URBAN INFORMALITY AS A GENERATOR FOR MEANINGFUL BUILT FORM: Towards a Multi-Purpose Trade Hub for Durban, South Africa.

By

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DECLARATION

I hereby declare that this dissertation is my own unaided work except where it has been otherwise acknowledged. It is being submitted to the School of Architecture, Housing and Planning, University of KwaZulu-Natal, Howard College campus, in partial fulfillment of the requirements towards the degree of Masters of Architecture. This dissertation has not been submitted before for any degree or examination at any other university.

Signed March 2014

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Mongezi Ncube

"Architects design for only 10 percent of the total population, who designs or works for the rest of the 90 percent?"

Ar Tahira Sadia Fazil

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To my supervisor, Bridget Horner, thank you for your guidance and support throughout the process of writing this document. My achievements during and after the process of writing this document would not have been possible without your guidance, and for that I will forever be grateful.

To my family, we did it! Thank you for your support and encouragement when things seemed impossible. None of this would have been possible without you. And yes, I will replace all of the furniture that I have scratched, drilled, sketched on, and covered with glue when I was up in the early hours of the morning trying to finish one of my many creations.

Thank you to Asiye Etafuleni and the mealie cooks of Warwick for taking time out of your busy schedule to teach me about urban informality. Your input during the design phase was invaluable.

Thank you to Naroth Architects for everything you have done for me. The time I spent under your guidance gave me direction and focus.

And finally, to my future self, I hope you have made a meaningful contribution to society and you have done everything you can to help those in need.

ABSTRACT

Urban informality is a process established by people in the informal urban context to shape existing formal cities to form new informal cities that facilitate their everyday lives. This phenomenon has grown substantially in Latin American, Asian and African cities to a point that people have transformed many of their formal post-colonial cities within these regions to informal cities that can facilitate urban informality. Instead of seeing this process as a way where people living in the informal urban context are trying to create cities and infrastructure that suite their context and way of life, architects and urban design professionals are repeatedly adopting 'western norms' to solve urban informality rather than facilitating it. This starts to create a gap between the architectural built form and the way people live. The research was then undertaken to bridge this gap between built form making and the lived realities in the informal urban context by using the underlying principles of urban informality defined by the people to generate meaningful built form within the South African, African context.

To achieve this, the research carried out investigations on current literature that dealt with three main principles that defined urban informality that could be used to generate an appropriate built form with the informal urban context. These principles were; socio- economic principles, emergence and the culture of urban informality and these started to suggest a flexible built form that can be adapted by its users to suit their needs. These principles were then tested against precedent and case studies to see their validity in the global and South African context. Qualitative interviews were conducted with a number of professionals that had a better understanding of the case studies than the author to make sure that the analyses and the conclusions based on those analyses were accurate.

The research findings ultimately defined an indeterminate built form that is formed through a participatory process between the collaboration of urban design professionals and the future inhabitants of the built form. This built form is 'loosely' defined and its inhabitants can manipulate and reconfigure it, to a certain extent, to suit the future unforeseen states of urban informality. The research also outlined a framework that can be applied in the design phase of a multi-purpose trade hub in Durban, South Africa.

PART ONE

BACKGROUND RESEARCH ON ISSUES

CHAPTER ONE

INTRODUCTION

CHAPTER 1.0 - INTRODUCTION

1.1 Background

The concept of the "urban informality" emerged in the early 1970s even though the discussions around urban informality derived its description from the movement of labour to cities (in developing and predominantly post-colonial countries) between the 1950s and 60s (AlSayyad, 2003:2). Lloyd George Reynolds, in the late 1970's, described the then emerging concept of urban informality as "the multitude of people whom one sees thronging the city streets, sidewalks and back alleys in the developing countries" (AlSayyad, 2003:2).

Urban informality, today, is regarded as the result of the poor organising themselves by using their own ingenuity and social capital to respond to the issues they face in the urban environment (Pieterse, 2009). The issues they face range from the need for basic shelter to trying to generate a source of income. Urban informality has grown to a point that it has become a very dominant feature of the cityscapes in the Latin America, Asia and Africa (Hernández and Kellet, 2011:1). It has outgrown the formal "static" city to a point that the cities in these continents derive their image from informality. "The processions, festivals, street vendors and dwellers are some of the characteristics that define informality within the Latin American, Asian, and African cities" (Hernández and Kellet, 2011:2).

These characteristics give rise to a city that has an ever changing or transforming streetscape which adds a kinetic dimension to these cities but the built form in these informal landscapes has not adopted the same kinetic properties as the context around it. It has remained the spectacle of the "static" and formal city that has no meaning to the people in the informal setting. It has not adopted any of the principles that define the informal urban context and by remaining rooted in its formal "static" DNA, the built form is becoming more of a hindrance that people within this growing context have to solve or find ways to work around since it exist within a context that is not designed to serve or fit in.

The urban structure of African cities and streetscape are now being co-produced by the people, urban poor, people who control public resources, private capital and governments rather than being produced only on the governments terms (Pieterse,

2009). Urban Informality is now an active force that shapes cities in Latin America, Asia, and Africa. The architectural built form (being the dominant element in these cities) needs to transform to a new typology that will be able to accommodate this ever growing phenomenon that has become an integral part of the cities in the aforementioned continents. This research therefore seeks to define an architectural built form typology that is informed by urban informality to be able to accommodate and facilitate everyday lives of people in the informal urban context.

1.2 Motivation/Justification of the study

"In spite of its early promise, its frequent bravery, urbanism has been unable to invent and implement at the scale demanded by its apocalyptic demographics…in 20 years, Lagos has grown from 2 to 7 to 15 million; Istanbul has doubled from 6 to 12 million" (Koolhaas, 1995:961). These statistics show that urban informality is a phenomenon that continues to grow and actively shape the urban landscape in the Latin American, Asia and especially African cities. Instead of the intentions behind this phenomenon being seen as the way cities of tomorrow are being shaped for the better, the elites i.e. governments, investors, architects and urban designers alike, see it in a negative light and as something that is inhibiting the growth of cities rather than enhancing them. The elites then try to adopt western norms, considered as "western mimicry", to create buildings and cityscapes that emulate western modernity to try and "solve" urban informality. When these "western" design solutions are implemented without an extensive understanding behind the aspects that shape the informal urban context within the African context it creates a disjuncture between built form making and the lived realities in the informal context (Pieterse, 2009). This creates a built form that has no meaning for people in these informal settings and that in turn creates a situation where people try to adapt and modify these formal interventions to suit their needs thus forming "illegal" hybrid built forms to sustain their livelihoods. This lack of understanding of the underlying social principles that define urban informality is what drives this research. This research will unpack the concepts behind urban informality and propose a framework the architects and urban designers can use to generate an appropriate built form with the informal urban context.

1.2 DEFINITION OF THE PROBLEM, AIMS AND OBJECTIVES

1.2.1 Definition of terms

The following are some of the key terms that will be used throughout the research. By defining these key words and terms it will give a better understanding of their meaning and prevent their misinterpretation within the scope of the research.

Key terms:

***Barrio*:** is a Spanish word meaning neighborhood or quarter but in this research it is a reference to the informal settlements in Venezuela and the Dominican Republic. These settlements are usually found on the outskirts of the formal cities within these countries (en.wikipedia.org).

Deductive reasoning: the process of reasoning from general principles to a particular case (Hornby, 303:1995).

Elites: a group considered to the best or most important because of their power, talent, wealth, etc. (Hornby, 374:1995). Within the scope of the research they are defined as; national and local governments, urban design professionals, and architects.

***Favelas*:** is the term for an informal settlement, slum or shanty town that is located on the outskirts of a Brazilian city (www.oxforddictionaries.com).

Formal: represents the ordered city – in terms of its urban and architectural shape as well as its cultural, economic, political and social organisation (Hernandez and Kellet, 2011:1).

Inductive reasoning: a method of logical reasoning that obtains or discovers general laws from particular facts or examples (Hornby, 607:1995).

Public realm: exterior space and structures that are physically or visually accessible to the general public regardless of their ownership. They can exist in any setting and in different forms i.e. parks, streets, building interfaces etc. (www.upc.gov.ea)

Social Capital: refers to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. Social capital is not just the sum of the institutions which underpin a society – it is the glue that holds them together (en.wikipedia.org/ Social_capital).

Urban fabric: the physical aspect of urbanism, emphasizing building types, thoroughfares, opens spaces, frontages, and streetscapes but excluding environmental, functional, economic and socio cultural aspects (www.wordnik.com).

Urban informality: is a series of social and economic informal processes that take place in and shape the urban built environment in the informal urban context to create a city that caters for people that would otherwise be would not be included in the formal city (AlSayyad, 2003:23).

Informal context: the shapeless areas of the city where economic and socio-political structures are perceived as being particularly unstable and in which culture is characterised by its apparent incoherence (Hernandez and Kellet, 2011:3).

Urban spatial structure: is the arrangement of public and private space in the cities and the degree of connectivity and accessibility between the different types of spaces (en.wikipedia.org).

1.2.2 Definition of the Problem

Urban informality in Latin American, Asian and especially African cities is growing at a rapid rate. The formally derived built form in the informal urban context is seen as being obsolete by its inhabitants due to its rigid and static nature within an ever changing and transforming context. People located in the major or capital cities in the informal settings of these regions are now taking it upon themselves to adapt the physical nature of the built form that defined (the now obsolete) formal urban landscape. This adaptation manifests itself within and around the existing buildings and in the spaces that are defined by the streets in conjunction with the general urban infrastructure. It is from this observation that the research seeks to define a new architectural built form typology with the informal urban context that is generated by the understanding of the underlying principles that define urban informality and by doing so the built form will be part of this living organism rather than being seeing as an intrusive being within this organic kinetic urban fabric.

1.2.3 Aims and Objectives

- To uncover the underlying social principles that defines urban informality. This will involve looking into how people within the informal urban context shape their existing physical and spatial environment in order to suit their needs.
- To establish a connection between urban informality (which is an ever transforming field) and the built form (which is a product of the formal

context) to see to what end can these two opposing fields of the urban fabric influence each other.

- To outline a framework derived from the social principles that define urban informality for architects and urban designers alike to use to generate appropriate infrastructure within the informal urban context that does not hinder but adapts and changes with the informal urban context.

1.3 SETTING OUT THE SCOPE

1.3.1 Delimitation of Research Problem

The research will briefly present a background analysis of the origins of urban informality within the global context with a focused investigation in the regions that have a similar set of defining issues as the South African, African context i.e. countries with post-colonial cities that have an element of urban informality, this will include countries in Latin America and Asia. The analysis of the origins of urban informality will also outline how the informal urban context is defined from the bottom-up and how (and why) the informally derived built form needs to be generated in a similar manner. The research, informed by the background analysis, will focus on the social and physical aspects that shape urban informality in the aforementioned regions. The research will then briefly put forward a constructive argument that highlights the current disconnection between the informal urban context and the existing built form within these informal settings. The research will then move into the main discussion where it attempts to put forward a strategy that outlines how the underlining social and physical principles behind urban informality can be used to define a new built form that can be considered meaningful by people in the informal urban context.

This research acknowledges that urban informality (as phenomenon) is what plays out on the surface. This research is meant to aid architects and urban planners in their design approach thus the complex nature of urban informality has (to some extent) been simplified and only the necessary points that will contribute towards an understanding in the design field will be addressed. Yakobi and Yiftache (2004:209) identified the other two main unresolved tensions that give rise to urban informality as:

(a). **The logic of capital accumulation**: the forces involved in the development of urban areas informed or shaped by the economic structures at play in a globalizing economy;
(b). **The evolution of modern governance**: the links between the spatial changes entailed by urbanization and the transformations these have caused in civil forms of governance, and in particular, liberalism, democracy, and in political ideology;

Due to their complex nature these fields of study they might (in-part) be mentioned in the research but no explicit detailed descriptions will be provided.

1.3.2 Stating the Assumptions

- The current built form within the informal urban context does not reflect the transforming and kinetic characteristics of urban informality that are defined by people in the informal urban context thus the built form within this context has to be revaluated to adapt to this dynamic environment.
- The underlying principles that define urban informality as an environment that is versatile and flexible can be used to define a new built form that is better suited in its use and relevance in the informal urban context.

1.3.3 Hypothesis

The underlying social and physical principles that define urban informality can be looked at as clues for innovative strategies that can generate an appropriate built form within the informal urban context that is deemed meaningful by people within this context.

1.3.4 Key Question

How can the underlying principles of urban informality assist in defining a new architectural built form that is considered appropriate and meaningful within the informal urban context?

In-order to prove the hypothesis and answer the key question, the research will break down the key question into the following three interrelated parts to systematically outline how urban informality, as a context defined by people, can be used to generate meaningful built form.

1.3.5 Sub Questions

- How does power and control influence urban informality and the built form that will be generated from it?
- What are the underlying principles that define urban informality?
- How can these underlying principles contribute to generating meaningful built form?

1.4 KEY THEORIES AND CONCEPTS

1.4.1 Introduction

To prove the hypothesis and answer the main question, the following theories and concepts were selected to answer the aforementioned sub-questions to systematically outline how urban informality, as a context defined by people, can be used to generate meaningful built form.

1.4.2 Theories

1.4.2.1 Organised complexity

Complexity theory seeks to understand how cities actually work rather than to define how they should be as modernist urban design professionals often do. This theory argues that the top-down approach adopted by many influential urban design professionals in the designing of cities and its infrastructure does not take into account the people that will live in and around these structures. Jane Jacobs claims that this design approach destroys communities and innovative economies (which could be understood as the informal urban context within the scope of this research) by creating isolated and unnatural urban spaces and infrastructure.

Jane Jacob's theory looks into the real factors that play a role in the definition of cities and urban landscapes in order to define and recommend strategies to enhance them. This theory ultimately puts forward the argument that cities and the elements within

them are problems of organized complexity. “The kind of problem which cities pose – a problem in handling organized complexity. To seek for the look of things as a primary purpose or as the main drama is apt to make nothing but trouble (Jacobs, 1971:24).” This redefines the understanding of cities from more than a simple problem with two variables to deal with but a problem with multiple closely connected factors that have to be dealt with in order to understand their real nature.

The complexity theory suggests that by over simplifying the way we understand cities, infrastructure, the people in it and the way these factors interrelate, critical factors will be overlooked thus recreating the existing disconnected urban landscape (which one might be trying to solve) in a new form.

1.4.2.1 Structuration of Power and Control by Anthony Giddens

Giddens’ theory of structuration is based on a differentiation between ‘agency’ and ‘structure’. ‘Agency’ is simply the ‘capacity’ to transform our world. ‘Structures’ on the other hand, are the organised properties of social systems in the form of rules and resources (Dovey, 1999:17). Within the scope of the research, ‘agency’ can be understood as people in the formal urban context who have the power to change their built environment to suit their needs and ‘structure’ can be understood as the built form as it is a resource with certain rules that the ‘agency’ acts under.

Structuration theory also conceptualises “structure” as mobilised power governed (in its use) by rules that define the structure which can be implied; informal; widely sanctioned; and frequently invoked and used in interaction rituals, and daily routines. The way in which power is mobilised is determined by the ‘agency’ that possesses materials and organizational facilities in a position to distribute resources. Thus the ‘agents’ who possess and distribute resources have the means to mobilize power to get things done to change or sustain their social and physical environment to further their own interest or the interest of others depending on the context they acting in. The rules and resource used to mobilize power are transformational and can change into different forms; and they are ‘mediating’ in that they are what social ‘actors’ (i.e. people in a position to mobilise power) use to tie relations together (www.basreus.nl)

1.4.3 Concepts

1.4.3.1 Hybridisation by Felipe Hernandez

Felipe Hernandez proposes the concept of hybridity as more than a notion that "implies the existence of a number of different elements that share the same space and together give rise to an alternative form of logic for which difference, multiplicity and heterogeneity become central…" (Hernandez, 2002: 79). This implies that the process of hybridisation should be seen as more than a descriptive tool. To reiterates this, he often illustrates his notion with examples where architects often take physical elements from different orders (informal and formal settings or from different cultural groups) and mix them to "show" hybridisation. According to Hernandez (2002: 81), this does not only go against the concept of hybridisation but it highlights a forced integration of different elements that might come across as being 'superficial' and this reduces hybridisation to a mere descriptive tool similar to terms such as syncretism, synthesis, or eclecticism which only affects architectural aesthetics.

In his definition of hybridisation as a concept and its application in the built environment, he defines it as a multifaceted concept that has different but correlated dimensions: hybridisation as a result and permanent on-going process (Hernandez, 2002: 84). "Hybridisation as a permanent process: hybridisation produces results that may manifest synthetic characteristics, like a fusion of different elements into one … however, these results are part of the permanent and 'unfinalisable' process of hybridisation that happens at a larger constructive level." (Hernandez, 2002: 84). Defining hybridisation as a continual process (that might produce an environment that has a clear definition between the different synthesised orders) implies a different dimension in which the combination of the different elements occur but they remain apart and, perhaps, not in an harmonious coexistence but in a permanent struggle for survival (Hernandez, 2002: 84).

The direct implication of hybridity as a permanent process in the built environment is that it starts to suggest a constantly responsive environment that not only takes into account the visual and physical impact that opposing orders have on each other but it also acknowledges the constant social and continuous physical evolution of the orders. These facets of hybridisation also give the concept a subversive rather than a descriptive quality adding more depth to the concept and its impact in the built

environment. The hybridization of the informal (urban informality) and formal (built form) is not final in their physical and visual co-existence but they have to continue to influence each other indefinitely to prevent one order from setting limitations for the other thus achieving true hybridization.

1.4.3.2 Strategy and tactics by Michel de Certeau

Strategy is normally imposed by an institution or structure of power, and opposed to that, an individual will use his/her tactics to respond to the environment that has been produced by the strategy. From this definition, this concept can be defined as the outcome of power relations defined in Giddens' theory where an agency mobilises the power they have to impose a structure with defined rules and resources that an individual or 'actor' operates under. de Certeau's concept is centred on the observation of people in their urban environment and the procedures they use (tactics) on a small scale to create their own urban culture in a direct response to the disciplinary powers (strategies) subjected on them. He puts forwards an argument that without the proper understanding of the way people use tactics to adapt themselves in the urban environment that is imposed on them; spatial consumption in urban practices and the sub sequent interventions will be misinterpreted (Certeau, 1988:25). To further mark the distinction between strategy and tactics he states that: "strategies are able to produce, tabulate and impose spaces, when those operations take place, whereas tactics can only use, manipulate, and divert these spaces (Certeau, 1988:40).

De Certeau sees these tactics (which is a temporal use of space) as a very important element in the expression of the identity and the uniqueness of the place defined by the people (this can also be defined as the informal urban context defined by the people within this research). To further explain the concept of tactics created by the people he introduces the idea of "*la perruque*" where a person creates a space and places objects within that space in order to find ways of using the constraining order (strategy) of the place (Certeau, 1988:40). With this understanding of strategy and tactics, Certeau calls for designed environments that are not too restrictive in their order but instead he envisions man-made environments that imply their intended use but (at the same time) also leave room for interpretation by the people that inhabit these spaces in order for them to find their own meaning within that "defined" space.

This can be further simplified as environments that present opportunities for the user and then leaves room the implementation of tactics by the user.

1.5 RESEARCH METHODS AND MATERIALS

1.5.1 Research Methods

The research has been done with an aim to outline the lack of cohesion between the informal urban context and its current architectural built form and this will in turn lead the research to its main objective to provide a framework for the creation of an architectural built form that is generated by its informal urban context thus deemed meaningful (by the people) in the informal context. The research has therefore placed great emphasis on the social and physical issues that shape or contribute towards urban informality this includes the social practices, spatial configuration or composition and the current physical built form adaptation (internally and externally) in the informal urban context. In order to build up a sufficient understanding of the research problem, the issues will be investigated through the analysis of cities from Latin America, Asia, and other relevant regions to give it a global perspective and then the research will focus on some of the South African cities, especially Durban, to ground the research. The following will outline how the data will be gathered for the research.

1.5.2 Primary Data

This is data that is gained first hand, through the direct interaction with local South African case studies in the informal urban context and interviewees that are directly affected by the selected case studies on a daily basis. Case studies will form a major portion of the primary data gathered and analysed in the research. One-on-one interviews with people who have been exposed to the chosen case studies for a longer period of time and have a better understanding of it than the author will be discussed as part of the case studies to support the information gathered by the author. The interviews are seen as a critical part of the analysis of the case studies as they give a firsthand explanation of any of the findings deduced by the author.

The research process outlined above will give an opportunity for the research to come up with information deduced from these findings which will (in turn) be tested against the secondary data gained from published sources that deal with urban informality.

The research will then use this information to inform the understanding of urban informality. The following sections will outline how the case studies and interviewees were selected and analysed.

1.5.2.1 Case studies

The purposive sampling method was used to select the case studies. The purposive sampling method involves selecting studies because they meet certain characteristics (www.sociology.about.com).These were carried out in order to have a firsthand understanding on the current lack or successful cohesion between the built form and the informal urban context that the people have defined and other issues related to the topic thus the case studies had to fall under the following parameters to gain a better understanding of the research problem:

They had to be existing buildings and infrastructure that fell under the built form in a predominantly informal urban setting in any of the South African cities that people use on a daily basis or they had to be a built environment designed by urban design professionals that is meant to facilitate urban informality. By using locally based case studies located in a similar context as the intended design rather than using international based buildings, it would make the lessons learnt and the information gathered much more applicable and relevant to the intended locally based design in the informal urban context. Three case studies that can be found chapter 6, which met the selection criteria, were selected. They are:

The JOHANNESBURG METRO MALL located in Newtown, Johannesburg, Gauteng, South Africa designed by Urban Solutions: The building was developed to facilitate the informal context that existed on the site before it was developed thus it will be used as a case study to illustrate how the formal built form structure responded to the needs of the people in the informal urban context and whether it was informed (in any way) by the informal context that existed before it was developed in-line with the principles that are discussed in the literature review.

The BARAGWANETH TRANSPORT FACILITY located in Soweto, Johannesburg, Gauteng, South Africa designed by Urban Solutions. The built form was also analysed under the same criteria as the Johannesburg Metro Mall and it was also selected to illustrate how a building developed on a similar informal context responded in different way in terms of how it was implemented and designed to suit its informal context.

WARWICK JUNCTION an informal urban precinct located in Durban, South Africa. The precinct is meant to illustrate the way people define the informal urban context when they are allowed to have the power to do so. The precinct is also analysed under the same principles discussed in the theoretical framework to see the relevance and applicability of the concepts defined in it, which are mainly discussed in the global context, in the South African context.

All of these case studies were analysed through empirical observation which entails the direct observation of the subject at hand and quantifying the evidence in qualitative form (en.wikipedia.org). The structure of the analysis was based on the structure of the theoretical framework in order to link the primary and secondary research thus forming a structured argument where the material from each field is not discussed in isolation from the rest of the research.

1.5.2.2Qualitative Interviews

This data will go hand–in-hand with the case studies in order to provide a more informed understanding between the relationship of the current built form and the inhabitants of the informal urban context. Qualitative interviews will also give a firsthand explanation of any critical observations deduced by the author and expose the gap between the understanding of urban informality from the top-down vs. the bottom up standpoint. The qualitative method (compared to the alternative quantitative method which seeks out to understand the 'average' rather than meaning and experience) gave an in-depth and rich description of the informal urban context through the direct interaction with people that live in the informal urban context or experience it on a daily basis and professional practitioners that have engaged these communities. The research method itself is in-line with one of the concepts outlined in the theory of Organised Complexity i.e. "To work inductively, reasoning from

particulars to the general, rather that the reverse" (Jacobs, 1971: 441). The interviews, the format of which can be found in the appendices, were structured but open-ended. The following organisations and people that work or live within the informal context were interviewed and the findings formed part of the analysis of the case studies found in chapter 7.

Paul Wijgers: is an architect and urban design professional and he was part of the team that designed the Baragwaneth Transport Facility and Johannesburg Metro Mall. He was interviewed to reveal the thinking and design approach behind the finished buildings and how they incorporated in the informal context in a formal built form.

Asiye eTafuleni: is a Non-Profit Organisation which champions Inclusive Urban Planning & Design. Tasmi Quazi and Richard Dobson were interviewed from the organisation. They work closely with the people of Warwick junction (one of the selected case studies) and their insight revealed the inner workings of the informal city in terms of who defines, how it is defined and how the people in the informal context see the built environment around them. This interview formed part of the analysis of Warwick Junction in relation to the research problem

Metro Mall Trading Company: is a company that runs and manages the Baragwaneth Transport Facility and Johannesburg Metro Mall on a daily basis. Thuli and Simphiwe were interviewed from the company. Their daily interaction with people that work and use both facilities informed the research about the ways in which people in the informal urban context have responded to the facilities (in particular the built form) and how the buildings have reacted (if at all) to the different ways people use the facilities over the years.

1.5.3 Secondary Data

This includes data that has been refined and looked at by other specialists in the field related to the issues inferred by the research topic as outlined above. The secondary data will include the following.

1.5.3.1 Literature review

This was used to gather views expressed by specialists that have written material on the problem at hand. The material was sourced from published books, journals, past dissertations, and articles sourced from the internet. The structure of the literature reviewed, chapters 2, 3, and 4 is determined by the three main interrelated sub-questions outlined under the key questions and they are also informed by the theories and concepts in terms of the data that was deemed relevant to the research. The three parts are laid out in the following way;

Chapter 2: Structuration of Power and Control in the informal urban context

The research will start by outlining the historical origins of the informal urban context and this will show how the structuration of power works within the informal context. The research then outlines how elites, who are in a position to mobilise the power they have on the configuration of the built environment in the informal urban context, need to mediate it through an interpretive process from the bottom-up that includes people within the context to enable the underlying principles of urban informality to generate meaningful built form.

Chapter 3: Underlying principles that define urban informality

This chapter then outlines the underlying principles that are established by the people (from the bottom-up) in the formal context that can be used to generate meaningful built form. The following principles, outlined in the theory of organised complexity, were used to understand how the seemingly complex and ever transforming order is defined by the people in the informal context:

1. Think about the processes;
2. To work inductively, reasoning from particulars (from the bottom-up) to the general, rather that the reverse;
3. To seek for "unaverage" clues involving very small quantities, which reveal the way larger and more "average" quantities are operating (Jacobs, 1971:442).

Chapter 4: Hybridizing the underlying principles with the built form

This chapter outlines how the underlying principles that define urban informality (in its ever transforming state discussed in chapter 3) could be used to generate

meaningful built form (which is a formally driven and predominantly static field within the urban landscape) through the interpretive process outlined in chapter 2.

1.5.3.2 Precedent studies

Precedent studies were selected from existing international buildings. The selection criteria for the studies differed and this was done to make sure that all of the material discussed in the theoretical framework was covered. Two precedent studies, analysed in Chapter 5, were selected with the purposive sampling method (as discussed in case studies) to tie in with the theoretical framework in two ways:

MéMé Medical Faculty Housing: The first international precedent study is not located in an informal context like the rest of the case studies and precedent studies but it was essential to illustrate some of the concepts expressed in the theoretical framework in the built form i.e. the structuration of power during the design phase and the technical resolution of an adaptable built form that is able to accommodate future unplanned uses and tactics required by its inhabitants.

Metro de Caracas: this precedent was selected to complement the case studies by illustrating how other urban design professional (in the global context) understood the structuration of power during the design phase and what principles, that were developed in the informal context, were hybridised with the formal built form and how the implemented built form responds to the tactics that have (and will) be developed by the people in the informal context.

Relevant material on the precedent studies was sourced from published journal articles, books, and articles sourced from the internet.

1.6 Conclusion

This chapter has established, by means of the research background and methodology, research and design parameters for the dissertation. Techniques used by the author have been documented and the information collected has set out the theoretical and conceptual framework which will be referred to and drawn upon throughout the dissertation.

CHAPTER TWO

STRUCTURATION OF POWER AND CONTROL IN THE INFORMAL URBAN CONTEXT

CHAPTER 2.0: Structuration of Power and Control in the Informal Urban Context

2.1 Introduction

Urban informality can be defined in many different forms in the urban context, it can be informal settlements found outside the city or it can be parts of the formal city or 'informal urban interface' that the people from the informal settlements and rural areas occupy. The research will focus on the latter context (refer to Illustration 2.1) in its discussion of the historical origins of urban informality and the structuration of power and control that determines it existence and evolution.

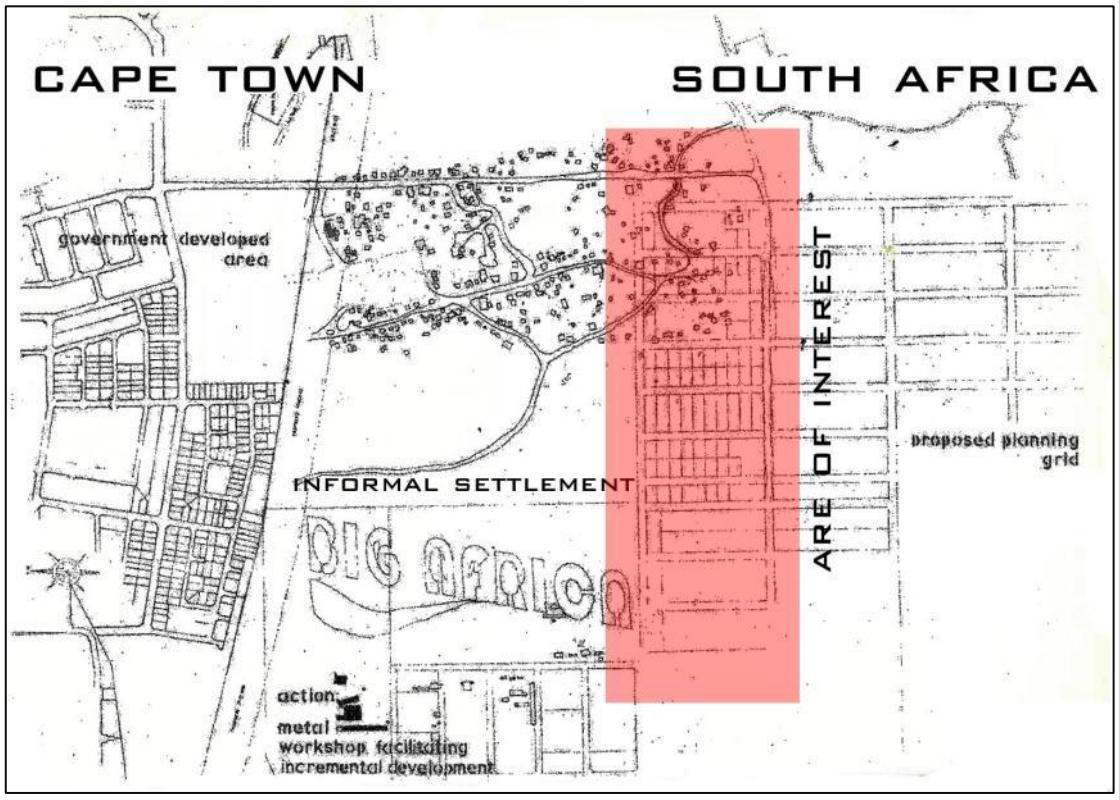

Illustration 2.1 – Typical South African post-colonial city layout. The area highlighted in red is the informal urban context in which urban informality that is being discussed exists. (Source: Sadler & Jonathan, 2000:214)

To understand the underlying principles that define urban informality located in the context outlined above and their implications on generating a built form within this context, it is important to *think about the processes* that brought about its existence (Jacobs, 1971:442). This chapter will first define the historical origins of urban informality found in post-colonial informal African cities to contextualise the research in its global setting and outline the processes that contributed towards its formation. During this stage, the research will also define what power people (living and

working) within this context have over the evolution and existence of the context itself and by doing this the research will show how the structuration of power and control over the informal urban context works. This chapter will then define how urban design professionals, who are in a position to mobilize the power they have over the configuration of the built environment, need to mediate it through an interpretive process (i.e. community participation) with people who define the context (rather than for them) to generate a built form that is deemed meaningful by people in the informal context. To achieve this, the research will start by outlining the flaws in the traditional master planning mediation process currently being used by primary agents to mobilise the power they have to generate a built form within the informal urban context and this process will show how mediating power through the master plan approach creates generic tools and methods used to 'solve' issues and this section will also illustrate that this process inadvertently prompts primary agents to dismiss the complex social and spatial realities that define urban informality. The research will then outline an interpretive mediation process that includes people within the informal urban context and the principles they have established to define urban informality which will be used to generate meaningful built form that facilitates their principles.

2.2 Postcolonial informal cities

Most of Africa experienced formal European rule but the need to create new urban areas or nodes or to transform the pre-existing ones varied (Myers, 2011:50). "Some colonies were merely zones for extraction of agricultural goods, with a limited European urban impress, while others witnessed European constructions of large scale cities for white settlers and industrial investors" (*ibid.*). Formal colonial rule, after European explorers settled on various parts of the continent, was established in 1884/85 and this coincided with the explosion of industrial capitalism that was taking place in Europe at that time and this pushed up the demand for Africa's raw material and competition between the colonial powers that were starting to form well established formal settlements across Africa (*ibid.*). The initial major colonial settlements were located along the coast across Africa since they were optimal sites for the extraction of resources from the continent by sea and these formal cities went on to become some of the major formal post-colonial cities in Africa (Durban, for example). By these colonial cities serving as cross continental satellite cities for

Europe, they were defined (in their use and physical urban structure) as either entrepôt/warehouse towns, bureaucratic capitals or both (Myers, 2011:51).

During the development of these major colonial cities, the colonials restricted (and in some cases excluded) the migration of native Africans from the country side into the cities but after these countries put an end to colonialism, these restrictions and sanctions were lifted and this gave rise to rapid urbanisation, a process that is still rising 40 years after some of the post-colonial cites gained their independence (*ibid.*: 52). This process of urbanisation has reached a point where it is (and in some case, already has) exceeded the pull factor (the economic opportunities) post-colonial cities have to offer to its inhabitants. This process started to take shape under the colonial era where the pull factor based on people's perception on what they could gain from the city in terms of its economic opportunities far exceeded the realistic opportunities the city had to offer to the rural poor. The end result was that the influx of the rural poor became the urban poor when they moved into the cities and this pattern of urbanisation also took place in the major cities of Latin America (*ibid.*: 53).

The colonial regimes went beyond the control of the rural poor's migration patterns into their formal cities; it also imposed sanctions and rules in the internal form and spatial structure of the cities. These sanctions and rules came in two forms; one was the segregation and segmentation of the urban landscape and the second was the related high degree of inequality (*ibid.: 50*) The most common form of segmentation of the urban landscape was based on racial segregation and this form of segmentation determined the initial layout of South African cities. But in other parts of the continents where there were few European settlers, the cities only included servants that lived in designated areas outside of the city. The colonial cities were also seen as political tools by the colonials to show their dominance and to enforce this ideology, the colonials reflected this in the configuration of the urban fabric. Most of the cities' urban structure was based on the following:

1. Separating out who could and could not be in the city;
2. Devising a map for who belonged where among those allowed to be urban;
3. Providing for and reinforcing spatial expressions of the hierarchy of colonial rule; and

4. Enabling the accumulation of resources by the colonial regime, the metropolitan power, and elites associated with both (Myers, 2011: *50*).

The rural poor (usually the oppressed) who were moving into the city seeking economic opportunities and eventually became the urban poor, had to settle and apply their trade on the outskirts of the city due to the segmentation and segregation policies imposed by the colonials on the layout out of the urban spatial structure. This playing field laid out by the colonials then went on to define the spatial structure of African cities the way they are today even after all the efforts to overcome the lines of segregation embedded in the spatial structure and urban form of the African cities of today(*ibid.*: 55).

Informal African cities were then a result of a high concentration of the urban poor and the self-organisation tactics that they had to carry out in order to survive and make a place that would cater for them and their needs since the formal city, which they wanted to be incorporated in, excluded them. This process gave rise to urban informality that is defined by the people to work for the people and in the eyes of the elites, the informal city gave rise to a different order that everybody (people living/ working within the context) has the power to control and define their built environment within the confines of the space they inhabit thus they defined the context as being *autonomous, often illegal, unregulated, and a low-technology arena* compared to the formal *regulated, legal, higher technology* city they control in its definition and use (*ibid.:*72).

Having stated that urban informality originated from the need of the people to create their own city that served their needs, it is important to note that the formation of the informal city has not evolved in its definition without the input of the elites. Post-colonial formal cities (from the colonial era) have formalised these informal cities since their initial existence was meant to serve the people en route to the formal city and these people provided the work force needed to sustain the upkeep of the formal city (ibid.). Based on this understanding of the different roles people have on the definition of the informal city, the definition of the ‘agency’ or 'actors’ and the structuration of power and control in the two types of cities (formal and informal) differs. In the formal context, the ‘agency’ can be defined as the elites since they are

in a position to mobilize power to change the built form of the urban fabric but having defined the informal context as a city that is as context created by the people, 'agency' within this context can be understood in two folds. Through the formalisation process of the urban structure in the informal urban context, elites are defined as the primary 'agency' since they have the power to imagine, construct the structure (roads and general infrastructure) in which the people in the informal context act under and the people who live/work in this context can be defined as secondary 'agency' who react to and make changes to the structure imposed on them by the elites to sustain the evolution of urban informality by making changes to their built environment (where possible) and social structure but their power is limited due to the lack of resource at their disposal.

The limited power people have on the definition of their informal urban context is to develop ingenious tactics to link and capacitate the strategies imposed them by the primary agents to shape and sustain their livelihoods forming one of the main underlying principles that defines the existence and evolution of urban informality. Tactics that define urban informality have their own rationality and logic of behaviour, which might not be in-line with the grand visions devised and externally imposed by the elites (Myers, 2011: 86).

2.3 Mobilisation of Power through the Master Planning Approach

According to the modernist master plan approach, developed around 1920 and adopted in the planning of colonial and post-colonial cities in Africa, city planning and concepts for urban design should be based on scientific, materialistic and deductive methods of planning. This planning and design approach was strongly expressed in the famous statement by Le Corbusier that a house should be a "machine for living in." (Yegenoglu, 2004:3). From the very beginning, the process of mediating power through the master plan approach, adopted by many influential elites, rejected the existing conditions of any other physical and social structures found in urban areas. It labelled them inferior and not suitable for the contemporary city.

At the fourth congress of CIAM, in 1933, in Athens, the report of an investigation on 33 big cities showed the chaotic spatial and social state of housing that did not meet the real needs of the majority of the city population. These existing informal cities were considered as unhealthy and chaotic anti-models compared to the desirable formal utopian functional City (Yegenoglu, 2004:3). The *Laville radieuse* (Illustration 2.2) from 1930 by Le Corbusier best described the move for mediating power over the built environment through the master plan approach.

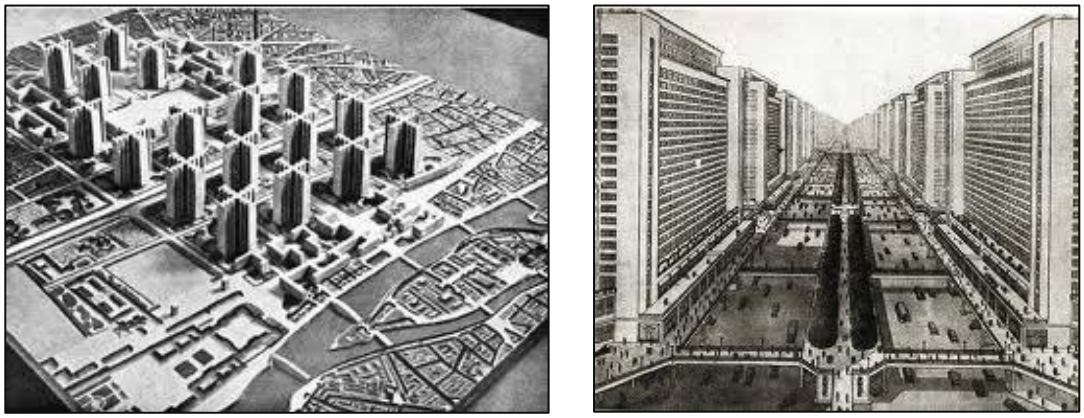

Illustration 2.2 - Laville radieuse, uniform modernist master planning proposed by Le Corbusier. Ariel view (left), Street view (Right). Source: http://pzwart3.wdka.hro.nl

The generic scientific aesthetics created an identity of a processed rationalised culture. This mediation process covered every part of the city from the macro-scale to the micro-scale. This was (and still is) done in the belief that cities and its infrastructure could be a "large and smoothly operating machine," and be regulated by a smart, intelligent and efficient social engineering (Parker, 2004:61). "Why not have the courage, where practical, to let the people shape their own environment where practical?" (Price, 1969: 435). Architects and urban planners alike are considered to be obsessed with creating visions for the people, which are usually derived from their own vision with very little grasp on the lived reality. They (the majority of the urban design processionals) see the need to unify the urban landscape in one seamless language and forgetting what the people need during the process.

This mentality was then adopted in developed and especially developing colonial countries to deal with prevailing urban informality from the 1950's. Illustration 2.3 conceptually illustrates how this mediation process generated a built form that is disconnected from its informal urban context due to the fact that the built form does not pay any attention to the informal urban landscape since it is too concerned with the science that determines its form.

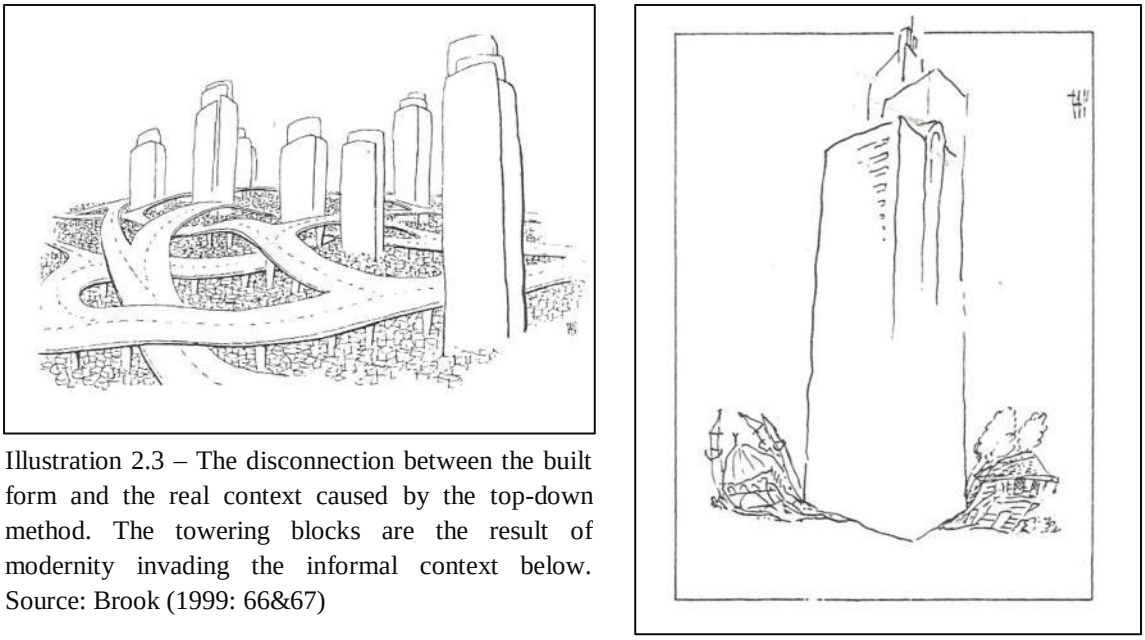

Illustration 2.3 – The disconnection between the built form and the real context caused by the top-down method. The towering blocks are the result of modernity invading the informal context below. Source: Brook (1999: 66&67)

The deductive master plan regularises the informal urban context and this process creates a disconnection between the structure (which can be defined as the architectural built form) that is imposed by elites to work within the informal urban context and the way people want their built environment to be define to accommodate and facilitate the principles of urban informality. The master plan approach cannot be employed in the creation of a new built form due to its static and rigid nature that goes against the adaptive, evolving underlying principles that define urban informality. Yegenoglu (2004:5) defined it as an "authoritarian approach, creating restrictions by rules, laws and compulsive planning efforts which generate a lack of freedom and participation for people who inhabit it". This research deems it unsuitable as a process of mediating the mobilisation of power elites have over the configuration of the built environment and the architectural built from within the informal urban context that facilitates urban informality.

2.4 Mobilisation of power through an inclusive process

Open civic spaces in architecture are understood as being essential in creating clear lines of vision thus increasing the security of space but Adriana Navarro-Sertich (2011: 186) made an observation that huge open spaces in the *favelas* (an informal development in Brazil) may present an opportunity for drug dealers and gangs to operate due to the lack of control the community can have on a huge open space. In the *barrios,* open public spaces do not exists due to the high density and steep slope of the topology to compensate for that people transformed public stairs (that they use to access each house) into streets and play areas for the community, refer to Illustration 2.4 (www.designother90.org).

Illustration 2.4: Houses are closely linked. Steps are the only form of public spaces that can be utilised by the barrios community. Source: www.carjet.com

These examples highlight the need for critical re-conceptualisation of preconceived notions that are considered as the "norm" when designing for an informal urban context that facilitates urban informality. The underlying principles that define urban informality outlined in the following chapter are broad concepts that outline how it is defined by people in the global context. These principles alone are not enough to generate a meaningful built form within a specific context. One of the strategies of understanding how to 'design' in an urban setting outlined in the theory of organised complexity is "*to work inductively, reasoning from particulars to the general, rather that the reverse"* (Jacobs, 1971: 441). This process entails identifying, understanding and constructively using forces and processes that are relevant to that particular region and having established that urban informality is defined by people who work/live within the informal urban context, they are the best source to understand principles

that define urban informality within their region that the built form will be implemented in. This route of mobilizing power over the informal urban context through a transparent process where all the parties who have a stake in the generated built form are consulted starts to suggest a participatory process.

2.4.1 Empowerment through Community Participation

Kim Dovey (1999:9 cited Rorty 1992:2) defined empowerment as "the ability to define and control circumstances and events so that one can influence things to go in the direction of one's interest…it therefore can be defined as the capacity to construct and inhabit a better built environment." This concept of empowerment starts to suggest that if the built form is designed in such a way that it has to be meaningful, the inhabitants and general people within the informal urban context, have to have the power (or be empowered) to influence the configuration of the built form in a way that suits their needs. Turner and Fichter (1972:188) suggested two ways in which architects and urban design professionals can work with people from the bottom-up to empower them to influence the way they want their context to be defined. The professionals can work;

1. *Directly with local groups* (user clients)-

   -with this approach, the urban design professionals and architects have the responsibility let the community define their needs. They also have to be prepared to learn a new language and to accept human urgencies instead of design problems;

   -they have to articulate alternative routes to solve problems and deal with their impact on the poor within the frame of reference of the community, such as its life style and special needs as articulated and experienced by the community.

2. *Obtaining the common interests of the community indirectly from professional advocates*-

   -this entails acquiring the common interests of the community from "underground" professionals that interpret what the people perceive to be in their own interest;

-these “underground” professionals can be found in government agencies or private industry NGO’s providing information to those advocates directly working with local groups.

“Cooperative developmental models presume a decentralisation of power and decision-making” (Turner & Fichter, 1972:195). The main goal of these processes is to let people, directly or indirectly, make decisions that affect them and these decisions are stronger and more relevant to everyone if they are made by the community rather than one individual especially if the built form is meant to facilitate public functions or serve people in the public realm. Nabeel Hamdi (2004:67) described 4 levels on which any community can be engaged and these can be used to inform the configuration of the built form in the following ways:

1. Common interests of the community: on this level, people will gather around issues that affect everyone and could be beneficial to form the overall framework for the built form that will determine the basis for cooperation.

2. Communities of culture: this entails understanding the culture of the community by that way the people within that context socially acquire values, beliefs and rules of conduct that govern how people within that context interact with each other and this will determine the way spaces and forms of the built form are interlaced within the confines of its site and the general context.

The social network also produces a shared body of knowledge – including information, ideas and skills – that shape the culture’s distinctive way of life in addition to its values and beliefs. Moreover, the culture’s values and beliefs affect its body of knowledge. They are part of the lens through which we see the world. They help us interpret our experiences and decide what kind of knowledge is meaningful. This meaningful knowledge, continually modified by the network of communications, is passed on from generation to generation together with the culture’s values, beliefs and rules of conduct. (Hamdi, 2004:68 cited Schon, 1984: 50)

3. Communities of practice: as people within a context work towards their goals some form communities of clusters that come together to pursue a shared enterprise or goal. The built form must then acknowledge, accommodate and facilitate these communities of clusters in way that it does not disturb the processes that they have (and will establish) and the only way to figure out how these communities of clusters work is to engage the communities and let them say how it works rather than doing something based on assumptions.

4. Placed based communities: This process is recognising that communities within a context are not necessarily concentrated in one place but they form social networks that go beyond the space they inhabit and depending on where the built form is implemented, the configuration of it should be done in such a way that it does not cut these networks off. It must promote them to form a stronger community within the context. The built form also has to acknowledge that these networks are dynamic and change since it is human nature to form new bonds and move away from old ones when they no longer hold any value to us.

This process of generating a built form through community participatory process, starts to suggest a built form that is 'alive' and has the ability to evolve and be adaptable - a built form that learns, and grows with the community rather than being an end-tool handed down to them without their input. During this process, the elites and people within the informal urban context are not seen as primary and secondary agents where one group has overwhelming power over the other. Both parties have to form one body moving forward towards a mutual goal. This process also starts to bridge the divide in the structuration of power and control over the built form. "Only when individuals can make their own decisions concerning the plan and equipment of their dwelling, can the dwelling be expected to truly reflect personal aspirations." Habraken (1981:21). The ability to influence the configuration and modify one's surroundings goes beyond finding meaning in the built form it also helps to determines one's place and meaning in society.

2.5 Conclusion

During the process of outlining the historical origins of urban informality, this chapter has uncovered a clash of two 'seemingly' opposing agents that have power over the definition and adaptation of the informal urban context that facilitates urban informality. These two agents are defined as primary and secondary agents. *Primary* agents are defined as elites that are in a position to mobilise power to determine the overall configuration of the built form and they determine the 'initial' structure that people in the informal urban context operate under. *Secondary* agents are people in the informal urban context that have to develop new tactics to link and capacitate the structure that is imposed on them by primary elite 'agents' to make it accommodate urban informality that they define since the structure that is imposed on them does not facilitate the principles of the context they define.

The fact that people in the informal urban context see a need to radically redefine the built form and built environment imposed on them by the elites indicates a disconnection between the way primary agents define the built form and the way people in the informal urban context want their built environment to be defined. For urban informality to be the generator of meaningful built form, people who define urban informality should be seen as participatory agents, not consumers or secondary agents. To achieve this, the mobilisation of power by the elites over the definition of the built form in the informal urban context has to be mediated through an interpretive process i.e. community participation. This tactic also has the benefit of making sure that whatever built form is generated, will be of some value and meaning for people within the informal urban context that the built form will be implemented in, since they had the power, from the onset, to influence and shape the configuration of the built form in a way that suits their needs. Empowerment through community participation will also prevent the underlying principles outlined from the following chapter from being misinterpreted during the design and implementation phase of the built form within a specific informal urban context to facilitate urban informality since the people will indicate how they use the underlying principles within their informal context and this process goes back to one of the ideas outlined by Michel de Certeau in his concept of strategy and tactics i.e. by understanding the tactics ordinary people use in their everyday lives from their perspective, it prevents the misinterpretation of the sub-sequent interventions.

CHAPTER THREE

UNDERLYING PRINCIPLES THAT DEFINE URBAN INFORMALITY

CHAPTER 3.0 - Underlying Principles That Define Urban Informality

3.1 Introduction

The historical origins of urban informality in post-colonial African cities outlined in the previous chapter illustrate that this phenomenon was developed by the poor and marginalised groups of people that pursued to sustain their livelihoods and to further their own aspirations since they were physically and socially excluded from the formal city that they wanted to be incorporated in. But by them settling together to form this context, they also had to engage each other, on some social and physical level, to sustain and maintain some sort of local stability and during this process, they had to form principles that were (and are) implied informally; widely sanctioned; and frequently invoked and used in interaction rituals, and daily routines which went on to define how urban informality works. This chapter will outline these underlying principles (developed by people in the informal urban context) which will reveal how urban formality works and these principles will be used towards generating a built form that is meaningful for the people within the context. To achieve this, the research will *seek for "unaverage" clues involving very small quantities, which reveal the way larger and more "average" quantities are operating* (Jacobs, 1971:442). This process entails breaking down urban informality into smaller more tangible factors that can be analysed to see the influence they have on each other and their potential in generating meaningful built form. This process also prevents the research from looking at the problem as a whole and generalising it and making uninformed assumptions that might be misleading or lead to more unintended complex problems later on.

3.2 Defining principles of urban informality

Simone & Abouhani (2005:3) defined urban informality as "a new urban infrastructure that is being built with the very bodies and life stories of city residents" thus to understand urban informality is to understand the underlying principles people create and implement in their settings to define new critical infrastructure in the built form which it better suited to sustain and improve their livelihoods. The following principles that define and enable urban informality, which will be used to generate a meaningful built form, are process created by the people who give rise to sustain the informal context. By looking at it the way people define it, the generated built form based on these principles will have a more meaningful connection with the people in the informal context since it will be based on the way they want to define their context

rather than the way elites want to define it in their grand visions. Under the theory of organised complexity, this is defined as a crucial step for identifying, understanding and constructively using the forces and processes that are relevant to cities and the people that inhabit them (Jacobs, 1971:441).

3.2.1 Socio-Economic principles of urban informality.

To really understand urban informality it is important to get to grips with its socio-economic dynamics of it, which is one of the key (if not the most critical) aspects that defines urban informality. This aspect is considered as the main driver of urban informality i.e. it is the reason for its current existence (and possibly) future forms especially in African cities. According to Hillier and Healey (2010:88), urban informality is shaped by social capital and it is the embodiment of the entrepreneurial energies of the 'people's economy'.

Social capital within urban informality is determined by the inner workings of the informal economy or 'microenterprises'. Social capital and its implications on urban informality is a very difficult process to grasp due to the fact that the informal economy is seen as being unstable with no logical structure that the elites in the formal context can understand. De Soto (2000:6) defined it as "the enterprises of the poor that are very much like corporations that cannot issue shares or bonds to obtain new investment and finance. Without representations, their assets are dead capital….The poor inhabitants of these nations – five sixths of humanity – do have things, but they lack the process to represent their property and create capital . . . this is the mystery of the capital.*"* This makes designing for the informal urban context very tricky since it is not easy to determine to what extent the complexity of the built-form generated from this principle be pushed in order to satisfy the needs of the people whilst not creating a new problem of affordability and general upkeep of their new built form intervention that is intended for their use. This is why infrastructure within the informal urban context is generally built with basic 'hard wearing' materials that are relatively easy to maintain by the people themselves but this approach has been highly criticised (especially in the South African context) for its cold and monotonous built form language.

Other architects and designers sometimes take it one step further and leave room for future expansions if the people grow economically to be able to make changes to their built environment (Refer to Illustration 3.1).

Illustration 3.1 – Housing On the right, is urban housing meant for the people in the informal context and on the left people have utilised the left over space to expand their houses. Source: socialspacebrighton.wordpress.com

It is important to note that even though urban informality is synonymous with the poor trying to survive on entrepreneurial strategies in marginalised spaces, it is not always so. There are cases where the socio-economic state of informality can take on different forms in a capitalist mode of production (Hillier and Healey, 2010:99), this when informality creates a patchwork between the "informal' sector and the 'formal' sector. "This proportion of the economy and space, which can be classified as the 'grey area', is when informality can take on a new form in the realms of real-estate developers to property owning classes" (ibid.:100).

One might say that if the people in informal urban context do have social capital at their disposal, surely they will invest it by upgrading their own facilities. The answer for this is complicated but the short version of it is that people in the informal urban context do not spend or invest their social capital in their informal city as they would in their permanent homes due to the risk of their structures being demolished by a number of different top-down organisations. Samper (2012) defined this logic as *"*The level of unit investment if inversely proportional to the treat of eviction. More stable informal neighborhoods would invest more into the housing and infrastructure than

those more recent of with larger possibility of eviction.*"* People in the informal urban context are willing to invest money in their built environment if they feel more secure in an urban setting. Illustration 3.2 shows a community in the *favelas* that invested their own social capital to improve their infrastructure.

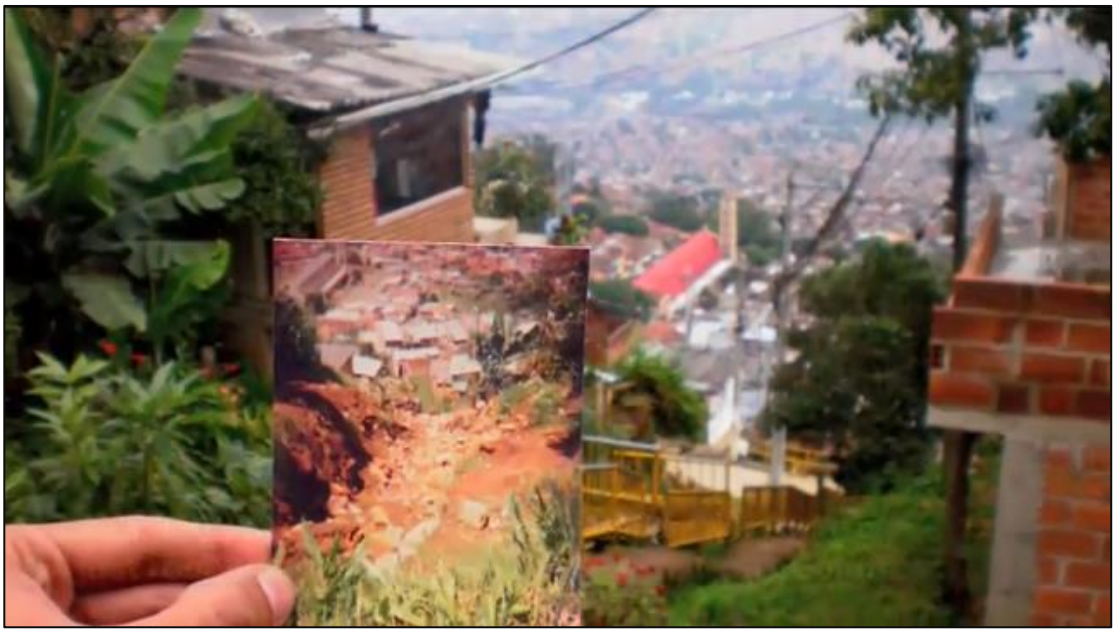

Illustration 3.2 - A picture of a stair path before and after community members built the sewer paths and stairs to access their homes. Source: informalsettlements.blogspot.com

They attributed this to the fact that due to the number of years the community has been together, they partner up more and more to make new investments towards the upgrading of their infrastructure and existing built forms of their public buildings to improve their living conditions and to make them facilitate their everyday lives.

3.2.2 Principle of Emergence: a concept that defines the evolution of urban informality

To Architects and urban designers who have no background experience of urban informality, it seems to be an organic structure with no hierarchy and no logical flow. Everything seems to be in it for itself but if one takes the time to understand it, the dynamic patterns of use (that designers are trained to pick up) start to emerge and these patterns start to break down the logic of urban informality. According to (Lara, 2010: 24) even though some (if not most) of the buildings and spaces within the

informal urban context have not been designed by urban design professionals – they should not be perceived as having no logic; they simply follow a different logic of their own which is defined by the people and lie outside the 'contemporary' dictionary for the elites called 'emergence'.

According to Hamdi (2004: xvii), appropriate developments (large or small) within the informal urban context stem from the understanding and correct interpretation of the common practices created by the people on the ground and these adopted practices have an immediate impact within the local context and the greater more global community socially and on the built environment. The intended developments or built form than have to adopt the concept of 'emergence', a pattern recognised in informal cities everywhere – and this concept entails the resolution of problems by drawing on simple and local elements that the greater number of people within that community have the opportunity to make a physical or social impact rather than being sourced from one elite or single brain (*ibid.:* xvii). This concept of emergence than starts suggest a flexible built form that is able to accommodate the adaptation process implemented by the people on a small scale that might affect the social and physical dynamics of the bigger picture. The most critical aspects of this concept is to find the right balance where the generated built form does not grow to a point that it inhibits the freedom of the people in the informal urban context and transform the informal dynamic context into a static, self-serving formal structure (*ibid.:* xviii).

For the concept of emergence to work, the built form has to be loosely defined, almost set up like a skeletal structure in which the people in the informal urban context will add their own ideas, or what Hamdi (ibid.) defines as "sophisticated behaviour", over the period of the structure's existence. This sets up a built environment of 'possibilities' where the built form is able to evolve and accommodate and facilitate unexpected changes within the informal context.

The built environment in the favelas located in Brazil is based on this concept of emergence and evolution. People living in this context took Le Corbusier's domino scheme and adapted it into their settlements to create multistory units that utilised their scarce land due to its compact and flexible nature (refer to Illustration 3.3). This came about because the people who built the modern Brazilian homes designed by Lucio Costa and Niemeyer and other modernist architects of that time were the same people who lived in the favelas (informalsettlements.blogspot.com).

Illustration 3.3- Domino Scheme by Le Corbusier (Left) and unit under construction (Right) in *Favela Roshinia* in Rio de Janeiro that follows the domino concept. (Source: http:// informalsettlements.blogspot.com)

This coincidental adaptation of a formally derived built form concept stuck in the favelas due to the fact that the incremental philosophy in the informal urban context can be applied in to the domino concept. According to Sheuya (2007) infrastructure in the informal urban context "is divided in two stages: start up (the first shelter) and the successive transformation phases (improvements)." In the first stage people use their initial capital to fund a new project and afterwards (the second phase) people accumulate additional funds as they grow to add new additions or make changes to the initial structure (informalsettlements.blogspot.com). This evolution process sometimes goes one step further in the sub division of units to change single use units to multiple or mixed-use buildings.

Emergence (from its inception) is even applicable to the informal settlements that lie outside of the city (refer to Illustration 3.4). In these informal settings Drummond (1981) described the evolutionary process in three phases;

Phase 1 - Implantation of precarious shelters.

Phase 2 - Transformation of shelters to sheds.

Phase 3 - Solid construction.

Illustration 3.4- Didier Drummond's illustration of phases of evolving consolidation. Phase one "implantation precarious shelters" phase two "transformation of shelters to sheds" phase three "solid construction" source: (informalsettlements.blogspot.com)

This implementation and adaptation process is also applicable to the informal urban context in the city where street traders undergo a similar process to find their ground within the city. What this shows is that urban formality is spontaneous in its inception but the evolution process can (to some extent) be laid out in its structural growth. The limit of this evolution process, especially in the cities, is only limited by its edges or "Edge Node" and this process is formally defined as "the creation of a new informal settlement or structure that creates a centrality which is in turn connected to a main road adjacent to the formal city…From this newly created node, the edge will start expanding outward until it finds an edge condition that would limit its growth" (informalsettlements.blogspot.com).

3.2.3 Principle of a culture of urban informality.

Understanding the physical processes that shape urban informality and the effects these process might have on the built form alone is not enough. These physical processes (and other relevant factors that have already been discussed) all add up to shape another crucial element that defines urban informality; the social dynamics of urban informality. In the pursuit to sustain their livelihoods, people in the informal urban context have formed closely knitted communities with different social dynamics that determine how they work together towards the same goal. These communities are not necessarily located in the same place or formally defined but they determine the social dynamics of urban informality and how it works.

Nabeel Hamdi (2004:67), defined the principles of culture of communities as the integrated system of values, beliefs and rules of conduct that govern how people within that context interact with each other. By introducing this additional process it brings the physical processes that have been discussed to life and the configuration of the built form within the informal context should be able acknowledge and facilitate the urban culture of urban informality and not hinder it. "The cities of the South which develop informally and spontaneously are a much better answer to life's everyday demands and should be seen as example for the over-the-top organized and formalized inflexible cities of the North, and no longer the other way round..." (Hüsnü. 2004,cited Koolhaas). People in the informal urban context form a tight network, facilitated by their defined modified context, and depend on each other for their growth. This relationship is sometimes unstable, tentative, and temporary, but it also provides economic and security opportunities and a sense cohesion in the informal city.

3.3 Conclusion

"The kind of problem which cities pose – a problem in handling organized complexity. To seek for the look of things as a primary purpose or as the main drama is apt to make nothing but trouble (Jacobs, 1971:24)." This chapter has illustrated an in-depth-analysis of urban informality and during the process it has defined the three main underlying principles that define it which will be used to generate a meaningful built form.

The first principle is the socio-economic principles and within the scope of the research it is defined as the ability of the people to use their social capital to invest in their built environment in order to make it suit and facilitate their needs. According to Hiller and Healey (2010:88), urban informality is shaped by social capital, and it is the embodiment of the entrepreneurial energies of the 'people's economy'. This is the main reason for the current existence of urban informality and (possibly) its future forms especially in African cities. But due to their limited resources and unstable nature of their economy the built form should not impose strategies that would require unnecessary up keep and the only way people can invest in their own environment is if they are assisted by being supplied a 'foundation' that they can build on and manipulate to make it suite their everyday lives and context.

The second principle is the concept of emergence that determines the evolution of urban informality. This principle illustrates that urban informality and the informal urban context that facilitates it are always under constant evolution and that this process is developed by people who happen to inhabit the context at a particular time to react to unforeseen problems and opportunities that present themselves. There is no certain formula that can determine the path of the evolution process since urban informality is not determined by one elite brain which means that the initial built form must not be seen as a final structure with a forgone conclusion in terms of its use, instead, it must be set up as an architecture of possibilities that is flexible enough to 'suggest' its current and future use without reinforcing it as a certain path that urban informality should take in its future states.

The principles discussed so far suggest the physical process that shape urban informality that can be used to generate meaning built form but this process has not acknowledged that these principles all come together to form the social dynamics of urban informality. This third principle, defined as the urban culture of urban informality, suggested that people within a specific context form unique and dynamic relationships with each other and these relationships are not only formed between certain individuals but they are also formed in clusters of communities that come together to help each other to achieve a certain goal and these networks can be very intricate systems where if one link is disturbed or severed it can destabilise other networks that depend on it. This starts to suggest a built form that 'treads lightly' in

the informal urban context to facilitate these networks by defining spaces that do not form individual capsules that restricts or isolate one group of people from the next.

"The informal city is the conjunction of seemingly endless possibilities of remaking…with its artifice of architecture, infrastructures and sedimentation channeling movement, transaction and physical proximity, bodies are constantly 'on the line' to affect and be affected" (Simone & Abouhani 2005:8) These underlying ingenious principles and tactics, formed by people living and working in the informal context, reveal that the context was developed to be adaptable, under constant evolution, to suit the needs and livelihoods of people within the context regardless of the strategies imposed on them by elites. The built form must also possess these principles in its configuration for it to have a meaningful connection with its informal urban context and the principles of urban informality that define it.

CHAPTER FOUR

HYBRIDIZING THE UNDERLYING PRINCIPLES WITH THE BUILT FORM

CHAPTER 4: Hybridizing the Underlying Principles with the Built Form

4.1 Introduction

The underlying principles that define urban informality in conjunction with the inclusive process in the previous chapters have outlined the general framework leading up to the design stage but the research has not outlined the outcome of this process i.e. the type of built form that facilitates urban informality. The outcome of these processes will be discussed within this chapter. "Hybridisation produces results that may manifest synthetic characteristics, like a fusion of different elements into one … however, these results are part of the permanent and 'unfinalisable' process of hybridisation that happens at a larger constructive level." (Hernandez, 2002: 84). The research will outline how to hybridise the informal, transformative and adaptable principles that define urban informality in a way that the built form (that is considered to be formal, static and rigid entity) does not limit urban informality but facilitates it, adapts and grows with it.

4.2 Towards a Participatory Built Form

Even though it is important to approach the "informal" built form with the interpretive bottom-up approach outlined in chapter 2, the relationships between the elites, people and urban informality are contradictory in nature. According to Simone & Abouhani (2005:3); African cities (that are predominantly informal) appear dynamic and static at the same time. The underlying principles of urban informality discussed in chapter 3 indicate that things can happen very fast in the informal urban context, where nothing has been done in a particular setting. In other words, sometimes conditions change with remarkable speed. Informal spaces are thus perceived as "unplannable" due to their spontaneous nature. This challenge is worsened by the fact that when one implements a plan in the informal urban context, they are in essence formalizing the informal. "Indeed, if informality is a differentiated structure, then formalization can be a moment when inequality is deepened. This can in turn displace the most vulnerable residents of an informal settlement" (Roy, 2005: 152). The trick is to find a balance where the implemented plan or built form does not impose external ideologies that one might think are applicable but the defining strategy must come from the informal urban context itself. Cedric Price (2000:32) argued that "the grand architectural schemes which were designed to resolve social problems, actually exacerbated them…it was not simply that these grandiose blueprints, when out into

practice, failed to meet the needs of inhabitants. It was that the approach to planning necessarily inferred failure". The element of the community is very critical in the planning approach. Without the understanding of the people in the informal urban context or any other context the built form will be seen as an element that inhibits the growth of people rather than facilitating them and this is due to architecture being the product of the formal context. It is important to also change the mindset of the elites (as Prices has stated) from seeing urban informality as something that has to be 'solved' to something that has to be enhanced and facilitated as 'solving' implies that urban informality is a 'problem'. The only possible or foreseeable connection it can make with the informal urban context is a hybrid built form that combines structural cohesion and spatial flexibility. "Lively, diverse, intense cities contain the seeds of their own regeneration, with energy enough to carry over for problems and needs outside themselves." (Jacobs, 1971:448).

4.3 Support structure: an indeterminate built form

How does the architect or urban design professional then design a built form that can grow with its context over time rather being confined to its own rigid DNA? According to Cedric Price (1991) diversity and the mixture of activities is important when designing for the informal urban context. In his opinion architects should generate choices for inhabitants by spatial flexibility and they certainly should not be bothered by an elitist aesthetical taste. Buildings should not be dominated or determined by imposed aesthetics but they should be determined by the patterns of use created by the people over time and due to the spontaneous nature of the informal urban context, where changes happen on a daily constantly and rapidly, the built form within that this context should also be able to respond to these processes. The built form, at most, should consist of setting up frameworks for decisions, within which as much objective information as possible can be fitted (Price, 1969: 442).

People in the informal settings are capable of taking what exists around them and finding new ways to organize, link and capacitate it (Simone & Abouhani 2005:4). This process is done in order to incorporate their existing rigid built form into their dynamic and flexible environment. Hall and Pfeiffer (2000:15) argue that the urban poor have "built their own city without any reference whatsoever to the whole bureaucratic apparatus of planning and control in the formal city next door." This

notion is true but to a certain extent because the existing informal infrastructure might be categorised under urban informality but most of them have been transformed from 'formal' structures that can be used in the informal urban context in the same way people in the favelas adopted the Domino scheme developed by Le Corbusier. This means there is possibility of taking formally derived concept and adapting it to the informal urban context to facilitate urban informality.

Many attempts of this nature have been undertaken, most notably in the 1960's under the banner of "indeterminacy" (Sadler & Jonathan, 2000:90). Weeks (an English architect) was one of the main instigators of the indeterminate strategy. He developed this concept to deal with the increasingly rapid growth, change and obsolescence of the building's internal functions that he was assigned to design (ibid.). The indeterminate built form or design strategy was inspired by the 'uncertainty principle' which is identical to the concept of 'emergence' that defines the evolution of urban informality outlined in chapter 3. The uncertainty principle formulated by quantum-mechanics physicist Werner Heisenberg stated "the impossibility of determining simultaneously both the position and velocity of atomic particles" (Sadler & Jonathan, 2000:97). The indeterminate strategy stated that the built form should be not fixed in size if the future accommodation is unequal and hard to predict in the same way it is *almost* impossible to determine the future forms of urban informality. He especially avoided providing ideal and static solutions which might prove inflexible in the future. The final outcome of this strategy combined loose fittings and extendible building envelopes with a modular system of load-bearing external mullions supported by reinforced concrete beams permitting flexible internal sub divisions largely unrelated to the elevations of the buildings i.e. a framed structure (Sadler & Jonathan, 2000:98).

The indeterminate built form and the principles that define urban informality both exhibit the same concepts since they have the capacity to be adapted (or completely changed if need be) to fit in a context that is always evolving and this also reflects the true concept of hybridisation since these two seemingly opposing orders adapt and grow with it each other. According to Sadler & Jonathan (2000:90) urban informality is most efficient when allowed to operate freely, unfettered by distorting constraints, ceaselessly adjusting into changing circumstances" (Sadler & Jonathan, 2000:90).

Weeks' indeterminate concept was pushed on step further by Habraken who went to define it as a built form of 'supports and detachable units'. According to Habraken (1981: 21) "A support involves those decisions over which the community has control and the detachable unit is that area which the individual decides". To simplify this, a support can be defined as an elevated plot or 'site' that the people have power to determine what goes into it i.e. the detachable unit. The 'support and detachable unit' concept of creating a 'framed' built form and expecting people to add their own detachable units should not be expected to work the same way for every context as this approach would be going back to the inappropriate master plan approach discussed in chapter 2. The socio-economic state that defines urban informality (outlined in chapter 3) within each informal urban context should be used to determine what constitutes a support and a detachable unit within each context. One context might have enough social capital to a warrant a frame like support with nothing in it but the 'boundaries that determine the edges or limits of each unit another context might only have enough social capital for a support that has a bit more the first context i.e. floors, and external walls their detachable unit is only the internal walls and loose fittings. The only way this could be known for sure is through community participation even Habraken (1981: 21) stated that "What constitutes a support and what a detachable unit depends on the housing condition, on the image the people have of themselves and their society, on the amount of change of residential behavior and use of the dwelling over time."

Even though the built from might be set as a support for people to add their own ideas it must be set up in such a way that it is easy to perceive what the residences can do with it in terms of the planning of the detachable unit as each inhabitant might not necessarily be interested in exploring multiple possibilities they have to figure out. The built form of the support must be configured the same way books case in a library are set up, book cases only limit the size of the book that will be shelved within it but it does not determine the contents and visual appearance of the book itself and different books with different contents can be shelved in the same case when the previous book is moved or thrown away. The only way this could be achieved is when one generally knows what type of functions will go where.

Orientation of residences and people moving through the informal urban context is also important; the freedom of one must not have a negative impact of the other. The ideas discussed so far are what people who work and live contribute towards the generating of a meaningful built form but it is important to note as is was established in the historical origins of urban informality, the informal urban context was created by people to accommodate and serve other people who were excluded from the formal city and these people might not necessarily live and work with the context so it is also important to consider them when determining the configuration of the built form. The system of supports only tell a story of how one aspect of the built form can be generated by the underlying principles of urban informality in midair as an 'elevated' plot with no context to ground it. The only way the configuration of the generated built form could be grounded in a meaningful way is by understanding the Communities of culture i.e. that way the people within that context socially acquire values, beliefs and rules of conduct that govern how people within that context interact with each other and this will determine the way spaces and forms of the built form are interlaced within the confines of its site and the general context.

What makes this built form even more relevant within the informal urban context is that some people do not tend to stay in one place forever within the context. The future inhabitants of the built form might not necessarily be the people who were consulted at the beginning of the design process. Cedric Price (1972: 645) suggested an approach where people that inhabit a particular space or dwelling are given an opportunity to reassess the worth of the space by avoiding the reinforcement of space assumed from its past uses and this is where the concept of detaching an old unit within the built form and replacing it with their own ideas that are meaningful for them comes into play. Christopher Alexander (1977:50) describes the fundamental nature of the task of making buildings and the spaces between them. He wrote: "Buildings and the spaces between them will not be alive or meaningful to the people that inhabit them, unless they are made by all the people in society and its inhabitants, and unless this common pattern language is alive itself."

4.4 Conclusion

Gideon (1941: 465) suggested that life fills out the plan in the way that a river occupies and shapes its bed. This philosophical approach perhaps is the only way to sum up how the urban informality can be facilitated and hybridised with the built form. It can be defined under the current conditions and facilitated in the built form but it is very hard to predict its future states especially within the process of globalisation and increased immigration thus is important that the built within the informal urban context be flexible enough to accommodate unforeseen future states of urban informality. The indeterminate built form defined as 'supports' is one way the future state of urban informality can be facilitated due to its ability to be adaptable and flexible. This built form almost reacts the same way people in the informal urban context live, it has its own tactics in place (similar to the underlying principles define urban informality) to adapt to its urban environment that it finds itself in. It also does not exist as a habitable built form until people within its context generate and apply their own ideas based on what they need.

CHAPTER FIVE

KEY PRECEDENT STUDIES

CHAPTER 5.0 KEY PRECEDENT STUDIES

5.1 Introduction

The following precedent studies were selected from existing international buildings from across the globe. This was done intentionally to see how different people outside of the South African context deal with the different theories expressed in the previous chapters. Even though there are similarities here and there between the two precedent studies, it was not essential that the buildings share the same selection criteria or be analysed under the same conditions. The most important thing was that they relate back to the theoretical frame work thus each study offers something new to the last and this process helps to generate diverse and helpful guidelines that will used towards the field of design.

5.2 AN INDETERMINATE BUILT FORM: MéMé Medical Faculty Housing

Architect : Lucien Kroll

Client : Louvain University

Construction date : 1970

5.2.1 Introduction and Justification

Lucien Kroll was born in Brussels, Belgium 1927. He is considered to be one of the pioneers for participatory projects that entail generating ideas and solutions from different sources and especially from the community that would eventually become the future inhabitants of his buildings (www.zoominfo.com). The MéMé housing scheme might not be located in an informal urban context but (as a revolutionary participatory built form of its time) it went on to inspired other architects an urban design professionals (including Urban Think Tank) in their participatory built form prototypes that they implemented in the informal urban context. The mediation of power was done through an interpretive process where the inhabitants had input into the design of their units. The building, which he dubbed as the architecture of complexity, also illustrates the ‘support structure and detachable unit’ concept most of the social housing schemes in Netherlands and around the world have adopted but on the biggest scale possible. The hybrid built form is defined as an ongoing process that has room to be modified (internally and externally) to grown and adapt with its inhabitants rather than being defined as formal, static solution that has no room for interpretation.

5.2.2 Location and Social context

Illustration 5.2.1: (Left) Location of Brussels, Belgium. Base Source: www.google.com/imghp. (Right) Typical formal building that is located around the MéMé housing scheme. Source: Pehnt, 1987:42.

The building is located on the outskirts of the capital city Brussels, Belgium. The building was built within a very controlled and uniform built environment. Two schemes were proposed to the university and the first scheme (similar to the monotonous buildings found on campus at that time) was turned down due to the students protesting about its lack of flexibility and uniform built form. The MéMé building was then the second scheme that was then approved by the students (Pehnt, 1987:40). Through the inclusive community participation process, students contributed significant ideas that went on to determine what constitutes a support structure and the detachable unit. The MéMé building compared the repetitious buildings that surrounded it (Illustration 5.2.1 - Right) was seen as a radical approach to design and it was perceived as an incomplete building.

5.2.3 Architecture of complexity: the idea

Lucien Kroll's concept of architecture of complexity (which he applied to la MéMé and that is identical to the 'support structure' outlined in the previous chapter) is centered on the idea of seeing a building as process that should be flexible, allow improvisation and spontaneity and not as a simple structure that is finalized after inception within no room for interpretation (Wolfgang, 1988:12). These core concepts that define Kroll's architecture of complexity are identical to the adaptive and transformative underlying principles that define urban informality. "Diversity encourages creativity, while repetition anaesthetizes it. Often architecture is too homogeneous, sometimes because the type is simply repeated, sometimes because of

self-centered desire to see buildings apart from their context, sometimes because of an exaggerated aesthetic commitment which tends to a precious 'architects' architecture" (Kroll, 1986:29). This creates built form or environment where the inhabitants find it difficult to do anything they want and reflect their needs thus we end up with monotonous developments that have no meaning to the people and this cannot be the case in the informal urban context where it is the people (and not the planners) that make the city what it is and the built form should also (to some extent) reflect this.

For the process of adaptability to happen, Lucien Kroll maintains that the initial built form of the building has to be bold and varied in its definition (refer to Illustration 5.2.2). He makes an example where an occupant living in a uniform line of houses sometimes finds it hard to build up the courage to change the design of their front door because they might be disturbing the overall uniformity of the built environment and street scape but if the initial houses themselves were varied in their definition the adaptation process and tactics imposed by the inhabitants to their built environment will be of a bolder nature (Kroll, 1986:29).

Illustration 5.2.2: The building's 'random' exterior and form encourages the inhabitants to come up with bold interventions that will create a built form that could accommodate their everyday life. Source: www.miscelleneousinsightsandspeculations.blogspot.com

This adaptation process goes beyond affecting the aesthetics of the building. By letting the people shape their own environment it sets up a situation where they feel connected to the built form because they have invested time and effort to creating something that suits them rather than having someone (from the top-down) who 'dictates' the way they should live.

5.2.4 Architecture of complexity: the plan

The design of the complex scheme took ten years before any form of construction commenced because of the different ideas that had to be incorporated into the scheme (Kroll, 1986:44). For the building to have variation that is more than 'skin' deep the design process had to be an open process done through community participation that incorporated all of the parties involved before any concrete ideas were finalized. The open process then became the building's own motivation for its complexity (www.domusweb.it). To be able to achieve the maximum flexibility required for the inhabitants to be able to modify their built form around them, the architects designed a framed building with little or no loadbearing walls (refer to Illustration 5.2.3).

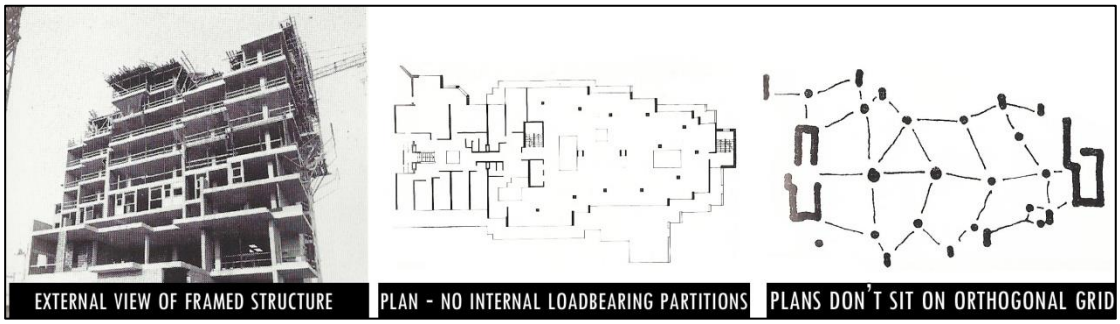

Illustration 5.2.3- The building is a framed structure with little or no load bearing walls and the façade is independent from structure for maximum flexibility. Base Source: Wolfgang, 1988:45

They key to the future modification of the building by its inhabitants laid in the planning of the buildings. If the planning was orthogonal and repetitive the subsequent interventions by the inhabitants would be repetitive as well thus creating similar modifications that defeat the purpose of creating a flexible building that allows the people to create their own environment (Kroll, 1986:44). The structural grid (to promote variation internally and in planning) was placed on a seemingly random grid but the location of each column was set at multiples of 90cm forming a mosaic of rectangular or square umbrellas (supporting the slab) which support each other at the edges and this forced the engineers to give each column its own size thus giving each column its own character and feel which added on to the variation (Kroll, 1986:42). This 'random' grid meant that the planning interventions that could be implemented by the inhabitants were only limited by their imagination. The random structural grid forced the external façades' variation since the external openings usually respond to the orientation and configuration of the internal spaces.

5.2.5 Adaptation process: Built form responding to the users' tactics

"The structure endures but the infill is soon out of date (for various reasons): thus we make it removable" (Kroll, 1986:42). The building is designed to facilitate extensive modifications required by the users. The students can purchase each unit, pull up the floors, demolish walls, stairs, doors, and frontages (windows, wall, or glazing), and rebuild them according to their own ideas to suit their individual needs and this process happens every time a new student moves in and each student lives in the unit throughout their 6-7 year stay at the university (Wolfgang, 1988:48). The outcomes of these processes vary by a huge margin from one unit to the next (refer to Illustration 10).

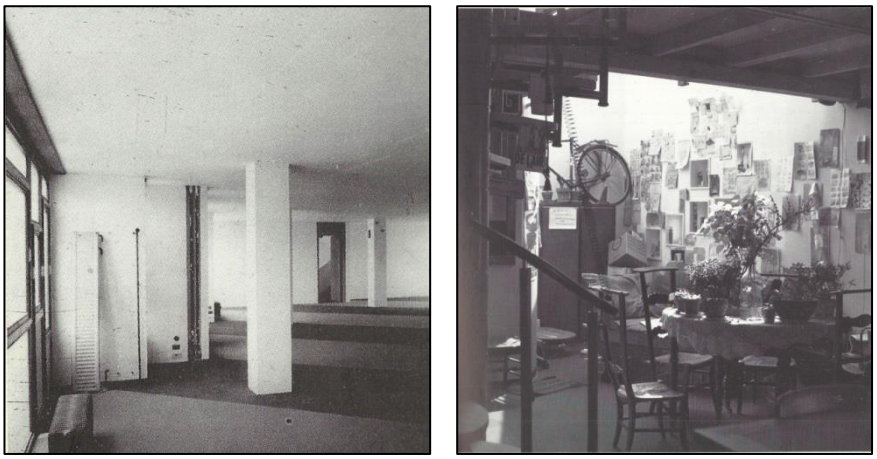

Illustration 5.2.4 (Left) Typical unit floor layout before installation of partitions. (Right) Typical unit after interventions. Source: (Kroll, 1986:48)

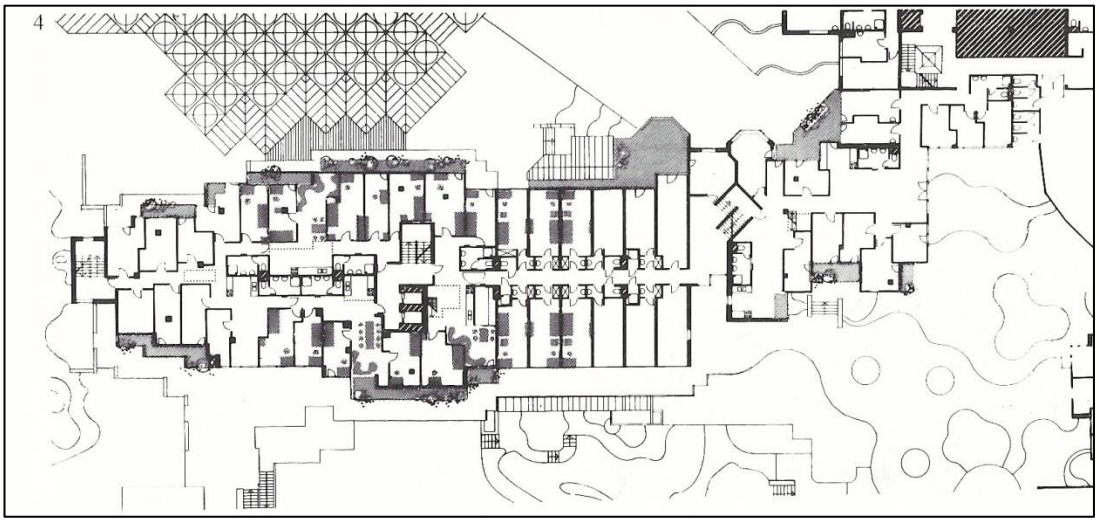

Illustration 5.2.5– Typical floor layout after inhabitants' interventions. No two areas are identical. Source: Wolfgang, 1988:47

The students use prefabricated components to define their space and this method of construction was seen as the best route by the students since they had limited

construction skills. The inhabitants usually use heavy duty drywall partitions that are pre-assembled according the SAR system devised by the architects, making it easier for them to 'clip-on' the various components together (Kroll, 1986:47). The only parts that are fixed in the building are the wet services and electrical points and these run in the permanent structural components of the building forming part of the 'support' (Kroll, 1986:53). For the students that cannot build their own units from scratch, the university offers start-up units with the core services and as the occupant grows financially, they can redefine the plan of the units but only within the original parameters they move into (Kroll, 1986:82).

5.2.6 Conclusion

This housing project is an 'ideal' example of how a meaningful built form that it is able to adapt and change with its inhabitants should be defined. During the design stage, the future inhabitants of the building were seen as participatory agents that had the same power over the configuration of the built form as the design professionals. Many lessons (through the inclusive process) were gained from students and *they* ultimately defined the configuration of the built form during the participatory stage of the design and *their* ideas had a significant impact of what was defined as a support structure and what was defined as a detachable unit. This process meant they could manipulate the built form to reflect their own identity thus finding meaning in the built form. This building also proves that it is possible to create an indeterminate built form that incorporates the concept of emergence, where the initial building sets up the framework with simple elements (the bare structure or support) and allows the 'sophisticated' behavior determined by the tactics of its inhabitants to trickle up over time and by doing so achieving true hybridisation of the built form that adapts and grows with its inhabitants and their principles that determines their everyday life instead of restring them.

5.3 FLEXIBILITY AND ADAPTATION INSPIRED BY URBAN INFORMALITY: Metro Cable

Architect : Urban think tank

Client : C.A. Metro de Caracas, a government-owned company

Construction date : 2007 - 2010

5.3.1 Introduction and Justification

This precedent study was selected to illustrate how the underlying principles that define the informal urban context of the barrios community were enabled and hybridised with the built form to form an indeterminate building. This process will also outline how other urban design professionals (in the global context) understand the structuration of power and control during the design phase. The research will also analyse how the implemented built form responds to the tactics that have (and will) be developed by people in the informal context. The research will not place great emphasis on the configuration of the cable-car system itself since it is not the main focus of the research problem at hand, it will mainly focus on the design approach and the way the built form is configured to suit its informal urban context that facilitates urban informality in way that is meaningful for its inhabitants and end-users.

5.3.2 Location and Social Context

Due to the fact this precedent study is located outside the African continent, it is important to know the context in which it exists to see the similarities between it and the post-colonial informal African cities that were discussed in chapter 2. By finding similarities between the material discussed in the theoretical framework and the precedent study, it will help show how applicable the material discussed in the following section of the research is in the South African context.

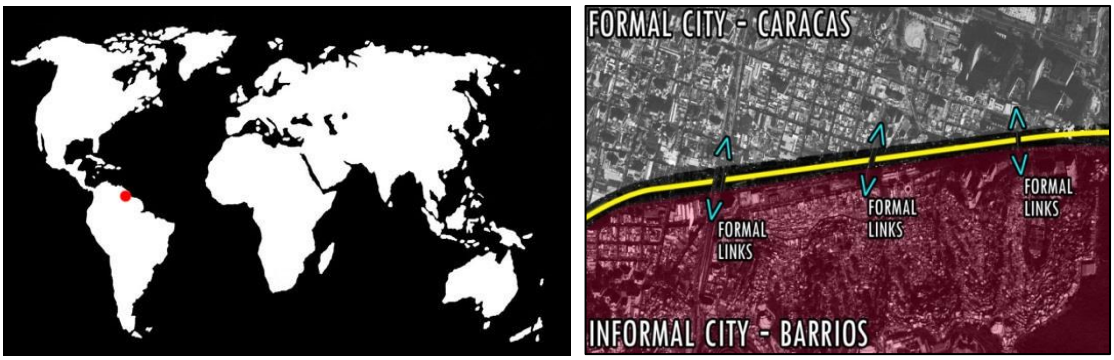

Illustration 5.3.1 : (Left) Location of Caracas, Venezuela. Base Source: www.google.com/imghp. (Right) The two contrasting urban settlements are separated by a freeway (highlighted in yellow) running in between them. Base Source: Google Earth

Illustration 5.3.2: Informal Barrios settlements that located on the hill sides of Caracas. Source: http://www.mascontext.com

The building is located in Venezuela's capital city, Caracas (Refer to Illustration 5.3.1). Venezuela is a former Spanish colony and it gained its full independence in 1830 (en.wikipedia.org). Caracas is a post-colonial city established in 1567. It is considered as a city with two faces due to the stark contrast between the formal city located in the valley and the informal barrios settlements built on the hills and mountains located on the out skirts of the city (refer to Illustration 5.3.2). The local authority recognised the growth of the barrios and realized they would continue to grow due to the process of rapid urbanization and people from the rural context moving into these forms of settlements drawn by the economic opportunities the city has to offer. They then assigned the task to Urban Think Tank (a multi-disciplinary firm) to set up an urban framework within the informal urban context that will link the hillside informal developments to the formal capital city of Venezuela (www.w3c.org). The layout of the barrios settlement itself might be different to the ones discussed under the historical origins of urban informality but the pattern of migration is identical. This means that people within this context have similar aspiration in forming the settlement as the people in the post-colonial African cities thus the lesson gained from this precedent will be directly applicable to the South African context.

5.3.3 Mobilisation of power through an inclusive process

The architects (who have done numerous projects with the local community in the informal urban context) decided to consult the local community during the design phase of the project to understand how they wanted the infrastructure to be configured. In their design approach they saw the informal urban context not as a hill covered with houses but as a house that covered hill (www.mascontext.com). This approach meant that the urban design professionals saw the settlement as closely knitted community that has developed its own social and physical structures rather than isolated units owned by different individuals. This mindset also set-up the designs, that would be eventually implemented, to put the community first which meant that the design solution had to be sensitive and meaningful to the people in the local community in the way it is integrated to its context. Special public meetings and presentations were held in the local community where urban design professionals, local leaders of the barrios community could establish the common interest, culture, practices and social networks of the community to make sure that the new infrastructure did not disturb any of these positive principles established by the local community. This process created a transparent and integrated bottom-up design approach (www.w3c.org).

The urban design professionals (in close participation with the local community) realized that they needed to come up with a framework that had a minimal impact on the physical structure of the local community and realized (from the ideas expressed by the local community) that the design of the infrastructure had to go beyond serving as a link between point “a” and point “b”, they had to be a component that addressed the social aspects of the community which would integrate the local community into the infrastructure and this would create a more meaningful connection between the barrios community and the built form not only through the flexibility of the building but as well as the functions they are able to create in the built form (www.w3c.org).

The urban design professionals, through their extensive research, realized the lack of alternatives facing residents — particularly the youth of the local communities. Social programs that would be integrated with the new infrastructure would mostly be aimed at the youth and giving them new programs that they could engage in, in their everyday lives.

5.3.4 Support structure: an indeterminate built form

Through community participation, the architects recognised that the local barrios community did not have enough social capital to invest in a new built form. To enable the underlying principles of urban informality to generate meaningful built form within the barrios community, the support (initial built form) would have to act as the enabling device that requires minimal investment from the people while enabling maximum input from the community. To achieve this, the support would have many facilities as standard and the 'detachable' unit formed by the community would be the functions that take place in the buildings (refer to Illustration 5.3.3)

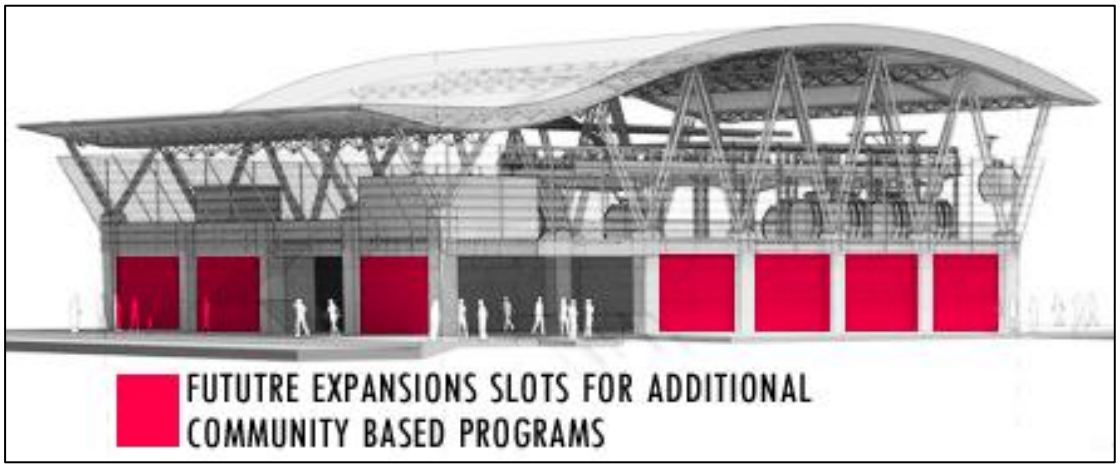

Illustration 5.3.3- The concrete framed bases are designed to accommodate future programs that will respond to the future of the barrios community. Base Source: www.plataformaarquitectura.cl

These community based programs are based on a plug-in system which means that if the social programs happens to break down or the community decides to change and reconfigure the function of these social programs, they can 'un-plug' the social program and plug-in a new one. This concept also empowers the barrios community to develop their own communities of culture and of practice thus making the built form theirs and this cannot be achieved if these principles are imposed from above by elites who do not live and work within the community.

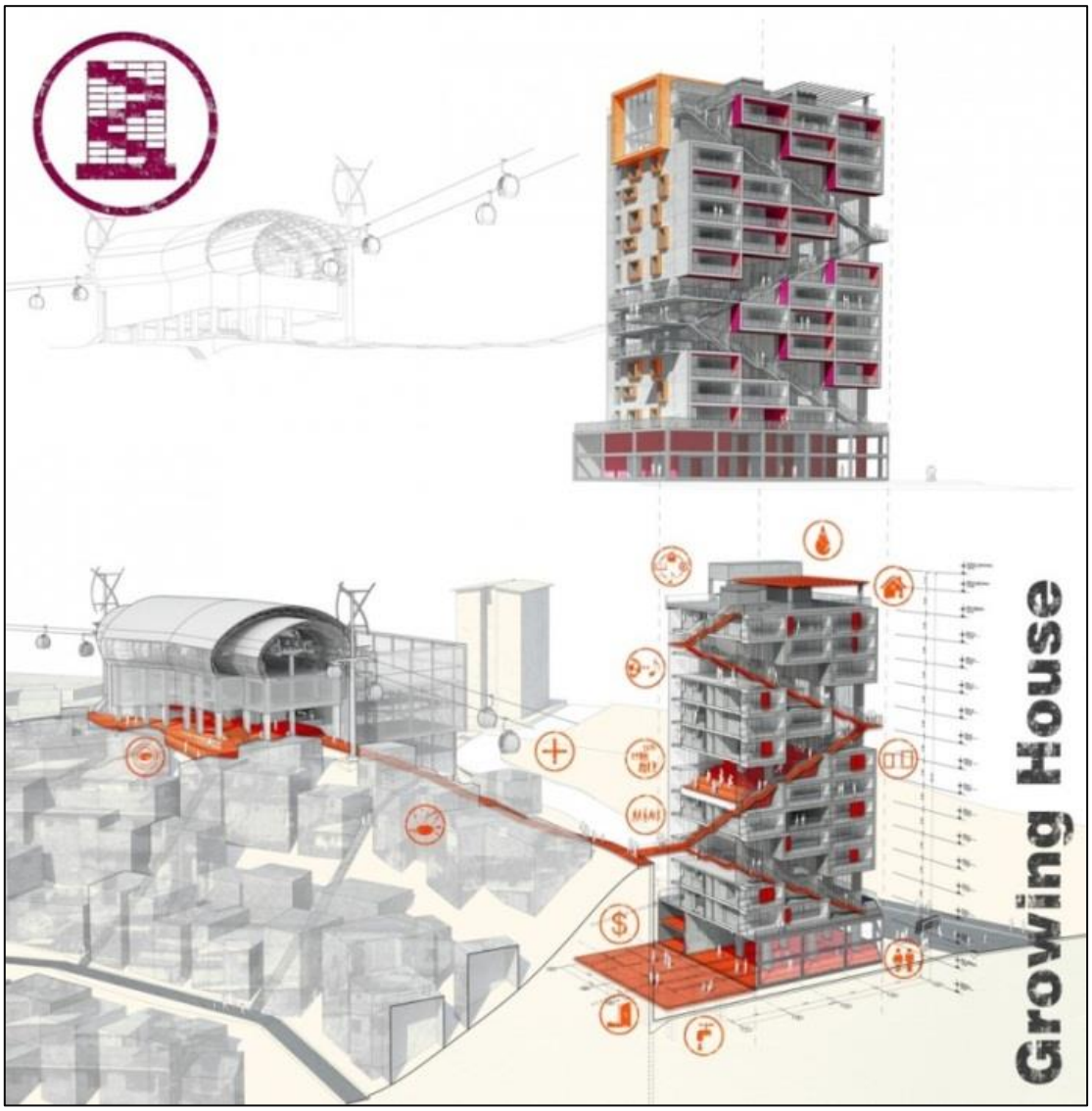

Illustration 5.3.4– Growing house that can grow vertically and horizontally and its part of the plug-in schemes linked to one of the stations. Source: www.plataformaarquitectura.cl

One of the plug-in programs (illustration 5.3.4) was implemented to bring back some of the people that were displaced during the development of the stations. The housing scheme was based on a 'growing house' concept and this is similar to the concept of emergence since the built form has the ability to adapt to future and foreseen needs of its inhabitants and the community and accommodate and facilitate them to a certain extent. The building can also grow vertically by expanding the frame structure and using a steel shelf-type system in between the floors. Each unit can also expand within the structure (vertically and horizontally) depending on the availability of the units next to it or above it. The built form and spatial layout of the structures of the social components were then designed to be flexible enough to accommodate for unforeseen future changes within the spontaneous urban fabric. The transport system would stay

formal and rigid in its use but the social component, addressing the social needs of the community, would be more dynamic and flexible in its use and built form definition (http://www.mascontext.com).

5.3.5 Conclusion

Much can be gleaned from this precedent study. This informal city has remarkable similarities in its historical development when compared to the post-colonial African and South African cities thus the lessons gained from this analysis can be (to a certain extent) directly applicable in the local South African context. The intervention itself illustrates that there is a lot to be gained by defining a new building typology with people in the informal context rather than for them and the social components (an idea implied by the barrios community) is one example of what can be achieved through community participation and something that can establish meaningful connection with the people over and above the ability to manipulate the physical aspects of the built form.

The design recognises the concept of emergence within the informal context and instead of proving a 'final' answer with the solution; they leave room for future interpretation of the use of the bases of the station and this provides a degree of flexibility to the stations. The initial built form was not necessarily generated from urban informality but due to its ability to be adapted by the community, the future configuration of it will be based on it. The concept of the plug-in program also adds to the flexibility of development since each program (future programs) can be changed suit the current needs of the community. The social components of the stations start to form a deeper more meaningful connection with the community which shows that the adaptability of the built form is not the only way a built form can connect with its inhabitants. The functions within that built form also have something that contributes towards the growth of the communities in the informal urban context.

CHAPTER SIX

CASE STUDIES

CHAPTER 6.0 CASE STUDIES

6.1 Introduction

Conducting a study into old and recently completed buildings with similar physical and social semi-informal or informal urban context is necessary to draw parallels between the historical development and definition of urban informality in the built form in the South African context. Rather than focusing on the end product, the case studies were also analysed on how the building and various infrastructure were implemented into their context as this is one of the most crucial aspects in creating new infrastructure that facilitate urban informality. The analysis of the processes before the final product also exposed whether the buildings were designed from the master plan or inclusive approach. Three different urban precincts/ buildings were picked from two different cities within South Africa and each study has its own selection criteria. This is done to see how varied approaches to the informal urban context inevitably offer different solutions or architectural built forms. Even though these studies are varied, they will come together to form a strong informed conclusion of how the built form within informal city should or should not be done in the South African context.

6.2 FORMALISATION OF THE INFORMAL: Johannesburg Metro Mall

Architect : Urban Solutions – Architects and Urban Designers

Client : Johannesburg Municipality

Construction date : 2003

6.2.1 Introduction and Justification

Metro Mall was developed to accommodate and facilitate two different orders within the same building. It had to facilitate the informal urban context that existed on the site before it was developed whilst creating a formal transport interchange and retail spaces for people moving in and out of the city. From this demanding brief, the built form had to find a balance between two (seemingly opposing) formal and informal orders. The research will then illustrate how the formal built form structure responded to the needs of the people in the informal urban context and whether it was informed (in any way) by the concepts discussed in the theoretical framework or any of the underlying principles that defined the informal context that existed before it was developed.

6.2.2 Location and Social Context

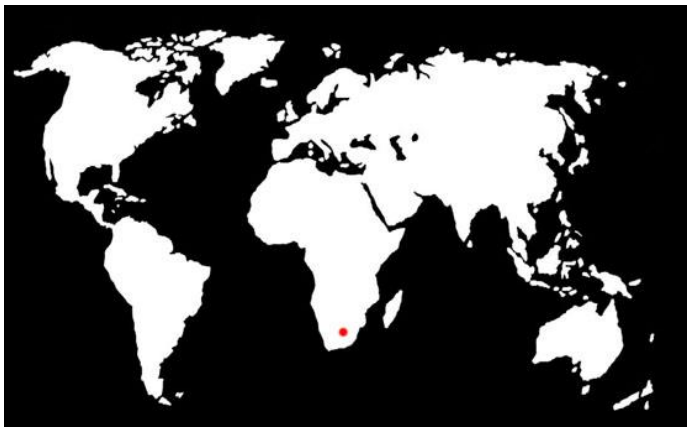

Illustration 6.2.1: Location of Newtown, Johannesburg, South Africa. Base Source: www.google.com/imghp.

The building is located in Newtown, Johannesburg, South Africa (refer to Illustration 6.2.1) which is close to the heart of Johannesburg CBD. Before the development (refer to Illustration 6.2.2), parcel B had a multi storey parkade and bus rank shelters and Parcel C also had a number of bus shelters but it also had an open bus and taxi rank. Both of these sites existed and served a purpose to its inhabitants.

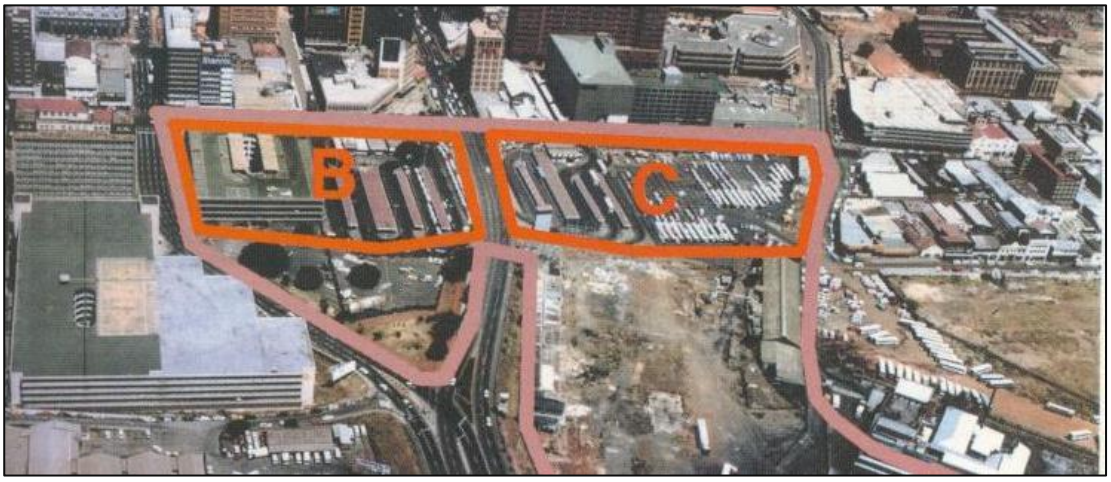

Illustration 6.2.2: Parcel and B before the development of Metro Mall. Source: Leading Architecture 2002: 41

The council then took steps develop the site to a trade-hub and formal transport interchange as the site was already being used (informally) for the same purposes (Leading Architecture 2002: 41). The scheme itself was part of an urban revitalisation and it was also part of a larger urban framework developed by the Johannesburg Development Association in partnership with Urban Solutions to link townships and other informal settlements to the city and each other. This meant that the built form had to find a balance between integrating itself with the formal context whilst facilitating the ‘informal’ activities that took place on the site before it was developed.

6.2.3 Mobilisation of power through an inclusive process

The architects (in partnership with others specialists) consulted the community during the design phase of the community to understand and incorporate the underlying principles that defined their informal urban context and the various tactics that they have adopted and developed to find a space for themselves within the formal city. By consulting the community, the urban design professionals discovered that the street was the most important part of the formal city that the informal traders could manipulate to suit their needs. "The design approach follows the character of the streets that accommodate 'informal traders'. The city is a network of movement corridors, traders take advantage of movement to sell their wares, spaces are contested especially along movement routes that are dense" (Paul Wijgers, 2013). This meant that whilst they meant to incorporate formal functions within the building and link the built form to its formal context, they also had to make sure that the building did not take away the important movement corridors that the informal traders were able to take advantage off.

6.2.4 Hybridizing the Underlying Principles with the Built Form

The new building had to connect to the formal city (since it was seen as a catalyst for urban renewal) whilst accommodating the informal traders and other activities that were identified as being essential in the running of transport facility. "Metro mall takes a design cue from the movement network of the streets and increases the number of routes between the city and the taxi areas in the heart of the complex, so it really makes more dense movement routes next to each other increasing the number of opportunities to trade." (Paul Wijgers, 2013). To achieve this, the building was based on a concept of layers (refer to Illustration 6.2.3) and the order of the layers (each one with different functions) were determined by the relationship between the site and its context.

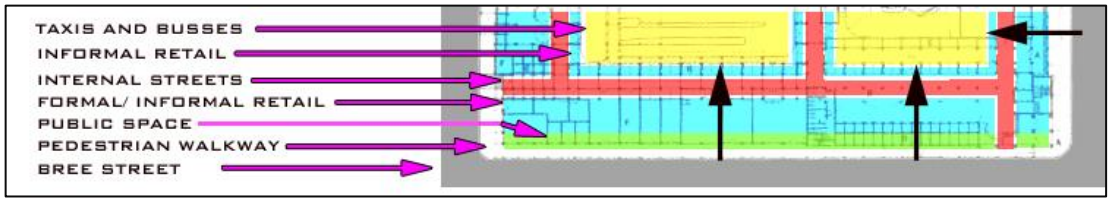

Illustration 6.2.3: The plan is layered with different functions from its external parameters to its core.
Base Source: Digest of South African Architecture 2003: 42

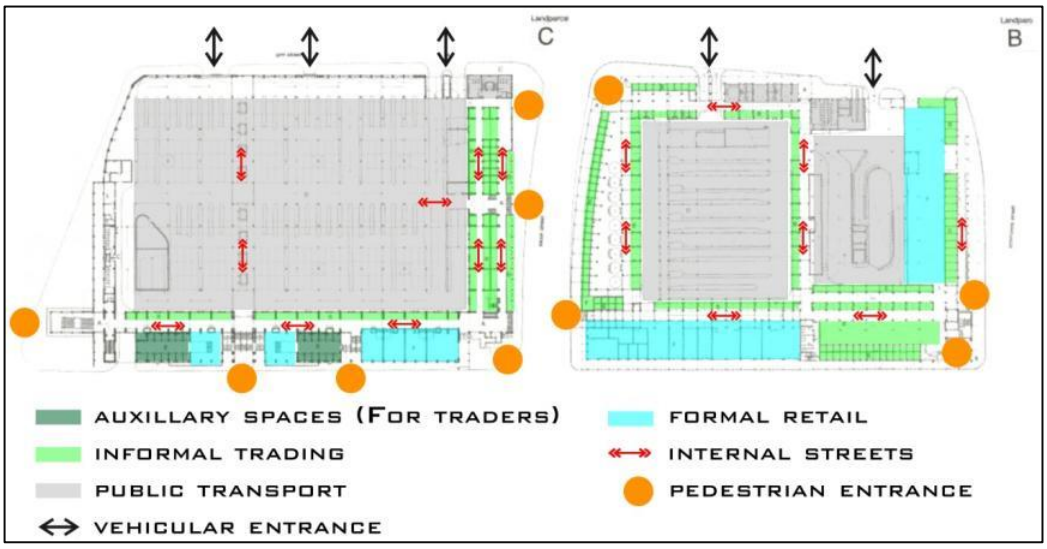

Illustration 6.2.4– The plan revolves around the principles on an internal street giving back the street edge the informal traders lost to the formal retail space in the internal layout. Base Source: Digest of South African Architecture 2003: 43

Informal traders depend on passing feet to sell their goods (as identified in the Warwick precinct) and the highest numbers of passing feet are experienced along the pedestrian or street edges. The designers than had to reintroduce the informal traders in a formal way that is in line with this idea. The solution (refer to Illustration 6.2.4) was to create an informal trading layer behind the formal retail stores and semi-informal trade stalls that is accessed directly from the 'internal streets' located within the building. This informal trading layer has open stalls that are defined by trader in terms of their use but they are formally defined by the built form in terms of their size. To promote pedestrian flow thus increasing the passing feet required by the informal traders, people come into the building from various pedestrian entrances along the pedestrian walkways (which form part of the city) they are then directed to move along internal streets to access the various forms of public transport and this movement works in both directions.

Transport facilities are located in the core of the building and this has benefits as it keeps the taxis away from the street edge thus reducing the traffic that might be caused by the ranking taxis. In the same way people in the informal context developed tactics to find new ways of linking and capacitating the existing formal city, the new facilities also took the same approach by incorporating an old four-storey parkade that existed on Parcel C into the new facilities. This might have been done as a cost saving exercise but this tactic illustrates that there are ways in which the same tactics that are

developed by people in the formal urban context that can be incorporated in defining a 'new' built form that will facilitate urban informality.

6.2.5 Support structure: a rigid formal structure

The incorporation of the principles that were developed by people that defined the informal context before the infrastructure was developed stopped at the planning phase. The configuration of the built form itself falls short of truly defining or generating a built form that is based on the principles of urban informality in the same way the planning of the facilities was done. This is mainly due to the fact that the architects and the various institutions that funded the building wanted to define a built form (refer to Illustration 6.2.5) that would "last forever" but in their pursuit of this goal many restrictions and strategies were imposed on the inhabitants of the building.

Illustration 6.2.5- The building's robust brick and concrete built form was built with the intentions of making it last 'forever'. Source: Google Earth-Street View

The layered planning of the building is achieved by creating different zones with related but separate functions and these spaces are defined with solid walls that limit the flow of space and pedestrian traffic from one section to the next thus limiting the integration of different spaces. This systematic progression from one space to the next also creates static environment within each zone that makes people working and utilizing each space feel confined and restricted. "*We have tried to open the trading stalls that are blocked off from the taxis but the municipality refused because they see*

*it as a fire risk to open up the trading places into the taxi rank facilities" (Metropolitan Trading Company: 2013).*Each person working in the facility is not allowed to own the cubicle of space they occupy and this limits the amount of changes that they could make to suit the way they want to trade (Refer to Illustration 6.2.6).

Illustration 6.2.6: Traders pay rent for each cubicle of space they occupy within the 'internal streets' but they have limited power over the built form in terms of the changed they can make. Source: (Left) Author.

These findings show that the built form itself was not designed to be flexible in any considerable way that would allow the people in charge of running the building to make changes to suit and adapt the building to any future unforeseen changes. All of these factors also create a built form that restricts the concept of emergence from taking place thus limiting the social and physical growth of the inhabitants of the building.

"Some of the ancillary spaces such as cooking mamas, hairdressing and wholesale market should be brought into the mainstream trading areas. There are always compromises, taxi requirements and small traders take precedence sometimes to the detriment of these other spaces. A greater mix of formal and 'informal' spaces would also be more desirable". (Paul Wijgers, 2013). The zoning of each space and defining

it with solid walls that allow minimal integration between the different zones also restricts the dynamic changes of placed based and cluster communities that can be formed naturally by the inhabitants. This means that if the relations between people neighbouring communities within the facilities break down (for whatever reason), there are limited opportunities for people to form new ones with other communities within the facility and this starts to create a fragmented social environment.

Offices and other ancillary spaces are located above the street level looking down onto the streets. By locating the offices on the top floor it gives the people that work in the office environment a private and more controlled environment away from the hustle and bustle of the more public facilities i.e. taxis rank and other facilities in the building. The people that run the facility feel that this formal way of structuring the different spaces that are perceived as being private and public isolates them from the people that work and utilise the facility (Metropolitan Trading Company: 2013). According to the Metropolitan Trading Company, they would have preferred to be in and amongst the traders and be part of the daily structure and witness the way the facility works first hand rather than relying on people coming up to them to point out what needs to be done to improve or maintain their facilities. This form of planning can be interpreted as a form of top-down planning structure (which is the usually convention of planning) where the people in charge are placed away from the people that are on the ground and this formal top-down structure delays the identification of potential problems or opportunities to improve the running of the facility and this hinders the ability of the company to streamline and enhance the efforts of the people that work in the Mall.

6.2.6 Conclusion

This case study has raised import critical issues such as ownership and the ability of the buildings inhabitants to manipulate their built environment. The designers of this building were assigned with a demanding brief. They had to find a balance between making the built form formal enough to link into its existing formal context whilst making it informal enough to accommodate the informal traders that occupied the site before the building was developed. Certain tactics that were developed by people that occupied the site were incorporated into the built form to hybridise the formal and informal orders but they only went as far as the planning phase. The support structure

itself favoured the formal order more than informality to a point that it imposed highly restrictive sanctions on the informal traders and this limited the way the inhabitants could apply their tactics of urban informality to generate built form that could work for them thus restricting the patterns of emergence. The restrictions imposed on the people went beyond the rigidity of the built form itself, certain governmental institutions put in place to govern the way infrastructure is configured in the urban context add to the red tape that restricts people in terms of they can and cannot do to manipulate their built environment. The building illustrates that it is possible to hybridise the underlying principles of urban informality with the built form (as they did with the planning of the facilities) but to achieve true hybridity, power given to the future inhabitants over the built form must not stop at the planning phase, the configuration of the built form (after its inception) must be able to empower people to create a responsive environment that can grow and adapt with them.

6.3 FORMALISATION OF THE INFORMAL: Baragwaneth Transport Facility

Architect : Urban Solutions – Architects and Urban Designers

Client : Johannesburg Municipality

Construction Period : 2003 - 2013

6.3.1 Introduction and Justification

The Baragwaneth transport facility (like Metro Mall) was developed to structure an informal taxi/bus rank and street trading facilities that existed on the site before it was developed. It will be used as case study to illustrate how the formal built form responded to the needs of the people in the informal urban context and whether it was influenced (in any way) by the principles that were informally developed by the people before it was developed. This building will also serve as a comparative case study to the Johannesburg Metro Mall to show it responded better to its context in comparison with the Mall.

6.3.2 Location and Social Context

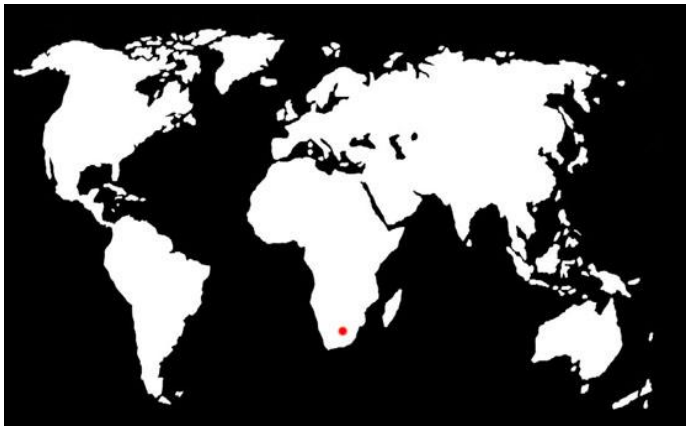

Illustration 6.3.1: Location of Soweto, Gauteng, South Africa. Base Source: www.google.com/imghp.

Bara (as it is informally known by its locals) is located in Soweto, Gauteng, South Africa (refer to Illustration 6.3.1). In the same way post-colonial informal African cities (discussed in the theoretical framework) were formed, Soweto originated in the apartheid era when people (mostly Africans), who moved into the city to pursue the economic opportunities the city of Johannesburg had to offer, were evicted by state authorities to the outskirts of the city. Soweto then became the main settlement and place of arrival for people from various parts of the country who were looking for jobs in the city (en.wikipedia.org/wiki/Soweto).

The transport facility itself started off as an informal bus drop-off and collection point for the Chris Hani hospital staff and patients in the 1940's. In its beginning stages, it was just a stop along the road and there were no taxis at that time. Over the years, taxis and informal traders moved in to form a major informal transport interchange that serviced of the commuters of Soweto. In 1994, Bara (like the Johannesburg Metro Mall) was identified by the government as part of an urban development framework to link the previously marginalised township of Soweto to Johannesburg's CBD (www.jda.org.za).

Illustration 6.3.2: Before the development of the Bara transport facility. Base Source: Google Earth

Before the inception of transport facility in the year 2000 (Illustration 6.3.2);

Phase 1 site – This site was undefined space that was linked to a private hospital along its northern edge.

Phase 2 site – Was an open air taxi rank with a tarmac surface with ablution facilities on the east. This site was linked with a cross-over bridge to the Chris Hani hospital to the south.

Phase 3 site - Out of all of the three, this was the most developed site. The site was a semi-informal covered taxi rank with informal traders. The reason for the site's extensive compared to the other two was that there were formal shops and business on the north of the site and this might have been seen as an opportunity to create an 'efficient' precinct where people would do their shopping in close proximity to the transport facility.

The existing building was then a direct response to the needs informally implied by the people of Soweto.

6.3.3 Mobilisation of power through an inclusive process:

In the same way Metro Mall was designed, Bara was designed through an inclusive process where the community was consulted during the design phase. The community expressed the same principles of capitalizing on the main circulation routes to sell their goods but the main difference between the two facilities was the way in which the infrastructure was implemented into its context. People who were informally working on the site were not completely displaced during the construction phase as this would have disrupted existing informal urban dynamics that they have developed over time and the informal activities that took place on this site sustained too many people's lives by generating income for them and their families. The answer was to phase the development. "Metro Mall was built as a single entity and Bara was built over a 6 year period with 12 or so phases." (Paul Wijgers, 2013). The added benefit of phasing the development instead of constructing with a blanket sweep approach, is that it allowed people that utilise the new facilities to grow accustom to the new built form and it also gives the designers flexibility to respond to some of the tactics developed by people in the previous phases and included them in future phases of the development.

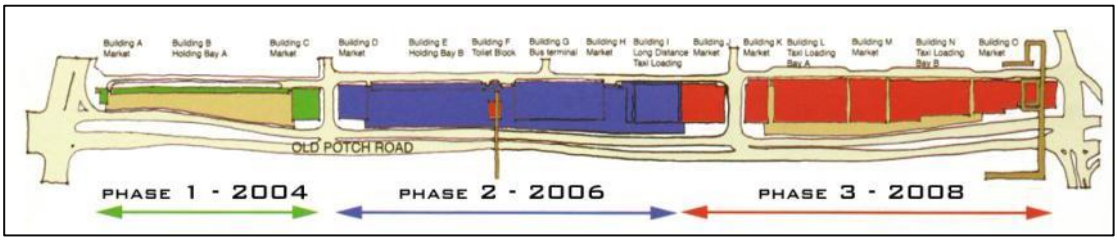

Illustration 6.3.3: Bara transport facility 3 main phases of development and each phase is divided into 3-6 6 phases. Source: Digest of South African Architecture 2009/2007: 44

To achieve this, Phase 1 of the development started with the site which was not utilised and then the construction proceeded to the final phase where they restructured the most utilised section of the site to the east (phase 3). After each phase, taxis, busses and the informal traders were moved to the completed phase so that they could start with the next phase (refer to Illustration 6.3.3).

This meticulous care illustrates the design and implementation of a built form in an informal context goes beyond the drawing board and the final built structure, there are

other processes that have to be taken into consideration during the construction and future development of the site that make sure that a new building (especially meant to facilitate urban informality) does not disturb the process that take place around it but it should grow within and with it.

6.3.4 Hybridizing the Underlying Principles with the Built Form

In the same way the 'internal streets' in Johannesburg Metro Mall are based on the ideas developed by the people to capitalise on movement corridors, Bara is also based on a similar concept that can be defined as the structural spine (refer to Illustration 6.3.4.1 and 6.3.4.2) that is continuous along the length of each building they all line up across the three sites. This spine forms the arcade that commuters walk along from one section to the next to access each site and since it is the main circulation route, some of the informal traders have set up their trading facilities along this route to capitalise on 'passing feet'.

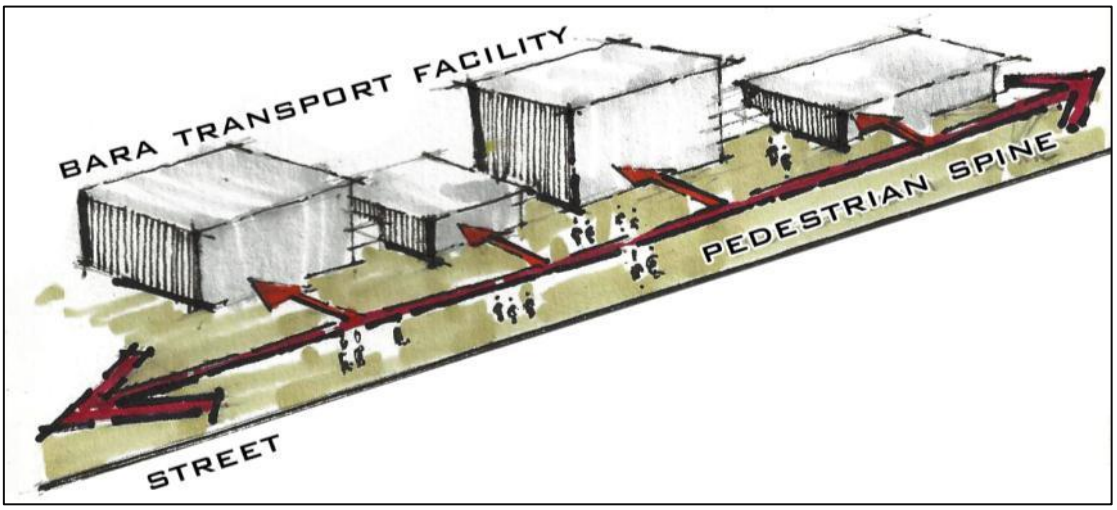

Illustration 6.3.4.1: The planning principles are based on a continuous structural spine that commuters walk along to access different sections of the building. Source: Author.

Illustration 6.3.4.2: The structural spine of the building as it stands. Source: Author

While the ‘structural spine’ concept and the integration of the informal traders within it might work, the idea of the different sections where the main traders are located are compartmentalised away from the main circulation spine (refer to illustration 24) go against the principles developed by the people and as a result of this, some of these spaces are not being fully utilised (refer to Illustration 6.3.5).

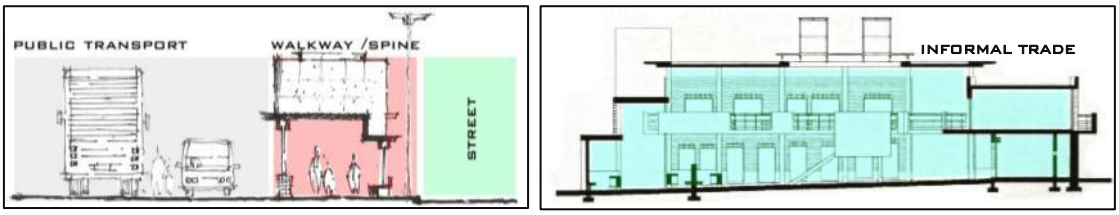

Illustration 6.3.5: The main informal traders (right) are isolated from the rest of the facilities (Left). Base source: (Left) Author, (Right) Digest of South African Architecture 2009/2007: 47

Illustration 6.3.6: These trading spaces are not being utilised because they are isolated away from the structural spine. Source: Author.

Traders have recognised this lack of integration between them and the commuters thus they have moved in and around the walkways and structural spines that connect the different buildings. As a result of this most of the walkways have become the most contested spaces in the facilities and commuters have to navigate through the extra ‘unintended’ traders that occupy the circulation space (Metropolitan Trading Company, 2013).

Other traders that cannot afford to rent any of the trading stalls have also developed tactics to claim the left over space that is completely cut off from the rest of the building to capitalise on the pedestrians on the street (refer to Illustration 6.3.7).

Illustration 6.3.7– Traders claiming the circulation and left of over space in and around the transport facility. Source: Nonkululeko 2010:51

"Open spaces at the nodes and along movement routes are what make Bara more flexible, trading layouts changed as each phase was completed. I am sure trading layouts still change as traders require more or less space… this could be addressed in following phases." (Paul Wijgers, 2013). The phasing of the facility will allow the designers to take this lack of integration of people with the built form and address it in future phases of the development. By doing it shows that there is significant collaboration between the people on the ground and the people in power to change the built environment for the better.

6.3.5 Support structure: an indeterminate built form

Bara's built form is another main difference between the two case studies. They might be built from the same robust materials (refer to Illustration 6.3.8) but Bara's built form is not too restrictive in its definition.

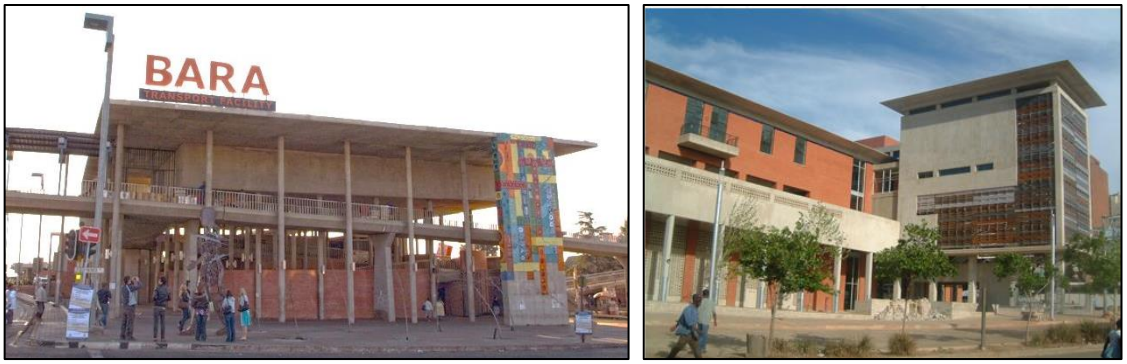

Illustration 6.3.8: Bara and Metro Mall use the same materials to define the built form but Bara's built form is indeterminate and allows some adaptation whilst Metro Mall's built form too restrictive and formal. Source: Author

This is evident in some of the ways people have adapted the building to suit their needs. People utilising the open stalls (originally supplied with roller shutters as a form of security) are now adding glass fronts to create more formal shops. These 'new' interventions conceived by the store owners have been very successful to a point that there are plans to transform the abandoned spaces located on the first floors of the trading pods into formal retail shop similar to the one created by the people (Metropolitan Trading Company, 2013) . Some of these new formal retail areas share the same stalls as the informal traders and the usual agreement is the informal traders selling sweets, fruits and vegetable and other small goods that can be acquired on the move, prefer trading outside since all they need is a table and a form of shelter and the shop owners (seen as go-to destinations) need internalised space to put up shelves and anything else that cannot be freestanding to display their products (Metropolitan Trading Company, 2013). These processes show that the built form is adaptable and a certain level of freedom is given to the traders which allows placed based and cluster of communities to develop informally to strengthened the bonds between the traders and this allows them to come together to pursue a shared enterprise or goal.

6.3.6 Conclusion

This building illustrates the concept of strategy and tactics but instead of relying on people to develop tactics to and adapt themselves to strategies imposed on them, the built form (through its phasing process) is also able to develop its own tactics to respond to the strategies imposed on it by people within the informal urban context. This process the starts to define a built form that has achieved true hybridisation since the two orders continuously learn from each other during their existence. This also means that the built form is indirectly generated by the underlying principles developed by the people since each phase of the building is designed to be configured to suit their tactics. Phasing the construction of the built form also starts to facilitate the concept of emergence where the building learns, grows and adapts with the dynamic changes in its context and this would not be possible if the structure is built as a single entity like the Johannesburg Metro Mall. This process also takes into account that people in the informal context do not have enough social capital to constantly modify their built environment so the agents in a position to mobilise power have developed an indeterminate built form that they would modify based on the tactics and principles developed by people in the informal urban context.

6.4 ORGANISED COMPLEXITY – LESSONS FROM AN INFORMAL CITY: Warwick Junction Precinct

6.4.1 Introduction and Justification

The precinct is located 2km outside Durban's 'formal' CBD (refer to Illustration 6.4.1). It is often dubbed as a city within a city due to it physical disconnection from the traditional CBD caused by the railway lines running between it and the main part of the city and the unique informal identity that the precinct has developed over the years.

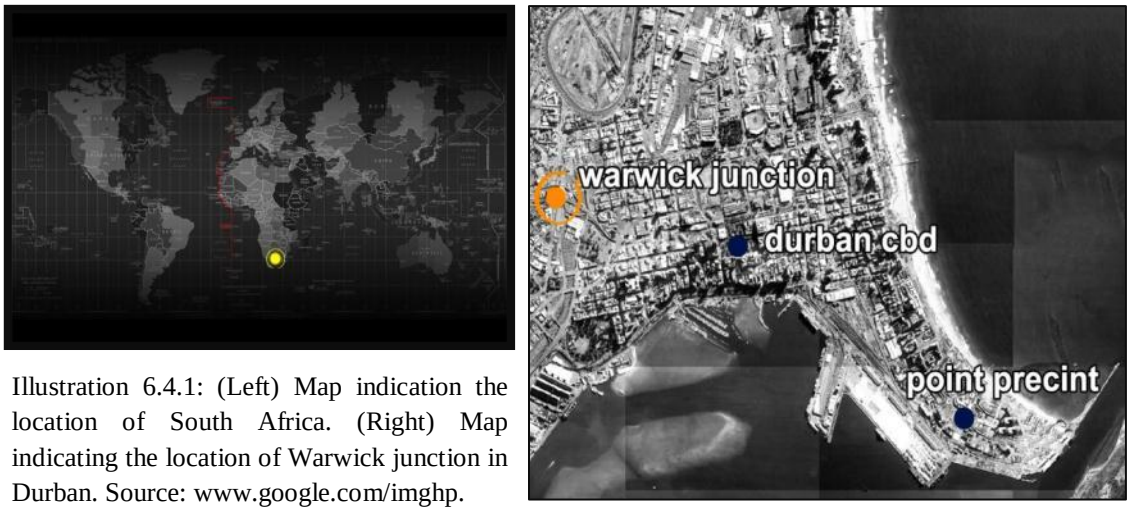

Illustration 6.4.1: (Left) Map indication the location of South Africa. (Right) Map indicating the location of Warwick junction in Durban. Source: www.google.com/imghp.

The precinct acts as an urban interface between the CBD and many township located on the outskirts of the city in the same way the African cities discussed in the theoretical framework do. The precinct also it acts as the city's main public transport interchange and it is considered to be very important in the historical development of Durban's CDB. It is the main public transport precinct located within the city of Durban with a large number of taxis and buses. Even though it serves as a public transport intermodal, Warwick junction is mainly known for its informal trade thus it is often dubbed as "the informal city".

"Without the proper understanding of the way people use tactics to adapt themselves in the urban environment that is imposed on them; spatial consumption in urban practices and the sub sequent interventions will be misinterpreted" (Certeau, 1988:25). This strategy will also give a better understanding of how an informal

precinct wants to be defined (in the built form) to facilitate the underlying principles of urban informality.

The analysis of the case study will also include the people on the ground in their "natural" environment defined by them before analising the buildings designed by urban design professionals. This strategy will give the research a better understanding of who defines the informal or formal adaptations to the built form of the structures that exists in the informal urban context and how they generate a 'new' built form based on the principles they define.. It will also illustrate the applicability of the principles that define urban informality discussed in the theoretical framework within the South African context.

6.4.2 Historical Context

After the colonial city of Durban was established, the first Indian migrants arrived in November 1860 as indentured labourers, to work in what was then known as the Natal Colony. The Indian community continued to grow and acquire more land along Grey Street to conduct their trade and build residential and religious buildings. This growing community also attracted other marginalised groups to come and trade within the precinct (KZNI Journal, 2012:11).

The precinct then started becoming the central hub for formal and informal trade in buildings and along the pavements to such an extent that the local authorities introduced new laws to stop the community from growing any further under the Apartheid era in the 1950's (KZNI Journal, 2012:12). The majority of the Warwick precinct was then rezoned and declared a white area under the Groups areas act (which segregated the people based on their skin colour) leaving very little land for the other racial groups to conduct their trade excluding land that was already under the control of the Indian community. Around this time the small available land in the informal precinct also started becoming a central transport node for people that worked in the city but lived on the outskirts of the city. As the laws became tighter informal trade became more difficult to a point that the local authorities banned it from the city in the 1960's (except from the established informal trading zones similar to the Early Morning Market). The local authority later reinstated it (due to persistent protests) in the 1970's (KZNI Journal, 2012:13).

In 1990, following the relaxation of the laws that governed informal trading and the relaxation of the apartheid laws, 4000 street traders moved into the precinct. The public transport section also grew to a point that the Warwick precinct had serious congestion problems and was in danger of being declared as a slum. When the country eventually moved into democracy from 1990, groups and organisations were formed to regulate and restructure the informal precinct to what it is today (KZNI Journal, 2012:13).

6.4.3 Social context

To understand this precinct, it is important to know the people (the daily commuters and traders) that live and work in Warwick junction from the bottom-up because it is ultimately them that define the social and (to a certain extent) physical state of this informal city.

6.4.3.1 The daily commuters

Warwick junction is often defined as the city for the poor by the poor (which is not always the case) because it mainly caters for people that live outside of Durban's CBD, usually in rural areas and townships located in the outskirts of the city, some as far as 60km away. According the interviews that were conducted, most of the people that utilise this precinct see this place a part of their journey and not their destination, it is a place (which is very significant in their daily lives) that they have to go through from point 'A' in order to get to point 'B'. Only a handful of people come to the city to go to Warwick junction, this group of people usually come to the market traders for specific goods like traditional medicine or fresh fruits and vegetables. This description of Warwick junction by the people gives the place a 'temporal characteristic' as it is seen as a place that is used only in passing. Since Warwick junction (as a precinct) is mainly developed to serve the people who go through it every day, everything from the street traders to the urban interventions that are meant to aid the street traders, on some level respond to this 'temporal characteristic' as the research will illustrate with specific examples.

6.4.3.2 Traders

The various forms of transport might be the reason Warwick junction operates but it is the street traders that give this precinct its identity and they are the ones who 'run' it on a daily basis. Before extensive urban interventions (post 1995) were implemented, trade in this precinct was informal with no 'logical' structure that could be easily identified by the people utilising the space on a daily basis, but now warwick Junctions currently has 8000 street traders (men and women) that provide different forms of trade for different people (Tasmi, 2013). Trade ranges from fresh goods like fruits and vegetable to traditional herbal medicines. Different types of traders, trade in different places (Refer to Illustration 38).

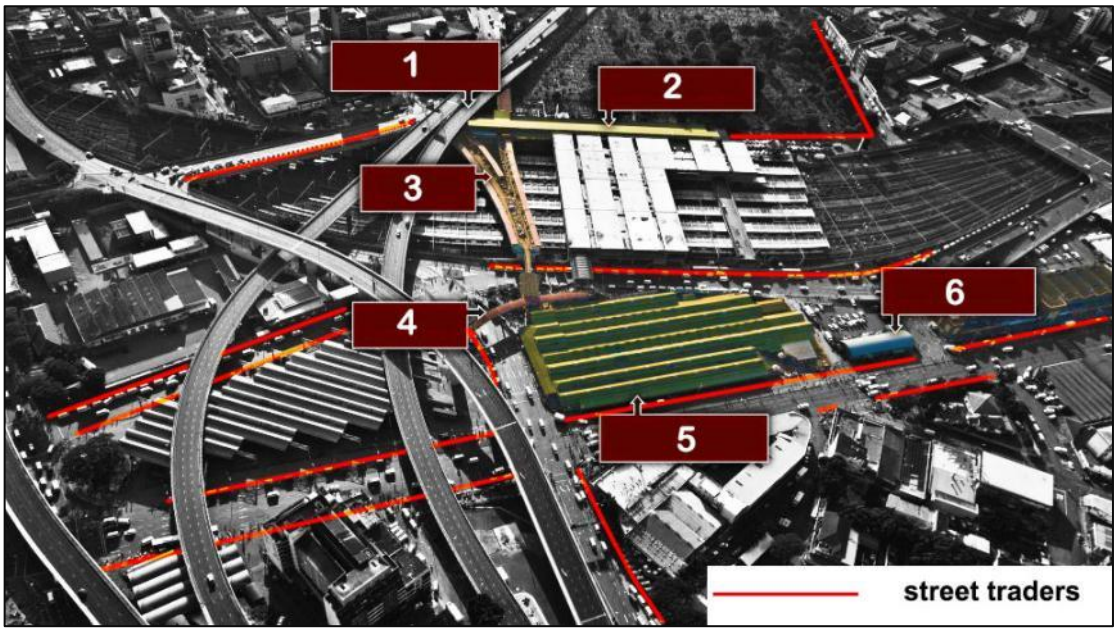

Illustration 6.4.2- Warwick junction's different trading locations, 1. Imphepho & Lime Market (traditional medicine, beneath the fly overs), 2. Brook Street (clothing) Market, 3. Herbal Market, 4. Aerial Market, 5. Early Morning Market (fresh fruits and vegetables), 6. Bovine Head Market (meat). Base Source: assets.designother90.org

6.4.4 Underlying Principles of Urban Informality within the Precinct

To capitalise on the constant flow of people, the formal and informal street traders have created different indeterminate trade platforms that react to different types of dynamic movement patterns.

There are different types of platforms for trade and the selection of each one (by the trader) depends on the trader's need and ability to pay for the utilisation of the space (Tasmi, 2013). Each form of trade site also defines the infrastructure (built form) that the traders trades from (refer to Illustration 6.4.3).

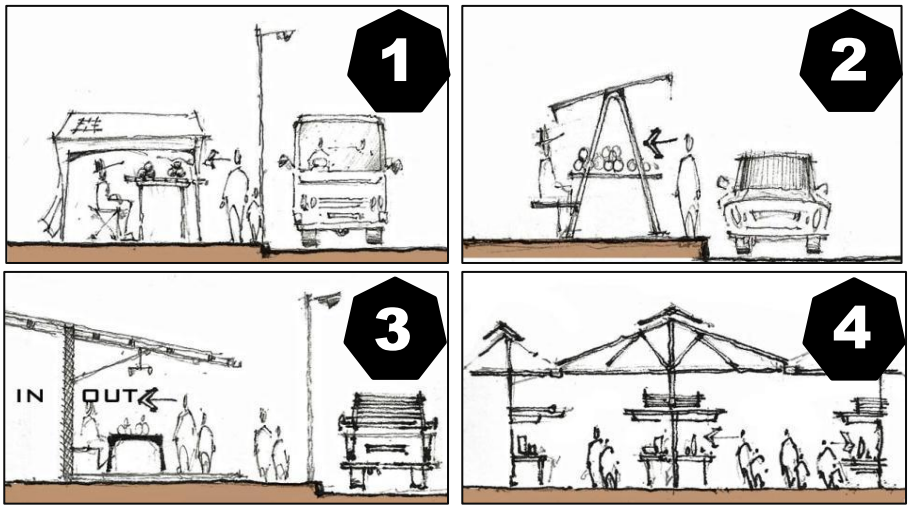

Illustration 6.4.3. Street trade: Self built shelter, 2. Street trade: Prefabricated 'formal' shelter, 3. Street trade: Under 'formal' infrastructure' 4. Formalised Trade: Located internally under formal shelter. Source: Author

1. Street trade: Self built shelter – This is the most basic form of shelter in the precinct. The traders are usually given a designated spot on the side of the road. Traders then erect their own structure (table, shelter or both) to sell their goods. The built form of the shelter is usually temporal in nature defined by a frame tent structure that can be erected at the start of the day and packed up in the afternoon.

2. Street trade: Prefabricated 'formal' shelter – This is similar to the self-built shelter in that they are given a designated spot on the side of the road but the only difference is that the framed shelter (supplied by the municipality) is permanently fixed but the traders (due to the design faults and the lack of communication between the designers and the end-user) often make modifications to improve the fixed shelter to suit their trading needs.

3. Street trade: Under 'formal' infrastructure – this form of shelter is rare in the precinct. These are unintended trading typologies invented by the traders who capitalized of the generous roof overhangs that were meant as covered walkways around some of the 'formal' trading facilities.

4. Formalised Trade: Located internally under formal shelter – this is considered as the most formal form of informal trade compared to the other trading platforms.

Traders in this platform are usually housed in designated formal framed buildings and have basic services i.e. water, electricity and ablutions. The formal structure acts a giant ‘umbrella’ that houses numerous enclosed framed ‘mini’ buildings that belong to one permanent owner, similar to trading platform 2 but more secure.

All of these trading platforms might be categorized under different typologies but most of the built forms follow the same principles to respond and interact with the daily commuters

1. All of the platforms recognise that the people (described as the end-users) are always on the move thus they open up onto the people where they move. Only specialist traders that have regular clients have enclosed trade stalls located out of the way of ‘passing feet’.

2. Most of the structures are steel framed buildings. This is mainly caused by the fact that it is cheaper and faster to erect prefabricated framed buildings than it is to build load bearing buildings and this system requires minimal social capital to set up (Tasmi, 2013). This might be seen as a money saving tactic but it has some benefits in that it increases the flexibility of the trade. By erecting a skeletal support structure, partitions or ‘in-fills’ can be erected or taken down depending on the needs of the traders and the demands of the end-user thus it creates a responsive built form rather than a static, rigid formal structure. This skeletal support structure enables the concept of emergence since the traders can ‘clip-on’ additional support structures as the grow and find their feet within the precinct.

The research will now use Mount Etna to illustrate the different *strategies and tactics* (as define under concepts and theories) people tap into to adapt or adapt to the built form (strategy) imposed on them. *To seek for “unaverage” clues involving very small quantities, which reveal the way larger and more “average” quantities are operate* (Jacobs, 1971:442). To know how the bigger picture works, it is important to pin-point clues that aid the process.

6.4.5 MOUNT ENTA: Informal Adaptation of a Formal Built Form

Location: Durban, South Africa

Date of first completion: 1955

Mount Etna is located in the heart of the informal trade section of the precinct. The building is flanked by two motorways going in and out of the building.

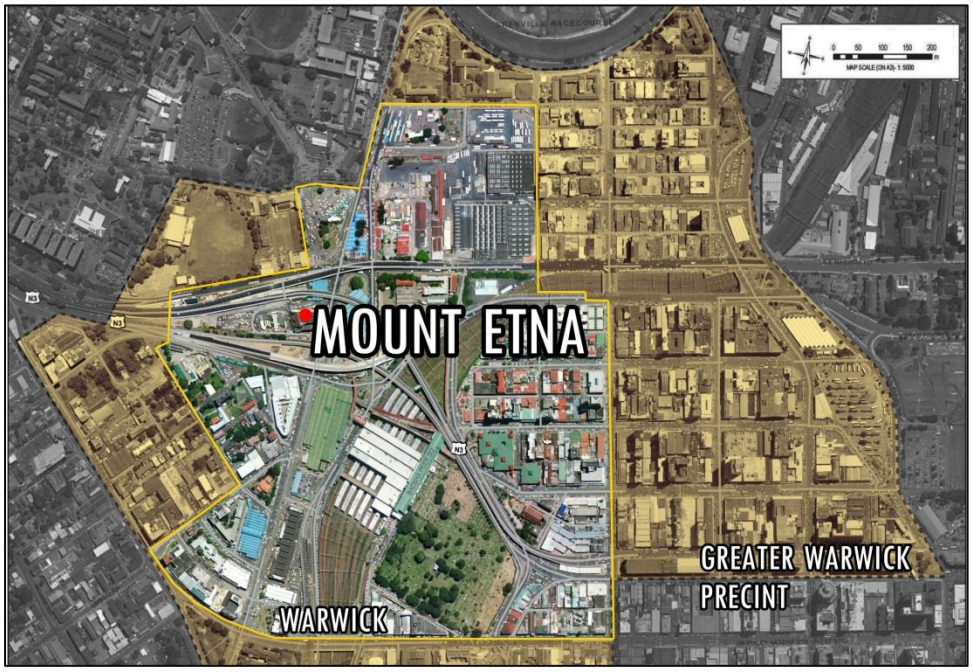

Illustration 6.4.5.1– Mount Etna location within the Warwick precinct. Base Source: Google Earth

6.4.5.1 Justification of case study

Mount Etna might not be one of the most celebrated architectural works and it can be considered as an ordinary building adapted for extra-ordinary means that exists to serve its function in the most economical way but due to the changes in its context (from formal to informal) and the changes that have happen around, in and on it, the building has experienced some significant changes that might give the research some insight of how a formal built form structure which was not intended (in any way, shape or form) to be part of the informal precinct has been modified to suit its new context. This study illustrates one of the critical aspects of the strategy and tactics concept by Michel de Certeau where he puts forwards an argument that without the proper understanding of the way people use tactics to adapt themselves and the physical aspects of their surroundings in the urban environment that is imposed on them; spatial consumption in urban practices and the sub sequent interventions will be misinterpreted (Certeau, 1988:25).

6.4.5.2 Historical origins

The building was completed around 1955 and at that time the building was still part of the formal residential grid and it was developed as a mixed-use building with formal retail space on the ground and first floor and residential units above. Due to the changes around it (refer to Illustration 48) i.e. new land use zoning and additional roads and freeways going in and out of the CBD, the building was cut off from its original context and the spaces around it changed to a point that the only 'active' edge was the one facing the Warwick precinct to the east (refer to Illustration 49).

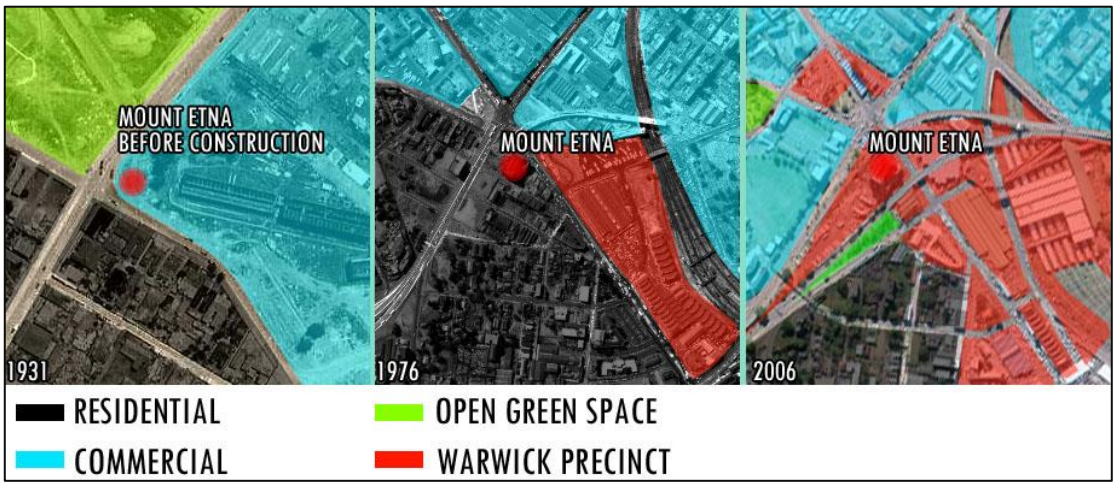

Illustration 6.4.5.2- The context around Mount Etna has change dramatically from its original setting. It started off as part of a residential setting and now it is part of the Warwick precinct. Base Source: Google Earth.

6.4.5.3 Strategy and Tactics

The people who own the building had to develop tactics to respond to the new informal urban context the building is located in. The developers realized the building was too restrictive in terms of its formal layout i.e. the external and internal retail shops were too restrictive and inaccessible to the general public that now live and work in Warwick junction. From the understanding of the information gathered in the analysis of the precinct, people in the precinct prefer to deal with traders on street or formal retail that opens up directly onto the street. Having seen this, the owners of the building (through some sort of consultation with construction professionals) developed a new clip-on addition to the original Mount Etna building.

The new 3-storey (Illustration 51) addition to the building is directly accessible from street via galvanised steel stairs and this configuration of the stalls is more visible to the pedestrian since there are no physical barriers between them (the store owners) and the pedestrians. Due to the elevated positioning of the new stalls the type of shops that move into the new addition (mostly hair salons) are go to destinations. The reason for this that the more elevated or inaccessible the shops are the less likely the people on the street will consider making the effort to go to the traders or shops thus the more specialised the shops become since they know they have a specific clientele that will come to them (Dobson, 2013).

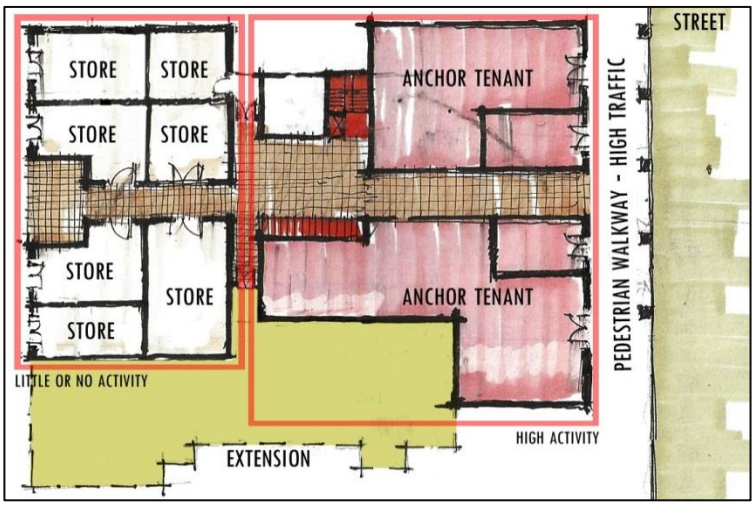

Illustration 6.4.5.3: Original Mount Etna plan with recent extension. Source: Author

Illustration 6.4.5.4: Original building (left). Recent 3-storey extension that was done to adapt the formal building to its informal context (right). Source: Author

6.4.6 Conclusion

From the historical origins of the context, it can be understood that the informal urban context was established by ordinary people who were seeking to create a context that would allow them to gain some sort of capital to sustain their lives and to form a place that would respond to their social needs since they were socially and physically excluded from the formal city in the apartheid era. All of the following processes that would go on to define the underlying principles of urban informality within the context were based on these main common interests of the community. These processes were not developed over night by one elite brain, instead, they were formed through a process of emergence where it was more of a case of trial and error and they also did not develop in isolation. As the context grew from a market place that had informal stands and people standing in 'random' places to form the city's main public transport node, people within the context responded to that by changing and developing structures that would capitalise on the 'passing' feet by creating skeletal built form support structures that could change in their use depending on what the commuters need and this was only possible due to the indeterminate nature of the structures (Tasmi, 2013).

The indeterminate framed support structures were (and are) developed in different ways, some were formed through an inclusive participation processes with the elites and some are formed by ordinary people who find new ways to link and capacitate exiting formal structures established by elites within the precinct. The support structures not only facilitate the trade of goods they are also capable of being adapted to accommodate cultural events and placed based communities that come together in communities of clusters to form informal networks that strive towards one common goal and the Brook Street Market, located in the precinct, is one those structures that can do that. Above all, this case study shows that the only possible way to enable urban informality to generate meaningful built form is by setting up a 'skeletal' support structure and let the people decide what they want to do with it. It is important to note that people within the informal context have limited social capital to do this, so the support structure should make the adaptation processes simple and cost effective. It is also important to have a group of people that are able to oversee and constructively help the clusters of communities to streamline and enhance their efforts to achieve their goals in the same way the team of *Asiye eTafuleni* does.

CHAPTER SEVEN

CONCLUSION AND RECOMMENDATIONS

CHAPTER 7 - CONCLUSION AND RECOMMENDATIONS:

7.1 Introduction

The research has presented various chapters with primary and secondary data that outlined various theories and concepts and each chapter presented conclusions based on those findings. These findings had a significant impact on the resolution of various parts of the research problem that supported the hypothesis but, so far, they have been discussed under separate but interrelated parts. This chapter then seeks to show how the research findings discussed in the previous chapters come together to form one body of work that systematically answers the main and sub questions while proving the hypothesis during the process.

7.2 Conclusion and Recommendations

The research was undertaken because it saw that urban design professionals (and other specialists in related fields) have incorrectly adopted 'western norms' to define a formal built form within the South African, African context without a proper understanding of the social and physical dynamics that shape and define urban informality in the informal urban context that facilitates this process. The research then sought to bridge the gap between built form making and the lived realities in the informal urban context. With these issues at hand, the main question posed in this research was to determine how urban informality can be used to generate an appropriate and meaningful built form within the informal urban context.

To answer the main question, the main objectives were to uncover the underlying principles that define urban informality and use them to generate an appropriate built form. This entailed investigating the historical origins of urban informality and this process revealed that it was originally established by the urban poor and marginalised groups of people that pursued to sustain their livelihoods since they were physically and socially excluded from the formal city during the apartheid era. In the process of settling together to sustain their livelihoods they slowly developed norms that were implied informally; widely sanctioned; and frequently invoked and used in interaction rituals, and daily routines. These norms went on to define the three main principles that determine how urban informality works.

The first one was the socio-economic principle and this determines the ability of the people to invest in and modify their built environment to make suit their needs by using their social capital. But due to the unstable nature of their economy and the limited resources at their disposal, the built form should not impose strategies that would require unnecessary upkeep and the only way people can invest in their built environment is if they are supplied with a sound 'foundation' that they could build on and manipulate to make it suite their everyday lives and context.

The second principle was the concept of emergence which illustrated that urban informality and the informal urban context that facilitates it are always under constant evolution. This evolution process is not determined by one elite brain, instead, it is developed by the community in the informal urban context to react to unforeseen problems and opportunities that present themselves. This means that there is no certain formula that can determine the future states of urban informality and this suggests that the built form must be configured as an architecture of 'possibilities' which implies its intended current use but flexible enough to be transformed to accommodate the future states of urban informality.

The third and final principle, defined as the principle of a culture of urban informality, suggested the social dynamics which determines the way people in the informal urban context interact with each other to sustain and develop new tactics that define how urban informality works and how they react to the strategies imposed on them by the elites. This principle suggested that people form unique and dynamic relationships in clusters of communities that come together to help each other reach to achieve a certain goal. These clusters of communities do not exist in isolation but they form intricate networks where one community depends on another for their survival. This principle starts to generate a built form that defines a network of spaces that flow into each other to form separate but interrelated sections which promote the formation of these networks rather defining capsules of spaces that isolate one community from another which might restrict their growth.

All of these principles of urban informality come together to generate an indeterminate built form that is able to be adapted by its in habitants to suit the future forms of urban informality and the informal urban context that facilitates it thus

proving the hypothesis the research is based on. The indeterminate built form, defined as a system of supports and detachable 'units', suits all of the underlying principles of urban informality. It provides the required 'foundation' or initial 'unit' for people in the informal urban context to manipulate to suit their context and needs. The built form is loosely defined enough to suggest its intended use but it can also, to a certain extent, be manipulated to suit unforeseen changes in its context within its defined edge nodes. The ability to 'detach' a unit and replace it with a new one also gives the people who inhabit the built form a certain sense of freedom to defined the built form in a way that facilitates and enhances the way they interact and form social networks.

These research findings have outlined a framework that could be used by urban designers and architects to generate meaningful built form within the informal urban context they are located in but this framework was not meant to serve as a master plan that could be applied everywhere in isolation since the underlying principles of urban informality and the indeterminate built form they generate discussed so far define how these processes work from a global perspective. Urban design professionals and architects have to implement built forms that satisfy the needs of people in their specific context and this can only be achieved if the power the 'elites' have on the configuration of the built form is mediated through an interpretive process that includes the people that define urban informality from the bottom-up. This process, defined as community participation, empowers the people within a specific context to influence the way they want the configuration of the built form to be done to facilitate their form of urban informality. This strategy also has the benefit of making sure that whatever built form is generated, will be of some value and meaning for people in the informal urban context since they are given the opportunity to impose tactics they have developed in the configuration of the built form from its inception.

Precedent and case studies undertaken revealed a number of different ways these principles have been applied in the local South African context to form an indeterminate built form. The Johannesburg Metro Mall, illustrated that it is possible to hybridise the underlying principles that define urban informality in the informal urban context that existed before it was developed by adopting the idea developed by the people to use the street as a generator of capital and hybridising it with its layout to form internal streets in the building but it also showed that for the built form to

truly be hybridised with these principles, a certain level of ownership must be given to the inhabitants of a building to give them the ability to make changes to the built form that suit them as it was illustrated with the MÉMÉ medical faculty housing precedent study. The Baragwaneth taxi rank proved that is feasible to build an indeterminate built form in the South African context by planning it in phases and basing the construction of the future phases of the built form on the tactics developed by the people before it. This process also allows the concept of emergence and evolution of urban culture to take place without hindering it but this was only possible because the people in power recognised that people in Soweto did not have enough social capital to carry out extensive modifications to the support to suit their needs and this process was similar to the one applied to the Metro Cable precedent study. This formed a participatory built form where everyone has some significant power to influence the configuration of the built form. Warwick junction proved that most of the material discussed in the theoretical framework from the global perspective is applicable in the South Africa context by illustrating how the various processes take place within the context. It also illustrates the importance of having an NGO that works with the people through community participation to streamline and enhance the efforts of the people to achieve a specific goal. NGO's also make sure that the freedom of one person to manipulate their built environment does not negatively impact on the freedom of another.

Urban informality at the end of the day should not be seen as the end result with a definite ending but it should be defined as a never ending transforming process that reinvents itself and the way people within it live. The built form also has to reflect these processes for it to work and be deemed meaningful by its inhabitants in their everyday lives.

7.3 Conclusion

The recommendations discussed above are meant to aid urban design professionals to create built environments that reflect people's needs instead of creating built environments that reflect their visions which only cater for a select few. These research findings will also be used to develop a design brief that will lead towards the conception of a multi-purpose trade hub for Durban, South Africa.

CHAPTER EIGHT

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CHAPTER 8.0 BIBLIOGRAPHY

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APPENDICES

JOHANESSBURG METRO MALL INTERVIEWS

INTERVIEW SCHEDULE

Code Name of Person Interviewed: Metro Mall Staff

Position Held: Managing staff of Metropolitan trading company

Gender: Female

1. How long have you been working/living here?

1.5 years

2. How many times do the average traders change their location within the facility?

- Once – every 2 years
- Twice
- More than three times
- It varies a lot – some stay here for less than 2 months because they cannot manage to pay for their stalls and some last for years. The ones that last for years are usually the women that cook food bought by the taxi drivers, They usually form a strong relationship with the taxi drivers with each group of taxi drivers having their own preference of food

3. Since you've been here, have you seen any new structures or projects that have been erected? If "Yes", did the people doing those projects approach you or anyone in this area that you know off?

- No
- Yes – They has been some work done by the municipality across the street opposite from this building. I think it is an open air taxi rank of some sort built to accommodate the taxis that cannot be accommodating within these facilities.

4. Do you feel the building caters for the needs of the informal traders?

- No
- Yes
- Yes and No – The building certainly caters for the traders but if you walk around the building they some of the traders are separated from

the taxis and those that are open to the taxis are placed far away. This has decreased the people that might be able to buy stuff from the traders while they are waiting for a taxi. The people are in a rush when they get here into the city, they do not have time walk around looking traders to buy stuff from.

5. Are there any modifications that to the building the traders have made since they've been here? If "yes" what were the reasons for doing so?
    - No
    - Yes – Some of the people have used the spaces provided for them to conduct their trade as storage and they prefer to trade outside. We have also tried to open the trading stalls that are blocked off from the taxis but the municipality refused because the see it as a fire risk to open up the trading places into the taxi rank facilities.

6. Has anyone doing something similar to this research ever approached you or any one that you know?
    - No – only students doing research of this nature have approached me.
    - Yes

7. How would you rate the place you are in on a scale of 1 to 5 (ten being the best),
    - 1
    - 2
    - 3.5 – The passages are giving up maintenance problems because we have to replace the lights every time they get broken and the pavement around the building especially along Bree street cannot handle the number of people that walk on it and as a result it is sinking and creating pot holes.
    - 4
    - 5

Thank You For your time

Mongezi Ncube

B.Arch. / Masters Student in Architecture 2013

INTERVIEW SCHEDULE

Name of Person Interviewed: Paul Wijgers

Position Held: One of the urban design professionals involved in the makings of the facility

Gender: Male

1. What was your design approach to formalising the previously informal street trade that existed before Metro Mall was developed?

The design approach follows the character of the streets that accommodate 'informal traders'. The city is a network of movement corridors, traders take advantage of movement to sell their wares, and spaces are contested especially along movement routes that are dense. Metro mall takes a design cue from the movement network of the streets and increases the number of routes between the city and the taxi areas in the heart of the complex, so it really makes more dense movement routes next to each other increasing the number of opportunities to trade,

2. Is there anything new that you introduced in the design of the transport facility that you felt was lacking in similar building typologies across South Africa? If yes, please explain.

All spaces are treated as business opportunities for traders and entrepreneurs. Toilets, storage, public facilities are all trade opportunities. A variety of trading spaces cater for all types of traders. Small lock up bins cater for start-ups, shared washing up areas provide water to clusters of stalls, larger stalls are provided for established traders, formal retail spaces are provided and mixed into the retail variety, taxi spaces are catered for such as recreation spaces and offices, offices for the management company are also catered for. Large spaces for wholesale are also provided.

3. If you had the opportunity to make changes to the existing building, what would it be and why?

Some of the ancillary spaces such as cooking mamas, hairdressing and wholesale market should be brought into the mainstream trading areas. There are always compromises, taxi requirements and small traders take precedence sometimes to the detriment of these other spaces. A greater mix of formal and 'informal' spaces would also be more desirable.

JOHANESSBURG METRO MALL INTERVIEW

INTERVIEW SCHEDULE

Code Name of Person Interviewed:

Position Held: Manager of the Baragwanath taxi facilities

Gender: Male

1. How long have you been working/living here?

2.5 years

2. How many times do the average traders change their location within the facility?

- Once – every 2 years
- Twice
- More than three times

3. Since you've been here, have you seen any new structures or projects that have been erected? If "Yes", did the people doing those projects approach you or anyone in this area that you know off?

- No
- Yes – Companies and organisations like MTN, Yoneyethu have approached us to do social projects that relate to the empowerment of the local traders.

4. Do you feel the building caters for the needs of the informal traders?

- No – the traders have expressed their complaints about the planning of the facilities. They feel that they trading stalls are not properly exposed to the people using the taxis and busses. Most of the informal trading sections located on the first floor have been abandoned because of the lack of people that go up to by stuff from the traders.
- Yes

5. Are there any modifications that to the building the traders have made since they've been here? If "yes" what were the reasons for doing so?
    - No
    - Yes – The trading stalls were all initially open to the elements with roller shutters as a form of security but some of the people that have moved in have added glazed fronts and converted them to formal shops especially on the first floor. We have applied to the guys that own this building to change the disserted trading places on the first floor into formal to-let retail space since it the only functions that seem to work if they are located on the first floor.

6. Has anyone doing something similar to this research ever approached you or any one that you know?
    - No – only students doing research of this nature have approached me.
    - Yes

7. How would you rate the place you are in on a scale of 1 to 5 (ten being the best),
    - 1
    - 2
    - **3 –** Adequate but could have been done better.
    - 4
    - 5

Thank You For your time

Mongezi Ncube

B.Arch. / Masters Student in Architecture 2013

6.3 BARAGWANETH TRANSPORT FACILITY INTERVIEWS

INTERVIEW SCHEDULE

Name of Person Interviewed: Paul Wijgers

Position Held: One of the urban design professionals involved in the makings of the facility

1. Was there a difference in the design approach to this facility compared to the Johannesburg Metro Mall? If yes, please explain.

Metro Mall was built as a single entity and Bara was built over a 6 year period with 12 or so phases. Trading at Bara is connected to and stripped along transport elements such as pick up areas, drop off areas, waiting areas, bus areas, etc. larger trading areas happen as pauses between transport facilities and incorporate open trading areas as well as formal retail.

2. Are there any core ideas informally developed by the people that were incorporated into the existing Baragwanath transport facility? If yes, please explain.

A variety of spaces are provided that allow traders to grow or reduce in size. The complex is essentially a movement facilitator, a series of spaces that allows safe passage between transport modes. Critical to the success of these kinds of spaces and places is the reduction of movement conflict especially between motorised and pedestrian movement, pedestrian movement should take precedence form a design point of view. Bara is really an attempt to make safe the unsafe nature of informal ranks and trading spaces, a safe place to be especially for the young and older generations who more often than not are the victims of unsafe environments.

3. Was there any degree of flexibility incorporated into the design of this building? If yes, please explain.

Open spaces at the nodes and along movement routes are what makes Bara more flexible, trading layouts changed as each phase was completed. I am sure trading layouts still change as traders require more or less space.

4. If you had the opportunity to make changes to the existing building, what would it be and why?

Bara could be integrated more with the surrounding fabric especially the commercial activities that take place adjacent to it. This could be addressed in following phases.

WARWICK JUNCTION PRECINCT INTERVIEWS

INTERVIEW SCHEDULE FOR PROFESSIONALS THAT ARE FRIMILIAR WITH URBAN INFORMALITY

Code Name of Person Interviewed: Tasmi Quazi and Richard Dobson

Position Held: AET consultants

1. What is your definition of urban informality?

Urban informality is a city that caters for people that would otherwise be would not be included in the formal city. It is not necessarily for the poor but it caters for everyone.

2. Do you think of it as a problem or the next logical step in the evolution of cities especially in the South African and African context?

Informality is not there to inhibit the growth of the formal city but it is there to enhance it, if the informal sector did not exist, the people would be depending on the government for their income. The informal sector is there to encourage people to be self-sufficient rather relying on local and national governments for hand-outs. It also allows the integration of other cultures that would otherwise be excluded in the formal city to thrive and grow within the city, making the city more relevant to the everyday lives of the South African people.

3. How do you see the current built form in the informal context, does it relate to the way people live in within the informal settings in SA?

Warwick junction has a rich history. The precinct itself started off in an illegal manner where people claimed municipal land to trade so most of the initial structures that were erected in this precinct were a direct response to those people's needs i.e. structure were erected where activities took place. But out of all of these the light structures (even though some of them contain a lot of heat during the day due to the metal roofs) seem to work the best due to the fact that they are not too formal in their layout, the people are allowed to interpret the use of the space the way they see fit.

4. If the built form were to change in the informal context, what would be the key factors that would define the new or adapted built form?

A light framed structure that is not fixed in its function. It has to be flexible enough to allow for change and it must leave room for interpretation by the intended user. There

must be a multi-disciplinary approach to designing buildings for the informal context. Urban management is the key to successful infrastructure in the informal context. The building must also avoid 'canyon' gate design. The building must have multiple access points due to the high number of people moving in and out of the area especially around transport nodes. This decreases the chances for creating thorough fares that might be the opportunity for illegal activities to happen. Visibility is the key to promote people to use the intended infrastructure. The end-user must be known in detail! Their habits, the way they move, and everything about them that would impact on the way they respond to the infrastructure. A new building would have to interrogate all the implemented structures to their last detail because each sector of the informal sector has its own structure that must be respected in order for them to work to their maximum efficiency e.g. people who cook and sell food have a different approach and needs (in terms of infrastructure) from the people that sell fresh produce. This rich texture has to be embraced in order for new interventions to build on what is exists rather than trying to define a new way of doing things that might not necessarily be in the best interest of the community. The phasing process is also key to carrying out interventions. It avoids blanket sweep planning and it allows the structure to grow with the people. The aspect of hybridity must also be a key idea, for the city to grow the informal and formal have to mixed into one, they must not be looked as separate structures they can come together (like the Berea station) to form infrastructure that caters for everyone. Berea station has informal traders the trade for "free" because they encourage the people to use the station (killing two birds with one stone i.e. commuters shop while en-route).

5. Out of all the buildings in Warwick Junction, what are your top 3 and why.

Muthi Bridge – A great example of how infrastructure intended for another use was transformed into something different, something for the community and it is fantastic to see how the people have embraced this structure. The structure itself is all about responding to the needs of the people.

Early Morning Market – This is where it all started. I consider this to be the heart of Warwick junction. It is the oldest building in the precinct and it stands as a lasting testament of what the people can achieve if they pull themselves together to make something that they need to serve each other.

Brook Street Market – a good example of how an urban intervention can be built on what is existing and how architects together with the community and various organisations can come together to create something special. The building is also different as it is the only one in the precinct that was phased in its development and it grew with the people rather than coming in as a massive structure that was totally new to them. The phasing was also a huge advantage as it allowed the people to get used to the building as it grew in size

6. Out of all the buildings in Warwick junction what is your worst top 3.

None. All of them play their own part in their own to contribute towards this precinct.

Thank You For your time

Mongezi Ncube

B.Arch. / Masters Student in Architecture 2013

PART TWO
DESIGN REPORT

CHAPTER 1.0 INTRODUCTION

1.1 Introduction

The design of a multipurpose trade hub sets out to provide an appropriate and meaningful infrastructure for the people of Warwick. This will be achieved by building on the informal tactics, such as informal trade, and processes they have developed in order to create an urban environment that can benefit them in their everyday lives whilst improving their livelihoods. The aim of this design is to provide a built form that the inhabitants have the ability to define its configuration by letting them make crucial decisions of how they want their built environment to be defined. This will be done through consultation with all of the relevant stakeholders by the architect.

1.1 Project Description

Since Warwicks's formal upgrade post 1994, iTrump (a unit within the Durban municipality) has taken major steps to improve the precinct's informal trading conditions. The project is envisioned as part of iTRUMP's interventions to upgrade and facilitate informal traders of Warwick in the way informal traders deem necessary. The building's primary function is to act as a support structure for informal traders that need productive space to facilitate their informal trade. The building must then be configured in such a way that almost any form of informal trade can be facilitated in the building directly from the street thus making special flexibility very crucial.

For Urban Informality to be the generator a meaningful built form, every decision or idea that will be implemented in the proposed multi-purpose trading facilities must adopt the same tactics used in informal urban context. To achieve this, it must utilise the same tactics of finding existing spaces that can be adopted and manipulated to serve another purpose. The built form itself must not be carried out in a blanket sweep approach by demolishing everything in its way but it must (as far as possible) find new ways to build on, linki, and capacitate existing formal structures to manipulate them to facilitate urban informality.

The occupants of the built form must be given ownership of their trading units or dedicated facilities to give them the ability to manipulate the built form to suit their

informal tactics as they evolve over time. Their modifications will be done in cooperation with an NGO that will be part of the facilities to make sure that whatever is done does not endanger other occupants of the facilities and the general public. The limits of their modifications that they will be allowed to make will have defined edge nodes. Major extensive modifications to the built form to suit the future state of urban informality within the proposed facilities will be carried out by agencies that are in a position to mobilise the power they have on their extensive resources at their disposal. Certain parts of the built form must be able change in its use from day to night to meet the needs of its inhabitants as different times of the day.

1.3 The Role of the Architect and Informal Traders

"Why not have the courage, where practical, to let the people shape their own environment where practical?" (Price, 1969: 435). Architects and urban planners alike are considered to be obsessed with creating visions for the people, which are usually derived from their own vision with very little grasp on the lived reality. They (the majority of the urban design processionals) see the need to unify the urban landscape in one seamless language and forgetting what the people need during the process. This process limits input from other stakeholders most notably the end-user.

In order to enable the underlying principles of Urban Informality to generate meaningful built form, it is important to identify people who define these processes and let them suggest the best way the built form to be configured. "Cooperative developmental models presume a decentralisation of power and decision-making" (Turner & Fichter, 1972:195). This process, defined as community participation, empowers people within a specific context to influence the way they want the configuration of the built form to be done to facilitate their form of urban informality. This strategy also has the benefit of making sure that whatever built form is generated, will be of some value and meaning for people in the informal urban context since they are given the opportunity to impose tactics they have developed in the configuration of the built form from its inception

Various NGO's that work with informal traders on a daily basis were approached in order to work directly with informal traders to get to know each form of informal trade and its potential influence on the configuration of the built form. This process

ensures that the architect views the built form through the eyes of the informal traders to understand what spatial configuration each form of trade needs.

1.4 The Notional Client:

Illustration 1.4.1: Ethekwini Municipality (left) and iTrump (right) as a unit within the municipality that is in charge of implementing projects within the precinct. Source: www.google.com/imghp

During the post-apartheid period (after 1994), Warwick Junction had its own independent program, the "Warwick Junction Project", that was established to engage street traders in a collaborative effort to improve their needs as well as the city's (www.paticipedia.net). At the commencement of the project in 1996, the aim of the project was to focus on the "neglected urban management through the allocation of dedicated funding to specifically improve the cleanliness of the area" (www.durban.gov.za). In 2001, the Warwick Junction Project was incorporated into iTRUMP as part of the nine inner city districts managed by the Ethekwini Municipality. A large majority of interventions within Warwick Junction meant to accommodate its informal traders and serve commuters by addressing their urban design and management issues are now implemented and funded through this government unit. According to the iTRUMP website, the aim of the unit is "... *to improve the overall quality of the urban environment in the Greater Warwick Avenue and Grey Street area in terms of safety, security, cleanliness, functionality and the promotion of economic opportunities. The redevelopment of the Warwick Avenue area, specifically, should be geared towards promoting its primary role and function as a major regional hub for public trading and transportation, with a particular focus on the needs of the urban poor."* (Dobson, 2009:64).

1.4.1 The Client's Requirements

iTRUMP's mission and project guidelines taken from www.durban.gov.za;

- *District Distinctiveness:*

  Recognizing the district's intrinsic urban and social contribution to the inner city has been beneficial.

- *Consultation:*

  iTRUMP believes that its structured multi-level consultation process ie. District level stakeholders; interested and affected groups eg. formal business and informal traders' street committees and all their affiliate organizations; sector representatives eg. bovine head cookers, traditional herb and medicine traders etc. and individuals, ensured a thorough canvassing of opinion and the communication of the programme's intentions.

- *Emerging Economic Understanding and Dynamic:*

  Sensitivity towards the emerging economic patterns and dynamic has been critical in the development of an approach for urban informal trade.

- *Infrastructure Investment:*

  iTRUMP believes there is now substantial evidence indicating that the provision of appropriate and sector responsive infrastructure has a positive impact on the informal economy and often by default, improved urban management.

- *Phased Implementation*

  Further to the maintenance of an extensive project list, is the deliberate process of phased implementation.

- *Social and Cultural Inclusion*

  Sensitivity towards these two aspects has been critical given the nation's exclusionary past.

1.4.2 Detailed Client Brief

Schedule of Accommodation:

All of the functions that take place in the building must be based on the informal 'activities' people have developed in Warwick since the main aim of the research is to enable urban informality to be the generator of the built form. To achieve this, the built form must have a strong link to adjacent public transport facilities preferably bus and taxi ranks. These functions will act as catalysts to draw the general public into the facilities since the urban informality that exists in Warwick Junction to take advantage of the foot traffic produced by the public transport in the precinct. Informal and formal traders must be incorporated into the facilities since urban informality (based on the research findings) was established to produce some form of capital for the urban poor to sustain their livelihoods. People that trade in the facilities must be provided with suitable transitional accommodation since most of the traders have to travel unreasonable distances to come and trade in Warwick. Some of the current traders in Warwick must also be accommodated into these facilities since they sleep on the streets or with their goods when it is not viable for them to travel back and forth a daily basis. Offices have to be provided for Durban's Business Unit that works with informal traders, Asiye eTafuleni and general functions for people that will manage the facilities.

Over and above these facilities, most of the other core functions of the built form will be determined by the informal processes that take place on the chosen site and the major functions that take place around its context. This will require on-field research and some form of consultation with the community of Warwick to determine what they want to be done in their context. If community participation cannot be simulated, NGOs or NPO's that help to manage Warwick musts be consulted to get an understanding of what people perceive to be in their own interest.

1.4.3 Understanding the informal network:

Before any major decisions were made within the Warwick Junction precinct, it was important to identify the "core" informal traders that are in urgent need of an intervention. Mealie cookers, informal recyclers, taxi mechanics were some of the traders identified as core informal traders that will utilise the facilities from its inception due to the fact that Durban Municipality (in collaboration with Asiye Etafuleni) have identified them as some of the high priority projects that have to be implemented or upgraded within the precinct in the near future.

1.4.3.1 Pedestrian Dependent traders

Informal traders within the precinct trade on different levels and each level determines the way people work within or under a defined structure. Visible traders are the traders that ply their trade on the street edges or that come into direct contact with commuters that move through the precinct. They often prefer framed 'transparent' structures that have no barriers between them and the commuters. These traders are given first priority in new interventions.

1.4.3.2 Trader Dependent/ Traders

Invisible traders are that trade with other traders. They act as the support structure for traders in the visible network often making or fixing their infrastructure thus making it possible for them to ply their trade. Invisible traders are considered as go-to activities that can work from the street edge or from a secluded but accessible location. They usually prefer a more 'formal' environment due the equipment that they utilise on a daily basis. These informal traders often get overlooked or are given sub-standard interventions since they can be moved around into underutilised spaces within the city where they cannot be seen. This process can have a negative impact on the growth of their business and the business of other informal traders on the visible network. By strengthening these traders, it will have a knock on effect on the overall informal network of the precinct and this is where the multi-purpose trade hub intervention comes into play.

1.4.3.3 Working as a mealie (maize) cooker

Illustration 1.4.3.3.1- Layout of current cooking facilities.. Base Source: www.google.com/maps?hl=en &tab=wl

Most of the informal traders were consulted/ interviewed during the design process but more time was spent with mealie (maize) cookers due to the fact that their facilities required the biggest space in the proposed facilities and their trade has a labour intensive cooking process that need an in-depth analysis.

Most of the cooks live more than 30 km away from the CBD and travel using public transport. They arrive as early as 4:00am to start their day's work in their dedicated facilities (refer to Illustration 1.4.3.3.1). A typical day begins by moving all of their equipment (drums, trolley) left in the mealie-cooking facilities overnight and setting up all of the steel drums in their rightful positions before work commences. They wait for the mealies to be delivered and sometimes it does not get delivered at all, a day's work can only start if the mealie suppliers are able to get them from the farms. If the mealies are available they then have to chop wood pallets and prepare plastic crates that they had left over from the previous day to be used as fuel for fire whilst waiting for more supplies during the day to be delivered by trolley runners (porters) that

source recycled wood, chipboards and plastic based products from the inner city. Once the mealies are delivered and bought for R50/ dozen and the fuel for the fire is delivered, the cooks then clean the mealies and load 30 hands* (10 dozen) in a typical supermarket trolley which are then pushed into the facilities whey they are loaded into a 200ltr steel drum sourced from industrial areas within the city. Water is then sourced from a nearby public municipal ablution facility located within a hundred meters of the facility for R4.00 for every 25 ltrs and each batch needs 75 ltrs of water per steel drum. After the mealies are cooked, water is drained directly on the brick paved surface laid to falls to one drain per cooking area by carefully tipping the hot steel drum. The mealies are then loaded into a sack lined with 3 municipal plastic bags bought from DSW officials in batches of 84 mealies per sack. Traders located within the markets of Warwick come and take a batch to sell to pedestrians at a cost of R7.00 during peak hours down to R3.00 at night (after 6:00pm). The facilities run from the morning when they arrive until they are cleaned and locked at night and prepared for the next day's work. Lock-up time depends on the last person who comes back from trading mealies and looking for wood for the next day in the city and this can be as late as 11:00pm and at this time they usually have to sleep on the streets or in the city due to the lack of public transport to get back home.

This process repeats itself every day of the week. The number of working hours on a particular day depends on favorable weather conditions, availability of water, number of mealies delivered on the day, demand of mealies in the market, delivery of wood for the fire and the number of trolleys available to move the mealies thus making their informal business very unstable due to the number of variables that are out of their control.

*1 hand = 4 mealie
dozen = 12 mealies

- ***Running costs:***

Illustration 1.4.3.3.2 – Various stages of the cooking process. A) Count and load mealies into steel drum. B) Cook for 1.5 hrs. C) Drain water. D) Pack mealies into sack. E) Transport the mealies to the market to sell them. Source: Author

Mealies	delivered by bakkies	R 50/doz (out of season)	
		R 30/doz (in season)	
Site Cleaner:		R10/week (from 60 traders)*	
Street vendor (paid sellers):		R 60/day	
Porters:		R10/sack	
Rubber Gloves:		R20	lasts for
Wood:		R12 per pile	
Super market trolley:		R 30 to 40	
Rent:		R 0	
Steel Drum:		R 60*	lasts for 2-3 months*
Water:		R4 / 25ltrs	
Electricity:		N/A	
Sacks:		15c*	
DSW plastic bags:		6c*	
Sodium bicarbonate 45g:		R 1	

* - Data from Project Preparation Trust of KwaZulu-Natal

1.4.3.3.1 Urban design challenges:

Illustration 1.4.3.3.3 - People utilising these facilities have to face many urban design issues ranging from no mealie sorting area (left) to no dedicated storage area (right). Source: Author.

As you approach the facilities (Illustration 1.4.3.3.3) and see people peeling mealies on the side of the road next to moderate traffic (mostly busses) you are immediately made aware of some of the major challenges they face on a daily basis before you even step into the main facilities. The lack of ancillary spaces from the main cooking area is one of these challenges. The fenced facilities (with a fence running in the middle) are used for cooking and a resting/ open changing area (mainly for women) leaving little or no space for other activities to take place within them. This means that there are no spaces for:

- *Sorting and counting mealies*

  To address this, cooks have utilised the space on the side of the road next to the delivery trucks to sort, clean, and count their mealies before they cook them. Portions not paved form puddles that leave a muddy mess.
- *No ablution facilities*

At the end of the day, cooks have to buy a bucket of water from the nearest public ablution facilities to cleans themselves of the smoke before they go back home.

- *No change rooms*

  Women change in the facilities under the canopy and men change outside the facilities also under the canopy therefore there is a lack of privacy.

- *No lockers to store their valuable items during the day*

  Everyone has to hang their clothes on a barb-wired fence to keep them clean during the day and as a result of this they get torn very easily. They keep their valuables i.e. cell phones, jewellery etc, on them and these can get damaged whilst they are working during the day.

- *No dedicated storage area during the day and night*

  The lack of a secure storage means that they cannot store the resources they need to run their business on a daily basis like wood, water, etc. This means they have to utilise all the valuable resources they need during the day like wood and water and hope that they will be available on the following day. These challenges sets up a very unstable working environment that can make them skip a day's work if the necessary resources are not available.

  The lack of storage also means that the wood gets wet when it is raining and wet wood produces more smoke. This has an impact on the urban management of the precinct since is affects the air quality of the site and adjacent sites.

1.4.3.3.2 Urban management challenges:

The up-keep and urban management of the facilities is a major issue and this is apparent before you even enter the facilities when you see cooks pushing trolleys in thick mud from their sorting area into to the fenced cooking area. Other challenges range from:


Illustration 1.4.3.3.4 - (Left) Toxic fumes from the fire cause by burning chip wood and various recycled plastics. (Right) The unpaved surface around the facility gets very muddy during the day making it harder for the cooks to move their mealies in and out the facilities. Source: Author.

- *No dedicated refuse area*

  A lot of waste is produced during the cooking process. More than 2000 mealies have to be peeled per day before they are cooked and they peel more than 2000 mealies per day. This often results in a lot of waste lying on the side of the street next to the sorting area. There are a handful of municipal bins provided but these are not enough for the amount of waste produced.

- *No stable fuel source*

  The lack of a stable fuel source means that the trolley runners have to collect any wood or combustible material (chip boards and plastics products) which might have harmful chemicals in them if they are set alight. This not only affects the wellbeing of the cooks but it also affects the air quality of the adjacent sites and air quality of the precinct.

- *No dedicated water supply*

  Water is sourced from a public municipal ablution block. It has to be moved around in a self-built trolley. This is done at an additional cost to the cooks since they have to pay the person who moves the water from public facilities to them.

- *No electricity*

  They have to depend on street lights to illuminate their facilities at night.

- *No paving around the facilities*

Taxi Mechanics, Informal recyclers, and other informal traders face similar challenges in their current trading locates within the precinct. Whilst responding to the tactics that the traders of Warwick have devised in order to survived, it is important that the proposed facilities

1.4.3.4 Traders That Need an Intervention

The following informal traders are in need of an intervention that will facilitate their informal trade. Each group was consulted to find out how they need their built environment to be configured to facilitate their respective trades.

Temporary Traders

Some of the informal traders only come in at certain times of the week to sell special goods. This 'once a week' form of trading turns their respective trades into a special occasion where one comes into Warwick for that specific event. Unfortunately, these traders are isolated from each other meaning that they pay for their trading stall even when they are not in use.

Mobile Traders

Informal trade is not necessarily fixed in one location. Some of the traders have found ways to make their trade mobile by trading from shopping trolleys to helping other traders and commuters move heavy goods. This has made the pavement the most contested space within the precinct and porters have to eventually give way to pedestrians and navigate their way through vehicular traffic.

Informal Artisans

Other traders do not trade with the commuters but they trade with other traders. One example of this is the carpenters that build tables, storage containers and other street furniture. They use recycled wood pallets for all of their furniture. This makes their furniture affordable for other informal traders. A 2x1.5m table costs R60 and it lasts for up to 3-4 months.

Cardboard/ Plastic Collectors

Informal recyclers can be found collecting cardboard or plastics from formal retail shops and other street traders that have used up their boxes. They work as satellite stations with each group collecting and selling their recycled goods within their precincts. They usually collect their recycled goods early in the morning when formal shops receive goods and late in the afternoon after working hours

Street Traders

These traders are the most visible traders within the precinct. They trade from shelters that open up onto the street allowing for maximum visibility of their trading stalls. Where there is a pavement with commuters, informal traders will find a way to move in and capitalise on that opportunity.

1.5 Schedule accommodation:

The schedule of accommodation was determined by a variety of factors, namely interviews conducted, the analysis of precedent and case studies as well as through the proportional relationship between the number of pedestrians and informal traders.

	Space	Quantity	Size	Total Area
Ground Floor				
Mealie cooking facilities	Prep. area	4	154	616
	Engine room	2	4	8
	Water/ Oil tank rm	2	3	6
	Daytime Storage	4	24	96
	Night-time Storage	4	24	96
	Locker room	2	13	26
	Female change room	2	14	28
	Male change room	2	14	28

Cardboard/ Plastic Recycling	Stacking/ Sorting	4	40	160
	Bailing	4	73	292
	Male Ablutions	4	10	40
Back-of-van trading	Parking	3	56	168
	Trading space	3	22	66
Taxi mechanics	Parking	1	85	85
	Workspace	1	44	44
	Storage	1	15	15
Community Kitchen	Seating area	1	294	294
	Food Prep Area	1	128	120
	Storage	1	9	9
Informal trade	Demarcated stalls	70	4	280
Formal retail	Formal retail space	20	10	200
Mixed trading space	Mixed trading space	1	247	247
Office Lobby	Office lift Lobby	1	59	59
Housing lobby	Transitional housing lift lobby	1	31	31
Public Ablutions	Male ablutions	1	53	53
	Female	1	53	53
First Floor				
Studios	Carpenters' Studio	1	281	281
	Mixed Studio	1	281	281
	Storage	1	39	39
	Lounge	1	15	15
Flexible space	Flexible trading spaces	10	70	700
Multi-purpose halls	Multi-purpose halls	2	300	600
	Storage	2	40	80
	Kitchen	2	21	42
	Foyer	2	97	194
	Security	2	10	20
	Staff lounge	1	43	43
Control center	Open plan office	1	130	118

	Staff Lounge	1	22	22
	Boardroom	1	33	33
	Reception	1	35	35
	Store	1	6	6
	Kitchenette	1	6	6
Asiye Etafuleni	Open plan office	1	48	48
	Staff room	1	13	13
	Boardroom	1	23	23
	Reception	1	19	19
	Store	1	7	7
	Kitchen	1	7	7
	Staff Lounge	1	41	41
Public Ablutions	Male Ablutions	1	63	63
	Female	1	63	63
2nd/3rd/4th Floor				
Transitional Housing	Bedrooms	18	16	288
	Kitchen	6	11	66
	Lounge	6	34	204
	Ablutions	12	22	264
	Wash Area	3	31	93
	Total Area without circulation, parking and covered bridge walkway			**5618**

Building classification as per the National Building Regulations (SAB 0400)

Ablutions	Males	whb	As per the National Building Regulations (SAB 0400) requirements for a population of personnel over 120 people as well as peak time WC 26 demand for 1000 people.
		wc	
		urinals	
	Females	whb	
		wc	
	Paraplegic Facilities	whb	

Parking	**General**	**43**	
	Staff	**23**	

1.6 Project Funding

In order to be able to improve the livelihoods of the people of Warwick i.e. commuters, informal traders, and residents, iTRUMP has implemented more than 14 interventions within the precinct from1996 to 2003. Some of these interventions (post 2001) have been funded by the municipality which has a set annual budget for the iTRUMP unit. It has also received additional funding since it became one of five of the eThekwini Municipality's European Commission sector support funded Area Based Management Programme units. Prior to that, it has also received additional funding from various NGO's for certain interventions. Ultimately, funding will not be a prohibitive factor but the building has to be economically viable.

However, this is not the only method of funding needed to sustain informal trading facilities. Other proposals, highlighted by the precedent studies, include the obvious revenues from billboards attached on the building and the revenue that will be generated by selling power back to the grid (Eskom). It is important for these strategies to make the building more self sufficient

CHAPTER 2.0 SITE SELECTION, SURVEY AND PRECINCT ANALYSIS

2.1 Introduction

The following chapter documents the relevant information regarding 4 potential sites for the multi-purpose trade-hub necessary to understand its geographical position, historical and social context as well as its geography and climate. Understanding of such aspects of the selected area will aid the proposed urban design and Multi-Purpose Trade-Hub in the area.

2.2 Site Selection Criteria:

The site selected for the proposed multipurpose trade hub will have to meet the requirements of the people within the informal urban context that are in need of infrastructure for their trade or informal activity. The site selection criteria have been derived from interviews with an NGO (Asiye Etafuleni) that works with the people of Warwick, interviews and work experience gained from working with the informal traders within the precinct and important considerations taken from the theoretical framework, case studies, and precedent studies in this dissertation. These research findings went on to form the following criteria:

Location:

The site has to be located in the outskirts of a post-colonial South African city in a predominantly informal urban context. It must also be in a position to act as transition rather than a destination since the informal tactics formed by people within the informal urban context are developed to capitalise on commuters moving between point ‘a’ and ‘b’ the in between spaces’ that exists between their destinations that are underutilised.

Visibility:

The site must also be located within the informal trading precinct so that the new facilities are seen as an extension of the precinct rather than an isolated addition and this site must also be located within a reasonable distance i.e. people must be able to walk from the existing precinct to the new facilities to make it readily accessible to the general public and informal traders that might want to interact with the traders that utilise the facilities. It must also be visible so that it can be easily identified in its

context to encourage people to use the public facilities that will be incorporated into the facilities.

Area Base Intervention:

The site has to have some sort of urban informality taking place on or around it that will be incorporated in the design of the building thus provides infrastructure to people that need it. Informal tactics that take place on the site must not be isolated from its informal urban context. It must have meaningful connections to its context offering strong links to its context from various angles for it to serve as much of the commuters that move through the precinct as possible.

Size and Zoning:

The site must be zoned to accommodate mixed-use facilities that will be incorporated into the built form since the functions in the building will be determined by the variety of functions that take place in the informal context itself.

Adaptive Re-use:

Based on the people's tactic of finding new ways to link and capacitate existing structures, the site can have existing buildings that can be demolished or renovated to suit the new facilities provided they do not serve any meaningful functions in their context or they already have some sort of informal process that will be incorporated into the new design.

Possibility of emergence:

The site must be located in a position where it can grow and accommodate future unforeseen tactics within the informal urban context.

Power and control:

Inhabitants must have the ability to make changes to their built environment (to a certain extent) in way that they see fit under the guidance of a NGO's and urban design professional.

2.3 Potential Sites

Potential sites (Illustration 1) have been identified based on the formulated criteria. All of these sites have the potential of being developed to accommodate a multipurpose trade hub. The following four sites were identified:

Site A: Main bus and taxi rank, Pinetown

Site B: Warwick Junction vacant site, Durban

Site C: Berea station, Durban

Site D: City Market (previously English Market), Durban

2.3.1 Site A: Existing taxi rank, Pinetown

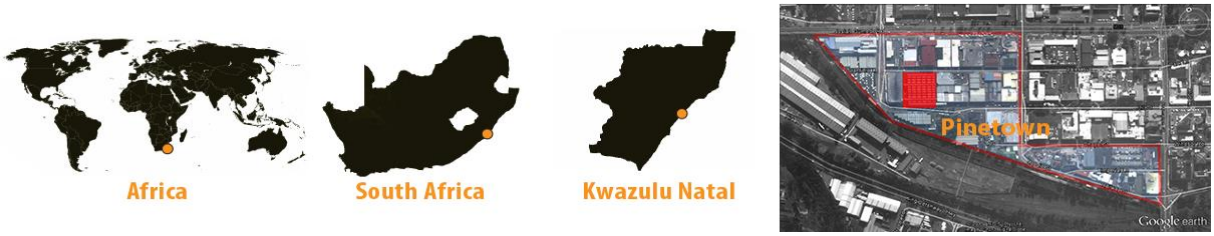


Illustration 2.3.1- Aerial View of site area (Source - http://earth.google.com)

The site is located in the middle of an informal urban context in Pinetown that serves as the town's main transport interchange. It is surrounded by commercial buildings and a taxi rank to the south. The site currently serves as the main bus rank and also accommodates a few taxi associations. It has an existing "umbrella" type steel framed roof that covers and defines a taxi rank. It also serves as a platform for artists to showcase their work (singing and acting) over the weekend when the rank is not used to its maximum capacity. There is no appropriate infrastructure that addresses the needs of informal traders, public transport facilities or any other informal processes that people in the area have formed. Inhabitants of the precinct have also expressed the need for an appropriate intervention that will address their infrastructure requirements. The site is further analysed below:

Site Selection Criteria	Analyses
Location	The site is located in the outskirts of a post-colonial South African town and acts as a transition within the precinct linking the southern part with northern parts of the precinct.

Visibility	It is visible and readily accessible to any members of the public from the north and south on foot and public/ private transport.
Area Base Intervention	It has some informal activities currently taking place within the existing facilities and has the potential to accommodate more activities that take place around it.
Size and Zoning	The site is big enough to accommodate the intended multi-purpose facilities.
Adaptive Re-use	The existing infrastructure has the potential to be adapted to accommodate the multi-purpose trading facilities due to its modular and "umbrella" configuration.
Possibility of emergence	Limited opportunities to grow beyond its boundaries since the adjacent sites are under private ownership and they are being utilised for commercial activities.
Power and control	The site is owned by the municipality as is the proposed facility and this will give more power to its intended inhabitants of their built form compared to private ownership.

2.3.2 Site B: Warwick vacant site, Durban

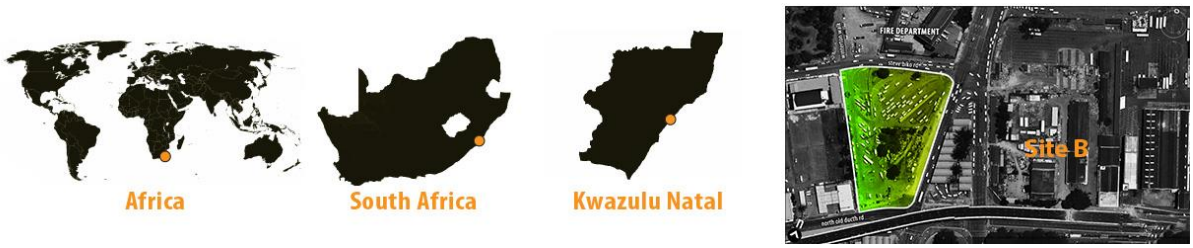


Illustration 2.3.2 - Aerial View of site area. Source: http://earth.google.com.

The site is located in Warwick Junction, Durban, which is a predominantly informal urban context that acts as the city's main public transport intermodal. It is currently utilised as an informal taxi rank with a couple of informal traders. The adjacent sites serve as Durban's inner city fire department, a local service station, and a formal taxi rank. Despite being located on the fringes of the precinct, there is still a high number of passing feet since Centenary road (running along the length of the site) is one of the

main roads leading into the precinct from the north but this it is only busy in the morning and afternoons during peak hours. The site is further analysed below:

Site Selection Criteria	Analyses
Location	The site is located in the outskirts of a post-colonial South African city. Due to its location, it acts more like a destination rather than a transition within the precinct.
Visibility and accessibility	It is visible and readily accessible to the general public on foot and public/ private transport but it has minimal links beyond the precinct.
Area Base Intervention	It has some informal activities currently taking place within it facilities and has the potential to accommodate more activities that take place around it.
Size and Zoning	It is big enough to accommodate the intended multi-purpose facilities.
Adaptive Re-use	The site is vacant and there is no existing infrastructure that can be adapted to suit the multipurpose trade hub.
Possibility of emergence	Limited opportunities to grow beyond its boundaries since the adjacent sites have functions that cannot be linked with the proposed facilities with the exception of the taxi rank to the east.
Power and control	The site is owned by the municipality as is the proposed facility and this will give more power to its intended inhabitants of their built form compared to private ownership.

2.3.3 Site C: Berea station, Durban

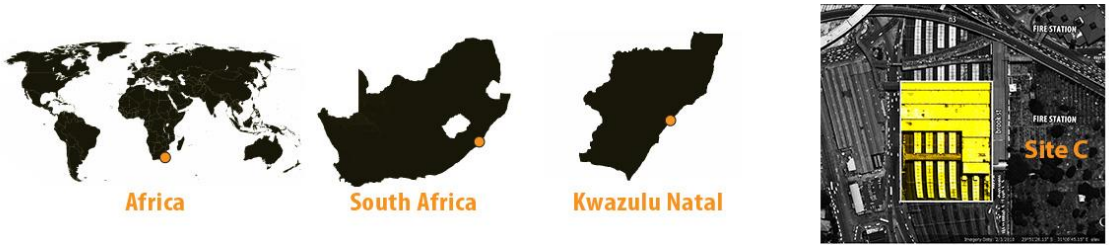


Illustration 2.3.3 - Aerial View of site area. Source: http://earth.google.com.

The site is located in the 'heart' of Warwick Junction. It currently serves at the precinct's main (and only) train station with formal and informal traders accommodated within its facilities. The station has existing informal trading facilities adjacent to it, namely; Brook Street Market (to the east, directly linked to the station), and the Muthi Bridge (to the north, not directly linked to the station). The site is accessible by public/ private transport from only its western edge. The site is further analysed below:

Site Selection Criteria	Analyses
Location	The site is located in the outskirts of a post-colonial South African city. Since it serves as a station, it has the benefit of acting as a destination and transition
Visibility and accessibility	It is visible but due to its elevated position above the railway lines, it is not readily accessible all member of the public but it does act as strong link between the CBD and the informal precinct.
Area Base Intervention	It has some informal activities currently taking place within it facilities and has the potential to accommodate more activities that take place around it.
Size and Zoning	It is big enough to accommodate the intended multi-purpose facilities.
Adaptive Re-use	The existing facilities are underutilised and have the potential to be adapted to act serve as a multi-purpose trade hub.
Possibility of emergence	Limited opportunities to grow beyond its boundaries due it elevated position. Adjacent sites also have well

	established informal trading infrastructure and the proposed facilities might interfere with the existing informal traders by providing unwanted competition.
Power and control	Existing facilities are owned by Prasa (an organisation that is in charge of South Africa's train stations). They have set rules and regulations that govern the use of their train stations which might limit the power and control of the future inhabitants of the proposed facilities.

2.3.4 Site D: City Market (English Market), Durban

Illustration 2.3.4 - Aerial View of site area. Source: http://earth.google.com

The site is located in close proximity to the center Warwick junction. It currently lies underutilised with an industrial shell like brick structure which provides built form accommodation for a couple of formal shops. Its adjacent sites are currently being utilised as; a formal taxi rank to the south and west, a highway with an abandoned bridge to the east and a Bovine market and parking to the north. The site is accessible from any direction on foot or public/ private transport. The site is further analysed below:

Site Selection Criteria	Analyses
Location	The site is located in the outskirts of a post-colonial South African city. It has the potential to act as a transition since it is located in the middle of the main road of the precinct and the train station.
Visibility and accessibility	It is visible and readily accessible to the general public on foot and public/ private transport. It also has a strong link between it and the city since it acts as one of three first points of arrival within the precinct coming or going to the CBD

Area Base Intervention	It has some informal and formal activities currently taking place within the current facilities and has the potential to accommodate more activities that take place around it. It also has some informal residential units taking place within it.
Size and Zoning	It is big enough to accommodate the intended multi-purpose facilities.
Adaptive Re-use	The site has an existing underutilised historical industrial warehouse shell like structure that can be adapted to suit the proposed multipurpose trade hub.
Possibility of emergence	There are unlimited opportunities for the proposed facilities to grow beyond its boundaries and link with adjacent sites since they are zoned for public use and are currently underutilised.
Power and control	The site is owned by the municipality as is the proposed facility and this will give more power to its intended inhabitants of their built form compared to private ownership. But it is a listed building under AMAFA and their approval is key for this to be possible.

Evaluation of Alternative Sites and Suitability of Selected Site

SITE	A	B	C	D
Location	4	2	5	4
Visibility and Accessibility	4	3	2	5
Area Base Intervention	4	4	3	5
Size and Zoning	4	4	3	4
Adaptive Re-use	3	5	3	4
Possibility of emergence	3	3	1	4
Power and control	5	4	1	4
Total Max= 35*	27	25	18	30
LEGEND				
5 = Excellent; 4 Very Good; 3 = Good; 2 = Adequate; 1 = Poor				

2.4 Selected Site Analysis: Site D: City Market (English Market), Durban

2.4.1 Historical Background of Precinct

After the colonial city of Durban was established, the first Indian migrants arrived in November 1860 as indentured labourers, to work in what was then known as the Natal Colony. The Indian community continued to grow and acquire more land along Grey Street to conduct their trade and build residential and religious buildings. This growing community also attracted other marginalised groups to come and trade within the precinct (KZNIA Journal, 2012:11). The precinct then started becoming the central hub for formal and informal trade in buildings and along the pavements. Small available land in the informal precinct also started becoming a central transport node for people that worked in the city but lived on the outskirts of the city. As the laws

Illustration 2.4.1 - Evolution of context around the site. Source: Author.

became tighter informal trade became more difficult to a point that the local authorities banned it from the city in the 1960's. The local authority later reinstated it (due to persistent protests) in the 1970's (KZNIA Journal, 2012:13). In 1990, following the relaxation of the laws that governed informal trading and the relaxation of the apartheid laws, 4000 street traders moved into the precinct. The public transport section also grew to a point that the Warwick precinct had serious congestion problems and was in danger of being declared as a slum. When the country eventually moved into democracy from 1990, groups and organisations were formed to regulate and restructure the informal precinct to what it is today (KZNIA Journal, 2012:13).

2.4.2 Macro Context

The site is located within a walking distance of all of the major markets of Warwick, i.e. Bovine Market, Early Morning Market, and Muthi Bridge. There are major social services located within this precinct including: schools, clinics, social workers (Illustration 2.4.2.1). Other than serving as a major informal trade precinct, Warwick also functions as Durban's major transport interchange. The precinct also has a strong and prominent street culture. Buildings within this precinct act as backdrops to the informal traders and most (if not all) of the interventions implemented 1994 are configured around the people and informal traders instead of the buildings dictating the urban realm of the precinct.

Illustration 2.4.2.1 - Macro context around site. Top: Base Source: http://earth.google.com. Bottom source: Dobson, 2009:35

2.4.3 Micro Context

The site is surrounded by active public and civic buildings including; clinics, a church and vibrant street markets. The existing structure on the site is the only underutilised structure. Public buildings such as taxi ranks and markets are transparent framed structures to increase visibility and limit barriers that would hinder any pedestrian movement. This also limits any 'cannon' gate pedestrian movement thus making is harder for criminals to predict any pedestrian movement (Illustration 2.4.3.1).

Illustration 2.4.3.1 – Macro context around the site. Source: Author.

2.4.4 Urban Analysis

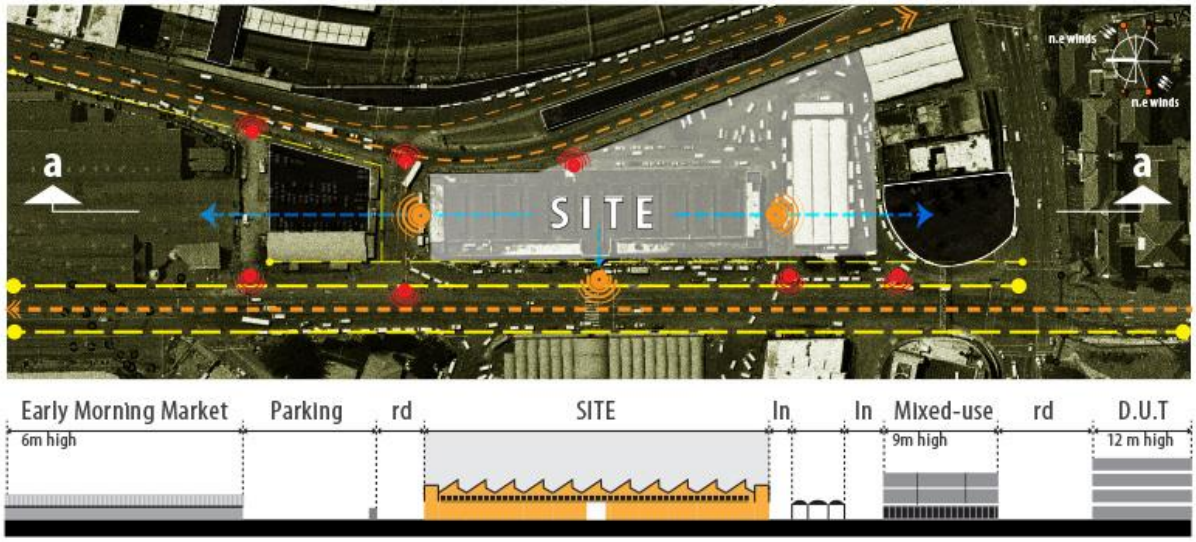


Illustration 2.4.4.1 – Site Plan and Contextual section. Base Source: http://earth.google.com

Key:

_The proposal and its context are surrounded by major pedestrian routes linking various market and taxi ranks. The urban design proposal will have to promote more pedestrian movement in keeping with the existing vibrant street culture.

These spots are in critical positions to tap into the major pedestrian routes this means that possible primary and secondary entrances could be placed here these areas also lead to major spaces located within the building. This will start to inform the design solution in terms of the placement of primary and secondary functions.

_These areas are located in critical vehicular/ pedestrian intersections currently dominated by vehicular traffic and they should be addressed in such a way that pedestrians are given first preference in the new urban design scheme

_The precinct is currently dominated by heavy traffic flow. This must be addressed by giving pedestrians more freedom than vehicles by locating traffic way from the building edges to minimise congestion and allow

pedestrians to move about freely with minimal pedestrian and vehicular intersections.

_These spaces located in the center of the building are locked in by the building's footprint and this will discourage users from using them. By creating openings in the building that connect to major pedestrian centres it will promote continuous movement in these spaces.

_The site is surrounded by dead, abandoned, underutilised spaces and bridges that act as potential locations for criminal activities. These spaces also act as barriers that disconnect utilised public spaces from each other making the context inefficient in its use.

2.4.5 Conclusion - Selection

By analising each site according to the criteria set out at the commencing of this chapter, certain contrasting elements have been established. The research has shown that the English Market (Site D) is the most suitable for this type of development. This is due to its ease of access by pedestrians, its legibility within the city context, and the adaptive re-use of an existing building. The site's close linkages to its context beyond its immediate edges could start to strengthen the links between the various markets in Warwick making them more accessible to pedestrians increasing the potential pedestrian 'arteries' that informal traders can capitalise on.

CHAPTER 3: THE DESIGN BACKGROUND AND PROPOSAL

3.1 Theories

The design is based on two key theories namely being Jane Jacob's Organised complexity and Structuration of Power and Control by Anthony Giddens. These theories will be briefly discussed in more detail below and their relation to the design proposal.

3.1.1 Organised complexity

Jane Jacob's theory looks into the real factors (from the bottom-up) that play a role in the definition of cities and urban landscapes in order to define and recommend strategies to enhance them rather than redefining them. The intervention envisioned by the client should also be done in the same light i.e the challenges and potential opportunities that present themselves to the traders of Warwick should be understood, experiences, and analysed through the eyes of the informal traders. This means active engagement with the communities within this informal area not as a spectator but as active participants spending time working with all the informal traders that will be housed in the facilities

3.1.2 Structuration of Power and Control

'Agency' can be understood as people in the formal urban context who have the power to change their built environment to suit their needs and 'structure' can be understood as the built form as it is a resource with certain rules that the 'agency' acts under. The built form should be configured in such a way that it promotes the 'agency'/'structure' relationship to occur naturally. This implies that the building should, in a way, be technologically rooted in a language that the informal traders can understand and can manipulate to revise the built form in the way they see fit.

3.2 Concepts

The design is also based on two key concepts namely being Jane Jacob's Organised complexity and Structuration of Power and Control by Anthony Giddens. These theories will be briefly discussed in more detail below and their relation to the design proposal.

3.2.1 Hybridisation

The hybridization of the informal (urban informality) and formal (built form) is not final in their physical and visual co-existence but they have to continue to influence each other indefinitely to prevent one order from setting limitations for the other thus achieving true hybridization. The built form should be configured in way that urban informality (informal trade in this case) should be able to find new meaning in existing structures without having to be limited in its growth and evolution by the built form that facilitates it.

3.2.2 Strategy and tactics

Strategy is normally imposed by an institution or structure of power, and opposed to that, an individual will use his/her tactics to respond to the environment that has been produced by the strategy. Tactics (which is a temporal use of space) is a very important element in the expression of the identity and the uniqueness of the place defined by the people. This suggests a built form that implies its intended use but (at the same time) also leaves room for interpretation by the people that inhabit these spaces in order for them to find their own meaning within that “defined” space

CHAPTER 4: PRECEDENT STUDIES

4.1 Adaptive Reuse: Savonnerie Heymans

_Typology : Social Housing

_Location : Brussels, Belgium

_Architect : MDW Architecture

Illustration 4.1.1: Courtyard view of Savonneries Heymans. Source: http://www.designboom.com

Incorporating the old into the new:

Tucked within the heart of Brussels, a city where only 10 to 15 percent of the housing is for low- and middle-income families, the Savonnerie Heymans represents a promising future for a diverse population. Located on the site of a former soap factory, the project creates 42 accommodations including 1 to 6-bedroom apartments. MDW incorporated various remnants of the factory's industrial heritage. The most prominent, a 131-foot-high brick chimney, rises amid the metal stairways and bridges linking the apartment buildings around it. More than a relic, it is now used to ventilate the underground garage. Similarly, a warehouse from the 1950s was largely demolished to create a playground with a viewing platform. Its surrounding walls were lowered from 33 to 10 feet high, and sections of the old steel beams were preserved as visual artifacts. All the existing valuable historic buildings and elements such as the chimney, the main 19th century house on the street and the postal relay were retained and integrated into the complex (the 40m high chimney, for example,

was used as part of the underground garage ventilation system) (Architectural Record 2013:84).

4.2 Architecture of possibilities: Inter-Action Centre

_Typology : Community Centre

_Location : London, England

_Architect : Cedric Price

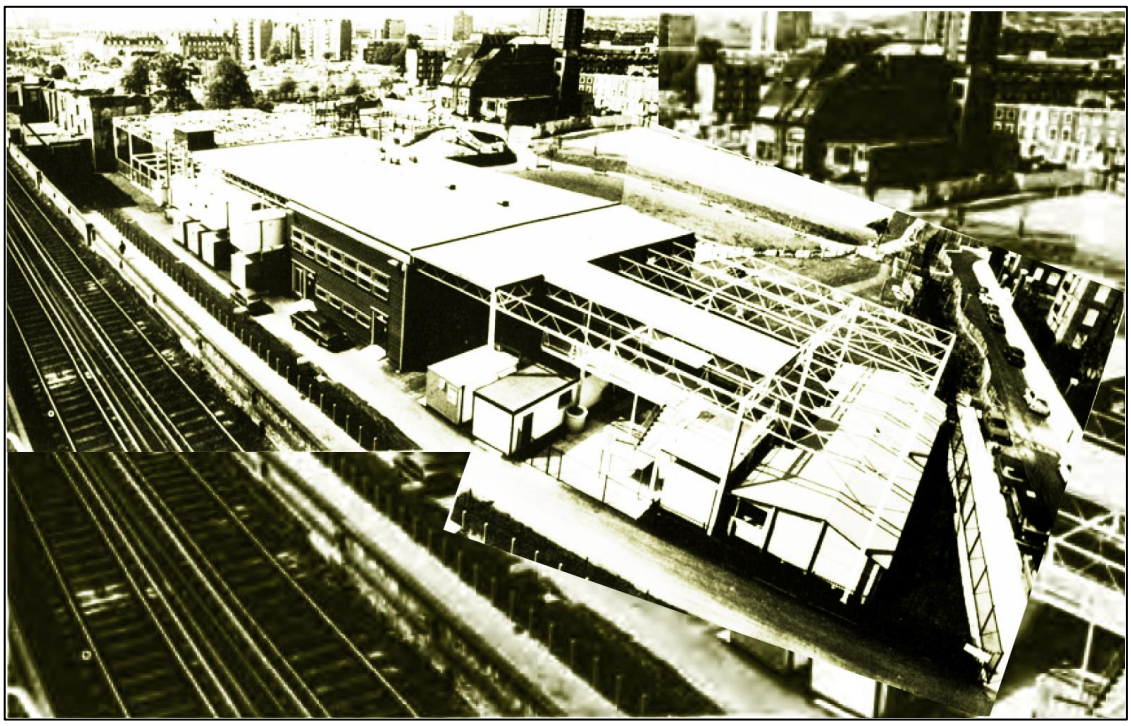


Illustration 4.2.1: Arial view of inter-action center. Each component is modified and added by its respective users. Source: (Price: 1964:62)

Architecture must enable people to think the unthinkable (Price, 1971). Designed as an open steel-frame structure, prefabricated and mobile spaces could be placed or moved around, allowing a range of activities to be performed inside. The structure was designed to last 20 years in constant change, after which the building components could be disassembled and a new structure could be built.

4.2.1Short term planning

Use must be made of communal areas and networks as found, but this use, due to change in activities, may be quite different from the original and is likely to be increasingly specialised - for example the varied use of urban parks (Price 1964:61).

4.2.2 Long term planning

Pleasure network, national or regional, can establish distances and locations directly related at any time to social capabilities and appetites is it not integrated with other required networks (Price 1964:61).

4.2.3 Materials

The building employs simple construction and locally available materials to encourage people to implement interventions without feeling intimidated by the building's construction system.

4.3 Community participation: Kibera Community Cooker

_Typology : Community cooker

_Location : Kibera, Kenya

_Architect : Jim Archer

Illustration 4.3.1: View of community around the community cooker. Source: www.communitycooker.org

4.3.1 Background

The Community Cooker is a simple machine and can be built almost anywhere. The cooker itself is made of welded steel insulated with fire bricks on all four sides. The

top of the cooker consists of a metal plate, and serves as the cooking surface. The cooker has two ovens for baking located underneath the metal plate. A chimney carries the smoke from the combustion chamber to the chimney's outlet high above the neighborhood's roof-line. Because the stove burns rubbish at over 800 degrees Celsius, it achieves 99 percent combustion, producing smoke that is white in colour and almost odorless. At the bottom of the stove there is a wide metal chute that allows rubbish to be pushed from the trash storage racks into the combustion chamber of the stove. Dry, sorted rubbish is manually fed by the stove operator. The Flue to 10m above rooftop Rubbish chute from top rubbish rack Wall separates rubbish sorting from cooking Ablutions "Bafu" and Latrines behind Cooking Plates Unfiltered water drum Discarded Sump oil Tank. Community Cooker is deliberately designed to be labour intensive and to use locally available materials so that repairs, maintenance and operation can easily be carried out by members of the local community (www.communitycooker.org).

4.3.2 Key facts and benefits

• The core functions of cookers are to:

- cook food, heat and boil water for washing and drinking, clean up the environment and reduce pollution of groundwater, through collection and responsible burning of rubbish,

• The community cooker has a total cooking surface of 1.7 square meters, two .18 cubic meter ovens for baking, and can heat 800 litres of water.

• Combustion temperatures inside the community cooker reach over 850 degrees celsius, exceeding the world health organization (who) minimum standards for incineration in developing countries.

• Research is currently under way to evaluate the potential use of the community cooker for distilling water, baking clay products and smelting soft metals.

• A community cooker, managed responsibly and operated for a year will save the caloric heat equivalent of burning 2,400 mature trees in a year1 (www.communitycooker.org).

4.3.2 How it works

Rubbish collection: Managers of the Community Cooker appoint specific individuals or groups of youth to collect rubbish in baskets, bags and wheelbarrows. This rubbish

is delivered to the Community Cooker site. The rubbish is deposited and sorted on the lowest step of three-tiered, steel welded, mesh rack. Biodegradable scraps from plant matter or food which fall through the gaps in the mesh rubbish racks are collected in a compost-manure pile on the ground, below the rack. The remaining rubbish including thin plastic bags, cardboards and papers, large food scraps and discarded clothing, are placed on the second step of the three-tiered rack to dry. This dry, sorted rubbish is then shoveled into the rubbish chute, which leads directly to the fire box for combustion.

4.3.3 Emissions

In March 2011 the Community Cooker in Laini Saba site was tested for stack emissions and residual ash. The results show that the Community Cooker has combustion efficiency of 99 percent and that the levels of , SO2, NOx and heavy metals detected fall within the regulatory limits of United States EPA and World Bank IFC guidelines. These Results also meet Kenya Air Quality and Waste Management Standards. Environmental Measure Report NRB1152-009421 March 2011 (www.communitycooker.org).

CHAPTER 5: CASE STUDY

5.1 Bara Transport facility

Architect : Urban Solutions – Architects and Urban Designers

Client : Johannesburg Municipality

Construction Period : 2003 - 2013

Illustration 5.1.1 – Street view of transport interchange. Source: Author.

5.1.1 Phasing

"Bara was built over a 6 year period with 12 or so phases." (Paul Wijgers, 2013). The added benefit of phasing the development, is that it allowed people that utilise the new facilities to grow accustom to the new built form and it also gives the designers flexibility to respond to some of the tactics developed by people in the previous phases and include them in future phases of the development.

5.2.1 Urban Informality and the Built Form

Bara is also based on a concept that can be defined as the structural spine that is continuous along the length of each building they all line up across the three sites. This spine forms the arcade that commuters walk along from one section to the next to access each site and since it is the main circulation route, some of the informal traders have set up their trading facilities along this route to capitalise on 'passing feet'.

CHAPTER 6 DESIGN DEVELOPMENT AND RESOLUTION

6.1 Concept: Plug + Play

Plug and Play is a design philosophy and set of specifications that was developed for computers to describe changes any computing object and its peripherals, making it possible to add new components without having to perform extensive technical procedures. The proposal must have the same plug and play principles. This will allow for a flexible building that can be modified in its use (to a certain extent) to allow people to form new tactics and incorporate them in the trade-hub. For this to be possible, the 'initial' built form structure has to be based on the following informal principles to make it possible for people to take what they've developed on the side of the street and move it into a more 'formal' set up.

6.2.1 A transparent building that is integrated with its street edges

Since most of (if not all) the informal processes that take place within Warwick Junction developed on the side of the street, it is critical that the building's interface has minimal barriers between the traders in the building and the commuters walking along the street edges. This transparent set-up will make the built environment work in a way that is familiar trades.

_Organised Complexity:

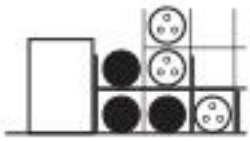
The ability to unplug and plug-in a new function the building after the initial built form is erected makes sure that it is defined by people in the informal urban context from the bottom-up the way they need it to be defined rather than the architect defining the way he thinks it should be.

_Power and Control:

The architect offers their technical expertise and the end-user provide insight on how the processes that they have defined can be accommodated in the built form thus giving the end-user power and control over their built form.

_Strategy and Tactics:

The ability to 'plug-in' a tactic means that the built form is configured in such a way that it allows the end-user to redefine it in such a way that is meaningful and appropriate to them and their tactic.



_Built Form/ Support

Configuration based on underlying principles of urban informality developed by the end-user.

_End User

Power to link and capacitate built form lies with the end-user.

_End User Tactics

An indeterminate built form must be able to accommodate tactics developed by the end-user.

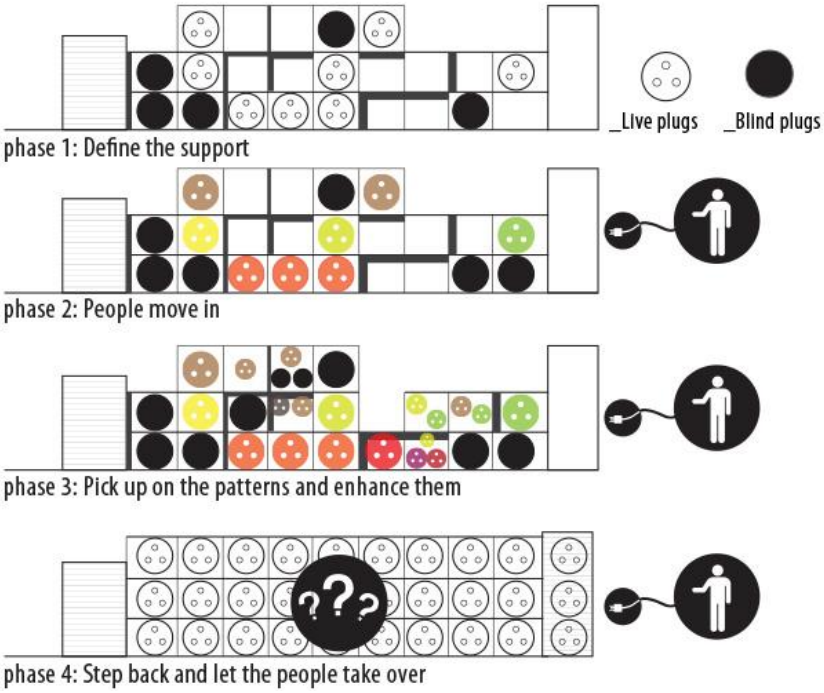


Illustration 6.2.1 - Hybridising the built form and the informal tactics. Source Author.

_Hybridisation

The indeterminate nature of the plug and play process of being able to redefine certain parts of the building and the functions within them sets up a 'never ending' cycle between the way the built form is defined and the number of different ways the built form is defined.

6.2 Concept execution

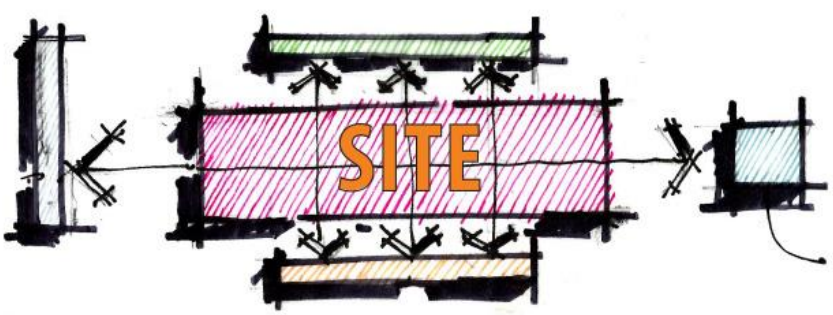


Illustration 6.2.2 – Defining the links. Source: Author.

Stage 1 - Define links to context: Intervention must be permeable and act as a transition within its context. This was achieved by picking up existing and potential pedestrian streets that would run through the building defining the built form as an arcade.

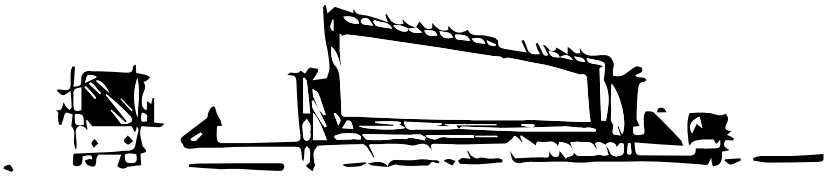


Illustration 6.2.3 – Making the ground floor more permeable. Source: Author.

Stage 2 - Make the ground floor permeable: Ground floor must allow maximum pedestrian movement and be dedicated to urban informality for informal traders to capitalise on pedestrian movement.

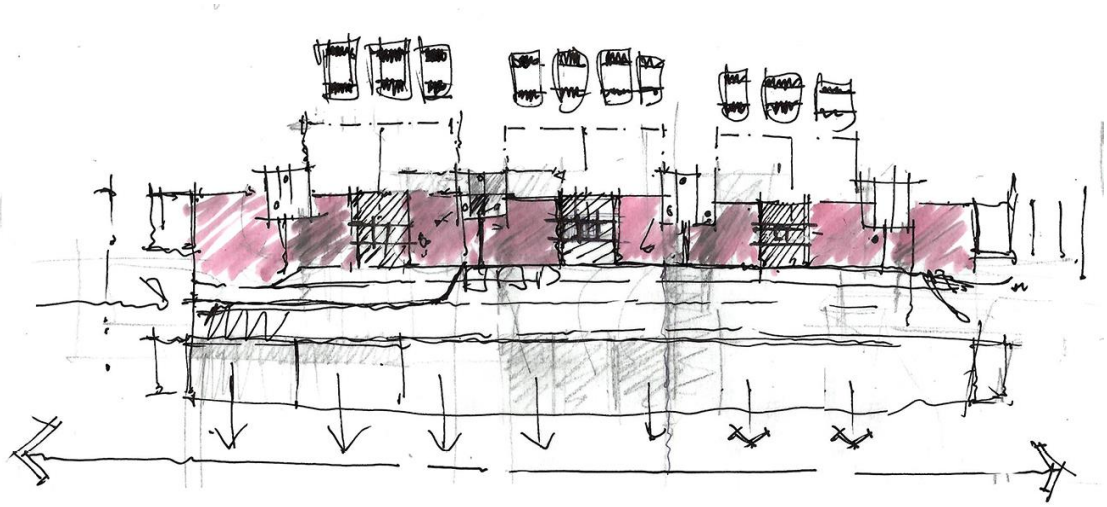


Illustration 6.2.4: Defining Internal Pedestrian 'Streets' Source: Author.

Stage 3 - Defining Internal Pedestrian 'Streets': Defining a building the feeds of three streets (an idea taken from the informal urban context) .

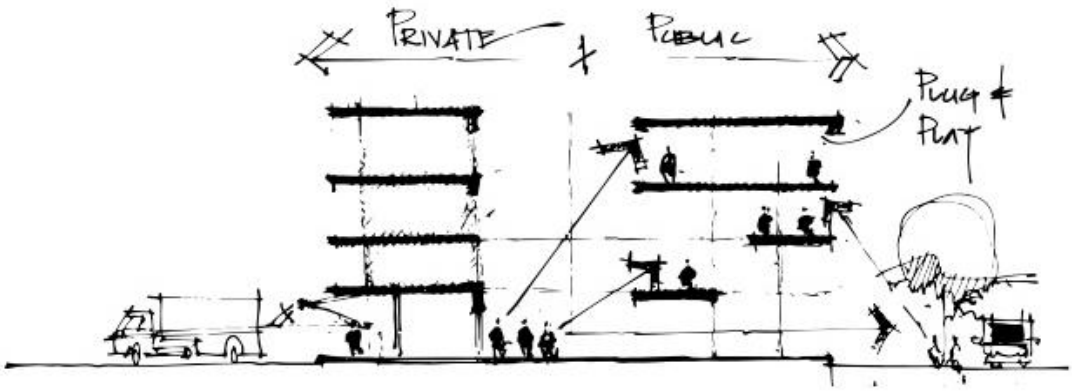


Illustration 6.2.5: Breaking down the edge and making the building more transparent

Stage 4- Breaking down the edge and making the building more transparent. Massing of the building must permeable physically and visually to promote movement from the edges into the building. People within this precinct also prefer this configuration because it prevents cannon gate design.

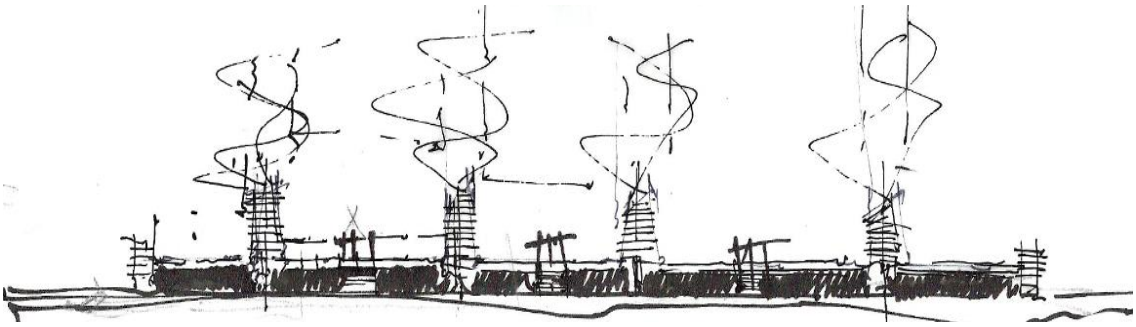


Illustration 6.2.6: Defining the initial support (core) that everything depends on. Source: Author.

Stage 5 - Defining the initial support (core) that everything depends on: Mealie cooks and their idea of using fire sets up iconic chimneys that also provide power for the building. This process achieves the main goal of urban informality acting as a generator for meaningful built form.

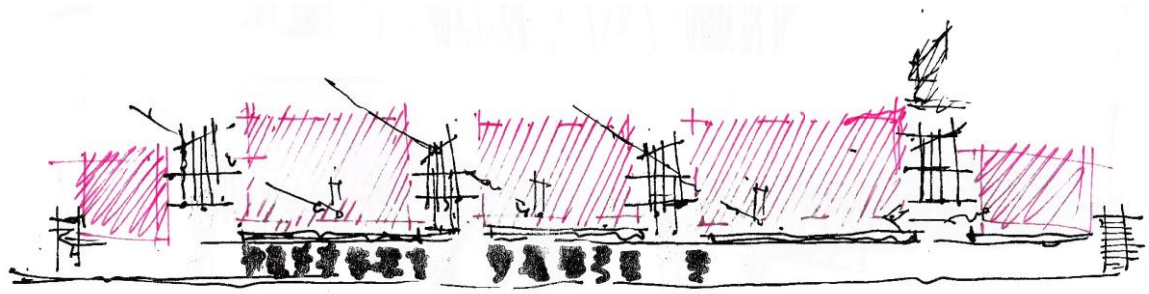


Illustration 6.2.7: Defining the indeterminate plug and play spaces. Source: Author.

stage 6: Defining the indeterminate plug and play spaces that can facilitate future phases of the development which people within the precinct can also manipulate to make it suit their needs.

6.3 Final Design Proposal

As presented to the Final Jury.

_Multi-Purpose:
Designed and used for several purposes.

_Hub:
A place or thing that forms the effective centre of an activity, region, or network.

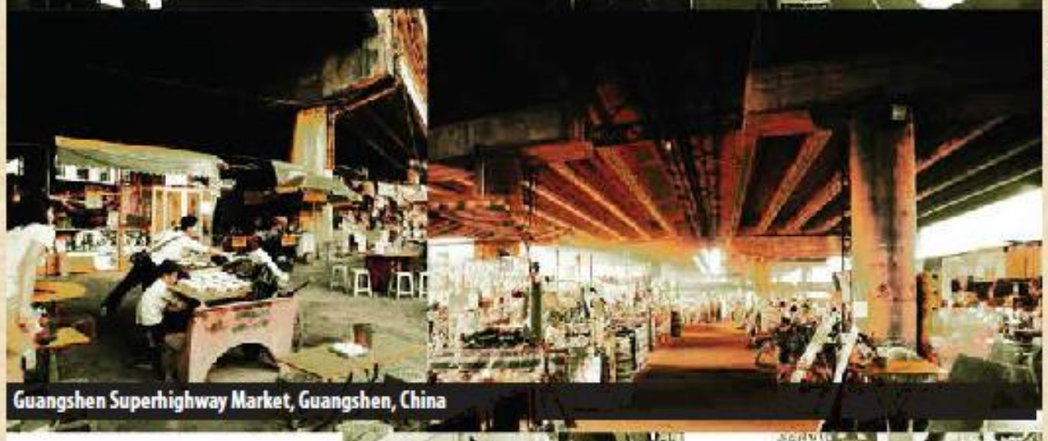
WARWICK JUNCTION MULTI-PURPOSE TRADE HUB

Urban Informality as a Generator for Meaningful Built Form

mongezi ncube 207502327

_Trade:
A basic economic concept that involves multiple parties participating in the voluntary negotiation and then the exchange of one's goods and services for desired goods and services that someone else possesses.

Warwick Junction, Durban, South Africa



Guangshen Superhighway Market, Guangshen, China

Ciudad Del Este Market, Ciudad Del Este, Paraguay

Maeklong Railway Market , Thailand

A URBAN INFORMALITY

Urban informality is regarded as the result of ***the poor organising themselves*** by using their own ***ingenuity*** and social capital to ***respond to issues they face*** in the urban environment (Pieterse, 2009). The issues they face range from the ***need for basic shelter*** to trying ***to generate a source of income***. Urban informality has grown to a point that it has become a very dominant feature of the cityscapes in the Latin America, Asia and Africa (Hernández and Kellet, 2011:1). It has outgrown the formal "static" city to a point that the cities in these continents derive their image from informality. "The processions, festivals, street vendors and dwellers are some of the ***characteristics that define informality within the Latin American, Asian, and African cities***" (Hernández and Kellet, 2011:2). ***Urban informality is now an active force that shapes cities*** in Latin America, Asia, and Africa. The architectural built form (being the dominant element in these cities) needs to transform to a new typology that will be able to accommodate this ever growing phenomenon that has become an integral part of the cities in the aforementioned continents. ***This architectural intervention*** therefore seeks to define an architectural built form typology that ***is informed by urban informality*** to be able to accommodate and facilitate everyday lives of people in the informal urban context of WARWICK JUNCTION.

B CLIENT iTRUMP

During the post-apartheid period (after 1994), Warwick Junction had its own independent programme, the "Warwick Junction Project", that was established to engage ***street traders in a collaborative effort to improve their*** needs as well as the city's (www.paticipedia.net). In 2001, the Warwick Junction Project was incorporated into ITRUMP as part of the nine inner city districts managed by the Ethekwini Municipality. A large majority of interventions within Warwick Junction meant to accommodate its informal traders and serve commuters by addressing their urban design and management issues are now implemented and funded through this government unit.

b1_PROJECT DESCRIPTION + VISION

"A multi-purpose trade hub that will improve the overall quality of the urban environment in the Greater Warwick Avenue and Grey Street area in terms of safety, security, cleanliness, functionality and the promotion of economic opportunities. ***The redevelopment of the Warwick Avenue area, specifically, should be geared towards promoting its primary role and function as a major regional hub for public trading, with a particular focus on the needs of the urban poor.***" (Dobson, 2009:64).

b2_ITRUMP'S OBJECTIVES

_ **District Distinctiveness:** Recognizing the district's intrinsic urban and social contribution to the inner ***city has been beneficial.***

_**Consultation:** ITRUMP believes that its structured multi-level consultation process i.e. District level stakeholders; ***interested and affected groups.***

_**Emerging Economic Understanding and Dynamic:** Sensitivity towards the emerging economic patterns and dynamic has been critical in the development of an approach for urban informal trade.

_**Infrastructure Investment:** ITRUMP believes there is now substantial evidence indicating that the provision of appropriate and sector responsive infrastructure has a positive impact on the informal economy and often by default, improved urban management.

_**Phased Implementation:** Further to the maintenance of an extensive project list, is the deliberate process of phased implementation.

_**Social and Cultural Inclusion:** Sensitivity towards these two aspects has been critical given the nation's exclusionary past.

b3_FUNDING

ITRUMP has implemented more than 14 interventions within the precinct from 1996 to 2003. Some of these interventions (post 2001) have been funded by the municipality which has a set annual budget for the ITRUMP unit. It ***has also received additional funding since it became one of five of the eThekwini Municipality's*** European Commission sector support funded Area Based Management Programme units. Prior to that, it has also received additional funding from various NGOs for certain interventions. Ultimately, funding will not be a prohibitive factor but the building has to be economically viable.

C THEORETICAL FRAMEWORK

c1_THEORIES

_Organised complexity

Jane Jacob's theory looks into the real factors (***from the bottom-up***) ***that play a role in the definition of cities and urban landscapes in order to define and recommend strategies to enhance them rather than restricting them.***

_Structuration of Power and Control

'***Agency***' can be understood as people in the formal urban context who have the ***power to change*** their built environment to suit their needs and '***structure***' can be understood as the ***built form*** as it is a resource with certain rules that the '***agency***' ***acts under***.

c2_CONCEPTS

_Hybridisation

The ***hybridization*** of the informal (***urban informality***) and formal (***built form***) ***is not final in their physical and*** visual co-existence but they have to continue to ***influence each other indefinitely*** to prevent one order from setting limitations for the other thus achieving ***true hybridization***.

_Strategy and tactics

Strategy is normally ***imposed*** by an institution or structure of ***power***, and opposed to that, ***an individual*** will use his/her ***tactics to respond*** to the environment that has been produced by the strategy. ***Tactics*** (which is a ***temporal use of space***) as a very important element in the ***expression of the identity and the uniqueness*** of the place ***defined by the people. This suggests a built form that implies its intended use*** but (at the same time) also ***leaves room for interpretation*** by the people that inhabit these spaces in order for them to ***find their own meaning within that "defined" space.***

c3_PRINCIPLES OF URBAN INFORMALITY AND THE BUILT FORM

_Socio Economic Principle

The ability of the people to use their ***social capital to invest*** in their ***built environment*** in order to make it suit and facilitate their needs. Due to their ***limited resources*** and unstable nature of their economy, the ***built form*** should ***not impose*** strategies that would require unnecessary up keep and the only way people can invest in their own environment is if they are ***assisted by being supplied a 'foundation'*** that they can build on and ***manipulate*** to make it ***suite their everyday*** lives and context.

_Principle of Emergence

This principle illustrates that ***urban informality*** and the informal urban context that facilitates it are always ***under constant evolution*** and that this process is developed by people who happen to inhabit the context at a particular time ***to react to unforeseen problems and opportunities*** that present themselves. The ***initial built form*** intervention must ***not be seen as a final structure*** with a forgone conclusion in terms of its use, instead, it must be set up as ***an architecture of possibilities*** that is ***flexible*** enough to ***'suggest' its current and future*** use without reinforcing it as a certain path that urban informality should take in its future states

_Principle of a Culture of Urban Informality

People within a specific context form unique and dynamic networks in clusters of communities. These networks can be ***very intricate systems*** where if one link is disturbed or severed it can destabilise other networks that depend on it. This starts to suggest a ***built form*** that ***'treads lightly'*** in the informal urban context ***to facilitate these networks by defining spaces that do not form individual capsules that operate as isolated one group of people from the rest. Principle defines a network of spaces that flow into each other to form separate but interrelated sections***

c4_A PARTICIPATORY BUILT FORM

"The grand architectural schemes which were designed to resolve social problems, actually exacerbated them…It was not simply that these grandiose blueprints, when out into practice, failed to meet the needs of inhabitants. It was that the approach to planning necessarily inferred failure" ***(Yiftachel, 2006:93)***. ***The definition of the built form in*** the informal urban context has to be mediated through an interpretive process i.e. ***community participation***. The ***defining strategy*** must come ***from the informal urban context itself.***

c5_AN INDETERMINATE BUILT FORM

The indeterminate built form, defined as a system of supports and detachable 'units'. The ability to ***'detach' a unit*** and ***replace it with a new one*** also gives the people who inhabit the built form a certain sense of freedom to ***defend the built form in a way that facilitates and enhances the way they interact and form social networks. The*** built form is ***loosely defined*** enough to suggest its intended use but it can also, to a certain extent, be ***manipulated to suit unforeseen changes*** in its context ***within its defined edge modes.***

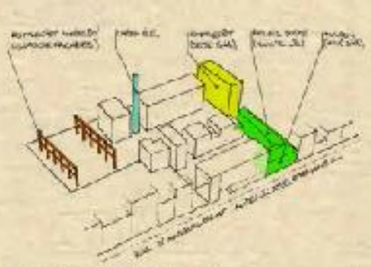
D KEY PRECEDENT STUDIES

f1_SAVONNERIE HEYMANS _Adaptive Reuse

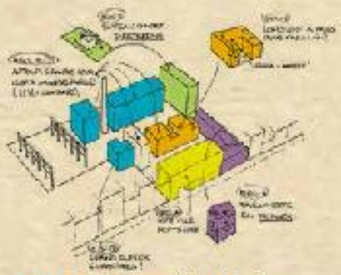
f2_INTER-ACTION CENTRE _Architecture of Possibilities

_Typology : Social Housing
_Location : Brussels, Belgium
_Architect : MDW Architecture

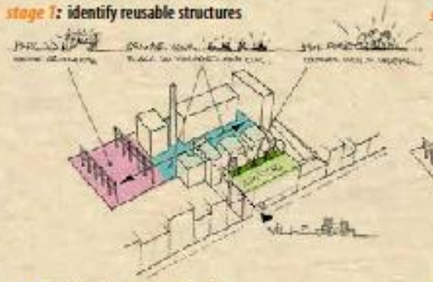
_Typology : Community Centre
_Location : London, England
_Architect : Cedric Price



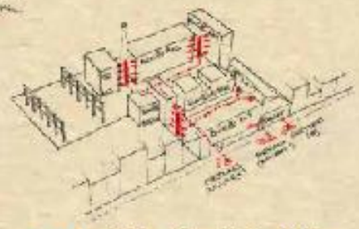
stage 1: identify reusable structures



stage 2: introduce new internal functions



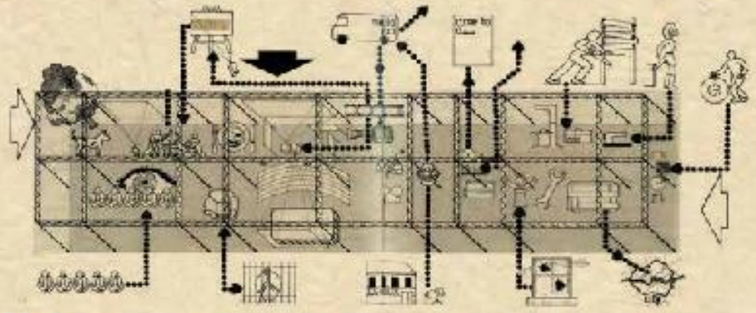
stage 3: introduce external functions



stage 4: establish vertical and horizontal links

_Incorporating the old into the new:

Tucked within the heart of Brussels, a city where only 10 to 15 percent of the housing is for low- and middle-income families, the Savonnerie Heymans represents a promising future for a diverse population. Located on the site of a former soap factory, the project creates 42 accommodations including 1 to 6-bedroom apartments. MDW incorporated various remnants of the factory's industrial heritage. The most prominent, a 131-foot-high brick chimney, rises amid the metal stairways and bridges linking the apartment buildings around it. More than a relic, it is now used to ventilate the underground garage. Similarly, a warehouse from the 1950s was largely demolished to create a playground with a viewing platform. Its surrounding walls were lowered from 33 to 10 feet high, and sections of the old steel beams were preserved as visual artefacts. All the existing valuable historic buildings and elements such as the chimney, the main 19th century house on the street and the postal relay were retained and integrated into the complex (the 40m high chimney, for example, was used as part of the underground garage ventilation system) (Architectural Record 2013:84).



plan: built form is configured to accommodate any function required by the end-user

elevation: additional functions 'clip-on' frame structure

_Architecture must enable people to think the unthinkable (Price, 1971):

Designed as an open steel-frame structure, prefabricated and mobile spaces could be placed or moved around, allowing a range of activities to be performed inside. The structure was designed to last 20 years in constant change, after which the building components could be disassembled and a new structure could be built.

_Short term planning: Use must be made of communal areas and networks as found, but this use, due to change in activities, may be quite different from the original and is likely to be increasingly specialised - for example the varied use of urban pools (Price 1964:61).

_Long term planning: Pleasure network, national or regional, can establish distances and locations directly related at any time to social capabilities and appetites is it not integrated with other required networks (Price 1964:61).

_Materials: The building employs simple construction and locally available materials to encourage people to implement interventions without feeling intimidated by the building's construction system.

E KEY CASE STUDY

f2_BARA TRANSPORT FACILITY _Urban Informality and the Built Form

_Typology : Transport Interchange
_Location : Soweto, South Africa
_Architect : Urban Solutions

concept: Commuters walk along a structural 'spine' to access different sections of the building

phasing: The building was built in different phases and it the planning was altered from phase to phase

typical plan: Informal traders are isolated in dedicated trading compartments

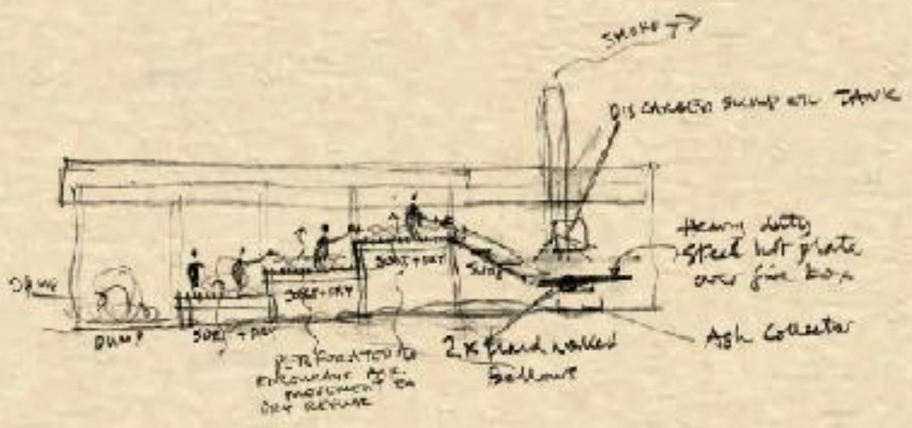
_Phasing:

"Bara was built over a 6 year period with 12 or so phases." (Paul Mrigues, 2014). The added benefit of phasing the development, is that it allowed people that utilise the new facilities to grow accustom to the new built form and it also gives the designers flexibility to respond to some of the tactics developed by people in the previous phases and include them in future phases of the development.

_Urban Informality and the Built Form:

Bara is also based on a concept that can be defined as the structural spine that is continuous along the length of each building they all line up across the three sites. This spine forms the arcade that commuters walk along from one section to the next to access each site and since it is the main circulation route, some of the informal traders have set up their trading facilities along this route to capitalise on 'passing feet'.

F COMMUNITY COOKER PRECEDENT



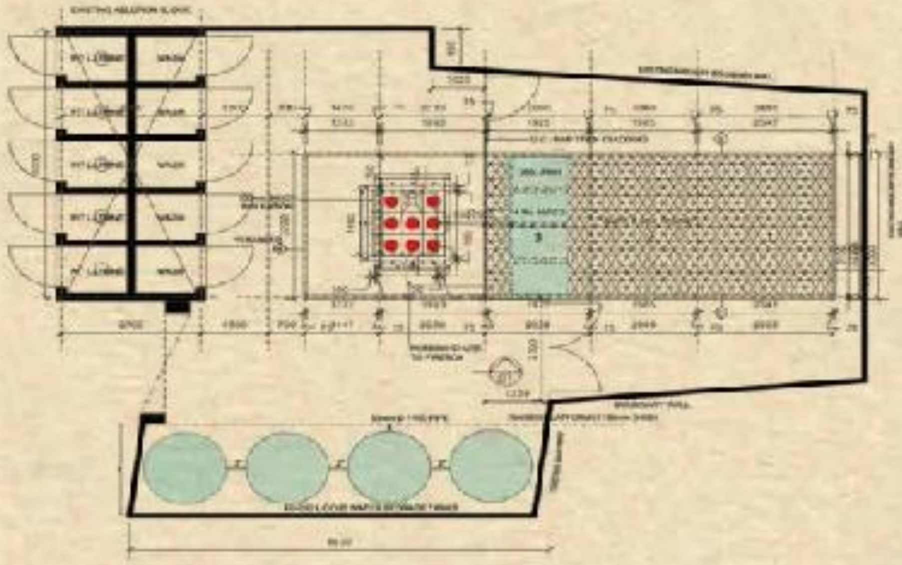
jim archer's first "think" sketch in 1991

f1_THE COMMUNITY COOKER _Technical precedent

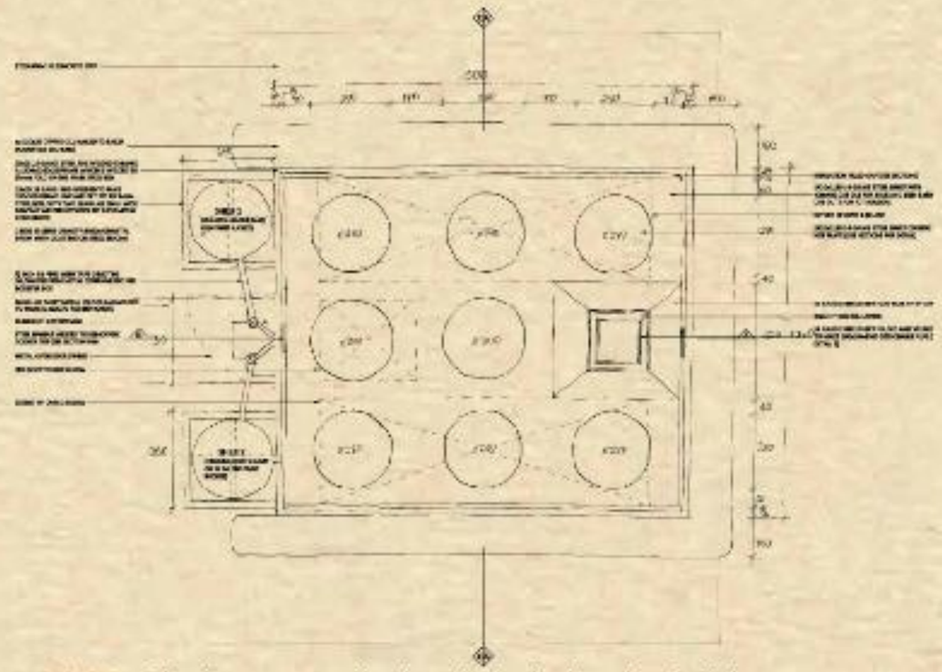
_View of hot plate stoves with chimney in the center

_View of combustion chamber

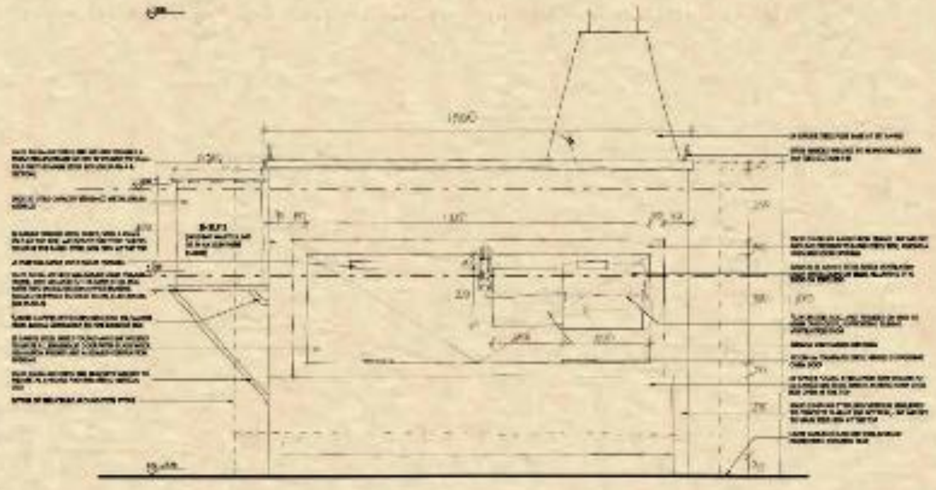
_Typology : Community cooker
_Location : Kibera, Kenya
_Architect : Jim Archer



plan of facilities: plain view of the laini saba community cooker with hot and cold water storage system and ablution blocks



technical plan: 8 hot plate stoves recessed into the combustion chamber are heated with three separate ovens



plan of facilities: plain view of the laini saba community cooker with hot and cold water storage system and ablution blocks

_Background:

The Community Cooker is a simple machine and can be built almost anywhere. The cooker itself is made of welded steel insulated with fire bricks on all four sides. The top of the cooker consists of a metal plate, and serves as the cooking surface. The cooker has two ovens for baking located underneath the metal plate. A chimney carries the smoke from the combustion chamber to the chimney's outlet high above the neighbourhood's roof-line. Because the stove burns rubbish at over 800 degrees Celsius, it achieves 99 percent combustion, producing smoke that is white in colour and almost odourless. At the bottom of the stove there is a wide metal chute that allows rubbish to be pushed from the trash storage racks into the combustion chamber of the stove. Dry, sorted rubbish is manually fed by the stove operator. The Flue to 10m above rooftop Rubbish chute from top rubbish rack Wall separates rubbish sorting from cooking Ablutions "Bafu" **and Latrines behind Cooking Plates Unfiltered water down Recycled Sump oil Tank. Community Cooker is deliberately designed to be** labour intensive and to use locally available materials so that repairs, maintenance and operation can easily be carried out by members of the local community (www.communitycooker.org).

_Key facts and benefits

- the core functions of cookers are to:
- cook food, heat and boil water for washing and drinking, clean up the environment and reduce pollution of groundwater, through collection and responsible burning of rubbish,
- the community cooker has a total cooking surface of 1.7 square meters, two .18 cubic meter ovens for baking, and can heat 800 litres of water.
- combustion temperatures inside the community cooker reach over 850 degrees celsius, exceeding the world health organization (who) minimum standards for incineration in developing countries.
- research is currently under way to evaluate the potential use of the community cooker for distilling water, baking clay products and smelting soft metals.
- a community cooker, managed responsibly and operated for a year will save the caloric heat equivalent of burning 2,400 mature trees in a year1 (www.communitycooker.org).

_How it works

Rubbish collection: Managers of the Community Cooker appoint specific individuals or groups of youth to collect rubbish in buckets, bags and wheelbarrows. This rubbish is delivered to the Community Cooker site. The rubbish is deposited and sorted on the lowest step of a three-tiered, steel welded, mesh rack. Biodegradable scraps from plant matter or food which fall through the gaps in the mesh rubbish racks are collected in a compost-manure pile on the ground, below the rack. The remaining rubbish including thin plastic bags, cardboards and papers, large food scraps and discarded clothing, are placed on the second step of the three-tiered rack to dry. This dry, sorted rubbish is then **shovelled into the rubbish chute, which leads directly to the fire box for combustion.**

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G UNDERSTANDING THE INFORMAL NETWORK

Location of traders that need an intervention

Informal traders within the precinct trade on different levels and each level determines the way people work within or under a defined structure . Visible traders are the traders that ply their trade on the street edges or that come into direct contact with the daily commuters. They often prefer formal 'transparent' structures that have no barriers between them and the commuters. These traders are given first priority in new interventions...

TRADER DEPENDANT/ SUPPORT

Invisible traders are that often traders that trade with other traders. They act as the support structure for traders on the visible network often moving or fixing their infrastructure making it possible for them to ply their trade. Invisible traders are mentioned as go-to activities that can work from the street edge or from a secluded but accessible location. They usually prefer a more 'formal' environment due the equipment that they utilise on a daily basis. These informal traders often get overlooked or are given sub-standard interventions since they can be moved around into underutilised spaces within the city where they can be seen. This process can have a negative impact on the growth of their business and the business of other informal traders on the visible network. By strengthening these traders it has a knock on effect on the uplifting of the precinct and this is where the multi-purpose trade hub intervention comes into play.

TRADERS THAT NEED AN INTERVENTION

The following informal traders (highlighted in red above) are in need of an intervention that will facilitates their informal trade. Each group was consulted to find out how they need their built environment to be configured to facilitate their respective trades.


Mealie cooks

Mealie cooks

Located on the fringes of Warwick, mealie cooks have developed their own system of cooking mealies with steel drums on fire. This system has been approved by the municipality due to its efficiency. A total of 26 to 28 tons of mealies are sold in Durban's inner city per week, most of these mealies come from this mealie cooking facility.

Temporary Traders

Some of the informal traders only come in at certain times of the week to sell special goods. This 'once a week' form of trading turns their respective trades into a special occasion where come into Warwick for that specific event. Unfortunately, these traders are isolated from each other meaning that they pay for their trading stall even when they are not in use.


Beadwork Market


Porters

Mobile Traders

Informal trade is not necessarily fixed to one location. Some of the traders have found ways to make their trade mobile by trading from shopping trolleys to helping other traders ans commuters move heavy goods. This has made the pavement the most contested space within the precinct and porters have to eventually give way to pedestrians and navigate their way through vehicular traffic.

Artisans

Other traders do not trade with the commuters but they trade with other traders. One example of this are the carpenters that build tables, storage containers and other street furniture. They use recycled wood pallets for all of their furniture. This makes their furniture affordable for other informal traders. A 2x1.5m table costs R60 and it lasts for up to 3-4 months.

Artisans


Informal Recyclers

Cardboard/ Plastic Collectors

Informal recyclers can be found collecting cardboard or plastics from formal retail shops and other street traders that have used up their boxes. They work as satellite station each group collecting and selling their recycled goods within their precincts. They usually collect their recycled goods early in the morning when formal shops receive goods and late in the afternoon after working hours

Street Traders

These traders are the most visible traders within the precinct. They of the trade from shelters that open up onto the street allowing for maximum visibility of their trading stalls. Where there is a pavement with commuters, informal traders will find a way to move in and capitalise on that opportunity.


Pavement Traders

H SITE SELECTION


Africa


South Africa


Kwazulu Natal

h1_SITE SELECTION CRITEREA

_Transition location: The site is located in the outskirts of a post-colonial South African city. It has the potential to act as a transition since it is located in the middle of the main road of the precinct and the train station.

_Visibility and accessibility: It is visible and readily accessible to the general public on foot and public/ private transport. It also has a strong link between it and the city since it acts as one of three first points of arrival within the precinct coming or going to the CBD

_Area Base Intervention: The existing structure has informal and formal activities currently taking place within it but it has the potential to accommodate more activities that take place around it.

_Size and Zoning: The site is zoned for general business and it is big enough to accommodate the intended multi-purpose facilities.

_Adaptive Re-use: The site has an existing under-utilised historical industrial warehouse shell like structure that can be adapted to suit the proposed multi-purpose trade hub.

_Possibility of emergence: There are unlimited opportunities for the proposed facilities to grow beyond its boundaries and link with adjacent sites since they are zoned for public use and are currently underutilised.

_Power and control: The site is currently owned by Ethekwini Municipality as is the proposed facility and this will give more power to its intended inhabitants of their built form compared to private ownership.

h2_HISTORICAL BACKGROUND

After the colonial city of Durban was established, the first indian migrants arrived in November 1860 as indentured labourers, to work in what was then known as the Natal Colony. The Indian community continued to grow and acquire more land along Grey Street to conduct their trade and build residential and religious buildings. This growing community also attracted other marginalised groups to come and trade within the precinct (KZNIA Journal, 2012:11). The precinct then started becoming the central hub for formal and informal trade in buildings and along the pavements. Small available land in the informal precinct also started becoming a central transport node for people **that worked in the city but lived on the outskirts of the city. As the laws became tighter informal trade became more difficult to a point that** the local authorities banned it from the city in the 1960's. The local authority later reinstated it (due to persistent protests) in the 1970's (KZNIA Journal, 2012:13). In 1990, following the relaxation of the laws that governed informal trading and the relaxation of the apartheid laws, 4000 street traders moved into the precinct. The public transport section also grew to a point that the Warwick precinct had serious congestion problems and was in danger of being declared as a slum. When the country eventually moved into democracy from 1990, groups and organisations were formed to regulate and restructure the informal precinct to what it is today (KZNIA Journal, 2012:13).


1951


1976


2010

I SITE ANALYSIS

I1_MACRO CONTEXT


Muthi Bridge


Brook Street Market

The site is located within a walking distance of all of the major markets of Warwick, i.e. Bovine Market, Early Morning Market, and Muthi Bridge. There are major social services located within this precinct including: schools, clinics, social workers. Other than serving as a major informal trade precinct, Warwick also functions as Durban's major transport interchange. The precinct also has a strong and prominent street culture. Buildings within this precinct act as backdrops to the informal traders and most (if not all) of the interventions implemented 1994 **are configured around the people and informal traders instead of the buildings dictating the urban realm of the precinct.**

I2_MICRO CONTEXT

The site is surrounded by active public and civic buildings including; clinics, a church and vibrant street markets. The existing structure on the site is the only underutilised structure. Public buildings such as taxi ranks and markets are transparent framed structures to increase visibility and limit barriers that would hinder any pedestrian movement. This also limits any 'cannon' gate pedestrian movement thus making is harder for criminals to predict any pedestrian movement.

J URBAN DESIGN ISSUES

Pedestrian Movement

Vehicular Traffic

Critical Intersections

Possible Entrances

Potential Links

Abandoned Spaces

Introverted Spaces

_The proposal and its context is surrounded by major pedestrian routes linking various market and taxi ranks. The urban design proposal will have to promote more pedestrian movement in keeping with the existing vibrant street culture.

_The precinct is currently dominated by heavy traffic flow. This must be addressed by giving pedestrians more freedom than vehicles by locating traffic way from the building edges to minimize congestion and allow pedestrians to move about freely with minimal pedestrian and vehicular intersections.

_These areas are located in critical vehicular/ pedestrian intersections currently dominated by vehicular traffic and they should be addressed in such a way that pedestrians are given first preference in the new urban design scheme.

_These spots are in critical positions to tap into the major pedestrian routes this means that possible primary and secondary entrances could be placed here these areas also lead to major spaces located within the building. This will start to inform the design solution in terms of the placement of primary and secondary functions.

_The building has to open up more to the public to promote continuous movement and utilisation of all spaces. These points are crucial to the execution of this idea due to their positioning and potential linkage to the markets and taxi rank opposite them.

_The site is surrounded by dead, abandoned, under utilised spaces and bridges that act as potential locations for criminal activities. These spaces also act as barriers that disconnect utilised public spaces from each other making **the context inefficient in its use.**

_These spaces located in the center of the building are locked in by the building's footprint and this will discourage users from using them. By creating openings in the building that connect to major pedestrian centers it will promote continuous movement in these spaces.

K CITY MARKET/ ALTERATIONS + DEMOLITION

k2_MOTIVATION FOR ALTERATIONS AND DEMOLITION

THOSE IN FAVOUR OF KEEPING THE BUILDING

If the existing structure is retained, it will only satisfy people who are interested in historical buildings and people who will never use the building.

THOSE IN FAVOUR OF DEMOLITION

People of Warwick far out weigh the needs of the 'historians'. If this intervention is implemented, the buildings will come more than a relic or artefact retained to make our city look 'pretty'.

L CONCEPT

PLUG + PLAY

Plug and Play is a design philosophy and set of specifications that was developed for computers to describe hardware and software changes to the PC or any computing device and its peripherals, making it possible to add new components without having to perform extensive technical procedures. The proposal **must have the same plug and play principles. This will allow for a flexible building that can be modified in its use (to a certain** extent) to allow people to form new tactics and incorporate them in the trade-hub. For this to be possible, the 'initial' built form structure has to be based on the following informal principles to make it possible for people to take what they've developed on the side of the street and move it into a more 'formal' set up.

_A transparent building that is integrated with it's street edges

Since most of (if not all) the informal processes that take place within Warwick Junction developed on the side of the street, it is critical that the building's interface has minimal barriers between the traders in the building and the commuters walking along the street edges. This transparent set-up will make the built environment work in a way that is familiar trades.

_Organised Complexity

The ability to unplug and plug-in a new function the building after the initial built form is erected makes sure that it is defined by people in the informal **urban context from the bottom-up the way they need it to be defined rather than the architect defining the way he thinks it should** be.

_Power and Control

The architect offers their technical expertise and the end-user provide insight on how the processes that they have defined can be accommodated in the built form thus giving the end-user power and control over their built form.

_Hybridisation

The indeterminate nature of the ***plug and play*** **process of being able to redefine certain parts of the building and the functions within them sets up a 'never ending' cycle between the way the built form is defined and the number of different ways the built form is defined.**

_Strategy and Tactics

The ability to '***plug-in***' **a tactic means that the built form is configured in such a way that it allows the end-user to redefine it in such a way that is meaningful** and appropriate to them and their tactics.

_BUILT FORM/ SUPPORT

Configuration based on underlying principles of urban informality developed by the end-user.

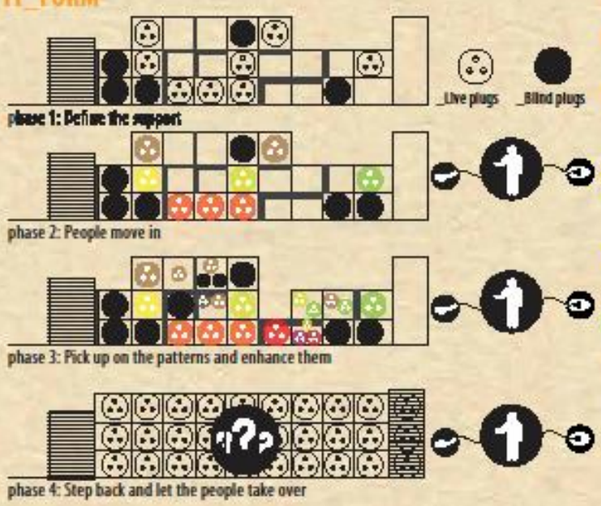
_END USER

Power to link and capacitate built form lies with the end-user.

_END USER TACTICS

An indeterminate built form must be able to accommodated tactics developed by the end-user.

I1_FORM

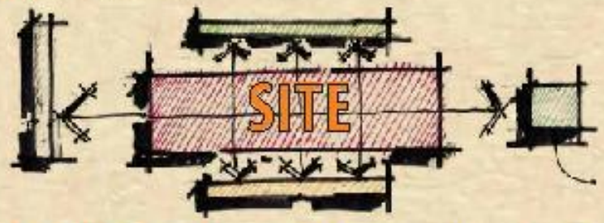


I2_SCHEDULE OF ACCOMMODATION

- _Mixed Informal Trade
  - Demarcated Stalls
- _Mealie Cooking
  - _Cooking Area
  - _Counting Sorting Area
- _Mixed Workshop
  - _Studios
  - _Equipment Area
- _Carpenters Workshop
  - _Studios
  - _Equipment Area
- _Formal Retail
- _Transitional Accommodation
- _Community Kitchen
  - _Storage
  - _Prep./ Cooking Area
- _Plastic Recycling Workshop
  - _Stacking and Sorting
  - _Baling
- _Cardboard Recycling Workshop
  - _Stacking and Sorting
  - _Baling
- _Temporary Trading space
- _Storage
- _Control Center
  - _Asiye Etafuleni
  - _Main Offices
- _Ablutions
- _Change rooms
- _Delivery
- _Parking
- _Service Yard

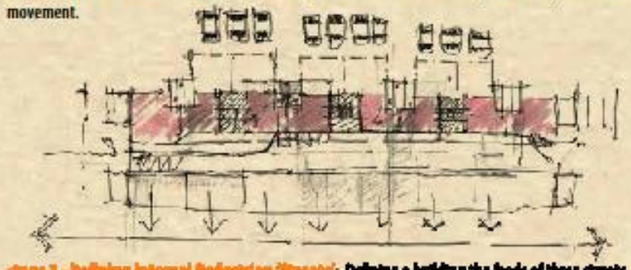
Total sqm = 8286sqm

M CONCEPT EXECUTION

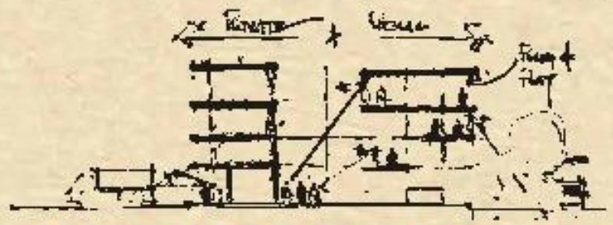


stage 1- Define links to context: Intervention must be permeable and act as a transition within its context. This was achieved by picking up existing and potential pedestrian streets that would run **through the building defining the built form as an arcade.**

stage 2 - Make the ground floor permeable : Ground floor must allow maximum pedestrian movement and be dedicated to urban informality for informal traders to capitalise on pedestrian movement.

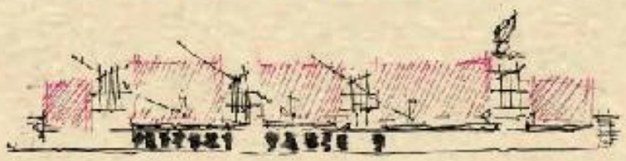


stage 3 - Defining Internal Pedestrian 'Streets': Defining a building the feels of three streets (an idea taken from the informal urban context) .



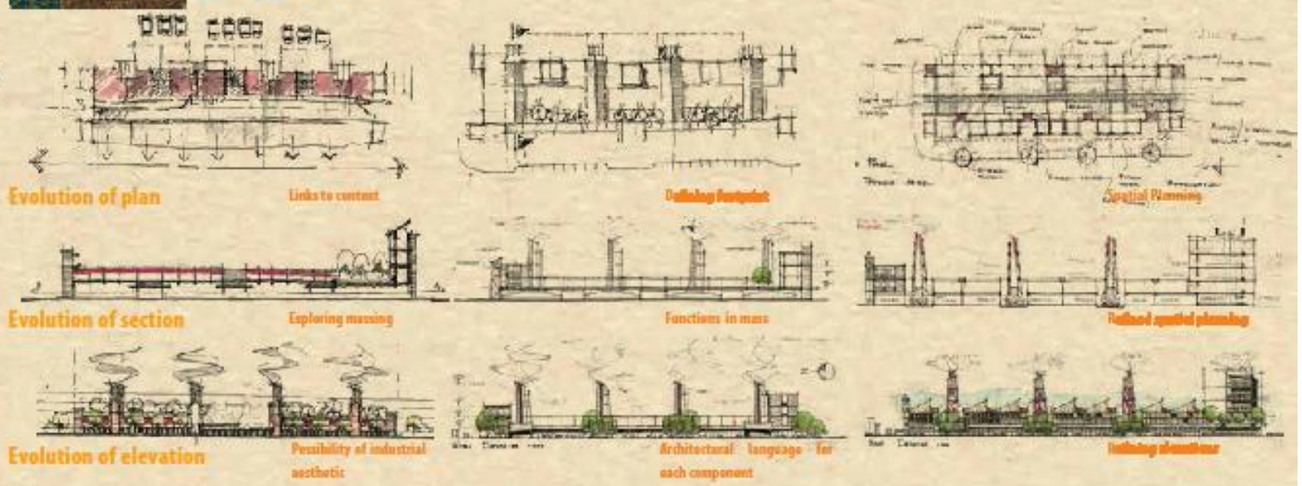
stage 4- Breaking down the edge and making the building more transparent. Massing of building must permeable physically and visually to promote movement from the edges into the **building. People within this precinct also prefer this configuration because it prevents common gate** design.

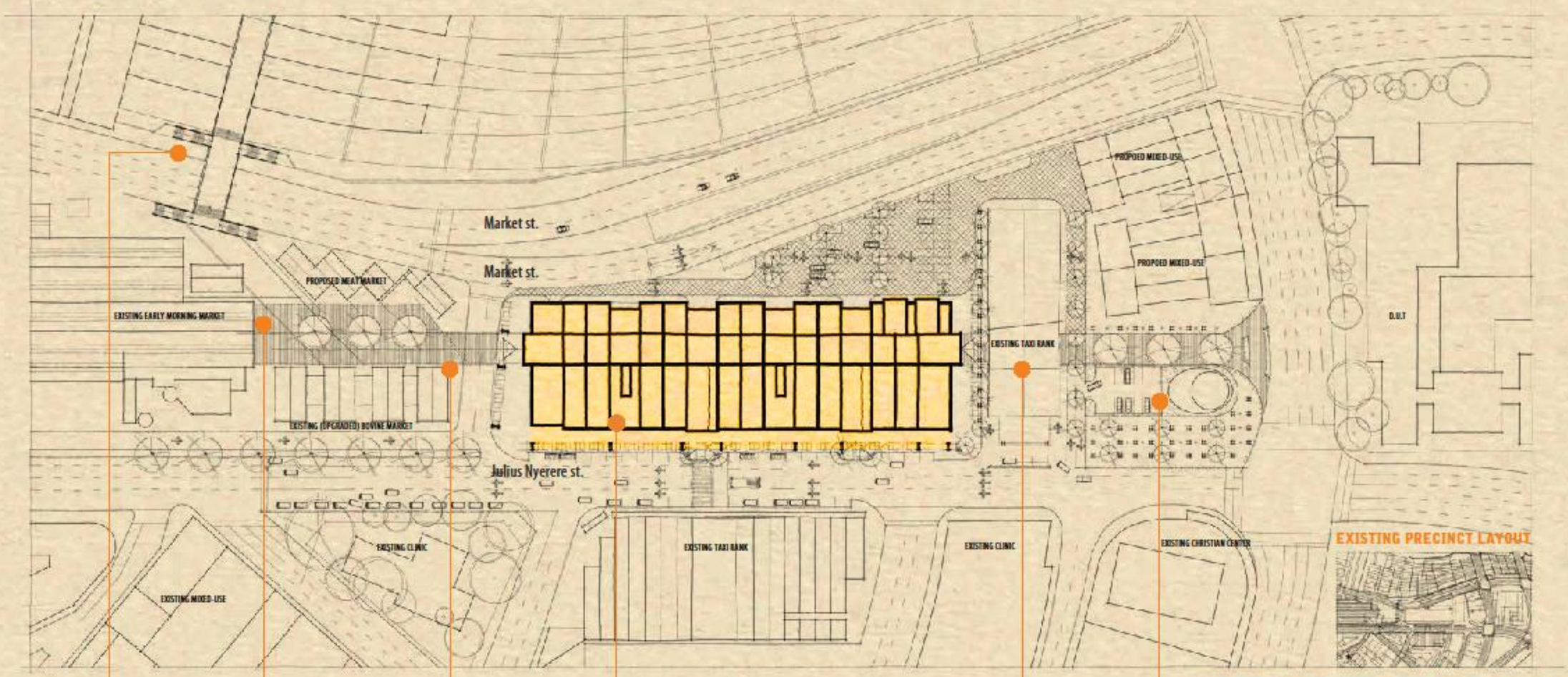
stage 5 - Defining the initial support (core) that everything depends on: Mealie cooks and their **idea of using fire sets up iconic chimneys that also provide power for the building. This process** achieves the main goal of urban informality acting as a generator for meaningful built form.



stage 6: Defining the indeterminate plug and play spaces that can facilitate future phases of the development which people within the precinct can also manipulate to make it suit their needs.

N DESIGN EVOLUTION





EXISTING PRECINCT LAYOUT

_Public Square:

Currently used as parking for 6 hrs per day. A new public square will be part of the **main axis with Taxi Rank, Meat, and Early Morning Market defining its edges.**

_Muthi Bridge:

An existing abandoned bridge from Brook Market extended over Market Rd to link to Early Morning Market. Bridge will have mixed trading along its edges for passive security.

_SITE:

The proposal will be implemented as part of the experience along that main pedestrian axis . It will act as a transition between point a and b with informal traders along its edges.

_Link to Context:

A pedestrian axis running from Early Morning Market, running through the building , terminating next to new satellite police station will create a safe **pedestrian zone away from vehicular traffic.**

_Taxi Rank:

An existing taxi rank will be retained. The taxi rank has the potential to keep the edges to the south of the building active. This will also promote more people to move through the building heading north.

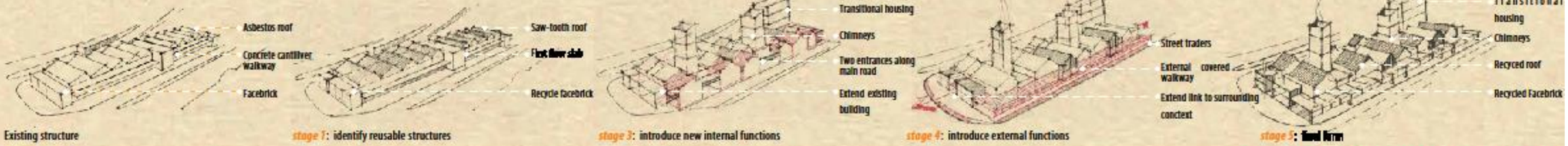
_Satellite Police Station:

An existing abandoned satellite police station will be retained. Informal traders and commuters in Warwick have requested for constant police presence along open and busy public areas.

URBAN DESIGN PLAN 1: 600

_FRAMEWORK:

The urban design scheme has been designed to promote more **pedestrian movement between different nodes around the trade-hub** proposal. This is a direct response to the current disconnected nature of **the precinct where vehicular traffic dominates all the active edges. By** freeing up more space for pedestrians, it also gives informal traders **safer trading edges away from vehicular traffic.**



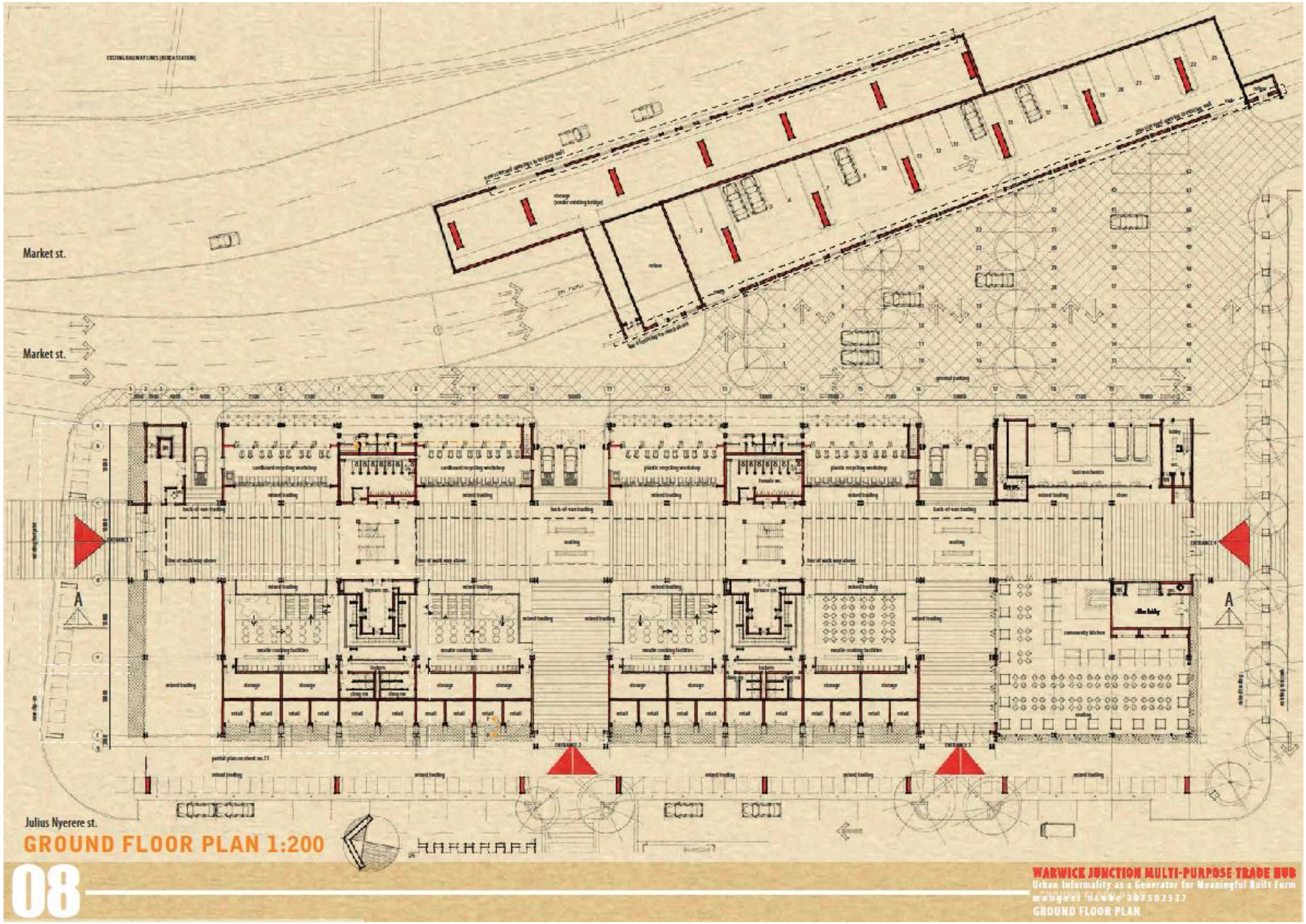
Existing structure

stage 1: identify reusable structures

stage 3: introduce new internal functions

stage 4: introduce external functions

stage 5: final form


EXISTING RAILWAY LINES (REA & STATION)
Market st.
Market st.
Julius Nyerere st.
GROUND FLOOR PLAN 1:200
08
WARWICK JUNCTION MULTI-PURPOSE TRADE HUB
Urban Informality as a Generator for Meaningful Built Form
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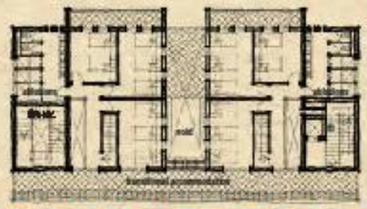
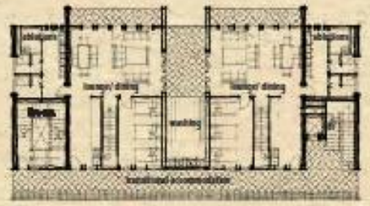
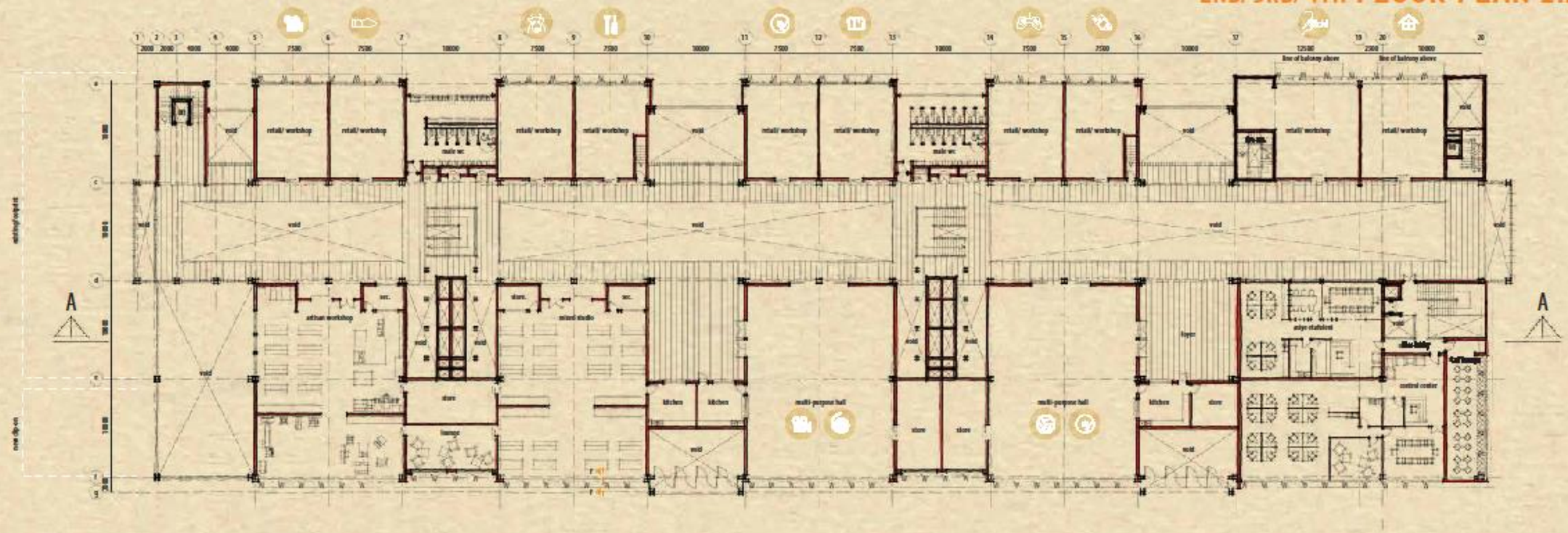
GROUND FLOOR PLAN



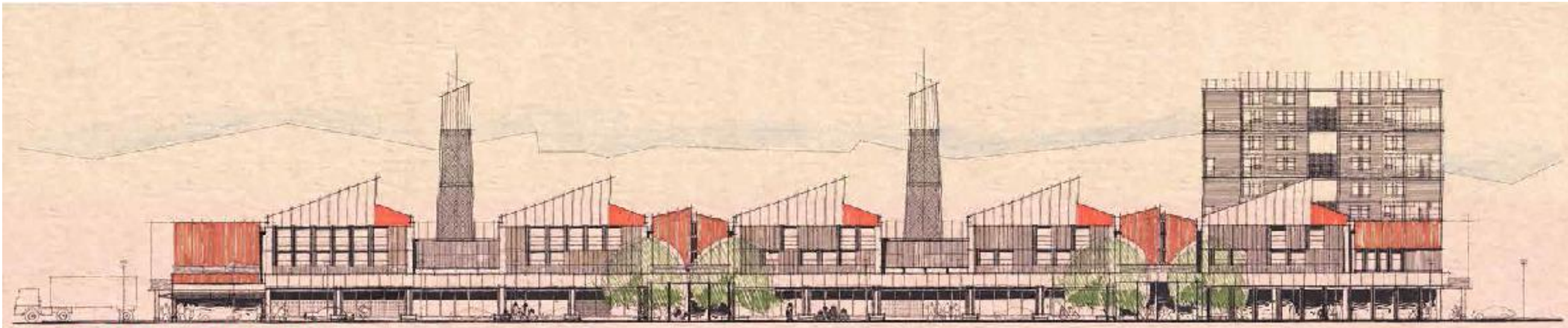
MEZZANINE LEVEL 1:200



2ND/ 3RD/ 4TH FLOOR PLAN 1:200

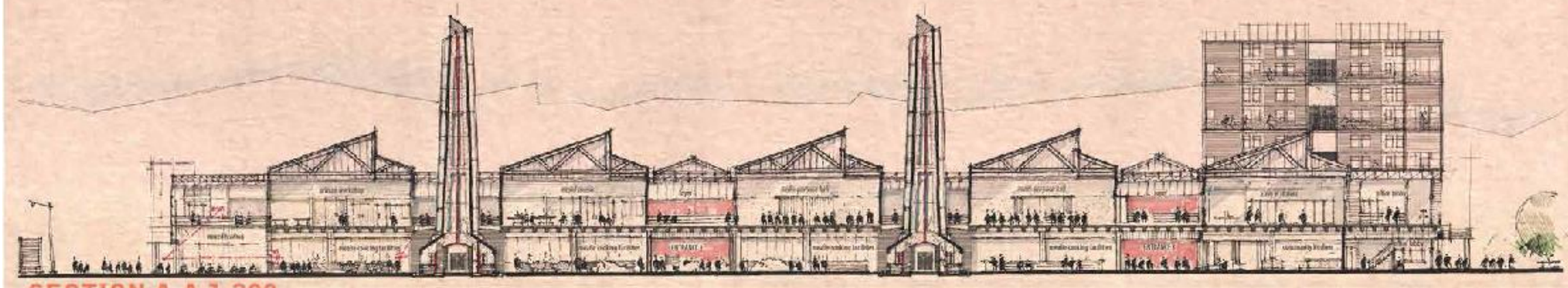


FIRST FLOOR PLAN 1:200



WEST ELEVATION 1:200

EAST ELEVATION 1:200



SECTION A-A 1:200

10

WARWICK JUNCTION MULTI-PURPOSE TRADE HUB

ELEVATIONS - SECTION

COMMUNITY CHIMNEY OPERATION

_Main Purpose

+ Cooking mealies and food for the homeless

A few years back it was calculated that in mealie season between 120 and 140 people were involved in this activity and between 26 and 28 tons of mealies were sold on Durban's inner city streets a day. The gross turnover from this informal activity was calculated as over R1 million a week (Dobson & Skinner 2009:75). Most of the cooks live more than 30 km away from the CBD and travel using public transport. They will arrive as early as 4:00am to start their day's work. A typical day will begin by moving all of their equipment (drums, trolley) left in the storage overnight and setting up all of the [illegible] more supplies for the following sourced by trolley runners that source recycled wood, non-harmful plastic based products, biodegradable waste from the precinct and the inner city. Once the mealies [illegible] 30 hands* in a typical supermarket trolley which are then pushed into the facilities whey they are loaded into a 200ltr steel drum sourced from industrial areas within the city. Water is then sourced from rainwater tanks attached to chimney, each batch needs 75 ltrs of water per steel drum. After the mealies are cooked, water is drained directly on the steel grate next to combustion chamber. The mealies are then loaded into a sack lined with 3 municipal plastic bags bought [illegible] The facilities run 24/7 and they will be used to cook mealies during theday and cook food for the homeless at night from 4 am to 1 am. The combustion chamber will require 3 people between 1am to 4am to [illegible]

*1 hand = 4 mealies

[illegible]

+ Generating Power

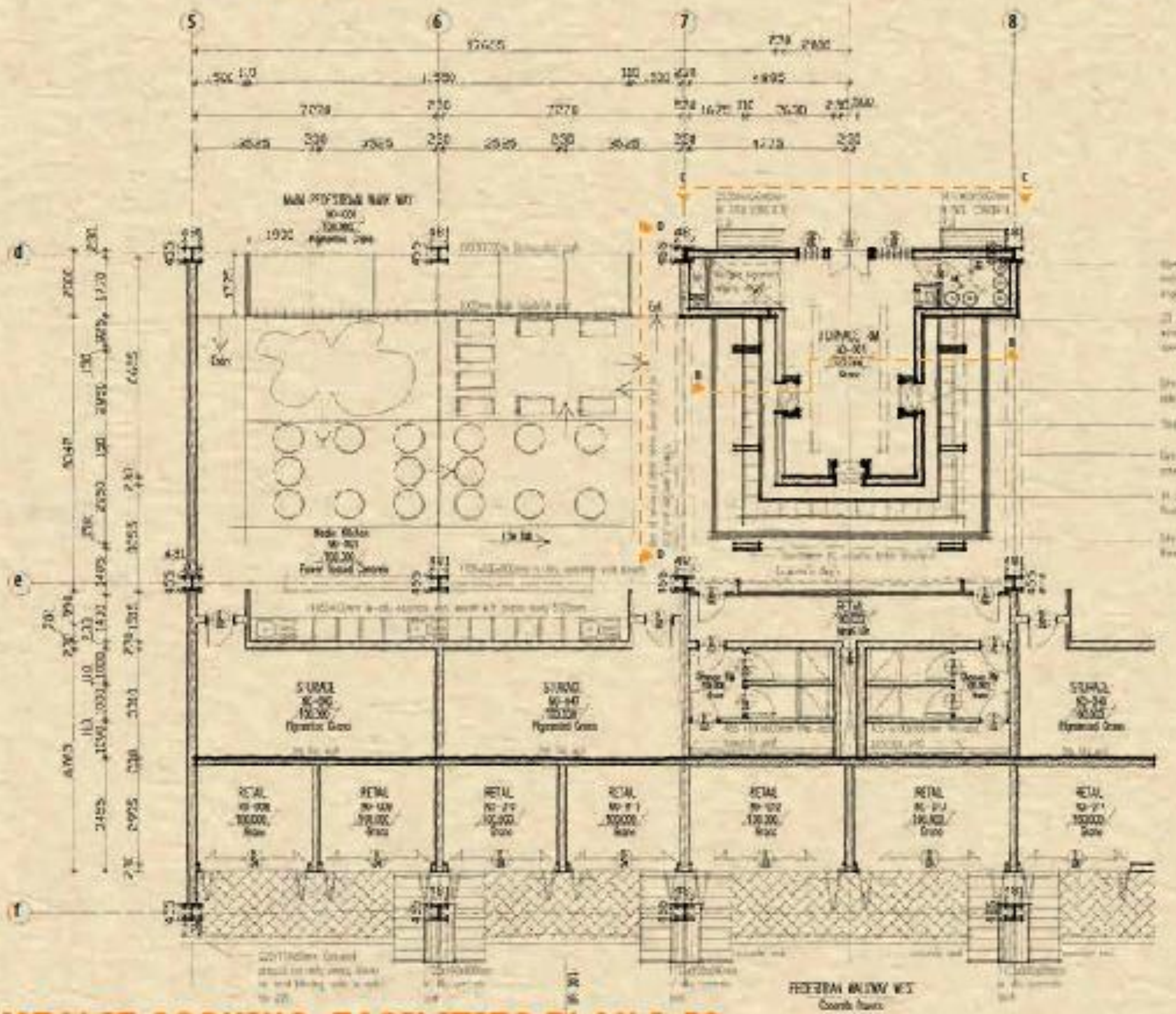
Heat from the combustion chamber will also be used to produce steam that will generate electricity more than *25000 kWh/month, enough to supply power to the building and feed additional power back into the grid generating additional revenue for the informal traders.

+ Clean water

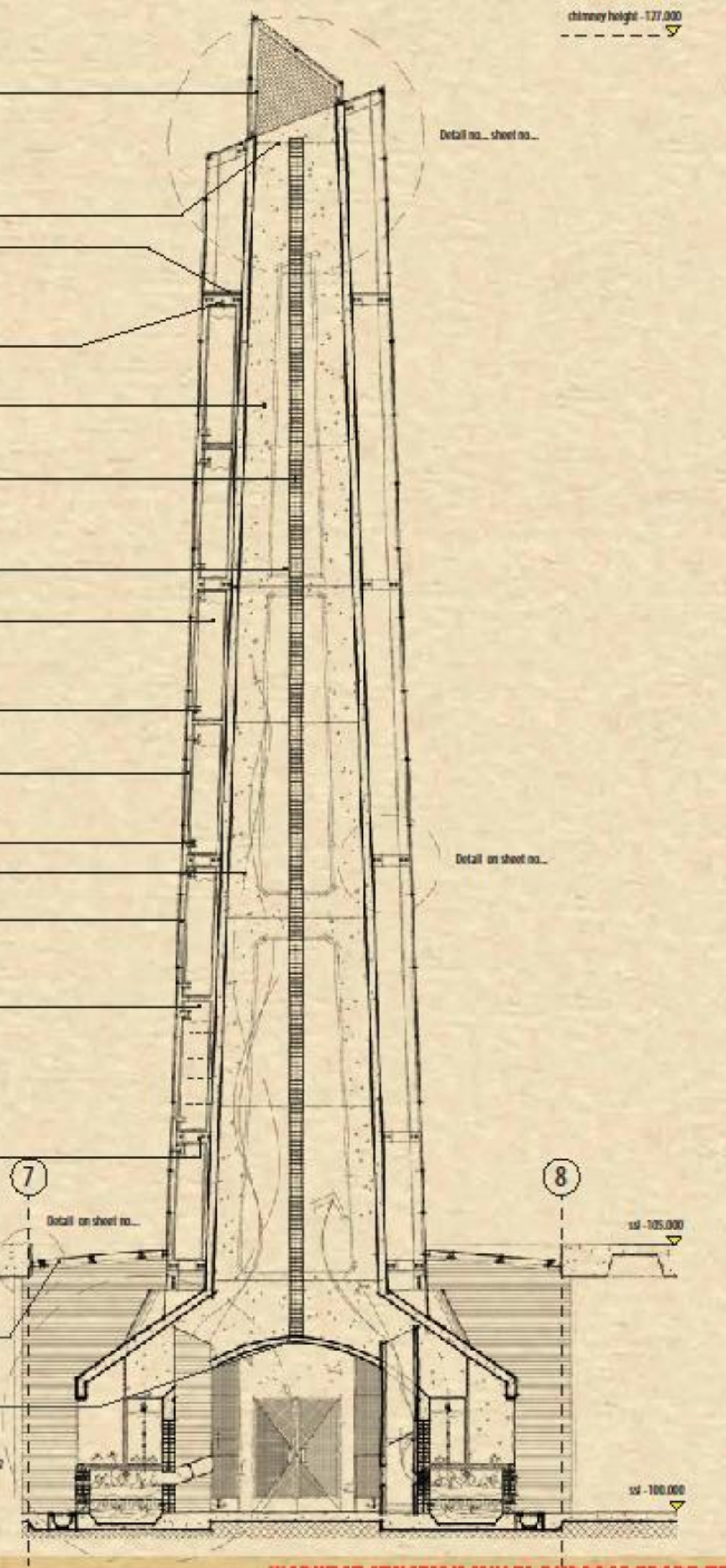
Each chimney has rainwater tanks that can hold up to 162000 ltrs of water. This water will go through a relatively low cost [illegible] ltrs of clean water for boilers, drinking, cooking and ablution facilities.

+ Cleaning the precinct

Informal traders of Warwick produce tons [illegible] Each chimney can burn approximately 108 kgs of rubbish per hour, which is approximately 2.052 tonnes per day. This in turns cleans up the precinct making it more self [illegible]



MEALIE COOKING FACILITIES PLAN 1:50



Chimney Cap Note:
framework with 14x25 top speed carbon steel shelf tapping screws with 19 dia. galvanised mild steel washers and 19mm dia. bonded washers. Continuous surround barrier tape to be placed between stainless and galvanised steel to prevent reaction.
Steel framework - consisting of 200 IPE beam and 50x50x5mm equal angles
positions with 10x120mm galvanised mild steel wall anchors
Galvanised steel wall tie
Vital Engineering (Angus McLeod) Vitagrid pressure forged VE40 modular walkway panel with 25 x 4.5mm plain bearer bars in galvanised mild steel MS
with 4 mild steel M8 bolts welded to bearer and saddle clamps per panel.
100 mm dia. PVC water pipe connected to rainwater pump room on ground
and plugged ferrules to eng's detail
contractor prior to being laid
Void in reinforced concrete chimney side-wall with chamfered edges to eng's detail.
and resting on steel plated bolted to 200 IPE steel beam to manufacturer's detail inspected by Structural engineer.
40mm dia. PVC water pipe and all Rainwater systems to wet services' eng's detail.
IPE 200 Steel Columns to support cladding and brace concrete chimney.
detail
600x1200mm Access hatch
Smoke
0.48mm Thick perforated 'Alucobond' Aluminium Cladding. Fixed to IPE columns with metallic hook on cassette (pin and clip system) to manufactures detail.
3x6.6.x2.5m Custom Built '3DD' Water Filtration tank.
steel column with 200x400x12mm steel plate to structural eng's design and detail.
structural eng's detail
100x50x2.0mm cold formed lipped channel purlins at maximum 1000m centers. 4 deg. pitch away from chimney.
150mm Thick reinforced in-situ vaulted concrete roof with 400x230mm down-stand beams to structural eng's details.
Detail NO.1 sheet 12
Detail on sheet no...
chimney height -127.000
ssl -105.000
ssl -100.000
7
8

SECTION B-B 1:50

11

WARWICK JUNCTION MULTI-PURPOSE TRADE HUB
Urban Informality as a Generator for Meaningful Built Form
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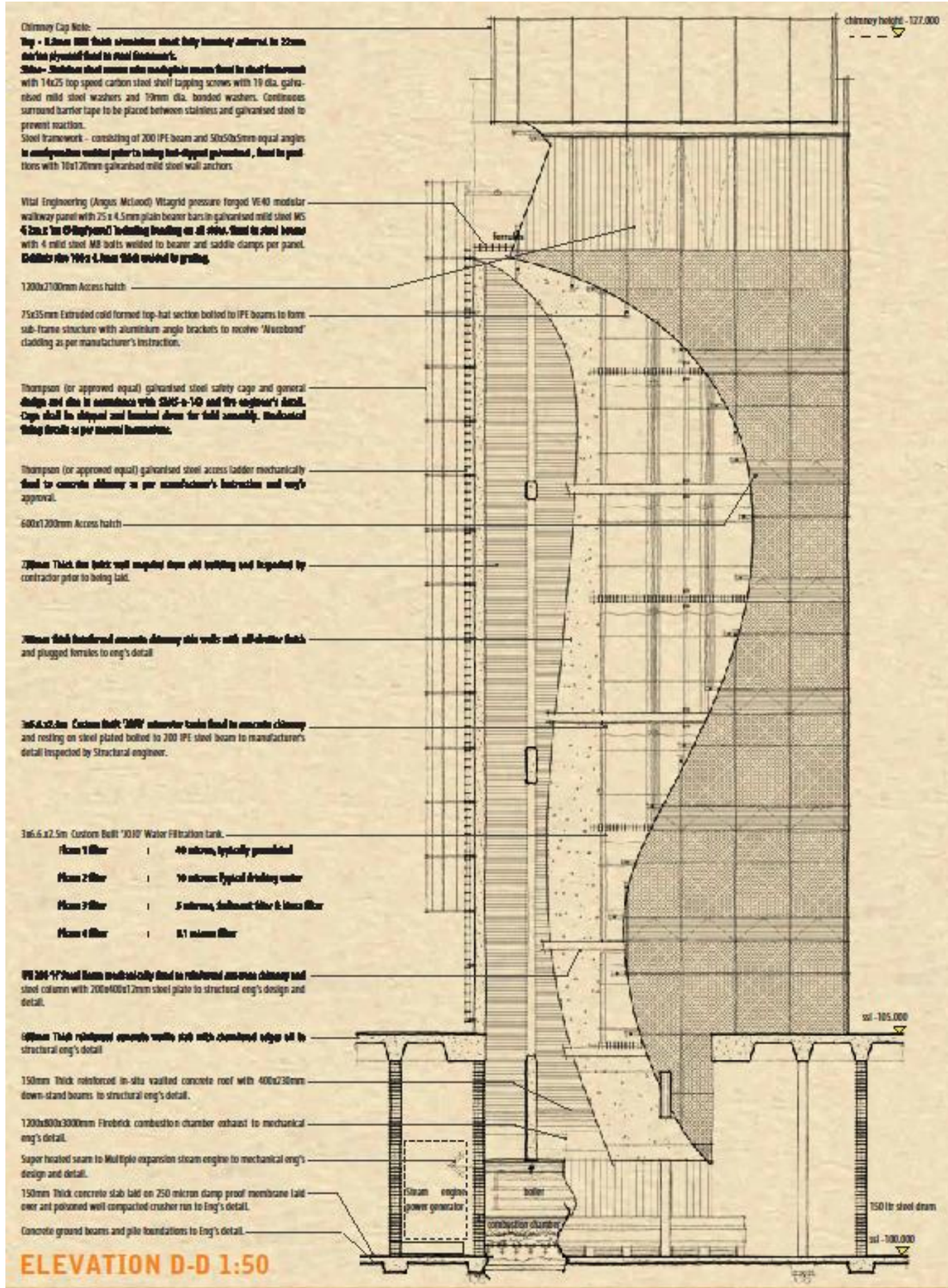
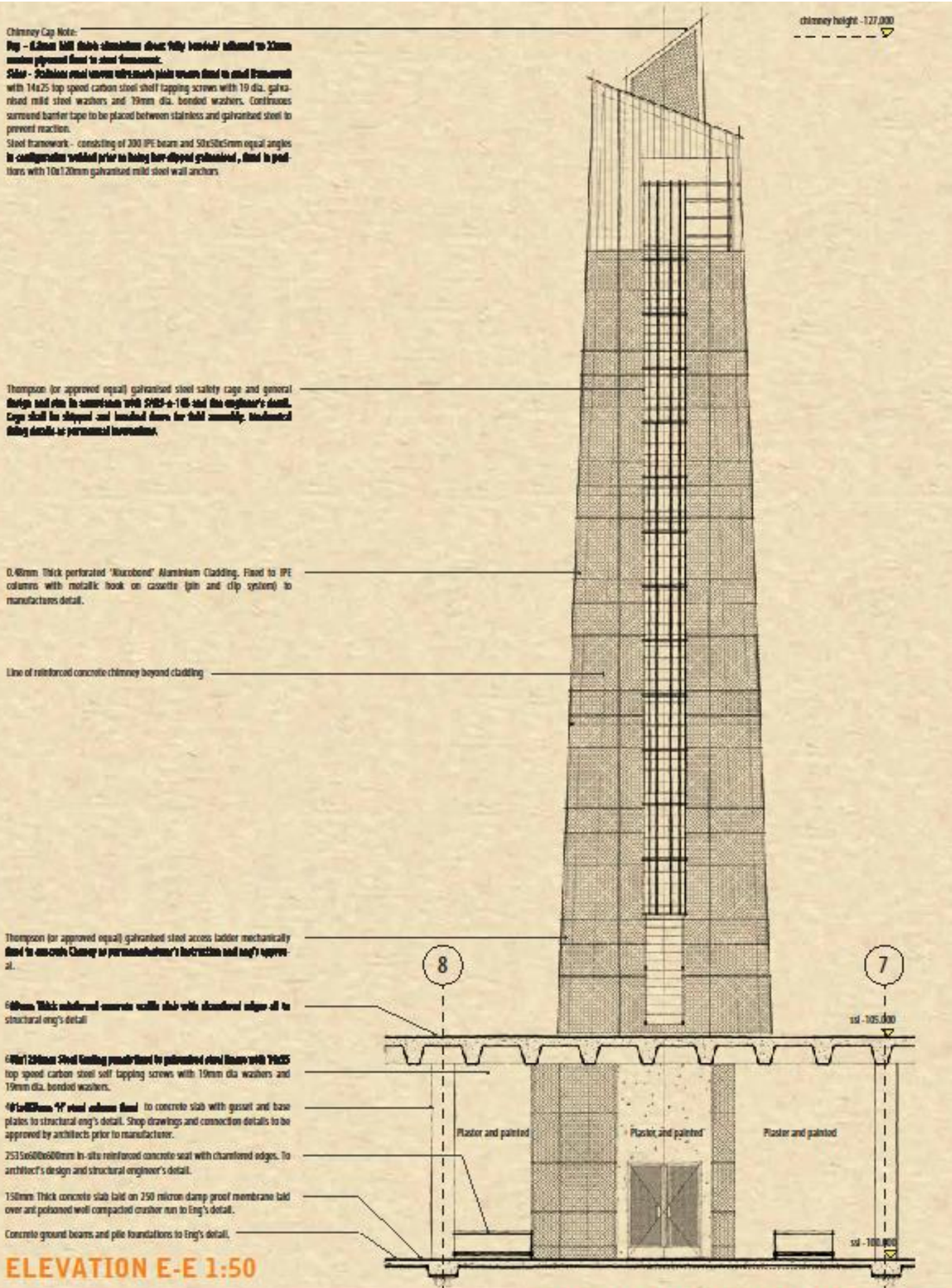
MEALIE COOKING FACILITIES PLAN - CHIMNEY DETAIL



ELEVATION D-D 1:50



ELEVATION E-E 1:50

12

WARWICK JUNCTION MULTI-PURPOSE TRADE HUB
Urban Informality as a Generator for Meaningful Built Form
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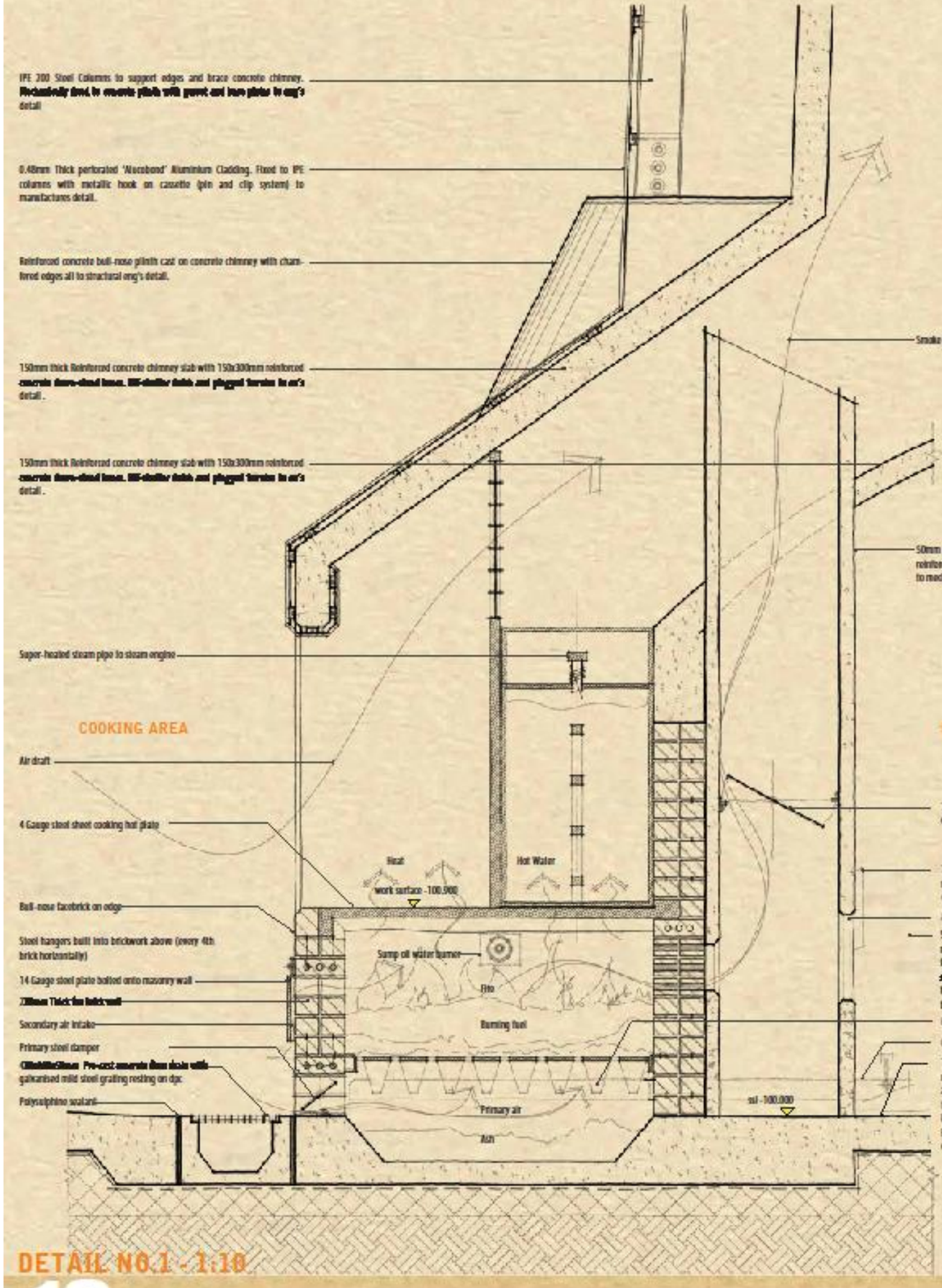
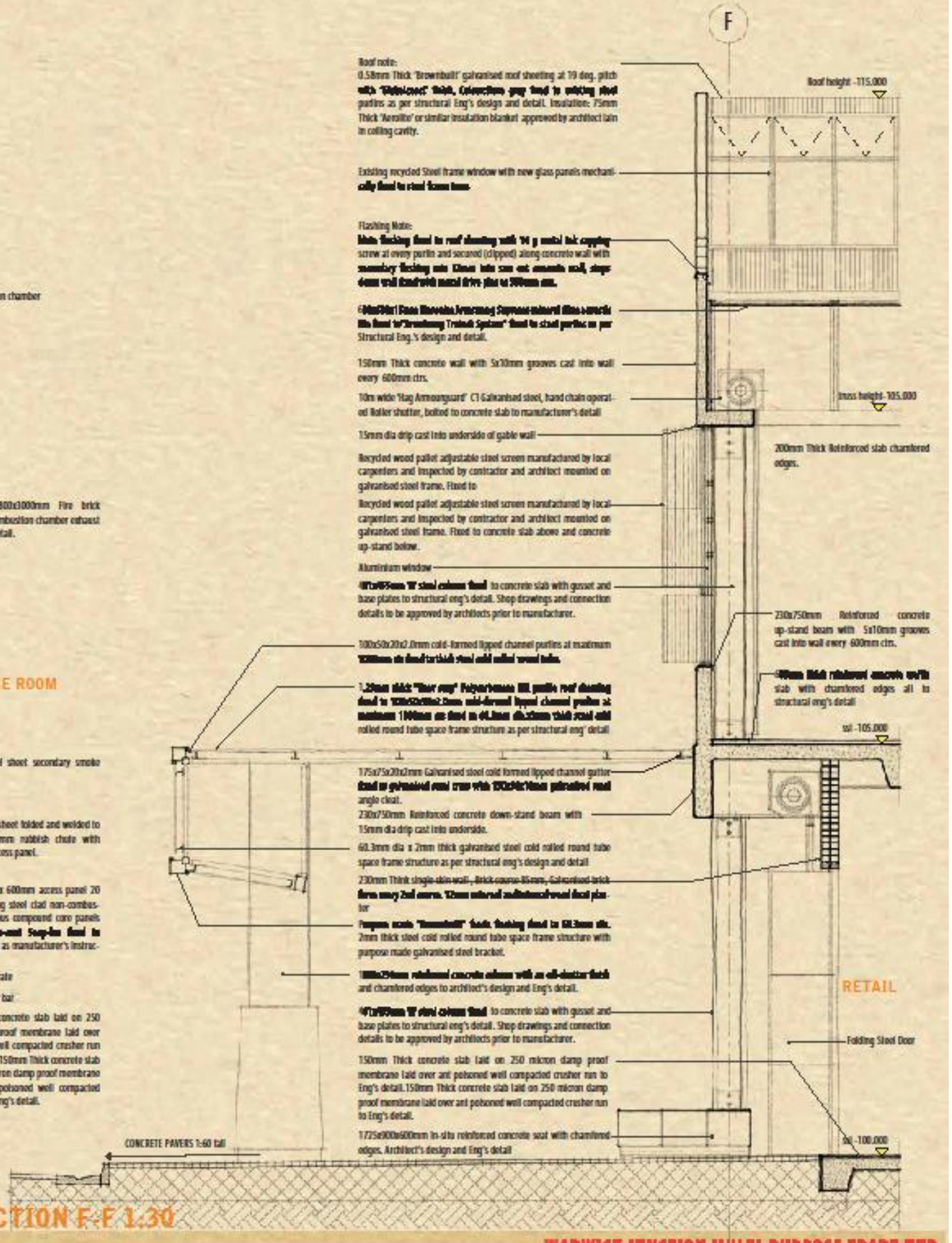
CHIMNEY DETAIL



DETAIL NO.1 - 1:10



SECTION F-F 1:30

13

WARWICK JUNCTION MULTI-PURPOSE TRADE HUB
Urban Informality as a Generator for Meaningful Built Form
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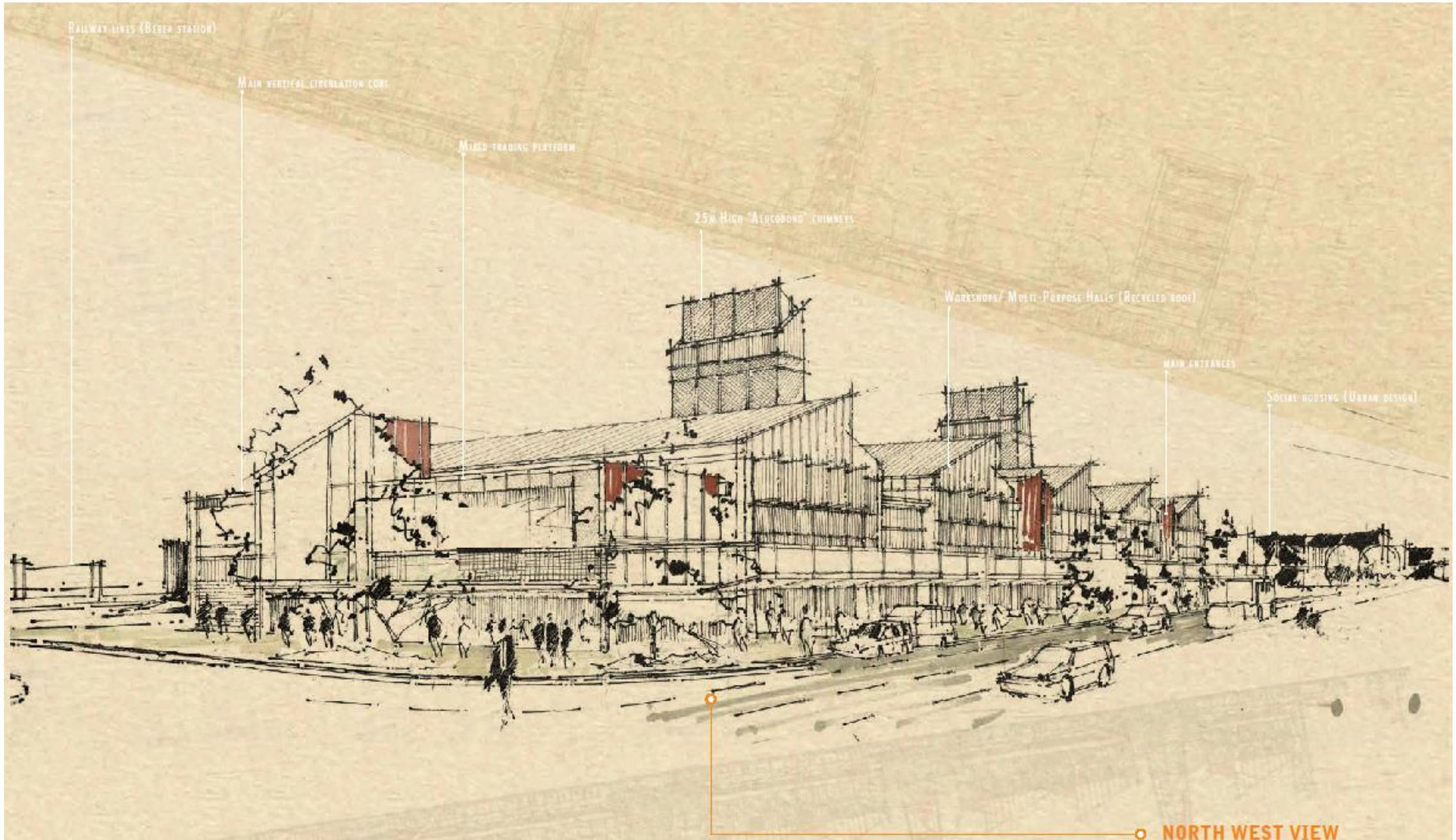
COMBUSTION CHAMBER DETAIL | SKIN SECTION



NORTH WEST VIEW

MAIN ENTRANCES| COVERED WALKWAY| WORKSHOPS


MARKET ST.
MARKET ST.
MARKET ST.
JULIUS NYERERE ST.

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