

# q u o t i d i a n

architecture  
occupying the sidewalk



Duane Comins

quotidian architecture  
occupying the sidewalk

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Duane Comins  
November 2012

*“The measure of a sophisticated society is how well it treats its underprivileged”.*

Sean Godsell

# Abstract

It is estimated that nearly two in three people will live in urban areas by 2045. The city is increasingly seen as a place of opportunity. It has become a receptacle for new social, cultural and economic strata. The urban environment is converted and mutated by everyday public performances. This condition becomes evident when the street is inhabited as a space that connects the workplace, the home and institutions. The built wall often attracts and establishes these new activities. It is here that conventional architectural typologies are challenged.

This dissertation explores the notion of the wall in an attempt to reconfigure the sidewalk. A conceptual network of interfaces that contain infrastructure, public services and urban armatures is proposed. Within this context, it is argued that architecture should support these everyday performances as well as define a new spatial identity, within the urban environment.

*A special thank you to everyone who made this possible.*

# Preface

February 2011

As I arrived, I was apprehensive about entering the *Koffie-Huis*. The *Koffie-Huis*, housed in a small vernacular building on the corner of Beatrix and Schoeman streets [altered through haphazard renovations and additions] is an outreach centre. It is run by a Non-Governmental Organisation [NGO] called *Action Labourers for the Harvest*. It functions as a drop-in centre, emergency shelter and Sunday Church for the homeless in the central business district of Pretoria. The *Koffie-Huis* is mostly frequented by women and children, who flee from domestic violence.

A group of Honours students and I were there conducting a research project, whose brief was to design a facility for the youth. Jan van Jaarsveld greeted us warmly as we arrived. He escorted us through the cramped interior to a room filled with old plastic chairs and a laptop. The stale air was pungent with the smell of boiled food, the boarded up windows allowed no fresh breeze. Jan focused on the shelter's programs and associated problems.

After completing the six week design project, the question of how the city should support the underprivileged, remained.



Ilus. 1.0.1 Koffie-Huis graffiti (Author, 2012)



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# Chapter 1

## Introduction



Illus. 1.1.1 Generic urban environment along Proes street (Author, 2012)



Illus. 1.1.2 Derelict Synagogue, isolated from the Proes Street quotidian activity (Author, 2012)

## Rise of the Diverse City

On the 31st of October 2011, the world's population reached the seventh billion mark; one in two people are now estimated to be living in cities or urban areas. By 2045, it is estimated that two in three people will live in urban areas. More than 8 billion people will inhabit the planet (UNFPA, 2011: ii-iii).

Urbanization is inevitable. It is taking a huge toll on human health and the quality of life within ever crowding cities. This is especially true in Africa and Asia, where urbanisation is proceeding at an unprecedented rate. This trend contributes to social, ecological and economic fluxes where an estimated sixth of the earth's population is homeless and/or lives in crowded tenements, boarding houses or settlements (Atterhwaite, 2007: 3).

Kok & Collinson (2006: 17) define urbanization as the increase in the urban population of a country or area due to three components of urban population growth:

- Natural increases of the urban population through child birth.
- The reclassification of parts of the rural population into the 'urban' category, predominantly due to the sprawl of existing urban areas into their rural surroundings or the development of new towns in former rural areas.
- Net urban migration from rural to urban areas, often on a temporary basis, for employment opportunities.

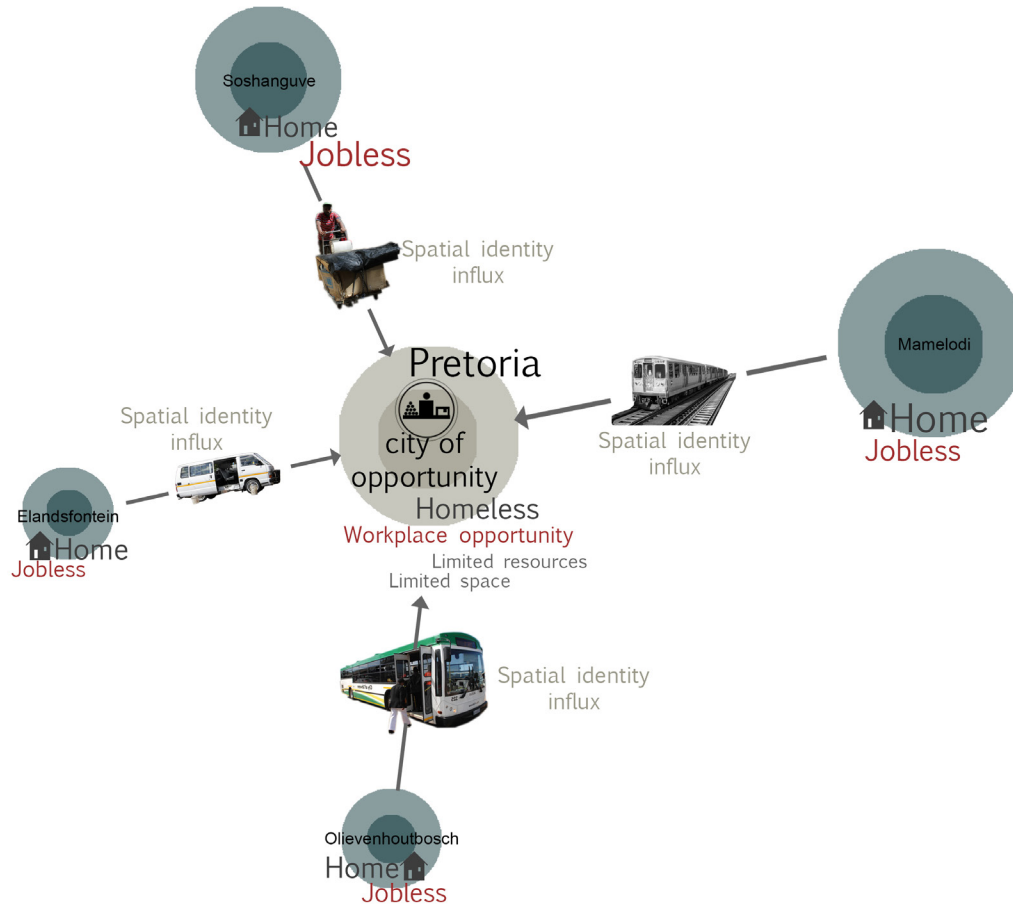
Net urban migration accounts for the highest percentage of urban growth in South Africa. In 2001, South Africa had an overall urbanization level of 56,26% with only 47% of the African population being urbanised by that stage (Illus. 1.2.2). In recent years it has begun to increase at an accelerated rate (Illus.1.2.2 & 1.2.3) and will continue to do so for the foreseeable future.

This increase is due to the fact that the city is being viewed as a place of opportunity for economic and social needs (Illus. 1.2.1). This leads to a high influx of rural to urban urbanisation, which places new cultural and social uses onto the existing cities public infrastructure.

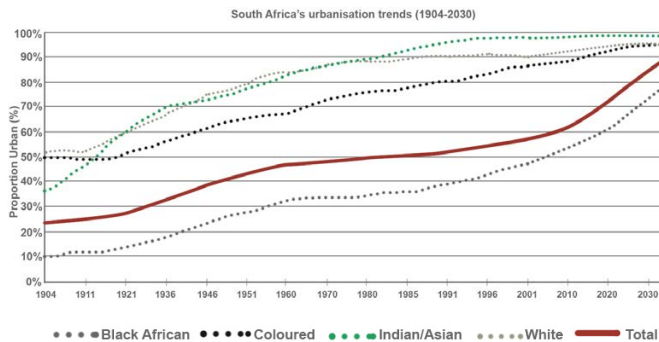
This rapid growth rate in urban areas is occurring within a declining economic environment and combined with the poor planning and governance of this transition the visibility of urban poverty is increased. A significant portion of urban populations live below the poverty line (Kok & Collinson, 2006: 20-22).

Pressure and conflict result between the original [generic] city and the new strata imposed on the city.

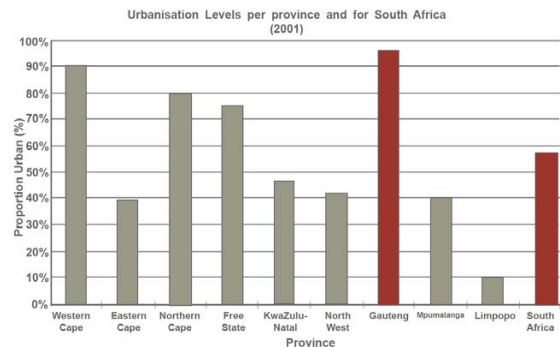




Illus. 1.2.1 Periphery flux (Author, 2012)



Illus. 1.2.2 South Africa's historical urbanisation trends (1904-2001), (Kok & Collinson, 2006: 22)



Illus. 1.2.3 Urbanisation levels per province and for South Africa, (Kok & Collinson, 2006: 23)

The city has become a receptacle not only for tangible components [buildings, infrastructure, etc] but also for new intangible components [social, cultural and economic strata]. This generates a far more complex urban environment that shuffles between layers and scales; through varying permanent and temporary programs and activities. These are contained within the existing traditional structure of the city; mutating and converting the urban environment from within for their [specific] everyday performances (Lootsma, 2000: 5).

Everyday, the various social, cultural and economic strata develop new tiers of meanings and functions that range from the ordinary to the extraordinary, these are hidden within the ordinariness of the city (Kelbaugh, 2004: 18). Quotidian networks<sup>1</sup> form, they become legible through the connective tissue of public space in the city. A new richness of meaning is revealed.

Ahmed Alkayyali (2011: 10) describes Pretoria as the midpoint between an occidental post-colonial city and an African city. This condition sees the street interface as host and mediator within the public realm where human and social meanings have started to re-connect with urban design and public infrastructure through the everyday performances and networks of the people that inhabit the city.

This has conceptualized into the development of space in the city where the physical domain of the everyday public activity exists between the defined and identifiable realms of the home, institution and the workplace. The streetscape becomes the physical domain that contains this activity. It is the connective tissue that binds the seemingly oppositional daily lives and functions together, developing a new typology of public space (Kelbaugh, 2004: 18). This re-familiarizes the urban environment which makes it more inhabitable for the influx of new social strata. A new living and economic pattern is developed over the existing urban environment and commercial patterns contained within the new public spaces.

This dissertation attempts to explore generative forms of insurgent public spaces that manifest throughout the city. The aim of this investigation is to define a typology of inhabitable network interfaces for the sidewalk.

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1. Quotidian networks refer the everyday lives and social/economic support systems of people in the city. These generate new economic and social endeavours between various formal and informal strata.





Illus. 1.2.4. The city of opportunity (Author, 2012)

## **Problem statement**

The Pretoria city centre becomes a receptacle for a diverse community due to on-going urbanisation. The continued conflict between the urban dweller and the public realm has resulted in the need for a new public space typology. This new space should link the realms of home, institution and workplace. It could serve as connector of the various cultural, economic and social strata of the city. The Generic City has morphed into a Specific City that requires a new inhabitable network interface of infrastructure, public services and “urban armatures”. These armatures are needed to layer the existing urban environment in an attempt to create a new social identity for the African city.

## **Research question**

Could an investigation of the everyday public activities that occur on the sidewalk of Proes and Van der Walt streets in Pretoria provide suitable guidelines for a new architectural typology that encourages heterogeneity in the city?

## **Hypothesis**

It is hypothesized that everyday public activities could generate a specific architectural typology.

## **Sub questions**

What are the everyday activities on the sidewalk of Proes and Van der Walt streets in Pretoria?

Could architectural design guidelines be developed?

What would the resultant typology be?

## **Aim of Study**

The project aims to investigate everyday public activities within the urban environment. It explores the concept of the inhabitable interfaces along the sidewalk, ultimately developing a new spatial typology. This dissertation promotes the notion of an evolving public space and spatial identity through urban transformation.

## **Research methods and Methodology**

The dissertation applies a mixed-method approach, incorporating both the quantitative mapping of the public urban realm as well as a qualitative understanding of the everyday public activities that occur. Mixed media [such as photography and drawing] is used to further explorations.

Chapter one discusses the real world problems that cities face in South Africa. Chapter two explores the theoretical premise and development of a suitable architectural typology, that is contextualised and defined in Chapter three. Chapter four presents the precedents used to refine the architectural response in question. It's implementation and the final spatial response is presented in Chapter five.

## Client

*Pen [Participate Empower Navigate]* is a Non-Profit, Sec. 21, Organization (Reg. Nr. 92/01259/08; 013-087 NPO): located on the corner of Bosman and Vermeulen streets in the Pretoria city centre. *Pen* deals with the issues of homelessness and marginalized communities within in the broader Tshwane area. *Pen* works towards bettering the lives of people. This organisation offers a vision of what a city could be to its inhabitants if there was a caring and loving community at its centre (PEN, 2012: 1).



Illus. 1.2.5 *Pen* Logo (PEN, 2012)

## Programme

A new set of inhabitable network interfaces of infrastructure is proposed, to promote the adaption of architecture which responds to the new quotidian activities in the city. This is done through a vertically programmable surface that contain:

### >>Economic and social infrastructure

- > A community centre
- > A soup kitchen
- > Showers and lockers
- > Social services [Offices]
- > Public spaces
- > Temporary housing

### >>Regulatory infrastructure

- > The relaxation of building lines
- > Access and support for business and commerce opportunities on the sidewalk

### >>Service infrastructure

- > Circulation cores
- > Service cores
- > Scaffolding
- > Fire escapes/Fire reticulation
- > Balconies

These will be layered over the sidewalk to enhance the existing commercial pattern and to define a new living pattern in the city centre.



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# Chapter 2

## Theory

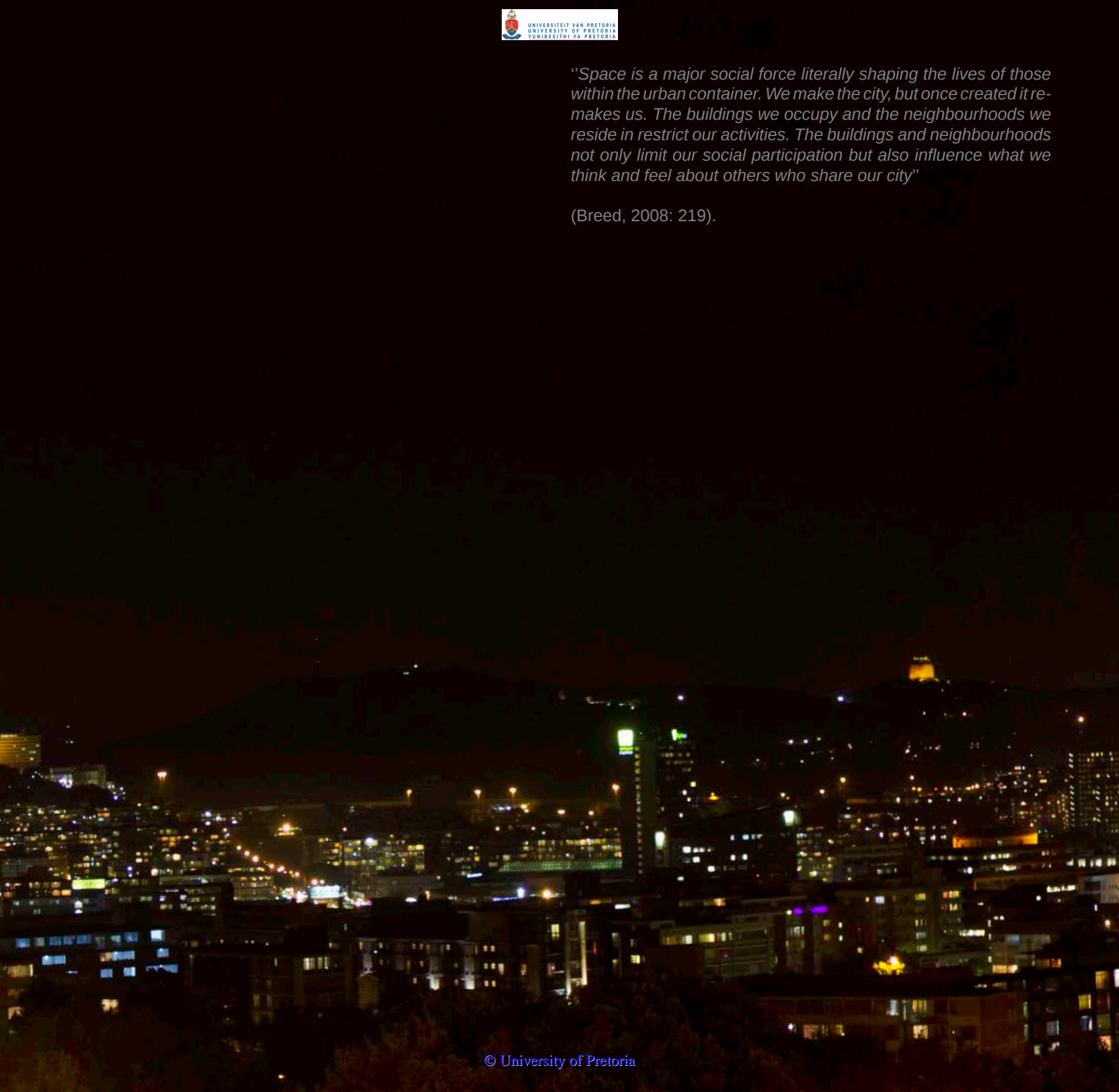


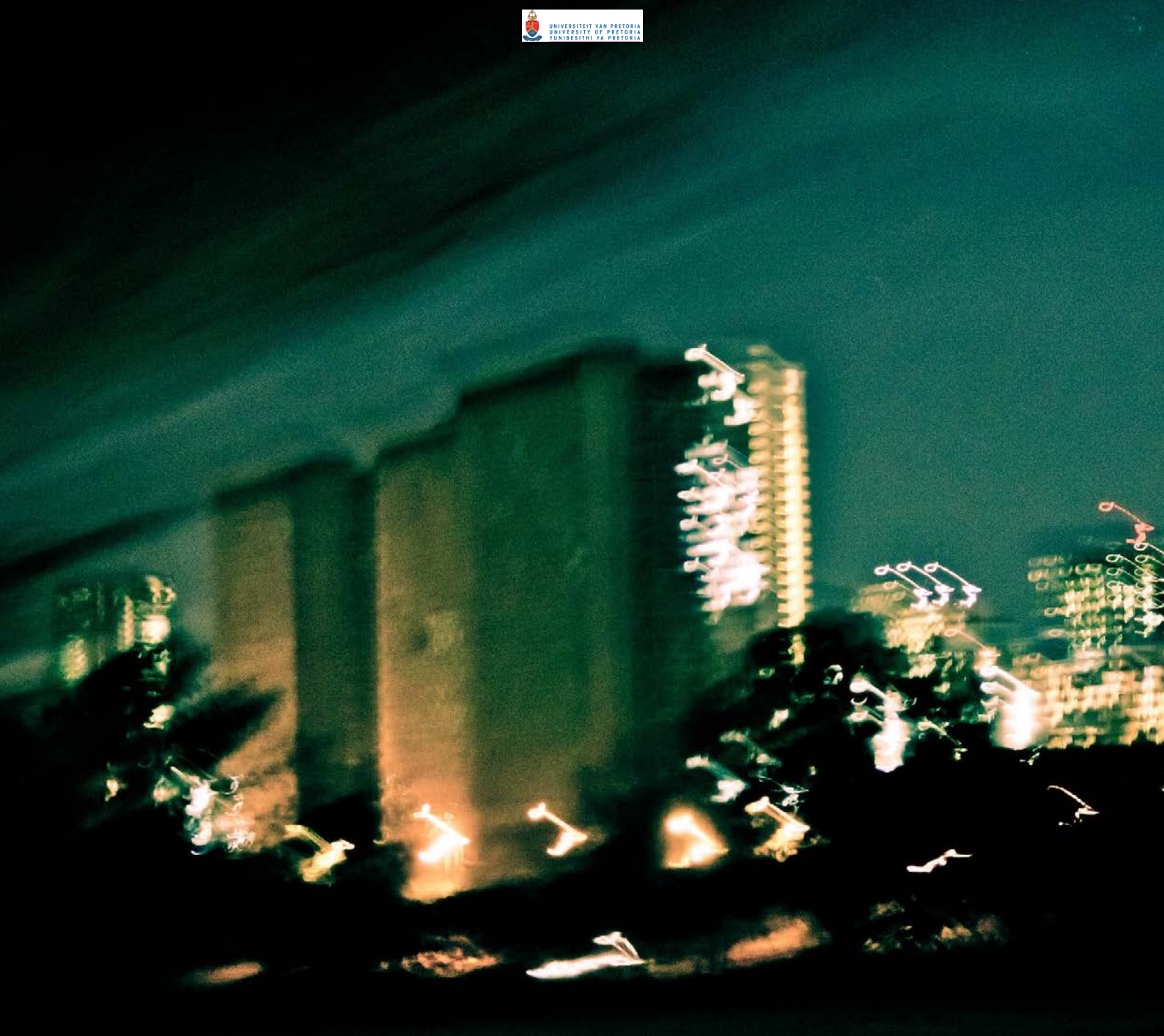
Illus. 2.0.1: The formalised Generic City of Pretoria (Author, 2012)



*"Space is a major social force literally shaping the lives of those within the urban container. We make the city, but once created it re-makes us. The buildings we occupy and the neighbourhoods we reside in restrict our activities. The buildings and neighbourhoods not only limit our social participation but also influence what we think and feel about others who share our city"*

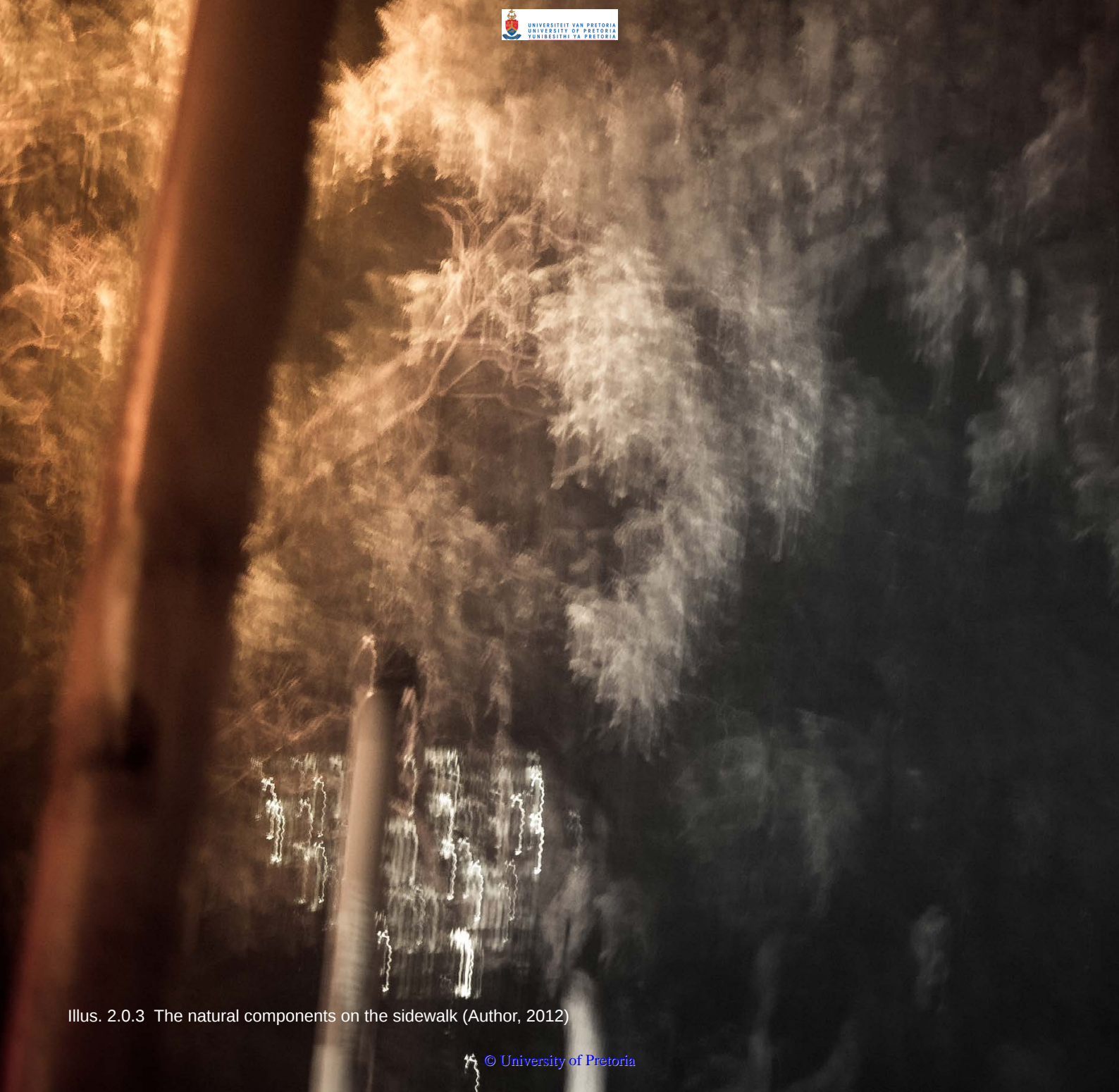
(Breed, 2008: 219).





Illus. 2.0.2 The formalised built fabric within the city (Author, 2012)





Illus. 2.0.3 The natural components on the sidewalk (Author, 2012)

## Spatial construct

Urban spatial relations consist of a diverse range of social, cultural and economic strata that influence spatial dialectics. Urban space becomes the mediator and connective tissue between these dialogues. To understand spatial relations and their constructs in this dissertation, the trialectics of space that originates from a materialist viewpoint and an idealist tradition will form the basis for the investigation and the understanding of the everyday public activities and spatial identity of the city.

Sir Isaac Newton defined space as a physical and empirical entity, materialistic in nature that is a boundless receptacle [which may or may not be filled with an object]. It is absolute and infinite (Gould, 1962: 101). Space could be defined in terms of physical characteristics, such as boundaries, frontiers, scale-nation states, regions, towns etc. detached from experience and objects. This concept of space views it as mathematically fixed, isotropic and three dimensional (Chandhoke, 1993: 65). It could be argued that the natural Pretoria landscape has become a physical entity upon which the development of the original city and various spatial relations have emerged.

Emmanuel Kant believed space to be a mental construct; the *priori* of knowledge; a quality of the mind which makes knowledge possible. To Kant, humans structured their experiences by projecting spatiality and temporality upon the world, concluding that though space is materialistic in nature; empirically real and tangible; it can only be comprehended through thought taking on an intangible quality.

Thus two world views were held when dealing with space, it was either pre-given or as a mental construct. This precluded the idea that space is socially produced, or that it is the result of human actions (Chandhoke, 1993: 65).

Henri Lefebvre (O'Kelly, 2007: 100) advocates that space is socially produced and socially mediated. The urban environment of Pretoria is not only a material context for human activity, but through historical processes it is a product of human activity. Thus various spatial relations influence the identity of the city.

## Lefebvre's Triadectics of Space

Urban theorists such as Edward Soja, David Harvey, Neil Smith and Henri Lefebvre, amongst others, suggest that a spatial turn has occurred. Urbanism now regards space as socially produced, where space and politics are symbiotic. Edward Soja and Henri Lefebvre refer to this concept as a heterotopia, a triadectics of space that links the material, conceptual and the spatial as a symbiotic relationship within the city (O'Kelly, 2007: 100).

David Harvey (Graafland, 2008: 10) discusses the triadectics of space through three different conceptions of space:

1. ***perceived space*** of materialized spatial practice
2. ***conceived spaces*** and
3. ***relational spaces***.

*Perceived space* can be seen as organic spaces, it is treated as fixed and predetermined. These spaces are produced biologically and registered through the particular characteristics of the observers' senses. It serves as a framework of pre-existing and immovable grids such as the natural boundaries that surround the city, which contain and manipulate its' growth. The spatial layering of the city's identity is generated through its locational direction.

*Conceived spaces* relate to the notion that space cannot be understood independently of time and the understanding of space is dependent on the standpoint of the observer (Graafland, 2008: 10). Often within the conceived spaces, political influences arise. The city is organised according to a series of culturally and politically determined principles. Often these manifest themselves in clear architectural and urban characteristics, which form a Generic City that becomes inhabited [the first layer of spatial relations]. This city is modified according to the natural environment that supports the primary urban environment.

It could be argued that the new social, economic and cultural strata have generated *relational space* over these existing conceived spaces. The resultant city represents distinctive meanings through a diffused landscape. Relational spaces are formed where everyday reality allows for broader social and urban realities (Merrifield, 2000: 174). This spatial interpretation becomes important when certain built environment themes cannot be approached through an [absolute] understanding. Spaces take on an intangible feeling and meaning for the everyday user. This layers space and spatial relations, producing a zone of possibility and potential transformation (Kelbaugh, 2004: 19).

Koolhaas (2005: 16) proposes the concept of the 200% city to express this concept of a heterotopia and potential transformation. The city is an amalgamation of a Generic and Specific City. The 100% Generic City [developed as the conceived spaces]; that consists of a series of standardised components producing a “visual language” for public architecture through form, orientation and siting (Illus. 2.1). The 100% Specific City is fostered through the development of relational spaces influenced by cultural conditions resulting in everyday spaces as described by Everyday Urbanists (Illus. 2.2) (Kelbaugh, 2004: 18).

The everyday lives of citizens are founded by their relationship to the spaces of the Generic City. The physical arrangement of a city in terms of streets, buildings, and even whole communities translates into the physical arrangement of the people who live inside it. These relationships become critical when designing and responding to the Specific City.

Modern capitalist societies are not only about economic production but also about the creation of societies and a social order and network which is appropriate to the modes of economic production. It involves “*The construction of roles, it involves the insertion of people into predictable and safe ways of thinking and behaving, it involves the construction and constitution of communities and individuals, it involves disciplinary mechanisms as the researches of Foucault have showed us, it involves civilized behavior, above all it simply involves the ‘socialization’ of people into the values of capitalist societies*” (Chandhoke, 1993: 67). The idea of a single and comprehensive public space is promoted.

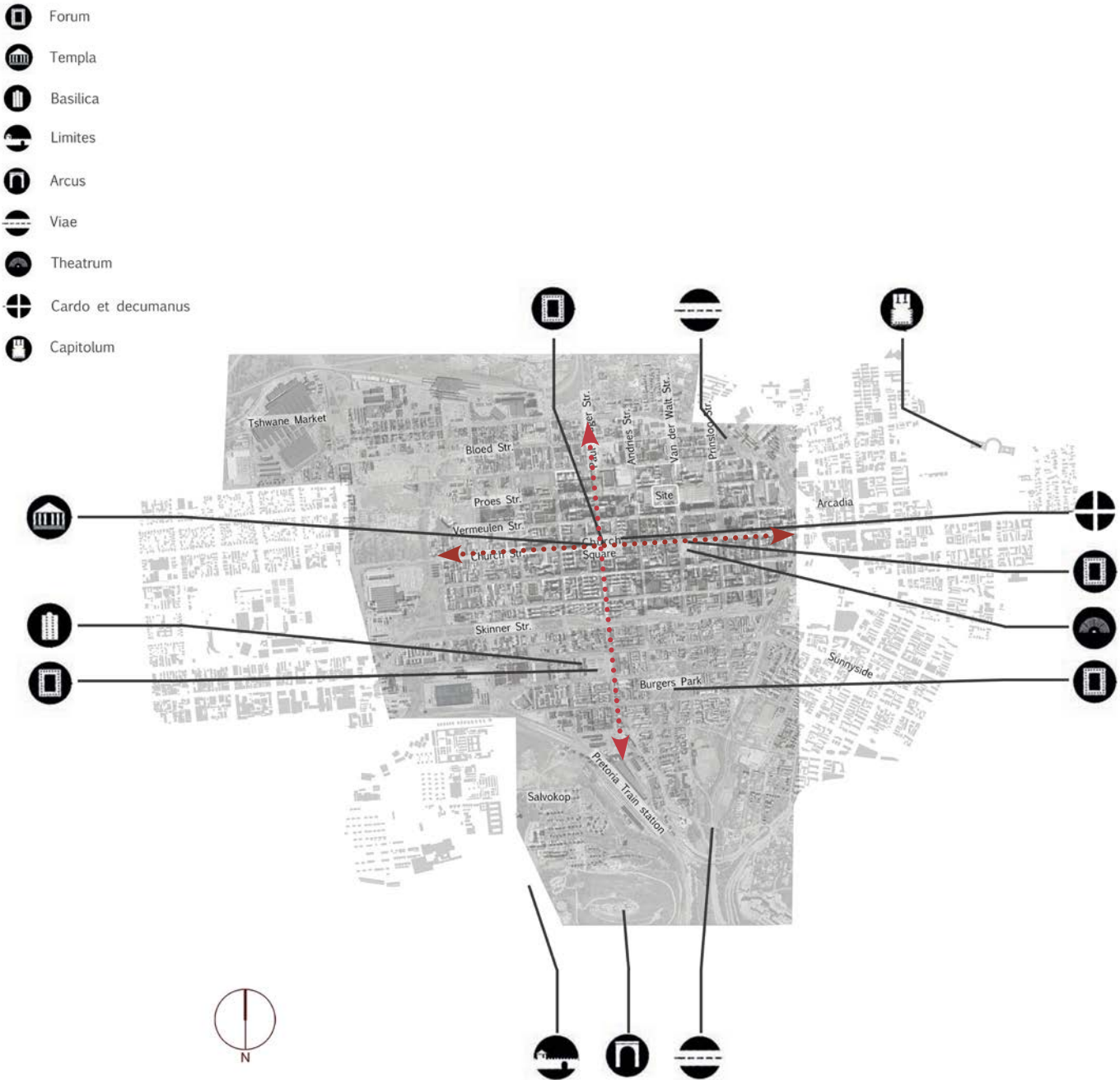
The city centre is a prime location in which to view these spatial constructs. It has the ability to condense and signify the affirmation and the contestation of power and social relations of a new social society. It does so by constricting the geographical boundaries, the processes of production, and the appropriation of space. This is best viewed through the *cardo-decumanus* grid of the city that forms the large rectangular blocks that affect pedestrian and vehicular movement through clearly defined arenas of space with seemingly coherent formal characteristics.

The nature of these arrangements makes a great deal of difference in how the city is imaged, experienced and enjoyed (Krupat, 1994: 156-158). These arrangements develop the essential programmatic activities to enable movement and connection within the city through the necessary infrastructure, public services and “urban armatures” (Koolhaas, 2005: 11). These become critical elements in the Generic City.

Everyday space is often seen as generic and generalised in the conceived spaces of the city. With closer observation the development of new networks and relationships between people who inhabit it, demarcate spaces as specific and situational within the primary urban environment (Illus. 2.2) (Kelbaugh, 2004: 19).

The highly specific realm has taken on a unique African identity in the central business district of Pretoria (Illus. 2.2). A variety of everyday public activities project new social meanings and identities. This is specifically evident in Proes and Van der Walt streets. Insurgent infrastructure is used to modify the generic city through small incremental changes to aid the development of everyday spaces.





Illus. 2.1 The Generic City (Author, 2012)

## Everyday Space

Public space is described by Carr et al (1992: 3) as a place where inhabitants can build a community and play out everyday activities. The everyday activities hosted in the public spaces [everyday spaces] of Pretoria currently supports a 150% city. These spaces have shifted and evolved from the Generic City spaces to the public interface of the sidewalk.

This shift challenges the conventional typology of public space by developing a new inhabitable everyday space. This space accommodates the realms of workplace, home and institution forming the realm of the new quotidian activity. A place of multiplicity. A *“meeting space indivisible from the diverse urban identities that inhabit it, which binds together a contemporary city’s multi ethnic, multicultural communities and memories* (Enwezor, 2006: 11).

Loyd (2003: 105-107) states that the African view of public space is understood as “all space is public except when defined by “ritual or private space”. Western views hold that “all space is private” except where specifically designated as public (Illus. 2.2.1). Therefore when dealing with the public realm the multi-layered threshold becomes important. The everyday activities occurring in the Pretoria city centre has led to the re-familiarization and domestication of urban space.

It is argued that people leaving their homes become “homeless” while acting out their everyday performances in the city. Therefore it becomes necessary to appropriate and re-familiarise public space to create a connection with the home. The result is new uses generated in these public spaces to meet social and economic needs.

This allows the public interface to become a softer, more inhabitable place (Kelbaugh, 2004: 25). Re-familiarization is prospering in the Pretoria city centre as a by-product of the cultural and economic activities of new urban dwellers. The sidewalk is transformed into the everyday space where items usually seen inside the home [such as tables, chairs, food etc] activate under-used public streetscapes (Kelbaugh, 2004: 25). The result is inhabited public space (Illus. 2.2.1).

The new urban citizens in the city are not just simply passive consumers, they are constantly engaged with the city, appropriating and re-appropriating public space and infrastructure for their own ends. Rem Koolhaas (2005: 694) refers to this African city model as “practised” in the urban environment.



Generic City spaces:  
Official public  
spaces



Specific City spaces:  
Unofficial public  
spaces

Illus. 2.2.1 Contrasting the everyday public activities within the Generic City and Specific City spaces in the urban environment (Author, 2012)

Traditional definitions of public and private space are currently critically attained in legislature, political theory and the politics of society. Political systems that prevail in stratified societies operate from a top down structure; in this model politics prescribe urban identities. Nancy Frazer affirms that within public space relating to the state, there should be distinguishing characteristics and connotations that allow it to be for communal use, accessible to everyone and is for the common good or interest of the people (O'Kelly, 2007: 100). The cultural and social strata of the city are beginning to disrupt the coherence of the planned urban landscape by using the new African model as described by Koolhaas; retaliating and speaking back to geography and history, informing the public that there is a deeper spatial and social layering to the city, dissolving spatial boundaries of public and private set from above (Chandhoke, 1993: 64).

By understanding the complex social, economic and cultural systems that govern the world people live in, the traditional top-down processes synonymous with typical city planning start to dissolve and open up more inclusive and democratic planning processes that the new social strata of the city could help govern (Villagomez, 2010: 82).

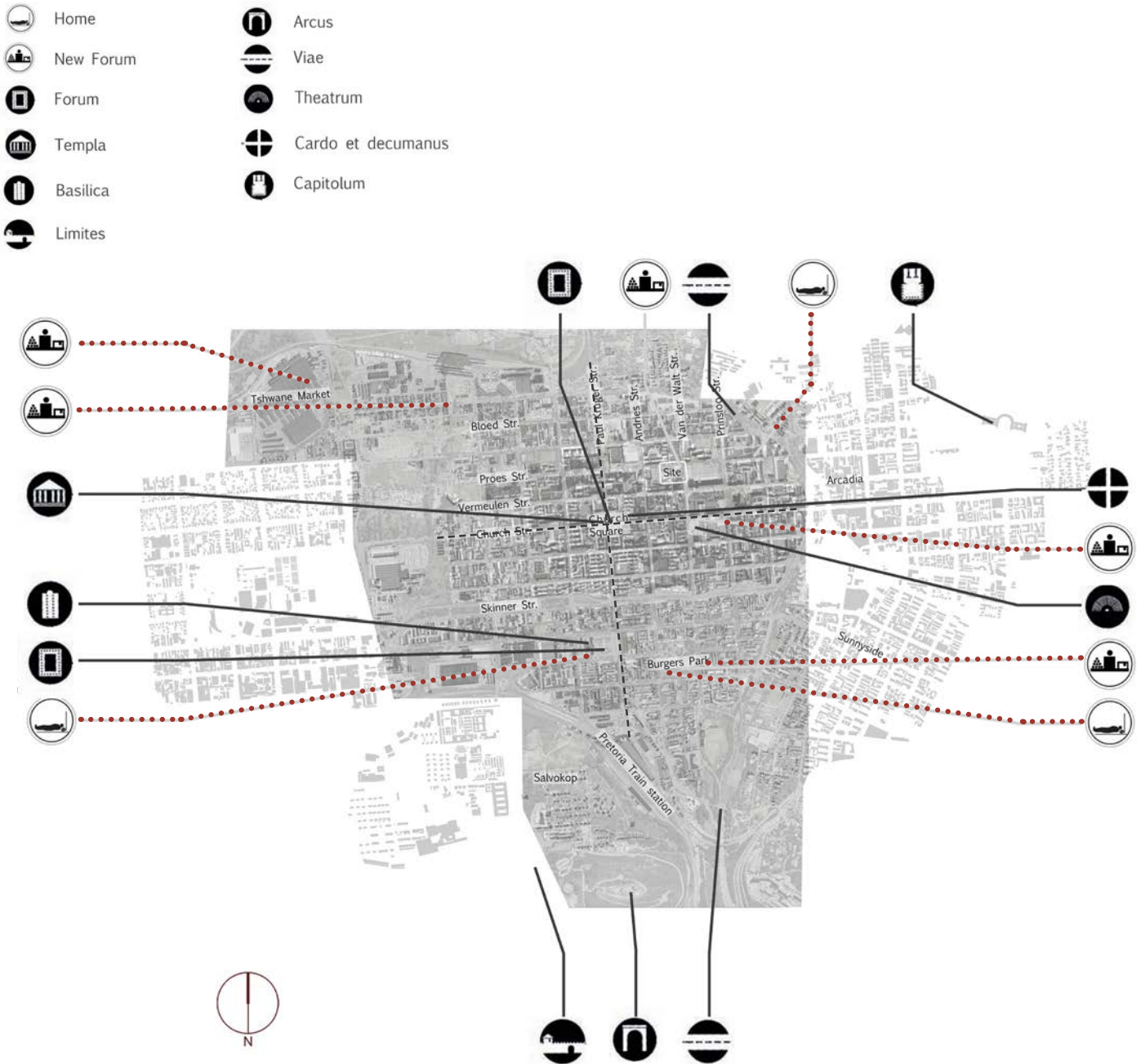
The urban anthropologist Giovanni La Varra describes this transformation as:

*"In the city center or on the edges, at the heart of the nineteenth century tissue or in the great external zones. They compose an infinite catalogue of informal spaces with innumerable articulations... literally occupying the urban public space whose meaning and value they transfigure."* (La Varra, 2001: 426).

By viewing this at a tactical level, the normative forms of urban planning that work top-down would be contrasted by a form of bottom-up planning. These changes should occur through accretion over time, developing a new spatial identity over the existing urban schemes; reinterpreting received meanings and disclosing hidden or marginalised meanings. This would make the social and cultural strata more familiar and thus more comfortable in the city (Kelbaugh, 2004: 35).

In the book *'People in cities'*, Krupat (1994: 55) states that there is an ability to build social support in these public spaces. Krupat uses 'sub-cultural theory' to explain this development where the urban environment emphasizes the similarities among groups of people rather than their differences. Communities form and evolve into neighbourhoods based on occupations and social classes, areas united under lifestyles are generated and emerge as vital sub-cultures, "mosaics of little worlds" that are easily identifiable (Krupat, 1994: 55) [These are identified as quotidian networks by the Author in Chapter 3].

The Pretoria urban dweller requires a public space that amalgamates work, play and habitation. Simultaneously, a new architectural response should cater to this shifting spatial use.



Illus. 2.2.2 The 200% city (Author, 2012)

**Precedent study A:** *“Dancing in the streets of Beijing: Improvised uses within the urban system”* by Caroline Chen

*“Dancing in the streets of Beijing”* is a research project conducted by Caroline Chen to understand how residents in Beijing find new public spaces for their daily activities, as the city densifies around them. Since the Olympics in 2008 there has been an increase in migration from the rural areas into the city, as well as an influx of tourists. Due to these new activities and social strata, many of Beijing’s parks and open spaces suffer from limited space, resulting in over crowding and increased noise. Beijing residents have begun shifting their daily social activities out of the public parks and into the residual infrastructure of the city. They have begun adapting new urban spaces for past functions and activities. They appropriate space to support their old habits and practices, developing new typologies of inhabitable public space. This opportunity for conceptual and programmatic innovation has been missed by designers (Chen, 2010: 22).

Beijing residents achieve this by finding “loose space” in the urban realm. They liberate designed generic public spaces such as parks, plazas, and parking lots from the limits of the original explicit program, and develop new foreseen functions of their own choosing for the spaces (Chen, 2010: 22).

Chen observed the daily activities of the residents to understand this redefinition of public space. The findings revealed that the old activities in the newly appropriated urban spaces allowed a connection between the gentrified migrant workers [rural people are viewed as lower humans and are often excluded from public activities] and residents of the city through temporary participation in city life. The act of walking, stopping and observing in the streetscape becomes an important connection between the social

strata of the city and activities in public space creating “threshold spaces” in urban spaces. These allow for opportunities to create new relations rather than current separation and hierarchy (Chen, 2010: 28).

*“Thresholds mark occasions, opportunities for change. Thresholds create or symbolically represent passages towards a possible future, already existing in the past. Recognising such thresholds, the flaneur, and the inhabitant as flaneur, can appreciate the city as a locus of discontinuities, as a network of crossroads, turning points. In the unexpected connections realized by these thresholds, otherness emerges, not only as a threat but also as a promise”*  
(Stavrides, 2007: 177).

By developing threshold spaces, Beijing residents are improvising in the city, creating for themselves what has started to go missing. This reveals the tensions between how the modern city is imagined and constructed, and how the real city is remade, fitted and lived. Beijing residents are actively tailoring the city to fit the contours of their everyday lives in the new public spaces. By doing so, they have unself-consciously found ways to create continuity in their lives in the face of disruptive, massive social and urban change.



Illus. 2.3.1 Insurgent public activities (Chen, 2010: 21-31).

Guidelines for theoretical discourse:

- > Public spaces become the carriers of the citizen's everyday public activities, shifting from the generic cities' public squares and open parks, to these everyday spaces.
- > These everyday spaces revitalize the social and cultural activities that have started to diminish due to the rapid urbanisation and resultant limited space in the city; this forms the connective tissue between the social strata workplace, home and institution.
- > Activities congregate along the public interface of the streetscape. There is active engagement with the different social strata of the city through the adaption of the urban surfaces.
- > The everyday spaces emphasises the performance (everyday public activity) and the inhabitation thereof.



## The inhabited wall

The Modern Movement sought to generate a new architecture that would ultimately serve for the large-scale transformation of the inherited order of social, political and economic structures (Bergdoll, 2010: 7). Yet ultimately Modern architecture has been about the use and design of 'empty space' (Doordan, 2001: 201). The wall has become a mere space organizer and divider (Cruz & Gage, 2009: 114) shifting from a participatory unit to that of demonstration and display.

Sassen (2006: 14) sees the wall as an analytical borderland, a discontinuity that is given a terrain instead of being reduced to a dividing line. These discontinuities should be an integral part of a building; a component of space, rather than a division between two different spaces articulated around the dualities of inside/outside, private/public.

Borderlands should overlap and interweave the different activities within the building together, spilling out into common areas internally and externally. These borderlands become a third space allowing the particular materials, visual experience, sensory experience, to all matter through a mix of precision, complexity and sensory engagement. Activating public space, engaging with the passer by or user instead of just dividing the inside from the outside (Sassen, 2006: 14).

Koolhaas (2005: 663) has identified that the use of the dividing wall in the African context has mutated; "the property line, originally a conceptual and abstract legal division designed to divide, enclose and exclude, has materialised into a vertical surface becoming an attractor for use, contamination, and the establishment of new

economies mutating into a borderland that aids the blurring between public and private in public space. The wall has come to be taken for granted as infrastructure that supports and serves a host of economies, social gatherings and small-scale industries (Illus. 2.2.1).

The vertical wall becomes the important edge condition that initiates and interacts with new public activities in the streetscape, forming the basis upon which the public and private become blurred in the everyday space. The act of refamiliarization, extending the domestic economy into the urban space promotes the development of the more inhabitable public space. This is explored by Cruz & Gage (2009: 114) through the concept of 'inhabitable interfaces', implying the potential act of becoming inhabited through both a mental and physical activity.

This exposes the potential for the adaption of architecture to respond to the everyday performances of the city. Through programmable vertical spaces and infrastructure, a typology of inhabitable public space is envisioned (Illus. 2.4). These spaces would need to contain the perception of "looseness" allowing for the adaptation, development and growth of the everyday space to suit the social, cultural and economic needs of the new spatial identity in the city.



Illus. 2.4 Inhabitable surfaces (Author, 2012)

## Precedent study B: “Vertical Yard” by 26’10 Architects, Diepsloot, South Africa

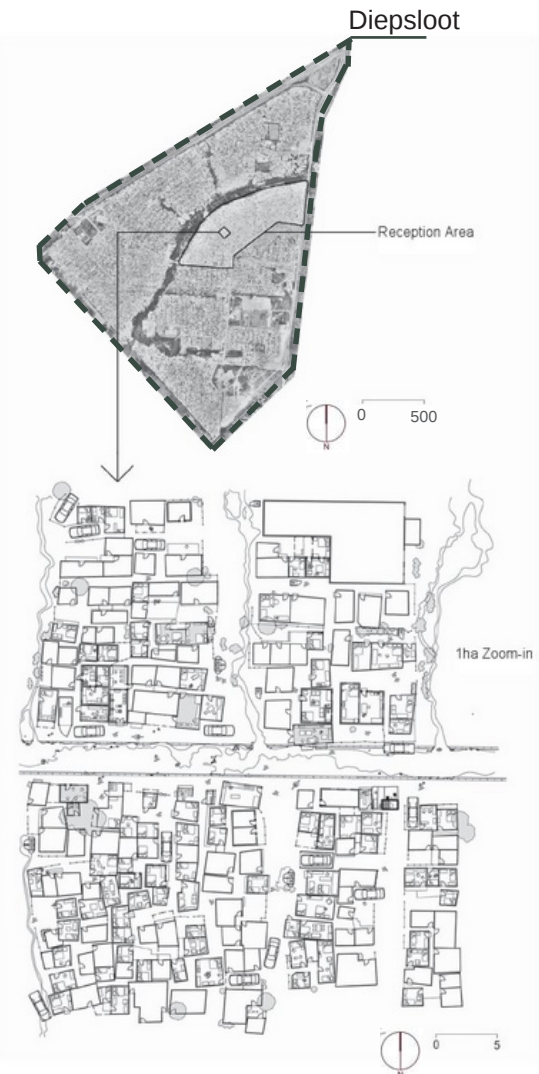
Diepsloot, located 40km north of Johannesburg is the city’s largest post-apartheid township which illustrates the severe challenges facing South Africa on matters of housing, service delivery and effective governance, yet still paradoxically, provides an affordable foothold in the urban economy of Johannesburg (26’10 Architects, 2010).

Diepsloot’s Reception area [the area people migrate to as a base for employment in Johannesburg and Pretoria] has been used as a case study and basis to ‘test’ existing formal housing typologies and to develop alternative strategies which respond to, and learn from the dynamics of the Informal City.

The density of Diepsloot’s Reception area is estimated at 300 units/ha with failing formal support systems, semi-legal status and no clear ownership rights. Yet these low rise, free-standing plots have morphed into yards surrounded by several rooms. These present a quality of space and diversity of functions that point to a new typology of housing through the established informal network system. (The Architect’s Collective of South Africa, 2012).

To test the possibility of a new typology, a one hectare piece of land, situated along a busy street in the Reception area, was mapped to gain insight into the issues of:

- migration
- affordability
- impermanence
- density
- built form and
- self-initiatives [rentable rooms and incorporation of small businesses] (26’10 Architects, 2010)



Illus. 2.5.1 Detail mapping of Reception area, Diepsloot  
(26’10 Architects, 2010)





Illus. 2.5.2 New housing typologies inserted into the urban fabric (26'10 Architects, 2010)

The existing condition was compared with different existing and proposed formal housing typologies, to determine displacement or accommodation of new and additional activities that each type achieves (The Architect's Collective of South Africa, 2012).

After an analysis of the informal fabric, it was determined that there was a distinct hierarchy of spaces and thresholds that helps mitigate the high densities. This leads to the notion that the informal fabric questions spatial standards implemented through urban design schemes in terms of urban living and trade. New strategies for making public space habitable and usable to survive economically and socially are revealed (26'10 Architects, 2010).

Two formal housing typologies were tested, namely: the RDP house and the double storey Row House. When viewed over time, the RDP house and Row House performed equally in terms of delivering densities equal or close to the Reception Area, yet when the RDP plot [with the house in the centre of the plot] was populated with additional rooms it resulted in poor in-between spaces and thresholds (The Architect's Collective of South Africa, 2012).

The row type house contains higher initial densities but has limited growth over time since tenants have to pass through the main house to access their accommodation (26'10 Architects, 2010).

These formal housing typologies present poor efficiency in use of land and infrastructure when densified over time. BNG [Breaking New Ground] principles have been developed to render these houses 'safe' as collateral for bank loans yet frowned upon the self-constructed additions blocking the potential that exists in terms of economics and social conditions.

The task became to develop a new typology of housing that would achieve a much higher stand and occupational density from the beginning, to reduce the need for 'illegal' expansion of the units with minimum displacement of the existing tenants. Additionally, the housing typology should enable eligible beneficiaries to generate income by becoming landlords and renting out to non-eligible residents.

The housing units are located close to the street boundary to generate a sense of urbanity, natural surveillance and ease of trading. This allows the ground floors of the units to become flexible “loose spaces” that can accommodate both trade and residential use. Economic development over time can now occur especially along busy routes (26’10 Architects, 2010).

Two typologies are proposed for this development: the Vertical Yard and the 14x7m Row House. Both units move towards a dynamic flexibility that delivers subsidized housing that is as complete as possible. The banks requirements are met and that still allows for the unit to become an asset for income generation. The units are imminently achievable as they save on land cost, infrastructure and service provision, even though they are bigger than the traditional RDP typology. The increased densities attained through these new typologies also achieve the necessary thresholds for the efficient provision of public transport and economic opportunities (The Architect’s Collective of South Africa, 2012).

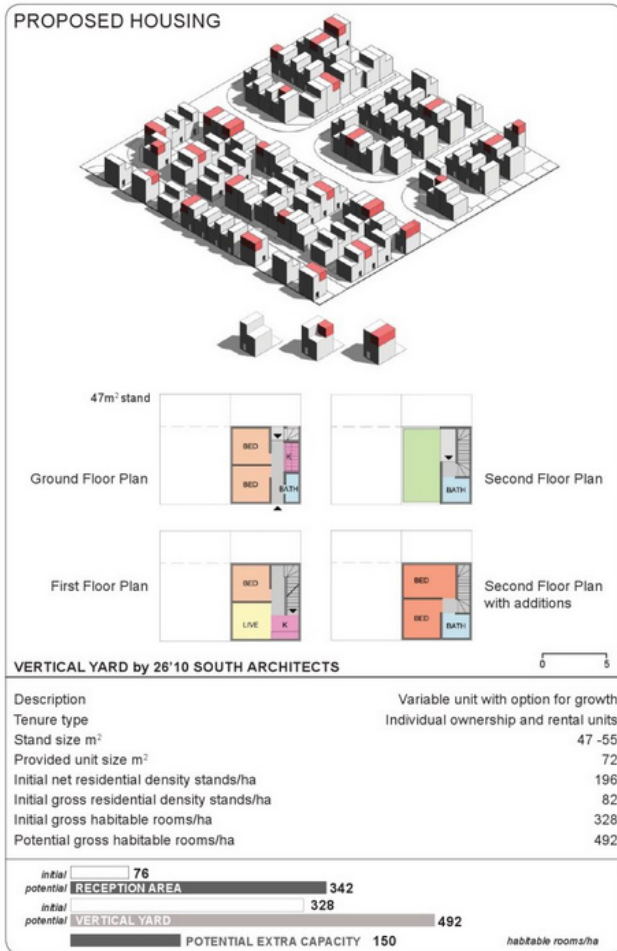
#### Guidelines for theoretical discourse

- No formal public spaces were designed or implemented for the Diepsloot area. Therefore highly specific everyday spaces were developed for the social strata: social, economic and home needs.
- The everyday spaces connect these various needs through layers that span between the private and public realms
- New typologies have been generated to accommodate eligible and non-eligible beneficiaries.
- Ground floor of units are kept programmatically loose to allow for morphing between social and economic needs; the ground floor is linked to the public interface of the street to allow for active engagement, thus blurring the boundary between private and public spheres. The opportunity of adaptation, growth and development is provided.

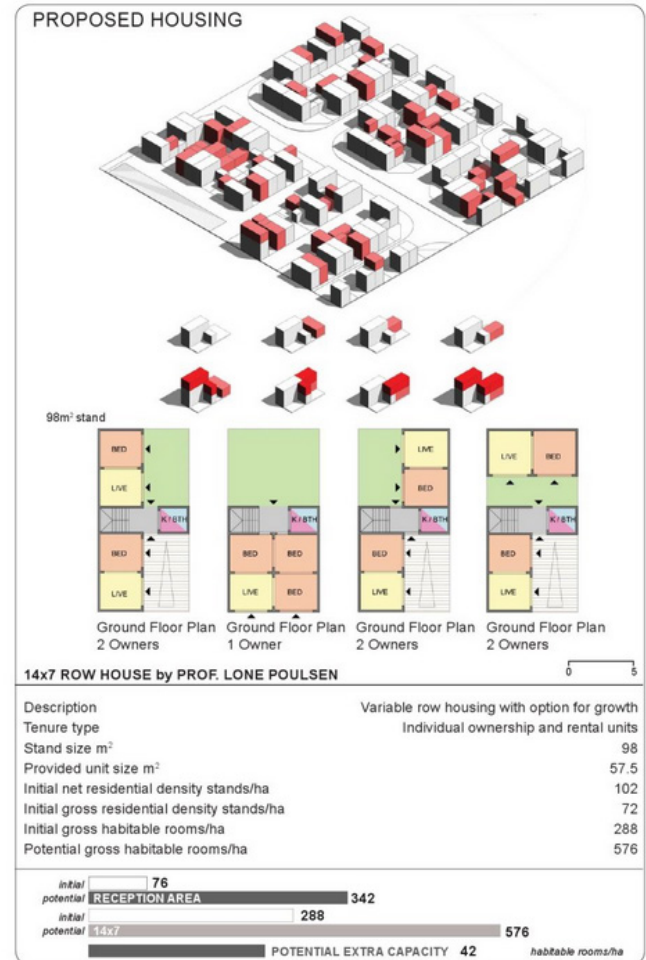
This new typology allows for the acts of economics, social and cultural events to inhabit the same architectural intervention, developing a type of inhabitable network interface of public infrastructure that adapts and grows according to the users’ social and economic needs.



Illus. 2.5.3 New housing typologies inserted into the street activity (26’10 Architects, 2010)



Illus. 2.5.4 Vertical Yard housing typology (26'10 Architects, 2010)



Illus. 2.5.5 14x7m housing typology (26'10 Architects, 2010)

## Inhabitable public spaces

Public space is the physical domain within which the everyday activities or social strata of the city takes place. The inhabitants of the city attach various social meanings onto the urban environment.

It could be argued that urbanisation contributes to urban diversity. This evolving context necessitates a public forum. The city has mutated into a denser environment by re-negotiating the generic. The need for a new public space typology emerges, to connect the stratified layers of the city. The interaction between various meanings and uses of the city could be transformed into a form of architectural heterotopia.

Everyday Urbanism attempts to reveal the hidden or concealed meanings in the residual of everyday life. It is argued that the juxtaposition of different parts of the same place or building could produce a new dialogue. This condition brings different architectural meanings together (Kelbaugh, 2004: 26-36).

The current urban environment is the result of a transition of the streetscape. The streetscape plays host to the dialogues between the Generic and Specific Cities through everyday public activities. This allows for the constant interaction between different meanings. This interaction affects the visual landscape, bringing about an alteration of different layers and scales of the urban environment. The result is a highly specific public space that forms the connection between the various fragments of the city.

In the city centre of Pretoria, the wall often becomes the activity driver of the public interface between various social, cultural and economic activities.

## Conclusion

Architecture has the ability to accentuate and develop everyday public activities. By investigating the everyday condition on an urban scale, the concept of inhabitable public space is developed. The result identifies the realms of workplace, home and institution, thus responding to existing contextual conditions.



Illus. 2.6 Spatial concept drawing for inhabitable public space (Author, 2012)

>>Site	39
>>The Generic city: visual language mapping	43
>>The Specific City: quotidian activities and occupancy of sidewalk	46
>>Quotidian networks	53
>>Spatial relationships of quotidian networks	55
>> Conclusion	66
>>Site analysis of the inhabitable public space	67
>>Appropriation of sidewalk	71

# Chapter 3

## Context



## Site

The site under investigation is erf 3/198, located on a busy intersection of Proes and Van der Walt streets, Pretoria. After a macro-urban mapping session conducted by the author [see Appendix A.1], it was concluded that Van der Walt street presents the highest pedestrian and vehicular movement activity due to the two modal interchanges found on either side of the North-South axis. Proes street presents the highest concentration of everyday public activities.

The site and surrounding context becomes a laboratory in which to investigate the theoretical hypothesis proposed.





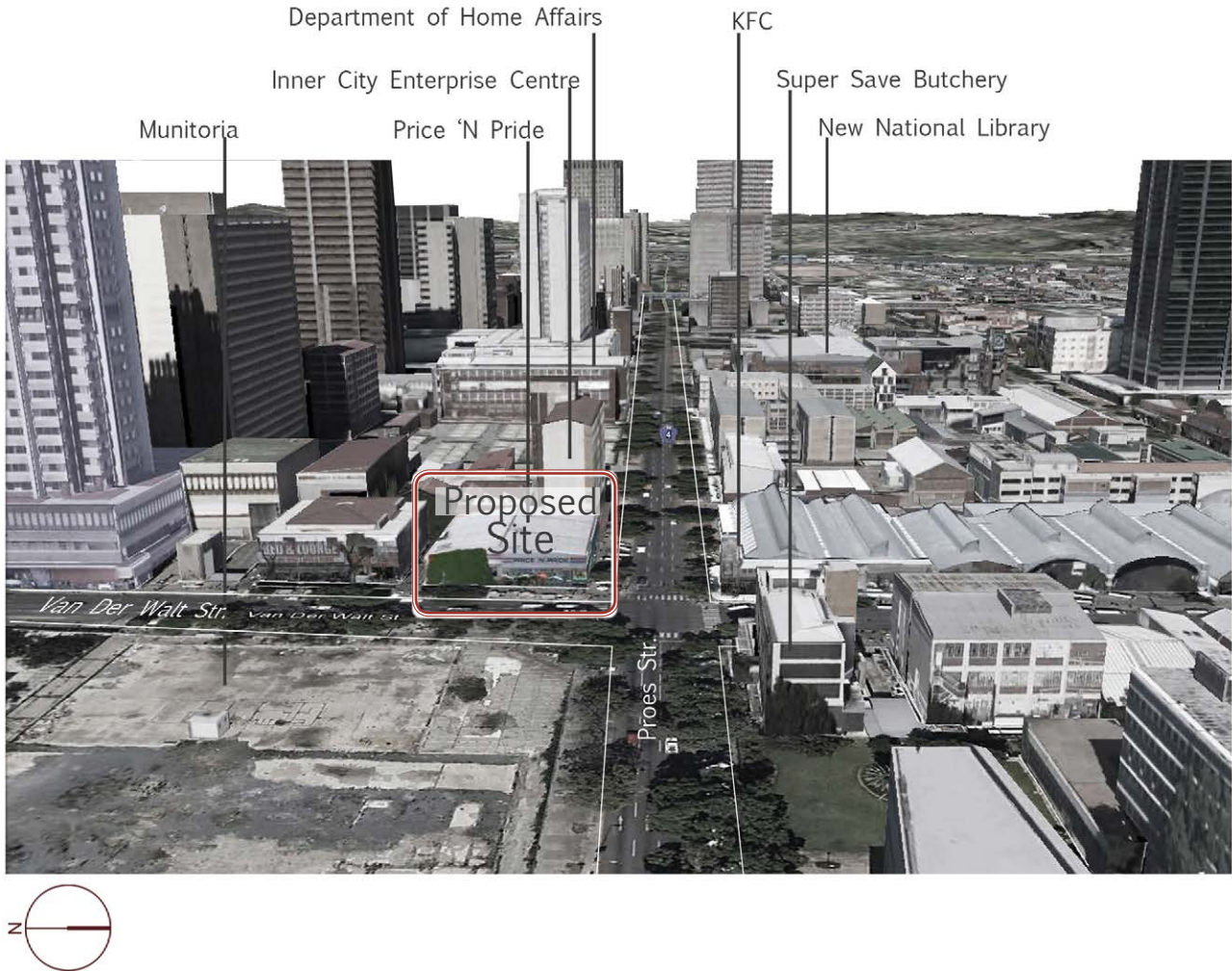
Illus. 3.1.1 Locality plan (Author, 2012)

A meso-mapping exercise of the study area revealed the following:

- A high concentration of formalised mono-functional buildings of commercial or governmental use.
- No formalised cultural activities or public spaces.
- The main activity is in the form of pedestrian and vehicle movement that occurs along the critical pedestrian axis of Van der Walt Street, that links various urban armatures along its North-South axis.
- Rest and gathering occurs along the West-East axis of Proes Street presenting the highest levels of everyday public activities with an insurgence of informal markets, homeless people and taxi stops occurring where there are active edges in the form of commercial activities.
- The decreased activity during the evenings promotes the use of the vertical edge of the sidewalk as temporary shelter for the homeless people who appropriate the facades of buildings for sleeping and gathering purposes.
- Economic and social relationships [quotidian networks] form between the informal, formal traders and homeless people through the use of the vertical edge condition.



These conditions support the 150% city. The new everyday public spaces become the focal point of this dissertation, to reveal the zone of potential transformation leading to Koolhaas' 200% city.

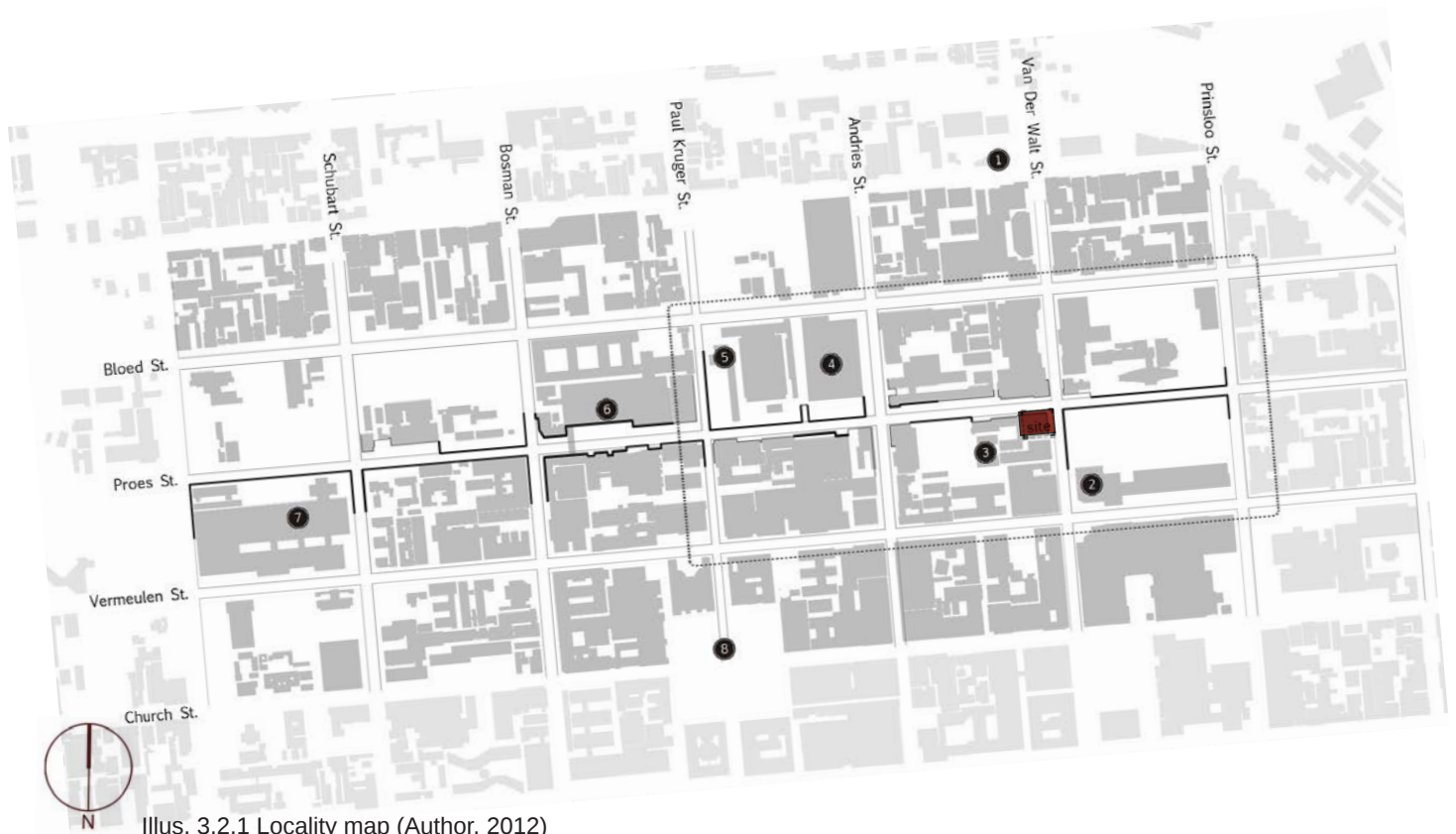













Illus.3.1.2 Proposed site location looking west (Author, 2012)

## The Generic City: Visual language mapping

- |   |                 |
|---|-----------------|
| ① Bloed st. taxi station                          | ⑥ Telkom towers |
| ② Munitoria                                       | ⑦ Schubart Park |
| ③ Inner City Enterprise Centre [recycling centre] | ⑧ Church Square |
| ④ New National Library                            |                 |
| ⑤ Synagogue                                       |                 |
-  Impermeable vertical surfaces  
 Permeable vertical surfaces



Illus. 3.2.1 Locality map (Author, 2012)

-  Existing trees
-  Inaccessible green space: Physically inaccessible but visually accessible public park
-  Accessible green space: Physically accessible public park
-  Accessible open space: Physically accessible public square
-  Car parking lot
-  Bus stop
-  Taxi stop
-  250m walking radius from bus stop
-  Parking for vehicles along street edge



Illus. 3.2.2 Open space and vehicular movement mapping (Author, 2012)



- Formal commercially active edge with either an open vertical edge or visually accessible vertical edge onto sidewalk
- Solid blanked vertical edge acting as infrastructure to new social and economic strata
- No defined vertical edge between sidewalk and erven
- Visually permeable vertical edge with no active engagement with sidewalk



Illus. 3.2.3 Vertical edge mapping (Author, 2012)

- ||| Pedestrian activity frequency
- Intersection activity level of public activities

## The Specific City: Quotidian activities and occupancy of sidewalk






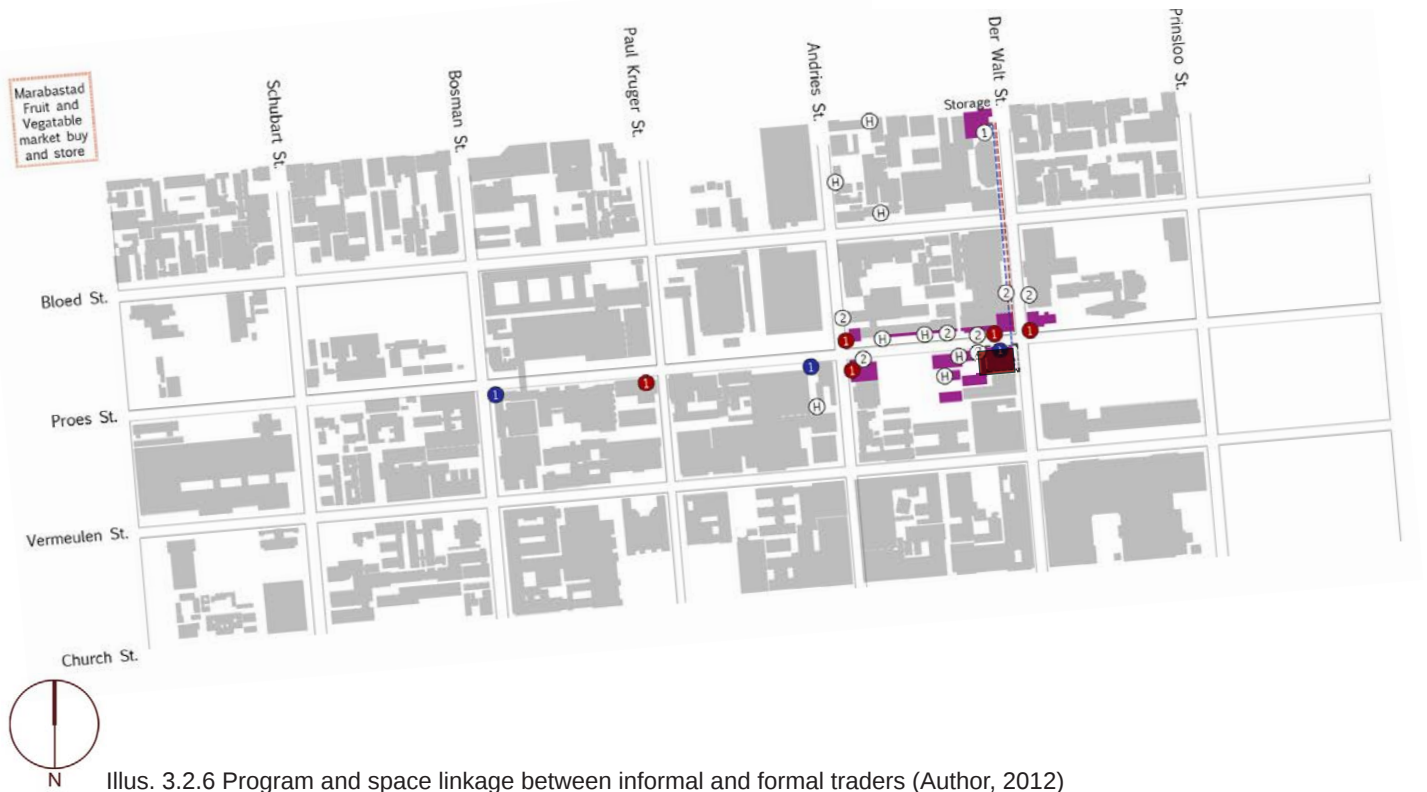
Illus. 3.2.4 Pedestrian activity level mapping (Author, 2012)

- Ⓜ Homeless people sleeping next to building facades
- ① Informal traders that sell fruits and vegetables
- ② Informal traders that sell clothing and accessories
- Informal traders using the same van delivery service
- Informal traders using their own transport delivery service
- Informal traders distributing to trading location by foot



Illus. 3.2.5 Informal trading mapping (Author, 2012)

-  Formal commercial activity
-  ① Link between formal and informal commercial activities [food commerce]
-  ② Link between formal and informal commercial activities [clothing commerce]



Illus. 3.2.6 Program and space linkage between informal and formal traders (Author, 2012)





Pedestrian

Inactive  
vertical  
edge

Informal  
trader

Informal  
trader

Sidewalk

Illus. 3.2.7 The quotidian network between formal and informal traders, pedestrian and sidewalk (Author, 2012)



Active  
Vertical  
edge

Pedestrian

Informal  
trader

Sidewalk

Illus. 3.2.8 The quotidian network between informal trader, sidewalk and pedestrian (Author, 2012)







Commercial  
trader

Homeless  
person

Sidewalk

Illus. 3.2.9 The quotidian network between homeless people and traders (Author, 2012)





Pedestrian

Informal trader

Informal trader

Illus. 3.2.10 The quotidian network between informal traders and pedestrian (Author, 2012)

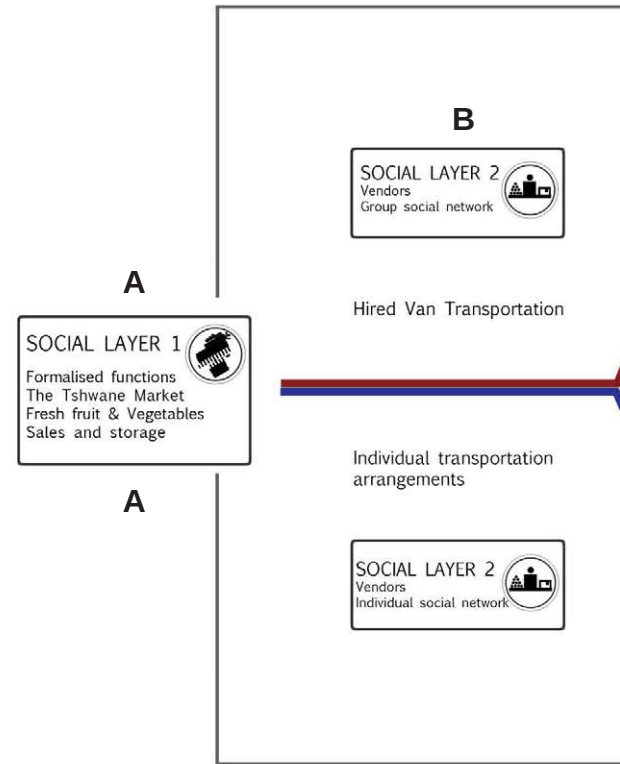
## Quotidian networks

Krupat (1994: 55) states that social support systems are established in public spaces due to the environment. The similarities among groups of people are emphasized, producing “mosaics of little worlds” in the city. For the purpose of this dissertation, these are referred to as quotidian networks that are established between various social strata. The development of these quotidian networks have resulted in links that form between the realms of the workplace, home and institution, in Proes and Van der Walt Streets (Illus. 3.2.7-10). These relationships develop between:

- > Commercial traders
- > Informal traders as well as
- > Homeless people.

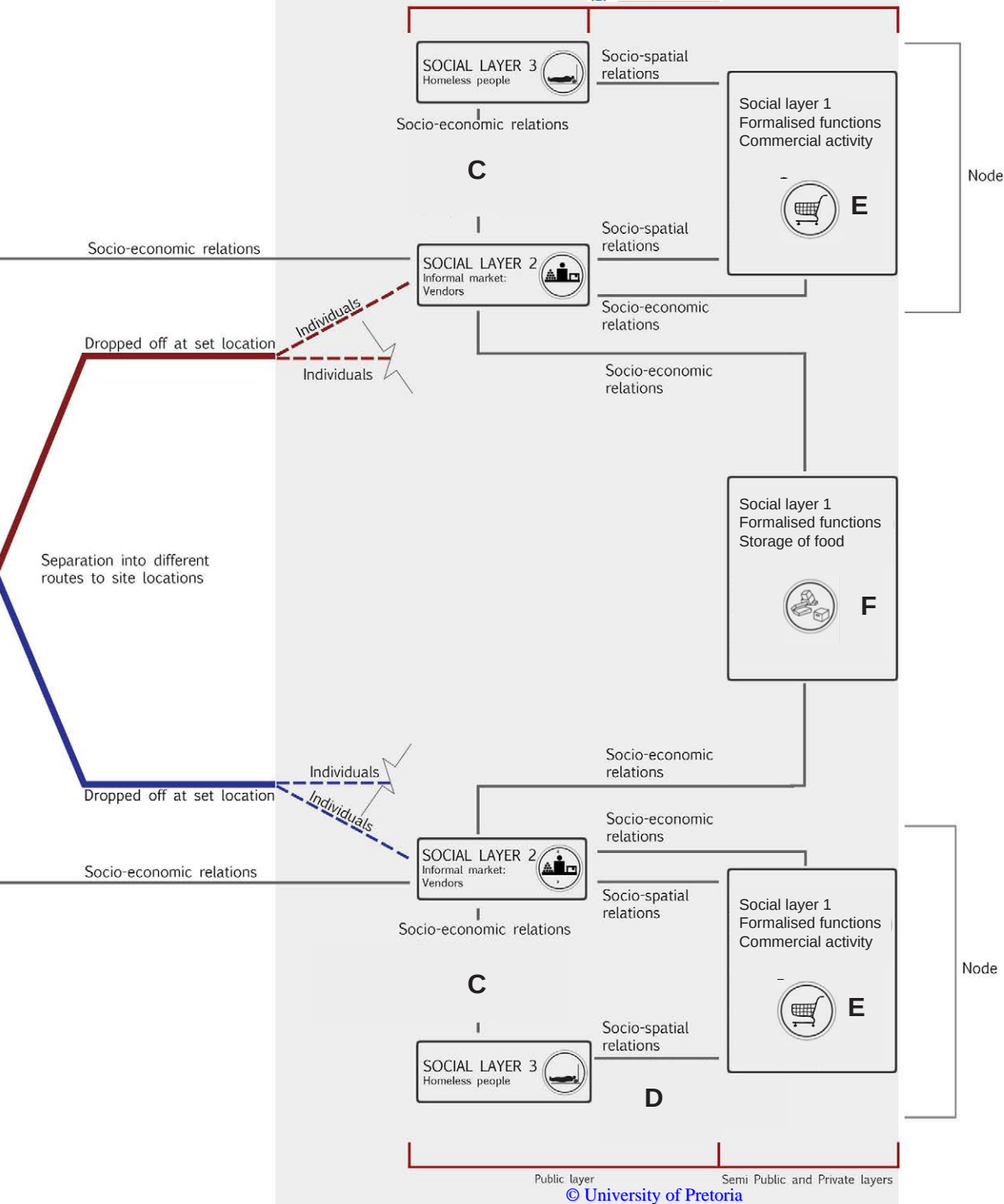
The links within the inhabitable everyday space of the streetscape result in the sidewalk becoming a node of multiplicity, re-familiarising and transforming the under-used public streetscapes into islands of occupation. This begins to blur the boundary between the private and public sectors which leads to new economic and social relations (Illus. 3.2.11).

These networks begin to layer the sidewalk spatially producing a physical manifestation of the relationships (Illus. 3.2.7-10). To study these networks further, the corners of Proes/Andries and Proes/Van der Walt Streets were documented to determine spatial responses and possible typologies resulting from these quotidian networks that respond to the generic city’s physical organisation [visual language] as defined by the existing buildings.



Illus 3.2.11 Quotidian network and relationships in Proes street (Author, 2012)





**A** Socio-economic relations exist between social layer 1 & 2 by means of sales and storage of excess produce at the end of the day.

**B** Social relationships already exist before appropriation of sites in Proes Street. Individuals form part of informal network that exists over existing physical organisation.

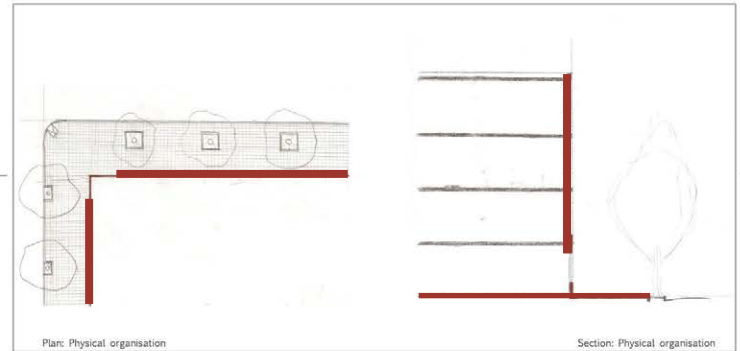
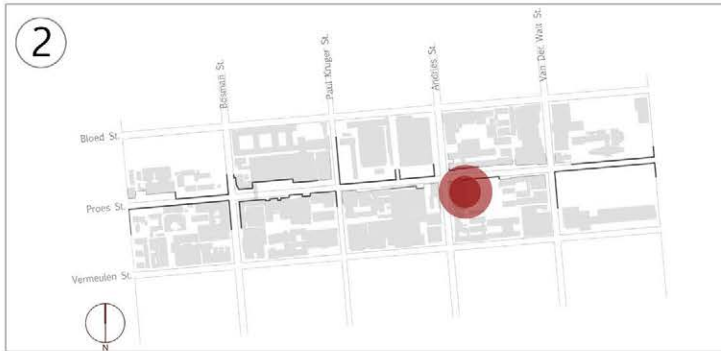
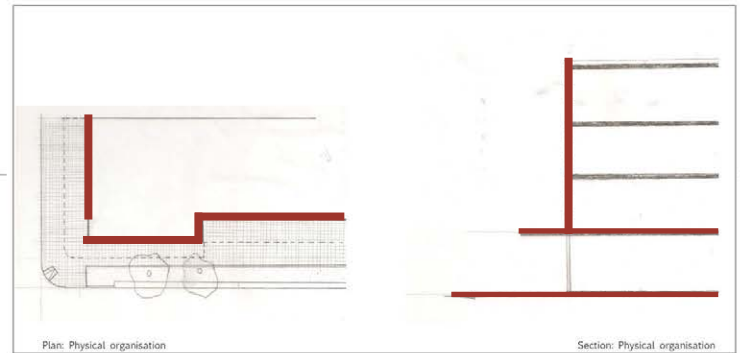
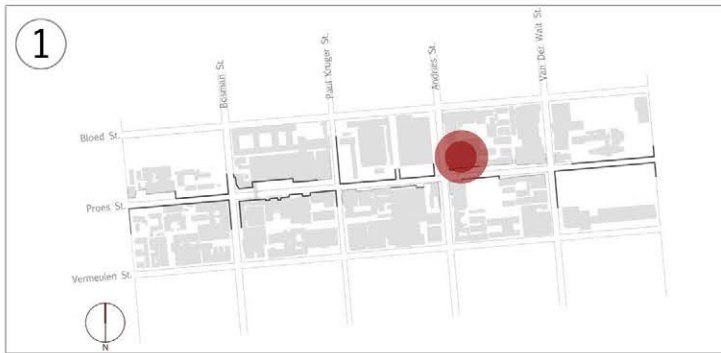
**C** The need to discard excess boxes on appropriated site by social layers 2 and the need to collect recyclable material by social layer 3 results in socio-economic network between social layers 2 & 3.

**D** Socio-spatial relations form between social layers 1 & 3 by the appropriation of the public interface of the formalised activity and cleaning of excess waste material around the site.

**E** Complementary programs between social layers 1 & 2 results in socio-economic network that takes place through spatial manipulations of public space interface of commercial activity.

**F** The need to store food in the city generates socio-economic network between social layers 1 & 2 without any socio-spatial manipulation of space to assist the process.

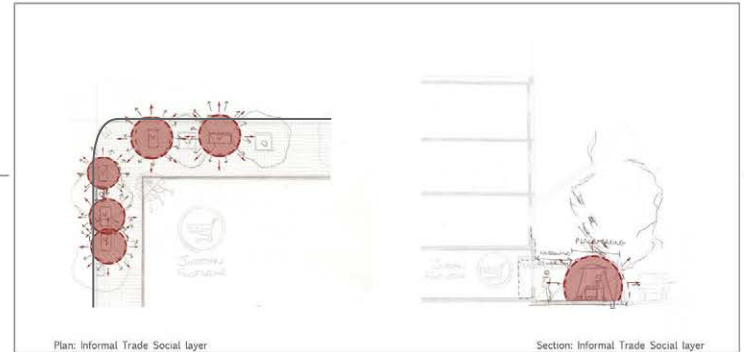
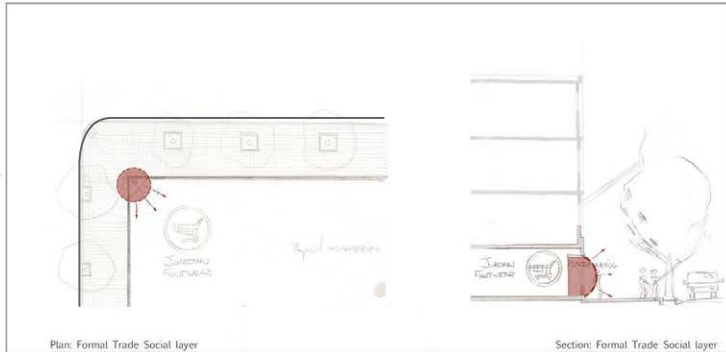
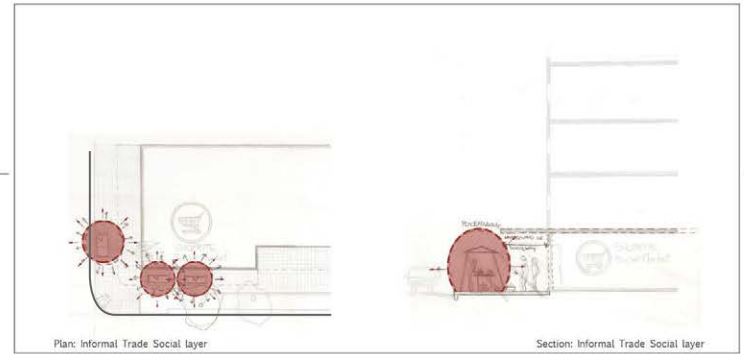
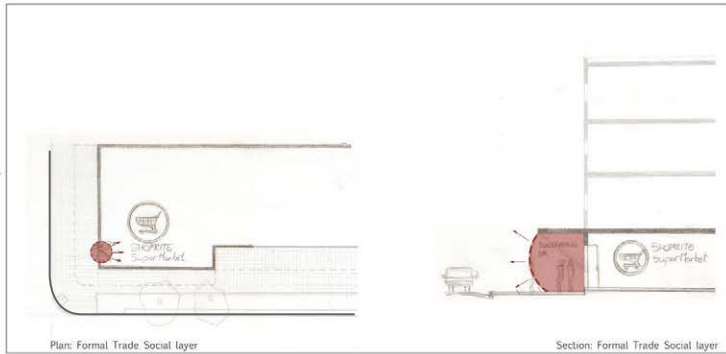
## Spatial relationships of quotidian networks



Location of study

Physical corner [organisation] as defined by the edge of the existing building

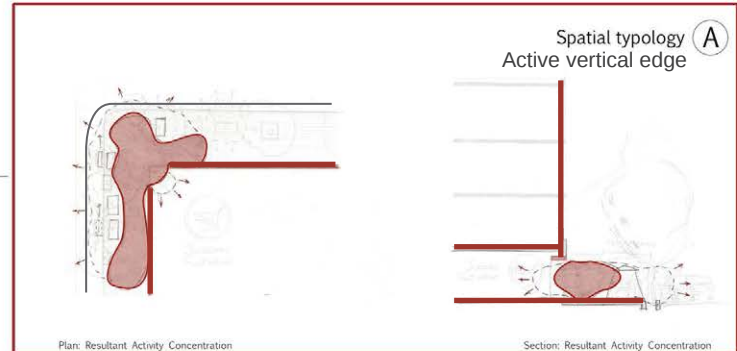
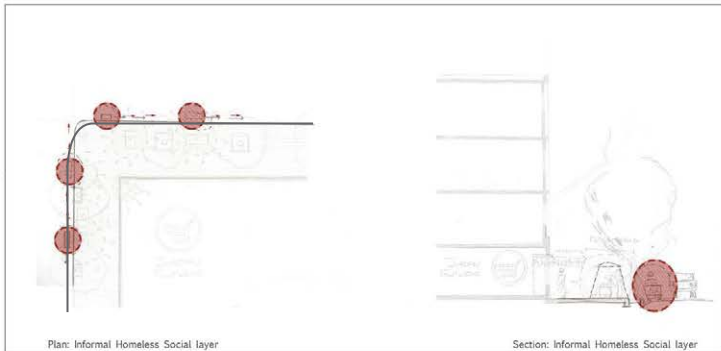
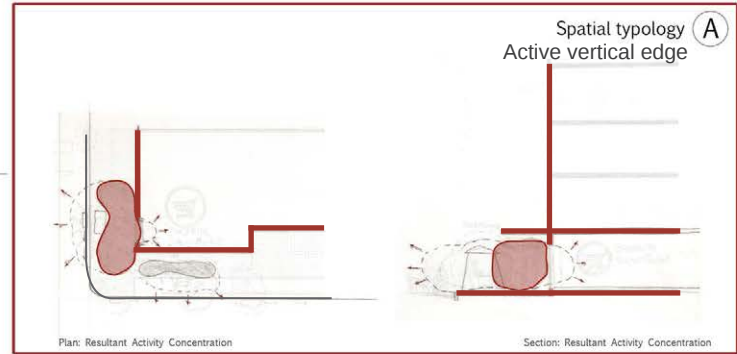
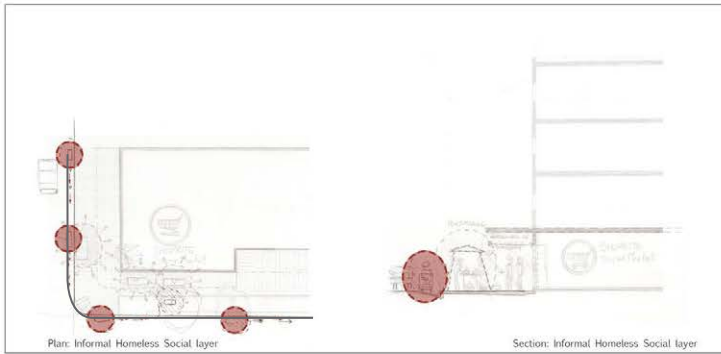
Illus 3.3.1 Spatial relationships of quotidian networks [cnr Proes and V.d Walt streets] (Author, 2012)



Formal traders' spatial influence on the sidewalk through the use of the vertical edge

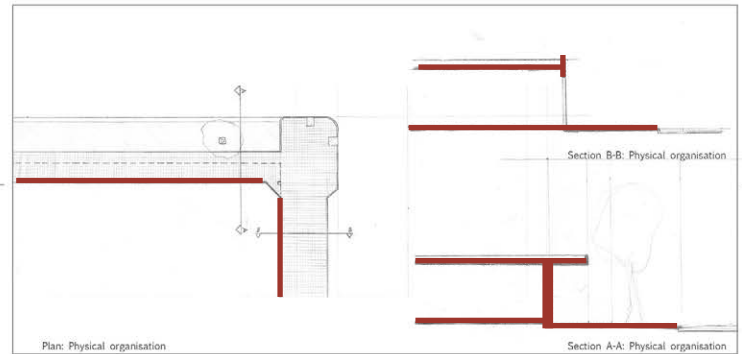
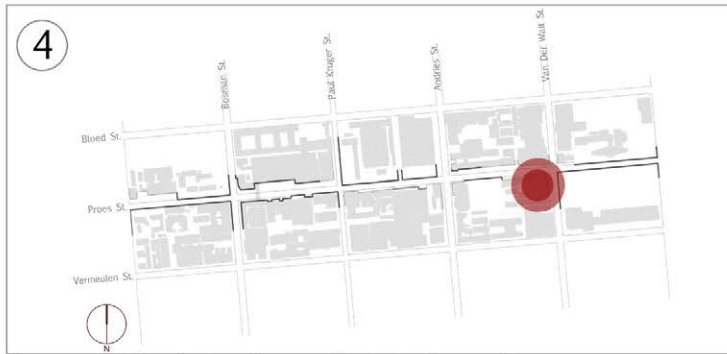
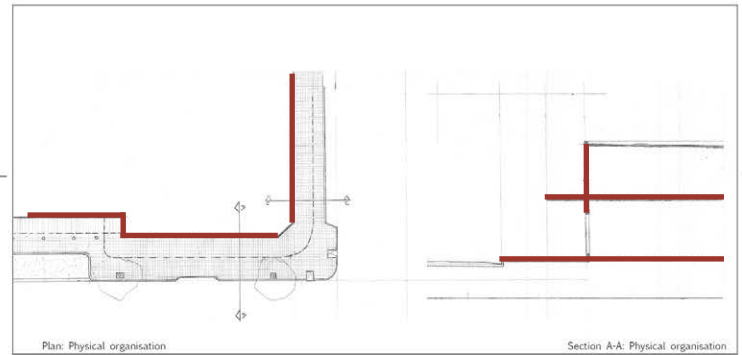
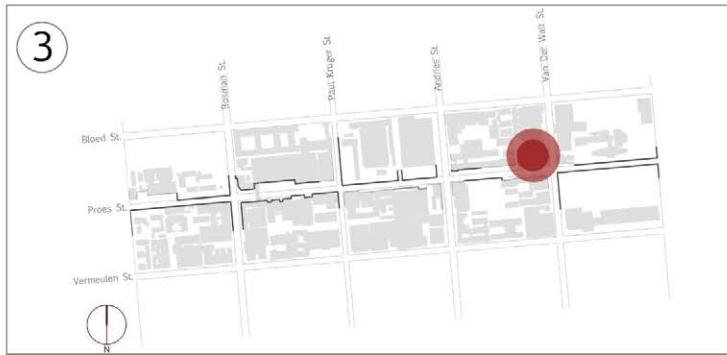
Informal traders' spatial influence on the sidewalk responding to vertical edge of formal trader





Homeless people's spatial influence on sidewalk, developed from quotidian network connections

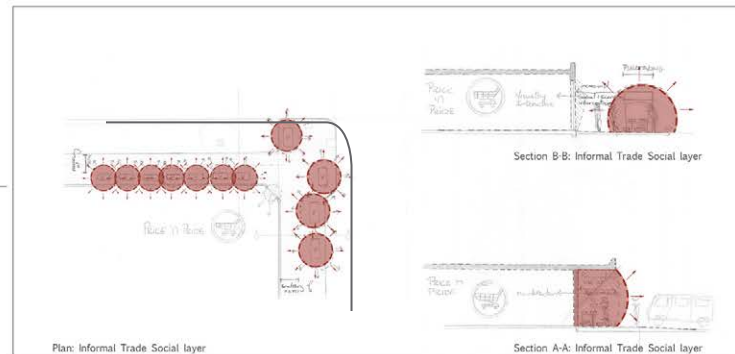
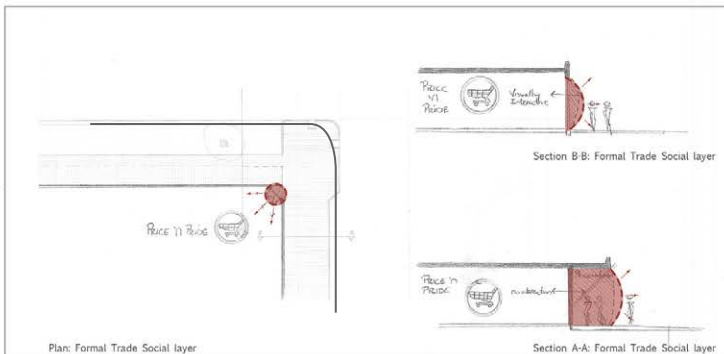
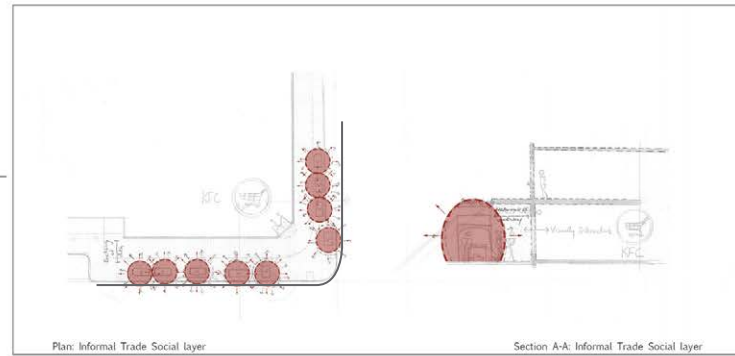
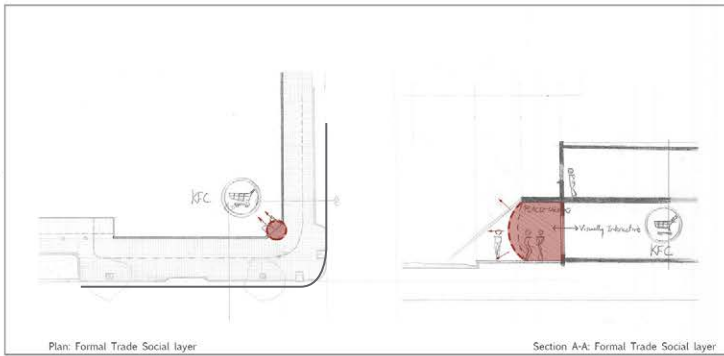
Resultant spatial typology on street corner



Location of study

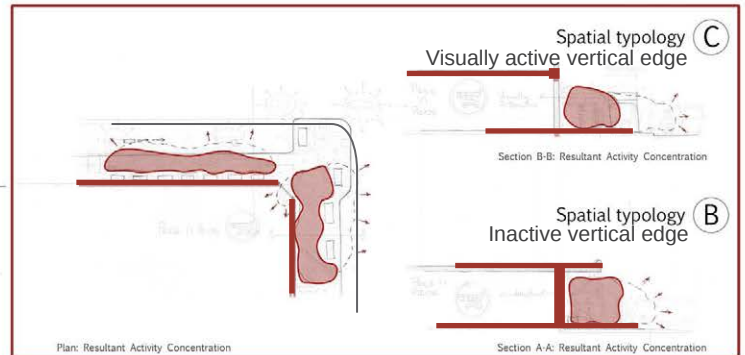
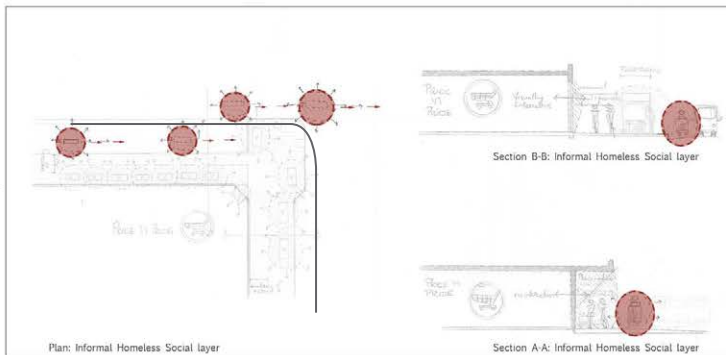
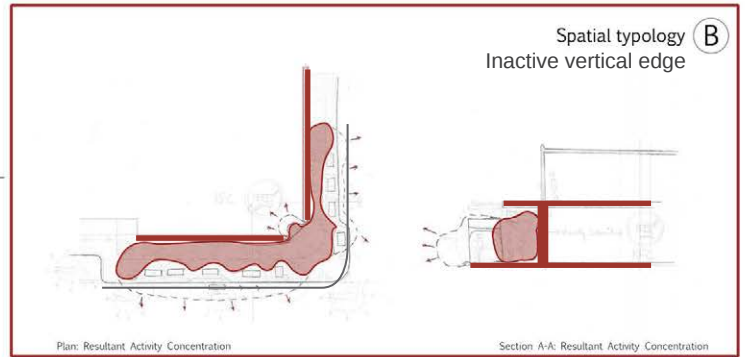
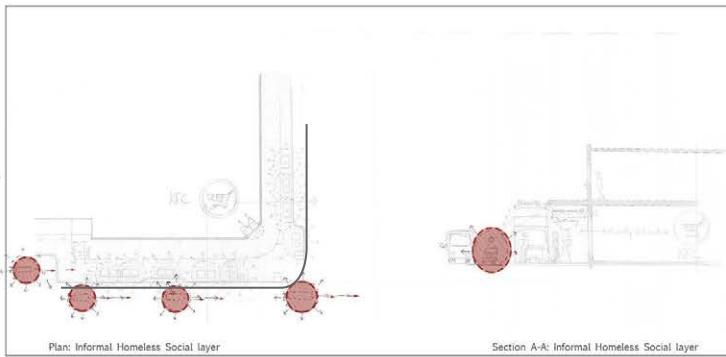
Physical corner [organisation] as defined by the edge of the existing building

Illus 3.3.2 Spatial relationships of quotidian network [cnr Proes and Andries Streets] (Author, 2012)



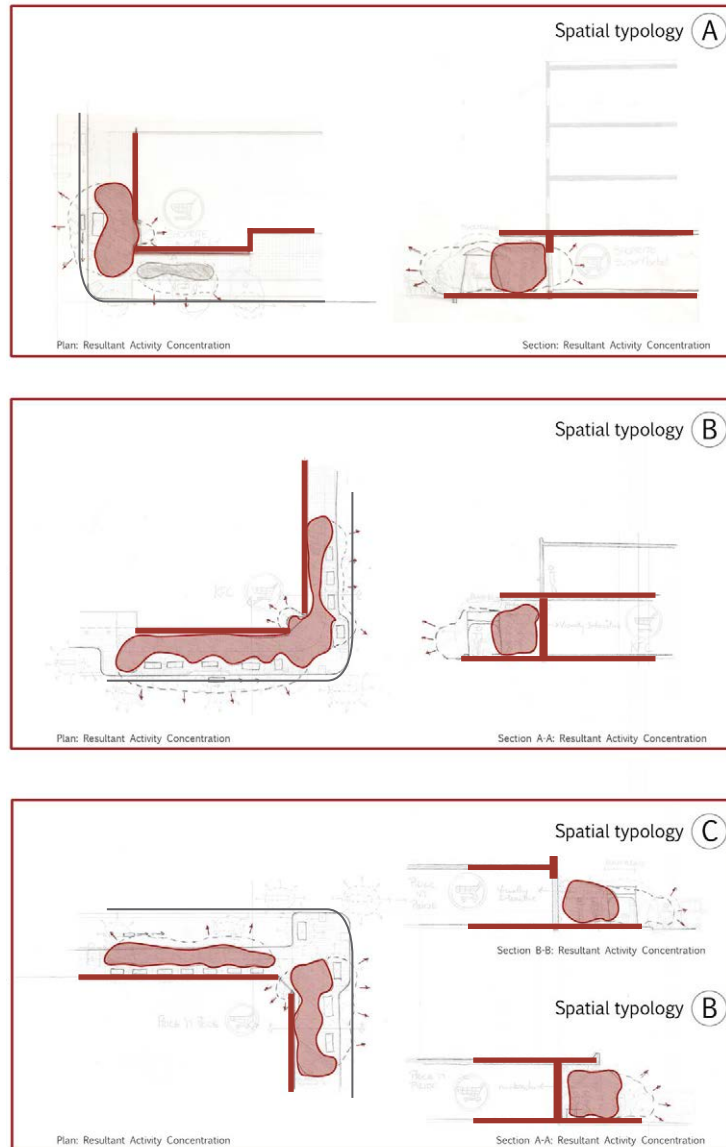
Formal traders' spatial influence on the sidewalk through the use of the vertical edge

Informal traders' spatial influence on the sidewalk responding to the vertical edge of formal traders



Homeless people's spatial influence on sidewalk developed from quotidian network connections

Resultant spatial typology on street corner



Illus 3.3.3 Resultant Spatial relationships of the quotidian network in Proes Street (Author, 2012)

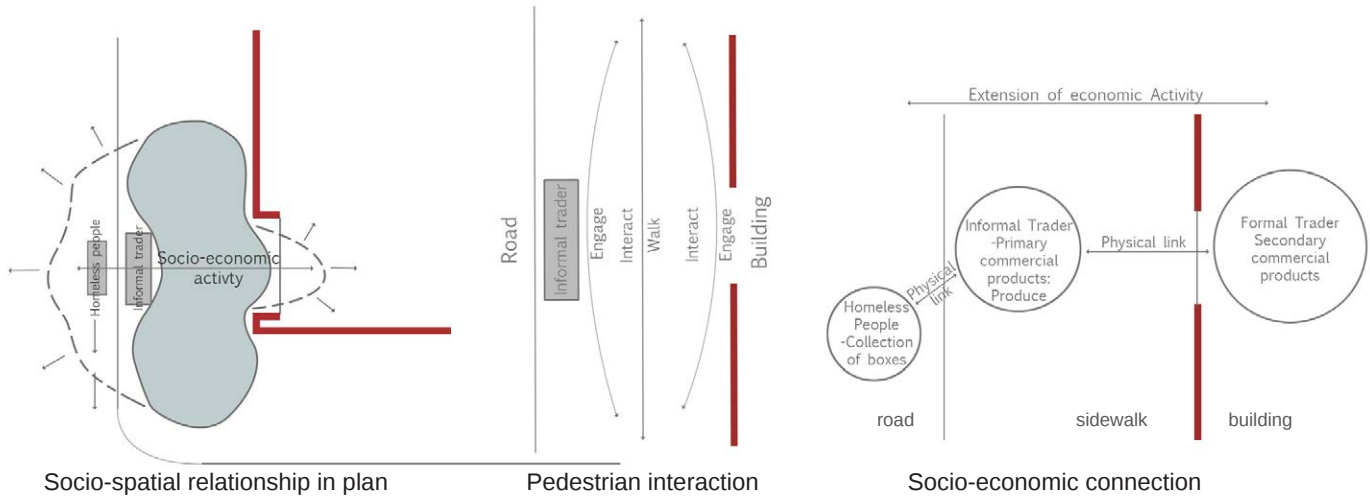
Through studying the relationships of the quotidian network on the sidewalk, three spatial typologies have been identified relating to the inhabited wall (Illus. 3.3.3):

1. Spatial typology A: An active vertical edge  
The vertical edge is open to movement and engagement with a commercial activity through the use of the sidewalk.
2. Spatial typology B: An inactive vertical edge  
The vertical edge is solid: this does not allow for engagement between commercial activities and sidewalk. Instead it becomes an attractor and infrastructure to new social and economic strata.
3. Spatial typology C: A visually active vertical edge  
The vertical edge allows for visual engagement between the commercial activity and sidewalk activity.

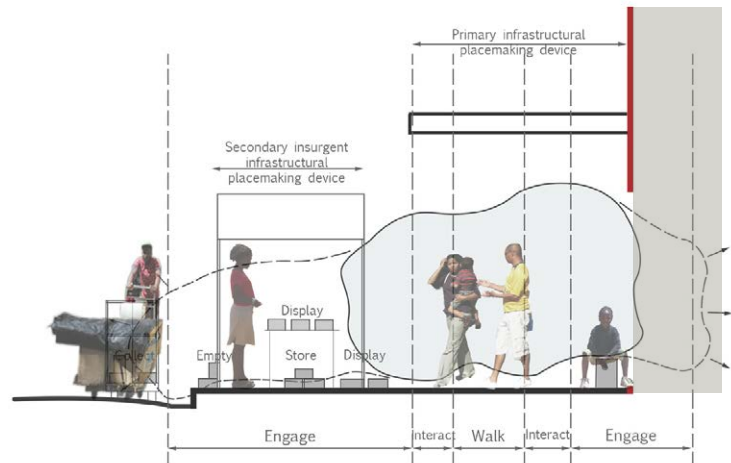
The development of these multiple spatial typologies present themselves in the public interface of the sidewalk. The Generic City's existing vertical edge condition becomes the initiator of activity which determines the programmatic activities of the sidewalk, enabling movement and connection. This links the socio-economic relationships of the quotidian network together in public space. The individual condition of the Specific City is aided by various insurgent infrastructural components of the social strata of the sidewalk. The following section explores the three conditions in more detail.



## Active vertical edge

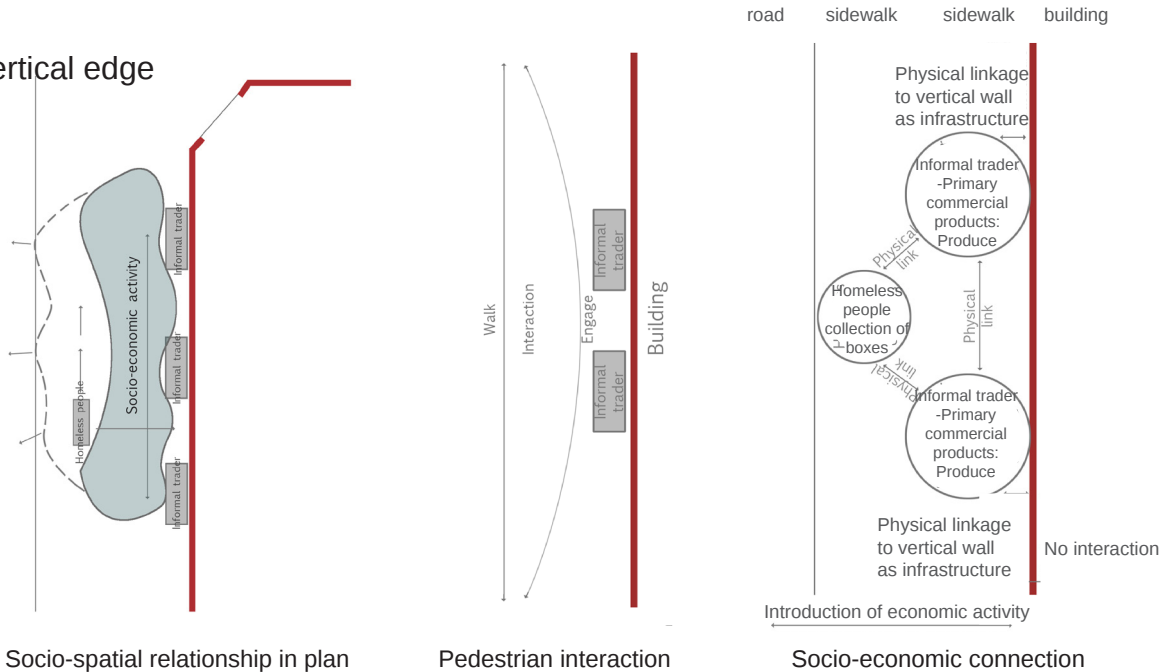


- Complementary socio-economic activities between commercial and informal trading [produce or clothing goods].
- The sidewalk becomes the terrain for a new spatial relationship.
- New appropriation of:
  - The use and engagement with the public domain
  - Movement
  - Interaction and engagement with a socio-economic activity.
  - Re-appropriation of a dual commercial corridor and the development of a new commercial typology.

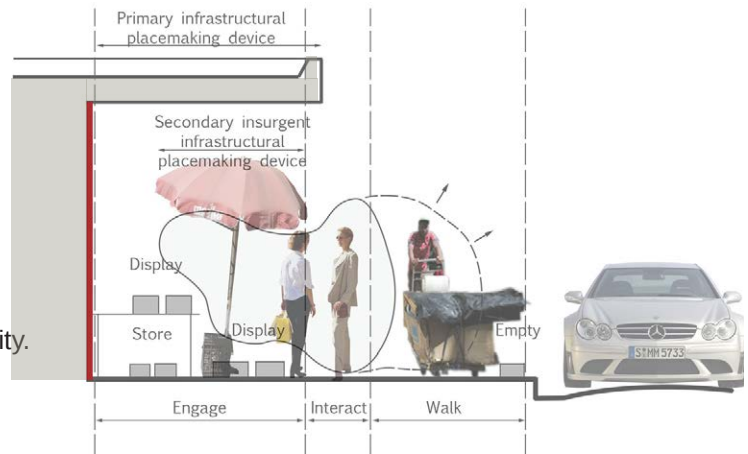


Illus 3.3.4 Spatial typologies of the quotidian network [Typology A] (Author, 2012)

### Inactive vertical edge

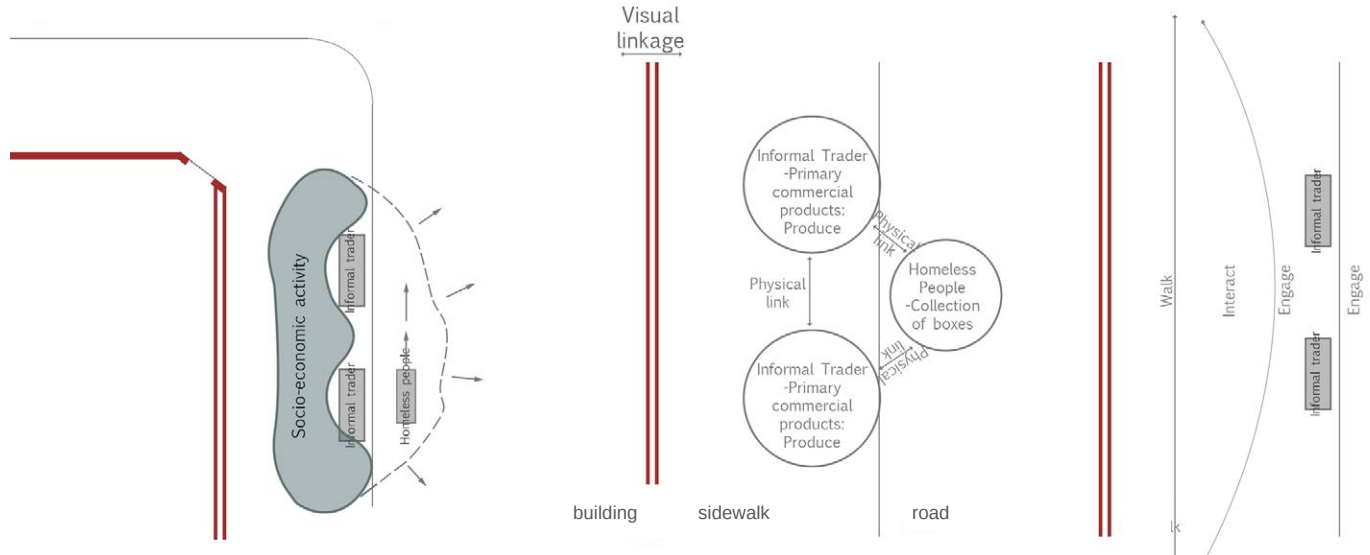


- Complementary informal trading programs that lead to the development of socio-economic relationships [produce and clothing goods].
- The sidewalk becomes the terrain for a new spatial relationship.
- New appropriation of:
  - The use and engagement with the public domain.
  - Movement.
  - Interaction and engagement between public domain and a socio-economic activity.
  - Shop front typology shifts to direct engagement developing a new commercial typology.



Illus 3.3.5 Spatial typologies of quotidian network [Typology B] (Author, 2012)

## Visually active vertical edge

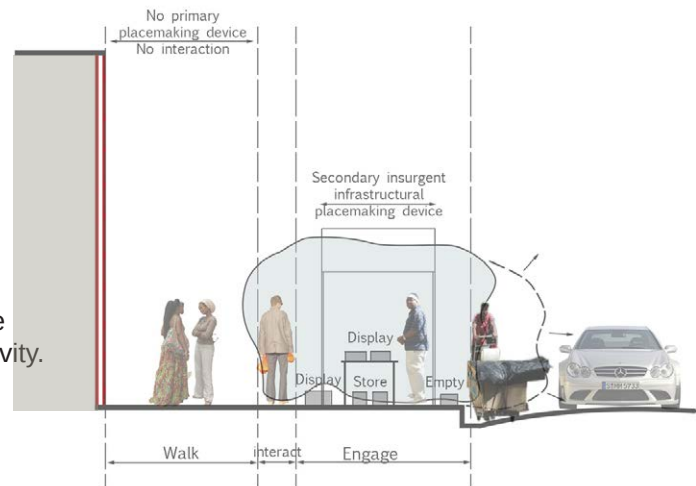


Socio-spatial relationship in plan

Socio-economic connection

Pedestrian interaction

- Complementary informal trading programs that lead to the development of socio-economic relationships [produce or clothing goods].
- The sidewalk becomes the terrain for a new spatial relationship.
- New appropriation of:
  - The use and engagement with the public domain.
  - Movement.
  - Interaction and engagement between the public domain and a socio-economic activity.
  - The shop front typology shifts to direct engagement. A new commercial typology is developed.



Illus 3.3.6 Spatial typologies of the quotidian network [Typology C] (Author, 2012)

## Conclusion

From the aforementioned investigations, the main infrastructural components used are:

- Standard foldable steel tables
- Trolleys
- Gazebo structures or umbrellas
- Cardboard boxes for storage of goods.

The three spatial typologies developed have been supported by the use of the above infrastructural components. The typology determines the siting, position and use of the components to assist the various everyday public activities. These have adapted the urban environment to produce a new living and commercial pattern over the existing commercial pattern of Proes and Van der Walt streets. This spatial manifestation of the quotidian networks has generated an inhabitable public space that begins to develop the 200% city and provides the foundation for a new architectural response to assist this transformation.

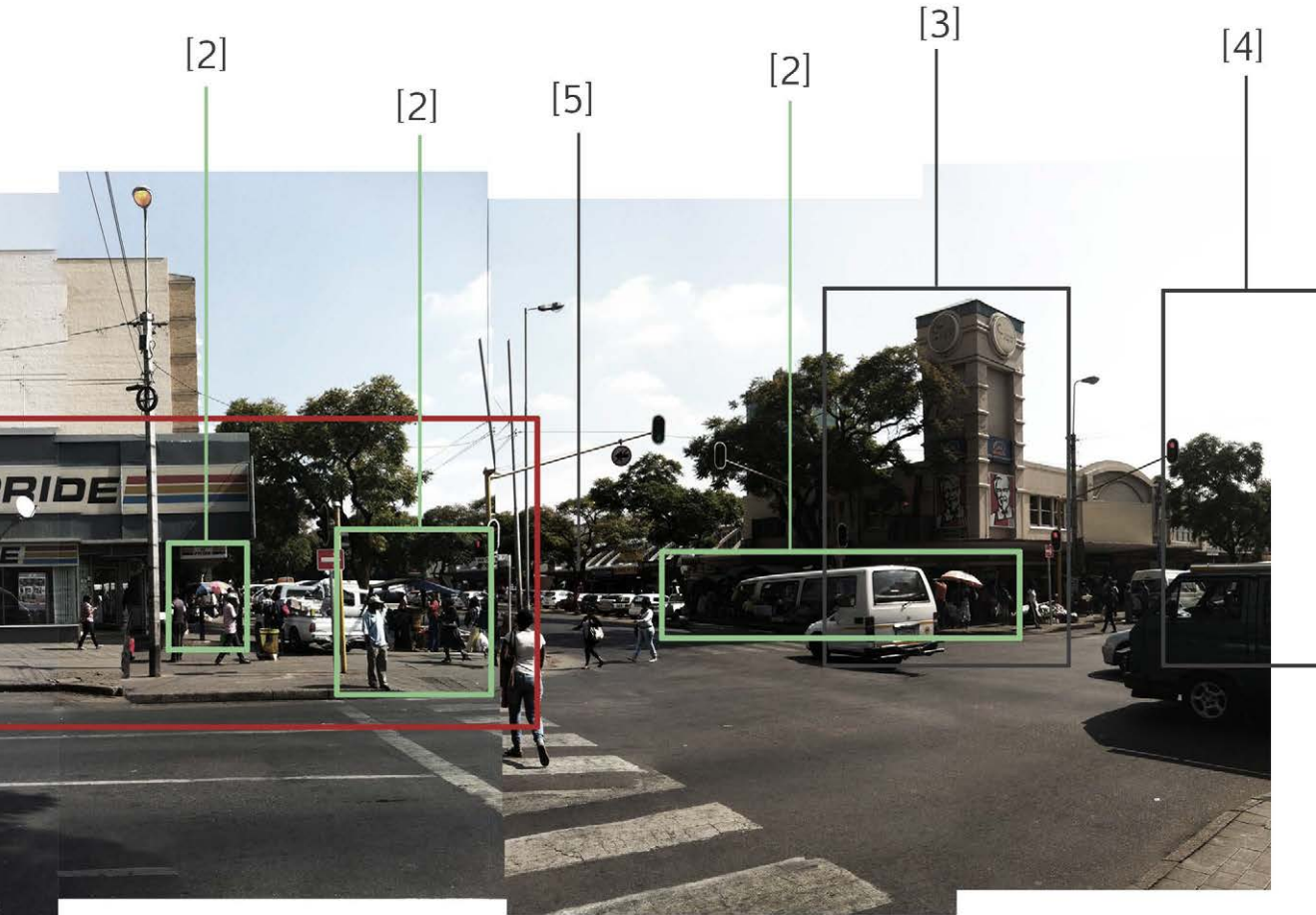
[site]

## Site analysis of the inhabitable public space Cnr of Proes and Van der Walt streets

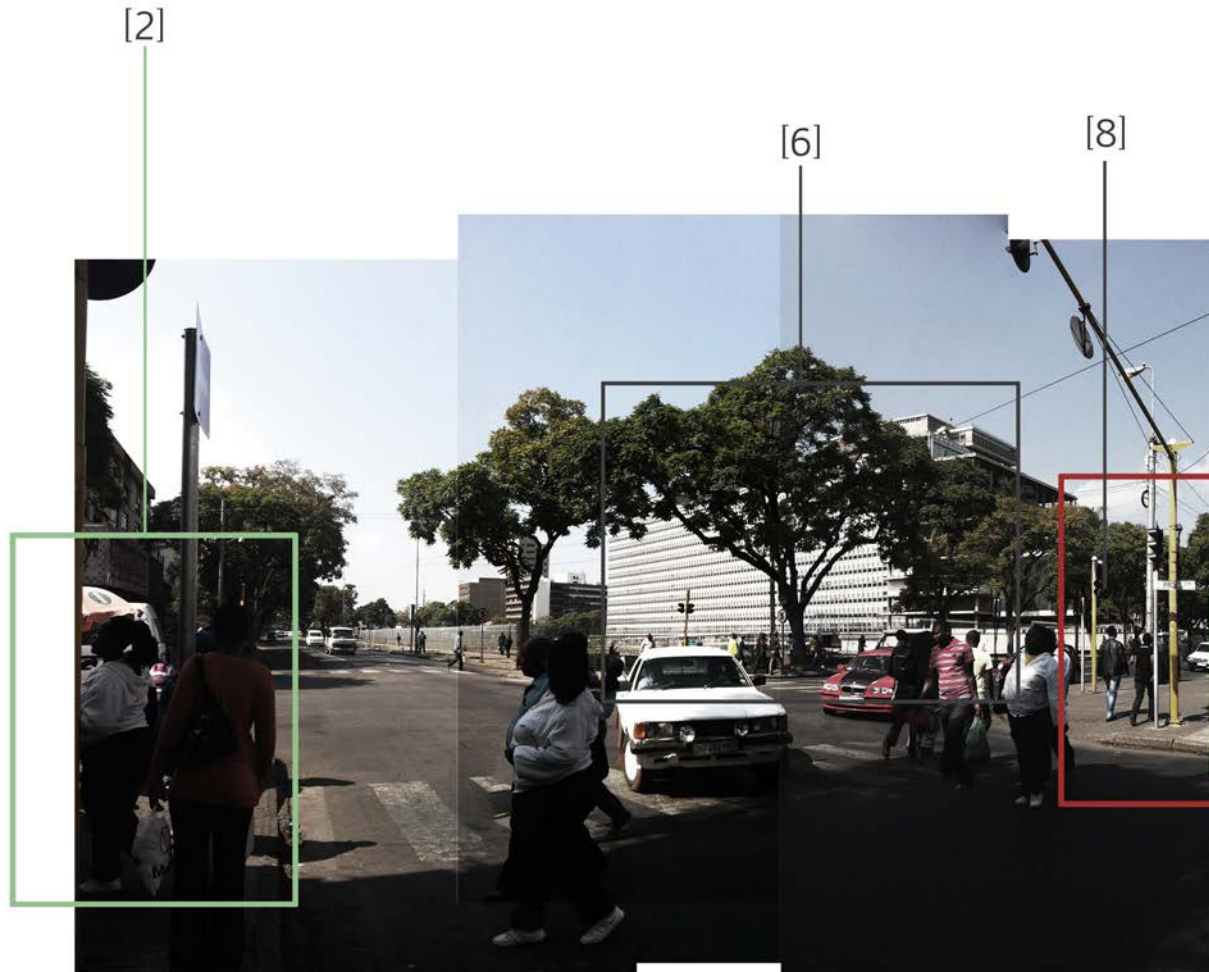


- [1] Chicken Licken
- [2] Informal traders that serve the commuters that move through the area daily [selling produce and clothing]
- [3] Kentucky Fried Chicken
- [4] Super Save Butchery
- [5] Proes street running west towards Steenhoven spruit and Marabastad

Illus 3.4.1 Site view from Van der Walt street (Author, 2012)







[6] Munitoria

[7] Taxi parking on open erven

[8] Van der Walt street running north towards transport interchanges on Bloed street

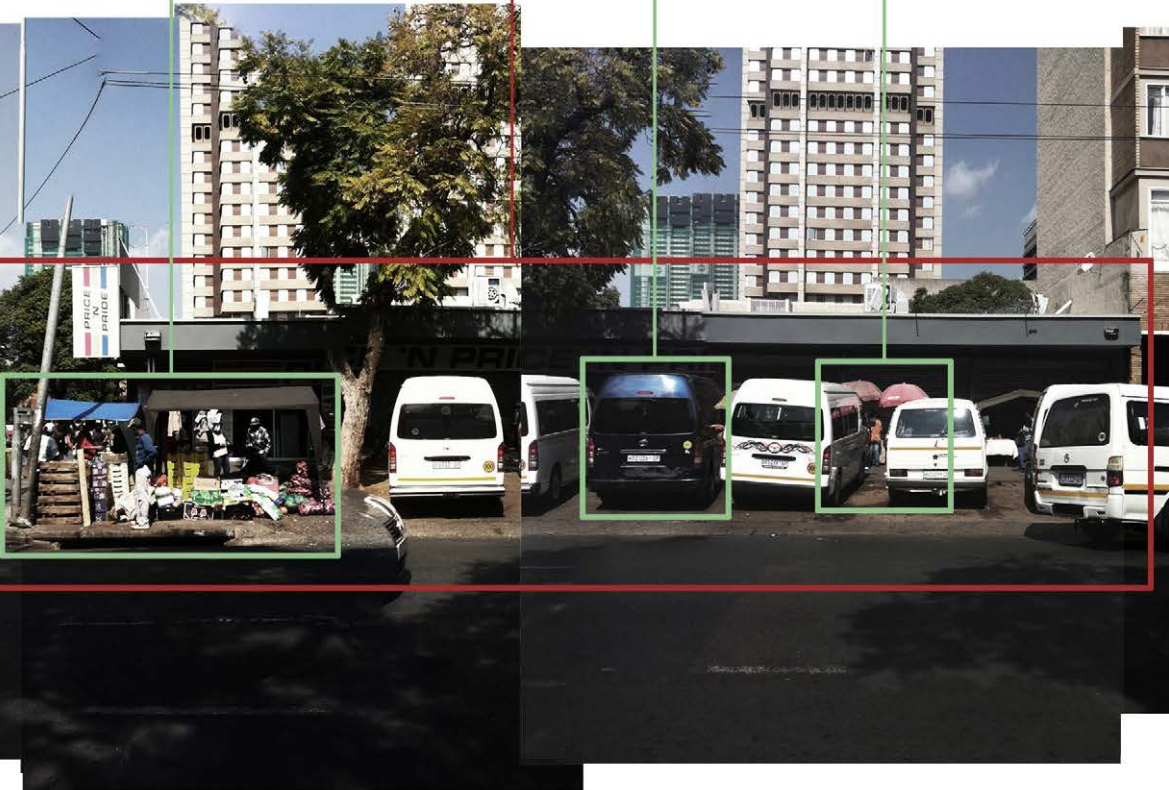
Illus 3.4.2 Site view from Proes street (Author, 2012)

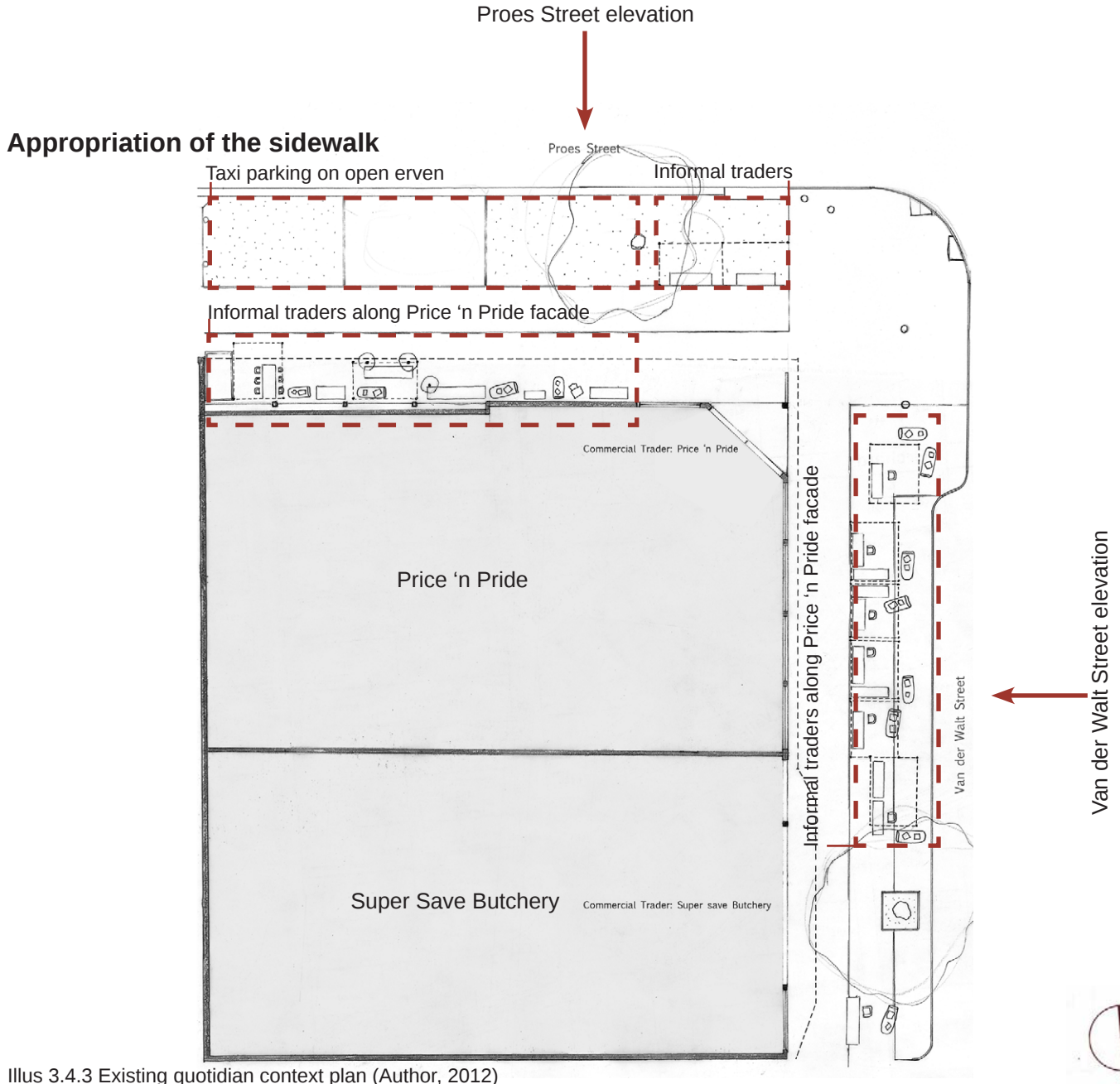
[2]

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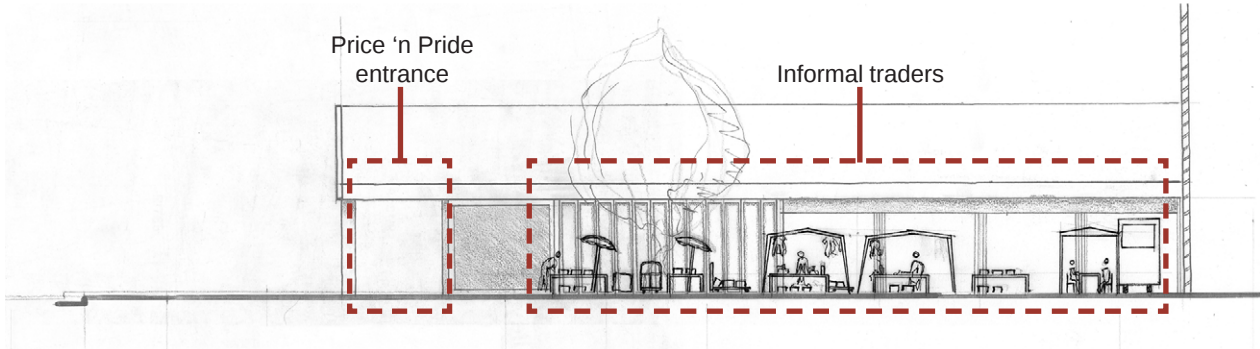
[site]

[2]

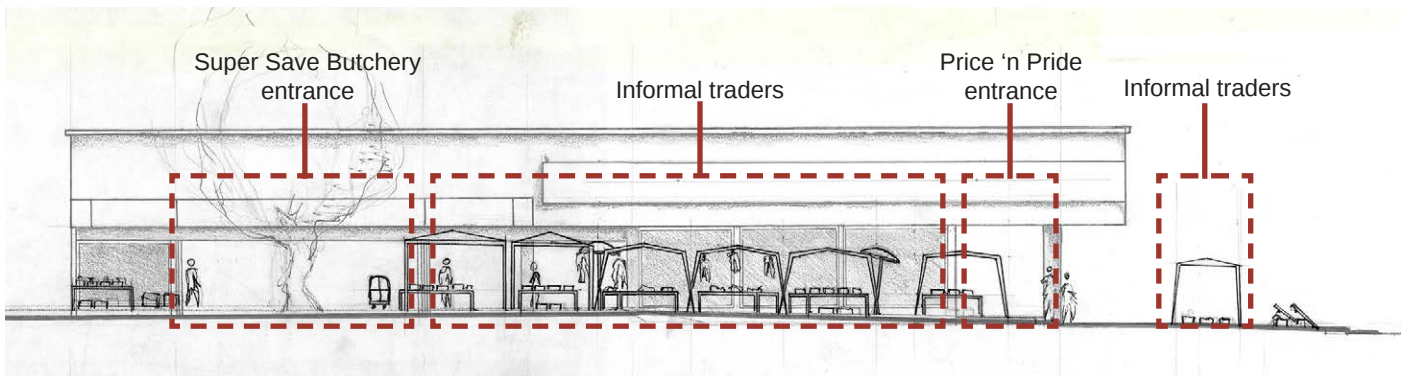




Illus 3.4.3 Existing quotidian context plan (Author, 2012)



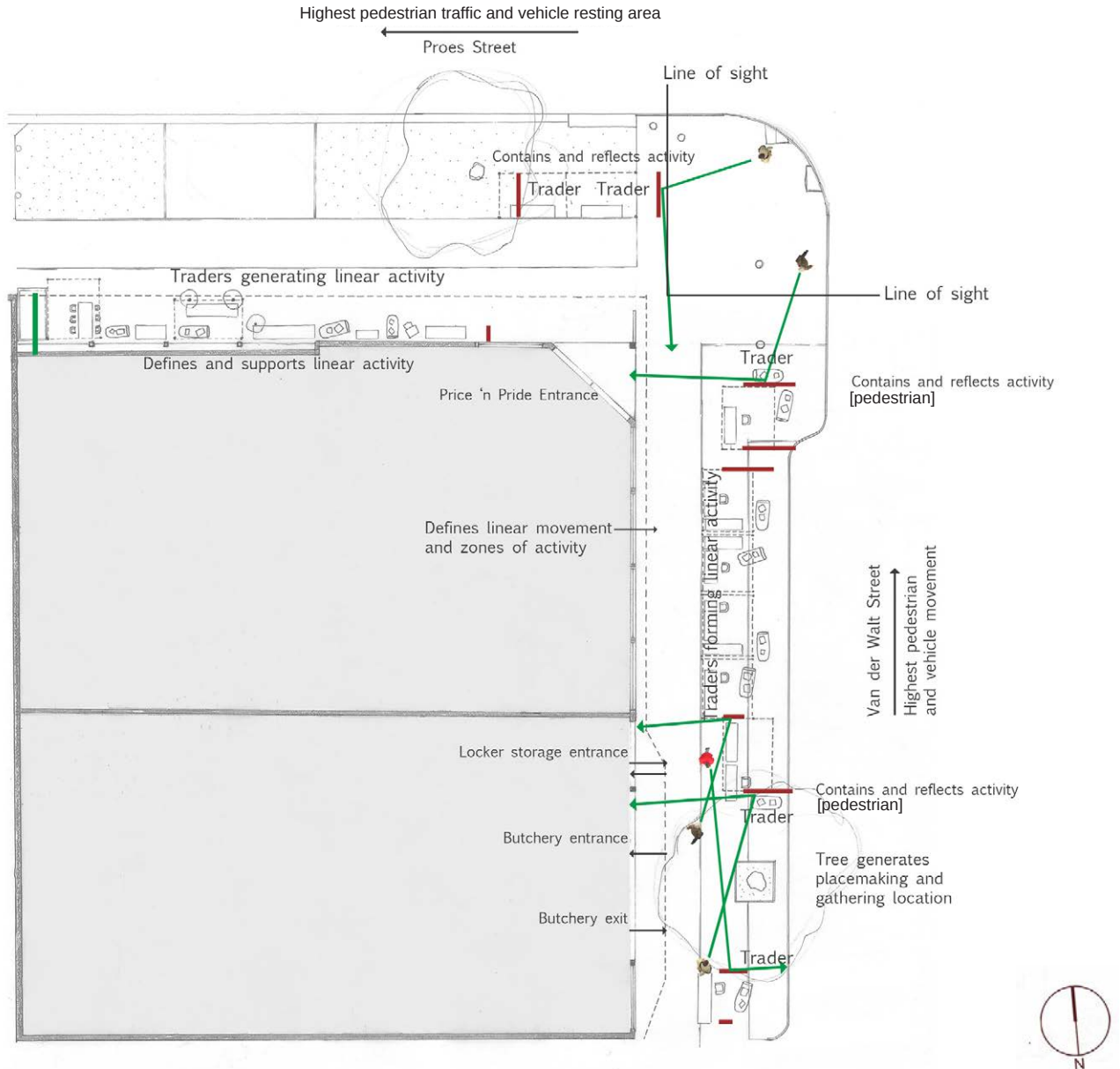
Proes Street  
Elevation



Van der Walt Street  
Elevation

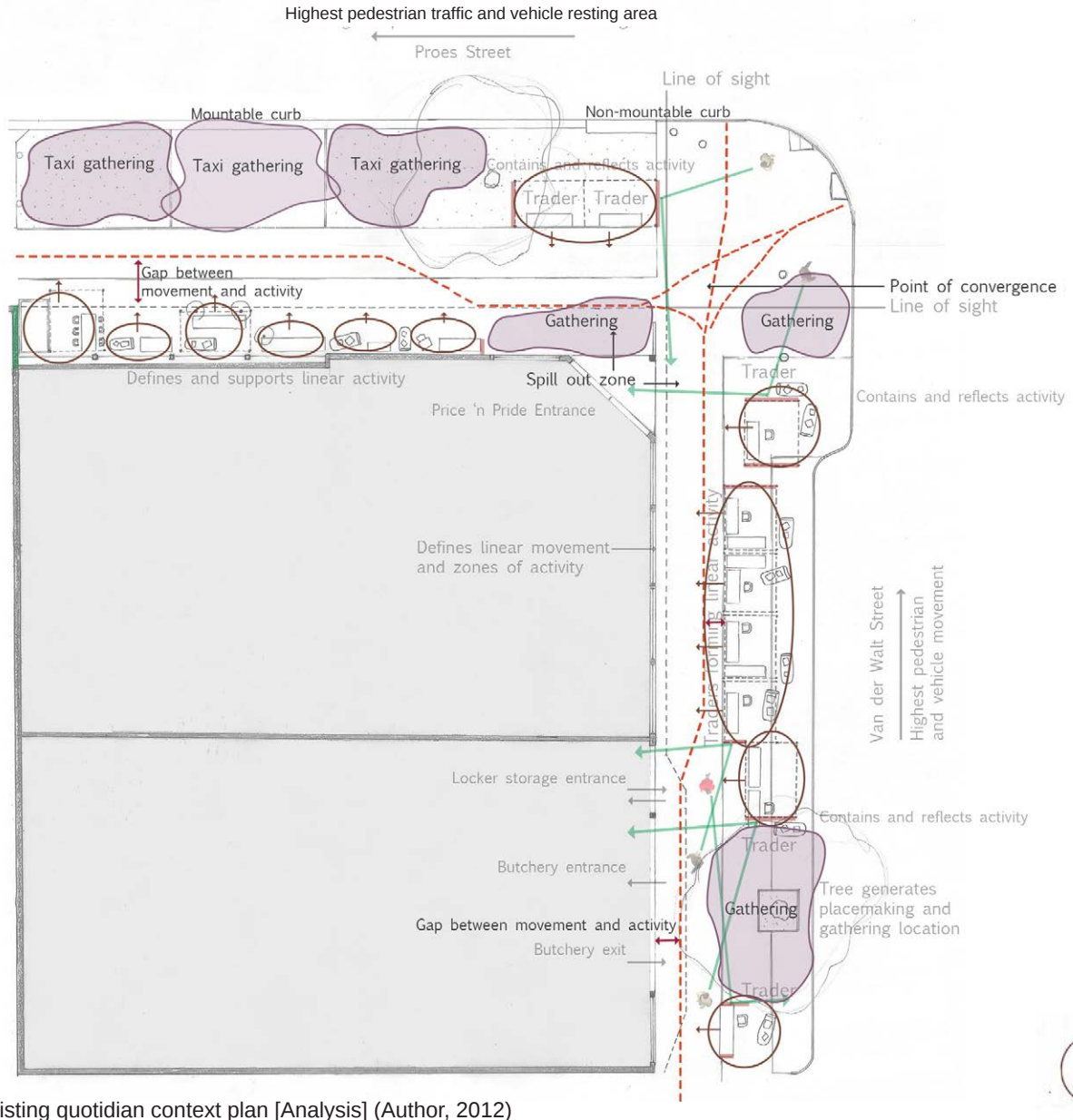
Illus 3.4.4 Existing quotidian context elevations (Author, 2012)

-- Movement



Illus 3.4.5 Existing quotidian context plan [Analysis] (Author, 2012)





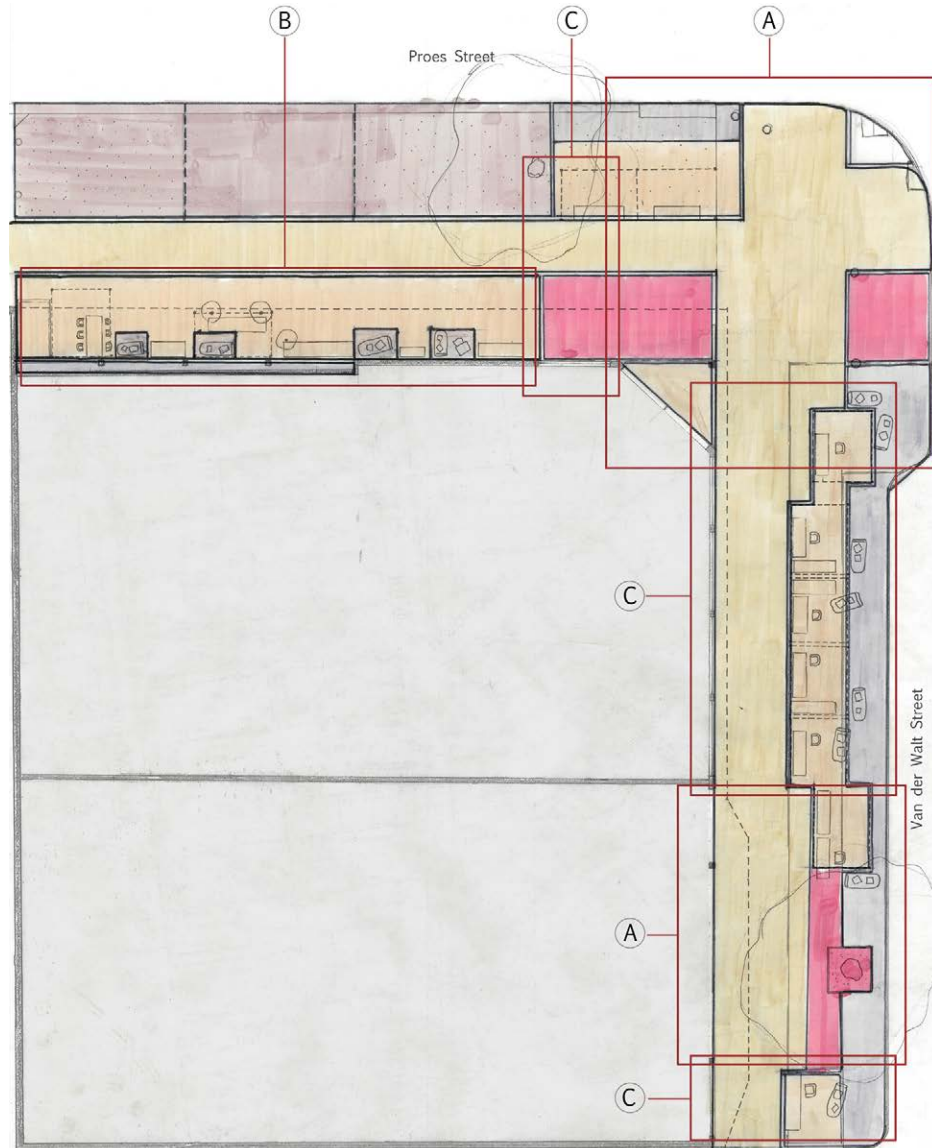
Illus 3.4.6 Existing quotidian context plan [Analysis] (Author, 2012)

- Gathering spaces
- Movement areas
- Trade spaces
- Storage spaces of traders on site

*Typology A response:*  
*Active Vertical Edge*  
Respond to and enhance gathering and event space. Development of services and infrastructure to support gathering, interaction and trade.

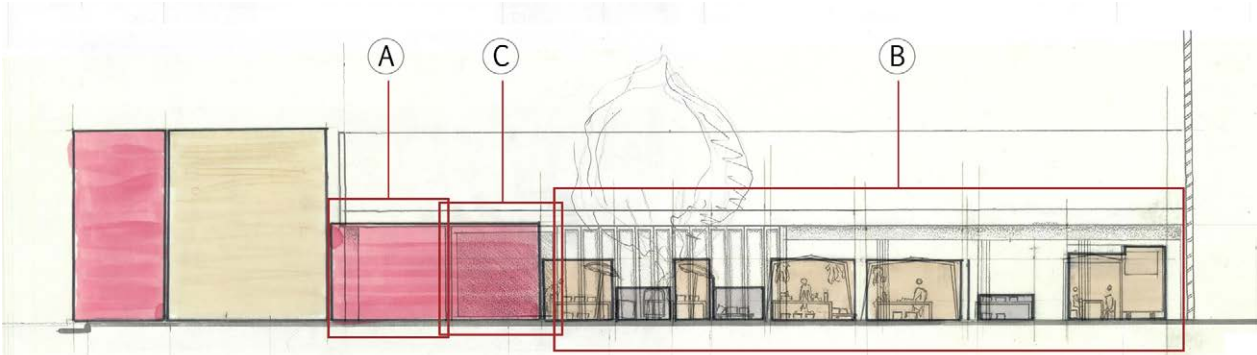
*Typology B response:*  
*Inactive Vertical Edge*  
Respond to and enhance inhabited vertical wall. Development of space containing wall with services and infrastructure to support trading (vendors) and sleeping (homeless people and vendors).

*Typology C response:*  
*Visually Active Vertical Edge*  
Respond to and enhance activity platform. Development of services and infrastructure to support trading and circulation.

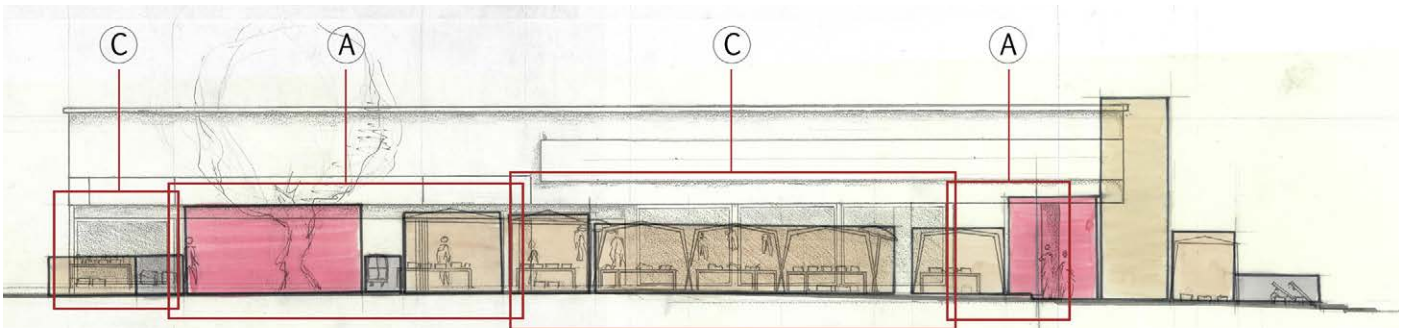


Illus 3.4.7 Existing quotidian context plan [Zoned and Hierarchy] (Author, 2012)

- Gathering spaces
- Movement areas
- Trade spaces
- Storage spaces of traders on site



Proes Street  
Elevation [zoned]



Van der Walt Street  
Elevation [zoned]

Illus 3.4.8 Elevations of the existing quotidian context [Zoned and Hierarchy] (Author, 2012)

>>Parc de la Villette	79
>>Magnets	81
>>Egg House	83
>>Yokohama apartments	85

# Chapter 4

## Precedents

## Parc de la Villette - Paris, France

### Bernard Tschumi >> Public infrastructure and planning

The site is located on a 125 acre expanse, previously occupied by a central slaughter house on the North-East corner of the city of Paris. The program for this 'urban park' called for a complex program of cultural and entertainment facilities. Instead of designing a centrally located linear character that occupies a small yet extensively programmed space, Bernard Tschumi based the design on the principles of point, line and surface. This distributes the programmatic requirements over the total site along a grid system that is superimposed on the site and urban context through a regular arrangement of points of activities (Illus. 4.1A), designated as follies (Tschumi, 2000: 53).

By de-constructing the program into intense areas of activity [follies] placed according to existing site characteristics and use, the project promotes maximum movement through the site with a variety of programs and events. This challenges existing building typologies where the follies allow for multiple programming of the site, becoming infrastructural where Tschumi introduces the idea of "cross-programming, trans-programming and dis-programming".

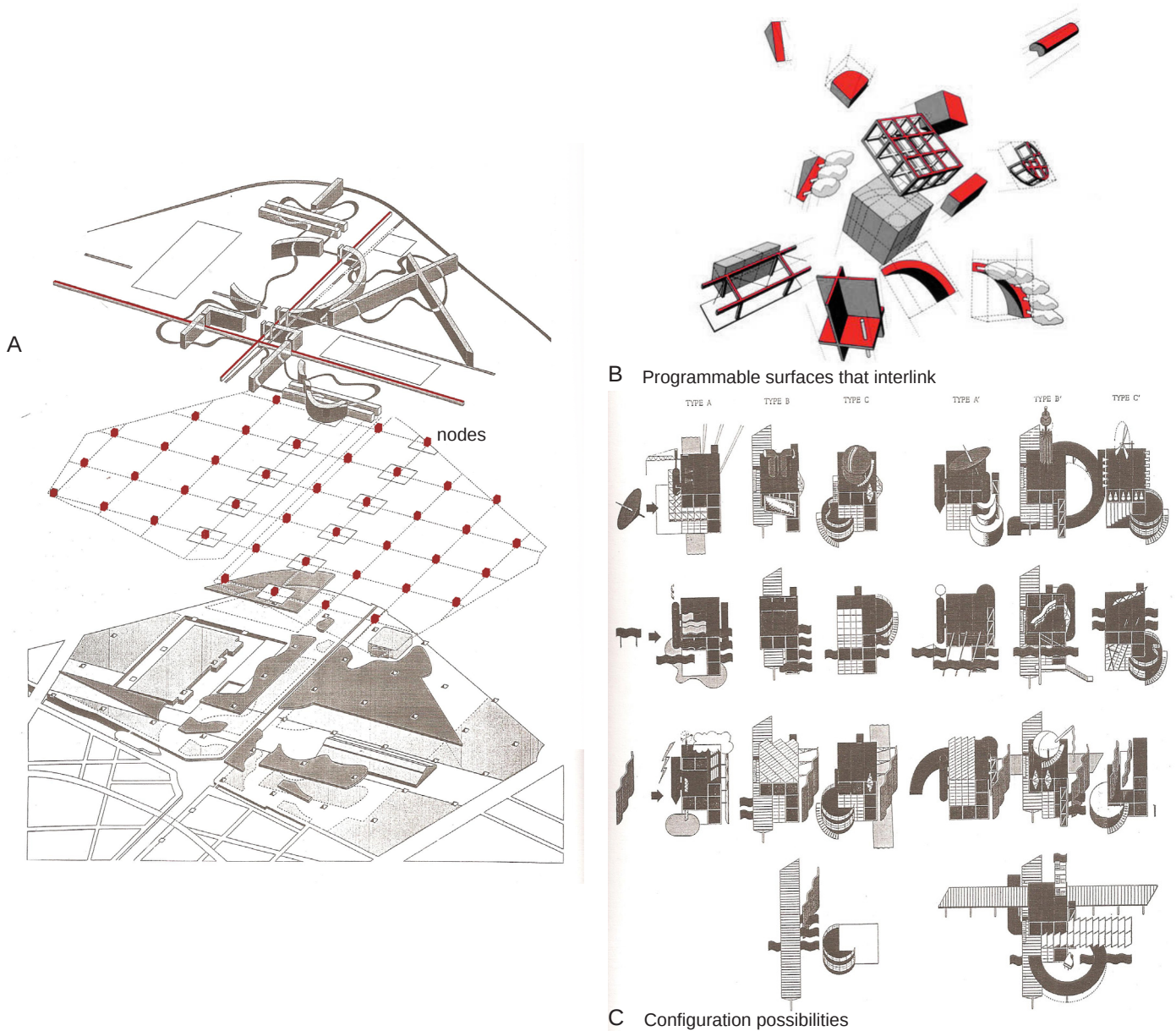
Follies are laid out on a grid system at 120m intervals based on a 10.8m x 10.8m x 10.8m structural cell with no inherent program, but can be transformed according to local conditions and specific programmatic needs (Tschumi, 2000: 57). This can be done by decomposing or extending the structure through the addition of elements [volumes, ramps, stairs] according to a variety of combinatory principles, while confronting the specific programmatic needs (Illus. 4.1B+C).

This allows for events to be designed instead of defining a form or structure with an explicit program. The focus is on the events and experience of spaces instead of generating a formal language for the function of the park. This challenges urban planning and architectural building typologies.

#### Design Guidelines:

- Grid system with regular arrangements of activity allows for easy territorial recognition. Regularity of routes and position makes orientation simple for those unfamiliar to the area.
- Designing for events allows for cross-programming, that focuses on the events and the experience of space.
- A modular unit composed of a grid [basic shell] can become a simple support that may be extended or decomposed through additional elements [volumes, stairs, ramps] to meet specific programmatic needs.





Illus. 4.1 Superimposed grid system of follies (A), Folly expansion and decomposition (B), Folly typology developments (C), (Tschumi, 2000: 56-65)

## Magnets

### **Cedric Price** >> Inhabitable public interfaces that support everyday activities

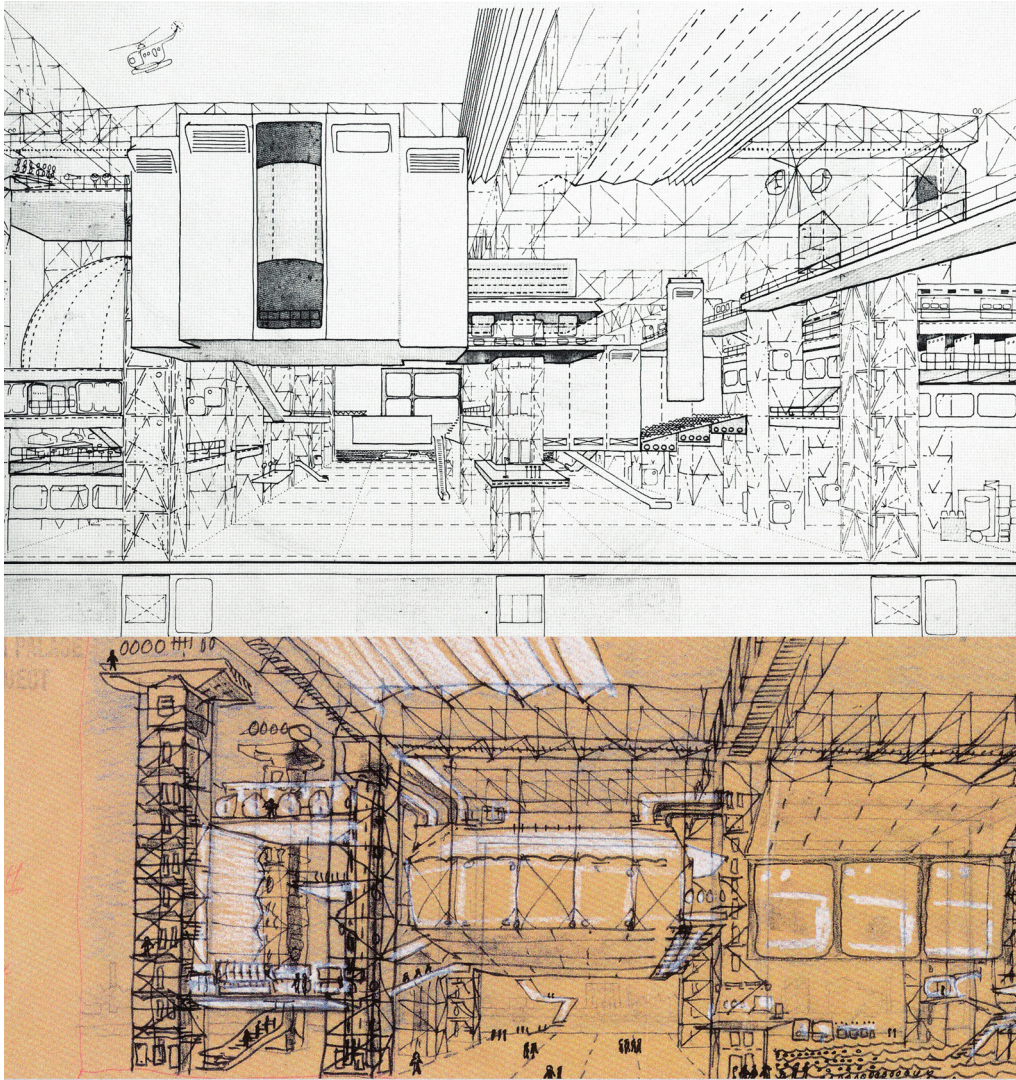
At the 1997 “*magnets*” exhibition, Cedric Price, a London architect, developed a series of 10 mobile short life structures for the city of London, with the intention of generating interest and activity. These structures would be installed in existing sites that he believed to be misused or underused.

He criticized contemporary architecture as going through an iconic phase, that attention seeking ‘blobs’ were being parachuted into the urban context as “signature works commissioned solely to bolster status, not social cohesion” (Bell, 2004). His counter to this issue was to develop structures as attractors, not icons, that would form part of the urban context rather than dominating their surroundings. The magnets included stairways, promenades, arcades and piers (thearchitecturefoundation, 1997).

This idea would stimulate new patterns and situations of urban movement in the city, occupying spaces not usually seen to have potential, such as airspace, to create public viewing space and new kinds of public facilities and public space (Telegraph, 2003).

#### Design Guidelines

- Magnets provide the potential to become points of intense activity that are adapted to specific site characteristics. They are linked together via their specific programs to a larger interface of public services and facilities.
- Underused spaces above public interfaces of the streetscape present the potential for inhabitation and public amenities that develop new events in the public realm.
- Programmable surfaces such as stairs and walkways have the potential for cross programming and allow for the containment of activity.
- Architecture provides the ability to be rooted in its context, supporting activity.



Illus. 4.2 Magnet typologies (Aalam, 2011)



## Egg House

**Dai Haifei** >> Re-layering streetscape with a new living pattern

Inspired by the 2010 Shanghai Biennale Exhibition of the “City’s Egg”, architect Dai Haifei built an egg house that could be easily located close to his workplace and be rent free. The cost of living in Beijing has skyrocketed, making it difficult for newly graduated students to afford accommodation in the city. Haifei’s solution was to build a movable house made of Earth sack bags, bamboo splints, wood chippings and grass seeds for a total of 6,427 yuan (Key, 2010).

The egg house is 2m tall at its highest peak. It contains a single bed, a table, a water tank and a solar powered lamp. The outer skin, containing earth and grass seeds, will sprout in summer, covering the egg house. Though the house lacks a kitchen and ablution facilities, Haifei makes use of public facilities such as the local swimming gym to shower and exercise while eating out at the local restaurants. The building in front of the egg house supplies the water needed (Key, 2010).

The egg house illustrates that inhabiting the streetscape is possible with just the bare necessities. The house is a mere sleeping arrangement that is supported by other public facilities that cater for what the house lacks. Dai Haifei has developed a structure that plays on the idea established by Cedric Price. It becomes an activity and interest generator.

Design guidelines:

- Stimulates new living patterns and public-private relations over the existing urban fabric.
- Occupies space otherwise seen as having no potential usage.
- The vertical surface contains supporting elements of vegetation growth and electricity generation.
- Potential to become a urban armature to people not able to afford accommodation in the city.
- Establishes a network between different public facilities, itself becoming an attractor while developing a network interface with the existing public facilities in the city.



Illus. 4.3 Egg house (Key, 2010)



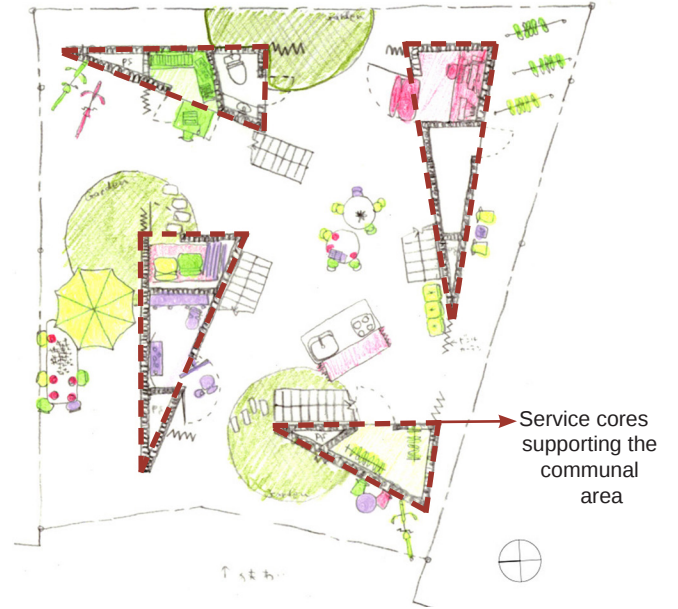
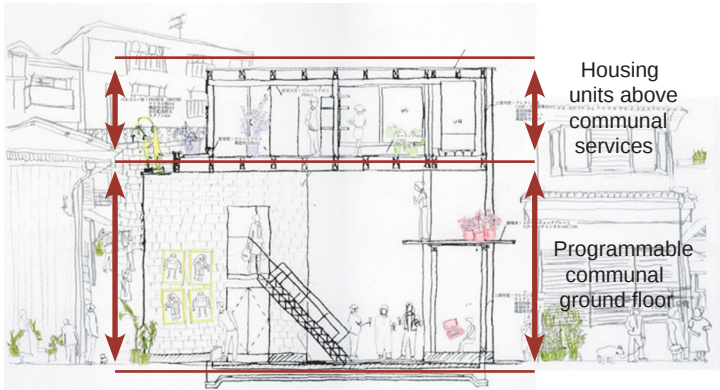
## Yokohama apartment- Kanagawa, Japan

### ON design Partners >> Vertical re-layering and cross programming of spaces

The Yokohama apartment is a two story residential complex for artists in Kanagawa, Japan. The design elevates the typical living unit to sit above a semi-public courtyard that serves as a cross-programme for socialising, exhibitions, and work. All supporting elements that are needed within a housing unit that could be shared are found on the ground floor such as storage, ablutions, kitchenette area and washroom. These are organised around four triangular pillars that house the amenities, as well as staircases to the living units above. The apartment is divided into four units with their own private access staircase connected to a outdoor verandah that links the units together.

#### Design guidelines

- The event of living has been elevated, providing a supporting space underneath that facilitates communal gathering and thus public activities.
- By providing a programmatically loose ground floor, it allows for cross-programming and event development.
- All communal items such as storage, ablutions etc on ground floor are housed within the structural members of the apartment creating a privatised space within the public space.
- Activities between floors are linked via staircases, that provide a visual and active link between levels. These allow for active engagement between programs.
- The vertical wall acts as infrastructure containing activity [storage, ablutions that privatises space] as well as supporting activity [staircase that publicises space].



Illus 4.4 Yokohama Apartment (Erica, 2011)

>>Concept	89
>>Programmatic requirements	91
>>Program development	93
>>Maintenance of facilities	95
>>Urban support armatures	97
>>Spatial and vertical typology guidelines	99
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>>Economic potential	107
>>Achieving planning flexibility through an open grid system	109
>>Appropriation of the Northern Facade	111
>>Housing development	121
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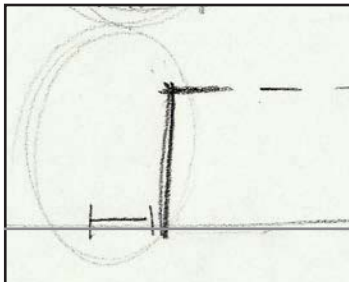
# Chapter 5

## Design development

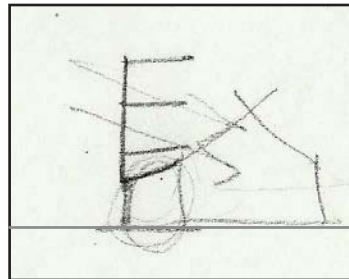
## Concept

After studying the quotidian networks of the chosen site, it was possible to define established patterns of interactions and inhabitation. These have emerged after drawing on a variety of small, relatively simple and local conditions with no prior formal planning. The quotidian network unlocks potential on the sidewalk, developing a new typology that supports the Generic city and Specific City. Following the study, a set of inhabitable network interfaces of infrastructure is proposed. This network aims to promote the adaption of architecture responding to and assisting the development of the 200% city through an everyday space (Kelbaugh, 2004: 35). This everyday space congregates a multiplicity of activities that celebrates the inhabitation and refamiliarisation of the urban environment.

The resultant architecture is a vertically programmable surface. On this plane, appropriation and inhabitation can be achieved when layers of infrastructure are provided according to the needs of the everyday. This situation can enhance and aid the existing commercial pattern and the proposed new living pattern. The 100% Generic and 100% Specific Cities become linked. The concept is to vertically relayer the sidewalk through a programmable surface thus links the realms of workplace, home and institution [forming the 200% city].

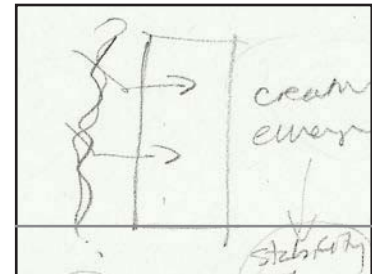


Typical programmable surface [verandah] used for economic and social activities.



Extension of programmable surface for maximum use.

Creativity of emergence

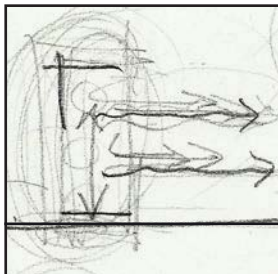


Possibility of vertical element supporting existing buildings that have become detached from the quotidian.

Nabeel Hamdi posed the question, “How much structure is needed within the realm of emergent potential before the structure itself inhibits personal freedom and gets in the way of progress?” (Hamdi, 2004: xviii). According to Hamdi there is an interdependence between design and emergence. The challenge is to find the right balance between the creativity of emergence and the stability of design (Hamdi, 2004: xviii).

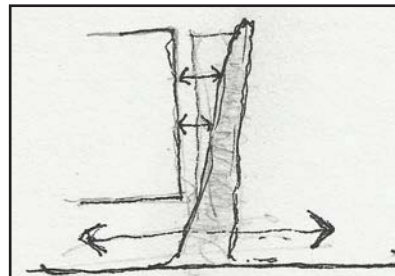
The aforementioned task was executed as follows: the densely interconnected existing context [Illus. 3.2.11] was used as a background to introduce new programmatic elements. By utilizing the existing, new network linkages could be crafted between unlikely partners [Illus. 5.0.1]. According to Hamdi, it is about disturbing the order of things in the interest of change (2004: xix). The disturbed condition could lead to new and unfamiliar ways of thinking, doing and organising.

In the city, existing structures have become detached from the quotidian networks that exist. However, the insertion of a sensitive development could spark new events and activities. These could be scaled either quantitatively or functionally thereby integrating the formal and informal, allowing for a new organisational order (Hamdi, 2004: xix).



Possibility of vertical element converging and supporting future developments in city.

Stability of design



Concept diagram

Illus 5.0.1 Concept explanation (Author, 2012)



## Programmatic requirements

The proposed programme introduces infrastructure that supports the homeless urban dweller. This resulting typology focuses on a symbiotic relationship between the Generic City and Specific City. This is achieved through the occupation of the sidewalk and creating the 200% city [Illus.5.1.1].



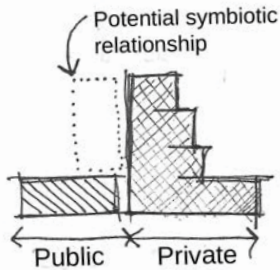
In this dissertation, the current developmental order is disturbed by using the sidewalk as a potential site for development. This can be achieved through a public-private partnership. It is envisioned that existing developmental guidelines [i.e. building lines] be relaxed. A private entrepreneur will fund the erection of a facility to accommodate the homeless. This facility is leased by the City of Tshwane for a nominal fee. After an extended period [i.e. 10-20 years] the facility becomes the property of the entrepreneur. However, the ground plane of the sidewalk [including a minimum height above] will remain public property.



The programmatic structuring (Illus.5.1.1) of the infrastructure is as follows:

- > Service infrastructure:
  - >>Service cores containing water and electrical services, water collection and recycling to support the public and future private development.
  - >>Circulation spaces [staircases and emergency exits].
  - >>Permanent facades for future development etc.
- > Social and economic infrastructure:
  - >>Public spaces
  - >>Public services [soup kitchen, community centre, temporary housing, offices, shower and locker facilities].
  - >>Relaxation of building guidelines
  - >>Access and support for business and commerce opportunities on the sidewalk.

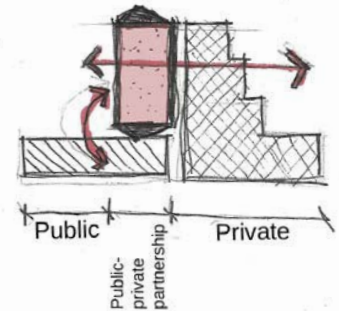
Illus. 5.0.2 Concept precedent - Enclosed walkway, cnr of Bloed and Prinsloo, Pretoria (Author, 2012)



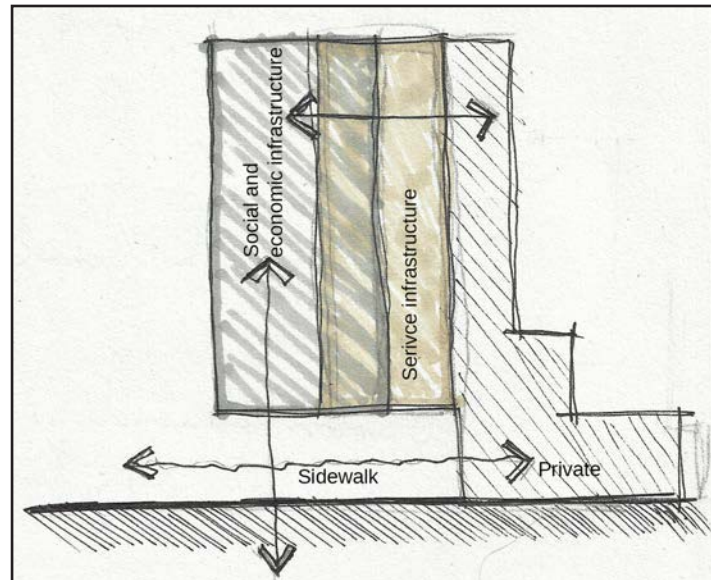
>There should be a direct interaction of the infrastructure between the public realm and the private sector.

>The supporting programs have to be positioned in a manner that do not form a buffer between the sidewalk and quotidian activities.

>The supporting programs are stacked above the sidewalk allowing for their vertical support.



**Current condition**



**Proposed condition**

**Infrastructure layering**

Illus 5.1.1 Symbiotic relationship development between public and private sectors and program structuring (Author, 2012)

## Program development






Illus 5.1.2 Quotidian context concentrations in Proes street (Author, 2012)

NOTE: During the year of study, the City of Tshwane and four informal traders' associations reached a historic milestone on the 20<sup>th</sup> of September 2012. A memorandum of agreement was signed allowing for the growth and assistance of the informal sector, improving the quality of life for informal traders (Tshwane, 2012).

The agreement will deal with the lack of adequate amenities [sanitation and ablution facilities], insufficient demarcated areas for trading, lack of overnight storage facilities and congestion at designated areas. This agreement is also in line with the Development Strategy 2055 which aims to make Tshwane a livable city by improving opportunities for entrepreneurs and job creation (Tshwane, 2012).

The City has set aside R10 million rand for the design and manufacturing of street stalls, in the hope that informal traders will become directly involved in the project while actively cleaning the streets. This investment might generate a symbiotic relationship between City and Citizen allowing for growth and further development of this vital sub-culture (Tshwane, 2012). [see appendix A5: "City reaches historic agreement with informal traders" for further information]

-  Service infrastructure
-  Service infrastructure
-  Social + economic infrastructure

To determine the type and amount of social infrastructure required for an intervention on the cnr of Proes and Van der Walt Streets, concentrations and interviews with informal traders and homeless people were conducted.

The study [see appendix A4 for interviews] concluded that:

- > 97 informal traders work in the surrounding area.
- > 37 homeless people sleep in the surrounding area.
- > 57% of the informal traders commute daily into the city.

To accommodate the everyday networks through social infrastructure, the following accommodation schedule is proposed:

#### Ground Floor:

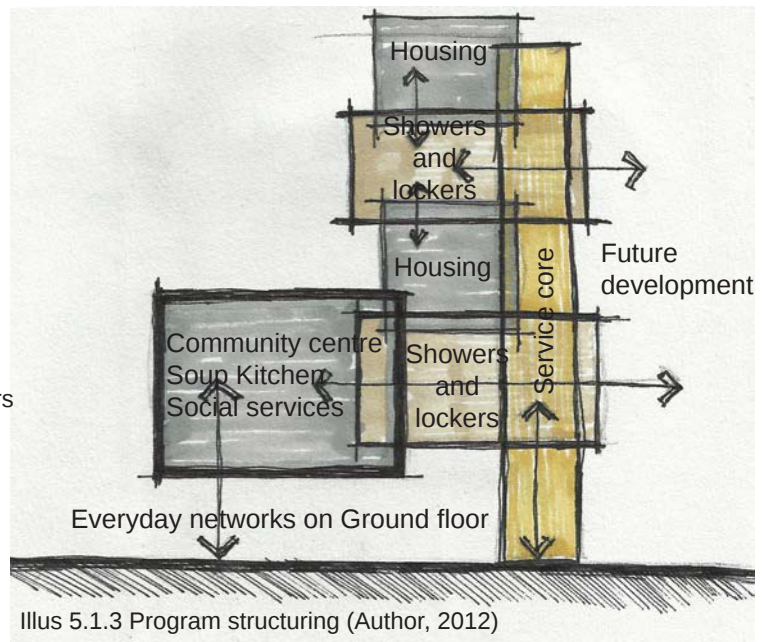
- >>Infrastructure for informal trading and gathering.
- >>Storage facilities (permanent and temporary) for informal traders

#### First Floor:

- >>Community centre
- >>Soup Kitchen
- >>Social services [offices]
- >>Showers and lockers

#### Second Floor +:

- >>Temporary housing
  - 97 traders/ 57% = 55 traders commuting daily
  - + 37 homeless people
  - = 92 individuals should be accommodated in temporary housing
- >>Ablutions and showers on independent service floors



Illus 5.1.3 Program structuring (Author, 2012)

## Maintenance of facilities

The facility that is leased to the City of Tshwane will be maintained by an NGO for the period of the lease. On the cnr of Proes and Van der Walt Streets, *Pen* has been nominated to maintain the facility. *Pen* [*Participate Empower Navigate*] is a Non-Profit, Sec. 21, Organization (Reg. Nr. 92/01259/08; 013-087 NPO): located on the corner of Bosman and Vermeulen streets in the Pretoria city centre. *Pen* deals with the issues of homelessness and marginalized communities within in the broader Tshwane area. *Pen* works towards bettering the lives of people. This organisation offers a vision of what a city could be to its inhabitants if there was a caring and loving community at its centre (PEN, 2012: 1).

***Their vision is to*** (PEN, 2012: 1):

***Ignite change  
Nurture togetherness and  
Heal communities***

*Pen* strives to achieve this vision by focusing on enhancing the quality of life of people. This Non-Governmental Organisation provides the basic needs of the homeless such as food, clothing, housing, health services and psycho-social support. *Pen* currently employs 140 full time staff and helps in excess of three thousand children every week. Additionally they serve 55 740 meals monthly; they have 850 counselling sessions per month and rent out 600 housing units (PEN, 2012: 1).

The programs offered by *Pen* could be divided into three categories (PEN, 2012: 1):

- The wellness program, that focuses on servicing the basic needs of people.
- The wholeness program, that aims namely to improve people's quality of life through spiritual and cognitive support.
- The mission support program which is a business venture aimed towards self-sustainability and interdependence.



Illus. 5.1.4 *Pen* Logo (PEN, 2012)



Currently *Pen* shares their premises with Sediba House, a centre that offers medical assistance, social services [counselling and psychological support] and operates a drop-in-centre to people in Shoshanguve.

The *Pen* wellness program actively engages with the street dweller. This dissertation uses different components of the wellness program as basis for its' programmatic requirements.

The services that will be accommodated in the design are as follows (PEN, 2012: 4-5):

- The supportive housing component offers subsidized low-cost housing to community members. Where necessary, the residents still receive food, social, medical, spiritual and therapeutic services.
- The community centre provides basic skills training to empower people to earn a living. Additionally, assistance in job hunting is provided.
- The so-called Zama Zamas are gentlemen who need shelter at night. During the day they search the streets for recyclable items, that is sold to recycling companies. *Pen* offers a safe environment with lock-up facilities for these urban dwellers. In an attempt to assist the Zama Zamas, *Pen* had trolleys designed and made.
- The Soup Kitchen offers daily or weekly meals to the homeless of Pretoria.
- Qualified social workers render a wide range of services and address various needs in the community. Amongst others, relationship counselling and psychological support are provided.

## **Urban support armatures**

### **Soup Kitchen initiative: Candice Taylor**

The author, pursuing the idea of developing a community centre/soup kitchen as an urban support armature in Proes/Van der Walt Streets, discovered a soup kitchen initiative lead by Candice Taylor. It offers an alternative approach to the concept of soup kitchens and the act of giving. These volunteers prepare soup and bread with funds from a local church. They go into the city and appropriate the sidewalk of pedestrian routes, gathering around with homeless people [some who are now accustomed to their generosity and others who happen to be walking by] and share supper and pray study with the people of the city. The Author has volunteered on several occasions to assist the initiative and study the social networks between the homeless people and volunteers.

Throughout the investigation, it became clear that the homeless had an established social group network. Most are car guards during the day and start supporting each other with time. The volunteers bond with the homeless people and a community starts forming. They gather every Monday, sharing meals, thoughts and ideas. This occurs informally, in the in-between spaces of the city. People walking past tend to slow down and investigate, some even join in on the discussions or meals. This allows for implicit connections, exposing the passerby to the condition of homelessness. Although the volunteers are not saviours [offering job opportunities or money] they embrace the existing condition through the act of sharing.

This dissertation attempts to facilitate the aforementioned social gathering. It provides a new enclosure for these activities. It supports an invisible displaced activity in-between the formal and the informal, sidewalk and facade, temporary and permanent.



Illus. 5.1.5 Sharing meals and discussions with the homeless urban dweller (Author, 2012)



## Guidelines for phasing of the development

### Social and economic infrastructure

- >> The ground floor is the most valuable resource for movement, gathering and trade of the quotidian network. It should be a programmable surface, that contains infrastructure and the necessary support facilities to promote:
  - >> Pedestrian movement and gathering along the sidewalk
  - >> Vehicular parking along the street
  - >> Goods and service movement for commercial activities along the street and sidewalk.
- >> The act of inhabiting the sidewalk with a specific programmatic activity generates an activity platform [spatial response] that is dependent on the type of symbiotic relationship between the established vertical edge condition on the sidewalk and the quotidian network.
- >> The site should be zoned according to the vertical edge condition. The resultant spatial typology should support the quotidian context and economic opportunities through activity platforms.

### Regulatory infrastructure

When the sidewalk is vertically appropriated, a concession should be made to the land owner for the promotion of a direct connection to the 200% city.

- >> Vertical appropriation for social infrastructure is best along the Western and Eastern facades. SANS 10400-XA 4.4.1.1 advises the placement of all uninhabited rooms along these facades to screen unwanted Western/ Eastern sunlight.
- >> Appropriation of Southern facades is also possible. This could assist in the prevention of heat loss, although it requires a certain level of translucency for formal appropriation.



- >> Informal appropriation along Northern facades requires that a minimum of 15% fenestration to net floor area per storey be available. This is in accordance with SANS 10400-XA 4.4.4.1. A maximum of 45% facade coverage must be available for direct sunlight, audio and visual connection to the streetscape according to author's facade study in Proes Street [See pp.111].

### Service infrastructure

- >> The service core of the domino structure should contain water and electrical services permanently. Water collection and recycling, metering for the different services etc. could take place here.
- >> New circulation spaces should permit and promote free movement for all users. They should provide direct access from the street level while emphasizing vertical transitions.
- >> New circulation spaces should be available as emergency exits.
- >> Openings in Northern facades for formal appropriation should correlate to the gathering spaces of the proposed intervention. This will promote a symbiotic co-habitation.

## Spatial typology responses

The Generic City's existing vertical edge condition has been observed as the initiator of programmatic activities on the sidewalk. This develops a spatial response by the quotidian networks. Three responses have been uncovered and should have an appropriate corresponding architectural response.

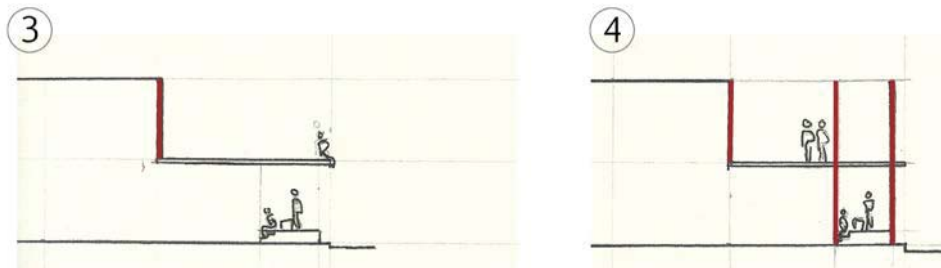
### Typology A: Active vertical edge response

Develops an activity platform opposite the facade which encourages gathering and social spaces.



The existing vertical surface through an active edge allows for direct engagement between the pedestrian, informal and commercial trader. This develops a dual commercial corridor.

By extending the placemaking element of the commercial trader it generates an activity platform above the existing quotidian without interference. This occupies underused airspace, promoting new kinds of public facilities [or magnets as described by Cedric Price] that could support the quotidian networks from above.



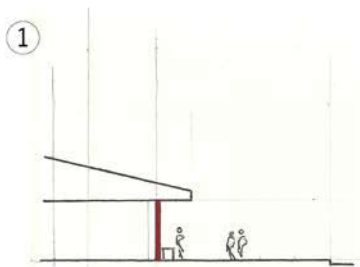
Provide programmable surfaces on the ground floor to promote gathering.

Link programmable surfaces by introducing a new vertical surface [connecting element]; vertically relayering the streetscape.

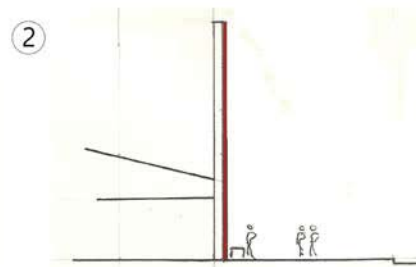
Illus 5.3.1 Spatial typology A response (Author, 2012)

## Typology B: Inactive Vertical Edge response

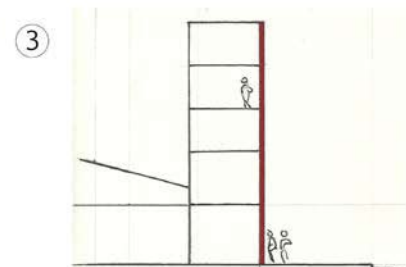
The inactive edge of the Generic City promotes activity attachment directly to the vertical surface, becoming an attractor for new social and economic strata.



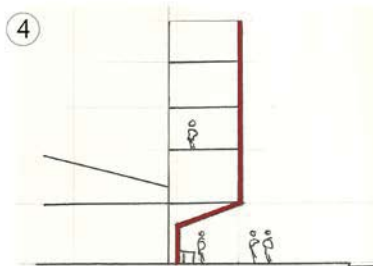
① The existing vertical surface acts as infrastructure to the quotidian activities on the sidewalk.



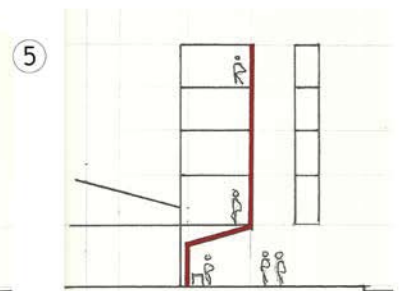
② Extend the vertical surface for maximum exposure.



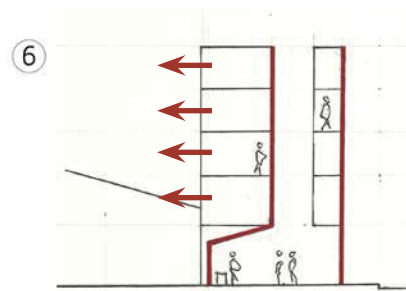
③ Generate horizontally programmable surfaces within the wall creating a domino structure.



④ Manipulate the wall to existing quotidian conditions to reduce interference on the ground floor.



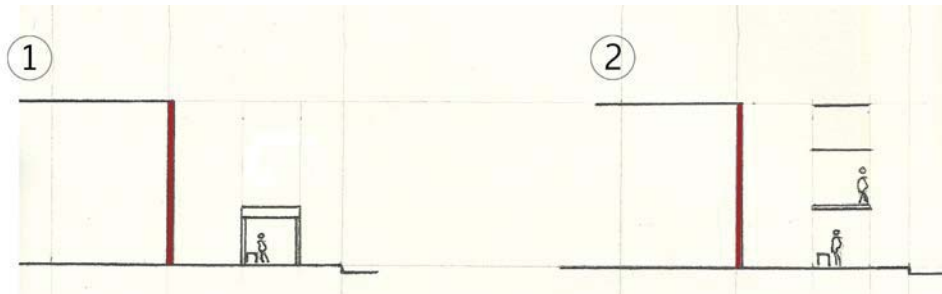
⑤ Generate circulation spaces externally providing direct access at street level while emphasizing the vertical transition.



⑥ New vertical infrastructure contains the potential for convergence and support of future development.

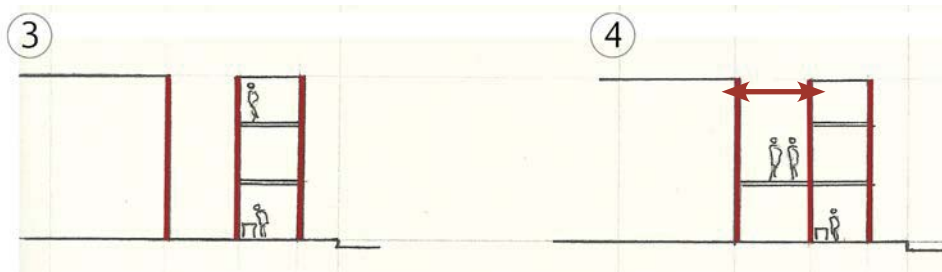
## Typology C: Visually Active Vertical Edge response

Develops an activity platform opposite the visual link to the commercial trader, leading to a dual commercial corridor within the public space.



The existing vertical surface generates an activity platform on the sidewalk.

By formalising the insurgent placemaking element of the gazebo, it generates additional activity platforms in the underused airspace above the sidewalk. These contain the potential to support the quotidian below.



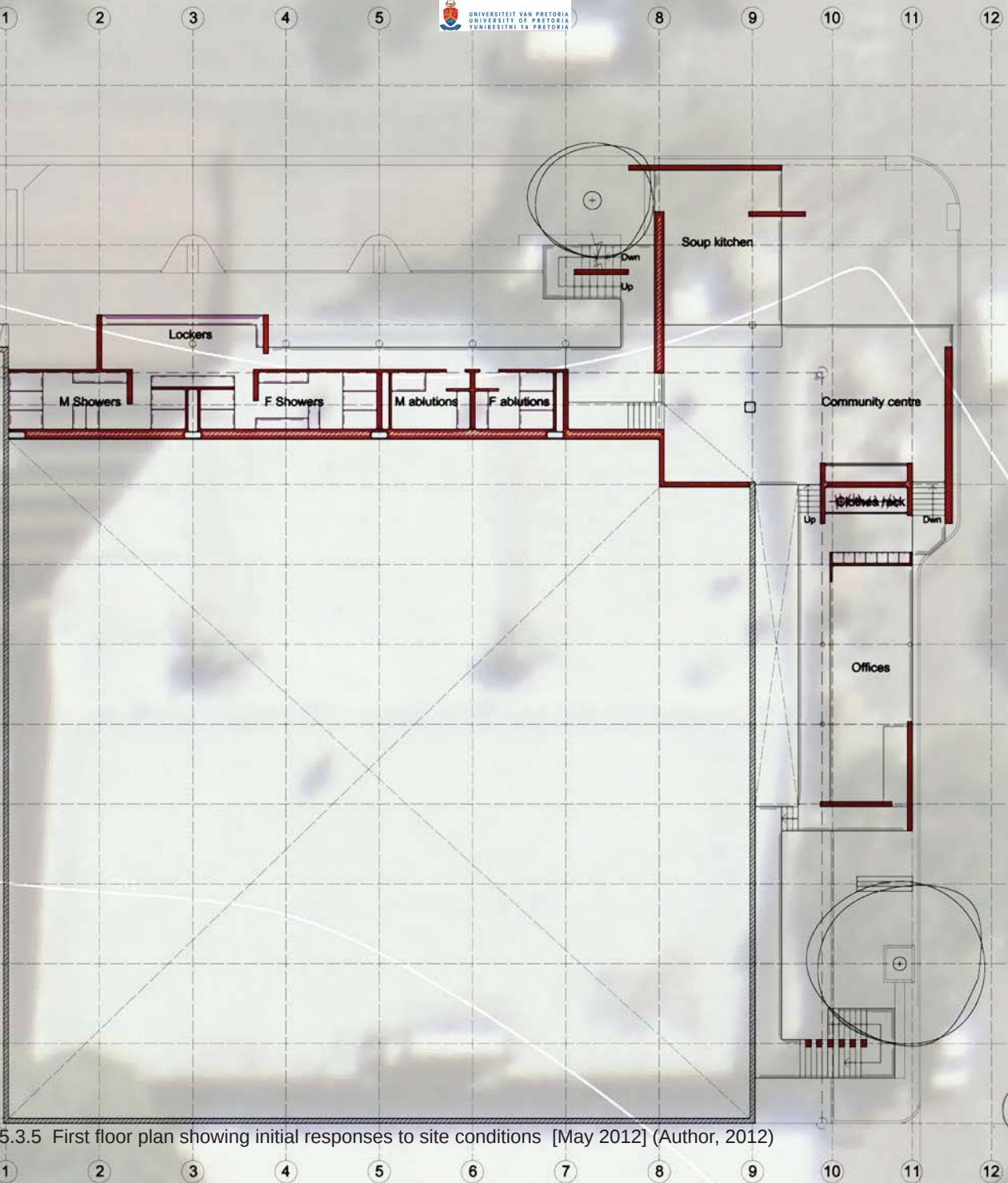
Link the new activity platforms to the quotidian networks by introducing new vertical surfaces [connecting elements].

Link the new facilities to the existing building generating a support link between the Generic City and Specific City.



Illus. 5.3.4 Concept sketches showing early indication of form from typology responses [May 2012] (Author, 2012)





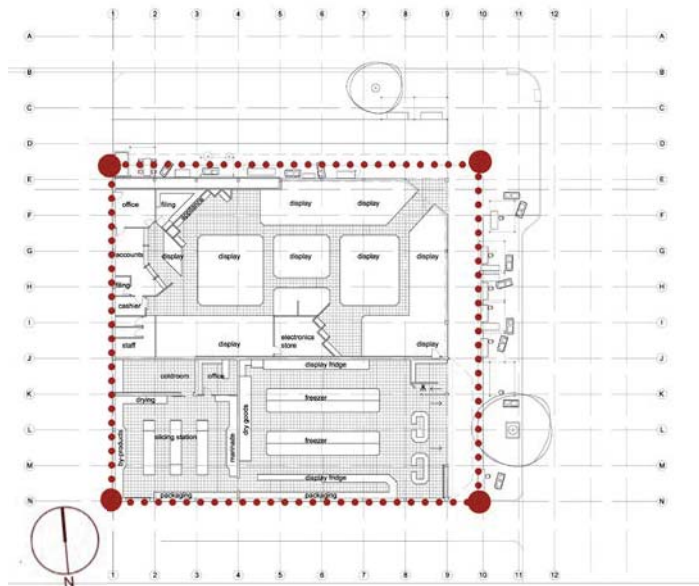
Illus. 5.3.5 First floor plan showing initial responses to site conditions [May 2012] (Author, 2012)

## Economic potential

It is argued that Munitoria, through the proposal of Ahmed Alkayyali's dissertation of 2011 [who proposed a new public square with a surveillance centre], will generate an expected increase in property value of the surrounding area. This position is supported by the high economic and property value growth observed by the Gautrain's expansion; resulting in new high density mixed use areas (Gautrain, 2012). The existing single storey building on site does not reflect the proposed increase in value. Simultaneously, there is a problem of homelessness.

In the interim, before the development of the site occurs with gentrification of the area, which would result in the displacement of the homeless once again, the site should be developed as a series of network interfaces for the sidewalk to aid the quotidian network until such time as the future development expands and amalgamates with the intervention on the sidewalk. The intervention becomes a supporting armature for the present, while becoming the first stage and supporting element for the future development of the site.

The existing developmental constraints were noted and compared with the potential income after establishing a public-private partnership.



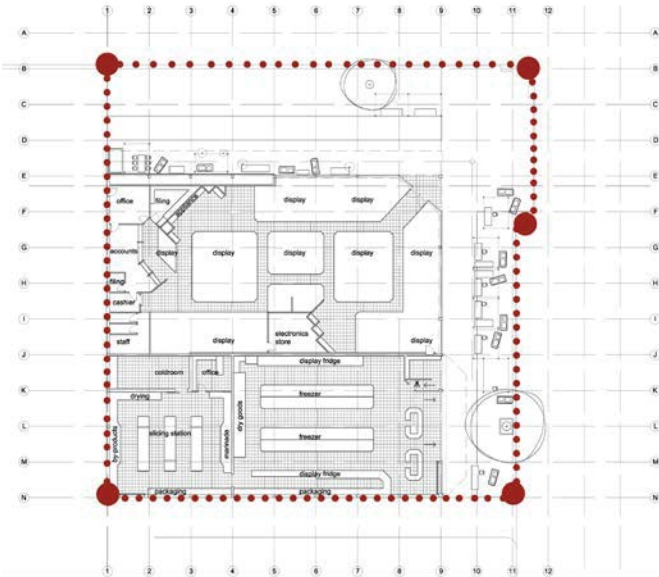
Existing site boundary area: 1297m<sup>2</sup>

Clause 26 of Tshwane town-planning scheme [2008] indicates a FAR of 2.0 for Residential and 2.5 for Office usage.

Max height restriction: 22m >> 7 storeys @ 3m

>>Current FAR of site at 2.0 [1297m<sup>2</sup>] = 2594m<sup>2</sup>  
 at 7 storeys = 370.5m<sup>2</sup> per floor  
 >>Current FAR of site at 2.5 [1297m<sup>2</sup>] = 3242.5m<sup>2</sup>  
 at 7 storeys = 463.2m<sup>2</sup> per floor

Illus 5.4.1 Original site boundaries (Author, 2012)



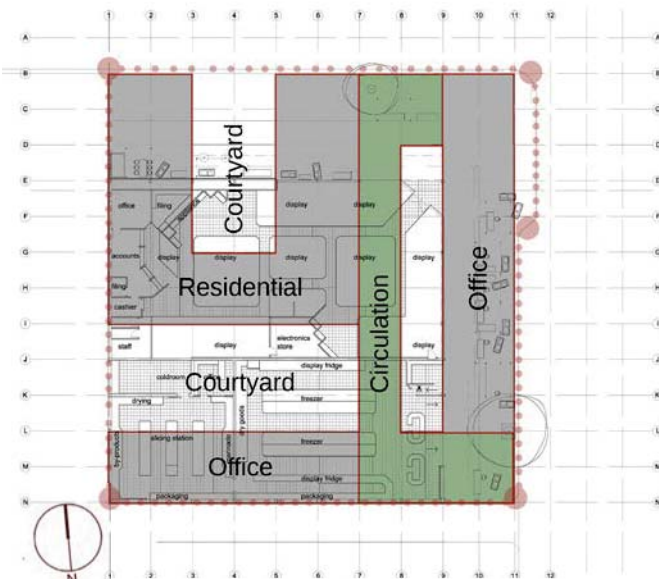
Relaxing the site boundary to include sidewalk results in:  
Total site area: 1829m<sup>2</sup>.

Using clause 26 of Tshwane town-planning scheme [2008] of 2.0 for residential and 2.5 for office usage.

Max height restriction remaining at 22m >> 7 storeys

- >>New FAR of site at 2.0 [1829m<sup>2</sup>] = 3658m<sup>2</sup>  
at 7 storeys = 522m<sup>2</sup> per floor
- >>New FAR of site at 2.5 [1829m<sup>2</sup>] = 4572.5m<sup>2</sup>  
at 7 storeys = 653.2m<sup>2</sup> per floor

Illus 5.4.2 New site boundaries (Author, 2012)



Potential economic gain for private entrepreneur:

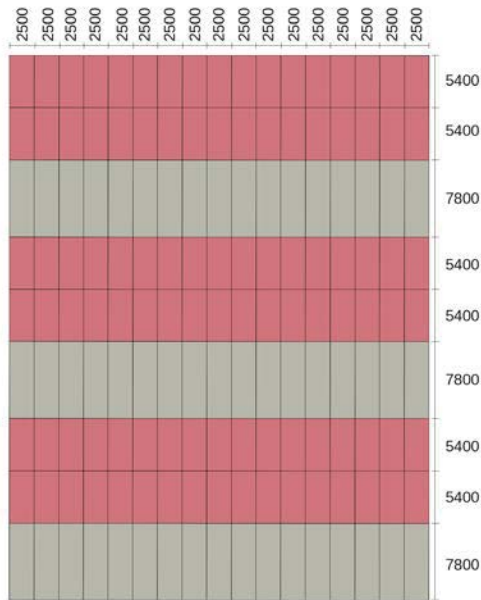
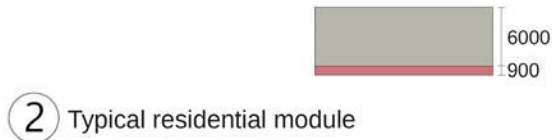
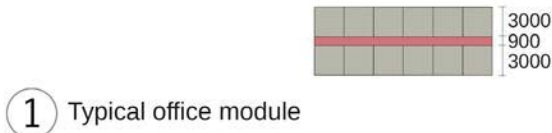
- >>FAR 2.0 [residential] : 522-370.5 = 151.5m<sup>2</sup> per floor  
151.5 x 7 = 1060.5m<sup>2</sup>
- >>FAR 2.5 [office] : 653.2-463.2 = 190m<sup>2</sup>  
: 190x7 = 1330m<sup>2</sup>

Proposed site development of Price 'n Pride :  
873m<sup>2</sup> bulk per floor  
6114m<sup>2</sup> total bulk @ 7 floors

There is an average increase of 30% possible floor area per floor through the relaxation of existing developmental constraints. This produces an economic incentive for private entrepreneurs to invest in the public-private partnership.

Illus 5.4.3 Proposed new development for site (Author, 2012)

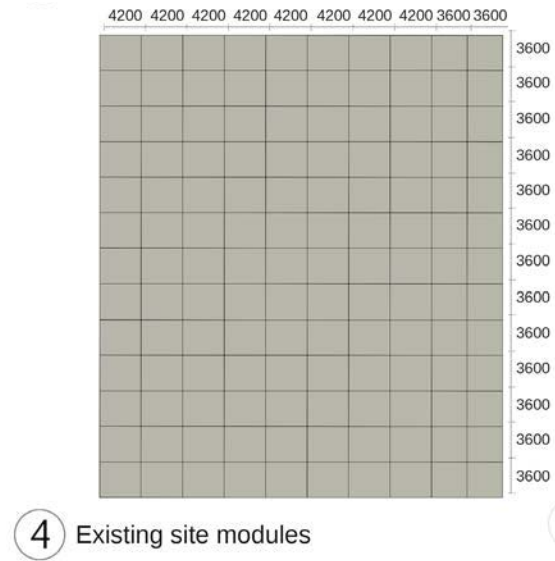
## Achieving planning flexibility through an open grid system



③ Typical parking modules

Illus 5.5.1 Typical module sizes for office, residential and parking uses (Author, 2012)

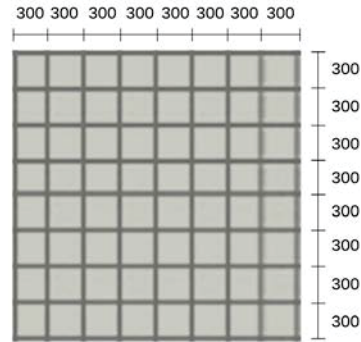
To promote maximum flexibility for the future development, an open grid system was explored. A modular construction model would allow for multiple uses. These possibilities include offices, residences or parking. The resulting shared geometrical grid allows for a future mixed-use programme. The proposed grid will be implemented via a shared 300mm unit module.



④ Existing site modules

Illus 5.5.2 Existing grid on site (Author, 2012)

The incorporation of the 300 unit module allows for various opportunities. Amongst others, it promotes fast erection and assembly from the large construction grid down to the individual components.



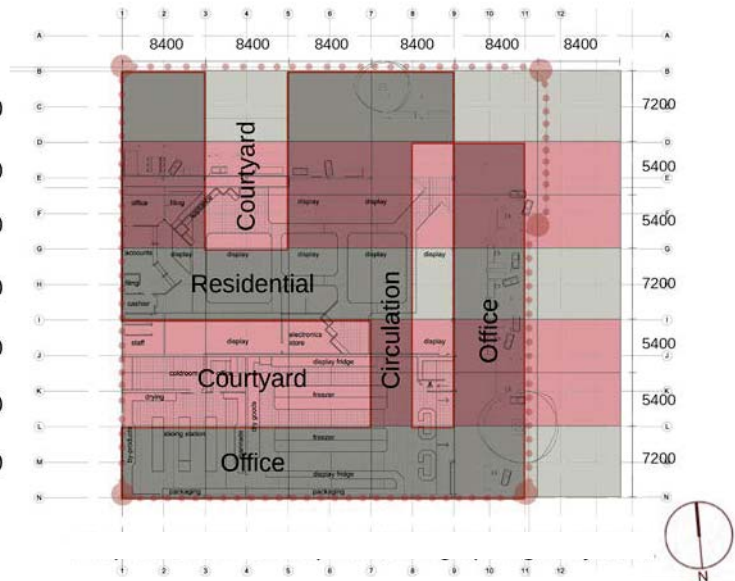
This initiates a universal modular unit that could be applied to the new typology resulting in a more flexible built environment.

Illus 5.5.3 300mm grid system (Author, 2012)



5 Final open grid system for new typology

Illus 5.5.4 New open grid system for typology (Author, 2012)



Illus 5.5.5 Proposed new development using the open grid system (Author, 2012)



## Appropriation of the Northern facade

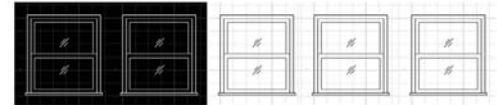
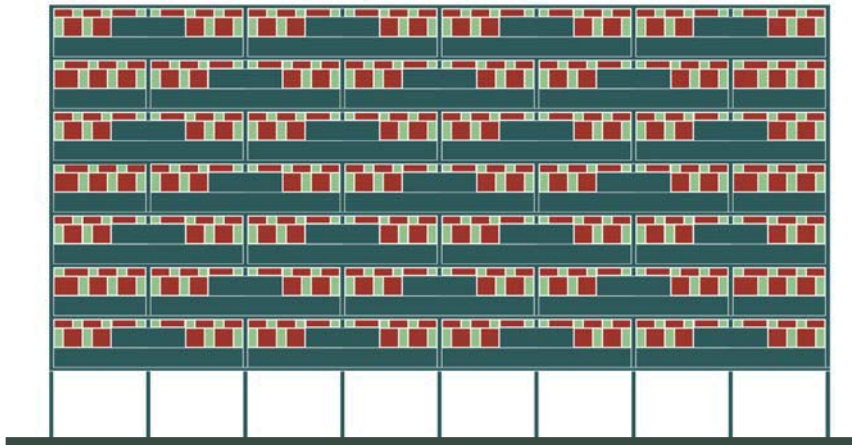
When regulatory infrastructure is appropriated along the Northern facade, fenestration exposure to net floor area must be considered. This would allow the facade and domino structure [occupied by the Specific City] to amalgamate with the future development. Furthermore, it could meet SANS 10400 and user requirements for the mixed-use development proposed for the site. Mixed-use buildings with commercial activities on ground plus mezzanine and residential units above were analysed along Proes Street. This was done to determine the maximum amount of facade that should allow for light penetration into the interior.

The study determined that there was an:

Average maximum facade envelope usage of 55%  
Average maximum facade fenestration usage of 45%  
    >42% average openable windows  
    >58% average sealed windows

SANS 10400-XA:2011 part 4.4.4.1 states that buildings should have a minimum 15% fenestration area to net floor area per storey complying with minimum energy performance requirements. This will form the minimum percentage available to the private entrepreneur per floor in the intervention with a maximum of 45% fenestration coverage for direct sunlight, audio and visual connection to the streetscape.

- Solid facade
- Openable windows
- Closed windows



**40%** Window exposure  
to the North



**648** metres squared total  
building facade

**255.4** metres squared  
fenestration coverage

Total area left unused on  
North facade=392.6m<sup>2</sup>

[60% can be used for the 200%  
city]

Illus 5.6.1 Facade study: Waltemade building (Author, 2012)

- Solid facade
- Openable windows
- Closed windows



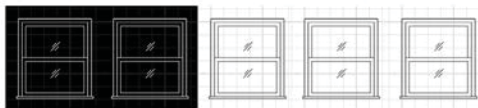
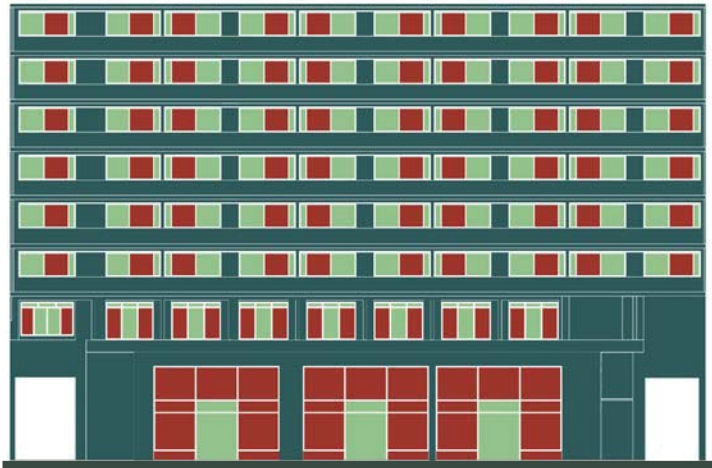
**50%** Window exposure to the North

**862.4** metres squared total building facade  
**433.5** metres squared fenestration coverage

**Total area left unused on North facade=428.9m<sup>2</sup>**

**[50% can be used for 200% city]**

- Solid facade
- Openable windows
- Closed windows



**43%** Window exposure to the North

**1184** metres squared total building facade  
**517** metres squared fenestration coverage

**Total area left unused on North facade=667.3m<sup>2</sup>**

**[56% can be used for 200% city]**

Illus 5.6.3 Facade study: 276 Proes Street building (Author, 2012)

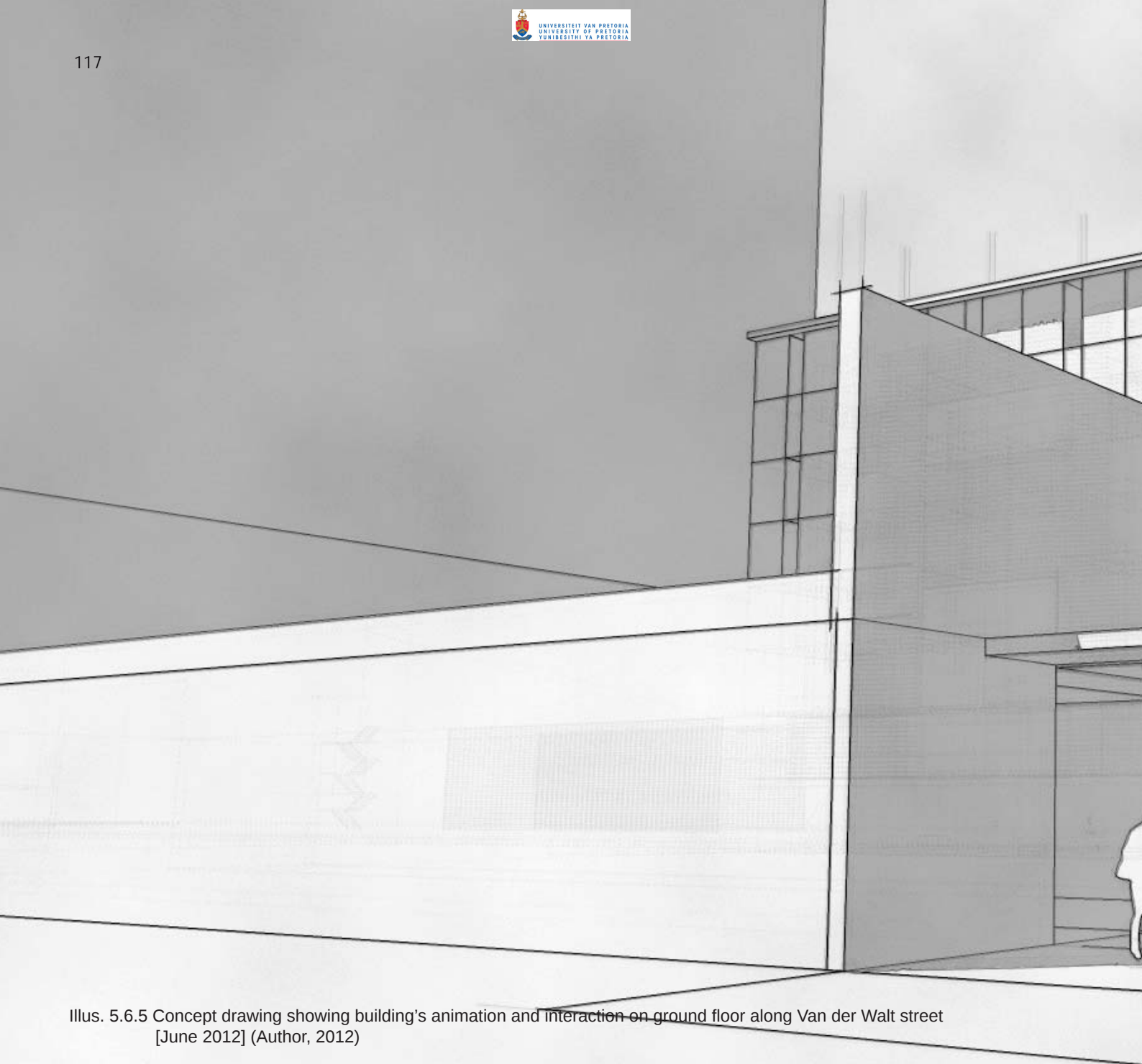




Illus. 5.6.4 Concept drawing showing corner response and interventions  
facade as inhabited screen that animates activity within [June 2012] (Author, 2012)



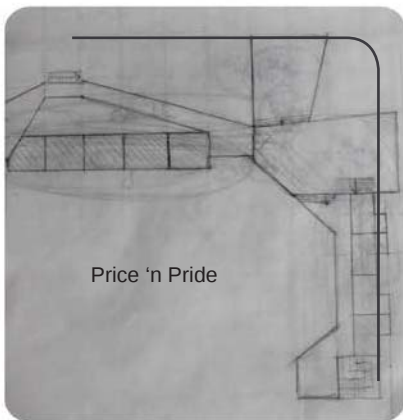
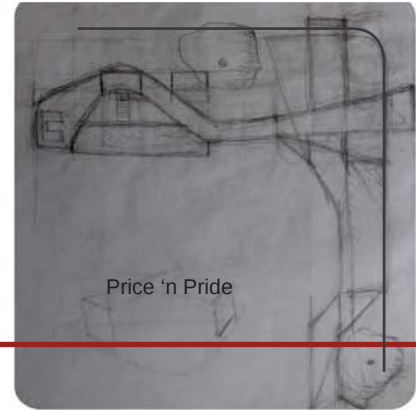
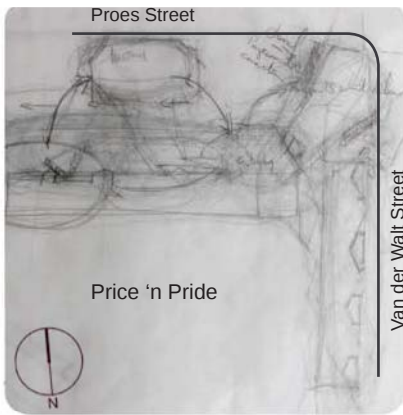




Illus. 5.6.5 Concept drawing showing building's animation and interaction on ground floor along Van der Walt street [June 2012] (Author, 2012)

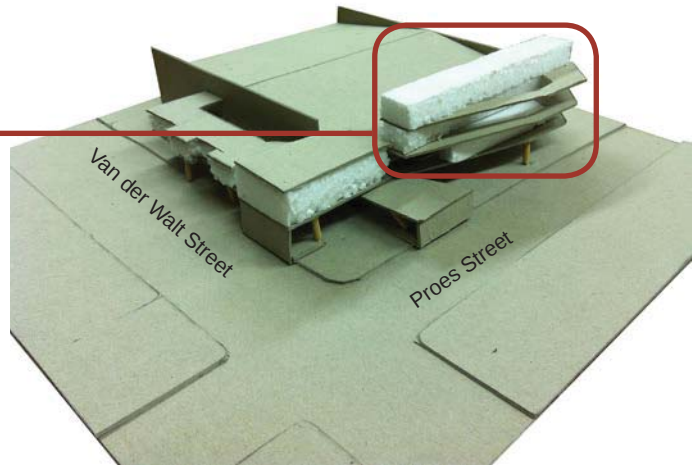
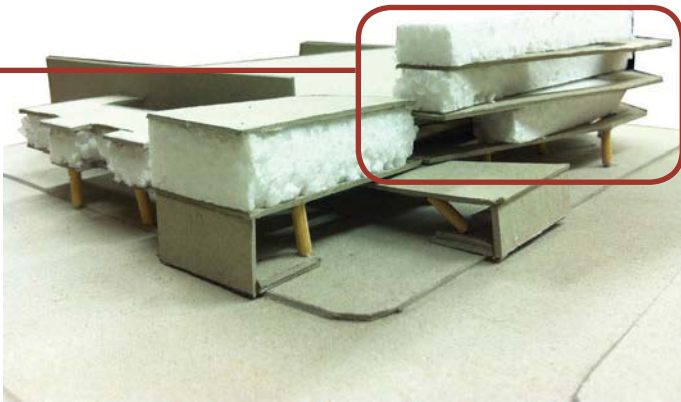
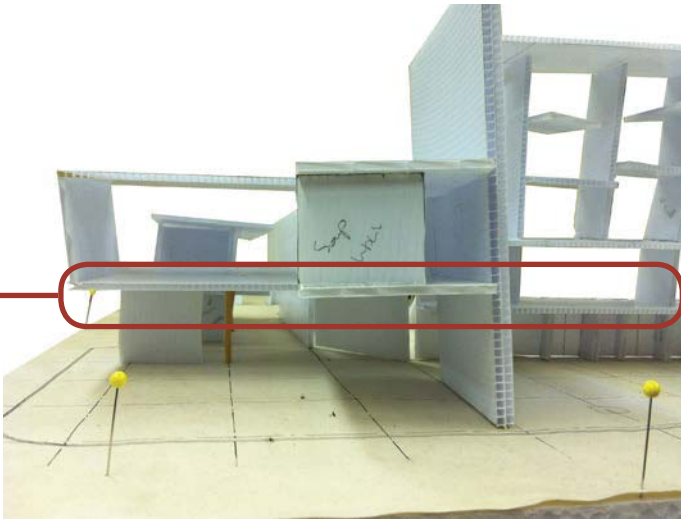






Illus 5.6.6 Plan exploration of concept with internal and external circulation [May 2012] (Author, 2012)

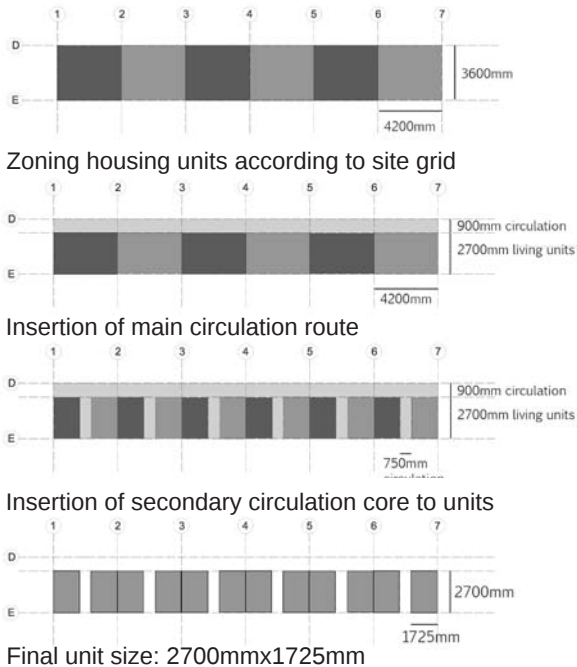




Illus 5.6.7 Model exploration with internal [above] and external circulation [below] [May 2012] (Author, 2012)



## Housing development

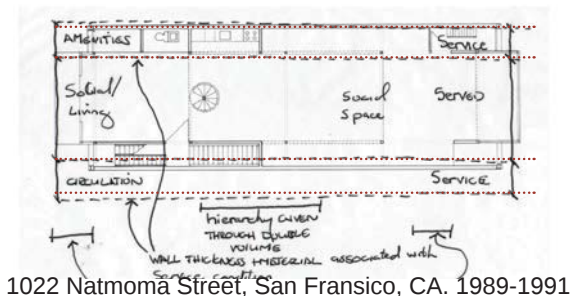


Illus. 5.7.1 Housing unit development (Author, 2012)

People visiting the soup kitchen and community centre will have the option of residing in on-site accommodation. These units will be between service floors from the second floor onwards in order to provide a measure of security and privacy to the residents.

The nature of the people who will be staying there [homeless people, informal traders] and the nature of their stay [temporary, mainly during working days] has been taken into account in the design of the accommodation. A dorm living situation has been created to allow for maximum flexibility and accommodation numbers. Furthermore, the units can be manipulated allowing for more privacy and/or access through roller blinds. A unit can be opened completely to form a communal social space between units, or closed off if the inhabitant/s require privacy.

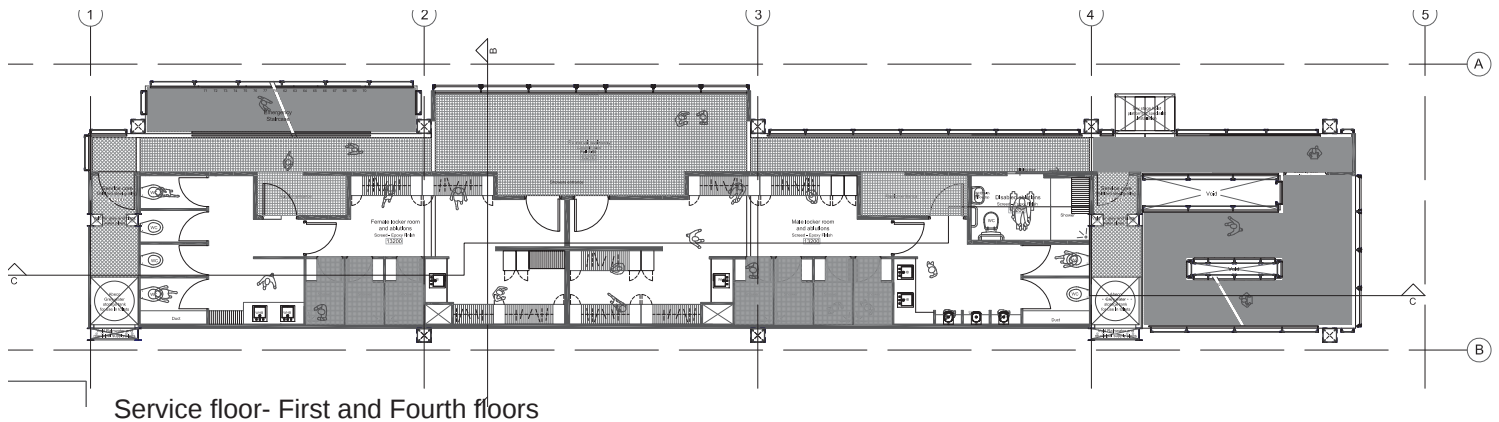
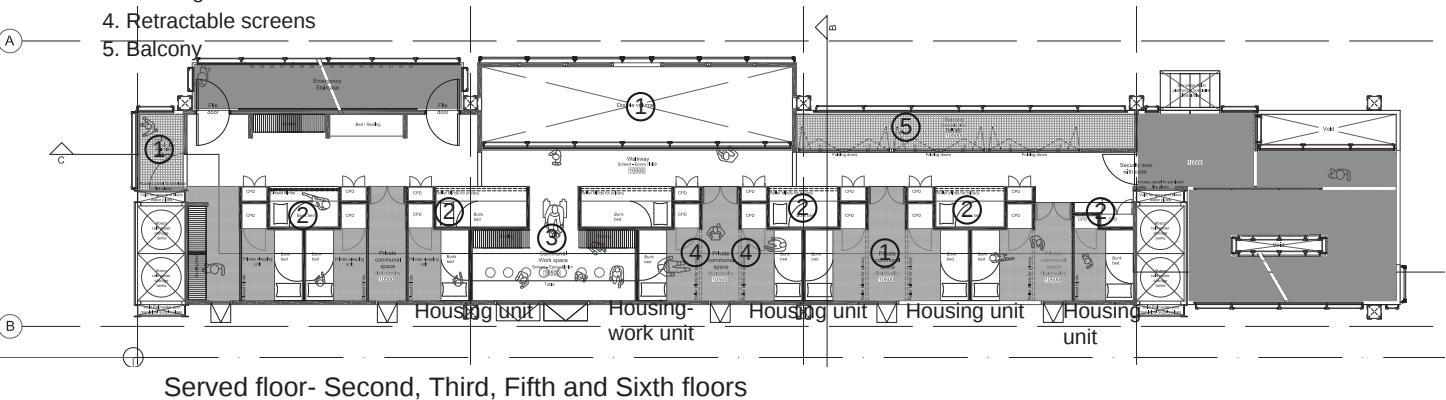
Service floors [containing showers, lockers, and toilets] are designed to support the served floors [temporary housing units] vertically while the served floors are zoned horizontally to contain circulation, living and social spaces.



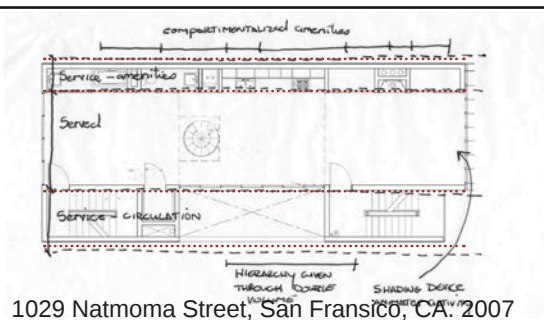
Illus. 5.7.2 Precedent study- Stanley Saitowitz, Natmoma Houses (Author, 2012)



1. Social space
2. Housing unit
3. Housing- work unit
4. Retractable screens
5. Balcony

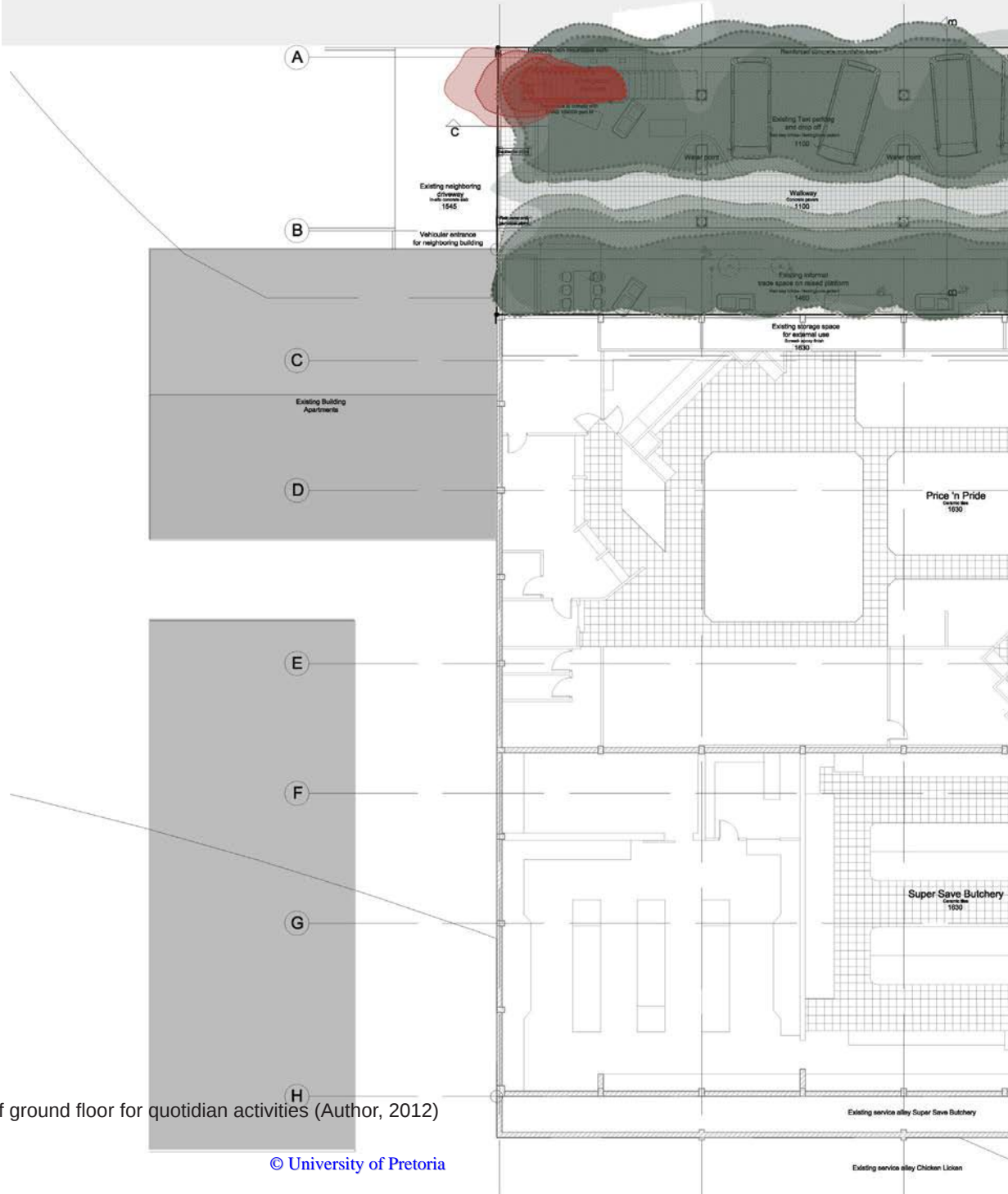


Illus. 5.7.3 Sketch plan- Housing units, September (Author, 2012)

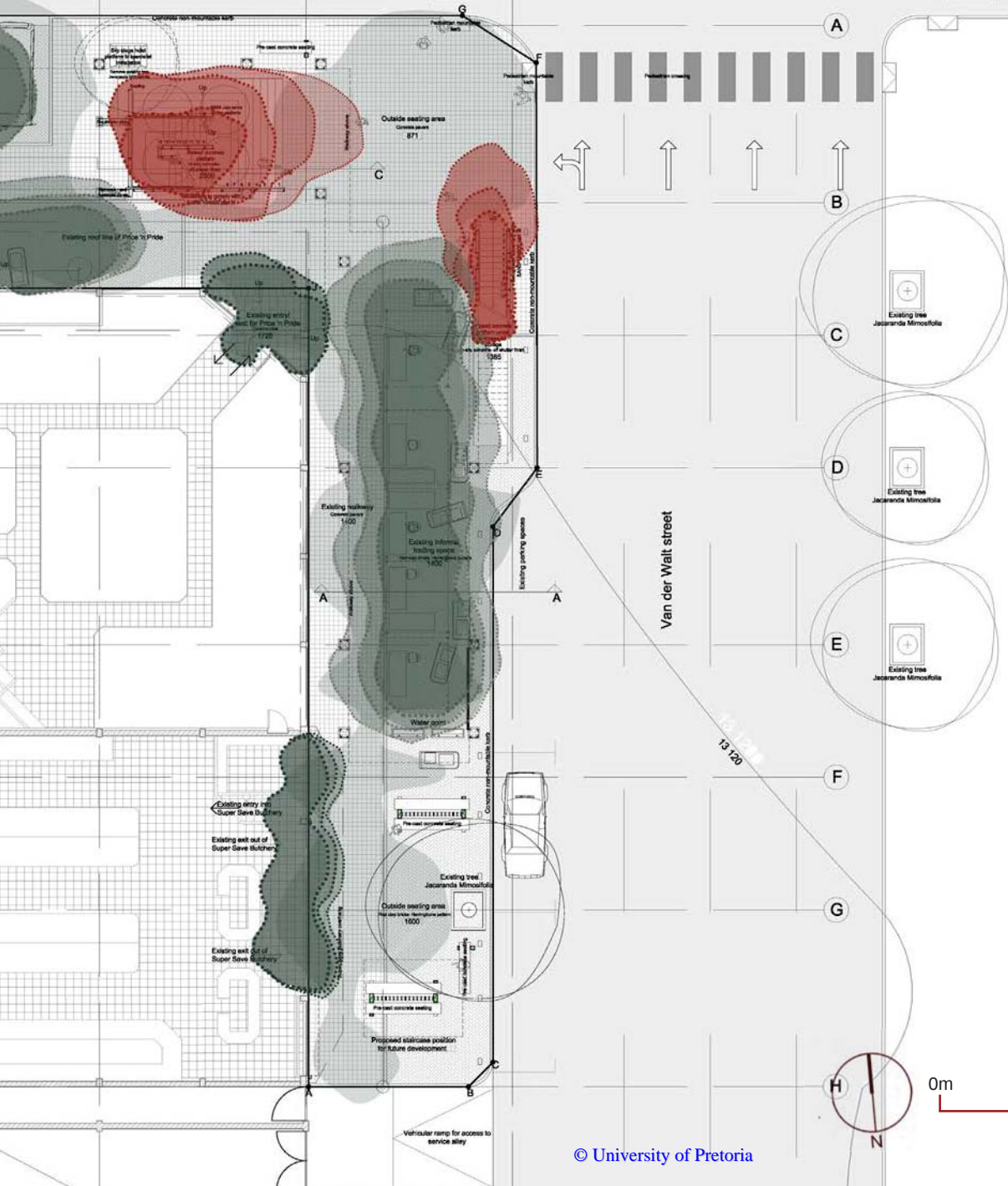




#### Design Guidelines:

- > Clear distinction between served and service areas.
- > Amenities and circulation service areas separate.
- > Material composition defines service areas.
- > Hierarchy given through double volume spaces that physically link floors together.
- > Served spaces are kept open plan with minimal interruption.
- > Facade used for lighting and animation of activity within building.

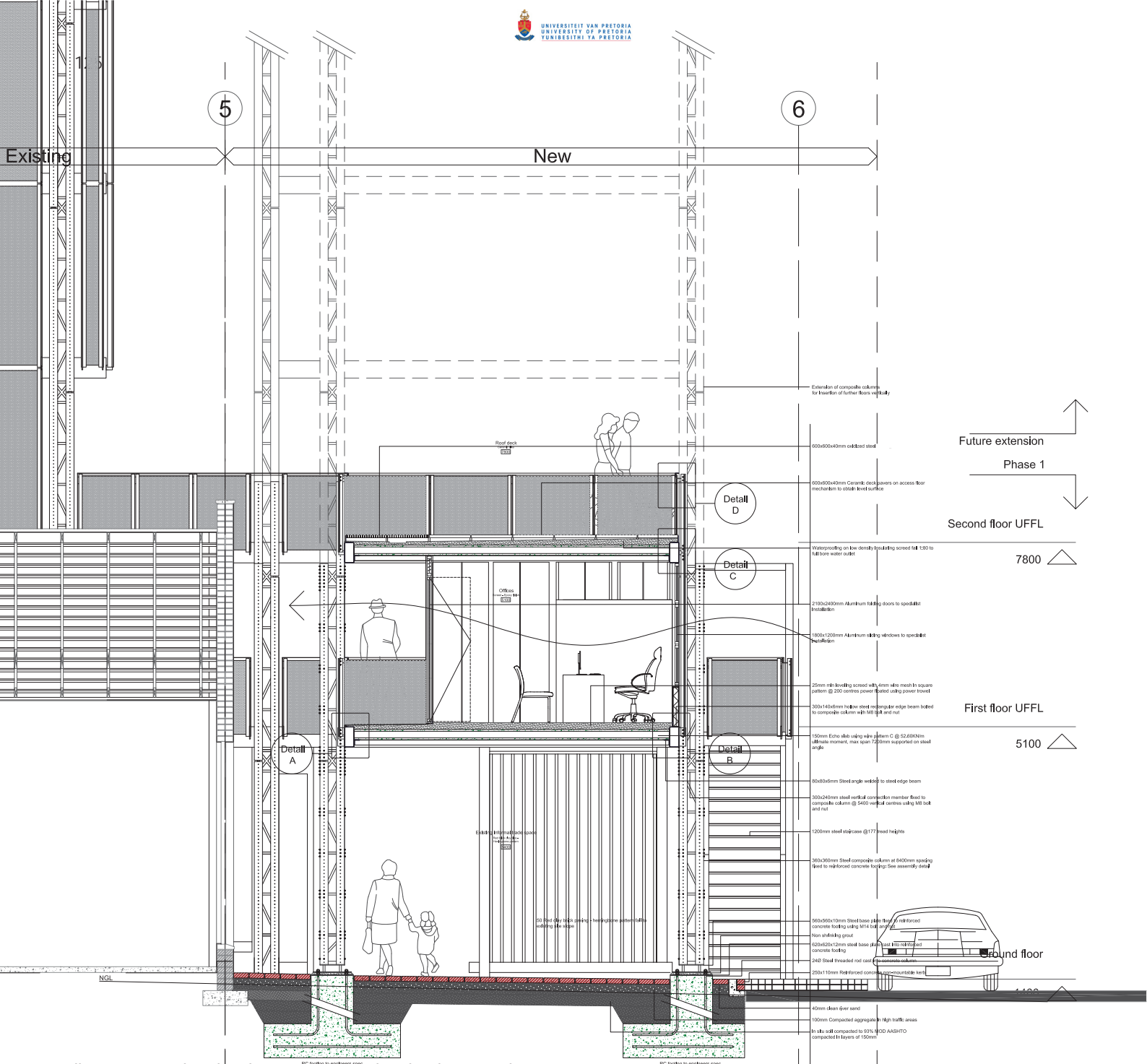


Illus 5.8.1 Permeability of ground floor for quotidian activities (Author, 2012)



 New interventions impact intensity  
 Existing quotidian activity impact intensity





Illus 5.9.1 Section development-September (Author, 2012)





Illus 5.9.2 Section development-September (Author, 2012)

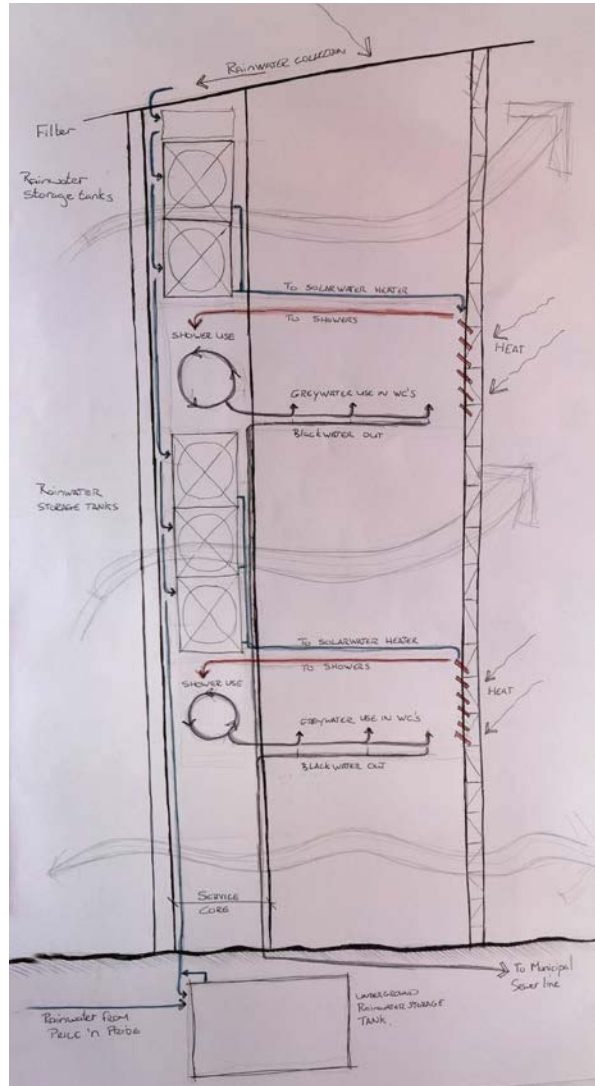
## Environmental considerations

The design aims to reduce the dependence of the building upon active systems, by employing passive design principles in order to keep the energy requirements of the building to a minimum. The applications discussed here are illustrated in more detail in the services and systems section of the technical investigation.

The following are adhered to throughout:

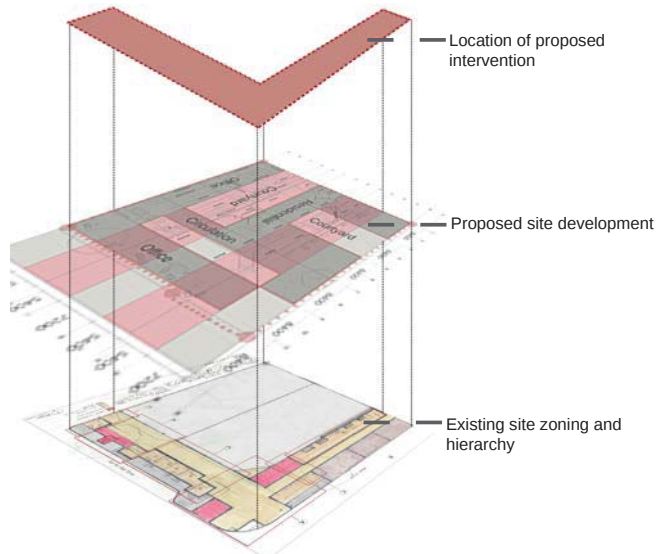
- >> Living spaces [gathering and social spaces] have their longest facades facing North.
- >> Adequate daylighting with controlled sunlight penetration: external shading devices [applied exterior] are designed in a such a manner as to allow the sun into the interior spaces in winter months and keep sun out during summer months.
- >> Narrow North-South cross section promotes cross-ventilation through the use of large openings opposite each other.
- >> Proper insulation of all roof spaces and lightweight wall structures to keep interior temperatures stable.
- >> Harvesting and use of on-site rainwater for shower usage.
- >> Grey-water recycling for use in flushing toilets
- >> Smaller openings on Southern facades to prevent heat loss during winter.
- >> Minimal openings on Eastern and Western facades to prevent morning and afternoon sun penetration. To be well protected with water tank towers and circulation core containing vertical louvers.
- >> The highly operable nature of the design allows inhabitants to manipulate the structure in order to gain thermal comfort.

In addition to the passive design principles employed in the design, the proposal will make use of products that improve energy efficiency and water consumption of the building. Products to be specified are: Solar water heaters, dual flush toilets and water efficient shower heads.

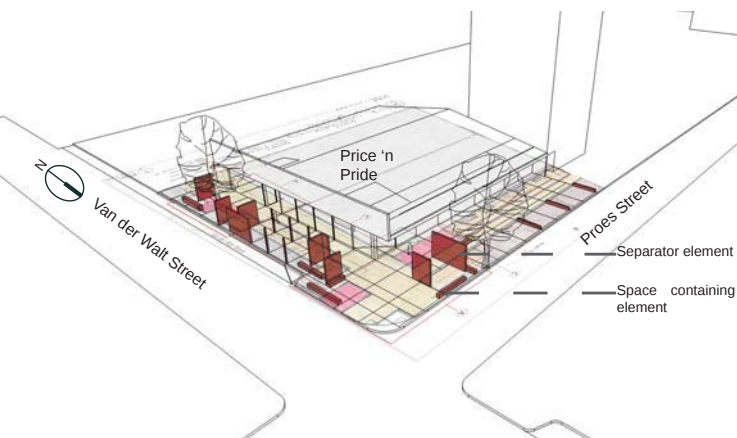


Illus 5.9.3 Environmental considerations-September (Author, 2012)

## Synthesis



The existing zoning of the proposed site highlights potential areas for vertical appropriation. These become apparent in the spaces that intersperse trade and gathering. These spaces link and support the existing movement routes. They network across the site and present the potential to support and enhance the quotidian network through vertical appropriation.

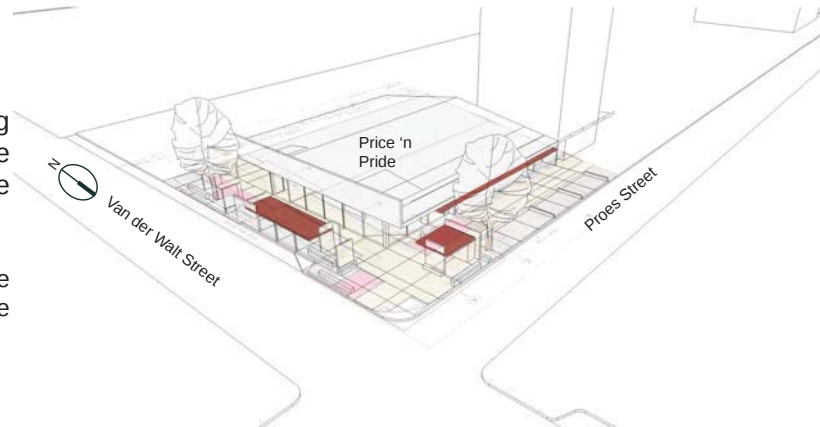


Vertical surfaces are introduced on ground floor in the form of separator elements. These could be defined as parts that enclose activity spaces and promote vertical development. Additionally, space containing elements [that support activities] are strategically placed in between the trade and gathering while still permitting movement and transparency across the site. The aforementioned formal responses should activate the sidewalk further for the insertion of infrastructure. The position and hierarchy of the proposed infrastructure will be determined by its' support rendered to the everyday networks.

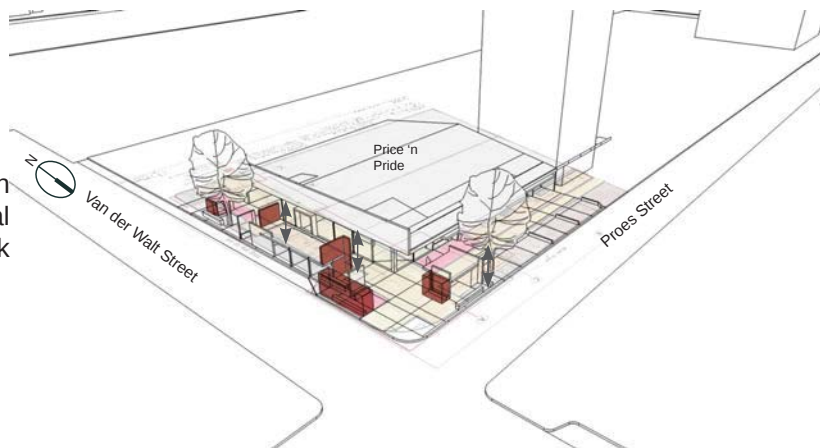
Illus. 5.10.1 Synthesis of design responses on site (Author, 2012)

Horizontal activity platforms\* are placed above the existing quotidian in accordance with the vertical edge response guidelines. These initiate vertical appropriation of the programmable surfaces.

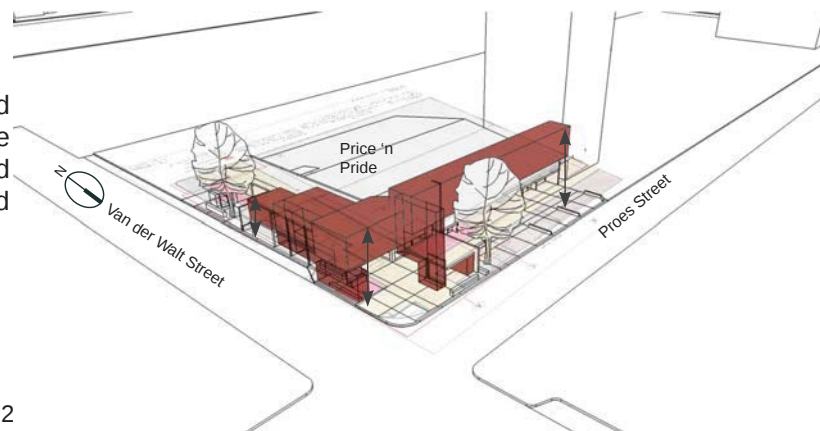
\*Activity platforms refer to a programmable horizontal surface that contains and promotes an activity. Due to its position on the sidewalk it should provide an opportunity for development.



Separator elements are extended vertically to contain overhead activity platforms. These could promote vertical movement by linking the activity platforms to the sidewalk through programmable surfaces.



The proposed circulation routes together with the proposed programs connecting to the everyday should determine the hierarchy of site zoning and levels of interactivity and permeability between the existing quotidian networks and the proposed intervention.



Illus. 5.10.2 Synthesis of design responses on site (Author, 2012)



>>Primary structure	135
>>Assembling the primary structure	137
>>Technology	139
>>Applied exterior	143
>>Services and systems	
>Program spaces and it's links	149
>Water systems	155
>Ventilation and solar strategy	157
>Synthesis of design assembly	159
>Future site development proposal	163
>>Design Synthesis	169

# Chapter 5

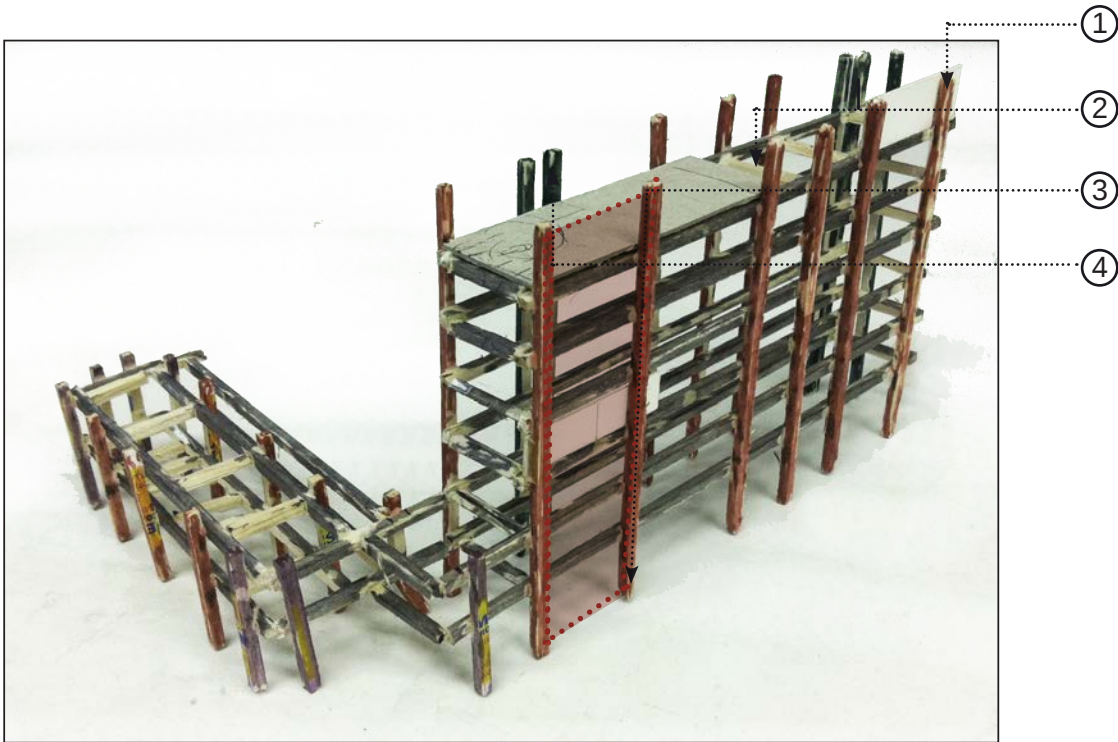
## Techné

Conceptually, the proposed design consists primarily of an adaptable kit of parts of the following four components:

1. Primary structure [column and beam]
2. Technology [floor and wall]
3. Applied exterior [passive environmental control]
4. Services and systems [water collection, ventilation etc]

This is accomplished by using components that are pre-designed, pre-engineered and pre-fabricated. This is executed to achieve structural clarity with fast assembly, disassembly and amalgamation with the proposed future development. By developing a kit of parts it presents the opportunity to implement the typology in the future across various sites in the city centre.

Each component above is briefly discussed in terms of their technical considerations.

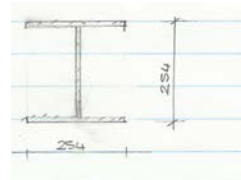


Illus 5.11.1 Concept techne' model developing kit of parts (Author, 2012)

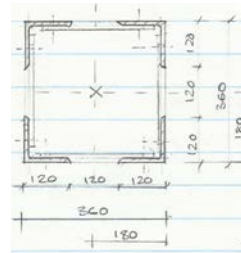
## Primary structure

The principle guiding the design of the primary structural columns and beams is derived from the analysis of the existing vertical edge conditions as discussed in Chapter 3 [spatial relationships of the quotidian network]. The column becomes a programmable element that initiates and supports activity platform's [programmable horizontal floors] development and future linkages to the intervention.

The composite column consists of four 120x120x8 galvanised steel angles that form a square hollow with four potential sides of connections and use. To achieve structural clarity, the column is accentuated by expressing the structure on the facade of the building, exposing the four sides of connection and emphasizing the vertical transition.



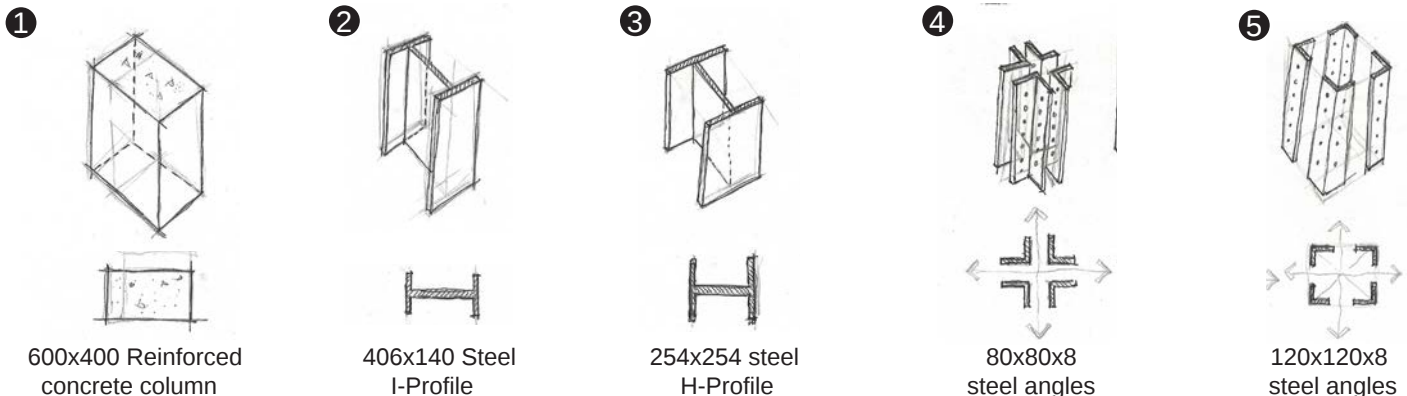
254x254x132kg/m H-Profile  
 $A = 16.8 \times 10^2 \text{ mm}^2$   
 $I_{xx} = 224 \times 10^6 \text{ mm}^4$   
 $I_{yy} = 74.5 \times 10^6 \text{ mm}^4$   
 $R_{yy} = (I/A) \times \text{root squared}$   
 $= (74.5 \times 10^6 / 16.8 \times 10^2) \times \text{root squared}$   
 $= 66.6 \text{ mm [r1]}$



120x120x10 Steel angles  
 $A = 2.318 \times 10^3 \text{ mm}^2$   
 $I_{xx} = I_{yy} = 3.129 \times 10^6 \text{ mm}^4$   
 $A_x = A_y = 33.1$   
 $I_{xx} = I_{yy} = [E] I_{xx} + A_c^2$   
 $= 4 [3.129 \times 10^6 + 2.318 \times 10^2 (146.9^2)]$   
 $= 212 \times 10^6 \text{ mm}^4$   
 $R_{yy} = (I/A) \times \text{root squared}$   
 $= (212.6 \times 10^6 / 4 [2.32 \times 10^2]) \times \text{root squared}$   
 $= 151.4 \text{ mm [r2]}$

$r2/r1 = 151.4 \text{ mm} / 66.6 \text{ mm}$   
 $= 2.27 \text{ greater bearing capacity}$

Illus 5.11.2 Calculations to determine strength of the composite column in relation to a standard H-profile (Author, 2012)



600x400 Reinforced concrete column

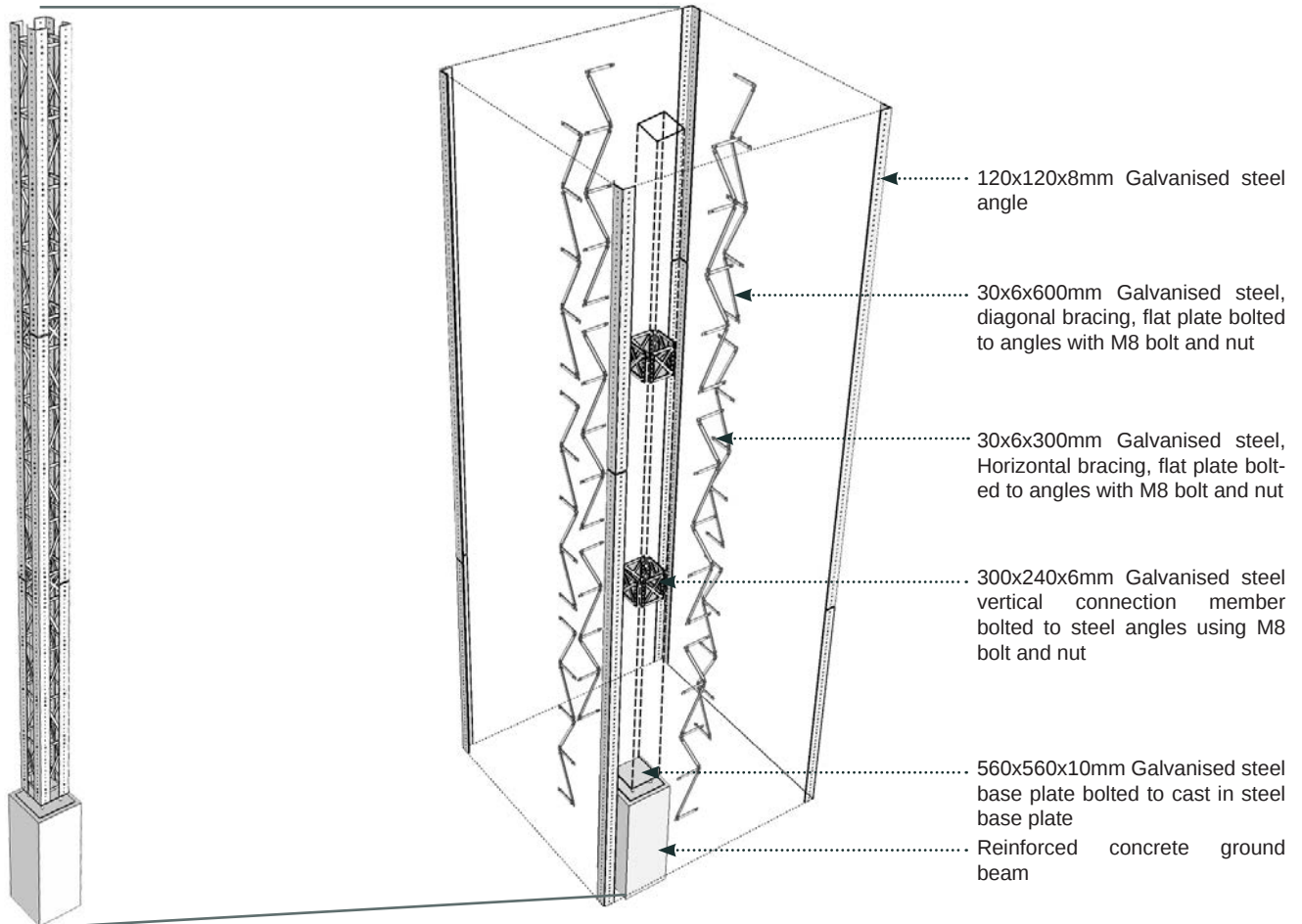
406x140 Steel I-Profile

254x254 steel H-Profile

80x80x8 steel angles

120x120x8 steel angles

Illus 5.11.3 Column evolution (Author, 2012)



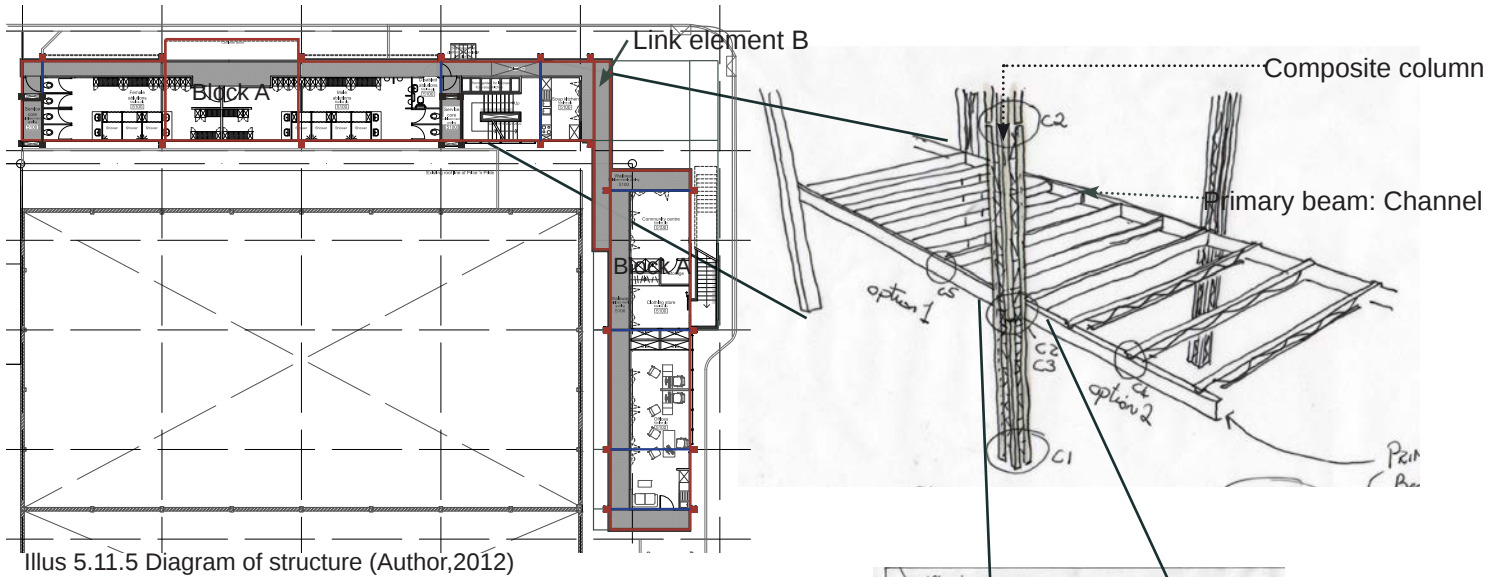
Illus 5.11.4 Axonometric illustrating the assembly of the composite steel column (Author, 2012)

Assembly of composite steel web column:

Column composition of hot rolled angle irons [120x120x8mm]. For the design purposes, the vertical lengths = 5400mm. All angles to be pre-drilled with 8mm dia holes at 50mm centres. Bracing members consist of 30x6mm galvanised steel flat plates at 300mm and 600mm lengths for horizontal and diagonal bracing respectfully. Horizontal bracing members to be bolted at 600mm centres with diagonals bolted between horizontal members using M8 bolt and nut. A service gap of 120mm allows for inside access to the column.

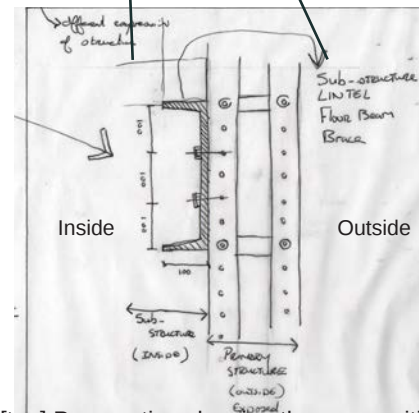


## Assembling the primary structure



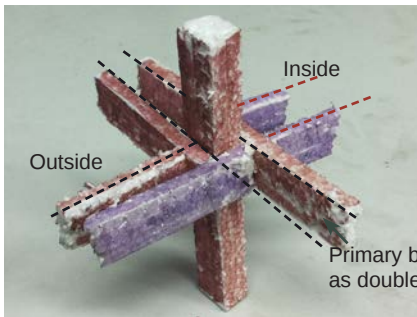
Illus 5.11.5 Diagram of structure (Author, 2012)

The grid dimensions for Block A's structure is based on the open grid system developed by the Author of 8.4m x 4.8m. A horizontal linking element connects the two perpendicular blocks together along the structural grid. This determines the position of the primary steel structure.

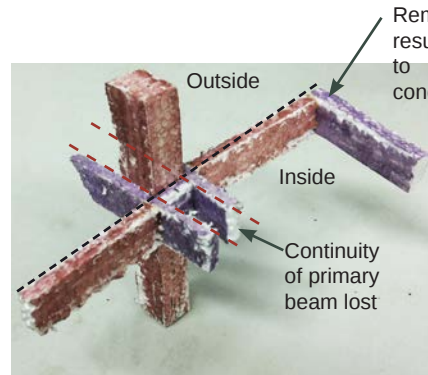


Illus 5.11.6 [top] Perspective showing the composition of the primary structure (Author, 2012)

Illus 5.11.7 [above] Expressing the column on the outside (Author, 2012)

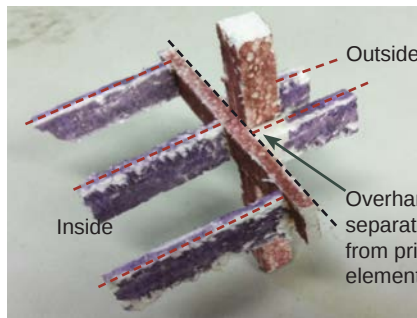


① Using a double skin around the outside of the column to produce an overhang.

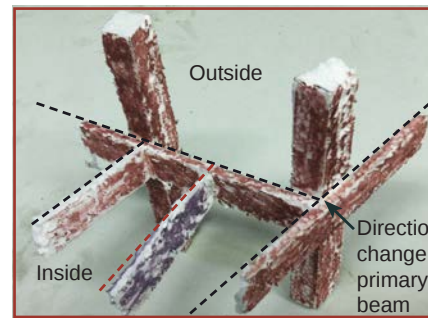


Removal of column resulting in cantilever to express corner conditions

③ Breaking the continuity of the primary beam for the insertion of overhangs.



② Placing structure for overhang independently on column from primary structure



Final connection strategy

Wrapping the column with primary beam to develop overhang and change of structure direction

Illus 5.11.8 Exploration into the connection between primary column and beam (Author, 2012)

## Technology

The technical considerations for the construction of the flooring system are as follows:

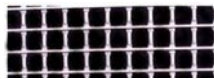
Materials to be used must be:

- Lightweight: In order to facilitate easy assembly and disassembly
- Durable: To withstand sustained traffic
- Water resistant: To prevent excessive water penetration
- Low maintenance: To be cost effective
- Surfaces should put emphasis on: public/private, structural connections and use

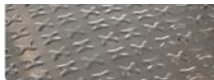
> 270x1.6mm “Bond-lok” permanent formwork with 190mm lightweight concrete flooring and 8mm dia welded steel mesh is used as the main surface element with a 90min fire rating.



>Surface 1: Levelling screed containing a 4mm wire mesh in square pattern at 200mm centres with epoxy finish [Social spaces].



>Surface 2: 1220x1220x40mm Oxidised steel mentis grating [Service core flooring]



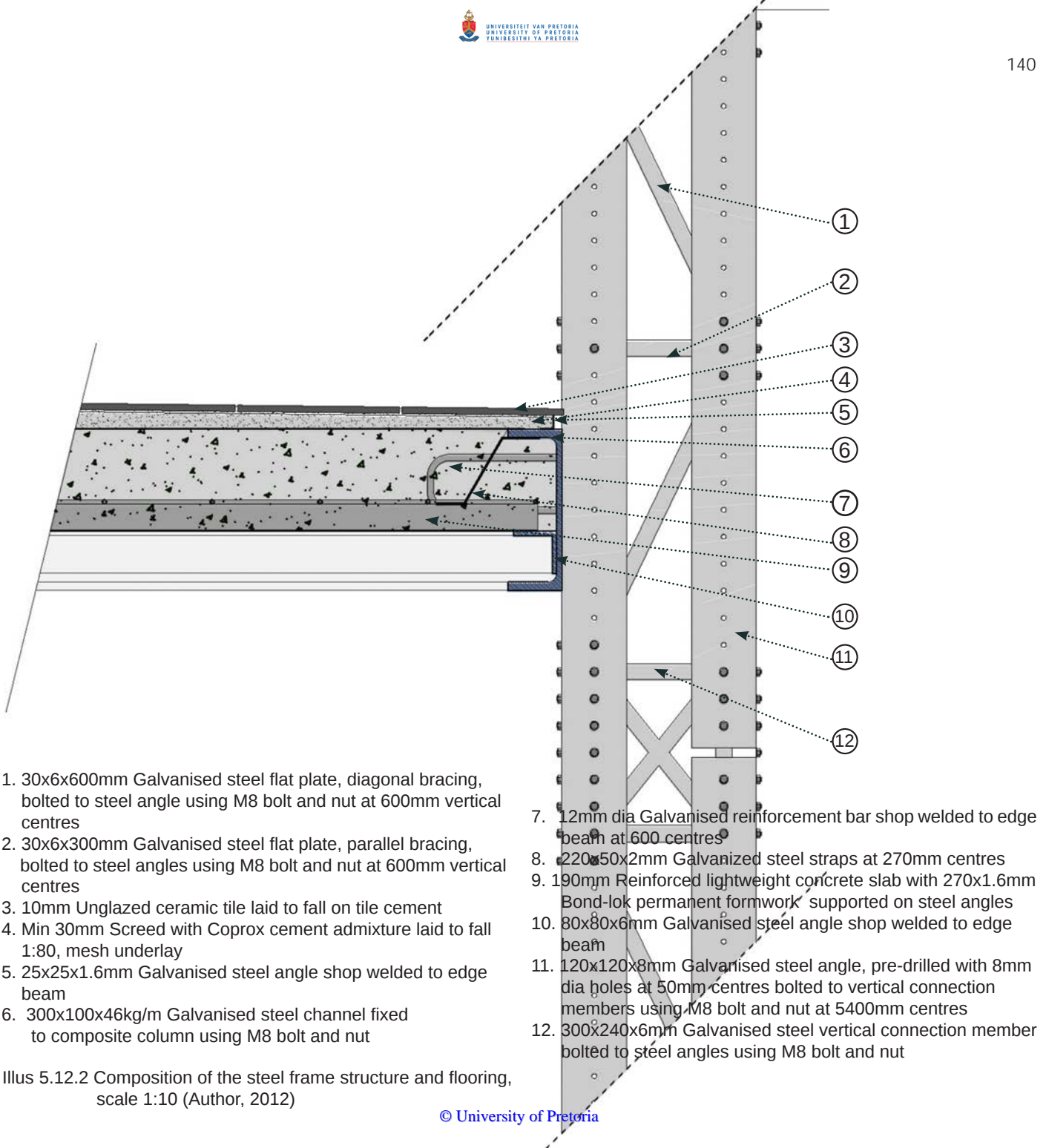
>Surface 3: 1200x1200x3mm Vastrap [metal sheet with multiple lozenge pattern] - [All staircase surfaces]



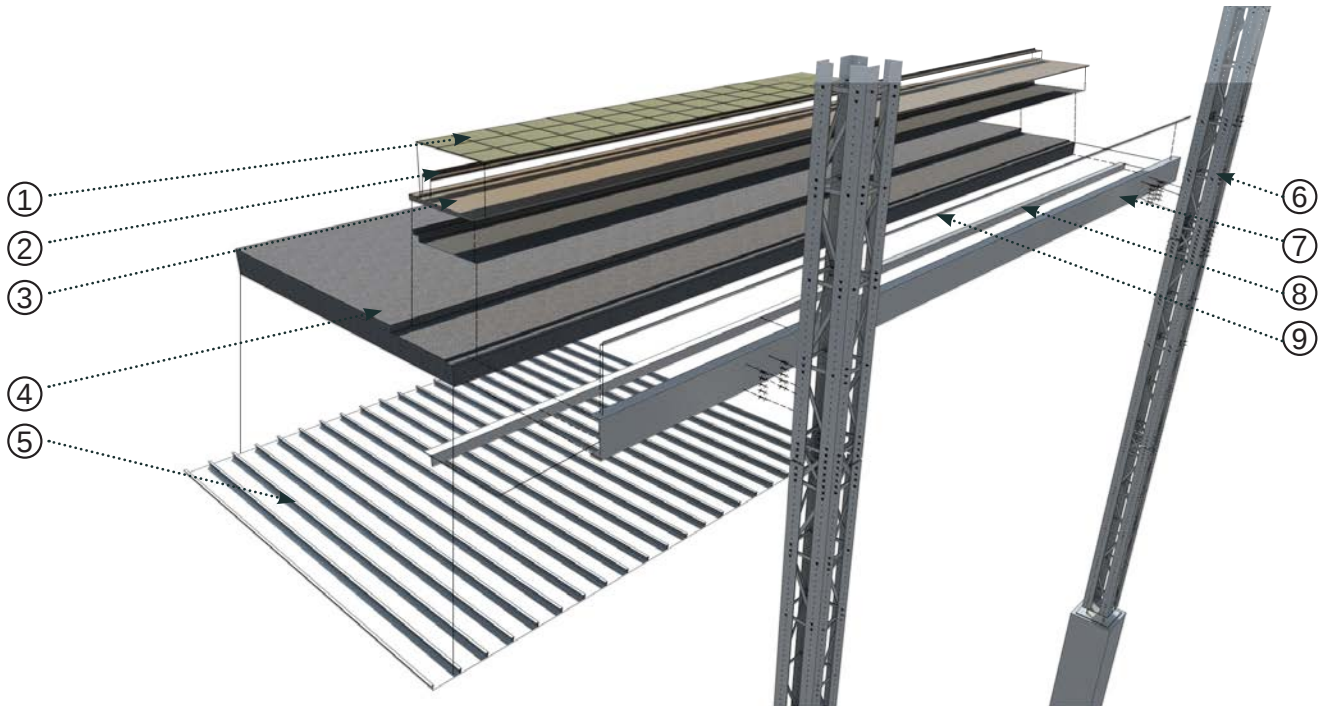
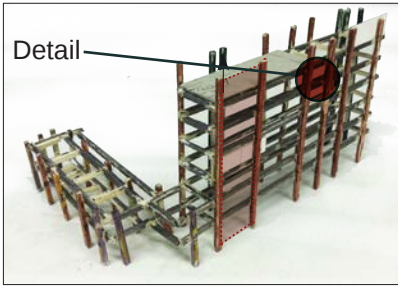
>Surface 4: Vinyl Sheetting [Bandelier - cashmere profile] fixed using Glue-down with releasable adhesive- [Housing unit flooring]



>Surface 5: 350x350mm Ceramic tiles - [Balcony flooring]



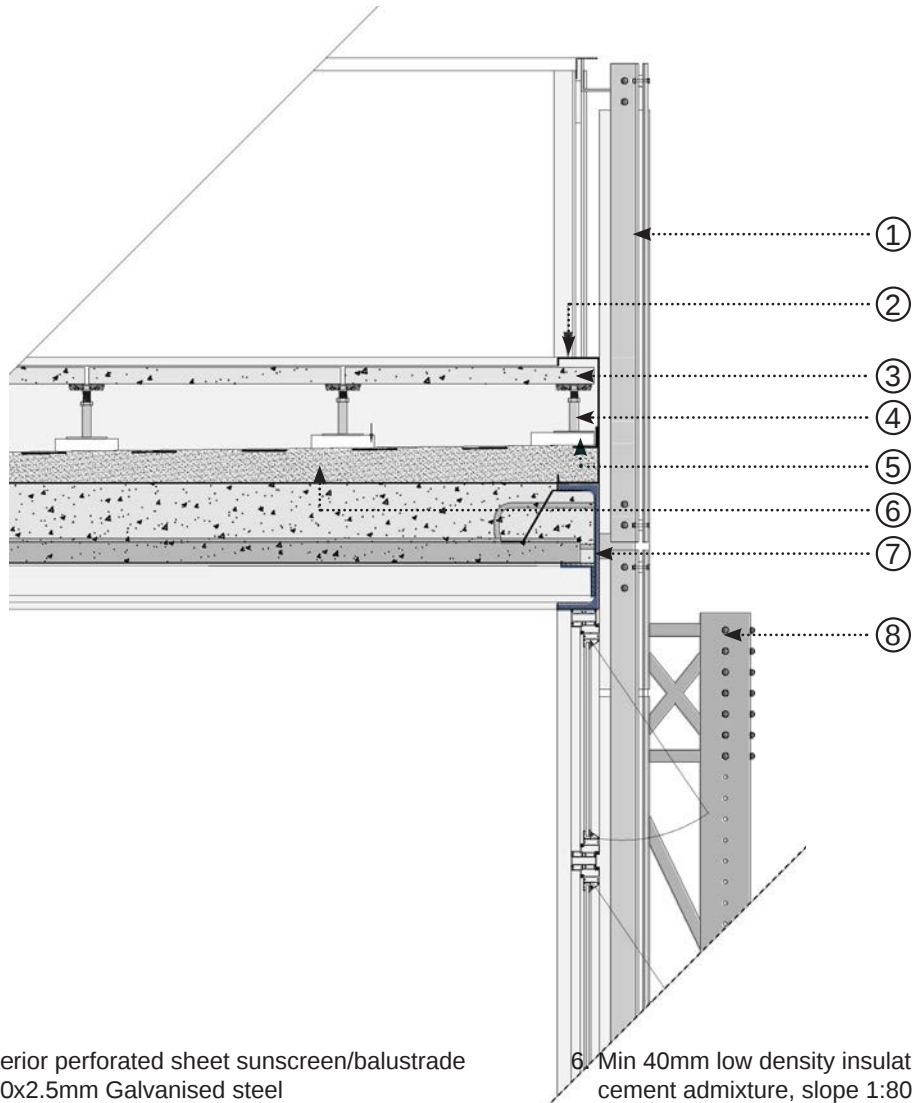
Illus 5.12.2 Composition of the steel frame structure and flooring, scale 1:10 (Author, 2012)



- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. 10mm Unglazed ceramic tile laid to fall on tile cement</li> <li>2. Waterproofing membrane dressed onto aluminum angle fixed to concrete</li> <li>3. Min 30mm Screed with Coprox cement admixture laid to fall 1:80, mesh underlay</li> <li>4. 190mm Lightweight concrete in-situ cast</li> <li>5. 270x1.6mm <i>Bond-lok</i> permanent formwork supported on steel angle</li> </ol> | <ol style="list-style-type: none"> <li>6. 360x360mm Galvanised steel composite column</li> <li>7. 300x100x46kg/m Galvanised steel channel fixed to composite column using M8 bolt and nut</li> <li>8. 80x80x6mm Galvanised steel angle shop welded to edge beam</li> <li>9. 25x25x1.6mm Galvanised steel angle shop welded to edge beam</li> </ol> |
|--|--|

Illus 5.12.3 Exploded floor system (Author, 2012)





1. Applied exterior perforated sheet sunscreen/balustrade
2. 300x100x20x2.5mm Galvanised steel lipped channel bolted to edge
3. 600x600x40mm Concrete paver
4. Posi-lock access floor pedestal
5. Derbygum waterproofing membrane to slope 1:80

6. Min 40mm low density insulating screed with Coprox cement admixture, slope 1:80 to rainwater outlet
7. 300x100x46kg/m Galvanised steel channel edge beam fixed to composite column using M8 bolt and nut
8. 360x360mm Galvanised steel composite column

Illus 5.12.4 Roof deck detail 1:20 (Author, 2012)

## Applied exterior Passive environmental control

The applied exterior for the proposed building plays a multi-functional role as a:

- Sunscreen [passive environmental control]
- Billboard
- Animating screen of the activity within the building [to vary privacy and spatiality]
- Balustrades [safety]

Two material options are explored:

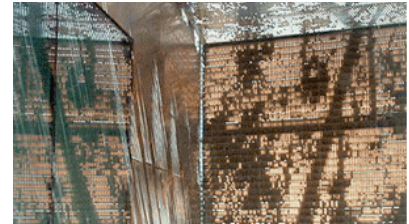
- **Perforated sheet metal:**

The perforated sheeting is used as a material to animate the facade, generating possible billboard images while showcasing the activity of the building, day and night. By varying the perforation holes diameter images are generated, this influences varying light penetration levels into the building while allowing for an introverted building by day and extroverted building night. The layering and position of the sheets is determined by the activity zone within the building affecting the visual permeability of the building edges.

- **Scaffolding planks:**

Used to assist in animating the facade by disrupting the order of the perforated sheets and vertical emphasis, determined by the activity within the building.

Conceptually, the layering of thresholds allows for the controlled concealment and/or exhibition of interior activities.



M. H. de Young Museum, San Francisco by Herzog & de Meuron (Zahner, 2012)

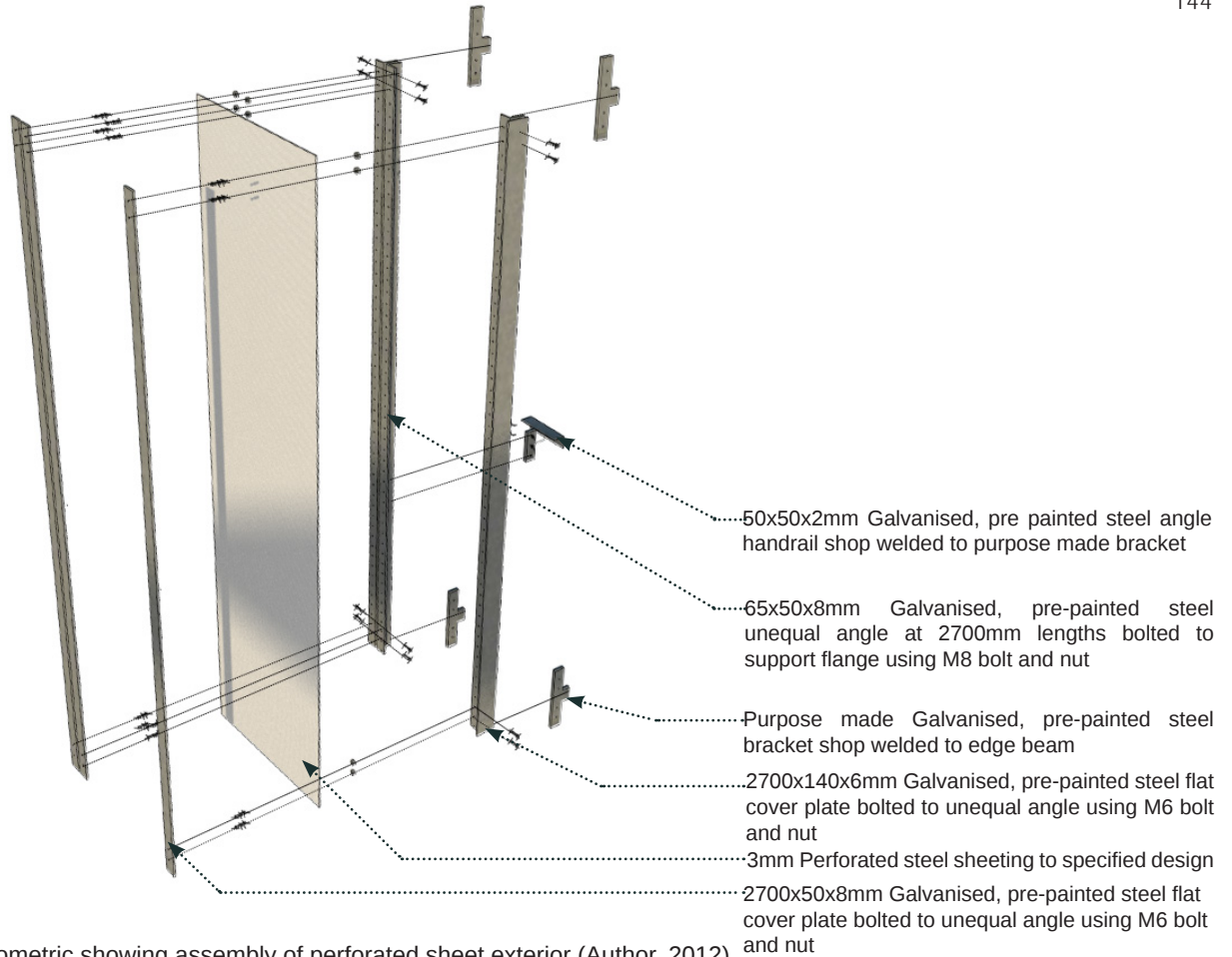


Exploratory Science Museum of Unicamp by Daniel Corsi (Europaconcorsi, 2009)

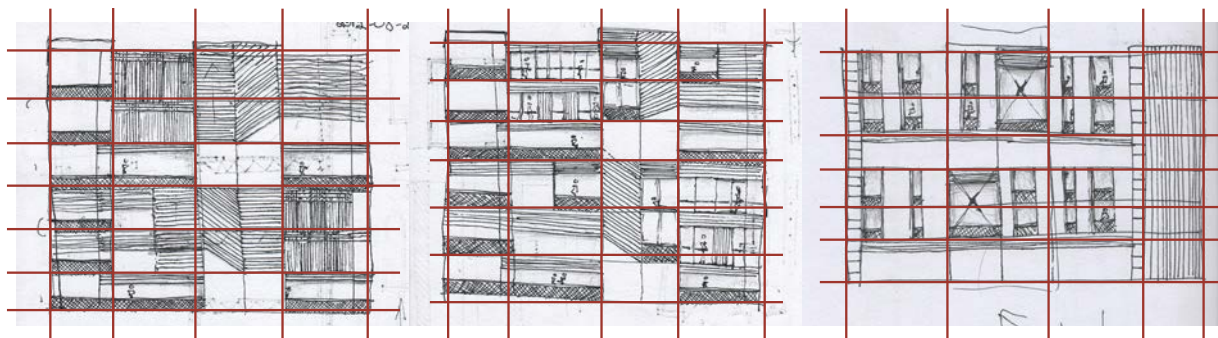


Tatu building, Prahran, Australia (Masanauskas, 2011)

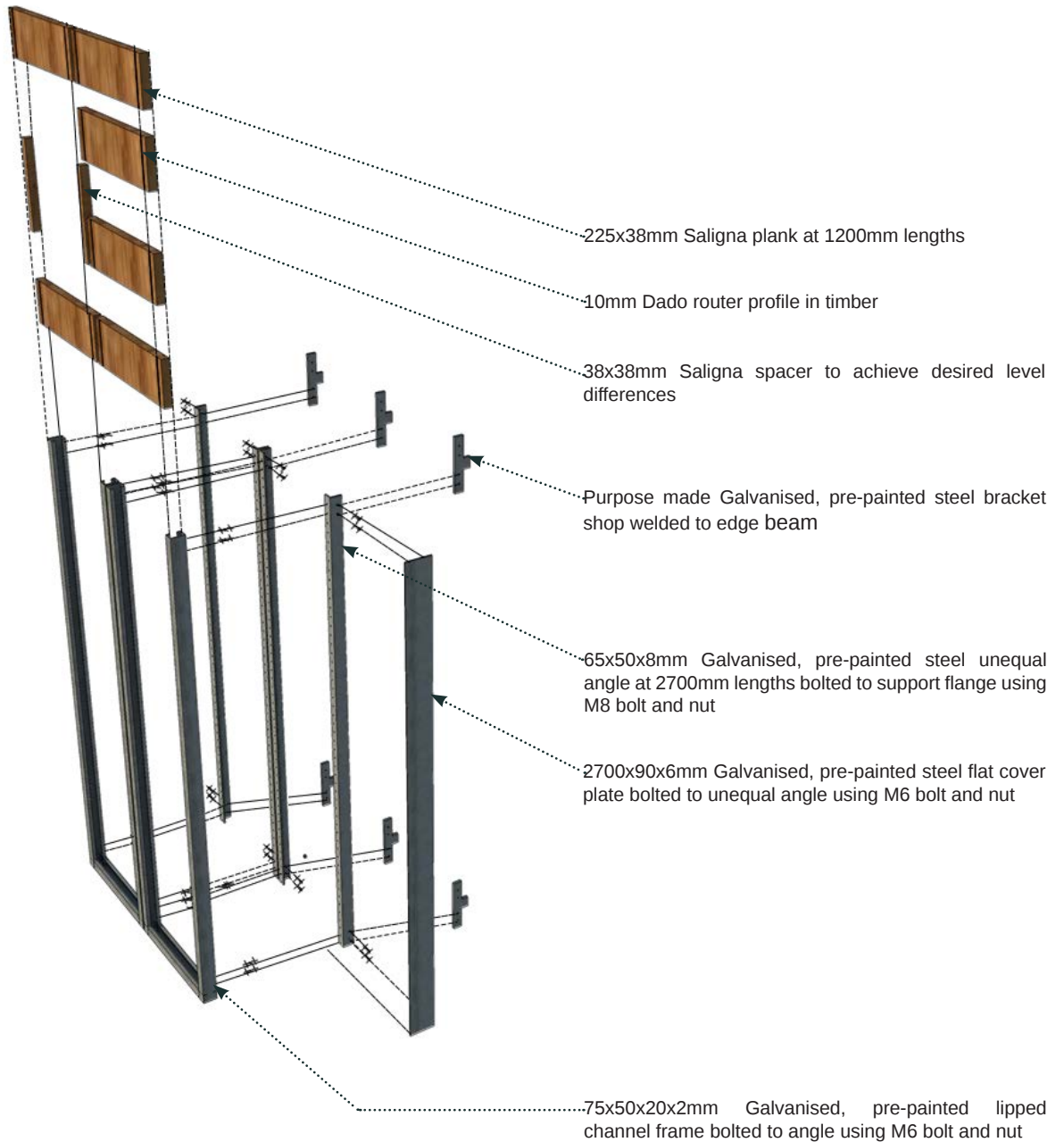
Illus 5.13.1 Various precedents showcasing potential of perforated sheeting as facade material (Author, 2012)



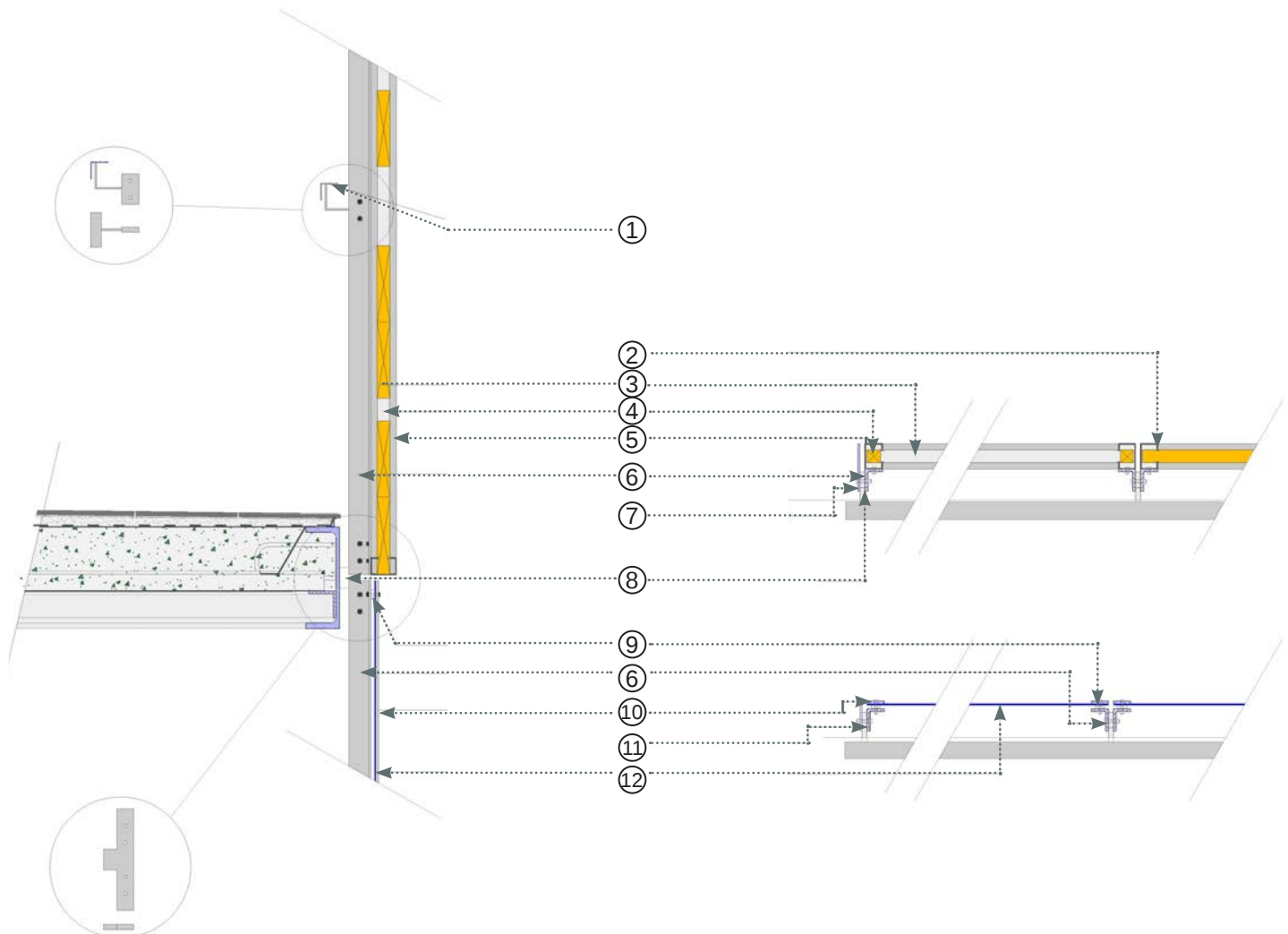
Illus 5.13.2 Axonometric showing assembly of perforated sheet exterior (Author, 2012)



Illus 5.13.3 Sketches showing conceptual idea of applied exterior- August (Author, 2012)



Illus 5.13.4 Axonometric showing assembly of scaffolding planks exterior  
(Author, 2012)



1. 50x50x2mm Galvanised, pre painted steel angle handrail shop welded to purpose made bracket
2. 10mm Dado router profile in timber
3. 225x38mm Saligna plank at 1200mm lengths
4. 38x38mm Saligna spacer to achieve desired level differences
5. 75x50x20x2mm Galvanised, pre-painted lipped channel frame bolted to angle using M6 bolt and nut, pre-painted
6. 65x50x8mm Galvanised, pre-painted steel unequal angle at 2700mm lengths bolted to support flange using M8 bolt and nut
7. 2700x140x6mm Galvanised,pre-painted steel flat cover plate bolted to unequal angle using M6 bolt and nut, pre-painted
8. Purpose made Galvanised, pre-painted steel bracket shop welded to edge beam
9. Rubber spacer
10. 2700x50x8mm Galvanised, pre-painted steel flat cover plate bolted to unequal angle using M6 bolt and nut, pre-painted
11. 2700x90x6mm Galvanised, pre-painted steel flat cover plate bolted to unequal angle using M6 bolt and nut, pre-painted
12. 3mm Perforated steel sheeting to specified design

Illus 5.13.5 Applied exterior detail 1:20 (Author, 2012)





Illus 5.13.6 Building in context showing the corner of Proes and Van der Walt Streets (Author, 2012)

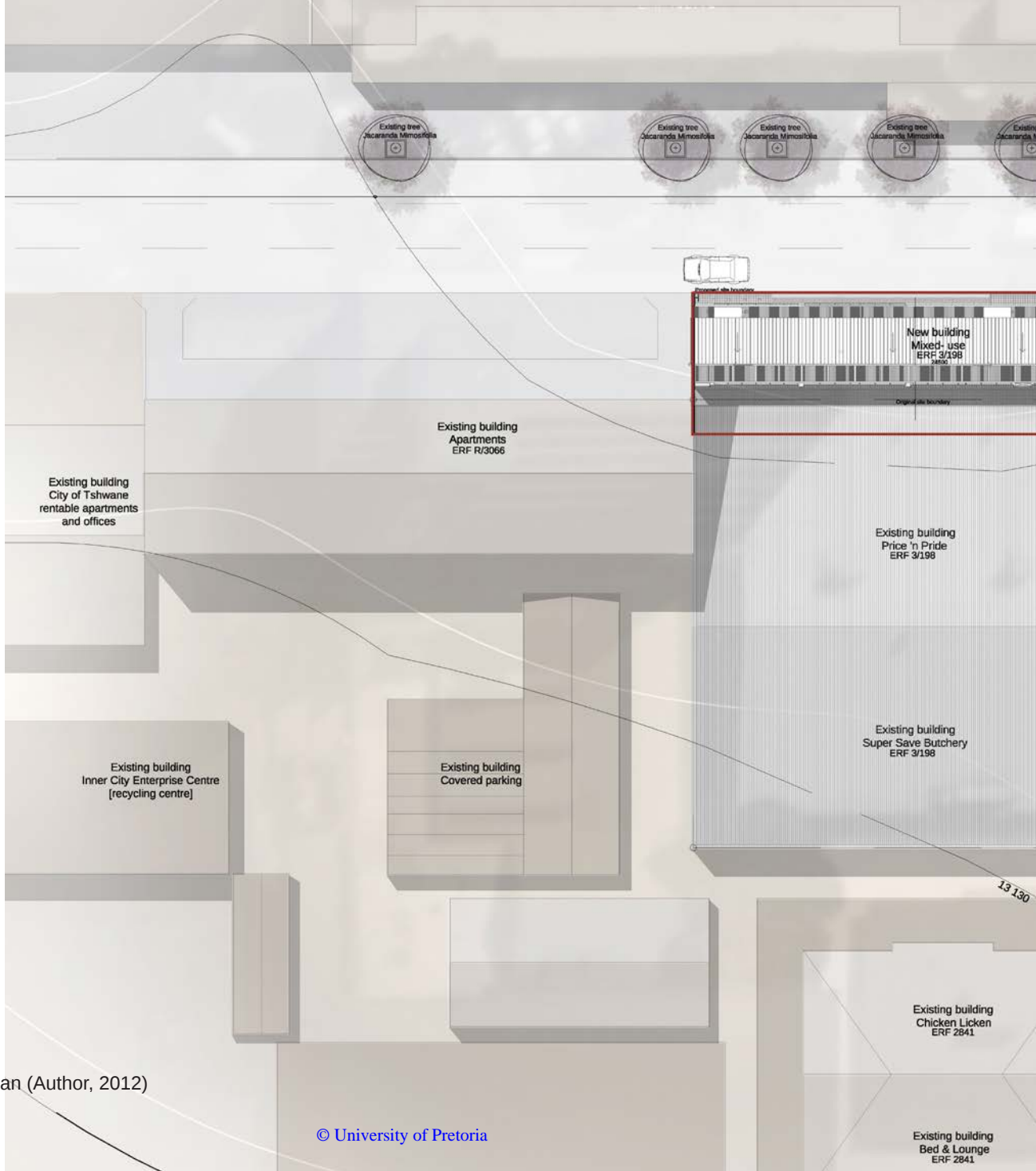


Existing Building  
Independent shops



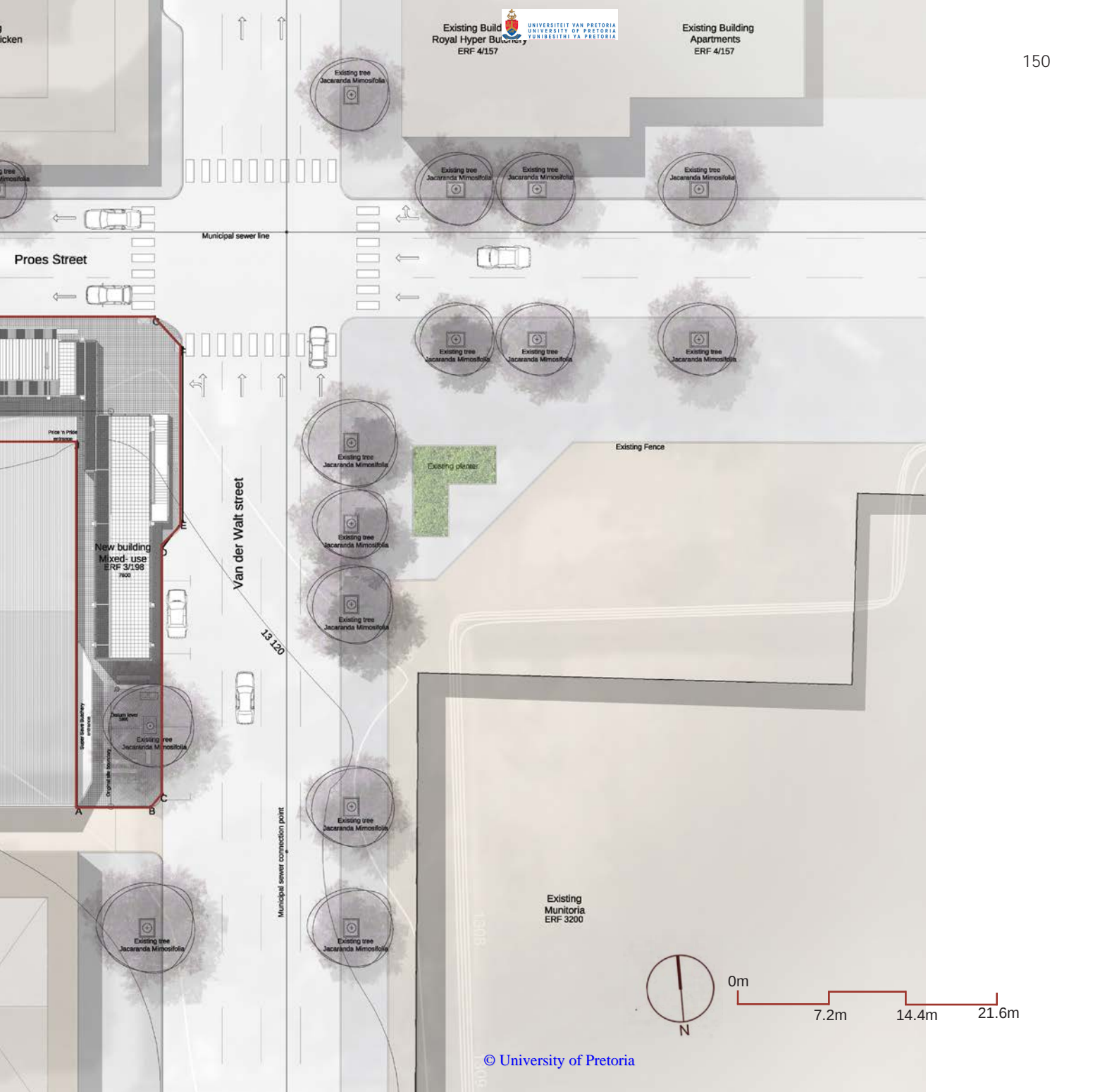
Existing Building  
Green Health Pharmacy  
ERF R/2779

Existing Building  
Kentucky Fried Ch  
ERF R/3058



Illus 5.13.7 Site plan (Author, 2012)





Proes Street

Municipal sewer line

Van der Walt street

13 120

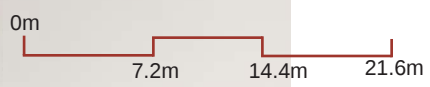
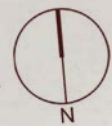
Municipal sewer connection point

New building  
Mixed-use  
ERF 3138  
7000

Existing planter

Existing Fence

Existing  
Munitoria  
ERF 3200

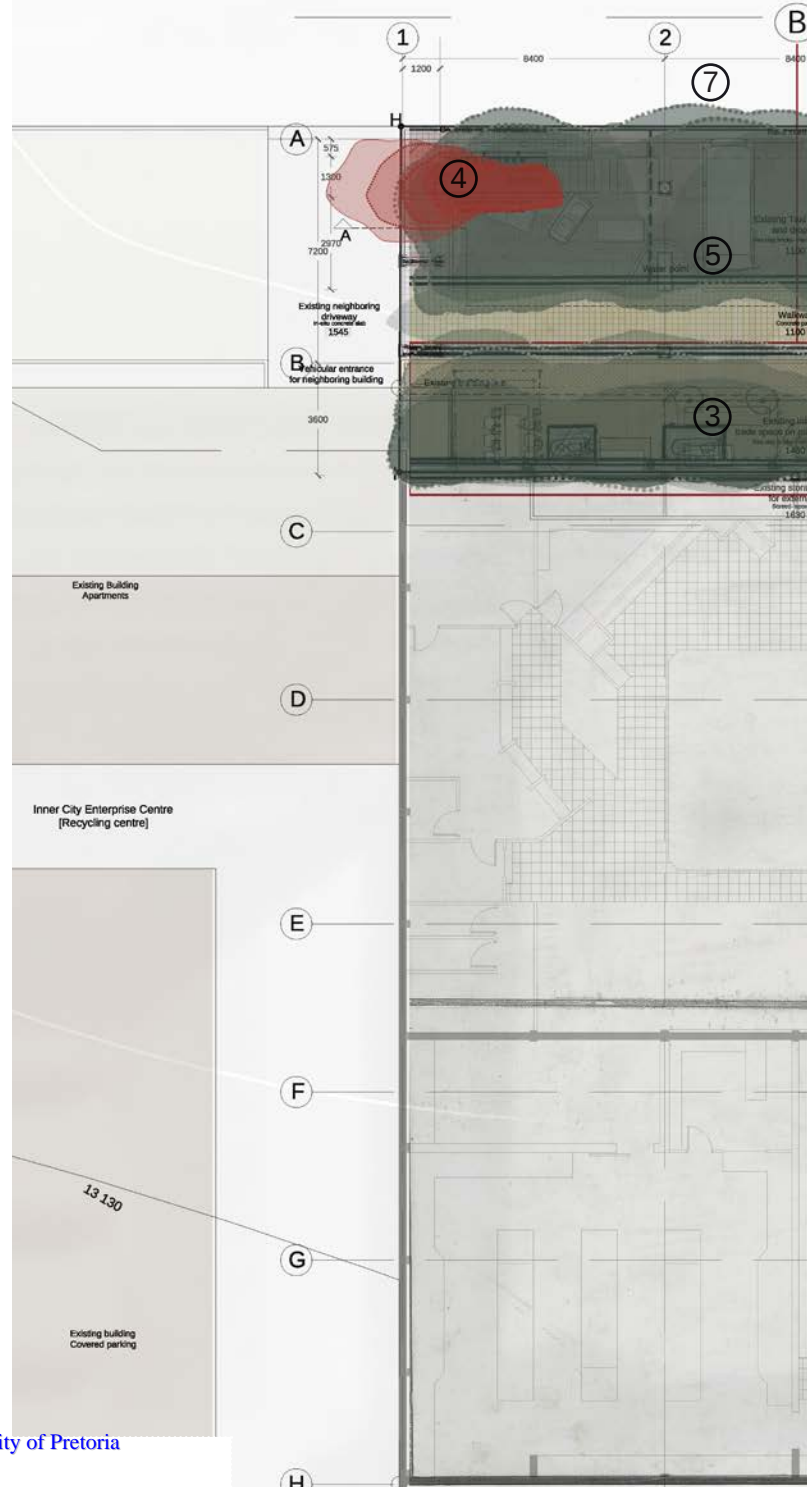


## Services and systems Program spaces and its links

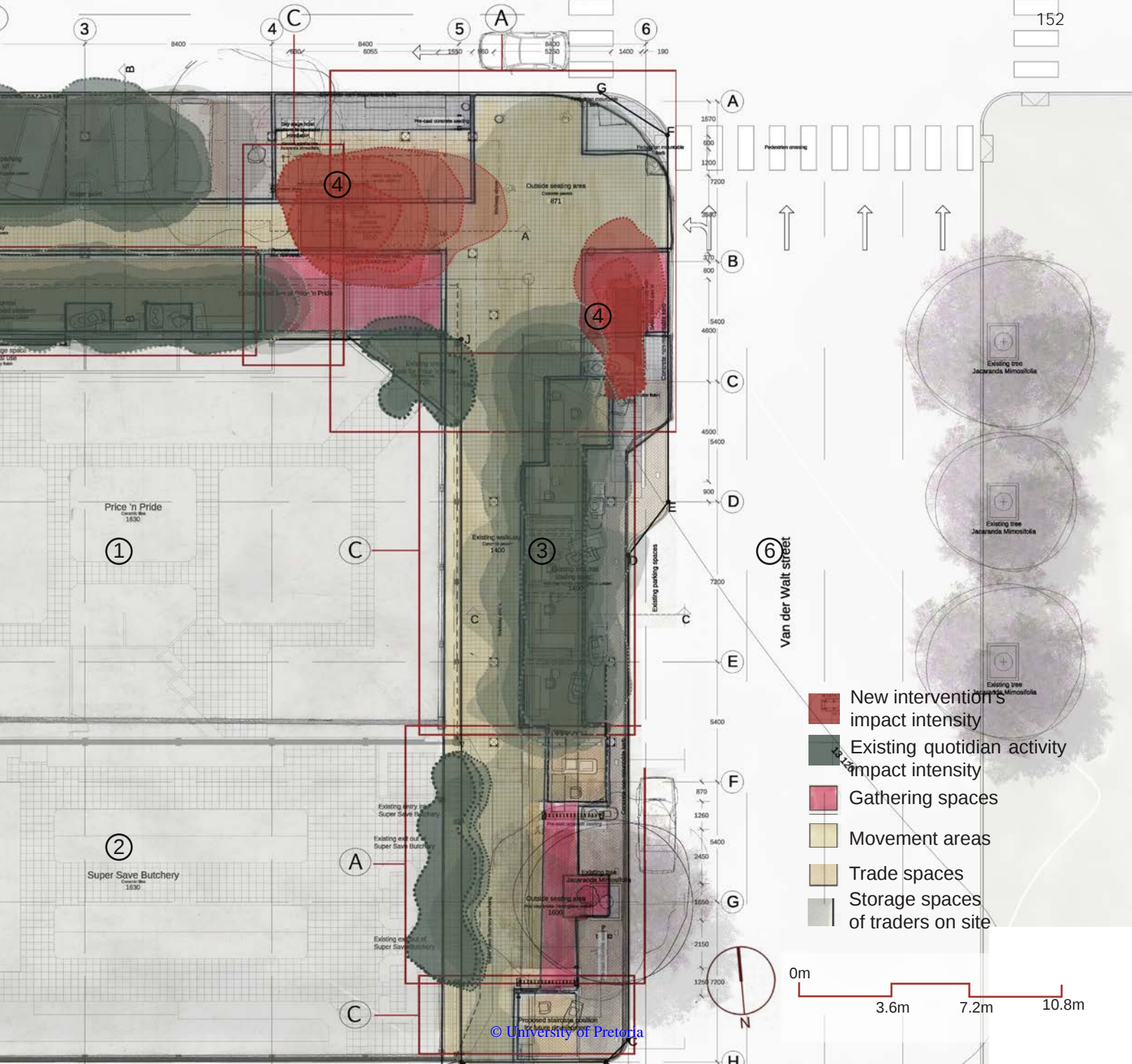
By re-layering the sidewalk vertically, support spaces are generated above the quotidian network. Support spaces with a direct association with the everyday are positioned on the first floor, while secondary support spaces that require more privacy are positioned from the second floor onwards.

1. Existing building: Price 'n Pride
2. Existing building: Super Save Butchery
3. Existing trade space
4. Staircases/fire escapes [new]
5. Existing taxi parking and drop off
6. Van der Walt Street
7. Proes Street

Illus 5.14.1 Plan- Ground Floor plan showing energy mapping (Author, 2012)

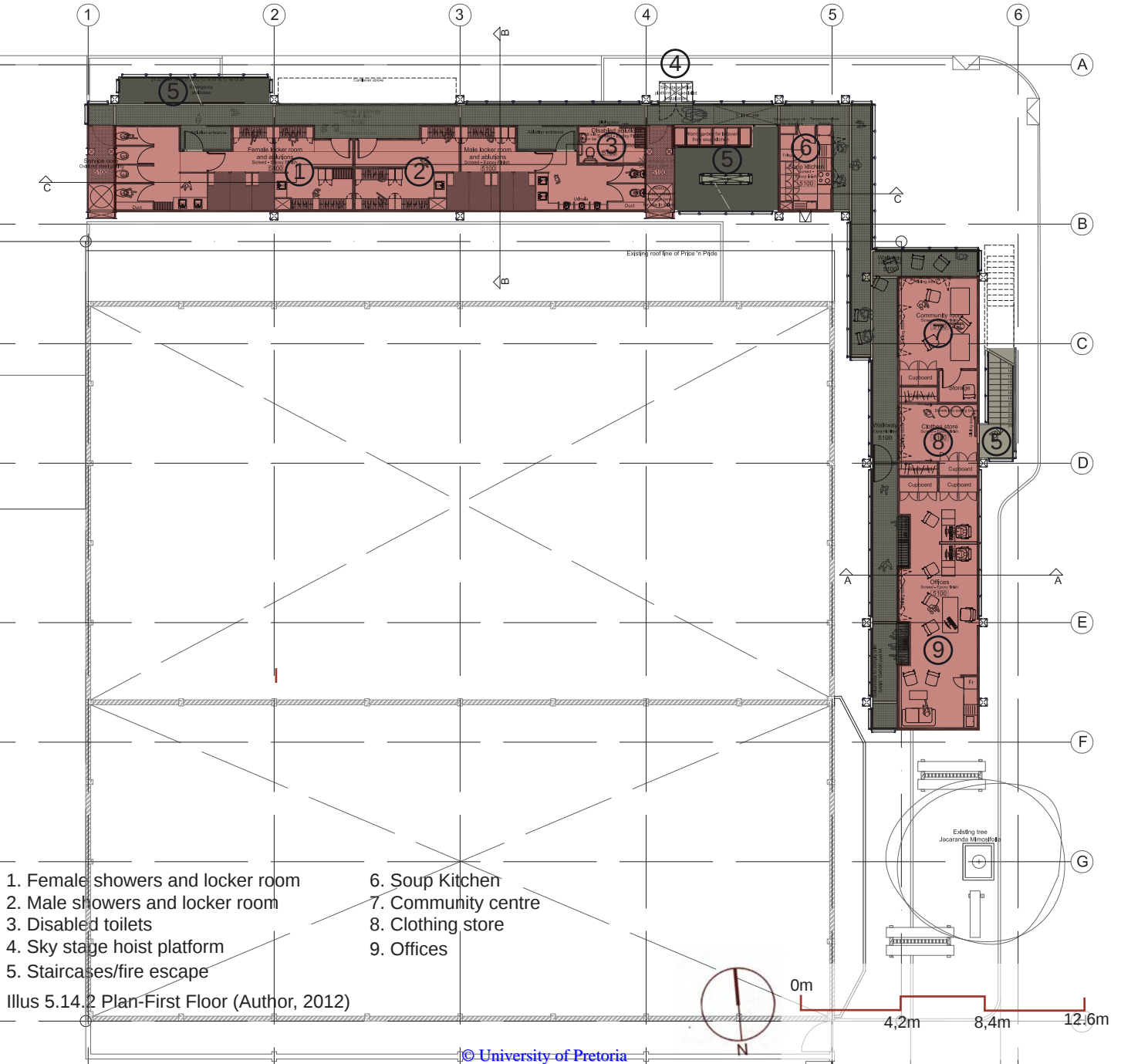


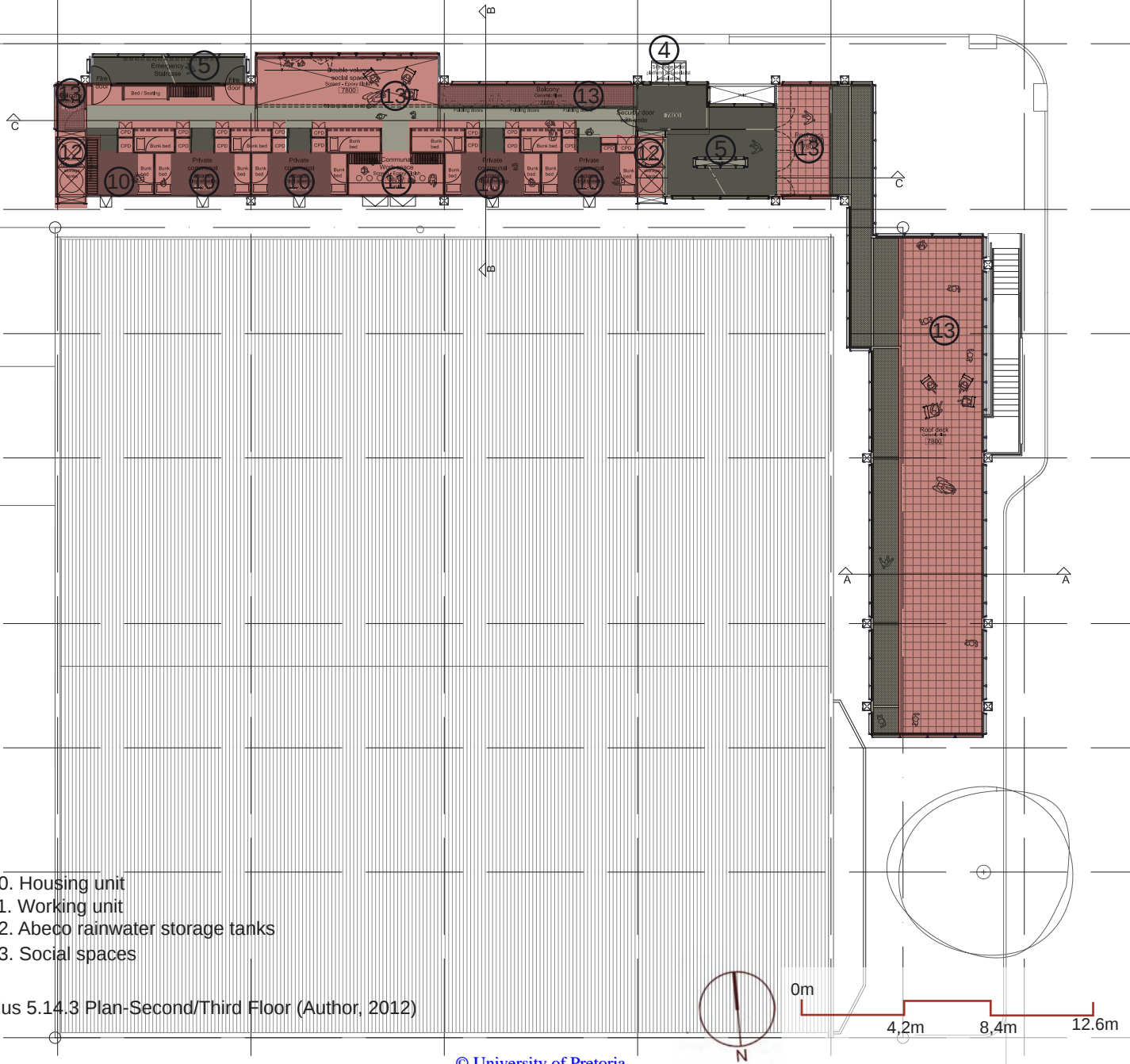




- New intervention's impact intensity
- Existing quotidian activity impact intensity
- Gathering spaces
- Movement areas
- Trade spaces
- Storage spaces of traders on site





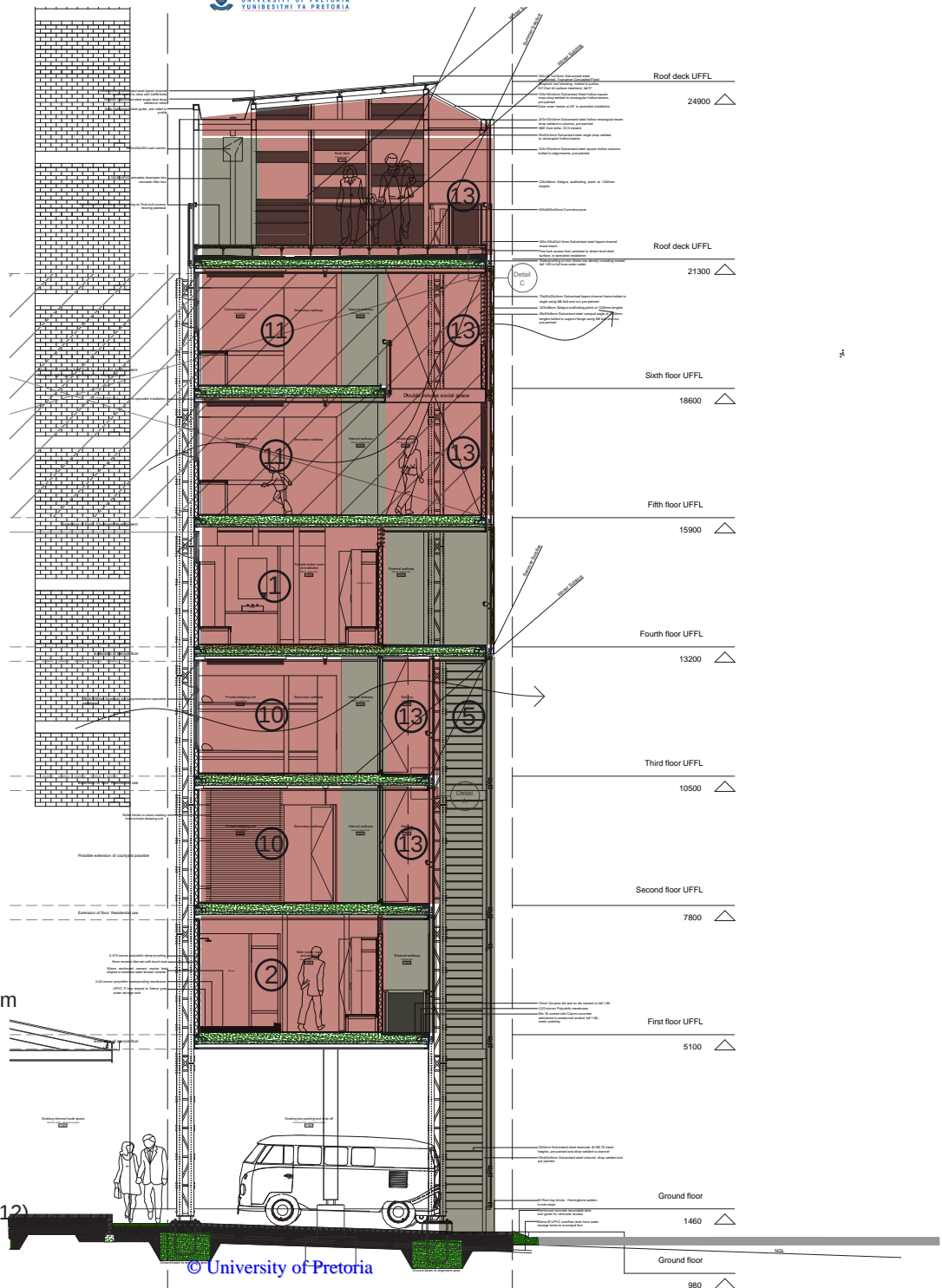


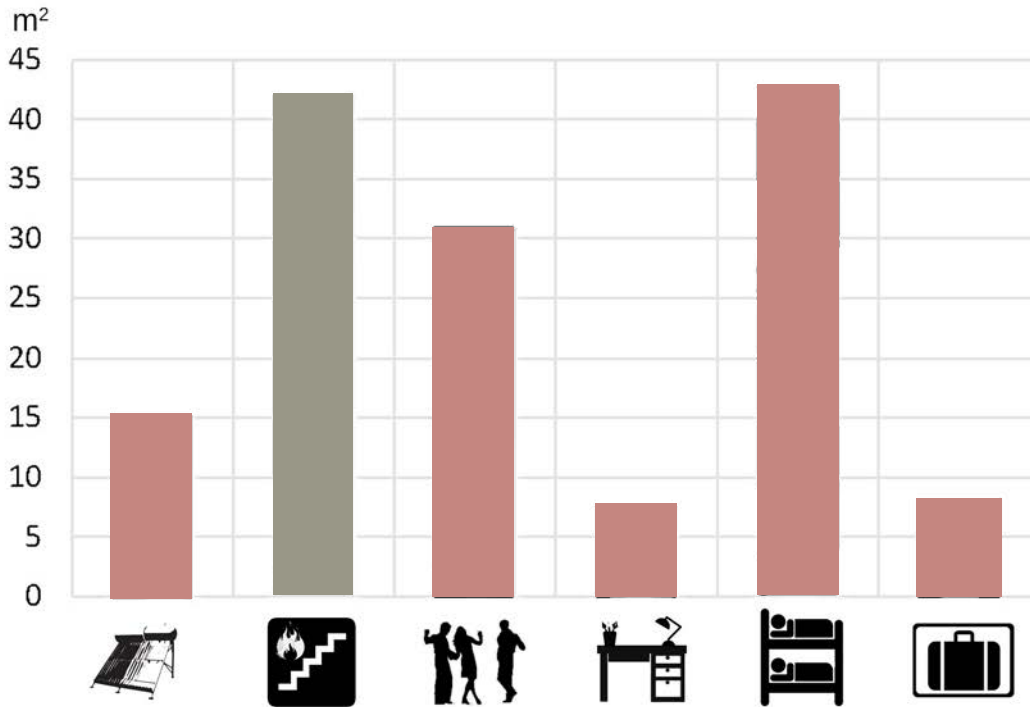
- 10. Housing unit
- 11. Working unit
- 12. Abeco rainwater storage tanks
- 13. Social spaces

Illus 5.14.3 Plan-Second/Third Floor (Author, 2012)

- 1. Female showers and locker room
- 2. Male showers and locker room
- 5. Staircases/fire escapes
- 10. Housing unit
- 11. Working unit
- 13. Social spaces

Illus 5.14.4 Section B-B (Author, 2012)





### Accommodation schedule

Number of beds per housing floor: 31

Area: m²

- |                             |        |
|-----------------------------|--------|
| 1. Services                 | 15.2m² |
| 2. Circulation/fire escapes | 42.1m² |
| 3. Social spaces            | 30.9m² |
| 4. Workspace                | 7.5m²  |
| 5. Private sleeping area    | 42.8m² |
| 6. Storage space            | 8m²    |

**Total area per floor 163.4m²**

Illus 5.14.5 Bar chart illustrating accommodation schedule-areas (Author, 2012)



## Water systems

As part of the service infrastructure, the intervention aims to support future developments and itself, through various passive control systems. The main system to be considered is that of rainwater collection and recycling. This would reduce the need and cost from municipal supply. An investigation into water strategies was conducted.

Rainwater will be collected for use in the service floors. In addition to this, solar water heating and grey-water recycling is considered. Each service floor will contain services for two floors of housing units with a maximum of 28 people per floor.

### Water consumption:

Showers: 56 people where 2/3 use twice a day=  $36 \times 25l = 900$  litres a day  
 Grey water recycling will occur collecting used shower water for flushing of toilets

Toilets: 56 people where 2/3 use 2 twice a day=  $36 \times 6l = 216$  litres a day  
 216l will be fed by grey water therefore 0 Litres used through rain water

WHB: 56 people where 2/3 use twice a day=  $36 \times 0.5l = 18$  litres a day

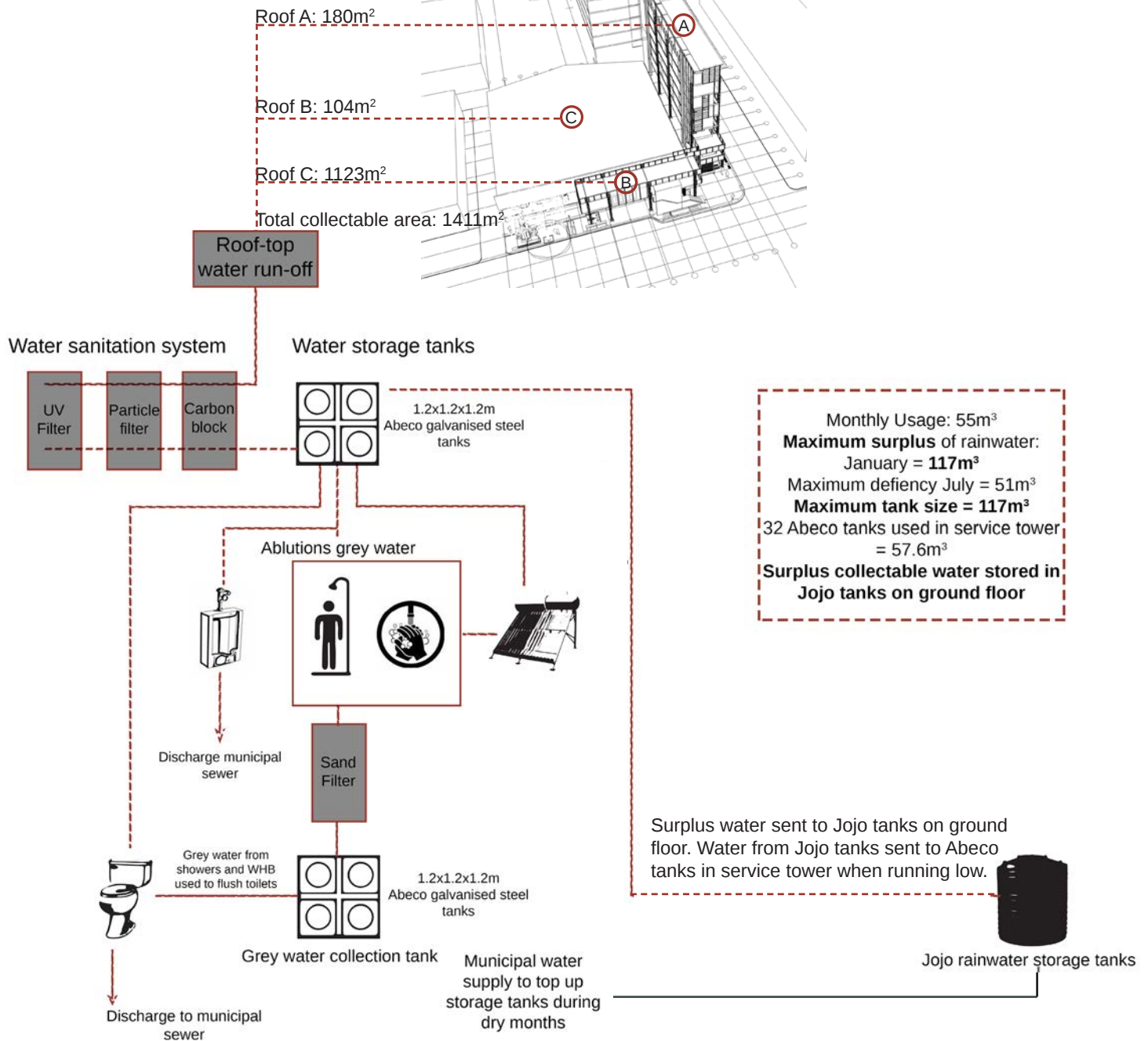
Total water: 918 litres per day  
 x30  
 27540 litres per month per service floor

2 service floors=  $2 \times 27540L = 55080$  litres per month

PRECIPITATION	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTALS	
DAYS		136	75	82	51	13	7	3	6	22	71	98	11	674
m		0.136	0.075	0.082	0.051	0.013	0.007	0.003	0.006	0.022	0.071	0.098	0.11	0.674
AREA (m <sup>2</sup> )		1411												
LITRES (m <sup>3</sup> )		191.896	105.825	115.702	71.961	18.343	9.877	4.233	8.466	31.042	100.181	138.278	155.21	951.014
HARVEST (m <sup>3</sup> )		172.7064	95.2425	104.1318	64.7649	16.5087	8.8893	3.8097	7.6194	27.9378	90.1629	124.4502	139.689	855.9126
MONTHLY USAGE (m <sup>3</sup> )		55	55	55	55	55	55	55	55	55	55	55	55	
SURPLUS/DEFICIT		117.7064	157.9489	207.0807	216.8456	178.3543	132.2436	81.0533	33.6727	6.6105	41.7734	111.2236	195.9126	
		117.7064	40.2425	49.1318	9.7649	-38.4913	-46.1107	-51.1903	-47.3806	-27.0622	35.1629	69.4502	84.689	

Highest surplus in the year: 118m<sup>3</sup>

Deficiency from May till September where municipal supply is needed totaling 210m<sup>3</sup>



Illus 5.15.1 Rainwater collection and grey water recycling systems (Author, 2012)

## Ventilation and solar strategy

### Summer solstice

During the summer solstice, direct light into the building is prevented by the use of large overhangs and/or the use of the applied exterior louvres. Natural lighting can penetrate into the centre of the building due to the shallow section of the building.

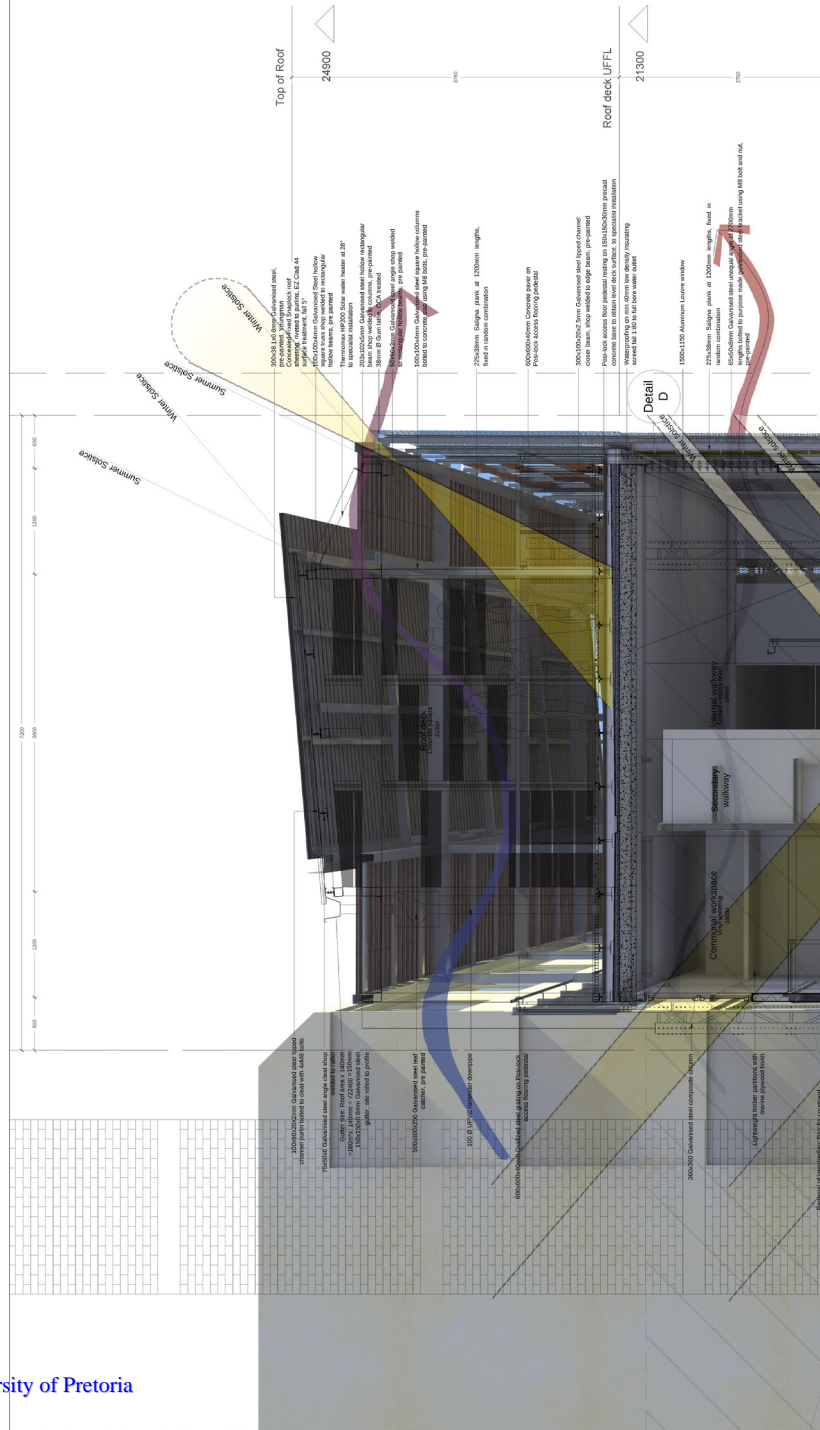
### Winter solstice

During the winter solstice direct sunlight is permitted through the applied exterior, this is able to heat the lightweight concrete flooring, storing heat using to the flywheel effect.

In all instances, natural light is able to enter deep into the building reducing the need for artificial lighting.

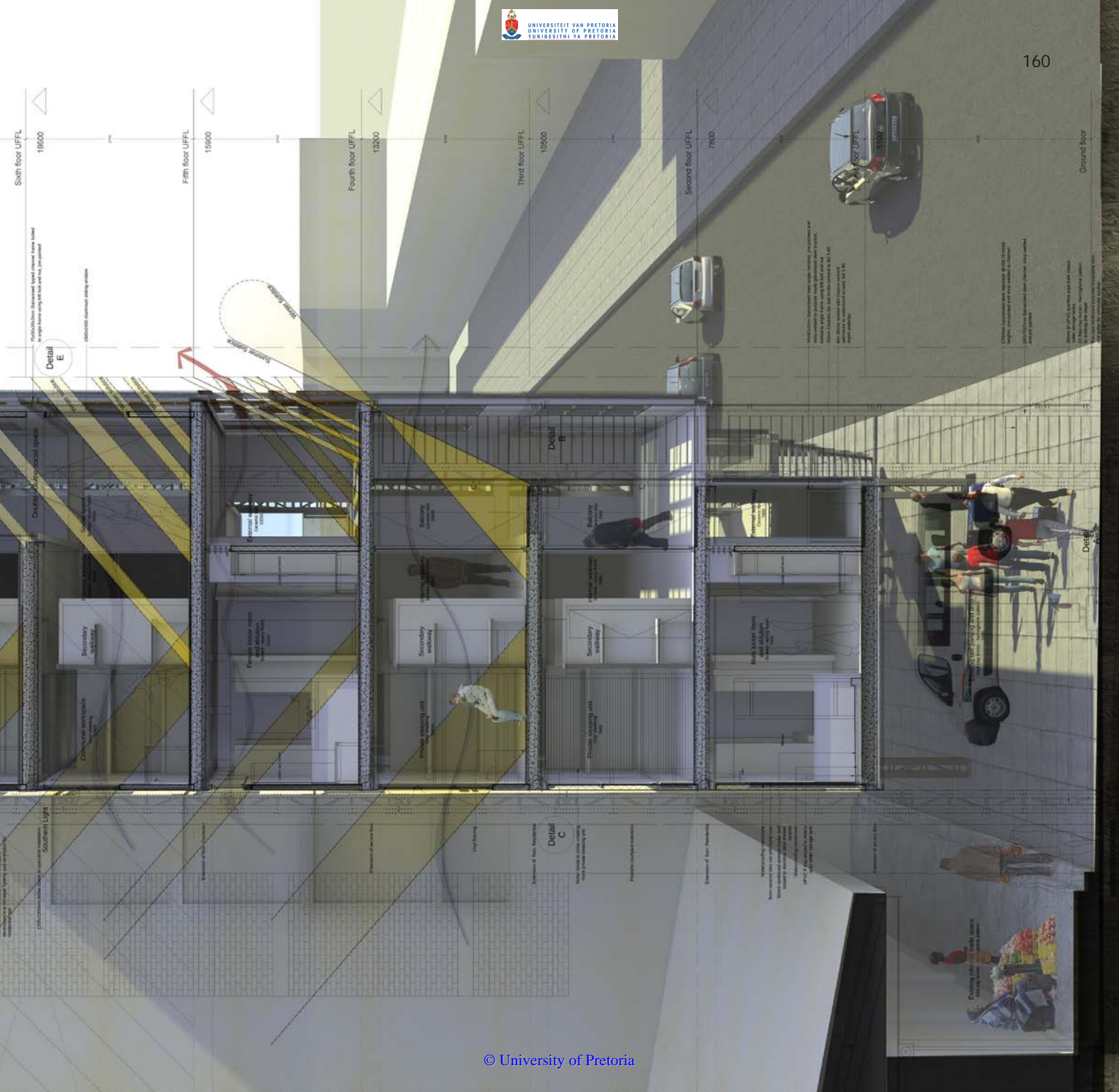
### Ventilation

Due to the shallow cross-section of the building, cross ventilation through the public and private areas is possible. A double volume social space is designed to promote the stack effect.



Illus 5.15.2 Ventilation and solar strategy (Author, 2012)





Sixth floor UFFL  
16500

Fifth floor UFFL  
15900

Fourth floor UFFL  
13200

Third floor UFFL  
10500

Second floor UFFL  
7800

Ground floor

Detail E

Detail B

Detail A

Detail C

1. Polyethylene Glycol (PEG) based liquid applied waterproofing to a depth from every 1st to 6th and 1st to ground

1. 100mm x 100mm stainless steel mesh

1. Double walling structural system

1. 100mm x 100mm stainless steel mesh

1. 100mm x 100mm stainless steel mesh

1. 100mm x 100mm stainless steel mesh

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1. 100mm x 100mm stainless steel mesh

1. 100mm x 100mm stainless steel mesh

1. Southern Light

1. 100mm x 100mm stainless steel mesh

1. 100mm x 100mm stainless steel mesh

1. 100mm x 100mm stainless steel mesh

1. 100mm x 100mm stainless steel mesh

1. 100mm x 100mm stainless steel mesh

1. 100mm x 100mm stainless steel mesh

1. 100mm x 100mm stainless steel mesh

1. 100mm x 100mm stainless steel mesh

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## Fire design strategies

According to SANS 10400-T:2011, the intervention is classified as a category one building with the following occupancy classes:

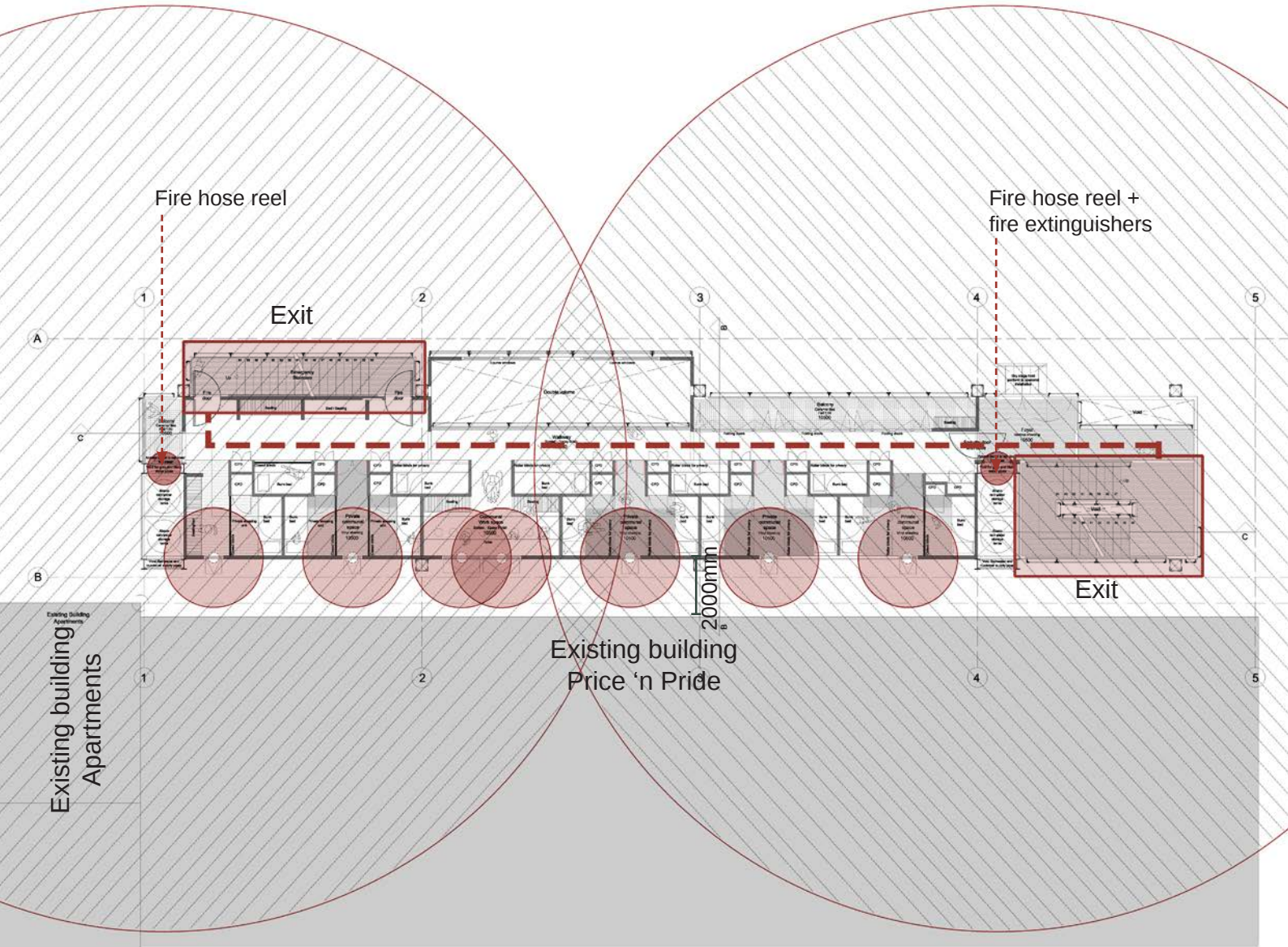
- Class H2 - Dormitory
- Class G1 - Offices

Basic design implementations include a feeder route that forms part of an escape route with distances to fire exits less than 45m. The building is over three storeys high and therefore requires two fire escapes per floor. The last components of the fire exits discharge at ground level onto the sidewalk. Escape routes contain a minimum of 2400mm head height with a width of 1200mm.

The fire extinguishing system used will be a fire hose reel system that is contained within the service core towers on either end of the intervention, distances between reels is 25m. Fire extinguisher placement according to SANS10400-T:2011 table 11 requires one fire extinguisher per 200m<sup>2</sup> with a volume of 4.5kg [dry chemical powder]. This results in the placement of the fire extinguisher in the foyer of the main staircase located along side the fire hose reel. All fire doors shall be fitted with self closing devices in accordance with the requirements of SANS1053.

Due to the nature of the intervention, two buildings will occupy the site simultaneously. Table 2 of SANS 10400-T:2011 requires a safety distance of 1500mm between buildings from any window or opening in an external wall. A safety distance of 2000mm is provided on site.





Illus 5.15.3 Fire design strategies (Author, 2012)

## Synthesis of design assembly

The intervention plays two supportive roles during its lifespan:

- As independent infrastructure supporting the quotidian activities on ground floor
- As supportive infrastructure for the future development on the proposed site.

As independent infrastructure the building offers the following services:

- >Rainwater collection
- >Solar water heating
- >Grey water recycling
- >Circulation routes and fire escapes
- >Social spaces
- >Service floors containing ablutions, showers and lockers
- >Housing
- >Community centre and offices
- >Soup kitchen
- >Storage
- >Water points
- >Existing and new selling spaces
- >Taxi parking and drop off
- >Fire reticulation

The assembly of the independent intervention follows:

Phase ①



Reinforced concrete ground beams and upstands are cast on pavement level between the quotidian activities which helps define the various hierarchical zones found on the proposed site. The use of ground beams permits shallow depths of foundations, ideal for the sidewalk to avoid services within the pavement. Width and depth of ground beam = 1000x600mm. Once ground beams have set, the ground floor section of the composite columns is brought to site and bolted to the concrete upstands. These form the new vertical surfaces [permanent scaffolding and structural support] that will support the vertical layering of the sidewalk.

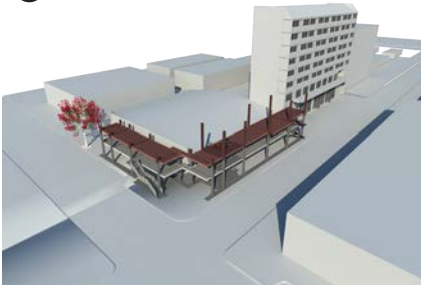
Phase ②



Once the columns on ground floor have been bolted in place. The lightweight steel beams and *Bond-lok* flooring system is installed on first floor level. Section 2 of the composite columns [from first to second floor] are brought to site and bolted to the composite column with the use of a vertical connection member.

Vertical circulation is installed, these staircases form part of the permanent scaffolding used during the construction process. Once the construction process is complete, the staircases will form the circulation route and fire escape for the intervention.

Phase ③

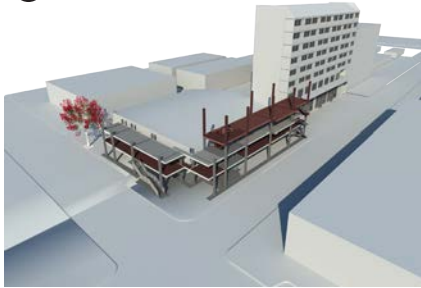


To assist in the fast erection time of the intervention, the assembly process of the kit of parts uses a parallel construction technique whereby dry works and wet works can work simultaneously on site. Teams work in tandem with the dry works preceding the wet works by two floors saving time and costs.

The composite columns are extended to the third floor. The lightweight steel beam and flooring system is installed along with the vertical circulation to second floor.

Illus 5.16.1 Assembling the design (Author, 2012)

## Phase ④

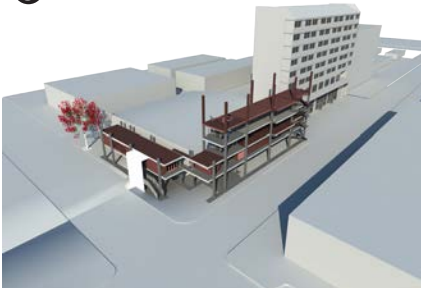


The parallel construction begins. The composite columns are extended to fourth floor level. Vertical circulation is installed to third floor. While the lightweight steel and flooring system is installed on third floor, the lightweight concrete is poured on first floor level. This promotes an intermediate floor between wet and dry works during the construction process.

The lightweight structural beams are used to support the wet works process, once the wet works has cured and strengthened, the flooring system becomes the structural member of the building, sustaining and transferring the loads to the composite columns.

To ease the installation of the services for the building, the first layer of services is installed along with the beams and flooring system. These consist of the rainwater water storage tanks housed within the service core.

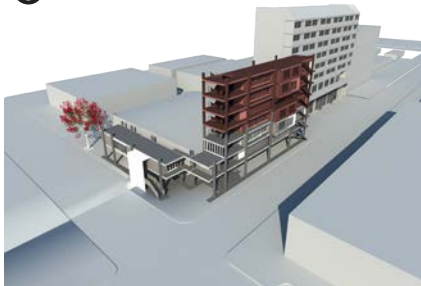
## Phase ⑤



The parallel construction continues whereby:

The composite column is extended to the fifth floor. The vertical circulation is extended to the fourth floor and installation of the beam, flooring and storage tank system is done. Concrete is poured on second level. The enclosing structure [of external and internal lightweight walls and finishes] begins assembly on first floor.

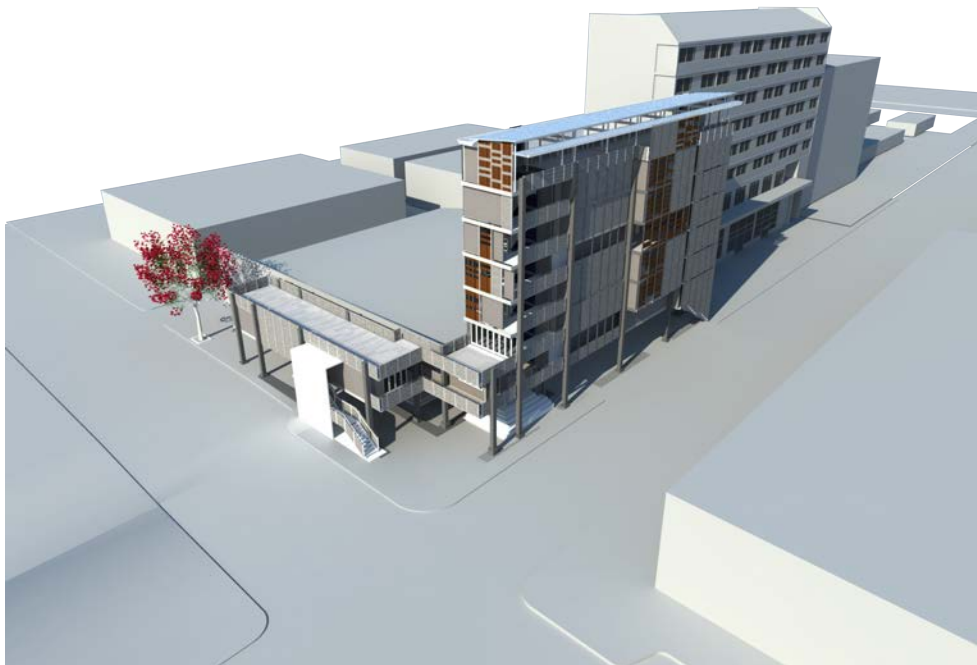
## Phase ⑥



This parallel construction process continues until roof deck level.

Illus 5.16.2 Assembling the design (Author, 2012)

Phase 7



The final stage of construction requires the erection of the lightweight roof element.

To begin animating the façade and activity within, the applied exterior [sunscreen] is installed consisting of perforated sheeting and scaffolding planks.

Paving removed during construction is reinstated with a raised platform added to the Northern section of Price 'n Pride.



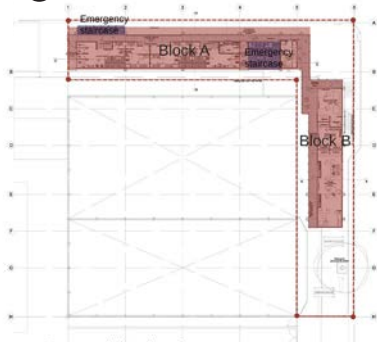
## Future site development proposal

It is envisioned that after the lease for the social infrastructure has come to fulfilment, the domino and services will revert back to the land owner.

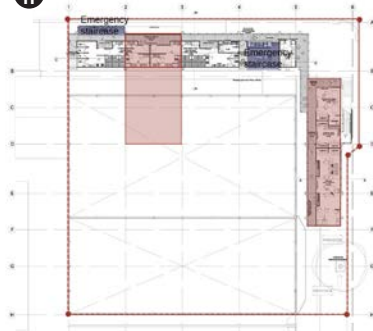
The intervention amalgamates into the new development providing the following support:

- >Fire reticulation
- >Ducts
- >Emergency routes
- >Structural support
- >Social spaces/ balconies
- >Courtyards [providing light and ventilation]
- >Increased available floor area
- >Major environmental filter
- >Permanent scaffolding

Future development stage **i**



Future development stage **ii**



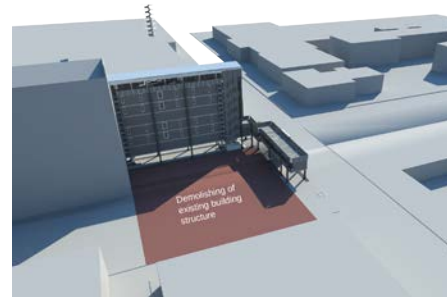
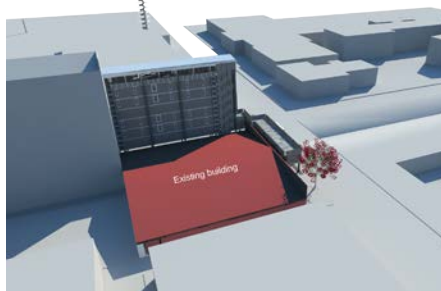
### i. Proposed site development

>Independent functions:

- > Rainwater water collection
- > Solar water heating
- > Grey water recycling
- >Community centres/ offices
- > Circulation cores/ fire escapes
- > Storage/water points/ existing and new selling spaces/ taxi stops
- > Service floors
- > Housing
- >Soup Kitchen
- > Social spaces

ii. To promote cross ventilation and adequate lighting for the future development, the removal of the centre module flooring is proposed generating an inner courtyard for the new development.

Block B is to be extended vertically increasing floor area on the eastern side.



Illus 5.17.1. Site development schematic (Author, 2012)

Future development stage **iii**

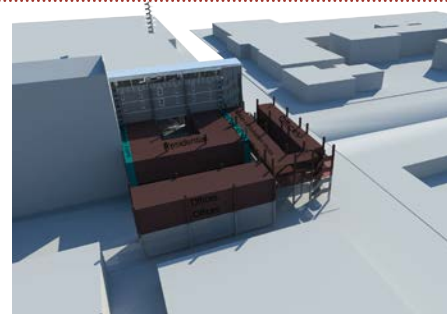
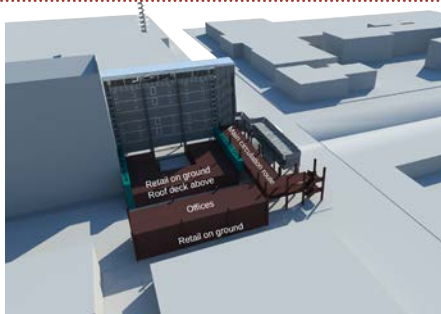


- iii. Extension of the Northern circulation core is proposed generating a main circulation route through the new development with a new circulation core proposed on the south-eastern corner of the site.

Future development stage **iv**

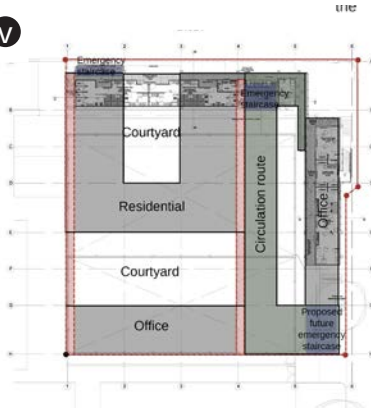


4. Floor plates along each floor level are to be extended using columns and beams as existing scaffolding and structural support generating new floor plates for residential and office habitation.



Illus 5.17.2 Site development schematic (Author, 2012)

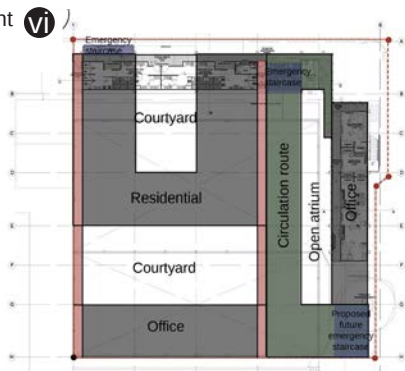
Future development stage **V**



v. Service cores of the intervention are to be extended into the new development providing access to:

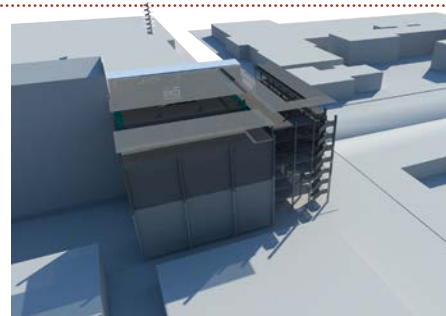
- >Fire pipes
- >Rainwater collection
- >Grey water recycling
- >Service floors

Future development stage **VI**



vi. **Final site development**

Intervention amalgamates into new development.



Illus 5.17.3 Site development schematic (Author, 2012)

Existing

Existing building  
Price 'n Pride

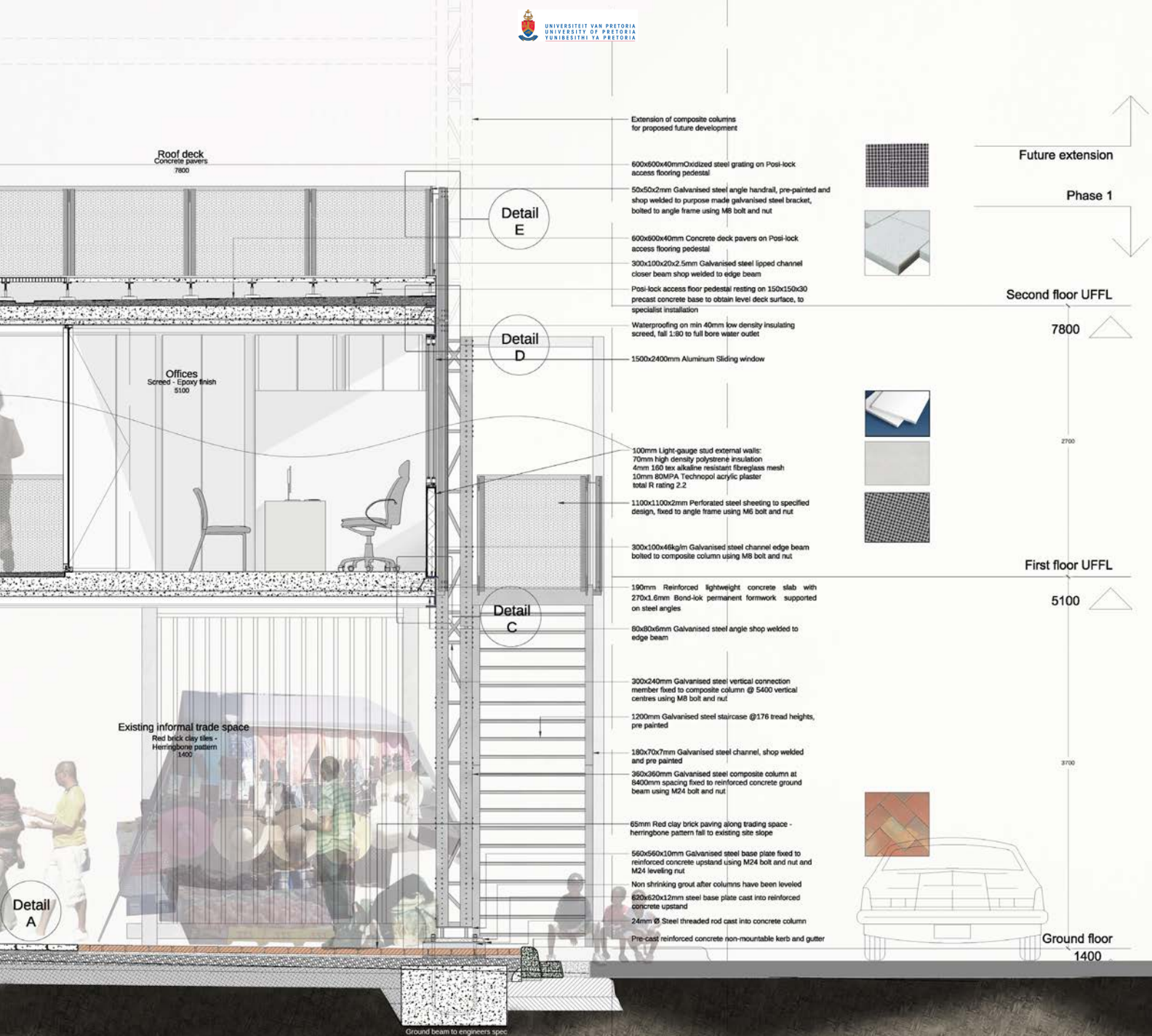
Detail  
B

300x300x60mm 35MPa concrete pavers along  
pedestrian walkway, fall to existing site slope  
25mm clean river sand  
100mm Compacted aggregate in high traffic areas  
In situ soil compacted to 93% MOD AASH-TC  
in layers of 150mm max

Ground beam to engineers spec

Illus 5.17.4 Section A-A (Author, 2012)





# Design Synthesis

The renowned Australian Architect Sean Godsell (1960 -) states that, “the measure of a sophisticated society is how well it treats it’s underprivileged”.

Architecture and space making has the potential to assist and enhance the everyday. This dissertation employs these inherent qualities while focusing on the needs of the near forgotten urban dweller.

The site selected showcases the potential of architecture to support the marginalised within the urban environment. The design proposal originated from a theoretical investigation focusing on the inner-city wall and sidewalk as inhabited surfaces. It explores architecture as a supporting element, a platform that interacts with the pavement and brings together the realms of workplace, home and institution.

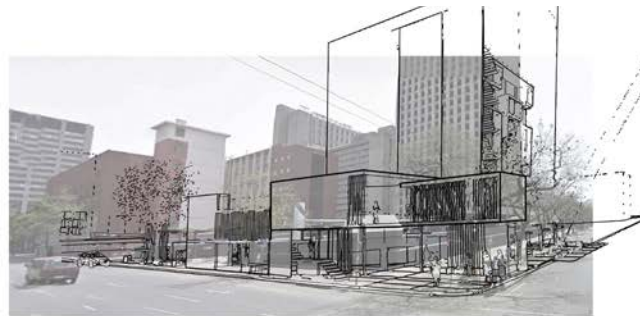
“My passion and great enjoyment for architecture, and the reason the older I get the more I enjoy it , is because I believe we - architects - can effect the quality of life of the people”. Richard Rogers (1933 - )



Corner Schubart and Struben Streets  
[Schubart Park]



Corner Andries and Proes Streets  
[Vacant sites]



Corner Bosman and Church Streets  
[Parking garages]

Illus 5.18.1 Future implementation of typology across various sites in the city centre (Author, 2012)

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## References

- **26'10 South Architects**. 2010. *Housing and the informal city*. <http://www.housinginformalcity.co.za/> [20 February 2012]
- **Aalam, I.** 2011. *Cedric Price, Influential architect and theoritician*. <http://iqbalaalam.wordpress.com/2011/12/05/cedric-price-influential-architect-and-theoritician/> [09 September 2012]
- **Aeschbacher, P., & Rios, M.** 2008. Claiming Public Space: The Case for Pro-active, Democratic Design. In Bell, B. & Wakeford, K. (eds). *Expanding Architecture: Architecture as Activism*. New York: Metropolis Books. 84-91
- **AD Journal** Volume 79 Issue 4 July/Aug 2009. *Digital Cities*. *Swarm Cities*: 56-63
- **Alkayyali, A** 2011, *Liminal public infrastructure : a typology of public space for everyday performances*, MArch(Prof) dissertation, University of Pretoria, Pretoria, <http://upetd.up.ac.za/thesis/available/etd-11252011-112216/> [25 April 2012]
- **Allison, P.** 2006. Materials and Materiality. In Allison, P. (ed). *David Adjaye: Making Public Buildings*. London: Thames & Hudson. 70-73.
- **Atterhwaite, D.** 2007. *Streets ahead: More than half the world's population will soon live in cities*. The Guardian, 17 January, 2007.
- **Bergdoll, B.** 2010. *Small scale. Big change*. New York: The Museum of Modern Art
- **Bonta, J.** 1979. *Architecture and its Interpretation*. London: Lund Humphries. 11-25, 131-174, 202-218, 225-232
- **Breed, C. A.** 2008. *The Dimensions of space in the urban environment: three methodological approaches for designers that encompass the dynamics of urban space*. South African Journal of Art History, 1 (23), 214-24.
- **Bishop-Stall, S.** (2004). *Down to this: a year living with the homeless*. Brisbane: University of Queensland Press.
- **Carr, S.** et al. 1992. *Public space*. Cambridge: Cambridge University Press.
- **Chandhoke**, 1993. *On the Social Organization of Urban Space- Subversions and Appropriations*. *Social Scientist*. 21(5/6): 63-73, May-June.
- **Chen, C.** 2010. Dancing in the streets of Beijing: improvised uses within the urban system. In Hou, J, (ed). *Insurgent public space: Guerrilla urbanism and remaking of contemporary cities*. New York: Routledge. 21-36.
- **Coop Himmelb(l)au.** 1980. Architecture Must Blaze. In Danchev, Alex. (ed). *100 artists' manifestos: From the Futurists to the Stuckists*. London: Penguin Books. 396-398
- **Corbusier Le.** 1931. *Towards a New Architecture*. London: J.Rodker. 1-8, 54-64.
- **Cruz, M. & Gage, S.** 2009. Interaction. in Allen, L. Borden, I. O'Hare, N & Spiller, N. *Bartlett designs: speculating with architecture*. London: John Wiley & sons Ltd.

- **Cruz, M.** 2005. Inhabitable interfaces. In Cruz, M. & Marjan, C. *Marcosandmarjan: interfaces / interfaces*. New York: Springer.
- **Davis, S.** 2004. *Designing for the homeless: architecture that works*. California: Regents of the University of California.
- **Department of Social Development**, 2012. *Department of Social Development*. <http://www.dsd.gov.za/> [10 March 2012]
- **Deutsche, R.** 1996. *Evictions, Art and Spatial Politics*. Cambridge: MIT Press.
- **Doordan, D.P.** 2001. *Twentieth-Century Architecture*. London: Laurence king Publishing.
- **Du Plessis, D & Swarts, S.** 2012. Personal interview with the researcher concerning *Pen's* programmes and services on 29 February 2012, Pretoria.
- **Enwezor, O.** 2006. Popular Sovereignty and Public Space: David Adjaye's Architecture of Immanence. In Allison, P. (ed). *David Adjaye: Making Public Buildings*. London: Thames & Hudson. 8-12
- **EPOS 257.** 2011. *EPOS 257 & The Appropriation of Public Space*. [www.urbanartcore.eu/epos-257-appropriation-public-space/](http://www.urbanartcore.eu/epos-257-appropriation-public-space/) [2 March 2012]
- **Erica.** 2011. *ON design Partners: Yokohama Apartment*. <http://www.designboom.com/weblog/cat/9/view/15796/on-design-partners-yokohama-apartment.html> [08 May 2012]
- **Europaconcorsi.** 2009. *Exploratory Science Museum of Unicamp*. <http://europaconcorsi.com/projects/102910-Exploratory-Science-Museum-of-Unicamp>. [10 October 2012]
- **Rebar.** 2011. *The PARK(ing) DAY Manifesto*. [my.parkingday.org/page/resources-1](http://my.parkingday.org/page/resources-1) [12 February 2011].
- **Gautrain,** 2012. *Gautrain the stimulus for improved land development*. <http://www.gautrain.co.za/about/about-gautrain/objectives/gautrain-the-stimulus-for-improved-land-development/> [7 September 2012]
- **Godsell, S.** 2002. *Park Bench House*. <http://www.sean-godsell.com/park-bench-house/> [15 March 2012]
- **Gould, J.** 1962. *The existence of absolute space*. The Ohio Journal of Science, 2 (62), 101-104
- **Graafland, A.** 2008. *Understanding the socius through creative mapping techniques*. Berlageweg: Delft School of Design.
- **Gehl, J. & Gemzoe, L.** 2003. *New city spaces*. Copenhagen: The Danish Architectural Press.
- **Gropius, W.** 1965. *The new Architecture and the Bauhaus*. Massachusetts: The MIT Press. 19-44.

- **Groot, S.**, Hodgetts, D., Stolte, O., Chamberlain, K., Radley, A., Nikora, L., et al. (2008). *Homeless lives in New Zealand: The case of central Auckland*. [http://researchcommons.waikato.ac.nz/bitstream/10289/1544/1/NMPPS%202007\\_Groot%20et%20al.pdf](http://researchcommons.waikato.ac.nz/bitstream/10289/1544/1/NMPPS%202007_Groot%20et%20al.pdf) [10 March 2012]
- **Hall, P.** 2002. *Cities of Tomorrow: an intellectual history of urban planning and design in the twentieth century*. 3rd ed. Malden, MA: Blackwell Publishing. 218-293.
- **Hamdi, N.** 2004. *Small Change*. London: Earthscan.
- **Hardingham, S.** 2003. *Cedric Price: Opera*. Chichester: Wiley-Academy.
- **Hickey, S., & Mohan, G.** 2004. *Participation: From Tyranny to Transformation? Exploring new approaches to participation in development*. London: Zed Books. 3-24.
- **Hirsch, N.** 2006. Res Publica or Just a Public Thing. In Allison, P. (ed). *David Adjaye: Making Public Buildings*. London: Thames & Hudson. 17-19.
- **Kelbaugh, D.** 2005. *Everyday Urbanism: Margaret Crawford vs. Micheal Speaks*. Michigan: University of Michigan
- **Key.** 2010. *Young man builds egg shaped dwelling in Beijing as his home*. <http://www.chinahush.com/2010/12/01/young-man-builds-egg-shaped-dwelling-in-beijing-as-his-home/> [5 May 2012]
- **Kok, P. & Collinson, M.** 2006. *Migration and Urbanization in South Africa*. Report 03-04-02, Pretoria: Statistics South Africa.
- **Kotze, NJ., & van der Merwe, IJ.** 2000. *Neighbourhood renewal in Cape Town's inner city: Is it gentrification?* Journal of Family Ecology and Consumer Sciences. 28: 39-46.
- **Koolhaas, R.** 2005. *Mutations*. Barcelona: ACTAR.
- **Koolhaas, R.** 2002. *The Lagos project* (draft). Cambridge: Harvard Design School.
- **Lloyd, R.** 2003. Defining spatial concepts toward an African urban system. *Urban Design International*. September 2003. Vol (8). Cape Town: unknown publisher.
- **Lootsma, F.A & Bots, P.W.G.** 2000. *Decision support in the public sector*. Journal of Multi-Criteria Decision Analysis. 9(1-3):1-6
- **Masanauskas, J.** 2011. *David Bowie's Ziggy Stardust image to dominate Prahran apartments*. <http://www.heraldsun.com.au/news/victoria/david-bowies-ziggy-star-dust-image-to-dominate-prahran-apartments/story-fn7x8me2-1226126800780> [10 October 2012]
- **Mayne, Thom.** 1995. *Morphosis: Connected Isolation* (Architectural Monographs No 23). New York: Academy Group.
- **Merrifield, A.** 2000. Henri Lefebvre: a socialist in space. In Crang, M. & Thrift, N. (eds). *Thinking Space*. London: Routledge. 167-182.
- **Ntuli, P.P.** 2002. Indigenous knowledge systems and the African renaissance. In Hoppers, O. C. (eds). *Indigenous knowledge and the integration of knowledge systems: towards a philosophy of articulation*. Cape Town: New Africa Books.

- **O'Kelly, M.** 2007. Urban negotiation, art and the production of public space. *Revista de pesquisa em arquitetura e urbanismo*. 5 (1): 99-112.
- **Park(ing) Day**, 2012. *PARK(ing) Day-PARK(ing)*. <http://my.parkingday.org/photo/parking-day-12/next?context=user> [18 March 2012]
- **PEN**, 2012. *PEN*. <http://www.pen.org.za/downloads.html> [5 March 2012]
- **SABS**. 2011. SANS 10400-XA:2011. *The application of the National Building Regulations*. Pretoria: SABS Standards Division.
- **Sassen, S.** 2006. Built Complexity and Public Engagements. In Allison, P. (ed). *David Adjaye: Making Public Buildings*. London: Thames & Hudson. 13-16.
- **Schaller**. 2008. *Untitled document*. [http://www.thenextenterprise.at/pics\\_docs/tne\\_new/seebad.html](http://www.thenextenterprise.at/pics_docs/tne_new/seebad.html) [09 May 2012]
- **Taylor, C.** 2012. Interview with Candice Taylor about the informal soup kitchen on the sidewalk on 10 May 2012. Pretoria.
- **Tshwane Leadership Foundation**, 2012. *Tshwane Leadership Foundation*. <http://www.tlf.org.za/> [10 March 2012]
- **Tshwane Municipality**. 2012. *City reaches historic agreement with informal traders*. <http://www.tshwane.gov.za/AboutTshwane/NewsandEvents/news/Pages/Agreement-with-Informal-Traders.aspx> [20 September 2012]
- **UNFPA**. 2011. *State of the world population 2011: People and possibilities in a world of 7 billion*. United Nations Population Fund.
- **Williams, Austin et al.** 2008. Manifesto: Towards a New Humanism in Architecture. In Danchev, Alex. (ed). *100 artists' manifestos: From the Futurists to the Stuckists*. London: Penguin Books. 445-451.
- **Wolch, J.** 1991. *Urban Homelessness: An Agenda For Research*. *Urban Geography*. 12(2): 99-104.
- **Youngman**. 2012. *Concealed-fix roof sheeting profiles and soffit panels*. <http://www.youngman.co.za/images/products/snaplokbrochure.pdf> [1 October 2012]
- **Zahner**. 2012. *The M. H. de Young Museum in San Francisco*. <http://www.azahner.com/portfolio/de-young> [10 October 2012]



## Appendix A

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# Appendices

## Urban Framework

Towards the 200%

CAPACITY

The proposed Urban Framework is a contextual framework. It aims to strengthen the existing urban fabric by identifying and reacting to zones of possibility and potential transformation within the domain of the quotidian- rather than imposing on the existing urban context. Particular emphasis is placed on the connective tissue that binds daily lives together, that form the in-between spaces of the city.

These spaces in the city are formally underused, but contain the potential ability to yield public spaces which are in themselves, supportive and productive, enhancing social, economic and environmental upliftment through a bottom-up strategy.

An accretional approach is used, not intended to replace other urban design practices but rather to work along with, on top of or after them. The intent is to develop guidelines for a new architectural typology that retrofits existing situations to better accommodate everyday life. It is the avant-garde strategy of “making strange” ordinary experiences.

An urban mapping exercise was conducted to reveal spaces of potential. This was done to respond to particular circumstances in the city, thus producing a situational and specific urban design.

## LEGEND

### Fixed items

- L Landmarks
- R Routes
- R Infrastructure
- ↔ Visual and Physical links
- W Welfare
- 🌳 Green open spaces
- S Transport Stops (Buses)
- ↔ Interchanges
- O Voids
- I Industrial
- S Social
- E Educational
- H Heritage
- M Markets
- GT Government
- IP Income potential for homeless people

### Fluid items

- V Vendors
- B Sleeping
- LI Informal light industry
- T Taxi stops
- P Pedestrian movement
- G People (grouped)

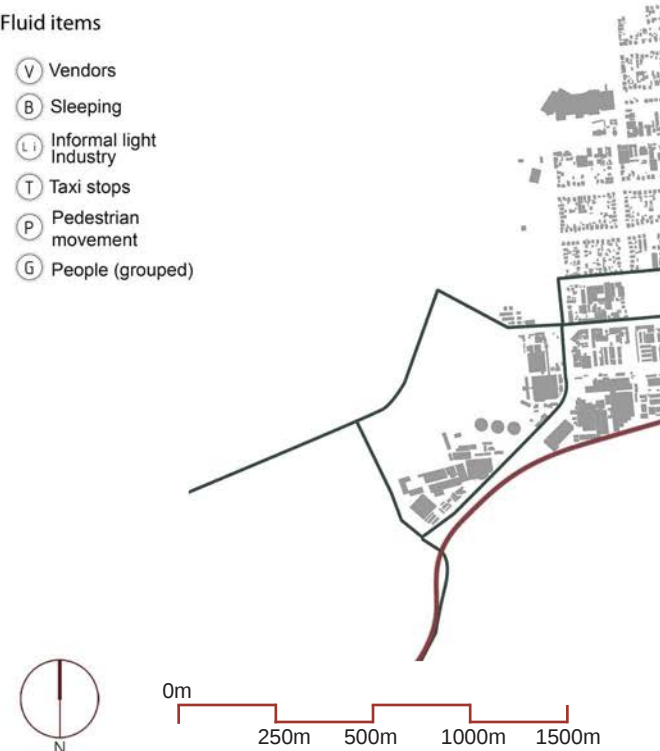
## Urban framework mapping

### Macro scale mapping to determine study area

The generic city discussed in Chapter 2 consists of a visual language that determines form, orientation and siting of public architecture (Illus. 2.1). In an attempt to determine the ideal location of interventions, the existing landmarks, paths and nodes were mapped on a macro scale.

The CBD is defined using the Cartesian plane with its centre in Church Square. The main entry points into the city centre are from the North and South via Marabastad Station and Pretoria Train Station respectively. The entry points on the West and East of the Cartesian plane are via vehicular access from the surrounding precincts.

The different landmarks were identified along the main routes (Illus. A2.1). It was concluded that people generally move in a North-South direction with resting points or destinations in the West-East direction.





Illus. A2.1 Large scale mapping of landmarks in CBD  
(Author, 2012)



## LEGEND

### Fixed items

-  Landmarks
-  Routes
-  Infrastructure
-  Visual and Physical links
-  Welfare centres
-  Green open spaces
-  Transport Stops (Buses)
-  Interchanges
-  Voids
-  Industrial
-  Social
-  Educational
-  Heritage
-  Markets
-  Government
-  Income potential for homeless people

### Fluid items

-  Vendors
-  Sleeping
-  Informal light Industry
-  Taxi stops
-  Pedestrian movement
-  People (grouped)

Social Welfare Agencies and commercial centres form secondary nodes [relating to the Specific City]. These are often positioned in close proximity to the city landmarks and main routes. The respective agencies aid the urban poor and/or homeless urban dweller in finding help and resources. The North-South axis as movement route links the agencies together (Illus. A2.2).

Along the cartesian plane, a high concentration of social welfare centres in the third quadrant of the city centre [surrounding Burger's Park] becomes evident. The centres cater mostly for children and abused women by providing shelters, community centres and psychiatric help. The lower quadrants also offer a high volume of residential accommodation.

The first quadrant provides more condensed services. The main Non-Profit Organisation in the first quadrant is *Pen*. *Pen* works closely with *Sediba House* to offer free clinical aid, psychiatric help, low cost housing and youth hostels. The second quadrant lacks any support services or residential component.

The northern section of the city centre has limited public services but presents the opportunity to develop network interfaces along primary routes. The programme should support the social, cultural and economic strata in the city to aid and expand the existing social support system.





Illus. A2.2 Large scale mapping of social welfare centres in the CBD (Author, 2012)

## LEGEND

### Fixed items

-  Landmarks
-  Routes
-  Infrastructure
-  Visual and Physical links
-  Welfare
-  Green open spaces
-  Transport Stops (Buses)
-  Interchanges
-  Voids
-  Industrial
-  Social
-  Educational
-  Heritage
-  Markets
-  Government
-  Income potential homeless people

### Land use

-  Government
-  Agriculture
-  Vacant
-  Civic/Public
-  Residential
-  Religious
-  Government
-  Social + Educational
-  Commercial
-  Park
-  Mixed use
-  Transport interchange



The current land-use zoning within the Northern section of the city centre was studied to determine 24 hour activities and the optimal position for an intervention. This revealed a high level of commercial/business use as well as government owned land and services. This resulted in a mono-functional precinct where the majority of activity occurs during weekdays. Peak times occurred during the morning and late afternoon with people entering and leaving the precinct. There is a high level of movement along Van der Walt and Proes Streets to and from the major transport interchanges on the Northern and Southern edges of the city centre. No cultural or after-hour activities exist in the northern section resulting in less interaction and engagement.

Illus A2.3 Current land use zoning (Author, 2012)





Entry

Proes Street

Van der Walt Street

Quadrant 1  
Quadrant 4

Quadrant 2  
Quadrant 3

Entry

## LEGEND

### Fixed items

-  Landmarks
-  Routes
-  Infrastructure
-  Visual and Physical links
-  Welfare
-  Green open spaces
-  Transport Stops (Buses)
-  Interchanges
-  Voids
-  Industrial
-  Social
-  Educational
-  Heritage
-  Markets
-  Government
-  Income potential for homeless people

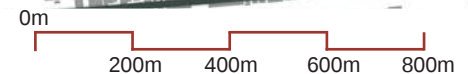
### Fluid items

-  Vendors
-  **Sleeping**
-  Informal light Industry
-  Taxi stops
-  Pedestrian movement
-  **People gathering**

To assess the user engagement, the precinct was studied in late afternoon, at night and during the early morning. The focus of this investigation was to determine the social/cultural and economic activities present along Proes and Van der Walt Streets.

A high volume of homeless urban dwellers were sleeping and gathering along Proes street in relatively large clusters in specific locations (Illus. A2.4). This was mapped and overlaid with an investigation into possible income locations. Specific focus was given to commercial centres, tourist locations/landmarks and parking lots (Illus. A2.4). Linkages between the locations for income potential were superimposed on the gathering and sleeping areas of the homeless. Proes street presents a high income potential with the highest concentration of homeless people along the West-East axis [during the night and early mornings].

Illus A2.4 Mapping of location where homeless people sleep, gather and possible income locations  
(Author, 2012)







LEGEND

Fixed items

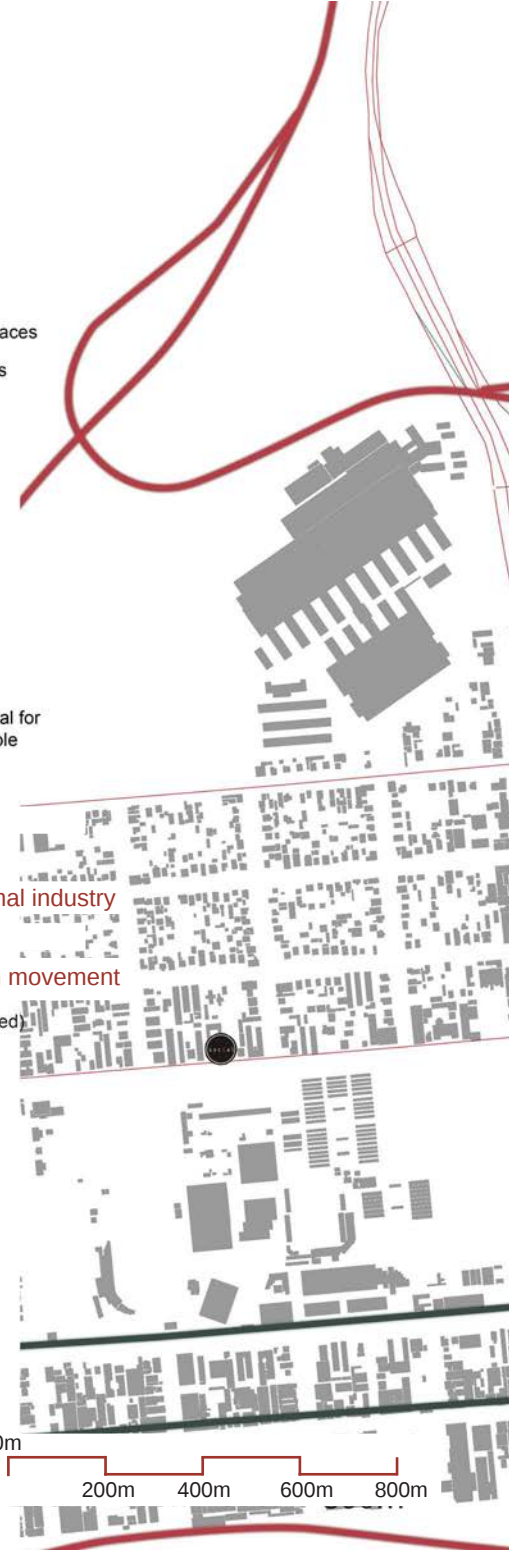
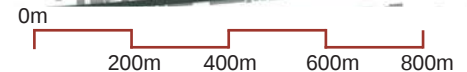
- L Landmarks
- R Routes
- R Infrastructure
- ↔ Visual and Physical links
- W Welfare
- ☁ Green open spaces
- S Transport Stops (Buses)
- ⊕ Interchanges
- Voids
- I Industrial
- Social
- E Educational
- H Heritage
- M Markets
- GT Government
- IP Income potential for homeless people

Fluid items

- V Vendors
- B Sleeping
- LI Light informal industry
- T Taxi stops
- P Pedestrian movement
- G People (grouped)

Informal markets and taxi stops form a large part of the movement and interaction in the Northern quadrants. Areas with income potential cluster along on the North-South axis. These are relatively evenly distributed across the commercial zones along Van der Walt and Andries Streets' public interfaces.

Illus A2.5 Mapping of informal markets, taxi ranks and income potential locations (Author, 2012)







Potential locations for the establishment of a new network interface were mapped to allow for direct engagement with the activities along Proes Street.

From the study it was concluded that Van der Walt street contained the highest pedestrian activities in the precinct, linking armatures [underlying framework of supporting components for the public] such as Munitoria, Sammy Marks/Lilyan Ngoya, Burger's Park and Pretoria train station. The intersection of Proes and Van der Walt street contains the highest concentration of pedestrian activity and engagement in the Northern part of the city centre. This node has the potential to become a magnet within the area, that caters to the social strata of the city.



Illus. A2.6 Potential location for the establishment of a network interface (Author, 2012)









## Conclusion

Presently, the Northern section of the city centre hosts limited public services and associated facilities. This presents the opportunity to study the everyday activities of the inhabitants in order to develop a new architectural typology. This typology should function as a network interface along the main routes, to support the existing social, cultural and economic strata.

In determining an optimal site location, the Author studied the Generic City and Specific City. This exercise focused on the existing movement patterns and assembly points in the city. Main North-South routes presented the highest movement volumes while the West-East routes presented the major destination points. The streetscape becomes the connecting factor linking passage and connection. It is evident that public activities [i.e formal markets] shifted from the public square to the city street.

To study this relationship further for the development of a network interface, a study area was selected (Illus A2.7). For this dissertation, the corner of Proes and Van der Walt Streets will become the laboratory to investigate the hypothesis. It focuses on the vertical manifestation of the wall attracting new social and economic activities.



Site

Bloed Str.

Proes Str.

Vermeulen Str.

Church Str.

Skinner Str.

Paul Kruger Str.

Andries Str.

Van der Walt Str.

Prinsloo Str.

Church Square

Burgers Park

Pretoria Train station

Illus A2.7 Study area (Author, 2012)



## Interviews with local informal traders

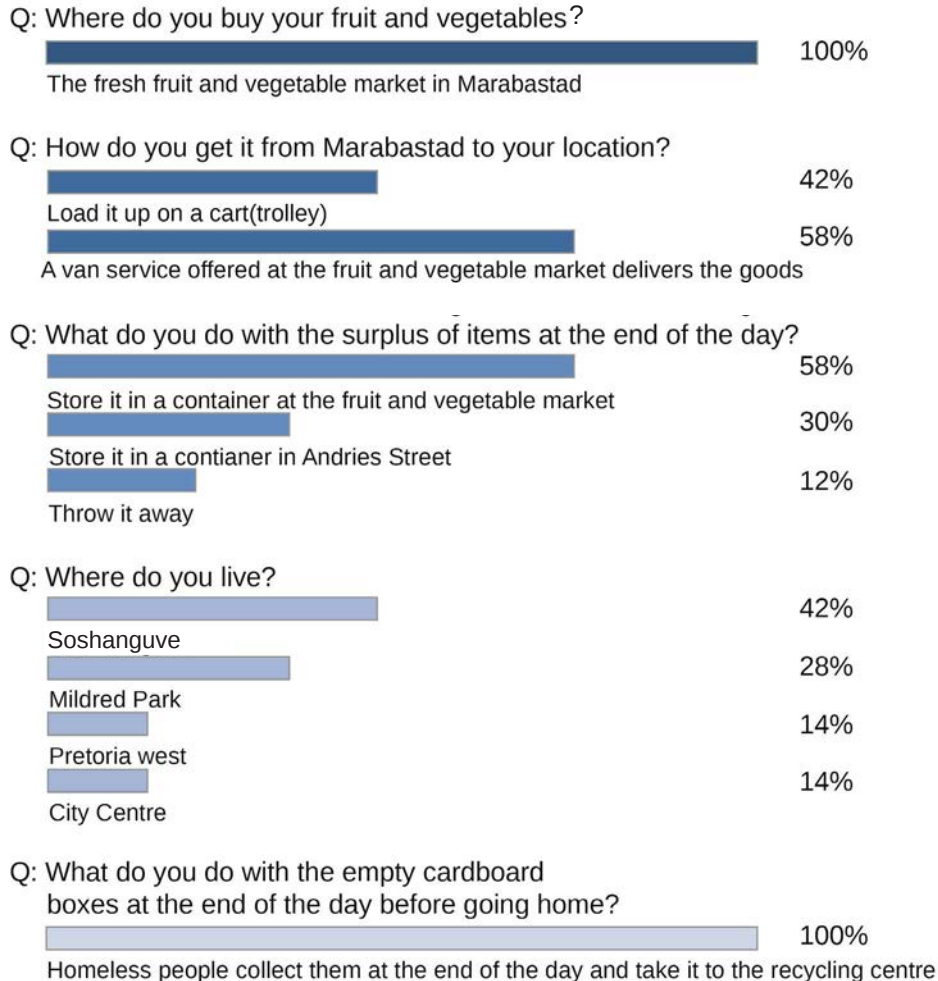
Week 12: 19-25 March 2012.

Question	Respondent 1 [Female]	Respondent 2 [Male]	Respondent 3 [Male]
Where do you buy your fruit and vegetables?	The fresh fruit and vegetable market in Marabastad. [Distance +- 2.7km to selling location].	The fresh fruit and vegetable market in Marabastad, I buy new fruits every morning. [Distance +- 2.7km to selling location].	The fresh fruit and vegetable market in Marabastad. [Distance +- 2.7km to selling location].
How do you get it from Marabastad to your selling location?	I load it onto a cart and push it from the market. [Commute time: +- 1 hour]	There is a van that drops me off. [Service offered at the fruit and veg market with commute time +- 20min].	A van drops me off [Service offered at the fruit and veg market with commute time +- 20 min].
Does the van help other vendors in the area?	N/A	Yes, it drops a lot of us off at the corner [Cnr. Of Proes and Andries.	Yes, it drops a lot of us off at the corner. [Cnr. Of Proes and Andries, distance +- 300m from selling location].
What do you do with the surplus of items at the end of the day?	I store it in a container.	I store it in a container.	I throw it away and buy new every morning. [Spends roughly R1000 at a time].
Where do you store them?	At the market in Marabastad.	In a warehouse on Andries Street [Distance +- 600m from selling location].	N/A
Where do you live?	I live in Soshanguve [Distance +- 30km to selling location, commuting time +- 2hours].	I live in Soshanguve [Distance +- 30km away to selling location, commute time +- 2 hours].	I live in Mildred Park.
What do you do with the food that has expired?	Throw it into the empty boxes.	Throw it away.	Throw it away.
What do you do with the empty cardboard boxes at the end of the day before going home?	Guys [homeless] come and ask for them to sell them to the recycling centre.	People collect them at the end of the day [Homeless].	People collect them at the end of the day [Homeless].
Why did you choose this location to sell?	Its busy, lots of people and activity.	There is plenty activity and people.	Lots of people to sell too.
Do you always set up in this location?	Yes, this is my spot. Nobody else uses it.	N/A	Yes, always.



<b>Respondent 4 [Male]</b>	<b>Respondent 5 [Male]</b>	<b>Respondent 6 [Male]</b>
The market in Marabastad, I spend R1000-R1200 every two days [Distance +- 2.7km away].	The fresh fruit and vegetable market in Marabastad, I buy new fruits every morning. [Distance +- 2.7km to selling location].	The fresh fruit and vegetable market in Marabastad. [Distance +- 2.7km to selling location].
I have transport [private] that helps me [Commute time +- 30 min].	There is a van that drops me off. [Service offered at the fruit and veg market with commute time +- 20min].	I carry it in bags and my trolley [Commute time: +- 1 hour].
No, just me.	Yes, it drops a lot of us off at the corner [Cnr. Of Proes and Andries].	N/A
I take it home with me.	I store it in a container.	I take it home with me.
N/A	In a warehouse on Andries Street [Distance +- 600m from selling location].	N/A
I live just past Paul Kruger [Distance +- 500m walking].	I live in Mildred Park.	I live in Mildred Park.
Leave it in the empty boxes.	Throw it away.	Throw it away.
I give them to the people who collect them everyday [Homeless].	I give it to the people that collect it in the street [Homeless].	People collect them at the end of the day [homeless].
I have an agreement with the owner of the building to sell outside [Shoprite].	It's where people walk past.	Its nice, I like the people.
N/A	Yes, people know its my spot. I set up my tent everyday.	Yes, everyday.

## Conclusion





- A large percentage of informal traders travel from surrounding areas into the CBD, purchasing produce from the Marabastad produce market using the same service to deliver goods to their respective locations.
- Additional conversations with the informal traders revealed that profit was seen two days after purchasing produce while spending an average of 2000 rand at the market when purchasing goods.
- Informal traders tend to sit where there is the highest pedestrian movement volume along the sidewalk.
- Established routines exist whereby homeless people collect boxes at the end of each day and sell it to the Inner City Enterprise Recycling Centre located on Proes street.
- Further research was conducted on the agreement between informal and commercial traders. The Author learnt that Shoprite and similar commercial traders did not sell any fruits and vegetables keeping to meats, dairy products and household items. The managers confirmed that it was beneficiary to let the vendors sell perishable goods at their own expense saving the store from purchasing additional refrigerators.
- There are established social and economic support networks that form a vital sub-culture in the public realm. These are created by the quotidian activities carried out by the informal traders [daily commutes buying and selling of produce, transport and set-up of goods].
- For this dissertation, the established quotidian networks between home and workplace will form the basis for the programme and interaction between the everyday and proposed intervention.

## **“City reaches historic agreement with informal traders”**

City of Tshwane, Gauteng- 20 September 2012 (Tshwane, 2012).

The City of Tshwane and four informal traders’ associations in the City reached a historic milestone when they decided on a memorandum of agreement today which will see the parties working together for the first time in growing and developing the informal sector and improving the quality of life of informal traders.

City of Tshwane Executive Mayor, Kgosientso Ramokgopa represented the Municipality while the informal trader associations were represented by Life Makondo (President of Tshwane Informal Traders’ Forum), Philip Lethuba (President of Tshwane Informal Trader’s Council), Vincent Matjeng (President of Tshwane NAFCO) and Strike Sebake (President of Tshwane Micro Entrepreneur’s League).

The parties agreed to take the draft agreement back to their members for scrutiny and final approval.

The agreement means that the City and the associations will together deal with challenges that face the informal traders such as the lack of adequate amenities (sanitation and ablution facilities), insufficient demarcated areas for trading, lack of overnight storage facilities for the traders and congestion at designated areas which creates incredible competition amongst the informal traders.

This agreement is also in line with the City’s Growth and Development Strategy 2055 vision which aims make Tshwane a liveable city which improves the opportunities for emerging entrepreneurs as well boosting efforts to create jobs.

Ramokgopa encouraged the representatives to organise themselves into a co-operative and a fresh produce market agency, and the City would in turn provide them with the trading space, training and managerial support. He said the informal traders contributed R600 million towards the Tshwane Fresh Produce Market’s R2 billion annual turnover, making them significant economic players in the local economy.

The City stated that it would get them on board in various projects such as the cleaning of the City and in the manufacturing and erection of the informal traders’ stalls in the different areas of the Municipality through cooperatives. The associations would also be provided with an office and computers.

He emphasised that they could also create formal job opportunities by becoming part of the value chain by getting directly involved in the packaging and storing of their merchandise.

The City has set aside R10 million for the design and manufacturing of the street stalls, and it is envisaged that the informal traders would be directly involved in the project.

Cllr Ramokgopa said by-law enforcement would go ahead as a measure to get rid of illegal traders.

“It is important that the informal traders help in self-regulating themselves instead of leaving the function of by-law implementation to the Metro Police.

“Self-regulation will help to avoid any conflict situations between the traders and the Metro Police. In the first instance, there was never an intention by the Metro Police in the past to treat the informal traders harshly or penalise them, but rather to affirm them,” he said.

In reply and on behalf of the informal traders’ representatives, Mr Strike Sebake thanked the City and said their members were already excited about the new developments.

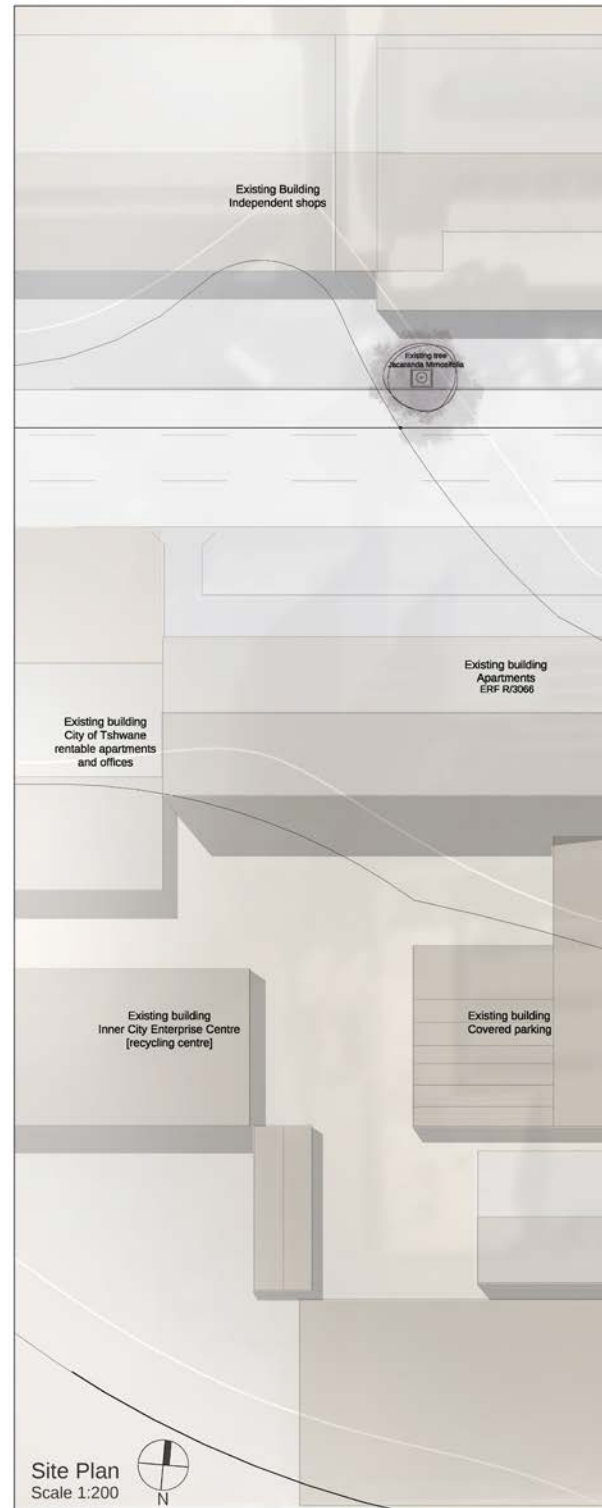
“Our members are very easy to please. They are very happy to be part of the economic development of the City and becoming part of its cleaning projects,” said Sebake.

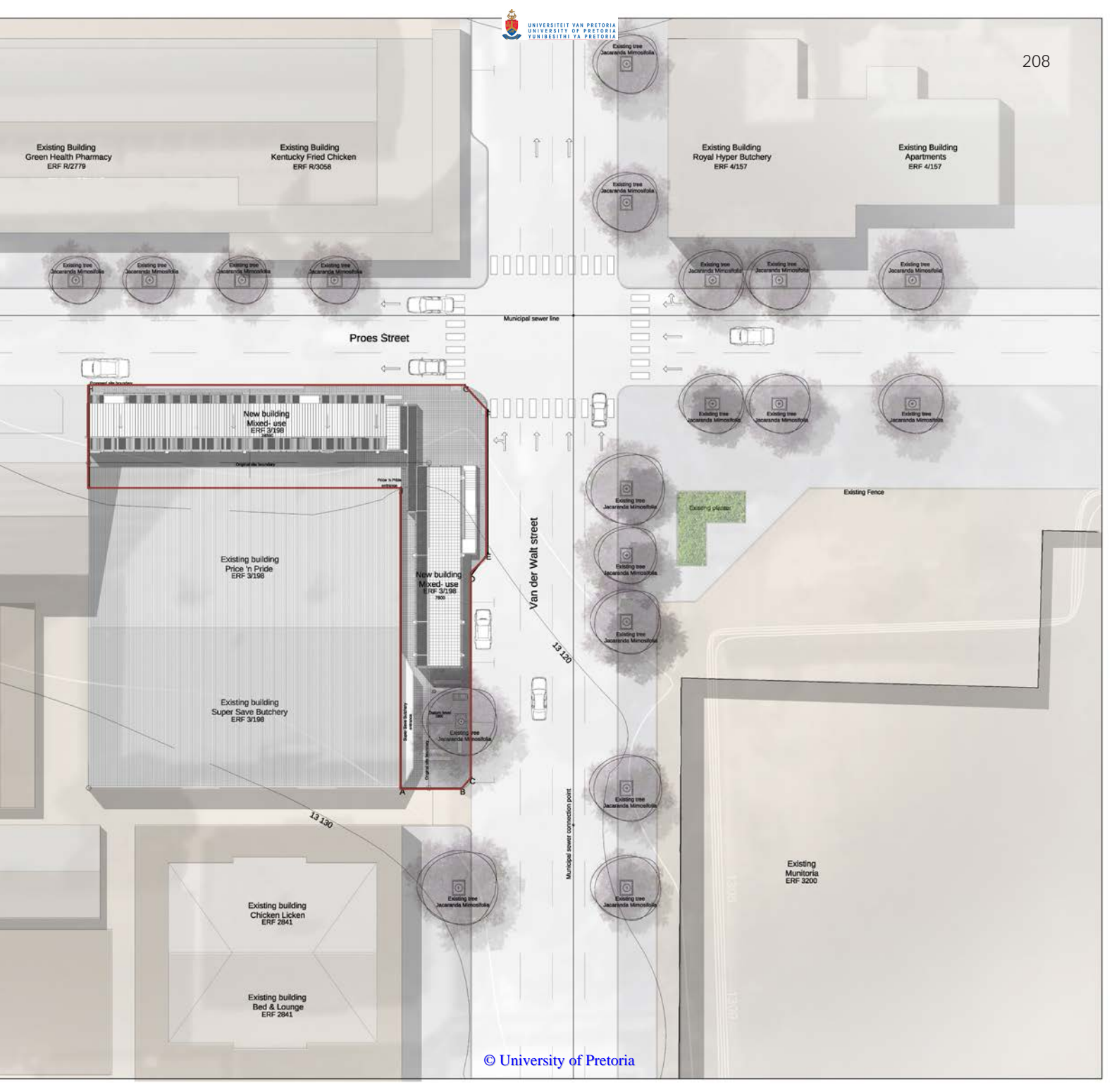
It was also agreed that through its Economic Development Department the City would provide office space and trading markets for the accommodation of informal traders within the Central Business District (CBD), the Metro Police Chief shall ensure that the by-laws are fully enforced and statistical reports are presented at the steering committee meetings and that the funding of the projects will be done within the available funds in terms of the approved budget of Council.

Besides having a good, symbiotic relationship with its business sector, the City recognises the importance of business in working with it to deliver growth and further development. To this end, it remains committed to its mandate – of delivering core services that ensure accelerated and shared economic growth and broad participation by all our citizens.

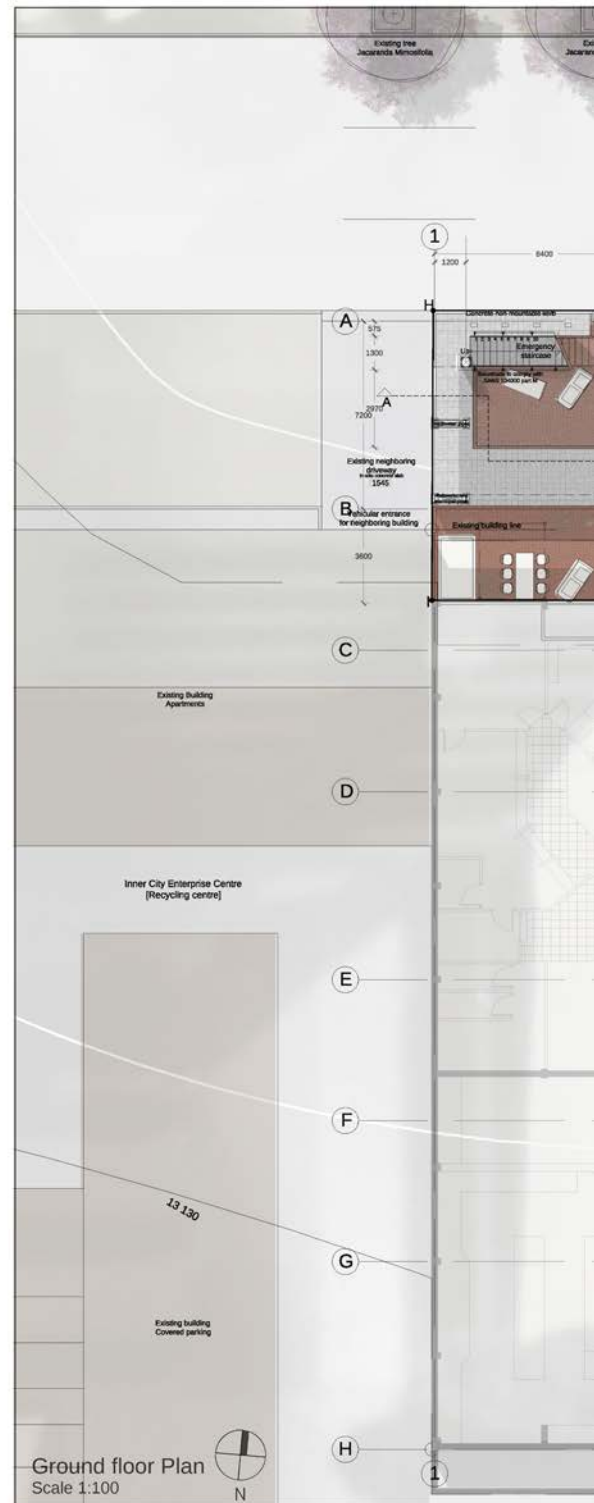
In prioritising the strategic national goals of job creation and sustainable growth, the City continues to concentrate on the creation of growth-oriented SMMEs. Here, it acknowledges the importance of informal trade in the SMME sector, as it ensures the survival of large numbers of people who do not draw an income from the formal employment sector.

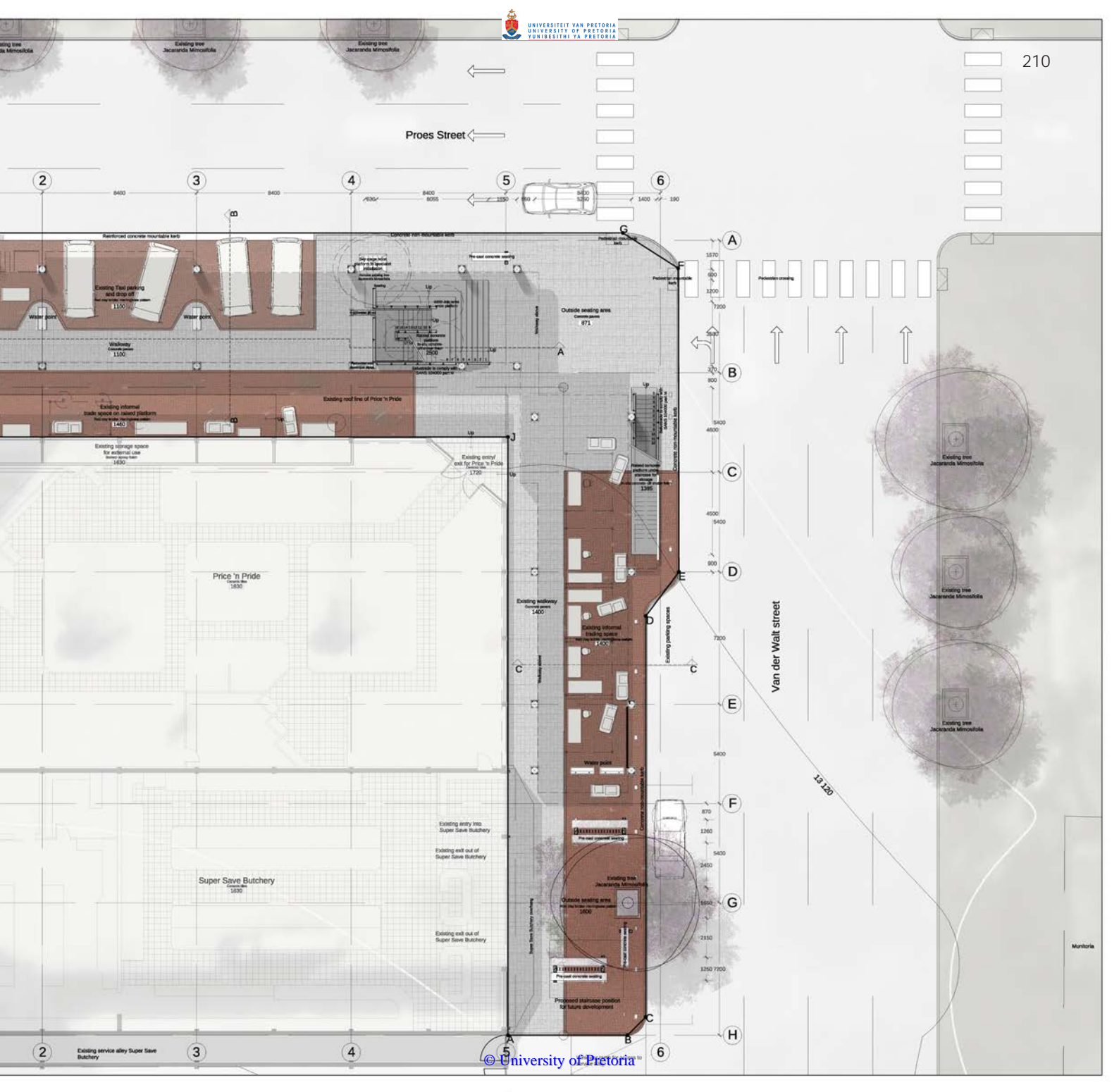
## Appendix B Final drawings

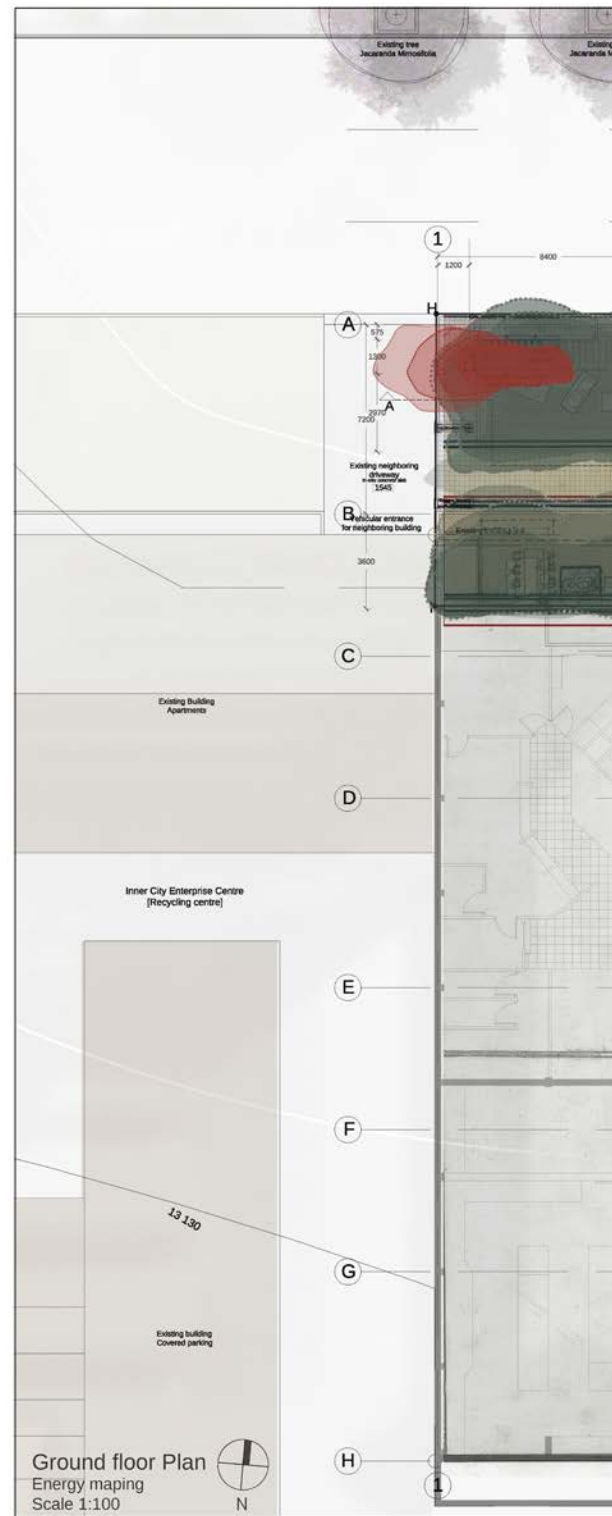


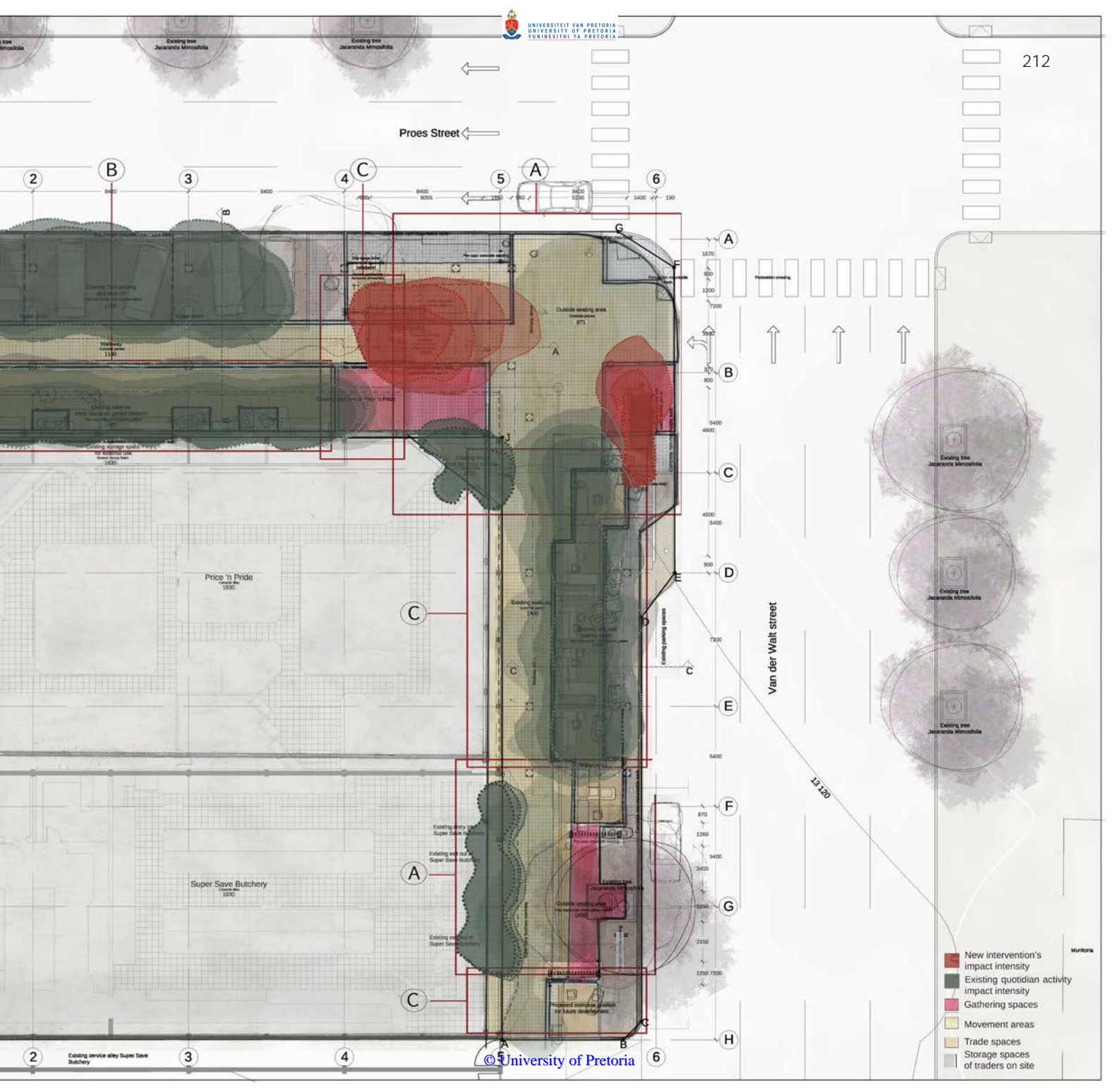












Proes Street ←

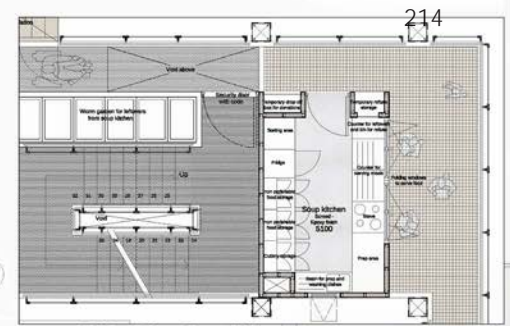
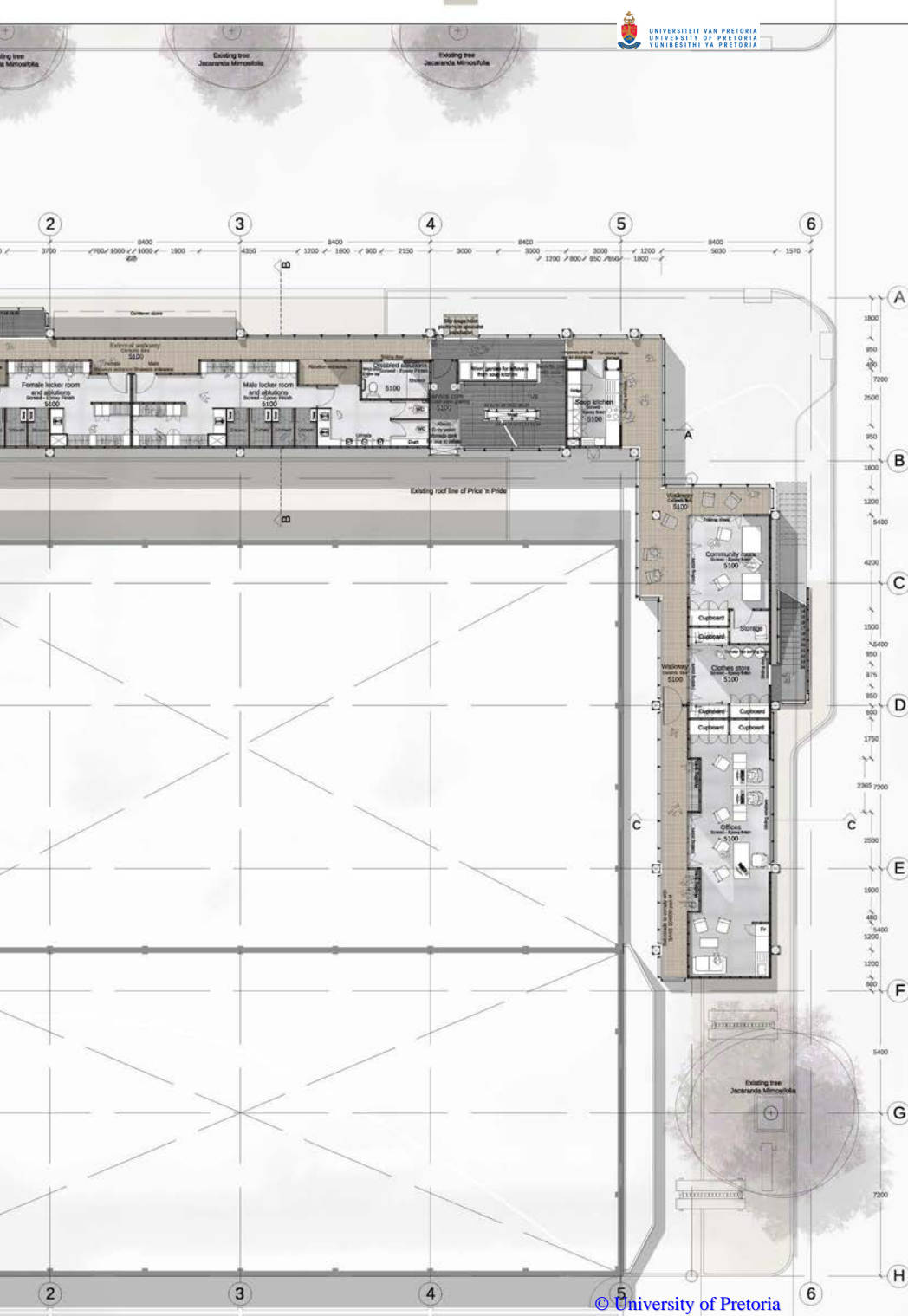
Van der Walt street

13 120

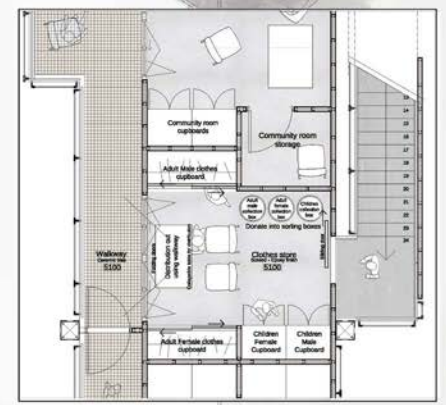
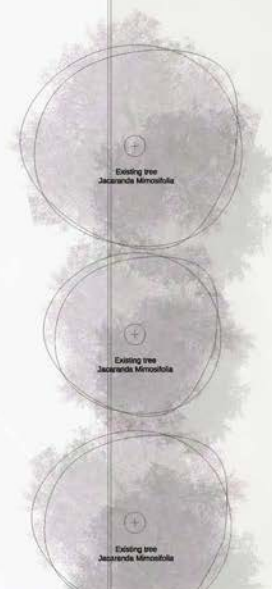
- New intervention's impact intensity
- Existing quotidian activity impact intensity
- Gathering spaces
- Movement areas
- Trade spaces
- Storage spaces of traders on site





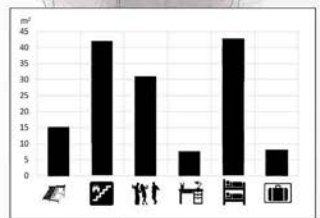
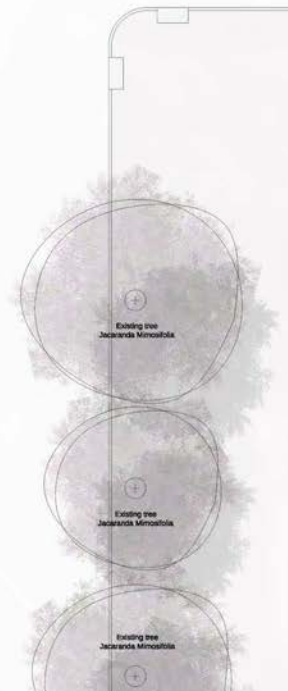
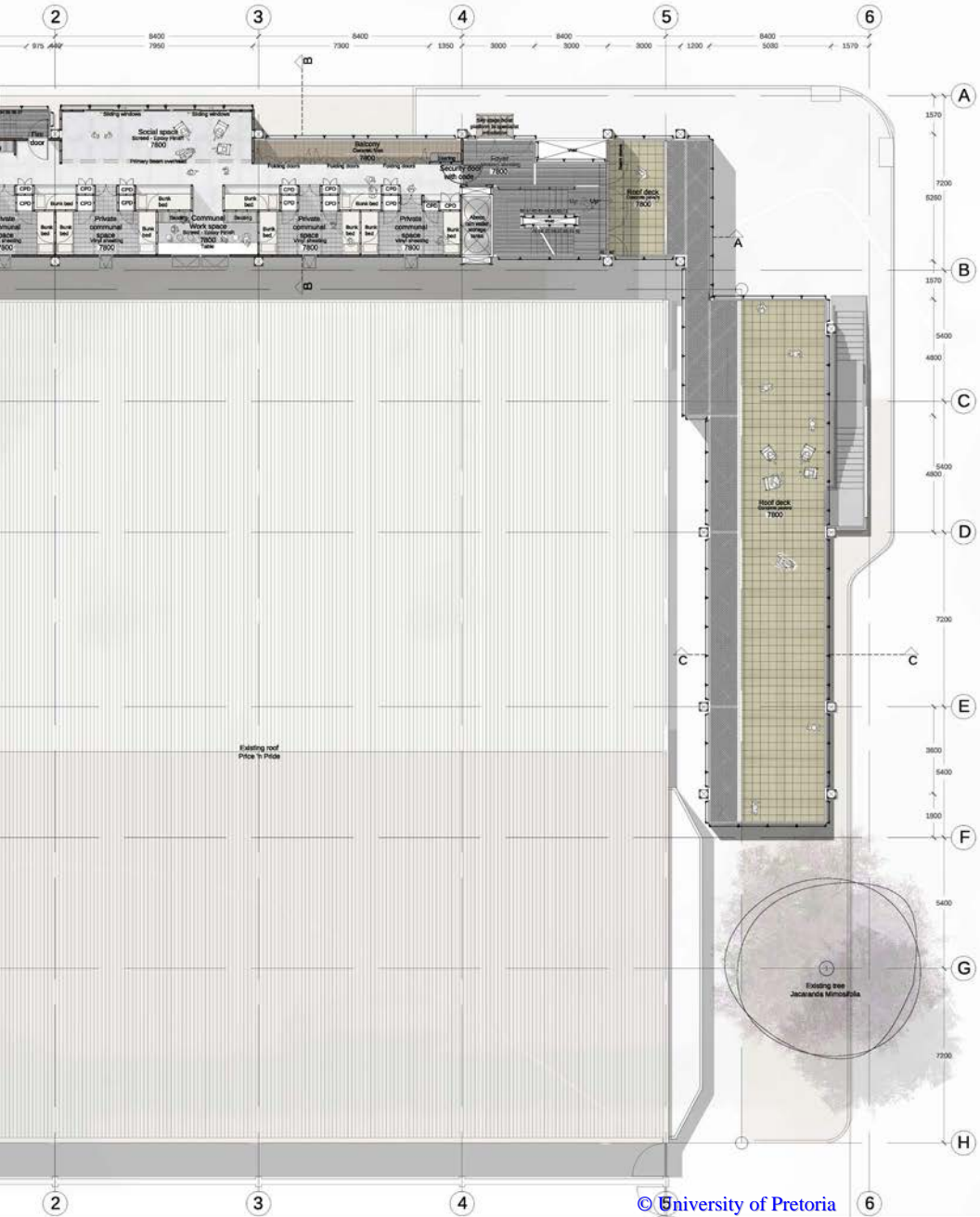


Call out Plan: Soup Kitchen Scale 1:50



Call out Plan: Clothes store Scale 1:50





Accommodation schedule  
Number of beds per floor of housing: 28

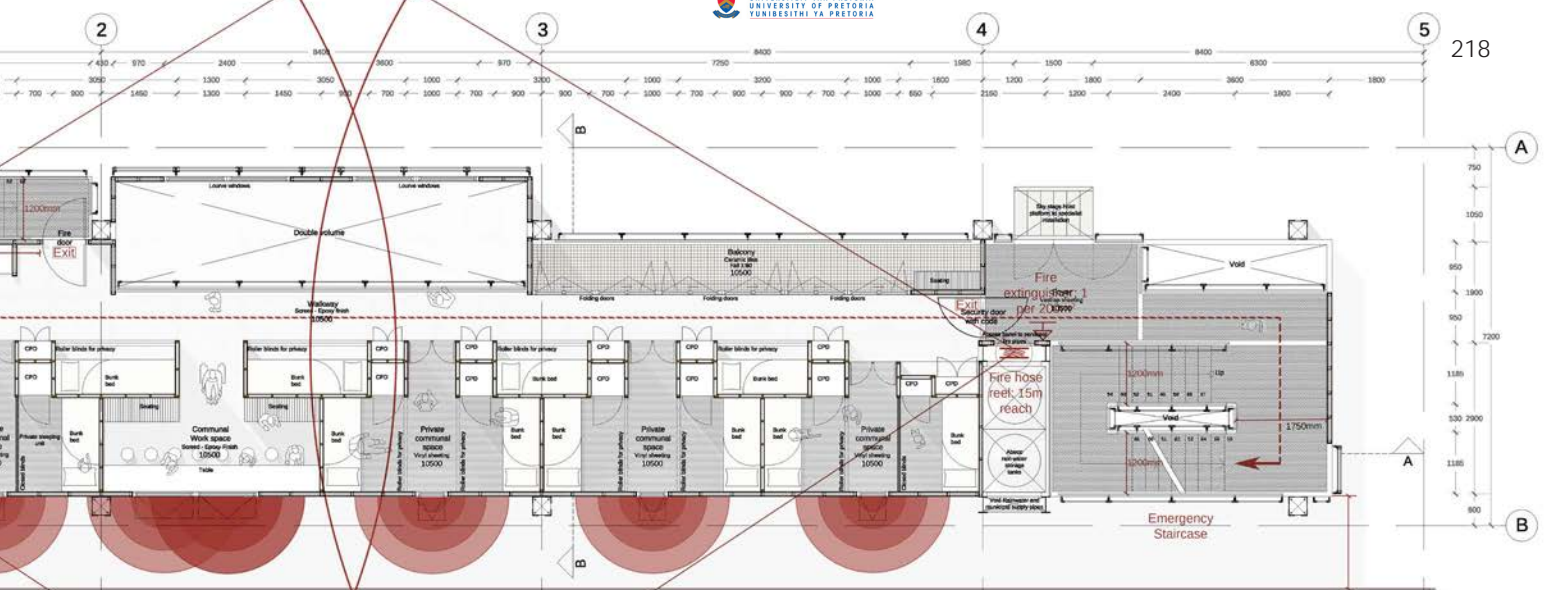
Area: m<sup>2</sup>

>Services	15.2m <sup>2</sup>
>Circulation/fire escapes	42.1m <sup>2</sup>
>Social spaces	30.9m <sup>2</sup>
>Workspace	7.5m <sup>2</sup>
>Private sleeping area	42.8m <sup>2</sup>
>Storage space	8m <sup>2</sup>

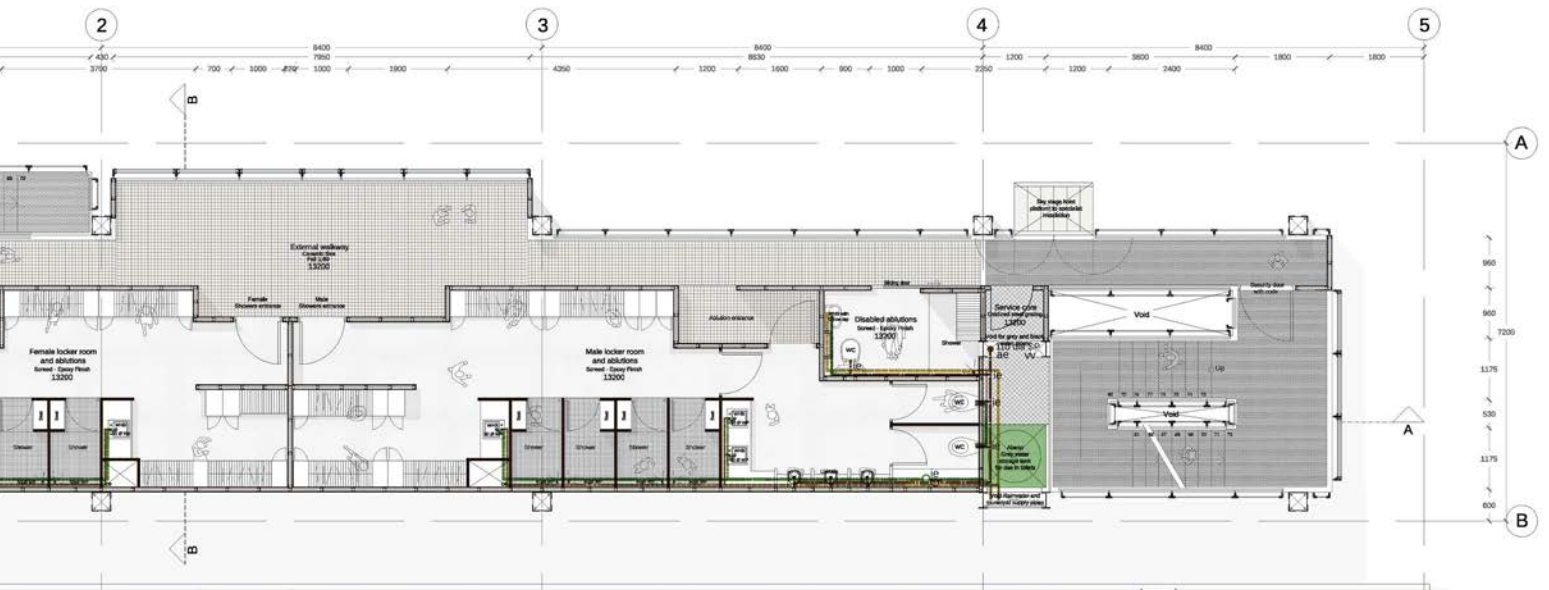
Total area per floor 163.4m<sup>2</sup>







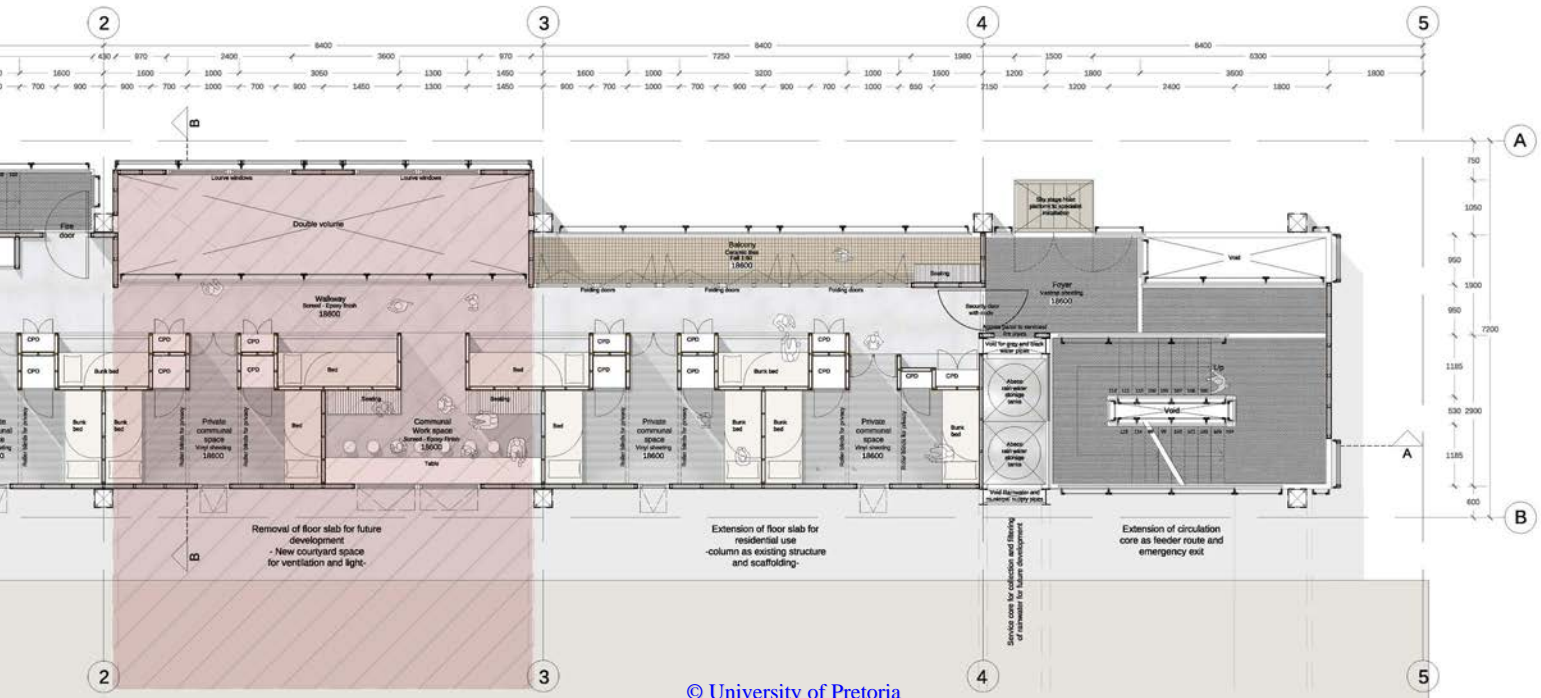
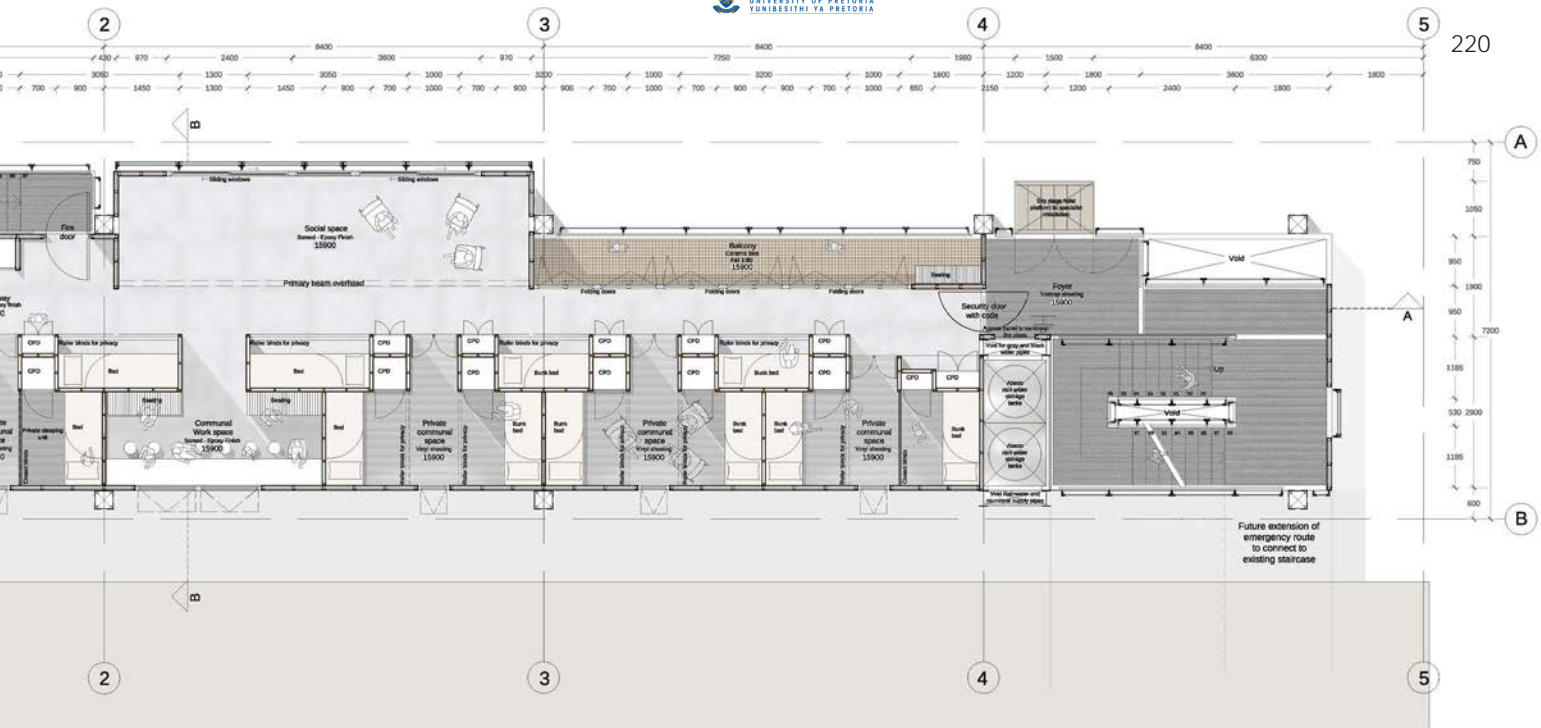
- Number of people per floor: 28
- Number of occupancy floors: 4
- Total occupancy population: 112
- SANS 10400-2011: Part T
- 4.16.1. Two escape routes shall be provided that include an emergency exit for each.
- 4.16.3 The nearest escape door shall be less than 45m from any point in the building
- 4.17.1 Population of more than 25 persons per floor requires a exit door width of no less than 750mm; 900mm provided
- 4.21.4 Table 10 requires a minimum width of escape route for population <120 >1100mm: 1200mm provided

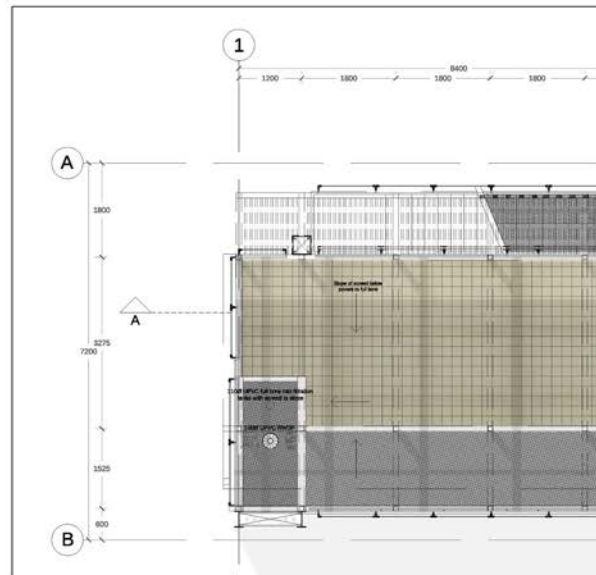


- Legend**
- 8400
  - DPI Plastics Freeflo 50mm dia pipes from showers and wash hand basins into grey water storage tanks, from storage tanks to toilets.
  - DPI Plastics Freeflo 110mm dia uPVC sewerage pipes from toilets in ablutions.
  - DPI Plastics freeflo 50mm dia fresh water pipes from rain water storage tanks/solar water heater to showers and wash hand basins.





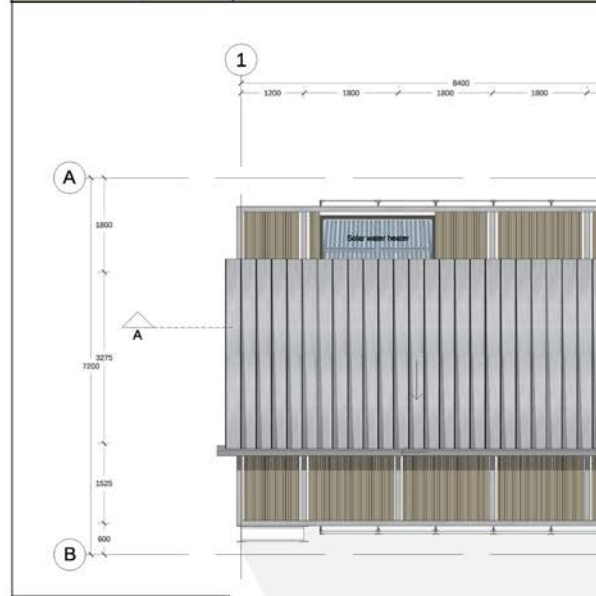




Roof deck Plan  
Scale 1:50



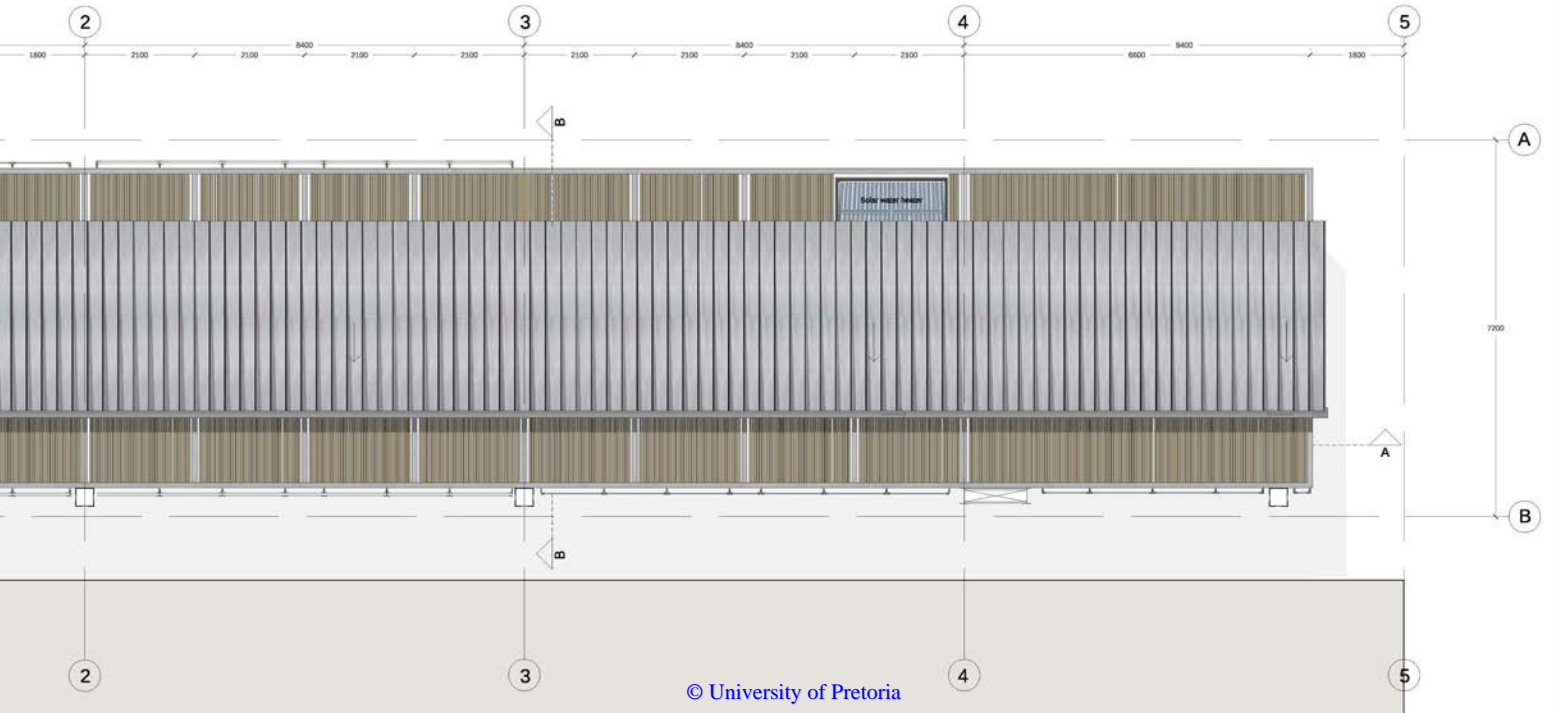
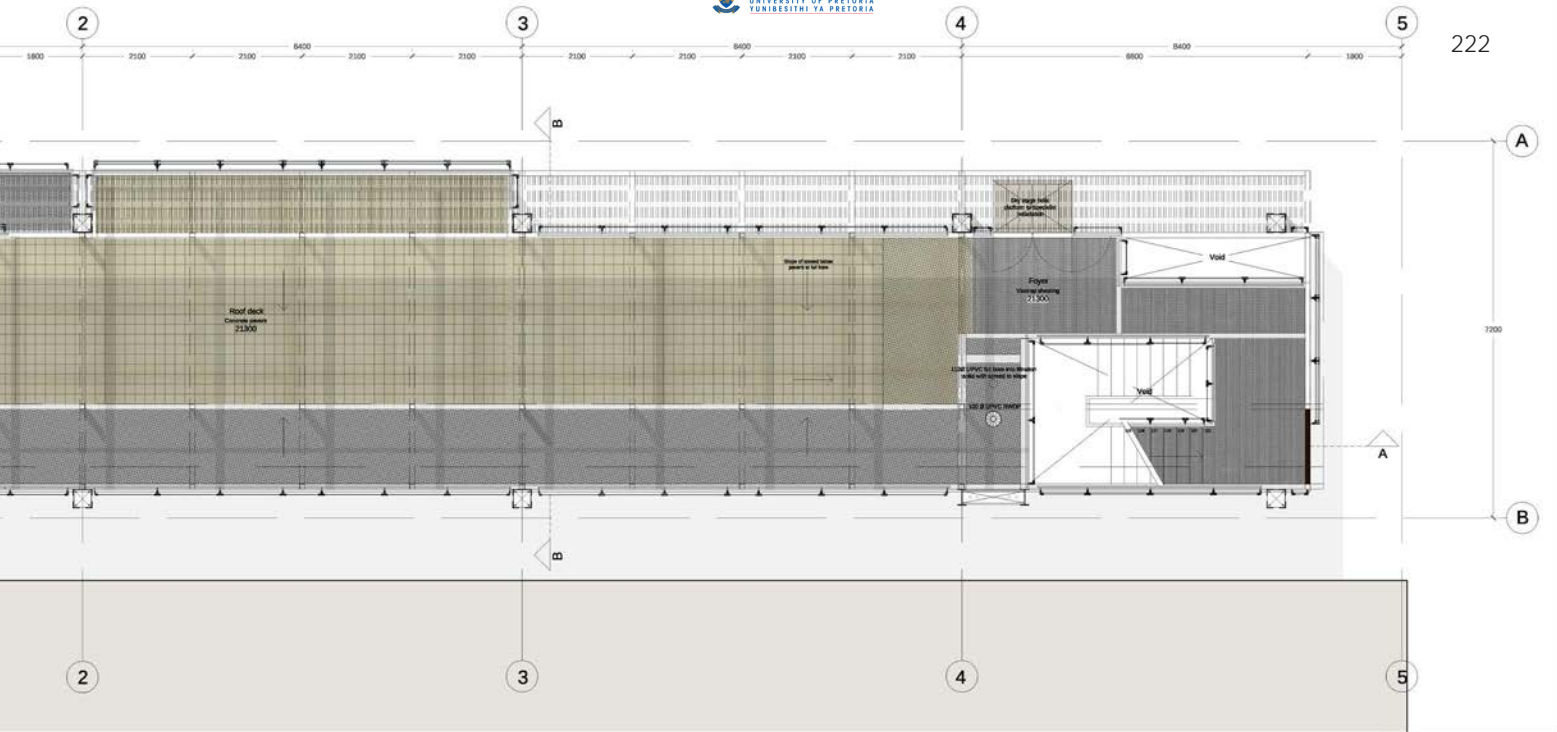
1



Roof Plan  
Scale 1:50

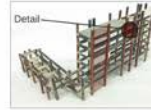


1



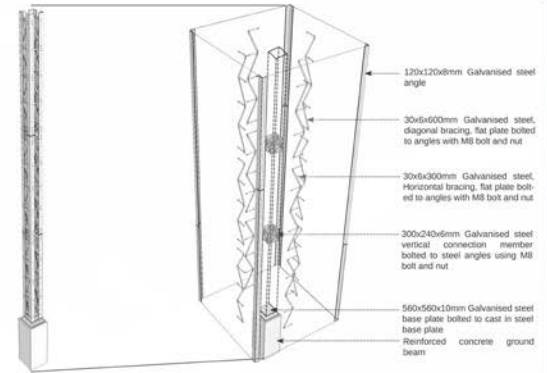






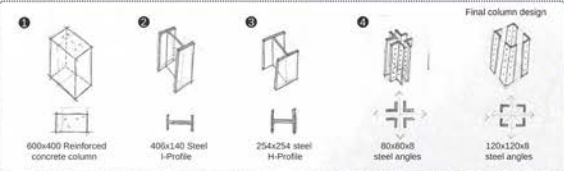
1. 10mm Unglazed ceramic tile laid to fall on the cement
2. Waterproofing membrane dressed onto aluminum angle fixed to concrete
3. Min 30mm Screed with Coprox cement admixture laid to fall 1:80, mesh underlaid
4. 190mm Lightweight concrete in-situ cast
5. 270xL6mm Bond-tek permanent formwork supported on steel angle
6. 300x560mm Galvanised steel composite column
7. 300x100x46kg/m Galvanised steel channel fixed to composite column using M8 bolt and nut
8. 80x80x6mm Galvanised steel angle shop welded to edge beam
9. 25x25x1.6mm Galvanised steel angle shop welded to edge beam

### Floor Assembly



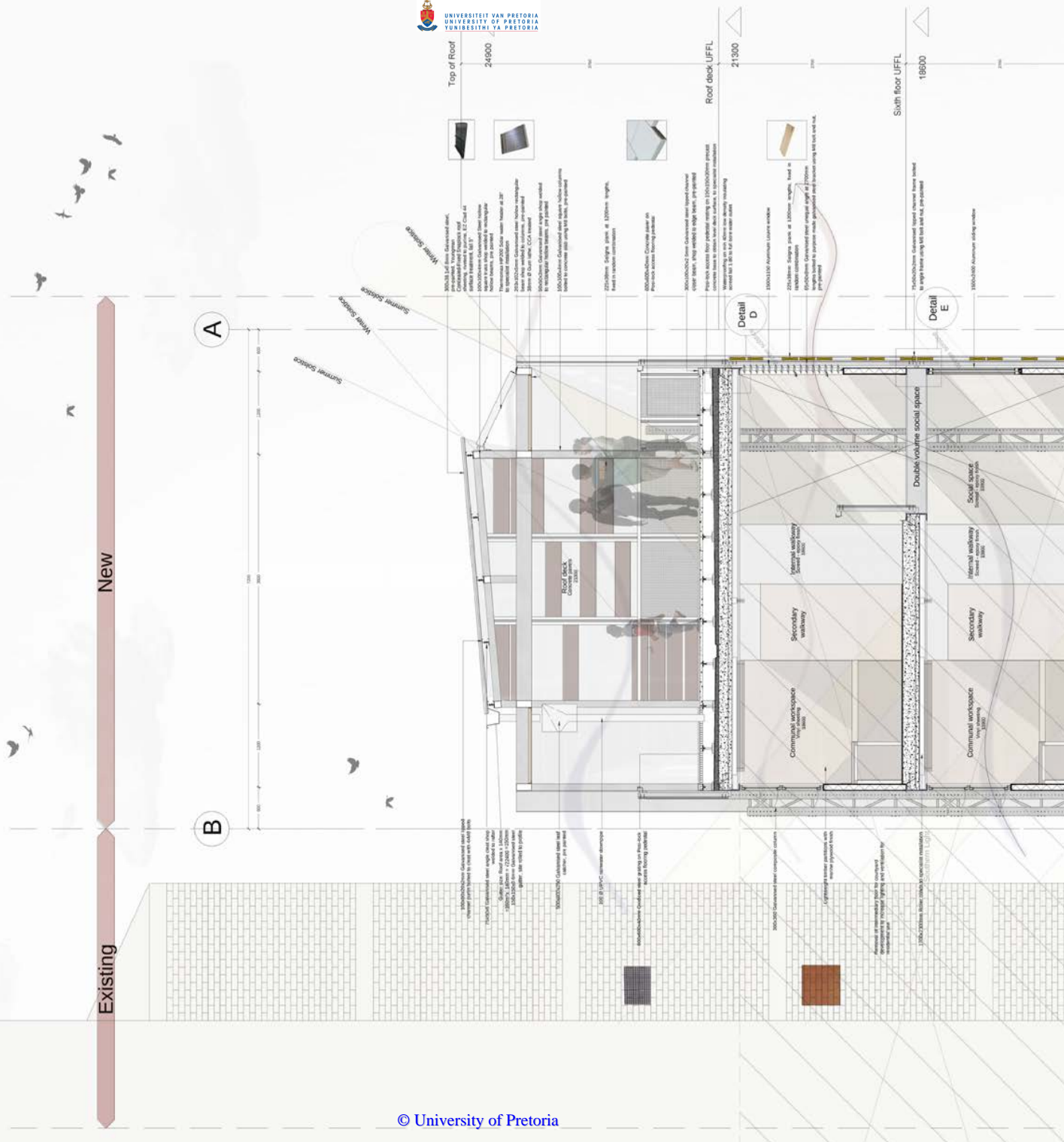
- 120x120x8mm Galvanised steel angle
- 300x560mm Galvanised steel, diagonal bracing, flat plate bolted to angles with M8 bolt and nut
- 300x300mm Galvanised steel, horizontal bracing, flat plate bolted to angles with M8 bolt and nut
- 300x240x6mm Galvanised steel vertical connection member bolted to steel angles using M8 bolt and nut
- 560x560x10mm Galvanised steel base plate bolted to cast in steel base plate
- Reinforced concrete ground beam

### Composite column assembly

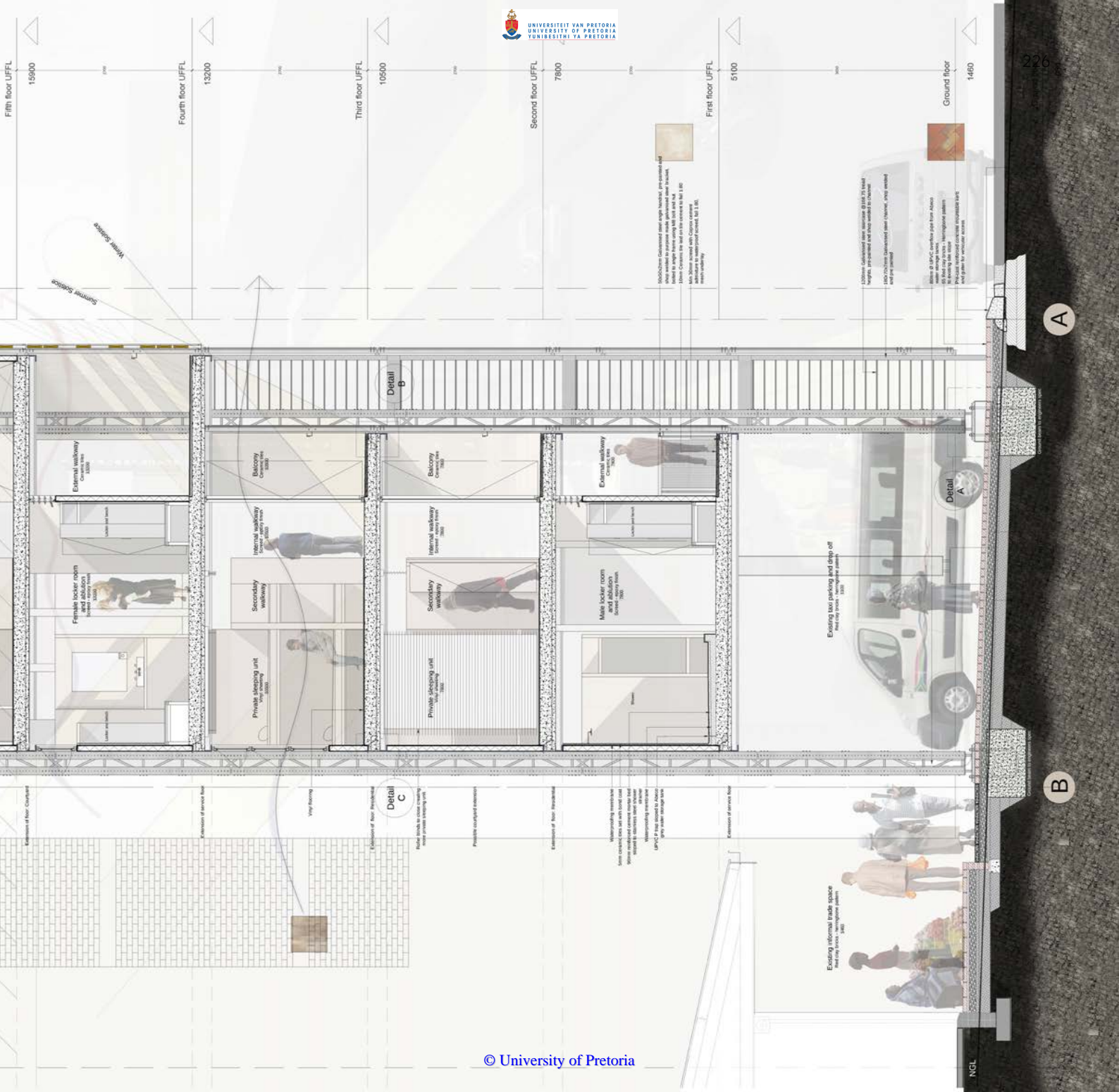


1. 600x400 Reinforced concrete column
2. 400x140 Steel I-Profile
3. 254x254 steel H-Profile
4. 80x80x8 steel angles
- Final column design: 120x120x8 steel angles

### Column evolution







Fifth floor UFFL 15000  
Fourth floor UFFL 13200  
Third floor UFFL 10500  
Second floor UFFL 7800  
First floor UFFL 5100  
Ground floor 1400

Sewerage  
Water Services

100% Green Concrete (water usage tracked) on selected floor slabs  
After walling in concrete ready, waterproof with 1.5mm thick 200gsm polyethylene (PE) sheet with 1.5mm thick concrete on top  
1.5mm Green concrete with 200gsm polyethylene sheet  
1.5mm Green concrete with 200gsm polyethylene sheet

100% Green Concrete (water usage tracked) on selected floor slabs  
After walling in concrete ready, waterproof with 1.5mm thick 200gsm polyethylene (PE) sheet with 1.5mm thick concrete on top  
1.5mm Green concrete with 200gsm polyethylene sheet  
1.5mm Green concrete with 200gsm polyethylene sheet

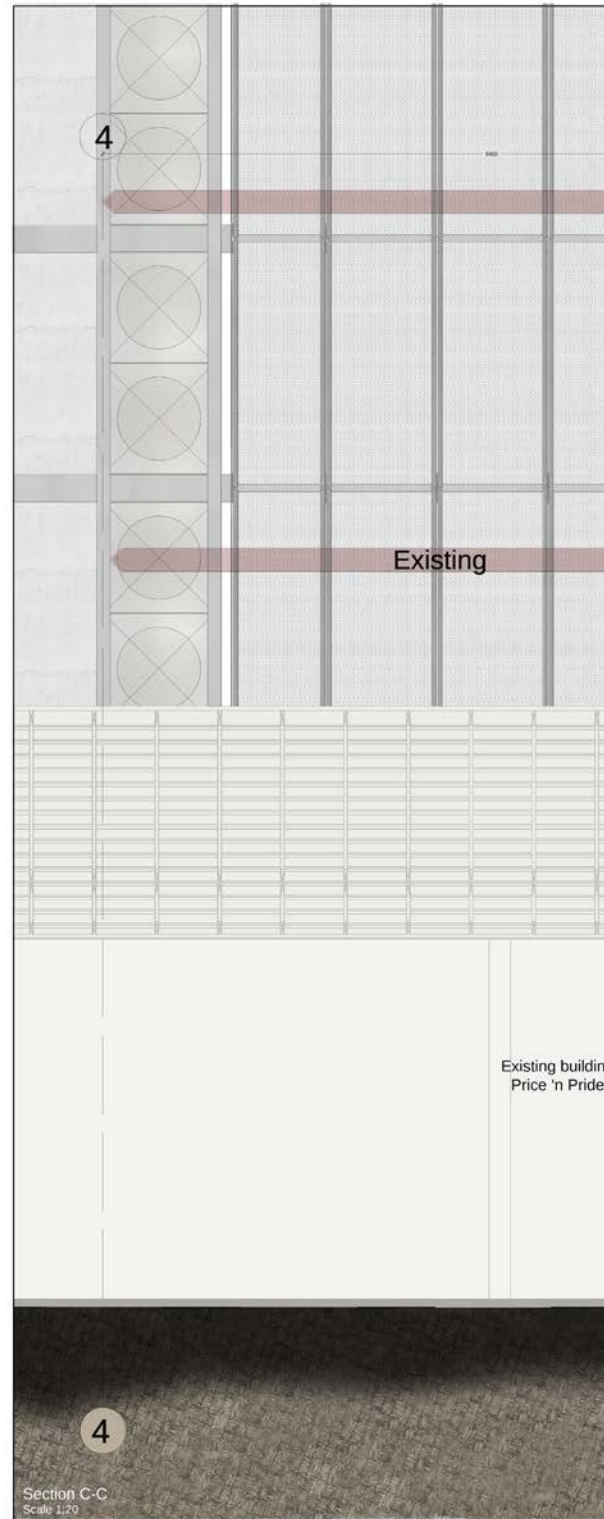
Detail B

Detail A

Detail C

A

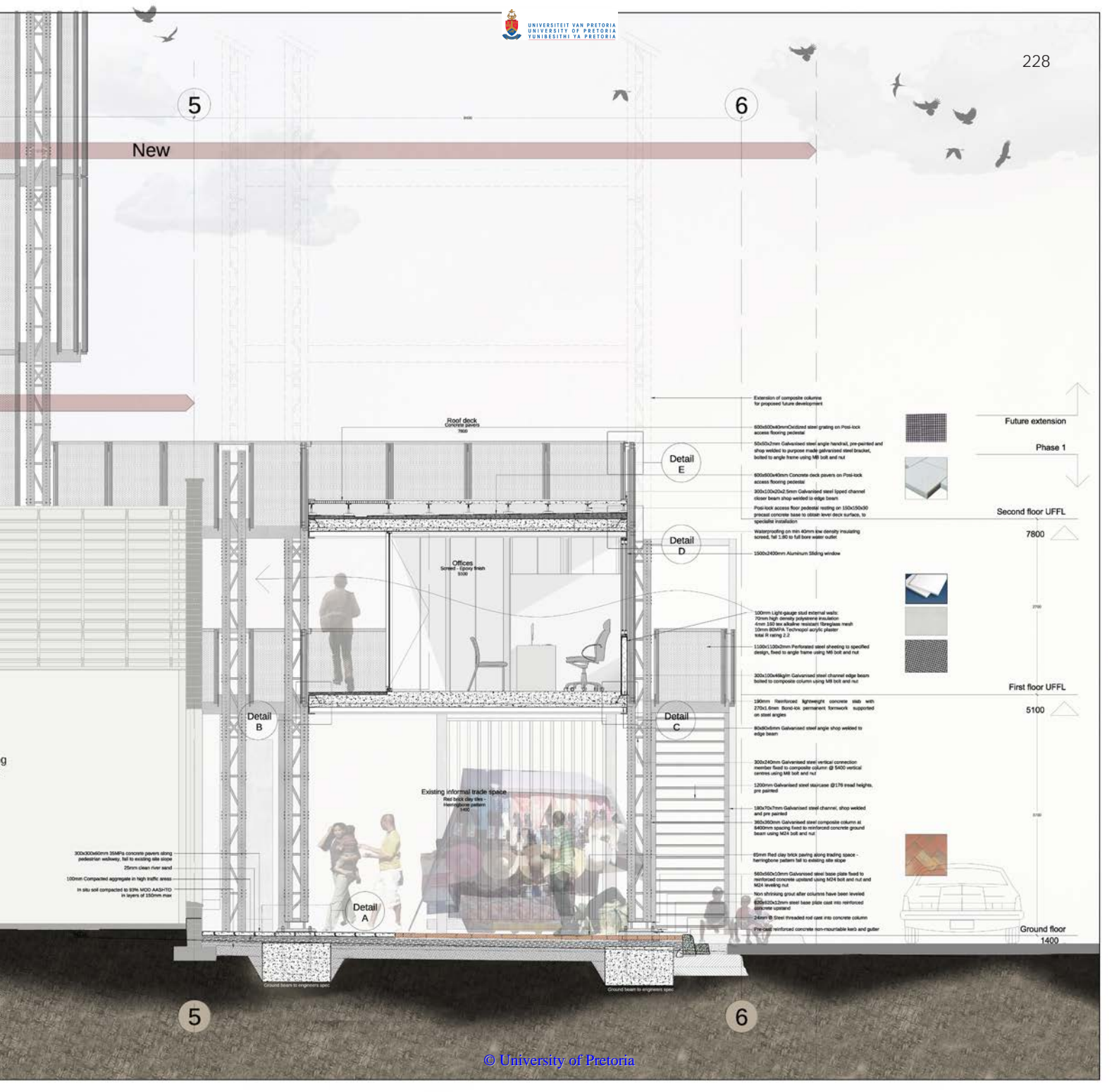
B



5

6

New



Rooftop deck  
Concrete slabs  
Roof

Offices  
Small - Glass front  
3300

Existing informal trade space  
Red brick clay tiles -  
Hemphill system  
M20

Detail E

Detail D

Detail C

Detail B

Detail A

Extension of composite columns  
for proposed future development

600x600x40mm Cutlaid steel grating on Post-lock  
access flooring pedestal

50x62x2mm Galvalume steel angle handrail, pre-painted and  
shop welded to purpose made galvanneal steel bracket,  
bolted to angle frame using M8 bolt and nut

600x600x40mm Concrete deck slabs on Post-lock  
access flooring pedestal

300x100x2x0.5mm Galvanneal steel (spred channel  
floor beam shop welded to edge beam

Post-lock access floor pedestal resting on 150x150x30  
precast concrete base to obtain level deck surface, to  
specifiable insulation

Waterproofing on min. 40mm low density insulating  
screed, fall 1:80 to fall bore water outlet

1500x2400mm Aluminum Sliding window

100mm Light gauge steel external walls  
70mm high density polystyrene insulation  
4mm 200 low alkaline resistant fibreglass mesh  
10mm BOMPA Technopol acrylic plaster  
Half fit using 2.2

1500x1500mm Perforated steel sheeting to specified  
design, fixed to angle frame using M8 bolt and nut

300x100x4mm Galvanneal steel channel edge beam  
bolted to composite columns using M8 bolt and nut

150mm Reinforced lightweight concrete slab with  
270x1.6mm Bond-tek permanent framework supported  
on steel angle

80x80mm Galvanneal steel angle shop welded to  
edge beam

300x240mm Galvanneal steel vertical connector  
member fixed to composite column @ 5400 vertical  
centres using M8 bolt and nut

1200mm Galvanneal steel staircase @ 170 tread heights,  
pre-painted

180x70x7mm Galvanneal steel channel, shop welded  
and pre-painted

350x350mm Galvanneal steel composite column at  
8400mm spacing fixed to reinforced concrete ground  
beam using M24 bolt and nut

60mm Red clay brick pining along trading space -  
Hemphill system fall to existing site slope

600x600x30mm Galvanneal steel base plate fixed to  
reinforced concrete upright using M24 bolt and nut and  
M24 leveling nut

Non shrinking grout after columns have been leveled  
600x600x30mm steel base plate cast into reinforced  
concrete upright

24mm B Steel threaded rod cast into concrete column  
Pre-cast reinforced concrete non-removable kerb and gutter



Future extension

Phase 1

Second floor UFFL

7800

2700

First floor UFFL

5100

8100

Ground floor

1400

5

6

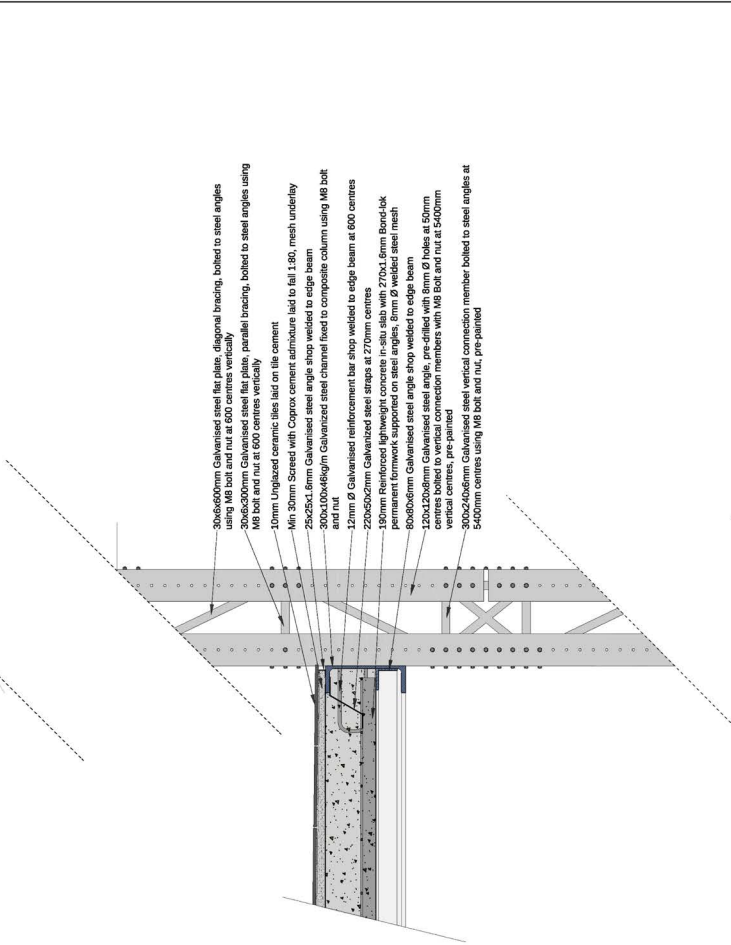


- Applied exterior perforated sheet sunscreen and balustrade
- 300x100x020x2.5mm Galvanized steel lipped channel closer beam shop welded to edge beam, pre-planned
- 600x60x40mm Concrete paver resting on Froli-loc pedestal
- Froli-loc access floor pedestal
- 300x30x3mm Aluminium base
- Waterproofing membrane, slope 1:80 to full bore rainwater outlet
- Min. 40mm low density insulating screed, slope 1:80 to full bore rainwater outlet
- 300x100x10x10mm Galvanized steel channel edge beam fixed to composite column using M8 bolt and nut
- 15mm Purpose made galvanized steel bracket shop welded to edge beam
- 80x80x6mm Galvanized steel angle shop welded to edge beam
- 360x460mm Galvanized steel composite column

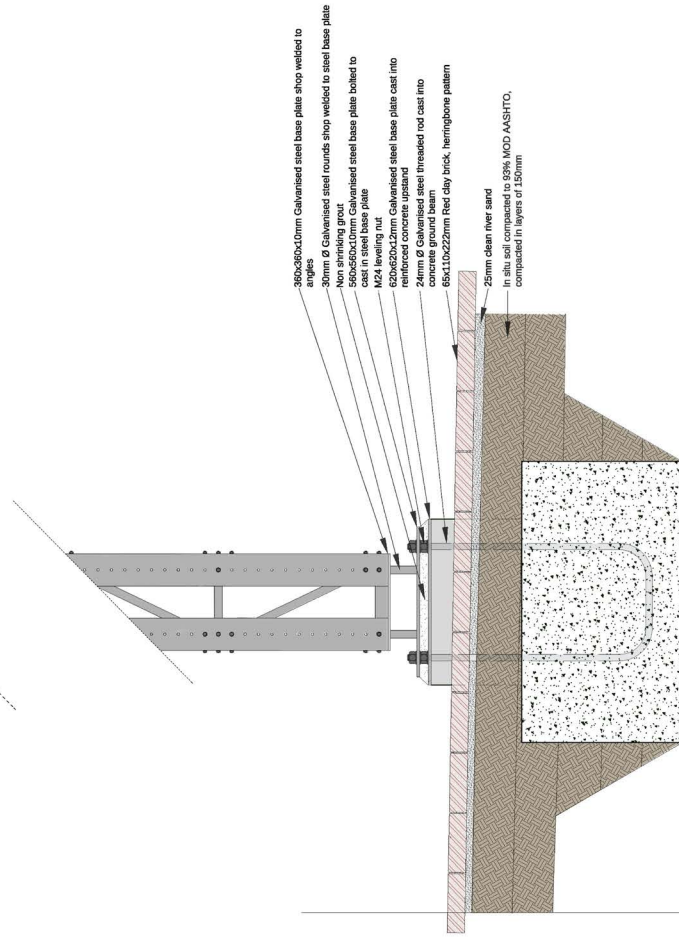
Detail D  
Scale 1:10

- 75x50x2mm Galvanized steel continuous runner channel
- 70mm high density polystyrene insulation
- 4mm 160 tex alkaline resistant fibreglass mesh
- 10mm BOMPA Technopol acrylic plaster
- 15mm Marine plywood
- 1100x1100x2mm Perforated steel sheeting to specified design, fixed to angle frame using M8 bolt and nut
- 75x50x2mm Galvanized steel studs at max 600 centres
- 75x50x2mm Galvanized steel continuous runner channel
- Purpose made galvanized steel permanent flashing and drip stop welded to edge beam

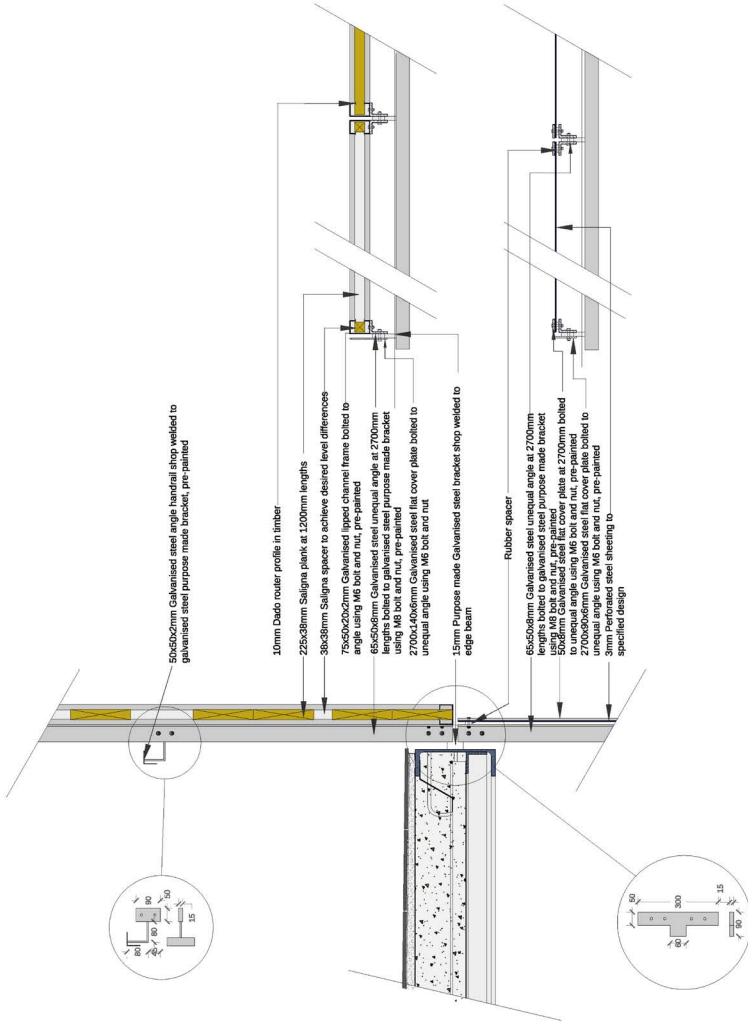
Detail C  
Scale 1:10



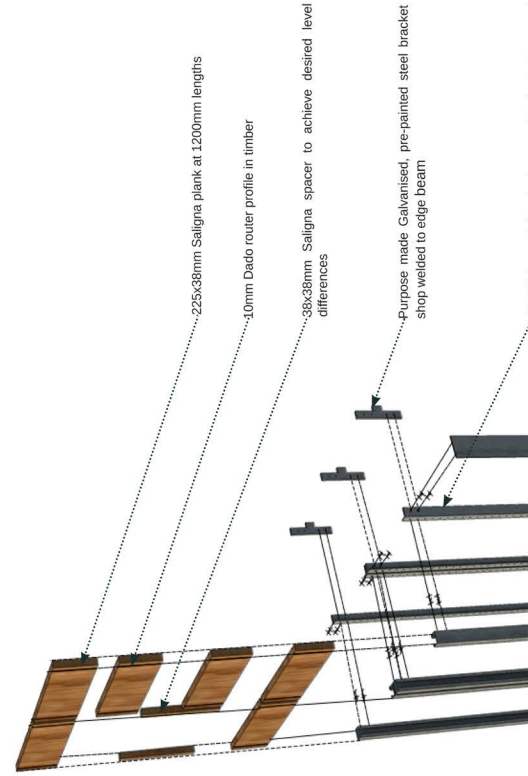
Detail B  
Scale 1:10



Detail A  
Scale 1:10



Detail E  
Scale 1:10

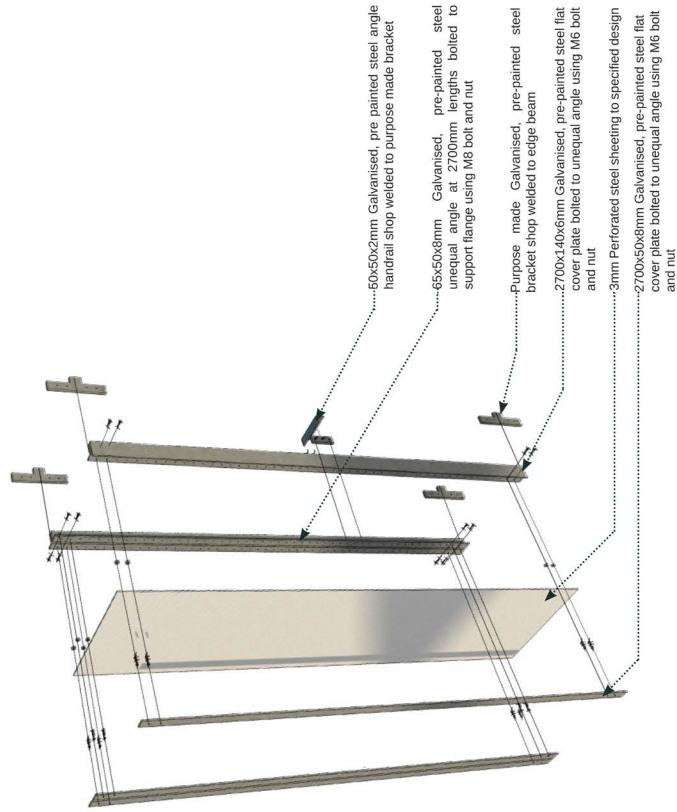


65x50x8mm Galvanised, pre-painted steel unequal angle at 2700mm lengths bolted to support flange using M6 bolt and nut

2700x90x6mm Galvanised, pre-painted steel flat cover plate bolted to unequal angle using M6 bolt and nut

75x50x20x2mm Galvanised, pre-painted channel frame bolted to angle using M6 bolt and nut

Applied exterior  
Saligna screen assembly



Applied exterior:  
Perforated screen assembly



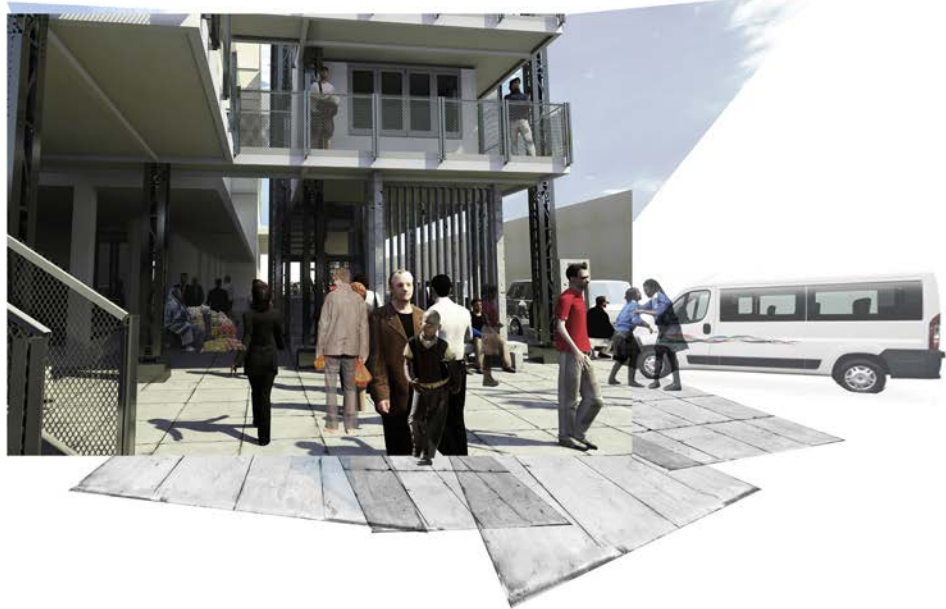


Perspectives  
View from Van der Walt street looking North-West





Perspective  
View South from Van der Walt Streets



Perspectives  
Corner of Proes and Van der Walt looking West



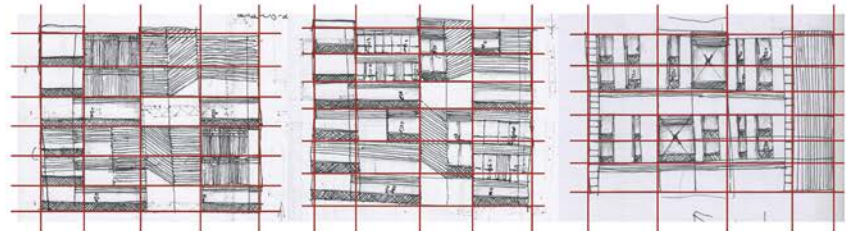




Eastern Facade  
Scale 1:200



Northern Facade  
Scale 1:200



Sketches showing conceptual idea of applied exterior- August 2012





