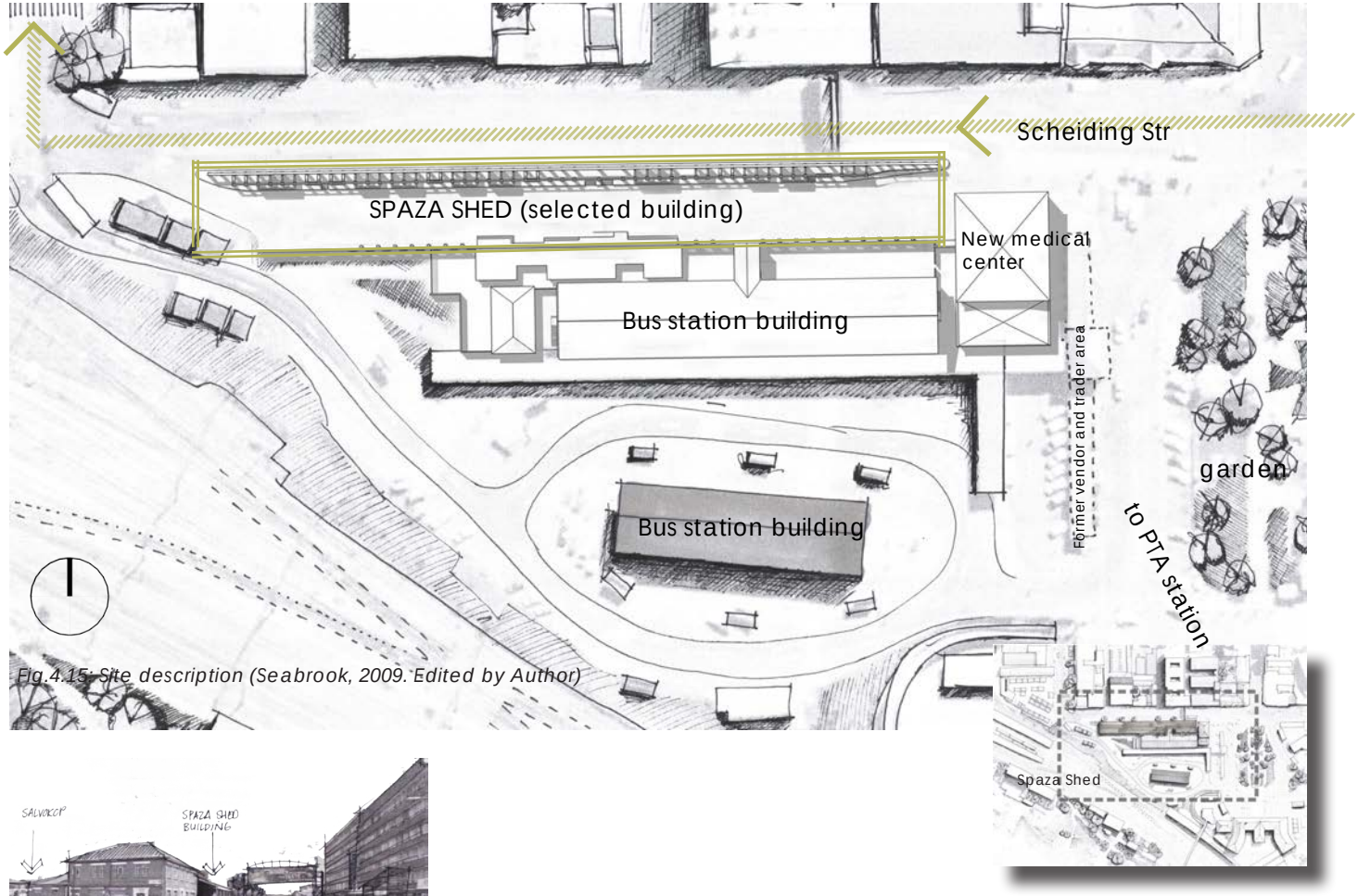


Fig.4.15: Site description (Seabrook, 2009. Edited by Author)

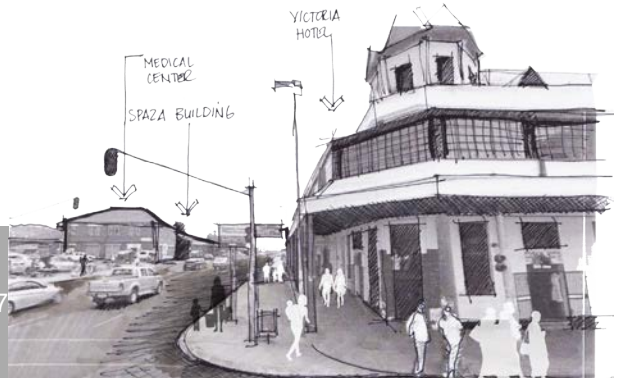


Fig.4.13: Approaching site in Scheiding Street from the east (Author, 2012)

Fig.4.14: Approaching site from Victoria Hotel (Author, 2012)

4.3.2 Existing Site Surrounds

The selected building and site is situated central to high pedestrian activity. Towards the south is the bus station and to the north along Scheiding street are a multitude of mixed use buildings that, on ground floor, host a series of commercial enterprises such as cafes and other shops. The building is therefore perfectly located to serve as waiting place not only for commuters, but also for pedestrians making use of facilities towards the north.

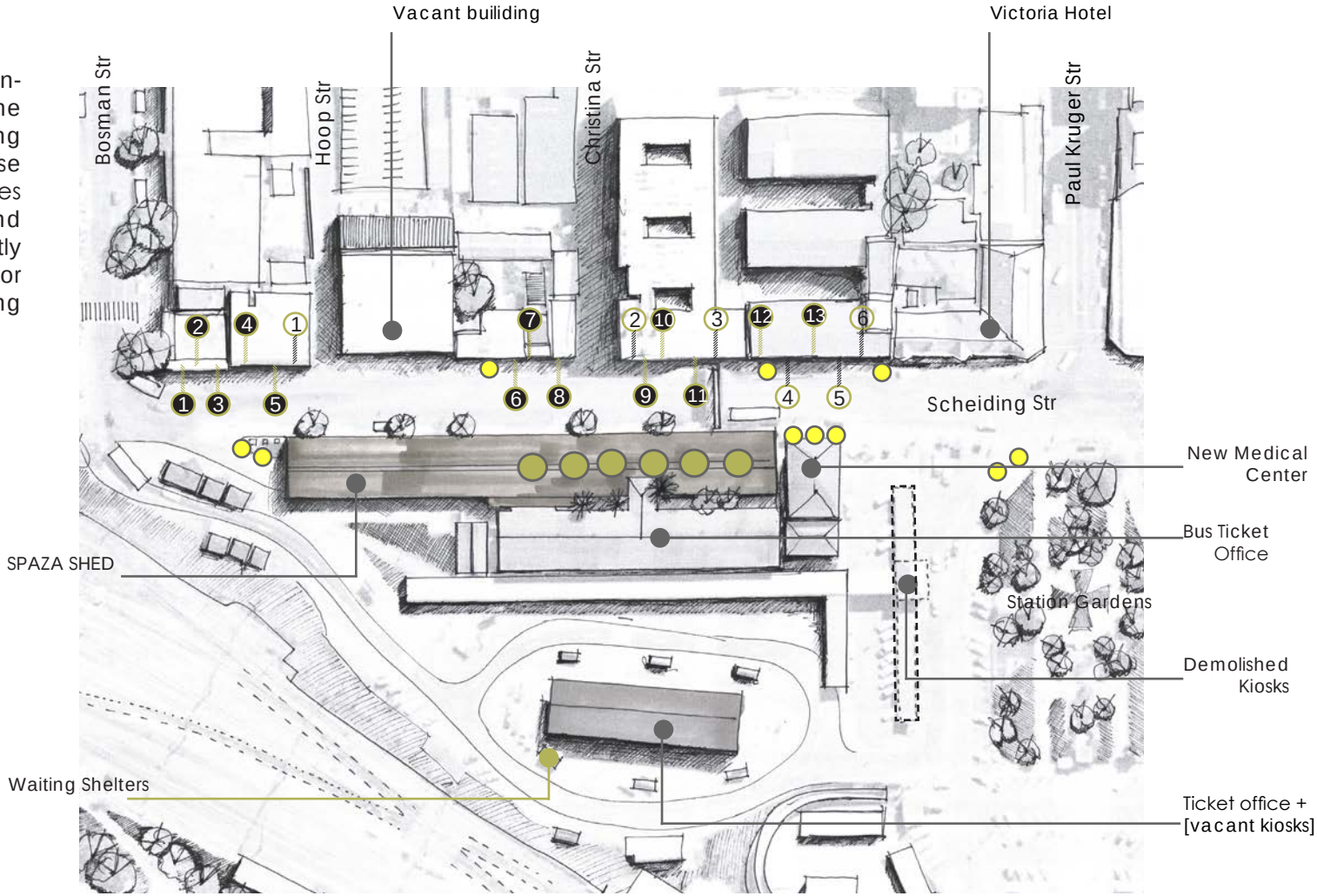


Fig.4.16: Facilities in surrounding context (Author, 2012)

Fig.4.17: Panoramic view of northern edge of Scheiding Street (Author, 2012)

Fig.4.18: Panoramic view of southern edge (northern facade of host structure) of Scheiding Street (Author, 2012)

4.3.3 Movement On And Around SIte

The following summary of movement patterns investigates the current conditions on site and surrounding environment. In order to design a responsive building that will address the needs of the users, and create a link between the city context towards the north, and the bus station and station precicnct towards the south, it will have to respond to the current, and future proposed movement patterns on and around the site. The different movement patterns that are investigated are base on the three main methods of travel. These are: 1_ Bus, 2_ Taxi, 3_ Train, 4_ Vehicular, 5_ Walking (pedestrian movement)

4.3.4 Public Transport: Bus routes and stops

The adjacent map indicates the bus routes on the precinct and around the selected Spaza Shed building. Long distance busses assemble behind the Spaza Shed building in front of the Bus Station Ticket Office. City busses assemble in Scheiding Street in front of the Spaza Shed building.

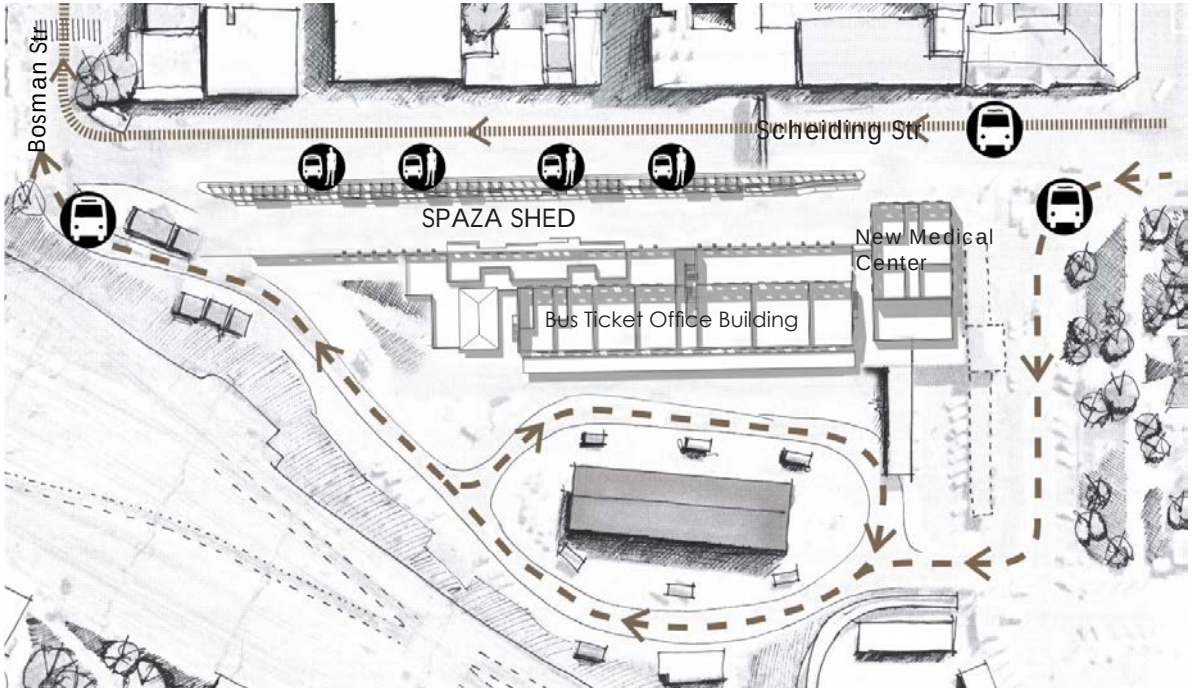
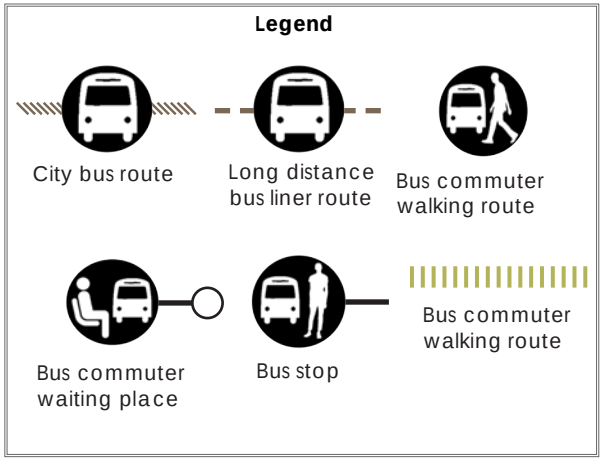


Fig.4.19: Bus routes mapping around site. (Author, 2012)

4.3.5 Public Transport: Bus commuter routes and stops

Public bus transportation and the movement and needs of its commuters is the basis of the project, however, other modes of transport and pedestrian movement will also be considered. As indicated in the adjacent map, there is no thoroughfares through the Spaza building through to the bus ticket office and commuters are forced to walk around the building. The previous location of the vendors' kiosks created a direct link with commuters which is now non existant. It is this link which will be re-established.



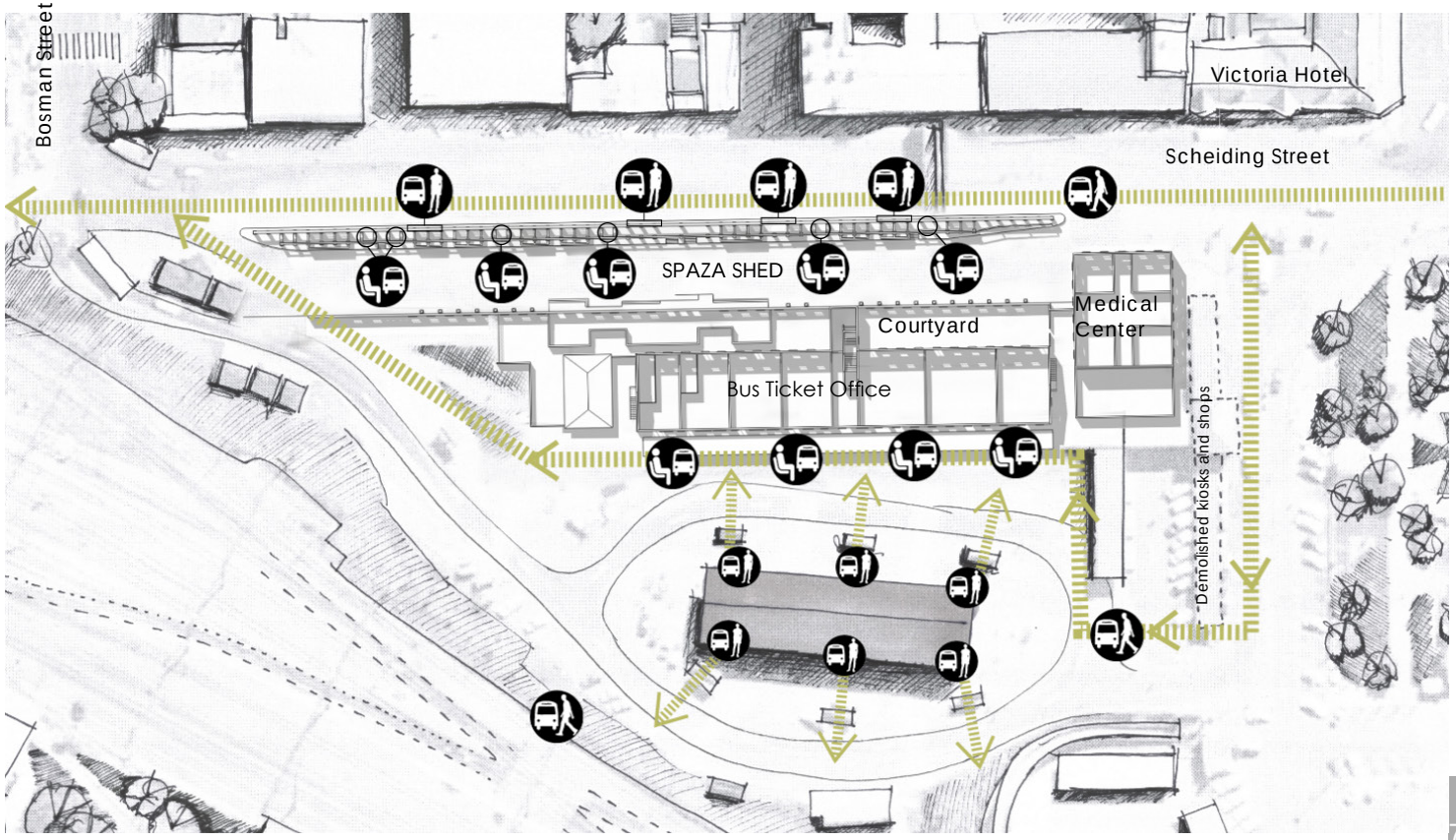
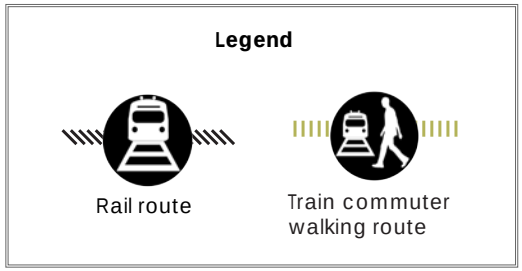


Fig.4.20: Bus commuters routes mapping. (Author, 2012)

4.3.6 Public Transport: Train commuter routes and stops

As illustrated in the adjacent map, the main route taken by train commuters is from north to south past the station gardens. The previous location of the vendors provided much greater access to commuters walking to and from the station. Curently located in te Spaza building, they are cut-off from their previous clientele.



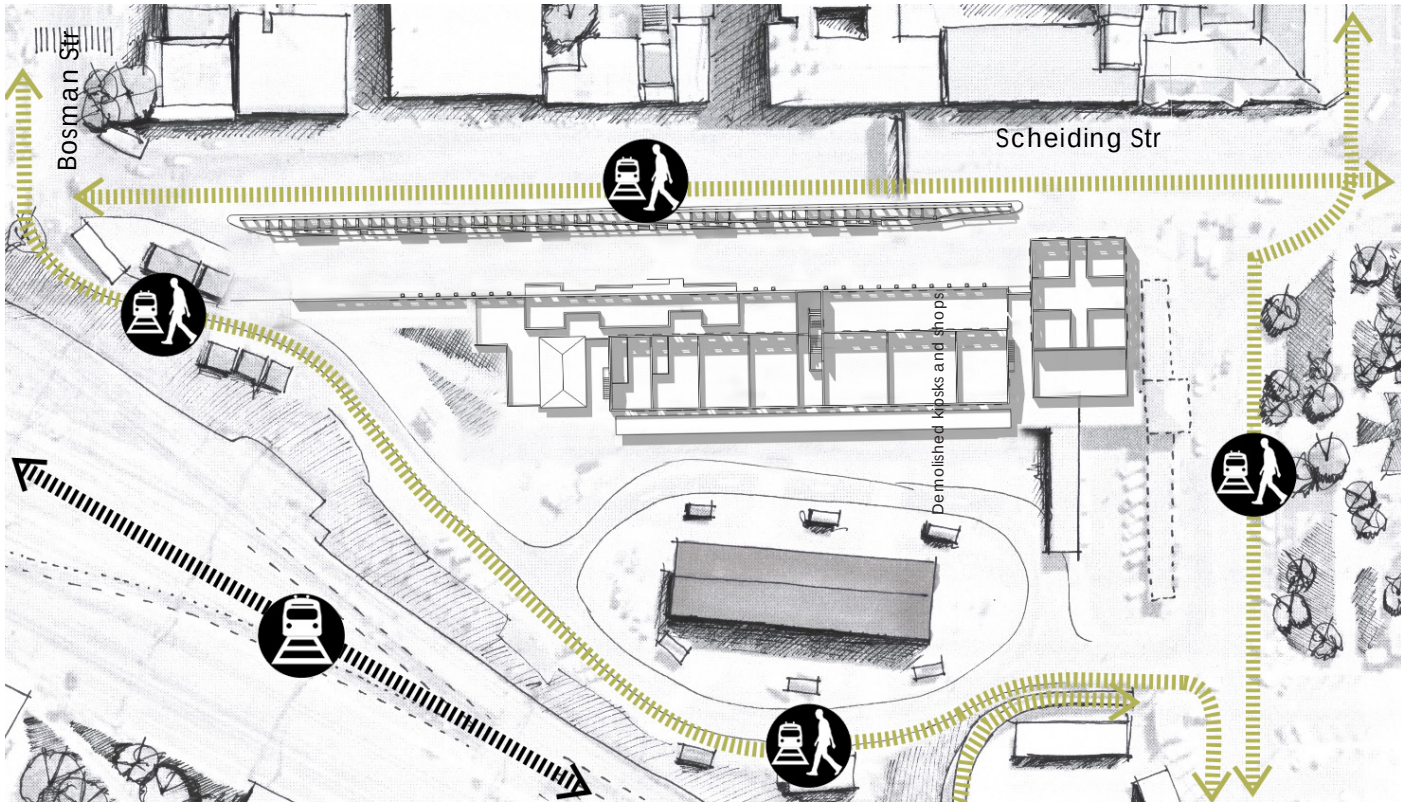
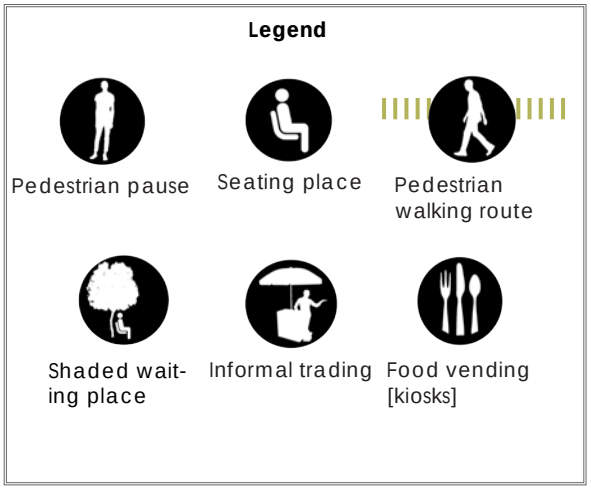


Fig.4.21: Train and train commuter walking mapping. (Author, 2012)

4.3.7 Pedestrian movement and activity

There is a lot of pedestrian activity around the selected building, as indicated in the movement study. Through the investigation it is clear that the previous location of the vendors' kiosks provided more opportunity due to its location relative to the peadestrian route from the station to the CBD. Many informal trading posts are set up along these routes, as indicated. The location of the building creates many opportunities if it is to provide thoroughfares ans re-establish the previous connection between traders and pedstrians. The amount of seating and shaded waiting areas are limited and will be included in the proposal.



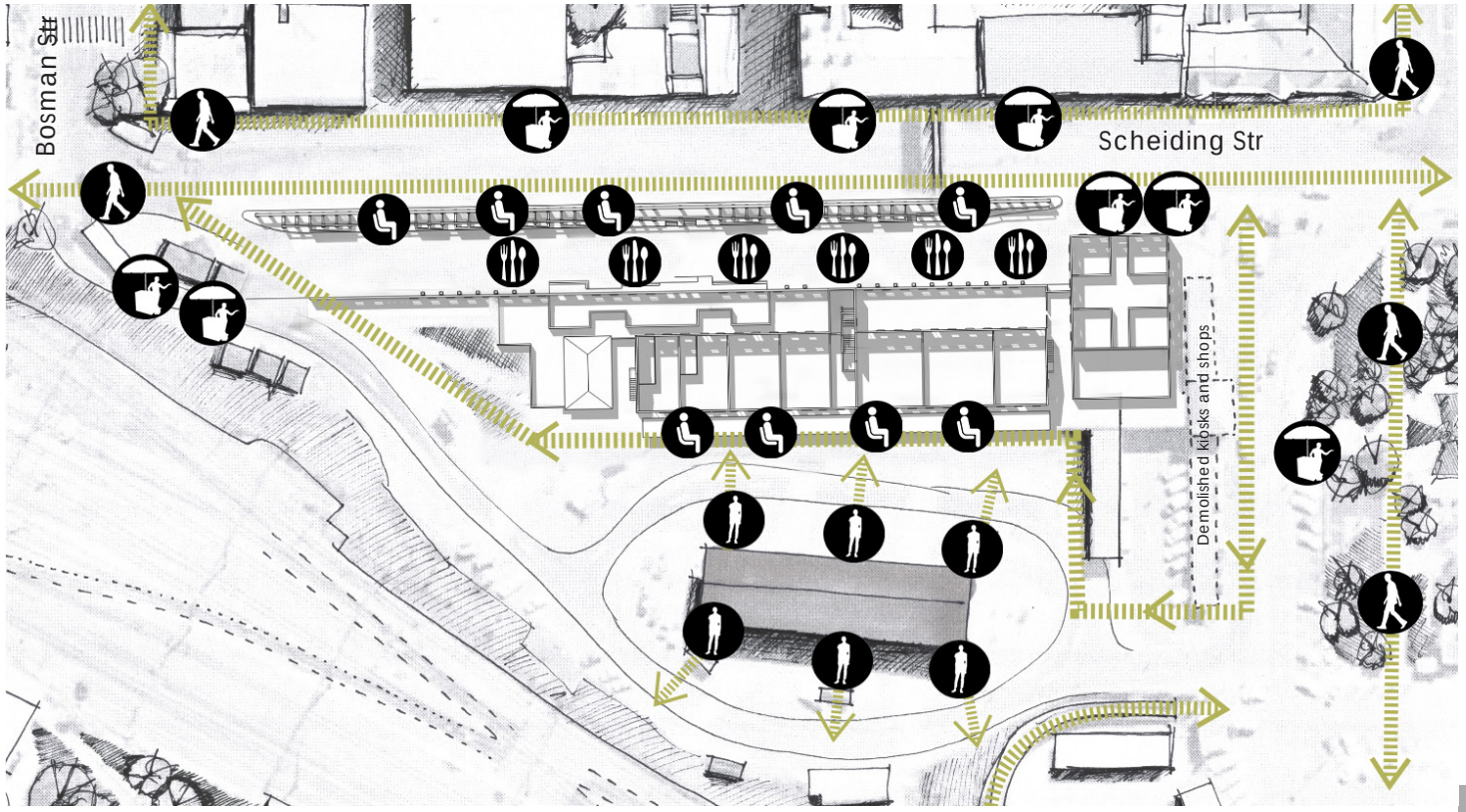
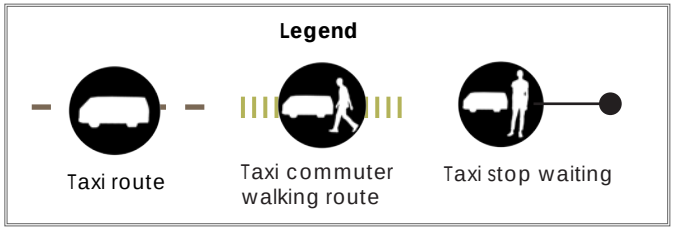


Fig.4.22: Pedestrian routes and ativities mapping (Author, 2012)

4.3.8 Public Transport: Taxi

The proposed framework suggests a new taxi waiting area located along Bosman Street. The current condition consists of a multitude of taxi drivers stopping along the edge of the selected building, this not only visually cuts the building off from the view of the pedestrian on the street, but also causes city busses to double park in the street. Bus commuters often have to stand in the street to wait for busses. The relocation of taxi stop points to Bosman street will releive the vehicular congestion and also emphasize the finction of the Spaza Shed building as a waiting place for bus commuters, primarily.



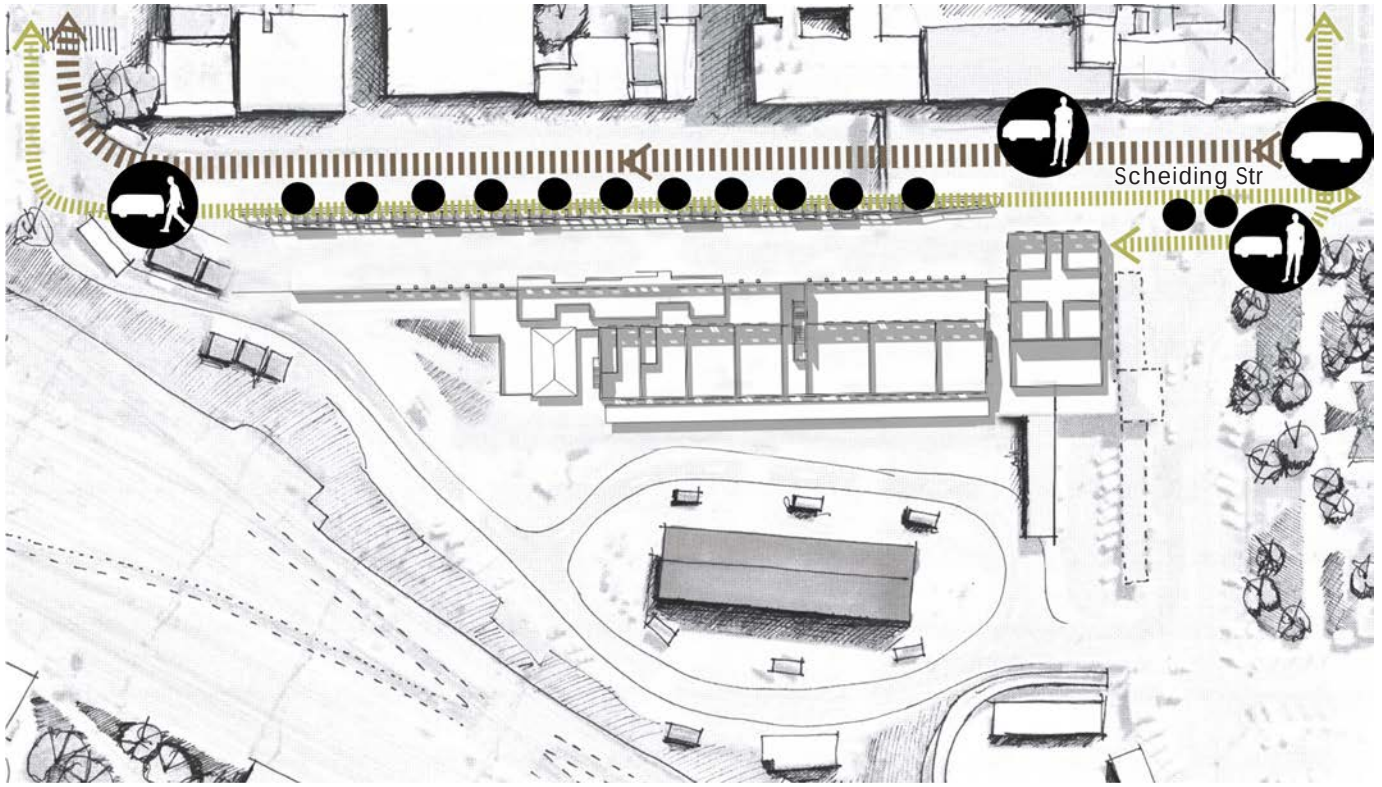


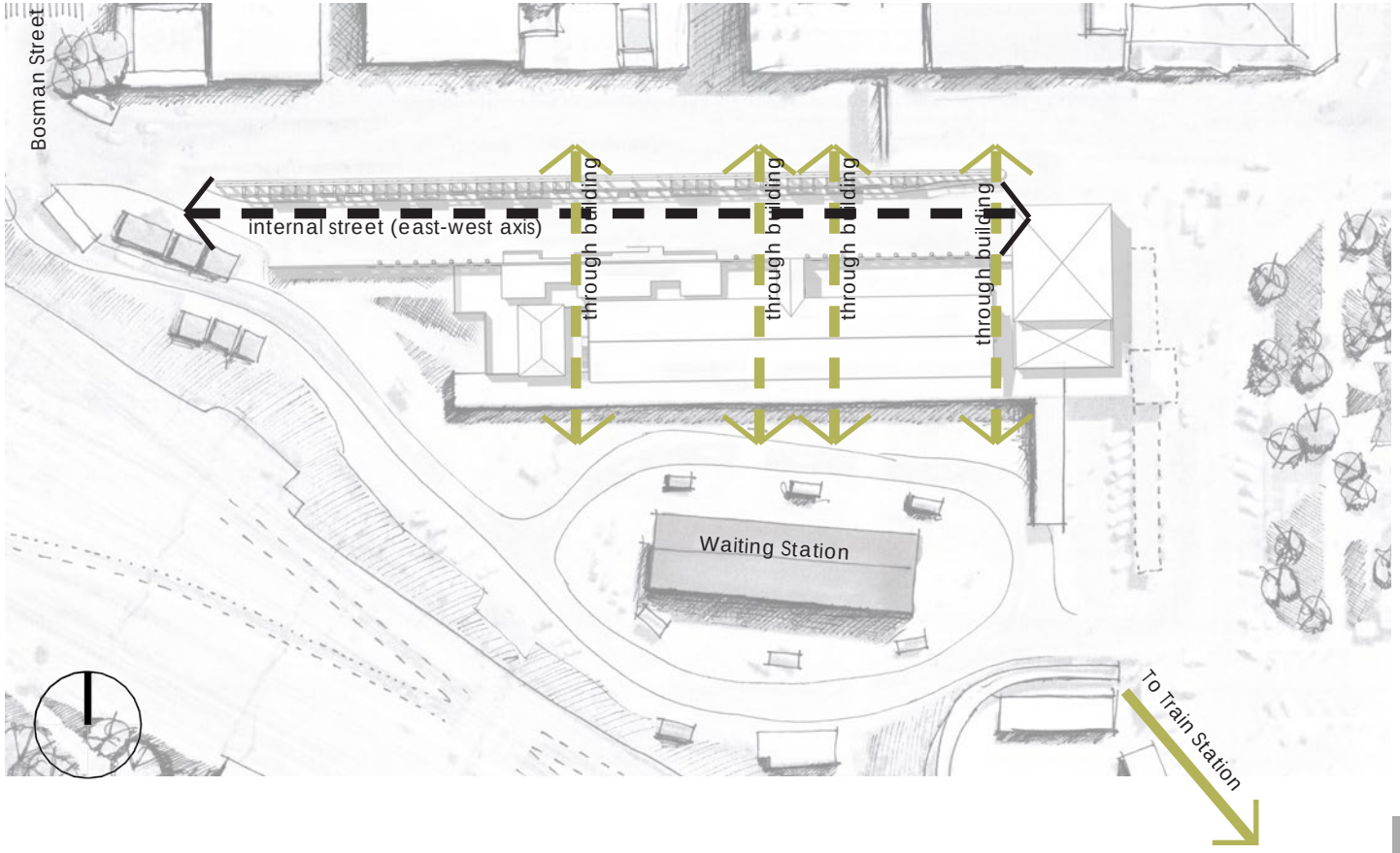
Fig.4.23: Minibus taxi routes mapping. (Author, 2012)

4.4 Site Proposal

Following the investigations above, the site proposal includes creating thoroughfares through the building and thereby connecting the host building with the bus station building as well as with the rest of the precinct context. The design also aims to build on and respond to existing routes.

4.5 Conclusion

Following the macro analysis of the precinct and site, it can be concluded that the Spaza Shed building is very isolated from the rest of the Station precinct context. It is therefore suggested that there be a connection established between the Spaza Shed building and the Bus Station Office in order to open the site for commuters towards the rest of the precinct and allow movement through the site from Scheiding Street.



This chapter focuses on building analysis of the Spaza Shed building. The chapter highlights not only the various adaptations and changes that the building had undergone but also investigates the various features of the building.

chapter 05

building analysis

5.1 Historical + Functional Factors

5.1.1 Site History + development

The selected building has a history of alteration due to contextual changes. How well the building addressed these changes will be investigated by looking into each phase of alteration. Just as the building, the station precinct has undergone several changes through the years resulting from social and programmatic development.

The site plan (dated 1993) reveals the original composition of structures within the vacinity of the selected building. On this plan, the bus station building still functions as office building and there is no vehicular access through the site. Office buildings are located where the bus station building is today and there is no connection between the site and Bosman Street.

The northern edge of the building, which is now the edge along which the shops and benches are located, here also serves as spine along which busses stop. There is therefore aleardy an indication of the important connection that exists between the northern edge of the building and Shceiding Street

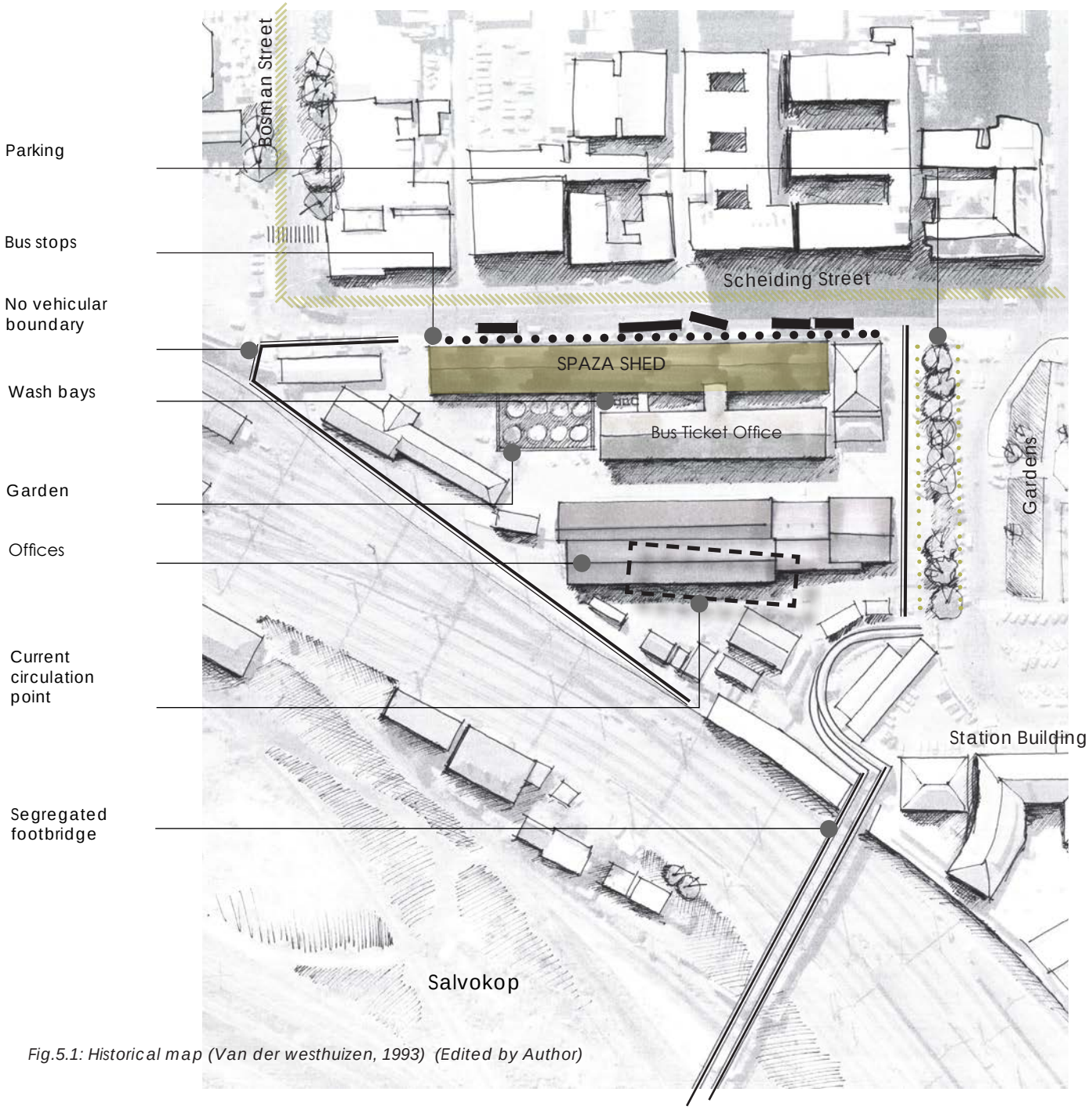


Fig.5.1: Historical map (Van der westhuizen, 1993) (Edited by Author)

5.2 Building Development Phases

5.2.1 Phase ONE: Original Structure

The development of the host structure can be divided into three distinct phases. Each phase involves a change of use which required a response from the host building. These changes are discussed and the architectural response identified.

The original structure served as office building in which a central hallway connected offices along the length of the building. Though in close proximity to one another, there is no real spatial connection between the host building and, what is today, the Bus Ticket Office. In this phase, the site is mostly pedestrian with access of vehicles denied. The southern edge of the building was more interactive with a garden and wash bays that people could make use of.

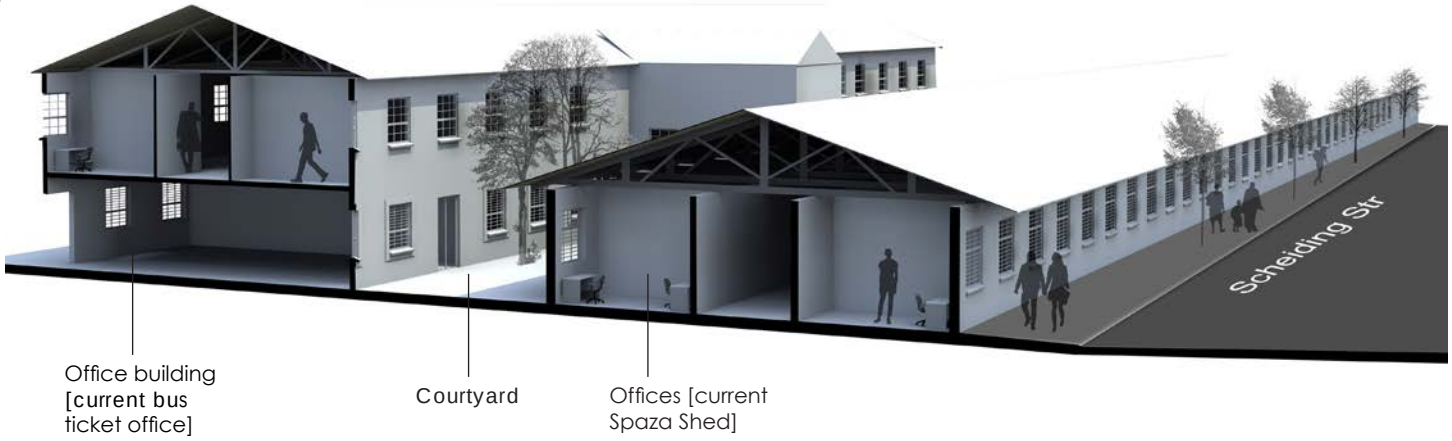


Fig.5.3: Three dimensional section (A) (Author, 2012)

Fig.5.2: Three dimensional section (B) (Author, 2012)

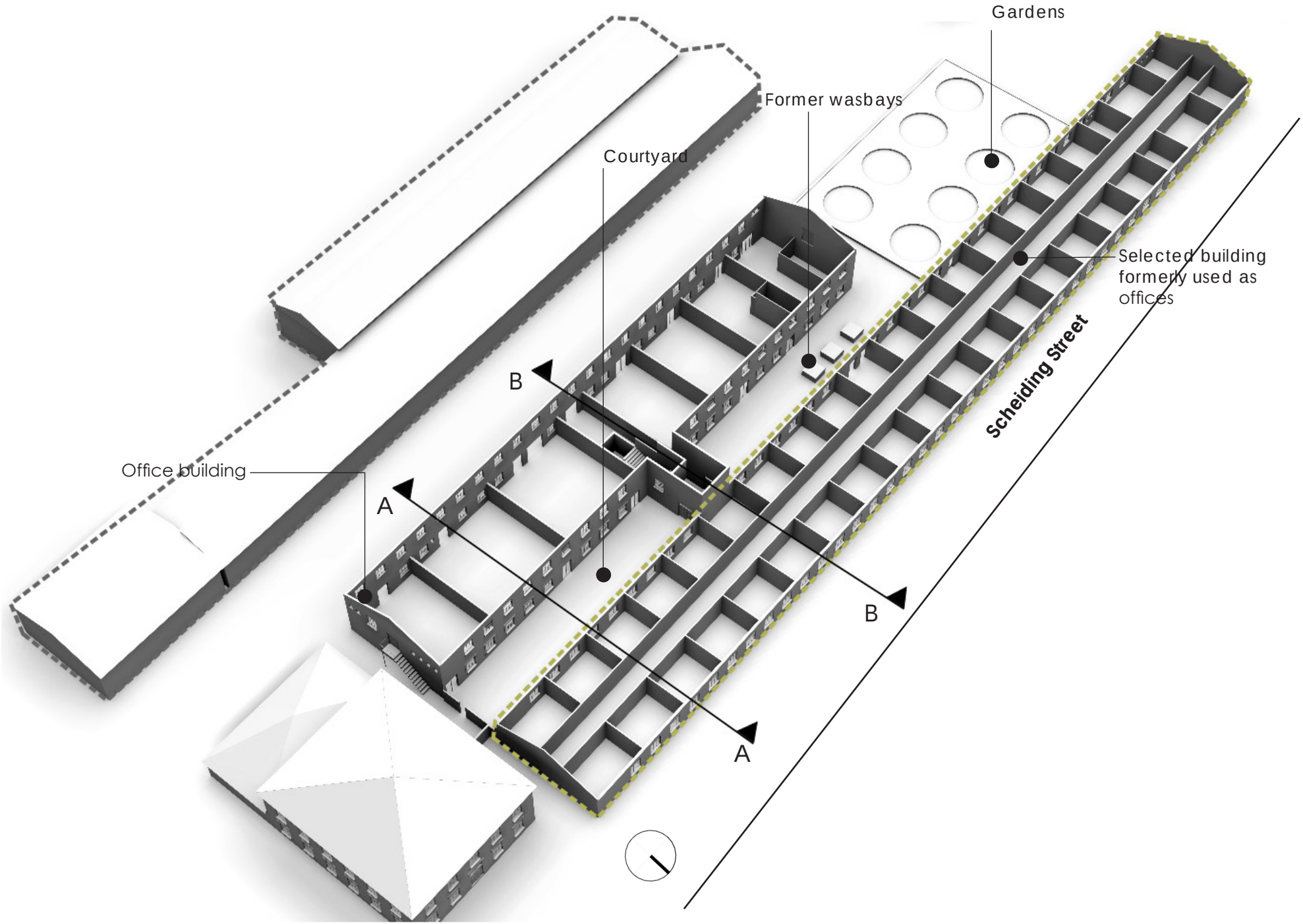


Fig.5.4: Bird's eye view of existing. (Author, 2012)

5.2.2 Phase TWO: Transformation into Bus Terminal

The alteration of the office building into a bus terminal was overseen by Stauch and Vorster Architects in 1993. The alteration involved the removal of the northern wall and its replacement with a series of columns and shops as wel as the excavation of the floor so as to create anough space for busses to pass through. Construction images of the alteration process indicates the manner in which the roof was propped up while the wall was removed and replaced by steel frame onto which the amenities were added.

In order to allow busses to pass underneath the roof, the internal floor was excavaed by some 700mm. This new function resulted in the interior of the building being completely cut off from the surrounding context.

Fig.5.5: Alteration of northern facade (Marnus Barbard, 1993).

Fig.5.6: Exterior view of bus entrance into host building. Note that the steel columns have been cladded with brick layers (Marnus Barnard, 1993).

Fig.5.8: Northern edge alteration with steel columns for shops (Marnus Barnard, 1993).

Fig.5.7: Steel columns where shops are to be situated (Marnus Barnard).

Fig.5.9: Interior view of construction process. Excavation of interior floor (Marnus Barnard).

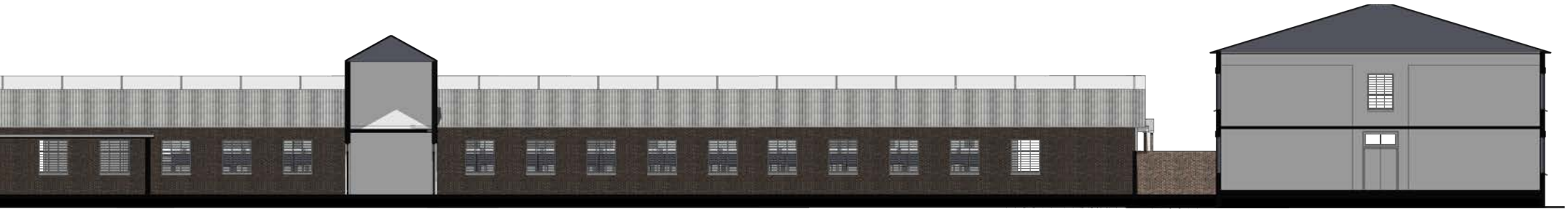
Fig.5.10: Interior view of polycarbonate sheeting inserted along the length of the roof to allow admittance of natural light (Marnus Barnard).

Fig.5.11: Interior view of host building (Marnus Barnard).

Fig.5.12: Interior view of host building with bus passing through (Marnus Barnard).

Fig.5.13: Northern elevation of selected Spaza Shed building (Author, 2012)

Fig.5.14: Southern sectional elevation of selected Spaza Shed building (Author, 2012)



5.2.3 Edge shops and column system

Along witht the excavation of the floor, the alteration of the Spaza Shed building also involved the addition of several small shops along the buildings edge on the sidewalk. This addition also serves as means for holding the roof up on the northern edge. Construction details will reveal that concealed within the series of brick columns are steel columns that are connected to a series of steel beams that support the roof structure.

Eventhough the shops are situated along the sidewalk, tenants do complain about not having a lot of customers. This is mainly because of the fact that the Spaza Building is cut off from the bus office building, where most people gather and where all the activity takes place. Therefore, as discussed in Chapter 4, the site proposal suggests opening up the southern edge of the building in order to allow connection between the bus office building and the Spaza Shed.

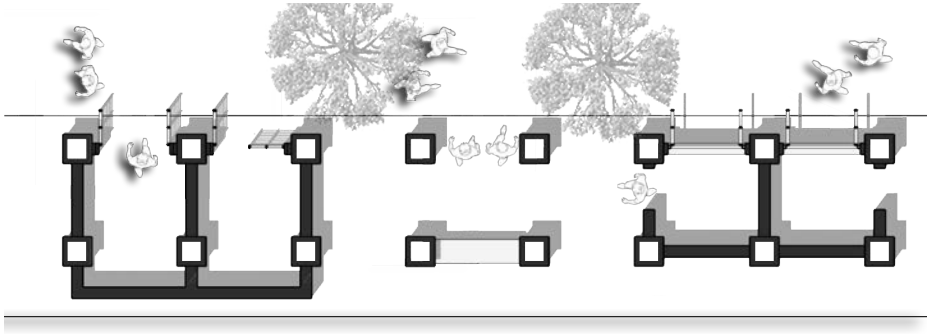


Fig.5.15: Plan of edge shops (not to scale) (Author, 2012)

Fig.5.16: Elevation of edge shops (Author, 2012)

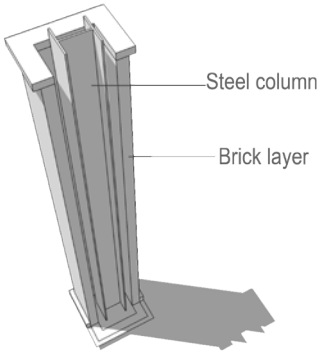


Fig.5.17: Column composition (Author, 2012)

1. Shops along sidewalk (Author, 2012)
2. Vacant shops (Author, 2012)
3. Back walls of shops; no link with interior (Author, 2012)
4. View to interior from space between shops (Author, 2012)
5. Benches between columns (Author, 2012)
6. Customers eating on benches (Author, 2012)
7. Shop window with roller shutter door (Author, 2012)
8. Steel shop ceiling (Author, 2012)
9. Shop interior of watch merchant (Author, 2012)

Fig.5.18: Edge shops and seating investigation (Author, 2012)

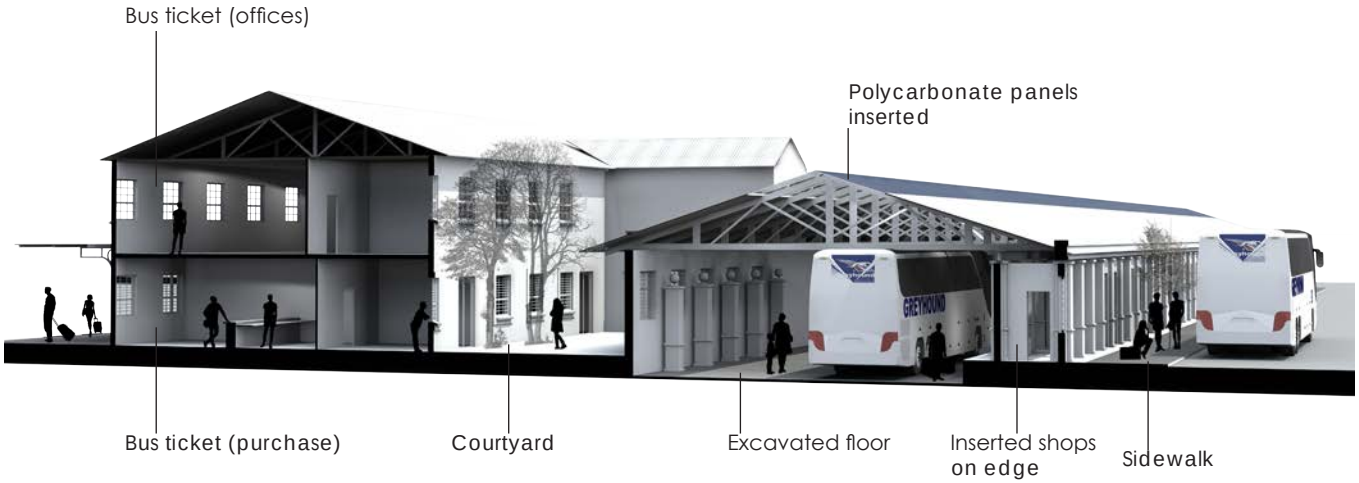


Fig.5.19: Three dimensional section (A) (Author, 2012)

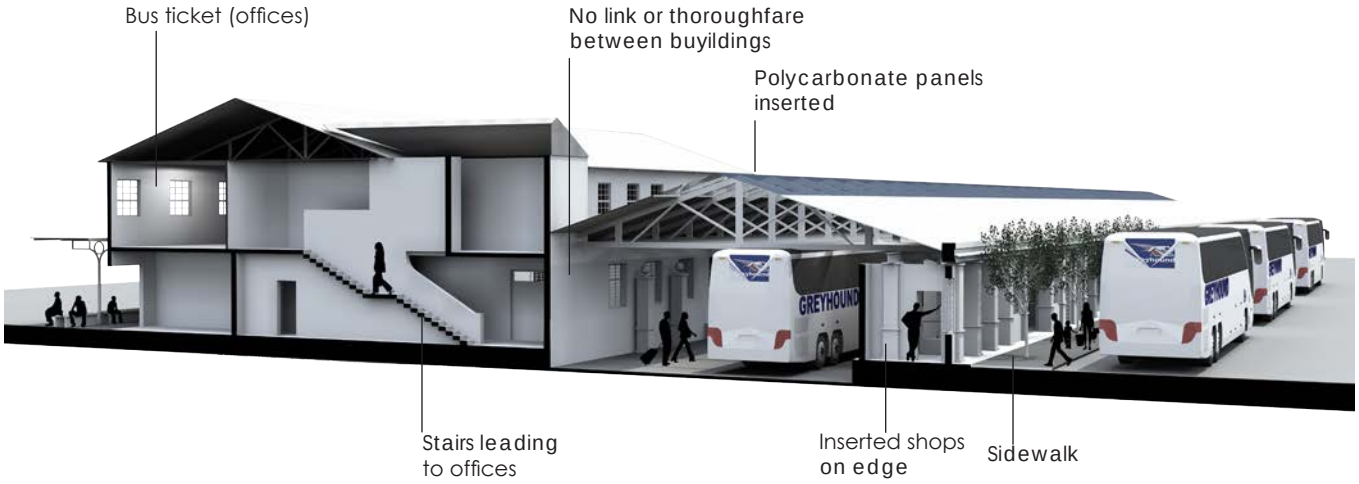
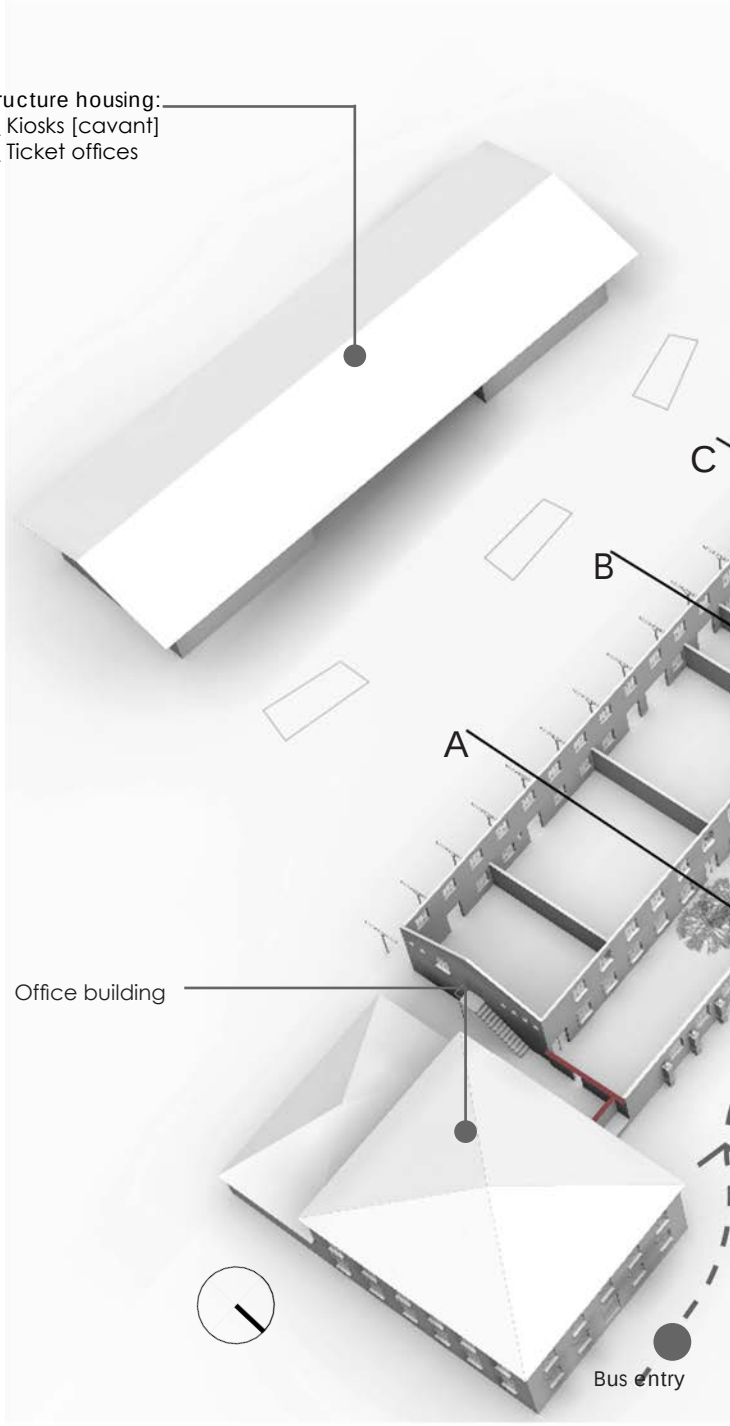


Fig.5.20: Three dimensional section (B) (Author, 2012)



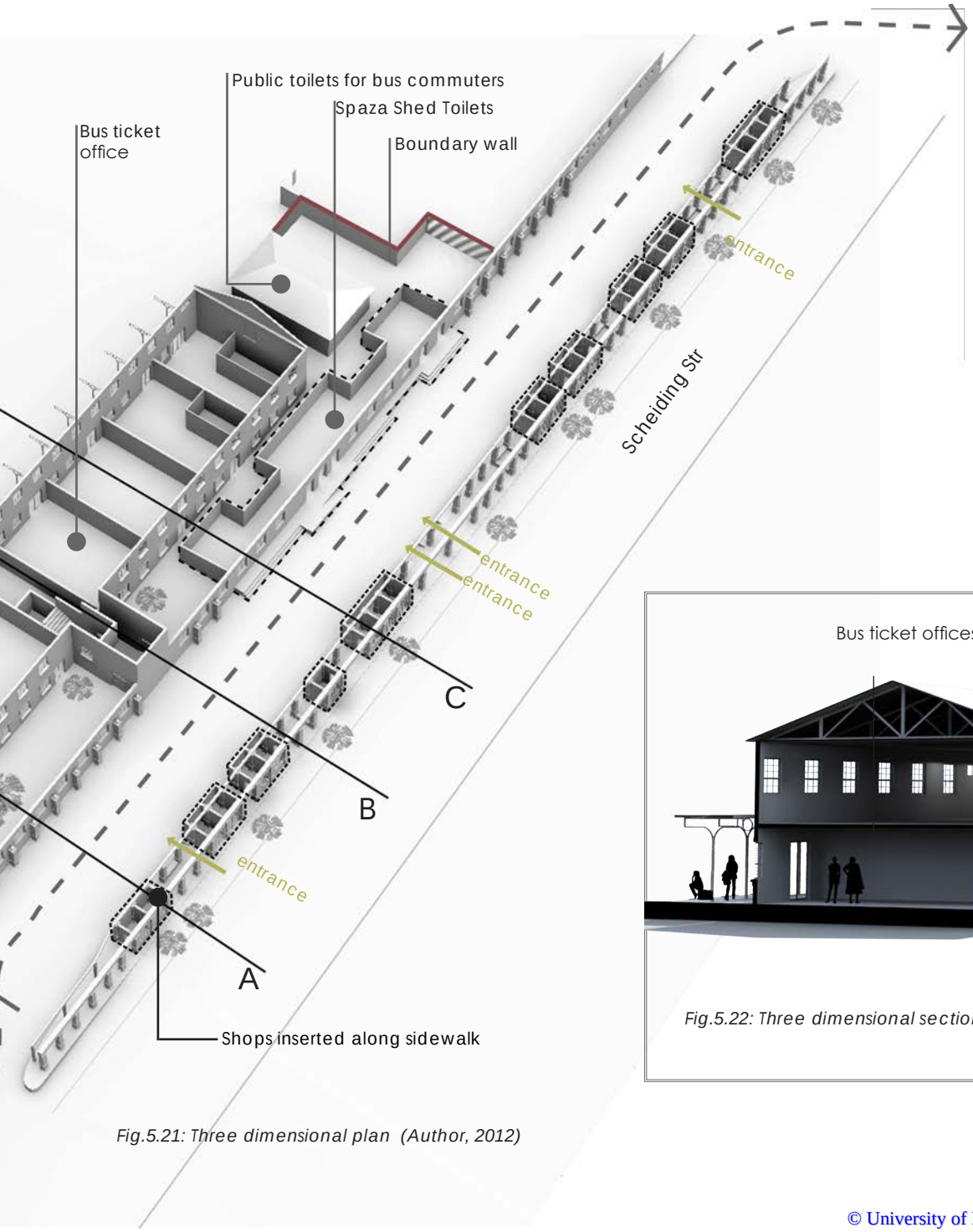


Fig.5.21: Three dimensional plan (Author, 2012)

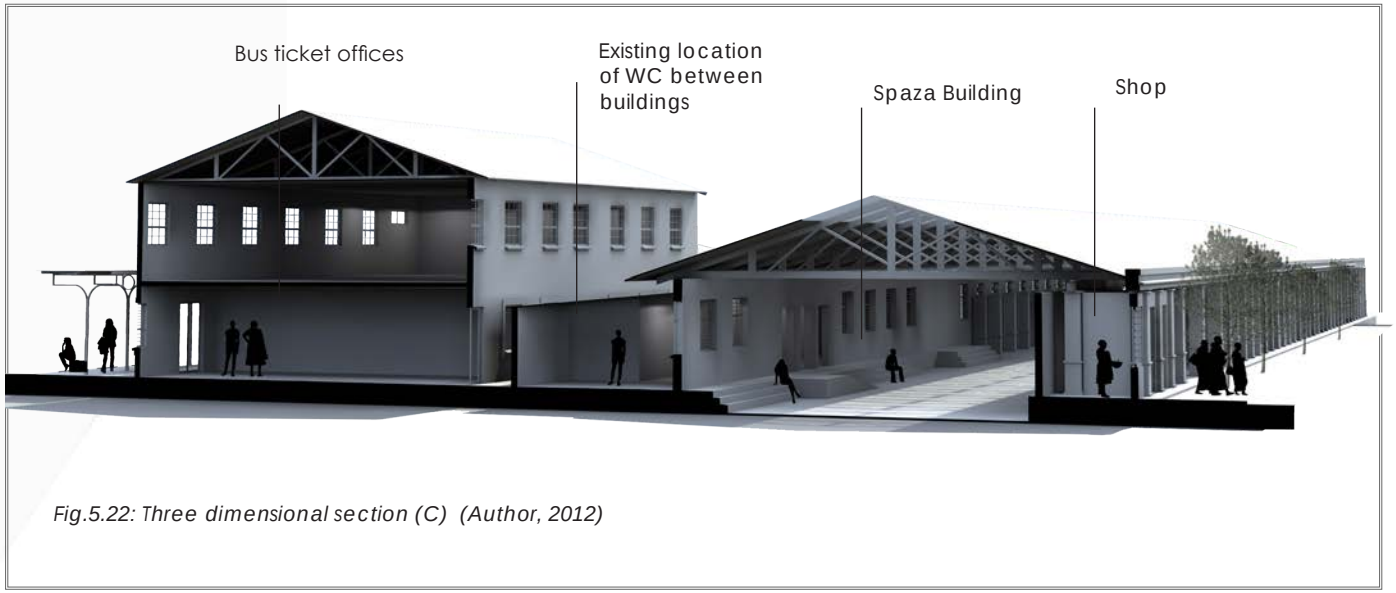


Fig.5.22: Three dimensional section (C) (Author, 2012)

5.2.4 Phase THREE: Current Condition

In 2010, trader stands that were located along the edge of the station gardens were demolished and the traders were moved into the selected building. These kiosks were to trade in traditinoal food and small shops, referred to as Spaza's. As the traders served the commuters and pedestricans walking along the station precinct, they were completely cut-off from their former clientelle in the selected building which is also cutt of from the bus station building.The existing building and its programmatic alteration and intervention cannot be complete without considering the bus ticket office building. The lack of appropriate seating creates overcrowding of commuters and confusion on site.

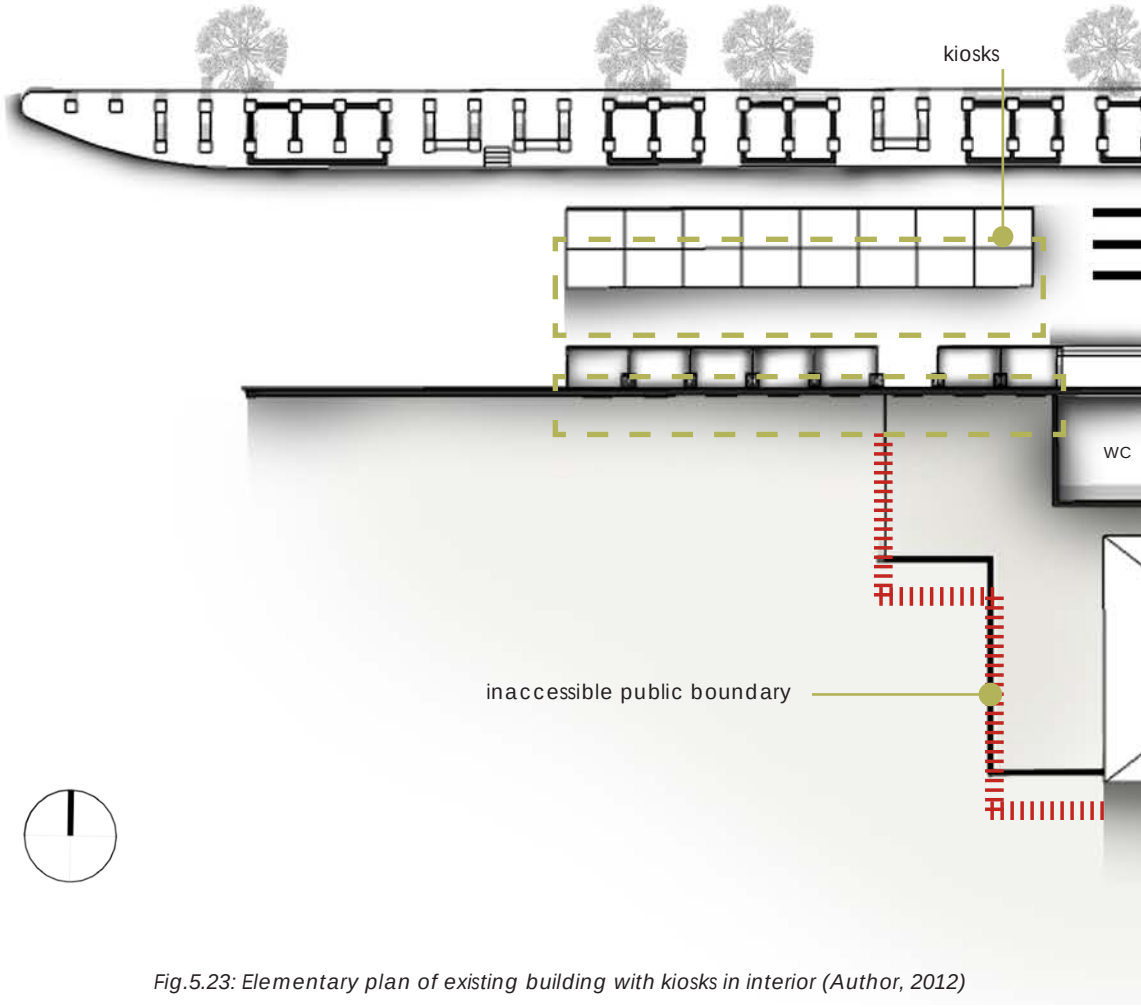
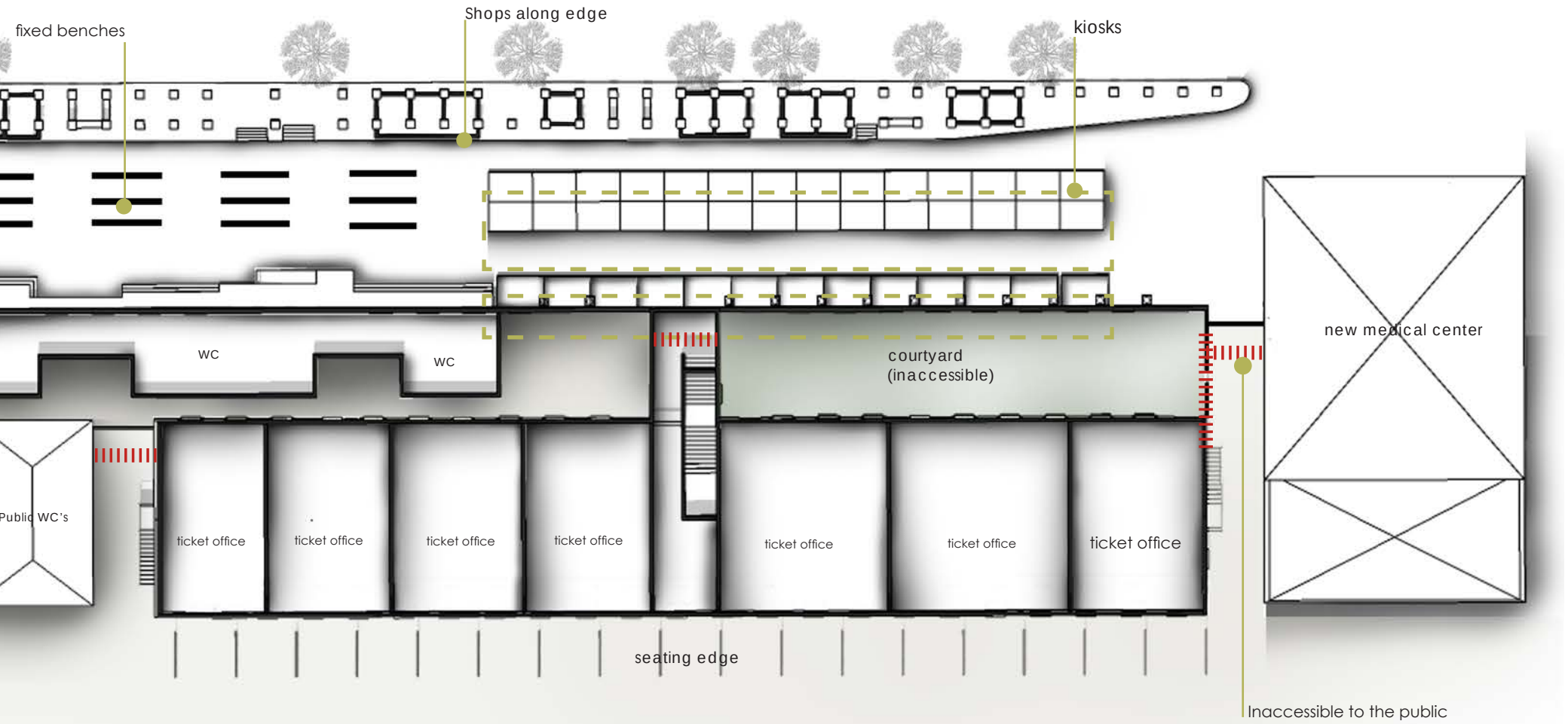


Fig.5.23: Elementary plan of existing building with kiosks in interior (Author, 2012)



5.2.5 Building Use + Character

The current use of the building mostly consists of food vendors who trade from the steel kiosks installed inside the building and traders who sell goods from the shops located on the northern edge of the building. A variety of small entrepeneurs occupy the building in spite of the fact that there is little to no services available for their use.

Arriving on site is a thrilling experience. Music blares from speakers splaced on the sidewalk by traders selling CD's. A variety of smells hang in the air, some more pleasant than others. Despite the warm and active vibe present, it is overshadowed by a lack of propoer facilities and places that are needed.

The main activities that occur in the building is that of eating and trading. Many city dwellers who work in the CBD visit the Spaza Shed over other restaurants in order to enjoy traditional South African cuisine.

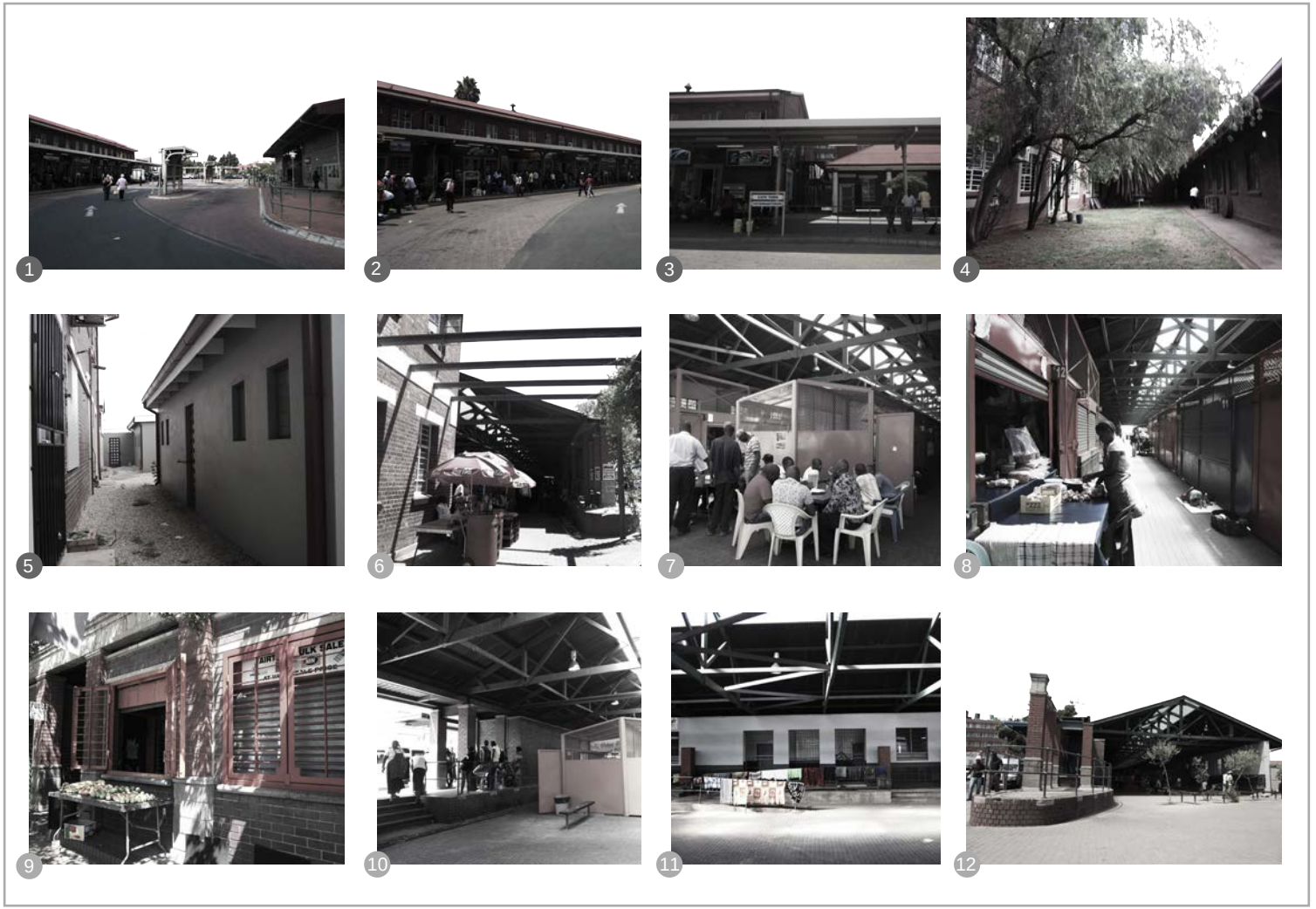


Fig.5.24: Walk-through of existing building (Author, 2012)

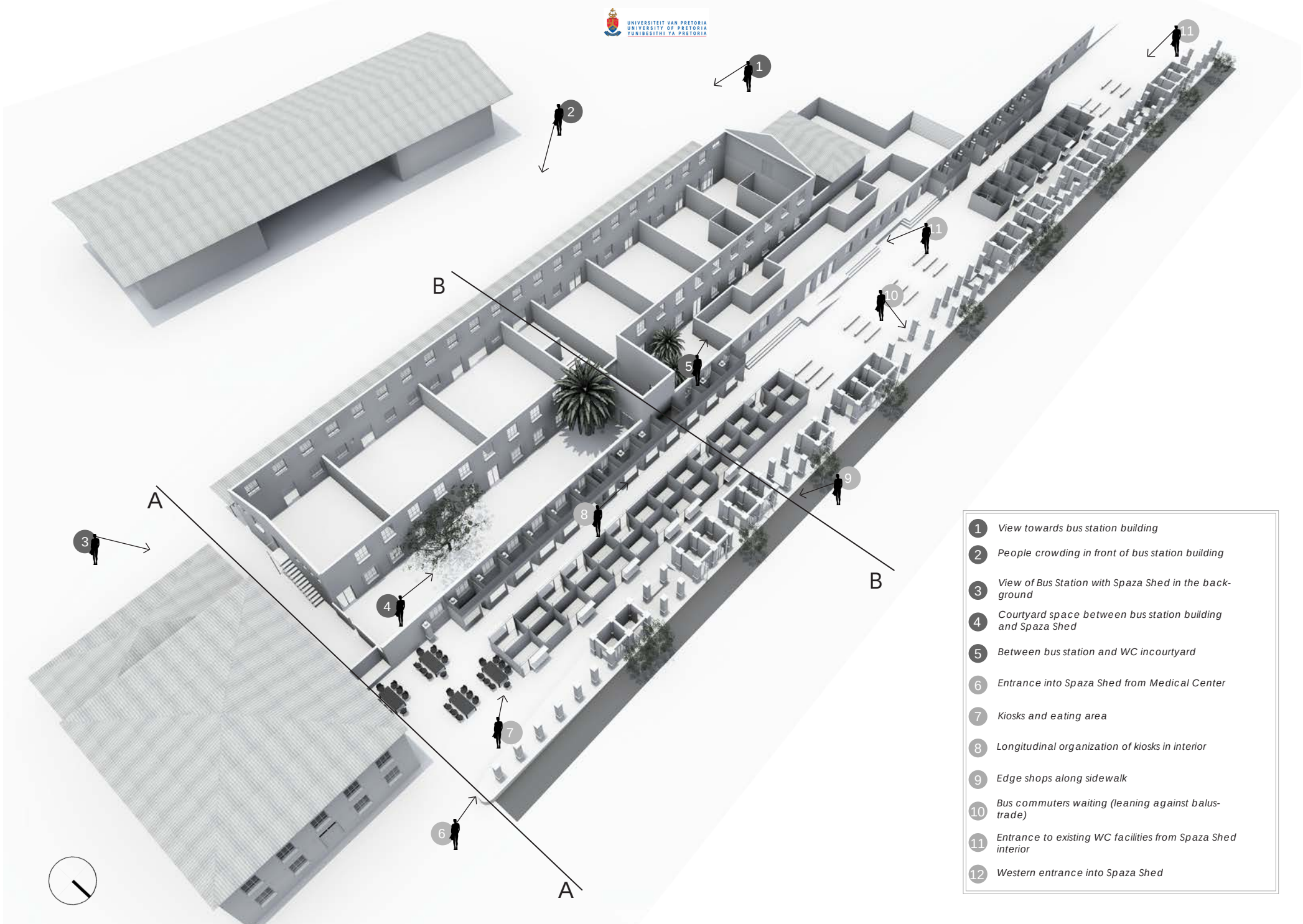


Fig.5.25: Three dimensional plan illustrating existing context and interior layout. (Author, 2012)

5.2.6 Existing kiosks

Food vendors trade from numbered steel kiosks that are placed along the length of the interior. These kiosks are not fitted with any cooking or washing facilities, creating a hygine dilemma.

Furthermore, little storage space and inadequate work surfaces means products and materials are placed along walkways.

No signage and branding space is provided and tenants have to create their own signage and price lists.

1. *Kiosk counter open*
2. *Paper sigange and prices*
3. *No washing facilities*
4. *Products and materials stacked next to kiosks*
5. *Steel kiosks painted*
6. *Narrow walkway past kiosks*

Fig.5.26: Investigation of existing kiosks for vendors (Author, 2012)

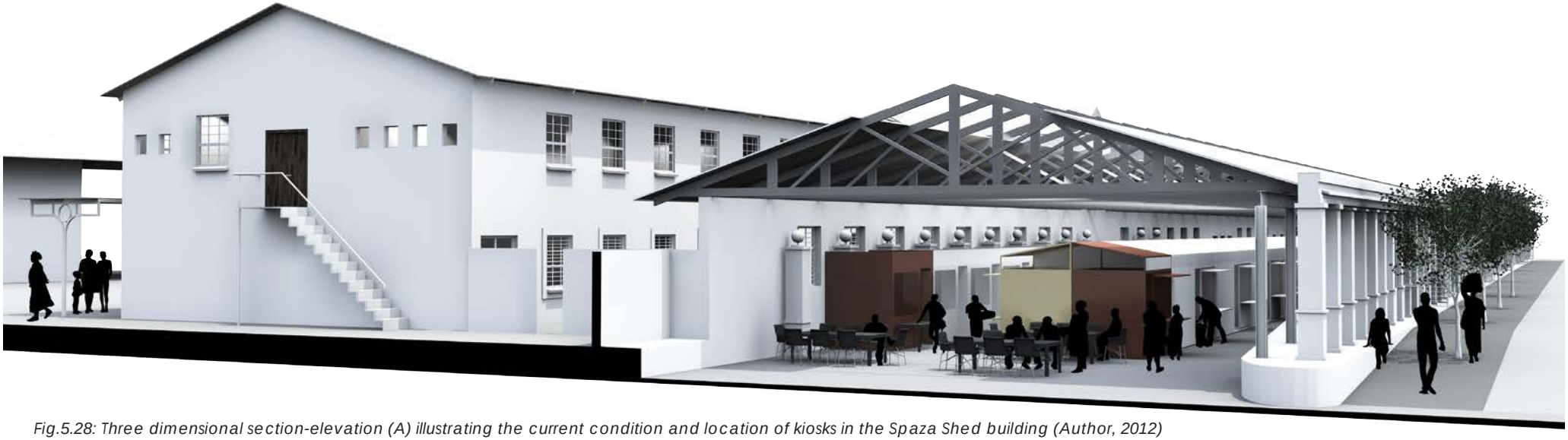


Fig.5.28: Three dimensional section-elevation (A) illustrating the current condition and location of kiosks in the Spaza Shed building (Author, 2012)

Fig.5.27: Three dimensional section-elevation (B) illustrating the confined space that is available to vendors and people who have to wait for bus transport (Author, 2012)

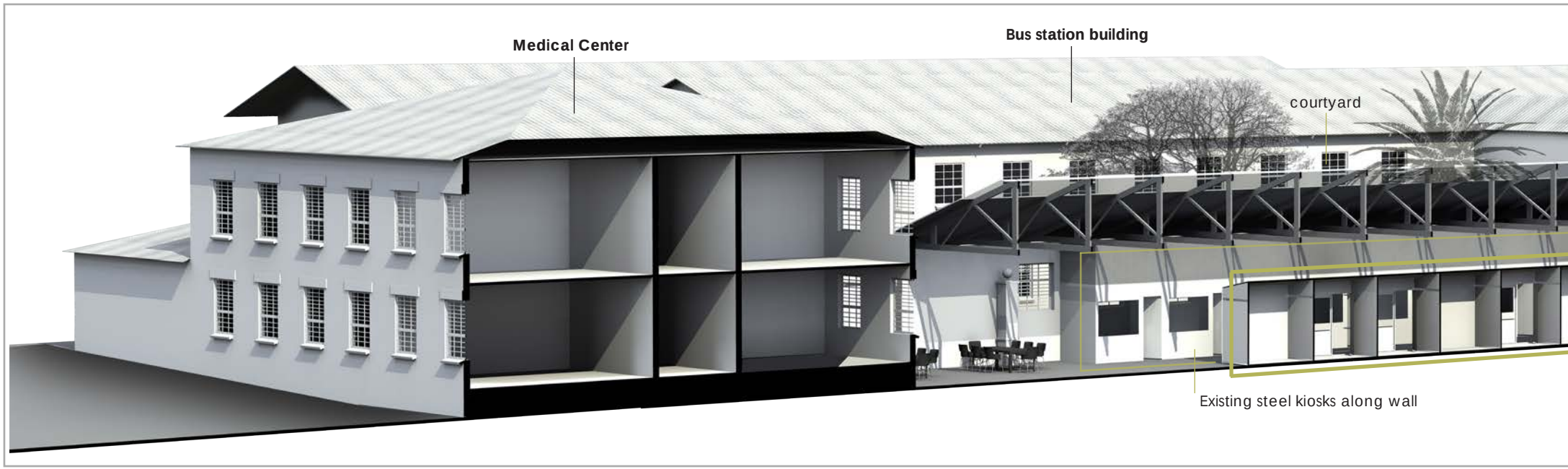


Fig.5.29: Three dimensional section through the length of Spaza Shed building illustrating the location of the existing steel kiosks (Author, 2013)

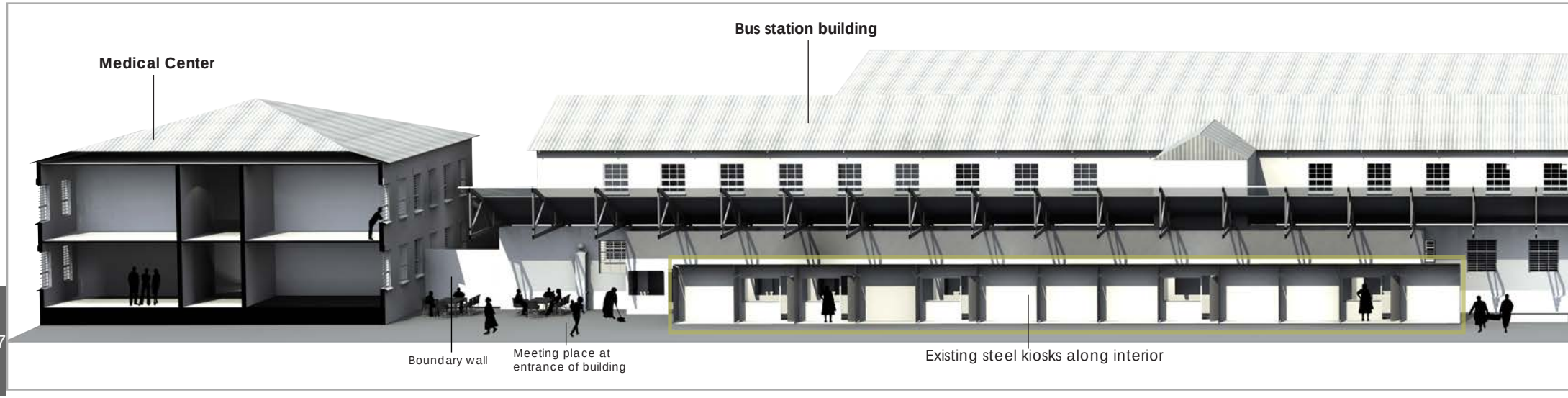
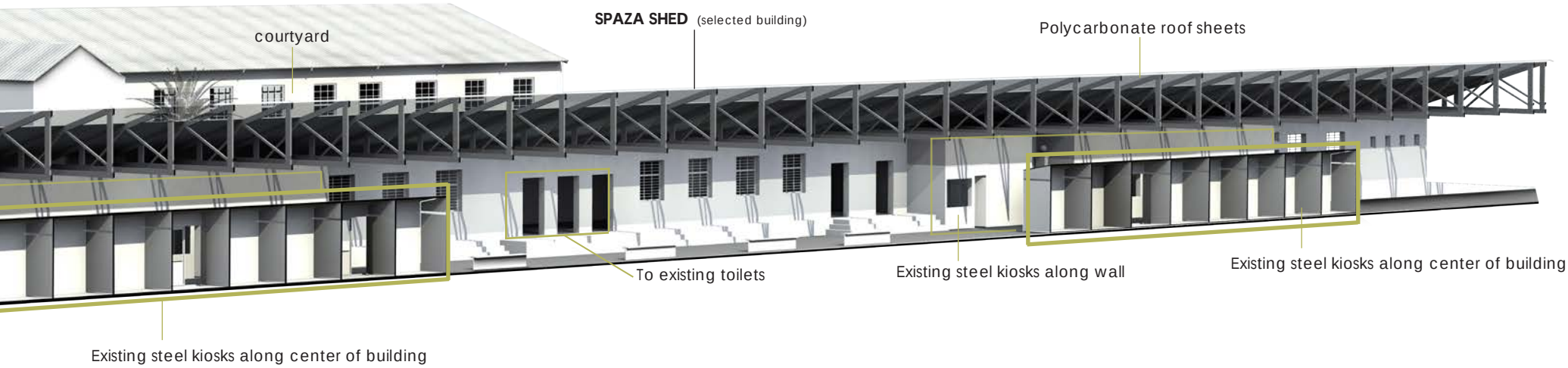


Fig.5.30: Three dimensional section through the length of Spaza Shed use of space and location of existing steel kiosks (Author, 2013)



5.2.7 Street sections and proposals

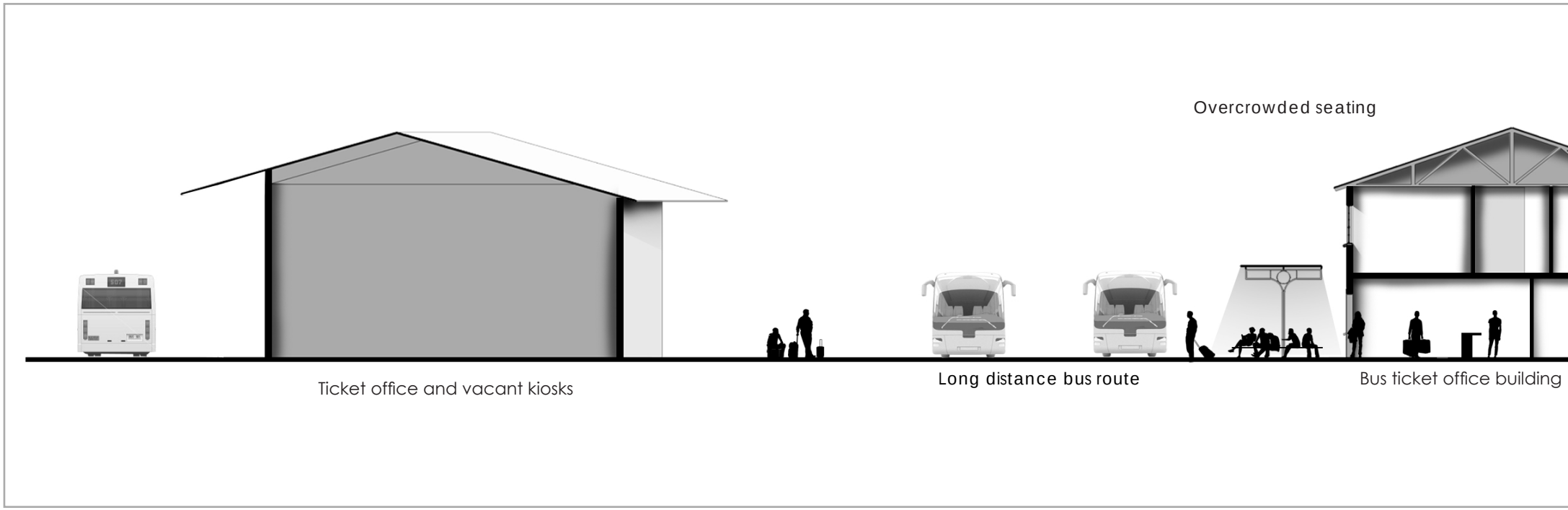
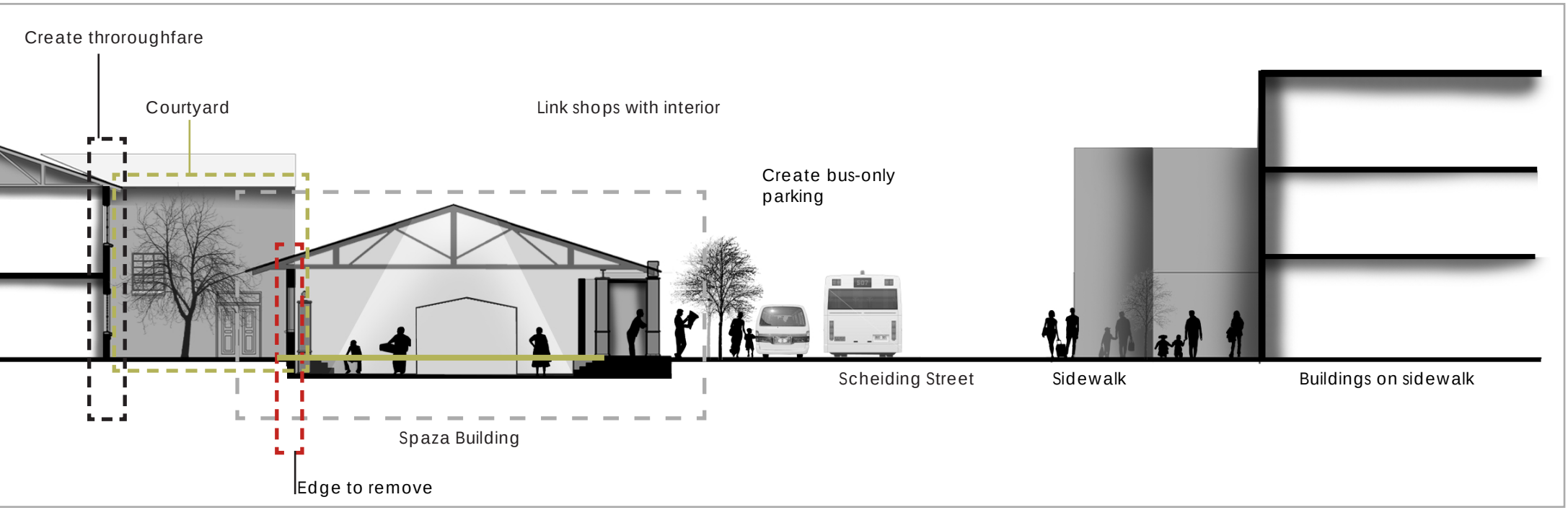


Fig.5.31: Street section A illustrating surrounding movement and edges (Author, 2012)



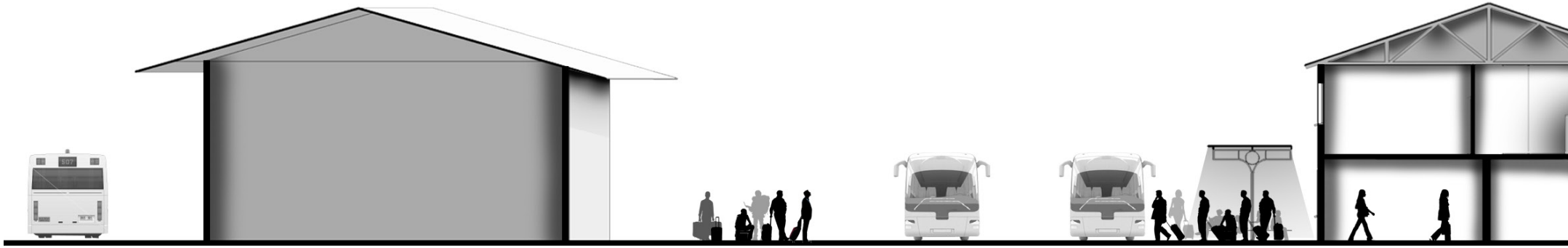


Fig.5.32: Street section B ilustrating connection between host building and bus ticket office (Author, 2012)

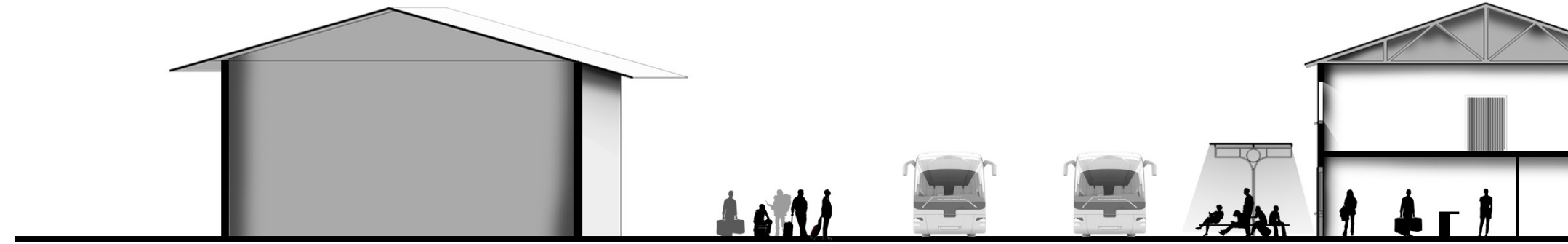
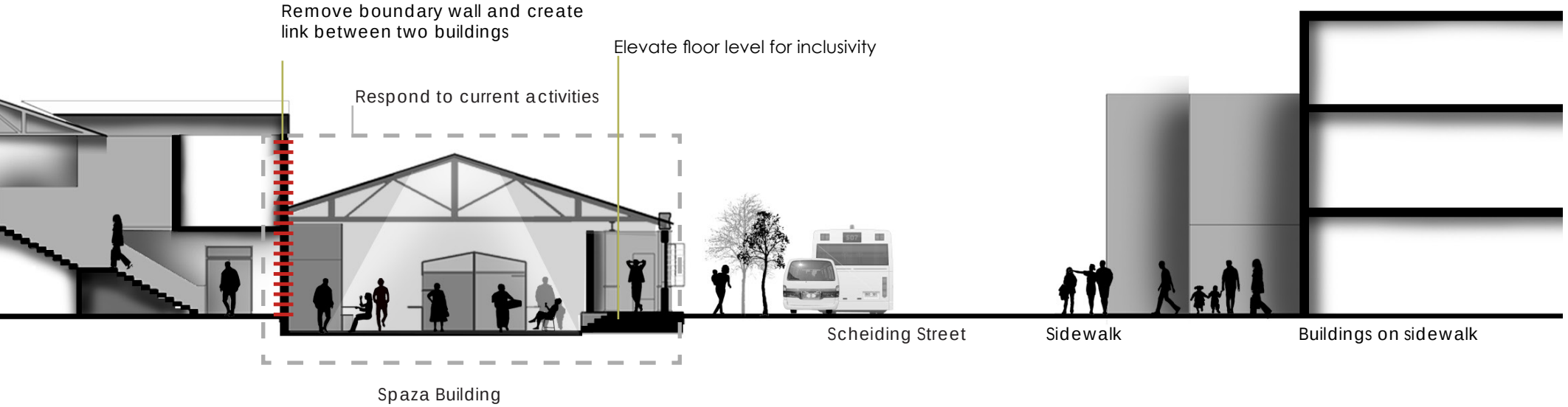
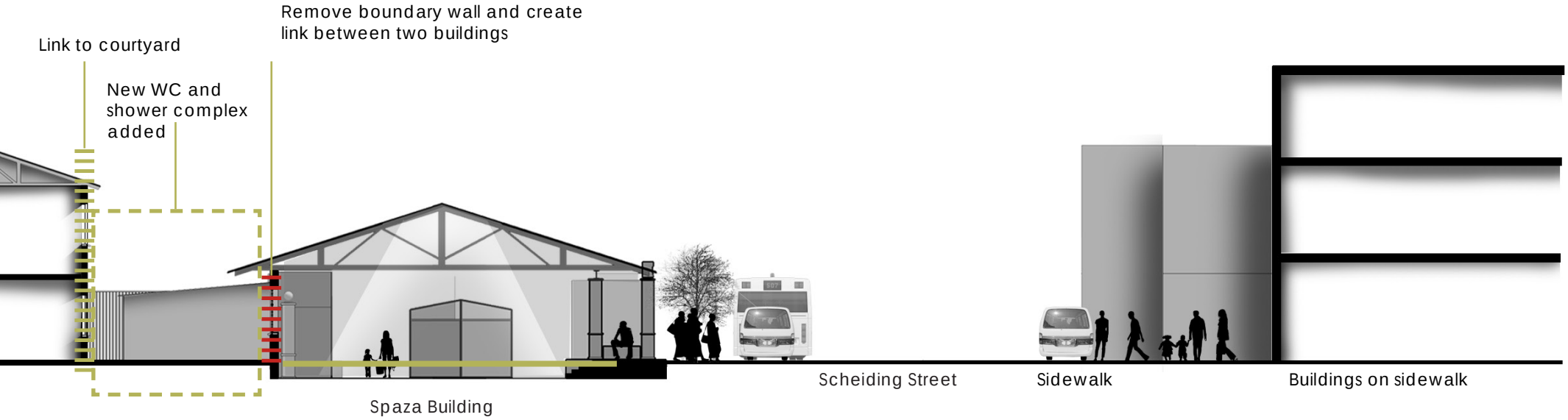


Fig.5.33: Street section B illustrating courtyard space between structures (Author, 2012)





5.2.8 Materiality

The typology of the host building comprises of many robust and industrial like materials such as concrete and steel. The palette of materials is cold and unfriendly, which stand in contrast with its function, which is to serve as a place of gathering and socialization.

Fig.5.34: Collage of material palette of building (Author, 2012)

5.2.9 Conclusion

The conversion of the original structure into a bus terminal infolved intensive alteration work. Eventhough the occupation of the building has since changed, the building itself has not. No architectural adaptation or alteration has taken place and this has lead to the building being regarded as inadequate in fulfilling its current purpose. Despite the shortcomings and inadequacies of the host building, it continues to serve the community and has great potential for re-use as a waiting station.

chapter 06

precedents

This chapter constitutes a summary of the precedents that have informed the conceptual and design approach. The respective precedents are organize into different groups so as to clarify their contribution to the project. Each precedent is discussed in terms of its relevancewith regards to the project and conclusions are made.

Precedents list

A) Precedents of existing waiting stations in South Africa

5.1 Baragwanath Public Transport Interchange and Traders Market, Soweto, Gauteng. By Urban Architects and Urban Designers (Ludwig Hansen Architects), 2003 - 2008.

5.2 Metro Mall Taxi Rank and Market, Johannesburg. By Ludwig Hansen Architects (2000 - 2001)

B) Precedents of contemporary waiting station design:

5.3 Gare de Lyon-Diderot Bus Station, Paris. By RATP (Marc Aurel), 2012.

5.4 Escale Numérique Digital Station: Rond Point des Champs-Elysées, Paris. By Mathieu Lehanneur for JCDecaux, 2012.

5.5 Tucson Ductal concrete bus shelter, Arizona, USA. By Line and Space.

C) Precedents influential to conceptual approach

5.6 Auditorium (Cultural Center): Saint Cyprien, France. By Serero Architects, 2008.

5.7 Airspace building, Tokyo, Japan. By Faulders Studio.

5.8 Lille Modern Art Museum, Villeneuve d'Ascq, France. By Manuelle Gautrand Architecture, 2010.

D) Precedents influential to kiosk design

5. 9 Malmö Centralstation, Sweden. By Metro Artkitekter, 2008 – 2011.

E) Precedents influential to seating design

5.10 Sitscape, by Hackenbroich Arkitekten, 2011.

5.11 M2 concrete bench, byb Studio Segers, 2009.

6.1 Baragwanath Public Transport Interchange and Traders Market

Date: 2003 - 2008
Architects: Ludwig Hansen Architects
Location: Soweto, South Africa

6.1.1 Design relevance

The use of concrete as main construction material and its application to create sculpture-like architectural features is relevant. Futhermore, the arcade or 'strip as binding element of the various amenities is investigated.

6.1.2 Overview

The Baragwanath Public Transport Interchange is one of the busiest transport nodes in South Africa and is the node through which most of Soweto's residents pass in order to travel to work and home. The aim of this development scheme was the integration of Johannesburg's western Soweto townships into the city's urban economy and landscape. Various workshops and negotiations stretched over a period of 6 years in order to address the major design challenge which was to intergrate the interests of bus companies, minibus taxi associations, street traders and city officials to create a design that would address the needs of all parties involved and end the longstanding competition for space in the area (Deckler et al, 2006:65).

In the past, very few formalities have been provided for the sectors of public transport and trade and Baragwanath is an example of what the future of such a typology could be. Facilities that are provided for include; trading stands for 500 vendors and street traders that vary in size in order to accommodate the different types of trade, 22 bus ranks, 650 minibus taxi stands (Deckler et al, 2006:65).

The site stretches 1.3km and is mostly only 50m wide. The oblong shape of the site presented a design challenge. The planning principle of the project introduces using an arcade structure as a structural spine running along the length of the site which serves as binding element into which all facilities are linked. This spine also establishes a starting point for the development and as an orientation guide (Deckler et al, 2006:65).

The arcades are constructed of sculpturally formed concrete elements that diffrentiates spaces in the arcade indicating the functions that occur along it. The choice of material is based on its permanence, robustness, and ability to be sculptural quality (Deckler et al, 2006:67).

Fig.6.1: Concrete sculpture (Author:2012)

1. Old Potch Road
2. Taxi Holding
3. Trader market and management offices
4. Baragwanath pedestrian foot-bridge
5. Taxi ranking area
6. Lond distance taxi rank
7. Arcade
8. Bus rank
9. Baragwanath hospital entrance

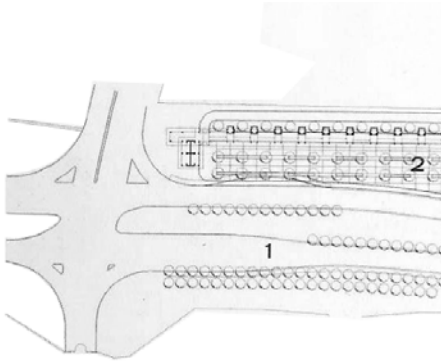


Fig.6.3: Collonade and columns with seating and kiosks along edge(Author:2012)

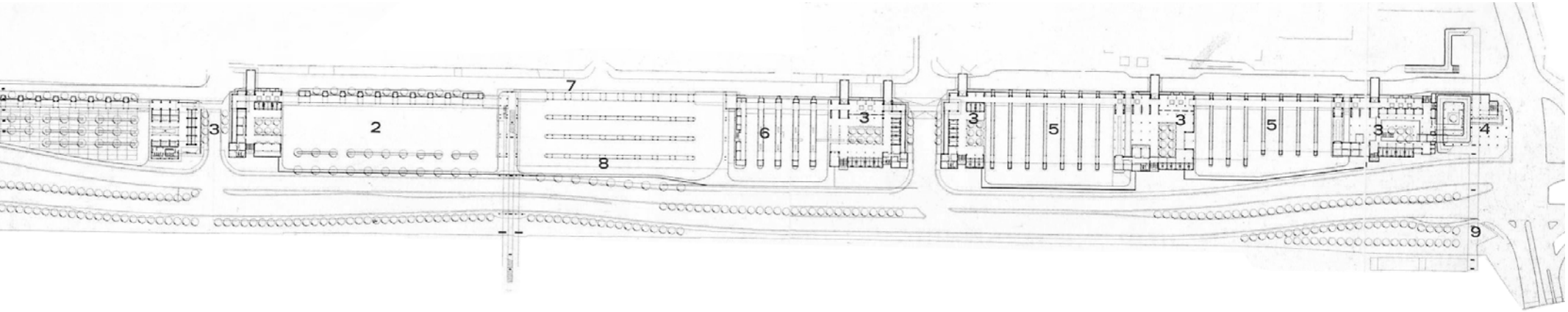


Fig.6.2: Plan of Baragwanath Transport Interchange, edited by Author (Deckler et al. 2006:65)

6.1.3 The arcade strip

As discussed, the arcade structure serves the purpose of linking the various sites together. Not only does it become the thread onto which the various facilities are attached on a macro scale, it also becomes a sculptural element on smaller scale, creating seating areas for commuters as well as table surfaces for vendors of various goods.

Fig.6.4: Seating niches provided in concrete arcade (Deckler et al. 2006).

Fig.6.6: Internal view of arcade with columns(Deckler et al. 2006).

Fig.6.5: Sheltered seating benches along arcade (Deckler et al. 2006).

6.1.4 Atrium spaces

Shops and food stalls are arranged around a central atrium with a polycarbonate roof allowing natural light to fill the interior. This creates a vibrant atmosphere. In the center of most atriums are concrete public wash basins colorfully decorated in mosaics by Jane Du Rant. Certain atriums have trees planted in the center providing additional shading. Trees are sparsely located on the cite and the inclusion of trees in certain atriums creates a sense of tranquility. Although the atriums are spacious and allow for a lot of movement, there is little seating provided and storage space for the multitude of produce and materials that are used by vendors are placed in the middle of walkways, making nagivation through the space somewhat difficult.

Fig.6.7: Atrium with suspended artworks iluminated by natural lighting through polycarbonate roof sheets (Author:2012)

Fig.6.9: Concrete public basins with mosaics by Jane Du Rant (Author:2012)

Fig.6.8: Tree planted in center of atrium (Author:2012)

6.1.5 Food stalls

As discussed, food stalls are arranged around a central atrium on the first floor, whilst miscelaneous shops are on ground floor. The food stalls are provided with roller shutter doors that open onto the walkway. As they are locate on the first floor, away from most of the activity below, they are quite removed and some stalls are empty. Each food vendor places his or her own tables and chairs outside the stall. There is no real strategy for branding or adverstising and vendors simply fix their own signs above the roller doors.

Fig.6.11: Food stalls on first floor (Author:2012)

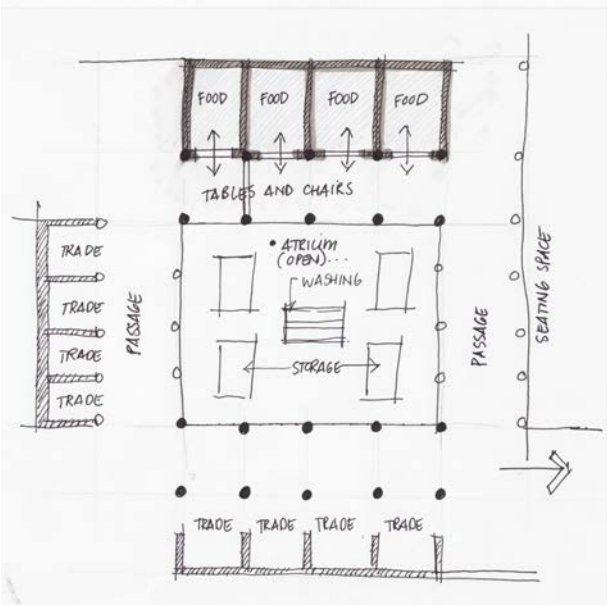


Fig.6.10: Sketch of traders market layout (Author:2012)

6.1.6 Conclusion

This precedent is influential not only in terms of its material use, but also in the pragmatic manner of using a functional spine that not only serves as seating element, but that communicates the interior functions to the outside. As the selected building is also oblong shaped and very narrow along its length, this is a design consideration worth noting. Furthermore, the use of concrete and steel infill serves as precedent of the materiality of kind of structure and one should bare in mind the robustness required of such a facility's materilty.

The layout of the traders market concentrates most of the activieties on the interior with the shops and traders stalls located along the edges. Lack of adaptability creates the problem of lack of storage space and results in products and produce being placed in placed that are not suitable. No seating is designed in the traders market space and due to lack of storage, the available seating is used as storage space.

Each vendor stall is isolated from the others and does not allow for adaptability or expansion. This will be addressed in the design proposal.

Fig.6.12: Atrium with food vendors on ground floor (Author:2012)

6.2 Metro Mall Taxi Rank and Market

Date: 2000 - 2001
Architects: Ludwig Hansen Architects
Location: Johannesburg, South Africa
Client:

6.2.1 Design relevance

This precedent has little influence on the direction of the design development. In stead, it illustrates the result of a waiting place that has not been designed to the intimate scale of the user and regard for his physical and psychological needs when it comes to waiting. Eventhough on architectural level, the building does provide new insight in designing for this typology, it is found lacking on an interior level. There is no attention given to seating design, there are no interior green spaces or spaces for gatherine and signage is very poor. Furthermore, the lack of a sence of ownership imbued has caused most of the amenities to become misused.

What was found inspirational was the creative iuse of materials to create texture and the incorpotation of artworks andsculture.

6.2.2 Overview

The integration of street traders and taxi operators into the public realm and providing them with facilities for their endeavors was the main consideration of this project. A sense of ownership and identity is established through the design. Althought the focus of this project was aimed specifically at taxi operators, it serves as an example of a building that resulted from collaboration and integration of public transport and trade and indicates a shift in the typical design approach of projects of this nature. It comments on the stereotypical taxi ranks that dot the sides of the road and presents a sense of permanence It provides space for 800 informal traders, 2000 minibus taxi bays and 25 bus stands. The facilities include community ammenities, creches, recreation halls and formal retailers. (Luwig Hansen).

Though the building serves as good example of a contemporary and fresh approach to the design of such a facility, on an interior design level it is found lacking. Many of the facilities appear to be dated and the space, though formalized, seems not to provide for all requirements on an intimate user-deisgn level.

Fig.6.13: One of the artworks outside the entrance

Fig.6.14: Entrance to Mall (Author:2012)

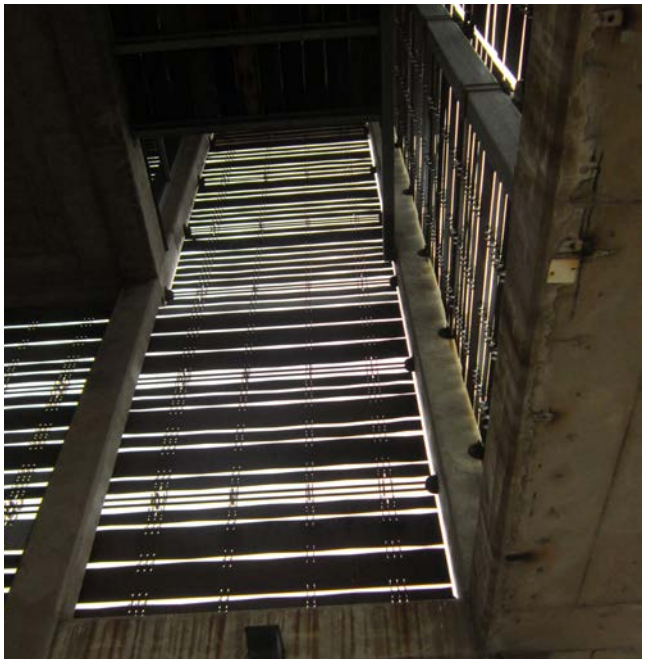


Fig.6.16: Steel slats create ineresting visual effect (Author:2012).

Fig.6.15: The interior walkway with vendor stalls (Author:2012).

6.2.3 Food court design

The food vendor stall areas (food courts) in Metro Mall are located around the corner from the vendor stalls and are thus completely separated from the shops and walkways where most commuters walk by. No clear visual link is created between the food stalls and the vendor stalls. There is also no connection with the food stalls to the street. Opening up onto a communal sitting area, which can become very crowded, the food stalls are arranged next to each other. Dimensions are fixed and no degree of adaptability is allowed for. Tables and chairs are placed in the central eating space which makes movement problematic. Moreover, due to the lack of storage space in the food stalls, vendors also place some of their materials and cooking appliances in the communal space, adding to the space problem.

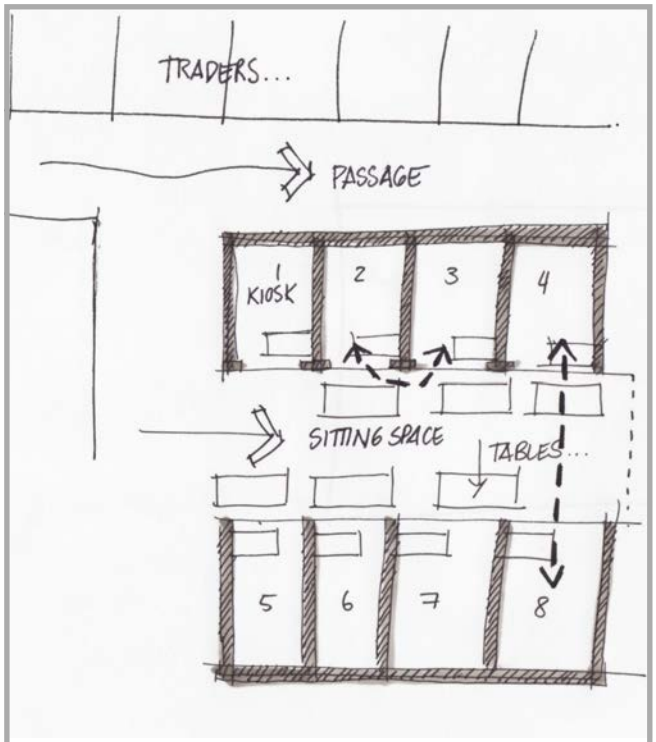


Fig.6.17: Field plan sketch of food court layout (Author:2012)

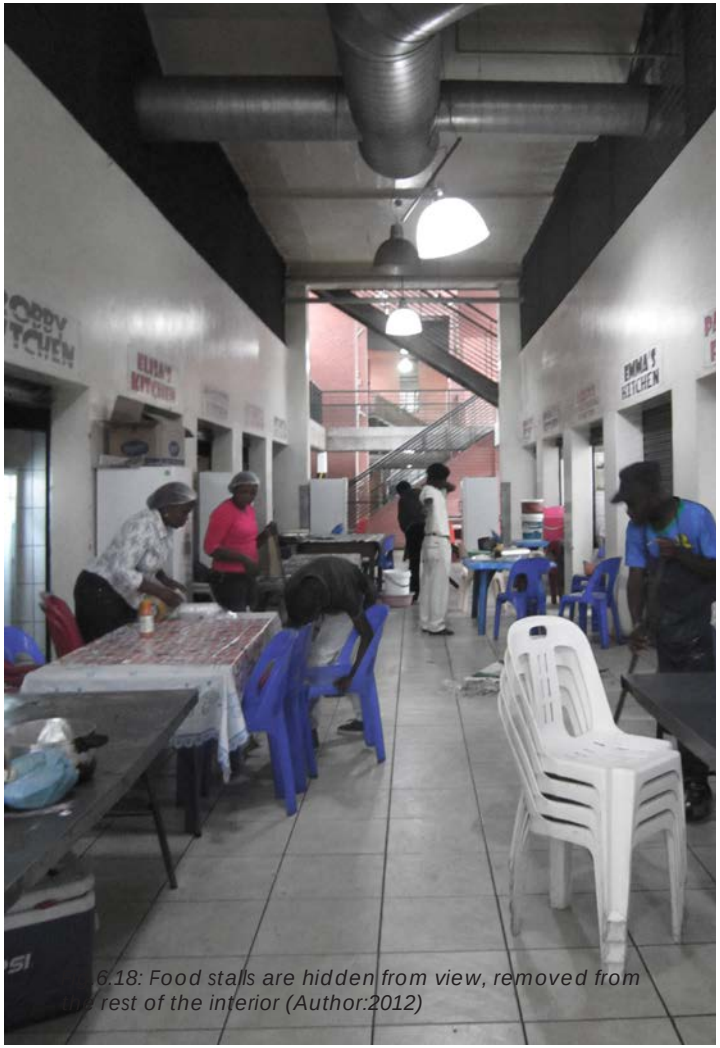


Fig.6.18: Food stalls are hidden from view, removed from the rest of the interior (Author:2012)

6.2.4 Food stalls

Indidivual food stalls are each provided with electricity, a serving counter and space for fixing their own shelves. Vendors have to use their own gas cooking appliances. No zinc is supplied which means that vendors havev to share public wash facilities for all cooking utensils and cutlery used. There is also no provision made for branding and vendors just place their own sigange above the roller shutter door.

Fig.6.19: Food stalls are hidden from view, removed from the rest of the interior (Author:2012)

Fig.6.22: Author and food vendors (Author:2012)

Fig.6.20: Food stalls are hidden from view, removed from the rest of the interior (Author:2012)

Fig.6.21: Public washing troughs for food vendors (Author:2012)

6.2.5 Artistic and sculptural features

Several murals decorated by mosaics are located throughout the Metro Mall building. As illustrated in the precedent of Baragwanath Transport Interchange, the inclusion of artistic elements such as mosaics and sculptures can create interesting features to the typology of a transport facility.

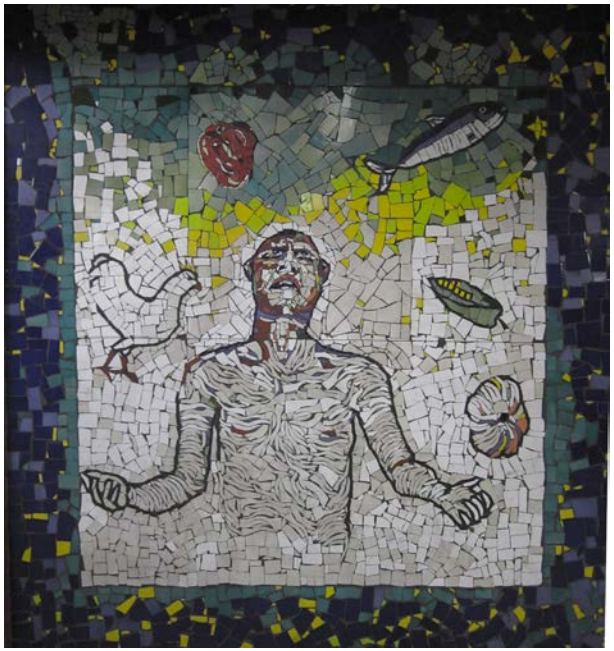


Fig.6.23: Various mosaic pieces alingn the iterior (Author:2012)

6.2.6 Exterior courtyards

Unlike Baragwanath, Metro Mall has no interior courtyard spaces inside the building. Courtyard spaces with trees and elementary seating is provided outside the building. Given the location relatve to the interior facilities as well as the lack of creative urban seating design, these courtyard spaces are rarely used, as is illustrated by the images below.

Fig.6.24: Exterior courtyard (Author:2012)

Fig.6.25: Empty exterior courtyard (Author:2012)

6.2.7 In conclusion

When considering the space for the food vendors, they have very little space from which to trade and are completely removed from the street context. Previously, there had been a connection between the traders and the pedestrians walking oast on the sidewalk. The relocation of the food vendors into the building removes them from their usual clientele. Facilities in the building such as communal wash areas appear dated and dirty. It begs the question that there is perhaps still a stereotypical notion attached to designing places such as a taxi transition point such as Metro Mall. The exterior of the building is not true to the state of the interior and one is dissappointed when experiencing the building from within. There is potential latent in connecting and creating a deepened dialogue between the interior and the surrounding exterior. This will be investigated in the design project.

What should be noted, and what is infulential in this precedent is the use of materials as artistic expression and also the inclusion of art into the design. This project makes use of mosaics and steel detailing in order to create interesting surfaces and elements that add texture and detail to the building.

6.3 Gare de Lyon-Diderot Bus Station

Date: 2012
Architects: Marc Aurel (RATP)
Location: Gare de Lyon, Paris
Client: City of Paris

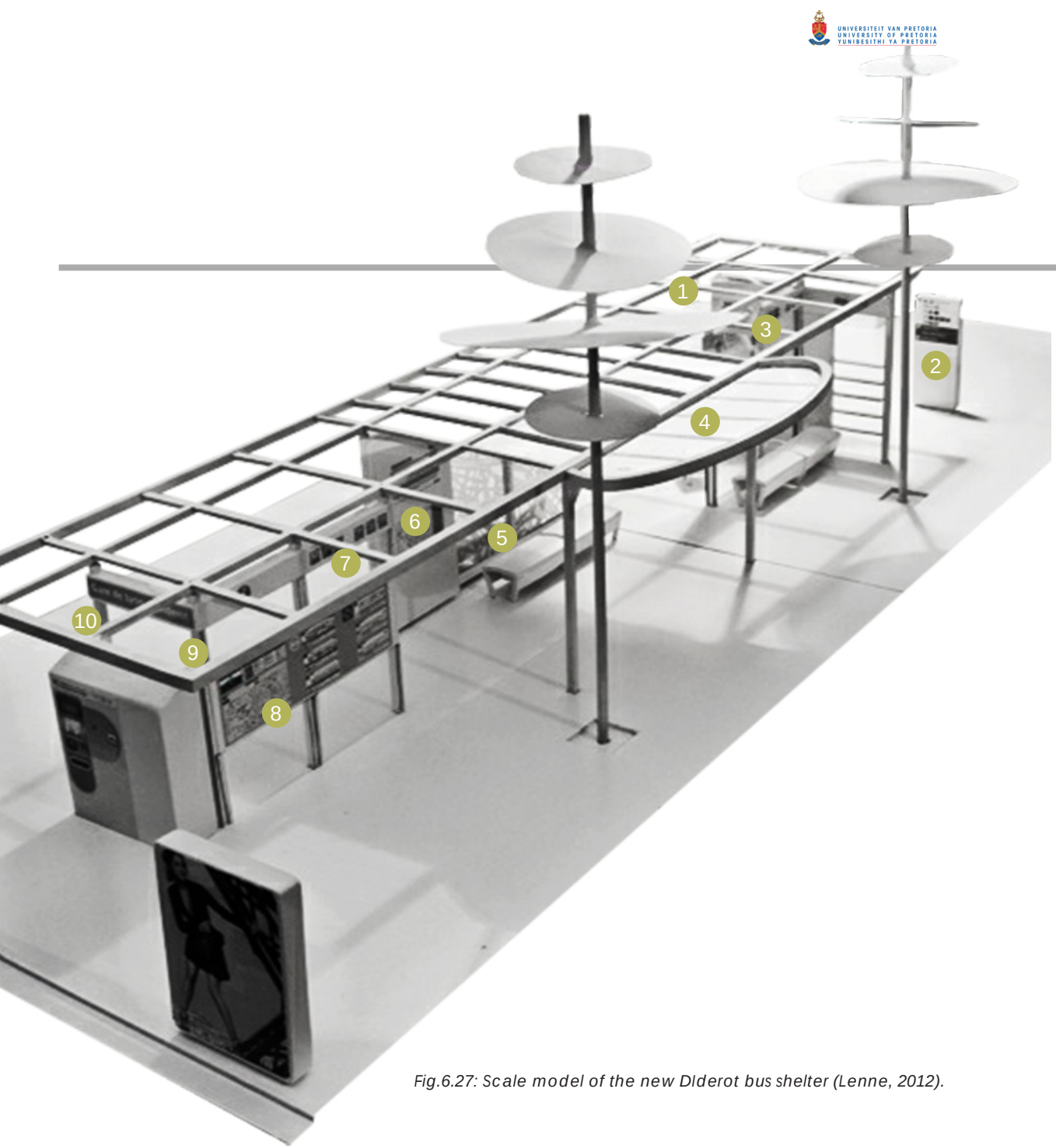
6.3.1 Design relevance

This precedent adresses the status-quo of waiting shelters for the 21st century public transport commuter. As previously stated, a bus shelter no longer consists of merely a bench and shading, but has the potential to become an active urban node. Modulatiry in the design as well as the use of signage and interactive touch screen technology is relevant.

6.3.2 Overview

Designers at RATP have designed a concept bus shelter that rethinks the experience of having to wait for a bus. It is therefore only fitting that this project has been referred to as “the bus stop of the future”. The shelter is located on the Boulevard Diderot opposite the Gare de Lyon metro railway station and is used by three bus routes in the daytime and five in the night. Marc Aurel, urban design specialist, describes the project as being a multi-purpose public space on a small scale. It is designed to blend in with the environment and is modular in nature which means that it can be adjusted to suit any environment and context in which it is placed (Soundscapes, 2012).

Fig.6.26: Scale model of new Gare de Lyon - Diderot bus shelter (Lenne, 2012).



1 *Electronic bicycle rack*

2 *Interactive touch screen*

3 *Library corner*

4 *Shading device*

5 *Bench with glass screen partition*

6 *Interactive touch screen*

7 *Overhead back-lit sigange*

8 *Information screens*

9 *Fruit kiosk*

10 *Coffee corner*

11 *Interactive touch screen*

Fig.6.27: Scale model of the new DIderot bus shelter (Lenne, 2012).

6.3.3 Amenities for active waiting

A variety of interesting amenities have been added which enrich the experience of the person who has to wait. This includes a small space for a fruit vendor, a coffee corner (Fig 6.29), a small library (Fig 6.30) and a bike rack (Fig 6.35) that houses electronic bicycles that can be hired.

Fig.6.28: Coffee corner (Marcaurelcaterina, 2012).

Fig.6.29: Library corner and bike rack (Lenne, 2012).

6.3.4 Interactive technology

The design incorporates free wireless access and provides improved space and seating for bus users. Interactive information screens allow commuters to access information such as locations of other stations, bus routes and schedules as well as other information regarding the city of Paris. This interface allows the commuter to instantly gain information and travel options, allowing him to relax and take in the environment. Sound effects an interesting addition and ss soon as a bus approaches, music by Michel Redolfi starts playing. There is also a sonic panel that produces interesting sounds when a hand moves across it; as (FIG 6.33) translates to '*change the sound scape by moving your hand sccross*'. (Soundlandscapes, 2010).

Fig.6.30: Seating and touch screen (Lenne, 2012).

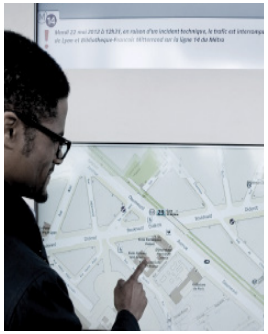


Fig.6.31: Touch sceen (Reference, year)

Fig.6.32: Technology includes sound effects (Soundlandscapes, 2010).

6.3.6 Lighting and signage

Due to the fact that the bus stop is used during the day as well as during the night, the lighting systems have been designed so as to change automatically to suit the day or night conditions. In addition, the central section of the bus shelter is heated in the winter (Soundscapes, 2010). The signage design is simple and effective and placing it overhead along the strip makes it unobstructed and clearly visible.

6.3.5 Analysis

Many transport facilities lack adaptability and become redundant and misused as result. There should therefore be a shift in thinking about places where people wait, such as bus stations or even urban pause spaces. The needs of the bus commuter in the 21st century is addressed by interesting fresh amenities added to an old typology in the form of wireless access and a library. The design is robust, yet delicate and elegant in its design and use of materials. Perhaps the most important aspect of this precedent is the fact that, even though it is on a small scale, the resulting design creates a pleasant, intimate and tranquil environment that, in a way, makes the commuter want to pause for a while, wait, engage and interact with the design.

Fig.6.33: Street view of Gare de Lyon - Diderot bus shelter (Reference, year)

Fig.6.34: Bicycle rack (Benfield, 2012).

Fig.6.35: Internal view of Gare de Lyon - Diderot bus shelter (Soundlandscapes, 2010).

Fig.6.36: Diderot station at night (Marcaurelcaterina, 2012)

6.4 Escale Numérique Digital Station

Date: 2012
Architects: Mathieu Lehanneur for JCDecaux
Location: Rond Point des Champs-Elysées, Paris
Client: JCDecaux

6.4.1 Design relevance

This precedent is relevant to the design project as it illustrates the use of concrete as robust material for seating as well as interactive technology in teh form of touch screens. Furthermore, it introduces foliage, here in the form of a green roof, to create a tranquil waiting oasis.

6.4.2 Overview

Designer Mathieu Lehanneur, in collaboration with outdoor advertising giant JCDecaux, has recently unveiled the Escale Numérique (which translates to Digital Break) on the Rond Point des Champs-Elysées, in Paris. This green digital station is a tranquil haven of information which provides Parisians with free wifi and connection to the internet by tapping into an underground fiber optic network which currently supplies the capital. Lehanneur himself has compared this project to the Wallace fountains of Paris, which since the end of the 19th century, have offered Parisians free drinking water. Just like the fountains, Escale Numérique now provides everyone with the benefit of high-speed wifi connection by raising it from beneath the ground (Meinhold, 2012).

Fig.6.37: Concrete swivel chairs (Meinhold, 2012)

Fig.6.38: Large touch screen provides information (Meinhold, 2012)

6.4.4 Concrete seating

The seating consists of swivel chairs made from concrete with mini tables connected to the seats. Plugs are located on the bases of the chairs so as to allow for use of a laptop. The table surfaces are also ideal for a smartphone, tablet or just a book.

6.4.3 Green roof

The structure of the design consists of vertical logs, like tree trunks that support the shade structure, which is essentially a green roof. An important feature of the design, the roof was designed to be attractive not only from the ground but also when being viewed from a balcony above. Underneath the roof is a simple circular LED light providing lighting in the evening (Meinhold, 2012).

6.4.5 Interactive technology

A prominent feature of the design is the large touch screen which is attached to the vertical supports. The touch screen not only provides information about the city such as transport routes and stations, but also provides news and internet access for those who may not have devices to get online with (Meinhold, 2012).

1


2


3


4

5

6

1 *Fig.6.39: Green roof blends into environment (Trendoffice, 2012).*

2 *Fig.6.40: LED light circle beneath green roof (Trendoffice, 2012).*

3 *Fig.6.42: Small table allows adequate space for laptop (Meinhold, 2012).*

4 *Fig.6.44: Concrete swivel chairs with plugs at bases of chairs (Meinhold, 2012).*

5 *Fig.6.43: Alternatively the small table can be used for smart phone (Meinhold, 2012).*

6 *Fig.6.41: Small table fitted to concrete swivel chair (Meinhold, 2012).*

6.4.6 Analysis

The tranquil appearance, the use of materials as well as the balance achieved between design and technology of this green station serves as inspiration for the project undertaken.

Incorporating a green roof into the design creates the idea of a waiting oasis. Here one can pause and feel at ease. The green roof also softens the design and draws one's eyes upwards. The use of concrete a seating material is most inspirational. Not only is the resultant seating design aesthetically pleasing, but it is also durable, able to withstand prolonged use and abuse and allows for comfortable ergonomic shape as the seating illustrates.
Furthermore, the importance of providing the 21st century commuter with internet access as well as information is becoming more and more important. A bus shelter, or waiting station as in this case, is no longer simply a composition of a seat and a roof element. They become beacons, points of interaction and connection.

City spaces such as the central business district of Pretoria (See Chapter 4) are unfriendly to pedestrians and very few waiting places are available to pedestrians and commuters. By incorporating some of the principles used in this example, one can create city spaces that become more scaled to the individual and his needs.

6.5 Tucson Ductal concrete bus shelter

Architects: Line and Space
Location: Tucson, Arizona, USA
Client: City of Tucson

6.5.1 Design relevance

The principle material used in this precedent is a concrete material by LaFarge known as Ductal concrete (which will be discussed in a later chapter) which is a high performance concrete. This precedent is influential to the deisgn as it illstrates the structural capabilities of the material in its application of a bus shelter and also reveals the properties of the material that makes it so superior to other types of concrete.

6.5.2 Overview

Eight single-seat bus shelters were especially designed to protect waiting passengers from extreme sun and heat in Tucson, Arizona. Due to the extreme conditions in this desert environment, high emphasis was placed on the need for shading (LaFarge).

The design is referred to as the "Integrated Shade Seat" shelter and the individual components allow for numerous configuration possibilities. The shelter was designed by Line and Space, LLC and the components were manufactured by Lafarge Precast in Winnipeg, Canada (LaFarge).

This bus shelter design takes into account commuters' convenience, access and safety in context with traffic flow and transit operations. It also adheres to ADA code requirements of seating, shade/roof safety (visible lines of sight should exist between bus operators and shelters) as well as a trash receptacle. Further optional elements may include landscaping, water harvesting, a drinking fountain, electrical lighting and information technology as well as a bicycle rack (Line and Space).

The shelter is fabricated from Ductal (product of LaFarge) concrete. It is a composite material reinforced with bronze fibers(Line and Soace). A Ductal concrete prototype design was compared to six other shelters, built from other construction materials, during the pre-qualification process and was eventually selected as the best solution. The materiality of the design was superior in the following aspects:

1. Enhanced structural performance (better than normal concrete)
2. Impermeability (resistance to grafiti and other vandalism)
3. Corrosion resistance
4. Ductility and colour integration

Furthermore, the design accommodates artists and neighborhood participation in terms of landscaping, graphics and arrangement. The lighting of the bus shelter consists of LED lighting, powered by photovolataics (LaFarge).

Fig.6.45: Adequate shading created by overhead roofs (LaFarge).

Fig.6.46: Modular design allows for adaptability (LaFarge).

6.5.3 Analysis

This precedent illustrates the possibilities of working with Ductal concrete as structural material. Due to its many superb performance aspects, one can create a robust, yet elegant structure as is evident in this precedent. Not only does working with concrete allow for creating an aesthetically pleasing design, but it also withstands elements that may be detremental to other materials.

6.6 Saint Cyprien Cultural Center Auditorium

Date: 2008
Architects: Serero Architects
Location: Saint Cyprien, France
Client: South Roussillon community council

6.6.1 Design relevance

The following precedent and the creative use of concrete therein is influential to the project. Here, concrete is no longer a heavy robust entity, but becomes a delicate skin, perforated to translate the concept of foliage.

Fig.6.47: Filtered sunlight effect in interior (Serero, 2008).

6.6.2 Overview

David Serero describes his design for the new auditorium of Saint Cyprien as follows:

"Trees are often a source of inspiration to me; they are complex structures elaborated from simple rules, growing coherently and continuously in time and space. The efficiency of those structures is based on the notions of redundancy and differentiation in opposition to the concept of modern engineering such as modern optimization and repetition".

David Serero (Serero, 2008)

Fig.6.48: Layered concrete foliage-like canopy (Serero, 2008).

6.6.3 Foliage inspiration

The auditorium is located in the middle of an open park surrounded by acacias, sycamores, poplars and oak trees. These trees as well as the effect of sunlight shining through a tree's summit serves as inspiration for the design of the auditorium's roof element. Using a computer script, Serero architects have generated a façade that convenes non-standard and non-repetitive components. Despite its irregular appearance, the roof of the building is generated from basic geometrical rules. This allows for a variation of shapes between elements, creating an interesting aesthetic (Serero, 2011).

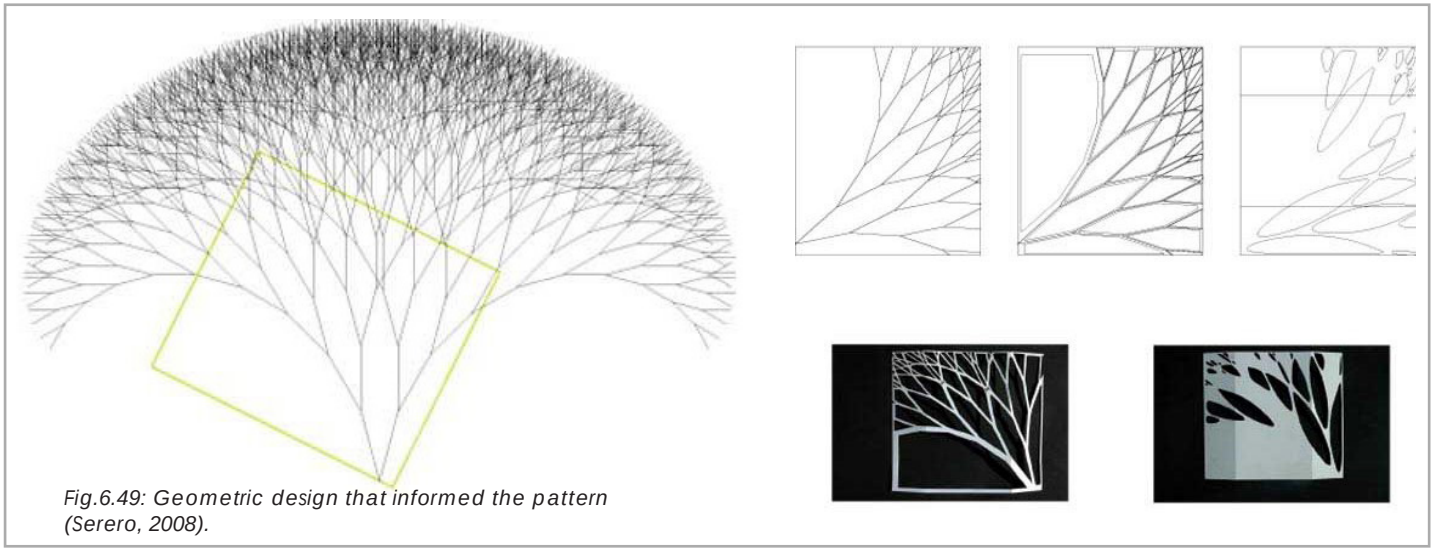


Fig.6.49: Geometric design that informed the pattern (Serero, 2008).

6.6.4 Concrete as foliage skin

The auditorium functions as an open space allowing the exterior to flow into the building and so doing soften the boundaries between interior and exterior. Consequently, the design of the auditorium incorporates the surrounding landscape inside the building by responding to the rhythm of the trees in the park. The impression of foliage, inspired by the shadow carried out by leaves, is created by a device composed of a double concrete shell with several egg-shaped perforations. The external shell acts as a large umbrella, protecting the auditorium as well as the lobby from the sun (Serero, 2011).

The building can be described as a shed with a living skin that acts as such, regulating the atmosphere in the interior. During the day, the auditorium is lit up and towards the end of the day, the oculus, being fitted with lamps along the side, will progressively light up in order to compensate for and replace the natural lighting. The skin also passively ventillates the building during the summer and warms up the interior during the winter. In addition, photovoltaic panels on the southern side of the roof provides electricity necessary in a renewable manner (Serero, 2011).

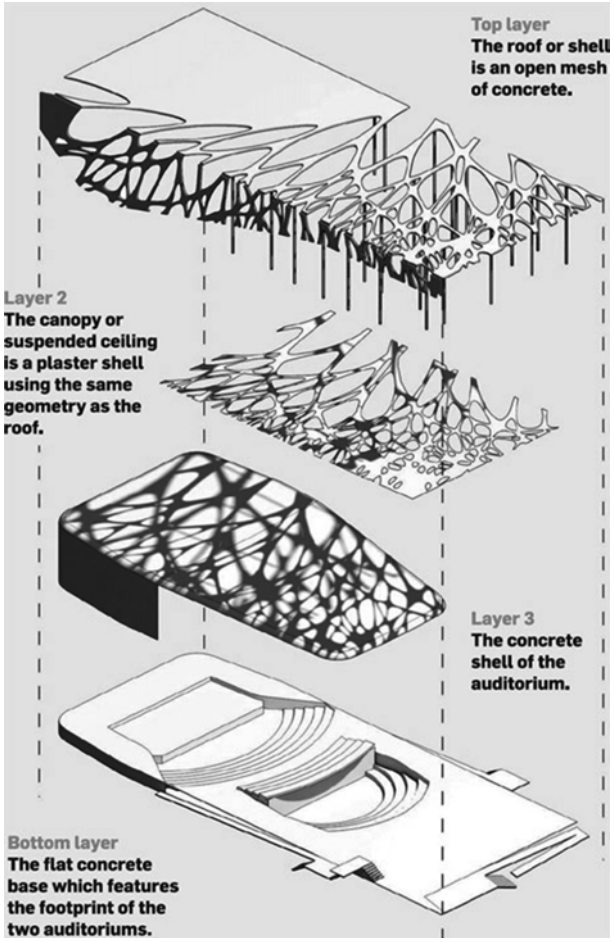


Fig.6.50: Diagram: different layers of concrete foliage (Serero, 2008).

6.6.5 Analysis

Inconclusion it can be stated that the precedent shows insight into the use of concrete as a moldable, shapable and delicate material. Its response to the concept of foliage, trees and introducing the exterior to the interior is most influential.

6.7 Airspace building, Tokyo, Japan. By Faulders Studio.

Architects: Faulders Studio
Location: Tokyo, Japan
Client: ADD CLIENT!!!!!

6.7.1 Design relevance

This precedent is relevant to the design project as it architecturally translates the concept of foliage into a screen of perforations that serves as a skin to the building interior. The pattern used in this building influenced the design of the screens, which will be discussed in a later chapter.

6.7.2 Overview

This four story multifamily building's unique façade was designed by American architect Thom Faulders. Acting as a layer of 'artificial vegetation', this architectural skin creates a foliage-like appearance and acts as a protective layer. It not only provides shading and reflection but also channels water away from the building as well as exterior walkways by means of capillary action. Responding to the building's internal program, the overlaying layers change in density as it moves across the façade (FAULDERS STUDIO).

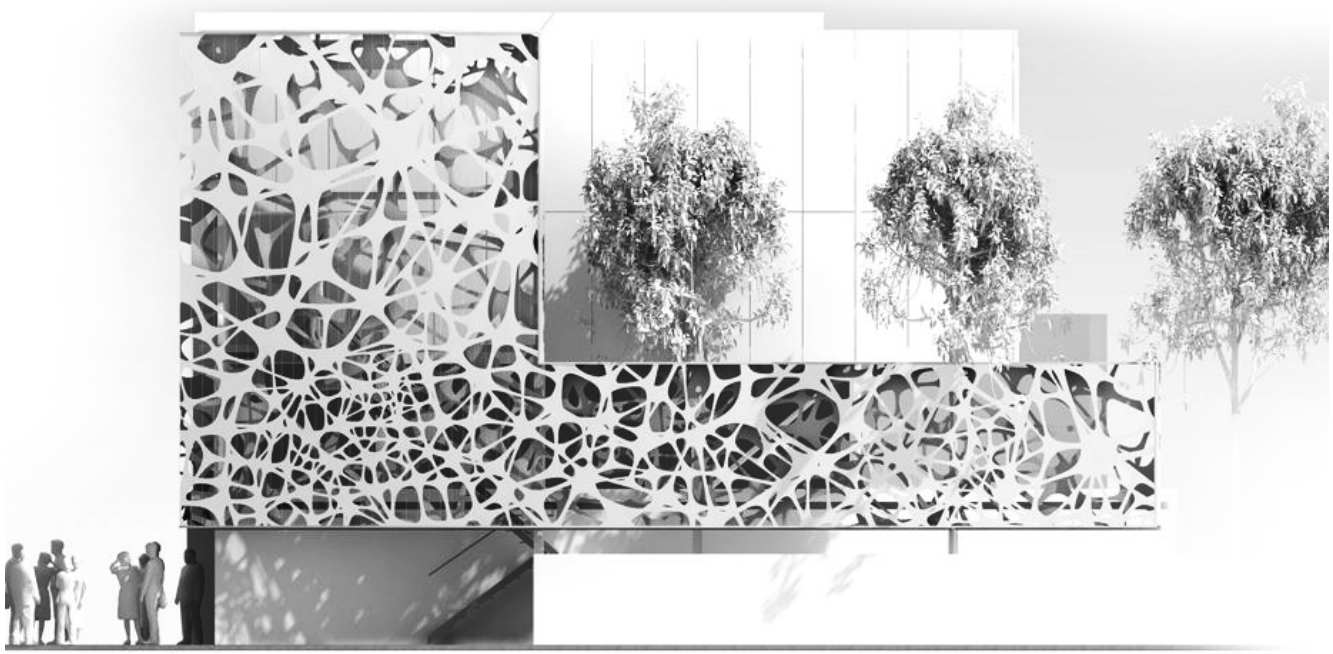


Fig.6.51: Elevation (FAULDERS STUDIO)

6.7.3 Overview

Althought the material used in the precedent is not concrete, the conceptual approach of creating an architectural skin that resembles a foliage appearance is influential.

Fig.6.52: Architectural foliage skin (ArchH20).

Fig.6.53: Interior view of foliage skin (ArchH20).

6.8 Lille Modern Art Museum

Date: 2010
Architects: Manuelle Gautrand Architecture
Location: Villeneuve d'Ascq, France
Client: Lille Modern Art Museum

6.8.1 Design relevance

This precedent is a good example of the design possibilities provided by working with Ductal high performance concrete. The screens of the museum are designed to be perforated and so doing communicating natural light to the interior as well as translating the concept of foliage.

6.8.2 Overview

The Lille Museum of Art was built by Rolland Simounet in 1983. The recent renovation and expansion of the museum was done by architect Manuelle Gautrand.

The scenic decoration of museums often requires the incorporation of natural lighting. However, it is important that art remains protected against the damaging effects of sunlight. A unique lattice façade has been created by architect Manuelle Gautrand for the museum's extension. The screens are made from Ductal concrete and is excellent example of how a challenge such as this can be met (Lerouge, 2010).

6.8.3 Ductal concrete

The use of Ductal concrete in this project made it possible to produce large thin perforated panels with random openings that would not have been possible with reinforced concrete.

According to Gautrand, the aesthetic and technical efforts were guided by several objectives, firstly, the museum has a high mineral aspect and as result the aim was to continue and extend this achievement by respecting the choice of materials as well as the time taken. Secondly, artworks are often fragile therefore the aim was to admit natural lighting to the interior whilst protecting the artworks. It is this part of the museum that overlooks the park. The Ductal veil adheres to these functional and aesthetic requirements (Lerouge, 2010).

All picture windows overlooking the park are fitted with concrete screens that filter light creating an abstract form and resembles foliage on a background. Working with Ductal concrete in this project provided the architects with the advantage of producing the patterns on very thin panels, between 7 – 9cm.

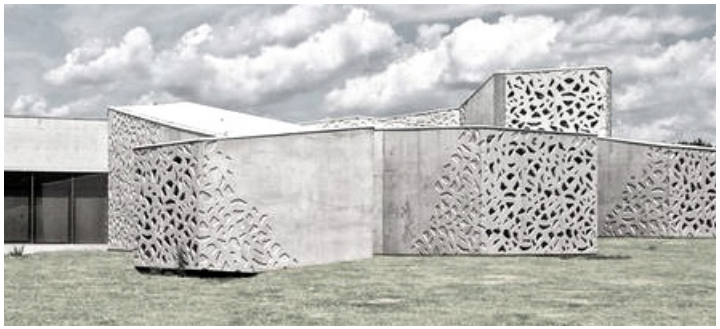


Fig.6.55: Day view of exterior (Lerouge, 2010)

Fig.6.54: Night view of perforated Ductal screens (Lerouge, 2010)

Fig.6.56: Ductal screen interior view (Lerouge, 2010)

Fig.6.57: Interior view of perforated concrete screen (Lerouge, 2010)

6.9 Malmö Centralstation

Date: 2008 - 2011
Architects: Metro Arkitekter
Location: Malmö, Sweden

6.9.1 Design relevance

This precedent proved influential to the project as it consists of the introduction of a series of delis and small food stalls into the hall of a former station. Its relevance to the project lies in the fact that the dissertation not only focuses on creating an active waiting place and providing adequate seating, but alslo to introduce food kiosks that will create an economic platform for food vendors and serve hungry commuters.

6.9.2 Overview

Originally opened in 1858, the Malmö station has always looked to keep with the times. Over the decades, the station has been rebuilt and extended in order to cater for changing passenger needs. The original building exists in two sections; a small green hall (waiting room) and a larger central hall. Throughout the refurbishment, the original old brick walls of the station have been carefully preserved (Sinhal, 2012).

A series of new shops and open restaurants and delies create an inviting environment where people can gather and eat together (Singhal, 2012).

6.9.3 Analysis

This precedent illustrates the reusing of a former transportation facility as a food court with a series of open delis. The polycarbonate roof overhead allows the interior to be filled with light. Open counters and bar seating allows customers to sit at the counter, although little seating is provided otherwise. Overhead signage of the delis allows for clear legibility. A problematic element might be the narrow walkway between the rows of delis. As this serves as both walkway and sitting space for the bar stools, high flow of traffic may cause a problem for customers. The longitudinal configuration of the delis means that one will not be able to immediately see branding.

Fig.6.58: Interior view of terminal food court (Palomo, 2012)

Fig.6.60: Open counter (Palomo, 2012)

Fig.6.59: Open kiosk design (Palomo, 2012)

6.10 Sitscape

Date: 2011
Architects: Hackbroich Architekten
Location: Berlin, Germany

6.10.1 Design relevance

The relevance of this project lies in its approach of using a specific series of postures to inform the seating design.

6.10.2 Overview

Sitscape furniture design is an example of form which extends the use of a couch, offers a customized seating landscape and is configured based upon preferred postures and positions and dimensions of various users. The design is a customized mass product which provides different forms within the same structural principles. The first version of this furniture was completed in a length of 6 meter for a client in Berlin. Fluent, dynamic form of the seating results from the smooth transformations between them with undetermined transitional areas in between which are undetermined and left to be discovered by the user (Arthitectural, 2011).

6.10.3 Analysis

Although this project is a fresh new look at designing seating that responds directly and intimately to the needs of the user, it would not function well in a facility such as a bus waiting station.

Fig.6.61: Various postures catered for (Arthitectural, 2011))

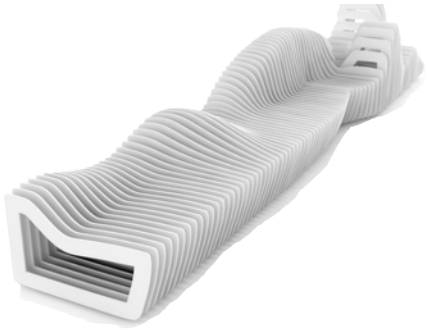


Fig.6.63: Sitscape seating design (Arthitectural, 2011))

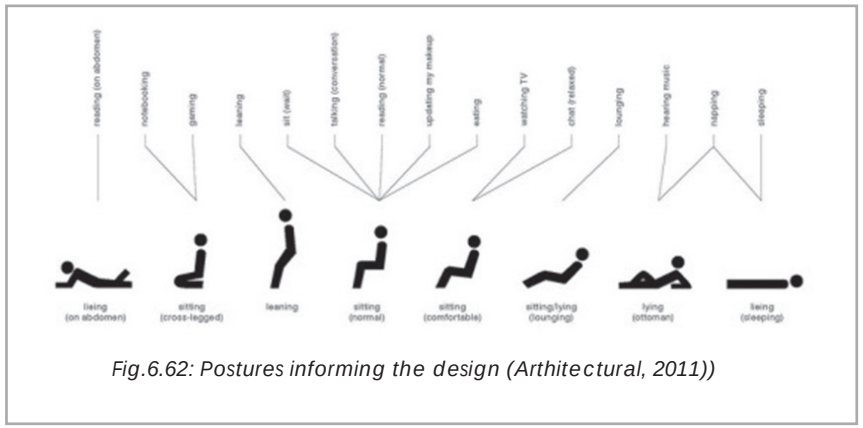


Fig.6.62: Postures informing the design (Arthitectural, 2011))

6.11 M2 concrete bench

Date: 2009
Architects: Studio Segers
Location: Maaisek, Limburg
Client: WoltersMABEG and Urbastyle

6.11.1 Design relevance

This precedent responds to the need to establish interactive public spaces by creating public seating design that encourages interaction. The end product is light concrete seat components that can be organized in a variety of configurations that will best suit the particular requirement or public space. In terms of the project, this precedent proved most influential in terms of the use of concrete, which is usually associated with being a robust and heavy material, to create a delicate subtle seating design.

6.11.2 Overview

Streets used to be places where people met and interacted. Nowadays, however, streets have become places where little interaction takes place and people feel unsafe and threatened. The objective behind the design of the M² bench design is to reunite people with the streets. This flexible seating design allows for a variety of seating positions and postures. By placing flexible seating such as this is parks and public spaces, these spaces are reclaimed and interaction is encouraged. Thereby a natural form of social control is established (SEGERS, 2009).

6.11.3 Material: concrete

The design consists of a shell-formed concrete seat that is reinforced with optic fibre and supported on a steel under-frame (SEGERS, 2009).

Fig.6.64: M2 bench composition 1 (SEGERS, 2009).

Fig.6.65: M2 bench composition 2 (SEGERS, 2009).

Fig.6.66: Optic-fibre reinforced concrete seat (SEGERS, 2009).

Fig.6.67: Multiple configurations of M2 bench (SEGERS, 2009).

This chapter constitutes the design development and summarizes the various considerations and influences which guided the project towards a resolved design solution.

chapter 07

design approach

7.1 Approach to the existing condition

7.1.1 Alteration approach to existing structure

As discussed in Chapters 4 and 5, the host building in its current state is cut off from the adjacent bus station building as well as the rest of its surrounding context. Furthermore, alterations done by Stauch and Vorster to the building in 1993 have rendered the building void of most interior fabric and unable to serve its current purpose which is that of housing a variety of food vendors and provide waiting areas for bus commuters. The excavated floor and southern wall results in commuters and potential customers to having to move around the host building instead of through it.

The first approach taken is to establish the host building as a thoroughfare between the bus station building and the street by removing the southern wall of the host building. A proposal is also made to create large openings on the northern façade of the bus station in order to strengthen the link between the two buildings. The structural implication of removing the wall is answered by means of the waiting strip inserted to the interior which consists of a series of steel columns and beams clad in concrete.

The second approach taken is to elevate the excavated floor, creating a smooth transition from the street through the building towards the bus station. For inclusive reasons, ramps are added to the east and west entrances.

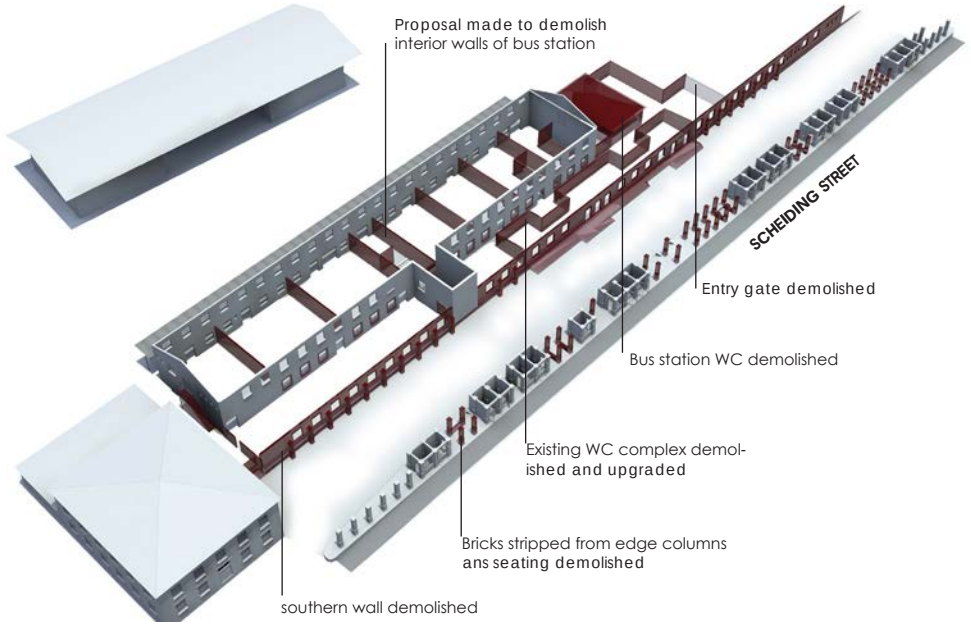


Fig.7.1: Demolition of existing fabric (Author, 2013).

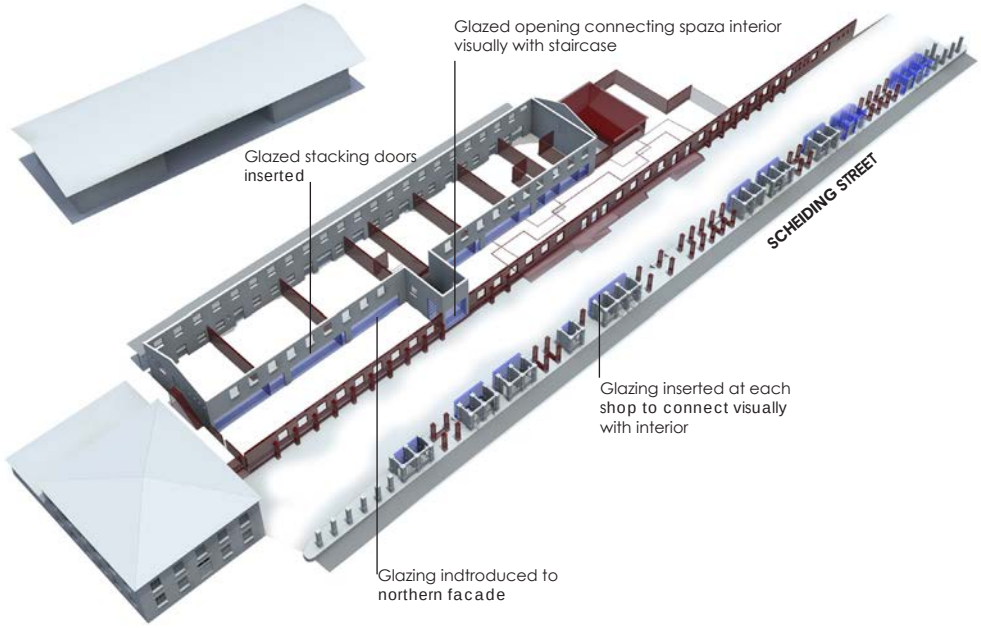


Fig.7.2: Visual connection created by glazing (Author, 2013).

A) Removing fabric to establish connection

As previously stated, the act of intervention also involves removing existing built fabric, referred to by Scott (2008;108) as stripping back. The design proposes removing the southern wall of the spaza building which acts as movement barrier at the moment. This will establish a conection between the two buildings and allow for a visual connection with Scheiding street towards the north. The existing WC facilities of the bus station as well as the spaza building is also removed. Furthermore, the brick casings of the columns are removed to expose the internal steel columns.

B) Introducing glazing to establish visual connection

Establishment of a connection between the bus station building and the spaza building is emphasized by inserting glazing along the northern facade of the bus bus station. Glazing is also introduced to the walls of the edge shops facing the spaza interior, thus creating a visual connection between the shop interiors and the spaza interior. Movement through the bus station building is also made possible by inserting glazed stacking doors along the northern facade.

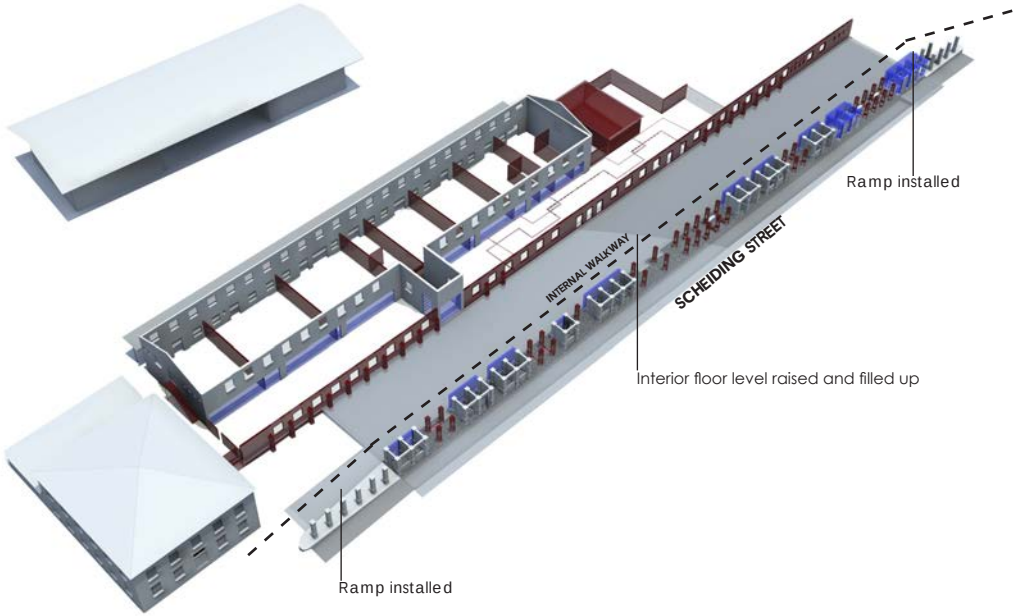


Fig.7.3: Internal floor level raised (Author, 2013).

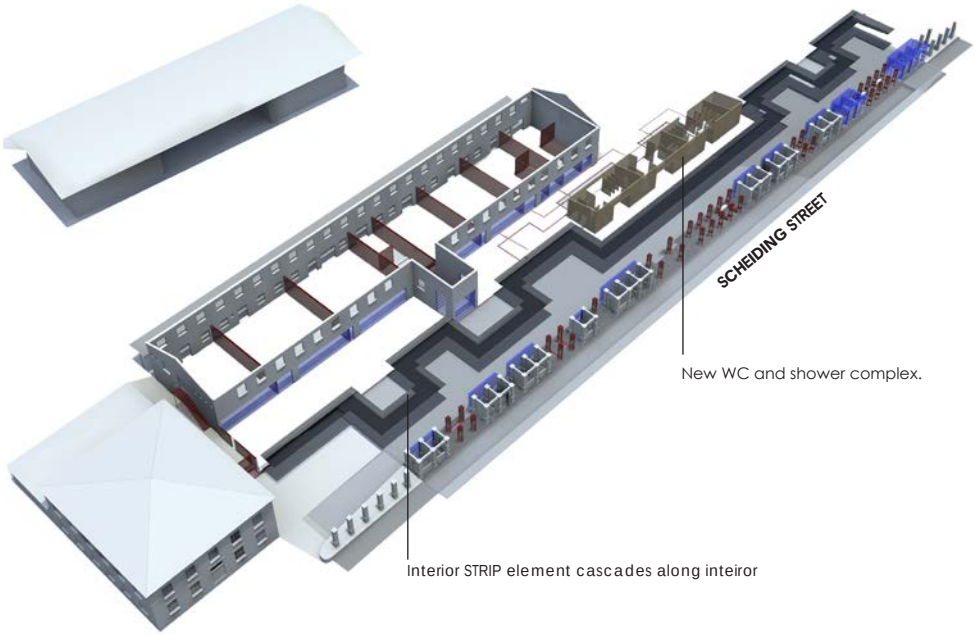


Fig.7.4: Interior waiting strip and new WC and shower complex (Author, 2013).

C) Raising interior floor level

As previously stated, the transformation of the spaza building into a bus terminal required the excavation the interior floor. The design proposes that the interior floor be raised and filled up in order to create an inclusive environment with easy access as is not currently that case. Raising the floor will also create a level visual connection with Scheiding street as well as the bus station.

D) Interior waiting strip and new WC complex

A new inclusive WC and shower complex is proposed that will make use of the existing drainage system on site. Rainwater harvesting is also proposed for use in this complex.

Fig 7.6 also indicates the location of the interior waiting strip that runs along the length of the interior.

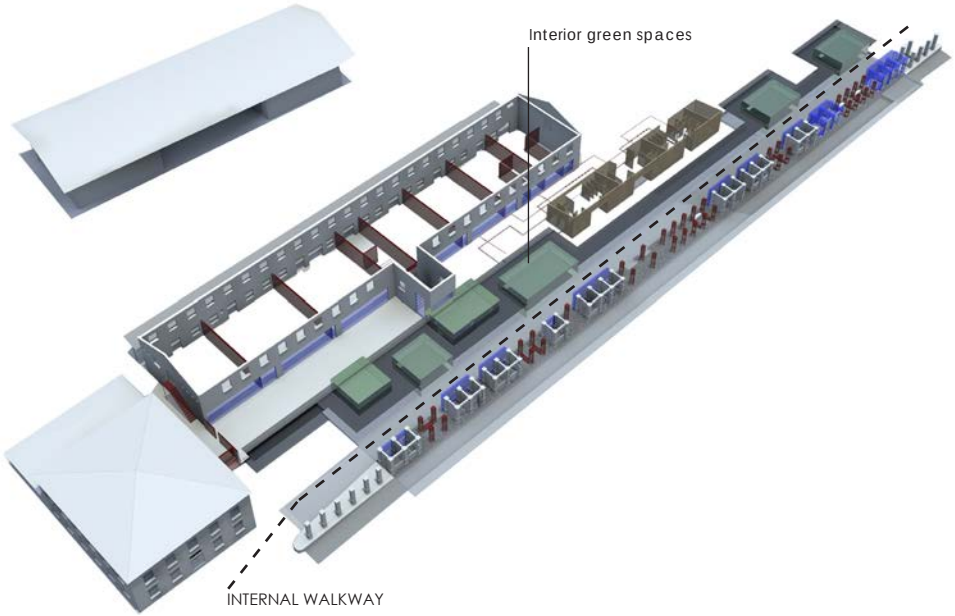


Fig.7.5: Placement of interior green spaces (Author, 2013).

E) Interior green courtyard spaces

The cascading horizontal bottom (floor) and top (bulkhead) elements of the interior waiting strip cascade down the length of the building. This creates courtyard spaces which are to be filled with natural light provided by over-head skylights. Planters with seating are also proposed for these courtyard spaces.

7.1.2 Adaptive re-use

A close relationship exists between adaptive re-use and the discipline of interior design, which introduces new life into redundant and neglected buildings. In the case of the Spaza Shed building, previous alterations (discussed in Chapter 5) have consisted of excavation and demolition to such a degree that it has reduced the building to function as a mere shed with no internal built fabric. The current occupation of the building has not been addressed properly and the building does not adequatly serve its new purpose. As a result, the structure has entered into a phase where, even tough still is use, it is regarded as being neglected. Despite these various issues, the building still manages to serve the public, indicative of its potential and adaptive quality.

The envisioned intervention aims to establish a symbiotic relationship between the bus station and the spaza shed where the latter will act as serving entity to the bus station. Furthermore, the intervention intends to strengthen the connection between the host building and the city context by establishing connection with the sidewalk along Scheiding Street by providing seating and waiting places.

The aparent latent potential of the building will be used to create an active waiting station that will primarily, address the needs of bus commutersand secondly, serve as an urban pause area.

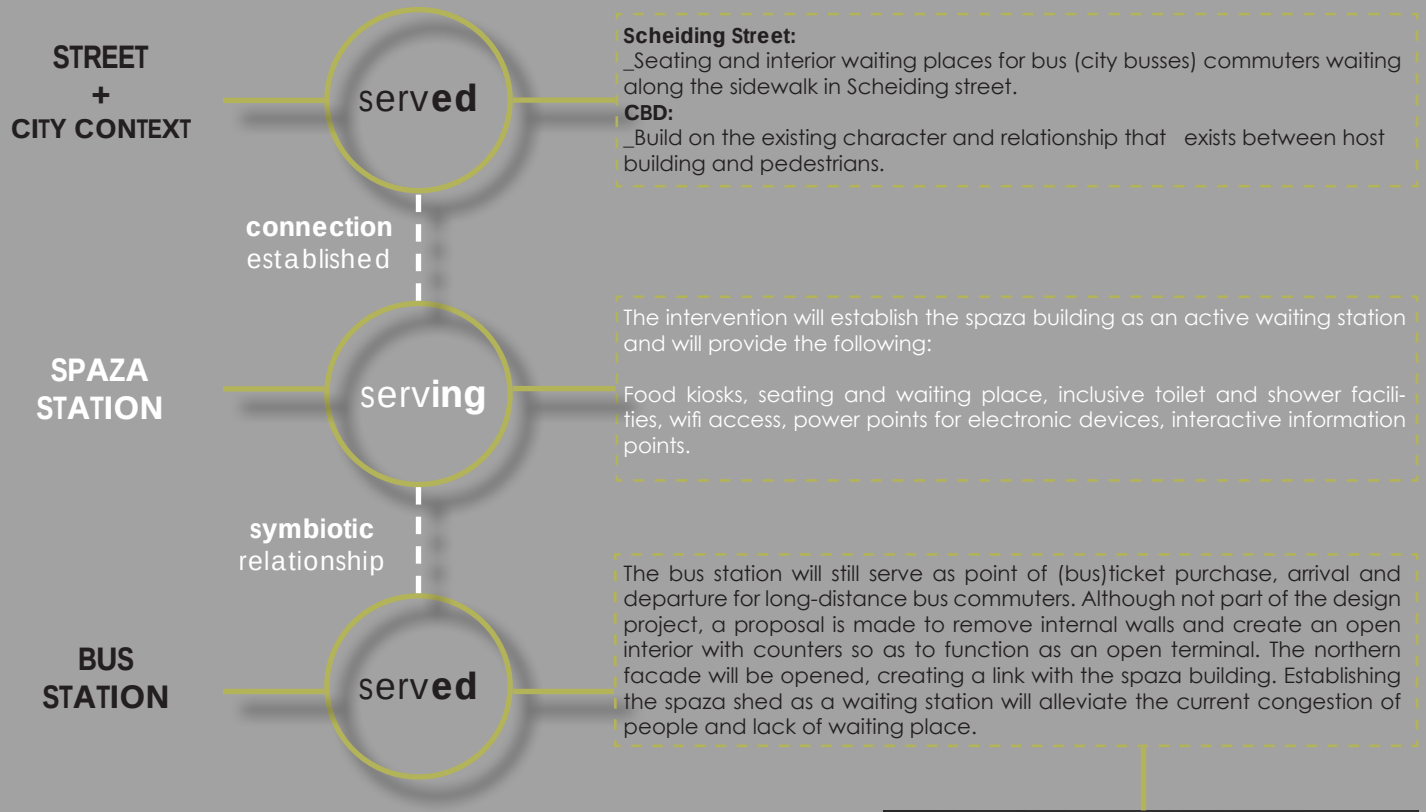


Fig.7.6: Diagram of spaza shed as sub-serving entity (Author, 2013).

Fig.7.7: Proposal for bus station interior (Author, 2012).

Fig.7.8: Existing courtyard (Author, 2012).

Fig.7.9: Courtyard proposal (Author, 2012).

7.1.3 Alteration

According to Fred Scott (2008:1) buildings are subject to three possible outcomes: they can either remain unchanged, which will lead to eventual loss of occupation, they can be altered, in which case they will be appropriately adapted to suit a new function, or they will be demolished. Therefore, alteration offers the potential for re-use and an alternative outcome for the ultimate redundancy or demolition of a building. The act of alteration thus works against the single high purpose of architecture which, according to Scott (2008:15), serves to function in a state of Utopia, creating new order and repelling the notion of change. Change, however, is inevitable. Steward Brand (1994:23) states that age and adaptability is what makes a building become appreciated and that instead of just being a formal entity, buildings can in fact begin to learn from their occupants, and they from it. This can lead to people having not static, but rather narrative connections with places (Childress). This means that if a building is to extend its usefulness, it should be allowed to change and adapt.

Scott (2008:108) clarifies three respective phases which constitute the act of alteration. These phases will be discussed in terms of the host building in this dissertation:
The first phase is referred to as **stripping back**. Not only does this phase involve the removal of rotten fabric in the building, but it is also the process during which the designer gains useful insight in terms of the building's composition and character. In the case of the selected host building, previous alterations have removed most of the interior fabric. As the building previously served as bus terminal, the interior fabric of the building has already been removed. Thus the process of stripping back is now focused on elements that would impair movement and connection to the surrounding context and the bus station adjacent the structure.

The second phase is that of **making good** and can be compared to conservation, during which the building fabric is prepared for new work, referred to as **enabling works**. During this phase, the configuration of the altered relationships and the hierarchy of new occupancy are established. During this process, it was decided to remove the southern wall of the host building and allow a thoroughfare between the latter and the bus station building.

The third and last phase is that of **new work** and this phase constitutes the architectural intervention and new design introduced to the host building. This includes the introduction of the new waiting strip to the interior. In the case of the Spaza Shed building, as previously stated, there is little waiting place or amenities provided for commuters, vendors and pedestrians. The new strip which runs through the length of the building provides seating, amenities such as food kiosks, interactive technology and establishes different zones.

Fig.7.11: Stripping back: removing boundaries (Author, 2013).

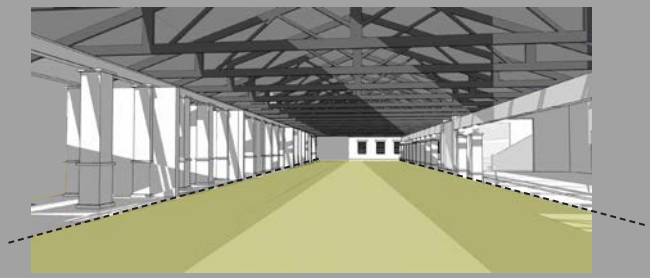


Fig.7.12: Making good (enabling works): raising floor level (Author, 2013).

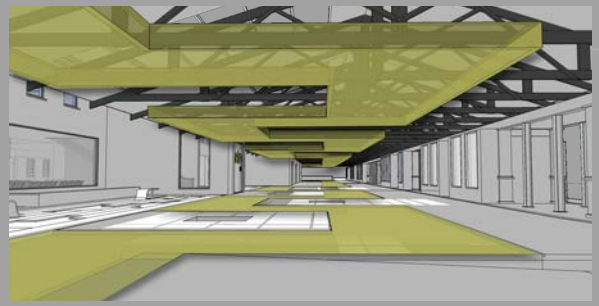


Fig.7.13: New work: cascading strip inserted to interior (Author, 2013).

Fig.7.14: Conseptual exploration of internal waiting strip (Author, 2013).

7.1.4 Intervention, insertion, installation

As stated previously in Chapter 1, interior design is concerned with the usage of found space and the way people interact with it. This results in a continuous dialogue and interaction with both space and user on an intimate scale (Königk 2010:12).

In the case of the spaza building, the found space is, essentially, an open void. Extensive alterations to the original structure over time (discussed in detail in Chapter 5) have cleared the building of most internal fabric and it exists now merely as an open shed. The focus therefore will be on creating new space within the building by responding to the context and proposed use, that of an active waiting station.

There are different approaches in creating new space. For the purpose of this dissertation, the following three are investigated and applied:

Firstly; intervention, which is the most extreme and internal approach. Secondly; insertion, which is very precise, analytical and specific. And thirdly; istallation, which is the most critical and relative (Bar-Eli, 2010).

_ The building's **qualities** are **used** and **translated** into a design.

_ The intervention and the existing are **inextricably connected**.

_ The intervention and the existing **reveal** one another's **attributes**.

(Bar-Eli, 2010)

_ The new (intervention) takes the attributes and **characteristics** of the space into consideration.

_ The inserted element and the existing are **very close** to one another.

_ A clear **element** that is **inserted** into the existing space.

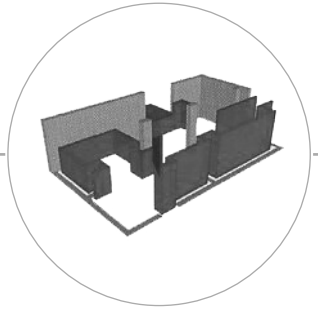
(Bar-Eli, 2010)

_ The existing and the installed elements are **separate**.

_ The existing influences, but **does not alter** the new.

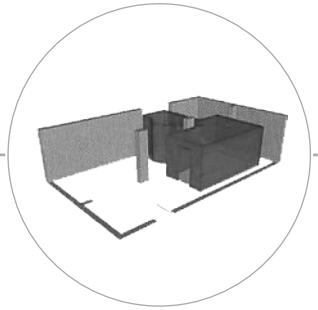
_ There now exists a sense of looking at **one another**.

(Bar-Eli, 2010)



_ The method of intervention is applied in removing the southern wall of the spaza building and replacing the support by means of the internal waiting strip. This is a permanent installation as it now carries the weight of the roof. The internal cascading waiting element also responds to the longitudinal form of the building.

Fig.7.15: Intervention (Brooker, 2007).



_ The cascading waiting strip can be regarded as an insertion as well, as it is very close to the existing structure. It is a clear element in the space.

Fig.7.16: Insertion (Brooker, 2007).

_ The screens and seating elements can be considered as installation. These elements can be easily removed.

Fig.7.17: Installation (Brooker, 2007).

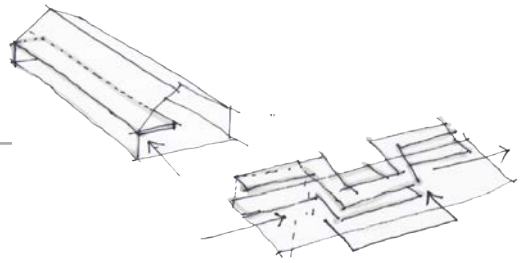


Fig.7.18: Intervention concept (Brooker, 2007).

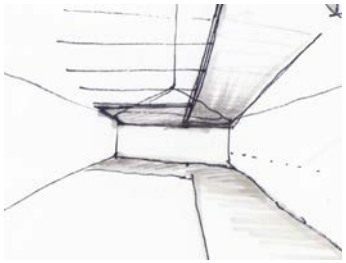


Fig.7.19: Insertion concept (Brooker, 2007).

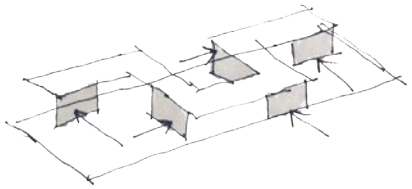


Fig.7.20: Installation concept (Brooker, 2007).

7.2 Conceptual Approach

7.2.1 Development of user profile: existing and new user profiles

If public transport is to be encouraged, then the waiting places associated therewith have to be equipped to answer the needs of commuters. This project aims to facilitate and expand on the current user profile, already discussed in Chapter 2. As stated in Chapter 3, a waiting place such as a simple bus shelter no longer consists of merely a bench and a shading roof, but has the potential to be an urban node of activity and connectivity. The new user profile, as illustrated in Fig. 7.4, now also facilitates individuals who want to connect to the internet, gain information regarding the city or transportation or, perhaps for the first time, enjoy local cuisine.

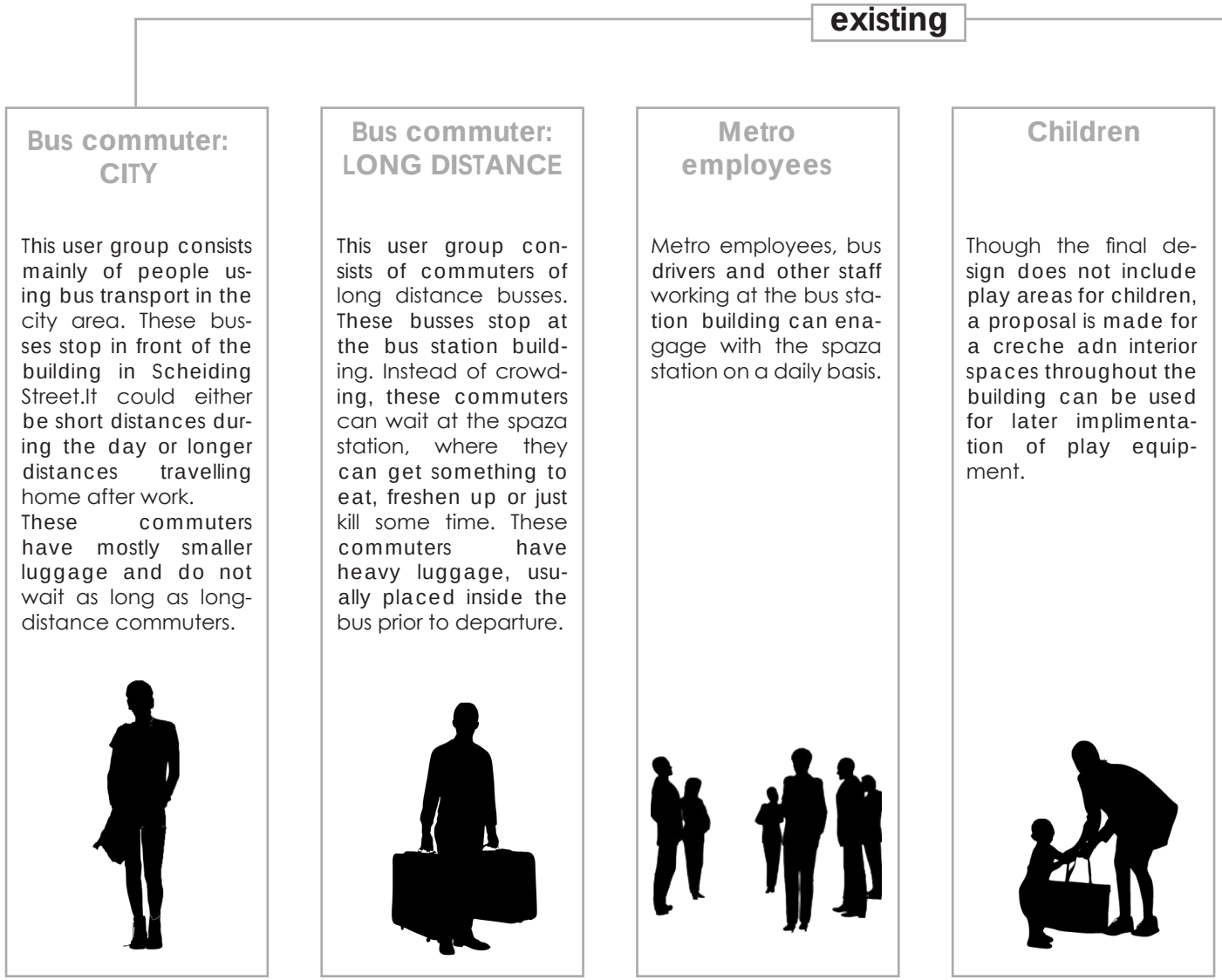


Fig.7.21: Development of user profile (Author, 2013)

Regulars

Regulars refers to people who are familiar with the building adn might have developed a relationship with the vendors. Many city dwellers prefer the local food served in favor of other fast-food shops.

expanded

Food vendors
Entrepeneurs

The project aims to provide adequate facilities for existing vendors to create an economic platform. In addition, other small food enterprises such as coffee corners or small scale delis could be introduced to the list of tenants. Kiosks are designed so as to allow for a level of personalization and adaptation by tenants.

Tourists

This user group consists of people who are unfamiliar with Pretoria. This could also include tourists. Wayfinding and signage is therefore important. Tourists travelling through Pretoria cental business disctrict, enjoying the sites may be interested in enjoying some local cuisine and lingering for a while while gaining information about the city and other attractions.

People in need of information

The need for wireless netowork and internet access is a new feature increasingly added to contemporary bus shelter designs. While waiting, one might require a place to plug in your laptop, or perhaps charge your phone. You might also require wireless access to your smartphone.

Food enthusiasts

People who seek interesting food venues may be interested in visiting the spaza station to enjoy some traditional foods.

7.2.2 Facilitating active waiting

As previously stated, the needs of the 21st century public transport commuter has changed dramatically over the past decade. Access to technology such as wifi connection and interactive touch screens means that a waiting place, such as a bus shelter has the potential to no longer consist merely of a seat, a shading device and a vertical panel with the latest film poster. Instead, as illustrated by the precedent examples in Chapter 6, it can become an urban node, an oasis where one can pause and connect.

The aim of the design will be firstly, to preserve the existing unique character present in the building, which is a result of the food kiosks, and secondly to introduce new elements such as wifi access in order to create an active waiting station. Fig. 7.15 summarizes the new elements that are to be implemented in the new design intervention.

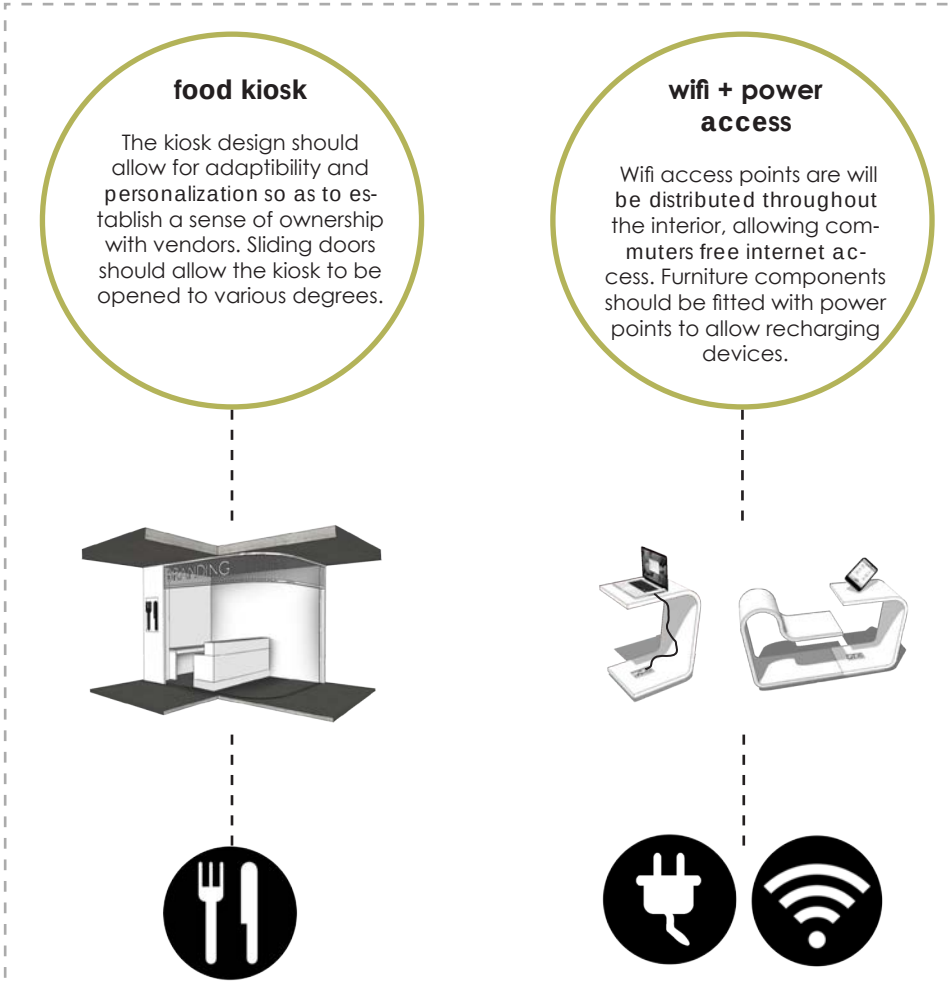


Fig.7.22: New elements for an active waiting station (Author, 2013)

seating

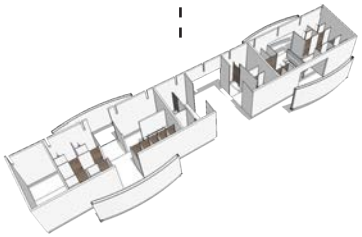
Seating elements should allow for different postures and adaptibility. Elements such as bicycle racks could be incorporated to the design.

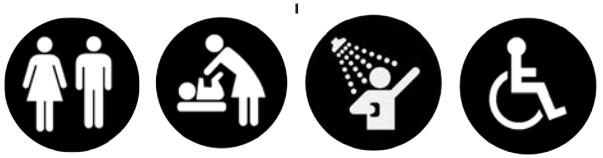
interactive information stands

Access to information is vital for commuters in the 21st century. The intervetion proposes information stands with touch screens and pamphlet holders placed throughout the internal waiting strip.

inclusive WC + shower complex

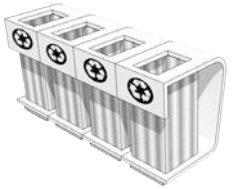
A proposal is made to replace the existing toilet complex with a new inclusive complex that will also house showers to allow commuters to freshen up.





recycling

The intervention proposes recycling bins to be placed throughout the interior. In addition, a waste and sorting room is proposed to be placed adjacent the wc complex for sorting recycled materials.



7.2.3 Waiting strip as binding element

The design solution proposes an internal waiting strip, running along the entire length of the interior. This strip is proposed to function both as a binding and distribution element as it connects all the different waiting areas and amenities as well as distributing features such as wifi access points, lighting and overhead signage.

The immense length of the building and the longitudinal form of the interior requires that (other than the current organization of the kiosks) the linnear configuration be broken and made more dynamic by introducing open spaces such as interior courtyards. The strip is proposed to consist of a top (bulkhead) plane and a floor plane which cascades (parallel to each other) along the building interior. These two planes are connected by means of screens and kiosks which are filled in. This also serves as support for the top plane (bulkhead). In this configuration, the strip wraps around the open spaces and so a spatial hierarchy is established.

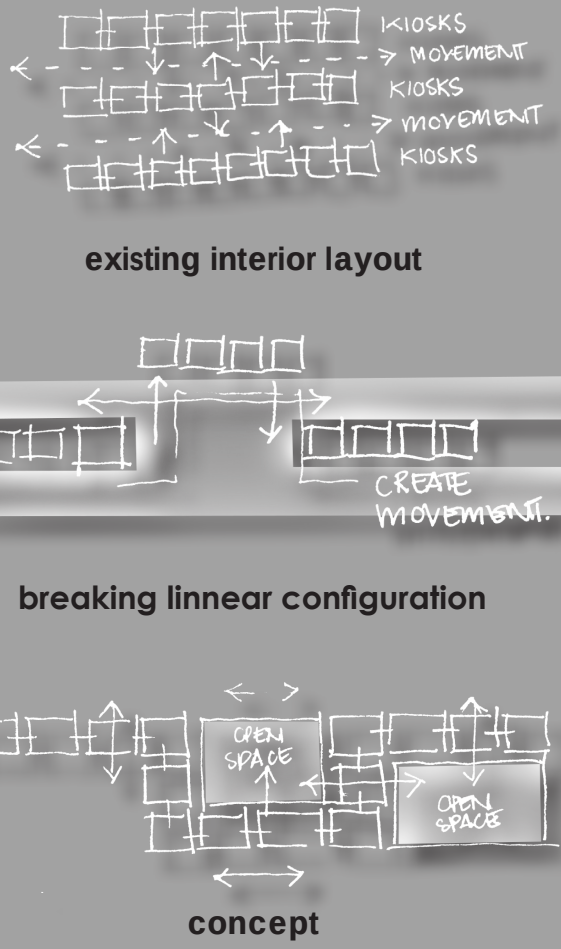


Fig.7.23: Development of interior strip (Author, 2013).

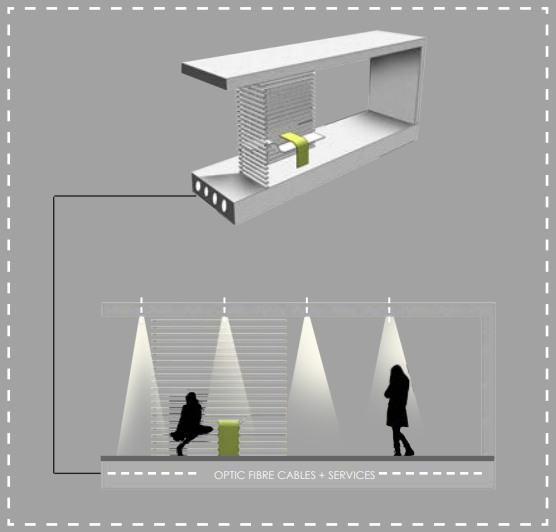


Fig.7.24: Concept: strip as service spine (Author, 201).

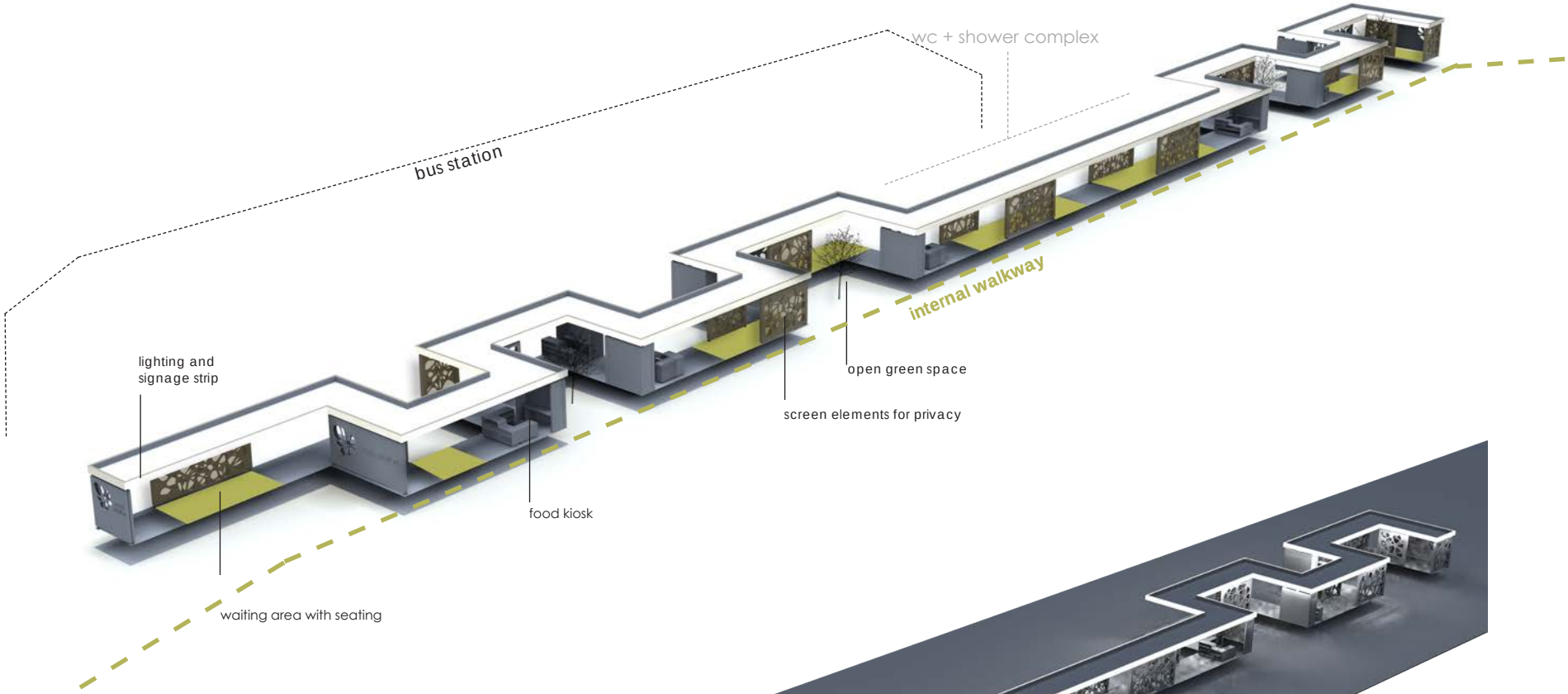


Fig.7.25: Waiting strip composition (Author, 201).

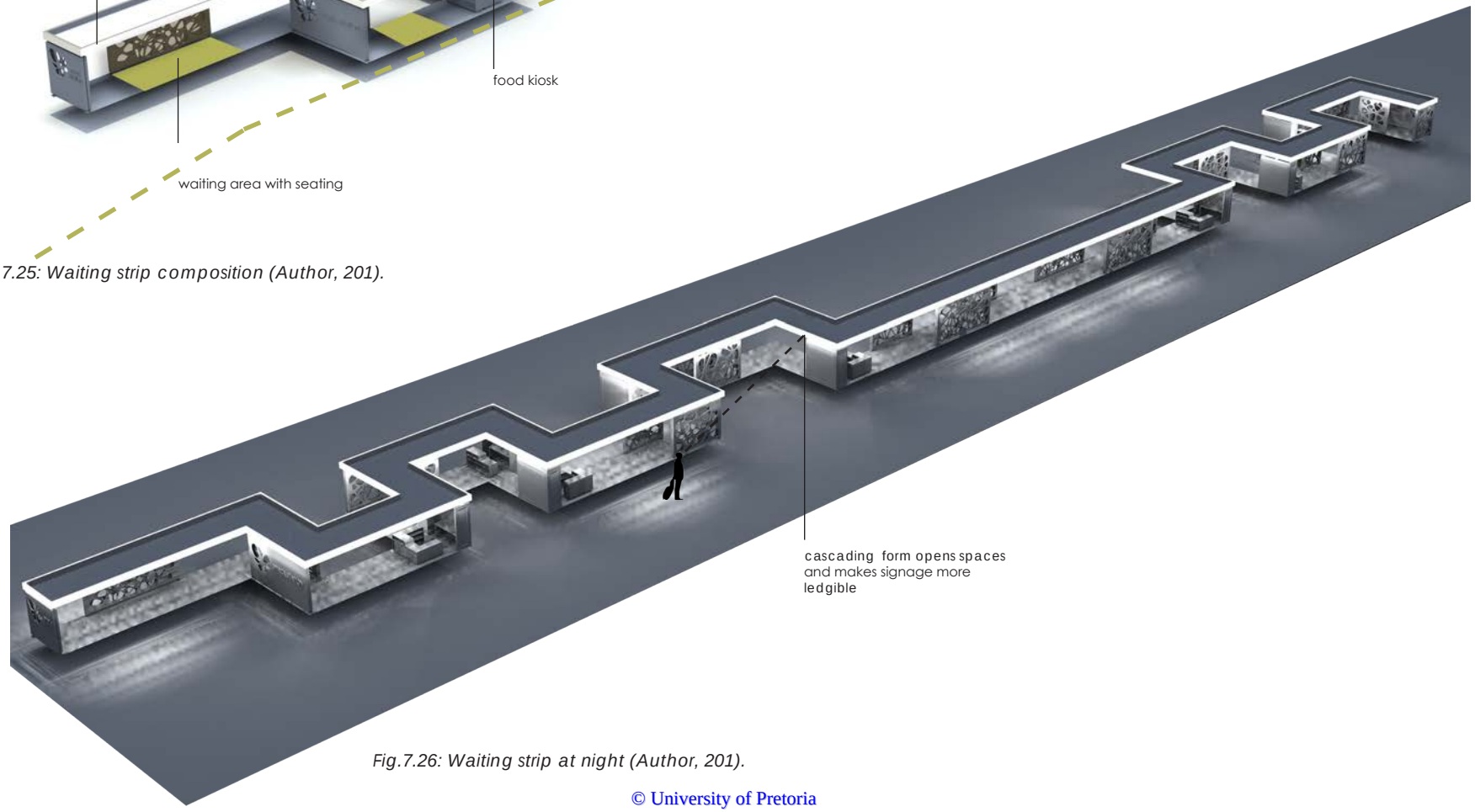


Fig.7.26: Waiting strip at night (Author, 201).

7.2.4 Pause and movement: creating spatial hierarchy

Chapter 3 discussed the different aspects of waiting and the various ways in which people wait. The project looks not only into creating an effective waiting station that will answer the physical needs of commuters, but also make provision for the various ways in which people would prefer to wait.

This is done by creating a spatial hierarchy. As stated previously, the internal waiting strip connects various different elements along the building. This creates an interplay between close, intimate spaces inside the strip (signifying slower tempo and pause) and the open green courtyard spaces (open, faster pase) that are to be filled with natural light and provide for movement.

Therefore, quieter and more open spaces are provided for people who prefer to wait either in a more secluded, isolated place as inside the strip, or in a more open area between foliage or under a tree.

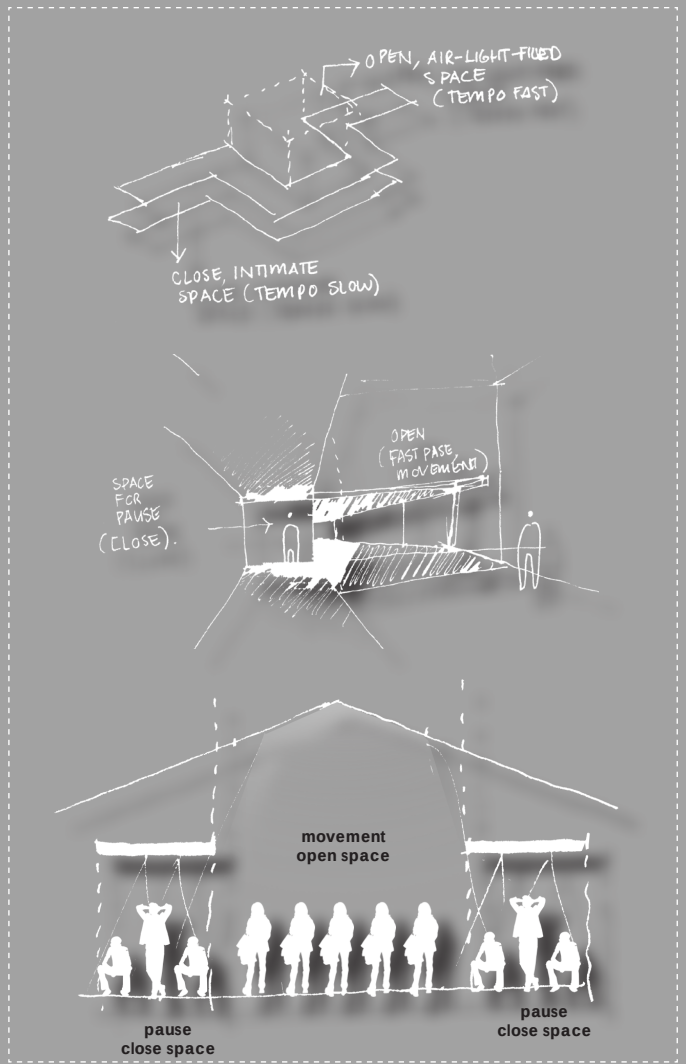


Fig.7.27: Concept of developing spatial hierarchy (Author, 2013)

Interior open green spaces

strip establishes link with bus station and street

waiting areas and walk-throughs placed along strip

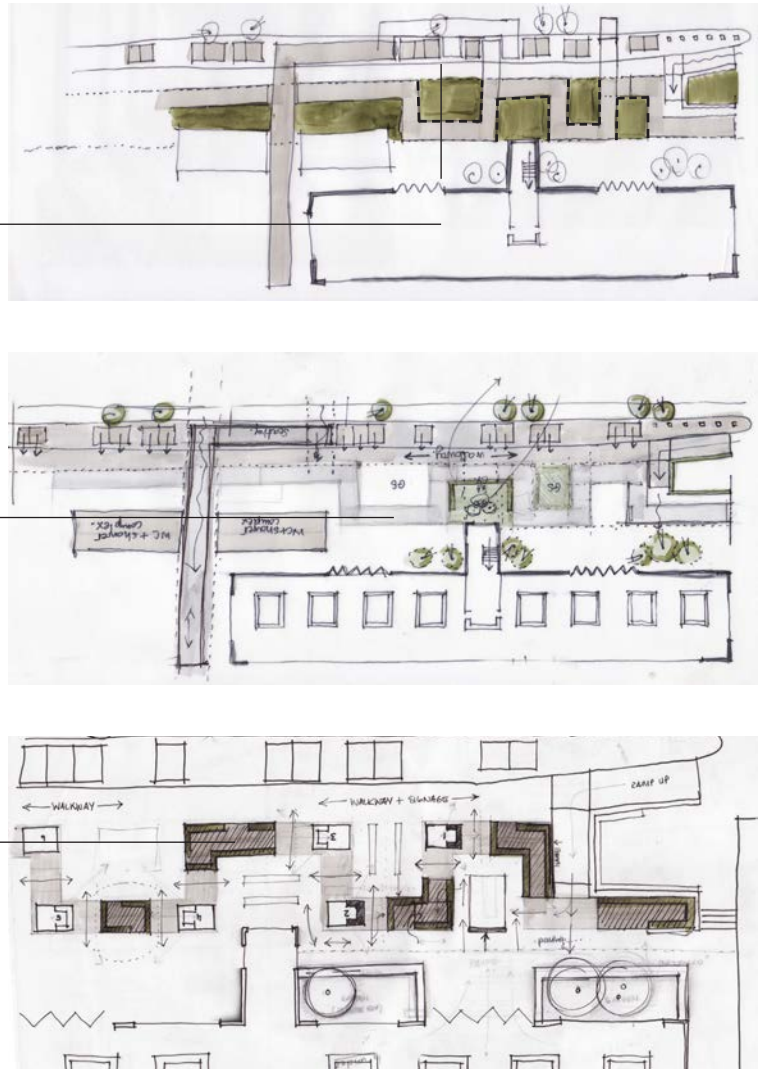


Fig.7.28: Conceptual development of pause and movement areas (Author, 2013)

7.2.5 Creating a tranquil, foliage-inspired environment

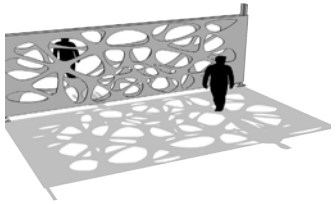
The central business district (CBD) of Pretoria is a harsh and unfirendly environment for pedestrians. Very few pause spaces exist where either shading or seating is provided. Therefore, the intervention proposes drawing from the concept of foliage (natural elements), using it as design generator, creating a tranquil environment for people in which to wait. This not only applies to the introduction of plants and trees to the interior in the form of planters, but also in terms of the design of elements such as seating, screens and roof openings.

Fig. 7.23 illustrates how the different aspects of foliage and natural elements are translated into design concepts.

natural light

1

As stated previously, the cascading internal strip element will create various courtyard spaces along its length. Drawing from the inspiration of sunlight shining through a tree canopy, the intervention proposes that there be rooflights inserted over these spaces in order to admit natural ight. These pools of light along the interior will function as a method of navigation.



perforation

2

Inspiration is drawn from the perforations found on leaves and is translated into the design of the screens along the internal strip. The concept ties in with the following; Firstly, given the longitudinal form of the interior, the intervention aims to establish as much visual connection as possible, therefore screens are perforated to prevent visual obstruction. Secondly, visual tension is created (see Chapter 3).

texture

3

Discussed in more detail in Chapter 9, the use of concrete as material will allow for the immitation of natural textures. The tactile qualities of textures such as wood will add another layer to the quality of space and the experience thereof.

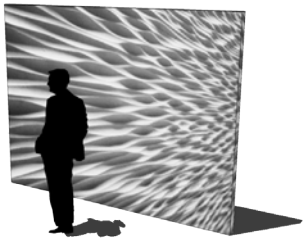


Fig.7.29: Foliage inspiration (Author, 2013)

translucency

4

The translucent qualities of certain leaves serves as inspiration for the exploration of the screen design as well as the kiosk enclosures. As previously stated, the intervention aims to establish visual connection throughout the interior. The use of optic fibres in concrete is used to create this effect (see Chapter 9).

sculptural qualities

5

Natural screen elements such as branches prooved influential in the design development of the screens. The sculptural quality of concrete could also be used to create a branch-like screen.

ageing + change

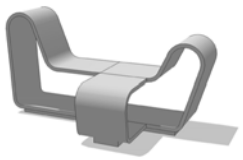
6

Changing textures due to ageing is a unique elements that is also translated into the design. Moss covered concrete will allow certain elements to change over time (see Chapter 9).

organic form

7

As stated previously, it will be important to create seating design that is ergonomic and responds to the various postures of people. Teh organic forms of foliage and leaves are inspirational in creating ergonomic and comfortable seating.



7.2.6 Concrete as material

Considering the intended use of the intervention, it is important to implement the use of durable materials that may age, handle rough use and abuse yet still create a delicate and soft interior. After extensive research (see more detail in Chapter 9), it was decided that concrete would be used as principle material throughout the design. Usually associated with being a cold and heavy material, the author's research into new concrete technology has revealed that this is no longer the case. Although concrete is not a material frequently used by interior designers, the project aims to shed light on the possibilities arising from using concrete as material for interior design.

In accordance with the inspirational concept of foliage and natural textures, the following concrete technologies were investigated so as to be implemented in the design proposal.

Furthermore, the propject proposes that the various companies such as LaFarge (Ductal), Igneous Concrete and The Concrete and Cement Institute act as sponsors for the project in order to create awareness of the research and technological advances being made in the field of architectural concrete.

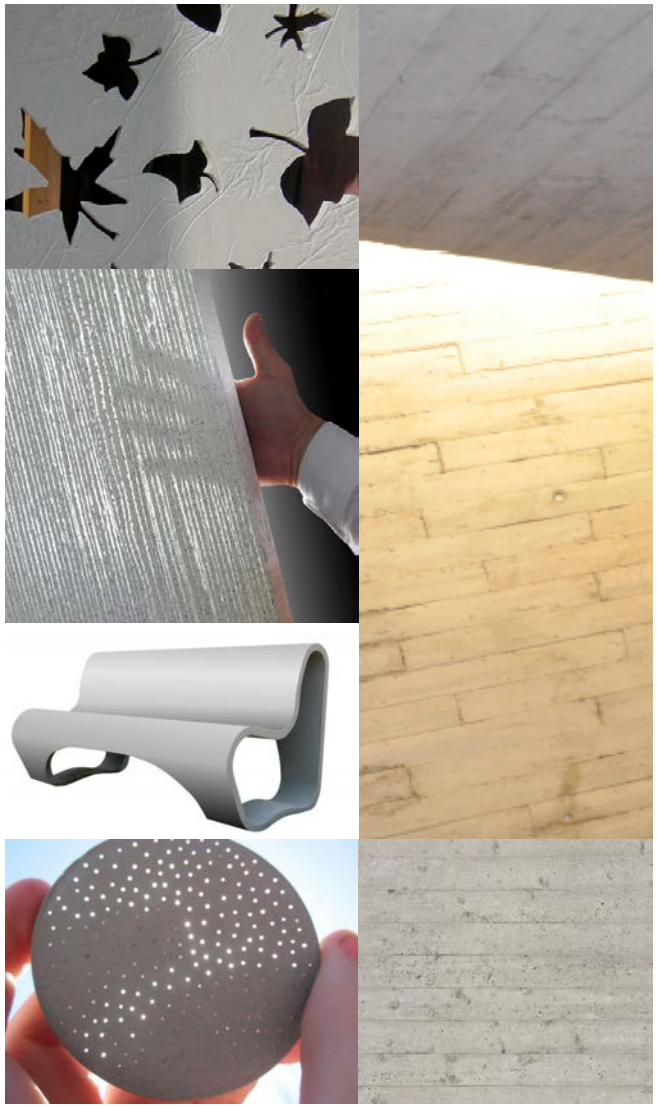


Fig.7.30: Concrete inspiration (Author, 2013)

This chapter illustrates the design solution developed from the conceptual approach discussed in Chapter 7.

chapter 08

design development

8.1 Plans

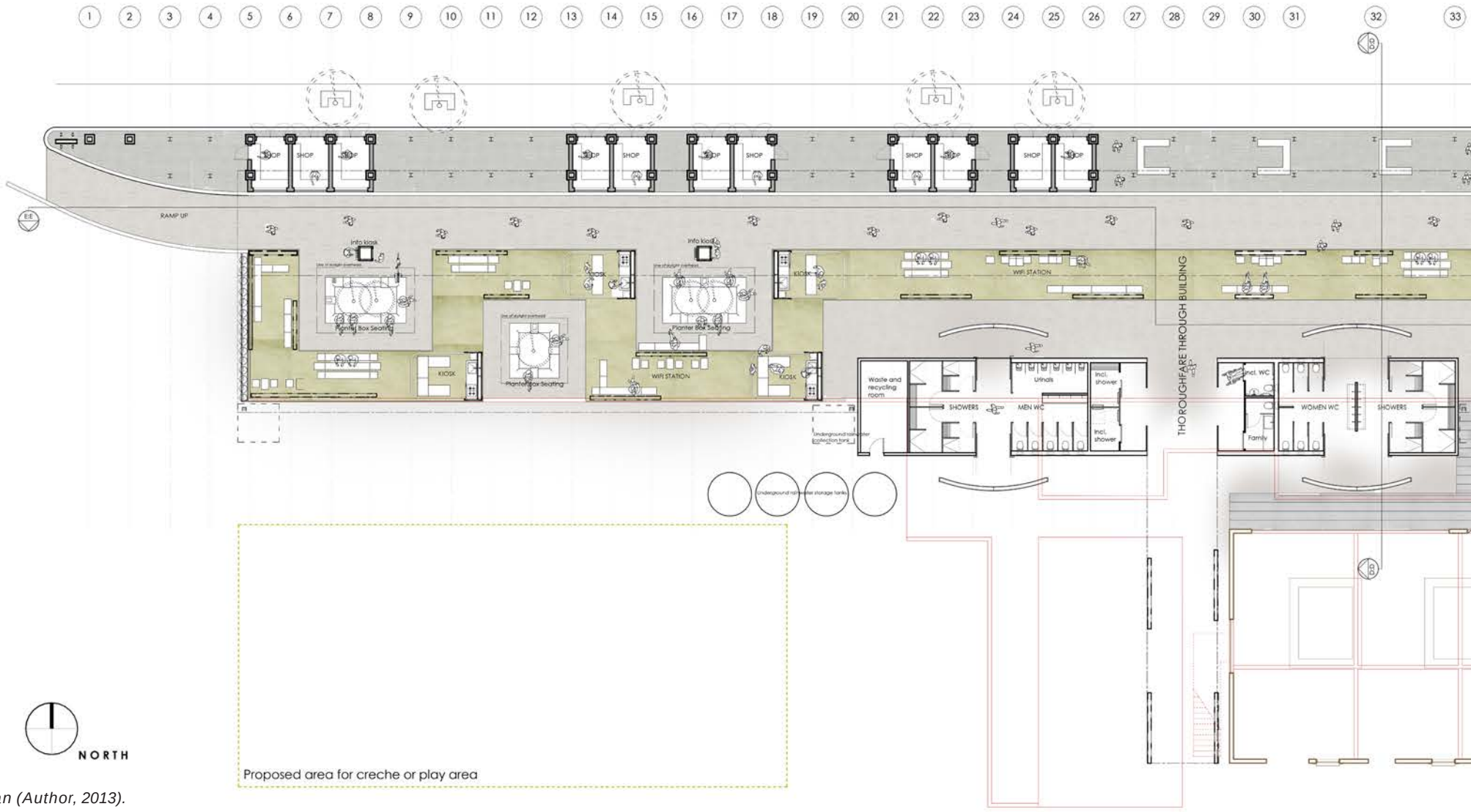
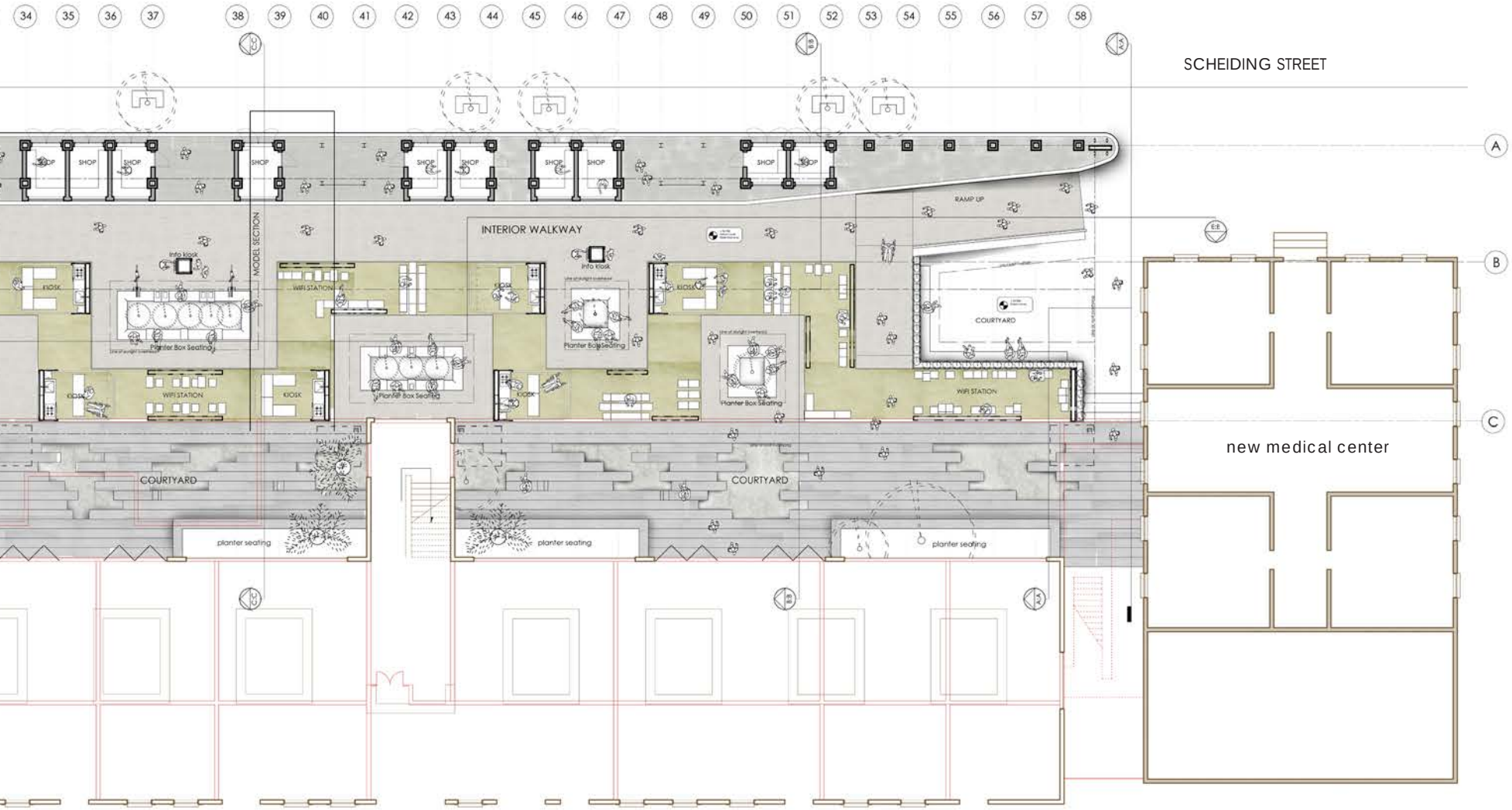


Fig.8.1: Site plan (Author, 2013).



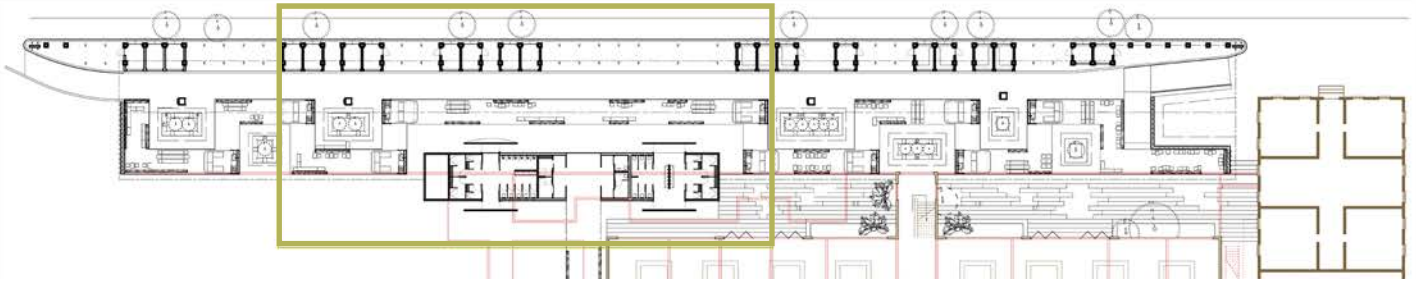


Fig.8.2: Plan A (Author, 2013).

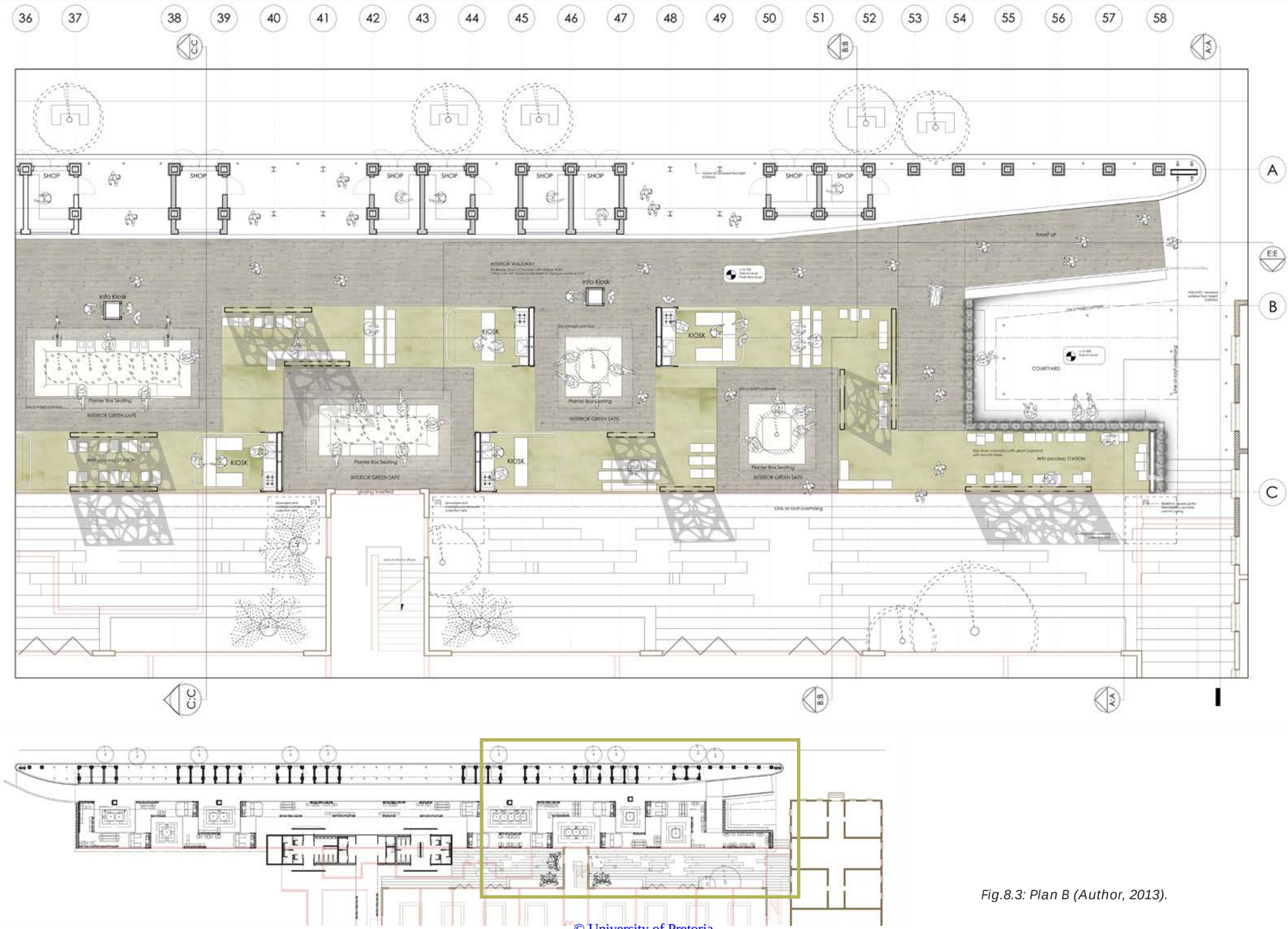
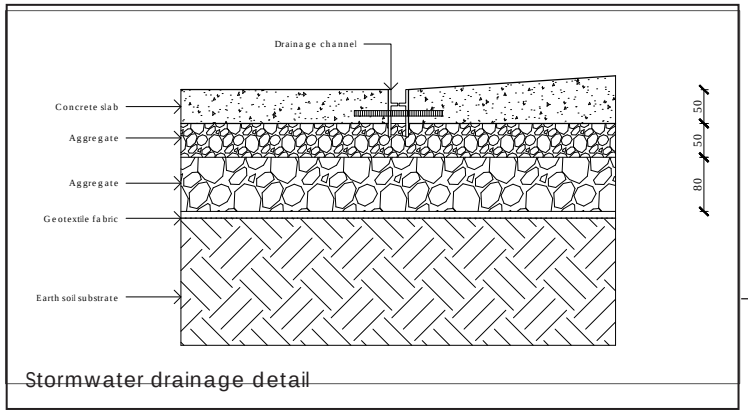


Fig.8.3: Plan B (Author, 2013).

8.2 Elevations

Although there are many entrances to the building created by the many thoroughfares, the eastern entrance is the most prominant as it is the closest to the connection between Scheiding Street and Paul Kruger Street which connects the station precicnt with the central business district to the north. An open courtyard is located at the entrance and provides quick access to the bus station building. This space is fitted with seating along the edges and could be used as an event space.



Stormwater drainage detail

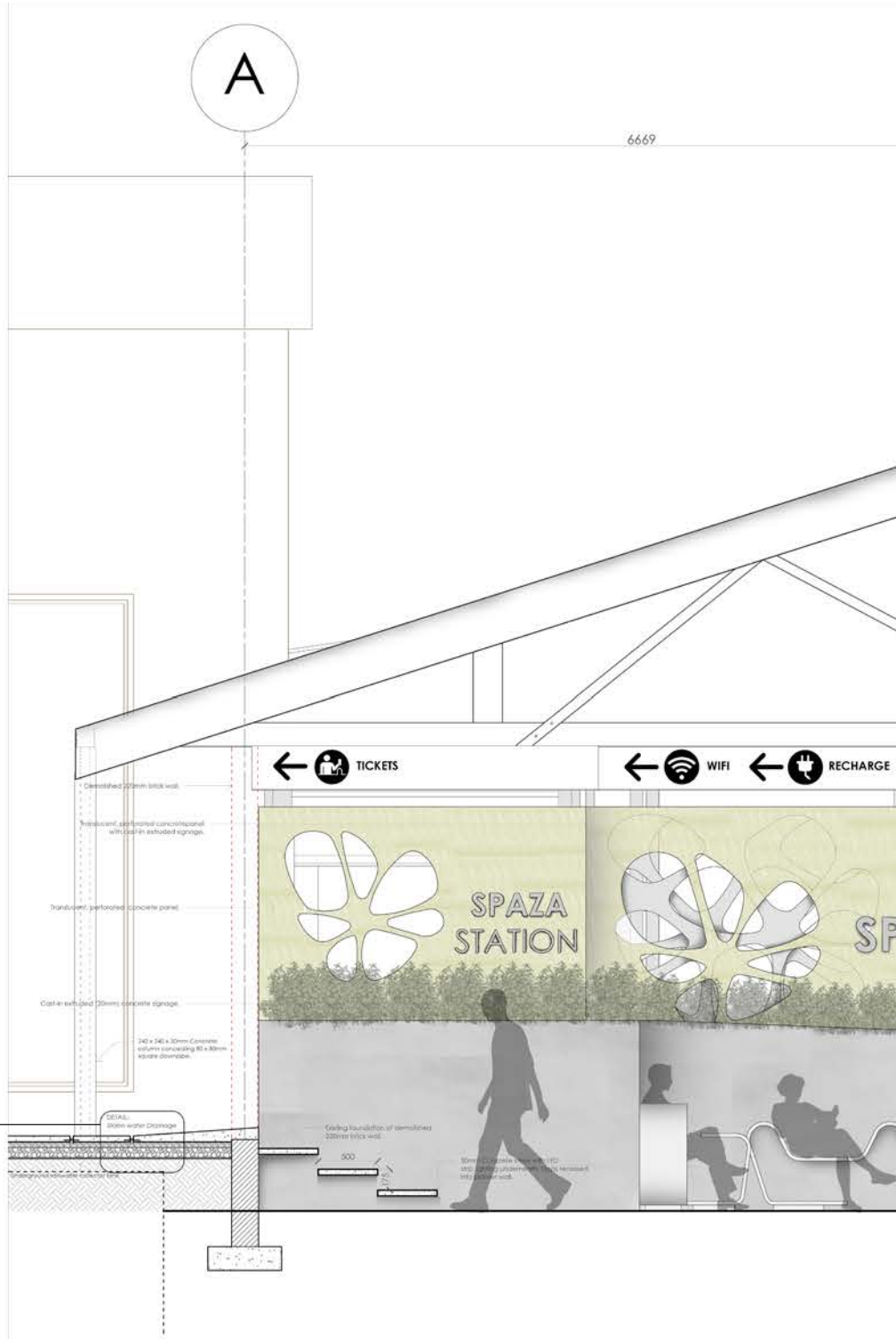


Fig.8.4: Eastern entrance elevation (Author, 2013).

ELEVATION A
not to scale

Fig.8.5: Proposed eastern entrance (Author, 2013).

Fig.8.6: Proposed western entrance (Author, 2013).

Fig.8.7: Existing eastern entrance (Author, 2013).

Fig.8.8: Existing western entrance (Author, 2013).

Fig.8.9: Eastern entrance visualization (Author, 2013).

8.3 Sections

The sections included to this chapter illustrate not only the technical composition of the interior, but also the approach taken to natural and arteficial lighting, signage and the inclusion of foliage to the interior. Three dimensional renderings further illustrate the different spaces illustrated in the corresponding sections.

green translucent concrete

smooth concrete

Fig.8.10: Section A:A (Author, 2013).

SECTION A:A
not to scale

Fig.8.11: Eastern courtyard (Author, 2013).

Fig.8.12: Wifi station (Author, 2013).

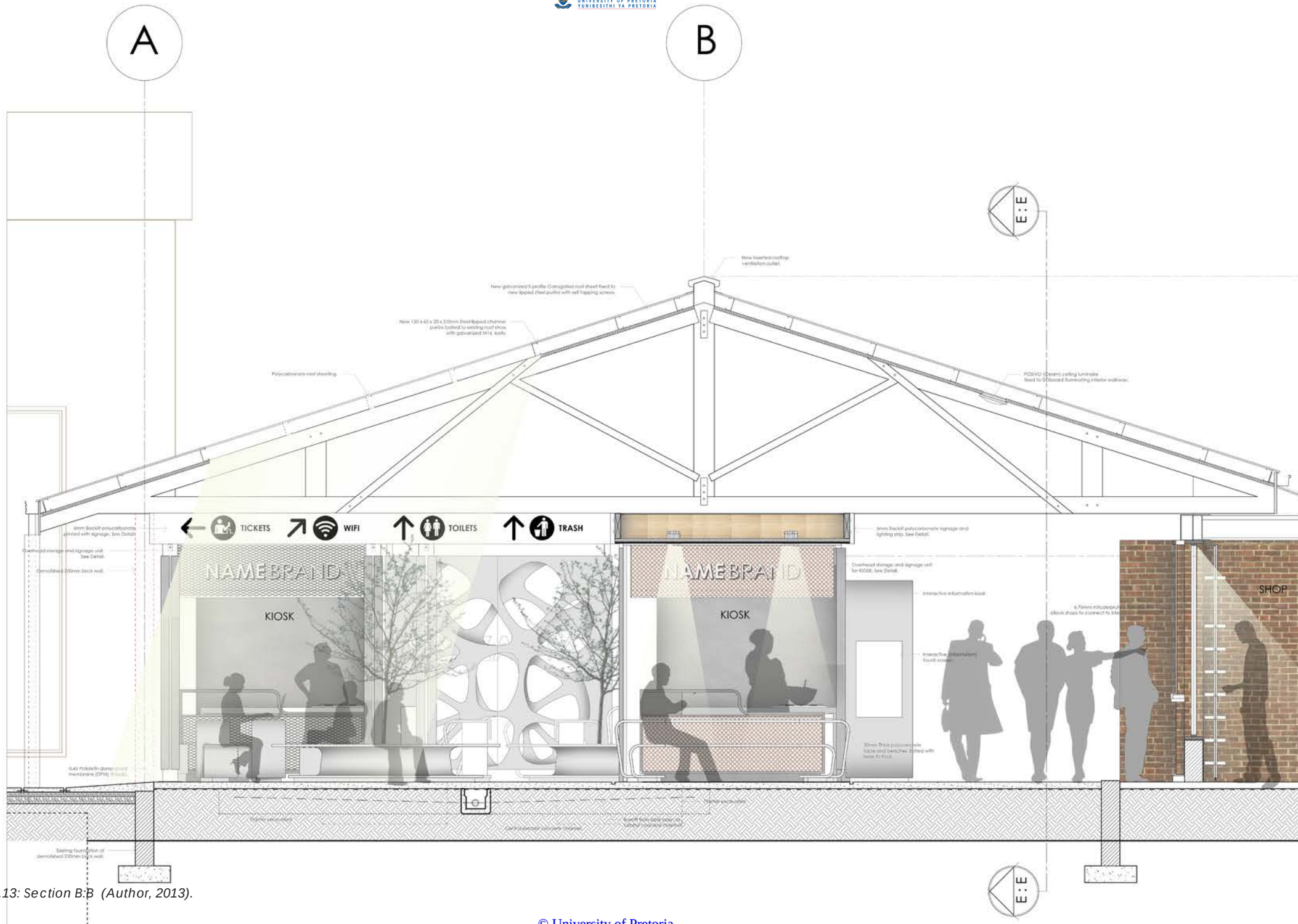


Fig.8.13: Section B:B (Author, 2013).

SECTION B:B
not to scale

Fig.8.14: Kiosk (Author, 2013).

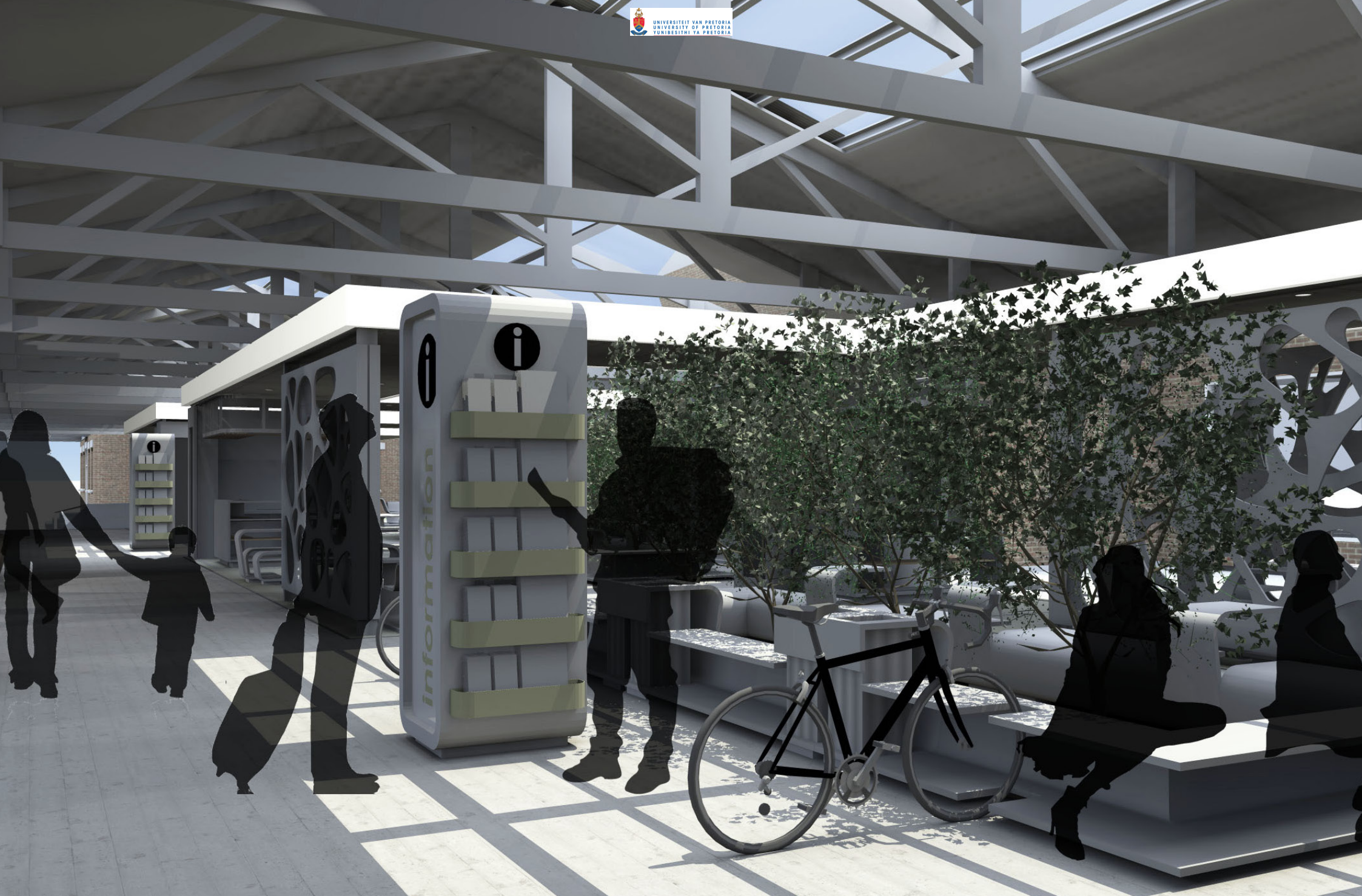


Fig.8.15: Interior green space with info kiosk, looking east (Author, 2013).

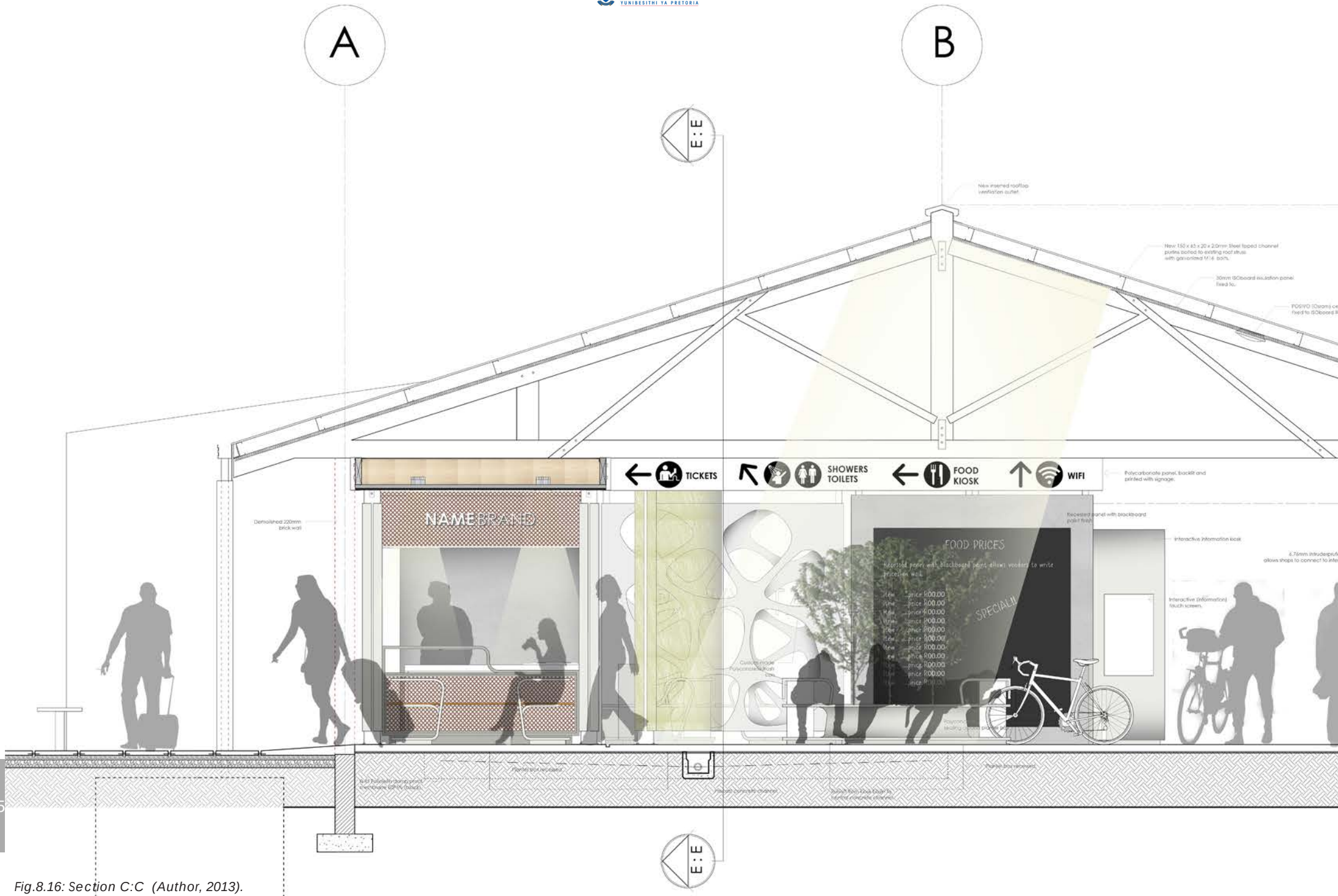


Fig.8.16: Section C:C (Author, 2013).

SECTION C:C
not to scale

Fig.8.17: Kiosk with overhead sigange (Author, 2013).

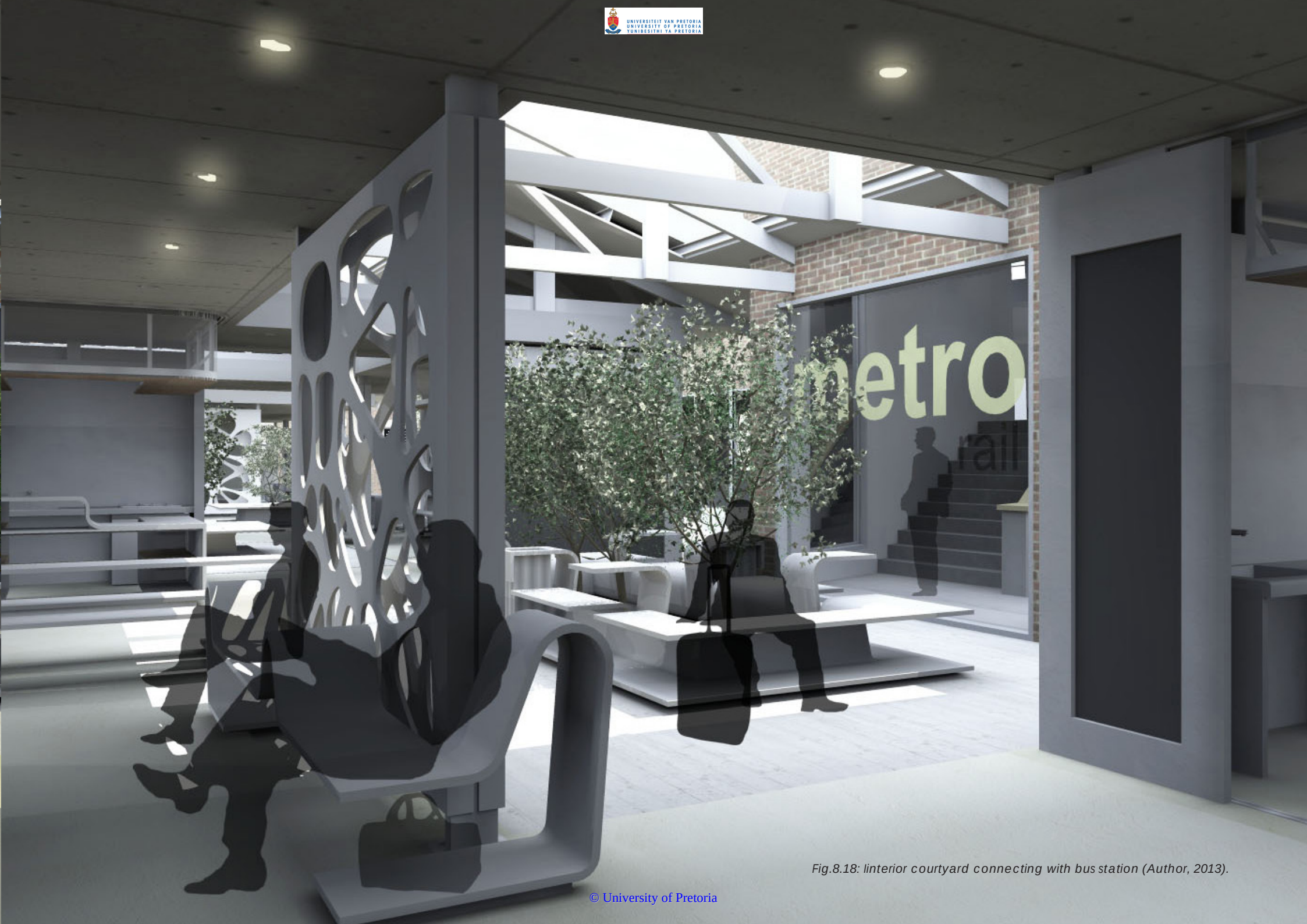


Fig.8.18: linterior courtyard connecting with bus station (Author, 2013).

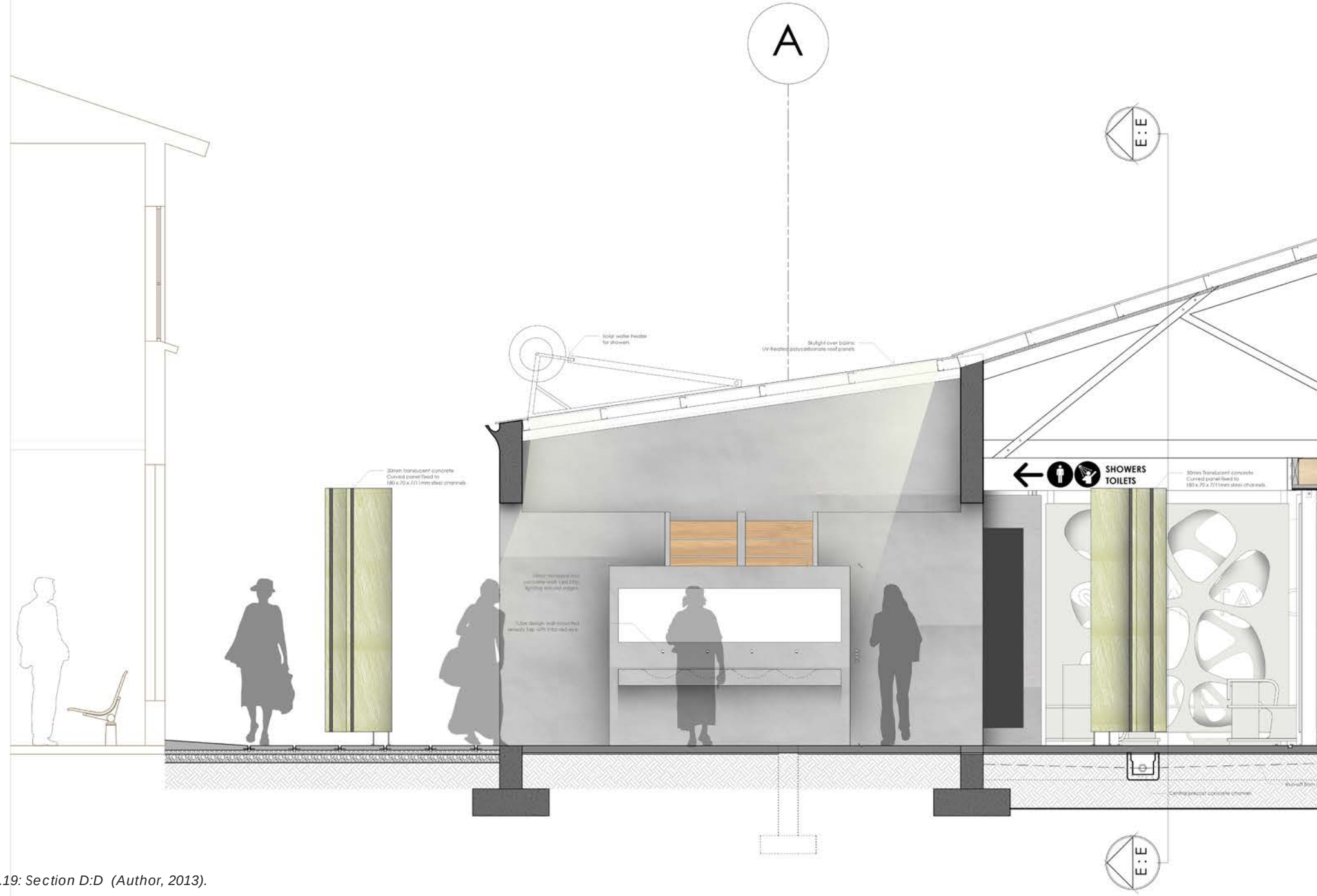


Fig.8.19: Section D:D (Author, 2013).

SECTION D:D
not to scale

Fig.8.20: Section E:E (Author, 2013).

3d SECTION E:E
not to scale

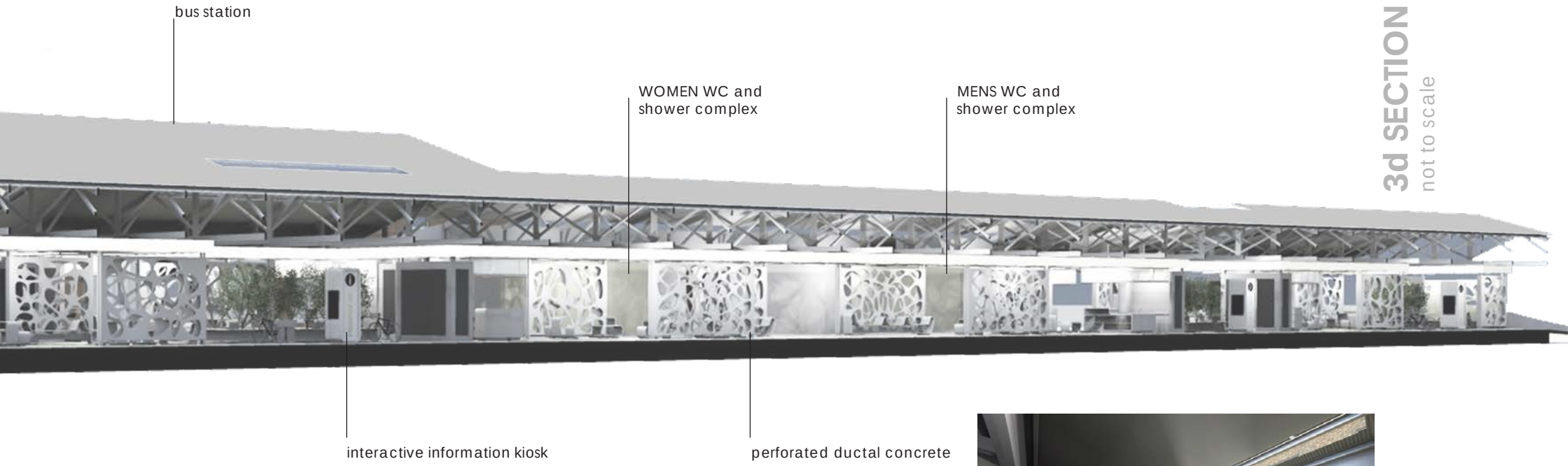


Fig.8.21: Women WC interior basin (Author, 2013).

8.4 Waiting strip and screens

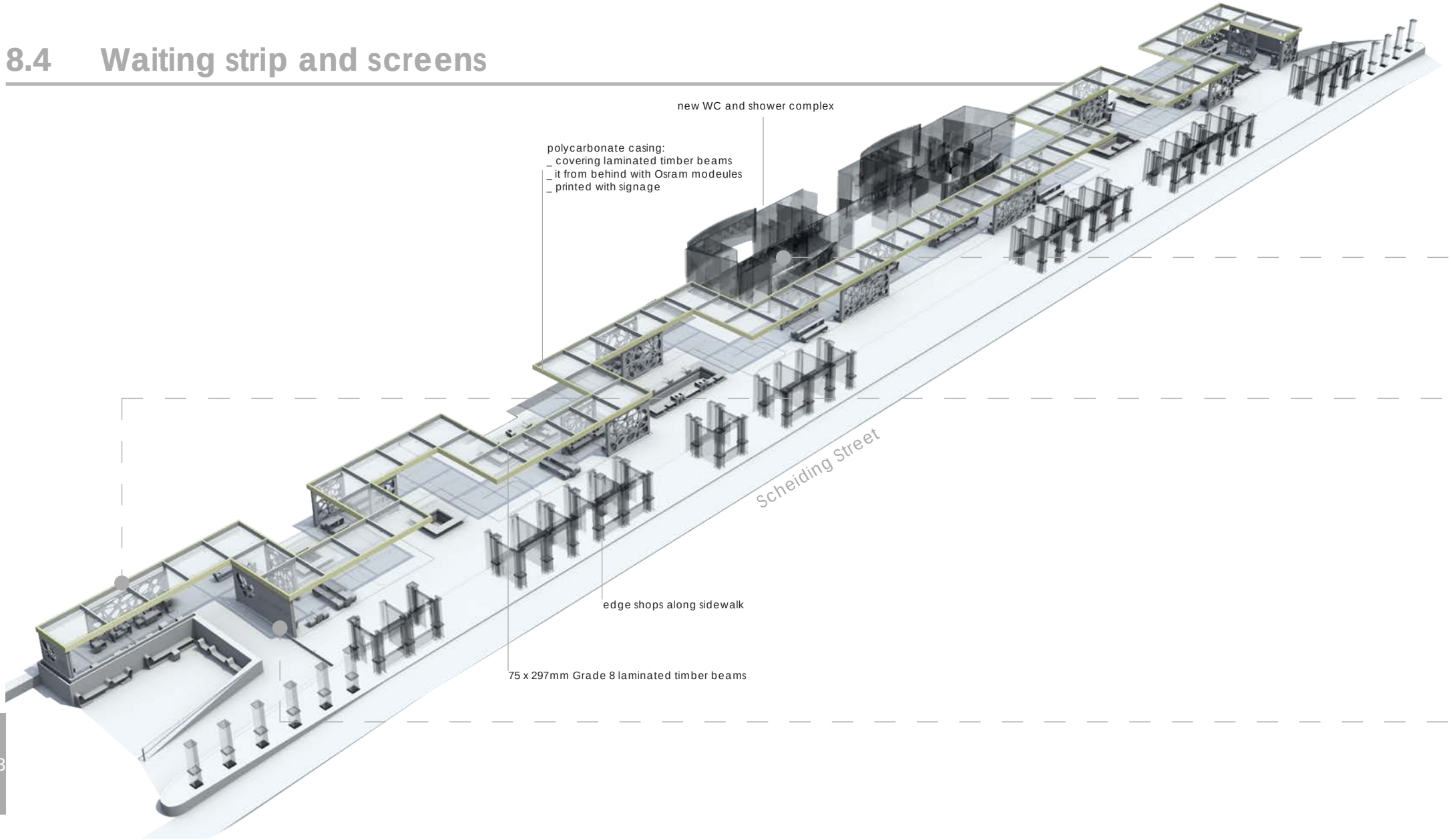
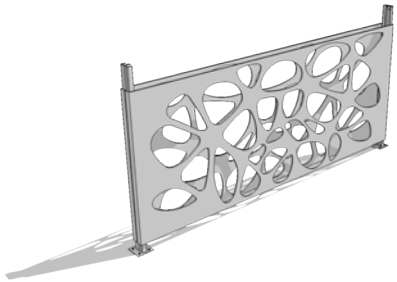
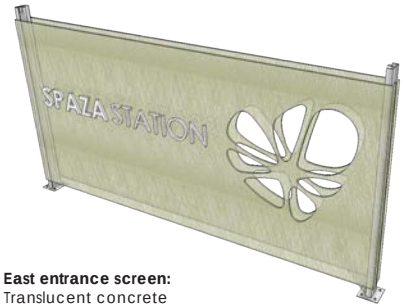


Fig.8.22: Strip composition (Author, 2013).

WC and shower complex entrance screen:
translucent concrete



Perforated screen:
Ductal (high-performance) concrete



East entrance screen:
Translucent concrete

Fig.8.23: Screens (Author, 2013).

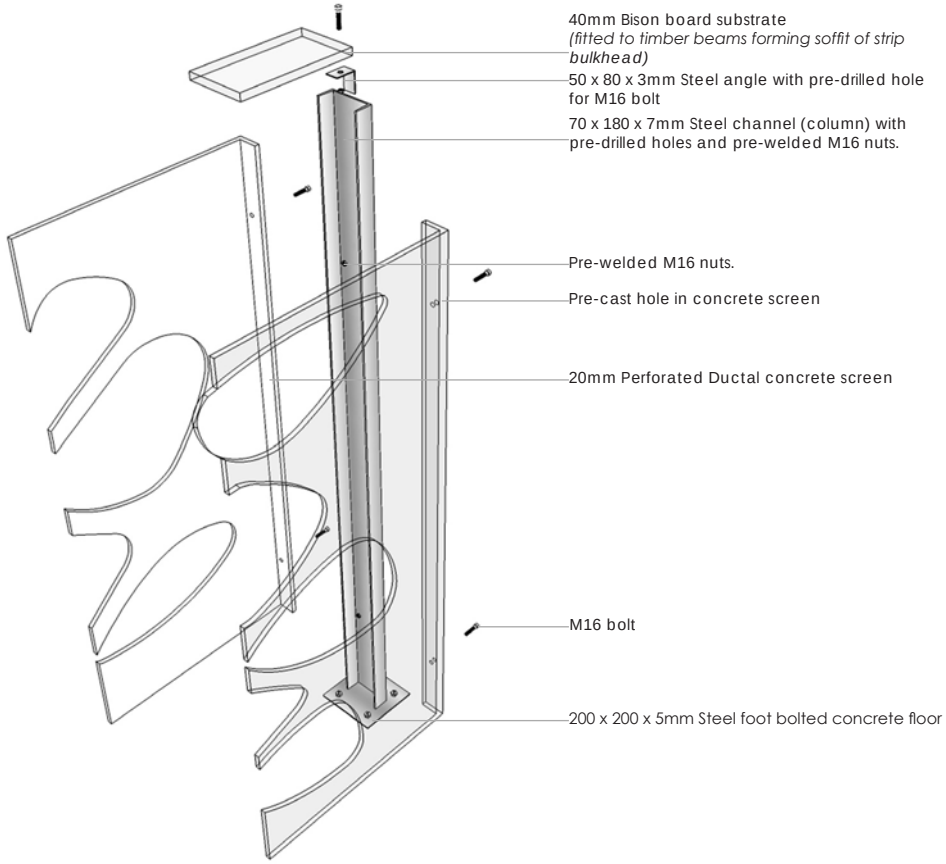


Fig.8.24: Screen composition (Author, 2013).

8.5 Kiosk

8.5.1 Composition

As stated in Chapter 7, the kiosk is designed to allow for adaptibility and personalization. The intervention proposes an off-site construction and on-site composition and installation approach for most of the design elements. Therefore, many of the technical detailing in the kiosk will be repeated in other design elements. The composition of the screens is the same as that of the panels around the preparation counter and the installation of the seating components to the floor is the same as that of the counter. This approach to design and construction not only eases on-site construction, but also allows for adaptibility and change.

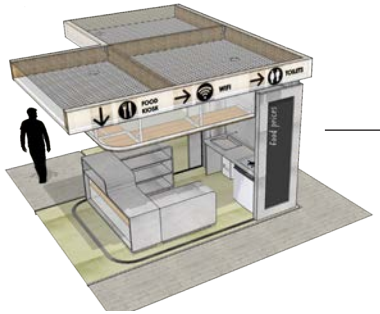


Fig.8.25: Kiosk composition (Author, 2013).

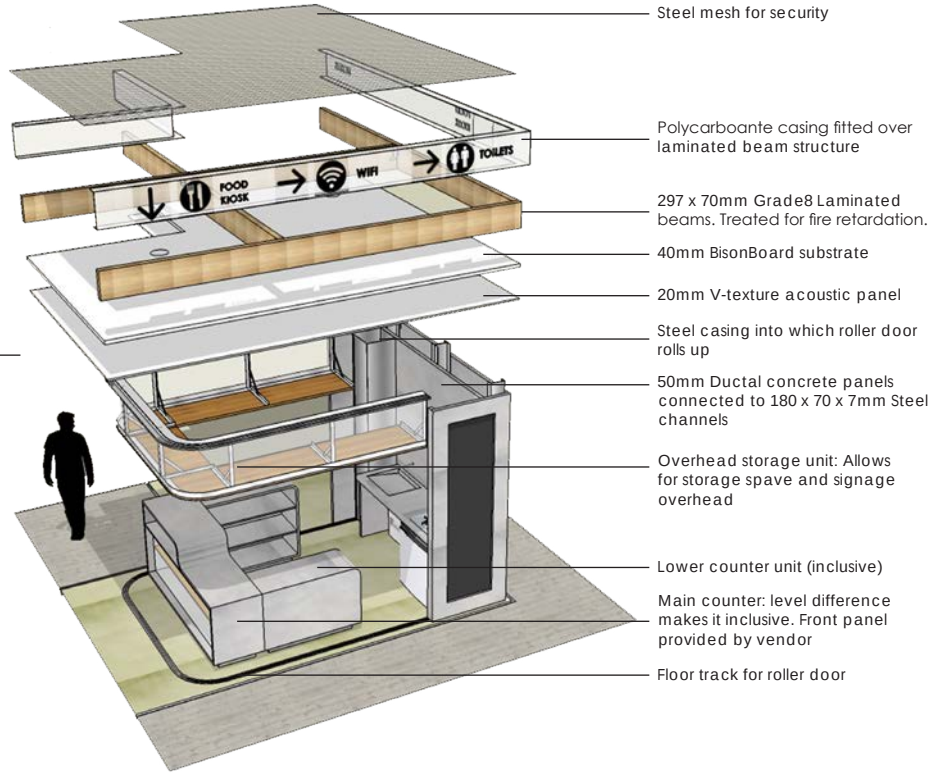


Fig.8.26: Exploded view of kiosk (Author, 2013).

Conceptual development of kiosk:

Fig.8.27: Kiosk design development (Author, 2013).

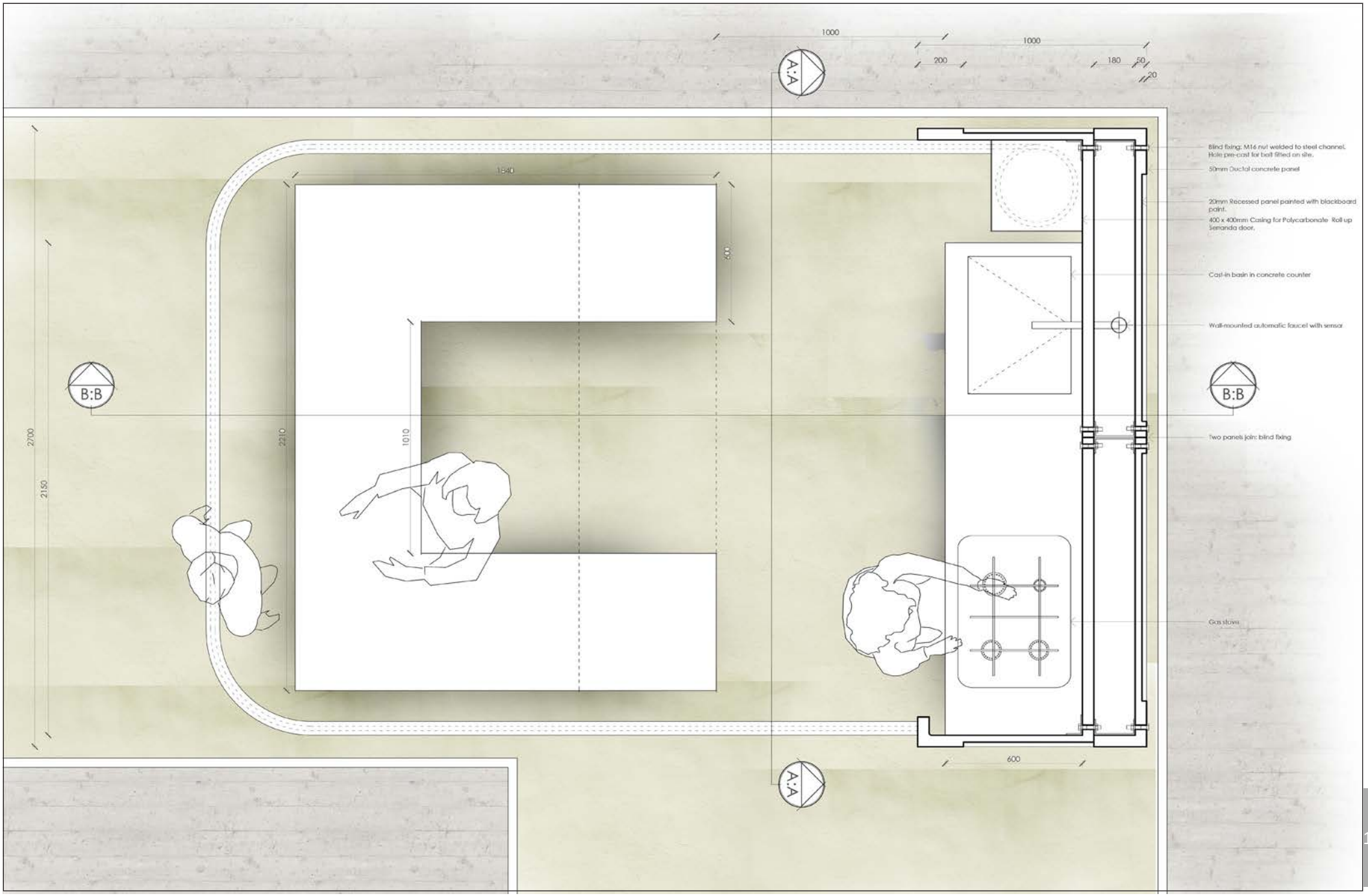


Fig.8.28: Kiosk plan (not to scale) (Author, 2013).

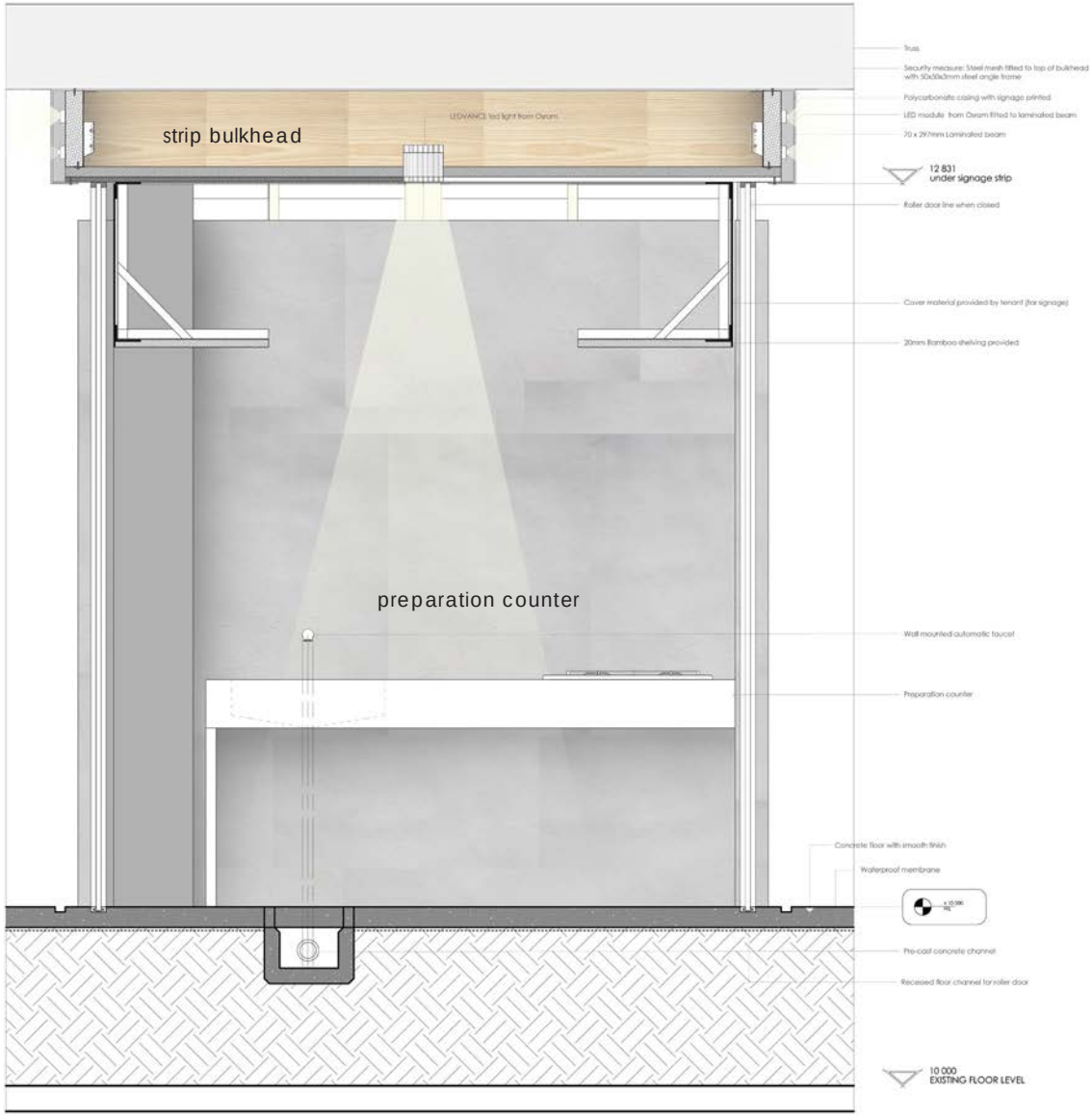


Fig.8.29: Kiosk section A:A (not to scale) (Author, 2013).

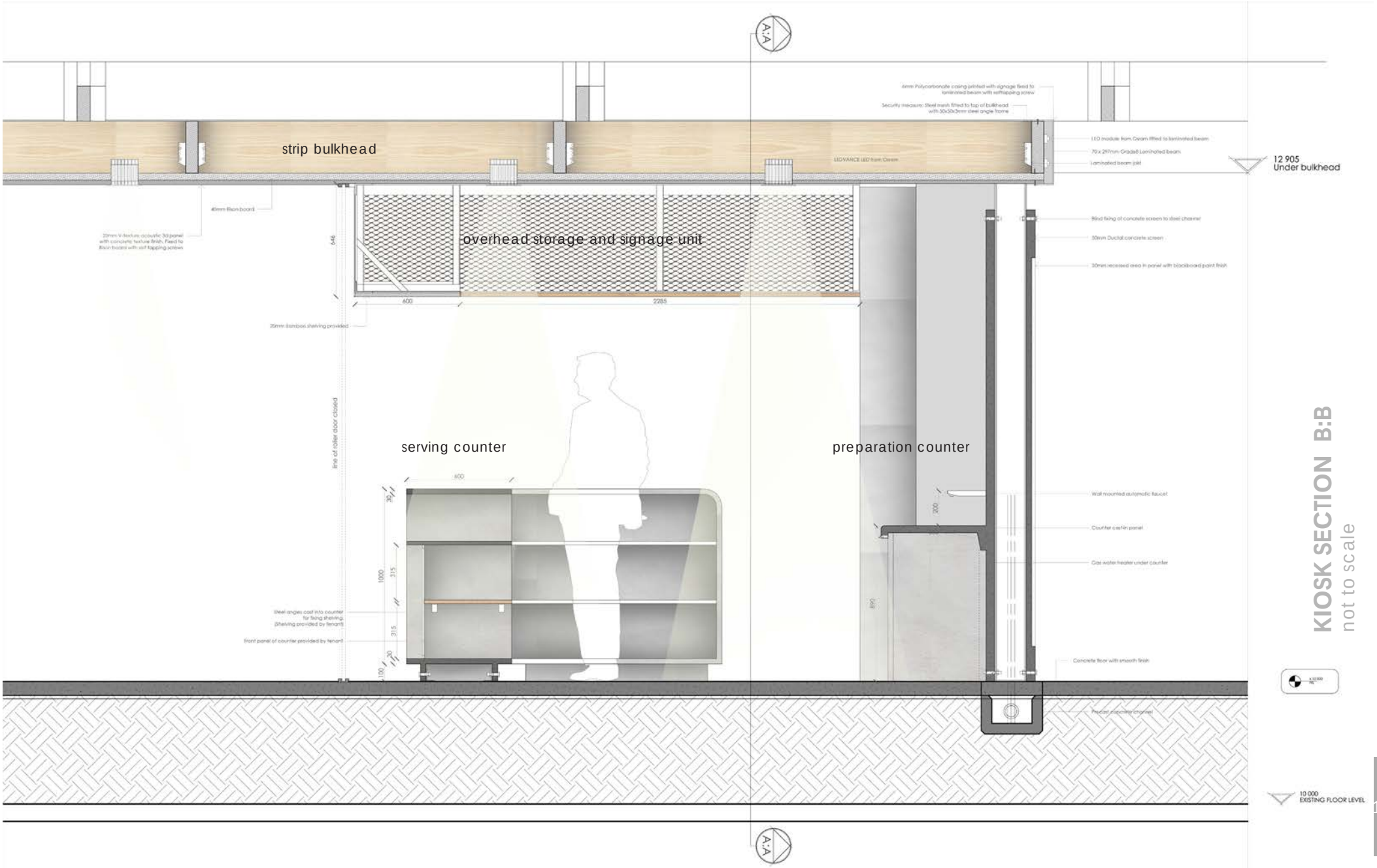


Fig.8.30: Kiosk section B:B (not to scale) (Author, 2013).

8.5.2 Adaptability and personalization

The food kiosk is designed to be inclusive and allow for adaptability by tenants. Keeping in mind the current character present in the host building, the aim was to design a food kiosk which would allow vendors to have a 180 degree conenction with the surrounding environment. Kiosks are placed along the strip and each fitted with a polycarbonate roller door that completely openes up. Demountable components mean that the kiosk can be adapted to suit the needs of the specific vendor. The main components of the kiosk include the preparation unit, which consists of the counter and the 50mm concrete panels that compose the wall. Recessed sections in the concrete panels are painted with blackboard paint. This allows vendors to advertise their products easily.

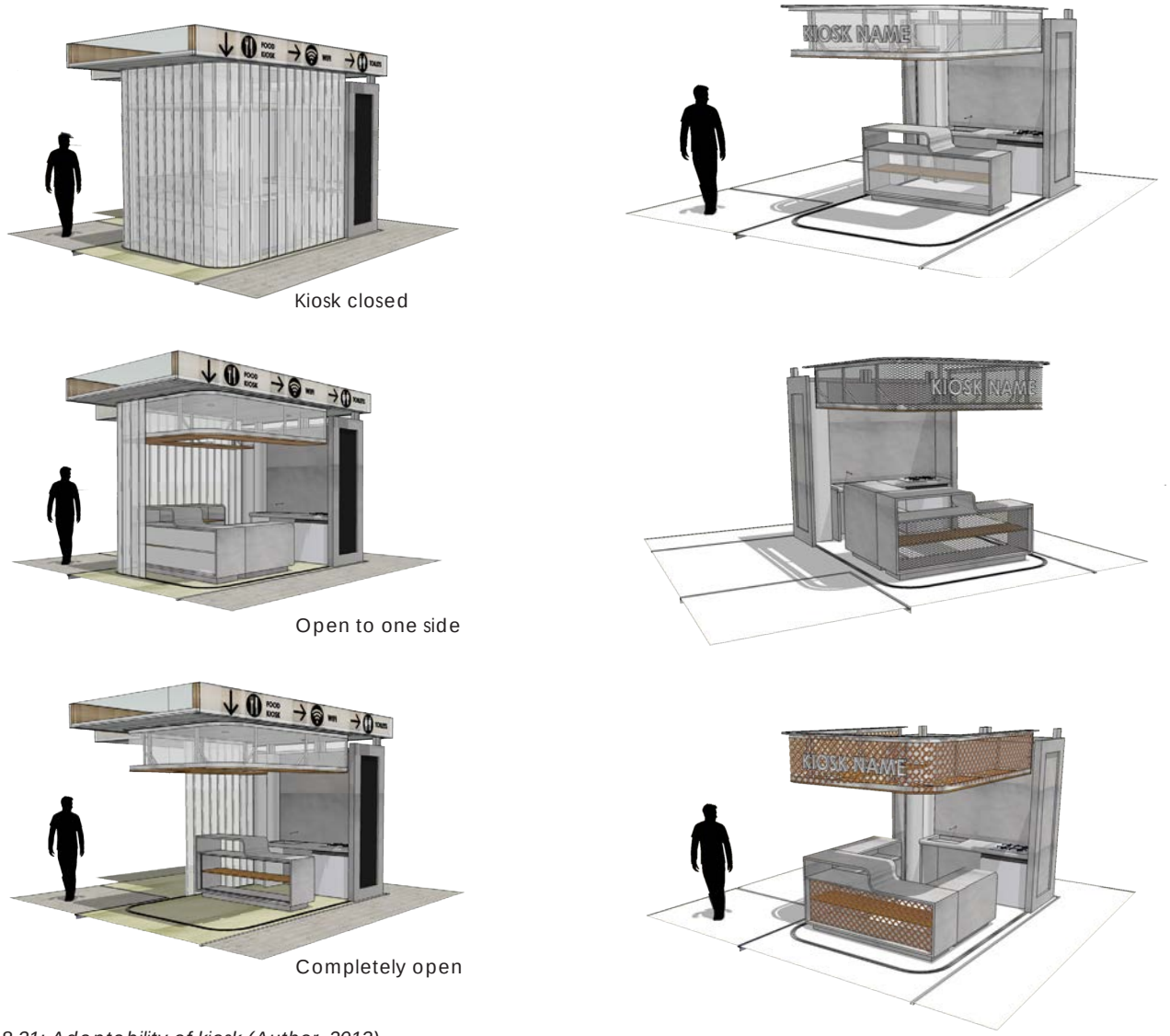


Fig.8.31: Adaptability of kiosk (Author, 2013).

8.6 Counter design

Just as the kiosk, the counter was also designed to allow for adaptability and personalization. The composition of the kiosk consists of three parts:
The first is the main counter, which consists of an outer shell of 30mm thick high performance concrete. This shell is cast so that it has two heigths, making it inclusive. No front panel or shelf is provided and tenants are free to use their own materials to fill in the counter.
The second and third components are extensions on the first, one higher and one lower component.

The kiosk composition can therefore be assembled to consist of either only of the main counter, or all three components, depending on the tenant's requirements.

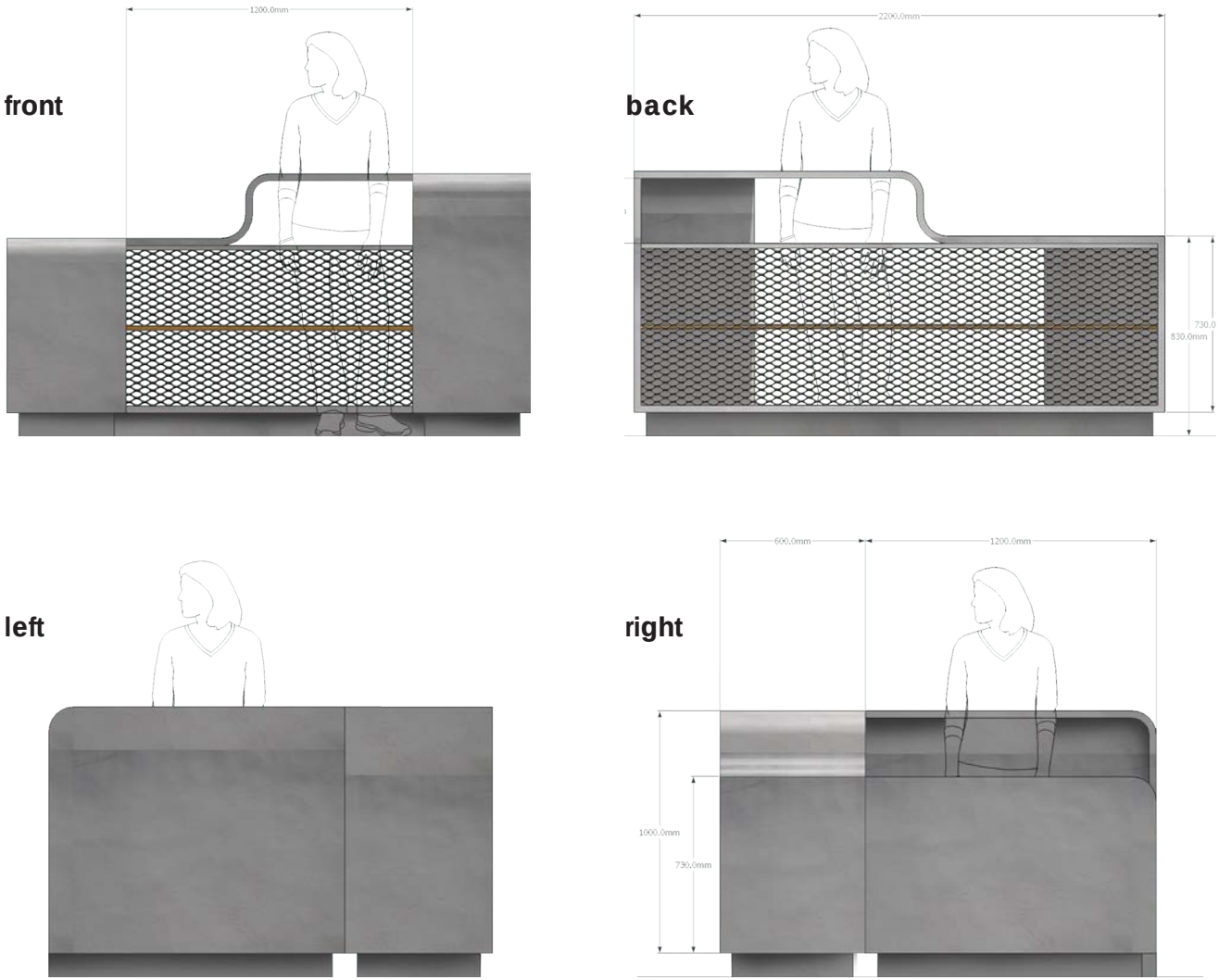


Fig.8.32: Kiosk elevations (Author, 2013).

Fig.8.33: Counter configurations (Author, 2013).

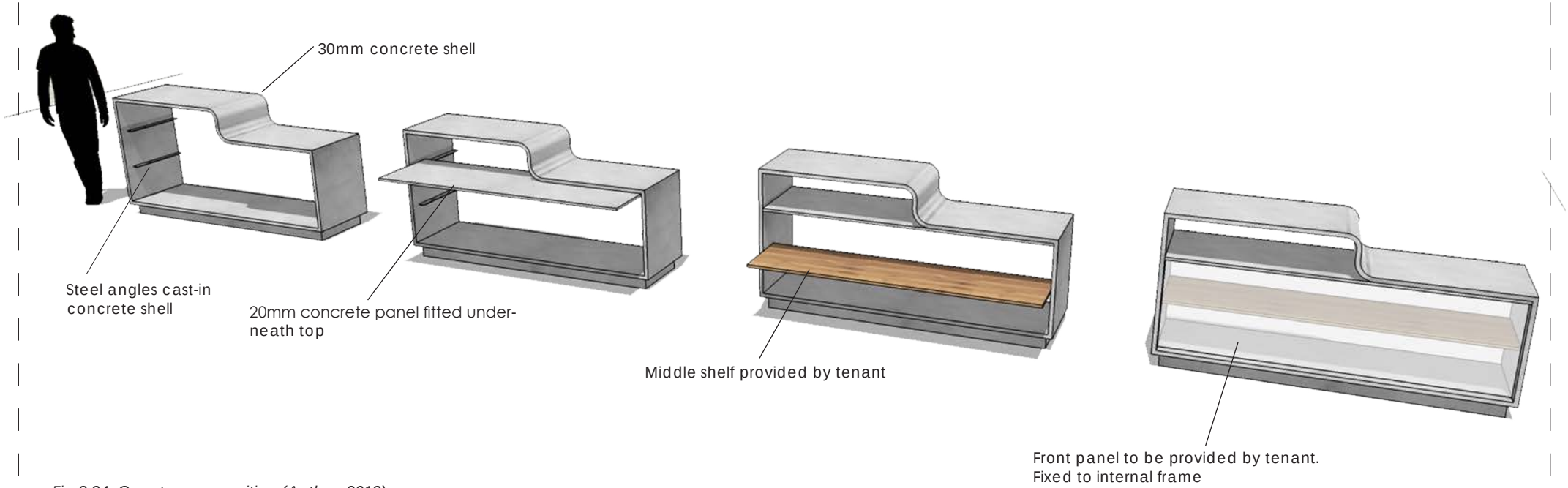


Fig.8.34: Counter composition (Author, 2013).

8.7 Seating

Components

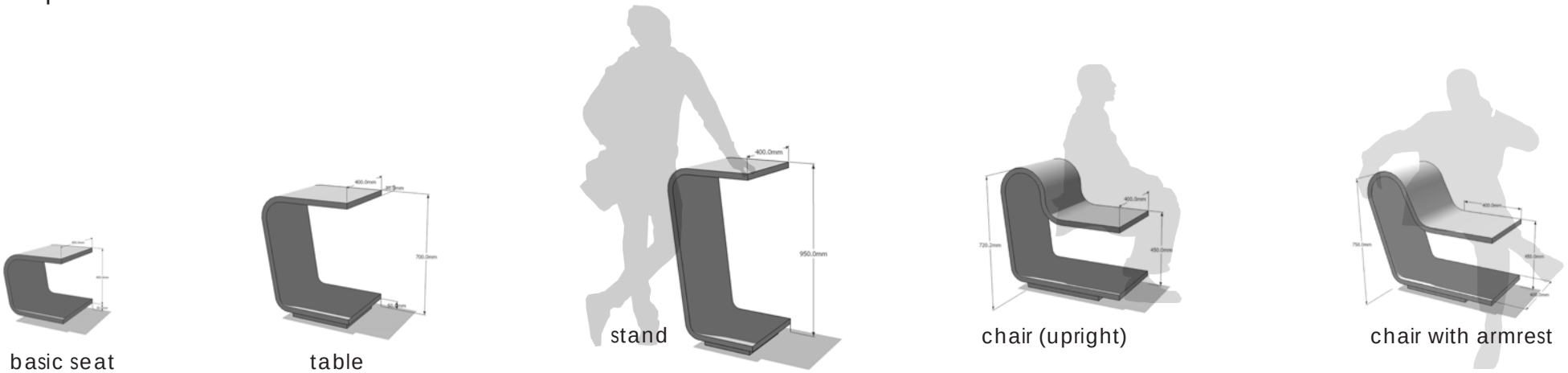


Fig.8.35: Seating components (Author, 2013).

Configurations

Fig.8.36: Seating configurations (Author, 2013).

Conceptual development of seating:

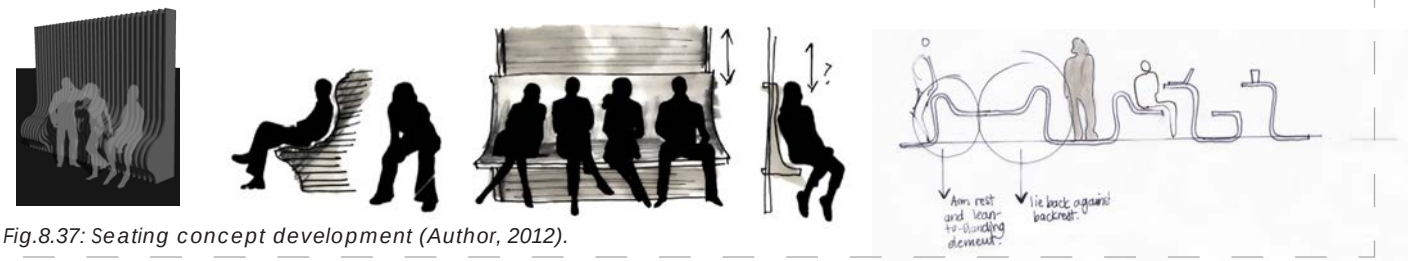
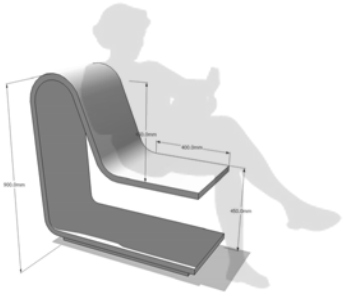


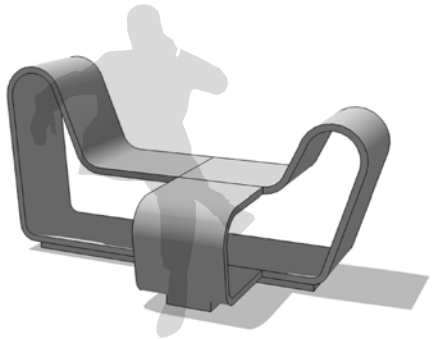
Fig.8.37: Seating concept development (Author, 2012).



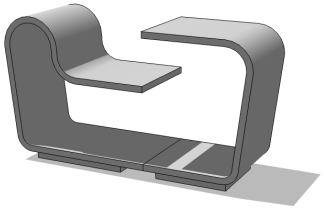
chair with backrest

bicycle stand

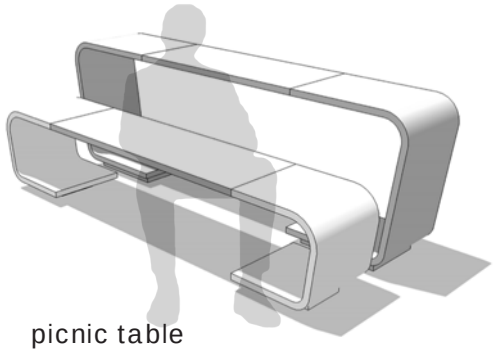
laptop station
(see Fig, 8.39)



chair configurations



laptop station with upright seat



picnic table

Power access

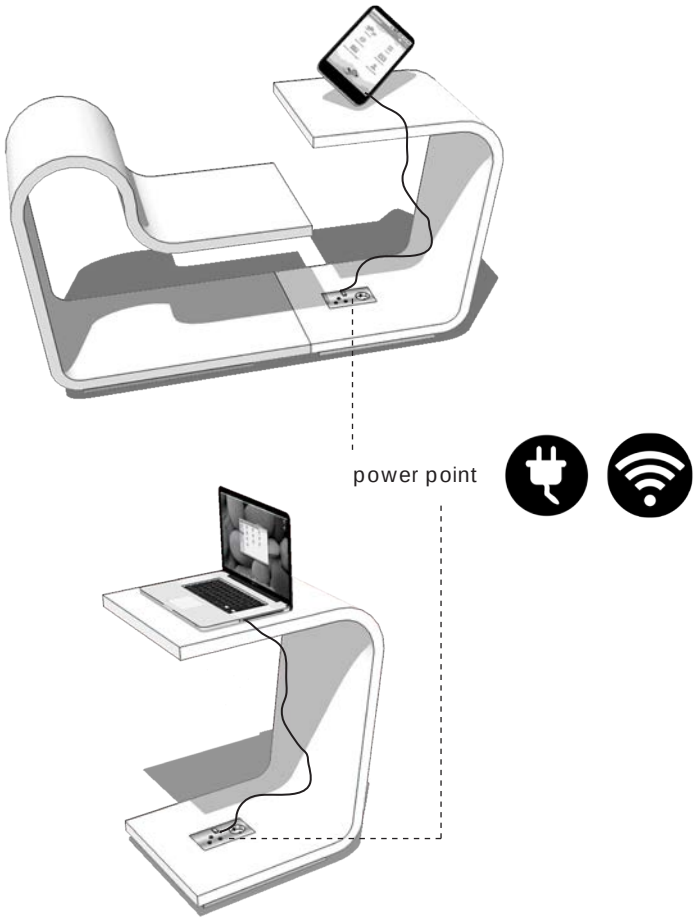


Fig.8.38: Table with power point (Author, 2013).

Seat-to-floor fixing

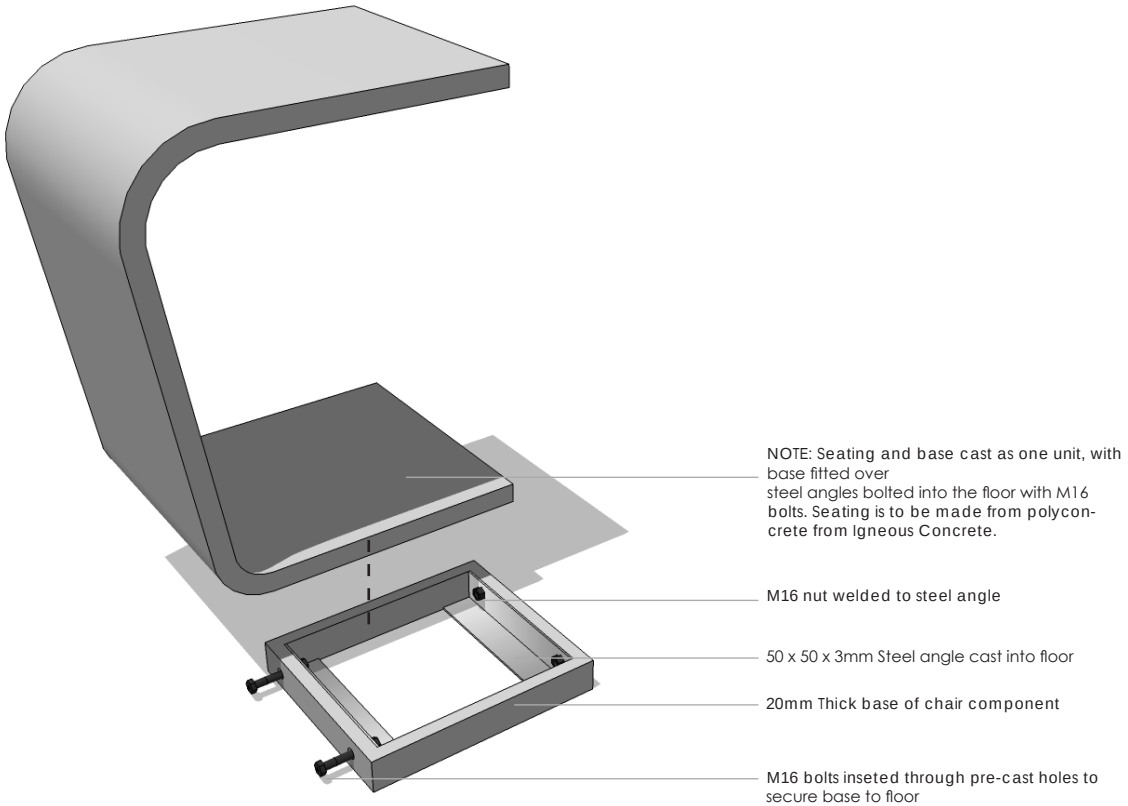


Fig.8.39: Seat-to-floor fixing (Author, 2013).

8.8 Information kiosk

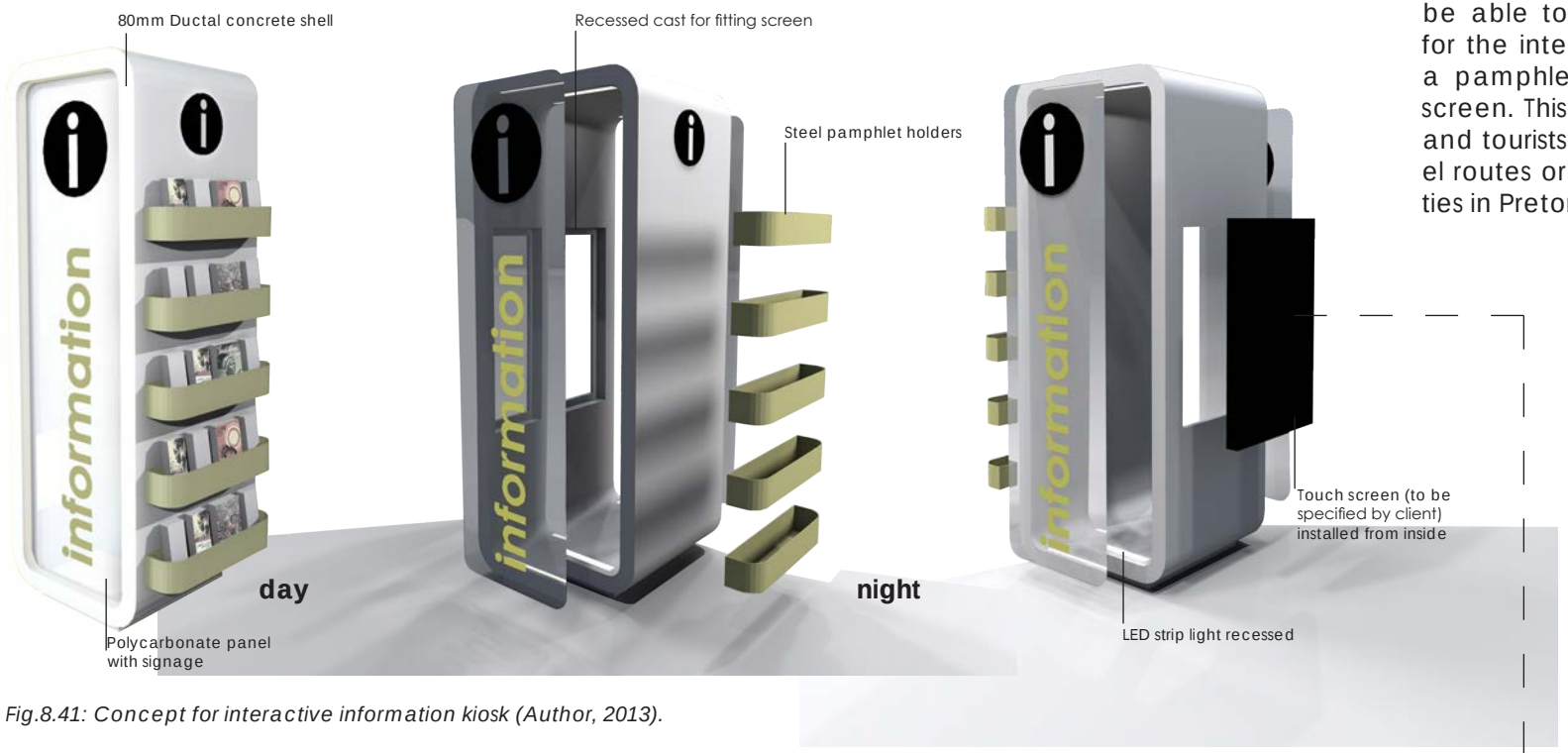


Fig.8.41: Concept for interactive information kiosk (Author, 2013).

As stated previously, the intervention proposes to allow bus commuters and city dwellers to be able to access information. The concept for the interactive information kiosk combines a pamphlet stand with an interactive touch screen. This will allow commuters, city dwellers and tourists to gain information regarding travel routes or even tourist attractions and activities in Pretoria.

Fig.8.40: Touch screen in New York subway (Halverson, 2013).

chapter 09

technical investigation

This chapter provides additional technical information pertaning to servies and systems. Firstly, the choice of concrete as principal material is discussed. Secondly, the reticulation and distribution of services such as electricity, network (wifi), waste and water management is illustrated.

9.1 Material selection

9.1.1 Concrete as principle material

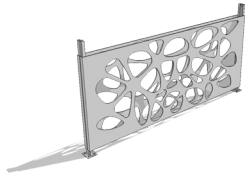
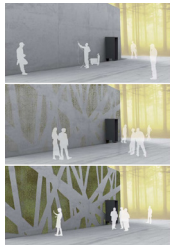
Type of concrete	 Concrete with **timber boarding finish**	 **Ductal concrete:** High performance concrete	 **Translucent concrete:** Optic fibres create translucent effect
Qualities	Concrete is the most durable, low-maintenance and cost-effective materials. It is ideal to use for flooring as it has a very high density and acts as a thermal reservoir. If used correctly in conjunction with solar shading and ventilation, concrete can create a thermally comfortable interior environment (Concrete and Cement Institute).	Ductal concrete is a ultra-high-performance concrete, reinforced with metallic fibres and stands at the cuttting edge of innovation in terms of concrete technological research. Its high ductility and strength sets it apart from conventional concrete. This enables it to be used for extensive structural applications or ultra-thin screens. Ductal concrete screens can be perforated up to 50% (Ductal, Lafarge).	Translucent concrete is achieved by combining optic fibres and concrete. Light is transmitted by thousands of optic fibres. Given the delicacy and small size of the fibres, they blend into the concrete creating a uniform light-transmitting appearance (Archicentral, 2009)
Application	The intervention proposes concrete for all flooring. The walkway and interior courtyard spaces are cast with timber board lining so as to create the illusion of a timber floor texture.	 Given the ductility of the material, it can be cast very thin. Therefore, the material is used as paneling for the screen elements.	 Visual continuity throughout the interior is an important aspect of the proposd intervention. Therefore, solid screen panels will be made of translucent concrete with a green pigment.
Environmental consideration	Concrete is a much more sustainable material compared to other materials. It is 100% recyclable as it can be used as aggregate in new concrete. It also has the ability to absorb CO2 from the atmosphere.	Compared to steel or conventional concrete, ductal offers a reduced impact on the environment. It uses less materials, has a very long lifetime and the absence of reinforcements greatly improves the recycling and reusable qualities of the material.	The light transmitting quality of translucent concrete means that a more light-filled interior will lessen the need for arteficial lighting, saving electricity.
Company/ sponsor	cement & concrete institute	Ductal / LAFARGE Building better cities™	Litracon

Fig.9.1: Material selection: concrete (Author, 2013)

Polyconcrete

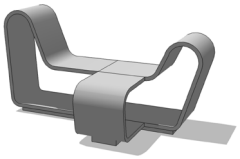


MOSScrete: organic concrete

Chemically treated concrete promotes growth of moss

Polyconcrete is a resin based concrete, a mixture of polymer resin and a variety of fillers that vary between coarse sand to fine powders, which is reinforced with glass fibre strands. A polyester top coat covers the material once molded, giving it a smooth finish. It is also resistant to scratches (Igneous Concrete).

Known as biological concrete, this concrete is treated with chemicals promoting the growth of moss on the surface. Moss will only grow on the areas treated. Although not yet a regularly used material, this was a porposal for a concrete design competition.



Polyconcrete will be used for seating design, as well as the information kiosks.

The quality of concrete to age and change over time is illustrated in the use of biological concrete for the entrance signage screens.

Given the long lifespan of the material, and the selective use of resources, it is sustainable.

Concrete in itself is a sustainable material, the aesthetic quality of allowing the concrete to be overgrown and covered in plants could create in interest in the material and promote the use of concrete as it is no longer a cold, heavy material.

9.2 Distribution of services

9.2.1 Electrical

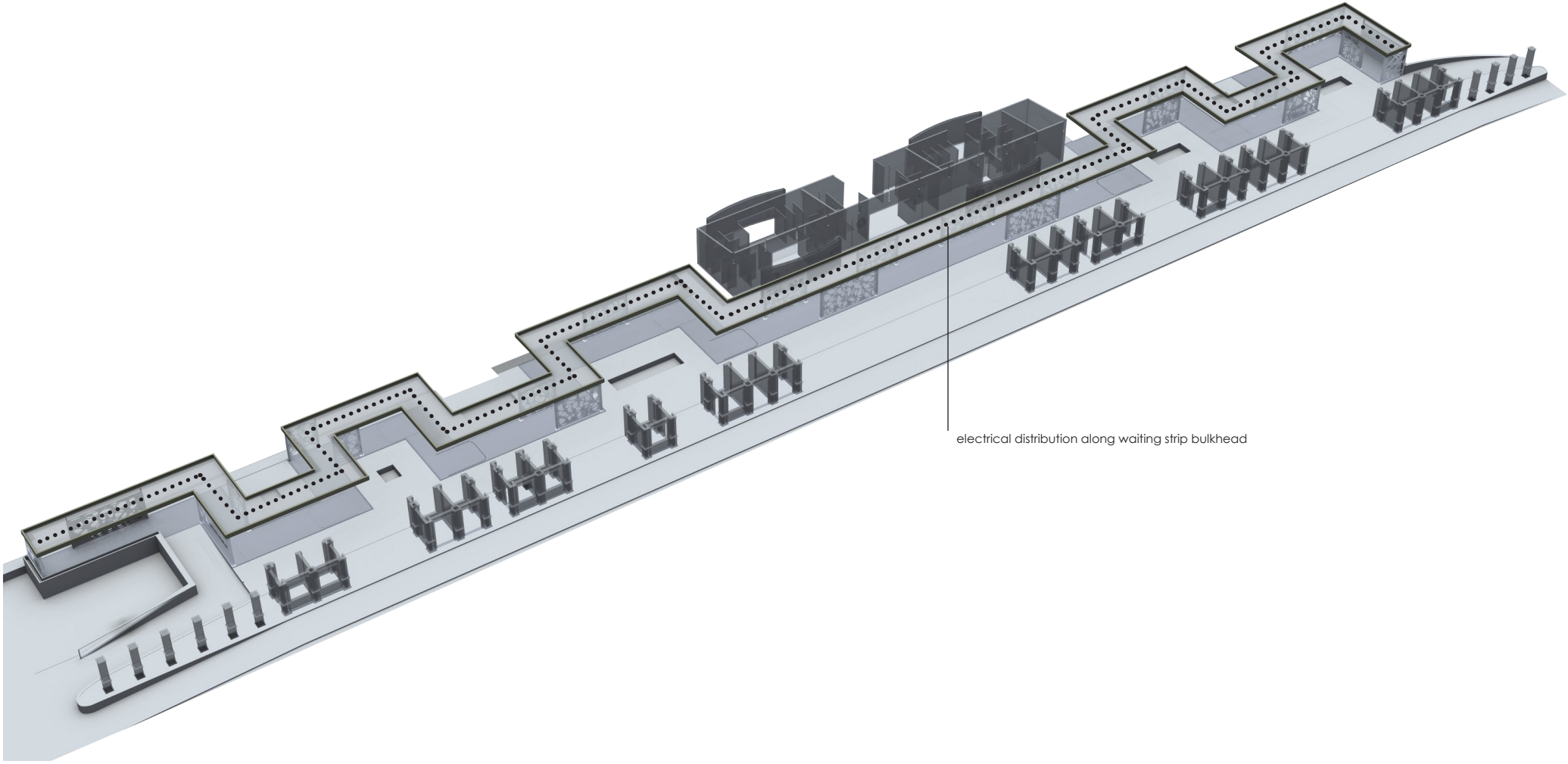


Fig.9.2: Electrical distribution: along bulkhead (Author, 2013)

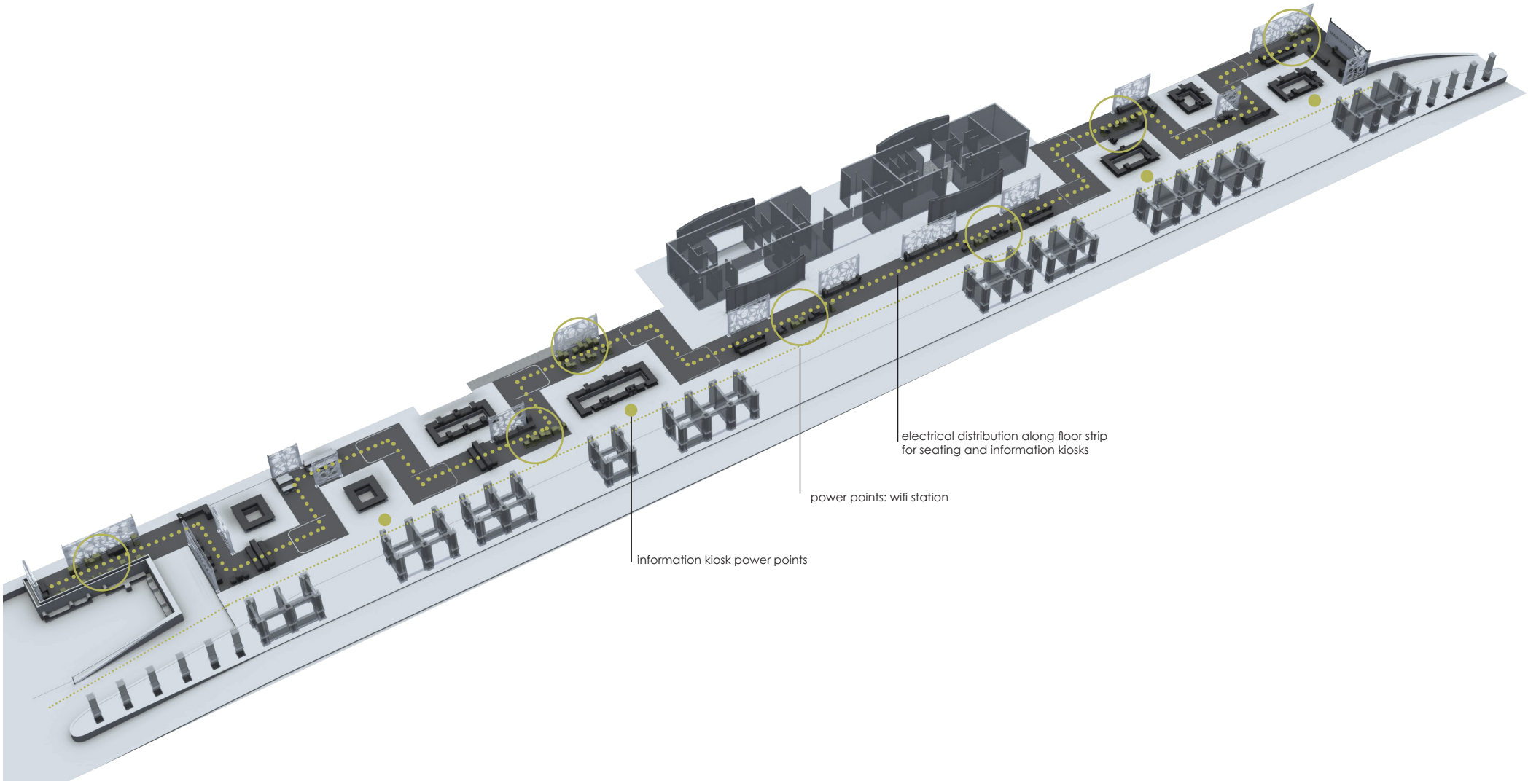


Fig.9.3: Electrical distribution: along floor (Author, 2013)

9.2.2 Network and data (wifi access)

One of the major contributions made by the dissertation is to consider the requirements of the 21st century commuter. Certainly the most prominent is that of access to information. The intervention proposes a series of wifi access points that can be used freely by laptop or smartphone users. A main distribution unit (DU) is located in the center on top of the waiting strip bulkhead. From there, various access points (AP) are placed along the bulkhead over the areas marked as wifi stations. For security reasons, a steel mesh grid is fixed along the top of the bulkhead.

Interactive information kiosks are placed along the walkway adjacent the interior courtyard spaces. These kiosks (equipped with interactive touch screens) will also be able to access the internet, allowing commuters to gain information about the city, travel options or simply to log on to the internet if they do not have communication devices.

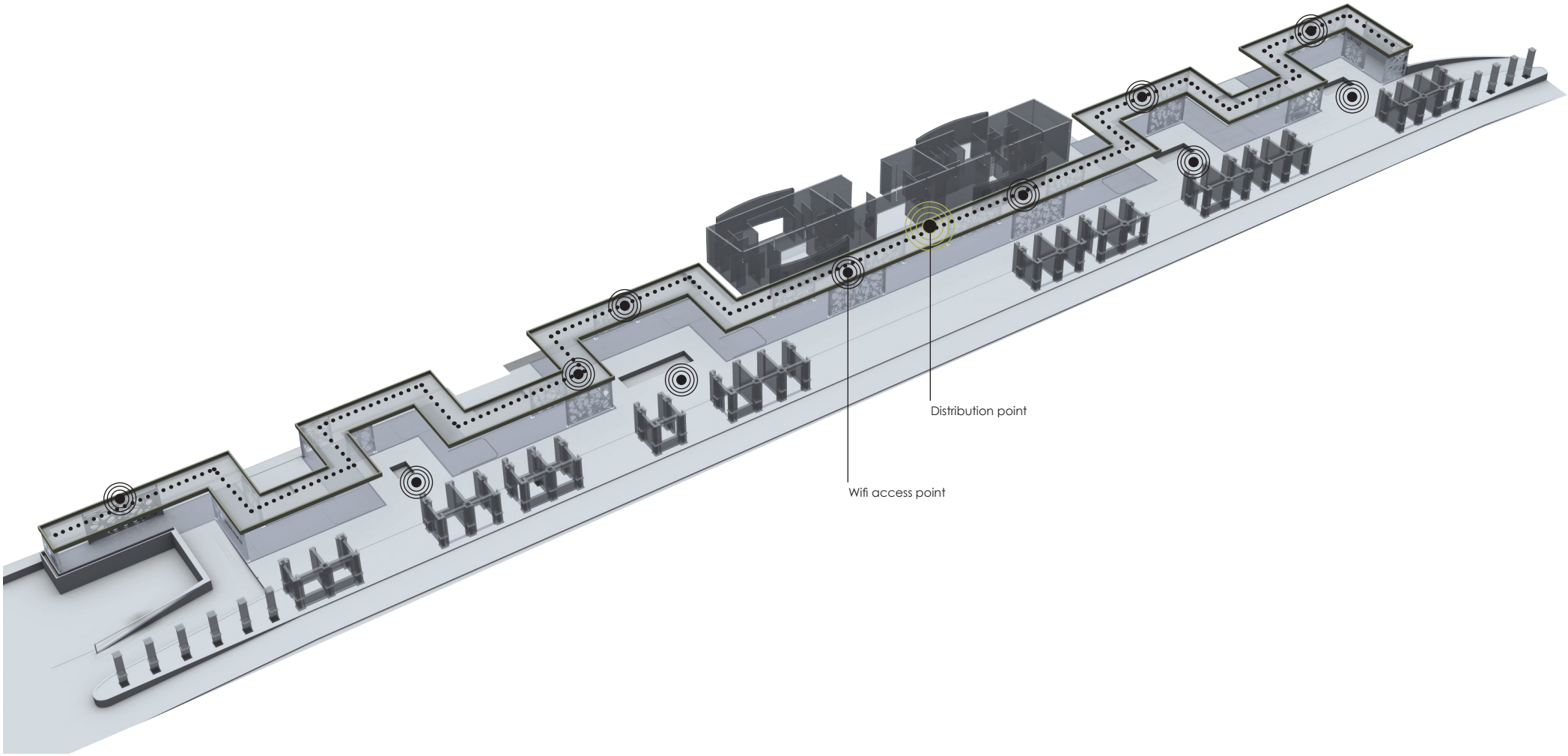


Fig.9.4: Network and data distribution (Author, 2013)

9.2.3 Wet service distribution

As illustrated in Chapter 7, the existing WC facility will be replaced by a new WC and shower complex. This complex will make use of and adapt the existing water waste management system. A rainwater harvesting system is proposed that will supply water to this new complex. Solar water heaters are also proposed.

The water used by the kiosks are distributed underneath the floor and grey water from each kiosk is removed by means of a central precast concrete channel.

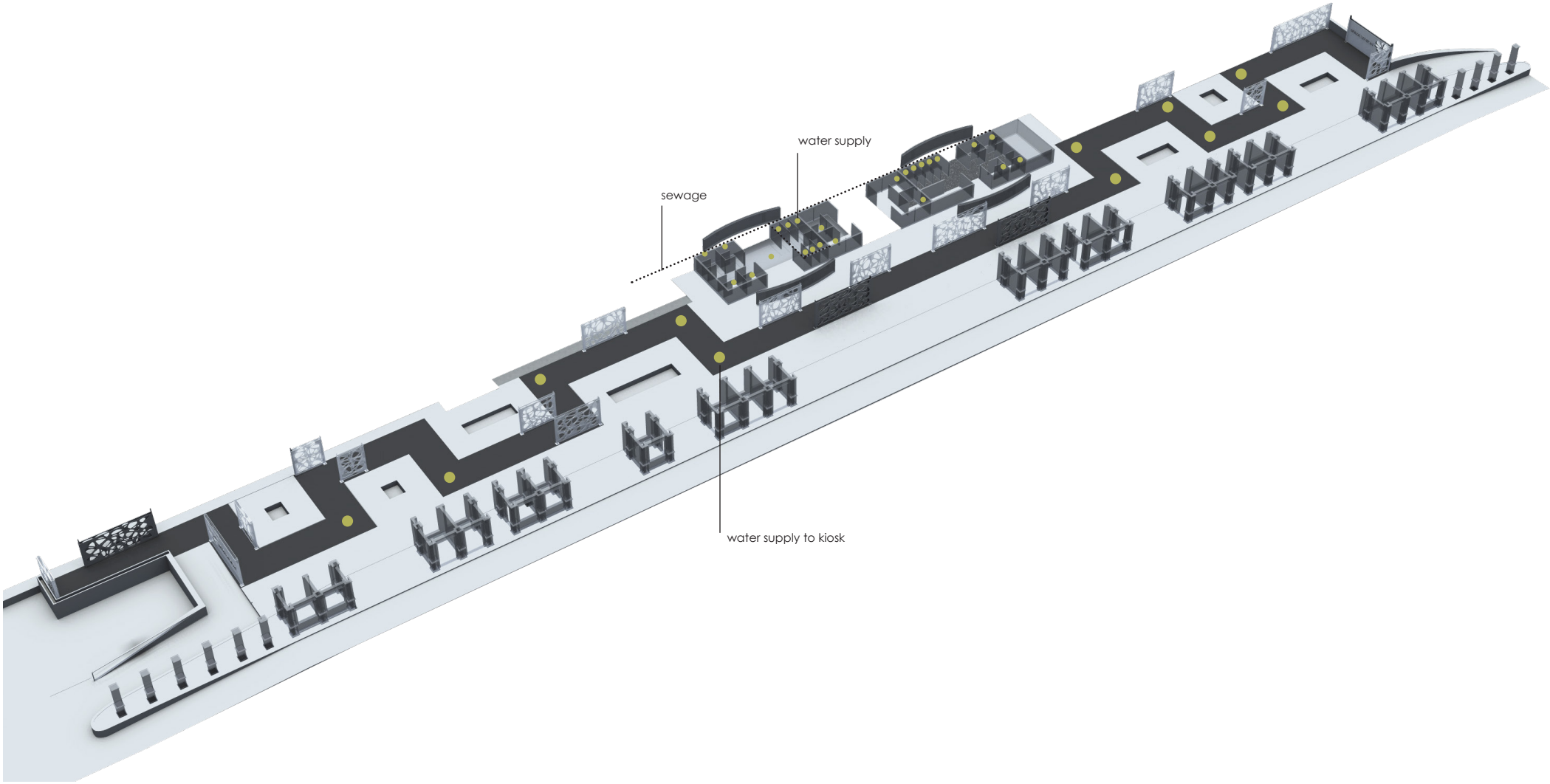


Fig.9.5: Wet services distribution (Author, 2013)

9.3 Lighting strategies

9.3.1 Natural lighting strategy

As stated previously in Chapter 7, the longitudinal form of the building's interior is broken by the cascading interior waiting strip. Interior green courtyard spaces with polycarbonate roof sheeting overhead. Therefore, natural light falling into these spaces create pools of light along the interior of the building, and as such begins to function as method of navigation for people walking along the interior walkway. UV treated polycarbonate roof sheets are used to prevent harmful sunlight penetrating the interior.

Furthermore, the thermal properties of concrete means that if enough sunlight falls on a seat, it will release that heat later in the day when air temperature may have decreased slightly, creating comfortable seating.

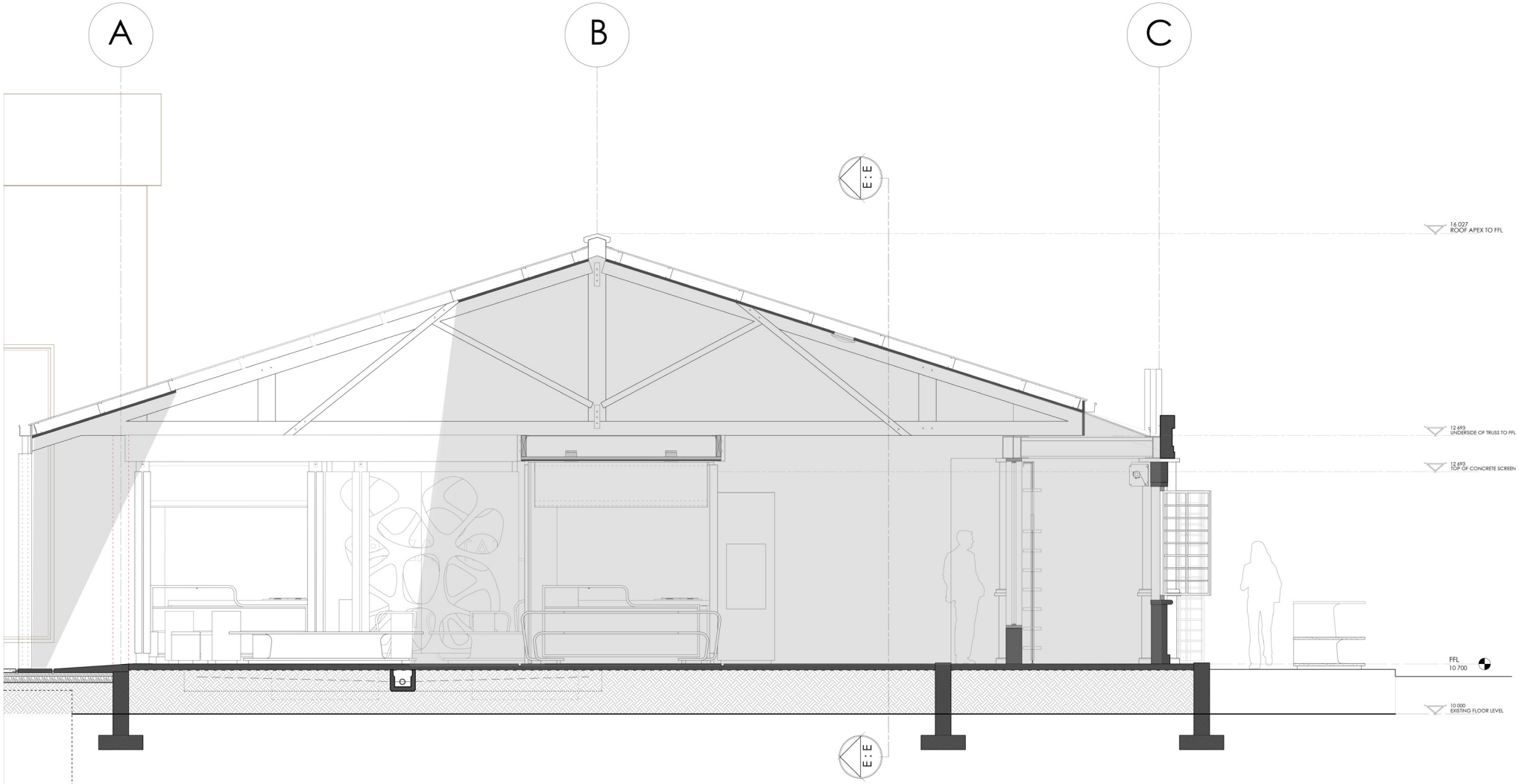


Fig.9.6: Natural lighting strategy (Author, 2013)

9.3.2 Artificial lighting strategy

Established requirements in terms of ambience determined the lighting strategy undertaken. As the design intervention aims to create a hierarchy between spaces for pause and movement, the lighting application plays a vital role in emphasizing this hierarchy. The walkway and courtyard spaces are intended to function as open spaces, facilitating movement or gathering. Therefore, the lighting implemented should flood the space, creating a bright, open space.

In contrast, the cascading waiting strip's interior space is to function as a pause space, lighting implemented here should create a peaceful ambience, whilst facilitating the task of working on a laptop, or eating.

All the lamps that are specified are LED lamps from Osram and were chosen specifically for their energy efficiency.

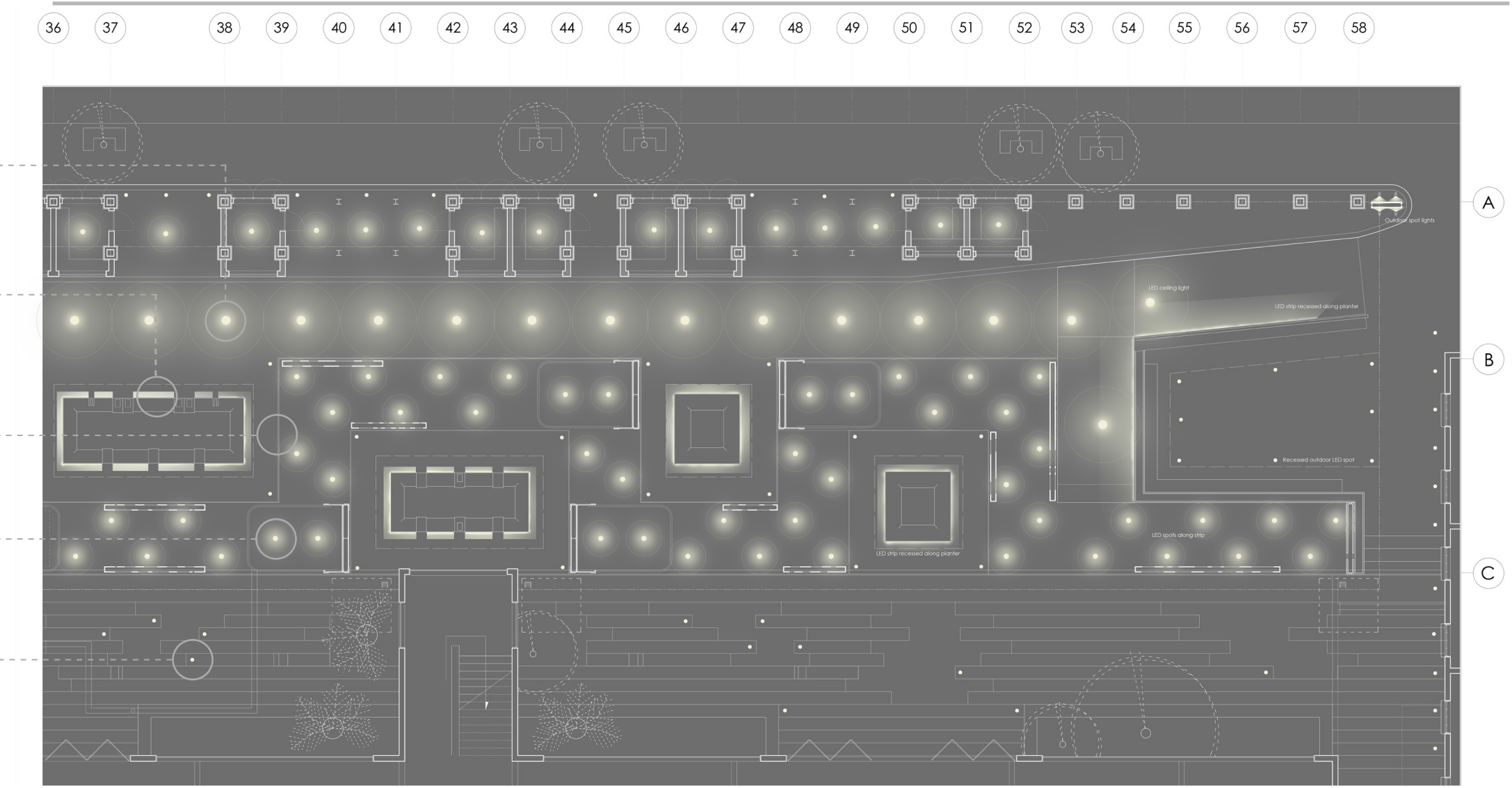


Fig.9.7: Lighting plan: not to scale (Author, 2013)

	Description	Application	Efficacy
 **Ledvance LED downlight**	LED downlight from Osram Colour rendering: 3000K temperature produces a warm white colour rendering.	Ambient lighting effect along the interior of the waiting strip in the interior. This lighting should create a relaxed atmosphere. 60° Wide beam angle.	This is a sustainable, energy efficient recessed luminaire with a lifespan of 50 000h. Efficacy: 50 lm/W.
 **Box LED (side) module**	LED module from Osram Colour rendering: 6500K temperature produces bright white colour rendering. Ra: > 70	Elliptical lenses allow for uniform illumination. This effective backlighting creates a continuous ribbon of light along the interior.	Excellent module efficacy with a long lifetime. Efficacy: 66 lm/W
 **POSIVO LED**	POSIVO ceiling luminaire from Osram 3000 K temperature produces a warm white colour rendering. Ra: > 80	Pleasant homogenous lighting effect creates uniform lighting along interior walkway.	Very energy efficient. Efficacy: 800lm/16W = 50lm/W
 **LINEAR Light Power Flex**	LINEAR Light Power Flex from Osram 2700K temperature produces a warm white colour rendering. Ra > 85.	This flexible lighting system allows for effect lighting underneath planter seating. It is also placed along the entrance ramps.	Efficacy: 67 lm/W
 **AQUALED**	AQUALED 4WG: Recessed outdoor LED spotlight from Osram Subtle lighting effect of this luminaire creates suitable outdoor lighting.	This luminaire is placed along routes; in the courtyard spaces (interior and exterior), along the sidewalk, and in the eastern entrance courtyard	The lifespan of the AQUALED lamp is 25 000 hours. Therefore a very efficient lamp. Efficacy: 55lm/W

Fig.9.8: Lamp selection and application (Author, 2013)

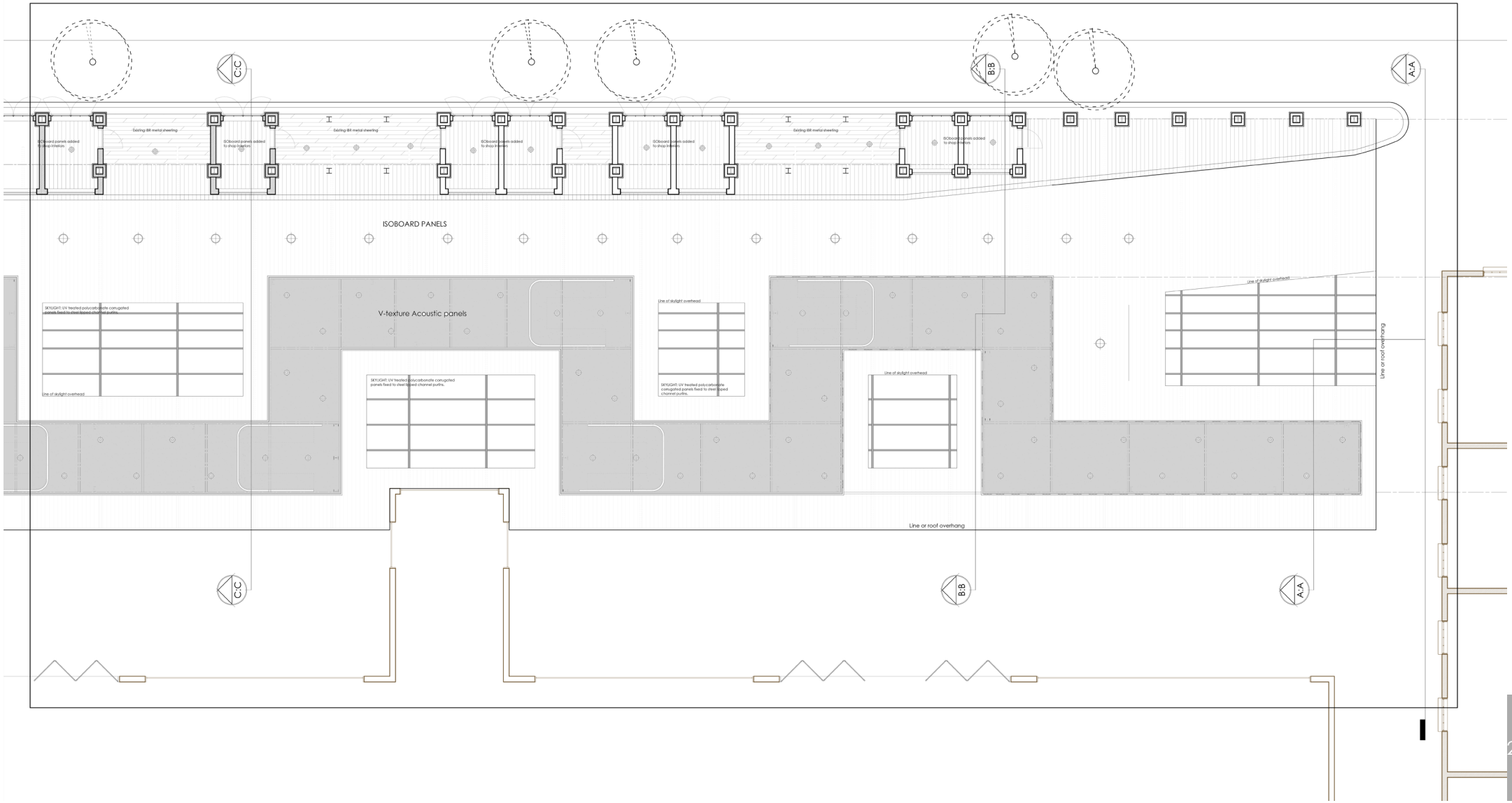


Fig.9.9: Ceiling plan: not to scale (Author, 2013)

9.3.3 Acoustic strategy

The principle material used in the intervention is that of concrete, and even though the building is completely open, this still produces a problem with regards to the acoustic properties inside the building. Just as the lighting qualities should relate to the ambience and atmosphere of a specific space, so too should the acoustic properties.

As the walkway and interior courtyards are open spaces intended for movement and gathering, a level of acoustic (and thermal) control is maintained by inserting ISO board sheets. In addition, the in the waiting strip (which is intended to function as pause space) the acoustic properties should emphasize that it is a space to be quiet and at ease. The choice of acoustic material to use was influenced by the following factors:

The material should be very quick and easy to install as most other components are constructed off-site, and fitted on-site.

The top part of the waiting strip (the bulkhead) consists of laminated timber beams and a 40mm Bison board substrate supported by a series of steel columns. As such, the material should be light in weight.

A low level of maintenance required is vital as this will not be possible.

The material should be robust and be able to resist moisture.

Given the aesthetic and material palette of the rest of the interior (different types of concrete), the material should be able to be treated so as to resemble a concrete texture.

Following these requirements set forth, it was decided to use the V-texture panelling system. It is a three-dimensional acoustic panel system often used as wall panel and to resemble natural stone. The panel system is available in a concrete-looking finish which will be used. Furthermore, it answers to all the requirements set out above.

V-texture Acoustic Panels

Fig.9.10: V-texture acoustic panels (Author, 2013)

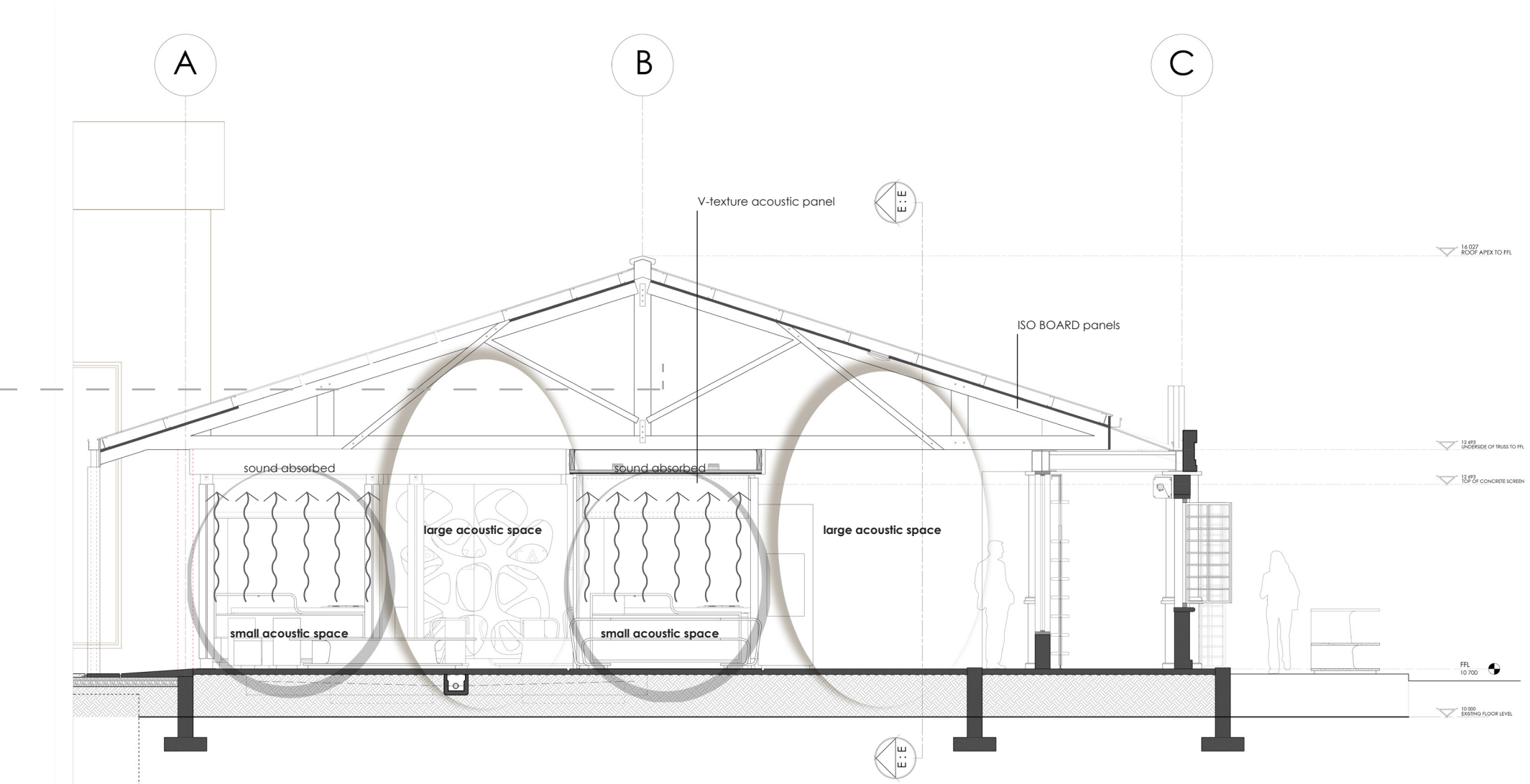


Fig.9.11: Acoustic strategy (Author, 2013)

9.4 Rainwater harvesting

A proposal is made to harvest rainwater for use in the new WC and shower complex. Pretoria annually received 674mm² of rainfall. This should not go to waste. A series of downpipes are inserted along the buildings southern side. These downpipes are concealed in concrete column casings and lead underground into rainwater harvesting tanks. From the harvesting tanks, water is pumped to the storage tanks located adjacent the WC and shower complex, also underground. When needed, water is pumped from the strorage tanks to the solar water geysers where the water is heated and distributed for use. Although the specific tanks to use should be specified by an engineer, the following calculations were made to calculate how much rainwater would be harvested.

Annual rainwater collection: Pretoria: summer rainfall region (Ecotect Analysis, 2011)
Total catchment area = 8,18m x 124,9m
= 1022 m².

Pretoria's maximum average rainfall:
January (summer): 136 mm²
Annual: 674 mm²

Rainwater collected =
Rainfall (mm/year) x area (m²) x runoff coefficient (%)
674 mm² x 1022 m² x 0.8
= 551062,4l

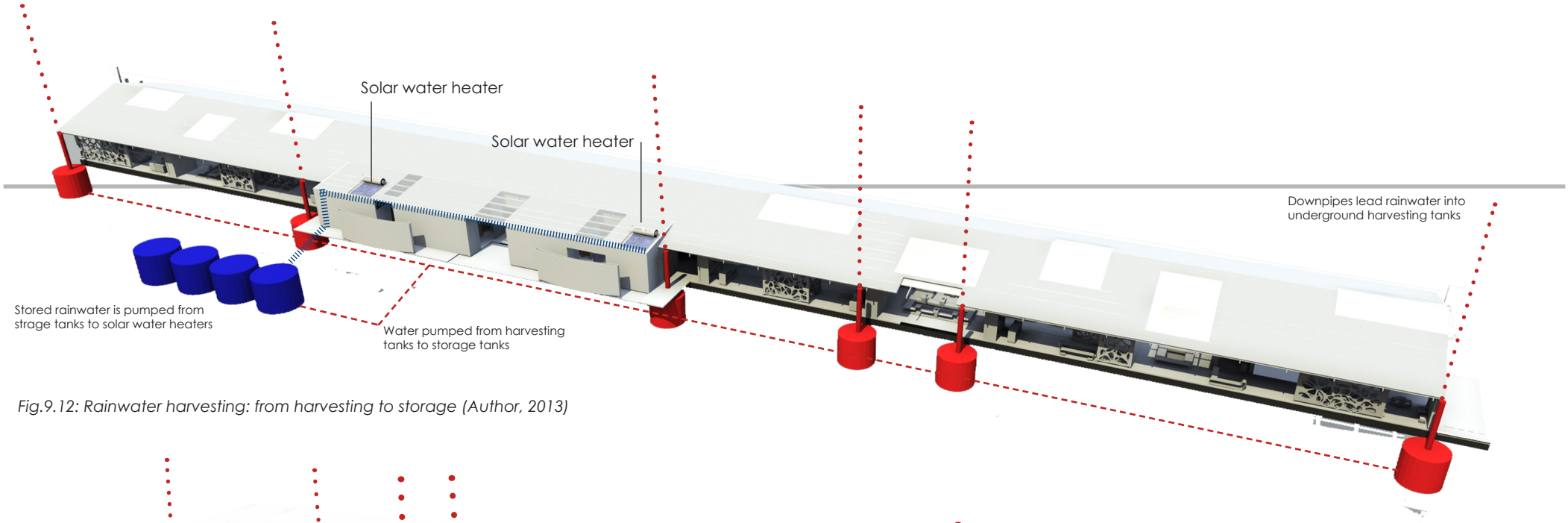


Fig.9.12: Rainwater harvesting: from harvesting to storage (Author, 2013)

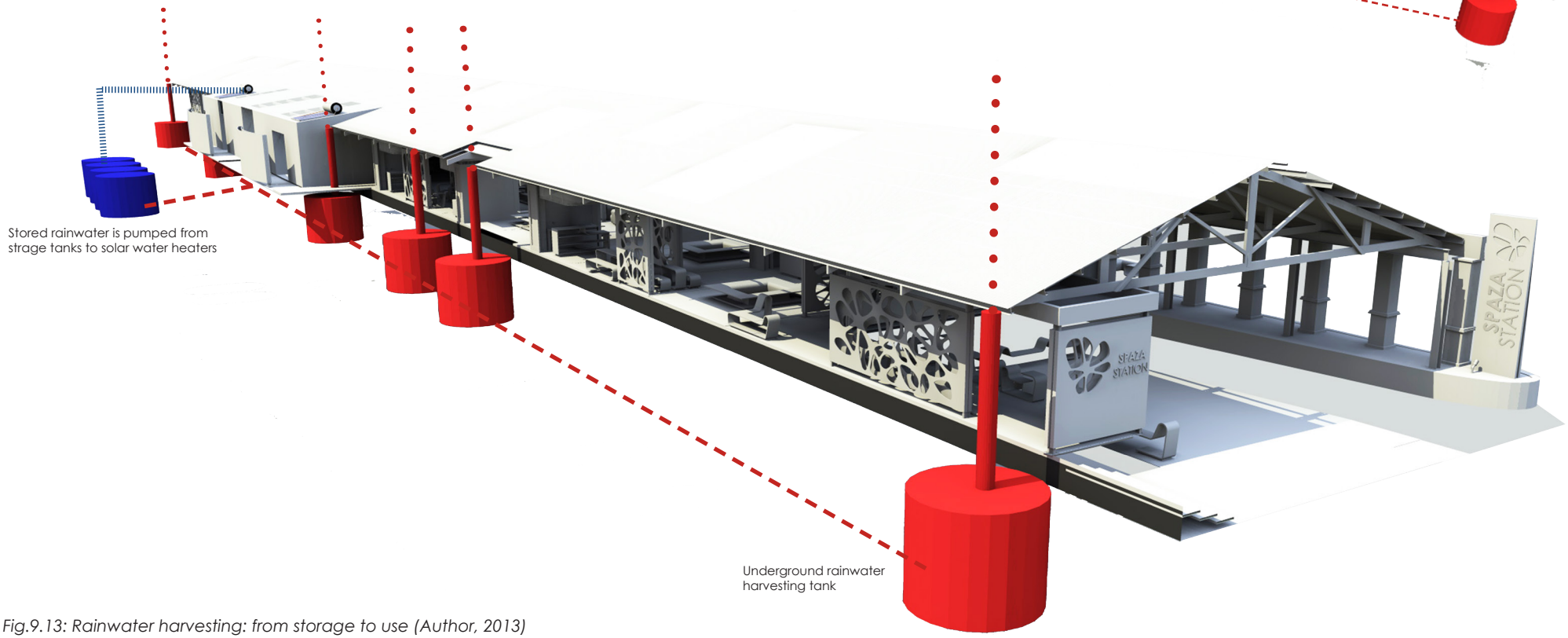


Fig.9.13: Rainwater harvesting: from storage to use (Author, 2013)

conclusion

The objective of this dissertation was to investigate the importance of designing for the act of waiting. Such a simple concept, yet it has a great impact on the experience of a place. As public transport in South Africa is increasingly being encouraged, the related waiting places should answer the needs of commuters. A waiting place in the 21st century does not merely serve the function of providing seating and shelter, but instead has the potential to serve as active node.

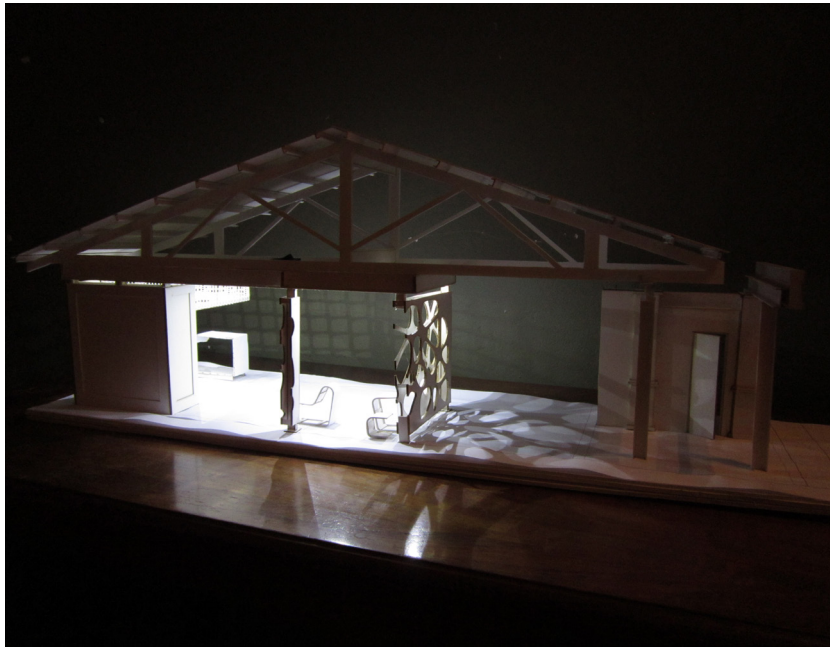
Interior design focuses on enhancing the experience of space. When waiting, one is in a heightened state of awareness with regards to surroundings. Therefore, the author concludes that interior design can act as a mediator between the architectural space and the requirements of the commuter to create a waiting place that does not merely answer the needs of the commuter, but also creates a space, the experience of which, enhances the act of waiting.

The research done into concrete as a material to be used for interior design purposes proved most interesting. Not only for the aesthetic possibilities, but also with regards to sustainability.

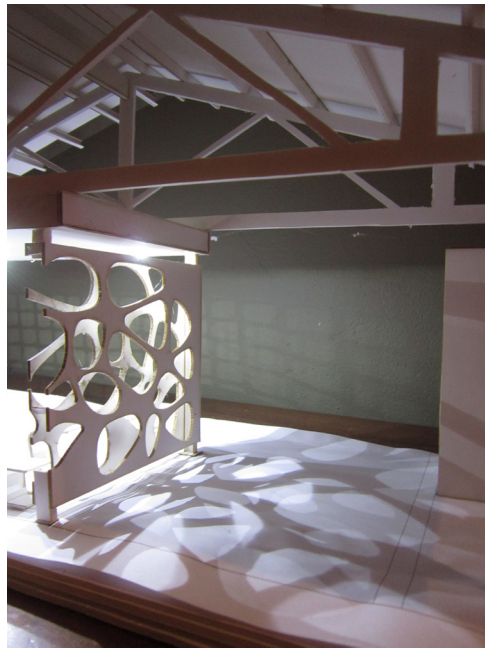
appendix

Appendix A

Lighting model

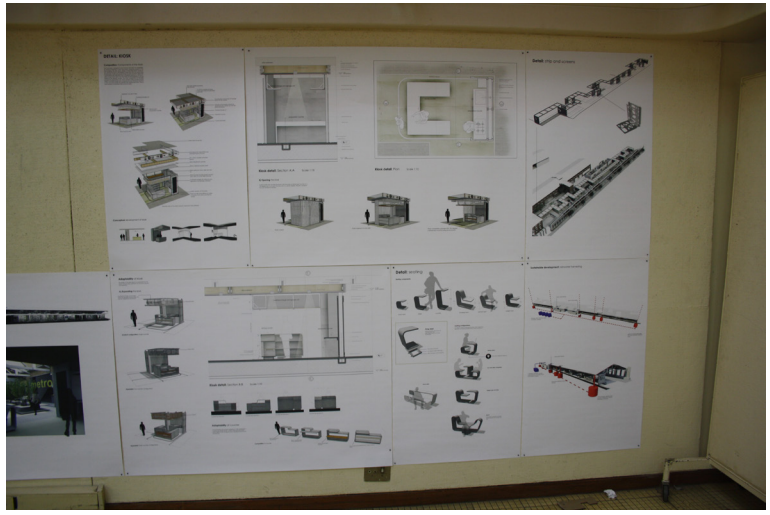


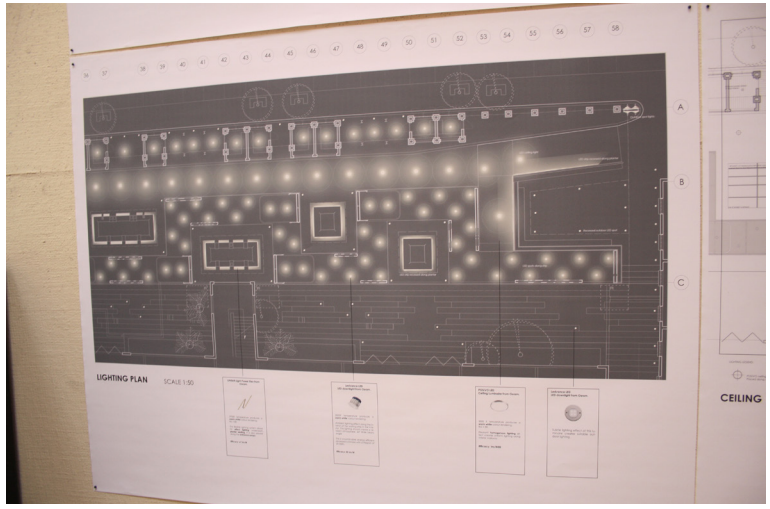


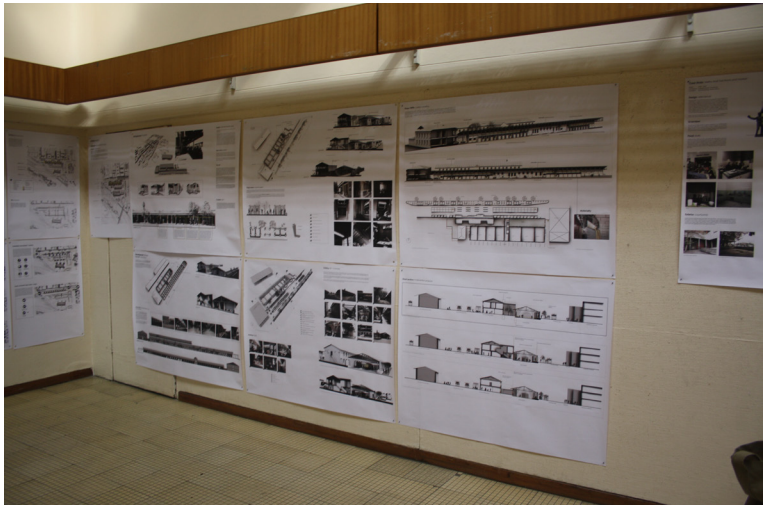



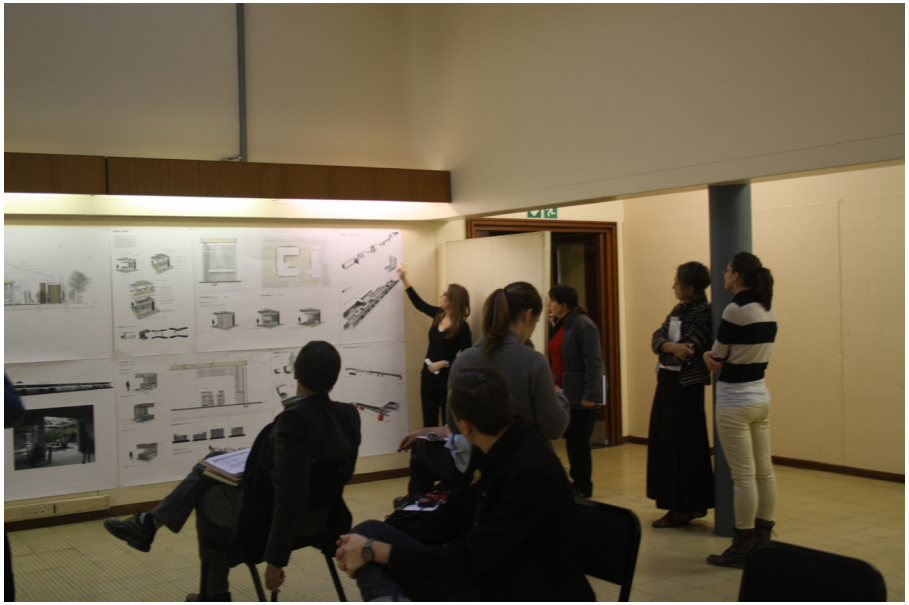
Appendix B

Final documentation









bibliography

Bibliography

ArchH20. *Architectural foliage skin*. [Online].<http://www.arch2o.com/airspace-tokyo-faulders-studio/#prettyPhoto> [Accessed 10 March 2013]

ArchH20. *Interior view of foliage skin*. [Online].<http://www.arch2o.com/airspace-tokyo-faulders-studio/#prettyPhoto> [Accessed 10 March 2013]

ARCHICENTRAL, 2009. *LiTraCon: Transparent Concrete*. [Online]. <http:// http://www.archicentral.com/litracon-transparent-concrete-4379/> [Accessed: 20 February 2013].

ARNHEIM, R. 1971. *Entropy and art : an essay on disorder and order*. University of California Press: Berkley

ARTHITECTURAL, 2011. *Hackenbroich Arkitekten / Sitscape* [Online] < http://www.arthitectural.com/hackenbroich-architekten-sitscapepace/> [Accessed 6 August 2012].

ARTHITECTURAL, 2011. *Various postures catered for*. [Online] < http://www.arthitectural.com/hackenbroich-architekten-sitscapepace/> [Accessed 6 August 2012].

ARTHITECTURAL, 2011. *Sitscape seating design*. [Online] < http://www.arthitectural.com/hackenbroich-architekten-sitscapepace/> [Accessed 6 August 2012].

ARTHITECTURAL, 2011. *Postures informing the design.* [Online] < http://www.arthitectural.com/hackenbroich-architekten-sitscapepace/> [Accessed 6 August 2012].

BAR-ELI, S. 2010. A new space in the museum: Where should I locate it and why? Design Museum Holon Magazine, Post 8. [Online]. <www.dmh.org.il/pages/default.aspx?PageId=422&catid=-1>

BENFIELD, K. 1012. *Bicycle rack.* Switchboard. [Online]. <http://switchboard.nrdc.org/blogs/kbenfield/what_if_bus_stops_were_designe.html> [Accessed 2 August, 2012].

BROOKER, G., and STONE, S. (2007), Basic Interior Architecture: Form and Structure, AVA Publishing SA, pp. 102-103

CHILDRESS, H. *Review: Stewart Brand, How Buildings Learn.* Environmental and Architectural Phenomenology News Letter. [Online]. < http://www.arch.ksu.edu/seamon/Brand.htm > [Accessed 20 April, 2013].

CHING, F.D.K. 2007. *Architecture Form, Space and Order.* Third Edition. John Wiley and Sons, Inc. USA

DEASY, C.M. 1985. *Designing places for people: a handbook on human behaviour for architects, designers and facility managers.* Whitney Library of Design: New York

DECKLER, T. et al. 2006. Contemporary South African Architecture in a Landscape of Transition. Double Storey: Cape Town

FAULDERS STUDIO, *Elevation*. [Online]. < http://faulders-studio.com/proj_airspace.html#> [Accessed 10 March, 2013].

HALVERSON, N. Touch screen in New York subway. [Online]. <http://news.discovery.com/tech/gear-and-gadgets.htm.> [Accessed 15 May 2013].

HANSEN, L. 2012. Architects and Urban Designers. Internet: http://www.ludwighansen.co.za/. [Accessed 20 Maart 2012]

HARRIS, S. and BERKE, D. 1997. *Architecture of the everyday*. Princeton Architectural Press: New York

IXXI, 1012. *Touch sceen*. [Online]. <http://www.ixxi-mobility.com/en/ebsf-project/> [Accessed 2 August 2012].

IGNEOUS CONCRETE COMPANY. [Online]. <http://www.igneous.co.za/who-we-are/> [Accessed 15 February, 2013].

JORDANA, S. 2010 "Stratford Station Olympic Kiosk Competition proposal / LGT Office" 07 Oct 2010. ArchDaily. Internet: <http://www.archdaily.com/80988> Accessed 02 Oct 2012.

KONIGK, R. 2010. *Interior design as architecture's 'other.'* M.Int Dissertation, Pretoria: University of Pretoria. p 12, 17.

LAFARGE, Adequate shading created by overhead roofs. [Online]. <http://www.ductal-lafarge.com/> [Accessed 20 August 2012].

LAFARGE, Modular design allows for adaptability. [Online]. <http://www.ductal-lafarge.com/> [Accessed 20 August 2012].

LENNE, M. 2012. *Scale model of new Gare de Lyon - Diderot bus shelter.* [Online]. < htp://projets-architecte-urbanisme.fr/paris-gare-lyon-diderot-station-arret-bus-abribus-ratp> [Accessed 2 August 2012].

LENNE, M. 2012. *Library corner and bike rack.* [Online]. < htp://projets-architecte-urbanisme.fr/paris-gare-lyon-diderot-station-arret-bus-abribus-ratp> [Accessed 2 August 2012].

LENNE, M. 2012. *Seating and touch screen.* [Online]. <htp://projets-architecte-urbanisme.fr/paris-gare-lyon-diderot-station-arret-bus-abribus-ratp> [Accessed 2 August 2012].

LINE AND SPACE, City of Tucson Integrated Shade Seat. [Online]. < http://www.lineandspace.com/Projects/COT-Integrate_shade_seat.html> [Accessed 20 August 2012].

LEROUGE, M. 2010. *Day view of exterior.* [Online] < http://www.archdaily.com/349212/lille-modern-art-museum-manuelle-gautrand-architecture/?utm_source=dlvr.it&utm_medium=twitter> [Accessed 6 August, 2012]

LEROUGE, M. 2010. *Night view of perforated Ductal screens.* [Online] < http://www.archdaily.com/349212/lille-modern-art-museum-manuelle-gautrand-architecture/?utm_source=dlvr.it&utm_medium=twitter> [Accessed 6 August, 2012]

LEROUGE, M. 2010. *Ductal screen interior view.* [Online] < http://www.archdaily.com/349212/lille-modern-art-museum-manuelle-gautrand-architecture/?utm_source=dlvr.it&utm_medium=twitter> [Accessed 6 August, 2012]

LEROUGE, M. 2010. *Interior view of perforated concrete screen.* [Online] < http://www.archdaily.com/349212/lille-modern-art-museum-manuelle-gautrand-architecture/?utm_source=dlvr.it&utm_medium=twitter> [Accessed 6 August, 2012]

MARCAURELCATERINA, 2012. *Coffee corner*. [Online]. <http://designurbain.fr/en/portfolio/projects/84> [Accessed 2 August 2012].

MARCAURELCATERINA, 2012. *Diderot station at night*. [Online]. < http://designurbain.fr/en/portfolio/projects/84> [Accessed 2 August 2012].
SOUNDSCAPES, 2010. Internal view of Gare de Lyon - Diderot bus shelter. [Online]. <http://soundlandscapes.wordpress.com/2012/06/15/the-bus-stop-of-the-future/> [Accessed 8 August 2012].

Mc CARTHY, C. 2005. *Toward a definition of interiority*. Space and culture, Vol. 8, No. 2, p112-125.

MEINHOLD, M. 2012. *Small table fitted to concrete swivel chair.* [Online]. <http://inhabitat.com/escale-numerique-is-an-intelligent-free-green-roofed-wifi-station-in-paris/> [Accessed 21 August 2012].

MEINHOLD, M. 2012. *Alternatively the small table can be used for smart phone.* [Online]. <http://inhabitat.com/escale-numerique-is-an-intelligent-free-green-roofed-wifi-station-in-paris/> [Accessed 21 August 2012].

MEINHOLD, M. 2012. *Small table allows adequate space for laptop*. [Online]. <http://inhabitat.com/escale-numerique-is-an-intelligent-free-green-roofed-wifi-station-in-paris/> [Accessed 21 August 2012].

MEINHOLD, M. 2012. *Concrete swivel chairs with plugs at bases of chairs*. [Online]. <http://inhabitat.com/escale-numerique-is-an-intelligent-free-green-roofed-wifi-station-in-paris/> [Accessed 21 August 2012].
NESBITT, K. 1996. *Theorizing a new agenda for architecture: an anthology of architectural theory 1965 - 1995.* Princeton Architectural Press: New York

NORBERG-SCHULTZ, C. 1996. *The Phenomenon of Place.* In Nesbitt, K. 1996. Theorizina a new agenda for architecture: an anthology of architectural theory 1965 - 1995. Princeton Architectural Press: New York

PALOMO, R. in SINGHAL, S. 2012. *Open kiosk design.* [Online]. < http://www10.aeccafe.com/blogs/arch-showcase/2012/01/10/malmo-central-station-in-sweden-by-metro-arkitekter/> [Accessed 12 April 2013].

PALOMO, R. in SINGHAL, S. 2012. *Interior view of terminal food court* . [Online]. < http://www10.aeccafe.com/blogs/arch-showcase/2012/01/10/malmo-central-station-in-sweden-by-metro-arkitekter/> [Accessed 12 April 2013].

PALOMO, R. in SINGHAL, S. 2012. *Open counter*. [Online]. < http://www10.aeccafe.com/blogs/arch-showcase/2012/01/10/malmo-central-station-in-sweden-by-metro-arkitekter/> [Accessed 12 April 2013].

SCHWEIZER, H. 2008. *On Waiting.* Routledge: London

SEABROOK, A. L. 2009. *I-hub @ Pretoria station square : orientation through architectural intervention.* The University of Pretoria

SCOTT, F. 2008. *On Altering Architecture.* New York: Routledge

SEGERS, W. 2009. *M2 bench composition 1.* [Online]. <http://studiosegers.be/en/d/detail/1-m> [Accessed: 5 August 2012]

SEGERS, W. 2009. *M2 bench composition 2.* [Online]. <http://studiosegers.be/en/d/detail/1-m> [Accessed: 5 August 2012]

SEGERS, W. 2009. *Fibre-optic reinforced concrete seat* . [Online]. <http://studiosegers.be/en/d/detail/1-m> [Accessed: 5 August 2012]

SEGERS, W. 2009. *Multiple configurations of M2 bench.* [Online]. <http://studiosegers.be/en/d/detail/1-m> [Accessed: 5 August 2012]

SINGHAL, S. 2012. *Malmö Station in Sweden by Metro Arkitekter*. AECCafé. January 10, 2012 [Online]. < http://www10.aeccafe.com/blogs/arch-show-case/2012/01/10/malmo-central-station-in-sweden-by-metro-arkitekter/> [Accessed 12 April 2013].

SERERO, D. 2008. St Cyprien Auditorium. [Online]. <http://www.serero.com/> [Accessed 20 April 2013].

SERERO, D. 2008. *Filtered sunlight effect in interior*. [Online]. <http://www.serero.com/> [Accessed 20 April 2013].

SERERO, D. 2008. *Layered concrete foliage-like canopy.* [Online]. <http://www.serero.com> [Accessed 20 April 2013].

SERERO, D. 2008. *Geometric design that informed the pattern.* [Online]. <http://www.serero.com> [Accessed 20 April 2013].

SERERO, D. 2008. *Diagram: different layers of concrete foliage.* [Online]. <http://www.serero.com/> [Accessed 20 April 2013].

SOUNDLANDSCAPES, 2010. *Technology includes sound effects.* [Online]. <http://soundlandscapes.wordpress.com/2012/06/15/the-bus-stop-of-the-future/> [Accessed 8 August 2012].
TRENDOFFICE, 2012. *Great Idea: Green Digital Station.* Paperblog. [Online]. <http://en.paperblog.com/great-idea-green-digital-station-256051/> [Accessed 21 August 2012].

TRENDOFFICE, 2012. *Green roof blends into environment*. Great Idea: Green Digital Station. Paperblog. [Online]. <http://en.paperblog.com/great-idea-green-digital-station-256051/> [Accessed 21 August 2012].

TRENDOFFICE, 2012. *LED light circle beneath green roof.* Great Idea: Green Digital Station. Paperblog. [Online]. <http://en.paperblog.com/great-idea-green-digital-station-256051/> [Accessed 21 August 2012].

VAN DER WESTHUIZEN, L. 2009. *The waiting place : creating social gathering space.* The University of Pretoria

V-TEC GROUP. *V-texture acoustic panels*. [Online]. <http://v-tecgroup.com/vdesign.html>. [Accessed 24 April 2013].

BAR-ELI, S. 2010. A new space in the museum: Where should I locate it and why? Design Museum Holon Magazine, Post 8. [Online]. <www.dmh.org.il/pages/default.aspx?PageId=422&catid=-1>