



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
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ARCHITECTURE AS A MEANS OF LABOUR

ARCHITECTURE CONTRIBUTING TO CONTEXTUAL EVENTS THROUGH ITS CONSUMPTION
A CLOTHING PRODUCTION FACILITY IN THE CITY OF PRETORIA

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SUBMITTED AS PART OF THE REQUIREMENTS OF THE DEGREE OF MAGISTER IN ARCHITECTURE (PROFESSIONAL) IN THE FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY, UNIVERSITY OF PRETORIA, 2010.

TO ALL THOSE WHO INSPIRED, MOTIVATED AND LISTENED

THANK YOU



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Traditional places of production in urban contexts have been crudely built as machines, exploiting the resources of a location without care for the consequences. Their success has been measured primarily in terms of how efficiently they can accommodate a particular process in order to achieve an end product.

This thesis falls in line with global initiatives, exploring how buildings need not only consume less, but also have a positive effect on the surrounding urban context from which they have consumed.

This proposal intends to weave a new production facility into existing structures of a production typology, located on the boundaries of the city of Tshwane. In an attempt to overlap transitions between historical and new narratives of the production process and its link to the environment, the proposal generates a new identity for places of production in an urban context.

Programmatically, the clothing manufacturing centre reacts to the infestation of imported merchandise lining the ground floor commercial functions of the surrounding city blocks.

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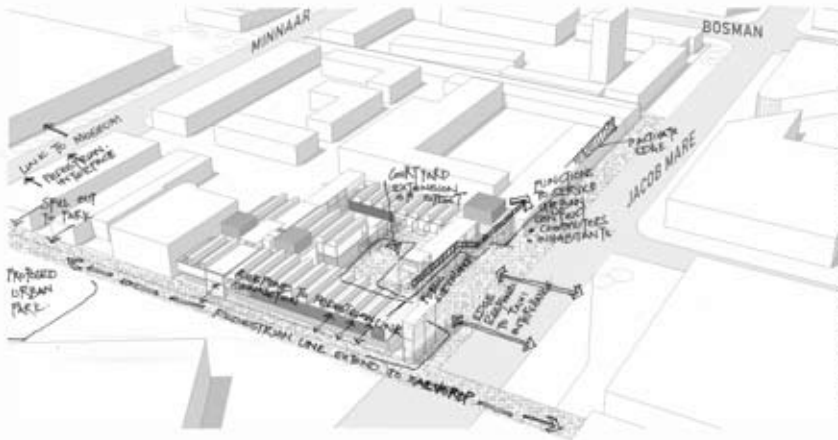
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PRODUCTION FACILITY → CONTEXT → HYBRID PRODUCTION FACILITY

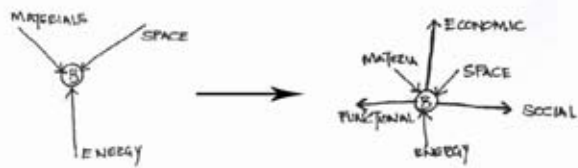
DESIGN MODEL



PRODUCTION FACILITY CONSTANTLY RESPONDING TO URBAN ENVIRONMENT



MAPPING TOOL TO ANALYSE AND GENERATE POSSIBILITIES IN CONTEXT



THEORY : ARCHITECTURE AS LABOUR / UTILITY



PRODUCTION FACILITY FOCUSED ON INDIVIDUAL PROCESSES/PRODUCT DRIVEN

1. SUMMARY OF PROCESS (AUTHOR 2010)

CHAPTER ONE

INTRODUCTION

Labour : In the context of this thesis “labour” refers the way in which architecture can benefit its surrounding context, through cyclic processes; evident at all levels of intervention, further where processes are elevated above product.

This dissertation aims to investigate how architecture can labour from what it has consumed, in order to be of benefit to surrounding contextual events.

THE NEED FOR PRODUCTION

The proposed investigation originates from the functional identification that there is a lack of local small-scale production facilities in the city of Pretoria.

Under the architectural premise, buildings of production naturally consume resources in order to function; this imperative to consume and function in isolation without labouring is damaging to the immediate urban context.

It is necessary to initiate a primary layer of urban intervention, which would generate opportunities and integrate activities around a system of consumption and labour, in order to capitalise on urban opportunities within the city of Pretoria.

The aim of this proposal is to address this situation by inserting a catalyst which would connect to existing systems within the city, through exploring the inherent properties of architecture as that which labours through what it consumes.

Places of production are generally viewed as exclusive environments; this proposal would apply an experimental quality to an environment which allows a measure of public permeability, with the intention of adding a social and economic asset to the urban fabric of Pretoria.

The programme proposes a small-scale clothing production facility, in reaction to the influx of imported apparel wear. This facility would promote the local manufacture of a common consumer product within an urban setting. Clothing manufacture employs relatively clean production processes, allowing both production and product public accessibility.

The definition of a production facility is crucial, as it forms a base for the interpretation of this investigation. Historical, contemporary and local precedents which are considered core to a production facility are identified, considered and adapted to the proposed context. A model of superimposing contemporary advantages onto the ideals of a place of production is investigated, avoiding the imposition of an inappropriate intervention.

In western culture, places of manufacture as an architectural typology such as James Watt's Spinning Mill in 1801 originate from the ideas of the industrial revolution, symbolising the dynamic and rational imperatives of that time.

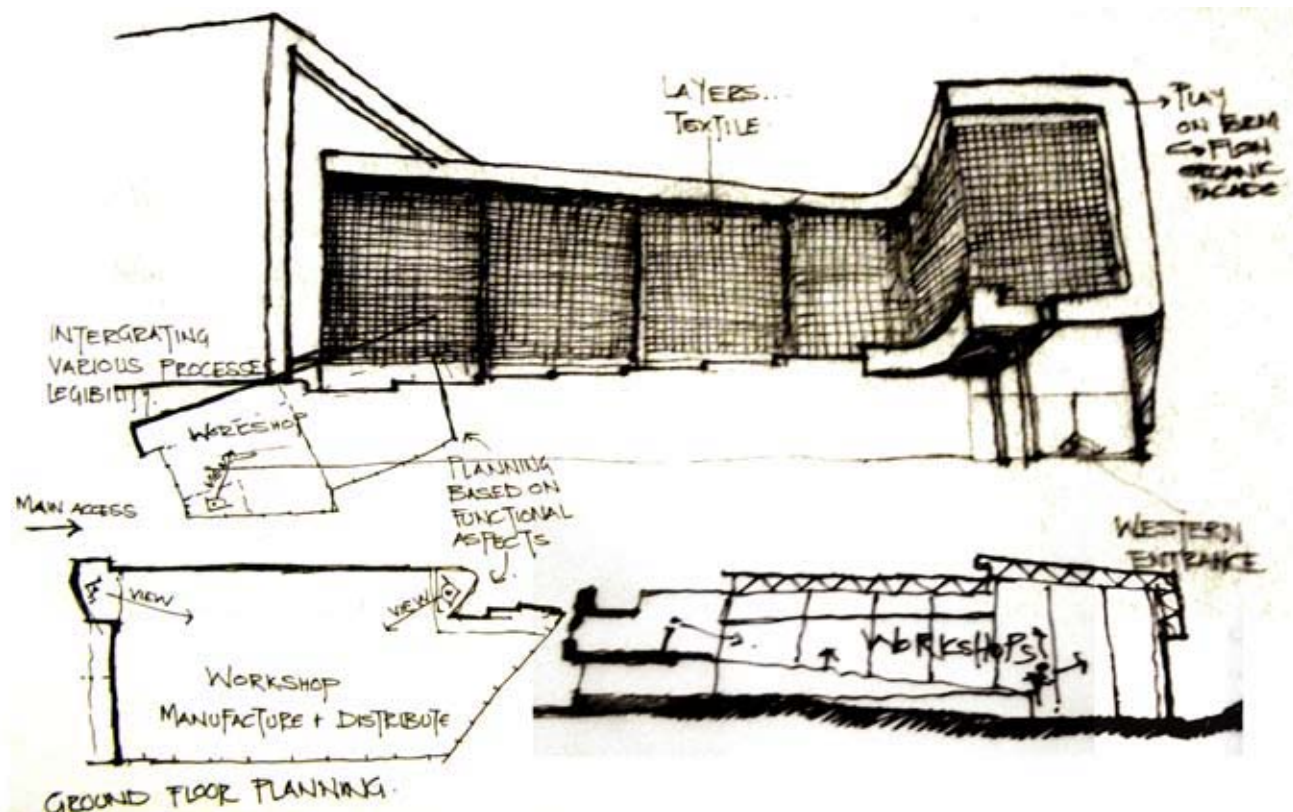
During the development of the workhouse as a place of production in the late eighteenth-century, secrecy and moral improvement was fully instituted, where the workhouse was not classified as architecture, but rather as a building of function. The workplace was invariably a closed world which only served to emphasise the essential wordlessness of labour. In order for the workforce to behave in an advantageous way, workers were forced to commit to the act production. Jeremy Bentham's panopticon as an instrument of observation provided an efficient form of control for a highly developed workhouse type. This form of control focused on improving labour output by workers whose skills and morals could not be depended on. The exclusive environment, in which factories were situated, arose primarily out of industrial secrecy.

Due to exposure to the rapid production environment, societies progressed in parallel to the extended co-modification of everyday life; activities involved some form of consumption, as the built environment itself assumed the backdrop of an increasingly ubiquitous consumer culture (Frampton, 2002:34-36).

The nature of places of production has shifted to a more eco-efficient way of managing processes, through the introduction of appropriate technology, passenger comfort and clarity in production systems. In the 1990s there was a need for the workforce to have physiological attachment to the end product, which pre-empted the view of the production process as gestures toward making the producer feel proud of the final outcome (Arendt, 1958:101-104).

A local example of a clothing production facility is the Proud Heritage Clothing Campus(2007), situated in Durban, designed by Don Albert. The form and facades of the buildings are inspired by aspects of the fashion industry, whereas spaces are determined by the functional aspects required for clothing manufacturing processes and deployment of industrial materials. Various processes are either combined or visible from different points within the building (refer to Fig.2). The warehouses allow for flexibility to adapt to changing modes of manufacture and distribution, to enable the possibility of growth or later sub-division (Saunders, 2009:412).

2. THE PROUD HERITAGE CLOTHING CAMPUS (AUTHOR 2010 AFTER SAUNDERS).



A production facility in the South African urban context can be defined as a facility where high numbers of potential users can benefit from the need for a local manufacturing facility. This intervention can act as a social, economic and environmental catalyst, thereby enhancing the immediate contextual conditions.

A facility for production should embody an attitude of accessibility, informing an architectural programme which responds to the dynamic nature of its context. In terms of built form, the building must realise a robust character appropriate to its urban setting.

CLIENT _ STAKEHOLDERS

In the city most consumer products are imported goods, a fact which increases the energy input and resources of the end product, further disassociating the end user from the manufacturer.

The intervention aims to strengthen local networks between the initial supplier, manufacturer and end distribution/user within the city. As the primary supplier of material goods, Shweshwe, a local textile design and manufacture company, will be the main stakeholder. Shweshwe has over the decades become part of various African cultures (refer to Fig.3), The clients that plug into the building would be both private sector investors (clothing designers and manufactures), as well as semi-formal entrepreneurs, e.g. in clothing and shoe repair. The aim is to create a symbiotic relationship between larger sector investors, and semi formal entrepreneurs.



3. SHWESHWE ORIGINS AND NETWORKS MAPPING (AUTHOR 2010 INFORMATION FROM [HTTP://WWW.SHWESHWE.NET](http://www.shweshwe.net)).

First, a theoretical discourse will introduce and define 'Labour' and its relevance in architectural discourse within an urban context.

The next chapter, context, opens with an attempt to understand the current production context. Mapping as a process is used to explore the current condition of urban flux within the city of Tshwane. Thereafter, various processes within the context – physical, historical, social – are explored to gain a better understanding of what gives form to the city fabric.

Ultimately, exploration is based on the theoretical outcomes, mapping and design brief to inform the development of an architectural intervention.

To conclude, a retrospective assessment of the process is discussed in relation to establishing places of production within an urban context.

4. PROCESS REVEALED
(AUTHOR 2010):



CHAPTER TWO

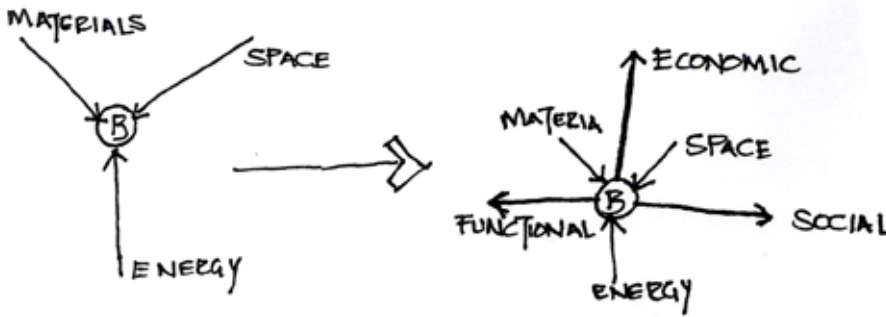
THEORETICAL DISCOURSE

This chapter investigates the fundamental nature of labour as an important component of this dissertation, further drawing parallels to the production of architecture as an object of utility in an urban context, in order to later inform a design manifesto for current contextual conditions.

From the point of view that a shift has occurred from the vernacular to rationalised production, architecture has been much affected by the substitution of industry norms and homogenisation. Buildings are designed in response to processes of construction, leading to objects which are dominated by high speed edges, the insertion of services and rapid construction techniques, in order to create within an urban setting a “high-rise megalith” which is by virtue isolated from the surrounding urban fabric, and becomes “a consumer object” (Frampton, 2002:36).

THEORETICAL PREMISE

Within the city, many structures and systems function as isolated entities of consumption, ingesting space, resources and energy. It is imperative that buildings consume, but they should also labour from what they have consumed, by means of contributing to the surrounding and greater urban context.



5. RELATIONSHIP BETWEEN CONSUMPTION AND PRODUCTION ENTITIES (AUTHOR 2010).

LITERATURE OVERVIEW

Labour, as described by Hannah Arendt, is distinguished by its never-ending character, creating nothing of permanence. The act of labour mimics natural processes which reuse waste material in an unbroken cycle of perpetually renewing processes so as to sustain life. Labour must always be productive; even though it produces objects that degrade, it further sustains the circulation of labour. Labour is in constant transformation but as a repetitive procedure similar to the cycle of biological survival (Arendt, 1958:109-112).

During the ancient Greek institution the act of a human labourer as a slave was justified through necessity. This lack of freedom for slaves was due to the act of labour as a never ending process. This form of activity was viewed as the lowest form of human activity at the time, as the slaves left no trace of permanent efforts, thus creating nothing worthy of remembrance (ibid).

The shift of importance during the modern age, from the product as an end result to the process involved as a means to an end, focused on describing the underlying structures and processes as more important than the base visual of the object. During the modern age, the act of labour was thus elevated in the hierarchy of human activity due its productivity, as part of human survival; thus occupations that were undertaken for the necessity of life were assimilated to the status of labour. Adam Smith asserted that labour was the source of all wealth and found its climax in Marx's 'system of labour', where labour became the source of all productivity and the expression of the very humanity of man (Frampton, 2002:35).

As Arendt shows, fabrication, which had disappeared into the product, now became an end in itself since science was not interested in the appearance of objects, but rather in the capacity of objects to reveal the intrinsic structure lying behind all appearance (ibid). Parallel to this distinction of process was the dematerialisation of structures in architecture, which illustrated and celebrated the process involved in the making of architecture, affording a more explicit form of structural expression (Frampton, 2002:33-34).

The ambiguity of architecture as both edifice and the cyclic processes of building draws a connection back to Arendt's distinction between work as an artificial world differing from labour as a natural process. Edifice as an integral part of architecture, or as an act from which architecture as a utility object can achieve legitimacy, is derived from the embedded meanings of 'educate', 'instruct' and 'strengthen' in the verbal root *aedificare*. Here architecture is more than the built fabric, because, as an agent of change, it constitutes a process which leads to technological advancement (Louw, 2002:18-19).

The objective of this thesis is thus to explore the architecture of a production facility as both artefact and object of utility, exploring all possibilities which manifest in an urban context, to create a building that would enhance its surrounding fabric (as architecture of enablement). The term "building" is further accepted as an integral part of architecture, and the process of making which should be evident in the object, is celebrated.

The built environment to a large extent depends on workmanship related to the idea of craft. During the 19th century this meant 'the application of technique' to making, by using judgement and dexterity.

The act of a building being crafted as an artefact in the traditional sense can no longer be referred to, since most building operations in industrialised countries now consist of assembling preformed parts and fragmented systems, with the job of the on-site workmen being systematically shrunk to that of semi-skilled assemblers of manufactured parts (Louw, 2002:14-15).

The traditional crafts of the building site have been driven close to extinction by forced commercial mechanisation. The architect is further removed from the actual making process than any of his historical forbears, yet still employs related tools where the act of drawing has come to assume a more craft-like connotation. Louis Khan said "I believe that in architecture as in all art the arts instinctively keeps the marks which reveal how a thing was done ... If we were to train ourselves to draw as we build, from bottom up, when we do stopping our pencil to make a mark at the joint of pouring and erecting, ornament would grow out of our love from the expression of method ... the desire to express how it is done would filter through the entire society of building" (Louw, 2002:16).

The making of a building should become an important aspect of architecture, in that the process of making becomes evident in the product. Furthermore, the functioning of the building should also be evident in the way in which it consumes energy, where distribution, disposal and recycling become part of the program in order for events and processes to occur within the space. Furthermore, the building should embody a high level of legibility in the way in which it treats connections, and plugs into existing networks of resources and the flow of the urban environment.

A clothing production facility supports the theoretical premise of cyclic processes contributing to the necessities of the context, through extending the production line of apparel wear to processes of washing, repair, re-use and recycling. The facility advocates an inclusive environment which contributes to the social and economic context of Pretoria.

PRECEDENT STUDY

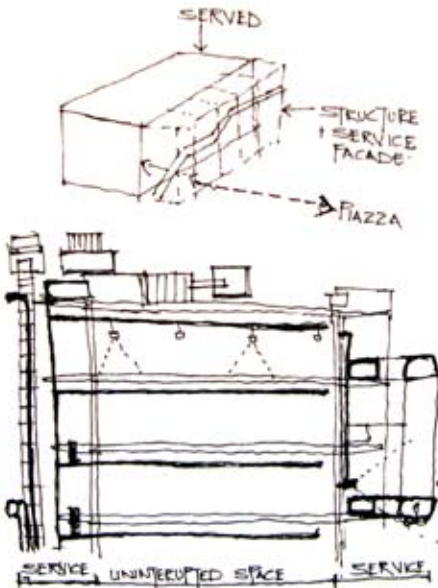
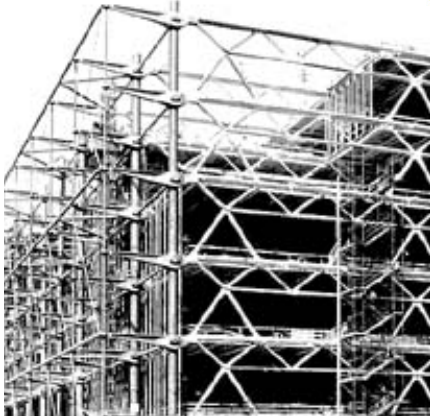
CENTRE DE POMPIDOU
1971-1977
PARIS, FRANCE
RICHARD ROGERS AND RENZO PIANO

During the 1970's architecture developed as a response to post-war culture and the machine industry, prompting building technology to develop as a kit of parts. Structures became lighter and more flexible in response to the contextual conditions presented (Buchanan, 1997:89-95). The Pompidou centre, built in 1977 was designed so that systems is emphasised within the public realm. Here the supporting structure, movement and flow systems were relegated to the outside of the building, and the service ducts were colour coded for legibility of function. The transparency of the main facade permits people to view indoor activities from the centre of the piazza (ibid).

The building was designed in two parts on the lines of an 'evolving spatial diagram' (refer to Fig.7): first, a three-level infrastructure housing the technical facilities and service areas consists of a network of frames, ventilation and service pipes, corridors and escalators, all which allow the facade to showcase its technical performance. Second, a vast seven level glass-and-steel superstructure, including a terrace and mezzanine floor, concentrate most of the Centre's areas of activity together in unobstructed volumes.

The Centre aims to maximise spatial movement and flow to foster an interdisciplinary approach. Where museums were once regarded as elite monuments, the centre is transformed into a popular place of social and cultural change (<http://www.architectureweek.com/2003/1203/building.html>).

The relevance here is that processes of both making and functioning of the building becomes part of the public realm, the structure is legible in terms of connections, and services, circulation, further allowing for the maximum liberation of space within.



6. POMPIDOU EXTERNAL STRUCTURE ([HTTP://WWW.ARCHITECTUREWEEK.COM/2003/1203/BUILDING.HTML](http://www.architectureweek.com/2003/1203/building.html))

7. FUNCTIONING OF CENTRE DE POMPIDOU (AUTHOR 2010).

8. CIRCULATION AND SERVICES ([HTTP://WWW.ARCHITECTUREWEEK.COM/2003/1203/BUILDING.HTML](http://www.architectureweek.com/2003/1203/building.html))

9. STREET FACADE WITH CIRCULATION ([HTTP://WWW.ARCHITECTUREWEEK.COM/2003/1203/BUILDING.HTML](http://www.architectureweek.com/2003/1203/building.html))

PRECEDENT STUDY

COUNCIL HOUSE TWO (CH2) BUILDING
2006
MELBOURNE, AUSTRALIA
DESIGN INC.

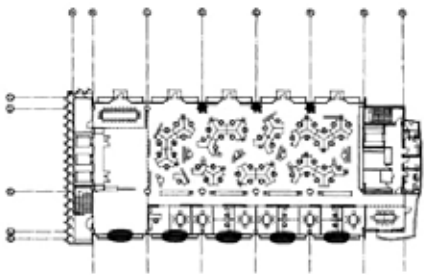
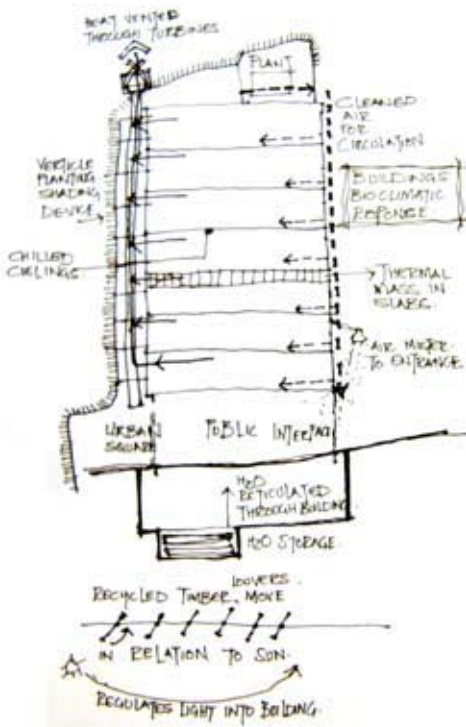
Fritjof Capra speaks about a scientific understanding of life according to various living systems, such as organisms, social systems and ecosystems, that these systems form parts of a larger whole, where changing the properties of one system will intern affect other systems (Capra, 1996:36-38).

In the design of the CH2 building contextual systems thinking is applied, based on the building becoming a third skin for humans in relation to the urban environment.

The functioning of the building mimics nature (bio mimicry).The facades of the building ages, as well as responding to the change in climatic conditions throughout the year. Each facade differs in order to maximise internal efficiency of the building (refer to Fig.10).

Part of the design aesthetic, is the elaboration and legibility of servicing, educating society about how the building functions, and responds to the environment [<http://www.architecturemedia.com/aa/issue.php>].

This building is relevant to the argument in terms of a building being able to sustain itself through the processes which occur within in the building where distribution, use and recycling of resources have become part of the program, further the building responds to the environment in order to maximise comfort for the workforce, optimising conditions of a productive workspace. The building advocates an approach of contributing to the surrounding urban fabric, by lessening the carbon output, and responding to existing street conditions.



10. FUNCTIONING OF CH2 BUILDING (AUTHOR 2010).

11. PLAN ORIENTATION OF FACADES([HTTP://WWW.ARCHITECTUREMEDIA.COM/AA/ISSUE.PHP](http://www.architecturemedia.com/AA/ISSUE.PHP))

12. RECYCLED TIMBER VERTICAL LOUVERS ([HTTP://WWW.ARCHITECTUREMEDIA.COM/AA/ISSUE.PHP](http://www.architecturemedia.com/AA/ISSUE.PHP))

13. ROOF GARDEN WITH AIR VENTS ([HTTP://WWW.ARCHITECTUREMEDIA.COM/AA/ISSUE.PHP](http://www.architecturemedia.com/AA/ISSUE.PHP))

14. FACADE/ SKIN RESPONSE TO ORIENTATION([HTTP://WWW.ARCHITECTUREMEDIA.COM/AA/ISSUE.PHP](http://www.architecturemedia.com/AA/ISSUE.PHP))



CHURCH SQUARE
CITY CENTER

SKINNER
MAJOR EAST WEST ROUTE



BEREA PARK
RESIDENTIAL
SURROUNDING



SITE

GATEWAY

PRETORIA STATION
TRAINS AND BUSES

GATEWAY

15. PRETORIA CITY AND
SALVOKOP
(AUTHOR, 2010)

SALVOKOP : WORLD HERITAGE
SITE

STUDY AREA



CHAPTER THREE

CONTEXT

The first part of this chapter will discuss the production context historically, dealing with the reasons behind the influx of imported merchandise into South Africa, and the resultant decline of the country's textile manufacturing industry. A further look will be taken at the government's initiative toward supporting local manufacturing, and how this has been implemented in the South African urban context.

The physical context will then be mapped and various aspects analysed, in order to explore the urban conditions within the station precinct area.

The strong economic and social forces associated with the early manufacturing boom in the early 1900's led to inner cities becoming a dynamic area of occupation within close proximity to housing for the workforce. In the 1920's and 1930's, improvements to both private and public transport led to wealthy urban dwellers moving out of the inner city to the suburbs. This drift of wealth and skills away from the inner city continued around the world, leading to sprawl and the deterioration of these city centres. The 1950's and 1960's witnessed rapid economic growth in the western industrial nations due to international trade and labour migration patterns. Capital intensive exports were sent from developing to developed countries through international trade systems. There was a significant flow of capital investment and manufacturing operations to the developing Asian countries as multinational corporations sought to reduce their costs of production by relocating assembly operations to places with lower labour costs. New manufacturing plants with efficient technologies were relocated to developing countries and competed with existing industries in cities of the developed world. This led to the rapid decline of many cities, accompanied by a sharp decrease in the level of employment. Attempts were made at rejuvenating the traditional economic sectors, but this was short-lived in all western democracies (Cuberes, 2004:4-7).

Mapping within the study area [refer to Fig.16] indicates ground-floor commercial activity that consists mainly of imported merchandise.

The clothing and textile industries in South Africa were in a privileged position prior to 1994, due to protection by the government. Post 1994, South Africa rejoined the global economy, thus facing escalating competition from both the domestic and international markets.

Over the past decade there has been an increase in the amount of imported clothing merchandise, since the price of imported goods from Asian countries is far lower than that which is manufactured in South Africa. The reasons for this include the lower cost of living in Asia which reduces labour costs, and the economies of scale resulting from large production runs of merchandise in the Asian countries (Republic of South Africa, 2004).

16. COMMERCIAL FUNCTION MAPPING IN STUDY AREA (AUTHOR 2010).



Due to the influx of imported clothing and fabrics at lower rates, clothing stores benefit by applying a larger mark-up to sale goods. Hence both local clothing and textile manufacturers have borne the brunt of this situation, as South Africa cannot produce merchandise at the same low prices. The South African textile manufacture industry (mainly based in KwaZulu-Natal, the Western Cape, Eastern Cape and Gauteng) contributed to a large percentage of the country's production output and job market. Due to the decline in the textile industry since 2003, both the employment market and the country's economy have suffered (<http://www.textfed.co.za>).

GOVERNMENT INITIATIVES

The Department of Trade and Industry (DTI) has recently embarked on negotiations with China to limit imports of clothing and textiles into South Africa. In addition, and due to the cost of raw materials as a critical component in the clothing and textile supply chain, the South African government and the DTI have raised import tariff structures to protect in-house material inputs, penalising organisations that source inputs from foreign markets.

The development of the small, micro, medium enterprise (SMME) economy has been stated as a core national policy objective, the reason being that SMME's are seen as key in job creation and poverty alleviation. However, studies point to the sector continuing to constitute mainly of survivalist measures such as side-of-the-road hawking, instead of the sector evolving on an increasing scale of enterprise and job creation.

The DTI has formulated a framework for clothing manufacture in South Africa, which recognises competition from both the domestic as well as the international market that is currently crippling both the clothing and textile industries. However, with a reservoir of experience and expertise within the industry, it could be re-established as a force that can challenge competitors – domestically and internationally – by focussing on added value, exceptional quality and the effective application of all resources through technological application (<http://www.dti.gov.za/publications.htm>).

Programmatically this proposal supports the implementation of an urban manufacturing component that incorporates light industry within urban environments, and which promotes the abovementioned government initiative, while providing an economic base for achieving ongoing development in an urban centre. This proposal aims to generate wealth through local investment and employment, further producing goods and services that meet needs within an urban context.

THE FASHION DISTRICT JOHANNESBURG

The Fashion District is a project initiated by the Johannesburg Development Agency (JDA) in line with the city's 2030 long-term economic development strategy.

The district incorporates twenty-six city blocks on the eastern end of the CBD, bounded by Jeppe, End, Commissioner and Von Wielligh Streets (refer to Fig.22). It houses over a hundred fashion-related businesses, which range from larger clothing manufacturers to small-scale fashion-related entrepreneurs.

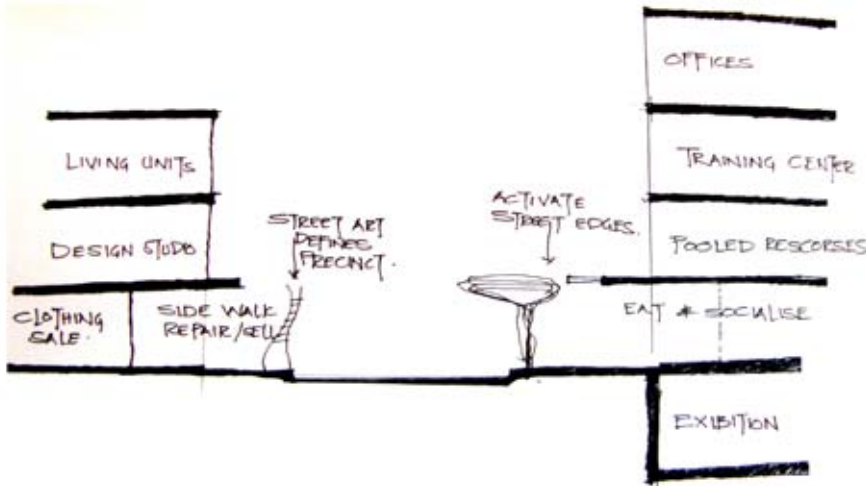
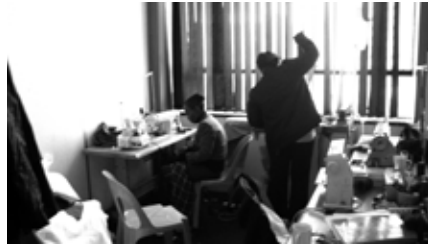
The area also offers training to fashion practitioners through institutions linked to the Department of Labour, and this allows for continuous training and development within the industry. The agency has upgraded public amenities, which includes roads and telecommunications as well as the refurbishment of old buildings (<http://www.jda.gov.za>).

The Fashion District contributed economically to the eastern part of the CBD for over half a century until the late 1980's and early 1990's. The local industry went into decline when large businesses moved out of the Johannesburg CBD. The redevelopment and upgrade of this district has helped raise its profile, which in turn benefits young designers and entrepreneurs. The district also includes a training centre, promoting the improvement of skills to entrepreneurs as well as the informal fashion trade.

The manufacturing hub provides space for people entering the industry, which includes access to pooled machinery, equipment, changing rooms and administration facilities.

Designers are encouraged to engage with micro cutting, manufacturing and trimming (CMT) businesses in the district, thus developing all aspects of the clothing chain (http://www.joburgnews.co.za/2006/mar/mar23_sewaf-rica.stm).

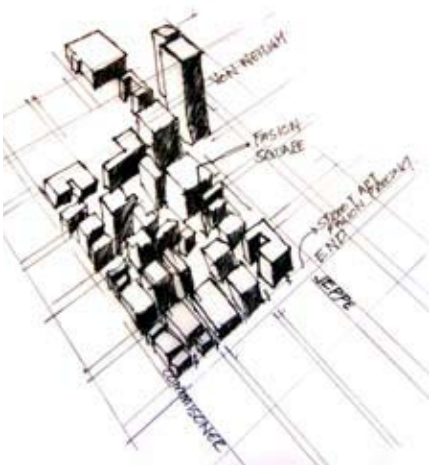
The idea of the Fashion District is to encourage local manufacture and job creation at various levels, from design through to equipment repair. The aim is to discourage mass production through focusing on quality output and value-added merchandise (<http://www.jda.gov.za>).



17. POOLED RESOURCE WORKSHOP FOR DESIGNERS, SEW AFRICA (AUTHOR, 2010)

18. SHARED DESIGN STUDIO, SEW AFRICA (AUTHOR, 2010)

19. STREET SECTION IN JOHANNESBURG FASHION DISTRICT (AUTHOR, 2010)



20. FASHION DISTRICT SQUARE, HOSTING FASHION SHOW (AUTHOR, 2010)

21. STUDENTS DOING PATTERN DESIGN, SEW AFRICA (AUTHOR, 2010)



22. LOCATION OF DEFINED FASHION DISTRICT IN JOHANNESBURG CBD (AUTHOR, 2010)

23. APPAREL RELATED COMMERCIAL OUTLETS, FASHION DISTRICT (AUTHOR, 2010)

The term “context”, as described by Nan Ellin, comes from the Latin word *conextere*, meaning “to weave together or make connections”. Architecture and urban environments thus exist because they are part of a context; a network of flows resembling an organism thriving in a mutualist relationship with its host. A clear understanding of a building’s context and the various webs and flows therein, as opposed to an object-based, insular, static architecture, is of prime importance in achieving an architecture born of its environment (Ellin, 2006:5 -7).

Pretoria is today the historic core of the larger City of Tshwane, and forms part of the larger Gauteng Province, which is the economic heart of the country. Gauteng’s position is based on its natural resources. The discovery of gold on the Witwatersrand in the year 1886 caused an influx of people that transformed the rural community into an urban society. Today this area hosts many of the country’s industries and commercial functions. The city of Tshwane forms the administrative capital of the country, and presently contains approximately 1, 6 million inhabitants (<http://Tshwane.gov.za>).



24. SITE LOCATION
[AUTHOR, 2010]

The economic and social transformation underlying Pretoria's growth and morphological changes during the second half of the 19th century, caused political tensions within the Republic of South Africa resulting in military conflict. The first half of the 20th century was a period of political stability and economic growth. The city prospered especially after 1910, when Pretoria became the capital city of the new Union of South Africa under the British Crown. As industrialisation took off, developments caused further urbanisation and a building boom (Corten & Van Dun, 2009:11-12). One of the significant reasons for economic growth in Pretoria was the introduction of a railway system to the town and its environs. This had a significant impact on the expansion of commerce, the building industry, and other related trades. The eventual impact was greatest on municipal services and the expansion of the town's boundaries.

Among the production industries recorded within the inner city were Van Erkom's cigar and snuff factory on the western banks of the Apies River, a tobacco factory, a cold-drink factory, a bakery, the Union soap works, as well as various workshops and blacksmith's premises on Andries Street (Naudé, 2007:45-49). Within Pretoria city, places of production are currently mainly situated on the edges of the inner core, and are related to the motor industry (refer to Fig.25). Small-scale clothing-related manufacture through NGO partnerships (refer to Fig.26) is located at various points within the city.



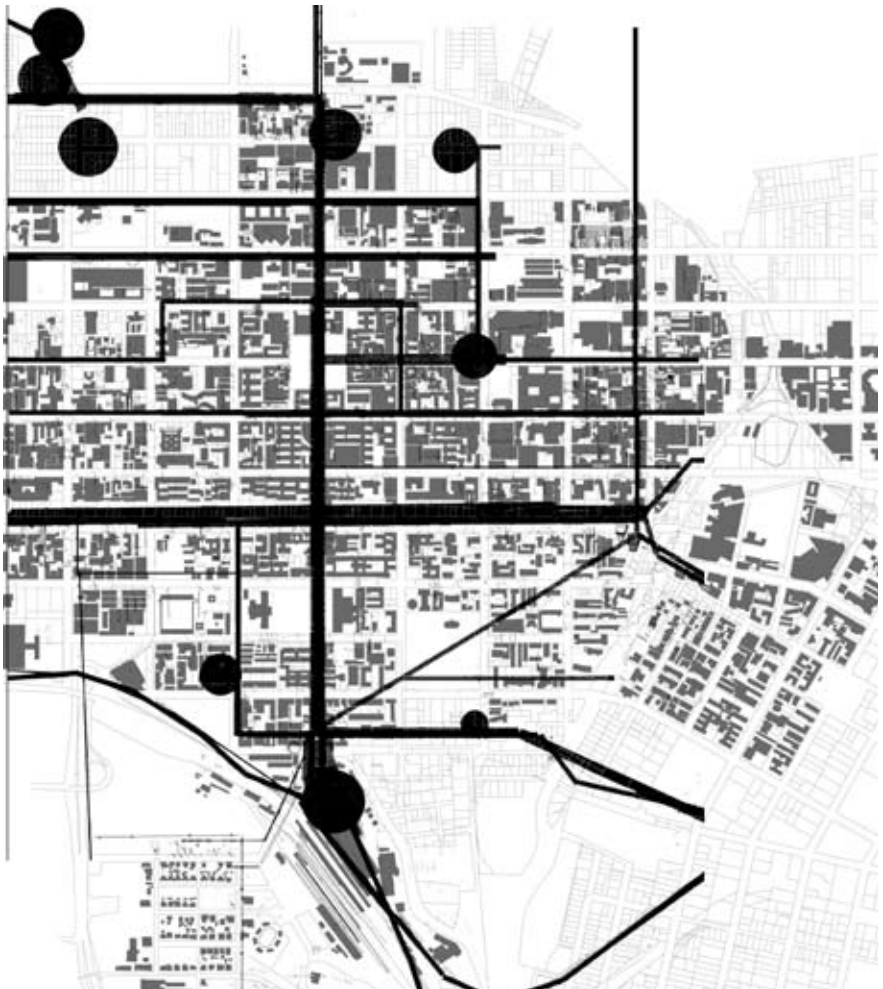
25. CURRENT PRODUCTION FACILITIES IN PRETORIA (AUTHOR, 2010)

26. NETWORK BETWEEN FASHION RELATED ENTITIES IN PRETORIA (AUTHOR, 2010)

The area of investigation is the station precinct within the southern quadrants of Pretoria linking to Salvokop. This precinct is identified as the southern gateway into the city for various commuters that for example use train, bus, taxi or Gautrain transport, thus implying a place of multi-modal interchange, (refer to Fig. 27).

Pedestrian activity at peak hours generally results in a north-south movement through the city. The major pedestrian activity happens along Paul Kruger and across the pedestrian bridge connecting to Salvokop; secondary routes are down Bosman Street and Andries Street, parallel to Paul Kruger, (refer to Fig. 28).

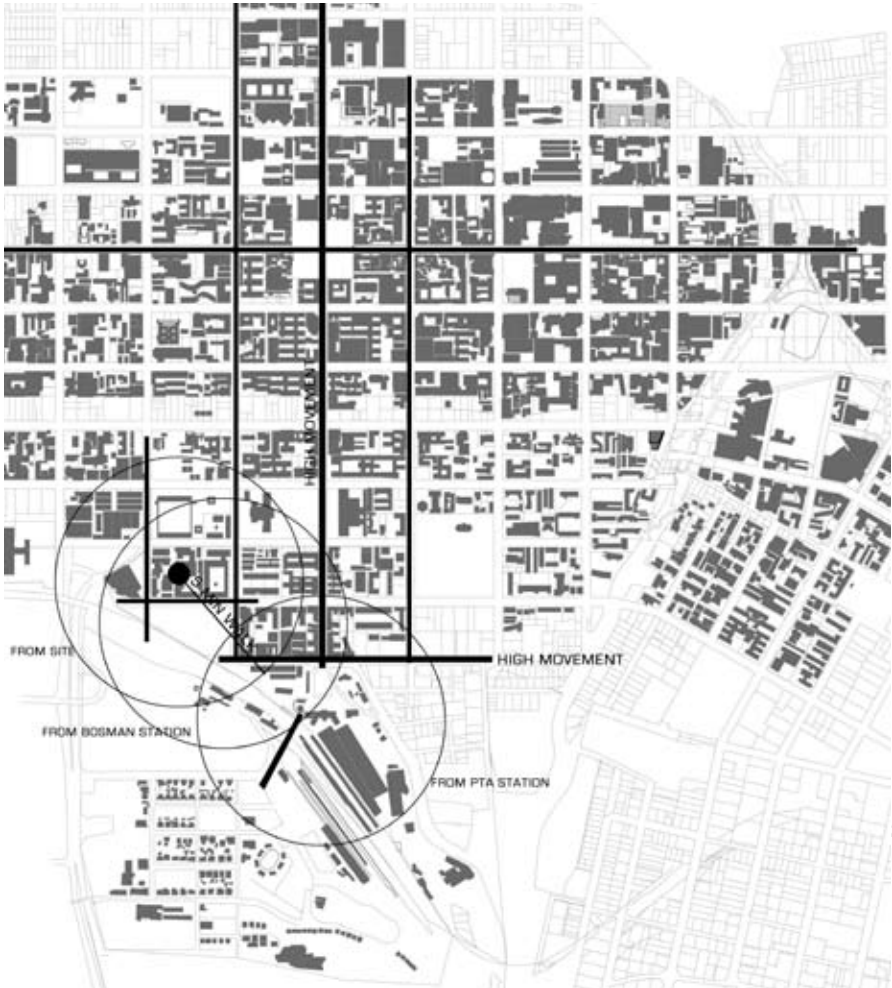
Commercial activity within the station precinct involves both the formal and informal sector, occurring mainly along Paul Kruger, Bosman, Schieding and Jacob Mare Streets.



27. TRANSPORT ROUTES IN PRETORIA (AUTHOR, 2010)

Formal trade consist mainly of food and imported clothing. The Informal trade is well established in the area and vends mainly food, catering to the commuters moving within the precinct, throughout the day. Informal trade occurs on the sidewalks along the street edges, allowing for a limited space for pedestrians to move efficiently through the city. Informal trade is part of a South African urban context, and should be accommodated for when designing street edges.

Minnaar Street, located to the north of the site, forms the spine of the museum park development, which is well situated close to a number of transport nodes. Museum Park is an organisation that develops and markets the heritage activities of several museums and prominent historical sites in Pretoria. The road closure of the western end of Minnaar Street and the lack of public facilities provide little incentive for pedestrians to move down the street to and from Burgers Park.



28. PEDESTRIAN MOVEMENT IN PRETORIA (AUTHOR, 2010)

Putting data on a map can reveal new spaces for action, and new options for intervention, as the often unseen shapes and forms of life in the city become visible (Spatial Information Design Lab, 2009).

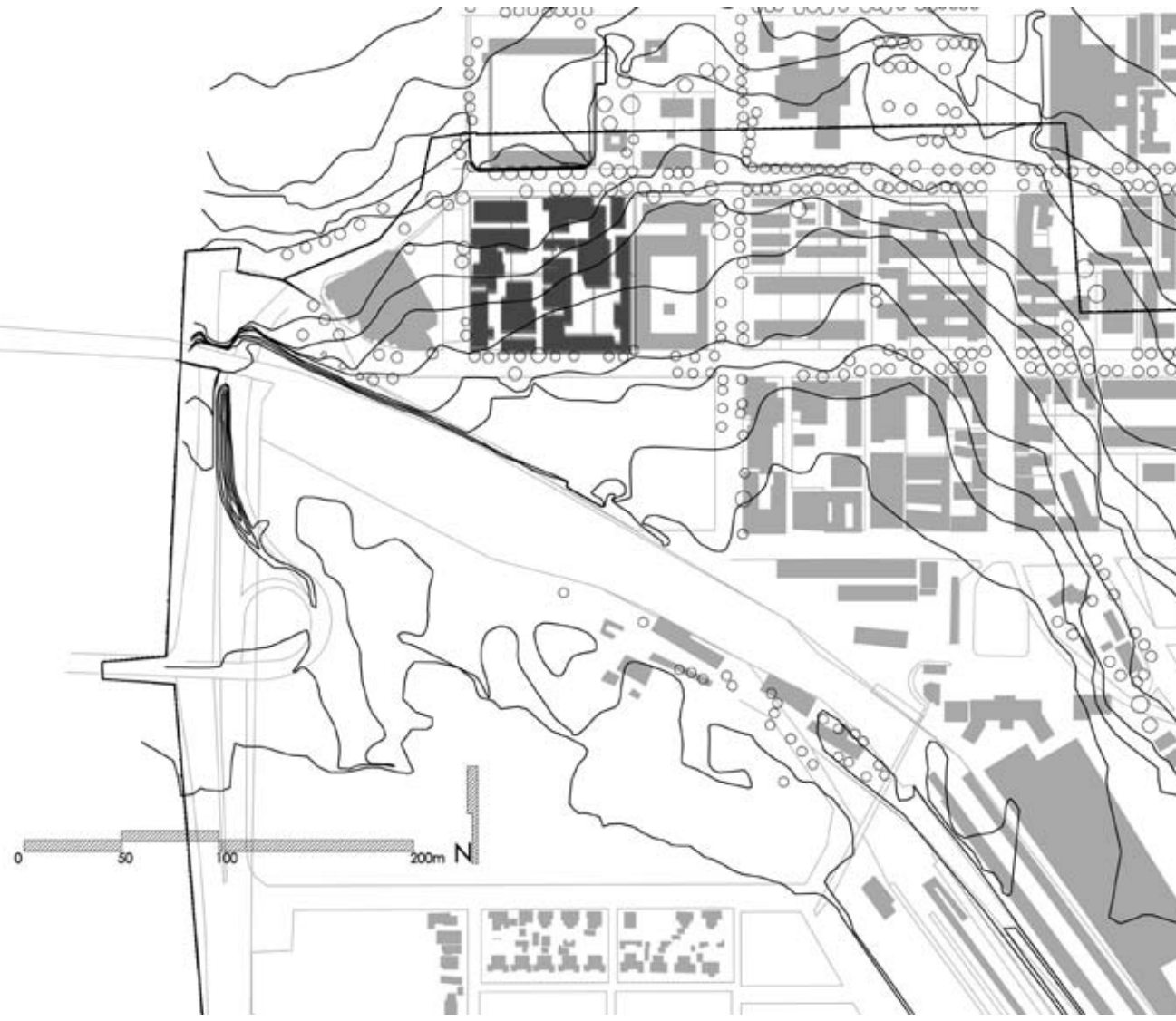
The activity of mapping as a creative practice with the capacity of simultaneously concealing and revealing potential, allows us to distinguish what is from what is not. The act of mapping is an agency that helps us to engender and remodel the world. With this understanding, mapping is then less related to a 'mirror of reality' than to the reshaping the world in which we live. Maps are performative, pragmatic instruments that emancipate potentials, which encompass durational experiences, thus generating effects, unfolding potential, and re-making territory. It must be acknowledged that the contemporary world constantly changes at such a speed and complexity that nothing remains certain or stable. Space is subjectively interpreted, which makes the map more intuitive than that of an empirical description.

The Station precinct was mapped in a variety of ways in order to understand the urban context, which informs design decisions. The mapping looks at three levels of analysis, the natural urban landscape, the built environment and users of the city.

LANDSCAPE

Through mapping it is evident that, when approaching the edges of the city fabric, there is a reduced amount of green structure, increasing the heat island effect usually generated along railway track. It is also evident that there is a reduced amount of green structure within the city blocks.

29. NATURAL LANDSCAPE
MAPPING: CONTOURS AND
TREES
(AUTHOR 2010).

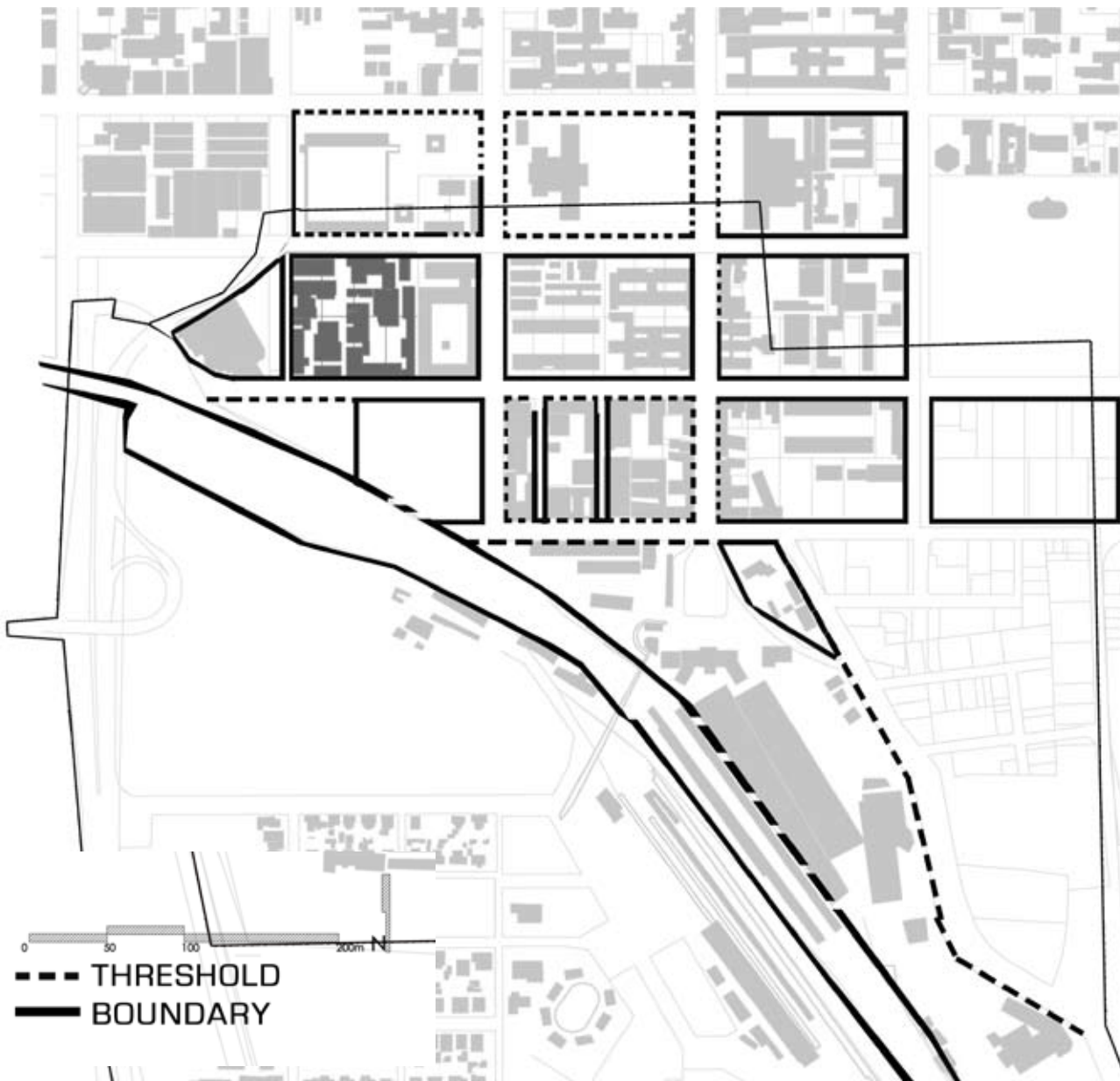


Here, the street blocks were analysed in terms of public accessibility; the solid lines indicate no access or public interface, where the dashed lines indicate ground floor public accessibility.

Nan Ellin describes urban porosity as a spatial porosity within the city, achieved when the built fabric dissolves away at the edges, in order to blur the boundary between built fabric and the surrounding context (nan ellin 2006 , integral urbanism).

Here the reintegration of the boundary or threshold into context is imperative in order to explore what exists, and what begins to overlap on urban thresholds. Furthermore, it addresses how architecture can be used as a tool for understanding the edge, allowing for embracing, defining or ignoring the boundary. (nan ellin 2006 , integral urbanism).

30. EDGE AND THRESHOLD
MAPPING
(AUTHOR 2010).



Streets with the highest vehicular and pedestrian movement were identified, and then mapped according to movement intensity; the darker areas depict nodes with slow dense movement, where the lighter areas indicate faster, uninterrupted movement patterns.

Jacob Maré and Bosman streets have a high urban intensity, but do not accommodate for public accessibility, or for favourable street conditions to accommodate for urban intensity. [show images of these streets].

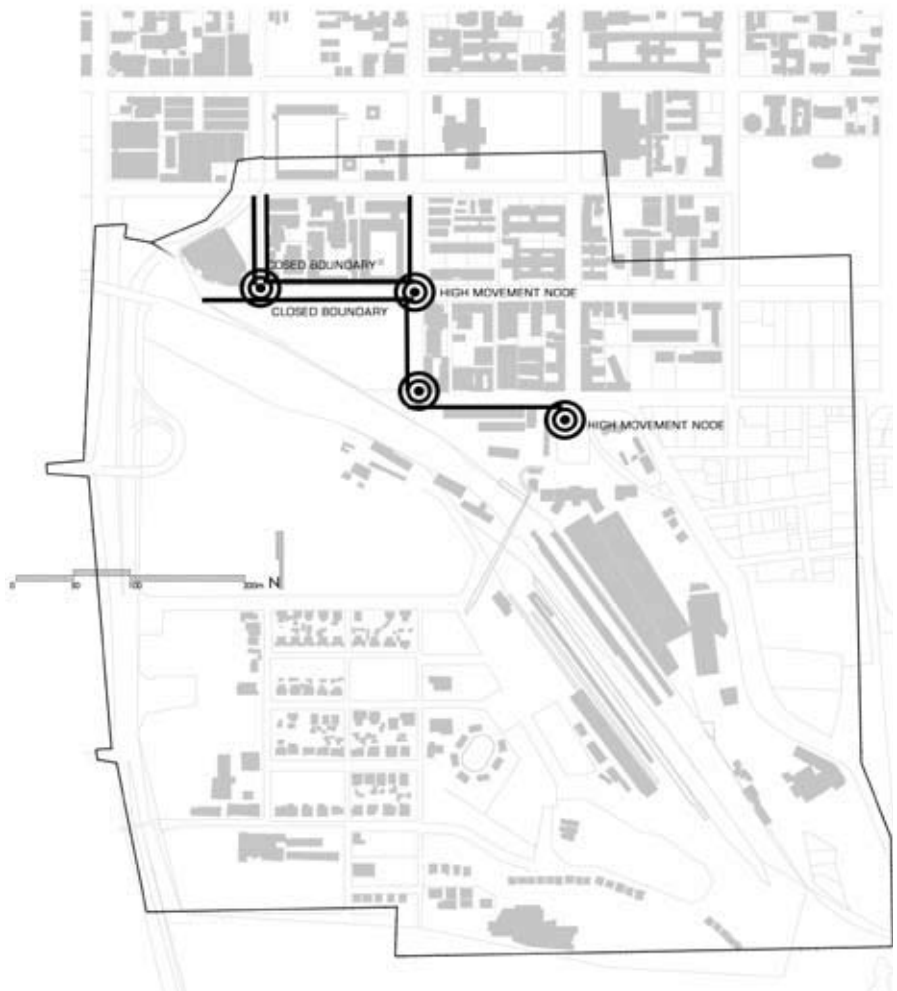
'Take a small sample of a city, cut a small section out of its flux, watch the processes that create the flux, their product is the horizon of the second skin as we see it' (Bunschoten, 2001: 160)

31. URBAN INTENSITY
MAPPING
(AUTHOR 2010).



CONCLUSION

It is evident through the mapping processes, that the built environment does not respond to the contextual events that occur on the edges of city blocks, or between the built fabric; buildings act as borders, rather than thresholds within the precinct. The edges inhibit people from pausing and embracing the city instead they encourage fast through-movement making the city an interchange, rather than a destination or gateway. Furthermore, toward the edge of the city, it is clear that green structure diminishes, giving way to brown field sites on the edges of the railway tracks, and it is here that landscape/ green structure should become part of or interweave into the built fabric.



32.URBAN MAPPING
 INTERPRETATION
 (AUTHOR 2010).

The study area into which this proposal will be inserted (refer to Fig.32) mainly hosts a lower to middle income demographic of people working in the inner city as well as residing in the neighbouring Salvokop area; the closest community to the inner city core. It also contains a major tourist attraction, Freedom Park. Also contained within the station precinct is an influx of immigrants from Asian and African countries. The current urban proposal for this area envisions attracting higher income groups for economic investment. In order to avoid gentrification of the area, functions should allow for the semi-formal sector to benefit from larger sector investors, permitting a symbiotic relationship to form.

PHYSICAL CONTEXT_ SITE SELECTION

The proposed site was selected due to the following factors:

- The existing buildings are symbolic of a production typology as understood by western culture.
- The possibility to re-use existing building fabric in the city rather than demolishing it.
- The ground-floor commercial functions of the surrounding city blocks are stocked with imported merchandise.
- The site is currently isolated from its context, as observed through mapping processes.
- The site is in close proximity to a major transport node, i.e. Pretoria Station, as well as residential functions at Berea Park and Salvokop.

33. VIEW OF THE SITE FROM EAST (AUTHOR 2010).



The site is located towards the edges of the south-western quadrant of the inner city core within the Pretoria Station precinct. It neighbours the Pretoria Fire Station to the east and the Post Office headquarters to the west. It is bounded by Minnaar Street to the north and Jacob Maré Street to the south (refer to Fig 34).

SITE CONDITIONS

Historically the site consisted of eight erven, demarcated in 1925. The initial structures on the site were used as horse stables. During the 1940's the site was appropriated by the Department of Public Works to house workshops and offices for government departments.

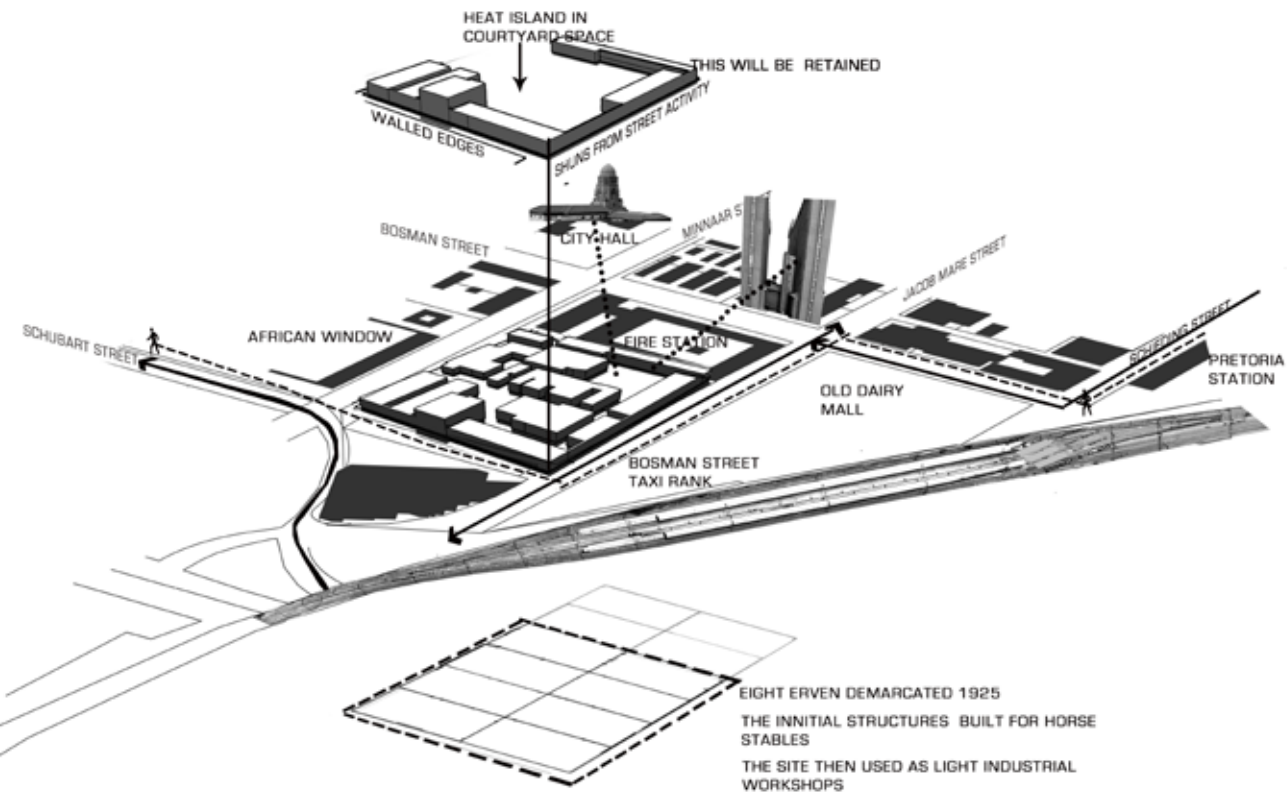
The size of the site is approximately 20 650 square meters, and it currently consists mainly of one-storey storage buildings, with a few structures being utilised for furniture manufacture, equipment repair and offices for the Department of Public Works (refer to figure). The site has a 1:20 meter slope in a northerly direction. Views toward Freedom Park and the centre of Pretoria form the background to the site, whereas the bell tower of the City Hall as well as the Department of Land Affairs makes up the visual foreground.

Minnaar Street to the north of the site forms the backbone of the Museum Park development. Having a more pedestrian responsive character, it also provides primary access to the site.

The southern edge of the site forms a back wall to the bustling street activities on Jacob Maré Street, where informal sidewalk restaurants form part of a high-movement pedestrian zone, fed by the Bosman Street taxi rank and its close proximity to the major public transport hub of Pretoria Station.

The western edge between the Post Office and the proposed site, functions as a pedestrian throughway. In the morning it hosts high volumes of pedestrian movement in a northerly direction towards the Pretoria CBD, which in the afternoon shifts southward toward the Bosman Street taxi interchange and Pretoria Station.

34. SITE ANALYSIS (AUTHOR, 2010)





35. VIEW WEST ON JACOB
MARE STREET
(AUTHOR, 2010).

36. PEDESTRIAN THOR-
OUGHFARE AND JACOB
MARE INTERSECTION
(AUTHOR, 2010).

37. CURRENT TAXI INTER-
CHANGE BOSMAN STREET
(AUTHOR, 2010).



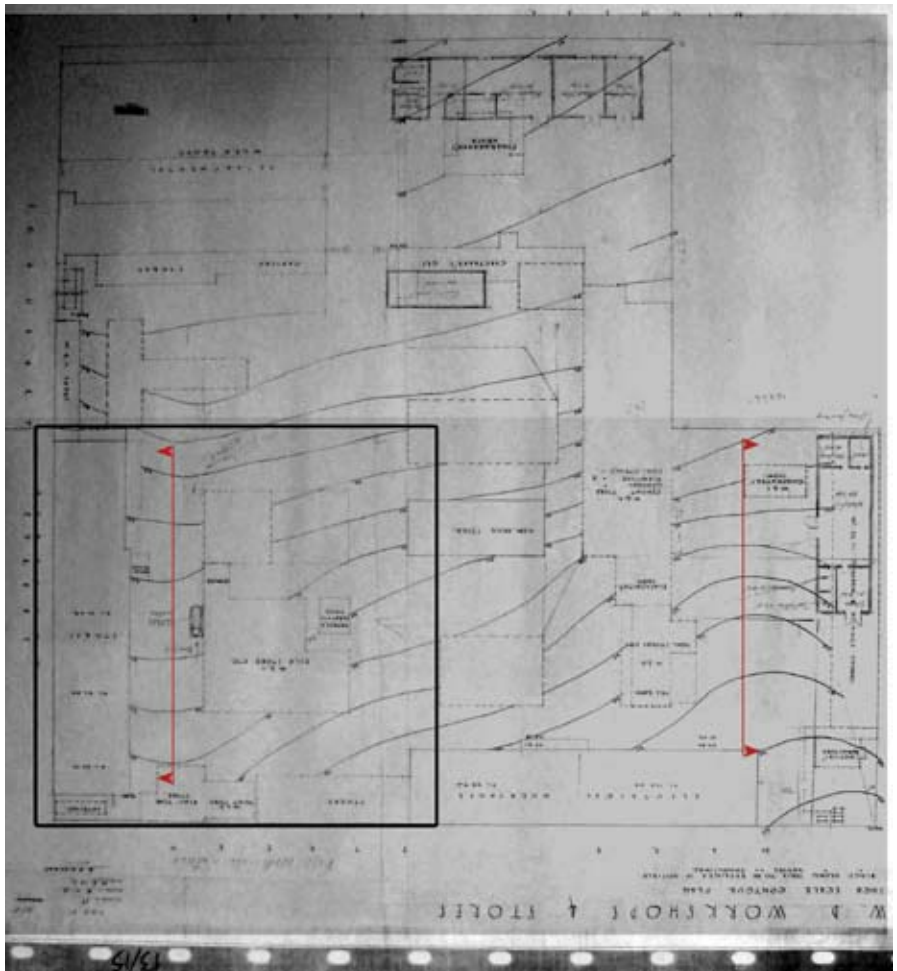


38. INTERNAL COURTYARD SPACE ON SITE (AUTHOR, 2010).

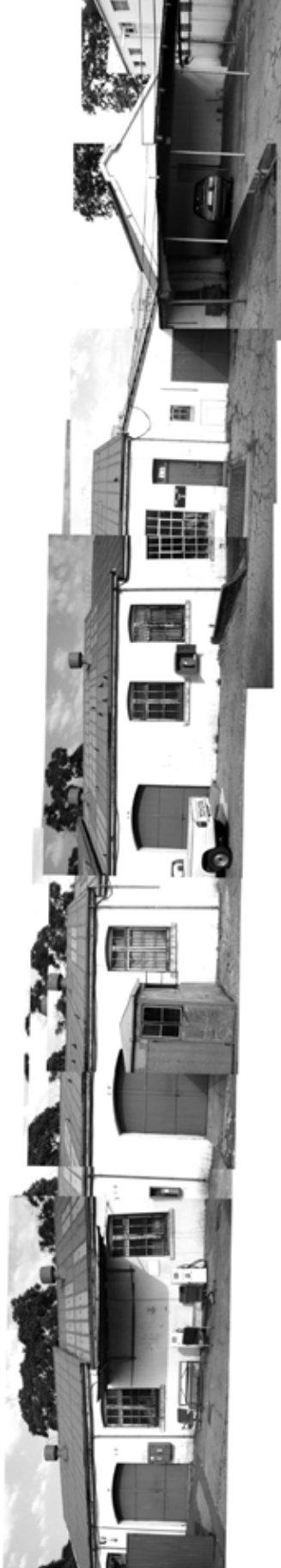
39. EXISTING FURNITURE WORKSHOP (AUTHOR, 2010).

40. MANAGERS OFFICE IN WORKSHOP, PANOPTICON (AUTHOR, 2010).

41. OLD MATERIAL STORAGE ON JACOB MARE BOUNDARY (AUTHOR, 2010).



42. INITIAL SITE DRAWING
(DEPARTMENT OF
PUBLIC WORKS).



43. EAST ELEVATION OF EXISTING WORKSHOP BUILDING (AUTHOR, 2010).

44. WEST ELEVATION OF EXISTING OFFICES (AUTHOR, 2010).

SITE CONDITIONS

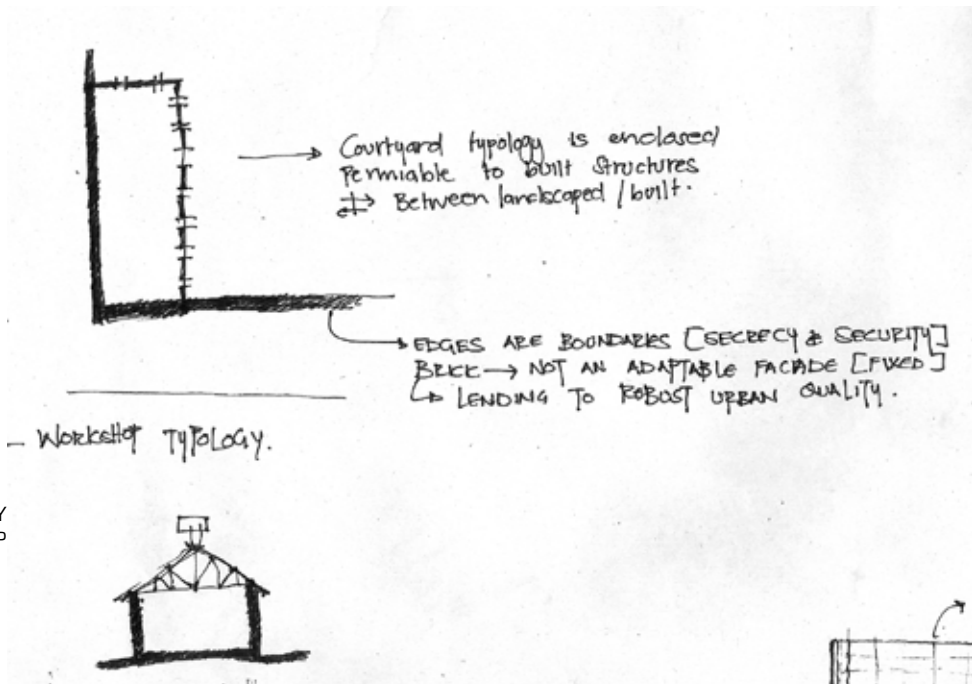
Due to the typology of the existing buildings, which is closed off to the public, windows are placed high up so that activities within are not visible from street level.

The existing surface material of the vehicle-orientated courtyard is tarmac, contributing to the heat island effect on site (refer to Fig. 33).

SIGNIFICANCE

This building being older than sixty years, would be classified as heritage due to its age, however it is not a protected structure. The western and southern edge of the site comprise of face brick walls, and the east facade which faces onto the courtyard, is painted over in white. Doors and windows mimic that of the initial structures on site, with the use of arched openings. The roof construction consists of pitched timber trusses, gables, and corrugated metal sheeting.

Other existing structures on the southern boundary consist of individual storage rooms for oil and gas, but are no longer in use.



45. EXISTING TYPOLOGY OF EXISTING WORKSHOP BUILDING (AUTHOR, 2010).

This chapter, through employing mapping sequences and analysis, shows that the inner city can derive the most economic and social benefit from catalytic projects that connect various networks within the urban fabric. From an environmental, economic and social point of view, it is generally acknowledged that within the city there lies the potential for an intervention that acknowledges and stimulates the circumstances that have created the current situation.

PROPOSAL

On an urban scale, this proposal aims to explore edges and threshold spaces, in response to the network of flows, which form and support the context. This proposal starts to address porosity of built fabric both spatially and functionally within the city. Nan Ellin describes urban porosity as a spatial porosity at the scale of the city, achieved when permeable membranes separate and unite buildings from and with the surrounding physical and cultural landscapes. (Ellin, 2006:82-85).

The proposal of an urban manufacturing centre would look at strengthening local connections between manufacturer and end user, as well as establishing connections through program to unrelated functions, such as the site's response to the taxi interchange across it. Rem Koolhaas mentions that within cities, connectivity is constituted by 'exacerbated difference' or a permanent hybridity. Programmatic hybridity, begins to allow for complexity, density, congestion, and contamination in order to create new events (Koolhaas, 1978: 10-12)

This dissertation proposes an investigation of the manner in which a production facility would manifest in a South African urban context.

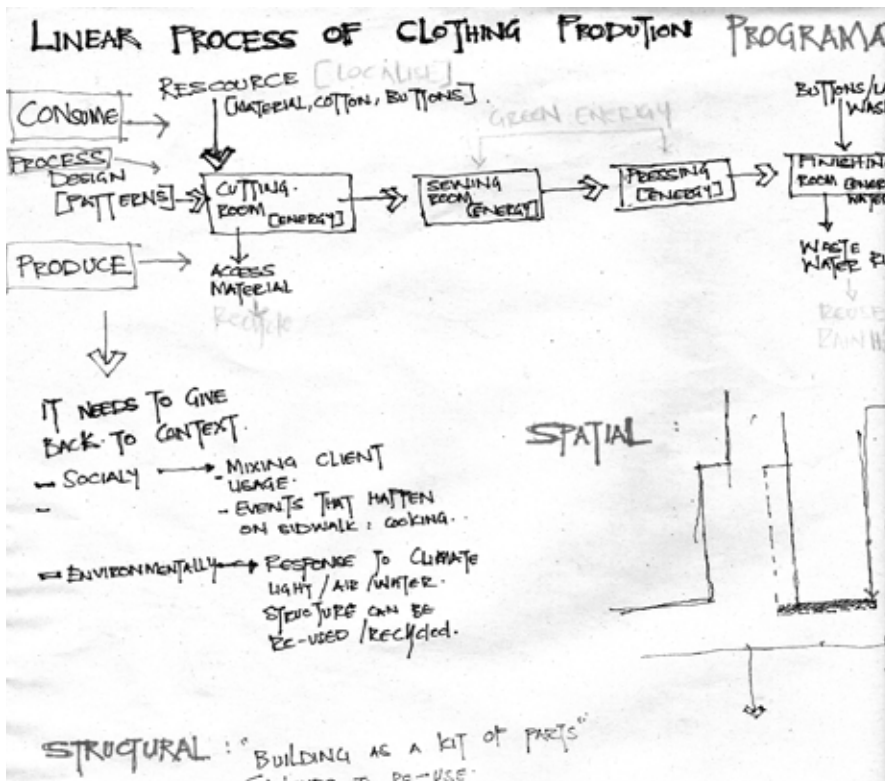
Here, at the government workshops in Pretoria, an intervention is required which super-imposes a new ideology of the workhouse typology, while posing a reaction to the building's exclusive history towards its context. This intervention would focus on elevating the idea of production as a process driven, rather than a product driven facility; a hybrid production facility is advocated, which localises networks of consumption and distribution within the city.

The workhouse was conceived as a place of control and industrial secrecy, promoting a facility that was exclusive toward its surrounding urban environment. This dissertation proposes an inversion of the panopticon, through a shift in ownership of the production facility from a private owned entity to a cooperative between the private and public sector, encouraging the public to physically engage and benefit from the process of manufacture.

The program supports the theoretical premise of cyclic processes contributing to the context, through extending the current production line of apparel wear. Here the process does not end at an item of clothing, but accommodates for further processes of washing, repair, re-use and recycling of clothes, promoting a more inclusive facility within an urban context.

The building should function as a contributor within the urban context, thus the architectural brief is as follows:

- Insert a new facility which engages with the existing building fabric
- The new building should respond to the existing contextual flux identified within urban mapping, by engaging with street edge and the pedestrian thoroughfare .
- Permit a public interface to the production facility, as a reverse of the panopticon.
- Unlock parts of the building that become infrastructure within the city and those parts which can adapt to change within the life span of the building.
- The building should recognise its part in a process, from conception through to being taken apart and re-used.
- Future possibility that the site can be sub-divided due to densification of city, allowing the building to function as separate programs.
- Consider the buildings role within the station precinct, and how its responds to commuters as well as people living within the precinct.



46. INTENDED PROGRAM AND PROCESSES (AUTHOR, 2010).

The primary function of this building is a clothing manufacturing facility.

The secondary function supports the main function through:

- Localising Clothing distribution
- Repair and recycling
- Apparel and accessory retail

The ancillary functions respond to the context in order to spatially and functionally connect the urban fabric:

- Urban laundry,
- Semi formal trade/ repair
- Recycle collection centre.

USERS

Two user types can be identified:

Regular users would include:

- People working in the facility
- Clients related to the apparel industry
- Commuters that pass through the station precinct on a daily basis,
- Residents within the city
- Informal traders within the station precinct

Periodic users include:

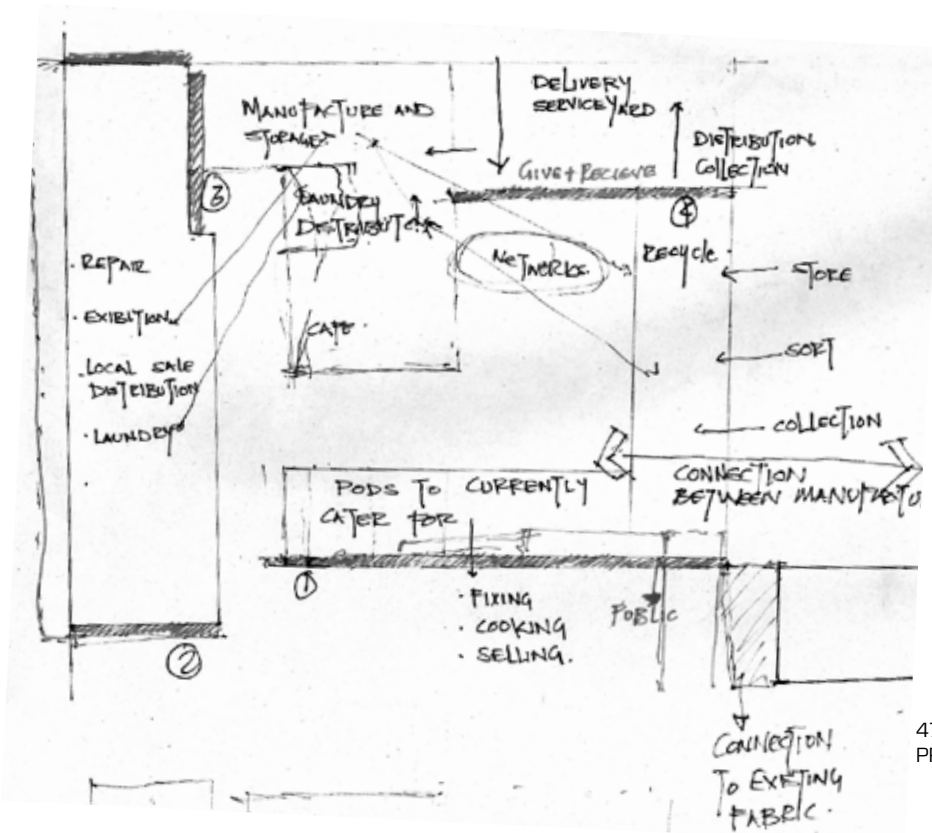
- Commuters that visit the city intermittently
- Apparel related professionals
- General public within the greater Tshwane area

GROUND FLOOR

- Delivery and distribution
- Storage
- Manufacturing space
- Packaging
- Clothing distribution
- Second hand clothing store
- Recycling collection centre
- Refuse
- Repair
- Commercial
- Urban laundry
- Semi formal trade/repair
- Courtyard / event spaces

FIRST FLOOR

- Administration/ marketing
- Studio space
- Workshop as pooled services
- Material and pattern libraries
- Consultation rooms
- Alternative energy plant room
- Food preparation
- Cafeteria/ event space



47. LINKS FORMED BETWEEN PROGRAMS (AUTHOR, 2010).



48. COLLAGE OF NEW
IMPOSED ON EXISTING
PRODUCTION TYPOLOG
(AUTHOR, 2010).

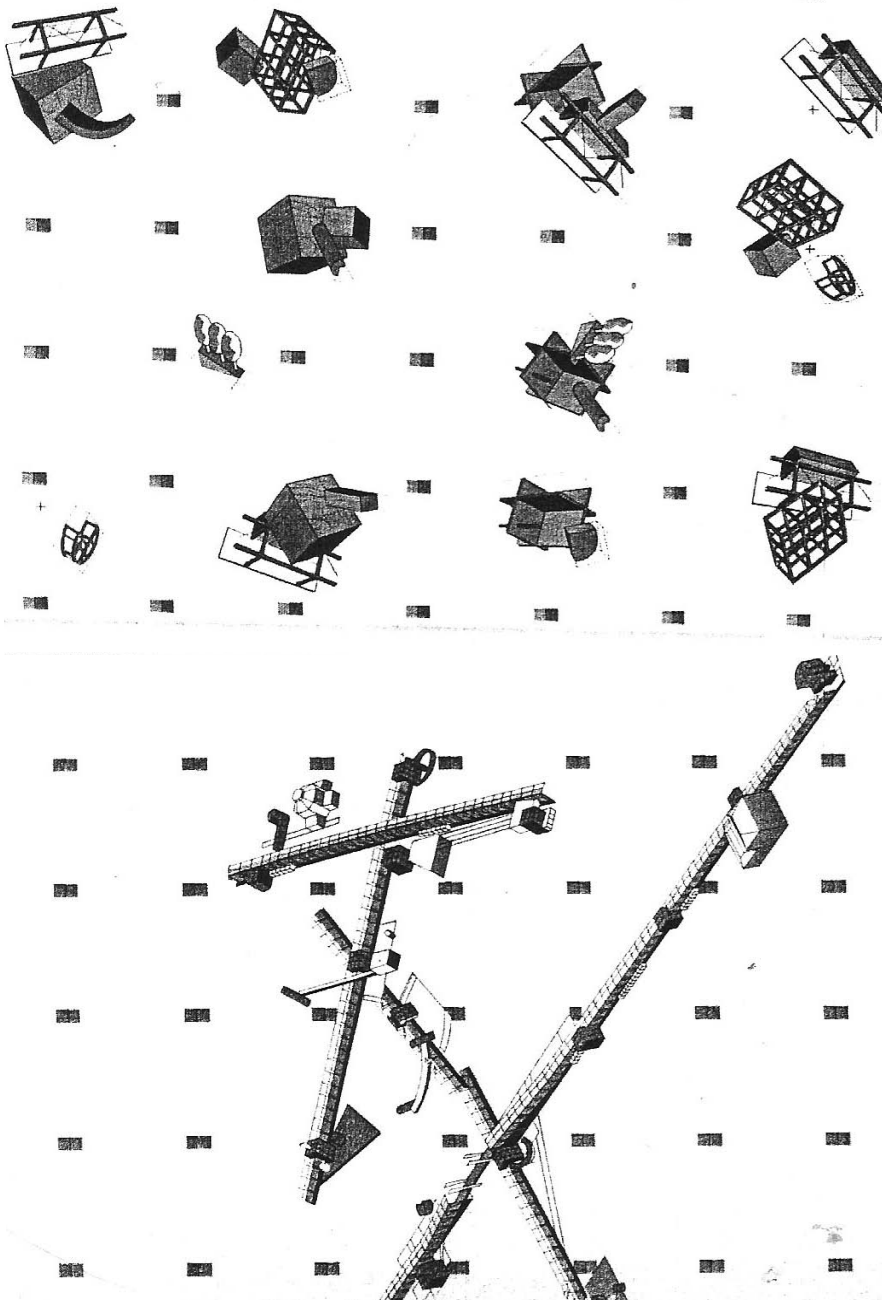
CHAPTER FOUR

EXPLORATION

This chapter serves to investigate the manifestation of an architectural response, to the theoretical and contextual informants explored within the previous chapters. First a creative process is explored in order to generate physical possibilities for the site, thereafter a brief design manifesto is established, which intends to strengthen the architectural approach toward the production facility and its materialisation within an urban setting.

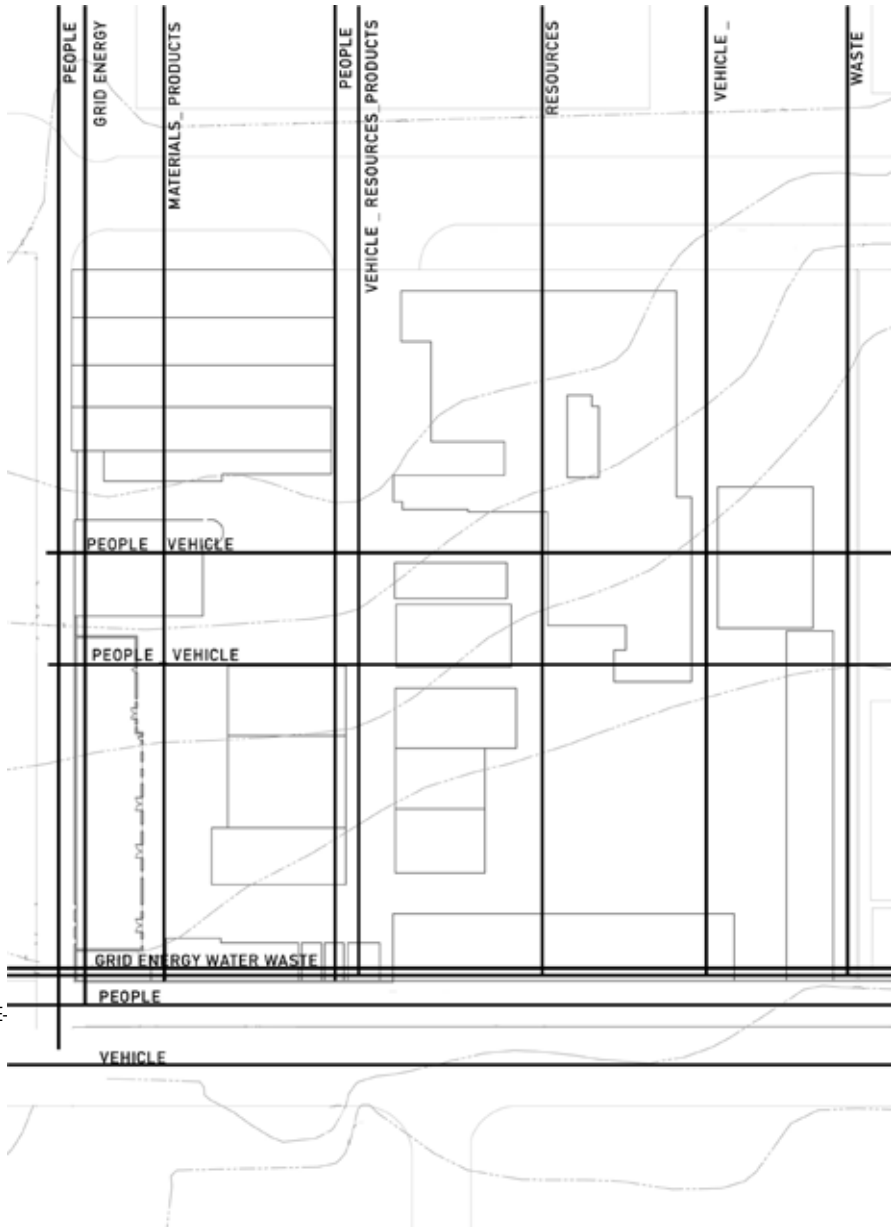
Due to the subjective nature of understanding environmental energies and idiosyncrasies, the representation of the site exists as an interpretation, a personal or collective response to a set of flows experienced. This map becomes the new real as described by Richter, an intuitive representation that serves to create graphic traces of conflicts or contradictions through the act of spatial layering. (Dagmar, 2001:16).

Here at the government workshops, the site is mapped in a variety of ways in order to generate an intuitive map of the possibilities that could begin to generate on site. Firstly, the mapping exercise is based on existing phenomena; secondly, on processes that will occur within a generic place of production and thirdly on how these processes could start to contribute both spatially and programmatically, to the surrounding urban context.



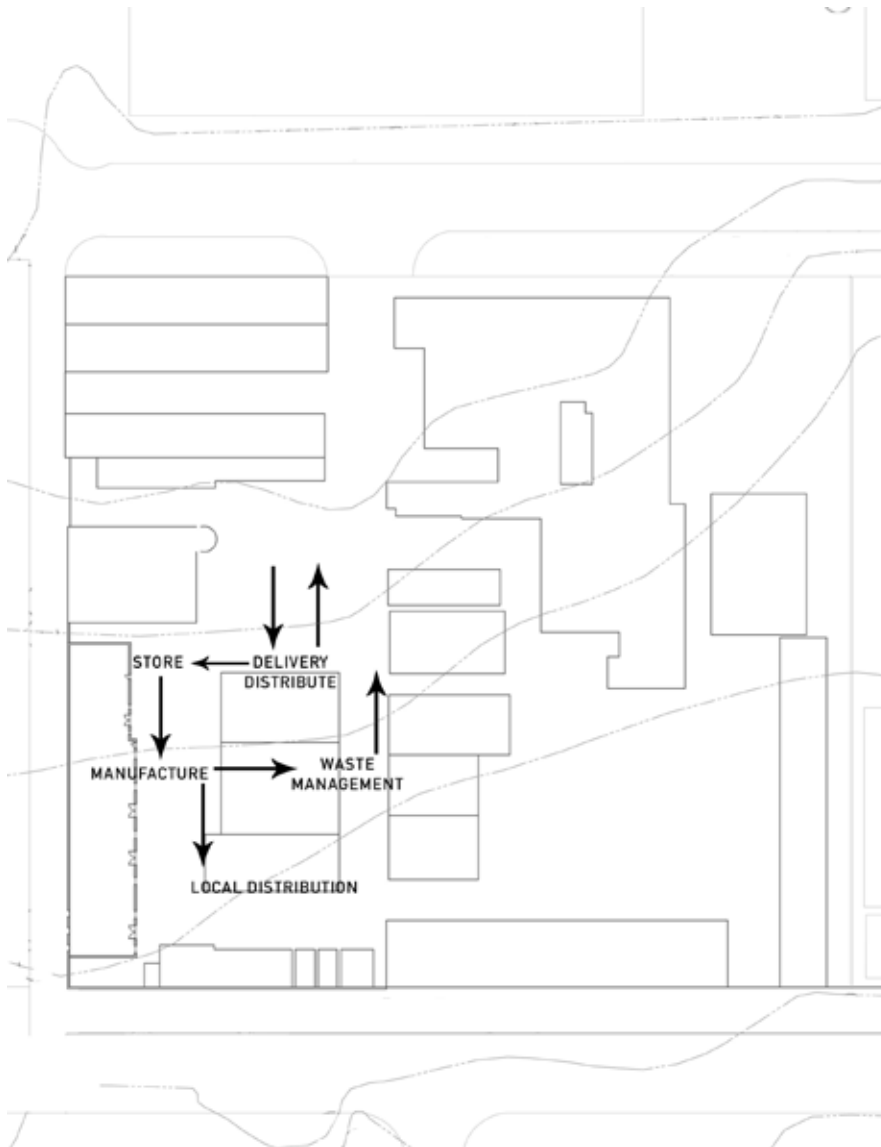
49. MAPPING USED AS A GENERATOR IN PARK DE LA VILLETTE (TSCHUMI , 1985).

“ Map projections enters art in the form of process, involving the pleasures of doing - shaping, transforming , spliting , erasing , and the excitement of the search, the analysis, the discovery” (Denes ,1992:84)



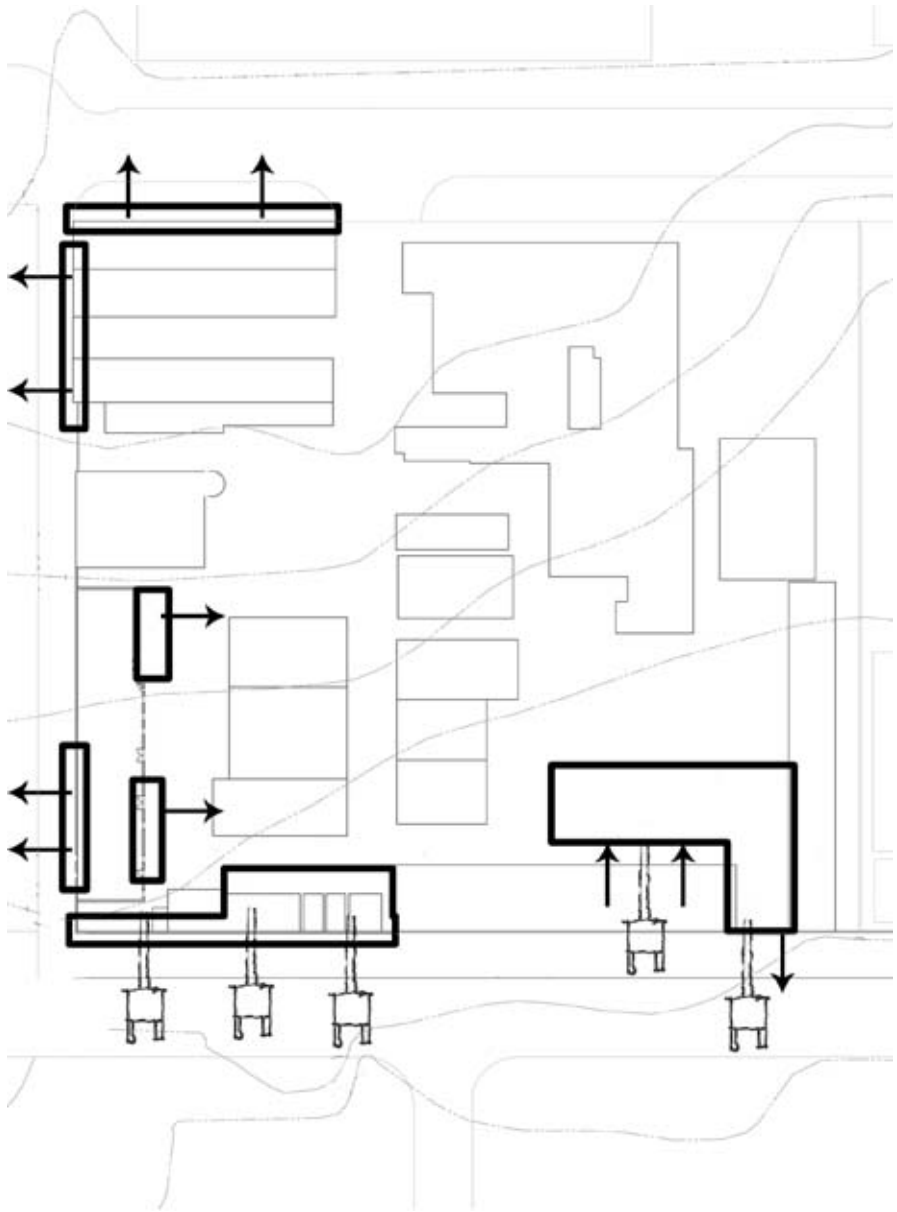
50. EXISTING SITE AND RESOURCE PATHS (AUTHOR, 2010).

The first map looks at the existing site and its lines of consumption such as energy, water and resources, as well as the movement routes of people and vehicles within and around the site.



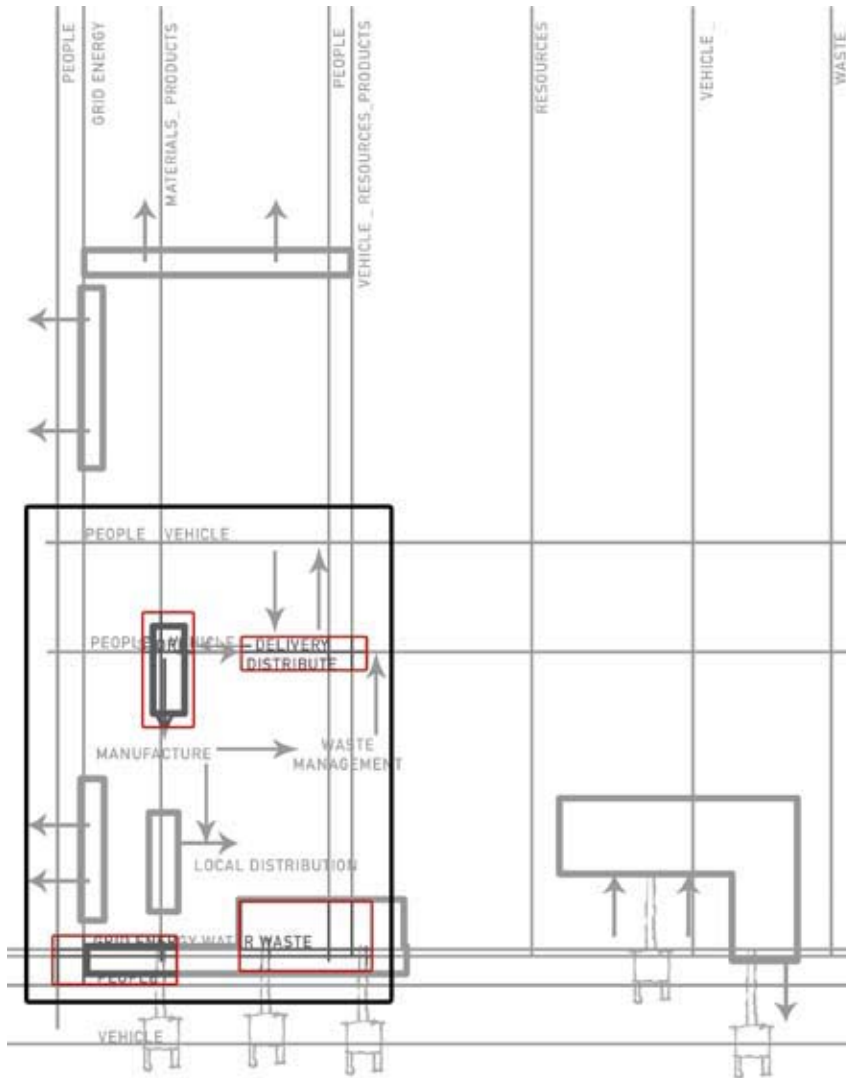
51. BASIC GENERIC PROCESSES OF MANUFACTURE (AUTHOR, 2010).

The second map identifies the processes that would occur within a generic production facility and how they begin to form a network of links.



52. WHERE THE SITE CAN SPATIALLY CONTRIBUTE TO CONTEXT (AUTHOR, 2010).

The third map identifies where the site can contribute spatially to the events that happen on the edges of the site, as well as within the greater context, i.e. the taxi interchange and the response of the building edge toward it, as well as further programs that can contribute to residential functions and transport nodes within the urban context.



53. MAP'S SUPERIMPOSED FOR INTERPRETATION (AUTHOR, 2010).

The interpretation of the mapping by assessment of the various processes and possibilities within the context, serves as a base off which the design begins to conceptualise..

The three maps are superimposed, graphically representing a set of flows and intensities on site. The intensities form where various spatial flows overlap, and are extruded to form reservoir like structures on site.

Within the city, infrastructure such as roads and services, are the permanent elements that connect flows of energy and allow the city to function optimally. Buildings and functions within the city then plug into and feed off of this infrastructure. The proposed production facility embodies this idea through the use of reservoirs as the primary infrastructure elements on site. The building and its functions may then plug into the system of reservoirs, allowing for the building to have a degree of flexibility within the context of the site.

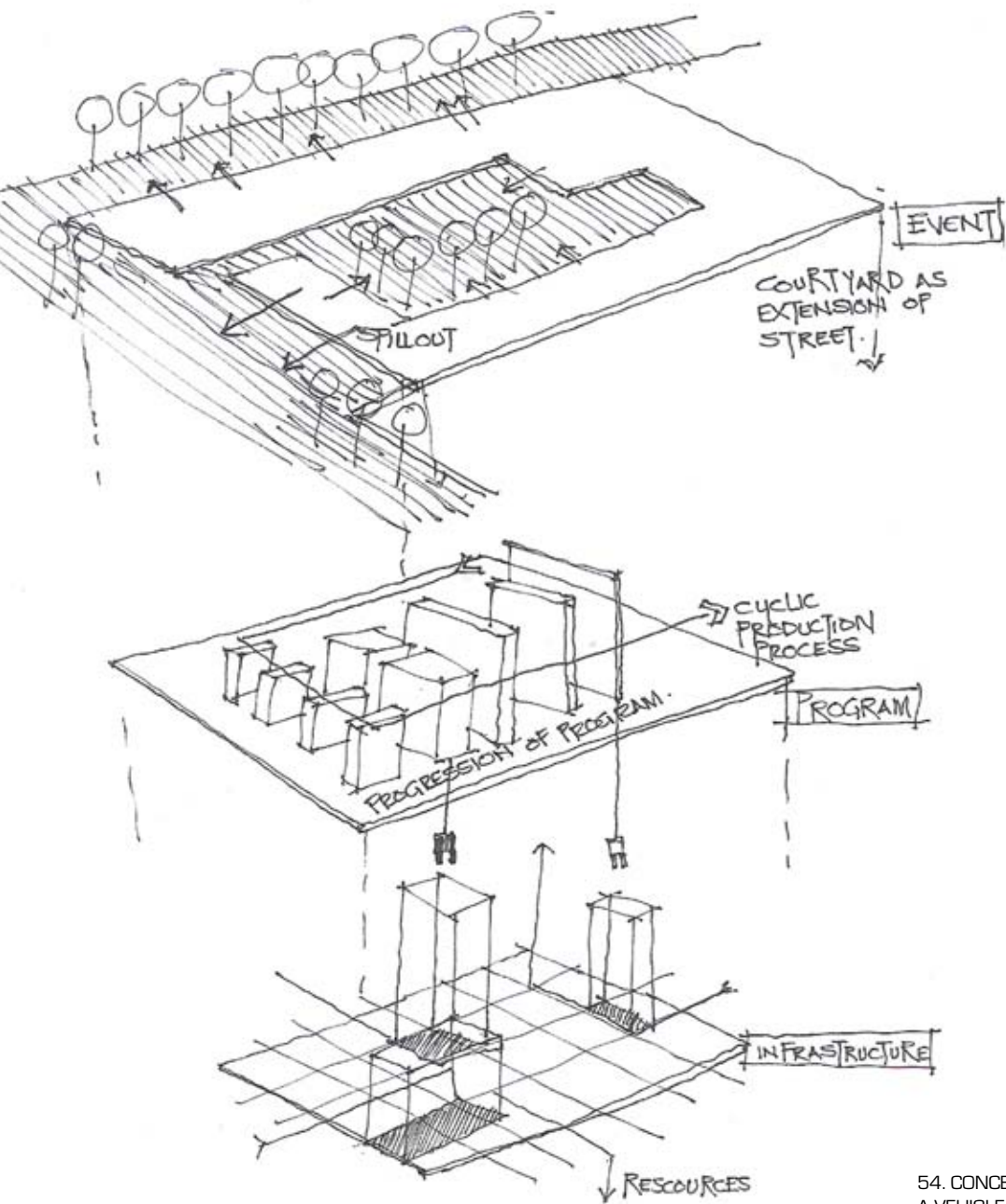
“Take a small sample of a city, cut a small section out of its flux, watch the processes that create the flux, their product is the horizon of the second skin as we see it.”(Bunschoten, 2001:160)

This thesis attempts to explore the idea of building as a process driven entity, which is a response to its context, from design conception through to the possibility of the building being re-appropriated. Here the materialisation of a space constantly responds to change as a reaction to external factors rather than a space, which represents the termination of an idea for existing conditions.

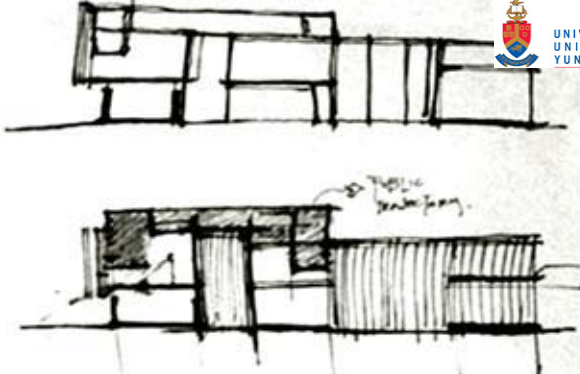
Buildings of production are representative of closed or isolated systems within an urban environment, which do not respond or make reference to their context. Groák mentions that we naturally conceive buildings as essentially unchanging, stable, and permanent environments, ignoring the fact that buildings have to be understood in terms of a time span over which they change, due to urban flux (Groák, 1992:15).

This urban flux relates to the flows of energy, matter, occupants and function, which the building will encounter. Buildings can thus be conceived as possessing the ability to constantly change in response to this flux, as open systems that are affected by receiving, filtering, storing, and distributing of matter.

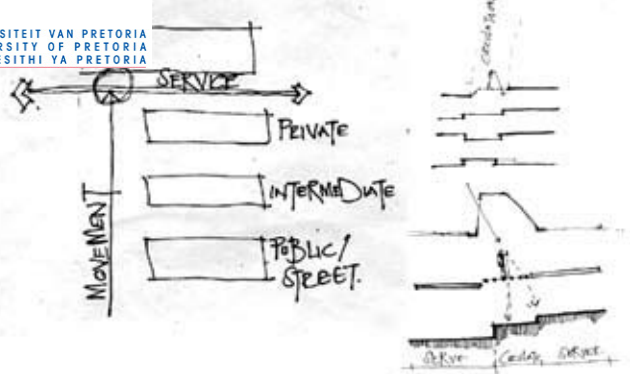
The importance of this in the design and making of the building, is to explore a degree of flexibility, whether through visible or invisible dimensions, or as intermediate stages, responding to the various flows of energy and matter encountered.



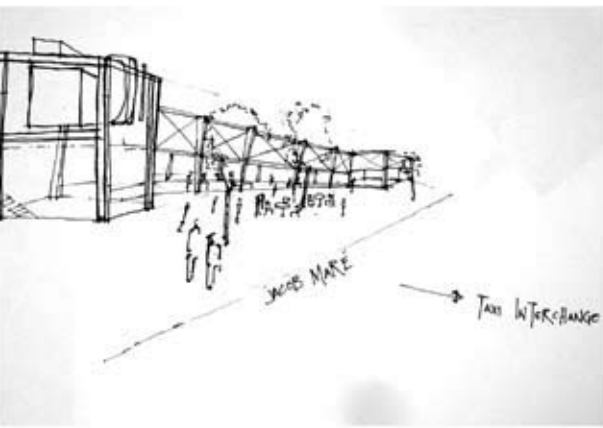
54. CONCEPTUAL DIAGRAM AS A VEHICLE FOR DEVELOPEMENT (AUTHOR, 2010).



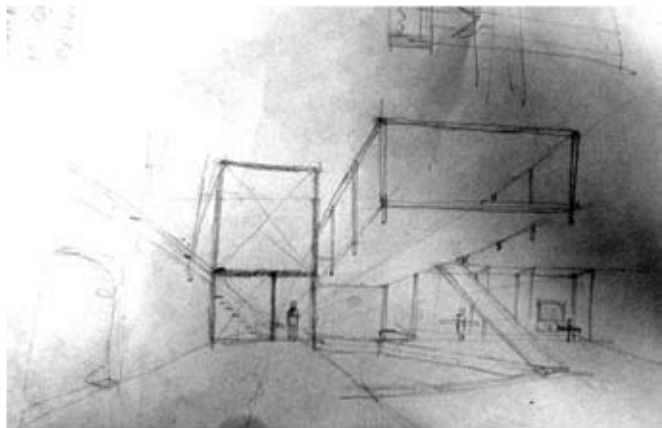
SPATIAL EXPLORATION SECTION



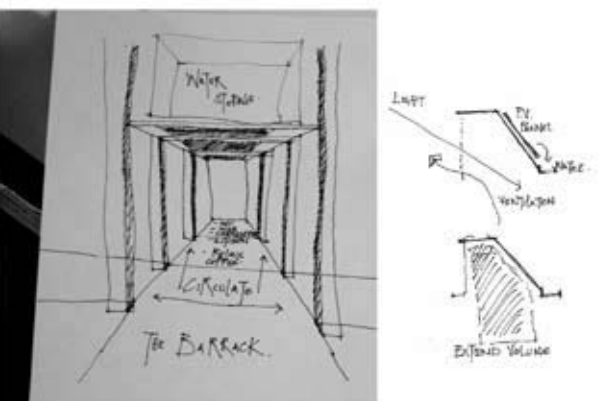
ZONING AND CIRCULATION



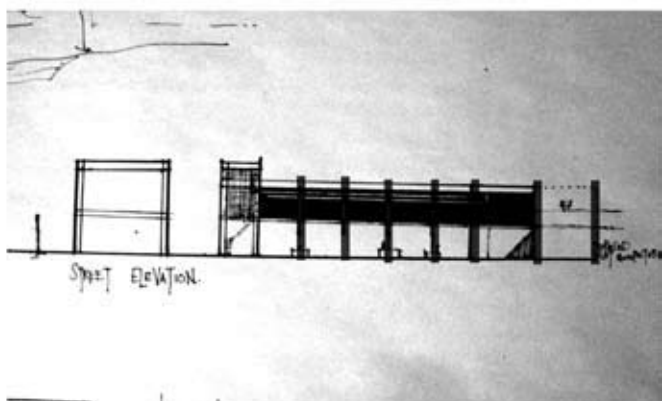
PUBLIC ARENA



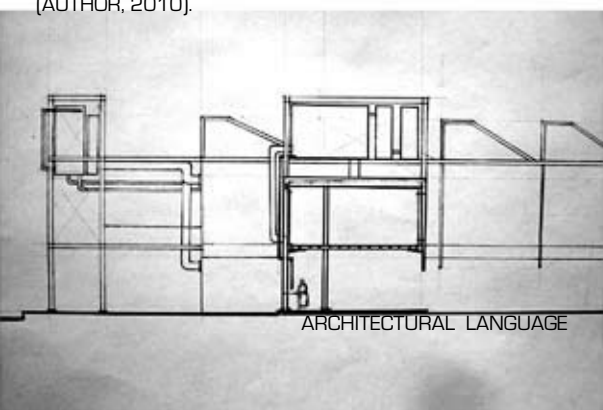
INTERNAL COURTYARD



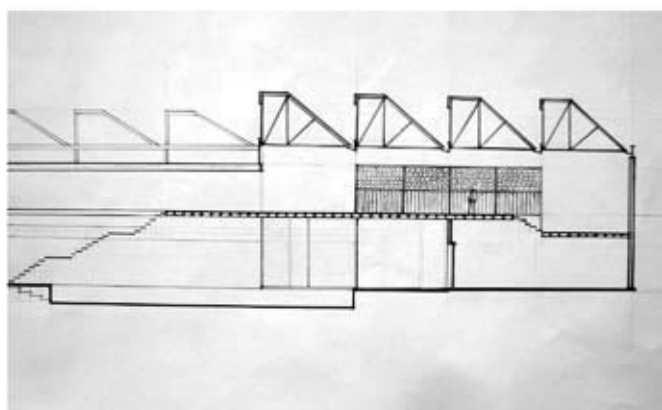
55. DESIGN EXPLORATION BARRACK AND ROOF DEVELOPMENT COLLEGE (AUTHOR, 2010).



SOUTH ELEVATION AS ARCADE

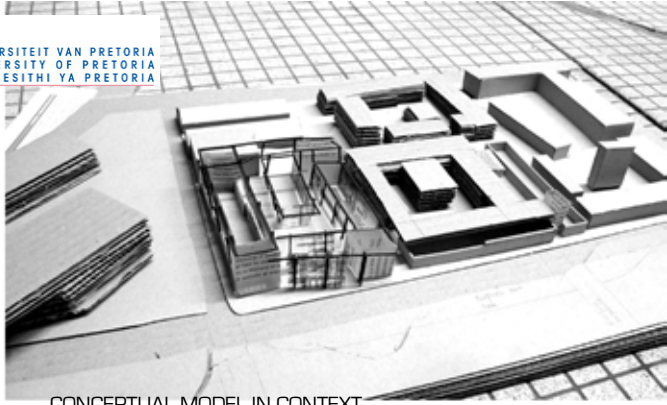


ARCHITECTURAL LANGUAGE

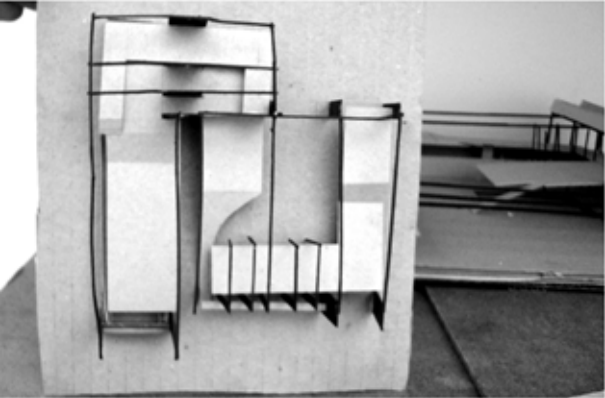




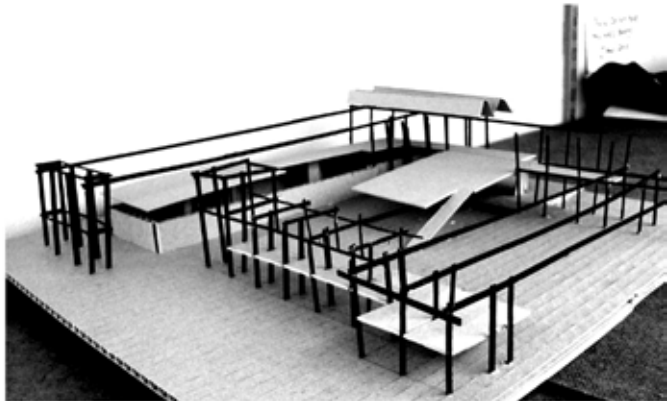
CONCEPT MODEL



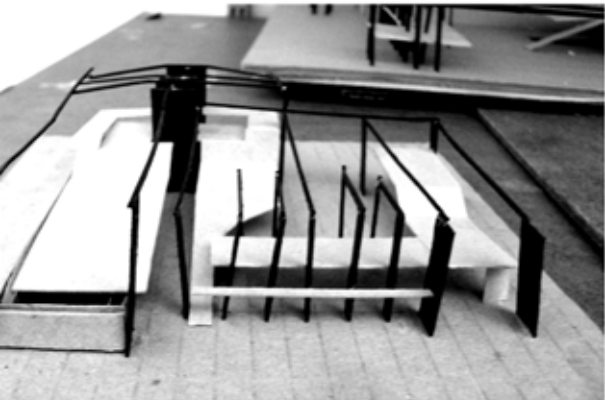
CONCEPTUAL MODEL IN CONTEXT



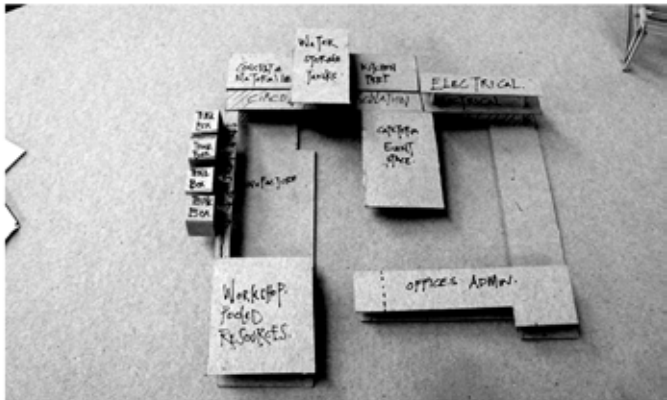
INITIAL FORM AND STRUCTURE



STRUCTURAL EXPLORATION

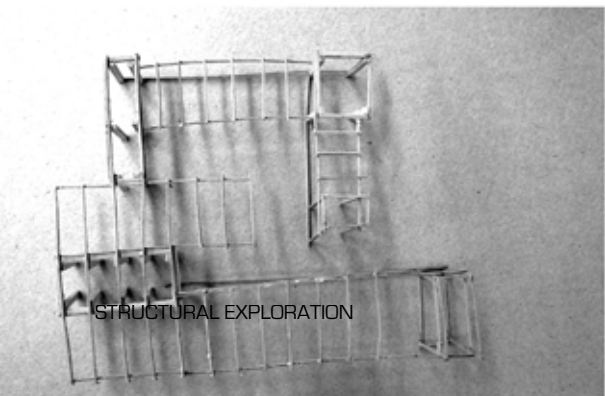


STRUCTURAL EXPLORATION

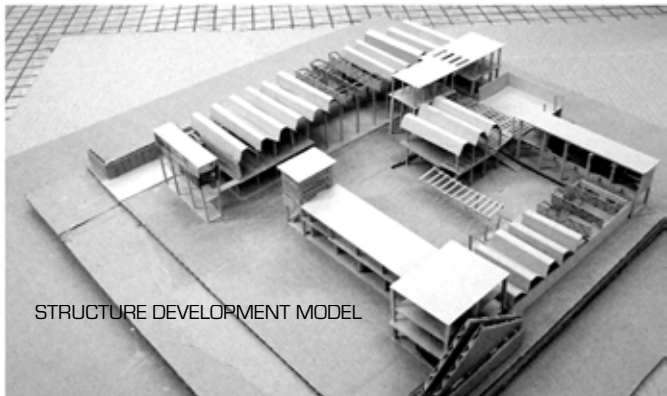


ACCOMMODATION LAYOUT

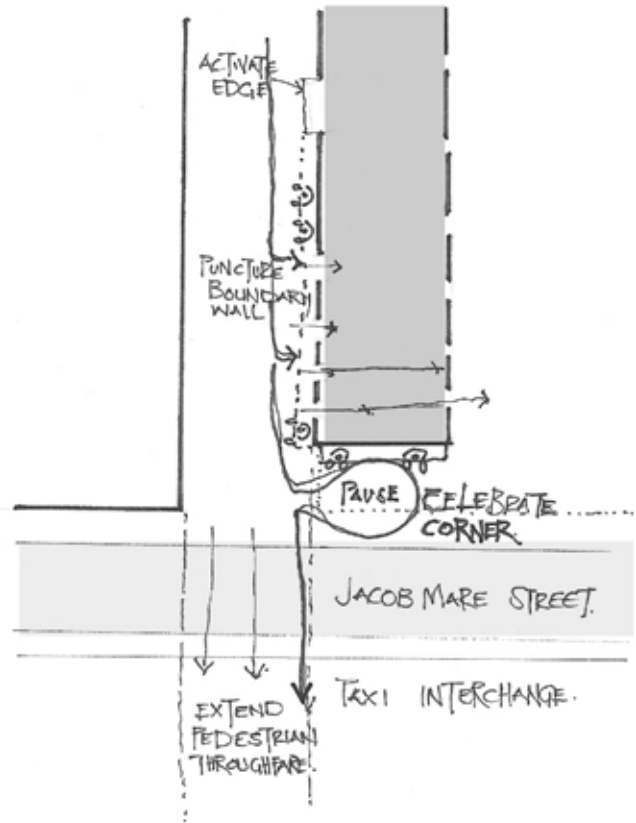
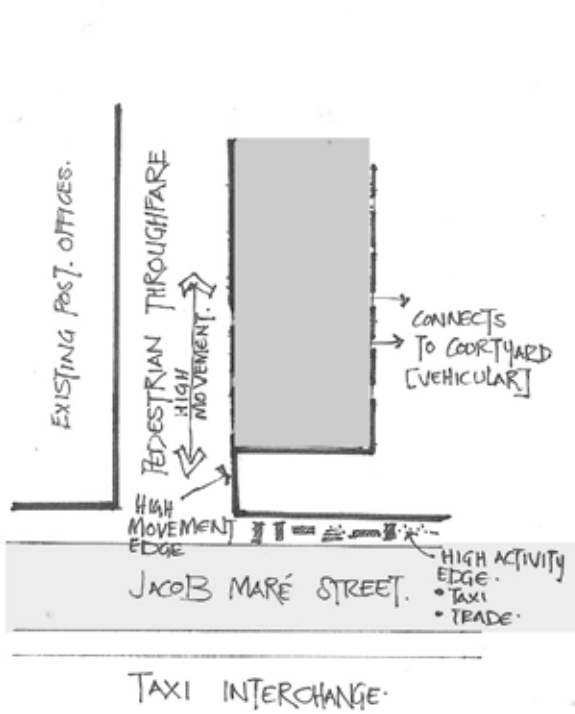
56. MODEL EXPLORATION
(AUTHOR, 2010).



STRUCTURAL EXPLORATION

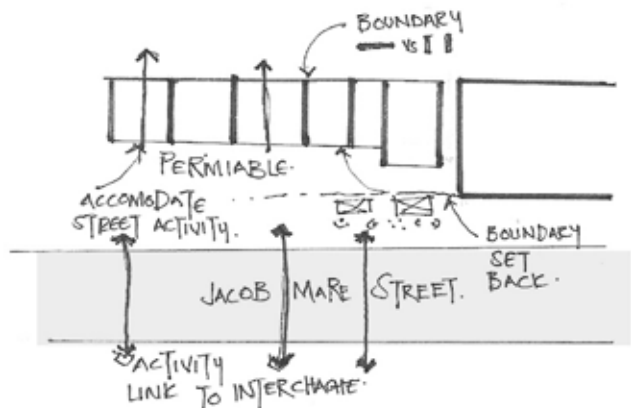
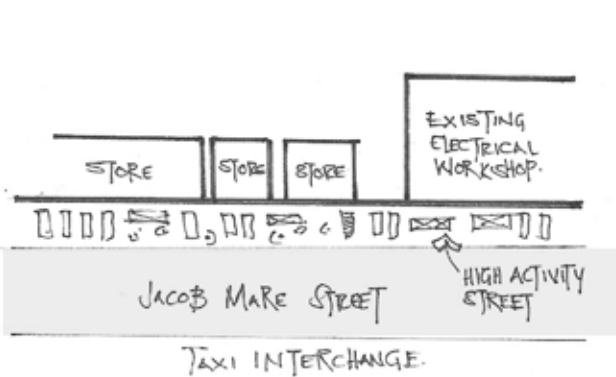


STRUCTURE DEVELOPMENT MODEL



EXISTING SOUTH WEST EDGE
EDGES DONT RESPOND TO CONTEXT

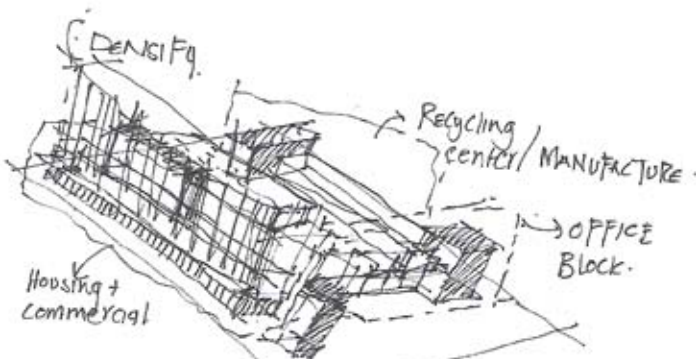
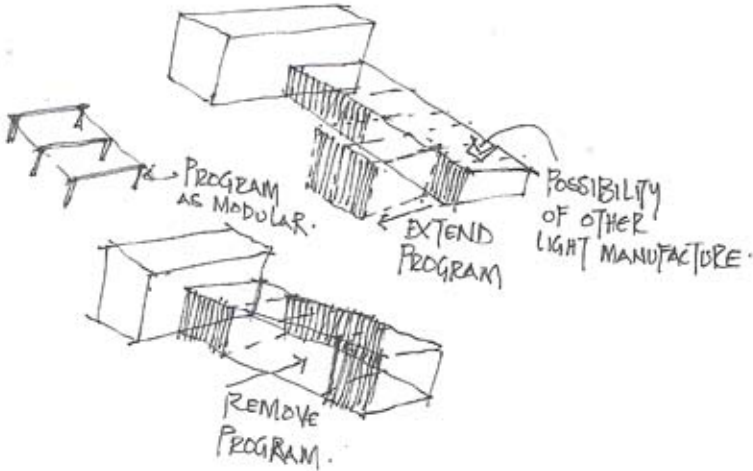
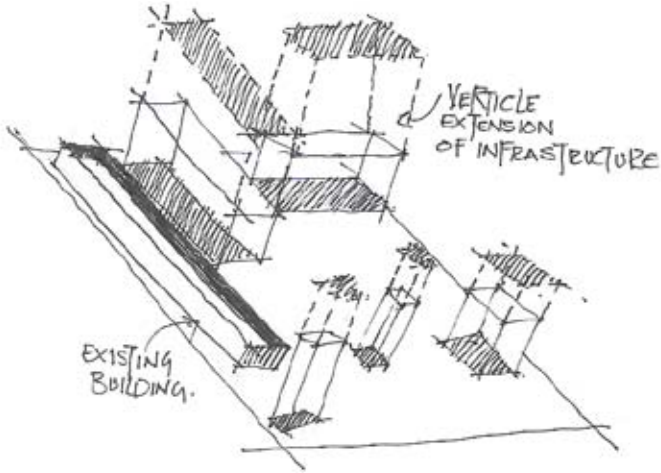
PROPOSED INTERACTION / RESPONSE
TO CONTEXT



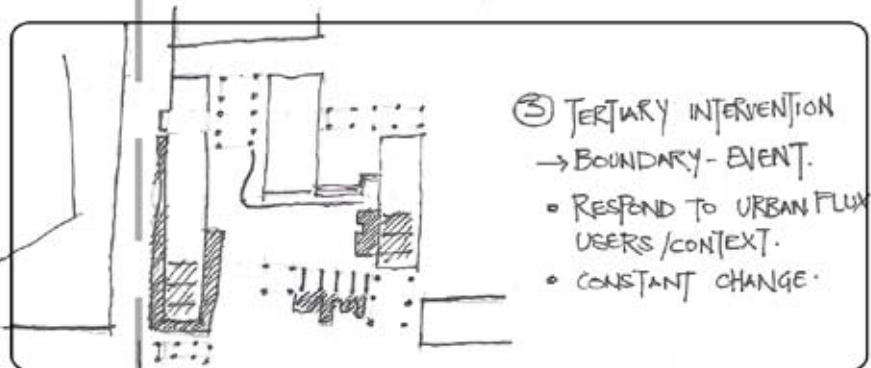
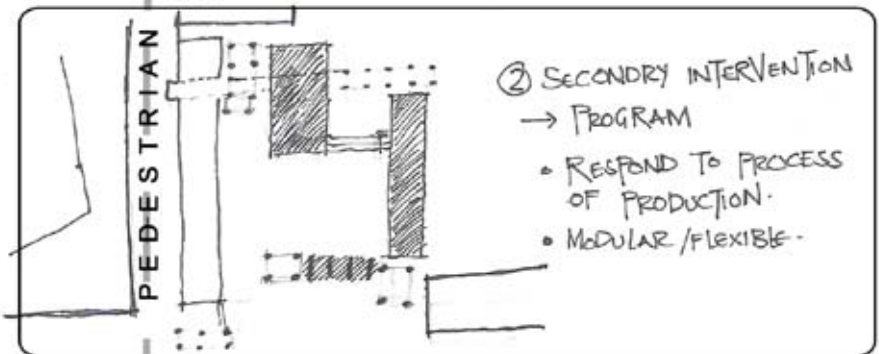
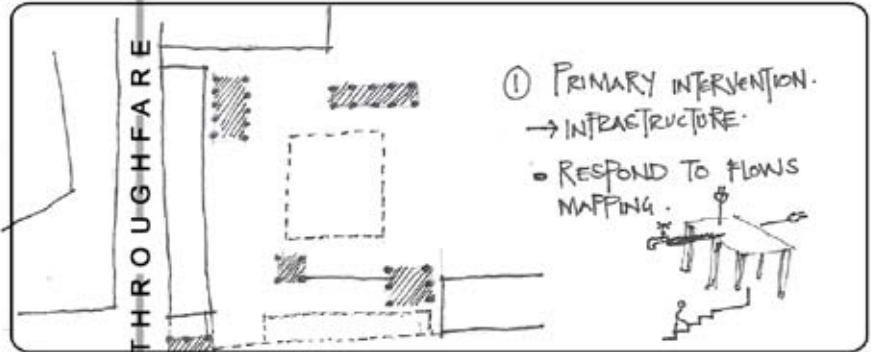
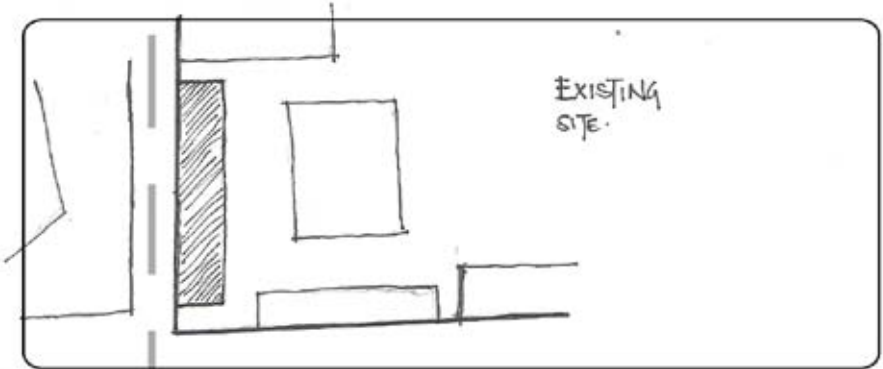
57. EDGE CONDITIONS
(AUTHOR, 2010).

EXISTING SOUTH STREET EDGE
BACKDROP TO STREET ACTIVITY

PROPOSED BOUNDARY AS AN EXTENSION
OF STREET ACTIVITY BEGINS TO
LINK TO TAXI INTERCHANGE



IF CITY DENSITIES
POSSIBILITY OF
SUB-DIVIDE BUILDING
INTO COMPONENTS.

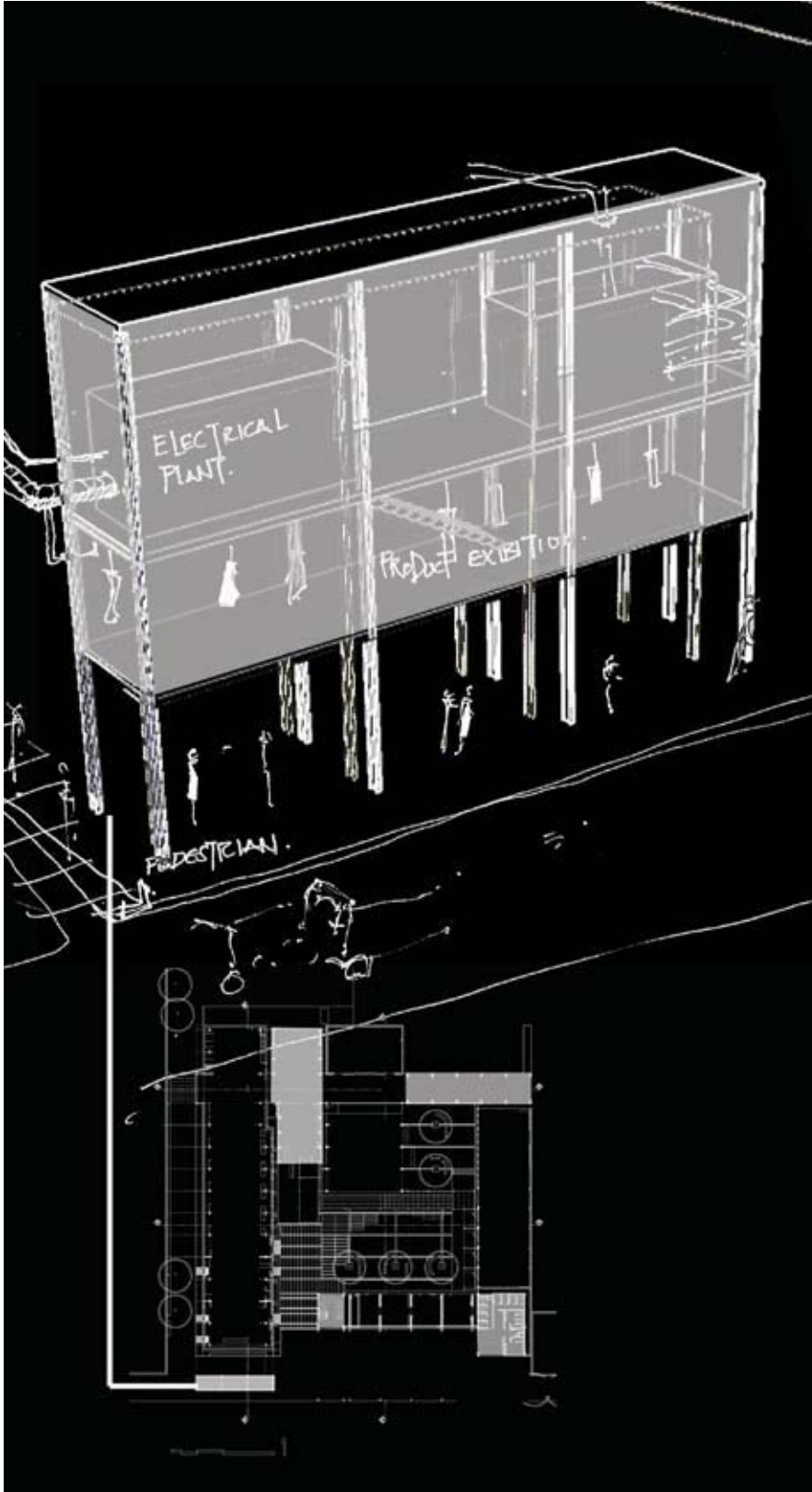


PEDESTRIAN
THROUGHFARE
TO TAXI
INTERCHANGE.

Reservoirs as the primary intervention are established as permanent structures on site, providing anchor points for the rest of the building. Each reservoir is a response to its location within the context of the site, providing the necessary resources i.e. water, electricity, circulation, or defining the service spaces. Four core reservoirs have been identified, each being capable of functioning individually, as well as informing the greater whole of the building. The services in this building look at minimising the amount of non-renewable energy usage, and ways in which building can harvest energy through the different components of the building.

ANNOUNCE _PROMOTE _ADVERTISE_
CORNER _PROMINENCE_ DISTINCTION

The Beacon is situated on the corner of Jacob Mare and the pedestrian thoroughfare. A corner is the most visually prominent part of the site as it detaches from the rest of the building and announces the site, exemplifying a landmark status. The Beacon advertises the occurrences on the site through exhibiting merchandise from the production line.

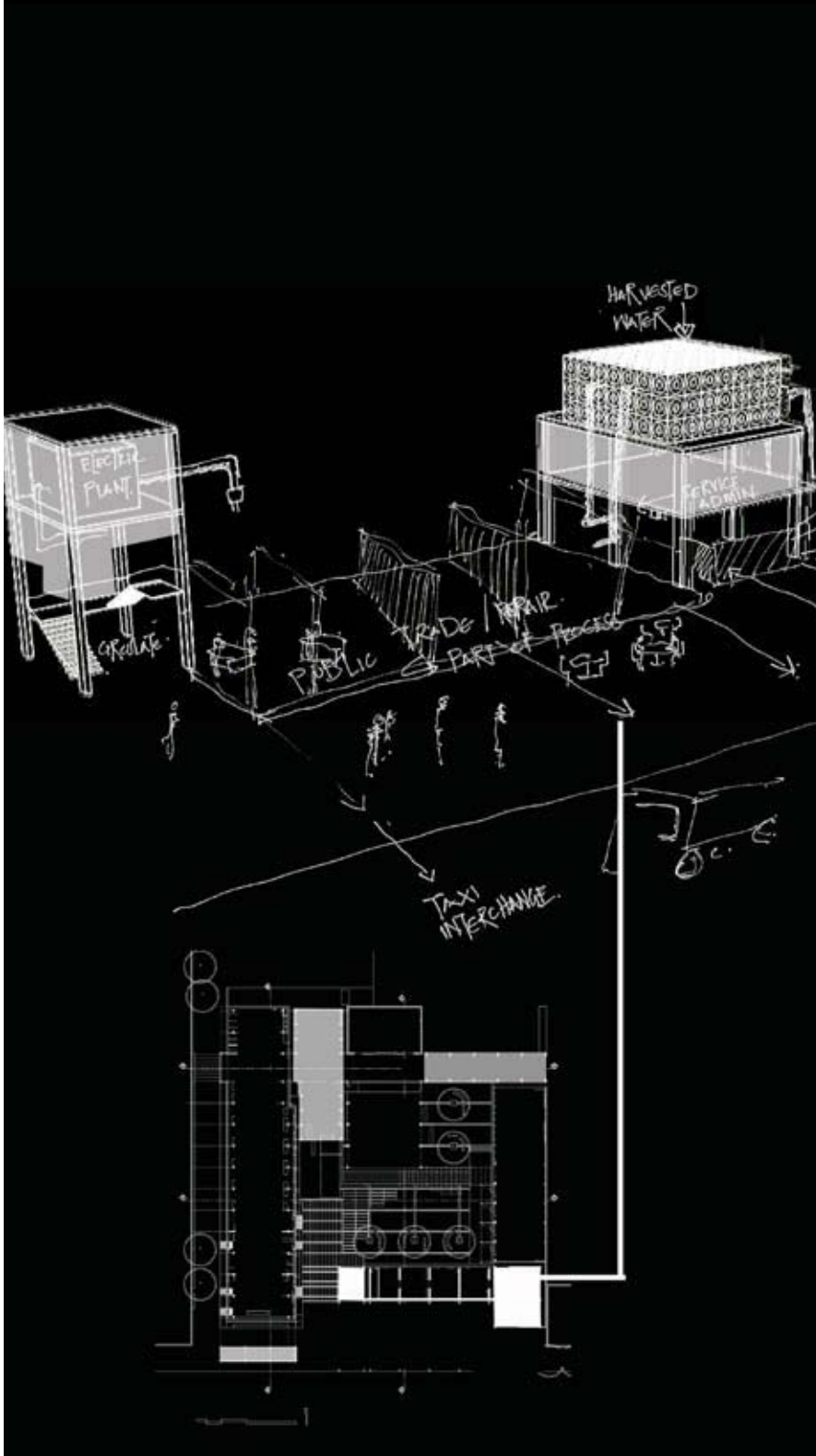


60. THE BEACON
(AUTHOR, 2010).

PUBLIC _ OBSERVE _ EXPLORE _ PAUSE
STOP _ SETBACK _ PERMEATE _ PLUG IN

The Arena as a threshold steps back from the street, allowing for a public interaction with the building further allowing permeability into the site, catering for semi-formal trade to happen; it becomes a pause space before crossing over to the taxi interchange. The arena allows for visual connections to be made with the facility adding to the porosity of the building. The Arena becomes a threshold between the street interface and the building's courtyard, both giving order between two spaces as well as a line which serves the events that occur on the street. The arena reacts to the convention of a threshold being a boundary wall, to that of threshold as an active boundary or arcade to the site.

“An embedded model exists as an object in a specific situation. It orders this situation, and simultaneously gives meaning to this order. A threshold, for example is a piece of wood embedded in a doorway as well as line separating two kinds of spaces.” (Bunschoten,2001:146)

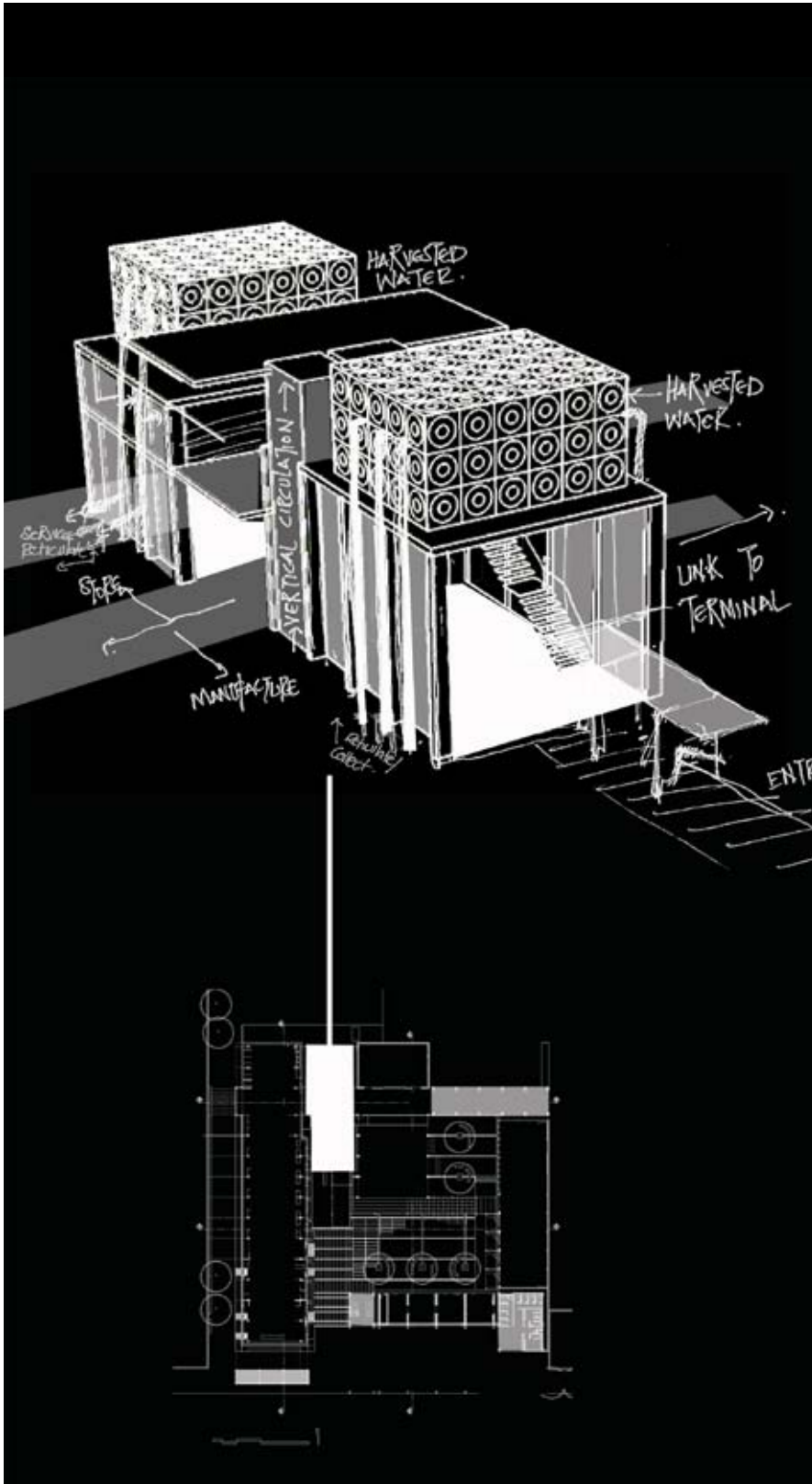


61. THE ARENA
(AUTHOR, 2010).

RELAX _ PENETRATE _ SECURE_
CONTEMPLATE_ ENERGY_ PAUSE_RELIEF

This space serves the constituent manufacturing spaces, allowing for activities of rest, vertical circulation and service.

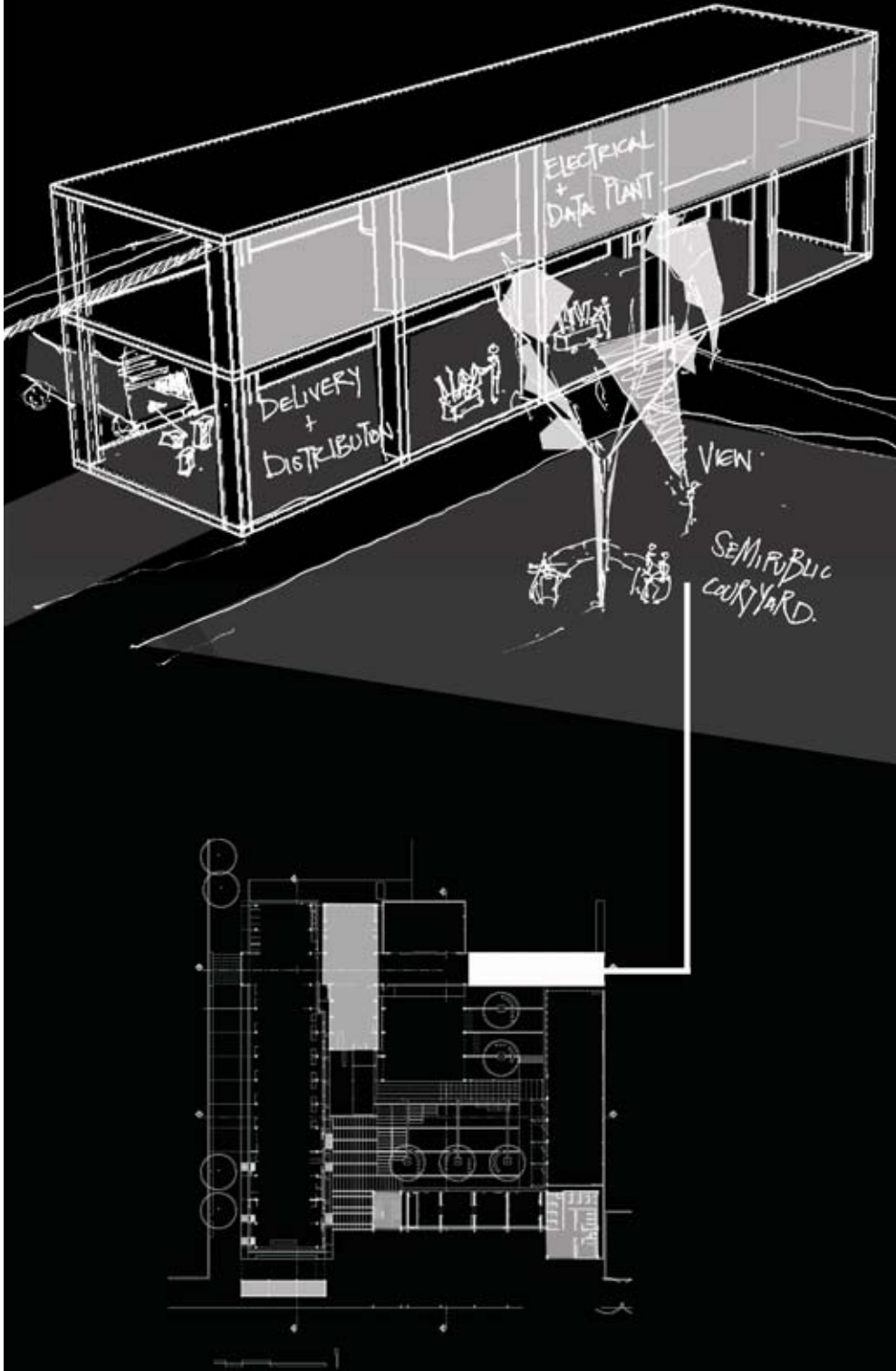
The barrack is a datum point in the building, housing the main entry point and primary vertical circulation within the building.



62. THE BARRACK
(AUTHOR, 2010).

DISTRIBUTE _ RECEIVE _ RESOURCE _
MOVEMENT _ DEPOSIT _ ORIENTATION

The terminal marks the beginning and end of the production line; this is the point at which there is an exchange of goods, in the form of the delivery distribution zone. The terminal extends itself further into the building as the main circulation core for the production processes, following which it acts as a threshold between service and served space. The extension of the terminal can be assimilated to a production wheel, where the process of production becomes evident, in the passing of goods from one process to another.

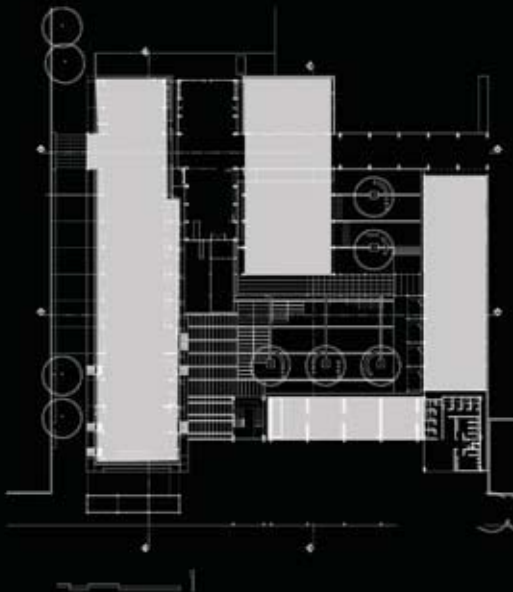
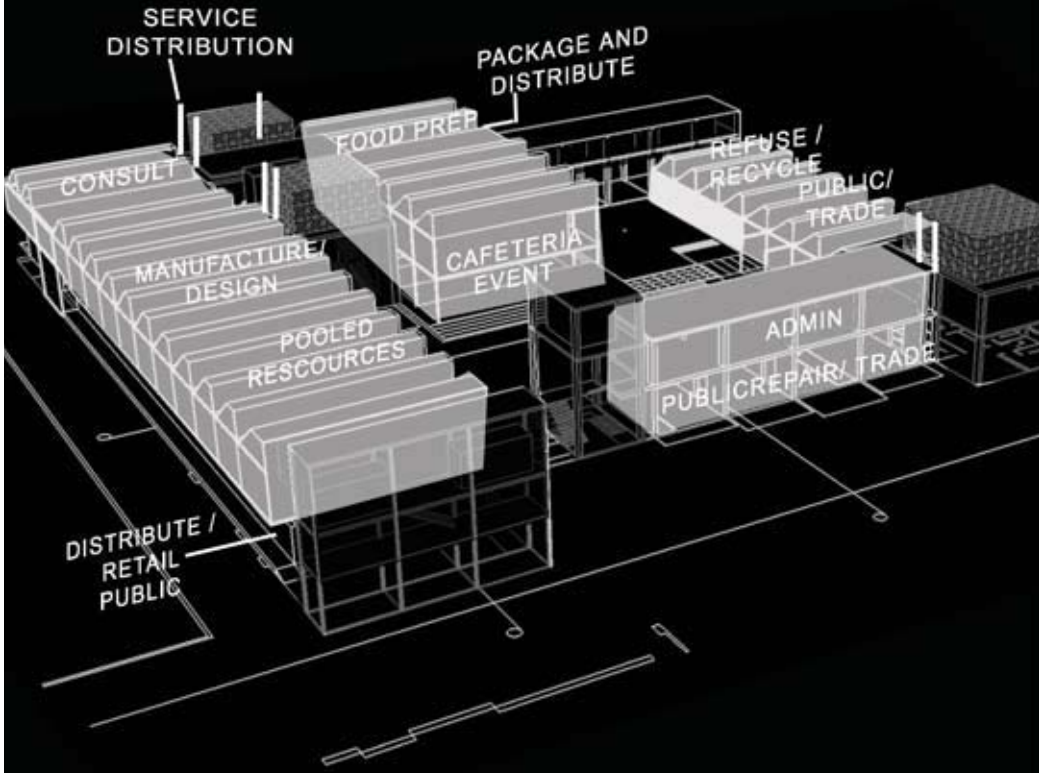


63. THE TERMINAL
(AUTHOR, 2010).

The served spaces latch onto the reservoirs as the less permanent structures that allow for the program of manufacturing; this infill consists of a tectonic modular make up, allowing for growth or recession of the building. The secondary intervention addresses the functioning of a generic model for a light manufacturing facility, looking at the processes involved from beginning to end usage of materials. The idea is that there is a form of engagement with the public and the manufacturing processes within the building, so that public functions start to interweave into the facility and not merely situate themselves on the boundaries of the site. The architectural language of the proposed program relates back to the existing building, which defines boundary as a solid edge and courtyard as permeable edges.

The program of an urban manufacturing facility implies that production facilities can enhance the immediate urban character through spatial and programmatic considerations. This is done through localising networks of resources and distribution, thus bringing producer and end user closer. The program here, realises the complete lifecycle of apparel wear from its conception and production through to the distribution, repairing, and finally, recycling and re-use of the textiles. The building looks at how the public and the production line begin to entwine, so that the public becomes part of the production experience, rather than being a viewer of the production process.

In articulating the infrastructure from the program, service ducts become the connector's which host the reticulation of resources through the building, both within the reservoirs as well as to constituent programs. Therefore, the service ducts become part of a programmatic requirement in the building, informing the reticulation of resources between infrastructure and program, elaborating the way in which the building is serviced. Furthermore, the service ducts reiterate the idea of dematerialising the building, by separating/linking infrastructure and program.



64. SECONDARY INTERVENTION, PROGRAM [AUTHOR, 2010].



MANUFACTURE

REFUSE

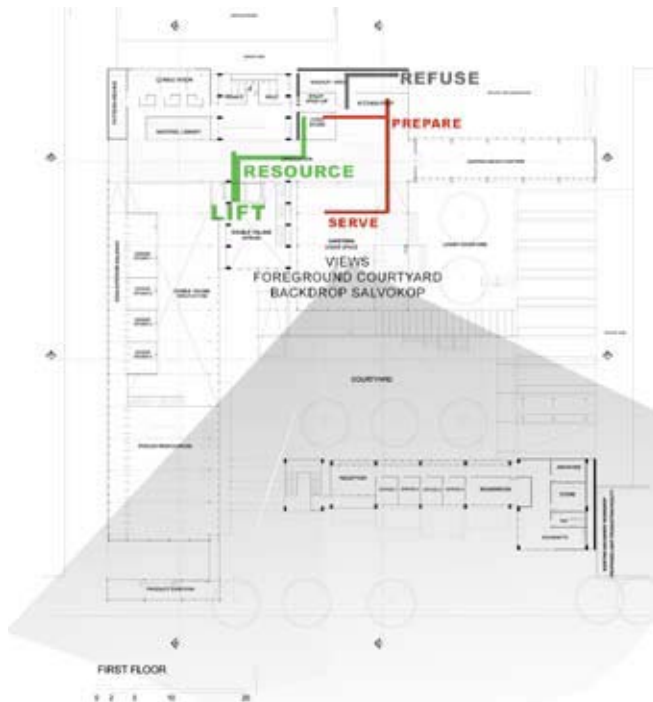
LOCAL
DISTRIBUTION

GROUND FLOOR

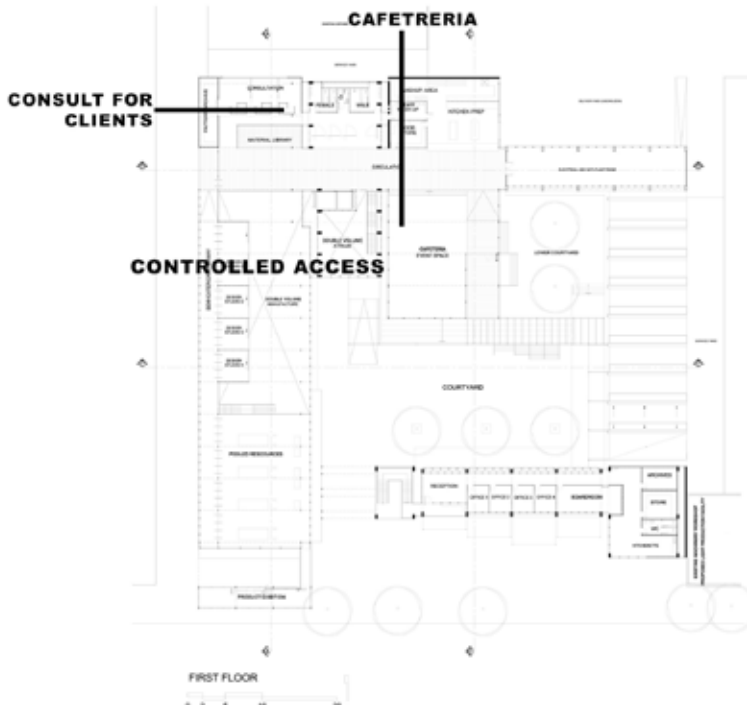
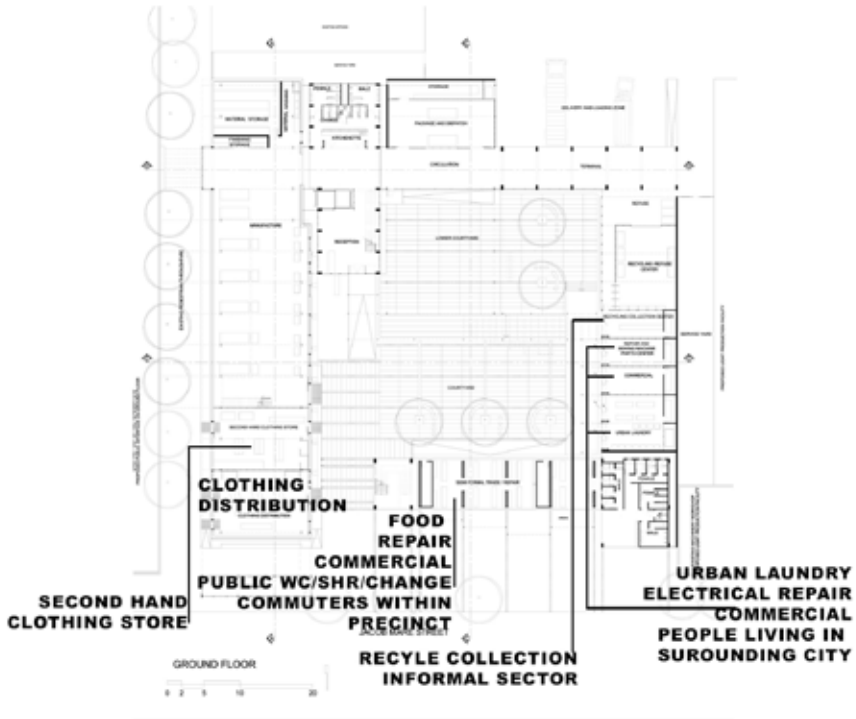
0 2 4 6 8 10 20

JACOB WARE STREET

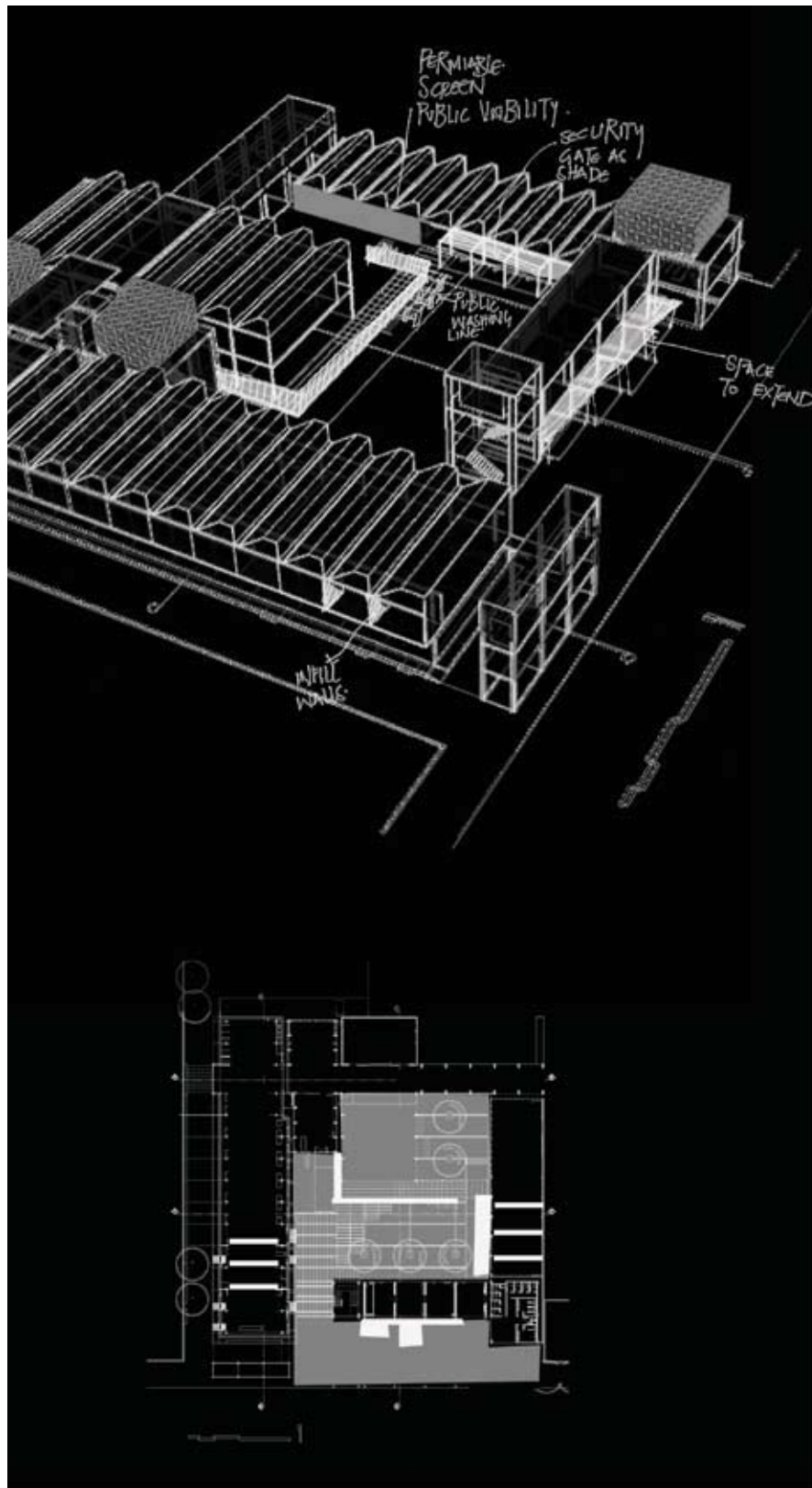
65. CLOTHING PRODUCTION
PROCESS
(AUTHOR, 2010).



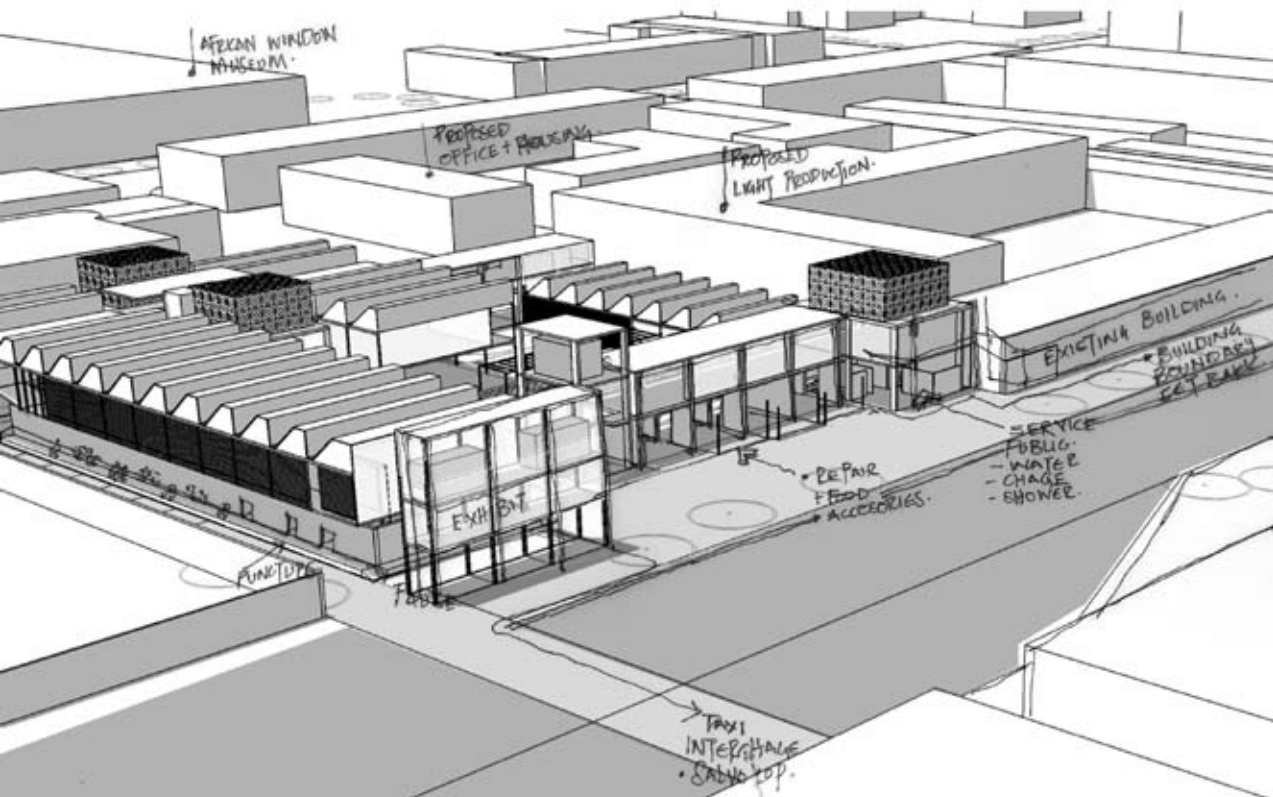
66. FOOD PRODUCTION
PROCESS
(AUTHOR, 2010).



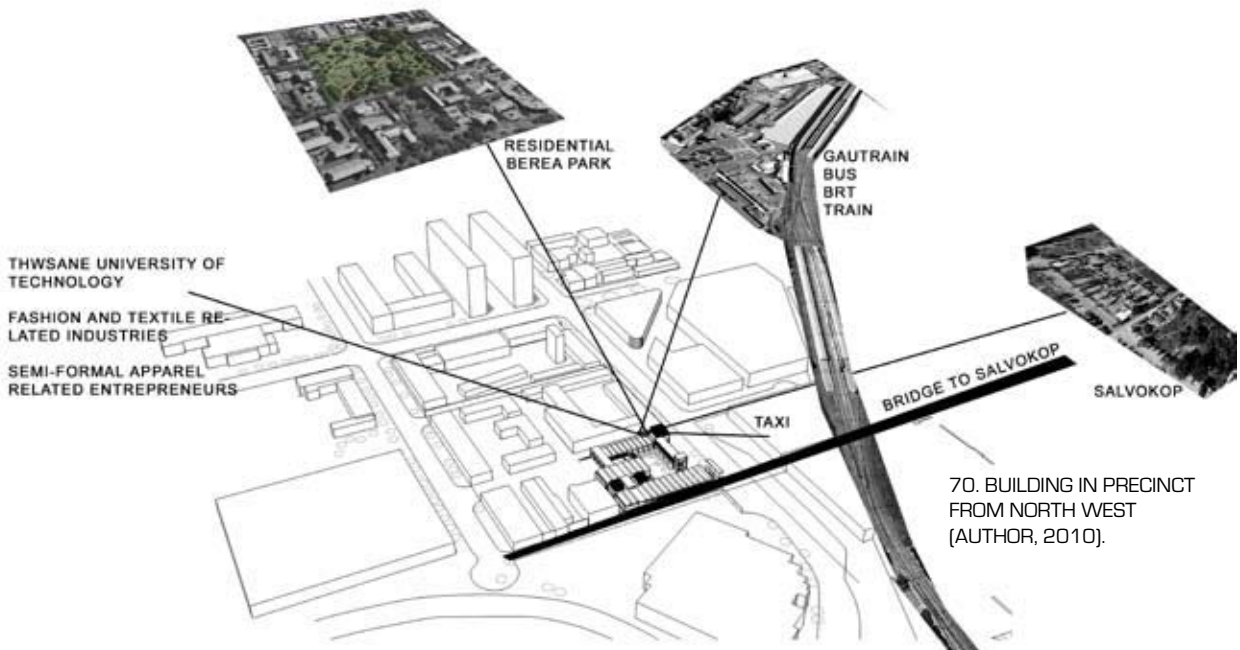
The tertiary intervention responds to momentary flux, both at a social and functional level, as experienced on site and within the context. This installation responds to function of apparel production on site. The use of textile as a tensile structural element, is explored through the act of layering, used to enlarge, extend, or reduce space. Further that the layering relates to the idea of revealing and enclosure within the urban context as part of a public experience of thresholds/boundary within the city. Due to its nature of non-permanence, the intervention would imply being independent from the grid, thus forming its own grid according to flux experienced. The materiality of the textile is one of non-permanence, advocating replacement and change over a progression of time.



68. TERTIARY INTERVENTION (AUTHOR, 2010).



69. BUILDING IN CONTEXT
FROM SOUTH WEST
(AUTHOR, 2010).



70. BUILDING IN PRECINCT FROM NORTH WEST (AUTHOR, 2010).

PRECEDENT STUDY

SAINSBURY CENTRE NORMAN FOSTER NORWICH, ENGLAND

The centre was constructed in the late 1970's and explored alternative building technology in acquiring a large volume of uninterrupted space, furthermore this use of technology was celebrated by making it a part of the spatial program of the building. (Glancey, 2000:204-207).

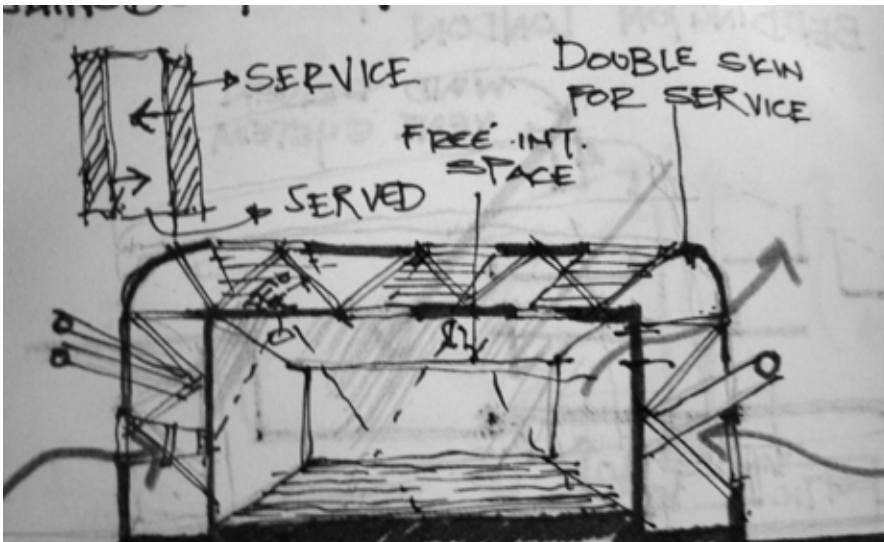
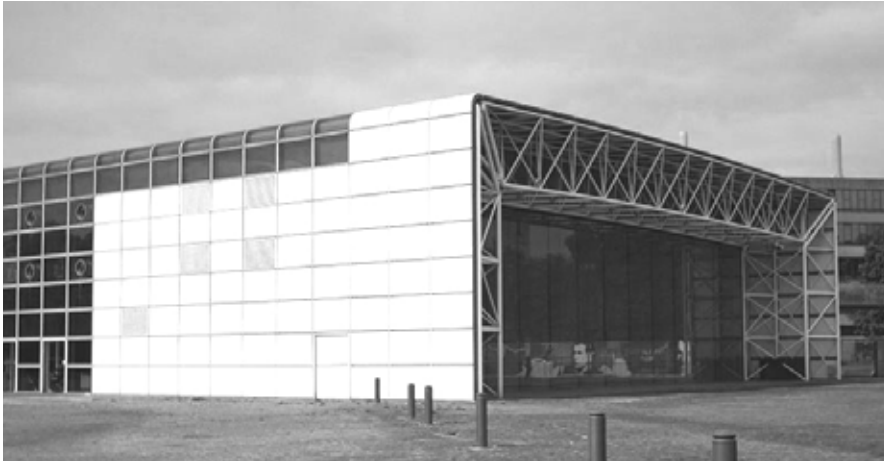
This design works on the idea of served and service space, in which the building allows for constant reprogramming of the internal space.

The design is conceived by means of an integrated systems approach in which the services are accommodated within the structural space frame.

This structure is capable of accommodating future expansion and adaptability in program, through

The use of modular sections that enclose a steel space frame, are replicated along its length offering opportunity for linear extension. The external panel protects the service elements from the environment, and the internal envelope skin is capable of having a flexible program. A shortcoming of this structure is that any further development must be linear. (Best, 1984: [sp])

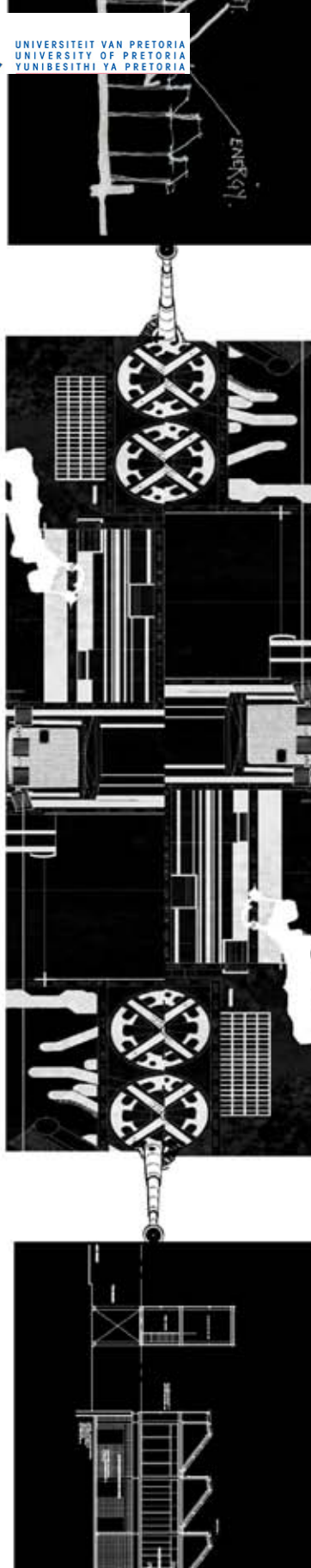
The relevance of this precedent is that it adheres to honesty of expression, and embodies ideas of technology and industry, where a manufactured 'kit of parts' is transported to site and assembled, allowing for the space not to be committed to a single function since the design is committed to ideas of flexibility.



71. EXTERNAL MODULAR FACADE (HTTP://WWW.ARCHITECTURE.BLOGCU.COM/NORMANFOSTER)

72. INTERNAL SPACE AS AN INSTALLATION (HTTP://WWW.ARCHITECTURE.BLOGCU.COM/NORMANFOSTER)

73. SECTION THROUGH, ILLUSTRATING SYSTEMS (AUTHOR AFTER GLANCEY 2010).

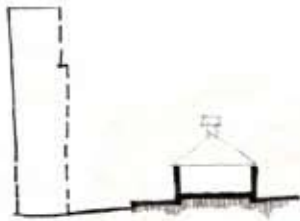


74. CONCEPT TO TECHNICLE
EXPLORATION COLLAGE
(AUTHOR, 2010).

This portion of the chapter will focus on the technical exploration and making of the building. First principals guiding the making of this building are discussed in relation to theoretical and conceptual explorations. Thereafter discussing how these principals are implemented throughout the design of the building.

The underlying approach to the making of this building is through dematerialisation of structure, in order that the processes involved in making of a building become evident in the product. Furthermore, the functioning of the building should also be evident in the way in which it consumes, distributes, and disposes resources within the building, embodying a high level of legibility in the way in which it treats systems.

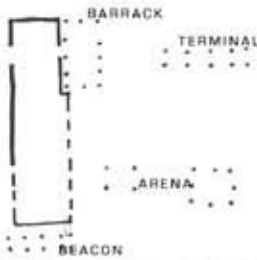
This principal of dematerialising structure within the building reinforces the theoretical base of cyclic processes being evident at all levels of intervention, allowing structural elements to be reused in future, as well as allowing for a clear distinction between the existing building and the new structure.



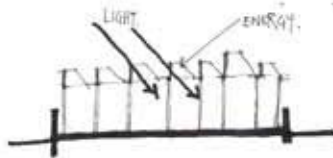
EXISTING



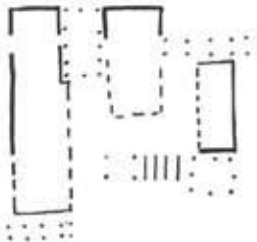
STRUCTURE



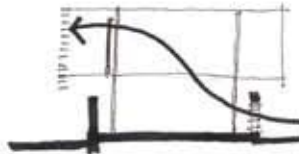
ONE INFRASTRUCTURE _ RESPOND TO CONTEXT



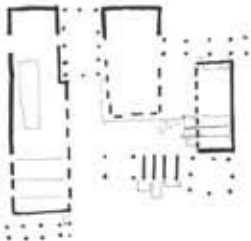
LIGHT



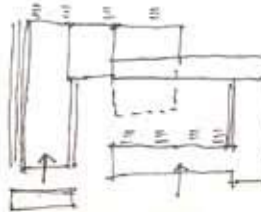
TWO PROGRAM _ RESPOND TO GENERIC LIGHT MANUFACTURE PROCESS



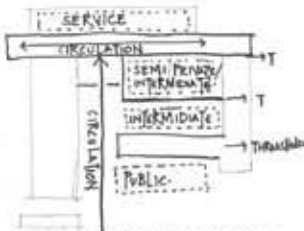
VENTILATION



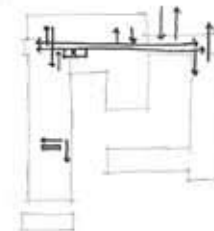
THREE BOUNDARY _ RESPONDS GREATES EVENT OF CLOTHING PRODUCTION



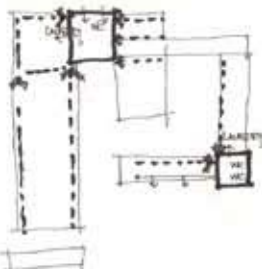
FACADE ORIENTATION



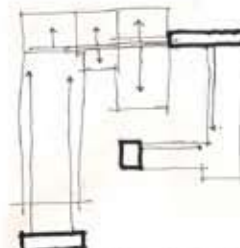
CIRCULATION AND ZONING



VENTILATION

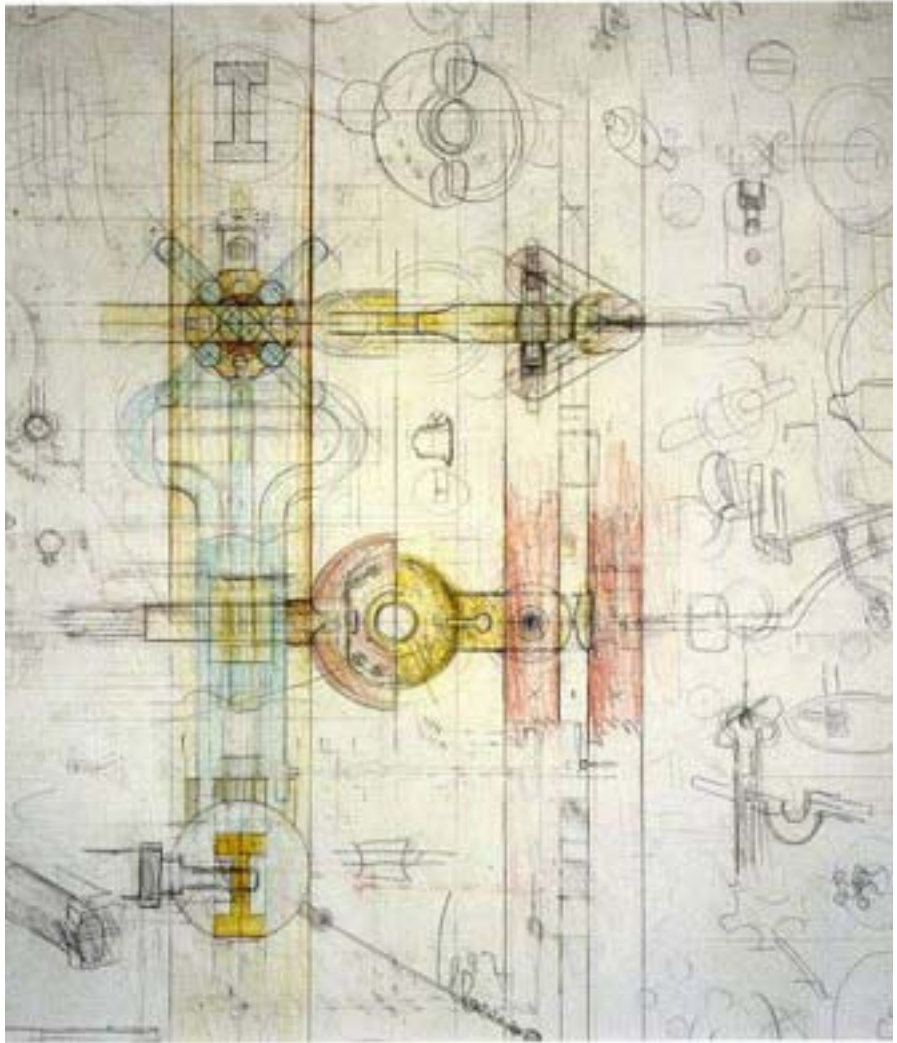


WATER HARVESTING AND RE-USE



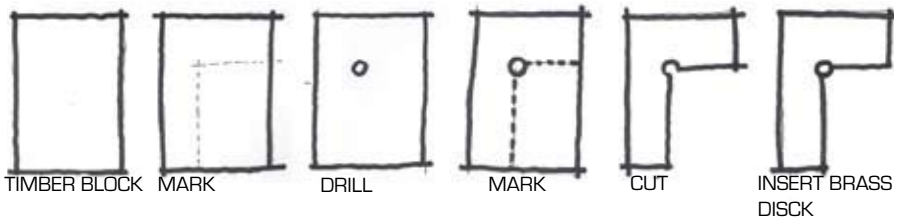
ENERGY RETICULATION

75. PRIMARY TECHNIQUE INVESTIGATION (AUTHOR, 2010).

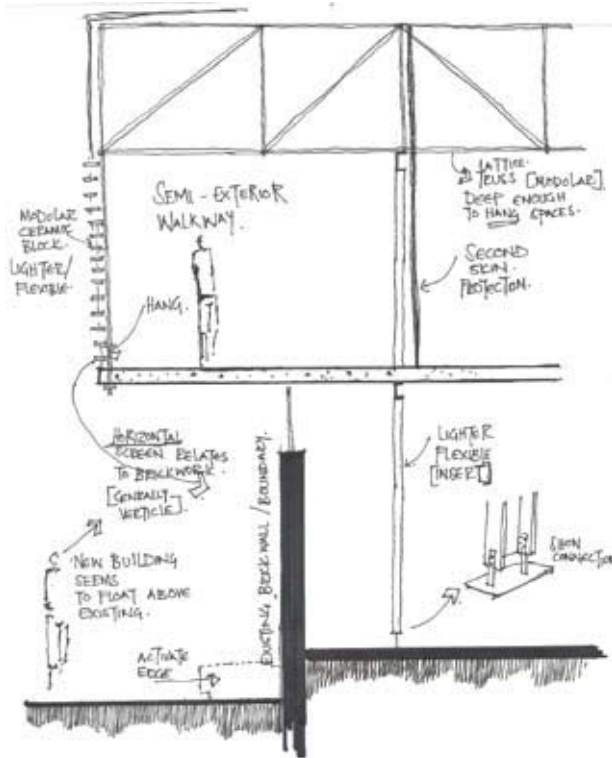


76. TECHNOLOGY EXPLORATION (HTTP://WWW.DRAWINGSARCHITECTURE.TUMBLR.COM/CARLO SCARPA)

77. PROCESS OF DETAIL CONSTRUCTION (AUTHOR AFTER GROÁK, 1992)

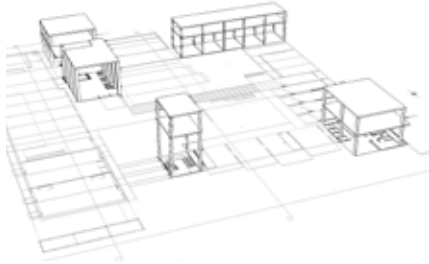


Architect Carlo Scarpa, is known to compose architecture as a craft which is explored within the making or connections of the building. The details tell the tale of their construction and the primacy of the connections work in such a way as to demonstrate the attributes of materials, design decisions, and the articulation between relationships of the part to the whole (Groák, 1992:150-152).



78. FACADE AS PROGRESSION AND MATERIAL EXPLORATION (AUTHOR, 2010).

- Materials to be produced locally
- Materials to have a low embodied energy
- Building to be made of modular elements
- Building to be transported to site as a “kit of parts” , reduces on site material waste
- On site assembly to be bolted connections, no welding required
- The building is constructed in a labour intensive manner
- Adaptability and reuse of structure upon disassembly, thus building is seen as part of a process rather than a product.
- Economically viable

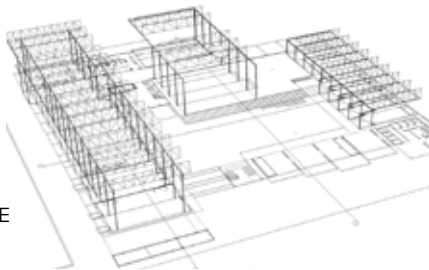


79. PRIMARY STRUCTURE
(AUTHOR, 2010).

Concrete is used for the construction reservoirs; this material assumes permanent nature on site due to it being part of the infrastructure.

- It is robust and gains strength over time
- Readily available material with low embodied energy
- Grid allows for future extension
- A minimum of 30Mpa concrete is used
- A minimum of 30mm concrete cover over steel reinforcement on beams and columns

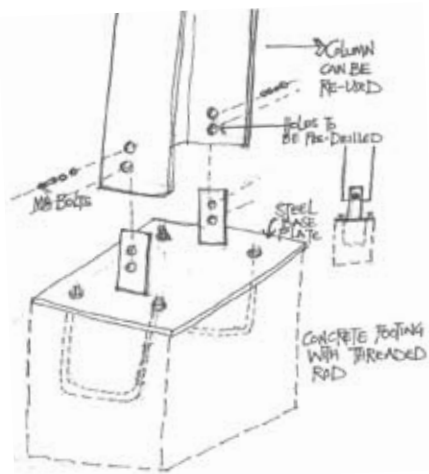
COLD ROLLED STEEL SECTIONS



80. SECONDARY STRUCTURE
(AUTHOR, 2010).

Steel members are made from structural steel sheets formed through press baking, or more commonly, by roll forming the steel through dies.

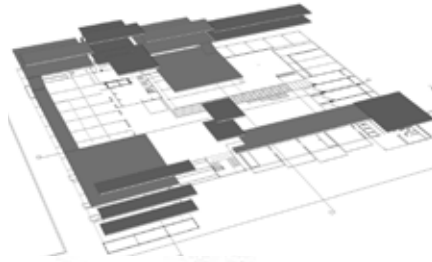
- No heat required for forming steel members.
- Member thickness ranges from 0,4mm to 6,4mm.
- More cost efficient than hot rolled steel sections.
- Flexibility of structural members
- High strength to weight ratio
- Members are transported as a 'kit of parts' to site with no wastage
- On site assembly of members to have bolted connections



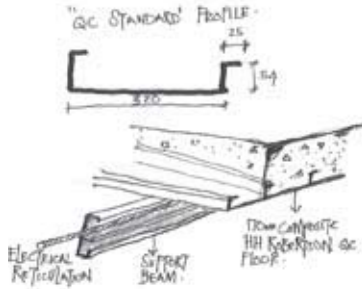
81. TYPICAL COLUMN BASE
DETAIL
(AUTHOR, 2010).

QC floor system is suitable for steel and concrete frame structures; this system is used due to achieving a lighter floor within the building.

- Units are manufactured from embossed steel and combine with concrete to form a tension-reinforced floor slab
- Finished ceiling becomes an integral part of the structure
- Immediate working platform created.
- No temporary shuttering required for casting.



82. LOCATION OF QC FLOOR SYSTEM (AUTHOR, 2010).



83. QC STANDARD PROFILE (AUTHOR, 2010).

GLAZING

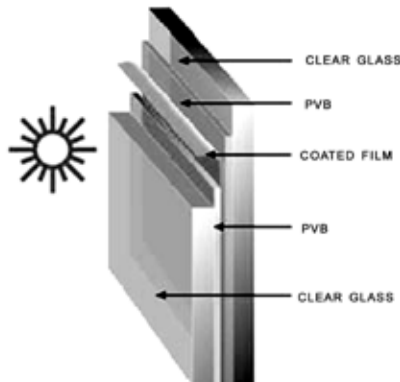
A clear laminate glass (Coolvue 8.76) is used within this facility mainly on the south facades of the building.

- Coolvue Transmits 70% of visible light into the building
- Blocks more than 50% of the heat gain from solar rays.
- Coolvue is manufactured by laminating a wavelength selective heat-reacting coating between two layers of PVB (polyvinyl butral) and glass
- Reduction in sound transmission
- Increases safety and security due to laminate

([http:// www.smartglass.co.za/coolvue.asp](http://www.smartglass.co.za/coolvue.asp))

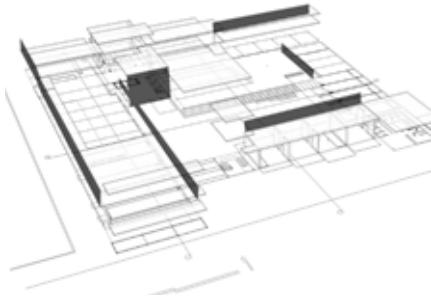


84. LOCATION OF GLAZING (AUTHOR, 2010).



85. COOLVUE LAMINATED GLAZING FROM SMARTGLASS ([http:// www.smartglass.co.za/coolvue.asp](http://www.smartglass.co.za/coolvue.asp))

CERAMIC BLOCKS



86. LOCATION OF CERAMIC BLOCKS
(AUTHOR, 2010).

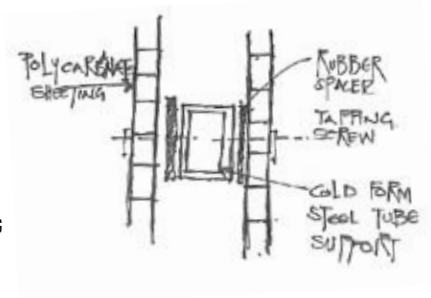
The use of ceramic blocks on facades, relates back to the existing buildings on site. This application responds to the existing buildings as a lighter, more flexible, modular material for facade application. The ceramic blocks are custom designed for the facility, and will be locally manufactured. The use of ceramic elements ensure the possibility of reusing of each piece, allowing the material an extended life beyond that of the building.

POLYCARBONATE SHEETING



87. LOCATION OF POLYCARBONATE INFILL
(AUTHOR, 2010).

Polycarbonates are used as part of the tertiary intervention, to divide spaces within the secondary intervention: program. A five walled, polycarbonate is chosen for the infill walls, panels sizes are 1200 x 5800 x 25. The polycarbonates will be fixed to a steel frame with aluminium fixings.



88. POLYCARBONATE FIXING
(AUTHOR, 2010).

- Cellular polycarbonate panels more economical than glass
- Light weight and durable
- Good light transmission and insulation
- Has a u-v resistant film that prevents it from becoming brittle and discolouring
- Possibility to be recycled

Polyvinylchloride (PVC) is a virtually indestructible material that cannot be incinerated due to the toxic gasses it would emit. To avoid the material landing up in landfill sites, Billboards are scoured from within the city and used as a partitioning curtain system within the building.

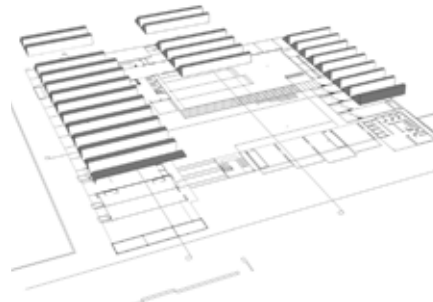


89. BILLBOARD VINYL RE-USE (AUTHOR, 2010).

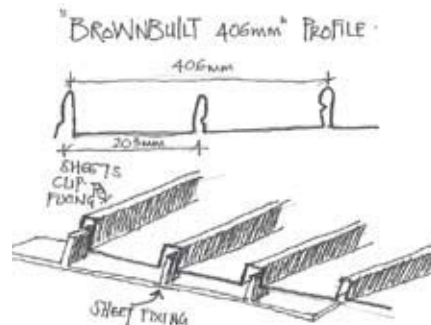
BROWNBUILT PROFILE METAL SHEETING

Brownbuilt sheeting is used for roof cladding within the facility due to the lightness of the material.

- Concealed clip fixing, eliminates fixing holes on roof
- Possibility of re-using the sheeting for alternate applications

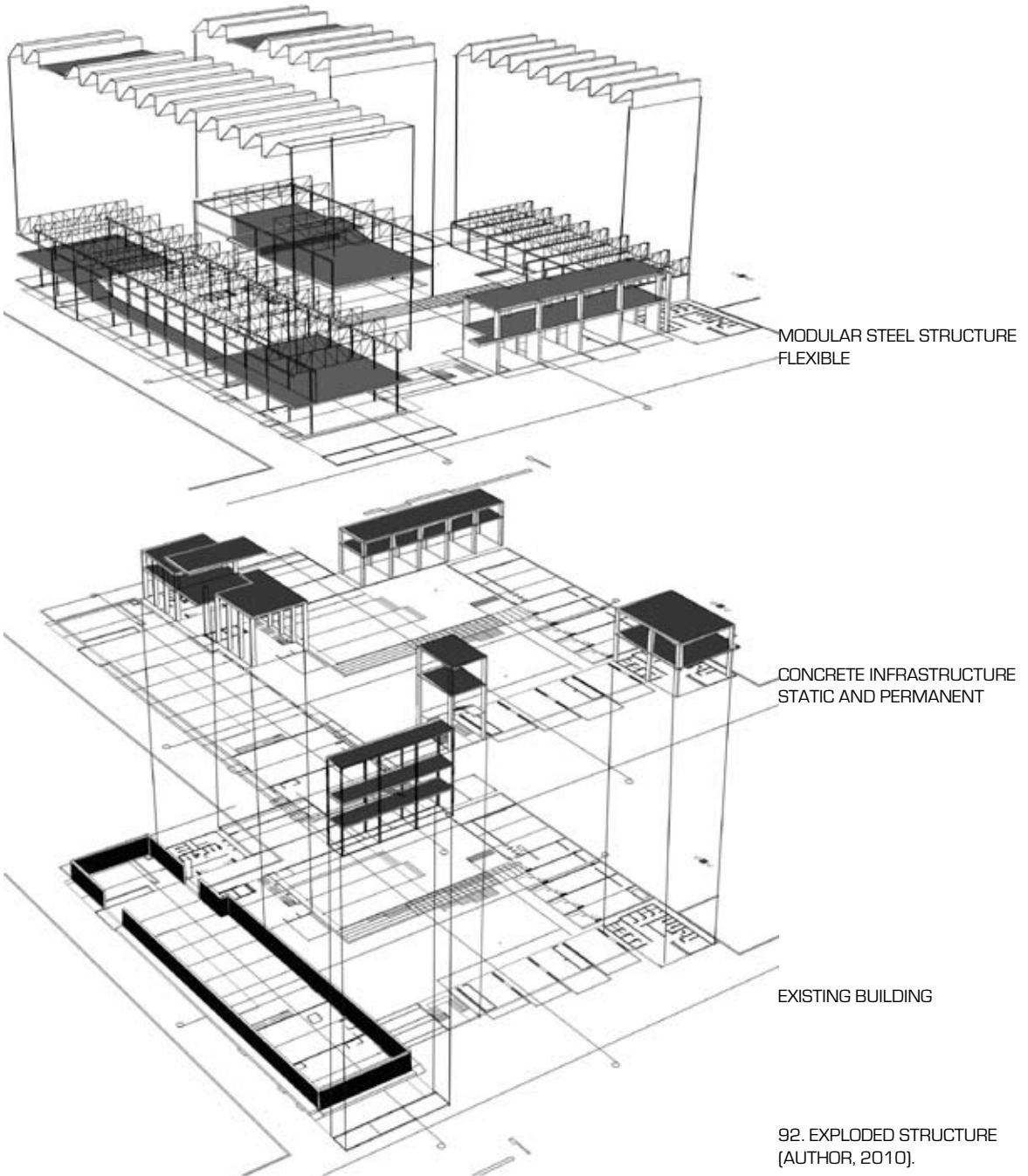


90. LOCATION OF BROWNBUILT SHEETING (AUTHOR, 2010).



91. BROWNBUILT SHEETING (AUTHOR, 2010).

Here the structure responds to two conditions, that of infrastructure and that of program. Infrastructure having a more permanent base on site is expressed as a static element composed of a concrete column and beam structure. The programme, requires a level of flexibility, uses modular steel sections which allows for the growth and recession of the building. Further this is a response to the existing building, where the new building adopts a lighter more flexible approach.



SERVICES AND SYSTEMS

The servicing of the building refers to the way in which systems and methods are employed to ensure functioning of the building. In line with the conceptual idea, process involved in the servicing of the building embodying a high level of legibility, in the way in which it consumes, distributes, and disposes resources. Here systems of water management, drainage, ventilation, thermal comfort, climate control and circulation will be discussed.

WATER MANAGEMENT

Water management within the facility looks at using the roof as a means of harvesting rainwater, and then re-using it within the building, for flushing of wc's, washing hands and washing clothes. Potable water will be provided by municipal water source. The primary method of water heating will be a solar collector, with hot water storage in close proximity to the point of use. All sanitary fittings are water efficient.

FILTRATION

A combination of filters are used to address the cleaning of water collected off the roofs, based on the requirements of the program, this process is as follows:

- A coarse sand filter (removing large particles),
- A sand –granular activated carbon filter (removes fine particles),
- And an ultraviolet (UV) filter will neutralises most pathogens found in water.

All filters employed use pumps and will operate under pressure.

STORAGE

Water storage tanks are calculated based on the requirements of programme; locally manufactured ABECO water storage tanks are used.

Abeco tanks are unaffected by light penetration, easy and quick installation

The maximum depth of tank size is 4 panels (4880mm deep)

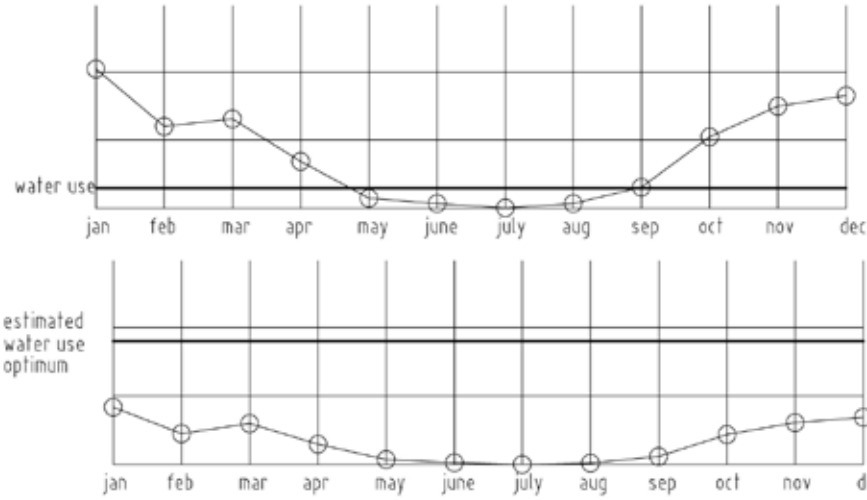
Panel sizes are 1220 x 1220 in thicknesses of 3mm 4,5mm and 6mm

HEATING

The use of a solar collector is employed and fitted on the level of the reservoirs to heat water mainly for the use of washing machines.

The solar system tracks the sun on two axes thus gaining optimum sun throughout the day.

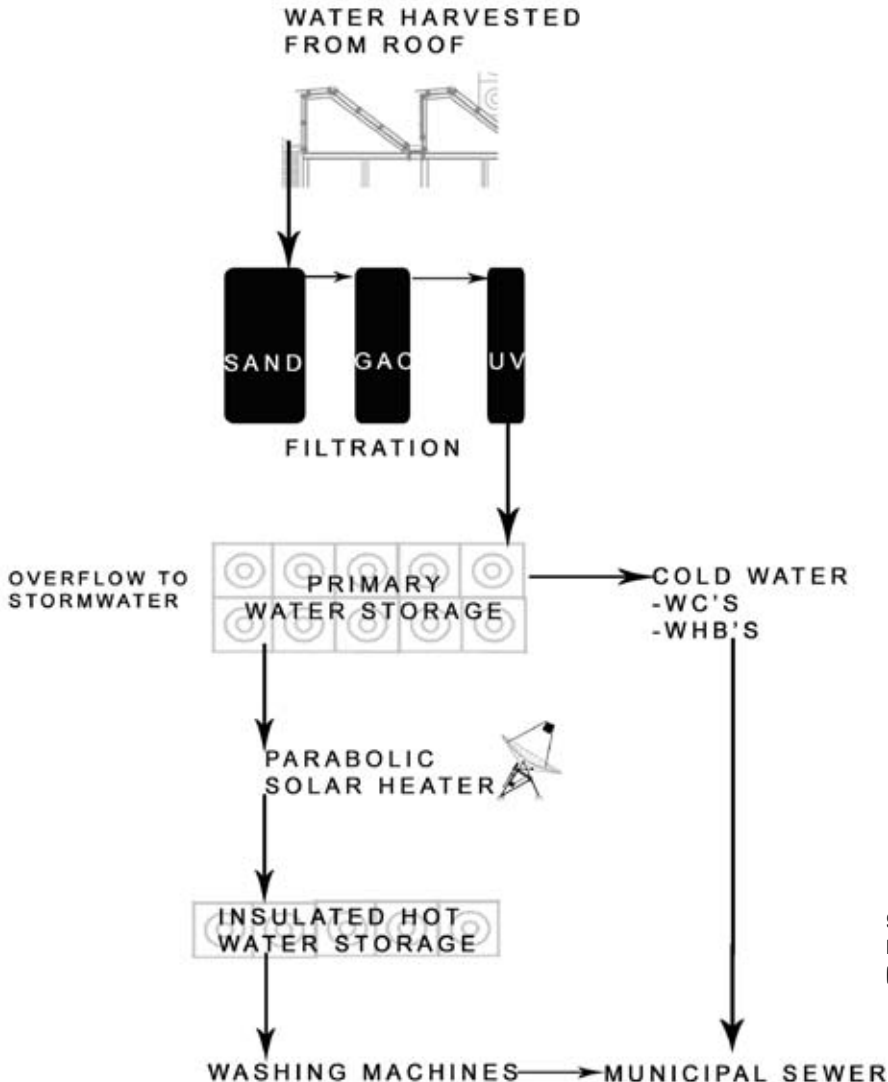
The parabola focuses the heat to a point, through which the pipe containing water would pass through, standard copper pipes would be used, further painting the pipes black would increase the heat absorption.



93. WATER USED IN PRODUCTION FACILITY (BARRACK) (AUTHOR, 2010).

94. WATER USED IN PUBLIC INTERFACE (ARENA) (AUTHOR, 2010).

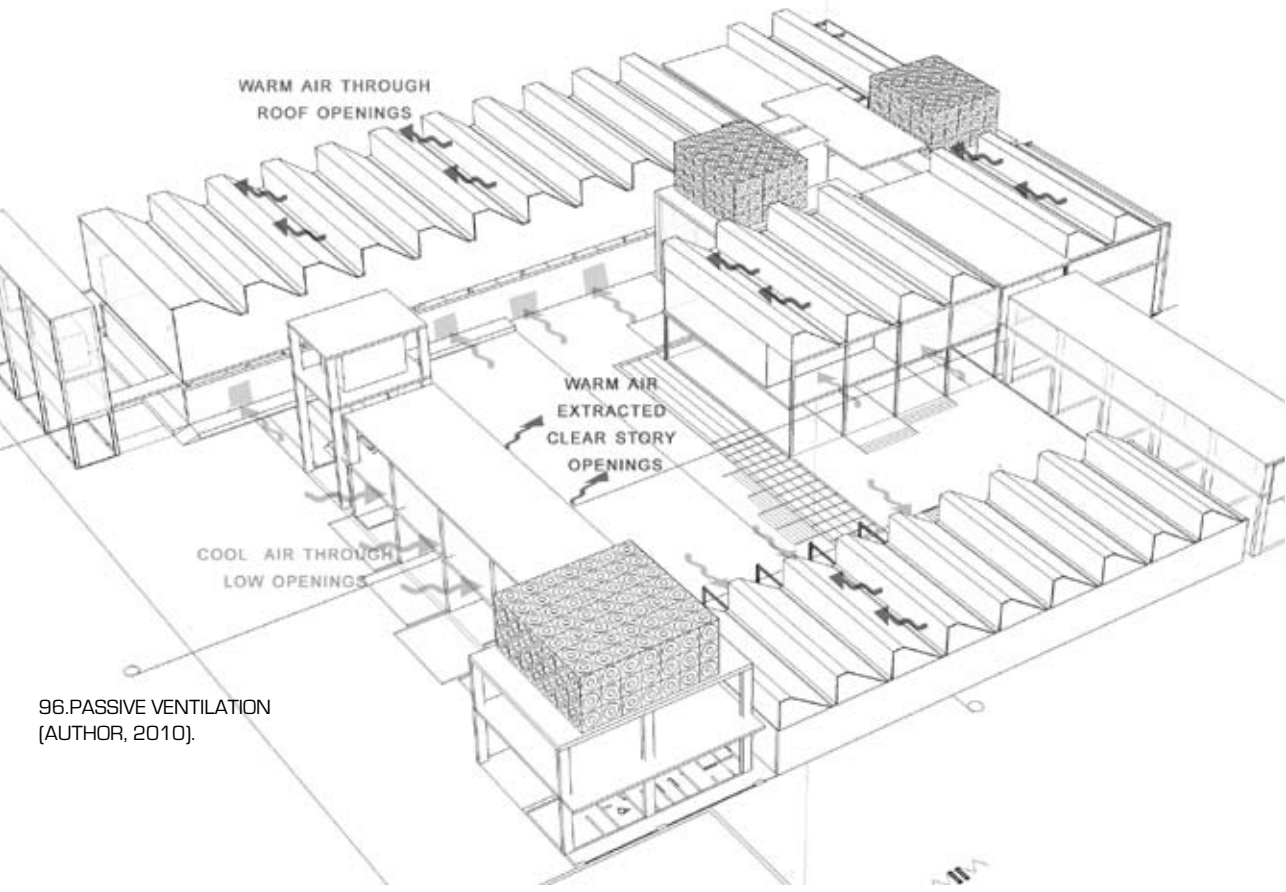
There is a surplus of water collected for consumption within the barrack; the excess water can be reticulated to for use within the arena.



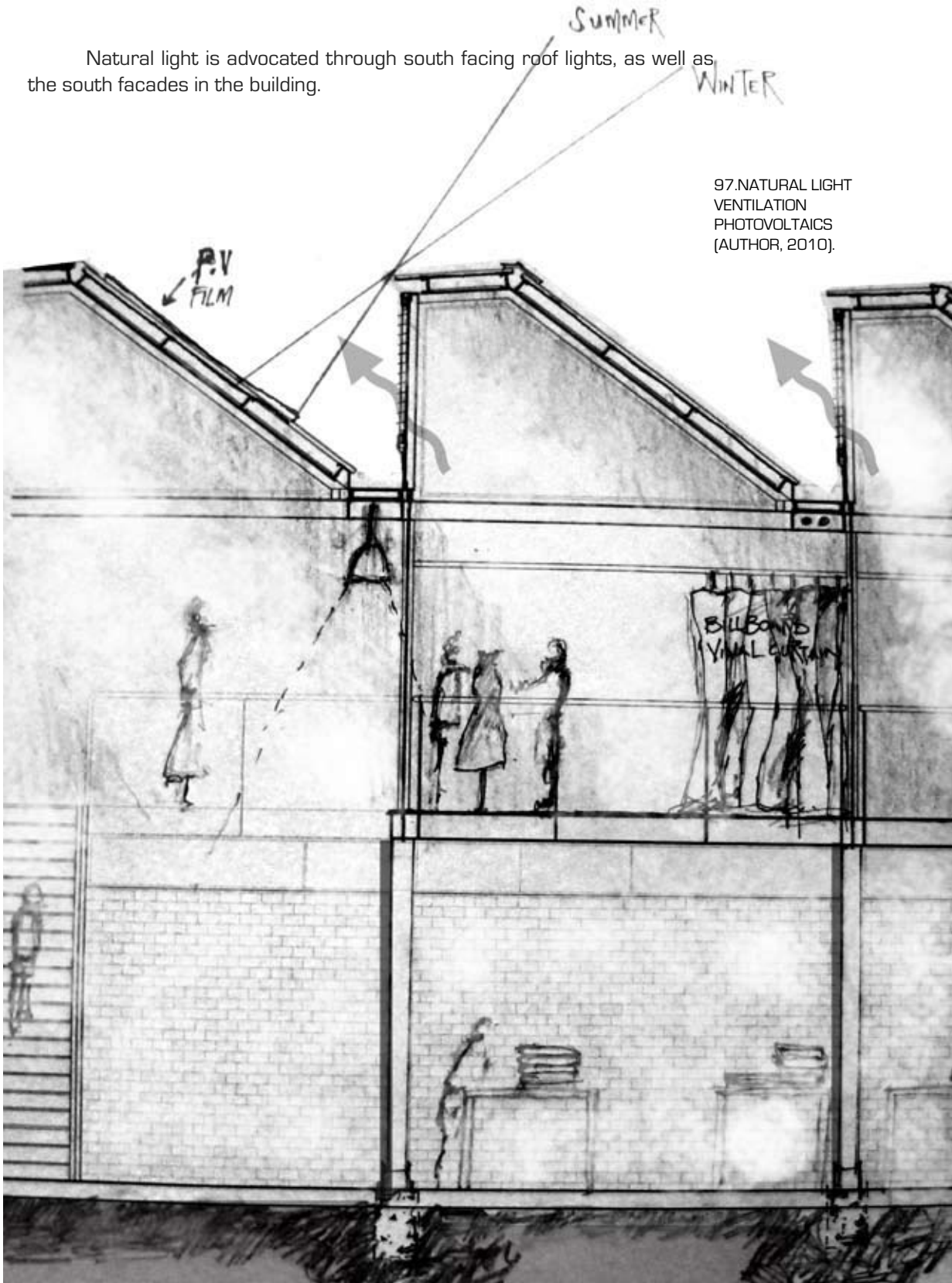
95. WATER HARVESTING PROCESS (AUTHOR, 2010).

PASSIVE VENTILATION

Natural ventilation is advocated within the building through the roof structure. Automated glazed louvers allows for a measure of control over ventilation conditions.



Natural light is advocated through south facing roof lights, as well as the south facades in the building.



97. NATURAL LIGHT
VENTILATION
PHOTOVOLTAICS
(AUTHOR, 2010).

Mechanical lighting is based on average use and calculations, a lighting specialist would be consulted in order to generate accurate lighting requirements for the building.

ENTERTAINMENT 870 M²

SANS 0400 requires 50 lux /m²
Lumens required = 43500
One CFL light at 3250 lumens is 36watts
14 lights required = 504 w/h
504 w/h x 9 hours =4.5 Kw/h per day

PLANT ROOM 145M²

SANS 0400 requires 100 lux /m²
Lumens = 14500
One CFL light at 3250 lumens is 36 watts
5 lights required = 180 w/h
180w/h x 9 hours = 1.6 Kw/h per day

LOW RISK COMMERCIAL 600M²

SANS 0400 requires 300lux / 15m²
Lumens required = 12000
One CFL light at 1300 lumens is 18 watts
9lights required = 162 w/h
162w/h x 9 hours = 1.5 kw/h per day

OFFICES 385M²

SANS 0400 requires 500 / 15m²
Lumens = 12833
One CFL light at 1300 lumens is 18 watts
10 lights required = 180 w/h
180w/h x 9 hours =1.6 Kw / h per day

LOW RISK INDUSTRIAL 1525M²

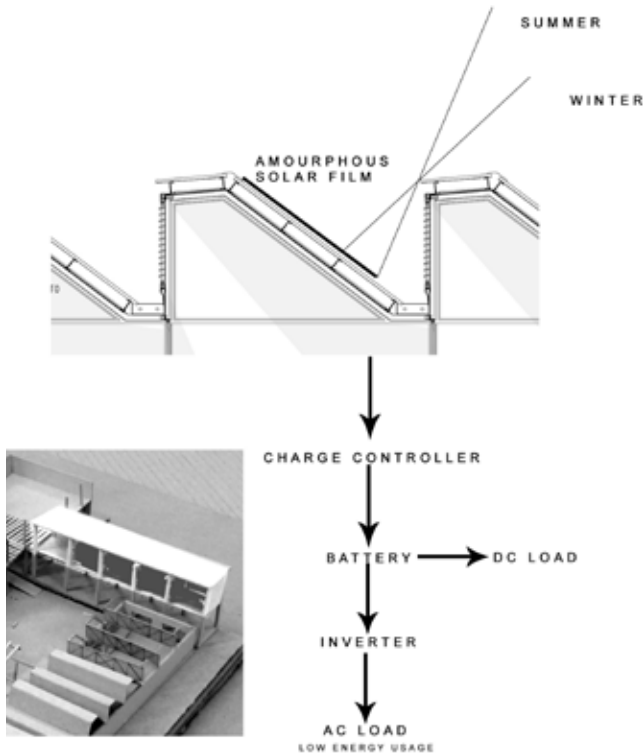
SANS 0400 300 lux / 15m²
Lumens = 30600
One CFL light at 3250 lumens is 36 watts
10 lights required= 360 w
360w/h x 9 hours = 3.2 Kw/h per day

STORAGE 150M²

SANS 0400 requires 300lumens / 50m²
Lumens =900
One CFL light at 450 lumens is 8 watts
2 lights required = 16w/h
16w/h x 9 hours = 144w/h per day

Total Kw/h needed per day = 12.5 Kw/h

The facility has a sufficient natural light during the day, therefore for energy requirements; approximately half of the lighting would be needed. Therefore approximately only 6 Kw/h would be required.



98.PHOTOVOLTAIC ENERGY PROCESS (AUTHOR, 2010).

Photovoltaic technology is still relatively expensive in South Africa, but due to the increase in demand for alternate energy the cost is decreasing. Photovoltaic's have an average of 12% efficiency, which is low as compared to conventional electricity, and is only used to power low energy appliances. Photovoltaics should be placed at an angle of the latitude plus 5 to 10 degrees. Pretoria has latitude of 25, 5 degrees, so an angle between 30 and 35 degrees would be an appropriate angle for the panels.

PANELS REQUIRED

A 2m² panel generate 250 w/h
 500 panels at 2m² generates 125kw/h
 There is an average of 6.5 light hours = 750 Kw/h per day

The requirements are calculated on lower energy consuming appliances

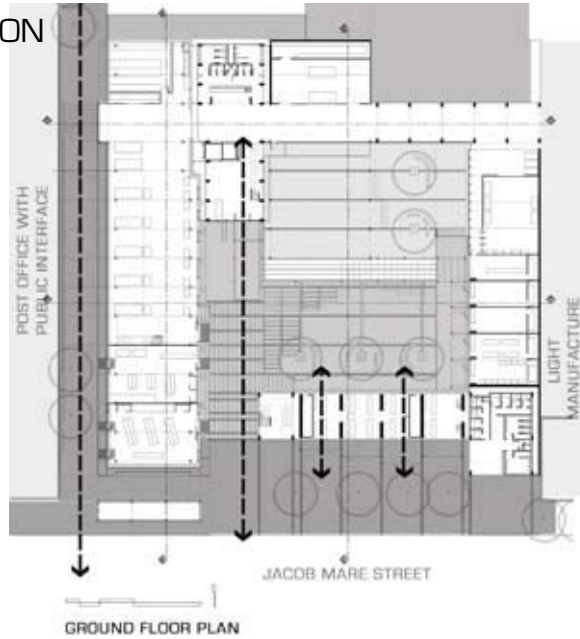
CFL lights 6 Kw /h per day
 25 Sewing machines at 75w/h x 8 hours = 15Kw/h
 15 Laptops at 45 w/h x 8 hours = 5.4 Kw/h

Average estimated daily use of low energy appliances 26.4 Kw/h
 This is rounded off to 30 Kw/h required per day

Therefore a 120m² panels would be required initially
 240m² of amorphous solar film will be used

CIRCULATION

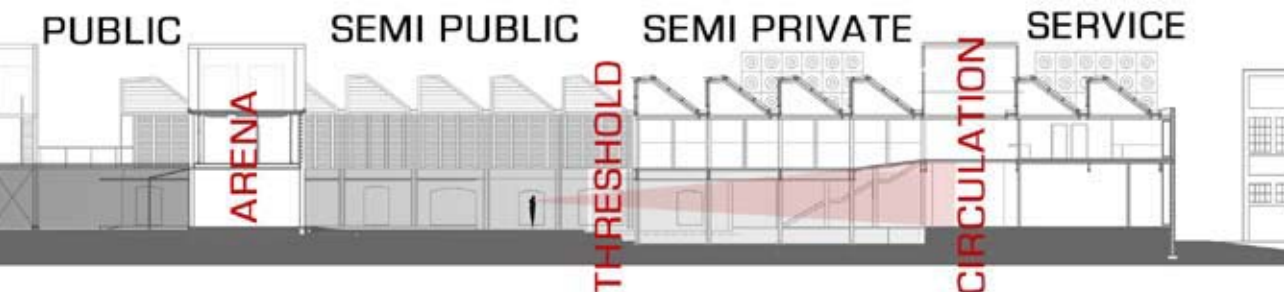
99. PUBLIC CIRCULATION
(AUTHOR, 2010).

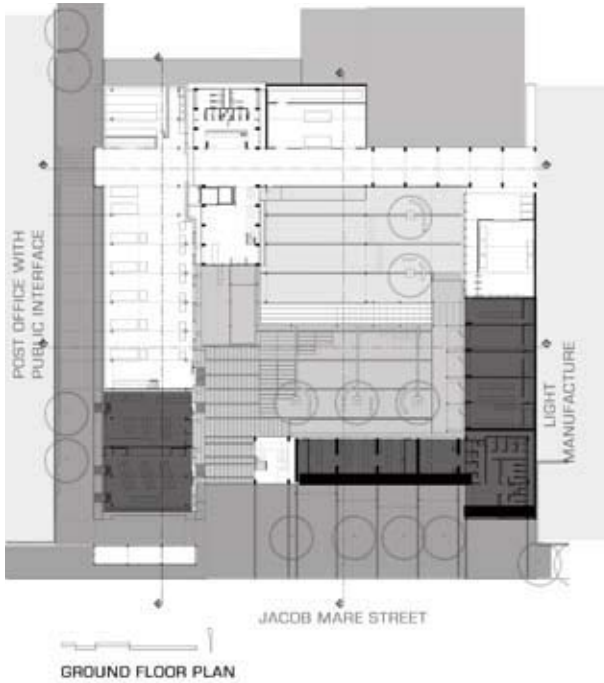


100. PROCESS CIRCULATION AND ZONING
RED BLOCKS INDICATE VERTICAL CIRCULATION
(AUTHOR, 2010).

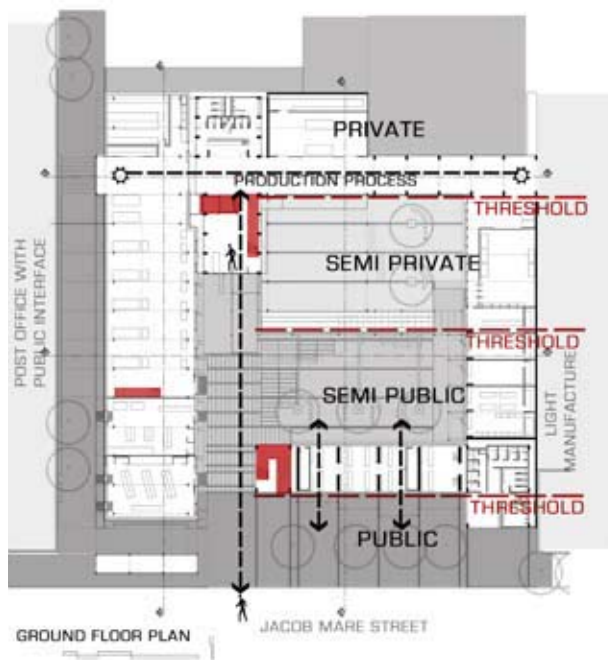


101. SECTION INDICATING THRESHOLD AND ZONING
PUBLIC ENGAGEMENT OCCURS BOTH VISUALLY AND PHYSICALLY ON SITE
(AUTHOR, 2010).



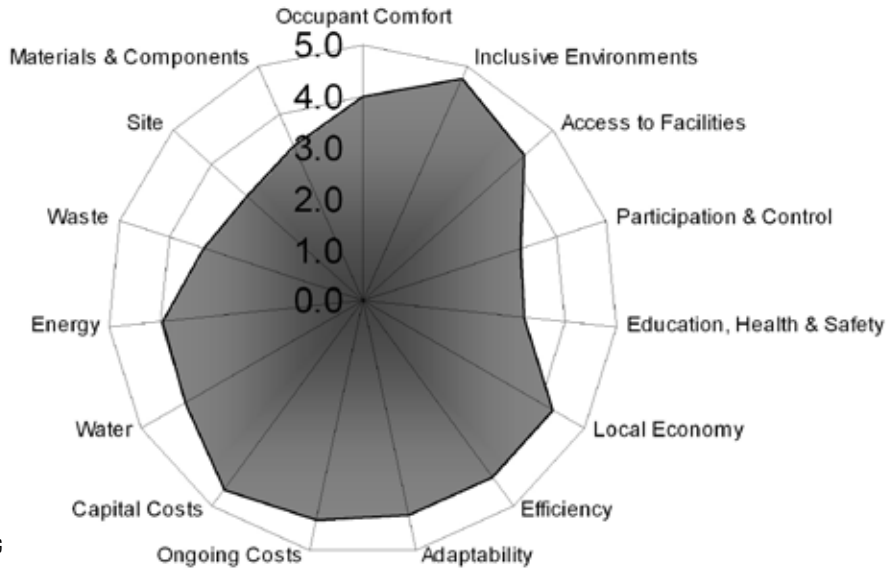


102.PUBLIC ACCESSIBILITY WITH BLACK BLOCKS INDICATING FAST INTERACTION . EG. ABLUTIONS AND SEMI-FORMAL TRADE (AUTHOR, 2010).



103.CIRCULATION PATTERNS OVERLAYED , PUBLIC AND PROCESS FORM A SYMBIOTIC RELATIONSHIP (AUTHOR, 2010).

Circulation refers to the way, in which the facility is occupied, by people and the production process. Primary movement of people occurs in a north south direction on site, and production process on an east west axis. In this facility the process of production and public entwine, to avoid the viewer and viewed experience, the public engage in part of the process, e.g. repair, distribution, and recycling of textiles



104.SUSTAINABLE BUILDING ASSEMENT TOOL MODEL (AUTHOR, 2010).

The SBAT© system is a tool which aids in rating a building according to its response to context, looking at the economic , environmental and social impacts .The system is aimed at developing countries to further awareness of the impact which buildings have on its environment, (Gibebert,2009) The tool is (spreadsheet format) , used as an assessment to measure the building both during the design process as well as post construction .

There are 15 sets of objectives, under the headings of economic, environmental and social, that has been analysed in the building. The system should be regarded as an estimate of the buildings performance, a more specific assessment would be conducted in order to present more accurate results.

BUILDING DOCUMENTATION

AFRICAN WINDOW MUSEUM

SCHUBART STRE

MINNAAR STREET

STREET PARKING

STREET PARKING

SITE ENTRY/EXIT

FURNITURE WORKSHOP

OFFICES

PARKING

FURNITURE WORKSHOP

PARKING

OFFICES

STORAGE

EXISTING POST OFFICE
HEADQUARTERS

PEDESTRIAN LINK THROUGHFARE

PARKING

EXISTING FIRESTATION

BUILDING

MATERIAL

PARKING

PARKING

STORAGE

OFFICES

STORAGE

MATERIAL STORAGE

ELECTRICAL WORKSHOP

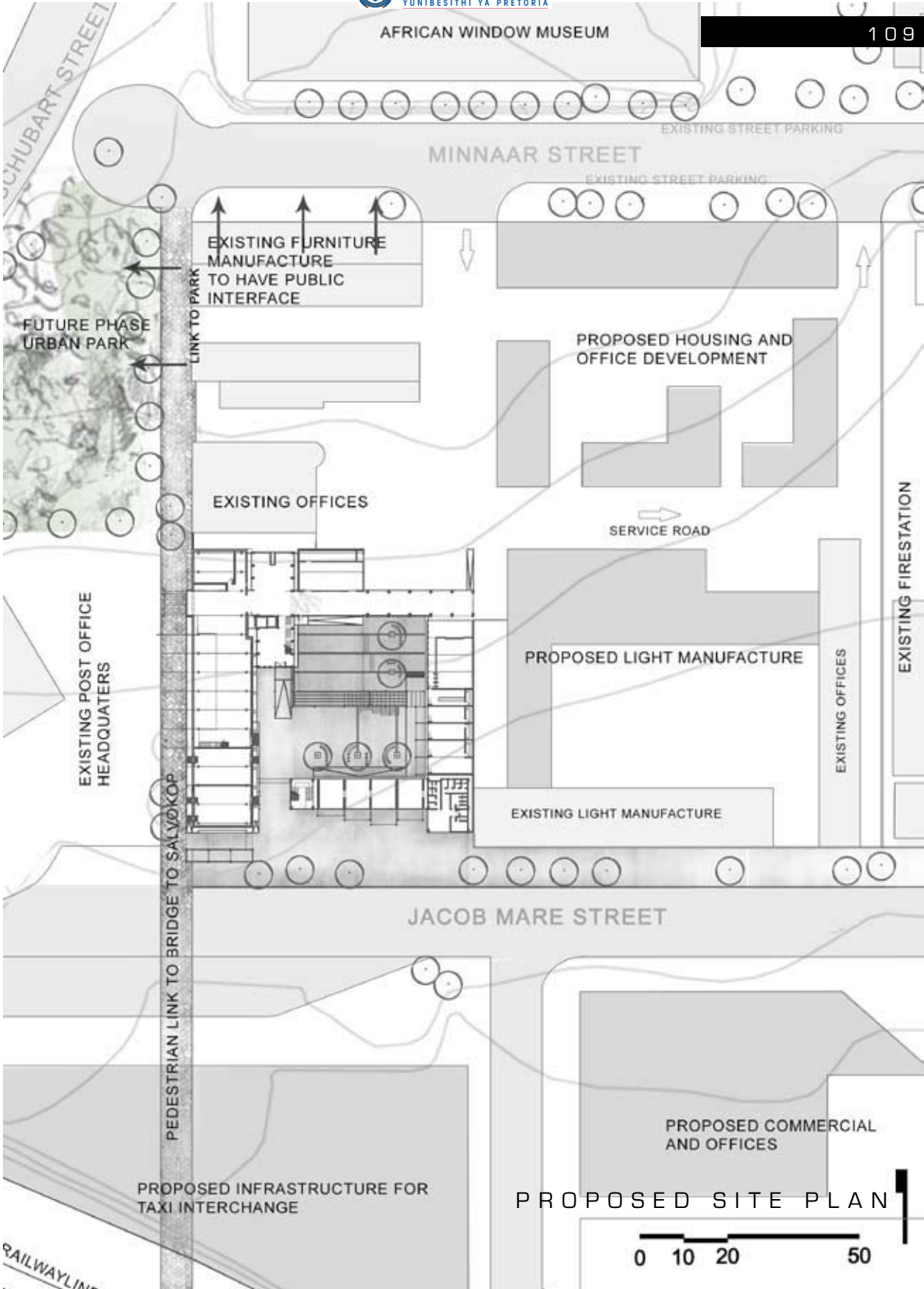
JACOB MARE STREET

EXISTING TAXI INTERCHANGE

FORMER DAIRY MALL
CURRENT BROWNFIELD SITE

EXISTING SITE PLAN

0 10 20 50



AFRICAN WINDOW MUSEUM

EXISTING STREET PARKING

MINNAAR STREET

EXISTING STREET PARKING

EXISTING FURNITURE
MANUFACTURE
TO HAVE PUBLIC
INTERFACE

PROPOSED HOUSING AND
OFFICE DEVELOPMENT

FUTURE PHASE
URBAN PARK

LINK TO PARK

EXISTING OFFICES

SERVICE ROAD

EXISTING FIRE STATION

EXISTING POST OFFICE
HEADQUARTERS

PROPOSED LIGHT MANUFACTURE

EXISTING OFFICES

EXISTING LIGHT MANUFACTURE

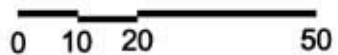
PEDESTRIAN LINK TO BRIDGE TO SALVOKOP

JACOB MARE STREET

PROPOSED COMMERCIAL
AND OFFICES

PROPOSED INFRASTRUCTURE FOR
TAXI INTERCHANGE

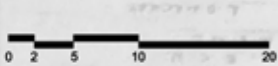
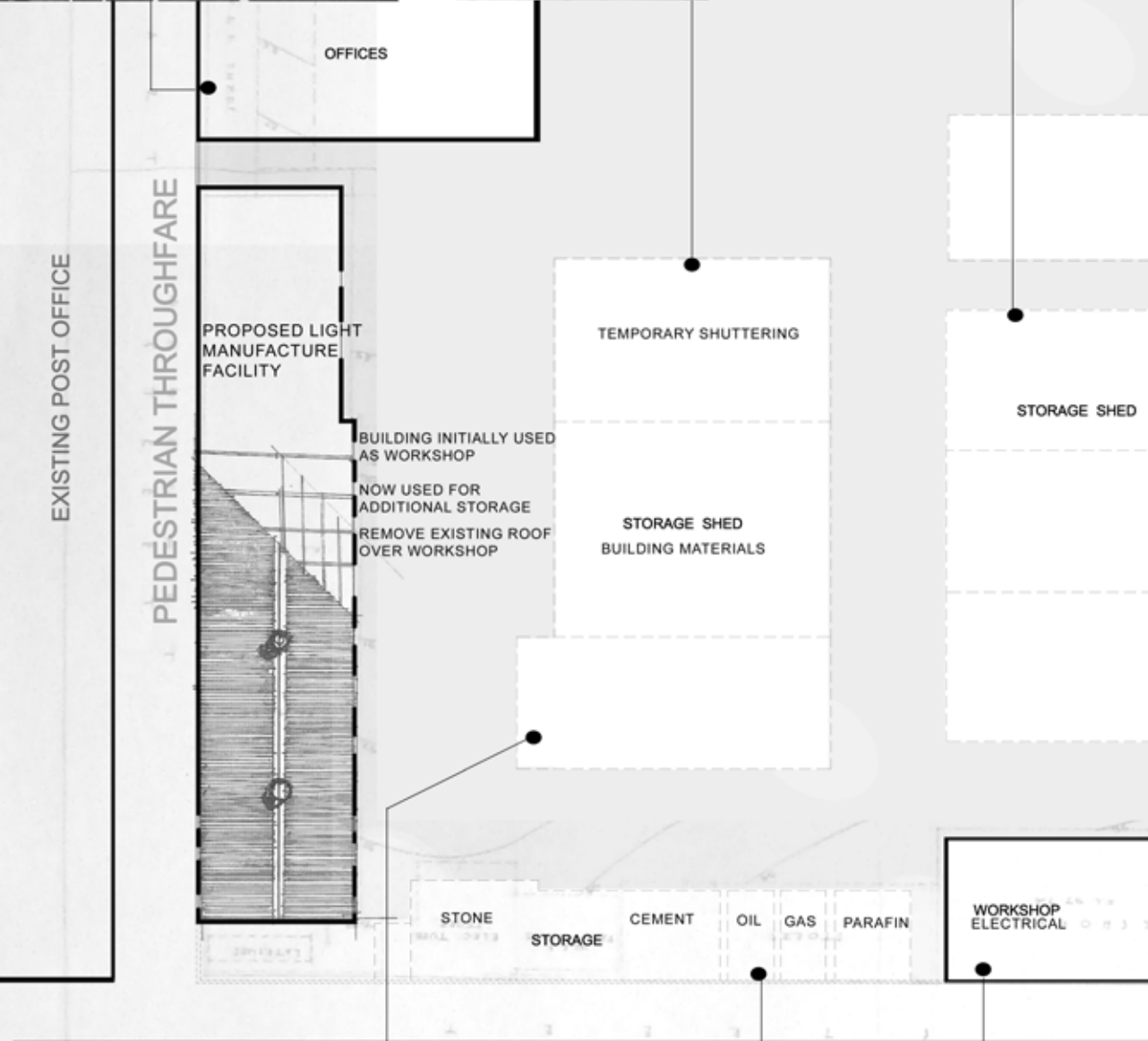
PROPOSED SITE PLAN



RAILWAYLINE



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

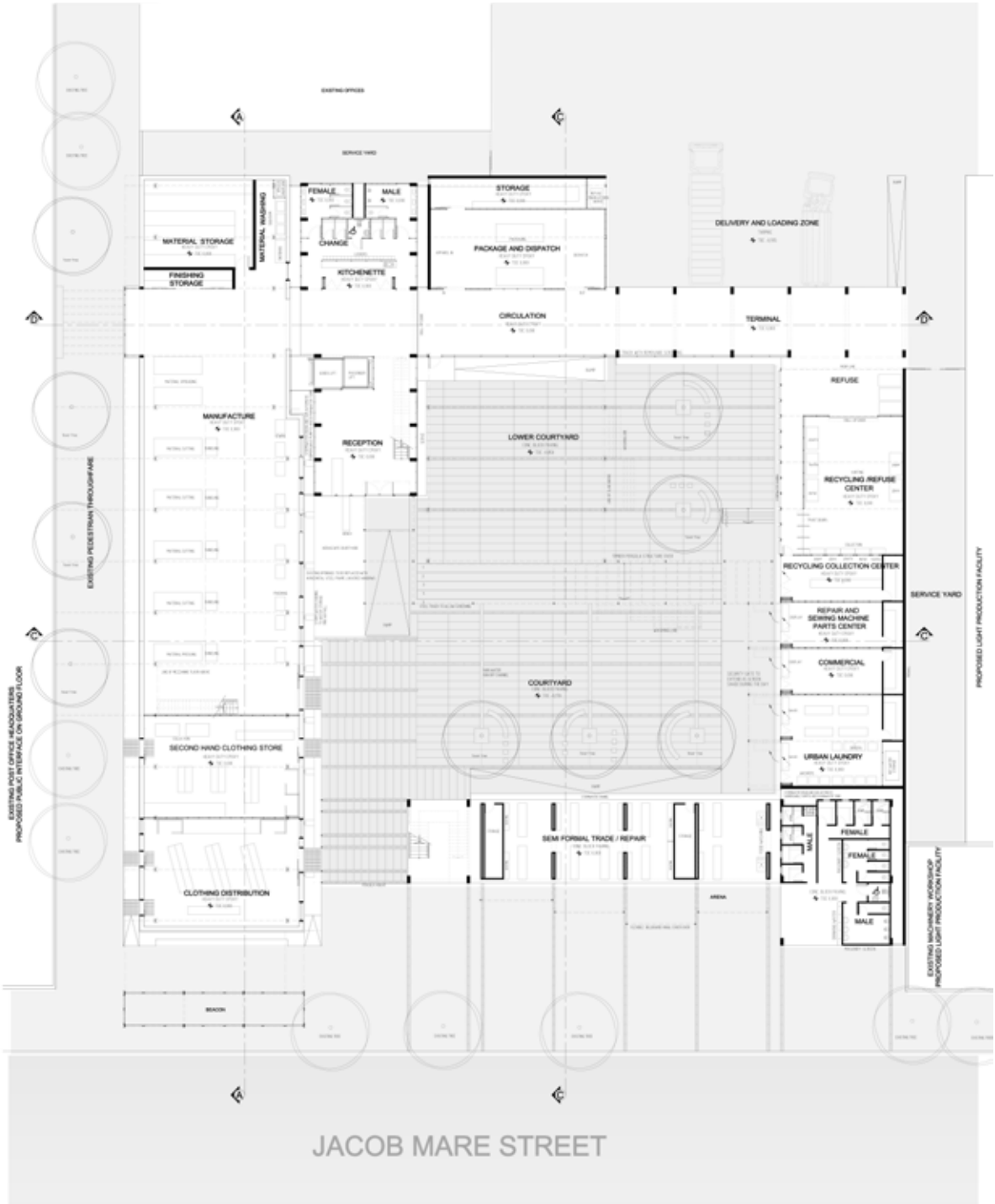


DEMOLITION PLAN

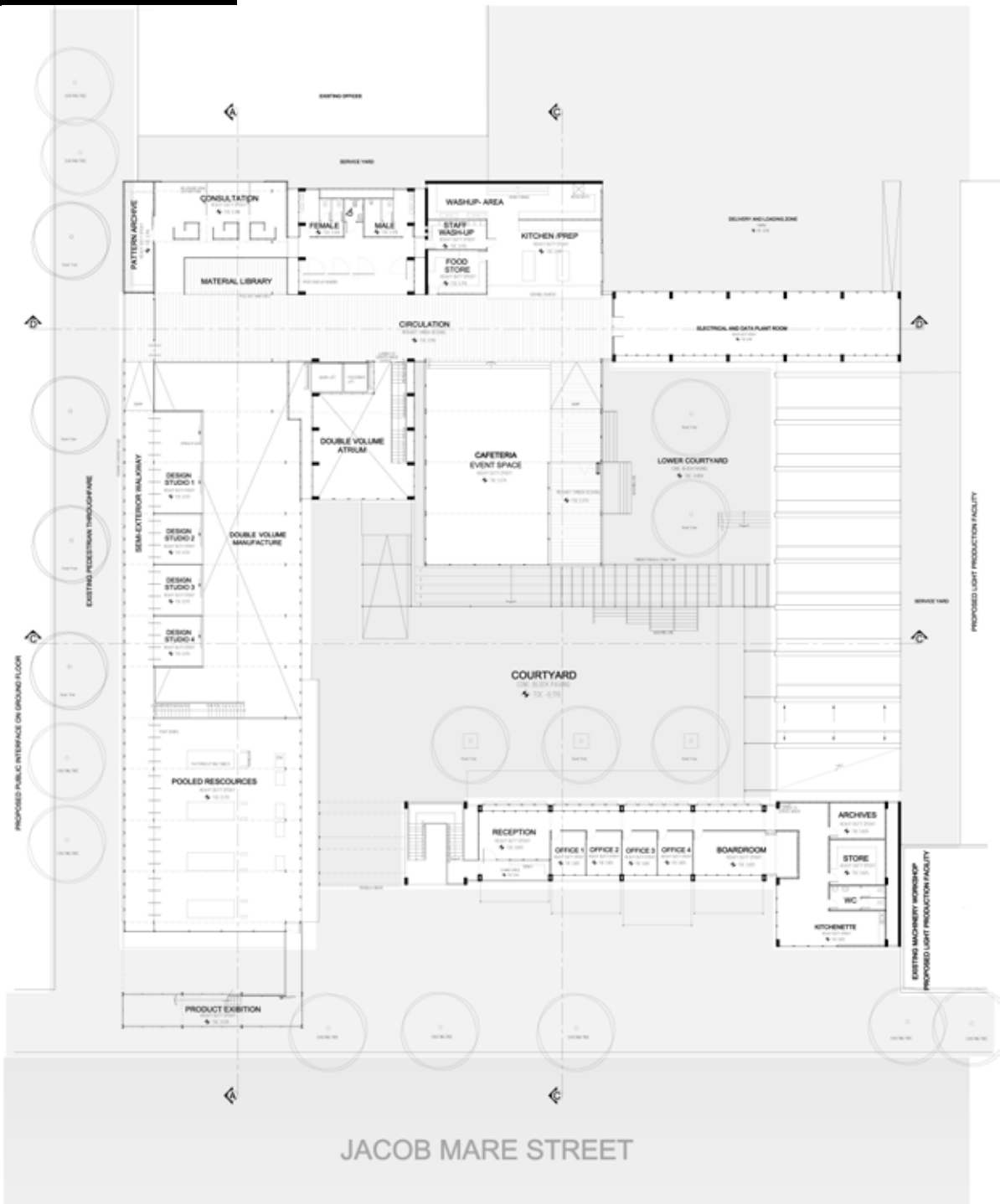
JACOB MARE STREET

BRICKWORK FROM BUILDINGS TO BE RE-USED AS PAVING

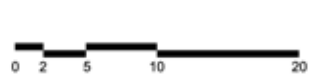




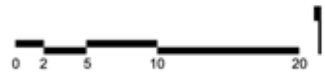
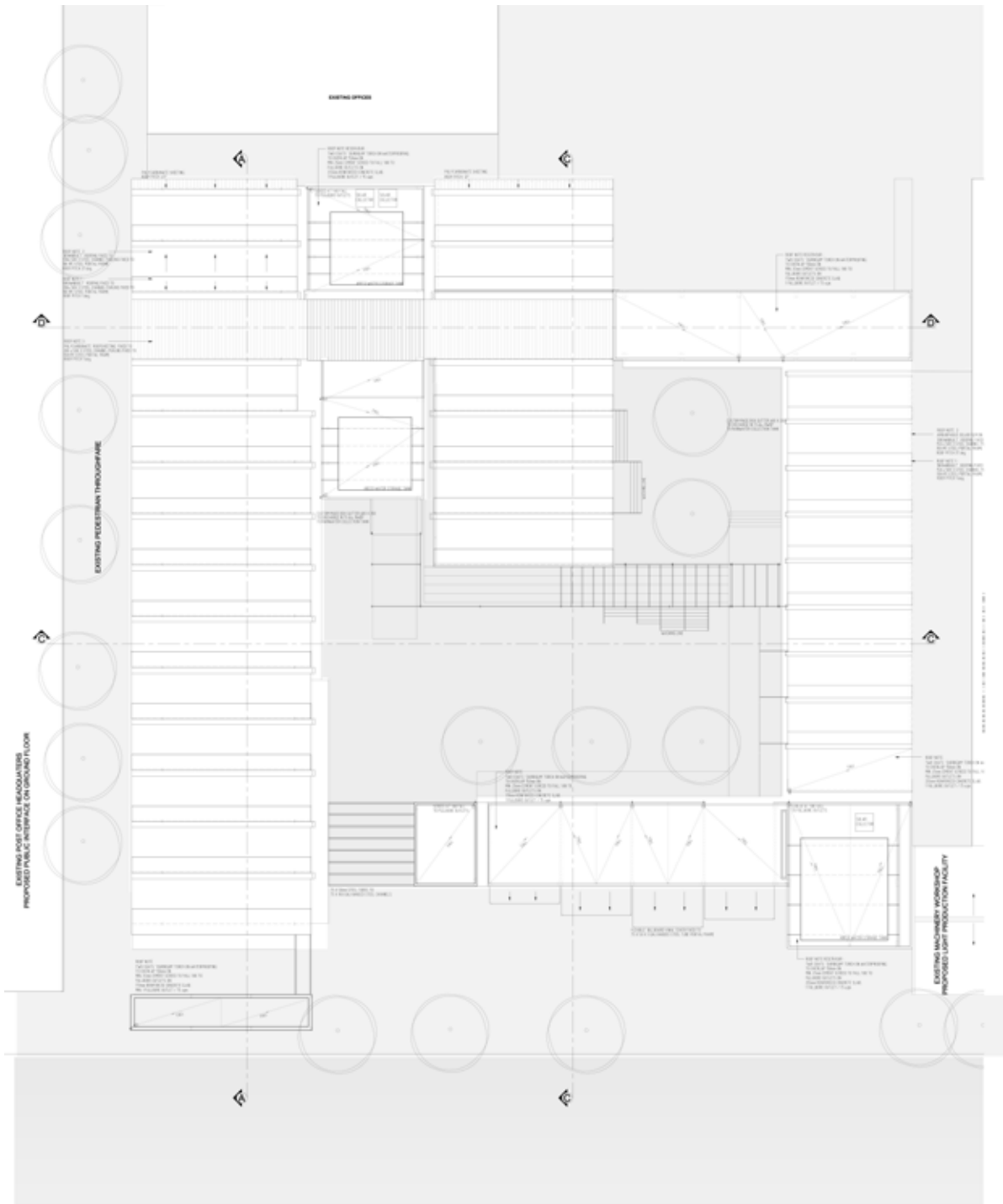
GROUND FLOOR PLAN



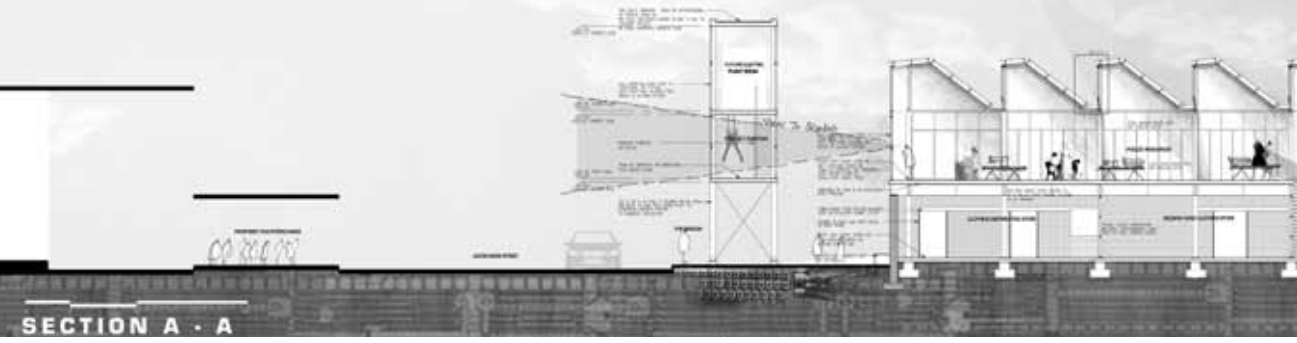
JACOB MARE STREET



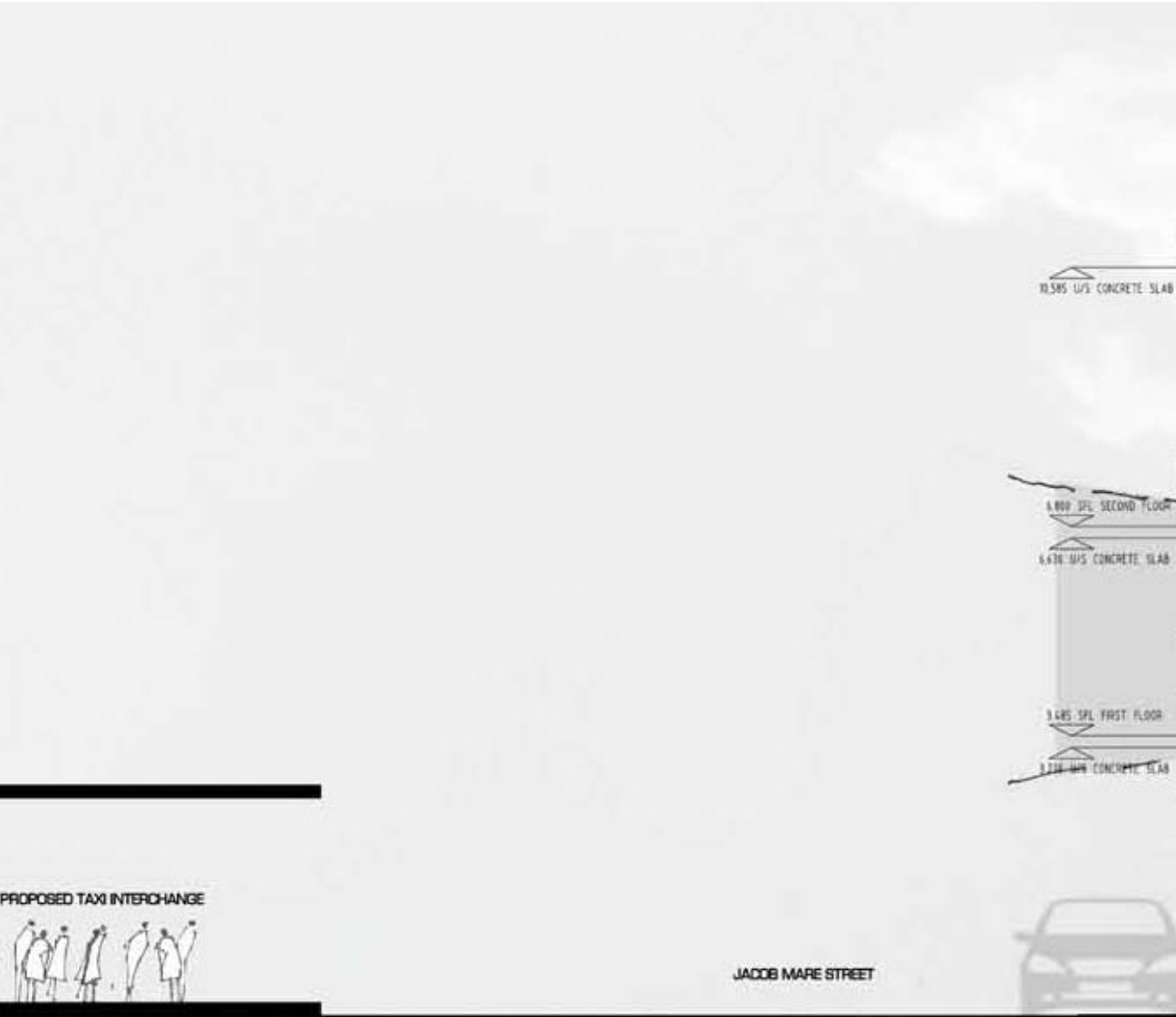
FIRST FLOOR PLAN



ROOF PLAN



SECTION A - A



10,585 U/S CONCRETE SLAB

9,800 SPL SECOND FLOOR

6,670 U/S CONCRETE SLAB

9,485 SPL FIRST FLOOR

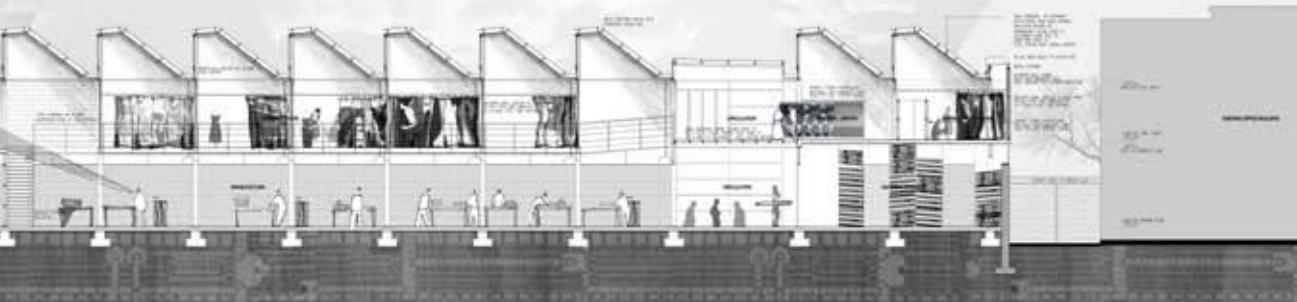
8,170 U/S CONCRETE SLAB

PROPOSED TAXI INTERCHANGE



JACOB MARE STREET





TWO COATS 'DURBIGUM' TORCH ON WATERPROOFING TO OVERLAP 150mm ON MIN. 25mm LIGHTWEIGHT SCREED TO MIN. 1° FALL TO 'DALLBORE' OUTLETS ON 255mm REINFORCED CONCRETE SLAB

FUTURE ELECTRIC PLANT ROOM

647 LAMINATED GLASS FIXED TO STRUCTURAL TEE SYSTEM WITH STRUCTURAL GLAZING TAPE REFER TO GLAZING SYSTEM

MODULAR STAIRCASES SEE DETAIL

175mm DC COMPOSITE 600 ROBERTSON STEEL DECKED FLOOR

254 X 254 X 70 STEEL H COLUMNS BOLTED WITH M8 BOLTS TO 5mm STEEL FIXING PLATE TO REINFORCED CONCRETE FOOTING TO ENGINEERS SPECIFICATION

THE BEACON

VIEW TO Silyokop

PRODUCT EXHIBITION

647 LAMINATED GLASS FIXED TO STRUCTURAL TEE SYSTEM WITH STRUCTURAL GLAZING TAPE REFER TO GLAZING SYSTEM

HEAVY DUTY EPOXY FLOOR ON SELF LEVELLING SCREED ON 175mm DC COMPOSITE 600 ROBERTSON STEEL DECKED FLOOR ON 320mm STEEL GIRDER TRUSS

UNDERSIDE OF SLAB TO BE PLASTERED WITH TYROLEM

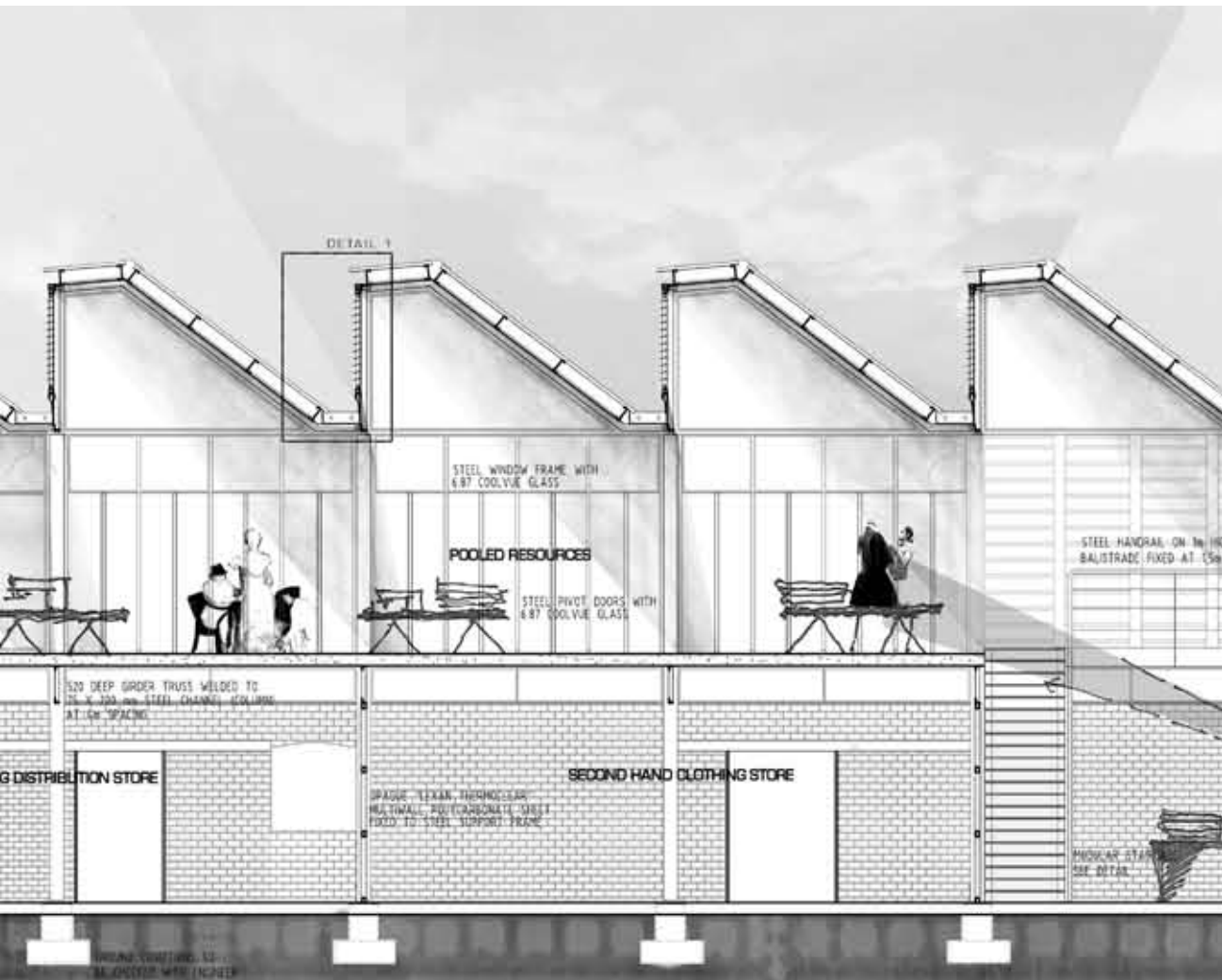
TIMBER DOORS FROM EXISTING BUILDINGS FIXED ON HILLALDAM SLIDING SYSTEM OPENING TO HAVE 4mm SHEET METAL AS DOOR FRAME

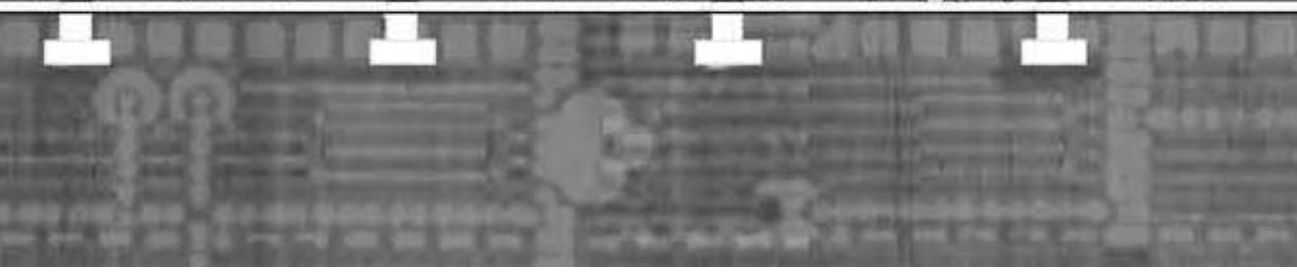
HEAVY DUTY EPOXY SCREED ON SELF LEVELLING SCREED ON EXISTING SUBGRADE

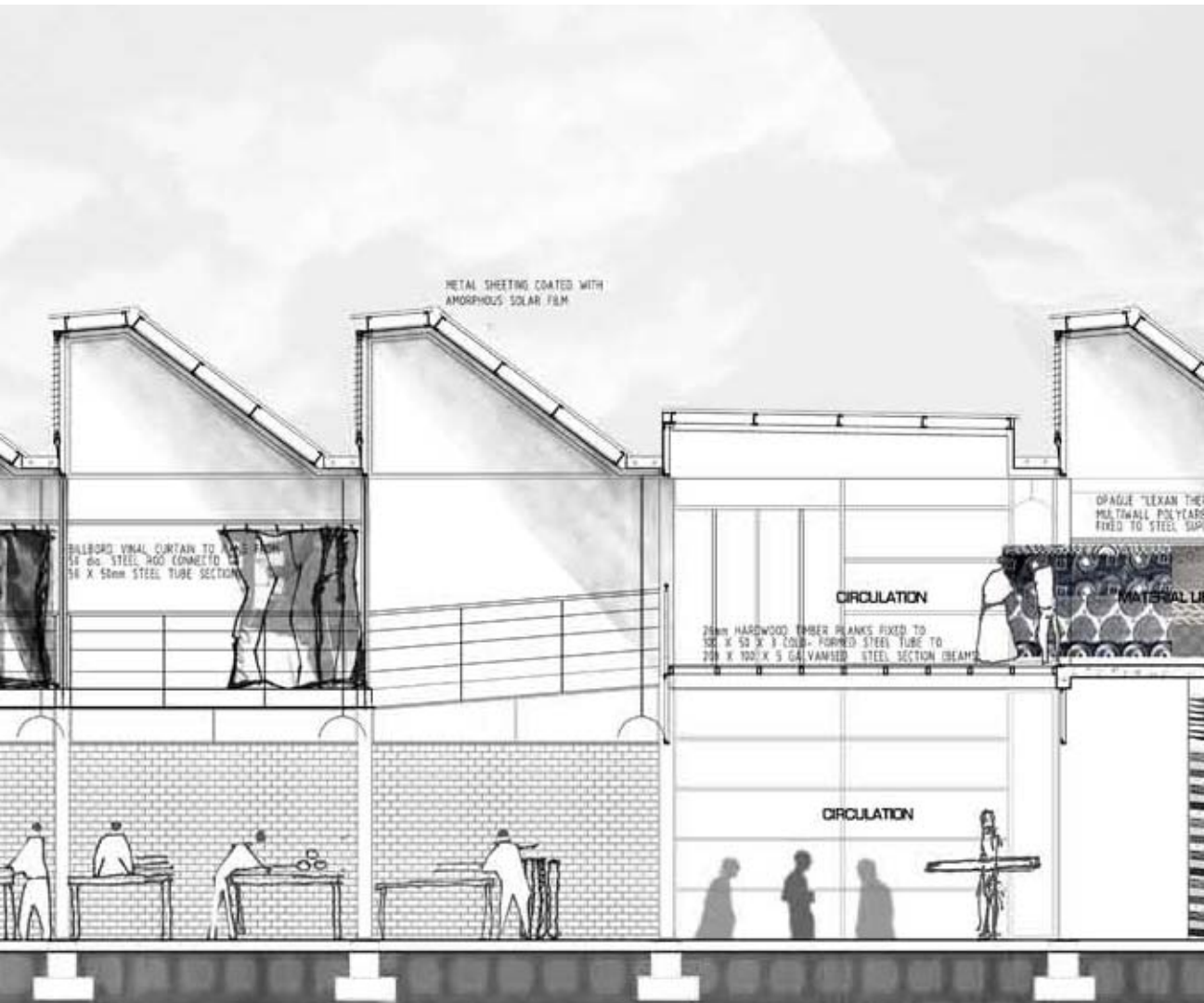
IN SITU CAST CONCRETE BASE AS SEATING



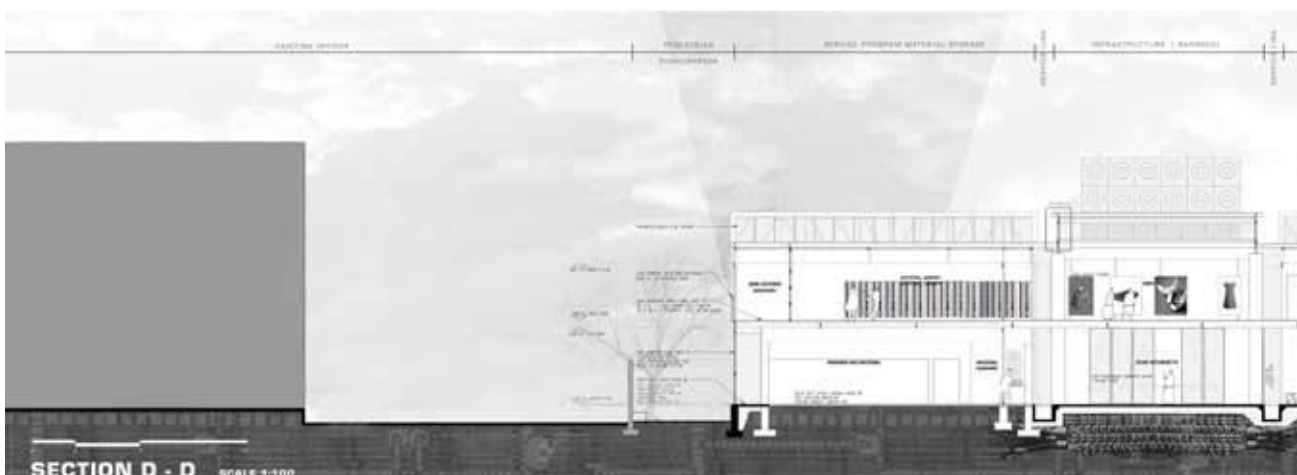
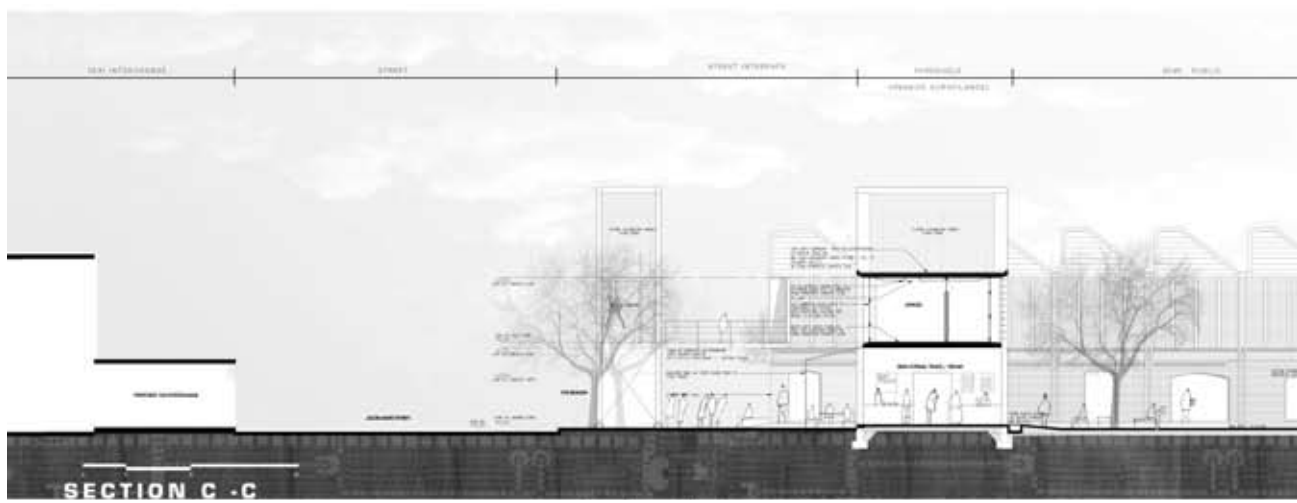
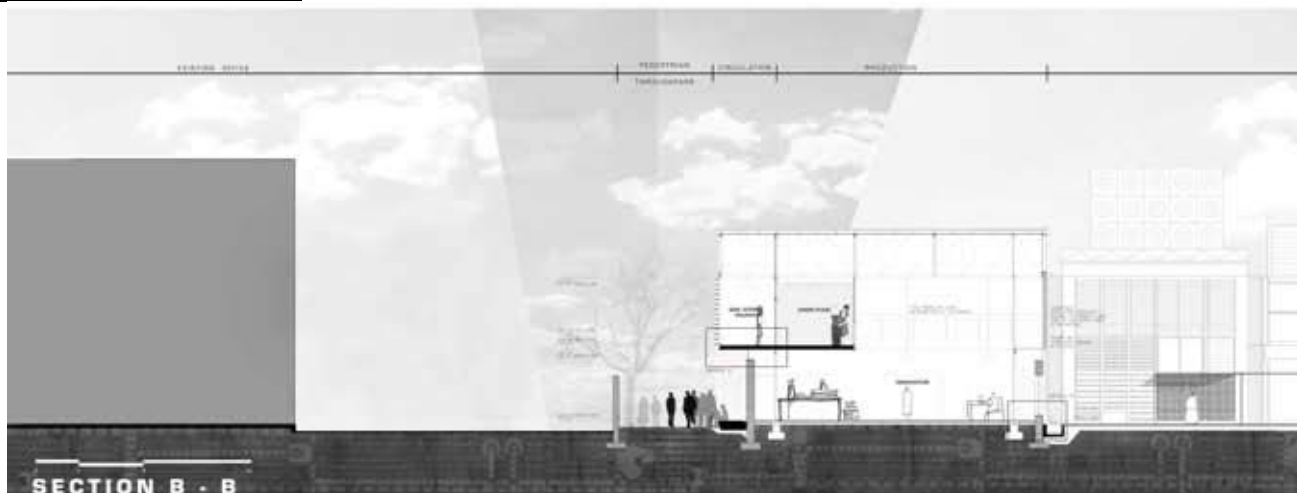
CLOTHING D

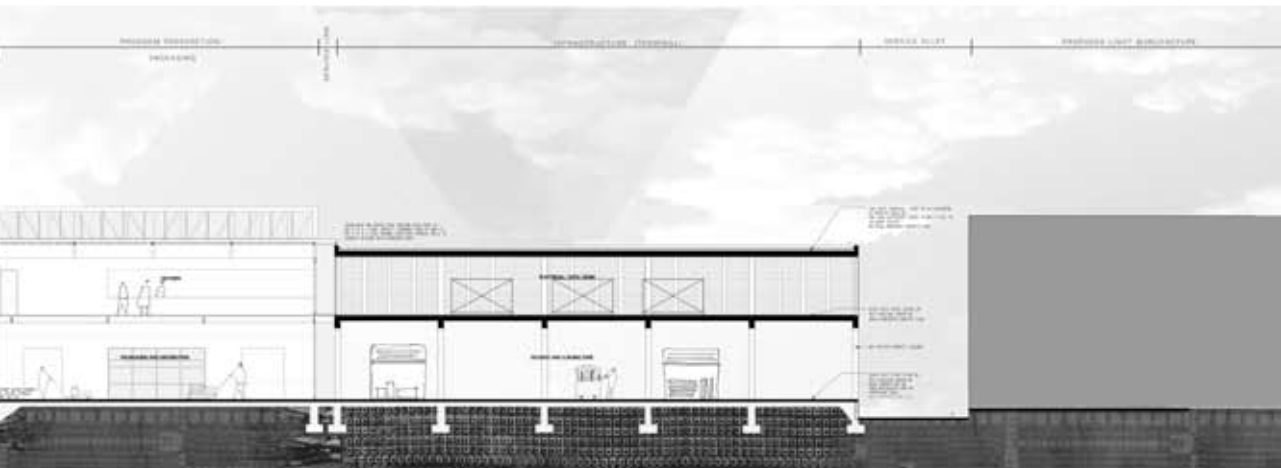
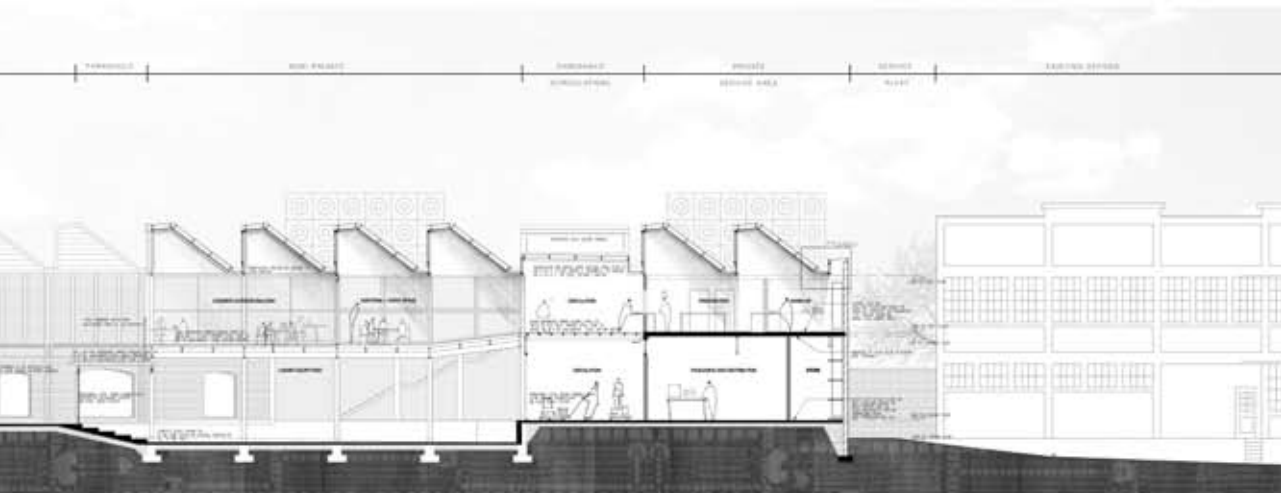
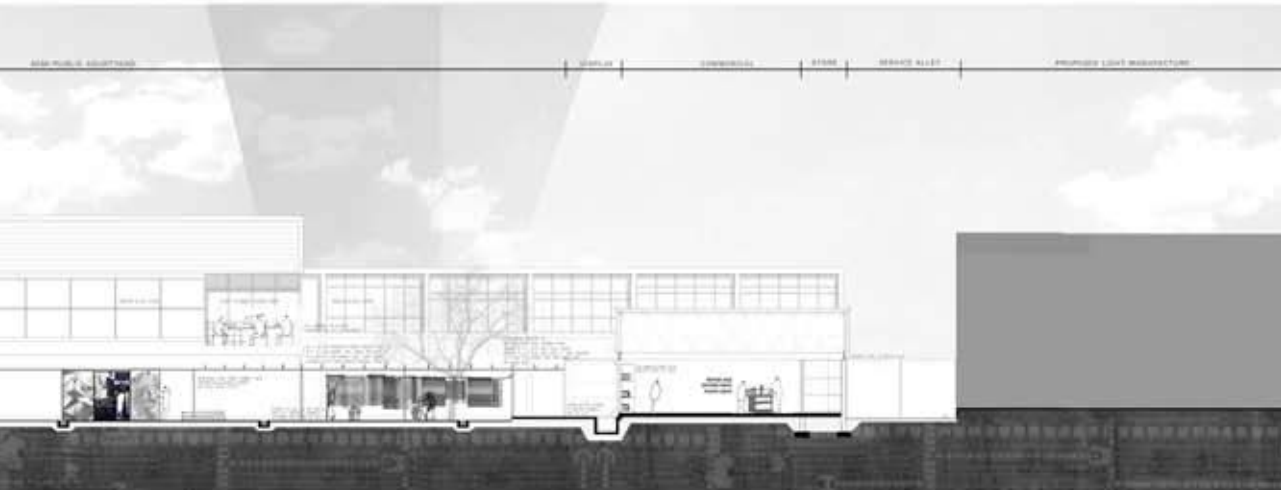


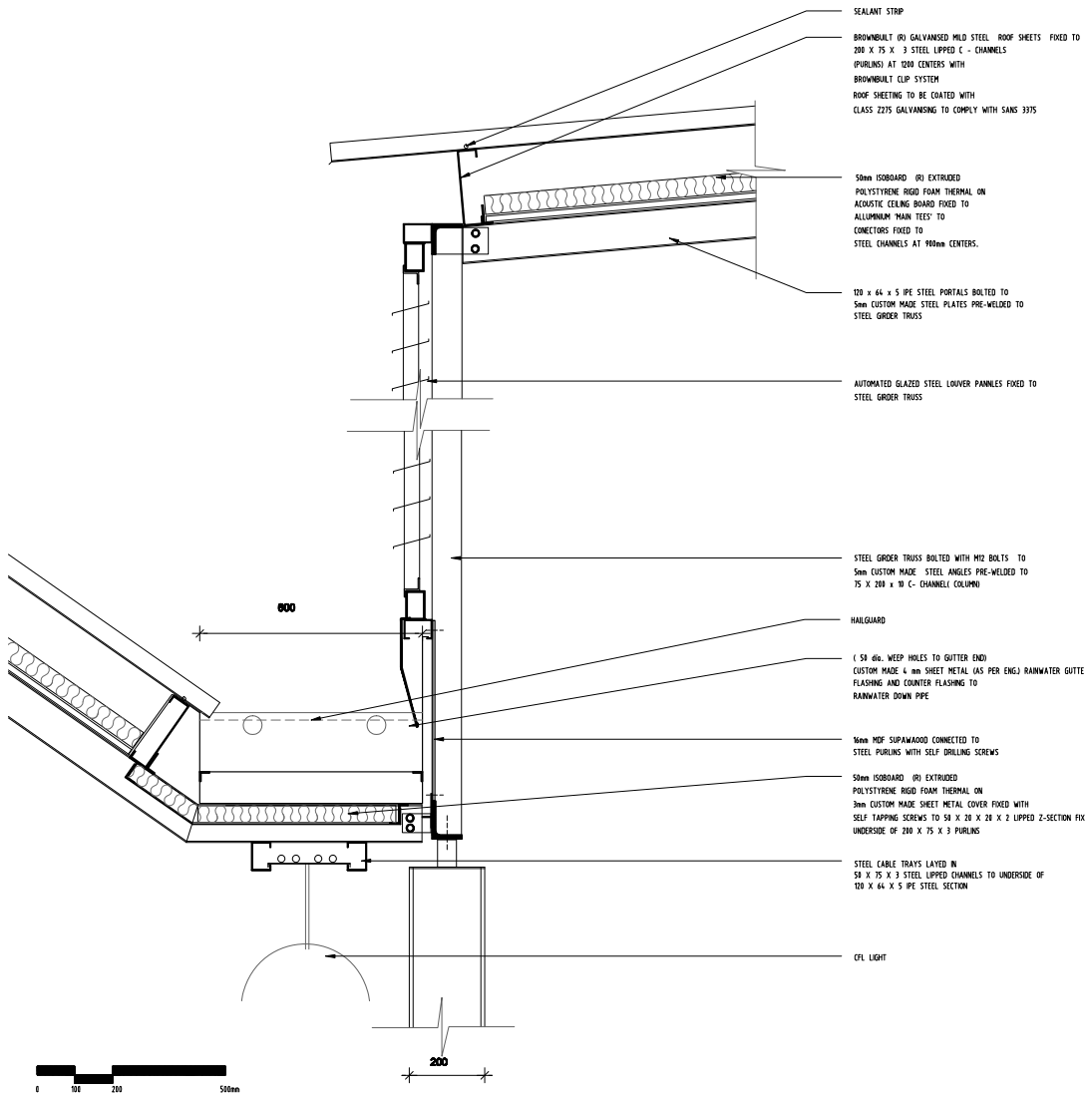




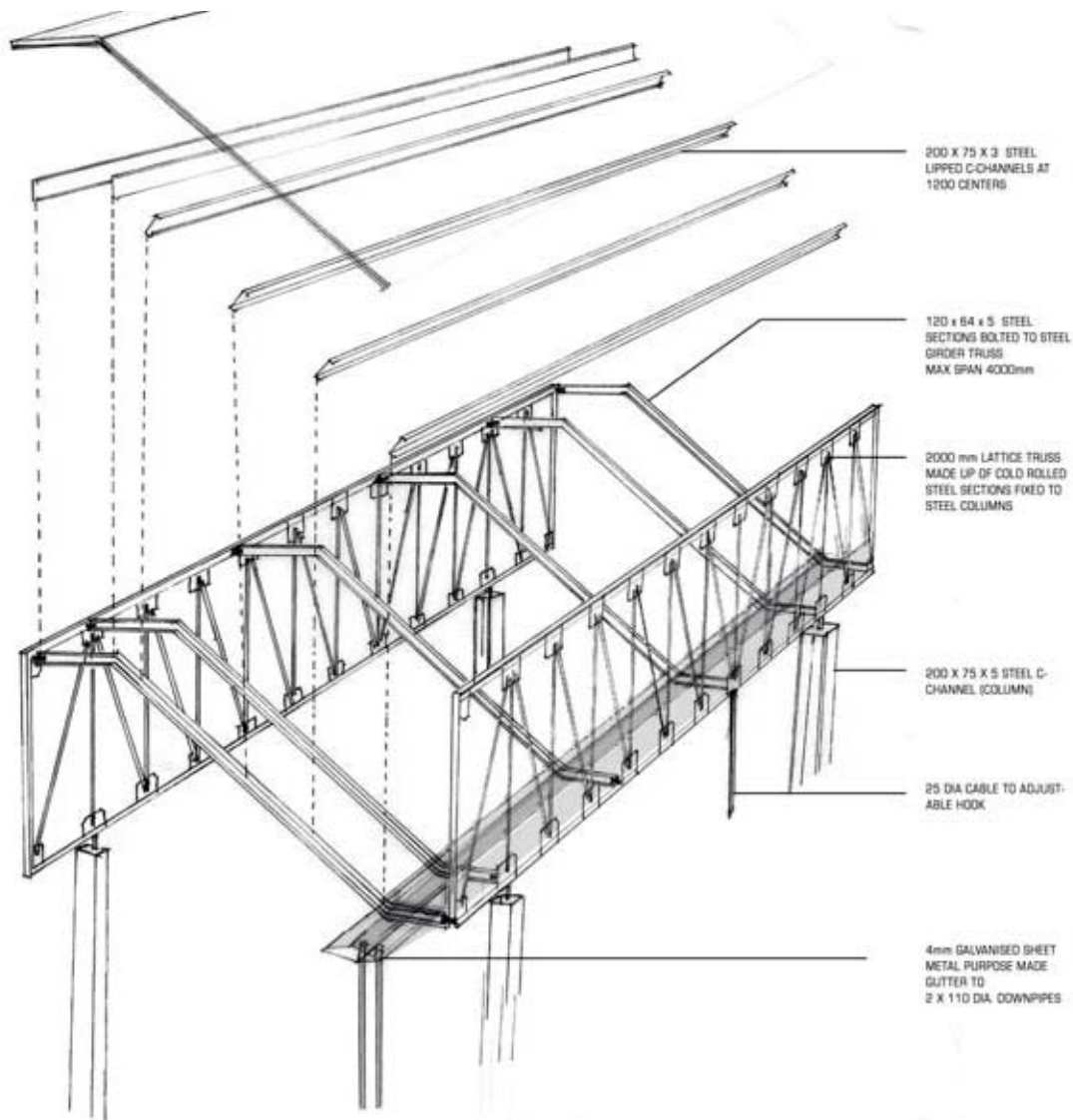


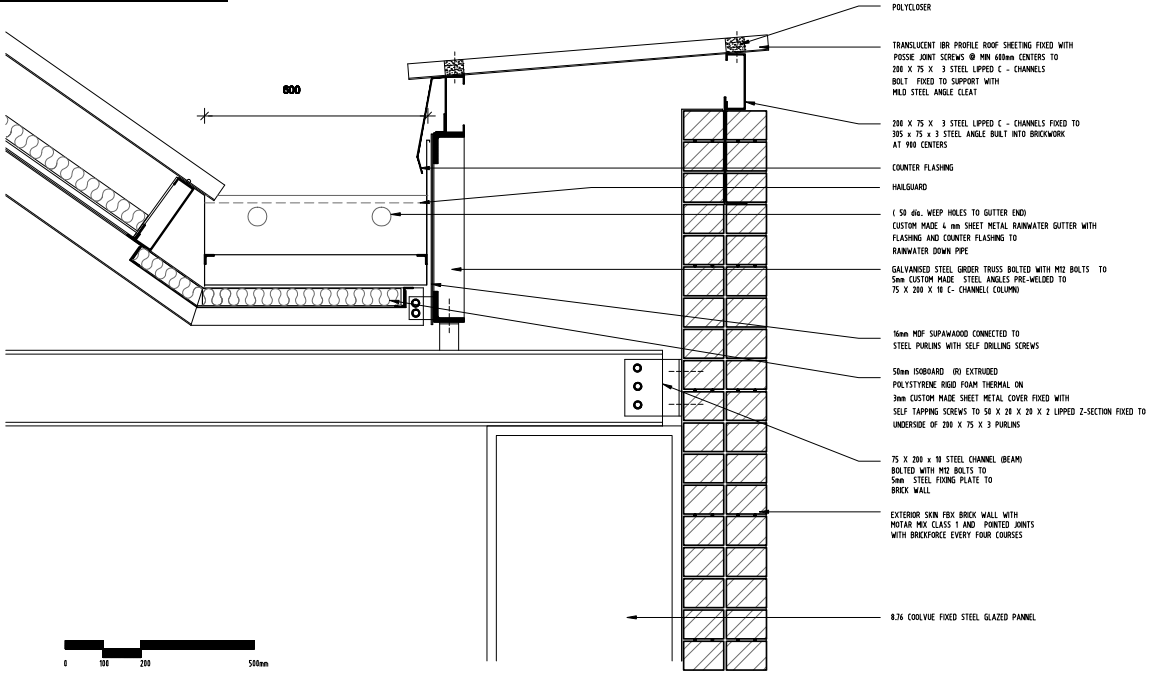




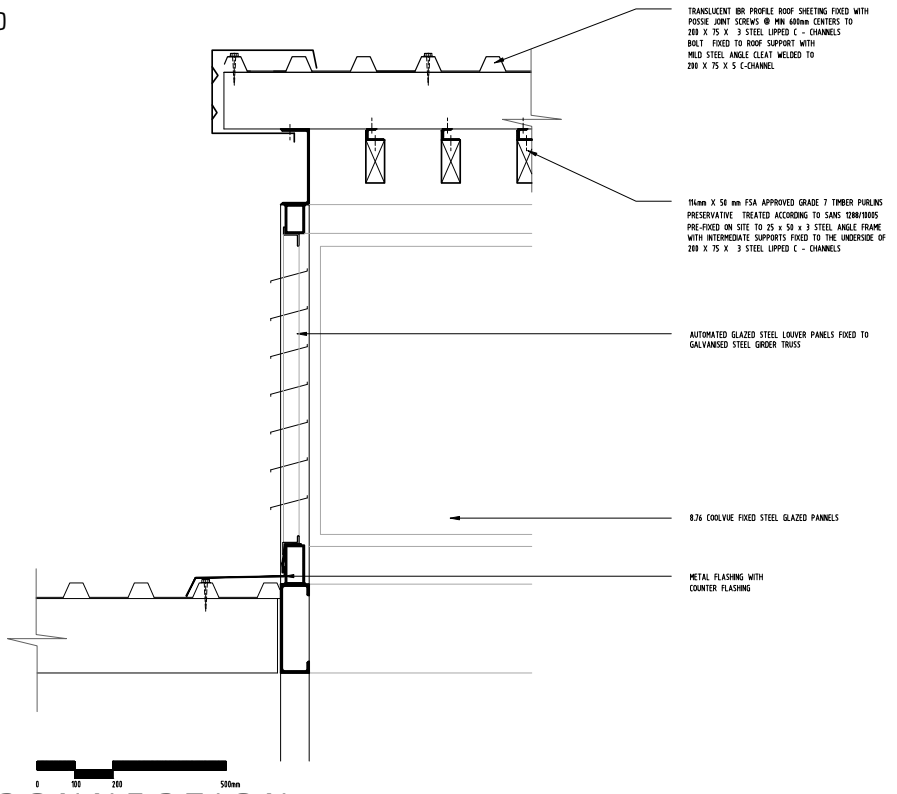


1. ROOF CONNECTION
SCALE 1 : 20

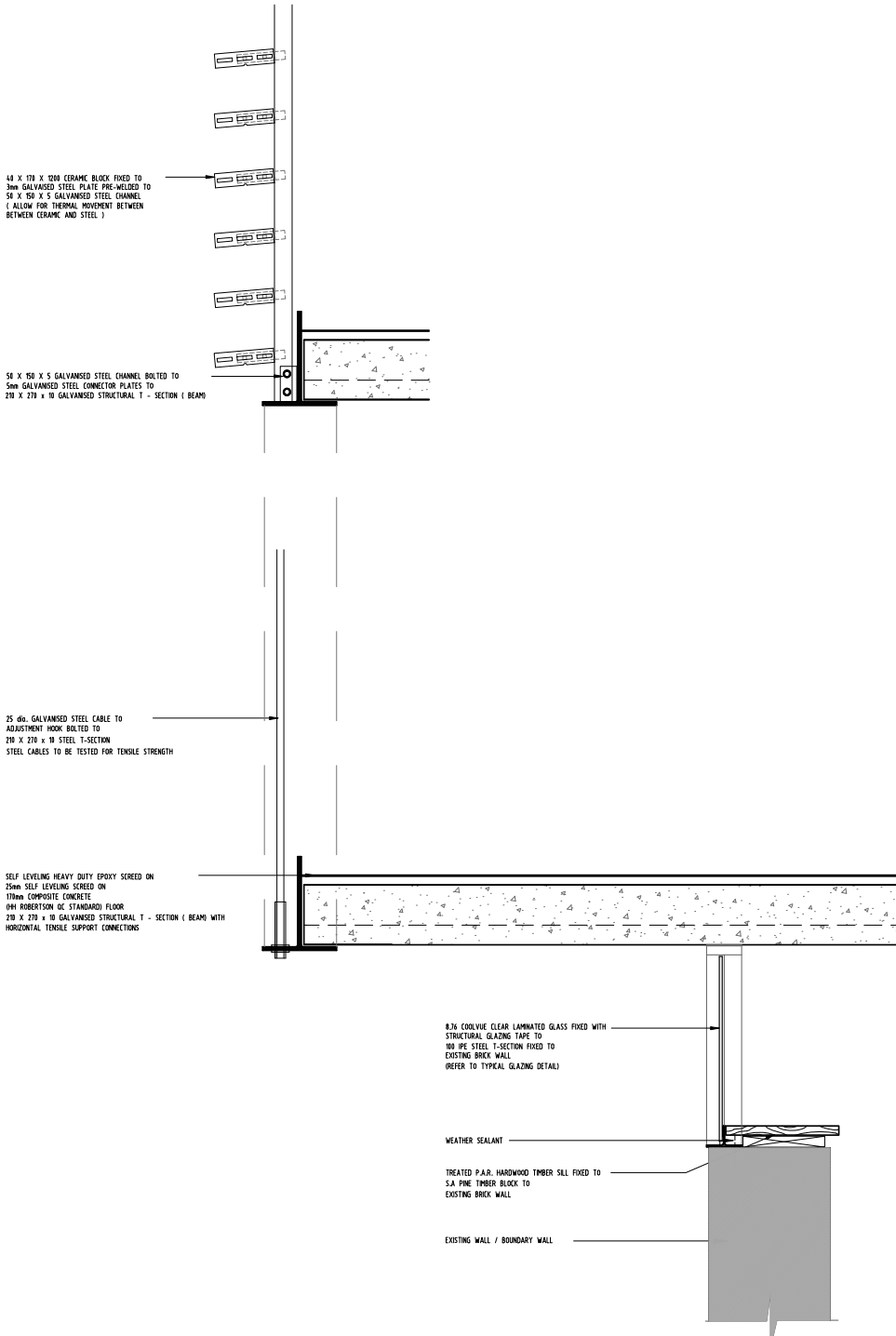




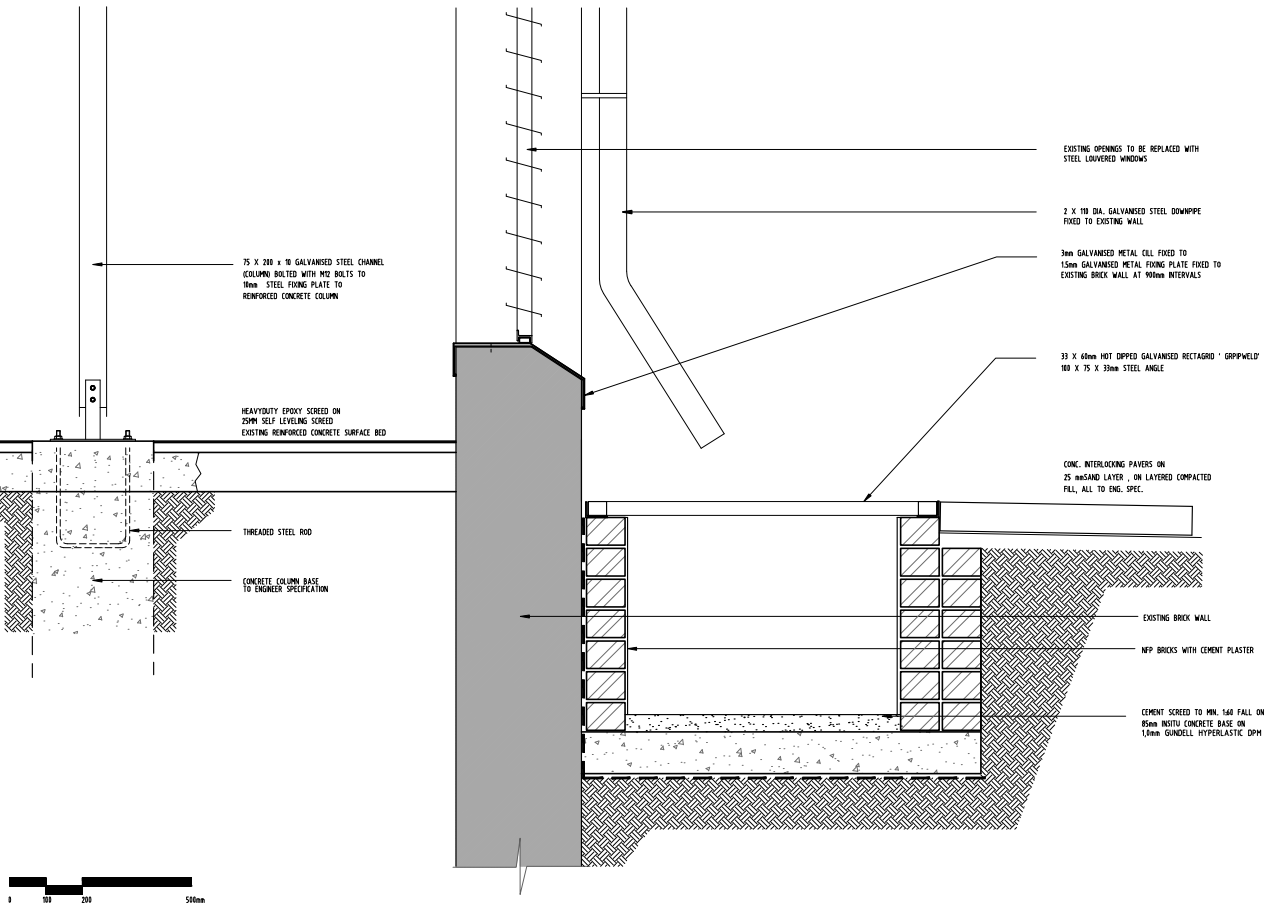
2. ROOF CONNECTION
SCALE 1 : 20



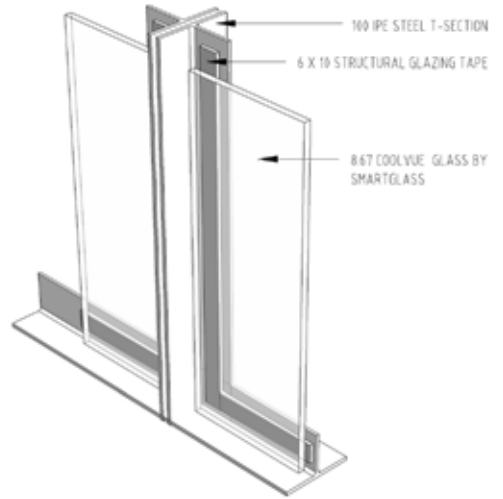
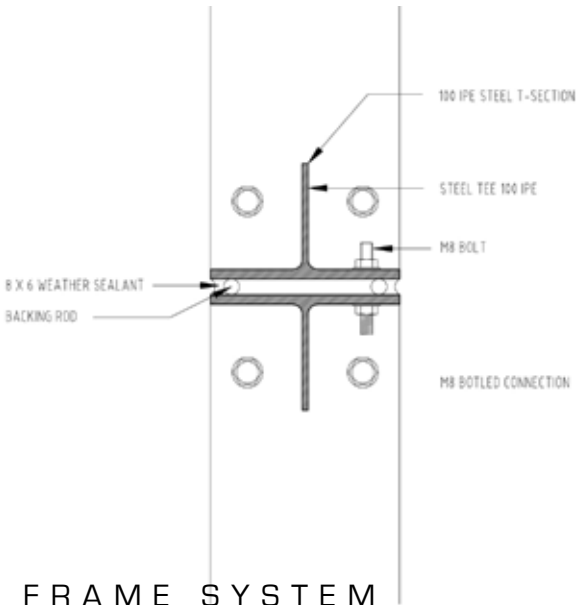
3. ROOF CONNECTION THROUGH CIRCULATION
SCALE 1 : 20



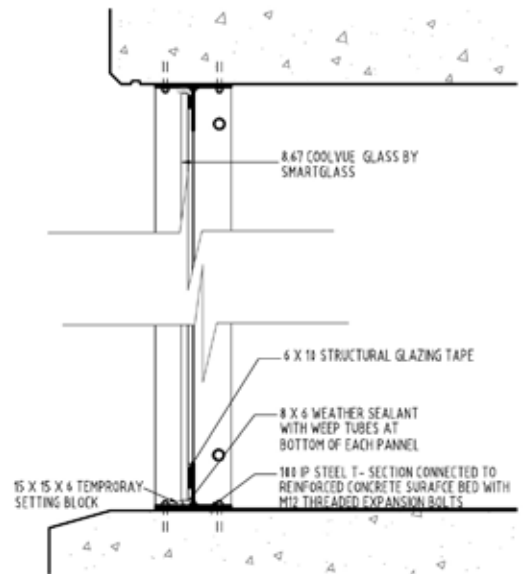
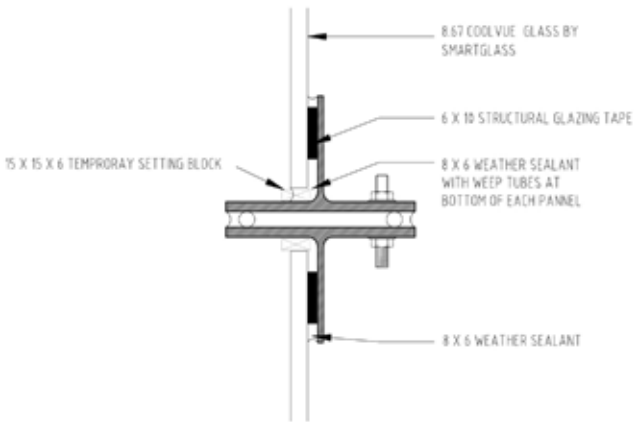
4.FLOOR CONNECTION
SCALE 1 : 20



5. GROUND CONNECTION
SCALE 1 : 20



FRAME SYSTEM
SCALE 1:5



GLAZING SYSTEM
SCALE 1:5

SECTION THROUGH
GLAZING
SCALE 1:10

STANDARD GLAZING SYSTEM EMPLOYED

4mm STRANDED STEEL CABLE FIXED TO
12mm STEEL UPRIGHT POSTS

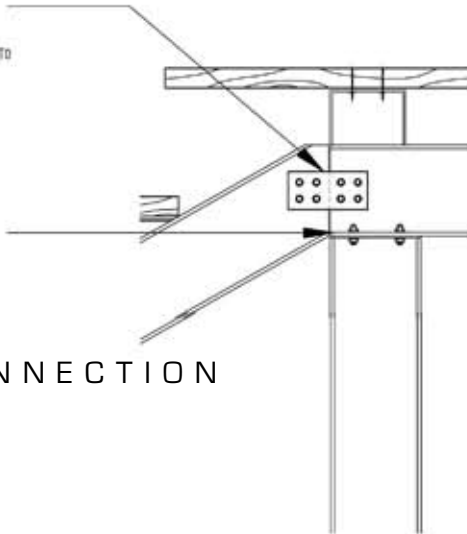
UPRIGHT POSTS TO BE BOLTED TO
38 X 38 X 3 STEEL ANGLE PRE-WELDED TO
128 X 44 IPE STEEL I-SECTION



HANDRAIL CONNECTION

SCALE 1:10

128 X 44 IPE STEEL I-SECTION (RISERS) TREATED WITH
INTUMESCENT PAINT BOLTED WITH
M16 BOLTS TO PURPOSE MADE 3mm STEEL CONNECTOR PLATE TO
128 X 44 IPE STEEL I-SECTION (LANDING)



LANDING CONNECTION

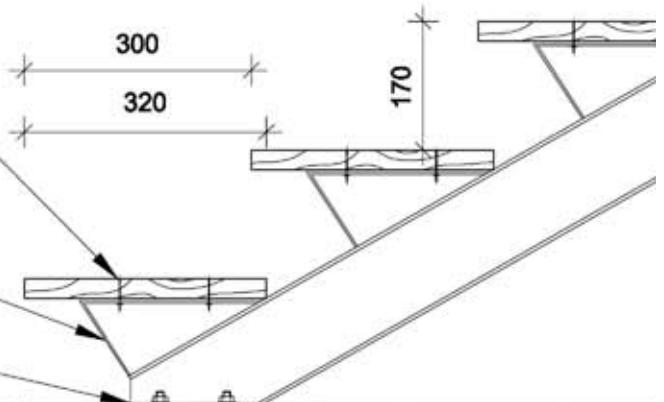
SCALE 1:10

320 x 1344 x 24 MERANTI TIMBER TREADS PAR-
FIXED TO 3mm STEEL PLATE WITH
COUNTERSUNK SELF DRILLING TEK SCREWS
THEN TO BE PLUGGED, SANDED, AND SEALED
FLUSH WITH TREAD SURFACE

ALL TIMBER TO BE PRE TREATED ALL ROUND
SEALED WITH TWO COATS FINAL VARNISH.

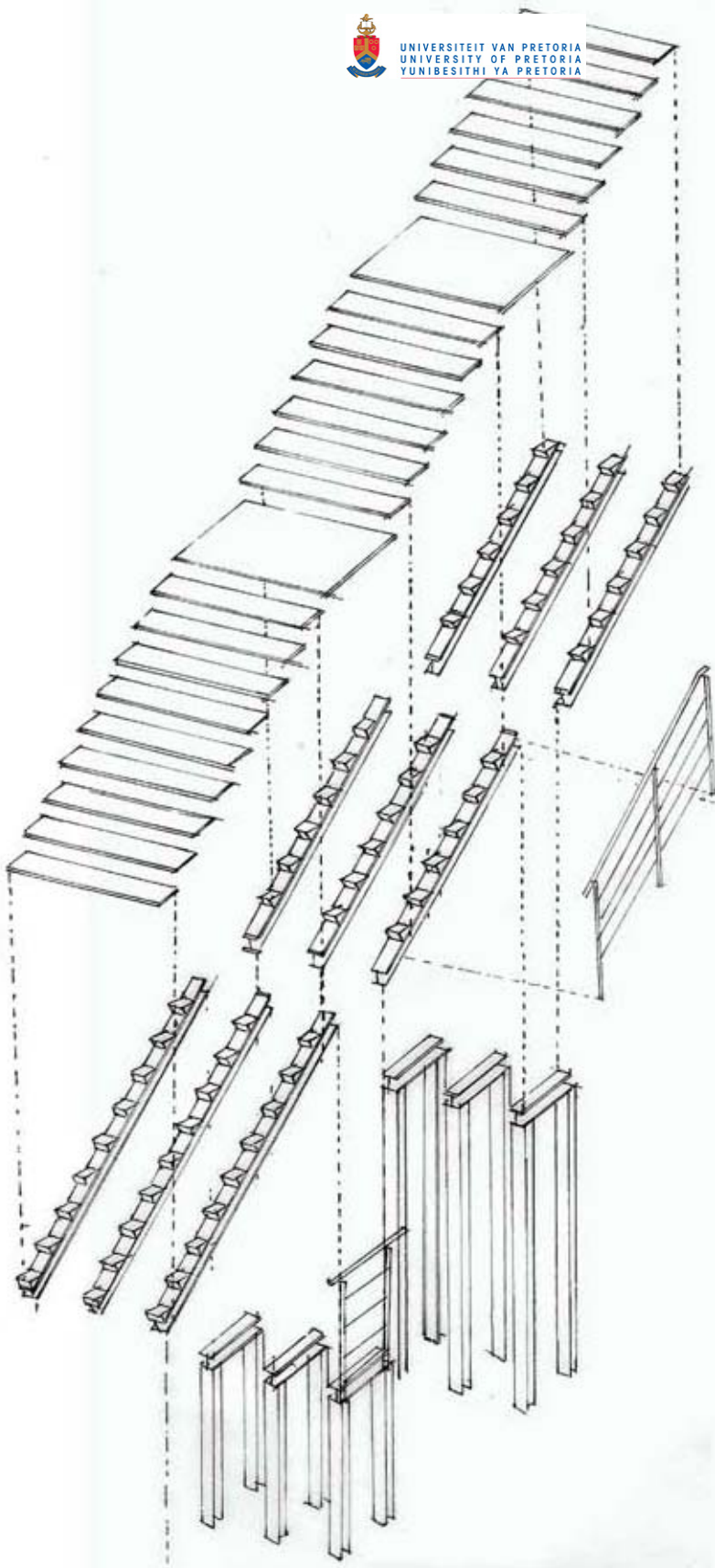
3mm STEEL PLATE WELDED TO
248 X 188 X 5 IPE STEEL SECTION

128 X 44 IPE STEEL I-SECTION
BOLTED TO REINFORCED CONCRETE FLOOR

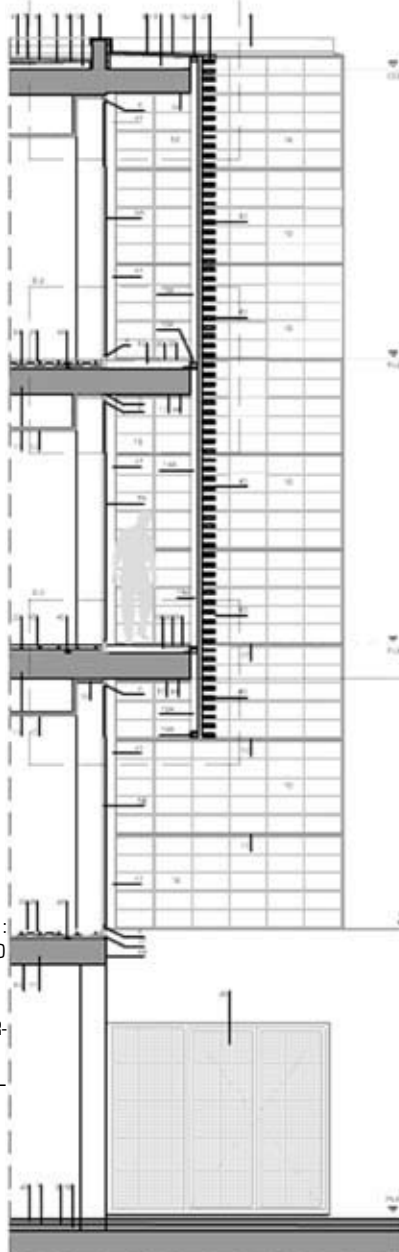
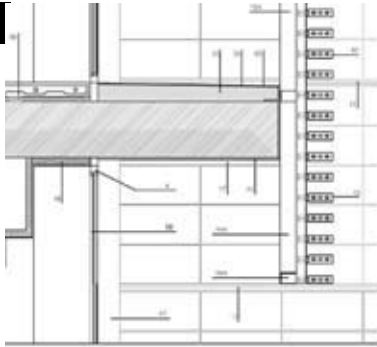


TREAD CONNECTION

SCALE 1:10



MODULAR STAIR COMPONENTS USED



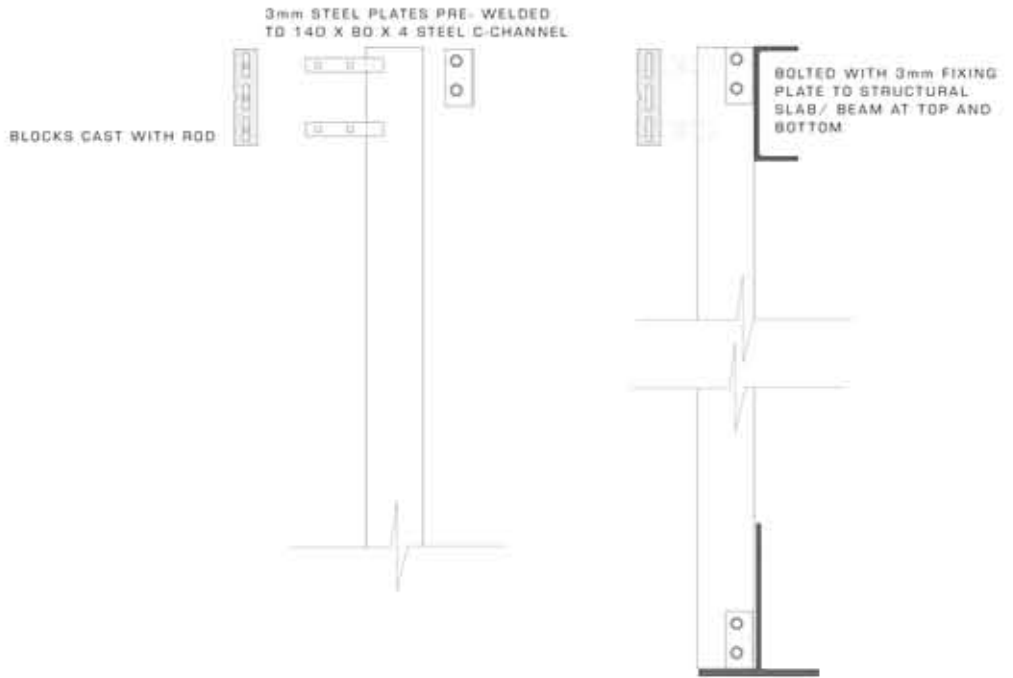
105. BACKGROUND STUDY :
CERAMIC SCREEN FIXING TO
STEEL SUPPORTS

SERVICES BUILDING UNIVER-
SITAT POLITECNICA
ROBERTO ERLCILLA MIGUEL
CAMPO ARQUITECTOS
2006

[[HTTP://ISSUU.COM/
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BIBLIOTECA_UPC](http://ISSUU.COM/ETHEL.BARAONA/DOCS/BIBLIOTECA_UPC)]

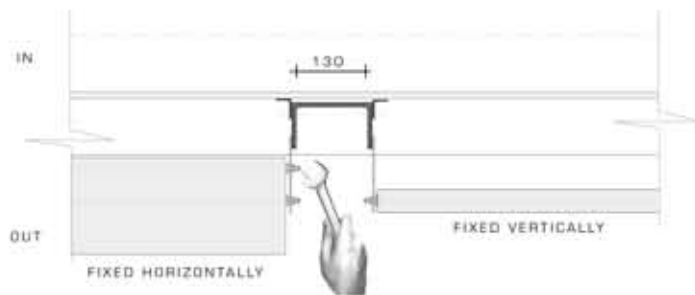


CERMIC BLOCK



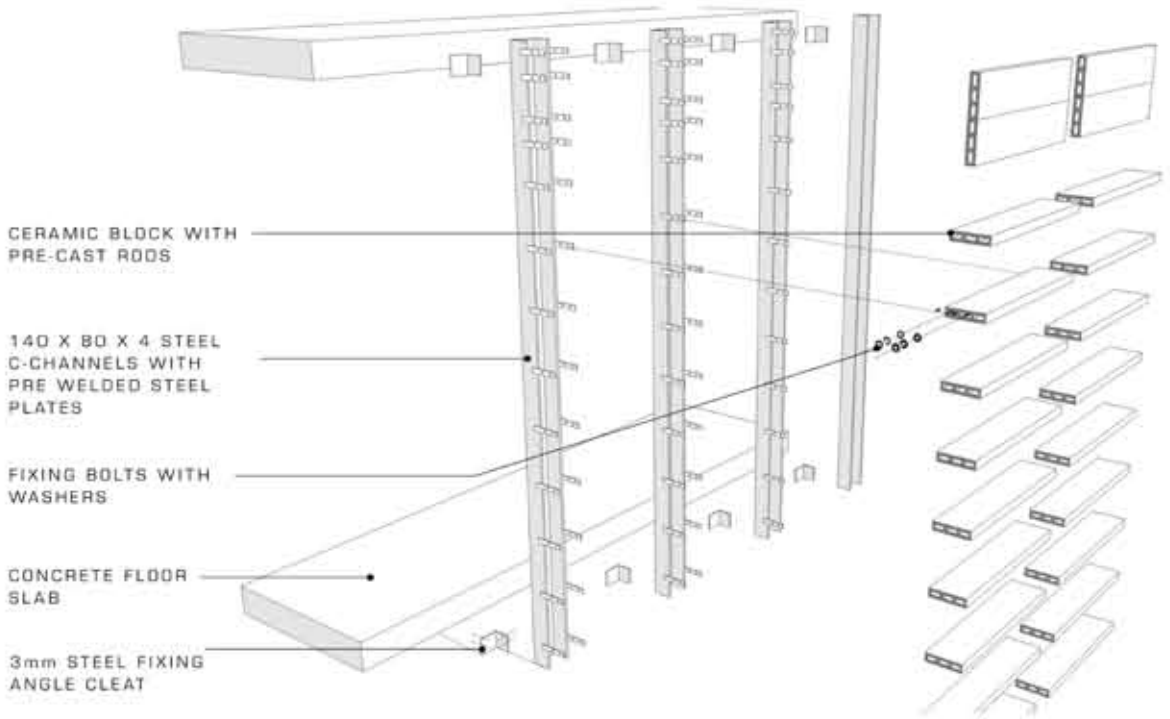
KIT OF PARTS

FIXING IN SECTION



FIXING IN PLAN

MODULAR CERAMIC BLOCK FACADE

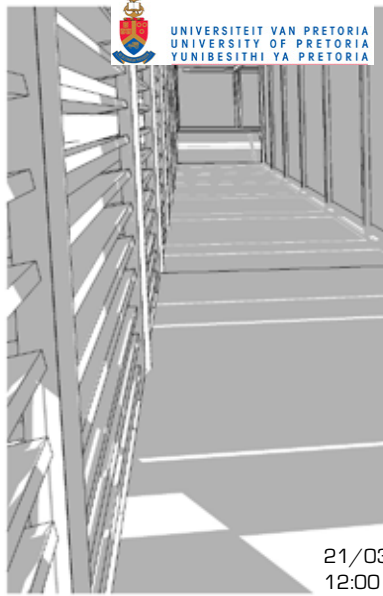


CERAMIC BLOCK FIXING SYSTEM



SOLAR EQUINOX

21/03
7:00



21/03
12:00



21/03
17:00

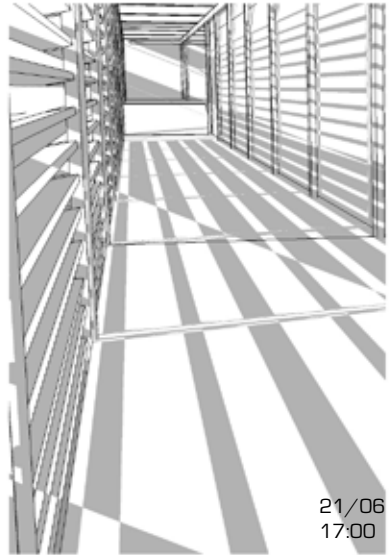


WINTER SOLISTICE

21/06
7:00



21/06
12:00



21/06
17:00

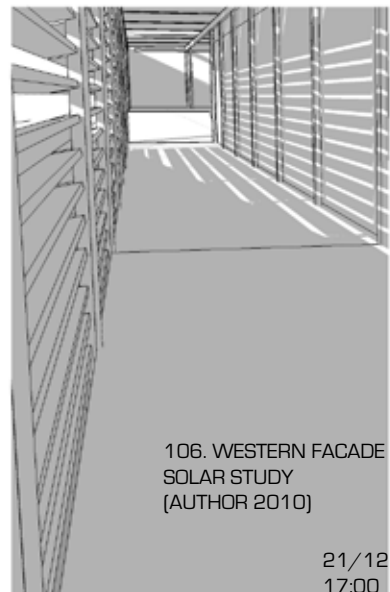


SUMMER SOLISTICE

21/12
7:00

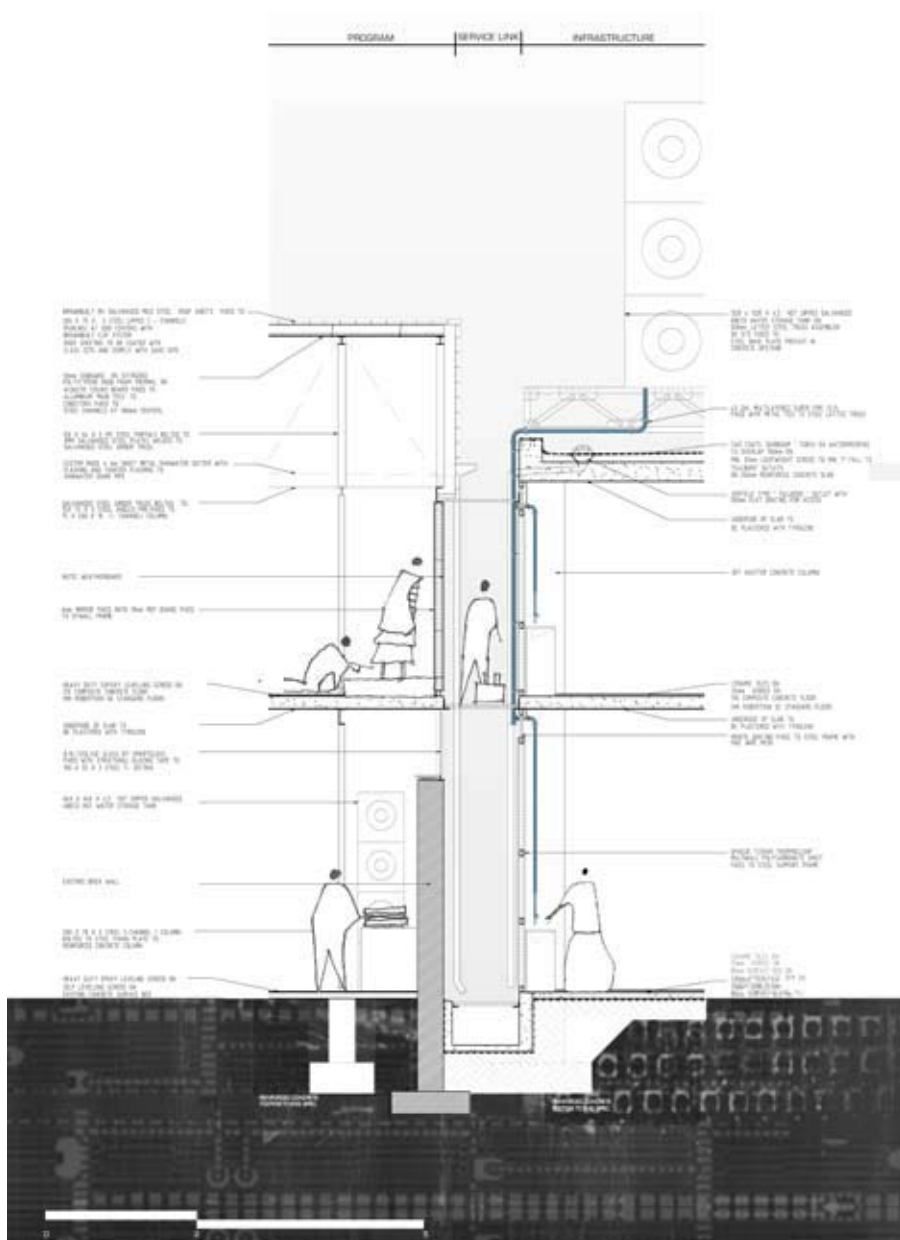


21/12
12:00

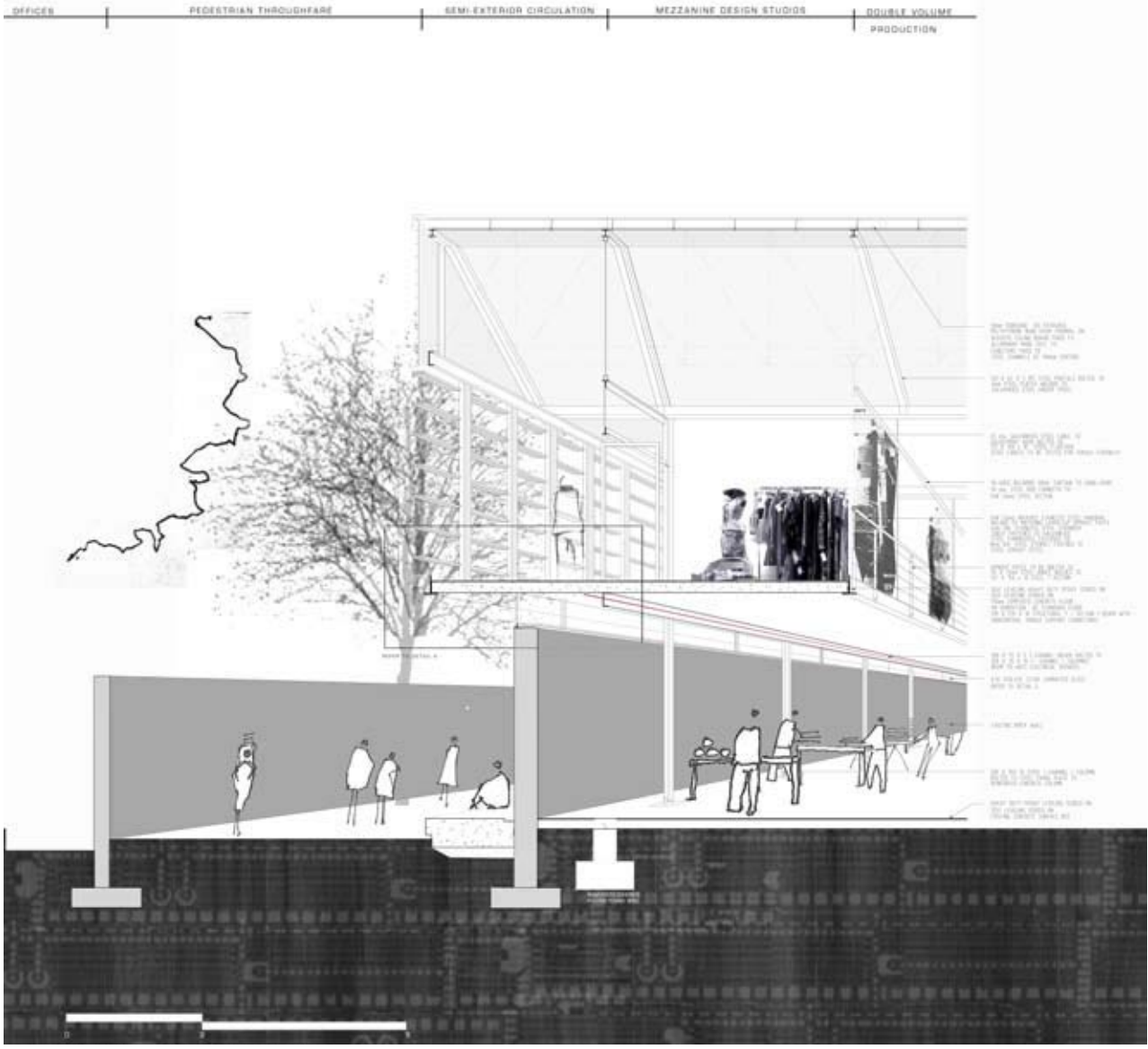


106. WESTERN FACADE
SOLAR STUDY
(AUTHOR 2010)

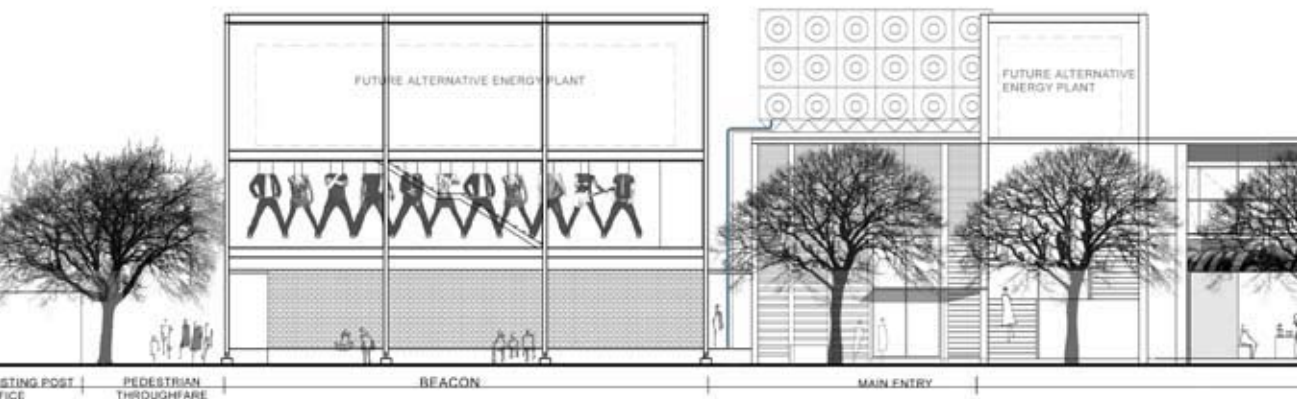
21/12
17:00



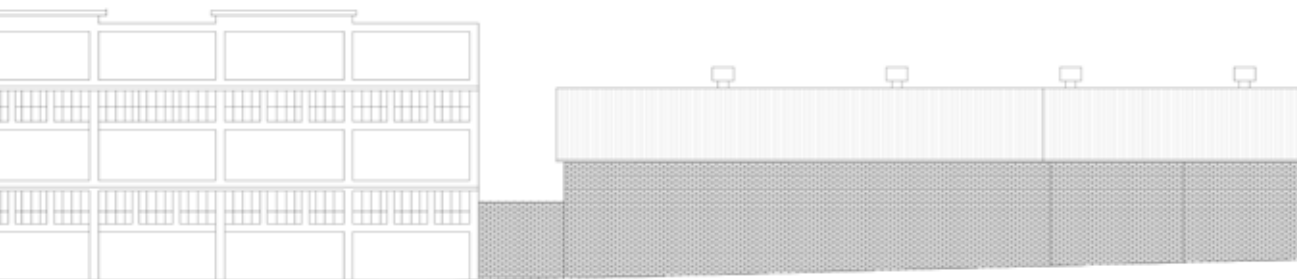
SKIN SECTION THROUGH SERVICE LINK



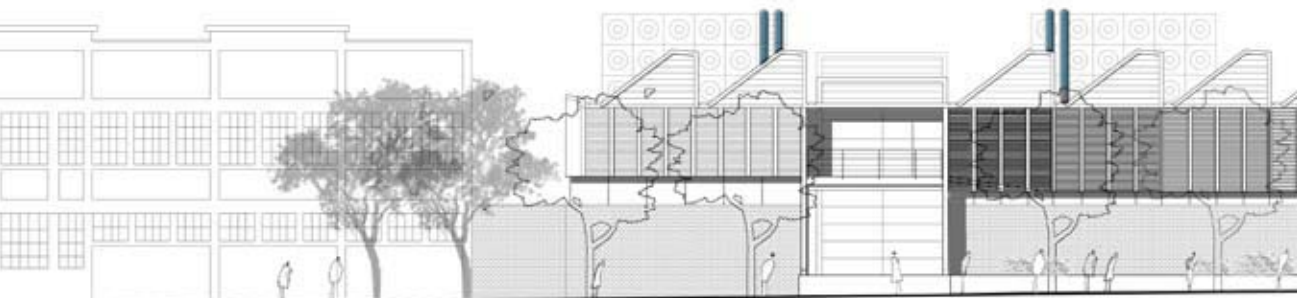
SKIN SECTION THROUGH WEST FACADE



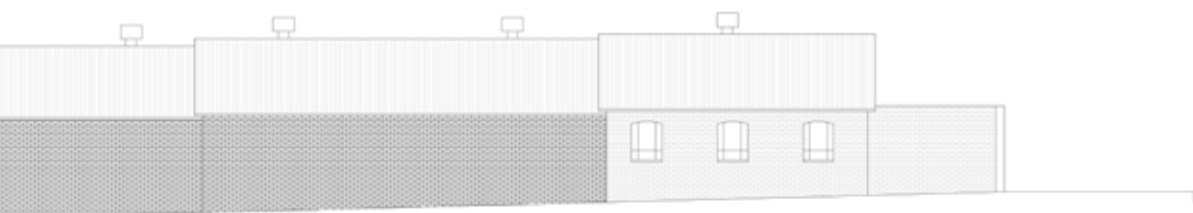
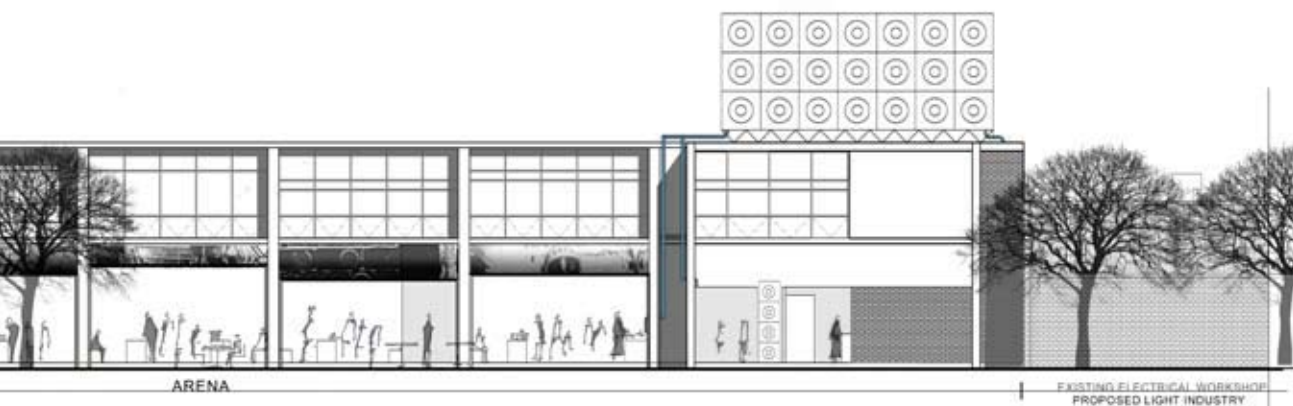
SOUTH FACADE : JACOB MARE STREET



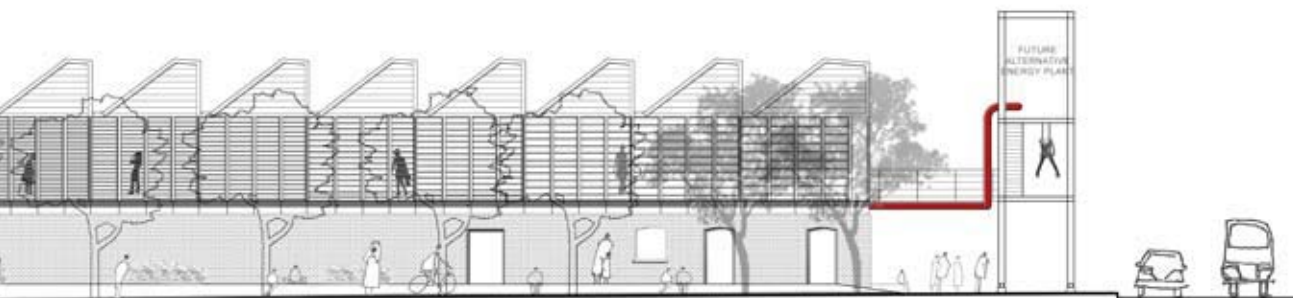
EXISTING WEST FACADE : PEDESTRIAN THROUGHFARE



PROPOSED WEST FACADE : PEDESTRIAN THROUGHFARE



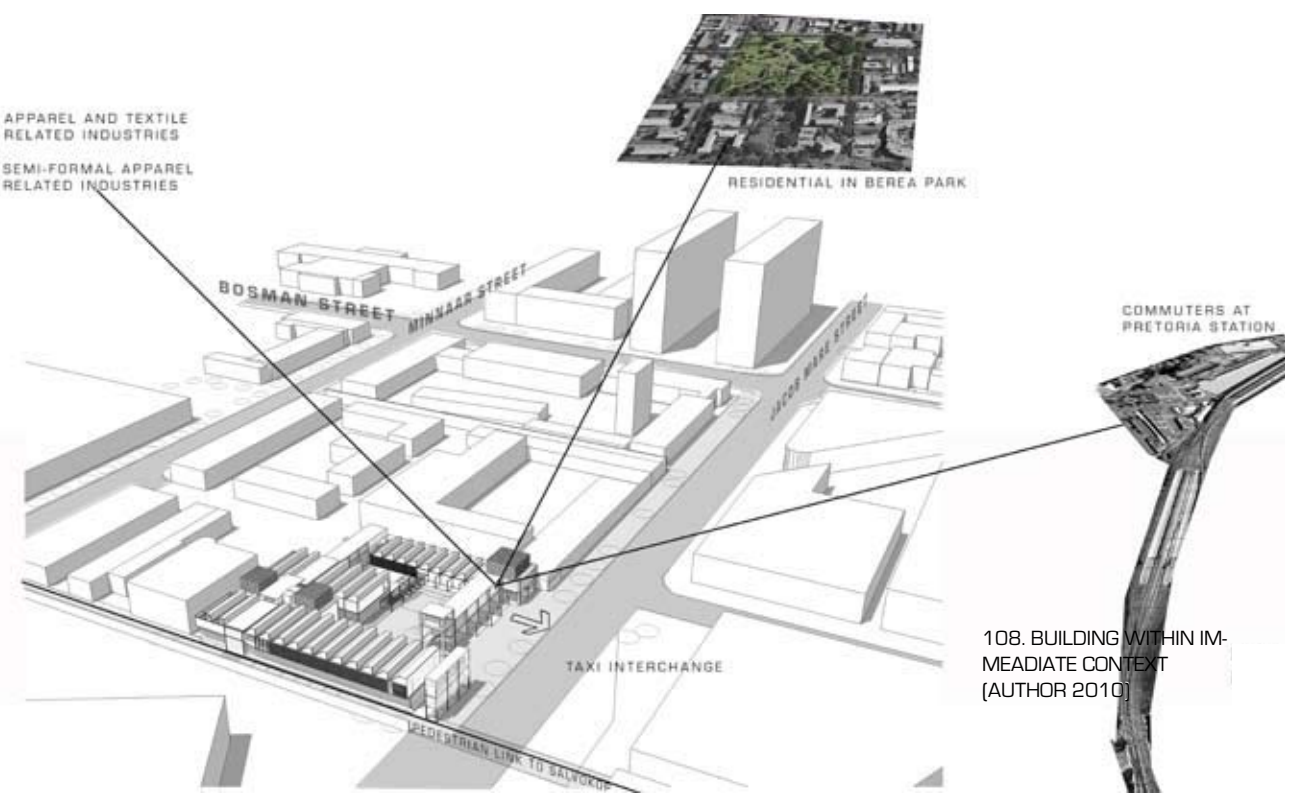
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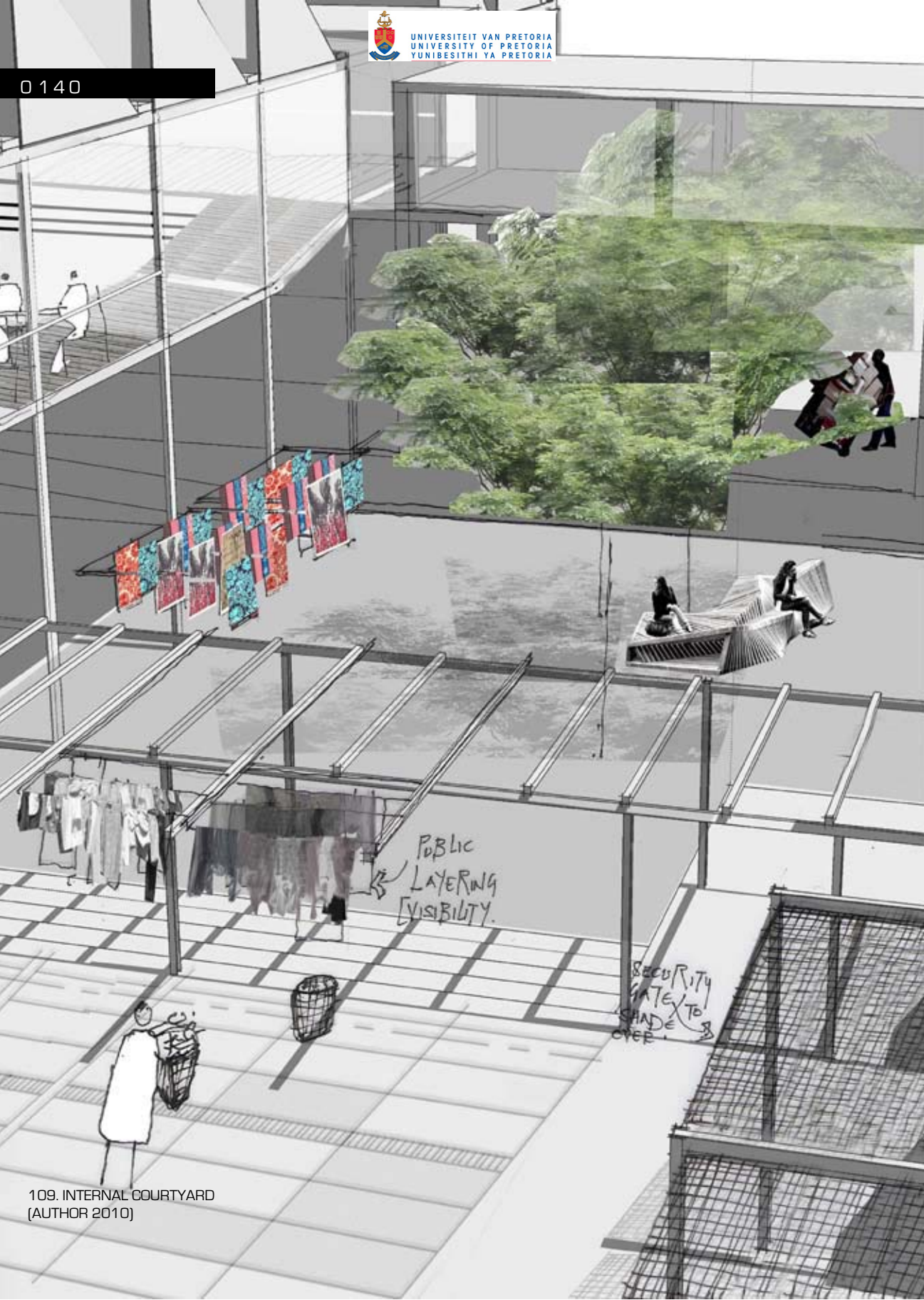


RE



107. ARENA JACOB MARE
STREET (AUTHOR 2010)





109. INTERNAL COURTYARD
(AUTHOR 2010)



110. COVERED COURTYARD
FASHION SHOW
(AUTHOR 2010)



111. COLLAGE INSPECTING
A PRODUCTION FACILITY IN
CONTEXT
[AUTHOR 2010]

CHAPTER FIVE

RETROSPECTIVE ASSESMENT

This chapter will draw conclusions from the design process in order to develop a framework for buildings of production within an urban centre.

In analysing a model for places of light production within an urban context, it is useful to draw conclusions from the design process employed. This design approach or model is not an attempt to have a blanket approach within an urban context, but rather a set of guidelines, that when applied to different sites, have completely different outputs. The design model can therefore be viewed as a linear approach to identifying a base for what places of production could become, employing an input-output based system, advocating a hybrid production facility within an urban context.

The main objective of the design process was to identify how places of light production can become part of the urban context, in reaction to current places which have an introverted nature. This process was informed by the theoretical premise of labour, which draws parallels to the production of architecture as both artefact and object of utility within an urban context. Here the architecture responds both spatially and programmatically to its context. Spatially the building accommodates the urban intensity of people within the context of a major transport node, and programmatically the building responds to the influx of imported apparel merchandise, as well as being located within a close proximity to residential and transport functions.

The idea of process being elevated above product is explored at all levels of the intervention. Architecturally the building is designed, based on the idea of continuously making and remaking the building; using modularised components and low-tech materials, spatially allowing the building to grow and recede. Further to that, the process of making and servicing the building becomes evident through the building revealing its intrinsic structure. Programmatically, extending the production process beyond the packaged product, allows for the public interface to become part of the production facility, partaking in repair and recycling processes.

ANALYSIS OF CONTEXT



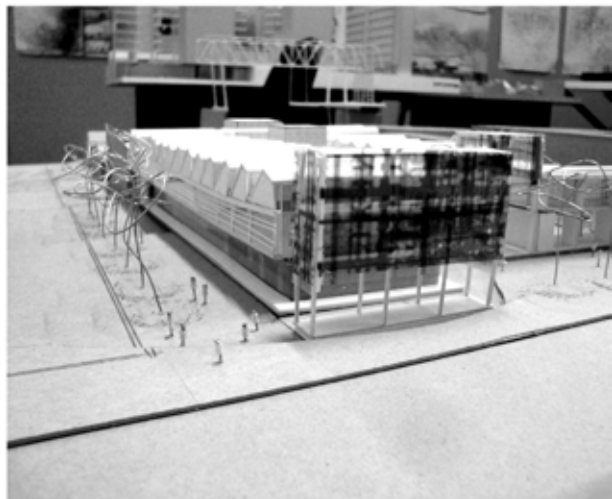
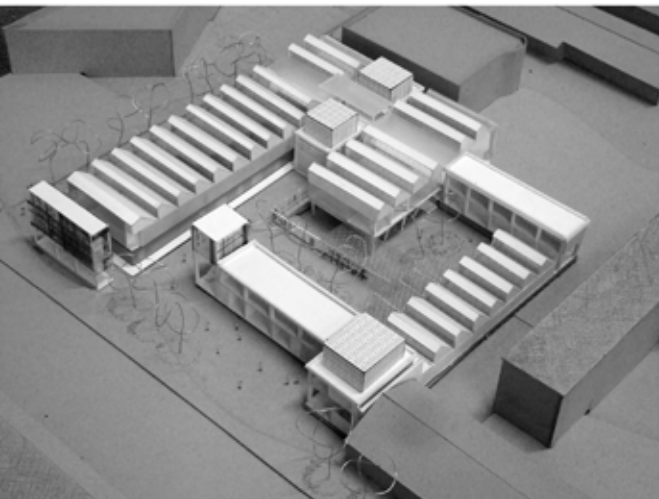
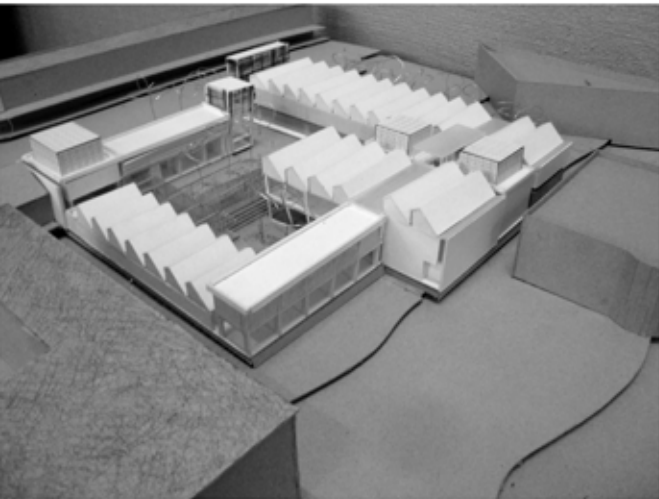
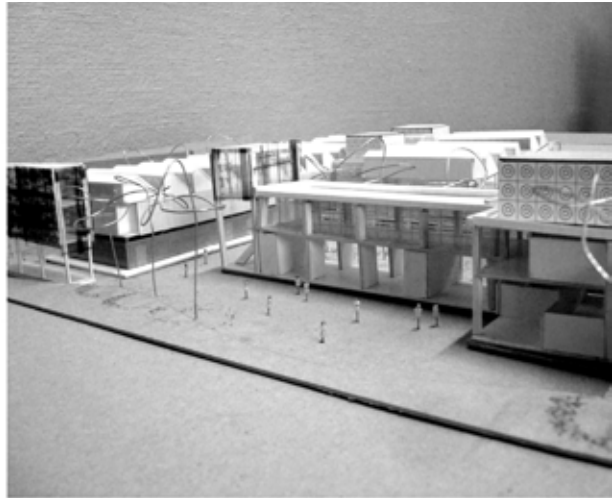
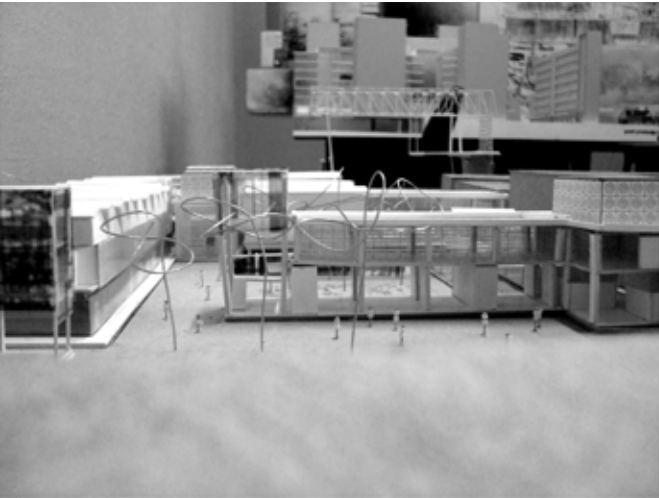
PRODUCTION FACILITY



HYBRID PRODUCTION FACILITY MODEL

The design model looks at Production facilities becoming part of the urban context rather than having an isolated or introverted association to it.

- Allow the edges of the facility, in a high movement or urban intensity location, to respond adequately to the users of the space.
- Allow for courtyard spaces to become an extension of the street, using public surveillance at threshold points within the city.
- Allow for the public to occupy space within production facilities through cross programming, allowing for a more direct contact with the processes involved, i.e. making, distributing, repairing, recycling and refuse.
- Making the process of production accessible, avoiding the viewer and viewed relationship; advocating a symbiotic relationship.
- Allowing people working in the facility to have control over what level of visibility occurs within the facility to the public.



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APPENDIX A

URBAN FRAMEWORK

URBAN FRAMEWORK



This framework is located within the southern portion of Pretoria city, particularly focused on the Pretoria station precinct and Salvokop.

The framework proposes to use the existing barriers as opportunities of linkage.

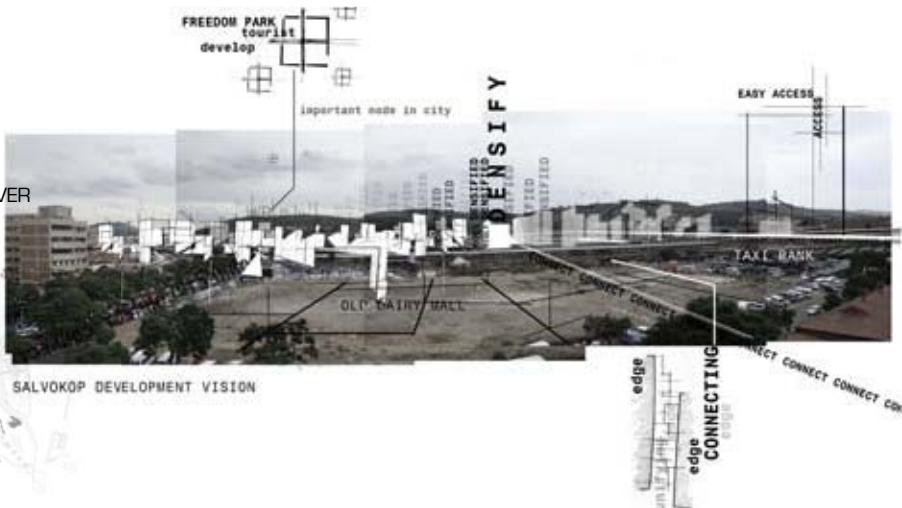
Creating links through interventions of different scales. By changing barriers into a seam of movement and energy a safe and healthy environment for the inhabitants and users of Salvokop and station precinct will develop.

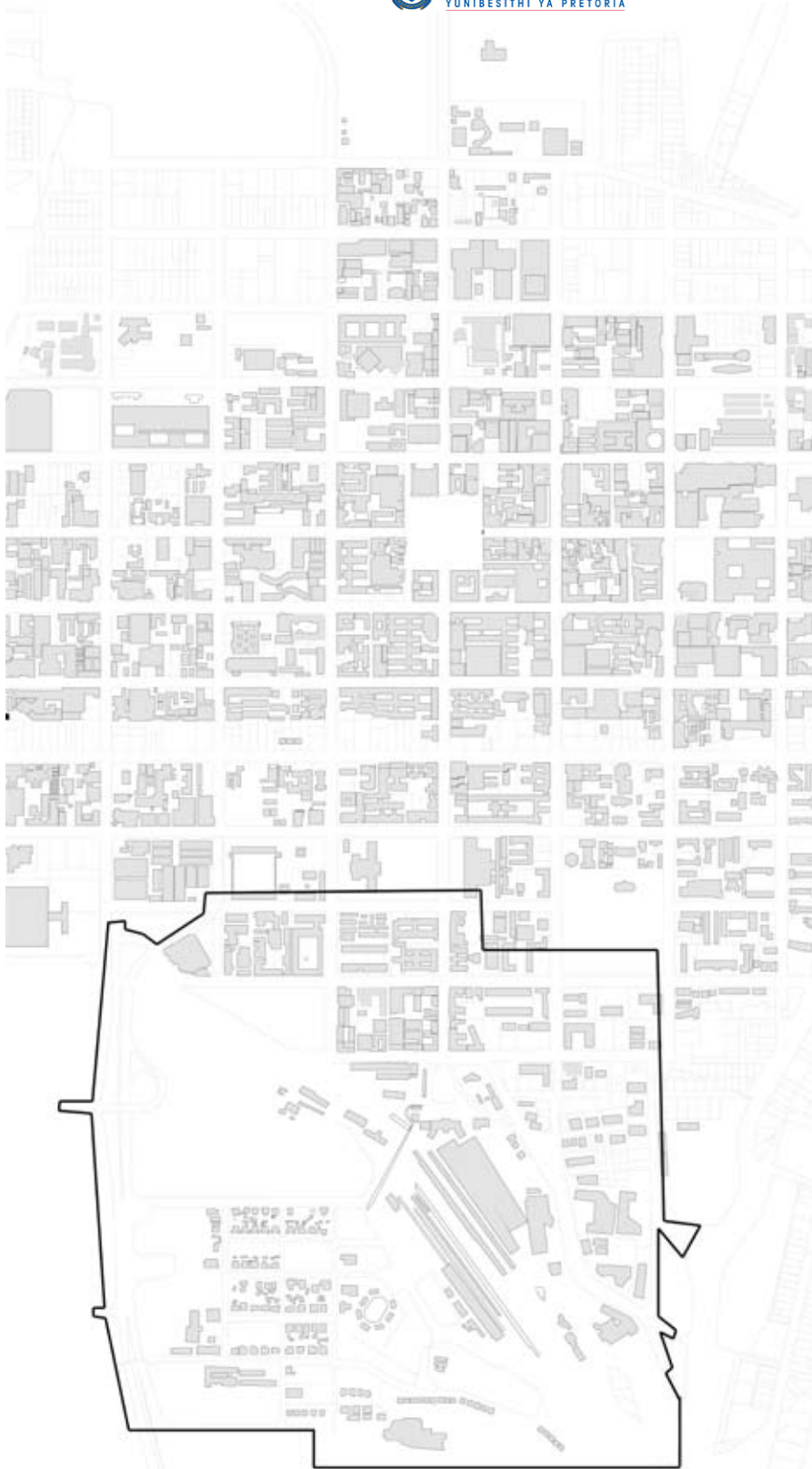
-This framework is in accordance with the city of Tshwane's vision of empowering communities in a safe and healthy environment

- linking the end of the procession of the Paul Kruger corridor with another capital anchor, being Freedom Park.

- Ensure sensitive interventions to accommodate change and development

112. LOOKING OVER
FORMER DAIRY
MALL





113. FRAMEWORK AREA
WITHIN PRETORIA