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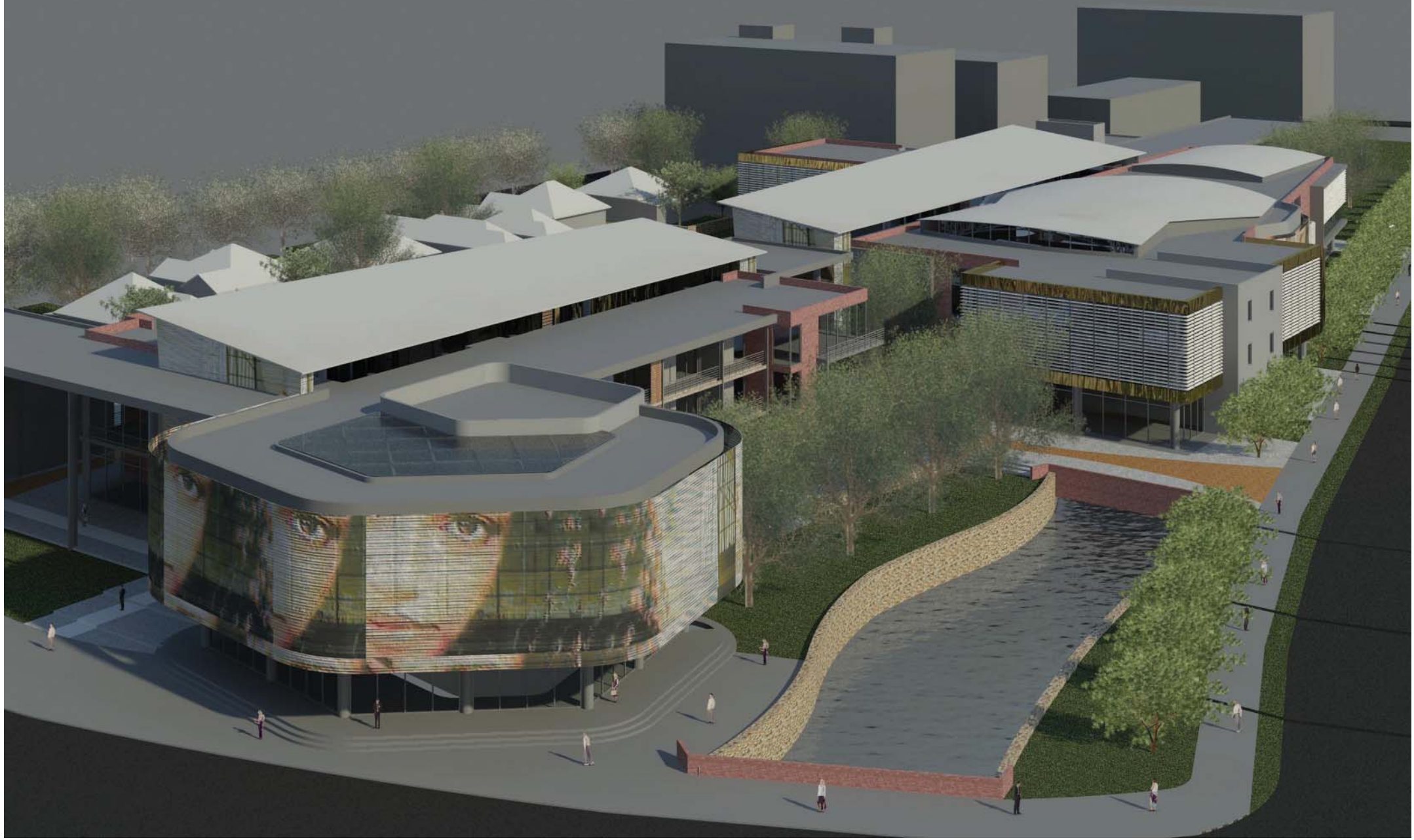
'Genius Loci' A cultural centre for the visual and performing arts

Architecture and the senses



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Christopher Sparks

24104168

This dissertation is submitted in partial fulfillment of the requirements for the M.Arch(Prof) in the Department of Architecture, Faculty of Engineering, the Built Environment and Information Technology.

University of Pretoria
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Study Leader: Prof. Piet Vosloo

Address: Cnr Nelson Mandela Drive and Kotze Street, Sunnyside, PTA
Building Description: A Cultural Centre for the Visual and Performing Arts
Research Field: Heritage and Cultural Landscapes

“Culture accounts for the symbolic forms via which people codify, understand and negotiate their everyday lived experience”

The proposed design will develop a synthesis between art, culture and economy and urban vitality by creating a platform for artists. The goal of the project is to develop the Oeverzicht village to act as a cultural gateway into the Tshwane Inner City, where visitors and residents are greeted with a sense of arrival celebrating the cultural identity of the greater Tshwane and South African context

Abstract

The aim of this dissertation is to explore the possibilities of architecture as a sensory phenomenon and to explore how we can experience architectural space through all our senses, and how architecture can influence how we experience our senses in space.

The project is located within the cultural node identified within the Nelson Mandela Development Corridor(MDC) and the proposed building is one of a cultural centre for the visual and performing arts. The centre is aimed at creating a heightened awareness and insight into the creative processes of artists and performers for the general public, community, users and occupants of the centre and passers-by. This will be achieved through the creation of visual connections and physical interactions between the users, artists and performers and passers by as well has creating a heightened experience of space and place on a human scale for visitors, performers, artists and general public.

The centre also incorporates retail, commercial and residential components in order to energise the square and centre throughout the day and night, creating an active 24hour environment, which is often lacking in a development of this nature.

The activities of the centre, along with those of the existing Oeverzicht houses and old M.O.T.H. club, that have been incorporated into the development spill out onto a central urban activity square, where impromptu and planned performances are to be staged.

The aim of the development is ultimately to develop a synthesis between arts, culture, economy and urban vitality by creating a platform for the arts. The aim of this dissertation is to explore the ability of spaces inside this building typology to assist in inspiring each of its occupants through the creation of memorable spatial experiences.

Samevatting

Die doel van hierdie tesis is om die moontlikhede van argitektuur as ‘n sensoriese fenomina te ondersoek asook hoe om die argitektoniese spasie deur al ons denke te ondervind, en hoe argitektuur ons denke kan beinvloed en terselfdertyd hoe ons ons denke in spasie kan ondervind.

Die projek is gebaseer binne die kulturele node, geidentifiseer binne die Nelson Mandela ontwikkelings node en die voorgestelde gebou is ‘n kulturele sentrum vir die visuele en uitvoerende kunste. Die sentrum is daarop gemik om verhoogde bewustheid en insig vir die kreatiewe prosesse van kunstenaars en uitvoerders in die algemene publiek, gemeenskap, verbruikers, inwoners en verbygangers te wek. Dit sal bereik word deur die ontwikkeling van visuele aansluitings en fisiese interaksie tussen die verbruikers, kunstenaars, uitvoerders en verbygangers asook om verhoogde ondervinding van spasie en plek op ‘n humanistiese skaal vir die besoekers, kunstenaars en algemene publiek tuis te bring.

Die sentrum beskik oor kleinhandel, kommersieële en residentieële komponente wat die plein en sentrum dag en nag intensifiseer deur ‘n aktiewe 24-uur omgewing te skep wat somtyds kortkom in ‘n ontwikkeling van hierdie aard .

Die aktiwiteite van die sentrum sowel as die bestaande Oerverzicht huise en die ou M.O.T.H. klub wat in die ontwikkeling geinkorporeer is loop uit op ‘n sentrale stedelike ontwikkelingsplein waar impromptu en beplande vertonings gehou kan word.

Die doel van die ontwikkeling is om ‘n verbinding tussen kuns, kultuur, ekonomie en stedelike vitaliteit te vorm asook om ‘n verhoog vir die kuns te skep. Die doel van die tesis is om die vermoë van spasies binne die tipologie van die gebou te ondersoek en ook te help om sy inwoners te inspireer deur die ontwikkeling van onthoubare ruimtelike ondervindinge.

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Introduction

In our current society that is infatuated with image, sight is often the only sense that is ever stimulated when architecture is experienced. It can be said we are living in an ocular-centric society, and that many buildings today are only designed to be monumental visual statements. These buildings most often are visually amazing and appear to defy the laws of gravity; yet the spaces created within these monumental so-called 'master pieces' often do little to stimulate the other senses.

The aim of this dissertation is to explore the possibilities of architecture as a sensory phenomenon, how we can experience architectural space through all of our senses, and how architecture can influence how we experience our senses in space, which is often referred to as the sixth sense.

The primary research topic for this dissertation is termed Architecture and the Senses, which investigates how architecture can influence our experience of space through the stimulation of the senses.

A number of sub questions have been formulated to substantiate the primary research topic, and various research methodologies have been employed in the investigation of these sub questions.

Due to the nature of the site and context, these sub questions are explored on a variety of scales, so that informed design solutions can be employed within the design process, while expanding and strengthening the theoretical argument.

This dissertation also explores the notion of sensory space and proposes methodologies about how we can produce a creative urban realm that celebrates our cultural identity, while allowing individuals to contribute to the performance of life. In the creation of an architecturally informative and tectonic methodology, the dissertation explores the notion of architecture as a sensory conductor and how appropriate architectural articulation can conduct, orientate and guide the user successfully through various spatial experiences. The research questions are ordered chronologically, with the aim of building a suitable argument on the chosen subject. The aim of this dissertation is that the final design outcome and all aspects of design will address, relate to, strengthen and test the theoretical argument.

The idea of what constitutes performance spaces of our current age is also questioned. This investigation has ultimately resulted in the basis of a spatial design brief and provided the basis for the proposed design responses.

These two principal ideas form the basis of the design concept. The similarities between the lack of sensory experience in architectural and theatrical performance space will be used to argue the theoretical and methodologically formative research questions stated previously.

It is the aim of this dissertation to explore the ability of spaces inside this building typology to assist in inspiring and educating each of it's occupants, users and passers by.

Introduction to study area

The study area for the dissertation is situated within the Tshwane Metropolitan Area. The specific study area of this dissertation is the Mandela Development Corridor (MDC).

The MDC is situated along Nelson Mandela Drive, an area which can be described as a discarded urban wasteland, that currently acts as a buffer zone between Tshwane's inner city and its higher density residential districts of Arcadia and Sunnyside.

The Apies River Channel which flows through this precinct, is currently an under-utalised and degraded natural (or no longer so natural) resource. It adds nothing to the character of the precinct at present, and has become a liability in terms of environmental degradation and crime.

This urban wasteland has come into being due to the planning inadequacies of the past. Nelson Mandela Drive lies at the intersection of two city grid systems, and this has created many isolated and under-utilised land parcels. Land-banking within the area has also added to the urban decay of the precinct, and subsequently vast tracts of under-utilised space and dilapidated built fabric characterise the precinct.

There is potential for this stretch of land to bridge and foster urban regeneration, and to act as an example for future urban development. The potential for this precinct is explored and outlined in the Mandela Development Corridor, Urban Design Framework (2005)

The new headquarters for the Department of Trade and Industry has been built within this precinct with the intention to act as a catalyst for investment and development within the precinct.

There is a lack of quality public space within the area. Our group proposed development framework has been designed with the aim of creating a vibrant public spine along the course of the Apies River and to encourage pedestrian movement through the precinct in an east-west direction, effectively linking the currently divided areas of the city.

The objectives set out by the Mandela Development Corridor, urban design framework have focused along the extent of Nelson Mandela Drive from Rissik Street in the south up to Vermeulen in the north. According to the Tshwane Metropolitan Council, the key driving forces behind the development plan are as follows:

- **Apies River urban design framework.**
- **Inner city spatial development framework.**
- **Tshwane Metropolitan Area spatial design framework.**

Other related projects that will have a bearing on the development of the precinct, are as follows:

- **Apies River upgrade.**
- **Esselen Street upgrade.**
- **Nelson Mandela Drive edge upgrade.**
- **Proposed library and community centre with square development around existing Oost-Eind school.**
- **Future public transport monorail/cable car.**
- **Proposed corporate head office corridor along Nelson Mandela Drive.**

1. Tut Arts campus
2. Other research project - Urban water centre
3. Other research project - Innovation centre
4. Other research project - The journalism precinct
5. Sterland
6. DTI
7. Sunnypark
8. The chosen site - Oeverzicht Art Village
9. Drie Lelies
10. Breytenbach Theatre

FIG 1.1_Location map of chosen study area

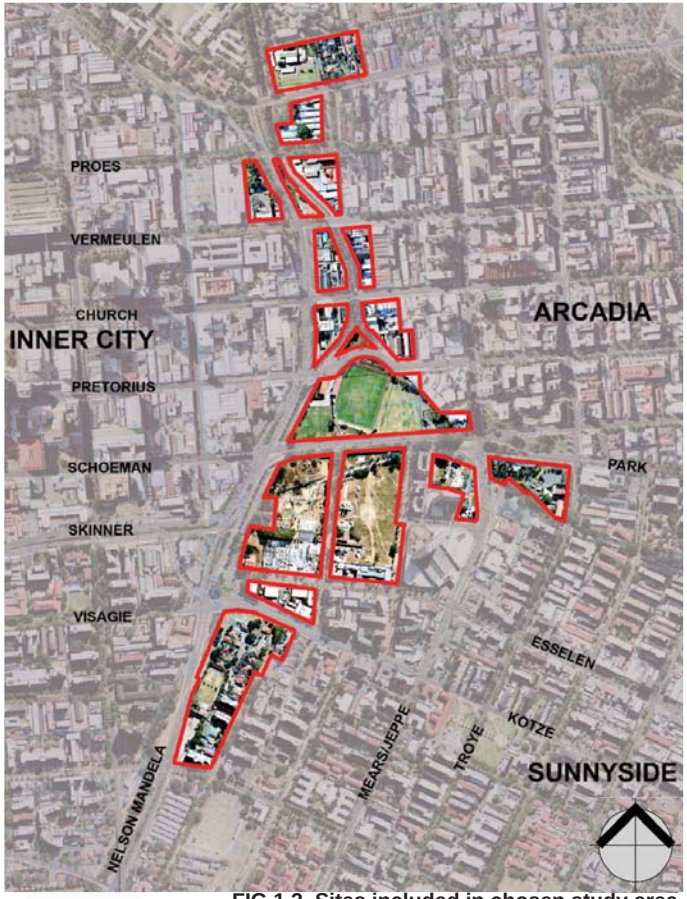

FIG 1.2_Sites included in chosen study area

FIG 1.3_Aerial view of chosen site

FIG 1.4_Aerial view of Nelson Mandela Drive

FIG 1.5_Entance/Gateway into the city

From these key driving forces and other related projects, various objectives and solutions have been identified for the precinct. It is from these that appropriate design responses can be generated:

- **Making connections**
  - physical and visual urban integration
- **Creation of a balanced movement network**
  - the city as movement economy
- **A local district network**
  - all amenities within walking distance
- **Broader mixture of uses**
  - appropriate variety to strengthen existing uses
- **Investment in the public realm**
  - urban form to support exchange
- **Spatial guidelines**
  - controls to reinforce community identity
- **Spatial vision**
  - ensuring urban integration and spatial meaning

As well as the above solutions, some problems hampering the achievement of these development outcomes have been identified:

- **Decentralisation and urban wastelands**
- **Poor links/connections between inner city and neighbourhoods**
- **Lack of balanced integration of urban areas**
- **Mismanaged natural features.**
- **Poor management of the informal economy**
- **Lack of mixture and public amenities**
- **Lack of identity and vision for the area**
- **Monofunctional, poorly defined public open spaces**
- **Historical fabric**

The above mentioned problems provided the basis for the initial development framework done for the MDC by Holm Jordaan. Central to the framework is the notion of governmental and private sectors working together towards the same goal of providing a vibrant public realm. This notion is expanded on in the proposed development framework compiled by the MDC group.

This has resulted in the following opportunities being identified:

- **The development of an activity spine along the Apies River Channel**
- **The creation of an urban identity for the Mandela Development Corridor precinct, while providing a focus of a civic nature.**
- **The encouragment of informal meeting and social interaction along the activity spine with vibrant day/night activity, which will provide much needed public surveillance to the precinct**
- **The bringing together of the eastern and western sides of this urban wasteland, once again unifying the city**

Chosen site

The selected site for this dissertation is located in and around the Oeverzicht Art Village located on the corner of Kotze Street and Nelson Mandela Drive. The chosen site's location is extremely important to the project. In order to convey the image of the city as a culturally perceptive city to its urban population and visitors, the site had to be located at a visual node. This site is ideally situated at the southern entry to the city and it is the intention that this development will form a gateway into the city.

The project is situated across a number of sites which will have to be consolidated for the purpose of the proposed development. The sites include those of the historical M.O.T.H. Club and Breytenbach Theatre. The other sites consist of a number of older homes, which are collectively known as the Oeverzicht Art Village. Even though the homes are not historical monuments, they are considered to be of historical importance. These homes are to be maintained and re-used as far as possible in keeping with the guidelines given by the MDC urban development framework, which states:

"The variety of existing historical houses become the focus of this precinct. The framework foresees the extension of the existing fine grained urban fabric with offices, residential apartments and retail activities. The intention is to provide an outlet for arts and cultural activities to strengthen the existing theatres that already exist within the precinct." (2005:2)

The site falls within the proposed framework for the MDC. The proposed framework is shared by four projects, all of which all form part of a proposed activity spine along the Apies River channel.

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The Apies River channel forms part of the western boundary of the project site, and is an important element on the site as the revitalisation of the river system and the use of this river course as an activity spine between open and public spaces, as per the proposed group framework, will enhance the natural beauty and physical attributes of this natural (or not so natural) feature.

The site lies within the arts and cultural node identified in the proposed group framework.

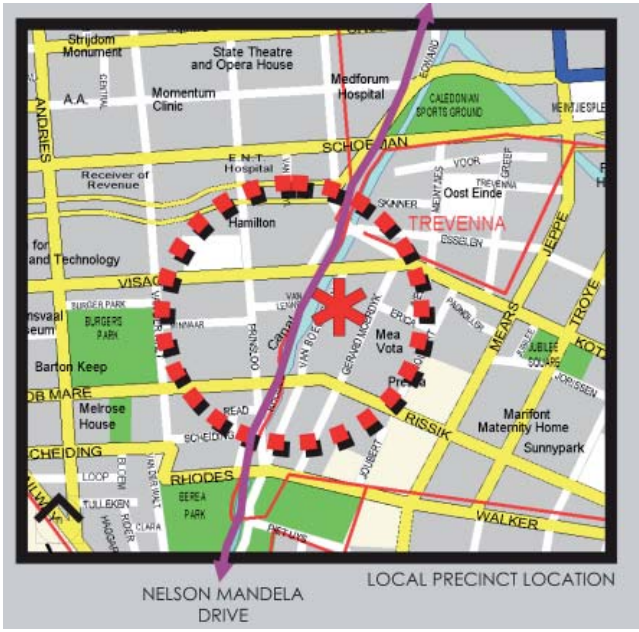


FIG 1.6_Site location within Pretoria

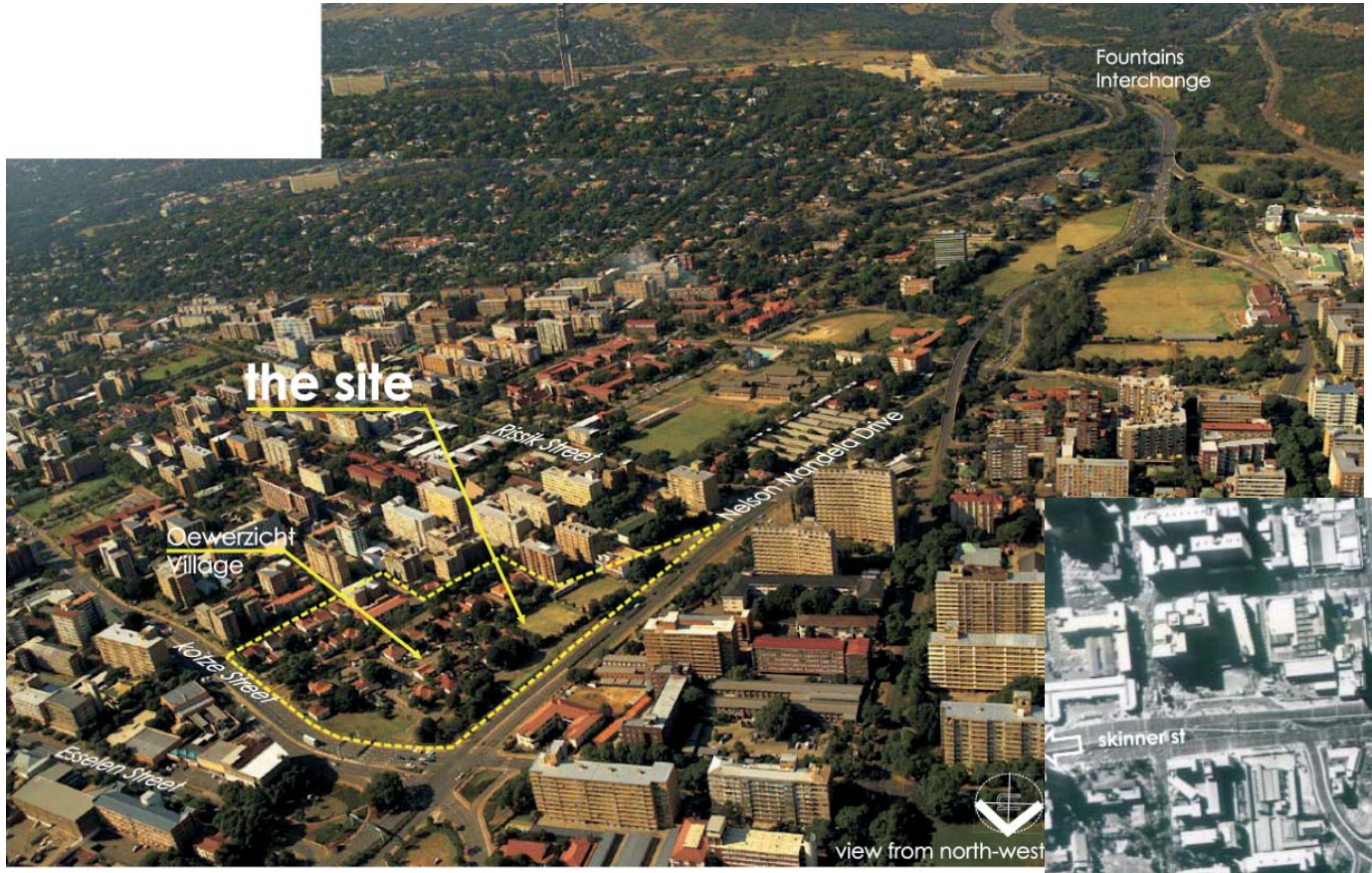


FIG 1.7_Aerial location of site

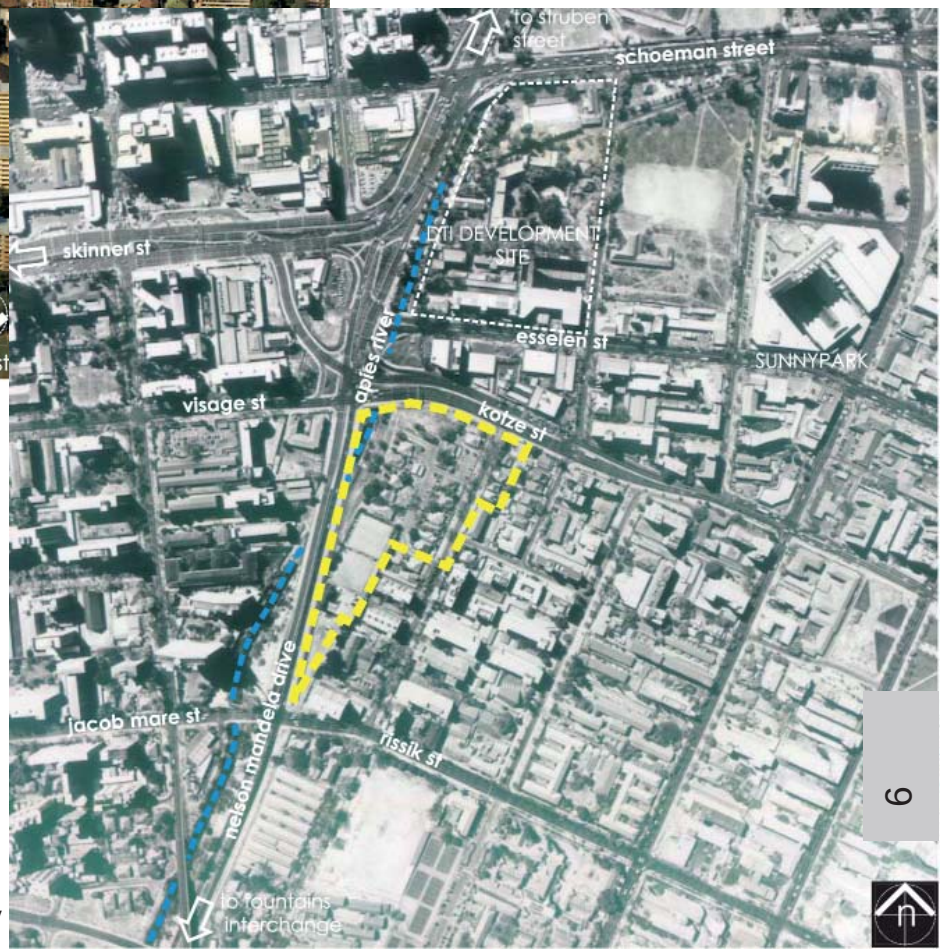


FIG 1.8_Demarcated site boundary

The client

The site is currently council-owned and is thus ideal due for the civic/public nature of the proposed development.

As funding for developments of this nature is often limited, the development will be of a mixed-use nature, containing spaces of a commercial and residential nature that can be rented out to produce a constant income for the project. For this purpose, the development would be a joint venture between the Department of Arts and Culture and City Property, as part of it's community engagement responsibilities enforced by government regulations

Working in conjunction with one another would ensure the long term success of the development, as each party's expertise and experience within their respective fields could be best put to use.

This joint venture would not only ensure returns on each party's capital investment, but also provide an enriched urban realm that can be enjoyed by all. This approach would yield a far greater return on investment in the long-term and ensure a longer life span for the project.

The Department of Arts and Culture has set up the Arts and Culture Trust, which funds projects across the spectrum in arts, culture and heritage. The trust focuses on areas of development including job creation, creative skills, management skills, cultural diversity and cultural tourism marketing. Projects currently funded are in the fields of theatre, music, dance, literature, heritage, arts administration, community arts, visual arts, arts education and multi-disciplinary projects. With its funding of these activities, the trust would most certainly be interested in funding a high profile development of this nature that contributes to public wellbeing, which will most certainly improve the public image of the department.

The department's mission statement involves improving the economic opportunities for South African arts and culture nationally and globally through mutually beneficial partnerships.

arts and culture
Department:
Arts and Culture
REPUBLIC OF SOUTH AFRICA

FIG 1.9_Department of Arts and Culture logo

City Property is one of South Africa's leading property asset management companies. It currently manages over 1 million m² of malls, convenience shopping centres, industrial workshops, warehouses, offices, residential flats and apartments and retail outlets. The proposed development is an ideal opportunity for City Property to expand its portfolio by developing the commercial and residential aspects of the development.

CITY PROPERTY

FIG 1.10_City Property logo

Problem statement

In our society that is infatuated with image, sight is often the only sense that is ever sought to be stimulated in the creation of architecture. Many new buildings do little to stimulate the other senses and this has resulted in many spaces possessing little character and providing the users of the buildings with limited spatial experiences. Architecture should be conceived as a sensory phenomenon, where people should experience architectural space through all of the senses.

Research questions

1. How architecture can influence our experience of space through the stimulation of the senses?
2. How can we produce a creative urban realm that celebrates our cultural identity, while allowing individuals to contribute to the performance of life?
3. How can appropriate architectural articulation conduct, orientate and guide the user successfully through various spatial experiences.?
4. How can visual and physical connections be established between the vistors of the centre and the artists and performers, without disturbing their creative processes?
5. How can a building of the nature and scale respond to the exsitng residential scale of the existing structures on the site?
6. How should an architectural language that enhances the sensory experience of this built environment be developed and explored?
   Should we return to architectural place making strategies of the past in order to create spaces and places for people to interact in today?

Resultant design brief

To inspire the creative genius in us all by nurturing artists in an innovative contemporary centre for the performing arts

The traditional role of cultural buildings is changing. Museums and theatres were once seen as isolated monumental objects. They were often intimidating and overbearing in nature, and more often than not stood in isolation. Today, however, they are places that host a much wider range of activities. They are places for entertainment, interaction and the event.

The primary objective of this development is to create a vibrant and interactive destination that will not only provide a much needed creative resource hub for Pretoria, but also provide a place for people to enjoy life and experience the everyday lived experiences of urban living. The resultant architectural intervention will encourage public interaction and make an active contribution to the urban realm by providing a platform for creativity to emerge. Ultimately the user of the realm must feel a sense of belonging within the space and the everyday users of the space should have a connection with the various facets of the performing arts industry. Opportunities must also be created for established and emerging artisans to develop their skills and succeed in their specialised fields.

The main intention of this project is to create a building of regional significance which contributes towards inner-city regeneration and helps to establish the precinct as a location of social, economic and cultural vitality.

The Tshwane Inner City Development and Regeneration Strategy (2006) clearly states that: *"Any capital city needs to also be the cultural centre of that country, which showcases the national culture to the outside world."* (2006:5)

Cultural facilities also play an important role in the regeneration of cities and places. They are closely linked with tourism and the economic growth of cities. *"No one can say for certain if it's the cultural embedded in the economic or vice versa, but what is clear that culture and economic growth in cities are closely linked."* (Evans, 2001:135)

Culture is what makes a place and its people distinctive and unique, and determines how that place is etched into people's minds and imaginations. *"Culture accounts for the symbolic forms via which people codify, understand and negotiate their everyday lived experience" (*Van Eeden & du Preez 2005:224). Essentially, culture is about the values and experience of a place, and the range of stimuli that the urban fabric provides on different layers and levels of activity.

The aim of the development is to develop a synthesis between arts, culture, economy and urban vitality by creating a platform for the arts. The resultant development and design intervention should celebrate the performance of life, and respect and pay homage to our unique cultural diversity. The development is to be a place where students, street artists and professionals can share artistic ideas.

This will ultimately create a place where the user is part of the performance of the everyday life, a place that everyone can use and a place where all can just be themselves and let go of their inhibitions.

Research methodology

A combination of descriptive-quantitative research and qualititive research methodologies will be employed in the formulation of this dissertation.

Qualitative research is to be used to gain insight into the character of the chosen site and to determine the potential user groups of the cultural centre, as well as the requirements of the local community. However, the majority of the subsequent information will have to be obtained through quantitative research methodologies.

The first point of departure is to formulate a proper site analysis. Through site visits and information obtained from the municipal council, an applicable urban context analyis will be formualted, existing infrastructure and character of site, characteristics of the river, land use and legal framework are to be investigated in order to properly inform an appropriate design response.

Different aspects of numerous precedents are also to be investigated. They are to be chosen and investigated on the basis of their typology and function, material use and construction methods as well as design approach. By investigating the precedents in this manner, the various aspects of the relevant precedents can be re-interpreted and aid in making informed informed design decisons.

An applicable theoretical argument is to be formulated through the exploration of writngs of various authors on the topic of sensory architecture.

Various sustainable building practices, methods, technological advances and systems will be investigated. Structural systems based on precedents, will be analised to formulate a suitable structural system for the proposed project.
Finishes and material invesitigations and studies will be conducted.

The design discourse will be formulated in accordance to the National Building Regulations and spatial requirements, as set out in Neuforts.

All applicable urban design frameworks relating to the chosen study are to be used to formulate guidelines to which the resultant design brief is to respond.

The resulatant design brief will be formualted from the site and contextaul analysis and theoretical premise estalished for this dissertation.

Assumptions and delimitations

There are various ideologies that exist within the chosen research topic. These varied ideologies have been identified pertaining to the relevance, terminology and method of studying spatial experience through the senses.

Appropriate writings by important writers and philosophers in the fields of sensory architecture and phenomenology have been used as the basis for the theoretical argument. Their points of view have been used as a foundation on which the argument has been built. It has not been the intention to criticise the validity of their thoughts, but rather to create a basis for the creation of an appropriate train of thought for the argument of this dissertation.

Furthermore:

a) It is assumed that the area will in future serve a broader user group with multicultural properties
b) It is assumed that the proposals put forward by the Mandela Development Framework are implemented
c) It is assumed that statistics given by the development framework are legitimate
e) Establishing the nature and degree of the significance of intangible heritage within the Oeverzicht precinct proved to be difficult.

Theoretical abstract

There are very few spatial experiences that can stimulate the full spectrum of our senses. Most art forms attempt to simulate the sense of lived experience, but architecture is the only art form capable of producing lived experiences. Architecture provides the spatial boundaries within which we experience space, however most experiences of space can be reduced to a singular experience of sensory bliss.

How can an environment of a civic nature be created which addresses the full spectrum of sensory phenomena, stimulating the performance of life whilst allowing individuals the opportunity to master and nurture their skills, and express their unique individuality? How do we create such an environment?

For the proposed space to be successful, it should be easily accessible to all and encourage ongoing and frequent use. It should house a variety of activities, thus sustaining the ever-changing user requirements.

The built intervention should enhance the natural phenomena of the site. Yet how should an architectural language that enhances the sensory experience of this built environment be developed and explored? Should we return to architectural place making strategies of the past in order to create spaces and places for people to interact in today?

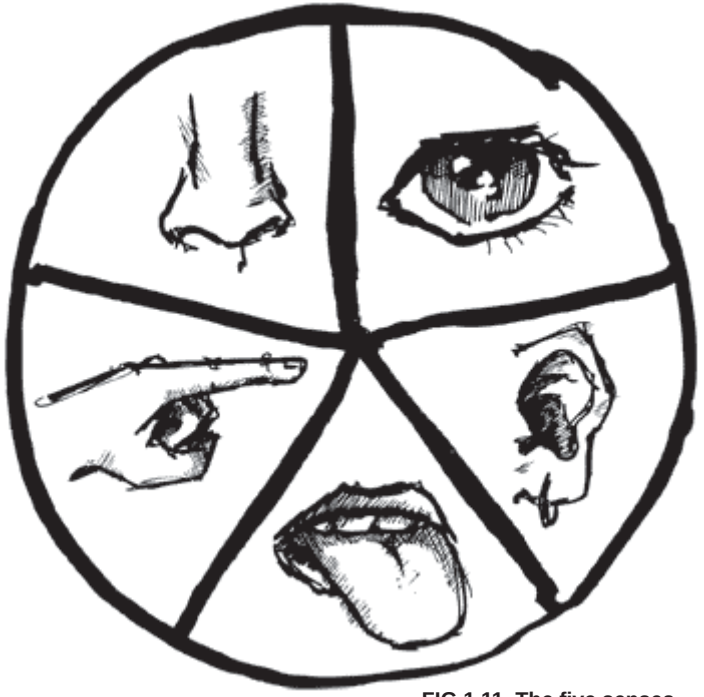


FIG 1.11_The five senses

Urban and context analysis

The chosen study area of this dissertation is the Mandela Development Corridor, a study area which falls within the Tshwane Metropolitan area. The urban context in and around the MDC has a unique spatial character. An in-depth understanding of this unique spatial character is needed for the proper formulation of an efficient design brief that responds to the context and the needs of its users or inhabitants.

This chapter looks at the study area as a whole and all of the interdependent parts that fall within the context of the study area. The identification of the influencing factors on both the physical and cultural landscape of the study area is of utmost importance and to achieve this, the context in which the site is situated will be looked at in relation to its regional, city-wide and local significance.

This context study of the urban context and site will be looked at in its current state and as the MDC is due for many changes in the coming years, as stipulated in the Mandela Development Framework, the future proposed context of the site will also have to be considered. The proposed development of a cultural centre for the visual and performing arts is based upon the future context predictions of the MDC framework. Thus this analysis seeks to develop the reader's understanding of the future ofr the area, as well as its related existing fabric.

The context of music
within South African culture

South African music can be described as a hybridisation of local ideas and cultures and imported international styles, with all local genres and cultures giving it their own local twist that carries with it the unmistakable South African flavour (www.music.org.za).

The director of Radio Freedom, Don Ngubeni, once said: *"Music is our strength, our mobilizer. Music makes our people very strong when they are together, it enables people to keep on struggling under terible conditions."* (www.afribeat.com)

African music and dance can be described as an expression of the essence and beauty of life and is not merely representational of the african context; music is the context.
(www.afribeat.com: unknown author)

South African society consists of many varied cultures, yet within each unique culture, musical rhythm and percussion act as one of the purest forms of expression and provides the truest representation of the emotions, the intensity and the beliefs of the people within each culture.

The traditional music of each culture gives its listeners a sense of identity, and provides the people of the culture an opportunity to share in a common interest with others, stimulating social interaction and it can also provide comfort in solitude.

South African musical culture not only serves as a record of cultural expression, but it also is representative of and serves as a chronological tool that documents and tells the history of this country. Throughout our country's history, in correlation with every shift in public perception, oppressive regimes, governmental policy and national triumps, there has been an equally influencial musical development that today can provide listeners with the truest representation of society at any time in our history.

The diversity and range of South Africa performance art forms can be said to be as diverse and complex as the country's cultural heritage.
Forms of performance art range from musical expression in the creation of melodies, drama and theatre, to theatrical performances, story telling, formal stage productions or singular performances staged under a tree, to dance and rhythmical expression staged to a beat, to using the human body for dramatic conveyance of a message or story. The potential for exploration of and involvement in the various cultual performance art forms cannot be denied.

There is no better tool at our disposal than that of performance art to bridge the cultural divide in our country. Performance art provides us with the opportunity for all people and cultures in South Africa to investigate and better understand our heritage and culture of the past, present and future.

History of South African music

South African music had its beginnings in the 17th century when indigenous people and slaves imported from the East, adapted and reinterpreted Western musical instruments and musical styles. In the centre of Cape Town, tribes such as the Khoi-Khoi developed a small guitar with three or four strings, known as the *ramkie*. They used the *ramkie* to blend Khoi and Western folk songs and dances. (www.lexplore.com/trip/safrica_culture)

In the Dutch colonial era, slave orchestras and travelling musicians moved around the colony playing Western music at dances and other functions. This tradition was continued well into the era of British rule after 1806. (www.safrica.info).

In the early 1820s coloured marching bands began parading through the streets of Cape Town. This became a tradition that has continued to the present day in the form of the great carnival held in Cape Town every New Year.

In the early 20th century, with the development of mining centres such as the Witwatersrand, many urban '*black*' slumyards or ghettos were created, which led to the development of new forms of hybrid music such as *marabi*, a keyboard style of music similar to that of American ragtime and the blues. In the 1930s and 1940s *marabi* bands produced some of the first professional black musicians in South Africa.

Jazz became popular in South Africa in the 1950s. Musicians such as Hugh Masekela were responsible for the growing popularity of this musical genre. Masekela started his career on the Sophiatown scene and eventually made a success of his career in Britain and New York in the early 1960s. Jazz groups such as the African Jazz Pioneers enlivened centres such as Sophiatown throughout the years of severe repression in South Africa. (www.safrica.info)

The 1960s saw the arrival of local 'white' rockers and pop groups due to the segregation of South Africa from the rest of the world as a result of apartheid.

At the end of the 1970s, influences of the British angry punk movement could be seen on the local music scene. The Johannesburg East Rand was considered to be the breeding ground of a new generation of rockers, who were disillusioned about the South African repressive white regime and sought to create a heightened awareness of the commercial exploits of the mainstream music industry.

In the 1980s 'bubblegum' became popular in black townships. This style of music/dance is a bright, light dance pop influenced by American disco and combined with the local heritage of *mbaqanga.*

Kwaito arose in the townships in the early 1990s and quickly became popular with South Africa's black youth.

Today, kwaito is the biggest force on the South African music scene. Kwaito is only rivalled by the gospel and Afrikaans music industries, both of which are seeing an ever growing propularity.

Hip-hoppers and rappers have now also arrived on the South African music scene, drawing influences from the USA's rap and hip-hop industries.

Recently collaborations of the various genres of kwaito, rock and afrikaans have been produced with great success, keeping alive the South African tradition of making music that speaks to and with global trends while always remaining definitely home-grown. (www.safrica.info)

Macro scale The City of Tshwane

Overview of city

Tshwane is the capital city of South Africa and subsequently one of the most influential cities in Africa.

Tshwane covers a large area of over 4 200 square kilometres and its borders extend out of Gauteng into the North West Province. Over 2,4 million people live in the city of Tshwane and its inhabitants speak a diversity of languages, the most dominant of which are Afrikaans, English, Tswana, Ndebele and Sepedi.

Lying in a transitional zone between the Highveld and Bushveld, Tshwane's boundaries are formed by two mountain ranges: the Magaliesberg to the north and the Schurweberg to the south.

Tshwane's streets are laid out in response to these two ranges. The east-west orientated city blocks run parallel to these two ridges, with the longitudinal streets determining the city shape and street character (Van der Waal, 1990)

Together with Johannesburg and Ekurheleni, Tshwane forms part of the Gauteng Conurbation, which is the most urbanised and economically powerful area of south Africa as well as Africa (City of Tshwane, 2007:10).

The city's history

The urban context of Tshwane came into being as a result of the apartheid government. They wanted to keep black citizens out of the inner city, but still needed them near by as a source of cheap labour, so they created 'townships' on the peripheral areas of the city.

The popularity of so called 'white suburbs' also grew during the apartheid era (Mabin, 2007). Both these instances have left a spatial legacy within Tshwane whereby the region is characterised by strong district cores surrounded by a number of satellite nodes that spread over the vast area that is Tshwane. This notion of segregation is still rife today, more so due to social and economic status than that of racial segregation

The city at present

The city of Tshwane thus functions as a multi-nodal city, of which Pretoria is regarded as the core city.

Currently only 55% of the population lives in the central urban areas, this population however contributes up to 82% of the economic output (Cities Network, 2002).

Over the past 15 years since political liberation, South African urban policy makers have tried to repair the fractured nature of South African cities that resulted from Apartheid planning. However it is increasingly clear that current urban planning interventions themselves have even greater fracturing effects on our city.

Tshwane has recently been the subject of numerous studies and undergone many planning exercises to try to revitalise the inner city and bring the various precincts together for the first time. The development of numerous Urban Design Frameworks for precincts throughout the city and for the city as a whole have been commissioned.

FIG 2.1_Location of Tshwane within South Africa

Green spaces.

The city can be considered a 'green city' as green spaces of varied scales are located throughout the city. These green spaces are usually a refuge for public congregation and recreation.

The inner city spatial development framework (ISDF) has proposed the introduction of a broad scale 'green belt' that effectively links the green spaces across the city. This 'green belt' is to run along the the Apies River channel and through the MDC.

Architectural context

Tshwane or Pretoria's early architectural character was largely the result of people imported from the Netherlands during the administration of President Paul Kruger. People such as Sytze Wierda, De Zwaan and Scoff had a huge influence which can still be seen today around Church Square in Pretoria's CBD (Meiring 1980:9)

The architectural style that has in latter years developed in Pretoria is referred to by Fisher (1998:123) as "The Third Vernacular". It is a style characterised by a regional adaptation of the International Style. The work of Le Corbusier, mainly his reference to climatic response in the form of brise soleil, had a major influence on the style. Pretoria Regionalism, or the Third Vernacular, is a response to the local climate, materials, economy and cultural expression found in Pretoria. Architects such as Herbert Baker, Gerhard Moerdyk, Gordon Leith, Norman Eaton and Gordon McIntosh have had a strong influence on the city (Meiring 1980:10).

Public amenities

The City of Pretoria has many institutions that are intended for public use. These include museums, government departments, Town Hall, Church Square, the Union Buildings, the Zoological gardens, the State Theatre and many other smaller theatres and public parks.

There is a major drive by the government and Municipal institutions to increase the ever diminishing public interest in these institutions.

Thus in keeping with the vision that Tshwane and its Inner City should be developed as the Centre of Culture in Africa, the idea has thus been constructed to develop a city wide 'cultural circle' and 'Civic Strip', these developments are to be vital for the branding and identity of the Tshwane Inner City as a unique and special place in the country.

This concept is based on the identification of all existing cultural landmarks and facilities and the enhancement thereof, as well as the development of new, contemporary cultural landmarks and the linking of these through a system of public transport and pedestrian routes, events and festivals. Fig 2.2 indicates the prominent cultural nodes and places of interest within the CBD of Pretoria. The site for this dissertation includes one of the identified cultural landmarks, the Breytenbach Theatre, and it is the aim of this dissertation to uplift its image and identity as a cultural landmark.

FIG 2.2_Existing cultural landmarks within the CBD of Pretoria

Meso scale Mandela Development Corridor

The Mandela Development Corridor (MDC), is situated along Nelson Mandela Drive, an area which can be described as a discarded urban wasteland, currently acting more as a buffer zone between Tshwane's inner city and its higher density residential districts of Arcadia and Sunnyside.

This urban wasteland has come into being due to the planning inadequacies of the past. Nelson Mandela Drive lies at the intersection of two city grid systems, and as a result this has created many isolated and underutilised land parcels. Land banking within the area has also added to the urban decay of the precinct, and subsequently vast tracts of underutilised space and dilapidated built fabric characterise the precinct.

There is potential for this stretch of land to bridge and foster urban regeneration, and act to as an example for future urban development, the potential for this precinct is explored and outlined in the Mandela Development Corridor, urban design framework 2005

The new headquarters for the Department of Trade and Industry has been built within this precinct with the intention that it would act as a catalyst for investment and development within the precinct.

There is a lack of quality public space within the area and our group proposed development framework has been designed with the aim of creating a vibrant public spine along the course of the Apies River and to encourage pedestrian movement through the precinct in an east- west direction, effectively linking the currently divided areas of the city.

Instead of focusing on the physical requirements only, a broader view is taken to include the people that use them.

The Urban Development Framework sets out to create a set of principles that guard the urban spatial expression, ensuring a coherent, easily understood and immediately legible urban environment for visitors and users alike.

The principles set out by the framework provide more a spatial interpretation of the proposed development, attempting to give meaning without giving direct instruction as to what the architecture needs to embody.

FIG 2.3_Land parcels of the Mandela Development Corridor (MDC)

FIG 2.4_Aerial view of MDC looking north

FIG 2.5_Southern entrance into the city

FIG 2.6_Greenery along Apies River channel

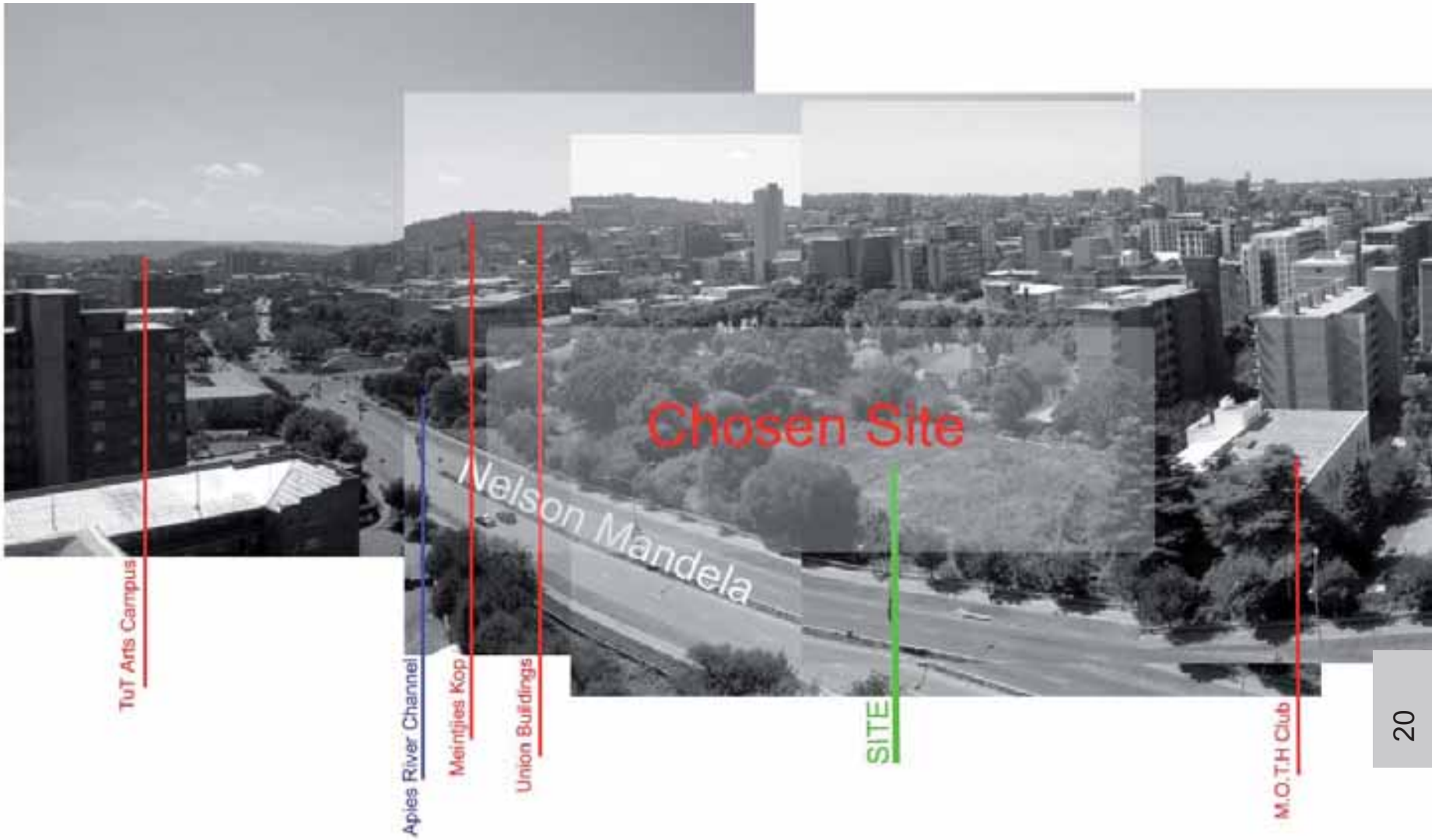


FIG 2.7_New DTI campus

FIG 2.8_Apies River channel

FIG 2.9_Existing land-banking

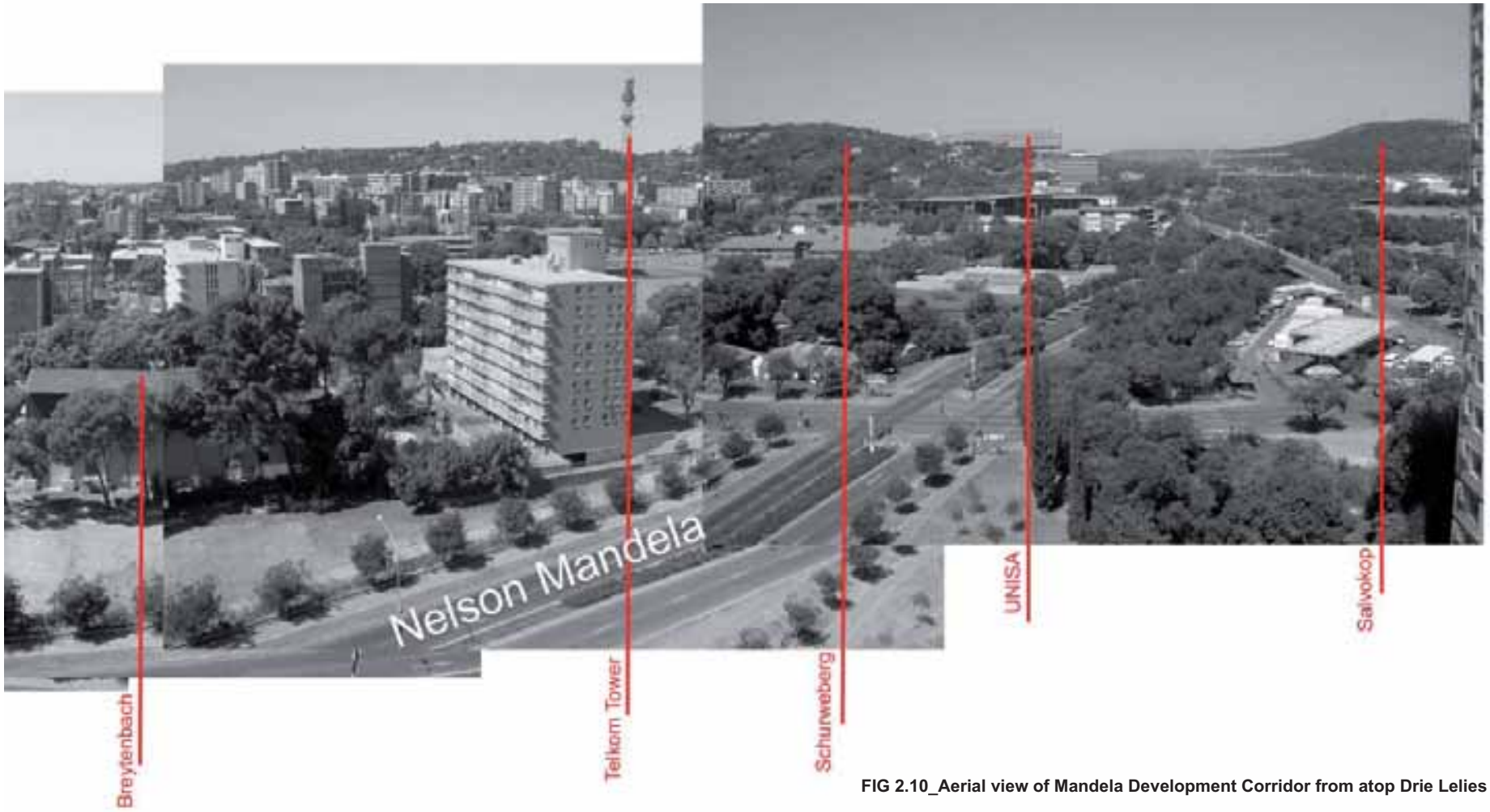


FIG 2.10_Aerial view of Mandela Development Corridor from atop Drie Lelies

Transport systems within the precinct

With the majority of the city users living in peripheral areas and suburbs there is a total dependency on public and private transport for survival (Appleyard 1983:111). This daily influx of people from the peripheral suburbs into the city results in high volumes of traffic and the outcome of this daily commute is a city characterised by isolation, alienation and segregation.

The Nelson Mandela Corridor stretched between the southern and northern Gateways into the inner city of Pretoria and the precinct lies within the Mabopane-Centurion and Trans-African Development Corridors (N14 and N4). The Mandela Development Corridor is also the point of convergence of several major access ways through and into and from the city.

Inner city public transport is dominated by municipal buses and privately run taxi services, the latter of which is the most popular form of public transport within the inner city, as they can drop off and pick up passengers at any location along any vehicular routes. Thus the inclusion of drop off and pick up zones for taxis would be beneficial to the success of any new development as this means of transport would undoubtedly bring in a significant number of potential users.

The new Gautrain station and existing Pretoria Central Station is located within walking distance, just south-west of the chosen site of this dissertation. It is the aim of the Gautrain to provide an alternative to privatised vehicular transport, and it will create a new and more accessible link to areas such as Johannesburg. The potential of the Gautrain to bring many new users to a development of this nature is undeniable and an important consideration to the number of potential users of the development.

The study area, that being the Mandela Development Corridor has lots of pedestrian activity due to the area lying in between the residential areas of Sunnyside and Arcadia and the commercial zone of the CBD

Means of vehicular transport are however currently given priority in the precinct, which is evident in the wide streets and narrow sidewalks, which currently cause havoc in this pedestrian rich area.

Nelson Mandela Drive acts as the main artery for traffic from feeder routes such as the R21, N14 and N1 to and from the inner city. It is 2-3 lanes wide in each direction. Streets such as Kotze Steet, Church Street and Pretorius Street are currently the main connector streets between the east and west of the city. Esselen Street in the precinct is the primary commercial activity corridor, resulting in congestion between pedestrians and motorists along this street. Nelson Mandela is also very wide and there are very few entrances to buildings off this street. As distances between robots are also reasonably far between for an inner city street, combined with the lack of speed bumps and speeding prevention, it results in high vehicular speeds along some stretches of the road, resulting in dangerous intersections for pedestrians and cyclists.

FIG 2.11_Transportation map

FIG 2.12_Pedestrian routes and public transportion nodes

Land use

Within the MDC there is a varied mixture of existing zoning and land use. At the southern end of the corridor, where the site of this dissertation is situated, the sites are zoned as Special, General Residential and Public Open Space. This means the sites of the proposed development would have to be consolidated and rezoned as Special due to the nature of the proposed development. The central area of the corridor is currently mostly zoned as Special, which is ideal for buildings of a mixed use nature which are currently sited there. On the northern end of the corridor the sites have varied land uses and zoning, including municipal, General Residential, Special, Special for Offices and Undetermined.

The largest area of the study area is occupied by the DTI campus.

The Caledonian Stadium and its proposed renovation together with its surrounding sports facilities creates opportunities of recreational activities within the corridor.

The areas adjacent to the chosen site are mostly residential in nature, with a large number of tall apartment buildings forming the skyline, which results in large numbers of people living within walking distance of the site. Residential areas like Sunnyside and Arcadia also border on the precinct. The existing commercial activities along Esselen Street provide for the needs of the surrounding residents of these areas. Commercial nodes like those surrounding Sunnypark are also located nearby.

Light industry and motor workshops are found towards the northern end of the corridor between Pretorius and Vermeulen Streets.

Although there is a good variety of land use within the MDC, there is no evidence of a non commercialised public interaction space within the precinct. A space of this nature has been proposed in the Urban Development Framework along the course of the Apies River. It is the aim that this spine of activity could connect the different spaces within the corridor, thus allowing for a specific land use identity for the corridor to emerge.

FIG 2.13_Existing land ownership

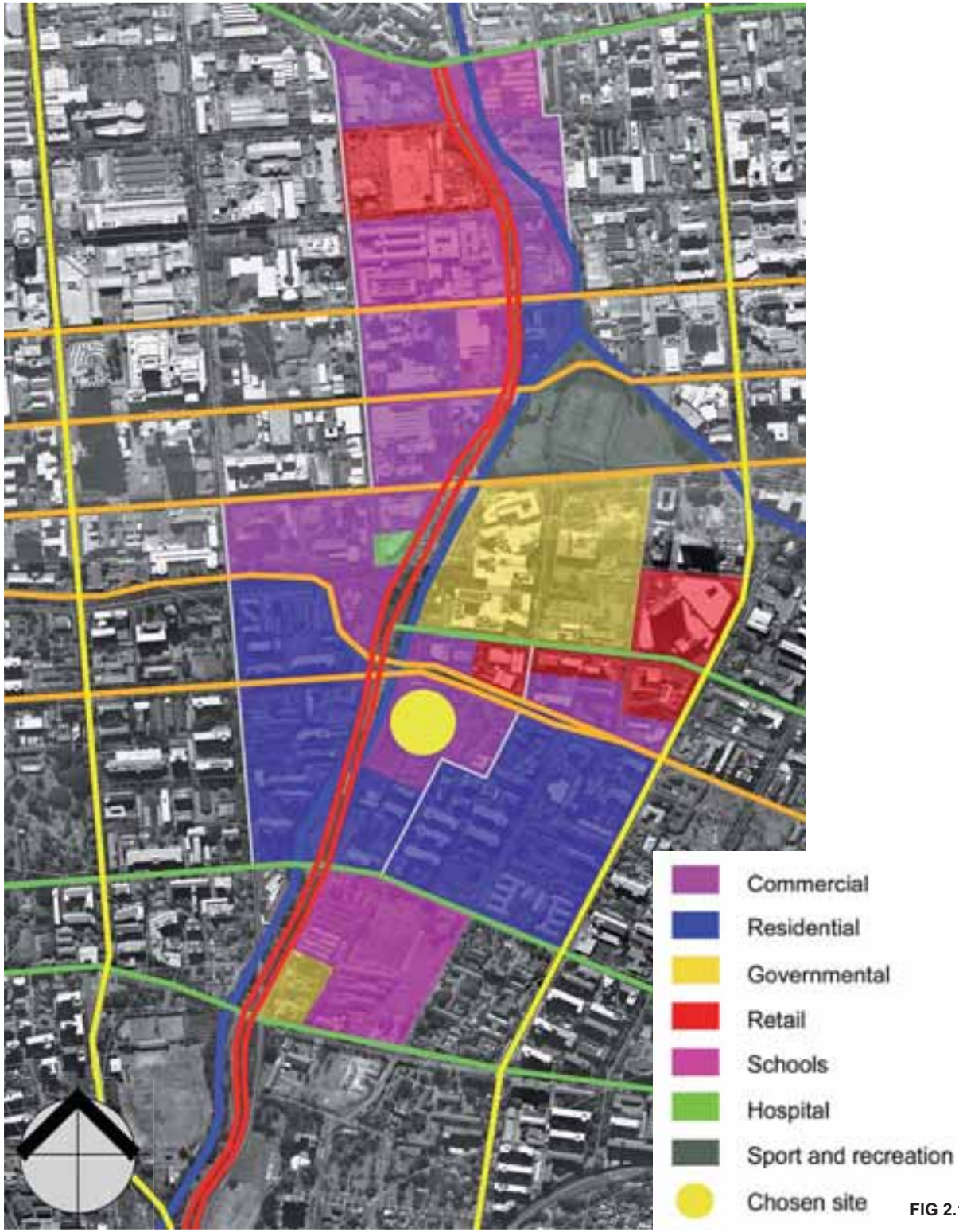


FIG 2.14_Land use distribution

FIG 2.15_Existing land zoning

Activity nodes

For any publicly used urban activity to fuction efficiently, energy flow is required to sustain and provide longevity to such activities. The efficiency of such energy flow is achieved in the degree to which humans use such activities. Within the sudy area, high-order facilities such as TUT, the TUT Arts Campus, DTI, surrounding schools and Esselen Street Retail Precinct provide immense energy to the area.

However, the problem is that these activities fluctuate dramatically during the different times of the day. The area is a hive of activity in the early morning and early evening when people are going to and returning from work. This problem of energy fluctuation has also been identified by the MDC urban design framework, and it is within this problem that the opportunity lies to, over time, develop the MDC into a vibrant working, living and activity hub that will provide a sustained energy supply to the area.

An important aspect of a constant influx of users is found where people congregate and interact with one another.

Transportation nodes are such spaces. The area also has a large throughfare of pedestrian movement, as a result of the public moving between their places of work in the CDB and homes in Sunnyside and Arcadia. If these passers through can be channelled along an activity spine, a vibrant social network sustained by enough energy can be established. It is important that the emphasis be placed on public social space as opposed to commercial space.

FIG 2.16_TUT Campus

FIG 2.17_Esselen Street

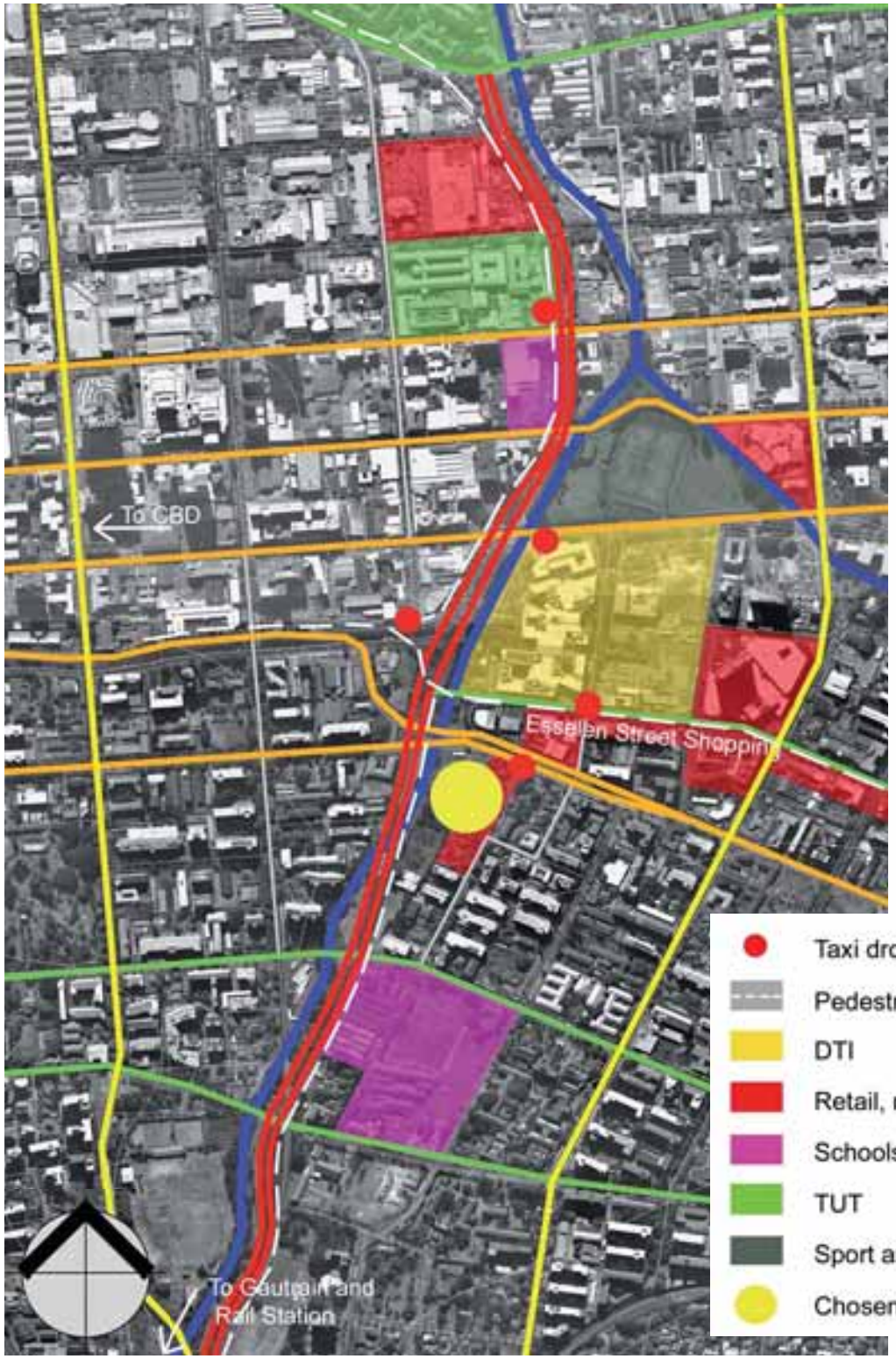


FIG 2.18_Urban Activity Nodes

FIG 2.19_Pedestrian movement on Esselen Street

FIG 2.20_Pedestrian movement on Nelson Mandela

FIG 2.21_Restaurants at Oeverzicht Art Village

Group framework

This project forms part of a framework compiled by the Mandela Development Corridor study group. The study area of the framework in question is the Nelson Mandela Development Corridor, which connects the southern and northern entries into the city. The corridor is a very important spine running along the Apies River Channel and is a feeder route to the city's east-west orientated streets.

The goal of the proposed framework for the MDC is to spatially integrate it into the greater Tshwane inner city.

The proposed framework aims to develop the MDC to act as a gateway into the Tshwane Inner City, where visitors and residents are greeted with a sense of arrival celebrating the identity of the greater Tshwane context. The idea is to encourage the MDC as a destination point and not just as a crossing point or thoroughfare

The aim of the framework is to develop a cultural and civic strip where pedestrianisation, social interaction and green open spaces are encouraged while promoting Tshwane as South Africa's Cultural Capital. By creating vibrant spaces and activity nodes along the corridor and giving identity to the currently dilapidated and underutilised area, the framework aims to create spaces for people.

It is the opinion of the study group that Nelson Mandela Drive represents a rip or tear in the urban fabric of the city. The framework proposes that this rip be repaired by adding buttons, or nodes of activity, along the corridor, thus "buttoning up" the urban fabric by bringing together the functions of the eastern and western sides of the city, but still providing enough play for the corridor to develop through a natural process. Four nodes are proposed by the group, namely: Cultural, Business, active Recreational and passive Recreational nodes – placed on strategic crossings along Nelson Mandela Drive.

The identified nodes are to act as catalysts which will promote positive future developments. This catalytic development is aimed to progress in an east-west direction rather than in a north-south orientation. The aim is to allow for the integration of the CBD and the eastern residential area which at the moment lacks social development.

This will be achieved through creating precincts which will promote the social/cultural, environmental and economic concerns of the area.

Social/Cultural:

The integration of the eastern with the western sides of the city by providing environments for activities which promote social integration.

Environmental:

The upgrading of the Apies River which will act as a spine for the creation of parks and public spaces along its course, for social gathering and recreational activities. The emphasis will be on the historical and cultural heritage of the area and the biodiversity of the natural elements of the precinct.

Economic:

The transformation of current land-banked sites into socially interactive and more economically viable spaces. The creation of activity zones provides job creation potential via the social integration and gathering of people. As more people occupy the area, this will naturally create more potential business opportunities.

Proposed spatial properties for the framework:

- Promotion and celebration of regional connections
  - Johannesburg to the south
  - Soutpansberg to the north
- Upgrading and creation of local area connections
  - Promotion of east-west connection
  - Promotion of urban integration
- Rejuvenation and upgrading of existing green spaces
- Promotion and celebration of prominent public space
  - Creation of new public spaces within the new nodes
  - Rejuvenation and upgrading of existing public spaces such as the DTI campus, Oeverzicht Village and the banks of the Apies River
- Stimulation of movement network
  - Connections to important nodes of the city
  - Promotion of pedestian routes
- Celebration of the built fabric and the promotion of the identity of the proposed nodal interventions
- Creation of a sense of arrival into the city
  - MDC as the gateway into the city
- Celebration and connection of existing and proposed landmarks within the precinct
- Rejuvenation and upliftment of the Apies River
- Integration of existing Apies River development framework into the Nelson Mandela development framework

All green space must conform to the following criteria:

- Accessible to the public
- Safe and create a sense of security
- Low maintainence
- Vibrant catalysts for social interaction
- Creation of a pedestrian-friendly link through the city
- River becomes a spine, linking all the green spaces
- Green space and Apies River upgrade link all the nodes and public spaces
- Focus on interaction and blurred lines between the buildings, public spaces and open green spaces

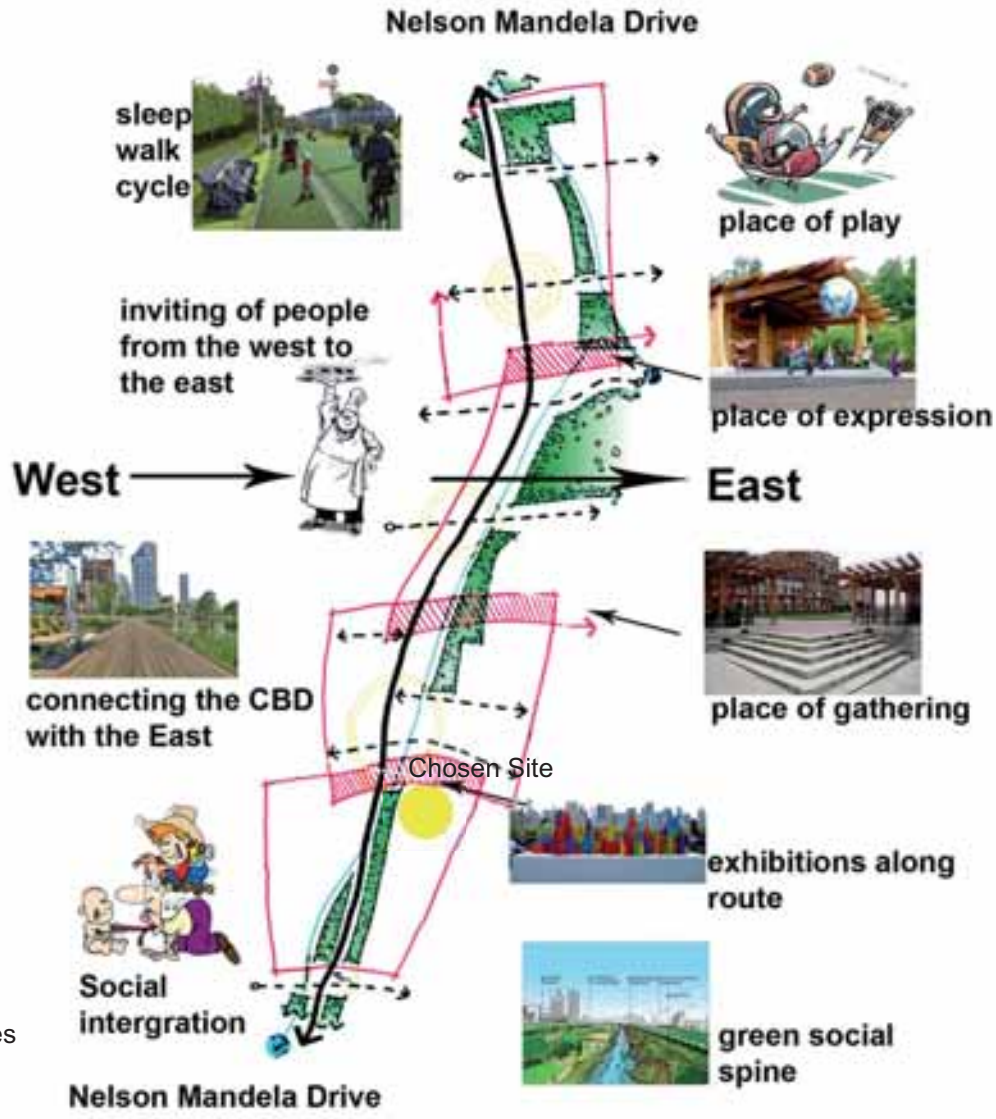


FIG 2.22_Aims and objectives of group framework

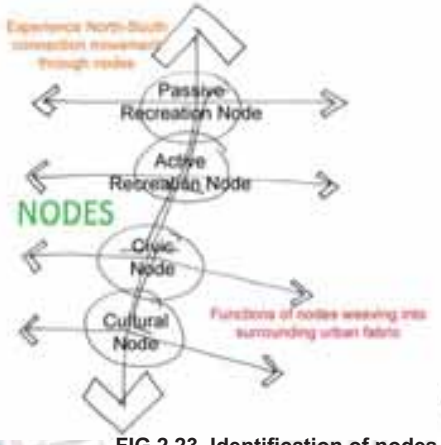


FIG 2.23_Identification of nodes

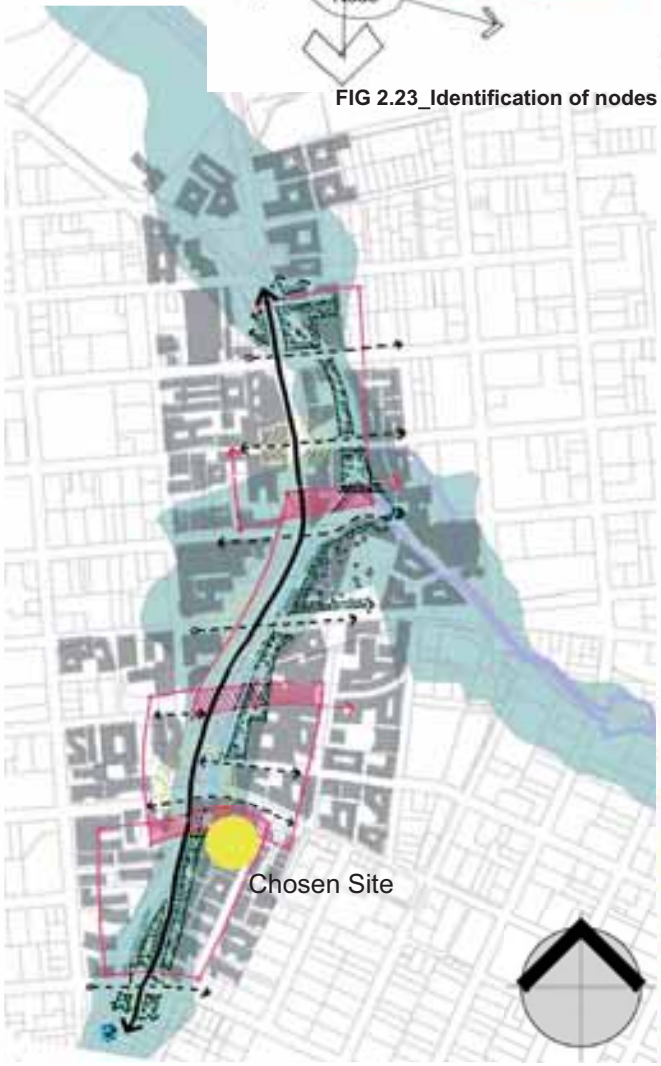


FIG 2.24_Spatial planning and urban design principles

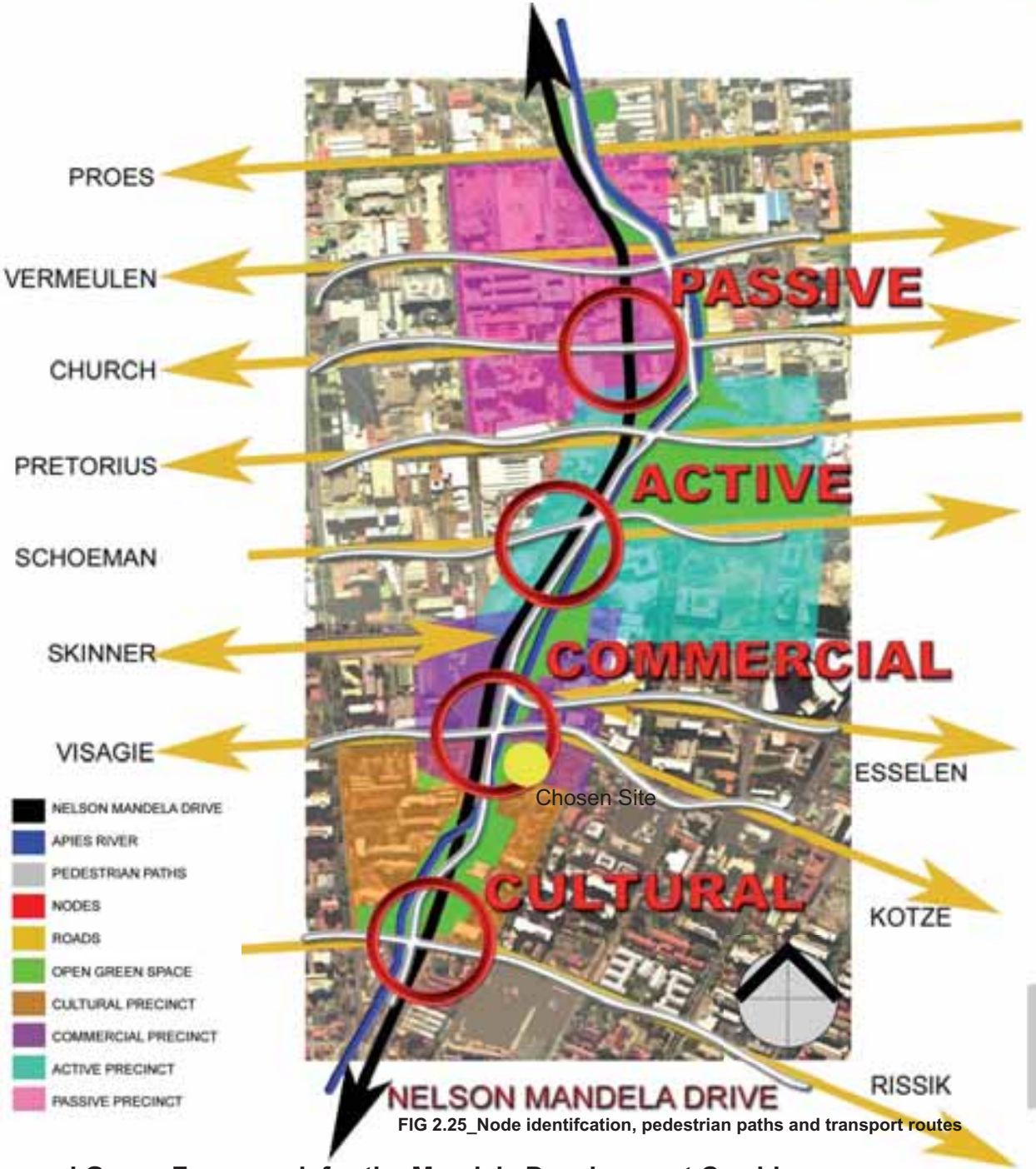


FIG 2.25_Node identifcation, pedestrian paths and transport routes

Please see attached appendix - Proposed Group Framework for the Mandela Development Corridor

Micro scale Legal context

Zoning: According to the individual zoning certificates the sites currently have different zonings.
They are currently zoned as Special, General Residential or Public Open Space
The sites are to be consolidated and rezoned as Special

Area of consolidated site: 27 305m ²

Area of existing buildings on site: 1 071m2 ²

Building Lines: 5m street
3m river frontage (30% of building edge)
7m river frontage (70% of building edge)

Storeys: Max. 6 storeys

Servitudes: None

Parking: 2.5 per 100m ² (as per framework)

Floor-Space ratio: 2.5 (as per framework)

Coverage: Maximum 60% of consolidated erf area

Site character Photographic analysis

VILLAGE GARDENS
TYPOLOGY: 9 storey residential building
MATERIALS: Concrete frame, face brick infill/exterior, flat roof
CONDITION: Good
FUNCTION: Residential
STREET FRONTAGE: Palisade fencing
GENERAL COMMENTS: Bland and uninteresting building

BREYTENBACH THEATRE
TYPOLOGY: Single storey theatre
MATERIALS: Plastered exterior, corrugated profile sheeting pitch roof
CONDITION: Reasonable
FUNCTION: Cultural
STREET FRONTAGE: Palisade fencing
GENERAL COMMENTS: Does not respond to the street, hidden from view

KRESTA
TYPOLOGY: 2 storey residential building
MATERIALS: Face brick exterior, IBR profile sheeting pitch roof
CONDITION: Good
FUNCTION: Residential
STREET FRONTAGE: Palisade fencing
GENERAL COMMENTS: Bland and uninteresting building

Skinner

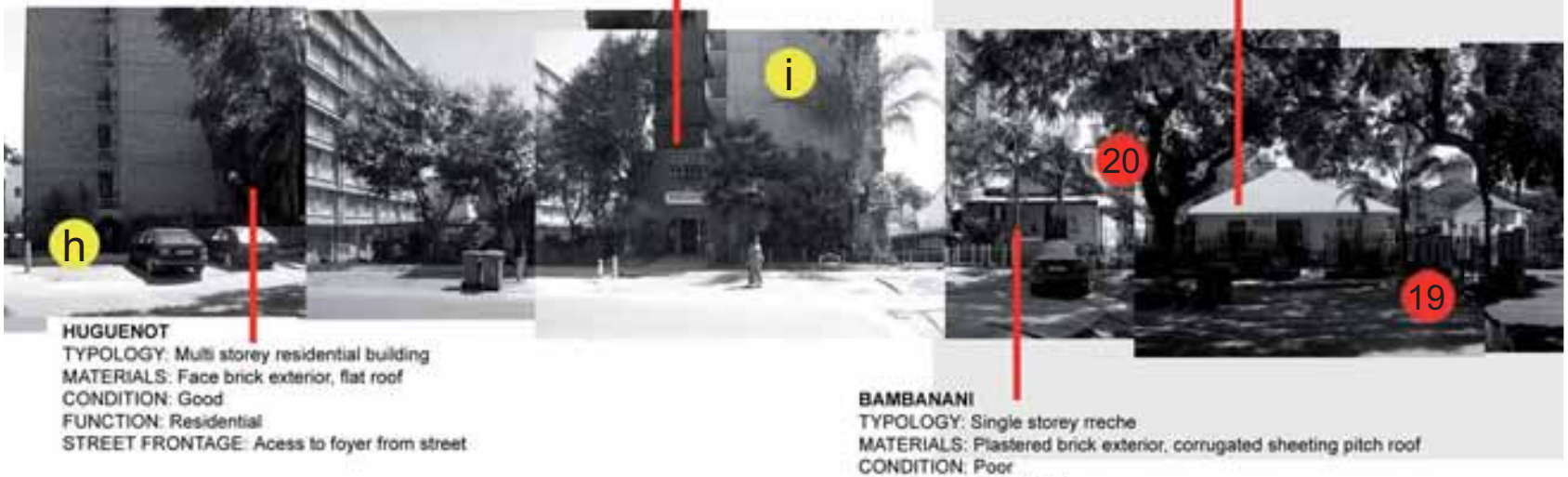
FIG 2.26_Site character - Gerhard Moerdyk

* Refer to corresponding letter (image 2.94) on pg 53. indicating location of building

Gerhard Moerdyk is a quiet two way street connecting Kotze and Skinner Streets.
Light traffic passes the site on this street.
The sidewalk on the eastern edge of the street is generally not conducive to pedestrian movement, but the western edge has a good sidewalk for pedestrian movement.
Buildings generally have limited access but active street fronts.
Trees line both edges of the street.

CAFE
TYPOLOGY: Single storey cafe
MATERIALS: Plastered brick exterior, corrugated sheeting pitch roof
CONDITION: Good
FUNCTION: Retail
STREET FRONTAGE: Opens onto street, small palisade fence

PREDENT
TYPOLOGY: Multi storey residential building
MATERIALS: Plastered and face brick exterior, flat roof
CONDITION: Poor
FUNCTION: Residential
STREET FRONTAGE: Acess to foyer from street



HUGUENOT
TYPOLOGY: Multi storey residential building
MATERIALS: Face brick exterior, flat roof
CONDITION: Good
FUNCTION: Residential
STREET FRONTAGE: Acess to foyer from street

BAMBANANI
TYPOLOGY: Single storey rreche
MATERIALS: Plastered brick exterior, corrugated sheeting pitch roof
CONDITION: Poor
FUNCTION: Educational
STREET FRONTAGE: Opens onto street, small palisade fence

FIG 2.27_Limited access to buildings

FIG 2.28_Vacant building

FIG 2.29_Buildings along Rissik Street

HABARI
TYPOLOGY: Single storey restaurant/bar
MATERIALS: Plastered brick exterior, corrugated sheeting pitch roof
CONDITION: Good
FUNCTION: Commercial
STREET FRONTAGE: Opens onto street, low palisade fence, seating onto Street

ZWAKALA
TYPOLOGY: Single storey jazz cafe
MATERIALS: Plastered brick exterior, corrugated sheeting pitch roof
CONDITION: Good
FUNCTION: Commercial
STREET FRONTAGE: Opens onto street, lowpalisade fence, seating onto Street
GENERAL COMMENTS: Informal traders in front of store

CHEFS
TYPOLOGY: Single storey restaurant/rar
MATERIALS: Plastered brick exterior, corrugated sheeting pitch roof
CONDITION: Poor
FUNCTION: Commercial
STREET FRONTAGE: Opens onto street, low palisade fence, Seating onto Street

DOCTER
TYPOLOGY: Single storey medical practices
MATERIALS: Plastered brick exterior, corrugated sheeting pitch roof
CONDITION: Good
FUNCTION: Medical
STREET FRONTAGE: Opens onto street, low palisade fence, seating onto Street
GENERAL COMMENTS: Character filled building

AFRICAN BEAT
TYPOLOGY: Single storey restaurant/bar
MATERIALS: Plastered brick exterior, corrugated sheeting pitch poof
CONDITION: Good
FUNCTION: Commercial
STREET FRONTAGE: Opens onto street, low palisade fence, seating onto Street

FIG 2.30_Site character - Gerhard Moerdyk continued

FIG 2.31_Gerhard Moerdyk

FIG 2.32_Tree lined Gerhard Moerdyk Street

FIG 2.33_Light traffic and quiet character of street

RESTAURANT
TYPOLOGY: Single storey restaurant
MATERIALS: Plastered brick exterior, corrugated sheeting pitch roof
CONDITION: Good
FUNCTION: Commercial
STREET FRONTAGE: Opens onto street, lowpalisade fence, seating onto Street
GENERAL COMMENTS: Character filled building

UNOCCUPIED BUILDING
TYPOLOGY: Single storey residential
MATERIALS: Plastered brick exterior, corrugated sheeting pitch roof
CONDITION: Poor
FUNCTION: Unoccupied
STREET FRONTAGE: Blocked off from street
GENERAL COMMENTS: Does not contribute to the character of the area

* Refer to corresponding letter (image 2.94) on pg 53 indicating location of building

Kotze is a busy two way street leading from Sunnyside to the inner city.
Heavy traffic passes the site on this street.
The sidewalk on the northern edge of the street is generally not conducive to pedestrian movement but the southern edge has a good sidewalk for pedestrian movement.
Buildings generally have inactive street fronts.
North-western edge of the street has beautiful open green spaces.

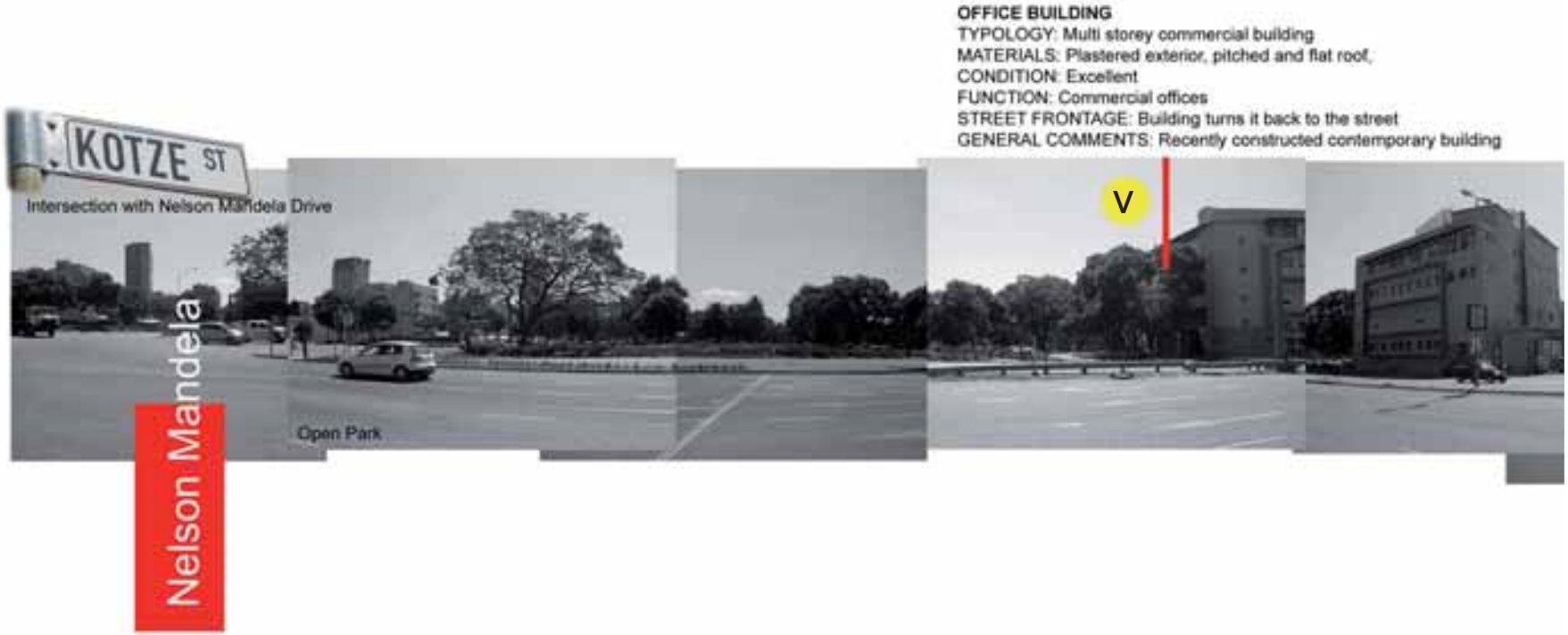


FIG 2.34_Site character - Kotze Street

FIG 2.35_Kotze Street

FIG 2.36_Intersection of Nelson Mandela/Kotze

FIG 2.37_Fast moving traffic

RESIDENTIAL APARTMENT
TYPOLOGY: Multistory apartment building
MATERIALS: Concrete fame, face brick exterior, flat concrete roof,
CONDITION: Good
FUNCTION: Residential
STREET FRONTAGE:

BIG BOYS TOYS
TYPOLOGY: Single storey workshop
MATERIALS: Plastered brick structure, flat concrete roof,
CONDITION: Good
FUNCTION: Automotive spares retailer and workshop
STREET FRONTAGE: Rear of workshop on Kotze Street
GENERAL COMMENTS: A little tatty, workshop untidy

SHOPPING CENTRE
TYPOLOGY: Double storey commercial building
MATERIALS: Face brick and plastered exterior, tiled pitched roof,
CONDITION: Good
FUNCTION: Retail Shops
STREET FRONTAGE: Only a few shops opening onto street
GENERAL COMMENTS: Building does not respond to Kotze Street

* Refer to corresponding letter (image 2.94) on pg 53 indicating location of building

Nelson Mandela Drive is a busy two-way, double lane street leading from Fountains Circle to the inner city.
Heavy traffic passes the site on this street.
The sidewalk on the western edge of the street is good, wide and landscaped but does not respond to the buildings that run along the sidewalk. As a result, pedestrian movement is limited. The eastern edge has a good sidewalk for pedestrian movement but, again, does not respond to the site.
The proposed design aims to change this by creating an active pedestrian friendly-sidewalk that reactivates the sidewalk and pedestrian routes.
Buildings generally have inactive street fronts.
The street is tree lined and the edges have been landscaped.

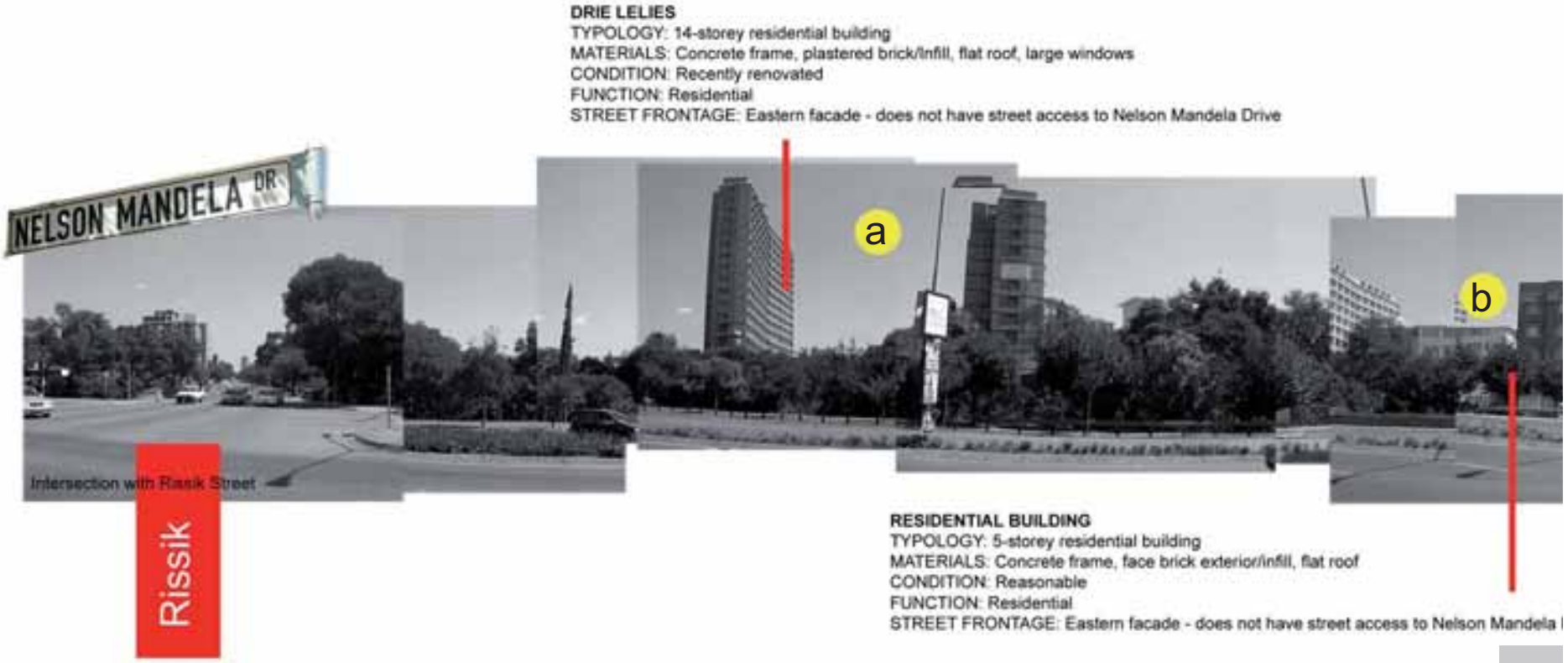


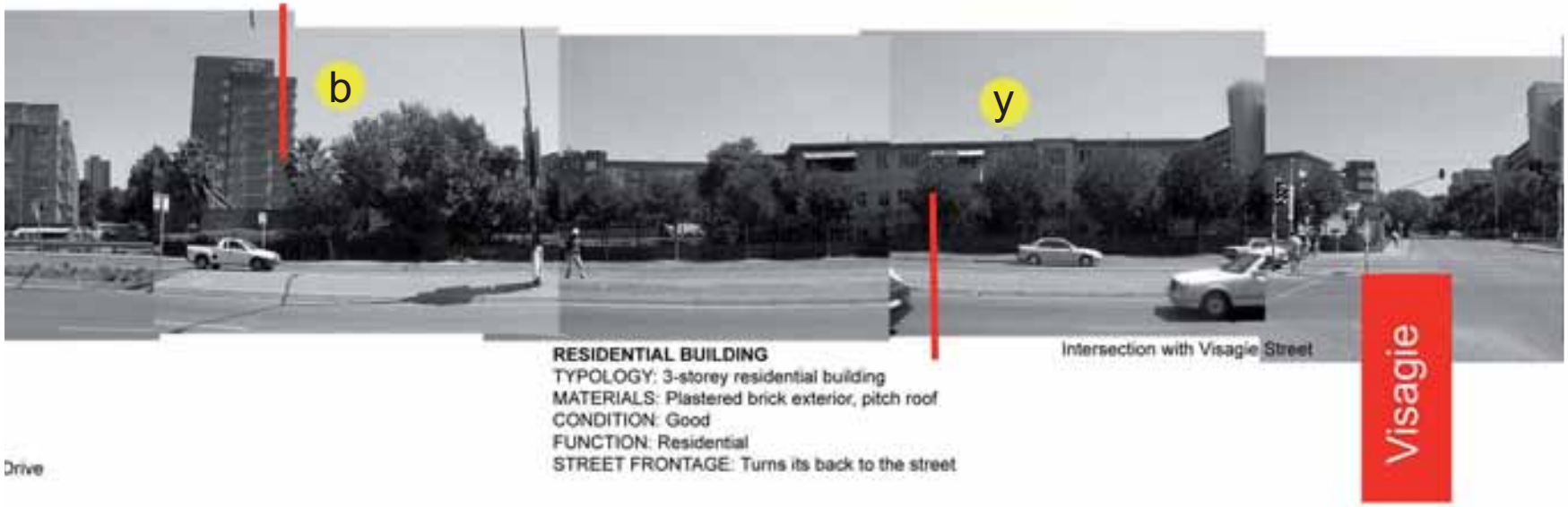
FIG 2.38_Site character - Nelson Mandela Drive

FIG 2.39_Rear of Breytenbach Theatre

FIG 2.40_Fast-moving traffic

FIG 2.41_M.O.T.H Club inaccessible from Nelson Mandela Drive

RESIDENTIAL BUILDING
TYPOLOGY: 9-storey residential building
MATERIALS: Concrete frame, face Brick exterior/infill, flat roof
CONDITION: Good
FUNCTION: Residential
STREET FRONTAGE: Eastern facade - does not have street access on Nelson Mandela Drive



Drive

RESIDENTIAL BUILDING
TYPOLOGY: 3-storey residential building
MATERIALS: Plastered brick exterior, pitch roof
CONDITION: Good
FUNCTION: Residential
STREET FRONTAGE: Turns its back to the street

Intersection with Visagie Street

* Refer to corresponding letter (image 2.94) on pg 53 indicating location of building

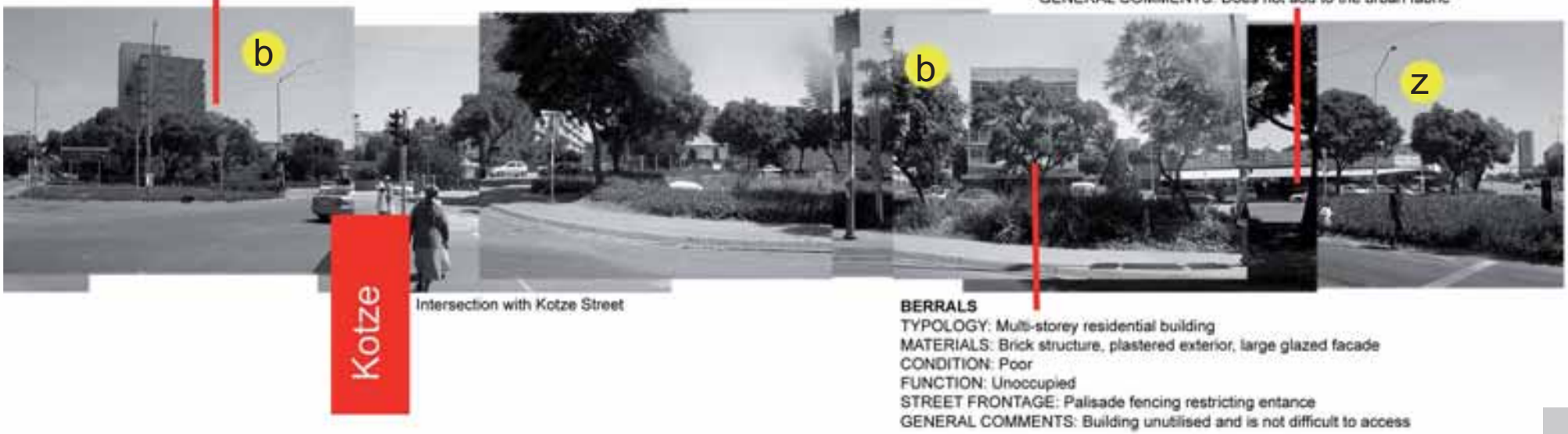
FIG 2.42_Pedestrians on Nelson Mandela Drive

FIG 2.43_Local community members

FIG 2.44_Traffic at intersection of Nelson Mandela/Kotze

RESIDENTIAL BUILDING
TYPOLOGY: 10-storey residential building
MATERIALS: Face brick exterior, flat roof
CONDITION: Good
FUNCTION: Residential
STREET FRONTAGE:

PRE RAND
TYPOLOGY: Single-storey motor showroom
MATERIALS: Steel frame, IBR profile roof sheeting, shade netting canopy
CONDITION: Good
FUNCTION: Motor Retail
STREET FRONTAGE: Building set back from road and street
GENERAL COMMENTS: Does not add to the urban fabric



Intersection with Kotze Street

BERRALS
TYPOLOGY: Multi-storey residential building
MATERIALS: Brick structure, plastered exterior, large glazed facade
CONDITION: Poor
FUNCTION: Unoccupied
STREET FRONTAGE: Palisade fencing restricting entance
GENERAL COMMENTS: Building unutilised and is not difficult to access

FIG 2.45_Site character - Nelson Mandela Drive continued

Site analysis

As previously mentioned, the selected site for this dissertation is located in and around the Oeverzicht Art Village on the corner of Kotze Street and Nelson Mandela Drive.

The site is currently owned by the municipality. There are currently plans for the development of the site, but it is the opinion of the dissertation that these current development plans do little to uphold the existing character of the site. The existing structures on the site are not considered historical monuments, or of historical importance. However, it is the view of this dissertation that these homes should be maintained and re-used as far as possible in keeping with the guidelines given by the MDC Urban Development Framework.

Many of the existing structures on the site are in dire need of restoration and renovation. Some of the structures have been identified to be in a state of disrepair and will need to be demolished.

The existing M.O.T.H. club which forms part of the chosen site, is currently over-run by squatters and vagrants.

The existing Breytenbach theatre which forms part of the chosen site as well, is currently well maintained but needs to be updated. The building is barely visible from Nelson Mandela Drive and is therfore not functioning to its full potential.

The site is at the urban edge of the city with Klapperkop and Salvokop to the south of the site. The high rise nature of the city and the shear size of these ridges, result in the scale of the fabric of the area sloping down towards the site, creating the potential atmosphere of an amphitheatre type space.

The Apies River Channel forms part of the western boundary of the project site. This is an important element on the site as the revitalisation of the river system and use of the river course as an activity spine between open and public spaces (as per the proposed group framework) will enhance the natural beauty and physical attributes of this natural (or not so natural) feature.

The site poses a number of problems for the creation of structures on the site. These problems include:

- How to provide for sufficient parking?
- The change in level between the street edge of Nelson Mandela Drive and the site
- The treatment of the natural slope of the site
- Obtaining access off Nelson Mandela Drive without disrupting traffic flow?
- Linking/including the existing Breytenbach theatre and M.O.T.H club to the development?
- Using the existing houses/structures to enhance the character of the new development?
- Creating an active edge along Nelson Mandela Drive with its fast moving traffic?

Before any informed design responses can be generated, the existing scale, architectural language and surrounding land uses must be properly understood.

FIG 2.46_Existing M.O.T.H. club building

FIG 2.47_Existing restaurant on site

FIG 2.48_Apies River - western boundary of site

FIG 2.49_View from Kotze - current state of site

FIG 2.50_Existing buildings on site

FIG 2.51_Current state of site

FIG 2.52_Site panorama taken from atop Drie Lelies

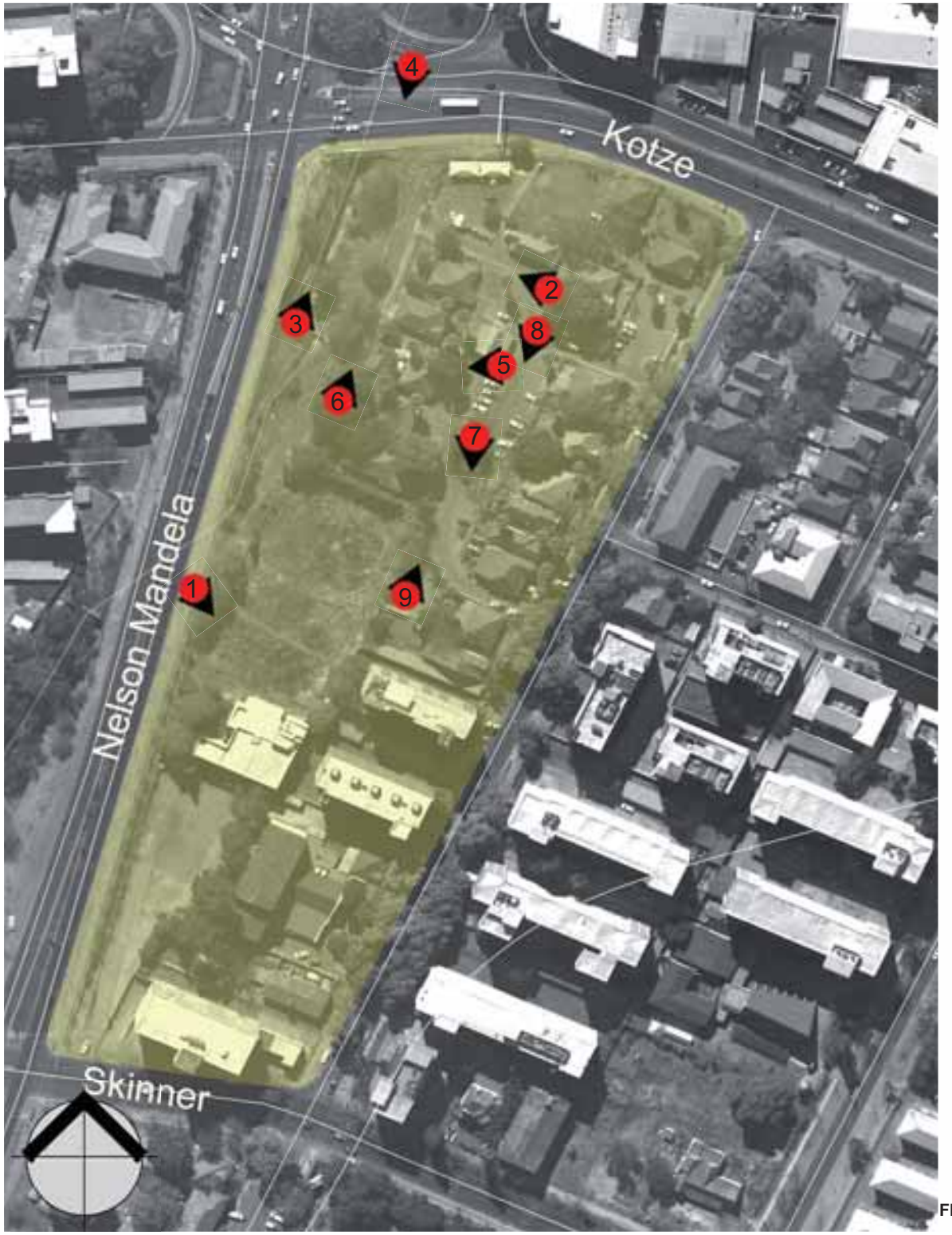


FIG 2.53_Photographic orientation diagram

FIG 2.54_Existing large trees on site

FIG 2.55_Quiet character of site

FIG 2.56_Existing central paved parking area

Existing Buildings

Ngue Mini Market

TYPOLOGY: Single storey cafe
MATERIALS: Plastered brick exterior walls on face brick plinth,
corrugated sheeting pitch roof, wooden doors and windows
CONDITION: Poor
STREET FRONTAGE: Palisade fencing separates frontage from street
GENERAL COMMENTS: Building under utalised, badly extended and in need of renovation
MEASUREMENTS: Doors and windows 2 330mm
Ceiling 3150mm
Roof Pitch: +- 30 degrees

OPPORTUNITIES: Existing function apllicable to needs of surrounding contaxt

FIG 2.57_Plan - Ngue Mini Market

FIG 2.58_Western elevation

FIG 2.59_Palisade separtation from street

FIG 2.60_Eastern street elevation

African Beat

FIG 2.61_Eastern street elevation

TYPOLOGY: Single storey bar
MATERIALS: Plastered brick exterior walls on face brick plinth,
corrugated sheeting pitch roof, wooden doors and windows
CONDITION: Poor
STREET FRONTAGE: Palisade fencing separates frontage from street
GENERAL COMMENTS: Building under utalised, badly extended and in need of renovation
MEASUREMENTS: Doors and windows 2 400mm
Ceiling 3 150mm
Roof Pitch: +-35degrees

OPPORTUNITIES: Later additions can be demolished
Building can open up to new square with minor alterations

FIG 2.63_Outside seating of restaurant

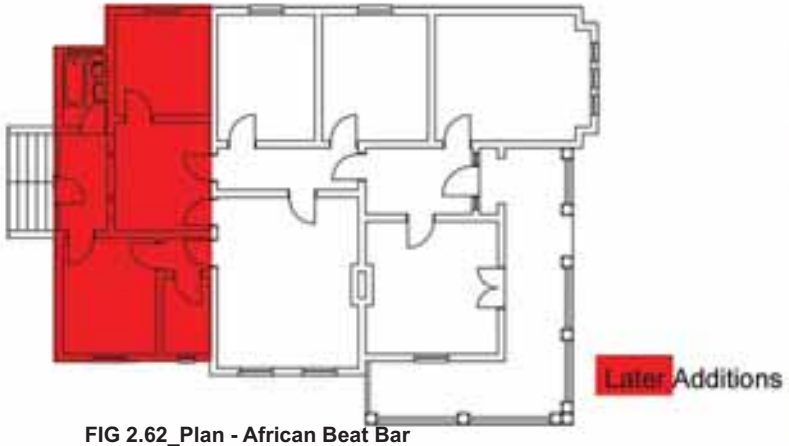


FIG 2.62_Plan - African Beat Bar

FIG 2.64_Building separated from street

FIG 2.65_South-western perspective

FIG 2.66_Entrance and covered porch

Chiefs Hair Salon

TYPOLOGY: Single-storey hair salon
MATERIALS: Plastered brick exterior walls on face brick plinth,
corrugated sheeting pitch roof, wooden doors and windows
CONDITION: Poor
STREET FRONTAGE: Palisade fencing separates frontage from street
GENERAL COMMENTS: Building under utalised, badly extended and in need of renovation
Existiing function not suitable for new development
MEASUREMENTS: Doors and windows 2 330mm
Ceiling 3 060mm
Roof Pitch: +-35degrees

OPPORTUNITIES: Building can open up to square with minor alterations

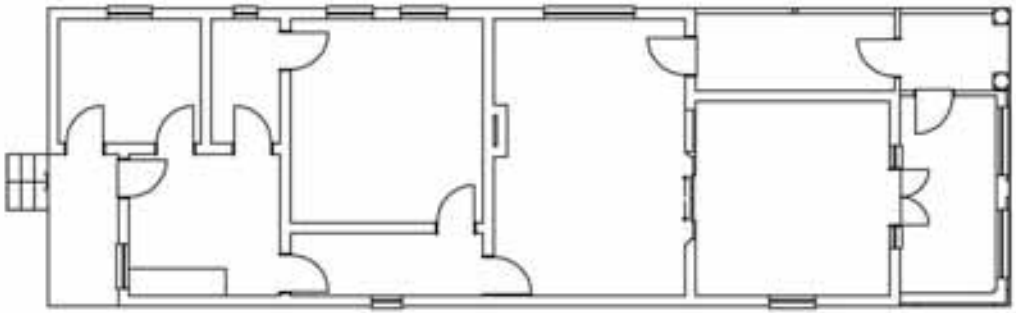


FIG 2.67_Plan - Chiefs Hair Salon

FIG 2.68_Eastern street elevation

FIG 2.69_Western elevation

FIG 2.70_South-eastern perspective

Habari Bar/Lounge

TYPOLOGY: Single-storey bar/lounge
MATERIALS: Plastered brick exterior walls on face brick plinth,
corrugated sheeting pitch roof, wooden doors and windows
CONDITION: Poor
STREET FRONTAGE: Palisade fencing separates frontage from street.
GENERAL COMMENTS: Building under utalised, badly extended and in need of renovation
Existing bar small and cramped
MEASUREMENTS: Doors and windows 2 400mm
Ceiling 3 150mm
Roof Pitch: +-35degrees

OPPORTUNITIES: Building can open up to new square with minor alterations

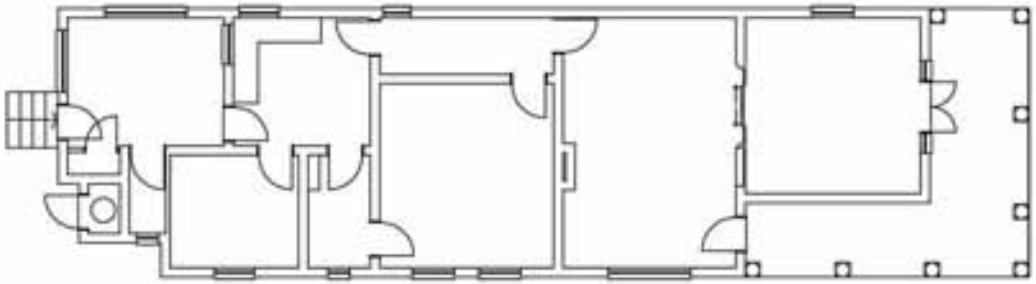


FIG 2.71_Plan - Habari Bar/Lounge

FIG 2.72_Eastern street elevation

FIG 2.73_Northern elevation

Zwakala Jazz Cafe

TYPOLOGY: Single storey jazz bar/lounge
MATERIALS: Plastered brick exterior walls on face brick plinth,
corrugated sheeting pitch roof, wooden doors and windows
CONDITION: Poor
STREET FRONTAGE: Palisade fencing separates frontage from street
GENERAL COMMENTS: Building under utalised, badly extended and in need of renovation
Too many internal walls
MEASUREMENTS: Doors and windows 2 300mm
Ceiling 3 090mm
Roof Pitch: +-30degrees

OPPORTUNITIES: Building can open up to new square with minor alterations.

FIG 2.74_Plan - Zwakala Jazz cafe

FIG 2.76_North-western perspective

FIG 2.75_Eastern street elevation

FIG 2.77_Western elevation

FIG 2.78_Eastern street elevation

Doctor

TYPOLOGY: Single-storey doctor/unoccupied
MATERIALS: Plastered brick exterior walls on face brick plinth,
corrugated sheeting pitch roof, wooden doors and windows
CONDITION: Poor
STREET FRONTAGE: Palisade fencing separates frontage from street
GENERAL COMMENTS: Building under-utalised, badly extended and in need of renovation
Existing function not suitable for new development
MEASUREMENTS: Doors and windows 2 300mm
Ceiling 3 090mm
Roof Pitch: +-30degrees

OPPORTUNITIES: Building can open up to new square with minor alterations.
Should be knocked through into one space/building

FIG 2.80_Eastern perspective

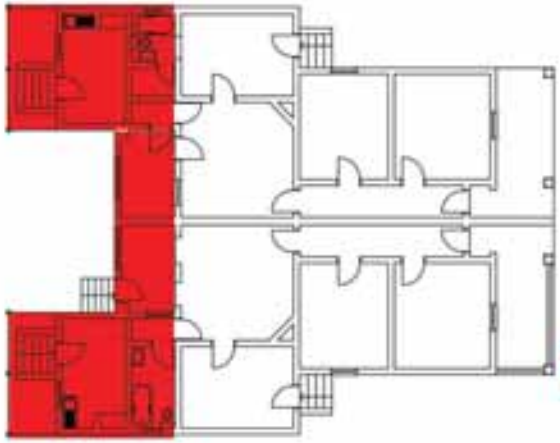


FIG 2.79_Plan - Docters Rooms

FIG 2.81_North-western perspective

FIG 2.82_Western elevation

Changes Bar

TYPOLOGY: Single-storey bar/lounge
MATERIALS: Plastered brick exterior walls on face brick plinth,
corrugated cheeting pitch roof, wooden doors and windows
CONDITION: Poor
STREET FRONTAGE: Palisade fencing separates frontage from street
GENERAL COMMENTS: Building under-utalised, badly extended and in need of renovation
Character filled building
MEASUREMENTS: Doors and windows 2 550mm
Ceiling 3 400mm
Roof Pitch: +-35degrees

OPPORTUNITIES: Building can open up to new square with minor alterations.

FIG 2.84_North-eastern perspective

FIG 2.83_Plan - Changes Bar

FIG 2.85_Eastern street elevations

FIG 2.86_Existing access to site

M.O.T.H. club

TYPOLOGY: Double-storey old M.O.T.H. club building
MATERIALS: Plastered brick exterior walls,
flat roof, steel framed doors and windows
CONDITION: Poor
STREET FRONTAGE: Level change between frontage and Nelson Mandela Drive
GENERAL COMMENTS: Building under-utalised, badly extended and in need of renovation
MEASUREMENTS: Doors and windows 2 805mm
Ceilng 3 600mm
Roof Pitch: Flat Main Area. Stoep +- 15 degrees

OPPORTUNITIES: Can be integrated into the new Cultural Centre for the Visual and Performance Arts.

FIG 2.88_View from Nelson Mandela Drive

FIG 2.87_Plan - M.O.T.H. club

FIG 2.89_Western Elevation

FIG 2.90_Entrance

FIG 2.91_Original structure with fly-tower extension

FIG 2.92_Eastern street elevation

FIG 2.93_Western elevation

Breytenbach Theatre

The Breytenbach Theatre has a rich and colourful history. The original building was erected in 1903 and was designed to function as a community hall for the German community, housing a school and gymnasium. During World War I the building was confiscated and handed over to the Custodian of Enemy Property.

During the influenza epidemic of 1918, the building was used as a temporary hospital and legend has it that the spirits of the dead still haunt the theatre passageways today.

The building later became home to the Langlaagte Centre, which taught crafts and skills to war survivors. The Breytenbach was then developed into an artist studio and workshop housing the works of Hennie Potgieter and Gerhard Moerdyk. The building eventually became a film studio.

In 1955, the National Theatre Organisation (NTO) purchased the property and converted it into a theatre. The building was renamed Harmonie Hall and the NTO's first production, *Voorlopige Vonnis* by *Jozef van Hoeck*, opened on 17 November 1958.

In 1959 Mr. Breytie Breytenbach donated the site adjacent to the theatre to the NTO. The theatre was expanded to a 300 seat capacity and the building became known as the New National Theatre of Pretoria. This new theatre also served as a training academy for young aspiring actors and a training centre for technicians. The theatre was renamed The Breytenbach in 1967 in honour of Dr PPB Breytenbach, the then chairman of the NTO.

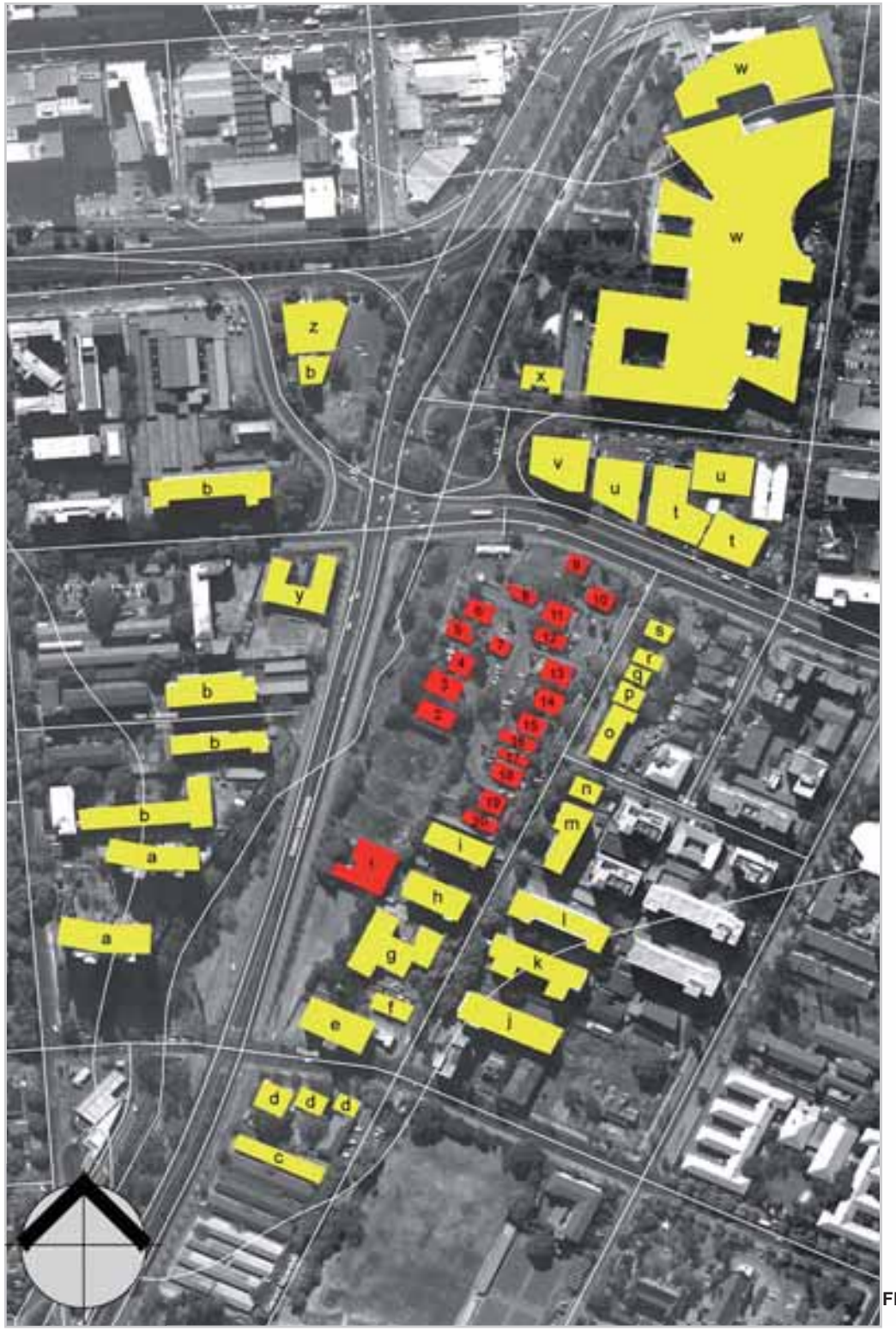
The NTO split in the late 1970s and the Performing Arts Council of Transvaal (PACT) continued to stage productions in the Breytie until the theatre lost popularity in the early 1980s due to the completion of the State Theatre in 1981. The Technikon Pretoria purchased the Breytenbach in 1984 with the intention that to use it as a training venue for its Drama, Opera and Theatre Crafts students.

The theatre's popularity soon returned due to the students' various lunchtime concerts, ballet and opera recitals. The theatre was then expanded in 1993 with the addition of a fly-tower which enabled greater flexibility in stage design and enhanced the theatre's display capacity.

In 1996, the Technikon converted the historical cottage next to the theatre, which housed previous functions such as a student clothing manufacturing shop known as the Moonbox, into an additional small theatre housing 65 people.

Currently the Breytenbcah Theatre is the principal performance venue for the various departments of the Tshwane University of Technology. The venue provides students with the practical experience they need in their respective fields of study, being Vocal Art, Drama and Dance and Musical Theatre. The University's Department of Performing Arts Technology also uses the Breytenbach Theatre as a practical training ground and platform for its students in the fields of costume design, lighting and sound, set design and make up to gain practical experience to prepare students for real world conditions once graduated. The Breytenbach Theatre is also rented out for outside performances and productions which aids in covering the maintenance and running costs of the theatre.

Surrounding
building use



- a Orie Lelies Residential Flats
- b Residential Flats
- c School
- d Vacant House
- e Village Gardens Flats
- f Kresta Flats
- g Breytenbach Theatre
- h Huguenot Flats
- i Prestent Flats
- j Theatre View Flats
- k Santa Maria Flats
- l Santa Barbara Flats
- m Residential Flats
- n Malika Beuty Salon
- o Residential Flats
- p Ethnic Restaurant
- q Trinity Church
- r Restaurant and Bar
- s Laundry
- t Shopping Centre
- u Big Boys Toys Automotive Workshop
- v Office Building
- w OTI
- x Historical Building
- y Residential Flats
- z Car Dealership

- 1 M.O.T.H Club
- 2 Vacant
- 3 Vacant
- 4 Toms Tavern
- 5 Restaurant
- 6 Pool Hall
- 7 Kitchen
- 8 Hairdresser
- 9 Vacant
- 10 Vacant
- 11 Vacant
- 12 Pest Control
- 13 Changes Bar
- 14 Doctor
- 15 Zwakala Jazz Lounge
- 16 Haban Bar/Lounge
- 17 Chiefs Hair Salon
- 18 African Beat
- 19 Ngue Mini Market
- 20 Daycare

FIG 2.94_Surrounding building use distribution

Existing fabric

The existing fabric of the precinct ranges from that of recently completed projects such as the DTI campus, completed in 2003, to buildings that date back to the 1920s which include most of the existing structures on the site. If any new development is to become routed within its context, its surrounding architectural language must be properly understood

The study area of this dissertation is home to a variety of architectural styles from a wide range of architectural eras, including art deco, modern and post-modern architectural styles. There are varied correlations between neighbouring buildings within the precinct. The site of this dissertation contains mostly single-level buildings and the immediate buildings to the south-east and western edges of the site average 8 storeys. The northern edge of the site is bordered by mostly 4 storey office blocks. The multi-storey Drie Lelies also lies directly across Nelson Mandela Drive from the site. Due to the single-storey nature of the chosen site, the experience on a human scale is easily achievable. The current varied architectural styles and lack of a common architectural language results spaces that are not easily definable and identifiable by the public.

There might not be a correlation between the various scales of structures within the precinct, but the materiality of the buildings within this precinct show strong similarities to one another. Face brick and exposed concrete are the common materials used in most of the structures. This is evident in both new and old buildings, and as a result one must be lead to deduce that this materiality creates a specific character for the precinct. It may be argued that this language has come into being as a result of the easy availability and cost efficiency of these materials, which could be true, but, regardless of availability and costs implications, this architectural and material language is rooted in the context of Pretoria.

What is now needed is the development of a methodology for the creation of an architectural language that responds to the current contemporary architectural era, but which at the same time is rooted in the materiality of the surrounding context.

FIG 2.95_Surrounding materiality

FIG 2.96_Scale of surrounding buildings

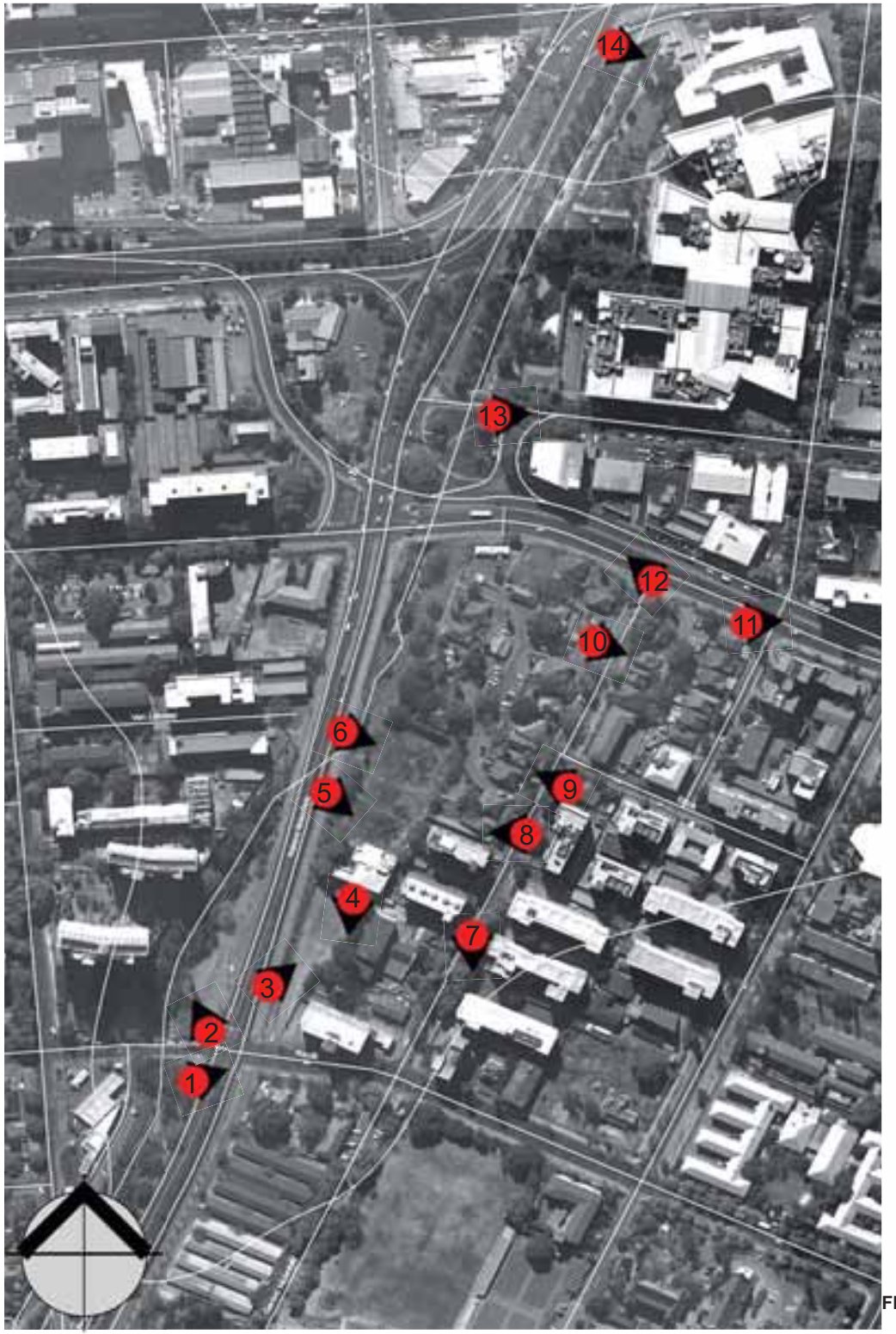


FIG 2.97_Photographic orientation diagram

FIG 2.98_Current state of Breytenbach Theatre

FIG 2.99_Surrounding building materiality

FIG 2.100_Surrounding building materiality

FIG 2.101_Overgrown open site

FIG 2.102_Traditional face brick tectonic

FIG 2.103_Surrounding building materiality

FIG 2.104_Historically important structures

FIG 2.105_Current state of surrounding houses

FIG 2.106_Surrounding building materiality

FIG 2.107_Surrounding building materiality

FIG 2.107_Surrounding street treatment

FIG 2.108_Current DTI development

1. Apartments
2. Drie Lelies apartments
3. Breytenbach Theatre
4. Breytenbach Theatre
5. M.O.T.H club
6. Open Stand
7. Apartments
8. Apartments
9. Existing Oeverzicht Art Village houses
10. Existing Oerverzicht houses
11. Apartments
12. Motor vehicle workshop
13. Esselen Street
14. DTI

Theoretical premise

Architecture and the senses
Introduction
Origins of space planning
The sense of being/belonging
Phenomenology in architecture – Experience in architecture
Problems associated with the architecture of today?
Development of a sensory architectural language
Conclusion
Light
Materiality
Spatiality
Massing

Architecture and the senses

Introduction

In our current society that is infatuated with image, sight is often the only sense that is ever stimulated when architecture and the space's created by architecture are experienced. It can be said we are living in an ocular-centric society, where many buildings are only designed to be monumental visual statements. These buildings are most often visually amazing and often appear to defy the laws of gravity, yet the spaces created within these monumental so called master pieces often do little to stimulate the other senses.

There are very few spatial experiences that can stimulate the full spectrum of our senses. Most art forms attempt to simulate the sense of lived experience, but Architecture is the only art form capable of producing lived experiences whilst providing the spatial boundaries within which we experience space.

With today's predominantly aesthetically pleasing buildings and spaces dominating the skylines of our built environment, most experiences of articulated space today can be reduced to a single experience of sensory bliss. Juhani Pallasmaa's book *Eyes of the Skin: Architecture and the Senses* explores and investigates the architecture of today and the architects of today's preoccupation with this predominantly visual architecture. He believes that this has led to *"the disappearance of sensory and sensual qualities from the arts and architecture"* (Pallasmaa, 2005:10).

In the words of David Michael Levin: *"I think it is appropriate to challenge the hegemony of vision in the ocular centrism of our culture. And I think we need to examine very critically the character of vision that predominates today in our world"* (Pallasmaa, 2005:78).

In one of Maurice Merleau-Ponty's writings on Phenomenology Sense and Non Sense, he states that architecture cannot be seen only as a *"sum of audible givens"* . Instead he describes the experience of this multi-sensory phenomena as follows:

"My perception is therefore not the sum of visual, tactile and audible givens: I perceive in a total way with my whole being: I gasp a unique structure of the thing, a unique way of being, which speaks to all my senses at once' (Pallasmaa, 2005:78).

Merlau Ponty's philosophy describes the human body as the centre of the experiential world: *"I confront the city with my body: my legs measure the length of the arcade and the width of the square: my gaze unconsciously projects my body onto the façade of the cathedral, where it roams over the molding and contours, sensing the size of recesses and projections: my body weight meets the mass of the cathedral door, and my hands grasp the door pull as I enter the dark void behind, I experience myself in the city, and the city existed through my embodied experience. The city and my body supplement and define each other: I dwell in the city and the city dwells in me"* (Pallasmaa 2005:40). Merlau Ponty's notions concerning the city can be applied on various scales from a singular space or building, to a larger urban scale.

In his book *Genius Loci,* Christian Norberg-Schulz writes about the work of Martin Heidegger in his discussions on the notion of being, and its relationship to architectural space. It is Heidegger's opinion that the primary role of architecture is to provide human beings with an essential foothold, ultimately allowing human beings to dwell within space (Norberg-Schulz, 1980:5).

It is evident that life enhancing architecture has to address all the senses simultaneously and fuse our image of self with our experience of the world. This new awareness is forcefully projected by numerous architects around the world today who are attempting to re-sensualise architecture through a strengthened sense of materiality and hapacity, texture and weight, density of space and materialised light (Pallasmaa 2005:37).

Ultimately, this dissertation aims to build a theoretical argument around the importance of multi-sensory experiences within architectural place-making. In doing so, it aims to rethink the current aesthetics only approach currently dominating architectural place making, and to create a methodology for architectural place-making that allows people to be themselves. An emphasis on sensory experiences in architectural place making as formative design generators will ultimately result in an enriched architectural tectonic that will positively influence its users.

This dissertation seeks to provide an appropriate methodology for the creation of sensory architectural place making with the primary aim being translated from a theoretical premise into an executable architectural tectonic.

For this methodology to succeed, it is important that the argument for sensory place making be traced back to its origins, whilst building upon the important philosophical ideas that have formed the basis for the argument so that informed responses for a 21st century architectural intervention can be motivated.

Origins of space planning

As the subject of this dissertation centres around different experiences of space and their effect on human behaviour, an understanding of the history of space planning is needed. This includes an understanding of where the creation of space and the geometries that determine these spaces originated.

The geometries and proportions of space and the planning of spaces can be traced to ancient Greek methods of setting out spaces. The ancient Greeks' "12-Part System" and Golden Section geometries were widely used in setting out places of civic and religious importance. Most of these systems were conceived from the geometrical concept of the universe which was greatly admired by the ancient Greeks. (Doxiadis, 1972:6)

Homer in his writings was, however, the first to explore the notion of the universe being divided into various geometric parts (Doxiadis, 1972:16). The writings of Homer were later explored and his writings expanded on and developed. In this later investigation, each of the geometric parts explored by Homer was related to the five natural elements, i.e. earth, water, fire, air and light. Each of the five elements were then associated and corresponded to one of the five human senses, which, in essence, are how we experience space.

This association is indicated below.

Cube	- Earth	- Touch
Pyramid	- Water	- Taste
Octahedron	- Fire	- Smell
Dodecahedron	- Air	- Hearing
Icosahedrons	- Light	- Sight

Sense of being/belonging

Most philosophical thoughts are based upon the question of man's existence within the world but it is the aspect of exactly how we experience our sense of being within the world that lies central to this argument.

How exactly is man's existence related to his being? How does architecture directly influence one's perception of being within a specific place? These are questions which this section of the argument seeks to investigate.

According to Heidegger the primary purpose of life is to dwell. He he describes this notion as follows: *"The way in which you are and I am, the way in which we humans are on earth, is dwelling"* (Norberg-Schultz, 1980;10).

A specific place is however required in order to dwell, thus Heidegger has been said to describe the role of architecture in an existential sense as *"to allow for a specific site to become a place"* (Norberg-Schultz, 1980:5). From investigations into the thoughts of Heidegger, Christian Norberg Shultz devises that for such a place to be successful, it needs to have a distinct character. He terms this the '*Genius Loci'* of place.

Thus, the specific character or '*Genius Loci*' of the place allows one to dwell within that space, and it is the responsibility of architecture to define the specific character and physical parameters within which human beings can just be. On this subject Juhani Pallasmaa states that, *"Architecture, as with all art, is fundamentally confronted with questions of human existence in space and time; it expresses and relates man's being in the world" (Pallasmaa, 2005:16)*

"We are in constant dialogue and interaction with the environment, to the degree that it is impossible to detach the image of the self from its spatial and situational existence. 'I am my body,' Gabriel Marcel claims, but 'I am the space, where I am,' established the poet Noel Arnaud" (Pallasmaa 2005:64). From this extract it is evident that the relationship between place, space and the search for the individual being is based upon two degrees of experience. The first is the individual's experience of that space, and the second is the combined experience with other users that collectively facilitates our human rootedness (Pallasmaa, 2005:19).

One now has to ask, how do we actually physically and mentally experience a place, and how can architecture manipulate this experience. To investigate this it is believed that the philosophy of phenomenology should be investigated, as it forms the basis to various architectural theories enquiring into how we experience architectural space.

Phenomenology in architecture

Phenomenology is both a philosophical design current in contemporary architecture and a specific field of academic research, based on a physical experience of building materials and their sensory properties.

In simplest terms, phenomenology is the interpretive study of human experience. The aim of phenomenology is to examine and clarify human situations, events, meanings, and experiences *"as they spontaneously occur in the course of daily life"* (von Eckartsberg, 1998:3).

There are numerous definitions of phenomenology. However for the sake of the argument, the definitions of philosophers Edmund Husserl and Martin Heidegger have been adopted.

Husserl describes Phenomenology as *"the reflective study of the essence of consciousness as experienced from the first-person point of view"*. Heidegger expanded on this definition with the introduction of the concept of ontology. Ontology is *"the study of conceptions of reality and the nature of being and [he] believes that the phenomenology is the method of the studying being itself".*

Phenomenology has been used as the basis for many architectural theories, and can be defined as an approach that incorporates a multi-sensory experience of place making, striving towards a methodology of creating spatial phenomena. Creating a singular sensory experience can easily be achieved, but the creation of a collective environment that can stimulate all the senses is more challenging. This collective experience of our senses is explained by psychologist James J Gibson, who does not categorise the senses as five detached senses but instead describes the senses as five sensory systems. These are: the visual systems, auditory systems, taste-smell systems, basic-orientating system and haptic system (Pallasmaa, 2005:41-42)

Gaston Bachelard talks about a *'polyphony of the senses'* and states that *"Every touching experience of architecture is multi-sensory: qualities of space, matter and scale are measured equally by the eye, ear, nose, skin, tongue, skeleton and muscles"* (Bachelard, 1971:6). He believes that instead of mere vision, or even the five classical senses, architecture involves several realms of sensory experience which interact and fuse into one another.

Thus, in our current ocular centric society the question remains as to how exactly, can we create multi-sensory experiences in architecture?

Specific Phenomenological Methods

There are four methods of phenomenological research, each with their own methods and arguments for and against.

- First Person Phenomenological Research
  - Where the researcher uses his/her own firsthand experiences
- Existential Phenomenological Research
  - The specific experiences of specific individuals and groups involved in actual situations and places are used (von Eckartsberg, 1999:4).
- Hermeneutic Phenomenological Research
  - Interpretation of text
- Commingling m,thods
  - Very often the phenomenological researcher uses the first-person, existential, and hermeneutic approaches in combination

Problems associated with the architecture of today?

The contents of this topic are subjective and views may differ from person to person. However in a time where expansive architectural wonders, which often defy the laws of gravity and that are composed of an amazing array of contemporary materials, are the flavour of the week, one might ask: Is Architecture in crisis? Although responses may vary, for the state of the argument this statement has to be critiqued and evaluated in accordance to the current state of our society. The argument is drawn from the debate of the theorists who view our current society as an ocular-centric one.

"The pathology of today's architecture can be understood through a critique of the ocular bias of our culture. Architecture has turned into an art form of instant visual image" (Pallasmaa, 2000:78)

The concept of an ocular-centric society places vision as the primary sensory stimulant that dominates all creative expression. This is not a concept unique to architecture; it occurs in almost all art forms. As Pallasmaa writes; *"The bias towards vision and the suppression of the other senses has resulted in the disappearance of sensory and sensory qualities from the arts and architecture."* (Pallasmaa, 2005:10).

Our society is dominated by mass media and consumerist trends and bombarded by visual stimuli that are transmitted via television, the internet and advertising. As such, this bias towards vision is understandable. It is only when this bias is critically assessed on an urban scale that the negative effect that this ocular-centric approach has had on the richness of our urban realm becomes clearly evident. In the *Eyes of the Skin*, Pallasmaa is concerned about the state of our public realm and states that: *"Our cities have lost their echo altogether. The wide, open spaces of contemporary streets do not return sound, and in the interiors of today's buildings echoes are absorbed and censored"* (Pallasmaa, 2005:51).

The philosophy of phenomenology can be understood in context to our time, societal conditions and pre-occupations.
"Phenomenology was conceived as a return to things as opposed to abstraction and mental constructions" (Norberg-Schultz, 1980:8). Thus, Norberg-Schulz highlights the need for an architectural approach that stimulates the full range of our senses, through his proposal for a return to the essential architectural elements which he believes have been lost in contemporary architecture.

This call for a return to the use of essential architectural elements should not be misunderstood, as it does not discourage or ignore technological advances. It essentially aims to encourage a re-investigation of an architectural language that can promote intimacy, and ultimately encourage the development of an architectural language that once again brings us together with the built environment through an architectural articulation done according to the human scale. This change will engage users as active participants instead of uninvolved spectators in built environments.

Pallasmaa speaks of the difficulties in initiating the shift towards a contemporary sensory architecture, saying that: *"Around the world today we are attempting to re-sensualise architecture through a strengthened sense of materiality and hapacity, texture and weight, density of space and materialized light"* (Pallasmaa, 2005:37).

Steven Hall believes that the solution is much simpler and says that architecture should aim towards the development of a language where *"The way spaces feel, the sound and the smell of these places, has equal weight to the way things look"* (Steven Hall in Pallasmaa, 2005:7).

Le Corbusier wrote: *"The purpose of architecture is to move us, Architectural emotions exist when the work rings within us in tune with a universe whose laws we obey, recognise and respect"* (Norberg-Schultz, 1980:6)

According to Kevin Lynch, identity is usually created by things that people relate to or through association. Identity and meaning can therefore be seen as realted. Often when trying to portray meaning in architecture, identity can come about. Lynch also mentions that identity can go beyond the structure and architecture itself. It can also be created by functions which take place within a particular place or structure. *"Alternatively an object seen for the first time may be identified and related not because it is individually familiar but because it conforms to a stereotype already constructed by the observer."* (Lynch, 1960:6) What Lynch is reffering to is an archetypal image.

The question of how we can create this architectural tectonic that can stimulate multi-sensory phenomena is yet to be answered. It also needs to be determined how a tectonic can express technological advancement as well as a return to a more traditional approach at the same time?

Development of a sensory architectural language

To derive a methodology for the development of an architectural tectonic that can stimulate multi-sensory phenomena, it was important to identify physical examples that already successfully address sensory architecture. When the identified examples were further examined, a common denominator was found in the awareness created through the architecture of the spatial relationship between nature and the built environment. Nature in this sense, not only includes scenic natural beauty in its conventional sense, as is evident in many examples, but also natural phenomena such as light quality, the fall of shadows, the reverberation of rain on a roof, the materiality of a surface or even just the feeling of a calm breeze against our bodies. The creation of these phenomena is simple; however it is making the user aware of the phenomena and appreciative of them that presents a challenge.

We as humans do not only experience space by using the five commonly accepted senses, but in fact possess another sense: that of space. The debate that often arises from this suggestion is whether this additional sense exists or whether it is just a combination of the five commonly accepted senses which facilitate the formation of a spatial sense.

"Every moment of our experience, and that includes the experience of space, is un-analysable as a whole and must be broken down into the analysis of some of the constituent parts in order to gain a deeper understanding" (Hillier, 1996:85). Christian Norberg-Schultz explains that the human relationship to the built environment is rooted in experience. He believes that people create their own mental image of their environment thus creating individual perceived feelings. These feelings are usually associated to an individual's background or personality and can be related to the functions or symbolic aspects of space.

Pallasmaa believes that tranquility is the most essential auditory experience created by architecture. Although, not all sites are located in a place that has a connection between the built environment and nature, all works of architecture have the potential to explore and exploit natural phenomena, regardless of site location and conditions (Pallasmaa, 2005:47).

Thus this dissertation aims to provoke a thought process that will lead towards the creation of a sensory architectural experience, regardless of the site location.

Many architects and building designers today completely ignore the potential of the experience of natural phenomena. New phenomena such as 'sick building syndrome' indicate how negative interior-orientated buildings have become for their inhabitants. Artificially regulated environments remove us from the reality and sensory qualities of the outside world, and create environments that add nothing to the quality of the public realm. Architectural responses must start to blur the edges between the outside and inside and invite us to project our thoughts towards an architecture that reinstates sensory experiences and the sense of being within built environments.

The use of simplistic natural elements, if exploited appropriately, will bring about an architecture that celebrates our being within the world, and will result in environments that stimulate our sense and make the experience of architecture an experience.

Certain tools that have been identified as appropriate to manipulate the experience of space are:

Sight (Light)

It has been argued that architecture needs to be experienced by a combination of all the senses. However, it is our initial visual sensory perception of an object which intrigues us and attracts us to it.

Luis Barragan states that: *"most contemporary public spaces would become more enjoyable through lower light intensity and its uneven distribution"* (Barragan, 1989:242).

The contrast between light and dark, artificial and natural lighting and hard or soft lighting can enhance or detract from the experience of space.

"In great architecture there is a constant deep breathing of shadow and light: shadow inhales and illumination exhales light " (Pallasmaa, 2005:47).

"Architecture is the masterly, correct and magnificent play of masses bought together in light" (Le Corbusier, 1959:31).

Touch (Materiality)

Materiality can play an important role in the search for architecture of sensory experiences. The sense of touch can be broken down into physical touch and emotions. Physical touch can be manipulated with textures. For example cold and warm surfaces and the feeling of the elements on the human body create different spatial experiences.

Emotions can be manipulated through experiences such as proximity and isolation, exposure or enclosure, as well as the experience of other emotions including happiness and fear.

These creative ideas come into fruition through the use of essential building blocks or building materials. Thus material selection is important, in particular with regard to the ageing effect of buildings and building materials, which is usually seen as negative. As soon as materials show signs of ageing or decay, they are replaced or altered. This change of character of the materials can add to the vibrancy of the space, as the character of the space is in constant flux.

Today's buildings are often seen as flat and this can be attributed to a weak sense of materiality or an inadequate celebration of materials.

In most cases, newly built architectural works seek to achieve an ageless beauty, employing materials with little or no life, and are in a constant stagnant state. Pallasmaa states that: *"The architecture of the modern era aspires to evoke an air of ageless youth of a perceptual present"* (Pallasmaa, 2000:79). In order for a built environment to evoke life *"a building should be what it wants to be"* (Louis Khan, unknown)

This approach stands central to an honest materiality that expresses the sensory experience of these materials in the purest form. It embraces the ageing effect of materials in a way that celebrates the patina of age.

"Natural materials - stone, brick, and wood - allow our vision to penetrate their surfaces and enable us to become convinced of the veracity of matter. Natural materials express their age and history, as well as the story of their origins and their history of human use" (Pallasmaa, 2005;31).

Hearing (Sound)

"Sight isolates, whereas sound incorporates" (Pallasmaa, 2005:49).

Sounds from the environment can create a relation to the outside of the building, even if there is no visual connection to the surrounding outdoor context. Elements such as a gentle draught through a space can have an interesting effect on the human psyche. Different experiences can be achieved through sound and its reverberation. For example, a feeling of isolation can be achieved by the hollow echo of footsteps in a blank hard space and a feeling of intimacy and closeness can be created in a warm or occupied space.

Taste

"Our sensory experience of the world originates in the interior sensation of the mouth, and the world tends to return to its oral origins." (Pallasmaa, 2005:59)

The experience of taste in architecture is difficult, if not impossible to capture. It is therefore proposed that an association with taste is created instead. The proposed restaurants in the development could start to make this association.

Smell

A strong relationship between interior and exterior spaces together with natural ventilation can be used to draw aromas from elements such as plants, from the surrounding environment.

The sense of smell is closely associated with memory, allowing the smell of a particular place or item to trigger a memory or association. The smell of the various materials used in the proposed development can create associations with various spaces or exhibitions previously experienced by the user.

These tools individually cannot create a sensory architectural tectonic, but carefully combining and manipulating them to make the user aware of and appreciative of these tools is the real methodology for the creation of a sensory architectural experience.

Pallasmaa's notion of 'fragile architecture' has often been misunderstood. Consequently he has expanded this notion as follows: An architecture of *"weak"* or *"fragile"* or, more precisely, an *"architecture of weak structure and image"*, as opposed to an architecture of *"strong structure and image"* (Pallasmaa, 2000:81).

This notion can be seen as an approach that is contextually relevant and responsive, and that encourages the users of the architectural place/space to linger and explore, rather than just pass through. Strong structure and image should however be combined with a strong sense of materiality, texture, light, shadow and other sensory experiences that pays homage to our human scale.

The marrying of the past and the present, contemporary and traditional technologies, could offer the solution to the creation of a sensory architectural experience. In particular, this could be acheived by the investigation into the creation or development of a tectonic that both express' technological advancement and pays homage to a return to a more traditional approach.

This approach to architecture represents the general views, current trends and thinking of today's society, as well as those in the present day realm of architecture. The past is celebrated and re-visited into in many spheres of current society. Solutions to many social and architectural problems are sought from the past and past experiences; an approach which, when reinterpreted and combined with present day technological advancements, this approach lends itself to improved solutions and sensory architectural experiences.

By approaching architecture in this way, this notion of architectural thinking will remain deeply rooted in the phenomena of the past, whilst embracing the performance life of contemporary society.

When this method of architectural place-making is implemented and put into practice, the proposed spatial arrangements of these newly built environments should initiate a sense of intimacy and tranquillity together with a heightened awareness of natural phenomena. It is believed that technologically advanced elements and materials, such as mediamesh screens, advanced cladding systems and audiovisual equipment, can and will only enhance the experience created within and by these spaces.

Conclusion

The creation of a multi-sensory methodology for architectural place-making is complex, as each design intervention has a requirement for an individually created sensory experience related to the function of the place or space. The creation of a multi-sensory architecture cannot be reduced to a singular formula, nor can it simply be abstracted from the previously mentioned tectonic elements. The creation of such an environment requires all elements to work together, including the influence of human beings and the energy they bring to an environment. The combination of all these elements will result in an architecture that touches the soul as a symphonic whole with each aspect performing in harmony with the other

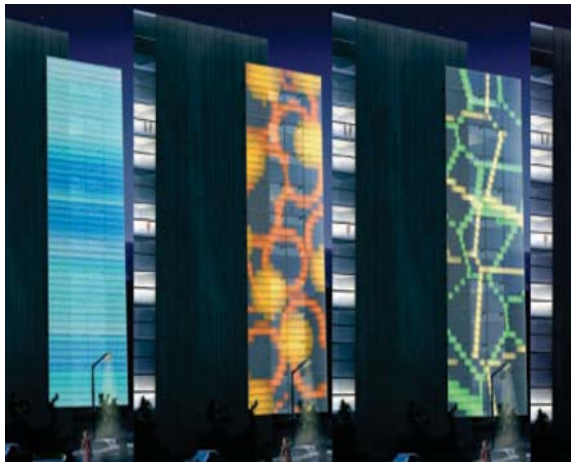


FIG 3.1_GKD Mediamesh effects

FIG 3.2_ Exposed brick - Hector Pieterson Memorial Museum

FIG 3.3_Use of natural stone - Stone House

FIG 3.4_Mediamesh creates multimedia experience on building facade

FIG 3.5_Use of natural timber - 'The organic House'

Light

FIG 3.6_Fall of light accentuating curve of wall

FIG 3.7_Soft ingress of natural light

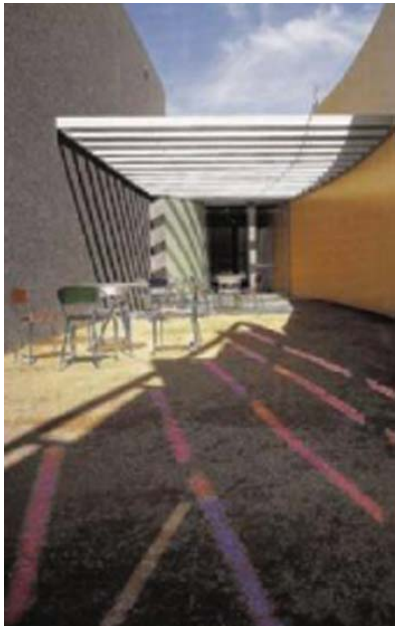


FIG 3.8_Use of colour creates colourful shade spectrum

FIG 3.9_Filtered light adding to the visual complexity of the space

FIG 3.10_Skylight used to provide soft natural light in the creation of a sense of tranquility

FIG 3.11_Materiality enhances shadows

FIG 3.12_Shadows adding depth to a space

Materiality

"Natural materials - stone, brick, and wood - allow our vision to penetrate their surfaces and enable us to become convinced of the veracity of matter. Natural materials express their age and history, as well as the story of their origins and their history of human use." (Pallasmaa, 2005:31)

FIG 3.13_Colourful palette of materials

FIG 3.14_Layered materiality

FIG 3.15_Neutral surface bought to life through shadow articulation

FIG 3.16_Shadow reveals true textured materiality of wall

FIG 3.17_Texture adds depth to surface

FIG 3.18_Layered materiality

FIG 3.19_Light enhancing natural beauty of exposed brickwork

Spatiality

FIG 3.20_Spatial and visual connection between internal and external environment

FIG 3.21_Tranquility enhanced through material selection

FIG 3.22_Internal courtyard

FIG 3.23_Spatial experience enhanced through colour

FIG 3.24_Tranquil roof space

FIG 3.25_Boundaries blurred between inside and outside

FIG 3.26_Spatial relationship between external and internal space

Massing

"Architecture is the masterly, correct and magnificent play of masses bought together in light." (Le Corbusier, 1959:31)

FIG 3.27_Elevation of massing creating intimate spaces underneath

FIG 3.28_Spatial relationship of different massings create interesting inbetween spaces

FIG 3.29_Massing provides shelter and gives a sense of security and safety

FIG 3.30_Deep window recess enhances wall depth experience

FIG 3.31_Light enhances the formal language of the masses

Precedent studies

For one to formulate an effective methodology for design, a proper investigation into past examples is essential. In doing this it is hoped that the methods used to formulate their design methodologies is revealed.

A precedent becomes useful only once a proper investigation into the project has been conducted. Documentation and images of similar projects alone do not aid the investigaton. For one to gain any knowledge or guidance from a precedent, one can not merely describe what someone else has done to solve a problem; one has to ask ‘how’ and ‘why’.

It is only in projects similar in typology to the proposed development, that the appropriate influence and understanding needed to develop an appropriate design methodology can be found. The identification of comparable and suitable processes in these precedents that will better the final design solution.

BBC Music Box, White City, London, England

Foreign Office Architects

"The design by Foreign Office Architects majors on openness with emphasis on public space. This will ensure that the Music Box not only becomes a centre of excellence for music making at the BBC but will also be an integral part of our commitment to involve the local community." (John Smith, BBC Director of Finance, www.arcspace.com)

Foreign Office Architect's design of the BBC Music Box was the winning entry of a design competition for the new home of the BBC Symphony Orchestra, the BBC Symphony Chorus, the BBC Concert Orchestra and the BBC Singer. The project, however never went ahead.

The Music Box was to sit at the centre of the new Media Village, which was to be integrated into the redevelopment of White City and the BBC's Television Centre. This new development was intended to foster urban regeneration within the area.

The aim of the design solution was to make the Music Box an iconic part of White City and the BBC campus while making an architectural statement that reflected the BBC's cultural identity.

The form of the building is ribbon-like, and this concept called for the walls and floors to be one continuous element that appears to emerge and flow out of the ground.

The building was designed to be flexible and add to the existing urban fabric of the area. As a result the ground floor houses rentable commercial/retail space that sprawls out onto the existing larger public events space.

According to the BBC, its two basic values are transparency and creativity. When designing the music box, the architect attempted to express these values by exposing and connecting the inside of the studios to the city and local community outside through a glass membrane. The aim was that the public within the public event space would have a view into the campus, and would be able to see into and hopefully understand what was happening inside the building, At the same time, the musicians would feel as if they were playing to an audience, at all times. It was the aim that this visual connection would help to integrate the campus with the local community.

Traditional buildings of this nature tend to be low density in nature and cover a large footprint. However, owing to the limited area of the site and in order to maximise the area of the building, the architects densified the functions of the building, creating a tall structure that would leave its mark on the skyline and further enhance the image of the structure.

The building is divided into two principal performing spaces, each with different capacities. These two principal spaces are joined by a common foyer area that maximises public interface and social interaction, and reduces the area requirement for circulation and supporting spaces.

Alejandro Zaera-Polo of Foreign Office Architects describes the concept behind the building as follows:

"Music is a sequence of events in time; its physical notation implies a primarily linear structure – a ribbon or tape. The design of the Music Box alluded to this by using a folding band to envelope the main spaces in the building. The core functions of the BBC are those of content provider and broadcaster. Like the BBC itself, the Music Box was intended to have a double function, dealing with technology as well as the needs of the public. As a result, the design differentiates the façade functionally: windows for music production and screens for broadcasting are defined by the building's ribbon-like folding band. The screens are formed by the sides of the loops – the usually blank walls of the acoustic box. Conversely, the windows are framed by the ribbon's loops, ensuring spatial continuity with the urban environment and establishing a direct visual link between the inner life of the Music Box and the public." (Zaera Polo, 2009)

FIG 4.1_Images projected on building facade

FIG 4.2_Glazed facades of performance spaces

FIG 4.3_Interior of theatre with glazed backdrop

As mentioned, the southern walls of both studios was to be constructed from a sophisticated transparent membrane. They were designed to provide a number of options for varied visual and acoustic conditions within the studios. By positioning the transparent wall behind the audience, the stage appears to be front lit as in a conventional studio setup. The design also incorporates a variable sun-shading curtain between two panes of glass that enables the studios to function in complete darkness and isolation from the world outside, if required.

The main external cladding of the non transparent surfaces was to have been treated as a broadcasting device, producing a variety of multi-coloured images both day and night. The cladding was to have been constructed from aluminium panels, covered with radiant mirror film, which produces iridescent reflections. During daylight hours, the cladding would appear to change colour. At night however, a grid of colour-changing LED lamps, mounted behind the cladding, linked to a computer system, would turn pitch, rhythm and volume into changing digital patterns of colour and light through a sophisticated audio scan. In this way, the building façade would visually reproduce the music being played, creating a powerful architectural expression of the activity inside the studios.

What is the relevance of this precedent?

Inspiration can be taken from the BBC Music Box on a number of levels. Firstly by opening up the internal spaces to public view through transparent facades, the passing public are teased into experiencing the events taking place inside. Secondly, the design integrates outdoor public spaces and indoor spaces into a congruent site layout, making it difficult to determine where the transition between public spaces and music centre occurs. By approaching the design in this way, any overflow of people from the public spaces, are enabled to experience the music centre and the overflow of people from the music centre to participate in and engage with the public space.

This precedent was chosen to prove that the engement of the outside public with the world of the performance artist can result in a mutually beneficial relationship. The use of transparent facades in a field usually dominated by enclosure and isolated spaces, proposes a new way of linking the interior of a public space to outdoor public spaces. This core design response is additionally appropriate to the site of this dissertation as it intends to improves the vitality and character of the area. As this precedent shows, the vitality of the development may be increased by creating transparency in the building form and allowing passers by to engage with the goings on within the building. Shared and multifunctional spaces can enhance the quality of the public spaces within the development and, in a building of this nature where performances are enhanced by post performance discussion, adds positively add to the experience of both the space and event.

The use of the buildings facades to project and display images to the public square is also inspirational.

Lewis Gluckman Gallery, Cork, Ireland

O'Donnel and Tuomey

AWARDS

RIAI Best Public Building in Ireland 2005
RIBA 2005 award winner European category
2005 Project of the Year, UK Buildings Services Awards

The Lewis Glucksman Gallery is a cultural and artistic centre, located at University College Cork's main entrance gates. The building houses display spaces, lecture facilities, a riverside café and gallery shop. The gallery was created as a link between the campus and the wider community and has become a space of civic importance in Cork.

Central to the design brief of the building was the provision for the changing exhibitions from the UCC Modern Art Collection, as well as for the display of a range of travelling and special exhibitions. The building also functions as an educational institution that promotes the research, creation and exploration of the visual arts.

The building has been designed so that a 'podium' is the linking element between all the essential building components. It forms the access point up to the gallery and allows access down to the café below the building. The entrance hall to the building also opens onto the podium and it intersects the pedestrian movement between Main Avenue and the Riverside Walk, encouraging people to enter the galleries. All gallery spaces within the building are interconnected horizontally and vertically in order to provide a variety of scales and lighting conditions that accommodates a range of art works and artefacts. At the centre of the gallery spaces is a series of closed, environmentally conditioned spaces, for museum standard display conditions and multimedia and acoustic performances.

The podium or base of the building is clad in limestone, linking the building to the existing architectural language of the campus. This limestone plinth emerges from the limestone escarpment on which it sits and appears to be manmade extension of the surrounding natural landscape. The timber clad gallery spaces, constructed from Angelim de Campagna, a sustainably sourced hardwood, rise from the plinth and are intended to be understood as a wooden vessel which resonates with the surrounding woodland environment. These timber clad galleries are positioned at the height of the surrounding trees with the intention of blending the building into the surrounding context while conserving the parkland setting of the University. These timber-clad gallery spaces are supported on a concrete 'table' structure cantilevered from columns to protect the root structure of the surrounding trees. Granite aggregate concrete was used in this application and sandblasted to reveal reflective mica in the surface of the structure. Galvanised steel bay windows were used throughout the building and appear to be peeling out from the wall surface of both the plinth and gallery spaces. Services are housed in thick walls and floors to minimise any visual intrusion into the gallery spaces. The intention behind the use of natural finish materials such as sawn limestone, galvanised steel and untreated timber is that as they age and weather with the landscape, they-add to the character of the building.

What is the relevance of this precedent?

This precedent was chosen as the building deals with the pedestrian circulation in a similar manner to the proposed development in this dissertation. The user can either choose to pass under the building or enter it, whilst becoming part of the space through the experience created by the structure. The building creates a journey through its various exhibition spaces as is the intention of this dissertation and the orientation of various galleries inside the building allows for appropriate lighting qualities. The materiality and selection of materials for the building is also important, as natural materials and their ageing effects can be used to accentuate the changing character of the spaces according to the design outcome of this dissertation.

FIG 4.4_Access route onto the building's 'podium'

FIG 4.5_Materiality of the building

FIG 4.6_Scale of building related to surrounding context

Walt Disney Concert Hall, Los Angeles, USA

Gehry Partners

"The Walt Disney Concert Hall will be a feast for your eyes, ears, and spirits." Gil Garcetti

This project began as an invited design competition, and was finally completed 16 years after Frank Gehry was announced the winner. During the 16-year process, many of the fundamental design tenets were established or re-established to include an open and accessible main entrance that is open to the public at all times, the inclusion of the existing Dorothy Chandler Pavilion into the complex, a pedestrian scale frontage along Grand Avenue, the inclusion of a generous, open backstage area and the inclusion of a small state park.

The Walt Disney Concert Hall sits atop Bunker Hill in downtown Los Angeles and is a stunning piece of architecture. The building complex has been the recipient of many an estranged metaphoric interpretation, ranging from a blooming flower to a sailing ship.

The main auditorium, designed by Yasuhisa Toyota of Nagata Acoustics, is lauded for its acoustic quality.

According to Gil Garcetti, *"The building has been heralded as a symbol of the area's diversity and egalitarian qualities, it is a testament to the city's cultural arrival, and the "crown jewel" of a $1.2 billion civic redevelopment project planned for the area."* (www.f-o-a.net)

The Walt Disney Concert Hall (WDCH) is home to the Los Angeles Philharmonic. The 2 265 seat main theatre literally and figuratively sits at the centre of the building. According to Gehry, the WDCH was designed from the inside out. *"The most important issues were that the musicians could come on stage, feel at home, and hear each other, and that the orchestra and the audience would have an intimate connection with each other"* (www.f-o-a.net). Gehry sought to create a *'synergy'* through intimacy and inclusion.

The main theatre is essentially a rectangle, but due to the swooping concave interior walls of staggered and sculpted Douglas fir and cedar wood panels the audience does not get a sense that they are essentially sitting in a rectangular cube. The layout of the auditorium drew inspiration from the famous Berlin Philharmonie. The audience surrounds the stage, which is elevated slightly above the adjacent orchestra seats. As a result, the hall feels smaller and cosier than one would expect for a hall housing over 2 000 seats. In keeping with the open to all credo of the building, Gehry did not included private boxes in the auditorium, He said that: *"While ticket prices may inhibit some potential audience members, exclusive seating will not"* (www.f-o-a.net).

It has been said that there is not a bad seat in the house, as each location is visually and acoustically unique. To achieve these unique acoustic qualities, a billowing wood ceiling hangs over the auditorium, strategically placed to achieve an early sound reflection that acoustician Toyota deemed so important. The warm wood, the moulded forms, and the resultant vibrancy of sound combine to create the perception of being inside a living creature with the music simulating as its pulse.

FIG 4.7_Exterior stainless steel cladding

FIG 4.8_Interior of principal performance space

FIG 4.9_Concept sketch by Frank Gehry

The WDCH complex houses a multi-storey underground parking garage, a pre-concert foyer, green rooms, two outdoor amphitheatres and California's smallest state park. Gehry, who is a self-proclaimed control freak, stated that he continually strives to "control chaos and relate that to the urban world" and that he "loves pulling these chaotic forces together". In the creation of the music hall, this approach has resulted in the spaces between the principal space being the most engaging and the most awkward at the same time. The spaces between the central auditorium and the spreading curves of the exterior walls house many of the buildings smaller functions, such as the interior BP Hall and the exterior WM Keck Foundation Children's Amphitheatre.

The entry lobby and adjacent restaurant, cafe, and gift shop bustle with energy day and night, as they are open daily to the public and are intrinsically linked to Grand Avenue through the transparent treatment of the façade. As a result these facilities spill onto the street, enticing users into the building. A variety of video screens and audio systems display both rehearsals and performances throughout the building, thus bringing together and connecting the public with the performers even if the public are not attending a performance

As architecture, the stainless steel exterior forms an organic sculpture set on a deftly planned base of public spaces. As a concert hall, the rich wood interior allows musicians and listeners to dwell inside an instrument of exquisite craftsmanship. As a civic symbol, its very existence is a testament to the commitment of local planners and developers. Even if the neighbourhood never meets the city's utopian expectations for the area, and despite the smattering of awkward spaces, the project will remain a success. For one to dwell on these minor secondary issues would be to miss a more important sensory adventure.

What is the relevance of this precedent?

This precedent was chosen on the basis of its ability in inspire and to stimulate the senses, and because the building fosters the urban regeneration of the area surrounding it.

The building shows remarkable attention to detail with over 30 000 drawings being produced for its construction, proving that architecture is in the details. The simple rectangular box at its centre is in essence the core of the building, and is a practical example of a construction process/solution for such a space.

The building's connection to the street and open and accessible lobby can also be drawn upon to entice the public into the proposed space. The complex array and inclusion of many smaller performance spaces is masterful and Gehry's placement of these spaces in apparently left-over spaces is carefully thought out and a good design solution to a common problem in a building of this nature.

Gehry's use of light reflections within the spaces, his play on echoes and reverberation through the building, and his use of materials is inspirational to any project of a sensory nature.

Museum of Contemporary Art, New York, USA
SANAA

"A transparent building in the sense that we are not hiding what is happening behind the surface of the structure."
Kazuyo Sejima + Ryue Nishizawa

In summation of their design approach for the New Museum of Contemporary Art, SANAA said: *"The solution emerged through an extensive period of trial and error. We made numerous study models based upon the New Museum's program and the demands of the site. First we arrived at the notion of the boxes themselves; each one represents a specific piece of the program developed by the Museum. Then we tried shifting the boxes to render the inside of the building more accommodating and open, with more possibilities for daylight to enter spaces and views to appear at various points in the interiors".* **(**http://www.newmuseum.org)

As stated, the building was designed from the inside out, based upon the architect's understanding of the museum's needs. Because of the nature of the art and artefacts displayed at the museum, the design called for a flexible, simple space, without columns. The architects intended that the building would not overwhelm or compete with the artworks within it. The programme called for open and flexible gallery spaces, with varied height, volume and atmosphere requirements.

In order to meet the requirements of the programme whilst avoiding the creation of a monolithic, dark, and airless structure, the architects assigned key programmatic elements to a series of seven levels (boxes), then placed these boxes atop of on another in accordance to the needs and circulation patterns of the users, finally pulling the boxes away from the central supporting core of the building. This results in its stacked appearance.

The shifted-box approach resulted in a variety of open and fluid internal spaces of varied proportions, each with its own unique characteristics. The interior of the building exposes the way the building works. The architects didn't want to hide anything behind gypsum board; they wanted to show what the building was made of and to maximise the feeling of openness. The buildings guts are exposed, as the ducts, the sprinklers and the fireproofing material are all open to public view.

On entering the building the visitor gains a sense of inclusion in the design of the space by being able to choose from a variety of paths upward or downward through the building. The museum houses three levels of extraordinary galleries between the building's second and fourth floors on a variety of scales, each gallery with its own unique atmosphere.

SANAA has stated. *"With the galleries in this building, we tried to play with dimensions and the way daylight falls in the spaces. This allows the visitor to experience art in slightly different conditions on different visits, at different times of the day, in different spaces, without impeding the qualities of the art.* **(**http://www.newmuseum.org)

The building façade is clad in aluminium sheets which are fixed onto a translucent polycarbonate backing, giving the building a glow instead of the usual the harsh reflection usually associated with metal surfaces. This glow, combined with the changing daylight conditions, means the building changes appearance in different conditions. Windows are just visible behind this surface. The dynamic and animated building is an appropriate visual metaphor for the openness of the New Museum and the ever-changing nature of contemporary art.

FIG 4.10_Clean uncomplicated interior

FIG 4.11_Landmark building as a result of luminescence

What is the relevance of this precedent?

This precedent was chosen due to the unique treatment of the skin of the building. The skin is the building's signature design feature, yet it came about in response to the programme of the building and not merely for aesthetic purposes. The treatment of the internal spaces expose's the guts of the building, which could be argued is the correct approach to a building that deals with the experience of spaces. In order to properly experience a space, the viewer has to properly understand how the space was manufactured and constructed.

The introduction of a choice of movement paths through the building allows users to feel part of the decision making process of the building and therefore feel part of the space.

FIG 4.12_Seven 'boxes' stacked atop one another

FIG 4.13_Glow of exterior skin in early evening

South African State Theatre, Pretoria, South Africa

Hans and Roelf Botha

The State Theatre is the only other large complex of theatres and performance spaces situated within Tshwane. It is within a reasonably close proximity to the site of the dissertation.

The State Theatre complex is housed on four levels, with parking and services housed in the basement. The Complex houses six performance spaces:

- The largest, the Opera House, has a seating capacity of 1 300 patrons, and is arranged on three levels. The orchestra pit can accommodate up to 60 musicians.
- The Drama Theatre is continental style with seating for up to 640 people on one level.
- Two cabaret/revue venues, each seating 120 at separate tables in a night club like setting.
- The Arena doubles as a rehearsal space for the main opera. This theatre is fully equipped with computerised lighting and sound control rooms.
- Rehearsal studios and offices that are available for rental.

Even though the State Theatre houses world-class venues, it stands in isolation and has no relationship with its surrounding context. Due to its monumental nature, the building dwarfs and ignores the pedestrian and passer-by. Although it evokes an image of grandeur and importance, the true nature of the function of the building is not evident from its exterior. Coupled with the absense of a public interface, this creates a space that is only ever entered by people who wish to view a specific performance.

What is the relevance of this precedent?

It can be said that even though the building performs its desired function, it acts poorly as a public building, as it discourages the everyday passer-by from interacting with the space.

One might deduce that the inaccessibility of this ‘old-style’ and ‘traditional’ theatre has contributed to dwindling attendance over the years. The singular use nature of this building will ultimately lead to its demise.

THE SOUTH AFRICAN
STATE THEATRE
A CULTURAL INSTITUTION

FIG 4.14_State Theatre Logo

FIG 4.15_Uninviting exterior

Design development

This chapter explores the design development of the project. It explains the design development process and urban framework investigation done for the site.

The proposed project involves the creation of a Cultural Centre for the Visual and Performing Arts. It is centered on an urban activity square which incorporates the existing Oeverzicht Art Village buildings. The project does not merely involve a Cultural Centre, but also incorporates a wide variety of everyday activities, that take place in restaurants, retail spaces, residential apartments, offices and galleries thus creating a diverse and vibrant environment that will enhance the experience of the place. Ultimately the project is intended to create heightened public awareness and appreciation of various aspects of the visual and performing arts industries

The chapter shows the development of the proposed scheme and highlights the design parameters and influences that have lead to the proposed architectural intervention.

Inspiration

FIG 5.1_Urban performance space, Federation Square, Melbourne, Australia

FIG 5.2_Social interaction at Melrose Arch

FIG 5.5_Digital media screens activating public space in Times Square, New York

FIG 5.3_Quality of urban realm at Melrose Arch

FIG 5.4_Visual connection between passers by and dancers at the UJ arts centre

Design concept

"The earth is the stage where mans daily life takes place" (Nornerg-Schultz, 1980:40)

The aim of the project is to introduce a development that not only promotes and celebrates the cultural identity of South Africa but also acts a catalyst for future development and urban regeneration within the area. This development of the Oeverzicht precinct celebrates the unique setting and history of the site. It will spatially integrate the site into the MDC and into the Tshwane inner city by creating and promoting links and connections to other important cultural activities in the city.

The aim of the proposed project is to develop the Oeverzicht Art Village to act as a cultural gateway into the Tshwane inner city, where visitors and residents will be greeted with a sense of arrival celebrating the cultural identity of the Tshwane and South African context. The idea is to develop the Oeverzicht precinct as a destination point, rather than just a crossing or thoroughfare.

In conventional cultural centres of this nature, the various aspects of the visual and performing arts are catered for in isolation and little is done to attract the general public into the centres. The general public is conventionally not allowed to see into and participate in the creative process. However this project aims to encourage public participation in the creative process by introducing a heightened awareness and understanding of, as well as connection with the artists in both facets of the visual and performing arts.

The project intends to provide a platform for social interaction between the general public and artists, while encouraging pedestrianisation within the precinct.

"Cultural facilities and activities are significant in generating inspiration, self-confidence, debate or ideas exchange as well as the creation of a city's image… Consuming high-profile arts and cultural activities has less strong transformative effects on individuals than direct participation, whose impact is greater in terms of human development and tapping creative potential." (Landry, 2000:123)

It is proposed that an urban activity square be created, which is enveloped by the proposed cultural centre. The design of this space is intended be included in the project and for the activities of the centre spill out onto this space.

The functions of the existing structures of the Oeverzicht Art Village will be maintained and used to highlight the character and experience of the newly constructed urban activity square. Through the creation of the square the various facets of the project, such as visual and performance arts spaces, restaurants, retail spaces, residential apartments and offices, will be bought together through this common connection and shared space.

The flowing connection between the internal and the external spaces will also enhance the users' experience of the space. The movement and circulation through the internal and external spaces of the project must create a memorable journey for the user, as it is the journey of experiences that gives architecture character and makes the space memorable. This experience is as important as the destination itself.

The centre caters for both the visual and performance arts, however these factions can be broken up into smaller sub-categories. Performance art is made up of music, dance and drama and, although the various facets of the visual arts are to numerous to mention, the main facets include; sculpture, painting and digital media. Each sub category of the visual and performance arts has different venue and spatial requirements. Therefore, the project requires an extensive and specific programme in order to successfully cater for the various requirements of the sub-categories without exclusion or prejudice. By including and facilitating these various functions, the project will have a greater appeal to the general public. The diversity of facilities, performances and experiences available will also enhance the general publics understanding and appreciation of the arts.

The aim of the development would ultimately be to develop a synthesis between arts, culture, economy and urban vitality by creating a platform for the arts.

In order to formulate informed design decisions, this chapter seeks to fully substantiate and explore all design decisions that have been taken. Investigations into contextual influences, and artistic and architectural requirements and responses have been undertaken and have ultimately manifested in the resultant architectural form of the project.

FIG 5.6_ Informal outdoor performance

FIG 5.7_Urban activity space, Federation Square, Melbourne, Australia

Users and participants

As the users' experiences of space are the most important factor in the design decisions for this project, it is important to identify and categorise the users and participants of the space and their potential spatial requirements.

Four potential user groups have been identified for the cultural centre for the performing and visual arts:

- People who visits the centre as paying audience members in order to experience one or many of the various performances or facilities accommodated for in the centre.
- General public that use the square, centre and general facilities on a day to day basis.
- People who visit the centre in the hopes of gaining exposure to the worlds of the performance and visual arts in either a passive or active manner.
- The artists and performers, as well as supporting staff. The centre will provide facilities for both professional and aspiring performers and artists to develop their skills in their respective fields, and ultimately allow them to share their talents with the public.

This cultural centre is intended to be a 24/7 hive of activity. It ishould appeal to a broad spectrum of users from different cultural backgrounds and, in doing so provide a platform for these different cultures to interact and engage with each other.The aim of this project is that interaction between the previously identified four user groups be encouraged and supported, so that each party can inform and heighten the experience of the others - a part of experience that is usually forgotten in traditional centres of this nature.

FIG 5.9_ Activity in times square, New York, USA

FIG 5.8_Performance dancers

FIG 5.10_Performers, dancers and artists

Initial space planning

The western edge of the site is bordered by Nelson Mandela Drive which forms the intersection of the two city grids. As the existing buildings on the site respond to the urban grid adjacent to the eastern edge of the site, the initial design response was generated in response to this urban grid. However, it was subsequently decided that the western edge of the building needs to respond to the urban grid adjacent to the western edge of the site, thus enabling the building to bring together the two intersecting grids.

Initially it was decided that most of the existing structures on the site were to remain and be restored. However it has been decided that the existing structures in the centre of the site be demolished to make way for the new cultural centre. This is due to the low density nature of the structures, which is not in keeping with the guidelines of the MDC urban development framework, as well as the restrictive design constraints their presence would force on any new structure surrounding or in the centre of them. They would also interfere with the new centrally placed urban activity space which has been proposed. All aspects and functions of the centre are to flow on to and be related to the square

The M.O.T.H. club building and Breytenbach Theatre were included in the initial spatial design response, with the M.O.T.H club being reused and converted into an additional gallery space for the cultural centre, and they Breytenbach being retained and used as additional performance spaces for the centre.

The proposal has been divided into four principal groupings of spaces, namely performance art spaces, artists, studios, galleries and apartments, retail and commercial spaces, and the existing Oeverzicht structures. The spaces between each of these spaces will be an important connector, allowing the functions of the spaces to overlap and become multi-use, thus reducing the need for and duplication of service spaces. The distribution of each of these functions has been carefully considered in accordance to the various requirements of each space.

It was decided that the principal performance spaces will be located on the western edge of the site, they do not require extensive natural lighting, thereby limiting the need for glazed western facades. Initially, the artist studios', galleries and apartments were to be located centrally on the site and alongside Nelson Mandela Drive. However, it was later decided to place the and along the edge of the Apies River channel, This was done to provide the artists and apartments with greater privacy and a sense of tranquility alongside the river and greenery.

Although the commercial and retail spaces are located throughout the building, they are concentrated on the northern edge of the site, in relation to the commercial aspects or the DTI and Esselen Street.

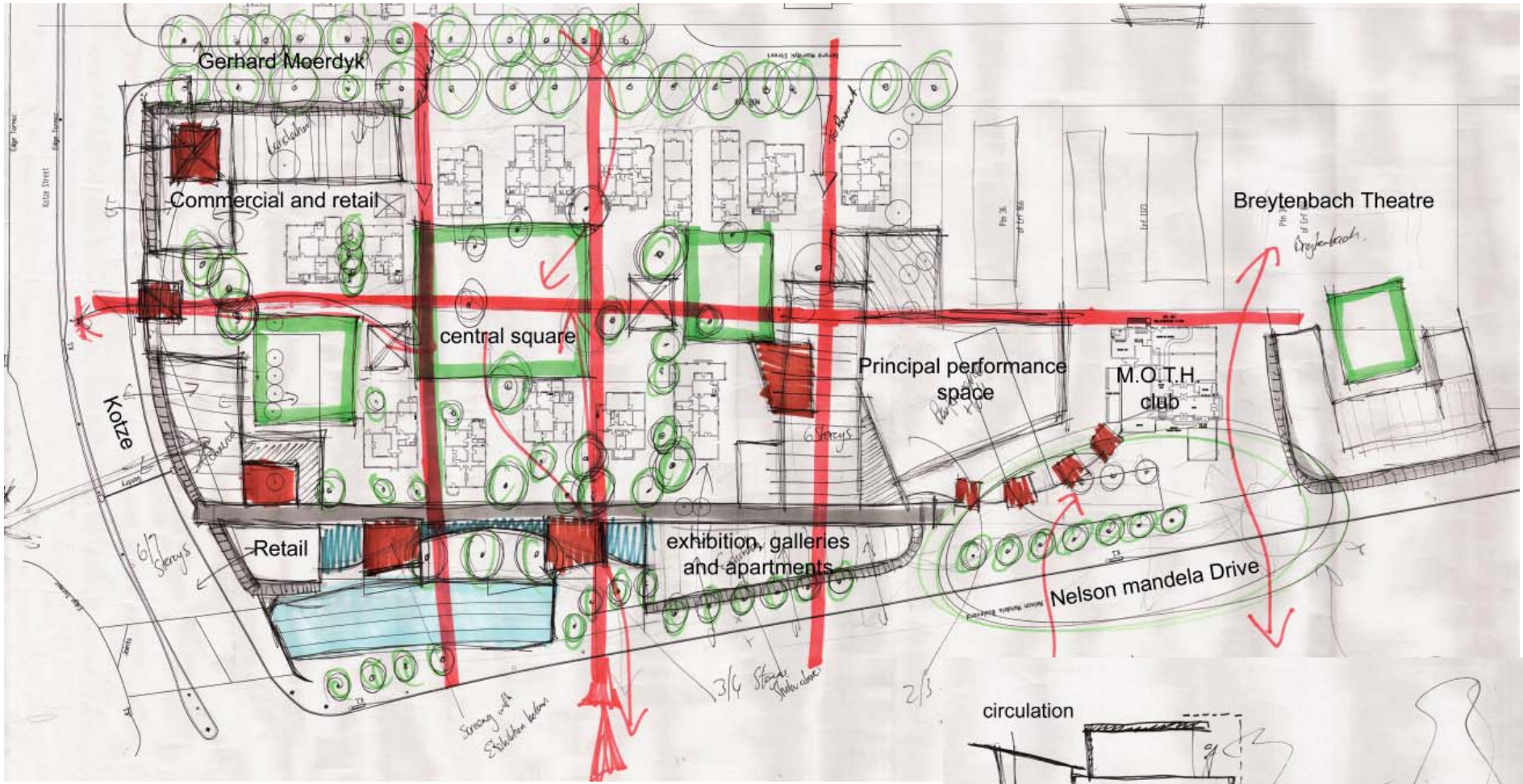


FIG 5.11_Diagram depicting initial space planning response

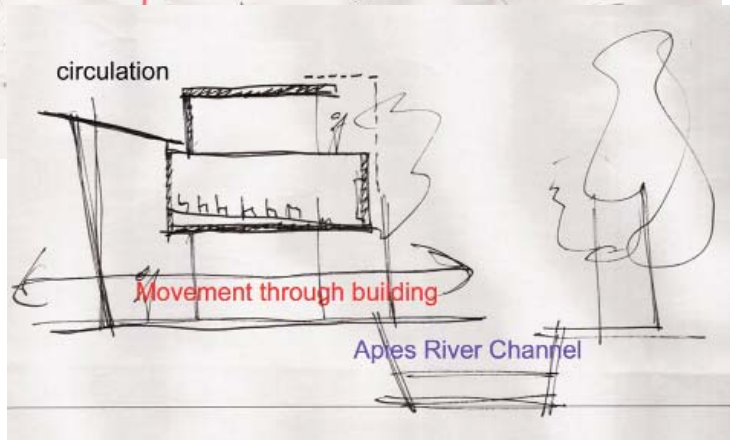


FIG 5.12_Diagram depicting initial response in relation to Apies River

Conceptual approach

The overall architectural concept employed throughout the design process can be explained as the influence of architecture on the senses.

"The building must create an experience and a sense of place for its increasingly demanding audience" (Hammond, 2006:24)

This notion has been explored on 3 scales:

- Firstly, on an urban scale, where the activity square has been designed to entice and manifest informal and formal events and performances, and to act as a stage for the everyday lived experiences of the public and artists/performers.
- Secondly, on an individual scale, as the role of the project is to create an awareness in users of the various facets of the visual and performing arts and the processes involved in the creation of artworks and the production of performance.
- Thirdly, on a public scale, the interaction and connection between the urban activity square and one's movement through the building, which allows the public to experience the various facets of the arts industry first hand.

These 3 aspects are manifested in the form of 3 basic design concepts:

Firstly, in the creation of a central activity spine which runs through the project. The activity spine manifests in the form of a central atrium which connects, associates and brings together the various facets of the project and square. This central spine orientates the users, guides their movement and articulates their experiences of the spaces with the project.

Secondly, through the creation of visual connections between the users of the public activity square and the performers and artists in the studios, in order for users and passers-by to gain a better understanding of the various facets and processes of the visual and performing arts.

Finally, through the wrapping of the external skin of the building in digital screens. This will create an environment that is constantly changing and will evoke a greater emotional response for visitors and users of the centre while heightening the users' experiences of the centre and square.

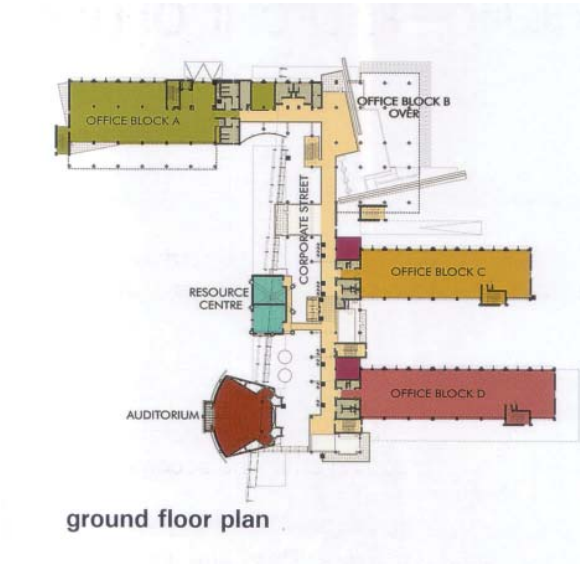


FIG 5.13_Precedent - Head Office Department of Science and Technology - Central movement spine - 'corporate street'

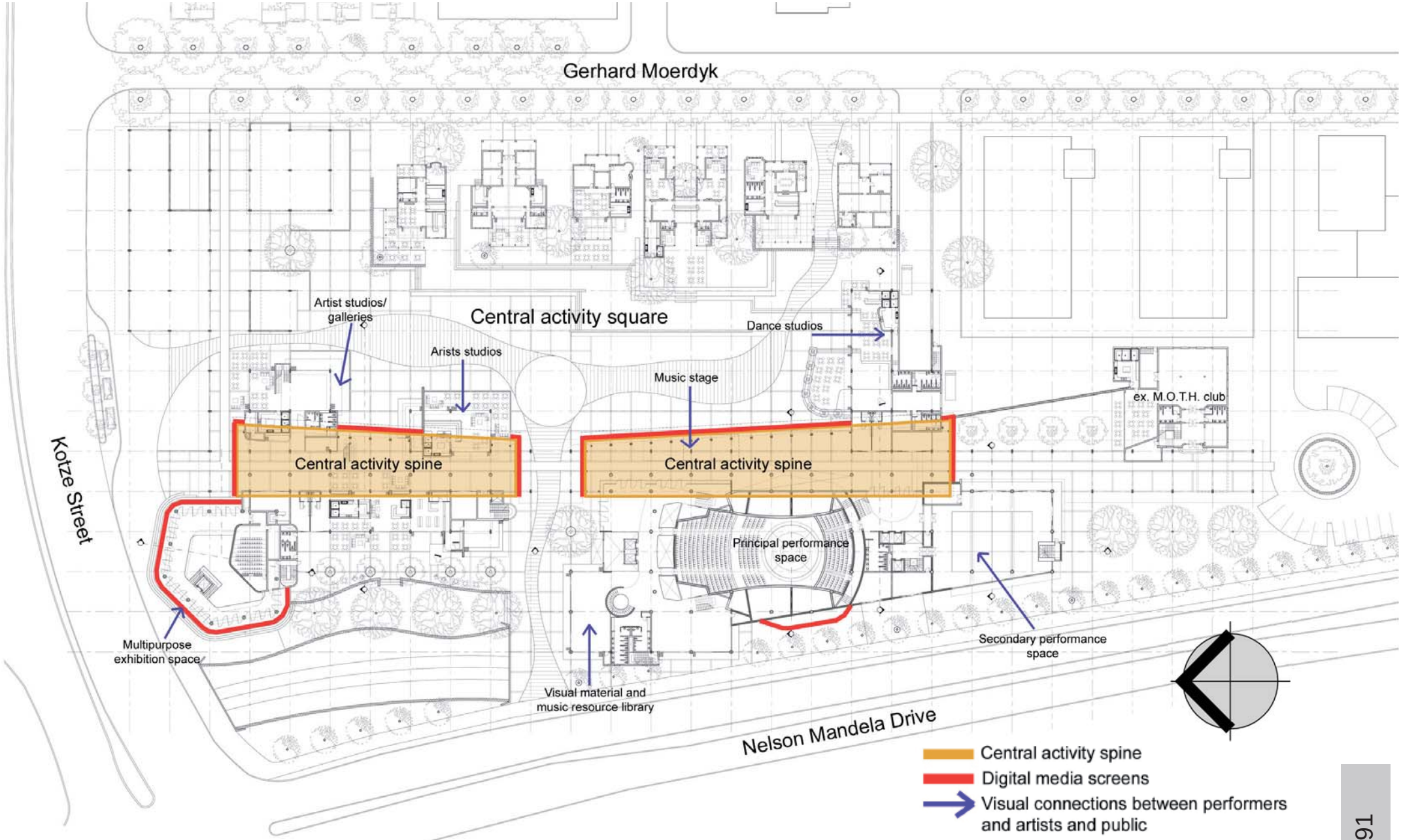


FIG 5.14_Diagram depicting the conceptual approach of the project

Planning

The central activity spine or atrium represents the programmatic and tectonic divide between the external and internal functions of the project. It acts as a semi-private transitional zone between the external skin of the building and the various internal activities involved in the production of the visual and performing arts.

The external experience of the public activity square will partially be created by the digital skin of the building and partially through the visual connection the users of the activity space will have with the various artists through the largely glazed exterior facades of the various studio and rehearsal spaces. The internal experience is, however, only understood and appreciated once one has entered the central activity spine, as the various artistic processes are experienced in closer proximity. On a spatial level, the square will form a vibrant activity space, while the atrium will be experienced as a semi-private internal space, which allows one to fully experience the sensory nature of the artistic process on a more intimate level. It is also intended that passers-by experience the various facets of the industry so that they will be enticed to enter the cultural centre, thus expanding the user base together with public understanding and knowledge of the visual and performing arts. This will be achieved through the placement of glazed facades on various rehearsal and performance spaces which face onto main pedestrian and vehicular routes. A landmark structure is to be located on the corner of Nelson Mandela Drive and Kotze Street.

Movement and circulation routes through the atrium will be set back and slightly separated from the main functions of the buildings, which allows the public moving through the space to be part of the artistic process, but still gives the artists and performers sufficient privacy for their creative endeavors to continue undisturbed. As connectivity and flow between the internal and external spaces of the project are of utmost importance, all circulation will be housed in or just off the central activity spine.

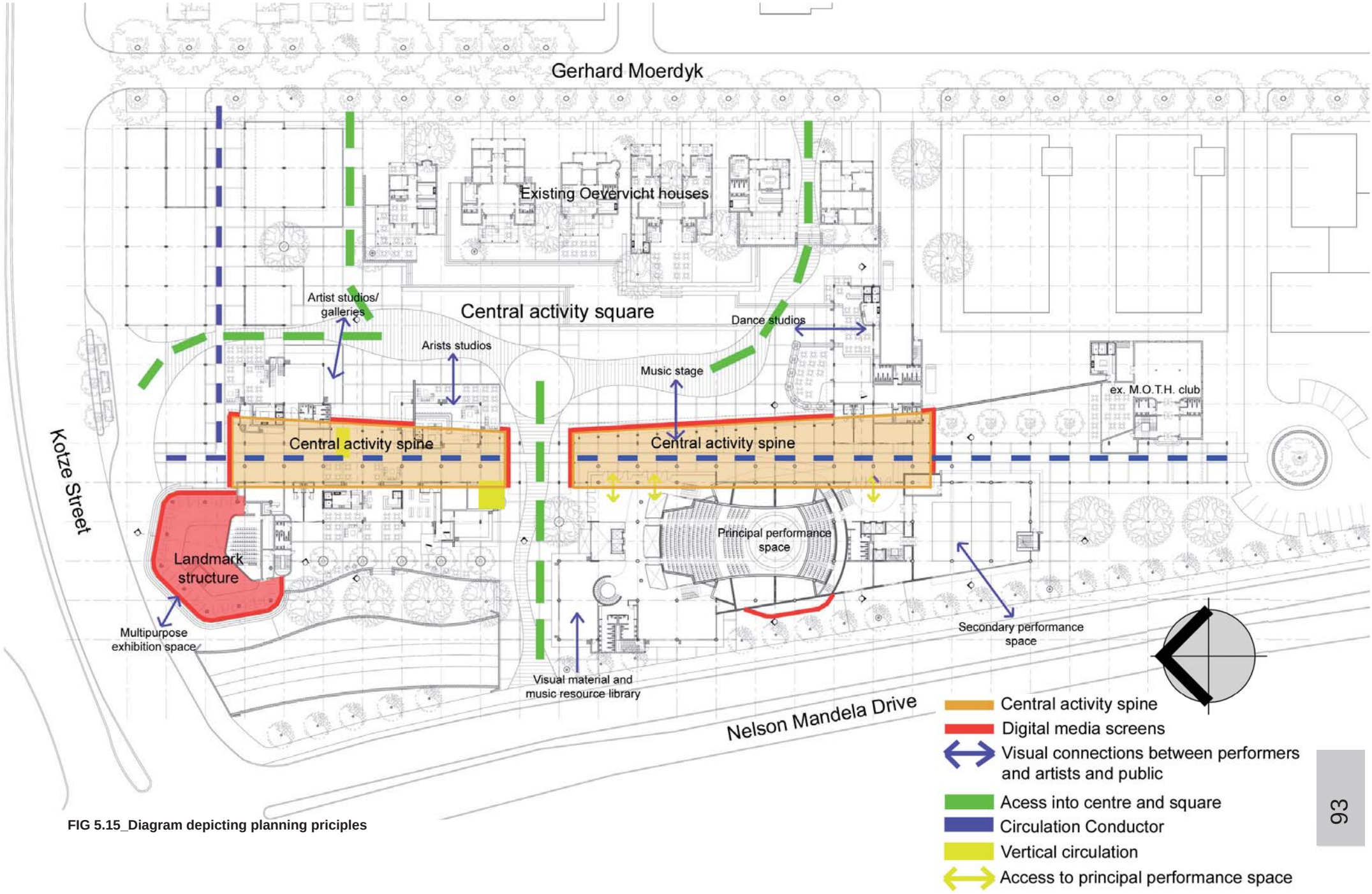


FIG 5.15_Diagram depicting planning priciples

Design process

As the cultural centre needs to be connected with an external public activity square, the primary concerns explored of the initial design sketches explored how the building should enclose this new activity square. Ways of guiding people into transitional spaces and central activity space in between the centre, as well as the central square are explored. The design had to respond to the existing eastern urban grid, as well as the existing structures on site. Spatially, the building needed to create a solid, put permeable edge to the square, enabling people from the surrounding community and passers-by to filter into the square. However, the secondary spatial layout depicted in image 5.16, 5.17 and 5.18 had no connection to the M.O.T.H. club building and Breytenbach Theatre, which was felt to be to the detriment of the development. The centre was fragmented and the central circulation space/continuous roof element did not tie the centre together as origionally intended.

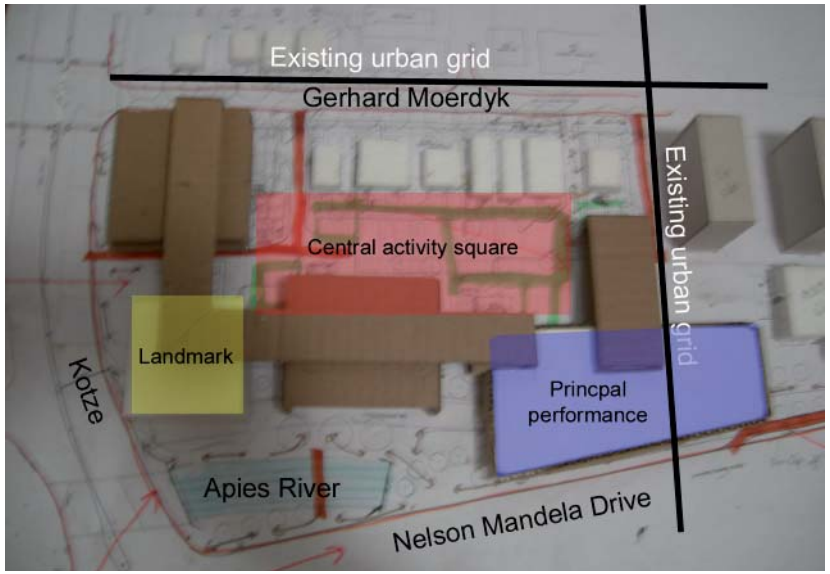


FIG 5.16_Design response to existing urban grid (25 May 2009)

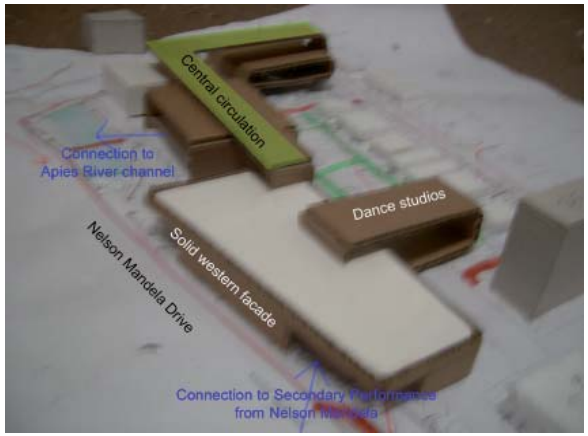


FIG 5.17_Creation of connections to passers by

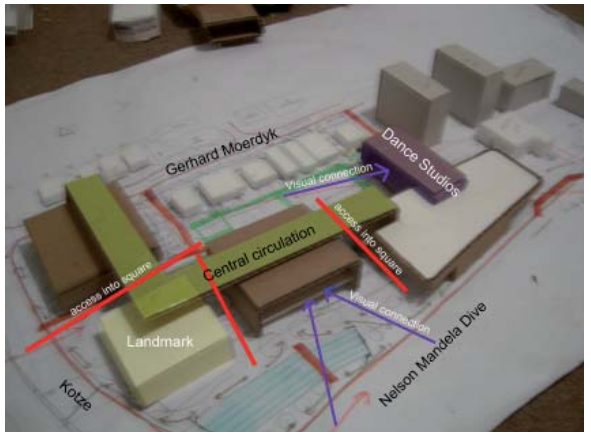


FIG 5.18_Access into central sqaure and visual connections

After the initial design responses, it was realised that better connectivity and improved circulation routes between the various facets of the centre was needed. Thus a central activity spine connecting all the spaces was included in the design proposal. In this verion of the design proposal only the landmark element and principal performance space protrusions were to be clad in GKD mediameash, with the aim of showing the performances happening in the centre to passers-by and enticing them into the centre. Apartments and studios faced east onto the public activity square, which raised the issue of the residents' privacy. In addition, the building which was 5 storeys tall and towered over the existing Oeverzicht houses, would almost certainly destroy the existing character that initally drew the author to the site.

Access to the M.O.T.H. club building and Breytenbach Theatre was included, but its suitable integration into and connection to the development had yet to be achieved.

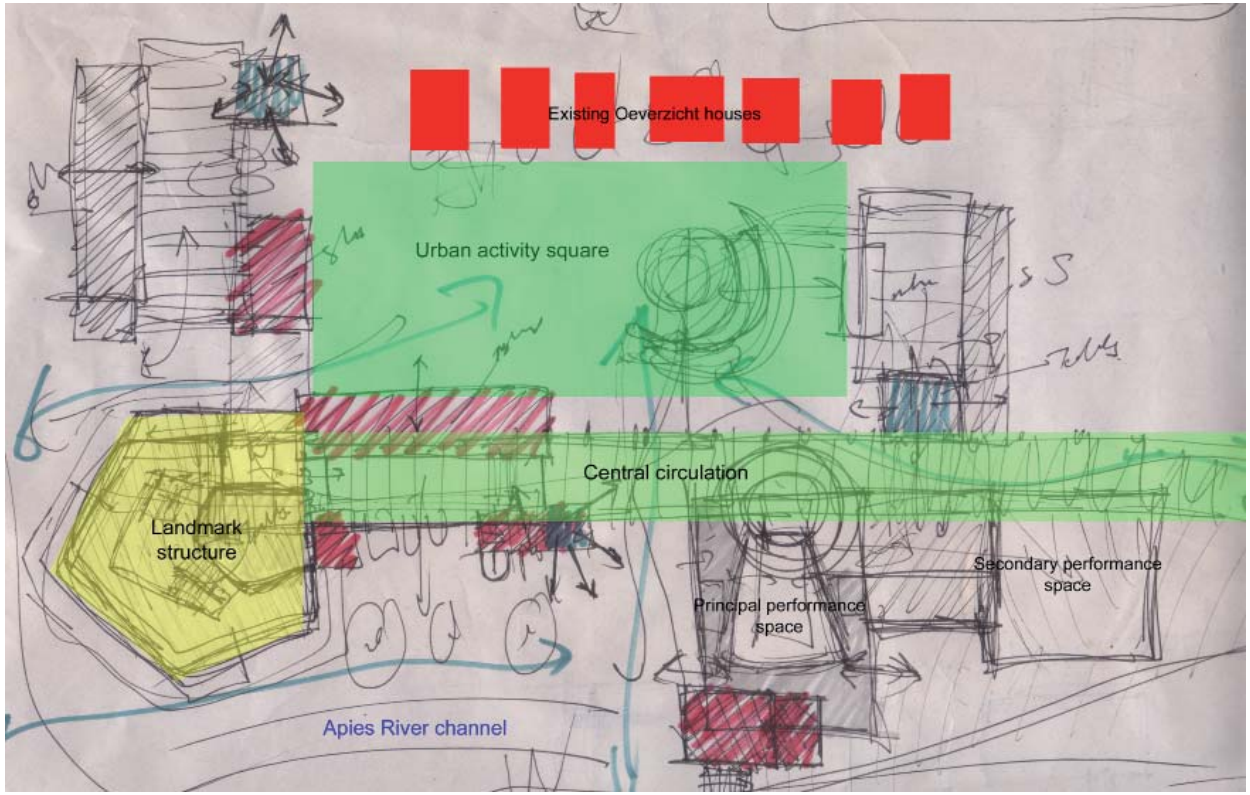


FIG 5.19_Planning - relationship of centre and square and inclusion of central circulation and activity sapce

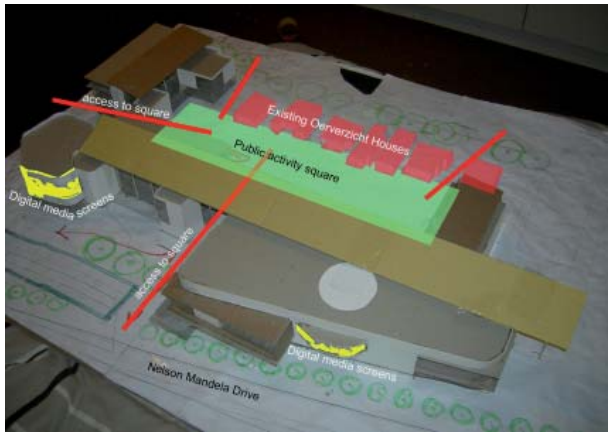


FIG 5.20_Inclusion of Digital media screens and access to site

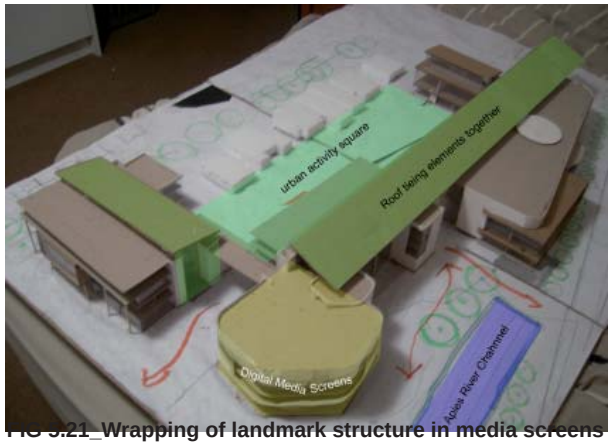


FIG 5.21_Wrapping of landmark structure in media screens to entice general public into centre

At this point good, visual connections had been achieved between the artists and performers and users of the square. Activities spilled out onto the surrounding streets and square to further animate and activate the spaces and centre- however, there needed to be a greater physical and emotional connection created in order for the user to have a heightened experience of the centre.

The proposal for the secondary performnace space needed to be re-addressed from a practical and structural perspective.

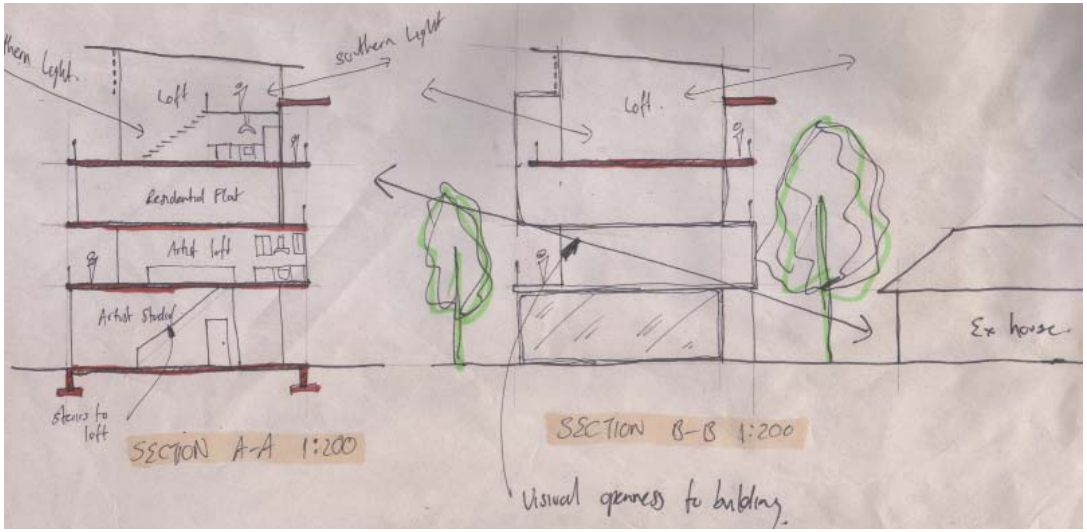


FIG 5.22_Section through residential apartments (06 June 2009)

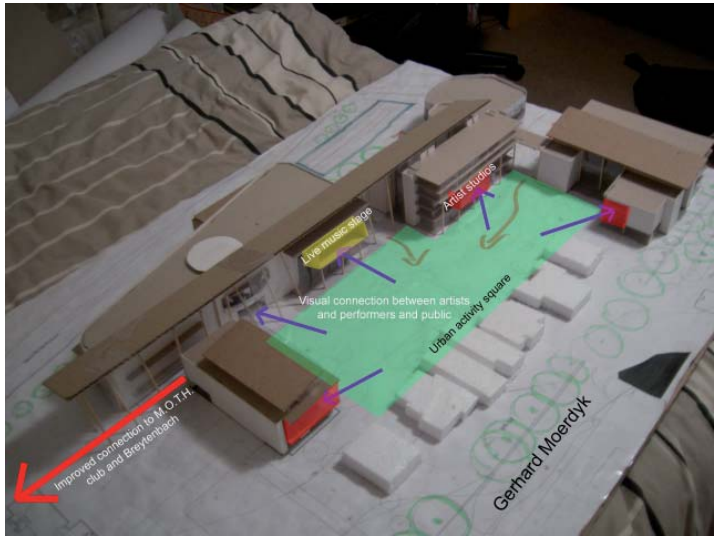


FIG 5.23_Visual connections between artists and general public utilising the square and improved link to Breytenbach and M.O.T.H

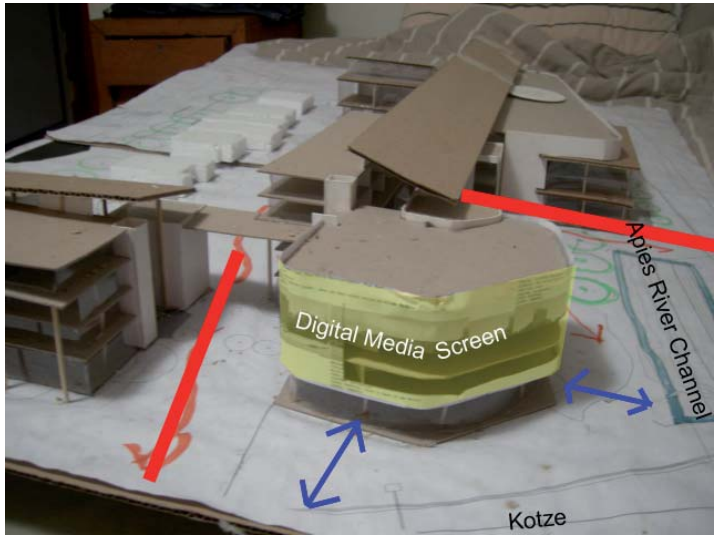


FIG 5.24_Activities from multi-purpose exhibition space spill onto street and digital screens defining landmark element

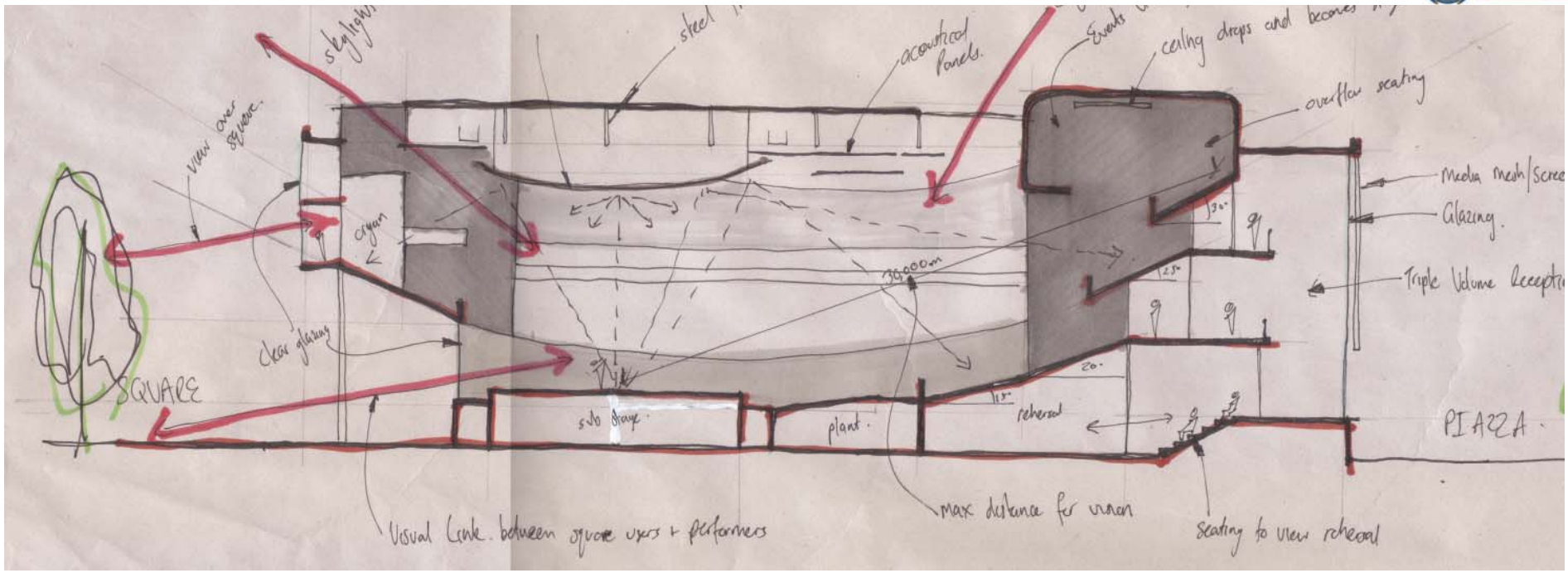


FIG 5.25_Section through principal performance space (06 June 2009) - showing that the scale and height of building was too large for site

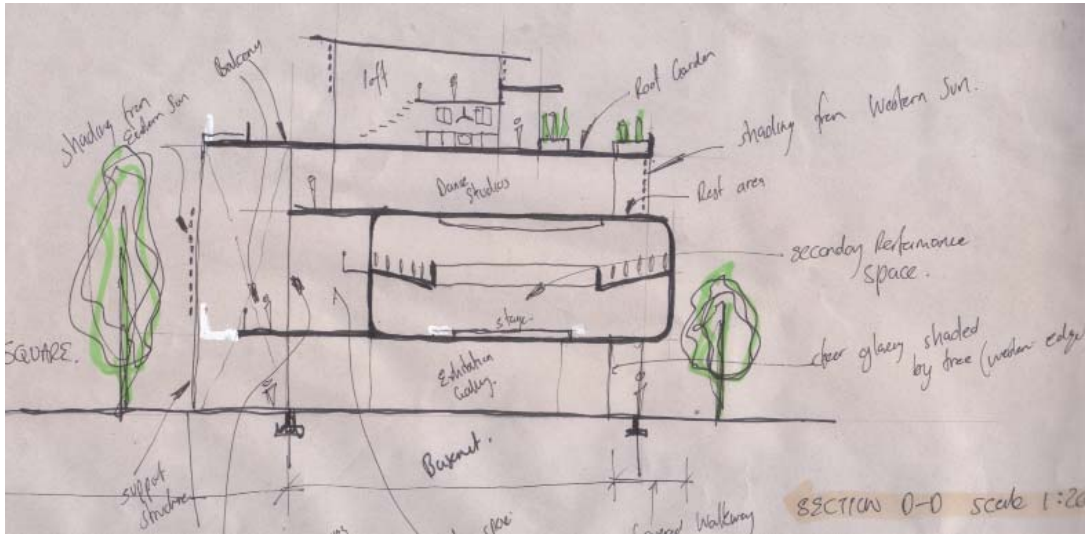


FIG 5.26_Section through secondary performance soace (06 June 2009) - difficult structure

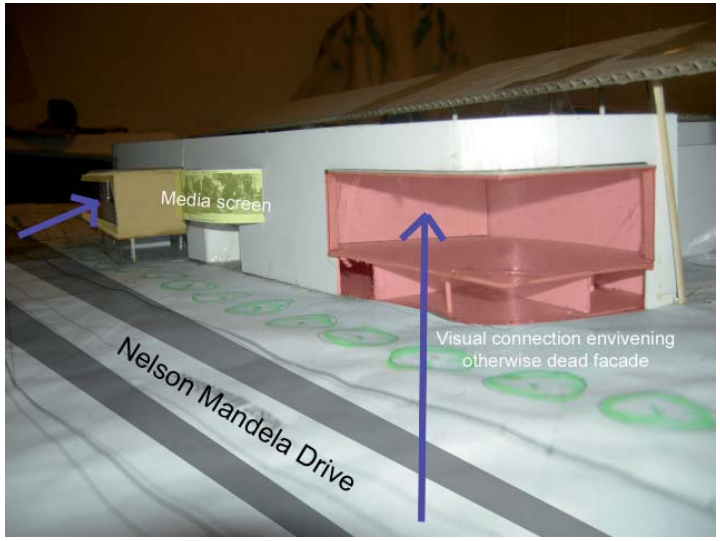


FIG 5.27_Activation of western facade through large glazed openings in secondary performance space and inclusion of media screens

The creation and extension of the central urban activity spine enabled the creation of semi-public/private spaces that would enable the visitors of the centre to interact with and feel a connection with the performers and artists. At this point, the apartments were moved to the western edge of the site alongside the green open space and Apies River channel in order to improve the residents' sense of privacy. This enabled the studios to be moved onto the eastern edge of the square, improving the visual and physical connection with the square.

GKD mediamesh screens were added to the eastern facade facing the square to activate the square and to create a transparent but physical demarcation of the threshhold between the public and semi-public/private spaces.

The building was also reduced to a height 3 storeys and some spaces moved into the basement to reduce the scale, height and mass of the building, bringing it down to a more intiamte human scale.

The existing M.O.T.H. Club was included in the design of the centre to create better movement and circulation through the site as well as to establish a connection with the Breytenbach Theatre.

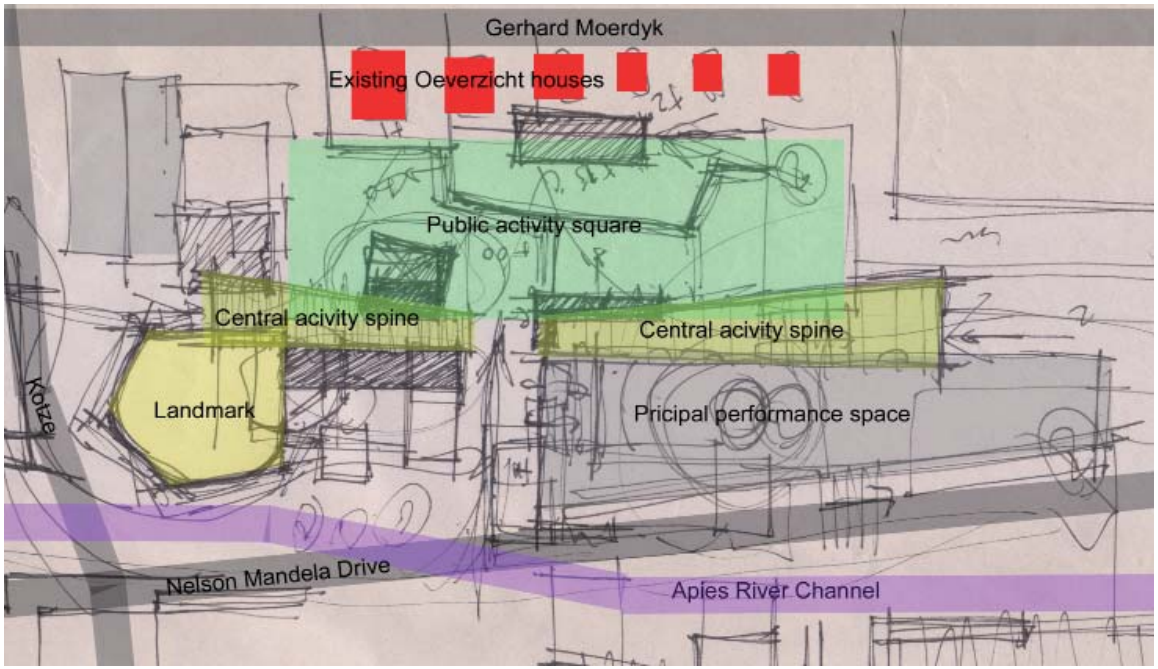


FIG 5.28_Conceptual planning of final design layout

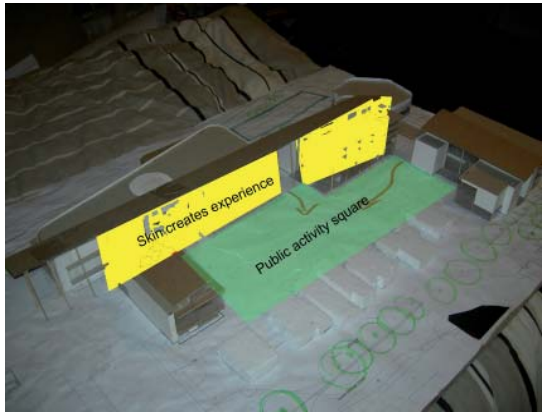


FIG 5.29_Activation of public activity square through media screens

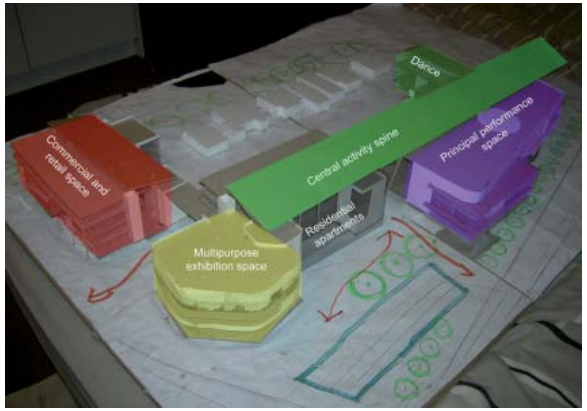


FIG 5.30_Concept model 3 showing positions and locality of various facets of centre

Design discourse

Accommodation schedule

The principle aim of the cultural centre is to create an environment where performers, artists, audiences, the general public and local community can interact and share spaces without inhibition.

The cultural centre will house the following spaces and activities:

- Public activity square
- Restaurants, coffee shops and bars
- Multi-purpose exhibition gallery
- Studios and apartments for artists
- Dinner theatre
- Principal performance space
- Secondary performance space
- Studio theatre
- Dance studios
- Dressing rooms and rehearsal spaces
- Digital media library
- Facilities for informal craft traders
- Administrative offices
- Restoration and upgrade of existing Oeverzicht houses retaining their existing functions

The basic requirements of these spaces will be explored in order to ensure the building succeeds on its most basic level.

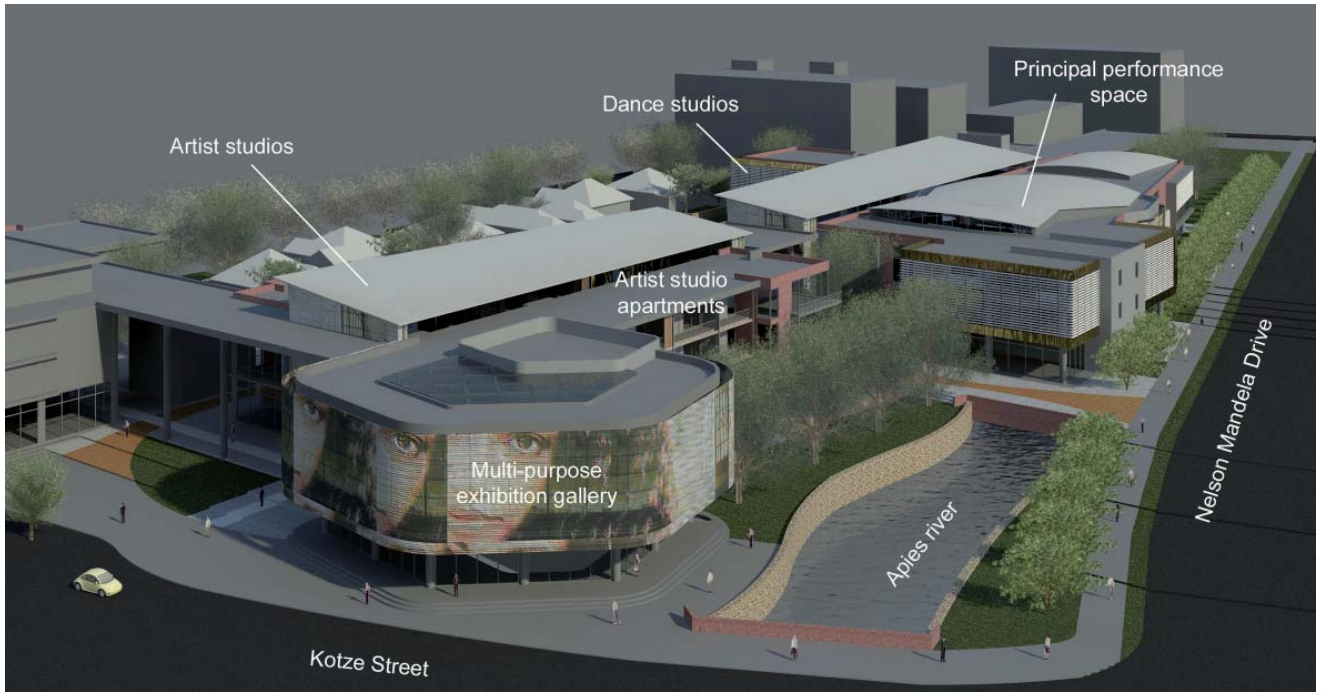


FIG 6.1_3D depiciting the locations of varoius activities within the centre

Public activity square

FIG 6.2_3D - Public activity square

The main intention of the project is that all activities on the ground floor of the building spill out onto the square. It is commonly accepted that activities in any public square tend to naturally form along the edges (Alexander, 1977:600). The eastern edge of the square will be formed by the existing Oeverzicht Art Village houses, while the other three edges will be formed by the proposed cultural centre. Thus, the square is enclosed and punctured only by strategically placed pedestrian paths that allow users to enter the square.

The buildings that form the eastern edge of the square house existing restaurants, bars, a hair salon and a café. The northern edge will house rentable shops in order to bring retail activities into the square and the southern edge will be formed by the dinner theatre, whose activities will spill out onto the square. The western boundary will house various activities from restaurants, galleries and shops to the principal performance space and studio theatre.

The square will enable impromptu performances and activities to occur. It is designed to be activated by the movement of users through the space and by the digital media screens that form the buildings' skin. An outdoor perfomance stage has also been included in the design. Located on first floor level, it will penetrate the digital skin of the public activity spine. This literally and symbolically acts as a link between the internal activities of the centre, the external activities of the square and the semi-private activities of the public activity spine.

Owing to the changes in level required by the site, numerous stairs and ramps are needed, and are designed to create a number of smaller, more intimate spaces within the square. Each of these spaces can be given its own identity, further enhancing the spatial experience of the space. The stairs and level changes are also designed to function as seating areas, where the public can sit and unwind while viewing the various planned and impromptu activities and events occuring within the centre and square. Alexander's notion that people naturally gravitate to raised and easily accessible areas within public spaces has been used in the consideration of the placement of these level changes (Alexander, 1977:600). The changes in level have also been used to carefully conceal air intakes for the basement.

Movement paths, corridors and thresholds have been marked and are identifiable by variances in materials and textures. The use of brick and natural stone in the treatment of certain areas of the square will give it a soft and inviting appearance.

Through passive surveillance the square has been designed to encourage a 24 hour safe and secure environment.

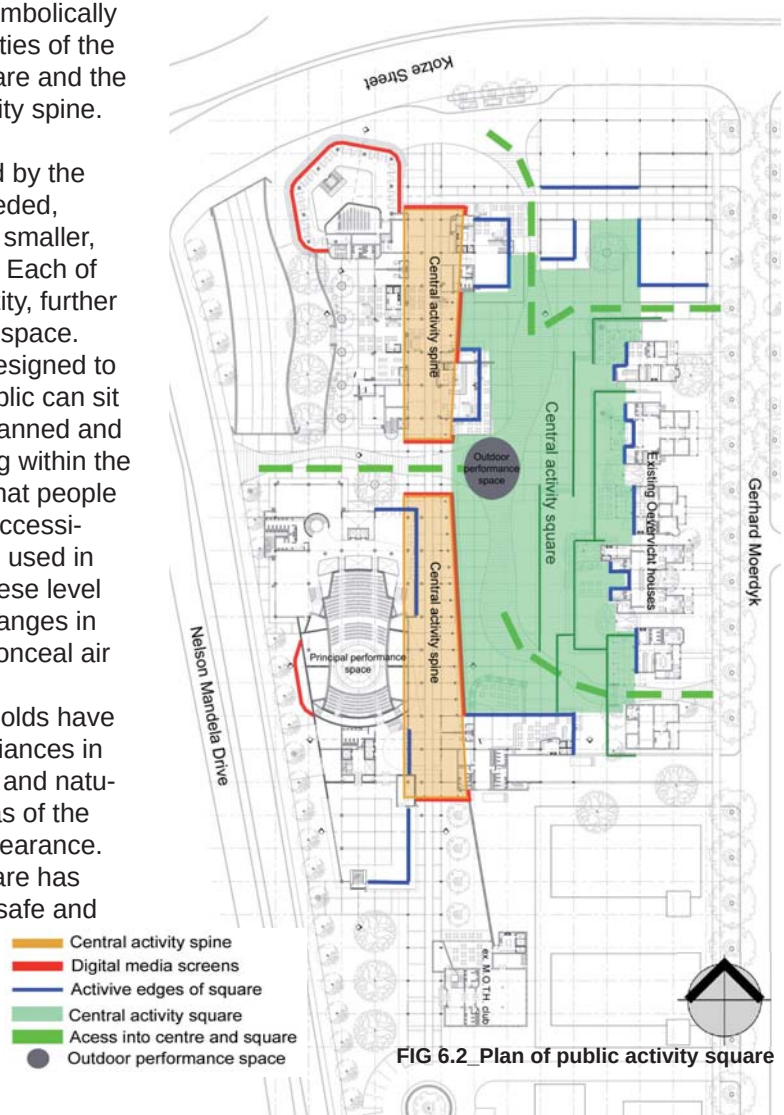


FIG 6.2_Plan of public activity square

Restaurants, coffee shops and bars

Most of the existing Oeverzicht Art Village houses are currently used as restaurants, coffee shops and bars. Their functions will be retained as it is believed that these existing facilities create an African themed atmosphere that will positively add to the character of the project.

A few additional restaurants, bars and coffee shops will be introduced in the new cultural centre, with the intention, not to take away business from the existing restaurants, but to cater for the increased numbers of people within the area as a result of the cultural centre. These new facilities also replace the two restaurants housed in buildings that will be demolished. A new bar, located on the western boundary of the square, will cater for the overflow of people during the intermissions of performances. The artist gallery to the north will house a coffee shop, which will give people a chance to admire the surrounding work of the local artists; in addition, a restaurant that serves light meals has been included in the design.

The existing restaurants can be entered from Gerhard Moerdyk Street and spill out onto the square, while the new facilities will be accessed from the central activity spine (atrium) and from the square. The bar will spill out into the central square, and will be located in a prominent position so users can observe events in the square. The coffee shop will spill out onto the smaller public space on the northern edge of the site, while the restaurant serving light meals will spill out onto the quiet edge of the site bordered by the Apies River channel. Thus each space will have a very different and unique character.

Deliveries to the restaurants will be made through the basement and must be scheduled to occur early in the morning, so as not to disrupt the activities of the centre.

Small shops and retail spaces will also be located throughout the project, on the edges of the square, along the activity spine and along the sidewalk. These shops will cater for small traders selling everything from coldrinks and sweets to clothes, music, art and souvenirs. It is intended that these small retail spaces will provide an inexpensive space for the local informal traders to formalise their operations and also add a further level or range of activities into the project.

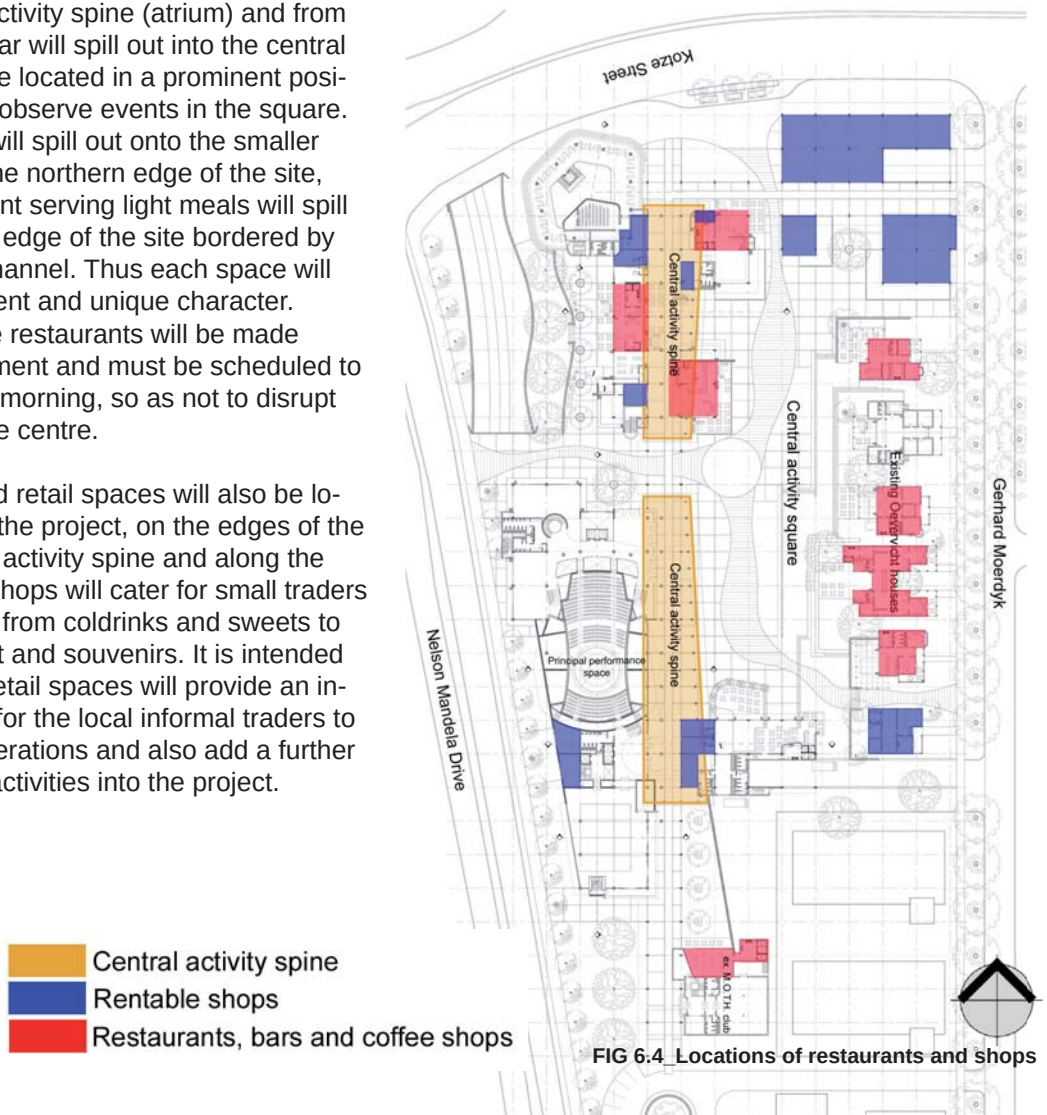


FIG 6.4_Locations of restaurants and shops

Multi-purpose exhibition gallery

The multi-purpose exhibition gallery will be placed on the most prominent location of the site to tower over the intersection of Nelson Mandela Drive and Kotze Street. The bold and visible shape is intended to draw visitors into the cultural centre.

The gallery or multi-purpose exhibition space is to be used to display the works of various local artists. The ground floor can be made accessible on all sides through tip up glazed doors that will surround the space, and that, when opened, allow the activities of the gallery can easily spill onto the street and the open green space alongside the Apies River channel. This ground floor space can be used in combination with the lower ground floor can be used as a rentable multi-purpose hall for the community.

The space has been conceived as a series of floating walkways on various levels that cantilever over a central space, in order to create a sense of fluidity and movement. It is intentioned that all activities and events housed within the structure can be viewed from these cantilevered walkways giving the space a theatrical atmosphere.

The exterior of the multi-purpose exhibition gallery will be glazed and wrapped in illumesh, which will acts as a shading screen for the glazed surface during the day and at night allows the space to become translucent, drawing visitors to the cultural centre, and acting as a beacon for the centre within the city skyline.

The hall will be accessed from the main activity spine of the centre, making it easily accessible from the main street. The gallery will contain its own dedicated toilet facilities to accommodate for large-capacity audiences during new collection openings and events. The gallery space will have its own dedicated lift and staircase, and un-exhibited collections can be housed in dedicated storerooms in the basement.

The gallery's dedicated media theatre

In today's contemporary art world, film and electronic presentations are becoming increasingly more popular with up-and-coming artists. Thus, it has been decided to include a small screening room or media theatre within the gallery for digital media presentations by local artists. This space contains 87 seats as will be easily accessible for the disabled. It could also be used as a lecture room and my be rentable for private use.

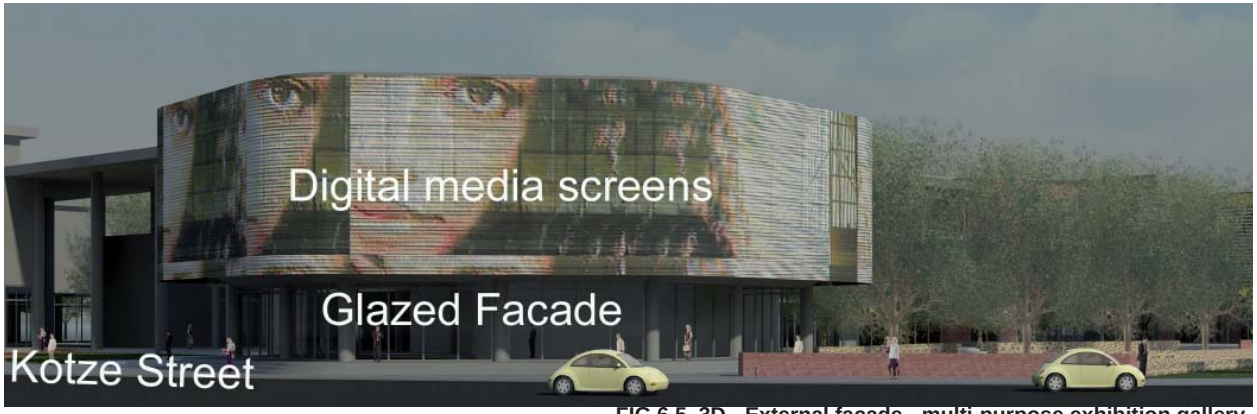


FIG 6.5_3D - External facade - multi-purpose exhibition gallery

FIG 6.6_3D - Studio apartments and student apartments

Studios and apartments for artists

A series of artists' studios, studio apartments, and apartments for students and artists have been included in the project. The studios have been designed to create inspirational and flexible work environments, even allowing artists the option of working in collaboration with one another or in isolation. As the studios will be clustered together with movable internal and dividing partitions, the spaces can be reconfigured and combined for larger collaborations if required, or to provide additional gallery space.

Eight residential apartments to provide housing for students and artists within the area have also been included. These flats will be relatively small but will be located in close proximity to and on the same level as the artist studios, allowing for easy access and movement between the two spaces

The inclusion of eight studio apartments will allow artists the opportunity to work from home. Most of these units will have a 2 storey layout, with a studio below and living space provided above.

The dedicated studios will have large, glazed facades which face onto the public activity square, thus allowing the public to view the creative process. The glazed facades will be treated with a mechanically retractable shading device to allow the artists within the studios to control their privacy and maintain a certain level of climatic comfort.

All of the apartments and studio apartments will face west onto the open green space along the Apies River channel, giving the residents greater privacy. The studio apartments can also be opened onto the central public activity spine if the artists wish. All apartments and studios will have an outdoor area of some sort and the dimensions and layouts of spaces allow for natural ventilation. Since the apartments and studio apartments will be facing west, they will be provided with a double skin, through the introduction of a cantilevered balcony with movable and adjustable screens. As well as providing adequate sun protection, these screens will provide additional privacy, if required, but as they are movable, they will still provide for the views over the green space alongside the Apies River channel.

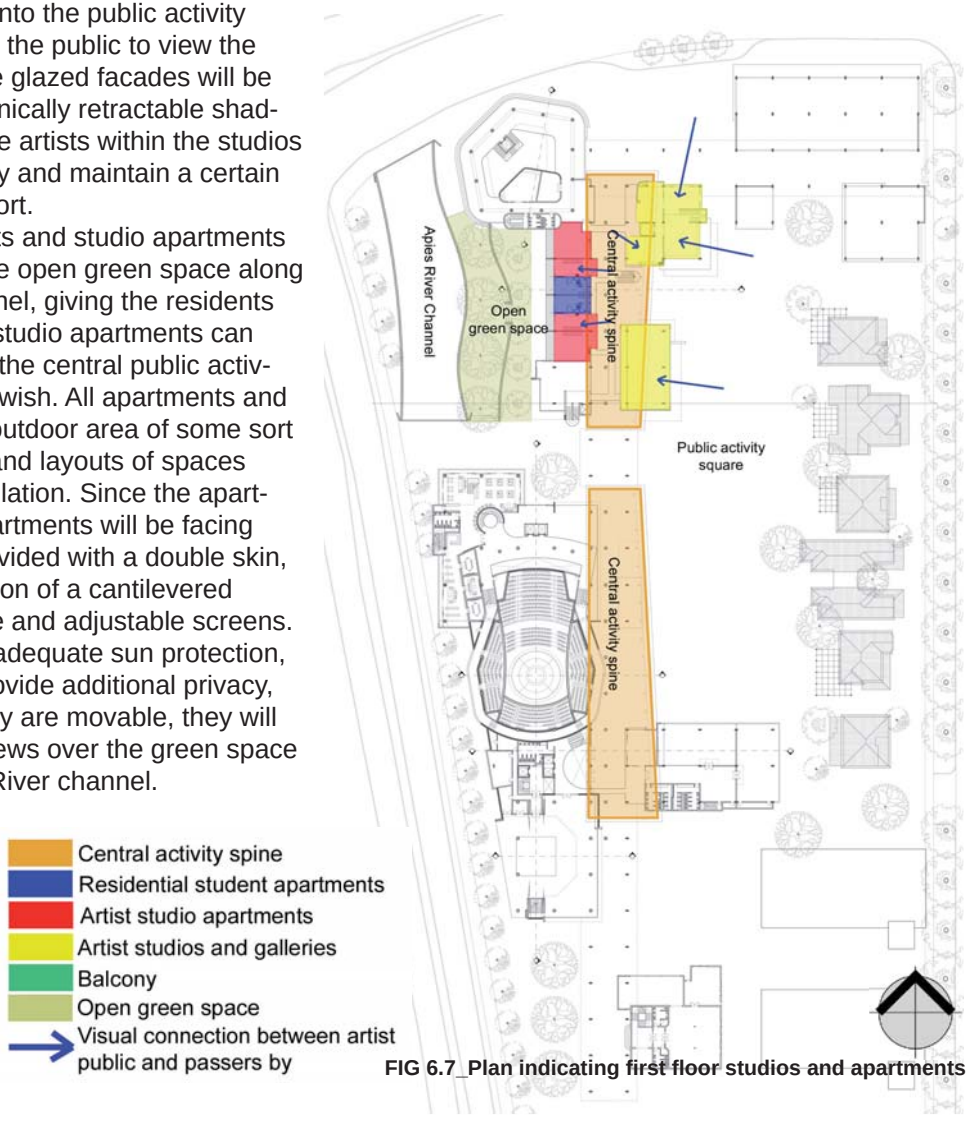


FIG 6.7_Plan indicating first floor studios and apartments

Dinner theatre

A dinner theatre has been included in the design. The dinner theatre has been designed to function as a more intimate space, to host performances such as drama and other speech related performances, as well as small music and dance performances. The dinner theatre will accommodate up to 100 seated people.

The space will be adaptable to cater for a variety of theatre performances. The main indoor stage will open up onto a smaller outdoor performance space, which can house small lunchtime performances in celebration of the Breytenbach Theatre's previous tradition of lunchtime performances. The theatre is not designed to function in isolation and silence, it has been designed to open up onto the square, allowing its activities to spill onto the public activity space. The sounds of the dinner theatre are encouraged to permeate into the public square and vise versa into the theatre.

The theatre has been designed as a set of terraces in order to ensure adequate sightlines for audience members are provided. The theatre will include a bar area located to the rear of the theatre and a standing area directly in front of the stage, to cater for walk in members of the public who have been enticed into the theatre by the music and sound radiating from its walls. All seating arrangements will be flexible and will thus accommodate a varied range of events. The theatre will also have its own dedicated kitchen and toilet facilities

Performers will have direct access to the stage from the theatres own dedicated rehearsal and backstage areas. Scenery storage will also be provided directly adjacent to the stage.

The last row of seating within the theatre is located within 20m from the centre of the stage in order to ensure that all audience members can easily observe the facial expressions of the actors and also to limit sound attenuation over distance.

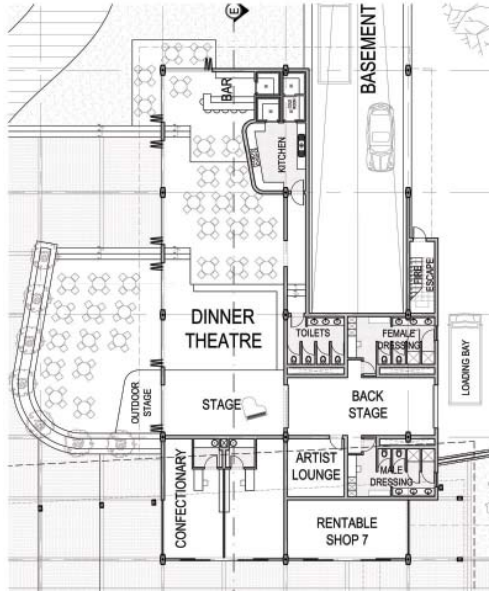


FIG 6.8_Plan of dinner theatre

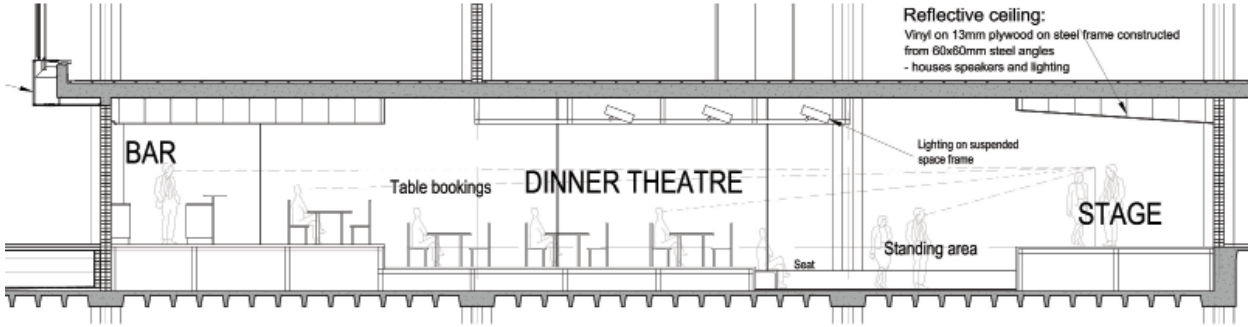


FIG 6.9_Section through dinner theatre

Principal performance space

The principal performance space will fulfil the main function of the building and is designed to house paying audiences of up to 1 350 people.

The space has been designed to carter for a number of different and varied performances such as:

- Concerts and other musical performances by choirs, orchestras and bands
- Operatic performances
- Dance performances, such as ballet and modern dance as well as cultural performances. The space has been designed to allow the dances to be accompanied by bands or orchestras

Conventional performance spaces are designed with a stage and seats for the audience facing it. This has often been said to create a division between the audience and performers. To avoid this, and to maximise the audience's experience of the performance, the stage will be been positioned centrally within the space with seating surrounding it, allowing the audience to be engaged by all extents of the stage and performance. This also allows for the performance to be experienced differently by each member of the audience depending on their seating position within the concert hall.

The space has been designed to be flexible and multi-purpose. The introduction of a movable ceiling that can be lowered over the upper gallery seating, enables the hall to cater for performances with reduced audience numbers of up to 820 people. This will reduce the psychological effect on performers on stage when confronted with a half empty auditorium, and will also as alter the acoustical performance of the space.

The stage has also been designed to accommodate the various types of performances that may occur within the space. The circular shape of the stage has been inspired by the traditional African layout of performance and dance spaces, with the performers as a central feature and the audience surrounding them. The circular form of the stage also does not give any preference to any direction of view, but instead engages each equally .

The stage will be constructed as a series of vertically displaceable platforms that can be fixed at three preset heights: floor height, stage level and twice stage height. This means that the stage can be completely removed if required, to accomodate for additional loose seating, or raised in certain sections to allow for elevated positions for certain performers, such as a choir. This will also allow for the easy inclusion or exclusion of an orchestral pit seating 40 members or a forestage.

The principal performance space will be set into the ground, ensuring that the main seating areas are accessible from the ground floor and allowing easier and direct access from the basement which is in a secondary lower ground floor foyer. The principal performance space will be accessible to the public on a number of levels from two main centralsed foyers leading from the main activity spine/atrium. Performers will be provided with direct access to the stage from the lower ground floor dressing rooms and rehearsal spaces which can also directly accessed through the basement.

The last row of seats within the auditorium will be located within 30m from the centre of the stage in order to retain an adequate visual relationship between the performers and audiences members, and also to limit sound attenuation over distance.

Interior volume can be adjusted beween 4m³-9m³ per person, depending on the acoustical requirements of a specific performance, allowing for optimal acoustical performance in almost any performance.

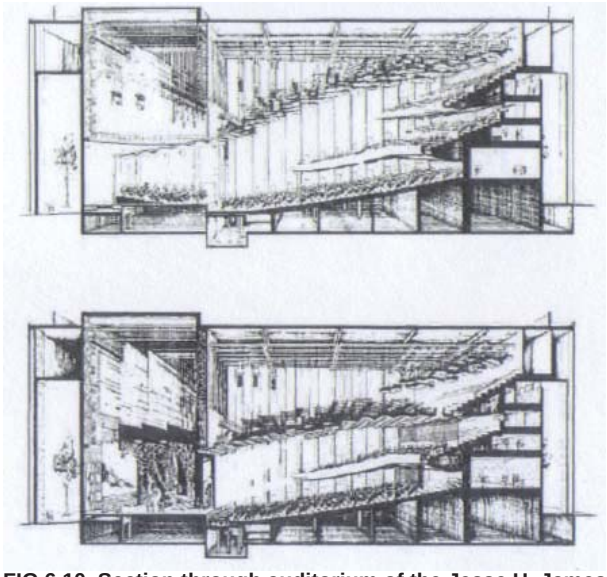


FIG 6.10_Section through auditorium of the Jesse H. James Hall in texas.

- **Inspiration drawn from descending ceiling for internal subdivision of space**

Stage configurations

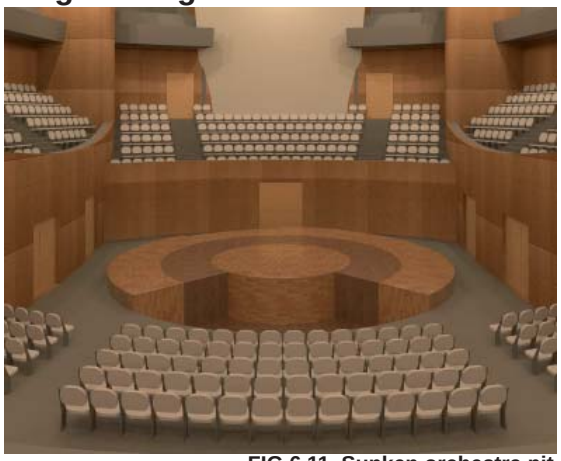


FIG 6.11_Sunken orchestra pit

FIG 6.12_Sunken fore stage, elevated rear to accomodate choir

FIG 6.13_Stage components positioned in uniform level

FIG 6.14_Suspended ceiling for reduced audience capacity performances

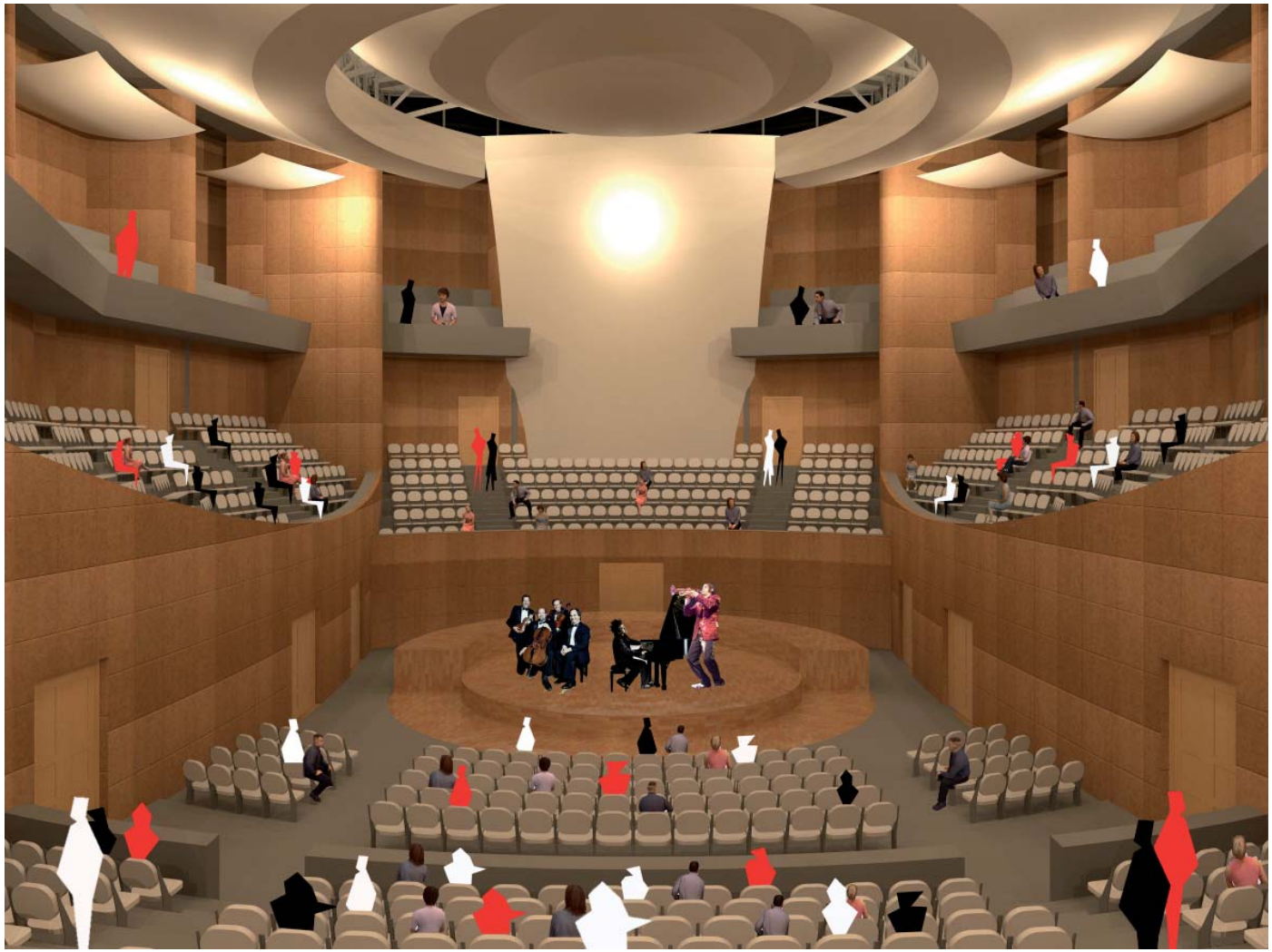


FIG 6.15_3D -Interior perspective principal performance space

Studio theatre

The studio theatre has been designed to perform a dual role. Firstly, the space will be used as a rehearsal and learning space by performers and artists, and secondly, the space will be be used to accommodate small audiences for intimate and experimental performances. The theatre will be used for musical, dance and theatrical performances and will cater for up to 200 people.

The entire floor area of the space will be divided into a number of regular squares, which can be adjusted vertically as on the principal performance space stage. Thus, the entire space can be used as a stage, if required, and, by raising certain platforms and lowering others, a variety of stage configurations can be achieved, further enhancing the adaptability of the space. So for example, a stage can be created in the centre of theatre surrounded by the audience or to one side with the seating opposite it.

The theatre will be located on the ground floor and will also be glazed on three of its boundaries, once again allowing the public walking past to experience rehearsals and performances, while allowing the space to be blocked off from public view with a retractable motorised screens if required. The theatre is directly accessible from the main public activity spine and can also be used as a rentable exhibition space.

The theatre's main entrance will be accessed on one level from a shared foyer with the principal performance space. Performer access will be separate from audience access and rehearsal and dressing rooms will be shared with the principal performance space. What seating is required will be provided by loosely packed chairs and storage for these chairs when not in use will be provided with direct access to the theatre. Scenery and prop storage has also been included adjacent to the theatre for easy access to props and scenery during performances.

The last row of seats within the theatre is located within 20m from the centre of the stage to ensure that all audience members can easily observe the facial expressions of actors and also to limit sound attenuation over distance.

The lighting design treatment for the theatre has been complicated, due to the limited head height and adaptable nature of the space. The solution is to create clusters of lights suspended above the entire floor area of the theatre. These clusters may be activated or switched off according to the desired stage configurations, so as to not cause discomfort to the audience.

FIG 6.16_3D - Studio theatre located adjacent to activity spine

Secondary performance space

The secondary performance space has also been designed as a more intimate space, to host performances such as drama and other speech related performances, as well as small music and dance performances. The theatre will accommodate up to 500 people

The space has been designed to be adaptable to cater for a variety of types of theatre performance. The stage can easily take the form of a proscenium stage, thrust stage or arena stage. For performances requiring fixed scenery and backdrops, a proscenium stage will be achieved by adding a removable false proscenium which slides into place on a suspended space frame and a series of hanging rails. An adjustable forestage has been included in the stage design, allowing for a thrust stage to be erected. Finally a central arena-type stage is possible as all partitions and backdrops can be slid into concealed cavities, thus allowing the entire space to function as one .

The form of the theatre was generated in direct response to the initial urban design layout of the site. The arrangement of seating has however, been designed to exploit the convergent nature of the perimetre based seating, and is focused towards the centre of the space's geometry where the stage is located.

Seating on the ground/base level will be provided by loosely packed chairs to fully exploit the notion of a fully adaptable space. All chairs are to be comfortable and interlocking, and may be positioned directly in front of the stage or surrounding it on all sides, depending on the nature of the performance. Storage for these chairs when not in use will be provided with direct access to the theatre. The gallery will house fixed tiered seating, which will provide a 180 degree encirclement of the stage and will overlook the space from an elevated position. The gallery will be divided into sections, the use of which will be determined by the nature of the performance and requirements of the specific performance.

The theatre will have a large glazed façade facing onto Nelson Mandela Drive. This is intended to make the passing public aware of the activities taking place within the centre and to entice them to further explore the centre. The glazed façade does, however, face west, requiring, fixed permanent shading devices to shield the glazed surface from the sun's radiation. Double glazing will also be used to limit the ingress of the noise created by the passing traffic.

Performers will have direct access to the stage from the rehearsal and backstage areas, which will be shared with the principal performance space and studio theatre. Scenery storage will be provided directly adjacent to the performance space and with the inclusion of a suspended space frame above the stage, props and scenery can be easily changed during performances.

Access for the audience to the theatre will be on multiple levels through a shared foyer with the principal performance space.

All seats within the theatre will be located within 20m of the centre of the stage in order to ensure that all audience members can easily observe the facial expressions of actors, and also to limit sound attenuation over distance.

FIG 6.17_3D - Glazing and shahing device of secondary performance space

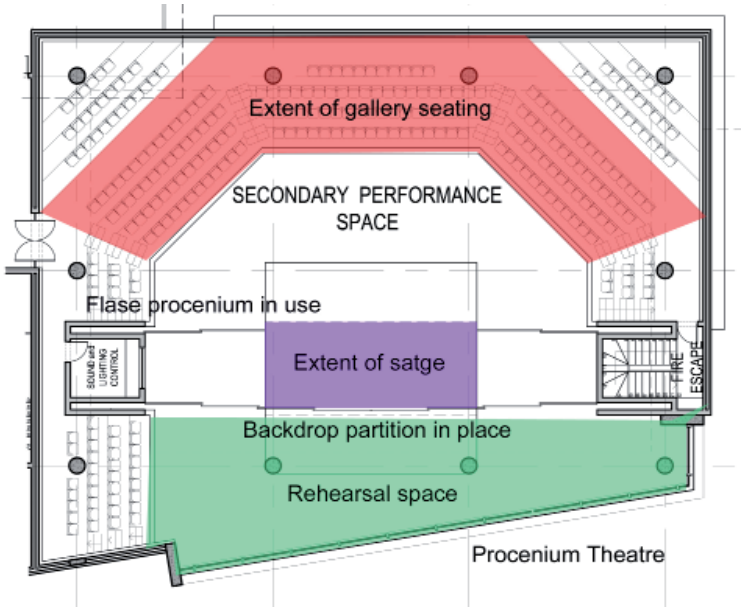


FIG 6.18_Secondary performance space arranged as Procenium Theatre

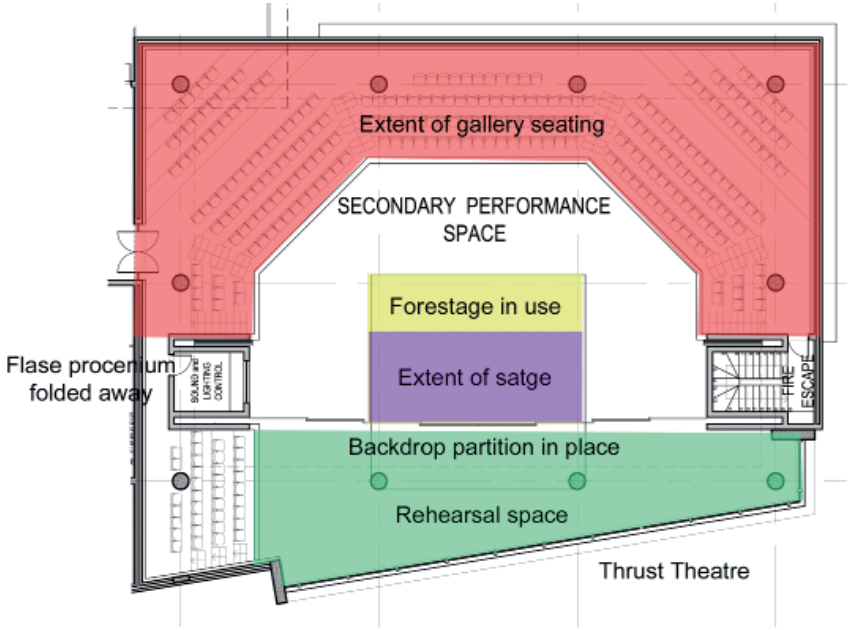


FIG 6.19_Secondary performance space arranged as Thrust Theatre

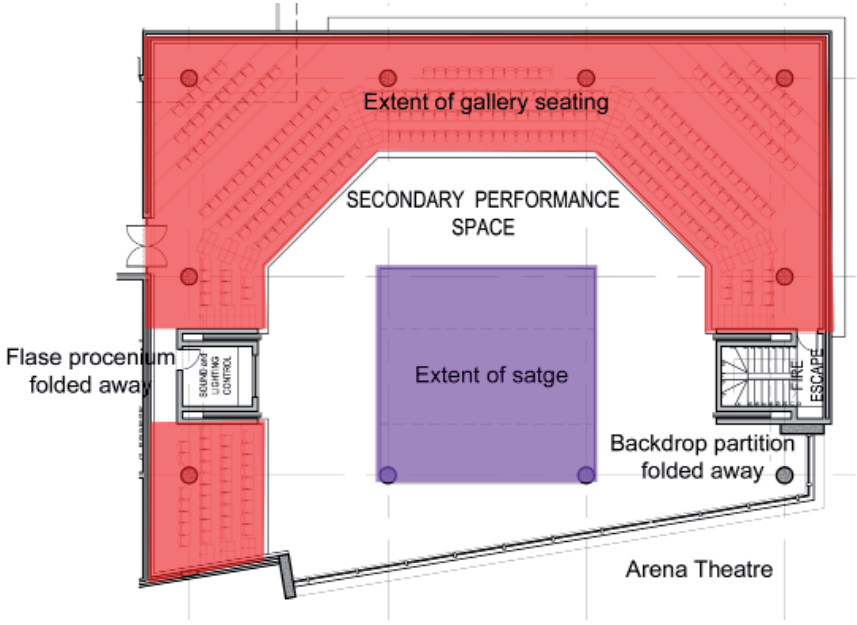


FIG 6.20_Secondary performance space arranged as Arena Theatre

FIG 6.21_3D -Interior perspective secondary performance space

Dance studios

Three large dance studios will be located on the first floor of the centre. They will be be used as practice and rehearsal spaces for performering artists.

The studios will have their own dedicated change rooms and toilet facilities. Adequate storage for equipment and props will also be provided for adjacent to the studios.

The dance studios will have large glazed facades that face in a northerly direction and overlook the public activity square, so that the users of the square can experience the rehearsals and dancers practicing and honing their skills. This will provide another level of entertainment for the users of the public activity space, while giving the performers and dancers the sense that they are performing to an audience, in preparation for the actual event. Double glazing used on this façade will limit the ingress of noise from the public activity square. A mechanically operable shading device, that can be opened and shut as desired by the performers and dancers in order to maintain a comfortable environment.

FIG 6.22_3D - Visual connection between dance studios and square

Dressing rooms and rehearsal spaces

The principle performance space, the secondary performance space and studio theatre will share communal dressing rooms and rehearsal spaces. As all three venues require the same type and level of ancillary spaces, it is only logical that a central ancillary space core be created to serve all the performance venues efficiently, and to avoid the duplication of facilities within the centre. These ancillary spaces are intended to bring together and connect the three main performance spaces.

To connect these spaces and the various stages directly, the spaces will be located directly alongside the principal performance space's stage, and smaller dressing rooms and ancillary spaces will be located next to the secondary performance space and studio theatre's stages.

The dressing rooms, change rooms, store rooms and other ancillary spaces will mainly be located on the lower ground floor level of the principal performance space but will permeate the ground and first floor levels in order to meet the requirements for the studio theatre and secondary performance spaces. Direct access from the basement will ensure privacy for the performers from the public. As these ancillary spaces are multi-levelled, a central, dedicated, vertical circulation core has been designed, containing a personal lift, a staircase, fire escape, and freight lift for the transport of scenery and props from the basement delivery area to the various scenery storage spaces on the various levels of the centre. Various private dressing rooms will be accommodated, as well as a number of group changing facilities containing lockers and ablution facilities. Make-up and green room facilities will be used as a threshold for performers into each performance space, and sufficient wardrobe, prop and scenery storage space will also be provided.

Rehearsal spaces will be located alongside the three main staging areas, and have been designed to be acoustically isolated from the main performance spaces. Additional rehearsal spaces will be provided throughout the building, including those located alongside the lower ground floor foyer, underneath the terraced seating of the principal performance space. By actively engaging the audience in the process of the production of the performance, excitement and anticipation will build as the audience moves through the foyer.

Visual material and music resource library

The visual material and music resource library will provide a flexible space for artists, performers and the general public to work, do research and investigate the various facets of the visual and performing arts world.

As well as housing numerous books, magazines and articles related to the arts world, the centre will contain computer workrooms and a digital library area. Because the visual and performing arts industries are constantly changing, the only way the library can be up to date with the latest contemporary innovations in the art world is via the internet. This technological intervention also allows for the reduced footprint of the library spaces.

In this library, visitors will be exposed to a global network of information relating to the visual and performing arts. The facility will also allow visitors to sit and flop through magazines and books for inspiration and provide facilities for small group meetings and user interaction.

FIG 6.23_Plan of visual material and music resource library

FIG 6.24_3D - Exterior facade of visual material and music resource library

Existing Oeverzicht and M.O.T.H club buildings

The existing functions of most of the Oeverzicht houses are to be retained as far as possible, including the cafe, salon, bars and restaurants. However the doctor's rooms and a vacant building are to be converted into an art gallery.

The existing structures face Gerhard Moerdyk Street. Most of them have been poorly and unsympathetically added on to and renovated over the years. Thus, the existing buildings will be renovated and restored, and all later additions will be demolished. As the buildings at present only open up on to Gerhard Moerdyk, they would add nothing to the character of the Urban Activity Square and they would not benefit from the vibrancy bought into the precinct by the square and cultural centre. Thus, all building layouts will be slightly altered so that they open up on to the urban activity square. The buildings are not historical monuments, but are considered to be of historical importance, and so any changes and alterations be done sympathetically.

The existing old M.O.T.H. club building is also to be used as part of the cultural centre. The building was also added onto and extended on numerous occasions, with some additions being more successful than others. An addition to the northern side of the hall is relatively sympathetic to the original structure, yet the addition on the western edge, was poorly designed and ruins the entrance to the building. Thus the later northern addition will be retained, while the western addition will be demolished to restore the building to its original form. The building will be converted into a gallery space with various exhibition spaces.

FIG 6.25_Plan of changes to old M.O.T.H. club buiilding

FIG 6.26_Badly executed extensions to be demolished

Basement

Owing to the large numbers of users who will be using the centre, a large, two storey super-basement has been designed. The new basement will provide public and private parking facilities for artists, performers and residents.

The basement will to be accessed via two entry points from Gerhard Moerdyk Street. Gerhard Moerdyk was chosen as the access point owing to the quiet nature of the street, and the fact that it is a two way street, which will ensure ease of access and exit for visitors. Nelson Mandela Drive and Kotze Street are considered to be too busy to accommodate the slow down in traffic associated with a basement access.

The basement is to contain 886 parkings and also houses three plant/machine rooms for air conditioning/handling, water storage and other related services. Basement access will be monitored and controlled via a boomed gate.

The multi-purpose exhibition gallery and principal performance spaces will have lower ground floors which form part of the basement area.

Scale

The scale of the building has been carefully considered, in order to avoid creating a building that towers over the existing Oeverzicht houses and consequently ruins the character of the space.

Cultural buildings with facilities of this nature generally require large, bulky spaces in order to fully accommodate the extensive accommodation schedule. This requirement has been overcome by sinking the building into the ground, and placing some of its functions in a lower ground floor space which forms part of the basement. The introduction of the central activity spine has also aided in reducing the bulk and scale of the building.

This particular site is, in essence, an island in the urban fabric. Thus, it was difficult to determine an appropriate scale of the surrounding context on which to formulate an appropriate design response. Instead existing elements on the site were used to determine the bulk and scale of the building. The scale, height and bulk of the building has been determined in relation to the existing old M.O.T.H. club which, as was previously mentioned, has been incorporated into the design proposal.

The building will be set back from the green space alongside the Apies River channel to maintain the lower density character of the space. The main bulk of the building will be accommodated along Nelson Mandela and Kotze Streets.

Elevations

The exterior articulation is important throughout the proposed design as it has been used as a sensory stimulant for the urban activity square..

The visual dominance of the multi-purpose exhibition space on the corner of Kotze Street and Nelson Mandela Drive will prove important in attracting passers by into the centre. An illumesh screen which displays digital art works and advertising will create an active skin for the organic concrete walkway structure of the space and further entice people into the centre. The screens will also provide the glazed westen and northern façades of the gallery with the necessary sun protection, while allowing passing motorists and pedestrians to get a glimpse into the visual art world.

The north-western wing will house the artists' studios, apartments and galleries. As the apartments and some of the galleries face west, a double skin will be created by cantilevering a lightweight balcony from the main façade and providing a series of sliding timber shutters at the edge of this balcony. The articulation of this façade will thus be in a constant state of change in accordance to the artists' requirements. The inclusion of these balconies and cantilevers will create a human scale throughout the building. Vertical concrete fins will also add rhythm to this façade and articulate the balcony spaces. The eastern façade of this wing wll be wrapped in a mediamesh media screen, with only the glazed and copper clad facades of the artist studios penetrating this skin. This façade will activate the adjacent square and the users of the square will be able to actively change the façade using new technologies, further enhancing the user's experience of the centre. As the mediamesh is transparent, people in the square will once again catch glimpses of the artists moving through the main circulation spine.

The south-western wing will be home to the principal and secondary performance spaces. The western facade of this elevation will be penetrated by the glazed and copper clad façade of the visual material and music resource library. Copper has been used in a few instances on the façade due to the visually striking nature and weathering effects of the material. The cantilevered upper seating galleries of the principal performance space will also penetrate the western façade, again clad in a mediamesh screen that projects the inner workings of the cultural centre to passers-by. The southern end of the western façade will house the glazed façade of the secondary performance space, providing the performers with a constant audience of passing motorists and pedestrians. This glazed façade will be protected by a fixed aluminium shading screen. The eastern façade adjacent to the square will be wrapped in a mediamesh digital screen in keeping with the treatment of the north-western wing. A performance stage will project into the square from this façade, softening the monotony of the media screen and creating an active stage of performers. Set backs and protrusions throughout the facades will breaks the verticality of the building.

Facades will be treated with a variety of materials such as local face-brick, stone, off shutter concrete and plastered surfaces. Different materials and colour choices will be used to articulate entrances and circulation cores, enabling users to easily navigate through the space and centre.

FIG 6.27_Eastern elevation

FIG 6.28_Northern elevation

FIG 6.29_Western elevation

Technical investigation

This chapter explores the technical investigation conducted for the dissertation. Various technical aspects have been illustrated, so that the reader can better visualise these technical aspects in relation to the spatial design of the project. Calculations into member and component sizes have also been included. Precedents which have aided in the technical decision making process have also been included in this chapter, These precedents have been chosen and investigated due to their similarities to this project and have been reinterpreted for the purpose of this dissertation.

Tectonic development

In order for the technical aspects of the project to appropriately strengthen the design, the tectonic development was informed by and based upon the theoretical argument. As the experience of space forms the basis of the theoretical argument and design decisions, this also informed and the guided the technical and tectonic choices. All experiences are to occur on a human scale, so that users can be made aware of the massing, spatiality, materiality and light quality within the building, and subsequently all decisions about material choices and construction systems not only had to satisfy the theoretical argument but had to relate to more practical constraints such as cost, thermal and acoustic properties and methods and ease of construction.

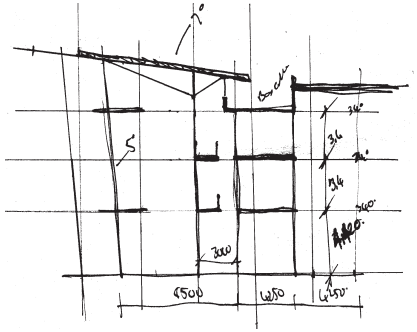


FIG 7.1_Development to central activity spine

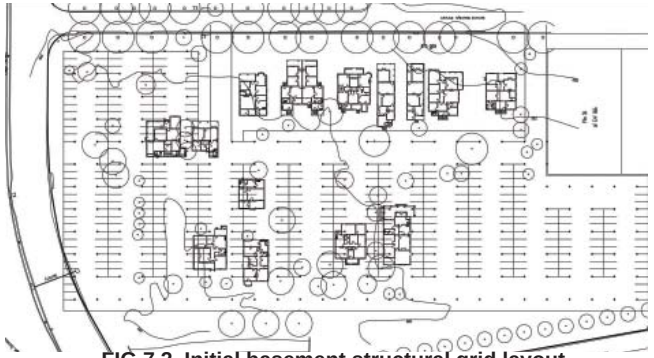


FIG 7.2_Initial basement structural grid layout

The process of the formulation of an appropriate and legible structural grid is shown in these sketches. Due to the large parking requirements of a building of this nature, the project includes a large super-basement on two levels, the structural grid of which was calculated according to the requirements for vehicular parking. This structural spacing will project vertically, forming the principal guiding structural layout for the building above.

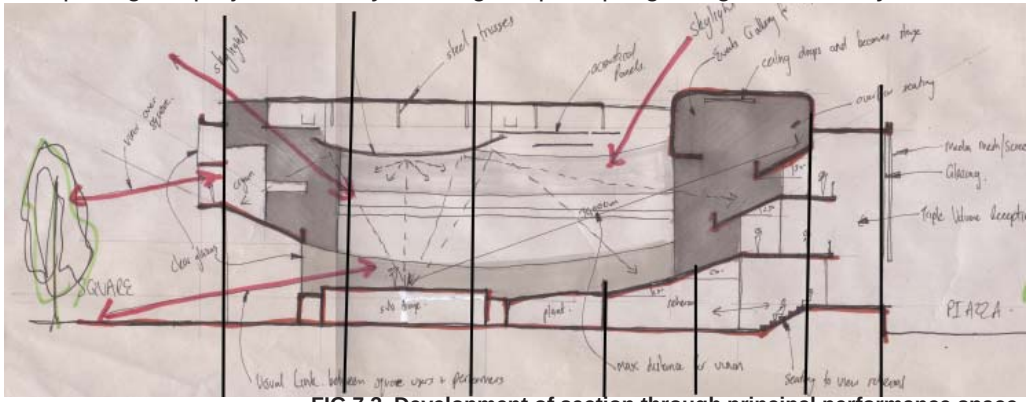


FIG 7.3_Development of section through principal performance space

The structure

The main body of the building's structure is comprised primarily of a reinforced concrete structure consisting of reinforced concrete floor slabs atop reinforced concrete columns and positioned according to a regular grid which was generated in response to the basement parking requirements.

External facades will either be treated with off-shutter concrete, glazed curtain walls, copper cladding, media screens, masonry face bricks or masonry clay stock bricks with a plastered finish. Internal walls will largely be constructed from masonry clay stock bricks with a plastered finish.

Two types of roofing systems have been used in the design of this cultural centre for the visual and performing arts, including low sloping reinforced concrete roofs and steel roofing systems. Low sloping reinforced concrete roofs will be used throughout the structure, except where spans have been determined to be to large for conventional concrete spans, and steel roofing systems have been employed. The central activity spine also has a steel roofing system to give the structure a lighter appearance.

Reinforced concrete structure and flooring

The main structure will be comprised of cast-in-situ reinforced concrete columns and slabs.

As the functions, spans, beam sizes and cantilevers of the building will vary, different columns will be subjected to different structural loading. However, it has been decided that the columns be in one of two dimensions, namely 690x330mm and round 690Ømm, the decision of which column to use where, will be based on aesthetical considerations and, where columns are subjected to greater loads, additional steel reinforcing will be added. The columns have all been designed to house a 100mm uPVC rainwater pipe, that will transport roof water to the storage water tanks in the basement. The 690x330mm columns have also been designed with chamfered corners to protect the edges and to accommodate 230mm walls which adds to the visual complexity of the building. All columns are located in accordance with regular structural grid of 8500mm x8500mm which is governed by the basement design and requirements.

In irregular shaped spaces such as the principal performance space and multi-purpose exhibition gallery, cast-in-situ reinforced concrete walls be used to provide vertical support.

For the floors, a two-way 340mm deep cast-in-situ reinforced concrete, flat slab construction has been chosen. It is generally accepted, that in the construction of buildings with irregular shapes and loading, this form of flat slab construction is more economical (Forster, 1975:241), and allows maximum design freedom (Foster, 1975:211). This form of construction and design also eliminates the need for deep beams and, even though it is a heavy floor, it is highly fire resistant.

As mentioned, throughout most of the structure a two way 340mm deep cast-in-situ reinforced concrete slab with a span of 8,5m will be used. This slab will be supported by 340mm-deep reinforced concrete beams introduced visually as part of the flat slab construction. In some cases, where there are heavy concentrated loads such as in the sloping principal performance space seating floor slabs, a diagonal beam will be introduce in order to disperse the load throughout the column members of the grid.

As an internal flexibility of space utalisation is required, there will be very few load bearing walls in the building as mostl load paths are to be restricted to the column and cast-in-situ reinforce concrete wall structure.

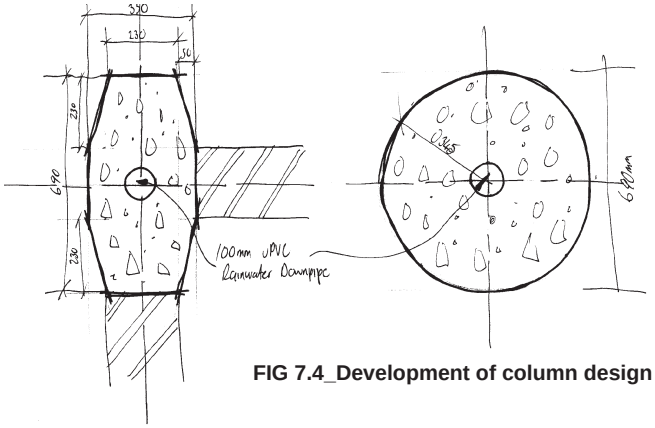


FIG 7.4_Development of column design

Calculations

Slabs: span/slenderness ratio
8500/30 = 283mm
therefore use 340mm slab

Columns: height/slenderness ratio
4760/15 = 317mm
therefore column min 330mm thick
NOTE: This was a guideline and was enlarged to house a 100mm RWDP

Multi-purpose exhibition space

The space has been conceived as a series of floating walkways on various levels that cantilever over a central space in order to create a sense of fluidity and movement. All activities and events housed within the structure are intended to be viewed from these cantilevered walkways giving the space a theatrical atmosphere.

The floor slabs of this space will be constructed of cantilevered 340mm deep cast-in-situ concrete slabs, supported by a continuous ring beam which will express the fluid qualities of the concrete. The 1 020mm deep ring beam will be supported on round 690mm concrete columns and the central service core with its 230mm cast-in-situ reinforced concrete wall.

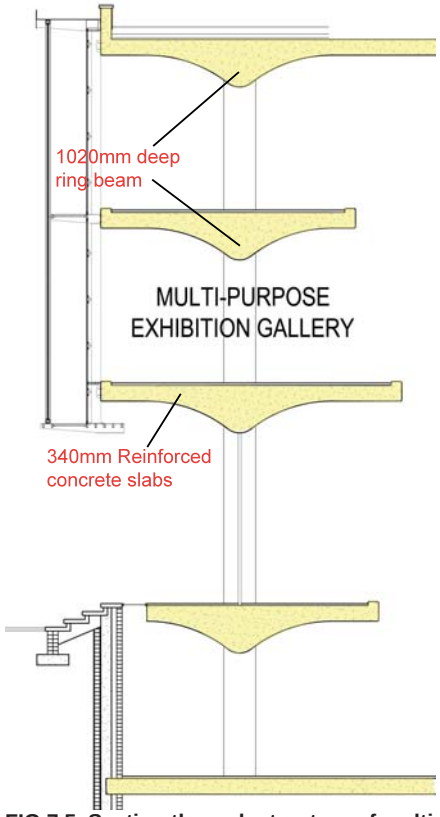


FIG 7.5_Section through structure of multi-purpose exhibition space

FIG 7.6_Structural layout of multi-purpose exhibition space

Principal performance space

The structure of the space is made up of cast-in-situ reinforced concrete slabs supported on cast-in-situ reinforced concrete walls and columns.

The layout and sizing of structural members is better understood graphically, thus please refer to images 7.7 to 7,9.

The floors slabs will mostly be constructed of 340mm deep 1 way cast-in-situ concrete slabs. Supporting columns are mostly 690mm in diametre and reinforced concrete walls are to be 345mm wid

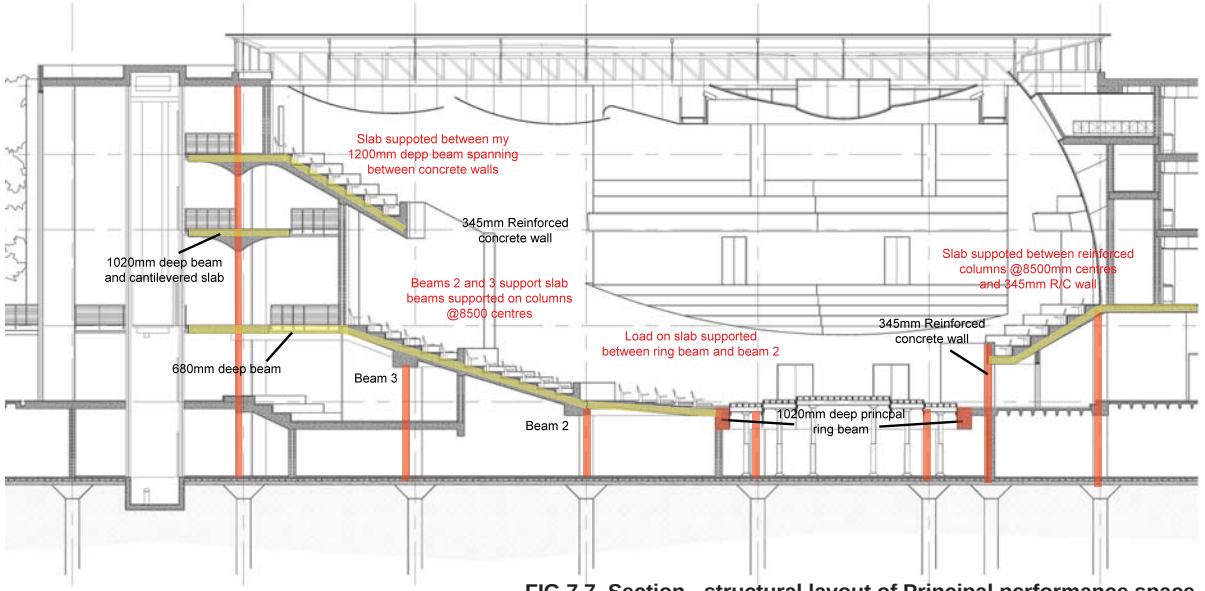


FIG 7.7_Section - structural layout of Principal performance space

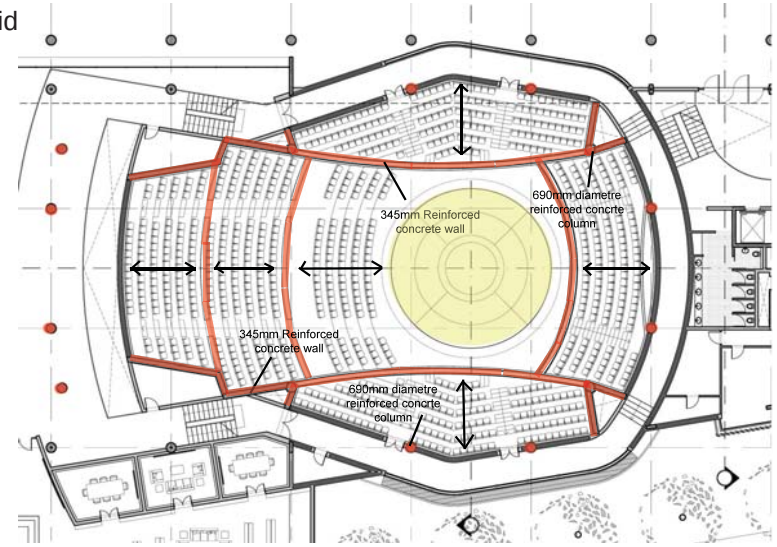


FIG 7.8_Plan - structural walls and columns

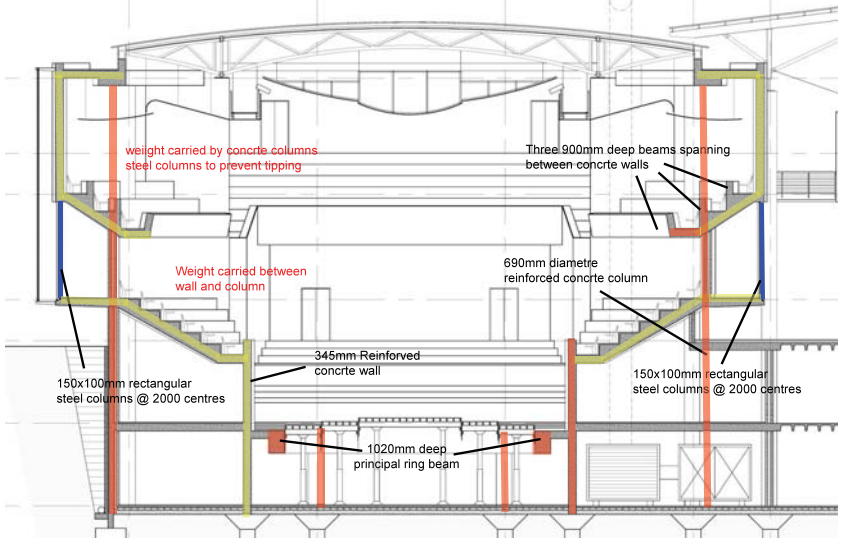


FIG 7.9_Section - Structural layout of principal performance space

Roofing Systems

Two types of roofing systems have been used in the design of this cultural centre for the visual and performing arts, including low sloping reinforced concrete roofs and steel roofing systems. These two systems have been chosen on the basis of system durability, material availability, maintenance intensity, aesthetical and technical implications, and cost.

Low sloping reinforced cast-in-situ concrete roofs will generally be used throughout the structure. and have been design with the falls strategically mapped to maximise the dispersion of rain water to the associated down pipes. The slope will be created by the installation of a low density sand-cement screed to a fall min 1:40. A layer of 100mm isoboard insulation will then be placed on top of the screed and waterproofed with a modified bitumen membrane, chosen because it is generally hard wearing and resistant to abuse. The roof will then be finished with prefabricated polymer-modified asphalt sheets placed on top of the modified bitumen membrane

The technical resolution of the steel roofing structures has required extensive research, investigation and thinking. Steel roofing systems have been used over the principal performance space, the secondary performance space and the central activity Spine. The technical resolution of each of is different from the others.

All roof sheeting is the be specified as superseal roof sheeting. This no-hole standing seam roof profile is specifically designed for slopes as low as 1 degree. The interlocking, concealed clip fastening system ensures a weatherproof roof. Unrestricted, extra long sheet lengths are possible by rollforming Superseal 500 on site.

FIG 7.10_3D - location of 3 main roofing systems

The principal performance space

The roof of the principal performance space will have to accommodate a large span of 19m in an east-west direction and 25,5m in a north-south direction. Thus, it has been resolved that two principal rolled steel trusses will span the 25,5m north-south span and secondary smaller curved rolled steel trusses at 4 250mm centres will be placed in the east-west direction. This roof design will also have to accommodate an adjustable space frame for lighting, as well as the mechanically operable, adjustable acoustic ceiling panel. This requirement for additional space will be accommodated for by the curved convex shape of the trusses, giving the additional ceiling height needed without increasing the height of the roof.

The inside of the roof will be finished off with a 15,5mm interior plaster board fixed onto a rigid support in the form of 10mm plywood boarding, which will in turn be fixed onto the secondary mild steel batons. 50mm acoustical glass fibre will be provided on top of the plywood boarding.

Refer to detail 3 on pg 167 for roof details

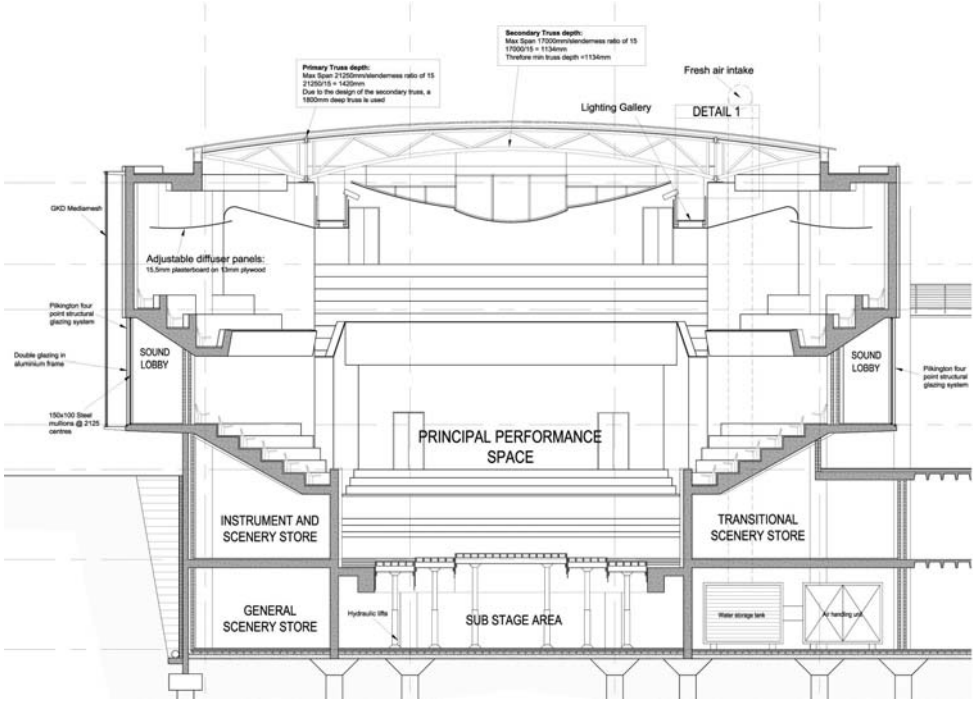


FIG 7.11_Roof profile over principal performance space

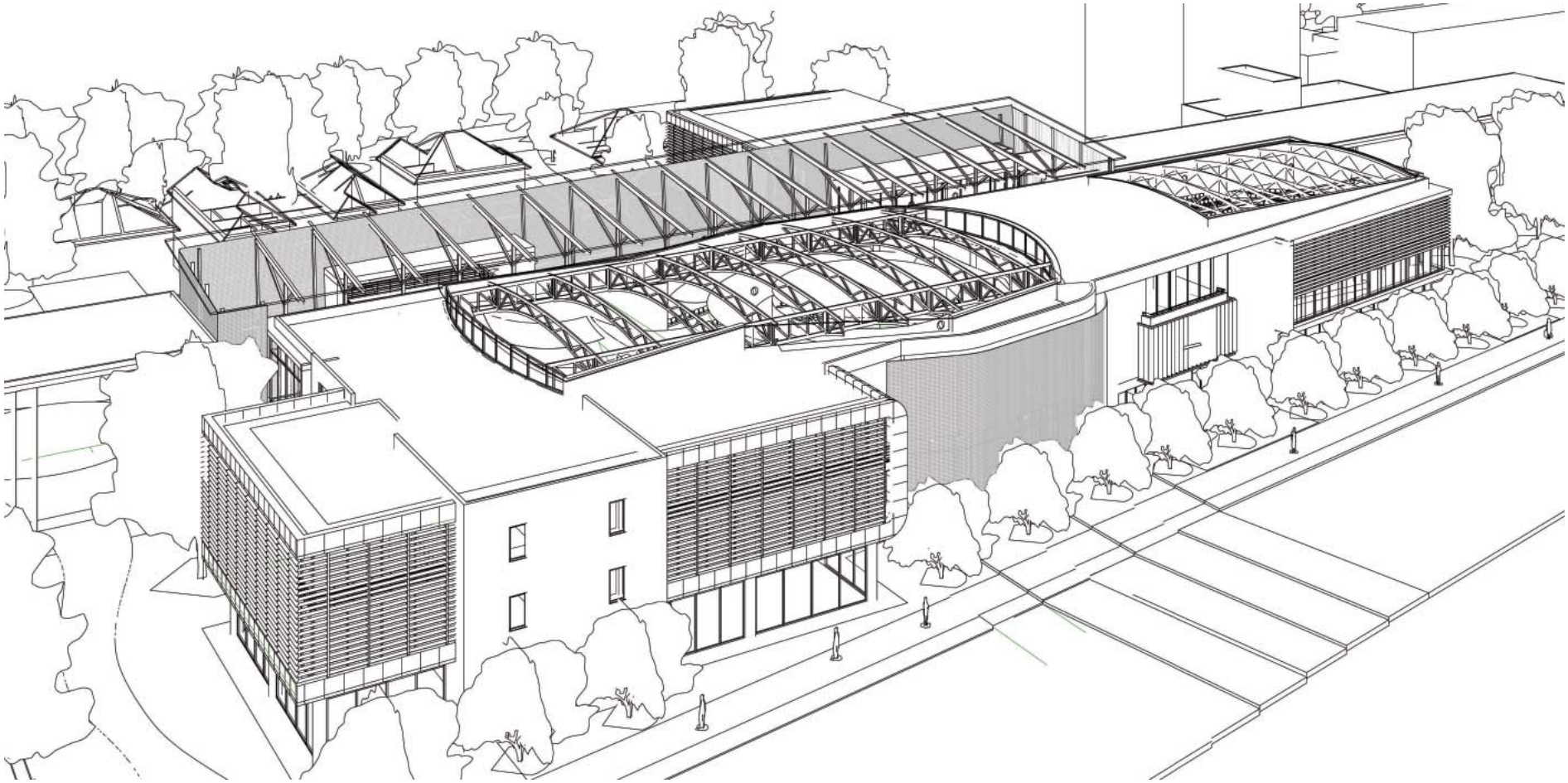


FIG 7.12_3D - Roof structure over principal and secondary performance spaces

Central activity spine

The roof of the central activity spine required roof a thorough investigation into the structural arrangement of the trusses, with the result that they are in most instances only centrally supported. The roof will be angled at 7 degrees and all trusses will be identical, except for the principal steel top chord of the truss which gets longer with each consecutive truss.

The roof will not be attached to any part of the building and through its sole central support, will appear to float above the space. The assembly of this roof is to be visible from the underside, so that the users of the space can understand how the space has been conceived and put together.

Refer to detail 7 on pg 171 for details

FIG 7.13_Precedent - Roof system along central circulation spine - New Law Building by Kruger Roos

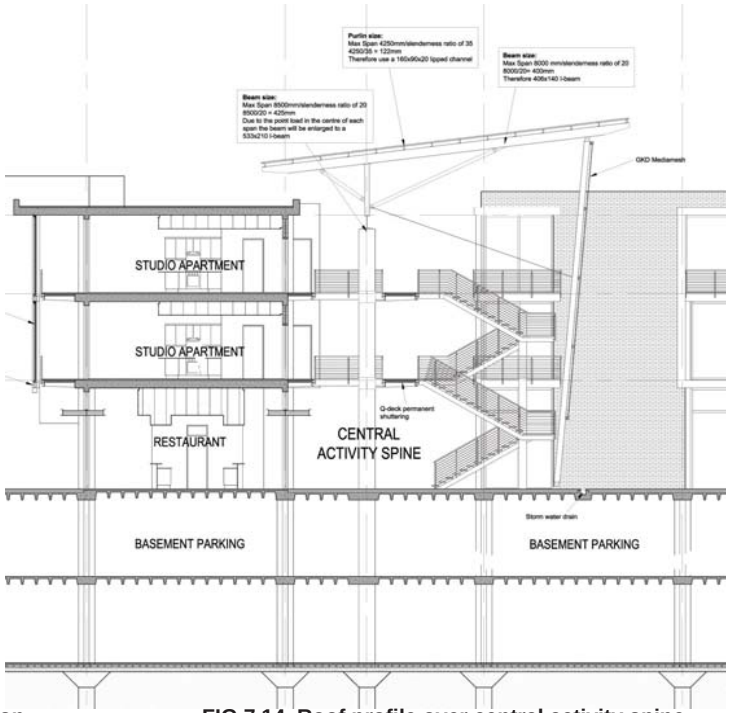


FIG 7.14_Roof profile over central activity spine

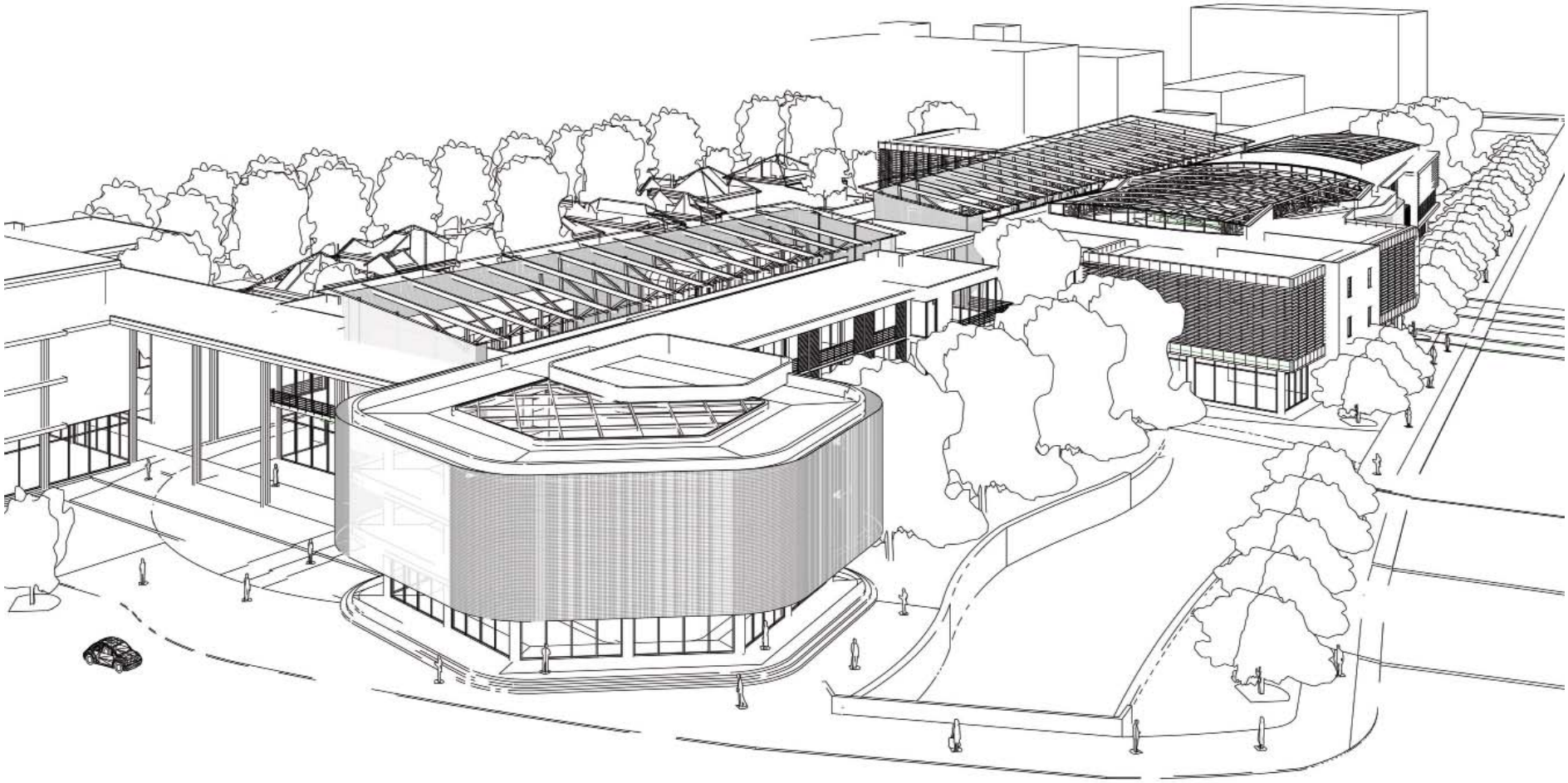


FIG 7.15_3D - Roof structure over central activity spine

Materials

Reinforced concrete

Reinforced concrete will be the principal structural material used in the cultural centre. Because a concrete structure is robust and requires little to no maintenance, all floors, columns and some roofs will be constructed from the material. Off-shutter methods for the cast-in-situ concrete walls will provide tactile textures to surfaces, and iron oxide pigment will add colour to the surfaces. The plasticity of concrete makes it possible to mould it into the complex forms required for the cast-in-situ walkways , the exhibition space and the terraced seating of the principal performance spaces.

FIG 7.16_Selected stock face brick

FIG 7.17_Off shutter concrete

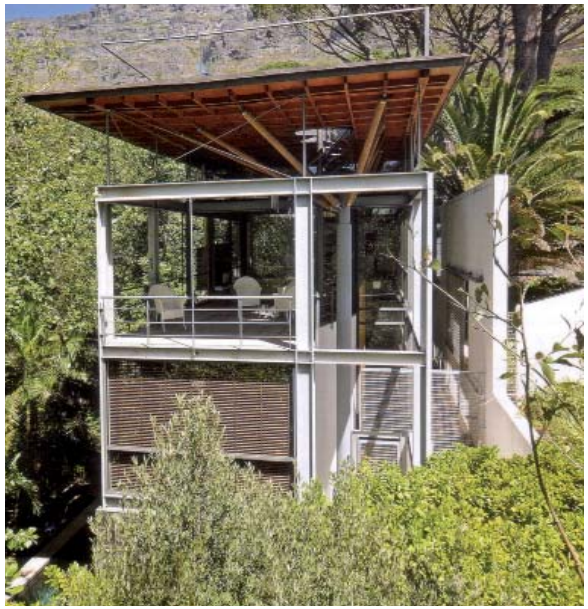


FIG 7.18_Structural steel

Brick

Brick is the principal vernacular building material in our country and is an integral part of the Pretoria aesthetic. Brickwork is a sustainable building material as it contains a low embodied energy and provides good thermal mass. It is also a very durable material and does not need very skilled labour to lay the material.

Steel

Steel will be used in the building to support the numerous skins of the building, including the digital media screens that wrap the centre and the shading devices. Steel will also be used as the structural support, frame and base for the central walkways and corridors that are housed in the central activity spine, as well as the balconies on the western edge of the artist apartments.

The slender nature of steel profiles will aid in the creation of a visually lighter skin. Steel structures can be easily adjusted or removed from the building and be recycled if necessary.

Copper cladding

Copper has been used as a construction material for centuries, and is a relatively low maintenance and durable material. However, proper design and installation are essential to ensure high quality, long-lasting installations.

Profiled copper panels, which are available in a variety of shapes and sizes and can also be pre-manufactured and specified with embossed patterns and designs, will be used to clad certain areas of the exterior of the centre. The copper panels are usually fixed to a 22mm shutterply substrate before they are fixed to the building in one of three ways: cleating, nailing, and screwing. All fasteners should be made of copper, a copper alloy or a neutral stainless steel alloy.

As copper and its principal architectural alloys are relatively active metals, when left unprotected they tend to oxidise and weather, which over a long period of time results in the formation of a naturally protective gray-green patina on the surface of the material. This natural weathering can, however, be hastened through chemical means and clear coatings. For this project, the material will be left to weather naturally over time, as copper tends to weather extremely slowly and maintain its lustre for decades.in the Pretoria climate.

Copper is mined locally in Phalaborwa, which makes it a sustainable building material, when-compared to other aluminium and stainless steel wall claddings.

FIG 7.19_Weathered copper cladding

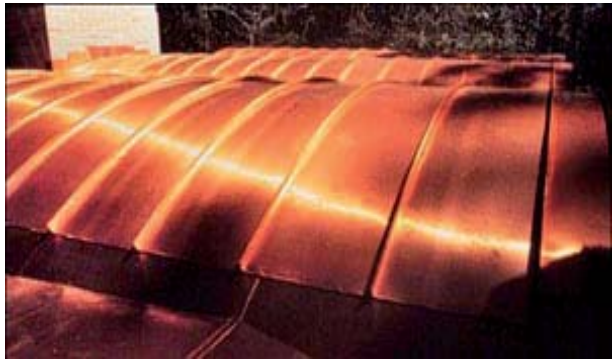


FIG 7.20_Chemically protected copper roof sheeting

FIG 7.21_Newly installed copper cladding

Glass curtain walls and exterior glazing

The project is intended to dissolve the boundaries between internal and external aspects of the centre. This can be achieved through the use of glass, which allows users of the square to see the performers and artists going about their everyday activities and enables them to learn more about the arts industry. The use of large expanses of glass also allows natural light into the building.

In recent years, glazing and window manufacturing has undergone a technological revolution. Numerous high performance, energy efficient window and glazing systems are now readily available. It is generally accepted that a reduction in the glazed surfaces in a building, will reduce energy consumption. However due to the required connection between the cultural centre and urban activity space, it is believed that large glazed facades and openings are necessary and the glazed facades will need to be protected from direct sun radiation.

In the cultural centre, most glazing will be fixed in aluminium frames as aluminium has a long life span and requires less maintenance than other window framing materials. In order to seamlessly link the activities of the centre to the square, sliding or sliding folding doors that can open up completely will be used. Giving the users of the spaces the option to open up or shut off their space, allows the user control over their immediate environment.

Pilkington Planar structural glazing systems have also been used on a numer of facades of the building. The system consists of structural glass which is fixed with spider glazing clamps to a secondary supporting structure. The advantage of this system is that the need for a fixed frame is eliminated and larger expanses of glass can be used. Curves can also be relatively easily created with the system. The structural glazing will also be coated with a UV resistant coating in order to dramatically reduce the ingress of long wave sun radiation into the building, preventing the ‘greenhouse’ effect that is usually associated with and created by large, glazed facades

Due to the large glazed surfaces on the facades of the building, numerous shading screens and devices will be used. Double glazing will also be used in instances where glazing on performance and rehearsal spaces occur, in order to reduce the heat gain and loss, and to reduce the ingress of noise into the performance spaces.

FIG 7.22_Precedent - Pilkington Structural glazing - Link building for the Institute of Infectious Diseases and Molecular Medicine

Floor finishes

Throughout the project, different floor surfaces are to be used to mark different movement routes and define specific interior and exterior spaces. Edges and thresholds are to be marked and defined by changes in material.

As most public spaces throughout the building will be subjected to heavy traffic, the floor finish needs to be robust. A 50mm cast-in-situ and power floated pigmented concrete screed will be cast on top of the reinforced concrete floor slab in all public areas. This screed will be sealed with polyurethane sealant in order to produce a hard-wearing floor finish. Mosaic and timber inlays as well as colour changes in the screeded floor are to be used to mark certain spaces and movement routes within the building.

The public square is be treated with a combination of different brick pavings. All pedestrian routes through the square and central spine are to be demarcated by an exposed aggregate concrete screed. Certain areas within the square are to be grassed and planted.

Upper floor walkways and movement spaces will be constructed from Q-deck permanent shuttering spanning between steel beams. The shuttering will be finished off will a 40mm pigmented screed. This type of construction will add to the light and transparent nature of the atrium space.

FIG 7.23_Precedent - demarcation of areas through differnt floor materials - De Beers Headquarters

FIG 7.24_Diffused light highlights differences in floor material

FIG 7.25_Pigmented screeded floors - Tolplan Head Offices

FIG 7.26_Mesh transparency when activated

FIG 7.27_Mesh creates multi-media experience on building facade

Digital screens

Many of the facades of the building are to be wrapped in digital mesh screens that will form the main façade elements on the eastern façade of the building facing the public activity square, as well as the principal performance space protrusion on the western facade and on the corner landmark that is the multipurpose exhibition space.

The idea behind the inclusion of media screens was to evoke an emotional connection between the observer and the architecture.

The screens will be linked to a computer system that, using a sophisticated audio scan, can turn pitch, rhythm and volume into changing digital patterns of colour and light. By doing this it is the intention that the building façade would be able to visually reproduce the music being played within the various performance spaces and create a powerful architectural expression of the performances inside the performance spaces. The screens will also display the works of artists, and can be used for advertising to defray running costs. One of the best characteristics of digital media is the opportunity for user interaction and participation. For expample, at certain times, through the use of cell phones and the internet, the public could control what is displayed on the screen. Any activity taking place on the square can also be projected on to the screens, increasing the visitors perception of the content of the media facade

Stainless steel mesh can be fixed and applied in various ways and the screens require little maintenance. They can also be recycled.

GKD Mediamesh and Illumesh systems will be applied to the proposed design

Mediamesh screens

Mediamesh screens are stainless steel mesh screens where interwoven LED profiles have been inserted at predetermined intervals into the mesh screen.

Control units are small and can easily be hidden in ceilings or in small dedicated control boxes. The images that are projected can be controlled from any internet connection point, making the system interactive and accessible to different users. The system can be used during the night or day times to display images, messages, art graphic, animations and even direct video displays.

The advantage of these screens is that they do not completely close off the façade of the building as it can appear either opaque or totally transparent, given the correct lighting conditions.

Illumesh screens

Illumesh is a more cost-effective option than Mediamesh screens. The screens reflect images outward from the inwards-facing LEDs. The LEDs are placed at less regular intervals thus making this system only suitable for large surfaces, viewed from greater distances.

FIG 7.28_GKD Mediamesh - LEDs inserted into stainless steel mesh

Circulation

One of the principal factors influencing the design outcome has been the treatment of the circulation through the building and square. The majority of the vertical and horizontal circulation is housed within or accessed from the central activity spine. The image below indicates the vertical and horizontal circulation through the building and between the spaces.

Principal spaces such as the multi-purpose exhibition space and principal performance space will have their own dedicated circulation cores due to the high traffic nature of these spaces at selected times. Shared public cores are scattered at strategically placed locations around the building, limiting travel distances. Performers will have their own dedicated circulation core separated from the public.

As this is a public building, it has been designed to be easily accessible to all members of the public. For example all public amenities will be accessible to people with disabilities. Disabled facilities will be provided on all floors and numerous lifts within the building will ensure easy access to all areas of the centre for people with disabilities.

Where ramps are deemed necessary they have been designed with maximum gradient of 1:12 as required by the building regulations.

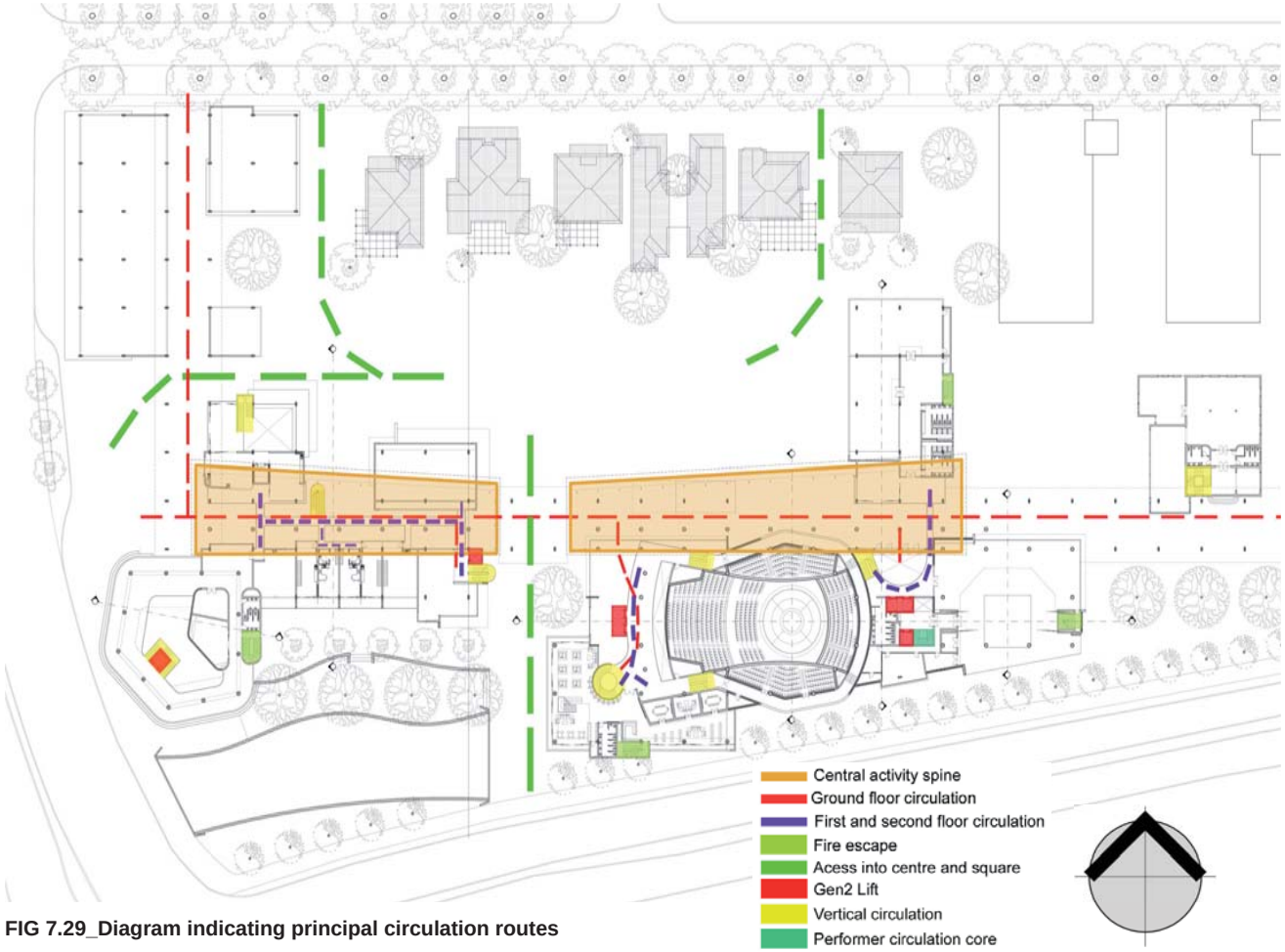


FIG 7.29_Diagram indicating principal circulation routes

Security

The centre has been designed so that all areas within the centre and the square can be observed through passive surveillance during the day and evening. All ground floor edges are active and informal activities are encouraged within the square and along the street edges, allowing, users to actively monitor the spaces. Artists' studios, galleries and dance studios as well as offices and retail spaces will be positioned above the square with a good viewing angle that will create a relative degree of control. Even though the building will be used throughout the day and night, additional security will be provided for at night to ensure the safety of users of the square when the space is less active.

Fire strategy

As the building is a public one, adequate safety for the centre's users in the event of fire must be provided for. A fire strategy specialist will have to be appointed who will ensure that an adequate fire protection plan is implemented.

The main first and second floor circulation of the north-western wing will be pulled away from and detached from the building addings to the safety of the occupants in case of fire.

The National Building Regulations(NBR) inform the proposed design in the following ways:

Travel distances to escape doors hwill have to be kept below 45m. As the building is more than 3 storeys high, each area within the building will be provided for with at least 2 escape routes. All building materials in the emergency routes shall have a fire resistance of not less than 120 minutes.

The main structure of the building will be constructed from reinforced concrete, which has sufficient fire resistance. However, all structural steel elements are to be coated with an intumescent base coat to provide adequate protection from fire.

The basement will provided with three separate emergency route stairways, in accordance to the NBR.

Services and Climate Control

Services cores and ducts will be provided throughout the centre.

uPVC down pipes in all concrete columns will collect rain water from the various roofs of the centre. Water run-off from the square will be collected in a series of strategically placed catch pits located around the site. Both sources of water will be channelled to the 6 water catchment/storage tanks strategically located in different areas of the basement and will be used to cater for the landscaping requirements for this project. The water tanks will also be used to cool fresh air for the ventillation system, the details of which are later explained with the HVAC systems.

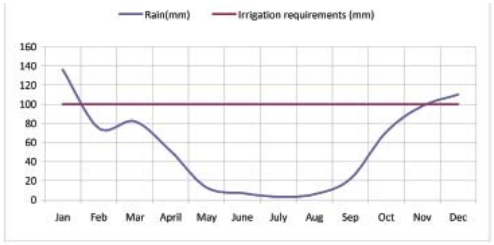


FIG 7.30_Graph - rainfall vs irrigation requirements

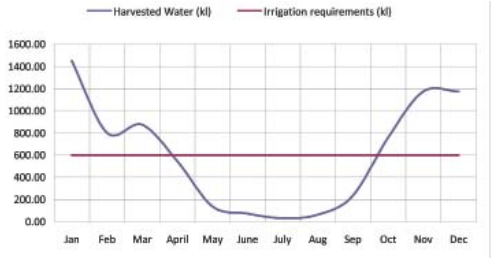


FIG 7.31_Graph - harvested water vs irrigation requirements

Water requirements for landscaping

Area of landscaping (m²)	6000m²
Water required for landscaping (Prof Vosloo)	100mm/month

Calculations:
Area of landscaping x 0,16 = Volume water required per month
6000 x 0,1 = 600 m³ per month

Therfore landcaping requies 600 kilolitres per month

Roof catchments

Catchment area (m²)	8340m²
Square area - paved areas (m²)	4220m²
Precipitation average annual in PTA (mm)	674mm
Run off coefficient	85%

Calculations:
Area of harvesting x Monthly rainfall x run off coefficient = Harvested water collected per month

Total annual harvested water 7323,74 kilolitres

	Rain(mm)	Shortfall/excess Rain (mm)	Harvested Water (kl)	Irrigation requirements (kl)	Difference (kl)
Jan	136	36	1451.94	0.00	1451.94
Feb	75	-25	800.70	150.00	650.70
Mar	82	-18	875.43	108.00	767.43
April	51	-49	544.48	294.00	250.48
May	13	-87	138.79	522.00	-383.21
June	7	-93	74.73	558.00	-483.27
July	3	-97	32.03	582.00	-549.97
Aug	6	-94	64.06	564.00	-499.94
Sep	22	-78	234.87	468.00	-233.13
Oct	71	-29	758.00	174.00	584.00
Nov	98	-2	1174.36	12.00	1162.36
Dec	110	10	1174.36	0.00	1174.36
	674		7323.74		

Water tank sizing

Water tank has been sized to store enough water for use through the winter months

Calcualtions:
Monthly rainfall - monthly landscaping requirements = Excess/shortfall of rain (mm)
Area of landscaping x monthly shortfall of rain/1000 in rain = Volume of water required for irrigation
Harvested water - irrigation requirements = Difference
Add all the months that have a negeative differnence to determine tank size.

Therefore according to the table above the tank must be:
May + June +July + Aug + Sept shorfall = **2149,52 kilolitres**

Therefore a tank of this size would enable all landscaping irrigation requirements to be harvested on site.

FIG 7.32_Calculations - irrigation requirements, harvested water, storage tanks

Ventilation

As the centre will house a range of facilities with different ventilation requirements, different areas and facilities within the centre will be cooled and heated in the manner, best suited to achieve the optimal indoor microclimate required for the functions of the respective facilities. This will also reduce the energy consumption of the building.

The residential apartment, studio apartment and studio layouts have been designed to allow for the natural cross ventilation of the spaces. However, if artists or residents do not want their doors to be open, fresh air will be provided by means of a mechanically regulated fresh air system. This system has been designed to draw fresh air in through intakes located alongside the Apies River channel, draw it through a piped radiator- like system located within the water tanks, cooling the fresh air down to just below natural air temperature, and distribute it to the required spaces.

The multi-purpose exhibition space is large enough to have its own dedicated cooling system. Since the space has a central atrium void, an evaporative cooling system is best suited to this environment. A evaporative cooler air handling unit located on the roof of the gallery will draw in outside air at roof height and distribute it to the various floors via a duct located in the central service core. The skylight over the central atrium void will have electronically controlled open able vents as part of its structure, which will be opened to release any built up heat accumulated at the top of the central atrium space. This induced stack effect will lower the atmospheric pressure on the interior, ensuring an optimum air change rate.

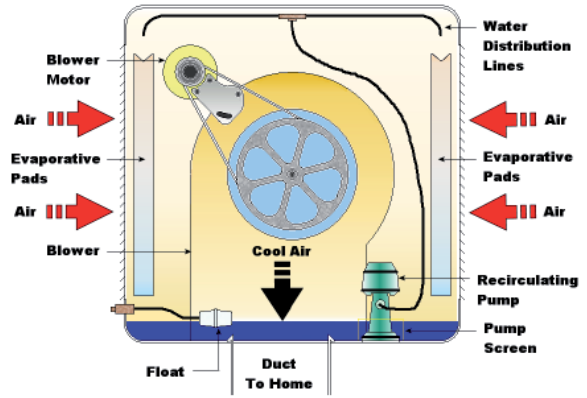


FIG 7.33_Evaporative cooling unit

Owing to the contained congregation of large numbers of people within the three main performance spaces as well as their supporting ancillary spaces such as dressing and rehearsal rooms, it has been decided that these spaces should to be serviced by dedicated air conditioning systems. Each performance space will have its own separate air handling unit sized and zoned to accommodate the varying requirements of the three spaces, such as the different requirements of the stage and audience seating.

Air handling units for the three spaces will be housed in a central plant room in the basement, to limit the acoustic impact it will have on performances and to allow for easy access when maintenance is required. Contact between all air handling units and the concrete floor slab must also be avoided in order to eliminate the possibility of resonating structural noise through the building. As a result, the air handling units are to be fitted onto a hollow section bracing structure that is to be fixed to the floor via a flexible suspension system.

The supply for the principal performance space is bought from the air handling units in the basement through a series of specially provided ducts. The air will then be bought into the space at various levels. The lower seating areas will receive ducted supply from floor vent, while the upper gallery spaces will receive air from ducts and vents located in the ceiling. All exhaust air wil be removed through the ceiling plenum and discharged through the roof above the ancillary spaces core. Transfer ducts will be specified at all acoustically rated partitions.

Humidity levels in the auditoriums must be kept constant at approximately 45% to 50%. A humidity control based on relative dew point is thus required, maintained by determining absolute humidity in the return air lines, outside conditions and treatment plant (National Institute of Building Sciences, 2005)

Owing to the open nature of the public foyers of the various performance spaces, these spaces will be cooled through natural ventilation by exploiting prevailing wind conditions specific to the site, with prevailing winds from north-east in summer and from the south-east in winter. The double volume nature of the space will assist in generating differences in air pressures in order to cool the space, as the warm air at the top of the volume be will mechanically extracted through the roof

Owing to the limited openings in the basement it will have to be mechanically ventilated.

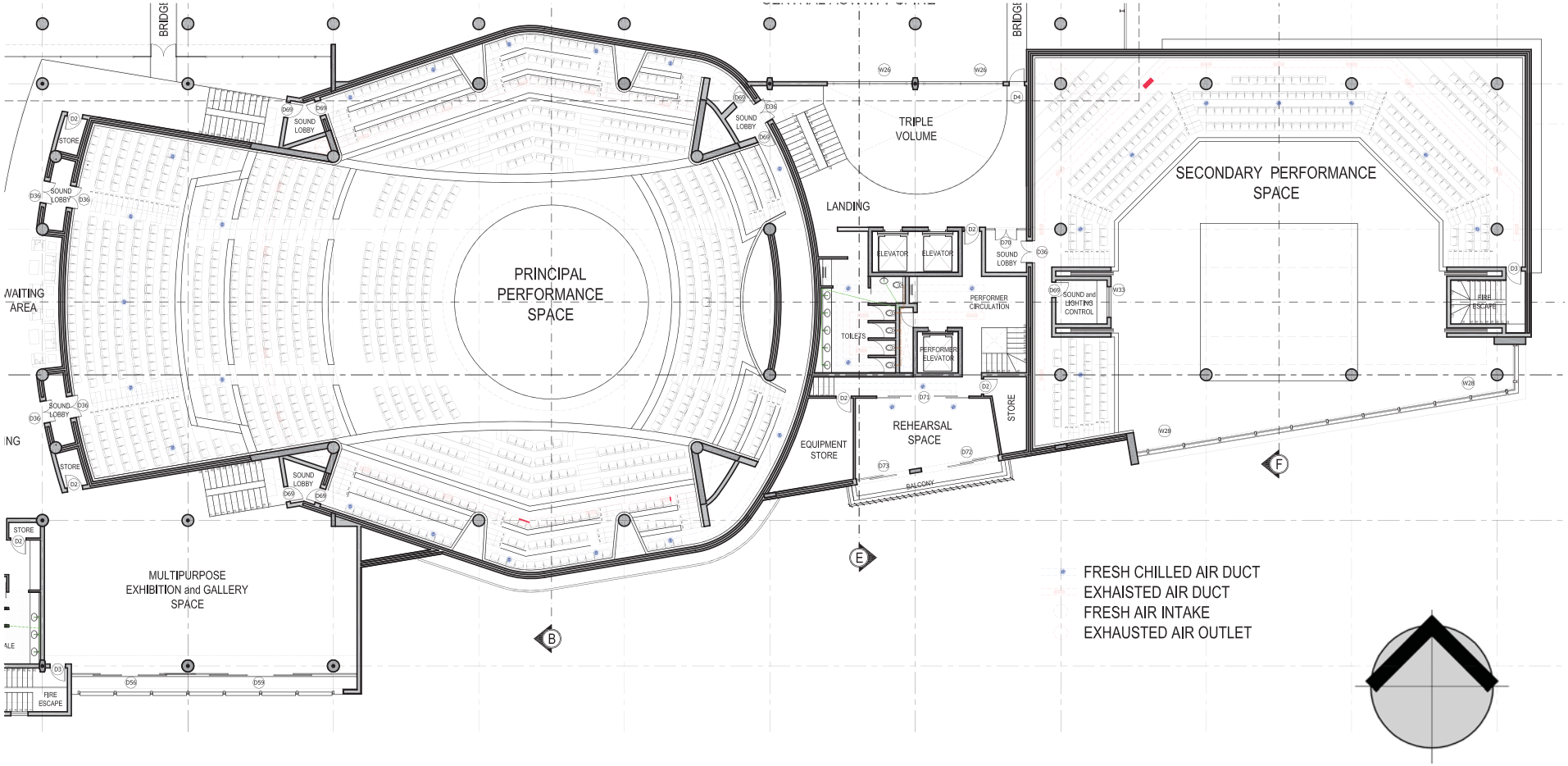


FIG 7.34_Principal and secondary performance space HVAC system

Solar gain and incidence

In all buildings with prominent glass facades, the issue of solar gain is a concern. The proposed design, intends to reveal the full extent of the inner workings of the visual and performing arts worlds to the passing public and users of the public activity space. This has led to a design that calls for extensive glass frontage on the eastern and northern facades surrounding the public open space.

Solar radiation is short wave in frequency. This direct short-wave radiation impacts the surface and, depending on the thermal mass and density of the material, is re-radiated after a time in the form of long wave radiation (Givoni, 1969:208). When short wave radiation hits a glass surface, some of the radiation is reflected and some of it is absorbed into the mass of the glass, while most of it travels through the glass in the forms of long wave radiation

Long wave radiation cannot escape through the glass, resulting in the' greenhouse effect'. It is thus imperative that, in the case of glass facades, the glass be shaded from direct radiation. Three structural techniques will be applied to adequately shade the glass during critical periods of the day: overhangs, the horizontal and vertical placement of louvers where no overhang exists and the placement of reflective and insulative panelling.

Large portions of the building will be wrapped in a second stainless steel mesh skin, which provides adequate sun protection for the glazed surface. In all other instances adequate shading devices have been installed in a somewhat reactionary fashion to shade the glazed surfaces.

Orientation

Due to the nature of the site and urban context, the architectural response is predominantly east-west facing. This orientation is not ideal in sustainable building practice terms but will be effectively dealt with by limiting the glazed openings on the western façade and by creating a secondary skin in the form of the activity spine on the eastern façade. Where openings occur on the western elevation, movable screens will be included.

The design has also been stepped so that a greater number of northern facades is achieved.

Thermal massing

Thermal mass is provided through the inclusion of the flat concrete roof and exterior walls of the building. Direct solar radiation is absorbed during day and the accumulated heat will be radiated into the interior spaces at night time.

Acoustics

Noise Control

The cultural centre for the visual and performing arts is located alongside busy Nelson Mandela Drive, and there will be a certain ingress of external vehicular noise into the centre. However, in a centre of this nature it is important that the quality of sound and performance be maintained. Transparent noise during peak traffic hours will produce a noise level of approximately 75 to 80 dB (Ariba, 1971:140), and as the centre is designed to incorporate a public urban activity square, pedestrian noise can also create a problem as it can reach levels of 65 to 70dB when the square is heavily occupied (Ariba, 1971:140).

Areas within the centre will require specific sound considerations (Lawson, 1981:71, 88, 170):

- Performance and rehearsal spaces require an ambient noise level maximum of 15dB to 30dB
- The multi-purpose exhibition spaces and visual material and music resource library has less stringent noise restrictions of 35dB to 38dB
- Finally the offices and dressing rooms must restrict the level of noise to 59 dB.

As the secondary performance space is to house performances of a more theatrical and dramatic nature, the internal environment must be kept silent where the clarity of the actors speech is essential.

Cavity walls have superior sound insulative properties compared to conventional masonry wall construction, because air is a weak conductor of sound. Thus, cavity walls will be employed around all performance spaces. The addition of acoustic insulation layers of 50m glass wool into the cavity will also increase the walls noise insulation properties, reducing the noise levels by 59dB (Egan,1988:204) .

High-mass materials are considered to be the best insulators of sound. As a rule of thumb, the thicker the wall, the less sound and noise penetration. For example a typical rendered 110mm masonry wall reduces noise by approximately 46dB, whereas a 220mm thick wall reduces noise levels by approximately 55dB (Lawrence, 1989:120).

Ingress and the loss of sound/noise through doors have also been addressed. Sound lobbies with a double door configuration will effectively act as a large cavity between foyer and performance space, limiting the ingress and loss of sound/noise, and will thus be introduced into all performance spaces. For maximum results, all performance space doors will be specified as solid core 50mm hardwood veneer double doors with gasket and drop seal which will reduce noise ingress by 43dB (Egan,1988:204)

Rehearsal spaces with glazed walls will be introduced adjacent to the lower ground floor foyer, to activate the foyer and provide the audience with a pre-show that excites them about the main performance. Glazed facades will also be included in the secondary performance space and studio theatre. Subsequently the sound insulating properties of the glass must be optimal. Double glazing positioned within aluminium frames will be specified due to aluminium's ability to achieve tight seals, which is integral for sufficient sound isolation. In addition to the use of double glazed windows, an additional outer Pilkington structural glazing wall with air gap between the two skins to further reduce noise ingress. Double glazing has a sound reduction capacity of up to 43dB and the Pilkington structural glazing system of 33dB (www.pilkington.com). The combination of these two glazed elements is believed to be a sufficient defense against the ingress of exterior noise.

Acoustic isolation calculations

Construction	Ia Index (dB)
Walls	
115mm brick + 115mm cavity with glass fibre insulation + 115mm brick (Egan, 1988:204)	59
345mm solid concrete (Egan, 1988:204)	56
220mm masonary wall (Lawrence 1989:120)	55
110mm masonary wall (Lawrence 1989:120)	46
Floor Ceiling	
340mm reinforced concrete (Egan, 1988:204)	55
Glazing	
Double Glazing (Aluglass,2007)	43
Pilkington structural glasing (www.pilkington.com)	33
Doors	
50mm solid core hardwood veneer double doors with gasket and drop	43

Principal performance space (15 -30dB)

Internal sound level = External noise level - STC
= 70dB - 59dB (Cavity wall with glass insulation)
= 11dB therefore audible

Multipurpose exhibition space (35 -38dB)

Internal sound level = External noise level - STC
= 70dB - 33dB (Pilkington structural glazing)
= 37dB therfore audible

Dance studios and rehersal spaces (15 - 30dB)

Internal sound level = External noise level - STC
= 70dB - 43dB (Double glazing)
= 27dB therfore audible

Offices and dressing rooms (max 59dB)

Internal sound level = External noise level - STC
= 70dB - 55dB (220mm masonary wall)
= 15dB therfore audible

FIG 7.35_Acoustic isolation calculations

Performance space acoustics

Principal performance space

The form and initial plan dimensions of the principal performance space were established through a rough initial estimate of the required audience capacity. This was determined to be 1 350 people based upon figures provided by the State Theatre. The principal performance space is to house concerts and other musical performances by choirs, orchestras and bands, operatic performances, and dance performances such as ballet and modern dance as well as cultural and theatrical performances.

Musical theatres/auditoriums for performances require a volume of roughly 6 to 9 cubic metres per person, while spaces for theatrical performance require a volume of 3 to 4 cubic metres (Rettinger, 1968:245). The volume of the principal performance space was determined from these figures. In order to accommodate both types of performances, the ceiling height of the inverted suspended ceiling of the auditorium could be adjusted to adjust the volume of the space, when required.

The volume of the space is also a contributing factor in determining the reverberation times of the performance space. Reverberation is the persistence of sound in a particular space after the original sound is removed. A reverberation is created when a sound is produced in an enclosed space causing a large number of echoes to build up and then slowly decay as the sound is absorbed by the walls and air. The length of this sound decay, or reverberation time, must receive special consideration in the planning of large performance spaces in order to achieve optimum performance (Rettinger, 1968:200).

Different performance spaces also have different acoustic setting requirements. Musical performances require imposed echoes of limited proportions with a reverberation time of approximately 1,2 to 1,4 seconds for optimal performance, while theatrical performances, where audible speech is more intelligible through an instantaneous audible reception with no echoes, a reverberation time of approximately 0,8 to 1,1 seconds is optimal (www.reverberationtime.com)

As the changes in the volume of the space through the adjustment of the ceiling will not solely influence the reverberation time of a building, and as the interior acoustics need to accommodate for speech and musical performances, appropriate acoustical performance is to be achieved through electronic augmentation. This augmentation is widely believed to far surpass the acoustical performance capabilities offered by the ‘traditional’ theatre and concert halls which use the principal of bouncing sound off walls and ceilings (Lawson, 1981:185). So, the reverberation time required for each performance may be systematically predetermined for each performance. Electronically operated speakers will be housed in strategically placed positions throughout the performance space, to discharge sound at a favourable rate and volume.

Even though electronic augmentation of the acoustic qualities of the principal performance space will be employed, adequate and careful planning and calculating must still be done of the absorptive and reflective capacities within the performance space.

The space has thus been designed to contain a minimal reverberation time so that the space is ideal to receive all manner of electrical augmentation and induced reverberation of up to 1,3 seconds depending on the requirements of the performance.

The principal performance space in order to achieve a greater intimacy between the audience and performers has been designed to wrap the stage resulting in many curved walls and curvilinear surfaces. These walls create haphazard sound reflections and therefore are to be acoustically dampened with the locally produced Mellosorber acoustic absorbent panels which inhibits the return of echoes. The height of the adjustable ceiling has been designed in the form of a curved reflective suspended ceiling (vinyl finish on 13mm plywood) in the shape of an inverted dome, and will be hung over the stage to reflect all sound radiating from the stage towards the audience. This, together with a reflective rear curved panel will be the only reflective surfaces located near the stage to limit uneven sound distribution. The reflected travel distance of sound through the air has been limited to 12m, to prevent undesirable attenuation inaudibility (Ham 1972:37)

Diffuser panels (15,5mm plasterboard on 13mm plywood) will be placed in the ceiling and designed to direct the sound of the electronic augmentation, so as to not direct the sound radiating from the stage. These panels could be retracted into the ceiling void if needed and will be angled at a minimum slope of 4 degrees to prevent stationery sound waves from forming and creating flutter echoes (Rettinger, 1968:87). The diffuser panels, which will be slightly curved and randomly placed throughout the space are recommended to range from 0,8m² to 3m² in area (Rettinger, 1968:87).

Principal performance space - Unoccupied

	Absorbtion at frequency					
	125	250	500	1k	2k	4k
Side walls (front 1/3 of space)						
15.5mm plasterboard and 13mm plywood on studs (10mm air gap)	0.29	0.1	0.05	0.04	0.07	0.09
220m²	63.8	22	11	8.8	15.4	19.8
Side walls (back 2/3 of space)						
Mellosorber acoustic absorbent panel on spacers (60mm air Gap)	0.41	1	1.11	1.14	1.05	1.05
470m²	192.7	470	521.7	535.8	493.5	493.5
Rear walls						
Mellosorber acoustic absorbent panel on spacers (60mm air Gap)	0.41	1	1.11	1.14	1.05	1.05
190m²	77.9	190	210.9	216.6	199.5	199.5
Rear Wall behind stage						
Mellosorber acoustic absorbent panel on spacers (60mm air Gap)	0.41	1	1.11	1.14	1.05	1.05
70m²	28.7	70	77.7	79.8	73.5	73.5
Refelective rear curved wall panel						
Vinyl on 13mm plywood	0.02	0.03	0.03	0.03	0.03	0.02
90m²	1.8	2.7	2.7	2.7	2.7	1.8
Floor						
Heavy carpet on foam	0.08	0.24	0.57	0.69	0.71	0.73
1020m²	81.6	244.8	581.4	703.8	724.2	744.6
StageFloor						
Wooden floor	0.15	0.11	0.1	0.07	0.06	0.07
100m²	15	11	10	7	6	7
Ceiling						
15.5mm plasterboard and 13mm plywood on studs (10mm air gap)	0.29	0.1	0.05	0.04	0.07	0.09
620m²	179.8	62	31	24.8	43.4	55.8
Ceiling						
Off shutter concrete	0.01	0.02	0.04	0.06	0.08	0.1
240m²	2.4	4.8	9.6	14.4	19.2	24
Refelective adjustable ceiling						
Vinyl on 13mm plywood	0.02	0.03	0.03	0.03	0.03	0.02
165m²	3.3	4.95	4.95	4.95	4.95	3.3
Seating						
Upholstered fabric seats	0.49	0.66	0.8	0.88	0.82	0.7
S = 1350m²	661.5	891	1080	1188	1107	945
Average absorbtion coefficient (a)	1308.5	1973.25	2540.95	2786.65	2689.35	2567.8
Total suface area (S) = 4415m²						
Volume (V) = 10800m³						
0,161V = 1738.8m³						
Sabine RT	1.33	0.88	0.68	0.62	0.65	0.68 reverberation time

Principal performance space - Occupied

With audience of 1350						
Upholstered fabric seats	0.6	0.74	0.88	0.96	0.93	0.85
S = 1350m²	810	999	1188	1296	1255.5	1147.5
Average absorbtion coefficient (a)	1457	2081.25	2648.95	2894.65	2837.85	2770.3
0,161V = 1738.8m³						
Sabine RT	1.19	0.84	0.66	0.60	0.61	0.63 reverberation time

FIG 7.36_Principal performance space - reverberation calculations

Secondary performance space

The secondary performance space has been designed to be used in a variety of configurations for a variety of performances. The acoustics in this space are electronically augmented and the dimensions of this performance space also ensure that no seat is distanced at more than 20m from the source of stage, which is a requirement for the audible reception of speech in performances of a dramatic nature (Ham, 1972:36). Reflective panelling suspended from a space frame in the ceiling and the external walls will also be clad in Mellosorber acoustic absorbent panels.

Sustainability

The rating system chosen to test the sustainability of the building is the Sustainable Building Assessment Tool (SBAT) rating system developed by the CSIR. It was chosen as it has been developed to relate to the South African context and is designed to support sustainable development.

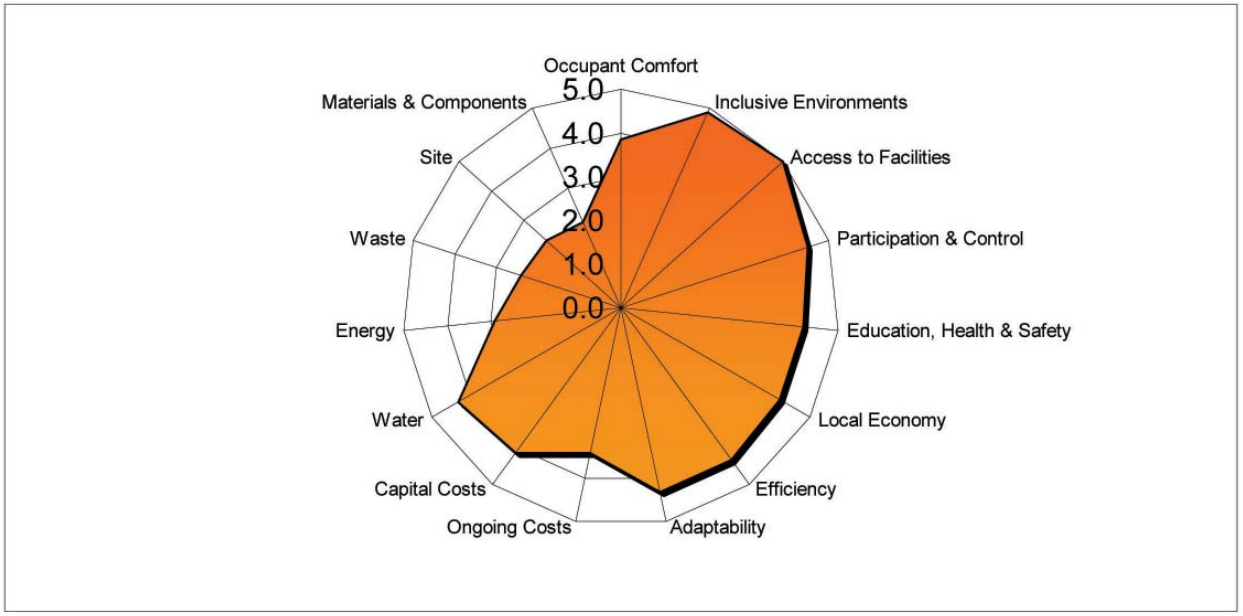
The system describes 15 sets of objectives, under the subjects of economic, environmental and social, that should be aimed for in buildings. The system works by accessing to what extent these 15 objectives are achieved in the building

Economic: Local economy, efficiency of use, adaptability and flexibility, ongoing costs, capital costs
Environmental: Water, energy, waste, site, materials and components
Social: Occupant comfort, inclusive environments, access to facilities, participation and control, education, health and safety

The building has achieved a rating of 3.8 which is considered to be good. Social and economic objectives have been suficiently met, however the environmental objectives have not been so easily achieved. This is because objectives such as the use of renewable energy resources and on-site sewerage treatment were decided against due to the initail capital outlay as well as the space con-

SUSTAINABLE BUILDING ASSESSMENT TOOL (SBAT- P) V1

PROJECT	
Project title:	Genius Loci - A cultual centre for the visual and performing arts
Location:	Mandela Development Corridor
Building type:	Cultural centre for the visual and performing artrs
Internal area (m2):	17223m²
Number of users:	2000 (average estimate at peak)



Social	4.5	Economic	4.1	Environmental	2.8
Overall	3.8	Classification:	Good		

FIG 7.35_(SBAT) assessment results

Building Performance - Social

	Criteria	Indicative performance measure	Measured	Points
SO 1	**Occupant Comfort**			3.9
SO 1.1	Daylighting	% of occupied spaces that are within distance 2H from window, where H is the height of the window or where there is good daylight from skylights	70	0.7
SO 1.2	Ventilation	% of occupied spaces have equivalent of opening window area equivalent to 10% of floor area or adequate mechanical system, with upolluted air source	80	0.8
SO 1.3	Noise	% of occupied spaces where external/internal/reverberation noise does not impinge on normal conversation (50dbA)	75	0.8
SO 1.5	Thermal comfort	Temperture of occupied space does not exceed 28 or go below 19oC for less than 5 days per year (100%)	80	0.8
SO 1.5	Views	% of occupied space that is 6m from an external window (not a skylight) with a view	80	0.8
SO 2	**Inclusive Environments**			4.9
SO 2.1	Public Transport	% of building (s) within 400m of disabled accessible public transport	100	1.0
SO 2.2	Information	High contrast, clear print signage in appropriate locations (100%)	100	1.0
SO 2.3	Space	% of occupied spaces that are accessible to ambulant disabled / wheelchair users	90	0.9
SO 2.4	Toilets	% of space with fully accessible toilets within 50m	100	1.0
SO 2.5	Fittings & Furniture	% of commonly used furniture and fittings (reception desk, kitchenette, auditorium) fully accessible	100	1.0
SO 3	**Access to Facilities**			5.0
SO 3.1	Children	All users can walk (100%) / use public transport (50%) to get to their childrens' schools and creches	100	1.0
SO 3.2	Banking	All users can walk (100%) / use public transport (50%) to get to banking facilities	100	1.0
SO 3.3	Retail	All users can walk (100%) / use public transport (50%) to get to food retail	100	1.0
SO 3.4	Communication	All users can walk (100%) / use public transport (50%) to get to communication facilities (post, telephone and internet)	100	1.0
SO 3.5	Exercise	All users can walk (100%) / use public transport (50%) to get to recreation / excersise facilities	100	1.0
SO 4	**Participation & Control**			4.5
SO 4.1	Environmental control	% of occupied spaces able to control their thermal environment (adjacent to openable windows/thermal controls)	70	0.7
SO 4.2	Involvement	% of users actively involved in the design process (workshops / meetings with models / large format drawings)	80	0.8
SO 4.3	Social spaces	Social informal meeting spaces (parks / staff canteens / cafes) provided locally (within 400m) (100%)	100	1.0
SO 4.4	Sharing facilties	5% of facilities shared with other users / organisations on a weekly basis (100%)	100	1.0
SO 4.5	User group	Active representative user group involved in the management of the building / facilities / local environment (100%)	100	1.0
SO 5	**Education, Health & Safety**			4.2
SO 5.1	Education	Two percent or more space/facilities available for education (seminar rooms / reading / libraries) per occupied spaces (75%). Construction training provided on site (25%)	100	1.0
SO 5.2	Safety	All well used routes in and around building well lit (25%), all routes in and around buildings (25%) visually supervised, secure perimeter and access control (50%), No crime (100%)	90	0.9
SO 5.3	Awareness	% of users who can access information on health & safety issues (ie HIV/AIDS), training and employment opportunities easily (posters/personnel)	50	0.5
SO 5.4	Materials	All materials/components used have no negative effects on indoor air quality (100%)	100	1.0
SO 5.5	Accidents	Method in place for recording all occupational accidents and diseases and addressing these	80	0.8

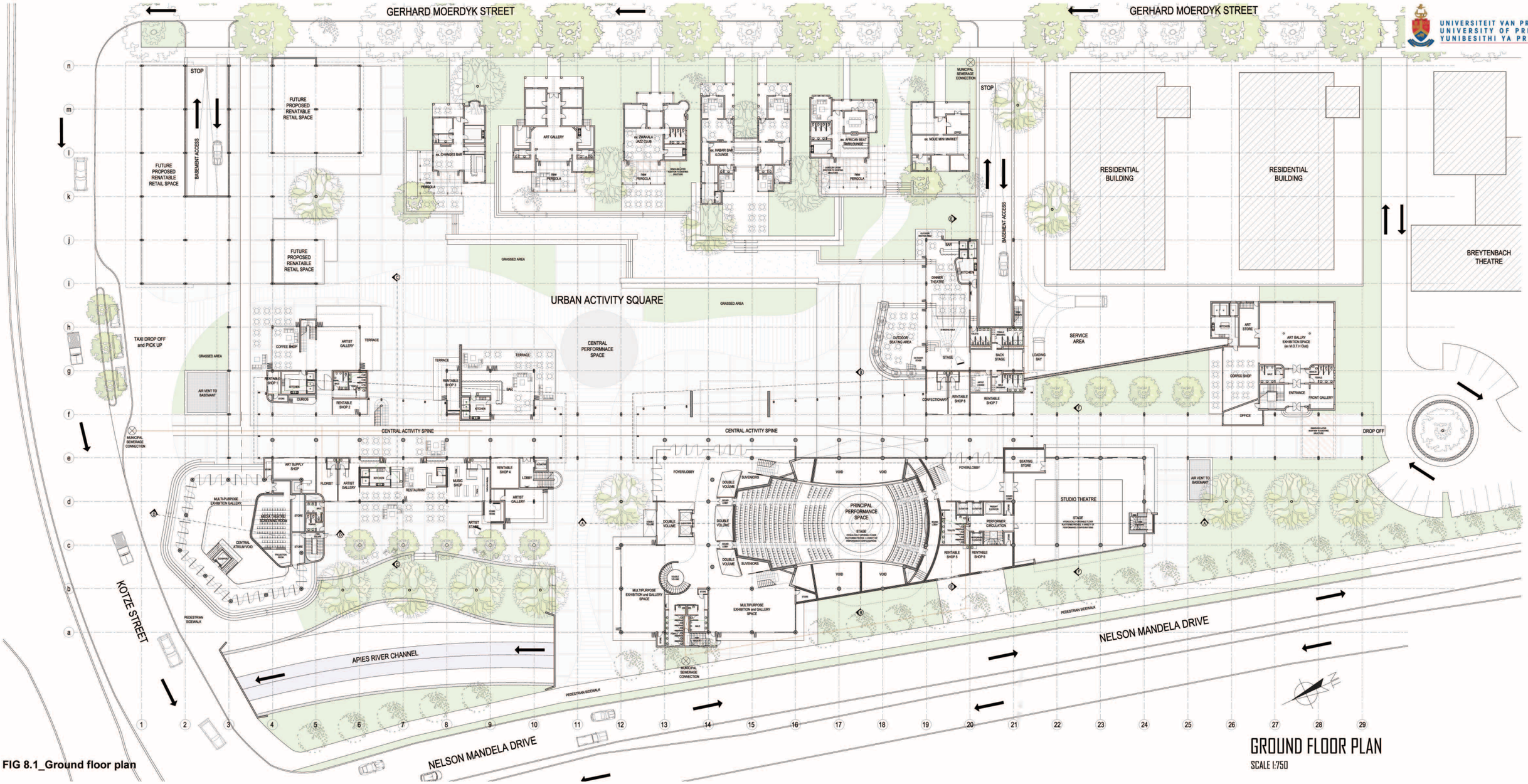
Building Performance - Economic

	Criteria	Indicative performance measure	Measured	Points
EC 1	**Local economy**			4.2
EC 1.1	Local contractors	% value of the building constructed by local (within 50km) small (employees<20) contractors	80	0.8
EC 1.2	Local materials	% of materials (sand, bricks, blocks, roofing material) sourced from within 50km	80	0.8
EC 1.3	Local components	% of components (windows, doors etc) made locally (in the country)	90	0.9
EC 1.4	Local furniture/fittings	% of furniture and fittings made locally (in the country)	80	0.8
EC 1.5	Maintenance	% of maintenance and repairs by value that can, and are undertaken, by local contractors (within 50km)	90	0.9
EC 2	**Efficiency**			4.3
EC 2.1	Capacity	% capacity of building used on a daily basis (actual number of users / number of users at full capacity*100)	90	0.9
EC 2.2	Occupancy	% of time building is occupied and used (actual average number of hours used / all potential hours building could be used (24) *100)	80	0.8
EC 2.3	Space per occupant	Space provision per user not more than 10% above national average for building type (100%)	80	0.8
EC 2.4	Communication	Site/building has access to internet and telephone (100%), telephone only (50%)	100	1.0
EC 2.5	Material & Components	Building design coordinated with material / component sizes in order to minimise wastage. Walls (50%), Roof and floors (50%)	80	0.8
EC 3	**Adaptability**			3.7
EC 3.1	Vertical heights	% of spaces that have a floor to ceiling height of 3000mm or more	100	1.0
EC 3.2	External space	Design facilitates flexible external space use (100%)	100	1.0
EC 3.3	Internal partition	Non loadbearing internal partitions that can be easily adapted (loose partioning (100%), studwall (50%), masonary (25%)	25	0.3
EC 3.4	Modular planning	Building with modular stucture, envelope (fenestration) & services allowing easly internal adaptaptation (100%)	60	0.6
EC 3.5	Furniture	Modular, limited variety furniture - can be easily configured for different uses (100%)	80	0.8
EC 4	**Ongoing costs**			3.4
EC 4.1	Induction	All new users receive induction training on building systems (50%), Detailed building user manual (50%)	0	0.0
EC4.2	Consumption & waste	% of users exposed on a monthly basis to building performance figures (water (25%), electricity (25%), waste (25%), accidents (25%)	50	0.5
EC 4.2	Metering	Easily monitored localised metering system for water (25%) and energy (75%)	100	1.0
EC4.3	Maintenance & Cleaning	Building can be cleaned and maintained easily and safely using simple equipment and local non-hazardous materials (100%)	100	1.0
SO 4.5	Procurement	% of value of all materials/equipment used in the building on a daily basis supplied by local (within the country) manufacturers	90	0.9
EC 5	**Capital Costs**			4.1
EC 5.1	Local need	Five percent capital cost allocated to address urgent local issues (employment, training etc) during construction process (100%)	90	0.9
EC5.2	Procurement	Tender / construction packaged to ensure involvement of small local contractors/manufacturers (100%)	90	0.9
EC 5.3	Building costs	Capital cost not more than fifteen % above national average building costs for the building type (100%)	80	0.8
EC5.4	Sustainable technology	3% or more of capital costs allocated to new sustainable/indigenous technology (100%)	80	0.8
EC 5.5	Existing Buildings	Existing buildings reused (100%)	70	0.7

Building Performance - Environmental

	Criteria	Indicative performance measure	Measured	Points
EN 1	**Water**			4.3
EN 1.1	Rainwater	% of water consumed sourced from rainwater harvested on site	50	0.5
EN 1.2	Water use	% of equipment (taps, washing machines, urinals showerheads) that are water efficient	100	1.0
EN 1.3	Runoff	% of carparking, paths, roads and roofs that have absorbant/permeable surfaces (grassed/thatched/looselaid paving/ absorbant materials)	100	1.0
EN 1.4	Greywater	% of water from washing/relatively clean processes recycled and reused	100	1.0
EN 1.5	Planting	% of planting (other than food gardens) on site with low / appropriate water requirements	80	0.8
EN 2	**Energy**			2.9
EN 2.1	Location	% of users who walk / use public transport to commute to the building	50	0.5
EN 2.2	Ventilation	% of building ventilation requirements met through natural / passive ventilation	70	0.7
EN 2.3	Heating & Cooling	% of occupied space which has passive environmental control (no or minimal energy consumption)	70	0.7
EN 2.4	Appliances & fittings	% of appliances / lighting fixtures that are classed as highly energy efficient (ie energy star rating)	80	0.8
EN 2.5	Renewable energy	% of building energy requirements met from renewable sources	20	0.2
EN 3	**Waste**			2.4
EN 3.1	Toxic waste	% of toxic waste (batteries, ink cartridges, flourescent lamps) recycled	100	1.0
EN 3.2	Organic waste	% of organic waste recycled	50	0.5
EN 3.3	Inorganic waste	% of inorganic waste recycled.	80	0.8
EN 3.4	Sewerage	% of sewerage recycled on site	0	0.0
EN 3.5	Construction waste	% of damaged building materials / waste developed in construction recycled on site	10	0.1
EN 4	**Site**			2.3
EN 4.1	Brownfield site	% of proposed site already disturbed / brownfield (previously developed)	0	0.0
EN 4.2	Neighbouring buildings	No neighbouring buildings negatively affected (access to sunlight, daylight, ventilation) (100%)	100	1.0
EN 4.3	Vegetation	% of area of area covered in vegetation (include green roofs, internal planting) relative to whole site	50	0.5
EN 4.4	Food gardens	Food gardens on site (100%)	0	0.0
EN 4.5	Landscape inputs	% of landscape that does not require mechanical equipment (ie lawn cutting) and or artificial inputs such as weed killers and pesticides	80	0.8
EN 5	**Materials & Components**			2.2
EN 5.1	Embodied energy	Materials with high embodied energy (aluminium,plastics) make up less than 1% of weight of building (100%)	50	0.5
EN 5.2	Material sources	% of materials and components by volume from grown sources (animal/plant)	5	0.1
EN 5.3	Ozone depletion	No materials and components used requiring ozone depleting processes (100%)	60	0.6
EN 5.4	Recyled / reuse	% of materials and components (by weight) reused / from recycled sources	20	0.2
EN 5.5	Construction process	Volume / area of site disturbed during construction less than 2X volume/area of new building (100%)	80	0.8

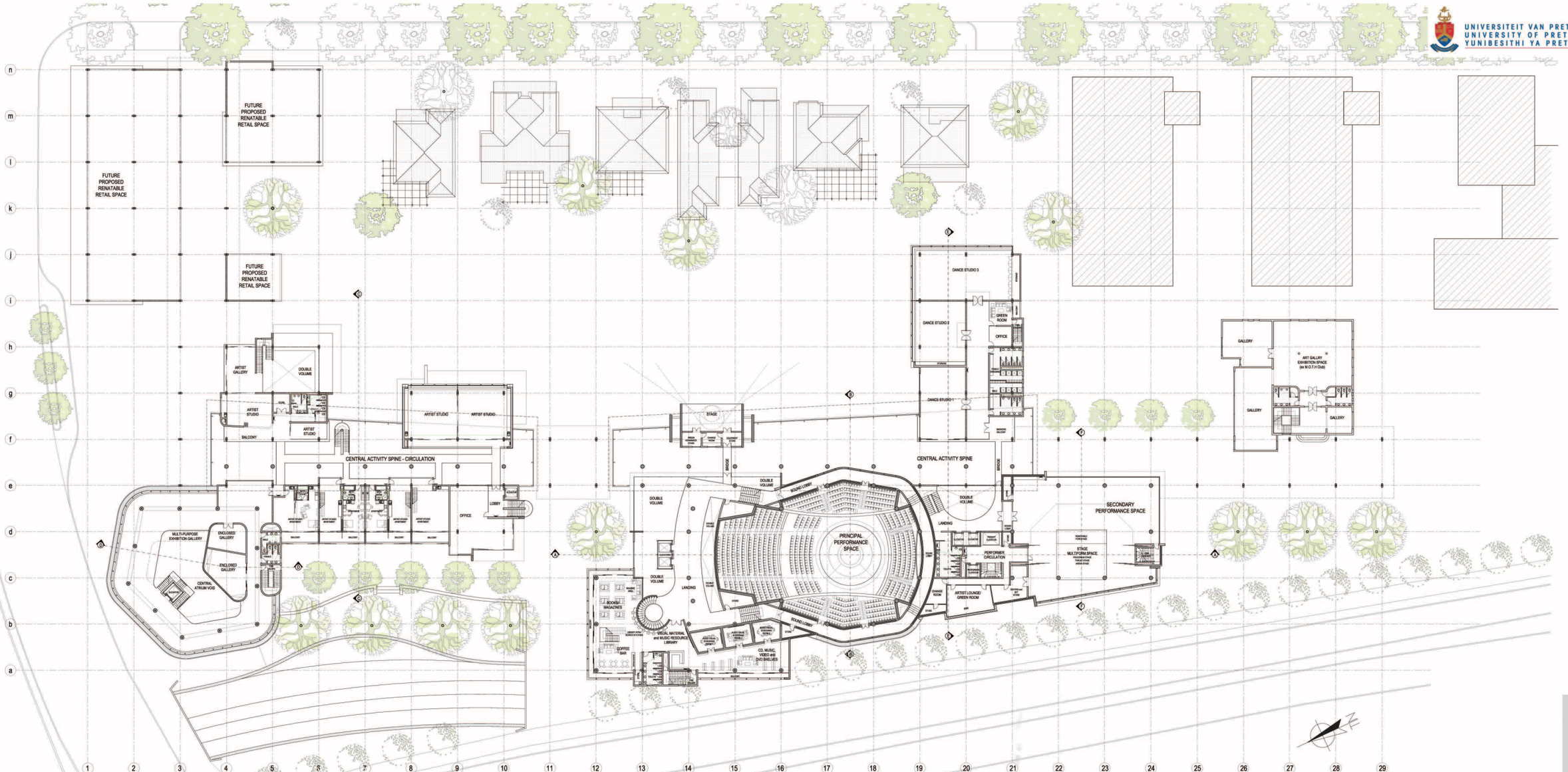
Technical documentation



GROUND FLOOR PLAN

SCALE 1:750

FIG 8.1_Ground floor plan



FIRST FLOOR PLAN

SCALE 1:750

FIG 8.2_First floor plan

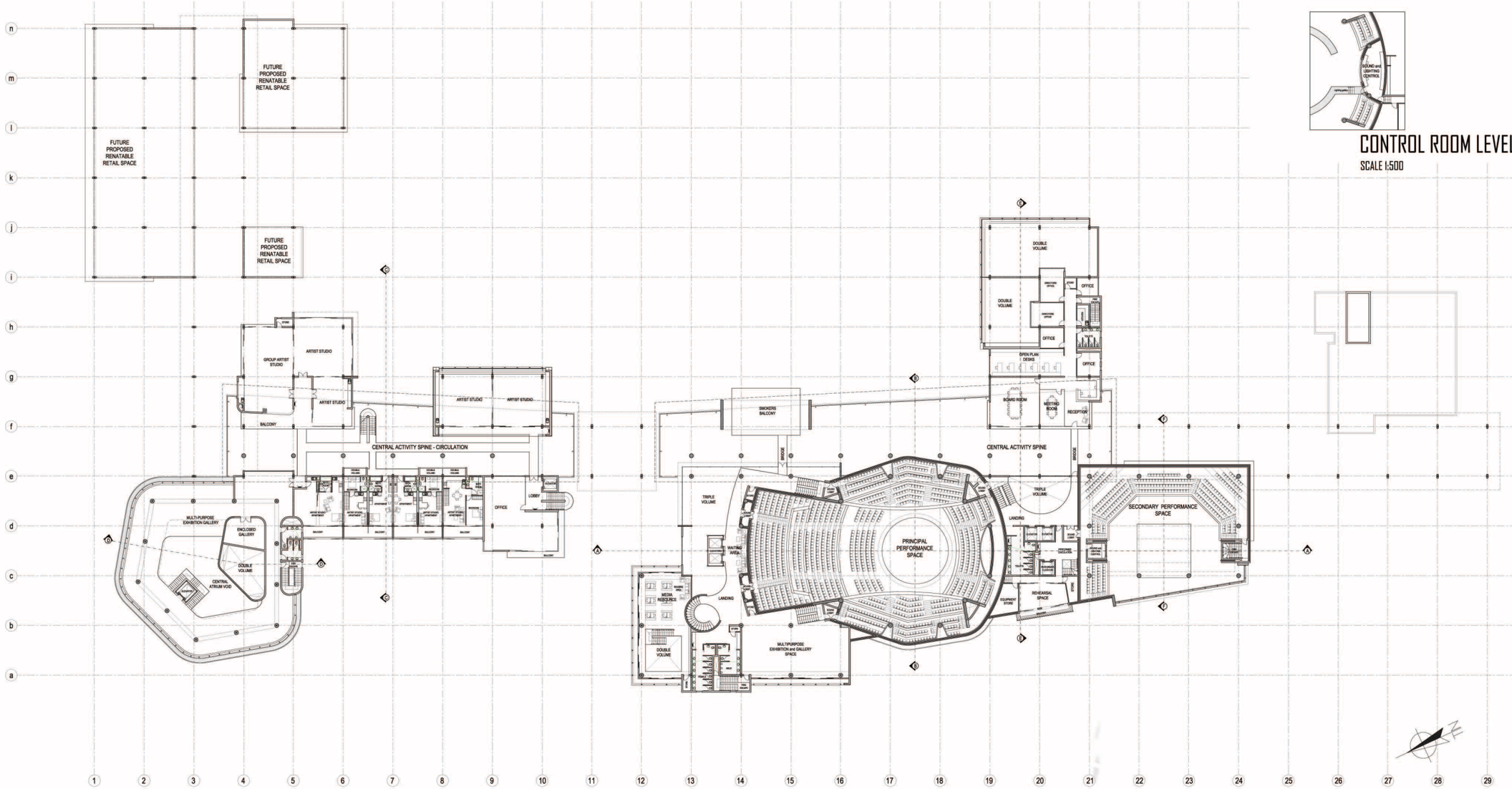
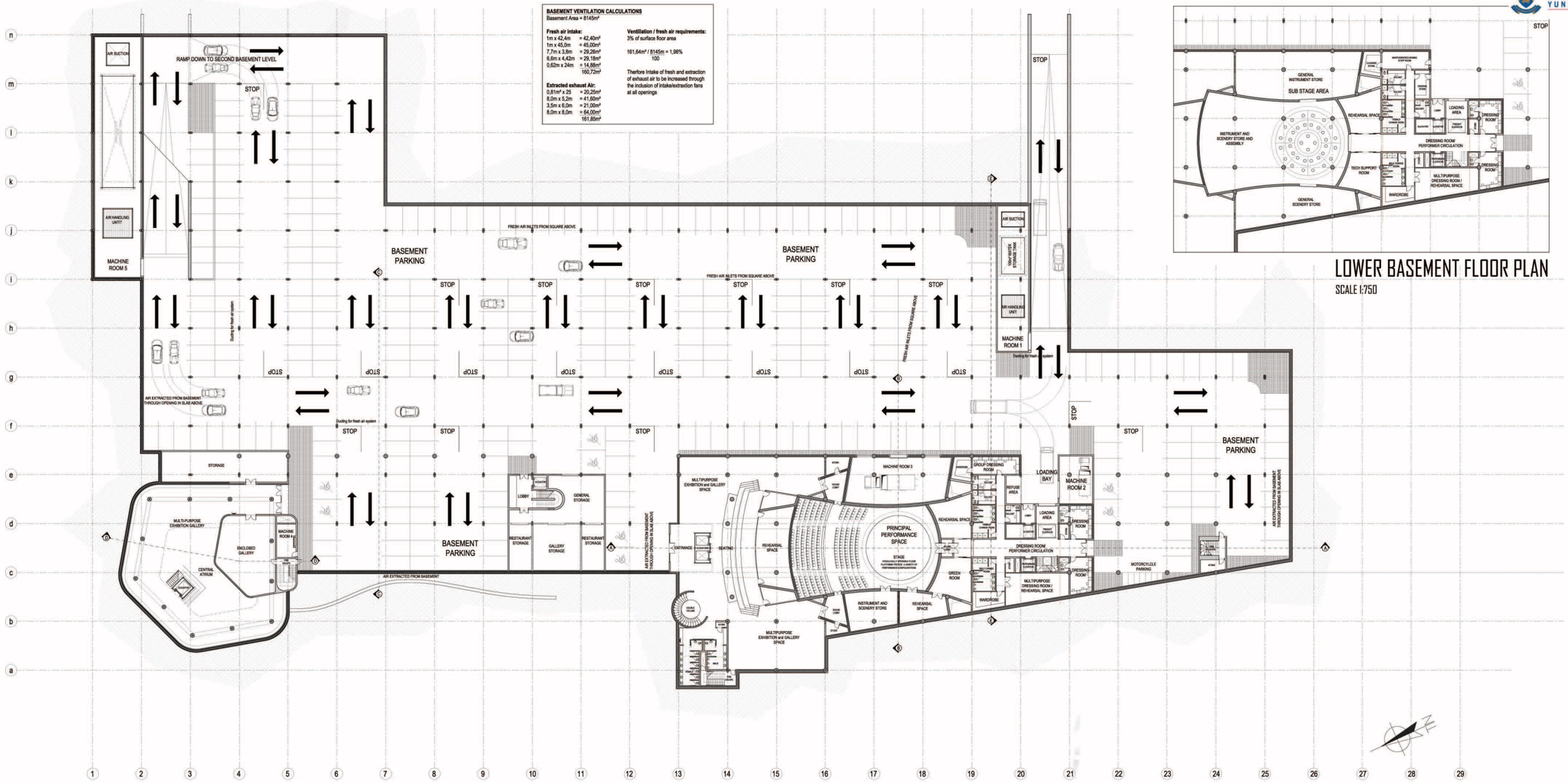


FIG 8.3_Second floor plan



LOWER BASEMENT FLOOR PLAN

SCALE 1:750

BASEMENT FLOOR PLAN

SCALE 1:750

FIG 8.4_Basement floor plan

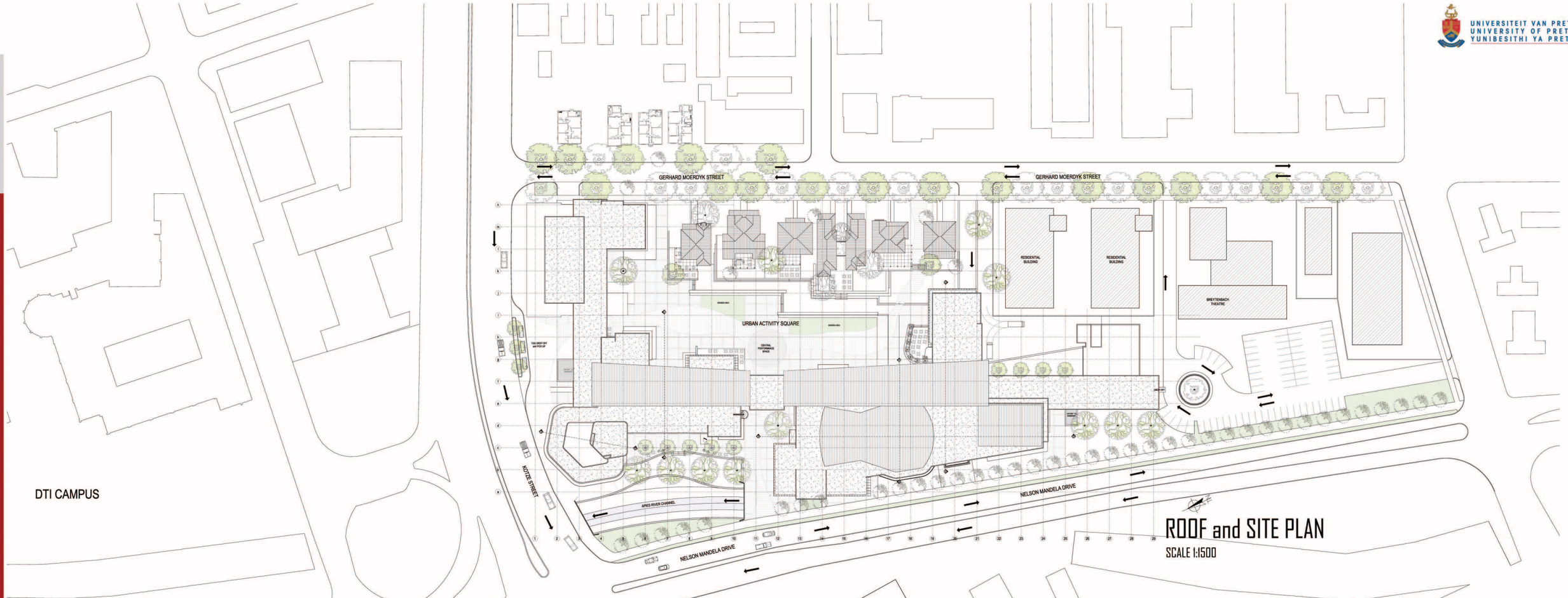
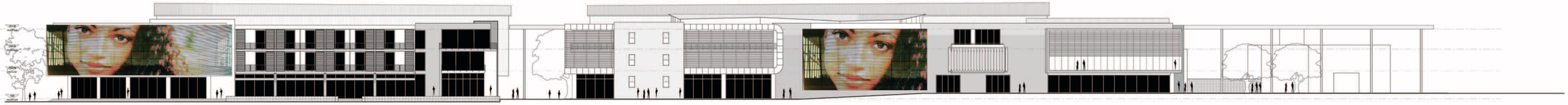
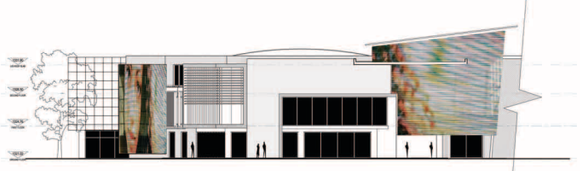


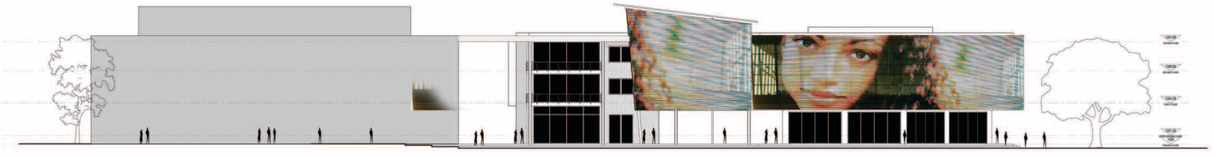
FIG 8.5_Roof and site plan



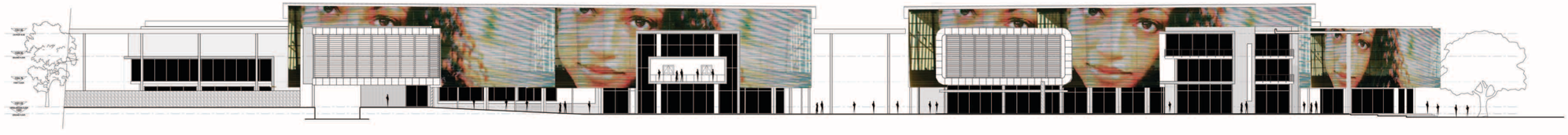
WESTERN ELEVATION
SCALE 1:750



SOUTHERN ELEVATION
SCALE 1:750



NORTHERN ELEVATION
SCALE 1:750



EASTERN ELEVATION
SCALE 1:750

FIG 8.6_Elevations

FIG 8.6_Elevations

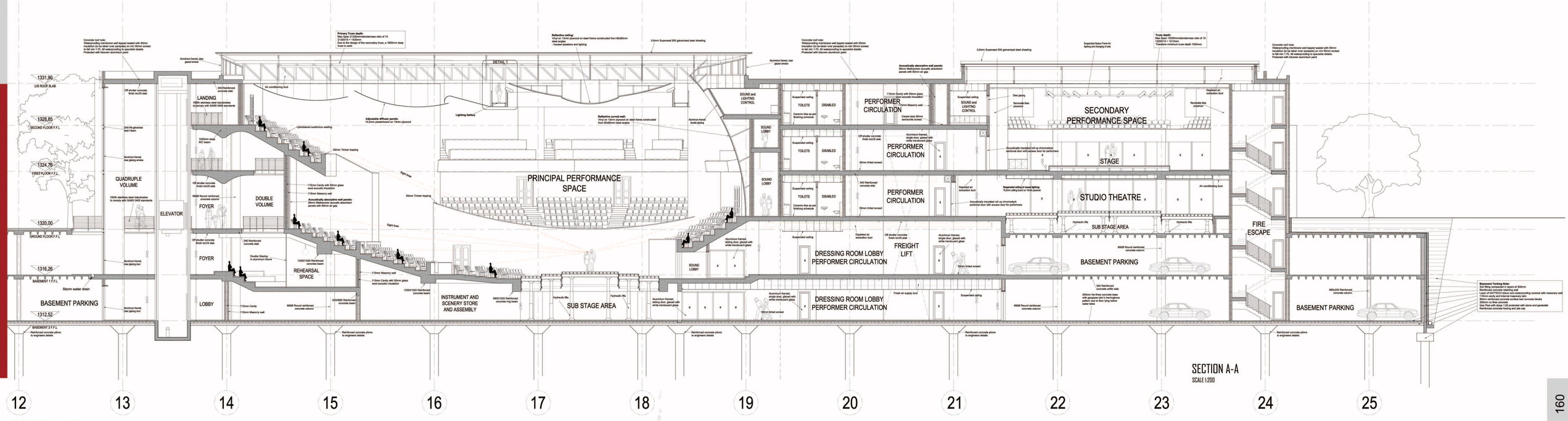


FIG 8.7_Section A-A

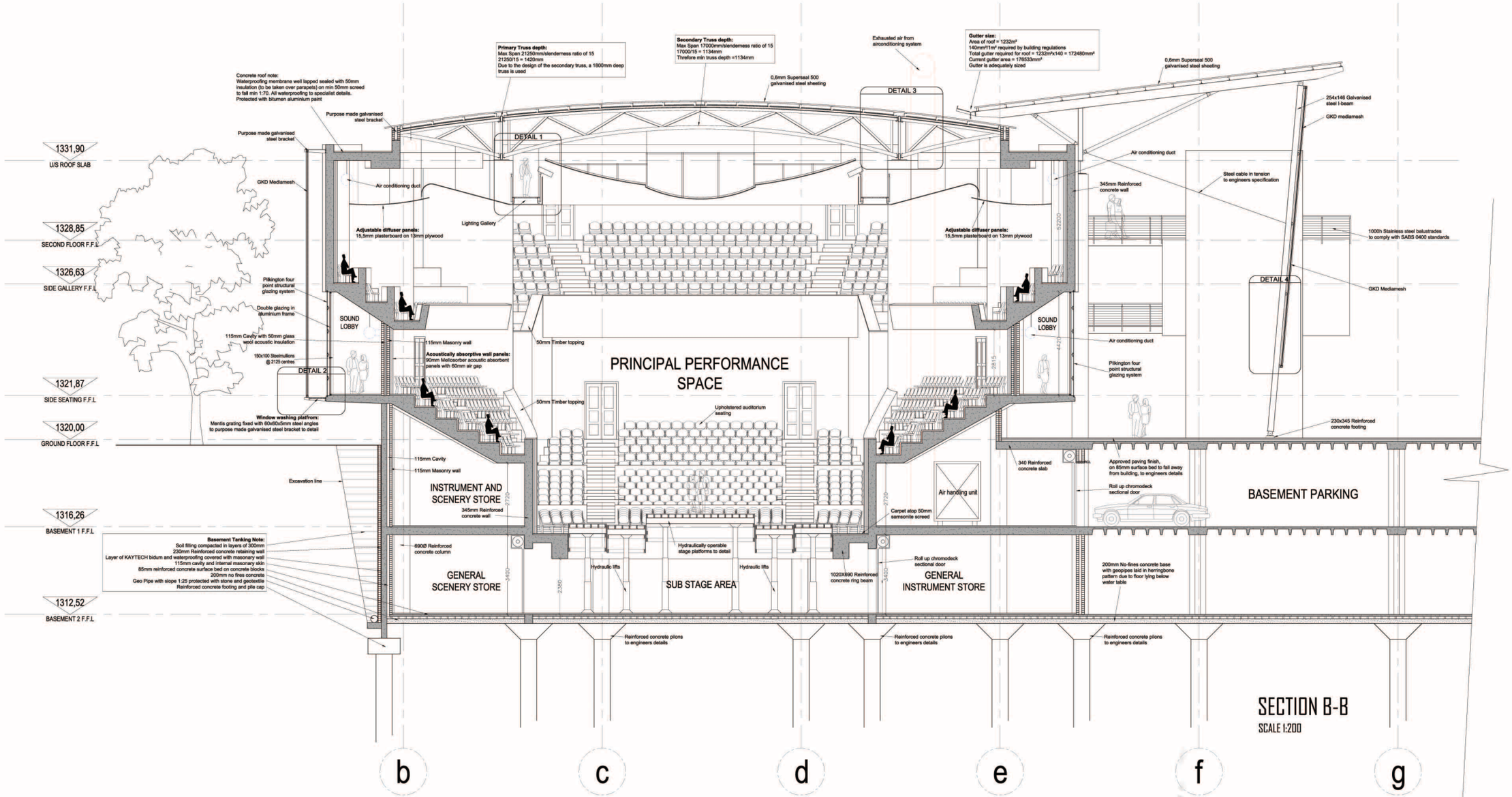


FIG 8.8_Section B-B

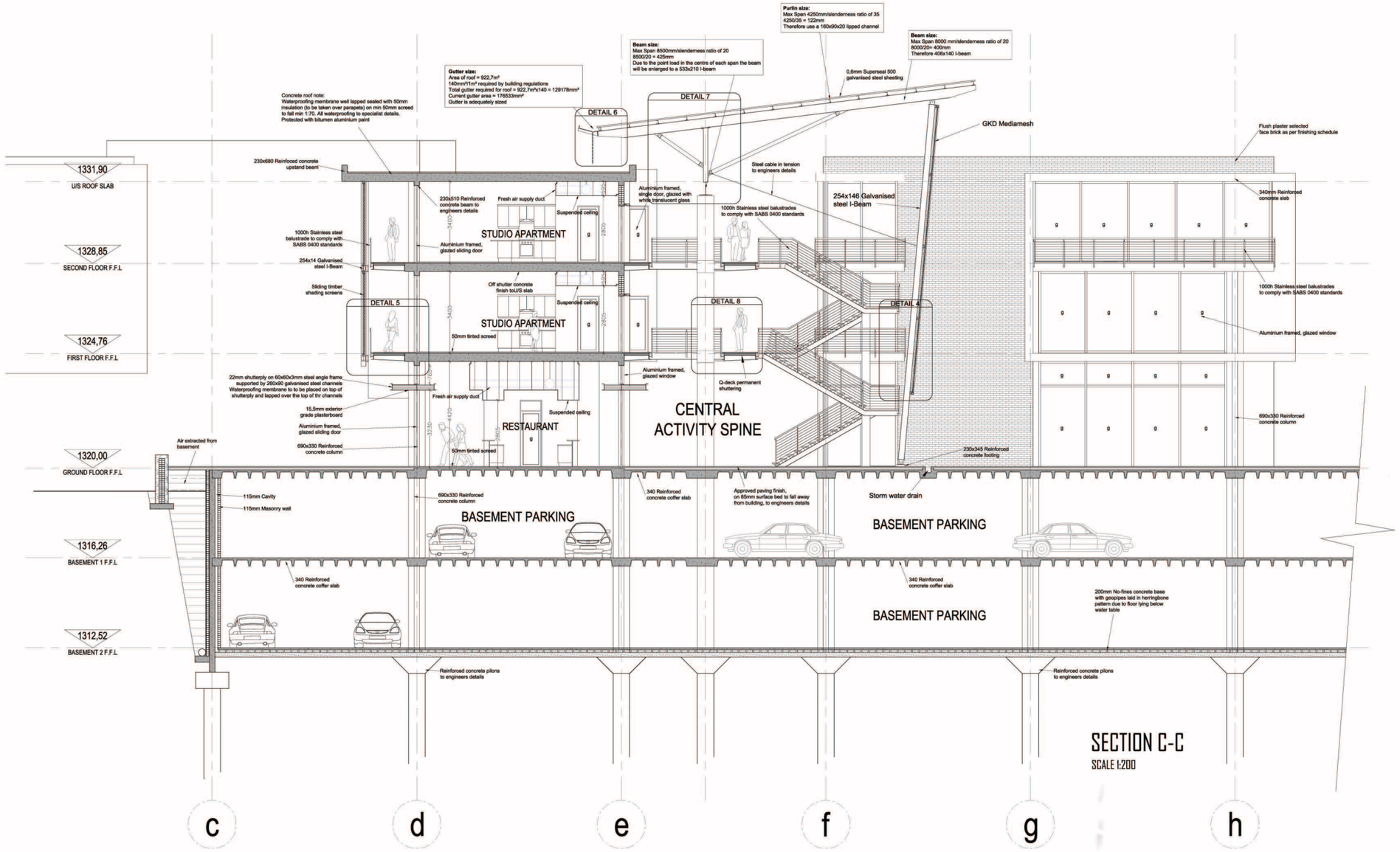


FIG 8.9_Section C-C

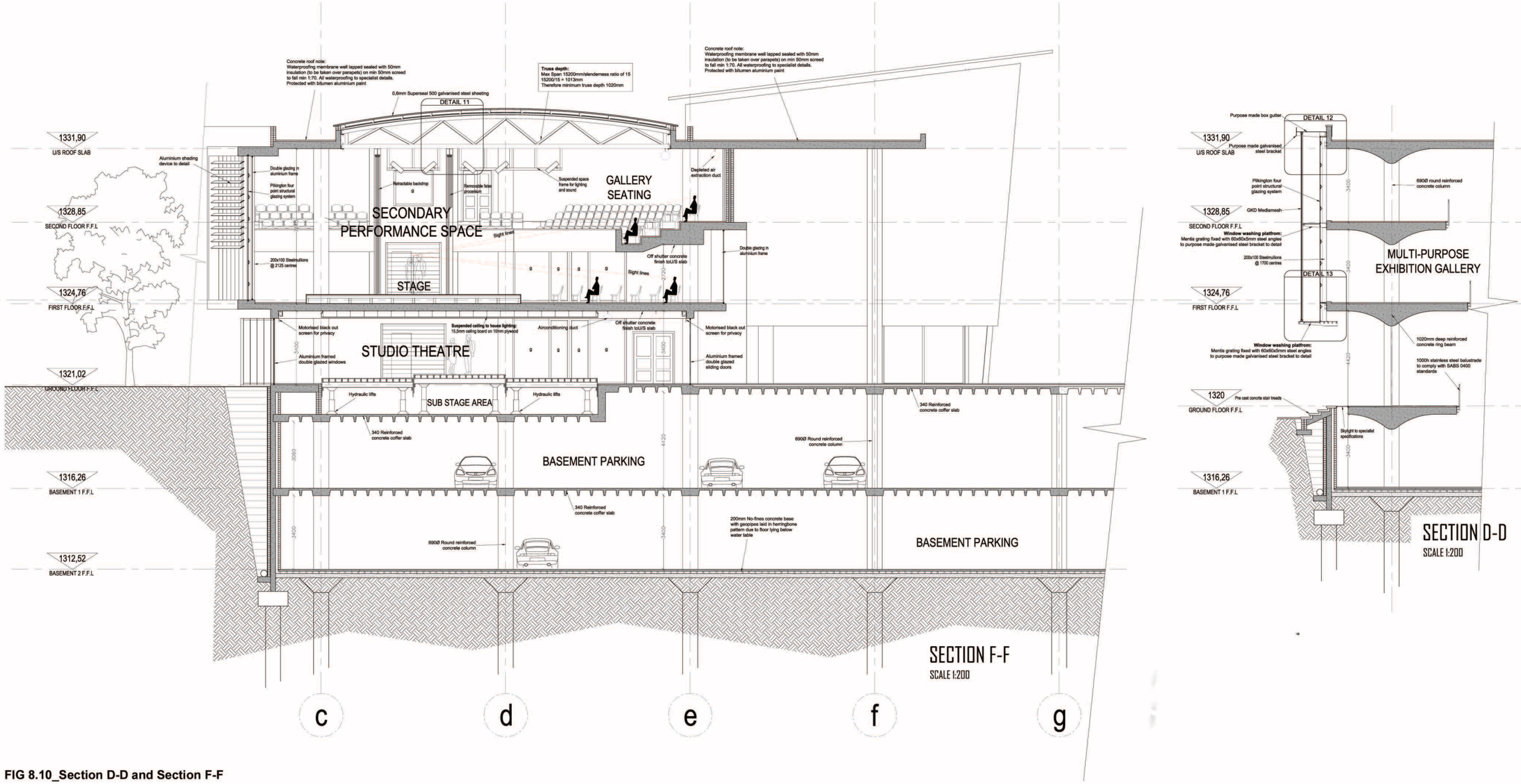


FIG 8.10_Section D-D and Section F-F

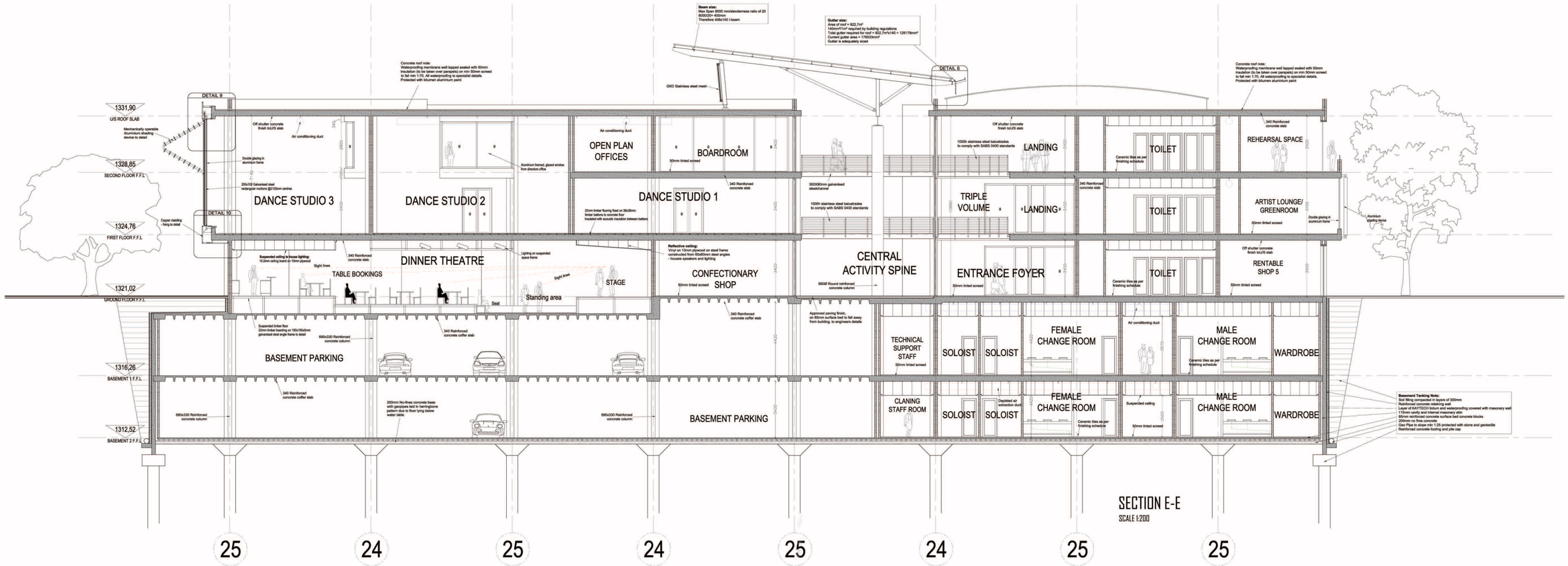


FIG 8.11_Section E-E

Conclusion

Architecture is not all about the design of the building and nothing else, it is also about the cultural setting and the ambience, the whole affair *(Michael Graves)*

The theoretical argument sought to create a heightened awareness of the sensory properties of architecture.

It can be concluded from this dissertation that the sensory aspects of architecture cannot be abstracted to a checklist format that will ensure a sensory experience, but the approach as to how the design problem is addressed, should be a collective approach, allowing individuals to experience space for themselves, through the enhanced awareness of sensory stimulants and encounters that have been formed within and by the design intervention. The proposed cultural centre embraces this approach, by creating an environment that does not try to artificially stimulate each of the individual senses, but rather create spaces and emotional connections that stimulate the complete spectrum of human experiences.

The dissertation has met the intentions and requirements set out in the initial design brief. It is believed that the cultural centre and public activity square are to be a vibrant space that allows humans to interact with the place, stimulating real sensory experience.

In conclusion, it has been determined, that without the human dimension and the vibrant energy human beings bring to the sense of place, all attempts at the creation of a sensory architecture would fail.

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Appendices

- Mandela Development Corridor group urban design framework
- Design presenation drawings
- Model

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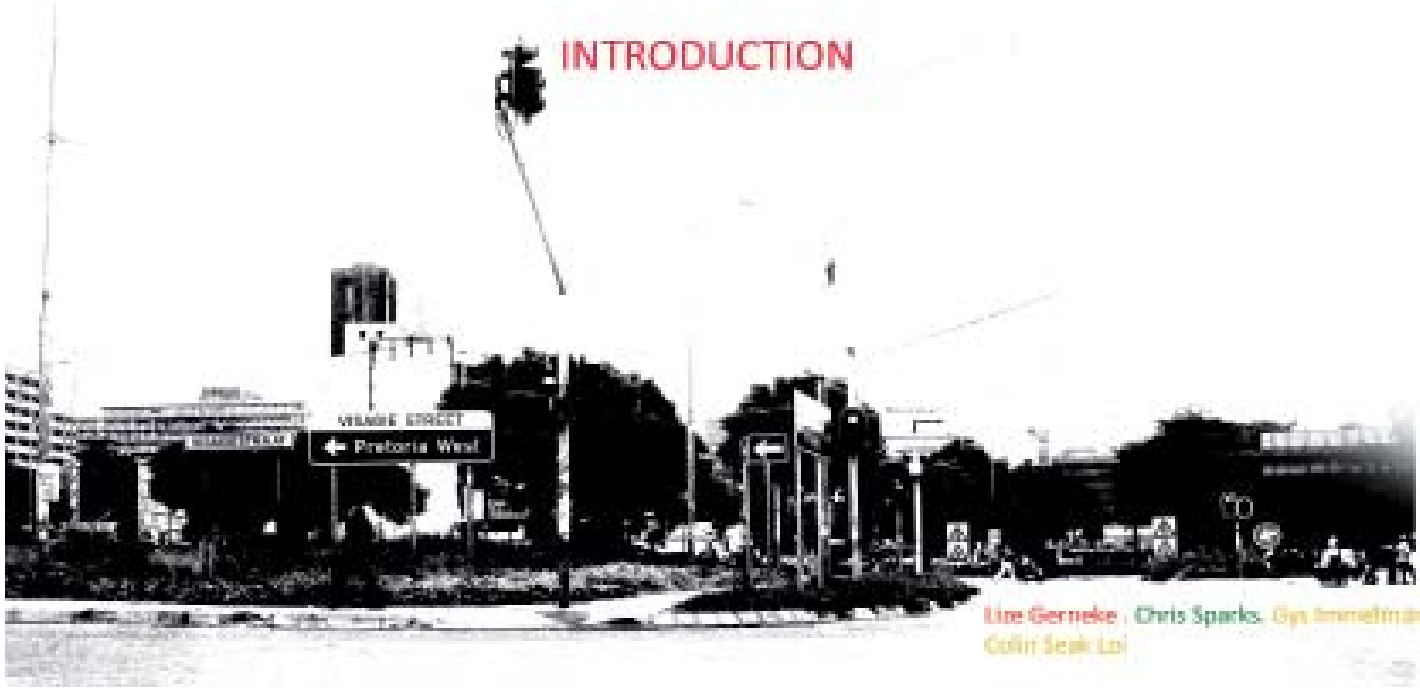
Appendix 1:

Nelson Mandela Corridor

Group urban design framework

INTRODUCTION



Lize Germeke . Chris Sparks. Gys Immelman . Tienie Van Rooyen . Lourette van der Westhuizen . Tobias Mahne . Collin Seak Lai

The study area in question is the Nelson Mandela Corridor, the gateway into the city from the North and the South. A very important spine running along the Apies River feeding the city's East/West orientated streets. It is the opinion of this group that Nelson Mandela Avenue represents a rip in the urban fabric of the city and this group proposes that this rip be repaired by adding buttons, or nodes along the affected area, thus "buttoning up" the urban fabric but still providing enough play for the corridor to develop through a natural process. Four nodes are proposed, namely; Cultural; Business; active Recreational and passive Recreational nodes – placed on strategic crossings along Nelson Mandela Avenue.

REGIONAL CONTEXT
NELSON MANDELA CORRIDOR

Ward 58 is located in the central part of the city of Tshwane.

54.0% Black
39.0% White
4.0% Coloured
3.0% Asian

31% Afrikaans
17% English
11% Sepedi
11% Setswana

47% Male
53% Female

Environmental Vulnerability
The environmental vulnerability in ward is generally low, with a high environmental vulnerability found in the east, north-east, south-west and north-west. These areas correlate with mountain slopes, degraded veld, woodlands and grasslands

Floodline Priority
This ward has a low floodline priority, occurring along the Apies River in the western and southern parts of the ward. Currently these areas are not inhabited, which limits the amount of people or infrastructure at risk. However, future development along the floodline priority could increase the flood risk to the ward.

Industry of Employment
Community, social and personal services (18.0%),
financial, insurance, real estate and business services (11.0%)
wholesale and retail trade (7.0%)

Income
Moderate

Ward 59 is located in central part of the City of Tshwane, south of the city centre, amongst the Kwaggasrand Mountains. Various tributaries of the Apies River flow through this area. The geology in the southern part of the ward is characterised by the presence of dolomite.

56.0% Black
39.0% White
3.0% Coloured
2.0% Asian

33% Afrikaans
22% English
13% Sepedi
12% Setswana

47% Male
53% Female

Environmental Vulnerability
Low levels of environmental vulnerability are located in the north-eastern portion with the majority of the ward containing significantly higher levels. The level of environmental vulnerability correlates with areas of degraded veld, grass and woodlands.The topography along the slopes of the ridges combined with the presence of water flow from rivers can also increase the environmental vulnerability of the area.

Floodline Priority
A low floodline priority can be found along the banks of the Apies River. In the northern region, residential areas are located in closeproximity to floodline priority areas which should be monitored.

Geology
Dolomite can be found in the south of Ward 59 which poses a significant risk of sinkhole formation in developed areas. Water infiltrating dolomite could cause instability and subsequent sinkholes. However, from land-use maps, it appears that development is this area is limited. Future development should be undertaken with care

Ward 60 is situated in the central part of the City of Tshwane

70.0% Black
24.0% White
5.0% Coloured
1.0% Asian

50% Afrikaans
29% Sepedi
22% Setswana

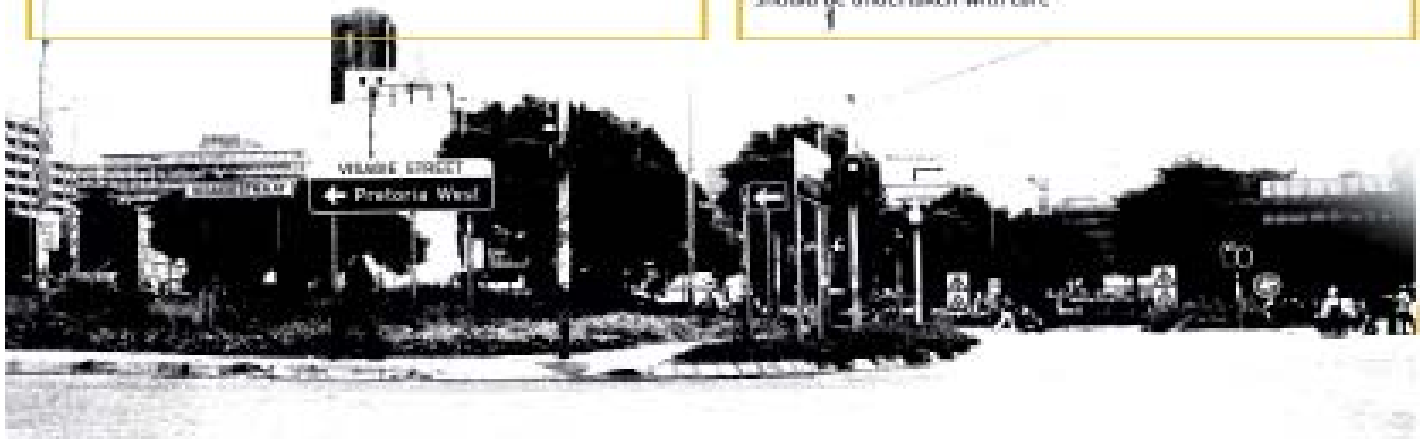
61% Male
39% Female

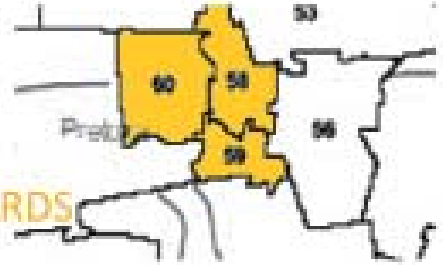
Environmental Vulnerability
The environmental vulnerability in the majority of the ward is moderate. However, high levels of environmental vulnerability are located in southern and northern parts of the ward which to a large extent correlates with open spaces, degraded veld, wood and grasslands.

Floodline Priority
A low level of floodline priority is located in the north section of the ward. This area is a highly developed area and development in floodline priority areas should be monitored.

Income
Income levels in Ward 60 are relatively high with 70.0% earning more than R1 600 per month and 45.0% of individuals earning more than R3 200 per month.

Industry of Employment
Community, social and personal services (15.0%)
financial, insurance, real estate and business services (9.0%),
as well as wholesale and retail trade (8.0%)





PRECINCT WARDS

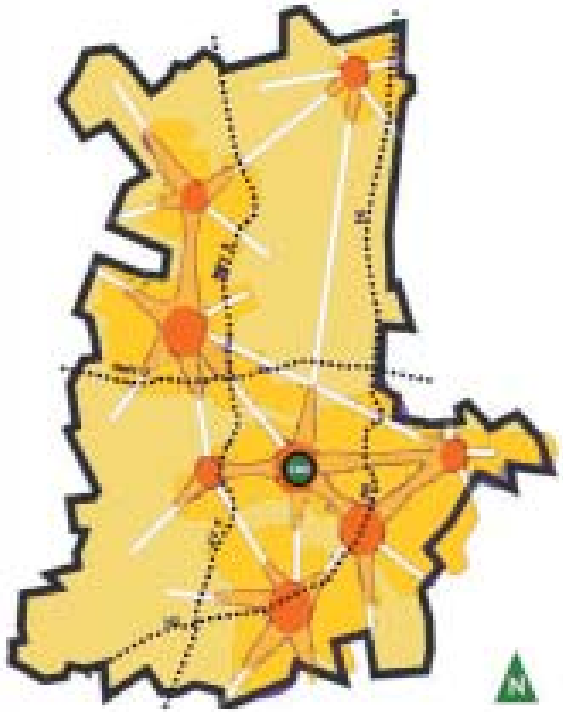
Integrated Development Plan& RSDF
-Environmental Sustainability.
- Increased Accessibility
-Economic Growth
-Tshwane Kopanong/Crossing: Vibrant public square, -Establishing a growth node between Hatfield and CBD while revitalizing Sunnyside (also residentially)
Centre remains a critical asset
-To enhance Tshwane's national status as the capital of South Africa

Inner City Strategy
-Focus Area IV: Celebrating the National Capital and Repositioning the Inner City as a vibrant cultural and government centre
-To enhance Tshwane's national status as the capital of South Africa

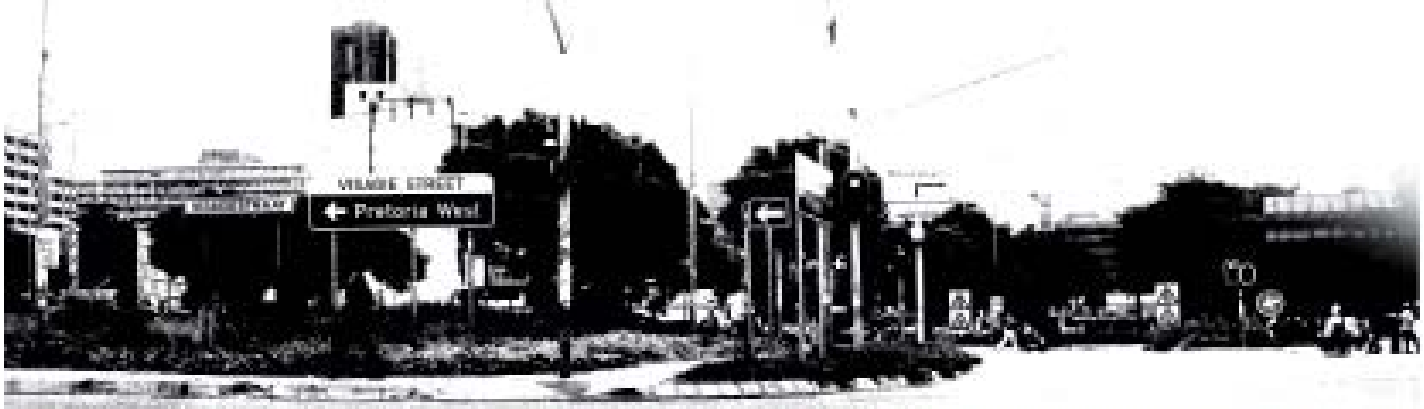
MSDF
Inner City has been demarcated as the Capital Core

Re Kgabisa Tshwane Programme
- Environmental Sustainability.
- Increased Accessibility
- Economic Growth
- Exploring African-ness: Giving content to the notion of an African City using urban art as a metaphor for social dialogue & reclaim public space
Investing in- and management of public space, 24h City – vibrancy
- City Living Initiative: Focused at young people and - Economically mobile families, Quality public amenities,
- Tshwane CBD with explicit view of consolidating image of SA capital
- Repositories of national culture eg.Freedom Park,
- Places of assembly for national celebration(s)

(Capital Alliance Conference; October, 2005)



GOVERMENT STRATEGIES



Being the leading governance city in Africa

Being the embodiment of what it means to be (South) African

Being the prime urban working and living centre in Tshwane

The Functional and Symbolic Heart of the Capital City of South Africa and Africa

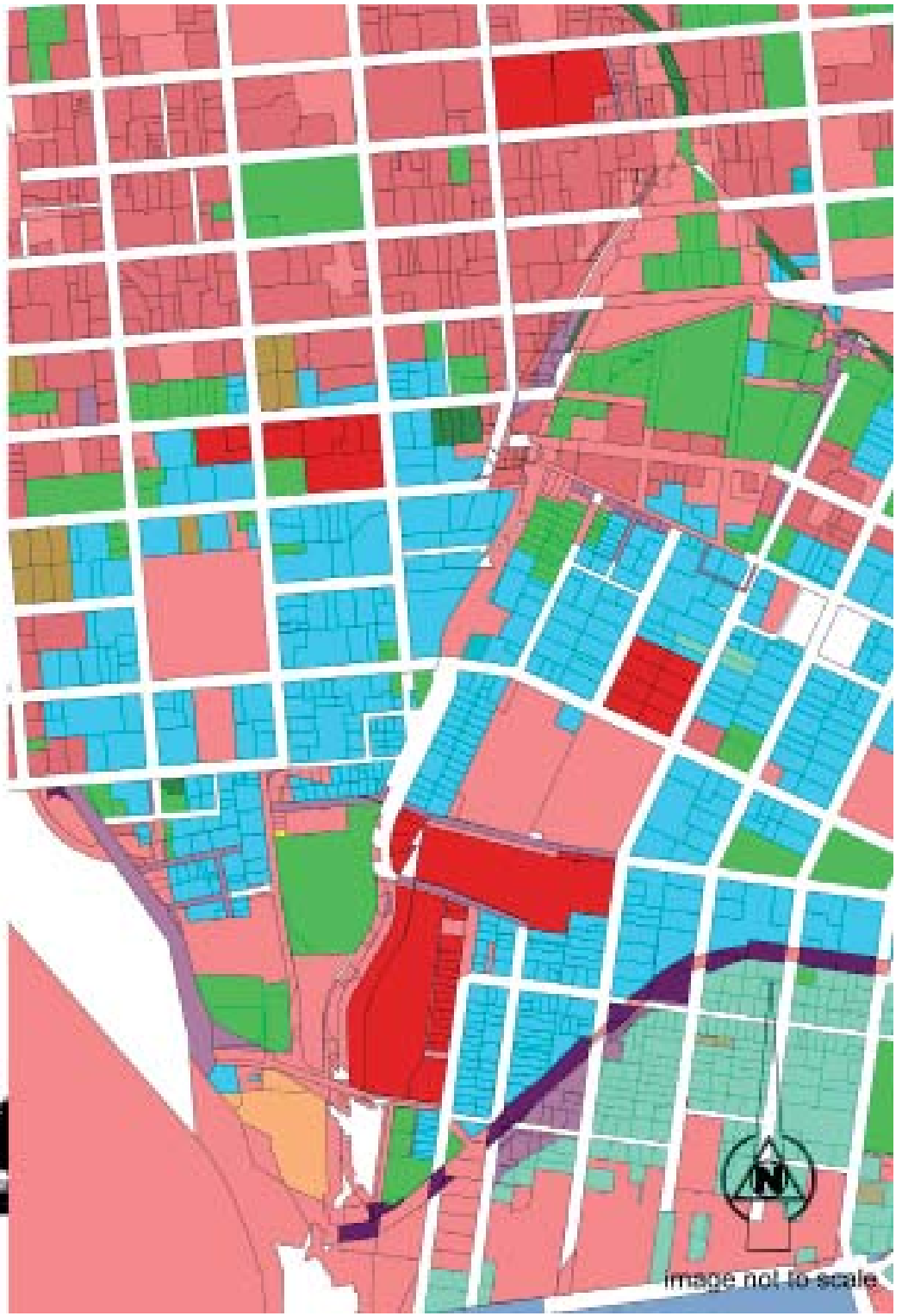
The Capital of Culture in Africa, where all aspects of being (South) African can be celebrated

Place of Choice

Announcing the destination- Cultural circle - Capital precinct - MDC and Apies River Promenade - Tswane crossing - Regeneration - Movement - Exceptional public

0 NONE
1 SPECIAL RESIDENTIAL
2 GROUP HOUSING
3 DUPLEX RESIDENTIAL
4 GENERAL RESIDENTIAL
5 EDUCATIONAL
6 INSTITUTIONAL
7 SPECIAL BUSINESS
8 GENERAL BUSINESS
9 MUNICIPAL
10 GOVERNMENT
11 RESTRICTED INDUSTRIAL
12 GENERAL INDUSTRIAL
13 AGRICULTURAL
14 SPECIAL
15 UNDETERMINED
16 EXISTING STREET
17 NEW STREET
18 EXISTING PUBLIC OPEN SPACE
19 PROPOSED PUBLIC OPEN SPACE
20 EXISTING PRIVATE OPEN SPACE
21 PROPOSED PRIVATE OPEN SPACE
22 TOWNSHIP ESTABLISHMENT
23 SEWERAGE SLUDGE WORKS
24 CEMETERY
25 AIRPORT
26 SPOORNET

ZONING



FLOODLINES

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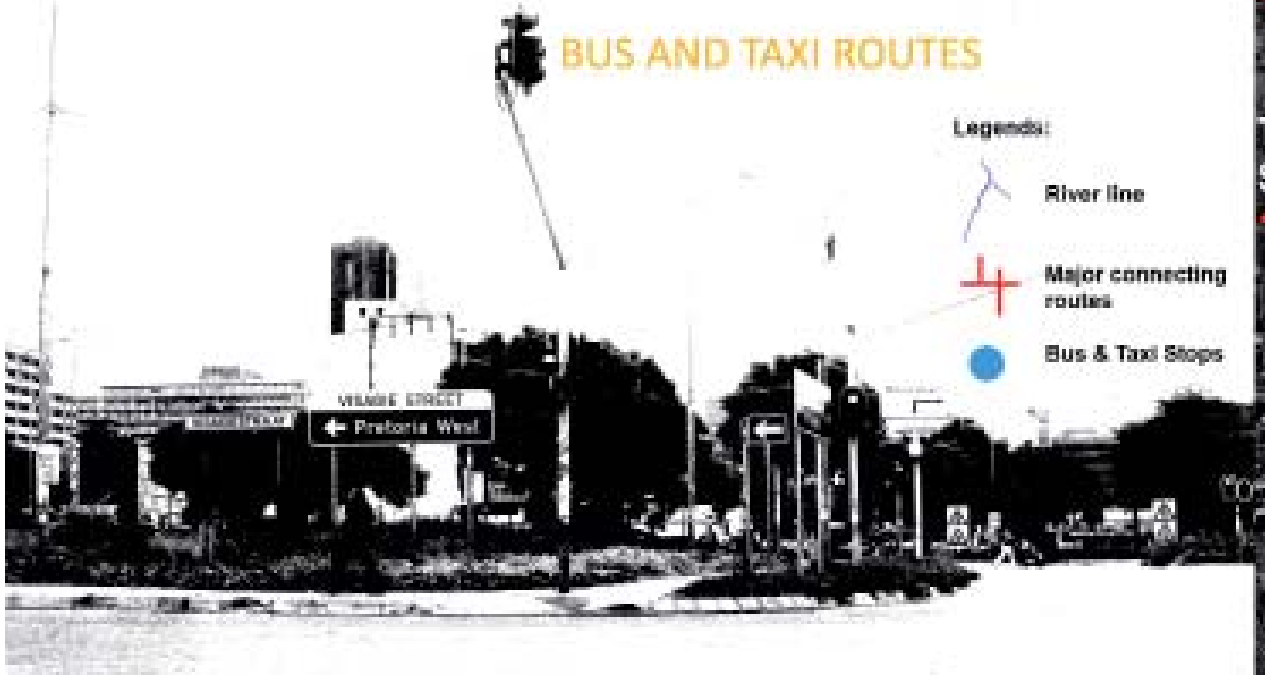
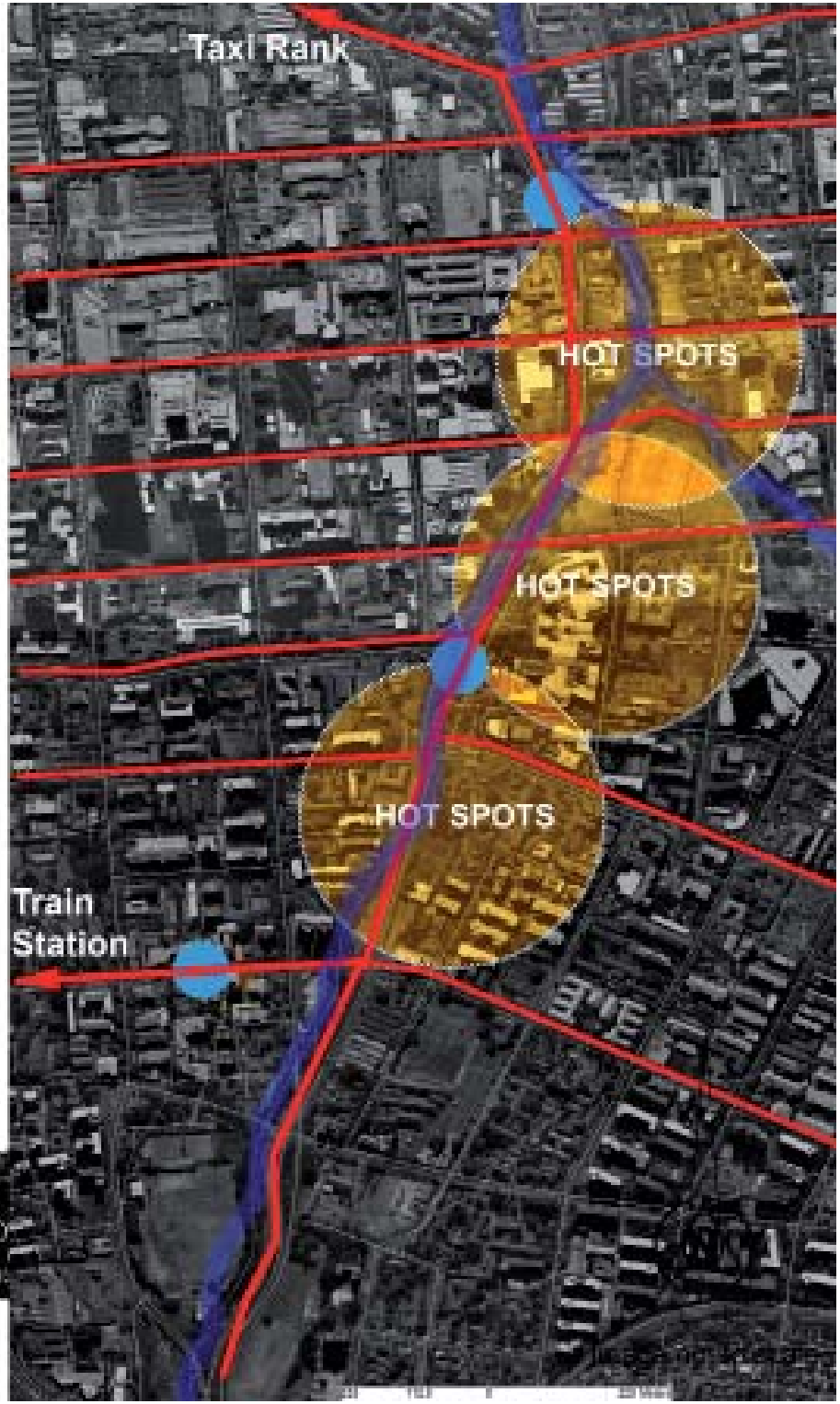
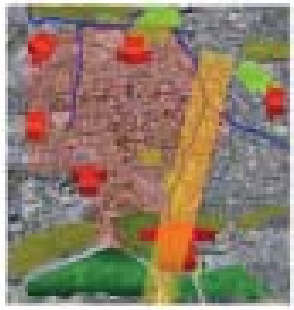
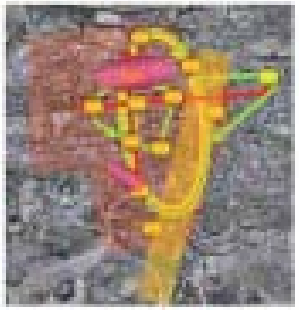
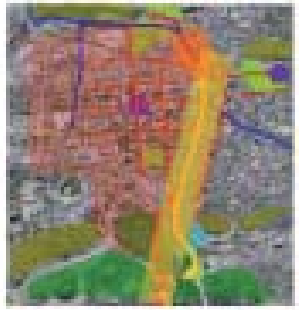
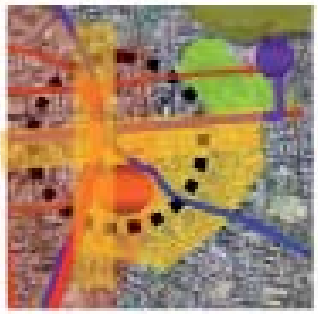
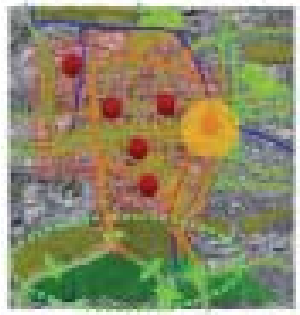

BUS AND TAXI ROUTES
Legends:
River line
Major connecting routes
Bus & Taxi Stops
Pretoria West


Taxi Rank
HOT SPOTS
HOT SPOTS
HOT SPOTS
Train Station

BUILDING BLOCKS

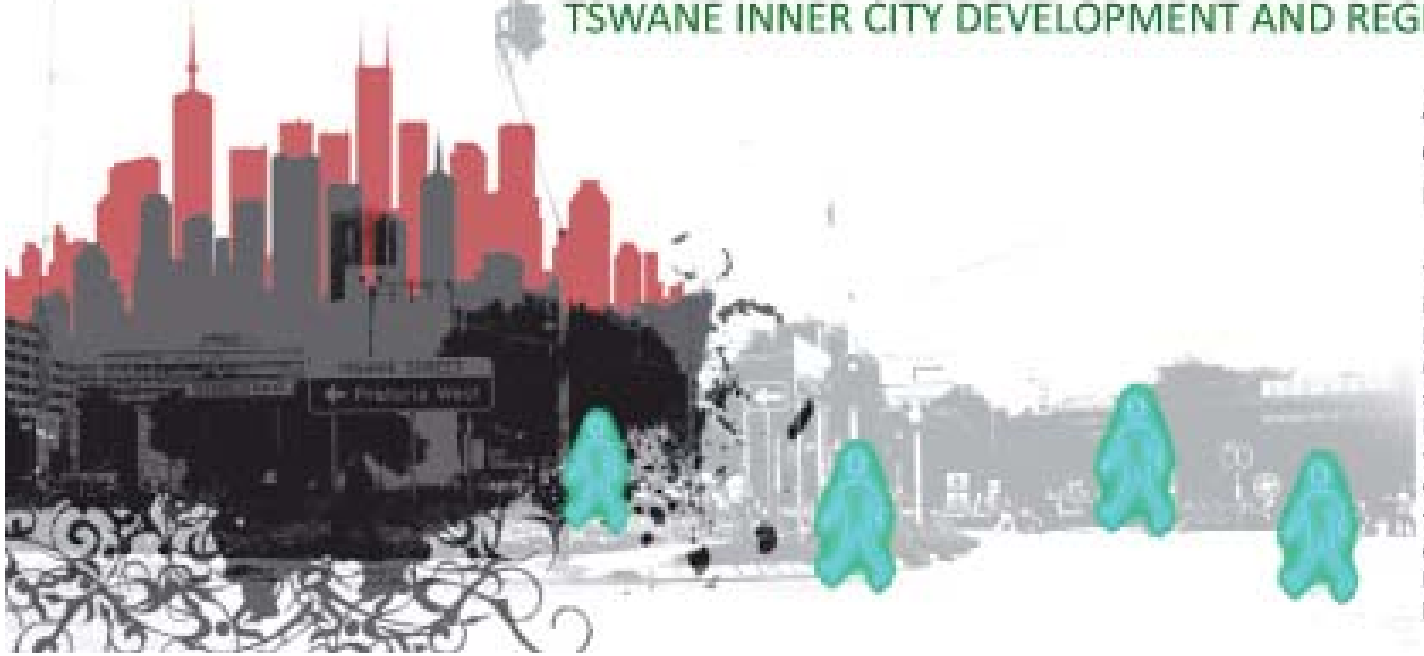
- Announcing the destination (Gateways)
- Cultural Circle
- Capital Precinct
- Mandela Development Corridor & Apies River Precinct
- Tshwane Crossing
- Urban Regeneration
- Exceptional Public Environment

TSWANE INNER CITY
DEVELOPMENT AND REGENRATION
STRATEGY 2006

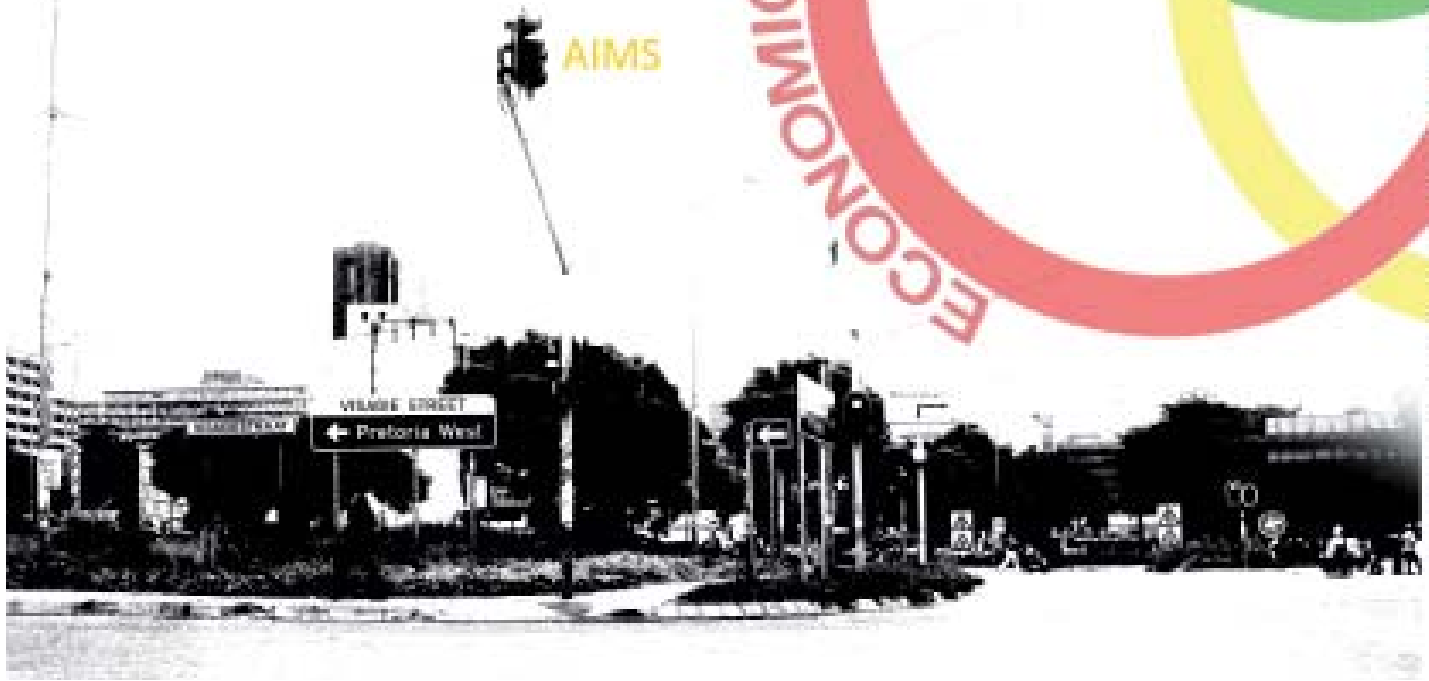
VISION

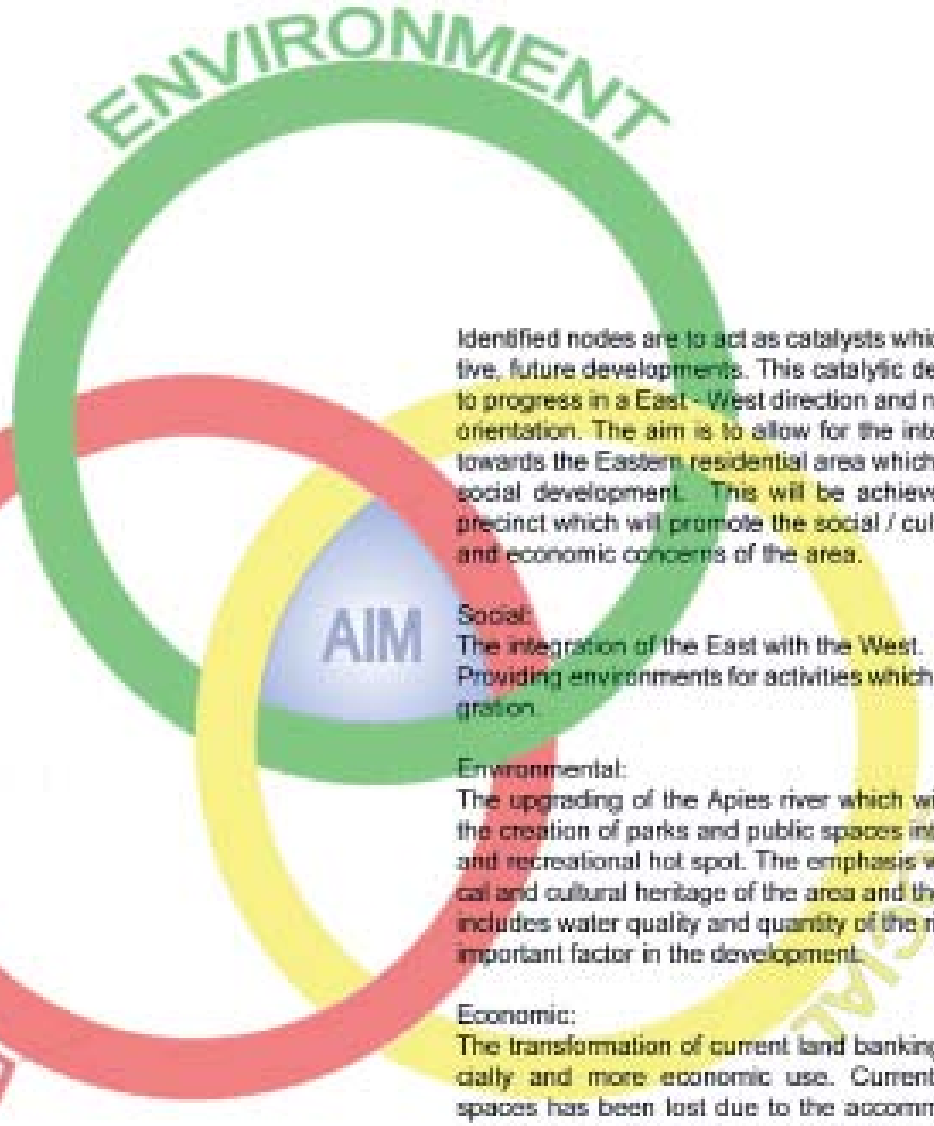
- The Functional and Symbolic **Heart of the Capital City of South Africa and Africa**
- The **Centre of Culture in Africa**, where all aspects of being (South) African can be celebrated.
- "Celebrating the National Capital and Repositioning the Inner City as a **vibrant cultural** and government centre"
- The Inner City must provide tourism, entertainment and recreational opportunities, for residents and visitors
- The Inner City must be made pedestrian friendly



Any capital city needs to also be the cultural centre of that country, which showcases the national culture to the outside world.

The Tshwane **Inner City** is a place of **strategic significance**, not only in the city, but also from a national and international perspective. However, it is generally acknowledged that the Inner City is currently not functioning as it should from an environmental, economic and social point of view. The City Development Strategy, the IDP and the Metropolitan Spatial Development Framework have all identified the inner city, together with its important role within the Capital City vision, as a strategic focus area. **The Tshwane City Vision, namely "to become the leading international African capital city of excellence** that empowers the community to prosper in a safe and healthy environment", clearly sets out the development goal of becoming the African Capital City of Excellence. H





Identified nodes are to act as catalysts which will promote positive, future developments. This catalytic development is aimed to progress in a East - West direction and not in a North - South orientation. The aim is to allow for the integration of the CBD towards the Eastern residential area which at the moment lack social development. This will be achieved through creating precinct which will promote the social / cultural, environmental and economic concerns of the area.

Social:
The integration of the East with the West.
Providing environments for activities which promote social integration.

Environmental:
The upgrading of the Apies river which will act as a spine for the creation of parks and public spaces into a social gathering and recreational hot spot. The emphasis will be on the historical and cultural heritage of the area and the biodiversity, which includes water quality and quantity of the river will also play an important factor in the development.

Economic:
The transformation of current land banking hot spot into a socially and more economic use. Currently lots of potential spaces has been lost due to the accommodation of garages due to the automotive industry, which do not promote for the social or economic issues of the area.
The job creation through potential hot spots via the social integration and gathering of people. As more people will occupy the area, naturally this will create more potential business opportunities which will be needed to cater for the incline of people.

PRECEDENT

A River Reborn – Los Angeles River Framework

The Los Angeles River has been canalised and misused, but interested and affected parties started to take action to improve the function and aesthetics of the river.

The importance of rivers:
River greenways are one of the most important open space resources. A river in an urban setting should be the spine for an open space system that includes parks and public squares.

Olmstead (1930) said that rivers' edges should "...become pleasure ways – greatly elongated parks [with a] variety of scenic effects."

Strategy:
- Reclaim land along river for parks and wildlife sanctuaries
- Divide park into sections and plan catalyst projects that gives identity
- Increase public awareness
- Address streetscape issues, bikeways, parks, wildlife viewing and public access
- Turn buildings to face the river or live unto river
- Protect river as a flyway for birds

This can be achieved by:
- Assessing all riverside properties that has no buildings or has abandoned buildings and reclaim these to form a network of open spaces
- Including floodplains, power line and railroad servitudes and schoolyards in the network
- Involve the public in decision making processes
- Where possible, removing engineered structures to restore natural floodplains
- Retrofitting canals (restoration is impossible) to a more natural state
- Doing biological studies to inform decisions
- Start demonstration catalyst projects that educates and informs the public

Improve microclimate

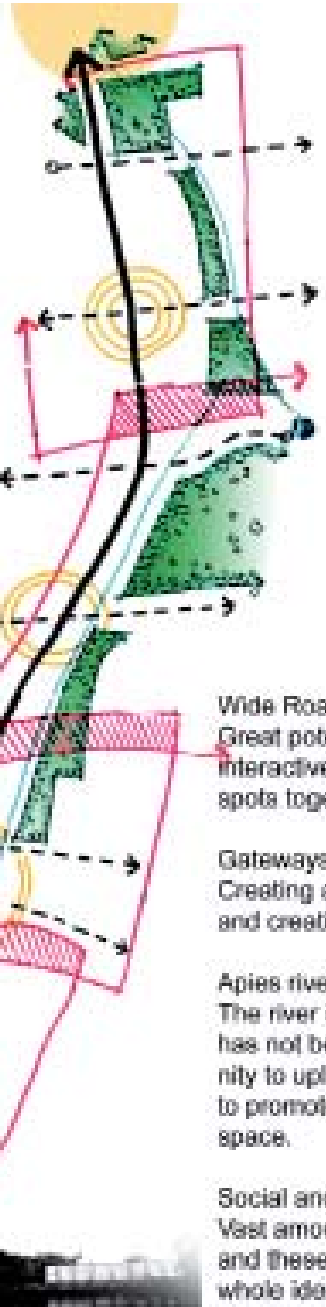
Landmarks and transport

Widened river channel

Improve bio-diversity

Informal trading

OPPORTUNITIES



Wide Road Servitude
Great potential in the wide road servitudes to create vibrant interactive spaces which links the diferent zones and hot spots together.

Gateways and Landmarks into the city
Creating a local identity which adheres to that specific area and creating a sense of place.

Apies river and green pockets
The river is in a upset state and reacreational areas along it has not been looked after or put to good use. Ideal opportunity to uplift the current state and introduce new interventions to promote the area into a positive and socially populated space.

Social and Cultural heritage
Vast amoutn of social and cultural heritage exists in the area and these aspects must be brought out and form part of the whole identity of the area.

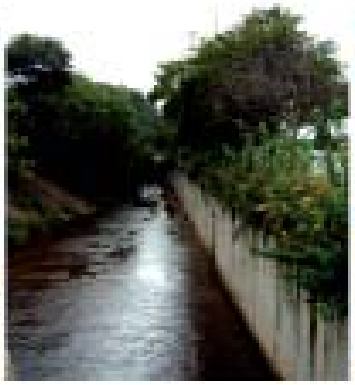
Pedestrian lines
Pedestrian access must connect to different spaces, espetially between the east and west.

Neglected buildings

OPPORTUNITIES

Land Banking

Land banking entails hoarding of land for future development and using it low value entities. To transform theses areas into a more social and economical promoting use. Current landbanking includes parking lots and motor retail showrooms.


PROBLEMS

- Pedestrian crossings
- Lack of connection _ East -West
- Delapidated buildings
- Mono functional buildings
- Concrete river channel
- No destinct identity
- Land banking
- Crime and garbage
- Vacant land

The Nelson Mandela Corridor is currently seen as an urban wasteland, a defragmenting agent between the East and the West, acting as a physical buffer between the city's two halves. The links and connections between the city and its surrounding neighbourhoods are very poor and needs addressing. Pedestrian integration along Nelson Mandela Avenue is also in a state of neglect – sidewalks are used as refuse depots, street furniture needs upgrading, shade is in short supply, etc. The natural features along the river are unmaintained. There is no informal economy, the buildings are all monofunctional. In short the Nelson Mandela Corridor is lacking an identity.

MOVEMENT NETWORKS

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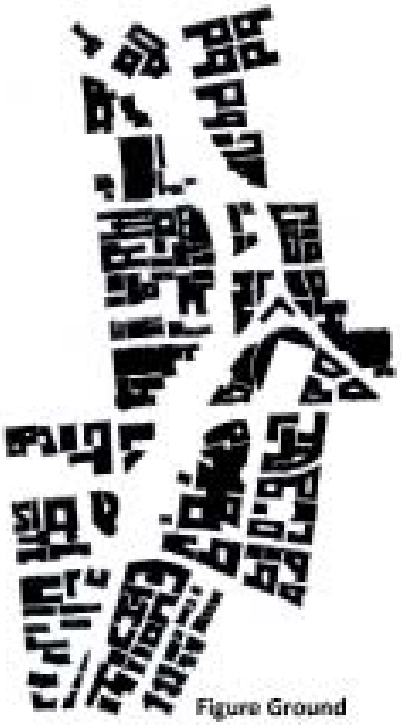


Figure Ground

SPATIAL PROPERTIES

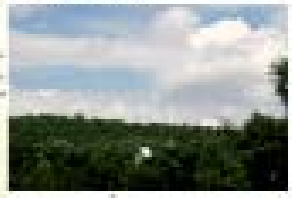
Urban Integration

Coleseum Hotel

Unisa

DTI

Reserve Bank



Salvokop/Freedom Park

Proposed spatial properties for the framework

Promotion and celebration of regional connections
- Johanesberg to the south
- Soutpansberg to the north

Upgrading and creation of Local area connections
- Promotion of east/west connection
- Promotion of Urban Integration

Rejuvination and upgrading of existing Green Spaces

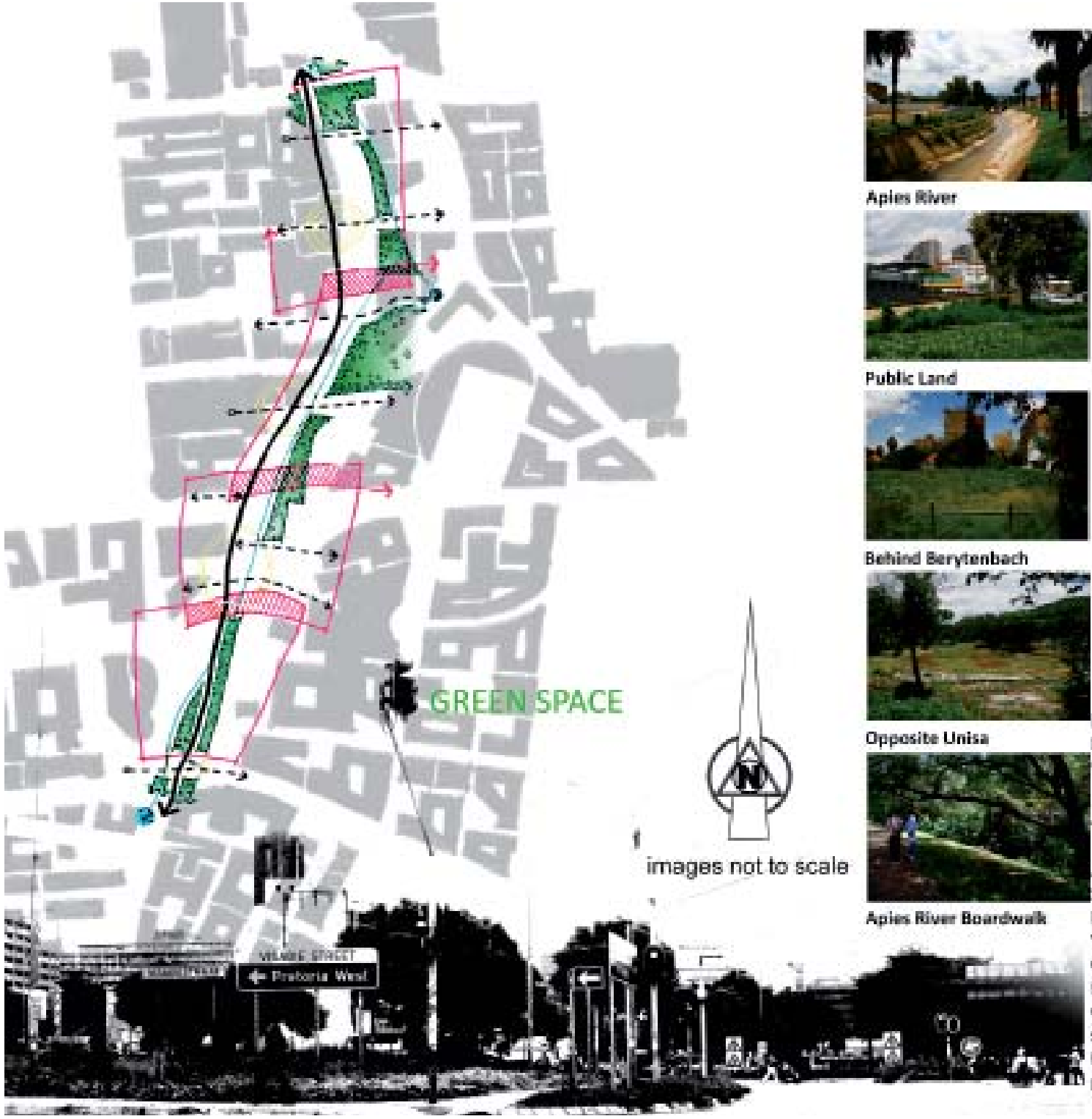
Promotion and Celabration of promoinent public space
- Creation of new public spaces within the new nodes
- Rejuvination and upgrading of existing public spaces such as DTI, Overzicht Village and the banks of the Apies River

Movement Network
- Connections to important nodes of the city
- Promotion of Pedestian Routes

Celebration of the built fabric and the promotion of the identity of the proposed nodal interventions

Creation of a sense of arrival into the city - Nelson Mandela Developemtent Corridor as the Gateway into the city

Celebreation and connection to existing and proposed landmarks within the precinct



Apies River

Public Land

Behind Berytenbach

Opposite Unisa

Apies River Boardwalk

Rejuvenation and upliftment of the Apies River
Integration of existing Apies River Developemnt Framewor
the Nelson Mandela Development framework

All Green space must conform to the following crit

Accessible to the public
Safe and create a sense of security
Low maintanence
Vibrant catalysts for social interaction
Creation of a pedestrian friendly link through the city
River becomes a spine, linking all the green spaces
Green space and apies river upgrade link all the nodes and spaces
Focus on interaction and blurred lines between the buil public spaces and open green spaces

Goverment Node

Cultural node

Active sports node

Passive node

Experience North-South connection movement through nodes

Passive Recreation Node

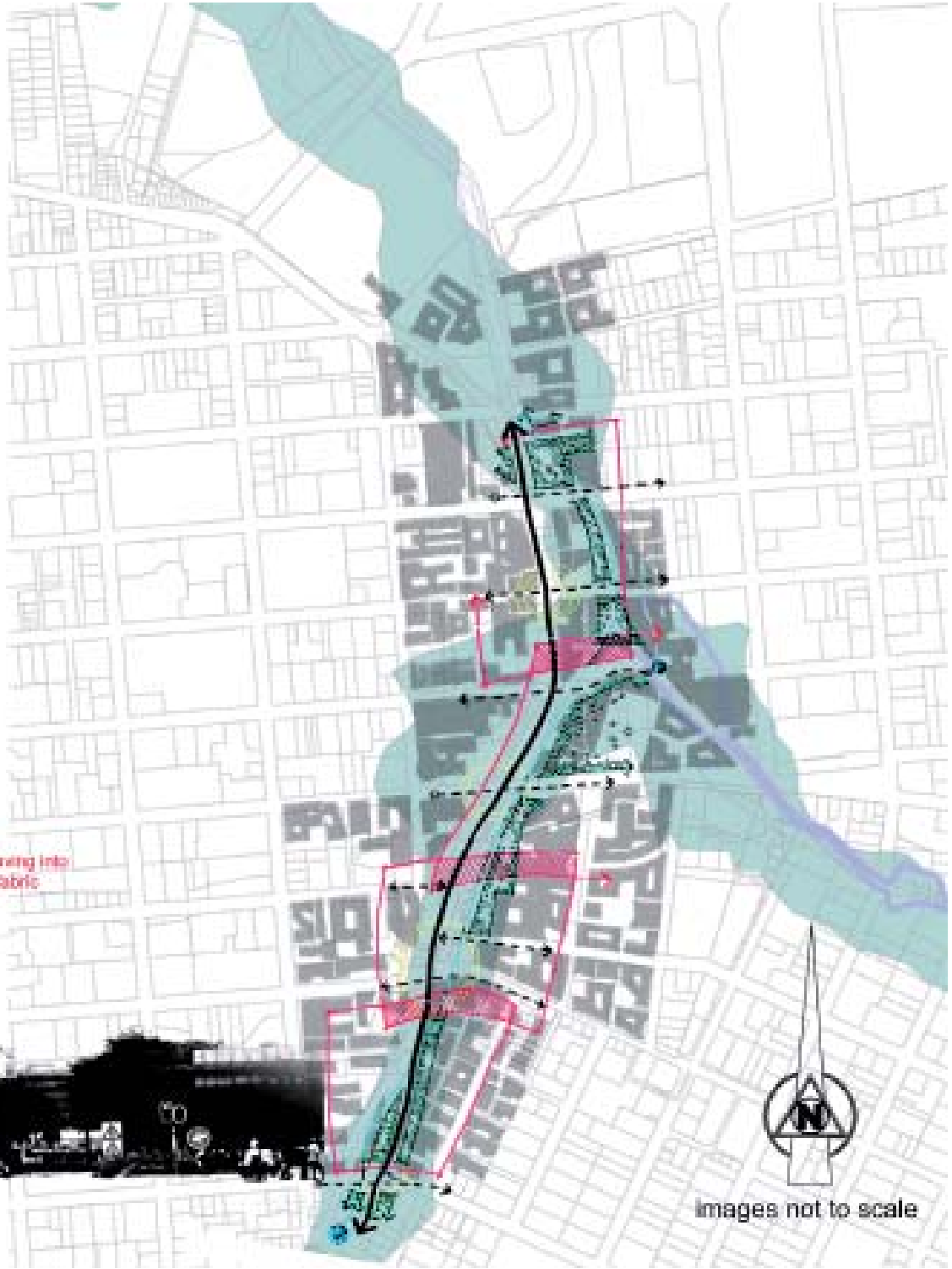
Active Recreation Node

NODES

Civic Node

Cultural Node

Functions of nodes weaving into surrounding urban fabric



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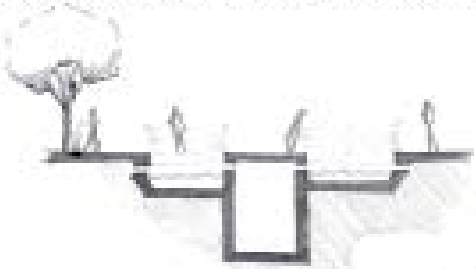
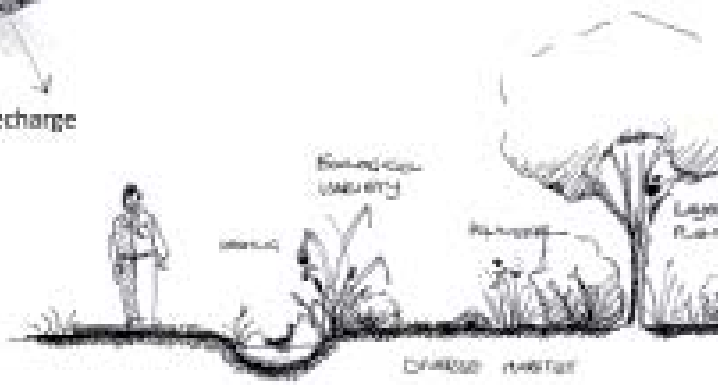
The study area in question is the Nelson Mandela Corridor, the gateway into the city from the North and the South. A very important spine running along the Apies River feeding the city's East/West orientated streets. It is the opinion of this group that Nelson Mandela Avenue represents a rip in the urban fabric of the city and this group proposes that this rip be repaired by adding buttons, or nodes along the affected area, thus "buttoning up" the urban fabric but still providing enough play for the corridor to develop through a natural process. Four nodes are proposed, namely; Cultural; Business; active Recreational and passive Recreational nodes – placed on strategic crossings along Nelson Mandela Avenue.

- NELSON MANDELA DRIVE
- APIES RIVER
- PEDESTRIAN PATHS
- NODES
- ROADS
- OPEN GREEN SPACE
- CULTURAL PRECINCT
- COMMERCIAL PRECINCT
- ACTIVE PRECINCT
- PASSIVE PRECINCT

OPEN SPACE

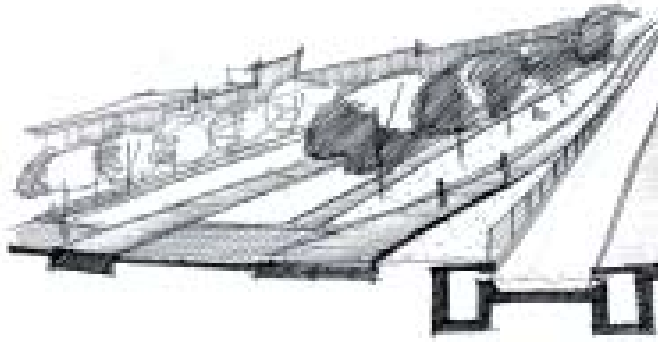
Shallow River with swale for ground water recharge





Possibility of splitting river chanel

Channel with side culvert

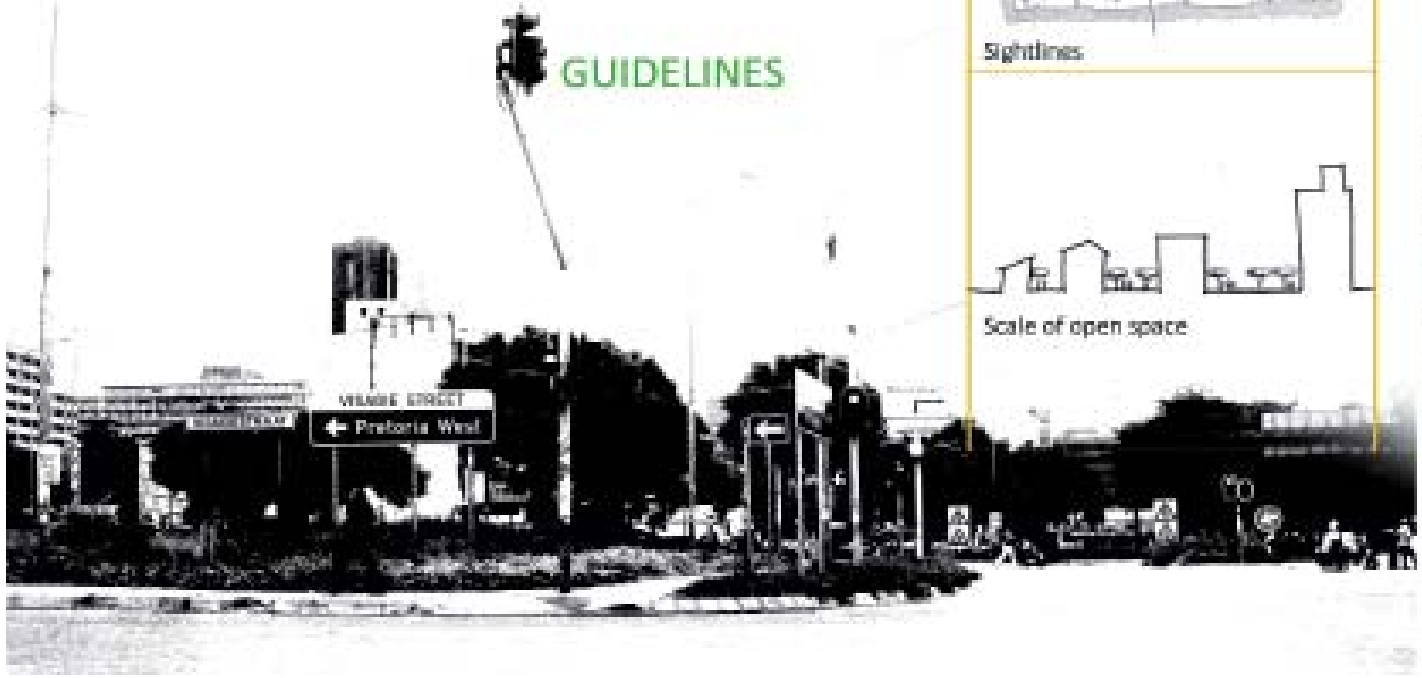


APIES RIVER

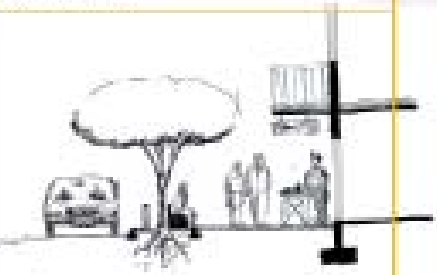
Weir in channel

The Apies River is a prime location within our city and has underutilised in the past. This group feels that the Apies needs to be celebrated – by the buildings along it, the people city, informal traders, and tourists etc. The Apies River needs "branded" and added to the Proudly South African campaig will result in the river being managed and maintained pr uplifting the surrounding area and its population – makir Apies River a landmark the city can be proud of.

GUIDELINES



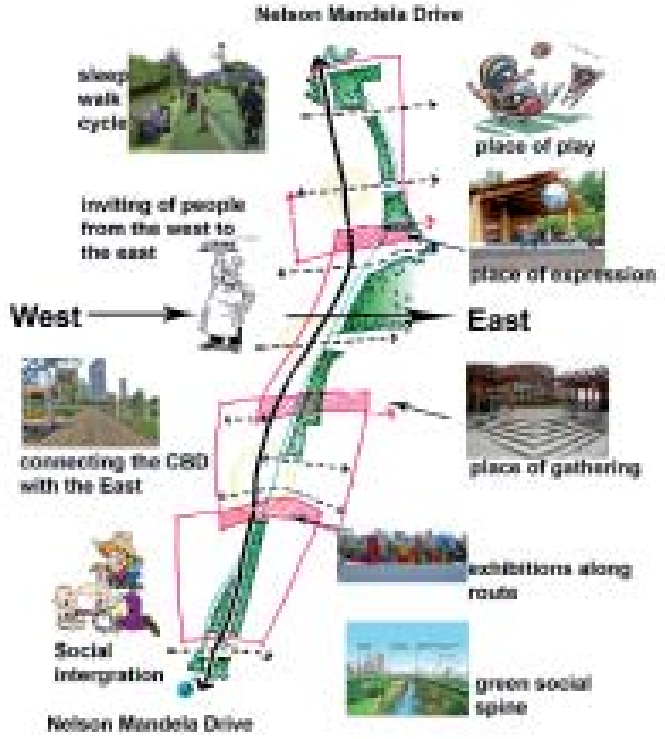
Build to lines



Pedestrian Integration

Sightlines

Scale of open space



General access and entrances –

- No service entrances on Nelson Mandela Avenue
- Encourage basement parking
- Formalised street drop-offs
- Orientation of entrances according to individual building

Build-to-lines and height restrictions –

Build-to-lines

- 5m setback from street kerb
- 7m setback from river edge (100 year flood line)

Height

- Arts and culture precinct – 4 storeys
- Government and business precinct – 7 storeys
- Active recreation precinct – 4 storeys
- Passive recreation precinct – 4 storeys

7 guiding principles of successful places
(CABE: 2006:5)

Character – a sense of place and history
Character is how we distinguish one place from the next. It is about place-making (Manifesto for change, 1991:2). It reflects local culture, tradition and context. It establishes recognisable patterns through the use of natural features, distinctive landscapes, diverse spaces, and physical and psychological clues that are imbedded in a spatial identity, the blueprint of that place. It enables environment, encapsulating timeless qualities in space.

Contunuity and enclosure – clarity of form
What should be open what should be closed? Who should have access and who should not? Good public space has a clear hierarchy and definition between public and private space. Positive urban environments require freedom and constraint, setting preconditions for activities and growth to occur (Manifesto for change, 1991:23). Deliberate/purposeful articulation of urban space therefore ensures the development of healthy ownership roles and public care. Definition should occur by means of buildings that define these spaces at a scale that responds to character of the place and that feels

Quality of public realm – sense of wellbeing and amenity
The public realm is the zones of greatest interaction, and therefore the areas of greatest opportunity (Manifesto for change, 1991:17); it is the setting for the formation of social networks and public ties (Manifesto for change, 1991:18). These spaces usually have distinct and clear routes and a good sense of safety and security, provide equal access to public amenities, and are detailed with good lighting, urban greenery, street furniture and public art. These spaces are structured to respond and adapt to the needs of everyone.

Ease of movement – connectivity and permeability
Movement is vital in our daily ritual of life, for it is the method by which we get from one place to the next. Therefore, the urban fabric should be developed to improve ease of movement with a choice of safe, high-quality connector routes. Roads, footpaths and public spaces should be well connected and provide high accessibility to public transport systems.

Legibility – ease of understanding
Places should have focal points, landmarks, distinct views and gateways that act as points of reference, provide visual order and guide passage through space. Good articulation of built form, adequate lighting, signage and creative way-markers provide the basis for a good sense of direction and provide the clues needed to equip the user to navigate public space.

Adaptability – ease of change
Spaces that can only be used for a single purpose, remain empty most of the time. Therefore it is essential for spaces to have flexible uses, and to be adaptable to current and future spatial requirements. Adaptive re-use of buildings with historic value also improves the quality of the public realm and enhances the character and legibility of a space.

Diversity – ease of choice
Monotony is the enemy. Diversity increases the range of choices that people are exposed to (Manifesto for change, 1991:17). Places should be multifunctional and provide for a mix of compatible uses and programmes. These places should cater for the diverse communities and cultures and offer a wide spectrum of activities and communal functions. Spaces that posses a healthy diversity of people, culture and architecture are the groundwork for positive social interaction and expression.

What makes a good urban space?

There are no predesigned solutions to creating a successful urban space. Each scenario has its own inherent spatial, cultural and contextual aspects it needs to respond to, in order for the intervention to be regionally responsive. However, there are guiding principles present in every successful urban place that can be adopted and adapted to guide the urban development.

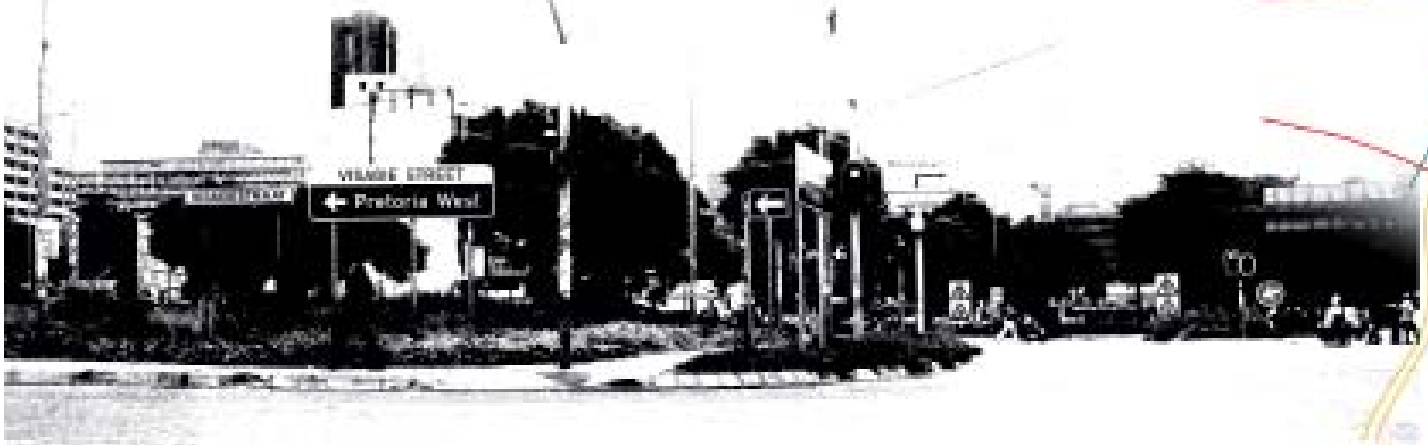
The goal of the proposed framework for the Nelson Mandela Development Corridor is to spatially integrate the MDC into the greater Tshwane inner city.

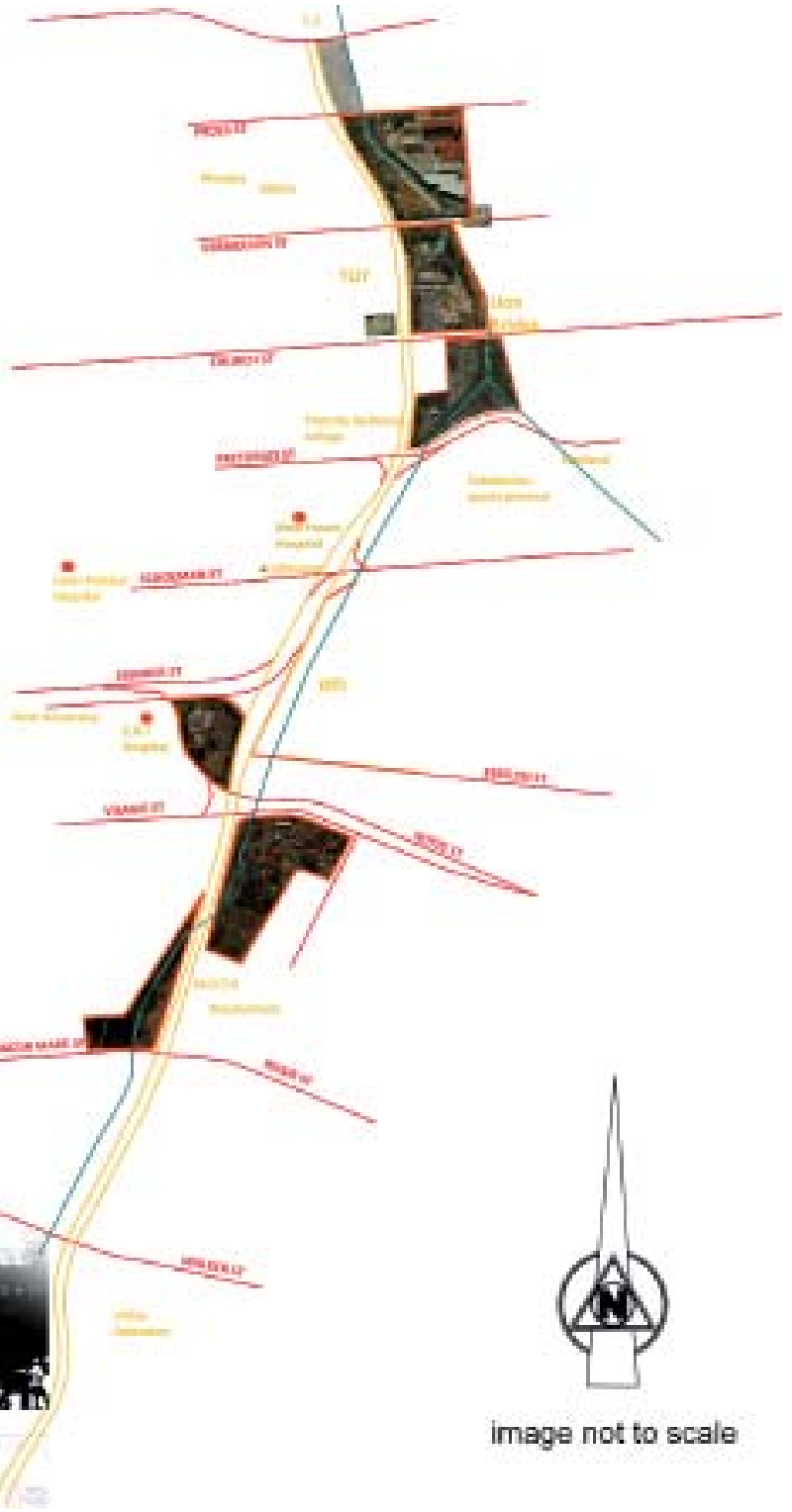
The proposed framework aims to develop the MDC to act as a gateway into the Tshwane Inner City, where visitors and residents are greeted with a sense of arrival celebrating the identity of the greater Tshwane context. The idea is to encourage the MDC as a destination point and not have it act just as a crossing or thoroughfare

Through the framework the aim is to develop a cultural and civic strip where pedestrianisation, social interaction and green open spaces are encouraged and to promote Tshwane as South Africa's **Cultural Capitol**. The aim is to create vibrant spaces and activity nodes along the corridor and give identity to the currently dilapidated and underutilized area, primarily to create spaces for people.

The primary intention of the MDC framework is to repair the tear/rip in the urban fabric left as a result of previous inadequate planning decisions. We wish to stitch back the cultural and historical identity into the area and create a sense of place and space for future generations to appreciate

SITE SELECTION





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Appendix 2:

Design Presentation

'Genius Loci' A cultural centre for the visual and performing arts


Aerial view of chosen study area - MDC


Aerial view of Nelson Mandela Drive


Entrance/Gateway into the city


Apies River channel


Greenery along Apies River channel


New DTI campus


Existing land-banking

Study Area - Mandela Development Corridor

Location map of chosen study area

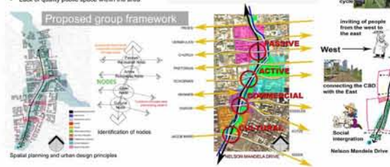

Existing cultural landmarks within the CBD of Pretoria

Sites included in the chosen study area


Land parcels of the Mandela Development Corridor (MDC)

Introduction to study Area

- MDC is situated along Nelson Mandela Drive
- Can be described as a disgaurded urban wasteland, that currently acts as a buffer between Tshwane inner city and its higher density residential districts of Sunnyside and Arcadia
- The Apies River which flows through this precinct is currently an underutilised and degraded natural (or no longer so natural) resource.
- This urban wasteland has come into being due to the planning inadequacies of the past.
- Nelson Mandela lies at the intersection of the two city grid systems, and this has created many isolated and underutilised land parcels
- Land-banking has also added to the urban decay of the precinct
- Potential for this stretch of land to bridge and foster urban regeneration.
- New headquarters for the department of trade and industry has been built within this precinct with the intention to act as a catalyst for investment and development within the precinct
- Lack of quality public space within the area



Spatial planning and urban design principles

Aims and objectives of group framework

The Tshwane Metropolitan Council have identified the key driving forces behind the development plan.
They are as follows:

- **Apies River urban design framework.**
- **Inner city spatial development framework**
- **Tshwane Metropolitan Area spatial design framework.**

Other related projects that will have a bearing on the development of the precinct, are as follows:

- **Apies River upgrade.**
- **Esselen Street upgrade.**
- **Nelson Mandela Drive edge upgrade.**
- **Proposed library and communitycentre with square development around existing Dost-Eind school.**
- **Future public transport monorail/cable car.**
- **Proposed corporate head office complex along Nelson Mandela Drive.**

From these key driving forces and other related projects, various objectives and solutions have been identified for the precinct. It is from these that appropriate design responses can be generated:

- **Making connections**
  - physical and visual urban integration
- **Creation of a balanced movement network**
  - the city as movement economy
- **A local district network**
  - all amenities within walking distance
- **Broader mixture of uses**
  - appropriate variety to strengthen existing uses
- **Investment in the public realm**
  - urban form to support exchange
- **Spatial guidelines**
  - controls to reinforce community identity
- **Spatial vision**
  - ensuring urban integration and spatial meaning

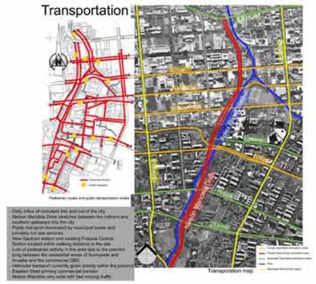
As well as the above solutions, some problems hampering the achievement of these development outcomes have been identified:

- **Decentralisation and urban wastelands**
- **Poor links/connections between inner city and neighbourhoods**
- **Lack of balanced integration of urban areas**
- **Mismanaged natural features**
- **Poor management of the informal economy**
- **Lack of mixture and public amenities**
- **Lack of identity and vision for the area**
- **Monofunctional, poorly defined public open spaces**
- **Historical fabric**

The above mentioned problems provided the basis for the initial development framework done for the MDC by Holm Jordaan. Central to the framework is the notion of governmental and private sectors working together towards the same goal of providing a vibrant public realm. This notion is expanded on in the proposed development framework compiled by the MDC group.
This has resulted in the following opportunities being identified:

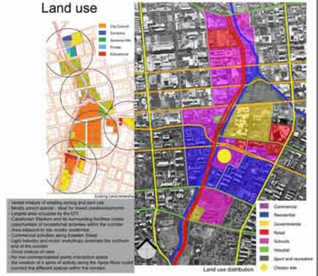
- **The development of an activity spine along the Apies River Channel**
- **The creation of an urban identity for the Mandela Development Corridor precinct,, while providing a focus of a civic nature**
- **The encouragment of informal meeting and social interaction along the activity spine with vibrant daylight activity, which will provide much needed public surveillance to the precinct**
- **The bringing together of the eastern and western sides of this urban wasteland, once again unifying the city**

Transportation



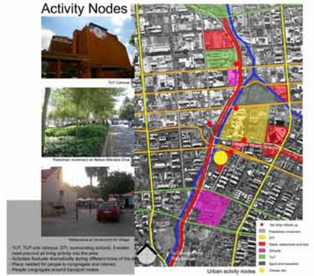
Transportation map

Land use



Land use distribution

Activity Nodes



Urban activity nodes

Site character - Kotze Street


Existing M.O.T.H. club building


Existing large trees on site


Existing restaurant on site


View from Kotze - current state of site


Quiet character and canopy covered area of site


Apies River Channel - western boundary of site


Current state of site

Chosen Site

Photographic orientation diagram

Legal Context

Zoning: According to the individual zoning certificates the sites currently have different zonings.
They are currently zoned as Special, Gemeral Residential or Public Open Space
The sites are to be consolidated and rezoned as Special

Area of consolidated site: 27 305m ²

Area of existing buildings on site: 1 071m2 ²

Building Lines: 5m street
3m river frontage (30% of building edge)
7m river frontage (70% of building edge)

Storeys: Max. 6 storeys

Servitudes: None

Parking: 2.5 per 100m ² (as per framework)

Floor-Space ratio: 2.5 (as per framework)

Coverage: Maximum 60% of consolidated erf area


Site Location within Pretoria

Aerial location of site

Site analysis

- Located in and around the Oeverzicht Art Village on the corner of Kotze and Nelson Mandela Drive
- The site location is extremely important to the project
- In order to convey the image of the city as a culturally perceptive city to its urban population and visitors the site had to be located at a visual node. This site is ideally situated at the southern entry to the city
- Project sits accross a number of sites which will have to be consolidated
- The historical M.O.T.H. club and Breytenbach Theatre are located on the site
- The existing homes on site are not historical monuments, but are considered to be of historical importance
- The Apies River channel forms the western boundary of the site
- The site lies within the the arts and cultural nodes identified in the proposed group framework
- Site is currently owned by the Municipality
- Many of the exiting structures on the site are in dire need of restoration and renovation.
- M.O.T.H. club building is currently overun by squatters and vagrants
- Existing Breytenbach Theatre is barely visible from Nelson Mandela Drive and it not functioning to its full potential

The site poses a number of problems for the creation of structures on the site. These problems include:

- How to provide for sufficient parking?
- The change in level between the street edge of Nelson Mandela Drive and the site
- The treatment of the natural slope of the site
- Obtaining access off Nelson Mandela Drive without disrupting traffic flow?
- Linking/including the existing Breytenbach Theatre and M.O.T.H club to the development?
- Using the existing houses/structures to enhance the character of the new development?
- Creating an active edge along Nelson Mandela Drive with its fast moving traffic?

Existing fabric

- Existing fabric ranges from newly completted projects such as the DTI campus in 2003, to buiings that date back to the 1920's
- If any new development is to become routed within its context, its surrounding architectural language must be properly understood
- Study area is home to a variety of architectural styles from a wide range of architectural eras, including art deco, modern and post-modern architectural styles.
- Site contains mostly single-level buildings and the immediate buildings to the south-east and western edges of the site average 8 storeys
- The current varied architectural styles and lack of a common architectural language results in spaces that are not easily definable and identifiable by the public.
- Materiality of the buildings show srong similarities to one another.
- This materiality creates a specific character for the precinct


Surrounding building use distribution


Traditional face-brick buildings


Breytenbach Theatre


Surrounding building materiality

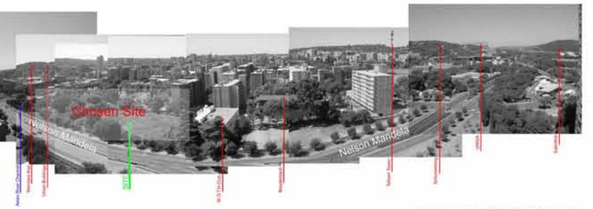

Historically important structures


Surrounding street treatment


Current state of the Breytenbach


Scale of surrounding buildings


Photographic orientation diagram -existing fabric



Aerial view of Mandela Development Corridor from atop Orie Lelies

Existing buildings on site


Changers Bar


Docter

Zwakala Jazz Cafe

Halcon Bar/lounge

Chiefs Hair Salon

African Beat

Ngua Mini Market

M.O.T.H club

Site character - Gerhard Moerdyk

Site character - Nelson Mandela Drive

'Genius Loci' A cultural centre for the visual and performing arts


Precedent- BBC Media Box - Foreign Office Architects


Precedent - Leeds Graduate Gallery - DTZ Duffett and Tuomey


Disney Concert Hall - Gehry Partners


Museum of Contemporary Art - SANAA


South African State Theatre - Herreman Roelf Botha

Problem statement

In our society that is infatuated with image, sight is often the only sense that is ever sought to be stimulated in the creation of architecture. Many new buildings do little to stimulate the other senses and this has resulted in many spaces possessing little character and providing the users of the buildings with limited spatial experiences. Architecture should be conceived as a sensory phenomenon, where people should experience architectural space through all of the senses.

Reasearch questions

1. How architecture can influence our experience of space through the stimulation of the senses?
2. How can we produce a creative urban realm that celebrates our cultural identity, while allowing individuals to contribute to the performance of life?
3. How can appropriate architectural articulation conduct, orientate and guides the user successfully through various spatial experiences.?
4. How can visual and physical connections be established between the vistors of the centre and the artists and performers, without disturbing their creative processes?
5. How can a building of the nature and scale respond to the exsitng residential scale of the existing structures on the site?
6. How should an architectural language that enhances the sensory experience of this built environment be developed and explored? Should we return to architectural place making strategies of the past in order to create spaces and places for people to interact in today?

Client

arts and culture
Department: Arts and Culture
REPUBLIC OF SOUTH AFRICA

CITY PROPERTY
Addressing the Future

Design brief

To inspire the creative genius in us all by nurturing artists in an innovative contemporary centre for the performing arts

- Create a vibrant and interactive destination.
- The main intention of this project is to create a building of regional significance which contributes towards inner-city regeneration and helps to establish the precinct as a location of social, economic and cultural vitality.
- The user of the realm must feel a sense of belonging within the space and the everyday users of the space should have a connection with the various facets of the performing arts industry in order to gain a better understanding
- The aim of the development is to develop a synthesis between arts, culture, economy and urban vitality by creating a platform for the arts.

Theoretical Premise

There are very few spatial experiences that can stimulate the full spectrum of our senses. Most art forms attempt to simulate the sense of lived experience, but architecture is the only art form capable of producing lived experiences. Architecture provides the spatial boundaries within which we experience space, however most experiences of space can be reduced to a singular experience of sensory bliss.
How can an environment of a civic nature be created which addresses the full spectrum of sensory phenomena, stimulating the performance of life whilst allowing individuals the opportunity to master and nurture their skills, and express their unique individuality? How do we create such an environment?

For the proposed space to be successful, it should be easily accessible to all and encourage ongoing and frequent use. It should house a variety of activities, thus sustaining the ever-changing user requirements.
The built intervention should enhance the natural phenomena of the site. Yet how should an architectural language that enhances the sensory experience of this built environment be developed and explored? Should we return to architectural place making strategies of the past in order to create spaces and places for people to interact in today?

The theoretical investigation explores the how the senses can be stimulated

Touch - Materiality
- Physical and emotional responses
- Use of differnet textured materials
Sight - Light - Lower intensity of light creates more soothing environment
- Shadow - contrast of light and dark
- Visual connections to performers and artists
Smell - Natural ventillation
- Smell of materials
- Connection with the surrounding outdoor environment - plants, river etc.
Hearing - Reverberation of sound
- Create feelings of intimacy and isolation
- Hear natural environent
- Music and sounds reverberating throughout the centre
Taste
- Inclusion of restaurants

Light


Full of light accessorizing curve of wall


Soft crispness of natural light


One of richest shades colourful shade landscape


Filtered light adding to the visual complexity of the space


Warmth light used to promote soft natural light in the chambers of a sense of tranquility


Massivity enhances shadows


Shadows adding depth to a space

Materiality

"Natural materials - stone, brick, and wood - allow our vision to penetrate their surfaces and enable us to become convinced of the veracity of matter. Natural materials express their age and history, as well as the story of their origins and their history of human use." (Pallasmaa: 2005:31)


Colourful palette of materials


layered materiality


Neutral surface brought to life through shadow articulation


Shadow reveals true textured materiality of wall


Texture adds depth to surface


Layered materiality


Light enhancing natural beauty of exposed brickwork

Spatiality


Spatial and visual connection between internal and external environment


Topography between through courtyard


Internal courtyard


Spatial experience enhanced through colour


Pinhead roof opens


Boundaries blurred between inside and outside


Spatial relationship between external and internal spaces

Massing

"Architecture is the masterly, correct and magnificent play of masses bought together in light." (Le Corbusier, 1889:31)


Elevation of massing creating intimate spaces underneath


Spatial relationship of different massings create interesting inbetween spaces


Massing provides shelter and gives a sense of security and safety


Deep window recess enhances wall depth experience


Light enhances the formal language of the museum

Inspiration


Quality of urban realm at Melrose Arch


Urban performance space, Federation square, Melbourne


Street interaction at Melrose Arch


Visual connection between passers by and business at Melrose Arch


Digital media screens activating public space in Times Square, New York

Design development and planning

Design Concept

- The aim of the project is to introduce a development that promotes and celebrates the cultural identity of South Africa
- Celebrates the unique setting of the site
- Develope the centre as the cultural gateway into the city
- Development to encourage public participation in the cretive process
- Create a heightend awareness of the visual and performing arts industries
- Create a platform for social interaction between the general public and artists
- The project proposes that an urban activity square be created, which is enveloped by the proposed cultural centre
- It is the intention that the activities of the centre will be bought together through the creation of the urban activity square
- Movement through the centre is to crete memorable journey for the user
- The centre is to be a 24/7 hive of activity through the introduction of offices, apartments and retail activities
- The aim of the project would ultimately be to develop a synthesis between arts, culture, economy and urban vitality by creating a platform for the arts

Design Process


Diagram depicting initial space planning response

- Most existing structures were maintained - limited intervention
- Principal performance space along western edge - no windows needed
- Galleries along Apies River - better location for studios and apartments


Planning - relationship of centre and square and inclusion of central circulation and activity spine

- Some of the existing structures were removed
- Inclusion of landmark structure on cnr of Nelson Mandela and Kotze
- Centre very fragmented


Section through principal performance space (06 June 2005)

- Scale and height was too large in relation to existing structures on site
- Entire structure was lowered into the ground


Section through secondary performance space (06 June 2005)

Conceptual planning of final design layout

Design response to existing urban grid (23 May 2005)

Creation of connections to passers by

Access into central activity square and visual connections

Inclusion of digital media screens and access to site

Wrapping of landmark structure in media screens to entice general public into the centre

Visual connections between artists and general public widening the square and improved link to Rooseveldt Park

Activities from multi-purpose exhibition space and pre-lecture and digital screens defining landmark site form

Activation of western facade through large glazed openings in secondary performance space and inclusion of media screens

Activation of public activity square through media screens

Concept driven 3 showing purpose and locality of various facets of the centre

Conceptual approach

The overall architectural concept employed throughout the design process can be explained as the influence of architecture on the senses

"The building must create an experience and a sense of place for its increasingly demanding audience"
(Hammond, 2006:24)

This notion has been explored on three scales:
- Urban
- Individual
- Public Scale

These 3 aespects are manifested in the form of three basic design concepts

1. The central activity spine
- Brings together the various facets of the project and square

2. The creation of visual and physical connections between the visitors of the centres and the artists
- Visitors to gain a better understanding of the various facets and processes of the arts industry

3. Wrapping the external skin of the building in digital screens
- This will evoke a greater emotional response for users of the centre, heightening their experience of the space

Precedent - Head office of the DST

Precedent - UJ arts centre

Precedent - GKD Mediamesh

Diagram depicting the conceptual approach of the project

Planning

- Central activity spine represents the programatic divide between the external and internal functions of the project and acts as a semi-private transitional zone
- Exterior experience of the public activity square will be created by the digital skin and the visual connections to the artists through large glazed facades
- The interior experience, is only understood and appreciated once one has entered the central activity spine as the varoius artistic processes are experienced in closer proximety
- On a spatial level, the square will form a vibrant activity space
- Passers by will be inticed into the centre who the placement of glazed facades of various performance and rehersal spaces on passing main vehicular and pedestrian routes
- Movement and circulation routes through the atrium will be slightly separated from the main functions of the building, allowing the public moving through the space to experience the artistic process, whilst still giving the artists a sense of privacy
- All circulation will be housed within of just off the central activity spine

Diagram depicting planning principles

Design solution

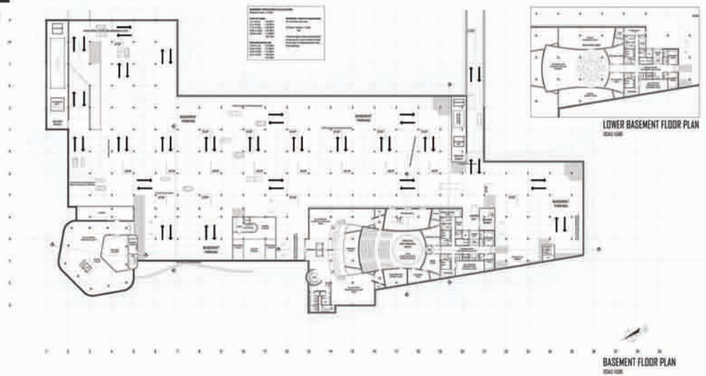
Entrance into square from Nelson Mandela Drive

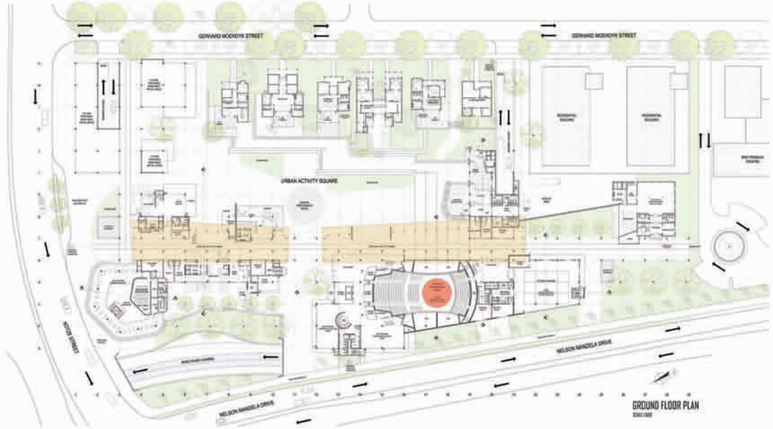
Southern entry to central activity spine and studio theatre

Perspective of artist studio apartments onto open green space alongside the Apies River Channel

Northern elevation

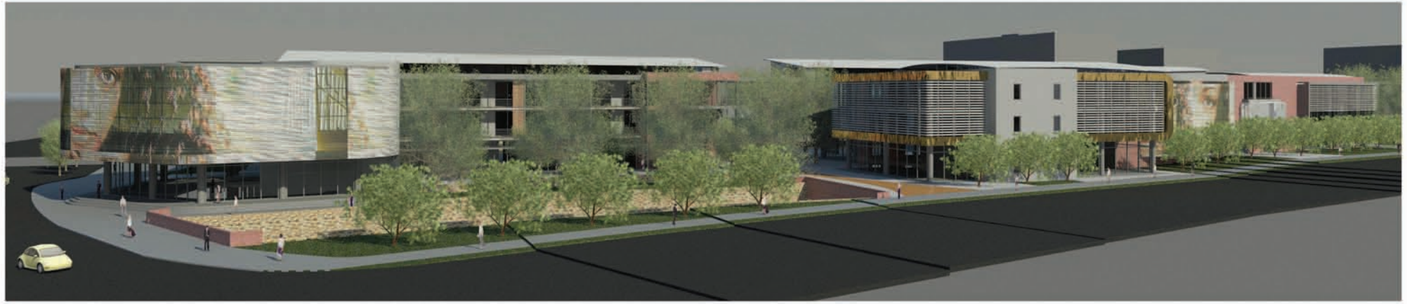
Exterior western facade treatment of Media resource library





Perspective of square in relation to existing Oerverzicht houses

Perspective of square

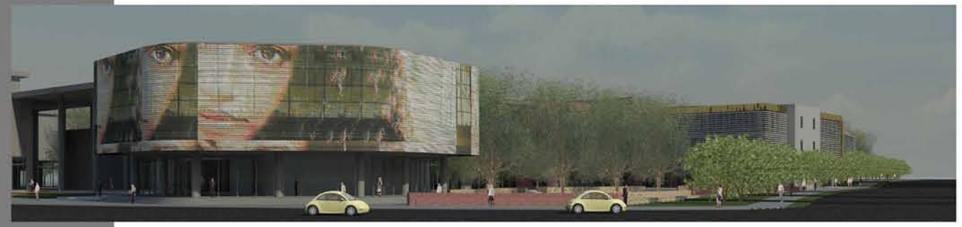


Western elevation

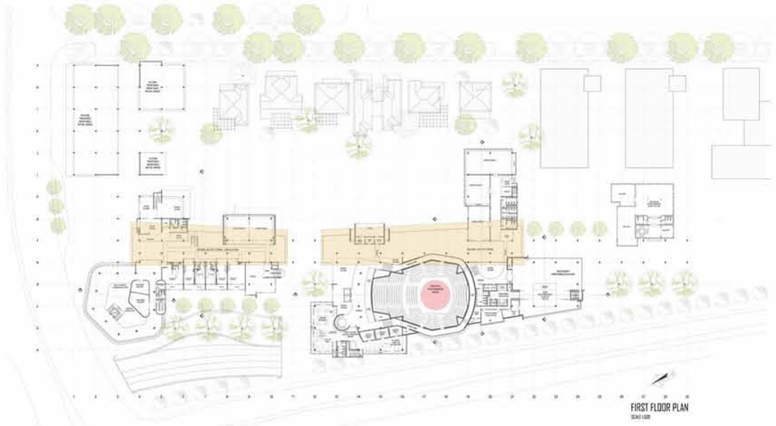
Design solution

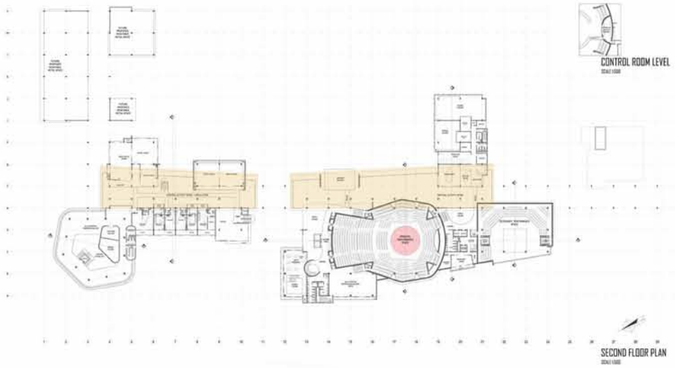
Perspective looking at artist studios- mechanically operable aluminium shutters

Perspective of restaurants alongside Apies River Channel



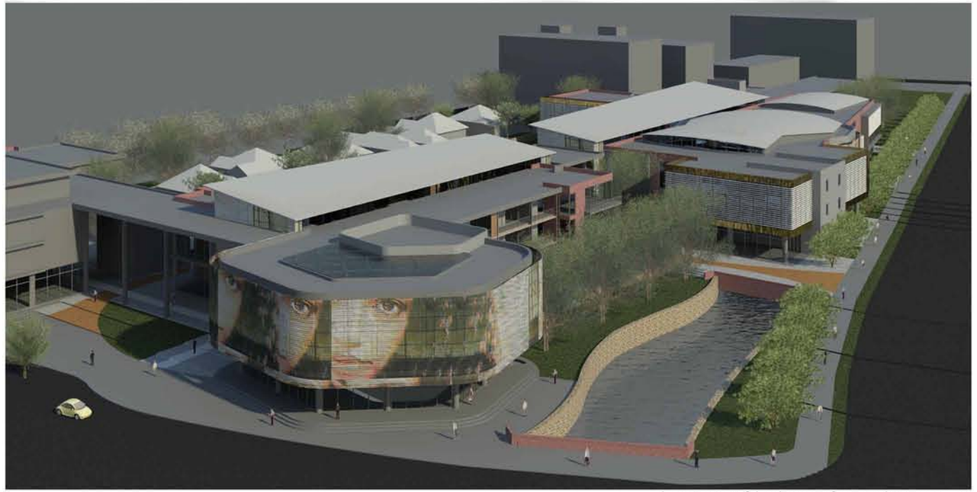
Multi-purpose exhibition space- treatment of corner of Nelson Mandela Drive and Kotze Street





Eastern Elevation

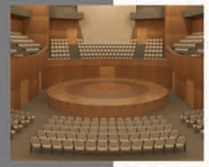
3d perspective of development from south-west corner



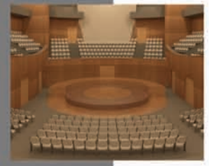
3d perspective of development from north-west corner

Principal performance space

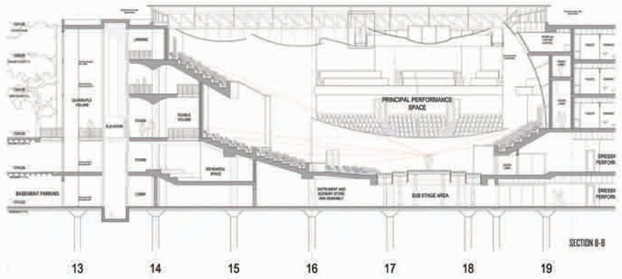
Stage configuration 1 - Sunken oechestra pit

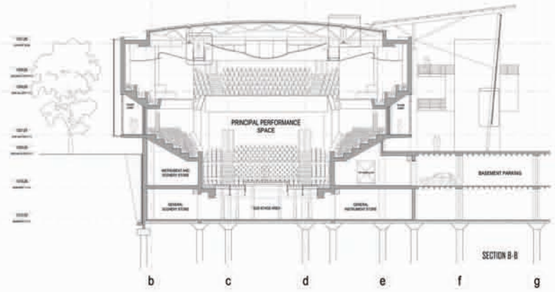


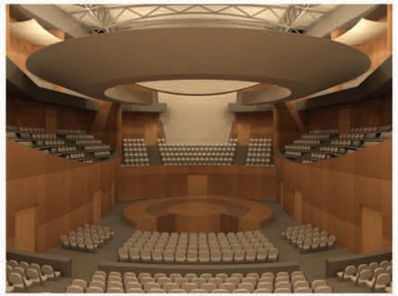
Stage configuration 2 - Stage components positioned in uniform level



Stage configuration 3 - Sunken forestage, elevated rear to accomodate choir







Lowered ceiling for more intimate performance withless audience capacity

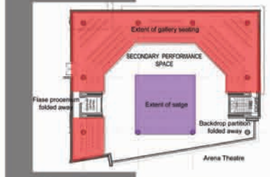
Interior perspective looking towards northern gallery seating

Interior perspective principal performance space

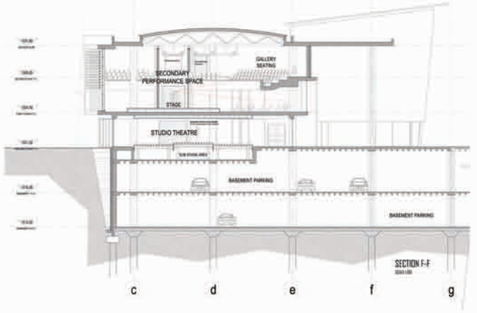
Secondary performance space

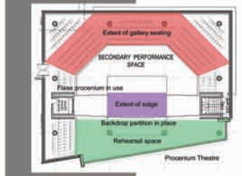
Secondary performance space arranged as thrust stage

Glazing and shading device of secondary performance space



Secondary performance space arranged as arena stage





Secondary performance space arranged as procenium stage

Interior perspective secondary performance space

Technical investigation

Reinforced Concrete

Reinforced concrete will be the principal structural material used in the cultural centre. Because a concrete structure is robust and requires little to no maintenance, all floors, columns and some roofs will be constructed from the material. Off-shutter methods for the cast-in-situ concrete walls will provide tactile textures to surfaces, and iron oxide pigment will add colour to the surfaces. The plasticity of concrete makes it possible to mould it into the complex forms required for the cast-in-situ walkways , the exhibition space and the terraced seating of the principal performance spaces.

Brick

Brick is the principal vernacular building material in our country and is an integral part of the Pretoria aesthetic. Brickwork is a sustainable building material as it contains a low embodied energy and provides good thermal mass. It is also a very durable material and does not need very skilled labour to lay the material.

Copper cladding

It is a relatively low maintenance and durable material.

Profiled copper panels, which are available in a variety of shapes and sizes and can also be pre-manufactured and specified with embossed patterns and designs, will be used to clad certain areas of the exterior of the centre. The copper panels are usually fixed to a substrate before they are fixed to the building in one of three ways: cleating, nailing, and screwing. All fasteners should be made of copper, a copper alloy or a neutral stainless steel alloy.

As copper and its principal architectural alloys are relatively active metals, when left unprotected they tend to oxidise and weather, which over a long period of time results in the formation of a naturally protective gray-green patina on the surface of the material. This natural weathering can, however, be hastened through chemical means and clear coatings. For this project, the material will be left to weather naturally over time, as copper tends to weather extremely slowly and maintain its lustre for decades.in the Pretoria climate.

Copper is mined locally in Phalaborwa, which makes it a sustainable building material, when compared to other aluminium and stainless steel wall claddings.

Steel

Steel will be used in the building to support the numerous skins of the building, including the digital media screens that wrap the centre and the shading devices. Steel will also be used as the structural support, frame and base for the central walkways and corridors that are housed in the central activity spine, as well as the balconies on the western edge of the artist apartments.

The slender nature of steel profiles will aid in the creation of a visually lighter skin. Steel structures can be easily adjusted or removed from the building and be recycled if necessary

Floor finishes

Throughout the project, different floor surfaces are to be used to mark different movement routes and define specific interior and exterior spaces. Edges and thresholds are to be marked and defined by changes in material.

As most public spaces throughout the building will be subjected to heavy traffic, the floor finish needs to be robust. A 50mm cast-in-situ and power floated pigmented concrete screed will be cast on top of the reinforced concrete floor slab in all public areas. This screed will be sealed with polyurethane sealant in order to produce a hard-wearing floor finish. Mosaic and timber inlays as well as colour changes in the screeded floor are to be used to mark certain spaces and movement routes within the building.

The public square is be treated with a combination of different brick pavings. All pedestrian routes through the square and central spine are to be demarcated by an exposed aggregate concrete screed. Certain areas within the square are to be grassed and planted.

Upper floor walkways and movement spaces will be constructed from Q-deck permanent shuttering spanning between steel beams. The shuttering will be finished off will a 40mm pigmented screed. This type of construction will add to the light and transparent nature of the atrium space.

Circulation

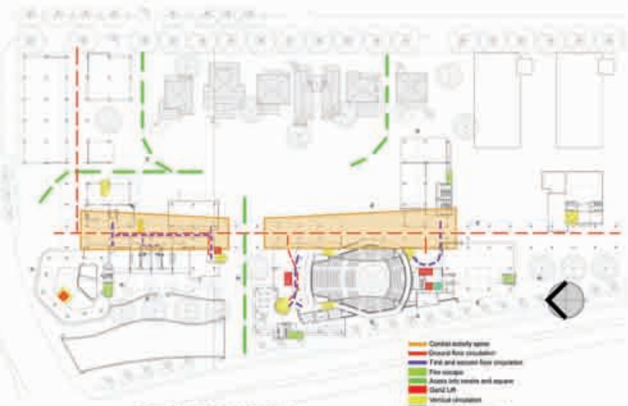


Diagram indicating principle circulation routes

Rain water Calculations

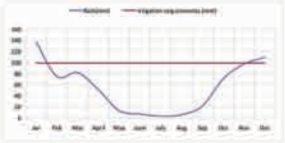
Water requirements for landscaping

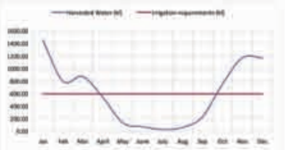
Roof catchments

Total annual harvested water 7323.74 kilolitres

	Rain (mm)	Shortfall/excess Rain (mm)	Harvested Water (kl)	Irrigation requirements (kl)	Difference (kl)
Jan	136	36	1451.94	[illegible]	1451.94
Feb	75	-25	800.70	[illegible]	600.70
Mar	82	-18	875.43	[illegible]	767.43
April	51	-49	544.48	[illegible]	250.48
May	13	-87	138.78	[illegible]	-383.21
June	7	-93	74.73	[illegible]	-483.27
July	3	-97	32.03	[illegible]	-549.87
Aug	6	-94	64.06	[illegible]	-499.94
Sep	22	-78	234.87	[illegible]	-233.13
Oct	71	-29	758.00	[illegible]	584.00
Nov	98	-2	1174.36	[illegible]	1162.36
Dec	110	10	1174.36	[illegible]	1174.36
	674		7323.74		

Water tank sizing





Mediamesh screens

Mediamesh screens are stainless steel mesh screens where interwoven LED profiles have been inserted at predetermined intervals into the mesh screen.

Control units are small and can easily be hidden in ceilings or in small dedicated control boxes. The images that are projected can be controlled from any internet connection point, making the system interactive and accessible to different users. The system can be used during the night or day times to display images, messages, art graphic, animations and even direct video displays.

The advantage of these screens is that they do not completely close off the façade of the building as it can appear either opaque or totally transparent, given the correct lighting conditions.

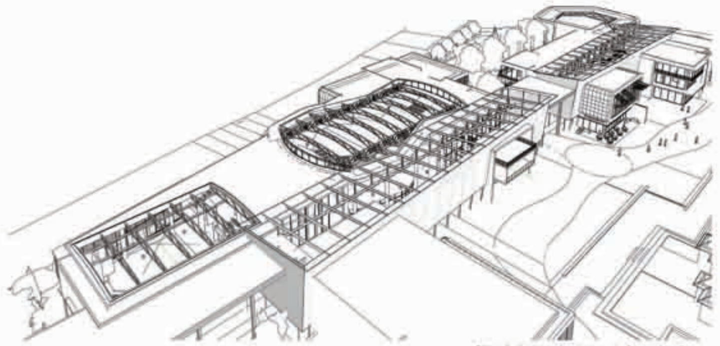
Curtain walls and exterior glazing

Pilkington Planar structural glazing systems have also been used on a numer of facades of the building. The system consists of structural glass which is fixed with spider glazing clamps to a secondary supporting structure. The advantage of this system is that the need for a fixed frame is eliminated and larger expanses of glass can be used. Curves can also be relatively easily created with the system. The structural glazing will also be coated with a UV resistant coating in order to dramatically reduce the ingress of long wave sun radiation into the building, preventing the 'greenhouse' effect that is usually associated with and created by large, glazed facades

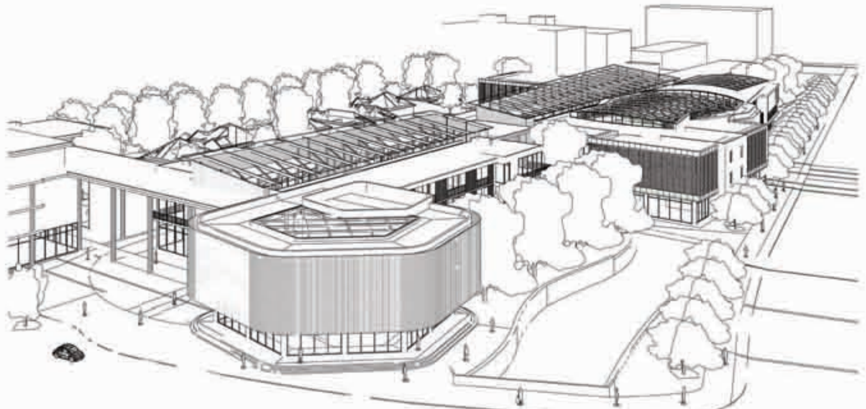
Due to the large glazed surfaces on the facades of the building, numerous shading screens and devices will be used. Double glazing will also be used in instances where glazing on performance and rehearsal spaces occur, in order to reduce the heat gain and loss, and to reduce the ingress of noise into the performance spaces.

Acoustics

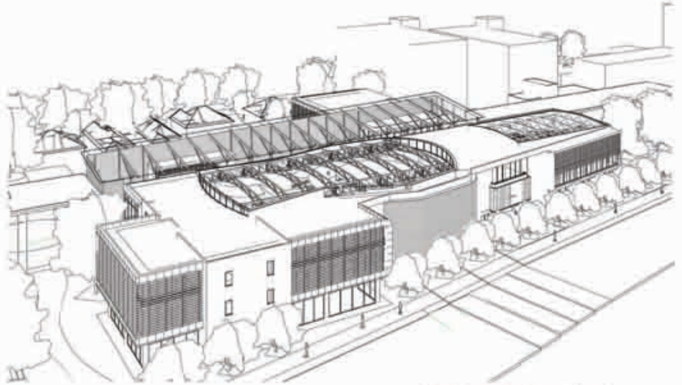
Roofing systems



3d investigation into roofing structure - view from south-east



3d investigation into roofing structure - view from north west

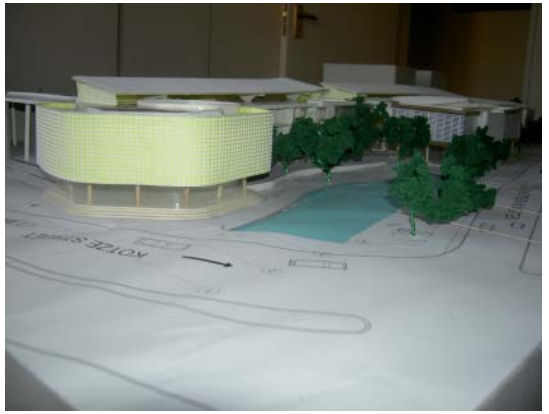


3d investigation into roofing structure - view from west

Appendix 3:
Model


NELSON MANDELA DRIVE


GERRIT MARITZ STREET




KOTZE STREET