R E S U R G E N C E

T O W A R D S   A   R E S P O N S I V E   U R B A N I S M

The Architectural Re-Adaptation of Marginal Space: Pretoria CBD

by J.P.J. NEL

To my Creator. Thank You for this life.

To my loving wife. The support you provided during this year instilled within me both the strength and inspiration to complete the task.

To all my parents.   Thank you for being exemplars of integrity and hard work, reminding me that nothing is impossible.

Special thanks to Dr. Arthur Barker, who during the course of this year, became as much involved

in my work as I was. You are a wonderful teacher and mentor.

To my Grandfather and namesake. I believe, In some way, that a dream transcending a generation has now been placed on

a path towards realisation.

RESURGENCE

TOWARDS A RESPONSIVE URBANISM:

Architectural Re-adaptation of Marginal Space – Pretoria CBD

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Submitted in partial fulfilment of the requirements for the degree MArch (Prof) in the faculty of Engineering, Built Environment and Information Technology; University of Pretoria.

Pretoria, South Africa
2015

DECLARATION

I declare that "Resurgence: Towards a Responsive Urbanism: Architectural Re-adaptation of Marginal Space – Pretoria CBD," is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references. I further declare that the design I have submitted for the degree of MArch (Prof), in this dissertation, is my own original work.

J.P.J. Nel

October 2015

ABSTRACT

The urban environment resembles a non-static circuit that continuously records, processes and transmits information governed by human needs (Griffin & Kittler, 1996:720). This transfer of information may be compared to frequency bands mediating between man and his built environment: A high frequency of indefinite human activity and a low frequency, representational of definite built form.

By appropriating the philosophical principles of Jurgen Habermas to architecture, it is proposed that indefinite activity lends animation to definite form, which enables man to critique and eventually alter his context. Where definite form overpowers indefinite activity, a disproportional model occurs, where man is made silent and alienated from his context, his needs neglected and his space trapped in time.

The programmatic development of Pretoria as administrative capital over time manifests as introverted architectural assemblages and incomplete spatial narratives. The city's need for indefinite activity is made clear when an insurgent and informal urban program exploits the structure of definite built form - irrelevant of initial function. The latent potential of unprogrammed urban space as a by-product of fractured urban assembly offers un-tapped opertunity regarding the diversity of urban layering as an alternative way to read, challenge and interact with the city.

By opening marginal space for insurgent urban activity, the strategy aims at establishing a sub-network of programmed marginal space clusters within Pretoria's CBD to introduce ''inner city sprawl'' (an implosion of fabric and activity). By exploiting the lack of clearly defined usefulness and in the absence of claims to ownership, opportunity for marginal urban space to associate programmatically with ''uncatered-for-users'' and neglected activities, sets the tone for architectural intervention.

The intervention explores the methods of how architecture can strategically introduce marginal urban space into the city fabric by proclaiming and facilitating a relationship between marginal client and program. Through the exploitation of existing built form and the marginal space it produced, an architectural form is to be developed that may serve as a didactic catalyst towards an alternative and responsive urban experience.

The main driver for function is to provide internalised built entities with appropriate public interface so as to act as a base from which to launch public activity. A marginal urban plinth, next to the North Gauteng Advocates Association, will be utilised as a laboratory to test the validity of architecture as vessel to activate public insurgency, in a strategy towards inner-city renewal. Existing built form and program of buildings contributing towards the genesis of marginal space is approached as a host to be exploited by the proposed architecture. Internalised information and function of the host is to be extracted to generate spatial drivers for new and alternative spatial conditions.
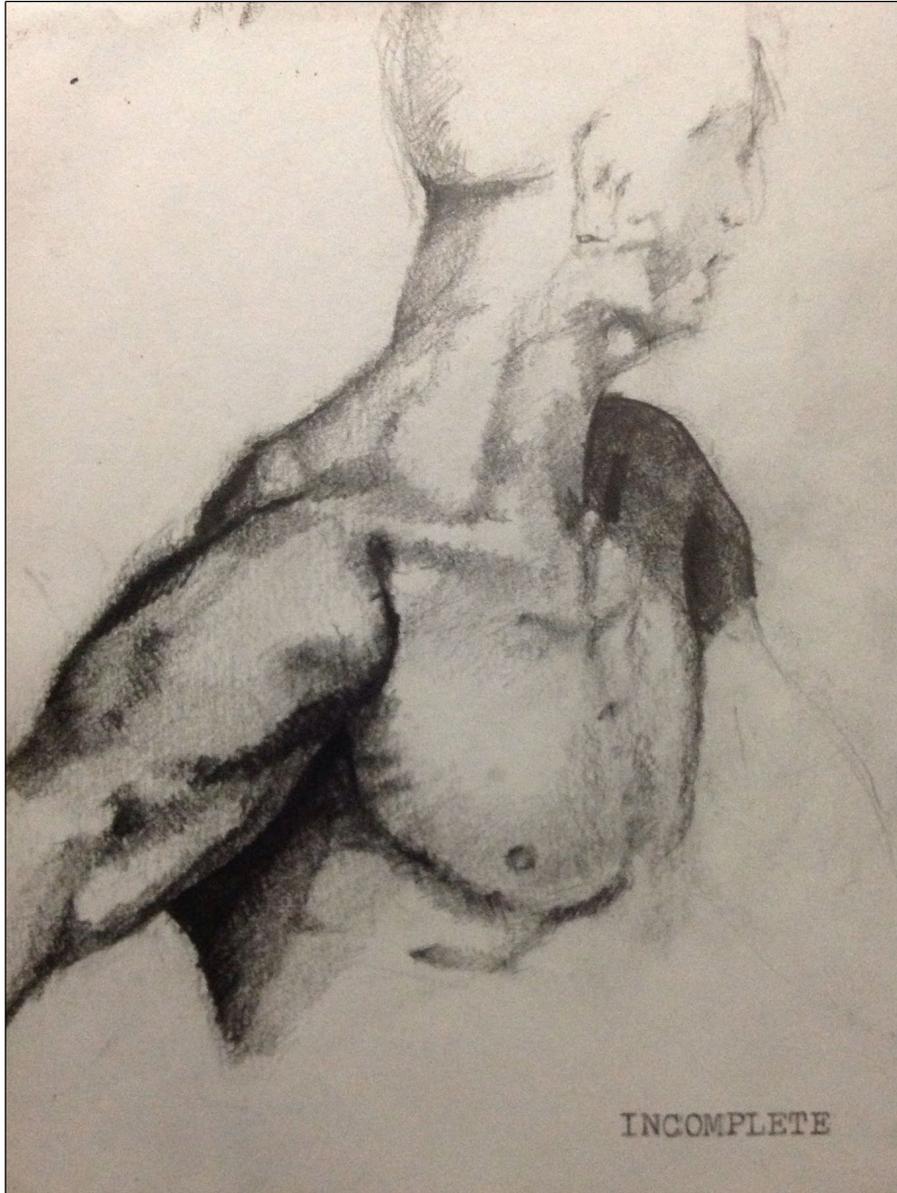
Figure 8.1 "Incomplete" Author 2008

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Ideology: A set of doctrines or beliefs that are shared by members of a social group or that form the basis of political, economic, or other systems (TheFreeDicionary.com).

Insurgency: The quality or circumstance of being rebellious; an instance of rebellion (TheFreeDicionary.com).

Inner-city-sprawl: A build-up and eventual implosion of inner-city built fabric and social capital (Author).

Marginal: Pertaining to the margin; situated on the border or edge; at the outer or lower limits; almost insufficient (www.OxfordDictionaries.com).

Marginal space: "Such space occupies a great amount of the present territory, but it does not identify with precise form, because it can take many and different forms. Metaphorically speaking, the marginal space represents the sea that allows the islands of the archipelago to exist" (Zecchin, 2011:27).

Metachronism: An error in chronology, especially the placing of an event later than its real date (www.OxfordDictionaries.com).

Resurgence: An increase or revival after a period of little activity, popularity, or occurrence (www.OxfordDictionaries.com).

"Ek is 'n Afrikaner in die stad
Ek dra my masker soos 'n kat
Deur donker stegies en geboue
Vat vyf, my broer, vat vyf
En iewers in my onderbewussyn
Sien ek nog die Karooson skyn
Hoor ek die grensdrade se gesing
Voer ek die kabouters in my tuin
Want ek's 'n boer in beton
Soos Oom Paul op ou Kerkplein
Niemand weet van my pyn
Want dit is goed vermom
Ek's n boer in beton
Iewers klink die stem
Van Strydom, Verwoerd en die knipmeslem
Van patriotisme wat nog flits
Al maak ek sondag vuur met Blitz
Elke voorvader 'n Pionier
Ek ek weet ek hoort nie hier
Ek sit laatnag in kroeë rond
Maar ek ken nie meer die reuk van grond
Ek is net so vreemd so jy
In hierdie stad van fuifery
Hier tussen die wolke krabbers
Waar Speed Cops spied en karre ry
My handpalms is wit soos jy
Ek bedel troos waar ek kan
In hierdie land van blik en glas
Is ek in sak en as"

Boer in Beton. Andrè Letoit/Koos Kombuis
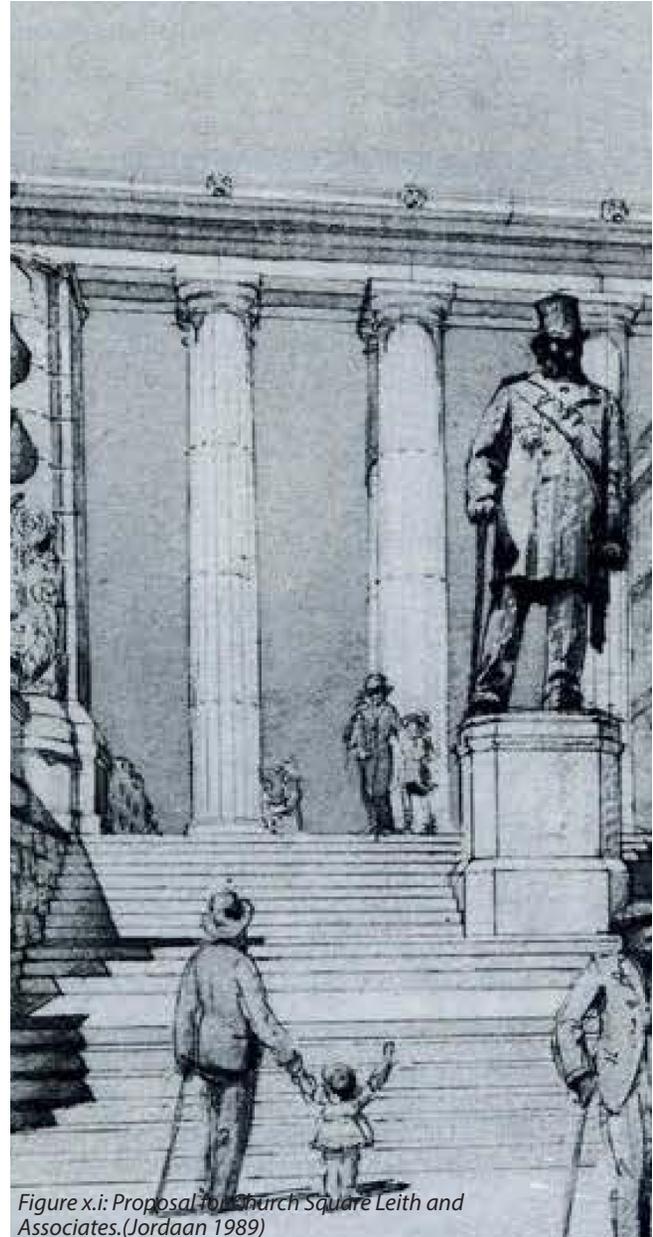
Figure x.i: Proposal for Church Square Leith and Associates.(Jordaan 1989)

I

INTRODUCTION

1.1 INTRODUCTION

''Through the invention of his "photographic gun," he wanted to arrest the flight of a gull so as to be able to see in a fixed format every single successive freeze-frame…. a continuous flow of flight, the mechanism of which had eluded all observers until his invention. What we need is the reverse: the problem with buildings is that they look desperately static....that a building is not a static object but a moving project.''

1.2 GLOBAL CONDITION:

Urbanisation and Densification

Urbanisation consists of the physical growth of cities that occurs over time as people settle into places of relatively-high population density (Williams, 2012: xiii-xiv). This migration is triggered by the possibilities of improved livelihood that these places offer. Triggers causing the occurrence of this phenomenon relate to less positive factors such as poverty, undesirable social conditions, isolation and conflict. Although urban growth is commonly viewed as a global trend, patterns of urbanisation throughout history reveal that established industrial societies reflect quite opposite statistics. compared to the influx of people in cities located in developing countries, as it represents a mass increase within the last few decades alone (Williams, 2012: xiii-xiv).

Figure 1.1: Urban Sprawl Aerial Photo at Night

What took New York – the world's largest metropolis in 1950 - nearly a century to grow into a population of eight million strong will be reached within the short period of 15 years in cities such as Sao Paulo and Mexico City. Such urban growth explosions are not limited to Latin America alone, but are also being felt within the continents of Africa and Asia, (Williams, 2012: xiii-xiv) thus placing Pretoria whithin this spectrum.

Dewar (2000:209) is of the position that, in view of the South African context, considerable social and environmental impact that relate to the structure and form of South African cities advocate that the current trend of urban development is entirely unsustainable as suggested by figures 1.2-1.4 - and that urban compaction, or densification, is critical in combating these symptoms.

It is further argued that densification as an isolated strategy towards achieving improved sustainability of urban environments proves ineffective, as it needs to be coupled to the consequential urban restructuring that such a compaction suggests (Dewar, 2000:209).

The primary policy of generating cities with increased compaction is aimed at a rising amount of residential infill that a city could achieve, in order to generate places of work, stay and play (Dewar, 2000:209). It is not advised that residential infill should be implemented within city limits to merely achieve the desired results, but rather as a tool to reinforce urban renewal.

It is therefore imperative that necessary urban renewal strategies are implemented to serve as a base for such influx to be welcomed into the city (Dewar, 2000:209). Dewar further notes that increased urbanisation in South Africa resemble a relatively new

phenomenon, the effects of which have only been felt within the last 50 to 60 years. Much more recent than this is the urbanisation of the majority of black South Africans, previously excluded from city life by the rigorous implementation of the apartheid ideology upon the structures of urban planning (Dewar, 2000:209). The manipulation and distortion of modern movement principles during South Africa's period under segregation resulted in three particular spatial urban characteristics of low density, fragmentation and separation (Dewar, 2000:211). It is therefore argued that, as rapid urbanisation of South African cities are inevitable, architectural interventions should address problems relating to low density, fragmentation and separation towards improving the quality of life experienced by the user it impacts on.

Figure 1.2: Tswhane Census Map (Population Distribution)

Figure 1.3: Urban Sprawl - Greater Tshwane Metroplitain Area

Figure 1.4: Urban Paracture - Pretoria Infrastructure

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1.3 CONTEXT: The City as Information
            Orientated Medium

"A city... is not a flattenable graph. In a city, networks overlap upon other networks. Every traffic light, every subway transfer, and every post office, as well as all the bars and bordellos, speak of this fact"

(Griffin and Kittler,1996:719).

Griffin and Kittler (1996:720) states that urban environments resemble a non-static circuits that continuously record, transmit and process information governed by human needs (Griffin and Kittler, 1996:720). This understanding forms the foundation in understanding urban contexts for the purposes of this study. This transfer of energy in the form of information may be compared to frequency bands mediating between man and his built environment. Figure 1.5 illustrates a high frequency of indefinite human activity driven by experience and a low frequency, representational of definite built form, driven by housing the requirements of human activity through various ideologies at certain points during a culture's evolution. Indefinite activity lends animation to definite form, enabling the user to critique, alter and express himself through his context by means of a continual reinterpretation and rediscovering thereof (Dewar and Uytenboogaardt, 1991: 15).

It is argued that, where definite form overpowers such activity, it produces an inverse condition of this relationship between man and his built habitat. In such a state the city is viewed as a collection of built entities which withholds information from flowing freely from building to user by internalising its program. Here the user is transformed into a metachronism; made silent, alienated from his context, his ever-evolving traditions neglected and his space trapped in time. This condition gives rise to three spheres of marginality, namely user, space and program.
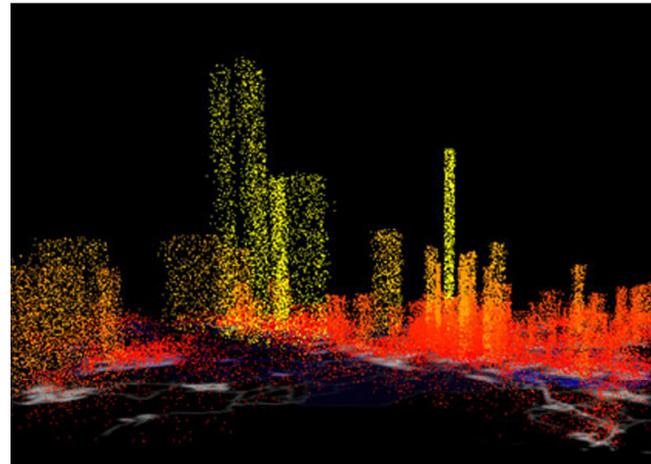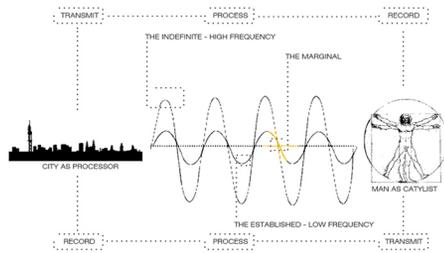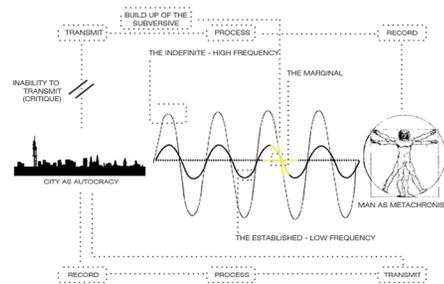

Figure 1.5: Digital Representation of SMS (Short Message Service Traffic within a city

RESPONSIVE MODEL

NONRESPONSIVE MODEL

INTERSECT MARGINAL
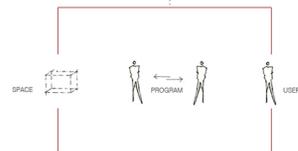
RESPONSIVE MODEL

REINFORCED MODEL
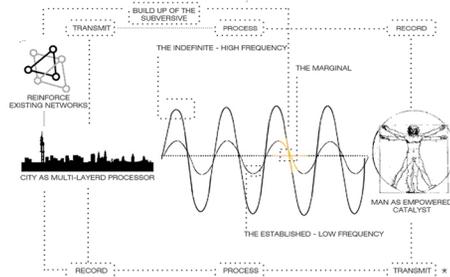
REINFORCED MODEL

Figure 1.6: Resurgence (Author 2015)

1.4 PROJECT INTENTION

1.4.1 Urban Intention

Low density, fragmentation and separation characteristic of the South African city due to segregation-based urban planning (Dewar, 2000:209), as reflected in Pretoria, translate as a disproportional urban model where architectural form does not allow itself to be impacted by the indefinite and everyday urban activity of its users. These fractured urban assemblages and incomplete architectural narratives give rise to marginal space within its city limits (Fig 1.5).

The latent potential of unprogrammed marginal urban space as a by-product of fractured urban assembly is investigated with regards to the latent potential it offers to diverse urban layering as an alternative way to read, challenge and interact with the city, as well as a possible response to the issue of low city density and to the requirements of increased urbanisation. By programmatically activating marginal space to facilitate the everyday needs of the user, the strategy proposes a sub-network of programmed marginal space clusters within Pretoria's CBD to promote ''inner city sprawl'' – a concept in response to an urban mapping investigation, which refers to an implosion of urban fabric and activity.

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1.4.2 Architectural Intention

Through the development of an architectural language that will best suit the activation of marginal space specific to Pretoria's context the dissertation explores the catalytic role of architecture as a vessel to allow the city to infiltrate marginal spaces. The Habermasian principle of society being dependent on the critique of its cultural traditions as a vital requirement towards social consensus, change and strengthening of society (Atkinson, 2011: 307) is contextualised within the architectural field. Here the didactic properties of architecture is brought into action with the aim of empowering the user with amplified critique of his urban tradition, and to promote a city environment that responds to his evolving needs, program and space.

The dissertation places architecture in a position where it may become the tool in altering the relationship that exists between the "static" built form, marginal space and the everyday user to extend the boundaries of inner-city interaction and experience.

1.4.3 Dissertation Intention

Firstly, the study aims to identify factors that result in an oblique urban model, which consequently causes the formation of marginalised urban space through an investigation into Pretoria's past, present and future contextual nature in order to gain a comparative understanding in generating conceptual principles in addressing the architectural intentions. Secondly, the dissertation will interrogate relevant theories that may aid in the formation of a conceptual approach so as to establish the role of architecture in addressing the issues of marginal space and Pretoria as an un-responsive urban model. This process also aims at an alternative method of reading Pretoria's urban fabric, through a spatial sub-framework, to inform and strengthen existing and future conditions.

1.5 RESEARCH QUESTION

How can an architectural intervention aid in the re-adaptation of marginal space to contribute towards urban renewal?

1.5.1 Sub-Questions

How can marginal urban space become activated as public space, aimed at increased urban vibrancy?

How can architecture, as a didactic instrument, expand the practice of everyday urban activity and needs, whilst activating public use of marginal urban space?

What architectural form can be developed that will place emphasis on indefinite urban activity to reinforce Pretoria's administrative core with social capital?

1.6 HYPOTHESIS

It is hypothesised that Pretoria represents an unresponsive urban model with regards to built form and socio-cultural flux.

Through the architectural activation of marginal urban space, it is further hypothesised that a precinct to serve everyday social needs may be established to serve as a positive catalyst within its urban context to promote inner-city renewal.

Figure 1.7: Intervention Macro Context (Author 2015)

Capitol Park

National Zoological
Gardens

Church Square

Union
Buildings

Townlands

Sunnyside

Burgers Park

Salvokop

Freedom Park

SITE

TELKOM TOWER

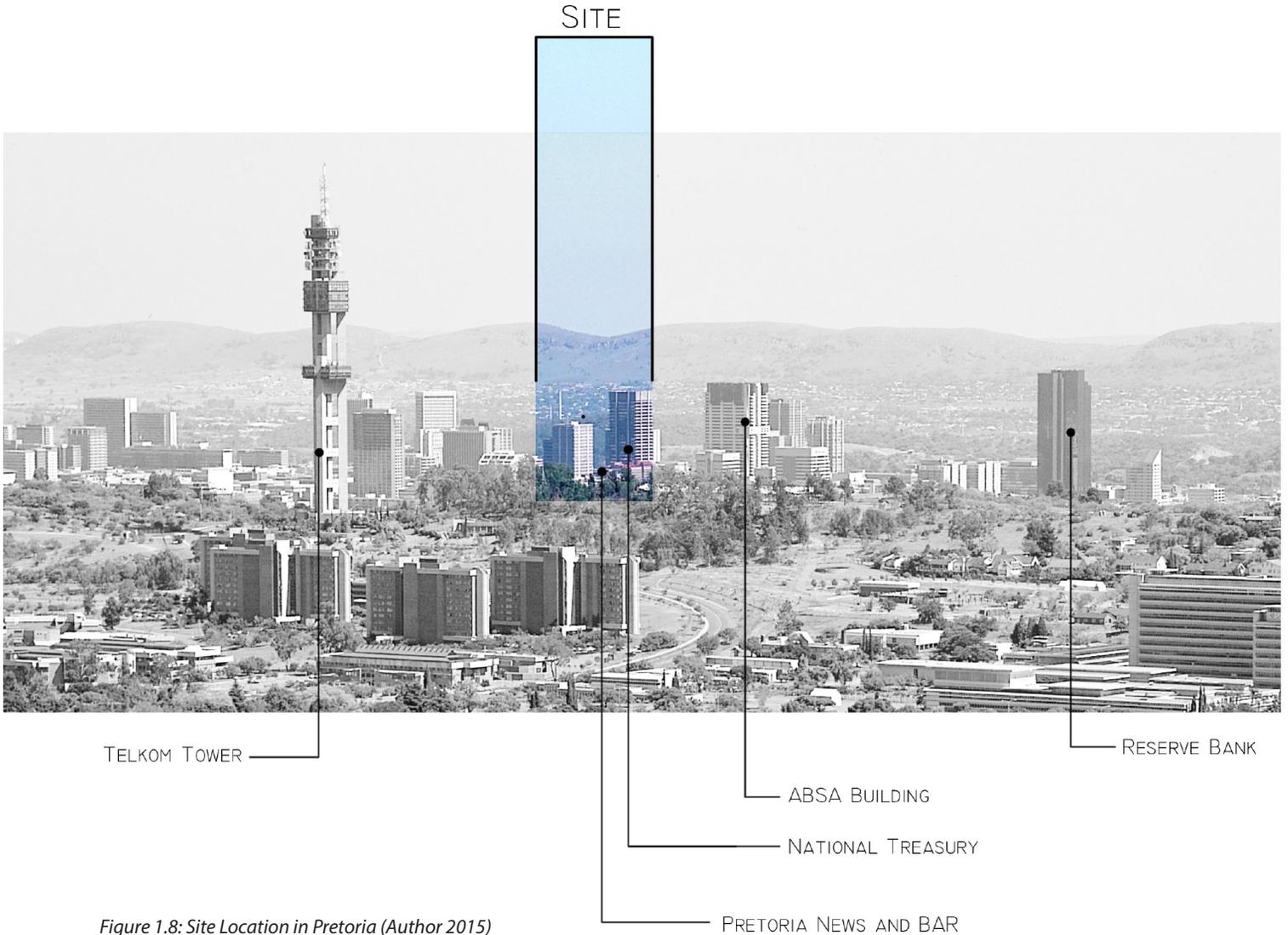ABSA BUILDING

NATIONAL TREASURY

PRETORIA NEWS AND BAR

RESERVE BANK

Figure 1.8: Site Location in Pretoria (Author 2015)

PRETORIA BAR

PRETORIA NEWS

HOME AFFAIRS

Figure 1.9: Site Location - CBD (Author 2015)

NATIONAL TREASURY

RESERVE BANK

STATE THEATER

LILIAN NGOYI SQUARE

CHURCH SQUARE

1.7 SITE

The site is isolated within Pretoria's legislative and administrative core, with specific focus on the precinct northeast of Church Square (Fig 1.6). In addition to various government departments, the site also houses the High Court Chambers, Pretoria News headquarters, independent education, religious organisations and small businesses and housing elements.

A sub-framework, informed by the assemblage of unprogrammed space within the precinct, will generate the foundation for the intervention. The main focus for the intervention will fall on an unoccupied plinth located within a city block in-between the Society of North Gauteng Advocates, Department of Home Affairs headquarters and National Treasury.

1.8 CONCEPT AND PROGRAM

The intervention introduces the idea of incision, extraction and distribution. Programmatically internalised buildings on site are to be confronted architecturally in such a manner as to extract their programmatic functions. The intervention will further explore the possibility of new spatial conditions that may be generated when an extracted program is manipulated and distributed into the public realm.

The proposed program will be developed from a process where a public interface is to be provided for at least one of the internalised programs already present within the precinct. NThe program represents the vessel that will initiate the process of incision, extraction and distribution of the internalised building function and will be provided by means of a library extension for the Society of North Gauteng Advocates.

Broadly, the program will explore potential public and pedestrian impact that may aid in the establishment of the unoccupied city plinth as a civic service space. In addition to a library extension, a broad program outline proposes a law archive, research facility, arbitration- and legal-aid facility, as well as various mediating components to facilitate public need related to the National Treasury and the Department of Home Affairs.

The design proposal will architecturally aim to address the exclusive and disjointed physical relationship in which the precinct's institutions operate by utilising the consequent marginal space this relationship produced to confront the city with its responsibility towards urban marginality in terms of client, program and space.

1.9 RESEARCH METHODOLOGY

The research study seeks to explore, describe and interpret the various causes and conditions of marginal space within Pretoria's urban structure. A theoretical approach will be developed to aid in a conceptual development that will drive an architectural design process with the aim of readapting marginal space for urban renewal. The research consists of critical or qualitative methods in developing an understanding of the underlying reasons, motivations and ideas that led to the formation of Pretoria's urban core and how these factors led to the formation of marginal city space.

Miles and Hubarman (1998) as cited by McNabb(2004), defines Qualitative data as representational of the spirit of people, objects and situations, and it is the role of the researcher to process, analyse and interpret these raw experiences or data, in order to transform them into a meaningful conclusion (McNabb,2004:288).

As this study confronts Pretoria as an unresponsive urban model, at a social or "every-day user" level, it will not deal with the collection and analysis of statistical data, as characteristic of quantitative research. Correlation- or regression analysis is used in determining the strength of a relationship that exists between Pretoria's underlying ideology and its urban response towards the everyday user. These methods, as clarified in figure 1.7, will be arranged into the following structure:

1.9.1 Tier 1: Urban Context

This consists of a historical analysis of the past, present and future urban contexts of Pretoria as administrative capital of South Africa. A review and interpretation of secondary literature will form a basic understanding of the underlying principles, which led to the formation of Pretoria as South Africa's administrative capitol.

The effect of these principles will be analysed within the current urban condition, by means of site visits and mapping exercises. This analysis will then aim at supporting the hypothesis that Pretoria, at a social- and public level, represents as an unresponsive urban model and will address the associated causes and opportunities of such a model throughout the architectural intervention.

1.9.2 Tier 2: Theoretical Approach

The philosophy of entropy is introduced as a vessel in understanding the relationship between the user and the city with regards to causes and opportunities, as established during the contextual analysis. This process, in collaboration with appropriate architectural precedent, will also aid in establishing a definition of marginal urban space and insurgent activity, as well as understanding the relationship that exists between these factors. Architectural theory familiar with the causes and opportunities of marginal urban space are to be integrated to locate the study and its relevance within the spectrum of architectural research.

1.9.3 Tier 3: Concept

A conclusion to be developed from the above processes will aid in the formation and strengthening of an architectural concept. Through an iterative design and technical exploration, the dissertation will test the established methods and theory within the contextual arena of Pretoria's CBD in addressing the re-adaptation of marginal space in Pretoria's central business district.

1.10 LIMITATIONS

The study intends to establish a general and metaphysical understanding of the relationship which exists between the user and Pretoria's built environment, as a product of the imbedded urban ideology.

As an alternative analysis, and opposed to quantitative or statistical "mapping exercises," the dissertation attempts at grasping the general "mood" of the city toward its everyday users, in order to establish a base for conceptual development.

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Due to time constraints, the study will therefore refrain from an intensive investigation into all current building-user relationships, and will locate general areas within the city where this relationship is most fractured.

1.11 DELIMITATIONS

The project will react to the qualitative past, present and current relationship between the user and his built environment, as informants towards the architectural design development. The every-day user is regarded as both generator and instigator of urban space, and therefore does not resemble a quantifiable category.

The investigation will not venture to speculate on the impact of future city upgrades and developments, as its effect on user-building relationships cannot yet be interpreted.

As the dissertation focuses on the architectural re-adaptation of marginal space as a catalyst towards urban renewal, the study will refrain from proposing any new major urban framework alterations, but will rather react to the existing "face value" of the existing and proposed urban development.

The theoretical approach will not consist of an in-depth discussion regarding the scientific principles of entropy theory, nor will it consult any literature of such nature. The study will therefore extract basic philosophical principles of entropy as a universal idea and will aim at contextualising these principles into the urban and architectural field of study.

Figure 2.1: (Author 2015)

| |

URBAN CONTEXT

2.1 INTRODUCTION

This chapter deals with a brief investigation into the formation of Pretoria so as to establish the various ideas that formed the basis for its development, and to gain an overarching understanding of the context in which the intervention is to be located.

2.1 HISTORICAL OVERVIEW

2.2.1 Introduction

"In the Postmodern 'history like' – be it in architecture, the visual arts, or literature – the ideological and the aesthetic are turning out to be inseparable... What postmodern theory and practice have taught is less that 'truth' is illusory than that it is institutional, for we always act and use language in the context of politico-discursive conditions (Eagleton 1986:168). Ideology both constructs and is constructed by the way in which we live our role in the social totality... In other words, all social practice (including art) exists by and in ideology."

(Hutcheon, 1988:178).

A city model and the architecture which forms it represent ideology to be strived towards, and this, in turn, determines how users experience the city (Jordaan, 1989:26). According to the notion of the ideal city, as it evolved through the ages, it represents a static phenomenon, as opposed to the good city which consists of ecology in constant flux.

The traditional relationship between these two cities is that the fixed, or constant state, should accommodate that which is in continual flux whilst retaining its ''permanent'' structure (Jordaan, 1989:26).

To understand the relationship that exists between the user and the city, it is of importance to investigate the underlying ideology imbedded in a city's formation over time. It is hypothesised in this dissertation that the residue of ideals, as it is made and manifested in built fabric, still influences Pretoria's functioning as an urban environment through the permanence of structure (Fig 2.2). Furthermore, reference to specific architectural elements found in the city, which reflect this manifestation, will be analysed as a tool in the development of an overarching architectural concept. For the purposes of this study the investigation into Pretoria's development will be structured into three segments:

2.2.2 Strengthening the idea

2.2.3 In the wake of an idea

2.2.4 The Birth of an Idea

2.2.2 The Birth of an Idea

Set into motion by the migration of white European settlers into the interior of the county during the Great Trek of the Voortrekkers, later known as Afrikaners, a cultural territory began to emerge in what was referred to as the Transvaal, which included the present location of Pretoria (Van der Klashorst, 2013:29). Around 1829 the site was occupied by Mzilikazi, a breakaway Zulu chief and founder of the Matabele nation. Between this period and 1854, Boers settled in the region now known as Irene, and in that same year Commandant-General Marthinus Wessels Pretorius, son of the hero of Blood River, Andries Pretorius, purchased the portion of land known as Kerkplaas (Church Farm) to serve the central Boer Republic, later known as the ZAR (Hopkins,2006:29).

Through the process of mapping the landscape, the city was formalised into measurable grids where agriculture and dwellings were established and managed (Van der Klashorst, 2013:30). As this process developed into a city, it gave birth to the beginnings of the Afrikaner's cultural and administrative capital.

The original street grid which determined Pretoria's urban framework, and still present today, was set out to conform to the requirements of ox wagon transportation of people and goods (Louw, 1959:28). Engel-brecht (1942) as cited by Van der Klashorst (2013) notes that, the centre of this grid, known as Church Square, facilitated the three-monthly per year sacrament of communion of the state church – the Dutch Reformed Church, where farmers and citizens would gather at its centre (Van der Klashorst, 2013:31). From early on this established Pretoria's core as fundamental to cultural and religious identity, specific to that associated with the Afrikaner. According to Jordaan (1986), the street grid system of Pretoria did not develop as a direct response to the town's geographical typology, but was borrowed from the Graaff-Reinet model (Fig 2.3). The application of this foreign system proved to be a more ''successful and pure'' application, compared to that of the Cape Province town model. The availability of water supplied by the Apies River allowed for irrigation ditches to be led into the town grid, effectively supplying plot and home (Jordaan, 1989:28).
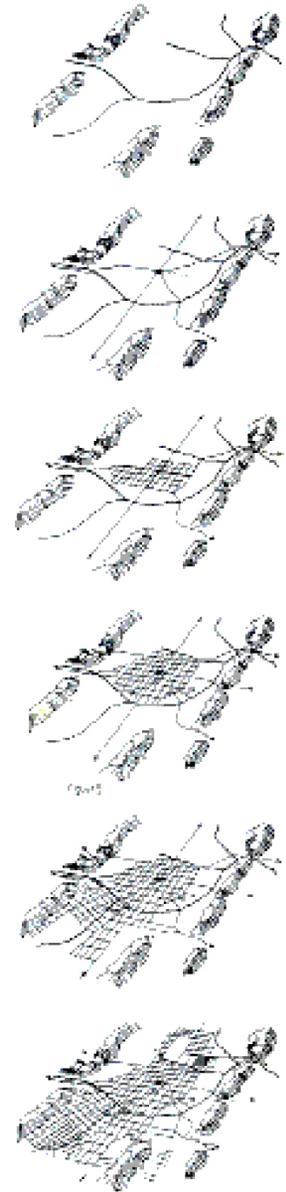

Figure 2.2: Pretoria Grid Development(Jordaan 1989 2015)

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Figure 2.3: Graaff-Reinet - Urban Grid (Jordaan 1989)

This already indicates that the conception of Pretoria as a town, rather than a contextual consideration of environment, pivoted largely on the superimposition of classical, cultural and foreign principles carried with the settlers to be tested and perfected at its destination.

With the grid positioning religion at the core of Pretoria's foundation, additional meaning was attached to the geographical typology of Pretoria, saturating its natural surroundings with cultural-specific ideology. The hills surrounding Pretoria, which provided the locations for the forts built to protect the town, were seen as being symbolic of the masculine soldier protecting the urban interior and positioned in stark contrast to the soft flow of the Apies River, which symbolised the emotional support of the Mother Feminine, to be protected by the guarding soldier against foreign threats (Jordaan, 1989:26).

This being a classical read of town planning, it could be easily understood why Afrikaner culture associated with this image when compared to the military Laager strategy, as implemented during their trek into the interior of South Africa (Fig 2.4 & 2.5).

By positioning their ox wagons in a defensive circular formation, women and children would be protected at its interior, whilst men defended the peripheries. Seen in its cultural context, Pretoria resembles a city reminiscent of the Jewish transition from Tabernacle to Solomon's Temple, a city deemed to represent an idea that would outlast generations. It is furthermore argued by Leach (1989) that this "laager mentality" had such a profound impact on Afrikaner culture that it permeated to the level of his household. It is therefore postulated that, if this idea could penetrate as far as family structure (Leach, 1989:42), it could easily be assumed that a city, its architecture and the spaces such architecture generated, would lean towards the same disposition.

The architecture in Pretoria was designed to convey a similar degree of symbolic importance, ranging from nineteenth century trends, British-influenced order, international modernism (as appropriated by Afrikaner Nationalism) and post-apartheid contemporary specimens (Van der Klashorst, 2013:42).

It has been argued that, compared to Johannesburg, not being located near a harbour or on mineral rich soil, which would have justified the establishment of Pretoria as an industrial city, it was secured by the Afrikaners as a city to function predominantly as a political and administrative entity (Van der Klashorst, 2013:43).

The Afrikaner culture and its leaders went to great lengths, despite imperial and internal conflict, to ensure the survival of both the city and its foundational principles (Vernon, 2007:148).

During the discovery of gold in the Transvaal, the influx of foreigners to the neighbouring city of Johannesburg was perceived as a socio-cultural threat to the ZAR government. In a response to cultural preservation of identity, the government ensured that the political seat of the country remained in Pretoria, with the added advantage of it already being mainly Afrikaans (Van der Klashorst, 2013: 32-33). Driven by the sudden economic thrust provided by the flourishing gold mining industry, the ZAR government under Paul Kruger engaged in state building projects that would reflect the young nation's ambitions and ideals (Holm 1998:64).
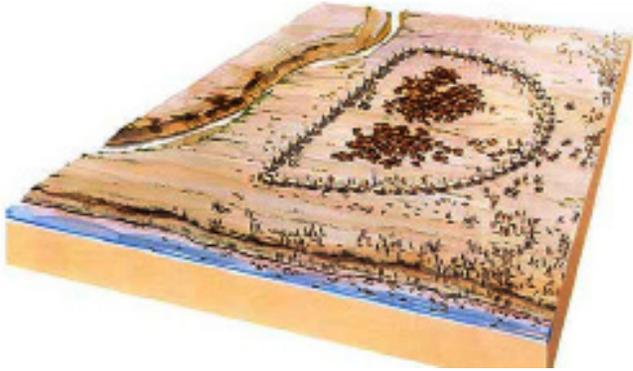
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Figure 2.4: Battle of Blood River Laager Strategy Model

Figure 2.5: Voortrekker Laager

Focused mainly around Church Square (Fig 2.6), the majority of these new buildings were designed by the Dutch-born architect, Sytze Wierda (Van der Klashorst, 2013:42). According to Meiring (1952), as cited by Van der Klashorst (2013) , Wierda, was familiar with the imperial architecture of Berlin and Paris and internalised Paul Kruger's visions of order and rule of law into his duties as Pretoria's chief civic architect (Van der Klashorst, 2013:43). A built environment thus emerged where the propagation of a young culture's ideals were being reinforced by a collaboration of principles borrowed from tried and tested imperial structures.

As Pretoria's built identity developed, it began to resemble a sharp contrast to the individualistic Victorian principles associated with commercial and industrial urban activity associated with South African cities of that era, such as Johannesburg (Fig 2.7). This sets apart and secures spaces such as Church Square as being rich in colonial-Afrikaner character and symbolism. An example of this vision materialising in architecture is visible in the design of the Palace of Justice (Fig 2.8), previously being the Parliament Building.

In contrast to typical Victorian buildings of its time, it reads as asymmetrical and less decorative in manner, with its single tower symbolic of phallo-logocentric power and masculinity (Van der Klashorst, 2013:32-44).

During the establishment of the South African Union in 1910, the Afrikaner leaders ensured that its power base should remain located in Pretoria ideals (Holm 1998:64), as this would ensure that South Africa's political nucleus would remain Afrikaans to a large extent. With buildings such as the Palace of Justice occupying its core, Pretoria began to symbolise a culture striving towards independence and cultural recognition.

Figure 2.6: Early Photo of Church Square with Church still present

2.2.3 Strengthening of an Idea

"Pretoria was chosen as the site for the [Voortrekker] monument, because it was here that the deeds of the Voortrekkers were given form.'' (Hopkins, 2006:29). (Fig 2.9)

"I saw the outlines of their kappies silhouetted against the brilliant lights of Pretoria – the Voortrekker City." T.C. Robertson (1983) as sited by Hopkins (Hopkins, 2006:27)

During the Great Trek's centenary celebrations of 1938, an Afrikaner cultural revival swept the country (Fig 2.9 - 2.11). Leaders later to be associated with the National Party harnessed the patriotic symbolism of the Voortrekker as the national patriarch to shape a Nationalist cultural identity prior to the devastation of the Anglo Boer War of 1899 – 1902 (Hopkins, 2006:30). This vision of establishing an independent nation that will pride itself on its founding principles manifested politically a decade after the 100-year anniversary of the Great Trek, when the National Party assumed power in 1948. The Afrikaner's drive towards independence and solidarity gave birth to and eventually accumulated in the legislative implementation of the apartheid ideology.

By means of the Group Areas Act no. 69 of 1955, the ruling National Party was empowered to engineer the South African landscape so as to serve the purposes of racial and spatial segregation (Leach 1989:34), of which the consequences of such strategy would live on in the identity of spaces and places that will continue to impact the lives of users (Swilling, 1991: ix).

Pretoria was definitely not excluded from this process, as residents of Lady Selbourne were forcefully removed and relocated to townships located on the outskirts of the city (Van der Klashorst, 2013:32-39), almost permanently – by means of buffer zones – limiting access into the city's core and shattering its fabric, which resulted in massive urban sprawl and a decentralised city infrastructure.

What especially distinguished Pretoria from its urban peers during this era was the fact that the bureaucratic mechanisms that kept the apartheid system in place, operated almost exclusively from Pretoria (Terreblanche, 2002:303). Afrikaner capitalism, which promoted and favoured Afrikaner trade and industry, led to most corporations and institutions associated with the National Party to live and work in Pretoria, resulting in its urban environment to facilitate and cater for this specific client (Van der Klashorst, 2013:40).

During the apartheid period from 1948 onwards, urban planning and architectural design implemented principles of international modernism as to make clear the modernity of the apartheid state (Murray and Sheperd, 2007:5). According to Dewar (2000), the ideology of modernism in the South African city, as imported from the UK, US and Europe, manifested as urban characteristics in the following:

A strong anti-urban and pro-suburban ethos placed strong emphasis on the free-standing building model surrounded by private space as the basic element of settlements. This single-free standing structure was deemed the apex of "good urban life" (Dewar, 2000:210)

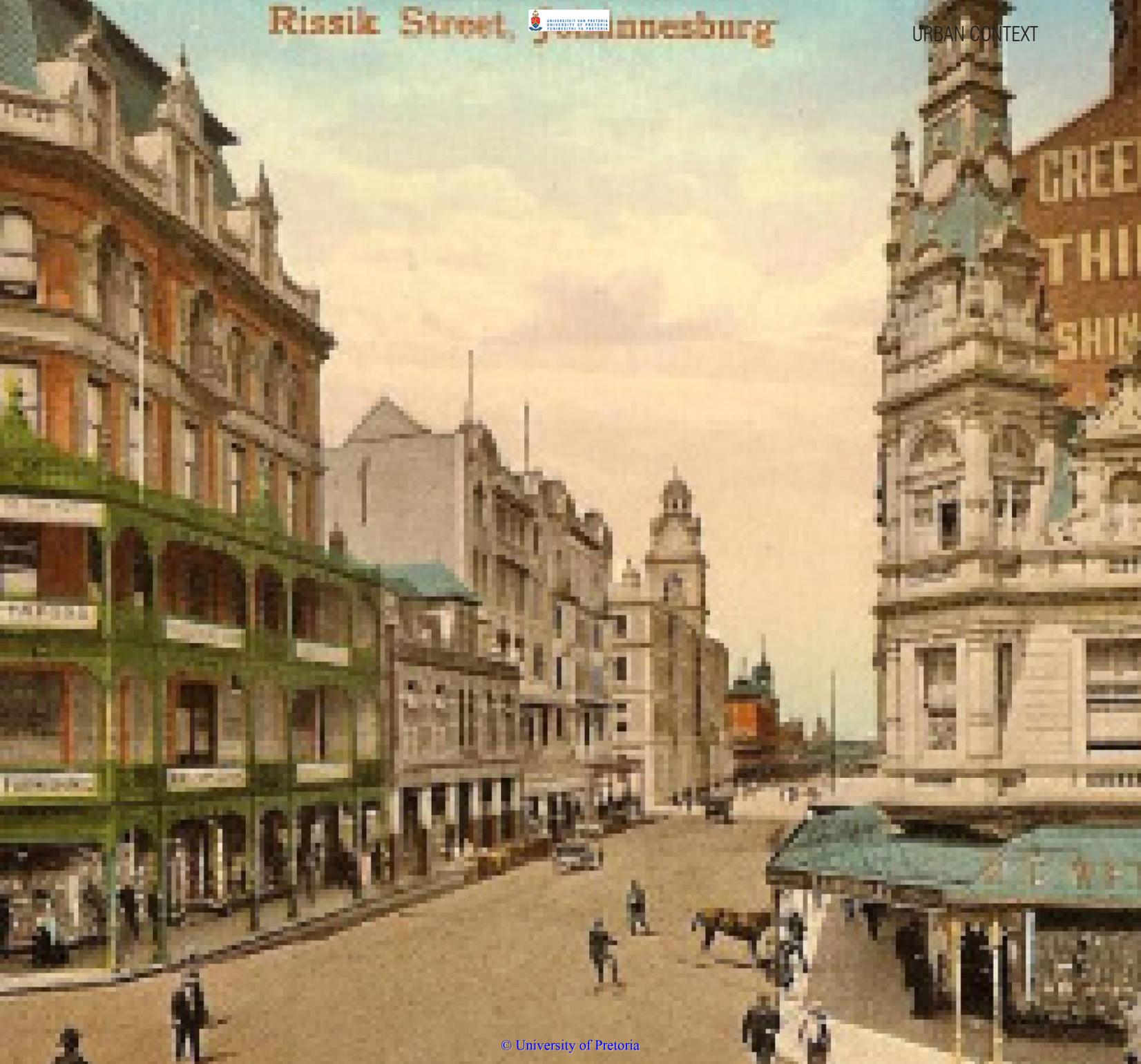*Figure 2.7: Artist Impression - Victorian Johannesburg*

Rissik Street, Johannesburg

Figure 2.8: A Young Palace of Justice 1901. Church Square (University of Pretoria

A strong separation between everyday activities such as living, working, playing and movement was a means to avoid "conflict" (Dewar, 2000:210). Buildings were largely quantitatively and programmatically determined. Here capacities and thresholds were organised so as to establish a catalogue of sorts to allow for an efficient assembly of parts, rather than a contextual appreciation for the framework it would operate in (Fig 2.13). Decisions about the elements of structures were viewed as being discipline-specific and orientated in virtual isolation from one another (Dewar, 2000:210).

The concept of the neighbourhood unit – residential cells that are clustered into distinct cells – focused inwards onto centrally-positioned community facilities (Fig 2.12). These distinct cells, not being integrated, but merely connected via movement infrastructure, failed to realise the conceptual aim of generating a sense of community (Dewar, 2000:210).

The private vehicle was seen as the primary method of transportation and buildings were scaled and positioned in relation to the motor car (Dewar, 2000:210), and reinforced the isolation of the neighbourhood cell. It is therefore necessary to acknowledge that two ideologies shaped the structure of Pretoria - being modernism and apartheid – as well as to view these two ideologies, not as separate from one another, but rather as compatible doctrines within the city's historical context.

Figure 2.9: Voortrekker Monument 16 December 1949 (Slideshare)

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Figure 2.10: Voortrekker Centenary 1938 (Wikipedia)

Figure 2.11: Laying of the Cornertone Voortrekker Monument 1938 (Boeseken et al, 1953)

Figure 2.12: Pretoria's Isolated Infrastructure Network (Jordaan 1989)

Here the modernist concept was embraced due to the emphasis the apartheid ideology placed on separateness, whilst distorting the architectural movement's approach to scale and ideas of community (Fig 2.14). The cellular form and limited points of access held obvious interest in how these could be manipulated in order to gain control over possible social unrest in urban environments (Dewar, 2000:210). It is furthermore postulated that these systems were not put in place to suit temporary requirements, but rather to ensure the prolonged isolation of the city model, as well as the success and efficiency of the apartheid system decades in advance, which therefore still echoes through the adopted built form in cities such as Pretoria.

The interwoven relationship between segregation legislation and town planning in South Africa during the period of architectural modernity renders the modern movement and apartheid ideology inter-dependent in South Africa during this period. Implementing international models of town planning aimed at segregation on racial principle, Pretoria, as stronghold of Afrikaner nationalism, would have had to

Figure 2.13: Built Environment Segregation Structure

represent this ideology strongly. International models of modern design principles were incorporated to further the cause, with the main aim on establishing urban environments that would not allow for black and white social synergy (Maylam 1995:24).

The exception was black urban labour, as it was required by the ruling minority (Lemon 1991:4). In addition to the above, international modernism was a method in establishing Afrikaner Nationalism as a modern entity. This relationship between movement and ideology would have had specific implications with regards to public space in Pretoria at that time, and would have been predominantly designed for and used by whites only. The same principle would have impacted urban elements such as street, architecture, signs and public art in order to serve white urban needs. Although this implies that Pretoria's fabric is saturated in Afrikaner ideology, Fisher (1998) suggests that, under Afrikaner rule, a region-specific vernacular, or architectural regionalism, developed and supported the growth of the built environment, characterised by a rich diversity of local materials and a drive towards achieving a distinctive cultural language in architectural design (Fisher, 1998:124-6).
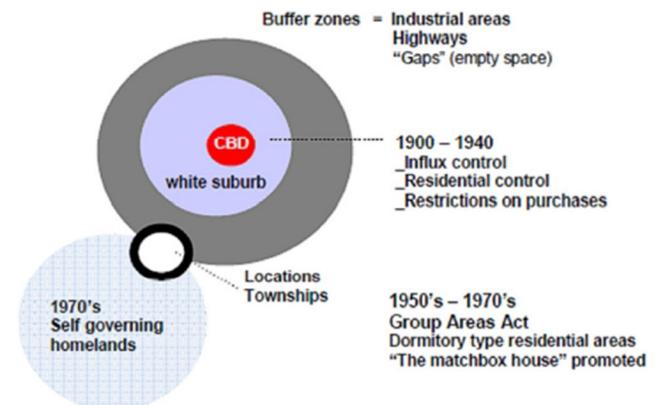
Figure 2.14: Le Corbusier Plan Voisin for Paris (Pezi.com)

This regionalism not only provided Pretoria with a rich and unique architectural identity, but also generated the drive behind its infra-structural and architectural development, and raises the question of how this identity should be integrated in today's urban climate, whilst not undermining the importance of the city's role in facilitating social diversity.

2.2.4 In the Wake of an Idea

South Africa's transition into freedom, as it developed during the era of the late 1980s and early 1990s, provided unprecedented access into Pretoria by black South Africans and civic servants associated with a new democratic government. This introduced a new perception of space as to how it could be lived through the lives of new South Africans, although it had little effect on the heritage of Pretoria's structural space that has been left unchanged.

"That General Hertzog should choose the language [Afrikaans] as the starting point of his struggle for Afrikaans survival was the logical development of his belief that language was much more than a means of expression…..It was a vehicle of a people's distinctive culture [ideals] and separateness."
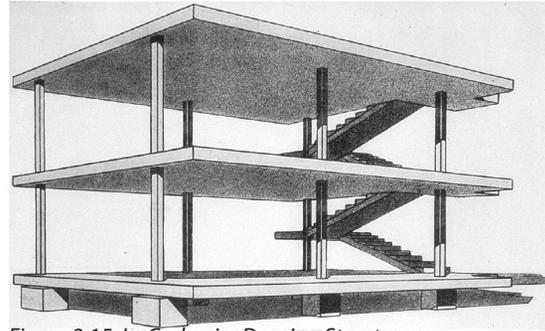
(Hopkins, 2006:31).

Figure 2.15: Le Corbusier Domino Structure

Figure 2.16: Le Corbusier Plan Villa Savoye

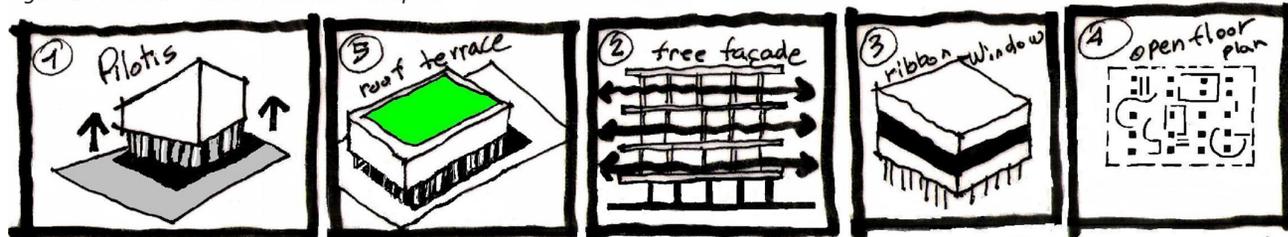*Figure 2.17: Architectural Modernist Principles*

Figure 2.18: Transvaal Provincial Administrative Building 1955-1963

Church Square, the historical centre of Pretoria, still showcases a typical example of sculpture employed to emphasise the ideology within public space. Statues representational of the colonial masculine - placed strategically in relation to buildings of political importance and in line with the city grid - charge space ideologically, rather than defining it as a place for enjoyment and social interaction (Van der Klashorst, 2013:49).

This unavoidable fact, according to Labuschagne (2006), as cited by Van der Klashorst (2013), that the values and history symbolised within its space, will remain worlds apart from current and future urban generations, and will continue to cast its shadow over their leisure time (Van der Klashorst, 2013:51-52).

The very fact that the statue of Paul Kruger was not originally to be kept in Church Square, but rather relocated numerous times to retain its political-ideological significance (Labuschagne, 2011:143), reveals something regarding the priority of structured Afrikaner-dominated urban design (Fig 2.20).

Church Square as public space remains contested today and absorbs significant amounts of economical and socio-political expression, although not physically altered by such activity.

It is within this space that current sentiments and how the city responds towards Pretoria's ideological heritage may be best observed (Fig 2.19). A future proposal for the development of Pretoria, such as the Tshwane 2055 vision, does not deviate from keeping up with the city's image as an administrative and political heavyweight.

The proposal mainly addresses issues of strengthening the existing government route and Ceremonial Boulevard, whilst connecting and ensuring access to this experience through upgrading the public transport infrastructure. This strategy ironically still builds on the modernist urban model, where accessibility to movement is seen as a move towards establishing a sense of community within the neighbourhood unit.

This irony is accentuated of how government institutions indicate a migration towards the northern and southern edges of the city, leaving the historical core vacant and open for re-interpretation and private development (figures 2.21 - 2.22). These conditions provide opportunity for intervention, as good public space in the city remains few and far between, with the majority of urban programs still geared towards a mono-functional and public exclusive nature.

Despite government departments' various visions towards a public inclusive climate, the buildings that they occupy still resemble the modernist principles of monumental, private and separate structures and therefore do not reflect any revised government ethos. High crime rates, combined with the city resembling a working environment during the day and being left vacant at night, materialise in the physical decay of built fabric and propagate the need for strict security measures being implemented to fence in private and government property.

2.2.5 Conclusions

It is possible to deduce that the combined ideology of modernism, as imbedded in the culture generated by Afrikaner Nationalism, played a crucial role in establishing the city as an administrative capital. It is therefore postulated that this collaboration permeated most aspects of the built, spatial and programmatic structures of Pretoria from as early as the implementation of the original grid system. It is concluded that, as long as this model of control and exclusivity adheres to the principle that a fixed system should remain intact, while defecting the impact of fluctuating urban endeavours, the ability of Pretoria to record, process and transmit information will continue to be distorted, resulting in a static and unresponsive urban environment. This renders an image of Pretoria as a city struggling with its socio-cultural heritage in the face of facilitating increased levels of urbanisation, whilst retaining its importance of a geo-political platform. Da Costa and van Rensburg (2008) clarify this by mentioning the difficulty in defining the urban nature of the African city due to its close connection to the Western and colonial ideal of what a city should entail (Da Costa and van Rensburg, 2008:31). Where modern principles were manipulated to display authority, oppression and control – as typical trademarks of the apartheid city – it represents what Koolhaas (2000), as explained by Da Costa and van Rensburg (2008), defined as the "generic city" (Da Costa and van Rensburg, 2008:31-32). A less intangible factor, coupled to the specific character of Pretoria, is the bureaucratic and administrative programmatic identity coupled to the city.

Figure 2.19: Political Protests at Church Square

Buildings representing these institutions tend to be authoritive and exclusive in the way they function and contribute to urban living. Here it needs to be stated that these buildings are not to be labelled as "evil" or sinister in the sense that they inflict continual tyranny upon the urban dweller, but rather implies that the residue of the urban and social organisation that these structures left in their wake had specific programmatic agenda and that the reality of this urban heritage should be incorporated without compromising livelihood and everyday life. It is proposed that architecture should play a vital role in this urban version of a "truth and reconciliation commission".

It is argued that, as long as the city builds on this identity and does not negotiate methods in challenging and incorporating its image into something truthful, it will largely keep the user alienated from his context. It is further postulated that, with growing environmental and economic concerns, existing structure should be reorientated to serve an urban purpose that could be associated with current social needs and trends, with architectural intervention acting as the catalyst to this reaction. The fact that most of Pretoria's built infrastructure has been left unaltered since the dawn of a new South Africa is testimony to the effect of monumental architectural design.

It indicates that the incomplete architectural narratives and assemblages, as mentioned in the first chapter, could likely be a direct result of urban space not being allowed to synthesise with the contemporary zeitgeist of urban life and its various activities (Fig 2.23). It is therefore deduced from the latter investigation that ideology imbedded in fixed or definite urban fabric prevents the user from critiquing urban traditions, or at least obstructs the ease at which this process might occur, which results in a city model to migrate away from a responsive typology and towards a disproportional structure

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(Fig 2.24).

This is supported by Forty's notion (1995), that architecture no longer represents the sole determining factor within a city, and can only carry the diverse and complex ecology of human endeavour to a certain extent (Forty as Cited by Da Costa and van Rensburg,, 2008:47). It is therefore not the duty of architecture to generate ideals or values to be imposed onto city life, but in contrast should allow the diversity of life in the city to take on its own various forms. This issue will be dealt with by incorporating relevant theory to be discussed in the following chapter so as to construct an overarching concept to aid in the architectural investigation.

"... ideology comes to mean 'the ways in which what we say and believe connects with the power-structure and power-relations of the society we live in' (Eagleton, 1983:14)."

(Hutcheon, 1988:178)

As the philosophy of Habermas suggests (Fig 2.25), democracy requires critique of its own traditions as a vital component for healthy society (Atkinson, 2011: 306-307). It is proposed that cities require the same critique not only from a planning and design perspective, but also via input from the everyday user. If architecture could form part of a vessel to motivate such critique, what new direction could projects orientate themselves within urban structures? What is proposed is not that such a paradigm should be introduced into the city, but that where it is currently taking shape, it should be amplified to the extent that it will be able to enforce its diverse influence upon future development considerations.

GOVERNMENT MIGRATION
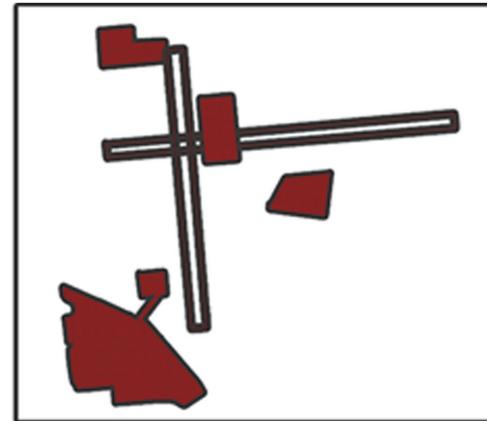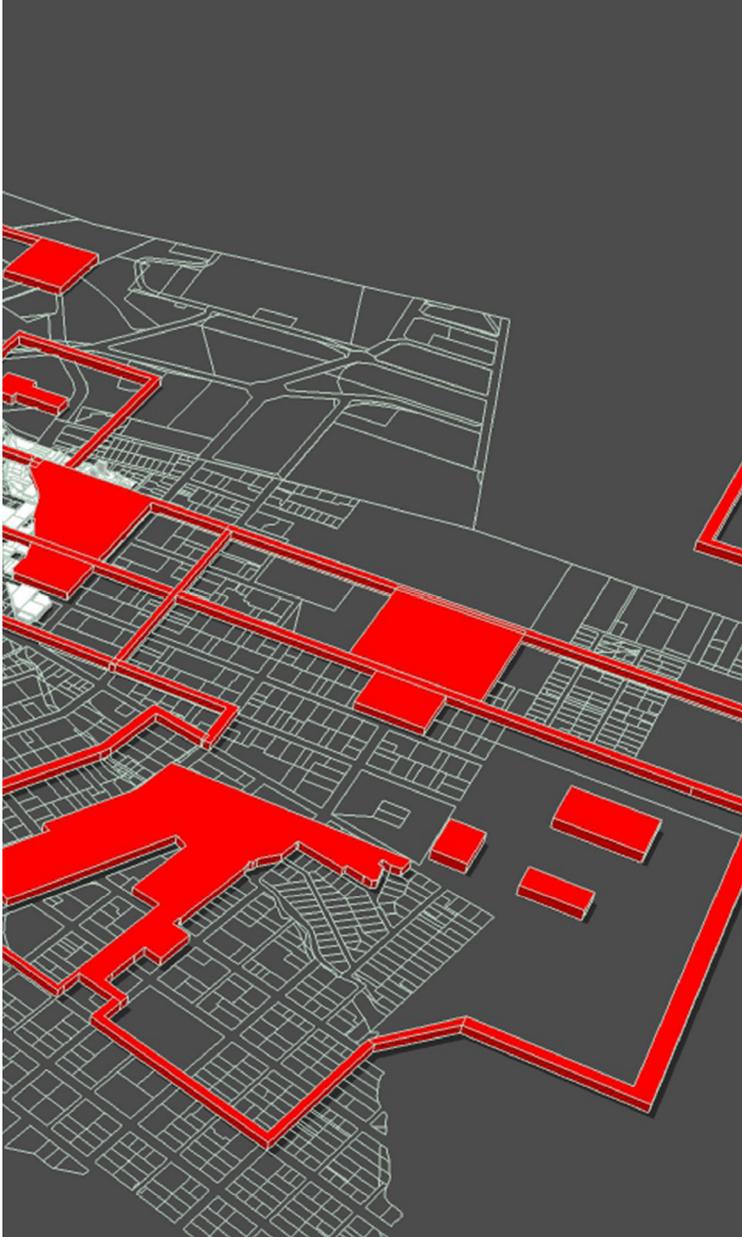
FUTURE DEVELOPMENT

SCALE DENSITY

Figure 2.21: Government Migration and future development (Author 2015)

Figure 2.22: Government Migration and future development (Author 2015)

Figure 2.23: Proposed future Development for Pretoria (Author 2015)

This does not imply the demolition of existing fabric, but rather a more sustainable solution of challenging the old ideas coupled to it through new intervention - thus harnessing the existing infrastructure of urban environments and empowering them to work towards the cause of urban renewal, as required by the everyday user. Individual architectural interventions become the catalytic reactions to put this movement into motion. The architecture becomes the vessel that enables the public to interact with the existing and the inherent static nature of the urban environment. It is seen as necessary to introduce a new architectural approach in dealing with the existing context of Pretoria in contextually sensitive and considered ways, so as to aid the user in communicating that which is currently not being made audible regarding the urban environment. This resembles a subversive approach to urban architectural interventions where emphasis is placed on what would have been conventionally viewed as being antagonistic elements in the city.

It has been suggested that, to explore the ''urban unknown'' constitutes a political act, through the process of enabling urban dwellers with new resources for mapping the city (Pile, 2000:265), empowering the everyday user to have an impact on what his space represents and is to become. Rather than amplifying certain urban conditions, this scheme occupies itself with the process of amplifying indigenous urban strategies, as implemented by the everyday user. This approach removes to some extent, the objective bias that a designer might superimpose onto the urban fabric, from the equation.

This is achieved by establishing a ''subversive'' alliance between marginal urban space and insurgent activity already found within the city. It will be argued that insurgent activity already proved itself a worthy combatant to the internalisation of a city program and fabric, which aided in the formation of marginalised urban space (Pile, 2000:265).
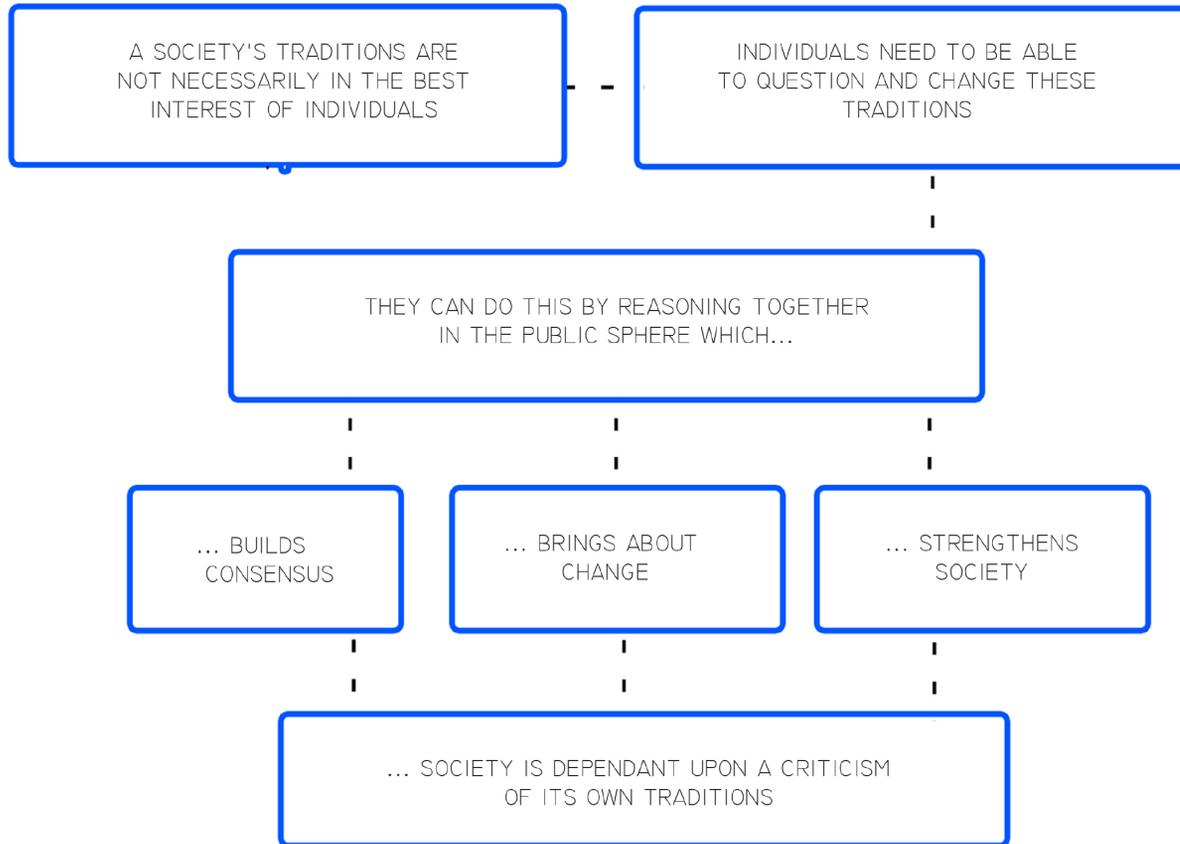
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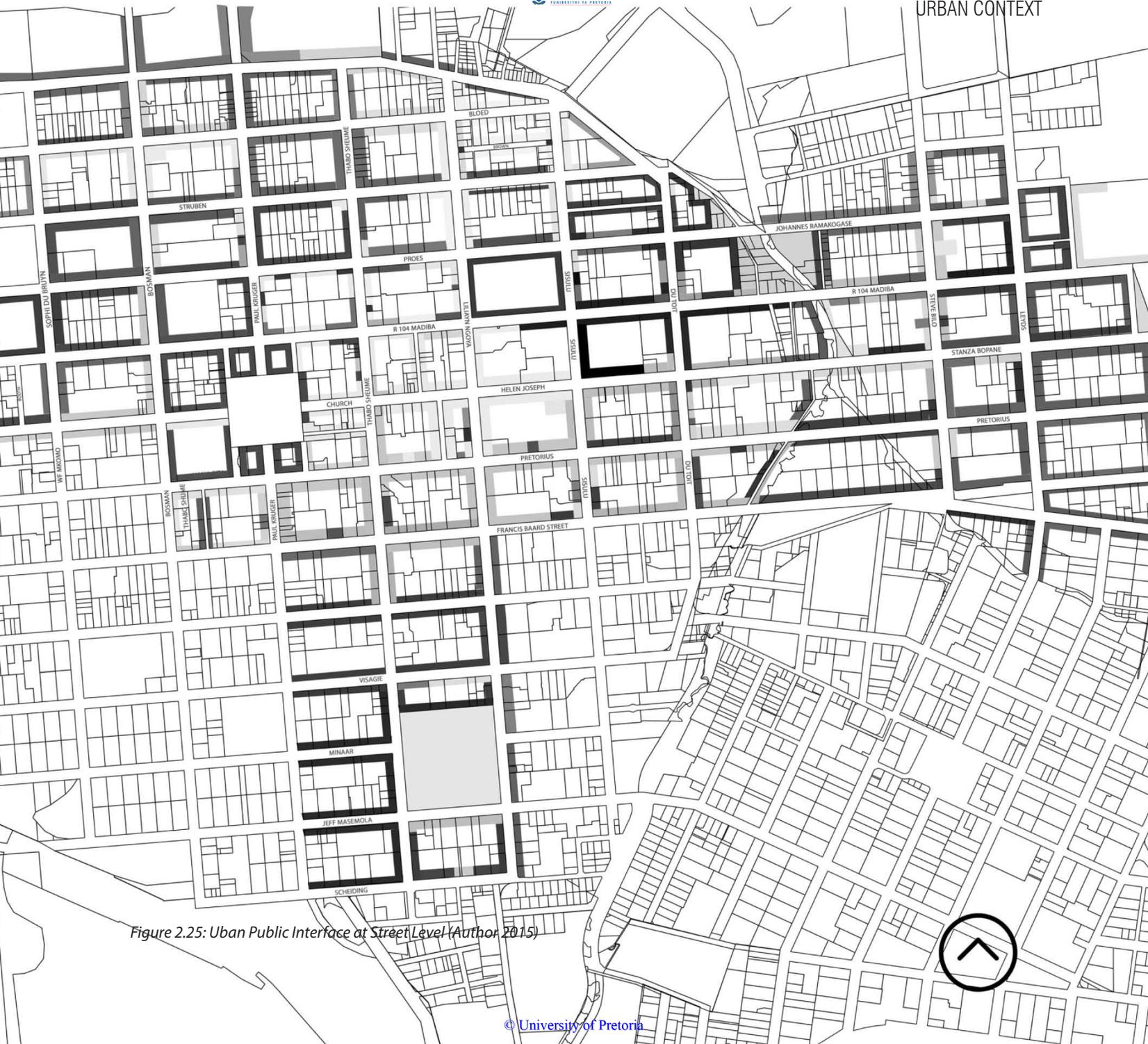*Figure 2.24: Philosophy of Jurgen Habermas (Author 2015 after Atkinson, 2011)*

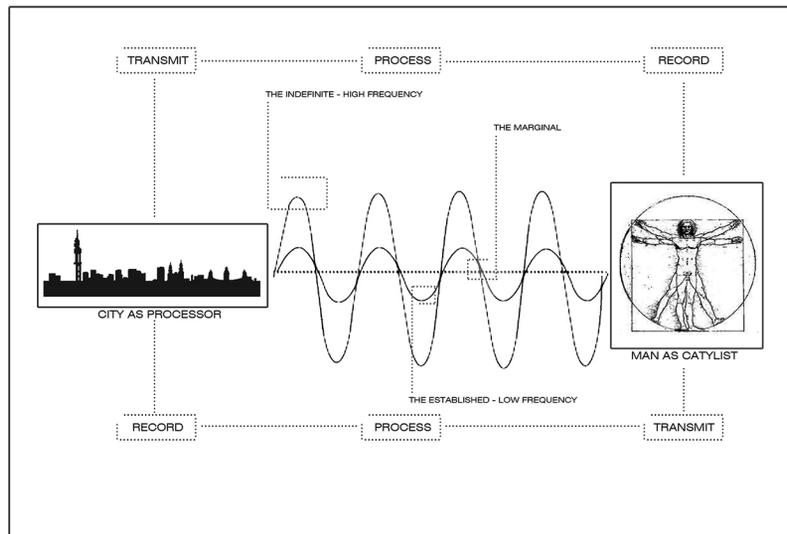*Figure 2.25: Uban Public Interface at Street Level (Author 2015)*

Figure 3.1: Theoretical Approach (Author 2015)

III

THEORETICAL APPROACH

3.1 INTRODUCTION

The purpose of this chapter is to interrogate relevant architectural theory and general scientific philosophy that may lead to and strengthen the architectural concept and program, as well as to uncover possible and relevant informants that will determine the specific site location for the architecture. As the dissertation stems from the normative position that the city represents a living medium, which exists to channel energy in the form of information, scientific philosophy and architectural theory which deals with fluctuating systems will be investigated.
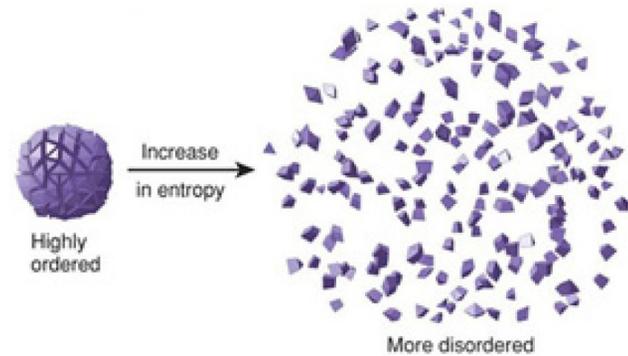
3.2 Entropy: the Workings of the Medium

Figure 3.2: Entropy

"Entropy is a useful concept that has been used to describe the structure and behaviour of different systems. ... With regard to its implications for urban sprawl... and urban monitoring and management,"

(Araya et al., 2013: 5223).

Saridis (2001) states that, in modelling process of a complex system, the principle of entropy may be applied as it represents the measure of the irreversible amount of energy which accumulates when work is performed within complex and continuous systems. It measures the waste produced when work is being done for the improvement of the quality of human life (Sardis, 2001:2). Chaos, which is representational of moving away from equilibrium, represents change (Fig 3.2). Therefore it (chaos) is a device against equilibrium and (thermal) death, and gives us hope for survival.
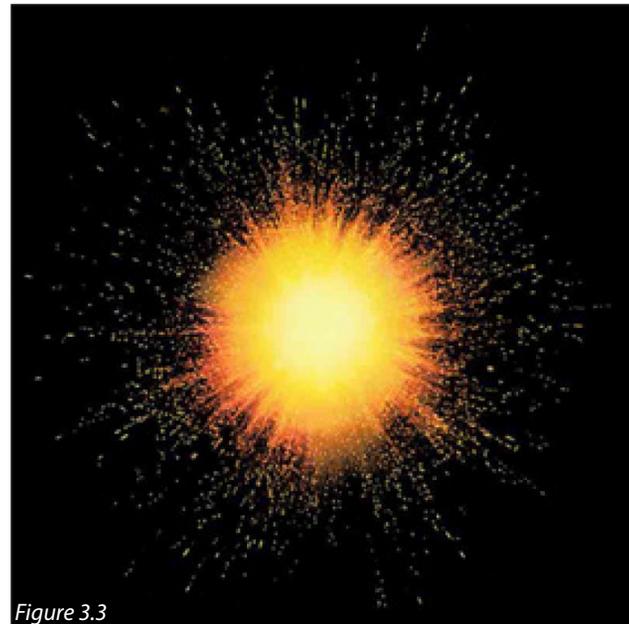
Figure 3.3

The second law of thermodynamics states that any spontaneous and natural process will increase the disorder of the universe, and that the level of disorder found within an isolated or ideal system will only increase to the stage that it will remain the same over time, being a state of equilibrium. It further implies that processes that do not increase in disorder, or is to remain constant while being geared towards the ideal, require work to be done in opposition to the disorder or eminent chaos, and are in fact impossible to achieve. "Real life" processes represent the availability of a lot more high entropy states than low entropy states (Crash Course, 2013).

In global terms, all processes require high amounts of energy to lower and to maintain entropy levels aimed at an ideal or constant stage, as this goes against the natural trend towards increased entropy or chaos.

In the case of a heated system, it contains a higher amount of entropy than a cooler system, due to the activation of molecules as a reaction to the amount of energy exposed to it. A heated system will therefore cool over time, lowering its level of entropy, but due to the fact that it is not an isolated or ideal system, it will inevitably increase the entropy of its surrounding environment by the same amount (Fig 3.4).

This natural process can only be countered if a large amount of external energy is applied to that system so as to maintain a constant state of entropy. The phenomenon known as "The Big Bang" represents at its conception a process of extremely low entropy levels, and prior to its sudden expansion, entropy has continued to increase throughout the universe (Fig 3.3), affecting all, without any evidence that it will regress back to its original state (Crash Course, 2013).
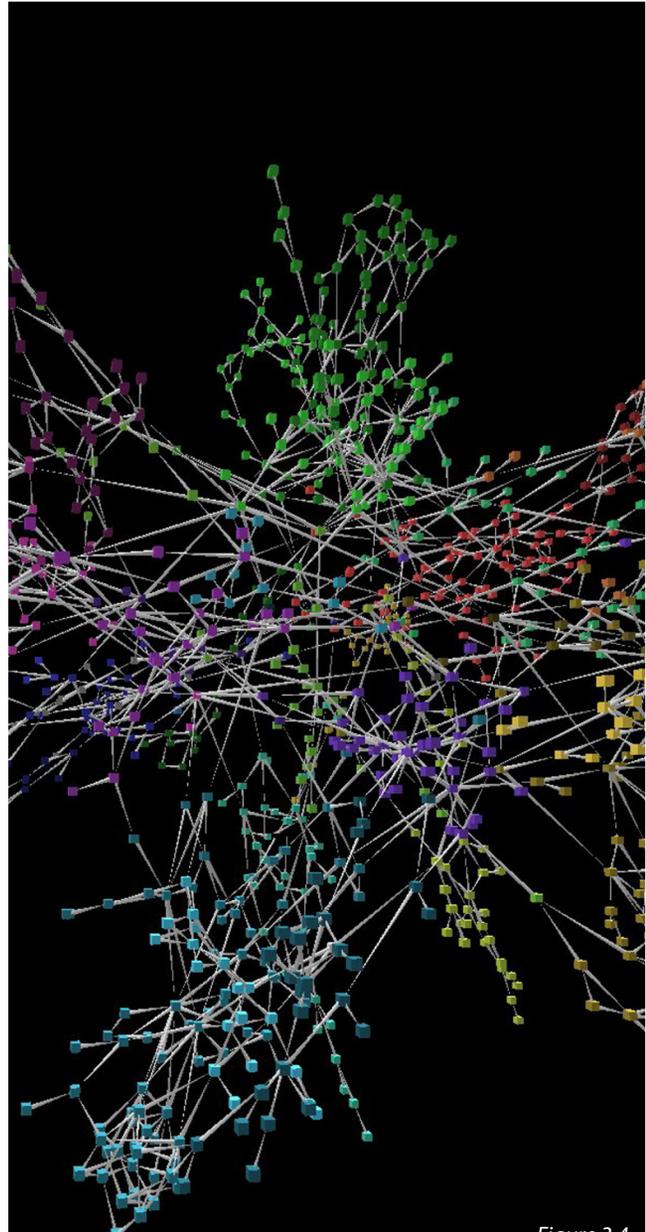

Figure 3.4

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The same law of thermodynamics further implies that, by inflicting control or order on one system, it requires that other systems are thrown into a state of disorder. This trend towards increased entropy - defined as the number of specific ways in which a thermodynamic system may be arranged - is vital in allowing the reactions and interactions which sustains life (Crash Course, 2013). With regards to cities, Araya (et al., 2013) proposes that an urban system should be flexible and resilient enough to absorb and adapt to any possible internal or external changes or shocks. This is made possible by retaining a certain degree of redundancy and diversity (higher amounts of entropy) so as to empower a city to resist long-term events, be it natural or man-made (Araya et al., 2013:5231).

If the urban environment represents a medium to record, transmit and process information (Griffin & Kittler, 1996:720), it should be concluded that, without informational flow – the energy which sustains urban environments – cities will ultimately represent a system of extremely low entropy that will consequently result in the informational equivalent of thermal death and will cease to be. Information is produced when the urban molecules, the users, are allowed to interconnect or collide. The more information energy available to the user, the more influx the state of the system becomes, resulting in higher levels of complexity and diversity, expanding and producing new hybrids through spheres and networks. Lowering the entropy of such a system requires external work and energy to be applied to this system. Not allowing users to intercollide, or by controlling the manner in which they do so, generates a system of low entropy, slowing down the mechanism and limiting the rate at which any natural change may occur. This method of inflicting control onto a socio-economic environment through the vessel of art and architecture is historically linked to modern-age thinking. Marxist belief in the scientific method as a tool in producing new forms of society manifested in art and architecture known as "construction" The Russian interpretation of this principle ranges from the physical to the social and linguistic, with the aim of placing the designer's and user's subjectivity secondary to agendas concerned with new social orders (Jones, 2014:368).

Araya et al., (2013) proposes that rapidly-expanding urban systems naturally develop independently and organically and that attempts to control urban processes (Fig 3.5), or to lower urban entropy levels, may have detrimental consequences (Araya et al., 2013:5232).

One of the main antagonistic side-effects of lowered urban entropy is the increased risk of social and economic segregation, which compromises the cohesion of the urban system (Araya et al, 2013:5232). It is therefore proposed that the amount of work to be done in decreasing a city's entropy, with regards to Pretoria's past development, resembles the amount of ideology as applied to its complex systems, with the aim of ultimately representing an unattainable and utopian outcome. Ideology attempts at controlling the manner and rate at which information flows between users and infrastructure, and is seen as both the cause and prolonging agent with regards to Pretoria's fractured social-cultural structure.
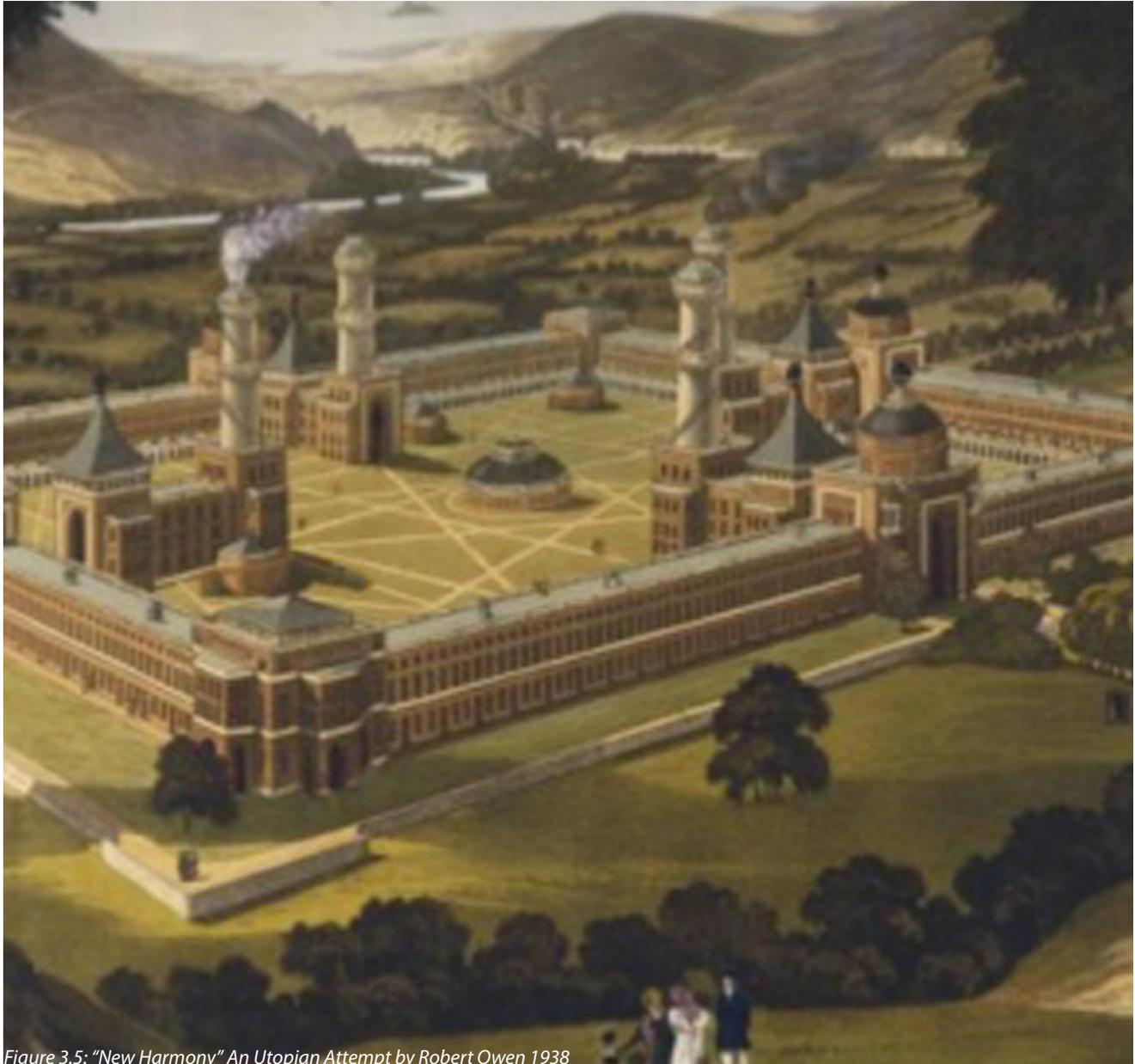
Figure 3.5: "New Harmony" An Utopian Attempt by Robert Owen 1938

It is further postulated that the methods applied to the original urban structure of Pretoria - which today remains unchanged to a large extent - with regards to its physical and metaphysical isolation from foreign and domestic influence, reinforces the notion that it once aimed at representing a system striving towards a state of utopian equilibrium.

As isolated systems are representational of fantasy, it can be argued that the Pretoria model inevitably would express its true nature; a non-isolated system exposed to socio, political and economic flux. According to the philosophical principles of entropy, the ideal city structure should systematically indicate the symptoms of an environment increasing in levels of disorder, due to the fact that, where a state of order is implemented, a state of disorder will occur at another as to sustain life. Culturally speaking, this phenomenon is perpetually made apparent in terms of cultural revolutions, especially through the medium of the visual arts, narrative and music. The same amount of ideological control was applied to the Afrikaans language as medium, this time focusing on the arts, as to ensure the ideal state of equilibrium to eliminate foreign influence and to deter critique of its values. During the mid 1980s the relentless censorship and banning gave birth to a cultural revolution within the language.

"Of course I was interested in the struggle... But I'm not a movement type of guy and never joined a political party or organisation. What fascinated me was the culture coming out of it. That's what I wanted to capture." (Fig 3.6)
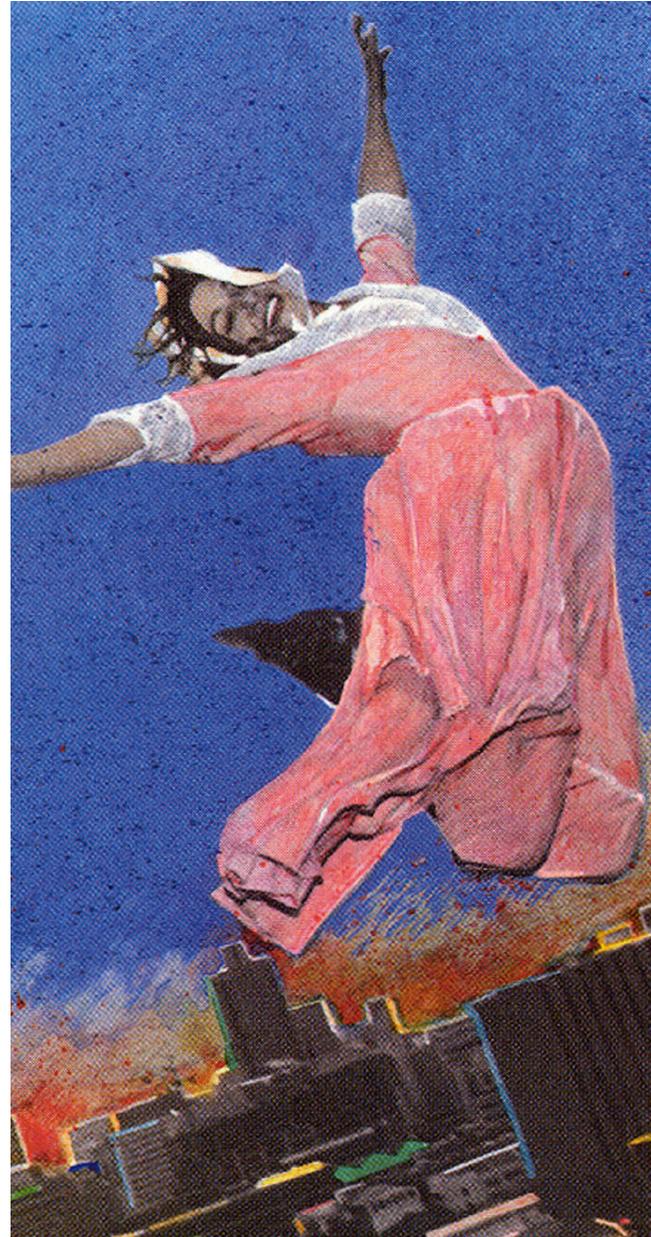
Lloyd Ross as documented by Hopkins (2006:87)

Figure 3.6

Of significance here is the eventual subversive trend that formulates and, in most cases, accumulates in a revolutionary climax. Equally important is the method in which an effective subversive movement usually employs the very tool that was used to oppress it, such as the post-modern and satire-like approach implemented by alternative Afrikaans music groups during the 1980s (Fig 3.6). This is made apparent through the informal adaptation of the formal language of Afrikaans, as it resisted ideological control when it was made subject to the same ideology as applied to South African cities.

By migrating away from conditions where high levels of control were applied to it, the language – through contemporary music - began to subversively spawn anew and escaped from underneath the shadow of Afrikaner ideology. By breaking down high levels of control, the Afrikaans language became accessible to the layman and, of more importance, resembled a medium that could be grasped by the user. Through this accessibility it enabled and encouraged the listener to, through this vessel, critique previously unquestioned traditions.

"Kom ons probeer anargie

Ons is moeg vir apatie

Ons probeer anargie

Ons kry nuwe energie"

"Come let's try anarchy

We're tired of apathy

We'll try anarchy

Search for new Energy"

Energie, Johannes Kerkorrel

The above extract by Rabie during the height of the 1980s apartheid era encapsulates the renewing spirit that is borne out of a system subject to high amounts of control, as well as the need for agenda-free and accessible information. It is through the natural trend towards increased levels of chaos that change occurs, and out of a need for increased levels of entropy that new possibilities are made apparent. It is postulated that this change, as made apparent in language and art, occurs at greater fluctuations than that of more permanent urban environments, where both are viewed as mechanisms for communicating information It is suggested that an urban environment manipulated towards low levels of entropy will eventually follow suit.

3.2.1 Rebel 1: Insurgent Activity: A Response to Low urban Entropy

The systematic symptoms of previously isolated structures moving towards increased levels of entropy may not only be likened to the deterioration of built fabric and infrastructure, but may also include the formation of informal or insurgent activity that takes shape in the peripheries of the static structure of city fabric.

As a response to the urban stubbornness of Pretoria, the natural tendency towards an increased information flow is being met through other non-prescribed means. In the form of subversive incorporation of marginalised space to suit the purposes of sustained city life, alternative methods to suit social, economic and political needs are being explored through the reinterpretation of existing urban fabric (Fig 3.8). This phenomenon of "informal" insurgency within the city is seen as a socio-cultural barometer, a move towards a new urban identity, indifferent to the weight of ideological heritage.

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Such activity, as it takes shape in ''restricted space'', is where the symptoms of a disproportional urban model such as unemployment, disregard for disability, crime and pollution usually play out (Da Costa & van Rensburg, 2008:37). This leads to the notion that insurgent practices not only reflect a method in reading city identity, but also reflect its resilient characteristics in terms of its adaptability to urban conditions despite the degree of exclusivity the urban environment offers.

As space always represents an incomplete project, constantly being generated and altered through human activity (Massey, 2005:29), it implies that these insurgent practices contribute to and test the flexibility of Pretoria's spatial configuration.

Insurgent practices blur boundaries, externalise introverted space and eliminate the distinctions between that which is prohibited and permitted.

A distinction is then drawn between prescribed public space, and improvised public space (Fig 3.8), where the latter provides clues as to where social information is concentrated and reveals possible areas where effective architectural intervention may be directed. Church Square, as one example, may be defined as ''square'' in its physical idiom, although being measured against the amount of insurgent activity taking place within its boundaries, it becomes the antithesis of good public space. Similar conditions are apparent regarding how buildings relate to street interfaces on ground level (Fig 2.24).

Figure 3.7

Figure 3.8: Insurgent Activity: State Theatre Pretoria (Author 2015)

Due to the bureaucratic nature of programs assigned to the majority of buildings in Pretoria, ground floors are usually orientated towards foyers, or fenced off from public access as security measures.
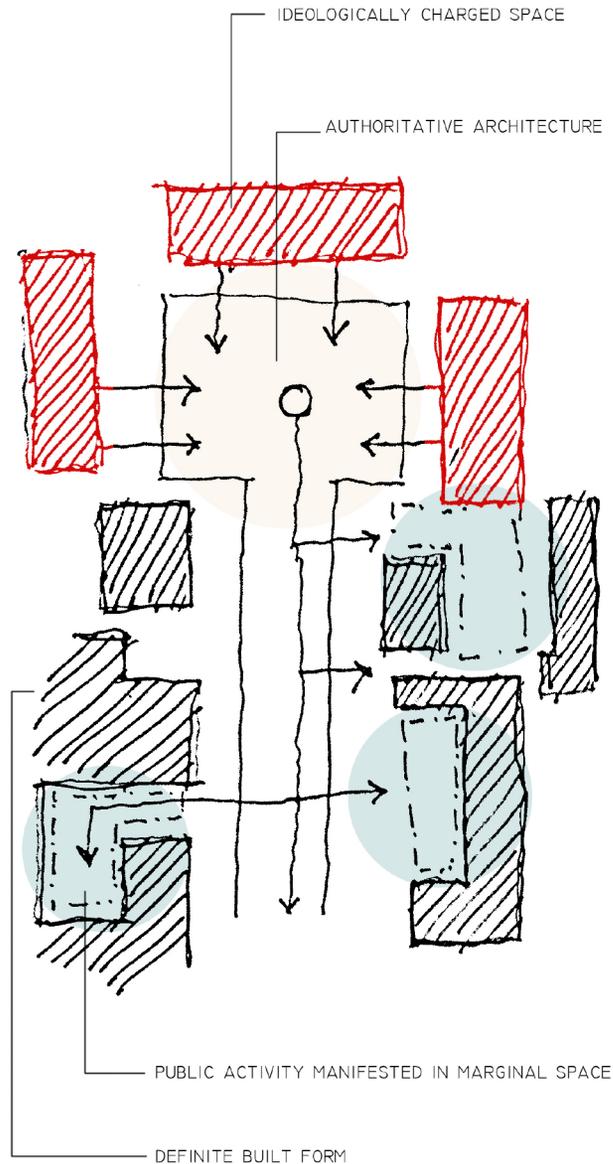
It is found that insurgent social activity occurs within the more hidden places of the city, such as back streets, alleyways and street recesses in order to avoid the harsh staticness of the city's various faces.

It is therefore not surprising to find that these activities manifest within marginalised space, space that has been left undefined or unprogrammed by city planning, as if to reject the intended programmatic identity of the city. The orientation of public space towards a political or class bias may prevent a city from expressing its real and everyday characteristics. As is the case in many Asian cities, public space being controlled by and for the purposes of state causes vibrant city life to occur in back streets, away from authority's spatial influence (Hou, 2010:5).

Such activity, and where it takes shape, is harnessed as a social barometer, an alternative method in reading and translating the urban scope. Space suited for public use within the city is now being defined as that which can be occupied by insurgency with the least amount of resistance (Fig 3.9 & 3.10). So to concur with Massey, the aim is then to depart from the limited way of understanding the urban condition, towards an alternative understanding that human behaviour and social practices are by nature spatial, and that the organisation of space is a product of interrelations continuously under construction (Massey, 2005:194).

Figure 3.9: Insurgent Activity: Queen Street Pretoria (Author 2015)

IDEOLOGICALLY CHARGED SPACE

AUTHORITATIVE ARCHITECTURE

PUBLIC ACTIVITY MANIFESTED IN MARGINAL SPACE

DEFINITE BUILT FORM

These ''informal urban villages'' grew out of view and out of range from the voice of Plato's city propagating its laws and norms (Griffin and Kittler, 1996:717). The ''informal'' did not possess the master's tools, its architects, drawing boards, models, software, building lines, SG diagrams and the master's notion of a city flattened onto a graph. It came from another place, from deep inside the city and developed to such an extent that the master cannot comprehend its workings, for the master gains knowledge by means of these tools (Springs,2009:420).

This exposes the city's colonial instinct of not being able to recognise that which cannot be married to its initial ideology. It is now proposed that the "informal "gives voice and expression to the zeitgeist - ironically propelled into momentum by rejecting the master's tools - exceedingly more effective than his own archaic methods (Fig 3.11).

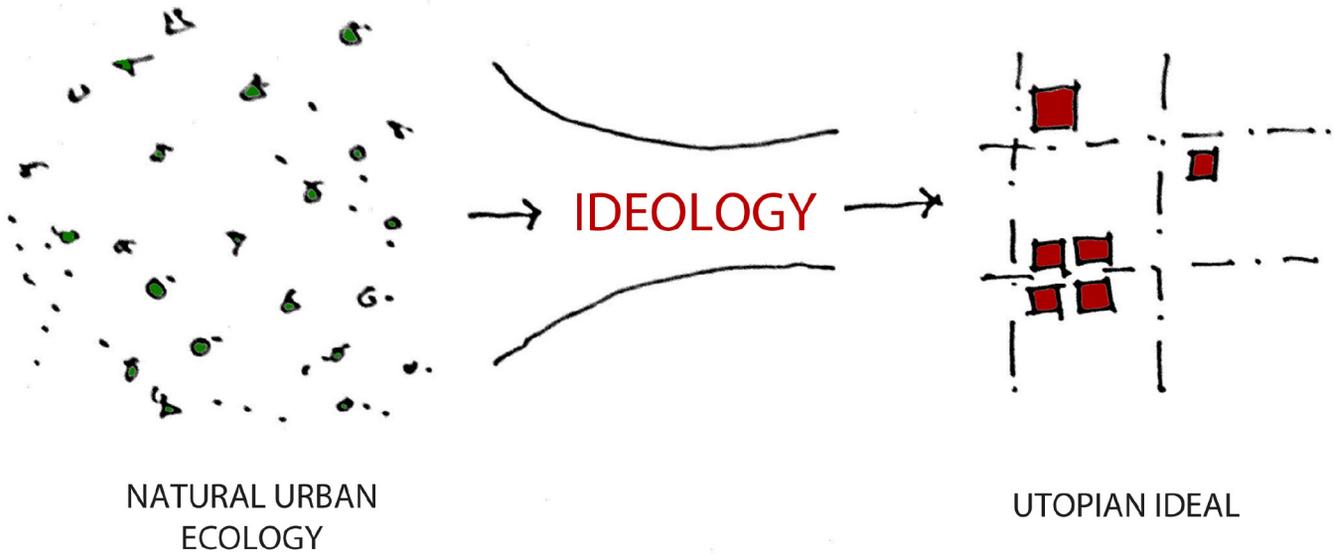*Figure 3.10: Insurgent Activity: Manifests in Marginal Space (Author 2015)*

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Figure 3.11: Entropy and the Utopian Ideal (Author 2015)

3.2.2 Rebel 2: Marginal Space – A Spatial Manifestation of Low Urban Entropy

Suspended within the urban fabric are spaces trapped in time. Left to be shaped by ''back-of-house'' requirements of predominantly pri-vately- and government-owned buildings. The formal identity of Pretoria as administrative capital, with residual tones of ideology, manifests from program to form and space, which results in a lack of public inclusivity and, in turn, generates incoherent architectural narratives and finally results in marginal (in-between) space. These spaces are seen as remnants of an ideology that was imposed on a city that otherwise would have strived towards increased levels of entropy, evidence of an unnatural or forced state of equilibrium. Trancik (1986), describes these ideologically borne forms as Urban Solids, and in particular, monuments or institutions.

These buildings are often free-standing, predominantly placed within open space, as if to proclaim their presence, where the open space it occupies, gets saturated with similar monumental meaning. Universal ideological symptoms responsible for the existence of such space include property relationships, limited public access, the deliberate disclosure of sites, urban aspects that become so familiar that that they are overlooked, forgotten or fail to be recognised anymore (Pile, 2000:264), all by-products of a city starved of unrestricted information flow.

Administrative and monumental characteristics, which describe the majority of architecture located in Pretoria's inner core, may also con-tribute to the formation of marginal space, based on the principle that these buildings effectively internalise urban information through the introverted nature of their programs. Practical environmental issues may also promote the formation of marginal space as permanent built forms such as clusters of high-rise buildings, generate uncomfortable urban environments by limiting natural light and producing zones of undesirable air quality. These spaces of ''dying ecologies'' carry with them a sense of resilience in how they allow themselves to be shaped as the city develops, whilst keeping their identity that can be described as being secret or lethargic.

The very practical and basic problem, and simultaneous opportunity which presents itself regarding marginal space, is the issue of urban den-sification. If future development strategies for the Pretoria model aim at upgrading its liveability and sustainability of its function, it should be considered that these marginal spaces - with their unique qualities of being unknown - should be incorporated into a strategy to contribute to-wards densification, as opposed to merely reinforcing the structure responsible for urban fracturing and furthering the process of urban sprawl.

Here marginal urban space is seen as a move towards providing more "inside space," as opposed to the mythical "outside space" that has been brought into existence by the mythical separation of society and nature (Latour, 2009:141) (Fig 3.12 & 3.13).

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REBEL 1: MARGINAL SPACE

REBEL 2: INSURGENT ACTIVITY

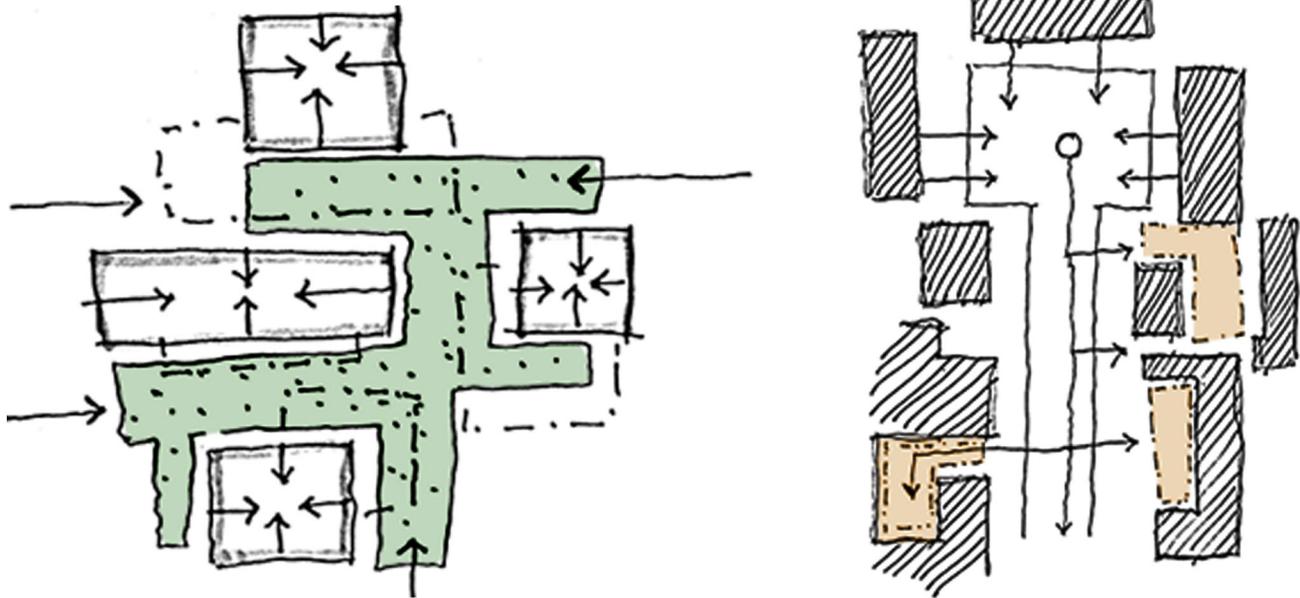*Figure 3.12: Marginal Space and Insurgent Activity (Author 2015)*

Figure 3.13: Marginal Space and Insurgent Activity Diagrams (Author 2015)

3.3 FLEXIBLE INFRASTRUCTURE AND ETHICAL ARCHITECTURE

Reconsidering the role of architecture in Pretoria's urban environment becomes a priority. It brings into reconsideration architecture's formalistic approach in the production and organisation of space.

This introduces the concept of a consumerist-orientated architecture, where architecture is freed from its formal concerns and empowered to serve a social and ethical function on a spatial domain to facilitate the development of urban-cultural identity.

The environmental feasibility of such a temporary architecture in the context of depleting resources and ecological impact is questionable, but it is proposed here that technological advances in the discipline should come to the fore in challenging how we think about architecture and extending the limits of what is possible in order to bring it into existence.The ethical and social responsibility of architecture is to highlight a society's values and to extract and reinterpret that society's existence (Harries, 2000:178). Melvin (2005), as cited by Da Costa and van Rensburg (2008), clarifies the societal role of architecture by stating that it has limited capacity in its resolution. However, Da Costa and van Rensburg implements the view of Da Carlo (2005), in saying that architecture may be implemented to provoke situations and create atmospheres where it may be useful in the production of societal expression (Da Costa and van Rensburg, 2008:50).

Harries (2000:287) further states that, the ethical orientation of architecture inevitably plays out in the public domain, where it should generate mediation for community.

Cuff (1998), as implemented by Da Costa and van Rensburg (2008), incorporates certain criteria as to measure the social impact of architecture in urban environments:

What function does this architectural object have in the establishment of an urban community?

Does the building type assume any role or serve a common ethos?

Does it reflect and renew any social order?

Does it insert any meaning into the urban environment?

(Fig 3.15)

Here it is implied that the meaning – to be inserted through architecture – is determined by the collective. Architecture is then only made relevant by the group of people to utilise its functions. (De Carlo, 2005:22 as sited by Da Costa and van Rensburg,2008:50) For city space to truly facilitate the organic, the constant influx ecology of human endeavour should shape the organisation of urban space rather than the fixed built form providing the constraints for life to flourish within its boundaries (Fig 3.14).

Figure 3.14 : Temporaty Architecture BMW Guggenheim LAB in Berlin, designed by Atelier Bow-Wow

## 3.4 ARCHITECTURAL THEORY: METABOLISM AND ARCHIGRAM

This architectural approach of flexibility and socio-economic absorption holds a lot in common with the principles applied in the metabolist movement of the nineteen sixties. During the years following Japan's devastation at the end of World War Two, the country experienced a massive and equally rapid rebuilding of its city structures, which resulted in urban environments resembling desperation rather than thoughtful space-making (Fig 3.16). Kiyonori Kikutake, one of the four founding members of the movement during the publication of their manifesto in 1960, described the life of their society as being suffocated by the urban graveyards it represents (Jones, 2014:455), consisting of outdated and unfriendly buildings only serving as a backdrop for traffic congestion. Of significance here is the vocabulary the metabolists embraced in dealing with urban environment that neglected human tradition and well-being, by indicating a social shift from collective communities to isolated individuals to regain a sense of identity in urban environments (Jones, 2014:455).

The movement quietly rejected the existing city, through proposals such as their vision for the Tokyo Bay (Fig 3.18), and orientated itself towards artificial ground of untouched platforms, floating structures over land and sea, lightweight residential proposals and tectonic skeletons that incorporated services and structural support into one blended language. Although the manifesto is said to only be infused with a passion for scientific pioneering, quite ideologically, it holds value in its views regarding how buildings and cities could embrace a culture's true traditions.
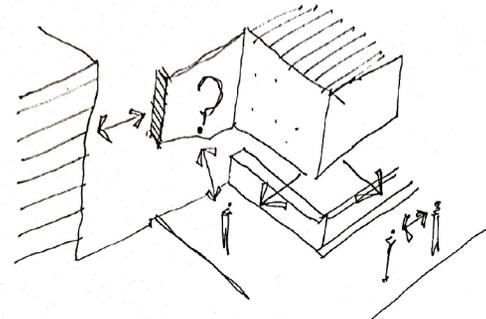
Figure 3.15: Social Impact Criteria (After Cuff 1998 Author 2015)
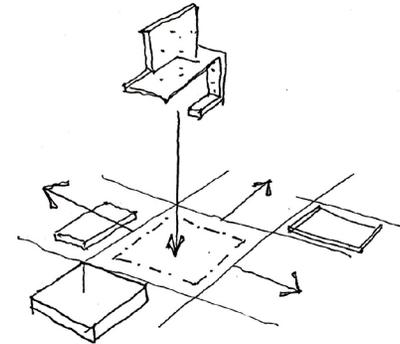
WHAT ROLE TO PLAY?
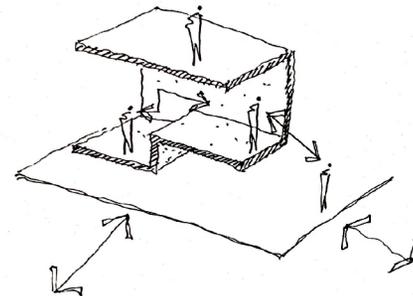
WHAT SOCIAL ORDER?

WHAT DOES IT MEAN TO THE URBAN ENVIRONMENT

Regarding human society as a living process, Metabolists believed that architecture should not only represent an acceptance of this process and all the processes that influence it, but in addition should encourage the active metabolic development of society through their proposals (Evers and Thoenes: 2006:776). This architectural theory introduced a condition where man gains and maintains control over his built environment and the technology it holds, empowering him to influence it rather than be limited to the inverse relationship.

The Metabolists argued that there should be an established relationship between new technology and a system of regeneration and that the architecture should be akin to this synergy. In their view, this would result in logical solutions to urban problems, as well as the control of automated technology and a culture of accelerated transformation (Evers and Thoenes: 2006:776). This theory had much to share with traditional Japanese culture, where architecture was viewed as more of a renewable variation of a prototype than a lasting monument (Evers and Thoenes: 2006:776).

This is quite reminiscent of the way in which current urban traditions in Pretoria readapt buildings and the spaces in-between to suit their everyday needs. Metabolist architecture then was to serve society by becoming alterable, whilst the available technology deals in making this consumerist architecture feasible. This approach reinforces the principles of sustainability beyond the ad hoc understanding of green architecture and relocates sustainability to where it may have complete synergy with principles of construction. Today this holds a lot of potential, considering that technology suited and made available for the built environment progressed quite a distance from the 1960s context of Metabolism, and consequently may provide architecture with an even more consumerist orientation.

Figure 3.16: Tokyo After Atomic Bomb Impact 1945

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3.5 Architectural Precedent: Nakagin Capsule Tower 1972 – Kisho Kurokawa 1934-2007 (Fig 3.19)

Built as a prototype to reflect the ambitions of the Metabolist movement, Kurokawa architecturally expressed the notion that a building should be designed and organised in such a manner that it could adapt over time with an adaptable programme that could be replaced to suit changing user needs over time. Translating the notion of artificial ground, architecturally the building was positioned onto a raised platform above street level, which emphasised the building as occupying in-between space in the city (Jones, 2014:455).

The building proposes that the structural and service infrastructure should represent a more permanent aspect of the design, whilst the architectural facilitation of the program could be altered and readapted over time, as needed. At the centre of the building two cores act as main structural support, as well as a framework for services, such as vertical circulation and utility mains (Jones, 2014:455).

The temporary aspect of the building was accomplished through the introduction of four models or types of capsules, much like shipping containers, that could be arranged and rearranged to suit the flexible program (Jones, 2014:455). As the more permanent structures, such as the structural service cores and the plinth, were constructed insitu, off-site prefabrication of the capsule units made the speedy construction of attaching the temporary units to the permanent core possible. This common thread of the in-between, the permanent and the temporary within the Metabolist approach is not confined to individual architectural prototypes alone, but also permeates the group's understanding of urban environments.

Figure 3.17: DNA Double Helix

Figure 3.18: Metabolist Proposal for Tokyo Bay

Often described as utopian, Metabolist urban planning strived to navigate the relationship between natural geography, primary mega (permanent) structures and periodically replaceable and individual components, much like the DNA double helix structure (Evers and Thoenes: 2006:776) and quite literally explored through the capsule and structural relationship found in the Nakagin Tower. Similar in their approach in dealing with the existing, and utilising architecture to make cities truthful and relevant for the times, Archigram intended for everyday life to inject relevance into the late modern architectural tendencies of their time.

"Only those imbued with respect and enthusiasm for today's wish-dreams can adequately implement them in the built environment (Chalk,C,1964-1966)."

(Evers and Thoenes: 2006:770)

Through establishing an urban philosophy where pop-art would enjoy synthesis with the aesthetics of science fiction, Archigram established a subversive and fresh approach in navigating existing and static built environments.

Much like the Metabolist movement, the Archigram movement favoured visions of free-floating, flexible, adaptable spatial structures, loosely based on Buckminster Fuller's "Dymaxicon" and the magnanimous lightweight roofs of Frei Otto, and blended these with the contemporary "everyday" Evers and Thoenes: 2006:770).

Their exhibitions and visions such as "The Living City", "Walking City" and "Plug-in City," inspired by science fiction and futuristic robotic utopias, expressed the drastic and revolutionary methods incorporated to alter urban perceptions and experiences (Fig 3.20).

Figure 3.19: Nakagin Capsule Tower 1972

The movement's choice of media – later to become their title – was an underground newspaper contrasting the conventional methods of communicating architectural ideas, and secured their subversive attitude with regards to making cities relevant and accessible to the contemporary city dweller Evers and Thoenes: 2006:770).

From a contemporary investigation into the work of Lebbues Woods, Pit, Streng and Steller (2007) translates this approach to architecture as parasitic in nature, where urban systems are distinguished into physical- and mental systems. The physical systems consist of the built infrastructure and static form, which compromise the urban fabric. Mental systems make up the expectations which exist in a society in constant-flux. Parasitic architecture can be appropriated as a mediator between the changes of society, and the staticness of urban systems, as the parasite is able to provoke, explore and to break down both physical and mental boundaries, which developed through juridical and policy notes, and to achieve new possibilities and propositions (Pit et al.,2007:8). This type of architecture, according to Pit, is orientated towards the experimental, as the parasite resembles a negotiator between different groups, and investigates and tests the amount of support available for proposed changes (Fig 3.21 - 3.22).

The main aim of such architecture is to overcome indifference, and provokes both resistance and acceptance of the proposed change it resembles, and, as in nature, parasitic organisms resemble rapid, passing and dynamic systems (Pit et al.,2007:8). The analogy of a parasite attaching itself to a host, in order to survive, offers an alternative perspective of the static city and the fluctuating human ecology it facilitates.

When parasite architecture attaches itself to its host-city, the urban immune system is set into action, activating a discussion between those who support the collaboration, and those who oppose it. Pit proposes that there are different strategies to be employed with regards to dealing with specific types of urban-immune-systems.

The Random Immune System:

This type of urban context resembles a city that deters any changes or fluctuations in the fabric that appears to be out of the ordinary. According to Pit, the default setting of the architecture found in this city is to reassure its users that things are under control; that they are stable and static, whilst obstructing the continually developing society housed within its fabric.

The monumental architecture, usually encountered in these environments, refers to an ideal universe in equilibrium (Pit et al.,2007:8), as opposed to the real-life phenomenon of rising entropy. This type of environment, according to Pit, provides parasitic architecture with the potential to achieve maximum immune- provocation (Pit et al.,2007:8).

Through the investigation into architectural theory and precedent it becomes clear that, by utilising existing urban infrastructure, as well as establishing a relationship between permanence and temporariness of building elements, a valid method can be established in reclaiming the identity of urban space for the everyday user.
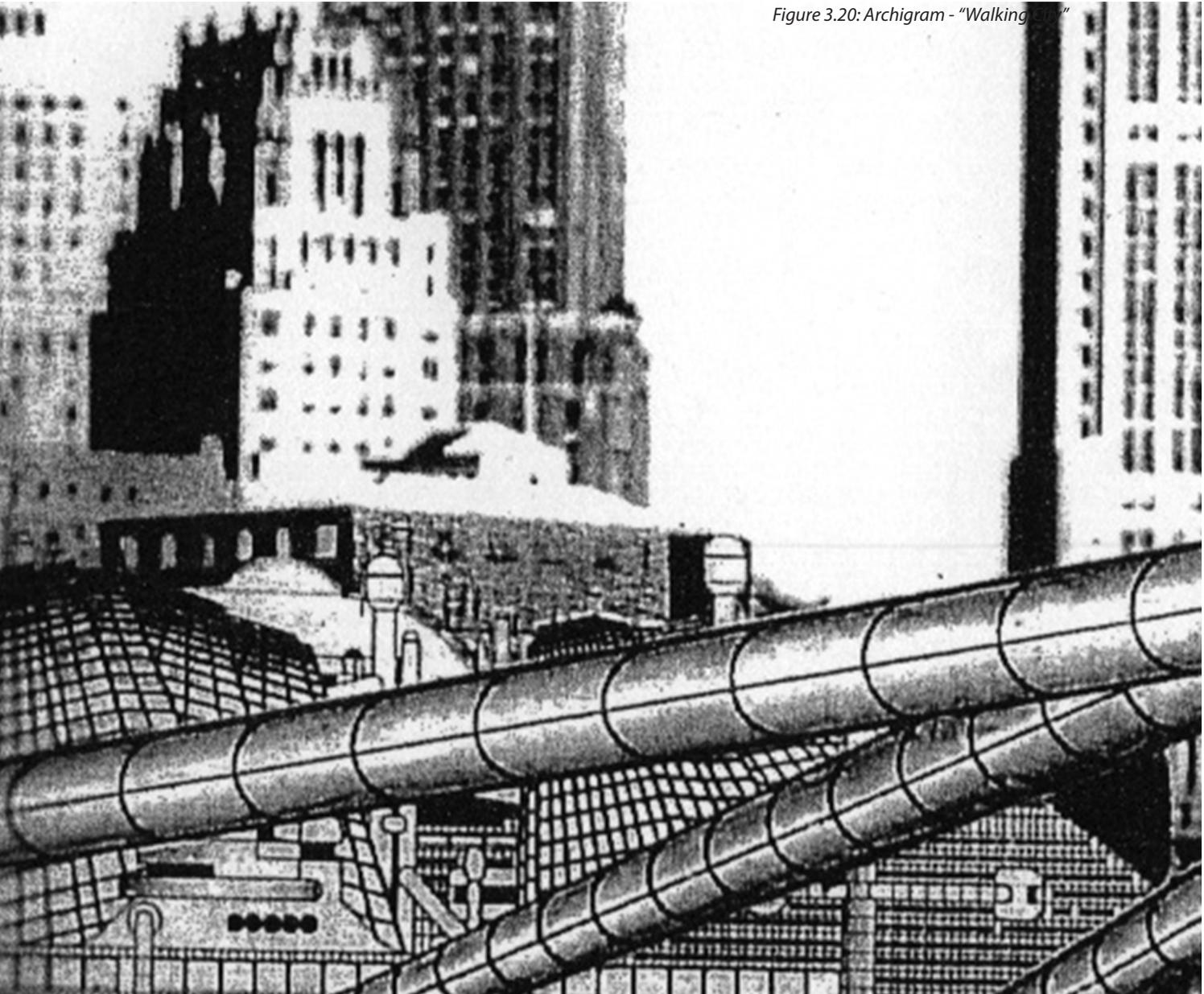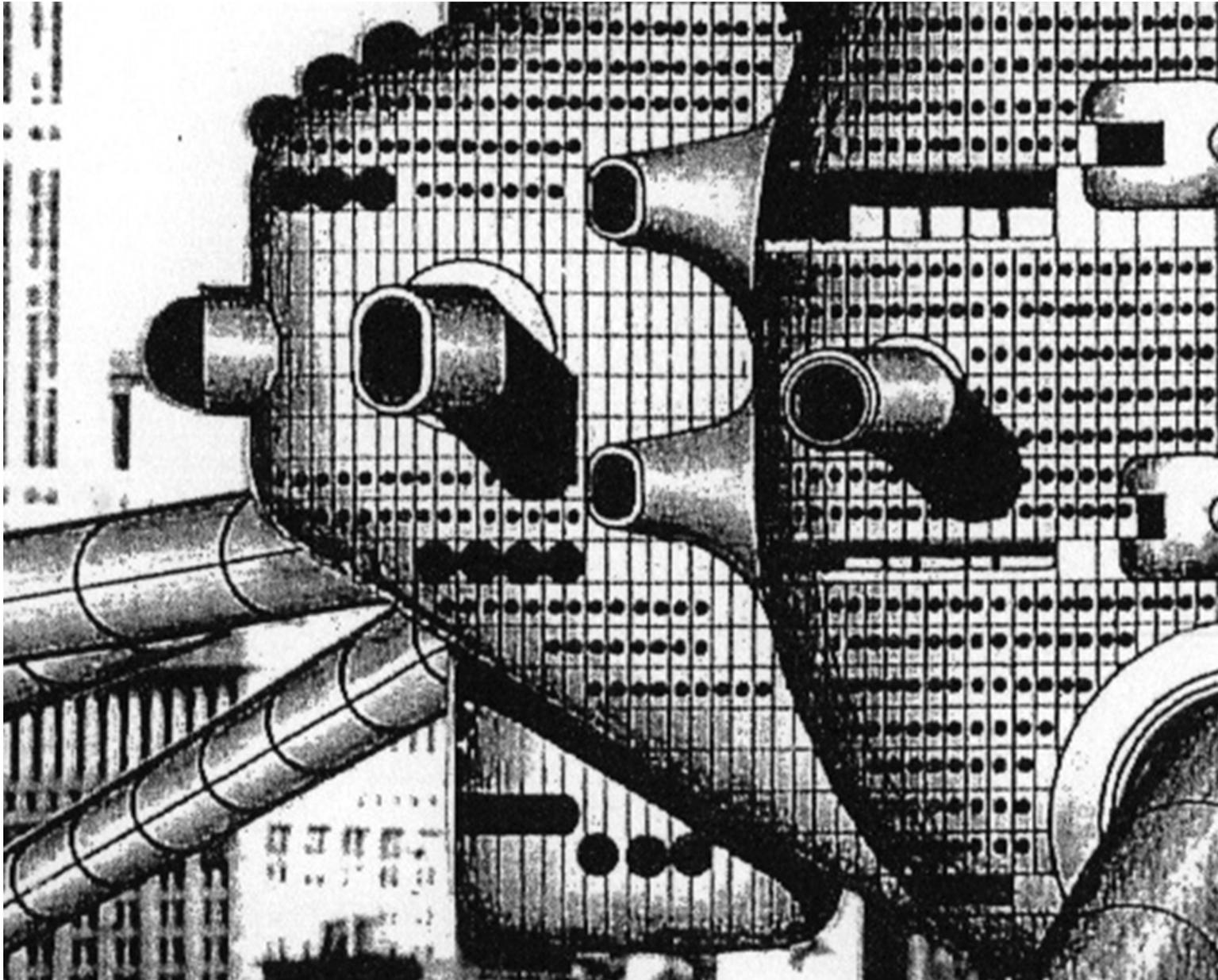
65

Figure 3.20: Archigram - "Walking City"

3.6 CONCLUSIONS

The dissertation does not aim to establish a dialogue between marginal space and insurgent activity, but rather recognises the already-existing relationship between these two indigenous phenomena. As such the strategy is based on an existing and everyday response to Pretoria's urban condition - already in effect within the city - and proposes an extension or amplification of these trends as the main approach towards developing the aims of urban identity and renewal. It therefore avoids the pitfalls of introducing a new utopian ideology into the existing urban framework.

The role of architecture in this context then becomes one of furthering the expansion of insurgent activity through readaptation and increasing the accessibility of marginal space. Through the theoretical investigation it is apparent that architecture of a more temporary and flexible nature can aid in the activation of marginal space by providing the user with higher levels of inclusivity as an alternative to the static permanence that formalistic and mono-functional architecture provides.

Various technological strategies come to the fore as the main driving agent to make such an intervention feasible. Site selection will be determined to meet the criteria of where marginal space and insurgent activity overlap or find synergy, where a conceptual approach will be developed to provide an extended catalyst for this synergy to flourish in Pretoria.

Figure 3.21: "ZAGREB FREE ZONE" Lebbeus Woods, 1991

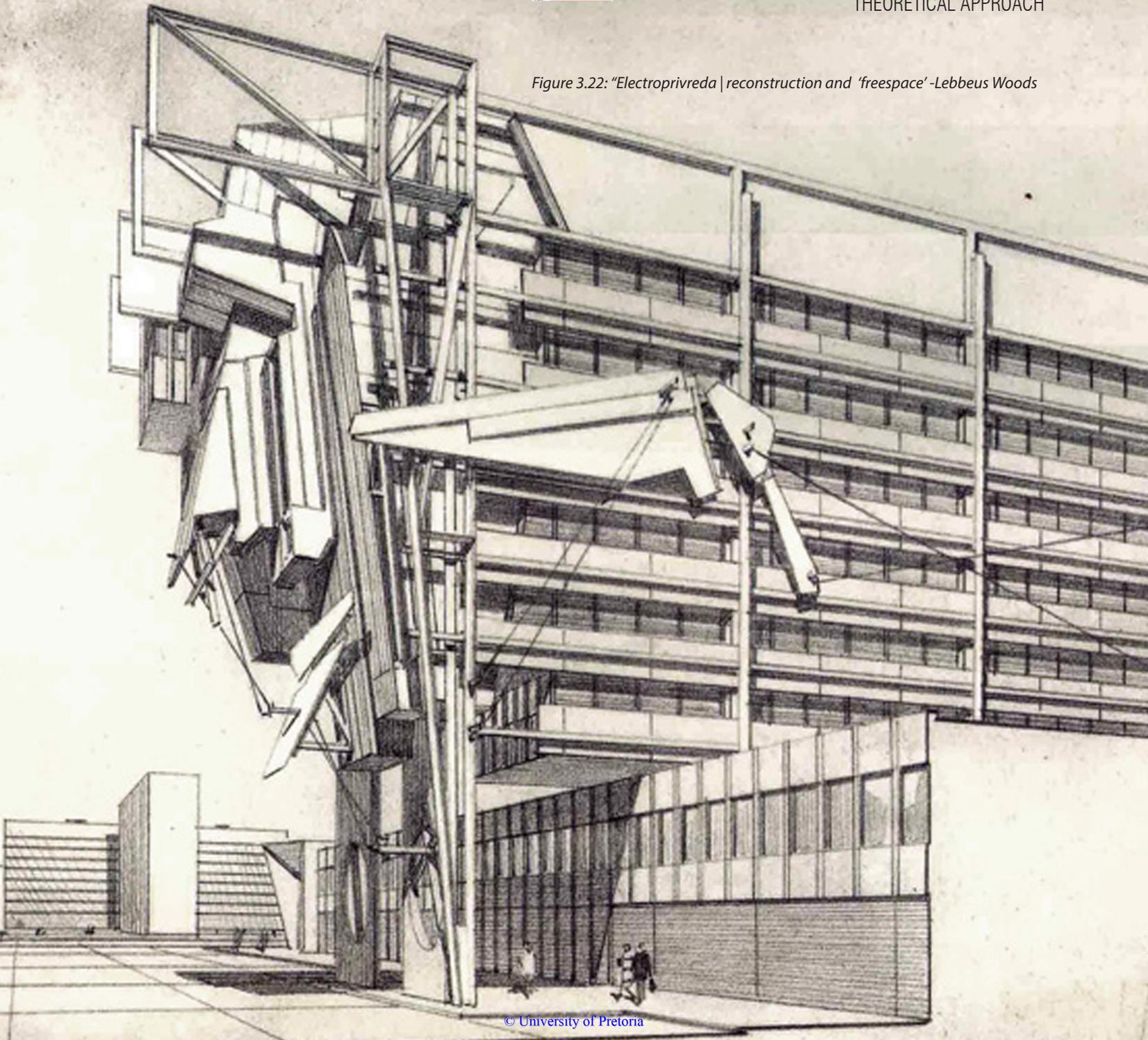*Figure 3.22: "Electroprivreda | reconstruction and 'freespace' -Lebbeus Woods*

Figure 4.1: Site Author (2015)

IV

SITE

4.1 INTRODUCTION

The aim of this chapter is to explain how the choice of appropriate site, developed as a collaboration of considering the urban context and theory, as to develop and strengthen an overarching architectural concept.

4.2 "Inner City Sprawl": An Urban Strategy

The inevitable and continual expansion of Pretoria and the subsequent decrease of energy and social capital of the urban core are in danger of being amplified through further infrastructural and governmental emphasis. If urban governance is to utilise social networks of urban in-novation to bolster ecosystem services, whilst enabling discussions that place the city within the boundaries of regional ecosystems (Alfsen, 2010:531), an alternative reading and experience of the urban scope is required to make these social networks clear. In other words, definite form will continue to overpower indefinite activity if the latter is not allowed to impact on the former. Such a disproportional urban model runs the risk of not being able to capitalise on the diverse base which ''informal'' urban activity offers, aiding urban planning in generating good and current condition-specific places for the development of human livelihoods.

In such a model, the provisional public space represents an afterthought, the surplus of modernist and ideological city planning, to be seen as good enough for the everyday user. In this sense, it reflects the dominance of definite form over indefinite social activity, which is made evident in the limited range of alternative space made available for public use. Where insurgent activity resembles an urban reaction against low levels of entropy, or a lack of information free-flow, marginal space becomes the symptomatic spatial condition as a result of such an urban model.

The similarity in origin regarding both these urban phenomena provides possibility for strengthening a relationship between marginal space and insurgent activity as an alternative strategy. Memarian and Niazkar (2014) proposes that lost spaces are to be harnessed and implicated into a design process, with the aim of responding to the primary demands of contemporary society as well as future demands. These spaces offer an interactive sensibility and responsibility which does not propagate a definite rule or ideology (Memarian and niazkar, 2014:312).

As a counterstrategy to this scenario, the notion of "inner city sprawl" is introduced. This strategy intersects three symptoms of the oblique model, namely marginalised user, activity and space, with the aim of imploding the urban built and social fabric at strategic locations. Site-specific micro implosions further aim at establishing communication with other sites geared towards the same strategy, each implosion in synergy with the specific nature of its associated marginal space, to increase diversity of networks and to generate a subversive framework of an alternative urban experience (Fig 4.1).
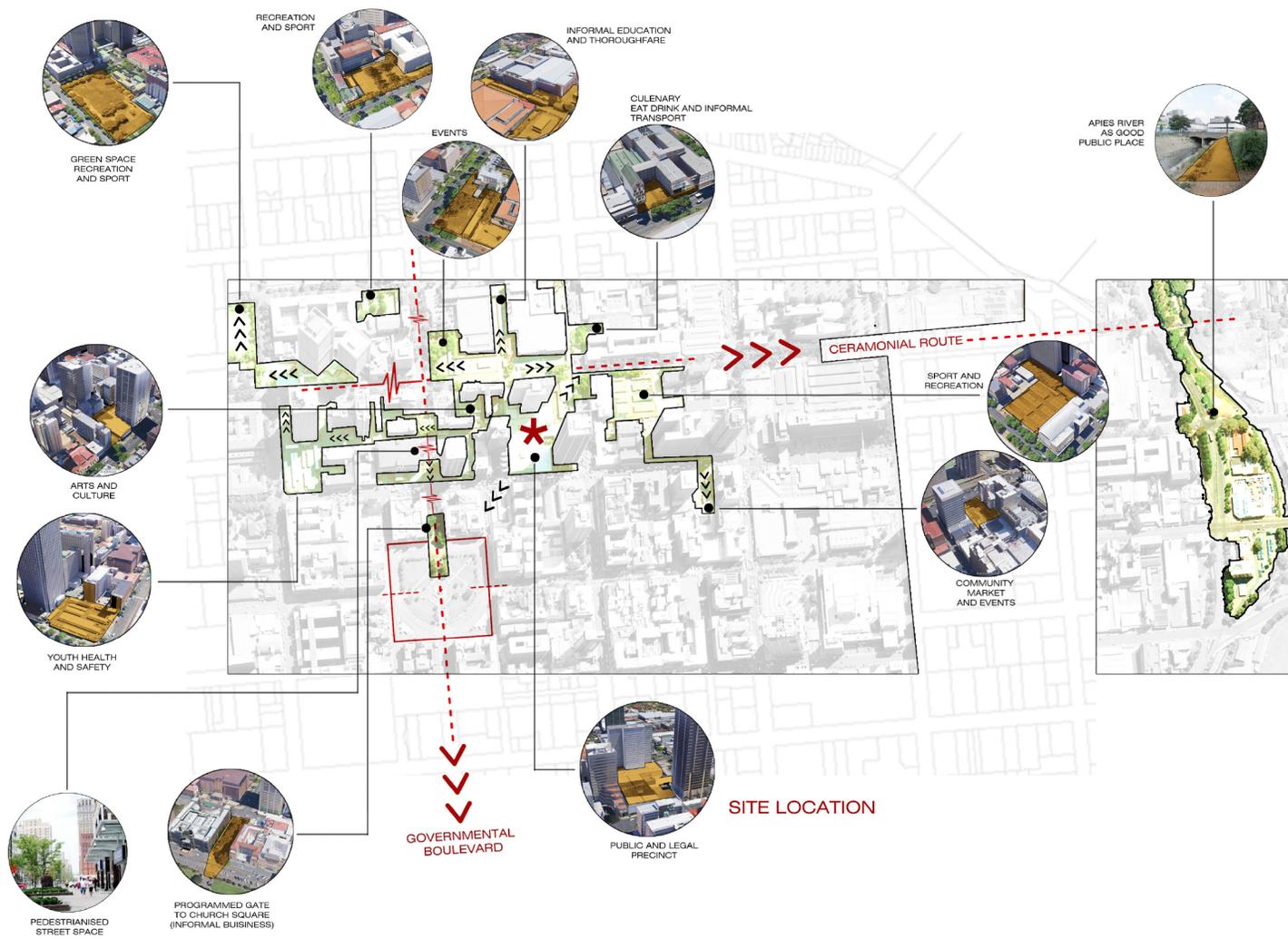
Figure 4.2: "Inner-City-Sprawl" (Author 2015)

GREEN SPACE
RECREATION
AND SPORT

RECREATION
AND SPORT

INFORMAL EDUCATION
AND THOROUGHFARE

CULENARY
EAT DRINK AND INFORMAL
TRANSPORT

APIES RIVER
AS GOOD
PUBLIC PLACE

EVENTS

ARTS AND
CULTURE

CERAMONIAL ROUTE

SPORT AND
RECREATION

YOUTH HEALTH
AND SAFETY

COMMUNITY
MARKET
AND EVENTS

GOVERNMENTAL
BOULEVARD

SITE LOCATION

PEDESTRIANISED
STREET SPACE

PROGRAMMED GATE
TO CHURCH SQUARE
(INFORMAL BUISINESS)

PUBLIC AND LEGAL
PRECINCT

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Figure 4.3: Site Selection (Author 2015)

TRANSPORT INFRASTRUCTURE
FUTURE DEVELOPMENT
STEADY DETERIORATION
PLACES OF FRICTION

Where conventional urban planning deals with physical densification, this strategy holds at its core the densification of social capital, utilising architecture of a more temporary nature to achieve a catalytic reaction that may expand beyond boundaries of pure and formal urban control. In a sense this could be likened to filling the gaps with flexible social matter – an urban expansion joint - that will further shape the environment they are penetrating, testing the resiliency of these environments and providing an urban barometer that will gauge design decisions.

4.3 SITE SELECTION

The selection of an appropriate site to deploy such a strategy rests heavily on the criteria that marginal space and insurgent urban practice should intersect, or indicate signs of such an intersection (fig 4.2). As concluded from the theoretical investigation, the intervention aims at an extension of insurgent practices infiltrating marginal urban space (fig 4.3). It is proposed that, due to its monumental and ideological character, Church Square - the main provisional public space in Pretoria's CBD – is considered, due to poor public interface at its edge conditions.

Due to this condition, social activity tends to migrate towards the east- and north-eastern quadrant from the city centre, where it manifests as insurgent activity on street edges and within street recesses (fig 4.4). A fractured spatial assembly around Church Square offers marginal space clusters to be investigated as possible sites for intervention. The programmatic structuring of buildings in this vicinity is mainly orientated towards legal and governmental purposes, which provides little or no ground floor and pedestrian street interface, and deters social interaction within the precinct.

The vast and monumental qualities of Church Square, drain the space of public activity and channels energy eastward towards Sammy Marks Square and the State Theatre precinct, where it accumulates in more intimate and defined pockets or enclaves. Low built density reveals itself within the interior of city blocks, such as open parking lots and plinth surfaces. Roofs of basement parking lots acting as service space to high-rise government and legal buildings represent wasted space in-between these buildings, closed off to provide private parking for legislative and government staff.

As Church Street extends to the east, it offers a favourable shopfront-lined pedestrian spine, which facilitates the formation of informal markets, aided by a double row of trees lining the interior spine. Ground-floor interfaces include clothing outlets, banks and fast-food restaurants, which create pleasant thoroughfares. Traversed by streets active with informal transportation, the spine links the markets at the State Theatre recess, Sammy Marks Square and Mall, where it eventually terminates perpendicular with Sisulu Street, a major transportation node. This experience is reinforced by the occasional access into arcades linking Church Street with Bureau Lane, providing diverse routes which stimulate small businesses to feed off increased pedestrian activity.

This pedestrian energy tends to filter into and circulate around Church Square within a two- to three block radius, with emphasis on its eastern flank (fig 4.5). This space resembles the only street within the city centre that offers such an urban experience, providing a lot more urban vibrancy as found on Church Square. As additional criteria for site selection, it is deemed fit to readapt a marginal pace within this precinct, with the aim of reinforcing this urban energy's sphere of influence.

4.4 MICRO CONTEXT

In order to develop a responsive conceptual approach, a comprehensive analysis of the specific site under investigation is required in order to extract possible concept informants. This will be dealt with through an investigation of the following:

How the site came to be associated with the characteristics of marginal space.

Site potential and interpretation.

Mapping the existing materiality and program function within the city block.

4.4.1 Causes of Marginalisation

Strict measures motivated by security concerns resulted in all access points to the block to be closed off. The spaces in-between buildings have been appropriated for private parking purposes, despite the availability of multi-storey basement parking facilities within the block, which generate increased security concerns. As per the macro model, the bureaucratic and programmatic nature of these buildings ensures that the need for social public access is of little concern, limited to official use only, which in turn keeps public activity limited to the street exterior of the block (fig 4.6 &4.7).

The roof surface of the parking lot serving the employees housed in the respective buildings mainly acts as service space for these buildings in terms of air-conditioning units and vertical access lighting. Parking privileges within the lot are reserved for employees only, therefore its interior, as well as the roof surface, remains inaccessible to the public.

The courtyard and thoroughfare, linking Madiba and Thabo Sehume Streets via an enclave around the National Treasury Building, is currently closed off at Sehume Street.

Combined with the administrative program located within this thoroughfare, it reveals little public interest, despite its obvious potential as an alternative to narrow sidewalks for pedestrians to orientate themselves in and around the precinct. Further motivation for the marginalisation of the plinth may also include the environmental challenges, with special regard to poor solar access into the space. This aspect will be analysed in greater detail within this chapter.
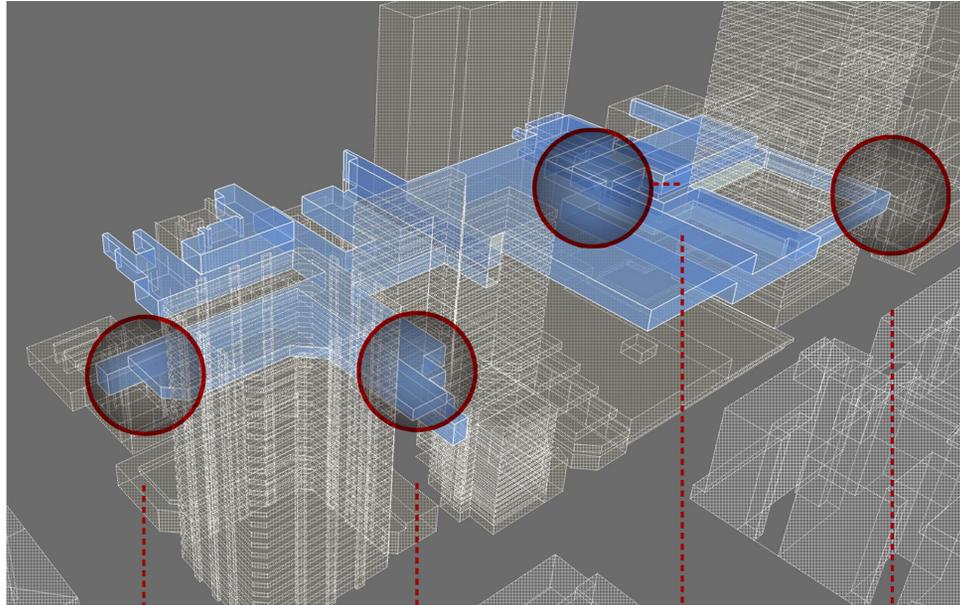
POOR
MANAGEMENT
OF VEHICLE STORAGE

EXCLUSIVE
PROGRAMMES
AUTONOMOUS INFLUENCE

INACCESSIBLY OF
LOFT SPACE

CLOSING
THOROUGH FARES
AND PRIVATE
COURTYARDS

Figure 4.4: Causes of Marginlaisation Continued (Author 2015)

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4.4.2   Site potential and Interpretation

4.4.2.1 Programmatic Analysis

The city block under investigation does not represent the typical programmatic typology found in this precinct of the CBD. An eclectic mixture of programmes ranging from legislative, departmental and private education to a mosque, residential and small businesses located at ground level provides a diverse base for intervention.

Located within the city block, the intervention focuses on the marginal city plinth located between buildings housing the respective institutions of the North Gauteng Advocates Association, Department of Home Affairs (head quarters) and National Treasury (fig 4.8).

4.4.2.2 Spatial Analysis

The placement and size of the plinth provide the site with unique characteristics to be exploited for the purpose of furthering the expansion of insurgent practices (fig 4.9-13). A significant contrast exists between the cramped sidewalk and the vast open void of the plinth located some 5m above street level, of which the effect can only be observed upon entering the courtyard arcade, accessing the plinth and by viewing the site from opposite Vermeulen Street.

Figure 4.5: Spatial Analysis (Author 2015)

NEW COURT CHAMBERS
SMALL BUSINESS
MOSQUE
RESIDENTIAL
INDEPENDENT SCHOOL
RESIDENTIAL
HOME AFFAIRS
NATIONAL LIBRARY
PARKING LOT
SEHUME ST
FAST FOOD

RAMOKHOASE ST <<
RAMOKHOASE ST >>>>>
MADIBA ST >>>>>
MADIBA ST <<<

LAW SOCIETY
HIGH COURT
PAUL KRUGER ST <<
DPT ARTS & CULTURE
OLD PRINTING PRESS
PRETORIA NEWS
EUREKA FACTORY
TRIBECA
PRETORIA BAR
COMMERCIAL
NATIOAL ARCHIVES
NATIONAL TREASURY
SEHUME ST <<
CHRISTIAN COLLAGE
BANK

Figure 4.6: Site Context (Author 2015)

79
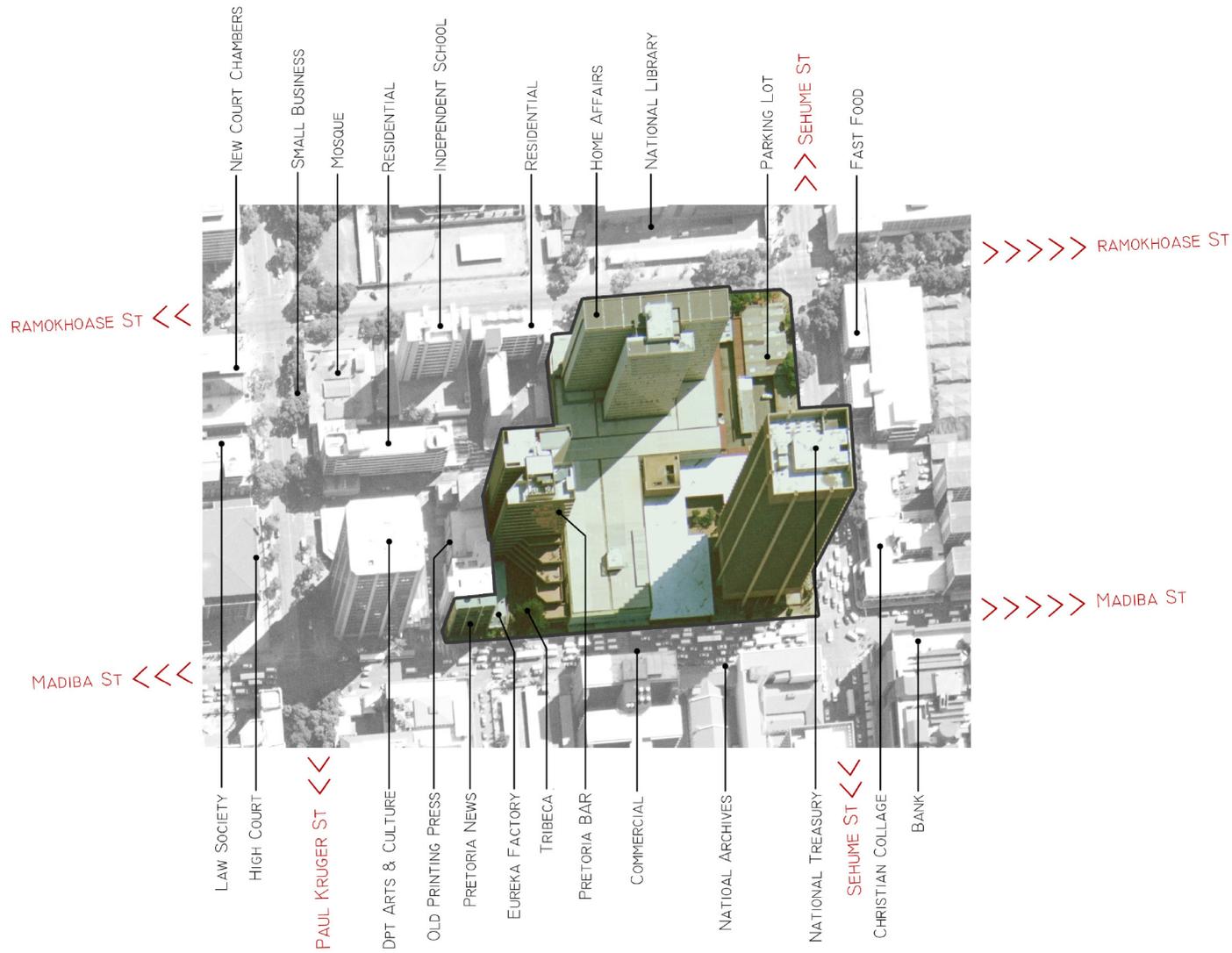
The hidden nature of the plinth site, as well as how to strategically reveal this effect without destroying its lethargic character, becomes the main concern regarding the design.

The existing courtyard provides a unique break in the busy sidewalk activity and is to be activated by providing its defining plinth edges with public activity. A garden defines the central point within the courtyard and provides the space with a less strenuous atmosphere when compared to street activity. Possible for access onto the plinth would be made possible through the adaptation and re-opening of the street-level courtyard and thoroughfare, currently closed off at Thabo Sehume Street.

From the plinth, unique and previously inaccessible vistas into the city become possible and would provide the public with "special" spatial privileges as an alternative to vehicular-dominated street circulation routes.

The raised platform also provides a suitable environment to incorporate the Metabolist principle of artificial ground into the project as an approach to the social renewal of the precinct. The natural public-to-private hierarchy offered by the progressive vertical extension of the site provides opportunity for diverse programmatic structures to be appropriated to the site.
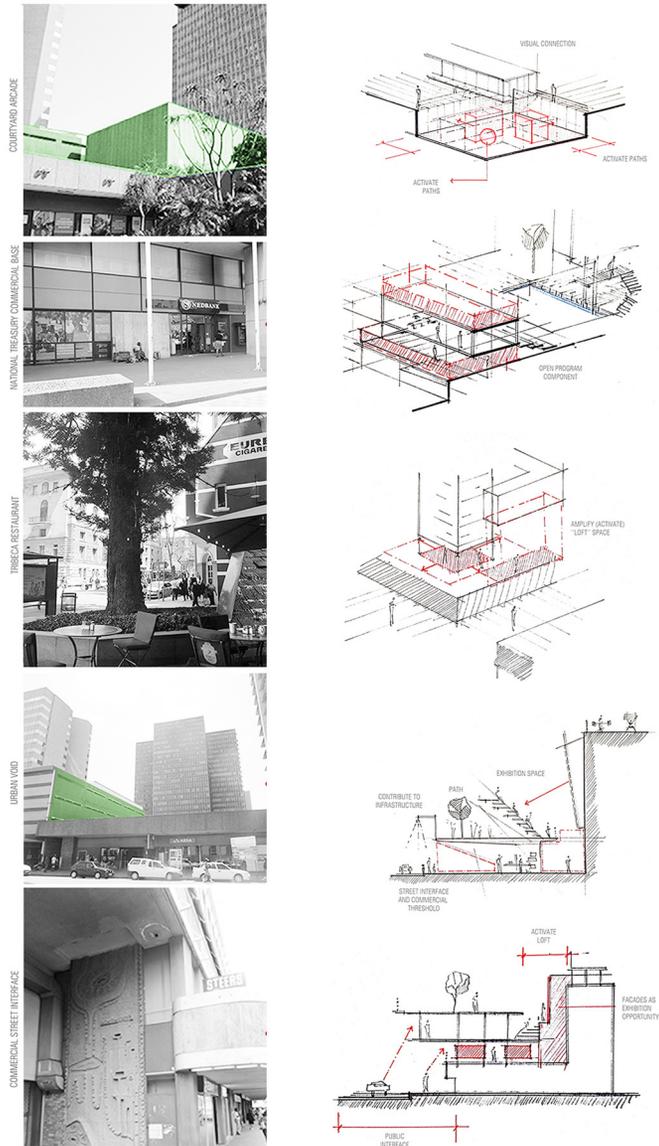
Figure 4.7: Site Potential (Author 2015)

Figure 4.8: Site Elevated View (Author 2015)

The high-rise character of buildings moulding this empty space provides a sense of recluse and escape from the busy vehicular traffic typical of Pretoria's inner core. Here the importance of the everyday public could be emphasised by raising associated activities above the city. This aspect also provides the benefit of security in terms of passive surveillance from the onlooking buildings already present and further implies that the intervention should be of such a nature that it improves the aesthetic experience of current inhabitants able to view the space from above. Design considerations in altering the plinth condition should also benefit user experience, as perceived from the existing and onlooking buildings, as their current daily experience of the plinth represents a lifeless and autonomous void.

4.4.3 Mapping Site Materiality

The materiality and texture of the site can generally be described as robust. Narrow paved or concrete sidewalks, typical to the precinct surrounding Pretoria's urban core, is the only barrier separating vehicles from pedestrian- and ground-floor building interfaces. Paving continues into the courtyard thoroughfare, with the exception of altering paver pattern and colour, distinguishing its function from that of the sidewalk and street.

Building facades in the vicinity reflect a similar robust, and to some extent harsh, interface with regards to exterior finishing. Fluted concrete block walls, fair-faced and concrete, as well as exposed or adhesively applied aggregates, give amplified effect to the internalised function of the surrounding buildings. Combined with this effect, existing building facades are limited in terms of glazed a surface, which are mostly reflective and only adds to the exclusive nature of the site.

What is referred to as "plinth" currently performs no greater purpose than that of a roof structure for parking within the precinct. As a concrete roof, the lower-level plinth, in its current condition, is waterproofed and does not reflect a pleasant texture for pedestrian activity.

The autonomous effect of the finish generates a lifeless colour balance, with the added problem of intense glare when exposed to harsh sunlight. Some attention will then have to be paid to the maintenance of the robust qualities of this surface, whilst increasing the aesthetic and public performance of the plinth.

A light structural steel-framed roof, covered with profiled roof sheeting, defines the upper plinth level, or roof, as non-structural and is likewise inaccessible to major public use. The surface also adds to unwanted glare, and provides a bothersome effect with regards to the everyday activities housed within existing high-rise buildings on site. The partial removal of the roof structure is therefore proposed so as to gain access to the structural concrete floor, which currently acts as the uppermost parking level of this structure.

STONE WORK

WATERPROOFING

CONCERETE FRESCOS

SOLAR LOUVRES
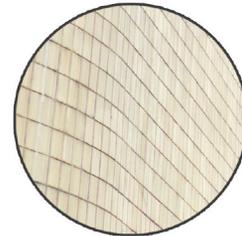
CONCERETE TILED PAVERS

STEEL ROOF SHEETING

CONCRETE CLADDING

PAVERS

TILE CLADDING

FLUTED CONCRETE
COLUMNS

STEEL FRAME
GLAZING

EXPOSED AGGREGATE
CONCRETE CLADDING

Figure 4.9: Site Materiality (Author 2015)

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4.4.4 Climatic Analysis

4.4.4.1 Solar Analysis

Due to the high-rise nature of surrounding built fabric within the city block, a solar analysis was done to establish the optimum building placement onto the plinth, as well as to establish the optimum height at which the structure could function effectively. It was discovered that the Department of Home Affairs building overshadows the majority of the plinth surface. This poses possible challenges in dealing with passive solar heat gain during the winter months, although early-morning sunlight enters the site during winter months. Notwithstanding, this same condition presents itself an opportunity to be exploited for cooler building conditions during the summer months, especially due to the high-mass plinth surface that otherwise would have had maximum daily exposure to heat gain from early in the mornings during summer months.

4.4.4.2 Precipitation Analysis

Studying the monthly rainfall in the region serves the purpose of establishing the feasibility of orientating the building towards sustainable systems, such as rainwater harvesting. This site analysis process at an early stage is to ensure that provision for such a self-sustaining system is integrated into the design process so as to avoid an ad hoc attempt at sustainability. The data indicates a year-round availability of rainfall for the Pretoria region. Calculations to estimate the feasibility of a rainwater harvesting system will be conducted during the technological resolution of the intervention, as well as an investigation into urban variables that might affect such a system. The project intends to investigate the management of a rainwater harvesting system in order to reduce the project's dependence on existing infrastructure, as well as to consider the economical feasibility of sustaining the building.

4.4.4.3 Wind Analysis

A basic understanding of how airflow might enter the site, as well as how it is altered by surrounding buildings, is required in order to establish any possibilities of increasing natural ventilation into the building envelope. The importance of this mechanism is furthered due to the fact that the high-mass qualities of the plinth may cause air passing over the existing surface to heat up. This will require design proposals to implement strategies to counter this effect.

WINTER SOLCTICE 12.00

WINTER SOLCTICE 09.00

Figure 4.10: Sun Path Analysis Winter Solctice (Author 2015)
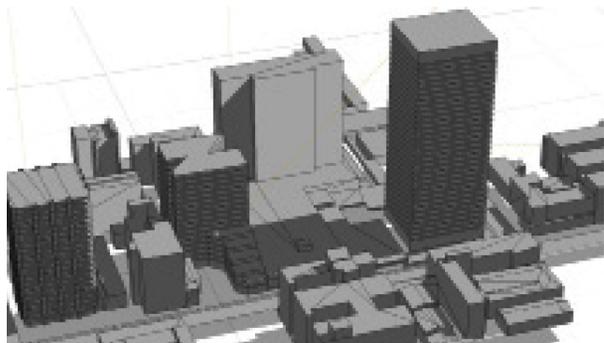
SUMMER SOLCTICE 09.00
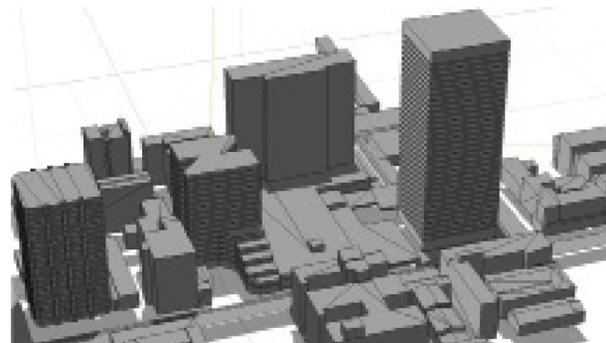
SUMMER SOLCTICE 12.00

Figure 4.11: Sun Path Analysis Summer Solctice (Author 2015)
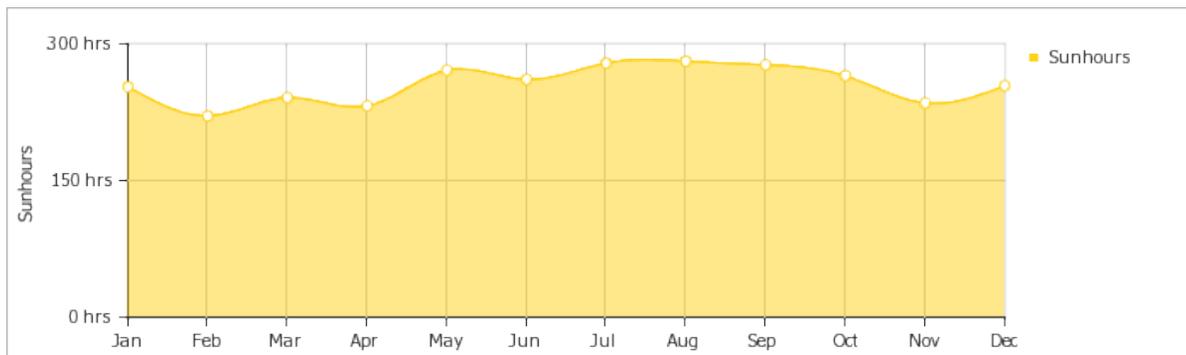
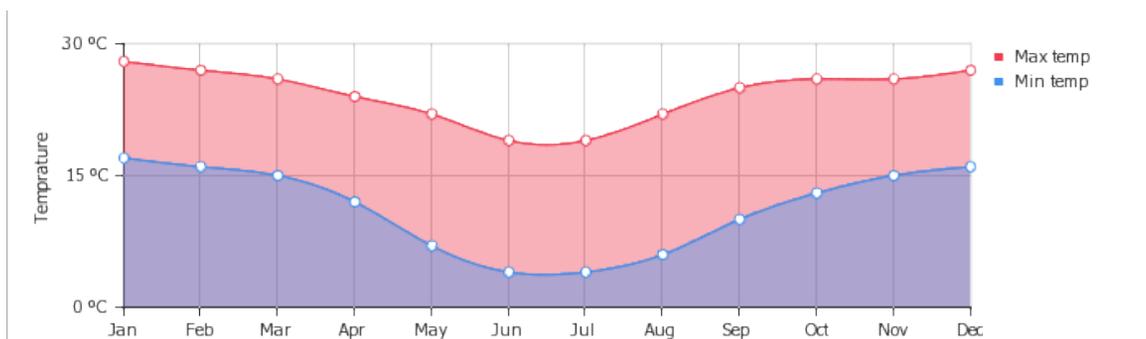*Figure 4.12: Pretoria Monthly Sunhours*

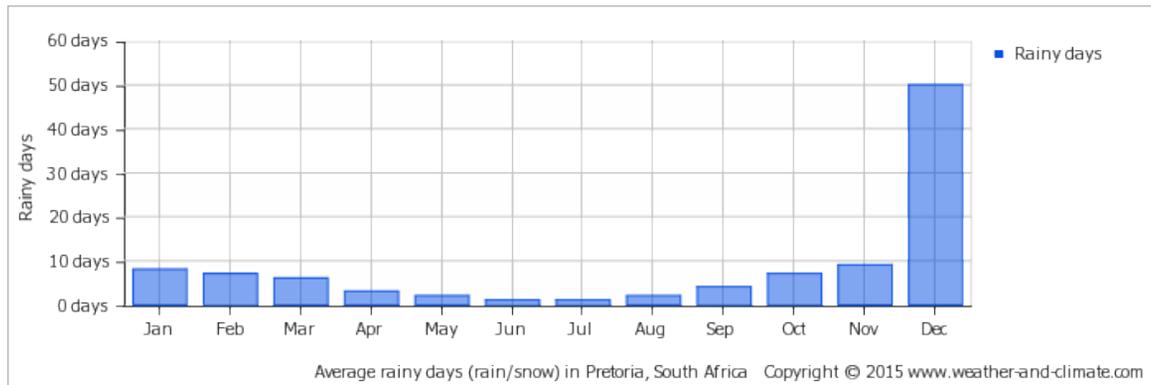*Figure 4.13: Pretoria Average Maximim and Minimum Temperatures*
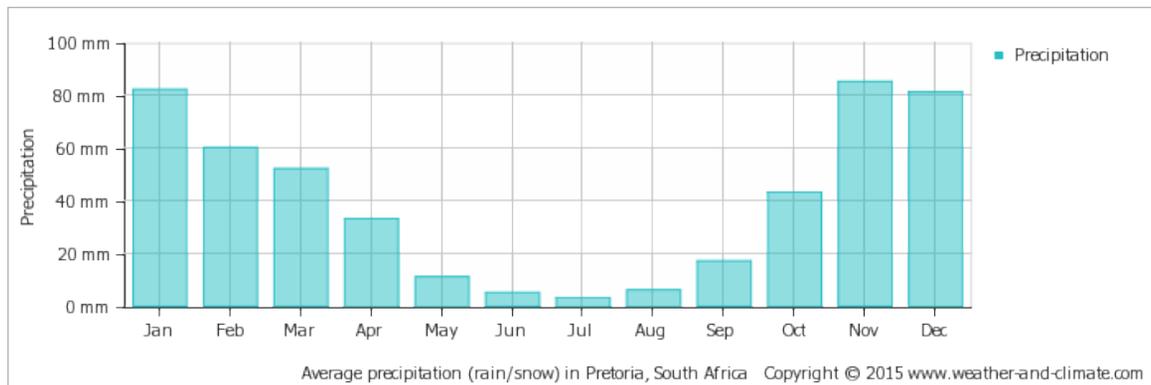
Figure 4.14: Average Rainy Days for Pretoria

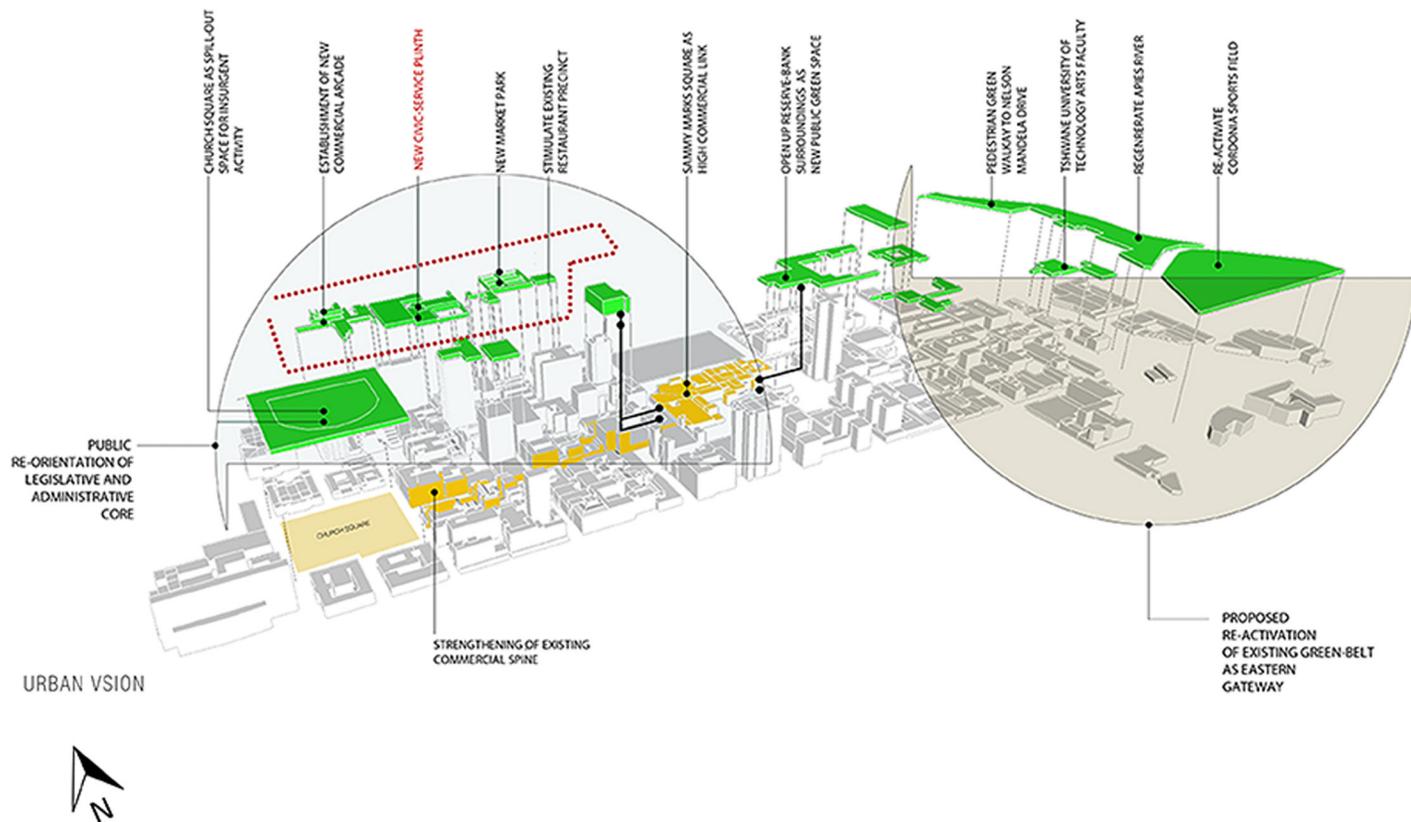*Figure 4.15: Average Precipitation for Pretoria*

CHURCH SQUARE AS SPILL-OUT SPACE FOR INSURGENT ACTIVITY

ESTABLISHMENT OF NEW COMMERCIAL ARCADE

NEW CIVIC-SERVICE PLINTH

NEW MARKET PARK

STIMULATE EXISTING RESTAURANT PRECINCT

SAMMY MARKS SQUARE AS HIGH COMMERCIAL LINK

OPEN UP RESERVE-BANK SURROUNDINGS AS NEW PUBLIC GREEN SPACE

PEDESTRIAN GREEN WALKWAY TO NELSON MANDELA DRIVE

TSHWANE UNIVERSITY OF TECHNOLOGY ARTS FACULTY

REGENERATE APIES RIVER

RE-ACTIVATE CORIDONIA SPORTS FIELD

PUBLIC RE-ORIENTATION OF LEGISLATIVE AND ADMINISTRATIVE CORE

CHURCH SQUARE

STRENGTHENING OF EXISTING COMMERCIAL SPINE

PROPOSED RE-ACTIVATION OF EXISTING GREEN-BELT AS EASTERN GATEWAY

URBAN VISION

N

Figure 4.16 Urban Vision (Author 2015)

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4.5 URBAN VISION

The site is to be readapted for insurgent urban activity do develop and activate the plinth site as a public component within the city precinct, while stimulating public activity to its currently introverted peripheries. Access to the site is to be determined by the nature and intensity of its surrounding public activity. The southern axis of Vermeulen Street is regarded as a formal route, as defined movement connecting the legislative, administrative and corporate functions housed along both its edges. In keeping with the formal nature of Vermeulen Street, access to the site via this axis will be less socially-activated.

It is proposed that the existing Eureka Factory building – currently used as a library by the high Court Chamber – is to be incorporated into the current public street-activity which occurs within the enclave shaped between the Eureka Factory and the Tribeca diner. The public activity which occurs in this space holds significant value in terms of the interaction between various empoyess and professionals of the high Court Chambers, Pretoria News and Court staff, which occurs within its boundaries.

The Eureka Factory is therefore to be re-orientated towards a more public function, allowing public to access its heritage value in an informal manner, whilst expanding the inter-disciplinary activity it represents.

To capitalise on this diverse energy, the ground floor of the plinth will be re-appropriated into a lobby, accessible from the side-walk level, where users will gain access to the more public orientated plinth surface via reception, stairs and lift. Thabo Shume Street - the eastern edge of the site-constitutes a more informal route.

Movement located along this axis connects the National Library, to the north, with various fast-food restaurants and small businesses to the eastern edge of the street.

The northeastern corner of the site, currently a low functioning parking facility, is to be readapted to establish a green-market-space that will feed of the informal program of small restaurants and the lack of comfortable public space provided by the National Library.

As the city centre drastically lacks public green-space, this corner will provide the precinct with a relaxed environment where users could gather in-between work, and aims at stimulating the business of the nearby restaurants, by providing consumers with a favourable environment to enjoy meals. The market-park will provide an informal threshold onto the plinth site via a ramp, where the market will extend onto the plinth, where users will gain access to a sports-court and Department of Home Affairs services.

To its northern edge, the plinth is to establish a visual link between the activity of Johannes Ramokhoase Street and the public activity proposed on the plinth. The The Masjid Sultan Abdul Hamid mosque, located on the northwestern corner of the site, provides both Paul Kruger and Johannes Ramokhoase Streets, with regulated intervals of public activity, as determined by the weekly prayer schedules. This energy is to be capitalised upon by drawing activity from these streets into the proposed green-market-space, and to activate activity on both sides of Johannes Ramokhoase Street.
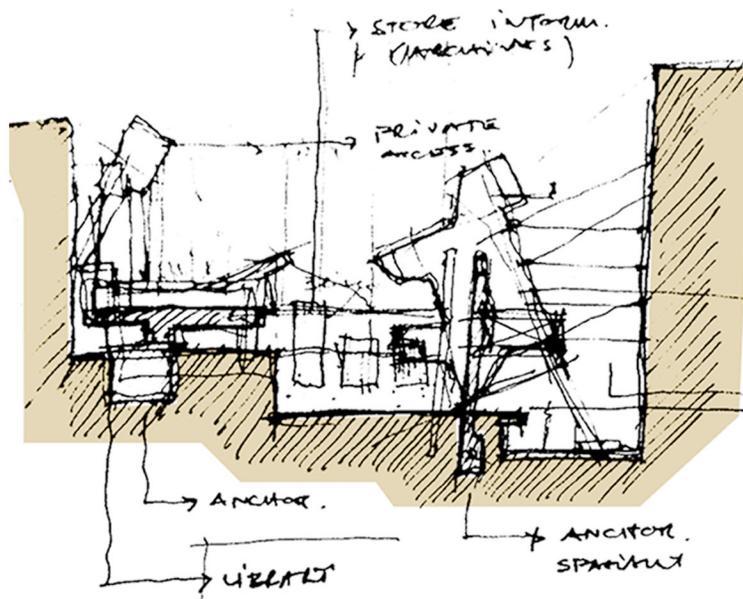
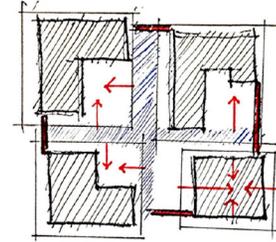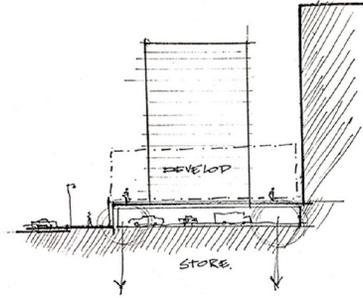*Figure 5.1 Early Conceptual Sketch(Author 2015)*

V

CONCEPT AND PROGRAM

5.1 INTRODUCTION

The aim of this chapter is to explain the manner of thinking which resulted in an overarching architectural concept that will both inform and guide design decisions during the development of the architectural intervention.

5.2 Concept

The following chapter stems from the preceding investigation into how entropy as a philosophical aid might provide clues to the development and strengthening of a conceptual approach to guide the architectural intervention to be established within the urban marginalised space. The existing built form is perceived as information reservoirs (fig 5.1), where data became internalised and contributed to the formation of marginal space between its various built forms.

The concept proposes to activate an energy leakage in terms of programmatic information to be extracted, processed and redistributed into marginal space for public purposes, of which the spatial repercussions and requirements will be explored throughout the design development. This is closely tied to the theoretical approach, where it is implied that isolated systems, if to become natural systems, should be punctured to increase the entropy of its surrounding environments (fig 2 & 3).

As leaking information directly into a high-pressure environment could lead to an "overload" or unbalanced energy distribution, it seems theoretically appropriate to distribute extracted information into a low-pressure zone, being that of marginalised space, to balance the flow of information. The architectural form is henceforth guided by this concept of high- to low-pressure and will also manifest in the tectonic concept to follow.

The scheme intends for the building to latch onto the existing structure and to progressively diffuse into the public domain. The concept is thus four-dimensional in essence and consists of incision, extraction, processing and redistribution. This process developed as a direct response to the notion that introverted programs of buildings lower the entropy of their environments and aim at disrupting this urban status quo.

The hierarchy of public and private is positioned in relation to the natural vertical increase of the site. From where the incision is made into existing structure, it also represents a decrease in privacy of program – both in terms of access and external visibility, down to a low-pressure zone, representational of information dispersed into the public domain. In a sense the intervention is to represent a socially orientated temporary prosthesis, an intermediate that will allow the public user to programmatically interact with the existing and introverted built form.
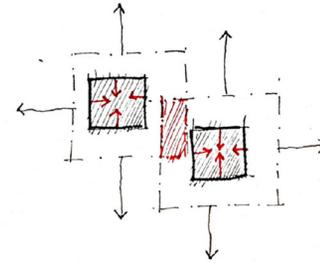
REDISTRIBUTION

EXISTING INTROVERTED
BUILT ENTITY

INSURGENT ACTIVITY TO FEED
OF PROGRAM LEAKAGE
STIMULATES INSURGENT ACTIVITY
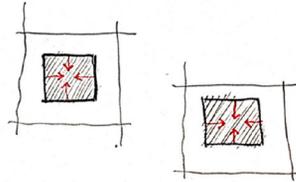
REDISTRIBUTION

INCISION
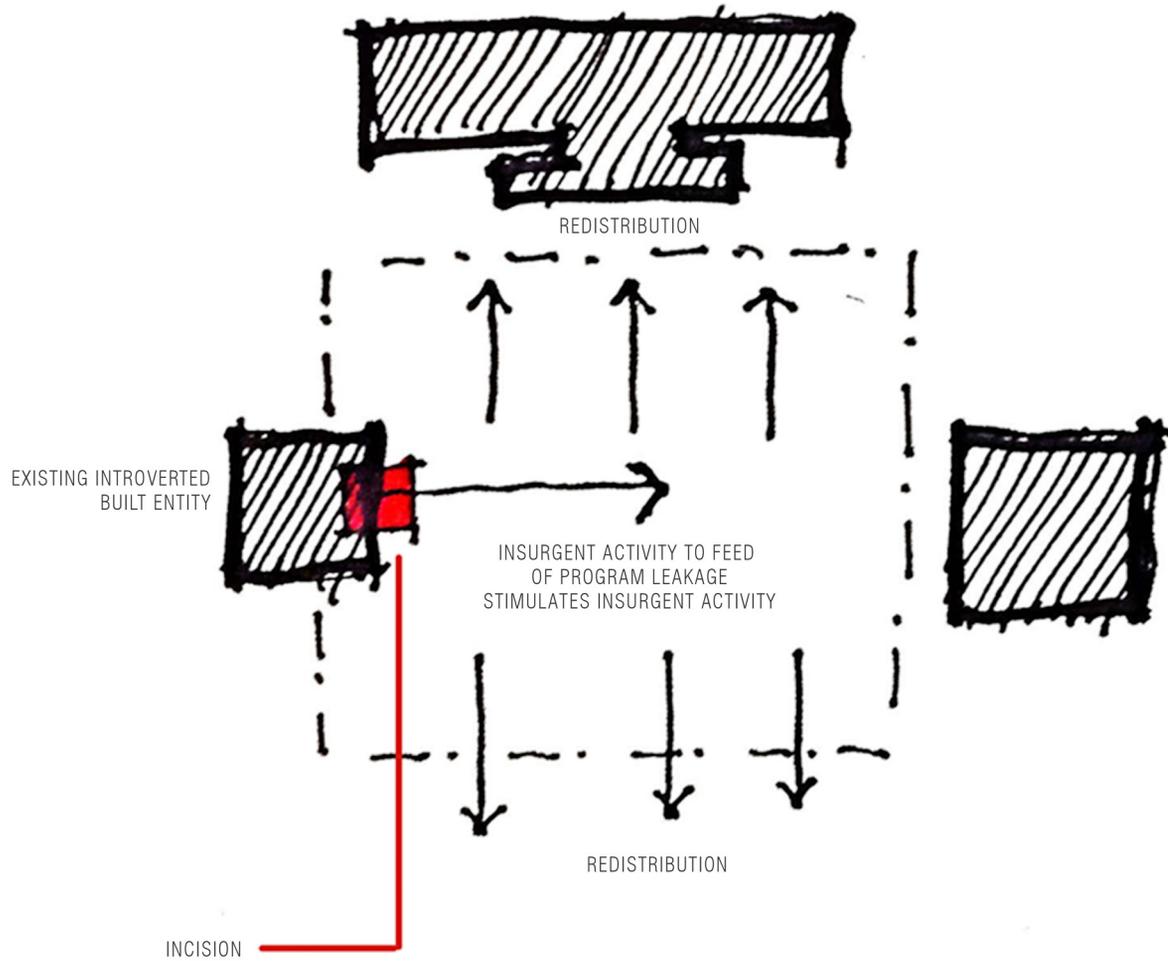
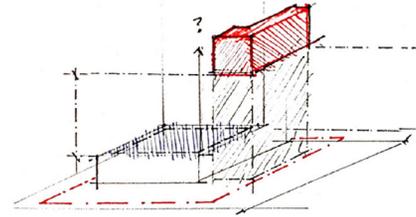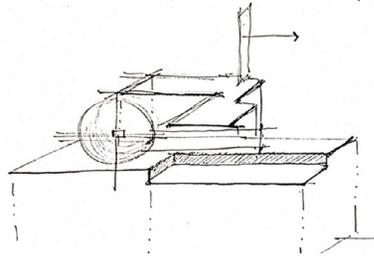*Figure 5.2 Early Conceptual Sketch of Intent(Author 2015)*

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TRANSPORT TO SERVE THE USER

GOVERNMENT ENTITIES TO PROVIDE PUBLIC INTERFACE

CHALLENGE STATUS QUO THROUGH TECHNOLOGY
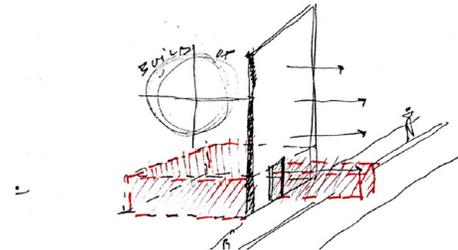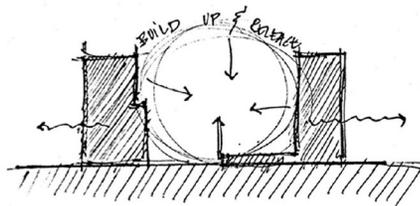
GOVERNMENT ENTITIES TO PROVIDE PUBLIC INTERFACE

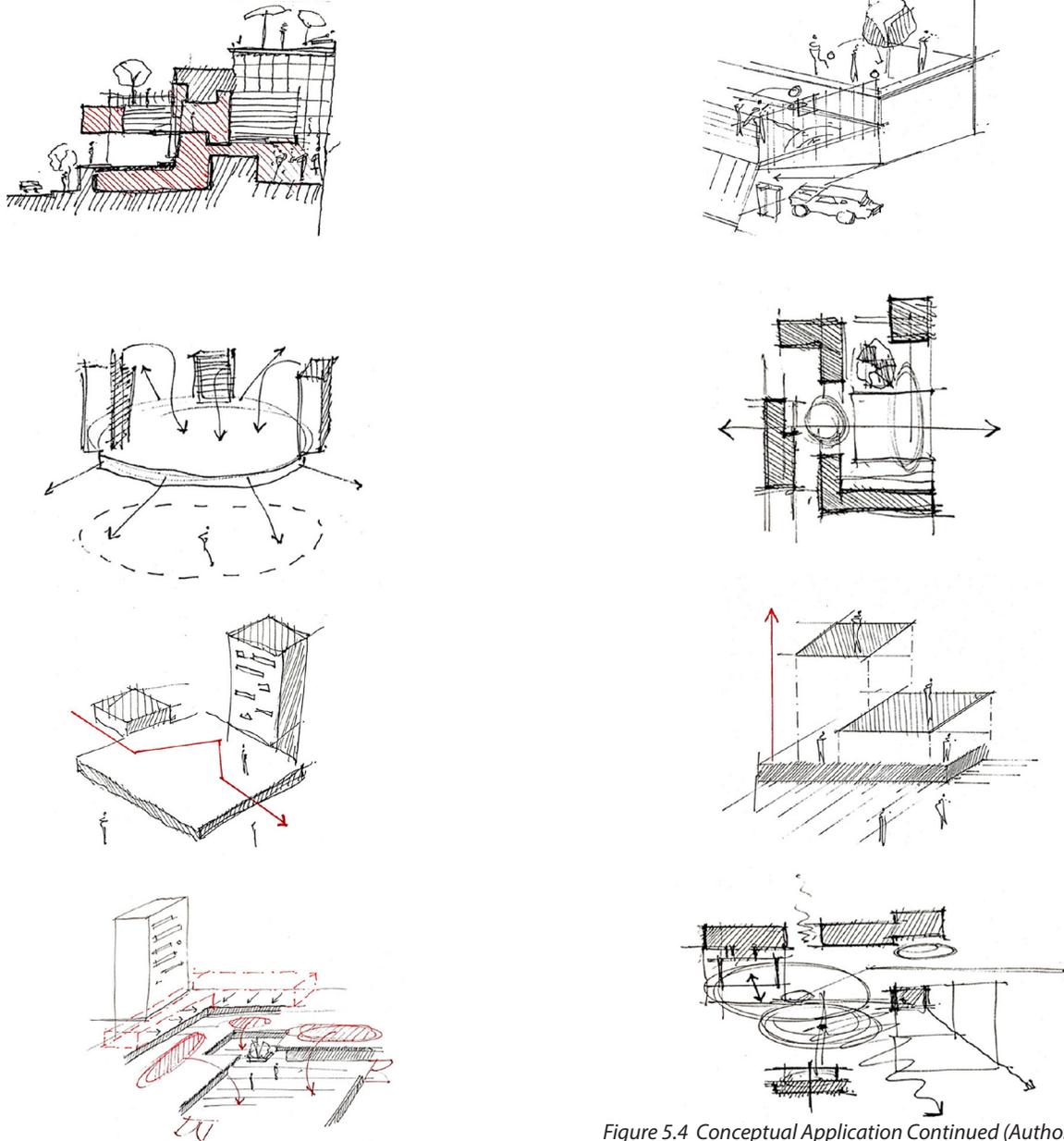*Figure 5.3 Conceptual Application (Author 2015)*

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Figure 5.4 Conceptual Application Continued (Author 2015)

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When the Advocates Association occupied the Old Mutual Centre building, concerns were voiced that the structural and spatial integrity of the building did not suit the various requirements for the storage of literature.

The information review, electronic research and archiving facilities were then relocated to the old Eureka factory building (fig 5.2), where it currently still occupies the space to suit the needs of the legal precinct. This building, protected by the Heritage Act of… was not originally intended to serve such a purpose, and therefore does not represent the ideal spatial qualities befitting a legal library.

It is henceforth proposed that this building could be exposed to public use according to strategies proposed by conservation through adaptive reuse, and to be incorporated into the public space, currently appropriated by a restaurant located within a street enclave - popular with legal and associated professionals employed in the precinct. The function of the building complies with the North Gauteng Advocates Association's requirement for a law library and research centre as a vessel to initiate the conceptual process of incision, extraction, processing and redistribution.

Figure 5.5 Eureka Factory Pretoria

As part of an abstraction of conventional building typology found within Pretoria's built context, the scheme proposes extroversion of program and spatial quality. To accomplish this, a conceptual principle of structure and skin is introduced, where structure resembles the skeleton of the building to contribute to the infrastructural integrity of the site. As the architecture will represent the opposite to convention of fixed and internalised built form, it is orientated towards a consumerist and adaptable solution. The skin controls the permeability of the architecture – exposing program and materiality into the city and simultaneously diffusing the city into the interior of the marginal space.

Playing on the contrast between the space being kept secret through the years and the scheme's intension of introducing it to the public, the skin acts as an invisible fence, providing a sense of security to the interior, whilst not separating it from the city. The structure component of the concept consists of the more permanent building elements that may be "left behind" to be subjected to future reinterpretation and readaptation. Also included into this donation of infrastructural flotsam are the services and various self-sustaining frameworks to be put into place that may be implemented for future developments as the city evolves and as the future development of the plinth will require. Service space and circulation of program will be guided by contrasting the conventional city approach where services are located to "back-of-house".

Services, as well as vertical and horizontal circulation, will be positioned towards the street, whilst serviced space will be located to the interior of the plinth. The logic behind this strategy intends to animate the street facade, setting it apart from its peers and providing an everyday sense of inclusivity for passersby. As the building represents the promotion of insurgent practices through the spatial conditions it will generate on the plinth, it will be reflected through the architectural form and response to site.

It is intended for services to tap into existing infrastructure so as to introduce a purpose to marginal service space, an incorporation of existing permanent form to enable the existence of a less permanent architecture. Internal building services are to be exposed, specific to space and program, as this forms part of the building's information circuit and links to the overarching conceptual approach. As an exposed transistor within an information circuit, the user will interact with extracted information and will be mirrored by the building interacting with its built context.

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5.3 PROGRAM: A Conceptual Response

Programmatic development was centered on investigating the possible public interface that could be associated with the respective internalised program contained within the buildings on site. It was explored how these public-related spin-offs could be arranged to have synergy. Overlapping programs, identical in nature, were then grouped to establish the most appropriate program to be assigned to the intervention. This indicated towards a program grouping that could most effectively be associated with the North Gauteng Advocates Association.

New trends, such as the increased role of media to promote transparency and public interest into the legislative system in South Africa, deemed it fit to accelerate the introduction of the legally orientated program associated with the High Court Chambers into the public domain. This system attempts to establish a space where the public and educational institutions could be actively involved in the very process that impacts on their socio-economic well-being.

The program then intends to facilitate and amplify the user's constitutional right to critique his democratic and urban traditions.

The scheme therefore does not propose inserting a programmatic structure into the site, based on contextual consideration of the precinct alone, but intends to extend existing and established program, to the point where it could serve public needs and activity.
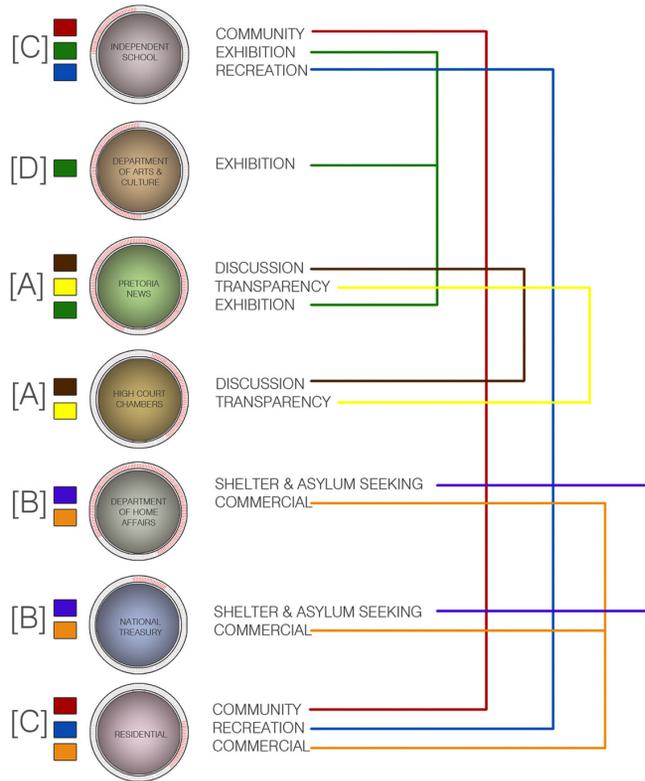
Figure 5.6 Programmatic Structuring (Author 2015)

INDEPENDENT SCHOOL

DEPARTMENT OF ARTS & CULTURE

RESIDENTIAL

AFTER SCHOOL CARE

BUILD COMMUNITY

EXHIBITION

SPATIAL FACILITATION

DISCUSSION

PRETORIA NEWS

COMMERCIAL

TRANSPARENCY

SHELTER/ASYLUM SEEKING

NATIONAL TREASURY

HIGH COURT CHAMBERS

DEPARTMENT OF HOME AFFAIRS
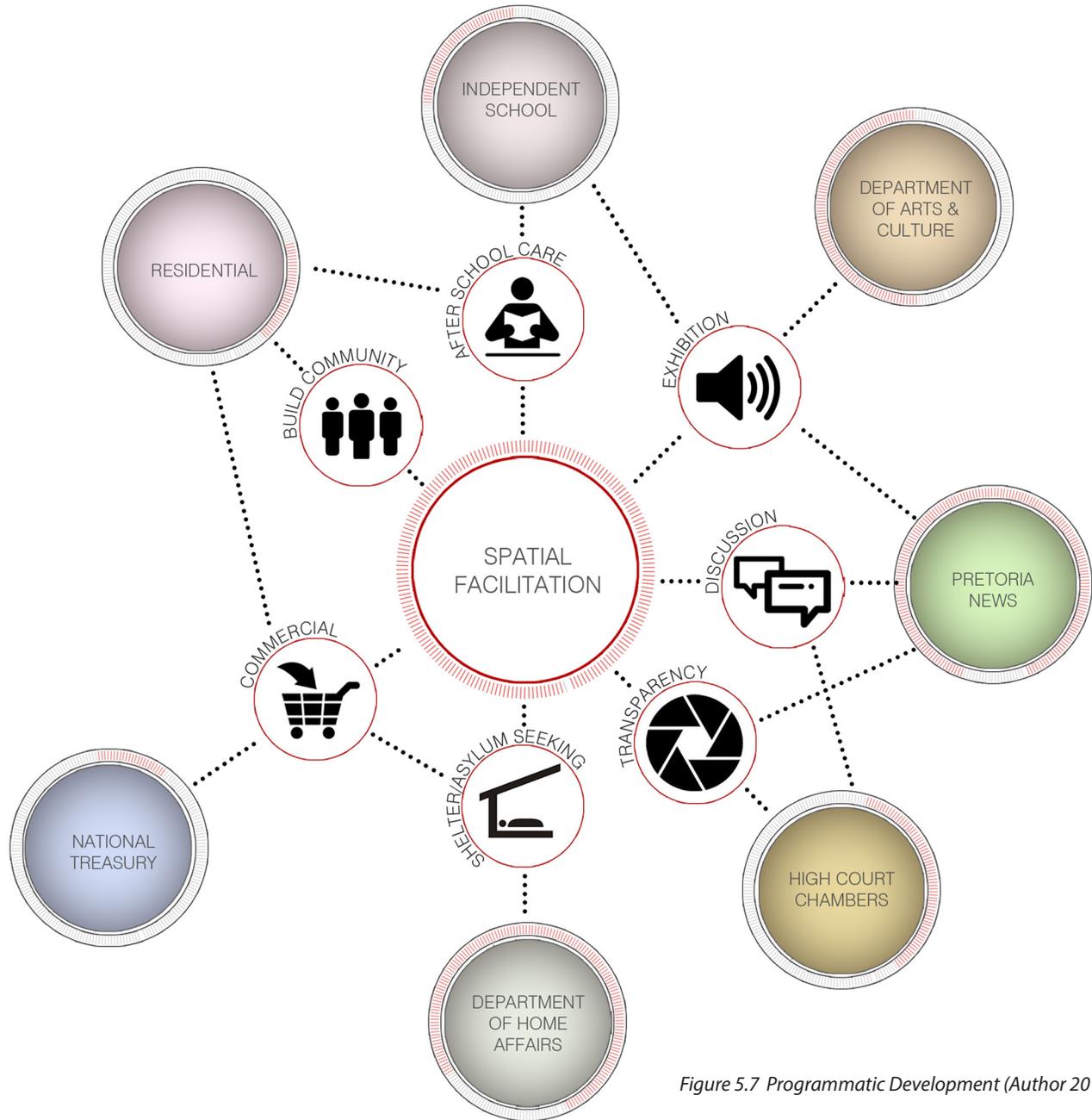
Figure 5.7 Programmatic Development (Author 2015)

99

5.3.1 Extension of Existing Program

The program structure will be ordered into four tiers as a response to the concept of incision, extraction, processing and redistribution. The programmatic response also intends to reflect the project's intention to symbolically redistribute static form into the public realm in the processed form of manageable social currency to be played out on the plinth itself. The four program tiers are:

Private – Specific to the requirements of the North Gauteng Advocates Association, this tier aims at facilitating increased productivity of the legal mechanism by providing various research and client needs.

Semi–private – Explores the overlapping of program requirements specific to the legal profession and that of parties, currently excluded from legal practice that may benefit from exposure, such as law students, staff of the National Treasury and employees housed in the Department of Home Affairs' head office.

Semi–public – Facilitates civic service by providing everyday user needs through intersecting the first two tiers. This function will be provided by occupying the plinth and generating new spatial conditions to provide these services.

Pedestrian-public – Establishes the purpose and the sum of all tiers as a civic service. This will be accomplished by manipulating the architecture as required by the private, semi – private and semi-public tiers, to provide good public space as an alternative everyday urban experience.

5.3.1.1 Private

As a vessel and foothold for further development, the intervention is to provide a legal library for the purposes of the North Gauteng Advocates Association. The library will provide suitable structure and space for the storage and reference of information - electronic and conventional - currently housed in the Eureka factory, which is deemed unsuitable for these purposes. Linked directly to the Bar, this will increase the efficiency in terms of information access and control. As arbitration or third-party out-of-court settlement occurs in Diaspora from the city's legal core, a facility for both legal representation and client is to be provided for such purposes, with access from the Advocate's building.

Additional office space is to be provided to be occupied by a broader spectrum associated with the legal profession to facilitate increased cross-pollination.

5.3.1.2 Semi -private

Towards an ever-inclusive approach, the building will also facilitate ongoing education of both legal staff and students of the profession. By expanding the electronic database, also located within the Eureka Factory building, the facility will provide a more accessible and manageable research environment to serve legal staff, students and interested public users. This will be addressed by providing semi-public access to the library facility, a lecture auditorium and opportunity for students to gain hands-on experience in their particular field of study by observing arbitration processes.
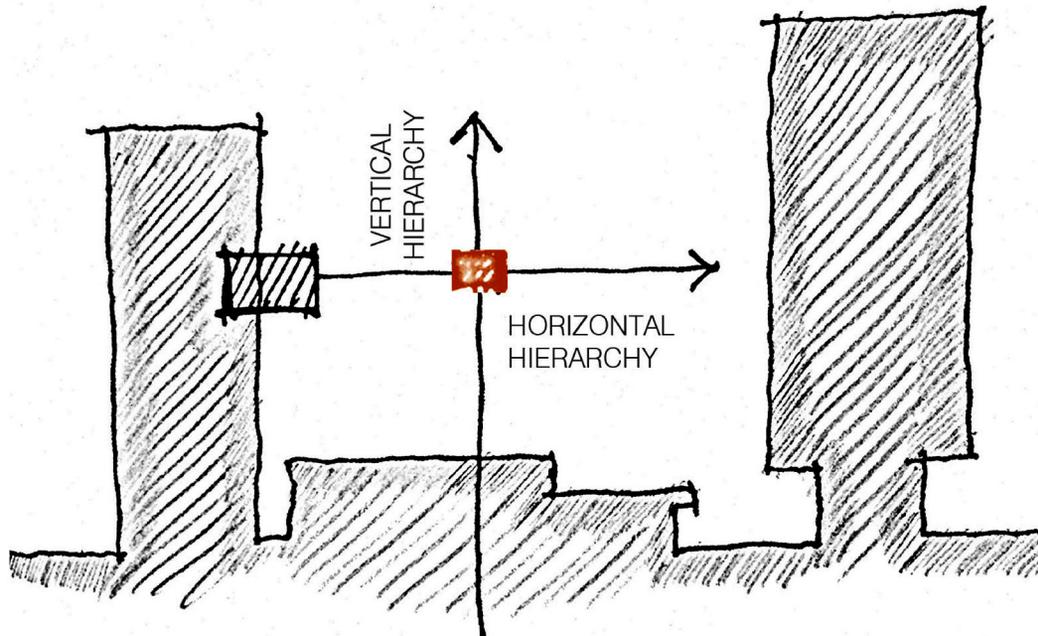
VERTICAL HIERARCHY

HORIZONTAL HIERARCHY

Figure 5.8 Public-Private Hierarchy (Author 2015)

Access to law archives and case studies will also be made available and will be positioned in the building as to be put on display, accessible to visitors and associated parties. Further cross-pollination of program is accomplished by establishing a relationship between legislative consultation and the functions of National Treasury and the Department of Home Affairs. This will be accomplished by providing mediating space for discussion, facilitating mutual research interests, light recreation and involving public users that may benefit from such an integration of program. The minimum size of the new legal library will be determined by the double storey, Eureka Factory building, of which all of its 600 square metres are currently fulfilling this purpose. The new library to be provided will then have to accommodate this minimum requirement, as well as allowing for the comfortable storage and future expansion and an integration of research space with the storage of books.

5.3.1.3 Semi - public

Reinforcing the relationship between established legal staff and students provides for legal aid or pro-bono services. Students and attorneys are to be involved in the process of catering for the general public's legal education and needs. This tier also addresses the functions housed within the National Treasury and Home Affairs Department. Collectively dealing in matters concerning national and international trade negotiations, citizenship, foreign asylum-seeking and refugee status, the possibility of these institutions benefiting from an inclusive legal mechanism is to be explored spatially in the public domain.

The existing program located to the western interior of the plinth site, consist of a day-care centre, residential flats, a mosque and an independent school facilitating the education of both primary- and high school students. Proposals for the interior of the plinth will therefore cater for these various existing programs. An after-school centre is to be provided for students of the existing Independent Barea Park School. This centre is to facilitate supervised care, whilst providing a place where learners could study, eat and play.

Guided by the proposed synthesis between the respective programs of the Pretoria News building, High Court Chambers, Department of Home Affairs and the National Treasury Department, the plinth space is to facilitate public opinion, in terms of discussion, exhibition and performance, to establish the plinth as an integrated and democratic environment.

5.3.1.4 Pedestrian - public

In stark contrast to the conventional issue of public interface having to deal with spatial conditions super-imposed onto it, the plinth will be re-appropriated through the thoughtful consideration of how the new spatial conditions, as an architectural by-product of the programmatic extension, might serve everyday public needs and the furthering of insurgent urban practice. Harnessing the natural condition of the site, in terms of vistas, height transition, enclosure and robustness, the plinth condition is to provide programmable space that will promote activity based on interaction between everyday users. This vision of a democratic urban space will be achieved through ensuring space that may be occupied by informal markets, food stalls, ablution facilities and green space, where the public could retreat from the narrow sidewalk vehicle-occupied exterior. As the scheme intends to utilise existing infrastructure, it also aims at strengthening existing businesses on site. Rather than providing the public space with restaurant facilities, it will incorporate the existing eatery located within the courtyard on street level to expand its already established business to serve the civic plinth.
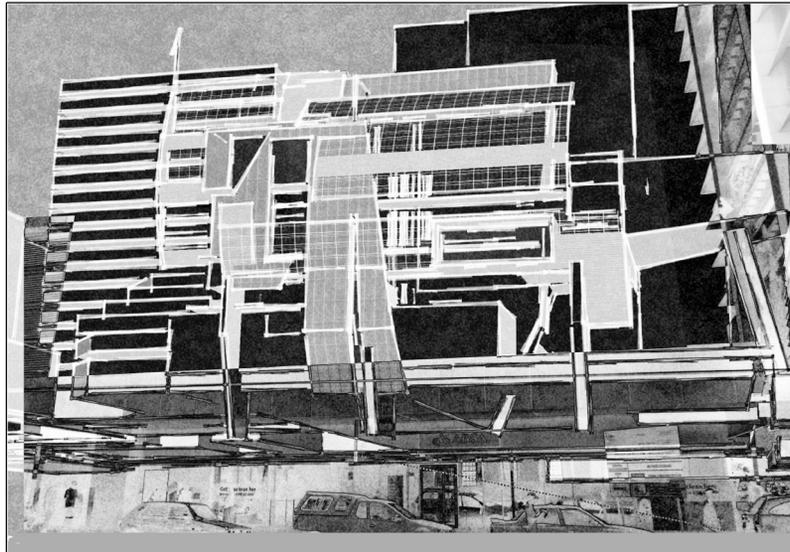
Figure 6.1 Early form development (Author 2015)

V I

D E S I G N   D E V E L O P M E N T

6.1 INTRODUCTION

This chapter explains the main design considerations in translating the conceptual approach into architecture whilst dealing with micro-contextual issues. The design process will be ordered into the four main considerations of incision, extraction, processing and redistribution. The process aims at establishing an alternative manner in which to navigate public spatial considerations as a result of built form. By providing tangible expression to the intervention's programmatic structure, the scheme considers public spatial experience as the main end result and focus from beginning to end.

6.2 "INCISION": A Response to Scale

A main concern of the design was establishing a relationship between the scales of the new building in response to the imposing nature of its surrounding high-rise structures. Scale, as defined in this instance, not only relates to the physical height of the existing structures, but also relates to the plinth void and the scale of administrative program associated with the existing buildings. With public (insurgent) activity as main outcome, the design process had to navigate a relationship between the plinth, the user as the main beneficiary, the proposed building and existing high-risers. It became a major concern to retain the marginal and secretive nature of the plinth space, whilst introducing a public program to its character.

For this reason, the new building does not drastically conform to the large scale height of the 100m National Treasury Building and 80m High Court Chambers, but mainly adjusts to the height of the Mutual and Federal building across Vermeulen Street.

During the design iterations, it was established that the new building should constitute a minimum height of five storeys, including that of the plinth level. Symbolising a penetration into the existing form of the High Court Chambers, the intervention decreases in height, scale and density from the point of incision down to the plinth, where the use of exterior skin lowers in regularity and increases visual permeability. This was done so as to emphasise the marginal plinth void, as well as the existing high-risers which aided in the formation of this marginal space. In totality, the southern facade acts as a horizontally-layered skin, placing emphasis on the building's extroverted and inclusive nature, as well as providing rhythmic visual links, allowing street activity to link with that of the marginal plinth. The skin of the new building, as it detaches from itself at the point of incision, not only represents opening-up an existing introverted building into the public sphere, but also explores a reinterpretation of Pretoria's architectural heritage with regards to tropical modernism and the movement's manipulation of the building facade in addressing specific environmental considerations.
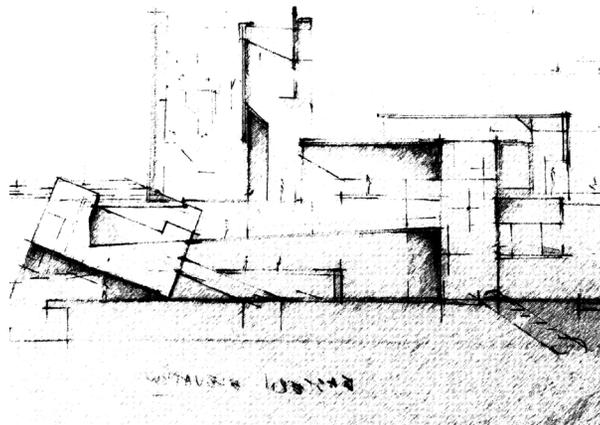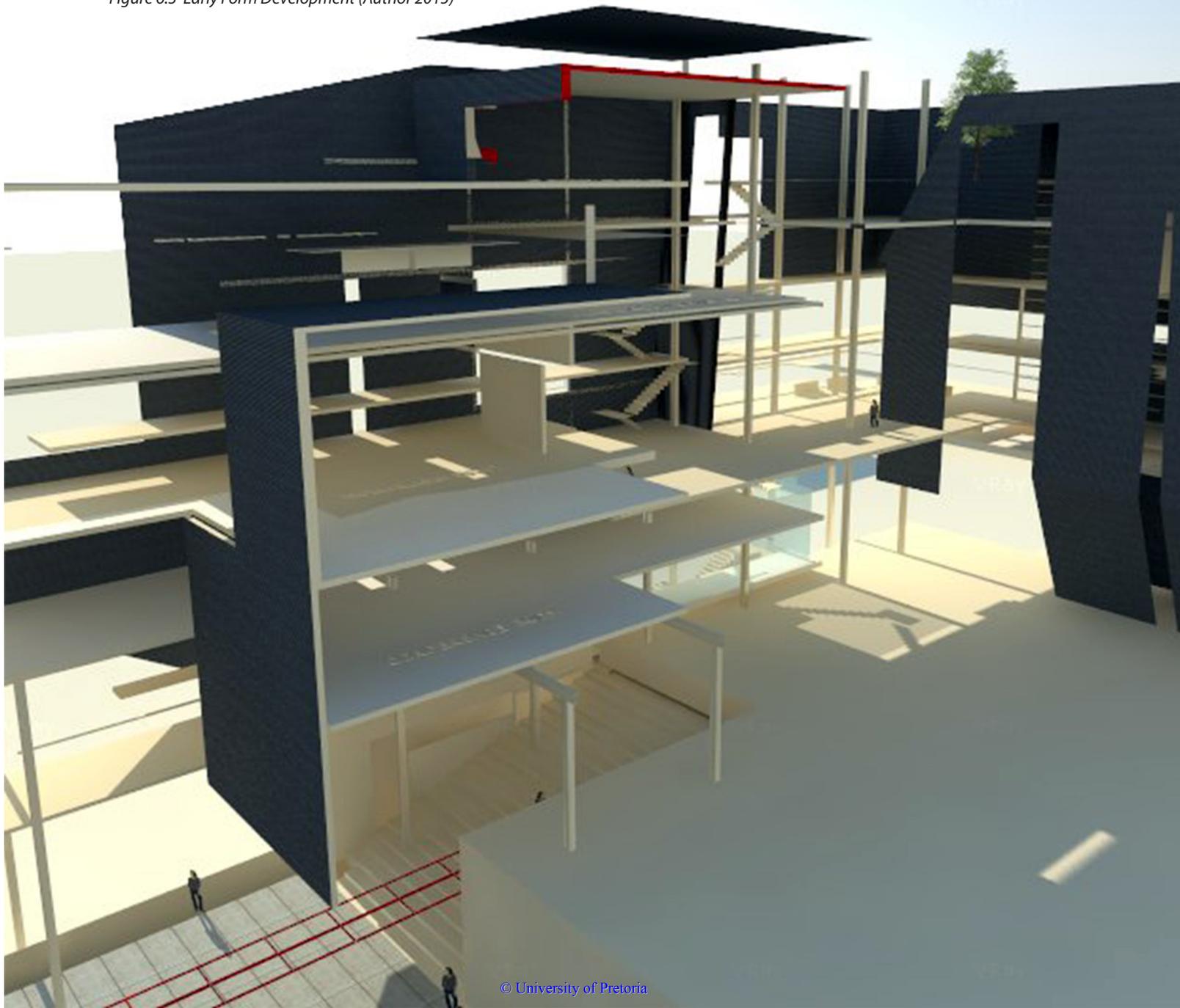

Figure 6.2 Author 2015

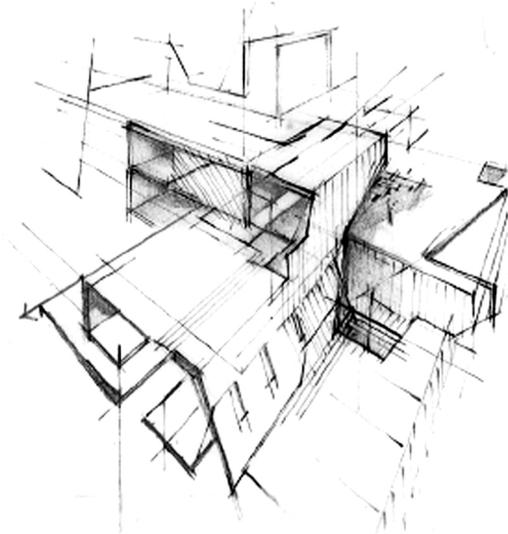*Figure 6.3 Early Form Development (Author 2015)*

Figure 6.4 Author 2015
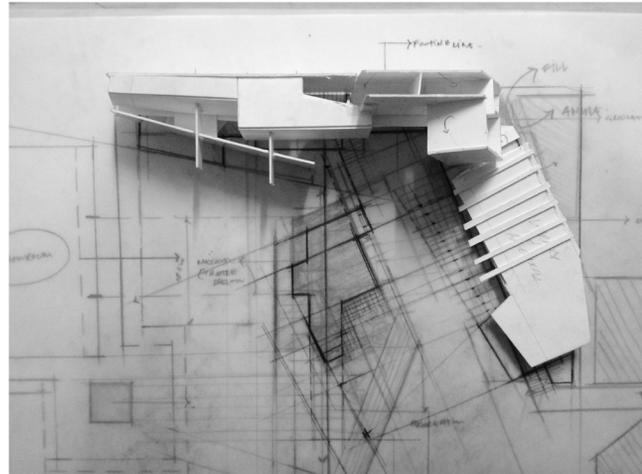
Figure 6.5 Author 2015
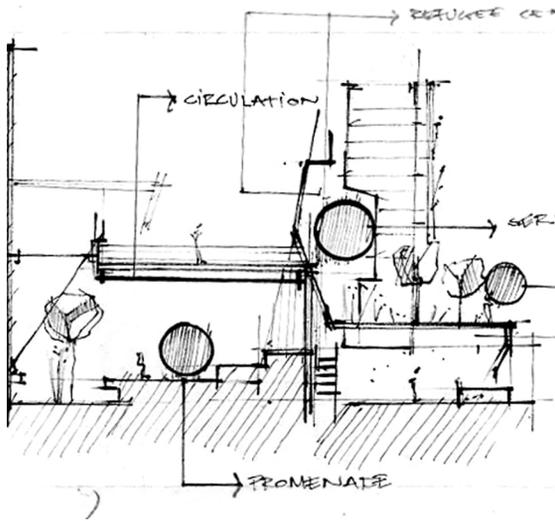

Figure 6.7 Author 2015
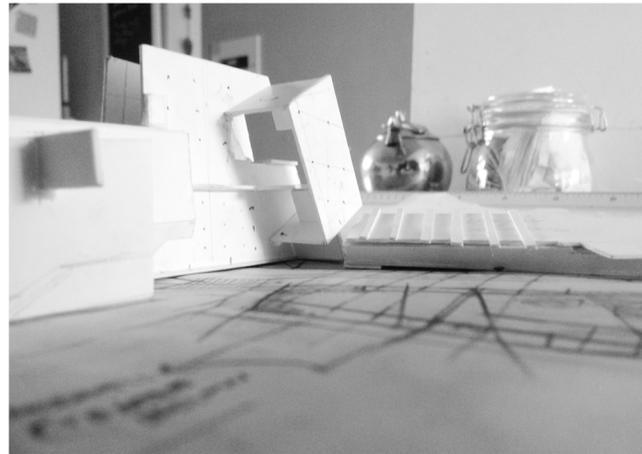

Figure 6.6 Author 2015
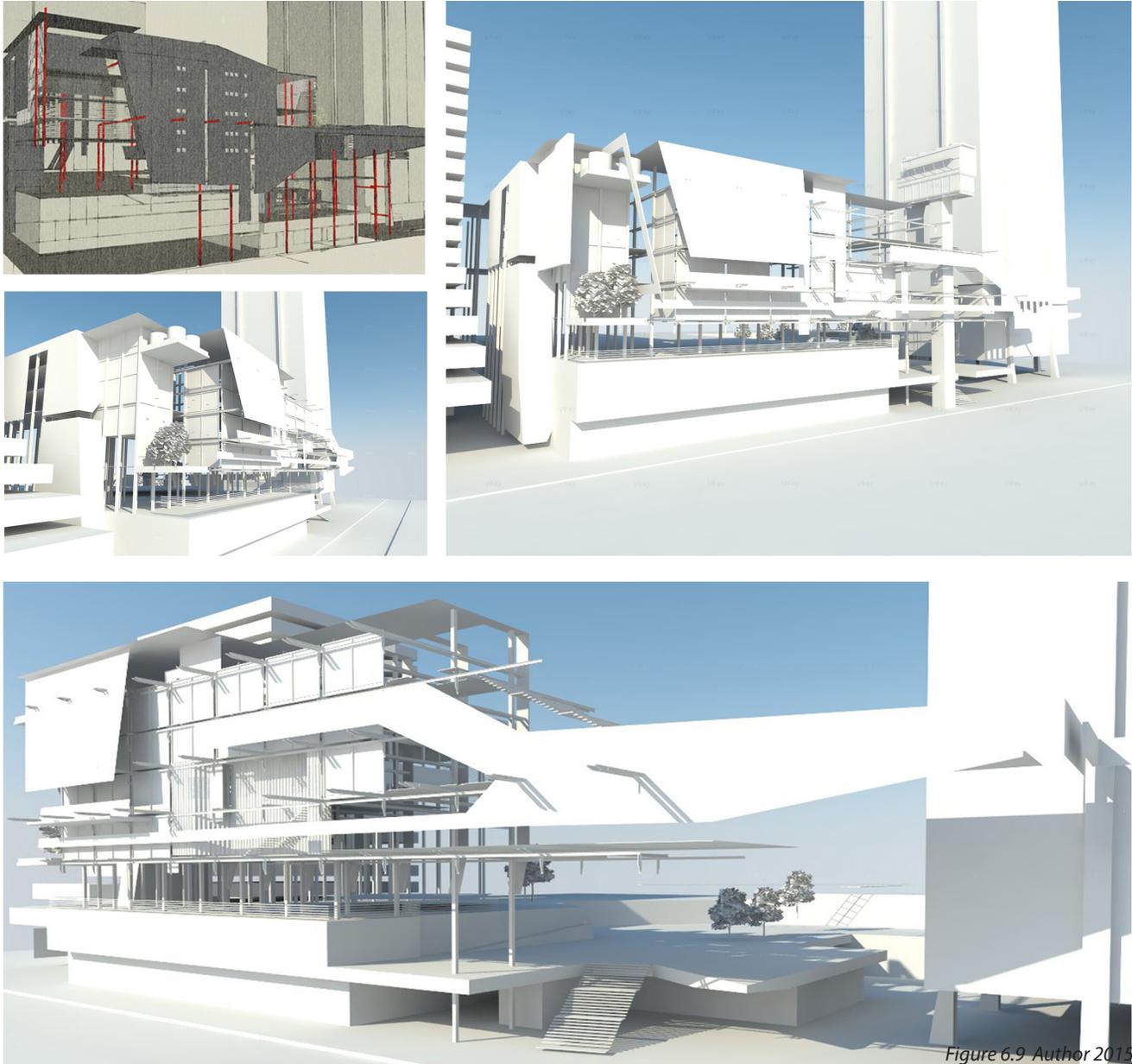

Figure 6.8 Author 2015

Figure 6.9 Author 2015

The skin performs the additional function of hiding and exposing the workings of structure and services, increasing the perceived depth of the form as an alternative to conventional internalised buildings commonly associated with Pretoria's CBD. By extending the structure of the plinth through the use of concrete columns, the building will be elevated above the plinth at single storey height. This effect places further emphasis on the architecture's intent of extending from, existing form as well as the alternative temporariness of urban form.

6.3 "EXTRACTION": A Transition from Building to Plinth

In keeping with the conceptual approach, the intervention is perceived as extracting programmatic information from a high-pressured internalised building and redistributing this program into the low-pressure zone of the marginal plinth, viewed as the main public zone. The structural density and linear rhythm, as required by the law library extension from the Advocates Building, provides the initial function of extraction from high- to low pressure. The library is to act as main private access route into the building for legal professionals and clients. As services are located on the street edge, as an abstraction to conventional back-of-house strategies, interior circulation of movement will be positioned to the back of the L formation. Space provided for the storage of books will then serve the additional function of a north-south orientated bridge to provide the initial transition from private to semi-private, to animate the experience of circulation through and into the building with a sense of information as the main theme. Access via the National Treasury building is to be less prominent and of a more casual nature, as this section of the building is located on the opposite end of the incision zone, although it will be visible from street- and plinth view to clarify the project's intention of incision into existing form.
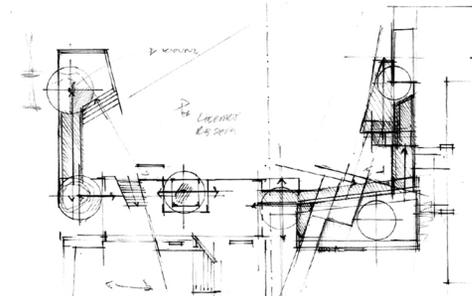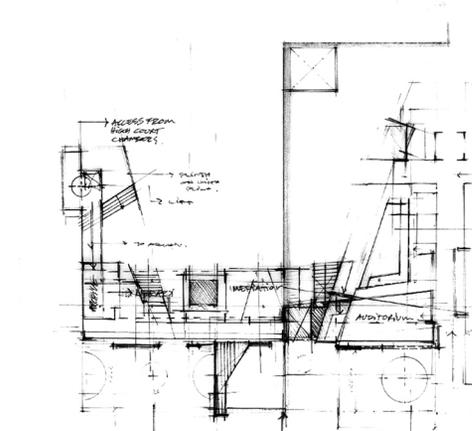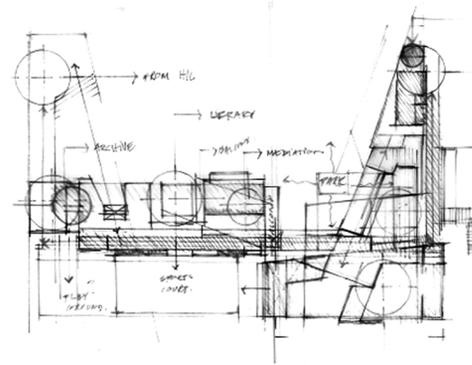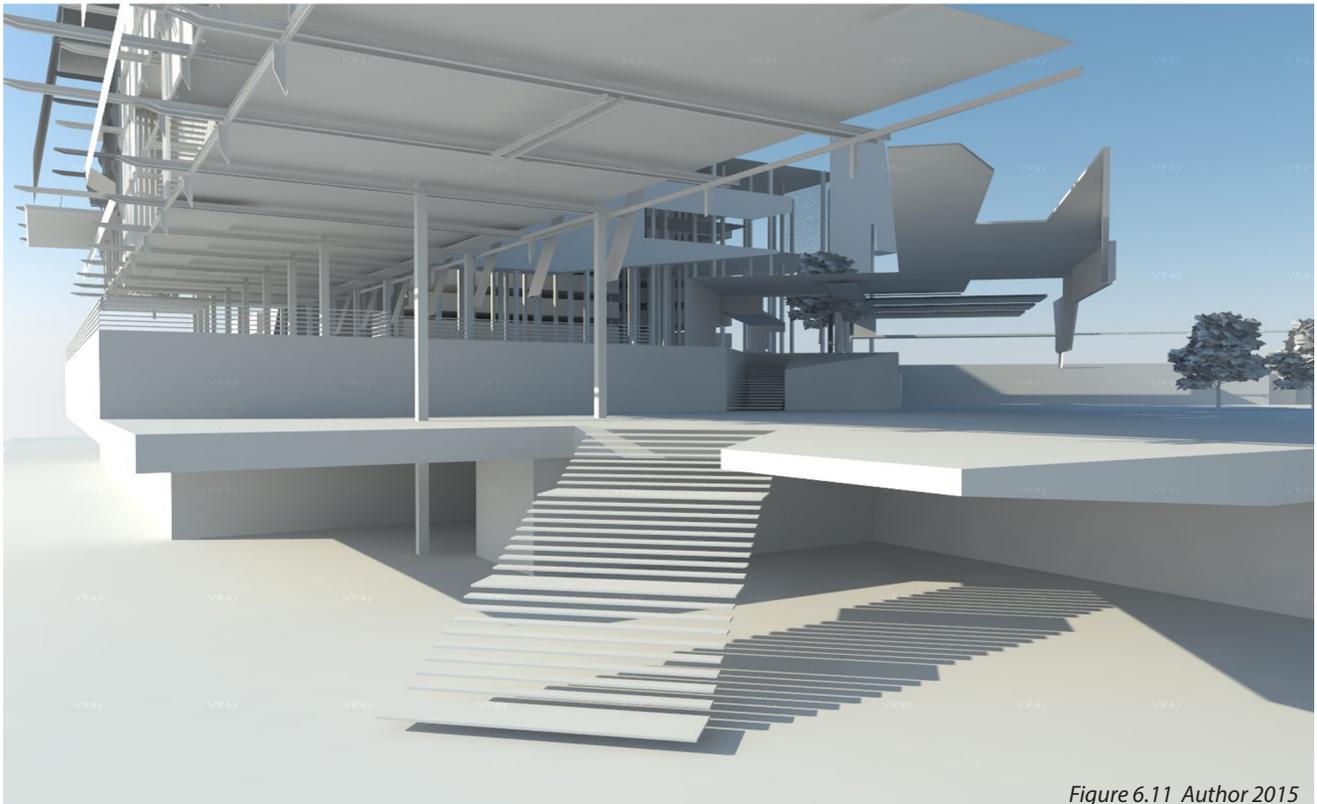

Figure 6.10 Author 2015

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Figure 6.11 Author 2015

Figure 6.12 Author 2015

As the building diffuses into the public domain, semi-private access from the plinth will be made possible via the legal-aid facility, whilst more public activity is to be catered for on the plinth itself and extended to the northeastern section of the plinth where additional street interface will be established. These publicised programs associated with the legislative environment will act as a buffer to soften the transition from private (formal) to public (informal) function. Various programs located at the base of the new building where it meets the plinth are to associate predominantly with public use. These include a public library, bookshop, coffee shop, legal aid as well as an platform for discussions, performances and exhibitions.

6.4 "PROCESSING": Defining a New Plinth Condition

Positioning of the building was predominantly governed by the poor access of natural light entering the site. With the high-rise Department of Home Affairs building to the north, natural light and direct solar gain in particular, is limited to the far southern edge and the eastern border of the plinth, where sunlight is allowed to enter through a gap shaped between the Home Affairs high-rise and the High Court Chambers.

This requires the building to be positioned in an L-shaped typology, extending southwards along the western border of the plinth from the High Court Chambers to the site's most southern edge and continuing eastwards where it terminates against the National Treasury building.
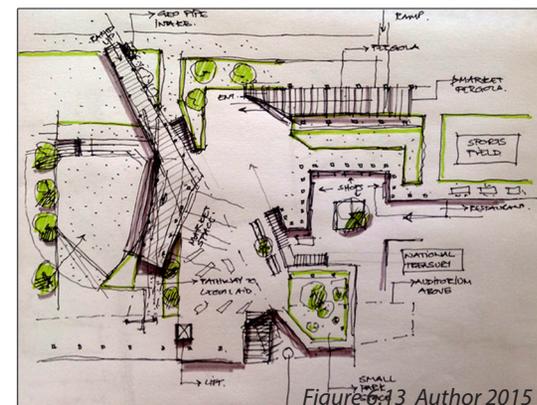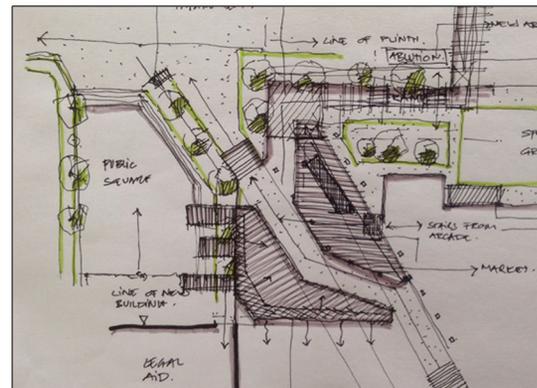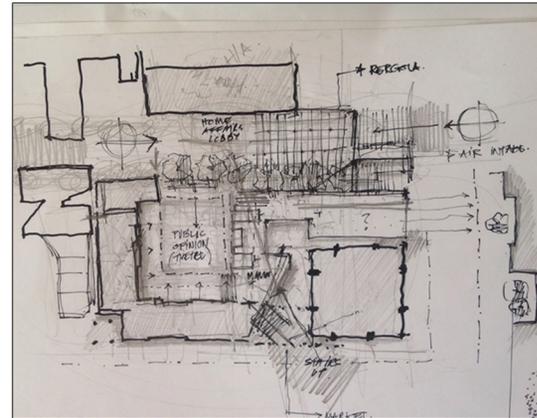

Figure 6.13 Author 2015

The height of the structure is similarly determined so as to ensure that adequate natural light enters the internal spaces and henceforth determines the positioning of particular program throughout the building as per their specific lighting requirements, with the added result of the interior space depth being kept to a practical minimum.

Columns grounding the building will penetrate through the plinth to ground level, causing the entire structure to seem separate from the plinth, to emphasise the temporary nature of the intervention, to contrast against the definite form present on site and to gain height for adequate solar exposure otherwise prevented by the Department of Home Affairs building positioned to the north of the site.

By separating the structure from the plinth to emphasise the new building as an extension of the existing built form, it will give the space where the building meets the plinth accessibility to public experience and frames a vista from street to plinth. In keeping with the notion that the existing urban environment is harnessed and altered towards a new urban experience, the raised building will also pays homage to the modernist heritage of Pretoria's architectural development through employing and contrasting modernist and Pretoria-regionalist principles.

In addition to separating the building from its ground plane, the design will also explore principles such as the roof garden, the domino structure whilst manipulating the skin of the building to both reveal the structure and to control the building's climatic response to its environment. The L-shaped typology of the plan will place focused definition on the interior plinth by forming a courtyard, similar in principle to that of the ancient Agora, where visibility of activity will be established across a public courtyard defined by colonnades.
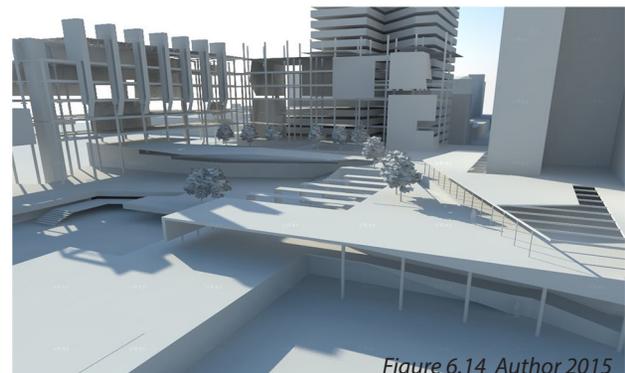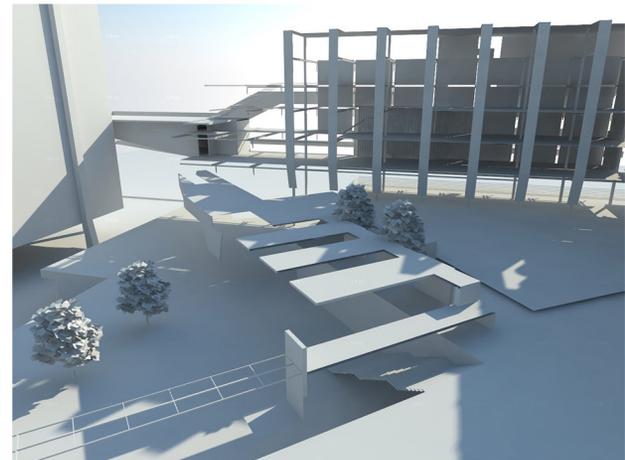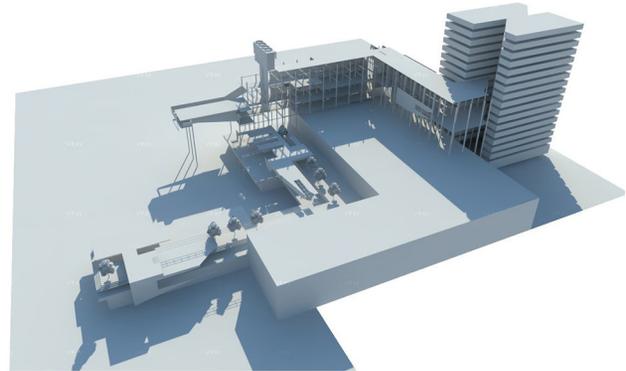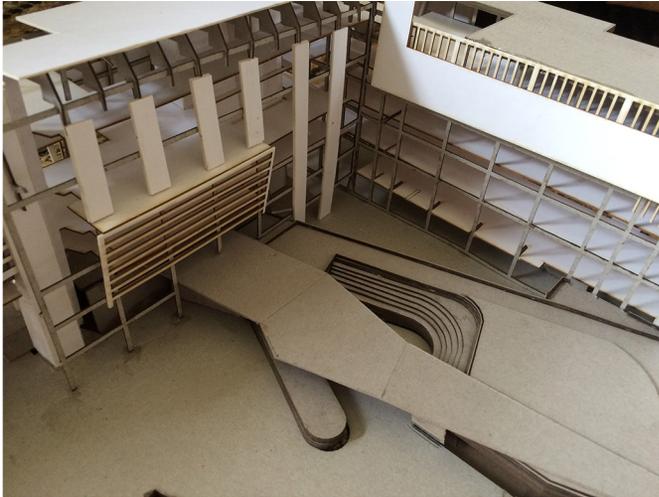

Figure 6.14 Author 2015

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Figure 6.15 Author 2015

Figure 6.16 Author 2015

These sections of the building demonstrate where extracted information will be processed for public use and provide a base for the public and professionals to interact in a more democratic manner. This will be further articulated by ensuring that the new building facades facing inwards will be less dense and more exposed to the public-dominated plinth space. The typology also offers a valuable advantage in terms of securing the safety of users who will occupy this space; the already present high-riser, as well as the new intervention with user visibility facing inwards, will provide ample passive surveillance that could deter unwanted activity within the space, and establish the plinth as a safe and pleasant public environment.
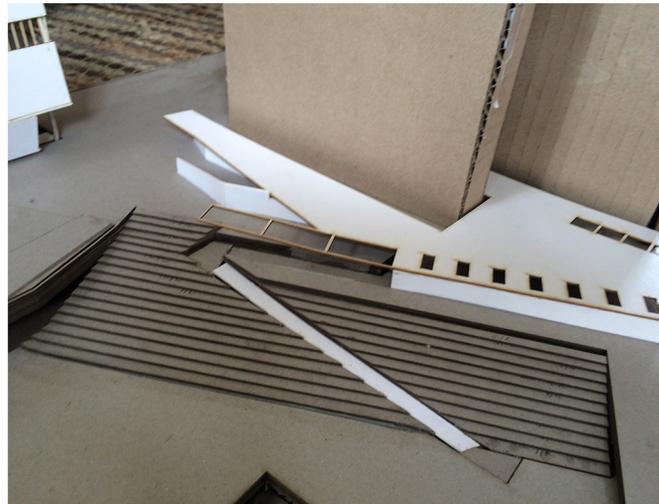
xPositioned to the edge of the plinth, the design will provide opportunity to occupy the street condition and to establish a relationship with the building and passing pedestrians. By transferring pedestrian energy from the sidewalk directly onto the plinth via an exterior staircase as primary public access, the street facade is animated by providing alternative pedestrian routes to the precinct and establishing the building as a public orientated entity. This enables the suggestion of a pull of public activity onto the plinth and will be reinforced by the elevated auditorium, hovering above the sidewalk, that will accentuate the street-plinth staircase as threshold. The auditorium is to represent the accumulation of extracted and processed information being made available for public redistribution.

The skin of the building, as it extends downwards to the street level, combined with the structural colonnade framing a view from the plinth onto the street level, will reveal and expose movement and service to the exterior of the plinth, while suggesting shelter from vehicular traffic. An alternative purpose for the skin will clarify the project's intension of distributing information into the public domain by acting as a street-facing billboard and an exterior theatre screen to serve public activity on the plinth.

6.5 "Redistribution": Occupying the Plinth

Seen as equally introverted and inaccessible in comparison to the existing buildings on site, the plinth structure and form is to be altered to facilitate public activity and to act as an extension of the new building. The lower plinth with its concrete roof will retain its original level and act as the main public space, as this level is most visible from street level and the courtyard separating the plinth from the National Treasury building.

The sheeted roof of the Hallmark Building's parking structure is to be removed to gain access to the top concrete floor slab as an additional structural base, with the added effect of decreasing the 8m difference between the lower and upper plinth by one storey. Shaded by the Department of Home Affairs head office, the plinth space is to be re-adapted to represent park-like qualities. This new raised green space will be served at its edges by the public orientated programs located at the base of the new building via a public library, bookshop, legal aid, an outdoor theatre and an open urban market pavilion. Secondary access onto the site will be accomplished through the readaptation of the existing courtyard around the base of the National Treasury.
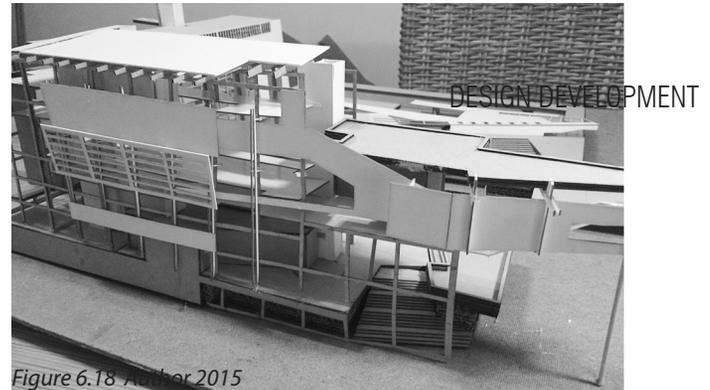
DESIGN DEVELOPMENT

Figure 6.18 Author 2015
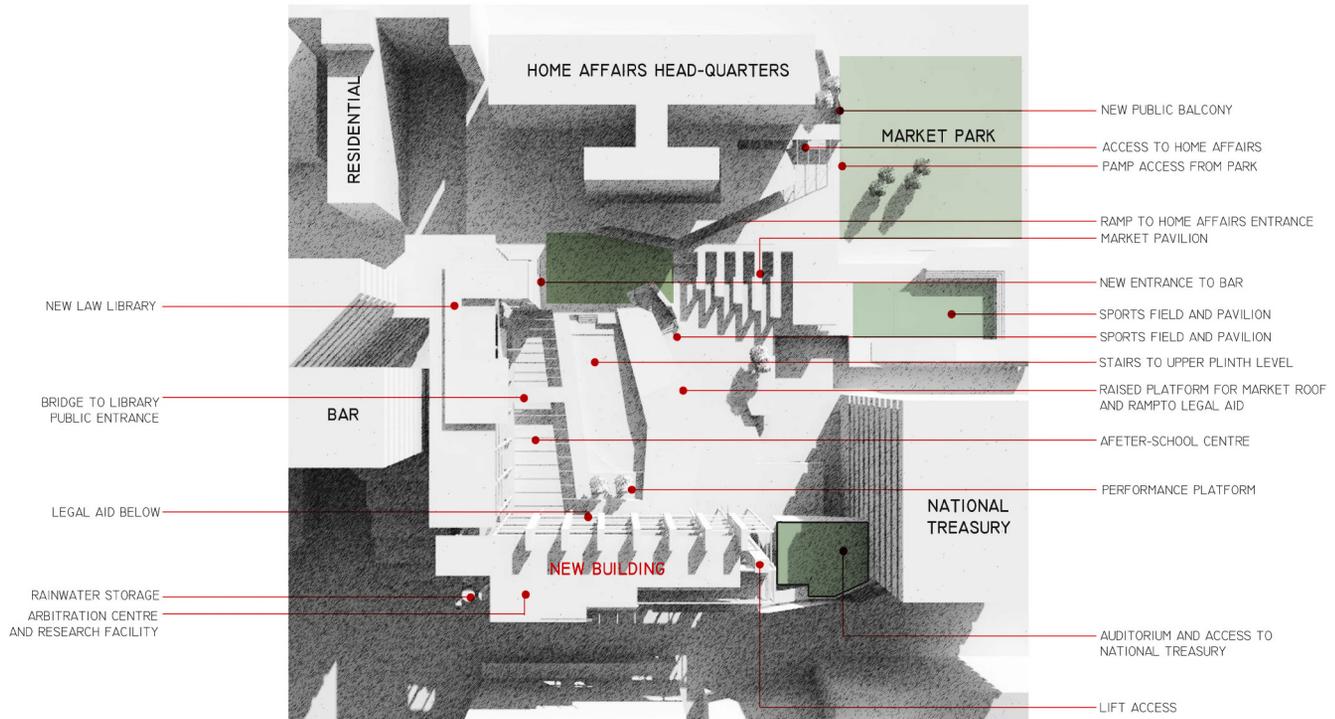

Figure 6.19 Author 2015

Figure 6.20 Author 2015

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Figure 6.21 Author 2015

HOME AFFAIRS HEAD-QUARTERS

RESIDENTIAL

MARKET PARK

NEW PUBLIC BALCONY

ACCESS TO HOME AFFAIRS
PAMP ACCESS FROM PARK

RAMP TO HOME AFFAIRS ENTRANCE
MARKET PAVILION

NEW ENTRANCE TO BAR

NEW LAW LIBRARY

SPORTS FIELD AND PAVILION
SPORTS FIELD AND PAVILION

STAIRS TO UPPER PLINTH LEVEL

BRIDGE TO LIBRARY
PUBLIC ENTRANCE

BAR

RAISED PLATFORM FOR MARKET ROOF
AND RAMPTO LEGAL AID

AFETER-SCHOOL CENTRE

LEGAL AID BELOW

PERFORMANCE PLATFORM

NATIONAL
TREASURY

NEW BUILDING

RAINWATER STORAGE

ARBITRATION CENTRE
AND RESEARCH FACILITY

AUDITORIUM AND ACCESS TO
NATIONAL TREASURY

LIFT ACCESS

Figure 6.22: Plinth and Program (Author 2015)

The plinth edge, which defines the existing courtyard, is to be activated with public activity to increase the vibrancy of the space. This re-activation will not only aim to establish and strengthen the courtyard as a public space and a pedestrian thoroughfare, but as this space represents slower pedestrian traffic and a break in high urban activity, it will provide an alternative and "safe" access point onto the plinth, with particular regard to disabled public users via a ramp system.
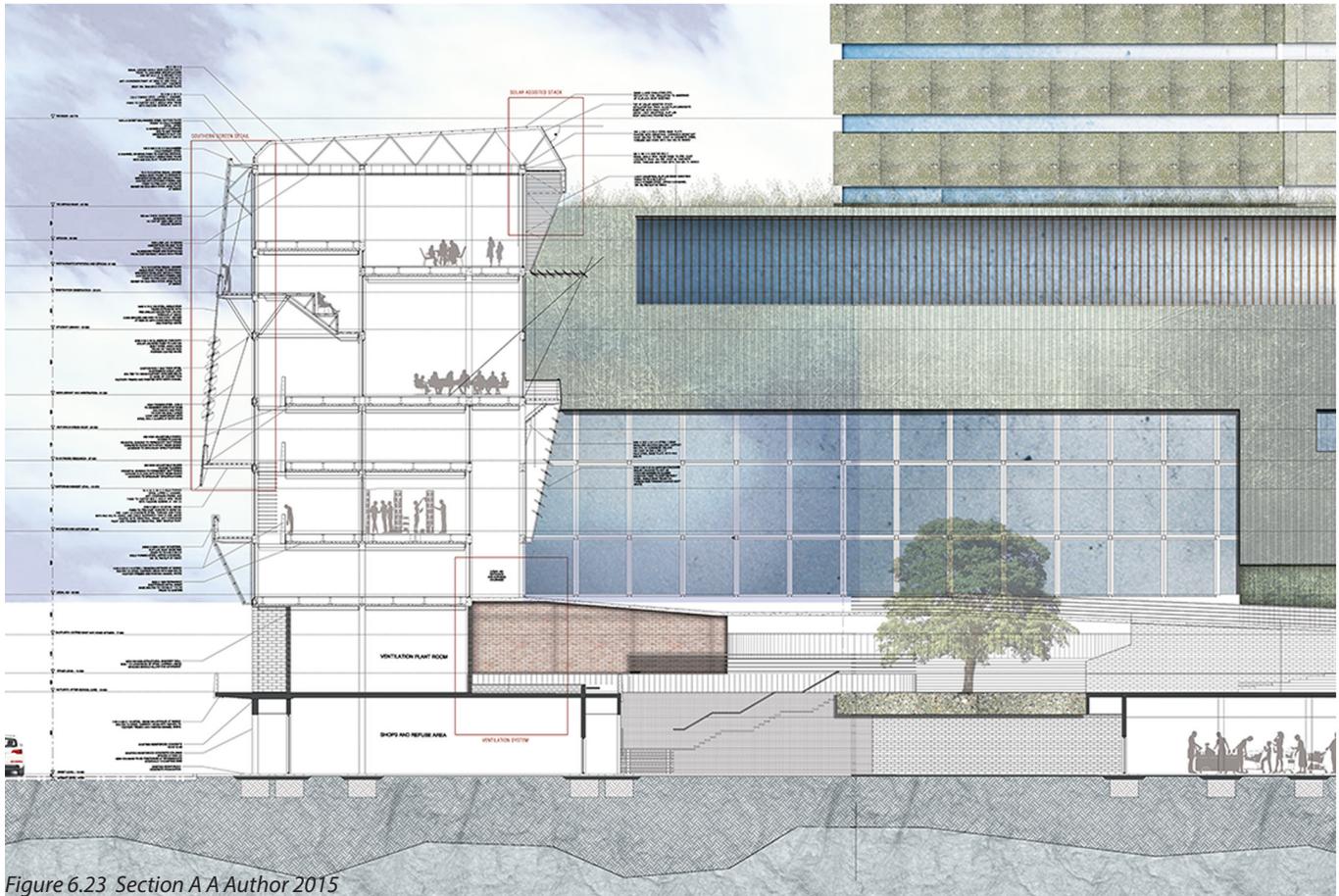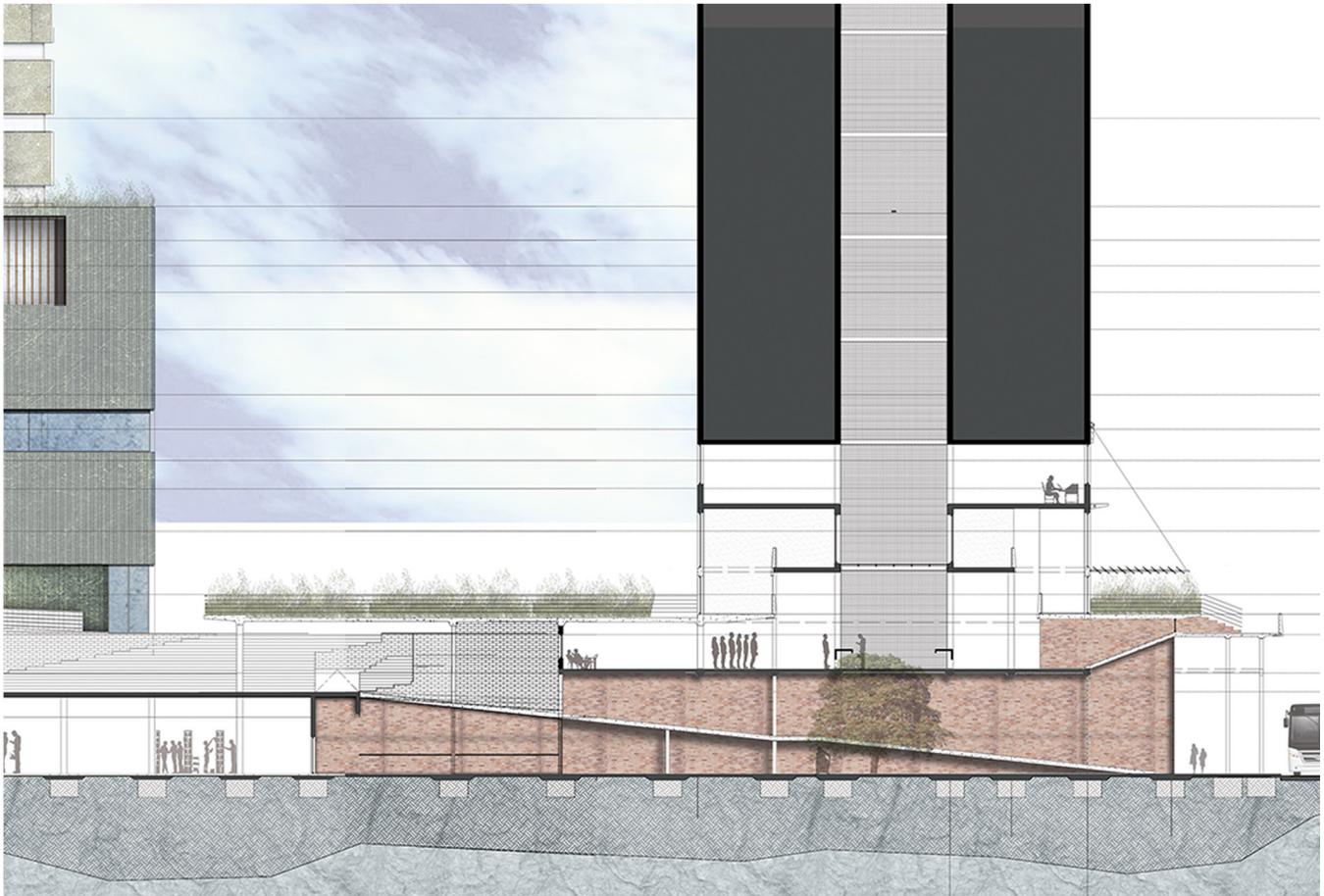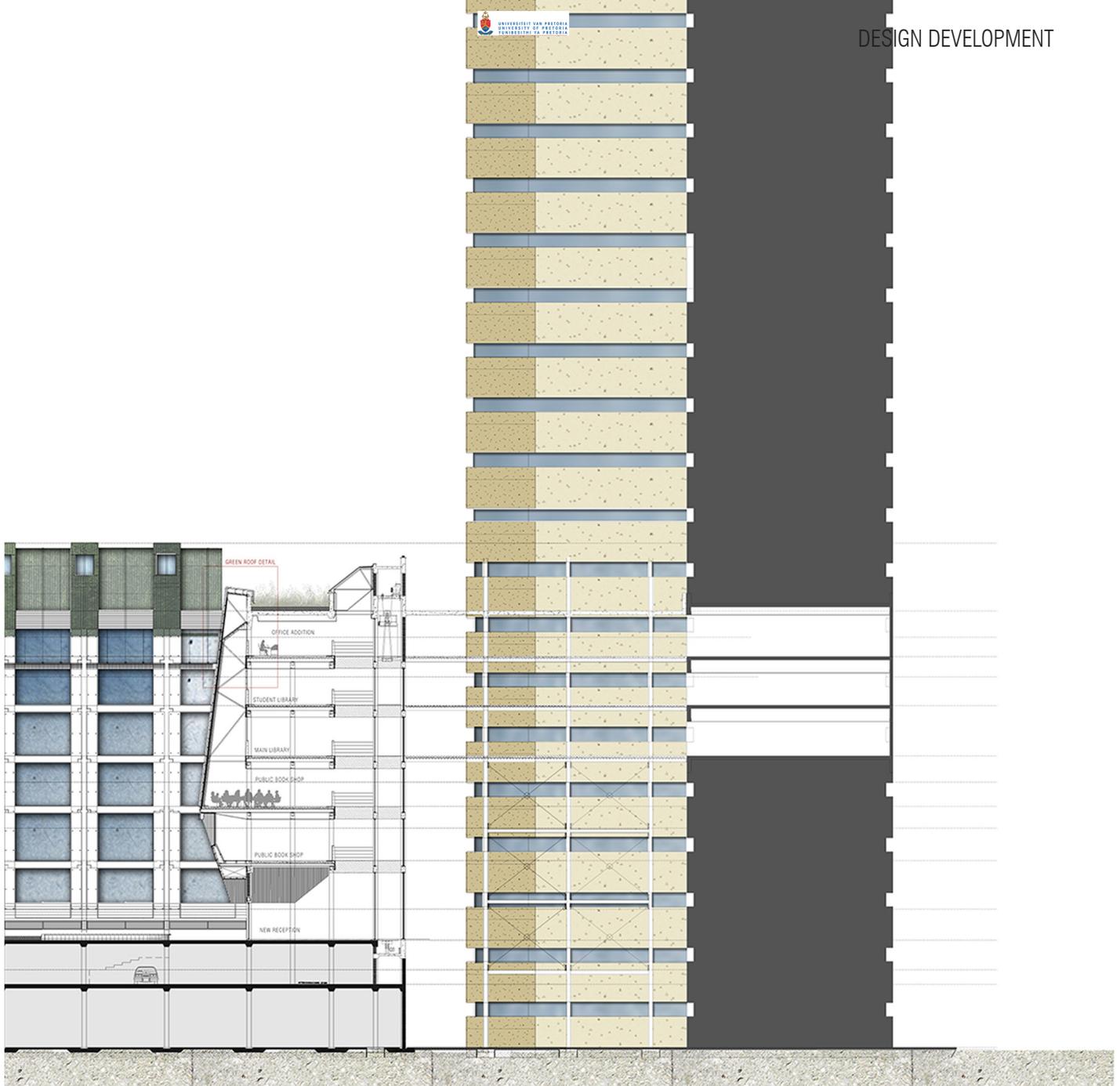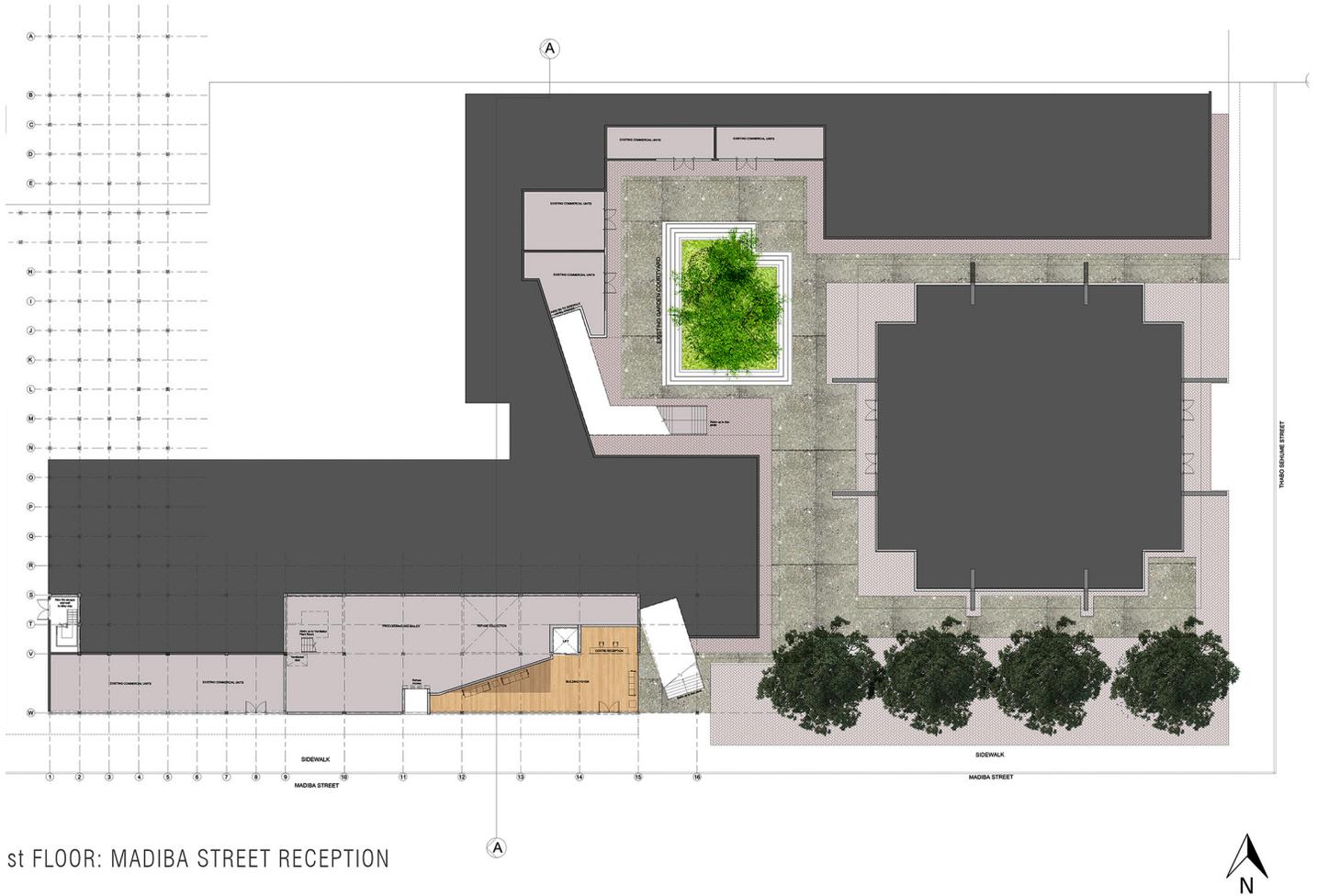
121

Figure 6.23 Section A A Author 2015

VI

e 1:50

Figure 6.24 Section B B Author 2015

GREEN ROOF DETAIL

OFFICE ADDITION

STUDENT LIBRARY

MAIN LIBRARY

PUBLIC BOOK SHOP

PUBLIC BOOK SHOP

NEW RECEPTION

st FLOOR: MADIBA STREET RECEPTION

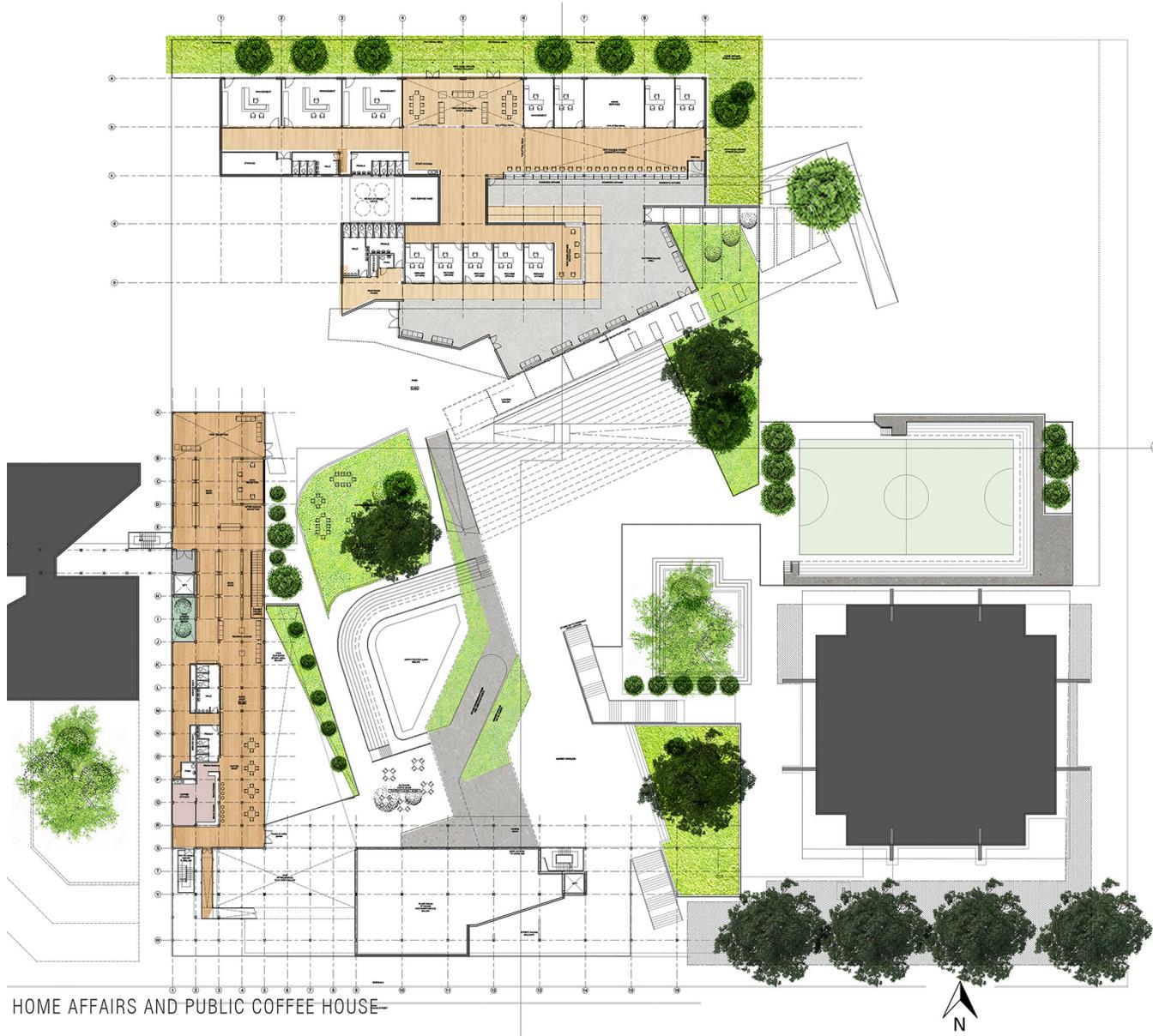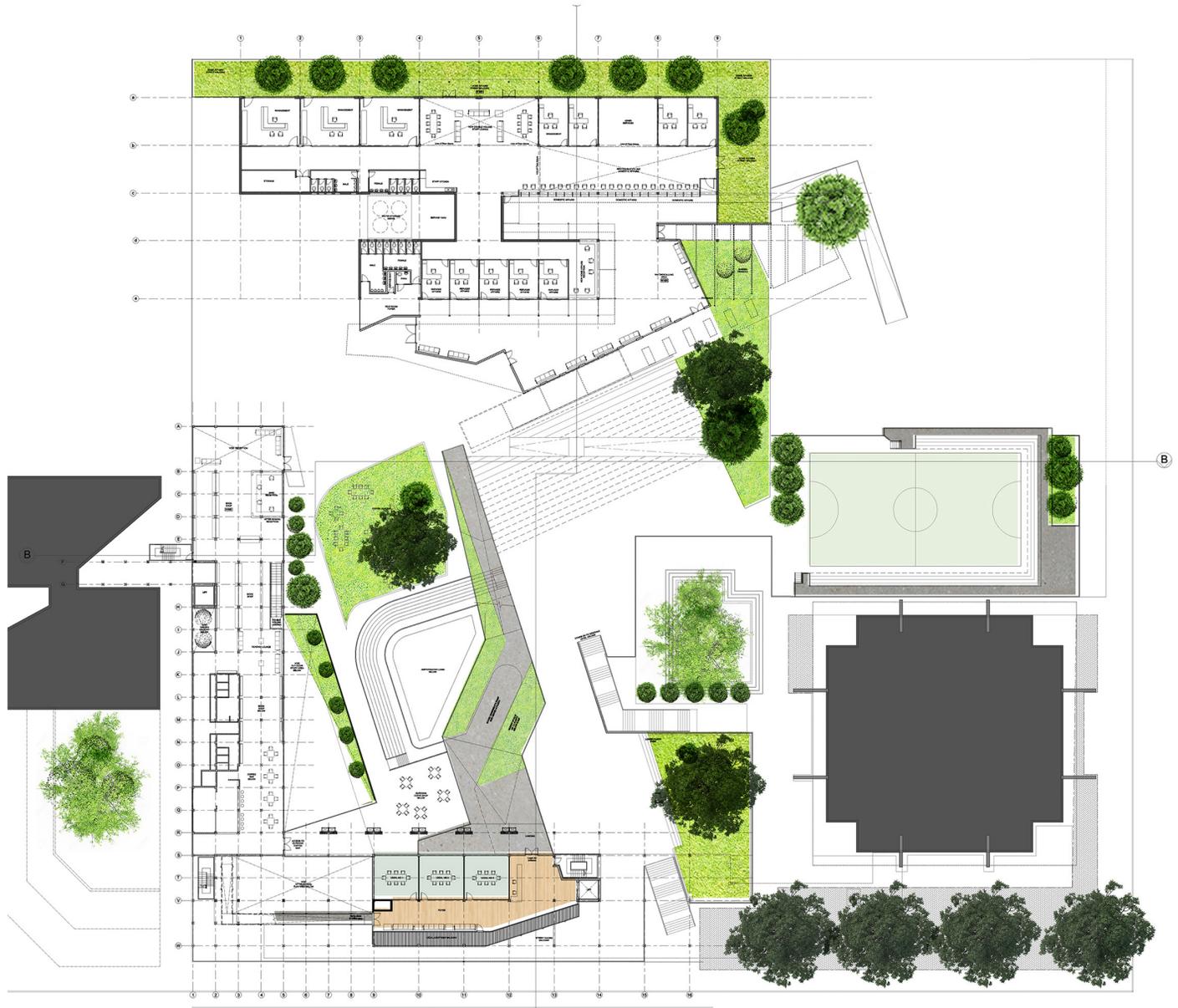*Figure 6.25 1st Floor Plan: Street Reception (Author 2015)*

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2nd FLOOR: AFTER SCHOOL CARE

Figure 6.26 2nd Floor Plan: After School Care (Author 2015)

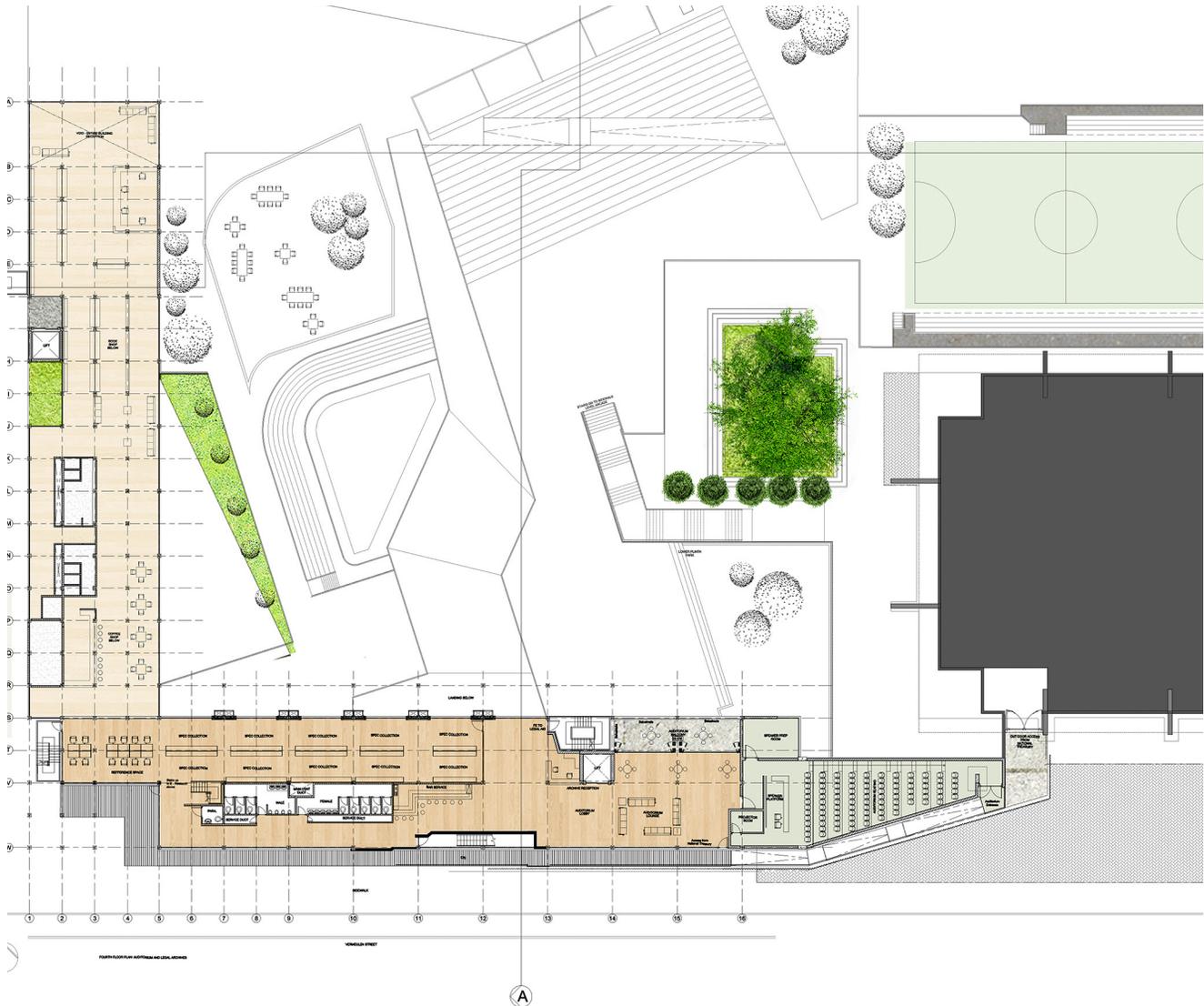HOME AFFAIRS AND PUBLIC COFFEE HOUSE

N

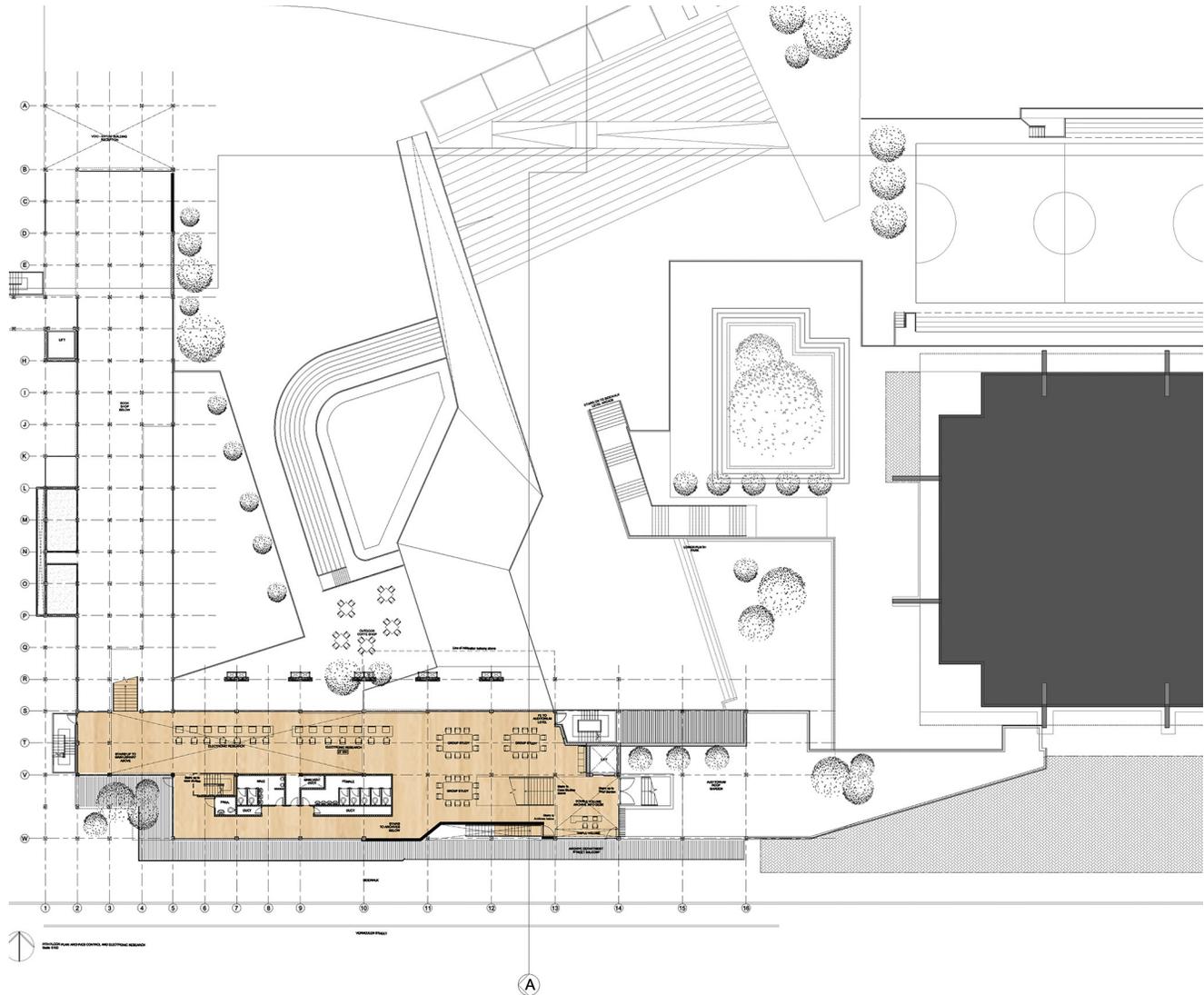*Figure 6.27 3rd Floor Plan: Home Affairs and Public Library (Author 2015)*

4th FLOOR: LEGAL AID

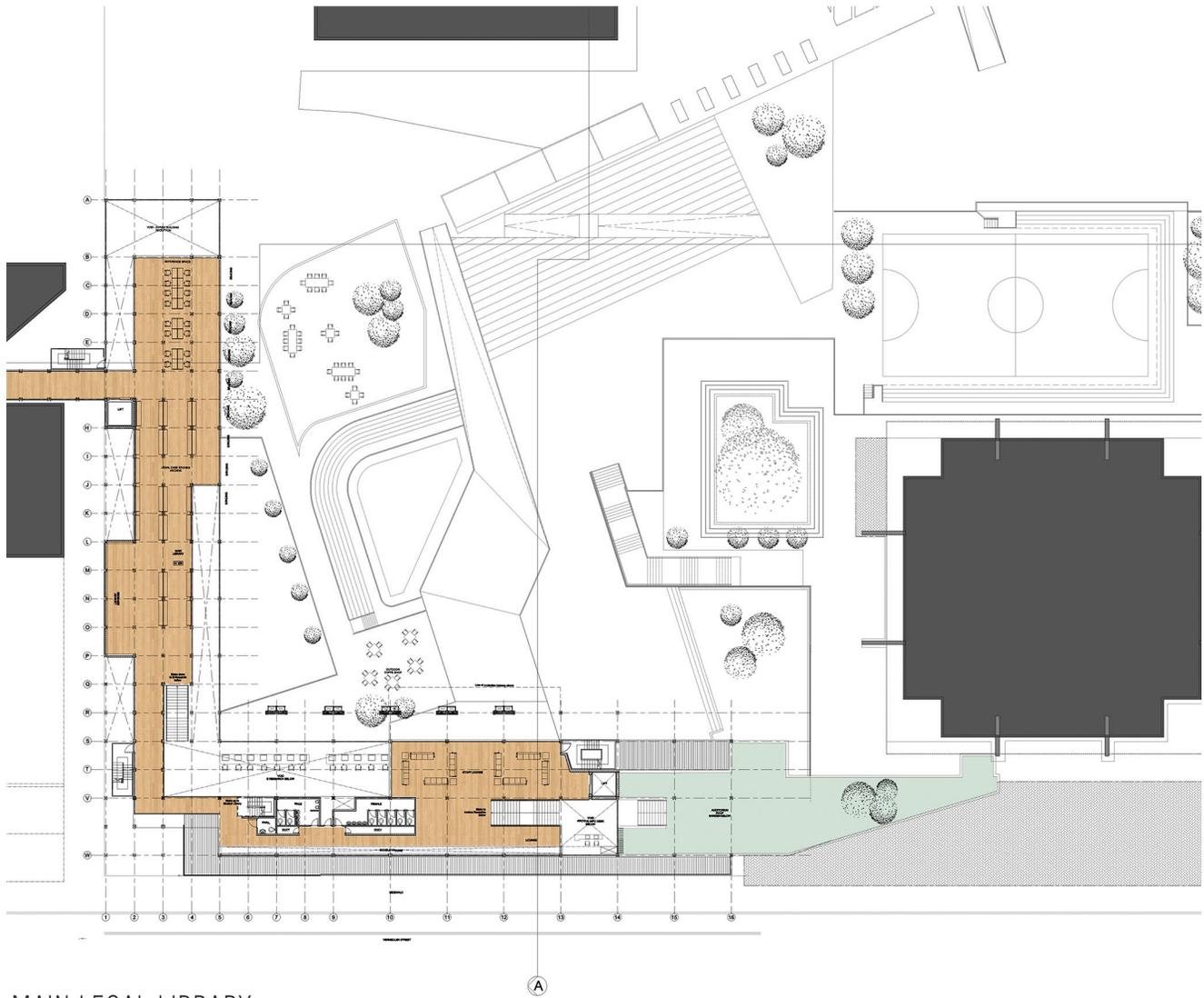*Figure 6.28 4th Floor Plan: Home Affairs and Public Library (Author 2015)*

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ARCHIVES AND AUDITORIUM

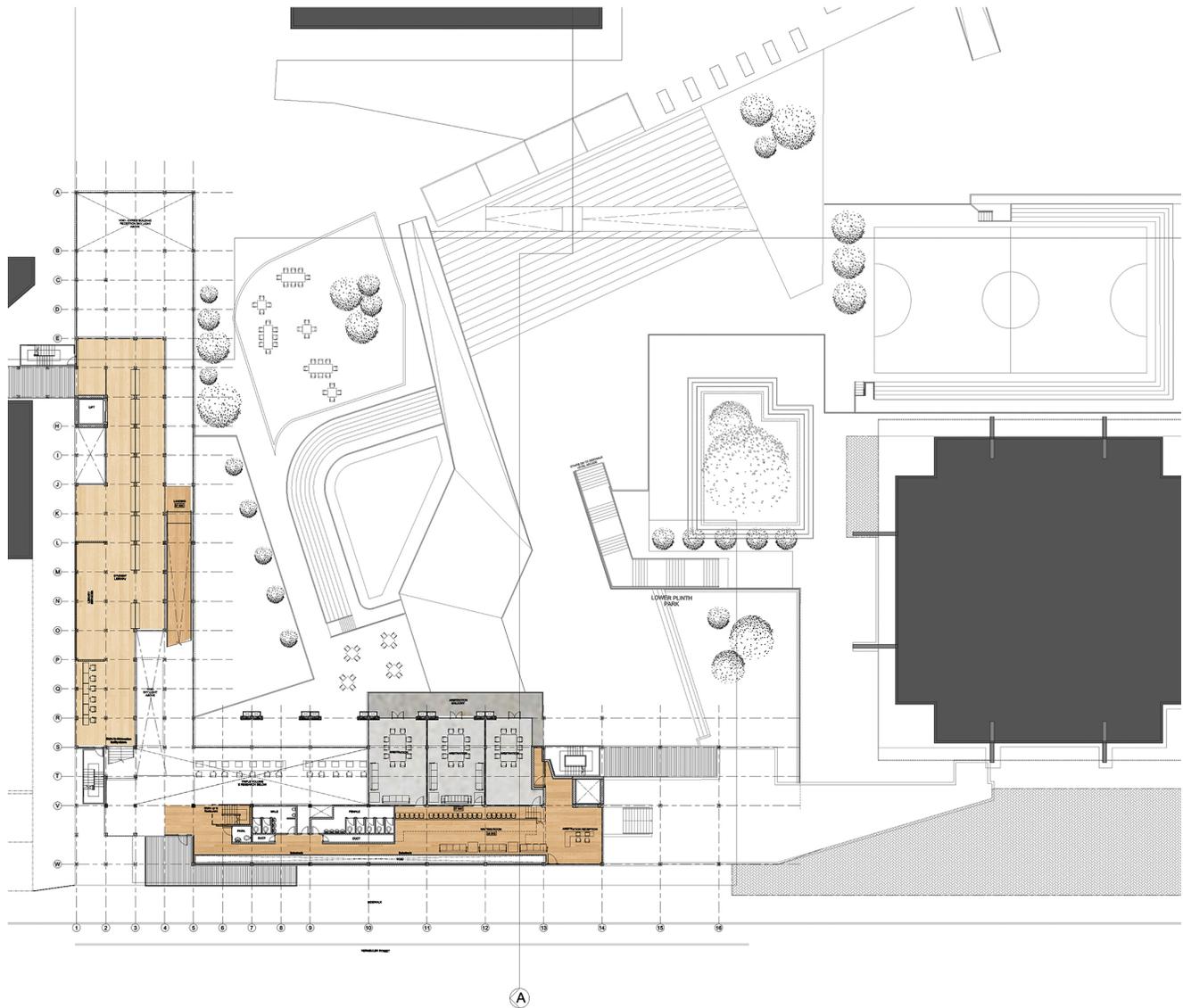*Figure 6.29 5th Floor Plan: Archives and Auditorium (Author 2015)*

ELECTRONIC RESEARCH AND OPEN STUDY AREA

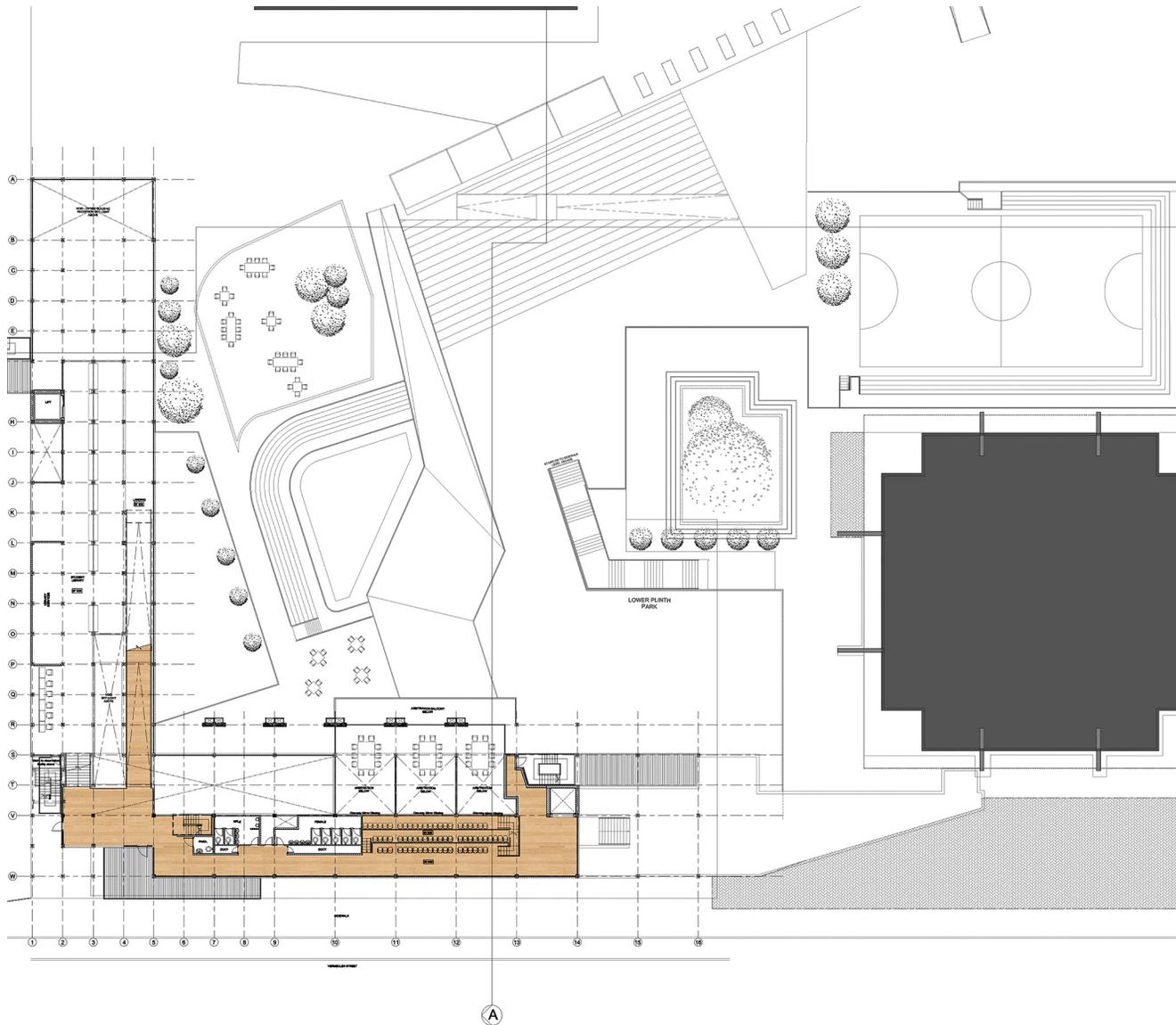*Figure 6.30 6th Floor Plan: Electronic Research and Open Study Area (Author 2015)*

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MAIN LEGAL LIBRARY

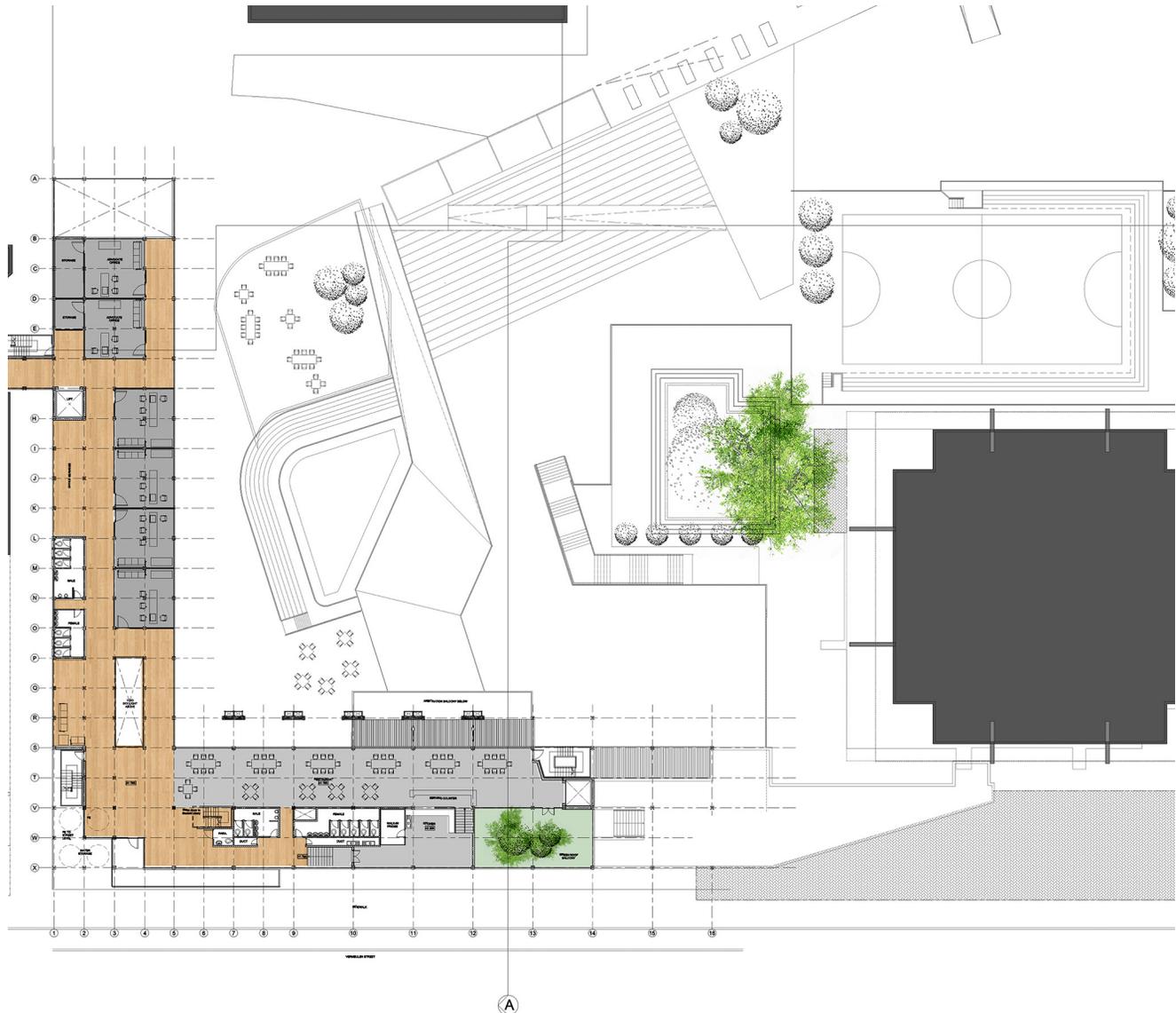*Figure 6.31 7th Floor Plan: Main Library (Author 2015)*

ARBITRATION FACILITIES

Figure 6.32 8th Floor Plan: Arbitration (Author 2015)

R: ARBITRATION OBSERVATION FACILITY AND STUDENT LIBRARY

Figure 6.33 9th Floor Plan: Arbitration Observation and Student Library (Author 2015)

LEGAL OFFICE ADDITION AND CAFETERIA

Figure 6.34 10th Floor Plan: Office Additions and Cafeteria (Author 2015)
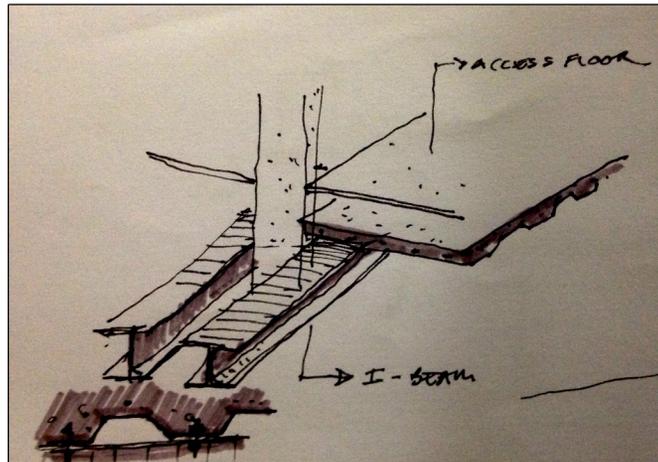
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Figure 7.1 Early Technical Exploration Author 2015

VII

TECHNICAL DEVELOPMENT

7.1 INTRODUCTION: A Normative Position

"...an assemblage that is firmly attached to the ground and that provides total or nearly total shelter for machines, processing equipment, performance of human activities, storage of human possessions, or any combination of these."

(Merritt and Ricketts, 2001:1.2)

''The method and processes involved in connecting the above-mentioned assemblage of materials and components to form a building is the domain of Building Construction.''

(Merritt and Ricketts, 2001:1.2).

According to Conway and Roenisch (2005), the subject of materials and construction concerns not only the wide range of materials used, but also their production and the nature of the building (Conway and Roenisch, 2005:110). One could thus divide the energy imbedded in construction into two spheres, one being natural embodied energy (the processes involved in its production) and subjective energy of how it responds to the user. This combined energy as a system designed to maintain equilibrium, will impact the influx context in which it is placed and will, in turn, absorb the counter-impact of its context.

This dissertation places emphasis on the urban user's socio-economic condition forming an equally important - if not greater - part of this context.   This places the subject of building construction to be viewed as a complex living entity and as part of a greater (urban) ecology. According to this view, the structural approach of building should reflect aspects of flexibility and resilience, as opposed to mono-functional and internalised prototypes.
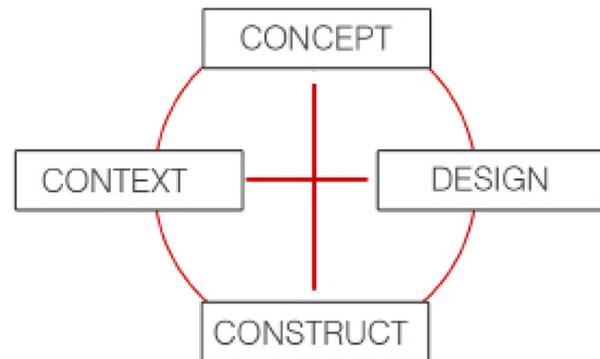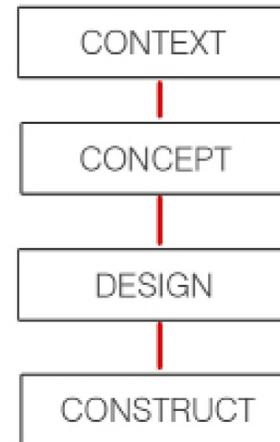

Figure 7.2 Normative position Author 2015

When construction fails to be mindful of this fluctuating (urban) environment, it may eventually become unresponsive towards its socio-economic context (Groak.1993:187), ultimately resulting in an unsustainable mechanism. A building could then eventually be perceived as alien to its context if the socio-economic atmosphere evolves beyond the building's ability to absorb such change. This possibility highlights the importance of resiliency and flexibility as a main concern to the technological intention of the scheme. If architectural construction involuntary reflects how a building responds to its associated context(s), it implies that: "It's not if it speaks, but how and what it speaks." Therefore, not considering what and how the technological process communicates not only results in a waste of valuable resources and energy, but presents an opportunity where construction may be programmed or manipulated to serve a specific objective. Ideology imbedded in the built form and various typologies of Pretoria already declares such a strategy effective.

The structural approach of the dissertation then builds on this heritage of programmed architecture and explores the possibilities which may arise out of a partial reverse of "agenda-based architecture". The scheme therefore does not propose a total abstraction to Pretoria's modernist typologies, but rather explores the incision, extraction, processing and redistribution thereof, so as to generate a responsive archetype. Likewise, current and up-to-date technologies are not to be considered, due to the fact that they are made available, but should originate from an investigation of what the context and concept require and how to supplement these criteria in the most sustainable manner possible.

According to Berge (2000), a mechanism in traditional development theory, coined as phaedomorphosis, implies that development may take a step back to earlier and less specialised technologies in order to take a new line of development at a later stage. Therefore, progress does not always demand taking a step forward (Berge, 2000:48). The abovementioned approach to architectural technology provides a feasible solution in securing future levels of flexibility and resilience whilst progressively facilitating current needs. Regarding the relationship that exists between built form and urban environments as an organic fluctuating system ultimately relates to biological systems and enters the theoretical territory of biomimicry. Gruber (2011), ascribes the resiliency of biological structures to t he limited range of materials utilised in a multi-functional manner in order to secure its survival (Gruber, 2011:97).

The process and methods of construction thus become more than a linear process of jumping from the intangible abstract to the tangible structural, but develops – in similarity to space and aesthetics - as a language of communicating the philosophy behind the architectural intent, whilst securing levels of resiliency so as to absorb and contribute to change. This suggests a more coplanar and integrated process to ensure the integrity and socio-economic appropriateness of construction decisions. This dissertation explores the manner in which architecture through technology may act as a responsive vehicle for transporting alternative ideas towards urban renewal.

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7.2 TECHNE: General Structural Concept

As an overarching structural concept, the building is to represent an "urban expansion joint". The architecture is cast into the void that has occurred through a fractured relationship between introverted, mono-functional and individualistic orientated buildings. The intervention or soft matter to be inserted within the marginal space that exists between opposing hard matter, is to represent a temporary and flexible intermediate.

As an "expansion joint", the intervention acts as an intermediate entity between distinct objects (existing buildings and plinth), and enables the synthesis of programmes, additional connections and further expansion of the structural system. Where the new building meets the plinth, it is regarded as a pint of friction or impact. This event is accentuated by allowing the plinth to impact the building, and vice-versa. The intervention not only utilises the existing structural properties of the site to enable its existence, but furthers this notion by providing existing infrastructure as a flexible structural prosthesis that may allow for future structural readaptation and reinterpretation.

The architecture then not only aims to be resilient through its own structural approach, but also intends to give back and heighten the general resiliency and flexibility of the site it is to occupy.
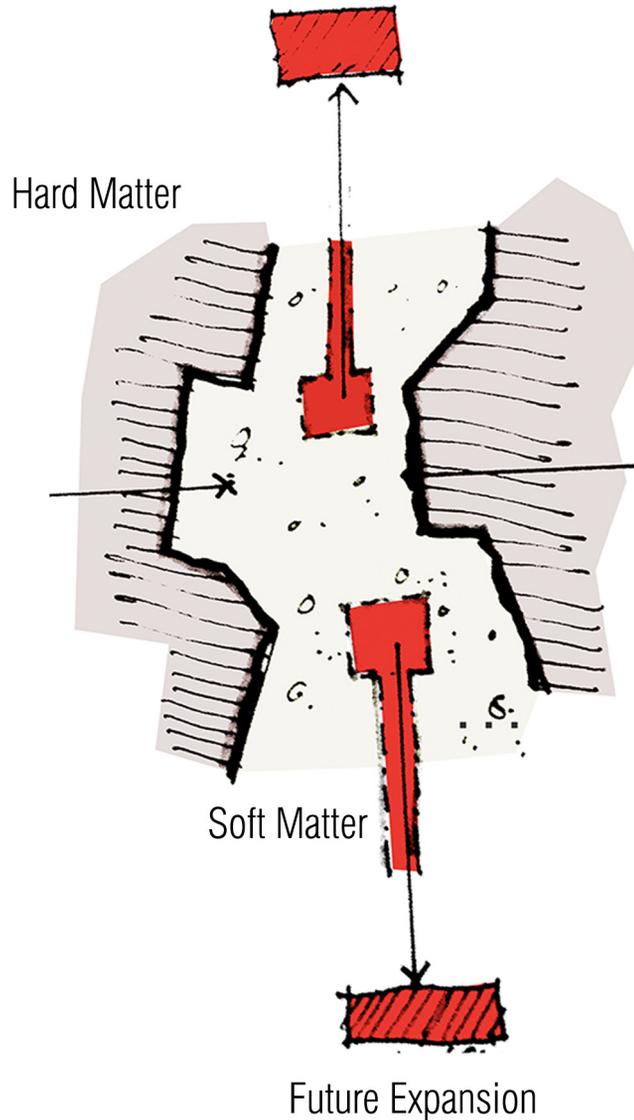

Hard Matter

Soft Matter

Future Expansion

Figure 7.3 Structural Concept Author 2015

7.3 CONCEPT: Primary Structure and Skin

To accomplish this, a hierarchy of temporariness is established and translates as a technical concept defined as primary structure and skin. This concept guides all choices regarding materiality, fixing of components and the finishing and aesthetic effect of materials.

7.3.1 Primary Structure:: Flexible Permanency

Primary structure consists of foundation, columns, floors and service infrastructure. As the architecture is guided by ideas of temporariness and consumerism, the main structural elements represent the section of the building that may be left behind for readaptation and to soften the initial state of inaccessibility and lack of adaptability currently associated with the plinth.

As extending structure is provided to the site, this element also carries with it a degree of temporariness to maximise the flexible nature of the architecture. The same approach is applied to the services and sustainable strategies to be applied to the scheme.

Services to be "left behind," in the case of possible future readaptation, provide a halfway platform for more sustainable developments to launch from and to expand.
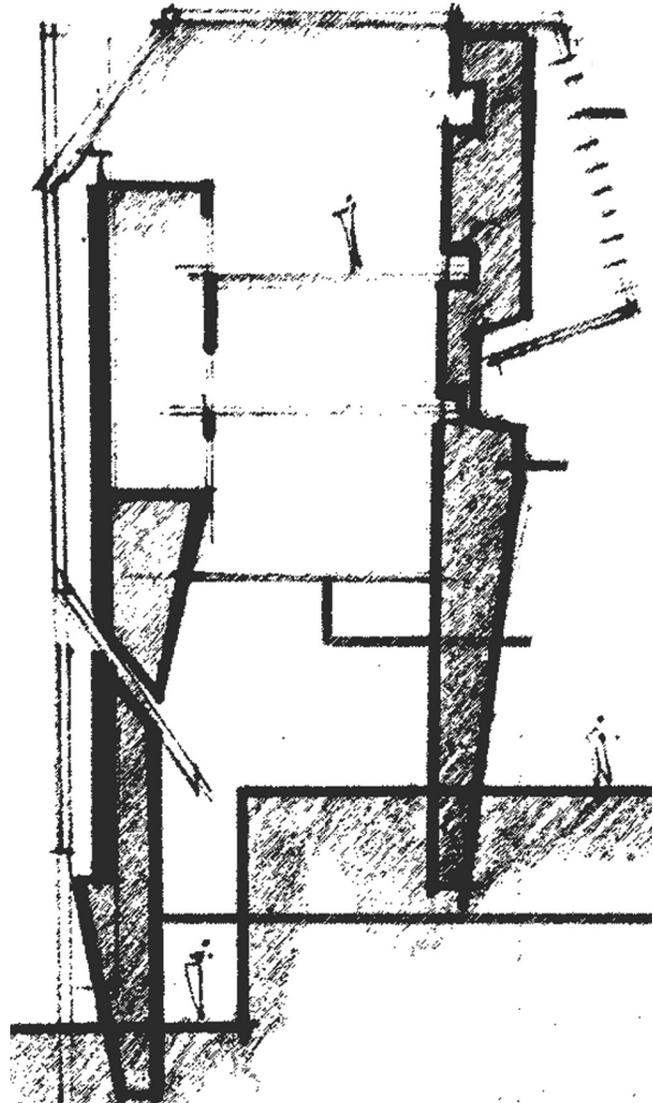
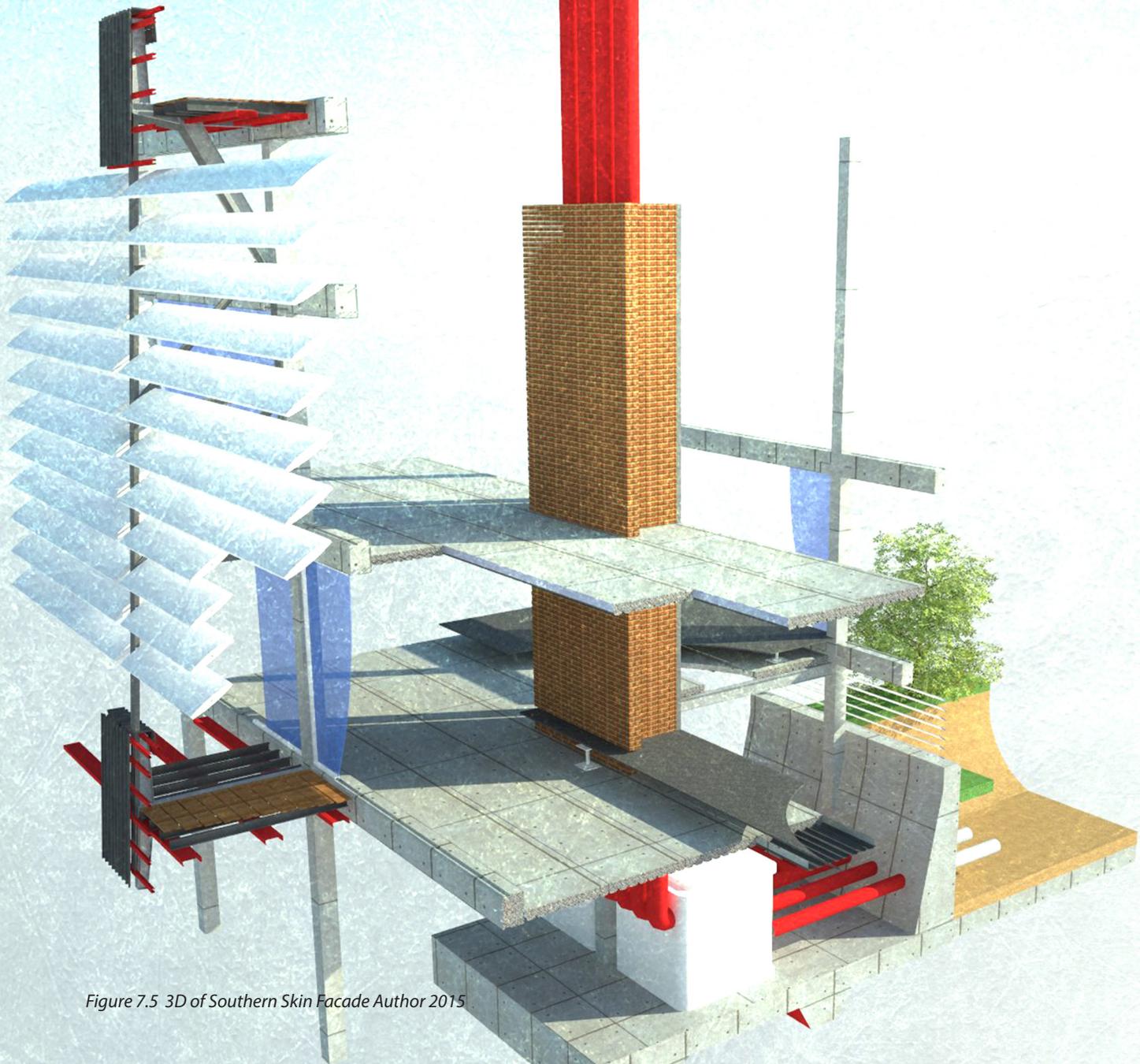*Figure 7.4 "Structure and Skin' Author 2015*

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Figure 7.5 3D of Southern Skin Facade Author 2015

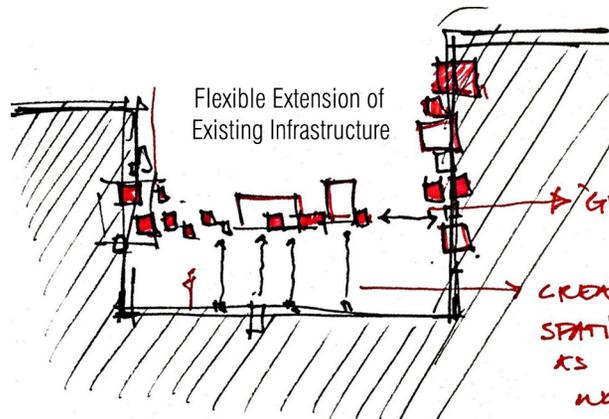Flexible Extension of Existing Infrastructure

Figure 7.6 "Extension of Existing Infrastructure"" Author 2015

7.3.2 Secondary Structure –Skin: Responsive Control

Skin becomes the element that controls the level of the building's responsiveness and adaptability, exposing and concealing structure where it is deemed effective. Skin acts as lifting the skirt on what essentially translates as the modernist principles, as imbedded in Le Corbusier's Domino House. A simple box-like structure, which consists of a floor-column configuration, is assembled through slender columns, elevated and supported above its foundation plane. This approach aims at an architectural contrast and reconfiguration of the modernist heritage of Pretoria and demonstrates the potential of extroverted architecture as a tool towards a responsive urban element. The roof of the new building will form part of the skin, where its temporariness is to suggest a future vertical extension of the structure. The roof cover blends with the temporariness of the skin as it is applied to the southern facade, providing little visual distinction between the two elements.

7.4 STRUCTURAL ORDERING : A Technical Response to Design Concept

The ordering of the structural system will translate the design concept of incision, extraction, processing and redistribution, with the main aim of integrating public with built form. Existing structure is to be punctured so as to allow for the new and temporary growth that will feed off the information - this event is to be celebrated architecturally through the ordering of the structural system.

As the conceptual approach stems from the principle of entropy, the building's various requirements in terms of structural intensity will be ordered as decreasing from a high-density structural system to a low-density structural system, so as to clarify the design's intent of transcending from an internalised (static] mode into an extroverted (animated) public domain. Components of the building's program are ordered in a descending manner according to the intensity of their respective structural requirements.

The metaphorical high-pressure zone is located where the new structure is to extend from the existing High Court Chambers building and decreases as the building extends towards the western and south-eastern edge of the plinth in an L-shaped formation. In accordance with this concept, the dense grid-column configuration, as required by the proposed library extension, will be located in close proximity to the point of incision. From there, the building's structural ordering will disintegrate into a more dispersed structural arrangement as program requirements decrease in its structural requirements, such as offices, board-rooms, research facilities and lounges. This disintegration of structural intensity is to reach a climax where the auditorium will extend beyond the eastern edge of the plinth and will appear to be hovering above the sidewalk level, accentuating the main threshold into the plinth site.
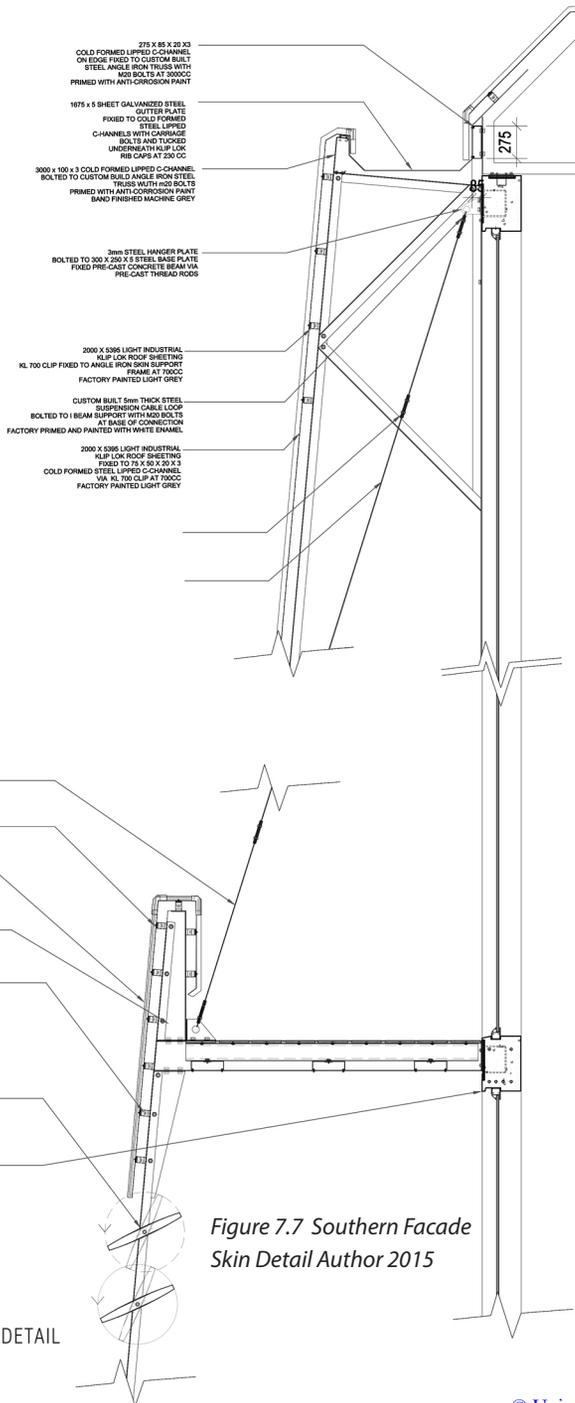
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275 X 85 X 20 X3
COLD FORMED LIPPED C-CHANNEL
ON EDGE FIXED TO CUSTOM BUILT
STEEL ANGLE IRON TRUSS WITH
M20 BOLTS AT 3000CC
PRIMED WITH ANTI-CORROSION PAINT

1675 x 5 SHEET GALVANIZED STEEL
GUTTER PLATE
FIXIED TO COLD FORMED
STEEL LIPPED
C-HANNELS WITH CARRIAGE
BOLTS AND TUCKED
UNDERNEATH KLIP LOK
RIB CAPS AT 230 CC

3000 x 100 x 3 COLD FORMED LIPPED C-CHANNEL
BOLTED TO CUSTOM BUILD ANGLE IRON STEEL
TRUSS WUTH m20 BOLTS
PRIMED WITH ANTI-CORROSION PAINT
BAND FINISHED MACHINE GREY

3mm STEEL HANGER PLATE
BOLTED TO 300 X 250 X 5 STEEL BASE PLATE
FIXED PRE-CAST CONCRETE BEAM VIA
PRE-CAST THREAD RODS

2000 X 5395 LIGHT INDUSTRIAL
KLIP LOK ROOF SHEETING
KL 700 CLIP FIXED TO ANGLE IRON SKIN SUPPORT
FRAME AT 700CC
FACTORY PAINTED LIGHT GREY

CUSTOM BUILT 5mm THICK STEEL
SUSPENSION CABLE LOOP
BOLTED TO I BEAM SUPPORT WITH M20 BOLTS
AT BASE OF CONNECTION
FACTORY PRIMED AND PAINTED WITH WHITE ENAMEL

2000 X 5395 LIGHT INDUSTRIAL
KLIP LOK ROOF SHEETING
FIXED TO 75 X 50 X 20 X 3
COLD FORMED STEEL LIPPED C-CHANNEL
VIA KL 700 CLIP AT 700CC
FACTORY PAINTED LIGHT GREY

275

85

Figure 7.8 Alterable Column and Beam System Author 2015

10MM HIGH TENSILE STEEL
CABLE FIXED TO 5mm STEEL PLATE HANGES
AND SECURED WITH 3mm STEEL
PLATE FLAT CLAMPS

LIGHT INDUSTRIAL KLIP LOK ROOF SHEETING
45 DEGREE RIB CAP COVER
SHEETING JOINT

2000 X 5395 LIGHT INDUSTRIAL
KLIP LOK ROOF SHEETING
FIXED TO 75 X 50 X 20 X 3
COLD FORMED STEEL LIPPED C-CHANNEL,
VIA KL 700 CLIP AT 700CC
FACTORY PAINTED LIGHT GREY

1100 X 203 X 113 STEEL I BEAM SHOULDER SECTION
BALUSTRADE FIXED TO

2000 X 5395 LIGHT INDUSTRIAL
KLIP LOK ROOF SHEETING
KL 700 CLIP FIXED TO ANGLE IRON SKIN SUPPORT
FRAME AT 700CC
FACTORY PAINTED LIGHT GREY

5760 X 65 X 40 ALUMINIUM CONCAVED
SOLAR LOUVERS FIXED TO CUSTOM
BUILT STEEL ANGLE IRON
TRUSS VIA THREAD ROD
POWDER COATED WHITE

5670 X 330 X 465
REINFORCED PRE-CAST CONCRETE
BEAM PLACED ON CONRETE
COLUMN HAUNCH STEEL PIN
BEAM EXTERIOR EDGE TO BE SHIMED TO SLOPE
AWAY FROM BUILDING.

Figure 7.7 Southern Facade
Skin Detail Author 2015

SOUTHERN SKIN DETAIL
SCALE 1:20

Figure 7.9 Skin as Spatial Construct Author 2015

MAIN VENTILATION SHAFT
FOR COOL AIR SUPPLY
AND HEATED AIR CIRCULATION

PERMANENT SHUTTERING
CONCRETE FLOOR SLAB

STEEL MESH SCREEN FOR
VISIBILITY OF SYSTEM

ALUMINIUM VENTILATION
LOUVRES

CONSTANT FRESH
AIR DISPLACEMENT VENTILATION
VIA RAISED ACCESS FLOORING

SOLAR POWERED
AIRCONDITIONING UNITS
TO VENTILATION PLANT ROOM

LIGHT VEGETATION GROUND
COVER TO AMPHITHEATRE
EDGE

100dia GALVANIZED STEEL EARTH TUBES
AT 3000 DEPTH BELOW IMPORTED SOIL

100dia GALVANIZED STEEL EARTH TUBES
AT 3000 DEPTH BELOW IMPORTED SOIL

NEW SLAB TO EXISTING STRUCTURE
TO ENGINEERS SPECIFICATIONS

Figure 7.10 Passive Hybrid Ventilation System Author 2015

2000 X 5395 LIGHT INDUSTRIAL
KLIP LOK ROOF SHEETING
FIXED TO 75 X 50 X 20 X 3
COLD FORMED STEEL LIPPED C-CHANNEL
VIA KL 700 CLIP AT 700CC
FACTORY PAINTED LIGHT GREY

30000 x 4000 SISALATION (TM)
REFLECTIVE FOIL INSULATION TO UNDERSIDE
OF KLIPLOCK ROOF SHEETING WITH REFLECTIVE
SURFACE FACING UPWARDS

LIGHT INDUSTRIAL KLIP LOK ROOF SHEETING
45 DEGREE RIB CAP COVER
SHEETING JOINT

LIGHT INDUSTRIAL KLIP LOK ROOF SHEETING
KL 700 CLIP FIXED TO
75 X 50 X 20 X 3
COLD FORMED STEEL
LIPPED C -CHANNELS AT 700 CC
ETCHING PRIMER COATED

50mm RIGID ISOBOARD INSULATION
TP EXTERNAL WALL CAVITY

100mm THICK MINERAL WOOL THERMAL
INSULATION TO
TOP SIDE OF 8MM GYPSUM CEILING
PLASTER BOARD

90 X 90 EQUAL ANGLE IRON LEGS WELDED
SIDE TO SIDE AND FIXED TO
100 X 75 UNEQUAL ANGLE IRON
SKIN SUPPORT FRAME
WITH SOCKET SCREWS

LOW -E GLAZING PANEL FIXED IN GREY
POWDER COATED
ALUMINIUM WINDOW FRAME

CONTINIOUS CLEAT

300 X 250 X 5 MILD STEEL BASE PLATE
PAINTED WITH INDUSTRIAL
CORROSION RESISTANT PAINT
BOLTED TO REINFORCED CONCRETE
DOWNSTAND BEAM TO
THREADS AND FIXED WITH M40 BOLTS 3000CC

CAULKING SEALANT
TO ALUMINIUM WINDOE FRAME

100 X 75 CUSTOM BUILT
UNEQUAL ANGLE IRON SKIN SUPPORT FRAME
TO ENGINEER DETAILS

LIGHT STUDDED
STEEL WALL WITH TWO LAYERS OF 8MM
GYPSUM PLASTER BOARD

2MM GALVANIZED SHEET METAL PARAPET CAP
SLOPED TOWARDS DRAIN ROOF SIDE TO
BE SHIMED AS REQUIRED

REINFORCED CONCRETE UPSTAND BEAM

2MM GALVANIZED SHEET METAL
PROTECTION

200 X 860 X 150 PRE CAST CONCRETE
PAVER WITH SHIM

300 X 150 X 3 LOOSE LAID ANGLE IRON
RETENSION KEY

ENGINEERED SOIL
LIGHT VEGETATION COVER

FILTER LAYER

RESERVOIR LAYER

OPTIGREEN STANDARD PROTECTION MATT
GEOTEXTILE FABRIC FROM RECYCLED
POLYPROPYLENE LAIS AT 150MM OVERLAPS

BITUMEN POLYMER WATER PROOFING MEMBRANE
TORCHED ON TO SCREED SURFACE
TO WATER PROOFING SPECIALIST SPECIFICATIONS

300MM INITU REINFORCED CONCRETE ROOF
SLAB WITH 50MM SCREED COVER TO SLOPE
TOWARDS
DRAINAGE POINT AT 1:100 SLOPE

MOISTURE RETENSION LAYER - OPTIGREEN
CAPILLARY PROTECTION MATT WITH WATER
STORAGE CAPACITY O 9L/M2 AT OVERLAPS OF
150MM

MOISTURE RETENSION LAYER - OPTIGREEN
CAPILLARY
PROTECTION MATT WITH WATER STORAGE
CAPACITY O 9L/M2 AT OVERLAPS OF 150MM

THERMAL INSULATION

AERATION LAYER

AERATION LAYER

ALUMINIUM CEILING FRAME
SUSPENSION HANGERS FIXED
TO CONCRETE ROOF SLAB SOFFIT
ALUMINIUM CEILING FRAME

8MM GYPSUM PLASTER BOARD
BULKEAD CONSTRUCTED ON
LIGHT ALUMINIUM SUSPENDED FRAME
STRUCTURE

GREEN ROOF DETAIL
Scale 1:50

Figure 7.11 Green Roof and Skin Detail Author 2015

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By lifting the entire building above plinth level, the structural ordering will be exposed to public visibility from street level and will be made accessible to the plinth user by programming the space generated by the colonnade underneath the new building.

7.5 SUSTAINABILITY APPROACH

Due to the location and environmental character of the site, the scheme will not be able to fully rely on passive heating, cooling and ventilation strategies and consequently proposes a hybrid system which mediates between passive and mechanical systems. Here the notion of phaedomorphosis (as mentioned in 7.1) comes into play, where conventional and existing systems are incorporated and aided by sustainable technologies, so as to allow the building to be strengthened passively at a later stage as new technological solutions may develop.

Due to the fact that the southern facade overlooks Vermeulen Street, conventional methods of allowing cool air into the building from the south are deemed impractical. Factors such as carbon dioxide-saturated air and increased levels of air temperature associated with urban atmospheres raise issues of interior building discomfort, as well as a general health risk for building occupants. The proposed system will consist of a solar-powered air conditioning system to supply displacement ventilation - made possible by raised access flooring - at comfortable temperatures during winter and summer months.

To reduce energy strain on air conditioning and solar power supply during summer months, geo-thermal earth tubes will be installed into the plinth with an intake air filter at a distance of 50 metres away from entering the building envelope.

This system is to supply a constant flow of fresh air to the solar powered air conditioning units at approximately 18 to 28 degrees Celsius, lowering the temperature difference to be adjusted by the A/Cs. Imported earth onto the plinth for the purposes of installing the geo-thermal tubes - at a minimum depth of 3 metres – will be integrated into public green pockets onto the public plinth.

To aid in the circulation of air throughout the building's interior spaces, solar-assisted stack towers with PV-panel powered extraction vents will be provided to the northern facade of the building to supplement the air conditioning system in providing an adequate airflow exchange rate. Horizontal solar screen louvers, positioned at optimum distances away from the northern facade, will allow for solar heat gain to penetrate the building during winter months and reduce this effect during summer months.

Strategically-located double volumes throughout the interior of the building will allow for winter sun to penetrate lower levels where floors are partially increased in thermal mass, providing comfort during winter. Building components such as services, green spaces, circulation and water storage facilities will be incorporated as solar buffers on the southwestern portion of the street facade.

The auditorium, which will be limited in vertical fenestration due to privacy and traffic noise reduction, will be located to the eastern portion of the southern facade so as to limit the building's exposure to direct eastern and southeastern sunlight.

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TFAN ASSISTED STACK VENTILATION SYSTEM TO LOWER ENERGY STRAIN ON AIRCONDITIONING UNITS

TRANSLUCENT POLYCARBONATE SHEETING ANGLED AT 60 DEGREES FOR OPTIMUM SOLAR EXPOSURE

HORIZONTAL FIBRE CEMENT SOLAR SCREENS TO NORTHERN FACADE WINDOWS

REINFORCED CONCRETE HAUNCH TO COLUMN

50mm GLAZED CAVITY WITH IBR PROFILED STEEL ROOF SHEETING PAINTED BLACK AND FIXED TO ANGLE IRON STEEL FRAME. INSULATED TO INTERIOR OF SPACE

Figure 7.12 Solar Assisted Stack Ventilation System Author 2015

The extraction system of the solar assisted stack towers will be disabled during winter months. The heated air that these towers channel will be captured and recycled throughout the interior spaces, again reducing the amount of energy required by the air conditioning system to adjust for comfortable interior temperatures. The redistribution of hot air will follow the same channels of displacement ventilation through raised access flooring, with the geothermal earth tubes supplying constant heat-processed fresh air into interior spaces. Due to the fact that the site under investigation does not receive the optimum amount of natural light, building elements and materials should not only provide the optimum sunlight penetration into space, but should also be adaptable to suit the flexibility and level of user-control the building strives for.

As part of the scheme's intension to clarify its position on utilising existing infrastructure, it will incorporate the existing plinth surfaces, as well as the new building's roof area, into a combined mechanism for rainwater harvesting. This system will not stand alone as primary access in providing sanitary, consumer, and irrigation needs, but aims at decreasing the building's dependency on conventional and existing water supply to the site. This process will then allow for the partially sustainable maintenance of building services, as well as public green space to be introduced onto the site. The storage and processing of collected water will be made visible and partly accessible to the public as a didactic component to the scheme, with regards to sustainability and the readaptation possibilities of marginal space.

7.6 MATERIALITY

The selection of building material depends on its categorisation into either Structure or Skin and rests on the temporariness of what the building should represent, where some of the building elements are deemed to be more permanent than others.

Sustainability in terms of the future reuse and reassembly of materials becomes the main criteria for selection. The primary structural system consists of vertical access and utility mains and insitu concrete columns with intermediate T-haunch sections, which provide multiple connection possibilities.

Allowing for the possibility of future alterations to floor levels and positioning, the building allows itself to facilitate different programs as variations in its urban context might require. By increasing the variations in which the structure may be ordered, the embodied energy of materials and components can be capitalised on more intensively. Pre-cast concrete beams, supported on the T-haunches, provide lateral support and bracing to the exterior rows of columns and aid in connecting the secondary steel-beam structure which provides the support for a permanent shuttering floor base.

Tertiary elements include glazing, raised access flooring, interior partitioning, ceilings, balconies, horizontal and vertical solar screen louvres and the truss-skin extension of the roof sheeting to form part of the southern skin facade. Structural support of these elements will be provided by attaching to the primary structural system of concrete columns, beams and permanent shuttering floors.The skin of the building is suggestive of pulling away from the main structural system, of which the materiality is to speak of lightness, flexibility and adaptability. It therefore becomes a method in which the new building is to contrast against the hard, introverted and heaviness of the site's materiality, and highlights the project's nature of extending out of the existing built fabric.

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This approach also guides the structural connections that allow the new building to gain access to existing structures. The concept of incision is to be suggested by the overall formalistic effect that the structure generates. In reality, the structure will have minimal impact where thresholds are made into existing buildings. These connections and the manner in which they are fixed to the existing buildings, will play on the contrast that exists between the lightness of the new building and the heaviness of the existing site materiality. Extending steel elements will provide bridge platforms to allow access into the existing buildings. The fixing of where these "light" elements are joined to the "hard" materiality of masonry and concrete will be exposed and made visible to the user. Exposed light frame steel trusses will connect the skin of the building to its heavier structural components at column-based intervals, and through this contrast, will add to the rhythmic collaboration of and light and heavy building elements. To reduce the staticness of the screen, it will be enabled to perform purposes in controlling the climatic control of interior spaces. Sections of the screen will therefore consist of adjustable screen louvres to allow the user to control the availability of natural light and exterior visibility.

ARBTIRATION
RECEPTION AND LOUNGE

LOBBY

SECTION A-A Scale 1:50

EXISTING PLINTH

NATIONAL TREASURY

ROOF GARDEN

(BRIDGE)

LOBBY(BRIDGE)

AUDITORIUM

Figure 7.13 Longitudinal Section from Madiba Street Author 2015
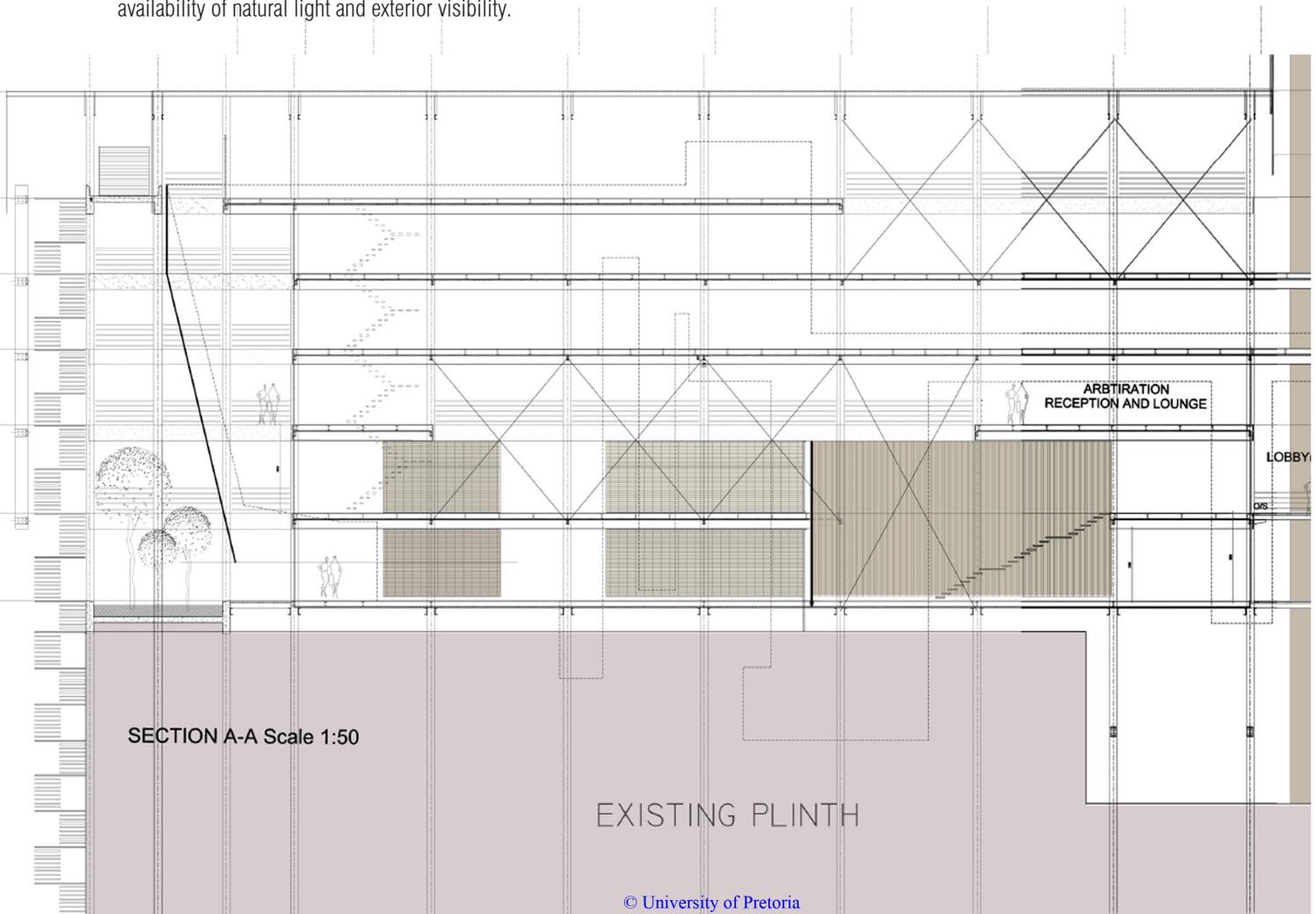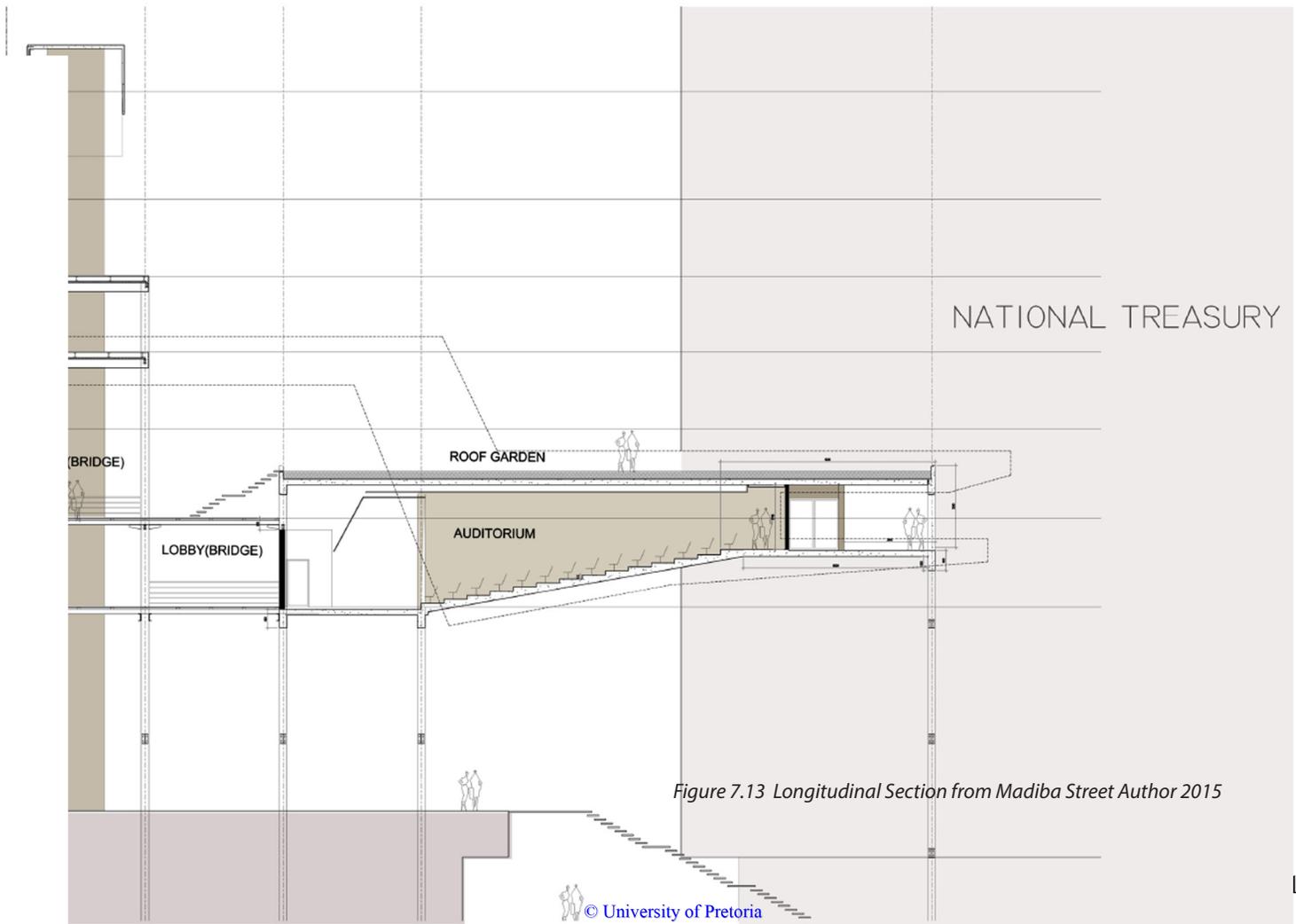
Figure 7.14 Passive Heating Strategy as Part of Hybrid System Author 2015

WARM AIR FAN PROPELLED FOR REDISTRIBUTIO

WATER
STORAGE

GARDEN
SOUTH WESTERN
SOLAR
BARRIER

HEATED
AIR DISTRIBUTED
VIA ACCESS FLOORS

AND

BYPASS
EVAPORATIVE COOLING
SYSTEM

RE-CIRCULATE
WARM AIR

GREEN ROOF FOR THERMAL AND
ACOUSTIC INSULATION

CLOSE
AUDITORIU
EXHAUST

O/S

AUDITORIUM

RE-CIRCULATE
WARM AIR

HEAT EXCHANGER
HEATS FRESH AIR
O RE-HEATS RECYCLED AIR
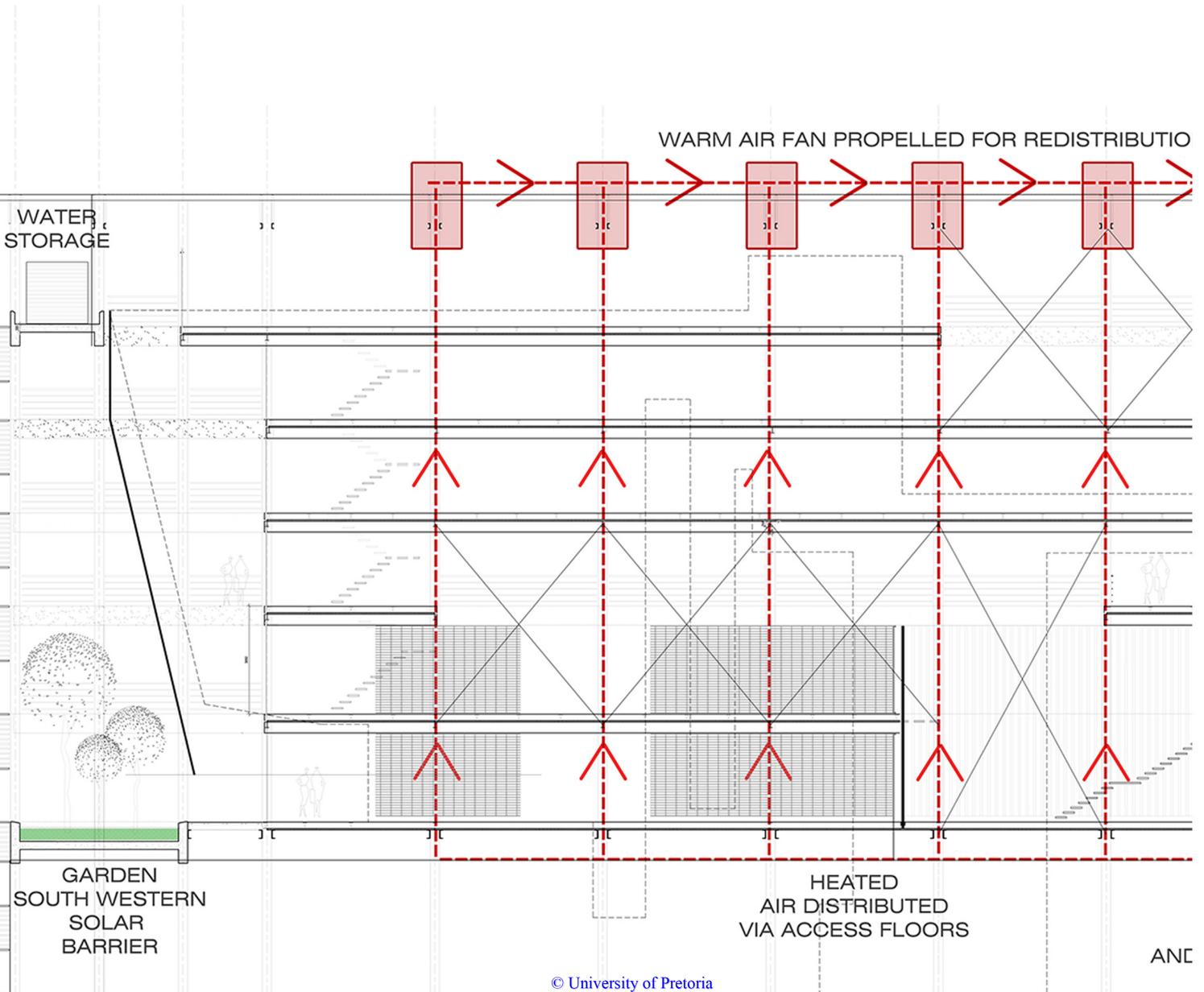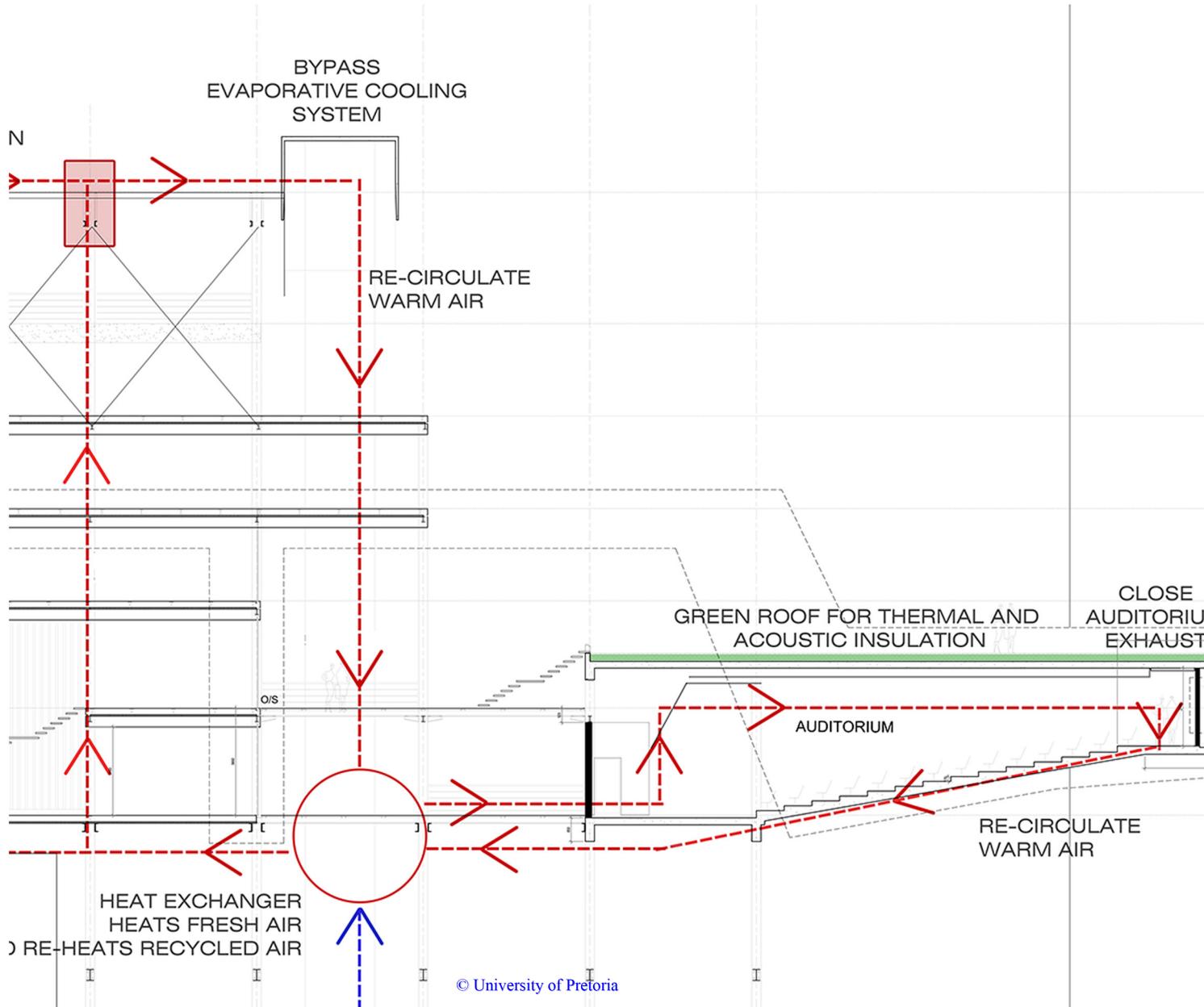
Figure 7.15 Passive Cooling Strategy as part of Hybrid System Author 2015

WATER
STORAGE

GARDEN
SOUTH WESTERN
SOLAR
BARRIER

EVAPORITIVE COOLED
AIR DISTRIBUTED
VIA ACCESS FLOORS

HIGHER VELOCITY AIR
TO EVAPORITIVE COOLING
INTAKE

EVAPORITIVE COOLED
AIR TO LOWER FLOOR

GREEN ROOF FOR THERMAL AND
ACOUSTIC INSULATION

OPEN
AUDITORIUM
EXHAUST

AUDITORIUM

O/S

HEAT
EXCHANGE
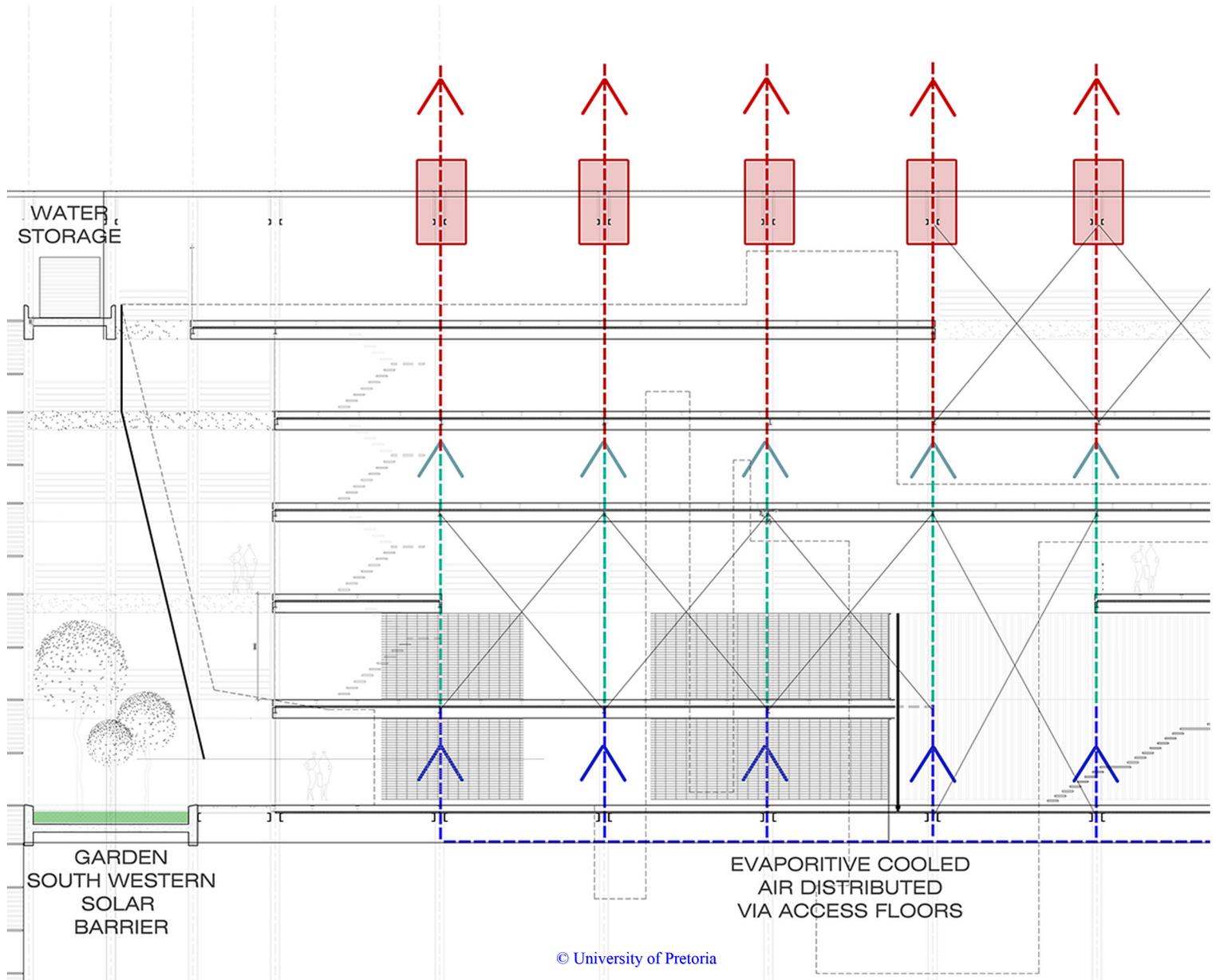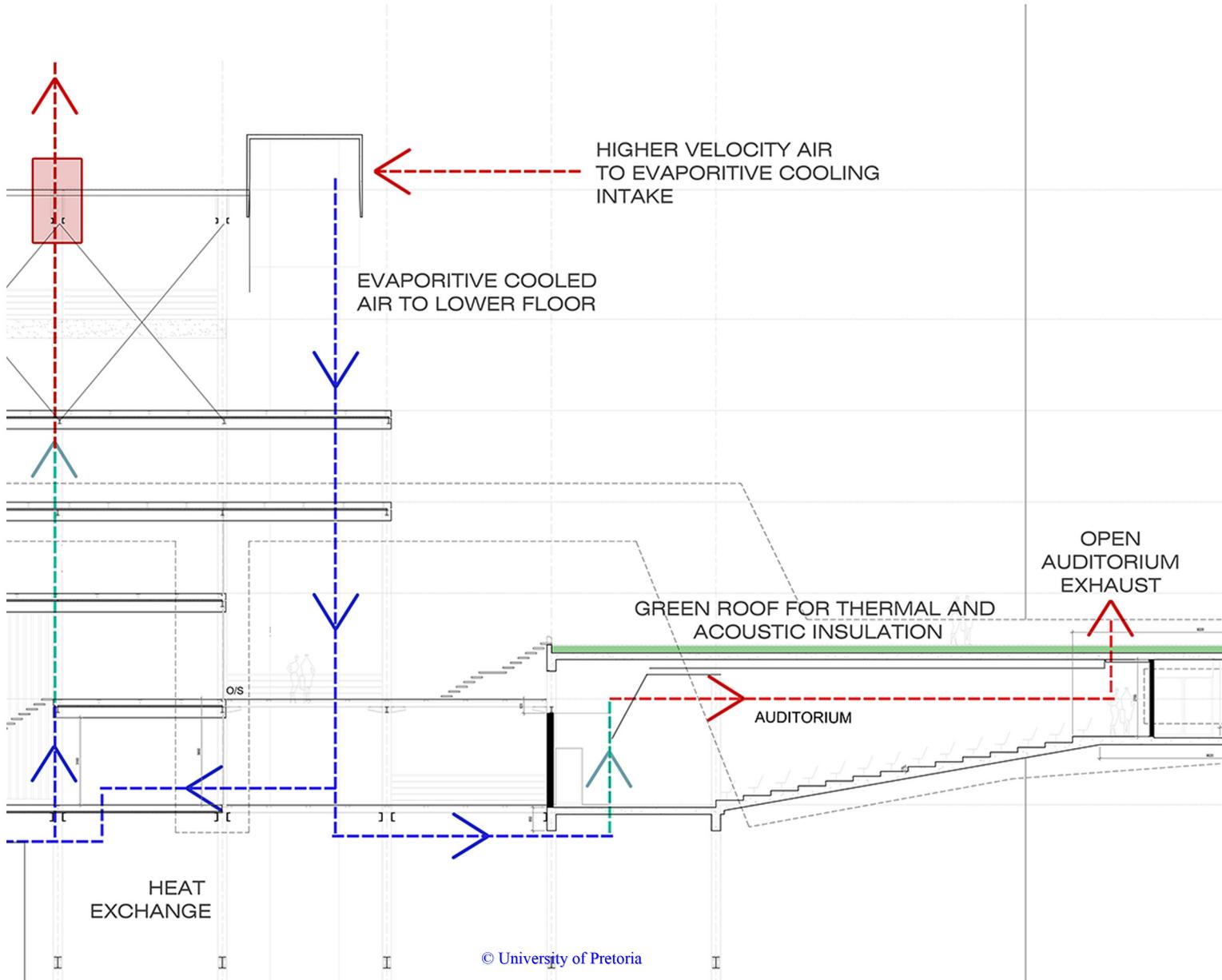
VIII

CONCLUSION

8.1 Conclusion

It is therefore concluded, that although it is not feasible in totality that buildings are allowed to move, shape-shift or alter without major restrictions, orientating a building towards a condition where it represents a non-static or permanent condition, represents a paradigm towards an alternative view regarding our "fixed" urban fabric. By utilising, manipulating and exploiting existing built infrastructure, the city, in some manner, will begin to move, or promt it towards animation. If this process is brought into existence, to cater for the needs of the urban user, then the buildings to arise out of such an approach must be considered responsive and considerate of the human traditions they serve. Human endeavours and needs are in constant flux, with regard to how we cope and manage our need for tradition. If buildings are considerate of this rise in entropy, in the way they are designed and constructed, then they too move, change and inflict change onto their multi-layered contexts. For this perspective on architecture to be truly realised, much consideration should be paid to how we plan our cities. A contextual approach must be paid to the relevancy and feasibility of our ''tried and tested'' methods with regards to zoning, transportation and infrastructure.

In the author's opinion, this could best be achieved by keeping an ear to the pulse of informal fluctuations within our city limits. Insurgent activity has shown to not only defy the immovable built form which limits urban change, but also points to, (and will hopefully continue to do so) towards new possibilities and alternative readings of urban life.

The unavoidable thought must be considered; that architecture, that great eclectic discipline of producing form, structure and space, will always carry with it a certain degree of monumentality. To be a monument, however, should not carry the blame of dysfunctional and disjointed urban environments. Rather, to what or to whom monuments are erected, will eventually determine the extent and nature of the imapct it will have on our lives.
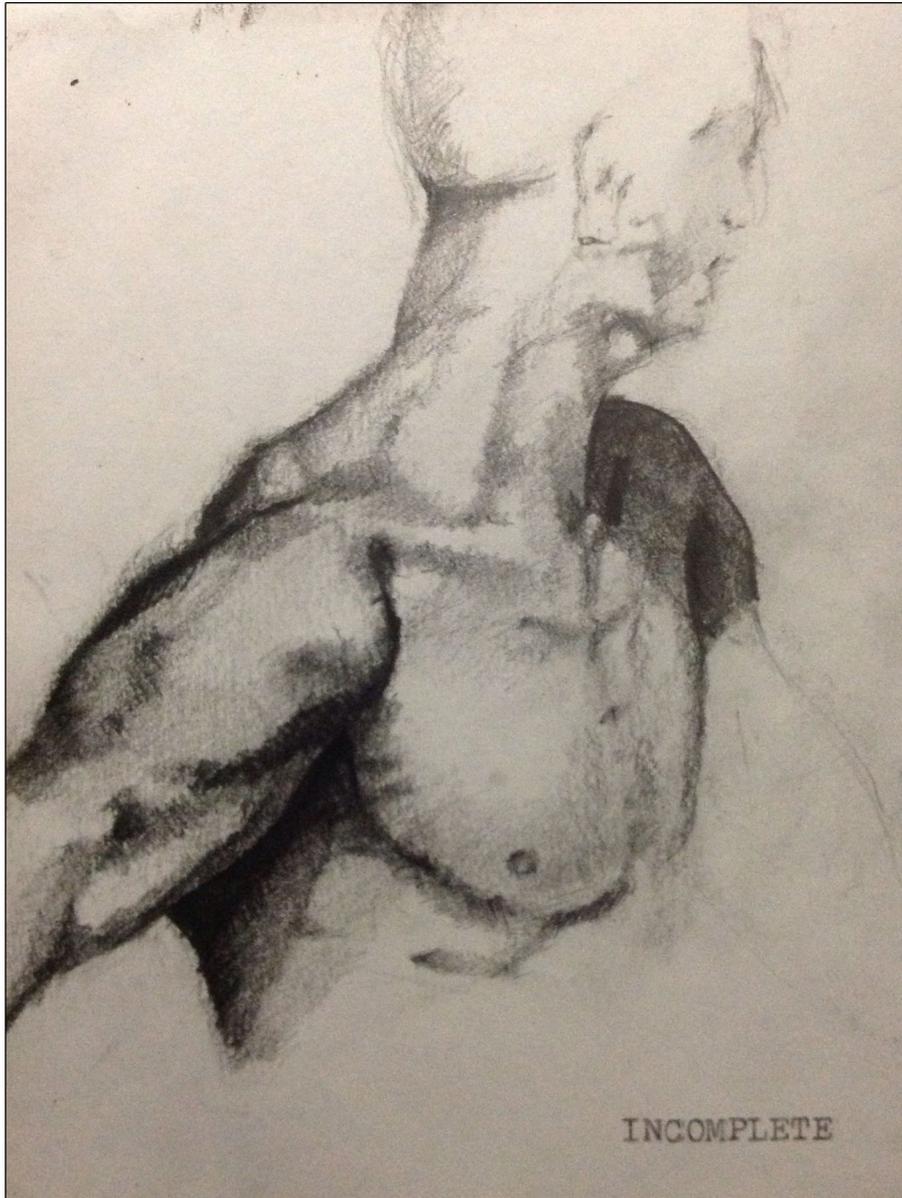
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9.1.5 Chapter 5 Figures

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FORM A

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